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GEOTECHNICAL ENVIRONMENTAL ECOLOGICAL WATER CONSTRUCTION MANAGEMENT

249 Vanderbilt Avenue Norwood, MA 02062 T: 781.278.3700 F: 781.278.5701 F: 781.278.5702 www.gza.com Date:October 5, 2022To:Josh Whitney, Vulcan Materials Company (Vulcan)
Elliott Botzis, Vulcan Materials CompanyFrom:Joshua Simpson, P.G., GZA GeoEnvironmental, Inc.
Mark Krumenacher, P.G., GZA GeoEnvironmental, Inc.File No.:20.0157528.00Re:August 2022 Subsurface Investigation
Vulcan Orangeburg Quarry ("Site")

Vulcan Orangeburg Quarry ("Site") Orangeburg County, South Carolina

In accordance with Contract Addendum No. 1 dated March 15, 2022, GZA GeoEnvironmental, Inc. (GZA) performed a subsurface investigation at the above referenced Site. The objectives of the subsurface investigation were to:

- Evaluate the bedrock surface elevation in two areas (termed "northern area" and "southern area");
- Assess the hydrogeologic properties (e.g., hydraulic conductivity) of the overburden;
- Obtain groundwater elevation data in multiple areas of the Site to better assess local groundwater flow conditions;
- Deploy transducers to collect water level data over time, which can be utilized to further assess baseline conditions prior to potential quarry operations; and
- Utilize the data collected during this investigation to assess potential future refinements to the numerical groundwater flow model developed for the Site.

This work and technical memorandum are subject to the limitations provided in Attachment 1.

BACKGROUND

Using prior Site corehole data, a bedrock surface elevation map was extrapolated for the Site. In early 2022, GZA incorporated the extrapolated bedrock surface elevations in a Site-specific groundwater flow model to evaluate dewatering rates and allowable extents of a potential quarry for varying dewatering elevations. An important condition of the prior modeling efforts is that the water level at the property boundary needed to remain at least 3 feet above the extrapolated bedrock surface during simulated quarry dewatering. Due to this condition, the simulated allowable areal extent of the quarry were restricted by areas of higher bedrock surface elevations at the property boundary. As a result, the August 2022 subsurface investigation was performed at the areas of higher extrapolated bedrock surface elevations to assess the accuracy of those extrapolated elevations.



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In addition, Site-specific hydraulic conductivity data was previously unavailable for the overburden. The simulated water reinjection rates at the property boundary, and the quarry dewatering rates, are directly related to this input parameter. Therefore, hydraulic testing at newly-installed monitoring wells screened within the overburden was also performed as part of this subsurface investigation.

AUGUST 2022 SUBSURFACE INVESTIGATION

On August 15, 2022, GZA and Elite Techniques, Inc. (Elite), our drilling subcontractor, mobilized to the Site to initiate the subsurface investigation. The following summarizes the work performed as part of the August 2022 subsurface investigation:

- 1) Elite advanced 17 soil boreholes to bedrock (10 locations) or to approximately five feet above bedrock (7 locations). Eleven boreholes were completed near the property boundary north of the potential quarry (northern area) and six boreholes were completed along the southern property boundary (southern area).
- 2) At the seven boreholes advanced to approximately five feet above bedrock, Elite installed 2-inch PVC monitoring wells screened within the overburden. Four wells were installed in the northern area, and three were installed in the southern area.
- 3) GZA developed the wells by purging dry multiple times using a Waterra foot valve/surge block. Following well development, in-well hydraulic testing was performed to estimate the hydraulic conductivity of the overburden.
- 4) GZA estimated the soil boring/monitoring well coordinates using a GPS unit and elevations based on Light Detection and Ranging (LiDAR) data available from the South Carolina Department of Natural Resources.
- 5) GZA measured water levels in each well and installed pressure transducers in one north and one south monitoring well.

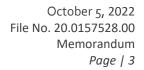
DRILLING PROGRAM

Prior to the initiation of field exploration activities, GZA and Vulcan reviewed the general drilling locations at the Site. Based on these discussions and due to access limitations, a portion of the drilling locations in the southern area were shifted to the north/northeast. The investigation locations are presented on **Figure 1**.

Direct push drilling techniques were performed by Elite using a Geoprobe 7822DT track-mounted rig. Each borehole was advanced until Geoprobe refusal was observed. Elite routinely utilizes this method in the region to estimate the depth to top of bedrock. During borehole advancement, soil samples were continuously collected using 5-foot sleeves. Drilling activities were observed by a GZA scientist on a full-time basis to document drilling observations and describe soil samples. In general, the overburden soils were described as silt with some fine sand and clay. Gravel, weathered limestone, was encountered above the bedrock. The soil boring logs are presented in **Attachment 2**.

GZA's field scientist also recorded the depth to bedrock for each borehole location, based upon Geoprobe refusal. The estimated bedrock surface elevations from this drilling program are lower than previous corehole data included in the groundwater flow model. As a result, the recent drilling data provides valuable data in previously unexplored areas. Note that "weathered limestone" elevations (as recorded by others) were conservatively used to extrapolate the prior bedrock surface map.

A lower bedrock surface elevation in these two areas would likely increase the simulated allowable areal extents of the quarry for varying dewatering elevations. **Figure 2** presents a comparison of the previously extrapolated bedrock surface map and an extrapolated bedrock surface map that incorporates the August 2022 data. A comparison of the August 2022 data to the nearby corehole data is presented in the following table.



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Drilling Area	Investigation Program	Location ID	Bedrock Surface Elevation (feet; NAVD 88)
		North-1	58.5
		North-2	57.5
		North-3	58.0
	August 2022	North-4	59.5
		North-5	62.5
Northern		North-6	64.0
		North-7	62.0
		19-019	"Weathered" – 68.5
	Driar Investigation	19-019	"Fresh" – 64.0
	Prior Investigation	19-020	"Weathered" – 69.0
		19-020	"Fresh" – 67.0
		South-1	54.5
	August 2022	South-2	54.0
		South-3	53.5
Southern		10.012	"Weathered" – 61.5
	Drior Investigation	19-013	"Fresh" – NR
	Prior Investigation	19-015	"Weathered" – 66.5
		19-015	"Fresh" – 66. 0

Four overburden monitoring wells (MW-4 through MW-7) were installed in the northern area. An additional three overburden monitoring wells (MW-8 through MW-10) were installed in the southern area. For each monitoring well installation, Elite advanced a borehole using 4 ¼-inch ID hollow stem augers (HSA) near a previously completed Geoprobe borehole. The bottom of each HSA borehole was approximately 5 feet above the recorded bedrock surface from the nearby Geoprobe borehole. For each well, a 5-foot section of 2-inch diameter, schedule 40 PVC well screen was connected to solid 2-inch PVC riser pipe. The annular space surrounding the PVC was filled with a sand filter pack to approximately 2 feet above the top of the screen. A 2-foot thick bentonite seal was installed above the sand filter pack. In conformance with South Carolina regulations, the remainder of the annular space was grouted to the ground surface. Each well was completed with a 2- to 4-foot stickup protective casing, including a locking cap, which was cemented in a concrete surface pad. The monitoring well installation logs are provided in **Attachment 3**.

Following well installation, GZA developed the monitoring wells to establish a better hydraulic connection between the monitoring well, filter pack, and surrounding soils. Each monitoring well was developed using a pumping and surging technique using a Waterra foot valve and/or Waterra surge block. After initiating the development process, GZA more rigorously removed fine particulates from the well/filter pack using the Waterra foot valve (without a surge block). The foot valve was initially placed near the top of the screen and subsequently moved downwards as the amount of suspended fines in the purge water decreased. Purge water was discharged at the ground surface, away from the concrete surface pad. Due to the lower permeability of the overburden, the wells were pumped dry multiple times during the development process (4-5 times in northern area; 2 times in southern area). GZA resumed development after the water level recovered to near static conditions in the well.



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HYDRAULIC CONDUCTIVITY TESTING

GZA performed hydraulic conductivity (K) testing in MW-4, MW-6, MW-9, and MW-10 to evaluate the hydrogeologic properties of the overburden. Two separate rising and falling head K tests (i.e., slug tests)¹ were performed at each well. During the testing, groundwater elevations in the test well were monitored using a pressure transducer. This instrument automatically recorded pressure (converted to water level) and temperature data at a user-specified time interval (e.g., one reading per second). Near the start and end of each test, manual water level readings were also collected by GZA.

The following procedure was generally followed for each falling head slug test:

- 1) The pressure transducer was deployed within the well and set within 0.5 feet from the bottom of the well screen. The transducer was set to record pressure/temperature data throughout the testing.
- 2) The slug was lowered into the well using a line/rope to the "pre-test" position, directly above the static water level within the well.
- 3) The slug was rapidly submerged below the static water level and the line/rope was secured at the ground surface so the slug remained at a constant position ("test" position).
- 4) The pressure transducer's water level readings were reviewed as the water level within the well lowered back to static conditions.

Once near-static water levels were observed, the slug was quickly removed from the water column to perform the rising head slug test. After near-static water levels were observed, the slug was then lowered back into the well for the second falling/rising head test at each location.

The K testing data was analyzed using AQTESOLV and the Bouwer and Rice slug test solution² for fully penetrating wells in an unconfined aquifer. The AQTESOLV solution fits are presented in **Attachment 4**. As presented in the following table, the estimated K_h (horizontal hydraulic conductivity) of the overburden in the vicinity of the tested wells ranges between approximately 0.1 and 2 feet/day.

¹ A "slug" refers to any object that can be lowered into a monitoring well to displace water within the well casing. As a result, the water level will rise within the well. When the slug is removed, the water level will decrease in the well. For this project, rebar was used as the slug.

² Bouwer, H. and Rice, R.C., 1976; A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells; Water Resources Research, Vol. 12, pp 423-428.



Well ID	Test	K _h (ft/day)	Average K _h (ft/day)	Geometric Mean K _h (ft/day)		
	Falling 1	1.9				
MW-4	Falling 2	1.9	1.8	1.7		
10100-4	Rising 1	1.8	1.8	1.7		
	Rising 2	1.4				
	Falling 1	0.9				
MW-6	Falling 2	0.6	0.5	0.4		
10100-0	Rising 1	0.2	0.5	0.4		
	Rising 2	0.2				
	Falling 1	0.2				
MW-9	Falling 2	0.02	0.1	0.1		
10100-5	Rising 1	0.05	0.1	0.1		
	Rising 2	0.05				
	Falling 1	0.15				
MW-10	Falling 2	0.2	0.2	0.2		
10100-10	Rising 1	0.3	0.2	0.2		
	Rising 2	0.2				

Within the groundwater flow model, the simulated K_h for overburden is currently 3 feet/day. Therefore, the Site K testing results support the conclusion that the overburden's hydraulic conductivity may be one order of magnitude lower than the currently simulated hydraulic conductivity. As a result, the modeled reinjection rates for surface trenches likely represent an upper bound estimate within the model. Furthermore, the water extracted for quarry dewatering may not adequately infiltrate into the shallow soils via surface trenches. These conditions could be further evaluated with model sensitivity simulations.

Note that lower simulated quarry dewatering rates could also be anticipated if the overburden K is decreased in the model. However, the overall dewatering rates are primarily influenced by the hydraulic properties of the underlying limestone.

INVESTIGATION LOCATION COORDINATES/ELEVATIONS AND WATER LEVEL DATA

GZA collected horizontal coordinates and vertical elevation data for each investigation location using a Trimble R2 RTK receiver. The GPS unit recorded a vertical inaccuracy of greater than three feet at several locations (e.g., North-3, MW-9, MW-10). The accuracy was primarily influenced by trees and overhead cover at these locations. Given these inaccuracies, GZA compared the vertical elevations collected by the GPS unit to previous elevation data, including LiDAR data for the Site area. The LiDAR data has a vertical accuracy of approximately 0.3 to 0.6 feet and utilizes the same vertical datum as the groundwater flow model developed for the Site. Based on this comparison, the recently collected GPS elevations were consistently lower than the prior LiDAR data for the site. Therefore, GZA used the existing LiDAR data and stick-up measurements recorded in the field to estimate the vertical elevations for the investigation locations. The horizontal coordinates and vertical elevation data for the investigation locations are presented in **Table 1**.

On August 19, 2022, GZA performed a comprehensive groundwater level gauging round of the preexisting and newly installed Site monitoring wells. At each monitoring point, field personnel measured and recorded the depth to water, the total depth of the well, and the time of measurement. The water level measurements were completed using an electronic water level meter, with an accuracy of 0.01 feet. These depth to water measurements were converted to groundwater



elevations using the top of casing elevations, which were estimated from LiDAR data. The groundwater elevation data are presented in **Table 2**.

As summarized in the table, the measured groundwater elevations are highest in the northern area and lowest in the southern area. Therefore, the data suggests a south/southeast groundwater flow direction, which is consistent with the numerical model. The groundwater flow model indicates that the Site area groundwater elevations are influenced (lowered) by dewatering at the nearby Martin Marietta quarry, located southeast of the Site.

On August 19, 2022, GZA deployed pressure transducers at MW-6 and MW-9 to record water level data over time. These instruments were programmed to automatically record data every two hours. This data can be downloaded in the future to review baseline (pre-quarry) groundwater conditions at the Site, including potential changes in groundwater elevations that may be related to the proposed expansion of the nearby Martin Marietta quarry.

RECOMMENDATIONS TO CONSIDER FOR FUTURE WORK

As presented above, the August 2022 subsurface investigation was performed (in part) to: 1) assess the bedrock surface elevation in the northern and southern drilling areas; and 2) evaluate the hydrogeologic properties of the overburden. These two conditions/parameters were estimated in GZA's prior numerical modeling efforts due to the lack of existing Site-specific data. The results of the recent subsurface investigation support the conclusion that the actual bedrock surface is lower than the previously interpolated surface in both the northern and southern areas. A lower bedrock surface elevation in these two areas would likely increase the modeled allowable areal extents of the quarry for varying dewatering elevations.

In addition, the Site hydraulic conductivity testing results are up to one order of magnitude lower than that modeled for the overburden. The previously modeled hydraulic conductivity was based on general soil descriptions provided by others because Site-specific testing results were previously unavailable. The hydraulic conductivity of the overburden will influence the modeled reinjection rates at surface trenches, the zone of influence within the overburden, and the dewatering rates for the quarry.

Based on these results, GZA could refine the model input parameters (e.g., hydraulic properties of the overburden, bedrock surface elevations) to enhance the model results. During these efforts, GZA would specifically evaluate the simulated total quarry dewatering rates, simulated maximum allowable mining extents, and simulated reinjection rates at the property boundary to further evaluate the practicability of surface reinjection trenches. These modeling efforts would require a budget increase of approximately \$7,500, which includes a brief memorandum that would summarize the model refinements and associated results.

