

Original Report Date: 10/9/2021 **Proposed SN:** 058-0131 **Route:** FAP 74
Revised Date: 11/18/22 **Existing SN:** 058-0044 **Section:** 11BR-1
Geotechnical Engineer: Bill Kramer **County:** Macon
Structural Engineer: Ray Ahanchi/Ryan Negangard **Contract:** 74168

Indicate the proposed structure type, substructure types, and foundation locations (attach plan and elevation drawing): A single span is proposed to use integral abutments and we are recommending the abutments be founded on 12 or 14 inch Metal Shell piles.

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): The existing and proposed borings are attached and are adequate for the structure design.

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 grade raise is minimal and thus settlement will not be an issue for the structure and its foundation design. No additional testing or analysis 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: With no substantial fill being added, the slopes will not change and thus the slope stability factor of safety is above the minimum of 1.5 FS. No additional analysis or testing 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: With only abutments, no scour is expected. Below is the recommended scour table:

	West Abut.	East Abut.
100 yr.	674.05	673.90
200 yr.	674.05	673.90
Design	674.05	673.90
Check	674.05	673.90

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 data should be as shown below:

Seismic Data
Soil Site Class C
0.2 Sec, S_{DS} 0.211g
1.0 Sec, S_{D1} 0.109g
Seismic Performance Zone 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 . Provide factored bearing resistance and unit sliding resistance at various elevations and confirm no ground improvement/treatment is necessary where spread footings are proposed.

We recommend either a 12 or 14 inch Metal Shell pile be used. The estimated pile lengths along with the nominal required bearing and factored resistance available at each abutment (assuming excavation or precoring to the bottom of the existing west abutment footing) are shown below:

Pile Design Table for west Abut. Utilizing 100' OC				Pile Design Table for East Abut. utilizing 100' OC			
	Nominal Required Bearing (Kips)	Factored Resistance Available (Kips)	Estimated Pile Length (Ft.)		Nominal Required Bearing (Kips)	Factored Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.25" walls				Metal Shell 12"Φ w/.25" walls			
	146	80	27		166	91	25
	215	118	35		183	101	30
	241	133	37		200	110	32
	254	140	40		220	121	36
	276	152	42		238	131	37
	299	165	45		256	141	40
	322	177	47		265	145	42
	326	179	50		277	153	46
	339	186	52		290	160	47
	352	194	55		303	167	50
	365	201	57		316	174	52
	378	208	60		329	181	55
	390	215	62		339	187	57
Metal Shell 14"Φ w/.25" walls				Metal Shell 14"Φ w/.25" walls			
	180	99	27		151	83	22
	260	143	35		204	112	25
	290	160	37		218	120	30
	302	166	40		237	130	32
	329	181	42		261	144	36
	356	196	45		283	155	37
	382	210	47		304	167	40
	383	211	50		311	171	42
	398	219	52		326	180	46
	413	227	55		341	188	47
	428	236	57		356	196	50
	443	244	60		372	204	52
	458	252	62		387	213	55
Metal Shell 14"Φ w/.312" walls				Metal Shell 14"Φ w/.312" walls			
	180	99	27		151	83	22
	260	143	35		204	112	25
	290	160	37		218	120	30
	302	166	40		237	130	32
	329	181	42		261	144	36
	356	196	45		283	155	37
	382	210	47		304	167	40
	383	211	50		311	171	42
	398	219	52		326	180	46
	413	227	55		341	188	47
	428	236	57		356	196	50
	443	244	60		372	204	52
	458	252	62		387	213	55
	473	260	65		398	219	57
	488	269	67		418	230	60
	503	277	70		435	239	62
	518	285	72		452	248	66
	534	293	75		468	258	67
	549	302	77		485	267	70
	564	310	80		502	276	72
					518	285	75
					535	294	77
					552	303	80
					568	313	82

Calculate the estimated water surface elevation and determine the need for cofferdams (type 1 or 2), and seal coat: No cofferdams or seal coat will be required. The Estimated Water Surface Elevation (EWSE) = 667.25' according to Dave Macklin of the D7 Hydraulics unit.

Assess the need for sheeting or soil retention or temporary construction slope and provide recommendation for other construction concerns: The structure will be staged constructed. Our feasibility analysis of the temp sheeting at this location indicates the retained height of 15.75' can be retained using the IDOT temp sheeting design charts. Specifically, an embedment of 14 ft. and a section modulus of 24in³/ft. should be specified behind the existing closed abutments and an embedment of 10' (with the same S_x) can be used at the new integral abutments.

Bench Mark: Chiseled "square" on N.W. wingwall S.N. 058-0044, Elev. ± 681.31

Existing Structure: S.N. 058-0044 was built in 1961 as S.B.I. Route 10, Section 11-BR, at Station 349+48.00. Structure consists of a single-span reinforced concrete T-girder superstructure on closed abutments. The structure is 32'-3" back to back of abutments and 44'-0" out to out of deck. The existing structure is to be removed and replaced. Stage construction will be utilized to maintain one lane of traffic at all times.

