

# **Central Florida Testing Laboratories, Inc.**

*Testing, Development and Research*

12625 - 40th Street North Clearwater, Florida 33762

ENGINEERING BUSINESS NO. 1066

GEOLOGY BUSINESS NO. 224

TAMPA BAY AREA (727) 572-9797

FLORIDA 1-800-248-CFTL

FAX (727) 299-

## **OAKSTEAD AUTO**

**State Road 54, Lutz, FL 33558**

**Parcel ID: 27-26-18-0000-00100-0040**

**Pasco County, Florida**

**Geotechnical Services**

**September/November 2022**

**Report Number. 242571A**

Prepared

for

Tampa Bay General Contractors  
4532 West Kennedy Boulevard #500  
Tampa, Florida 33609

# Central Florida Testing Laboratories, Inc.

*Testing Development and Research*

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TAMPA BAY AREA (727) 572-9797

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FAX (727) 299-0023

November 3, 2022

Tampa Bay General Contractors  
4532 West Kennedy Boulevard, #500  
Tampa, FL 33609

Attn: Mr. Robert Cairns

Re: Final Geotechnical Investigation – Oakstead Auto  
¼ mile East of Oakstead Boulevard on State Road 54, Lutz, Florida  
(Parcel: 27-26-18-0000-00100-0040, Pasco County, Fla.)  
CFTL Report No. 242571A

Gentlemen,

As authorized by Mr. Cairns, our office has conducted its final subsurface soils investigation for the above referenced project. This investigation was preceded by a preliminary soils investigation that consisted of 19 hand auger borings over the entire 3.28 acre site to determine if any deleterious soil conditions were present within the upper 6 feet of the surface. That report was issued on October 5, 2022 under our Report No. 242571. No buried debris or other suspect soils were identified by the hand auger borings. The profiles of the 19 hand auger borings are included in this report as well.

Our final geotechnical investigation of the site consisted of five (5) standard penetration test (SPT) borings positioned within the proposed Sales



Office, Phase 1 Sales Lot, and Phase 2 Sales Lot. These borings were supplemented with an additional SPT boring and Double Ring Infiltration (DRI) test located within the planned Stormwater Retention Area planned for the east end of the property. The locations of all our test borings are shown on the

attached Preliminary Concept Sketch prepared by Vernon Civil Design Inc.

### Site Description

The site consists of a 3.28 acre upland parcel of land that is surrounded by wetlands. It is located on the north side of State Road 54 and approximately midway between Oakstead Boulevard to its west and Stonegate Falls Drive to its



east. The property is approximately 6 feet lower than adjacent SR 54 and at the time of our testing it was covered with recently mowed grasses.

For additional reference, we are also including an area map showing the location of the property with respect to the surrounding

geographical area, large and small scale aerial photographs of the site, a series of historical aerial photographs dating back to 1941, a National Flood Hazard Layer Map showing the FEMA flood zoning for the site and National Resources Conservation Service (NRCS) data relating to the near surface soils beneath the site and the estimated seasonal high water table (SHWT) level(s).

### Purpose

The purpose of these borings is to provide both engineering properties of the soils to allow us to make recommendations as to foundation types and their compatibility with the existing soils, as well as being able to comment on the potential for sinkhole activity and/or incipient sinkhole development to be present within the profiles of our SPT borings in consideration of the Pasco County Land Development Code, Section 807., titled "Soils and Geotechnical Hazards", also known as the "Geological Hazards Ordinance".

### Assumed Loading Conditions

It is our understanding that the Sales Office building will be single story in height and will be constructed with masonry exterior walls and a conventional concrete slab on grade floor. While no specific loading conditions were provided, we are assuming that the new building would develop continuous wall loads of 2,000 to 4,000 pounds per linear foot (2-4 kips) depending upon the height of the walls with isolated column loads up to 40,000 pounds (40 kips). If these assumptions

are not correct please notify our office for reconsideration of our recommendations. We will provide recommendations for shallow foundation designs, assuming soils are acceptable, that will have an estimated differential settlement of less than ½ inch in 50 feet of continuous wall footings and an estimated total settlement of less than 1 inch across all foundations.

### Test Methods

All of the deeper borings were completed using sampling intervals in excess of those required by ASTM Specifications, D-1586, describing the Standard Penetration Test or "split-spoon" method of sampling.

Four samples were taken in the upper ten feet to provide greater definition within this zone. The penetration resistance testing and sample taking was accomplished with the use of a 2" O.D. sampler seated six inches into the bottom of the borehole and advanced an additional one-foot under the effort of a 140 pound hammer falling freely thirty inches. The number of blows required of the hammer to advance the sampler one foot into undisturbed material was noted as the blow count (N) of that particular stratum. Portions of each soil sample so taken, were classified, sealed in moisture-proof containers and returned to our laboratories for verification of field classification.

The borings were advanced using a truck mounted, rotary drill rig, utilizing a recirculating bentonite drill fluid to maintain the borehole in noncohesive soils and to remove cuttings created by the drill bit. Upon completion the boreholes were



sealed in accordance with SWFWMD regulations which required grouting due to intercepting the underlying limestone formation.

The previously completed hand auger borings were accomplished with the use of post hole diggers and the bucket type of hand auger. This method of sampling allows for soil samples in approximately six inch vertical increments to be retrieved to the surface for visual classification and collection.

The DRI test was performed in general accordance with the guidelines presented in ASTM Test Method D-3385 titled *Standard Test Method for Infiltration Rate of Soils in Field Using Double Ring Infiltrometer*. The accompanying shallow auger boring was accomplished as described above. All soils encountered are

described using Munsell Color Chart number and common name of each soil stratum in order to provide a level of consistency.

### **SPT Boring Results**

Soils encountered in each of the six SPT borings did not identify conditions that are considered geological hazards to the project. Soils defined by each boring will be discussed separately.

The soils encountered in boring B-1, located in the Phase 1 Sales Lot, consisted of approximately 7 feet of generally slightly loose, noncohesive sandy soils followed by medium dense to dense sands to 35 feet which directly covered the underlying limestone formation. Within the upper sandy soils a trace of organics was noted in the 10 foot sample. A Loss on Ignition test on this sample recorded 1.3% organic content. Organic contents less than 5% are considered not to be a constraint to standard construction practices.

The underlying limestone was weathered and began as soft but graded to medium hard by 40 feet and recorded refusal hardness conditions by the termination depth of the boring, 50 feet below the surface. No loss of drilling fluid circulation occurring during the drilling of boring B-1. The shallow groundwater table was measured at a depth of 2.9 feet below the surface in a hand auger boring conducted adjacent to the SPT borehole.

Boring B-2, located in the west end of the planned new Sales Office Building, also defined a soil profile composed of approximately 7 feet of variable density sandy soils followed by medium dense to dense sands to a depth of 29 feet. Beginning at 29 feet was a thin layer of firm sandy clay that was followed by the weathered limestone formation. In this location the limestone began as medium hard and increased too hard by 40 feet and recorded refusal hardness at 45 feet where the boring was terminated. Within the limestone formation between 34 and 36 feet was a thin seam of loose silty sands. A loss of drilling fluid circulation occurred within this infilled seam within the limestone formation at a depth of 36.5 feet. The shallow groundwater table was measured at this location at a depth of 2.6 feet below the surface in a hand auger boring performed adjacent to the SPT borehole.

Boring B-3, located in the east end of the planned new Sales Office Building, encountered soils consisting of variable density upper sandy soils followed by medium dense sands to 30 feet and a small zone of loose sands that directly covered the weathered limestone formation. The limestone was found to be very hard and recorded two consecutive refusal N-values. No loss of drilling fluid circulation occurred during advancement of the boring.

Boring B-4, located in the west end of the proposed Phase 2 Sales Lot, encountered generally loose sands extending to a depth of approximately 24 feet followed by medium dense sands to 30 feet followed by a thin confining layer of soft clay to 32.5 feet where weathered limestone began. The limestone formation in this location was again recorded as very hard and the boring was terminated at



a depth of 40 feet after two consecutive refusal N-values were recorded. No loss of drilling fluid occurred in boring B-4.

Boring B-5, located in the east end of the proposed Phase 2 Sales Lot, encountered similar soils those found in all but boring B-4. In this location variable density loose to medium dense sands were found to 7 feet followed by dense to medium dense sands to 35 feet which directly covered the underlying limestone formation. The limestone in this location was generally soft between 35 feet to 53 feet where it increased in penetration resistance to record a refusal hardness condition with the last sampling interval at 55 feet below the surface. No loss of drilling fluid circulation occurred during advancement of the boring.

Boring PB-1, located in the approximate center of the planned Stormwater Retention Area, defined a soil profile consisting of noncohesive sandy soils from the surface to a depth of approximately 35 feet where limestone began. The upper sandy soils began as medium dense to slightly loose and increased to medium dense to dense conditions below 10 feet. The underlying limestone formation was found to be weathered but very hard and terminated the boring with the 40 foot sampling interval after recording two consecutive refusal N-values. No loss of drill fluid circulation occurred in the boring and the shallow water table was measured at a depth of 2.5 feet below the surface. We estimate the seasonal high water table level at approximately 1 foot below the surface in this location.

### Previous Hand Auger Boring Results

A total of nineteen (19) hand auger borings were previously conducted throughout the entire parcel of land in late September of this year prior to the grass being mowed. Of these 19 borings, 13 hand auger borings were spaced out over the



planned Sales Office Building and Sales Lot areas, 4 were located within the Stormwater Retention Area and finally, 2 were located within the designated Flood Plain Mitigation Area.

A description of the soils encountered in each of the 19 hand auger borings is shown on the attached report sheets along with their Munsel

Color Number for uniformity purposes. Also noted is the depth to the shallow water table as measured in each completed hand auger borehole. As shown, all soils encountered were classified as clean, fine sands to the termination depth of 6 feet each. None of the 19 hand auger borings contained any deleterious organics,

clays or buried debris that would be a constraint to standard construction. The depth to the shallow water table at that point in time varied from being at the surface in the north end of the Flood Plain Mitigation Area located at the east end of the site to 3.2 feet below the surface in the planned Sales Office Building located in the west end of the site.

