THOMAS
GEOTECHNICAL SERVICES
GEOTECHNICAL • TESTING • INSPECTIONS

December 11, 2025

Mr. Omar del Rio, VP of Acquisitions & Development
Eastwind Acquisitions, LLC
5604 PGA Boulevard, Suite 109
Palm Beach gardens, FL 33418
Email: odelrio@eastwinddevelopment.com
Phone: 561-370-6603

Re: Geotechnical Engineering Study
Proposed Residential Development-Westlake Town Center
NW Corner Kingfisher Boulevard and Town Center Parkway South
Westlake, Florida
TGS Project No. 25-821

Dear Omar:

THOMAS GEOTECHNICAL SERVICES LLC (TGS) is pleased to transmit our Geotechnical Engineering Services Report for the referenced project. This report includes the results of field exploration, geotechnical recommendations for foundation and pavement design, and general recommendations for site development.

We appreciate the opportunity to perform this Geotechnical Study and look forward to continued participation during the design and construction phases of this project. If you have any questions about this report, or if we may be of further service, please contact our office.

Respectfully submitted,

TGS

Maximo Peralta Alvarez, P.E.
Principal Engineer
FL Registration No. 84213

Francois Thomas, P.E.
Principal Engineer
FL Registration No. 56381

FRANCOIS J THOMAS
LICENSE
No 56381
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

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.

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1.0 EXECUTIVE SUMMARY

An exploration and geotechnical evaluation of the subsurface conditions have been completed for the proposed development to be constructed at the NW Corner of Kingfisher Boulevard and Town Center Parkway South in Westlake, Florida. The new development will include a total of nine, 3 to 4-story buildings (364 units), one-story clubhouse/pool with gazebo, 1-story garages, one-story pavilion, dog park, playground, pickle ball court, and miscellaneous lightly loaded structures. The buildings will have shallow foundations, masonry walls and wood trusses.

Soils for the proposed development were explored with a total of eleven (11) Standard Penetration Test (SPT) Borings for the 3 to 4-story buildings extending to depths of approximately 25 and 30 feet below the existing ground surface, one (1) SPT for the 1-story clubhouse to a depth of 15 feet, four (4) SPT borings to a depth of 10 feet for parking and driveway areas, and two (2) percolation tests to 10± feet below grades. The boring and percolation test locations were selected within proposed building footprints and parking areas.

The following descriptions are based on visual soil classification completed on retrieved soil samples. In general, below the surficial topsoil/root layer, the majority of the borings encountered sandy fill with varying amount of limerock, followed by sandy soils, some silty and weakly cemented, underlain by alternative layers of sandy limestone and sandy soils, some silty or shelly extending to the boring termination depths. **Based on review of historic information/aerials, a former canal was located near the center of the property—within the proposed clubhouse and pool area—and running east to west. The canal was backfilled overtime to current elevations. We recommend performing test pits along the old canal alignment to evaluate the presence of any unsuitable materials.**

The upper fill material consists of sand mixtures (sand trace limerock and sandy limerock) classified as (SP/FILL or FILL), the sands were classified as (SP, SP-SM, SM) in accordance with the Unified Soil Classification System. N-values indicate the sandy material of medium dense conditions. The limestone was weakly cemented to hard. **Above normal excavation efforts should be expected in areas which require excavations through the limestone. In addition, boulder like fill should be expected when excavating the limestone stratum**.

The contractor should prepare for heavy excavation activities as limestone was encountered at relatively shallow depths. If limestone is encountered, it may require special tools/buckets in order to break the material up.

The groundwater level at the time of drilling excavation was encountered between depths of 6.0 and 7.0 feet in depth. All depths should be considered approximate.

The geotechnical study completed for the proposed development confirms that the site is suitable for the planned construction when viewed from a soil mechanics and foundation engineering perspective. **After the proper site preparation described herein, we recommend that a heavy densification/compaction program be implemented.** We evaluated the use of shallow foundations for support of the proposed structures. The planned 1 to 4-story structures could be supported on shallow foundations, **following heavy densification of upper soils.**

An allowable bearing pressure of 3,500 pounds per square feet (psf) could be utilized. Footings should be designed for requirements to meet the latest Florida Building Code requirements.

Details related to site development, foundation design, and construction considerations are included in subsequent sections of this report. The owner/designer should not rely solely on this Executive Summary and must read and evaluate the entire contents of this report before utilizing our engineering recommendations.

2.0 PROJECT INFORMATION

2.1 Project Authorization

TGS has completed a geotechnical exploration for the proposed development located at the NW Corner of Kingfisher Boulevard and Town Center Parkway South in Westlake, Florida. The geotechnical services were performed in accordance with TGS's Proposal No. 2510-630, dated October 13, 2025, and subsequently authorized by Mr. Steven Potting with Eastwind Acquisition, LLC.

2.2 Project Description

Our understanding of the project is based on information provided by Mr. Omar del Rio, VP of Acquisitions & Development. We understand that the site development will include a total of nine, 3 to 4-story buildings (364 units), 1-story clubhouse/pool with gazebo, 1-story garages, one-story pavilion, dog park, playground, pickle ball court, and miscellaneous lightly loaded structures. The buildings will have shallow foundations/turn-down slab, masonry walls and wood trussed.

Loading information has not been provided at this time. Therefore, for the purposes of this report, the following loads for all structures were assumed columns loading and walls do not exceed 300 kips and 5 kips per lineal foot, respectively.

