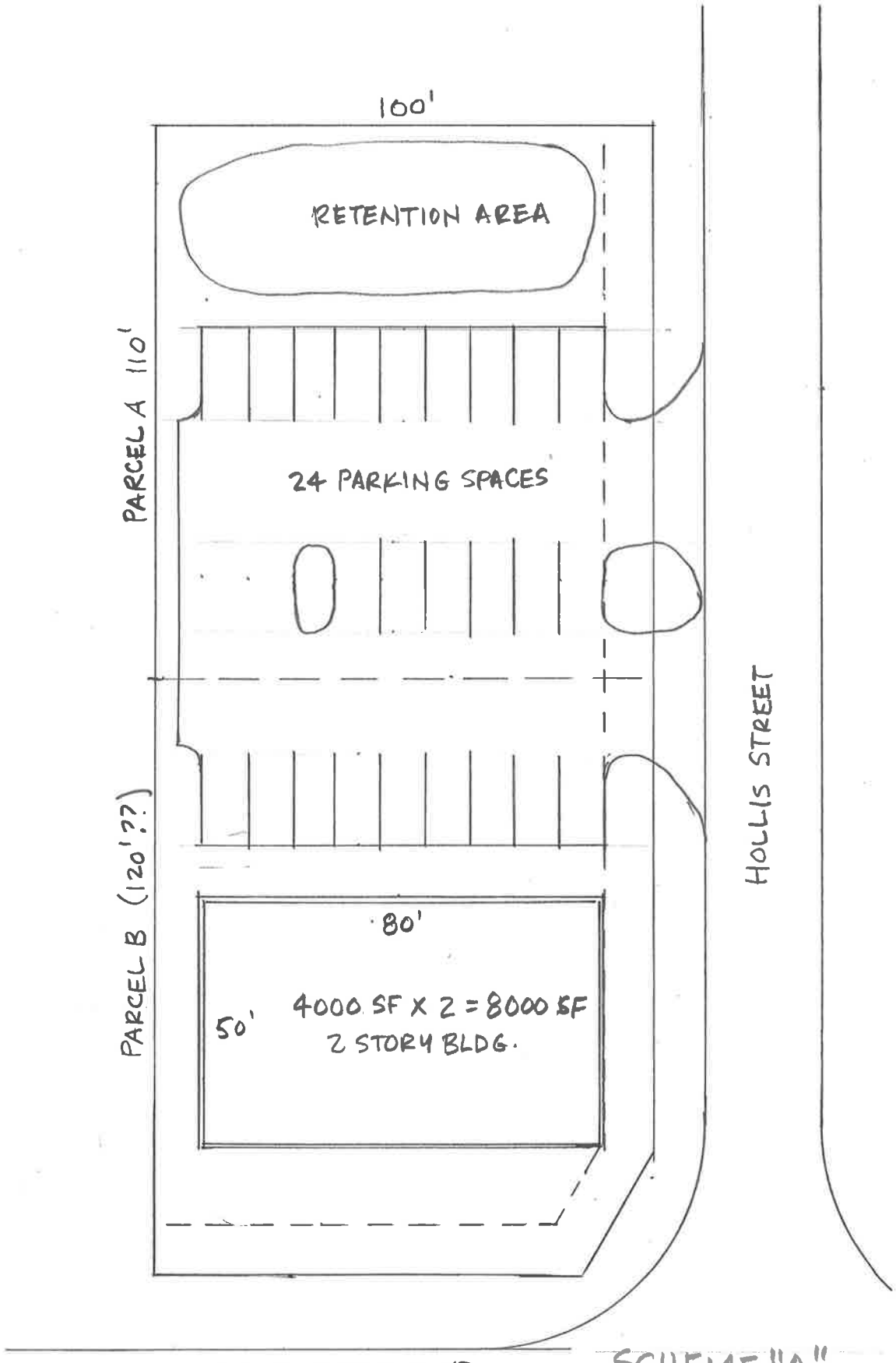
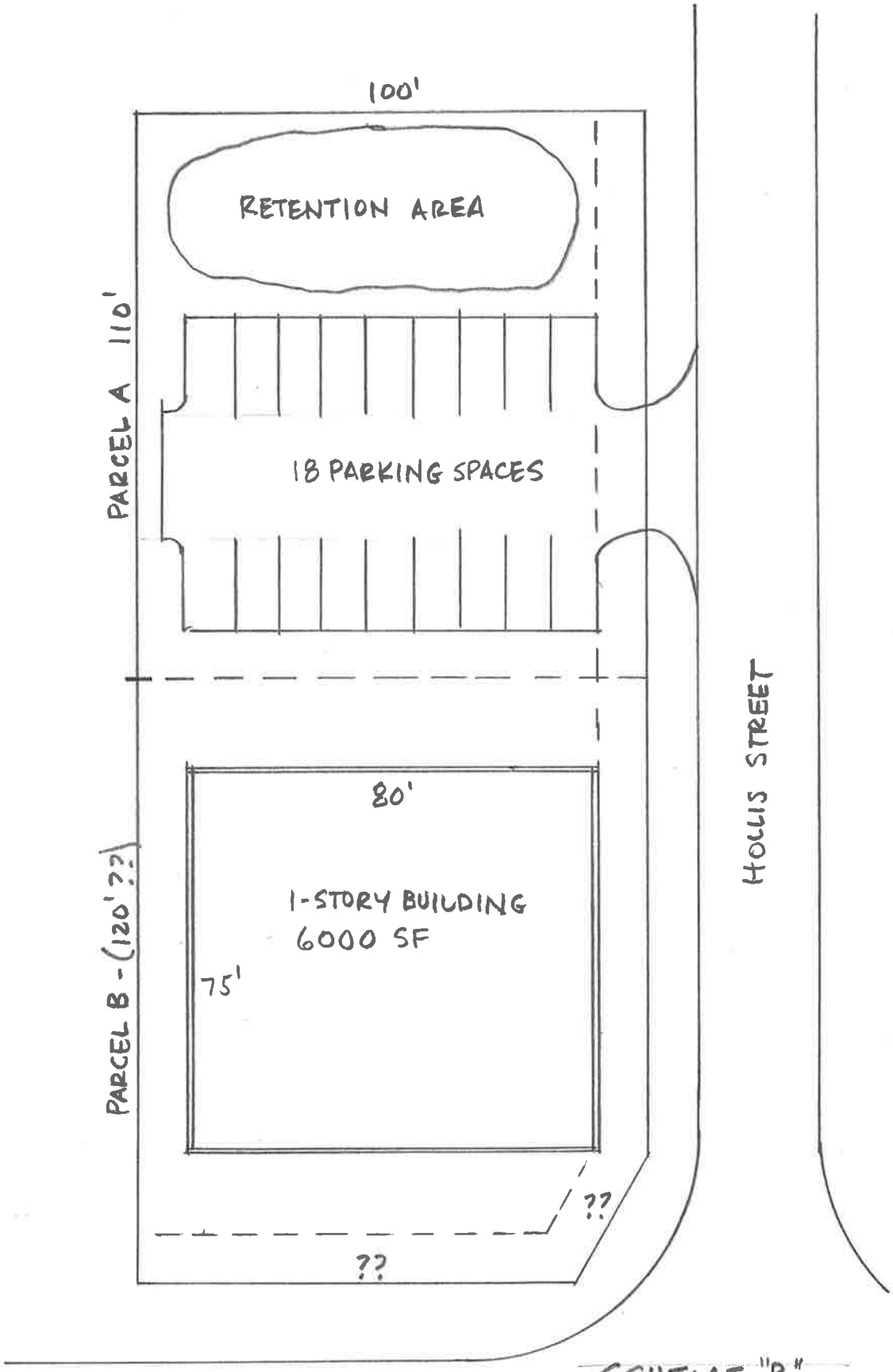


