

**PROJECT DESCRIPTION**

THE MOE-TR183-0.13 PROJECT CONSISTS OF THE REPLACEMENT OF AN EXISTING SINGLE SPAN BRIDGE STRUCTURE CARRYING PAINES RUN ROAD (TR 183) OVER PAINES RUN AT MILE MARKER 0.13 IN MONROE COUNTY, OHIO.

**HISTORIC RECORDS**

HDR IS UNAWARE OF ANY PRIOR GEOTECHNICAL EXPLORATIONS WITHIN THE PROJECT LIMITS.

**GEOLOGY**

THE PROJECT SITE IS LOCATED WITHIN THE LITTLE SWITZERLAND PLATEAU REGION OF THE ALLEGHENY PLATEAUS SECTION OF THE APPALACHIAN PLATEAUS PROVINCE. THE LITTLE SWITZERLAND PLATEAU REGION IS CHARACTERIZED BY HIGHLY DISSECTED, HIGH RELIEF VALLEYS OF GENERALLY 450 TO 750 FEET ALONG THE OHIO RIVER. ELEVATIONS IN THIS REGION GENERALLY RANGE FROM 450 TO 1,400 FEET ABOVE SEA LEVEL. SOILS IN THE LITTLE SWITZERLAND PLATEAU TYPICALLY CONSIST OF RED AND BROWN SILTY-CLAY LOAM COLLUVIUM OVER PENNSYLVANIAN-AGE UPPER CONEMAUGH GROUP THROUGH PERMIAN-AGE DUNKARD GROUP CYCLIC SEQUENCES OF RED AND GRAY SHALES, AND SILTSTONES, SANDSTONES, LIMESTONES, AND COALS.

DRAINAGE IN THE PROJECT AREA IS ACCOMMODATED BY PAINES RUN, WITH THE CONFLUENCE OF PAINES RUN AND SUNFISH CREEK LOCATED APPROXIMATELY 900 FEET DOWNSTREAM OF THE PROJECT SITE. SUNFISH CREEK AND ITS TRIBUTARIES DRAIN MUCH OF THE NORTHERN PART OF MONROE COUNTY, AND EVENTUALLY DRAINS INTO THE OHIO RIVER, APPROXIMATELY 5 MILES EAST OF THE PROJECT SITE. ACCORDING TO THE SURFICIAL GEOLOGY DATA FROM THE OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR) DIVISION OF GEOLOGICAL SURVEY, SURFICIAL SOILS AT THE SITE CONSIST OF PRIMARILY HOLOCENE-AGED ALLUVIAL DEPOSITS WITH UNDERLYING WISCONSINAN-AGED SAND AND GRAVEL. THESE SURFICIAL DEPOSITS ARE UNDERLAIN BY PENNSYLVANIAN BEDROCK INCLUDING SANDSTONE, SHALE, SILTSTONE, CLAY, LIMESTONE, AND COAL. THE ALLUVIUM DEVELOPS IN FLOODPLAINS OF MODERN STREAMS WITH SOILS RANGING FROM SILT TO CLAY TO BOULDERS, COMMONLY INCLUDING ORGANIC MATERIALS. THE SAND AND GRAVEL DEPOSITS CONSIST OF INTERMIXED AND INTERBEDDED SAND AND GRAVEL, COMMONLY CONTAINING THIN, DISCONTINUOUS LAYERS OF SILT AND CLAY. THE DEPOSITS MAY BE FINELY STRATIFIED TO MASSIVE, AS WELL AS CROSS BEDDED.

THE UNDERLYING BEDROCK MAPPED WITHIN THE PROJECT AREA IS THE UPPER PENNSYLVANIAN-AGE MONONGAHELA GROUP AND GENERALLY CONSISTS OF SHALE, SILTSTONE, LIMESTONE, SANDSTONE, AND COAL WITH LATERALLY EXTENSIVE NONMARINE LIMESTONE AND COAL BEDS. GENERAL FEATURES INCLUDE LENTICULAR, PLANAR, NODULAR, IRREGULAR, AND CROSS BEDDING, WITH THIN TO MASSIVE BEDDING. THE SANDSTONES ARE DESCRIBED AS FINE TO COARSE GRAINED, LOCALLY CALCAREOUS AND CONGLOMERATIC, THIN TO MASSIVE TO CROSS BEDDED, AND MICACEOUS. LIMESTONE IS DESCRIBED AS MICRITIC TO COARSE GRAINED, THIN TO MEDIUM BEDDING INCLUDING NODULAR TO IRREGULAR BEDDING. COALS ARE BANDED, BITUMINOUS, THIN TO THICK BEDDED WITH LOCAL TO REGIONAL DISTRIBUTION. SIGNIFICANT DEEP MINING OF THE PITTSBURGH NO. 8 COAL SEAM OF THE MONONGAHELA GROUP HAS BEEN PERFORMED APPROXIMATELY 0.75 MILE NORTHEAST OF THE PROJECT SITE. SEVERAL ABANDONED MINE ENTRANCES ARE ALSO LOCATED WITHIN APPROXIMATELY 0.75 MILE TO 1.0 MILE SOUTH AND WEST OF THE PROJECT SITE, ASSOCIATED WITH THE MEIGS CREEK NO. 9 AND UNIONTOWN NO. 10 COAL SEAMS, ALSO OF THE MONONGAHELA GROUP. HOWEVER, NO PREVIOUS SURFACE OR DEEP MINING WAS MAPPED AT THE PROJECT SITE ITSELF.

