

& = additional borings



SITE DATA TABLE

	PROJECT LOCATION	HERNANDO COUNTY, FLORIDA
	TOTAL PROJECT AREA	79-77-ACRES
_	TOTAL DEVELOPABLE AREA	67.66-ACRES
	CURRENT ZONING	PDP
	FLU	RES
_	45' X 120' Lots	270
	Total Stormwater Mgt Area	14.49 AC. (21.4 % OF DEVELOPABLE AREA) (INCLUDES 439 AC OF WETLAND PRESERVATION ABEA
	REQUIRED PARK AREA	3.20 Ac.
	PROVIDED PARK AREA	3.42 Ac.
	REQUIRED PRESERVATION AREA	5.58 AC. (7 % OF TOTAL PROJECT AREA)
3	Provided Wetland Preservation Area Undisturbed FEMA Area	6.79 Ac. (7.18 % of Total Project Area) 1.96 Ac. (3.0 % of Total Project Area)
	IMPACTED WETLAND AREA	27 Ac. * Assumes 100% Impact Based On Direction From ECT.)



REPORT OF GEOTECHNICAL ENGINEERING EVALUATION

GAGNE PARCEL

Pasco County, Florida

PREPARED FOR:

MERITAGE HOMES OF FLORIDA, INC.

10117 Princess Palm Avenue Tampa, Florida 33610

FES PROJECT NO.: 21-5233 (Rev.1)

October 27, 2021 (Revised March 8, 2022)

PREPARED BY:



2734 Causeway Center Drive Tampa, Florida 33619



October 27, 2021 (Revised March 8, 2022)

Mr. Garth Noble Meritage Homes of Florida, Inc. 10117 Princess Palm Avenue Tampa, Florida 33610

RE: Report of Geotechnical Engineering Evaluation Gagne Parcel Zephyrhills, Pasco County, Florida FES Project No.: 21-5233 (Rev.1)

Dear Mr. Noble:

Faulkner Engineering Services, Inc. (FES) has completed a geotechnical engineering evaluation of the referenced project. We provided our services in general accordance with FES Proposal No. P21-7910 dated August 25, 2021, change order 1 dated September 14, 2021 and change order 2 dated January 18, 2022. The purpose of our geotechnical engineering evaluation was to analyze the subsurface soil and groundwater conditions at the site in order to determine the capacity of the subsurface soils to support multi-family and single-family residential development; provide foundation and flexible pavement design recommendations; and address the requirements outlined in Section 807.4 of the Pasco County Land Development Code relating to a Geotechnical/Geological Engineering Report. This report summarizes our field exploration and presents our findings, conclusions, and geotechnical engineering recommendations.

PROJECT INFORMATION

Existing Site

Gagne parcel is a 139± acre property located at the north and southwest corners of Chancey Road and Paul S. Buchman Road in Zephyrhills, Pasco County, Florida, within Sections 23 and 24, Township 26 South and Range 21 East. Our geotechnical engineering evaluation was concentrated south of Chancey Road. The property south of Chancey Road is generally open and grass covered with scattered trees. There is a pond near the center of the property and wetlands to the east and south. The site topography slopes down from north to south with an elevation change of about 10 feet. A general site location map is shown on **Figure 1**.

Proposed Construction

Based on our review of the site plan prepared by LevelUp Consulting LLC, we understand that the proposed development includes construction of single-family and multi-family residential structures with associated internal roadways, stormwater ponds, and a lift station. Our current geotechnical engineering evaluation was limited to the planned residential building areas, interior roadways, stormwater ponds, lift station, and the existing CSX crossing near the northeast corner of the property.

Soil Survey Review

According to the "Soil Survey of Pasco County, Florida", as prepared by the U.S. Department of Agriculture Natural Resource Conservation Service (formerly the Soil Conservation Service) the subject property is primarily underlain by:

- Wauchula fine sand, 0 to 5 percent slopes (Map Unit Symbol 1) The NRCS describes this soil unit as poorly drained and located on flats on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 34 inches below ground surface (bgs) followed by a layer of sandy clay loam from about 34 to 80 inches bgs. The NRCS indicates the seasonal high ground water table (SHGWT) is about 6 to 18 inches bgs.
- Pomona fine sand (Map Unit Symbol 2) The NRCS describes this soil unit as poorly drained and located on flatwoods on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 52 inches bgs followed by a layer of fine sandy loam from about 52 to 60 inches bgs underlain by a layer of fine sand from about 60 to 80 inches bgs. The NRCS indicates the SHGWT is about 6 to 18 inches bgs.
- Wabasso-Wabasso, wet, fine sand, 0 to 2 percent slopes (Map Unit Symbol 10) The NRCS describes this soil unit as poorly drained and located on flatwoods on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand from the surface to a depth of about 39 inches bgs followed by a layer of sandy clay loam from about 39 to 80 inches bgs. The NRCS indicates the SHGWT is about 6 to 18 inches bgs (3 to 18 inches bgs when wet).
- Zephyr muck (Map Unit Symbol 16) The NRCS describes this soil unit as very poorly drained and located on depressions on marine terraces. The NRCS indicates that this soil unit has a surface layer of muck from the surface to about 13 inches bgs followed by a layer of fine sand from about 13 to 31 inches bgs underlain by a layer of sandy clay loam from about 31 to 61 inches bgs followed by a layer of fine sandy loam from about 61 to 80 inches bgs. The NRCS indicates the SHGWT is about 0 inches bgs.
- Electra Variant, fine sand, 0 to 5 percent slopes (Map Unit Symbol 18) The NRCS describes this soil unit as somewhat poorly drained and located on rises and flats on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 70 inches bgs followed by a layer of sandy clay loam from about 70 inches to 78 inches bgs followed by a layer of weathered bedrock from about 78 to 82 inches bgs. The NRCS indicates the SHGWT is at about 24 to 42 inches bgs.
- Lochloosa fine sand, 0 to 5 percent slopes (Map Unit Symbol 48) The NRCS describes this soil unit as somewhat poorly drained and located on ridges and knolls on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 25 inches bgs followed by a layer of sandy clay loam from 25 inches to 30 inches bgs followed by a layer of sandy clay from about 30 to 52 inches bgs followed by a layer of sandy clay loam from 52 to 74 inches bgs. NRCS indicates the SHGWT is at about 15 to 60 inches bgs.

The NRCS soil classifications are based on interpretation of a combination of factors including but not limited to aerial photographs and widely spaced hand auger borings. Borders shown on the map included in **Appendix A**, between mapping units are approximate, and the transitions between soil units will be gradual. In addition to various minor inclusions within a mapped soil unit, areas of dissimilar soils can also occur. However, the soil survey provides a good basis for an initial evaluation of shallow soil conditions in the area, and can provide an indication of various historic activities such as development, mining and filling operations at the site.

SUBSURFACE SOILS EVALUATION

Field Evaluation

During our field evaluation, thirty-six (36) standard penetration test (SPT) borings were advanced to a depth of approximately 20 feet bgs within the planned single-family lots and the planned multi-family building areas (1 SPT boring per multi-family building), fifteen (15) SPT borings were advanced to depths of approximately 15 to 25 feet bgs within the planned stormwater ponds, one (1) SPT boring was advanced to a depth of about 20 feet bgs in the planned lift station area, thirty-three (33) auger borings were advanced to depths of about 20 feet bgs at generally equal intervals along the planned interior roadways, and four (4) auger borings were advanced to depths of about 15 feet bgs, one each at four corners of the existing CSX crossing near the northeast corner of the property. The fieldwork was performed from September 23 to October 18, 2021 and on February 3, 2022 using track-mounted D-25 and CME-45 drill rigs operated by J&R Precision Drilling. The procedures used by FES for field sampling and testing were in general accordance with ASTM procedures, industry standards of care, and established geotechnical engineering practice.

A senior geotechnical engineering technician from FES, experienced in soil sampling and classifications, was onsite during the fieldwork to monitor the drilling and also perform a brief cursory site reconnaissance, noting pertinent site and topographic features as well as surface indicators of soil conditions. The SPT and auger borings were located in the field by FES personnel using a hand-held GPS device. GPS coordinates of the borings were obtained by superimposing the site plan over an aerial image using Google Earth. Some of the borings were selected by LevelUp and provided to us on a site plan. The approximate boring locations are shown on the attached boring location plan (**Figure 2**).

The SPT borings were performed utilizing continuous sampling methods within the first 10 feet and every 5 feet thereafter until the termination depths of the borings, employing wet rotary drilling techniques to keep the boreholes from collapsing. The drillers collected soil samples using a 1.4-inch I.D. split barrel sampler driven by an automatic hammer system with a 140-pound hammer falling a distance of 30 inches, in general accordance with standard penetration test procedures (ASTM D1586). Upon completion, each borehole was backfilled with borehole cuttings and bentonite chips to the surface.

The auger borings were advanced by mechanically rotating an approximately 4-inch diameter continuous flight auger into the subsurface soils. The cuttings brought to the surface were logged in the field and representative samples were obtained at each change in the soil stratigraphy. Upon completion, each borehole was backfilled with borehole cuttings to the surface.

Detailed descriptions of the soils encountered during the field exploration are presented on the attached soil boring logs and profiles in **Appendix B**.

Soil Sample Handling, Classification, and Laboratory Testing

FES field personnel classified the soils obtained from the field sampling techniques using standard visual manual methods in accordance with ASTM D2488. The samples recovered from both the SPT and mechanical auger borings were placed in sealed containers to retain moisture and transported to the FES soils laboratory accredited by Construction Materials Engineering Council, Inc., (CMEC) for further evaluation and testing. To further aid in classification and evaluation of geotechnical engineering properties, laboratory testing was performed on representative soil samples collected during the field sampling. The laboratory testing performed was in general accordance with appropriate sections of ASTM D1140, material finer than the No. 200 sieve, ASTM D4318, Atterberg Limits and ASTM D4442 for moisture content. The laboratory test results were in general accordance with field classification of the soils except some soils were reclassified based on the fines content from laboratory testing. The laboratory test results and the soil classifications were reviewed by a professional geotechnical engineer. The results from the laboratory testing are presented on the boring logs and profiles contained in **Appendix B**.

FINDINGS

Subsurface Conditions

General Soil Profile

The subsurface stratigraphy at the project site is illustrated in the soil boring logs and profiles shown in **Appendix B**. The logs and profiles were developed using field and laboratory data from the SPT and mechanical auger borings. The computer-generated boring logs and profiles should imply no increased accuracy. Based on this data, four subsurface units, or strata, were identified at the site as described below.

Stratum 1	SAND, SAND with clay, SAND with silt; very loose to dense, fine-grained quartz with clay, silt with occasional fines roots, cementation and clay nodules
	USCS classification = SP, SP-SC, SP-SM
Stratum 2	CLAYEY SAND, SILTY SAND; very loose to dense, fine-grained quartz, variably clayey, silty, occasional cementation
	USCS classification = SC, SM
Stratum 3	CLAY, SILT; very soft to hard, variably sandy, clay, silt, occasional cementation
	USCS classification = CL, CH, ML
Stratum 4	LIMESTONE; limestone bedrock

Stratum 1 occurred as the surficial stratum in most SPT and auger borings and typically extended with varying thicknesses from the ground surface to depths ranging from approximately 1 foot bgs to termination depths of about 15 to 20 feet bgs in the SPT borings and from the ground surface to about 10 feet bgs in the auger borings. The SPT "N" values within this stratum ranged from 2 to 28 blows per foot, indicating very loose to dense relative density.

Stratum 2 occurred in most SPT and auger borings below Stratum 1 except in borings BB-14, BB-24, BB-32, LS-1, PB-11 through PB-14, AB-1, HA-17, and HA-32 where Stratum 2 occurred at the ground surface. This stratum extended with varying thicknesses from the ground surface to depths ranging from about 2 feet bgs to the termination of the SPT borings at about 15 to 20 feet bgs and from ground surface to auger boring termination at about 8 to 15 feet bgs. The SPT "N" values ranged from 3 to 37 blows per foot indicating very loose to dense relative density. The results of the laboratory testing performed on representative soil samples of this stratum indicated that the fines contents ranged from 16.6 to 47.3 percent.

Stratum 3 occurred in most SPT borings below Strata 1 and/or 2 from about 2 feet bgs to SPT boring termination depths of about 15 to 20 feet bgs. Stratum 3 was encountered in the auger borings at depths ranging from about 2 to 15 feet bgs. The SPT "N" values within this stratum ranged from 0 to 25 blows per foot indicating very soft to hard consistency. The results of the laboratory testing performed on representative soil samples of this stratum indicated that the fines contents ranged from 53.8 to 69.8 percent.

Stratum 4 occurred below Strata 1, 2 and 3 in most SPT borings at depths ranging from about 8 feet bgs to boring termination at about 15 to 25 feet bgs. Stratum 4 was not encountered in any of the auger borings within the depths explored. This stratum consisted of limestone bedrock with SPT "N" values ranging from 2 blows per foot to refusal blow counts of 50 blows for less than 6 inches of sampler penetration.

The conditions presented above highlight the major subsurface stratifications encountered during our field evaluation of the site. More detailed descriptions of the materials encountered are provided in **Appendix B.** A soil classification key is included as **Appendix C**. It should be understood that subsurface conditions will vary across this site and between boring locations. Changes in subsurface strata may be more gradual than indicated.

Groundwater

Groundwater was encountered in our SPT and auger borings at depths ranging from about 1.0 to 6.7 feet bgs at the time of drilling. In some of the SPT borings, groundwater was not encountered within the first 10 feet at the time of drilling after which drilling fluid was introduced to keep the boreholes from collapsing. Groundwater was also not encountered in some auger borings within the depths explored. Groundwater levels will fluctuate with time due to seasonal rainfall and locally heavy precipitation events; therefore, future groundwater levels may be encountered at depths different from those indicated by our borings. Please refer to the attached Groundwater Data table (**Table 1**) for the groundwater conditions at the time of drilling and our estimates for the estimated SHGWT.

The SHGWT is typically encountered during late summer following the rainy season. Several factors can affect the seasonal high groundwater level such as drainage characteristics of the soils; land surface elevation; and relief points such as lakes, rivers and swamps. Based on our experience, review of the depth of existing groundwater levels, review of the soil indicators (where encountered) exposed in our borings, and a review of the soil survey for Pasco County, we estimate the seasonal high groundwater levels within the areas explored may be encountered at depths ranging from approximately 1 to 5 feet bgs.

CONCLUSIONS

Our geotechnical engineering evaluation of this site and our recommendations with respect to the proposed residential development are based on our site observations, field exploratory data obtained from our borings, laboratory test results, and our professional judgment. It is our opinion that with proper site preparation in accordance with procedures presented in the **Recommendations** section of this report (including some possible minor undercutting and replacing of the shallow clayey soils in some locations as discussed below), the soils encountered should adequately support the planned single- and multi-family residential structures on a shallow foundation system.

Based on the SPT blow counts recorded during our field study within the planned building areas, the soils are generally very loose to dense (coarse-grained soils) within the upper 10 feet with penetration resistances (N values) ranging from 2 to 37 blows per foot and medium to very stiff (fine-grained soils) within the upper 10 feet with penetration resistances (N values) ranging from 4 to 19 blows per foot. Below the upper 10 feet to the termination of the SPT borings, the soils are generally medium-dense to dense (coarse-grained soils) with penetration resistances (N values) ranging from 9 to 31 blows per foot and very soft to very stiff (fine-grained soils) with penetration resistances (N values) ranging from 0 to 22 blows per foot. Limestone bedrock has SPT "N" values ranging from 2 blows per foot to refusal blow counts of 50 blows for less than 6 inches of sampler penetration.

In-place densification of the surface and near surface soils using a heavy vibratory roller compactor will be required subsequent to clearing and stripping operations and prior to the placement of fill soil or beginning construction. Any additional fill required to bring the site to final design grade should comply with the criteria specified in the **Recommendations** section below.

Most of the borings encountered Stratum 2 and Stratum 3 soils near or at the ground surface. The Stratum 3 soils and some Stratum 2 soils with fines contents greater 35 percent are unsuitable bearing soils. Where these soils are present at the ground surface or at shallow depths, we recommend undercutting these soils and replacing with suitable compacted structural fill such than a minimum of 3 feet of separation is maintained between the bottom of the planned footings and the fine-grained soils. Alternatively, the suitable fill can be added in accordance with the recommendations presented in this report to maintain the recommended 3-foot separation.

Boring BB-3 performed within the planned building area encountered minor weight-of-hammer (WOH) instance from about 13.5 to 16 feet bgs. The WOH instances generally occur in very loose or very soft soils or potential voids. The WOH instance in boring BB-3 occurred in what appeared to be very soft clay that was possibly bridged over by competent clayey sands (SC) (Stratum 2) prior to consolidation. The WOH zone was immediately underlain by competent limestone as indicated by the SPT "N" values. Loss of drilling fluid circulation was not observed during drilling. WOH instances does not necessarily indicate sinkhole activity without other indicators being present such as raveling/eroding of upper soils into to the underlying strata, loss of drilling fluid circulation, voids, etc. Additionally, the WOH instance occurred at a depth below the zone of significant influence of the potential stress increase due to the planned residential structure.

The SPT borings (PB-1 to PB-15) performed within the stormwater pond areas generally encountered fine sand (SP), fine sand with clay (SP-SC), fine sand with silt (SP-SM) (Stratum 1), clayey sand (SC) (Stratum 2), clay (CL) (Stratum 3), and limestone bedrock (Stratum 4) from the ground surface to boring termination at about 15 to 25 feet bgs. Stratum 1 soils, if excavated will provide a good source for structural fill during site development. Stratum 2 soils can also be used as structural fill or backfill provided they conform to the criteria specified in the **Recommendations** section below. Stratum 3, clay, silt (CL, CH, ML) and Stratum 4, limestone bedrock are unsuitable for use as structural fill or backfill.

Loss of drilling fluid circulation was observed in borings BB-1, BB-2, BB-5, BB-8, BB-10 to BB-12, BB-21 to BB-32, PB-2, PB-3, and PB-5 to PB-8 at or near the limestone bedrock at the time of drilling. Florida limestone is generally porous and loss of drilling fluid circulation is common within the limestone or near limestone interface with other strata and does not indicate sinkhole activity without other indicators such as presence of voids, raveling of surficial soils, etc.

The auger borings performed along the proposed interior access roadway alignments generally encountered fine sand (SP), fine sand with silt (SP-SM), fine sand with clay (SP-SC) (Stratum 1) clayey sand (SC) (Stratum 2), and clay (Stratum 3) from the ground surface to the boring termination depths at approximately 8 feet bgs. It appears that the shallow subsurface soils will provide a suitable subgrade for roadway pavement, after proper site preparation and in-place densification methods described in the Recommendations section of this report except at some borings where high fines content soils are present at or near the existing ground surface. The encountered Stratum 1 soils can be used as backfill during utility installations. Stratum 2 soils can also be used as utility backfill provided they conform to the requirements presented in the Recommendations section below. Stratum 3, clay (CL) if encountered is unsuitable for re-use as backfill material. We also recommend that suitable fill with fines content of less than 15 percent be placed a minimum of 2 feet below the bottom of the base course (if the subgrade is un-stabilized) or a minimum of 2 feet below the bottom of the subgrade (if the subgrade is stabilized). Minor undercutting and replacing of soils with fines contents of less than 15 percent fines will be required in some locations. Undercutting and replacing of soils will be required at some auger boring locations due to the presence of high fines content soils at or near the ground surface.

The auger borings performed near the existing CSX crossing generally encountered fine sand (SP), fine sand with clay (SP-SC), fine sand with silt (SP-SM) (Stratum 1), clayey sand (SC) (Stratum 2), and clay (Stratum 3) from the ground surface to the boring termination depths at approximately 15 feet bgs. Limestone bedrock was not encountered within the depths explored at these locations.

Groundwater was encountered at depths ranging from about 1.0 to 6.7 feet bgs and not encountered within the first 10 feet in some SPT borings and not encountered within the boring termination depths of about 8 feet bgs in some auger borings at the time of drilling. We recommend maintaining a minimum separation of 1 foot between the bottom of the lowest footing and the estimated SHGWT (**Table 1**). For the roadway areas, we recommend a minimum of 24 inches of separation between the bottom of the base course and the estimated SHGWT (**Table 1**), if a limerock base course is used. The minimum separation between the bottom of the base course and the estimated SHGWT can be reduced to 12 inches if a moisture tolerant base course such as crushed concrete or soil-cement is used. Underdrains will be required in conjunction with using a moisture tolerant base course if the above-mentioned base clearance if not available. Alternatively, suitable structural fill can be added in some locations, in order to maintain the required base clearance, in accordance with the **Recommendations** section below.

We understand that the planned lift station may be constructed to a termination depth of approximately ±15 feet bgs. Based on our understanding of the lift station construction, a mat or reinforced concrete slab foundation should provide suitable support for the lift station provided that proper subgrade preparation is provided. The data obtained from the soil boring LS-1 indicate that the planned lift station will bear on Stratum 3 soils. Stratum 3 soils are unsuitable bearing soils. We recommend undercutting these soils a minimum of 2 feet below the planned bottom of the lift station foundation and replacing with more granular bearing material such as No. 57 stone. Stratum 1 soils once dried back to their optimum moisture content (ASTM D1557) can be reused as backfill material for the lift station. Stratum 2 soils can also be used as backfill provided these soils conform to the criteria specified in the **Recommendations** section below. It is important to note that dewatering and excavation of clay soils will be significant construction considerations during the lift station installation. The contractor should be made aware of these conditions prior to commencing work.

If structures or roadways are planned over the existing wetlands or borrow area, we recommend that these areas be dewatered, the bottom stripped of all soft/organic sediments, if present, the exposed subgrade proof-rolled and backfilled to final design grade using suitable compacted structural fill in accordance with the recommendations presented in this report.

Use of Information

It should be noted that subsurface conditions can vary across this site and between boring locations. Conditions can also vary in areas not explored by our borings. Contractors bidding earthwork requirements are urged to conduct their own borings, test pits or other investigations to determine those conditions that may affect their specific work requirements. FES cannot be responsible for interpretations made by others based on the information contained in this report and the attachments.

RECOMMENDATIONS

Site Preparation

Site Stripping/Undercutting

Before earthwork and construction activities begin, all existing topsoil, vegetation, surface debris, the existing trees including the root system, large roots down to finger-size and any other deleterious material should be removed from within the construction limits. Site stripping should extend at least ten feet beyond the construction area. Any pockets of organics, organic laden soils and/or deleterious material should be undercut to competent soil. The resulting excavations should be backfilled with structural fill placed in maximum one-foot-thick loose lifts. Backfill soils should be of the same composition and be compacted to the same criteria as structural fill soils. This process should be observed by a representative of FES to check that all organics, organic laden soils and/or deleterious material has been removed.

Proof-Rolling / In-Place Densification

Following site stripping and prior to any fill placement or beginning construction, proof-rolling / inplace densification of the ground surface with a heavy vibratory roller should be performed within the construction area. Based on experience, vibratory rollers should be operated in the static mode within 100 feet of existing structures to avoid transmission of vibrations that could cause structural distress.

Compaction within the construction area should continue until the soils appear relatively firm and unyielding and the soils have achieved a relative compaction of at least 95 percent of modified Proctor maximum dry density (ASTM D1557) to a depth of at least 2 feet below the present ground surface or 2 feet below the bottom of the lowest footing, whichever is lower.

The subgrade soil 1-foot below new pavement should be compacted to at least 98 percent of the modified Proctor maximum dry density (ASTM D1557). The moisture content of the fill soils during placement and compaction shall be maintained within 2 percent of the optimum moisture content as determined by ASTM D1557.

Proof-rolling and densification efforts should be closely monitored by an FES engineering technician to observe any unusual or excessive deflection of the soils beneath the compacting equipment used. If unusual or excessive deflection is observed, then the areas should be undercut to firm soil and backfilled with compacted structural fill placed in maximum one-foot-thick loose lifts.

Borrow Areas

Structural Fill Suitability

Definition

The preferred soil used for structural fill and backfill can be defined as clean fine sand containing less than twelve percent material by weight that is finer than a number 200 sieve (material conforming to SP to SP-SM or SP-SC in the Unified Soils Classification System).

Encountered soils containing up to 35 percent fines (materials conforming to SC, SM, or SC-SM in the Unified Soil Classification System) may also be utilized as structural fill, provided the working subgrade is above the existing groundwater level. However, Florida Building Code (Chapter 18, Section 1803.5.3) states that soils with plasticity index of 15 or greater are considered expansive and hence are unsuitable for use as structural fill. Please note that soils conforming to SC, SM, or SC-SM are difficult to work with and will require additional time and effort for either drying or moisture conditioning during placement and compaction.

Any muck or organic soil if encountered on site will not be suitable for fill and should be disposed of offsite or placed in landscape areas and used for planting purposes. Soils containing organic content, as determined by ASTM D2974, of more than 5 percent shall not be used as structural fill. Because of the variability of the subsurface soils encountered, additional laboratory testing should be performed on the excavated material during grading and earthwork activities to evaluate its suitability for use as fill material.

Soil Suitability

The SPT borings performed within the planned stormwater pond areas indicated soils conforming to Stratum 1 (SP, SP-SC, and SP-SM), Stratum 2 (SC), Stratum 3 (CL, CH, ML), and Stratum 4 limestone bedrock are present from existing ground surface to boring termination at about 15 to 25 feet bgs. Stratum 1 soils will provide a good source of structural fill, if excavated during site development. Stratum 2 soils can also be used as structural fill provided they conform to the criteria specified above. Stratum 3, clay, silt, and Stratum 4, limestone bedrock are unsuitable for reuse as structural fill or backfill.

Placement

Structural fill with less than 12 percent fines should be placed in lifts not to exceed one foot thick. Materials with fines content between 12 and 35 percent should be placed in maximum 6-inch loose lifts. Soils with fines content greater than 35 percent shall not be used as structural fill.

The fill material should be compacted to at least 95 percent of its modified Proctor maximum dry density (ASTM D1557). The upper 1-foot below pavements should be compacted to 98 percent of modified Proctor maximum dry density. The moisture content of the fill during placement and compaction shall be maintained within 2 percent of the optimum moisture content (ASTM D1557). Confined areas, such as utility trenches, should be compacted with manually operated portable vibratory compaction equipment.

Field density testing to verify compaction should be performed for each lift of structural fill placed for each 2,000 ft² of area below structures and for each 5,000 ft² below pavements. In pavement areas, the subbase and base materials should be tested to the same frequency. Density tests should be performed for each lift of fill for every 100 lineal feet of backfill placed in utility excavations or other excavations that are within the paving areas.

Depending on the time of year construction occurs, materials excavated containing clay fines may exist in a saturated condition. These soils will require processing and drying to achieve a moisture content to allow placement and proper compaction. Spreading the clayey material in thin lifts (6 inches loose thickness) and aerating by disking can facilitate and hasten the drying process. Disking will also be useful to breakdown larger clods of clayey soils. Specialty equipment typically associated with clayey soils such as a sheep's foot roller will also be required to achieve proper compaction.

The placement and compaction of moisture sensitive soils of this type will require time and effort beyond that typically associated with sandy soils. A grading contractor experienced with placing and compaction of clayey soils can likely reduce costly project delays due to soil conditions.

Groundwater Control

Groundwater will likely be encountered during excavation and fill placement activities. Dewatering may be accomplished by either draining the water to sumps which can then be pumped away from the area or by the use of sanded, vacuum well points. Groundwater fluctuations can occur due to variations in rainfall and other site-specific factors. These variations should be considered when planning earthwork activities.

An alternative to dewatering in shallow undercut areas where groundwater is encountered is to use clean sand classified as SP material (less than 5% fines) according to the Unified Soil Classification System as a first lift through any standing water. This first lift will create a platform to place and compact additional fill material upon.

Foundation Recommendations

Based on the subsurface data obtained from our exploratory borings, the planned single- and multifamily residential structures can be supported on a shallow foundation system provided the recommendations contained in this report are closely adhered to (including possible undercutting and replacing of high fines content Stratum 2 and Stratum 3 soils as described above) and proper densification of the site bearing soils occurs.

Column footings and continuous strip footings can be designed using a net allowable soil bearing pressure of 2,000 psf assuming a footing embedment of at least 12 inches below lowest exterior adjacent grades. Using this net allowable soil bearing pressure, we anticipate maximum total foundation settlements of less than 1 inch and differential settlements of less than 0.5 inches.

If the actual column/wall loads result in a footing/soil contact pressure that exceeds the above allowable bearing pressure, the footings should be constructed wider or the footing embedment below lowest adjacent exterior grade increased. Even though computed footing dimensions may be less, column and wall footings should have a minimum width in accordance with the applicable building code for the type of structure and construction to avoid excessive settlements and punching shear failures. We also recommend a minimum 1-foot separation between the bottom of the lowest footing and the estimated SHGWT (**Table 1**).

Because of possible disturbance from excavation, the soils exposed at the bottom of the foundation excavations should be re-compacted to at least 95 percent of the soils modified Proctor maximum dry density (ASTM D1557) prior to the placement of reinforcing steel and concrete. The compaction should be checked prior to the placement of reinforcing steel. Density test should be performed at intervals of 50 linear feet along the footing excavations to ensure compaction.

Floor Slab Recommendations

We have assumed that no unusual floor loads will be applied to the floor slabs due to vibration, impact or high intensity contact pressures. A modulus of subgrade reaction of 200 pounds per cubic inch may be used for floor slab design purposes if the slab is placed on structural fill or in-situ soils that have been prepared and densified in accordance with the recommendations presented in this report. This modulus of subgrade reaction is based on the assumption that the soil beneath the slab will achieve a Limerock Bearing Ratio (LBR) value of at least 15. The subgrade should also be covered with an effective vapor barrier to reduce the possibility of slab dampness.

Flexible Pavement Recommendations

The following minimum pavement sections are provided for consideration for this development. However, the project civil engineer should develop the actual minimum pavement thickness based on anticipated traffic loads and other considerations in accordance with FDOT and Pasco County standards. A base material other than limerock should be used if an underdrain is required to control groundwater.

Section Description	Light Duty (inches)	Heavy Duty (inches)
Surface Course Type SP-9.5 or SP-12.5 Asphaltic (Section 334 FDOT) compacted to minimum per applicable requirement of the mix design bulk density (G _{mm}) (FM 1-T166).	1.5	3
Base Course Limerock (Section 911, FDOT) having a minimum LBR of 100 (FM 5-515) and compacted to at least 98 percent of its modified Proctor maximum dry density and moisture content maintained within 2 percent of the optimum value (FM1-T180). If the bottom of the base is within 2 feet of the seasonal high groundwater level, then a moisture tolerant base will be required such as cement-treated aggregate or crushed concrete or shell-rock.	6	10
Subbase A minimum LBR of 40 (FM5-515) and compacted to at least 98 percent of the modified Proctor maximum dry density at a moisture content within 2 percent of the optimum value (FM1- T180).	12	12

Methods and materials used for pavement construction should conform to applicable sections of the most recent edition of the FDOT Standard Specifications for Road and Bridge Construction. We further recommend that LBR testing be performed on the subgrade soils to establish an LBR value to determine the level of stabilization required, if any.

Subgrade soils should be compacted as specified above and free of ruts or disturbances caused by construction vehicles after compaction has been achieved.

POTENTIAL FOR SINKHOLE DEVELOPMENT

Most of Florida is prone to sinkhole formation because it is underlain by carbonate deposits that are susceptible to dissolution by circulating ground water. The soluble limestone and dolomites that constitute the carbonate deposits are altered by dissolution and weathering processes to a distinct geomorphology known as "Karst". Where the carbonate rock is covered by relatively insoluble deposits such as the sand and clay deposits that exist in west-central Florida, the buried Karst features form a distinctive type of terrain known as "mantled Karst". In mantled Karst regions, the carbonate rock is not exposed at the land surface; however the presence may be indicated by sinkholes or surface depressions that result when the overburden materials take the shape of the underlying Karst features. [Tihansky, A.B., 1999, Sinkholes, West-Central Florida, in Galloway, Devin, Jones, D.R., and Ingebritsen, S.E., eds., Land Subsidence in the United States: USGS Circular 1182.].

At the time of our fieldwork, we observed no strong visual evidence to suggest that active sinkhole conditions exist on the property explored nor were suggestive near surface conditions observed in our borings. A review of a map titled "Pasco County Sinkholes" published in 2008 by the Florida Center for Instructional Technology (FCIT) indicates that the area in the vicinity of the planned Gagne Parcel residential development is not an area of reported excessive sinkhole activity. Furthermore, we assess that the risk of sinkhole occurrence at the property explored is no greater or less than that of the surrounding area. However, because Florida is underlain by limestone bedrock that is susceptible to dissolution and the subsequent development of karst features such as voids and sinkholes in the natural soil overburden, construction in Pasco and surrounding counties is accompanied by some risk that internal soil erosion and ground subsidence could affect new structures in the future. It is not possible to investigate or design to completely eliminate the possibility of future sinkhole related problems. In any event, the Owner must understand and accept this risk.

TESTING AND MONITORING

Construction testing and monitoring are essential to proper site construction and performance. Observation and testing of site preparation and earthwork activities is an integral part of the engineering recommendations contained in this report. Having FES provide the construction materials testing and inspection services provides continuity and increases the potential that our recommendations will be properly implemented.

LIMITATIONS

This report has been prepared for the exclusive use of **Meritage Homes of Florida**, **Inc.** for the specific application to the project previously discussed. Our conclusions and recommendations have been rendered using generally accepted standards of geotechnical engineering and geology practice in the state of Florida. No other warranty is expressed or implied.

Our conclusions and recommendations are based on the design information furnished to us, the data obtained from the previously described subsurface investigation, laboratory testing, and our professional judgment. They do not reflect variations in the subsurface conditions that are likely to exist in the region of our borings and in unexplored areas of the site. These variations are due to the inherent variability of the subsurface conditions in this geologic region. Should variations become apparent during construction, it will be necessary to re-evaluate our conclusions and recommendations based upon our on-site observations of the conditions.

The scope of our services does not include any environmental assessments or studies for the possible presence of hazardous or toxic materials in the soil, groundwater or surface water within or in the general vicinity of the site studied. Any statements made in this report or shown on the test boring logs regarding unusual subsurface conditions and/or composition, odor, staining, origin or other characteristics of the surface and/or subsurface materials are strictly for the information of our client and may or may not be indicative of an environmental problem.

If changes are made in the overall design or the location of the proposed stormwater pond areas, building areas, the roadway alignments, or the lift station, the recommendations presented in this report must not be considered valid unless the changes are reviewed by FES and recommendations modified or verified in writing. FES should be given the opportunity to review the grading plan and the applicable portions of the project specifications when the design is finalized. This review will allow FES to check whether these documents are consistent with the intent of our recommendations.

CLOSING

Faulkner Engineering Services, Inc., appreciates the opportunity to be of service to **Meritage Homes of Florida, Inc.** by providing these geotechnical consulting services and we look forward to assisting you through project completion. If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Sincerely,

Faulkner Engineering Services, Inc.

Matthew Reinbart

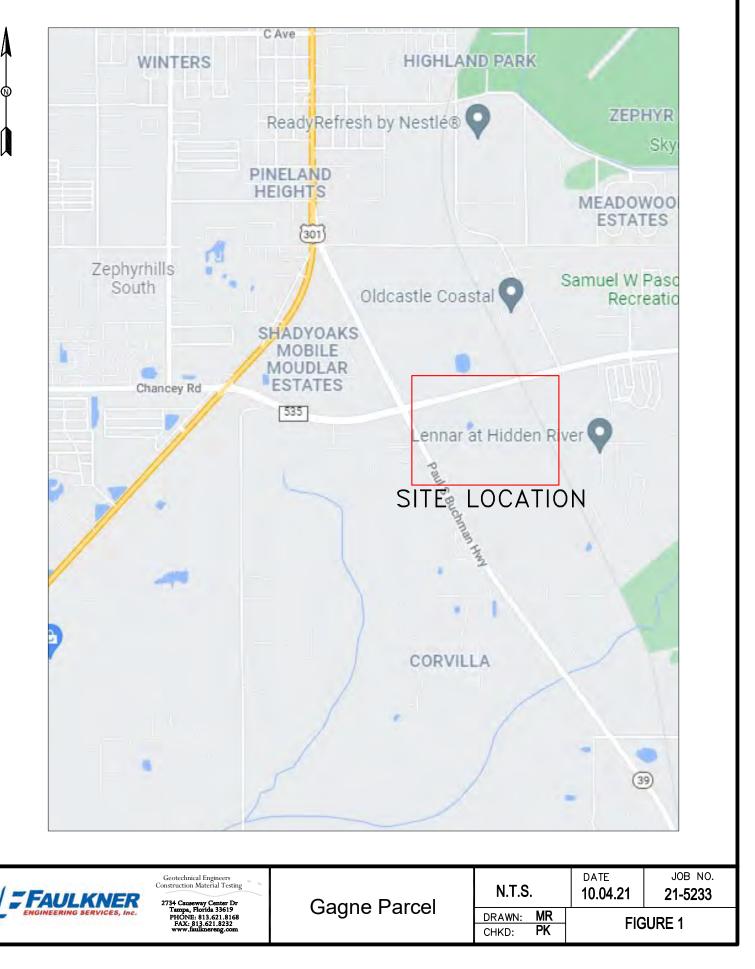
Matthew J. Reinhart, E.I. Staff Geotechnical Engineer Pavan K. Kolukula, P.E. Senior Geotechnical Engineer Florida License No. 83670

This item has been digitally signed and sealed by David W. Faulkner, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Copy to: Mr. Chris Torres (Meritage Homes of Florida, Inc.)