SCHEME "A"

SCALE: 1" = 30'



SCHEME "B"

SCALE: 1" = 30'

McCree
GENERAL CONTRACTORS & ARCHITECTS

Jackson Adjustment Company Office
REGULATORY INVESTIGATION
January 29, 2018

Site Address:	??? Lake Mary Blvd. at Hollis St. (the address will be assigned at permitting) Lake Mary, FL 32746
Parcel ID:	09-20-30-506-0000-0310 Parcel A 09-20-30-506-0000-0330 Parcel B
Government:	City of Lake Mary
Project Description:	New 1 or 2-story office building, and associated site work.
Zoning Contact:	Steve Noto, Lake Mary City Planner
Zoning:	DC - Downtown Centre
Adjacent Zoning:	North – DC South – ?? East – DC West – DC
Overlay District:	Downtown Centre regulations
Site Review Process –	The City Planner, Steve Noto, recommends to Combine Parcels A & B. This is a Staff level review that takes about 2 weeks. A good survey is needed.
Survey:	The survey provided is unreadable at this time. We need to get a better, digital version of the existing survey, or get a new survey done.
Permitted Uses:	There are a lot of Permitted Uses in this zoning, but some of them include Insurance Adjusters, Professional Offices, Medical Offices, Businesses, and many Retail uses.
Building Setbacks:	Front Yard Setback – 10' (and Side Street Setback) Side Yard Setback – 0' (this includes both west and north property lines) Rear Yard Setback – 15' (since this property has two streets, there is no Rear Yard Setback per City of Lake Mary).
Site Dimensions:	Approx. 100' X 230' = 23,086 square feet or .53 acres

FAR (Floor Area Ratio) (City of Lake Mary does NOT consider FAR in this Zoning District)

ISR (Impervious Surface Ratio) Maximum (DC Zoning) = .90 (or 20,777 SF allowed)

Open Space:	(DC Zoning) = .10 (or 2,308 SF minimum)
Parking:	3 space / 1000 SF (If 5000 SF – need 15 spaces) (If 6000 SF – need 18 spaces) (If 8000 SF – need 24 spaces)
Building Height:	35' maximum (or 3 stories)
Roadway:	Lake Mary Blvd. is a Seminole County road (Turning Lane requirement needs to be verified)
Easements:	None known of at this time???
Fire:	There is an existing fire hydrant at the southeast corner of the property, and another fire hydrant at the southwest corner of the adjacent property to the west.
Utilities:	Domestic Water / Fire main –existing water main on north side of Lake Mary Blvd. Sanitary Sewer –existing sanitary manhole in middle of Hollis Street near Lake Mary Blvd. that appears to have a PVC lateral to the southeast corner of the property. Electric –overhead wires and poles along the west side of Hollis Street. A transformer would need to be set.
Storm Drainage:	The new building and site development stormwater will be need to be collected and drain into a new retention system (there is an existing low weedy area in the northwest corner of the property. I believe the site generally drains to the southwest, but the survey is not readable on this.
FEMA Flood Map:	The property is in Zone X (non-flood area) on the FEMA FIRM Flood Insurance Rate Maps, Panel 430 of 750, Map No. 12095C0430F.

500 E. Princeton Street
Orlando Florida 32803
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Orlando Florida 32854-7369
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Owner Questions

1. Surveys show lots "A" and "B" -- what needs to be done to combine if necessary? The City has a fairly quick process with Staff level review that takes about 2 weeks.
2. Is on site water retention mandatory? If so, what size? Yes, a retention area is needed. The size will need to be determined after soil borings are done and impervious area is decided.
3. Are these parcels included in the master plan for drainage? There is no master plan for drainage.
4. What requirements for parking(quantity and location of spaces)? Parking in the DC Downtown Centre is calculated at 3 spaces per 1000 SF, and need to be located behind the building.
5. Are offsite improvements mandatory? Utilities appear to be at the site. Turning lane requirements will need to be verified with Seminole County Engineering.
6. Extensive landscape buffer mandatory? There are landscaping requirements in the DC Downtown Centre, but they don't seem to be extensive.
7. Privacy wall mandatory? If so, how high? A privacy wall (or fence) is not required.
8. Crosswalk mandatory? A de-acceleration lane mandatory? A crosswalk is existing at the corner, and de-cel lanes will have to be verified. (I don't believe they would be required for this size project).
9. Monument sign mandatory? A monument sign is not mandatory, but if provided will need to follow the Sign Ordinance.
10. Soil study?---recommended by builder and I believe you should get one done. - I have contacted a geotechnical company for this. Waiting on results.
11. what is the biggest footprint building we can build which will also include adequate parking? Please see attached sketches.
12. I was told we can go as high as 30 feet. Would that be 2 story, or even possibly 3 story? I want to maximize the space as best as possible. The DC Downtown Centre allows 35' or 3 stories.

Other pertinent regulatory information will be added as the project scope progresses.

Sincerely,

Tom F. Griffin, AIA LEED-AP, Architect

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MIKE TANNOUS ENGINEERING
INCORPORATED

GEOTECHNICAL STUDY
JACKSON LAKE MARY OFFICE PROJECT
HOLLIS STREET AND LAKE MARY BOULEVARD
LAKE MARY, FLORIDA
MTE, INC. PROJECT NO. 18-206

Prepared For:

Mr. William Piacenti
Via Email at:
wpiacenti@mac.com

June 11, 2018

MIKE TANNOUS ENGINEERING
INCORPORATED

Geotechnical Engineering ● Construction Materials Testing / Quality Control

June 11, 2018

Mr. William Piacenti
Via Email at: wpiacenti@mac.com

Subject: ***Geotechnical Study, Jackson Lake Mary Office Building, Hollis Street and Lake Mary Boulevard, Lake Mary, Florida (MTE, Inc. Project No. 18-206)***

Dear Mr. Piacenti:

As requested, a representative of **MTE, Inc.** performed numerous borings at the above referenced site. The purpose of the borings was to evaluate the suitability of the shallow subgrade soils and groundwater table as they relate to the geotechnical engineering aspects of the planned development. The following report summarizes the results of our field and laboratory testing programs and presents our conclusions and recommendations.

