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June 17, 2022

MR. BRANDON THOMPSON
LG&E-KU
745 NORTH LIMESTONE
LEXINGTON, KENTUCKY 40508

Subject: **Geotechnical Engineering Investigation**
LG&E-KU Glendale Industrial Substation
Hodgenville Road West, Glendale, Kentucky
Atlas Project No. LOUGE22047

Dear Mr. Thompson:

Atlas has completed a geotechnical exploration in support of the proposed new substation construction at the referenced site. Laboratory testing data has previously been provided to the design engineer as completed. Additional testing is in process. The Appendix to this letter contains site and test boring location plans, and results of field testing. Additional laboratory testing data and results will be provided as completed accompanied with a final report deliverable. Our services have been provided in accordance with Atlas proposalnumber LOUGE22032-2 dated March 20, 2022 and LG&E KU Purchase Order Number 733399 dated June 2, 2022.

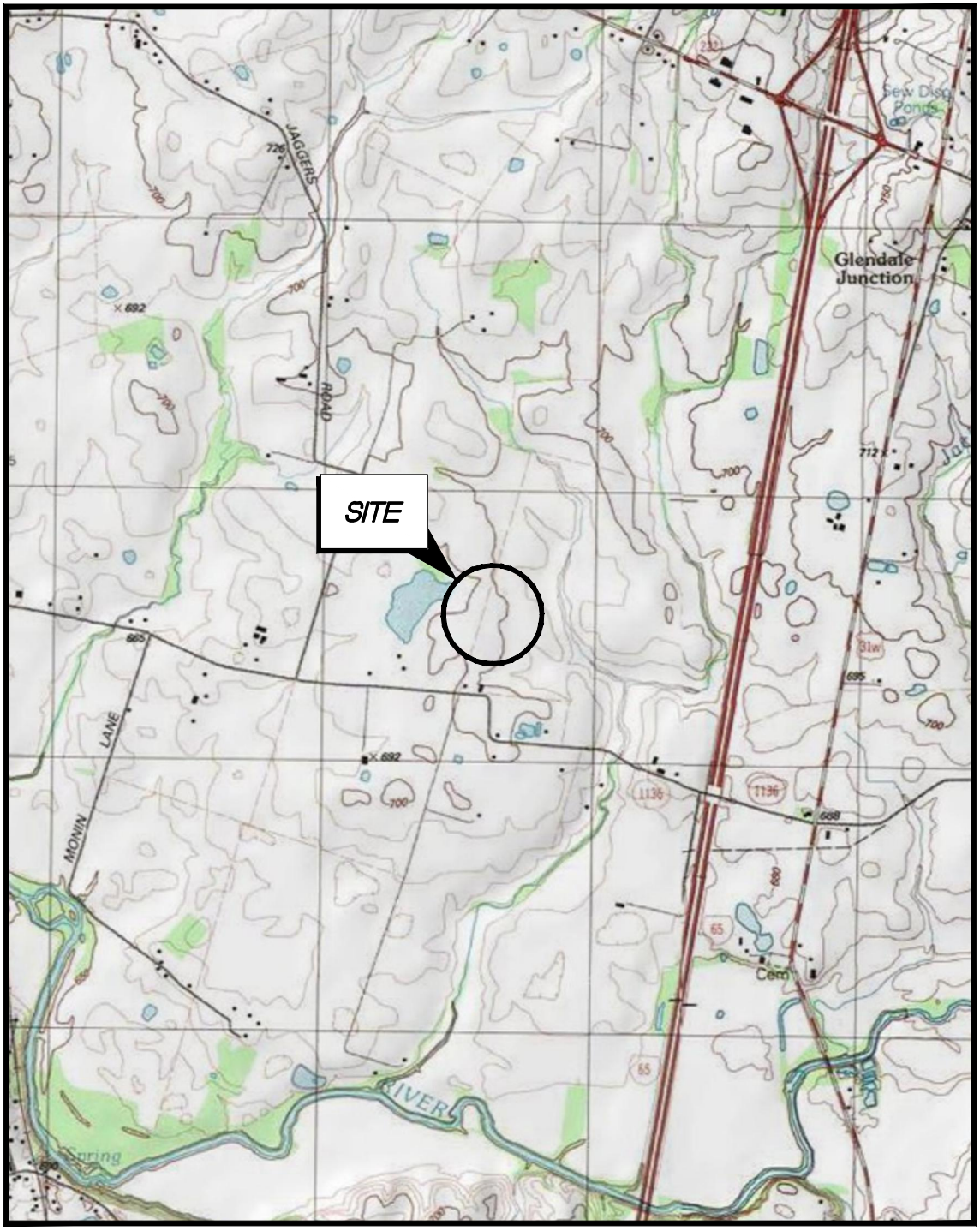
We appreciate the opportunity to have provided these services and we look forward to serving as your geotechnical consultant throughout project design and execution. Please contact us with any questions regarding the information presented.

Respectfully submitted,
Atlas Technical Consultants LLC

Zane Nichols, EIT
Staff Geotechnical Engineer

Ryan Ortiz, PE
Project Geotechnical Engineer
Licensed Kentucky 33219

Travis Andres, PE
Senior Geotechnical Engineer
Licensed Kentucky 29429



VICINITY MAP

GLENDALE INDUSTRIAL SUBSTATION
HODGENVILLE ROAD WEST
GLENDALE, KENTUCKY

Project Number: LOUGE22047		Drn. By: RH
Date: 06/15/2022	Scale: 1":2,000'	Ckd. By: RO
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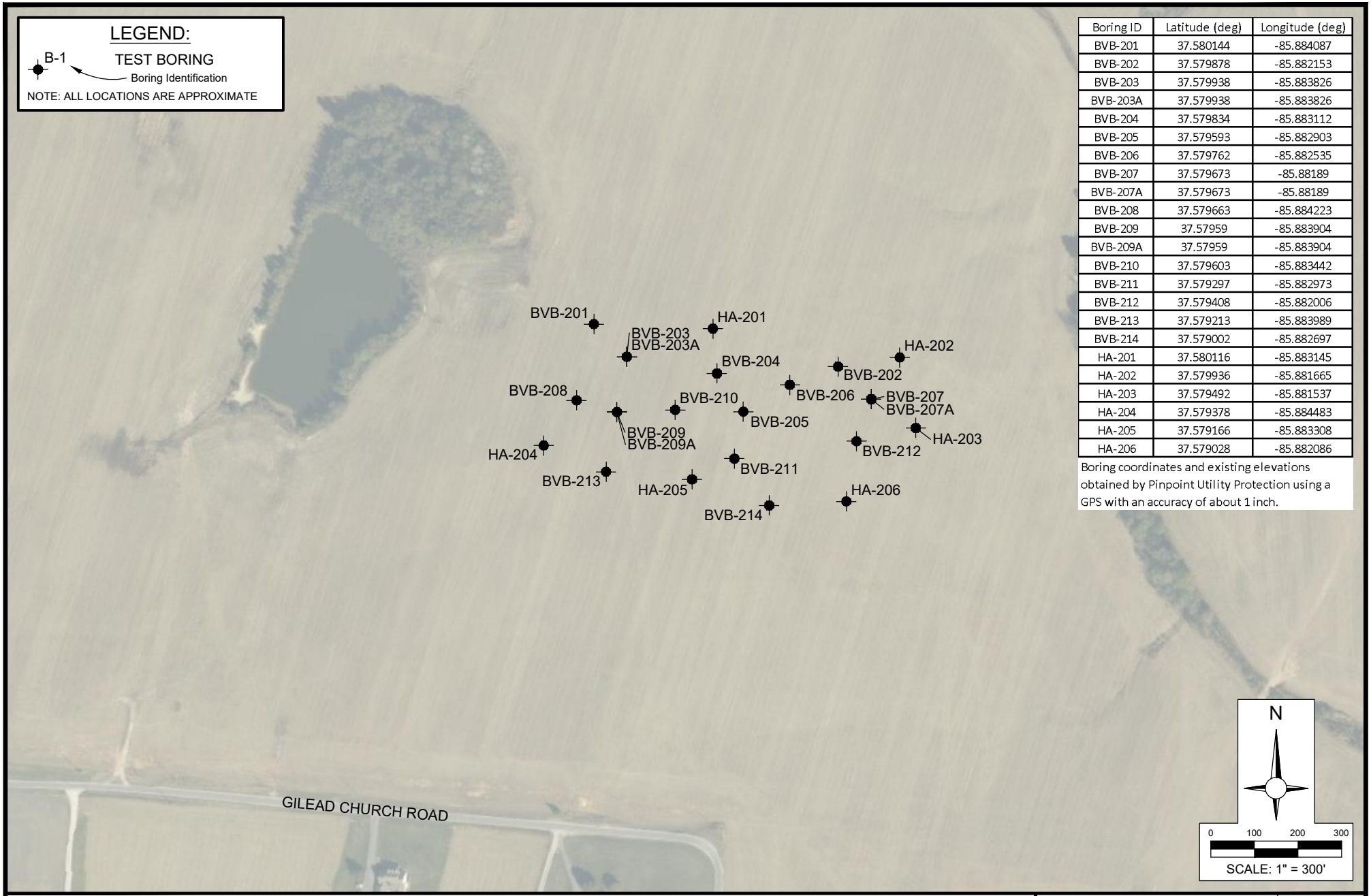

Boring ID	Latitude (deg)	Longitude (deg)
BVB-201	37.580144	-85.884087
BVB-202	37.579878	-85.882153
BVB-203	37.579938	-85.883826
BVB-203A	37.579938	-85.883826
BVB-204	37.579834	-85.883112
BVB-205	37.579593	-85.882903
BVB-206	37.579762	-85.882535
BVB-207	37.579673	-85.88189
BVB-207A	37.579673	-85.88189
BVB-208	37.579663	-85.884223
BVB-209	37.57959	-85.883904
BVB-209A	37.57959	-85.883904
BVB-210	37.579603	-85.883442
BVB-211	37.579297	-85.882973
BVB-212	37.579408	-85.882006
BVB-213	37.579213	-85.883989
BVB-214	37.579002	-85.882697
HA-201	37.580116	-85.883145
HA-202	37.579936	-85.881665
HA-203	37.579492	-85.881537
HA-204	37.579378	-85.884483
HA-205	37.579166	-85.883308
HA-206	37.579028	-85.882086

Boring coordinates and existing elevations obtained by Pinpoint Utility Protection using a GPS with an accuracy of about 1 inch.