- Attachments: Figure 1: Site Location Map Figure 2: Boring Location Plan Table 1: Groundwater Data
- Appendix A: Soil Survey Map
- Appendix B: SPT Boring Logs and Auger Boring Profiles
- Appendix C: Key to Soil Classification

SITE LOCATION MAP



BORING LOCATION PLAN



<u>LEGEND</u>

₪

SPT BUILDING BORING
 SPT POND BORING
 AUGER BORING
 SPT LIFT STATION BORING

<u>Note</u>: Basemap provided by Levelup Consulting, LLC

TFAULKNER	Geotechnical Engineers Construction Material Testing 2734 Causeway Center Dr	Gagne Parcel	N.T.S.	DATE 3.8.22	JOB NO. 21-5233
ENGINEERING SERVICES, Inc.	Tampa, Florida 33619 PHONE: 813.621.8168 FAX: 813.621.8232 www.faulknereng.com	Cagne i arcer	DRAWN: MR CHKD: PK	FIGL	JRE 2
			CIRD. FR		

Boring	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
BB-1	-	4.0	2.0
BB-2	-	3.4	2.0
BB-3	-	4.0	3.0
BB-4	-	4.0	3.0
BB-5	-		2.0
BB-6	-	3.5	2.0
BB-7	-	3.7	2.0
BB-8	-	4.1	3.0
BB-9	-	NE	2.0
BB-10	-	3.4	2.0
BB-11	-	4.2	2.0
BB-12	-	1.0	1.0
BB-13	-	1.0	1.0
BB-14	-	NE	1.0
BB-15	-	3.3	2.5
BB-16	-	3.0	2.0
BB-17	-	3.3	2.5
BB-18	-	3.7	3.0
BB-19	-	3.0	2.0
BB-20	-	3.0	2.5
BB-21	-	2.9	2.0
BB-22	-	2.3	1.5
BB-23	-	1.0	1.0
BB-24	-	1.0	1.0
BB-25	-	2.0	1.5
BB-26	-	NE	2.0
BB-27	-	NE	2.0
BB-28	-	1.0	1.0
BB-29	-	3.6	3.0
BB-30	-	2.0	1.5
BB-31	-	NE	2.0
BB-32	-	NE	1.5
BB-33	-	3.0	2.5
BB-34	-	3.0	2.5
BB-35	-	NE	3.0
BB-36	-	NE	2.0
PB-1	-	3.5	2.0
PB-2	-	3.0	2.0

Table 1 - Groundwater Data

Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
PB-3	-	NE	2.5
PB-4	-	3.3	2.0
PB-5	-	1.0	1.0
PB-6	-	3.0	2.0
PB-7	-	3.0	2.5
PB-8	-	NE	1.0
PB-9	-	NE	2.0
PB-10	-	NE	1.0
PB-11	-	NE	1.0
PB-12	-	NE	1.0
PB-13	-	NE	0.5
PB-14	-	NE	2.0
PB-15	-	NE	2.0
LS-1	-	NE	1.0
AB-1	-	6.4	5.0
AB-2	-	6.5	5.0
AB-3	-	6.7	5.0
AB-4	-	6.2	5.0
HA-1	-	3.2	2.0
HA-2	-	3.3	2.0
HA-3	-	3.8	3.0
HA-4	-	4.0	2.0
HA-5	-	3.7	3.0
HA-6	-	3.8	3.0
HA-7	-	4.0	3.0
HA-8	-	3.8	2.0
HA-9	-	3.8	2.0
HA-10	-	3.5	2.5
HA-11	-	3.0	1.0
HA-12	-	3.0	2.5
HA-13	-	1.3	1.0
HA-14	-	3.6	2.0
HA-15	-	NE	2.0
HA-16	-	NE	2.0
HA-17	-	1.0	1.0
HA-18	-	3.6	2.0
HA-19	-	4.0	2.0
HA-20	-	3.7	3.0
HA-21	-	1.0	1.0
HA-22	-	1.0	1.0

Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration		
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²		
HA-23	-	1.0	1.0		
HA-24	-	NE	2.0		
HA-25	-	3.0	2.0		
HA-26	-	3.3	2.0		
HA-27	-	3.3	2.5		
HA-28	-	NE	2.0		
HA-29	-	2.9	2.0		
HA-30	-	3.0	2.5		
HA-31	-	2.9	2.0		
HA-32	-	1.0	1.0		
HA-33	-	2.0	1.5		

¹ - North American Vertical Datum, ground elevations not available at time of drilling

² - Below Ground Surface

³ - Seasonal High Groundwater Table

NE - Not encountered in the first 10 feet (SPT boring) or boring termination (auger borings)

Report of Geotechnical Engineering Evaluation Gagne Parcel Pasco County, FL. FES Project No: 21-5233

APPENDIX A

Soil Survey Map

Custom Soil Resource Report Soil Map



	MAP L	EGEND)	MAP INFORMATION
Area of Int	Area of Interest (AOI) Area of Interest (AOI)		Spoil Area	The soil surveys that comprise your AOI were mapped at
	Area of Interest (AOI)	٥	Stony Spot	1:20,000.
Soils	Sail Man Linit Dahmana	0	Very Stony Spot	Warning: Soil Map may not be valid at this scale.
	Soil Map Unit Polygons	Ŷ	Wet Spot	
~	Soil Map Unit Lines	Δ	Other	Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil
	Soil Map Unit Points		Special Line Features	line placement. The maps do not show the small areas of
Special	Point Features Blowout	Water Fea	atures	contrasting soils that could have been shown at a more detailed scale.
Ø	Borrow Pit	\sim	Streams and Canals	
<u>م</u>	Clay Spot	Transport		Please rely on the bar scale on each map sheet for map
~	Closed Depression	+++	Rails	measurements.
×	Gravel Pit	~	Interstate Highways	Source of Map: Natural Resources Conservation Service
	Gravelly Spot	~	US Routes	Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)
	Landfill	\sim	Major Roads	
0	Lava Flow	~	Local Roads	Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts
A.		Backgrou		distance and area. A projection that preserves area, such as the
<u>مل</u> ه	Marsh or swamp		Aerial Photography	Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.
*	Mine or Quarry			
0	Miscellaneous Water			This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
0	Perennial Water			
×	Rock Outcrop			Soil Survey Area: Pasco County, Florida Survey Area Data: Version 20, Aug 27, 2021
+	Saline Spot			Survey Area Data. Version 20, Aug 27, 2021
° °	Sandy Spot			Soil map units are labeled (as space allows) for map scales
0	Severely Eroded Spot			1:50,000 or larger.
\diamond	Sinkhole			Date(s) aerial images were photographed: Feb 8, 2019—Feb
≫	Slide or Slip			28, 2019
ø	Sodic Spot			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
1	Wauchula fine sand, 0 to 5 percent slopes	37.1	40.6%
2	Pomona fine sand	1.4	1.5%
10	Wabasso-Wabasso, wet, fine sand, 0 to 2 percent slopes	11.3	12.4%
16	Zephyr muck	37.4	40.9%
18	Electra Variant fine sand, 0 to 5 percent slopes	4.1	4.5%
48	Lochloosa fine sand, 0 to 5 percent slopes	0.0	0.0%
Totals for Area of Interest		91.4	100.0%

APPENDIX B

SPT Boring Logs and Auger Boring Profiles

Project:	Gagne	e Parc	el					Project No.: 21-5233 Date: 10/1/2021
Client: Locatio	Meritag n: Pasc J&R Pre	e Hor co Co ecisio						Elevation: NA Logged By: AJ
Depth to	o Wate		Initial 🚊 :			A		mpletion : 4.0'
Depth/ Elevation Soil	Symbols	nscs	Description	Type CO	ample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60 8
	s	P	Very Loose, brown, fine SAND	I	1	1 1 1	2	
	s // s	C	Loose, brown, clayey SAND	Ī	2	2 1 2	3	
			Gray brown, with small roots	Ī	3	2 3	7	
		L	Stiff, gray brown, CLAY with cemented silt		4	4 8 3 4	7	
			Gray		5	4 4 6 5	11	
						-		
			LIMESTONE		6	4 3 2	5	
			With clay	/	7	7 4 5	9	
			End of Boring			. 5		
Loss of c	irculati	on a	t 15'					

	Clie Loc Dril		itage Ho Pasco Co & Precisi						Elevation: NA Logged By: BB	
	Dep	oth to W		Initial 🖳 :			Α		ompletion : 3.4'	
	Depth/ Elevation	Soil Symbols	nscs	Description	Type Co	ample No.	Blows	N	Standard Penetration Test Penetration Resistance	
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Ű			SP- SM	Loose, brown, fine SAND with silt		1	1 2 2	4		
		¥ / / / / /	SC	Loose, brown, clayey SAND		2	2 3 3	6		
5-				Medium-Dense		3	4 6 6	12		
	_					4	6 6 9	15		
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Project No.: 21-5233 Date: 10/1/2021

Project No.: 21-5233 Date: 10/18/2021

 Project: Gagne Parcel

 Client: Meritage Homes

 Location: Pasco County, Florida

 Driller: J&R Precision Drilling, Inc.

 Drill Rig: CME 550

 Denth to Water>

 Initial \arrow .

Elevation: NA Logged By: BB

	Dep	oth to W	ater>	Initial $\stackrel{\scriptstyle{\scriptstyle{\frown}}}{=}$:			Α	t Cor	ompletion : 4'
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	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
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	_	£ 63 (c) 1.0 c (c) 6 63 (c)	SP- SM	Loose, gray brown, fine SAND with silt		2	3 2 3	5	
5			SC	Medium-Dense, brown, clayey SAND		3	4 6 8	14	
	_			Gray		4	8 8 9	17	
10	_					5	9 9 10	19	
10	_								
15			CL	Very Soft, orange, CLAY (weight of hammer (WOH):(13.5-16))	I	6	0 0 0	0	
	_			LIMESTONE		7	7 15 8	23	
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EALIN VALED
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ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/4/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 45

Elevation: NA Logged By: BB

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Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	N		Penetra	tion Re	esista			
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	_					4	5 6 6	12		F					
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Project No.: 21-5233 Date: 10/1/2021

DRILL HOLE LOG BORING NO.: BB-5

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ENGINEERING	SERVICES, INC.

Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water> Initial [∞]

Elevation: NA Logged By: BB

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	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
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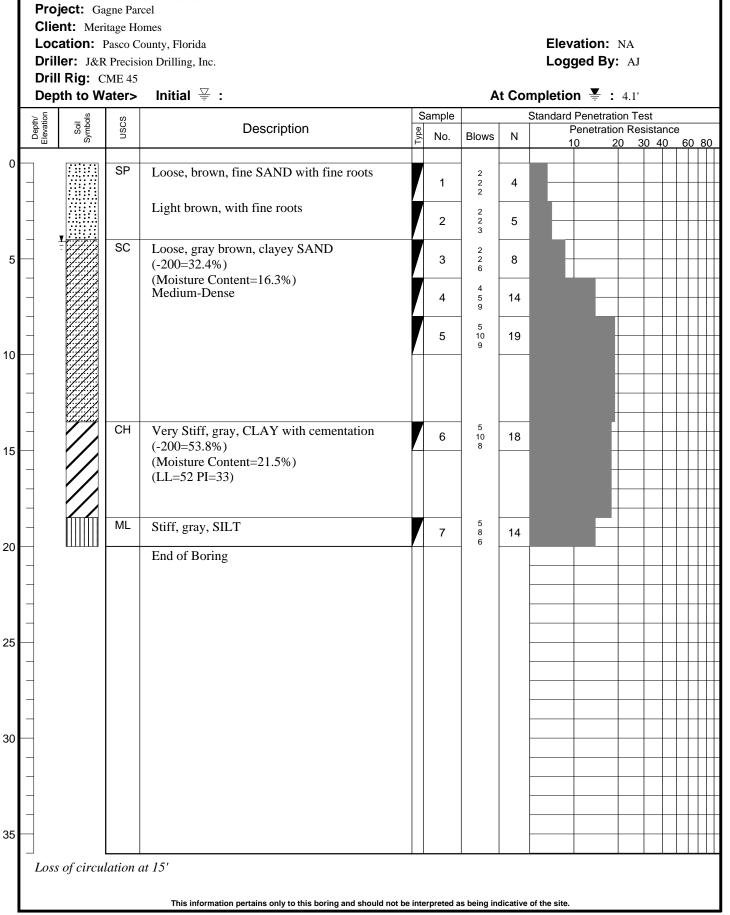
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Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel
Client: Meritage Homes
Location: Pasco County, Florida
Driller: J&R Precision Drilling, Inc.
Drill Rig: D-25

Elevation: NA Logged By: BB

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			With cementation			7								+
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Project No.: 21-5233

Date: 10/1/2021

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	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water> Initial ≚

Elevation: NA Logged By: BB

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0	_	1 63 911 - 1.011 (1)	SP- SM	Loose, brown, fine SAND with silt		1	1 2 2	4	_						
	_		CL												
	_			Stiff, brown, CLAY		2	3 3 5	8							
	_			Gray brown											
5						3	5 5 7	12							$\left \right $
				Light brown		4	3	7							
	_					4	4	1		_					
	_					5	4 4	9							<u> </u>
10							5						+	$\left \right $	$\left \right $
	_												-		$\left \right $
	_												+		$\left \right $
	_			With cementation			4								
15						6	4 5	9							
10	_														<u> </u>
	_														$\left \right $
	_												-		$\left \right $
	—			With limestone		7	7 7 7	14					+	$\left \right $	$\left \right $
20				End of Boring									+		
	_														
	_												_		<u> </u>
25													+	$\left \right $	$\left \right $
	_												-		$\left \right $
												+	+	\square	$\left \right $
30															
00												_			\square
												-+	_	\square	$\left \right $
													+	\square	$\left \right $
												\rightarrow	+	+	$\left \right $
35												$\neg \uparrow$	+	\square	+
		roundwate	er not e	encountered at first 10 feet	1_1					1	1	I			
				~ ~											
				This information pertains only to this boring and should	not be inte	erpreted a	is being ind	dicative	of the site	9.					
	PAGE '	1 01 1													

	Clie Loc Dril	ller: J&R	itage Ho Pasco Co & Precisi							vation: gged By		,			
		ll Rig: D oth to W		Initial $\stackrel{\Box}{=}$:			А	t Co	mpleti	on 🛓 :	3.4'				
	Depth/ Elevation	Soil Symbols	nscs	Description		Sample			Standar	d Penetrat					
	Elev	Sym	SN	Description	Type	No.	Blows	N		Penetration		30 40		<u>60 8</u>	30
0		1.000 (1.00) 6 6 9 9 6 1 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	SP- SM	Loose, gray, fine SAND with silt and fine roots	T	1	2 2 2	4					+	++	-
	_	¥ 7.7.7 ¥ 7.7.7 ▼ 7.7.7 × 7.7.7 × 7.7.7	SP- SC	Loose, brown gray, fine SAND with clay	Ī	2	2 3 3	6					_	+	-
5			SC	Medium-Dense, gray, clayey SAND	I	3	6 8 10	18					+	+	-
				Dense, gray brown		4	12 19 15	34					_	+	
10	_					5	13 18 19	37							-
15	_		ML	Stiff, gray, calcareous SILT with limestone		6	345	9							
00	_		SM	Medium-Dense, gray, silty SAND	T	7	3 6 4	10					+	+	-
20	_			End of Boring											
25	_														-
20															
30													+		
													+	++	+
35											+		+	+	
	Loss	s of circu	lation c	ut 18 feet	<u> </u>	I	1	<u>.</u>	<u>.</u>		<u> </u>	<u> </u>			

Project No.: 21-5233 Date: 10/4/2021

PAGE 1 of 1

This information pertains only to this boring and should not be interpreted as being indicative of the site.

vation: NA



		ater>	Initial 🐺 :			A		npletion				
Leptn/ Elevation	Soil Symbols	USCS	Description	Type C	Sample No.	Blows	N	Standard F Pe	Penetrati enetratio	n Resi	stand	
' <u></u>	Ő			Ê	110.	DIOWS		10) 2	0 30) 40	60
		SP	Loose, brown, fine SAND		1	1 2 2	4					
		SC	Loose, brown, clayey SAND		2	2 1 2	3					
			Gray brown	ſ	3	2 3 3	6					
			Medium-Dense		4	4 5 6	11					
					5	5 10 11	21					
		CL	Very stiff, gray orange, CLAY		6	67	16		P			
						9						
			with limestone			5			F			
			End of Boring		7	5 8 8	16					
							=					
							-					
							-					
							-					
							-					
							-					

FAULKNER INGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 10/4/2021

Soil	uscs										_
0)		Description	Type CO	ample No.	Blows	N		tration Re	sistanc		
							10	20 3	<u>30 40</u>	60	Ī
¥ 1.00 100 JC 1.00 100 JC	SP- SM	Very Loose, brown, fine SAND with silt		1	1 1 1	2					_
	SC	Loose, gray brown, clayey SAND (-200=38.7%) (Mojeture Content=14.9%)		2	1 2 2	4					
		Medium-Dense		3	3 4 5	9					_
				4	5 5 6	11					_
				5	6 8 7	15					_
											+
		LIMESTONE with clay	ľ	6	5 4 5	9				+	+
										\square	-
		With clay (50 blows/2 inches)	T	7	4 9 50	50/2					+
		End of Boring									-
											_
										\downarrow	+
										+	+
										+	+
										\ddagger	+
											+
			(Moisture Content=14.9%) Medium-Dense LIMESTONE with clay With clay (50 blows/2 inches)	(Moisture Content=14.9%) Medium-Dense	(Moisture Content=14.9%) Medium-Dense 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 6 With clay (50 blows/2 inches) 7	(Moisture Content=14.9%) Medium-Dense 3 3 5 4 5 6 5 6 5 6 7 6 5 4 5 6 7 5 4 5 6 7 5 4 5 6 7 5 5 6 7 5 6 6 5 7 5 5 6 5 6 5 6 7 6 5 5 6 9 50 100 s/2 inches) 7 4	(Moisture Content=14.9%) 3 $\frac{3}{4}$ 9 4 $\frac{5}{6}$ 11 5 $\frac{6}{8}$ 15 6 $\frac{5}{4}$ 9 ULIMESTONE with clay 6 $\frac{5}{4}$ 9 With clay 7 $\frac{4}{9}$ $50/2$	(Moisture Content=14.9%) Medium-Dense 3 $\frac{3}{5}$ 9 4 $\frac{5}{6}$ 115 $\frac{6}{7}$ 155 $\frac{6}{7}$ 156 $\frac{5}{4}$ 9 With clay (50 blows/2 inches) 7 $\frac{4}{9}$	(Moisture Content=14.9%) Medium-Dense 3 3/4 9 4 5/6 11 5 6/6 11 5 6/7 15 5 6/7 15 6 5/4 9 LIMESTONE with clay 6 5/4 With clay (50 blows/2 inches) 7 4/9	(Moisture Content=14.9%) Medium-Dense 3 3 3 9 4 5 11 11 11 5 6 7 15 11 5 7 15 15 15 UMESTONE with clay 6 5 9 11 With clay 7 4 50/2 50/2	(Moisture Content=14.9%) Medium-Dense 4 5 4 5 6 $\frac{5}{6}$ 11 15 11 15 $\frac{6}{7}$ 9 11 5 $\frac{6}{7}$ $\frac{6}{7}$ 9 11 12 13 14 5 $\frac{6}{7}$ $\frac{6}{7}$ $\frac{6}{5}$ $\frac{7}{5}$ $\frac{6}{5}$ $\frac{5}{5}$ $\frac{9}{10}$ $\frac{10}{10}$

Project No.: 21-5233 Date: 9/24/2021



Dri	cation:	Pasco C R Precisi	omes ounty, Florida on Drilling, Inc.					Elevation: NA Logged By: AJ
	pth to W					Α	t Co	mpletion : 1.0'
Depth/ Elevation	Soil Symbols	nscs	Description	Type CO	ample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60 80
	t 63900 10000000 ▼ 100000000	SP- SM	Loose, brown, fine SAND with silt		1	1 2 1	3	
_		SC	Loose, gray brown, clayey SAND		2	1 2 3	5	
-		CL	Medium, gray, CLAY with sand		3	2 2 3	5	
-		SC	Medium-Dense, brown, clayey SAND		4	4 4 6	10	
-					5	7 9 8	17	
			LIMESTONE		6	3 4 3	7	
			With clay	T	7	5 10 21	31	
			End of Boring					

GINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/24/2021

	L			DRILL HOLE LOG BORING NO.: BB-14						ect No.: 9/30/20		5233	3		
	Clie Loc Dril Dril		tage Ho Pasco Co Precisi -50	omes ounty, Florida on Drilling, Inc.			A		Log	vation: ged By: on 	BB				
ŀ	-					ample	A			Penetrati					
	Depth/ Elevation	Soil Symbols	uscs	Description	Type (No.	Blows	N		Penetratio	n Res	istar			
	— ш	S S			É.	110.	Diette		1	10 2	0 30) 4(06	<u>30</u>	80
0	_		SC	Loose, brown, clayey SAND (-200=22.7%) (-200=22.2%)	I	1	1 1 2	3					_		
	_			(-200-22.2%)		2	2 2 3	5					+		
5	_				Z	3	3 4 3	7					+		
	_					4	4 4 4	8					\pm		
10	_	F C 9 3513 1 F 9 9 4 5 C 9 31-11 1 F 9 9 1-11	SP- SM	Medium-Dense, gray brown, fine SAND with silt		5	3 4 6	10							
	_											_			
5	_		CL	Medium, gray brown, CLAY	ľ	6	2 3 3	6	E						
	_						2					_	_		
20	_			End of Boring		7	2 2 3	5				_	+	$\frac{1}{1}$	
													_		
25	_												+		
	_											_	+	+	
	_											\rightarrow	+		
0	_											\rightarrow	+		
	_											\dashv	+		
85 ⁻	_											+	+		
	_ *Gro	oundwate	er not e	encountered at first 10 feet			1		I						
				This information pertains only to this boring and should not be	e inte	erpreted a	is being ind	dicative	of the site.						

Dril	II Rig: D	0-50	on Drilling, Inc.					Logged By: BB	
-	oth to W	ater>	Initial ₩ :			A		mpletion : 3.3	
Elevation	Soil Symbols	nscs	Description	Type 70	Sample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40	60
	2 2 (2 (2)) 1/20 (7 (2)) 6 (2 (2))	SP- SM	Loose, brown, fine SAND with silt		1	1 1 3	4		$\overline{+}$
	¥	SP	Loose, brown, fine SAND		2	1 2 3	5		+
		SC	Loose, light brown, clayey SAND (-200=24.3%)	Ī	3	3 4 3	7		_
		CL	Stiff, light brown, CLAY with sand		4	4 4 6	10		_
				ſ	5	4 5 6	11		
			Medium, light orange brown		6	3 3 3	6		_
									+
			Stiff, light gray brown	T	7	2 3 4	7		
			End of Boring						_
									_
									+
									_
									_

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 9/29/2021

Dril Dril	ler: J&R I Rig: C	Precisi ME 55(Elevation: NA Logged By: AJ
-	oth to W		Initial 🐺 :		_		mpletion = : 3.0'
Depth/ Elevation	Soil Symbols	nscs	Description	Sample	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60
	t 63 (c) 1,0 c c) 1,0 c c) 6 c a c) 1,0	SP- SM	Very Loose, brown, fine SAND with silt	1	1 1 1	2	
_	¥	CL	Medium, orange brown, CLAY	2	1 2 2	4	
-		SC	Medium-Dense, orange brown, clayey SAND (-200=42.8%)	3	446	10	
-		CL	Very Stiff, light brown, CLAY with sand	4	5 5 8	13	
_		SC	Medium-Dense, light brown, clayey SAND (-200=21.6%)	5	9 8 7	15	
_							
				6	10 12 12	24	
_							
_				7	4 6	14	
_	<u>[.X.X.X.]</u>		End of Boring		8		
_							
_							
_							
-							

FAULKNER

Project No.: 21-5233 Date: 9/27/2021

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<i>FAULKNER</i>
ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/29/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50

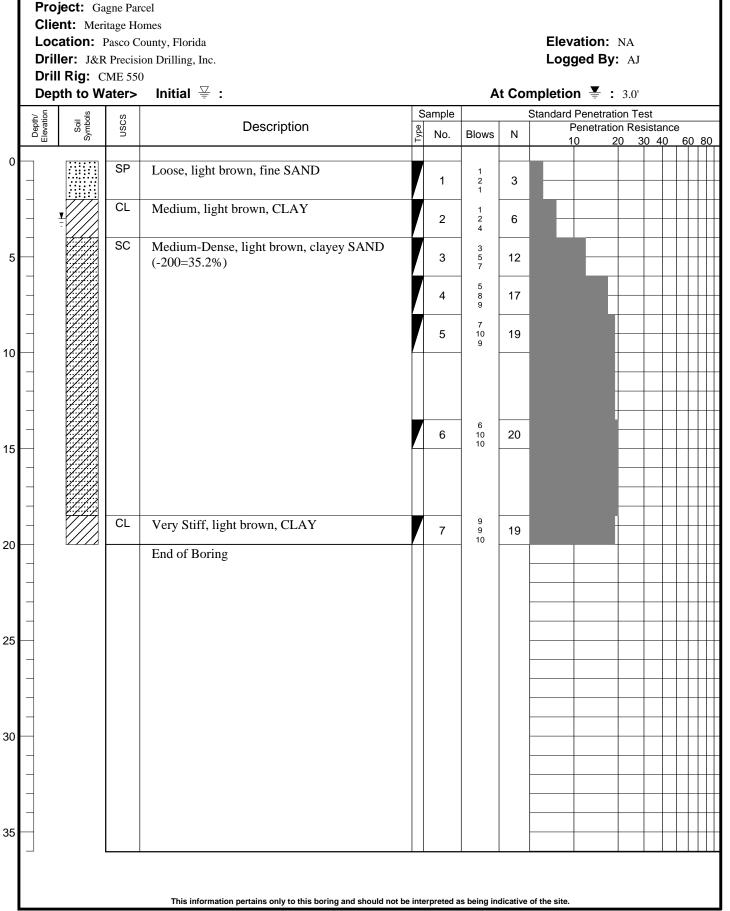
Elevation: NA Logged By: BB

Initial $\stackrel{\underline{\vee}}{=}$: Depth to Water> At Completion : 3.3' Standard Penetration Test Sample Soil Symbols Depth/ Elevatior USCS Description Penetration Resistance Type No. Blows Ν 20 30 40 60 80 10 0 SP-Loose, brown, fine SAND with silt . in in it 1 3 SM 1 1 2 2 2 2 2 4 CL Medium, brown, CLAY 2 3 4 3 7 E Stiff 3 4 11 5 6 Very Stiff, gray brown 4 7 5 15 8 10 Medium, light brown 2 3 3 6 6 15 2 2 2 7 4 20 End of Boring 25 30 35 This information pertains only to this boring and should not be interpreted as being indicative of the site. PAGE 1 of 1

	IRig: D oth to Wa		Initial $ ot = $:			А	t Coi	npletic	on ¥ੁ	: 3.7'		
-		uscs			ample			Standard	Penetra	ation Te	est	
Depth/ Elevation	Soil Symbols	Ň	Description	Type	No.	Blows	Ν		Penetrat	ion Re: 20 3		<u>50</u>
	1 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	SP- SM	Loose, gray brown, fine SAND with silt	T	1	1 2 2	4					
	¥	SP	Loose, brown, fine SAND		2	2 2 3	5					
_	~~~~	CL	Medium-Dense Stiff, brown, CLAY	_	3	3 4 5	9					+
_		0L	Orange brown		4	6 6 6	12					
_			Very Stiff, gray brown		5	5 7 8	15					
_												
_			Light brown	ľ	6	5 7 9	16					
_												
_		SP	Medium-Dense, light brown, clayey SAND		7	6 9 9	18					
			End of Boring									
_												
-												
_												
												t



Project No.: 21-5233 Date: 9/30/2021



Project No.: 21-5233

Date: 9/27/2021

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	CALL LAND
1 -	FAULKNER
	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/24/2021

 Project: Gagne Parcel

 Client: Meritage Homes

 Location: Pasco County, Florida

 Driller: J&R Precision Drilling, Inc.

 Drill Rig: CME 550

 Denth to Water>

Elevation: NA Logged By: AJ

	Dep	th to Wa	ater>	Initial 🖳 :			Α	t Cor	mpletion 🚆 : 3.0'
	th/ tion	- so	S		S	ample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0			SP	Loose, gray, fine SAND	T	1	1 2 2	4	
	_	¥ / / / / /	SP- SC	Loose, gray brown, fine SAND with clay	T	2	2 2 3	5	
5			SC	Medium-Dense, gray brown, clayey SAND	T	3	3 4 5	9	
	_					4	5 8 7	15	
10	_			Brown		5	6 8 6	14	
	_								
15	_			Gray		6	3 5 8	13	
	_								
20	_					7	7 10 7	17	
20	_			End of Boring					
25	-								
30	_								
	_								
35	_								
	PAGE 1	of 1		This information pertains only to this boring and should not	be inte	erpreted a	as being inc	dicative	of the site.

	Clie Loc Dril	ler: J&R	tage Ho Pasco Co Precisio	mes ounty, Florida on Drilling, Inc.					Elevation: NA Logged By: BB
		I Rig: C oth to Wa		nitial ₩ :			А	t Cor	npletion : 2.9'
	Depth/ Elevation	Symbols	nscs	Description		ample			Standard Penetration Test
	Der Eleve	Sym	ns	Description	Type	No.	Blows	Ν	Penetration Resistance
0		6 6 9 9 9 9 9 1 7 6 9 9 9 9 9 6 6 9 9 9 9 9	SP- SM	Loose, gray brown, fine SAND with silt		1	2 2 2	4	
	_	¥	SP	Loose, light brown, fine SAND		2	2 3 4	7	
5			CL	Stiff, brown, CLAY		3	2 3 4	7	
	_					4	4 6 5	11	
10				Very Stiff		5	6 6 7	13	
	_			Stiff, light brown			3		
15				Still, light blown		6	5	11	
	_								
20	_			LIMESTONE with clay		7	9 7 7	14	
	_			End of Boring					
	_								
25	_								
	-								
30									
35									
	_ Loss	of circul	ation a	ut 18'					
	PAGE 1	of 1		This information pertains only to this boring and should n	ot be inte	erpreted a	s being ind	licative	of the site.
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Project: Gagne Parcel

DRILL HOLE LOG BORING NO.: BB-21

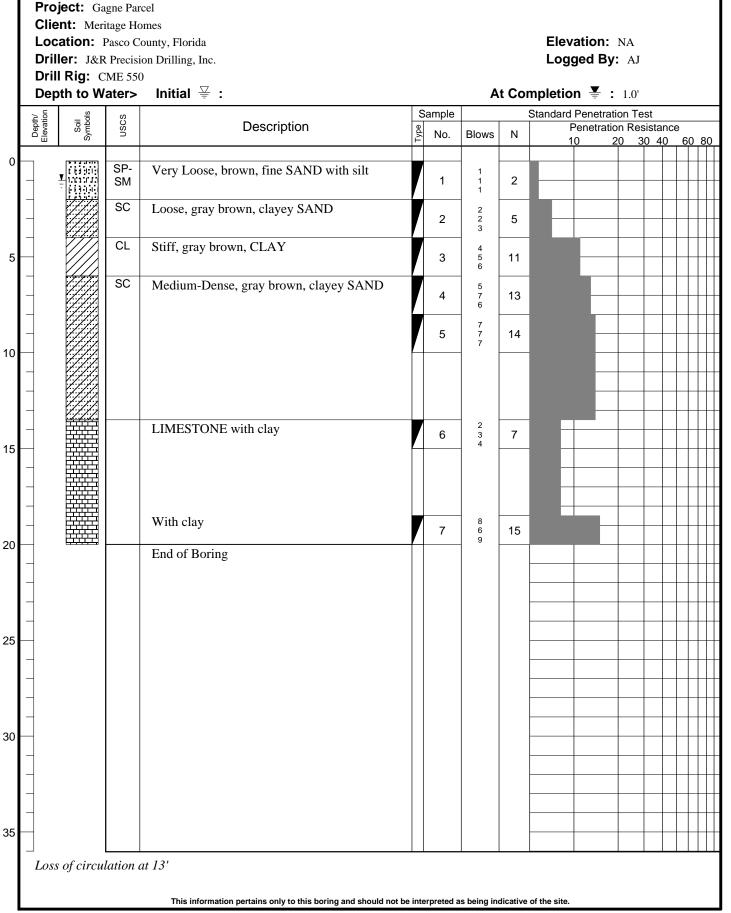
Project No.: 21-5233 Date: 9/27/2021

	Drill Rig: 0 Depth to W		Initial $ arrow$:			Α	t Cor	mpletion : 2.3'
Ę	ii ools	SS			Sample			Standard Penetration Test
Dep	Elevation Soil Symbols	nscs	Description	Type	No.	Blows	N	Penetration Resistance 10 20 30 40 60 80
0	t (2000) 1.000 (1.000) (2.000 (1.000)	SP- SM	Very Loose, brown, fine SAND with silt		1	1 1 1	2	
	▼ 77777 777777	SP- SC	Loose, brown, fine SAND with clay		2	1 2 2	4	
5		SC	Loose, gray brown, clayey SAND	Ţ	3	2 3 4	7	
_			Medium-Dense	ſ	4	4 6 7	13	
10			Gray		5	5 8 7	15	
 15 		CL	Stiff, gray, CLAY with limestone		6	7 6 6	12	
20 —			LIMESTONE with clay (50 blows/2 inches)		7	-	50/2	
_			End of Boring					
25 — _								
_								
30 —								

Project: Gagne Parcel

DRILL HOLE LOG BORING NO.: BB-22

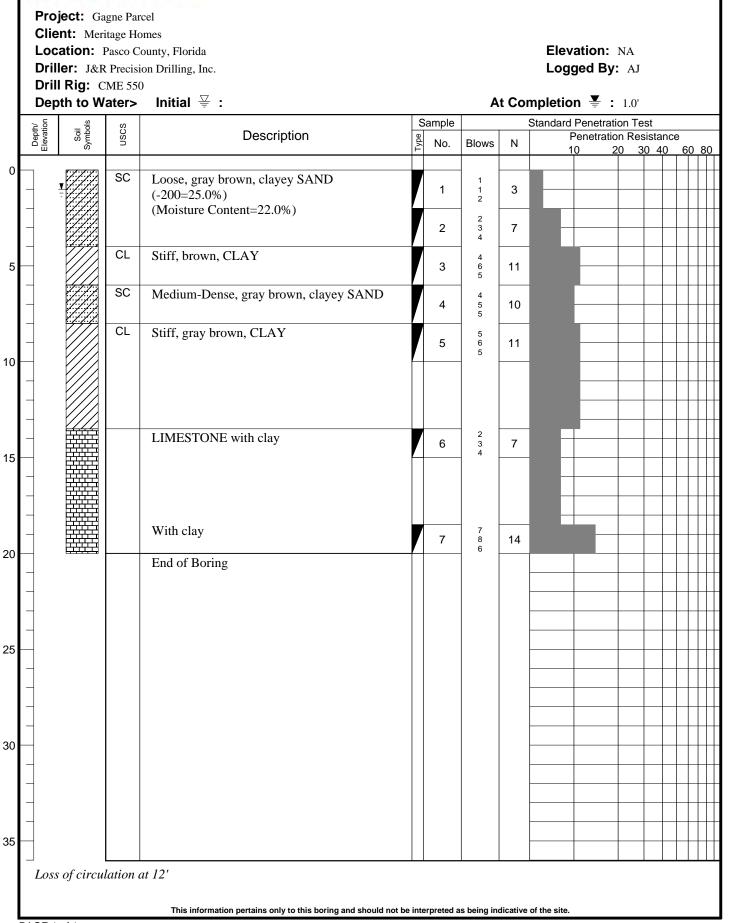
Project No.: 21-5233 Date: 9/27/2021



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Project No.: 21-5233

Date: 9/23/2021



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Project No.: 21-5233

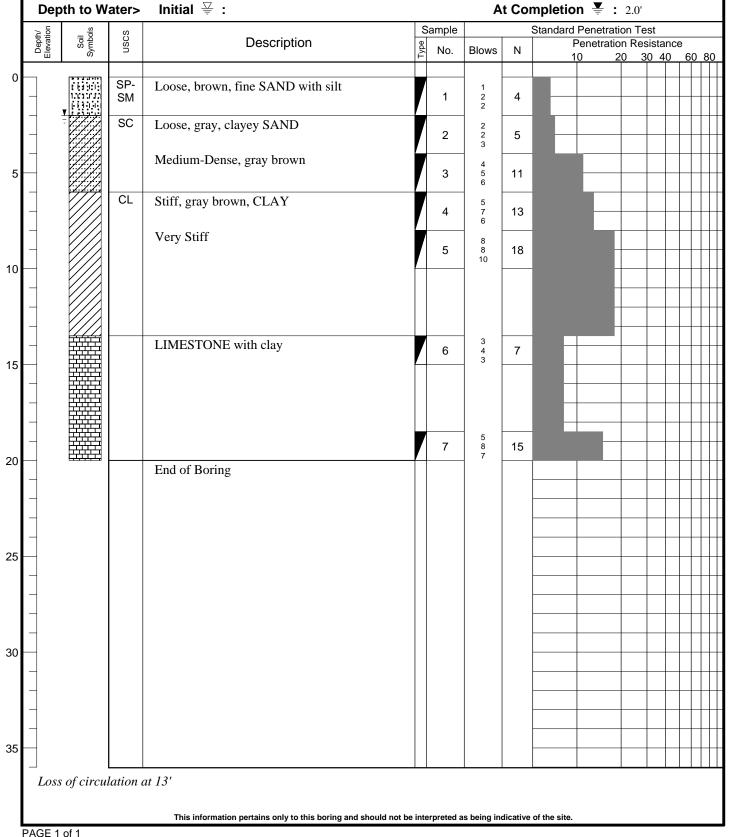
Date: 9/23/2021

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-	FAULKNER ENGINEERING SERVICES, Inc.	Ē
-		

Project No.: 21-5233 Date: 9/23/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550

Elevation: NA Logged By: AJ



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	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/30/2021

Project: Gagne Parcel Client: Meritage Homes **Location:** Pasco County, Florida **Driller:** J&R Precision Drilling, Inc. Drill Rig: CME 550 ∇

Elevation: NA Logged By: AJ

	Dep	th to W	ater>	Initial $\scriptstyle \scriptstyle $			Α	t Cor	mpletion 🚆 : * NE
	oth/ ation	bols	cs	Description		Sample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0			0.0				-		
		1 / / / / / / / / / / /	SP- SC	Loose, brown, fine SAND with clay		1	1 2 3	5	
	_		SC	Medium-Dense, gray brown, clayey SAND		2	3 4 6	10	
5				Gray	I	3	4 7 10	17	
		7.7.7.2 7.7.7.2 7.7.7.7 7.7.7.7	SP- SC	Dense, gray, fine SAND with clay		4	8 13 15	28	
10	_					5	9 9 15	24	
	_	7.7.7.7 7.7.7.7 7.4.7.7							
	_			LIMESTONE		6	3 4 6	10	
15						0	6	10	
	_								
20	_				Ţ	7	9 12 11	23	
20	_			End of Boring					
25									
30									
35									
	Loos *Gre	se of circi oundwate	ulation er not e	ncountered at first 10 feet		<u> </u>			
	PAGE 1	- (4		This information pertains only to this boring and should not I	be inte	erpreted a	is being ind	dicative	of the site.