**RECONNAISSANCE**

A VISUAL RECONNAISSANCE OF THE PROJECT SITE AND SURROUNDING AREA WAS PERFORMED BY AN HDR GEOTECHNICAL ENGINEER DURING THE DRILLING ACTIVITIES ON OCTOBER 17 AND 18, 2022. THE PROJECT SITE IS LOCATED WITHIN A RELATIVELY WIDE VALLEY CONTAINING SUNFISH CREEK, NEAR THE TOE OF THE VALLEY WALL. THE EXISTING SINGLE SPAN STRUCTURE IS SUPPORTED BY TWO APPROXIMATELY 23-INCH DEEP BY 9-INCH WIDE STEEL SECTIONS SPANNING BETWEEN THE TWO BRIDGE ABUTMENTS. THE ABUTMENTS APPEAR TO HAVE BEEN PREVIOUSLY CONSTRUCTED OF 15-INCH BY 15-INCH BY 36-INCH STACKED STONE BLOCKS, WHICH HAVE SINCE BEEN BRACED AND STRENGTHENED WITH A SOLDIER PILE AND LAGGING WALL ALONG THE FACE OF THE MASONRY ABUTMENT. THE LAGGING CONSISTS OF CORRUGATED STEEL SHEETING AT THE NORTH ABUTMENT, AND GUARDRAIL AT THE SOUTH ABUTMENT. MEASURED FROM THE CREEK BED TO THE BRIDGE DECK SURFACE, THE ABUTMENT WALLS ARE APPROXIMATELY 9 FEET IN HEIGHT ALONG THE SOUTH ABUTMENT AND APPROXIMATELY 4.5 FEET AT THE NORTH ABUTMENT.