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this report. If any of the noted information is incorrect, please inform TGS in writing so that we may amend the recommendations presented in this report, if appropriate, and if desired by the client. TGS will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

2.3 Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site to enable an evaluation of acceptable foundation systems for the proposed site development. This report includes a brief outline of the testing procedures, a description of the site, and subsurface conditions, and the report includes the geotechnical recommendations for foundation, pavement design, and general site development. Geotechnical recommendations regarding the following items are presented herein:

- Foundation soil preparation requirements.
- Foundation recommendations.
- Pavement recommendations.
- Comments regarding factors that may impact on the construction and performance of the proposed construction.

Our scope of services included drilling a total of eleven (11) Standard Penetration Test (SPT) Borings for the 3- to 4-story buildings extending to depths of approximately 25 and 30 feet below the existing ground surface, one (1) SPT boring for the 1-story clubhouse to a depth of 15 feet, four (4) SPT borings depth of 10 feet for parking/driveway areas, two (2) percolation tests to 10± feet below grades, plus the preparation of this geotechnical report.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air on or below or around this site. Any statement in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Before further development of this site, an environmental assessment is advisable.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Site Location and Description

The proposed development is located at the NW Corner of Kingfisher Boulevard and Town Center Parkway South in Westlake, Florida. The site is currently undeveloped, relatively level and covered with short grass/vegetation. The site was used as agricultural land in the past.

3.2 Subsurface Conditions

Based on a review of the "Soil Survey of Palm Beach County Area, Florida" prepared by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the below map units may be anticipated at the site.

Map Unit 36. Riviera fine sand, 0 to 2 percent slopes. This is a nearly level, poorly drained soil that has a thick sandy subsurface layer that tongues into a loamy subsoil at a depth of 20 to 40 inches. This soil is in broad, low areas. Under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months in most of the years and within 10 to 30 inches for most of the remaining year, except during extreme dry periods.

Map Unit 37. Riviera fine sand, frequently ponded, 0 to 1 percent slopes. This is a nearly level, frequently ponded, poorly drained soil that has a thick sandy subsurface layer that tongues into a loamy subsoil at a depth of 20 to 40 inches. This soil is in broad, low areas. Under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months in most of the years and within 10 to 30 inches for most of the remaining year, except during extreme dry periods.

A graphic depiction of the soil mapping is included in the Appendix as **Soil Map—Palm Beach County Area, Florida.**

Soils for the proposed development were explored with eleven (11) Standard Penetration Test (SPT) Borings for the 3 to 4-story buildings extending to depths of approximately 25 and 30 feet below the existing ground surface, one (1) SPT for the 1-story clubhouse to a depth of 15 feet, four (4) SPT borings depth of 10 feet for parking and driveway areas. In addition, two (2) percolation tests to 10 feet were advanced using the same drilling equipment.

All SPT tests were completed with a 4x4 truck-mounted BK-51 drill rig and mud-rotary drilling methods per ASTM D1586. The test locations were determined in the field by measuring distances from existing site features. GPS coordinates were obtained and are included with the soil profiles. **The approximate locations of the field tests completed, the soil profiles and SPT N-Value data are presented on the Boring Location Plan / Soil Profiles in the Appendix.**

The samples of the in-place soils were returned to our laboratory for classification by a geotechnical engineer. The samples were classified in general accordance with the Unified Soil Classification System (ASTM D 2488).

The following descriptions are based on visual soil classification completed on retrieved soil samples. In general, below the surficial topsoil/root layer, the majority of the borings encountered sandy fill with varying amount of limerock, followed by sandy soils, some silty and weakly cemented, underlain by alternative layers of sandy limestone and sandy soils, some silty or shelly extending to the boring termination depths.

The upper fill material consists of sand mixtures (sand trace limerock and sandy limerock) classified as (SP/FILL or FILL), the sands were classified as (SP, SP-SM, SM) in accordance with the Unified Soil Classification System. N-values indicate the sandy material of medium dense conditions. The limestone was weakly cemented to hard. **Above normal excavation efforts should be expected in areas which require excavations through the limestone. In addition, boulder like fill should be expected when excavating the limestone stratum.**

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The soil boring profile should be reviewed for specific information at an individual boring location. These records include soil descriptions, stratifications, and Standard Penetration resistance. The stratifications shown on the soil profile represent the conditions only at the actual boring location. Variations may occur and should be expected at other locations. The stratifications represent the approximate boundary between subsurface materials, and the actual transition may be gradual. Water level information obtained during field operations is also shown on the soil profile. Samples collected for classification and laboratory testing will be retained for 30 days from the date of this report and then will be discarded.

3.3 Soil Classification-Fill Suitability

Below the topsoil/root mat, soils were classified as fill (sand trace limerock and sandy limerock) followed by sand and/or silty sand underlain by limestone. The above-described granular materials were noted in very loose to dense condition, indicating that they should be able to be excavated using large excavators in good working order**.**

The upper fill soils and silty sands should be suitable for the various components of the project, provided moisture levels are controlled and the soils managed as recommended herein. These soils should be suitable for the various components of the project, provided moisture levels are controlled as recommended herein.

We recommend structural fill materials contain less than 12 percent fines passing No. 200 sieve and less than 5 percent organic content. Generally, most sands (SP) encountered in the upper 10± feet meet this requirement, **and with proper moisture control,** are considered desirable for construction purposes, due to their ability to drain in a relatively short period of time, and ease of compaction using conventional compaction techniques. If near surface soils are found to contain more than 12 percent fines, these materials can be blended to lower the fine content.

The limestone below the upper sandy soils was noted weakly cemented to hard. The more weathered limestone **may** be suitable for use as structural fill. The **hard limestone will require crushing** prior to use as fill. **Above normal excavation efforts should be expected for excavations within the limestone. In addition, boulder like fill should be expected when excavating the limestone stratum.**

3.4 Groundwater Information

Groundwater levels were measured in the soil test borings upon completion of the drilling and excavation activities. The depth to the free water surface at the time of drilling at the borings were between 6.0 and 7.0 feet below the existing grade at the site. We expect the groundwater to, typically, fluctuate within about 2 feet from where it was encountered during the drilling operation.