Dri	II Rig: I pth to W	D-5 0	on Drilling, Inc.			Α	t Cor	Logged By: BB mpletion ¥ : * NE	
	-			5	Sample			Standard Penetration Test	
Elevation	Soil Symbols	nscs	Description	Tvpe	No.	Blows	Ν	Penetration Resistance	<u> 60</u>
	6 69 9019 1.000 07.00 6 6 9 6 6 6	SP- SM	Loose, brown, fine SAND with silt		1	1 1 2	3		
		CL	Medium, brown, CLAY		2	2 2 3	5		
			Stiff		3	4 5 4	9		
			Very Stiff, orange brown		4	4 7 8	15		
					5	6 9 8	17		
						-			
			LIMESTONE with clay		6	3 5 15	20		
					7	9 13 10	23		
			End of Boring						

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 10/1/2021

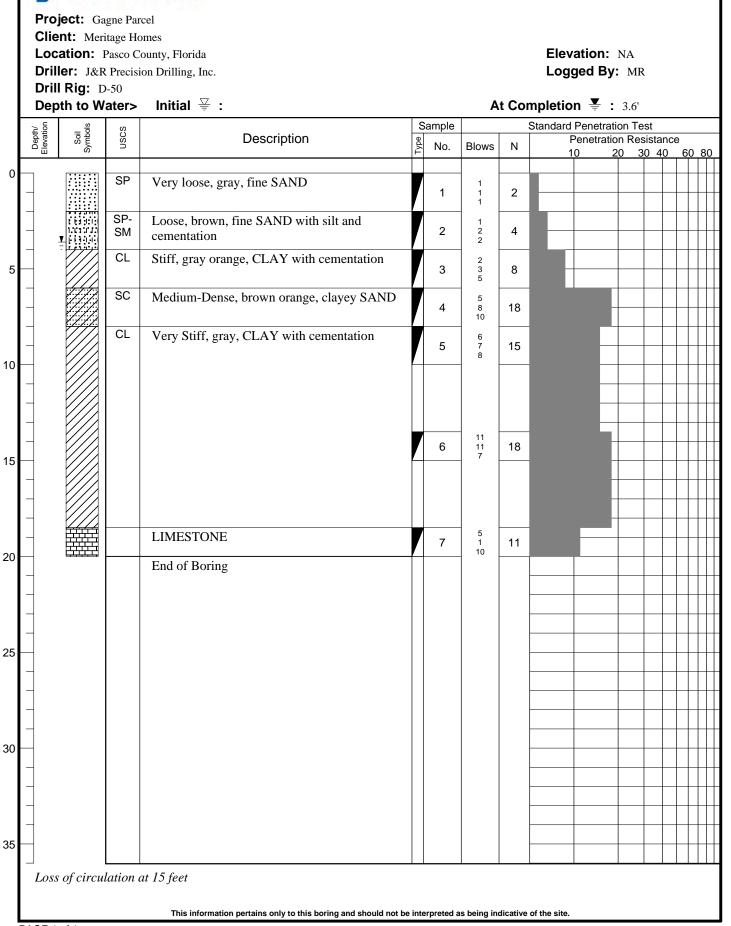
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FAULKNER
ENGINEERING SERVICES, Inc.

Project No.: 21-5233 **Date:** 9/23/2021

Project: Gagne Parcel Client: Meritage Homes **Location:** Pasco County, Florida **Driller:** J&R Precision Drilling, Inc. Drill Rig: CME 550 Initial 😐 : Depth to Water>

Elevation: NA Logged By: AJ

	Dep	oth to W	ater>	Initial $\stackrel{\scriptstyle{\scriptstyle{\frown}}}{=}$:			Α	t Coi	mpletion 🐺 : 1.0'
	th/ ition	ii Jols	SC			ample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	USCS	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0		4.4.4.2							
U	_	¥ / / / / / / / / / / / / / / / / / / /	SP- SC	Loose, brown, fine SAND with clay		1	2 2 2	4	
	_		SC	Loose, gray, clayey SAND		2	2 2 3	5	
5						3	2 2 3	5	
	_			Medium-Dense		4	4 8 7	15	
	_			With shell fragments		5	7 7 7 7	14	
10	_								
	_								
15	_			LIMESTONE		6	3 3 5	8	
-	_								
	_			With clay			10		
20				End of Boring		7	10 7 9	16	
	_								
25	_								
30									
35									
	Loos	se of circi	ulation						
				This information pertains only to this boring and should r	not be inte	erpreted a	is being ind	licative	of the site.



Project No.: 21-5233

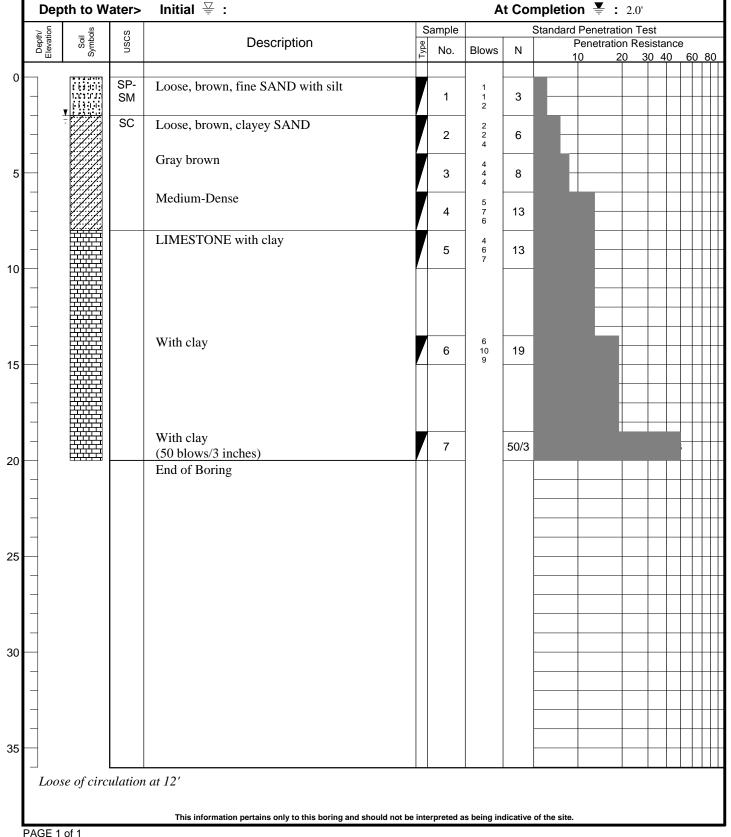
Date: 10/1/2021

1.		
	FAULKNER	
L	ENGINEERING SERVICES, Inc.	

Project No.: 21-5233 Date: 9/23/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550

Elevation: NA Logged By: AJ



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ENGINEERING SERVICES Inc	E
ENGINEERING SERVICES, Inc.	
	FAULKNER ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/23/2021

 Project: Gagne Parcel

 Client: Meritage Homes

 Location: Pasco County, Florida

 Driller: J&R Precision Drilling, Inc.

 Drill Rig: CME 550

 Denth to Water>

Elevation: NA Logged By: AJ

	Dep	th to W	ater>	Initial $\stackrel{\scriptstyle{\scriptstyle{\frown}}}{=}$:			Α	t Coi	mpletion : * NE
	oth/ ttion	lio sloc	S	Description		ample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	USCS	Description	Type	No.	Blows	N	Penetration Resistance102030406080
0	_	2 / / / / / / / / /	SP- SC	Loose, gray brown, fine SAND with clay	Ţ	1	1 2 2	4	
	_		SC	Loose, gray brown, clayey SAND		2	2 2 3	5	
5	_			Medium-Dense, gray		3	346	10	
	_			Gray brown, with rock fragments		4	4 8 9	17	
10	_			Gray		5	9 9 9 9	18	
	_								
15	_			LIMESTONE	ľ	6	2 5 5	10	
	_								
20	_			With clay		7	15 12 13	25	
20	_			End of Boring					
25	_								
	_								
30									
35									
		se of circi oundwate		ncountered at first 10 feet					
	PAGE 1	of 1		This information pertains only to this boring and should no	t be inte	erpreted a	as being in	dicative	of the site.

Drill	Rig: C	ME 550	on Drilling, Inc.) Initial 픛 :				• • •	Logged By: AJ
	th to Wa			c	Sample	A		mpletion ¥ : * NE Standard Penetration Test
Depth/ Elevation	Soil Symbols	nscs	Description	Type		Blows	N	Penetration Resistance
	٥.			- F	110.	DIOWS		10 20 30 40 60 80
		SC	Loose, brown, clayey SAND	ľ	1	2 2 3	5	
_			Medium-Dense, gray	ſ	2	3 4 5	9	
_		CL	Stiff, gray, CLAY	Í	3	4 4 5	9	
_			Very Stiff	ſ	4	4 6 7	13	
_				ſ	5	7 8 9	17	
_								
_			LIMESTONE with clay	ľ	6	5 6 6	12	
_			With clay	Ţ	7	9 12 10	22	
_			End of Boring					
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_								
_								
_								

FAULKNER

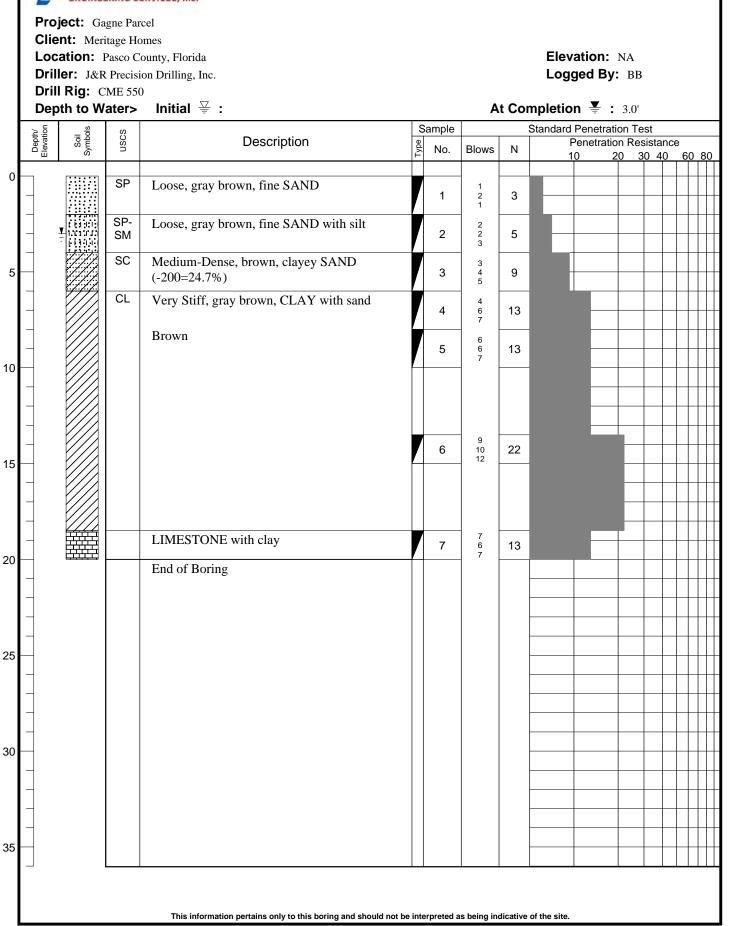
VICES, Inc.

Project No.: 21-5233 Date: 9/24/2021

	sation: Pasco County, Florida ler: J&R Precision Drilling, Inc. I Rig: CME 550 both to Water> Initial \vec{2}: \$\vec{39}{9}\$ \$\vec{39}{9}\$ Description \$\vec{39}{9}\$ \$\vec{39}{9}\$ Description \$\vec{39}{9}\$ Description \$\vec{39}{9}\$ Loose, gray, fine SAND \$\vec{30}{1}\$ \$\vec{30}{1}\$ \$\vec{30}{1}\$ \$\vec{30}{1}\$ \$\vec{30}{1}\$ \$\vec{30}{1}\$ \$\vec{30}{2}\$ \$\vec{30}{2}\$ <tr< th=""><th></th><th></th><th></th><th colspan="12">At Completion 🚆 : 3.0'</th></tr<>				At Completion 🚆 : 3.0'											
-				S	ample				rd Pene	etratio	n Test			_		
Depth/ Elevation	Soi Symb	nsc	Description	Type	No.	Blows	Ν		Penet 10					8		
1	[:::::]	<u> </u>							_					Ŧ		
		55	Loose, gray, fine SAND		1	1 2 2	4							╉		
	¥ 1.011030 1.011030		Loose, gray, fine SAND with silt		2	2 2 3	5							_		
		SC	Medium-Dense, gray brown, clayey SAND	T	3	3 4	9		 					+		
			Gray		4	4	11							+		
			lense Comp. Final \checkmark : Bearting in the image of the im													
	ent: Meritage Homes sation: Pasco County, Florida ler: J&R Precision Drilling, Inc. I Rig: CME 550 bith to Water> Initial \vec{Ver}: SP Loose, gray, fine SAND 1 SP Loose, gray, fine SAND 1 SP Loose, gray, fine SAND 3 Gray 4 CL Very Stiff, gray, CLAY 6 SC Medium-Dense, gray, clayey SAND 7		15							+						
						10								-		
		CL	Very Stiff, gray, CLAY		6	7	14							+		
									·	_				+		
		SC			7	8	18									
			End of Boring											-		
									_					-		
												+		+		
														+		
														+		
														-		
														+		
												+		┼		

FAULKNER ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/24/2021



Project No.: 21-5233

Date: 9/27/2021

FAULKNER
ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/30/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water> Initial ₩ :

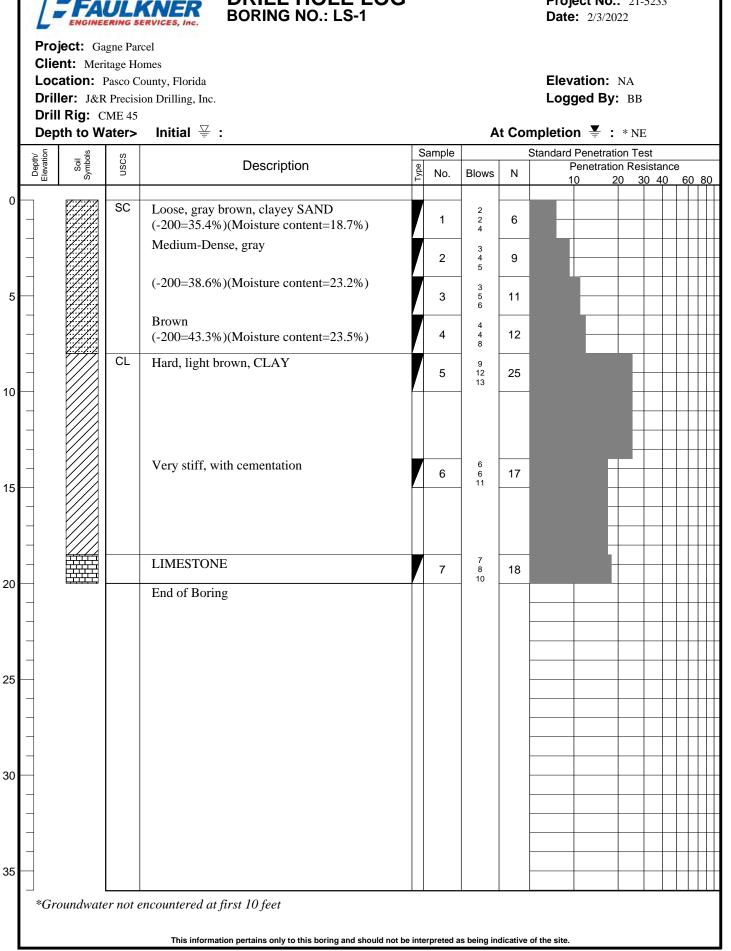
Elevation: NA Logged By: BB

th/ tion	il so	SS			Sample			Standard						
Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetratio					
ш	0)							1	0 2	20 3	<u>0 40</u>) (<u>60</u>	8
	1.1.1.1.1	SP-	Very Loose, gray, fine SAND with silt			1					_	-	$\left \right $	
_	1.1111	SM	very Loose, gray, file SAIVD with sit		1	1	2				_	_	$\left \right $	
_	1 (19 (10)) 1.000 (11 (10))		Tarana lan a			1		L						⊢
_	[-1]-1]-1 []-1]-1]-1]-1		Loose, brown		2	1 2	4							L
	11111				2	2	т							
		CL	Stiff, gray brown, CLAY with sand			3								-
					3	3 5	8							ī
-			Very Stiff, light brown			4						-		ī
_			, <u>,</u> , , , , , , , , , , , , , , , , ,		4	7	15				_		$\left \right $	Г
_			Orange harrow with sound			8					_	_		⊢
_			Orange brown, with sand		5	6 7	16							L
					0	9	10							
														-
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-														Г
_			Stiff, light brown		6	3 5	11				_	_		F
_					-	6								┢
														L
_														-
-					7	4 5 4	9							-
_			End of Boring			4					_	-	$\left \right $	Ē
_			End of Bornig								_	_		F
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_										$\left \right $	-+	+	$\left \right $	Γ
														L
*Gr	oundwate	er not e	encountered at first 10 feet											
			-											

	II Rig: pth to W		Initial ऱ्य :			Α	t Coi	npleti	on 🛓	- *	NE		
_	-			s	ample			Standar					
Elevation	Symbols	uscs	Description	Type	No.	Blows	Ν		Penetr 10	ration 20			60
												Ĭ	
		SP	Loose, brown, fine SAND		1	1 1 2	3						
		CL	Medium, brown, CLAY		2	2 2 3	5	-					
		SC	Medium-Dense, light brown, clayey SAND (-200=31.3%)	T	3	3 4 6	10						
				T	4	6 8 9	17						
					5	777	17						
						10							
			Dense		6	14 18 13	31						
		CL	Very Stiff, light brown, CLAY			7					-		
				┦	7	8 10	18						
			End of Boring										

GINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/29/2021



DRILL HOLE LOG

Project No.: 21-5233

C		Precisi	ounty, Florida on Drilling, Inc.					Log	ation: ged By:	BB		
	epth to W	ater>	Initial 🐺 :			Α			n <u>₹</u> :			
Depth/	Elevation Soil Symbols	nscs	Description		Sample				Penetratio Penetratio			
ă	Syr 0	ő	2000.19.10.11	Type	No.	Blows	Ν			<u>0 30</u>		80
		SP	Lesse has a Cart CAND									+++
			Loose, brown, fine SAND		1	1 1 2	3					
_	Ⅰ	SC	Loose, gray brown, clayey SAND (-200=36.2%) (Moisture Content=16.2%)		2	2 3 5	8	-				
			Medium-Dense	Ī	3	4 6 6	12					
_				ſ	4	7 7	15					
_		SM	Mal' - David and Law - 'le CAND			8						+++
_		Sivi	Medium-Dense, gray brown, silty SAND		5	10 11 13	24					
_												
_			LIMESTONE	T	6	3 5 10	15	-		-		
_			End of boring									
_												
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												$\left \right $

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 10/1/2021

FAULKNER ENGINEERING SERVICES, Inc.	
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Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel
Client: Meritage Homes
Location: Pasco County, Florida
Driller: J&R Precision Drilling, Inc.
Drill Rig: CME 45

Elevation: NA Logged By: BB

	Dep	oth to Wa	ater>	Initial 👾 :			Α	t Cor	npletio	n ‡ :	3.0'				
) uoi	_ s	S		S	ample			Standard	Penetrati	on Te	st			
	Depth/ Elevation	Soil Symbols	uscs	Description	Type	No.	Blows	N		Penetratio	n Res	sista			
		ک			Ê	NO.	BIOWS		1	0 2	03	0 4) (<u>60</u>	80
0			00										_		
	_		SP	Loose, brown gray, fine SAND		1	2 2	3							
						•	1								
			SC	Loose, brown, clayey SAND			2 2								
	_					2	2	4							
	-			Orange gray			2								
5				(-200=43.6%) (Moisture Content=20.7%)		3	3	7					-		
	_						-						_		
	_					4	3	8							
							5								
			CL	Stiff, orange gray, CLAY with sand		F	4 5	10							
						5	5 5	10							
10					H										
	-												+		
	-												-		
	_												_		
	_			LIMESTONE		0	6	00							
15						6	6 5 15	20							
13				End of boring											
	-												-		
	-												-		
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20															
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35															
55															
	- Loss	of circul	ation of	at 15 feet	I										
	L033	oj en cu													
				This information partoing only to this basing and should not	na i	- 1-20	o holes in		of the alte						
Ļ	PAGE 1	- (4		This information pertains only to this boring and should not I	Je INte	npretea a	is being ind	licative	or the site.						

	Clie Loca Drill		tage Ho Pasco Co Precisi						Elevation: NA Logged By: BB
		th to W		Initial $ arrow$:			Α		mpletion 🚆 : * NE
	Depth/ Elevation	Soil Symbols	nscs	Description	Type ,	Sample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60 80
0-			SP	Loose, brown, fine SAND	Ţ	1	1 2 1	3	
			SP- \ <u>SC</u> CL	Loose, light brown, fine SAND with clay Medium, gray brown, CLAY		2	2 2 3	5	
5-	_			Stiff, brown		3	4 5 6	11	
	_			Very Stiff		4	7 7 7 6	14	
0	-					5	9 8	17	
5-	_			LIMESTONE End of Boring		6	3 3 5	8	
0-	_								
.0	_								
:5 -									
0 –	-								
5-									
		se of circi oundwate		at 11' encountered at first 10 feet This information pertains only to this boring and should not	be int	erpreted a	is being in	dicative	e of the site.

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 10/1/2021

ENGINEERING SERVICES, Inc.	DR BOR
Project: Gagne Parcel	

Project No.: 21-5233 Date: 10/4/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: d-25

Elevation: NA Logged By: MR

~ 6	s s	S		Sample			Standard Penetration Test
Depth/ Flevation	Soil Symbols	nscs	Description				Penetration Resistance
	ŝ			No.	Blows	N	10 20 30 40 60
		SP			_		
		52	Loose, gray, fine SAND with fine roots	1	2	3	
	4.4.4.4				2		
		SC	Loose, brown, clayey SAND	2	2 3	6	
	-		(-200=27.4%) (Moisture Content=19.7%)		3	0	
			Medium-Dense, gray brown		3	•	
			(-200=42.2%) (Moisture Content=21.3%)	3	4 5	9	
					6		
				4	7	15	
		CL	Very Stiff, gray brown, CLAY		6		
-			,,,	5	9 12	21	
			Stiff, gray	6	2 3	7	
					4	'	
			LIMESTONE		4		
			LIMESTONE	7	3 5	8	
			End of Boring				
-							
-							
					1		

Loc Dril		Pasco C A Precisi	ounty, Florida on Drilling, Inc.					Elevation: NA Logged By: BB		
Dep	oth to W		Initial $\stackrel{\overline{\forall}}{=}$:			Α		mpletion 墐 : * NE		
Deptn/ Elevation	Soil Symbols	nscs	Description	Type 70	ample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40	60	8
		SP	Loose, brown, fine SAND	Ţ	1	1 1 2	3			
	1 1 1 1 7 7 7 7 7 7 7 7	SP- SC	Loose, brown gray, fine SAND with clay	1	2	2 2 2	4		-	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Medium-dense		3	4 5 7	12			
		SC	Medium-dense, brown gray, clayey SAND		4	7 7 7 7	14		+	
			(-200=43.5%) (Moisture Content=21.5%)	I	5	6 8 10	18			
			LIMESTONE			5			-	-
			LIMESIONE		6	7 10	17			
					7	9 9 13	22			
					0	_	E0/2"			
			End of boring		8		50/3"			
									+	
									+	
									+	_

	rill Rig: C epth to W		Initial 🖳 :			A	t Cor	npletio	on =	3.0'				
Depth/ Flevation	Soil Symbols	USCS	Description		Sample		1		d Penetra Penetrati					
De	Syrr	SU	Description	Type	No.	Blows	N				30 4		60	80
	t 69900 1000 trucc 669900	SP- SM	Loose, brown, fine SAND with silt		1	2 2 2	4							
_	▼ ////////////////////////////////////	SC	Loose, gray brown, clayey SAND	ľ	2	2 2 3	5	F						
			Gray (-200=36.0%) (Moisture Content=17.4%)	I	3	3 3 4	7							$\left \right $
		CL	Very Stiff, gray, CLAY		4	4 6 7	13							
		SC	Medium-Dense, brown, clayey SAND		5	5 7 6	13						_	
			LIMESTONE (50 blogg/2 in sheet)		6	-	50/3							
	╘┯┸┯┸┯┹		(50 blows/3 inches) End of boring											
			-										\square	\square
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												\vdash	-	
														\square
												\square		
											-	\vdash		
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FAULKNER

Project No.: 21-5233 Date: 9/23/2021

/ FAULKN	ER
ENGINEERING SERVIC	

Project No.: 21-5233 Date: 9/30/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water> Initial ≚ ·

Elevation: NA Logged By: BB

	Dep	oth to W	ater>	Initial $\stackrel{\Box}{=}$:			Α	t Cor	npletion	• ₹ :	3.0'				
	th/ tion	ii Sols	SC			Sample			Standard F						
	Depth/ Elevation	Soil Symbols	USCS	Description	Type	No.	Blows	Ν	Pe 10	enetratio 2		istar 0 40		50 E	30
0					-							<u> </u>	<u> </u>	$\frac{1}{1}$	ΪT
0			SP- SM	Very Loose, brown, fine SAND with silt	Ţ	1	1 1 1	2							
		¥ % / / / / ¥ % / / / / / / / / /	SP- SC	Loose, light brown, fine SAND with clay		2	1 2 1	3							
5			CL	Stiff, gray, CLAY	Ţ	3	2 3 5	8							-
						4	4 4 5	9							
10	_			Very Stiff		5	6 7 6	13							
10	_														
	_			LIMESTONE				50/4		L					
15				(50 blows/1 inch)		6		50/1							
	_			End of boring											
	_														
20															
20															
	_														
	_														
25															
20															
															\square
30															\square
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35															\square
00															
	Loos	se of circ	ulation	at 13'											
				This information pertains only to this boring and should not	be inte	erpreted a	as being inc	dicative	of the site.						
	PAGE 1	of 1													

	pth to W		Initial $\stackrel{\Box}{=}$:			A		mpletion					
Depth/ Elevation	Soil Symbols	nscs	Description	Type 0	ample No.	Blows	N	Standard F	enetration	n Resis	stanc		
ш	۵`			ŕ	NU.	DIOWS		10	20) 30	40	60	<u>)</u>
		SP	Loose, gray brown, fine SAND			1							
_		CL	Soft, brown, CLAY		1	1 2	3						
			Medium		2	23	7						
					Z	4	7						
			Stiff		3	5 5	10						
				L	0	5	10						
_			Very Stiff		4	4 6	13						
-			Stiff			7					+	\square	+
_			Suit		5	6 6 6	12				_	\square	_
_													
_													
			LIMESTONE			5							
			LIMESTONE	ľ	6	5	12						
			End of Boring										
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FAULKNER ENGINEERING SERVICES, Inc.

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Project No.: 21-5233 Date: 10/1/2021

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<i>FAULKNER</i>
ENGINEERING SERVICES, Inc.