### **Sinkhole Activity Determination**

In consideration of a geologic hazard affecting the site, sinkhole activity, when present in its early stages, at the point in time whereby it has not yet manifested itself as a land form such as a depression or hole at the surface is most easily identified by the raveling action that occurs within the overburden soils. This raveling action generally starts at the limestone/soil interface and emanates upward. This raveling action is identified by the following SPT boring criteria; (1) significantly decreasing penetration resistance values versus depth, (2) a broken or discontinuous confining layer of impervious clay soils separating the overburden non-cohesive sands from the underlying limestone formation, (3) a loss of drill fluid circulation when testing by the rotary recirculating drilling method is used to advance the borings, and (4) an associated drop in the drilling tools represented by weight-of-rod (WOR) or weight-of-hammer (WOH) penetration resistance values during the drilling and sampling operations.

A combination of the above factors and not solely one in and by itself can be interpreted to represent the early signs of sinkhole activity. The absence of any or all of the previous criteria may be interpreted to show a stable soil profile with a low potential for ground subsidence due to the development of sinkhole activity to occur. Different combinations of the above criteria and the depth at which they occur may also be interpreted to show unstable conditions with a higher potential for general ground settlement to occur and affect future construction.

The above criteria can generally be determined with SPT borings carried to a depth sufficient to define the soil profile from the surface to competent rock or well within the confining layer of stiff or hard clayey soils that may separate the overburden sands from the underlying limestone; thereby, providing sufficient data for the much more definitive statement as to the potential for sinkhole activity to affect construction within the areas represented by the borings.

### **Historical Aerial Photograph Review**

A review of the 1957 aerial photograph of the surrounding area shows that the site consisted of undeveloped land that may have been used for cattle grazing. Too many to count small depressions most likely representing relic sinkhole features are seen throughout the area. Many of the previous relic features or depressions in the land surface have been filled in and/or obliterated by development as seen in the 2020 County Aerial of the area. Plotted over the historic 1957 aerial photograph of the area is a lineament trace analysis of relic sinkhole features. These lines connecting surface depressions represent potential fracture zones within the underlying limestone formation along which the potential for solutioning and/or sinkhole development is higher than in surrounding areas.

Although one line apparently runs through the site, the site specific SPT borings show good continuity in the depth to limestone as well in its general hardness. A loss of drill fluid circulation occurred in only one of the borings and this occurrence was within the limestone and not in the sandy soils above the limestone formation. This indicates that no hydraulic pathways exist between the overburden sandy soils and the underlying limestone formation. **The above factors lead to a conclusion that the soil profiles of the six borings do not exhibit unusually low penetration resistance values and appear absent of cavities or voids that could accept large amounts of soil and cause sinkhole development to occur. Therefore, we would conclude that the site has a low potential for sinkhole development and does not contain any other geological hazards.**

### Construction Recommendations

It is our opinion that only the typical density of the upper sandy soils needs to be addressed prior to construction of the proposed new project. This condition can be addressed by a program of surface applied proof-rolling after clearing and stripping operations have removed surface grasses and topsoils.

The recommended proof-rolling/densification/compaction process to address the variable consistency of the upper 5 to 7 feet of sandy soils should be accomplished with a program of surface applied proof-rolling of the new Sales Office Building and Phase 1 Sales Lot areas a vibratory compactor weighing at least 10 tons and capable of exerting at least 35,000 ft.-lbs. of energy to the soils. Due to the low elevation of the property with respect to the adjacent highway this same process should be used to compact any above ground fill soils that will be needed to raise the site.

The proof-rolling should consist of vibratory rolling of the building envelope plus perimeter buffer strip with a minimum of 5 to 10 passes in each of two perpendicular directions. The proof-rolling should achieve a minimum soil density for the upper 3 to 5 feet of sandy soils that corresponds to at least 95% of Modified Proctor established maximum dry soil density. If any yielding areas are noticed during rolling, attention should be made to add additional passes of the roller over these areas until a uniform non-yielding surface has been obtained. If yielding continues the geotechnical engineer should be consulted to explore the suspect area(s) and provide additional recommendations as needed. By obtaining the specified density to a depth of approximately 5 feet below the existing surface a typical allowable soil pressure or bearing capacity of 2,500 psf can be used in the design of shallow foundations for support of the new 1-story Sales Office Building.

Verification of the densification process can be made by correlation of conventional density testing to 2 feet to hand cone penetrometer (HCP) testing of the soils. Soil density below 2 feet can then be verified by HCP tests to the target depth of 5 feet below the surface. HCP results should generally reflect a reading of 40 kg/cm<sup>2</sup> or greater for each depth increment between 1 and 5 feet. **Achieving these results will indicate sufficient densification has taken place and**



the site will be ready for the addition of any remaining above ground developmental fill soils that may be needed prior to construction.

**Again, verification of successful completion of this process will provide an allowable soil pressure of 2,500 psf for use in designing shallow foundations for the proposed commercial construction project with continuous wall loads not exceeding approximately 4,000 pounds per linear foot (plf) and concentrated column loads not exceeding 40 kips. The shallow water table level should be considered in designing foundation depths.**

### **Above Ground Fill Soils**

For any fill soils needed after completion of the above proof-rolling process to raise the grade of the building pad or pavement areas of the site, this fill should consist of clean, granular sandy soils meeting either SP or SP/SM classification by the Unified Soil Classification System. Above ground fill should be placed in lifts not exceeding one foot in depth and also compacted to a minimum density of at least ninety-five percent (95%) of the soils maximum dry density as established by the Modified Proctor Test, ASTM D-1557. Each lift should achieve satisfactory density results prior to placement and compaction of subsequent lifts to eliminate the possibility of dense soil bridging over loose insufficiently compacted soils.

We are available to conduct any recommended testing of soil density determinations as needed.

### **DRI Test Results**

The DRI was conducted in the center of the proposed Stormwater Retention Area located in the southeastern portion of the site. Soils encountered in the shallow auger boring performed adjacent to the DRI location are described as at least 6 feet of varying colors of relatively thin layers of sandy soils. The shallow static water table at this location was 2.3 feet below the surface. An estimate of the seasonal high water table (SHWT) level in the Retention Area was 1 foot below the surface. This was based on a thin layer of light colored sand sandwiched between two dark layers of sandy soils.

**The maximum infiltration rate at the DRI location was determined to be a moderate rate of 18.1 minutes per inch (3.3 inches/hr.) after 4 hours of testing. Due to the shallow water table being 2.3 feet below the surface, the test apparatus was seated at 1 foot below the surface.**

### **Natural Resources Conservation Service (NRCS) Data**

NRCS lists the site as containing one predominant soil type, while the surrounding wetland areas contain a different soil type. Mapping Unit #21 soils are designated for the site and are described as *Smyrna fine sand*, while Mapping Unit #8 soils surround the site and are described as *Sellers mucky loamy fine sand*.

NRCS lists the *Smyrna fine sand* as having a parent material as “sandy marine

deposits”. Estimates of historic seasonal high ground water table levels for the *Smyrna fine sand* are listed from 6 to 18 inches below the surface. The surrounding *Sellers mucky loamy fine sand* has a SHWT listed at the surface. Therefore, our estimate of approximately 1 foot below the surface for the SHWT within the site is consistent with the NRCS estimates.

All the above information is shown on our attached test report forms and included NRCS data.

### **Limitations**

This investigation and report deals only with the soil zones and strata located within the area represented from the ground surface to the termination depth of the borings. This investigation was not intended to address any environmental concerns that may exist with the site. This limited soils investigation should not be considered sufficient to provide all design parameters that may be needed for the proposed project. If any additional soil related parameters not discussed above are needed, please contact our office.

This investigation is not intended to predict or accept responsibility for future sinkhole development; however, this investigation has not identified soil conditions commonly associated with the early stages of sinkhole development within the two SPT borings conducted.

Generally accepted soil mechanics and foundation engineering practices were utilized in the preparation of this report; and no other warranty, either expressed or implied is made as to the recommendations provided.

This report is for the exclusive use of our client and may not contain sufficient information for other uses, such as quantity take-offs, or for interpretation by other parties for bidding purposes. In the event conclusions and/or recommendations based on our data are made by others, such conclusions and/or recommendations are not our responsibility unless we have been given an opportunity to review and concur with them.

If borings were not staked by a registered land surveyor but were located by our drill crews, the following method was used:

Distances are generally measured using a 100-foot tape measure with right angle approximation used to turn corners. Scaling from prints or surveys with reference points shown on the plan or geographical references will produce a degree of accuracy that is typically +/- 5% for length and +/- 10 degrees for angles.

Soil strata delineations are estimated in the field by color changes, texture differences and penetration resistance values. These may be more gradual transitions than those shown on the boring log representations of strata delineations.

The ground water depth determination shown on the bottom of the boring log was

measured in the borehole at the time of drilling, unless noted otherwise. This depth does not reflect seasonal high water levels and would fluctuate as expected with variations in rainfall or other factors not present at the time of our soils investigation.

The boring data represents only that data obtained during this investigation at the approximate locations shown on the site schematic, plan or aerial photograph.

Should significant variations of soil or subsurface conditions exist between boring locations and be encountered by future exploratory work or site preparation efforts, our office should be notified so that supplemental borings or data gathering determinations can be made to update our report and recommendations at a minimal expense to our client.

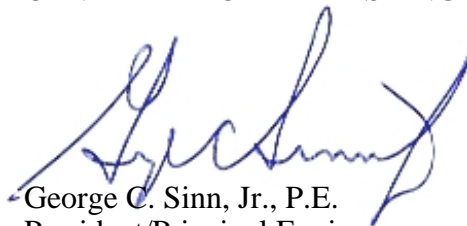
It is the responsibility of our client to inform our office of these variations if possible modifications of the report is warranted.

This report is general in nature, unless specific geotechnical data or recommendations were asked to be addressed. However, we would be pleased to answer any questions concerning comments or recommendations made in this report.

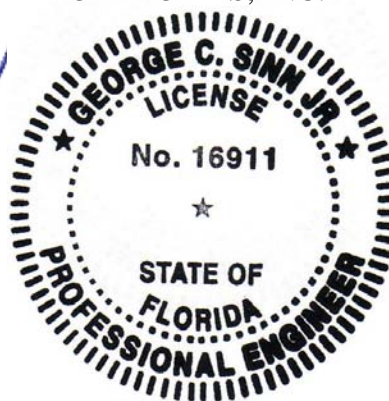
We appreciate the opportunity to have been of service. If any further evaluation of the site or testing services are needed, either prior to or during construction, please do not hesitate to contact our office.

Sincerely,

CENTRAL FLORIDA TESTING LABORATORIES, INC.