BORING PLAN

GLENDALE INDUSTRIAL SUBSTATION
HODGENVILLE ROAD WEST
GLENDALE, KENTUCKY

Project Number: LOUGE22047		Drn. By: RH
Date: 06/15/2022	Scale: AS SHOWN	Ckd. By: RO

ATLAS

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-201**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/18/22	Hammer Wt.	140 lbs.
Date Completed	4/19/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 697.5
Latitude (deg): 37.580144, Longitude (deg): -85.884087

Stratum Depth	Depth Scale	Sample No.	Sample Type	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Remarks
0.6		1	SS	3-4-6- [*10*]	
		2	SH		
	5	3	SS	5-5-7- [*12*]	
		4	SH		
	10	5	SS	4-6-7- [*13*]	
		6	SH		
	15				
		7	SH		
	20				
		8	SS	WOH-1-1- [*2*]	
	25				
		9	SH		

TOPSOIL

FAT CLAY (CH), Reddish brown with black oxidation nodules

- with limestone fragments

TEST DATA: Sampler Graphics / Recovery Graphics; Groundwater; Qu-tsf Unconfined Compressive Strength; Moisture Content %; Liquid Limit (LL); Plastic Limit (PL); Percent Passing #200 Sieve

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	26.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	31.8	ft.
Date: 5/17 hours	15.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-201**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/18/22	Hammer Wt.	140 lbs.
Date Completed	4/19/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.580144, Longitude (deg): -85.884087	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown with black oxidation nodules						▽							
			10	SS			5-50/2"-- [*50/2"*]						
Auger Refusal at 34.2 feet	34.2												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	26.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	31.8	ft.
Date: 5/17 hours	15.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-202**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/26/22	Hammer Wt.	140 lbs.
Date Completed	4/27/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 694.1 Latitude (deg): 37.579878, Longitude (deg): -85.882153													
TOPSOIL	1.0												
LEAN CLAY (CL), Dark brown trace black oxidation nodules			1	SS			2-4-6- [*10*]						
			2	SS			3-5-5- [*10*]						
	5.5	5											
FAT CLAY (CH), Dark reddish brown with black oxidation nodules to 9 feet			3	SH									
		10	4	SS			3-4-6- [*10*]						
			5	SS			4-4-6- [*10*]						
		15	6	SS			4-5-5- [*10*]						
- trace limestone fragments			7	SS			6-5-6- [*11*]						
		20	8	SH		●							
		25	9	SS			2-2-2- [*4*]						
- with limestone fragments to 32 feet			10	SS									

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	22.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-202**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/26/22	Hammer Wt.	140 lbs.
Date Completed	4/27/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579878, Longitude (deg): -85.882153	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown with black oxidation nodules to 9 feet							WOH- WOH-3- [*3*]						
		35	11	SS			2-1-2- [*3*]						
FAT CLAY (CH), Light brown to gray	37.0												
		40	12	SS			WOH- WOH- WOH- [*WOH*]						
- with limestone fragments													
			13	SS			WOH-5-3- [*8*]						
		45											
			14	SS			2-3-2- [*5*]						
			15	SS			50/3"--- [*50/3"*]						
Auger Refusal at 47.3 feet	47.3												Difficult drilling from 45.5 to 47 feet. Split Spoons performed continuously to confirm bedrock.

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	22.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-203**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/19/22	Hammer Wt.	140 lbs.
Date Completed	4/19/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 701.2
Latitude (deg): 37.579938, Longitude (deg): -85.883826

Stratum Depth	Depth Scale	Sample No.	Sample Type	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Remarks
TOPSOIL					
0.8					
LEAN CLAY (CL), Brown		1	SS	1-3-4- [7]	
		2	SH		
	5				
- mottled gray		3	SS	5-7-6- [13]	
		4	SH		
10.0	10				
LEAN CLAY (CL), Dark reddish brown		5	SS	4-5-7- [12]	
		6	SH		
	15				
17.0		7	SS	3-4-5- [9]	
LEAN to FAT CLAY (CL-CH), Dark reddish brown, trace limestone fragments		8	SH		
	20				
		9	SS	3-3-4- [7]	
	25				
		10	SH		

TEST DATA

Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	40.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	16.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-203**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/19/22	Hammer Wt.	140 lbs.
Date Completed	4/19/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579938, Longitude (deg): -85.883826	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
LEAN to FAT CLAY (CL-CH), Dark reddish brown, trace limestone fragments													
FAT CLAY (CH), Dark reddish brown	33.0	35	11	SS			3-3-4- [7]						
		40	12	SH		●							
- with limestone fragments		45	13	SS			5-11-4- [15]						
- mottled gray		50	14	SS			WOH-2-12- [14]						
Boring Terminated at 50 feet	50.0												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

● Noted on Drilling Tools	40.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	16.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-203A**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/4/22	Hammer Wt.	140 lbs.
Date Completed	5/4/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 701.2 Latitude (deg): 37.579938, Longitude (deg): -85.883826													
AUGER DRILLING - NO SAMPLES OBTAINED		5 10 15 20 25											

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		- ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
After - hours		- ft.
After - hours		- ft.
Cave Depth		- ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-203A**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/4/22	Hammer Wt.	140 lbs.
Date Completed	5/4/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579938, Longitude (deg): -85.883826	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
AUGER DRILLING - NO SAMPLES OBTAINED		35											
		40											
		45											
NO RECOVERY	49.0	50	RC1	RC									
LIMESTONE, Light gray, fine grained, slightly to moderately weathered	54.0	55	RC2	RC									RQD=18%
Boring Terminated at 59 feet	59.0												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-204**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/20/22	Hammer Wt.	140 lbs.
Date Completed	4/20/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 701.5
Latitude (deg): 37.579834, Longitude (deg): -85.883112

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	0.5												
LEAN CLAY (CL), Brown - with black oxidation nodules			1	SS			2-2-4- [*6*]						
			2	SH		▼							
	5.5	5											
LEAN CLAY (CL), Reddish brown mottled gray			3	SS			4-6-6- [*12*]						
			4	SH									
- trace limestone fragments		10											
			5	SS			4-6-7- [*13*]						
			6	SH		▼							
		15											
			7	SS			4-5-5- [*10*]						
FAT CLAY (CH), Reddish brown	17.0												
			8	SS			3-4-5- [*9*]						
		20											
- with limestone fragments			9	SS		●	5-4-4- [*8*]						
		25											
			10	SS			4-4-5- [*9*]						

TEST DATA

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

●	Noted on Drilling Tools	24.0 ft.
⊄	At Completion (in augers)	- ft.
⊗	At Completion (open hole)	33.8 ft.
▼	After 24 hours	4.3 ft.
▼	Date: 5/17 hours	15.0 ft.
▨	Cave Depth	- ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

Atlas Technical Consultants
2724 River Green Circle
Louisville, KY 40206
(502) 722-1401
Fax (502) 267-4072

TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-204**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/20/22	Hammer Wt.	140 lbs.
Date Completed	4/20/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579834, Longitude (deg): -85.883112	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown													
		35	11	SS		▽	2-4-3- [7]						
			12	SS			4-8-50/3"- [*50/3"*]						
Auger Refusal at 39.8 feet	39.8												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	24.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	33.8	ft.
After 24 hours	4.3	ft.
Date: 5/17 hours	15.0	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-205**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/21/22	Hammer Wt.	140 lbs.
Date Completed	4/21/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 701.5 Latitude (deg): 37.579593, Longitude (deg): -85.882903													
TOPSOIL	0.5												
LEAN CLAY (CL), Reddish brown mottled gray			1	SS			2-4-6- [*10*]						
		5	2	SS			3-4-5- [*9*]						
LEAN to FAT CLAY (CL-CH), Dark reddish brown	6.0		3	SS			3-5-7- [*12*]						
			4	SH		●							
		10	5	SS			3-4-5- [*9*]						
			6	SH									
		15	7	SS			4-4-5- [*9*]						
- trace limestone fragments			8	SH									
		20											
FAT CLAY (CH), Dark reddish brown, trace limestone fragments	22.0												
		25	9	SS			3-4-5- [*9*]						
			10	SS			4-4-4- [*8*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