SITE AND PROJECT DESCRIPTION

The subject site is an undeveloped lot located at the northwest quadrant of the intersection of Hollis Street and Lake Mary Boulevard, in Lake Mary, Florida. The lot mostly contains grass vegetation. A street view of the property is presented above on the report cover sheet.

Based on our discussions, we understand that the proposed development includes the construction of an approximately 8,000 square feet, 2-story, office building along the front (south) side of the lot and a storm water retention pond along the rear (north) side of the property. The portion of the lot between the proposed building and retention pond area, is proposed for paved parking stalls and driveways. The general layout of the proposed development, as we understand it, is graphically illustrated on the attached Figure 1.

SCOPE OF SERVICES

The general objective of this geotechnical study was to obtain information regarding the shallow subsurface soil and groundwater table conditions in order to assist with the project design process. More specifically, the following scope of services was completed:

- Reviewed The United States Department of Agriculture Soil Conservation Soil Survey Report of Seminole County,

- Performed numerous 7 to 15 feet-deep auger borings in proposed building, pavement, and retention pond areas,

- Recovered disturbed soil samples from the borings for visual examination and classification by the Project Engineer. Also recovered one undisturbed sample from the shallow soils in the retention pond area. This sample was returned to our laboratory for permeability testing.

- Measured the depth of the groundwater table at the borehole locations and estimated the high wet season groundwater level,

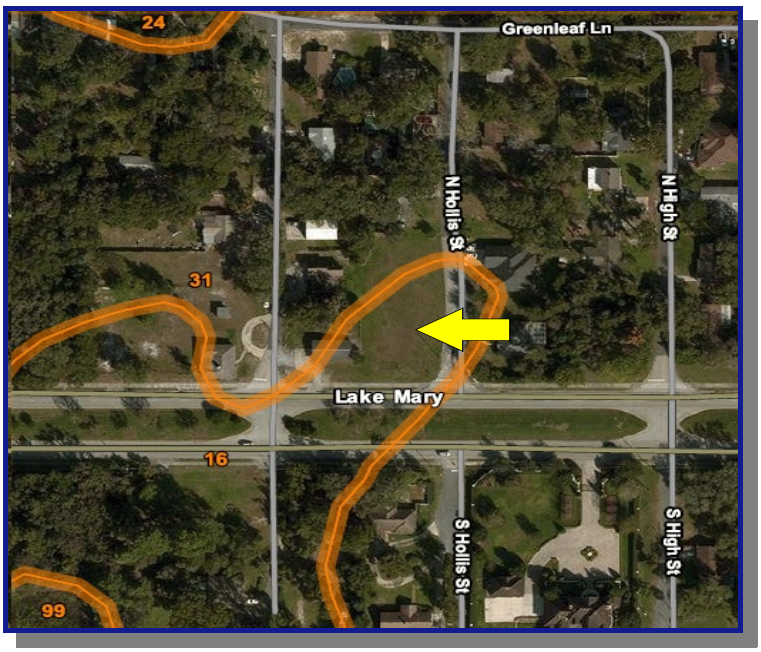
- Prepared this geotechnical report which summarizes the results of our field and laboratory evaluations and presents our conclusions and recommendations relative to the geotechnical engineering aspects of the planned development.

Please be advised that the scope of work completed for this project included an evaluation of the relatively shallow sub-grade soils that will be most affected by the weight of the proposed building. The drilling of deeper borings for the purpose of evaluating the potential for sinkhole activity in the site was beyond our scope of work. Should you require it, we can provide this service under a separate scope of work.

Specific information regarding the anticipated structural loads associated with the proposed building was not available at the time of this study. For the purpose of our analyses, we assumed that the proposed building will be supported on conventional shallow continuous wall footings with loads on the order of about 4 to 6 kips per foot and possibly interior columns with loads no greater than 50 kips per column. If significantly higher loads are anticipated, our firm should be notified so we may re-evaluate the conclusions and recommendations provided in this report.

REVIEW OF SOIL SURVEY REPORT

The predominant near-the-surface soils within the subject site were mapped by the United States Department of Agriculture and the Soil Conservation Service (USDA/SCS), now known as the National Resource Conservation Service (NRCS) and were, subsequently, published in the Seminole County Soil Survey Report. A generalized delineation of the various soil types mapped on site is shown below.



View of near-surface soil delineation, as presented in the Seminole County Soil Survey Report.
The yellow arrow points towards the property

The soil survey indicated that two soil map units intersect the site. The front portion of the property lies within an area designated as Immokalee Sand, 0 to 2 percent slopes (Map Unit #16), and the rear portion of the site lies in an area designated as Tavares-Millhopper Complex, 0 to 5 percent slopes (Map Unit #31).

The Immokalee Series consist of soils that are nearly level and poorly drained. The soils are located on broad plains on the flatwoods. According to the Soil Survey Report, during most years, the seasonal high groundwater table rises to within 12 inches of the ground surface.

The Tavares-Millhopper Series consist of soils that are nearly level to gently sloping and moderately well drained. The soils are found on low ridges and knolls on the uplands. According to the Soil Survey Report, during most years, the seasonal high groundwater table rises to depths of 36 to 60 inches below the ground surface.

FIELD INVESTIGATION

Auger Borings

Auger borings were performed by manually twisting an open-ended bucket auger into the ground in 6-inch interval, then recovering the soil sample collected by the auger. Auger borings allow for continuous sampling of the subgrade, in 6-inch intervals, for the entire depth of the borehole.

A total of five auger borings were performed within proposed construction areas. Borings AB-1 and AB-2 were performed to a depth of 15 feet in the proposed building area; Boring AB-3 was performed to a depth of 7 feet near the center of the proposed parking area; and Borings AB-4 and AB-5 were performed to a depth 12 feet in the proposed retention pond area. The approximate boring locations are graphically illustrated on the attached Figure 1.

Please note that the boring locations shown in Figure 1 were not surveyed and were determined on site by measurements from existing reference points found on or adjacent to the property. Therefore, the illustrated boring locations should be considered approximate and may not represent the exact boring locations.