Project No.: 21-5233 **Date:** 2/3/2022

Project: Gagne Parcel Client: Meritage Homes **Location:** Pasco County, Florida **Driller:** J&R Precision Drilling, Inc. Drill Rig: CME 45

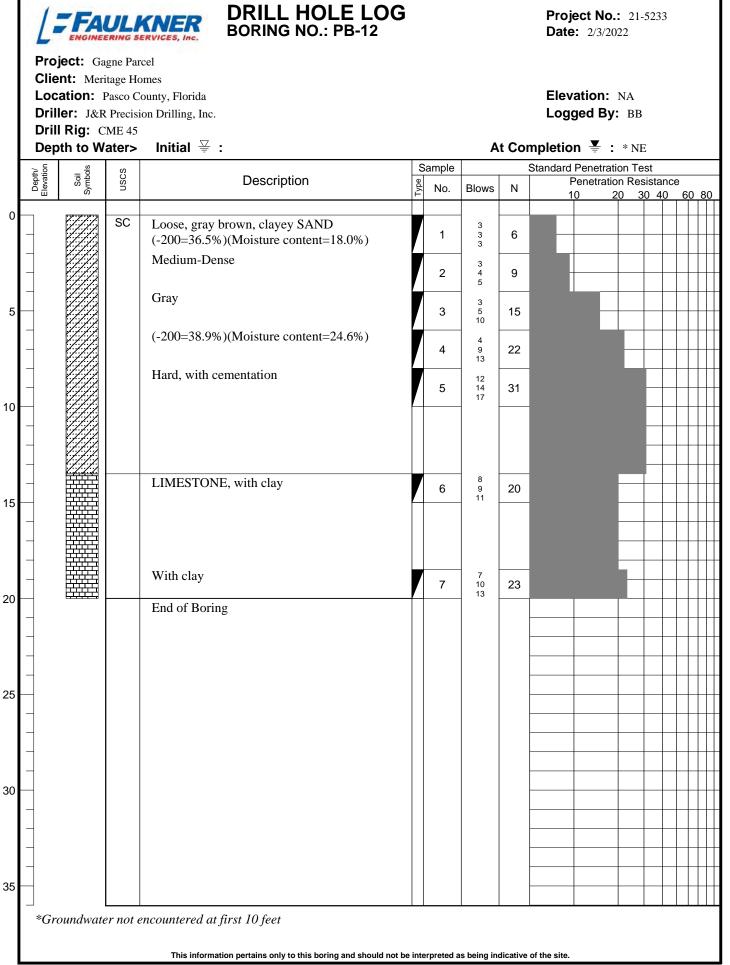
Depth to Water> Initial 🗵 · Elevation: NA Logged By: BB

	Dep	Depth to Water> Initial ऱ :			At Completion : * NE								
	Depth/ levation Soil Symbols USCS			Description		Sample Standard Penetration Test							
	Depth/ Elevation	Soil Symbols	NSU	Description	No. Blow		Blows	s N	Penetration Resistance 10 20 30 40 60 80				
0		[FEFFFF	SP-								\square	\square	+
		1.03000 00300 003000 003000	SM	Loose, brown, fine SAND with silt		1	3 2 3	5				\pm	
	_					2	2 2 3	5				+	
5			SC	Medium-Dense, brown, clayey SAND (-200=25.2%)	Ī	3	3 6 12	18				+	
	_			Gray	ſ	4	4 7 10	17				+	+++
10	_		CL	Very Stiff, gray, CLAY		5	12 11 13	24					
10	_												
	_			Stiff, light brown		6	4	11					
15						6	4 7					+	
	_											+	
20	_			Very Stiff		7	6 7 9	16					
20	_			End of Boring								+	
	_												
25	_											\pm	
	_											+	
30	_												
												+	++
												\parallel	++
35													
	*Gr	oundwate	er not e	ncountered at first 10 feet	_		_			_	_	_	
				This information pertains only to this boring and should n	ot be inte	erpreted a	is being ind	dicative	of the site.				
	PAGE 1	of 1											

Depth/ Elevation	h to W	ME 45			Elevation: NA Logged By: BB							
Depth/ evation		ater>	Initial 🐺 :			A		mpletion 🐺 : * NE				
μ	Soil Symbols	nscs	Description	Type Co	Sample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60 80				
		SP SC CL	Loose, gray brown, fine SAND Loose, gray brown, clayey SAND (-200=29.3%)(Moisture content=17.2%) Medium-Dense, gray Light gray (-200=41.2%)(Moisture content=20.3%) Stiff, gray brown, CLAY Very Stiff LIMESTONE with clay		1 2 3 4 5 6	2 3 4 3 5 5 7 4 4 6 5 8 9 6 8 12	7 10 12 10 17 20					
			With clay End of Boring		7	5777	14					

FRAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 2/3/2022

Loc Dril		Pasco C Precisi	omes ounty, Florida on Drilling, Inc.					Elevation: NA Logged By: BB						
	oth to W		Initial $ arrow $:			Α	t Coi	mpletion 🚆 : * NE						
Depth/ Elevation	Soil Symbols	nscs	Description	Type CO	ample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60 80						
		SC	Medium-Dense, brown, clayey SAND		1	2	10							
_			Loose, light gray brown (-200=40.0%) (Moisture Content=17.4%)		2	6 3 3	5							
_				ľ	3	2 3 3 4	7							
_			Medium-Dense, brown (-200=44.4%) (Moisture Content=23.3%)		4	4 4 7 6	13							
_		CL	Very Stiff, light brown, CLAY		5	8 8 10	18							
_														
_			LIMESTONE, with clay			13	04							
_					6	7 14	21							
_														
_			With clay		7	10 11 13	24							
_			End of Boring											
_														
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Project No.: 21-5233

ULK

	orill Rig: Co opth to W			At Completion : * NE																
				Sample Stan						Standard Penetration Test						Standard Penetration Test				
Depth/	Elevation Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penet	ration F	Resist <u>30</u>		60							
٦	(<i>j. j. j.</i> j.	SC	Loose, gray brown, clayey SAND			3					_	++	_							
_			Loose, gray brown, crayey SAND		1	2 3	5	-				+								
			Medium-Dense, gray			2	40						+							
			(-200=35.4%) (Moisture Content=17.6%)		2	6 6	12													
					3	4 4	9		<u> </u>		_	++								
_			Light brown			5 3					_	++								
-			(-200=43.7%) (Moisture Content=23.3%)		4	5 6	11				+	+	+							
		CL	Very Stiff, light brown, CLAY		5	7 10	23													
				Ц	v	13	_0				_		+							
_										-		++								
-																				
			LIMESTONE, with clay			5														
				L	6	8 9	17													
-												+								
_												+								
			With clay			6														
					7	6 7	13		.											
_			End of Boring									+								
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DRILL HOLE LOG BORING NO.: PB-13

FAULKNER

Project No.: 21-5233 Date: 2/3/2022

	Loca Drill		Pasco Co Precisi	ounty, Florida on Drilling, Inc.			Elevation: NA Logged By: BB							
	Dep	th to W		Initial 🗄 :			Α	t Co	mpletion					
Danth/	Elevation	Soil Symbols	nscs	Description	Type C	Sample No.	Blows	N	Standard P Pe 10	netratior	n Res		50	80
			SC	Loose, brown, clayey SAND with cementation	/	1	2 2 3	5						+
_				Medium-Dense, gray brown (-200=34.2%)(Moisture content=16.9%)	Ī	2	2 4 7	11						+
_				_		3	2 3 8	11						
_			0	Brown (-200=47.3%) (Moisture Content=19.8%)		4	4 6 10	16						+
_			CL	Very Stiff, brown, CLAY		5	8 8 11	19	-	+				-
										+				
				LIMESTONE, with clay		6	3 2 2	4	E					-
_				With clay	7	7	2	8						-
				End of Boring			4							_
														_
														_

DRILL HOLE LOG BORING NO.: PB-14

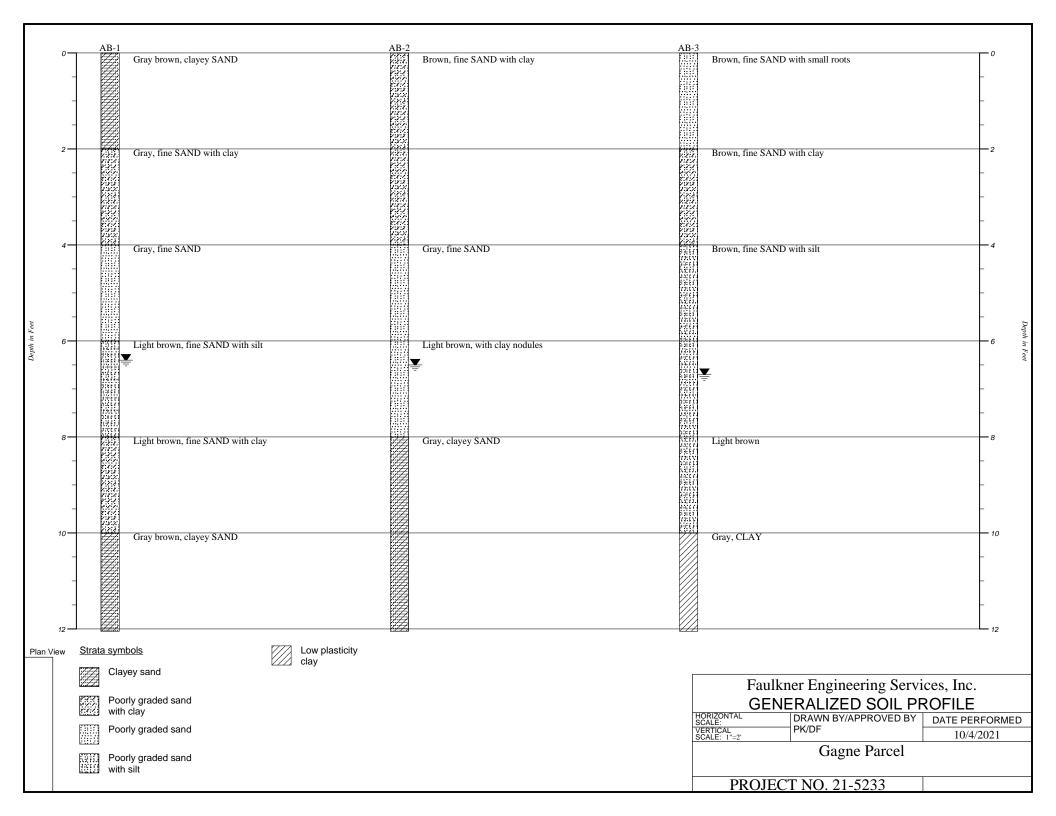
Dril		Precisi	ounty, Florida on Drilling, Inc.						ation: ged By			
	oth to W		Initial 🖳 :			Α		mpletio				
Depth/ Elevation	Sail Symbols	nscs	Description	Type S	ample No.	Blows	N		Penetratio	on Res		50 E
		SP	Loose, brown, fine SAND	T	1	2 2 2	4					
		SC	Gray brown (-200=33.3%)(Moisture content=15.2%)	ľ	2	3 4 3	7					
			Medium-Dense, light brown		3	3 6 7	13		H		_	\square
	7.7.7 7.7.7 7.7.7 7.7.7	SP- SC	Medium-Dense, brown, fine SAND with clay		4	5 5 8	13		_			\square
_		CL	Very Stiff, light brown, CLAY	I	5	9 11 12	23					
_												
			LIMESTONE, with clay		6	3 3 4	7					
_			With clay	Ţ	7	3 5 6	11					+
_			End of Boring									
_												
												$\left \right $
_												
	oundwate s of circu		ncountered at first 10 feet									

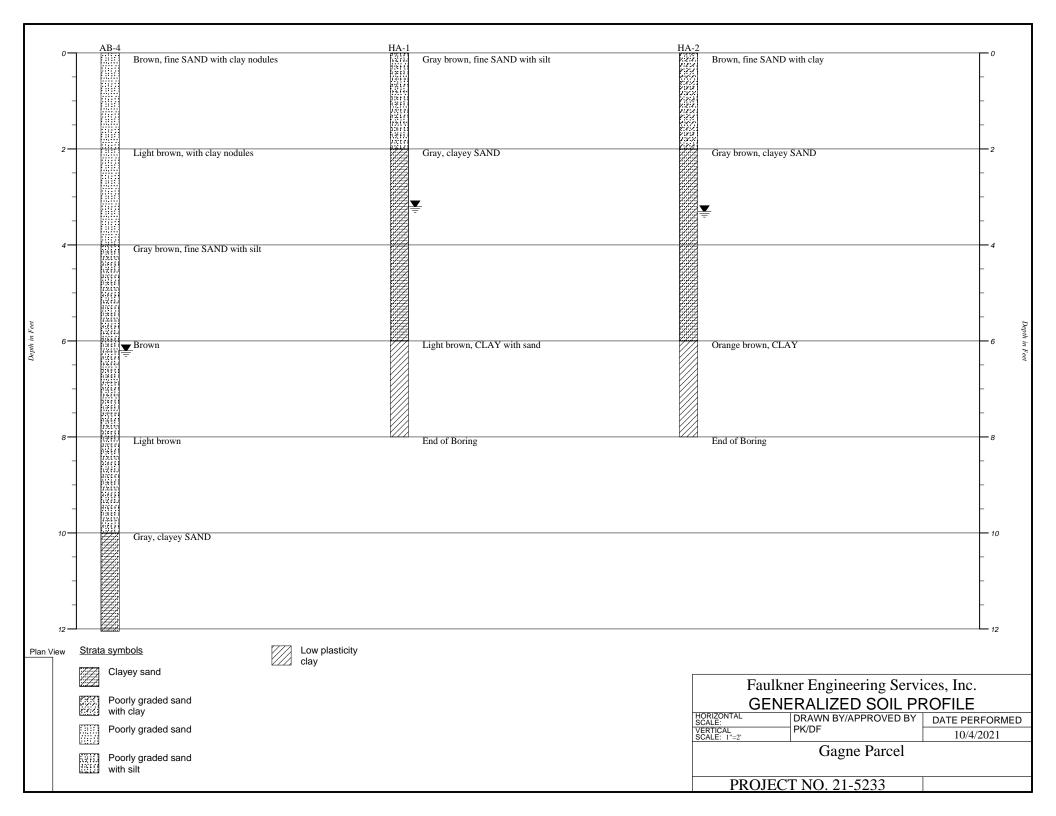
DRILL HOLE LOG BORING NO.: PB-15

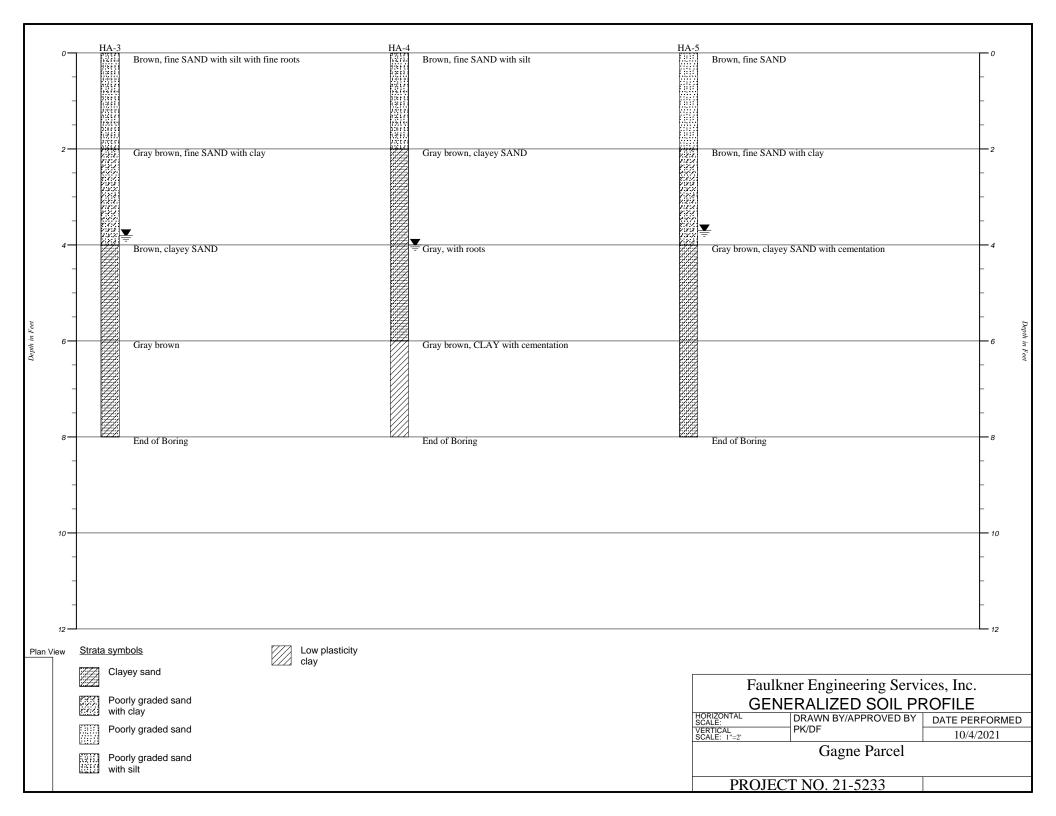
FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 2/3/2022

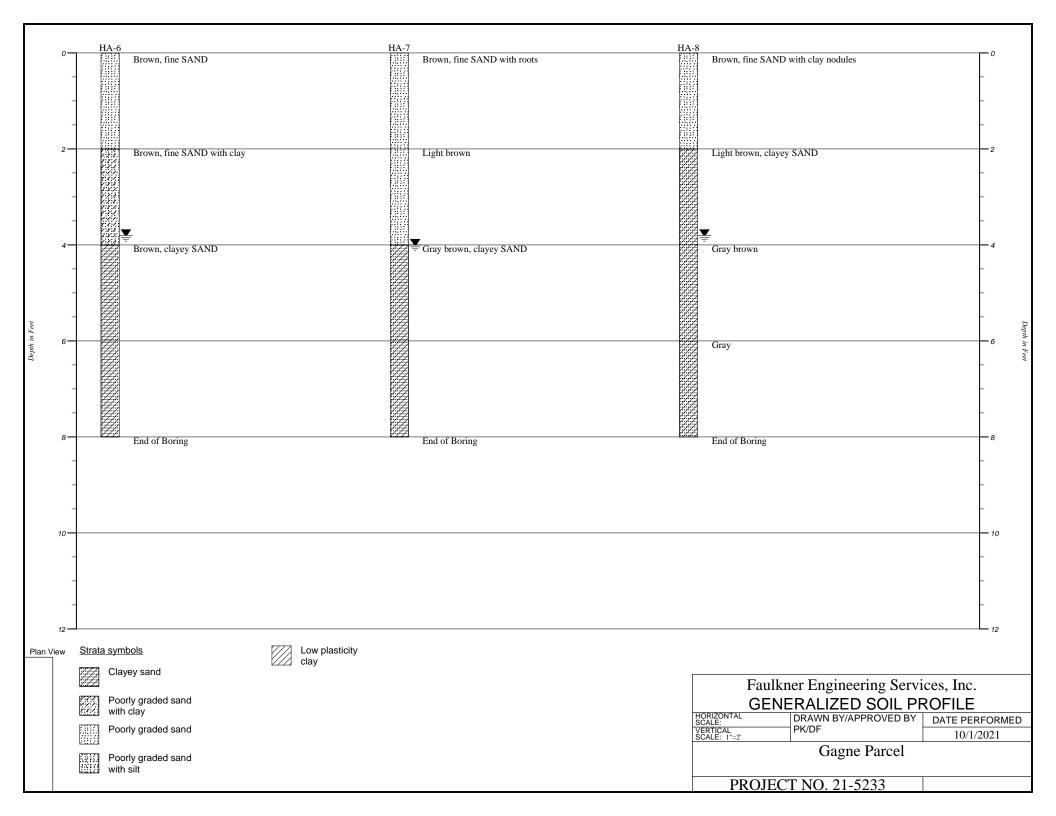
	KEY TO SYMBOLS
Symbol	Description
Strata	symbols
	Poorly graded sand
	Clayey sand
	Low plasticity clay
	Limestone
in e a state 17.63 de ta 17.63 de ta 17.63 de ta 17.63 de ta	Poorly graded sand with silt
21212 2127 2127 2127 2127 2127 2127 212	Poorly graded sand with clay
	High plasticity clay
	Silt
	Silty sand
	Blank
Misc. S	Symbols
<u> </u>	Water table at boring completion
<u>Soil Sa</u>	amplers
	Standard penetration test
Notes:	
	pratory boring were performed using a 2-inch diameter split barrel driven by a 140 lbs hammer (In accordance with ASTM D1586)

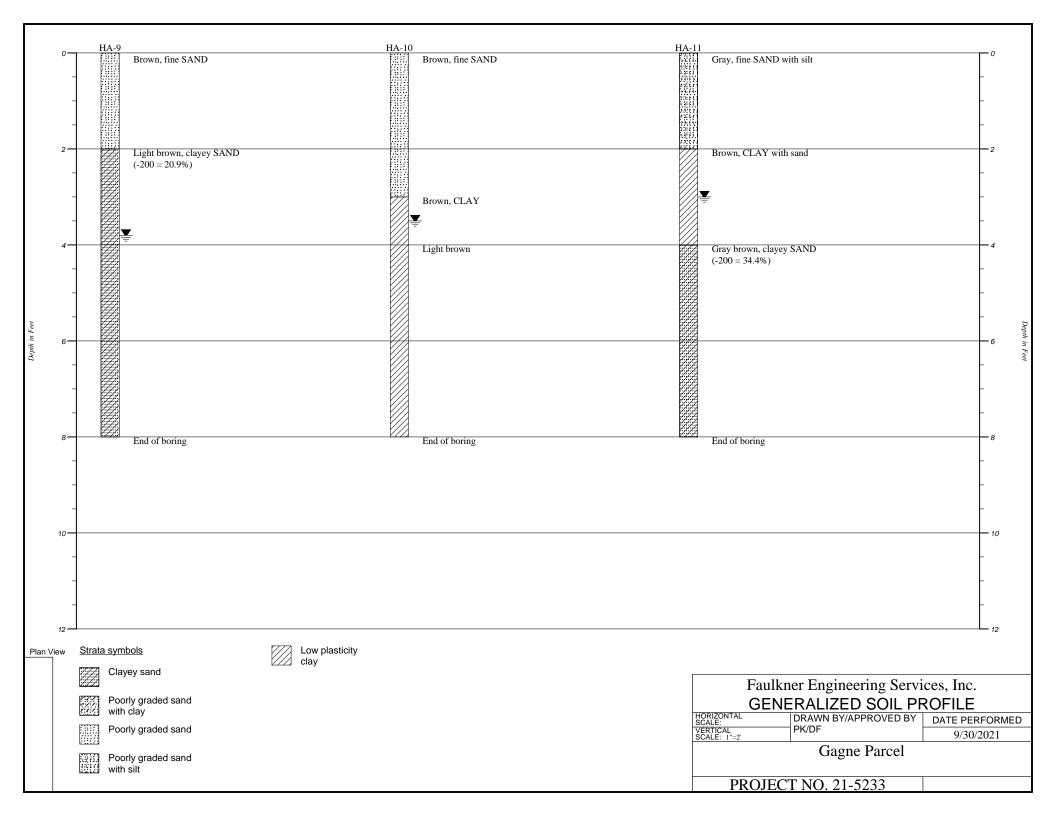
2. These logs are subject to the limitations, conclusions, and recommendations in this report.

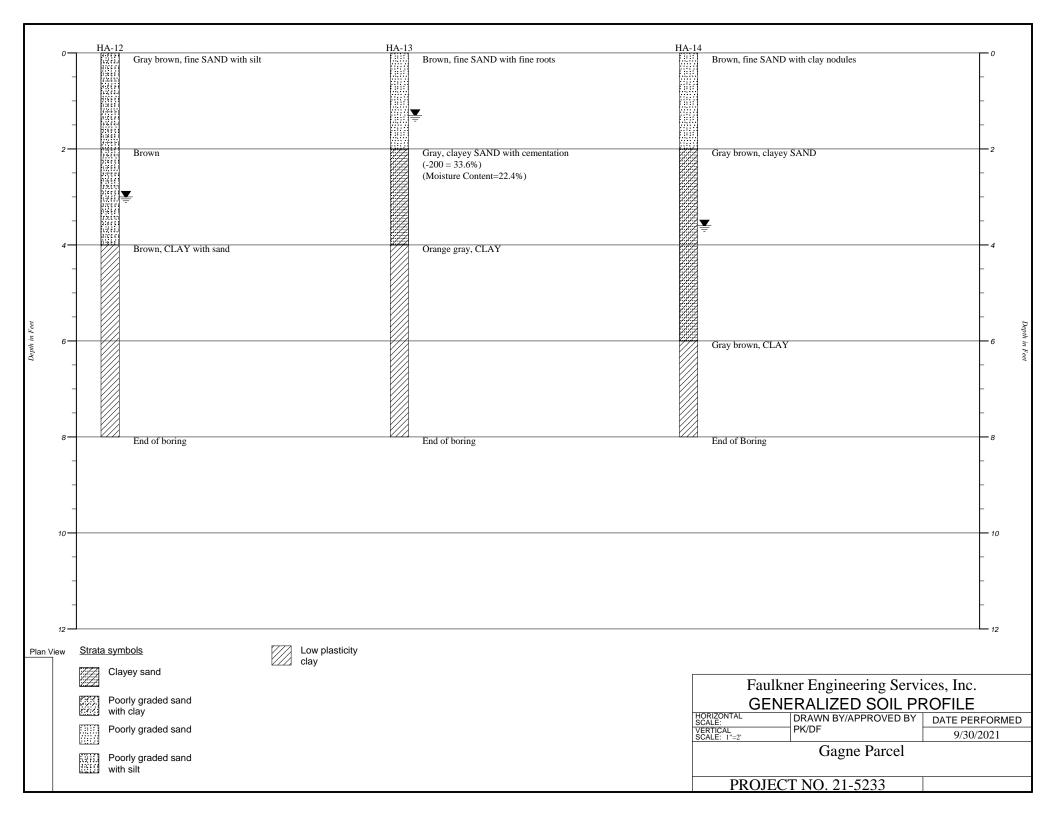


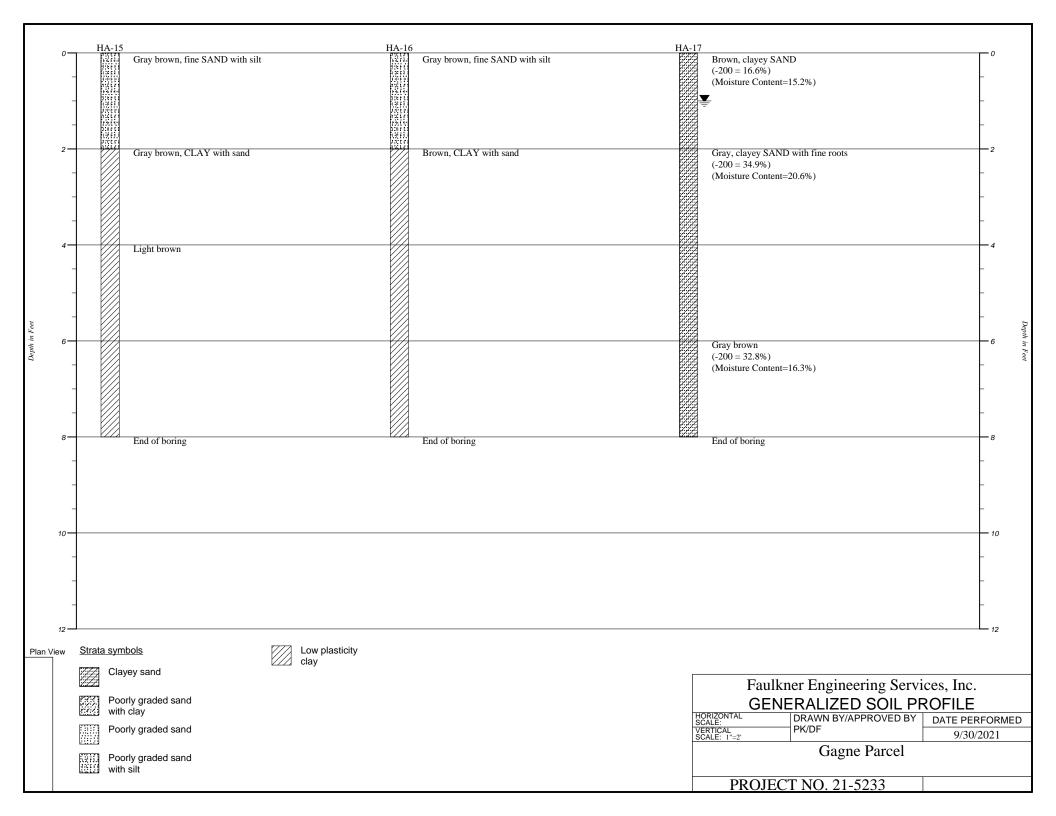


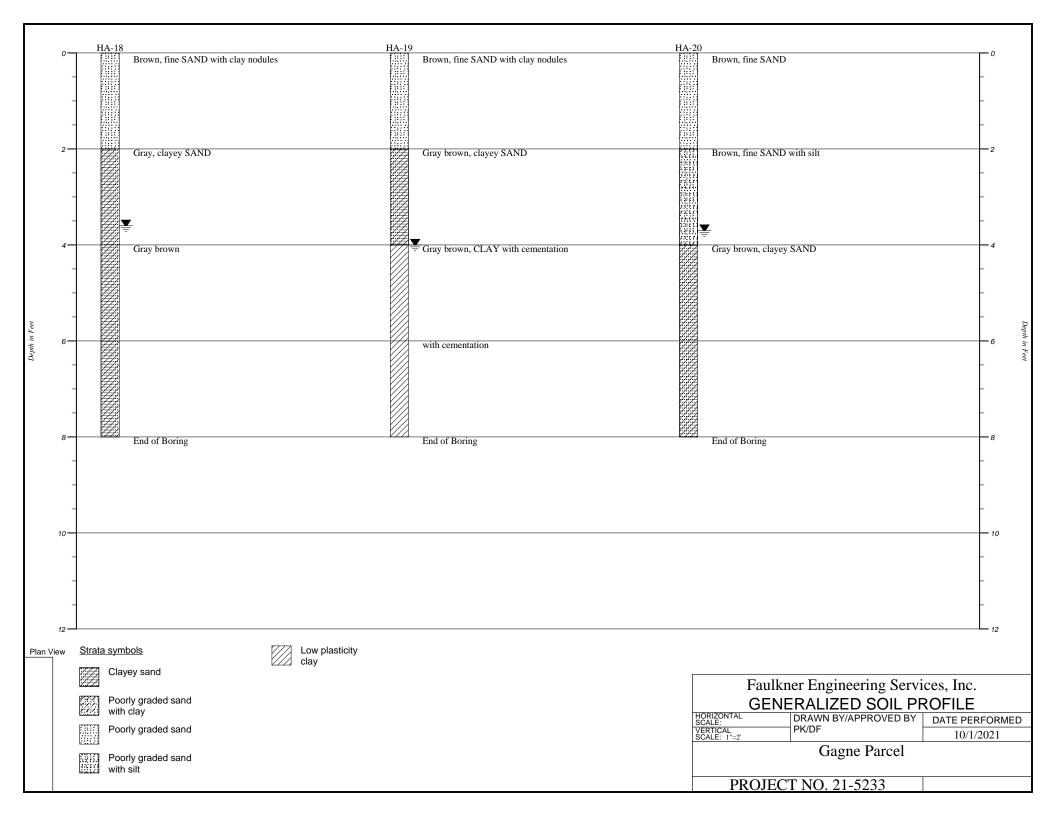


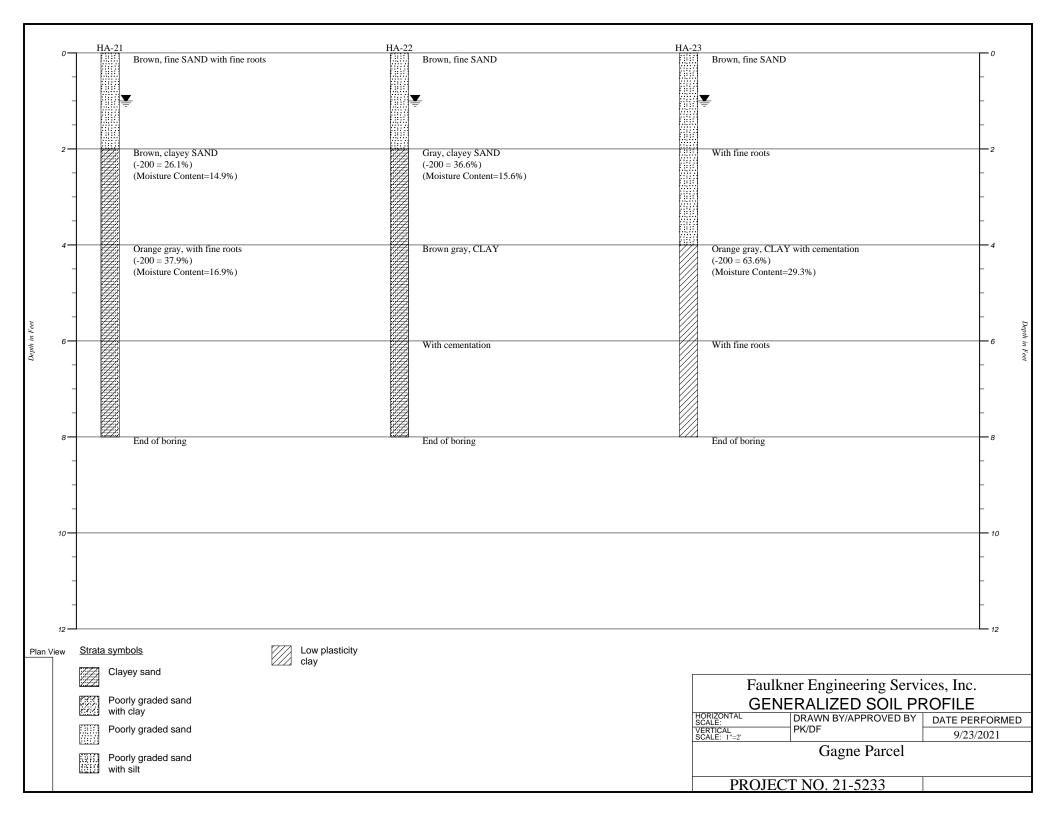


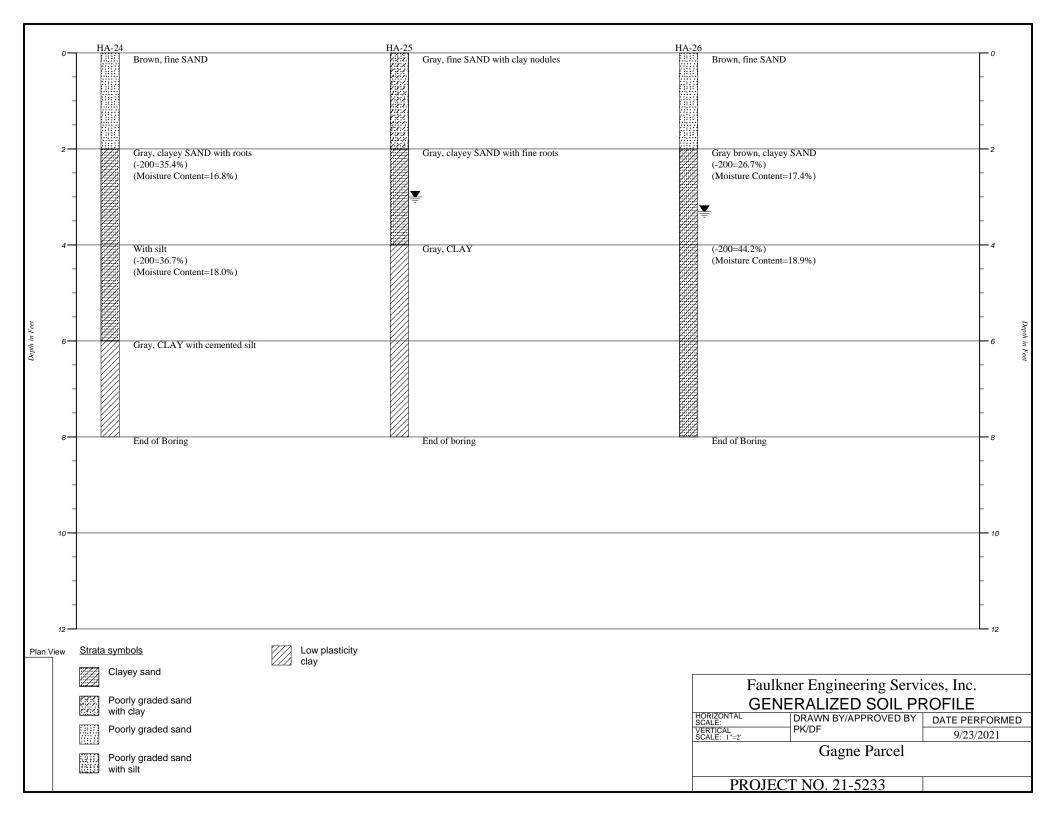


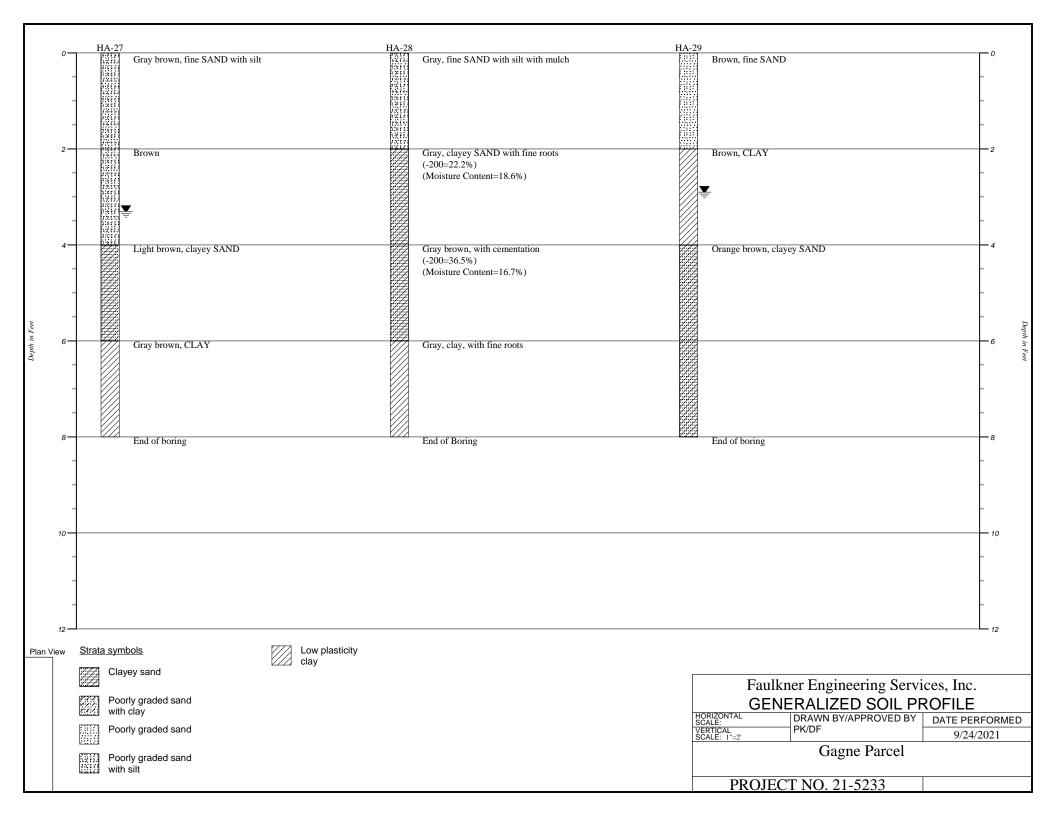


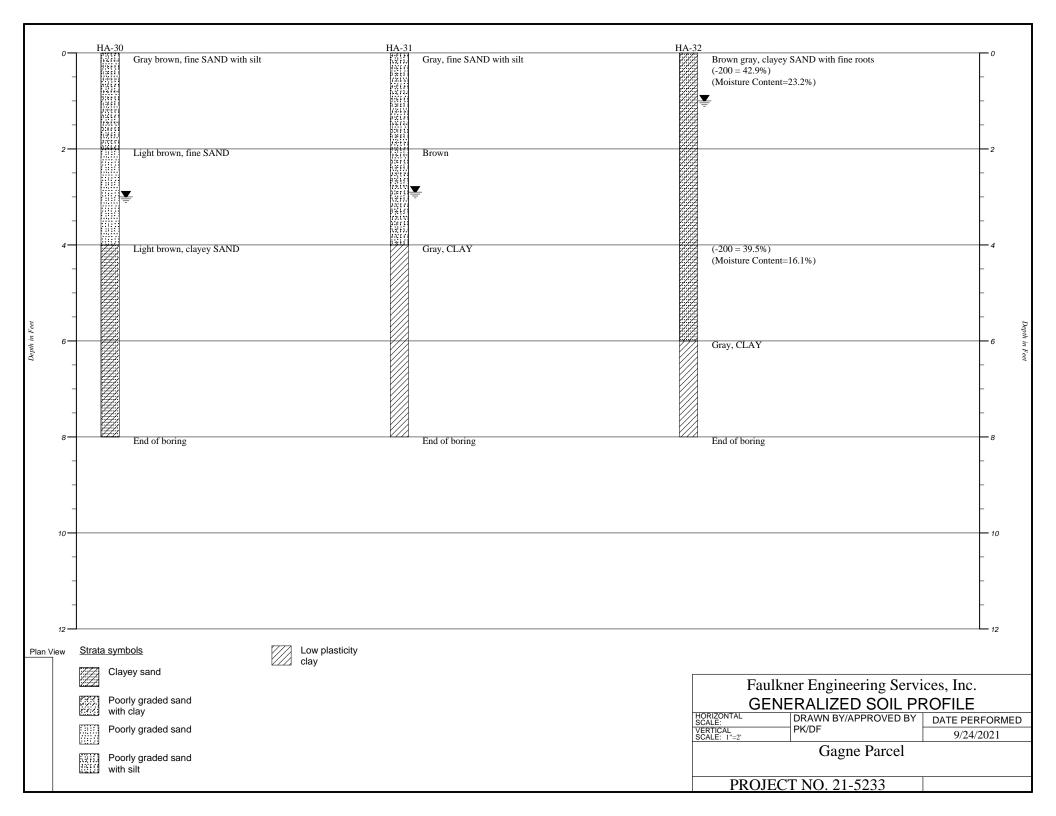


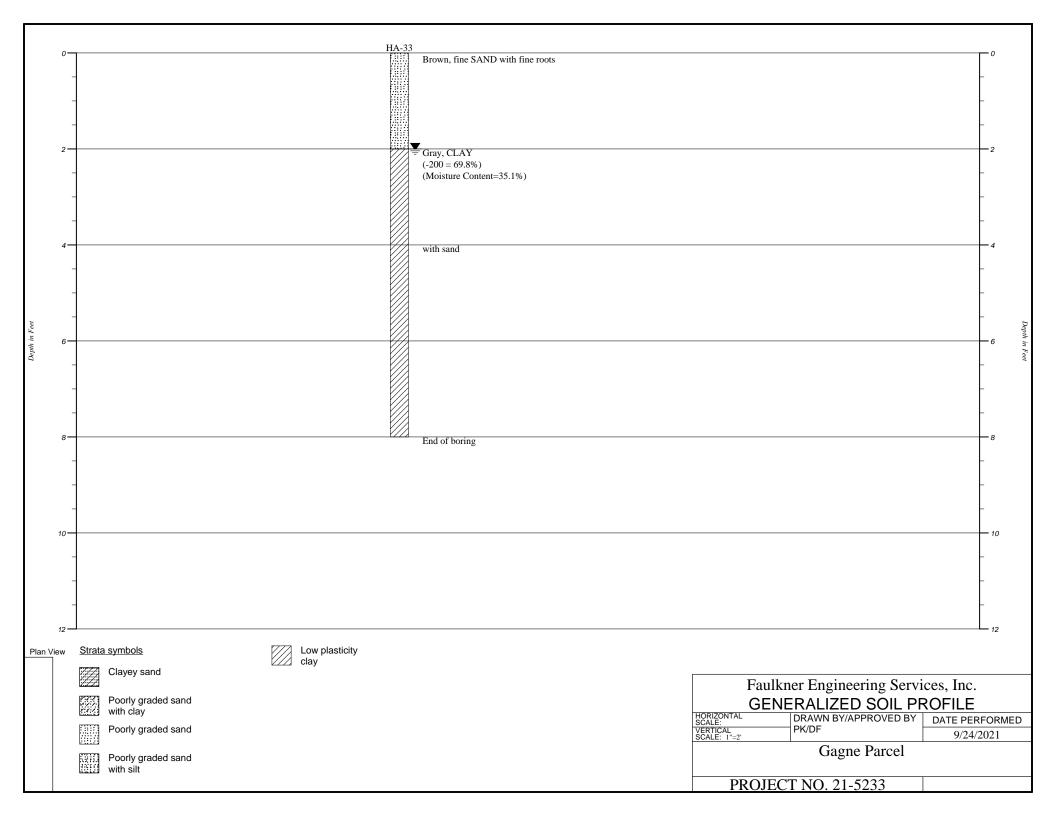












Report of Geotechnical Engineering Evaluation Gagne Parcel Pasco County, FL. FES Project No: 21-5233

