

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. W9127821B0001-0001		3. EFFECTIVE 4 FEB 2021		4. REQUISITION/PURCHASE	
5. PROJECT NO. (If applicable) CHC20010		6. ISSUED BY CODE		7. ADMINISTERED BY (If other than item 6) CODE	
Corps of Engineers 109 St. Joseph St. Mobile, AL 36602				<input checked="" type="checkbox"/> 9A. AMENDMENT OF SOLICITATION NO. W9127821B0001 9B. DATED (SEE ITEM 11) 14 JAN 2021 <input type="checkbox"/> 10A. MODIFICATION OF CONTRACT/ORDER NO. 10B. DATED (SEE ITEM 13)	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code)		CODE		FACILITY CODE	
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing items 8 and 15, and returning copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (if required)					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.					
<input type="checkbox"/> A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A					
<input type="checkbox"/> B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO AUTHORITY OF FAR 43.103(b)					
<input type="checkbox"/> C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:					
<input type="checkbox"/> D. OTHER (Specify type of modification and authority)					
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)					
The subject solicitation for: MOBILE HARBOR, ALABAMA, DEEPENING AND WIDENING – PHASE 3, MOBILE, ALABAMA Is modified in the following: REFER TO THE ENCLOSED REVISED SPECIFICATIONS/REVISED AND ADDED DRAWINGS FOR AMENDMENT NO. 0001 NOTE: THE RECEIPT OF PROPOSAL DATE IS HEREBY REVISED BY THIS AMENDMENT. REFER TO THE ENCLOSED SF1442, SOLICITATION, OFFER & AWARD FORM.					
Except as provided herein, all terms and conditions of the document reference in item 9A or 10A, as Heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICE (Type or print)		
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA BY	
(Signature of person authorized to sign)				(Signature of contracting officer)	
16C. DATE SIGNED					

PART I - REVISIONS MADE BY ADDED AND/OR REPLACEMENT PARAGRAPHS/PAGES/SECTIONS

The items listed below are to be replaced by the corresponding added and/or revised paragraphs/pages or sections. Added and/or revised paragraphs/pages or sections are indicated by a note in bottom right hand corner of each paragraph or page. Added sections are hereby made a part of the contract and are to be inserted in the specification in the proper numerical/alphabetical sequence.

Within the specifications, deletions from the specifications are indicated by strikethrough, e.g.: ~~deletions are marked with strikethrough~~ and additions to the specifications including revisions/substitutions are indicated in bold, italic and underlined, e.g.: **additions are indicated thus.**

<u>SECTION</u>	<u>Corresponding Added or Revised Paragraph Page, and/or Section</u>
----------------	--

VOLUME 1

SF1442, Solicitation, Offer & Award Form	Revised Block 13.A as indicated herein.
Bid Schedule	Reissued as indicated herein.
Explanation of Bid Items	Revised as indicated herein.
01 00 01	Revised Paragraphs 2 and 30
35 20 23.00 36	Revised Paragraphs 3.1.2, 3.1.4 and 3.4.5

VOLUME 2

Appendix A	Replaced in its entirety.
------------	---------------------------

PART II - NOTE: Revised and added drawings are listed below. These revised and added drawings are to be inserted into the folio in the proper numerical sequence. Drawings that have been revised by this amendment shall be deleted from the folio. All drawings listed below are revised unless indicated otherwise.

<u>Sheet Reference Number</u>	<u>Title</u>
	COVER SHEET
G-002	INDEX OF DRAWINGS
CN103.1	PARTIAL DREDGE PLAN (ADDED)

Encl as stated:

Revised, reissued and replaced pages of the specifications as indicated in Part I.
3 Revised and added drawings as indicated in Part II.

SOLICITATION, OFFER AND AWARD (Construction, Alteration, or Repair)	1. SOLICITATION NO.	2. TYPE OF SOLICITATION	3. DATE ISSUED	PAGES OF PAGES
	W9127821B0001	<input checked="" type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	14 JAN 2021	1 OF 2

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.
		CHC20010

7. ISSUED BY	CODE	8. ADDRESS OFFER TO
U.S. ARMY ENGINEER DISTRICT, MOBILE CONTRACTING DIVISION (CESAM-CT) (109 ST. JOSEPH ST. 36602) P.O. BOX 2288 MOBILE, AL 36628-0001	CT	SEE CLAUSE 30 IN SECTION 01 00 01

9. FOR INFORMATION EMAIL : Chanda.D.Strenth@usace.army.mil	A. NAME CHANDA D. STRENTH	B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) 251-441-5595
--	------------------------------	---

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying no., date):

MOBILE HARBOR, ALABAMA, DEEPENING AND WIDENING – PHASE 3, MOBILE, ALABAMA

* See Section 00 70 00, Paragraph "COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK".

**** For information pertaining to submission of electronic bids and virtual bid opening, see clause 30 in Section 01 00 01.**

11. The Contractor shall begin performance within * calendar days and complete it within * calendar days after receiving
☐ award, ☒ notice to proceed. This performance period is ☒ mandatory, ☐ negotiable. (See .)

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12B.)	12B. CALENDAR DAYS
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and ** copies to perform the work required are due at the place specified in Item 8 by 1400 (hour) local time 17 FEB 19 MAR 2021 (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee ☒ is, ☐ is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 120 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)					15. TELEPHONE NO. (Include area code)				
					16. REMITTANCE ADDRESS (Include only if different than Item 14)				
CODE		FACILITY CODE			17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. (Insert any number equal to or greater than the minimum requirement)				
<div style="display: flex;"> <div style="width: 15%; border-right: 1px solid black; padding-right: 5px;">AMOUNTS</div> <div style="width: 85%;"></div> </div>									
					18. The offeror agrees to furnish any required performance and payment bonds.				
19. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the solicitation – give number and date of each)									
AMENDMENT NO.									
DATE									
20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)					20B. SIGNATURE			20C. OFFER DATE	
AWARD (To be completed by Government)									
21. ITEMS ACCEPTED:									
22. AMOUNT				23. ACCOUNTING AND APPROPRIATION DATA					
24. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)				ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304© () <input type="checkbox"/> 41 U.S.C. 253© ()				
26. ADMINISTERED BY		CODE			27. PAYMENT WILL BE MADE BY				
CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE									
<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.					<input type="checkbox"/> 29. AWARD (Contractor is not required to sign this document.) Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.				
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)					31A. NAME OF CONTRACTING OFFICER (Type or print)				
30B. SIGNATURE			30C. DATE		31B. UNITED STATES OF AMERICA BY			31C. AWARD DATE	

STANDARD FORM 1442 BACK (REV. 4-85)

Reissued by Amendment No. W9127821B0001-0001

BIDDER'S NAME: _____

BIDDING SCHEDULE

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
1.	Mobilization and Demobilization	1	Job	XXX	_____
2.	Channel Dredging	7,675,631	CY	_____	_____
Total Bid					_____

OFFEROR ELECTS TO WAIVE THE PRICE EVALUATION PREFERENCE
FOR HUBZONE SMALL BUSINESS CONCERNS: () NO () YES

(SEE BIDDING SCHEDULE NOTE NOS. 6 AND 7)

NOTES FOR BIDDING SCHEDULE

NOTE NO. 1. To better facilitate the public bid opening process, all modifications to bids are to be submitted on copies of the latest bid schedules as published in the solicitation or the latest amendment thereto. In lieu of indicating additions/deductions to bid items, all bidders should state their revised prices for each item. The company name should be indicated on the face of the bidding schedule to preclude being misplaced.

NOTE NO. 2. Bidders must insert a price on all numbered items of the bidding schedule by the Government. Failure to do so will disqualify the bid.

NOTE NO. 3. All extensions of the unit prices shown will be subject to verification by the Government. In case of variation between the unit price and extension, the unit price will be considered to be the bid.

NOTE NO. 4. If a modification to a bid is submitted and provides for a job adjustment to the total estimated cost, the application of the job adjustment to each unit price and/or job price in the bid schedule must be stated or, if it is not stated, the bidder agrees that the job adjustment shall be applied on a pro rata basis to every bid item in the bid schedule.

NOTE NO. 5. CONDITIONS GOVERNING EVALUATION OF BIDS AND AWARD OF CONTRACTS.

Only one contract will be awarded on this Bid Schedule and award will be made to the low bidder on the Total Bid.

NOTE NO. 6. IMPORTANT NOTICE: Due to the suspension of the utilization of the price adjustment for small disadvantaged businesses (FAR Clause 52.219-23) by the Under Secretary of Defense on March 12, 2010, effective until further notice, said FAR Clause is not included in or made a part of this RFP. FAR Clause 52.219-4, relating to a 10% price evaluation preference for HUB ZONE small business concerns, is included in and made a part of this RFP. PLEASE NOTE HOWEVER that paragraph (b) (3) of the preceding clause is inapplicable also due to the referenced suspension of FAR Clause 52.219-23.

Consequently, if you are a small business qualified as a HUB ZONE and as an SDB, you will only receive the HUB ZONE 10% price evaluation preference in the evaluation process of this RFP.

NOTE NO. 7. This procurement is not restricted to Hubzone Small Business Concerns. However, offerors certifying as a Hubzone Small Business Concern must be certified by the SBA on or prior to date set for receipt of offers.

END OF BID SCHEDULE

EXPLANATION OF BID ITEMS

GENERAL: This section comprises an explanation of the bid items identified in the bid schedule for each item of work. The bid schedule and the contract drawings shall be worked together to identify the various items of work to which each bid item will apply. The Contractor shall bid the work under the applicable bid item for the specific areas identified in the bid schedule. All work specified herein shall be accomplished in accordance with the requirements of the technical provisions of the specifications and the contract drawings. Payment described for the various bid items will be full compensation for all labor, materials, and equipment required to complete the work. Compensation for any item of work described in the contract but not listed in the bid schedule shall be included in the payment for the item of work to which it is made subsidiary.

Bid Item No. 1 - Mobilization/Demobilization:

(a) All costs associated with initial mobilization to the work site at the Bar portion of the Mobile Harbor Shipping Channel in Mobile County, Alabama and final demobilization of all dredge plant, dredge attendant plant, and support equipment will be included in the contract lump sum price for Mobilization and Demobilization, Bid Item No. 1. This shall include any and all costs to (1) construct the necessary features to access and prepare the work site and (2) adapt, modify, reconstruct, and/or reconfigure the dredge plant and/or other equipment to a configuration capable of performing this contract work. No other separate payment shall be made for any such configuration preparations, and payment of this bid item is considered complete compensation for such actions. Sixty percent (60%) of the lump sum price will be paid after completion of the Contractor's mobilization at the work sites. The remaining forty percent (40%) will be paid after completion of demobilization.

(b) The Contracting Officer may require the Contractor to furnish cost data to justify this portion of the bid if the Contracting Officer believes that the percentages in paragraph (a) above do not bear a reasonable relation to the cost of the work in this contract. Failure to justify such price to the satisfaction of the Contracting Officer will result in payment, as determined by the Contracting Officer, of -

- (i) Actual mobilization costs at completion of mobilization;
- (ii) Actual demobilization costs at completion of demobilization; and
- (iii) The remainder of this item in the final payment under this contract.

The Contracting Officer's determination of the actual costs in paragraph (b) of this clause is not subject to appeal.

Bid Item No. 2 - Channel Dredging:

Payment for Bid Item No. 2 will include all costs associated with the dredging and disposal of approximately 7,675,631 cubic yards of material. The quantity of material to be dredged includes approximately 1,642,334 cubic yards of maintenance material and 6,033,297 cubic yards of new work material. Payment will be made for the volume of material dredged between Stations 950+00 and 1590+00. For the purpose of acceptance and payment, the work shall

be divided into reaches of 600 linear feet, or less at partial reaches. The quantity of material dredged for payment shall be calculated as the difference between the before- and after-dredging surveys of the area within the acceptance prism. The acceptance prism shall be defined as the lines and grades shown on the drawings. Payment will not be made for any volume dredged that exceeds the acceptance prism. Subsidiary features of work including surveying, utility location verification, ~~shorebird monitoring~~, sea turtle monitoring, and turbidity monitoring shall also be included in this bid item. Details of the surveying requirements are provided in Section 35 20 23.00 36 - DREDGING, paragraph DREDGING SURVEYS. Details of the sea turtle, and turbidity monitoring are provided in section 01 57 20 - ENVIRONMENTAL PROTECTION, paragraph PROTECTION OF FISH AND WILDLIFE.

-End of Section-

SECTION 01 00 01

2. REQUESTS FOR INFORMATION

Any questions about this solicitation, including technical questions about plans and specifications, shall be submitted via the Bidder Inquiry Portal in ProjNet at <https://www.projnet.org>. To submit and review inquiry items, prospective vendors will need to use the Bidder Inquiry Key presented below and follow the instructions listed below the key for access. A prospective vendor who submits a comment/question will receive an acknowledgement of their comment/question via email, followed by an answer to the comment/question after it has been processed by our technical team. All timely questions and approved answers will be made available through ProjNet.

Questions shall be submitted no later than **February 2 11, 2021** at 2:00 p.m. Central Time to allow time for a response, and amendment to the solicitation if necessary. On this date and time the portal will be closed.

For technical questions, no other means of communication, e-mail, fax, or telephone will be accepted. Oral exchanges between Offerors or Bidders and the government prior to award of the contract will not be binding. In addition to information available to Offerors or Bidders on the Bidder Inquiry Portal, any information concerning this solicitation will be furnished to all Offerors or Bidders as an amendment to the solicitation if the information is necessary to the submittal of offers or bids.

The Solicitation Number is: W9127821B0001
The Bidder Inquiry Key is: G6EB3Y-KBSR54

Specific Instructions for ProjNet Bid Inquiry Access:

1. From the ProjNet home page linked above, click on **Quick Add** on the upper right side of the screen.
2. Identify the Agency. This should be marked as **USACE**.
3. Key. Enter the **Bidder Inquiry Key** listed above.
4. Email. Enter the email address you would like to use for communication.
5. Click Continue. A page will then open saying that a user account was not found and will ask you to create one using the provided form.
6. Enter your First Name, Last Name, Company, City, State, Phone, Email, Secret Question, Secret Answer, and Time Zone. Make sure to remember your Secret Question and Answer as they will be used from this point on to access the ProjNet system.
7. Click Add User. Once this is completed you are now registered within ProjNet and are currently logged into the system.

Specific Instructions for Future ProjNet Bid Inquiry Access:

1. For future access to ProjNet, you will not be emailed any type of password. You will utilize your Secret Question and Secret Answer to log in.
2. From the ProjNet home page linked above, click on **Quick Add** on the upper right side of the screen.
3. Identify the Agency. This should be marked as **USACE**.
4. Key. Enter the **Bidder Inquiry Key** listed above.
5. Email. Enter the email address you used to register previously in ProjNet.
6. Click Continue. A page will then open asking you to enter the answer to your Secret Question.
7. Enter your Secret Answer and click Login. Once this is completed you are now logged into the system.

Note: Questions/comments should be entered in the system one at a time. [Lists of questions uploaded into ProjNet](#), regardless of the format, will not be answered.

Offerors are requested to review the solicitation and amendments in their entirety, as well as to review the Bidder Inquiry Portal for previous questions and responses, prior to submission of a new inquiry on the Portal.

CAUTION: ANY INQUIRY SUBMITTED AND ANSWERED WITHIN THIS SYSTEM, WILL BE ACCESSIBLE TO VIEW BY ALL INTERESTED OFFERORS OR BIDDERS ON THIS SOLICITATION.

SECTION 01 00 01

Revised by Amendment No. W9127821B0001-0001

The call center for the ProjNet operates weekdays from 8 AM to 5 PM U.S. Central Time Zone. The telephone number is 1-800-428-HELP.

End of Paragraph

30. PROCEDURES FOR SUBMISSION OF BIDS AND VIRTUAL BID OPENING

In accordance with FAR 14.202-8 and FAR Part 4.5, bidders will be required to submit their bids in response to this IFB solicitation by 2 pm CST on ~~17 February~~ **19 March 2021** via electronic means, to include bid bonds. Physical copies of bid bonds will not be required to be submitted unless otherwise requested by the Contracting Officer at a later date. Bidders that are interested in submitting bids will use the DoD Secure Access File Exchange (DoD SAFE), which provides a time stamped notification to the Government when a file is uploaded. Interested bidders should contact Ms. Chanda Strenth at Chanda.d.strenth@usace.army.mil to obtain a unique "request code" needed for each offeror to upload their bids. Once bidders receive this code, they will be allowed to upload their bids from **8 February 2021** at 0900 am up to ~~17 February~~ **19 March 2021** by 2 pm CST. A timely bid is the one time-stamped by DoD SAFE before the deadline established above.

The public bid opening will be held virtually on ~~17 February~~ **19 March 2021** at 2:30 pm CST. Interested parties are welcome to participate by joining the teleconference call via WebEx. The details of the teleconference are provided below:

Phone Number: 844-800-2712
Access Code: 1990707194
Security Code: 1111

End of Paragraph

(NOTE: The remainder of the section is unchanged by the amendment.)

SECTION 35 20 23.00 36

3.1.2 Required Dredging

The contract prices shall include the cost of performing the work described below and shown on the contract drawings. Required dredging under this contract includes all material lying within the designated side slopes of one foot vertical to five feet horizontal (1V to 5H) originating at the plane of elevation ~~-54~~ **-52** feet MLLW from Station 950+00 to Station 1590+00, at the widths shown on the contract drawings.

3.1.4 ~~End Slope and Transition Slope Dredging~~ **NOT USED**

~~End slopes and transition slopes will not be estimated or paid for. In such locations, a vertical (1V:0H) slope will be used for measurement and payment, with no allowance for materials removed outside the required channel prism.~~

3.4.5 Quality Control

The Contractor shall establish and maintain a quality control plan for surveying operations to assure compliance with contractual requirements. The Contractor shall maintain records of quality control qualifications for survey personnel. These records shall include, but not be limited to, the following requirements:

(a) Survey work shall be performed in accordance with the ~~Manual of Survey Instructions, copies of which are available for review at the Corps of Engineers Mobile District Office~~ **USACE Hydrographic Surveying Engineering Manual, EM 1110-2-1003. The manual can be found online at the following link:**

<https://www.publications.usace.army.mil/USACE-Publications/Engineer-Manuals/u43544q/687964726F67726170686963/>

~~At least one responsible member of the Contractor's survey group shall have a valid and current land surveyors registration (any state), or be an ACSM Certified Hydrographer. Names and résumés of registered surveyors shall be included in the Contractor's quality control plan. Sole responsibility for accuracy, completeness, and verification of all~~

survey work performed during execution of this contract, with the exception of the initial and final quantity surveys performed by the Government, shall rest with the Contractor.

(NOTE: The remainder of Paragraph 3.4.5 is unchanged by the amendment.)

(NOTE: The remainder of the section is unchanged by the amendment.)

APPENDIX A
GEOTECHNICAL BORING LOGS
AND
LAB DATA

This page was intentionally left blank for duplex printing.

SS-95


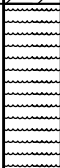
SAM FORM 1836 AUG 2017	AFTER DRILLING		DURING DRILLING		(Continued)	Boring Designation SS-95
----------------------------------	-------------------	---	--------------------	---	-------------	---------------------------------

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 3 OF 3 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,805,465 Y = 172,561			ELEVATION TOP OF BORING -27.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			
										24
										25
										26
										27
										28
										29
										30
										31
										32
										33
										34
										35
										36
										37

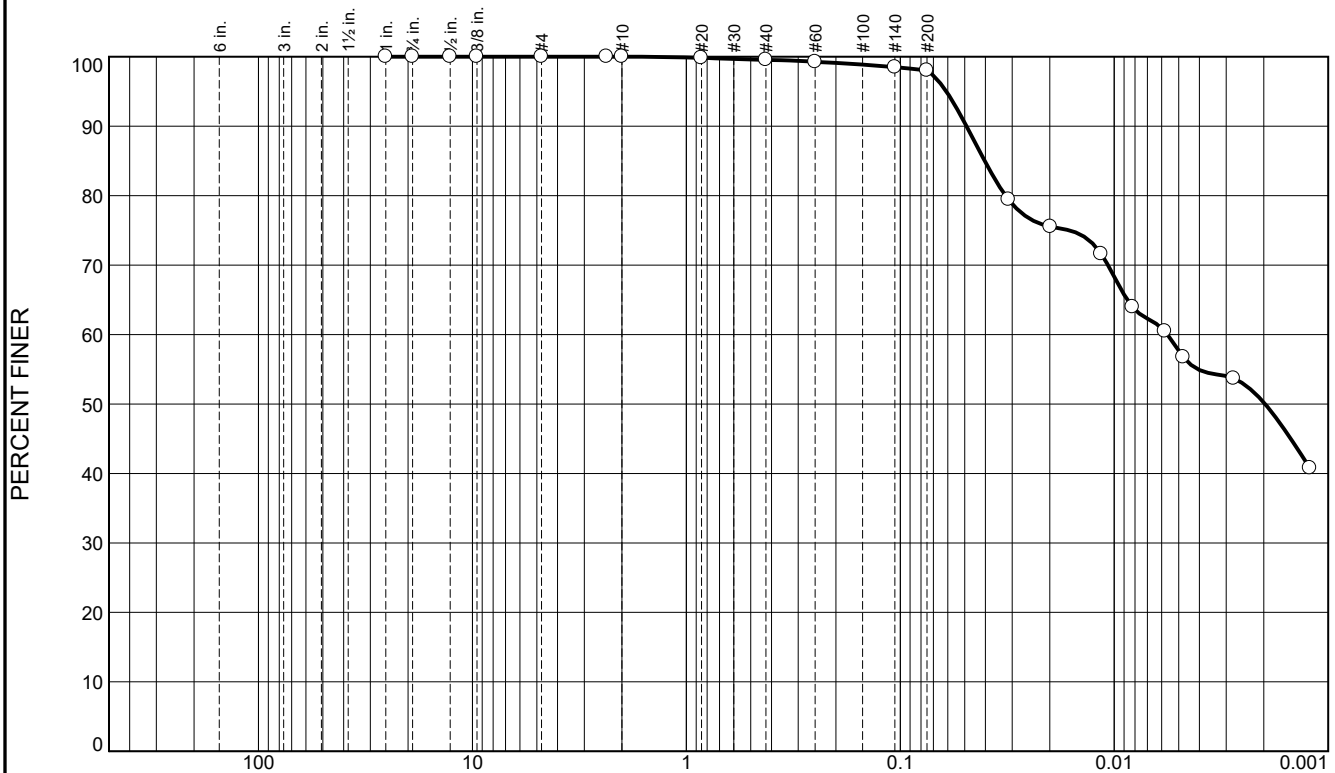
MHVBC-34-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-34-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS				
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,805,806 Y = 171,215				ELEVATION TOP OF BORING -48.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-63.5	15.5			100	1		Vibracore	At El. -58 Ft. -200= 95%, PL= 21, LL= 40, PI= 19, MC= 55%, Gs= 2.89		
-65.0	17.0		(PT) PEAT, wet, dark brown							
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	1.5	40.3	57.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.8		
#40	99.5		
#60	99.2		
#140	98.5		
#200	98.0		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 36 LL= 60 PI= 24

Coefficients

D₉₀= 0.0490 D₈₅= 0.0403 D₆₀= 0.0056
D₅₀= 0.0020 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= MH AASHTO= A-7-5(31)

Remarks

MOISTURE CONTENT: 143.1%
SPECIFIC GRAVITY: 2.89

Source of Sample: MHVBC-34-19

Depth: 4'-6'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.5	1.2	3.3	61.0	33.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	99.5		
#8	99.2		
#10	99.0		
#20	98.4		
#40	97.8		
#60	97.4		
#140	95.8		
#200	94.5		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 21 LL= 40 PI= 19

Coefficients

D₉₀= 0.0589 D₈₅= 0.0494 D₆₀= 0.0236
D₅₀= 0.0156 D₃₀= 0.0022 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(19)

Remarks

MOISTURE CONTENT: 54.7%
SPECIFIC GRAVITY: 2.89

Source of Sample: MHVBC-34-19

Depth: 10'-12'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045


Project No: M20-069





Figure

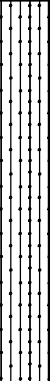
SS-97

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-97
----------------------------------	---	--	-------------	---------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 3 SHEETS	
PROJECT 1982-1984 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.464442 LONG = -88.015455					
STATE PLANE COORDINATES X = 1,806,105 Y = 169,277											
DATE OF BORING		STARTED 01-08-84		COMPLETED 01-08-84		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -44.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR H. Gates, Geologist				NAME OF DRILLER C. Fuller		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 27.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-44.0	0.0										
			(CH) CLAY, fat, high plasticity, very soft consistency, wet, black and dark gray, with organic material								
			At El. -46.4 Ft., soft consistency, light gray								
				100	1		Vibrocure	At El. -48.5 Ft. -200=97.6%			

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 3 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83		VERTICAL MLLW		
LOCATION COORDINATES X = 1,806,105 Y = 169,277				ELEVATION TOP OF BORING -44.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-61.0	17.0			100	1		Vibracore	At El. -58.5 Ft. -200=97.6%		
-64.7	20.7		(OL) CLAY, organic-L, wet, black and brown							
-67.0	23.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, light gray					At El. -64.5 Ft. -200=96.3%		
			(SM) SAND, silty, wet, white, poorly graded							

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,105 Y = 169,277			ELEVATION TOP OF BORING -44.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-71.0	27.0			100	1		Vibracore			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							


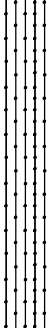
SS-99

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-99
----------------------------------	---	--	-------------	---------------------------------

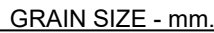
[illegible]

[illegible]

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 2020 Geotechnical Investigation						LAT/LONG COORDINATES LAT = 30.46041659 LONG = -88.01513633					
STATE PLANE COORDINATES X = 1,806,199 Y = 167,813											
DATE OF BORING		STARTED 01-18-20		COMPLETED 01-18-20		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -49.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR C. Long, Geotechnical Engineer				NAME OF DRILLER CSI		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 17.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-49.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, dark gray, trace shell								
-52.0	3.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, trace shell, inorganic	100	1		Vibrocure	At El. -53 Ft. -200= 97%, PL= 21, LL= 50, PI= 29, MC= 69%			
			At El. -58.0 Ft. some shell								

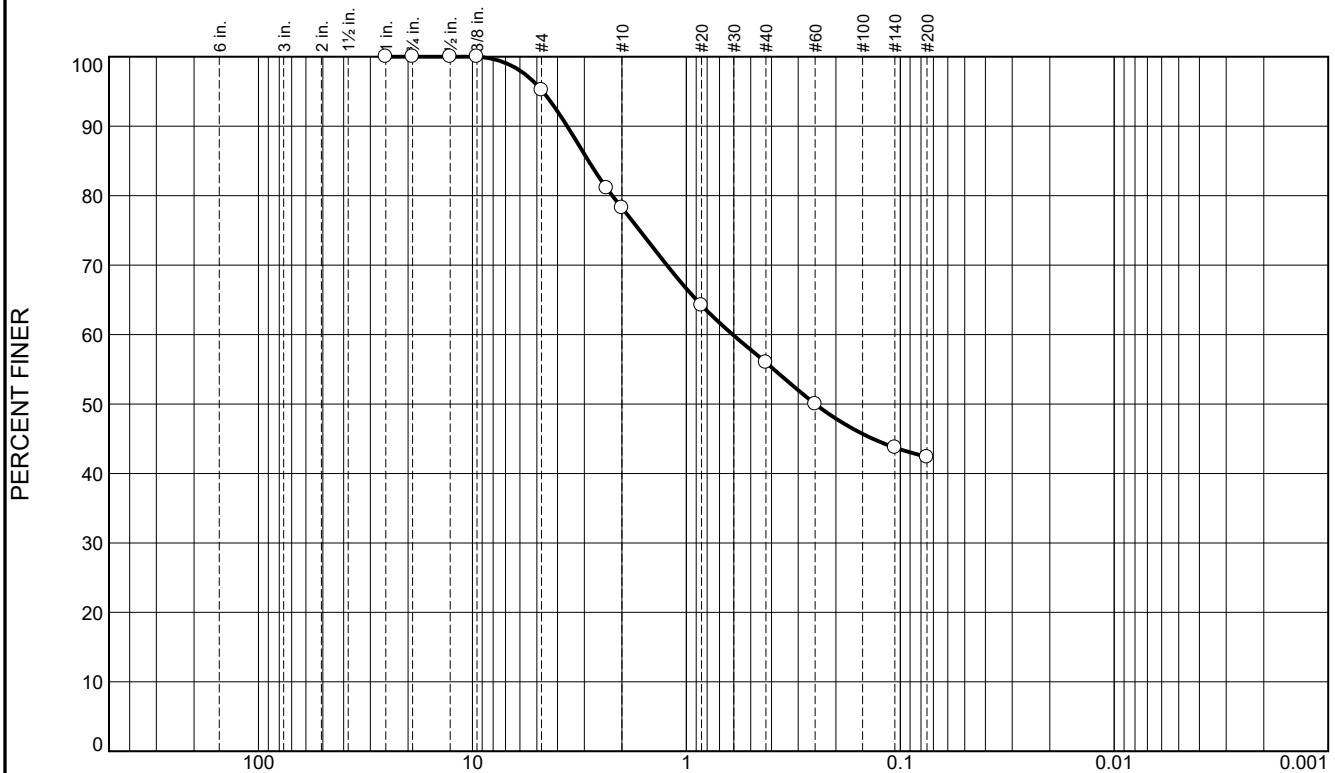
DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,806,199 Y = 167,813				ELEVATION TOP OF BORING -49.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-63.0	14.0			100	1		Vibracore			
-66.0	17.0		(SM) SAND, silty, wet, dark brown, organic laden, with roots/wood					At El. -65 Ft. -200= 42%, PL= 52, LL= 66, PI= 14, MC= 194%		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

PERCENT FINER



Replaced in its entirety by Amendment No. W9127821B0001-0001

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.8	17.0	22.2	13.6	42.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	95.2		
#8	81.1		
#10	78.2		
#20	64.2		
#40	56.0		
#60	50.0		
#140	43.7		
#200	42.4		

* (no specification provided)

Material Description BLACK SILTY SAND W/ ORGANICS		
PL= 52	Atterberg Limits LL= 66	PI= 14
D ₉₀ = 3.6076	Coefficients D ₈₅ = 2.8662	D ₆₀ = 0.6076
D ₅₀ = 0.2500	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
USCS= SM	Classification AASHTO= A-7-5(3)	
Remarks MOISTURE CONTENT: 193.5% ASSUMED SPEC. GRAVITY: 2.7		

Source of Sample: MHVBC-33-19

Depth: 16'-17'