Penetrometer probes were performed at the auger boring locations in order to evaluate the relative compactness of the subgrade soils. The hand cone penetrometer is a steel shaft with a conical point that is pushed into the ground in one-foot intervals. The resistance to penetration is registered by a gauge attached to the top of the shaft. The gauge reading provides a measure of the relative density of the subgrade soils. The probes were advanced to depths of 7 to 15 feet below ground surface at the boring locations.

Representative soil samples were recovered from the borings during the field investigation. These samples were visually classified on-site by our field representative and were subsequently, returned to our office for further visual examination by the Project Engineer. In addition, one undisturbed soil sample was recovered from a depth of 4 feet at the location of Boring AB-4 (from soil stratum #1). This sample was returned to our laboratory for permeability determination.

In addition to the soil sampling, groundwater levels were measured in the open boreholes at the time of the field investigation.

Shallow Stratigraphy

The stratigraphy in the upper 15 feet of the site was determined based on our visual classification of the soil samples collected from the auger borings. The description and stratification of the soils were accomplished in general accordance with the Unified Method of Soil Classification. The results of our visual interpretations are presented in the form of soil profiles, shown in Figure 1. A legend of the terms and symbols used to create the soil profiles, is also presented in Figure 1.

The soils encountered at the borehole locations typically consisted of varying shades of gray and brown fine sands to slightly silty fine sands (fill soils) in the upper 1± to 6± feet. Below the fill soils, varying colored fine sands and slightly silty fine sands were mostly encountered to depths of about 10 to 11 feet, where the soils graded into reddish brown silty fine sands. The silty soils extended down to the termination depths of the deeper borings. A more detailed delineation of the soils encountered at each boring location can be reviewed in Figure 1.

The results of the penetrometer probes performed at each auger boring location suggest that the subgrade soils are mostly in a relatively medium dense condition to the maximum probed depths.

Groundwater Table

The groundwater table was encountered at a depth of approximately 8 feet below ground surface. It should be emphasized that the measured groundwater depth is indicative of the prevailing groundwater level at the time of measurement (March 15, 2018). The groundwater level in the site is expected to fluctuate throughout each year, mainly due to seasonal variations in rainfall amounts, surface runoff fluctuations, as well as other factors such as development of neighboring properties. Based on the results of our borings as well as a review of the SCS Soil Survey Report, it is our opinion that the high wet season groundwater table could rise to an average depth of about 5 feet below the prevailing ground surface elevation.

It should be noted that the estimated high wet season groundwater level provided above represents our estimated high groundwater level in the site, assuming normal rainfall events each year. This is not an assurance that the groundwater level cannot rise to shallower depths in the future. During years when normal rainfall quantities are exceeded, the groundwater table may rise above our estimated levels. Furthermore, changes in the surface hydrology and subsurface drainage from on-site or off-site improvements could have relatively significant effects on the normal and seasonal high groundwater level in the property.

LABORATORY ANALYSES

Our laboratory analyses included the visual classification of all recovered soil samples. As discussed earlier, the results of our visual interpretations are presented in the form of Soil Profiles shown in the attached Figure 1.

In addition to the visual classification of the soils, a permeability test was performed on the recovered undisturbed soil sample. The results of this test indicated that the coefficient of vertical permeability of Soil Stratum No. 1 is equivalent to approximately 20 feet per day. Based on our experience, a coefficient of horizontal permeability equivalent to 1.5 times the vertical permeability may be assumed.

EVALUATIONS AND CONCLUSIONS

Suitability of Subsurface Soils

Based on the results of this investigation, it is our opinion that following proper preconstruction site preparation, the subgrade soils encountered in the property are generally of suitable texture to provide proper bearing support to the proposed building, supported on a conventional shallow foundation system. The shallow subgrade soils were also found to be suitable for support of either a flexible or semi flexible pavement section. Lastly, the shallow subgrade soils and the groundwater table conditions encountered are, in our opinion, favorable for proper operation of a dry-bottom retention pond. More detailed recommendations are provided below.

General Site Preparation

Site preparation should include normal clearing, grubbing, and stripping of all surficial vegetation, top soils, and other deleterious materials from beneath and to a minimum lateral distance of 5 feet beyond all proposed construction areas. The site clearing operation should result in substantial removal of any buried tree roots that are in excess of ½ of an inch in diameter and all smaller roots that are in high concentrations.

Once the clearing operations are completed, areas of the site proposed for construction should be proof rolled in order to achieve proper densification of the shallow subgrade soils at the stripped surface. Proof rolling can be performed using a large roller in static mode or other on site equipment such as a front-end loader or a bulldozer. Large vibratory compaction equipment should be avoided to minimize the potential for damaging near by structures (due to equipment vibrations).

The proof rolling operation should continue as needed until a minimum degree of compaction equivalent to 95 percent of the soil's Maximum Modified Proctor Density (ASTM D-1557) value has been achieved to a minimum depth of one foot below the cleared surface. Any areas that yield excessively during the proof rolling operation should be excavated and replaced with suitable granular soils.

Fill Placement

Fill material proposed to achieve final site grades within construction areas should consist of non-organic, non-plastic, and debris-free fine sands containing no more than 5 percent passing the U.S. Standard No. 200 Sieve (fines content). Slightly silty sands containing 5 to 12 percent fines may also be used, however, it must be understood that these soils are sensitive to moisture and become difficult to compact when the moisture content is too high. Therefore, moisture control must be exercised if these types of fill soils are used. If soils become excessively wet and start pumping, then drying the soil by excavation/aeration will become necessary; otherwise removal and replacement with drier soils will become warranted.

Fill soils placed around building and pavement areas should be placed in a manner to allow for positive drainage of storm water runoff away from the building and pavement areas. The fill soils should be placed in loose lifts not exceeding 12 inches in thickness and should be compacted as needed to achieve a minimum density equivalent to 95 percent of the soil's Maximum Modified Proctor Density (ASTM D-1557) value. This compaction criterion should be achieved by all fill soils or by all foundation bearing soils that lie within a minimum depth of two feet below the bottom of the proposed foundation system, whichever is greater in depth. To facilitate the compaction efforts, the fill soils should have a moisture content that is within 2% of the soil's Optimum Moisture Content.

Fill soils placed in utility line trenches and adjacent to footings or beneath slab-on-grade should also be properly placed and compacted as specified above. However, in these restricted working areas, compaction should be accomplished with lightweight, hand-guided compaction equipment and lift thicknesses should be limited to a maximum of 6 to 8 inches loose thickness.

Building Foundation Support

The results of our borings indicate that the near-surface soils are, for the most part, granular in nature and free of appreciable organic matter or buried debris. In our opinion, these soils are suitable to support the proposed building on a system of conventional shallow wall footings and isolated column pads, as determined necessary by the Project Structural Engineer.