ATTACHMENTS

Table 1 – Investigation Locations Summary Table Table 2 – Groundwater Elevation Measurements

Figure 1 – Investigation Locations Figure 2 – Bedrock Surface Elevation Maps

Attachment 1 – Limitations Attachment 2 – Soil Boring Logs Attachment 3 – Monitoring Well Installation Logs Attachment 4 – AQTESOLV Hydraulic Conductivity Testing Results



TABLES

TABLE 1 INVESTIGATION LOCATIONS SUMMARY TABLE.

Proposed Vulcan Materials Company Quarry

Orangeburg, South Carolina

Location ID	Туре	Location	Northing (feet) ¹	Easting (feet) ¹	Reference Elevation (feet) ²
North-1	Soil Boring		557665.5	2216515.5	85.5
North-2	Soil Boring] [557692.0	2216798.0	86.0
North-3	Soil Boring]	557714.5	2217008.0	86.0
North-4	Soil Boring	North Area	557734.0	2217193.5	87.0
North-5	Soil Boring]	557728.5	2217353.5	87.0
North-6	Soil Boring]	557748.0	2217574.5	87.5
North-7	Soil Boring]	557778.5	2217904.0	87.5
MW-4	Monitoring Well	North, Adjacent to North -1	557667.0	2216527.5	88.3
MW-5	Monitoring Well	North, Adjacent to North -3	557714.5	2217007.5	89.4
MW-6	Monitoring Well	North, Adjacent to North -6	557741.0	2217494.0	90.8
MW-7	Monitoring Well	North, Adjacent to North -7	557779.5	2217904.5	90.8
MW-1S	Monitoring Well		555515.0	2216615.5	89.5
MW-1D	Monitoring Well		555510.5	2216618.5	89.0
MW-2S	Monitoring Well	Central Area	555493.0	2216706.5	89.0
MW-2D	Monitoring Well		555499.0	2216704.0	89.0
MW-3D	Monitoring Well]	555535.5	2216635.0	89.0
South-1	Soil Boring		554898.0	2219714.0	88.0
South-2	Soil Boring	South Area	554748.0	2219498.5	88.0
South-3	Soil Boring]「	554633.5	2219048.5	88.0
MW-8	Monitoring Well	South, Adjacent to South-1	554641.5	2219038.5	89.7
MW-9	Monitoring Well	South, Adjacent to South-2	554761.0	2219508.0	89.6
MW-10	Monitoring Well	South, Adjacent to South-3	554898.0	2219710.0	89.8

<u>Notes</u>

1. Horizontal datum: South Carolina State Plane (US Survey feet), FIPS 3900, NAD 1983. GZA personnel used a Trimble R2 RTK GPS unit to obtain the northing and easting coordinates on August 18, 2022.

2. Reference elevation = ground surface elevation for soil borings and top of casing elevation for monitoring wells. Due to GPS inaccuracies, reference elevations were estimated from LiDAR data (NAVD 88) and field-measured casing stickup heights.

TABLE 2 Groundwater Elevations.

				Ora	ngeburg, South Caroli	na			
Site Area	Location ID	Ground Surface Elevation (feet)	Stick-up Height (feet)	Top of Casing Elevation (feet)	Total Depth (feet below TOC)	Date	Time	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)
	MW-4	85.5	2.8	88.3	24.8	8/19/2022	1108	7.10	81.2
	10100-4	83.3	2.0	88.5	24.0	8/19/2022	1134	7.10	81.2
North	MW-5	86.0 3.4		89.4	26.4	8/19/2022	1800	7.25	82.2
NOILII	MW-6	87.5	3.3	90.8	22.3	8/19/2022	1050	8.35	82.5
	10100-0	67.5	5.5	90.8	22.5	8/19/2022	1145	8.35	82.5
	MW-7	87.5	3.3	90.8	23.3	8/19/2022	1040	8.46	82.3
	MW-1S			89.5	40.0	8/19/2022	945	9.80	79.7
	MW-1D	Installed by	(Othors	89.0	88.6	8/19/2022	947	9.50	79.5
Central	MW-2S	Installed by		89.0	37.7	8/19/2022	953	9.06	79.9
	MW-2D	(TOC Elevation	h Reported)	89.0	92.1	8/19/2022	949	9.72	79.3
	MW-3D			89.0	90.6	8/19/2022	942	9.45	79.6
	MW-8	86.5	3.2	89.7	30.2	8/19/2022	1004	12.75	77.0
		86.5	2.1	89.6	21.1	8/19/2022	1007	12.94	76.7
South	MW-9	6.00	3.1	69.0	31.1	8/19/2022	1415	12.94	76.7
	NAVA 10	96 F		90.9	22.2	8/19/2022	1012	12.91	76.9
	MW-10	86.5	3.3	89.8	32.3	8/19/2022	1425	12.92	76.9

Proposed Vulcan Materials Company Quarry

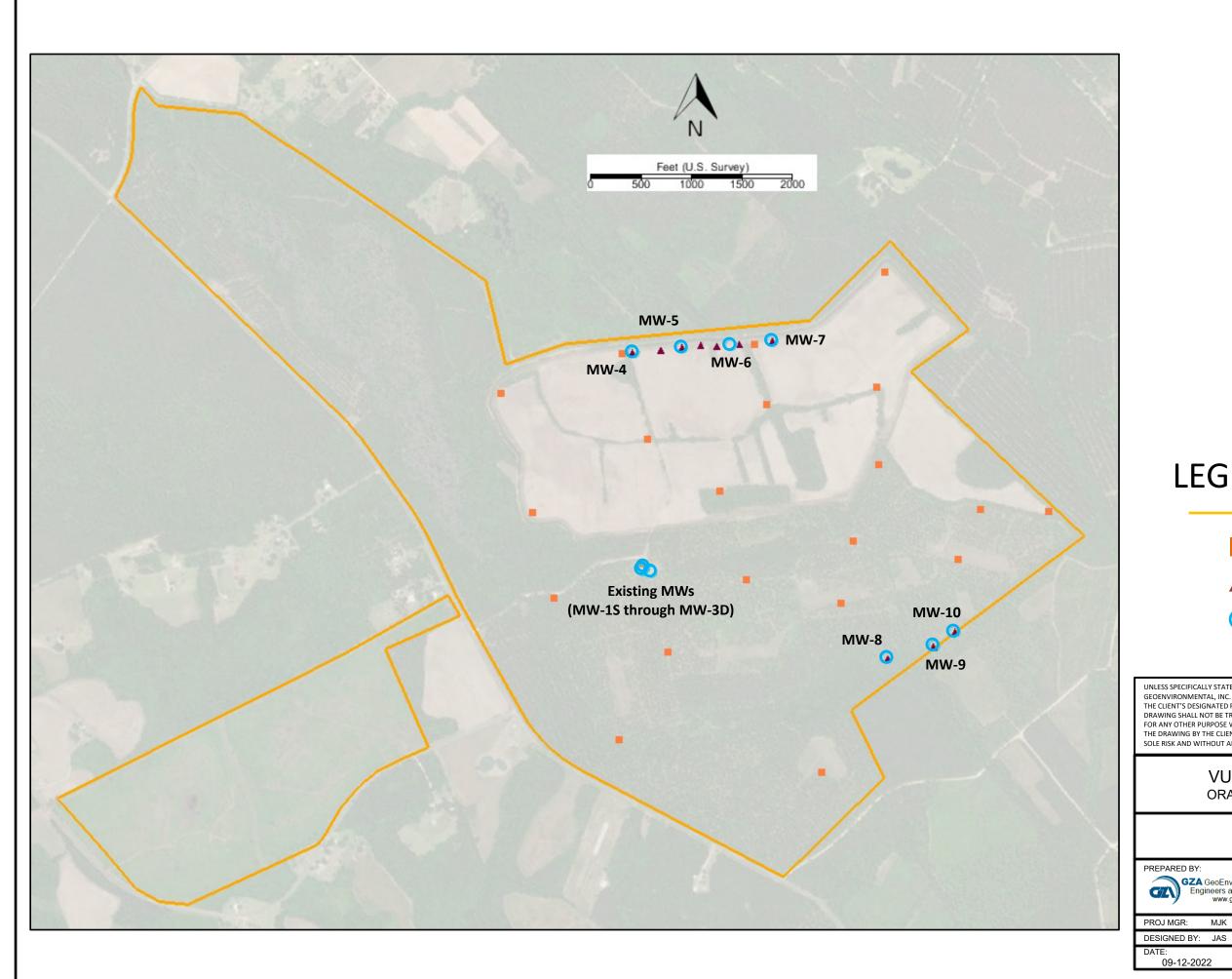
<u>Notes</u>

1. Due to GPS inaccuracies, elevations were estimated from LiDAR data (NAVD 88) and field-measured casing stickup heights.

2. GZA personnel manually measured depth to groundwater at the dates/times indicated. Water levels are anticipated to fluctuate over time based on responses to precipitation events, localized groundwater withdrawals, evapotranspiration, etc.



FIGURES





PROPERTY BOUNDARY PRIOR COREHOLE SOIL BORING MONITORING WELL

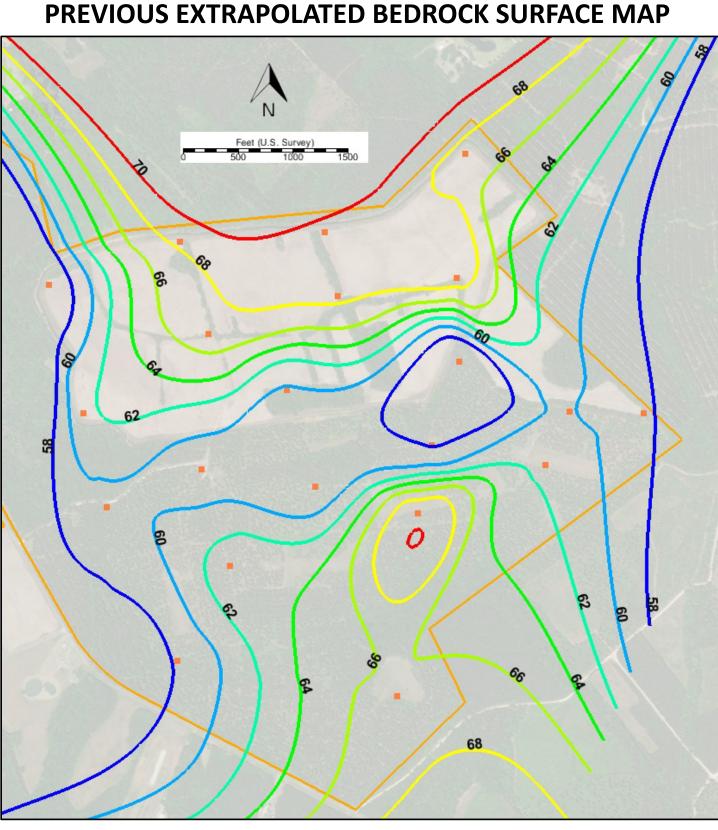
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VULCAN ORANGEBURG QUARRY ORANGEBURG COUNTY, SOUTH CAROLINA

AUGUST 2022 SUBSURFACE INVESTIGATION LOCATIONS

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nvironmental, Inc. s and Scientists w.gza.com	VULCAN MATERIALS COMPANY
	PREPARED FOR:

MGR: MJK	REVIEWED BY: MJK	CHECKED BY: BF	FIGURE
GNED BY: JAS	DRAWN BY: JAS	SCALE: N/A	1
:)9-12-2022	PROPOSAL NO. 20.0157528.00	REVISION NO.	I



LEGEND

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PROPERTY BOUNDARY

BEDROCK SURFACE ELEVATION (MULTI-COLORED)

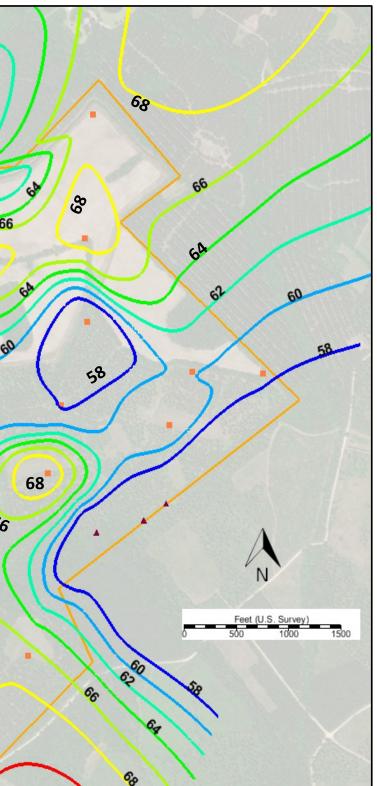
- **PRIOR COREHOLE**
- SOIL BORING

VULCAN ORANGEBURG QUARRY ORANGEBURG COUNTY, SOUTH CAROLINA

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BEDROCK SURFACE MAP (INCLUDES AUG 2022 DATA)



BEDROCK SURFACE ELEVATION MAPS

PREPARED BY:		PREPARED FOR:				
GZA GeoEnviro Engineers and www.gza	Scientists	VULCAN MATERIALS COMPANY				
PROJ MGR: MJK	REVIEWED BY: MJK	CHECKED BY: BF	FIGURE			
DESIGNED BY: JAS	DRAWN BY: JAS	SCALE: N/A	2			
DATE: 09-12-2022	PROPOSAL NO. 20.0157528.00	REVISION NO.	2			
00 12 2022	2010 101 020100					



ATTACHMENTS



ATTACHMENT 1

Limitations



LIMITATIONS

- 1. The conclusions presented in this memorandum are based upon the hydrogeologic and physical data obtained from specific sampling, testing, and gauging locations at specific times. The full nature and extent of variations in the data between these specific locations and times are not known. The conditions existing between these specific locations and times are not known. The conditions based on judgment.
- The subsurface profiles described in the memorandum are intended to convey anticipated trends in subsurface conditions. The conditions modeled are approximate and generalized and were developed, in part, based on judgment and professional interpretation. For specific information at specific locations, refer to the individual boring investigation logs.
- 3. Water level readings (piezometric pressures) have been made in the specific monitoring points at times and under conditions stated. These data have been reviewed and interpretations have been made in the text and on the figures of this memorandum. However, it must be noted that temporal and spatial fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time and location measurements were made.
- 4. Actual subsurface conditions are likely more complex than indicated in this memorandum. Our mathematical model is, by its very nature, a simplification of actual conditions. Except as noted in the memorandum, we did not validate the code used in the model. In constructing the model, point-specific data were generalized and extrapolated across the study area. In addition, in areas where field data were not available, we used professional judgment, based on experience and regional information, to construct the model. Model assumptions are provided within the memorandum. Actual flow patterns and/or groundwater discharges may be other than simulated. As additional field data becomes available our numerical model can be modified to better reflect conditions of possible interest.
- 5. Variations in the flow paths may occur due to seasonal water table fluctuations, past and current operational practices (i.e., groundwater extraction), climate change, the passage of time, and other factors. Should additional data (water analyses, water elevations, subsurface deposits, construction and operation, etc.) become available in the future, these data should be reviewed by GZA, and the conclusions and recommendations presented herein modified accordingly.
- 6. Our results are based on the work conducted as part of the subsurface investigation presented in the memorandum and reflect our professional judgment. These results must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data provided during the course of our work. Conditions other than described in this memorandum may be found at the subject location(s).
- 7. Our services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.