In general, the seasonal high groundwater level is not intended to define a limit or ensure that future seasonal fluctuations in groundwater levels will not exceed the estimated levels. Post-development groundwater levels could exceed the normal seasonal high groundwater level estimate as a result of a series of rainfall events, changing conditions at the site that alter surface water drainage characteristics, or variations in the duration, intensity, or total volume of rainfall. We recommend that the Contractor determine the actual groundwater levels at the time of the construction to determine groundwater impact on his or her construction procedures.

3.5 Exfiltration Tests

A total of two (2) exfiltration tests were performed using the usual open-hole, constant head methodology. The test locations are shown on the boring location plan in Appendix. The tests were performed to a depth of 10 feet. The hole was drilled by a hollow stem auger (about 4 inches in diameter) so that soil samples could be retrieved for a visual classification by our engineer. The boring was completed as open well with gravel pack (6-20 silica sand). The well screen diameter is 2 inches and well screen slot widths were 0.020 inches. Water from the drill rig tank was then pumped into the open well, and the amount of water required maintaining constant head was recorded. The results of the exfiltration tests are attached to the Appendix.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 Geotechnical Discussion

The geotechnical study completed for the proposed residential development confirms that the site is suitable for the planned construction when viewed from a soil mechanics and foundation engineering perspective. Subsurface conditions at the site are not expected to impose any major geotechnical constraints or limitations on the planned structure. **The existing soils will require densification/compaction to increase shear strength and reduce foundation and floor slab settlements to acceptable levels.**

Above normal excavation efforts should be expected in areas which require excavations through the limestone. In addition, boulder like fill should be expected when excavating the limestone stratum.

Based on review of historic information/aerials, a former canal was located near the center of the property—within the proposed clubhouse and pool area—and running east to west. The canal was backfilled overtime to current elevations. We recommend performing test pits along the old canal alignment to evaluate the presence of any unsuitable materials.

We recommend that in order to prepare the site for construction, a heavy densification/ compaction program be implemented. Following ground improvement, we evaluated the use of shallow foundations for support of the proposed structure.

The proposed structures could be supported on shallow foundations **following heavy densification of upper soils.** An allowable bearing pressure of 3,500 pounds per square feet (psf) could be utilized provided the foundation loading for columns and walls does not exceed 300 kips and 5 kips per lineal foot, respectively. Recommendations for site preparation, foundation design, and related construction are presented in the following sections of this report.

4.2 Foundation Recommendations

Spread Foundation (Heavy Densification/Compaction)

Conventional spread footings are generally most economical when the existing soil conditions allow them to be founded at shallow depths. Based on the data currently available, the new structures could be supported on a shallow foundation system bearing on a compacted sandy layer or on the limestone with an allowable bearing pressure of 3,500 psf (pounds/ft^2) following proper site preparation procedures, as described in Section 5.0.

Footings should be designed for requirements to meet the latest Florida Building Code requirements.

As an alternative, for lightly loaded structures (one or two stories), monolithic footings could be utilized. Monolithic footings should be designed according to the requirements provided in Section 1821 of the Florida Building Code, and should be properly checked for eccentric loading, foundation rotation, and shear cracking at the slab/foundation interface. The turn-down slab can be supported on-grade bearing on compacted soil after following proper site preparation procedures as described in Section 5.0.

Settlement of foundations based in the in-situ granular soils and/or engineered fill will occur as an elastic response of the soils to the building loads applied. Given site and soil preparation is completed before footing construction, and using the design criteria discussed above, we expect that total and differential foundation settlements to be in the order of 1 inch and 1/2 inch, respectively.

The settlement forecast is based on imposed soil bearing pressure from structural loadings not exceeding 3,500 pounds per square foot (psf). Because the subsoils at the site are granular in nature, settlement should occur as the loads are applied to foundations and should essentially be complete by the time the building superstructures are finished.

Excavating equipment may disturb the granular bearing soil in foundation areas. The upper 12 inches of foundation bottom soils should be compacted to achieve not less than 95 percent of the maximum dry density as determined by ASTM D 1557 immediately prior to reinforcing and concrete placement.

A representative of TGS should observe the foundation excavations prior to steel or concrete placement to assess that the foundation materials are capable of supporting the design loads and are consistent with the materials discussed in this report. Loose soil zones encountered at the bottom of the footing excavations should be removed to the level of medium dense soils or adequately compacted structural fill as directed by the geotechnical engineer.

The proposed footings within about 50 ft of any existing structures/utilities will need to be evaluated and the heavy compaction technique may need to be adjusted accordingly. We recommend that vibration monitoring be performed while the ground improvement is being performed.

4.3 Ground Floor Slab Recommendations

After following site preparation procedures outlined in Section 5.0, the ground floor slabs can be designed as a slab-on-grade bearing on compacted soil. The slabs should be adequately reinforced to carry the loads that are to be applied. The floor slab design, if based on elastic methods, should employ a modulus of subgrade reaction of 150 pounds per cubic inch (pci). To help avoid potential problems with cracking because of differential loadings, we recommend the ground floor slab be liberally jointed and separated from columns and walls.

Our experience indicates that floor slabs constructed without a vapor barrier will often experience future problems associated with moisture and mildew. Therefore, we recommend interior floor slab subgrade soils be covered with a vapor barrier (such as visqueen, normally 6 mil thick) before constructing the slab-on-grade floor.

