

**ADDENDUM NO. 1**

To the Plans and Specifications for:

**FY26 Stormwater Improvements**

City of Seminole

1. **BID DATE:** NO CHANGE

Wednesday, February 11, 2026 @ 11:00 A.M.

2. **TECHNICAL SPECIFICATIONS:** NO CHANGE

3. **PLANS:** NO CHANGE

4. **RESPONSE TO SUBMITTED QUESTIONS**

RSQ.1 Is the Geotech report available?

*The Geotech reports have been included with this addendum.*

RSQ.2 Can you tell me the liquidated damages, estimated start date, and duration of the project you are anticipating?

*Liquidated damages are “the sum of \$100.00 per calendar day, commencing upon the first day following expiration of the Contract Time and continuing until the actual date of Substantial Completion” per the Construction Agreement in the bid documents.*

*The estimated start date of this project is 03/09/2026 and the project is expected to conclude on 07/07/2026.*

RSQ.3 What is the cost estimate for this project?

*This project has an estimated cost of \$633,000.00.*

5. **GENERAL CLARIFICATION / INFORMATION:**

- A. The last day for the submission of questions will be 02/02/2026 by 5:00 P.M.
- B. Preliminary utility coordination determined that there was a utility conflict with Frontier at Site 1. However, this conflict has since been resolved. Frontier has disconnected the line and will coordinate further with the contractor who wins the bid, if needed.

CITY OF SEMINOLE

January 26, 2026



**November 12, 2025**  
**AEI Project No.: APGT-25-153**

**TO:** **Advanced Engineering and Design**  
3931 68<sup>th</sup> Avenue North  
Pinellas Park, Florida 33781

Attn: Mr. Justin Keller, President

**SUBJECT:** Geotechnical Investigation - Grove Terrace and Johnson Road  
Roadway and Utility Improvements  
Johnson Road, Seminole, Pinellas County, Florida

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Dear Mr. Keller:

As requested, Andreyev Engineering, Inc. (AEI) has completed the geotechnical investigation to support the proposed roadway and utility improvements along a portion of Grove Terrace and Johnson Road in Seminole, Florida. Presented herein are the findings of the study along with conclusions and recommendations regarding the distress to the investigated pavement areas.

## **SITE DESCRIPTION**

The project area primarily consists of a section of Johnson Road between Grove Terrace and Oakdale Terrace in Seminole, Florida. This portion of the roadway is a two-lane, asphalt-paved street in a residential subdivision. The edges of the pavement transition into turf-covered lawns, and lacked curbs, gutters, or sidewalks. The properties to the east of the roadway alignment consist of single-family residences, while the west side was characterized by a tree line along the shore of a lake. At the time of our initial site inspection the water level in the lake was estimated to be about 2 to 3 feet lower than the roadway, and a low berm between the lake and the road extended about 1 foot above the pavement elevation. The overall ground surface topography in the vicinity was relatively level to very gently undulating.

## **PURPOSE AND SCOPE OF SERVICES**

The purpose of this study was to evaluate the existing pavement sections, as well as the shallow soils and groundwater conditions along the subject portion of the roadway alignment. To accomplish the above-stated purpose, the following scope of services was performed:

1. Reviewed available published information on the site, including the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) soil survey data for Pinellas County and the United States Geological Survey (USGS) topographic maps.
2. Conducted a subsurface exploration program consisting of pavement cores, soil borings, subsurface sampling and field testing. Our exploration program for this project consisted

of coring the asphalt pavement at two (2) locations to assess the thickness of the various pavement component layers and verify the type of base material. Additionally, two (2) Standard Penetration Test (SPT) borings were conducted at the core locations to depths of 15 feet below the existing pavement surface. Our testing included the collection of representative soil samples and recording the SPT blow counts during the drilling of the borings.

3. Measured and recorded the thickness of the pavement component layers, as well as an assessment of the base integrity.
4. Measured the groundwater levels at each boring location.
5. Reviewed and visually classified the recovered soils in the laboratory using the Unified Soils Classification System. Developed the general soil stratigraphy at the boring locations.
6. Performed geotechnical engineering studies and analyses in order to develop geotechnical engineering recommendations for roadway pavement and utility improvements.
7. Prepared a geotechnical engineering report which summarizes the course of our study, the field and laboratory data generated, the subsurface conditions encountered, and our geotechnical engineering and foundation recommendations for the for roadway and utility improvements.

