STRUCTURAL GEOTECHNICAL REPORT

FOR

THE RECONSTRUCTION OF THE CARLISLE BAPTIST CHURCH SANCTUARY AT 835 S BERTHE AVENUE, PANAMA CITY, BAY COUNTY, FLORIDA

PREPARED FOR:

Carlisle Baptist Church

835 S Berthe Avenue

Panama City, FL 34972

BGS Project No.: 25-034

PREPARED BY:

Brooks Geotechnical Services

62 Alegro Drive

Southport, FL 32409

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Engineer of Record: Jeremy K. Brooks, P.E.

Jeremy K. Brooks, State of Florida, Professional Engineer, License No. 88616

This item has been digitally signed and sealed by

Jeremy K Brooks Date: 2025.05.28 13:23:45 -05'00'

on the date indicated here.

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1.0 Project Description and Location

This project is intended to reconstruct with a slightly different layout the sanctuary for the Carlisle Baptist Church at 835 S Berthe Avenue, Panama City, Bay County, FL. This will be a metal building that will be slab on grade foundation and parking areas. The project is located in Section 17 Township 4S Range 13W. The parcel ID for the property is 06946-000-000. This property is located at the intersection of Boat Race Road and S Berthe Avenue. The current owner is Howard Carlisle Memorial Baptist Church, Inc. The parcel that this new building will sit on and the adjacent also owned church property has a total area of 3.346 acres.

1.1 Geology/Hydrology

1.1.1 Site and Area Geology

According to the United States Geological Survey (USGS) the subject site is located in Walton County within the Gulf Coastal Plain, separated from the Florida Platform by geologic structures known as the Gulf Trough and Apalachicola Embayment. These structures formed a bathymetric and environmental barrier from the earliest Eocene or earliest Oligocene periods into the Miocene.

According to the "Text to Accompany the Geologic Map of Florida" by Scott, 2001, the site is generally underlain by undifferentiated sediments deposited during the Quaternary period. These sediments typically consist of siliciclastics (sand), organics and freshwater carbonates. These soils are highly permeable and form the Sand and Gravel Aquifer of the surficial aquifer system.

Surficial soils in the region are primarily siliciclastic sediments deposited in response to the renewed uplift and erosion in the Appalachian highlands to the north and sea-level fluctuations. The extent and type of deposit is influenced by numerous factors, including mineral composition of the parent rock and meteorological events.

1.1.2 Hydrology

Groundwater in the Gulf Coastal Plain typically occurs as an unconfined aquifer condition. Recharge is provided by the infiltration of rainfall and surface water through the soil overburden. More permeable zones in the soil matrix can affect groundwater conditions. The groundwater table is expected to be a subdued replica of the original surface topography. Based on a review of topographic maps and our visual site observations, we anticipate the localized groundwater flow at the site to be generally towards the east-southeast.

2.0 Field and Laboratory Procedures

2.1 Field Procedures

Boring locations were established in the field utilizing existing site landmarks and estimating angles and distances to the boring locations. Consequently, referenced boring locations and elevations should be considered approximate.

Our field exploration at the subject site included four (4) soil test borings (STBs) performed within or adjacent to the footprint of the proposed structure. Drilling, testing and sampling operations were performed in general accordance with ASTM designations and other industry standards.

The Logs of Boring in the Appendix present the soil conditions encountered. This record represents our interpretation of the subsurface conditions based on the field exploration data, visual examination of the samples, and generally accepted geotechnical engineering practices. The stratification lines and depth designations represent approximate boundaries between various subsurface strata. Actual transitions between materials may be gradual. Also, subsurface conditions across the site may vary relative to those present at the boring locations.

The groundwater levels reported on the Logs of Boring represent measurements made after the completion of the borings. The borings were backfilled with soil cuttings for safety concerns following the groundwater readings. The approximate locations of the borings are depicted on the Boring Location Plan in the Appendix. Please refer to the Log of Borings included in the Appendix for the subsurface conditions encountered at the specific boring locations.

2.2 Laboratory Testing

Soil samples were obtained from the split-spoon drilling equipment and returned to our testing laboratory, where they were classified using visual/manual methods in accordance with the Unified Soil Classification System (USCS) and ASTM designations. The descriptions presented in the Logs of Boring should be considered approximate. No additional laboratory testing was performed.