The friction factor between the soil and floor slabs should be taken as 0.30 without the vapor barrier. A friction factor of 0.21 should be used for the vapor barrier-soil interface. If moisture intrusion into the floor slab is not desired, an impermeable membrane should be installed on the soil subgrade before the slab is cast. Normally, a 6-mil thick polyethylene film is satisfactory as a subgrade moisture barrier. However, some floor coverings may have a comparatively sensitive tolerance to moisture flux that a thin polyethylene film cannot suppress. Under these conditions, other types of moisture membranes may need to be considered.

4.4 Utilities

All utilities should be installed per the requirements of the Civil Engineering drawings and specifications. When backfilling over utility lines, the fill should be placed in lifts and compacted to at least 98% of the material's maximum dry density as determined by the Modified Proctor Compaction Test (ASTM D 1557). The loose lift thickness is expected to vary between 6 inches and 12 inches depending on the compaction equipment used by the contractor.

4.5 Construction Excavation/Dewatering

Sloped open-cut excavations are expected to be sufficient for construction of the footings. Once more design information is available, shoring requirements will need to be further evaluated. **Above normal excavation efforts should be expected in areas which require excavations through the limestone below the upper sandy soils. In addition, boulder like fill should be expected when excavating the limestone stratum.**

The contractor should prepare for heavy excavation activities as limestone was encountered at relatively shallow depths. If limestone is encountered, it may require special tools/buckets in order to break the material up.

Side slopes for temporary excavations may stand near 1.7H: 1V for short dry periods of time; however, we recommend that temporary excavations below 5-foot depth be cut on slopes of 2H: 1V or flatter. Where restrictions will not permit slopes to be laid back as recommended above, the excavation should be shored in accordance with OSHA requirements. Furthermore, open-cut excavations exceeding 5 feet in depth should be properly sloped 2H:1V or flatter or be benched using a bracing plan approved by a professional engineer licensed in the State of Florida. During construction, excavated materials should not be stockpiled at the top of the slope within a horizontal distance equal to the excavation depth.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain the stability of both the excavation sides and bottom. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. **In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.**

Dewatering will be required for in-the-dry construction over those sections of the site where the elevations of the structure fall below the water table. If the draw down requirements is greater than 1 foot, well point dewatering may be required.

4.6 Miscellaneous Structures

Lightly loaded structures such as signs and entry features can be supported on shallow foundations with an allowable bearing pressure of 2,500 psf after following proper site preparation procedures as outlined in Section 5.0.

5.0 SITE PREPARATION PROCEDURES

The site preparation work is expected to involve removal of topsoil/root mat, vegetation, organic material and debris (if any), **heavy densification/compaction**, and placement of compacted fill to planned grades. Presented below is a brief review of the required work.

5.1 Site Clearing

All construction areas should be stripped of topsoil/root mat, and vegetation. Underground utilities (from previous property usage) should be removed within the area of the proposed construction. The clearing should be done within a distance of 10 feet beyond the perimeter of the proposed structures. The final clearing operations should be approved by the geotechnical engineer prior to starting heavy densification/compaction.

5.2 Subgrade Heavy Densification/Compaction and Engineering Fill

Following removal of topsoil, vegetation, organic material, if any, from the proposed construction areas, the structural footprint of the proposed building areas should be proof rolled with a self-propelled roller (Ingersoll-Rand SD 100D or equivalent) with at least **20 passes (with an operating vibration frequency of 31.5 Hz/1890 VPM and average speed of 1.4 mph)** and until the subsoils achieve 95 percent of maximum dry density per ASTM D 1557 (Modified Proctor) to a depth of at least **12 inches below the existing grade**. The soil densification should encompass the entire footprint of the structure plus a 5-foot-wide perimeter that extends beyond the maximum lines of the superstructures.

Engineering fill necessary to support slab-on-grade and other surface features such as driveways, and sidewalks should also be compacted to the aforementioned 95% criteria.

The engineering fill materials must be placed under close inspection and testing by TGS staff. The fill should be inorganic granular soils free from deleterious materials, have less than 12 percent fines, and approved by our firm. The fill should be placed in lifts of no greater than 12 inches thick, and each lift should be compacted to the aforementioned 95% criteria.

Rolled subgrade should be visually observed for signs of pumping, weaving or other types of instability. Signs of such instability could be due to the existence of weak and/or compressible subsoils. Corrective action for this condition should include excavation of weak subsoils followed by replacement with clean granular fill compacted to 95 percent of the ASTM D 1557 maximum dry density.

In restricted areas where a small compactor must be used, the lift thickness should be reduced to 6 inches to 8 inches, as directed by an inspector from our firm. Fill around footings should be backfilled in no more than 12-inch-thick loose lifts, and each lift should be compacted to the above-mentioned 95% criteria.

5.3 Protection of Neighboring Structures

All new construction work should be performed so as not to adversely impact or cause loss of support to adjacent structures, hardscape, paving. A residential neighborhood is located to the immediate east and south of the site. Special care will be required during heavy compaction and grading to ensure adverse vibrations or movements are not induced in the adjacent structures. We recommend, at a minimum, a pre-construction condition survey comprised of photographic and videographic documentation of accessible and visible areas of adjacent properties, including pavements and sidewalks, to be performed prior to initiating construction activities at the site.

Near existing buildings (within 50 feet), proof-rolling/densification should be performed in a static mode. Ground vibrations induced by the compaction operations should be closely monitored to assess if there is a potential impact to any existing adjacent structures. In general, the allowable peak particle velocity (PPV) one is permitted to induce on adjacent structures is 0.5 inches/second.