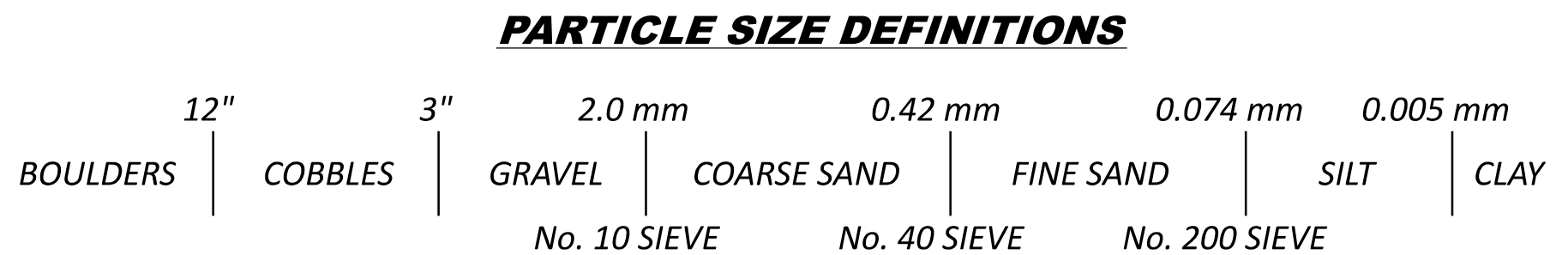
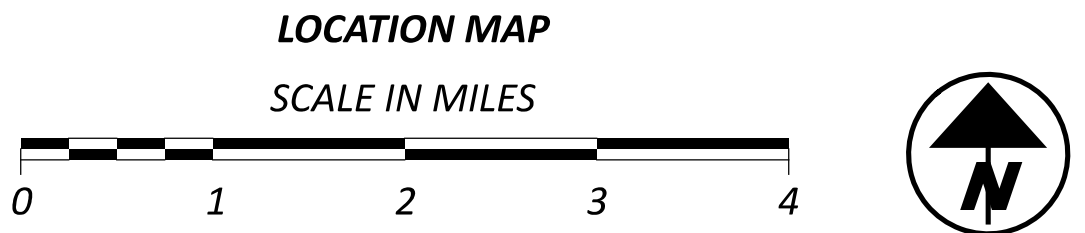
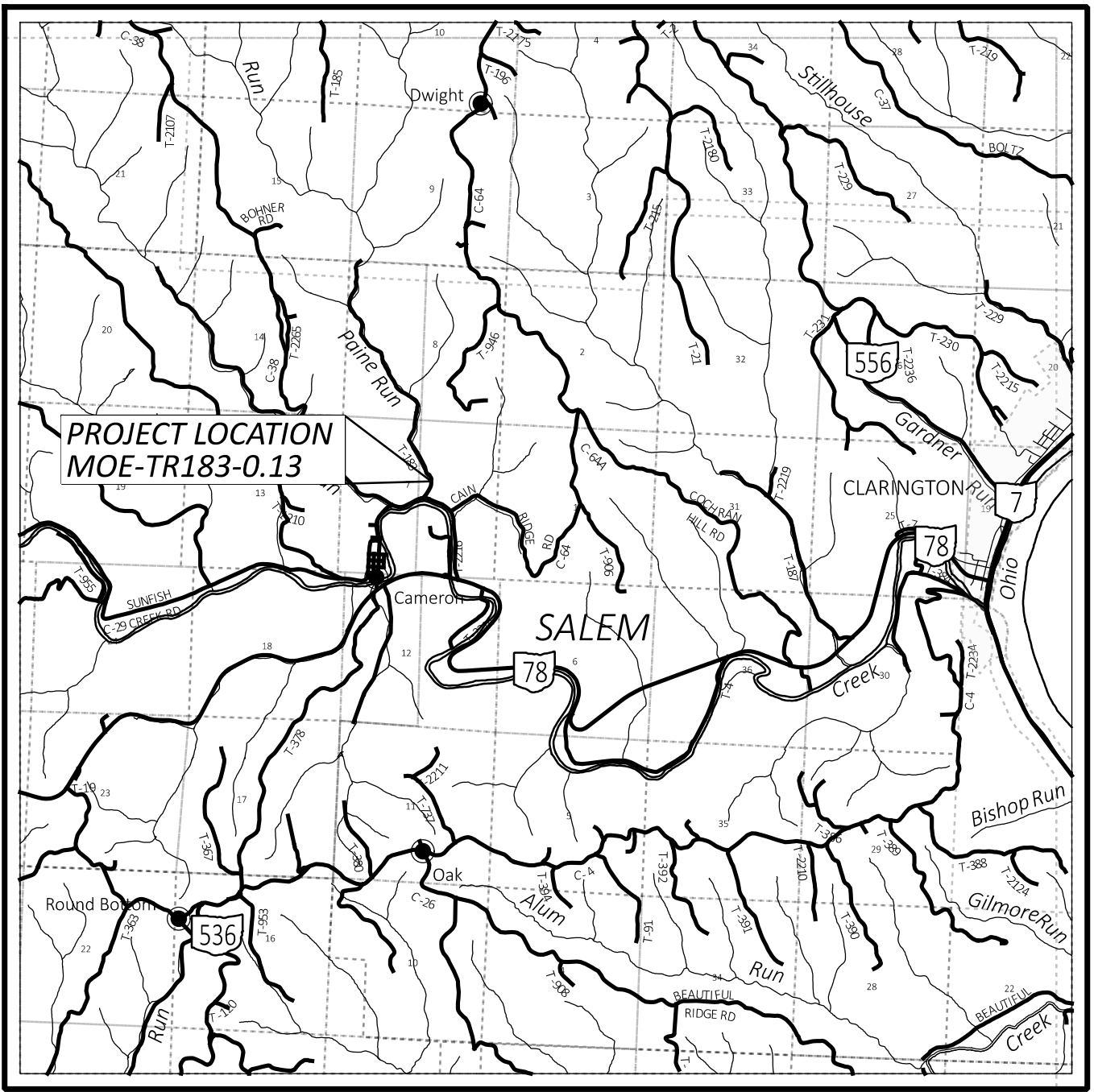
THE EXISTING BRIDGE DECK CONSISTS OF APPROXIMATELY 2.5-INCH BY 3.5-INCH WOOD PLANKS, PLACED PERPENDICULAR TO THE ALIGNMENT, SUPPORTED ON SIX EVENLY SPACED 3-INCH WIDE BY 5-INCH DEEP STEEL SECTIONS POSITIONED PARALLEL TO THE ALIGNMENT. MULTIPLE GAPS AND HOLES WERE NOTED NEAR THE MIDDLE BRIDGE SPAN FROM APPARENT ROT AND DECAY OF THE PLANKS. THE BRIDGE DECK IS SUPPORTED BY 10 APPROXIMATELY 6.5-INCH WIDE BY 8-INCH DEEP STEEL SECTIONS SPANNING PERPENDICULAR TO THE ALIGNMENT AND CONNECTED TO THE TWO 23-INCH DEEP BY 9-INCH WIDE STEEL SECTIONS RUNNING ALONG THE SIDES OF THE BRIDGE. THE EXCEPTIONS ARE THE SOUTHERN- AND NORTHERN-MOST 6.5-INCH BY 8-INCH STEEL SECTIONS. AS THE BRIDGE IS SET SLIGHTLY ASKEW TO THE CREEK, THESE STEEL SECTIONS DO NOT SPAN THE ENTIRE WIDTH OF THE BRIDGE, BUT RATHER INTERSECT THEIR RESPECTIVE ABUTMENTS. MULTIPLE 6.5-INCH BY 8-INCH STEEL SECTIONS EXHIBITED SEVERE RUST AND CORROSION RESULTING IN SECTION LOSS OF THE WEBBING AT SEVERAL LOCATIONS.

AN APPROXIMATELY 12-INCH DIAMETER RUBBER PIPE WITH A 24-INCH DIAMETER CORRUGATED PLASTIC PIPE SERVING AS OUTER CASING WAS OBSERVED TO BE TRAVERSING BENEATH THE BRIDGE STRUCTURE ALONG THE SOUTH ABUTMENT WALL. NO DETAILS ON THIS OVERLAND PIPE WERE AVAILABLE AT THE TIME OF THE RECONNAISSANCE