Date: 3/2/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
 Project: USACOE - MOBILE HARBOR W91278-19-D-0045
 Project No: M20-069
 Figure

SS-101

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-101
----------------------------------	---------------------	----------------------	-------------	----------------------------------

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,290 Y = 166,612			ELEVATION TOP OF BORING -38.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.3	12.5						Advanced Boring			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

MHVBC-32-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-32-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	2.0	42.3	55.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.8		
#60	99.7		
#140	99.0		
#200	97.8		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 24 LL= 51 PI= 27

Coefficients

D₉₀= 0.0439 D₈₅= 0.0351 D₆₀= 0.0089
D₅₀= 0.0032 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CH AASHTO= A-7-6(30)

Remarks

MOISTURE CONTENT: 73.7%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-32-19

Depth: 6'-7'

Date: 3/2/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS		
PROJECT 1963-1964 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.451716 LONG = -88.013347						
STATE PLANE COORDINATES X = 1,806,748 Y = 164,646												
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -29.8 Feet		GROUND WATER Underwater		
NAME & TITLE OF FIELD INSPECTOR N/A, Geologist				NAME OF DRILLER N/A		MANUFACTURER'S DESIGNATION OF DRILL N/A <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER						
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks						
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0						
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 0		UNDISTURBED (UD) 0		
TOTAL DEPTH OF BORING 21.5 Feet						TOTAL RECOVERY FOR BORING Not Recorded						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE		
-29.8	0.0		(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, organic				Advanced Boring					

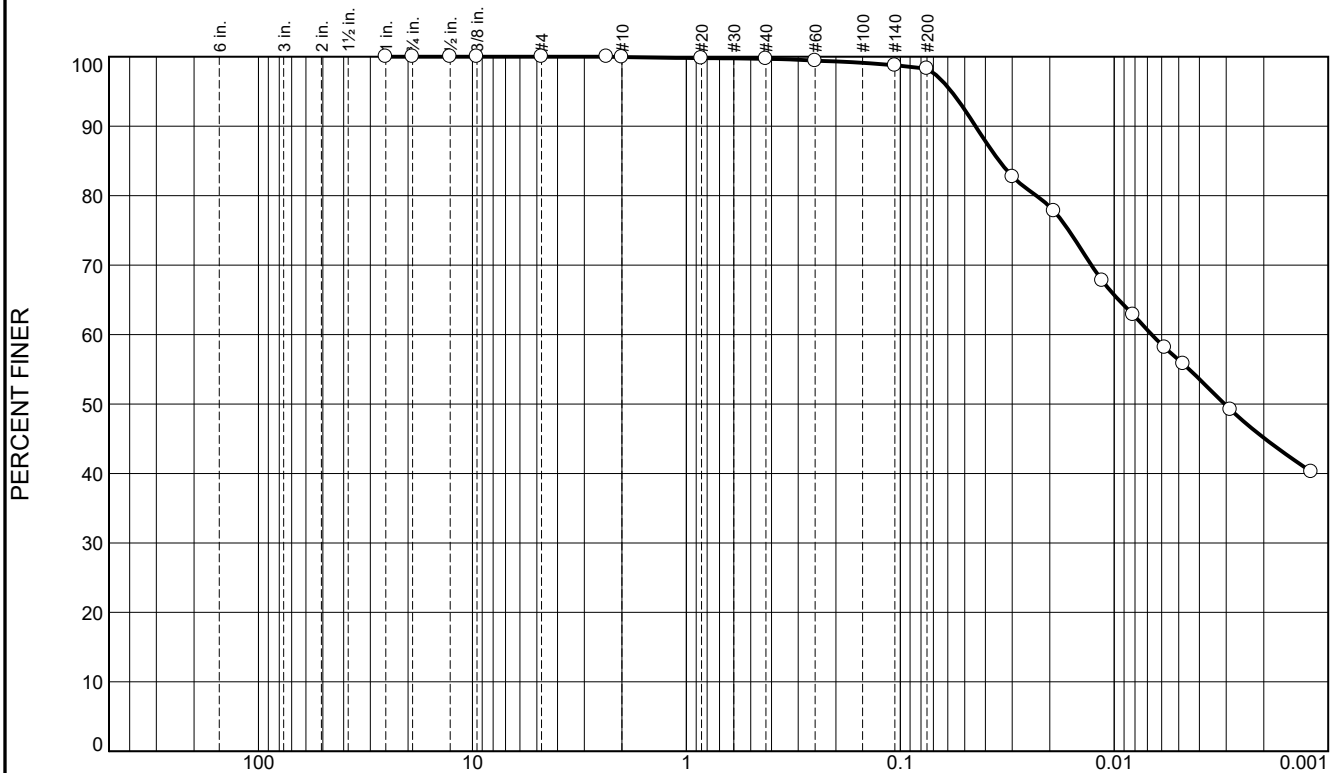
MHVBC-31-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-31-19
----------------------------------	------------------	-------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,520 Y = 164,213			ELEVATION TOP OF BORING -46.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-58.0	12.0									
-60.0	14.0		(PT) PEAT, soft consistency, wet, black, with roots	100	1		Vibracore	At El. -58.5 Ft. -200=23%, MC=251%		
-61.0	15.0		(SM) SAND, silty, low plasticity, medium consistency, wet, gray, inorganic							
NOTES:										
1. Soils are field visually classified in accordance with the Unified Soils Classification System.										

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.2	1.4	41.9	56.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#20	99.8		
#40	99.7		
#60	99.4		
#140	98.8		
#200	98.3		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 25 LL= 54 PI= 29

Coefficients

D₉₀= 0.0445 D₈₅= 0.0345 D₆₀= 0.0067
D₅₀= 0.0031 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CH AASHTO= A-7-6(33)

Remarks

MOISTURE CONTENT: 71.9%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-31-19

Depth: 9'-10'

Date: 3/2/2020

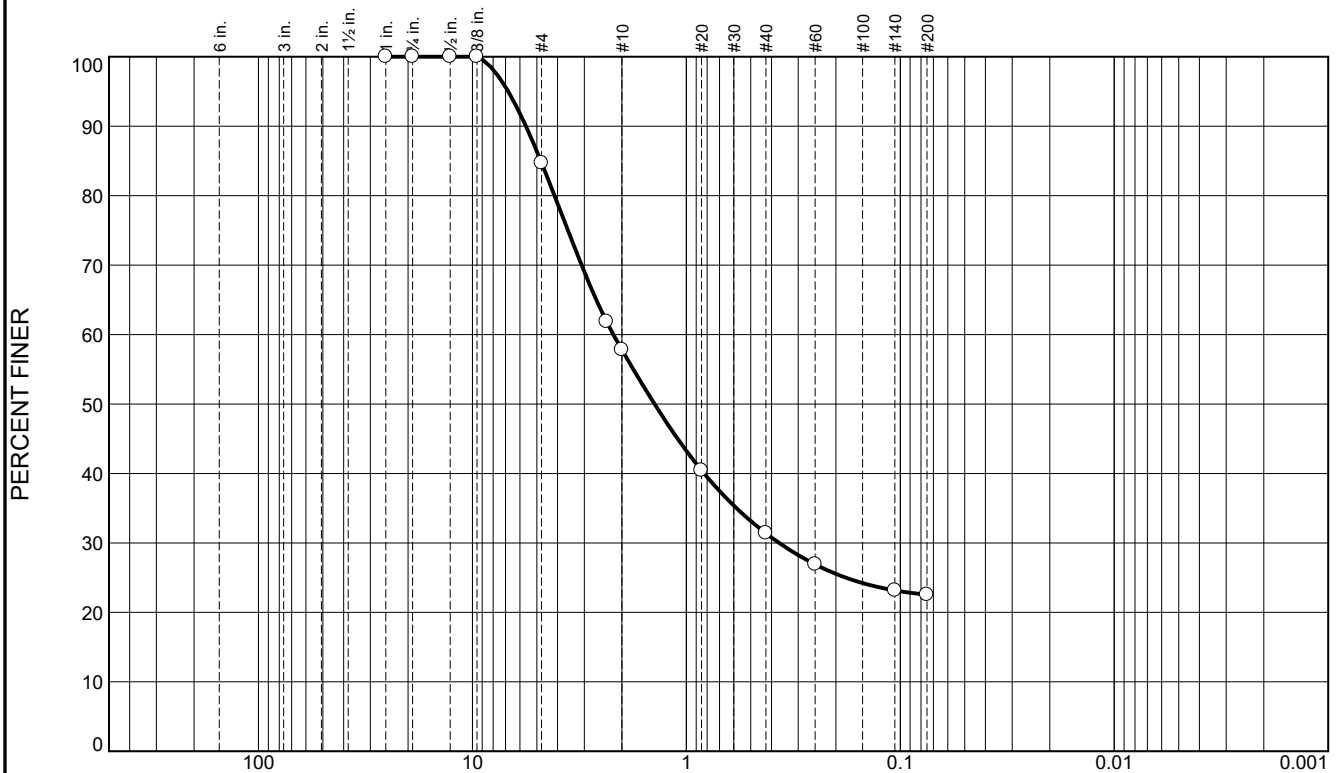
**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	15.3	26.9	26.4	8.9	22.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	84.7		
#8	61.9		
#10	57.8		
#20	40.4		
#40	31.4		
#60	26.9		
#140	23.2		
#200	22.5		

* (no specification provided)

<u>Material Description</u>		
BLACK ORGANICS		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D ₉₀ = 5.6241	D ₈₅ = 4.7925	D ₆₀ = 2.1936
D ₅₀ = 1.4089	D ₃₀ = 0.3682	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS=	AASHTO=	
<u>Remarks</u>		
MOISTURE CONTENT: 250.5%		
ASSUMED SPEC. GRAVITY: 2.7		

Source of Sample: MHVBC-31-19

Depth: 12.5'-13.5'

Date: 3/2/2020

**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045
Project No: M20-069
Figure

SS-105


SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-105
----------------------------------	---------------------	----------------------	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

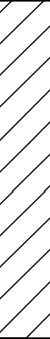



VC-26-84

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation VC-26-84
----------------------------------	---------------------	----------------------	-------------	------------------------------------

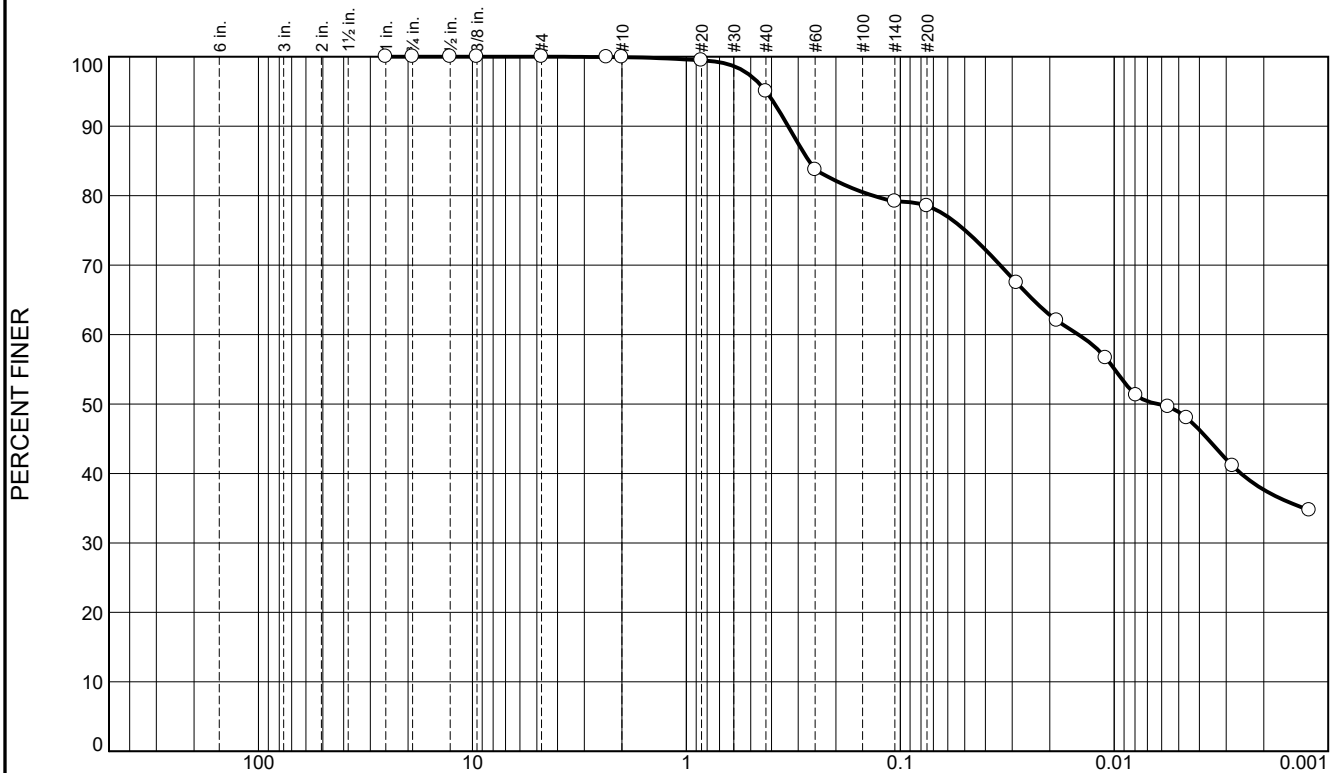
Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,655 Y = 162,277			ELEVATION TOP OF BORING -43.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-68.0	25.0			100	1		Vibracore			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 2020 Geotechnical Investigation						LAT/LONG COORDINATES LAT = 30.4412254 LONG = -88.0134637					
DATE OF BORING						STATE PLANE COORDINATES X = 1,806,694 Y = 160,831					
STARTED 01-19-20		COMPLETED 01-19-20		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.				HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -45.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR C. Long, Geotechnical Engineer				NAME OF DRILLER CSI		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 20.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-45.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, dark gray								
-49.5	4.5		(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, with sand	100	1		Vibrocure				
-53.5	8.5		(CL) CLAY, lean, dark gray, with fine to medium sand and shell								
								At El. -54 Ft. -200= 78%, PL= 22, LL= 45, PI= 23, MC= 58%			

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,694 Y = 160,831			ELEVATION TOP OF BORING -45.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-58.0	13.0		At El. -57.0 Ft., low plasticity, medium consistency, wet, gray sandy					At El. -57 Ft. -200= 59%, PL= 19, LL= 37, PI= 18, MC= 46%		
-60.1	15.1		(SC) SAND, clayey, medium consistency, wet, gray							
-63.0	18.0		At El. -60.0 Ft. sand lense (OH) CLAY, organic-H, wet, gray, with wood At El. -61.5 Ft. sand lense	100	1		Vibracore			
-65.0	20.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, gray At El. -64.0 Ft. wood trapped in bit							
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	4.9	16.5	29.6	48.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#20	99.5		
#40	95.0		
#60	83.7		
#140	79.2		
#200	78.5		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 22 LL= 45 PI= 23

Coefficients

D₉₀= 0.3344 D₈₅= 0.2676 D₆₀= 0.0147
D₅₀= 0.0063 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CL AASHTO= A-7-6(18)

Remarks

MOISTURE CONTENT: 58.1%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-30-19

Depth: 9'-10'

Date: 3/4/2020

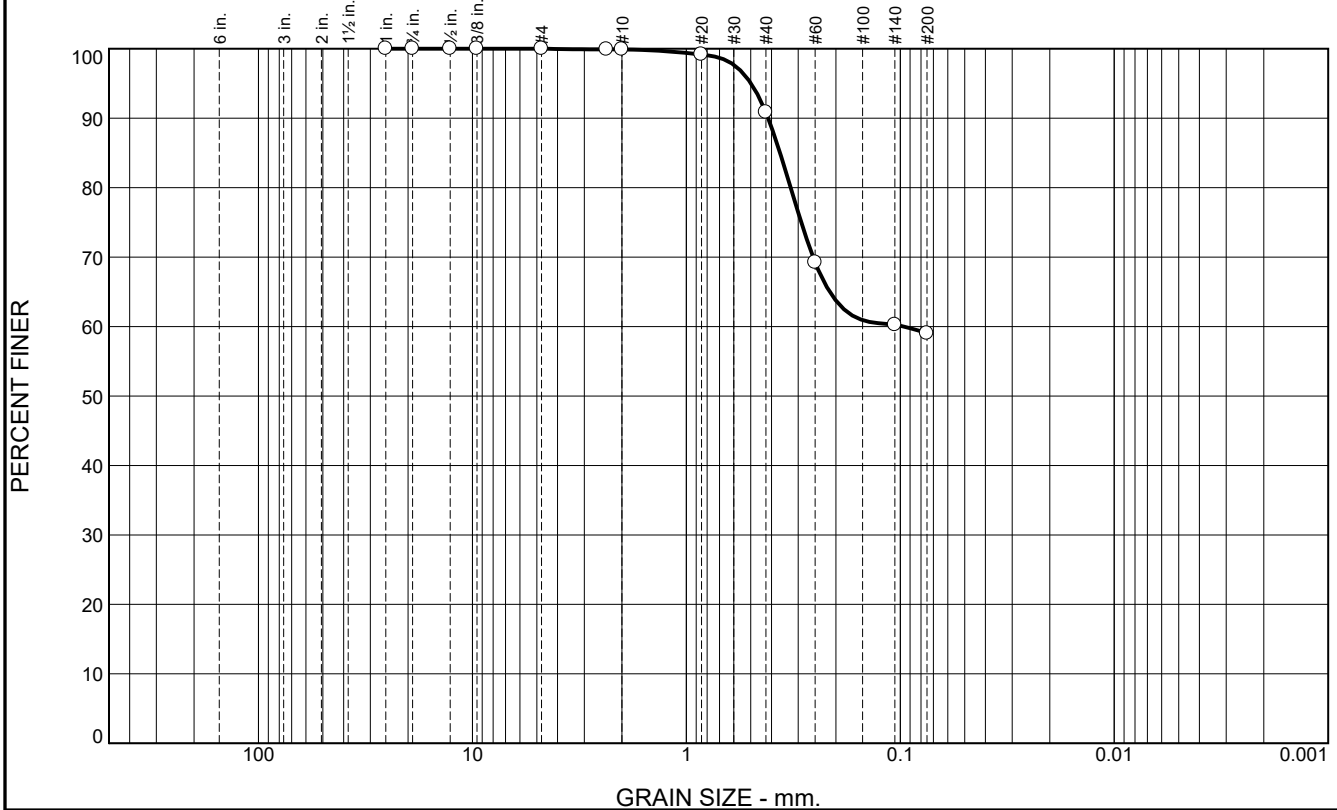
**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	9.1	31.8	59.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#20	99.2		
#40	90.8		
#60	69.2		
#140	60.2		
#200	59.0		

* (no specification provided)

<u>Material Description</u>		
GRAY CLAY W/ SAND		
<u>Atterberg Limits</u>		
PL= 19	LL= 37	PI= 18
<u>Coefficients</u>		
D ₉₀ = 0.4147	D ₈₅ = 0.3648	D ₆₀ = 0.0965
D ₅₀ =	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS= CL	AASHTO= A-6(8)	
<u>Remarks</u>		
MOISTURE CONTENT: 46.1%		

Source of Sample: MHVBC-30-19

Depth: 12'-13'

Date: 3/4/2020


**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama


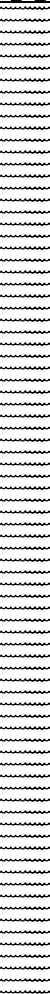
Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045
Project No: M20-069
Figure

SS-107

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-107
----------------------------------	---	--	-------------	----------------------------------


DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,806,925 Y = 160,626				ELEVATION TOP OF BORING -32.5 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.0	18.5						Advanced Boring			
				NR			SPT Sampler		0	0
							Advanced Boring			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 1982-1984 Subsurface Investigation				LAT/LONG COORDINATES LAT = 30.437230 LONG = -88.013408			
				STATE PLANE COORDINATES X = 1,806,705 Y = 159,377			
DATE OF BORING		STARTED 01-08-84	COMPLETED 01-08-84	COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.		HORIZ. NAD83	VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM				ELEVATIONS		TOP OF BORING -38.0 Feet	
						GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR H. Gates, Geologist			NAME OF DRILLER C. Fuller		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		
					<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER		
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL	BEARING	SIZE AND TYPE OF BIT See Remarks			
THICKNESS OF OVERBURDEN N/A				TOTAL NUMBER CORE BOXES 0			
DEPTH TO TOP OF ROCK N/A				TOTAL SAMPLES		DISTURBED 1	UNDISTURBED (UD) 0
TOTAL DEPTH OF BORING 22.0 Feet				TOTAL RECOVERY FOR BORING 100 %			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD
-38.0	0.0						
			(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, with organic material				
			At El. -40.8 Ft., soft consistency				
				100	1		Vibrocure
							At El. -42.5 Ft. -200=97.2%

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,705 Y = 159,377			ELEVATION TOP OF BORING -38.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-51.2	13.2									
			(PT) PEAT, wet, dark brown and gray clayey	100	1		Vibracore	At El. -52.5 Ft. LOI=21.7, -200=91%		
-60.0	22.0									
NOTES:										
1. Soils are field visually classified in accordance with the Unified Soils Classification System.										

SS-109

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-109
----------------------------------	---------------------	----------------------	-------------	----------------------------------

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,620 Y = 158,630			ELEVATION TOP OF BORING -38.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.3	12.5						Advanced Boring			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

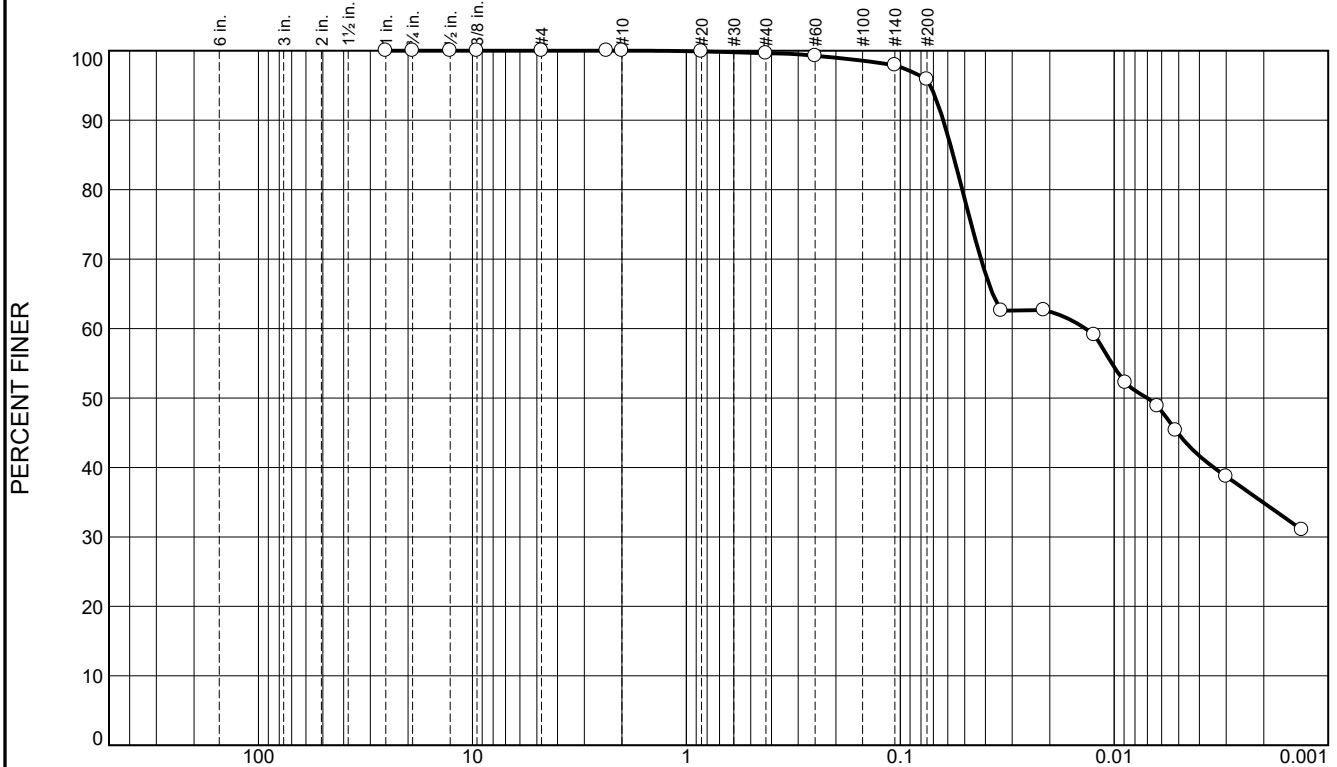
MHVBC-29-29

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-29-29
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,806,538 Y = 157,670				ELEVATION TOP OF BORING -45.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-57.0	12.0									
-58.0	13.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, gray							
-63.0	18.0		(SC) SAND, clayey, low plasticity, soft consistency, wet, gray, trace wood At El. -61.0 Ft. trace shell	100	1		Vibracore	At El. -56 Ft. -200= 96%, PL= 33, LL= 58, PI= 25, MC= 128%		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	3.7	51.1	44.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.6		
#60	99.2		
#140	97.9		
#200	95.9		

* (no specification provided)

Material Description

GRAY SILT

Atterberg Limits

PL= 33

LL= 58

PI= 25

Coefficients

D₉₀= 0.0630

D₈₅= 0.0566

D₆₀= 0.0136

D₅₀= 0.0070

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= MH

AASHTO= A-7-5(30)

Remarks

MOISTURE CONTENT: 127.7%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-29-19

Depth: 10'-11'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069



Figure

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS		
PROJECT 1963-1964 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.429682 LONG = -88.014605						
STATE PLANE COORDINATES X = 1,806,315 Y = 156,634												
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -34.8 Feet		GROUND WATER Underwater		
NAME & TITLE OF FIELD INSPECTOR N/A, Geologist				NAME OF DRILLER N/A		MANUFACTURER'S DESIGNATION OF DRILL N/A <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER						
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks						
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0						
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 0		UNDISTURBED (UD) 0		
TOTAL DEPTH OF BORING 16.5 Feet						TOTAL RECOVERY FOR BORING Not Recorded						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE		
-34.8	0.0		(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, organic									
							Advanced Boring					
							SPT Sampler		0			
									0/0.0	0+		
									0/-0.5			
								Advanced Boring				
								SPT Sampler		0		
										0		
									0			
							Advanced Boring					

VC-28-84

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation VC-28-84
----------------------------------	---------------------	----------------------	-------------	------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 3 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,505 Y = 155,927			ELEVATION TOP OF BORING -43.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-58.5	15.5									
			(SP) SAND, poorly-graded, wet, gray	100	1		Vibracore			

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 3 OF 3 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,505 Y = 155,927			ELEVATION TOP OF BORING -43.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-73.0	30.0			100	1		Vibracore			
			NOTES:							
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

SS-113

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-113
----------------------------------	---	--	-------------	----------------------------------

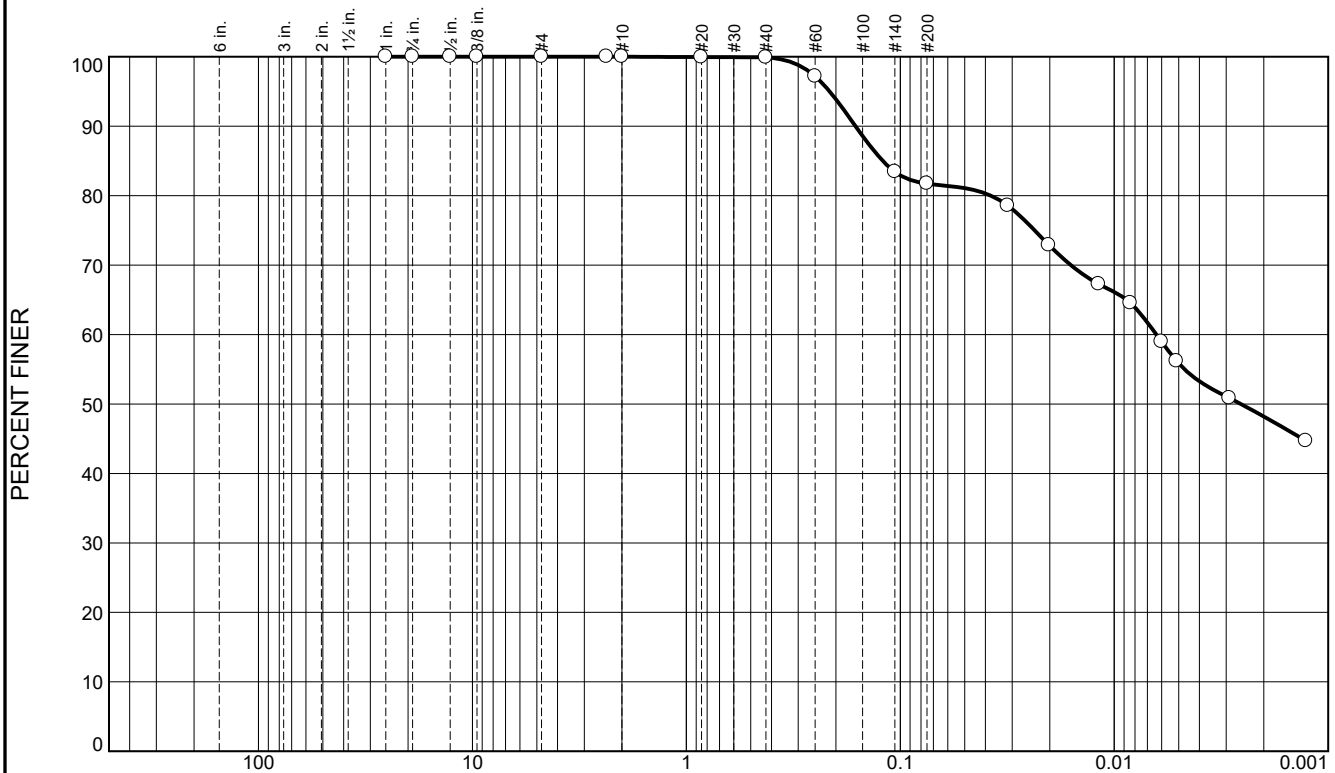
[illegible]

MHVBC-28-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-28-19
----------------------------------	------------------	-------------------	-------------	---------------------------------------

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,806,267 Y = 153,594			ELEVATION TOP OF BORING -45.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-57.0	12.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, gray, sandy	100	1		Vibracore			
			At El. -58.0 Ft. shell layer							
-61.0	16.0		(SC-SM) SAND, silty, clayey, wet, gray							
-62.0	17.0		(OH) CLAY, organic-H, gray and brown, with wood							
-63.0	18.0		(CH) CLAY, fat, gray							
-64.0	19.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	18.2	25.8	55.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.9		
#60	97.2		
#140	83.4		
#200	81.7		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 28 LL= 72 PI= 44