5.4 Footing on Compacted Soil or Limestone

Following the proofrolling and addition of fill as described above, the foundation areas should be excavated and compacted to the above-mentioned 95% criteria. The footings should be formed and poured in-the-dry. After excavation for footings, the footing subgrade should be observed and tested by a representative of TGS before steel or concrete placement to assess that foundation materials are capable of supporting the design load and are covered with the materials discussed in the report.

Compaction is not needed if competent natural limestone is encountered. However, a representative of TGS should be retained to verify the integrity of the limestone. If pockets or chimneys of sands, or loose soils, are found within the limestone formation they should be excavated to a depth of three times the width or diameter, where applicable, and backfilled with FDOT 57 Stone, concrete or grout.

Where the bottom of footing elevation is above the top of the natural limestone, the zone between the two elevations should be over-excavated and backfilled with FDOT 57 Stone or concrete. The over-excavation should include a 2-foot-wide perimeter around the footing. If the zone between the two elevations exceeds 2 feet, the geotechnical engineer should be retained for investigation and approval. Ultimately, the footings must bear either directly on competent natural limestone, FDOT 57 Stone or concrete.

Excavations into the limestone formation are not permitted if the excavation overlaps into the influence zone of any footing. The influence zone is defined as a 1H:1V projection from the base edge of the bottom of the footing elevation.

6.0 PAVEMENT RECOMMENDATIONS

The roadway areas should be prepared and densified as indicated in the Site Preparation section of this report. Flexible pavement sections in this geographic area typically consist of an asphaltic concrete wearing course, limerock/shell-rock or coquina base course and a stabilized subgrade. The following pavement component thicknesses could be utilized. **However, actual pavement section thickness should be provided by the Design Civil Engineer based on traffic loads, volume, and the owner's design life requirements.**

TYPE OF PAVEMENT	MATERIAL DESCRIPTION	LAYER THICKNESS (INCHES)	
		PARKING AREAS	DRIVEWAY AREAS
Flexible	Asphaltic Concrete	1.5	2.0
	Base Course (LBR = 100)	8	8
	Stabilized Subgrade (LBR = 40)	12	12

The base course materials in the pavements should consist of limerock, shell-rock or coquina, having a minimum Limerock Bearing Ratio (LBR) of 100. Base materials should meet the requirements presented in the latest revisions of the Florida Department of Transportation (FDOT) "Specifications for Road and Bridge Construction," Section 911 (limerock). The base course should be compacted to at least 98 percent of maximum dry density (AASHTO 180).

The subgrade should be stabilized to a depth of 12 inches to achieve a minimum LBR of 40. This can be achieved by blending base material (limerock) with the existing sandy subgrade soils. The required mixing ratio should be determined by laboratory testing. The stabilized subgrade should be compacted to at least 98 percent of maximum dry density (AASHTO 180).

If dumpsters are to be parked on the pavement, it is recommended that rigid concrete pavement be constructed. In addition, the apron utilized for unloading the dumpsters by heavy-duty trucks should also be provided with a rigid pavement. A minimum Portland concrete pavement thickness of 6 inches is recommended for the project if a rigid pavement is employed. The concrete should be reinforced to withstand the traffic loadings anticipated and should be jointed to reduce the chances for crack development. The minimum rigid pavement thickness recommended above is based upon concrete with an unconfined compressive strength of 3,500 psi and a modulus of rupture of 450 psi.

The noted sections represent minimum thickness representative of typical local construction practices and, as such, periodic maintenance should be anticipated. All pavement materials and construction procedures should conform to FDOT, American Concrete Institute (ACI), or appropriate city/county requirements.

7.0 INSPECTIONS/QUALITY CONTROL TESTING

During construction, it is important that work is performed under qualified inspection to ensure proper procedures are followed. We will perform all foundation and earthwork related inspections, and reports will be prepared for your records and submission to the appropriate governmental agencies. We can also perform testing services, soils, concrete, and asphalt for compliance with project requirements.

8.0 REPORT LIMITATIONS

The recommendations submitted are based on the available subsurface information obtained by TGS, and design details furnished by Eastwind Acquisitions LLC for the proposed project.

If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, TGS should be notified immediately to determine if changes in the preliminary foundation recommendations are required. If TGS is not retained to perform these functions, TGS will not be responsible for the impact of those conditions of the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

It is imperative that TGS be present for observation and testing during construction in order to provide written confirmation (certifications) that the geotechnical engineering study report has been complied with.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided with the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. This geotechnical report has been prepared for the exclusive use of Eastwind Acquisitions LLC and its designers for the specific application to the Proposed Residential Development-Westlake Town Center in Westlake, Florida

APPENDIX

SOIL MAP—PALM BEACH AREA, FLORIDA

BORING LOCATION PLAN – SHEET 1

SOIL PROFILES - SHEETS 2 THROUGHT 5

SUMMARY OF EXFILTRATION TEST RESULTS

Soil Map—Palm Beach County Area, Florida

Map Scale: 1:3,930 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 50, 100, 200, 300

Feet: 0, 150, 300, 600, 900

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Palm Beach County Area, Florida
Survey Area Data: Version 22, Aug 29, 2025