## REVIEW OF AVAILABLE PUBLISHED DATA

The “Soil Survey of Pinellas County, Florida” published by the U.S. Department of Agriculture (USDA) Soil Conservation Service (S.C.S.) and the USDA Natural Resource Conservation Service (NRCS) Web Soil Survey were reviewed. The shallow soil types throughout the project area were identified as Myakka soils and Urban land. A brief description of this Soil Survey Map Unit is provided below:

*Soil Map Unit 17 – Myakka soils and Urban land: This soil unit is described as nearly level and poorly drained generally sandy soils found on the flatwoods of marine terraces. Typically, the surface layer from 0 to 4 inches is black fine sand. The subsurface layer from 4 to 22 inches is gray fine sand. The subsoil from 22 to 24 inches is black fine sand, from 24 to 29 inches is dark reddish brown fine sand, from 29 to 36 inches is dark yellowish brown fine sand that has dark reddish brown bodies, from 36 to 54 inches is light yellowish brown fine sand, and from 54 to 80 inches is very pale brown fine sand. The depth to the seasonal high groundwater level is about 6 to 18 inches in most years. The permeability is considered to be moderately rapid to rapid and the available water capacity is very low. This soil unit is considered very limited for shallow excavations due to the depth to the saturated zone and unstable excavation walls.*

*Urban Land: About 15 to 50 percent of each mapped area is Urban land. Urban land is described as areas covered by houses, streets, driveways, parking lots, buildings, and other structures that obscure or alter the soils to the extent that identification is not feasible. Due to the site-specific nature of Urban Land, no additional information was provided.*

## Field Exploration Program

For our study, we conducted two (2) pavement cores (C-1 and C-2) along the subject roadway alignment, in conjunction with SPT borings to depths of 15 feet below the existing pavement surface. The boring layout was established in the field according to the project information provided by the client. The approximate boring locations are also shown on **Figure 1**.

The SPT boring procedure was conducted using rotary-mud drilling techniques. Soil sampling using a 1-3/8 inch I.D. split-spoon sampler was conducted continuously through the first 10 feet and at 5 foot intervals thereafter. 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 has been empirically correlated with various soil properties and is considered to be indicative of the relative density of less cohesive soils and the consistency of cohesive soils. The recovered split spoon samples were visually classified in the field, and representative samples were placed in jars and transported to our office for further review and confirmation of the field classification.

## Pavement Component Measurements

The asphalt pavement was cored at each of the boring locations, and the pavement component layer thicknesses were recorded. The asphalt thickness and base thickness are presented in **Table 1**, along with the type of base material and description of the base integrity.

**Table 1: Pavement Properties**

Boring No.	Asphalt Thickness (inches)	Base Thickness (inches)	Base Type	Base Integrity *
C-1	2.5	4	Limerock	Good
C-2	3.75	4	Limerock	Good

\* **Note** – The integrity of base material was determined based on consistency/texture and the intermixing of subgrade soils.

## Generalized Soil Stratigraphy

The results of the subsurface exploration program including the soil stratification profiles and some pertinent exploration information such as SPT "N"-values are shown on **Figure 1**. Soil stratification was based on the review of recovered soil samples and interpretation of the field boring logs by a geotechnical engineer. The stratification lines represent the approximate boundaries between soil types; the actual transition may be gradual. The soil strata were visually classified using the Unified Soils Classification System. Minor variations in soil types not considered important to our engineering evaluations may have been abbreviated or omitted for clarity.

Based on the results of the SPT borings, the soil conditions generally consist of fine sand with variable amounts of silt. The soils encountered beneath the pavement base layer and extending to the boring termination depths of approximately 15-feet below the pavement surface were described as fine sand to slightly silty fine sand (Stratum 1). The sandy Stratum 1 soils were given the American Association of State Highway and Transportation Officials (AASHTO) classification of A-3. Based on SPT "N"-values taken from our SPT borings, the granular (sandy) soils

throughout the boring profiles generally exhibited relative densities that ranged from loose to medium dense, with the exception of a few sampling intervals in boring C-1 that exhibited dense conditions. The SPT N-values are presented adjacent to the soil profiles on **Figure 1**. Correlation of the SPT N-values with relative density are provided in **Table 2**:

**Table 2: SPT N-value Correlations**

Coarse-Grained Soils	
Penetration Resistance N (blows/ft)	Relative Density of Sand
0-4	Very Loose
4-10	Loose
10-30	Medium-Dense
30-50	Dense
>50	Very Dense

### Shallow Water Table Conditions

The shallow groundwater table was encountered at depths of approximately 2.8 feet below the pavement surface at the time that the cores/borings were performed. The groundwater levels measured at the time of drilling are presented adjacent to the boring profiles on **Figure 1**.