Coefficients

D₉₀= 0.1620 D₈₅= 0.1208 D₆₀= 0.0064
D₅₀= 0.0026 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CH AASHTO= A-7-6(40)

Remarks

MOISTURE CONTENT: 80.1%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-28-19

Depth: 3'-4'

Date: 3/4/2020

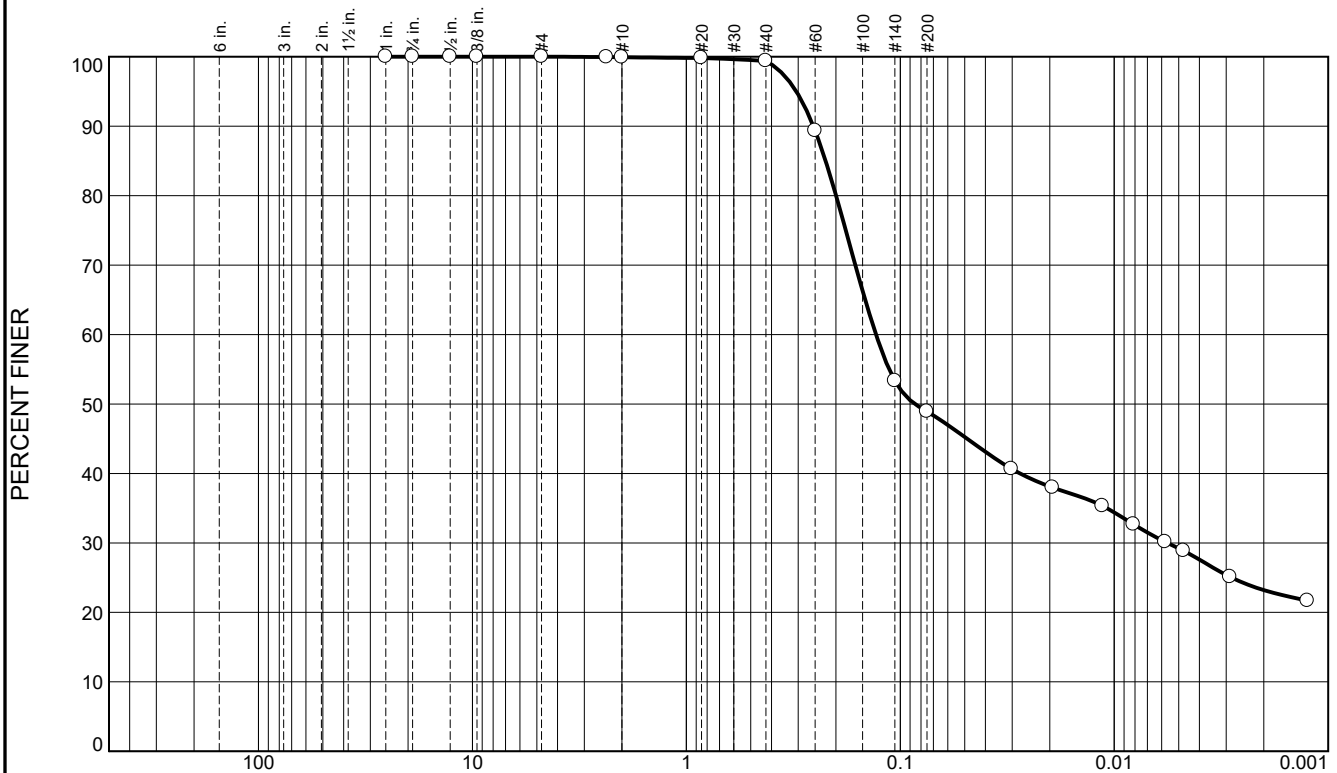
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	50.5	19.7	29.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#20	99.8		
#40	99.4		
#60	89.3		
#140	53.3		
#200	48.9		

* (no specification provided)

Material Description

GRAY CLAYEY SAND

Atterberg Limits

PL= 14 LL= 30 PI= 16

Coefficients

D₉₀= 0.2549 D₈₅= 0.2235 D₆₀= 0.1299
D₅₀= 0.0855 D₃₀= 0.0056 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(4)

Remarks

MOISTURE CONTENT: 40.0%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-28-19


Depth: 9'-10'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045
Project No: M20-069
Figure


DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS		
PROJECT 1963-1964 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.418851 LONG = -88.016087						
STATE PLANE COORDINATES X = 1,805,830 Y = 152,697												
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -36.8 Feet		GROUND WATER Underwater		
NAME & TITLE OF FIELD INSPECTOR N/A, Geologist				NAME OF DRILLER N/A		MANUFACTURER'S DESIGNATION OF DRILL N/A <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER						
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks						
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0						
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 0		UNDISTURBED (UD) 0		
TOTAL DEPTH OF BORING 14.5 Feet						TOTAL RECOVERY FOR BORING Not Recorded						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE		
-36.8	0.0		(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, organic				Advanced Boring					

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,805,830 Y = 152,697			ELEVATION TOP OF BORING -36.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
							Advanced Boring			
							SPT Sampler		0	
				NR					0	0
									0	
							Advanced Boring			
-51.3	14.5									
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

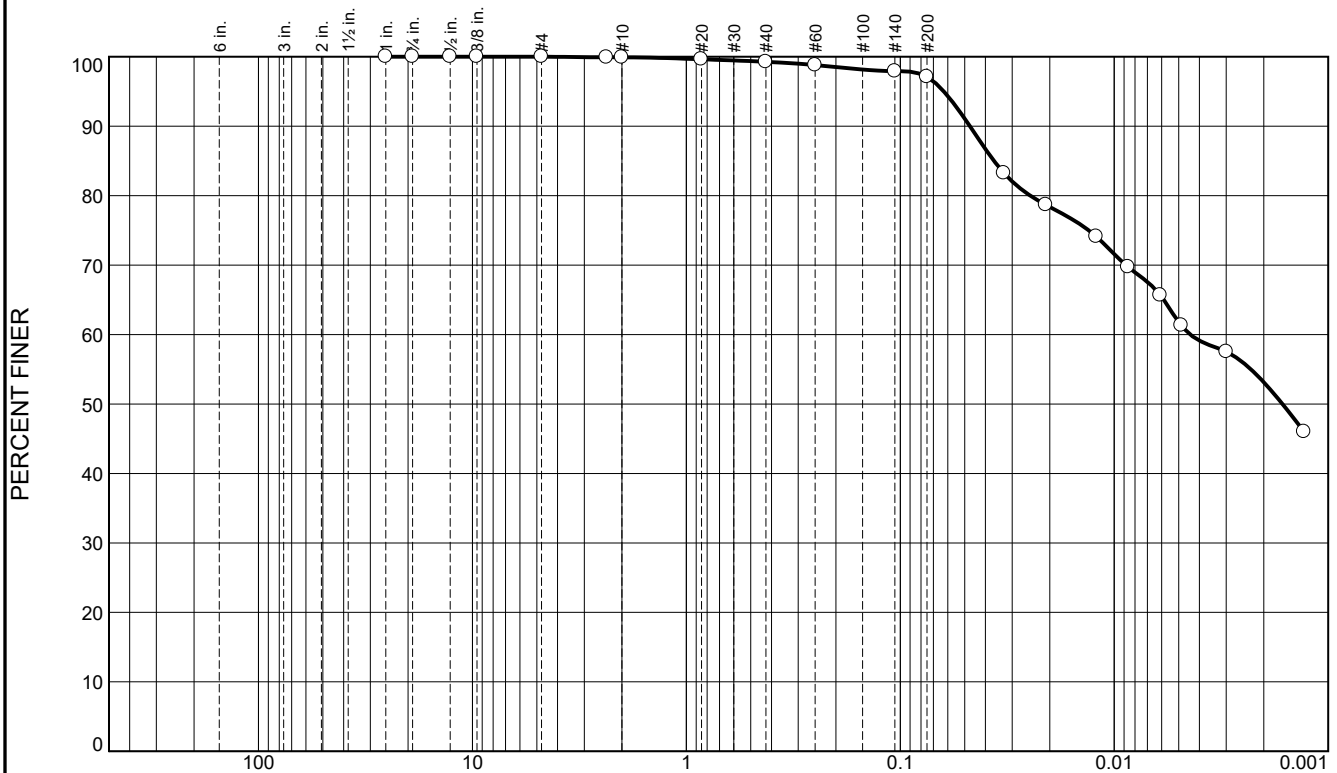
MHVBC-27-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▼	(Continued)	Boring Designation MHVBC-27-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,805,906 Y = 151,674				ELEVATION TOP OF BORING -44.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-56.5	12.5		(CH) CLAY, fat, high plasticity, soft consistency, wet, gray, with trace sand and shell, inorganic	100	1		Vibracore	At El. -56.5 Ft. -200= 91%, PL= 26, LL= 56, PI= 30, MC= 88%		
-63.5	19.5									
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.6	2.2	35.3	61.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#20	99.6		
#40	99.3		
#60	98.8		
#140	97.9		
#200	97.1		

* (no specification provided)

Material Description

BROWN & GRAY SILT

Atterberg Limits

PL= 34

LL= 63

PI= 29

Coefficients

D₉₀= 0.0473

D₈₅= 0.0365

D₆₀= 0.0044

D₅₀= 0.0016

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= MH

AASHTO= A-7-5(35)

Remarks

MOISTURE CONTENT: 136.5%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-27-19

Depth: 9'-10'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

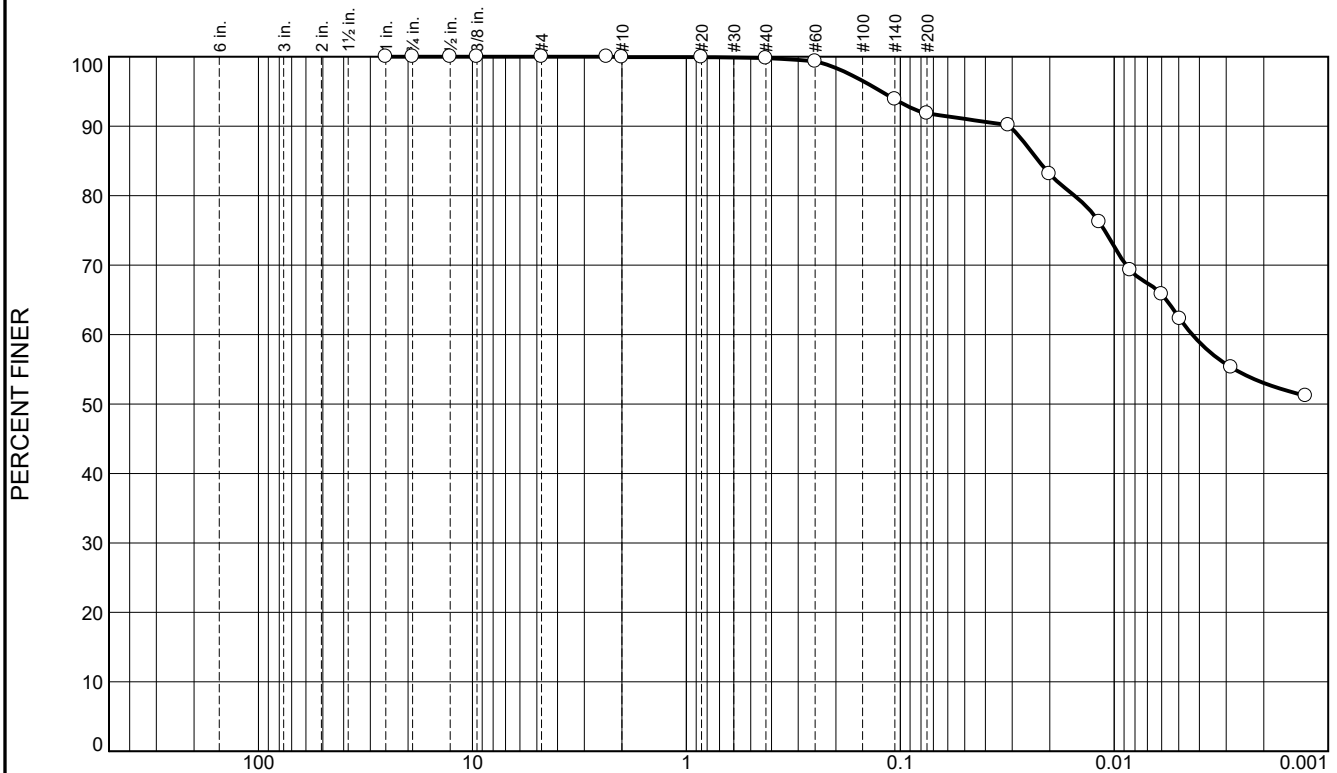
Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.1	8.0	29.3	62.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#20	99.9		
#40	99.8		
#60	99.3		
#140	93.9		
#200	91.8		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 26

LL= 56

PI= 30

Coefficients

D₉₀= 0.0309

D₈₅= 0.0226

D₆₀= 0.0043

D₅₀=

D₃₀=

D₁₅=

C_u=

C_c=

Classification

USCS= CH

AASHTO= A-7-6(31)

Remarks

MOISTURE CONTENT: 88.2%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-27-19

Depth: 12.5'-13.5'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama


Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 1963-1964 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.413300 LONG = -88.016007					
STATE PLANE COORDINATES X = 1,805,846 Y = 150,678											
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -35.8 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR N/A, Geologist				NAME OF DRILLER N/A		MANUFACTURER'S DESIGNATION OF DRILL N/A <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A				TOTAL NUMBER CORE BOXES 0							
DEPTH TO TOP OF ROCK N/A				TOTAL SAMPLES		DISTURBED 0		UNDISTURBED (UD) 0			
TOTAL DEPTH OF BORING 15.5 Feet				TOTAL RECOVERY FOR BORING Not Recorded							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE	
-35.8	0.0		(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, organic				Advanced Boring				


DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,805,846 Y = 150,678			ELEVATION TOP OF BORING -35.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
							Advanced Boring			
				NR			SPT Sampler		0	
									0	
									0	
							Advanced Boring			
-51.3	15.5									
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 3 SHEETS	
PROJECT 1982-1984 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.411929 LONG = -88.014544					
STATE PLANE COORDINATES X = 1,806,305 Y = 150,177											
DATE OF BORING		STARTED 08-01-84		COMPLETED 08-01-84		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -42.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR H. Gates, Geologist				NAME OF DRILLER C. Fuller		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 30.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-42.0	0.0		(CH) CLAY, fat, high plasticity, very soft consistency, black								
			At El. -46.0 Ft., high plasticity, soft consistency, light gray	100	1		Vibrocure	At El. -46.5 Ft. LL=77, PL=22, PI=55			

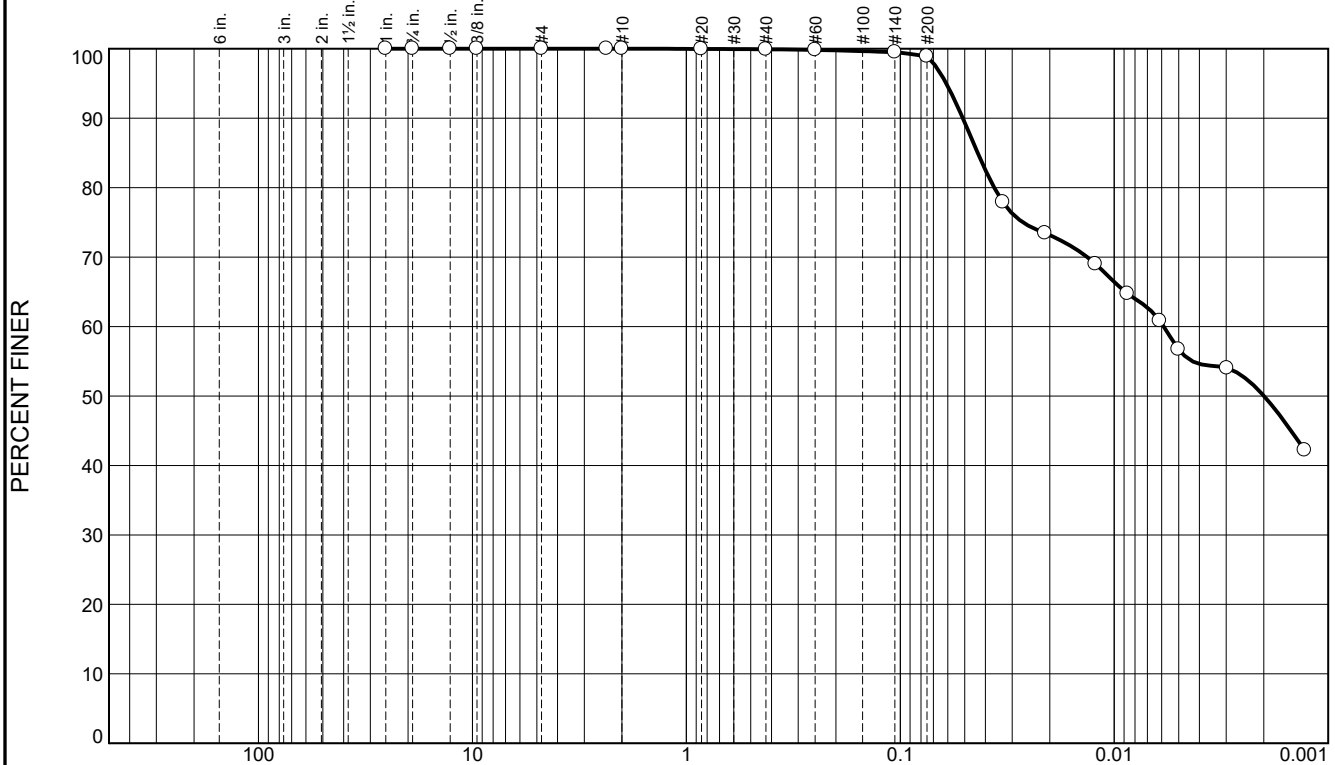
MHVBC-26-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-26-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,805,766 Y = 149,742			ELEVATION TOP OF BORING -46.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-65.5	19.5			100	1		Vibracore			
			At El. -62.5 Ft. with wood at 16.5' to 19'							
			NOTES:							
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	1.0	42.2	56.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.8		
#140	99.5		
#200	98.9		

* (no specification provided)

Material Description

GRAY SILT

Atterberg Limits

PL= 40

LL= 60

PI= 20

Coefficients

D₉₀= 0.0511

D₈₅= 0.0435

D₆₀= 0.0059

D₅₀= 0.0020

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= MH

AASHTO= A-7-5(28)

Remarks

MOISTURE CONTENT: 139.4%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-26-19

Depth: 4'-5'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

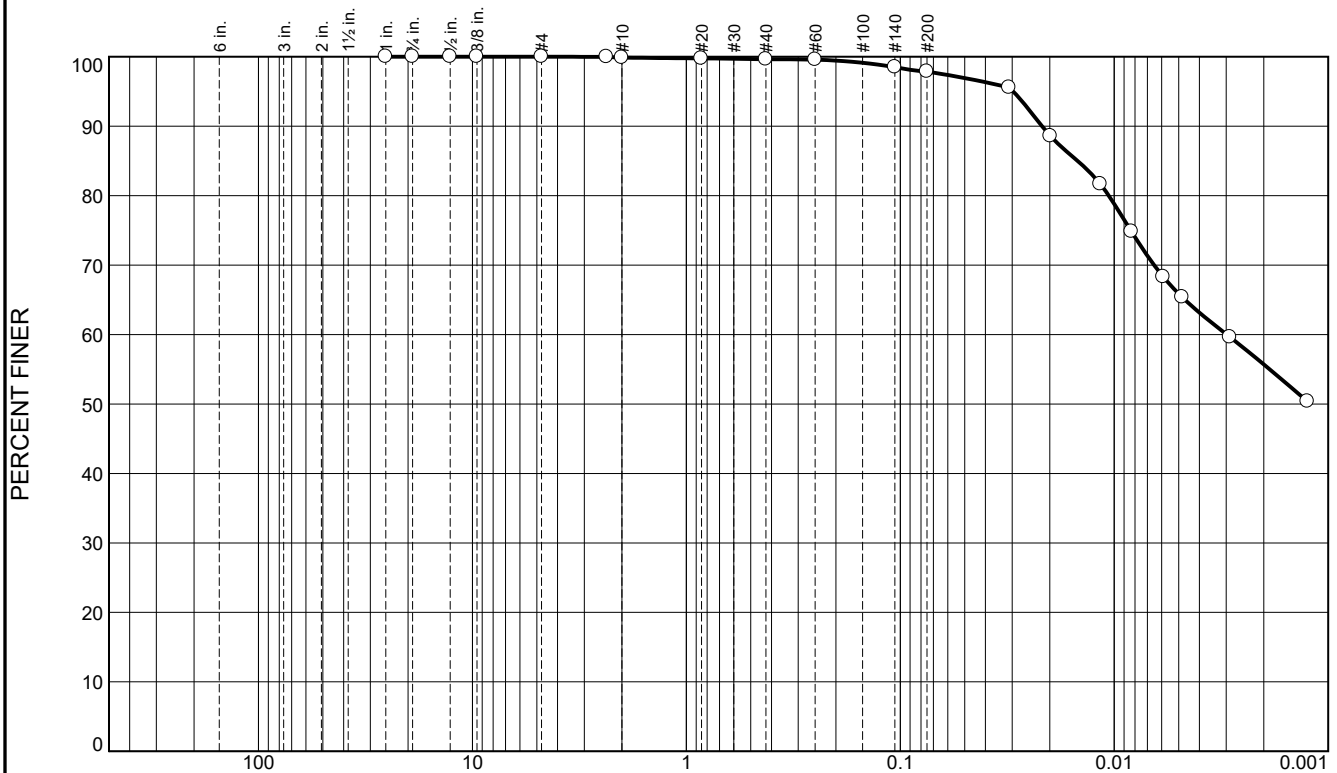
Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.3	1.7	32.0	65.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#20	99.7		
#40	99.6		
#60	99.6		
#140	98.5		
#200	97.9		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 32

LL= 63

PI= 31

Coefficients

D₉₀= 0.0218

D₈₅= 0.0148

D₆₀= 0.0030

D₅₀=

D₃₀=

D₁₅=

C_u=

C_c=

Classification

USCS= CH

AASHTO= A-7-5(37)

Remarks

MOISTURE CONTENT: 91.1%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-26-19

Depth: 9'-10'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

SS-119

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-119
----------------------------------	---	--	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

Project I.D.

Boring Designation

MHVBC-25-19

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT						LAT/LONG COORDINATES LAT = 30.40555442 LONG = -88.01735141					
2020 Geotechnical Investigation						STATE PLANE COORDINATES X = 1,805,409 Y = 147,863					
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS			HORIZ.		VERT.
		01-20-20		01-20-20		State Plane - Alabama West - U.S. Survey Ft.			NAD83		MLLW
DRILLING AGENCY						ELEVATIONS		TOP OF BORING		GROUND WATER	
Corps of Engineers - CESAM								-45.0 Feet		Underwater	
NAME & TITLE OF FIELD INSPECTOR				NAME OF DRILLER		MANUFACTURER'S DESIGNATION OF DRILL					
M. Shekouh, Geotechnical Engineer				CSI		Vibrocore <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT					
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED						See Remarks					
THICKNESS OF OVERBURDEN						TOTAL NUMBER CORE BOXES					
N/A						0					
DEPTH TO TOP OF ROCK						TOTAL SAMPLES		DISTURBED		UNDISTURBED (UD)	
N/A								1		0	
TOTAL DEPTH OF BORING						TOTAL RECOVERY FOR BORING					
17.5 Feet						100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE	
-45.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, dark gray								
				100	1		Vibrocure	At El. -50 Ft. -200= 94%, PL= 40, LL= 66, PI= 26, MC= 145%			
-54.0	9.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, gray, inorganic					At El. -54 Ft. -200= 89%, PL= 28, LL= 52, PI= 24, MC= 175%			
-55.0	10.0										

SAM FORM 1836
AUG 2017

AFTER DRILLING ▼ DURING DRILLING ▽

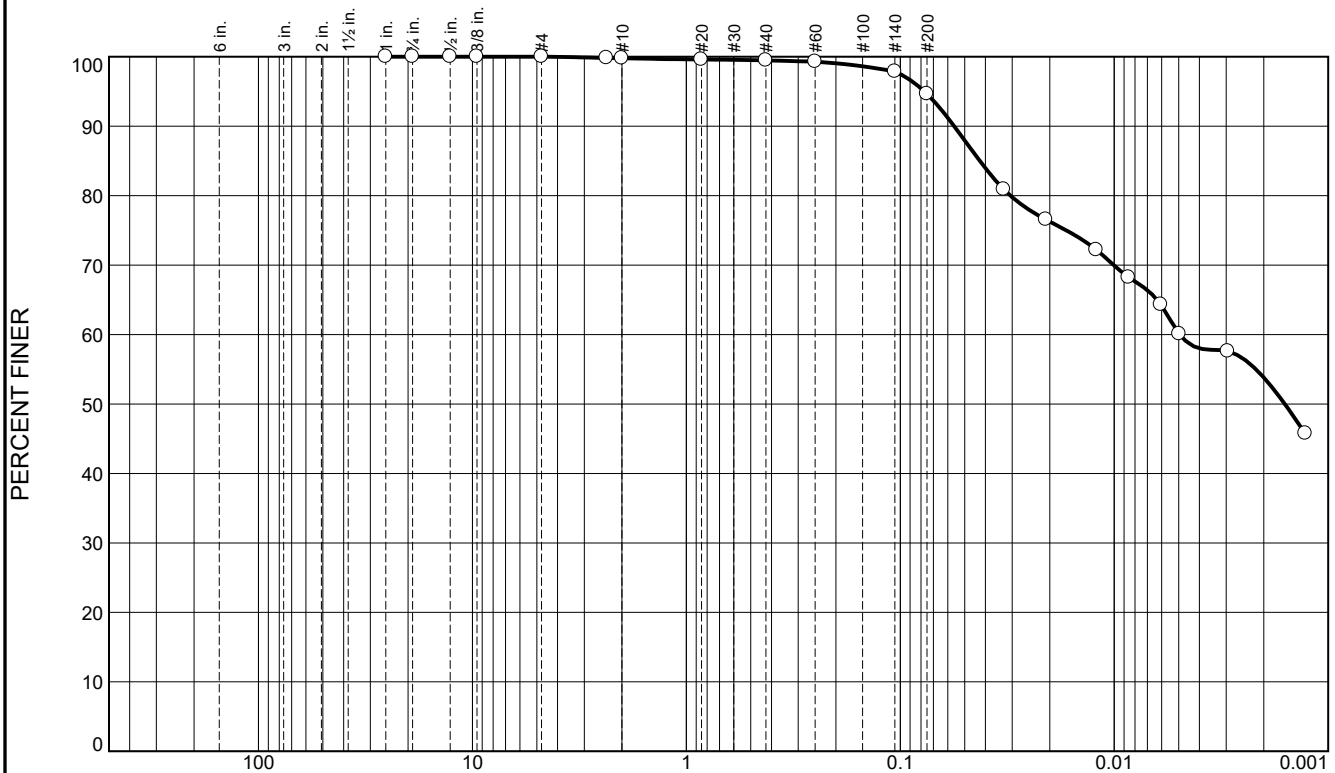
(Continued)

Boring Designation MHVBC-25-19

Replaced in its entirety by Amendment No. W9127821B0001-0001

[illegible]

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.3	4.9	34.4	60.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.8		
#10	99.8		
#20	99.6		
#40	99.5		
#60	99.3		
#140	97.9		
#200	94.6		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 40 LL= 66 PI= 26

Coefficients

D₉₀= 0.0560 D₈₅= 0.0425 D₆₀= 0.0049
D₅₀= 0.0016 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= MH AASHTO= A-7-5(33)

Remarks

MOISTURE CONTENT: 144.9%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-25-19

Depth: 5'-6'

Date: 3/4/2020

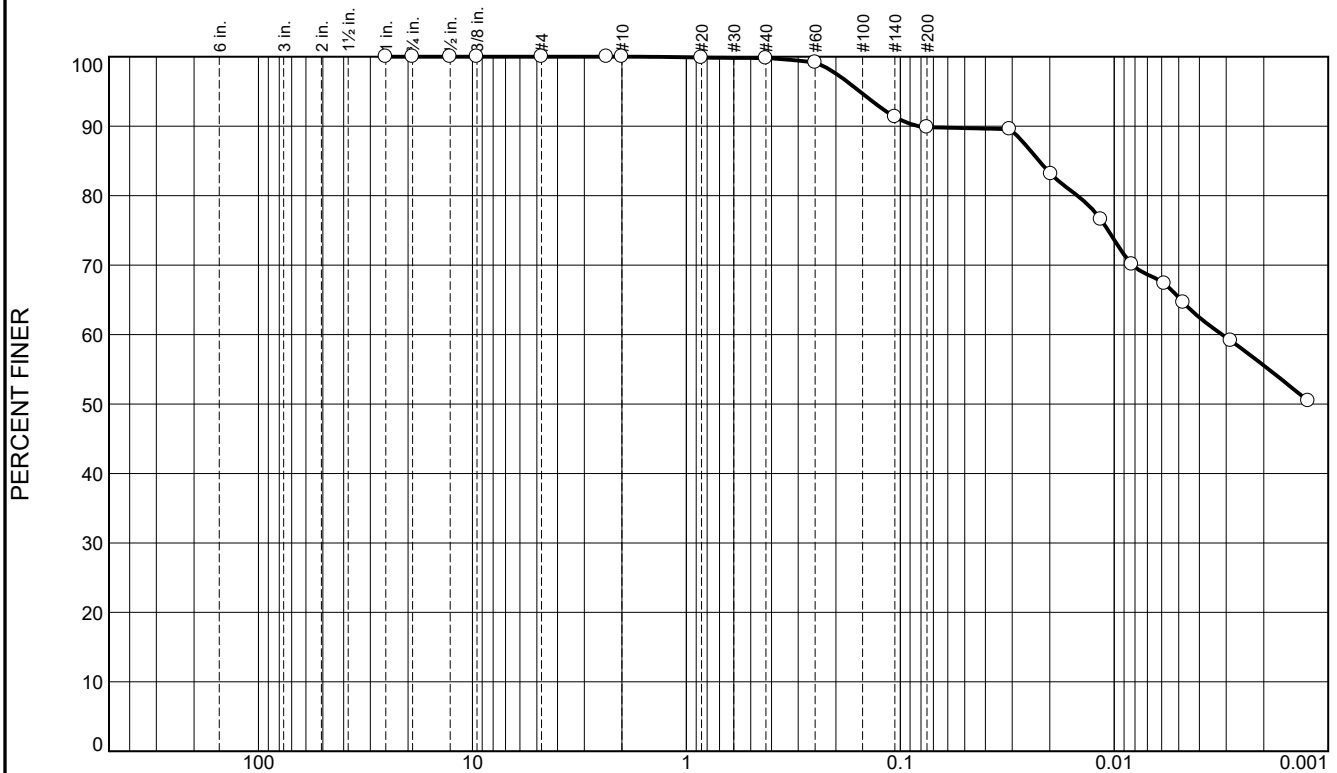
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	10.0	24.5	65.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.8		
#60	99.2		
#140	91.3		
#200	89.8		

