



Department of Property & Procurement

Government of the United States Virgin Islands

3274 ESTATE RICHMOND, CHRISTIANSTED, U. S. VIRGIN ISLANDS 00820

8201 SUB BASE, 3RD FLOOR, ST. THOMAS, U. S. VIRGIN ISLANDS 00802

ST. CROIX MAIN OFFICE: 340.773.1561 | ST. THOMAS MAIN OFFICE: 340.774.0828

ST. CROIX FAX: 340.773.0986 | ST. THOMAS FAX: 340.774.9587

HTTP://DPP.VI.GOV



July 26, 2021

AMENDMENT SIX (6) RFP-017-C-2021(P) – Design-Build Services for Arthur Richards PK-8 New Build, St. Croix, U.S. Virgin Islands

INSERT QUESTIONS AND ANSWERS

Q1 Can you please confirm if a geotechnical report for the site was completed? If so, may you please provide this report.

A1 A geotechnical report was completed for the site. Please see attached. The selected firm/team will be responsible to conduct and rely on its own investigation.

Q2 May the VIDE please provide a survey plan with contours lines and spot elevations of the existing site.

A2 Please see attached for the survey documents for the Evelyn M. Williams/Arthur A. Richards site. A CAD file is also available upon request and will be sent via email to interested bidders. Please send requests to dynell.williams@dpp.vi.gov.

Q3 May the VIDE please confirm the location and provide the site address for the new Arthur Richards PK-8.

A3 The new Arthur A. Richards PreK-8 School will be located on the site of the existing Evelyn M. Williams School. It is Plot No. 13-A Estate Mt. Pleasant, Prince Quarter, St. Croix, USVI.

Q4 May you also confirm how many buildings of the proposed Arthur Richards PK-8 will be used as a hurricane shelter.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

BIDDERS MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT WITH THEIR BID PROPOSAL.

A4 One building on site will be used as a hurricane shelter—the Gymnasium building is the designated FEMA Shelter for the campus. Please note, the attached Utility building, designed to support the Gymnasium in the event of an emergency, must meet the same shelter safety requirements as the Gymnasium.

Q5 May you please provide desired start date for the new Arthur Richards PK-8.

A5 The desired start date for the design-build contract is November 1, 2021, subject to funding availability (FEMA funds).

Q6 On the Mandatory List of Required Documents provided, which documents, if any, are required at the time of proposal submission?

A6 Please refer to Section K of the RFP for all documents that are required during the time of submission.

Q7 When is the anticipated date for the Notice of Award?

A7 A Notice of Award will be issued to a selected firm once the evaluation process is completed.

Q8 When is the anticipated date for the Notice to Proceed?

A8 A Notice to Proceed will be issued to the selected firm upon execution of the contract.

Q9 Per the language of the narrative in Attachment A (on page 1), a Net Zero school is referenced. Will Net Zero be required for the Arthur Richards PK-8 School?

A9 The Arthur A. Richards campus, in exception for the gymnasium, is designed to be net zero ready. The gymnasium, as the shelter, will be net zero-off the grid. Interior partitions have been designed to support conditioning requirements for a net zero ready design.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

BIDDERS MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT WITH THEIR BID PROPOSAL.

PRELIMINARY GEOTECHNICAL REPORT

Date: February 9, 2021
Job no.: 8176
Client: Mr. Lloyd F. Ramsey, DLR Group
Project: VIDE Arthur Richards School (Old Evelyn Williams School), St. Croix,
USVI
Coordinates: 17°42'29" N, 64°48'52" W

1.0 INTRODUCTION:

The present preliminary report covers the results of the geotechnical exploration performed for the above referenced project. This project is part of the Virgin Islands Department of Education (VIDE) educational facility master plan, which for this site consists of a new construction project at the existing school facilities. Figure 1 in Appendix A presents a satellite image showing the site location.

Jaca & Sierra Engineering, PSC was contracted by *DLR Group* to conduct site investigations and prepare preliminary geotechnical recommendations for the project. The exploration program was directed to obtain subsurface soil information to be utilized in our engineering evaluation and in the formulation of pertinent recommendations for the intended structure foundation system. This report has been prepared exclusively for design purposes for this particular project.

2.0 FIELD AND LABORATORY WORK:

The field exploration consisted of drilling a total of nine (9) test borings, six (6) around existing structures and the other three (3) along parking areas. Borings were drilled to depths of 10 and 30 feet Beneath Existing Ground Surface (BEGS). Refer to the boring location satellite image in Appendix A Figure 1.

Subsurface drilling was executed by means of the power auger method as per ASTM D1452 using a CME-55 trailer-mounted drill rig to drive a 2.25-inch Internal Diameter (ID) helical hollow-stem auger into the ground. In-situ testing and soil sampling were achieved by means of the Standard Penetration Test (SPT) using automatic hammer and split-spoon sampler method according to ASTM D1586. The soil samples were secured in jars and transported to our laboratory for visual-manual description (ASTM D2488) and moisture content determination (ASTM D2216). Unconfined compressive strength (ASTM D2166, spring test) and soil classification (ASTM D6913 for sieve analysis and ASTM D4318 for Atterberg limits) tests were performed in selected samples.

The field and laboratory information were gathered to prepare boring logs, which reveal the stratigraphy and soil properties at the locations of the borings. Boring logs and soil classification tests results are included in Appendices B and C, respectively.

3.0 SUBSOIL GENERALIZED CONDITIONS:

3.1 Site Geology:

According to the geologic map of the St. Croix island, the explored area falls within a geologic zone that corresponds to *Kingshill Marl (Mkh)*. Figure 2 in Appendix A shows a portion of the geologic map and the approximate site location.

3.2 Soil Stratigraphy:

The stratigraphy at the locations of the borings is characterized by an occurring upper 2 to 9 feet thick layer of man-made fill material underlain by native soils from the aforementioned marl formation extending to the end of boreholes at 10 and 30 feet depth BEGS. Each stratum is described as follows:

- **Stratum no. 1** – Man-Made Fill (borings no. 1 to 3, 5, 6 and 8)

The upper man-made fill material is composed mostly of silty clay and sandy clay with variable amounts of gravel. SPT-N values recorded are varying from 6

to above 100 (refusal blow counts) blows/ft, but mainly below 12 blows/ft. Higher N values are chiefly related to the presence of gravel and not necessarily represent a dense or stiff soil material. Moisture contents measured are from 18 to 31 %.

- **Stratum no. 2** – Marl Formation (borings no. 1 to 9)

Natural marly soils are comprised of silty clay, sandy clay, sandy silt and silty sand with occurring gravel scattered at different depths. SPT-N values registered are ranging from 5 to above 100 blows/ft for medium stiff to very stiff consistencies and medium dense to very dense relative densities. Moisture contents obtained are from 10 to 71 %.

The above information corresponds to a general interpretation of the subsoil conditions of the explored area. For more detailed description at specific locations, refer to the enclosed boring logs in Appendix B.

3.3 Groundwater Level:

There was no evidence of the presence of groundwater level within the depths drilled. However, perched water might be found trapped within the existing fill deposits. The groundwater data is based on observations made at the time of our fieldwork.

4.0 RESULTS AND PRELIMINARY RECOMMENDATIONS:

Based on information provided by the client, a new construction project of approximately 140,000 ft² is planned within the existing school facilities. Project information such as proposed structures locations and dimensions, structural loads and grading was not available at the moment of preparation of this report. Therefore, the geotechnical recommendations in this report are preliminary. It is understood that this report will be included in the bridging documents for a future design-build project.

The geotechnical investigation uncovered 2 to 9 feet of man-made fill followed by native medium stiff to very stiff and medium dense to very dense marly soils. Based on the present subsoil conditions, it is our opinion that new structures can be designed over conventional shallow foundation system provided that site preparation is performed as recommended in this report.