Seasonal fluctuations of groundwater levels can be anticipated in response to variations in rainfall. Based on review of the SCS soil survey, boring results, measured groundwater levels, adjacent surface water features and antecedent rainfall, the normal seasonal high groundwater table is expected to occur at depths of approximately 2.0 feet below the exiting pavement surfaces.

It should be noted that the estimated seasonal high-water levels provided should be considered accurate to about 0.5 foot +/- and does not provide any assurance that groundwater levels will not exceed these estimated levels during any given year in the future. Should impediments to surface water drainage be present, or if rainfall intensity/duration or total rainfall quantities exceed the normally anticipated rainfall quantities (such as during a tropical storm or hurricane), groundwater levels might exceed the seasonal high estimates presented above.

### GEOTECHNICAL RECOMMENDATIONS

As we understand, the project will include improvements to the stormwater drainage system, as well as resurfacing and/or mitigation of the pavement along with the utility improvements. Based on the results of our investigations and analysis of the encountered conditions, the subsurface conditions are adequate for the proposed infrastructure improvements, provided that proper site preparation is conducted during installation. The following are our recommendations for the implementation of the proposed utility and roadway improvements.

### **Dewatering**

At the time of our field-testing activities, the groundwater level was recorded at depths of approximately 2.8 feet below the existing ground surface. It is our understanding that portions of the stormdrain improvements will be installed by means of open trenches, which in some areas will likely extend beneath the groundwater level. A dewatering system will need to be implemented prior to excavation below the groundwater elevation.

It would be prudent to verify the existing depth of the groundwater at the commencement of the project to determine the necessity and extent of a dewatering system. The dewatering system should be designed to lower and maintain the groundwater level 18 to 24 inches below the trench bottom elevation throughout the duration of the project. The specific means for dewatering should be determined by the contractor base on local experience on similar projects in conjunction with the subsurface data presented in the boring profiles on **Figure 1**. The dewatering system should discharge away from any open excavations to prevent runoff flow towards or into the excavation/work area. In the event of a failure of the dewatering system or the excavations are partially filled with excess rainwater runoff, care should be taken to avoid a rapid drawdown of water from within the excavation, as this can result in excessive hydrostatic pressure in the retained soils on the outside of the shoring system.

### **Trench Stability**

Trench excavations should be made in accordance with recommendations outlined by the Occupational Safety and Health Administrative (OSHA) "Document 2226-Safe Working Practices-Excavating and Trenching" and "Construction Standards for Excavations-29 CFR Part 1926.650-652, Subpart P". If shoring is required due to deep cuts and/or high groundwater the trench should be shored in accordance with OSHA 2226 requirements.

The recommendations detailed in the above documents are applicable only when the excavation will not compromise the integrity of existing roadways, that is the top of the excavation is greater than 5 feet from the existing edge of pavement or roadway alignments. Any required shoring should be designed in accordance with the above, taking into consideration loadings resulting from equipment, regular road traffic and/or stockpiled fill. The minimum trench width should be taken as the nominal pipe diameter plus 18 inches.

### **Bedding and Backfill Requirements**

The borings generally revealed sandy A-3 materials within the approximately 15-foot deep boring profiles, indicating that the soils excavated for utility trenches should generally consist of the fine sands with small amounts of silt. These soils can be reused as back fill materials within the utility trenches and beneath the roadway alignments, as long as they can be placed within range of the optimum moisture content, as noted below. Some of the soils may need to be spread to dry or mixed with drier soils to manage the water content prior to placement and/or compaction, particularly any soils excavated from below the groundwater level.

Bedding and backfill up to 6 inches above the top of any buried utilities should consist of non-cohesive granular material. The granular material may consist of the on-site sandy, A-3 soils (Stratum 1) or imported fine sand with less than 12% passing the #200 standard sieve. The pipes should be laid directly on the trench bottom provided that the natural soil at the bottom level is granular. Alternatively, a layer of open-graded stone may be placed in the bottom of the trenches for a pipe bedding material.

The bottom of the utility trenches, as well as granular backfill soils, should be compacted using small hand-operated equipment. The trench bottoms should be compacted to 98 percent of the Modified Proctor Density to a minimum depth of one foot. Pumping or disturbed soils should be over-excavated and replaced with dry granular materials. Backfilling should progress as rapidly as the construction and testing of the work will permit. All backfill should be suitable as described above and be free of deleterious material. The initial backfill should be carefully deposited on both sides of the pipe at the same time and uniformly compacted around the barrel of the pipe until enough has been placed to provide a cover of one foot above the crown of the pipe. In no case should backfill material be placed in the trench in a manner that will cause shock to, or unequal pressure on the pipe. The backfill should be placed and compacted to 98 percent of maximum density as determined by AASHTO T-180 under and within six (6) feet of the roadway pavements.