●	Noted on Drilling Tools	10.5 ft.
⋕	At Completion (in augers)	- ft.
⋕	At Completion (open hole)	- ft.
▼	After - hours	- ft.
▼	After - hours	- ft.
▨	Cave Depth	- ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-205**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/21/22	Hammer Wt.	140 lbs.
Date Completed	4/21/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579593, Longitude (deg): -85.882903	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown, trace limestone fragments													
		35	11	SS			3-6-11- [*17*]						
- with limestone fragments		40	12	SS			5-4-7- [*11*]						
		45	13	SS			5-5-6- [*11*]						
			14	SS			8-4-50/3"- [*50/3"*]						
	50.0	50											
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured	50.5			RC									
FAT CLAY (CH), Brown to dark brown, with limestone fragments			RC-1										RQD=11%
	53.0												
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured													
	55.0	55											
FAT CLAY (CH), Brown to dark brown, with limestone fragments				RC									
			RC-2										RQD=0%
	58.0												
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured													

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	10.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-205**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/21/22	Hammer Wt.	140 lbs.
Date Completed	4/21/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579593, Longitude (deg): -85.882903	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured				RC									
- slightly weathered			RC-3										RQD=19%
Boring Terminated at 65 feet	65.0	65											

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	10.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-206**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/26/22	Hammer Wt.	140 lbs.
Date Completed	4/26/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 700.8
Latitude (deg): 37.579762, Longitude (deg): -85.882535

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	1.2												
LEAN to FAT CLAY (CL-CH), Dark brown	3.0		1	SS			2-2-3- [*5*]						
FAT CLAY (CH), Dark reddish brown		5	2	SS			6-4-8- [*12*]						
			3	SS			6-7-11- [*18*]						
			4	SH									
		10	5	SS			6-6-7- [*13*]						
- with black oxidation nodules			6	SS			4-4-8- [*12*]						
		15											
- with limestone fragments			7	SH									
		20											
			8	SS			4-4-7- [*11*]						
		25											
			9	SS			2-2-3- [*5*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	8.0	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-206**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/26/22	Hammer Wt.	140 lbs.
Date Completed	4/26/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579762, Longitude (deg): -85.882535	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown													
			10	SS			50/3"--- [*50/3"*]						
Auger Refusal at 35 feet	35.0	35											

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		- ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
After - hours		- ft.
After - hours		- ft.
Cave Depth		8.0 ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-207**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/28/22	Hammer Wt.	140 lbs.
Date Completed	4/28/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 691.5
Latitude (deg): 37.579673, Longitude (deg): -85.88189

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	1.1		1	SS		▼	1-1-2- [*3*]						
LEAN CLAY (CL), Brown with black oxidation nodules	3.0		2	SS			2-4-6- [*10*]						
LEAN CLAY (CL), Reddish brown and light brown with black oxidation nodules	5.5	5	3	SS			6-7-9- [*16*]						
FAT CLAY (CH), Reddish brown with black oxidation nodules			4	SS			5-6-8- [*14*]						
		10	5	SH									
			6	SS			4-5-5- [*10*]						
		15	7	SH									
- with limestone fragments			8	SS			4-3-3- [*6*]						
		20											
			9	SS			3-2-4- [*6*]						
		25											
FAT CLAY (CH), Brown and light brown, with limestone fragments	28.5		10	SS			10-3-2- [*5*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	3.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-207**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/28/22	Hammer Wt.	140 lbs.
Date Completed	4/28/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579673, Longitude (deg): -85.88189	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Brown and light brown, with limestone fragments			11	SS			6-4-4- [*8*]						
		35											
LIMESTONE, Gray, fine grained, moderately weathered, moderately fractured	38.6		12	SS RC			50/1"--- [*50/1"*]						RQD=31%
		40											
NO RECOVERY	40.6		RC-1										
Boring Terminated at 43.6 feet	43.6												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		- ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
Date: 5/17	hours	3.0 ft.
After	- hours	- ft.
Cave Depth		- ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-207A**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/28/22	Hammer Wt.	140 lbs.
Date Completed	4/28/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 691.5 Latitude (deg): 37.579673, Longitude (deg): -85.88189													
AUGER DRILLING - NO SAMPLES OBTAINED		5 10 15 20 25				▼							Offset 10 feet southwest of BVB-207 to avoid damaging drill.

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	12.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-207A**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/28/22	Hammer Wt.	140 lbs.
Date Completed	4/28/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579673, Longitude (deg): -85.88189	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
AUGER DRILLING - NO SAMPLES OBTAINED		35											
LIMESTONE, Light gray, fine grained, moderately to highly weathered, heavily fractured	40.0	40	RC-1	RC									RQD=0%
NO RECOVERY	43.0		RC-2	RC									RQD=18%
LIMESTONE, Light gray, fine grained, moderately to highly weathered, heavily fractured	45.0	45											
NO RECOVERY	48.0		RC-3	RC									RQD=0%
LIMESTONE, Light gray, fine grained, moderately to highly weathered, heavily fractured	48.5												
NO RECOVERY	49.0												
LIMESTONE, Light gray, fine grained, moderately to highly weathered, heavily fractured, vuggy	49.5	50	RC-4	RC									RQD=0%
Boring Terminated at 55 feet	55.0	55											

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	12.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-208**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/19/22	Hammer Wt.	140 lbs.
Date Completed	4/19/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 700.2 Latitude (deg): 37.579663, Longitude (deg): -85.884223													
TOPSOIL	1.0												
FAT CLAY (CH), Dark reddish brown			1	SS			2-5-7- [*12*]						
			2	SH									
		5	3	SS			4-7-10- [*17*]						
			4	SH		▼							
		10	5	SS			8-13-17- [*30*]						
			6	SH									
		15	7	SS			4-7-8- [*15*]						
			8	SH									
		20											
- with limestone fragments		25	9	SS			6-23-19- [*42*]						
			10	SH									

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	8.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

Atlas Technical Consultants
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Louisville, KY 40206
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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-208**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/19/22	Hammer Wt.	140 lbs.
Date Completed	4/19/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579663, Longitude (deg): -85.884223	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown													
		35	11	SS			3-5-7- [*12*]						
	38.5												
FAT CLAY (CH), Light brown		40	12	SS			2-5-6- [*11*]						
		45	13	SS			1-1-13- [*14*]						
- trace limestone fragments													
	46.7												
Auger Refusal at 46.7 feet													

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	8.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-209**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/20/22	Hammer Wt.	140 lbs.
Date Completed	4/20/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 702.8
Latitude (deg): 37.57959, Longitude (deg): -85.883904

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	1.0												
FAT CLAY (CH), Reddish brown			1	SS			2-5-9- [*14*]						
			2	SH									
		5	3	SS			9-10-12- [*22*]						
			4	SS			7-11-16- [*27*]						
		10	5	SS			8-10-15- [*25*]						
			6	SH									
		15	7	SS			6-9-12- [*21*]						
- trace black oxidation nodules and limestone fragments			8	SS			5-8-9- [*17*]						
		20											
			9	SH									
		25											
- with limestone fragments			10	SS			7-7-15- [*22*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		- ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
After - hours		- ft.
After - hours		- ft.
Cave Depth		- ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-209**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/20/22	Hammer Wt.	140 lbs.
Date Completed	4/20/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.57959, Longitude (deg): -85.883904	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown													
		35	11	SS			3-2-3- [*5*]						
		40	12	SS			6-50/3"-- [*50/3"*]						
LIMESTONE, Gray, highly weathered, heavily fractured, voids/clay seams throughout	41.3	45	RC-1	RC									RQD=8%
Boring Terminated at 51.3 feet	51.3	50											

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-209A**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/25/22	Hammer Wt.	140 lbs.
Date Completed	4/25/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 702.8 Latitude (deg): 37.57959, Longitude (deg): -85.883904													
AUGER DRILLING - NO SAMPLES OBTAINED		5 10 15 20 25				▼							Offset 10 feet north of BVB-207 for deeper coring requested by B&V.