4.1 Shallow Foundation Design:

4.1.1 Shallow Footings:

The shallow foundation system can consist of isolated spread footings or continuous strip footings. Shallow footings shall be designed for a net allowable bearing capacity (q_a) of 2,500 psf. The base of the footings shall be lowered to a minimum depth of 3 feet below adjoining final grade or that depth required by design, whichever is greater. The soil unit weight (γ) for uplift calculations shall be assumed to be 110 pcf. To mitigate localized shear failure, the minimum footing width size shall be 3 feet for isolated footings and 2.5 feet for continuous footings.

4.1.2 Mat Foundations:

Shallow foundations can also consist of mat foundations. Mats shall be designed considering a net allowable bearing capacity (q_a) of 2,500 psf and a modulus of subgrade reaction (k) of 100 psi/in. A vertical peripheral apron of at least 1.5 feet shall be extended below adjoining final grade. In order to provide uniform foundation pads, mats shall be placed over a minimum 2 feet thick layer of new fill material properly placed and compacted following the “Fill Placement Guidelines” provided in subsection below. The new fill material layer shall be extended a minimum horizontal distance of 3 feet beyond the perimeter of the structure, where possible. Design shall include polyethylene moisture barriers below the mats.

4.2 Seismic Site Classification:

Based on our evaluation of the test borings completed and our knowledge of the site geological conditions, it is our opinion that the seismic site classification as per ASCE 7-16 is Site Class D, which corresponds to a stiff soil profile. The design spectral acceleration parameter at short period (S_{Ds}) is 0.653 g. For the design spectral acceleration parameter at 1 second period (S_{D1}), note that ASCE 7-16 Section 11.4.8 states that structures on Site Classes D and E with mapped maximum considered earthquake spectral response acceleration parameter at 1 second period (S_1) greater than or equal to 0.200 g will require a site-specific ground motion hazard analysis. The parameter S_1 at the project site is 0.307 g. Exceptions to this requirement could apply and shall be evaluated by the structural design engineer. The Peak Ground Acceleration (PGA) at the project site is 0.358 g.

4.3 Earth Retaining Structures:

Any retaining wall system required within the project site area may consist of Mechanically Stabilized Earth (MSE) walls, concrete cantilever walls or any other types of gravity walls. The lateral earth pressure parameters will depend on many factors including the type of soil used as backfill and the equipment used to perform the compaction procedures. Our suggested soil parameters for earth pressure calculations and design assuming new A-2-4 soil material (AASHTO) as backfill are the following:

- Cohesion (c) = 0 psf,
- Angle of internal friction (ϕ) = 32°,
- Moist unit weight (γ) = 135 pcf,
- Active coefficient of lateral earth pressure (K_a) = 0.31,
- At-rest coefficient of lateral earth pressure (K_0) = 0.47,
- Passive coefficient of lateral earth pressure (K_p) = 3.26.

The provided lateral earth pressure coefficients do not consider sloping backfill nor surcharge. All yielding retaining walls shall be designed using active lateral earth pressures.

Meanwhile, at-rest lateral earth pressures shall be used for unyielding walls such as in underground basements, cisterns, or any similar substructures that will be rigid. For MSE walls, we should be provided with details of elevations and locations in order to provide soil parameters for the corresponding retained soil, if different from new fill material.

Footings shall be designed following the “Shallow Foundation Design” subsection presented above. Base shear coefficient of friction (μ) is estimated to be 0.30.

In order to collect any water infiltrating into the backfill and drain any migrating or perched bodies of water, an underground drainage system shall be installed at the bottom of the inner face of the walls. The underground drainage may consist of a minimum 4-inch diameter perforated drain pipe covered with clean crushed rock (free draining soil). The perforated pipe and crushed rock should be wrapped or enclosed within a permeable non-woven geotextile (Mirafi 140N or equivalent). The drainage system shall drain by gravity to daylight at suitable location or should be connected to the storm sewer system. In addition, weep holes may be necessary in concrete walls as part of the drainage.

4.4 Grading and Drainage:

Grading shall provide for positive drainage to direct runoff away from the structures and its foundations. No roof downspouts should be allowed. All roof and surface drainage should be diverted away at suitable location. This is necessary to prevent localized water infiltrations that may trigger migration of fines and related ground subsidence.

4.5 Parking Lots and Access Roads:

The California Bearing Ratio (CBR) value for in-situ subgrade after site preparation is estimated to be 5 for asphalt and/or concrete pavement design. In the event of 2 feet or more of new fill material as subgrade, the design can assume a CBR value of 20. For concrete pavement, a modulus of subgrade reaction (k) of 150 psi/in shall be considered for in-situ subgrade after

site preparation and 250 psi/in for new fill subgrade. New pavement layers and thicknesses shall be based on designed pavement section.

We recommend the performance of field CBR or Dynamic Cone Penetrometer (DCP) tests over the prepared subgrade prior to pavement construction in order to confirm the CBR values used in design. CBR or DCP tests should be conducted following ASTM D4429 or ASTM D6951, respectively. The quantity and location of the tests should be coordinated with the consultant geotechnical engineer.

4.6 Site Preparation:

Site preparation for new structures and paved areas shall consist of clearing and grubbing, which includes removal of vegetation, topsoil, roots and foreign debris within the upper 6 to 24 inches of subsoil. This clearing and grubbing procedure shall be extended a minimum horizontal distance of 3 feet beyond the perimeter of new structures, where possible.

After clearing and grubbing, the exposed grade shall be roller compacted and then proof rolled with loaded truck for detection of weak spots. Any weak spots encountered have to be excavated and replaced with new fill material.

Site preparation works shall be coordinated with the consultant geotechnical engineer to monitor earthwork in progress and to direct any required variations on the provided recommendations, if deemed necessary. Different subsoil conditions may be found within the project site area, especially in unexplored zones between and beyond boring locations. Therefore, the final extensions of site preparation will be determined on field during earthwork operations. A geotechnical engineering technician is recommended to monitor proper implementation of these measures.

4.7 Excavations:

It is our opinion that excavations through existing fill material and shallow natural soils can be performed with common excavation equipment. Any existing abandoned underground

utilities, substructures, foreign debris, and/or other unsuitable material encountered during excavations shall be completely removed and replaced with new fill material. Any active underground utilities within the footprint of new structures shall be relocated.

All excavations shall be maintained in a dry state. Runoff shall be diverted away from open excavations. Water stagnation shall be avoided as this may deteriorate the soil bearing capacity. Therefore, excavations and foundation construction shall be conducted continuously, without a considerable pause between both tasks.

Groundwater is not expected to be of concern during excavations and construction of foundations. However, if perched water is found, it should be managed by means of direct pumping.

The project contractor is responsible for providing safe excavation environment for working personnel in accordance to pertinent OSHA regulations at the time of construction. The contractor should also ensure that his methods and/or protection system safeguard adjacent structures or substructures against potential damages during construction.

4.8 Fill Placement Guidelines:

A controlled fill construction procedure shall be performed wherever new fill material is required. The fill placement guidelines are the following:

1. The area of the proposed fill placement shall be cleared of vegetation, topsoil, roots, foreign debris and organic matter. The exposed grade, prior to placement of fill, shall be compacted and then proof rolled to detect weak spots. Any weak spots encountered have to be excavated and replaced with new fill material.
2. The fill soil material shall consist of well-graded granular fill complying with A-2-4, A-1-b or A-1-a soil classification as per AASHTO. The consultant geotechnical engineer should approve this soil material. Boulders within fill for structures should be discarded. Maximum coarse aggregate size should be 6 inches. Fill material shall be well-graded and should not consist of just gravel,

crushed stone or poorly graded sand. In-situ excavated soils can be reused for new fill if those materials are in compliance with these requirements.