ATTACHMENT 2

Soil Boring Logs

		GZA			C	lient Name:	: Vulcan M	Aterials Company			Boring No	.: North-1			
G	Ŋ		vironmental ers and Scient		01			urg County, South (Carolii	na	Pag		of	2	
		0			С		ordinates: N: 557665.5; E: 2216515.5 (South Carolina State Plane (feet)) File N								"
											Checked B	y: JAS			
Contra	ctor:	Elite Te	chniques			_		Auger / Casing		Sampler					
Forema	an:	Dearal I	Rodgers			-	Type:	Direct Push	Slee	eve	·	GROUNDWA	ATER RE	ADINGS	1
Rig:		GeoPro	be 7822 DT			O.D. / I.D.: 2.25" 1.75"						Time	Depth	Casing	Stab
Logged	By:	Chad M	lartin			Hamme	er Type:	NA			Not	Measured			
Date St	art/Fin	ish:	08/15/2022	2		Hammer V	Wt./Fall:	NA	/						
Boring			NW portio	on of northern	0	-	System:	NA							
GS Elev	vation:	85.5'		Datum:	NAVD 88	-						y: LiDAR Da	ta		
			r				<u>г</u>		SAI	MPLE DESCRIPT	Survey Dat		J		
DEPTH (feet)	No.	Туре	Pen./ Rec (inch)	Blows (/6'')	Field Test Data (ppm)	Pocket Pen Readings (tsf)		Relative Density/Consistency, Color, Group Name (Modified Burmister), Group Descriptors; Constituents, Constituent Descriptors; Other Comments, Moisture (<i>ex</i> : Dense, brown, fine to medium SAND ; trace Gravel, fine; concrete fragments, 1" Silt layer at 12', wet)							
0-5	1	Р	60/60	NA	NA	NA	24" - Me	ft, gray, SILTY CL	own, C	CLAYEY SILT, mo	ist				
5-10	2	Р	51/60	NA	NA	NA		dium dense, gray, F		SAND, some silt, tra AND, some silt, trac	-				
10-15	3	Р	28/60	NA	NA	NA	28" - SA	A							
15-20	4	Р	50/60	NA	NA	NA	12" - SA 38" - Me		FINE S	SAND, some silt, tra	ice clay, trace fine a	gravel, wet			
	NULAR : vs / Ft-De			SIVE SOILS Consistency		TYPE OF SAMPLE		MINOR COMPONENTS		MOISTURE		NIFIED SOIL CI SYMBOL AND	DESCRIPTI	ON	
5 - 10 11 - 30 31 - 50	Very Loo Loose Medium Dense Very De	Sose <0.25 V. Soft SS 0.25 - 0.5 Soft SS SS Dense 0.5 - 1 M. Stiff SS 1 - 2 Stiff E SS nse 2 - 4 V. Stiff SS >4 Hard HY		SSL - ST - B - BL - P - HYP - HA -	Split Spoon SS with Liner Shelby Tube Bag Block Geoprobe Hydropunch Hand Auger Other/Expl		1 - 5% TRAC 5 - 15% LITTLI 15 - 30% SOME 30 - 50% WITH (Or Use Adjective >	E	DRY = No Free MOIST = Wet Hand WET = Free	CL - Lean Clay ML - Silt OL - Organic Clay CH - Fat Clay MH - Elastic Silt OH - Organic Clay PT - Peat		GP - GM - GC - SW - SP - SM -	Well Grade Poorly Grave Silty Grave Clayey Gra Well Grade Poorly Grad Silty Sand Clayey San	ided Gravel el avel ed Sand ided Sand	
NOTES : Top of	bedro	ck was	determine	ed by direct	push refu	ısal.									

MW-4 installed ~10' east of boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			C	iont Nama:	Vulcan	Materials Company		R	oring No.: North-1		
G	A)	GeoEn	vironmenta ers and Scient		CI			ourg County, South C	D(Page:	2 of 2		
		Linginee	ers una scient	11515	C	Coordinates: N: 557665.5; E: 2216515.5 (South Carolina State Plane (feet)) File No.: 20.0157528.00							
							110070		(South Carolina State		ecked By: JAS	20.00	
Contra	ctor:	Elite Te	echniques					Auger / Casing	Sampler		J		
Forema			Rodgers				Type:	Direct Push	Sleeve		GROUNDV	VATER READING	S
Rig:		-	be 7822 DT	Г		0.I	-, F.:		1.75"	— r	Date Time	Depth Casing	Stab
Logged	Bv:	Chad M				Hamme			1.75	_		ot Measured	But
Date St			08/15/202	2		Hammer V			1		1		
Boring				on of northern		•			,	_			
_	vation:		itti poruo		NAVD 88		oystem.	1121		L	veyed By: LiDAR I	Data	
OD LIC	vation.	05.5		, Datum.	10110 00	•					vey Date:	Julu	
					Field	D 1 (SAMPLE DESCH		CLASSIFICATIO	DN	
et)	Na	T	Pen./	Blows	Test	Pocket Pen		Relative Density/C	Consistency, Color, (Group Name (I	Modified Burmiste	r), Group Descripto	rs;
DEPTH (feet)	No.	Туре	Rec (inch)	(/6'')	Data	Readings (tsf)	<i>,</i>		stituents, Constituen	· · ·	· · · · · · · · · · · · · · · · · · ·		
					(ppm)	(131)	(e:	: Dense, brown, fine	e to medium SAND ;	trace Gravel, fi	ne; concrete fragme	nts, 1" Silt layer at 12	, wet)
							51" - De	nse, gray, FINE SA	ND, some silt, trace c	clay, trace fine g	gravel, wet		
20-25	5	Р	51/60	NA	NA	NA							
				 	ļ								
25-	6	Р	21/21	NA	NA	NA	18" - SA	A					
27.3	0		21/21	INA	INA	INA	3" - Ver	y dense, gray, FINE	GRAVEL, trace fine	sand, wet			
								F BEDROCK AT 2					
							101 0						
	NULAR :			SIVE SOILS					MOIOTUD				
	ws / Ft-De			Consistency		SAMPLE Split Spoon		1 - 5% TRACE	E DRY = No Fr	ree CL - Lea	n Clay	D DESCRIPTION GW - Well Grad	
5 - 10	Very Loo Loose		0.25 - 0.5		ST -	SS with Line Shelby Tube		5 - 15% LITTLE 15 - 30% SOME		OL - Org	anic Clay/Silt-Low Plas		rel
31 - 50	Medium Dense		1 - 2	- M. Stiff - Stiff	BL -	Bag Block		30 - 50% WITH (Or Use Adjective >	25%)	CH - Fat MH - Ela	Clay stic Silt	GC - Clayey Gr SW - Well Grad	led Sand
>50	Very De	nse		- V. Stiff - Hard	HYP -	Geoprobe Hydropunch				OH - Org PT - Pea	anic Clay/Silt-High Pla t	SM - Silty Sand	Ł
					HA -	Hand Auger Other/Expl						SC - Clayey Sa	
NOTES:			-			r.			-				

MW-4 installed ~10' east of boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

r														
		GZA			CI	ient Name:	Vulcan	Materials Company			Boring No.:	North-2		
G	Ŋ		vironmenta		ei			burg County, South		na	Doring room Page:		of 2	
					С			592.0; E: 2216798.0				20.0157528	• • • • • • • • • • • • • • • • • • • •	-
								-			Checked By:			
Contra	ctor:	Elite Te	echniques					Auger / Casing		Sampler				
Forema	ın:		Rodgers			-	Type:	Direct Push	Slee	eve	G	ROUNDWA	TER READINGS	S
Rig:		GeoPro	be 7822 DT	Г		- 0.I	D. / I.D.:		1.75	5"	Date	Time	Depth Casing	Stab
Logged	By:	Chad M	Iartin			-	er Type:						Measured	<u> </u>
Date St	art/Fin	ish:	08/15/202	.2		- Hammer V			/		·			T
Boring	Locatio	on:	NW corner	r of site		Release	System:	NA						1
GS Ele				Datum:	NAVD 88	-					Surveyed By:	LiDAR Dat	a	<u> </u>
				•		-					Survey Date:	-		
DEPTH (feet)	No.	Туре	Pen./ Rec	Blows	Field Test	Pocket Pen			ity/Co	nsistency, Group N	TON AND CLASSI Name (Modified Bui iptors; Color, Other	rmister), Gro		
DE (f			(inch)	(/6'')	Data (ppm)	Readings (tsf)	(<i>ex</i> : D				n; trace Gravel, fine; 12', wet)			Silt layer at
							12" - TO	OPSOIL						
							27" - Lo	oose, red-brown, CL	AYEY	SILT, moist				
0-5	5 1 P 51/60 NA NA					NA	12" - So	oft, gray, SILTY CL	AY, tra	ace fine sand, moist				
							29" -So	ft, brown/gray mott	led CI	AYand SILT trace	e fine sand moist			
						3" - SA		lieu, ei		The sure, moise				
5-10	2	Р	9 32/60 NA NA NA			NA	3 - SA	A, wet						
5-10	2	1	32/00	nA.	nA	NA								
		<u> </u>			 									
							27" - M	edium dense, brown	ı, FINE	E SAND, with silt, tr	race clay, wet			
							33" - M	edium dense, gray, S	SILT, 1	little fine sand, trace	clay, trace fine grave	el, wet		
10-15	3	Р	60/60	NA	NA	NA								
							6" - SA	A						
							Poor Re	ecovery. Most of same	mple p	oured out of sleeve.				
15-20	4	Р	6/60	NA	NA	NA								
	NULAR			SIVE SOILS		TYPE OF		MINOR					ASSIFICATION	
	vs / Ft-De			Consistency		SAMPLE Split Spoon		COMPONENTS 1 - 5% TRAC	Έ	MOISTURE DRY = No Free	CL - Lean Clay	MBOL AND D	GW - Well Grad	
5 - 10	Very Loo Loose		0.25 - 0.5		ST -	SS with Line Shelby Tube		5 - 15% LITTL 15 - 30% SOMI	E	MOIST = Wet Hand WET = Free	ML - Silt OL - Organic Clay/S	ilt-Low Plast	GP - Poorly Gra GM - Silty Grav	vel
31 - 50			1 - 2	- M. Stiff - Stiff	BL -	Bag Block		30 - 50% WITH (Or Use Adjective >			CH - Fat Clay MH - Elastic Silt		GC - Clayey Gr SW - Well Grad	led Sand
>50	>4 - Hard HYP			HYP -	Geoprobe Hydropunch	pprobe O Iropunch P				OH - Organic Clay/S PT - Peat	ilt-High Plast	SP - Poorly Gra SM - Silty Sand	b	
						Hand Auger Other/Expl							SC - Clayey Sa	nd
NOTES:														

No well installed.

Elevation estimated from LiDAR data due to GPS inaccuracies.

)	GZA			CI	ient Name:	Vulcan	Materials Company			Boring No.:	North-2		
G	Ŋ		vironmenta ers and Scien		-			burg County, South (Carolin	a	Page:		of 2	
					С						ne (feet)) File No.:		-	•
								-			Checked By:			
Contra	ctor:	Elite Te	chniques					Auger / Casing		Sampler		r		
Forema	an:	Dearal				•	Type:	Direct Push	Sleev	ve	G	ROUNDWAT	ER READINGS	5
Rig:		-	be 7822 DT	г Г		.0.1). / I.D.:		1.75		Date	Time	Depth Casing	Stab
Logged	By:	Chad M	Iartin			Hamme							easured	
Date St		ish:	08/15/202	2		Hammer V			/					
Boring	Locatio	m:	NW corne			Release								
GS Elev					NAVD 88	•					Surveyed By:	LiDAR Data		<u>ı </u>
											Survey Date:			
HLJED 20-25	0-25 5 P 60/60			Blows (/6'') NA	Field Test Data (ppm)	Pocket Pen Readings (tsf) NA	-	Constitue ense, well graded SA	ty/Con ients, (AND (S	sistency, Group N Constituent Descri W), fine to medium	ION AND CLASSI fame (Modified Bur ptors; Color, Other a; trace Gravel, fine; 12', wet) clay, trace fine grave	mister), Grou Comments, N brown, concret	Aoisture	ilt layer at
25-28.5	3.5 6 P 42/42 NA			NA	NA		AA y dense, gray, FINE F BEDROCK AT 2		/EL, trace fine to m	edium sand, wet				
	5-28.5 6 P													
	NULAR S					TYPE OF		MINOR		MOIOTURE				
0 - 4 5 - 10 11 - 30 31 - 50	vs / Ft-De Very Loo Loose Medium Dense Very De	ose Dense	<0.25 0.25 - 0.5 0.5 - 1 1 - 2 2 - 4	Consistency - V. Soft - Soft - M. Stiff - Stiff - V. Stiff - Hard	SSL - ST - B - BL - P - HYP - HA -	SAMPLE Split Spoon SS with Line Shelby Tube Bag Block Geoprobe Hydropunch Hand Auger Other/Expl	r	COMPONENTS 1 - 5% TRAC 5 - 15% LITTU 15 - 30% SOME 30 - 50% WITH (Or Use Adjective >	E E E	MOISTURE DRY = No Free MOIST = Wet Hand WET = Free	CL - Lean Clay ML - Silt OL - Organic Clay/S CH - Fat Clay MH - Elastic Silt OH - Organic Clay/S PT - Peat		GW - Well Grad GP - Poorly Gra GM - Silty Grave GC - Clayey Gra SW - Well Grad SP - Poorly Gra SM - Silty Sand SC - Clayey San	aded Gravel el avel ed Sand aded Sand