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	38.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	15.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-209A**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/25/22	Hammer Wt.	140 lbs.
Date Completed	4/25/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.57959, Longitude (deg): -85.883904	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
AUGER DRILLING - NO SAMPLES OBTAINED		35				●							
		40											
LIMESTONE, Gray, fine grained, slightly weathered, slightly fractured, clay stained to 59.5 feet	44.5	45		RC									
			RC-1										RQD=30%
- heavily fractured, vuggy at 50 ft		50		RC									
			RC-2										RQD=43%
Boring Terminated at 54.5 feet	54.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

● Noted on Drilling Tools	38.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	15.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
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MH - Manual Hammer
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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-210**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/21/22	Hammer Wt.	140 lbs.
Date Completed	4/21/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 703.3
Latitude (deg): 37.579603, Longitude (deg): -85.883442

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	1.0												
FAT CLAY (CH), Dark brown with black oxidation nodules	3.0		1	SS			3-5-8- [*13*]						
FAT CLAY (CH), Dark reddish brown		5	2	SS			6-9-12- [*21*]						
			3	SH									
		10	4	SS			6-9-17- [*26*]						
			5	SH									
- with black oxidation nodules		15	6	SS			5-9-9- [*18*]						
- trace limestone fragments			7	SS			5-8-12- [*20*]						
		20	8	SS			3-6-8- [*14*]						
		25	9	SS			4-5-7- [*12*]						
- with limestone fragments			10	SS			6-6-7- [*13*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	28.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-210**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/21/22	Hammer Wt.	140 lbs.
Date Completed	4/21/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579603, Longitude (deg): -85.883442	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown													
		35	11	SS			3-5-5- [*10*]						
			12	SH									
		40											
FAT CLAY (CH), Light brown, with limestone fragments	43.5												
		45	13	SS			5-6-8- [*14*]						
Auger Refusal at 47.2 feet	47.2												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	28.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-211**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/25/22	Hammer Wt.	140 lbs.
Date Completed	4/25/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 700.7
Latitude (deg): 37.579297, Longitude (deg): -85.882973

Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
						TOPSOIL						
1.0		1	SS			LEAN CLAY (CL), Dark brown with black oxidation nodules 2-2-2- [*4*]						
3.0	5	2	SS			LEAN to FAT CLAY (CL-CH), Light brown with black oxidation nodules 4-4-6- [*10*]						
6.0		3	SS			LEAN to FAT CLAY (CL-CH), Dark reddish brown 3-4-5- [*9*]						
		4	SH									
10.5	10	5	SS			FAT CLAY (CH), Dark reddish brown 4-5-5- [*10*]						
		6	SH		▼							
	15	7	SS			4-5-6- [*11*]						
		8	SS			- with black oxidation nodules 4-5-5- [*10*]						
	20											
		9	SS			4-4-6- [*10*]						
	25											
		10	SS			- with limestone fragments 4-5-4- [*9*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	15.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU** BORING # **BVB-211**
PROJECT NAME **Glendale Industrial Substation** JOB # **LOUGE22047**
PROJECT LOCATION **Hodgenville Road West** DRAWN BY **Z. Nichols**
Glendale, Kentucky APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/25/22	Hammer Wt.	140 lbs.
Date Completed	4/25/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579297, Longitude (deg): -85.882973	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown													
		35	11	SS			2-4-2- [6]						
		40	12	SS			4-3-2- [5]						
FAT CLAY (CH), Brown	43.5	45	13	SS			2-3-4- [7]						
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured	47.2			RC									
NO RECOVERY	47.7	50	RC-1										RQD=18%
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured - vuggy at about 52.2 ft	50.7			RC									
		55	RC-2										RQD=7%
				RC									
			RC-3										

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		- ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
Date: 5/17	hours	15.0 ft.
After	- hours	- ft.
Cave Depth		- ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-211**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/25/22	Hammer Wt.	140 lbs.
Date Completed	4/25/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579297, Longitude (deg): -85.882973	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured													RQD=13%
Boring Terminated at 62.2 feet	62.2												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	15.0	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-212**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/27/22	Hammer Wt.	140 lbs.
Date Completed	4/27/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 693.2
Latitude (deg): 37.579408, Longitude (deg): -85.882006

Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
						TOPSOIL						
1.2		1	SS			LEAN CLAY (CL), Reddish brown 3-3-4- [7]						
		2	SS		▨	- with black oxidation nodules 2-3-4- [7]						
5.5	5	3	SS			FAT CLAY (CH), Reddish brown with black oxidation nodules 4-4-6- [10]						
		4	SS			3-4-5- [9]						
	10	5	SS			5-5-8- [13]						
		6	SH									
	15	7	SS			4-5-7- [12]						
		8	SH									
	20					- trace limestone fragments						
		9	SS			3-3-4- [7]						
	25					- with limestone fragments						
		10	SS			3-3-3- [6]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	4.0	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-212**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/27/22	Hammer Wt.	140 lbs.
Date Completed	4/27/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579408, Longitude (deg): -85.882006	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown with black oxidation nodules - with gray													
WEATHERED LIMESTONE	34.0	35	11	SS			4-50/4"-- [*50/4"*]						
Auger Refusal at 35.7 feet	35.7												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	4.0	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-213**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/20/22	Hammer Wt.	140 lbs.
Date Completed	4/20/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 702.6
Latitude (deg): 37.579213, Longitude (deg): -85.883989

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	0.5												
LEAN CLAY (CL), Reddish brown and gray			1	SH									
- with black oxidation nodules		5	2	SS			5-6-7- [*13*]						
			3	SH									
LEAN to FAT CLAY (CL-CH), Reddish brown	8.0	10	4	SS			4-6-6- [*12*]						
			5	SS			4-5-7- [*12*]						
		15	6	SS			4-7-6- [*13*]						
			7	SH									
- trace limestone fragments													
FAT CLAY (CH), Reddish brown, with limestone fragments	19.0	20	8	SS			50/5"--- [*50/5"*]						
		25	9	SS			4-3-4- [*7*]						
			10	SS			WOH-2-3- [*5*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	48.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-213**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/20/22	Hammer Wt.	140 lbs.
Date Completed	4/20/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579213, Longitude (deg): -85.883989	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown, with limestone fragments													
		35	11	SS			3-2-2- [4]						
FAT CLAY (CH), Gray	38.5	40	12	SS			WOH- WOH- WOH- [WOH]						
- with reddish brown		45	13	SS			2-1-2- [3]						
			14	SS		●	3-3-50/4"- [50/4"]						
LIMESTONE, Light gray, fine grained, moderately weathered, heavily fractured	49.8	50		RC									
			RC-1										RQD=10%
		55		RC									
			RC-2										RQD=23%

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	48.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-213**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/20/22	Hammer Wt.	140 lbs.
Date Completed	4/20/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579213, Longitude (deg): -85.883989	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
LIMESTONE, Light gray, fine grained, moderately weathered, heavily fractured			RC-3	RC									RQD=12%
Boring Terminated at 65 feet	65.0	65											

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	48.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-214**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/12/22	Hammer Wt.	140 lbs.
Date Completed	5/12/22	Hammer Drop	30 in.
Drill Foreman	D. Dunaway	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SOIL CLASSIFICATION
SURFACE ELEVATION (ft): 698.2
Latitude (deg): 37.579002, Longitude (deg): -85.882697

Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL												
0.7												
LEAN CLAY (CL), Dark brown with black oxidation nodules		1	SS			1-2-3- [*5*]						
		2	SS			1-3-4- [*7*]						
5.5	5											
FAT CLAY (CH), Dark brown with black oxidation nodules to 11 feet		3	SH									
		4	SS			8-7-11- [*18*]						
	10	5	SS			3-5-7- [*12*]						
- with limestone fragments		6	SS			4-5-7- [*12*]						
	15	7	SH									
		8	SS			7-8-11- [*19*]						
	20											
- with black oxidation nodules		9	SS			2-3-4- [*7*]						
	25											
		10	SS			3-5-5- [*10*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	47.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-214**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/12/22	Hammer Wt.	140 lbs.
Date Completed	5/12/22	Hammer Drop	30 in.
Drill Foreman	D. Dunaway	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.579002, Longitude (deg): -85.882697	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark brown with black oxidation nodules to 11 feet													
		35	11	SS			2-2-2- [*4*]						
FAT CLAY (CH), Light gray, with limestone fragments	39.0	40	12	SS			3-5-5- [*10*]						
		45	13	SS			2-1-1- [*2*]						
FAT CLAY (CH), Light brown, with limestone fragments	48.5	50	14	SS			1-4-2- [*6*]						Unable to set up core on bed rock due to skewed boring. Split spoon performed at refusal to confirm bedrock, based on instruction from B&V.
Auger Refusal at 53.5 feet	53.5		15	SS			50/1"--- [*50/1"*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	47.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-201**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 701.7
Latitude (deg): 37.580116, Longitude (deg): -85.883145

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test N-Value (blows/1.75")	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	0.3												
LEAN CLAY (CL), Dark brown	1.0												
LEAN CLAY (CL), Brown			1	CU									
			2	CU			5-6-8- [7]						
			3	CU									
LEAN CLAY (CL), Reddish brown and Gray with black oxidation nodules	3.7		4	CU			7-7-6- [6.5]						
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	- ft.	
At Completion (in augers)	- ft.	
At Completion (open hole)	- ft.	
After - hours	- ft.	
After - hours	- ft.	
Cave Depth	- ft.	