3. The fill material shall be placed in layers not exceeding 8 inches of thickness, as measured before compaction, on a surface free of water. Fill layer lifts shall be reduced to 6 to 4 inches when using portable compaction equipment such as walk-behind roller, plate or tamper. Each layer shall be compacted to a minimum of 95 % based on its maximum dry density determined from a modified Proctor compaction test following ASTM D1557.
4. A geotechnical engineering technician shall be present to take in-place density tests on the newly-placed fill material and to monitor proper implementation of these measures.

5.0 ADDITIONAL COMMENTS:

It is recommended that this submitted preliminary geotechnical report be carefully studied and evaluated to coordinate those pertinent meetings during the project design stage to discuss the various considered concepts and to clarify or include any other pertinent geotechnical recommendations in the final geotechnical report. This preliminary geotechnical report is intended for preliminary design. A final geotechnical study shall be performed for final design. The final study will require additional geotechnical borings, especially within the footprint of the proposed structures at its final locations. The final report will confirm the preliminary geotechnical recommendations or adjust based on final findings, if deemed necessary.

The word “shall” in this report is considered a mandatory obligation and synonymous with the phrase “has a duty to”.



We wish to thank you for the opportunity of submitting this preliminary geotechnical engineering report and remain,

Cordially yours,

JACA & SIERRA ENGINEERING, PSC

A handwritten signature in blue ink, appearing to read 'R. Aponte', is centered below the company name.

Rommel Cintrón Aponte, MSCE, PE

Enclosures

Appendix A: Figures

Appendix B: Boring Logs

Appendix C: Soil Classification Tests

Appendix A:

Figures



Figure 1: Site and boring locations in Google Earth satellite image (imagery date: 3/29/2020)

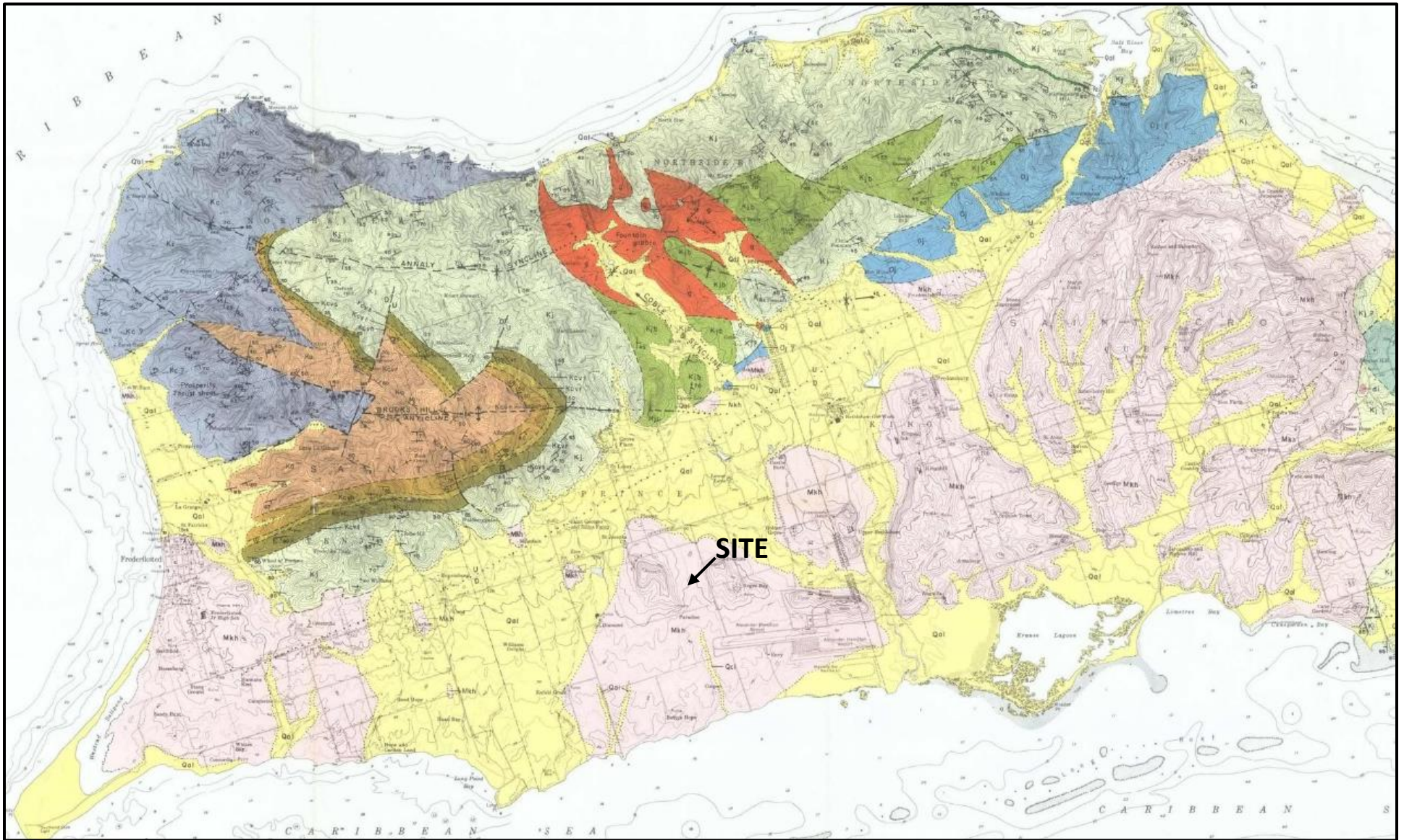


Figure 2: Site location in geologic map (Whetten, J.T., 1966, "Geology of St. Croix, U.S. Virgin Islands", Geological Society of America, Caribbean Geological Investigations, Memoir 98)

Appendix B:

Boring Logs

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 1

DRILLING LOG	PROJECT	JOB	SHEET
	VIDE AR School (Old EW School)	8176	1

LOCATION	St. Croix, USVI	DRILLER/DRILL RIG	J.C. Calderon / CME-55
-----------------	-----------------	--------------------------	------------------------

COORDINATES	DATE	Started 1-12-21	Completed 1-12-21
--------------------	-------------	-----------------	-------------------

DESCRIPTION	Manuel Porrata	TOP ELEVATION (FT)	
--------------------	----------------	---------------------------	--

GROUNDWATER (FT)	Initial Not Found	Final	
-------------------------	-------------------	-------	--

DRILLING METHOD	Hollow-Stem Auger 2.25" ID	ENGINEER	Rommel Cintron
------------------------	----------------------------	-----------------	----------------

FINAL DEPTH (FT)	30.5
-------------------------	------

Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	Qu 1	Qu 2	Qu 3	Qu 4
0.00	0	FILL: silty sand some clay, pale yellow			3	12	18					
		FILL: silty clay some sand, dark brown, pale yellow			5	7	20					
					7							
-1.22	4	SILTY SAND some clay, loose, pale yellow, brownish yellow			3	7	13					
					3							
					4							
	5	Same as above... medium dense, yellowish white			2	6	16					
					2							
					4							
	10				15	27	17					
					14							
					13							
-4.27	14	SILTY CLAY trace sand, stiff, light yellowish brown, light brown			5	13	36					
					6							
					7							
-5.79	19	SILTY SAND some gravel, dense, yellowish brown			16	42	12					
					21							
					21							
-7.32	24	SILTY CLAY some sand, stiff, light yellowish brown			3	9	26					
					4							
					5							
-8.84	29	SANDY SILT some clay, very stiff, pale yellow, light brownish yellow			8	19	71					
					8							
					11							
	30	End of Boring										

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.
 "W" - Natural moisture content in percentage of dry weight.
 "Qu" - Unconfined compressive strength in tons per square foot.
 "Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.
 "WH" - Sample was recovered by advancing the sampler with the weight of the hammer.
 "P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 2

