To: Deerfield Land Corporation  
14901 South Orange Blossom Trail  
Orlando, Florida 32837

Attention: Mr. Thomas Roehlk

Subject: Report of Geotechnical Engineering Services  
Proposed Retail Development  
Osceola Commerce Center – Lot 20  
Osceola Parkway and Orange Avenue, Osceola County, Florida

Dear Mr. Roehlk:

Pursuant to your request and authorization, Andreyev Engineering, Inc. (AEI) has completed a geotechnical engineering study in connection with the proposed Retail Development described as Osceola Commerce Center – Lot 20 located at the intersection of Osceola Parkway and Orange Avenue in Osceola County, Florida.

This report includes the results of exploratory borings drilled within the proposed structures, pavement and stormwater retention pond areas, engineering evaluations of allowable soil bearing pressure and anticipated settlement, and recommendations for foundation design, pavement design, stormwater management design, and proper site preparation prior to construction.

We appreciate the opportunity to be of service on this project and trust that the information presented in this report is sufficient for your design purposes. Should you have any questions concerning this report please contact the undersigned at 352-241-0508.

Sincerely,

ANDREYEV ENGINEERING, INC.

[Signature]

Ed Miguens, P.E.  
Vice President  
Florida Registration No. 47535
1.0 PURPOSE AND SCOPE

This study was performed to obtain information about the general subsurface conditions within the locations of the proposed structures, pavement and stormwater retention pond areas in order to form an opinion of the soil stratigraphy and develop estimates of geotechnical properties. Based on the data obtained, recommendations for each of the following were formulated:

1. Soil stratigraphy at the boring locations and development of the anticipated soil profile within the depth of foundation influence at the structure locations.

2. Feasibility of supporting the structures with a conventional shallow foundation system.

3. Design parameters required for the foundation system, including allowable bearing pressure, foundation level, soil subgrade preparation, and expected settlement ranges.

4. Discuss the suitability of on-site materials that may be moved during site grading or excavation for re-use as structural fill.

5. Provide pavement section design recommendations.

6. Provide design parameters for the proposed stormwater management system.

7. Provide structural fill, placement, compaction and construction quality control recommendations. Provide engineering criteria for the placement and compaction of approved fill materials in the structure and pavement areas.

Our work for this study involved coordination of field activities, underground utility clearance, drilling soil borings, visual classification of collected soil samples, measuring groundwater levels, geotechnical engineering evaluations, and report preparation. Specifically, the work included the following:

1. Boring layout and underground utility clearance. Public underground utilities were cleared through Sunshine State One Call Service.

2. Drilled thirteen (13) Standard Penetration Test (SPT) borings within the proposed building areas. These borings are designated as B-1 through B-8, and B-10 through B-14. Please note that boring B-9 was not drilled. The SPT borings were each drilled to a depth of 25 feet below existing grade.

3. Drilled nine (9) auger borings within the proposed pavement areas. These borings are designated as A-1 through A-9 and were drilled to depths ranging from 4.5 to 7 feet below grade.

4. Drilled five (5) auger borings within the proposed stormwater retention pond area.
These borings are designated as P-1 through P-5 and were drilled to depths ranging from 20 to 30 feet below grade.

5. Visually classified the collected soil samples in the laboratory according to the Unified Soil Classification System (USCS).

6. Performed geotechnical engineering evaluations and analyses to develop recommendations as previously described.

7. Prepared this engineering report describing the results of our study, including field investigation, laboratory testing, subsurface conditions encountered, and our geotechnical engineering evaluations and recommendations in each of the above areas.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

The subject site is located northwest of the intersection of Osceola Parkway and Orange Avenue in Osceola County, Florida (Section 3, Township 25 South, and Range 29 East). For your reference, we have included a U.S.G.S. Topographic Map which depicts the location of the site on the attached Figure 1.

The subject site consists of approximately 23.2 acres of undeveloped land. Surface vegetation consists of trees and underbrush. Man-made wet ponds are situated at the northeast and western portions of the site.

The proposed development will include two large retail box stores (65,000 and 75,000 square feet) located within the northern portion of the site, a 12,000 square feet retail building in the southwest portion of the site, a large stormwater retention pond at the far north end of the property, and paved parking/driveways located to the south, west, and east of the retail buildings. Paved driveways and loading docks are planned behind the large retail buildings. The development includes three outparcels along the Osceola Parkway frontage. The majority of the large existing man-made wet pond located within the western portion of the site will be filled in to accommodate the proposed building and pavement features. The far north end of this pond and the other existing man-made pond located at the northeast part of the site will be integrated into the proposed stormwater retention pond. Please refer to the attached Figure 3 which shows the layout of the planned development.