No well installed.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA									.	N 1 0		
G7	A)	GeoEn	vironmenta		CI		-	Materials Company	- 1 ²		Boring No.:			
		Enginee	ers and Scient	lists	C			burg County, South (Page: ne (feet)) File No.:			
					C	oorumates:	IN: 3377	14.5; E. 2217008.0	(Sout	I Carolilla State Pla	Checked By:		5.00	
Contra	ctor	Elite Te	chniques					Auger / Casing		Sampler	Checked Dy.	JAS		
Forema		Dearal l				-	Type	Direct Push	Slee	-	G	ROUNDWA	TER READINGS	
	411;	-	<u> </u>			- 01	• -				· · · · · · · · · · · · · · · · · · ·	1		
Rig:	D		be 7822 DT			-	D. / I.D.:		1.75)	Date	Time	Depth Casing	Stab
Logged		Chad M				-	er Type:		/		·	Not I	Measured	r
Date St			08/15/202			Hammer V			/		·			
Boring			North cent			Release	System:	NA						<u>I</u>
GS Elev	vation:	86.0'		Datum:	NAVD 88	-					Surveyed By:		a	
		1			<u> </u>		1		SAN	MPI E DESCRIPT	Survey Date: TON AND CLASSI			
DEPTH (feet)	No.	Туре	Pen./ Rec (inch)	Blows (/6'')	Field Test Data (ppm)	Pocket Pen Readings (tsf)	(<i>ex</i> : D	Constitu	ty/Con ients, (nsistency, Group N Constituent Descri	Normal Charles Carden Jame (Modified Bun ptors; Color, Other n; trace Gravel, fine; 12', wet)	rmister), Gro Comments,	Moisture	ilt layer at
0-5	1	Р	60/60	NA	NA	NA	32" - Lo	DPSOIL bose, red-brown, CL4 edium dense, gray, C			nd, moist			
5-10	2 P 23/60 NA				NA	NA	6" - SA				sand, trace fine grave	el, moist		
10-15	3	Р	30/60	NA	NA	NA	30" - M	edium dense, gray, C	CLAYI	EY SILT, little fine	sand, trace fine grave	el, wet		
15-20	4	Р	60/60	NA	NA	NA	60" - SA	AA						
	NULAR \$ vs / Ft-De			SIVE SOILS Consistency		TYPE OF SAMPLE		MINOR COMPONENTS		MOISTURE	SI	FIED SOIL CLA (MBOL AND D		
5 - 10 11 - 30 31 - 50	Very Loo Loose Medium Dense Very De	Dense	0.25 - 0.5 0.5 - 1 1 - 2 2 - 4	- V. Soft - Soft - M. Stiff - Stiff - V. Stiff - Hard	SSL - ST - B - BL - P - HYP - HA -	Split Spoon SS with Line Shelby Tube Bag Block Geoprobe Hydropunch Hand Auger Other/Expl		1 - 5% TRACI 5 - 15% LITTLE 15 - 30% SOME 30 - 50% WITH (Or Use Adjective >:	=	DRY = No Free MOIST = Wet Hand WET = Free	CL - Lean Clay ML - Silt OL - Organic Clay/S CH - Fat Clay MH - Elastic Silt OH - Organic Clay/S PT - Peat		GW - Well Grade GP - Poorly Gra GM - Silty Grave GC - Clayey Gra SW - Well Grade SP - Poorly Gra SM - Silty Sand SC - Clayey Sar	aded Gravel el avel ed Sand aded Sand

MW-5 installed at boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

	2	GZA			C	ient Name:	Vulcan	Materials Company			Boring No.:	North-3		
G	Ŋ		vironmenta ers and Scien		-			burg County, South (Carolin	a	Page:		of 2	
					С						ne (feet)) File No.:			•
								-			Checked By:			
Contra	ctor:	Elite Te	chniques					Auger / Casing		Sampler				
Forema	an:	Dearal				•	Type:	Direct Push	Slee	ve	G	ROUNDWAT	'ER READINGS	5
Rig:		-	be 7822 DT	г Г		I. 0). / I.D.:		1.75		Date	Time	Depth Casing	Stab
Logged	By:	Chad M	Iartin			Hamme						• • •	easured	<u> </u>
Date St			08/15/202	2		Hammer V			/					
Boring			North cent			Release								
GS Elev					NAVD 88		·				Surveyed By:	LiDAR Data		<u>ı </u>
											Survey Date:			
HLJJD (teet) 20-25	-25 5 P 60/60			Blows (/6") NA	Field Test Data (ppm)	Pocket Pen Readings (tsf) NA		Constitue ense, well graded SA	ty/Con ients, (AND (S	sistency, Group N Constituent Descri W), fine to medium	TON AND CLASSI fame (Modified Bur ptors; Color, Other n; trace Gravel, fine; 12', wet) sand, trace fine grave	mister), Grou Comments, M brown, concret	Aoisture	ilt layer at
25-28.3	B.3 6 P 39/39 NA			NA	NA		ry dense, gray, FINE		/EL, trace fine to m	edium sand, wet				
	5-28.3 6 P						100 0	F BEDROCK AT 2	28.3					
						TYPE OF		MINOR				FIED SOIL CLAS		
0 - 4 5 - 10 11 - 30 31 - 50	Very Loo Loose Medium	ose Dense	<0.25 0.25 - 0.5 0.5 - 1 1 - 2 2 - 4	Consistency - V. Soft - Soft - M. Stiff - Stiff - V. Stiff - Hard	SSL - ST - B - BL - P - HYP - HA -	SAMPLE Split Spoon SS with Line Shelby Tube Bag Block Geoprobe Hydropunch Hand Auger Other/Expl		COMPONENTS 1 - 5% TRAC 5 - 15% LITTU 15 - 30% SOME 30 - 50% WITH (Or Use Adjective >	E E	MOISTURE DRY = No Free MOIST = Wet Hand WET = Free	SY CL - Lean Clay ML - Silt OL - Organic Clay/S CH - Fat Clay MH - Elastic Silt OH - Organic Clay/S PT - Peat		SCRIPTION GW - Well Grade GP - Poorly Gra GM - Silty Grave GC - Clayey Gra SW - Well Grade SP - Poorly Gra SM - Silty Sand SC - Clayey Sar	aded Gravel el avel ed Sand aded Sand

MW-5 installed at boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			CI	lient Name:	Vulcan	Materials Company			Boring No.:	North-4		
G	Ŋ		vironmenta ers and Scient		01		-	burg County, South	Carolir	na	Page:		of 2	
					C			734.0; E: 2217193.5			0	20.0157528		
											Checked By:			
Contra	ctor:	Elite Te	echniques					Auger / Casing		Sampler				
Forema	an:	Dearal	Rodgers			•	Type:	Direct Push	Slee	eve	Gl	ROUNDWA	TER READINGS	
Rig:		GeoPro	be 7822 DT	г Г		0.J	D. / I.D.:	2.25"	1.75	;"	Date	Time	Depth Casing	Stab
Logged	By:	Chad M	Iartin			-	er Type:					Not N	Measured	
Date St			08/15/202	2		- Hammer V			/					
Boring	Locatio	m:	North cent			Release	System:	NA						
GS Ele				Datum:	NAVD 88	-					Surveyed By:	LiDAR Dat		
						•					Survey Date:			
					Field	Pocket			SAN	MPLE DESCRIPT	ION AND CLASSI			
DEPTH (feet)	No.	Туре	Pen./ Rec	Blows	Test	Pen					p Name (Modified I			s;
DEI (fe	110.	Type	(inch)	(/6'')	Data	Readings (tsf)	(scriptors; Other Co			~
		<u> </u>			(ppm)	((31)	(e:	x : Dense, brown, fin	e to m	edium SAND ; trace	e Gravel, fine; concre	te fragments,	, 1° Silt layer at 12',	wet)
	1 P 60/60 NA						11" - TO	OPSOIL						
		1 P 60/60 NA					13" - Lo	bose, red-brown, CL	AYEY	SILT, little fine sar	nd, moist			
0-5	1 P 60/60 NA				NA	NA		ledium dense, gray, C						
	1 P 60/60 NA						50 - WI	ieululli delise, gray, c		ET SIET, trace fille	sand, moist			
	1 P 60/60 NA													
		\square				<u> </u>								
							19" - SA	AA						
							6" - Me	dium dense, brown, o	CLAY	EY SILT. trace fine	sand, wet			
5-10	2	Р	25/60	NA	NA	NA	0 1110		02.11		Suid, not			
0 10	-	-	20/00											
							21" - SA	AA						
							39" - De	ense, gray, CLAYEY	Y SILT	. some fine sand, tra	ace fine gravel, wet			
10-15	3	Р	60/60	NA	NA	NA	<i></i>	01100, grug, 0211121		, some me sand, at	lee mie gruvel, wee			
10 10	5	-	00/00											
							60" - SA	AA						
15-20	4	Р	60/60	NA	NA	NA								
15-20	-	1	00/00		na -	INA.								
GRA	NULAR :	SOILS	COHES	SIVE SOILS		TYPE OF		MINOR			UNI	FIED SOIL CL/	ASSIFICATION	
Blov	vs / Ft-De	Insity	P.P.(tsf)-	Consistency	SS -	SAMPLE Split Spoon		COMPONENTS 1 - 5% TRAC		MOISTURE DRY = No Free	SY CL - Lean Clay	MBOL AND D	ESCRIPTION GW - Well Grade	d Gravel
	Very Loo Loose	ose	<0.25 0.25 - 0.5	- V. Soft - Soft	SSL -	SS with Line Shelby Tube		5 - 15% LITTLI 15 - 30% SOME	E	MOIST = Wet Hand WET = Free	ML - Silt OL - Organic Clay/S	ilt-Low Plast	GP - Poorly Grae GM - Silty Grave	ded Gravel
11 - 30	30 Medium Dense 0.5 - 1 - M. Stiff 50 Dense 1 - 2 - Stiff					Bag Block		30 - 50% WITH (Or Use Adjective >		=	CH - Fat Clay MH - Elastic Silt		GC - Clayey Gra SW - Well Grade	vel
	0 Dense 1 - 2 - Stiff 0 Very Dense 2 - 4 - V. Stiff >4 - Hard				P -	Geoprobe Hydropunch			_0 /0]		OH - Organic Clay/S PT - Peat	ilt-High Plast	SP - Poorly Grade SP - Poorly Grad SM - Silty Sand	
			>4	- naiù	HA -	Hand Auger					rı-real		SM - Silty Sand SC - Clayey San	ıd
NOTES:					0 -	Other/Expl		I						

No well installed at this location.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			C	iont Nama	Vulcon	Materials Company			Boring No.:	North 4		
G7	A)		vironmenta		C			ourg County, South		9	Doring No Page:		of 2	
		Lingine	ers una beien	11313	С			· ·			ne (feet)) File No.:			,
					-			,	(Checked By:			
Contra	ctor:	Elite Te	chniques					Auger / Casing		Sampler	-			
Forema		-	Rodgers			-	Type:	Direct Push	Sleev	•	G	ROUNDWA'	FER READINGS	
Rig:			be 7822 D1	 Г		0.I	D. / I.D.:		1.75		Date	г	Depth Casing	Stab
Logged	l Rv•	Chad M				•	er Type:		1.75		Date		Ieasured	Sub
Date St			08/15/202			Hammer V			/			Not IN	leasured	
Boring			North cent			Release			/					
_			North Cell		NAVD 99	-	system.	NA			European Brid			
GS Ele	vation:	87.0		- Datum:	NAVD 88	-					Surveyed By: Survey Date:		1	
				<u> </u>					SAN	APLE DESCRIPT	Survey Date:			
t)			Pen./	Blows	Field Test	Pocket Pen		Rolativo Donsity/			p Name (Modified		Froun Descriptor	c•
DEPTH (feet)	No.	Туре	Rec (inch)	(/6'')	Data	Readings					scriptors; Other Co			3,
П			(incii)		(ppm)	(tsf)	(e)	: Dense, brown, fin	ne to me	edium SAND ; trace	e Gravel, fine; concre	te fragments,	1" Silt layer at 12',	, wet)
							60" - De	ense, gray, CLAYEY	Y SILT.	, some fine sand, tra	ace fine gravel, wet			
									,	, , , , , , , , , , , , , , , , ,				
20-25	5	Р	60/60	NA	NA	NA								
20-23	5	r	00/00	INA	INA	NA								
							30" - SA	\ A						
25-27.5	6	Р	30/30	NA	NA	NA	50 - 57	14						
25-21.5	0		30/30	114	114	11A								
				<u> </u>										
							тор о	F BEDROCK AT 2	27.5'					
			SIVE SOILS		TYPE OF SAMPLE		MINOR COMPONENTS	s	MOISTURE		IFIED SOIL CLA (MBOL AND DE			
	- 4 Very Loose <0.25 - V. So				Split Spoon SS with Line	-	1 - 5% TRAC 5 - 15% LITTL)Е	DRY = No Free MOIST = Wet Hand	CL - Lean Clay ML - Silt		GW - Well Grade		
5 - 10	10 Loose 0.25 - 0.5 - S		5 - Soft	ST -	Shelby Tube		15 - 30% SOME	E	WET = Free	OL - Organic Clay/S	ilt-Low Plast	GP - Poorly Gra GM - Silty Grave	el	
31 - 50			1 - 2	- M. Stiff 2 - Stiff	BL -	Bag Block		30 - 50% WITH (Or Use Adjective >			CH - Fat Clay MH - Elastic Silt		GC - Clayey Gra SW - Well Grade	ed Sand
>50	Very De	nse		↓ - V. Stiff ↓ - Hard	HYP -	Geoprobe Hydropunch					OH - Organic Clay/S PT - Peat	ilt-High Plast	SP - Poorly Gra SM - Silty Sand	
L						Hand Auger Other/Expl							SC - Clayey Sar	nd
NOTES:														

No well installed at this location.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			Cl	lient Name:	Vulcan	Materials Company			Boring No.:	North-5		
G	~		vironmental					ourg County, South C	Carolir	na	Page:		of 2	
					C			28.5; E: 2217353.5			ne (feet)) File No.:	20.0157528		•
											Checked By:			
Contra	ctor:	Elite Te	chniques					Auger / Casing		Sampler	·			
Forema			Rodgers			•	Type:	Direct Push	Slee	•	Gl	ROUNDWA	TER READINGS	3
Rig:		-	be 7822 DT	Г		0.J	D. / I.D.:		1.75		Date	Time	Depth Casing	Stab
Logged	Bv:	Chad M				-	er Type:		1170	·			Measured	Suo
Date St		-	08/15/2022	2		- Hammer V			/			1.071		Г
Boring			North cent			Release								
GS Ele					NAVD 88	-	oystem.	1111			Surveyed By:	LiDAR Dat	a – – – – – – – – – – – – – – – – – – –	
G5 LIC	vation.	87.0		Datum.	NAVD 88	-					Survey Date:		a	
					Field				SAN	MPLE DESCRIPT	ION AND CLASSI			
TH et)		T	Pen./	Blows	Test	Pocket Pen		Relative Density/C	Consis	tency, Color, Grou	p Name (Modified]	Burmister),	Group Descriptor	:s:
DEPTH (feet)	No.	Туре	Rec (inch)	(/6'')	Data	Readings		Cons	stituen	nts, Constituent Des	scriptors; Other Co	mments, Mo	oisture	
			()		(ppm)	(tsf)	(ex	: Dense, brown, fine	e to m	edium SAND ; trace	Gravel, fine; concre	te fragments	, 1" Silt layer at 12'	, wet)
							18" - TO	OPSOIL, with fine sa	and					
							11" - M	edium stiff, gray, SII	I TY C	TAV trace fine san	d moist			
0-5	1	Р	29/60	NA	NA	NA	11	culuin still, gluy, sli		Li 11, trace fille sail	a, moist			
0.5	1		25/00	1171	1421	1111								
							11" - SA	A						
									71 A VI	EV SILT trace fine	and maint			
5 10	2	D D	26/60	NIA	NT 4	27.4		edium dense, gray, C	LAYI	EY SIL1, trace fine	sand, moist			
5-10	2	Р	36/60	NA	NA	NA	4" - SA	A, wet						
							NO RE(COVERY						
							NO RE							
10.15			0/50											
10-15	3	Р	0/60	NA	NA	NA								
							60" M	dium danaa anay (EV SILT trace fine	and maint			
							00 - M	edium dense, gray, C	LAII	ET SILT, trace fille	sand, moist			
15-20	4	Р	60/60	NA	NA	NA								
					·	<u> </u>								
	NULAR \$ vs / Ft-De			SIVE SOILS Consistency		TYPE OF SAMPLE		MINOR COMPONENTS		MOISTURE	SY	FIED SOIL CL/ 'MBOL AND D		
0 - 4	Very Loo	ose		- V. Soft		Split Spoon SS with Line	r	1 - 5% TRACE 5 - 15% LITTLE		DRY = No Free MOIST = Wet Hand	CL - Lean Clay ML - Silt		GW - Well Grade GP - Poorly Gra	
	Loose Medium	Dense	0.25 - 0.5 0.5 - 1	- Soft - M. Stiff		Shelby Tube Bag		15 - 30% SOME 30 - 50% WITH		WET = Free	OL - Organic Clay/S CH - Fat Clay	ilt-Low Plast	GM - Silty Grave GC - Clayey Gra	
31 - 50 >50	Dense Very De	nse		- Stiff - V. Stiff	BL -	Block Geoprobe		(Or Use Adjective >	25%)		MH - Elastic Silt OH - Organic Clay/S	ilt-High Plast	SW - Well Grade SP - Poorly Gra	ed Sand
	, _ 0			- Hard	HYP -	Hydropunch Hand Auger					PT - Peat	5	SM - Silty Sand SC - Clayey Sar	I
			<u> </u>			Other/Expl								
NOTES:														

No well installed at this location.