DRILLING LOG	PROJECT	JOB	SHEET
	VIDE AR School (Old EW School)	8176	1
LOCATION	St. Croix, USVI	DRILLER/DRILL RIG	J.C. Calderon / CME-55
COORDINATES		DATE	Started 1-12-21 Completed 1-12-21
DESCRIPTION	Manuel Porrata	TOP ELEVATION (FT)	
GROUNDWATER (FT)	Initial Not Found Final	ENGINEER	Rommel Cintron
DRILLING METHOD	Hollow-Stem Auger 2.25" ID	FINAL DEPTH (FT)	30.5

Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	Qu	N	W	Qu
0.00	0	FILL: silty clay some sand, dark brown			3	8	21					
-0.61	2				4							
					4							
		SANDY SILT trace clay, stiff, light brownish yellow, pale yellow			3	10	20					
					5							
-1.22	4				5							
		SILTY SAND some clay, medium dense, yellowish white			14	19	14					
	5				11							
					8							
					4	12	10					
					5							
					7							
	10				12	26	28					
					14							
					12							
	15	Same as above... very dense			21	50/	33					
					33	5"						
					50/5"							
-5.79	19				6	15	40	1.8				
		SILTY CLAY trace sand, very stiff, olive brown, brownish gray, light brown			6							
	20				9							
					9	27	22	3.7				
	25				14							
					13							
	30				8	22	68					
					8							
					14							
		End of Boring										

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.

"W" - Natural moisture content in percentage of dry weight.

"Qu" - Unconfined compressive strength in tons per square foot.

"Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.

"WH" - Sample was recovered by advancing the sampler with the weight of the hammer.

"P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 3

DRILLING LOG		PROJECT				JOB		SHEET	
		VIDE AR School (Old EW School)				8176		1	
LOCATION		St. Croix, USVI				DRILLER/DRILL RIG		J.C. Calderon / CME-55	
COORDINATES						DATE		Started 1-12-21 Completed 1-12-21	
DESCRIPTION		Manuel Porrata				TOP ELEVATION (FT)			
GROUNDWATER (FT)		Initial Not Found Final				ENGINEER		Rommel Cintron	
DRILLING METHOD		Hollow-Stem Auger 2.25" ID				FINAL DEPTH (FT)		30.5	
Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	<div> <div> <div>○ N</div> <div>□ W</div> <div>△ Qu</div> </div> <div> <div>Qu 1</div> <div>2</div> <div>3</div> <div>4</div> </div> <div> <div>N-W 20</div> <div>40</div> <div>60</div> <div>80</div> </div> </div>
0.00	0	FILL: silty clay with gravel, dark brown			5	6	27		
					2				
					4				
					5	40 / 3"	28		
					40 / 3"				
-1.22	4	SANDY SILT some clay, medium stiff to stiff, pale yellow, light brownish yellow			2	6	31		
					2				
					4				
					3	9	27		
					4				
					5				
-2.74	9	SILTY SAND some gravel, medium dense, dark olive brown, dark yellowish brown			8	18	18		
					8				
					10				
-4.27	14	SILTY CLAY some sand, stiff to very stiff, yellowish white, very light brown, brownish gray			7	18	22		
					8				
					10				
					5	16	32	1.8	
					6				
					10				
					4	14	34		
					5				
					9				
					7	18	27	2.1	
					8				
					10				
	30	End of Boring							

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.

"W" - Natural moisture content in percentage of dry weight.

Initial groundwater level depth.

"Qu" - Unconfined compressive strength in tons per square foot.

Final groundwater level depth.

"Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.

"WH" - Sample was recovered by advancing the sampler with the weight of the hammer.

"P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 4

DRILLING LOG		PROJECT				JOB		SHEET	
		VIDE AR School (Old EW School)				8176		1	
LOCATION		St. Croix, USVI				DRILLER/DRILL RIG		J.C. Calderon / CME-55	
COORDINATES						DATE		Started 1-12-21 Completed 1-12-21	
DESCRIPTION		Manuel Porrata				TOP ELEVATION (FT)			
GROUNDWATER (FT)		Initial Not Found Final				ENGINEER		Rommel Cintron	
DRILLING METHOD		Hollow-Stem Auger 2.25" ID				FINAL DEPTH (FT)		30.5	
Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	<div> <div>○ N □ W △ Qu</div> <div>Qu 1 2 3 4</div> <div>N-W 20 40 60 80</div> </div>
0.00	0	SANDY CLAY, stiff, light brownish yellow, pale yellow			3	12	19		
					4				
					8				
					5	11	21		
					5				
					6				
-1.22	5	SILTY CLAY some sand, stiff, light brown			5	13	20		
					6				
					7				
-1.83		SITLY SAND some clay, medium dense, pale yellow, yellowish white			10	27	13		
					12				
					15				
	10				12	31	13		
					16				
					15				
-4.27	15	SANDY SILT some clay, very stiff to hard, light yellowish brown, light olive brown			6	20	26		
					10				
					10				
	20				7	21	28		
					9				
					12				
	25				5	51	20		
					20				
					31				
	30				12	36	45		
					15				
					21				
		End of Boring							

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.

"W" - Natural moisture content in percentage of dry weight.

Initial groundwater level depth.

"Qu" - Unconfined compressive strength in tons per square foot.

Final groundwater level depth.

"Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.

"WH" - Sample was recovered by advancing the sampler with the weight of the hammer.

"P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 5

DRILLING LOG	PROJECT	JOB	SHEET
	VIDE AR School (Old EW School)	8176	1
			OF
			1

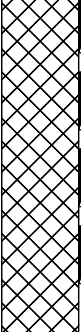

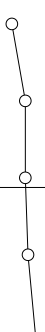
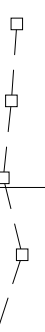




















LOCATION	St. Croix, USVI	DRILLER/DRILL RIG	J.C. Calderon / CME-55
-----------------	-----------------	--------------------------	------------------------

COORDINATES		DATE	Started 1-13-21 Completed 1-13-21
--------------------	--	-------------	---

DESCRIPTION	Manuel Porrata	TOP ELEVATION (FT)	
--------------------	----------------	---------------------------	--

GROUNDWATER (FT)	Initial Not Found Final	ENGINEER	Rommel Cintron
-------------------------	---------------------------------------	-----------------	----------------

DRILLING METHOD	Hollow-Stem Auger 2.25" ID	FINAL DEPTH (FT)	30.5
------------------------	----------------------------	-------------------------	------

										Soil Test Results (SPT, W, Qu)												
Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	Soil Test Results (SPT, W, Qu)													
									○ N	□ W	△ Qu	Qu										
									1	2	3	4										
									N-W	20	40	60	80									
0.00	0	FILL: sandy clay, dark brown, light grayish brown, olive brown			5	6	29															
	3																					
	3																					
	4																					
	5																					
	5																					
	6																					
	4																					
	5																					
	5																					
	6																					
	5																					
	5																					
	6																					
	5																					
	5																					
	7																					
-2.74	9	SILTY CLAY some sand and gravel, very stiff, light olive brown, yellowish brown			5	16	17															
	6																					
	10																					
	10																					
	15	Same as above... some sand, stiff to very stiff, light olive brown, brownish yellow, white			6	14	45															
	7																					
	7																					
	15																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					
	20																					

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.

"W" - Natural moisture content in percentage of dry weight.

"Qu" - Unconfined compressive strength in tons per square foot.

"Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.

"WH" - Sample was recovered by advancing the sampler with the weight of the hammer.