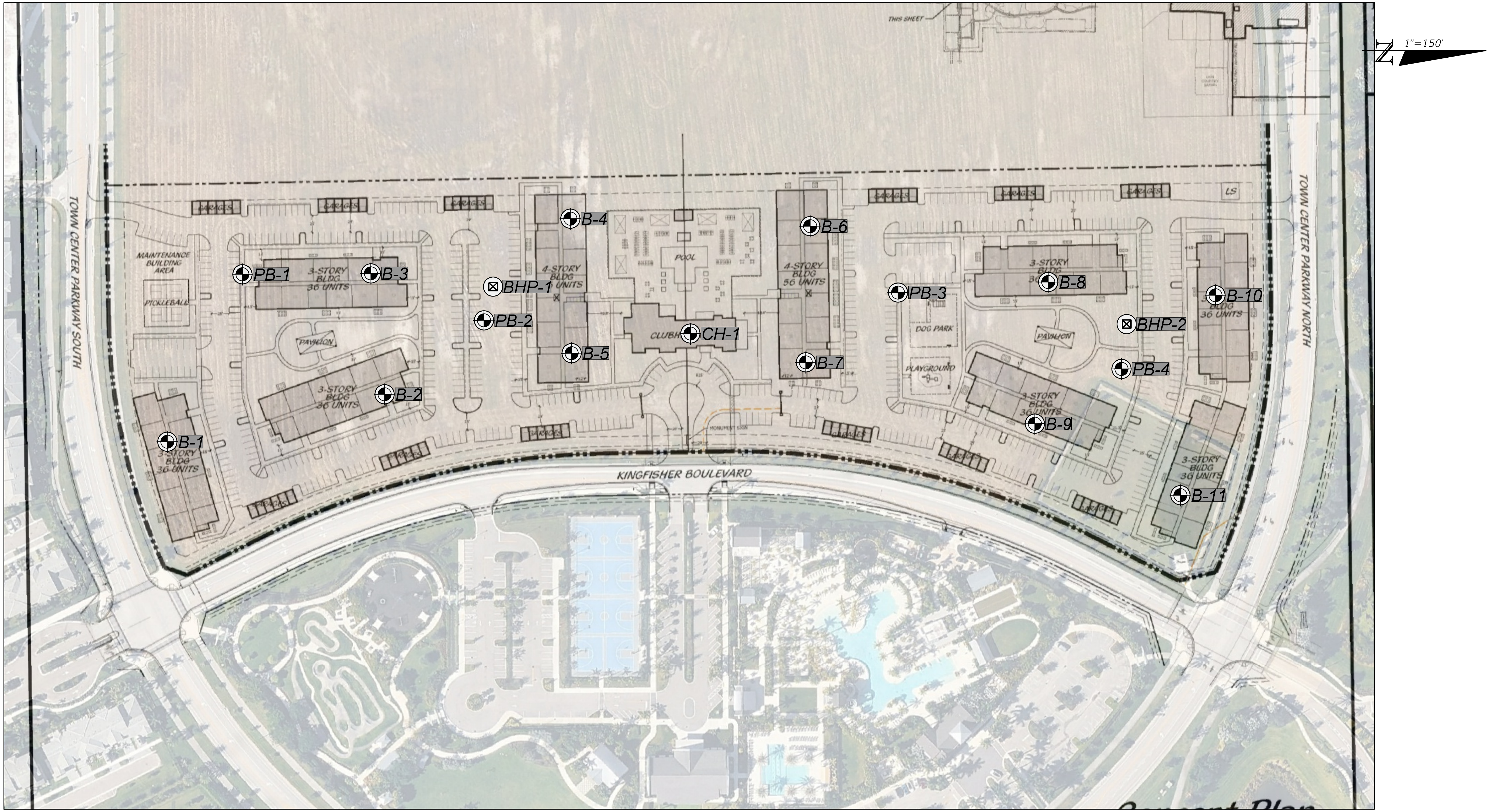
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 10, 2022—May 1, 2023

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
10	Cypress Lake fine sand, 0 to 2 percent slopes	4.8	5.9%
12	Chobee fine sandy loam, frequently ponded, 0 to 1 percent slopes	2.3	2.9%
15	Floridana fine sand, frequently ponded, 0 to 1 percent slopes	2.4	2.9%
36	Riviera fine sand, 0 to 2 percent slopes	47.8	58.7%
37	Riviera fine sand, frequently ponded, 0 to 1 percent slopes	24.1	29.6%
Totals for Area of Interest		**81.5**	**100.0%**