* (no specification provided)

<u>Material Description</u>		
GRAY & TAN CLAY		
<u>Atterberg Limits</u>		
PL= 28	LL= 52	PI= 24
<u>Coefficients</u>		
D ₉₀ = 0.0822	D ₈₅ = 0.0225	D ₆₀ = 0.0031
D ₅₀ =	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS= CH	AASHTO= A-7-6(25)	
<u>Remarks</u>		
MOISTURE CONTENT: 175.0%		
ASSUMED SPEC. GRAVITY: 2.7		

Source of Sample: MHVBC-25-19

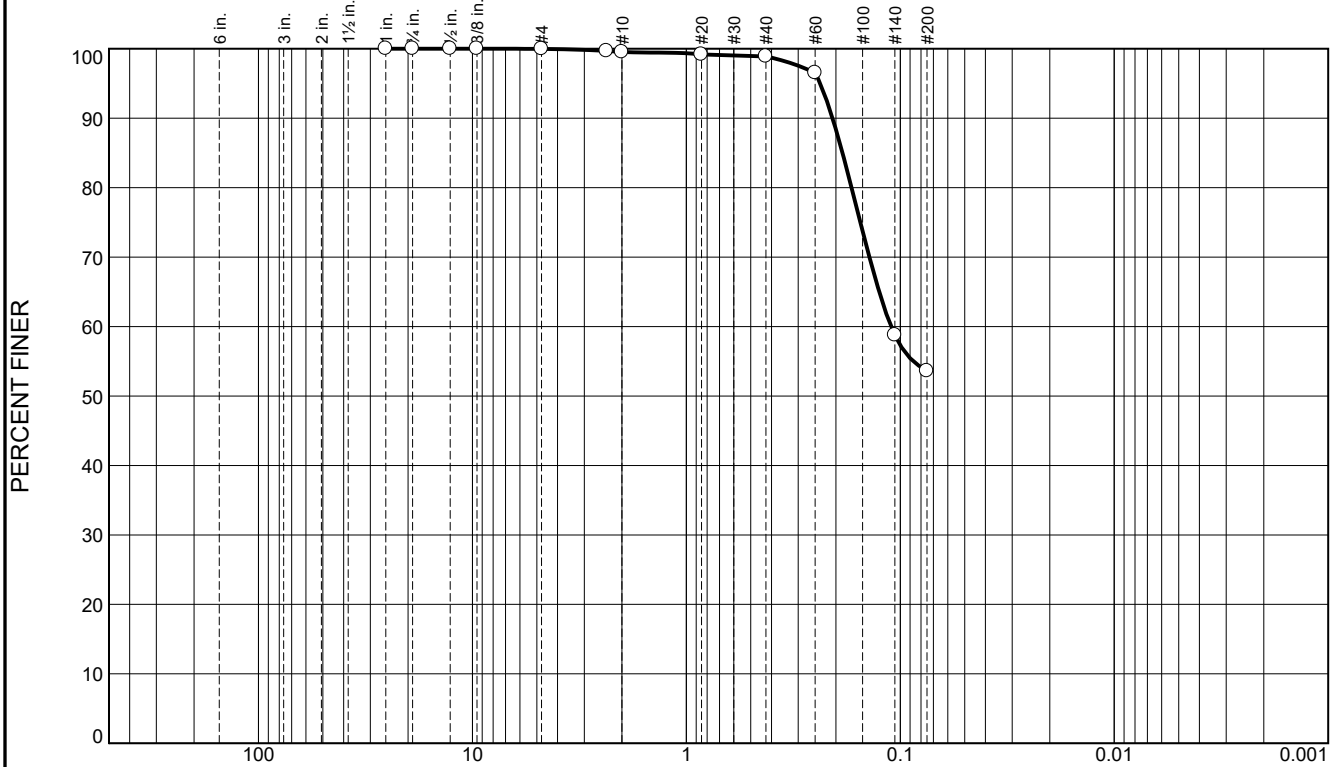
Depth: 9'-10'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045
Project No: M20-069
Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	0.6	45.3	53.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.7		
#10	99.5		
#20	99.2		
#40	98.9		
#60	96.5		
#140	58.8		
#200	53.6		

* (no specification provided)

<u>Material Description</u>		
GRAY CLAY		
<u>Atterberg Limits</u>		
PL= 17	LL= 36	PI= 19
<u>Coefficients</u>		
D ₉₀ = 0.2075	D ₈₅ = 0.1864	D ₆₀ = 0.1104
D ₅₀ =	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS= CL	AASHTO= A-6(7)	
<u>Remarks</u>		
MOISTURE CONTENT: 43.5%		

Source of Sample: MHVBC-25-19

Depth: 11'-12'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045
Project No: M20-069
Figure

SS-121

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-121
----------------------------------	---	--	-------------	----------------------------------

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 4 SHEETS	
PROJECT 1970-1972 Subsurface						LAT/LONG COORDINATES LAT = 30.400637 LONG = -88.019243					
						STATE PLANE COORDINATES X = 1,804,805 Y = 146,077					
DATE OF BORING		STARTED 09-21-72		COMPLETED 09-22-72		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -12.7 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR Wilsford, Geologist				NAME OF DRILLER Dobbs		MANUFACTURER'S DESIGNATION OF DRILL CME-75 <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 8		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 35.5 Feet						TOTAL RECOVERY FOR BORING 93 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-12.7	0.0		(MH) SILT, inorganic-H, high plasticity, gray								
				100	1		3" I.D. Shelby Tube				
							Advanced Boring				
				100	2		3" I.D. Shelby Tube				
							Advanced Boring				
-22.7	10.0										

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 4 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,804,805 Y = 146,077			ELEVATION TOP OF BORING -12.7 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
			(OH) SILT, organic-H, high plasticity, gray							
				100	3		3" I.D. Shelby Tube			
							Advanced Boring			
				100	4		3" I.D. Shelby Tube			
							Advanced Boring			
				40	5					
							Advanced Boring			

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 3 OF 4 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,804,805 Y = 146,077			ELEVATION TOP OF BORING -12.7 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-37.7	25.0						Advanced Boring			24
			(CH) CLAY, fat, high plasticity, gray with organic odor and limestone fragments	100	6		3" I.D. Shelby Tube			25
										26
							Advanced Boring			27
										28
										29
			At El. -42.7 Ft., high plasticity, gray							30
				100	7		3" I.D. Shelby Tube			31
										32
							Advanced Boring			33
										34
-48.2	35.5									35
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. Sampler lost obtaining sample No.5.	100	8		3" I.D. Shelby Tube Advanced Boring			36
										37

[illegible]

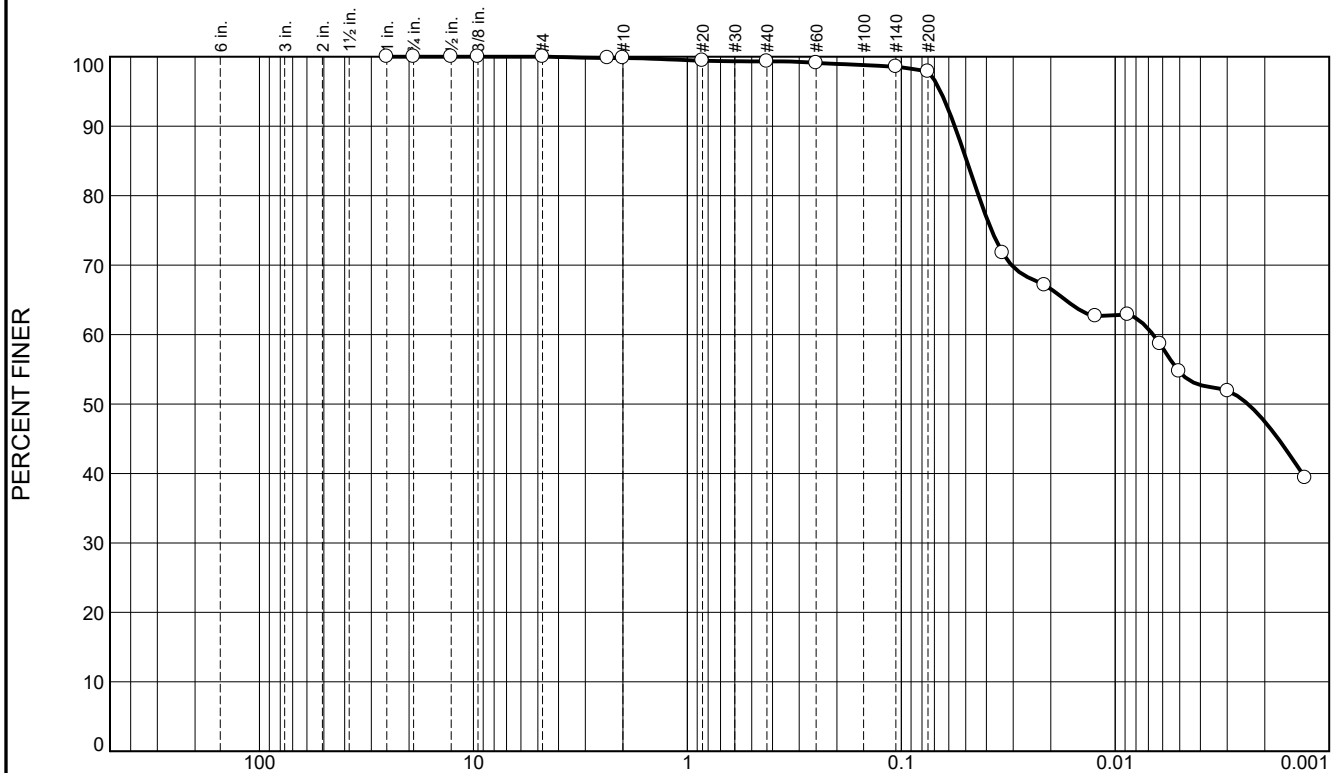
MHVBC-24-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-24-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,805,264 Y = 145,918				ELEVATION TOP OF BORING -46.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-60.0	14.0									
-62.0	16.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, gray, inorganic, with shell	100	1		Vibracore			
-65.5	19.5		(CL) CLAY, lean, low plasticity, soft consistency, wet, gray, with fine sand and shell, inorganic					At El. -62 Ft. -200= 74%, PL= 24, LL= 46, PI= 22, MC= 52%		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.5	1.4	43.3	54.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.8		
#10	99.8		
#20	99.4		
#40	99.3		
#60	99.1		
#140	98.6		
#200	97.9		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 39

LL= 69

PI= 30

Coefficients

D₉₀= 0.0563

D₈₅= 0.0494

D₆₀= 0.0067

D₅₀= 0.0024

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= MH

AASHTO= A-7-5(38)

Remarks

MOISTURE CONTENT: 145.1%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-24-19

Depth: 9'-10'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

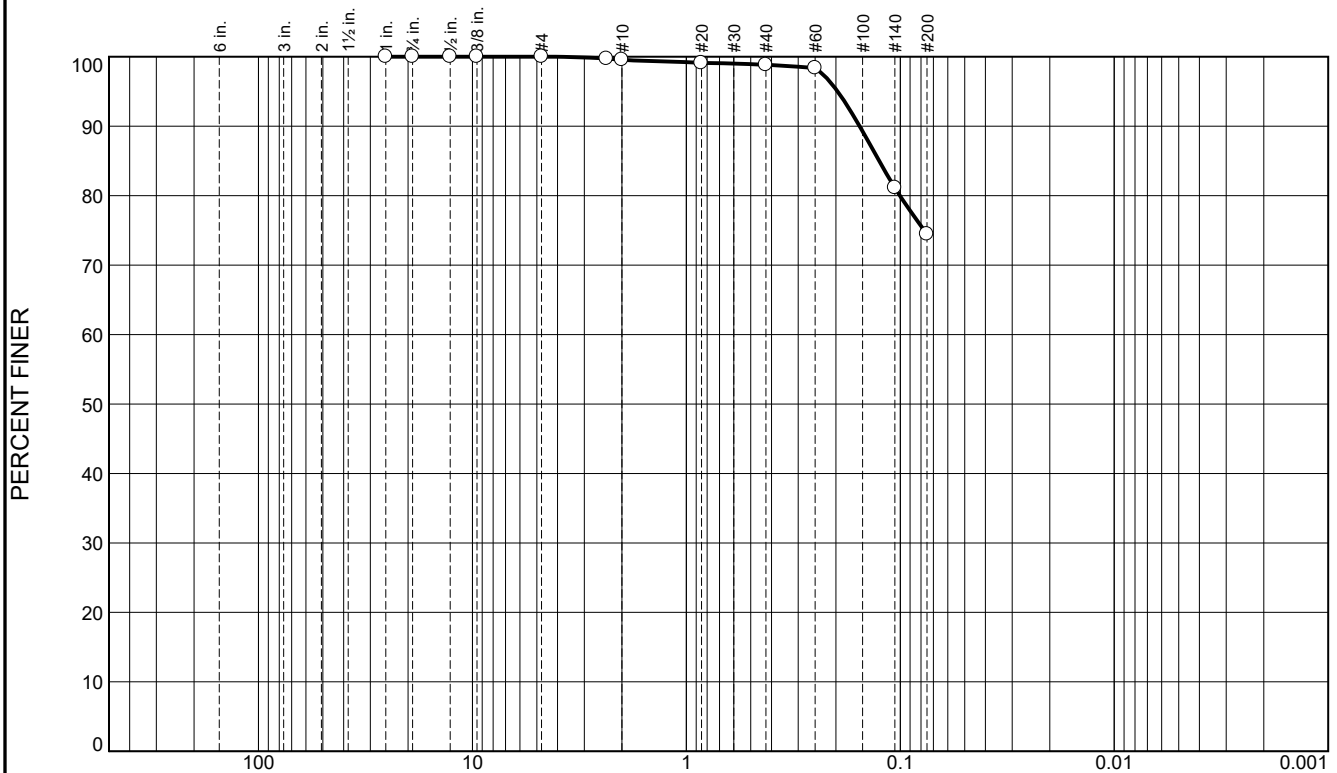
Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	0.8	24.4	74.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.7		
#10	99.6		
#20	99.1		
#40	98.8		
#60	98.4		
#140	81.1		
#200	74.4		

* (no specification provided)

Material Description

BROWN CLAY

Atterberg Limits

PL= 24 LL= 46 PI= 22

Coefficients

D₉₀= 0.1550 D₈₅= 0.1256 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(16)

Remarks

MOISTURE CONTENT: 52.3%

Source of Sample: MHVBC-24-19

Depth: 16'-17'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

SS-123



SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-123
----------------------------------	---	--	-------------	----------------------------------


Replaced in its entirety by Amendment No. W9127821B0001-0001

[illegible]

VC-32-84

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation VC-32-84
----------------------------------	---------------------	----------------------	-------------	------------------------------------


DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 3 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,805,005 Y = 143,977			ELEVATION TOP OF BORING -43.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-60.5	17.5			100	1		Vibracore			
			(SC) SAND, clayey, soft consistency, gray							

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,805,005 Y = 143,977			ELEVATION TOP OF BORING -43.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-69.5	26.5			100	1		Vibracore			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

SS-125



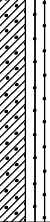
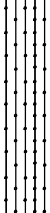
SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-125
----------------------------------	---------------------	----------------------	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

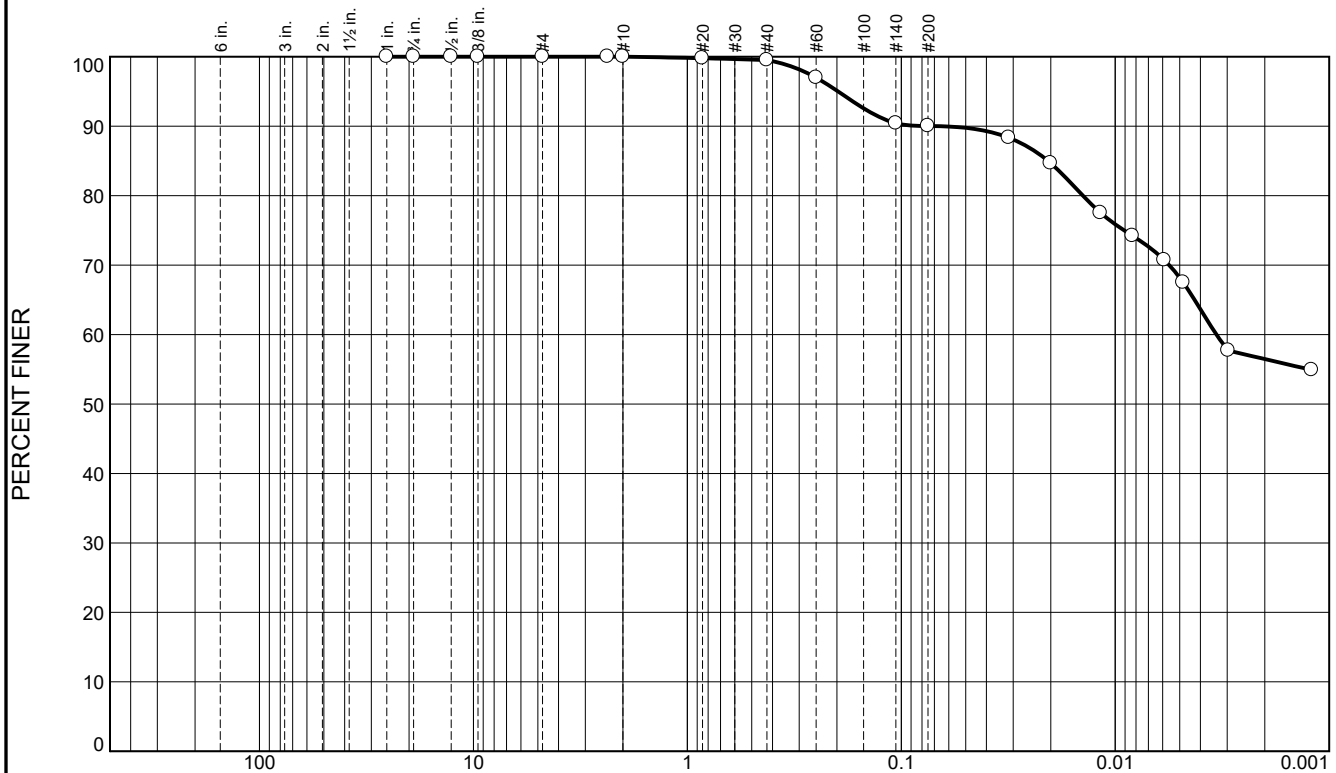
DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,804,818 Y = 142,744			ELEVATION TOP OF BORING -37.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE
-51.3	13.5						Advanced Boring			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

MHVBC-23-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-23-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,804,734 Y = 142,584				ELEVATION TOP OF BORING -45.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-57.0	12.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, gray, with traces of shell, inorganic							
-60.5	15.5		(CL-ML) CLAY, silty, low plasticity, soft consistency, wet, gray, sandy and silty, inorganic	100	1		Vibracore			
-62.5	17.5		(SC-SM) SAND, silty, clayey, low plasticity, loose, wet, gray, very clayey, with traces of shell					At El. -61 Ft. -200= 40%, PL= 21, LL= 27, PI= 6, MC= 35%		
-64.5	19.5		(SM) SAND, silty, low plasticity, loose, wet, gray, with trace shell							
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	9.5	21.8	68.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.8		
#40	99.5		
#60	97.0		
#140	90.4		
#200	90.0		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 30 LL= 59 PI= 29

Coefficients

D₉₀= 0.0691 D₈₅= 0.0206 D₆₀= 0.0034
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(30)

Remarks

MOISTURE CONTENT: 91.8%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-23-19

Depth: 5'-6'

Date: 3/5/2020

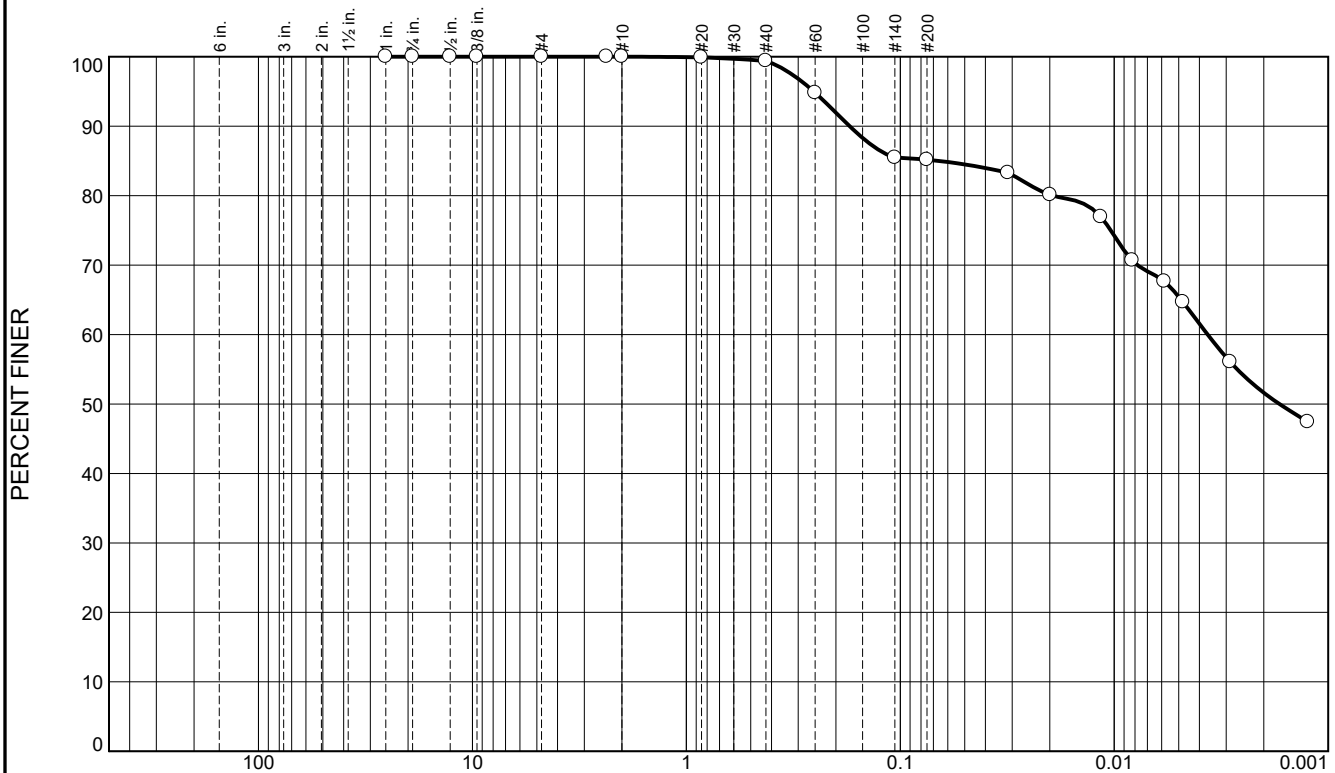
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	14.2	19.8	65.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.4		
#60	94.8		
#140	85.5		
#200	85.2		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 26 LL= 56 PI= 30

Coefficients

D₉₀= 0.1725 D₈₅= 0.0666 D₆₀= 0.0037
D₅₀= 0.0017 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CH AASHTO= A-7-6(28)

Remarks

MOISTURE CONTENT: 88.5%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-23-19

Depth: 8'-9'

Date: 3/5/2020

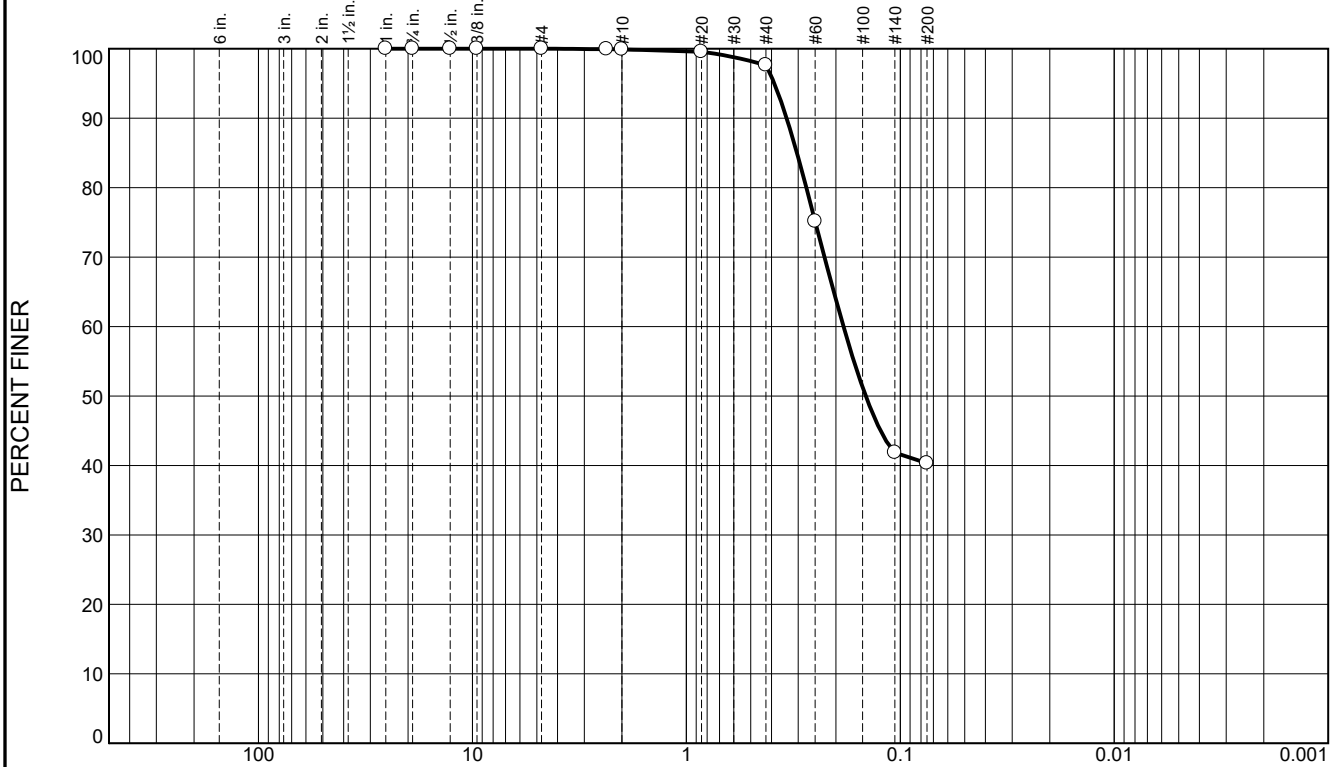
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.3	57.3	40.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#20	99.6		
#40	97.6		
#60	75.1		
#140	41.8		
#200	40.3		

* (no specification provided)

<u>Material Description</u>		
BROWN SILTY CLAYEY SAND		
<u>Atterberg Limits</u>		
PL= 21	LL= 27	PI= 6
<u>Coefficients</u>		
D ₉₀ = 0.3399	D ₈₅ = 0.3044	D ₆₀ = 0.1843
D ₅₀ = 0.1451	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS= SC-SM	AASHTO= A-4(0)	
<u>Remarks</u>		
MOISTURE CONTENT: 35.1%		

Source of Sample: MHVBC-23-19

Depth: 15'-16'

Date: 3/5/2020

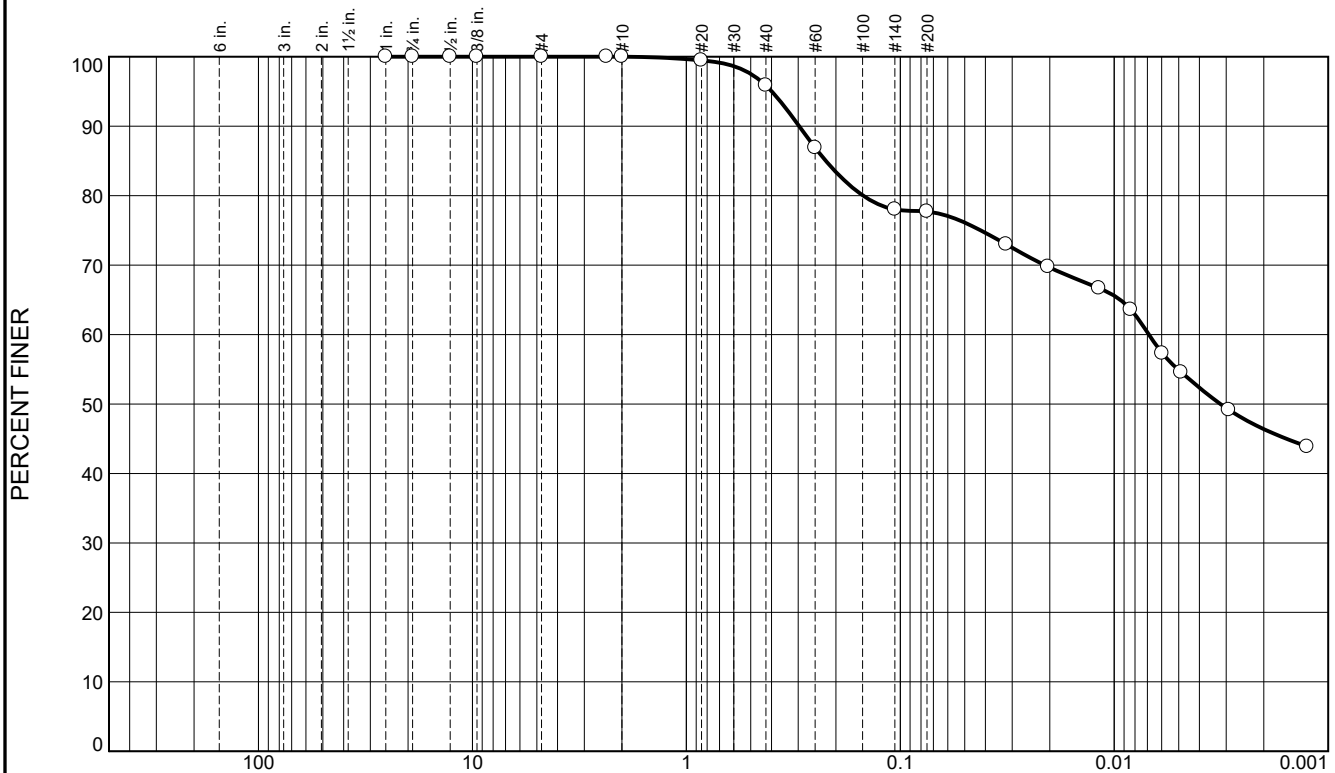
**SOUTHERN EARTH
SCIENCES
Mobile, Alabama**