Under no conditions should construction debris, concrete, or deleterious materials, etc., be included with the backfill. Native soils excavated from below the existing groundwater table may be saturated and difficult to compact. In such cases, sufficient time and adequate drying procedures should be provided to produce soil with a moisture content which is  $\pm 2$  percent of optimum. It may be more practical in some cases to bring in dry material from off-site or intermix dry soil with the onsite soils, as opposed to drying the excavated soils.

### **Pavement Design Considerations**

Resurfacing of the pavement can be performed in a conventional manner for some of the areas beyond the proposed utility improvements. Any trench areas for installation of the storm drainpipes should be excavated down to subgrade level and re-constructed with a semi-flexible section consisting of either a limerock or crushed concrete base. Site grades should be designed to maintain the normal wet season groundwater levels to at least 18 inches below a limerock or crushed concrete aggregate base, at all times. The minimum recommended thicknesses for the pavement component layers are provided as follows:

#### **Limerock Base**

- 1-1/2" asphaltic concrete wearing surface
- 6" limerock base course - Quality of limerock to be in accordance with current Florida Department of Transportation specifications and compacted to a minimum density equivalent to 98 percent of the Modified Proctor Maximum Density (AASHTO T-180). The limerock should have a minimum Limerock Bearing Ratio of 100.
- 12" stabilized subgrade consisting of free draining natural fine sand or fine sand fill with a minimum LBR of 40. The subgrade should be compacted to a minimum density equivalent to 98 percent of the Modified Proctor Maximum Density (AASHTO T-180).

### Crushed Concrete Aggregate Base

- 1-1/2" asphaltic concrete wearing surface
- 6" crushed concrete base - Reclaimed concrete materials to be sourced from an approved FDOT supplier and placed/compacted in accordance with current FDOT specifications. The aggregate should have a minimum Limerock Bearing Ratio of 150.
- 12" subgrade consisting of free draining natural fine sand or fine sand fill with a minimum LBR of 40. Subgrade to be compacted to a minimum density of 98 percent of the Modified Proctor Maximum Density (AASHTO T-180).

Asphaltic wearing surface should meet the current Florida Department of Transportation (FDOT) specifications provided in the Flexible Pavement Design Manual (2024). For this application, the use of structural course SP-12.5 or SP-9.5 should be adequate for the residential roadways. The wearing surface should be compacted to a minimum density of 98 percent of the Laboratory Density as determined by the Marshall Stability Test method for the approved job mix formula.

The recommendations presented above are minimum assuming normal light passenger car and pick-up truck traffic with an occasional garbage or delivery truck. Traffic should not be allowed on the subgrade prior to placement of the base course to avoid rutting. The final pavement thickness design should be checked by the project civil engineer using the data contained in this report in conjunction with anticipated traffic conditions.

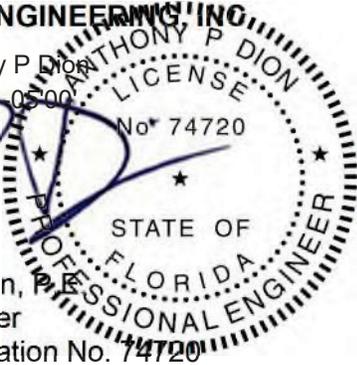
### CLOSING

AEI appreciates the opportunity to participate in this project and trusts that the information herein is sufficient for your immediate needs. If you have any questions or comments regarding the contents of this report, please do not hesitate to contact the undersigned at 727-527-5735.

Sincerely,

### ANDREYEV ENGINEERING, INC

Digitally signed by: Anthony P Dion  
Date: 2025/11/12 16:53:36 -0500



Anthony P. Dion, P.E.  
Project Engineer  
Florida Registration No. 74720



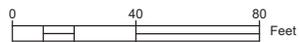
Jeffery Eller, P.E.  
Vice President

This item has been digitally signed and sealed by Anthony P. Dion, P.E. on November 12, 2025 using a digital signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