3.0 Subsurface Conditions

3.1 Soil Conditions

The following paragraph provides a generalized description of the subsurface profiles and soil conditions encountered by the borings conducted during this exploration. The Logs of Boring in the Appendix should be reviewed to provide detailed descriptions of the conditions encountered at the boring locations. Conditions may vary at other locations and times.

The subsurface soils encountered in the STB's consisted primarily of light brown to gray/brown fine-grained sands (USCS classifications of SP) from the existing ground surface elevation to the maximum depth explored of approximately 15 feet BEG with some inclusions of concrete expected to be from the removed building foundation. Subsurface conditions are described in greater detail on the attached Logs of Boring.

3.2 Groundwater Conditions

Groundwater was encountered in the test boring at a depth of approximately 2 feet below the existing site grade elevations (BEG) at the time of our subsurface exploration, which occurred during a period of slightly below normal seasonal rainfall. The groundwater table is anticipated to be a subdued replica of the surface topography. Groundwater levels at specific test borings are shown in the attached Test Boring Record.

Groundwater levels vary with changes in season and rainfall, construction activity, surface water runoff and other site-specific factors. Groundwater levels in the Bay County area are typically lowest in the late spring and the late fall and highest in the mid-summer with annual groundwater fluctuations by seasonal rainfall; consequently, the water table may vary at times.

4.0 Conclusions and Recommendations

4.1 General

The following conclusions and recommendations are based on our understanding of the proposed construction, site observations, our evaluation and interpretation of the field data, our experience with similar subsurface conditions, and generally accepted geotechnical engineering principles and practices.

Subsurface conditions in unexplored locations or at other times may vary from those encountered at specific boring locations. If such variations are noted during construction, or if project development plans are changed, we request the opportunity to review the changes and amend our recommendations, if necessary.

As previously noted, boring locations were established in the field using the provided site plan and by estimating distances and angles from site landmarks. If increased accuracy is desired by the client, we recommend that the boring locations and elevations be surveyed.

4.2 Structural Information

Based on provided structural drawings, the structure will be single story metal building supported on a shallow foundation. The foundation will appear to consist of an open span design with columns landing on a turndown slab edge. In the provided drawings there appear to be no columns present in the slab field. Therefore, only the expected strip footer capacities are given.

4.3 Shallow Foundation Recommendations

Our evaluation of foundation conditions has been based on structural information presented in this report and subsurface data obtained during our investigation. In evaluating the STB's, we have used correlations that were previously made between penetration resistances and foundation stabilities observed in soil conditions similar to those encountered at your site.

For shallow foundations, we have calculated available soil capacity for strip footers or the turndown slab edges that are embedded 2 feet below the existing ground surface. The available soil capacity was determined to limit overall settlement to 1 inch and differential settlement to ½ inches. All exposed soil after clearing and grubbing operations and foundation excavation should be compacted to 95% of the modified proctor value at a depth of 2 feet. Allowable compressive capacity for these foundations are presented in the table below. Lastly, due to the presence of a shallow groundwater table, it is recommended that a proper vapor barrier be considered to reduce moisture related problems and possible dewatering could be needed to fully install foundations depending on the final slab elevation compared to the existing ground elevation.

Turndown Edges Capacities	
Size	Capacity (kips per square foot)
1.5’ wide	3.5
2’ wide	3

4.4 Site Preparation

As previously mentioned, this structure is proposed to overlap with the footprint of one of the old church buildings that was removed after damage sustained from Hurricane Michael in 2018. The soil at depth appears to have been compacted either previously or by the presence of the old building over time. The top 2 to 4 feet appear to have been disturbed as part of the building removal process. These soils need to be recompacted, but careful compaction efforts will need to utilized as the groundwater table is rather shallow at 2 feet below the existing ground. Lastly, vibratory compaction from vibratory rollers should be avoided to reduce potential damage to the other church building and the nearby residences. Vibrations from a jumping jack compactor are considered expected and should not have negative impacts on the adjacent structures.

4.5 Testing

The effectiveness of the foundation will depend significantly on the proper preparation of the soils, as indicated previously. Therefore, we recommend an engineer approved testing laboratory be employed as the testing laboratory to perform construction testing services. If a company is not approved or if no company is employed to provide construction testing services, Brooks Geotechnical Services cannot accept any responsibility for any conditions, which deviate from those described in this geotechnical report. Brooks Geotechnical Services should be invited to the pre-construction conference to discuss the project with all interested parties so that the project may be completed expeditiously and to the intent of our geotechnical report. We would be pleased to review the plans and specifications as they relate to the soil preparation and provide recommendations for construction testing companies.