APPENDIX C

Key to Soil Classification

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

			Labor	atory Classification Data	
Major Divis	ion	Group Symbol	Finer than No. 200 Sieve %	Supplementary Requirements	Soil Description
Coarse-Grained	Gravelly Soils	GW	0 - 5*	$C_u \ge 4$ and $1 \le C_c \le 3$	Well-Graded Gravels, Sandy Gravels
	(Over Half of	GP	0 - 5*	C_u < 4 and / or 1 > C_c > 3	Gap-Graded or Uniform Gravels, Sandy Gravels
	Coarse Fraction Larger than No. 4	GM	12 or More*	PI < 4 or Below A-Line	Silty Gravels, Silty Sandy Gravels
	Sieve)	GC	12 of More*	PI ≥ 7 and On or Above A-Line	Clayey Gravels, Clayey Sandy Gravels
(Over 50% by Weight Coarser than No. 200 Sieve)	Sandy Soils	SW	0 - 5*	$C_u \ge 6$ and $1 \le C_c \le 3$	Well-Graded Sands, Gravelly Sands
	(Over Half of Coarse Fraction Larger than No. 4	SP	0 - 5*	$C_u < 6$ and / or 1 > $C_c > 3$	Gap-Graded or Uniform Sands, Gravelly Sands
		SM	12 or More*	PI < 4 or Below A-Line	Silty Sands, Silty Gravelly Sands
	Sieve)	SC	12 of More*	PI ≥ 7 and On or Above A-Line	Clayey Sands, Clayey Gravelly Sands
Fine-Grained	LOW	ML		Plasticity Chart	Silts, Very Fine Sands, Silty or Clayey Fine Sands, Micaceous Silts
	Compressibility (Liquid Limit Less	CL		Plasticity Chart	Low Plasticity Clays, Sandy or Silty Clays
	Than 50)	OL	Plasticity	Chart, Organic Odor or Color	Organic Silts and Clays of Low Plasticity
(Over 50% by Weight Finer than No. 200 Sieve)	HIGH	MH		Plasticity Chart	Micaceous Silts, Diatomaceous Silts, Volcanic Ash
	Compressibility (Liquid Limit	СН		Plasticity Chart	Highly Plastic Clays and Sandy Clays
	Greater Than 50)	ОН	Plasticity	Chart, Organic Odor or Color	Organic Silts and Clays of High Plasticity
Soils with Fibrous Organic Ma	atter	PT	Fibrous Orga Glow	nic Matter, Will Char, Burn, or	Peat, Sandy Peats, and Clayey Peat

*For Soils having 5 to 12 percent passing the No. 200 Sieve, use a dual symbol such as GW-GC.

REPORT OF GEOTECHNICAL ENGINEERING EVALUATION

GAGNE PARCEL

Pasco County, Florida

PREPARED FOR:

MERITAGE HOMES OF FLORIDA, INC.

10117 Princess Palm Avenue Tampa, Florida 33610

FES PROJECT NO.: 21-5233

October 27, 2021

PREPARED BY:



2734 Causeway Center Drive Tampa, Florida 33619



October 27, 2021

Mr. Garth Noble Meritage Homes of Florida, Inc. 10117 Princess Palm Avenue Tampa, Florida 33610

RE: Report of Geotechnical Engineering Evaluation Gagne Parcel Zephyrhills, Pasco County, Florida FES Project No.: 21-5233

Dear Mr. Noble:

Faulkner Engineering Services, Inc. (FES) has completed a geotechnical engineering evaluation of the referenced project. We provided our services in general accordance with FES Proposal No. P21-7910 dated August 25, 2021 and change order 1 dated September 14, 2021. The purpose of our geotechnical engineering evaluation was to analyze the subsurface soil and groundwater conditions at the site in order to determine the capacity of the subsurface soils to support multifamily and single-family residential development and provide foundation and flexible pavement design recommendations; and address the requirements outlined in Section 807.4 of the Pasco County Land Development Code relating to a Geotechnical/Geological Engineering Report. This report summarizes our field exploration and presents our findings, conclusions, and geotechnical engineering recommendations.

PROJECT INFORMATION

Existing Site

Gagne parcel is a 139± acre property located at the north and southwest corners of Chancey Road and Paul S. Buchman Road in Zephyrhills, Pasco County, Florida, Sections 23 and 24, Township 26 South and Range 21 East. Our geotechnical engineering evaluation was concentrated south of Chancey Road. The property south of Chancey Road is generally open and grass covered with scattered trees. There is a pond near the center of the property and wetlands to the east and south. The site topography slopes down from north to south with an elevation change of about 10 feet. A general site location map is shown on **Figure 1**.

Proposed Construction

Based on our review of the site plan prepared by LevelUp Consulting LLC, we understand that the proposed development includes construction of single-family and multi-family residential structures with associated internal roadways and stormwater ponds. Our current geotechnical engineering evaluation was limited to the planned residential building areas, interior roadways, stormwater ponds and the existing CSX crossing near the northeast corner of the property.

Soil Survey Review

According to the "Soil Survey of Pasco County, Florida", as prepared by the U.S. Department of Agriculture Natural Resource Conservation Service (formerly the Soil Conservation Service) the subject property is primarily underlain by:

- Wauchula fine sand, 0 to 5 percent slopes (Map Unit Symbol 1) The NRCS describes this soil unit as poorly drained and located on flats on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 34 inches below ground surface (bgs) followed by a layer of sandy clay loam from about 34 to 80 inches bgs. The NRCS indicates the seasonal high ground water table (SHGWT) is about 6 to 18 inches bgs.
- Pomona fine sand (Map Unit Symbol 2) The NRCS describes this soil unit as poorly drained and located on flatwoods on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 52 inches bgs followed by a layer of fine sandy loam from about 52 to 60 inches bgs underlain by a layer of fine sand from about 60 to 80 inches bgs. The NRCS indicates the SHGWT is about 6 to 18 inches bgs.
- Wabasso-Wabasso, wet, fine sand, 0 to 2 percent slopes (Map Unit Symbol 10) The NRCS describes this soil unit as poorly drained and located on flatwoods on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand from the surface to a depth of about 39 inches bgs followed by a layer of sandy clay loam from about 39 to 80 inches bgs. The NRCS indicates the SHGWT is about 6 to 18 inches bgs (3 to 18 inches bgs when wet).
- Zephyr muck (Map Unit Symbol 16) The NRCS describes this soil unit as very poorly drained and located on depressions on marine terraces. The NRCS indicates that this soil unit has a surface layer of muck from the surface to about 13 inches bgs followed by a layer of fine sand from about 13 to 31 inches bgs underlain by a layer of sandy clay loam from about 31 to 61 inches bgs followed by a layer of fine sandy loam from about 61 to 80 inches bgs. The NRCS indicates the SHGWT is about 0 inches bgs.
- Electra Variant, fine sand, 0 to 5 percent slopes (Map Unit Symbol 18) The NRCS describes this soil unit as somewhat poorly drained and located on rises and flats on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 70 inches bgs followed by a layer of sandy clay loam from about 70 inches to 78 inches bgs followed by a layer of weathered bedrock from about 78 to 82 inches bgs. The NRCS indicates the SHGWT is at about 24 to 42 inches bgs.
- Lochloosa fine sand, 0 to 5 percent slopes (Map Unit Symbol 48) The NRCS describes this soil unit as somewhat poorly drained and located on ridges and knolls on marine terraces. The NRCS indicates that this soil unit has a surface layer of fine sand to about 25 inches bgs followed by a layer of sandy clay loam from 25 inches to 30 inches bgs followed by a layer of sandy clay from about 30 to 52 inches bgs followed by a layer of sandy clay loam from 52 to 74 inches bgs. NRCS indicates the SHGWT is at about 15 to 60 inches bgs.

The NRCS soil classifications are based on interpretation of a combination of factors including but not limited to aerial photographs and widely spaced hand auger borings. Borders shown on the map included in **Appendix A**, between mapping units are approximate, and the transitions between soil units will be gradual. In addition to various minor inclusions within a mapped soil unit, areas of dissimilar soils can also occur. However, the soil survey provides a good basis for an initial evaluation of shallow soil conditions in the area, and can provide an indication of various historic activities such as development, mining and filling operations at the site.

SUBSURFACE SOILS EVALUATION

Field Evaluation

During our field evaluation, thirty-six (36) standard penetration test (SPT) borings were advanced to a depth of approximately 20 feet bgs within the planned single-family lots and the planned multi-family building areas (1 SPT boring per multi-family building), eight (8) SPT borings were advanced to depths of approximately 15 to 25 feet bgs within the planned stormwater ponds, thirty-three (33) auger borings were advanced to depths of approximately 8 feet bgs at generally equal intervals along the planned roadways, and four (4) auger borings were advanced to depths of about 15 feet bgs at four corners of the existing CSX crossing near the northeast corner of the property. The fieldwork was performed from September 23 to October 18, 2021 using a track-mounted D-25 drill rig operated by J&R Precision Drilling. The procedures used by FES for field sampling and testing were in general accordance with ASTM procedures, industry standards of care, and established geotechnical engineering practice.

A senior geotechnical engineering technician from FES, experienced in soil sampling and classifications, was onsite during the fieldwork to monitor the drilling and also perform a brief cursory site reconnaissance, noting pertinent site and topographic features as well as surface indicators of soil conditions. The SPT and auger borings were located in the field by FES personnel using a hand-held GPS device. GPS coordinates of some of most borings were provided to us on the site plan prepared by LevelUp. The approximate boring locations are shown on the attached boring location plan (**Figure 2**).

The SPT borings were performed utilizing continuous sampling methods within the first 10 feet and every 5 feet thereafter until the termination depths of the borings, employing wet rotary drilling techniques to keep the boreholes from collapsing. The drillers collected soil samples using a 1.4-inch I.D. split barrel sampler driven by an automatic hammer system with a 140-pound hammer falling a distance of 30 inches, in general accordance with standard penetration test procedures (ASTM D1586). Upon completion, each borehole was backfilled with borehole cuttings and bentonite chips to the surface.

The auger borings were advanced by mechanically rotating an approximately 4-inch diameter continuous flight auger into the subsurface soils. The cuttings brought to the surface were logged in the field and representative samples were obtained at each change in the soil stratigraphy. Upon completion, each borehole was backfilled with borehole cuttings to the surface.

Detailed descriptions of the soils encountered during the field exploration are presented on the attached soil boring logs and profiles in **Appendix B**.

Soil Sample Handling, Classification, and Laboratory Testing

FES field personnel classified the soils obtained from the field sampling techniques using standard visual manual methods in accordance with ASTM D2488. The samples recovered from both the SPT and mechanical auger borings were placed in sealed containers to retain moisture and transported to the FES soils laboratory accredited by Construction Materials Engineering Council, Inc., (CMEC) for further evaluation and testing. To further aid in classification and evaluation of geotechnical engineering properties, laboratory testing was performed on representative soil samples collected during the field sampling. The laboratory testing performed was in general accordance with appropriate sections of ASTM D1140, material finer than the No. 200 sieve and ASTM D4318, Atterberg Limits. The laboratory test results were in general accordance with field classification of the soils except some soils were reclassified based on the fines content from laboratory testing. The laboratory test results and the soil classifications were reviewed by a professional geotechnical engineer. The results from the laboratory testing are presented on the boring logs and profiles contained in **Appendix B**.

FINDINGS

Subsurface Conditions

General Soil Profile

The subsurface stratigraphy at the project site is illustrated in the soil boring logs and profiles shown in **Appendix B**. The logs and profiles were developed using field and laboratory data from the SPT and mechanical auger borings. The computer-generated boring logs and profiles should imply no increased accuracy. Based on this data, four subsurface units, or strata, were identified at the site as described below.

Stratum 1	SAND, SAND with clay, SAND with silt; very loose to medium dense, fine grained quartz with clay, silt with occasional fines roots, cementation and clay nodules
	USCS classification = SP, SP-SC, SP-SM
Stratum 2	CLAYEY SAND, SILTY SAND; very loose to dense, fine-grained quartz, variably clayey, silty, occasional cementation
	USCS classification = SC, SM
Stratum 3	CLAY, SILT; very soft to very stiff, variably sandy clay, silt, occasional cementation
	USCS classification = CL, CH, ML
Stratum 4	LIMESTONE; limestone bedrock

Stratum 1 occurred as the surface stratum in most SPT and auger borings and typically extended with varying thicknesses from the ground surface to depths ranging from approximately 2 feet bgs to termination depths of 20 feet bgs in the SPT borings and from the ground surface to about 10 feet bgs in the auger borings. The SPT "N" values within this stratum ranged from 2 to 28 blows per foot, indicating very loose to medium-dense relative density.

Stratum 2 occurred in most SPT and auger borings below Stratum 1 (except borings BB-14, BB-32, AB-1, HA-17, and HA-32 where Stratum 2 occurred at the ground surface) and occurred at depths ranging from about 2 feet bgs to the termination of the SPT borings at about 20 feet bgs and from ground surface to auger boring termination at about 8 to 15 feet bgs. The SPT "N" values ranged from 3 to 37 blows per foot indicating very loose to dense relative density. The results of the laboratory testing performed on representative soil samples of this stratum indicated that the fines contents ranged from 16.6 to 44.2 percent.

Stratum 3 occurred in most SPT borings below Strata 1 and/or 2 from about 2 feet bgs to SPT boring termination depths of about 20 feet bgs. Stratum 3 was encountered in the auger borings at depths ranging from 2 to 15 feet bgs. The SPT "N" values within this stratum ranged from 0 to 22 blows per foot indicating very soft to very stiff consistency. The results of the laboratory testing performed on representative soil samples of this stratum indicated that the fines contents ranged from 53.8 to 69.8 percent.

Stratum 4 occurred below Strata 1, 2 and 3 in most SPT borings at depths ranging from about 8 feet bgs to boring termination at about 15 to 25 feet bgs. Stratum 4 was not encountered in any of the auger borings within the depths explored. This stratum consisted of limestone bedrock with SPT "N" values ranging from 2 blows per foot to a refusal blow counts of 50 blows for less than 6 inches of sampler penetration.

The conditions presented above highlight the major subsurface stratifications encountered during our field evaluation of the site. More detailed descriptions of the materials encountered are provided in **Appendix B.** A soil classification key is included as **Appendix C**. It should be understood that subsurface conditions will vary across this site and between boring locations. Changes in subsurface strata may be more gradual than indicated.

Groundwater

Groundwater was encountered in our SPT and auger borings at depths ranging from about 1.0 to 6.7 feet bgs at the time of drilling. In some of the SPT borings, groundwater was not encountered within the first 10 feet at the time of drilling after which drilling fluid was introduced to keep the boreholes from collapsing. Groundwater was also not encountered in some auger borings within the depths explored. Groundwater levels will fluctuate with time due to seasonal rainfall and locally heavy precipitation events; therefore, future groundwater levels may be encountered at depths different from those indicated by our borings. Please refer to the attached Groundwater Data table (**Table 1**) for the groundwater conditions at the time of drilling and our estimates for the estimated SHGWT.

The SHGWT is typically encountered during late summer following the rainy season. Several factors can affect the seasonal high groundwater level such as drainage characteristics of the soils; land surface elevation; and relief points such as lakes, rivers and swamps. Based on our experience, review of the depth of existing groundwater levels, review of the soil indicators (where encountered) exposed in our borings, and a review of the soil survey for Pasco County, we estimate the seasonal high groundwater levels within the areas explored may be encountered at depths ranging from approximately 1 to 5 feet bgs.

CONCLUSIONS

Our geotechnical engineering evaluation of this site and our recommendations with respect to the proposed residential development are based on our site observations, field exploratory data obtained from our borings, laboratory test results, and our professional judgment. It is our opinion that with proper site preparation in accordance with procedures presented in the **Recommendations** section of this report (including some possible minor undercutting and replacing of the shallow clayey soils in some locations as discussed below), the soils encountered should adequately support the planned single- and multi-family structures on a shallow foundation system.

Based on the SPT blow counts recorded during our field study within the planned building areas, the soils are generally very loose to dense (coarse-grained soils) within the upper 10 feet with penetration resistances (N values) ranging from 2 to 37 blows per foot and soft to very stiff (fine grained soils) within the upper 10 feet with penetration resistances (N values) ranging from 4 to 19 blows per foot. Below the upper 10 feet to the termination of the SPT borings, the soils are generally loose to dense (coarse-grained soils) with penetration resistances (N values) ranging from 9 to 31 blows per foot and very soft to very stiff (fine-grained soils) with penetration resistances (N values) ranging from 9 to 31 blows per foot and very soft to very stiff (fine-grained soils) with penetration resistances (N values) ranging from 2 blows per foot to refusal blow counts of 50 blows for less than 6 inches of sampler penetration.

In-place densification of the surface and near surface soils using a heavy vibratory roller compactor will be required subsequent to clearing and stripping operations and prior to the placement of fill soil or beginning construction. Any additional fill required to bring the site to final design grade should comply with the criteria specified in the **Recommendations** section below.

Most of the borings encountered Stratum 2 and Stratum 3 soils near or at the ground surface. The Stratum 3 soils and some Stratum 2 soils with fines contents greater 35 percent are unsuitable bearing soils. Where these soils are present at the ground surface or at shallow depths we recommend undercutting these soils and replacing with suitable compacted structural fill such than a minimum of 3 feet of separation is maintained between the bottom of the planned footings and the fine-grained soils. Alternatively, the suitable fill can be added in accordance with the recommendations presented in this report to maintain the recommended 3-foot separation.

Boring BB-3 performed within the planned building area encountered minor weight-of-hammer (WOH) instance from about 13.5 to 16 feet bgs. The WOH instances generally occur in very loose or very soft soils or potential voids. The WOH instance in boring BB-3 occurred in what appeared to be very soft clay that was possibly bridged over by competent clayey sands (SC) (Stratum 2) prior to consolidation. The WOH zone was immediately underlain by competent limestone as indicated by the SPT "N" values. Loss of drilling fluid circulation was not observed during drilling. WOH instances does not necessarily indicate sinkhole activity without other indicators being present such as raveling/eroding of upper soils into to the underlying strata, loss of drilling fluid circulation, voids, etc. Additionally, the WOH instance occurred at a depth below the zone of significant influence of the potential stress increase due to the planned residential structure.

The SPT borings (PB-1 to PB-8) performed within the stormwater pond areas generally encountered fine sand (SP), fine sand with clay, (SP-SC) fine sand with silt (SP-SM) (Stratum 1), clayey sand (SC) (Stratum 2), clay (CL) (Stratum 3), and limestone bedrock (Stratum 4) from the ground surface to boring termination at about 20 to 23.5 feet bgs. Stratum 1 soils, if excavated will provide a good source for structural fill during site development. Stratum 2 soils can also be used as structural fill or backfill provided they conform to the criteria specified in the **Recommendations** section below. Stratum 3, clay, silt (CL, CH, ML) and Stratum 4, limestone bedrock are unsuitable for use as structural fill or backfill.

Loss of drilling fluid circulation was observed in borings BB-1, BB-2, BB-5, BB-8, BB-10 to BB-12, BB-21 to BB-32, PB-2, PB-3, and PB-5 to PB-8 at or near the limestone bedrock at the time of drilling. Florida limestone is generally porous and loss of drilling fluid circulation is common within the limestone or near limestone interface with other strata and does not indicate sinkhole activity without other indicators such as presence of voids, raveling of surficial soils, etc.

The auger borings performed along the proposed interior access roadway alignments generally encountered fine sand (SP), fine sand with silt (SP-SM), fine sand with clay (SP-SC) (Stratum 1) clayey sand (SC) (Stratum 2), and clay (Stratum 3) from the ground surface to the boring termination depths at approximately 8 feet bgs. It appears that the shallow subsurface soils will provide a suitable subgrade for roadway pavement, after proper site preparation and in-place densification methods described in the **Recommendations** section of this report except at borings HA-16 and HA-32. The encountered Stratum 1 soils can be used as backfill during utility installations. Stratum 2 soils can also be used as utility backfill provided they conform to the requirements presented in the **Recommendations** section below. Stratum 3, clay (CL) if encountered is unsuitable for re-use as backfill material. We also recommend that suitable fill with fines content of less than 15 percent be placed a minimum of 2 feet below the bottom of the subgrade (if the subgrade is un-stabilized) or a minimum of 2 feet below the bottom of the subgrade (if the subgrade is stabilized). Minor undercutting and replacing of soils with fines contents of less than 15 percent fines will be required in some locations. Undercutting and replacing of soils will be required at borings HA-16 and HA-32 due to the presence of high fines content soils at the ground surface.

The auger borings performed near the existing CSX crossing generally encountered fine sand (SP), fine sand with clay (SP-SC), fine sand with silt (SP-SM) (Stratum 1), clayey sand (SC) (Stratum 2), and clay (Stratum 3) from the ground surface to the boring termination depths at approximately 15 feet bgs. Limestone bedrock was not encountered within the depths explored at these locations.

Groundwater was encountered at depths ranging from about 1.0 to 6.7 feet bgs and not encountered within the first 10 feet in some SPT borings and not encountered within the boring termination depths of about 8 feet bgs in some auger borings at the time of drilling. We recommend maintaining a minimum separation of 1 foot between the bottom of the lowest footing and the estimated SHGWT (**Table 1**). For the roadway areas, we recommend a minimum of 24 inches of separation between the bottom of the base course and the estimated SHGWT (**Table 1**), if a limerock base course is used. The minimum separation between the bottom of the base course and the estimated SHGWT can be reduced to 12 inches if a moisture tolerant base course such as crushed concrete or soil-cement is used. Underdrains will required in conjunction with using a moisture tolerant base course if the above mentioned base clearance if not available. Alternatively, suitable structural fill can be added in some locations, in order to maintain the required base clearance, in accordance with the **Recommendations** section below.

If structures or roadways are planned over the existing wetlands or borrow area, we recommend that these areas be dewatered, the bottom stripped of all soft/organic sediments, if present, the exposed subgrade proof-rolled and backfilled to final design grade using suitable compacted structural fill in accordance with the recommendations presented in this report.

Use of Information

It should be noted that subsurface conditions can vary across this site and between boring locations. Conditions can also vary in areas not explored by our borings. Contractors bidding earthwork requirements are urged to conduct their own borings, test pits or other investigations to determine those conditions that may affect their specific work requirements. FES cannot be responsible for interpretations made by others based on the information contained in this report and the attachments.

RECOMMENDATIONS

Site Preparation

Site Stripping/Undercutting

Before earthwork and construction activities begin, all existing topsoil, vegetation, surface debris, the existing trees including the root system, large roots down to finger-size and any other deleterious material should be removed from within the construction limits. Site stripping should extend at least ten feet beyond the construction area. Any pockets of organics, organic laden soils and/or deleterious material should be undercut to competent soil. The resulting excavations should be backfilled with structural fill placed in maximum one-foot thick loose lifts. Backfill soils should be of the same composition and be compacted to the same criteria as structural fill soils. This process should be observed by a representative of FES to check that all organics, organic laden soils and/or deleterious material has been removed.

Proof-Rolling / In-Place Densification

Following site stripping and prior to any fill placement or beginning construction, proof-rolling / inplace densification of the ground surface with a heavy vibratory roller should be performed within the construction area. Based on experience, vibratory rollers should be operated in the static mode within 100 feet of existing structures to avoid transmission of vibrations that could cause structural distress.

Compaction within the construction area should continue until the soils appear relatively firm and unyielding and the soils have achieved a relative compaction of at least 95 percent of modified Proctor maximum dry density (ASTM D1557) to a depth of at least 2 feet below the present ground surface or 2 feet below the bottom of the lowest footing, whichever is lower.

The subgrade soil 1-foot below new pavement should be compacted to at least 98 percent of the modified Proctor maximum dry density (ASTM D1557). The moisture content of the fill soils during placement and compaction shall be maintained within 2 percent of the optimum moisture content as determined by ASTM D1557.

Proof-rolling and densification efforts should be closely monitored by an FES engineering technician to observe any unusual or excessive deflection of the soils beneath the compacting equipment used. If unusual or excessive deflection is observed, then the areas should be undercut to firm soil and backfilled with compacted structural fill placed in maximum one-foot thick loose lifts.

Borrow Areas

Structural Fill Suitability

Definition

The preferred soil used for structural fill and backfill can be defined as clean fine sand containing less than twelve percent material by weight that is finer than a number 200 sieve (material conforming to SP to SP-SM or SP-SC in the Unified Soils Classification System).

Encountered soils containing up to 35 percent fines (materials conforming to SC, SM, or SC-SM in the Unified Soil Classification System) may also be utilized as structural fill, provided the working subgrade is above the existing groundwater level. However, Florida Building Code (Chapter 18, Section 1803.5.3) states that soils with plasticity index of 15 or greater are considered expansive and hence are unsuitable for use as structural fill. Please note that soils conforming to SC, SM, or SC-SM are difficult to work with and will require additional time and effort for either drying or moisture conditioning during placement and compaction.

Any muck or organic soil if encountered on site will not be suitable for fill and should be disposed of offsite or placed in landscape areas and used for planting purposes. Soils containing organic content, as determined by ASTM D2974, of more than 5 percent shall not be used as structural fill. Because of the variability of the subsurface soils encountered, additional laboratory testing should be performed on the excavated material during grading and earthwork activities to evaluate its suitability for use as fill material.

Soil Suitability

The SPT borings performed within the planned stormwater pond areas indicated soils conforming to Stratum 1 (SP, SP-SC, and SP-SM), Stratum 2 (SC), Stratum 3 (CL, CH, ML), and Stratum 4 limestone bedrock are present from existing ground surface to boring termination at about 15 to 25 feet bgs. Stratum 1 soils will provide a good source of structural fill, if excavated during site development. Stratum 2 soils can also be used as structural fill provided they conform to the criteria specified above. Stratum 3, clay, silt, and Stratum 4, limestone bedrock are unsuitable for reuse as structural fill or backfill.

<u>Placement</u>

Structural fill with less than 12 percent fines should be placed in lifts not to exceed one foot thick. Materials with fines content between 12 and 35 percent should be placed in maximum 6-inch loose lifts. Soils with fines content greater than 35 percent shall not be used as structural fill.

The fill material should be compacted to at least 95 percent of its modified Proctor maximum dry density (ASTM D1557). The upper 1-foot below pavements should be compacted to 98 percent of modified Proctor maximum dry density. The moisture content of the fill during placement and compaction shall be maintained within 2 percent of the optimum moisture content (ASTM D1557). Confined areas, such as utility trenches, should be compacted with manually operated portable vibratory compaction equipment.

Field density testing to verify compaction should be performed for each lift of structural fill placed for each 2,000 ft² of area below structures and for each 5,000 ft² below pavements. In pavement areas, the subbase and base materials should be tested to the same frequency. Density tests should be performed for each lift of fill for every 100 lineal feet of backfill placed in utility excavations or other excavations that are within the paving areas.

Depending on the time of year construction occurs, materials excavated containing clay fines may exist in a saturated condition. These soils will require processing and drying to achieve a moisture content to allow placement and proper compaction. Spreading the clayey material in thin lifts (6 inches loose thickness) and aerating by disking can facilitate and hasten the drying process. Disking will also be useful to breakdown larger clods of clayey soils. Specialty equipment typically associated with clayey soils such as a sheep's foot roller will also be required to achieve proper compaction.

The placement and compaction of moisture sensitive soils of this type will require time and effort beyond that typically associated with sandy soils. A grading contractor experienced with placing and compaction of clayey soils can likely reduce costly project delays due to soil conditions.

Groundwater Control

Groundwater will likely be encountered during excavation and fill placement activities. Dewatering may be accomplished by either draining the water to sumps which can then be pumped away from the area or by the use of sanded, vacuum well points. Groundwater fluctuations can occur due to variations in rainfall and other site specific factors. These variations should be considered when planning earthwork activities.

An alternative to dewatering in shallow undercut areas where groundwater is encountered is to use clean sand classified as SP material (less than 5% fines) according to the Unified Soil Classification System as a first lift through any standing water. This first lift will create a platform to place and compact additional fill material upon.

Foundation Recommendations

Based on the subsurface data obtained from our exploratory borings, the planned single- and multifamily residential structures can be supported on a shallow foundation system provided the recommendations contained in this report are closely adhered to (including possible undercutting and replacing of high fines content Stratum 2 and Stratum 3 soils as described above) and proper densification of the site bearing soils occurs.

Column footings and continuous strip footings can be designed using a net allowable soil bearing pressure of 2,000 psf assuming a footing embedment of at least 12 inches below lowest exterior adjacent grades. Using this net allowable soil bearing pressure, we anticipate maximum total foundation settlements of less than 1 inch and differential settlements of less than 0.5 inches.

If the actual column/wall loads result in a footing/soil contact pressure that exceeds the above allowable bearing pressure, the footings should be constructed wider or the footing embedment below lowest adjacent exterior grade increased. Even though computed footing dimensions may be less, column and wall footings should have a minimum width in accordance with the applicable building code for the type of structure and construction to avoid excessive settlements and punching shear failures. We also recommend a minimum 1-foot separation between the bottom of the lowest footing and the estimated SHGWT (**Table 1**).

Because of possible disturbance from excavation, the soils exposed at the bottom of the foundation excavations should be re-compacted to at least 95 percent of the soils modified Proctor maximum dry density (ASTM D1557) prior to the placement of reinforcing steel and concrete. The compaction should be checked prior to the placement of reinforcing steel. Density test should be performed at intervals of 50 linear feet along the footing excavations to ensure compaction.

Floor Slab Recommendations

We have assumed that no unusual floor loads will be applied to the floor slabs due to vibration, impact or high intensity contact pressures. A modulus of subgrade reaction of 200 pounds per cubic inch may be used for floor slab design purposes if the slab is placed on structural fill or in-situ soils that have been prepared and densified in accordance with the recommendations presented in this report. This modulus of subgrade reaction is based on the assumption that the soil beneath the slab will achieve a Limerock Bearing Ratio (LBR) value of at least 15. The subgrade should also be covered with an effective vapor barrier to reduce the possibility of slab dampness.

Flexible Pavement Recommendations

The following minimum pavement sections are provided for consideration for this development. However, the project civil engineer should develop the actual minimum pavement thickness based on anticipated traffic loads and other considerations in accordance with FDOT and Pasco County standards. A base material other than limerock should be used if an underdrain is required to control groundwater.

Section Description	Light Duty (inches)	Heavy Duty (inches)
Surface Course Type SP-9.5 or SP-12.5 Asphaltic (Section 334 FDOT) compacted to minimum per applicable requirement of the mix design bulk density (G _{mm}) (FM 1-T166).	1.5	3
Base Course Limerock (Section 911, FDOT) having a minimum LBR of 100 (FM 5-515) and compacted to at least 98 percent of its modified Proctor maximum dry density and moisture content maintained within 2 percent of the optimum value (FM1-T180). If the bottom of the base is within 2 feet of the seasonal high groundwater level, then a moisture tolerant base will be required such as cement-treated aggregate or crushed concrete or shell-rock.	6	10
Subbase A minimum LBR of 40 (FM5-515) and compacted to at least 98 percent of the modified Proctor maximum dry density at a moisture content within 2 percent of the optimum value (FM1- T180).	12	12

Methods and materials used for pavement construction should conform to applicable sections of the most recent edition of the FDOT Standard Specifications for Road and Bridge Construction. We further recommend that LBR testing be performed on the subgrade soils to establish an LBR value to determine the level of stabilization required, if any.

Subgrade soils should be compacted as specified above and free of ruts or disturbances caused by construction vehicles after compaction has been achieved.