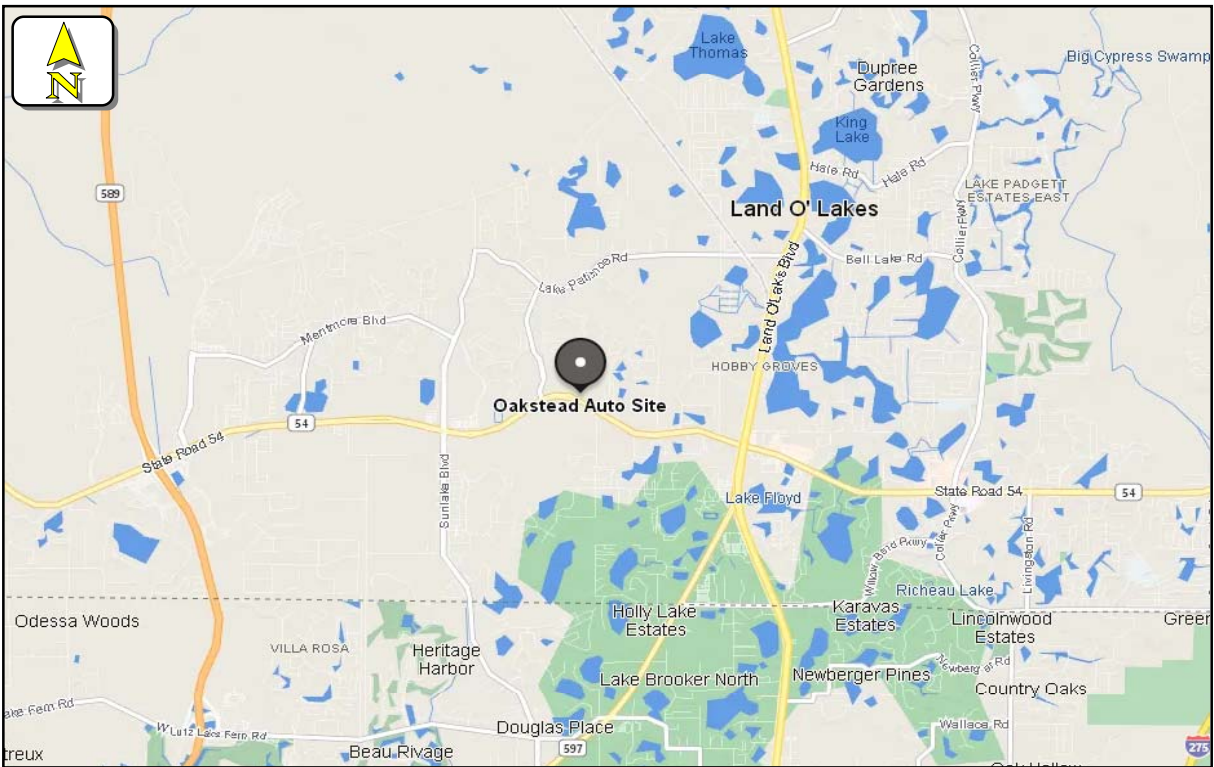
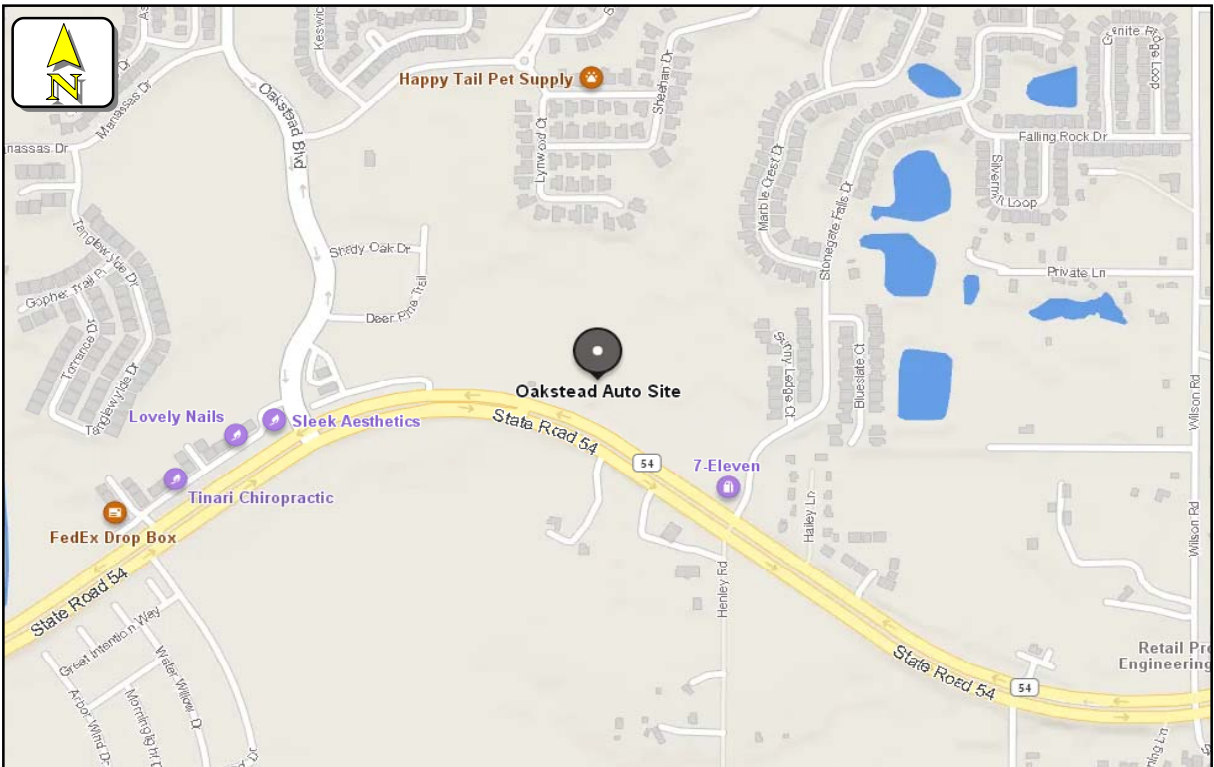
George C. Sinn, Jr., P.E.  
President/Principal Engineer  
FLN 16911  
GCS/gs



Attachments

# Maps

Various



**Central Florida Testing Laboratories, Inc.**

**OAKSTEAD AUTO**  
**State Road 54**  
**Lutz, Florida 33558**  
**Report No: 242571A**

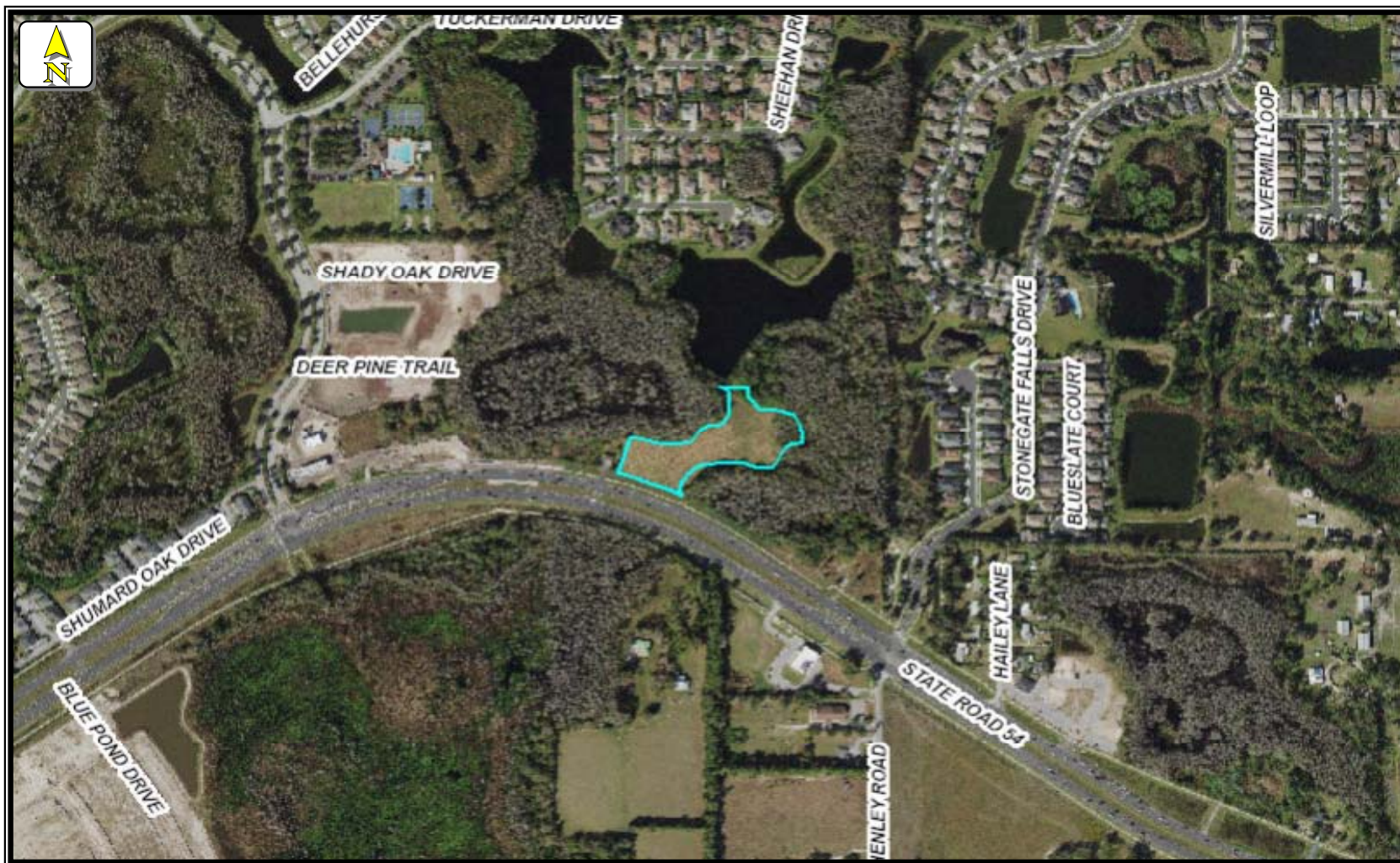
### Legend

★ Subject Property	Interstate	Water
Population Center	Toll Highway	Intermittent Lake
Land	US Highway	Wetland
Sand	State Route	River/Canal
Woodlands	Local Road	Intermittent River
Park	Major Connector	Railroad

### Figure 1 - Location



## 2020 County Aerial Photograph of Site



**Central Florida Testing Laboratories, Inc.**

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## **2020 County Aerial Photograph of Site**