LEGEND		ODOT CLASS	CLASSIFIED MECH./VISUAL	
DESCRIPTION				
	GRAVEL/STONE FRAGMENTS	A-1-b	2	2
	GRAVEL/STONE FRAGMENTS W/ SAND & SILT	A-2-4	5	4
	GRAVEL/STONE FRAGMENTS W/ SAND, SILT & CLAY	A-2-6	4	2
	SANDY SILT	A-4a	1	3
		TOTAL	12	11
	SHALE			
	CLAYSTONE			
	SANDSTONE			
	BORING LOCATION - PLAN VIEW.			
	DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.			
WC	INDICATES WATER CONTENT IN PERCENT.			
N <sub>60</sub>	INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.			
X/Y/Z	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS FOR FIRST 6 INCHES. Y= NUMBER OF BLOWS FOR SECOND 6 INCHES. Z= NUMBER OF BLOWS FOR THIRD 6 INCHES.			
X/Y/D"	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS 6 INCHES (UNCORRECTED), Y/D"= NUMBER OF BLOWS (UNCORRECTED) FOR D"OF PENETRATION AT REFUSAL.			
W	INDICATES FREE WATER ELEVATION.			
SS	INDICATES A SPLIT SPOON SAMPLE.			
TR	INDICATES TOP OF ROCK.			
Qu	INDICATES ROCK COMPRESSION TEST, ASTM D7012, METHOD C, RESULTS. INDICATES POINT LOAD STRENGTH INDEX OF ROCK TEST, ASTM D5731, RESULTS.			

**SUBSURFACE EXPLORATION**

THE GEOTECHNICAL EXPLORATION PROGRAM CONSISTED OF TWO TEST BORINGS DRILLED ALONG THE GRASSY SHOULDER AT EITHER END OF THE BRIDGE TO CHARACTERIZE THE SUBSURFACE PROFILE ALONG THE PROJECT ALIGNMENT. THE TEST BORINGS (DESIGNATED AS BORINGS B-001-0-22 THROUGH B-002-0-22) WERE DRILLED BEHIND THE WEST SIDE OF THE SOUTH ABUTMENT AND BEHIND THE EAST SIDE OF THE NORTH ABUTMENT, RESPECTIVELY, ADJACENT TO THE TRAVEL LANE. THE BORINGS WERE DRILLED BY CENTRAL STAR DRILLING WITH A DIEDRICH D-50 TRACK-MOUNTED DRILL RIG BEGINNING ON OCTOBER 17, 2022 AND COMPLETED ON OCTOBER 18, 2022. THIS RIG WAS CALIBRATED ON MARCH 7, 2022 WITH A HAMMER ENERGY RATIO OF 86.8%. THE BORINGS WERE DRILLED IN GENERAL ACCORDANCE WITH THE SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS (ODOT REVISED JULY 2022) UTILIZING 2.25-INCH HOLLOW STEM AUGERS TO ADVANCE THE BORINGS. SAMPLING OF THE SOILS WAS PERFORMED AT 2.5-FOOT INTERVALS TO THE DEPTHS EXPLORED, EXCEPT FOR 6 FEET OF CONTINUOUS SAMPLING OF THE SOILS PERFORMED AT THE APPROXIMATE CREEK BED ELEVATION. SAMPLING WAS ACCOMPLISHED IN ACCORDANCE WITH THE "STANDARD TEST METHOD FOR PENETRATION TEST AND SPLIT-BARREL SAMPLING OF SOILS", ASTM D 1586. SAMPLING OF THE UNDERLYING BEDROCK WAS PERFORMED AT EACH BORING IN ACCORDANCE WITH THE "STANDARD PRACTICE FOR ROCK CORE DRILLING AND SAMPLING OF ROCK FOR SITE INVESTIGATION" (ASTM D 2113) USING AN NQ2-SIZE DOUBLE-TUBE SWIVEL BARREL WITH A DIAMOND BIT.



SCOUR ANALYSIS PARAMETERS					
BORING NO.	SAMPLE NO.	ELEVATION (ft)	D50 VALUES (mm)	τ (psf)	EROSION CATEGORY (EC)
B-001-0-22	SS-5	677.6 - 676.1	4.835	0.101	3.02
	SS-6	676.1 - 674.6	3.033	0.063	2.78
	SS-7	674.6 - 673.1	2.480	0.052	2.67
	SS-8	673.1 - 671.6	5.339	0.112	3.07
B-002-0-22	SS-5	678.7 - 677.2	4.247	0.089	2.95
	SS-6	677.2 - 675.7	1.394	0.029	2.37
	SS-7	675.7 - 674.2	2.665	0.056	2.71
	SS-8	674.7 - 672.7	3.084	0.064	2.79

BEDROCK TEST SUMMARY				
BORING NO.	SAMPLE	SAMPLE ELEVATION	DEPTH	Qu (PSI)
B-001-0-22	NQ2-1	659.8 - 658.1	27.3' - 29.0'	1,313
B-001-0-22	NQ2-2	654.6 - 653.7	32.5' - 33.4'	266
B-002-0-22	NQ2-2	655.5 - 654.7	33.2' - 34.0'	282
B-002-0-22	NQ2-3	650.4 - 649.4	38.3' - 39.3'	10,068

RECON. - DCM 10/17/2022  
 DRILLING - CENTRAL STAR 10/17/2022 - 10/18/2022  
 DRAWN - CLW 11/16/2022 - 12/02/2022  
 REVIEWED - DMV 12/02/2022