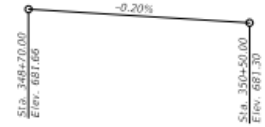
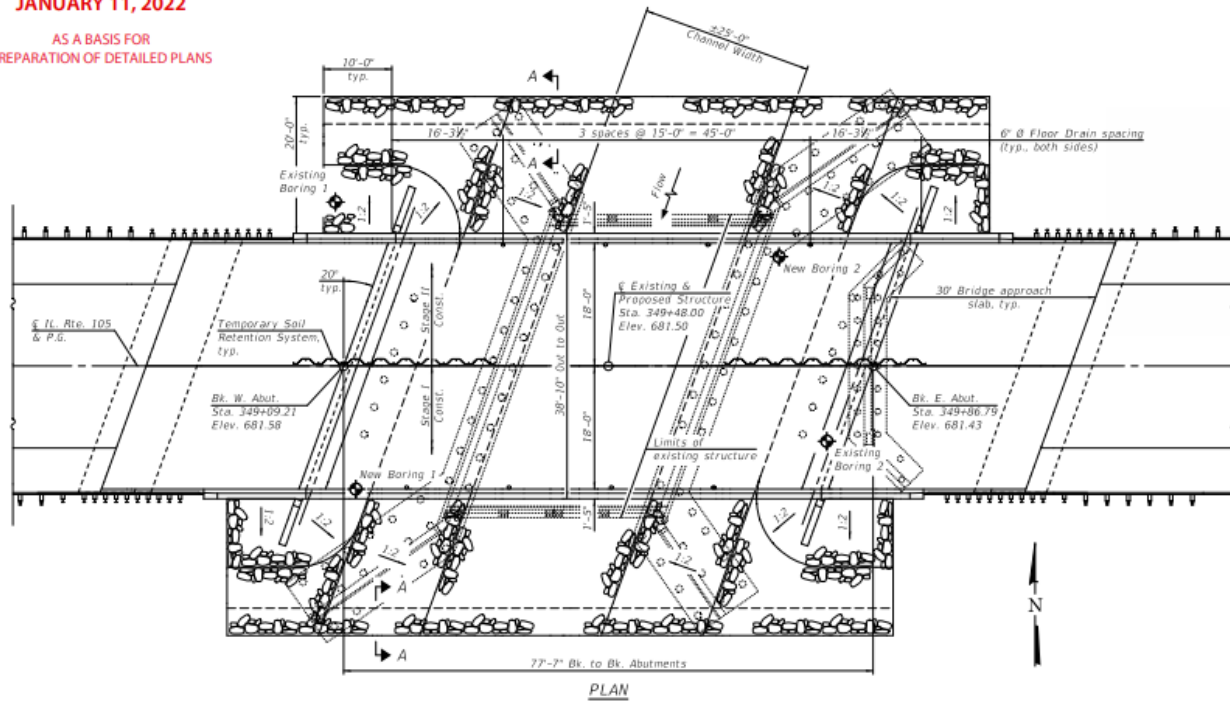
No salvage

Temporary bracing or excavation behind existing abutments may be necessary prior to Stage I Removal of the existing superstructure.

APPROVED

JANUARY 11, 2022

AS A BASIS FOR
PREPARATION OF DETAILED PLANS



PROFILE GRADE
(@ IL Rte. 105)

HIGHWAY CLASSIFICATION

F.A.P. Rte. 741 - IL Rte. 105
Functional Class: Minor Arterial
ADT: 2,650 (2025); 3,100 (2045)
ADTT: 501 (2025); 598 (2045)
DHW: 315 (2025); 369 (2045)
Design Speed: 60 m.p.h.
Posted Speed: 55 m.p.h.
Two-Way Traffic
Directional Distribution: 51:49

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

$f'_c = 4,000$ psi (Superstructure Concrete)
 $f'_c = 3,500$ psi (Substructure Concrete)
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 50,000$ psi (H270 Grade 50)

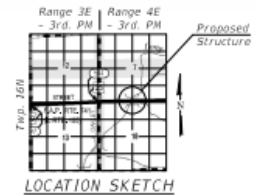
All structural steel shall be galvanized

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. ($SD1$) = 0.109g
Design Spectral Acceleration at 0.2 sec. ($SD5$) = 0.211g
Soil Site Class = C



LOCATION SKETCH

GENERAL PLAN & ELEVATION
IL. RTE. 105 OVER LONG CREEK
F.A.P. RTE. 741 - SECTION (11BR)B-1
MACON COUNTY
STATION 349+48.00
STRUCTURE NO. 058-0131

DESIGNED -	MICHAEL RIVERAMARTINEZ
CHECKED -	DEREK VERHULST
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	

01/10/2022 - 2d/01/14 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 2 SHEETS

F.A.P. Rte.	SECTION	COUNTY	TOTAL SHEETS
741	(11BR)B-1	MACON	NO.
			CONTRACT NO. 74106

DATE: 01/10/2022

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

39.85055200705

-88.7938720952

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 = 39.850552

Longitude = -88.793872

Site Class B

Data are based on a 0.05 deg grid spacing.

Period (sec)	Sa (g)	
0.0	0.076	PGA - Site Class B
0.2	0.175	Ss - Site Class B
1.0	0.064	S1 - Site Class B

Conterminous 48 States

2007 AASHTO Bridge Design Guidelines

Spectral Response Accelerations SDs and SD1

Latitude = 39.850552

Longitude = -88.793872

As = FpgaPGA, SDs = FaSs, and SD1 = FvS1

Site Class C - Fpga = 1.20, Fa = 1.20, Fv = 1.70

Data are based on a 0.05 deg grid spacing.