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045
Project No: M20-069
Figure

MHVBC-22-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation	MHVBC-22-19
----------------------------------	---------------------	----------------------	-------------	--------------------	-------------

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.1	18.2	22.8	54.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.5		
#40	95.9		
#60	86.9		
#140	78.0		
#200	77.7		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 29 LL= 67 PI= 38

Coefficients

D₉₀= 0.2972 D₈₅= 0.2230 D₆₀= 0.0069
D₅₀= 0.0032 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CH AASHTO= A-7-6(32)

Remarks

MOISTURE CONTENT: 78.0%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-22-19

Depth: 8'-9'

Date: 3/5/2020

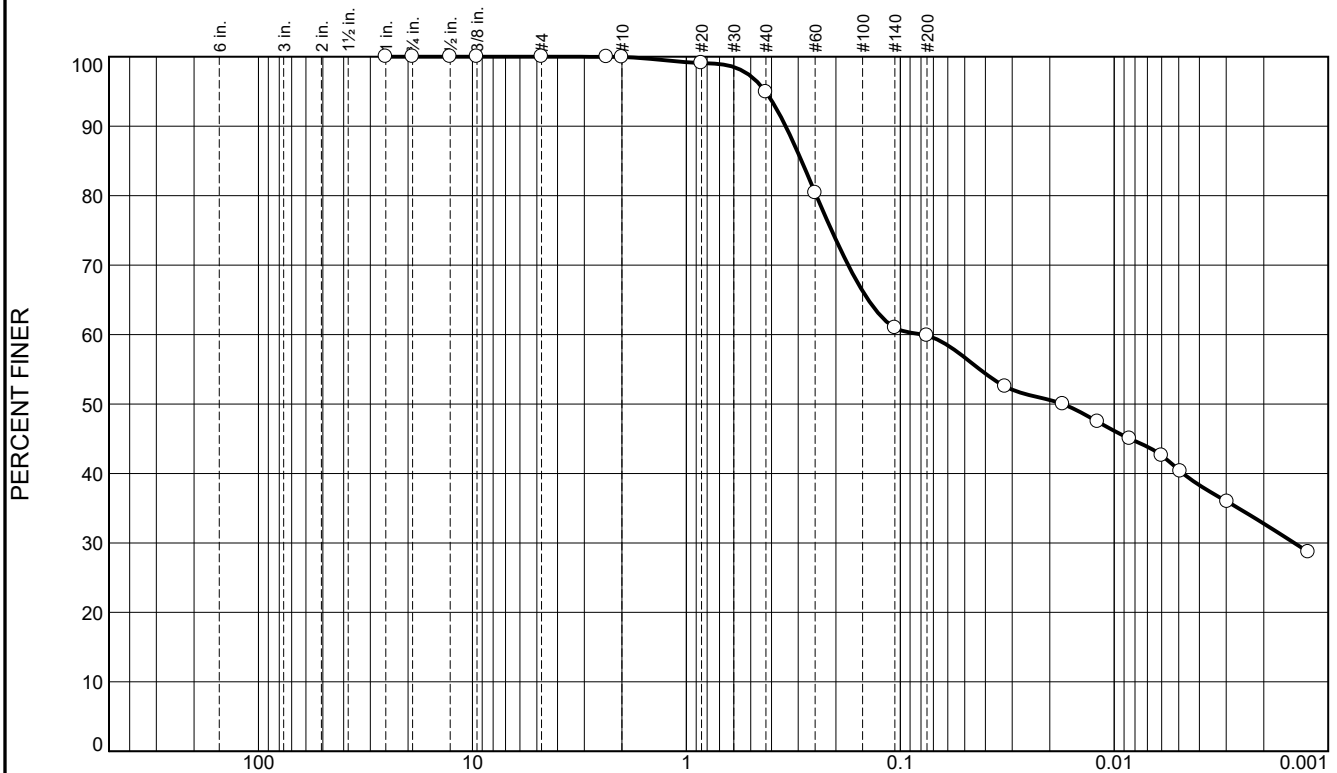
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.0	35.0	19.4	40.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#20	99.1		
#40	94.9		
#60	80.4		
#140	61.0		
#200	59.9		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 18 LL= 38 PI= 20

Coefficients

D₉₀= 0.3436 D₈₅= 0.2896 D₆₀= 0.0787
D₅₀= 0.0174 D₃₀= 0.0014 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(9)

Remarks

MOISTURE CONTENT: 49.3%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-22-19

Depth: 16'-17'


Date: 3/5/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045


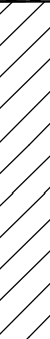
Project No: M20-069

Figure

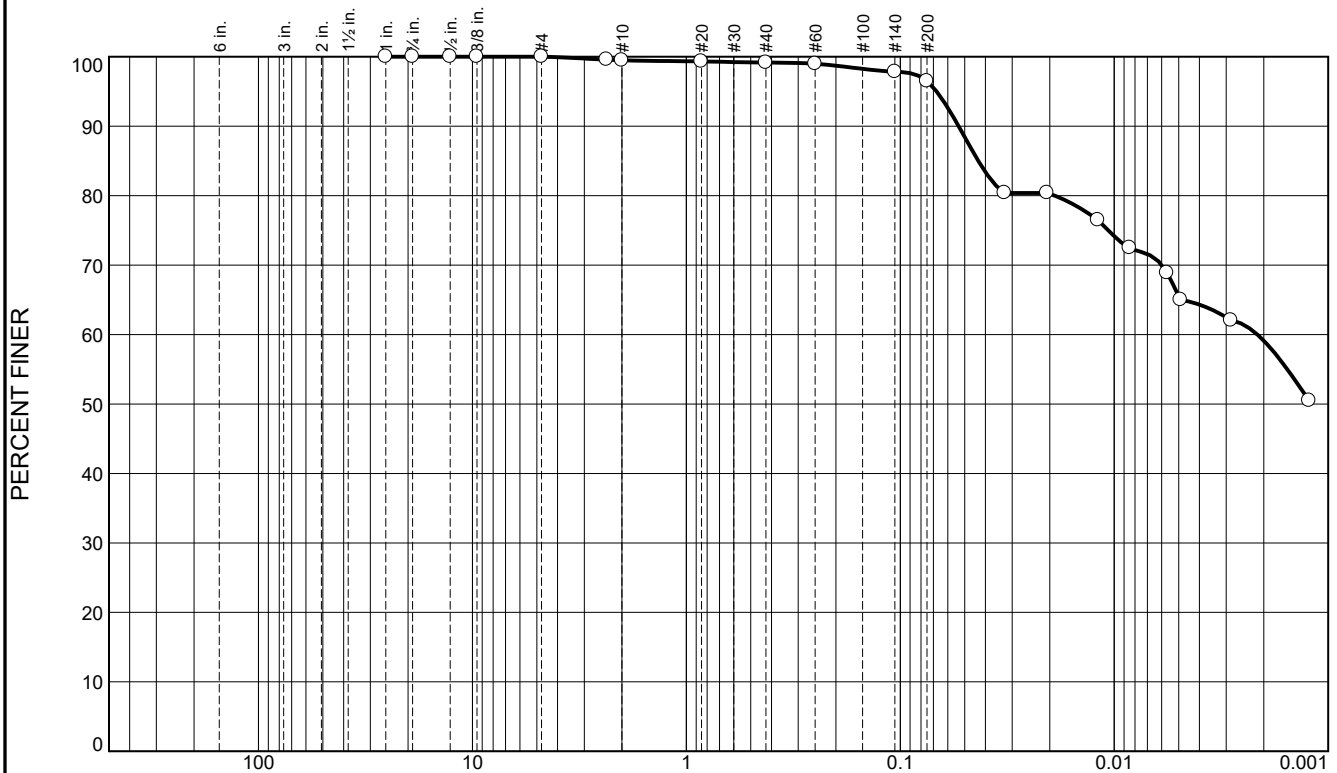
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 3 SHEETS		
PROJECT 1963-1964 Subsurface Investigation				LAT/LONG COORDINATES LAT = 30.386110 LONG = -88.020805				
STATE PLANE COORDINATES X = 1,804,288 Y = 140,796								
DATE OF BORING		STARTED	COMPLETED	COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.		HORIZ. NAD83	VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM				ELEVATIONS		TOP OF BORING -26.8 Feet		
NAME & TITLE OF FIELD INSPECTOR N/A, Geologist				NAME OF DRILLER N/A		GROUND WATER Underwater		
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING		
THICKNESS OF OVERBURDEN N/A				TOTAL NUMBER CORE BOXES 0				
DEPTH TO TOP OF ROCK N/A				TOTAL SAMPLES		DISTURBED 0	UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 24.5 Feet				TOTAL RECOVERY FOR BORING Not Recorded				
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	
-26.8	0.0		(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, organic					
								

[illegible]

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 2020 Geotechnical Investigation						LAT/LONG COORDINATES LAT = 30.38217045 LONG = -88.02073748					
STATE PLANE COORDINATES X = 1,804,303 Y = 139,363											
DATE OF BORING		STARTED 01-22-20		COMPLETED 01-22-20		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -49.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR C. Long, Geotechnical Engineer				NAME OF DRILLER CSI		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 19.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-49.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, dark gray								
-53.0	4.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, with traces of wood and shell, inorganic	100	1		Vibrocure	At El. -51 Ft. -200= 96%, PL= 36, LL= 60, PI= 24, MC= 117%			
								At El. -56 Ft. -200= 99%, PL= 29, LL= 65, PI= 36, MC= 95%			

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,804,303 Y = 139,363				ELEVATION TOP OF BORING -49.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-65.0	16.0			100	1		Vibracore			
-68.0	19.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, dark gray, with sand							
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	0.4	2.6	31.0	65.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.6		
#10	99.5		
#20	99.3		
#40	99.1		
#60	99.0		
#140	97.8		
#200	96.5		

* (no specification provided)

Material Description

GRAY SILT

Atterberg Limits

PL= 36

LL= 60

PI= 24

Coefficients

D₉₀= 0.0534

D₈₅= 0.0432

D₆₀= 0.0021

D₅₀=

D₃₀=

D₁₅=

C_u=

C_c=

Classification

USCS= MH

AASHTO= A-7-5(30)

Remarks

MOISTURE CONTENT: 117.6%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-21-19

Depth: 2'-3'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

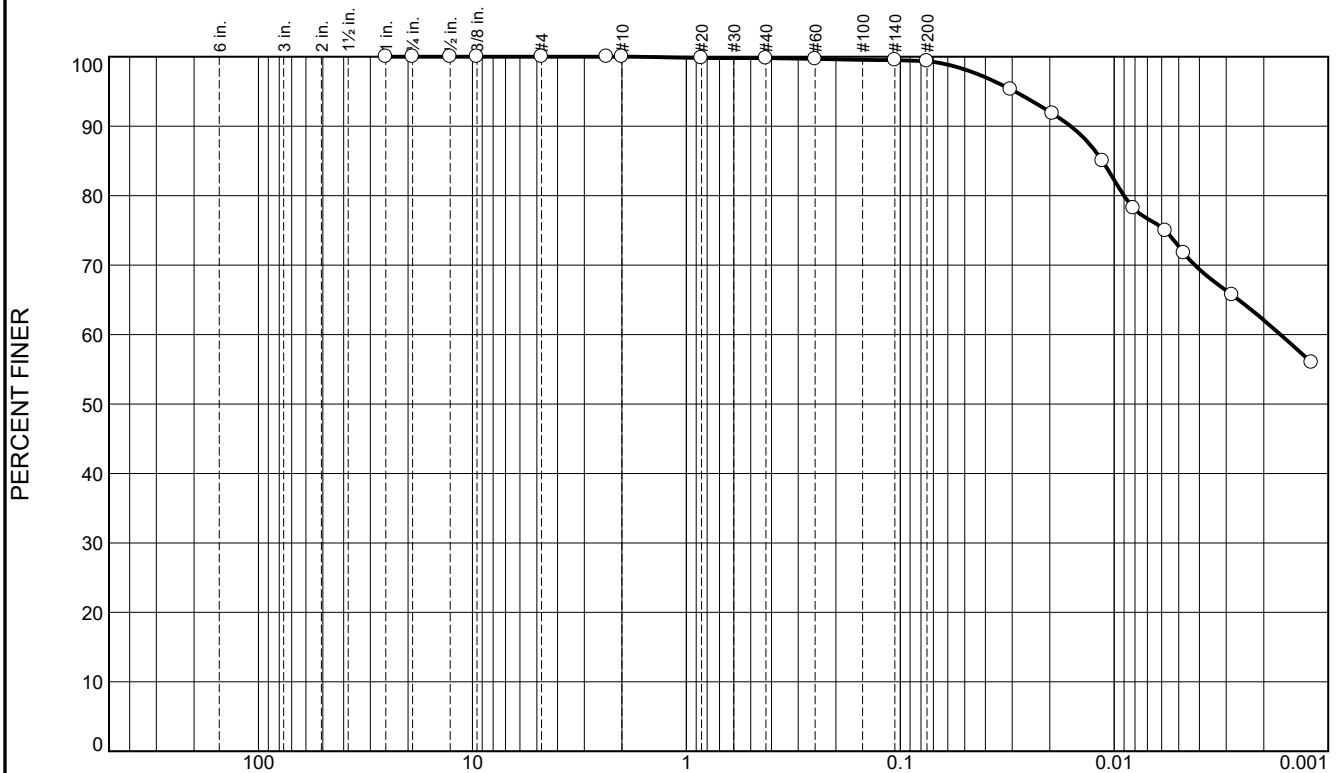
Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	0.4	26.7	72.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.8		
#40	99.8		
#60	99.7		
#140	99.5		
#200	99.4		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 29 LL= 65 PI= 36

Coefficients

D₉₀= 0.0160 D₈₅= 0.0114 D₆₀= 0.0017
D₅₀= D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(43)

Remarks

MOISTURE CONTENT: 95.1%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-21-19

Depth: 7'-8'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

SS-129

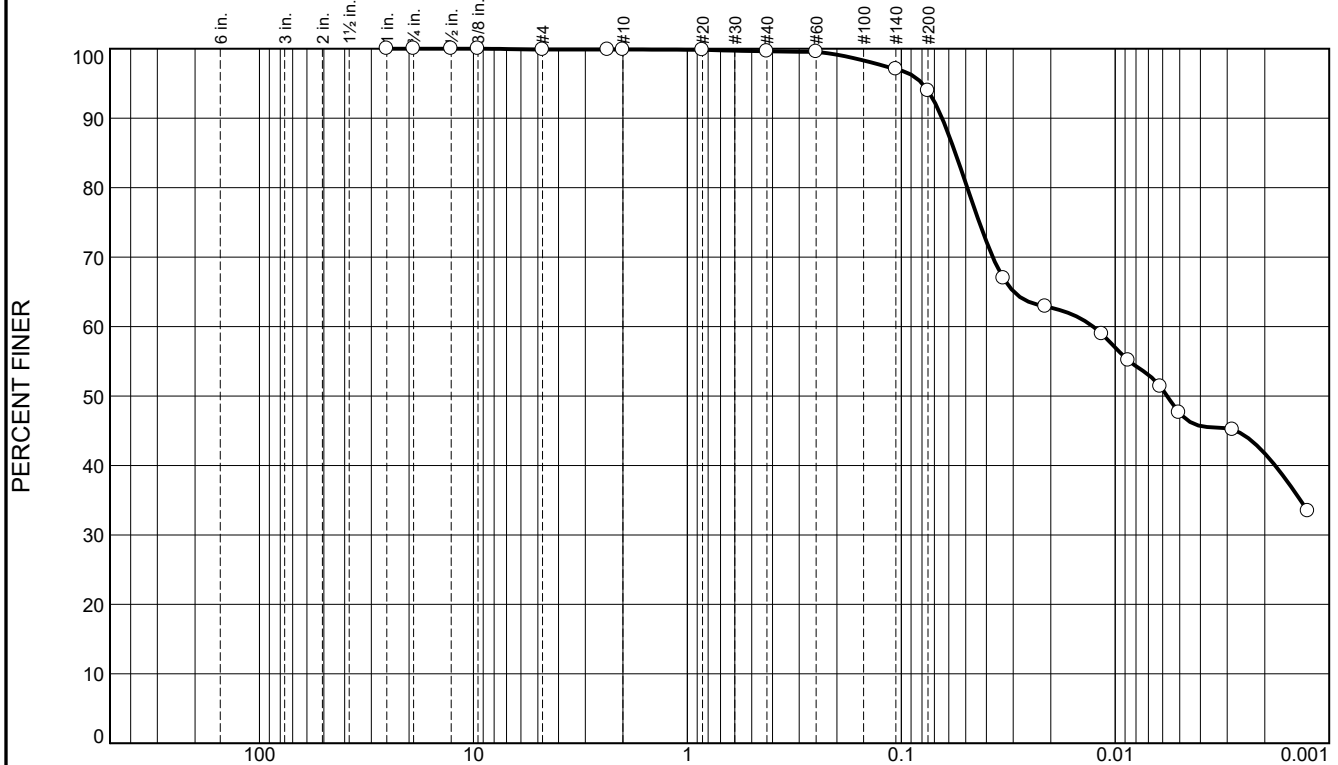
SAM FORM 1836 AUG 2017	AFTER DRILLING		DURING DRILLING		(Continued)	Boring Designation	SS-129
----------------------------------	-------------------	---	--------------------	---	-------------	--------------------	---------------

MHVBC-20-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-20-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,804,183 Y = 137,409				ELEVATION TOP OF BORING -48.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-64.0	16.0		(SC) SAND, clayey, soft consistency, wet, dark gray	100	1		Vibracore			
-66.0	18.0									
NOTES:										
1. Soils are field visually classified in accordance with the Unified Soils Classification System.										

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.0	0.3	5.7	46.4	47.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	99.9		
#8	99.9		
#10	99.9		
#20	99.8		
#40	99.6		
#60	99.5		
#140	97.1		
#200	93.9		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 35 LL= 55 PI= 20

Coefficients

D₉₀= 0.0645 D₈₅= 0.0559 D₆₀= 0.0127
D₅₀= 0.0057 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= MH AASHTO= A-7-5(24)

Remarks

MOISTURE CONTENT: 152.5%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-20-19

Depth: 4'-5'

Date: 3/4/2020

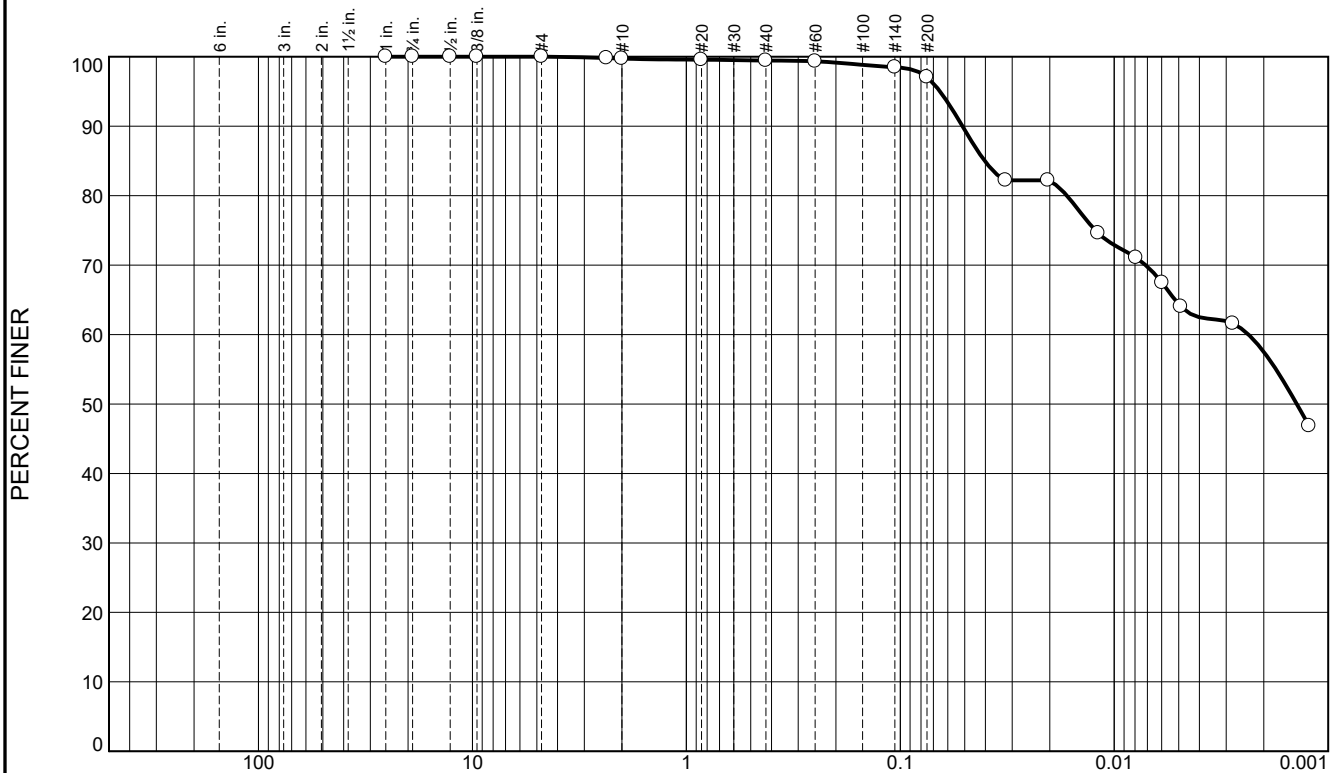
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	0.3	2.4	32.6	64.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.8		
#10	99.7		
#20	99.6		
#40	99.4		
#60	99.3		
#140	98.5		
#200	97.0		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 32 LL= 60 PI= 28

Coefficients

D₉₀= 0.0512 D₈₅= 0.0403 D₆₀= 0.0024
D₅₀= 0.0014 D₃₀= C_u=
D₁₀= C_c=

Classification

USCS= MH AASHTO= A-7-5(33)

Remarks

MOISTURE CONTENT: 112.9%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-20-19

Depth: 7'-8'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045


Project No: M20-069

Figure

SS-131

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-131
----------------------------------	---------------------	----------------------	-------------	----------------------------------

[illegible]

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,803,774 Y = 136,829			ELEVATION TOP OF BORING -25.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.3	25.5			NR			SPT Sampler		0	
							Advanced Boring		0	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

MHVBC-19-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-19-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83		VERTICAL MLLW		
LOCATION COORDINATES X = 1,803,807 Y = 135,465				ELEVATION TOP OF BORING -47.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-62.0	15.0			100	1		Vibracore			
-63.0	16.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, dark gray, inorganic							
-66.0	19.0		(SC) SAND, clayey, soft consistency, wet, dark gray, inorganic At El. -64.5 Ft. with shell							
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.										

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.4	3.5	37.6	58.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.8		
#10	99.8		
#20	99.6		
#40	99.4		
#60	99.3		
#140	97.8		
#200	95.9		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 36 LL= 57 PI= 21

Coefficients

D₉₀= 0.0597 D₈₅= 0.0518 D₆₀= 0.0056
D₅₀= 0.0018 D₃₀= C_u= D₁₅=
C_c=

Classification

USCS= MH AASHTO= A-7-5(26)

Remarks

MOISTURE CONTENT: 130.8%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-19-19

Depth: 7'-8'

Date: 3/4/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

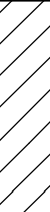
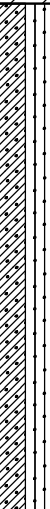
Project No: M20-069

Figure

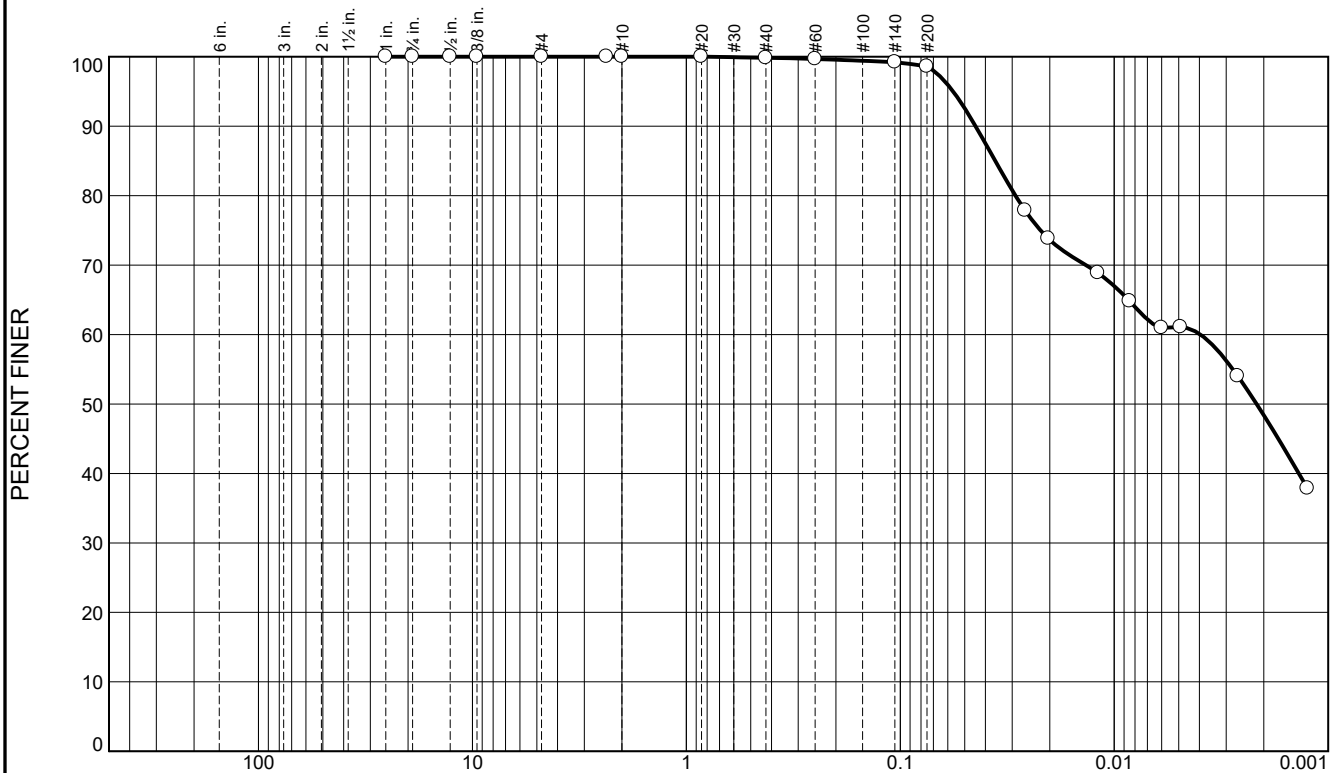
SS-133

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-133
----------------------------------	---	--	-------------	----------------------------------

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 2020 Geotechnical Investigation						LAT/LONG COORDINATES LAT = 30.36604189 LONG = -88.02261343					
STATE PLANE COORDINATES X = 1,803,684 Y = 133,500											
DATE OF BORING		STARTED 01-22-20		COMPLETED 01-22-20		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -50.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR C. Long, Geotechnical Engineer				NAME OF DRILLER CSI		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 16.5 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-50.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, dark gray								
-54.0	4.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, with sand and shell and traces of wood, inorganic	100	1		Vibrocure	At El. -52 Ft. -200= 98%, PL=46, LL= 64, PI= 18, MC= 143%			
-60.0	10.0							At El. -56 Ft. -200= 79%, PL= 30, LL= 56, PI= 26, MC= 83%			

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,803,684 Y = 133,500				ELEVATION TOP OF BORING -50.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-62.0	12.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, dark gray							
-66.5	16.5		(SC-SM) SAND, silty, clayey, soft consistency, wet, dark gray At El. -65.0 Ft. shelly	100	1		Vibracore			
NOTES:										
1. Soils are field visually classified in accordance with the Unified Soils Classification System.										