DESIGNER	DCM
REVIEWER	DMV 12-02-22
PROJECT ID	117574
SHEET	TOTAL
1	7

**EXPLORATION FINDINGS**

THE GENERALIZED SOIL PROFILE AS ENCOUNTERED IN THE BORINGS CONSISTS OF ALLUVIAL SAND AND GRAVEL DEPOSITS OVERLYING SHALE, CLAYSTONE, AND SANDSTONE BEDROCK. THE UPPER LAYERS OF THE GRANULAR DEPOSITS CONSISTED PRIMARILY OF LOOSE TO MEDIUM DENSE SANDY SILT (A-4A), GRAVEL WITH SAND, SILT, AND CLAY (A-2-6), AND GRAVEL WITH SAND AND SILT (A-2-4). THESE SOILS WERE ENCOUNTERED TO A DEPTH OF 16 FEET BELOW GROUND SURFACE (BGS) (EL. 671.1) IN BORING B-001-0-22 AND 20 FEET BGS (EL. 668.7) IN BORING B-002-0-22. A THIN LAYER OF MEDIUM DENSE GRAVEL WITH SAND (A-1-B) WAS ALSO ENCOUNTERED IN BORING B-002-0-22, FROM 11.5 TO 13 FEET BGS. THE N60-VALUES IN THE UPPER SOIL LAYERS RANGED FROM 4 TO 23 BLOWS PER FOOT (BPF).

A SIGNIFICANT INCREASE IN THE RELATIVE DENSITY OF THE GRANULAR DEPOSITS WAS NOTED BENEATH THESE UPPER LAYERS, WITH DENSE TO VERY DENSE GRAVEL AND STONE FRAGMENTS WITH SAND (A-1-B) AND VERY DENSE GRAVEL AND STONE FRAGMENTS WITH SAND, SILT AND CLAY (A-2-6) ENCOUNTERED. THIS LAYER EXTENDED TO THE TOP OF ROCK AT 23.5 FEET BGS (EL. 663.6) IN BORING B-001-0-22 AND TO A VERY DENSE SANDY SILT (A-4A) EXHIBITING RELIC ROCK STRUCTURE AT 22.5 FEET BGS (EL. 666.2) IN BORING B-002-0-22. THIS RESIDUAL SOIL EXTENDED TO THE TOP OF ROCK AT 25 FEET BGS (EL. 663.7). THE N60-VALUES IN THESE LOWER LAYERS RANGED FROM 35 TO 91 BPF.

SHALE, CLAYSTONE, AND SANDSTONE BEDROCK WAS ENCOUNTERED UNDERLYING THE SAND AND GRAVEL DEPOSITS TO THE BORING TERMINATION DEPTHS OF APPROXIMATELY 40 FEET. SHALE WAS ENCOUNTERED FROM A DEPTH OF 23.5 TO 29.5 FEET BGS (EL. 663.6 TO EL. 657.6) IN BORING B-001-0-22 AND 25 TO 28 FEET BGS (EL. 663.7 TO EL. 660.7) IN BORING B-002-0-22. THE SHALE WAS CHARACTERIZED AS SLIGHTLY WEATHERED, VERY WEAK TO SLIGHTLY STRONG WITH A STRATUM ROCK QUALITY DESIGNATION (SRQD) OF 52% TO 67%. CLAYSTONE WAS ENCOUNTERED UNDERLYING THE SHALE FROM A DEPTH OF 29.5 FEET (EL. 657.6) TO 34.7 FEET BGS (EL. 652.4) IN BORING B-001-0-22 AND 28 FEET BGS (EL. 660.7) TO 36.9 FEET BGS (EL. 651.8) IN BORING B-002-0-22. THE CLAYSTONE WAS CHARACTERIZED AS MODERATELY TO SLIGHTLY WEATHERED AND WEAK TO VERY WEAK WITH A SRQD RANGING FROM 49% TO 73%. SANDSTONE WAS ENCOUNTERED UNDERLYING THE CLAYSTONE AT DEPTHS OF 34.7 FEET BGS (EL. 652.4) AND 36.9 FEET BGS (EL. 651.8) IN BORINGS B-001-0-22 AND B-002-0-22, RESPECTIVELY, TO TERMINATION. THE SANDSTONE WAS CHARACTERIZED AS UNWEATHERED TO SLIGHTLY WEATHERED AND SLIGHTLY TO MODERATELY STRONG WITH A SRQD OF 97% TO 100%.

GROUNDWATER WAS ENCOUNTERED IN BOTH BORINGS DURING DRILLING. AS WATER WAS INTRODUCED DURING DRILLING ACTIVITIES TO PERFORM ROCK CORING, WATER LEVELS UPON COMPLETION WERE NOT OBTAINED. FURTHERMORE, THE BORINGS WERE SEALED IMMEDIATELY UPON COMPLETION AS THE BORINGS WERE PERFORMED IN CLOSE PROXIMITY TO THE TRAVELED LANE, AND DELAYED WATER READINGS WERE NOT OBTAINED.

**SPECIFICATIONS**

THE GEOTECHNICAL EXPLORATION WAS PERFORMED IN GENERAL ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING "SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS", DATED JULY 2022.

**AVAILABLE INFORMATION**

THE SOIL, BEDROCK, AND GROUNDWATER INFORMATION COLLECTED FOR THIS SUBSURFACE EXPLORATION THAT CAN BE CONVENIENTLY DISPLAYED ON THE GEOTECHNICAL PROFILE SHEETS HAS BEEN PRESENTED. GEOTECHNICAL REPORTS, IF PREPARED, ARE AVAILABLE FOR REVIEW ON THE OFFICE OF CONTRACT SALES WEBSITE.