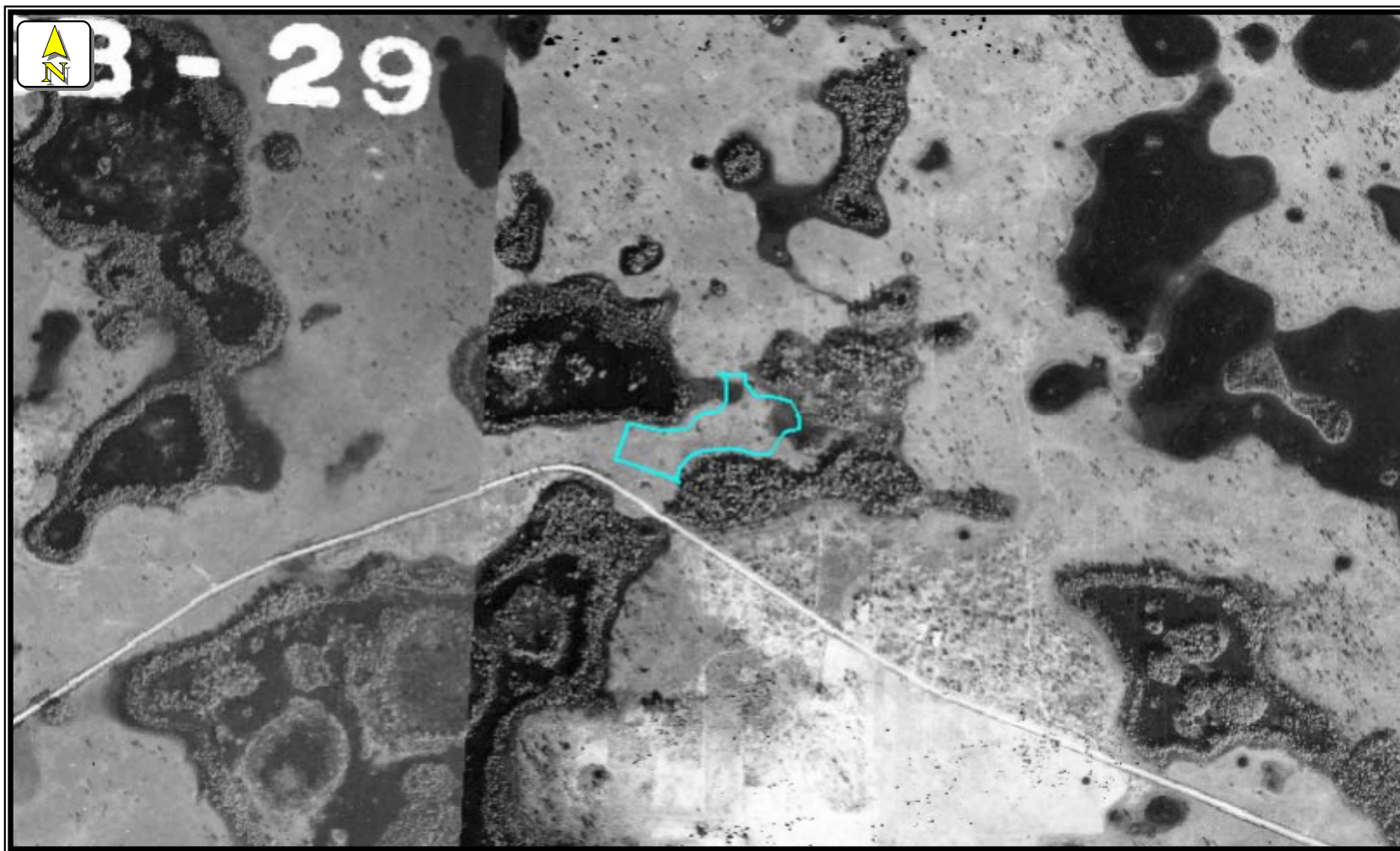
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**Central Florida Testing Laboratories, Inc.**

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GB#224

## 1941 County Aerial Photograph of Site



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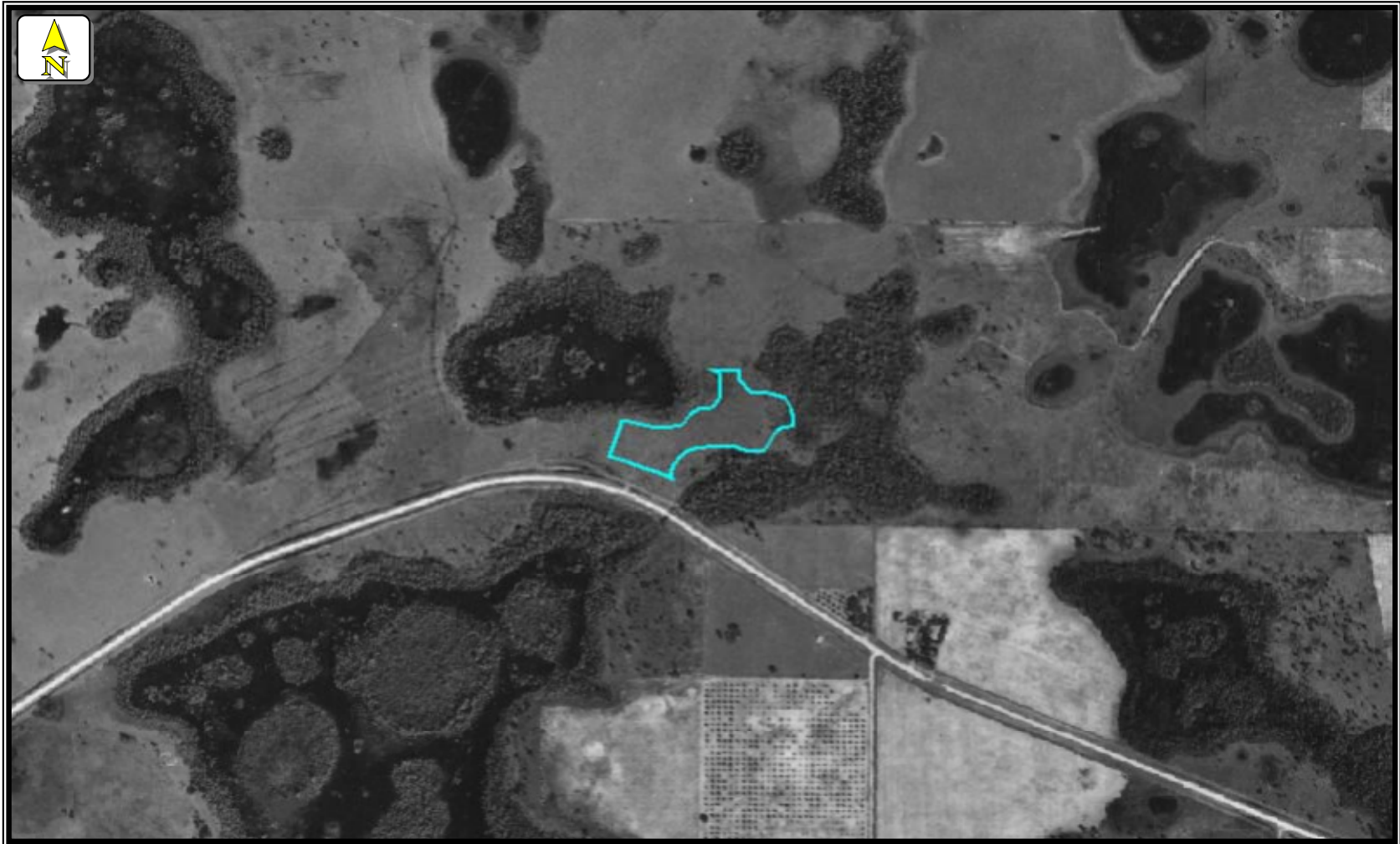
**Central Florida Testing Laboratories, Inc.**

EB#1066

GB#224



## **1957 County Aerial Photograph of Site**



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**Central Florida Testing Laboratories, Inc.**

EB#1066

GB#224

## 1967 County Aerial Photograph of Site



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**Central Florida Testing Laboratories, Inc.**

EB#1066

GB#224



## 1999 County Aerial Photograph of Site



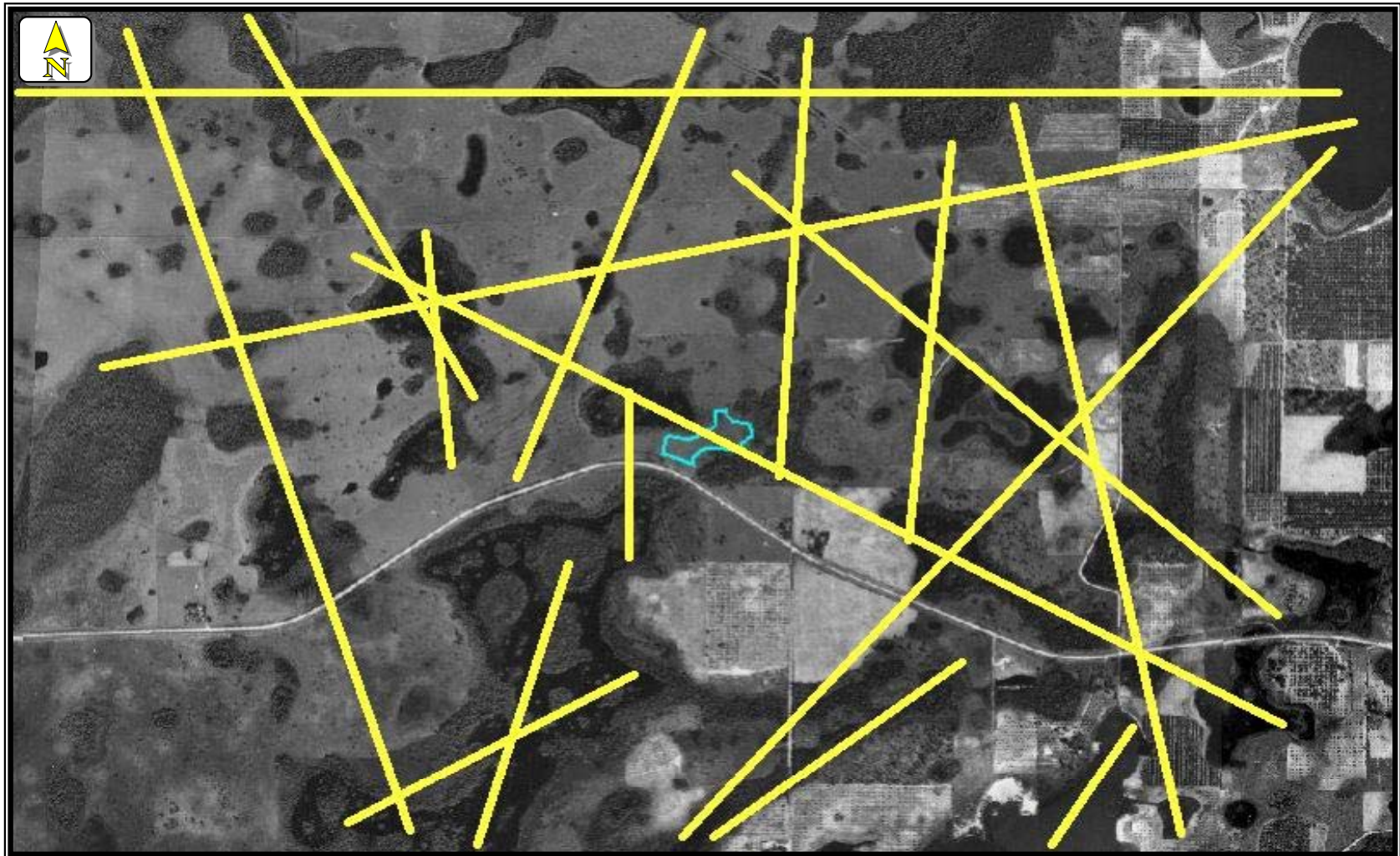
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**Central Florida Testing Laboratories, Inc.**