4.6 General Comments

Professional judgments on design criteria are presented in this report. These are based partly on our evaluations of technical information provided, partly on our understanding of the characteristics of the project being planned, and partly on our general experience with subsurface conditions in the area. We do not guarantee performance of the project in any respect, only that our judgments meet the standard of care of our profession.

This information is exclusively for the use and benefit of the addressee(s) identified on the first page of this report and is not for the use or benefit of, nor may it be relied upon by any other person or entity. The contents of this report may not be quoted in whole or in part or distributed to any person or entity other than the addressee(s) hereof without, in each case, the advance written consent of Brooks Geotechnical Services.

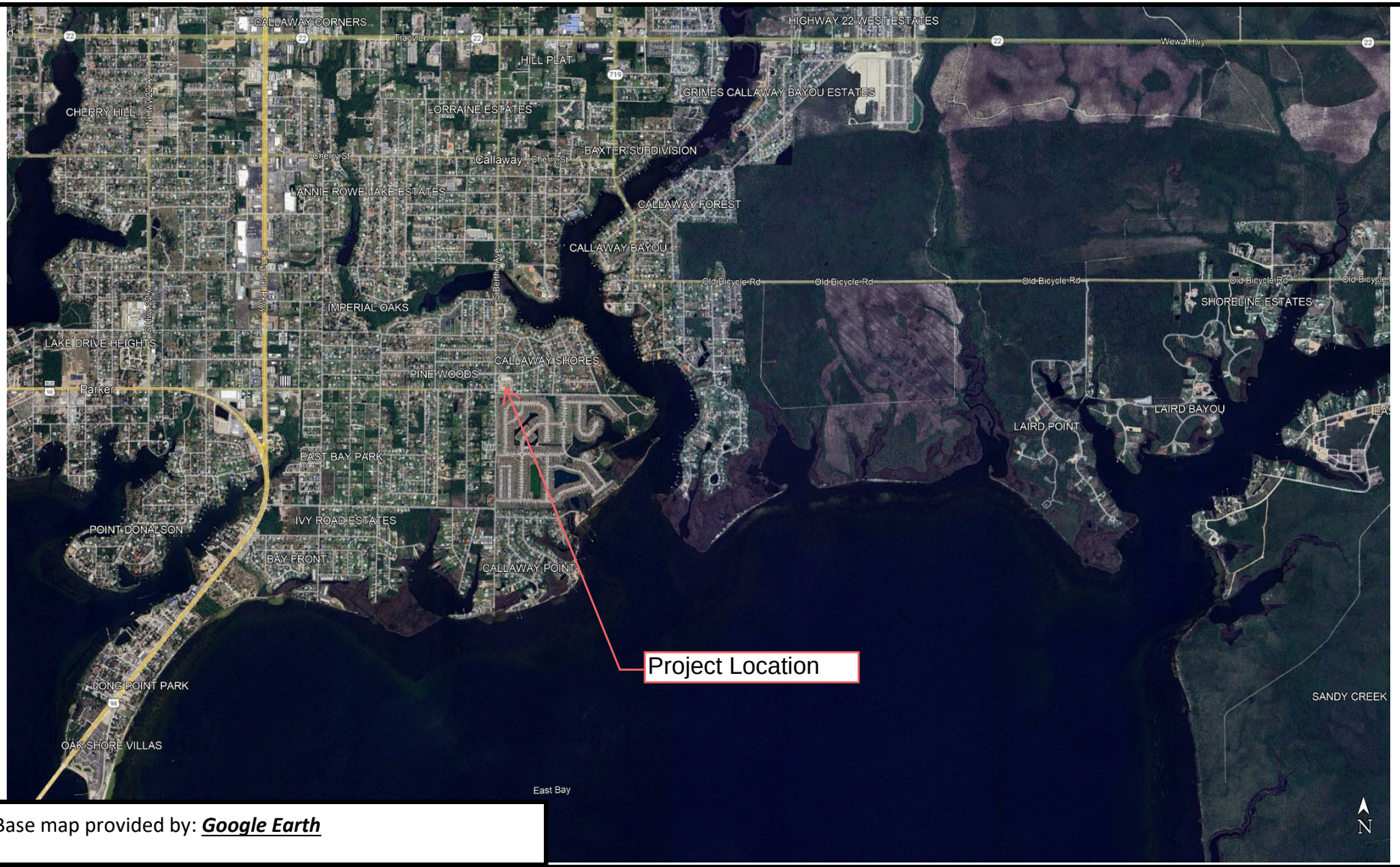
This report has been prepared in order to aid in the evaluation of this property and to assist the architects and engineers in the foundation design. It is intended for use with regard to the specific project discussed herein, and any substantial changes in the buildings, loads, locations, or reported grades shall be brought to our attention immediately so that we may determine how such changes may affect our conclusions and recommendations. We would appreciate the opportunity to review the plans and specifications for the foundation and floor construction to verify that our conclusions and recommendations are interpreted correctly. Our report does not address environmental issues which may be associated with the subject property.