DESIGN AGENCY



DESIGNER

DCM

REVIEWER

DMV 12-02-22

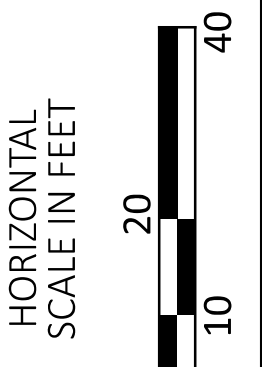
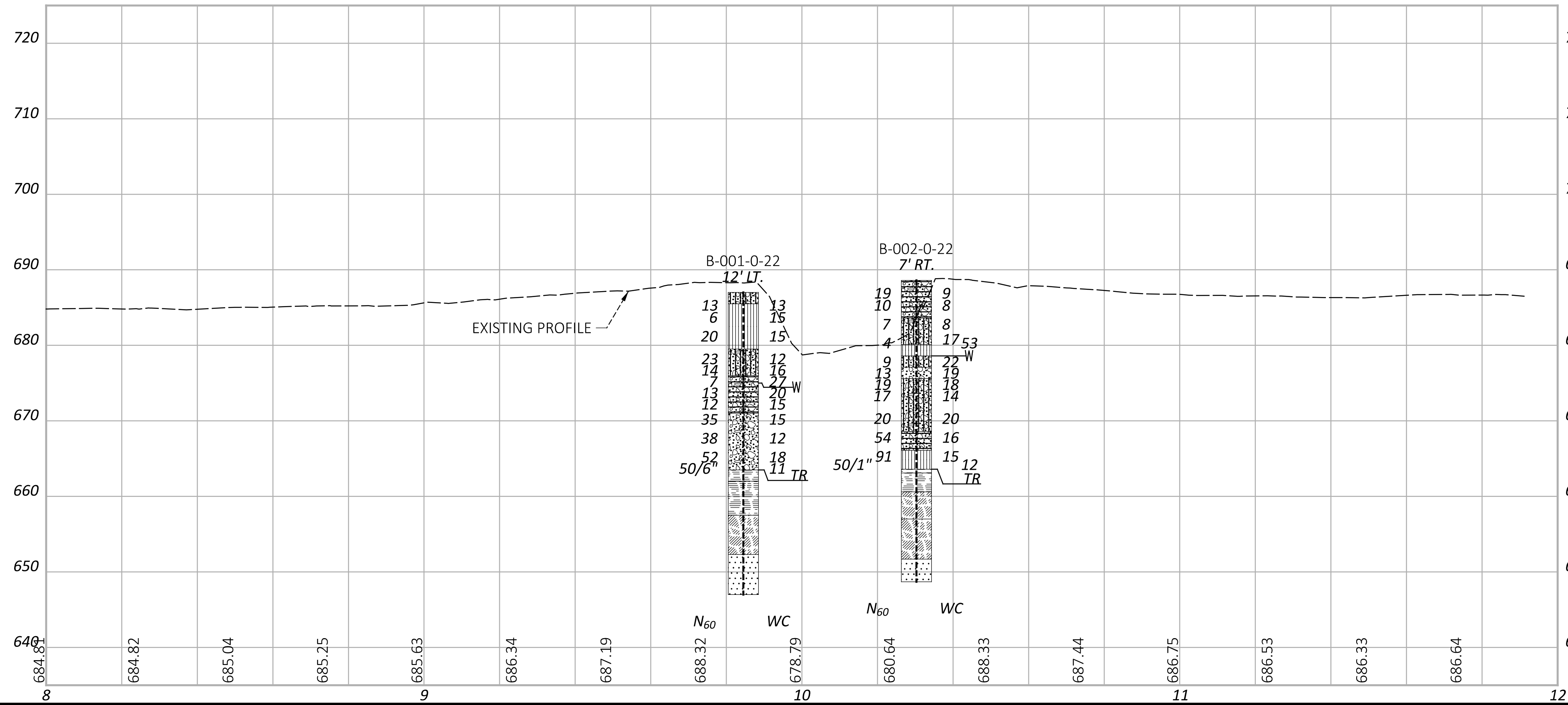
PROJECT ID