EB#1066

GB#224

## **1957 Aerial Showing Lineament Trace Lines**



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**Central Florida Testing Laboratories, Inc.**

EB#1066

GB#224



# National Flood Hazard Layer FIRMMette



0 250 500 1,000 1,500 2,000 Feet 1:6,000  
Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

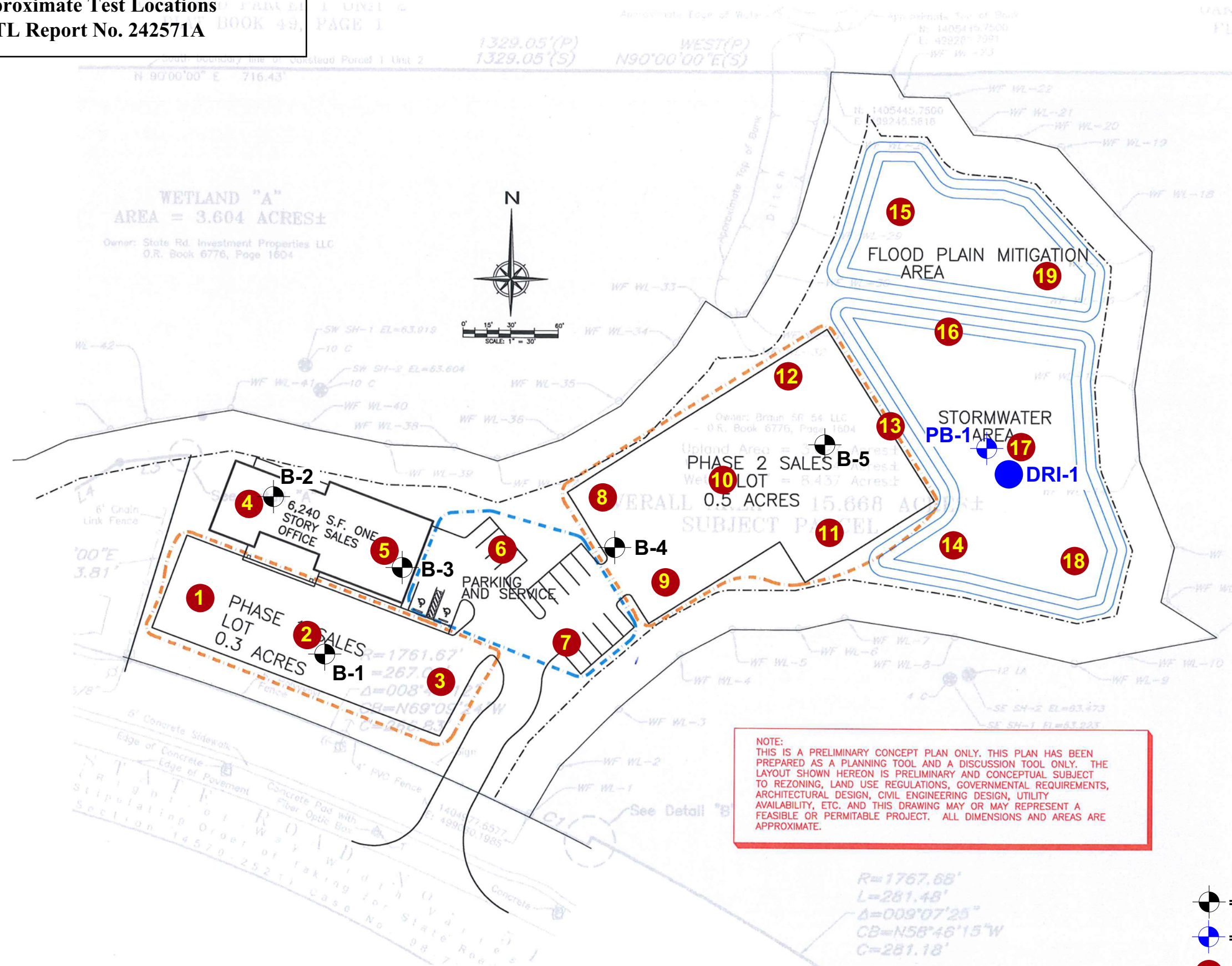
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/4/2022 at 8:02 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Oakstead Auto / State Road 54, Lutz  
Approximate Test Locations  
CFTL Report No. 242571A



PARCEL NUMBER: 27-26-18-0000-00100-0040

- = SPT BORING LOCATION
- = POND BORING LOCATION
- = HAND AUGER LOCATION
- = DRI LOCATION

NO.	DATE	REVISIONS
1	9/2/2022	DATE: 9/2/2022 DRAWN BY: B.J.M. SCALE: 1" = 30' SHEET 1 OF 1

# Hand Auger Results





# Central Florida Testing Laboratories, Inc.

*Testing Development and Research*

12625 - 40TH STREET NORTH • CLEARWATER, FL 33762

Tampa Bay Area: (727) 572-9797

Florida: 1-800-248-CFTL

Fax: (727) 299-0023

Lab No.: 242571	Project: Oakstead Auto	Reports To: Mr. Robert Cairns
Client: Tampa Bay General Contr	Address: State Road 54, Lutz, FL 33558	Date Sampled: 09/27/2022

## HAND AUGERS

HA NO.	DEPTH (ft.)	SOIL COLOR	MUNSELL COLOR	SOIL DESCRIPTION
1	0.0 to 0.6	Grayish brown	10YR 5/2	Fine sand
	0.6 to 1.2	Gray	10YR 6/1	Fine sand
	1.2 to 1.9	Brown	10YR 4/3	Fine sand
	1.9 to 6.0	Light brown	7.5YR 6/3	Fine sand
	Water table @ time of test (ft. BLS): 2.8 NRCS Designation: Smyrna fine sand NRCS SHGWT: 6 to 18 inches			
2	0.0 to 0.5	Dark gray	10YR 4/3	
	0.5 to 1.9	Brown	10YR 5/2	Fine sand
	1.9 to 2.8	Grayish brown	7.5YR 6/3	Fine sand
	2.8 to 6.0	Light brown	10YR 5/2	Fine sand
	7.5YR 6/3 Water table @ time of test (ft. BLS): 2.9 NRCS Designation: Smyrna fine sand NRCS SHGWT: 6 to 18 inches			
3	0.0 to 1.2	Dark gray	10YR 4/1	Fine sand
	1.2 to 1.8	Dark brown	10YR 3/3	Fine sand
	1.8 to 3.0	Brown	10YR 4/3	Fine sand
	3.0 to 6.0	Light brown	7.5YR 6/3	Fine sand
	Water table @ time of test (ft. BLS): 2.5 NRCS Designation: Smyrna fine sand NRCS SHGWT: 6 to 18 inches			
4	0.0 to 1.6	Dark gray	10YR 4/1	Fine sand
	1.6 to 5.1	Grayish brown	10YR 5/2	Fine sand
	5.1 to 6.0	Dark grayish brown	10YR 4/2	Fine sand
	Water table @ time of test (ft. BLS): 2.5 NRCS Designation: Smyrna fine sand NRCS SHGWT: 6 to 18 inches			
5	0.0 to 0.6	Very dark gray	10YR 3/1	Fine sand
	0.6 to 1.8	Dark gray	10YR 4/1	Fine sand
	1.8 to 3.9	Grayish brown	10YR 5/2	Fine sand
	3.9 to 6.0	Light brownish gray	10YR 6/2	Fine sand
	Water table @ time of test (ft. BLS): 3.2 NRCS Designation: Smyrna fine sand NRCS SHGWT: 6 to 18 inches			

*The above information represents only those materials within the specified limits of the individual test location at the time the test was conducted. No further assumptions or interpretations can be made regarding additional site conditions not specifically addressed.*

**HAND AUGERS**

<b><u>HA NO.</u></b>	<b><u>DEPTH (ft.)</u></b>	<b><u>SOIL COLOR</u></b>	<b><u>MUNSELL COLOR</u></b>	<b><u>SOIL DESCRIPTION</u></b>
6	0.0 to 1.1	Dark gray	10YR 4/1	Fine sand
	1.1 to 1.6	Light gray	10YR 7/1	Fine sand
	1.6 to 2.3	Gray	10YR 6/1	Fine sand
	2.3 to 4.6	Dark grayish brown	10YR 4/2	Fine sand
	4.6 to 6.0	Grayish brown	10YR 5/2	Fine sand
	Water table @ time of test (ft. BLS): 2.4			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			
7	0.0 to 0.8	Dark gray	10YR 4/1	Fine sand
	0.8 to 1.2	Gray	10YR 6/1	Fine sand
	1.2 to 2.5	Brown	10YR 4/3	Fine sand
	2.5 to 5.5	Light brown	7.5YR 6/3	Fine sand
	5.5 to 6.0	Light gray	10YR 7/1	Fine sand
	Water table @ time of test (ft. BLS): 2.9			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			
8	0.0 to 1.0	Very dark gray	10YR 3/1	Fine sand
	1.0 to 4.2	Light brownish gray	10YR 6/2	Fine sand
	4.2 to 6.0	Gray	10YR 6/1	Fine sand
	Water table @ time of test (ft. BLS): 2.4			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			
9	0.0 to 0.8	Dark gray	10YR 4/1	Fine sand
	0.8 to 1.2	Brown	10YR 4/3	Fine sand
	1.2 to 4.6	Light brown	7.5YR 6/3	Fine sand
	4.6 to 6.0	Light brownish gray	10YR 6/2	Fine sand
	Water table @ time of test (ft. BLS): 2.5			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			
10	0.0 to 1.6	Very dark gray	10YR 3/1	Fine sand
	1.6 to 2.8	Light yellowish brown	10YR 6/4	Fine sand
	2.8 to 3.9	Light brownish gray	10YR 6/2	Fine sand
	3.9 to 4.4	Light gray	10YR 7/1	Fine sand
	4.4 to 5.0	Gray	10YR 6/1	Fine sand
	5.0 to 6.0	Dark gray	10YR 4/1	Fine sand
	Water table @ time of test (ft. BLS): 2.5			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			