Assuming that the site preparation activities are accomplished as recommended above, a maximum net allowable soil bearing pressure of 2,000 pounds per square foot (PSF) may be used for foundation sizing. This assumes that all new fill soils placed on site or all in-situ soils to a minimum depth of 2 feet below bottom of foundations, whichever is greater in depth, have been compacted to at least 95% of the soil's Maximum Modified Proctor Density value.

Continuous footings below stem walls should be a minimum of 20 to 24 inches in width and 10 to 12 inches in thickness, regardless of the resulting bearing pressures. Column pads, if proposed, should be at least 30 inches by 30 inches (length and width) and 10 to 12 inches in thickness. All continuous footings below stem walls and individual column pads should be embedded at least 18 to 20 inches, as measured from the bottom of the footings/column pads to the overlying ground surface.

If a thickened edge slab-on-grade (monolithic) type foundation system is planned, then the height of the thickened edge (vertical distance between top of floor slab and bottom of thickened edge) shall be no less than 20 inches and the bottom of the footing shall be embedded at least 12 inches below the finished exterior ground cover. The bottom width of the thickened edge of the slab should be at least 20 inches.

All footings/column pads should be reinforced with adequate steel reinforcing bars, as recommended by the project Structural Engineer or Architect.

The recommendations provided above for footing sizes should be considered preliminary in nature since we have no specific information regarding the anticipated structural loads of the planned building. Should you require it, and once the final proposed structural loads become available, we can review the size of proposed footings/column pads.

Settlement of the Foundation Soils

Settlement of the subgrade soils will be primarily elastic in nature, i.e., occurring simultaneously upon application of the loads. The magnitude of settlement below the building was computed using the estimated structural loading conditions discussed earlier in this report. The results of our calculations indicated that total settlement of the soils should not exceed one inch, and differential

settlement should be less than ½ of an inch. If the actual building loads are higher than our assumed loading conditions, our firm should be notified so we may re-evaluate the settlement information presented herein.

Building Slab-on-Grade

The building floor slab may be supported on approved structural fill soils, compacted to at least 95% of the Modified Proctor Density, as tested to a minimum depth of 12 inches below bottom of the slab. It is recommended that the floor slab bearing soils be covered by a lapped polyethylene sheeting in order to minimize the potential for floor dampness which can affect the performance of tiles and carpet. This membrane should consist of a minimum six (6) mil single layer of non-corroding, non-deteriorating sheeting material placed to minimize seams and to cover all of the soil below the building floor. The membrane should be cut in cross shape for pipes or other penetrations and should extend to within ½ inch of all penetrations. All seams of the membrane should be lapped at least 12 inches. Punctures or tears in the membrane should be repaired with the same or compatible material.

Concrete utilized for slab construction should exhibit a minimum 28-day compressive strength equivalent to 2,500 psf. Within 24 hours after placement, expansion joints should be cut in the floor slab as recommended by applicable standards. This will minimize the formation of random cracking in the slab as the concrete hydrates/cures.

Pavement Construction

Based on the results of the borings performed, it is our opinion that the soils encountered are suitable for support of either a flexible or semi-flexible pavement section, following proper site preparation and subgrade soil compaction, as discussed above.

Provided that at least 12 inches of separation can be provided/maintained between the estimated high wet season groundwater level and the bottom of the proposed pavement base course material, then pavement under drains will not be required. More detailed recommendations regarding pavement design and construction are provided below.

Asphaltic Pavement Sub-base/Subgrade: It is recommended that a stabilized subgrade, consisting of 12 inches or more of soils compacted to at least 98 percent of the Modified Proctor Moisture-Density Test (AASHTO T-180), with a minimum Limerock Bearing Ratio (LBR) value of 40 psi, be constructed below the pavement base material. Please note that the near-the-surface in-situ soils are granular/sandy in nature and will not produce the specified minimum LBR value discussed above. Therefore, the addition and mixing of clayey soils (or crushed fines) with the in-situ sandy soils should be anticipated in order to properly stabilize the pavement sub-base/subgrade. A properly mixed 50/50 blend of clayey soils with the in situ sandy soils should be sufficient to produce the desired LBR value. If needed, a mix design can be performed to determine the optimum proportions of soil/clay and/or soil/crushed fines to produce the desired LBR value.

Asphaltic Pavement Base: Depending upon the final proposed pavement elevations, either limerock or soil-cement may be selected as a pavement base course. Provided that a minimum separation of 18 inches can be maintained between the estimated wet season groundwater level and the bottom of the base course material, a limerock base may be used. A crushed concrete fines base material may be used in lieu of limerock, if desired.

In the event that final pavement grades allow for a separation of less than 18 inches between the estimated wet season groundwater table and the bottom of the base course, then we recommend that a soil-cement base be utilized as the pavement base course, since it is more resistant to groundwater related degradation than the limerock alternative. A discussion relating to each base type is presented below.

Limerock Base - If limerock (or crushed fines) is selected as the base material, the base should be at least 6 inches in thickness in relatively light traffic load areas (cars and small truck traffic, parking stalls, etc.) and 8 inches in thickness in heavy traffic load areas (such as entrance/exit driveways, loading/unloading areas, trash collection lanes, etc.). The base should be compacted to a minimum of 98 percent of the Modified Proctor Moisture-Density Test (AASHTO T-180). If limerock is selected, the limerock material should exhibit a minimum LBR value of 100 psi. If crushed concrete fines is selected, the crushed fines should exhibit a minimum LBR value of 120 psi. The base material should meet FDOT's base gradation requirements.

Soil Cement - If a soil cement base is used, the base should also be at least 6 inches in thickness in normal/light traffic areas and 8 inches in thickness in heavy traffic areas. The base should be compacted to a minimum of 95% of the Standard Proctor Moisture-Density Test (AASHTO T-134) and should achieve a 7-day laboratory compressive strength equivalent to at least 300 psi.