Period (sec)	Sa (g)	
0.0	0.091	As - Site Class C
0.2	0.211	SDs - Site Class C
1.0	0.109	SD1 - Site Class C

Clear Output

View Maps



Illinois Department of Transportation

PROJECT TITLE=====

Substructure 1

Base of Substruct. Elev. (or ground surf for bents)	674.05	ft.
Pile or Shaft Dia.	12	inches
Boring Number	b1	
Top of Boring Elev.	680	ft.

Approximate Fixity Elev. 668.05 ft.

Individual Site Class Definition:

N (bar): 241 (Blows/ft.) Soil Site Class C <----Controls
 N_{ch} (bar): NA (Blows/ft.) NA
 s_u (bar): 2.94 (ksf) Soil Site Class C

Seismic Soil Column Depth (ft)	Bot. Of Sample Elevation	Sample Thick. (ft.)	N	Qu (tsf)	Layer Description Boundary
	677.5	2.50		1.20	
	675.0	2.50		1.70	
	672.5	2.50		1.70	
	670.0	2.50		1.70	
0.5	667.5	2.50		1.70	
3.0	665.0	2.50		1.70	B
5.5	662.5	2.50	6		B
8.0	660.0	2.50		2.20	B
10.6	657.5	2.50		2.40	
13.1	655.0	2.50		2.40	
15.6	652.5	2.50		2.40	
18.1	650.0	2.50		6.10	
20.6	647.5	2.50		6.20	
25.6	642.5	5.00		1.40	
30.6	637.5	5.00		5.40	
35.6	632.5	5.00		3.90	
40.6	627.5	5.00		3.90	
45.6	622.5	5.00		1.70	
50.6	617.5	5.00		1.40	
100.6	567.5	50.00		2.00	

Substructure 2

Base of Substruct. Elev. (or ground surf for bents)	673.9	ft.
Pile or Shaft Dia.	12	inches
Boring Number	b2	
Top of Boring Elev.	680	ft.

Approximate Fixity Elev. 667.9 ft.

Individual Site Class Definition:

N (bar): 360 (Blows/ft.) Soil Site Class C <----Controls
 N_{ch} (bar): NA (Blows/ft.) NA
 s_u (bar): 3.39 (ksf) Soil Site Class C

Seismic Soil Column Depth (ft)	Bot. Of Sample Elevation	Sample Thick. (ft.)	N	Qu (tsf)	Layer Description Boundary
	677.5	2.50		1.40	
	675.0	2.50		1.40	
	672.5	2.50		1.40	
	670.0	2.50		1.40	
0.4	667.5	2.50		1.40	
2.9	665.0	2.50		1.40	
5.4	662.5	2.50		1.40	B
7.9	660.0	2.50	9		B
10.4	657.5	2.50			B
12.9	655.0	2.50		3.30	
15.4	652.5	2.50		4.30	
17.9	650.0	2.50		6.40	
20.4	647.5	2.50		7.40	
22.9	645.0	2.50		6.20	
25.4	642.5	2.50		2.50	
27.9	640.0	2.50		2.90	
99.9	568.0	72.00		1.70	

SOIL PROPERTIES BELOW EXCAVATION LINE

RETAINED HEIGHT (FT)	LAYER THICK- NESS (FT)	SPT N - VALUE (BPF)	UNCONFINED COMPR. STRENGTH Qu (TSF)
15.75	2.5		1.4
(ROUND TO NEAREST 0.25')	2.5		1.4
	2.5		1.4
	2.5		2.4
	2.5		2.4
	2.5		4.5

STRUCTURE ===== SN 100-1111

SUBSTRUCTURE & REFERENCE BORING ===== W. Abutment Stage Construction Sheet Piling - Boring #2