POTENTIAL FOR SINKHOLE DEVELOPMENT

Most of Florida is prone to sinkhole formation because it is underlain by carbonate deposits that are susceptible to dissolution by circulating ground water. The soluble limestone and dolomites that constitute the carbonate deposits are altered by dissolution and weathering processes to a distinct geomorphology known as "Karst". Where the carbonate rock is covered by relatively insoluble deposits such as the sand and clay deposits that exist in west-central Florida, the buried Karst features form a distinctive type of terrain known as "mantled Karst". In mantled Karst regions, the carbonate rock is not exposed at the land surface; however the presence may be indicated by sinkholes or surface depressions that result when the overburden materials take the shape of the underlying Karst features. [Tihansky, A.B., 1999, Sinkholes, West-Central Florida, in Galloway, Devin, Jones, D.R., and Ingebritsen, S.E., eds., Land Subsidence in the United States: USGS Circular 1182.].

At the time of our fieldwork, we observed no strong visual evidence to suggest that active sinkhole conditions exist on the property explored nor were suggestive near surface conditions observed in our borings. A review of a map titled "Pasco County Sinkholes" published in 2008 by the Florida Center for Instructional Technology (FCIT) indicates that the area in the vicinity of the planned Gagne Parcel residential development is not an area of reported excessive sinkhole activity. Furthermore, we assess that the risk of sinkhole occurrence at the property explored is no greater or less than that of the surrounding area. However, because Florida is underlain by limestone bedrock that is susceptible to dissolution and the subsequent development of karst features such as voids and sinkholes in the natural soil overburden, construction in Pasco and surrounding counties is accompanied by some risk that internal soil erosion and ground subsidence could affect new structures in the future. It is not possible to investigate or design to completely eliminate the possibility of future sinkhole related problems. In any event, the Owner must understand and accept this risk.

TESTING AND MONITORING

Construction testing and monitoring are essential to proper site construction and performance. Observation and testing of site preparation and earthwork activities is an integral part of the engineering recommendations contained in this report. Having FES provide the construction materials testing and inspection services provides continuity and increases the potential that our recommendations will be properly implemented.

LIMITATIONS

This report has been prepared for the exclusive use of **Meritage Homes of Florida**, **Inc.** for the specific application to the project previously discussed. Our conclusions and recommendations have been rendered using generally accepted standards of geotechnical engineering and geology practice in the state of Florida. No other warranty is expressed or implied.

Our conclusions and recommendations are based on the design information furnished to us, the data obtained from the previously described subsurface investigation, laboratory testing, and our professional judgment. They do not reflect variations in the subsurface conditions that are likely to exist in the region of our borings and in unexplored areas of the site. These variations are due to the inherent variability of the subsurface conditions in this geologic region. Should variations become apparent during construction, it will be necessary to re-evaluate our conclusions and recommendations based upon our on-site observations of the conditions.

The scope of our services does not include any environmental assessments or studies for the possible presence of hazardous or toxic materials in the soil, groundwater or surface water within or in the general vicinity of the site studied. Any statements made in this report or shown on the test boring logs regarding unusual subsurface conditions and/or composition, odor, staining, origin or other characteristics of the surface and/or subsurface materials are strictly for the information of our client and may or may not be indicative of an environmental problem.

If changes are made in the overall design or the location of the proposed stormwater pond areas, building areas or the roadway alignments, the recommendations presented in this report must not be considered valid unless the changes are reviewed by FES and recommendations modified or verified in writing. FES should be given the opportunity to review the grading plan and the applicable portions of the project specifications when the design is finalized. This review will allow FES to check whether these documents are consistent with the intent of our recommendations.

CLOSING

Faulkner Engineering Services, Inc., appreciates the opportunity to be of service to **Meritage Homes of Florida**, Inc. by providing these geotechnical consulting services and we look forward to assisting you through project completion. If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Sincerely,

Faulkner Engineering Services, Inc.

Matthew Reinhart

Matthew J. Reinhart, E.I. Staff Geotechnical Engineer Pavan K. Kolukula, P.E. Senior Geotechnical Engineer Florida License No. 83670

This item has been digitally signed and sealed by David W. Faulkner, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Copy to: Mr. Chris Torres (Meritage Homes of Florida, Inc.)

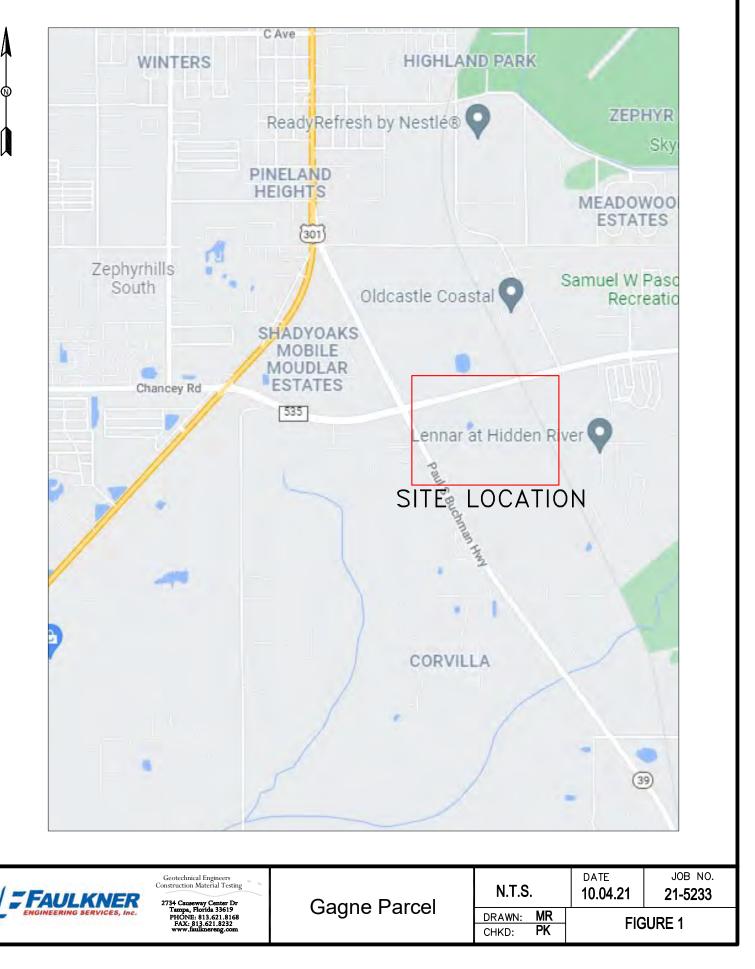
Attachments: Figure 1: Site Location Map Figure 2: Boring Location Plan Table 1: Groundwater Data

Appendix A: Soil Survey Map

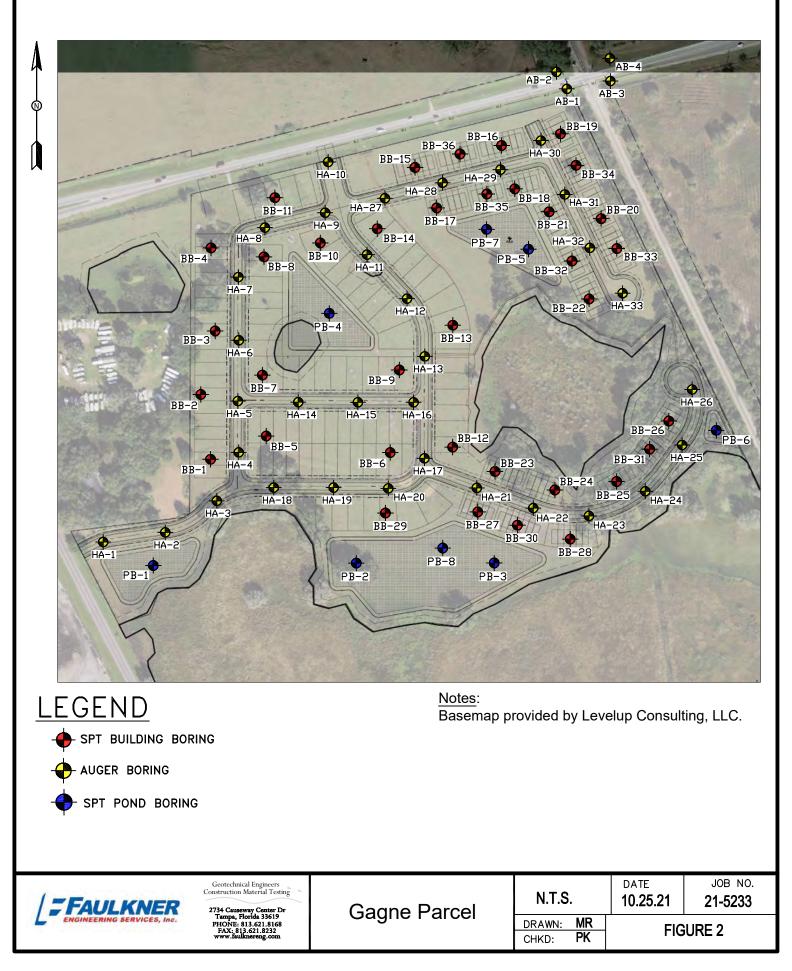
Appendix B: SPT Boring Logs and Auger Boring Profiles

Appendix C: Key to Soil Classification

SITE LOCATION MAP



BORING LOCATION PLAN



Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
BB-1	-	4.0	2.0
BB-2	-	3.4	2.0
BB-3	-	4.0	3.0
BB-4	-	4.0	3.0
BB-5	-	3.4	2.0
BB-6	-	3.5	2.0
BB-7	-	3.7	2.0
BB-8	-	4.1	3.0
BB-9	-	NE	2.0
BB-10	-	3.4	2.0
BB-11	-	4.2	2.0
BB-12	-	1.0	1.0
BB-13	-	1.0	1.0
BB-14	-	NE	1.0
BB-15	-	3.3	2.5
BB-16	-	3.0	2.0
BB-17	-	3.3	2.5
BB-18	-	3.7	3.0
BB-19	-	3.0	2.0
BB-20	-	3.0	2.5
BB-21	-	2.9	2.0
BB-22	-	2.3	1.5
BB-23	-	1.0	1.0
BB-24	-	1.0	1.0
BB-25	-	2.0	1.5
BB-26	-	NE	2.0
BB-27	-	NE	2.0
BB-28	-	1.0	1.0
BB-29	-	3.6	3.0
BB-30	-	2.0	1.5
BB-31	-	NE	2.0
BB-32	-	NE	1.5
BB-33	-	3.0	2.5
BB-34	-	3.0	2.5
BB-35	-	NE	3.0
BB-36	-	NE	2.0
PB-1	-	3.5	2.0
PB-2	-	3.0	2.0

Table 1 - Groundwater Data

Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
PB-3	-	NE	2.5
PB-4	-	3.3	2.0
PB-5	-	1.0	1.0
PB-6	-	3.0	2.0
PB-7	-	3.0	2.5
PB-8	-	NE	1.0
AB-1	-	6.4	5.0
AB-2	-	6.5	5.0
AB-3	-	6.7	5.0
AB-4	-	6.2	5.0
HA-1	-	3.2	2.0
HA-2	-	3.3	2.0
HA-3	-	3.8	3.0
HA-4	-	4.0	2.0
HA-5	-	3.7	3.0
HA-6	-	3.8	3.0
HA-7	-	4.0	3.0
HA-8	-	3.8	2.0
HA-9	-	3.8	2.0
HA-10	-	3.5	2.5
HA-11	-	3.0	1.0
HA-12	-	3.0	2.5
HA-13	-	1.3	1.0
HA-14	-	3.6	2.0
HA-15	-	NE	2.0
HA-16	-	NE	2.0
HA-17	-	1.0	1.0
HA-18	-	3.6	2.0
HA-19	-	4.0	2.0
HA-20	-	3.7	3.0
HA-21	-	1.0	1.0
HA-22	-	1.0	1.0
HA-23	-	1.0	1.0
HA-24	-	NE	2.0
HA-25	-	3.0	2.0
HA-26	-	3.3	2.0
HA-27	-	3.3	2.5
HA-28	-	NE	2.0
HA-29	-	2.9	2.0
HA-30	-	3.0	2.5

Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
HA-31	-	2.9	2.0
HA-32	-	1.0	1.0
HA-33	-	2.0	1.5

¹ - North American Vertical Datum, ground elevations not available at time of drilling

² - Below Ground Surface

³ - Seasonal High Groundwater Table

NE - Not encountered in the first 10 feet (SPT boring) or boring termination (auger borings)

Report of Geotechnical Engineering Evaluation Gagne Parcel Pasco County, FL. FES Project No: 21-5233

APPENDIX A

Soil Survey Map



	MAP L	EGEND)	MAP INFORMATION
Area of Int	terest (AOI)	000	Spoil Area	The soil surveys that comprise your AOI were mapped at
	Area of Interest (AOI)	٥	Stony Spot	1:20,000.
Soils	Sail Man Linit Dalvaana	0	Very Stony Spot	Warning: Soil Map may not be valid at this scale.
	Soil Map Unit Polygons	Ŷ	Wet Spot	
~	Soil Map Unit Lines	Δ	Other	Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil
	Soil Map Unit Points		Special Line Features	line placement. The maps do not show the small areas of
Special	Point Features Blowout	Water Fea	atures	contrasting soils that could have been shown at a more detailed scale.
Ø	Borrow Pit	\sim	Streams and Canals	
<u>م</u>	Clay Spot	Transport		Please rely on the bar scale on each map sheet for map
~	Closed Depression	+++	Rails	measurements.
×	Gravel Pit	~	Interstate Highways	Source of Map: Natural Resources Conservation Service
	Gravelly Spot	~	US Routes	Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)
	Landfill	\sim	Major Roads	
0	Lava Flow	~	Local Roads	Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts
A.		Backgrou		distance and area. A projection that preserves area, such as the
<u>مل</u> ه	Marsh or swamp		Aerial Photography	Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.
*	Mine or Quarry			
0	Miscellaneous Water			This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
0	Perennial Water			
×	Rock Outcrop			Soil Survey Area: Pasco County, Florida Survey Area Data: Version 20, Aug 27, 2021
+	Saline Spot			Survey Area Data. Version 20, Aug 27, 2021
° °	Sandy Spot			Soil map units are labeled (as space allows) for map scales
0	Severely Eroded Spot			1:50,000 or larger.
\diamond	Sinkhole			Date(s) aerial images were photographed: Feb 8, 2019—Feb
≫	Slide or Slip			28, 2019
ø	Sodic Spot			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
1	Wauchula fine sand, 0 to 5 percent slopes	36.6	63.6%
2	Pomona fine sand	1.6	2.7%
10	Wabasso-Wabasso, wet, fine sand, 0 to 2 percent slopes	1.5	2.6%
16	Zephyr muck	14.3	24.8%
18	Electra Variant fine sand, 0 to 5 percent slopes	3.6	6.2%
48	Lochloosa fine sand, 0 to 5 percent slopes	0.1	0.1%
Totals for Area of Interest		57.6	100.0%

APPENDIX B

SPT Boring Logs and Auger Boring Profiles

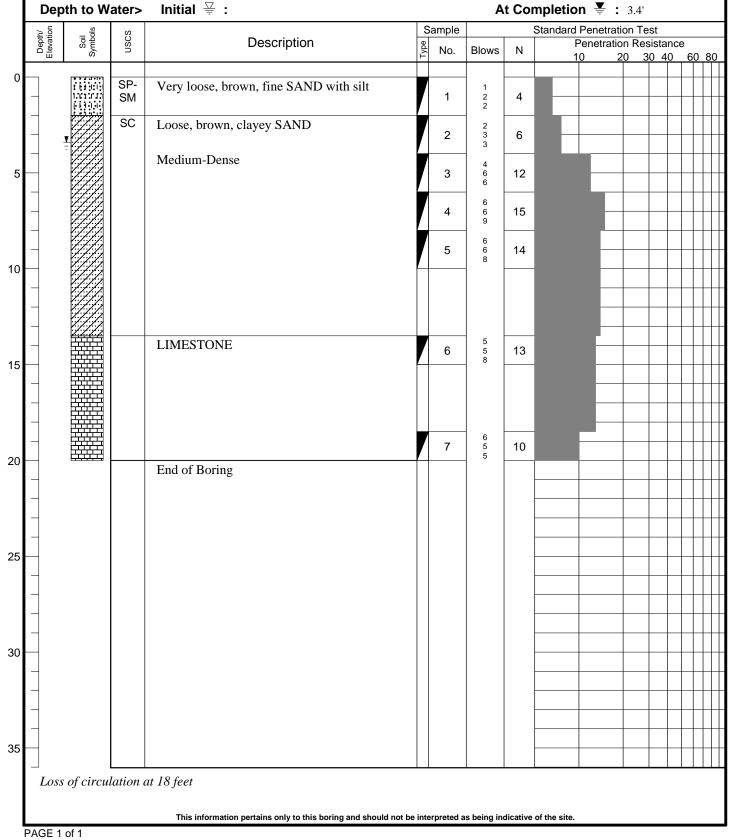
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		oth to W	ater>	Initial 픚 :			Α			on 🛓 :					
	Depth/ Elevation	Soil Symbols	nscs	Description	Type CO	ample No.	Blows	N	Standar	d Penetrati Penetrati 10	on Res	sistar	nce) 6	0 8	0
0 -			SP	Very Loose, brown, fine SAND		1	1 1 1	2							
	_		SC	Very Loose, brown, clayey SAND		2	2 1 2	3							
5	_			Loose, gray brown, with small roots	7	3	2 3 4	7							
	_		CL	Medium, gray brown, CLAY with cemented silt		4	8 3 4	7							_+-
	_			Stiff, gray		5	4 6 5	11							
0															
5 —	_			LIMESTONE		6	4 3 2	5							
0 —	_			With clay		7	7 4 5	9							
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FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 10/1/2021

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	ENGINEERING SERVICES, INC.

Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 45



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Project No.: 21-5233 Date: 10/18/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550 Depth to Water>

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Ŭ	_		SP	Very loose, gray, fine SAND		1	1 2 2	4	-		_	
	_		SP- SM	Loose, gray brown, fine SAND with silt		2	3 2 3	5				
5			SC	Medium-Dense, brown, clayey SAND	Ţ	3	4 6 8	14				
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ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/4/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 45

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Dept	Soil		nscs	Description	Type	No.	Blows	Ν		Penetra					
										10		30	40	60	
			SP-	Loose, brown gray, fine SAND with silt			2								+
	1.000 6630		SM			1	2 2 3	5							+
	· · · ·		SP-	Loose, brown gray, fine SAND with clay			-					+	-		+
-	11		SC	Loose, brown gray, file brand with enay		2	2 3 2	5				-			+
_	▼ 7.7 - / / /		SC	Loose, brown gray, clayey SAND			-				_	-	-		+
_			00	Loose, blown gray, clayey SAND		3	2 3 4	7				-	_		+
_				Medium-Dense, gray red			-					_	-	$\left \right $	+
_				Weddun-Dense, gray red		4	7 9	20				_	_		_
				C			11					_	_		_
				Gray		5	8 13 10	23							\downarrow
							10				_				
														\square	
				Loose, light brown			3								
				Loose, light blown		6	3 4 5	9							T
												1			1
															1
															+
												+	-		+
			CL	Stiff, light gray, CLAY		7	4	10				+	-		+
				End of Boring			6								+
				6						_					+
															+
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-												+	-	$\left \right $	+
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ENGINEERING SERVICES, Inc.	

Project No.: 21-5233 **Date:** 10/1/2021

Project: Gagne Parcel Client: Meritage Homes **Location:** Pasco County, Florida **Driller:** J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water> Initial $\stackrel{\frown}{=}$:

Depth to Water>			ater>	Initial \(\frac{}{1}}}}}}}} 13.4}}} 												
	th/ ition	li Jols	SC			ample			Standard Penetration Test							
	Depth/ Elevation	Soil Symbols	USCS	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80							
0																
0			SP	Very loose, brown, fine SAND with clay nodules		1	1 1 2	3								
	_	I	SC	Loose, gray, clayey SAND		2	2 2 3	5								
5	_			Medium-Dense, gray orange		3	3 8 6	14								
	_					4	5 6 6	12								
10	_		CL	Stiff, gray orange, CLAY		5	4 6 8	14								
	_															
	_			LIMESTONE with clay		6	1	2								
15							1									
	_															
	_					7	2 3 5	8								
20				End of Boring			5									
	_															
	_															
25	_															
30	_															
30																
35																
	Loss	s of circul	lation a	t 15 feet												
	PAGE 1	of 1		This information pertains only to this boring and should no	t be inte	erpreted a	as being ind	dicative	of the site.							

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L	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50

	oth to W	I 1			ample				on d Penetr	ation	Test			_
Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetra					_
ш	05			i i i		2.0.00			10	20	30	40	60	7
٦		SP-	Var Lagar and have find CAND with silt									+		+
-	t 69 (c) 1.01 (c)	SM	Very Loose, gray brown, fine SAND with silt		1	1	3							+
-	1. 1. 1. 1. 1 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1					2								1
		CL	Medium, brown, CLAY		2	2 2	5							
	<u>•</u> ///				2	3	5							
			Stiff			5								1
1					3	5 5 5	10							-
-										_	_	+		-
-					4	7 6	13							_
				\Box		7								_
			Very Stiff, orange brown		5	6 8	17							
					5	9	17							
1														1
-										+-				-
-											_			_
-			Medium, light brown		6	2 3 4	7				_			_
					0	4	1							
1														-
								-						
-			With limestone		7	3 3	7	-		_				
						4					_			_
			End of Boring						_					
1														-
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ENGINEERING SERVICES, Inc.	

Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-25

Soil	nscs	Description	Type	No.	Blows		Р	enetratic	n Res	istar		
<i>o</i>	_				Blowel	Ν						
			- F	110.	DIOWS		1() 2	<u>20 30</u>	0 40) 6	0
	SP	Ver less has a Carl CAND 'de le									_	⊢
	JP	Very loose, brown, fine SAND with clay		1	1 2	4						\square
		nodules			2							
	SC	Loose, brown, clayey SAND			3							
1 ///				2	5 5	10						
		Medium-Dense, gray			7							
				3	7 7 7	14				_	-	\vdash
		With cementation			{ }						_	-
		with cementation		4	6 8	19						_
					11							
	CL	Very stiff, gray, CLAY		-	8	40						
				5	9 10	19						
												-
										_	-	\vdash
										_	_	-
		Gray orange, with sand			5							
				6	8 8	16						
] [
												┢
										_		-
		Stiff		7	5 5	11				_	-	-
					6						_	╞
		End of Boring									_	_
												1
										-	+	+
										_	_	-
												-
										Τ	Τ	
										-+	+	t
											+	\vdash
											+	+
												-
			CL Very stiff, gray, CLAY Gray orange, with sand Stiff End of Boring	Gray orange, with sand Stiff	Gray orange, with sand 6 Stiff 7	CL Very stiff, gray, CLAY 5 8 9 10 Gray orange, with sand 6 5 8 8 Stiff 7 5 6	CL Very stiff, gray, CLAY 5 8 19 Gray orange, with sand 6 5 8 16 Stiff 7 5 6 11	CL Very stiff, gray, CLAY 5 8 19 Gray orange, with sand 6 5 8 16 Stiff 7 5 11	CL Very stiff, gray, CLAY 5 8 9 10 19 Gray orange, with sand 6 5 8 8 16 Stiff 7 5 6 11	CL Very stiff, gray, CLAY 5 § 19 Gray orange, with sand 6 § 16 Stiff 7 5 11	CL Very stiff, gray, CLAY 5 8 19 Gray orange, with sand 6 5 8 16 Stiff 7 5 6 11	CL Very stiff, gray, CLAY 5 8 19 Gray orange, with sand 6 5 16 Stiff 7 5 11

	ill Rig: C pth to W		Initial $ ot \subseteq $:			Α	t Co	npleti	on 🖣		4.1'			
th/ tion	ools	S		_	ample			Standar						
Depth/ Elevation	Soil Symbols	uscs	Description	Type	No.	Blows	Ν		Pene 10	tratior 20		stan) 40		08
_														
_		SP	Very Loose, brown, fine SAND with fine roots		1	2 2 2	4							_
			Loose, light brown, with fine roots		2	2 2 3	5	ŀ						_
		SC	Loose, gray brown, clayey SAND (-200=32.4%)		3	2 2 6	8							_
			(Moisture Content=16.3%) Medium-Dense		4	4 5 9	14							
					5	5 10 9	19			-				
-														_
		СН	Medium-Dense, gray, CLAY with cementation (-200=53.8%)	Z	6	5 10 8	18							_
-			(Moisture Content=21.5%) (LL=52 PI=33)							-				_
		ML	Stiff, gray, SILT	7	7	5 8 6	14							_
-			End of Boring											_
														_
														_
														_
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FAULKNER ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/1/2021

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	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water> Initial ≚

	Dep	oth to W	ater>	Initial $\stackrel{\bigtriangledown}{=}$:	At Completion : * NE											
	th/ ttion	ii ools	SO			Sample			Standard Penetration Test							
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80							
0																
U	_	6 64 921 9 1703 1730 6 69 9 64	SP- SM	Very Loose, brown, fine SAND with silt		1	1 2 2	4								
	_		CL	Medium, brown, CLAY		2	3 3 5	8								
5				Stiff, gray brown	ſ	3	5 5 7	12								
	_			Medium, light brown	ſ	4	3 3 4	7								
	_			Stiff	T	5	4	9								
10							5									
	_															
15				With cementation		6	4 4 5	9								
10																
	_			With limestone			7									
20	_			End of Boring	_	7	7 7 7	14								
	_															
25	_															
30																
35																
	*Gr	oundwate	er not e	ncountered at first 10 feet												
				This information pertains only to this boring and should no	t be inte	erpreted a	as being ind	dicative	e of the site.							
	PAGE 1	of 1					-									

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	ENGINEERING SERVICES, Inc.
	ENDINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/4/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50

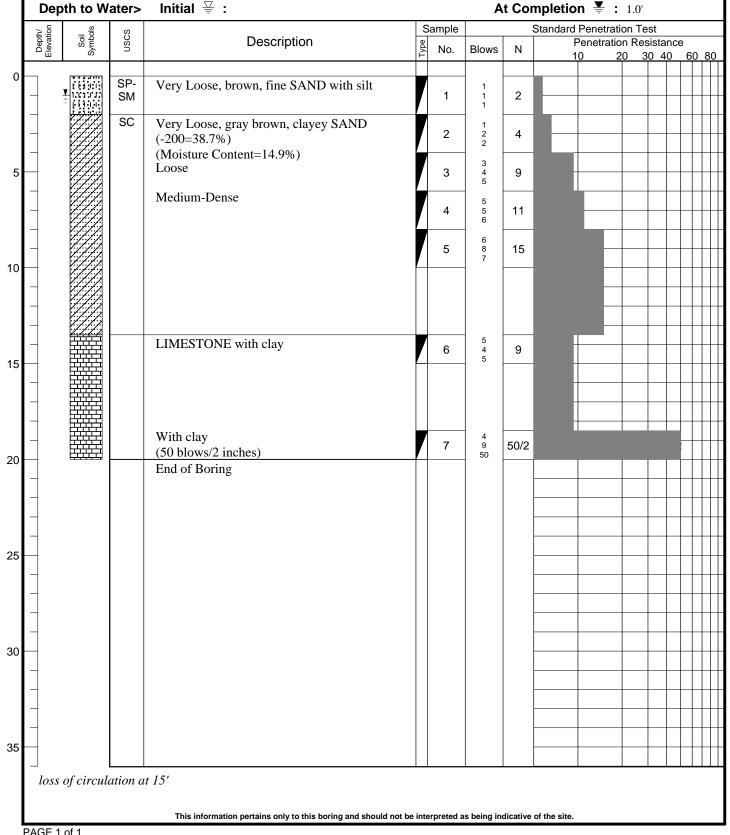
	Dep	oth to W	ater>	Initial $\stackrel{\Box}{=}$:			A	t Cor	mpletion : 3.4'					
	th/ ition	li Jols	SC	Description		ample		Standard Penetration Test						
	Depth/ Elevation	Soil Symbols	uscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80					
0														
U	_		SP- SM	Very loose, gray, fine SAND with silt and fine roots		1	2 2 2	4						
		¥ / / / / / / / / / / / / / / / / / / /	SP- SC	Loose, brown gray, fine SAND with clay		2	2 3 3	6						
5	_		SC	Medium-Dense, gray, clayey SAND	T	3	6 8 10	18						
	_			Dense, gray brown	I	4	12 19 15	34						
10						5	13 18 19	37						
	_		ML	Stiff, gray, calcareous SILT with limestone		6	3	9						
15	-					0	4	9						
20	_		SM	Loose, gray, silty SAND		7	3 6 4	10						
20	_			End of Boring										
25														
30	_													
	-													
35														
	Loss	s of circul	lation a	It $18feet$ This information pertains only to this boring and should not be	e inte	erpreted a	as being ind	licative	of the site.					
	PAGE 1	of 1												

	L			DRILL HOLE LOG BORING NO.: BB-11					Project No.: 21-5233 Date: 10/4/2021
	Clie Loc		tage Ho Pasco Co						Elevation: NA Logged By: BB
	Dril	I Rig: D	-50				А	t Coi	mpletion
	-				S	ample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0	_		SP	Very loose, brown, fine SAND	I	1	1 2 2	4	
			SC	Very loose, brown, clayey SAND	I	2	2 1 2	3	
5				Loose, gray brown	T	3	2 3 3	6	
	_			Medium-Dense	Ī	4	4 5 6	11	
4.0	_				T	5	5 10 11	21	
10	_								
4.5	_		CL	Very stiff, gray orange, CLAY	/	6	6 7 9	16	
15	_								
	_			with limestone		7	5 8 8	16	
20				End of Boring					
	_								
25									
	_								
30									
35									
	Loss	s of circul	lation d	at 15 feet					
				This information pertains only to this boring and should not be	inte	erpreted a	s being ind	licative	of the site.

ENGINEERING SERVICES, Inc.	DRILL HOLE LOG BORING NO.: BB-12
Project: Gagne Parcel	
Client: Meritage Homes	
Location: Pasco County, Florida	
Driller: J&R Precision Drilling, Inc.	
Drill Rig: CME 550	

Initial $\stackrel{\underline{\vee}}{=}$: Depth to Water>

Project No.: 21-5233 **Date:** 9/24/2021



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ENGINEERING SERVICES, Inc.	BC
Drejectu C. D. 1	

Project No.: 21-5233 Date: 9/24/2021

 Project: Gagne Parcel

 Client: Meritage Homes

 Location: Pasco County, Florida

 Driller: J&R Precision Drilling, Inc.

 Drill Rig: CME 550

 Depth to Water>

 Initial \vec{base}{2}:

	Dep	oth to W	ater>	Initial $\stackrel{\scriptstyle{\scriptstyle{\scriptstyle{\frown}}}}{=}$:			Α	t Coi	mpletion : 1.0'
	th/ ition	lie Sloc	SC			Sample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0		¥ 1.00000000 ↓	SP- SM	Very Loose, brown, fine SAND with silt		1	1 2 1	3	
	_		SC	Loose, gray brown, clayey SAND		2	1 2 3	5	
5			CL	Medium, gray, CLAY with sand		3	2 2 3	5	
	_		SC	Loose, brown, clayey SAND		4	4 4 6	10	
10				Medium-Dense		5	7 9 8	17	
15	_			LIMESTONE		6	3 4 3	7	
20	_			With clay		7	5 10 21	31	
20	_			End of Boring					
25									
30									
35									
	PAGE 1	of 1		This information pertains only to this boring and should no	t be inte	erpreted a	as being ind	dicative	of the site.

	L			DRILL HOLE LOG BORING NO.: BB-14						ject No. e: 9/30/2		-523.	3		
	Clie Loc Dril		tage Ho Pasco C Precisi							vation: ged By					
	Dep	oth to W		Initial $\stackrel{\underline{\nabla}}{=}$:			A			on :					
	Depth/ Elevation	Soil Symbols	nscs	Description	Type S	ample No.	Blows	N		l Penetrat Penetratio	on Res	sista			
0			SC	Very Loose, brown, clayey SAND	⊢ ⊢	110.	1				20 3	0 4	0	60	80
	_		00	(-200=22.7%) Loose	L	1	1 2	3							
	_			(-200=22.2%)	Ľ	2	2 2 3	5							
5	_					3	3 4 3	7							
	_					4	4 4 4	8					+		++
	_	F 63 35 13 F 63 35 13 F 63 35 13	SP- SM	Loose, gray brown, fine SAND with silt	I	5	3 4 6	10							
10	_	4-64-04-64 0 0 4-9 000 6 64-9 4-10 0 0 1 4-9 1							-				_		+++
	_	r 101/11 1/14/17/20 0 101/10													
15	_		CL	Medium, gray brown, CLAY	Z	6	2 3 3	6							
	_														
	_						2		_				+		
20	_			End of Boring	ľ	7	2 3	5							
	_												-		+++
	_														
25	_														
	_														
	_												-		+
30	_												+		
	_														
35	_														++
-	_ *Gr	oundwate	er not e	encountered at first 10 feet											
				This information pertains only to this boring and should not be	inte	erpreted a	s being inc	licative	of the site						

(Clien Loca Drille		itage Ho Pasco C & Precisi		Elevation: NA Logged By: BB At Completion : 3.3'												
		h to W		Initial $ arrow$:			Α	t Cor	npleti	on 🛓	: 3.3	;'					
epth/	Elevation	Soil Symbols	uscs	Description		Sample			Standar	d Penet Penetra			nce				
ă	Ele	ŝ			Type	No.	Blows	N		10		30 4		<u>8 0</u>			
_		6 6 9 9 6 1 1. C 1 C 1 C 1 6 6 9 9 6 9	SP- SM	Very Loose, brown, fine SAND with silt		1	1 1 3	4									
_	T.		SP	Loose, brown, fine SAND		2	1 2 3	5	F								
_			SC	Loose, light brown, clayey SAND (-200=24.3%)		3	3 4 3	7	ŀ								
			CL	Stiff, light brown, CLAY with sand		4	4 4 6	10									
_						5	4 5 6	11									
_										E							
_				Medium, light orange brown	T	6	3 3 3	6	F								
_																	
_				Light gray brown	T	7	23	7									
				End of Boring		'	4	'				-					
_																	
_																	
_																	
_																	
_																	

	rill Rig: (epth to W					^		mnloti	on 🛓	• 20		
	-			5	ample	A			rd Penet			
Depth/	Soil	nscs	Description	Type	No.	Blows	Ν		Penetra 10	ation Re		0 8
_						_						
	t (5):::: 1.12 ::::: 6 6 9 1:::: 1.12 :::::::::::::::::::::::::::::::::::	SP- SM	Very Loose, brown, fine SAND with silt		1	1 1 1	2	E				
_	T T	CL	Soft, orange brown, CLAY		2	1 2 2	4					
		SC	Loose, orange brown, clayey SAND (-200=42.8%)		3	4 4 6	10					
_		CL	Stiff, light brown, CLAY with sand		4	5 5 8	13					
_		SC	Medium-Dense, light brown, clayey SAND (-200=21.6%)		5	9 8 7	15					
_												
						10		-				
					6	12 12	24					
_												
_					7	4 6 8	14		F			
_			End of Boring									
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FAULKNER NGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 9/27/2021

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L	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/29/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50

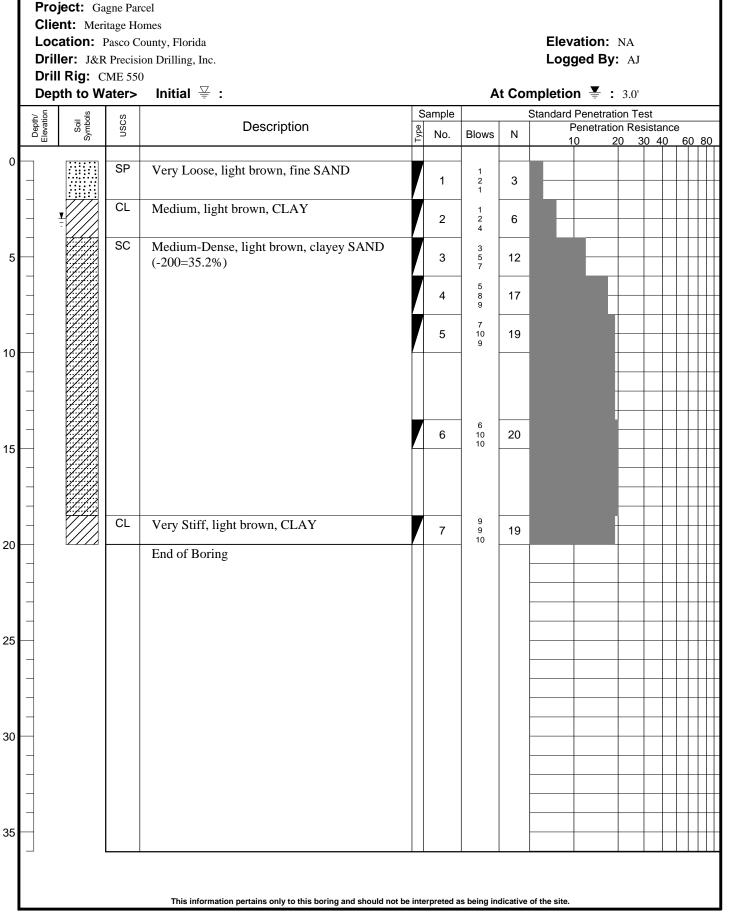
ition	ii Sols	ŝ			ample	ļ		Standard	Penetra	ation Te	est	
Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetra 10	tion Re: 20 3		50
		SP- SM	Very Loose, brown, fine SAND with silt		1	1	3					
_					2	2 2 2 2	4	E				
_		CL	Medium, brown, CLAY		3	2 3 4	7					
_			Stiff		4	3 5 6	11					
			Gray brown		5	4 7 8	15					
_												
_			Medium, light brown		6	2 3 3	6					
_												
_			Soft		7	2 2 2	4					
_			End of Boring			2						
_												
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L	ENGINEERING SERVICES, Inc.	