Detailed structural loading information has not been provided to us, however, for the purpose of our analysis, we have assumed that maximum column and wall loads for the two large retail buildings will not exceed 200 kips and 7 kips per lineal foot, respectively. For the smaller retail building, we have assumed that maximum column and wall loads will not exceed 50 kips and 4 kips per lineal foot, respectively. Please notify AEI if the actual design loads exceed the values above so that we can revisit and possibly revise the recommendations presented in this report.
3.0 REVIEW OF PUBLISHED LITERATURE

3.1 U.S.G.S. Topographic Map

Referencing the data presented on the U.S.G.S. Topographic Map (refer to Figure 1), the natural ground surface elevation within the subject property range is approximately 85 feet, NGVD. The ground surface in the site vicinity is generally flat to gently sloping. A wetland exists along the west property boundary.

3.2 N.R.C.S. Soil Survey Map

Details of the near surface soil groups present at the site and vicinity are summarized in the N.R.C.S. Soil Survey of Osceola County, Florida. This map is presented as Figure 2 in the Appendix. There are three (3) soil map units identified within the subject site. General information regarding the mapped soil units for the project site is provided in the following table.

<table>
<thead>
<tr>
<th>Soil Unit #</th>
<th>Name</th>
<th>High Water Table Depth (feet)</th>
<th>General Soil Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Basinger Fine Sand, depressional</td>
<td>+2.0 to −1.0</td>
<td>0 - 80&quot; Fine Sand</td>
</tr>
<tr>
<td>32</td>
<td>Placid Fine Sand, depressional</td>
<td>+2.0 to −1.0</td>
<td>0 - 24&quot; Fine Sand, Fine Sand, Loamy Fine Sand</td>
</tr>
<tr>
<td>42</td>
<td>Smyrna Fine Sand</td>
<td>0 to −1.0</td>
<td>0 - 80&quot; Sand, Fine Sand</td>
</tr>
</tbody>
</table>

Please note that the vast majority of the site is mapped as #42 – Smyrna Fine Sand.

4.0 SUBSURFACE EXPLORATION PROGRAM

To explore the general subsurface conditions at the site, we drilled thirteen (13) Standard Penetration Test (SPT) borings (B-1 through B-8, and B-10 through B-14) within the locations of the proposed buildings. The SPT borings were each drilled to a depth of 25 feet below the existing grades. Boring B-9 was not drilled. Additionally, we drilled five (5) auger borings (P-1 through P-5) within the proposed retention pond site to depths ranging from 20 to 30 feet below grade and nine (9) auger borings (A-1 through A-9) were drilled within the proposed pavement
areas to depths ranging from 4.5 to 7 feet below grade. Please note that no borings were drilled within the existing man-made wet pond areas. AEI would be pleased to provide supplementary borings in these areas of the site; however amphibious drilling equipment will be required to access these areas.

The locations where the borings were drilled are presented on the attached Figure 3. Horizontal and vertical control was provided by the project surveyor.

The SPT borings were conducted in general conformance with ASTM D-1586. Closely spaced soil sampling using a 1-3/8 inch I.D. split-barrel sampler was performed in the upper 10 feet, with successive samples secured generally at 5-foot intervals thereafter. The SPT borings measure soil density using the split spoon sampler to collect the soil sample while being advanced by a 140-pound hammer dropped repeatedly a distance of 30 inches. The number of successive blows required to drive the sampler into the soil constitutes the test result commonly referred to as the "N"-value. The N-value, which is shown next to the corresponding depth of each SPT boring on Figures 4 and 5, is the number of blows by the hammer required to advance the split spoon sampler one (1) foot. SPT N-value data can be correlated with many other soil index properties used for analysis.

The recovered soil samples were visually classified in the field with representative portions of the samples placed in jars and transported to our office for review by the geotechnical engineer and confirmation of the field classification. The SPT borings were drilled to depths of 25 feet, in consideration of the depth range that will be primarily influenced by the planned construction.