"P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 6

DRILLING LOG	PROJECT VIDE AR School (Old EW School)	JOB 8176	SHEET 1 OF 1
---------------------	---	-----------------	-------------------------------

LOCATION St. Croix, USVI	DRILLER/DRILL RIG J.C. Calderon / CME-55
---------------------------------	---

COORDINATES	DATE Started 1-13-21 Completed 1-13-21
--------------------	---

DESCRIPTION Manuel Porrata	TOP ELEVATION (FT)
-----------------------------------	---------------------------

GROUNDWATER (FT) Initial Not Found Final	ENGINEER Rommel Cintron
---	--------------------------------

DRILLING METHOD Hollow-Stem Auger 2.25" ID	FINAL DEPTH (FT) 30.5
---	------------------------------

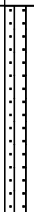

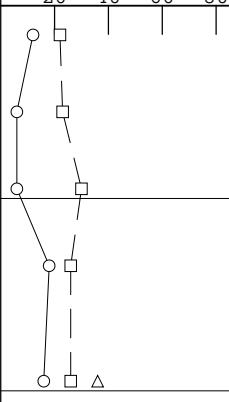
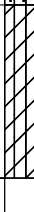











Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	Qu	N	W	Qu
0.00	0	FILL: silty clay trace sand, brownish gray, yellowish brown, light brown			13	8	19					
-0.61	2	SILTY CLAY trace sand, stiff, brownish gray, yellowish brown, light brown			4 4 4	14	22					
	5				5 6 8	10	38					
	10				3 5 5	10	34					
	14				3 5 5	11	27					
-4.27	15	SILTY SAND with gravel, very dense, olive brown			4 5 6	56	11					
	20	SILTY CLAY trace sand, very stiff, light yellowish brown, light olive brown, grayish brown			15 27 29	26	61					
-5.79	25	Same as above... some sand			11 13 13	27	29					
	30	End of Boring			7 7 20	28	33					
					5 6 22							

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.
 "W" - Natural moisture content in percentage of dry weight.
 "Qu" - Unconfined compressive strength in tons per square foot.
 "Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.
 "WH" - Sample was recovered by advancing the sampler with the weight of the hammer.
 "P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 7

DRILLING LOG	PROJECT VIDE AR School (Old EW School)	JOB 8176	SHEET 1 OF 1
LOCATION	St. Croix, USVI		
COORDINATES	DATE Started 1-14-21 Completed 1-14-21		
DESCRIPTION	Manuel Porrata		
GROUNDWATER (FT)	Initial Not Found Final		
DRILLING METHOD	Hollow-Stem Auger 2.25" ID		
	FINAL DEPTH (FT) 10.5		

Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	<div> <div>○ N □ W △ Qu</div> <div>Qu 1 2 3 4</div> <div>N-W 20 40 60 80</div> </div>
0.00	0	SANDY SILT some clay, medium stiff to stiff, pale yellow, light brownish yellow			9	12	22		
					7				
					5				
					3	6	23		
					3				
					3				
	5	SILTY CLAY some sand, very stiff, yellowish brown, light brown, brownish gray			3	6	30		
					3				
					3				
					7	18	26		
					8				
					10				
-1.83	10	End of Boring			6	16	26	1.8	
					7				
					9				
	15	End of Boring							
	20	End of Boring							
	25	End of Boring							
	30	End of Boring							

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.
 "W" - Natural moisture content in percentage of dry weight.
 "Qu" - Unconfined compressive strength in tons per square foot.
 "Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.
 "WH" - Sample was recovered by advancing the sampler with the weight of the hammer.
 "P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 8

DRILLING LOG	PROJECT	JOB	SHEET
	VIDE AR School (Old EW School)	8176	1
LOCATION	St. Croix, USVI	DRILLER/DRILL RIG	J.C. Calderon / CME-55
COORDINATES		DATE	Started 1-13-21 Completed 1-13-21
DESCRIPTION	Manuel Porrata	TOP ELEVATION (FT)	
GROUNDWATER (FT)	Initial Not Found Final	ENGINEER	Rommel Cintron
DRILLING METHOD	Hollow-Stem Auger 2.25" ID	FINAL DEPTH (FT)	10.5

Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	Qu	N	W	Qu
									1	2	3	4
0.00	0	FILL: sandy clay trace gravel, stiff, whitish brown, olive brown			13	12	19		20	40	60	80
-0.61	2	SANDY SILT some clay, medium stiff to stiff, pale yellow, light olive brown, light yellowish brown			6	9	23					
	5				6	6	23					
					3	6	23					
					3	9	31					
					3							
					4							
					5							
-2.74	9	SILTY CLAY trace sand, stiff, olive brown, white			7	16	33					
	10				8							
					8							
		End of Boring										
	15											
	20											
	25											
	30											



"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.
 "W" - Natural moisture content in percentage of dry weight.
 "Qu" - Unconfined compressive strength in tons per square foot.
 "Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.
 "WH" - Sample was recovered by advancing the sampler with the weight of the hammer.
 "P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NUMBER: 9

DRILLING LOG	PROJECT VIDE AR School (Old EW School)	JOB 8176	SHEET 1 OF 1
LOCATION	St. Croix, USVI		
COORDINATES	DRILLER/DRILL RIG J.C. Calderon / CME-55		
DESCRIPTION Manuel Porrata	DATE Started 1-14-21 Completed 1-14-21		
GROUNDWATER (FT) Initial Not Found Final	TOP ELEVATION (FT)		
DRILLING METHOD Hollow-Stem Auger 2.25" ID	ENGINEER Rommel Cintron		
	FINAL DEPTH (FT) 10.5		

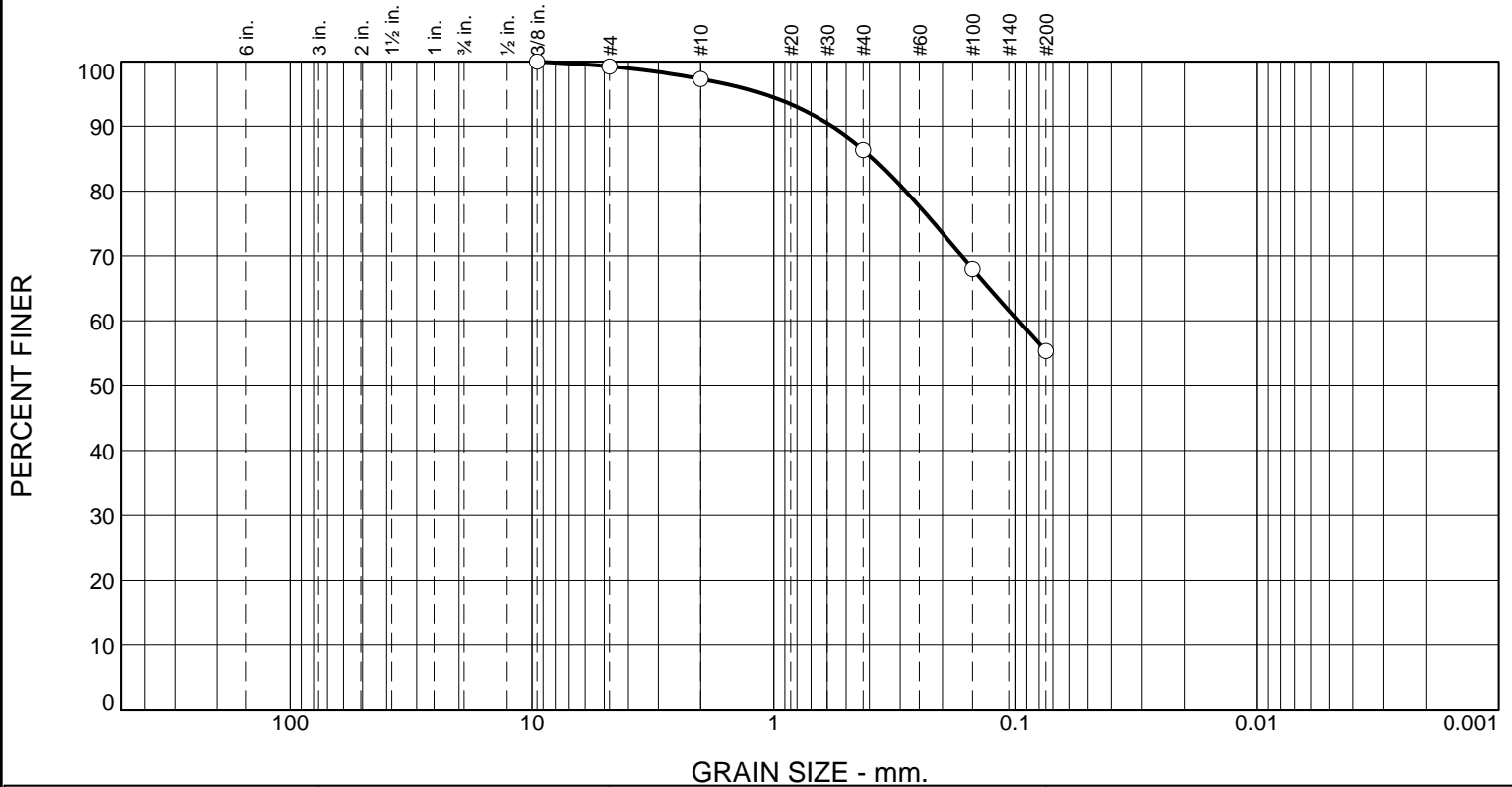
Elev. (m)	Depth (ft)	Description	Legend	Sample	Blows	SPT N	W	Qu	<div> <div> ○ N □ W △ Qu </div> <div> Qu 1 2 3 4 N-W 20 40 60 80 </div> </div>
0.00	0	SILTY CLAY some sand, medium stiff to stiff, brownish gray, light olive brown, dark brown			17 5 5	10	26		
					4 5 5	10	24		
	5				2 2 3	5	32		
					2 2 5	7	32		
	10	Same as above... yellowish brown			3 5 10	15	16	1.6	
		End of Boring							
	15								
	20								
	25								
	30								