Elevation estimated from LiDAR data due to GPS inaccuracies.

-														
		GZA			C	ient Name:	Vulcan	Materials Company			Boring No.:	North-5		
G	~)		vironmenta		0		-	ourg County, South (Carolina		Page:	2	of 2	
					С			0	(South Carolina Stat	ate Plane (20.0157528	•	-
									×		Checked By:			
Contra	ctor:	Elite Te	echniques					Auger / Casing	Sampler					
Forem	an:	Dearal	Rodgers			-	Type:	Direct Push	Sleeve		GF	ROUNDWA	TER READINGS	S
Rig:		GeoPro	be 7822 DT	Г		0.I	D. / I.D.:		1.75"		Date	Time	Depth Casing	Stab
Logged	l By:	Chad M	Iartin			- Hamme	er Type:	NA				Not 1	Measured	•
Date St	tart/Fin	ish:	08/15/202	:2		Hammer V	Vt./Fall:	NA	/					
Boring	Locatio	on:	North cent	ter of site		Release	System:	NA						
GS Ele	vation:	87.0'		Datum:	NAVD 88	-					Surveyed By:	LiDAR Dat	ta	
				•							Survey Date:			
F			Pen./		Field	Pocket			SAMPLE DESC	CRIPTIO	N AND CLASSII	FICATION		
DEPTH (feet)	No.	Туре	Rec	Blows (/6'')	Test Data	Pen Readings			Consistency, Color,					rs;
Ð			(inch)	(0)	(ppm)	(tsf)	(es		stituents, Constituente e to medium SAND		• ·	,		, wet)
				<u> </u>										· · ·
							10" - M	edium dense, gray, C	CLAYEY SILT, trace	ce fine san	id, moist			
20-24.4	5	Р	53/53	NA	NA	NA	43" - Ve	ery dense, gray, CLA	YEY SILT, trace fir	ine sand, t	race fine gravel, w	<i>'et</i>		
							TOP O	F BEDROCK AT 2	24.4'					
	NULAR			SIVE SOILS	<u> </u>	TYPE OF		MINOR					ASSIFICATION	
	ws / Ft-De			-Consistency		SAMPLE Split Spoon		1 - 5% TRAC	E DRY = No F	Free	CL - Lean Clay	MBOL AND D	GW - Well Grad	
5 - 10	Very Lo Loose		0.25 - 0.5		ST -	SS with Line Shelby Tube		5 - 15% LITTLI 15 - 30% SOME		e (ML - Silt OL - Organic Clay/Si	It-Low Plast	GP - Poorly Gra GM - Silty Grav	el
31 - 50	Medium Dense		1 - 2	- M. Stiff - Stiff	BL -	Bag Block		30 - 50% WITH (Or Use Adjective >	25%)	N	CH - Fat Clay /H - Elastic Silt		GC - Clayey Gr SW - Well Grad	led Sand
>50	Very De	nse		- V. Stiff - Hard	HYP -	Geoprobe Hydropunch					OH - Organic Clay/Si PT - Peat	lt-High Plast	SP - Poorly Gra SM - Silty Sand	ł
						Hand Auger Other/Expl							SC - Clayey Sa	nd
NOTES:														

No well installed at this location.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			~						.			
G	A)	GeoEn	vironmenta		CI		-	Materials Company	G 1'		Boring No.:		<u> </u>	
		Enginee	ers and Scien	tists	C			ourg County, South C			Page:	1	of 2	
					C	oordinates:	IN: 5577	48.0; E: 2217574.5	(South	Carolina State Plar	(feet)) File No.: Checked By:		00	
Contra	atore	Elito To	abriquas					Auger / Casing		Sampler	Checkeu by.	JAS		
			chniques			-	Tropos	0 0	Sleer	•	CR		TER READINGS	<u>د</u>
Forema Dia	an:	-	Rodgers			- 		Direct Push	Sleev					
Rig:	D		be 7822 DT			-	D. / I.D.:		1.75		Date		Depth Casing	Stab
Logged		Chad M				-	er Type:		,			Not M	easured	
Date St			08/15/202			Hammer V			/					
Boring			NE portion			Release	System:	NA						
GS Ele	vation:	87.5		Datum:	NAVD 88	-					Surveyed By:	LiDAR		
		r	1			1	I		SAN	IPLE DESCRIPT	Survey Date: ION AND CLASSIF	TICATION		
DEPTH (feet)	No.	Туре	Pen./ Rec	Blows (/6'')	Field Test Data	Pocket Pen Readings			Consist	ency, Color, Grou	p Name (Modified B scriptors; Other Con	Surmister), G		s;
А			(inch)		(ppm)	(tsf)	(e:	: Dense, brown, fine	e to me	edium SAND ; trace	Gravel, fine; concrete	e fragments,	1" Silt layer at 12',	, wet)
							13" - TO	OPSOIL						
							28" - M	edium dense grav to	brown		some fine sand, moist			
0-5	1	1 P 60/60 NA				NA								
0.5	1	1 P 60/60 NA				1111	19" - M	edium dense, gray, S	SILTA	ND CLAY, trace fi	ne sand, moist			
				I			28" - M	edium dense, brown,	, FINE	SAND, some silt, t	race clay, moist			
				I										
5-10	2	Р	28/60	NA	NA	NA								
				I										
				I										
							13" - SA	AA						
				I			12" - M	edium dense, brown,	, FINE	SAND, some silt, t	race clay, wet			
10-15	3	Р	60/60	NA	NA	NA	35" - De	ense, gray, FINE SA	ND, lit	tle silt, trace clay, tr	ace fine gravel, wet			
				I							-			
				I										
				I			60" - SA	AA						
				I										
15-20	4	Р	60/60	NA	NA	NA								
				I										
				I										
GRA	NULAR S		COHES			TYPE OF		MINOR	<u> </u>		IINIE	IED SOIL CLAS	SSIFICATION	
	vs / Ft-De			Consistency	- 22	SAMPLE Split Spoon		COMPONENTS 1 - 5% TRACE		MOISTURE DRY = No Free		MBOL AND DE		ed Gravel
	4 Very Loose <0.25 - V. Soft					SS with Line Shelby Tube		5 - 15% LITTLE 15 - 30% SOME	E	MOIST = Wet Hand WET = Free	ML - Silt OL - Organic Clay/Sil	t-low Plast	GP - Poorly Grade GP - Poorly Grade GM - Silty Grave	ided Gravel
11 - 30	0 Loose 0.25 - 0.5 - Soft 0 Medium Dense 0.5 - 1 - M. Stiff 0 Dense 1 - 2 - Stiff					Bag Block		30 - 50% WITH (Or Use Adjective >		**LI - IICC	CH - Fat Clay MH - Elastic Silt	L 2000 I 1831	GC - Clayey Gra SW - Well Grade	avel
					P -	Geoprobe Hydropunch		101 056 Aujective >.	20 /0)		OH - Organic Clay/Sil PT - Peat	t-High Plast	SW - Well Grade SP - Poorly Gra SM - Silty Sand	ided Sand
			>4	- 1101U	HA -	Hydropunch Hand Auger Other/Expl					1 1 - 1 U al		SC - Clayey Sand	
NOTES:					. 0-	Jugi/LXpi								

MW-6 installed ~80' west of boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

)	GZA			CI	ient Name:	Vulcan	Materials Company			Boring No.	: North-6		
G	~)		vironmenta					ourg County, South (Page		of 2	
					C			748.0; E: 2217574.5			ne (feet)) File No.			
											Checked By	: JAS		
Contra	ctor:	Elite Te	echniques					Auger / Casing		Sampler				
Forema	an:	Dearal	Rodgers				Type:	Direct Push	Sleeve	e	G	ROUNDWA	TER READINGS	1
Rig:			be 7822 DT	Г			D. / I.D.:		1.75"		Date	Time	Depth Casing	Stab
Logged	l Bv:	Chad N				Hamme						.	Aeasured	
Date St			08/15/202	2		Hammer V			1					
Boring			NE portio			Release								
GS Ele			riz portio		NAVD 88						Surveyed By	• Lidar		
US ER	vation.	07.5		- Datum.	INAVD 00						Survey Date			
					Field				SAM	PLE DESCRIPT	ION AND CLASS			
TH (t		_	Pen./	Blows	Test	Pocket Pen		Relative Density/0	Consiste	ncv. Color. Grou	p Name (Modified	Burmister), (Group Descriptor	s:
DEPTH (feet)	No.	Туре		(/6'')	Data	Readings		Cons	stituents	s, Constituent Des	scriptors; Other Co	omments, Mo	bisture	
I				(ppm)	(tsf)	(e:	x : Dense, brown, fin	ne to med	lium SAND ; trace	Gravel, fine; concre	ete fragments,	1" Silt layer at 12',	, wet)	
	No. Type Rec (/6'')					38" - De	ense, gray, FINE SA	ND, little	e silt, trace clay, tr	ace fine gravel, wet				
20-23.2	5	Р	38/38	NA	NA	NA				•	C ·			
	5 P 38/38 NA						TOP O	F BEDROCK AT 2	23.2'					
	5 P 38/38 NA													
									-					
	ANULAR SOILS COHESIVE SOILS ows / Ft-Density P.P.(tsf)-Consistenc				TYPE OF SAMPLE		MINOR COMPONENTS	s	MOISTURE		IFIED SOIL CLA YMBOL AND DI	ESCRIPTION		
	4 Very Loose <0.25 - V. Soft			Split Spoon SS with Line	r	1 - 5% TRAC 5 - 15% LITTLI	E	DRY = No Free MOIST = Wet Hand	CL - Lean Clay ML - Silt		GW - Well Grade GP - Poorly Gra			
5 - 10	Loose		0.25 - 0.5		ST -	Shelby Tube Bag		15 - 30% SOME 30 - 50% WITH	E	WET = Free	OL - Organic Clay/S CH - Fat Clay	Silt-Low Plast	GM - Silty Grave GC - Clayey Gra	el
31 - 50	- 30 Medium Dense 0.5 - 50 Dense 1		1 - 2	- Stiff	BL -	Block		(Or Use Adjective >			MH - Elastic Silt	Cilt High Disst	SW - Well Grade	ed Sand
>50	very De	use		- V. Stiff - Hard	HYP -	Geoprobe Hydropunch					OH - Organic Clay/S PT - Peat	m-nign Plast	SP - Poorly Gra SM - Silty Sand	
						Hand Auger Other/Expl							SC - Clayey Sar	nd
NOTES:														

MW-6 installed ~80' west of boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

-														
		GZA			C	lient Name:	Vulcan	Materials Company			Boring No.:	North-7		
G	\mathbf{x}		vironmenta		Ċ.			burg County, South (Carolir	na	Page:	-	of 2	
					С			78.5; E: 2217904.0				20.0157528.0		
											Checked By:			
Contra	ctor:	Elite Te	echniques					Auger / Casing		Sampler				
Forema	an:	Dearal	Rodgers			-	Type:	Direct Push	Slee	eve	G	ROUNDWATI	ER READINGS	5
Rig:		GeoPro	be 7822 D7	ſ		- 0.1	D. / I.D.:	2.25"	1.75	5"	Date	Time I	Depth Casing	Stab
Logged	l By:	Chad M	lartin			Hamme	er Type:	NA				Not Me	asured	
Date St	tart/Fin	ish:	08/15/202	2		- Hammer V	Vt./Fall:	NA	/					
Boring	Locatio	on:	NE corner	of site		Release	System:	NA						
GS Ele	vation:	87.5'		Datum:	NAVD 88						Surveyed By:	LiDAR Data		
	-			-							Survey Date:			
Ŧ			Pen./		Field	Pocket			SAN	MPLE DESCRIPT	ION AND CLASSI	FICATION		
DEPTH (feet)	No.	Туре	Rec	Blows (/6'')	Test Data	Pen Readings					p Name (Modified			·s;
ĐE (J			(inch)	(/0)	(ppm)	(tsf)	(e:				scriptors; Other Co e Gravel, fine; concre			, wet)
													•	
							9" - TO	PSOIL						
							51" - So	oft, gray, SILTY CL	AY, tra	ace fine sand, moist				
0-5	1	1 P 60/60 NA				NA								
		1 P 60/60 NA												
							101 0							
							12" - SA							
							9" - Me	dium dense, gray, FI	INE SA	AND, little silt, trace	clay, moist			
5-10	2	Р	41/60	NA	NA	NA	20" - M	edium dense, gray, F	FINE to	o MEDIUM SAND	, trace silt, trace clay	, wet		
							3" - SA	۵						
10.15	2		50/60		27.4		9" - Dei	nse, brown, CLAYE	Y SIL'I	r, little fine to media	im sand, wet			
10-15	3	Р	50/60	NA	NA	NA	38" - De	ense, gray, CLAYEY	Y SILT	, little fine to mediu	m sand, wet			
							51" - De	ense, grav, CLAYEY	Y SILT	. little fine to mediu	m sand, trace gravel,	wet		
								, , , , , , , , , , , , , , , , , , ,		,				
15-20	4	Р	51/60	NA	NA	NA								
13-20	4	r	51/00	INA	INA	INA								
	NULAR			SIVE SOILS		TYPE OF		MINOR				FIED SOIL CLAS		
	ws / Ft-De			Consistency		SAMPLE Split Spoon		1 - 5% TRAC	E	MOISTURE DRY = No Free	CL - Lean Clay	MBOL AND DES	GW - Well Grade	
5 - 10	Very Loo Loose		0.25 - 0.5		ST -	SS with Line Shelby Tube		5 - 15% LITTLI 15 - 30% SOME	=	MOIST = Wet Hand WET = Free	ML - Silt OL - Organic Clay/S	ilt-Low Plast	GP - Poorly Gra GM - Silty Grave	el
31 - 50			1 - 2	- M. Stiff - Stiff	BL -	Bag Block		30 - 50% WITH (Or Use Adjective >			CH - Fat Clay MH - Elastic Silt		GC - Clayey Gra SW - Well Grade	ed Sand
>50	Very De	nse		- V. Stiff - Hard	HYP -	Geoprobe Hydropunch					OH - Organic Clay/S PT - Peat	IIt-High Plast	SP - Poorly Gra SM - Silty Sand	
						Hand Auger Other/Expl							SC - Clayey Sar	nd
NOTES:									_					