APPROXIMATE LOCATION OF SPT BORING

APPROXIMATE LOCATION OF BHP TEST

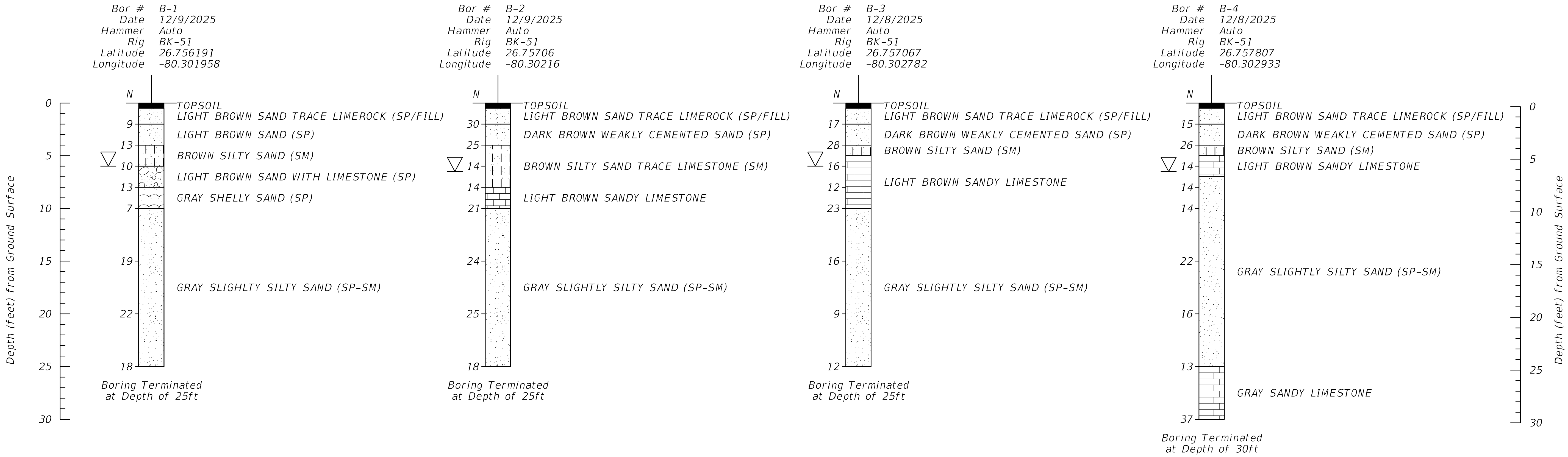
THOMAS GEOTECHNICAL SERVICES
GEOTECHNICAL • TESTING • INSPECTIONS

ENGINEER OF RECORD:
FRANCOIS THOMAS, P.E.
FLORIDA LICENSE NO.:
56381

PROJECT ID NUMBER:
25-821

BORING LOCATION PLAN
PROPOSED RESIDENTIAL DEVELOPMENT
WESTLAKE TOWN CENTER
CITY OF WESTLAKE, FLORIDA

Sheet:
1



Legend

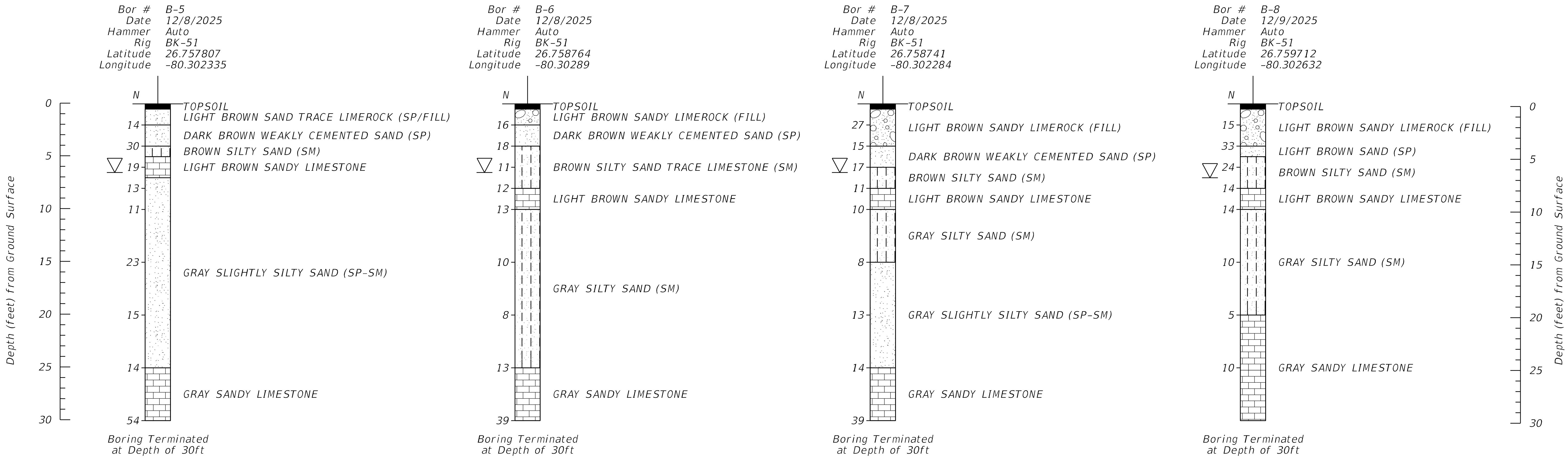
- ▽ Depth of Groundwater Table from Ground Surface
- Topsoil
- Sand
- Silty Sand
- Gravelly Sand
- Shelly Sand
- Limestone Hard

NOTES

1- SPT N-VALUES SHOWN ABOVE WERE OBTAINED USING AUTOMATIC HAMMERS. MOST DESIGN CALCULATIONS USE SAFETY HAMMER N-VALUES. THE ABOVE N-VALUES NEED TO BE CONVERTED TO SAFETY HAMMER EQUIVALENT VALUES

2- GEOGRAPHIC COORDINATES ARE APPROXIMATE, BASED ON HANDHELD GPS.