"SPT N" - Number of blows required to drive the sampling spoon a distance of 12 inches with a 140 lbs hammer falling 30 inches.
 "W" - Natural moisture content in percentage of dry weight.  Initial groundwater level depth.
 "Qu" - Unconfined compressive strength in tons per square foot.  Final groundwater level depth.
 "Rc" - Core recovery in percent for each successive run. "RQD" - Rock quality designation.
 "WH" - Sample was recovered by advancing the sampler with the weight of the hammer.
 "P" - A P in the unconfined compressive strength test indicates the use of the pocket penetrometer.

Appendix C:

Soil Classification Tests

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.9	10.9	31.1	55.3	

Test Results (ASTM C 136 & ASTM C 117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.2		
#10	97.3		
#40	86.4		
#100	68.0		
#200	55.3		

* (no specification provided)

Material Description

Sandy lean clay

Atterberg Limits (ASTM D 4318)

PL= 24 LL= 34 PI= 10

Classification

USCS (D 2487)= CL AASHTO (M 145)= A-4(3)

Coefficients

D₉₀= 0.5729 D₈₅= 0.3861 D₆₀= 0.0972
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Remarks

Date Received: 1/29/21 Date Tested: 2/2/21

Tested By: M. Reyes

Checked By: Rommel Cintron, MSCE, PE

Title: Geotechnical Engineer

Source of Sample: Project Site
Sample Number: Bo. 4

Depth: 0-3.5'

Date Sampled: 1/12/21



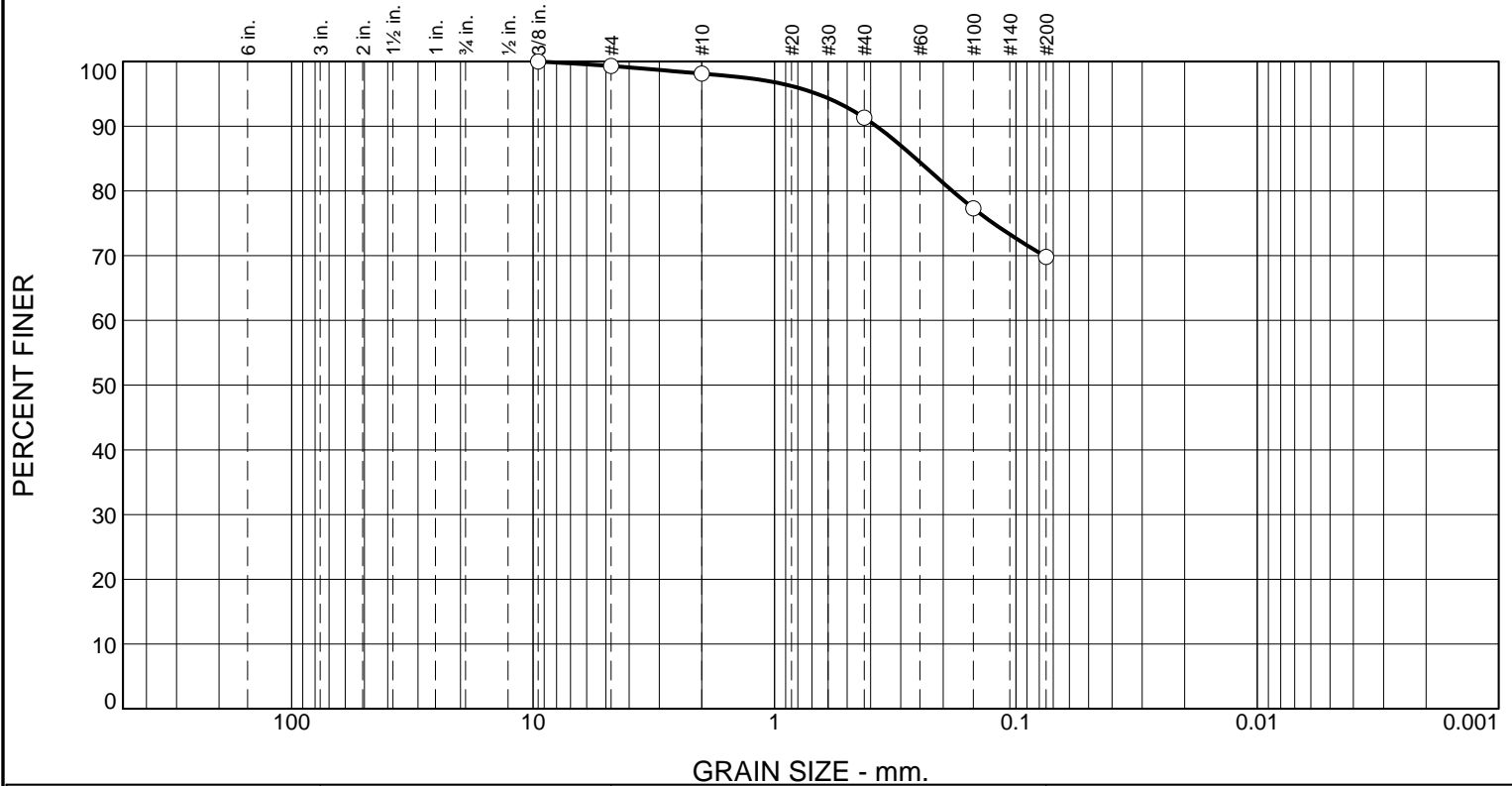
Client: DLR Group

Project: VIDE AR School (Old EW School), St. Croix, USVI

Project No: 8176

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.2	6.8	21.5	69.8	

Test Results (ASTM C 136 & ASTM C 117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.3		
#10	98.1		
#40	91.3		
#100	77.3		
#200	69.8		