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-202**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SOIL CLASSIFICATION
SURFACE ELEVATION (ft): 689.2
Latitude (deg): 37.579936, Longitude (deg): -85.881665

Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test Blows per 1.75" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL												
0.7												
LEAN CLAY (CL), Yellowish brown		1	CU			5-4-7- [*5.5*]						
		2	CU									
2.7												
LEAN CLAY (CL), Reddish brown and Gray		3	CU			10-10-10- [*10*]						
		4	CU									
4.5												
Boring Terminated at 4.5 feet												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-203**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 690.1
Latitude (deg): 37.579492, Longitude (deg): -85.881537

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test N-Value (blows/1.75")	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
			1	CU									
LEAN CLAY (CL), Yellowish brown	1.5												
			2	CU			4-6-9- [7.5]						
			3	CU									
			4	CU			9-9-10- [9.5]						
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-204**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION (ft): 704.6 Latitude (deg): 37.579378, Longitude (deg): -85.884483	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test Blows per 1.75" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	0.2												
LEAN CLAY (CL), Reddish brown			1	CU			10-13-13- [*13*]						
- trace limestone fragments			2	CU									
-Boulder/Obstruction encountered at 2.3 ft, terminated	2.3												
Boring Terminated at 2.3 feet													

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		- ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
After - hours		- ft.
After - hours		- ft.
Cave Depth		- ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-205**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION (ft): 701.4 Latitude (deg): 37.579166, Longitude (deg): -85.883308	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test N-Value (blows/1.75")	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
LEAN CLAY (CL), Brown	1.0		1	CU									
			2	CU			8-8-9- [*8.5*]						
- with reddish brown			3	CU									
- with black oxidation nodules			4	CU			8-12-11- [*11.5*]						
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

Atlas Technical Consultants
2724 River Green Circle
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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale Industrial Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-206**
JOB # **LOUGE22047**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 692.0
Latitude (deg): 37.579028, Longitude (deg): -85.882086

Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test Blows per 1.75" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
0.1												
		1	CU			7-8-8- [*8*]						
		2	CU									
		3	CU			8-9-11- [*10*]						
		4	CU									
4.5												

TOPSOIL
LEAN CLAY (CL), Reddish brown
Boring Terminated at 4.5 feet

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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June 17, 2022

MR. JEREMY BOARD
LG&E-KU
745 NORTH LIMESTONE
LEXINGTON, KENTUCKY 40508

Subject: **Geotechnical Engineering Investigation**
LG&E-KU Glendale South Substation
Hodgenville Road West, Glendale, Kentucky
Atlas Project No. LOUGE22032

Dear Mr. Board:

Atlas has completed a geotechnical exploration in support of the proposed new substation construction at the referenced site. Laboratory testing data has previously been provided to the design engineer as completed. Additional testing is in process. The Appendix to this letter contains site and testboring location plans, and results of field testing. Additional laboratory testing data and results willbe provided as completed accompanied with a final report deliverable. Our services have been provided in accordance with Atlas proposal number LOUGE22032-1 dated March 20, 2022 and LG&E KU Purchase Order Number 733441dated June 2, 2022.

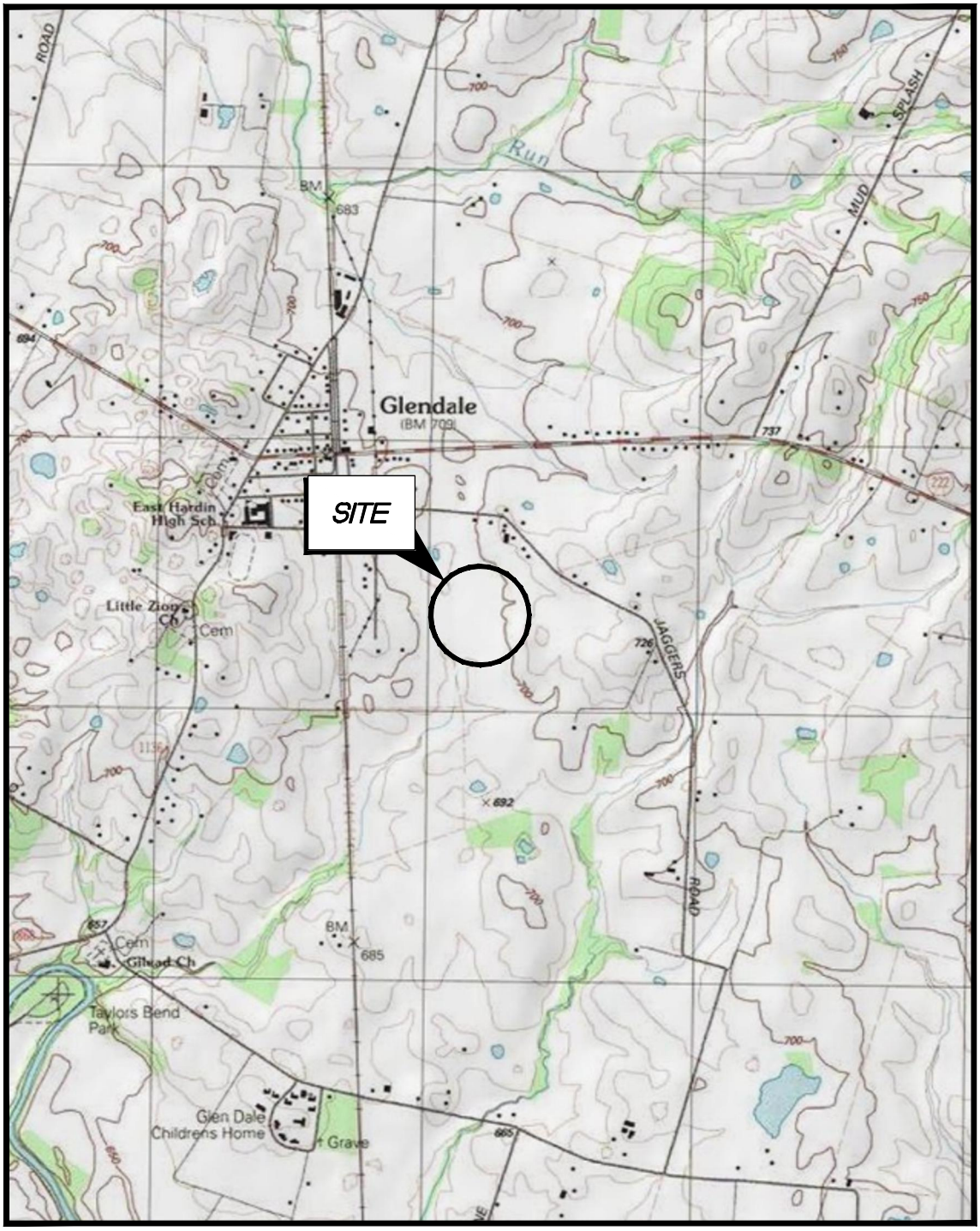
We appreciate the opportunity to have provided these services and we look forward to serving as your geotechnical consultant throughout project design and execution. Please contact us with any questions regarding the information presented.

Respectfully submitted,
Atlas Technical Consultants LLC

Zane Nichols, EIT
Staff Geotechnical Engineer

Ryan Ortiz, PE
Project Geotechnical Engineer
Licensed Kentucky 33219

Travis Andres, PE
Senior Geotechnical Engineer
Licensed Kentucky 29429



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VICINITY MAP

GLENDALE SOUTH SUBSTATION
HODGENVILLE ROAD WEST
GLENDALE, KENTUCKY

Project Number: LOUGE22032		Drn. By: RH
Date: 06/15/2022	Scale: 1":2,000'	Ckd. By: RO
ATLAS		1

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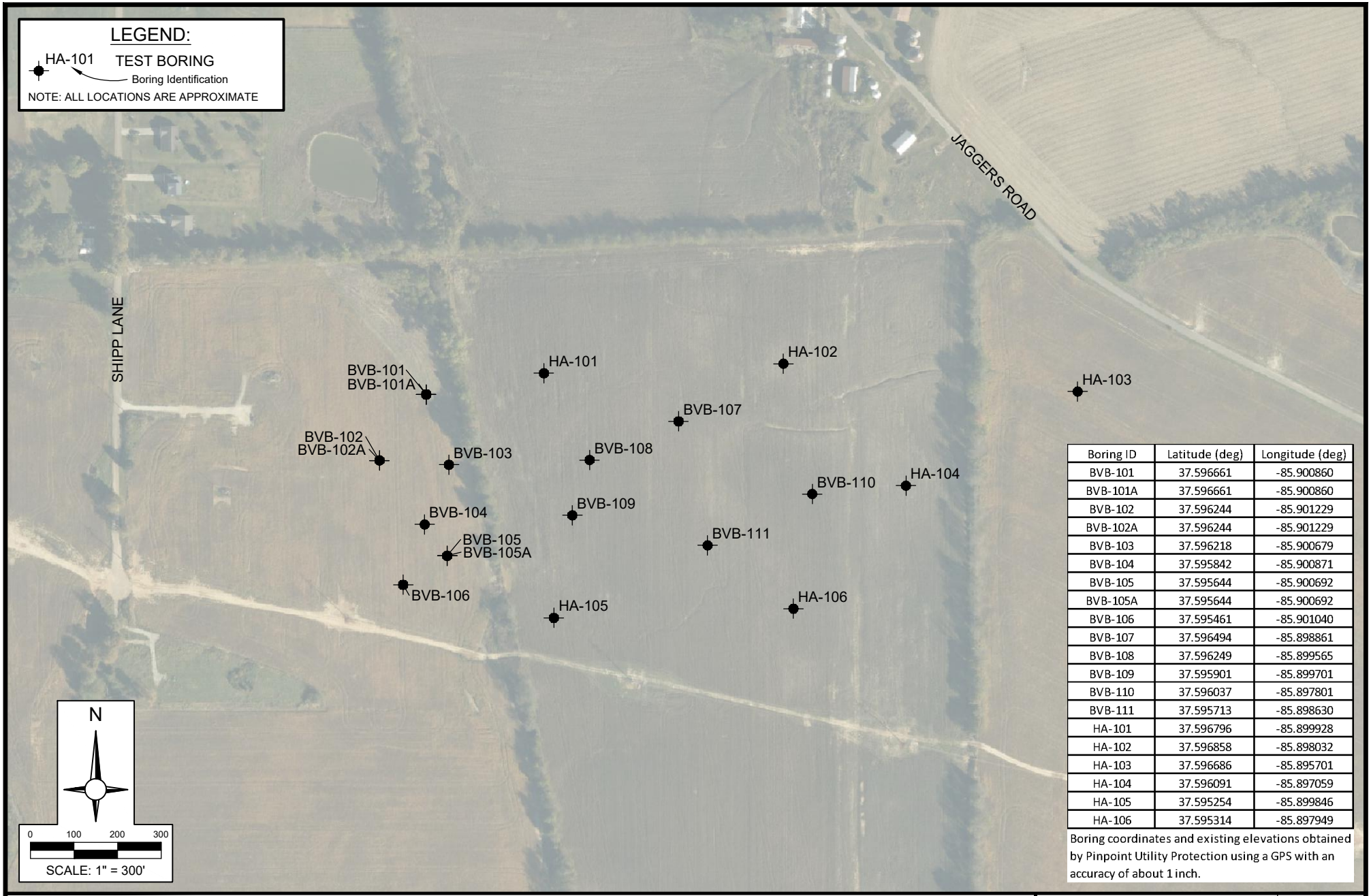