Project No.: 21-5233 Date: 9/30/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50

	De	pth to W	ater>	Initial $\stackrel{\scriptstyle{\scriptstyle{\frown}}}{=}$:			Α	t Coi	mpletion 🚆 : 3.7'
	oth/ ation	bols	nscs	Description		ample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	US	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0		لمستقفقا	0.5	· · · · · · · · · · · · · · · · · · ·			_		
-	_		SP- SM	Very Loose, gray brown, fine SAND with silt		1	1 2 2	4	
	_	¥	SP	Loose, brown, fine SAND		2	2 2 3	5	
5	_		CL	Brown, CLAY	Ţ	3	3 4 5	9	
	_			Stiff, orange brown	T	4	6 6 6	12	
	_			Gray brown	T	5	5 7 8	15	
10	_								
15	_			Very Stiff, light brown		6	5 7 9	16	
	_								
	_		SP	Medium-Dense, light brown, clayey SAND			6		
20					L	7	6 9 9	18	
	_			End of Boring					
	_								
25	_								
	_								
20	_								
30	_								
35									
ļ	PAGE ²	1 of 1		This information pertains only to this boring and should not b	e inte	erpreted a	as being in	dicative	e of the site.



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Project No.: 21-5233

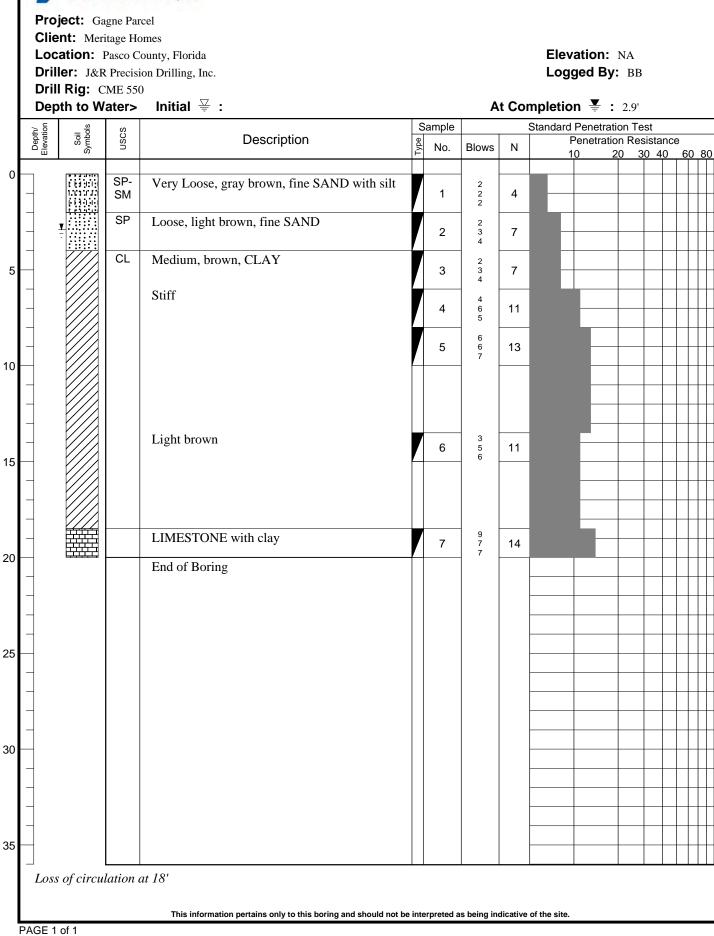
Date: 9/27/2021

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Project No.: 21-5233 Date: 9/24/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550

th/ tion	iols	S			ample			Standar	d Penet				
Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetr 10		Resis 30		15
													T
		SP	Very Loose, gray, fine SAND		1	1 2 2	4	-					+
-	¥ / / / / /	SP- SC	Loose, gray brown, fine SAND with clay		2	2 2 2 3	5	E					+
-		SC	Loose, gray brown, clayey SAND		3	3 4 5	9	b	Ē				+
			Medium-Dense		4	5 8	15						-
			Brown		5	7 6 8	14						-
					0	6							-
													_
-			Gray		6	3 5 8	13						+
-													
													+
					7	7 10 7	17						+
-			End of Boring							_	_	_	+
													+
													-
													-
-										_			_
										-		+	+
										+	-	+	+
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Project No.: 21-5233

Date: 9/27/2021

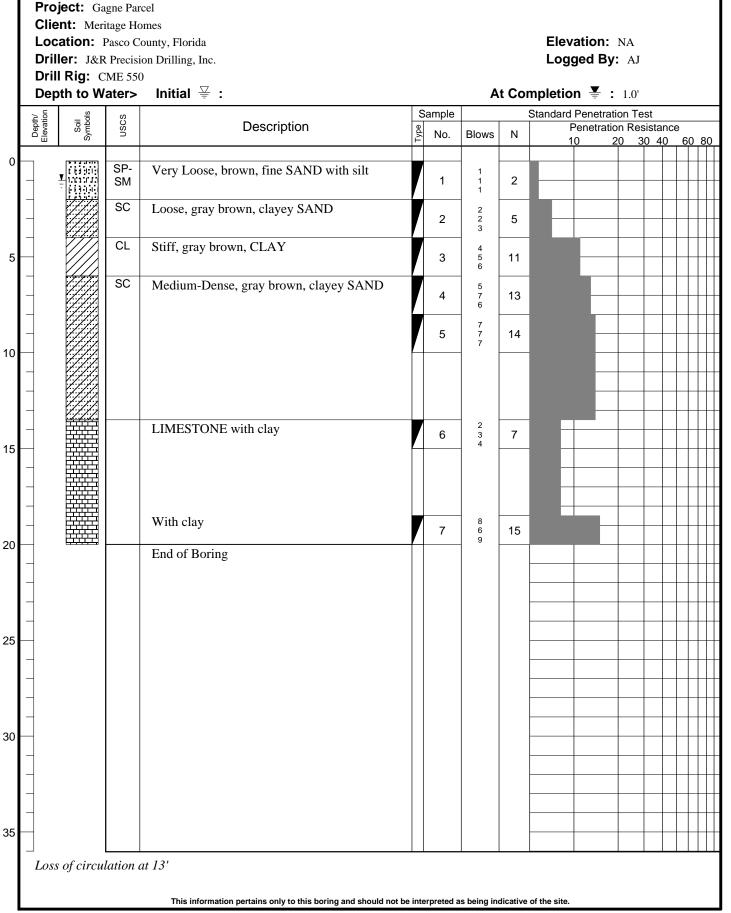
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Project No.: 21-5233 Date: 9/27/2021

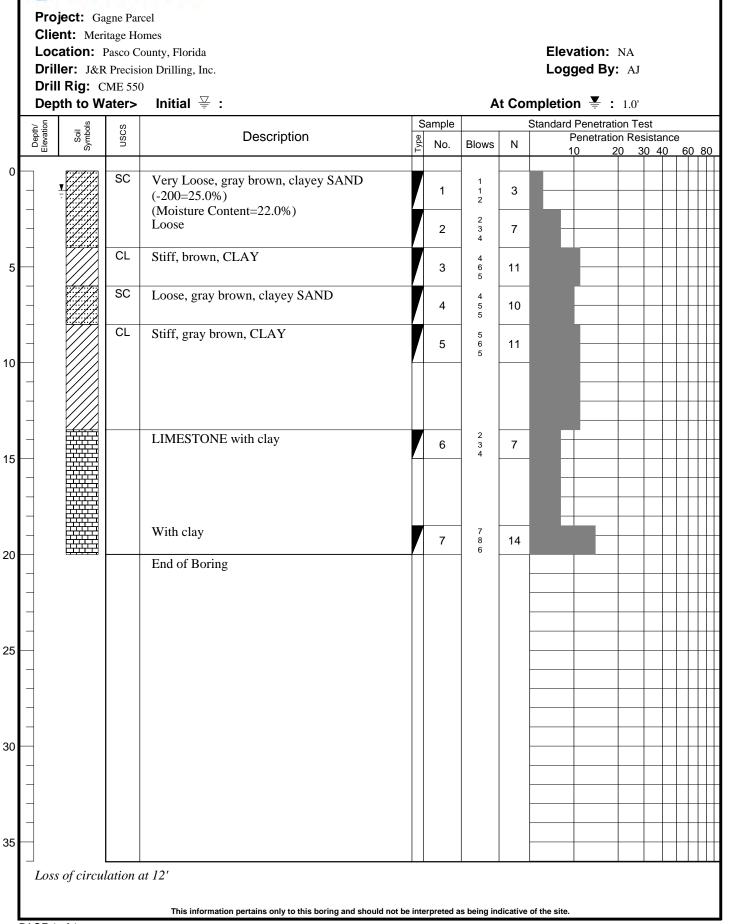
Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550

	Depth to Water>Initial $\frac{12}{2}$:At Completion $\frac{12}{2}$: 2.3'															
	th/ ition	ii Jols	SC	Description		ample				Penetration Test						
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetratic 0 2		istan) 40		08	0	
0			0.5												\square	
		1.11111 1.11111 1.11111	SP- SM	Very Loose, brown, fine SAND with silt		1	1 1 1	2								
			SP- SC	Very Loose, brown, fine SAND with clay		2	1 2 2	4								
5	_		SC	Loose, gray brown, clayey SAND	T	3	2 3 4	7								
	_			Medium-Dense	ſ	4	4 6 7	13								
	_			Gray	ľ	5	5 8 7	15		E						
10	_															
			CL	Stiff, gray, CLAY with limestone	T	6	7 6 6	12		F						
15	-															
00	_			LIMESTONE with clay (50 blows/2 inches)	T	7		50/2								
20		·		End of Boring												
25	_															
30																
50												+				
35																
															Щ	
	Loss	s of circul	ation a	t 1 / ·												
	PAGE 1	of 1		This information pertains only to this boring and should not	t be inte	erpreted a	is being ind	dicative	of the site.							



Project No.: 21-5233

Date: 9/23/2021



Project No.: 21-5233

Date: 9/23/2021

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	FAULKNER
	TAULANEA
L	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/23/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550

	Dep	oth to W	ater>	Initial $\stackrel{\overline{\Box}}{=}$:	At Completion 👱 : 2.0'										
	oth/ ttion	lio Sols	SS	Description		ample			Standard Penetration Test Penetration Resistance						
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν				istan <u>0 40</u>		08	0
0			<u> </u>											\square	
	_	0 69 9009 1.000000 6 6 9 9 9 9 9 6 6 9 9 9 9 9	SP- SM	Very Loose, brown, fine SAND with silt		1	1 2 2	4							
	_		SC	Loose, gray, clayey SAND		2	2 2 3	5							
5	_			Medium-Dense, gray brown		3	4 5 6	11							
			CL	Stiff, gray brown, CLAY		4	5 7 6	13							
10	_			Very Stiff		5	8 8 10	18		-					
	_									-					
15	_			LIMESTONE with clay		6	3 4 3	7							
10	_														
	_						5	45							
20				Pal (D. Ca		7	5 8 7	15							
	_			End of Boring											
25	_														
	_														
														\square	
30															
35	_														
		of circul	lation of	+ 13'											Щ
	2033	oj circu	шиоп и		4 ha		n hoinn in	dio oti	of the e't						
	PAGE 1			This information pertains only to this boring and should no	t be inte	erpreted a	as being ind	uicative	of the site	.					

Der	oth to W	ME 550 ater>				Δ	t Cor	nplet	ion 🗏	*	NE			
				5	At Completion Image: * NE Sample Standard Penetration Test									
Depth/ Elevation	Soil Symbols	nscs	Description	Type		Blows	Ν			ration I 20	Resis		, 60	8
-	y / / / / / , / / / ,	SP- SC	Loose, brown, fine SAND with clay	Ţ	1	1 2 3	5							
		SC	Loose, gray brown, clayey SAND	1	2	3 4 6	10							
			Medium-Dense, gray	I	3	4 7 10	17							
	1.1.1.1 1.1.1.1 1.1.1.1 1.1.1	SP- SC	Medium-Dense, gray, fine SAND with clay	1	4	8 13 15	28				F			
	1.1.1.7 1.1.1.7 1.1.1.7 1.1.1.7 1.1.1.7 1.1.1.7 1.1.1.7			I	5	9 9 15	24							
	7.7.7.7 7.7.7 7.7.7 7.7.7					-								
	1 1 1 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7								P					
			LIMESTONE		6	3 4 6	10		E					
									E					
				7	7	9 12	23							
			End of Boring	1		11								
											-			

FAULKNER

Project No.: 21-5233 Date: 9/30/2021

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	CALL LANCO
1 -	FAULKNER
	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/1/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water> Initial [∞]

	Depth to Water> Initial \overline{\overlin}\overline{\overli										
	th/ ition	li Jols	SC	Description		ample	,		Standard Penetration Test		
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80		
0		المتعاققة	05								
-	_		SP- SM	Very Loose, brown, fine SAND with silt		1	1 1 2	3			
	_		CL	Medium, brown, CLAY		2	2 2 3	5			
5				Stiff	T	3	4 5 4	9			
	_			Orange brown	T	4	4 7 8	15			
	_			Very Stiff	I	5	6 9 8	17			
10	_						-				
	-										
15	_			LIMESTONE with clay		6	3 5 15	20			
	_										
	_					7	9 13				
20						/	10	23			
	_			End of Boring							
	_										
25											
20											
30											
35											
		se of circi		at 12' ncountered at first 10 feet			1 1				
	·Gro	ounawale	a noi ei	This information pertains only to this boring and should no	t be inte	erpreted a	ıs beina inc	dicative	of the site.		
	PAGE 1	of 1					3				

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1 =	FAULKNER
L-	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/23/2021

 Project: Gagne Parcel

 Client: Meritage Homes

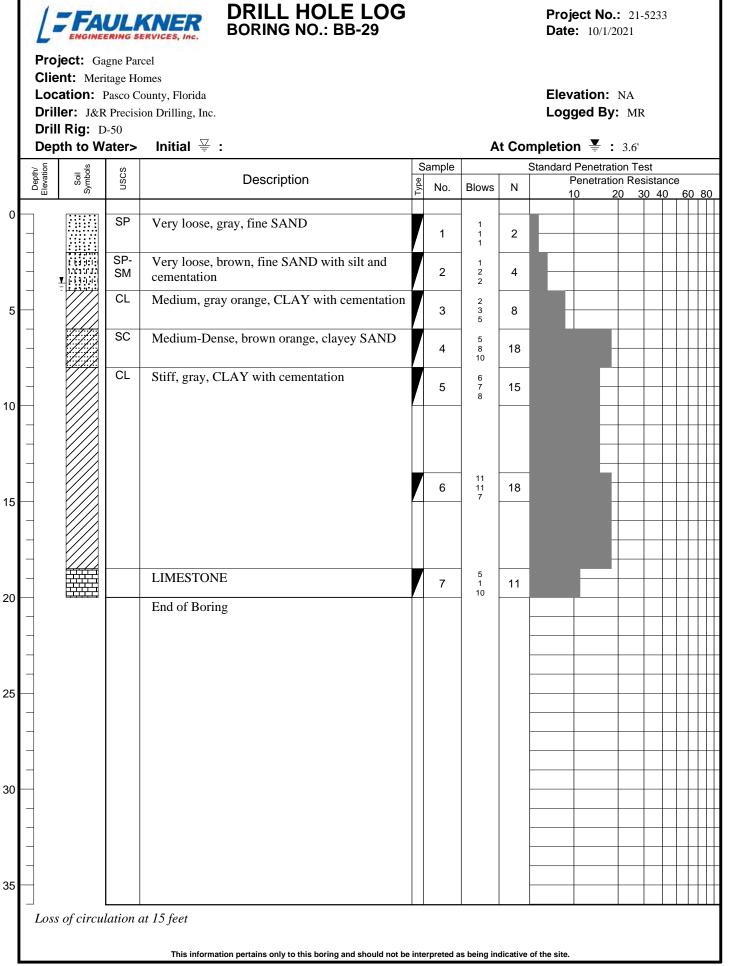
 Location: Pasco County, Florida

 Driller: J&R Precision Drilling, Inc.

 Drill Rig: CME 550

 Depth to Water>

	Dep	oth to W	ater>	Initial $\stackrel{\bigtriangledown}{=}$:	At Completion : 1.0'										
	th/ tion	ii ools	S	D		Sample				Penetrati					
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetratic		istan 0 40		0 8	0
0		[4 • 4 • 7• 7]												П	\square
	_	¥ / / / / / / / / / / / / / / / / / / /	SP- SC	Very Loose, brown, fine SAND with clay		1	2 2 2	4							_
	_		SC	Loose, gray, clayey SAND		2	2 2 3	5	Ŀ						
5					T	3	2 2 3	5							
	_			Medium-Dense	T	4	4 8 7	15							-+-
	_			With shell fragments	T	5	7 7 7 7	14							
10	_														
15	_			LIMESTONE		6	3 3 5	8							
15	_														
	_			XX7.4 1											
20	_			With clay		7	10 7 9	16							
20	_			End of Boring									+		
	_														
25	_														
	_														
30													+		
	_														
35															
	Loos	se of circ	ulation	at 12'											
				This information pertains only to this boring and should no	t be inte	erpreted a	as being ind	dicative	of the site.						
	PAGE 1	of 1				-	-								



Project No.: 21-5233

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FEALU MAIED
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ENGINEERING SERVICES, Inc.
ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/23/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550

Elevation: NA Logged By: AJ

Initial $\stackrel{\underline{\vee}}{=}$: Depth to Water> At Completion : 2.0' Standard Penetration Test Sample Depth/ Elevatior Soil Symbols USCS Description Penetration Resistance Type No. Blows Ν 20 30 40 60 80 10 0 SP-Very Loose, brown, fine SAND with silt 1 1 3 SM 1 2 SC Loose, brown, clayey SAND 2 2 4 2 6 Gray brown 4 4 4 3 8 E Medium-Dense 5 4 13 7 6 LIMESTONE with clay 4 6 7 5 13 10 With clay 6 6 10 19 15 With clay 7 50/3 (50 blows/3 inches) 20 End of Boring 25 30 35 Loose of circulation at 12' This information pertains only to this boring and should not be interpreted as being indicative of the site. PAGE 1 of 1

1		
	FAULKNER	
	GINEERING SERVICES, Inc.	
	GINEERING SERVICES, INC.	

Project No.: 21-5233 Date: 9/23/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550 Depth to Water> Initial \\frac{\sigma}{2}

	Dep	oth to W	ater>	Initial $ arrow$:			Α	t Cor	npletic	on :	* NE	2		
	th/ ition	ii ools	SO			ample				l Penetrati				
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetratic		istan <u>0 40</u>	60 E	0
0												0 +0		
0	_		SP- SC	Very Loose, gray brown, fine SAND with clay		1	1 2 2	4	-					
	_		SC	Loose, gray brown, clayey SAND	I	2	2 2 3	5						
5	_			Gray	I	3	3 4 6	10						
	_			Medium-Dense, gray brown, with rock fragments		4	4 8 9	17						
10	_			Gray		5	9 9 9	18		-				
10	_									-				
	_			LIMESTONE			2			_				
15	_			LIMESTONE		6	2 5 5	10						
	_													
	_			With clay		7	15 12 13	25						
20				End of Boring			13							
	_			2										
	-													
	_													
	_													
25														
30														
30	_													
25														
35														
	Loos	se of circi	ulation	at 15'										
	*Gr	oundwate	er not e	ncountered at first 10 feet										
				This information pertains only to this boring and should not be	e inte	erpreted a	as being ind	dicative	of the site.					
	PAGE 1	of 1												

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FAULKNER
ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/24/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 550

th/ tion	ols	s			Sample			Standard F						_
Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		enetratic					
— ш	s v			E E		Biotro		10) 2	<u>20 30</u>	<u>) 40</u>	6	0	8
	<i></i>	SC	Loose, brown, clayey SAND			-						+	-	-
_		00	Loose, brown, clayey SAND		1	2 2	5				_	+	_	
_			C			3						\square	_	
_			Gray		2	3 4	9	-						_
					2	5	0							
		CL	Stiff, gray, CLAY		•	4	•							
					3	4 5	9							
_						4						+		
_					4	6 7	13					+		-
_			Very Stiff									+	-	_
_			very sum		5	7 8	17		-			+	_	-
						9								-
														_
_														
_			LIMESTONE with clay		6	5	12					+		
						6		-			-	+	+	
_												+	-	
_												+	_	-
_													_	
_			With clay		_	9								
					7	12 10	22							
			End of Boring											
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_												+	-	
											_	+	-	
_												\square		-
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												+		
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														_
Loo	ose of circ	ulation	n at 15'											
*Gi	roundwate	er not e	encountered at first 10 feet											
01														

Dril	I Rig: C oth to W	ME 550					+ C	Logged By: AJ	
	-				Sample	A		mpletion 3.0' Standard Penetration Test	
Elevation	Symbols	nscs	Description	Tvpe		Blows	N	Penetration Resistance	
ш	0)							10 20 30 40	<u>60</u>
		SP	Very Loose, gray, fine SAND		1	1 2 2	4		
		SP- SM	Loose, gray, fine SAND with silt		2	2 2 3	5		
		SC	Loose, gray brown, clayey SAND		3	3 4 5	9		
			Medium-Dense, gray		4	4 6 5	11		
					5	6 7 8	15		
		CL	Stiff, gray, CLAY		6	10 7 7	14		
		SC	Medium-Dense, gray, clayey SAND			6			_
			End of Boring		7	8 10	18		
									_
									+

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 9/24/2021

Dri Dri	iller: J&F ill Rig: C	R Precisi CME 550						Log	vation gged B	у: вв	ł	
	pth to W			A			on 🛓			 		
Depth/ Elevation	Soil Symbols	nscs	Description	Type Co	Sample No.	Blows	N	Standar	d Penetr Penetra 10	tion Re		0
		SP	Very Loose, gray brown, fine SAND		1	1 2 1	3	-				+
-	¥ 1.0000733 € 689005	SP- SM	Loose, gray brown, fine SAND with silt		2	2 2 3	5	F				_
_		SC	Loose, brown, clayey SAND (-200=24.7%)		3	3 4 5	9					
		CL	Stiff, gray brown, CLAY with sand		4	4 6 7	13					_
_			Brown		5	6 6 7	13					_
_												
_			Very Stiff		6	9 10 12	22		b			 _
_												_
_			LIMESTONE with clay		7	7 6 7	13					_
_			End of Boring									
_												 _
_												_
_												_

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 9/27/2021

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	EALIN MALED
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	ENGINEERING SERVICES, Inc.
	ENGINEERING SERVICES, Inc.

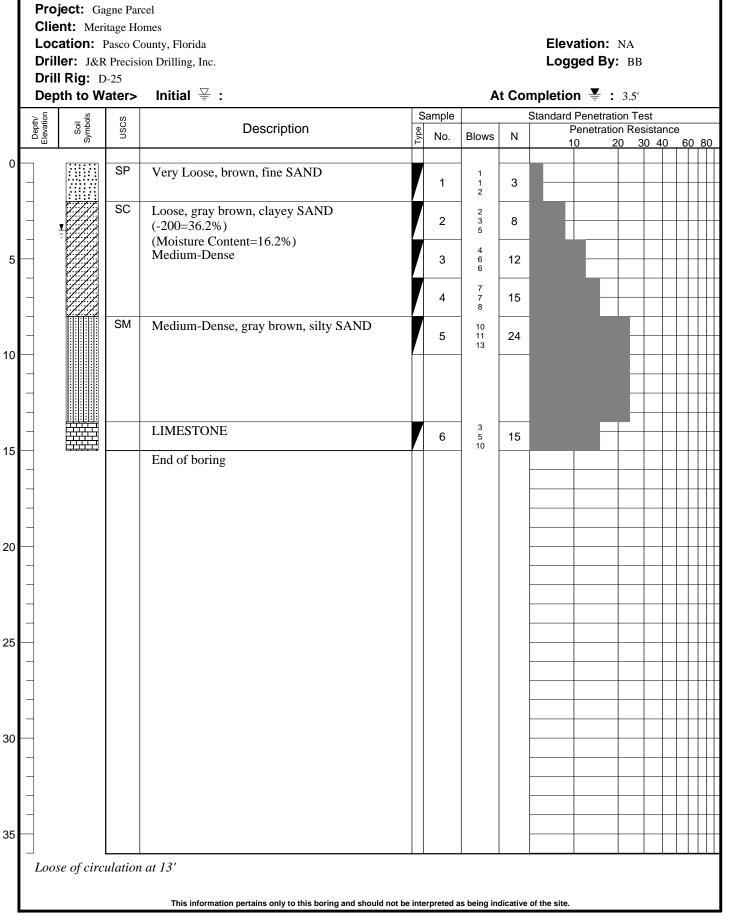
Project No.: 21-5233 Date: 9/30/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50

	oth to W		Initial 픚 :	Sa	ample	A		on 🛓 d Penet					_
Depth/ Elevation	Symbols	nscs	Description	Type				Penetra			ince		
DB	Ŝ	⊃	•	Ţyŗ	No.	Blows	Ν	10	20			<u>60</u>	8
_													
	1.11.11	SP-	Very Loose, gray, fine SAND with silt			1	~						
	energiane Elegistic	SM			1	1 1	2					Π	Γ
_	1.11111111		Brown			1						+	t
_	1.11.11				2	2	4		_			+	╞
_	· · · · · ·					2		_	_	_			L
		CL	Medium, gray brown, CLAY with sand		3	3 3	8						
					5	5	0						l
			Stiff, light brown			4						Π	Γ
-					4	7 8	15						F
_			Very Stiff, orange brown, with sand			-						+	╞
_			very still, orange brown, with saile		5	6 7	16			_			Ļ
						9							
													ſ
_												+	F
_													╞
_			Stiff, light brown		6	3 5	11	_		_		+	ŀ
				\square	0	6		_					
													Γ
												Ħ	ſ
_												+	ŀ
_					7	4 5	9		_				ŀ
_					•	4		L		_		+	ŀ
			End of Boring					_					
													l
													ſ
_								-				+	t
_									_				╞
_								 		_		\square	Ļ
													l
												Ħ	ſ
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_								 _			\square	+	Ļ
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-										+	+	\dagger	ſ
													L
*Gr	oundwate	er not e	encountered at first 10 feet										
			This information pertains only to this boring and should r										

Dri	II Rig: D	D-5 0	on Drilling, Inc.						ed By:			
	pth to W		Initial $\stackrel{\square}{=}$:			A		mpletior Standard F				
Depth/ Elevation	Soil Symbols	uscs	Description	Type 0	Sample No.	Blows	N		enetration		ce	
	Ń			<u> </u>	INU.	DIOWS		10) 20	30 40	60	<u>8 (</u>
		SP	Very Loose, brown, fine SAND	ľ	1	1 1 2	3					
-		CL	Medium, brown, CLAY	ľ	2	2 2 3	5					-
		SC	Loose, light brown, clayey SAND (-200=31.3%)		3	3 4 6	10					
			Medium-Dense		4	6 8 9	17					
					5	7 7 10	17					
			Dense		6	14 18 13	31					
		CL	Very Stiff, light brown, CLAY		7	7 8 10	18					
			End of Boring									
	roundwate											

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 9/29/2021



ULK

Project No.: 21-5233

Date: 10/1/2021

	Depth		ater>	Initial 픚 :			A		mpletion					
	Depth/ Elevation	Soil Symbols	nscs	Description		ample	Diama		Standard F	enetration Penetration		nce		
⊢		Ŝ		·	Type	No.	Blows	N	10		<u>30 40</u>		<u>60</u> 8	0
0 —			SP	Very loose, brown gray, fine SAND		1	2 2 1	3				+	+	
-			SC	Very loose, brown, clayey SAND		2	2 2 2	4				+	+	
5 —				Loose, orange gray (-200=43.6%)	ľ	3	2 3 4	7				+	+	
-				(Moisture Content=20.7%)	ľ	4	3 3 5	8				+	+	
-			CL	Stiff, orange gray, CLAY with sand		5	4 5 5	10				+	+	
10 —												+	+	
-							6					+	\square	
15 —				LIMESTONE		6	6 5 15	20						
-	_			End of boring								+	\parallel	
-	_											+	++	-
-	-											+	+	╞
- 20 —	-											+	#	
-												+	++	┢
-												+	++	
												\square	\prod	
25	_											+	++	
-	-											+	++	┝
-												+	++	┝
-												+	++	F
- 30													\prod	
-	_											_	++	
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-	-											+	++	╞
-												-	Ħ	
35 —														

DRILL HOLE LOG BORING NO.: PB-2 FAULKNER ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 10/1/2021

NA BB

Cli Lo Dri		itage Ho Pasco Co R Precisio						Elevation: NA Logged By: BB
De	pth to W		Initial $\stackrel{\underline{\nabla}}{=}$:			Α		mpletion 🚆 : * NE
Depth/ Elevation	Soil Symbols	nscs	Description	Type C	Sample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60 80
0		SP	Very Loose, brown, fine SAND		1	1 2 1	3	
_		SP- SC CL	Loose, light brown, fine SAND with clay Gray brown, CLAY	ľ	2	2 2 3	∖ 5	
5 —			Stiff, brown		14	4 5 6 7	<u>\ 11</u>	
			Very Stiff		5 6	7 7 6 9 8	14 17	
5			LIMESTONE End of Boring	┦	7	3 3 5	8	
_								
5								
_								
) — —								
	ose of circ	ulation	at 11'					
*G	roundwate	er not e	all 11 incountered at first 10 feet This information pertains only to this boring and should no	ot be int	erpreted a	s being in	dicative	of the site.