117574

SHEET TOTAL

2 7





GEOTECHNICAL PROFILE - BRIDGE  
 SFN:5634504 OVER PAINES RUN  
 STA. 8+00.00 TO STA. 12+00.00

DESIGN AGENCY



DESIGNER

DCM

REVIEWER

DMV 12-02-22

PROJECT ID

117574

SHEET

3

TOTAL

7



PROJECT: MOE-TR183-00.13 TYPE: BRIDGE	DRILLING FIRM / OPERATOR: CENTRAL STAR / TS SAMPLING FIRM / LOGGER: HDR / DCM	STATION / OFFSET: 9+85, 12' LT. ALIGNMENT: TR183	EXPLOSION ID B-001-0-22												
				DRILL RIG: DIETRICH D-50 TRACK HAMMER: AUTOMATIC HAMMER	STATION / OFFSET: 9+85, 12' LT. ALIGNMENT: TR183										
PID: 117574 SFN: 5634504	DRILLING METHOD: 2.25" HSA / NQ2	ELEVATION: 687.1 (MSL) EOB: 40.0 ft.	PAGE 1 OF 1												
START: 10/17/22 END: 10/17/22	SAMPLING METHOD: SPT / NQ2	LAT / LONG: 39.775803, -80.937953													
MATERIAL DESCRIPTION AND NOTES															
ELEV. 687.1	DEPTHS	SPT / RQD	REC SAMPLE ID	REC (%)	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	WC	ODOT CLASS (GI)	HOLE SEALED
MEDIUM DENSE, BROWN, GRAVEL WITH SAND AND SILT, DAMP	1	4	SS-1	17	-	-	-	-	-	-	-	-	13	A-2-4 (V)	
LOOSE TO MEDIUM DENSE, BROWN, SANDY SILT, SOME GRAVEL, TRACE CLAY, DAMP	2														
	3	2	SS-2	67	-	-	-	-	-	-	-	-	15	A-4a (V)	
	4														
	5	2	SS-3	78	-	25	21	16	28	10	23	16	7	A-4a (1)	
	6	7													
	7														
MEDIUM DENSE, BROWN, GRAVEL WITH SAND AND SILT, TRACE CLAY, MOIST	8	7	SS-4	100	-	-	-	-	-	-	-	-	12	A-2-4 (V)	
	9	10													
	10	5	SS-5	78	-	63	7	20	2	8	31	24	7	A-2-4 (0)	
	11	4	SS-6	100	-	60	11	8	9	12	40	22	18	A-2-6 (0)	
	12	2	SS-7	39	-	54	16	11	10	9	29	17	12	A-2-6 (0)	
	13	2													
	14	5	SS-8	50	-	62	12	11	7	8	27	13	14	A-2-6 (0)	
	15	4													
	16	10	SS-9	67	-	-	-	-	-	-	-	-	15	A-1-b (V)	
	17	11													
	18	13													
	19	7	SS-10	78	-	59	12	12	9	8	19	15	4	A-1-b (0)	
	20	9													
	21	15	SS-11	44	-	-	-	-	-	-	-	-	18	A-1-b (V)	
	22	21													
	23	50/6"	SS-12	100	-	-	-	-	-	-	-	-	11	Rock (V)	
SHALE, GRAY, MODERATELY WEATHERED, VERY WEAK.	24														
	25														
SHALE, GRAY TO DARK GRAY, SLIGHTLY WEATHERED, WEAK, MEDIUM BEDDED, ARENACEOUS, PYRITIC, JOINT AND BEDDING DISCONTINUITIES, FRACTURED TO MODERATELY FRACTURED, NARROW APERTURE, SLIGHTLY ROUGH, MASSIVE TO BLOCKY, FAIR SURFACE CONDITIONS; RQD 67%, REC 100%.	26														
	27	75	NQ2-1	100	-	-	-	-	-	-	-	-		CORE	
	28														
	29														
SHALE, GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, FINE TO MEDIUM GRAINED, THICK BEDDED, BEDDING AND JOINT DISCONTINUITIES, SLIGHTLY FRACTURED, TIGHT APERTURE, SLIGHTLY ROUGH, MASSIVE, GOOD SURFACE CONDITIONS; RQD 100%, REC 100%.	30														
	31														
	32	75	NQ2-2	100	-	-	-	-	-	-	-	-		CORE	
	33														
	34														
	35														
	36														
	37	89	NQ2-3	100	-	-	-	-	-	-	-	-		CORE	
	38														
	39														
	40														

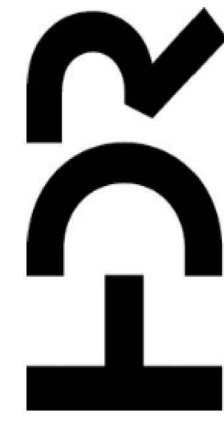
STANDARD ODOT BORING LOG (11 X 17) - OH DOT.GDT - 11/21/22 14:53 - C:\P\WORKING\EA\ST01\UD2962622022\114.MOE-TR183-0.13 BORINGLOGS.GPJ

NOTES: QUICKRETE CONCRETE USED TO PATCH PAVEMENT  
ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 25 LB. BENTONITE POWDER; 94 LB. CEMENT; 50 GAL. WATER

DESIGN AGENCY  
**DR**  
DESIGNER  
DCM  
REVIEWER  
DMV 12-02-22  
PROJECT ID  
117574  
SHEET 4 TOTAL 7

GEOTECHNICAL PROFILE - BRIDGE  
SFN:5634504 OVER PAINES RUN  
BORING LOG - B-001-0-22

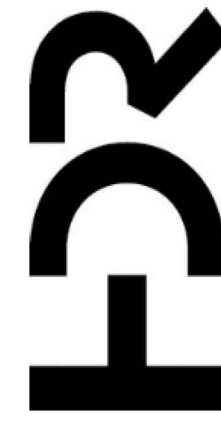




B-001-0-22



Run #	Depth (ft)		Recovery		RQD	
	25	29	48 in. / 48 in.	100%	36 in. / 48 in.	75%
NQ2-1			60 in. / 60 in.	100%	45 in. / 60 in.	75%
NQ2-2		34				
MOE-TR183-0.13, PID 117574						