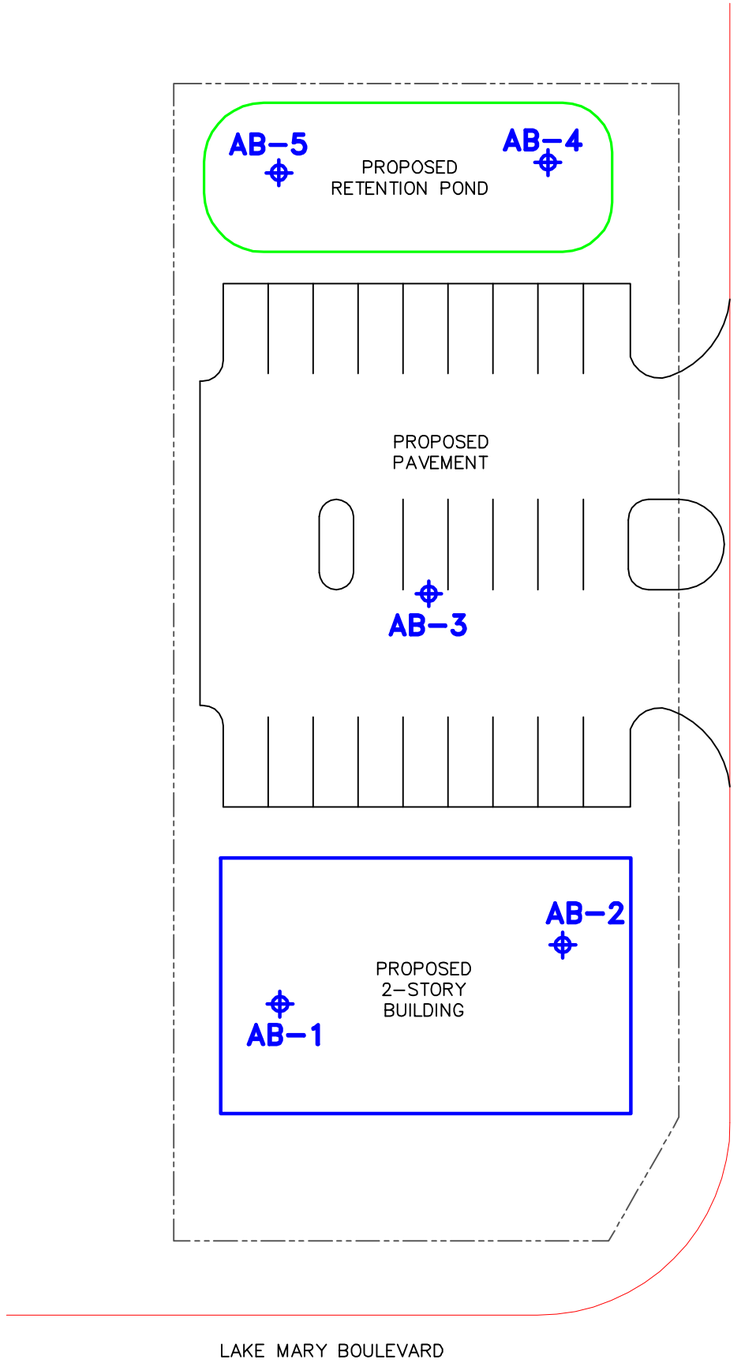
Due to the shrinkage cracking which normally occurs during the hydration of a soil-cement base, we recommend that a curing period of at least 14 to 21 days be allowed prior to the placement of the overlying asphaltic concrete wearing surface. Although this will not eliminate the formation of cracks in the finished asphaltic surface (due to cracking of the underlying base), it should help minimize the magnitude/size of the cracks. An appropriate sealant should be applied on the base within a maximum of one day after placement in order to minimize moisture loss during the hydration process.

Asphaltic Pavement Surface Course: The asphaltic wearing surface should consist of a minimum of 1½ inches in light traffic load areas and 2 inches in heavy traffic load areas of Type SP (super pave) compacted to 93 to 94 percent of the Maximum Specific Gravity (G_{mm}) value of the design mix. Type S-I or S-III asphaltic concrete having a minimum Marshall Stability of 1,200 pounds in light traffic areas and 1,500 pounds in heavy traffic areas and compacted to at least 95 percent of the laboratory mix design can also be used.

Specific requirements for the design and application of asphaltic concrete are outlined in the latest edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Before paving begins, the surface of the base should be machine swept to remove loose particles and other debris. Thereafter, an approved emulsified asphaltic tack coat should be applied, in sufficient quantities, on the surface of the clean base material in order to develop a sufficient bond between the base and the overlying asphalt.

Rigid/Concrete Pavement Section: Because concrete pavement is more rigid and transfers less wheel loads to the underlying subgrade soils, it is our opinion that a stabilized subgrade is not required if a concrete pavement section is used. However, the underlying subgrade

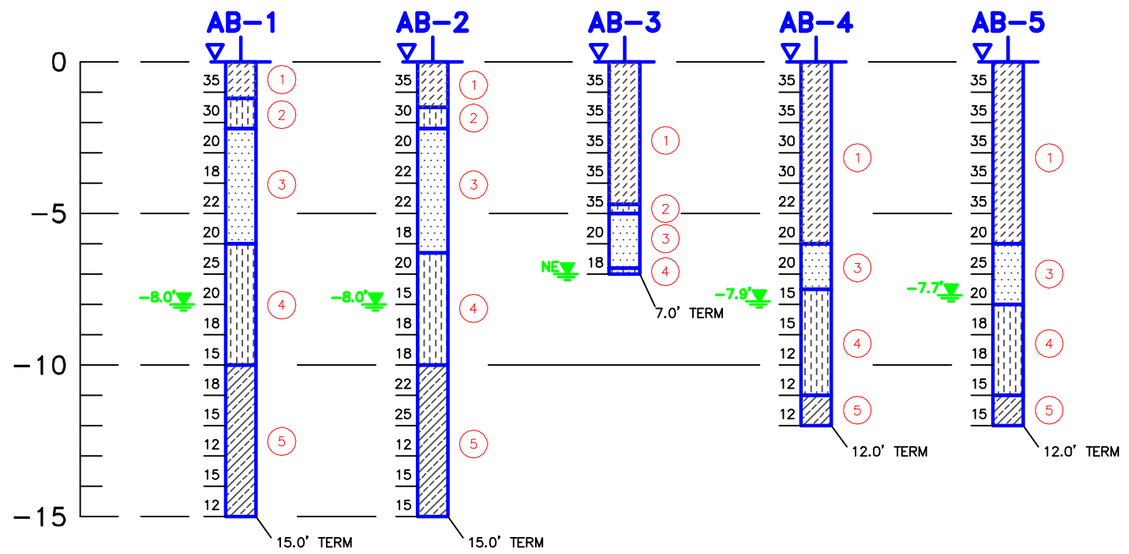


LOCATION PLAN

APPROXIMATE SCALE: 1"=30'

N

APPROXIMATE AUGER BORING LOCATION



SOIL PROFILES

SCALE: 1"=5'

1. VARYING SHADES OF GRAY & BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND (FILL)
2. VERY DARK GRAY TO BLACK SLIGHTLY SILTY FINE SAND (SP–SM)
3. VERY PALE BROWN TO LIGHT GRAY FINE SAND (SP)
4. GRAY SLIGHTLY SILTY FINE SAND (SP–SM)
5. REDDISH BROWN SILTY FINE SAND (SM)

(SP–SM) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL EXAMINATION

HAND PENETROMETER PROBE READING

–12.0' DEPTH TO GROUNDWATER TABLE

NE GROUNDWATER TABLE NOT ENCOUNTERED

BORING LOCATIONS & SOIL PROFILES
PROPOSED OFFICE BUILDING
HOLLIS ST & LAKE MARY BLVD
LAKE MARY, FLORIDA

MIKE TANNOUS ENGINEERING INCORPORATED

DRAWN:	APPROVED:	DATE:
RLG	MT	6/11/18
SCALE:	FIGURE:	JOB NO.:
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soils must be compacted to at least 98% of the soil's Maximum Modified Proctor Density value.