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 10/1/2021

L	ENGINEE	RING SE	DRILL HOLE LOG BORING NO.: PB-4					Project No.: 21-5233 Date: 10/4/2021
Clie Loc Dril Dril		tage Ho Pasco Co Precisio 25				۸	t Co	Elevation: NA Logged By: MR mpletion : 3.3'
_				S	ample	<u>^</u>		Standard Penetration Test
Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance102030406080
		SP	Very Loose, gray, fine SAND with fine roots	T	1	2 1 2	3	
_	¥	SC	Loose, brown, clayey SAND (-200=27.4%)	I	2	2 3 3	6	
			(Moisture Content=19.7%) Gray brown (-200=42.2%)		3	3 4 5	9	
			(Moisture Content=21.3%) Medium-Dense		4	6 7 8	15	
		CL	Very Stiff, gray brown, CLAY		5	6 9 12	21	
_								
-			Medium, gray		6	2 3 4	7	
_			LIMESTONE	T	7	4	8	
_			End of Boring			5		
_								
_								
_								
_								

PAGE 1 of 1

1-	FAULKNER
L-	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/24/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50

	Depth to Water> Initial ₩ :						Α	t Coi	npleti	on 💻	At Completion : * NE									
	ith/ ition	ii ools	S	D		ample			Standaı	d Penetr										
	Depth/ Elevation	Symbols	nscs	Description	Type	No.	Blows	Ν		Penetra 10	tion 20		istan) 40		50 8	30				
0															Ĩ	Ĩ				
U	_		SP	Very loose, brown, fine SAND		1	1 1 2	3	ŀ				_		$\left \right $					
		7.7.7.7 7.7.7.7 7.7.7.7 7.7.7	SP- SC	Very loose, brown gray, fine SAND with clay	I	2	2 2 2	4	F											
5	_			Medium-dense		3	4 5 7	12												
	_		SC	Medium-dense, brown gray, clayey SAND	I	4	7 7 7	14												
10	_			(-200=43.5%) (Moisture Content=21.5%)		5	6 8 10	18												
10	_										ł									
	_			LIMESTONE		6	5	17												
15						0	7 10	17												
20	_					7	9 9 13	22												
	_																			
	_			NO RECOVERY	T	8	-													
25				End of boring																
															\square					
30																				
													_							
	-																			
35											\uparrow				$\uparrow \uparrow$					
		se of circ oundwate		at 11' ncountered at first 10 feet									I		<u> </u>					
				This information pertains only to this boring and should not be	e inte	erpreted a	is being ind	dicative	of the site	e.										
	PAGE 1	of 1																		

	II Rig: C							Logge	a By:	AJ			
	pth to W	ater>	Initial 뀿 :			A		pletion					
Depth/ Elevation	Symbols	USCS	Description		ample			tandard Po Pe	enetration netration)	
D	Ĩ	⊃	·	Type	No.	Blows	N	10	20		40	60	80
	6 69 9019 1709 tr 30 6 69 9040	SP- SM	Very Loose, brown, fine SAND with silt	ľ	1	2 2 2	4						$\left \right $
_		SC	Loose, gray brown, clayey SAND		2	2 2 3	5					-	$\left \right $
_			Gray (-200=36.0%) ¬(Moisture Content=17.4%)	ſ	3	3 3 4	7						$\left \right $
		CL	Stiff, gray, CLAY		4	4 6 7	13						
_		SC	Medium-Dense, brown, clayey SAND		5	5 7 6	13						
_													$\left \right $
_			LIMESTONE (50 blows/3 inches)		6	_	50/3						++
			End of boring				-						
_							-						+
_							-						
_							-						
_							-						+
_							_						$\left \right $

Project No.: 21-5233 Date: 9/23/2021



n 1

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FAULKNER
ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 9/30/2021

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: D-50 Depth to Water>

	Depth to Water> Initial ₩ :					At Completion Ξ : 3.0'									
	oth/ ation	Description				ample				d Penetra					
	Dep Eleva	Sym	SN	Description	Type	No.	Blows	Ν		Penetrat 10		esista <u>30 4</u>		60	80
0			0.0				-				_				
	_	1 (19 (1)) 1.000733 (19 (19))	SP- SM	Very Loose, brown, fine SAND with silt		1	1 1 1	2							
	_		SP- SC	Very Loose, light brown, fine SAND with clay		2	1 2 1	3	Ŀ						
5			CL	Medium, gray, CLAY	7	3	2 3 5	8							
	_			Stiff		4	4 4 5	9							
					/	5	6 7 6	13							
10	_									-					
	_														
. –	_			LIMESTONE (50 blows/1 inch)		6		50/1							
15	_			End of boring											
	_														
20															
	_											-		_	
	_														
	_											-			
25												-			
												_			
30	$\left - \right $											-			
											_	+	\square		
												_			
35												-			
	Loos	se of circ	ulation	at 13'											
		÷													
	PAGE 1	of 1		This information pertains only to this boring and should not be	e inte	erpreted a	is being ind	dicative	of the site						

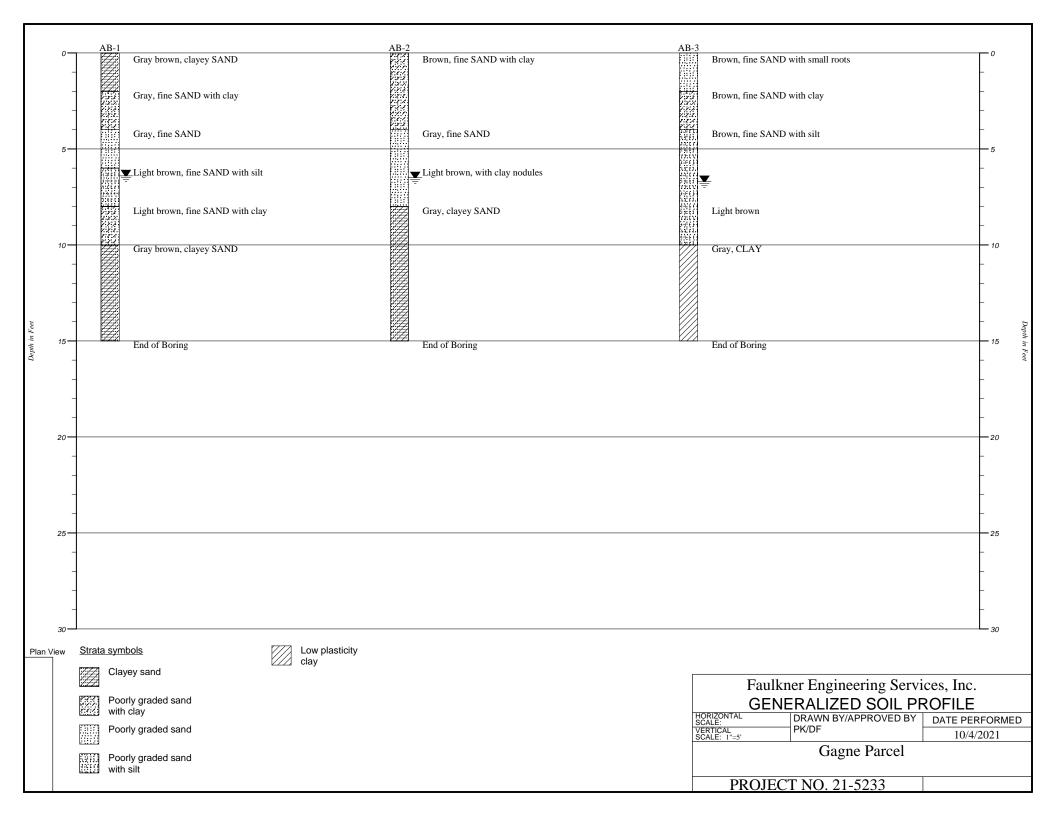
Drill	er: J&R Rig: D th to Wa	-50	on Drilling, Inc. Initial 프			۵			ged By on ≹			
					Sample				Penetra			
Depth/ Elevation	Soil Symbols	nscs	Description	Type ,		Blows	N		Penetrat	ion Resi	e 60)
]		SP	Very Loose, gray brown, fine SAND		n 1	1 1 2	3					_
		CL	Brown, CLAY Medium	ŀ	2	23	7	Ŀ				_
-			Stiff		4	4 5 5 5	10					_
-				ľ	5	4 6 7	13		F			_
-					6	6 6 6	12		F			+
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			LIMESTONE		7	5 5 7	12					-
-			End of Boring									_
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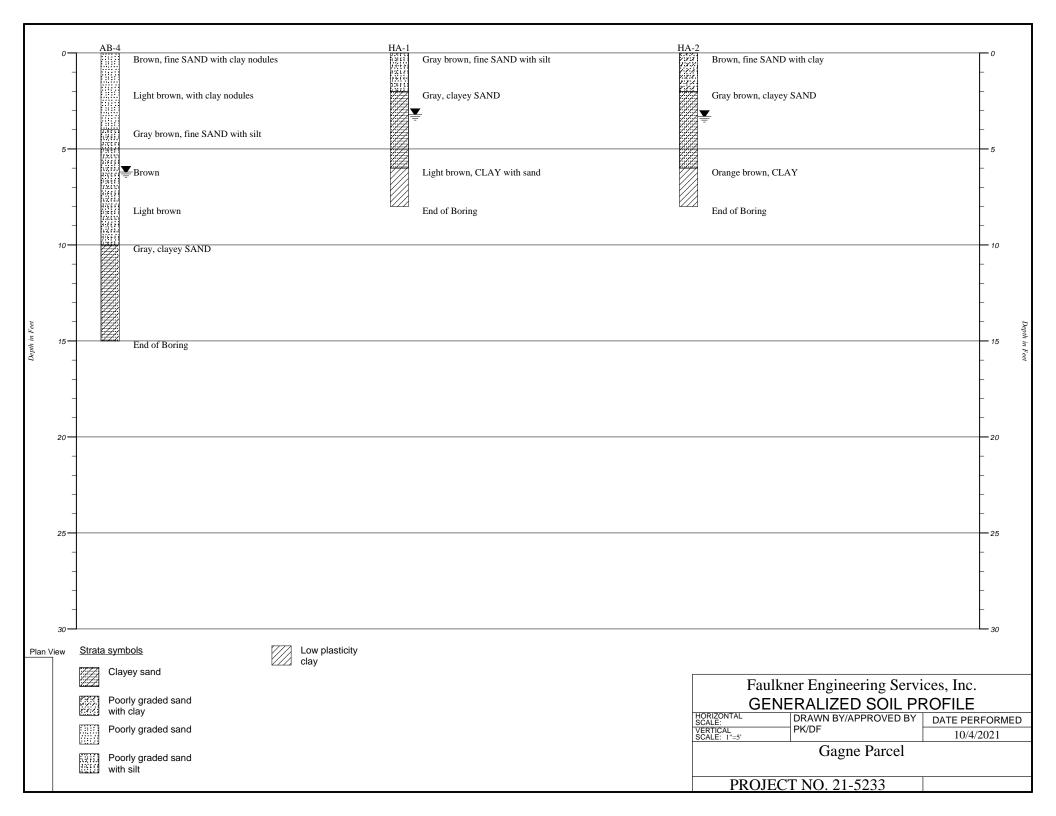
FAULKNER

Project No.: 21-5233 Date: 10/1/2021

Symbol	KEY TO SYMBOLS Description
Strata	symbols
	Poorly graded sand
	Clayey sand
	Low plasticity clay
	Limestone
	Poorly graded sand with silt
1.2.4.1 2.2.4.7 2.2.4.7 2.2.4.7 2.2.7	Poorly graded sand with clay
	High plasticity clay
	Silt
	Silty sand
	Blank
Misc. S	ymbols
<u> </u>	Water table at boring completion
Soil Sa	mplers
	Standard penetration test
Notes:	
	ratory boring were performed using a 2-inch diameter split barrel driven by a 140 lbs hammer (In accordance with ASTM D1586)

2. These logs are subject to the limitations, conclusions, and recommendations in this report.





	HA-3	HA-4		HA-5	
0-	Brown, fine SAND with silt with fin	e roots	Brown, fine SAND with silt	Brown, fine SAND	o
	- Gray brown, fine SAND with clay	e roots	Gray brown, clayey SAND	Brown, fine SAND with clay	-
5-	- Brown, clayey SAND	1/1/1/	$\overline{=}$ Gray, with roots	Gray brown, clayey SAND with cementation	- 5
	- Gray brown		Gray brown, CLAY with cementation		-
	- End of Boring		End of Boring	End of Boring	-
10-					
	-				-
	-				-
Depth in Feet 12_	-				- Depth in Fee
Dept	-				Feet
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	-				-
20-	-				20
	-				-
	-				-
25-					25
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	-				-
30 -	-				30
Plan View	Strata symbols	Low plasticity clay			
	Clayey sand			Equilynan Engineering Semilars	Inc
	Poorly graded sand			Faulkner Engineering Services, GENERALIZED SOIL PROF	ILE
	Poorly graded sand			HORIZONTAL SCALE: DRAWN BY/APPROVED BY VERTICAL SCALE: 1"=5" BCALE: 1"=5"	E PERFORMED 10/4/2021
	Poorly graded sand			Gagne Parcel	
	with silt			PROJECT NO. 21-5233	

		HA-6	HA-7	HA-8		
	0-	Brown, fine SAND	Brown, fine SAND with r		Brown, fine SAND with clay nodules	0
	-	Brown, fine SAND with clay	Light brown		Light brown, clayey SAND	-
	5—	Brown, clayey SAND	Gray brown, clayey SAN	D	Gray brown	5
	-	Brown, clayey SAND			Gray	-
	-	End of Boring	End of Boring		End of Boring	-
	10—					10
	_					_
Feet	-					- Dep
Depth in Feet	15					Depth in Feet
	_					-
	_					-
	20—					20
	-					-
	_					-
	25—					25
	_					-
	_					_
	- 30					- 30
Plan V		Strata symbols	Low plasticity clay			50
		Clayey sand			Faulkner Engineering Service	ces Inc
		Poorly graded sand with clay			GENERALIZED SOIL PR	OFILE
		Poorly graded sand		HO SC VE SC	RIZONTAL DRAWN BY/APPROVED BY ALE: TICAL PK/DF ALE: 1"=5'	DATE PERFORMED 10/1/2021
		Poorly graded sand			Gagne Parcel	
					PROJECT NO. 21-5233	

	НА О	На 10	HA 11	
	0 HA-9 Brown, fine SAND	HA-10 Brown, fine SAND	HA-11 Gray, fine SAND with silt	
	Light brown, clayey SAND		Brown, CLAY with sand	
	(-200 = 20.9%)	Brown, CLAY		
	5	Light brown	Gray brown, clayey SAND (-200 = 34.4%)	
	End of boring	End of boring	End of boring	
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in Fea	15			Depth in Fee
Depth in Feet	5			in Fee
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	-		-	
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2	25		25	
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	-		-	
3	30		30	
Plan Viev	w <u>Strata symbols</u>	Low plasticity clay		
	Clayey sand	clay		
			Faulkner Engineering Services, Inc.	
	Poorly graded sand with clay		GENERALIZED SOIL PROFILE	
			HORIZONTAL SCALE: DRAWN BY/APPROVED BY DATE PERFORMED	כ
	Poorly graded sand		VERTICAL SCALE: 1"=5" PK/DF 9/30/2021	_
			Gagne Parcel	
	Wiff Poorly graded sand			
			PROJECT NO. 21-5233	

	HA-12	HA-13	HA-14	
0	Gray brown, fine SAND with silt	Brown, fine SAND with fine roots	Brown, fine SAND with clay nodules	- o
	- introduction Brown	Gray, clayey SAND with cementation (-200 = 33.6%)	Gray brown, clayey SAND	-
-	Brown, CLAY with sand	(Moisture Content=22.4%) Orange gray, CLAY		-
5			Gray brown, CLAY	- 5
	End of boring	End of boring	End of Boring	_
10)			10
	-			-
Feet	-			Dep
Depth in Feet 12	-			Depth in Feet
	-			-
	-			_
20	-			- 20 -
	-			-
25	-			- 25
20	-			-
	-			-
30				30
Plan View		Low plasticity clay		
	Clayey sand		Faulkner Engineering Services, Inc.	
	Poorly graded sand with clay Poorly graded sand		GENERALIZED SOIL PROFILE HORIZONTAL DRAWN BY/APPROVED BY DATE PEF VERTICAL PK/DF 9/30/	RFORMED
	Poorly graded sand		Gagne Parcel	/2021
	with silt		PROJECT NO. 21-5233	

		IIA 15		T	IA 16		T	1.17			
	0-	HA-15	Gray brown, fine SAND with silt	F	IA-16	Gray brown, fine SAND with silt	F	[A-17	Brown, clayey SAND	o	
	-	2011 B. 11 11 B. 21 11 11 B. 21				-			(-200 = 16.6%)	-	
	_	111111 11111	Gray brown, CLAY with sand			Brown, CLAY with sand			(Moisture Content=15.2%) Gray, clayey SAND with fine roots	-	
	_		Gray brown, CEATT with said			brown, chart with said			(-200 = 34.9%)		
									(Moisture Content=20.6%)		
	_		Light brown								
	5—									5	
	-								Gray brown	-	
	-								(-200 = 32.8%) (Moisture Content=16.3%)	-	
	-		End of boring			End of boring			End of boring	-	
	_		Lind of borning			Lid of boring			Lind of borning		
	10-									10	
	10-									10	
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	-									-	
	-									-	
eet	-									-	De
Depth in Feet	15-									15	Depth in Feet
Dept	_										Feet
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	20—									20	
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	25—									25	
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	30—									30	
										30	
Plan \	/iew	Strata sym	<u>SIOD</u>	Low plasticity clay							
		Clay	yey sand	- ,						.	
			de una de decent						Faulkner Engineering Service		
		Poo with	rly graded sand clay						GENERALIZED SOIL PR		
			rly graded sand					SCAL	ZONTAL DRAWN BY/APPROVED BY LE: TCAL PK/DF E: 1"=5'	DATE PERFOR	MED
		Poo						ŠČÁL	<u>E:</u> 1"=5'	9/30/2021	
		₩ ₩ With	rly graded sand silt						Gagne Parcel		
		with	silt								
									PROJECT NO. 21-5233		

		HA-18	HA-19)	HA-20	
	0-	Brown, fine SAND with clay nod		Brown, fine SAND with clay nodules	Brown, fine SAND	0
	-	Gray, clayey SAND		Gray brown, clayey SAND	Brown, fine SAND with silt	-
	- 5—	Gray brown		$\mathbf{\underline{\nabla}}$ Gray brown, CLAY with cementation	Gray brown, clayey SAND	
	-			with cementation	Gray brown, clayey SAND	-
	-	End of Boring		End of Boring	End of Boring	-
	10					10
6	-					
Depth in Feet	15 - -					– Depth in Feet
	-	-				-
	20—					20
	-	-				-
	- 25-	_				
	-	-				-
	-					-
	30 —					30
Plan	View	Strata symbols	Low plasticity clay			
		Clayey sand	<u></u> ,		Faulkner Engineering Services	Inc
		Poorly graded sand with clay			GENERALIZED SOIL PROF	
		Poorly graded sand			VERTICAL PK/DF SCALE: 1"=5'	10/1/2021
		Poorly graded sand with silt			Gagne Parcel	
					PROJECT NO. 21-5233	

		HA-21		HA-22		HA-23		
	0-		Brown, fine SAND with fine roots	В	rown, fine SAND		Brown, fine SAND	0
	-	l iii					-	-
	-		Brown, clayey SAND	G	ray, clayey SAND		With fine roots	-
	_		(-200 = 26.1%)	(-	200 = 36.6%)			_
	_		(Moisture Content=14.9%)		foisture Content=15.6%)		· · · · ·	-
	_		Orange gray, with fine roots (-200 = 37.9%)	В	rown gray, CLAY		Orange gray, CLAY with cementation (-200 = 63.6%)	
	5—		(Moisture Content=16.9%)	G (((N B			(Moisture Content=29.3%)	5
	-			W	ith cementation		With fine roots	-
	-							-
	-		End of boring	E	nd of boring		End of boring	-
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	10—							10
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eet	-							- De
Depth in Feet	15 —							
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	25—							- 25
	-							-
	-							-
	-							-
	_							-
	30-							30
	30—							<u> </u>
Plan \	/iew	Strata symbo		Low plasticity clay				
		Claye		-		Γ		
							Faulkner Engineering Servi	
		Poorly with cl	/ graded sand lay				GENERALIZED SOIL PR	
			/ graded sand				RIZONTAL DRAWN BY/APPROVED BY ALE: RTICAL PK/DF ALE: 1"=5'	DATE PERFORMED
		Poorly	gradod dana			SC	ALE: 1"=5'	9/23/2021
		Poorly	<i>r</i> graded sand ilt				Gagne Parcel	
		with si	ilt					
							PROJECT NO. 21-5233	

	114 24			A 25			
0	HA-24	Brown, fine SAND	N	A-25 Gray, fine SAND with clay nodule	HA-26	Brown, fine SAND	0
	- 88			Gray, fine SAND with clay nodule Gray, clayey SAND with fine root ▼ Gray, CLAY			_
	-	Gray, clayey SAND with roots	2	Gray, clayey SAND with fine root		Gray brown, clayey SAND	_
		(-200=35.4%)				(-200=26.7%) (Moisture Content=17.4%)	_
		(Moisture Content=16.8%)	7 7				
		With silt (-200=36.7%)		Gray, CLAY		(-200=44.2%) (Moisture Content=18.9%)	-
5		(Moisture Content=18.0%)				(Moisture Content=18.9%)	5
		Gray, CLAY with cemented silt					-
							-
		End of Boring		// End of horizon		End of Doning	_
		End of Bornig		End of boring		End of Boring	_
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	-						-
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Depth in Feet 12	_						- Depth in Fee
Depth							n Feet
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30							30
Plan View	Strata sym	bols	Low plasticity clay				
	Clay	vey sand	VILL OILLY		г—		
						Faulkner Engineering Servi	ces, Inc.
	Poo with	rly graded sand clay				GENERALIZED SOIL PF	
					HC	DRIZONTAL DRAWN BY/APPROVED BY SALE: CRICAL PK/DF	DATE PERFORMED
	Poo	rly graded sand			SC	CALE: 1"=5'	9/23/2021
		rly graded sand				Gagne Parcel	
	Poo with	silt					
						PROJECT NO. 21-5233	

		HA-27	HA-28		HA-29	
	0-	Gray brown, fine SAND with silt		Gray, fine SAND with silt with mulch	Brown, fine SAND	0
	-					-
	-	Brown		Gray, clayey SAND with fine roots	Brown, CLAY	-
	-	- 罐料		(-200=22.2%) (Moisture Content=18.6%)		-
	-	Light brown, clayey SAND		Gray brown, with cementation	Orange brown, clayey SAND	-
	5—			(-200=36.5%) (Moisture Content=16.7%)		5
	-	Gray brown, CLAY		Gray, clay, with fine roots		-
	_	-				-
	_	End of horizo		End of Boring	End of boring	-
	_	End of boring		End of Bornig	End of borning	_
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		1				
	-	-				-
n Feet	-	-				Depth
Depth in Feet 1	15—					Depth in Feet
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	-	-				-
2	25—					25
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	_	_				_
3	3 <i>0</i> —					30
		Strata symbols	ZZZ Low plasticity			
Plan Vie	w	Strata symbols	Low plasticity clay			
		Clayey sand			Faulkner Engineering Services, Inc	
		Poorly graded sand			GENERALIZED SOIL PROFILE	
		Poorly graded sand with clay			HORIZONTAL DRAWN BY/APPROVED BY DATE PE	RFORMED
		Poorly graded sand			VERTICAL SCALE: 1"=5" PK/DF 9/24	/2021
					Gagne Parcel	
		Poorly graded sand				
					PROJECT NO. 21-5233	

	НА 20	НА 21	ЦА 22	
0-	HA-30 Gray brown, fine SAND with silt	HA-31 Gray, fine SAND with silt	HA-32 Brown gray, clayey SAND with fine roots	o
			(-200 = 42.9%) (Moisture Content=23.2%)	-
	Light brown, fine SAND	Brown	(MOISTURE CONTENT-23.270)	-
				-
	Light brown, clayey SAND		(-200 = 39.5%)	-
5-	Light brown, clayey SAND	Gray, CLAY	(200 = 59.5%) (Moisture Content=16.1%)	5
Ū			(-200 = 39.5%) (Moisture Content=16.1%) Gray, CLAY	Ű
			Gray, CLAY	
				_
	End of boring	End of boring	End of boring	-
	-			-
10-				10
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	-			-
	-			-
eet	-			–
Depth in Feet 				Depth in Fee
Dept	_			Feet
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	-			-
	-			-
	-			-
25-				25
	-			-
	-			-
	_			_
	_			_
30-				30
	Strata symbols	site .		00
Plan View	Strata symbols Low plastic	JILY		
	Clayey sand		Faulkner Engineering Services	Inc
	Poorly graded sand		GENERALIZED SOIL PRO	TE PERFORMED
	Poorly graded sand		HORIZONTAL SCALE: VERTICAL SCALE: 1"=5"	9/24/2021
			Gagne Parcel	
	Poorly graded sand			
1			PROJECT NO. 21-5233	

			HA-33				
	0-			Brown, fine SAND with fine roots		0	
	-			Gray, CLAY (-200 = 69.8%) (Moisture Content=35.1%)		-	
	5			with sand		- 5	
						-	
	-			End of boring		_	
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.	30 —	Strata aumhala				30	
Plan \]	Strata symbols Clayey sand	Low plasticity clay				
				F	aulkner Engineering Services, Ind	с.	1
		Poorly graded sand		HORIZONTAL	BENERALIZED SOIL PROFIL	ERFORMED	_
		Poorly graded sand		HORIZONTAL SCALE: VERTICAL SCALE: 1"=5'	PK/DF 9/2	4/2021	
		Poorly graded sand			Gagne Parcel		
				PRC	DJECT NO. 21-5233		-

Report of Geotechnical Engineering Evaluation Gagne Parcel Pasco County, FL. FES Project No: 21-5233

APPENDIX C

Key to Soil Classification

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

			Labor	atory Classification Data	
Major Divis	ion	Group Symbol	Finer than No. 200 Sieve %	Supplementary Requirements	Soil Description
Coarse-Grained	Gravelly Soils	GW	0 - 5*	$C_u \ge 4$ and $1 \le C_c \le 3$	Well-Graded Gravels, Sandy Gravels
	(Over Half of	GP	0 - 5*	C_u < 4 and / or 1 > C_c > 3	Gap-Graded or Uniform Gravels, Sandy Gravels
	Coarse Fraction Larger than No. 4	GM	12 or More*	PI < 4 or Below A-Line	Silty Gravels, Silty Sandy Gravels
	Sieve)	GC	12 of More*	PI ≥ 7 and On or Above A-Line	Clayey Gravels, Clayey Sandy Gravels
(Over 50% by Weight Coarser than No. 200 Sieve)	Sandy Soils	SW	0 - 5*	$C_u \ge 6$ and $1 \le C_c \le 3$	Well-Graded Sands, Gravelly Sands
	(Over Half of Coarse Fraction Larger than No. 4	SP	0 - 5*	$C_u < 6$ and / or 1 > $C_c > 3$	Gap-Graded or Uniform Sands, Gravelly Sands
		SM	12 or More*	PI < 4 or Below A-Line	Silty Sands, Silty Gravelly Sands
	Sieve)	SC	12 of More*	PI ≥ 7 and On or Above A-Line	Clayey Sands, Clayey Gravelly Sands
Fine-Grained	LOW	ML	Plasticity Chart		Silts, Very Fine Sands, Silty or Clayey Fine Sands, Micaceous Silts
	Compressibility (Liquid Limit Less	CL	Plasticity Chart		Low Plasticity Clays, Sandy or Silty Clays
	Than 50)	OL	Plasticity	Chart, Organic Odor or Color	Organic Silts and Clays of Low Plasticity
(Over 50% by Weight Finer than No. 200 Sieve)	HIGH	MH		Plasticity Chart	Micaceous Silts, Diatomaceous Silts, Volcanic Ash
	Compressibility (Liquid Limit	СН		Plasticity Chart	Highly Plastic Clays and Sandy Clays
	Greater Than 50)	ОН	Plasticity	Chart, Organic Odor or Color	Organic Silts and Clays of High Plasticity
Soils with Fibrous Organic Ma	atter	PT	Fibrous Orga Glow	nic Matter, Will Char, Burn, or	Peat, Sandy Peats, and Clayey Peat

*For Soils having 5 to 12 percent passing the No. 200 Sieve, use a dual symbol such as GW-GC.

	L			DRILL HOLE LOG BORING NO.: LS-1					Project No.: 21-5233 Date: 2/3/2022
	Clie Loc Dril Dril		itage Ho Pasco Co Precisio ME 45				A	t Coi	Elevation: NA Logged By: BB mpletion ⊊ : *NE
ŀ					S	ample			Standard Penetration Test
	Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0	_		CL	Medium, gray brown, CLAY Stiff, gray		1	2 2 4 3 4 5	6 9	
5	_				Ţ	3	3 5 6	11	
	_	///// ////// /////////////////////////	SP- SC	Medium-Dense, brown, fine SAND with clay		4	4 4 8	12	
10	_		CL	Hard, light brown, CLAY		5	9 12 13	25	
10	_								
15 -	_			Very stiff, with cementation		6	6 6 11	17	
20 -	_			LIMESTONE	T	7	7 8 10	18	
				End of Boring					
25 -	_								
30 -	_								
50	_								
~~	_								
35 -		_							
	*Gr	oundwate	er not e	encountered at first 10 feet This information pertains only to this boring and should not b	e inte	erpreted a	s beina ina	licative	of the site.

Dril	II Rig: C	ME 45	on Drilling, Inc.					Logged	-				
-	oth to W	ater>	Initial 뀿 :			Α		pletion -					
Depth/ Elevation	Soil Symbols	nscs	Description	Type 6	ample No.	Blows	St N		etration	Resist	ance		
ш	о О			É.		Diette		10	20	30	40	<u>60</u>	8
	1.03.001 1.03.04 1.03.04 1.03.04	SP- SM	Loose, brown, fine SAND with silt		1	3 2 3	5					+	
					2	2 2 3	5					_	
		SC	Medium-Dense, brown, clayey SAND (-200=25.2%)		3	3 6 12	18					_	
		CL	Very Stiff, gray CLAY		4	4 7 10	17					\square	
					5	12 11 13	24						
			Stiff, light brown	T	6	4 4 7	11		-				
						7							
			Very Stiff		7	6 7	16						
			End of Boring		-	9	_						
							_						
							_						
							_						
												+	
			ncountered at first 10 feet										L

GINEERING SERVICES, Inc.

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Project No.: 21-5233 Date: 2/3/2022

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	ULKNER
ENGINE	ERING SERVICES, Inc.

Project No.: 21-5233 **Date:** 2/3/2022

Project: Gagne Parcel Client: Meritage Homes **Location:** Pasco County, Florida **Driller:** J&R Precision Drilling, Inc. Drill Rig: CME 45

Depth to Water> Initial ≚ :

	Dep	oth to W	ater>	Initial $\stackrel{=}{=}$:			Α	t Cor	mpletion 🚆 : * NE
	th/ tion	C S S S Deptition				ample			Standard Penetration Test
	Depth/ Elevation	So Symt	nsc	Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0			CL	Stiff, gray brown, CLAY with sand		1	2 3 4	7	
	_			Gray		2	3 5 5	10	
5	_			Light gray		3	3 5 7	12	
	_			Gray brown		4	4 4 6	10	
10	_			Very Stiff		5	5 8 9	17	
10	_								
15	_			LIMESTONE with clay		6	6 8 12	20	
20	_			With clay End of Boring		7	5 7 7	14	
25	_								
	-								
30									
35	_								
	→ *Gro Loss	of circul	er not e lation d	ncountered at first 10 feet It 13.5'-15' This information pertains only to this boring and should r	not be inte	erpreted a	as being ind	dicative	of the site.

	l Rig: C oth to W		Initial $\stackrel{\scriptstyle{\scriptstyle{\frown}}}{=}$:			А	t Coi	npletic	on =	* NE		
Depth/ Elevation	Soil Symbols	nscs	Description	Type C	Sample No.	Blows	N		l Penetra Penetrati	on Res	istance	
]		CL	Stiff, brown, CLAY			2			10	20 3	<u>J 40</u>	60
			Medium, light gray brown		1	4 6 3	10					
			Stiff		2	3 2 3	5					
			Very Stiff, brown		3	3 4 4	7					
-			Light brown		4	7 6 8	13					+
-				ļ.	5	8 10	18					+
-												
-			LIMESTONE, with clay		6	13 7 14	21					
-						14						_
-												
-			With clay		7	10 11 13	24					
-			End of Boring									_
-												_
-												
-												_

FAULKNER ENGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 2/3/2022

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	CALL LAND
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	ENGINEERING SERVICES, Inc.

Project No.: 21-5233 Date: 2/3/2022

Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 45

	De	pth to W	ater>	Initial 🖳 :			Α	t Coi	mpletion : * NE
	th/ tion	ii Jols	SC	Desch		Sample			Standard Penetration Test
	Depth/ Elevation	Symbols	USCS	Description	Type	No.	Blows	N	Penetration Resistance 10 20 30 40 60 80
0									
0	_		CL	Medium, gray brown, CLAY with sand		1	3 3 3	6	
	_			Stiff, with sand	1	2	3 4 5	9	
5				Very Stiff, gray, with cementation	ſ	3	3 5 10	15	
	_					4	4 9 13	22	
10	_			Hard, with cementation		5	12 14 17	31	
	_								
15	_			LIMESTONE, with clay	T	6	8 9 11	20	
15	_								
	_			With clay			7		
20						7	7 10 13	23	
20	_			End of Boring					
	_								
25	_								
30									
25									
35									
	*G	roundwate	er not e	ncountered at first 10 feet					
				This information pertains only to this boring and should not	be inte	erpreted a	as being in	dicative	of the site.
	PAGE	1 of 1							

	DRILL HOLE LOG BORING NO.: PB-13									
	Project: Gagne Parcel Client: Meritage Homes Location: Pasco County, Florida Driller: J&R Precision Drilling, Inc. Drill Rig: CME 45 Depth to Water>									
	Depth/ Elevation	Soil Symbols	nscs	Description						
0			CL	Medium, gray brown, CLAY with sand						
5	_			Stiff, gray Gray brown, with sand Light brown						

Project No.: 21-5233 Date: 2/3/2022

	Dep	oth to W	ater>	Initial 🐺 :			Α	t Coi	mpletion 🛓 : * NE
	oth/ ation	Soil Symbols	uscs	Description		Sample			Standard Penetration Test
	Depth/ Elevation	Symt	NS(Description	Type	No.	Blows	Ν	Penetration Resistance 10 20 30 40 60 80
0									
Ū	_		CL	Medium, gray brown, CLAY with sand		1	3 2 3	5	
				Stiff, gray	I	2	2 6 6	12	
5	_			Gray brown, with sand	ſ	3	4 4 5	9	
				Light brown	ſ	4	3 5 6	11	
10				Very Stiff	I	5	7 10 13	23	
10									
				LIMESTONE, with clay			5		
15				LIVILS FORL, will elay		6	5 8 9	17	
	_								
20				With clay	T	7	6 6 7	13	
20	_			End of Boring					
25									
	_								
30									
35									
	→ *Gro Loss	s of circul	er not e lation a	ncountered at first 10 feet It 13.5'-15' This information pertains only to this boring and should no	bt be inte	erpreted a	as being inc	dicative	of the site.

	Driller: Drill Ri	J&R g: Cl	Precisio ME 45	unty, Florida on Drilling, Inc.			_		Elevation: NA Logged By: BB
	Depth			Initial 🖳 :			A		mpletion ¥ : * NE
Denth/	Elevation	Symbols	nscs	Description	Type C	ample No.	Blows	N	Standard Penetration Test Penetration Resistance 10 20 30 40 60 80
			SC	Loose, brown, clayey SAND		1	2 2 3	5	
_			CL	Stiff, gray brown, CLAY with sand	ľ	2	2 4 7	11	
					Ľ	3	2 3 8	11	
_				Very Stiff, brown		4	4 6 10	16	
-						5	8 8 11	19	
				LIMESTONE, with clay		6	3 2 2	4	
_				With clay		7	2 4 4	8	
				End of Boring					
				ncountered at first 10 feet t 13.5'-15'					

GINEERING SERVICES, Inc.

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Project No.: 21-5233 Date: 2/3/2022

	II Rig: C pth to W		Initial $ ot = ot : ot = ot$			Δ	t Coi	nnleti	on 🛓	• *	NF			
	-			S	Sample	<u>^</u>			d Penet					
Depth/ Elevation	Soil Symbols	nscs	Description	Type	No.	Blows	Ν		Penetra 10	ation I 20		tance 40	, 60	8(
		SP	Loose, brown, fine SAND		4	2	4							
		CL		L	1	2 2	4							
-		UL	Stiff, gray brown, CLAY		2	3 4 3	7				_			
			Very Stiff, light brown	I	3	3 6 7	13							
_	7.1.1. 7.1.1. 7.1.1.	SP- SC	Medium-Dense, brown, fine SAND with clay	I	4	5 5 8	13							
_		CL	Very Stiff, light brown, CLAY	T	5	9 11	23							
_						12				-				
			LIMESTONE, with clay			3								
			Elivies forve, with etay		6	3 4	7	-						
-														
-			With clay			3			1					
					7	5	11							
			End of Boring										-	
-												_		
											_		_	
-														
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_														
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FAULKNER NGINEERING SERVICES, Inc. Project No.: 21-5233 Date: 2/3/2022

KEY TO SYMBOLS

Symbol Description

Strata symbols



Low plasticity clay



Poorly graded sand with clay



Limestone



Poorly graded sand with silt



Clayey sand



Poorly graded sand

Soil Samplers



Standard penetration test

Notes:

1. Exploratory boring were performed using a 2-inch diameter split barrel sampler driven by a 140 lbs hammer (In accordance with ASTM D1586)

2. These logs are subject to the limitations, conclusions, and recommendations in this report.

Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
BB-1	-	4.0	2.0
BB-2	-	3.4	2.0
BB-3	-	4.0	3.0
BB-4	-	4.0	3.0
BB-5	-	3.4	2.0
BB-6	-	3.5	2.0
BB-7	-	3.7	2.0
BB-8	-	4.1	3.0
BB-9	-	NE	2.0
BB-10	-	3.4	2.0
BB-11	-	4.2	2.0
BB-12	-	1.0	1.0
BB-13	-	1.0	1.0
BB-14	-	NE	1.0
BB-15	-	3.3	2.5
BB-16	-	3.0	2.0
BB-17	-	3.3	2.5
BB-18	-	3.7	3.0
BB-19	-	3.0	2.0
BB-20	-	3.0	2.5
BB-21	-	2.9	2.0
BB-22	-	2.3	1.5
BB-23	-	1.0	1.0
BB-24	-	1.0	1.0
BB-25	-	2.0	1.5
BB-26	-	NE	2.0
BB-27	-	NE	2.0
BB-28	-	1.0	1.0
BB-29	-	3.6	3.0
BB-30	-	2.0	1.5
BB-31	-	NE	2.0
BB-32	-	NE	1.5
BB-33	-	3.0	2.5
BB-34	-	3.0	2.5
BB-35	-	NE	3.0
BB-36	-	NE	2.0
PB-1	-	3.5	2.0
PB-2	-	3.0	2.0

Table 1 - Groundwater Data

Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
PB-3	-	NE	2.5
PB-4	-	3.3	2.0
PB-5	-	1.0	1.0
PB-6	-	3.0	2.0
PB-7	-	3.0	2.5
PB-8	-	NE	1.0
PB-9	-	NE	2.0
PB-10	-	NE	1.0
PB-11	-	NE	1.0
PB-12	-	NE	1.0
PB-13	-	NE	0.5
PB-14	-	NE	2.0
PB-15	-	NE	2.0
LS-1	-	NE	1.0
AB-1	-	6.4	5.0
AB-2	-	6.5	5.0
AB-3	-	6.7	5.0
AB-4	-	6.2	5.0
HA-1	-	3.2	2.0
HA-2	-	3.3	2.0
HA-3	-	3.8	3.0
HA-4	-	4.0	2.0
HA-5	-	3.7	3.0
HA-6	-	3.8	3.0
HA-7	-	4.0	3.0
HA-8	-	3.8	2.0
HA-9	-	3.8	2.0
HA-10	-	3.5	2.5
HA-11	-	3.0	1.0
HA-12	-	3.0	2.5
HA-13	-	1.3	1.0
HA-14	-	3.6	2.0
HA-15	-	NE	2.0
HA-16	-	NE	2.0
HA-17	-	1.0	1.0
HA-18	-	3.6	2.0
HA-19	-	4.0	2.0
HA-20	-	3.7	3.0
HA-21	-	1.0	1.0
HA-22	-	1.0	1.0

Boring	Ground Elevation	Existing Groundwater Table	Estimated SHGWT ³ from Field Exploration
	(feet, NAVD 1988) ¹	(feet, bgs) ²	(feet, bgs) ²
HA-23	-	1.0	1.0
HA-24	-	NE	2.0
HA-25	-	3.0	2.0
HA-26	-	3.3	2.0
HA-27	-	3.3	2.5
HA-28	-	NE	2.0
HA-29	-	2.9	2.0
HA-30	-	3.0	2.5
HA-31	-	2.9	2.0
HA-32	-	1.0	1.0
HA-33	-	2.0	1.5

¹ - North American Vertical Datum, ground elevations not available at time of drilling

² - Below Ground Surface

³ - Seasonal High Groundwater Table

NE - Not encountered in the first 10 feet (SPT boring) or boring termination (auger borings)