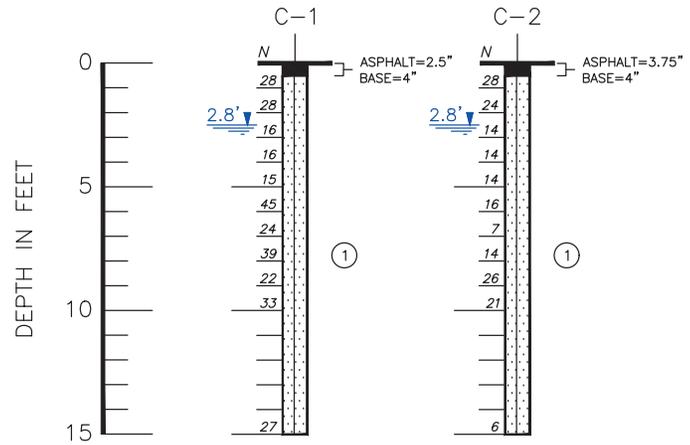
## FIGURES



*BORING LOCATION PLAN*  
SCALE: 1"=40'



**LEGEND:**  
 APPROXIMATE LOCATION OF SPT BORING/PAVEMENT CORE



**LEGEND:**  
 ① BROWN TO VERY DARK BROWN & LIGHT BROWNISH GRAY TO GRAYISH BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND (SP/SP-SM)  
 (SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL  
 1.0' MEASURED DEPTH TO GROUNDWATER, NOVEMBER 6, 2025  
 N STANDARD PENETRATION RESISTANCE, IN BLOWS PER FOOT

*SOIL PROFILES*  
SCALE: 1"=5'

 <b>Andreyev Engineering, Inc.</b>		GEOTECHNICAL INVESTIGATION <b>STORMWATER DRAINAGE IMPROVEMENTS</b> GROVE TERRACE & JOHNSON ROAD SEMINOLE, PINELLAS COUNTY, FL	
		BORING LOCATION PLAN/ SOIL PROFILES	
APPROXIMATE SCALE: AS SHOWN	DATE: 11/10/25 PN: APGT-25-153	ENGINEER: AD DRAWN BY: DLS	FIGURE 1



**November 5, 2025**  
**AEI Project No.: APGT-25-152**

**TO:** **Advanced Engineering & Design, Inc.**  
3931 68<sup>th</sup> Avenue North  
Pinellas Park, Florida 33781

Attn: Mr. Justin Keller, President

**SUBJECT:** Geotechnical Investigation – Roadway and Groundwater Assessment  
72<sup>nd</sup> Terrace North, Seminole, Pinellas County, Florida

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Dear Mr. Keller:

Andreyev Engineering, Inc. (AEI) has performed an evaluation of the groundwater conditions along a portion of 72<sup>nd</sup> Terrace North in Seminole, Florida. As we understood, there have been ongoing issues with groundwater seeping from the ground surface at the back of the curb along both sides of the roadway. The elevated groundwater beneath the edges of the roadway and emanating from the adjacent soils had contributed to damage to the pavement surface course. The subject portion of the roadway alignment is located west of the intersection with 113<sup>th</sup> Street and east of 114<sup>th</sup> Lane.

An initial site evaluation was performed on October 17, 2025 to assess the general conditions along the subject portion of the roadway alignment. This portion of 72<sup>nd</sup> Terrace is a two lane asphalt paved roadway with concrete gutters along both sides, indicative of a typical suburban residential roadway cross section. The asphalt pavement was generally in poor condition, with localized areas of alligator cracking along the edges (**Photograph 1**). Several of the more prominent areas of pavement distress exhibited dampness and/or standing water at the time of our evaluation. The concrete curbs also exhibited moisture emanating from the adjacent soils, as well as numerous areas of oxidation (rust) stains that were not wet at the time (**Photograph 2**). The rust stains were consistent with repetitive and/or prolonged exposure to iron-rich groundwater seepage from the soils adjacent to the back of the curb. In addition to the observed wetness and rust stains documented during our site inspection, a review of historical Street View images from Google Maps revealed similar oxidation stains on the curbs throughout the subject portion of the project area, which were evident in the images dating back to at least April 2014. A few of the images also exhibited visible standing water along the curbs and wetness emanating from the interface between the soils and the back of curb.