*The above information represents only those materials within the specified limits of the individual test location at the time the test was conducted. No further assumptions or interpretations can be made regarding additional site conditions not specifically addressed.*

**HAND AUGERS**

<u>HA NO.</u>	<u>DEPTH</u> <u>(ft.)</u>	<u>SOIL</u> <u>COLOR</u>	<u>MUNSELL COLOR</u>	<u>SOIL DESCRIPTION</u>
11	0.0 to 1.4	Dark gray	10YR 4/1	Fine sand
	1.4 to 3.2	Brown	10YR 4/3	Fine sand
	3.2 to 4.0	Light brown	7.5YR 6/3	Fine sand
	4.0 to 6.0	Light brownish gray	10YR 6/2	Fine sand
	Water table @ time of test (ft. BLS): 2.7			
	NRCS Designation: Smyrna fine sand			
NRCS SHGWT: 6 to 18 inches				
12	0.0 to 0.8	Dark gray	10YR 4/1	Fine sand
	0.8 to 1.8	Dark brown	10YR 3/3	Fine sand
	1.8 to 3.0	Brown	10YR 4/3	Fine sand
	3.0 to 4.5	Light brown	7.5YR 6/3	Fine sand
	4.5 to 6.0	Light brownish gray	10YR 6/2	Fine sand
	Water table @ time of test (ft. BLS): 2.0			
NRCS Designation: Smyrna fine sand				
NRCS SHGWT: 6 to 18 inches				
13	0.0 to 0.7	Very dark gray	10YR 3/1	Fine sand
	0.7 to 3.8	Dark gray	10YR 4/1	Fine sand
	3.8 to 4.8	Brown	10YR 4/3	Fine sand
	4.8 to 6.0	Light brownish gray	10YR 6/2	Fine sand
	Water table @ time of test (ft. BLS): 2.5			
	NRCS Designation: Smyrna fine sand			
NRCS SHGWT: 6 to 18 inches				
15	0.0 to 1.6	Dark gray	10YR 4/1	Fine sand
	1.6 to 2.2	Grayish brown	10YR 5/2	Fine sand
	2.2 to 3.0	Brown	10YR 4/3	Fine sand
	3.0	Borehole collapse due to groundwater table level		
	Water table @ time of test (ft. BLS): surface			
	NRCS Designation: Smyrna fine sand			
NRCS SHGWT: 6 to 18 inches				
16	0.0 to 1.2	Dark gray	10YR 4/1	Fine sand
	1.2 to 6.0	Light brown	7.5YR 6/3	Fine sand
	Water table @ time of test (ft. BLS): 1.9			
	NRCS Designation: Smyrna fine sand			
NRCS SHGWT: 6 to 18 inches				
17	0.0 to 1.2	Dark gray	10YR 4/1	Fine sand
	1.2 to 2.2	Dark grayish brown	10YR 4/2	Fine sand
	2.2 to 6.0	Light brownish gray	10YR 6/2	Fine sand
	Water table @ time of test (ft. BLS): 2.8			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			

*The above information represents only those materials within the specified limits of the individual test location at the time the test was conducted. No further assumptions or interpretations can be made regarding additional site conditions not specifically addressed.*

**HAND AUGERS**

<b><u>HA NO.</u></b>	<b><u>DEPTH</u> <u>(ft.)</u></b>	<b><u>SOIL</u> <u>COLOR</u></b>	<b><u>MUNSELL COLOR</u></b>	<b><u>SOIL DESCRIPTION</u></b>
18	0.0 to 0.9	Dark gray	10YR 4/1	Fine sand
	0.9 to 3.2	Light brownish gray	10YR 6/2	Fine sand
	3.2 to 6.0	Light brown	7.5YR 6/3	Fine sand
	Water table @ time of test (ft. BLS): 2.5			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			
19	0.0 to 1.4	Dark gray	10YR 4/1	Fine sand
	1.4 to 6.0	Light brown	7.5YR 6/3	Fine sand
	Water table @ time of test (ft. BLS): 1.2			
	NRCS Designation: Smyrna fine sand			
	NRCS SHGWT: 6 to 18 inches			

*The above information represents only those materials within the specified limits of the individual test location at the time the test was conducted. No further assumptions or interpretations can be made regarding additional site conditions not specifically addressed.*

# SPT Boring Results





**Client:** Tampa Bay General Contractors  
**Project:** Oakstead Auto  
**Location:** State Road 54  
**City / State:** Lutz, Florida

**Report No:** 242571A  
**Log of Borehole:** B-1  
**Date Drilled:** 10/19/2022

ENGINEERING BUSINESS NO. 1066

GEOLOGY BUSINESS NO. 224

Depth	Strata Symbol	Subsurface Profile Description	Consistency	Blow Count	N value	Standard Penetration Test (blows/ft)	Lab/ Notes
						0 20 40 60 80 100	
0		Ground Surface					
		<b>Sand</b> Dark gray (10YR 4/1), fine grained, with small roots	slightly loose	2-3-4	7		
		<b>Sand</b> Dark gray (10YR 4/1) to brown (10YR 4/3), fine grained	medium dense	4-6-8	14		
5			slightly loose	4-4-5	9		
		<b>Sand</b> Pale brown (10YR 6/3), fine grained	slightly loose	3-3-5	8		
10		<b>Sand</b> Dark grayish brown (10YR 4/2), fine grained	medium dense	7-8-8	16		
		<b>Sand</b> Very dark grayish brown (10YR 3/2), fine grained, trace organics					
15			medium dense	9-12-14	26		
20		<b>Sand</b> Brown (10YR 5/3) to pale brown (10YR 6/3), fine grained	medium dense	10-11-17	28		
25		<b>Sand</b> Very pale brown (10YR 8/2), fine grained	very dense	23-32-41	73		
30		<b>Sand</b> Grayish brown (10YR 5/2), fine grained	medium dense	13-11-7	18		
35			soft	7-7-7	14		
40		<b>Limestone</b> Very pale brown (10YR 8/2), weathered, with calcareous clay	medium hard	16-13-20	33		
45		<b>Limestone</b> White (10YR 8/1), weathered	very hard	50/4"	100+		
50		End of Boring	very hard	50/4"	100+		
55							
60							

1.3% organic

**Notes:** FEMA Flood Zone: X

No loss of drill fluid circulation  
 Borehole plugged and grouted

**Water Table:** 2.9' bls (HA)  
**Ground Elevation:** Existing  
**Drilled by:** AC  
**Compiled by:** JM

**Drill Method:** Rotary  
**Sampling Method:** Splitspoon ASTM D-1586

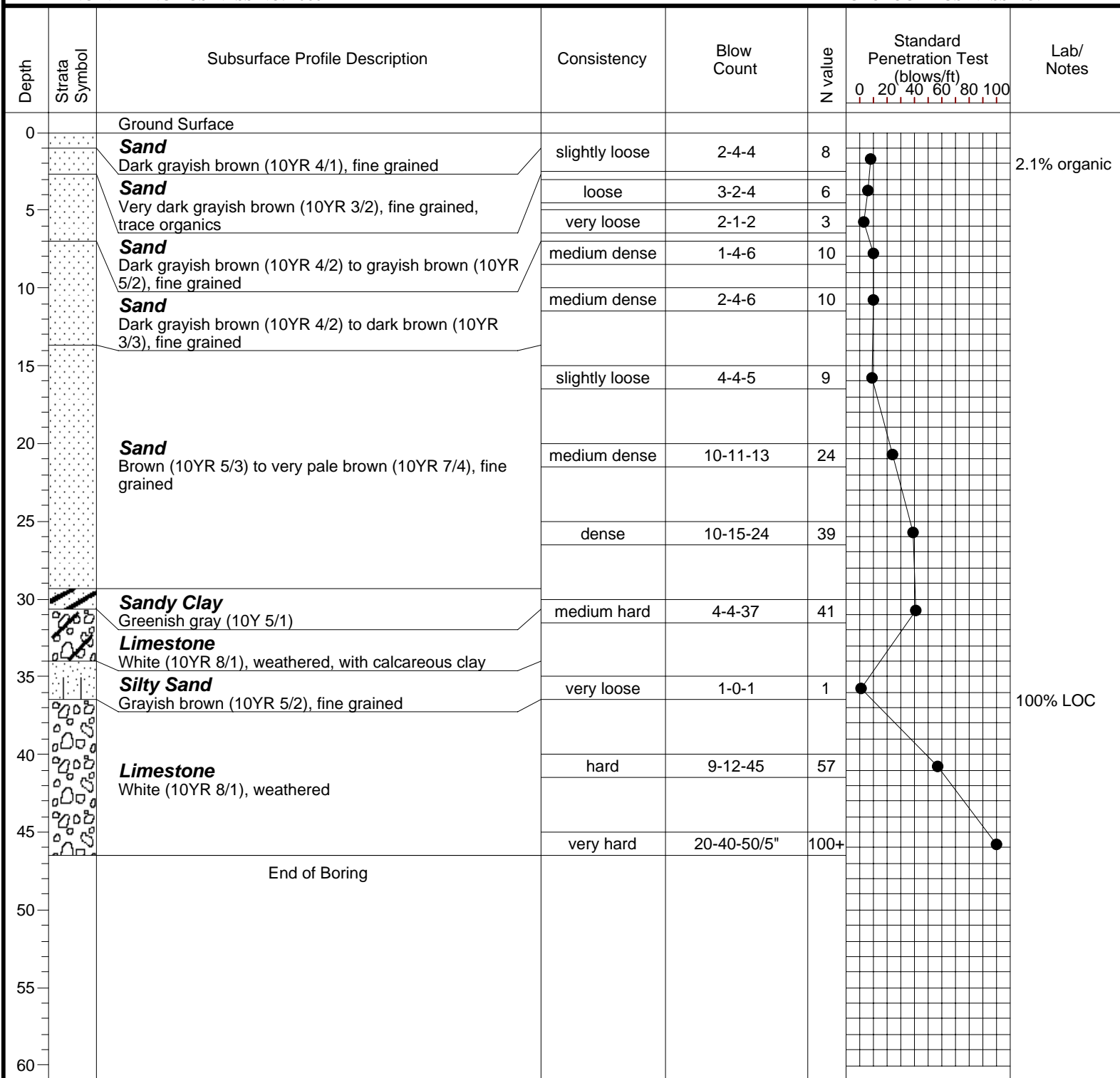


**Client:** Tampa Bay General Contractors  
**Project:** Oakstead Auto  
**Location:** State Road 54  
**City / State:** Lutz, Florida