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	1.2	37.5	61.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.7		
#140	99.2		
#200	98.6		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 46 LL= 64 PI= 18

Coefficients

D₉₀= 0.0445 D₈₅= 0.0360 D₆₀= 0.0040
D₅₀= 0.0022 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= MH AASHTO= A-7-5(27)

Remarks

MOISTURE CONTENT: 143.1%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-18-19

Depth: 2'-3'

Date: 2/17/2020

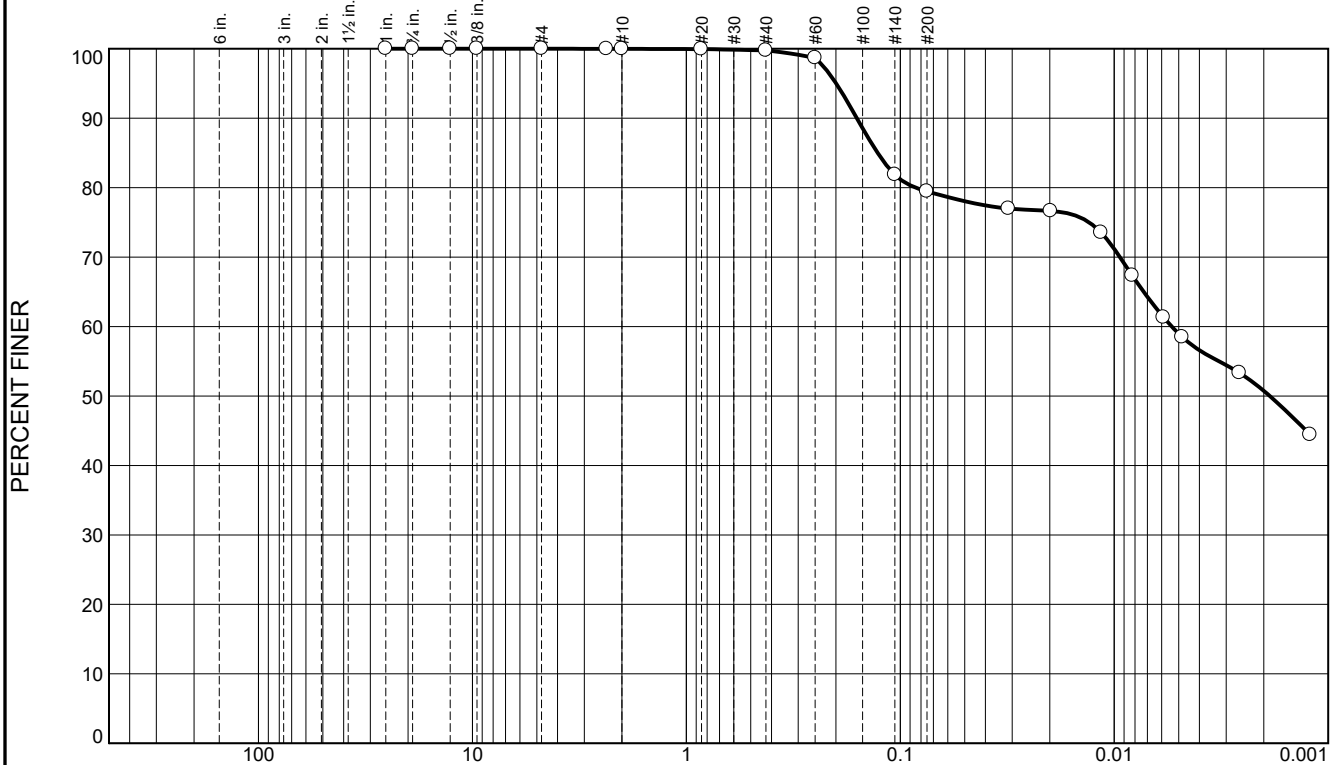
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	20.2	20.5	59.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.7		
#60	98.7		
#140	81.9		
#200	79.5		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 30 LL= 56 PI= 26

Coefficients

D₉₀= 0.1597 D₈₅= 0.1277 D₆₀= 0.0054
D₅₀= 0.0019 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CH AASHTO= A-7-5(23)

Remarks

MOISTURE CONTENT: 83.3%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-18-19

Depth: 6'-7'


Date: 2/17/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama


Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure


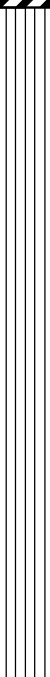

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 3 SHEETS		
PROJECT						LAT/LONG COORDINATES LAT = 30.364097 LONG = -88.022217						
1963-1964 Subsurface Investigation						STATE PLANE COORDINATES X = 1,803,806 Y = 132,792						
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS		HORIZ.		VERT.		
						State Plane - Alabama West - U.S. Survey Ft.		NAD83		MLLW		
DRILLING AGENCY						ELEVATIONS		TOP OF BORING		GROUND WATER		
Corps of Engineers - CESAM								-22.8 Feet		Underwater		
NAME & TITLE OF FIELD INSPECTOR				NAME OF DRILLER		MANUFACTURER'S DESIGNATION OF DRILL						
N/A, Geologist				N/A		N/A <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER						
DIRECTION OF BORING		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT						
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED						See Remarks						
THICKNESS OF OVERBURDEN				N/A		TOTAL NUMBER CORE BOXES						
						0						
DEPTH TO TOP OF ROCK				N/A		TOTAL SAMPLES		DISTURBED		UNDISTURBED (UD)		
						0		0		0		
TOTAL DEPTH OF BORING				28.5 Feet		TOTAL RECOVERY FOR BORING						
						Not Recorded						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE		
-22.8	0.0											
			(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, organic				Advanced Boring					
						NR			SPT Sampler		0	
										0		
										0	0	
									Advanced Boring			
				NR			SPT Sampler		0			


[illegible]

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,803,806 Y = 132,792			ELEVATION TOP OF BORING -22.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
							Advanced Boring			24
									0	25
			NR				SPT Sampler		0	26
									0	26
							Advanced Boring			27
-51.3	28.5									28
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			29
										30
										31
										32
										33
										34
										35
										36
										37

VC-36-84

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation VC-36-84
----------------------------------	------------------	-------------------	-------------	------------------------------------

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 3 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83		VERTICAL MLLW		
LOCATION COORDINATES X = 1,803,305 Y = 131,577				ELEVATION TOP OF BORING -42.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-56.0	14.0							PI=47		
			(ML) SILT, inorganic-L, soft consistency, wet, gray, with fine grained sand and a trace of shells (max size of 1")	100	1		Vibracore	At El. -57.5 Ft. -200=94.5%		
-62.0	20.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, gray							

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,803,305 Y = 131,577			ELEVATION TOP OF BORING -42.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-70.5	28.5			100	1		Vibracore			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

SS-137




SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-137
----------------------------------	---------------------	----------------------	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

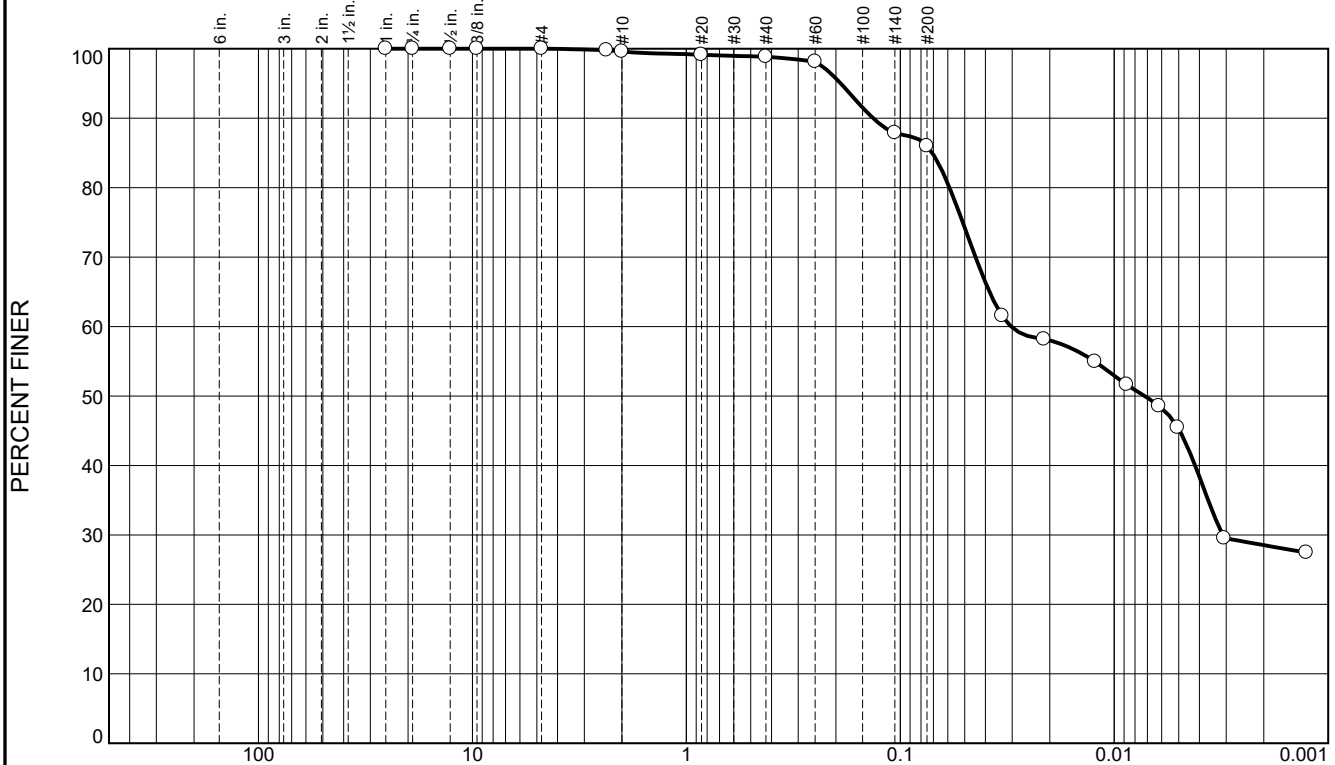
MHVBC-17-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-17-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,803,024 Y = 129,431			ELEVATION TOP OF BORING -46.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-57.0	11.0									
-58.0	12.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, dark gray, inorganic							
-63.0	17.0		(SC) SAND, clayey, soft consistency, wet, gray, trace shell	100	1		Vibracore			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	0.8	12.8	40.7	45.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.8		
#10	99.6		
#20	99.1		
#40	98.8		
#60	98.1		
#140	87.9		
#200	86.0		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 35 LL= 56 PI= 21

Coefficients

D₉₀= 0.1341 D₈₅= 0.0709 D₆₀= 0.0303
D₅₀= 0.0072 D₃₀= 0.0031 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(22)

Remarks

MOISTURE CONTENT: 136.5%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-17-19

Depth: 3'-4'

Date: 3/2/2020

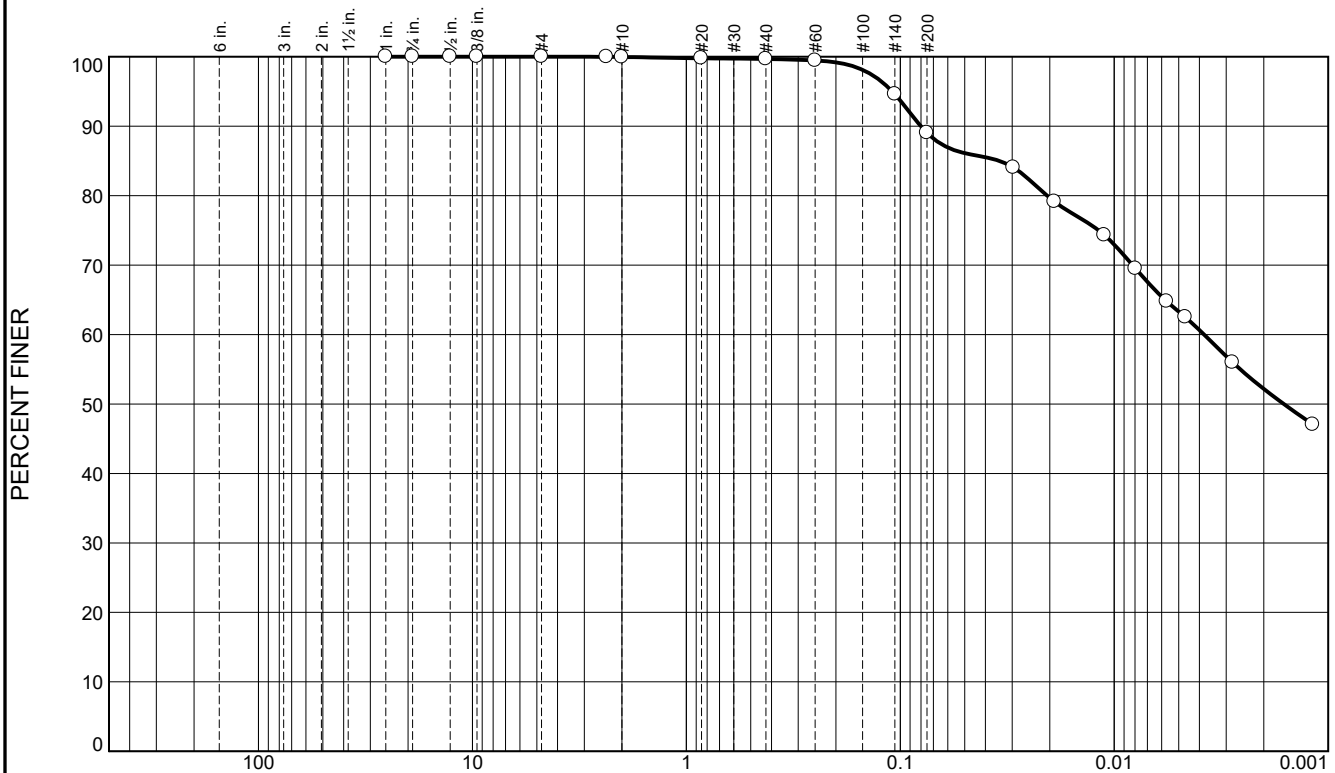
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.2	10.7	25.7	63.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#20	99.8		
#40	99.7		
#60	99.4		
#140	94.6		
#200	89.0		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 26 LL= 61 PI= 35

Coefficients

D₉₀= 0.0802 D₈₅= 0.0345 D₆₀= 0.0038
D₅₀= 0.0016 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= CH AASHTO= A-7-6(35)

Remarks

MOISTURE CONTENT: 84.2%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-17-19

Depth: 9'-10'

Date: 3/2/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama


Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069


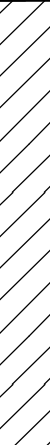
Figure

SS-139

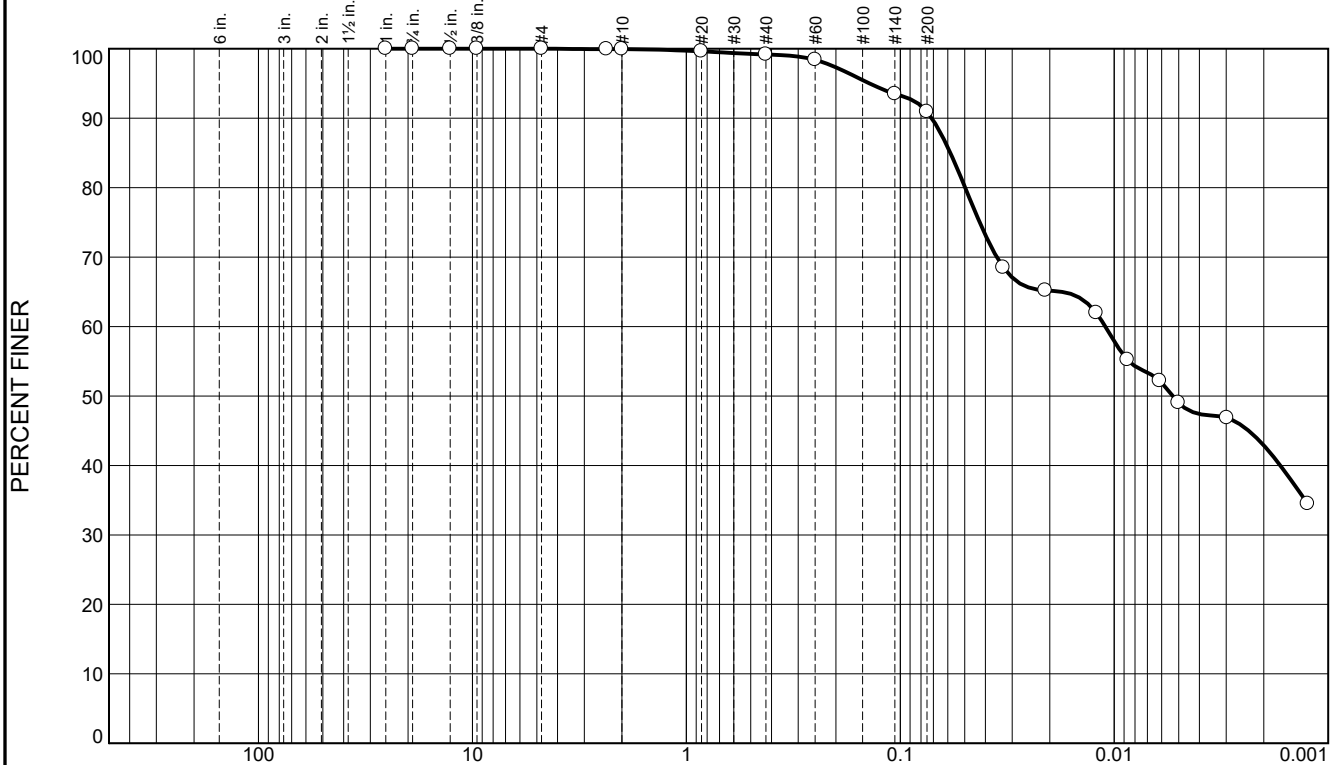
SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-139
----------------------------------	---	--	-------------	----------------------------------

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83		VERTICAL MLLW			
LOCATION COORDINATES X = 1,803,292 Y = 128,825			ELEVATION TOP OF BORING -25.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.3	26.3			NR			SPT Sampler		0	0
							Advanced Boring		0	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT						LAT/LONG COORDINATES LAT = 30.34946773 LONG = -88.02492916					
2020 Geotechnical Investigation						STATE PLANE COORDINATES X = 1,802,926 Y = 127,476					
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS		HORIZ.		VERT.	
		01-22-20		01-22-20		State Plane - Alabama West - U.S. Survey Ft.		NAD83		MLLW	
DRILLING AGENCY						ELEVATIONS		TOP OF BORING		GROUND WATER	
Corps of Engineers - CESAM								-46.0 Feet		Underwater	
NAME & TITLE OF FIELD INSPECTOR				NAME OF DRILLER		MANUFACTURER'S DESIGNATION OF DRILL					
C. Long, Geotechnical Engineer				CSI		Vibrocore <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT					
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED						See Remarks					
THICKNESS OF OVERBURDEN						TOTAL NUMBER CORE BOXES					
N/A						0					
DEPTH TO TOP OF ROCK						TOTAL SAMPLES		DISTURBED		UNDISTURBED (UD)	
N/A								1		0	
TOTAL DEPTH OF BORING						TOTAL RECOVERY FOR BORING					
17.0 Feet						100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-46.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, dark gray, trace shell								
								At El. -48 Ft. -200= 91%, PL= 34, LL= 64, PI= 30, MC= 127%			
-50.0	4.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, trace shell, inorganic	100	1		Vibrocore				
								At El. -55 Ft. -200= 99%, PL=30, LL= 63, PI= 33, MC=			

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,802,926 Y = 127,476			ELEVATION TOP OF BORING -46.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-59.0	13.0							96%		
-63.0	17.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, dark gray, trace shell	100	1		Vibracore			
NOTES:										
1. Soils are field visually classified in accordance with the Unified Soils Classification System.										

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.7	8.3	41.9	49.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#20	99.6		
#40	99.2		
#60	98.4		
#140	93.5		
#200	90.9		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 34 LL= 64 PI= 30

Coefficients

D₉₀= 0.0712 D₈₅= 0.0584 D₆₀= 0.0110
D₅₀= 0.0053 D₃₀= C_u=
D₁₀= C_c=

Classification

USCS= MH AASHTO= A-7-5(33)

Remarks

MOISTURE CONTENT: 127.6%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-16-19

Depth: 2'-3

Date: 3/2/2020

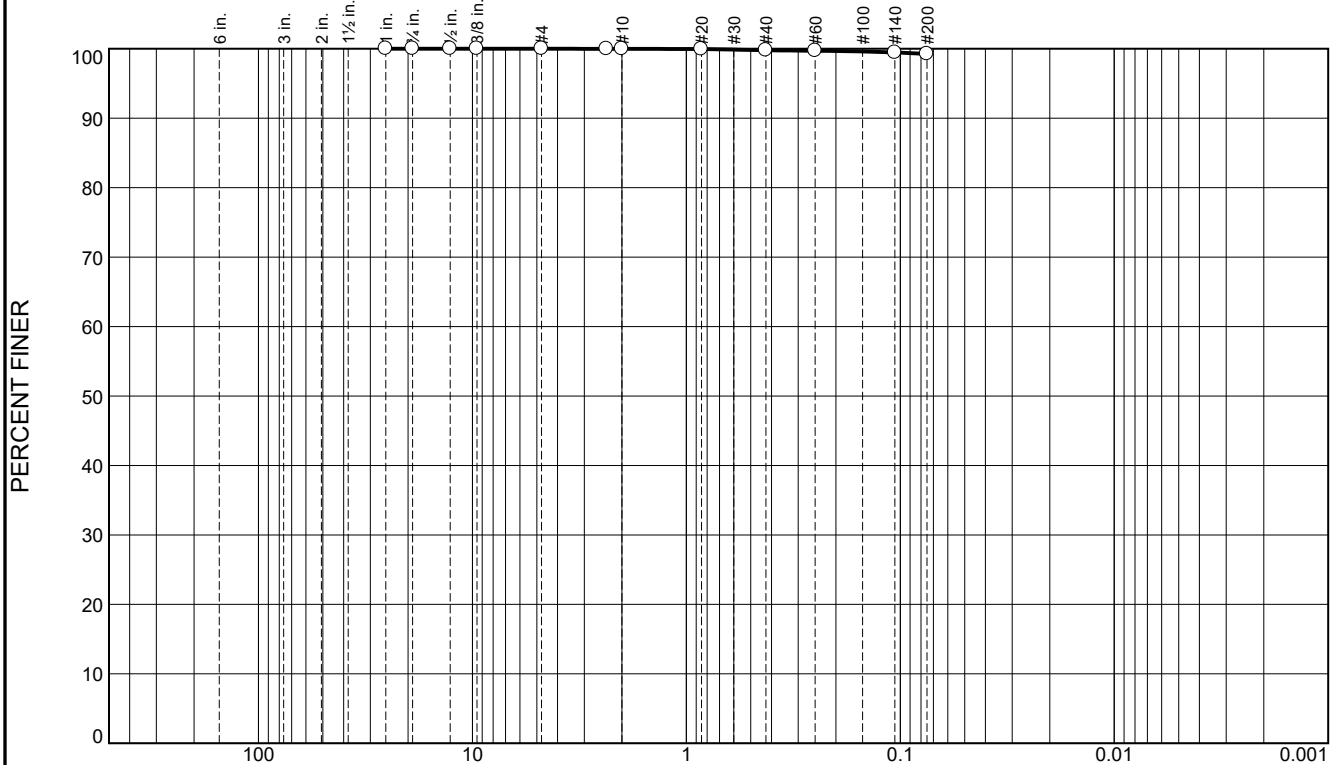
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	0.6	99.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.8		
#60	99.7		
#140	99.5		
#200	99.2		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 30 LL= 63 PI= 33

Coefficients

D₉₀= D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(39)

Remarks

MOISTURE CONTENT: 96.2%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-16-19

Depth: 9'-10'

Date: 3/2/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure


SS-141

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-141
----------------------------------	---------------------	----------------------	-------------	----------------------------------


Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83		VERTICAL MLLW		
LOCATION COORDINATES X = 1,802,762 Y = 126,877				ELEVATION TOP OF BORING -27.8 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			
										24
										25
										26
										27
										28
										29
										30
										31
										32
										33
										34
										35
										36
										37

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 4 SHEETS	
PROJECT 1970-1972 Subsurface				LAT/LONG COORDINATES LAT = 30.344514 LONG = -88.027190			
				STATE PLANE COORDINATES X = 1,802,205 Y = 125,677			
DATE OF BORING		STARTED 09-21-72	COMPLETED 09-22-72	COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.		HORIZ. NAD83	VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM				ELEVATIONS		TOP OF BORING -12.7 Feet	
						GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR Wilsford, Geologist			NAME OF DRILLER Dobbs		MANUFACTURER'S DESIGNATION OF DRILL CME-75		
					<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER		
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL	BEARING	SIZE AND TYPE OF BIT See Remarks			
THICKNESS OF OVERBURDEN N/A				TOTAL NUMBER CORE BOXES 0			
DEPTH TO TOP OF ROCK N/A				TOTAL SAMPLES		DISTURBED 8	UNDISTURBED (UD) 0
TOTAL DEPTH OF BORING 35.5 Feet				TOTAL RECOVERY FOR BORING 100 %			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD
-12.7	0.0		(MH) SILT, inorganic-H, high plasticity, gray				
				100	1		3" I.D. Shelby Tube
							Advanced Boring
				100	2		3" I.D. Shelby Tube
							Advanced Boring

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 4 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,802,205 Y = 125,677			ELEVATION TOP OF BORING -12.7 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
			(CH) CLAY, fat, high plasticity, grey	100	3		3" I.D. Shelby Tube			
								Advanced Boring		
				100	4		3" I.D. Shelby Tube			
							Advanced Boring			
				100	5		3" I.D. Shelby Tube			
							Advanced Boring			

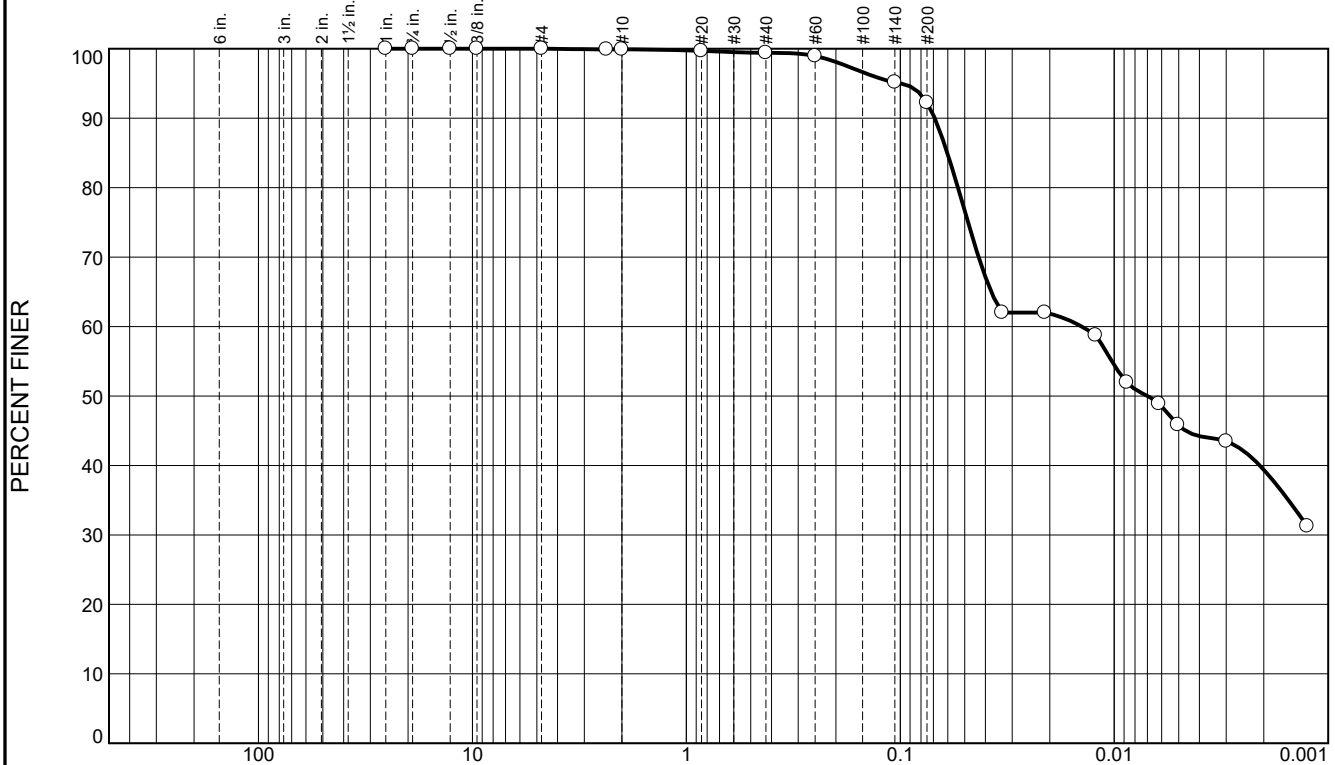
At El. -32.7 Ft. with shell

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 3 OF 4 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,802,205 Y = 125,677			ELEVATION TOP OF BORING -12.7 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
							Advanced Boring			24
										25
				100	6		3" I.D. Shelby Tube			26
										27
							Advanced Boring			28
										29
				100	7		3" I.D. Shelby Tube			30
										31
							Advanced Boring			32
										33
										34
										35
-48.2	35.5									
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.	100	8		3" I.D. Shelby Tube Advanced Boring			36
										37

MHVBC-15-19

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation MHVBC-15-19
----------------------------------	---------------------	----------------------	-------------	---------------------------------------

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	7.2	46.4	45.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#20	99.7		
#40	99.4		
#60	98.9		
#140	95.2		
#200	92.2		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 34 LL= 61 PI= 27

Coefficients

D₉₀= 0.0691 D₈₅= 0.0603 D₆₀= 0.0142
D₅₀= 0.0070 D₃₀= C_u= D₁₅= C_c=

Classification

USCS= MH AASHTO= A-7-5(30)

Remarks

MOISTURE CONTENT: 148.3%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-15-19

Depth: 2'-3'

Date: 3/2/2020

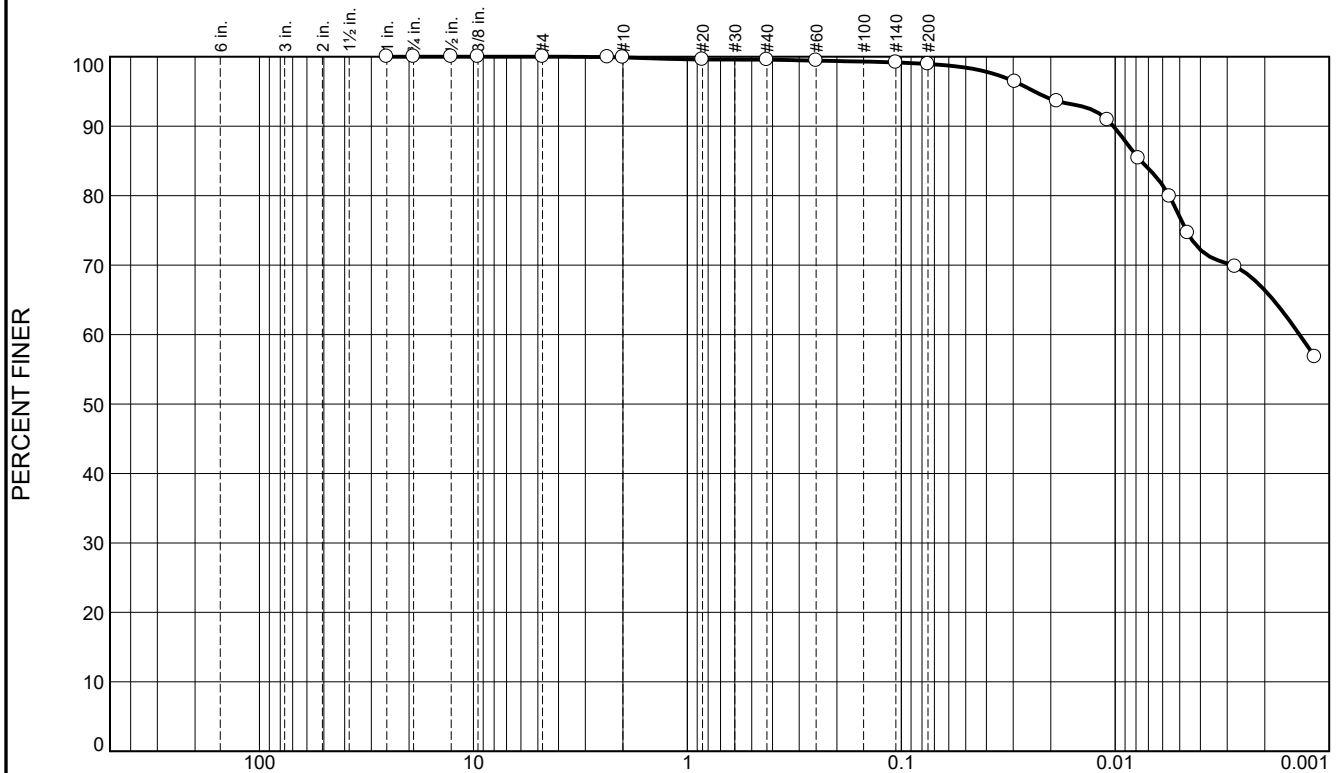
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure


Particle Size Distribution Report




SS-143


SAM FORM 1836 AUG 2017	AFTER DRILLING		DURING DRILLING		(Continued)	Boring Designation	SS-143
----------------------------------	-------------------	---	--------------------	---	-------------	--------------------	---------------

[illegible]

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 1982-1984 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.338743 LONG = -88.026525					
DATE OF BORING						STATE PLANE COORDINATES X = 1,802,405 Y = 123,577					
STARTED 01-08-84		COMPLETED 01-08-84		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.				HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -43.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR H. Gates, Geologist				NAME OF DRILLER C. Fuller		MANUFACTURER'S DESIGNATION OF DRILL Vibrocore <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 21.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-43.0	0.0										
			(CH) CLAY, fat, high plasticity, very soft consistency, wet, black, with organic material								
			At El. -47.0 Ft., soft consistency, dark gray	100	1		Vibrocore	At El. -44.5 Ft. LOI=9.9%, -200=81.3%			

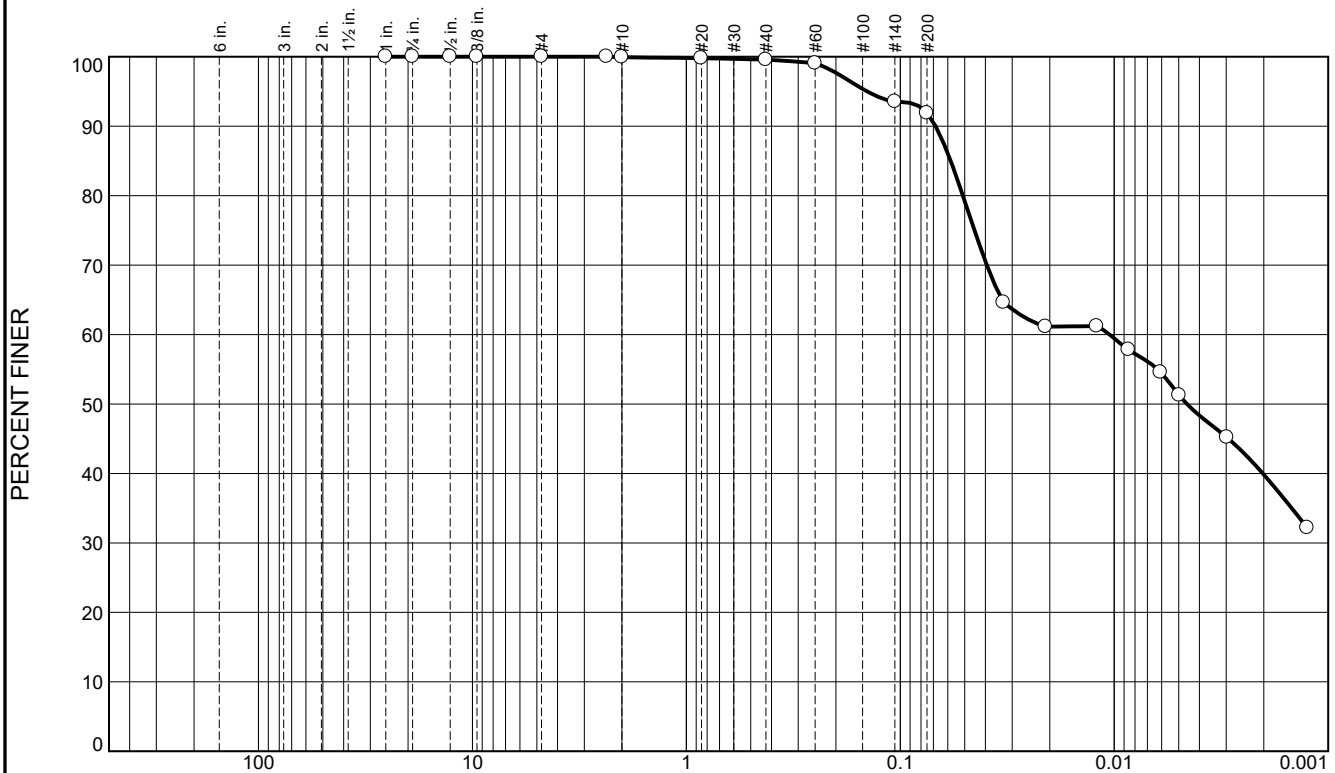
DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,802,405 Y = 123,577			ELEVATION TOP OF BORING -43.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-64.0	21.0	 <p>At El. -60.0 Ft., medium consistency, light gray</p>		100	1		Vibracore			
		NOTES:								
		1. Soils are field visually classified in accordance with the Unified Soils Classification System.								

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 3 SHEETS		
PROJECT						LAT/LONG COORDINATES LAT = 30.336813 LONG = -88.026146						
1963-1964 Subsurface Investigation						STATE PLANE COORDINATES X = 1,802,521 Y = 122,875						
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS			HORIZ.		VERT.	
						State Plane - Alabama West - U.S. Survey Ft.			NAD83		MLLW	
DRILLING AGENCY						ELEVATIONS		TOP OF BORING		GROUND WATER		
Corps of Engineers - CESAM								-25.8 Feet		Underwater		
NAME & TITLE OF FIELD INSPECTOR				NAME OF DRILLER		MANUFACTURER'S DESIGNATION OF DRILL						
N/A, Geologist				N/A		N/A <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER						
DIRECTION OF BORING		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT						
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED						See Remarks						
THICKNESS OF OVERBURDEN				N/A		TOTAL NUMBER CORE BOXES						
						0						
DEPTH TO TOP OF ROCK				N/A		TOTAL SAMPLES		DISTURBED		UNDISTURBED (UD)		
						0		0		0		
TOTAL DEPTH OF BORING				25.5 Feet		TOTAL RECOVERY FOR BORING						
						Not Recorded						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE		
-25.8	0.0											
			(CH) CLAY, fat, high plasticity, very soft consistency, wet, gray, organic				Advanced Boring					
						NR			SPT Sampler		0	
										0		
										0		
							Advanced Boring					

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,802,521 Y = 122,875			ELEVATION TOP OF BORING -25.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.3	25.5			NR			SPT Sampler		0	
							Advanced Boring		0	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS		
PROJECT 2020 Geotechnical Investigation						LAT/LONG COORDINATES LAT = 30.33480101 LONG = -88.02715384						
STATE PLANE COORDINATES X = 1,802,200 Y = 122,145												
DATE OF BORING		STARTED 01-17-20		COMPLETED 01-17-20		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -46.0 Feet		GROUND WATER Underwater		
NAME & TITLE OF FIELD INSPECTOR C. Long, Geotechnical Engineer				NAME OF DRILLER CSI		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER						
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks						
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0						
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0		
TOTAL DEPTH OF BORING 20.0 Feet						TOTAL RECOVERY FOR BORING 100 %						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE		
-46.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, dark gray, traces of shell from 0' to 1'									
			At El. -50.0 Ft. sand lense	100	1		Vibrocure	At El. -50 Ft. -200=91%, PL=37, LL=65, PI=28, MC=153%				

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.3	7.7	40.5	51.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#20	99.8		
#40	99.6		
#60	99.1		
#140	93.5		
#200	91.9		

* (no specification provided)

Material Description

BROWN SILT

Atterberg Limits

PL= 37

LL= 65

PI= 28

Coefficients

D₉₀= 0.0684

D₈₅= 0.0582

D₆₀= 0.0105

D₅₀= 0.0046

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= MH

AASHTO= A-7-5(32)

Remarks

MOISTURE CONTENT: 153.2%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-14-19

Depth: 4'-5'

Date: 3/5/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045



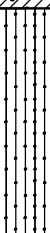
Project No: M20-069

Figure

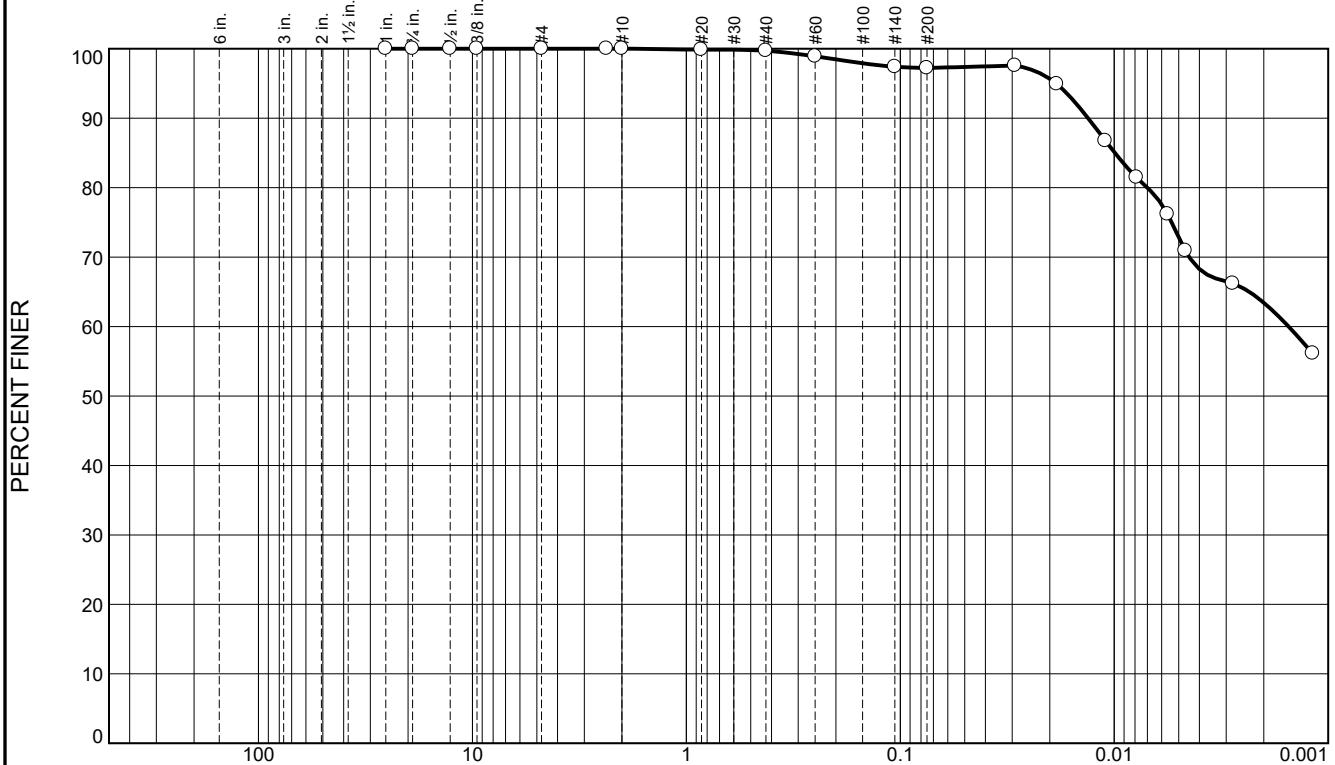
SS-147

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-147
----------------------------------	---------------------	----------------------	-------------	----------------------------------

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT						LAT/LONG COORDINATES LAT = 30.32946113 LONG = -88.02830475					
2020 Geotechnical Investigation						STATE PLANE COORDINATES X = 1,801,827 Y = 120,204					
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS		HORIZ.		VERT.	
		01-17-20		01-17-20		State Plane - Alabama West - U.S. Survey Ft.		NAD83		MLLW	
DRILLING AGENCY						ELEVATIONS		TOP OF BORING		GROUND WATER	
Corps of Engineers - CESAM								-46.0 Feet		Underwater	
NAME & TITLE OF FIELD INSPECTOR				NAME OF DRILLER		MANUFACTURER'S DESIGNATION OF DRILL					
C. Long, Geotechnical Engineer				CSI		Vibrocore <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT					
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED						See Remarks					
THICKNESS OF OVERBURDEN						TOTAL NUMBER CORE BOXES					
N/A						0					
DEPTH TO TOP OF ROCK						TOTAL SAMPLES		DISTURBED		UNDISTURBED (UD)	
N/A								1		0	
TOTAL DEPTH OF BORING						TOTAL RECOVERY FOR BORING					
19.0 Feet						100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-46.0	0.0		(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, black,								
-49.5	3.5		(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, traces of shell, inorganic	100	1		Vibrocore	At El. -53 Ft. -200=97%, PL=34, LL=70, PI=36, MC=112%			

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,801,827 Y = 120,204			ELEVATION TOP OF BORING -46.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-59.5	13.5									
-63.0	17.0		(SC) SAND, clayey, soft consistency, wet, dark gray At El. -62.0 Ft., soft consistency, wet, dark gray	100	1		Vibracore	At El. -60 Ft. -200=45%, PL=14, LL=29, PI=15, MC=47%		
-65.0	19.0		(SM) SAND, silty, soft consistency, wet, dark gray							
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	2.5	24.3	72.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	99.7		
#60	98.9		
#140	97.4		
#200	97.2		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 34

LL= 70

PI= 36

Coefficients

D₉₀= 0.0133

D₈₅= 0.0099

D₆₀= 0.0015

D₅₀=

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= CH

AASHTO= A-7-5(43)

Remarks

MOISTURE CONTENT: 111.9%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-13-19

Depth: 7'-8'

Date: 2/17/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

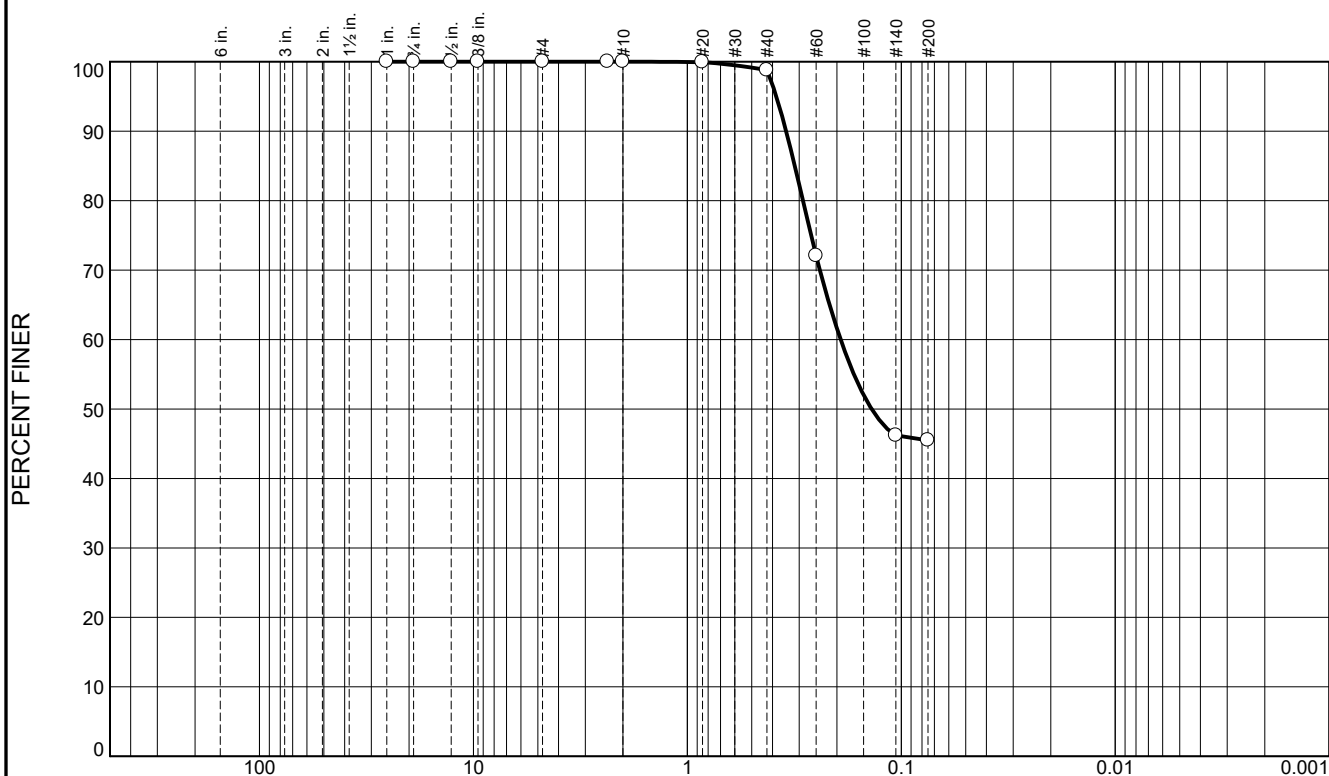
Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.2	53.3	45.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	99.9		
#40	98.8		
#60	72.1		
#140	46.2		
#200	45.5		

* (no specification provided)

<u>Material Description</u>		
GRAY CLAYEY SAND		
<u>Atterberg Limits</u>		
PL= 14	LL= 29	PI= 15
<u>Coefficients</u>		
D ₉₀ = 0.3454	D ₈₅ = 0.3148	D ₆₀ = 0.1922
D ₅₀ = 0.1377	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS= SC	AASHTO= A-6(3)	
<u>Remarks</u>		
MOISTURE CONTENT: 46.6%		

Source of Sample: MHVBC-13-19

Depth: 14'-15'


Date: 2/17/2020


**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
 Project: USACOE - MOBILE HARBOR W91278-19-D-0045
 Project No: M20-069
 Figure


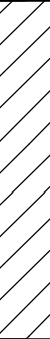

SS-149

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-149
----------------------------------	---------------------	----------------------	-------------	----------------------------------

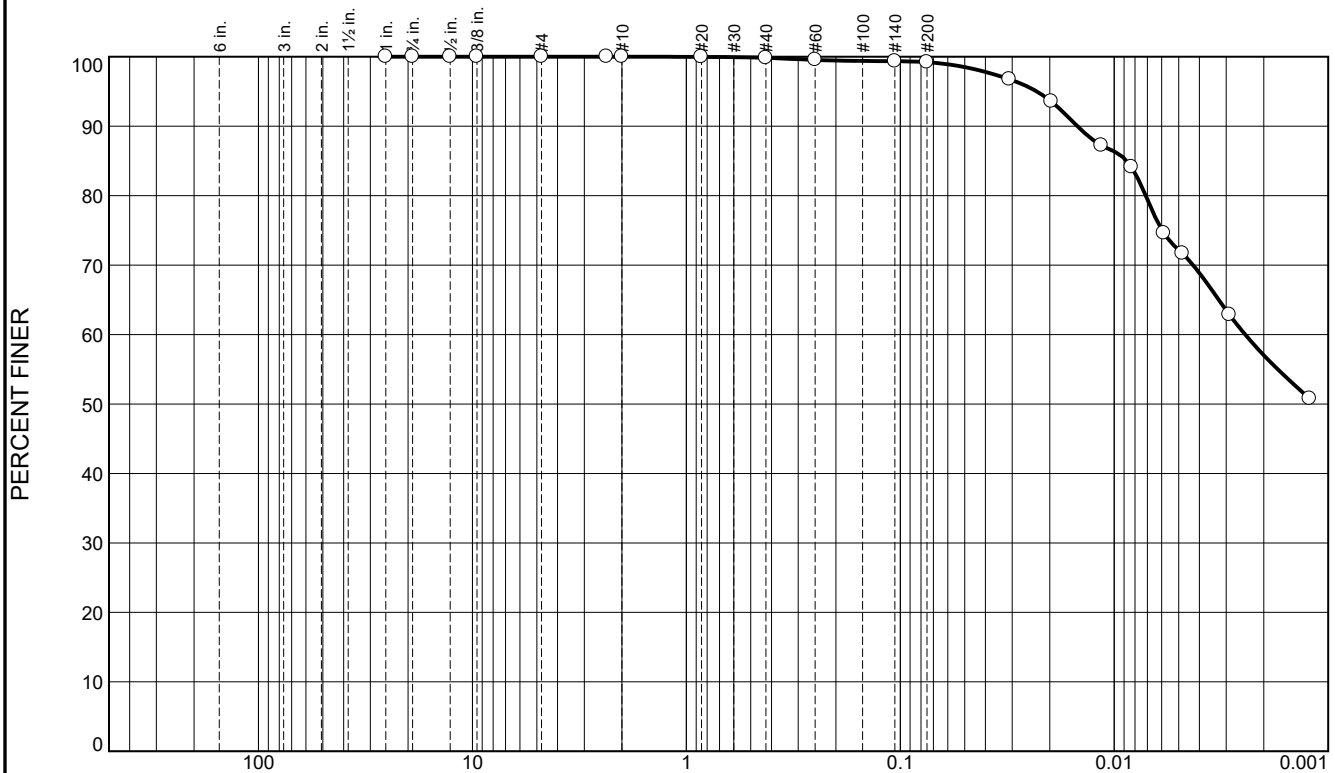
DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 3 SHEETS	
PROJECT 1982-1984 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.324161 LONG = -88.028824					
DATE OF BORING						STATE PLANE COORDINATES X = 1,801,655 Y = 118,277					
STARTED 01-08-84		COMPLETED 01-08-84		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.				HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -42.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR H. Gates, Geologist				NAME OF DRILLER C. Fuller		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 28.7 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-42.0	0.0										
			(CH) CLAY, fat, high plasticity, very soft consistency, wet, black, with organic material								
			At El. -45.5 Ft., soft consistency, gray								
				100	1		Vibrocure				

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,801,655 Y = 118,277			ELEVATION TOP OF BORING -42.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-70.7	28.7			100	1		Vibracore			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 2020 Geotechnical Investigation						LAT/LONG COORDINATES LAT = 30.32201493 LONG = -88.02894799					
STATE PLANE COORDINATES X = 1,801,612 Y = 117,497											
DATE OF BORING		STARTED 01-17-20		COMPLETED 01-17-20		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.			HORIZ. NAD83		VERT. MLLW
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -49.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR C. Long, Geotechnical Engineer				NAME OF DRILLER CSI		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 18.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-49.0	0.0										
			(MH) SILT, inorganic-H, high plasticity, very soft consistency, wet, black, with shell								
			At El. -51.0 Ft., soft consistency, dark gray								
-52.0	3.0		(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, traces of sand and shell, inorganic								
				100	1		Vibrocure				
								At El. -56 Ft. -200=99.2%, PL=29, LL=61, PI=32, MC=112%			

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83		VERTICAL MLLW		
LOCATION COORDINATES X = 1,801,612 Y = 117,497				ELEVATION TOP OF BORING -49.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE
-62.0	13.0									
-65.0	16.0		(CL) CLAY, lean, low plasticity, soft consistency, wet, dark gray, inorganic	100	1		Vibracore	At El. -63 Ft. -200=52%, PL=20, LL=44, PI=24, MC=53%		
-67.0	18.0		(SC) SAND, clayey, soft consistency, wet, dark gray, inorganic							
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	0.6	27.0	72.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.5		
#140	99.3		
#200	99.2		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 29 LL= 61 PI= 32

Coefficients

D₉₀= 0.0149 D₈₅= 0.0087 D₆₀= 0.0024
D₅₀= D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(38)

Remarks

MOISTURE CONTENT: 111.7%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-12-19

Depth: 7'-8'

Date: 2/17/2020

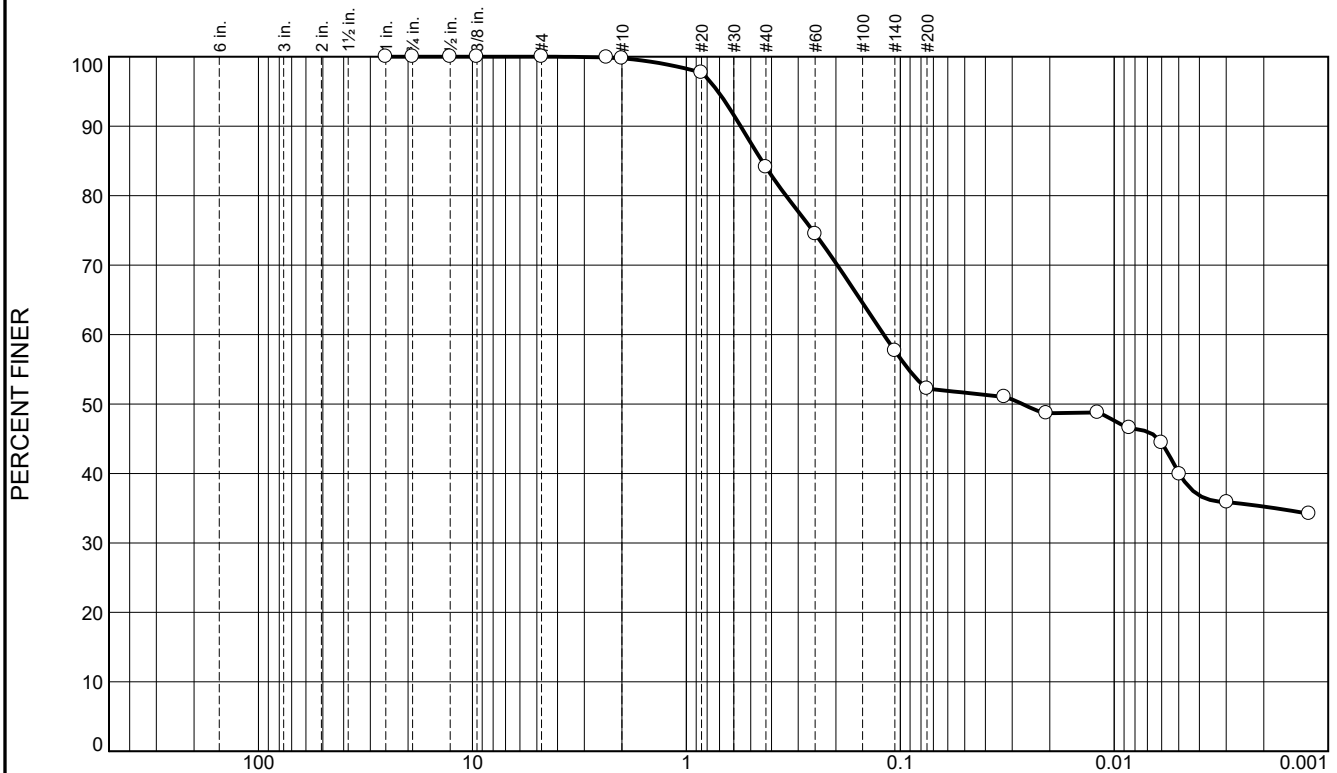
**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

Particle Size Distribution Report



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	15.7	31.9	12.1	40.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	99.9		
#10	99.8		
#20	97.7		
#40	84.1		
#60	74.5		
#140	57.7		
#200	52.2		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 20

LL= 44

PI= 24

Coefficients

D₉₀= 0.5577

D₈₅= 0.4438

D₆₀= 0.1195

D₅₀= 0.0269

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= CL

AASHTO= A-7-6(9)

Remarks

MOISTURE CONTENT: 53.5%

ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-12-19

Depth: 14'-15'

Date: 2/17/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS

Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

SS-151


SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-151
----------------------------------	---	--	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

Project I.D.