COHESIVE CHARTS CONTROL USING AN EMBEDMENT DEPTH OF: 12.57 FT

AND REQUIRES A SECTION MODULUS OF: 23.70 IN.³/FT

DEPTH BELOW EXCAV. (FT)	SPLIT LAYER THICK- NESS (FT)	SPLIT N AT DEPTH (BPF)	SPLIT Qu AT DEPTH (TSF)	AVG. N ABOVE DEPTH (BPF)	AVG. N IN UPPER 50% (BPF)	REQ'D CHART EMBED. DEPTH (FT)	AVG. N IN UPPER 33% (BPF)	REQ'D CHART SECT. MOD. W/ AMP. (IN. ³ /FT)	RATIO LOWER/ UPPER 1/3 N	AVG. Qu ABOVE DEPTH (TSF)	AVG. Qu IN UPPER 50% (TSF)	REQ'D CHART EMBED. DEPTH (FT)	AVG. Qu IN UPPER 33% (TSF)	REQ'D CHART SECT.MOD. W/ AMP. (IN. ³ /FT)	RATIO OF LOWER/ UPPER 1/3 Qu
0.63	0.625	14	1.4	14.00						1.40			1.40		
1.25	0.625	14	1.4	14.00						1.40			1.40		
1.88	0.625	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
2.50	0.625	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
2.81	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
3.13	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
3.44	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
3.75	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
4.06	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
4.38	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
4.69	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
5.00	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
5.31	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
5.63	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
5.94	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
6.25	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
6.56	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
6.88	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
7.19	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
7.50	0.3125	14	1.4	14.00	14.00	21.28	14.00		1.00	1.40	1.40	12.57	1.40		1.00
7.81	0.3125	24	2.4	14.40	14.00	21.28	14.00		1.00	1.44	1.40	12.57	1.40		1.00
8.13	0.3125	24	2.4	14.77	14.00	21.28	14.00		1.00	1.48	1.40	12.57	1.40		1.00
8.44	0.3125	24	2.4	15.11	14.00	21.28	14.00		1.00	1.51	1.40	12.57	1.40		1.00
8.75	0.3125	24	2.4	15.43	14.00	21.28	14.00		1.00	1.54	1.40	12.57	1.40		1.00
9.06	0.3125	24	2.4	15.72	14.00	21.28	14.00		1.00	1.57	1.40	12.57	1.40		1.00
9.38	0.3125	24	2.4	16.00	14.00	21.28	14.00		1.00	1.60	1.40	12.57	1.40		1.00
9.69	0.3125	24	2.4	16.26	14.00	21.28	14.00		1.00	1.63	1.40	12.57	1.40		1.00
10.00	0.3125	24	2.4	16.50	14.00	21.28	14.00		1.00	1.65	1.40	12.57	1.40		1.00
10.31	0.3125	24	2.4	16.73	14.00	21.28	14.00		1.00	1.67	1.40	12.57	1.40		1.00
10.63	0.3125	24	2.4	16.94	14.00	21.28	14.00		1.00	1.69	1.40	12.57	1.40		1.00
10.94	0.3125	24	2.4	17.14	14.00	21.28	14.00		1.00	1.71	1.40	12.57	1.40		1.00
11.25	0.3125	24	2.4	17.33	14.00	21.28	14.00		1.00	1.73	1.40	12.57	1.40		1.00
11.56	0.3125	24	2.4	17.51	14.00	21.28	14.00		1.00	1.75	1.40	12.57	1.40		1.00
11.88	0.3125	24	2.4	17.68	14.00	21.28	14.00		1.00	1.77	1.40	12.57	1.40		1.00
12.19	0.3125	24	2.4	17.85	14.00	21.28	14.00		1.00	1.78	1.40	12.57	1.40		1.00
12.50	0.3125	24	2.4	18.00	14.00	21.28	14.00		1.00	1.80	1.40	12.57	1.40		1.00
12.81	0.3125	45	4.5	18.66	14.00	21.28	14.00		1.00	1.87	1.40	12.57	1.40	23.70	1.00
13.13	0.3125	45	4.5	19.29	14.00	21.28	14.00		1.00	1.93	1.40		1.40		1.00

GENERAL DATA

STRUCTURE NUMBER===== **Example 1**
 STRUCTURE TYPE ===== **SIMPLE-SPAN**
 STRUCTURE SKEW===== **15** DEGREES
 SUPER. DATA IN REFERENCE TO SUB. DATA ===== **ABUT 2**

TOTAL STRUCTURE LENGTH===== **75.00** FT

SUPERSTRUCTURE DATA (END OR MAIN SPAN)

BEAM TYPE ===== **WIDE FLANGE**
 WIDE FLANGE ===== **W36X150**

SUPERSTRUCTURE DATA (ADJACENT SPAN)

BEAM SPACING PERP. TO CL ===== **6.75** FT
 SLAB THICKNESS ===== **7.50** IN
 SLAB F'C ===== **4.00** KSI

BEAM SPACING PERP. TO CL ===== FT

ABUTMENT #1 DATA

ABUTMENT NAME ===== **West**
 ABUTMENT REFERENCE BORING ===== **B-1**
 BOTTOM OF ABUTMENT ELEVATION ===== **674** FT
 ESTIMATED NUMBER OF PILES AT ABUT. ===== **6**
 PILE SPACING PERP. TO CL ===== **6.75** FT

ABUTMENT #2 DATA

ABUTMENT NAME ===== **East**
 ABUTMENT REFERENCE BORING===== **B-2**
 BOTTOM OF ABUTMENT ELEVATION===== **673.9** FT
 ESTIMATED NUMBER OF PILES AT ABUT.===== **6**
 PILE SPACING PERP. TO CL ===== **6.75** 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.)	Qu EQUIV. FOR N VALUE (TSF)
671.50	2.50	1.7	6	2.0
669.00	2.50			
666.50	2.50	2.2		
664.00	2.50	2.4		

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.)	Qu EQUIV. FOR N VALUE (TSF)
671.40	2.50	1.4	5	1.9
668.90	2.50			
666.40	2.50	1.4		
663.90	2.50	1.40		