Boring ID	Latitude (deg)	Longitude (deg)
BVB-101	37.596661	-85.900860
BVB-101A	37.596661	-85.900860
BVB-102	37.596244	-85.901229
BVB-102A	37.596244	-85.901229
BVB-103	37.596218	-85.900679
BVB-104	37.595842	-85.900871
BVB-105	37.595644	-85.900692
BVB-105A	37.595644	-85.900692
BVB-106	37.595461	-85.901040
BVB-107	37.596494	-85.898861
BVB-108	37.596249	-85.899565
BVB-109	37.595901	-85.899701
BVB-110	37.596037	-85.897801
BVB-111	37.595713	-85.898630
HA-101	37.596796	-85.899928
HA-102	37.596858	-85.898032
HA-103	37.596686	-85.895701
HA-104	37.596091	-85.897059
HA-105	37.595254	-85.899846
HA-106	37.595314	-85.897949

Boring coordinates and existing elevations obtained by Pinpoint Utility Protection using a GPS with an accuracy of about 1 inch.

BORING PLAN

GLENDALE SOUTH SUBSTATION
HODGENVILLE ROAD WEST
GLENDALE, KENTUCKY

Project Number: LOUGE22032		Drn. By: RH
Date: 06/15/2022	Scale: AS SHOWN	Ckd. By: RO

ATLAS

H:\2022\1 OTHER OFFICES\KENTUCKY\LG&E, KU\LOUGE22032\LOUGE22032-BPLAN.DWG, BPLAN

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-101**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/11/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 692.5
Latitude (deg): 37.596661, Longitude (deg): -85.90086

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
LEAN to FAT CLAY (CL-CH), Brown mottled gray			1	SS			4-1-2- [3]						
			2	SH									
FAT CLAY (CH), Light reddish brown mottled gray with black oxidation nodules	4.0	5	3	SS			3-4-5- [9]						
			4	SH									
FAT CLAY (CH), Brown mottled gray	9.0	10	5	SS			3-3-4- [7]						
			6	SS			17-8-6- [14]						
		15	7	SH									
FAT CLAY (CH), medium to dark brown with gray and black oxidation nodules	17.0		8	SS			2-4-4- [8]						
		20				●							
			9	SH									
		25											
- medium gray to 30 ft			10	SS			2-1-2- [3]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	22.0	ft.
At Completion (in augers)		ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-101**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/11/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.596661, Longitude (deg): -85.90086	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), medium to dark brown with gray and black oxidation nodules													
WEATHERED LIMESTONE, heavily fractured	33.0	35	11	SS			30-50/2"-- [*50/2"*]						
TOOLS DROPPED TO 38.5 FEET	37.5												
Boring Terminated at 38.5 feet	38.5												Boring terminated due to tooling drop

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	22.0	ft.
At Completion (in augers)		ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-101A**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/12/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 692.5 Latitude (deg): 37.596661, Longitude (deg): -85.90086													
AUGER DRILLING - NO SAMPLES OBTAINED		5 10 15 20 25				●							Offset 56 feet south of BVB-101, based on direction from B&V.

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

● Noted on Drilling Tools	22.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-101A**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/12/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.596661, Longitude (deg): -85.90086	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
AUGER DRILLING - NO SAMPLES OBTAINED		35											
WEATHERED LIMESTONE	38.5	40	1	SS			50/2"--- [*50/2"*]						
Auger Refusal at 42 feet	42.0												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater
Noted on Drilling Tools **22.0** ft.
At Completion (in augers) - ft.
At Completion (open hole) - ft.
After - hours - ft.
After - hours - ft.
Cave Depth ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-102**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/11/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 693.5
Latitude (deg): 37.596244, Longitude (deg): -85.901229

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Remarks
TOPSOIL	0.7					
LEAN CLAY (CL), Brown and tannish brown			1	SS	2-3-7- [*10*]	
	3.0					
FAT CLAY (CH), Reddish brown			2	SH		
		5	3	SS	5-7-9- [*16*]	
			4	SH		
		10				
- trace limestone fragments			5	SS	4-5-7- [*12*]	
			6	SH		
- with limestone fragments		15				
			7	SS	3-12-5- [*17*]	
			8	SH		
		20				
			9	SS	3-3-7- [*10*]	
		25				
			10	SH		

Qu-tsf Unconfined Compressive Strength | Moisture Content % | Liquid Limit (LL) | Plastic Limit (PL) | Percent Passing #200 Sieve

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	6.5	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-102**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/11/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.596244, Longitude (deg): -85.901229	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown													Start of auger skew at 30 ft
		35	11	SS			13-2-1- [3]						
			12	SS			WOH-1-17- [18]						
Boring Terminated at 40 feet	40.0	40											Boring terminated at 40 ft due to skewed boring

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	6.5	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-102A**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/12/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 693.5 Latitude (deg): 37.596244, Longitude (deg): -85.901229													
AUGER DRILLING - NO SAMPLES OBTAINED		5 10 15 20 25				●							

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	30.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-102A**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/12/22	Hammer Wt.	140 lbs.
Date Completed	4/12/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
(continued) Latitude (deg): 37.596244, Longitude (deg): -85.901229													
AUGER DRILLING - NO SAMPLES OBTAINED		35											
			1	SS	☒		20-50/2"-- [*50/2"*]						
Auger Refusal at 39.2 feet	39.2												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	30.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-103**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/13/22	Hammer Wt.	140 lbs.
Date Completed	4/13/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 692.5
Latitude (deg): 37.596218, Longitude (deg): -85.900679

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
FAT CLAY (CH), Light gray	1.0		1	SS			3-5-5- [*10*]						
FAT CLAY (CH), with silt, Light reddish brown with light gray	4.0	5	2	SH									
			3	SS		●	3-5-6- [*11*]						
		10	4	SH									
FAT CLAY (CH), Dark reddish brown with black oxidation nodules	12.0		5	SS			3-5-5- [*11*]						
- with limestone fragments		15	6	SH									
			7	SS			3-3-5- [*8*]						
		20	8	SH									
- with limestone fragments			9	SS			1-2-3- [*5*]						
		25	10	SH									

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	7.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

Atlas Technical Consultants
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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-103**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/13/22	Hammer Wt.	140 lbs.
Date Completed	4/13/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.596218, Longitude (deg): -85.900679	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown with black oxidation nodules			11 12	SS			8-4-5- [9]						
WEATHERED LIMESTONE WITH CLAY LAYERS	34.0	35	13	SS			24-13-22- [37]						Shelby tube attempted at 34 feet, not able to advance
SANDY FAT CLAY (CH), Light brown to brown	39.0	40	15	SS			3-4-2- [6]						
WEATHERED LIMESTONE	41.8			RC									
NO RECOVERY	42.1	45											RQD=0%
WEATHERED LIMESTONE	46.0												
LIMESTONE, Light gray, moderately weathered to about 50.5 ft , - slightly weathered	48.8	50		RC									RQD=31%
Boring Terminated at 53.8 feet	53.8												Boring terminated based on collaboration with B&V

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	7.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-104**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/13/22	Hammer Wt.	140 lbs.
Date Completed	4/13/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 693.5
Latitude (deg): 37.595842, Longitude (deg): -85.900871