MW-7 installed at boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			C	iont Nome	Vulsan	Matariala Compony			Dowing No.	North 7		
G	(Λ)	GeoEn	vironmenta		C			Materials Company			Boring No.: Page:		of 2	
		Enginee	ers and Scien	11515	C			78.5; E: 2217904.0		rolina State Plar	0			
					e	oor unnates.	11. 5577	70.5, E. 2217904.0	(bouin cu	itolilla State I la	Checked By:		.00	
Contra	ctor:	Elite Te	echniques					Auger / Casing	S	Sampler	enceneu 291	5110		
Forema			Rodgers				Type:	Direct Push	Sleeve	,	Gl	ROUNDWA'	TER READINGS	5
Rig:			be 7822 D1	г		. 01	D. / I.D.:		1.75"		Date	Time	Depth Casing	Stab
Logged	l Rv•	Chad M				Hamme			1.75		Dute	· ·	Jeasured	Sub
Date St			08/15/202	2		Hammer V			1				leasured	
Boring			NE corner			Release			,					
GS Ele			THE conner		NAVD 88	•	oystem.	1111			Surveyed By:	LiDAR Date	I	
GO LIC	vation.	07.5		, Datum.	10110 00	•					Survey Date:		4	
					Field	D 1 (SAMPI	LE DESCRIPT	ION AND CLASSI			
et)	Na	Trees	Pen./	Blows	Test	Pocket Pen		Relative Density/C	Consistenc	cy, Color, Grou	p Name (Modified]	Burmister), (Group Descriptor	s;
DEPTH (feet)	110.	Type	(inch)	(/6'')	Data	Readings (tsf)	<i>,</i>				scriptors; Other Co			~
					(ppm)	(131)	(e:	a: Dense, brown, fine	e to mediu	im SAND ; trace	e Gravel, fine; concre	te fragments,	1" Silt layer at 12',	, wet)
	5 5 P 31/60 NA					31" - De	ense, gray, CLAYEY	Y SILT, litt	tle fine to mediu	m sand, trace gravel,	wet			
	No. Type Rec (inch) Blows (/6'') 5 5 P 31/60 NA													
20-25	5	Р	31/60	NA	NA	NA								
				 										
25-25.7	6	Р	8/8	NA	NA	NA	3" - SA	A						
25 25.1	0	1	0/0	11/1	1121	1421	5" - Ver	y dense, gray, FINE	GRAVEL	., little fine to me	edium sand, trace silt	, trace clay, w	vet	
	6 P 8/8 NA						тор о	F BEDROCK AT 2	25.7'					
	6 P 8/8 NA													
	RANULAR SOILS COHESIVE SOILS lows / Ft-Density P.P.(tsf)-Consistency					TYPE OF SAMPLE	-	MINOR COMPONENTS	s	MOISTURE		FIED SOIL CLA 'MBOL AND DE		
	4 Very Loose <0.25 - V. Soft					Split Spoon SS with Line	r	1 - 5% TRACE 5 - 15% LITTLE	E I	DRY = No Free DIST = Wet Hand	CL - Lean Clay ML - Silt		GW - Well Grade GP - Poorly Gra	
5 - 10	0.25 - 0.5 - Soft				ST -	Shelby Tube		15 - 30% SOME	E \	WET = Free	OL - Organic Clay/S	ilt-Low Plast	GM - Silty Grave	el
31 - 50	30 Medium Dense 0.5 - 50 Dense 1 -			- Stiff	BL -	Bag Block		30 - 50% WITH (Or Use Adjective >2			CH - Fat Clay MH - Elastic Silt		GC - Clayey Gra SW - Well Grade	ed Sand
>50	Very De	nse		- V. Stiff - Hard	HYP -	Geoprobe Hydropunch					OH - Organic Clay/S PT - Peat	It-High Plast	SP - Poorly Gra SM - Silty Sand	
						Hand Auger Other/Expl							SC - Clayey Sar	nd
NOTES:														

MW-7 installed at boring.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			C	liont Nomo	Vulsen	Matariala Compony			Da	ming No.	South 1			
G	A)	GeoEn	vironmental		U			Materials Company			Du	oring No.: Page:		of	2	
	1	Enginee	ers ana scieni	tists	C			burg County, South (398.0; E: 2219714.0			(feet))			-	2	
					C	oor unrates.	IN. 3346	98.0, E. 2219714.0	(Sour	I Carolina State Fla		ecked By:		5.00		
Contra	ctor	Elite Te	echniques					Auger / Casing		Sampler	Circ	ckeu Dy.	JAS			
Forema		Dearal l	-			-	Type	Direct Push	Slee	_		G	ROUNDWA	ATER RF	TADINGS	
Rig:			be 7822 DT			-	D. / I.D.:		1.75		· _	Date	Time	Depth	Casing	Stab
Logged	Bv	Chad M				-	er Type:		1.75	,	-	Date	P	Measured	Ű	Stab
Date St			08/17/2022	2		- Hammer V			1		-			Wieasureu		
Boring			SE corner			-	System:	ļ.					<u> </u>			<u> </u>
GS Elev			5E comer		NAVD 88	-	System				_ L Surv	veved Bv:	LiDAR Dat	ta		
0.5 2.10		00.0			101102 00	-						vey Date:				
DEPTH (feet)	No.	Туре	Pen./ Rec (inch)	Blows (/6'')	Field Test Data (ppm)	Pocket Pen Readings (tsf)	(e:		Consis	MPLE DESCRIPT stency, Color, Grou nts, Constituent De aedium SAND ; trace	FION AND up Name (N escriptors;	CLASSI Modified 1 Other Co	FICATION Burmister), mments, Me	Group D oisture	_	
0-5	1	Р	44/60	NA	NA	NA	6" - TO 38" - Lo	PSOIL bose, red-brown, CL	AYEY	′ SILT, little fine sar	nd, moist					
5-10	2	Р	60/60	NA	NA	NA		A fedium dense, gray, S fedium dense, gray, C								
							14" - M	edium dense, yellow	v-gray,	CLAYEY SILT, lit	ttle sand, we	et				
10-15	3	Р	14/60	NA	NA	NA										
			┨───┦			 	211 0									
15-20	4	Р	60/60	NA	NA	NA	21" - SA 39" - De	4A ense, gray, FINE SA	ND, so	ome, silt, trace clay,	, wet					
	NULAR S ws / Ft-De			SIVE SOILS Consistency		TYPE OF SAMPLE		MINOR COMPONENTS		MOISTURE		SY	FIED SOIL CL (MBOL AND E	DESCRIPTI	ION	
5 - 10 11 - 30 31 - 50	Very Loo Loose Medium Dense Very Der) Dense	0.25 - 0.5 0.5 - 1 1 - 2 2 - 4	- V. Soft - Soft - M. Stiff - Stiff - V. Stiff - Hard	SSL - ST - B - BL - P - HYP - HA -	Split Spoon SS with Line Shelby Tube Bag Block Geoprobe Hydropunch Hand Auger Other/Expl	er e	1 - 5% TRAC 5 - 15% LITLI 15 - 30% SOME 30 - 50% WITH (Or Use Adjective >	.E E ł	DRY = No Free MOIST = Wet Hand WET = Free	OL - Org CH - Fat MH - Elas	anic Clay/S Clay stic Silt anic Clay/S	ilt-Low Plast ilt-High Plast	GP - GM - GC - SW - SP - SM -	Well Grade Poorly Gra Silty Grave Clayey Gra Well Grade Poorly Gra Silty Sand Clayey Sar	aded Gravel el avel ed Sand aded Sand
MW-10	bedroo Dinstal	lled at b	ooring.	ed by direct							<u>.</u>					
F 1																

Elevation estimated from LiDAR data due to GPS inaccuracies.

r																
		GZA			C	iont Name:	Vulcan	Materials Company		Roring No.	Boring No.: South-1					
G	λ	GeoEn	vironmenta		C	Location: Orangeburg County, South Carolina						Page: 2 of 2				
		Engine	ers una scien	11313	C	oordinates: N: 554898.0; E: 2219714.0 (South Carolina State Plane (feet)										
					C	oor unnates.	14. 5546	98.0, E. 2219714.0	(Souri	il Carolilla State I la	Checked By		8.00			
Contra	aton	Elito To	chniques					Auger / Casing		Sampler	Checkeu Dy	·JAS				
Forema			-			-	Tunor	Direct Push	Slee	•	G	ROUNDWA	ATER RF	ADINGS		
Rig:	111.		Rodgers be 7822 D7								·	1		Casing	Stab	
_	Den	Chad M				•	O.D. / I.D.: 2.25" 1.75" Date Time Depth C. Hammer Type: NA Not Measured									
Logged			08/17/202	2		•			/		NOL	Weasured	,			
Date Start/Fin Boring Locatio						-	ammer Wt./Fall: NA / Release System: NA									
GS Elevation:						-	System:	NA		L Pro	LIDARD	4-		L		
GS Ele	vation:	88.0		. Datum:	NAVD 88	•	Survey Date									
					F .11		Survey Date: SAMPLE DESCRIPTION AND CLASSIFICATION									
TH (f)		_	Pen./	Blows	Field Test	Pocket Pen	Relative Density/Consistency, Color, Group Name (Modified Burmister), Group Descriptors;									
DEPTH (feet)	No.	Туре	Rec (inch)	(/6'')	Data	Readings										
I			(incli)		(ppm)	(tsf)	(ex	: Dense, brown, fine	e to m	edium SAND ; trace	e Gravel, fine; concr	ete fragment	s, 1" Silt la	iyer at 12',	, wet)	
							NO REO	COVERY								
20-25	5	Р	0/60	NA	NA	NA										
20 25	5	1	0/00	1171	1111	1171										
							60" - De	ense, gray, SANDY S	SILT,	trace clay, wet						
									- ,	,						
25-30	6	Р	60/60	NA	NIA	NA										
25-50	0	P	00/00	NA	NA	INA										
							51" - SA	AA								
										trace fine cand wat						
30-34.5	7	Р	54/54	NA	NIA	NA	5 - Vel	y dense, gray, GRAV	VEL, I	frace fine sand, wet						
30-34.3	/	Р	54/54	NA	NA	NA										
							TOP O	F BEDROCK AT 3	34.5'							
GRA	NULAR	SOILS	COHES	SIVE SOILS		TYPE OF		MINOR		I	UN	IFIED SOIL CL	ASSIFICAT			
Blov	vs / Ft-De	ensity	P.P.(tsf)-	Consistency	SS -	SAMPLE Split Spoon		COMPONENTS 1 - 5% TRACE		MOISTURE DRY = No Free	CL - Lean Clay	YMBOL AND		ON Well Grade	ed Gravel	
	Very Loo Loose	ose	<0.25 0.25 - 0.5	- V. Soft - Soft	SSL -	SS with Line Shelby Tube		5 - 15% LITTLE 15 - 30% SOME	Ξ	MOIST = Wet Hand WET = Free		Silt-Low Plast	GP -		ded Gravel	
	Medium	Dense	0.5 - 1	- M. Stiff - Stiff	В -	Bag Block		30 - 50% WITH (Or Use Adjective >			CH - Fat Clay MH - Elastic Silt		GC -	Clayey Gra Well Grade	ivel	
	Very De	nse	2 - 4	- V. Stiff	P -	Geoprobe			20701		OH - Organic Clay/ PT - Peat	Silt-High Plast	SP -	Poorly Gra		
			>4	- Hard	HA -	Hydropunch Hand Auger					PT - Peat			Silty Sand Clayey San	nd	
NOTES:					0 -	Other/Expl										
Top of	bedro	ck was	determine	ed by direct	push refu	sal.										
MW-10) instal	led at b	orina.													
			-													
Driller	s said ı	no reco	very could	d be due to v	wet sand.											

Elevation estimated from LiDAR data due to GPS inaccuracies.

																		
		GZA			CI	lient Name:	Vulcan	Materials Company			Boring No	: South-2						
G 7	~)		vironmenta ers and Scient		0.	Location: Orangeburg County, South Carolina							of	2				
		Linguite	is and belen	-1515	C	1		<u> </u>	Page: 1 of 2 e (feet)) File No.: 20.0157528.00									
					C	oor unnates.	14. 5547	40.0, L. 2217470.5	(Sour	il Carolina State I la	Checked By	-	5.00					
Contra	etor.	Elito Ta	chniques					Auger / Casing		Sampler	Checked Dy	· JAS						
Contractor: Elite Techniques Foreman: Dearal Rodgers					-	Tuno		Slav	•	C	ROUNDWA	ATER RI	TADINGS					
							Direct Push	Slee			1	I		Stab				
Rig:	L D					-	O.D. / I.D.: 2.25" 1.75" Date Time Depth Casing Hammer Type: NA Not Measured											
Logged By: Chad Martin					-	Hammer Type: NA Not Measured												
				-														
Boring Location: South center of site			-	Release System: NA														
GS Elevation: 88.0' Datum: NAVD 88				-					Surveyed By		ta							
	<u> </u>				<u> </u>	T	Survey Date: SAMPLE DESCRIPTION AND CLASSIFICATION											
H 🗊			Pen./	Blows	Field Test	Pocket Pen												
DEPTH (feet)	No.	Туре	Rec	(/6'')	Data	Readings		Relative Density/Consistency, Color, Group Name (Modified Burmister), Group Descriptors; Constituents, Constituent Descriptors; Other Comments, Moisture										
А			(inch)		(ppm)	(tsf)	(e:	x : Dense, brown, fin	e to m	edium SAND ; trace	e Gravel, fine; conci	ete fragments	s, 1" Silt l	ayer at 12'	, wet)			
							7" - TO	PSOIL										
											• .							
0.5			20/60			NA	12" - Loose, brown, CLAYEY SILT, trace fine sand, moist											
0-5	1	Р	30/60	NA	NA	NA	11" - Medium dense, red-brown, SILT AND CLAY, trace fine sand, moist											
							10" - St	iff red-brown CLA	ν ΔΝ	D SILT, trace fine sa	and moist							
							25" - St	iff, gray, SILTY CL	AY, tr	race fine sand, moist								
5-10	2	Р	48/60	NA	NA	NA	13" - M	edium dense, gray, S	SILT A	AND CLAY, trace fi	ne sand, moist							
						6" - SAA												
				NA	NA													
							24" - Dense, gray, SANDY SILT, trace clay, wet											
10-15	3	Р	30/60															
					+		201 0											
							38" - SA	4A										
15-20	4	Р	38/60	NA	NA	NA												
			 		<u> </u>													
	NULAR ws / Ft-D			SIVE SOILS Consistency		TYPE OF SAMPLE		MINOR COMPONENTS		MOISTURE	S	IIFIED SOIL CL YMBOL AND	DESCRIPTI	ION				
	Very Lo	ose		- V. Soft	SSL -	Split Spoon SS with Liner		1 - 5% TRAC 5 - 15% LITTL	E	DRY = No Free MOIST = Wet Hand	CL - Lean Clay ML - Silt		GP -	 Well Grade Poorly Gra 	ided Gravel			
	Loose Medium	Dense	0.25 - 0.5 0.5 - 1	- Soft - M. Stiff		Shelby Tube Bag		15 - 30% SOME 30 - 50% WITH	ME	WET = Free	OL - Organic Clay/ CH - Fat Clay	Silt-Low Plast		 Silty Grave Clayey Grave 				
	Dense Very De	nse	1 - 2 - Stiff BL - Bloc		Block Geoprobe		(Or Use Adjective >	25%)		MH - Elastic Silt OH - Organic Clay/	Silt-High Plast		Well Grade Poorly Gra					
				- Hard	HYP -	Hydropunch Hand Auger					PT - Peat	- '	SM -	Silty Sand Clayey Sar				
NOTES						Other/Expl								,0, 00				
NOTES: Top of		ck was	determine	ed by direct	push refu	ısal.												
10100-9	Install	ed at bo	ring.															