10.00 FT = TOTAL DEPTH ENTERED

WEIGHTED AVERAGE Qu FOR ABUTMENT #1=====: **2.09** TSF

WEIGHTED AVERAGE Qu FOR ABUTMENT #2=====: **1.53** TSF

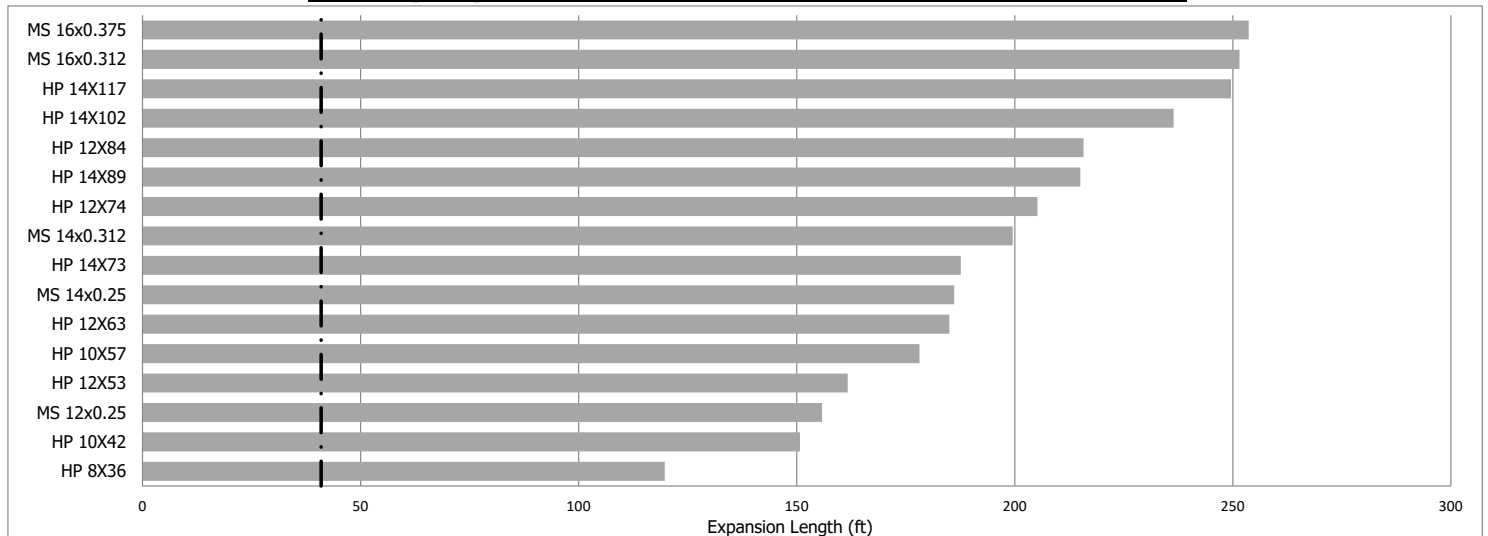
PILE STIFFNESS MODIFIER FOR ABUTMENT #1
 = 1/(1.45-[0.3*2.09])===== 1.21

PILE STIFFNESS MODIFIER FOR ABUTMENT #2
 = 1/(1.45-[0.3*1.53])===== 1.01

DISTANCE TO CENTROID OF STIFFNESS FROM ABUTMENT #1 = [1.21*6*0+1.01*6*75]/[1.21*6+1.01*6]=====: 34.04 FT

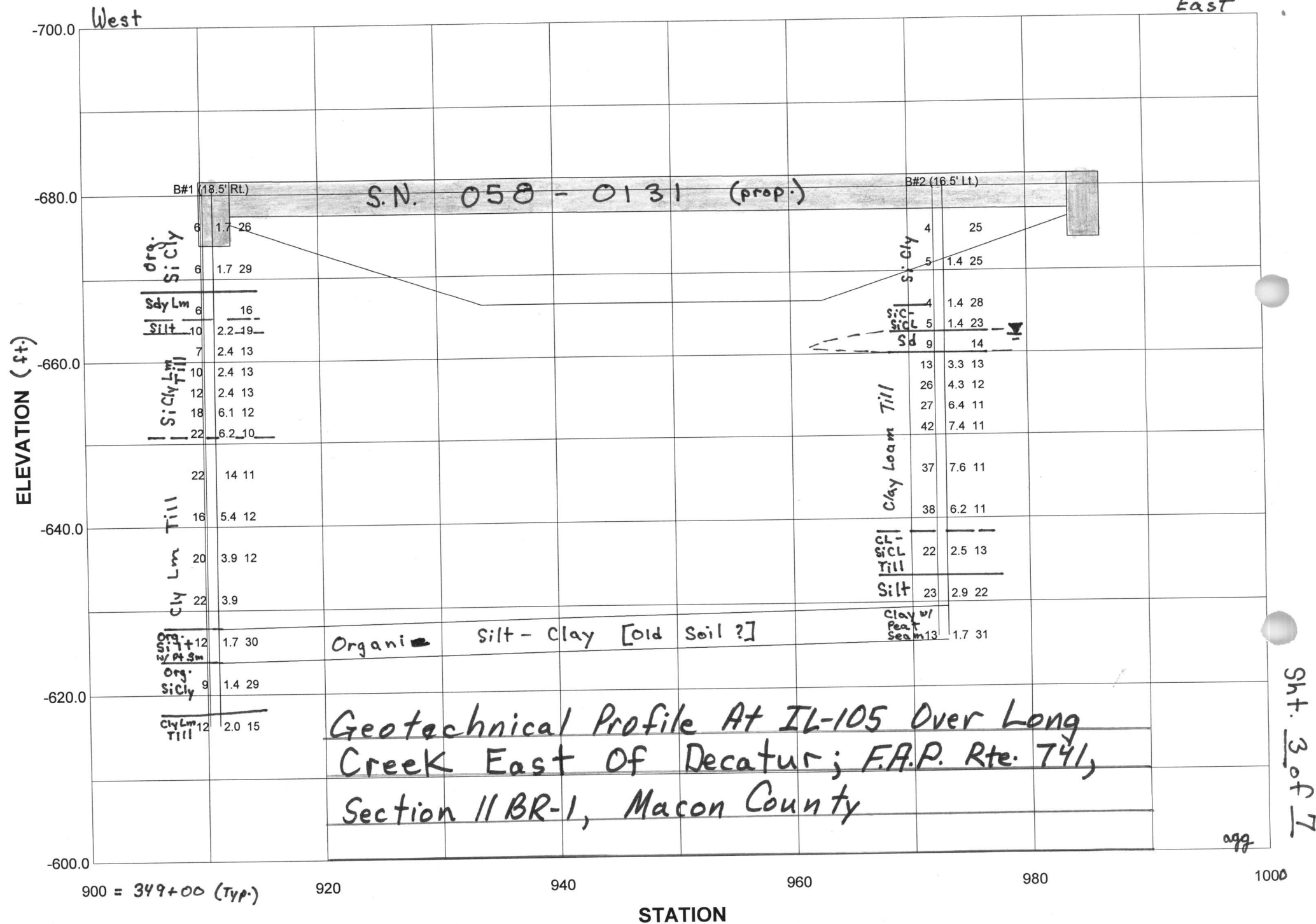
DISTANCE TO CENTROID OF STIFFNESS FROM ABUTMENT #2 = [1.01*6*0+1.21*6*75]/[1.01*6+1.21*6]=====: 40.96 FT