According to the U.S.D.A. Natural Resource Conservation Service (NRCS) Web Soil Survey, and the USDA Soil Survey of Pinellas County, Florida, the project area correlates to the map units delineated as Astatula soils and Urban land, and Immokalee soils and Urban land. The Astatula soils and Urban land soil map unit was delineated at the western portion of the project area, while the eastern portion of the project roadway was delineated as the Immokalee soils and Urban land soil map unit. An excerpt of the SCS Soil Survey Map with reference to the subject portion of the roadway alignment is presented in **Figure 1**. It is of merit to note that the map scale utilized to show the project area is beyond the scale in which the Soil Survey map was initially produced;

thus the detail of the map unit delineations should not be construed as a definitive dividing line, but rather a transition in the approximate vicinity of the Soil Map Unit delineations. A brief description of each soil unit is provided below:

**Soil Map Unit 4: Astatula Soils and Urban Land - 0 to 5 Percent Slopes** - *This soil is nearly level to gently sloping and excessively drained. It is found on hills and ridges of marine terraces. Typically, the surface layer from 0 to 3 inches is very dark grey fine sand. The substratum from 3 to 25 inches is pale brown fine sand, from 25 to 56 inches is brownish yellow fine sand, from 56 to 71 inches is light yellowish brown fine sand, and from 71 to 80 inches is very pale brown fine sand. The depth to water table is more than 72 inches, permeability is considered rapid, and available water capacity is very low. These soils are not considered to be limited for development of dwellings without basements but are considered very limited for shallow excavations due to unstable excavation walls.*

**Soil Map Unit 13: Immokalee soils and Urban land** - *This soil unit is described as nearly level and poorly drained sandy soil. It is found on flatwoods of the lower coastal plain. Typically, the surface layer from 0 to 6 inches is very dark grayish brown fine sand. The subsurface layer from 6 to 35 inches is gray fine sand. The subsoil from 35 to 40 inches is dark brown fine sand, from 40 to 50 inches is dark reddish brown fine sand, from 50 to 60 inches is brown fine sand, and from 60 inches to greater than 80 is light brownish gray fine sand. The depth to the seasonal high groundwater level is about 6 to 18 inches from June through November. The permeability is moderately rapid or rapid, and the available water capacity is very low. This soil unit is considered very limited for building site development, local roads and streets, and for shallow excavations due to the depth to the saturated zone.*

*Urban land is described as areas where most of the soil surface is covered with impervious materials, such as shopping malls, large parking lots, large commercial buildings, highways, and large industrial areas could also be covered by houses, streets, driveways, and other structures that obscure or alter the soils to the extent that identification is not feasible. Due to the site-specific nature of Urban Land, no additional information was provided.*

The observed pavement distress, seepage, and oxidation stains on the curbs generally correlated to the area delineated by the Immokalee Soil Map Unit with an estimated seasonal high groundwater level of 6 to 18 inches below the ground surface. While the anticipated high ground water level would not be expected to breach the ground surface in the natural condition, we noted that the ground surface at the residences on the adjacent properties extended above the elevation of the roadway crown. Additionally, the properties along the south side of the roadway were notably higher than the roadway with moderate downward slopes towards the curb. The more prevalent areas of stand water and seepage on the pavement/curbs corresponded directly to the higher properties. Thus, the observed conditions were consistent with a relatively high natural groundwater level in the soils, and the subsequent seepage at the back of the gutters along the lower-lying roadway.

As part of our evaluation, five manually advanced auger borings were performed in the soils adjacent to the subject portions of the concrete curbs along both sides of the roadway. The approximate boring locations are presented on **Figure 2** in relation to the subject portion of the roadway alignment, along with the soil profiles identified in the borings. The borings were drilled

as deep as practicably possible to depths of approximately 2.5 to 3.5 feet and were terminated when the sandy soils around the boreholes collapsed due to the inflow of groundwater. Representative samples of the encountered soils were collected and transported to our laboratory for verification of the field classifications. The borings generally revealed a thin layer of topsoil associated with the turfgrass lawns, followed by fine sand soils with trace amounts of silts. The groundwater levels were recorded following an approximately 1 hour stabilization period, which ranged from about 1.1 to 2.4 feet below the existing ground surface. The subsurface conditions encountered in the soil borings were generally commensurate with the soil properties and characteristics described for the Immokalee Soil Map Unit. Hence, we ascertain that **the observed pavement distress, as well as the wetness and stains along the concrete curbs were consistent with seepage from natural seasonal fluctuations in the groundwater levels within the soils adjacent to the curbs and beneath the asphalt pavement section.**

In addition to the assessment of the soil and groundwater conditions documented during our evaluation, we observed that the majority of the properties along the subject portion of the roadway alignment exhibited irrigation components, particularly irrigation heads directly adjacent to the curbs. We further noted while performing the hand augers, the soils encountered above the groundwater level were wet or saturated, including the topsoil layer of the turf grass lawns. The presence of irrigation components, in conjunction with wet conditions in the surface soils above the encountered groundwater level, indicated that irrigation (and possible over-irrigation) of the residential lawns has contributed to the high groundwater conditions and the subsequent seepage at the back of the curbs.