5.0 SUBSURFACE CONDITIONS

5.1 Generalized Soil Conditions

The results of our subsurface exploration program including the stratification profiles and pertinent exploration information such as SPT "N" values and groundwater levels are graphically presented on the attached Figures 4 through 6. Soil stratification is based on the review of recovered soil samples and interpretation of field boring logs by a geotechnical engineer. The stratification lines represent the approximate boundaries between soil types. The actual transition may be gradual. Minor variations not considered important to our engineering evaluations may have been abbreviated or omitted for clarity.

In general, the borings encountered fine sand, slightly silty fine sand and silty fine sand (SP, SP-SM, SM materials) from the ground surface to depths ranging from approximately 7 to 18.5 feet below existing grades. Occasional trace amounts of roots and organics were present in some of the shallow soils. These soils were found to be underlain by slightly clayey fine sand, clayey fine sand, and clay (SP-SC, SC, CL materials) which generally persisted to the maximum explored depths. In several borings, clayey type soils were present in the upper portions of the soil column. This condition may be indicative of past filling activities or possibly the result of spoil from the on-site man-made ponds.
Please refer to the attached Figures 4 through 6 (soil profiles) for specific boring data.

Soil density in the structure areas was evaluated using the results of the SPT boring N-values, shown adjacent to the tested depth and corresponding soil profile on Figures 4 and 5. In general, the relative density of the granular soils at the tested locations is characterized as loose to very dense with the majority of the soils being medium dense. The dense to very dense soils may be cemented “Harpan” type soils.

5.2 Shallow Groundwater Levels

At the time of our field investigation (July 2014), the groundwater table was encountered at depths ranging from approximately 2.0 to 7.0 feet below existing grade. It is our opinion that the on-site man-made ponds, nearby off-site drainage systems, and presumed filling activities have impacted the natural groundwater conditions of the site. Fluctuation of the groundwater table should be anticipated throughout the year due to variations in seasonal rainfall. Based on the time of year, the encountered groundwater levels and the amount of rainfall received to date, we estimate that the predevelopment normal wet season high water table will be approximately 2 feet above the observed levels.

5.3 Laboratory Testing

The recovered soil samples were visually classified and stratified in the laboratory by the project engineer using the Unified Soil Classification System (USCS). The soil classifications are presented on the attached Figures 4 through 6.

6.0 ENGINEERING EVALUATIONS AND RECOMMENDATIONS

6.1 Foundation System

Based on our test boring results and our settlement analyses, a conventional shallow foundation system can be utilized for support of the proposed structures as described in this report, provided that the site subgrade preparation recommendations discussed herein are instituted.

Maximum foundation loads associated with the proposed large retail structures are estimated to be 200 kips and 7 kips per lineal foot, respectively. For the smaller proposed retail building, the maximum foundation loads are estimated to be 50 kips and 4 kips per lineal foot, respectively. Based on the assumed foundation loads above, we estimate maximum total and differential settlement of 1 inch and 3/4 inch, respectively.

The foundation systems should bear on properly placed and compacted cohesionless (sand) structural fill. After site stripping and grubbing, and prior to the placement of any fill, the exposed subgrade should be proof-rolled with non-vibratory compaction equipment, as described later in this report, to provide uniform subgrade conditions and densify the exposed subgrade soils, in order to limit total and differential building settlements. Our settlement estimates assume that this
procedure will be accomplished. Compaction operations should be controlled by the contractor so as to not adversely impact adjacent structures.

Provided that the site soils have been properly prepared and compacted, as specified in this report, the structure can be supported on a conventional shallow foundation, sized on the basis of an maximum allowable soil contact pressure of 2,500 pounds per square foot (psf). For continuous wall footings, a minimum width of 1.5 feet is recommended. Any individual spread or column footings must be a minimum of 3 feet wide and also sized based on an maximum allowable soil contact pressure of 2,500 psf. The bottom of all footings shall be placed a minimum of 18 inches below the lowest adjacent finished grade.

6.2 Floor Slabs

Provided that the site subgrade preparation recommendations discussed herein are instituted, slab-on-grade construction may be used for the ground floor of the buildings. Any cuts that are made in the building pad for utility installation should be backfilled with clean granular materials that are compacted to at least 98 percent of the soils’ modified Proctor maximum dry density per ASTM D-1557. Material to be placed within 12 inches of the bottom of the slab should have less than 7 percent passing the No. 200 sieve.