**Report No:** 242571A  
**Log of Borehole:** B-2  
**Date Drilled:** 10/19/2022

ENGINEERING BUSINESS NO. 1066

GEOLOGY BUSINESS NO. 224



**Notes:** FEMA Flood Zone: X

100% loss of circulation at 36.5' bls  
 Borehole plugged and grouted

**Water Table:** 2.6' bls (HA)

**Ground Elevation:** Existing

**Drilled by:** AC

**Compiled by:** JM

**Drill Method:** Rotary

**Sampling Method:** Splitspoon ASTM D-1586

Sheet 1 of 1



**Client:** Tampa Bay General Contractors  
**Project:** Oakstead Auto  
**Location:** State Road 54  
**City / State:** Lutz, Florida

**Report No:** 242571A  
**Log of Borehole:** B-3  
**Date Drilled:** 10/18/2022

ENGINEERING BUSINESS NO. 1066

GEOLOGY BUSINESS NO. 224

Depth	Strata Symbol	Subsurface Profile Description	Consistency	Blow Count	N value	Standard Penetration Test (blows/ft)	Lab/Notes
						0 20 40 60 80 100	
0		Ground Surface					
		<b>Sand</b> Dark grayish brown (10YR 4/2) to brown (10YR 4/3), fine grained	very loose	2-1-2	3		
			slightly loose	3-3-4	7		
5		<b>Sand</b> Brown (10YR 5/3) to grayish brown (10YR 5/2), fine grained	loose	2-2-2	4		
			slightly loose	2-5-4	9		
10		<b>Sand</b> Dark gray (10YR 4/1) to dark grayish brown (10YR 4/2), fine grained	medium dense	4-5-5	10		
15			medium dense	8-10-11	21		
20		<b>Sand</b> Very pale brown (10YR 8/2) to very pale brown (10YR 7/3), fine grained	medium dense	8-8-8	16		
25			medium dense	8-7-13	20		
30		<b>Sand</b> Grayish brown (10YR 5/2), fine grained	loose	12-5-1	6		
35		<b>Sand</b> Grayish brown (10YR 5/2), fine grained, with clayey silt lenses	very hard	19-50/4"	100+		
40		<b>Limestone</b> White (10YR 8/1), weathered					
		End of Boring	very hard	50/0"	100+		

**Notes:** FEMA Flood Zone: X

No loss of drill fluid circulation  
 Borehole plugged and grouted

**Water Table:** 3.3' bls (HA)  
**Ground Elevation:** Existing  
**Drilled by:** AC  
**Compiled by:** JM

**Drill Method:** Rotary  
**Sampling Method:** Splitspoon ASTM D-1586



**Client:** Tampa Bay General Contractors  
**Project:** Oakstead Auto  
**Location:** State Road 54  
**City / State:** Lutz, Florida

**Report No:** 242571A  
**Log of Borehole:** B-4  
**Date Drilled:** 10/18/2022

ENGINEERING BUSINESS NO. 1066

GEOLOGY BUSINESS NO. 224

Depth	Strata Symbol	Subsurface Profile Description	Consistency	Blow Count	N value	Standard Penetration Test (blows/ft)	Lab/ Notes
						0 20 40 60 80 100	
0		Ground Surface					
		<b>Sand</b> Dark gray (10YR 4/1) to light yellowish brown (10YR 6/4), fine grained	loose	2-3-3	6		
			slightly loose	4-4-4	8		
5			very loose	1-1-1	2		
			very loose	1/18"	1		
10		<b>Sand</b> Grayish brown (10YR 5/2) to brown (10YR 5/3), fine grained	loose	3-2-3	5		
15			very loose	2-1-1	2		
20		<b>Sand</b> Pale brown (10YR 6/3), fine grained	loose	5-2-3	5		
25		<b>Sand</b> Grayish brown (10YR 5/2), fine grained	medium dense	8-4-6	10		
30		<b>Clay</b> White (10YR 8/1), calcareous, with weathered limestone	soft	WOH/12"-4	4		
35		<b>Limestone</b> White (10YR 8/1), weathered	very hard	50/1"	100+		
40		End of Boring	very hard	50/3"	100+		
45							
50							
55							
60							

**Notes:** FEMA Flood Zone: X

WOH = Weight of Hammer  
No loss of drill fluid circulation  
Borehole plugged and grouted

**Water Table:** 2.7' bls (HA)  
**Ground Elevation:** Existing  
**Drilled by:** AC  
**Compiled by:** JM

**Drill Method:** Rotary  
**Sampling Method:** Splitspoon ASTM D-1586



**Client:** Tampa Bay General Contractors  
**Project:** Oakstead Auto  
**Location:** State Road 54  
**City / State:** Lutz, Florida

**Report No:** 242571A  
**Log of Borehole:** B-5  
**Date Drilled:** 10/18/2022

ENGINEERING BUSINESS NO. 1066

GEOLOGY BUSINESS NO. 224

Depth	Strata Symbol	Subsurface Profile Description	Consistency	Blow Count	N value	Standard Penetration Test (blows/ft)	Lab/ Notes
0		Ground Surface					
5		<b>Sand</b> Dark gray (10YR 4/1) to brown (10YR 4/3), fine grained	slightly loose medium dense very loose	1-3-6 5-6-7 1-1-1	9 13 2		1.2% organic
10		<b>Sand</b> Very dark grayish brown (10YR 3/2), fine grained, trace organics	loose medium dense	2-2-3 7-11-14	5 25		
15		<b>Sand</b> Dark gray (10YR 4/1) to dark grayish brown (10YR 4/2), fine grained					
20							
25		<b>Sand</b> Grayish brown (10YR 5/2), fine grained					
30							
35							
40		<b>Limestone</b> White (10YR 8/1), weathered					
45							
50		<b>Limestone</b> White (10YR 8/1), weathered, with light brownish gray (10YR 6/2) clayey silt lenses					
55		<b>Limestone</b> White (10YR 8/1), weathered					
55		End of Boring	very hard	50/1"	100+		
60							

**Notes:** FEMA Flood Zone: X

No loss of drill fluid circulation  
 Borehole plugged and grouted

**Water Table:** 2.9' bls (HA)  
**Ground Elevation:** Existing  
**Drilled by:** AC  
**Compiled by:** JM

**Drill Method:** Rotary  
**Sampling Method:** Splitspoon ASTM D-1586

# Pond Boring Results

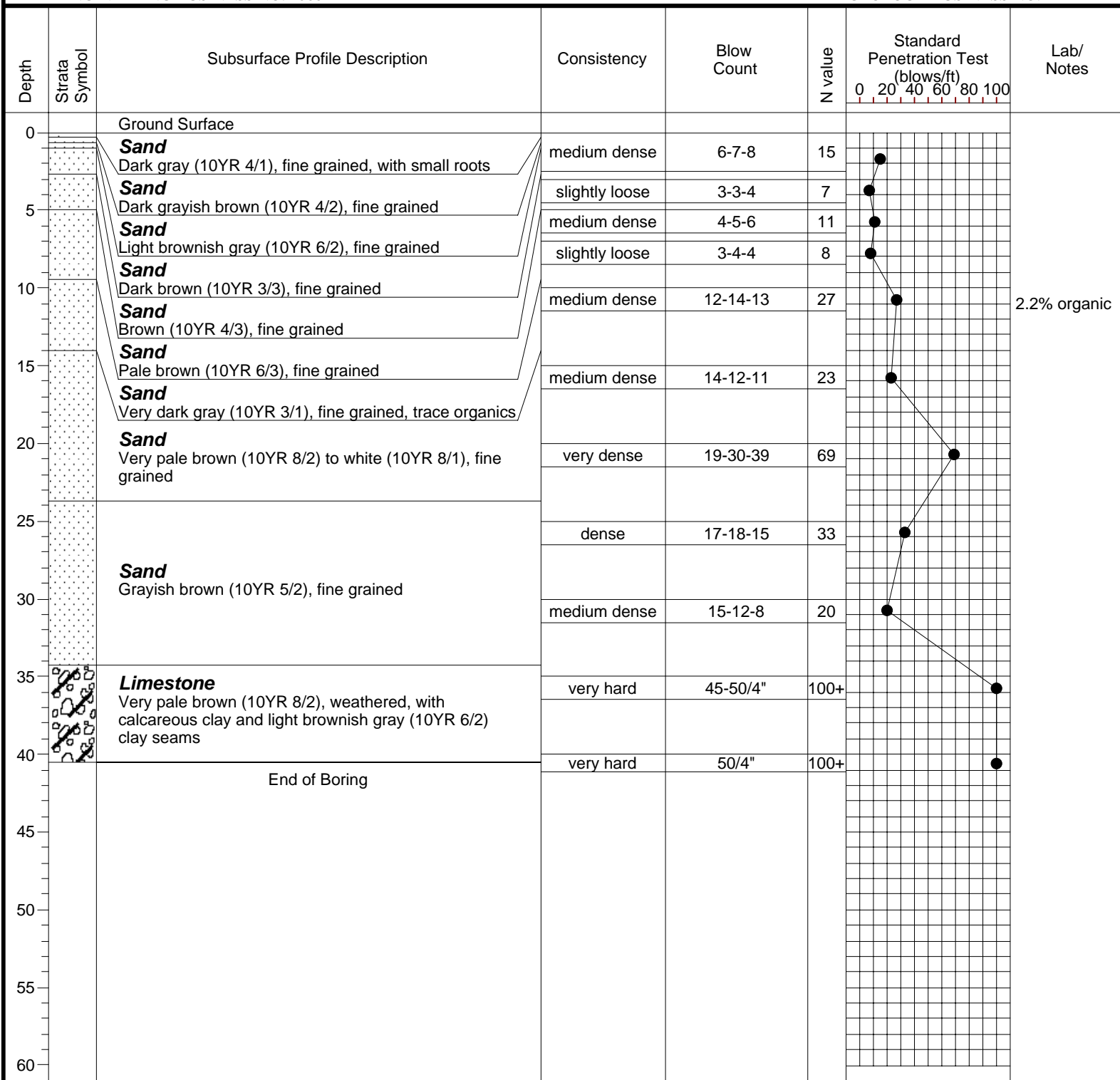


**Client:** Tampa Bay General Contractors  
**Project:** Oakstead Auto  
**Location:** State Road 54  
**City / State:** Lutz, Florida