While the standard penetration test borings performed for this project are representative of subsurface soil conditions at their respective locations and for their respective vertical reaches, local variations of the subsurface materials are anticipated and may be encountered. The boring logs and related information are based on the driller's logs and visual examination of selected samples in the laboratory. Delineation between soil types shown on the boring logs is approximate, and soil descriptions represent our interpretation of subsurface conditions at the designated boring location on the particular date drilled.

Appendix A

Project Location Map

USDA Web Soil Survey



Base map provided by: ***Google Earth***

Scale: Not To Scale	
Date Drawn: May 28, 2025	
Drawn By: J. Brooks	
Checked By: J. Brooks	

GEOTECHNICAL BROOKS SERVICES

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PROJECT LOCATION PLAN

Carlisle Baptist Church Sanctuary Reconstruction

835 S Berthe Ave, Panama City, Bay County, Florida

BGS Project Number: 25-034

Soil Map—Bay County, Florida
(Carlisle Baptist Church Sanctuary Reconstruction)

Map Scale: 1:6,280 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bay County, Florida
Survey Area Data: Version 24, Aug 22, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 10, 2024—Jan 20, 2024

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

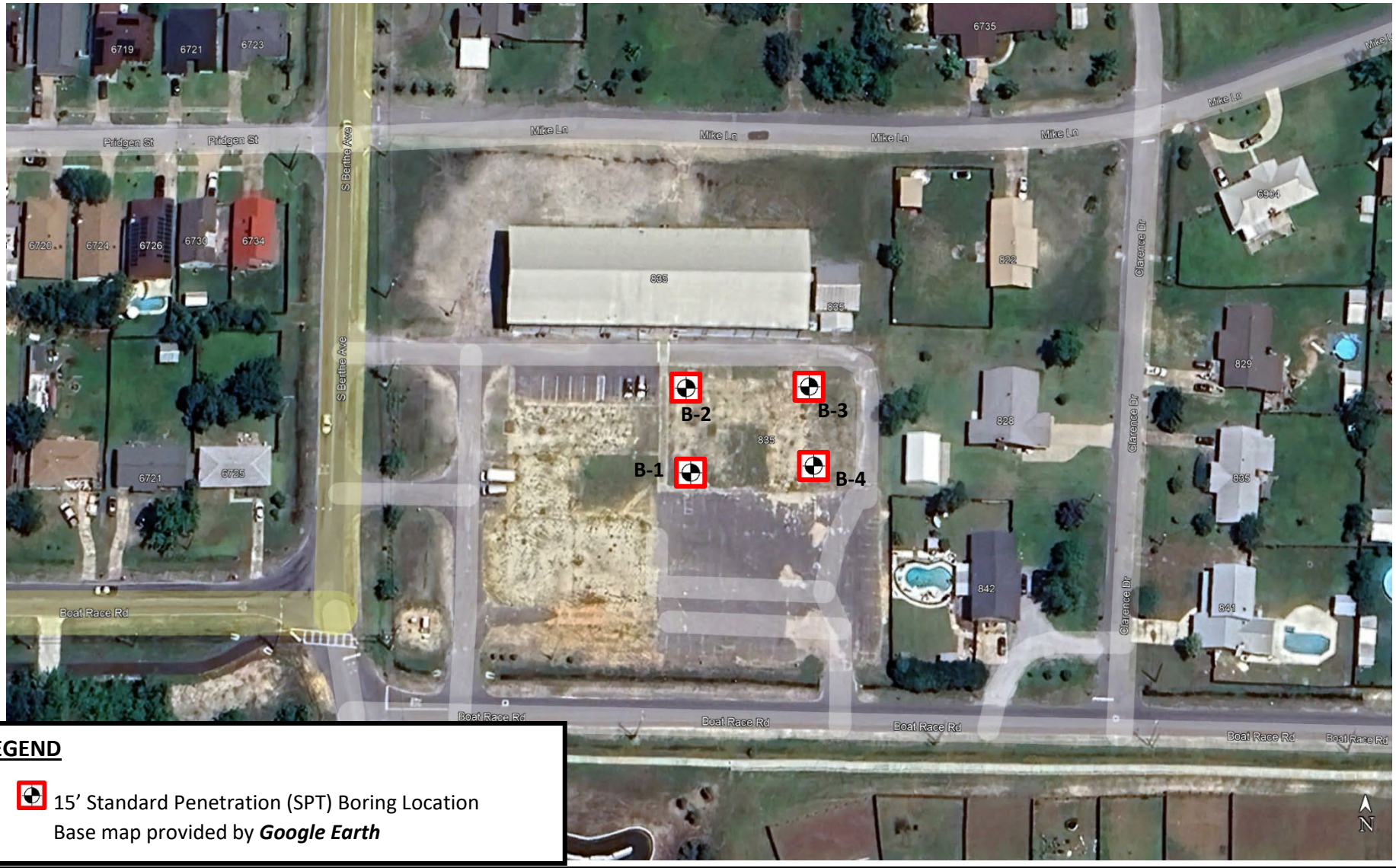
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
13	Leon sand, 0 to 2 percent slopes	61.9	44.6%
23	Chipley sand, 0 to 5 percent slopes	1.2	0.9%
25	Hurricane sand, 0 to 2 percent slopes	0.7	0.5%
31	Osier fine sand	69.0	49.7%
40	Arents, 0 to 5 percent slopes	0.3	0.2%
42	Resota fine sand, 0 to 5 percent slopes	5.2	3.7%
99	Water	0.5	0.4%
Totals for Area of Interest		**138.8**	**100.0%**