The concrete pavement should be at least 6 inches in thickness in light traffic load areas and at least 7 inches in thickness in heavy traffic load areas. The concrete should exhibit a minimum 28-day compressive strength equivalent to 4,000 psi. Maximum spacing between control joints should not exceed 12 feet by 12 feet. Control joints should be saw cut in a manner that creates a square configuration in the concrete pavement section. The depth of the saw cut/control joints should be at least one-third the thickness of the concrete section.

It is recommended that thickened edges be provided below the concrete pavement around landscaped islands and along the edges of the pavement. This will minimize the potential for soil erosion below the edges of the pavement section.

Proposed Storm Water Retention Pond

As discussed earlier, it is our understanding that a storm water retention pond is proposed along the rear side of the property. The shallow subgrade soil and groundwater table conditions encountered in the property are, in our opinion, favorable for proper operation of a dry-bottom retention pond. For design purposes, the following soil and groundwater table parameters may be utilized:

- A high wet-season groundwater level estimated at an average depth of 5 feet below the prevailing ground surface elevation within the proposed pond area.

- A coefficient of vertical permeability (k_v) through the pond aquifer equivalent to 20 feet per day. An average coefficient of horizontal permeability (k_h) equivalent to 1.5 times the vertical permeability (i.e., 30 feet per day) may be assumed. However, while performing the storm water recovery analyses for the retention pond, the horizontal rate of percolation should be reduced by 50% in order to incorporate a Design Factor of Safety equivalent to 2 (i.e., use a "k_h" value of 15 feet per day for recovery analyses).

- An average porosity of the soils underlying the pond bottom equivalent to 25%,

- A confining layer (bottom of aquifer) assumed at an average depth of 11 feet within the proposed pond area.

Should you require it and once the pond configuration and design storm water volumes are determined, we can perform seepage analyses to verify that the pond is able to recover the design storm water volume within the allowed period of time.

Quality Control

Governing agencies will require specific testing be performed during site development and building construction. Such tests include, but are not limited to, compaction testing of fill soils placed around and above utility structures, pavement areas, building pad area, etc. Our firm would be pleased to provide these services for you once actual site development begins.

CLOSURE

The conclusions and recommendations provided in this report were based upon the subsoil conditions encountered in our auger borings. It is assumed that the subsurface profile depicted by our borings is representative of the subsurface profile in all portions of the site. If during construction activities, variations in the subsurface profile are encountered, our firm should be notified immediately so we may re-evaluate the conclusions and recommendations provided in this report.

We have appreciated the opportunity of providing our engineering services to you on this project and trust that the information presented in this report is satisfactory. Should you have any questions, or if we can be of any further assistance, please do not hesitate to contact the undersigned.

Sincerely,

MIKE TANNOUS ENGINEERING, INC.

6/12/18

Mike S. Tannous, P.E.
Principal Engineer
Florida Registration No. 46009

Attachment: Figure 1 - Boring Location Plan and Soil Profiles

Boundary Survey

Legal Description:

LOTS 31 AND 33, LESS THE SOUTH 14 FEET OF LOT 33, THE GREENLEAF AND WILSON'S ADDITION TO LAKE MARY, ACCORDING TO THE MAP OR PLAT THEREOF, AS RECORDED IN PLAT BOOK 3, PAGES 26 AND 27, INCLUSIVE, OF THE PUBLIC RECORDS OF SEMINOLE COUNTY, FLORIDA.
AND
LOTS 35, 38 AND 39, AND THE SOUTH 14 FEET OF LOT 33, THE GREENLEAF AND WILSON'S ADDITION TO LAKE MARY, ACCORDING TO THE MAP OR PLAT THEREOF, AS RECORDED IN PLAT BOOK 3, PAGE(S) 26 AND 27, INCLUSIVE, OF THE PUBLIC RECORDS OF SEMINOLE COUNTY, FLORIDA, LESS ROAD RIGHT-OF WAY FOR LAKE MARY BOULEVARD AND HOLLIS STREET.

Flood Disclaimer:
By performing a search with the local governing municipality or www.fema.gov, the property appears to be located in zone X. This Property was found in City of Lake Mary, community number 120416, dated 9/28/2007.

CERTIFIED TO: VSP VENTURES

-Vertical Datum-

-Benchmark Information-

Florida Department of Transportation Datum

Florida Department of Transportation
Florida Permanent Reference Network (FPRN) District 5
G.P.S. - Geodetic NTRIP Network Base I.D. - Sanford
Continuously Operating Reference Station (Cors) Station: SNFD