ABUT 2 (East) - EXPANSION LENGTH LIMIT CHART - 15.0 DEG. SKEW



----- = Estimated expansion length for the indicated abutment. Piles with an expansion length greater than this are suitable for consideration.

East

Sh. $\frac{3}{7}$ of 7

Near Mid. N. Ln.,
NE1/4, NE1/4, NW1/4,
18-16N-4E (3rd P.M.)

B O R I N G D A T A

F.A.P. Route 741

Section 11BR-1

S.N. 058-0044 (exist.)

S.N. 058-0131 (prop.)

Macon County

*IL-105 over Long Creek,
East of Decatur (+4.5 mi.
ENE of Decatur Airport),
at Station 349+48.00*

Page 1 of 2

Date 5/24/01

COUNTY Macon DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

D E P T H	S P T N	U C S Qu	M O I S T
(ft)	(/12")	(tsf)	(%)

	12	2.4	12.6
		B	

	18	6.1	11.5
		B	

	22	6.2	10.4
20		B	

650.80

-30			

Gray Clay Loam Till

667.30

Gray Sandy Loam

665.80

	6		16.3
--	---	--	------

22	14.4	10.7
25	S	

Gray Silt

663.80

	10	2.2	18.8
		S	

Gray Silty Clay Loam Till

664.8

	7	2.4	13.3
—			

	16	5.4	12.4
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BBS, from 137 (Rev. 8-99)

Page 2 of 2

Date 5/24/01

COUNTY Macon **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** Automatic

BORING NO.	1 W Abut
Station	349+11
Offset	18.5 ft Rt
Ground Surface Elev.	680.80

D E P T H	S P T N	U C S Qu	M O I S T
(ft)	(/12")	(tsf)	(%)

Surface Water Elev.	<u> </u>	Dry	ft
Stream Bed Elev.	<u> 666.80 </u>		ft
Groundwater Elev.:			
First Encounter	<u> </u>		ft
Upon Completion	<u> Wash Bore </u>		ft
After	Hrs.		ft

D E P T H	S P T	U C S	M O I S T
(ft)	(/12")	(tsf)	(%)

Black Organic Silty Clay
(continued)[illegible]

Green/Gray Clay Loam Till

	20	3.9	11.9
-45		B	

End of Boring

	22	3.9	
-50			

--	--	--	--

Gray Organic Silt With 4" Peat
Seam

	12	1.7	29.8
-55		B	

[illegible]

Black Organic Silty Clay

	9	1.4	29.1
-60		B	

617.30

	615.80
--	--------

End of Boring

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)

BBS, from 137 (Rev. 8-99)

ROUTE FAP 741 (IL 105) DESCRIPTION IL 105 over Long Creek E. of Decatur LOGGED BY CNA

SECTION 11BR-1 **LOCATION** NW 1/4, SEC. 18, TWP. 16N, RNG. 4E, 3rd PM

COUNTY Macon DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 058-0044
Station 349+48 (Existing)

BORING NO. 2 E Abut
Station 349+73
Offset 16.5 ft Lt.
Ground Surface Elev. 680.50

D E P T H	S P T N	U C S Qu	M O I S T
(ft)	(/12")	(tsf)	(%)

Surface Water Elev. Dry ft
Stream Bed Elev. 666.80 ft

Groundwater Elev.:
First Encounter 661.0 ft ▼
Upon Completion Wash Bore ft
After Hrs. ft

D E P T H	S P T N	U C S Qu	M O I S T T
(ft)	(/12")	(tsf)	(%)

Black/Brown Silty Clay

Gray Medium to Coarse Sand	660.00
(continued)	

Gray Clay Loam Till

13	3.3	13.0
	R	

26	4.3 B	12.0
----	----------	------

27	6.4 B	11.0
----	----------	------

42	7.4 B	11.0
----	----------	------

37	7.6	11.0
	B	

38	6.2	11.0
	B	

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)