The floor slabs should be reinforced with steel mesh or a suitable equivalent. To avoid potential problems with cracking because of differential loadings, the floor slabs should be liberally jointed and separated from columns and walls. An impervious membrane should be installed between the soil subgrade and bottom of floor slab areas to be overlain with moisture sensitive coverings. Use of such a moisture barrier should minimize slab moisture problems.

We recommend a modulus of subgrade reaction (k) of 200 pci for floor slab design.

6.3 Earth Pressures on Walls

Below grade walls should be designed to resist pressures exerted by the adjacent soils, hydrostatic head and any surcharge loads. For walls that are not restrained during backfilling but are free to rotate at the top, active earth pressure should be used in design. Walls that are restrained should be designed assuming at-rest pressures. Recommended equivalent fluid densities for each pressure condition are presented below.

Active Pressure
- Above Water Table - 35 pcf
- Below Water Table - 80 pcf

At-Rest Pressure
- Above Water Table - 50 pcf
- Below Water Table - 90 pcf
The above recommended pressures assume that adequate drainage is provided behind the walls to prevent the buildup of excess hydrostatic pressures. This can be achieved by installing drains, using geosynthetic materials or backfilling with free draining sand in association with adequate weep holes.

6.4 Pavement Design Considerations

The results of the auger borings performed within the proposed pavement area revealed subsurface conditions that are suitable for support of either flexible (limerock), semi-flexible (soil-cement) or rigid (concrete) pavement structures.

For a flexible pavement section, we recommend that the limerock base thickness be a minimum of 6 inches within parking areas and at least 8 inches where there will be heavy traffic such as main driveways and areas subjected to truck traffic. The limerock base materials should have a minimum Limerock Bearing Ratio (LBR) of 100 and be compacted to at least 98 percent of the Modified proctor maximum dry density per ASTM D-1557. The base course should be underlain by at least 12 inches of stabilized sub-base for both light and heavy duty pavement sections having an LBR of at least 40 and compacted to a minimum of 98 percent of the Modified proctor.

In lieu of using a limerock base material for flexible pavement structure, consideration can be given to using a crushed concrete base material. The crushed concrete base material should have a minimum Limerock Bearing Ratio (LBR) of 120 and be compacted to at least 98 percent of the Modified proctor maximum dry density per ASTM D-1557. The crushed concrete material should meet FDOT specifications. The base course should be underlain by at least 12 inches of stabilized sub-base for both light and heavy duty pavement sections having an LBR of at least 40 and compacted to a minimum of 98 percent of the Modified proctor. The thickness for light and heavy duty areas shall be the same as the limerock base thicknesses provided above.

If a soil-cement base material is used, the thickness for light and heavy duty areas shall be the same as the limerock base thicknesses provided above. For this type of pavement section, a stabilized sub-base is not recommended. The sub-grade soils to a depth of at least 12 inches below the bottom of the base should consist of well draining fine sand with less than 7 percent passing the No. 200 sieve and should be compacted to a minimum of 98 percent of the Modified proctor maximum dry density to a depth of at least 12 inches below the base course. The soil-cement base course should be compacted to a minimum of 98 percent of the Standard proctor density per AASHTO T-134. Please note that soil cement base pavement sections are typically used in areas that have high groundwater table conditions. This type of pavement section will experience cracking associated with the curing process. The cracks typically propagate up through the asphaltic concrete surface course. This type of pavement section is the least desirable from an aesthetic perspective.

The asphaltic concrete wearing surface should be Type S and should have a minimum thickness of 1.5 inches in light duty areas and 2 inches in heavy duty areas. The asphaltic
concrete should be rolled to achieve a density in the range of 91 to 95 percent of the laboratory density as determined by the Marshall Stability test method.

For a rigid concrete pavement section, we recommend a minimum thickness of 6 inches within light duty areas and 8 inches within heavy duty areas. The concrete should be reinforced sufficiently to withstand the design traffic loads and jointed to reduce the chances for crack development. The concrete should have a minimum unconfined compressive strength of 3,000 psi. The sub-grade soils underlying the concrete pavement should consist of well-draining fine sand with less than 7 percent passing the No. 200 sieve and should be compacted to at least 98 percent of the Modified proctor maximum dry density to a depth of at least 12 inches.

The recommended pavement thicknesses presented herein are minimum thicknesses typical of local construction practices. Actual pavement section thicknesses should be designed by the project civil engineer based on traffic loads, volumes and the selected design life. All pavement materials should conform to the requirements of FDOT, American Concrete Institute (ACI) and city/county requirements.