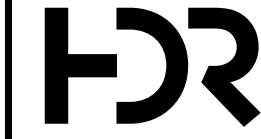


B-001-0-22



Run #	Depth (ft)		Recovery		RQD	
	34	40	72 in. / 72 in.	100%	64 in. / 72 in.	89%
NQ2-3						
MOE-TR183-0.13, PID 117574						

DESIGN AGENCY



DESIGNER	DCM
REVIEWER	
DMV PROJECT ID	12-02-22
PROJECT ID	117574
SHEET	TOTAL
5	7

GEOTECHNICAL PROFILE - BRIDGE  
 SFN:5634504 OVER PAINES RUN  
 ROCK CORE PHOTOS - B-001-0-22



**MOE-TR183-0-13**

MODEL: Untitled Sheet PAPER SIZE: 34x22 (in.) DATE: 12/27/2022 TIME: 5:00:45 PM USER: CWAHLBRI

PROJECT: MOE-TR183-00.13 TYPE: BRIDGE	DRILLING FIRM / OPERATOR: CENTRAL STAR / TS SAMPLING FIRM / LOGGER: HDR / DCM	DRILL RIG: DIETRICH D-50 TRACK HAMMER: AUTOMATIC HAMMER	STATION / OFFSET: 10+30.7' RT.	EXPLORATION ID B-002-0-22				
					ALIGNMENT: TR183			
PID: 117574 SFN: 5634504	DRILLING METHOD: 2.25" HSA / NQ2	CALIBRATION DATE: 3/7/22	ELEVATION: 688.7 (MSL) EOB: 39.9 ft.	PAGE				
START: 10/18/22 END: 10/18/22	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 86.8	LAT / LONG: 39.775919, -80.937860	1 OF 1				
MATERIAL DESCRIPTION AND NOTES								
DEPTHS	ELEV.	SPT / RQD	REC SAMPLE ID	GRADATION (%)	ATTERBERG	WC	ODOT CLASS (GI)	HOLE SEALED
		N <sub>60</sub>	(tsf)	GR CS FS SI CL	LL PL			
1	688.7	3	SS-1	-	-	-	9	A-2-6 (V)
2		6						
3		19						
4		7						
5	683.7	10	SS-2	57	16	12	8	A-2-6 (V)
6		3						
7		7	SS-3	69	14	8	8	A-2-4 (O)
8	680.2	2						
9		4	SS-4A	-	-	-	17	A-2-4 (V)
10	678.7	1	SS-4B	-	-	-	53	A-4a (V)
11	677.2	3	SS-5	60	14	12	22	A-2-4 (O)
12		13	SS-6	46	20	16	19	A-1-b (O)
13	675.7	7	SS-7	54	15	15	18	A-2-4 (O)
14		8						
15		17	SS-8	56	15	12	14	A-2-4 (O)
16		6						
17		20						
18		6	SS-9	-	-	-	20	A-2-4 (V)
19		8						
20	668.7	11	SS-10	62	14	9	16	A-2-6 (O)
21		24						
22		13						
23	666.2	30	SS-11	-	-	-	15	A-4a (V)
24		33						
25	663.7	50	SS-12	9	17	14	12	Rock (V)
26	663.2							
27								
28	660.7	64	NQ2-1					CORE
29								
30								
31	657.1							
32		58	NQ2-2					CORE
33								
34								
35								
36								
37	651.8	57	NQ2-3					CORE
38								
39	648.8							

NOTES: QUICKRETE CONCRETE USED TO PATCH PAVEMENT. SAMPLE SS-2 (2.5' - 4.0'): INSUFFICIENT AMOUNT OF SAMPLE TO PERFORM HYDROMETER TEST  
ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 25 LB. BENTONITE POWDER; 94 LB. CEMENT; 50 GAL. WATER

DESIGN AGENCY



DESIGNER  
DCM

REVIEWER  
DMV 12-02-22

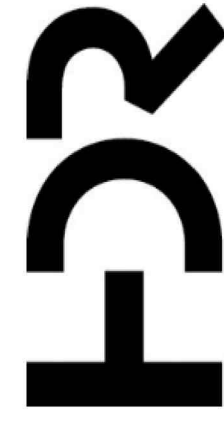
PROJECT ID  
117574

SHEET TOTAL  
6 7

**GEOTECHNICAL PROFILE - BRIDGE  
SFN:5634504 OVER PAINES RUN  
BORING LOG - B-002-0-22**

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 1/12/22 14:53 - C:\P\WORKING\ENG\EA\T01\02962262\2022\114 MOE-TR183-0-13 BORING LOGS.GPJ

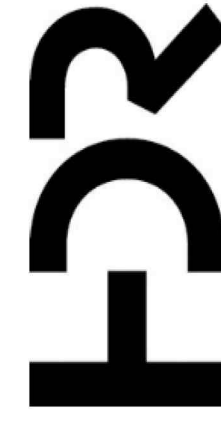




B-002-0-22



Run #	Depth (ft)	Recovery	RQD
NQ2-1	25.5	53 in. / 53 in.	34 in. / 53 in. 64%
NQ2-2	29.9	60 in. / 60 in.	35 in. / 60 in. 58%
MOE-TR183-0.13, PID 117574			



B-002-0-22



Run #	Depth (ft)	Recovery	RQD
NQ2-3	34.9	60 in. / 60 in.	34 in. / 60 in. 57%
MOE-TR183-0.13, PID 117574			