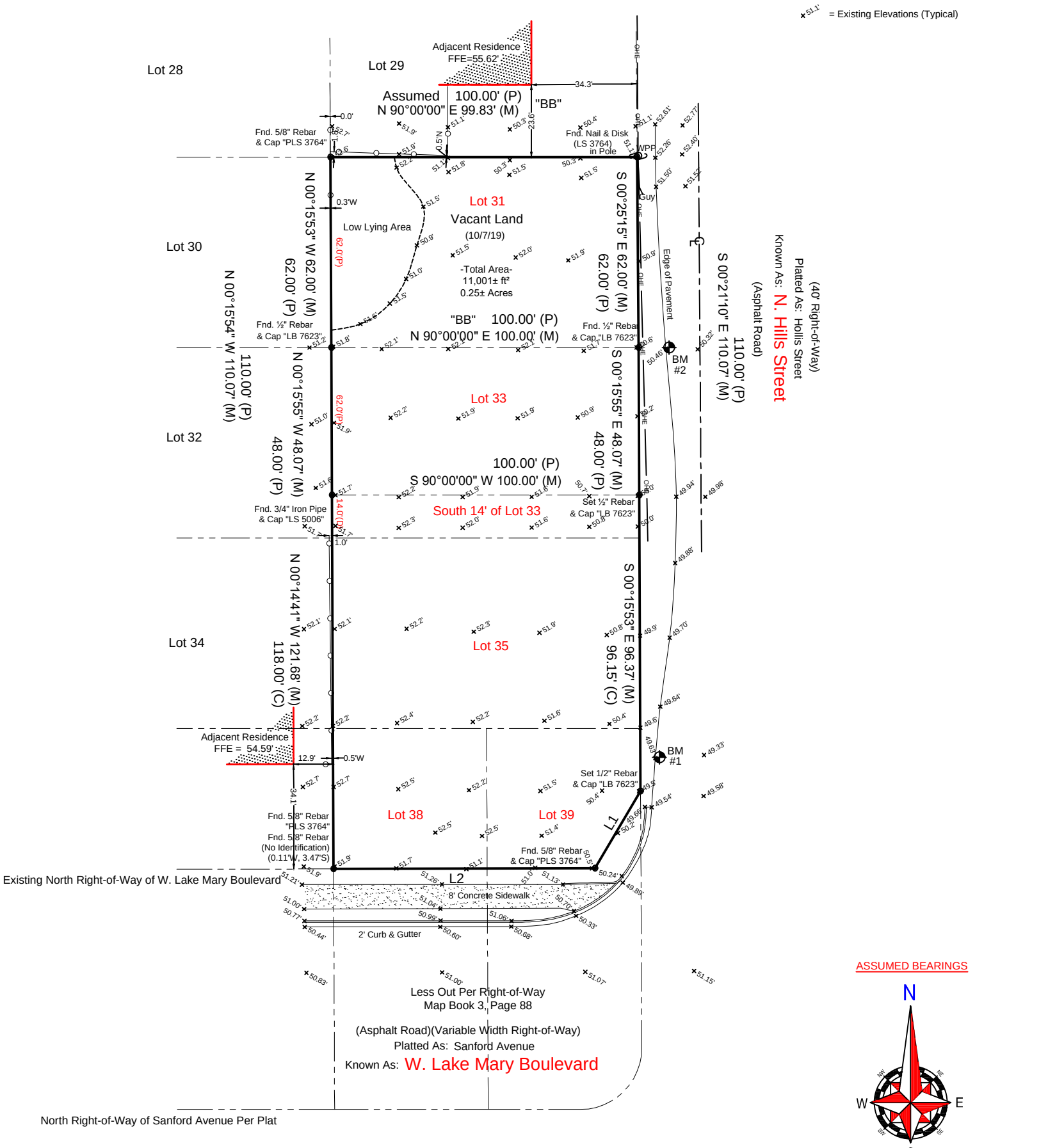
(Elevations are based upon North American Vertical Datum 1988)

-Site Benchmark Information-

BM #1
Set Nail & Disk (LB 7623) in Edge of Pavement
Elevation: 49.65'

BM #2
Set Nail & Disk (LB 7623) in Edge of Pavement
Elevation: 50.49'

51.1' = Existing Elevations (Typical)



ASSUMED BEARINGS

Graphic Scale
0' 20' 40' 80'
Scale: 1"=40'

Tree Note:

No Trees were observed on Property at Time of Survey

L1	L2
29.25' (C)	85.00' (C)
S 30°36'26" W 29.17' (M)	S 89°51'46" W 29.17' (M)

Revision: Added Parcel - 11/08/19 - BMJ

Field Date: 10/04/19	Date Completed: 10/07/19
Drawn By: AA	File Number: IS-65702

-Legend-

C	- Calculated	PC	- Point of Curvature
℄	- Centerline	Pg.	- Page
CB	- Concrete Block	PI	- Point of Intersection
CM	- Concrete Monument	P.O.B.	- Point of Beginning
Conc.	- Concrete	P.O.L.	- Point on Line
D	- Description	PP	- Power Pole
DE	- Drainage Easement	PRM	- Permanent Reference Monument
Esmt.	- Easement		
F.E.M.A.	- Federal Emergency Management Agency	PT	- Point of Tangency
		R	- Radius
FFE	- Finished Floor Elevation	Rad.	- Radial
Fnd.	- Found	R&C	- Rebar & Cap
IP	- Iron Pipe	Rec.	- Recovered
L	- Length (Arc)	Rfd.	- Roofed
M	- Measured	Set	- Set ½" Rebar & Cap "LB 7623"
N&D	- Nail & Disk		
N.R.	- Non-Radial	Typ.	- Typical
ORB	- Official Records Book	UE	- Utility Easement
P	- Plat	WM	- Water Meter
P.B.	- Plat Book	Δ	- Delta (Central Angle)
–□–	- Wood Fence	–O–	- Chain Link Fence

-Notes-

>Survey is Based upon the Legal Description Supplied by Client.
>Abutting Properties Deeds have NOT been Researched for Gaps, Overlaps and/or Hiatus.
>Subject to any Easements and/or Restrictions of Record.
>Bearing Basis shown hereon, is Assumed and Based upon the Line Denoted with a "BB".
>Building Ties are NOT to be used to reconstruct Property Lines.
>Fence Ownership is NOT determined.
>Roof Overhangs, Underground Utilities and/or Footers have NOT been located UNLESS otherwise noted.
>Septic Tanks and/or Drainfield locations are approximate and MUST be verified by appropriate Utility Location Companies.
>Use of This Survey for Purposes other than Intended, Without Written Verification, Will be at the User's Sole Risk and Without Liability to the Surveyor. Nothing Hereon shall be Construed to give ANY Rights or Benefits to Anyone Other than those Certified.
>Flood Zone Determination Shown Heron is Given as a Courtesy, and is Subject to Final Approval by F.E.M.A. This Determination may be affected by Flood Factors and/or other information NEITHER known by NOR given to this Surveying Company at the time of this Endeavor. Ireland & Associates Surveying Inc. and the signing surveyor assume NO Liability for the Accuracy of this Determination.

I hereby Certify that this Boundary Survey of the above Described Property is True and Correct to the Best of my Knowledge and Belief as recently Surveyed under my Direction on the Date Shown, Based on Information furnished to Me as Noted and Conforms to the Standard of Practice for Land Surveying in the State of Florida in accordance with Chapter 5J-17.052 Florida Administrative Codes, Pursuant to Section 472.027 Florida Statutes.

PATRICK K. IRELAND CERTIFICATE NO. 6637 STATE OF FLORIDA PROFESSIONAL SURVEYOR AND MAPPER

FOR THE FIRM

Patrick K. Ireland PSM 6637 LB 7623

This Survey is intended ONLY for the use of Said Certified Parties.
This Survey NOT VALID UNLESS Signed and Embossed with Surveyor's Seal.

Ireland & Associates Surveying, Inc.
800 Currency Circle Suite 1020
Lake Mary, Florida 32746
www.irelandsurveying.com
Office-407.678.3366 Fax-407.320.8165