6.5 Fill Placement and Subgrade Preparation

The following are our recommendations for overall site preparation and mechanical densification work in the structure areas, based on the anticipated construction and our test boring results. These recommendations should be incorporated into the project general specifications prepared by the Design Engineer.

1. The proposed building and pavement areas plus a five (5) foot margin beyond the perimeter (where applicable) should be stripped and cleared of all surface vegetation, root laden topsoils, construction debris and any deleterious materials. A representative from our firm should observe the stripped grades to verify an adequate depth of stripping. All soft/loose sediments and all organic matter shall be removed from the existing man-made pond prior to backfilling operations.

2. After stripping, the exposed subgrade should be leveled sufficiently to permit equipment traffic and then proof-rolled using a large static drum roller or fully loaded front end loader. Careful observations should be made during proof-rolling to identify any areas of soft yielding soils that may require over-excitation and replacement. Heavy vibratory equipment should not be used within 100 feet of any existing structures. The groundwater table shall be controlled at least 2 feet below compaction and excavation surfaces.

3. A minimum of 15 overlapping passes in a criss-cross pattern should be made by the compaction equipment prior to placing any fill. Compaction should continue until a minimum density requirement of 98% of the maximum modified Proctor dry density established in accordance with ASTM D-1557, is achieved for a minimum depth of 2 feet below in the proposed building areas and to a depth of 1 foot in the proposed
pavement areas.

4. Following satisfactory completion of the initial compaction of the exposed subgrade, the areas may be brought up to finished subgrade levels. The fill should consist of fine sand with less than 12% passing the No. 200 sieve, free of rubble, organics, clay, debris and other unsuitable materials. Fill materials should be tested and approved prior to acquisition. Approved sand fill should be placed in loose lifts not exceeding 12 inches in thickness and should be compacted to a minimum of 98% of the maximum modified Proctor dry density (ASTM D-1557). Density tests to confirm compaction should be performed in each fill lift before the next lift is placed.

5. Backfill soils placed adjacent to footings or walls below or above grade should be carefully compacted with a light rubber-tired roller or vibratory plate compactor to avoid damaging the footings or walls. Approved sand fills placed in footing excavations above the bearing level, and in other areas which are expected to provide support or foundation embedment constraint, should be placed in loose lifts not exceeding 6 inches and should be compacted to a minimum of 98% of the maximum modified Proctor dry density (ASTM D-1557).

6. In-place density tests within the structure pad areas should be performed at a minimum frequency of one test per 2,500 square feet for a depth of 2 feet below exposed subgrade and for each 1-foot lift of placed fill. In-place density tests should be performed for a depth of 2 feet below the bottom of each column footing. For continuous footings, in-place density tests should be performed at a minimum frequency of 1 test for every 50 linear feet for a depth of 2 feet below the bottom of the footing. In-place density tests within the pavement areas should be performed at a minimum frequency of one test per 5,000 square feet for a depth of 1 foot below exposed subgrade and for each 1-foot lift of placed fill.

7. Earthwork operations should take place under the full-time observation of a field technician from Andreyev Engineering, Inc.

6.6 Stormwater Retention System

Based on the results of our findings, it is our opinion that wet bottom retention pond design appears to be suitable for this site. Using the data obtained from boring locations P-1, P-2, and P-5, we recommend using an average normal wet season high groundwater elevation of 84.0 feet and a normal dry season low groundwater elevation of 80.5 feet. The design of the proposed retention pond should include possible background seepage.

6.7 Fill Suitability

The Strata 1 through 5 soils are considered suitable for use as structural fill provided that they are free of roots, organics, deleterious materials and have a maximum fines content of 12
percent passing the No. 200 sieve. The silty/clayey soils (Strata 6, 7, 8, 10 and 11 soils) are not considered a good source of structural fill as they are poorly draining and are difficult to compact due to problems with maintaining the moisture content near optimum. However, if the contractor elects to use these type soils for site filling and backfilling, we recommend that they not be placed within 2 feet below bottom of pavement base materials, bottom of floor slabs or within the upper 2 feet in landscape areas. The Stratum 9 soil shall not be used as fill due to their high fines content. If cemented “hardpan” type soils are encountered during excavation activities at this site, they shall be crushed such that the maximum particle size does not exceed 3 inches prior to reuse as fill. We recommend that on site and imported materials be tested prior to placement to verify that they are suitable for use during earthwork operations and meet the project specifications.