Utility markings along the curbs indicated that the neighborhood is serviced by a reclaimed water system in addition to the potable water service for the residences. While an assessment of the active potable and reclaimed water utilities was beyond the scope of this evaluation, small breaches in the utility water main components may also be contributing to the elevated groundwater conditions and seepage. If the potable and reclaimed water systems have not already been assessed for leaks, it would be prudent to evaluate these systems in the vicinity of the areas of concern along the project roadway alignment.

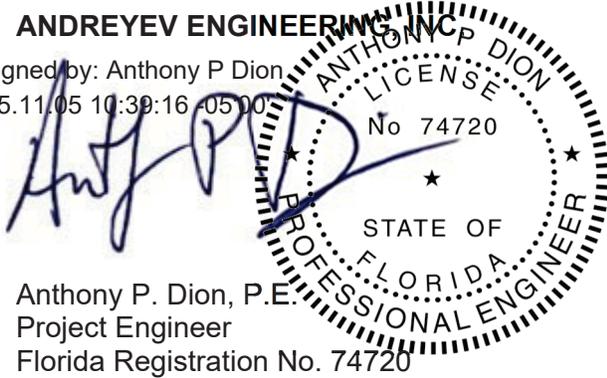
In regard to potential mitigation efforts to lower the groundwater levels in the vicinity of the roadway alignment, a properly designed and installed underdrain system can effectively intercept the high groundwater adjacent to the roadway alignment and lower the groundwater level beneath the pavement section. The Florida Department of Transportation (FDOT) Standard Plans – Index 440-001 can be used as a guide for underdrain installation, particularly Type I, II, or III assemblies. The underdrain system will require periodic inspection and maintenance to ensure proper function and long-term performance.

AEI appreciates the opportunity to participate in this project, and we trust that the information herein is sufficient for your design. If you have any questions or comments concerning the contents of this report, please do not hesitate to contact our office.

Sincerely,

**ANDREYEV ENGINEERING, INC.**

Digitally signed by: Anthony P Dion  
Date: 2025.11.05 10:39:16 -0500



Anthony P. Dion, P.E.  
Project Engineer  
Florida Registration No. 74720

Jeffery E. Eller, P.E.  
Vice President

This item has been digitally signed and sealed by Anthony P. Dion, P.E. on November 5, 2025 using a digital signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