Appendix B

Boring Location Plan

Key to Log of Boring

Log of Boring



LEGEND

15' Standard Penetration (SPT) Boring Location
Base map provided by ***Google Earth***

Scale: Not To Scale	
Date Drawn: May 28, 2025	
Drawn By: J. Brooks	
Checked By: J. Brooks	

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BORING LOCATION PLAN

Carlisle Baptist Church Sanctuary Reconstruction

835 S Berthe Ave, Panama City, Bay County, Florida

BGS Project Number: 25-034

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Key to Log of Boring

Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	MATERIAL DESCRIPTION	OTHER TESTS
1	2	3	4	5	6	7	8

COLUMN DESCRIPTIONS

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sample Number: Sample identification number.
5 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6 Material Type: Type of material encountered.
7 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
8 OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting, AW)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

RELATIVE DENSITY

(Sands and Gravels)
Very loose - Less than 4 Blow/Foot
Loose - 4 to 10 Blows/Foot
Medium Dense -11 to 30 Blows/Foot
Dense - 31 to 50 Blows/Foot
Very Dense - More than 50 Blows/Foot

CONSISTENCY

(Silts and Clays)
Very Soft - Less than 2 Blows/Foot
Soft - 2 to 4 Blows/Foot
Medium Stiff - 5 to 8 Blows/Foot
Stiff- 9 to 15 Blows/Foot
Very Stiff - 16 to 30 Blows/Foot
Hard - More than 30 Blows/Foot

RELATIVE HARDNESS

(Limestone)
Soft - 100 Blows for more than 2 Inches
Hard - 100 Blows for less than 2 Inches

MODIFIERS

These modifiers Provide Our Estimate of the Amount of Minor Constituents (Silt or Clay Size Particles) in the Soil Sample
Trace - 5% or less
With Silt or with Clay - 6% to 11%
Silty or Clayey - 12% to 30%
Very Silty or Very Clayey - 31% to 50%

These Modifiers Provide Our Estimate of the Amount of Organic Components in the Soil Sample
Trace - Less than 3%
Few - 3% to 4%
Some - 5% to 8%
Many - Greater than 8%

These Modifiers Provide Our Estimate of the Amount of Other Components (Shell, Gravel, Etc.) in the Soil Sample
Trace - 5% or less
Few - 6% to 12%
Some - 13% to 30%
Many - 31% to 50%