Stratum Depth	Depth Scale	Sample No.	Sample Type	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Remarks
0.3					TOPSOIL
		1	SS	2-2-3- [*5*]	FAT CLAY (CH), Brown and gray
		2	SH		
	5				
		3	SS	5-5-6- [*11*]	
7.0					LEAN to FAT CLAY (CL-CH), Reddish brown with black oxidation nodules
		4	SH		
	10				
		5	SS	15-4-5- [*9*]	- with limestone fragments
12.0					FAT CLAY (CH), Reddish brown
		6	SH		
	15				
		7	SS	3-3-3- [*6*]	- dark reddish brown, with limestone fragments
		8	SH		
	20				
		9	SS	3-2-2- [*4*]	
	25				
		10	SH		

Qu-tsf Unconfined Compressive Strength | Moisture Content % | Liquid Limit (LL) | Plastic Limit (PL) | Percent Passing #200 Sieve

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		22.0 ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
Date: 5/17	hours	16.0 ft.
After	- hours	- ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-104**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/13/22	Hammer Wt.	140 lbs.
Date Completed	4/13/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.595842, Longitude (deg): -85.900871	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown			11	SS			3-3-5- [*8*]						
		35											
	37.0		12	SS			50/2"--- [*50/2"*]						
LIMESTONE, Light gray				RC									
			RC1										RQD=53%
		40											
- vuggy to about 42 ft				RC									
	43.5												
NO RECOVERY			RC2										RQD=33%
	45.0	45											
LIMESTONE, Light gray													
	47.0												
Boring Terminated at 47 feet													

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater
Noted on Drilling Tools 22.0 ft.
At Completion (in augers) - ft.
At Completion (open hole) - ft.
Date: 5/17 hours 16.0 ft.
After - hours - ft.
Cave Depth ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-105**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/3/22	Hammer Wt.	140 lbs.
Date Completed	5/3/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION (ft): 692.9 Latitude (deg): 37.595644, Longitude (deg): -85.900692	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	1.0												
LEAN to FAT CLAY (CL-CH), trace sand, Light brown to brown with black oxidation nodules			1	SS			3-2-3- [*5*]						
FAT CLAY (CH), Brown and reddish brown with light gray	3.0		2	SH									
		5	3	SS			6-4-5- [*9*]						
			4	SS			5-5-6- [*11*]						
		10	5	SS			50/5"--- [*50/5"*]						
- with limestone fragments			6	SH									
		15	7	SS			2-4-4- [*8*]						
			8	SS			2-2-3- [*5*]						
		20											
			9	SS			5-4-4- [*8*]						
		25											
- with silt, light gray			10	SS									

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	33.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-105**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/3/22	Hammer Wt.	140 lbs.
Date Completed	5/3/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.595644, Longitude (deg): -85.900692	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Brown and reddish brown with light gray							13-16-50/1"- [*50/1"*]						
		35	11	SS			W-O-H- [*0*]						
LIMESTONE, Light gray, with calcite	39.0	40	12	SS RC			50/3"--- [*50/3"*]						
- with a 2-inch vuggy layer			RC1										
- with a 1-inch clay layer - with a 1/4-inch clay seam													RQD=38%
Boring Terminated at 44 feet	44.0												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	33.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-105A**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/4/22	Hammer Wt.	140 lbs.
Date Completed	5/4/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	N/A	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
SURFACE ELEVATION (ft): 692.9 Latitude (deg): 37.595644, Longitude (deg): -85.900692													
AUGER DRILLING - NO SAMPLES OBTAINED		5 10 15 20 25											

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		- ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
After - hours		- ft.
After - hours		- ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-105A**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/4/22	Hammer Wt.	140 lbs.
Date Completed	5/4/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	N/A	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.595644, Longitude (deg): -85.900692	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test N-Value (blows/foot)	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
AUGER DRILLING - NO SAMPLES OBTAINED		35											
LIMESTONE, Gray, fine grained, moderately weathered, heavily fractured, interpreted clay seams/voids to about 44 feet	39.0	40	RC-1	RC									RQD=0%
- vuggy at about 44 to 53 ft		45	RC-2	RC									RQD=7%
		50	RC-3	RC									RQD=8%
Boring Terminated at 54 feet	54.0												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-106**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/4/22	Hammer Wt.	140 lbs.
Date Completed	5/4/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 694.0
Latitude (deg): 37.595461, Longitude (deg): -85.90104

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	1.2												
LEAN CLAY (CL), Light brown to brown			1	SS			3-2-3- [*5*]						
FAT CLAY (CH), Light gray with reddish brown	3.0												
			2	SS			2-2-4- [*6*]						
		5	3	SS			5-6-7- [*13*]						
			4	SH									
		10											
- reddish brown with black oxidation nodules			5	SS			5-7-8- [*15*]						
- with limestone fragments			6	SS			7-4-6- [*10*]						
		15	7	SS			3-5-10- [*15*]						
			8	SH									
		20											
- with limestone fragments													
			9	SS			2-3-2- [*5*]						
		25											
- reddish brown, with black oxidation nodules, with limestone fragments			10	SS			3-3-3- [*6*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-106**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/4/22	Hammer Wt.	140 lbs.
Date Completed	5/4/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.595461, Longitude (deg): -85.90104	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Light gray with reddish brown		35	11	SS			5-3-3- [*6*]						
Auger Refusal at 38.9 feet	38.9		12	SS			50/4"--- [*50/4"*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-107**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/14/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION (ft): 694.7 Latitude (deg): 37.596494, Longitude (deg): -85.898861	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
LEAN CLAY (CL), Dark brown with medium gray	1.0		1	SS			2-2-2- [*4*]						
LEAN CLAY (CL), Reddish brown with light gray	4.0	5	2	SH									
			3	SS			WOH-2-3- [*5*]						
		10	4	SH									
			5	SS			4-5-4- [*9*]						
		15	6	SH									
LEAN CLAY (CL), Reddish brown and light gray with black oxidation nodules - with limestone fragments	19.0	20	7	SS			3-4-5- [*9*]						
			8	SH									
FAT CLAY (CH), Dark reddish brown, with limestone fragments	26.0	25	9	SS			3-5-5- [*10*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools		6.0 ft.
At Completion (in augers)		- ft.
At Completion (open hole)		- ft.
Date: 5/17	hours	8.0 ft.
After -	hours	- ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-107**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/14/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.596494, Longitude (deg): -85.898861	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown, with limestone fragments													
		35	10	SS			WOH-2-3- [5]						
- with a shale layer													
- with sand		40	11	SS			3-2-9- [11]						
		45	12	SS			15-9-5- [14]						
WEATHERED LIMESTONE	46.0												
LIMESTONE, Light gray, fine grained, moderately weathered, and highly fractured to about 48.5 ft - slightly weathered	47.5		RC1	RC									RQD=18%
		50		RC									
			RC2										RQD=0%
- with an approximate 2 ft clay layer at about 53 ft		55		RC									
- moderately weathered and heavily fractured to about 59 ft			RC3										RQD=67%
				RC									

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	6.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	8.0	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

Atlas Technical Consultants
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Fax (502) 267-4072

TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-107**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/14/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	P. Presnell	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
(continued) Latitude (deg): 37.596494, Longitude (deg): -85.898861													
- with a 12-inch vertical fracture	60.8		RC4										
Boring Terminated at 60.8 feet													RQD=67%

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	6.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	8.0	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-108**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/14/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 692.3
Latitude (deg): 37.596249, Longitude (deg): -85.899565

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	0.5												
FAT CLAY (CH), Reddish brown and gray			1	SS		●	WOH-WOH-3- [3]						
			13 2	CU SH									
		5											
- mottled dark gray			3	SS		▼	3-3-5- [8]						
			4	SH									
		10											
- reddish brown mottled dark gray			5	SS			3-2-3- [5]						
			6	SH									
		15											
- trace coarse sand			7	SS			3-4-5- [9]						
			8	SH									
		20											
- with limestone fragments													
			9	SS			4-3-3- [6]						
		25											
			10	SH									Shelby tube end damaged on retrieval

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

● Noted on Drilling Tools	2.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
▼ Date: 5/17 hours	8.0	ft.
▼ After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-108**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/14/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.596249, Longitude (deg): -85.899565	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
- trace sand, with limestone fragments FAT CLAY (CH), Reddish brown and gray		35	11	SS			WOH- WOH-2- [2]						
Auger Refusal at 38.5 feet	38.5		12	SS			50/2"--- [*50/2"*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	2.0	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	8.0	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-109**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/18/22	Hammer Wt.	140 lbs.
Date Completed	4/18/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION (ft): 691.6 Latitude (deg): 37.595901, Longitude (deg): -85.899701	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
LEAN CLAY (CL), Light brown with reddish brown	1.0		1	SS			WOH-WOH-3-[3]						
FAT CLAY (CH), Light gray	5.0	5	2	SH									
			3	SS		●	2-4-6-[10]						
		10											
- with organge and dark brown			4	SS			WOH-3-4-[7]						
FAT CLAY (CH), Dark brown and light reddish brown with black oxidation nodules	13.0		5	SS			4-3-4-[7]						
		15	6	SH									
- with limestone fragments			7	SS			1-4-10-[14]						
		20				▼							
FAT CLAY (CH), Dark reddish brown	22.0		8	SS			WOH-5-5-[10]						
		25											
FAT CLAY (CH), Light gray	27.0		9	SS			1-1-1-[2]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