BBS, from 137 (Rev. 8-99)

Page 2 of 2

Date 8/29/01

ROUTE FAP 741 (IL 105) DESCRIPTION IL 105 over Long Creek E. of Decatur LOGGED BY CNA

SECTION 11BR-1 LOCATION NW 1/4, SEC. 18, TWP. 16N, RNG. 4E, 3rd PM

COUNTY Macon DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 058-0044
Station 349+48 (Existing)

BORING NO. 2 E Abut
Station 349+73
Offset 16.5 ft Lt.
Ground Surface Elev. 680.50

DEPTH	SPT N	UCS Qu	MOIST T
(ft)	(/12")	(tsf)	(%)

Surface Water Elev.	<u> </u>	Dry	ft
Stream Bed Elev.	<u>666.80</u>		ft
Groundwater Elev.:			
First Encounter	<u>661.0</u>		ft ▼
Upon Completion	<u>Wash Bore</u>		ft
After Hrs.			ft

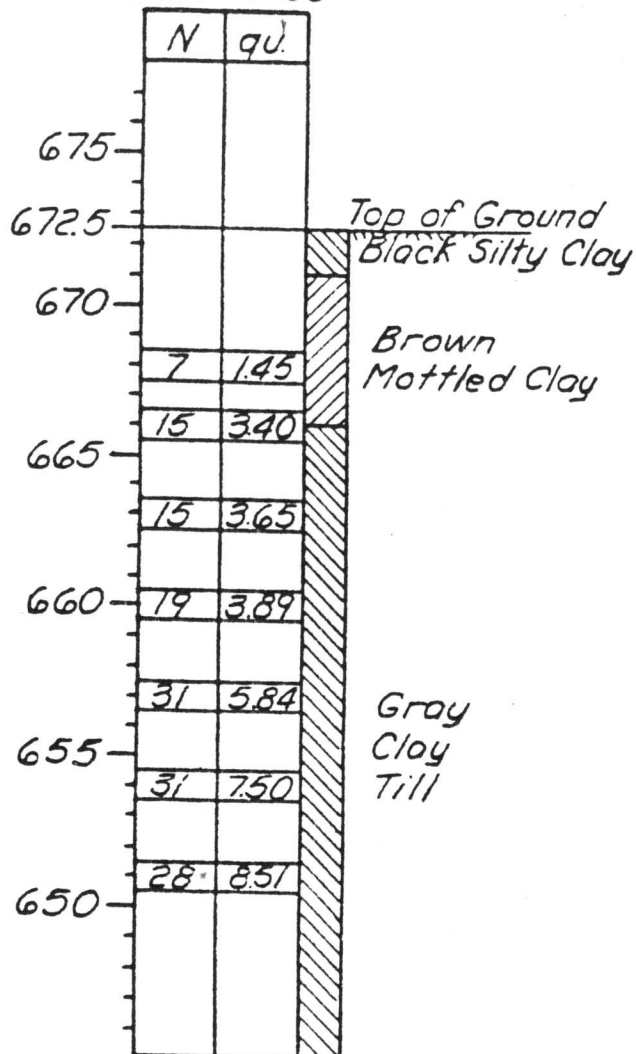
SOIL BORING 058-0044.GPJ IL_DOT.GDT 8/30/01

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)

BBS, from 137 (Rev. 8-99)