Drillers said no recovery could be due to wet sand.

Elevation estimated from LiDAR data due to GPS inaccuracies.

Ca		GZA GaoEn	vironmenta	1 Inc	C	ient Name:	Materials Company	Boring No.: South-2										
	- 7		rs and Scient			Location: Orangeburg County, South Carolina							Page: 2 of 2					
					С	oordinates:	N: 5547	48.0; E: 2219498.5	ne (feet))	et)) File No.: 20.0157528.00								
											Ch	ecked By	: JAS					
Contra	ctor:	Elite Te	chniques			_		Auger / Casing		Sampler								
Forema	an:	Dearal I	Rodgers			_	Type:	Direct Push	Sleev	'e		GROUNDWATER READINGS						
Rig:		GeoPro	be 7822 DT			I.0	D. / I.D.:	2.25"	1.75'	1		Date	Time	Depth	Stab			
Logged By: Chad Martin						Hammer Type: NA							Not	Measured	i			
Date St	art/Fin	ish:	08/17/2022	2		Hammer V	Vt./Fall:	NA	/		Γ							
Boring	Locatio	n:	South cent	er of site		Release	System:	NA										
GS Elev	vation:	88.0'		Datum:	NAVD 88	•					Sur	veyed By	: LiDAR Da	ıta				
						•					Su	rvey Date	:					
			ъ (Field	Pocket			SAM	IPLE DESCRIPT	TON AN	D CLASS	FICATION	1				
DEPTH (feet)	No.	Туре	Pen./ Rec	Blows	Test	Pen		Relative Density/Consistency, Color, Group Name (Modified Burmister), Group Descriptors;										
DE (f		-71-	(inch)	(/6'')	Data (ppm)	Readings (tsf)	(0)	Constituents, Constituent Descriptors; Other Comments, Moisture (<i>ex</i> : Dense, brown, fine to medium SAND ; trace Gravel, fine; concrete fragments, 1" Silt layer at 12', wet)										
					(ppm)		(e.	. Dense, brown, mit	e to me	ululli SAND, trace	e Glavel, I	ine, concre		s, 1 Sht la	ayer at 12,	wet)		
ſ							NO RE	COVERY										
ſ																		
20-25	5	Р	0/60	NA	NA	NA												
ſ																		
ſ																		
						<u> </u>												
ſ							60" - De	ense, gray, SANDY S	SILT, ti	race clay, wet								
ſ																		
25-30	6	Р	60/60	NA	NA	NA												
	-	-																
ſ																		
ſ							42" - SA	AA										
ſ							3" - Ver	y dense, gray, GRAV	VEL. tr	ace fine sand, wet								
30-33.8	7	Р	45/45	NA	NA	NA		y dense, gruy, erar	· 22, u	ace mie sand, wet								
ſ																		
				ļ	ļ	 												
ſ							тор о	F BEDROCK AT 3	33.8'									
ſ																		
ſ																		
ſ																		
ſ																		
ſ																		
ſ																		
ſ																		
ſ																		
GRA	NULAR S		COHES	IVE SOILS		TYPE OF		MINOR					IFIED SOIL CL					
	vs / Ft-De			Consistency		SAMPLE		COMPONENTS		MOISTURE		S	YMBOL AND	DESCRIPTI	ION			
	Very Loo	ose		- V. Soft	SSL -	Split Spoon SS with Line		1 - 5% TRACE 5 - 15% LITTLE	E	DRY = No Free MOIST = Wet Hand	CL - Le ML - Sil	t		GP -	Well Grade	ded Gravel		
	Loose Medium	Dense		- M. Stiff		Shelby Tube Bag		15 - 30% SOME 30 - 50% WITH		WET = Free	CH - Fa	t Clay	Silt-Low Plast	GC -	 Silty Grave Clayey Gra 	ivel		
31 - 50 >50	Dense Very Der	nse		- Stiff - V. Stiff		Block Geoprobe		(Or Use Adjective >			MH - Ela OH - Or		Silt-High Plast		Well Grade			
	-		>4	- Hard		Hydropunch Hand Auger					PT - Pe		-	SM -	Silty Sand Clayey San	nd		
						Other/Expl												
NOTES: Top of	bedro	ck was	determine	ed by direct	push refu	ısal.												
				,														
MW-9	installe	ed at bo	ring.															

Drillers said no recovery could be due to wet sand.

Elevation estimated from LiDAR data due to GPS inaccuracies.

		GZA			C	lient Name:	Vulcan I	Materials Company			Bo	oring No.:	South-3					
G			vironmenta ers and Scient			Location: Orangeburg County, South Carolina						Page: 1 of 2						
		Linguited	no ana beren		С		dinates: N: 554633.5; E: 2219048.5 (South Carolina State Plane (feet)											
					e	oor unitates.	11.0010	55.5, E. 22170 10.5	(bouin (curonnu Stute I it		cked By:	-	.0.00				
Contra	atom	Elite Te	chniques					Auger / Casing		Sampler	CIK	ckcu Dy.	JAS					
						-	T		C1	•		GROUNDWATER READINGS						
Forema	an:	Dearal l	0			-	•••	Direct Push	Sleeve	2			1	1 1				
Rig:			be 7822 DT				D. / I.D.:		1.75"			Date	Time	Depth	Casing	Stab		
Logged	l By:	Chad M				-	er Type:						Not	Measured				
Date St	art/Fin	ish:	08/17/202	2		Hammer V	Vt./Fall:	NA	/									
Boring	Locatio	on:	SW corner	of site		Release	System:	NA										
GS Ele	vation:	88.0'		Datum:	NAVD 88	_					Surv	veyed By:	LiDAR Da	ıta				
	-	-					-					vey Date:						
Ŧ			Pen./		Field	Pocket			SAM	PLE DESCRIPT	FION AND	CLASSI	FICATION	N				
DEPTH (feet)	No.	Туре	Rec	Blows	Test	Pen Readings (tsf)		Relative Density/Consistency, Color, Group Name (Modified Burmister), Group Descriptors;										
DE (f			(inch)	(/6'')	Data (ppm)		Constituents, Constituent Descriptors; Other Comments, Moisture (<i>ex</i> : Dense, brown, fine to medium SAND; trace Gravel, fine; concrete fragments, 1" Silt layer at 12', wet)											
					(ppm)		(ел	. Dense, brown, mit		iuni SAND, uac	e Olavel, III	lie, collere	te fragment	s, i Siitia	yer at 12,	wet)		
							10" - TC	PSOIL										
						NA	11" - Loose, brown, CLAYEY SILT, trace fine sand, moist											
0-5	1	Р	P 51/60	NA	NA		30" - Medium dense, red-brown, SILT AND CLAY, trace fine sand, moist											
							50 - Mediulli dense, red-brown, SILI AND CLAY, trace fine sand, moist											
							9" - SAA	A										
							21" - Medium dense, gray, SILT AND CLAY, little fine sand, moist											
						NA	21" - Me	edium dense, gray, S	SILT AN	D CLAY, little f	ine sand, mo	oist						
5-10	2	Р	30/60	NA	NA													
							15" - Me	edium dense, gray, S	SILT AN	D CLAY, little fi	ine sand, we	t						
							41" - Dense, gray, SANDY SILT, trace clay, wet											
10-15	3	Р	56/60	NA	NA	NA												
				ļ														
							60" - De	nse, gray, SANDY S	SILT, tra	ace clay, trace fin	e gravel, we	et						
15-20	4	Р	60/60	NA	NA	NA												
13-20	4	г	00/00	INA	INA	INA												
GRA	NULAR S		COHES			TYPE OF		MINOR	-		1	LINI	FIED SOIL CI					
	ws / Ft-De			Consistency		SAMPLE		COMPONENTS		MOISTURE		SI	MBOL AND	DESCRIPTIC	ON			
0 - 4	Very Loo	ose	<0.25	- V. Soft		Split Spoon SS with Line	r	1 - 5% TRACE 5 - 15% LITTLE		DRY = No Free MOIST = Wet Hand				GP -	Well Grade Poorly Grad			
	Loose Medium	Dense	0.25 - 0.5 0.5 - 1	- Soft - M. Stiff		Shelby Tube Bag		15 - 30% SOME 30 - 50% WITH		WET = Free			ilt-Low Plast		Silty Grave Clayey Grav			
31 - 50 ⊳50	Dense Very Dei	160		- Stiff - V. Stiff	BL -	Block Geoprobe		(Or Use Adjective >2	25%)		CH - Fat Clay MH - Elastic Silt		ilt-High Plast	SW -	Well Grade Poorly Grad	ed Sand		
200				- Hard	HYP -	Hydropunch					PT - Pea			SM -	Silty Sand			
						Hand Auger Other/Expl								SC -	Clayey San	ıd		
NOTES:		ck was	determine	ed by direct	nuch rofu	ical												
100 01	Deuro	on was	Gotornine	a by unect	Puanteiu													
MW-8	installe	ed at bo	ring.															

Drillers said no recovery could be due to wet sand.

Elevation estimated from LiDAR data due to GPS inaccuracies.

G		GZA GeoEn	vironmental	l, Inc.	Cl	ient Name:	Vulcan	Materials Company		Boring No.:	Boring No.: South-3					
	/	Enginee	ers and Scient	tists		Location:	Orangel	burg County, South C	Carolir	0	Page: 2 of 2					
					С	oordinates:	ordinates: N: 554633.5; E: 2219048.5 (South Carolina State Plane (feet)) File No.: 20.0157528.00									
											Checked By:	JAS				
	Contractor: Elite Techniques					-		Auger / Casing		Sampler						
Forema	an:	Dearal I	Rodgers			-		Direct Push	Slee	eve	GROUNDWATER READINGS					
Rig:		GeoPro	be 7822 DT			-	D. / I.D.:		1.75	5"	Date	Time	Depth Casing	g Stab		
Logged		Chad M	lartin			Hamme	er Type:	NA				Not 1	Measured			
Date St	art/Fin	ish:	08/17/2022			Hammer V	Vt./Fall:	NA	/					──		
Boring			SW corner	of site		Release	System:	NA								
GS Ele	vation:	88.0'		Datum:	NAVD 88	-					Surveyed By:	LiDAR Dat	ta			
		. 	 ,				Survey Date: SAMPLE DESCRIPTION AND CLASSIFICATION									
DEPTH (feet)	No.	Туре	Pen./ Rec (inch)	Blows (/6'')	Field Test Data (ppm)	Pocket Pen Readings (tsf)	(ez		Consis tituer	tency, Color, Grou nts, Constituent Des	p Name (Modified scriptors; Other Co	Burmister), mments, Me	Group Descripto oisture			
						1	60" - De	ense, gray, SANDY S	SILT	trace clay, trace fine	gravel wet					
20-25	5	Р	60/60	NA	NA	NA	00 - 20	olise, gray, Shirth I e	, 	nace chay, nace nine	gravel, wet					
							NO RE	COVERY								
25-30	6	Р	0/60	NA	NA	NA										
						<u> </u>	39" - Di	ense, gray, SANDY S	SII T	trace clay, trace fine	gravel wet					
30-33.5	7	Р	42/42	NA	NA	NA		y dense, gray, GRAV		·	•					
							ТОР О	F BEDROCK AT 3	3.5'							
GRA	NULAR	SOILS	COHES			TYPE OF		MINOR			UNI	FIED SOIL CL	ASSIFICATION			
	vs / Ft-De			Consistency	SS -	SAMPLE Split Spoon		COMPONENTS 1 - 5% TRACE		MOISTURE DRY = No Free			DESCRIPTION GW - Well Grad	ded Gravel		
5 - 10 11 - 30 31 - 50	Very Loo Loose Medium Dense Very De	sse <0.25 - V. Soft SSL - 0.25 - 0.5 - Soft ST - I Dense 0.5 - 1 - M. Stiff B - 1 - 2 - Stiff BL - - nse 2 - 4 - V. Stiff P - >4 - Hard HYP - -			SS with Line Shelby Tube Bag Block Geoprobe Hydropunch Hand Auger Other/Expl	S with Liner 5 - 15% LITTL Shelby Tube 15 - 30% SOM Bag 30 - 50% WITH Block (Or Use Adjective s Geoprobe Hydropunch Hand Auger			MOIST = Wet Hand WET = Free	ML - Silt OL - Organic Clay/S CH - Fat Clay MH - Elastic Silt OH - Organic Clay/S PT - Peat		GP - Poorly Gr GM - Silty Grav GC - Clayey G SW - Well Grav SP - Poorly Gr SM - Silty San SC - Clayey Sa	raded Gravel vel ravel ded Sand raded Sand d			
NOTES: Top of	bedro	ck was	determine	ed by direct				-								

MW-8 installed at boring.

Drillers said no recovery could be due to wet sand.

Elevation estimated from LiDAR data due to GPS inaccuracies.