## PHOTOGRAPHS

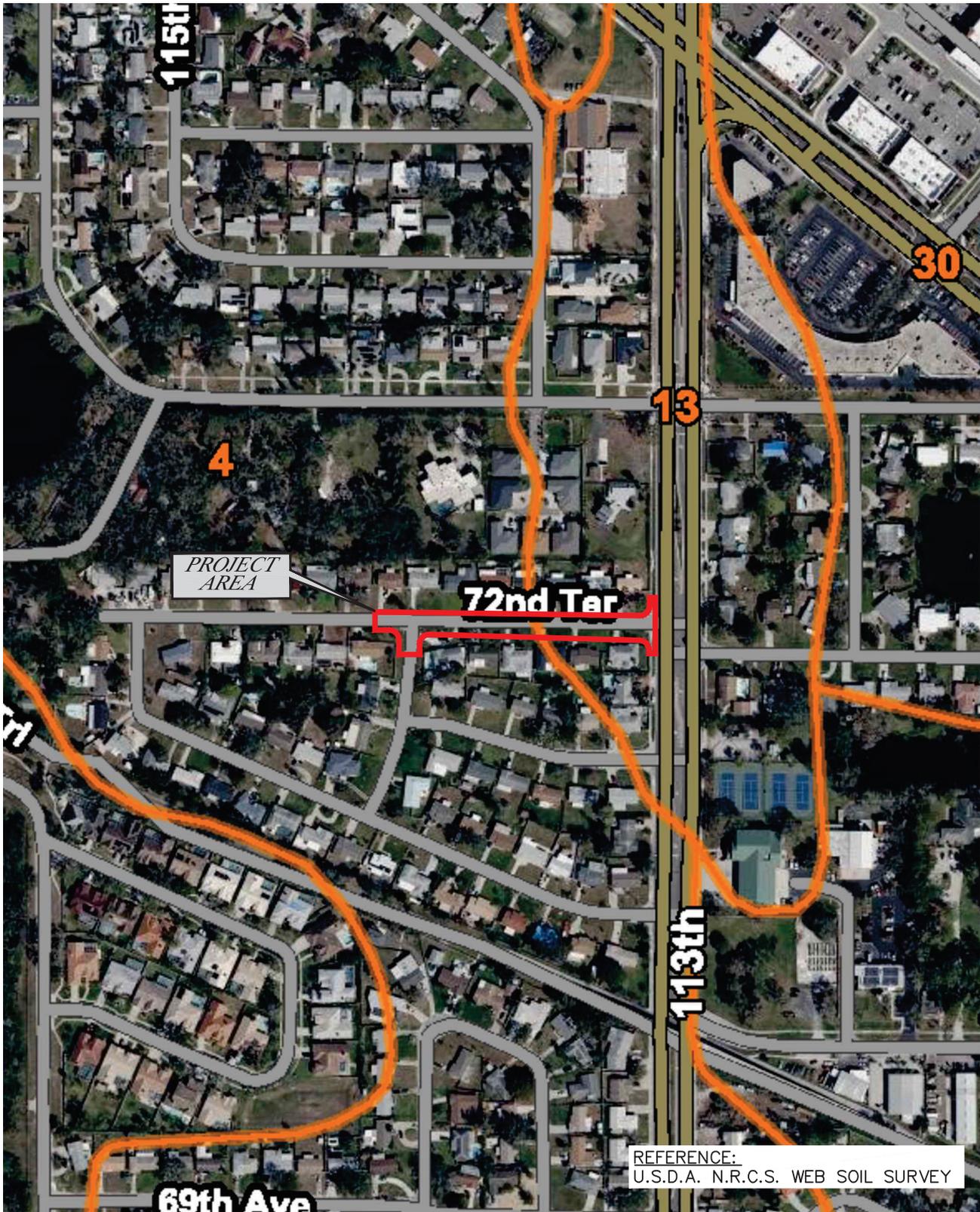


**Photograph 1:** View of an area of extensive distress to the asphalt pavement along the subject portion of 72<sup>nd</sup> Terrace North in Seminole, Florida.



**Photograph 2:** View of a typical area of seepage from the soils adjacent to the concrete curb, as well as oxidation stains on other areas of the curbs (inset).

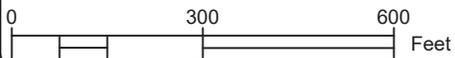
## FIGURES



REFERENCE:  
U.S.D.A. N.R.C.S. WEB SOIL SURVEY

**LEGEND:**

- 4 ASTATULA SOILS & URBAN LAND, 0 TO 5% SLOPES
- 13 IMMOKALEE SOILS & URBAN LAND



**Andreyev  
Engineering,  
Inc.**

APPROXIMATE SCALE:  
1" = 300'

DATE: 11/03/25

ENGINEER: AD

PN: APGT-25-152

DRAWN BY: DLS

GEOTECHNICAL INVESTIGATION

**72nd TERRACE NORTH**

SEMINOLE, PINELLAS COUNTY, FL

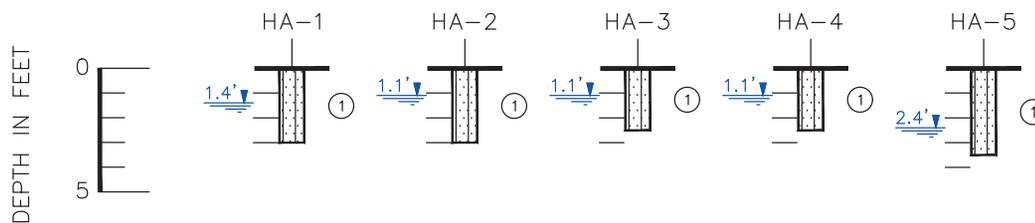
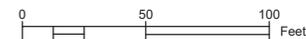
N.R.C.S. SOIL SURVEY MAP

FIGURE 1



BORING LOCATION PLAN

SCALE: 1"=50'



SOIL PROFILES

SCALE: 1"=5'

LEGEND:

- APPROXIMATE LOCATION OF HAND AUGER BORING
- ① GRAYISH BROWN TO DARK GRAYISH BROWN & PALE BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND (SP/SP-SM)
- (SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL
- 1.0' MEASURED DEPTH TO GROUNDWATER



**Andreyev  
Engineering,  
Inc.**

APPROXIMATE SCALE: AS SHOWN  
DATE: 11/03/25  
PN: APGT-25-152  
ENGINEER: AD  
DRAWN BY: DLS

GEOTECHNICAL INVESTIGATION

**72nd TERRACE NORTH**

SEMINOLE, PINELLAS COUNTY, FL

BORING LOCATION PLAN/  
SOIL PROFILES

FIGURE 2