**Report No:** 242571A  
**Log of Borehole:** PB-1  
**Date Drilled:** 10/18/2022

ENGINEERING BUSINESS NO. 1066

GEOLOGY BUSINESS NO. 224



**Notes:** NRCS Designation: Smyrna fine sand  
NRCS SHGWT: 6 to 18 inches  
CFTL SHGWT: 1.0' bls

No loss of drill fluid circulation  
Borehole plugged and grouted

**Water Table:** 2.5' bls (HA)  
**Ground Elevation:** Existing  
**Drilled by:** AC  
**Compiled by:** JM

**Drill Method:** Rotary  
**Sampling Method:** Splitspoon ASTM D-1586



# DRI Results

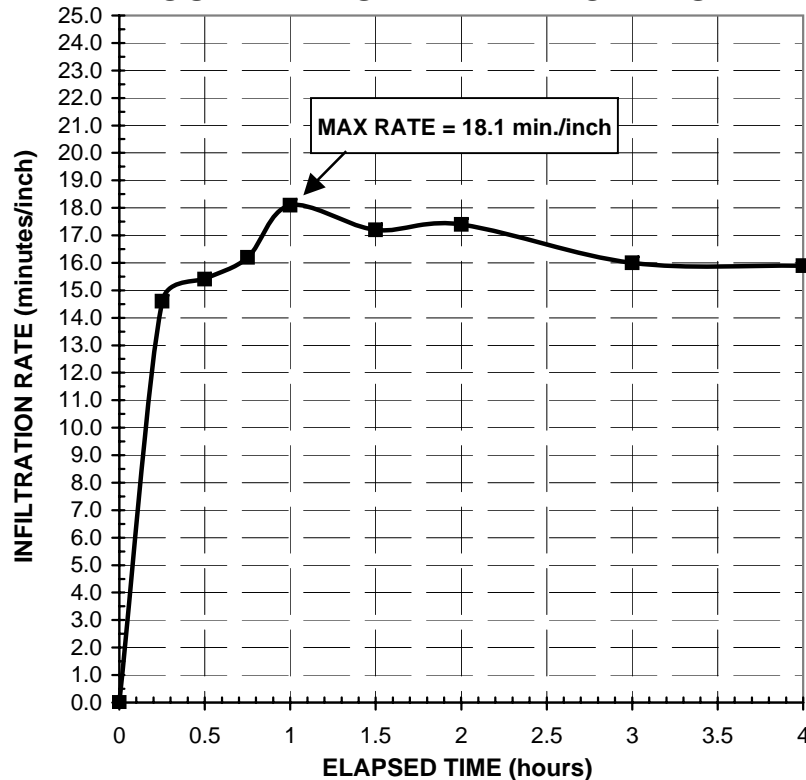


# Central Florida Testing Laboratories, Inc.

*Testing Development and Research*

12625 - 40TH STREET NORTH • CLEARWATER, FL 33762  
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## DOUBLE RING INFILTRATION TEST



**Maximum Infiltration Rate (min./in.): 18.1**

### EXISTING WATER TABLE DATA

WATER TABLE AT TIME OF TEST (BLS): **2.3'**  
EST. SEASONAL HIGH WATER TABLE (BLS): **1.0'**

### NRCS WATER TABLE DATA

SOIL TYPE (AT DRI LOCATION): **Smyrna fine sand**  
  
SEASONAL HIGH WATER TABLE: **6 to 18 inches**

Project: **Oakstead Auto**  
**630 - 4th Avenue South**  
**Lutz, Florida 33558**  
  
Client: **Tampa Bay General Contractors**  
  
Lab No.: **242571A**

## DOUBLE RING INFILTRATION DATA

Test Location: **DRI-1**  
Test Elevation: **1.0 feet below existing land surface**  
Test Date: **October 25, 2022**

Notes ALL DEPTHS REFERENCED FROM EXISTING GROUND

## SHALLOW AUGER BORING DATA

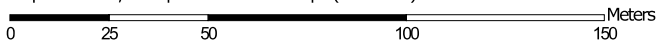
Depth (ft.)	Munsel No.	Description
0.0 to 0.4	10YR 4/2	Dark grayish brown fine sand w/small roots
0.4 to 1.0	10YR 6/2	Light brownish gray fine sand
1.0 to 2.5	10YR 3/3	Dark brown fine sand
2.5 to 5.8	10YR 5/3	Brown fine sand
5.8 to 6.0	10YR 6/3	Pale brown fine sand

# NRCS Data

Soil Map—Pasco County, Florida  
(Oakstead Auto / State Road 54, Lutz)



Map Scale: 1:1,910 if printed on A landscape (11" x 8.5") sheet.



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



**Natural Resources  
Conservation Service**


Web Soil Survey  
National Cooperative Soil Survey

10/4/2022  
Page 1 of 3

Soil Map—Pasco County, Florida  
(Oakstead Auto / State Road 54, Lutz)


## 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: Pasco County, Florida

Survey Area Data: Version 21, Sep 1, 2022

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

Date(s) aerial images were photographed: Jan 6, 2022—Jan 30, 2022

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
8	Sellers mucky loamy fine sand	10.0	58.0%
21	Smyrna fine sand	7.2	42.0%
<b>Totals for Area of Interest</b>		<b>17.2</b>	<b>100.0%</b>

## Pasco County, Florida

### 8—Sellers mucky loamy fine sand

#### Map Unit Setting

*National map unit symbol:* bvcf

*Elevation:* 0 to 180 feet

*Mean annual precipitation:* 50 to 58 inches

*Mean annual air temperature:* 70 to 77 degrees F

*Frost-free period:* 324 to 354 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Sellers and similar soils:* 95 percent

*Minor components:* 5 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Sellers

##### Setting

*Landform:* Depressions on marine terraces, drainageways on marine terraces

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Sandy marine deposits

##### Typical profile

*A1 - 0 to 9 inches:* mucky loamy fine sand

*A2 - 9 to 24 inches:* fine sand

*C - 24 to 80 inches:* fine sand

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (5.95 to 19.98 in/hr)

*Depth to water table:* About 0 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 4.0

*Available water supply, 0 to 60 inches:* Low (about 5.7 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* A/D



*Forage suitability group:* Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)  
*Other vegetative classification:* Freshwater Marshes and Ponds (R154XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)  
*Hydric soil rating:* Yes

### **Minor Components**

#### **Basinger, depressional**

*Percent of map unit:* 5 percent  
*Landform:* Depressions on marine terraces  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Other vegetative classification:* Freshwater Marshes and Ponds (R154XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)  
*Hydric soil rating:* Yes

## **Data Source Information**

Soil Survey Area: Pasco County, Florida  
Survey Area Data: Version 21, Sep 1, 2022

## Pasco County, Florida

### 21—Smyrna fine sand

#### Map Unit Setting

*National map unit symbol:* bv9h

*Elevation:* 0 to 210 feet

*Mean annual precipitation:* 50 to 58 inches

*Mean annual air temperature:* 70 to 77 degrees F

*Frost-free period:* 324 to 354 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Smyrna, non-hydric, and similar soils:* 70 percent

*Smyrna, hydric, and similar soils:* 20 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Smyrna, Non-hydric

##### Setting

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Sandy marine deposits

##### Typical profile

*A - 0 to 5 inches:* fine sand

*E/Bw - 5 to 13 inches:* fine sand

*Bh - 13 to 25 inches:* fine sand

*C - 25 to 80 inches:* fine sand

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.57 to 5.95 in/hr)

*Depth to water table:* About 6 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 4.0

*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* A/D  
*Forage suitability group:* Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)  
*Other vegetative classification:* South Florida Flatwoods (R154XY003FL), Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)  
*Hydric soil rating:* No

## Description of Smyrna, Hydric

### Setting

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Sandy marine deposits

### Typical profile

*A - 0 to 5 inches:* fine sand  
*E/Bw - 5 to 13 inches:* fine sand  
*Bh - 13 to 25 inches:* fine sand  
*C - 25 to 80 inches:* fine sand

### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 5.95 in/hr)  
*Depth to water table:* About 0 to 6 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 4.0  
*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* A/D  
*Forage suitability group:* Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)  
*Other vegetative classification:* South Florida Flatwoods (R154XY003FL), Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)  
*Hydric soil rating:* Yes

## Minor Components

### Pomona, non-hydric

*Percent of map unit:* 2 percent  
*Landform:* Flatwoods on marine terraces

*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* South Florida Flatwoods  
(R154XY003FL), Sandy soils on flats of mesic or hydric  
lowlands (G154XB141FL)  
*Hydric soil rating:* No

**Adamsville**

*Percent of map unit:* 2 percent  
*Landform:* Flats on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Interfluve, talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* South Florida Flatwoods  
(R154XY003FL), Sandy soils on rises and knolls of mesic  
uplands (G154XB131FL)  
*Hydric soil rating:* No

**Ona, non-hydric**

*Percent of map unit:* 2 percent  
*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* South Florida Flatwoods  
(R154XY003FL), Sandy soils on flats of mesic or hydric  
lowlands (G154XB141FL)  
*Hydric soil rating:* No

**Narcoossee**

*Percent of map unit:* 2 percent  
*Landform:* Rises on marine terraces  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* South Florida Flatwoods  
(R154XY003FL), Sandy soils on rises and knolls of mesic  
uplands (G154XB131FL)  
*Hydric soil rating:* No

**Myakka, non-hydric**

*Percent of map unit:* 2 percent  
*Landform:* Flatwoods on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* South Florida Flatwoods  
(R154XY003FL), Sandy soils on flats of mesic or hydric  
lowlands (G154XB141FL)



*Hydric soil rating:* No

## Data Source Information

Soil Survey Area: Pasco County, Florida  
Survey Area Data: Version 21, Sep 1, 2022