ATTACHMENT 3

Monitoring Well Installation Logs

	MONIT	ΓALL	N REPORT WELL # MW-4			MW-4					
GZA Geo Env		Project	Subsurface Inve			Project N	0.	20.0157528.00			
Engineers and \$ 17975 W. Sarah		Locatio		Vulcan Orange Orangeburg (Date:		August 16, 2022		
GZA Field Rep		Horiz. Datum: NAD 1983				,		um: NAVE	-		
				Northi	ng: 5576	67.0			Ground E		
Drilling Contra	ctor: Elite Tech	niques			g: 22165				Top of W	/ell Elev: 8	3.3
Driller: Dearal I					-	August 18, 20	22			eyed By: Li	
	-			Survey	ed By: G	SZA GPS					
МС	ONITORING	WELL DETA	ILS			Depth (ft)					Steel Above Grade
Wellscreen Dia	: 2-inch		Type: Sch. 40	PVC		Doptin (it)	Γ				Protective Casing
Slot Size: 0.010)-inch		Length: 5 feet			0					- Sand
Well Riser Dia:	2-inch		Type: Sch. 40	PVC							Conorato
Pipe Connection	ns: Flush-thread	ded	Length: 10 fee	t		2					- Concrete
Filter and Sand	Type: Badger N	Mining 65-75									
Protective Casin	ng: YES		Pad: Concrete								
Locked Cap: Y	ΈS		Pad Size: 2' x 2	2'							
Casing Dia: 4-in	nch										
Length: 5 feet									•		_ PVC Casing
GF	ROUNDWAT	ER MEASUF	REMENT DA	ΤA							
Date	Time	Depth ¹	Method	Elev.	-						
8/19/2022	1108	7.1	Elec. WL		81.2				•		Cement/Bentonite – Grout
8/19/2022	1134	7.1	Elec. WL		81.2						
						13					
											Bentonite Seal
						15					
						17					Top of Screen
							-		-		
							-				
							-		◄ —		_Screen
											Filter Pack
							-		-		_
							-				
							-				
REMARKS:											
	22										
] [Ľ									
	22										
						МС	DNITC	OR WELL	. DRAW	ING NOT	TO SCALE.
								GZA			
wp51/template\we	allform.xls							GZA Represent	tative Ini	tial:	Date:

	ΜΟΝΙΤ			ON REPOR	N REPORT WELL # MW-5			
GZA GeoEn	vironmental,	Inc.		Project:	Subsurface Inve		Project No.	20.0157528.00
Engineers and 17975 W. Sara		Brookfield W	/1 53045	Location:	Vulcan Orange Orangeburg C		y Date:	August 16, 2022
GZA Field Rep		,		Horiz. Datum:			Elev. Datum: NA	-
				Northing: 557			Ground Elev: 86	
Drilling Contra	ctor: Elite Tech	niques		Easting: 2217			Top of Well Elev	/: 89.4
Driller: Dearal		•		-	d: August 18, 202	22	GS Surveyed By	
	-			Surveyed By:	GZA GPS			
					_			
мс	ONITORING	WELL DETA	ILS		Depth (ft)			Steel Above Grade Protective Casing
Wellscreen Dia	: 2-inch		Type: Sch. 40	PVC				J
Slot Size: 0.010)-inch		Length: 5 feet		0			Sand
Well Riser Dia:	: 2-inch		Type: Sch. 40	PVC				Concrete
Pipe Connectio	ns: Flush-threa	ded	Length: 10 fee		2			Conciete
Filter and Sand	Type: Badger I	Vining 65-75						
Protective Casi	ng: YES		Pad: Concrete					
Locked Cap: Y	'ES		Pad Size: 2' x 2	2'				
Casing Dia: 4-i	nch							
Length: 5 feet					_		-	
G	ROUNDWAT	ı .	REMENT DA	ΓA				
Date	Time	Depth ¹	Method	Elev.	_			
8/19/2022	1800	7.25	Elec. WL	82.2				Cement/Bentonite
								Grout
					-			
					_			
					14			
								Bentonite Seal
					16			
					18			Top of Screen
					1			
					-			Ocidan
					4			
								Filter Pack
					1			
		l	1	l	-			
REMARKS:			ement made from	n top				
	of well casin	ıg.			23			
	See bore	h ole Nor th	-2 for soil					
	lescription	IS.		23				
					MC	NITOR W	ELL DRAWING N	OT TO SCALE.
						~-	•	
wp51/template\we	ellform.xls					GZ/ Repr	A esentative Initial:	Date:
								_ 0.0.

	MONIT			TALLATI	ON REPORT WELL # MW-6			.# MW-6
GZA GeoEnv	-	Inc.		Project: Subsurface Investigation			Project No.	20.0157528.00
Engineers and \$ 17975 W. Sarah		Brookfield. W	1 53045	Location:	Vulcan Orangeb Orangeburg Co		Date:	August 16, 2022
GZA Field Rep		,		Horiz. Datum		,,	Elev. Datum: N	-
				Northing: 557	741.0		Ground Elev: 87	7.5
Drilling Contra	ctor: Elite Tech	niques		Easting: 2217	494.0		Top of Well Ele	v: 90.8
Driller: Dearal I	Rodgers			Date Surveye	d: August 18, 2022	2	GS Surveyed By	/:LiDAR data
				Surveyed By:	GZA GPS			
					- -			
МС	ONITORING	WELL DETA	ILS		Depth (ft)			Steel Above Grade Protective Casing
Wellscreen Dia	: 2-inch		Type: Sch. 40	PVC	00000			
Slot Size: 0.010)-inch		Length: 5 feet				-	Sand
Well Riser Dia:			Type: Sch. 40					Concrete
Pipe Connectio			Length: 10 fee	t 	2			
Filter and Sand		Aining 65-75						
Protective Casi	•		Pad: Concrete					
Locked Cap: Y			Pad Size: 2' x 2	2'				
Casing Dia: 4-i	nch							
Length: 5 feet			REMENT DA	ГΔ	-			FVCCasing
Date	Time	Depth ¹	Method	Elev.				
8/19/2022	1050	8.35	Elec. WL	82.5	-			Cement/Bentonite
8/19/2022	1145	8.35	Elec. WL	82.5	1			Grout
0/19/2022	1140	0.00		02.0	-			
					-			
					10			
								— Bentonite Seal
					12			
					14		•	Top of Screen
					_		4	
							•	
]	
					-			Eliter Deels
					-		- 1	Filter Pack
					-		4	
REMARKS:	1. Groundwate	r depth measur	ement made from	n top				
	of well casin				10		1	
	Sooboro	nole North	-6 for soil	1			J	
		lescription			19			
'	Ľ		-	1				
					MON	IITOR WEL	LDRAWING	NOT TO SCALE.
					-			
						GZA	4 - 41 - 1 - 1 - 1 - 1 - 1	D /
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	MONIT			ALLATI	ON REPORT WELL # MW-7			# MW-7
GZA GeoEn	-	Inc.		Project:	Subsurface Invest		Project No.	20.0157528.00
Engineers and \$ 17975 W. Saral		. Brookfield. W	1 53045	Location:	Vulcan Orangebu Orangeburg Co		Date:	August 16, 2022
GZA Field Rep				Horiz. Datum:			Elev. Datum: NA	-
				Northing: 557	779.5		Ground Elev: 87	.5
Drilling Contra	actor: Elite Tech	niques		Easting: 2217			Top of Well Elev	v: 90.8
Driller: Dearal				-	l: August 18, 2022		GS Surveyed By	: LiDAR data
				Surveyed By:	GZA GPS			
					_			
МС	ONITORING	WELL DETA	ILS		Depth (ft)	_		Steel Above Grade Protective Casing
Wellscreen Dia	a: 2-inch		Type: Sch. 40	PVC				_
Slot Size: 0.010	D-inch		Length: 5 feet		0			Sand
Well Riser Dia:	: 2-inch		Type: Sch. 40	PVC				Concrete
Pipe Connectio	ons: Flush-thread	ded	Length: 10 fee		2			
Filter and Sand	Type: Badger N	Mining 65-75						
Protective Casi	-		Pad: Concrete					
Locked Cap: Y			Pad Size: 2' x 2	2'				
Casing Dia: 4-i	nch							
Length: 5 feet				- ^	-			
	1	ı .	REMENT DA					
Date	Time	Depth ¹	Method	Elev.	-			Concert/Dentenite
8/19/2022	1040	8.46	Elec. WL	82.3				Cement/Bentonite Grout
								Croat
					-			
					-			
								Bentonite Seal
					13			
								T (0
					15			Top of Screen
							•	
					1			
					- 1		-	
					-			Filter Pack
	1 Crounderst	r dooth maar	mont mode free	a top	1			
NEWIARNS.	of well casin		ement made from	пор			-	
.		-		1	20			
		hole North						
	C	lescription	S.		20			
								IOT TO SCALE.
					IVION			IUT TU JUALE.
						GZA		
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	ΜΟΝΙΤ			ON REPOR	REPORT WELL # MW-8			
GZA GeoEn	vironmental,	Inc.		Project:	Subsurface Inve		Project No.	20.0157528.00
Engineers and 17975 W. Sara		Brookfield W	1 53045	Location:	Vulcan Orange Orangeburg C		Date:	August 17, 2022
GZA Field Rep		, 2.001.1010, 11		Horiz. Datum: NAD 1983			Elev. Datum: NA	-
				Northing: 554			Ground Elev: 86	
Drilling Contra	ctor: Elite Tech	niques		Easting: 2219			Top of Well Ele	v: 89.7
Driller: Dearal				-	d: August 18, 202	22	GS Surveyed By	
	-			Surveyed By:	-			
мс	ONITORING	WELL DETA	ILS		Depth (ft)		•	Steel Above Grade Protective Casing
Wellscreen Dia	: 2-inch		Type: Sch. 40	PVC				5
Slot Size: 0.010)-inch		Length: 5 feet		0			Sand
Well Riser Dia:	: 2-inch		Type: Sch. 40	PVC				— Concrete
Pipe Connectio	ns: Flush-threa	ded	Length: 10 fee	t	2			Conciete
Filter and Sand	Type: Badger I	Vining 65-75						
Protective Casi	ng: YES		Pad: Concrete					
Locked Cap: Y	'ES		Pad Size: 2' x 2	2'				
Casing Dia: 4-i	nch							
Length: 5 feet					4		•	
G	ROUNDWAT	ı .	REMENT DA	ΓA				
Date	Time	Depth ¹	Method	Elev.				
8/19/2022	1004	12.75	Elec. WL	77.0				Cement/Bentonite
					1			Grout
					- 1			
					- 1			
					18			
								— Bentonite Seal
					20			
					22			Top of Screen
					-			
					-		- 1	
							_	Filter Pack
			1	1	1			
			<u> </u>		-			
REMARKS:			ement made fror	n top			_	
	of well casin	ıg.			27			
	See bor e	hole South	-1 for soil			-		
	lescription	S		27				
					MO		LL DRAWING N	IUT TU SCALE.
						GZA		_
wp51/template\we	ellform.xls					Repres	entative Initial:	Date:

	MONIT			ALLATI	ON REPORT WELL # MW-9			# MW-9
GZA Geo Env	-	Inc.		Project:	Subsurface Inve		Project No.	20.0157528.00
Engineers and \$ 17975 W. Sarah		Brookfield W	/1 53045	Location:	Vulcan Orange Orangeburg C		Date:	August 18, 2022
GZA Field Rep		,		Horiz. Datum: NAD 1983			Elev. Datum: N/	-
,				Northing: 554			Ground Elev: 86	
Drilling Contra	ctor: Elite Tech	niques		Easting: 2219			Top of Well Ele	v: 89.6
Driller: Dearal I				-	d: August 18, 202	2	GS Surveyed By	
	-			Surveyed By:	GZA GPS			
					_			
МС	ONITORING	WELL DETA	ILS		Depth (ft)		4	Steel Above Grade Protective Casing
Wellscreen Dia	: 2-inch		Type: Sch. 40	PVC				U
Slot Size: 0.010)-inch		Length: 5 feet		0		•	Sand
Well Riser Dia:	2-inch		Type: Sch. 40	PVC				Concrete
Pipe Connectio	ns: Flush-thread	ded	Length: 10 fee					Conside
Filter and Sand	Type: Badger M	Vining 65-75						
Protective Casi	ng: YES		Pad: Concrete					
Locked Cap: Y			Pad Size: 2' x 2	2'				
Casing Dia: 4-i	nch							
Length: 5 feet					-			
		ı .	REMENT DA	I				
Date	Time	Depth ¹	Method	Elev.	_			Coment/Dentenite
8/19/2022	1007	12.94	Elec. WL	76.7				Cement/Bentonite Grout
8/19/2022	1415	12.94	Elec. WL	76.7				0.00
					-			
					19			
								— Bentonite Seal
					21			
					23			Top of Screen
					-		_	
							-	Screen
					-		- 1	FILLEI FALK
					4			
REMARKS:	1. Groundwate	r depth measur	ement made fror	n top				
	of well casin				20			
1	Soohara	hole South	-2 for coil	1				
		lescription			28			
	Ľ			1				
					мо	NITOR WE	LL DRAWING	IOT TO SCALE.
					L			
						GZA		_
wp51/template\we	ellform.xls					Repres	entative Initial:	Date:

	MONIT		VELLINS	FALLATI	N REPORT WELL # MW-10			# MW-10
GZA Geo Env	vironmental,	Inc.		Project:	Subsurface Invest		Project No.	20.0157528.00
Engineers and \$ 17975 W. Sarah		Brookfield W	/1 53045	Location:	Vulcan Orangeb Orangeburg Co		Date:	August 18, 2022
GZA Field Rep		<u>, 2.001.1010, 11</u>		Horiz. Datum:			Elev. Datum: NA	-
				Northing: 554	898.0		Ground Elev: 86.	
Drilling Contra	ctor: Elite Tech	niques		Easting: 2219			Top of Well Elev	: 89.8
Driller: Dearal I		•		_	1: August 18, 2022	2	GS Surveyed By:	
	-			Surveyed By:	GZA GPS			
					_			
МС	ONITORING	WELL DETA	ILS		Depth (ft)		4	Steel Above Grade Protective Casing
Wellscreen Dia	: 2-inch		Type: Sch. 40	PVC				0
Slot Size: 0.010)-inch		Length: 5 feet		0			Sand
Well Riser Dia:	2-inch		Type: Sch. 40	PVC				— Concrete
Pipe Connectio	ns: Flush-thread	ded	Length: 10 fee	t	2			Concrete
Filter and Sand	Type: Badger N	Vining 65-75						
Protective Casi	ng: YES		Pad: Concrete					
Locked Cap: Y			Pad Size: 2' x 2	2'				
Casing Dia: 4-i	nch							
Length: 5 feet					-		•	
G			REMENT DA ⁻	1				
Date	Time	Depth ¹	Method	Elev.				
8/19/2022	1012	12.91	Elec. WL	76.9				Cement/Bentonite Grout
8/19/2022	1425	12.92	Elec. WL	76.9				Clour
0, 10, 2022					-			
					- 1			
								Bentonite Seal
					22			
								Tax of Orman
					24		- ∙	Top of Screen
					_		4	
					-		- 1	
					-		-	Filter Pack
							4	
REMARKS	1. Groundwate	r depth measur	ement made from	n top				
	of well casin						-	
,	0		0.6	1	29			
		hole South			20			
l l	C	lescription	2	J	29			
					MON	ITOR WEL	L DRAWING N	OT TO SCALE.
						GZA		
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ATTACHMENT 4

AQTESOLV Hydraulic Conductivity Testing Results