* (no specification provided)

Material Description

Sandy lean clay

Atterberg Limits (ASTM D 4318)

PL= 26 LL= 46 PI= 20

Classification

USCS (D 2487)= CL AASHTO (M 145)= A-7-6(14)

Coefficients

D₉₀= 0.3778 D₈₅= 0.2598 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Remarks

Date Received: 1/29/21 Date Tested: 2/2/21

Tested By: M. Reyes

Checked By: Rommel Cintron, MSCE, PE

Title: Geotechnical Engineer

Source of Sample: Project Site
Sample Number: Bo. 5

Depth: 0-3.5'

Date Sampled: 1/13/21



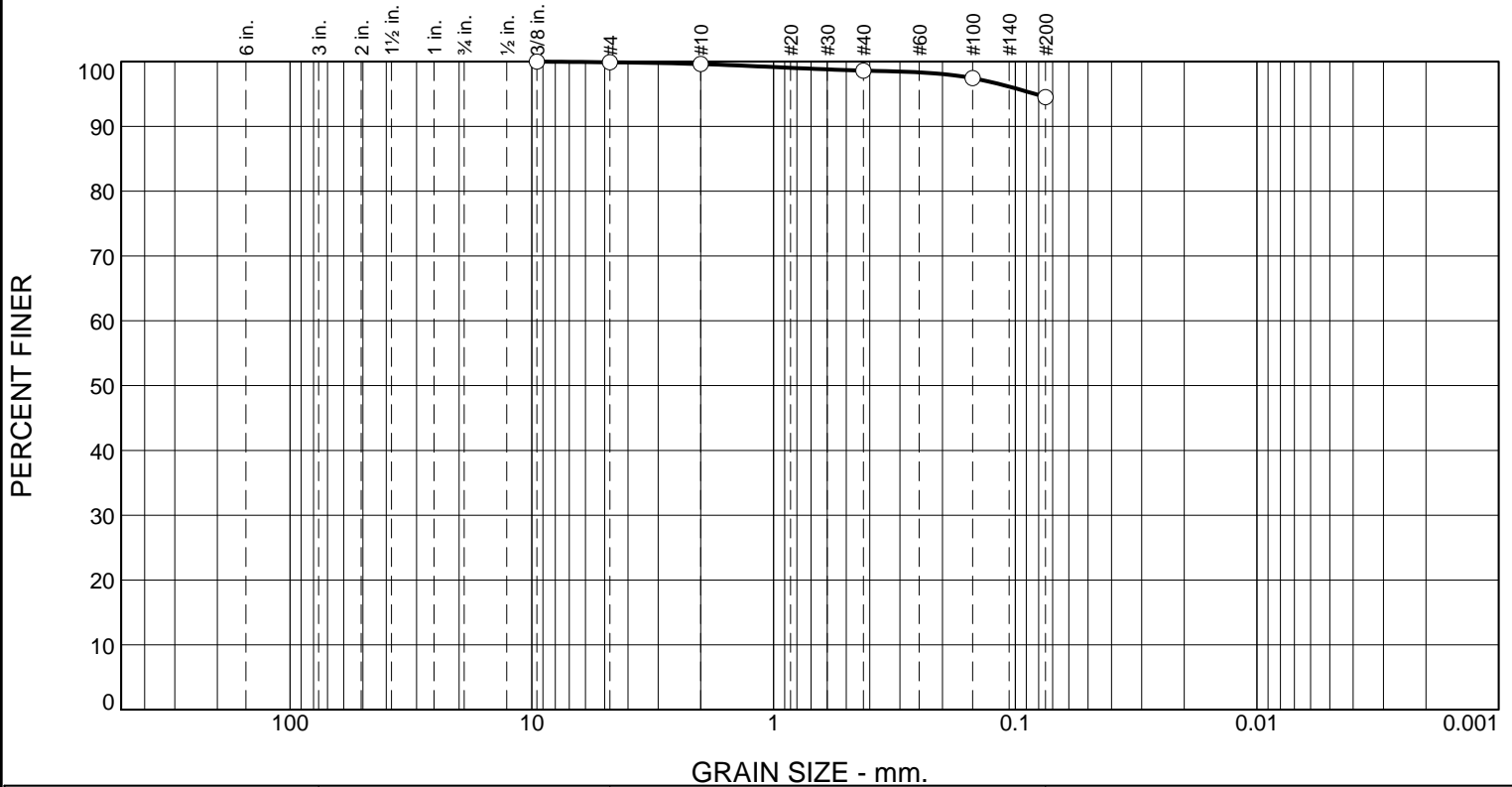
Client: DLR Group

Project: VIDE AR School (Old EW School), St. Croix, USVI

Project No: 8176

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	1.0	4.1	94.5	

Test Results (ASTM C 136 & ASTM C 117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.9		
#10	99.6		
#40	98.6		
#100	97.4		
#200	94.5		

* (no specification provided)

Material Description
Lean clay

Atterberg Limits (ASTM D 4318)
PL= 21 LL= 33 PI= 12

Classification
USCS (D 2487)= CL AASHTO (M 145)= A-6(11)

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

Remarks

Date Received: 1/29/21 Date Tested: 2/2/21
Tested By: M. Reyes
Checked By: Rommel Cintron, MSCE, PE
Title: Geotechnical Engineer

Source of Sample: Project Site
Sample Number: Bo. 6

Depth: 0-3.5'