Project: **Carlisle Baptist Church**

Project Location: **835 S Berthe Ave, Panama City, FL 32404**

Project Number: **25-034**

Log of Boring B-1

Sheet 1 of 1

Date(s) Drilled **May 13, 2025**	Logged By **J. Governale**	Checked By **J. Brooks**
Drilling Method **Mud Rotary**	Drill Bit Size/Type **2 7/8 inch step drag bit**	Total Depth of Borehole **15 feet bgs**
Drill Rig Type **BR-2500**	Drilling Contractor **GeoDrill Tech, LLC**	Approximate Surface Elevation
Groundwater Level and Date Measured **2 feet**	Sampling Method(s) **SPT**	Hammer Data
Borehole Backfill **Drill Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0		1	2	SP	Loose brown fine-grained sand	
			2	4			
	5		3	16	SP	Medium dense light brown fine-grained sand	
			4	17	SP	Medium dense to loose brown fine-grained sand	
			5	14			
	10						
	15		6	10		Boring Terminated @ 15 feet	
	20						
	25						
	30						
	35						
	40						
	45						
	50						
	55						

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Project: **Carlisle Baptist Church**

Project Location: **835 S Berthe Ave, Panama City, FL 32404**

Project Number: **25-034**

Log of Boring B-2

Sheet 1 of 1

Date(s) Drilled **May 13, 2025**	Logged By **J. Governale**	Checked By **J. Brooks**
Drilling Method **Mud Rotary**	Drill Bit Size/Type **2 7/8 inch step drag bit**	Total Depth of Borehole **15 feet bgs**
Drill Rig Type **BR-2500**	Drilling Contractor **GeoDrill Tech, LLC**	Approximate Surface Elevation
Groundwater Level and Date Measured **2 feet**	Sampling Method(s) **SPT**	Hammer Data
Borehole Backfill **Drill Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0		1	6	SP	Loose brown fine-grained sand	
			2	11	SP	Medium dense gray/brown fine-grained sand	
	5		3	15			
			4	19	SP	Medium dense brown fine-grained sand	
			5	20			
	10						
			6	10	SP	Loose light brown fine-grained sand	
	15					Boring Terminated @ 15 feet	
	20						
	25						
	30						
	35						
	40						
	45						
	50						
	55						

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Project: **Carlisle Baptist Church**

Project Location: **835 S Berthe Ave, Panama City, FL 32404**

Project Number: **25-034**

Log of Boring B-3

Sheet 1 of 1

Date(s) Drilled **May 13, 2025**	Logged By **J. Governale**	Checked By **J. Brooks**
Drilling Method **Mud Rotary**	Drill Bit Size/Type **2 7/8 inch step drag bit**	Total Depth of Borehole **15 feet bgs**
Drill Rig Type **BR-2500**	Drilling Contractor **GeoDrill Tech, LLC**	Approximate Surface Elevation
Groundwater Level and Date Measured **2 feet**	Sampling Method(s) **Auger, SPT**	Hammer Data
Borehole Backfill **Drill Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0		1		SP	Orange/brown fine-grained sand	Hand Augured to 4 feet due to gas line proximity
			2		SP	Light brown fine-grained sand	
	5		3	14	SP	Medium dense light brown fine-grained sand	
			4	16	SP	Medium dense to loose brown fine-grained sand	
			5	23			
	10						
			6	8			
	15					Boring Terminated @ 15 feet	
	20						
	25						
	30						
	35						
	40						
	45						
	50						
	55						

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Project: **Carlisle Baptist Church**

Project Location: **835 S Berthe Ave, Panama City, FL 32404**

Project Number: **25-034**

Log of Boring B-4

Sheet 1 of 1

Date(s) Drilled **May 13, 2025**	Logged By **J. Governale**	Checked By **J. Brooks**
Drilling Method **Mud Rotary**	Drill Bit Size/Type **2 7/8 inch step drag bit**	Total Depth of Borehole **15 feet bgs**
Drill Rig Type **BR-2500**	Drilling Contractor **GeoDrill Tech, LLC**	Approximate Surface Elevation
Groundwater Level and Date Measured **2 feet**	Sampling Method(s) **SPT**	Hammer Data
Borehole Backfill **Drill Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0		1	4	SP	Loose orange/brown fine-grained sand with some concrete fragments	
			2	6	SP	Loose to medium dense brown fine-grained sand	
	5		3	7			
			4	12			
			5	18			
	10						
			6	9	SP	Loose gray/brown fine-grained sand	
	15					Boring Terminated @ 15 feet	
	20						
	25						
	30						
	35						
	40						
	45						
	50						
	55						

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