6.8 Outparcels

Based on the results of SPT borings B-11, B-12 and B-13 which were performed within the three outparcels located within the southern portion of the development, we dot foresee any major geotechnical constraints for development of these sites. The main constraint is the relatively high groundwater table. The soils appear suitable for support of low rise retail buildings on shallow foundation systems. Additionally, the subsurface conditions appear suitable for support of flexible (limerock), semi-flexible (soil-cement) or rigid (concrete) pavement structures. Standard site preparation is anticipated for development of the outparcels. Please note that the subsurface exploration for the outparcels was very limited and shall be considered preliminary only. Once development plans are available, a design level subsurface exploration program shall be carried out. At that time, specific recommendations for foundation design, pavement design and site preparation procedures will be provided by AEI.

6.9 Pipe Bedding

Trench excavation bottoms should be graded to provide a positive contact with the contour of the utility pipe to ensure uniform bedding for the full length of all pipes. Soft materials found in the trench excavation bottom should be removed and replaced with granular fill.

If required for stabilization purposes in localized areas, the bedding material should consist of crushed stone or No. 57 stone with not less than 95 percent passing the ½ inch sieve and not less than 95 percent retained on a U.S. Standard No. 4 sieve. It should be placed in 6-Inch layers and compacted with hand held equipment.

6.10 Excavations

All excavations should be constructed in accordance with applicable local, state and federal regulations including those outlined by the Occupational Safety and Health Administration (OSHA). It is the contractor’s sole responsibility for designing and constructing safe and stable excavations. Excavations should be sloped, benching or braced as required to maintain stability of the excavation sides and bottoms. Excavations should take into account loads resulting from equipment, fill stockpiles and existing construction. Any shoring needed to maintain a safe
excavation should be designed by a professional engineer registered in the State of Florida in accordance with local, state and federal guidelines.

7.0 GENERAL CONDITIONS

This report has been prepared for the exclusive use of Deerfield Land Corporation and its designers, based on our understanding of the project as stated in the section entitled "Site Location and Project Description". The recommendations presented in this report have been prepared in accordance with generally accepted geotechnical engineering practice. No other warranty, expressed or implied, is made as to the professional advice presented herein.

8.0 LIMITATIONS OF REPORT

The analyses and recommendations submitted in this report are based upon the anticipated location and type of construction discussed herein and the data obtained from the soil borings performed at the locations indicated, and does not reflect any variations which may occur beyond these borings. If any variations become evident during the course of construction, or if the structure location(s), type or loading changes, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe and evaluate the characteristics of the conditions encountered. Shifting or moving the structure location(s) will require additional evaluation. When final design plans and specifications are available, a general review by our office is strongly recommended as a means to check that the assumptions made in preparation of this report are correct, and that earthwork and foundation recommendations are properly interpreted and implemented.
FIGURES
1. B-1: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
2. B-2: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
3. B-3: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
4. B-4: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
5. B-5: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
6. B-6: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
7. B-7: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
8. B-8: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
9. B-9: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft
10. B-10: 0 ft, 1 ft, 2 ft, 3 ft, 4 ft, 5 ft, 6 ft, 7 ft

**Legend:**
- Light gray to gray brown fine sand (GP1-FL)
- Dark brown fine sand with clayey fine sand (DF-CC)
- Dark brown fine sand with clayey fine sand (DF-CC)
- Dark brown fine sand to slightly finer sand (DF-FL)
- Clay to dark brown fine sand to slightly finer sand (DF-FL)
- Dark brown fine sand with trace litter (DFM)
- Gray brown slightly clayey fine sand (DPG)
- Light gray brown to gray brown clay (CL)
- Dark brown silty fine sand (SN)
- Dark brown silty fine sand with trace organics (SN)

**Groundwater:**
- Groundwater not encountered
- Groundwater not measured
- N: Standard penetration resistance, in blows per foot
- E: Ground elevation at boring location

**Elevations:**
- Elevations are based on Osceola County Benchmark no. 00-787.
- Recovered from borehole structure at southeast corner of detention pond located 60' north of north wall of Parkway, overlooks over CSX railroad and 270' east of edge of pedestrian of Orange Avenue. Elevation-10.07 NGVD 29.

**Andreyev Engineering, Inc.**
- Geotechnical Engineering
- Proposed Retail Development
- Osceola Commerce Center - Lot 20
- Andreyev Avenue

**Figure 4**

**Scale:** 1" = 5'