Date Sampled: 1/13/21

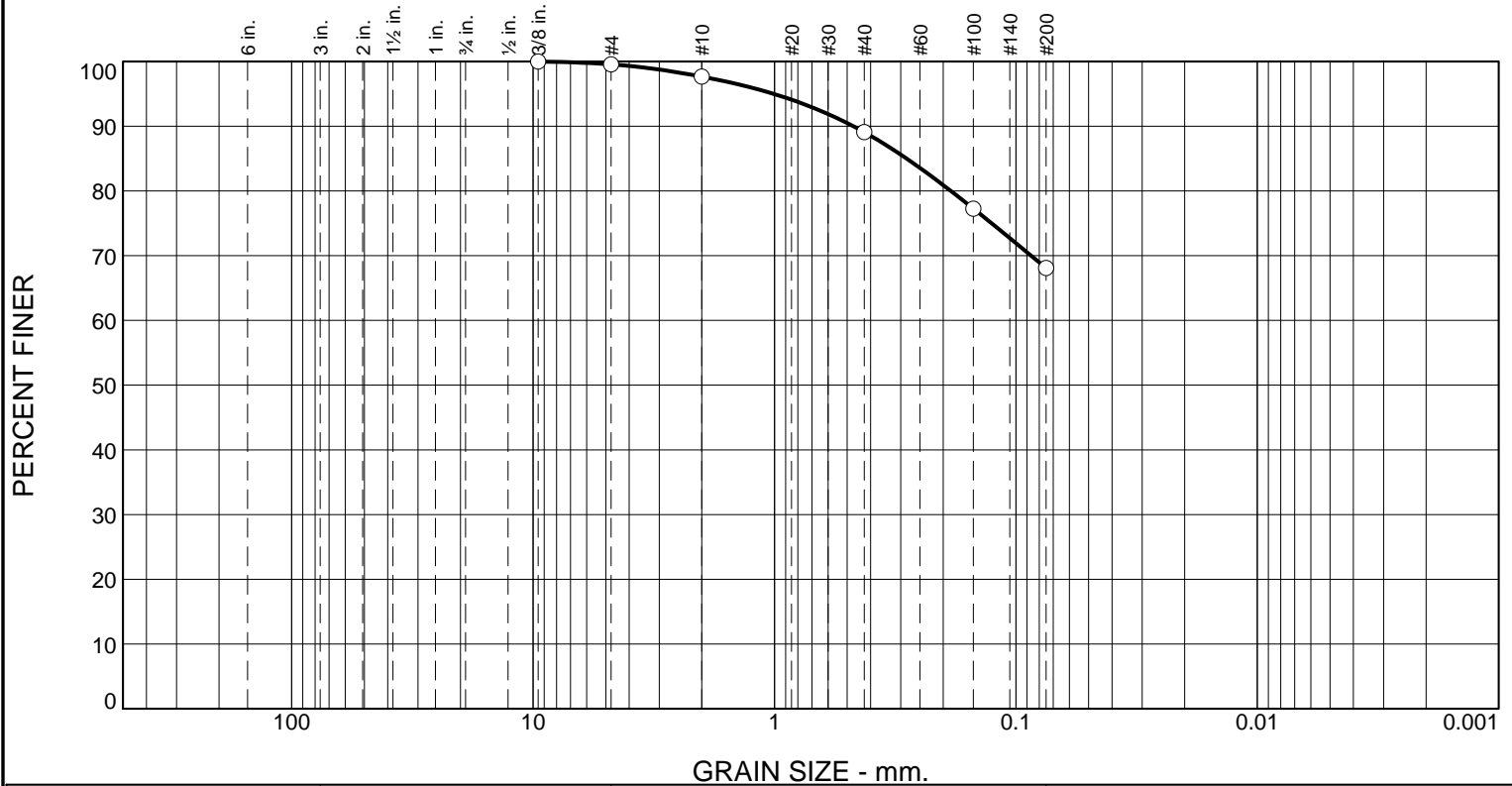


Client: DLR Group
Project: VIDE AR School (Old EW School), St. Croix, USVI

Project No: 8176

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.9	8.6	21.0	68.1	

Test Results (ASTM C 136 & ASTM C 117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.6		
#10	97.7		
#40	89.1		
#100	77.3		
#200	68.1		

* (no specification provided)

Material Description

Sandy silty clay

Atterberg Limits (ASTM D 4318)

PL= 22 LL= 28 PI= 6

Classification

USCS (D 2487)= CL-ML AASHTO (M 145)= A-4(2)

Coefficients

D₉₀= 0.4712 D₈₅= 0.2836 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Remarks

Date Received: 1/29/21 Date Tested: 2/2/21

Tested By: M. Reyes

Checked By: Rommel Cintron, MSCE, PE

Title: Geotechnical Engineer

Source of Sample: Project Site
Sample Number: Bo. 7

Depth: 0-3.5'

Date Sampled: 1/14/21

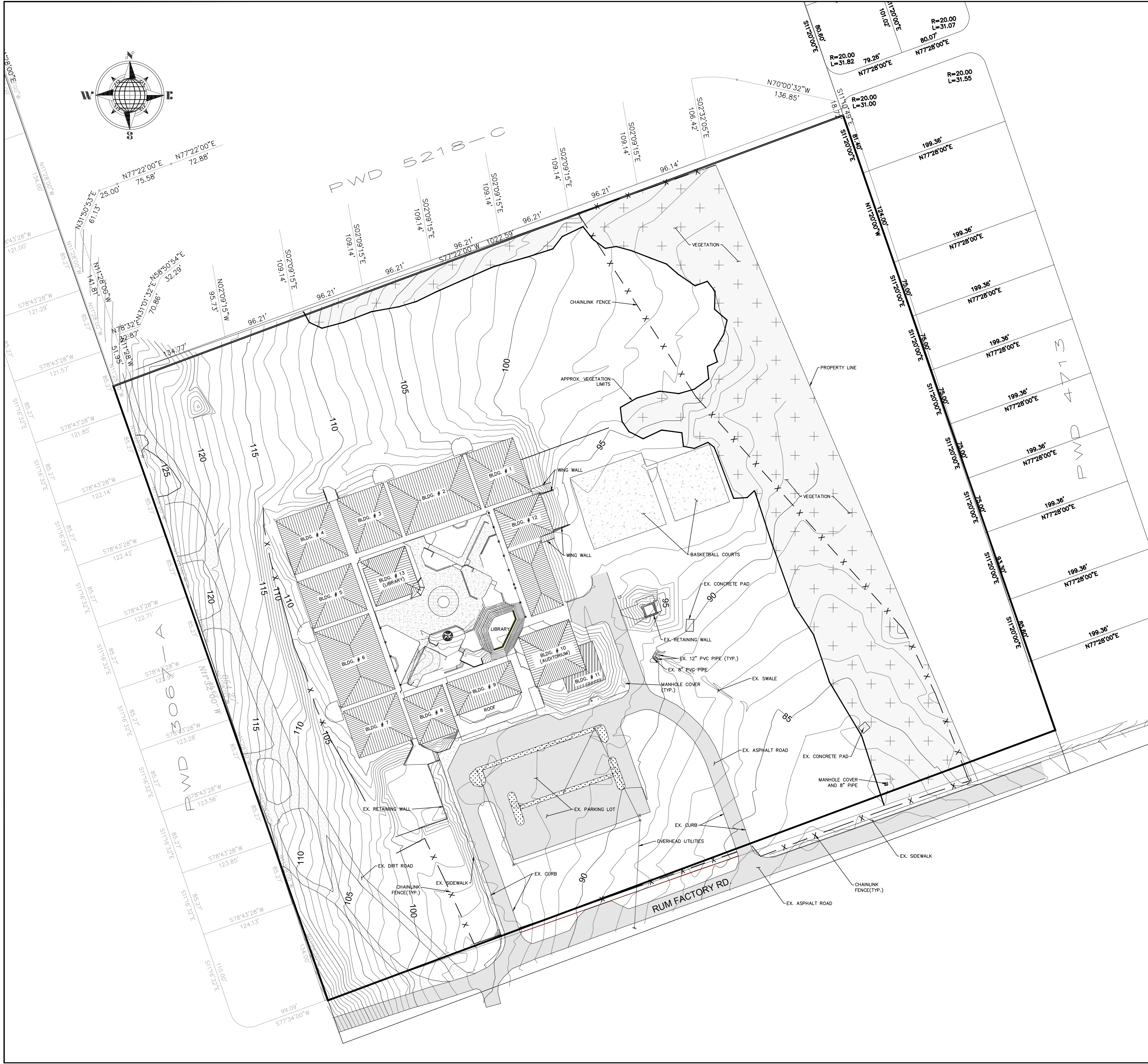


Client: DLR Group

Project: VIDE AR School (Old EW School), St. Croix, USVI

Project No: 8176

Figure



SITE LOCATION MAP
N.T.S.

PLOTTED SCALE: 1" = 80'

NOTE:

- 1. SURVEYED BY GPS
- 2. REFER TO DRAWING No. 1881
- 3. ZONING CLASSIFICATION: (P)
- 4. BOUNDPOST FOUND
- 5. IRON PIN SET

SUBJECT PROPERTY APPEARS TO FALL WITHIN F.I.R.M. DESIGNATION: X
PER FLOOD INSURANCE RATE MAP 7800000079C
D.P.N.R ZONING DISTRICT: P (SHEET 12)
HORIZONTAL AND VERTICAL DATUM: STATE PLANE, NAD 83, PR/VI - 5200; NAVD 88

TOPOGRAPHIC SURVEY OF
EVELYN WILLIAMS SCHOOL
ST. CROIX, U.S.V.I.

a.e.i.
ANTILLEAN ENGINEERS INC.
1-B ESTATE CLIFTON HILL, KINGS HILL, ST. CROIX
PO BOX 3023 KINGS HILL, ST. CROIX USVI 00851
340-778-8828

DATE: 10/7/2020	SCALE:	SURVEYED BY: EB/MP	DRAWN BY: BM	DWG. No.:
APPROVED BY:				903-E