3- SPT DENOTES STANDARD PENETRATION TEST



Legend

▽ Depth of Groundwater Table from Ground Surface

Topsoil

Sand

Silty Sand

Gravelly Sand

Shelly Sand

Limestone Hard

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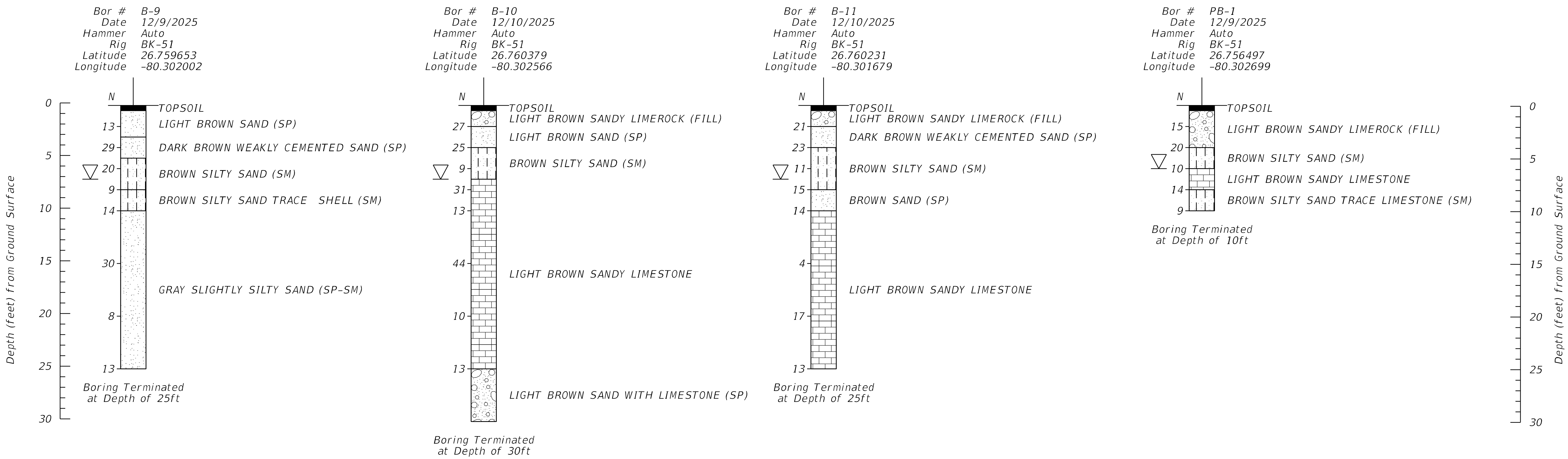

Legend

Depth of Groundwater Table from Ground Surface

Topsoil

Sand

Silty Sand

Gravelly Sand

Shelly Sand

Limestone Hard

NOTES

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THOMAS GEOTECHNICAL SERVICES
GEOTECHNICAL • TESTING • INSPECTIONS

ENGINEER OF RECORD:
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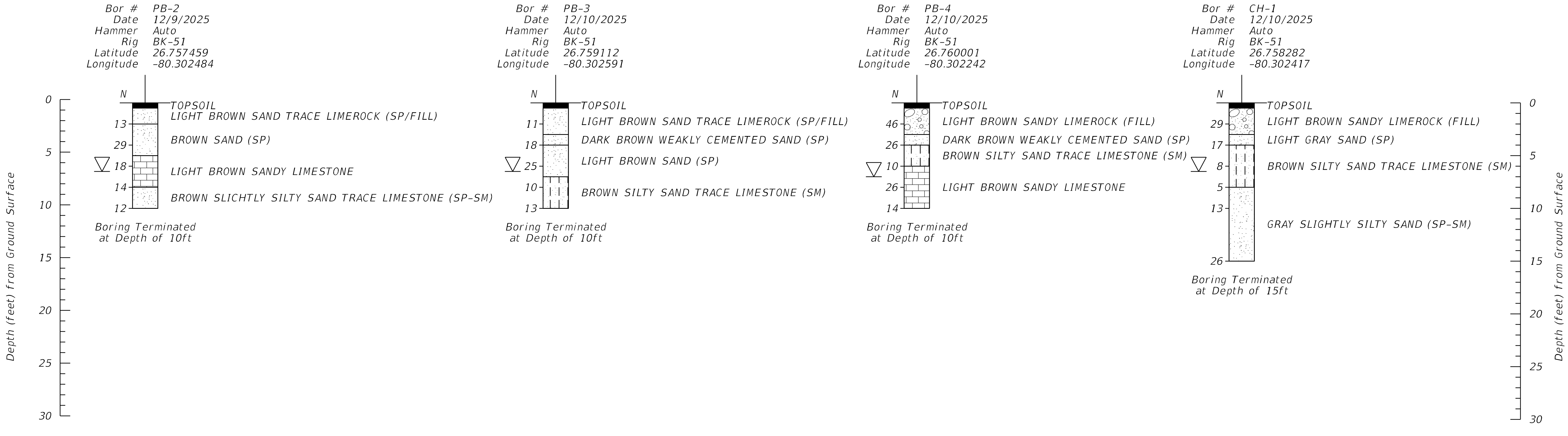
25-821

SOIL STRATIGRAPHY
PROPOSED RESIDENTIAL DEVELOPMENT
WESTLAKE TOWN CENTER
CITY OF WESTLAKE, FLORIDA

Sheet:
4



Legend

∇ Depth of Groundwater Table from Ground Surface

Topsoil

Sand

Silty Sand

Gravelly Sand

Shelly Sand

Limestone Hard

NOTES

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SOIL STRATIGRAPHY
PROPOSED RESIDENTIAL DEVELOPMENT
WESTLAKE TOWN CENTER
CITY OF WESTLAKE, FLORIDA

Sheet:
5

Summary of Exfiltration Test Results
Proposed Residential Development-Westlake Town Center
Kingfisher Boulevard and Town Center Parkway South, Westlake, Florida
TGS Project No. 25-821

Test Location	Date Performed	Diameter		Depth of Hole	Depth to Groundwater Level Below Ground Surface (Feet)		Hydraulic Head, H_2	Saturated Hole Depth, Ds	Average Flow Rate, Q	Horizontal Hydraulic Conductivity (K)
		Hole (Inches)	Casing (Inches)	(Feet)	Prior to Test	During Test	(Feet)	(Feet)	(gpm)	($ft^3/sec/ft^2$-ft Head)
BHP-1	12/10/2025	4	2	10.0	6.0	0.5	5.5	4.0	3.00	3.42E-04
BHP-2	12/10/2025	4	2	10.0	6.5	0.5	6.0	3.5	2.00	2.17E-04

Note:

(1) The above hydraulic conductivity values represent an ultimate value. The designer should decide on the required factor of safety

(2) The hydraulic conductivity values were calculated based on the South Florida Water Management Districts's USUAL OPEN HOLE CONSTANT HEAD percolation test procedure.

(3) Casing diameter was used for the calculation of hydraulic conductivity values.