Boring Designation

MHVBC-11-19


DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT						LAT/LONG COORDINATES LAT = 30.31673335 LONG = -88.03016603					
2020 Geotechnical Investigation						STATE PLANE COORDINATES X = 1,801,219 Y = 115,578					
DATE OF BORING		STARTED		COMPLETED		COORDINATE SYSTEM/DATUM/UNITS		HORIZ.		VERT.	
		01-17-20		01-17-20		State Plane - Alabama West - U.S. Survey Ft.		NAD83		MLLW	
DRILLING AGENCY						ELEVATIONS		TOP OF BORING		GROUND WATER	
Corps of Engineers - CESAM								-49.0 Feet		Underwater	
NAME & TITLE OF FIELD INSPECTOR				NAME OF DRILLER		MANUFACTURER'S DESIGNATION OF DRILL					
C. Long, Geotechnical Engineer				CSI		Vibrocore <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT					
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED						See Remarks					
THICKNESS OF OVERBURDEN						TOTAL NUMBER CORE BOXES					
N/A						0					
DEPTH TO TOP OF ROCK						TOTAL SAMPLES		DISTURBED		UNDISTURBED (UD)	
N/A								1		0	
TOTAL DEPTH OF BORING						TOTAL RECOVERY FOR BORING					
20.0 Feet						100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-49.0	0.0										
			(CH) CLAY, fat, high plasticity, soft consistency, wet, dark gray, inorganic, trace shell								
			At El. -51.5 Ft. with light gray indurated clay/silt nodules								
				100	1		Vibrocore				
								At El. -55 Ft. -200=99%, PL=30, LL=66, PI=36, MC=110%			

SAM FORM 1836
AUG 2017AFTER DRILLING ☒ DURING DRILLING ☐

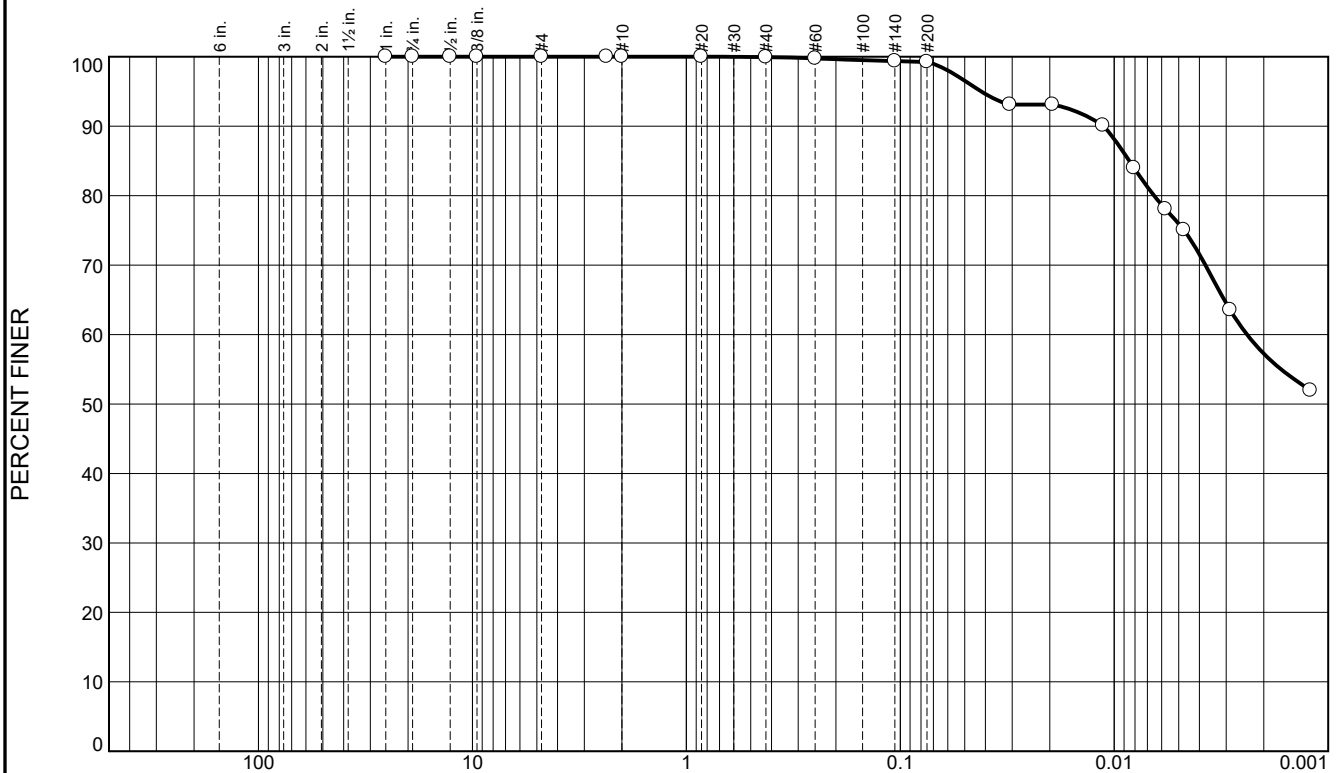
(Continued)

Boring Designation MHVBC-11-19

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 2 OF 2 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,801,219 Y = 115,578			ELEVATION TOP OF BORING -49.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-69.0	20.0			100	1		Vibracore			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	0.7	23.2	76.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.7		
#140	99.4		
#200	99.2		

* (no specification provided)

Material Description

GRAY CLAY

Atterberg Limits

PL= 30 LL= 66 PI= 36

Coefficients

D₉₀= 0.0112 D₈₅= 0.0085 D₆₀= 0.0024
D₅₀= D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(43)

Remarks

MOISTURE CONTENT: 110.9%
ASSUMED SPEC. GRAVITY: 2.7

Source of Sample: MHVBC-11-19

Depth: 6'-7'

Date: 2/17/2020

**SOUTHERN EARTH
SCIENCES**
Mobile, Alabama

Client: ARCHWAY SOLUTIONS
Project: USACOE - MOBILE HARBOR W91278-19-D-0045

Project No: M20-069

Figure

SS-153

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-153
----------------------------------	---------------------	----------------------	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

SS-155

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-155
----------------------------------	---------------------	----------------------	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.			HORIZONTAL NAD83	VERTICAL MLLW		
LOCATION COORDINATES X = 1,801,236 Y = 112,958				ELEVATION TOP OF BORING -29.0 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE
							2" O.D.).			
										24
										25
										26
										27
										28
										29
										30
										31
										32
										33
										34
										35
										36
										37

DRILLING LOG		DIVISION South Atlantic Division		INSTALLATION Mobile Harbor AL		SHEET 1 OF 1 SHEETS	
1. PROJECT Mobile Harbor Borings				9. COORDINATE SYSTEM State Plane - Alabama West		HORIZONTAL NAD83	
						VERTICAL MLLW	
2. HOLE NUMBER MHSPT-16-19		LOCATION COORDINATES N 113538.444 E 1801187.853		10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge			
3. DRILLING AGENCY Corps of Engineers - CESAS				12. TOTAL SAMPLES 9		DISTURBED 9	
						UNDISTURBED 0	
4. NAME OF DRILLER Joe Bowerman				13. TOTAL NUMBER CORE BOXES 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG FROM VERTICAL ---		BEARING	
				14. ELEVATION GROUND WATER See Remarks			
				15. DATE BORING 9/27/20		STARTED 9/27/20	
						COMPLETED 9/27/20	
6. THICKNESS OF OVERBURDEN >14'				16. ELEVATION TOP OF BORING -46.23'			
7. DEPTH DRILLED INTO ROCK				17. TOTAL CORE RECOVERY FOR BORING N/A			
8. TOTAL DEPTH OF BORING 14'				18. SIGNATURE AND TITLE OF INSPECTOR Chris Killam, Geologist			

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
-48.2	2.0		CLAYEY SILT (MH), olive green, saturated, high plasticity, trace fine sand.	47	S1		USCS	0	0
			SILT (ML), dark olive gray, little sand, trace shells.	87	S2			0	0
				100	S3			0	0
-52.2	6.0			100	S4			0	0
			CLAYEY SILT (MH), high plasticity, trace fine sand.	100	S5			0	0
			Greenish gray.	100	S6			0	0
				100	S7			0	0
				100	S8			0	0
-60.2	14.0			100	S9			0	0

BOTTOM OF BOREHOLE AT 14.0 ft

Notes:

1. Soils visually field classified in accordance with the Unified Soil Classification System.
2. N-Value: Total blows over last 1.0 foot of 1.5-foot driven interval, unless otherwise indicated, using a 1 3/8-inch ID splitspoon with 140-pound hammer falling 30 inches.
3. The CME-750 drilling rig utilizes an automatic trip hammer.
4. Undisturbed sampling with 3" by 30" Shelby tube, mechanically pushed with CME-750.
5. Component Percentages: Trace: 0 to 5%, Few: 5 to 10%, Little: 15 to 25%, Some 30 to 45%, With 50 to 100%.
6. MLLW was calculated from measuring barge deck to mud line, then subtracting barge deck to water and closest observation station tide reading.

Project I.D.

Boring Designation

VC-42-84

DRILLING LOG		DIVISION		South Atlantic		INSTALLATION		Mobile District		SHEET 1 OF 2 SHEETS	
PROJECT 1982-1984 Subsurface Investigation						LAT/LONG COORDINATES LAT = 30.307791 LONG = -88.031271					
DATE OF BORING						STATE PLANE COORDINATES X = 1,800,855 Y = 112,327					
STARTED 01-08-84		COMPLETED 01-08-84		COORDINATE SYSTEM/DATUM/UNITS State Plane - Alabama West - U.S. Survey Ft.				HORIZ. NAD83		VERT. MLLW	
DRILLING AGENCY Corps of Engineers - CESAM						ELEVATIONS		TOP OF BORING -41.0 Feet		GROUND WATER Underwater	
NAME & TITLE OF FIELD INSPECTOR H. Gates, Geologist				NAME OF DRILLER C. Fuller		MANUFACTURER'S DESIGNATION OF DRILL Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER					
DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		SIZE AND TYPE OF BIT See Remarks					
THICKNESS OF OVERBURDEN N/A						TOTAL NUMBER CORE BOXES 0					
DEPTH TO TOP OF ROCK N/A						TOTAL SAMPLES		DISTURBED 1		UNDISTURBED (UD) 0	
TOTAL DEPTH OF BORING 20.0 Feet						TOTAL RECOVERY FOR BORING 100 %					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/1 FT.	N-VALUE	
-41.0	0.0		(CH) CLAY, fat, high plasticity, very soft consistency, wet, black								
			At El. -43.6 Ft., soft consistency, gray								
				100	1		Vibrocure				


SAM FORM 1836
AUG 2017

AFTER DRILLING ▼ DURING DRILLING ▽

(Continued)

Boring Designation VC-42-84

Replaced in its entirety by Amendment No. W9127821B0001-0001


DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,800,855 Y = 112,327			ELEVATION TOP OF BORING -41.0 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 1 FT.	N-VALUE
-61.0	20.0			100	1		Vibracore			
			NOTES:							
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

Boring Designation MHSPT-15-19

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Mobile Harbor AL			SHEET 1 OF 1 SHEETS			
1. PROJECT Mobile Harbor Borings			9. COORDINATE SYSTEM State Plane - Alabama West		HORIZONTAL NAD83	VERTICAL MLLW			
2. HOLE NUMBER MHSPT-15-19			LOCATION COORDINATES N 111830.896 E 1800543.956		10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge				
3. DRILLING AGENCY Corps of Engineers - CESAS			12. TOTAL SAMPLES		DISTURBED 13	UNDISTURBED 0			
4. NAME OF DRILLER Joe Bowerman			13. TOTAL NUMBER CORE BOXES 0		14. ELEVATION GROUND WATER See Remarks				
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			DEG FROM VERTICAL ---		BEARING				
6. THICKNESS OF OVERBURDEN >19.5'			17. TOTAL CORE RECOVERY FOR BORING N/A		15. DATE BORING 9/23/20				
7. DEPTH DRILLED INTO ROCK			18. SIGNATURE AND TITLE OF INSPECTOR Adam Tew, Geologist		COMPLETED 9/23/20				
8. TOTAL DEPTH OF BORING 19.5'									
ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	No. Samp	RCD %	REMARKS	Blows/ 0.5 ft	N-Value
-60.0	19.5		LEAN CLAY (CL), gray, wet, medium plasticity, trace shell fragments.	100	S1		USCSall drives WOR	0	0
				100	S2			0	
				100	S3			0	
				100	S4			0	
				100	S5			0	
				100	S6			0	
				73	S7			0	
				67	S8			0	
				73	S9			0	
				53	S10			0	
				87	S11			0	
				80	S12			0	
				100	S13			0	
BOTTOM OF BOREHOLE AT 19.5 ft									
Notes: 1. Soils visually field classified in accordance with the Unified Soil Classification System. 2. N-Value: Total blows over last 1.0 foot of 1.5-foot driven interval, unless otherwise indicated, using a 1 3/8-inch ID splitspoon with 140-pound hammer falling 30 inches. 3. The CME-750 drilling rig utilizes an automatic trip hammer. 4. Undisturbed sampling with 3" by 30" Shelby tube, mechanically pushed with CME-750. 5. Component Percentages: Trace: 0 to 5%, Few: 5 to 10%, Little: 15 to 25%, Some 30 to 45%, With 50 to 100%. 6. MLLW was calculated from measuring barge deck to mud line, then subtracting barge deck to water and closest observation station tide reading.									

SS-157

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-157
----------------------------------	---	--	-------------	----------------------------------

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,800,707 Y = 111,010			ELEVATION TOP OF BORING -37.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.3	13.5						Advanced Boring			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

DRILLING LOG		DIVISION South Atlantic Division		INSTALLATION Mobile Harbor AL		SHEET 1 OF 1 SHEETS	
1. PROJECT Mobile Harbor Borings				9. COORDINATE SYSTEM State Plane - Alabama West		HORIZONTAL NAD83	
						VERTICAL MLLW	
2. HOLE NUMBER MHSPT-14-19		LOCATION COORDINATES N 109730.091 E 1800752.382		10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge			
3. DRILLING AGENCY Corps of Engineers - CESAS				11. MANUFACTURER'S DESIGNATION OF DRILL CME-750			
4. NAME OF DRILLER Joe Bowerman				12. TOTAL SAMPLES 11		DISTURBED 11	
						UNDISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG FROM VERTICAL ---		BEARING	
6. THICKNESS OF OVERBURDEN >16.5'				13. TOTAL NUMBER CORE BOXES 0			
7. DEPTH DRILLED INTO ROCK				14. ELEVATION GROUND WATER See Remarks			
8. TOTAL DEPTH OF BORING 16.5'				15. DATE BORING 9/25/20		STARTED 9/25/20	
						COMPLETED 9/25/20	
				16. ELEVATION TOP OF BORING -43.77'			
				17. TOTAL CORE RECOVERY FOR BORING N/A			
				18. SIGNATURE AND TITLE OF INSPECTOR Michael Loveland, Geologist			

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
-47.9	4.1		CLAYEY SILT (ML), greenish gray, saturated, very soft, non plastic, no toughness, few fine sand, trace organics.	0	S1		USCS	0	0
				20	S2			0	0
				80	S3			0	0
			ELASTIC SILT (MH), dark gray, saturated, medium plasticity, no dilatancy, no toughness, trace shells.	100	S4			0	0
			Dark gray and black.	100	S5			0	0
				100	S6			0	0
				100	S7			0	0
				100	S8			0	0
				100	S9			0	0
			Interbedded fine to medium sand.	100	S10			0	0
-58.8	15.0							0	0
-60.3	16.5		SILTY SAND (SM), greenish gray, fine to medium grained, saturated, some silt.	100	S11			0	0

BOTTOM OF BOREHOLE AT 16.5 ft

Notes:

1. Soils visually field classified in accordance with the Unified Soil Classification System.
2. N-Value: Total blows over last 1.0 foot of 1.5-foot driven interval, unless otherwise indicated, using a 1 3/8-inch ID splitspoon with 140-pound hammer falling 30 inches.
3. The CME-750 drilling rig utilizes an automatic trip hammer.
4. Undisturbed sampling with 3" by 30" Shelby tube, mechanically pushed with CME-750.
5. Component Percentages: Trace: 0 to 5%, Few: 5 to 10%, Little: 15 to 25%, Some 30 to 45%, With 50 to 100%.
6. MLLW was calculated from measuring barge deck to mud line, then subtracting barge deck to water and closest observation station tide reading.

SS-159

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-159
----------------------------------	---------------------	----------------------	-------------	----------------------------------

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District			SHEET 3 OF 3 SHEETS			
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,800,177 Y = 109,061				ELEVATION TOP OF BORING -26.3 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-51.3	25.0			NR			SPT Sampler		0	0
							Advanced Boring		0	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

Boring Designation MHSPT-13-19


DRILLING LOG		DIVISION South Atlantic Division		INSTALLATION Mobile Harbor AL		SHEET 1 OF 1 SHEETS			
1. PROJECT Mobile Harbor Borings				9. COORDINATE SYSTEM State Plane - Alabama West		HORIZONTAL NAD83			
				10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge		VERTICAL MLLW			
2. HOLE NUMBER MHSPT-13-19		LOCATION COORDINATES N 107831.342 E 1800095.395		11. MANUFACTURER'S DESIGNATION OF DRILL CME-750					
3. DRILLING AGENCY Corps of Engineers - CESAS				12. TOTAL SAMPLES 9		DISTURBED 0			
4. NAME OF DRILLER Joe Bowerman				13. TOTAL NUMBER CORE BOXES 0		UNDISTURBED 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---		14. ELEVATION GROUND WATER See Remarks		15. DATE BORING 9/20/20			
				STARTED 9/20/20		COMPLETED 9/20/20			
6. THICKNESS OF OVERBURDEN >34.5'				16. ELEVATION TOP OF BORING -46.7'					
7. DEPTH DRILLED INTO ROCK				17. TOTAL CORE RECOVERY FOR BORING N/A					
8. TOTAL DEPTH OF BORING 34.5'				18. SIGNATURE AND TITLE OF INSPECTOR Adam Tew, Geologist					
ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			SILT (ML), greenish brown, saturated, non plastic. Dark gray.	40	S1		USCS	0	0
				73	S2		hole drilled using rotary spade bit and water	0	0
				73	S3		minimal fluid return throughout drilling	0	0
			Interbedded fine to medium sand.	100	S4			0	0
				100	S5			0	0
				100	S6			0	0
			Trace shell fragments, discontinue interbedded sand.	100	S7			0	0
			Gray, very soft, medium plasticity, some fine sand.	100	S8		WOR to 11.0 ft.	0	0
-58.7	12.0							0	
-60.2	13.5		SILTY SAND (SM), light gray, fine grained, saturated, some silt.	27	S9			2	2

SS-161

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-161
----------------------------------	---------------------	----------------------	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

[illegible]

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS			
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83		VERTICAL MLLW			
LOCATION COORDINATES X = 1,800,466 Y = 107,007			ELEVATION TOP OF BORING -24.3 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE
-51.3	27.0						Advanced Boring			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

Boring Designation MHSPT-12-19

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Mobile Harbor AL	SHEET 1 OF 2 SHEETS
1. PROJECT Mobile Harbor Borings		9. COORDINATE SYSTEM State Plane - Alabama West		
2. HOLE NUMBER MHSPT-12-19		10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge		
3. DRILLING AGENCY Corps of Engineers - CESAS		11. MANUFACTURER'S DESIGNATION OF DRILL CME-750		
4. NAME OF DRILLER Joe Bowerman		12. TOTAL SAMPLES DISTURBED 27 UNDISTURBED 0		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES 0		
6. THICKNESS OF OVERBURDEN >40.5'		14. ELEVATION GROUND WATER See Remarks		
7. DEPTH DRILLED INTO ROCK		15. DATE BORING STARTED 9/26/20 COMPLETED 9/26/20		
8. TOTAL DEPTH OF BORING 40.5'		16. ELEVATION TOP OF BORING -20.26'		
		17. TOTAL CORE RECOVERY FOR BORING N/A		
		18. SIGNATURE AND TITLE OF INSPECTOR Michael Loveland, Geologist		

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RCD %	REMARKS	Blows/ 0.5 ft	N-Value
			CLAYEY ELASTIC SILT (MH), greenish gray, saturated, high plasticity, no dilatancy, trace fine sand, trace shells.	73	S1		USCS	0	0
				60	S2			0	0
				100	S3			0	0
				100	S4			0	0
				100	S5			0	0
				100	S6			0	0
				100	S7			0	0
				100	S8			0	0
				100	S9			0	0
				100	S10			0	0
				80	S11			0	0
			Trace silty sand (SM) seams.	80	S12			0	0
				100	S13			0	0
-41.3	21.0			53	S14			0	0
			SANDY SILT (ML), greenish gray, saturated, very soft, non plastic, trace shells.	40	S15			0	0
-44.3	24.0			20	S16			0	0
			SAND (SM), greenish gray, fine to medium grained, saturated, little silt, trace shells.	47	S17			0	0
				93	S18			1	1
			Interbedded silt.	73	S19			0	0
-48.8	28.5			53	S20			0	0
-50.3	30.0		POORLY GRADED SAND (SP), gray, poorly graded, fine to medium grained, saturated, very loose, trace silt, trace shells.	100	S21			0	0
			CLAY (CH), green and gray, moist, very soft, high plasticity, trace sp nodules.	100	S22			0	1
-52.7	32.4			100	S23			3	5
			CLAYEY ELASTIC SILT (MH), blueish green, moist, very soft to stiff, trace fine sand.					3	

DRILLING LOG (Cont Sheet)				INSTALLATION		SHEET 2			
				Mobile Harbor AL		OF 2 SHEETS			
PROJECT				COORDINATE SYSTEM		HORIZONTAL	VERTICAL		
Mobile Harbor Borings				State Plane		NAD83	MLLW		
LOCATION COORDINATES				ELEVATION TOP OF BORING					
N 105901.235 E 1800496.571				-20.26'					
ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	No. Samp	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
-55.8	35.5			73	S24			4	10
		°	SILTY SAND (SM), green with yellowish brown, fine grained, wet, low plasticity, few clay.					6	
		°						3	
		°		100	S25			3	7
		°						4	
		°	Light gray, fine grained, saturated, few silt, With trace silt (ML) blue green seams.					5	
		°						4	
		°		100	S26			4	8
		°						5	
-60.8	40.5	°		100	S27			6	12
		°						6	

35

40

BOTTOM OF BOREHOLE AT 40.5 ft

Notes:

1. Soils visually field classified in accordance with the Unified Soil Classification System.
2. N-Value: Total blows over last 1.0 foot of 1.5-foot driven interval, unless otherwise indicated, using a 1 3/8-inch ID splitspoon with 140-pound hammer falling 30 inches.
3. The CME-750 drilling rig utilizes an automatic trip hammer.
4. Undisturbed sampling with 3" by 30" Shelby tube, mechanically pushed with CME-750.
5. Component Percentages: Trace: 0 to 5%, Few: 5 to 10%, Little: 15 to 25%, Some 30 to 45%, With 50 to 100%.
6. MLLW was calculated from measuring barge deck to mud line, then subtracting barge deck to water and closest observation station tide reading.

SS-163

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-163
----------------------------------	------------------	-------------------	-------------	----------------------------------




DRILLING LOG (Cont. Sheet)						INSTALLATION Mobile District		SHEET 2 OF 3 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,799,663 Y = 105,095				ELEVATION TOP OF BORING -25.8 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-45.8	20.0	(SC) SAND, clayey, very loose, wet, gray,					Advanced Boring			
				NR			SPT Sampler		0	0
							Advanced Boring			
							SPT Sampler		0	0

Boring Designation MHSPT-11-19

DRILLING LOG		DIVISION South Atlantic Division		INSTALLATION Mobile Harbor AL		SHEET 1 OF 1 SHEETS			
1. PROJECT Mobile Harbor Borings				9. COORDINATE SYSTEM State Plane - Alabama West		HORIZONTAL NAD83			
						VERTICAL MLLW			
2. HOLE NUMBER MHSPT-11-19		LOCATION COORDINATES N 104081.253 E 1799422.912		10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge					
3. DRILLING AGENCY Corps of Engineers - CESAS				12. TOTAL SAMPLES 24		DISTURBED 24			
4. NAME OF DRILLER Joe Bowerman				13. TOTAL NUMBER CORE BOXES 0		UNDISTURBED 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---		14. ELEVATION GROUND WATER See Remarks		15. DATE BORING 9/19/20			
				STARTED 9/19/20		COMPLETED 9/19/20			
6. THICKNESS OF OVERBURDEN >34.5'				16. ELEVATION TOP OF BORING -28.6'					
7. DEPTH DRILLED INTO ROCK				17. TOTAL CORE RECOVERY FOR BORING N/A					
8. TOTAL DEPTH OF BORING 34.5'				18. SIGNATURE AND TITLE OF INSPECTOR Adam Tew, Geologist					
ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RCD %	REMARKS	Blows/ 0.5 ft	N-Value
-38.6	10.0		SANDY SILT (ML), dark gray, very soft, low plasticity, few fine sand, trace shells.	100	S1		USCS	0	0
				100	S2		hole drilled using rotary spade bit and water	0	1
				93	S3		minimal fluid return throughout drilling	0	0
				100	S4			0	0
				47	S5			0	0
				100	S6			0	0
				100	S7			0	0
-46.1	17.5		SILTY SAND (SM), light gray, fine grained, wet, very loose, some silt.	100	S8			0	0
				80	S9			2	4
				100	S10			2	3
				87	S11		SAND, light brownish gray, fine to medium grained, very loose, little silt.	0	1
				87	S12			0	1
-56.1	27.5		CLAY (CH), greenish gray, high plasticity, no dilatancy.	33	17.5			0	0
				93	S13			0	4
				47	S14			2	3
				100	S15			2	3
				100	S16		Grayish brown, trace wood.	0	2
				80	S17			2	3
				100	S18			2	3
				100	S19			2	4
				100	S20			1	3
				100	S21			2	4
-63.1	34.5		SANDY CLAY (CL), grayish brown, wet, medium plasticity, some fine to medium sand. Few fine sand.	100	S22			0	3
				100	S23			1	4
								1	
								1	
								3	

SS-165



SAM FORM 1836 AUG 2017	AFTER DRILLING		DURING DRILLING		(Continued)	Boring Designation SS-165
----------------------------------	-------------------	---	--------------------	---	-------------	----------------------------------

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,799,679 Y = 103,076			ELEVATION TOP OF BORING -32.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-46.8	14.0						Advanced Boring			
			(SC) SAND, clayey, dense, wet, gray,							
				NR			SPT Sampler		15	
									25	
									38	63
-51.3	18.5						Advanced Boring			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

SS-167

SAM FORM 1836 AUG 2017	AFTER DRILLING ▼	DURING DRILLING ▽	(Continued)	Boring Designation SS-167
----------------------------------	---------------------	----------------------	-------------	----------------------------------

Replaced in its entirety by Amendment No. W9127821B0001-0001

DRILLING LOG (Cont. Sheet)			INSTALLATION Mobile District			SHEET 2 OF 2 SHEETS				
PROJECT			COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW				
LOCATION COORDINATES X = 1,799,695 Y = 101,057			ELEVATION TOP OF BORING -36.8 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
				NR			SPT Sampler		0	
									0	
									0	
-49.8	13.0		(SC) SAND, clayey, wet, gray with layers of fat clay				Advanced Boring			
-51.3	14.5									
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

DRILLING LOG		DIVISION South Atlantic Division		INSTALLATION Mobile Harbor AL		SHEET 1 OF 1 SHEETS	
1. PROJECT Mobile Harbor Borings				9. COORDINATE SYSTEM State Plane - Alabama West		HORIZONTAL NAD83	
						VERTICAL MLLW	
2. HOLE NUMBER MHSPT-09-19		LOCATION COORDINATES N 100364.582 E 1798938.319		10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge			
3. DRILLING AGENCY Corps of Engineers - CESAS				12. TOTAL SAMPLES 21		DISTURBED 21	
						UNDISTURBED 0	
4. NAME OF DRILLER Joe Bowerman				13. TOTAL NUMBER CORE BOXES 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG FROM VERTICAL ---		BEARING	
				14. ELEVATION GROUND WATER See Remarks			
				15. DATE BORING 9/11/20		STARTED 9/11/20	
						COMPLETED 9/11/20	
6. THICKNESS OF OVERBURDEN >32'				16. ELEVATION TOP OF BORING -27.98'			
7. DEPTH DRILLED INTO ROCK				17. TOTAL CORE RECOVERY FOR BORING N/A			
8. TOTAL DEPTH OF BORING 32'				18. SIGNATURE AND TITLE OF INSPECTOR April Kelly, Geologist			

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
-35.5	7.5		SANDY SILT (ML), dark greenish gray, medium plasticity, little fine sand, trace shells.	100	S1		USCS	0	0
			87	S2	0			0	
			Organic odor.	100	S3			0	0
			100	S4	0			0	
			Some fine sand.	80	S5			0	0
-37.0	9.0		SILTY SAND (SM), dark gray, fine grained, little silt, trace shells.	100	S6			0	0
			SILTY SAND (SP-SM), dark gray, few silt, trace shells.	60	S7			0	1
				73	S8			1	3
			100	S9	1			3	
			53	S10	1			2	
			33	S11	0			0	
					0			0	
-44.5	16.5		SANDY SILT (ML), dark blueish gray, medium plasticity, few fine sand, trace shells.	100	S12			1	2
-46.0	18.0				1			2	
			ELASTIC SILT (MH), high plasticity, trace wood, trace fine sand.	33	S13			3	4
			100	S14	2			3	
			100	S15	0			0	
			100	S16	1			2	
			100	S17	1			3	
			80	S18	2			4	
			20	S20	2			5	
-54.2	26.2		SANDY PEAT (OL), dark gray and dark brown, little fine sand, little wood.	100	S21			2	4
-56.5	28.5				1			3	
			ELASTIC SILT (MH), dark grayish green, high plasticity, trace wood, trace fine sand.	100	S22			1	4
					2			5	
					3			5	
-60.0	32.0		BOTTOM OF BOREHOLE AT 32.0 ft						

DRILLING LOG		DIVISION South Atlantic Division		INSTALLATION Mobile Harbor AL		SHEET 1 OF 1 SHEETS	
1. PROJECT Mobile Harbor Borings				9. COORDINATE SYSTEM State Plane - Alabama West		HORIZONTAL : VERTICAL NAD83 : MLLW	
2. HOLE NUMBER MHSPT-10-19		LOCATION COORDINATES N 101921.727 E 1799799.836		10. SIZE AND TYPE OF BIT 4" Fishtail Upward Discharge			
3. DRILLING AGENCY Corps of Engineers - CESAS				12. TOTAL SAMPLES 11		DISTURBED : UNDISTURBED 11 : 0	
4. NAME OF DRILLER Joe Bowerman				13. TOTAL NUMBER CORE BOXES 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---		BEARING		14. ELEVATION GROUND WATER See Remarks	
6. THICKNESS OF OVERBURDEN >16.5'				15. DATE BORING 9/12/20		STARTED : COMPLETED 9/12/20 : 9/12/20	
7. DEPTH DRILLED INTO ROCK				16. ELEVATION TOP OF BORING -41.65'			
8. TOTAL DEPTH OF BORING 16.5'				17. TOTAL CORE RECOVERY FOR BORING N/A			
				18. SIGNATURE AND TITLE OF INSPECTOR April Kelly, Geologist			

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			SANDY SILT (ML), dark gray, low plasticity, little fine sand, trace shells.	33	S1		USCS	0	0
			Trace fine sand, no shells.	87	S2			0	0
				47	S3			0	0
-47.7	6.0			100	S4			0	0
-49.2	7.5		SILTY SAND (SM), dark gray, fine grained, few silt.	47	S5			2	0
			SANDY SILT (ML), dark gray, medium plasticity, few fine sand.	100	S6			0	0
				100	S7			0	0
			Trace wood.	100	S8			0	0
			Low plasticity, some fine sand.	100	S9			1	3
			Dark gray and dark brown, few fine sand, few wood.	100	S10			2	3
-56.7	15.0			100	S11			1	3
-57.7	16.0		ELASTIC SILT (MH), dark grayish green, high plasticity, trace wood, trace fine sand.	100				0	4



BOTTOM OF BOREHOLE AT 16.5 ft

Notes:

1. Soils visually field classified in accordance with the Unified Soil Classification System.
2. N-Value: Total blows over last 1.0 foot of 1.5-foot driven interval, unless otherwise indicated, using a 1 3/8-inch ID splitspoon with 140-pound hammer falling 30 inches.
3. The CME-750 drilling rig utilizes an automatic trip hammer.
4. Undisturbed sampling with 3" by 30" Shelby tube, mechanically pushed with CME-750.
5. Component Percentages: Trace: 0 to 5%, Few: 5 to 10%, Little: 15 to 25%, Some 30 to 45%, With 50 to 100%.
6. MLLW was calculated from measuring barge deck to mud line, then subtracting barge deck to water and closest observation station tide reading.

SS-169

SAM FORM 1836 AUG 2017	AFTER DRILLING	DURING DRILLING	(Continued)	Boring Designation SS-169
----------------------------------	---	--	-------------	----------------------------------

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District		SHEET 2 OF 3 SHEETS				
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 1,798,892 Y = 99,144				ELEVATION TOP OF BORING -28.8 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/ 0.5 FT.	N-VALUE
							Advanced Boring			
-43.8	15.0			NR			SPT Sampler		0	
			(SC) SAND, clayey, wet, gray,				Advanced Boring			
-51.2	22.4									
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x			

DRILLING LOG (Cont. Sheet)				INSTALLATION Mobile District				SHEET 3 OF 3 SHEETS		
PROJECT				COORDINATE SYSTEM/DATUM State Plane - Alabama West - U.S. Survey Ft.			HORIZONTAL NAD83	VERTICAL MLLW		
LOCATION COORDINATES X = 1,798,892 Y = 99,144				ELEVATION TOP OF BORING -28.8 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	ADVANCEMENT METHOD	DRILLING REMARKS	BLOWS/0.5 FT.	N-VALUE
			Classification System.				2" O.D.).			
										24
										25
										26
										27
										28
										29
										30
										31
										32
										33
										34
										35
										36
										37