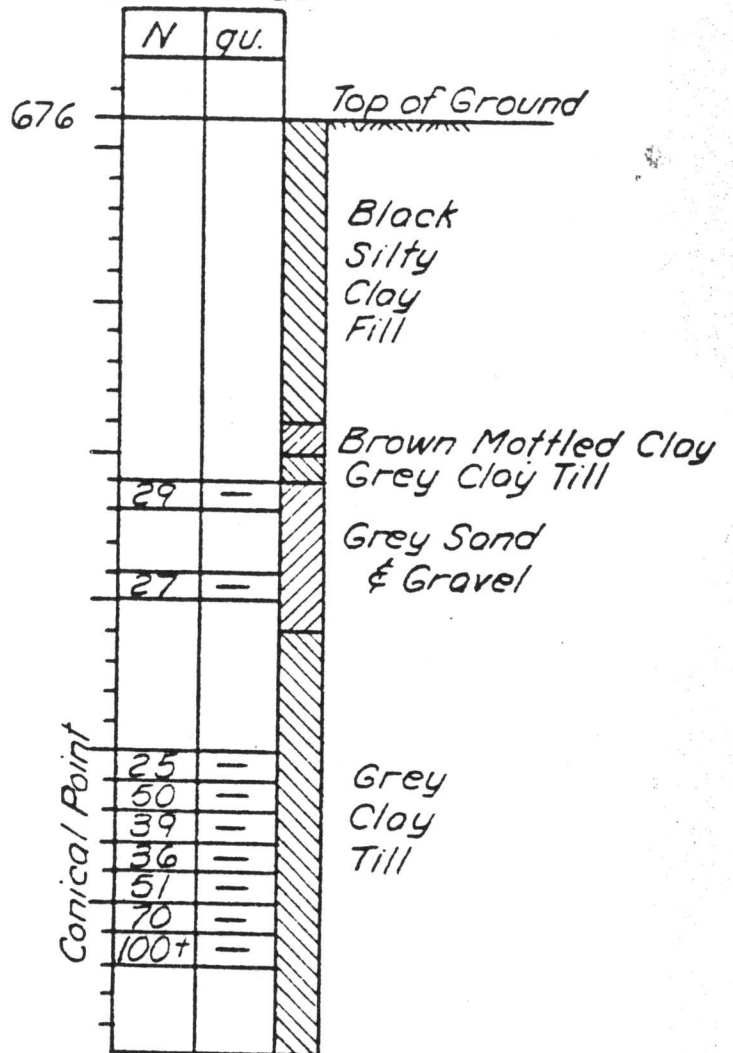
BORING #1

24' Lt. of E
Sta. 349+08



BORING #2

11' Rt. of E
Sta. 349+80



Note: N = Blows per foot of penetration of sampling spoon Hammer Weight = 170 Lbs. Drop = 2'-0"

qu = Unconfined compressive strength in tons per square foot.

Existing Boring Data

(from 6/24/1960 Plans)



Illinois Department of Transportation

Memorandum

To: Ben Deters Attn: Dave Macklin
From: Terry Stephenson By: Scott A. Kassel
Subject: Foundation Borings (REVISED)
Date: March 15, 2024

Route: FAP 741 (IL 105)
Section: (11BR) B-1
Structure No.: 058-0044 (Existing)
058-0131 (Proposed)
County: Macon
Contract: 74168
Job No.: D-97-079-01
Location: Long Creek, 0.5-mile East of Oakley Road

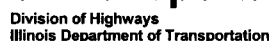
Attached is one (1) copy of the revised foundation boring logs for the above captioned section.

The stream bed elevation and boring elevations were revised based upon an updated known benchmark provided by IDOT survey crew.

If you have any questions, or require any additional information, please contact Scott A. Kassel, P.E., District Geotechnical Engineer, at (217) 342-8233.

SAK

Attachments



Page 1 of 2

Date 5/24/01

ROUTE	<u>FAP 741 (IL 105)</u>	DESCRIPTION	<u>IL 105 over Long Creek E. of Decatur</u>	LOGGED BY	<u>CNA</u>
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SECTION 11BR-1 **LOCATION** NW 1/4, SEC. 18, TWP. 16N, RNG. 4E, 3rd PM,

COUNTY	Macon	DRILLING METHOD	Hollow Stem Auger	HAMMER	Automatic
---------------	-------	------------------------	-------------------	---------------	-----------

STRUCT. NO.	058-0044
Station	349+48 (Existing)

BORING NO.	<u>1 W Abut</u>
Station	<u>349+11</u>
Offset	<u>18.5 ft Rt</u>
Ground Surface Elev.	<u>680.20</u>

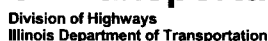
D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev.	Dry	ft
Stream Bed Elev.	665.40	ft
Groundwater Elev.:		
First Encounter		ft
Upon Completion	Wash Bore	ft
After Hrs.		ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

SOIL BORING 058-0044 SOIL ROCK 2001 (MACON 239).GPJ IL DOT.GDT 3/15/24

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated). The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer, NR-No Recovery, NT-Not Tested.



Page 2 of 2

Date 5/24/01

Latitude Longitude

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

SOIL BORING 058-0044 SOIL ROCK 2001 (MACON 239).GPJ IL DOT.GDT 3/15/24

BBS, form 137 (Rev. 8-99)



Page 1 of 2

Date 8/29/01

Latitude , Longitude

COUNTY	Macon	DRILLING METHOD	Hollow Stem Auger	HAMMER	Automatic
---------------	-------	------------------------	-------------------	---------------	-----------

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

SOIL BORING 058-0044 SOIL ROCK 2001 (MACON 239).GPJ IL DOT.GDT 3/15/24

BBS, form 137 (Rev. 8-99)



SOIL BORING LOG

Page 2 of 2

Date 8/29/01

ROUTE FAP 741 (IL 105) DESCRIPTION IL 105 over Long Creek E. of Decatur LOGGED BY CNA

SECTION 11BR-1 LOCATION NW 1/4, SEC. 18, TWP. 16N, RNG. 4E, 3rd PM,

Latitude , Longitude

COUNTY Macon DRILLING METHOD Hollow Stem Auger HAMMER Automatic

STRUCT. NO. 058-0044
Station 349+48 (Existing)

BORING NO. 2 E Abut
Station 349+73
Offset 16.5 ft Lt.
Ground Surface Elev. 679.90 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. Dry ft
Stream Bed Elev. 665.40 ft
Groundwater Elev.:
First Encounter 660.4 ft ▼
Upon Completion Wash Bore ft
After Hrs. ft

Gray Clay Loam Till (continued)

637.90

Gray Clay Loam Till to Silty Clay
Loam Till

22 2.5 13
B

631.90

Gray Silt

23 2.9 22
B

628.90

Gray Clay with 8" Peat Seam

13 1.7 31
B

624.90 -55

Benchmark: BM4725-01 -
Chiseled Square on Northwest
Corner West Abutment of SN
058-0044, Sta. 349+39, 22 feet
LT. Elevation = 680.71 feet.
End of Boring

-60

SOIL BORING 058-0044 SOIL ROCK 2001 (MACON 239) GPJ IL DOT GDT 3/15/24

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer,
NR-No Recovery, NT-Not Tested.