● Noted on Drilling Tools	8.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
▼ Date: 5/17 hours	22.0	ft.
▼ After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-109**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/18/22	Hammer Wt.	140 lbs.
Date Completed	4/18/22	Hammer Drop	30 in.
Drill Foreman	A. Brooks	Spoon Sampler OD	2 in.
Inspector	J. Phillips	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.595901, Longitude (deg): -85.899701	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Light gray			10	SS			WOH-WOH-11- [*11*]						
		35											
LIMESTONE, Light gray, fine grained, moderately weathered, with calcite vein at about 38 ft, vuggy to 38 ft - with a 6-inch clay layer	37.3		RC 1	RC									RQD=17%
		40											
- heavily fractured NO RECOVERY	42.4		RC 2	RC									RQD=0%
		45											
LIMESTONE, Light gray, fine grained, heavily fractured, moderately weathered	49.3		RC 3	RC									RQD=0%
		50											
- slightly weathered			RC 4	RC									RQD=100%
Boring Terminated at 53.5 feet	53.3												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	8.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	22.0	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
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DC - Driving Casing
MD - Mud Drilling
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APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/18/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Ortiz/Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 700.0
Latitude (deg): 37.596037, Longitude (deg): -85.897801

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	1.0												
LEAN CLAY (CL), Reddish brown			1	SS			2-5-5- [*10*]						
			2	SH									
		5				▼							
			3	SS			4-4-6- [*10*]						
FAT CLAY (CH), Reddish brown, with limestone fragments	8.0		4	SH									
		10	5	SS		●	3-4-6- [*10*]						
			6	SS			3-3-3- [*6*]						
		15	7	SS			3-3-4- [*7*]						
- with limestone fragments			8	SS			9-6-6- [*12*]						Slow drilling performance
		20											
			9	SS			1-2-5- [*7*]						
		25											
- transition to light brown			10	SS			2-1-2- [*3*]						

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

● Noted on Drilling Tools	11.5	ft.
⋕ At Completion (in augers)	-	ft.
⋕ At Completion (open hole)	-	ft.
▼ Date: 5/17 hours	6.0	ft.
▼ After - hours	-	ft.
▩ Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-110**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/18/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Ortiz/Nichols	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.596037, Longitude (deg): -85.897801	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Reddish brown, with limestone fragments													
Auger Refusal at 32.3 feet	32.3												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	11.5	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	6.0	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-111**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/15/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Phillips/Ortiz	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 693.8
Latitude (deg): 37.595713, Longitude (deg): -85.89863

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Remarks
TOPSOIL	0.7					
FAT CLAY (CH), Brown			1	SS	2-1-2- [*3*]	
			2	SH		
LEAN CLAY (CL), with silt, Gray	5.0	5				
			3	SS	6-14-14- [*28*]	
- with limestone fragments			4	SH		
FAT CLAY (CH), Dark reddish brown	10.0	10				
- mottled gray and dark gray			5	SS	3-3-5- [*8*]	
			6	SH		Shelby Tube attempted at about 13 ft
		15	7	SS	4-3-3- [*6*]	
- with gravel and limestone fragments			8	SH		
		20				
- transition to reddish brown						
			9	SS	4-2-3- [*5*]	
		25				
			10	SH		

TEST DATA: Groundwater; Qu-tsf Unconfined Compressive Strength; Moisture Content %; Liquid Limit (LL); Plastic Limit (PL); Percent Passing #200 Sieve

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	5.0	ft.
At Completion (in augers)	12.0	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	11.0	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
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TEST BORING LOG
(Continued)

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **BVB-111**
JOB # **LOUGE22032**
DRAWN BY **R. Ortiz**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	4/14/22	Hammer Wt.	140 lbs.
Date Completed	4/15/22	Hammer Drop	30 in.
Drill Foreman	D. Caudill	Spoon Sampler OD	2 in.
Inspector	Phillips/Ortiz	Rock Core Dia.	2 in.
Boring Method	HSA, AH	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION (continued) Latitude (deg): 37.595713, Longitude (deg): -85.89863	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Standard Penetration Test Blows per 6" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
FAT CLAY (CH), Dark reddish brown - trace limestone fragments			11	SS			2-2-3- [5]						
		35	12	SS			16-6-8- [14]						
	40.0	40		RC									
LIMESTONE, Light gray, slightly weathered, moderately fractured, vuggy to 41 ft - with a 6-inch highly fractured layer - with a 12-inch highly fractured layer			RC 1										RQD=20%
		45		RC									
- highly fractured to 50 ft			RC 2										RQD=0%
		50		RC									
- with a 2-inch vertical fracture			RC 3										RQD=46%
	55.0	55											
Boring Terminated at 55 feet													

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	5.0	ft.
At Completion (in augers)	12.0	ft.
At Completion (open hole)	-	ft.
Date: 5/17 hours	11.0	ft.
After - hours	-	ft.
Cave Depth		ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-101**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SOIL CLASSIFICATION
SURFACE ELEVATION (ft): 692.3
Latitude (deg): 37.596796, Longitude (deg): -85.899928

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Groundwater	Dynamic Cone Penetration Test Blows per 1.75" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
LEAN CLAY (CL), Dark brown and Reddish brown	1.0		1	CU			4-4-5- [*4.5*]						
LEAN CLAY (CL), Reddish brown and Gray	2.0		2	CU									
			3	CU			5-5-6- [*5.5*]						
			4	CU									
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

Atlas Technical Consultants
2724 River Green Circle
Louisville, KY 40206
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Fax (502) 267-4072

TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-102**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SOIL CLASSIFICATION

SURFACE ELEVATION (ft): 698.7
Latitude (deg): 37.596858, Longitude (deg): -85.898032

Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test N-Value (blows/1.75")	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL												
1.3		1	CU									
LEAN CLAY (CL), Light brown												
		2	CU			2-3-4- [*3.5*]						
- with gray, with silt												
		3	CU									
		4	CU			7-7-9- [*8*]						
4.5												
Boring Terminated at 4.5 feet												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-103**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 710.2
Latitude (deg): 37.596686, Longitude (deg): -85.895701

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test Blows per 1.75" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	0.1												
LEAN CLAY (CL), Brown			1	CU			5-4-5- [*4.5*]						
- with reddish brown			2	CU									
			3	CU			5-7-16- [*11.5*]						
LEAN CLAY (CL), Gray and Reddish brown	3.5		4	CU									
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-104**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION (ft): 705.1 Latitude (deg): 37.596091, Longitude (deg): -85.897059	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test Blows per 1.75" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
LEAN CLAY (CL) with silt, Brown	0.6												
			1	CU			5-8-8- [*8*]						
			2	CU									
- with gray													
			3	CU			15-17-25- [*21*]						
			4	CU									
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-105**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/13/22	Hammer Wt.	140 lbs.
Date Completed	5/13/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 691.4
Latitude (deg): 37.595254, Longitude (deg): -85.899846

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test Blows per 1.75" [*N-Value*] *blows/foot*	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL													
LEAN CLAY (CL), Light brown	0.5												
			1	CU			7-6-6- [*6*]						
- with gray			2	CU			7-6-7- [*6.5*]						
			3	CU			10-11-12- [*11.5*]						
			4	CU			10-13-17- [*15*]						
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	-	ft.
At Completion (in augers)	-	ft.
At Completion (open hole)	-	ft.
After - hours	-	ft.
After - hours	-	ft.
Cave Depth	-	ft.

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer

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TEST BORING LOG

CLIENT **LG&E-KU**
PROJECT NAME **Glendale South Substation**
PROJECT LOCATION **Hodgenville Road West**
Glendale, Kentucky

BORING # **HA-106**
JOB # **LOUGE22032**
DRAWN BY **Z. Nichols**
APPROVED BY **T. Andres**

DRILLING and SAMPLING INFORMATION

Date Started	5/17/22	Hammer Wt.	140 lbs.
Date Completed	5/17/22	Hammer Drop	30 in.
Drill Foreman	R. Ortiz	Spoon Sampler OD	2 in.
Inspector	Z. Nichols	Rock Core Dia.	2 in.
Boring Method	Hand Auger	Shelby Tube OD	3 in.

SURFACE ELEVATION (ft): 697.1
Latitude (deg): 37.595314, Longitude (deg): -85.897949

SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	Groundwater	Dynamic Cone Penetration Test N-Value (blows/1.75")	Qu-tsf Unconfined Compressive Strength	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing #200 Sieve	Remarks
TOPSOIL	0.7												
LEAN CLAY (CL), Brown			1	CU									
			2	CU			6-6-7- [*6.5*]						
			3	CU									
LEAN CLAY (CL), Reddish brown and Gray	3.7		4	CU			50/0"--- [*50/0"*]						
Boring Terminated at 4.5 feet	4.5												

Sample Type
SPT - Standard Penetration Test
SS - Driven Split Spoon
SH - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Depth to Groundwater

Noted on Drilling Tools	- ft.	
At Completion (in augers)	- ft.	
At Completion (open hole)	- ft.	
After - hours	- ft.	
After - hours	- ft.	
Cave Depth	- ft.	

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
MH - Manual Hammer
AH - Automatic Hammer