FORGE
ENGINEERING INC
INNOVATIVE ENGINEERING SOLUTIONS

Report of Geotechnical Exploration

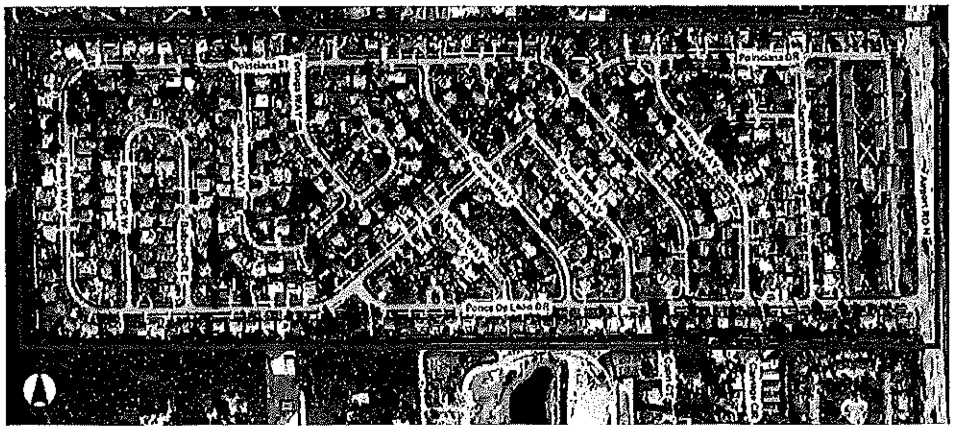
POINCIANA VILLAGE STORMWATER IMPROVEMENTS

COLLIER COUNTY PROJECT 50200

Poinciana Village off Airport Pulling Road
Naples, Collier County, Florida 34109

Forge Engineering Project Number 109-104.01

July 2021



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July 19, 2021

COLLIER COUNTY STORMWATER MANAGEMENT
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Subject: Report of Geotechnical Exploration
POINCIANA VILLAGE STORMWATER IMPROVEMENTS
Poinciana Village off Airport Pulling Road
Naples, Collier County, Florida 34109
Collier County Project No. 50200
Forge Engineering Project No. 109-104.01

Forge Engineering Inc. (FORGE) is pleased to present this report of our geotechnical exploration for the proposed project. We have completed in general the services outlined in our proposal number 109-104.01P dated May 12, 2021, and authorized by issuance of a Work Order-Revision 1 dated June 2, 2021 with a commencement date of June 15, 2021. This report presents the project information provided to us, the findings of our exploration, together with our geotechnical evaluation and recommendations.

Purpose

The purpose of this geotechnical study was to explore the general soil conditions over the project area for the proposed Poinciana Village Stormwater Improvements and to provide geotechnical recommendations and site preparation. Environmental assessments or other studies were beyond the scope of our services.

This report has been prepared for Collier County Stormwater Management, and their sub-consultants for specific application to the proposed Poinciana Village Stormwater Improvements project. FORGE has endeavored to comply with the generally accepted geotechnical engineering practice common to the local area. FORGE makes no other warrants, express or implied.

Project Information

Our understanding of this project is based on several email transmittals between you and Richard Lundberg, P.E. of our firm that included a summary of requested services and project location plans. We understand there is recurring flooding problems during significant storm events in Poinciana Village and this intent of this project is to mitigate the flooding.

This single-family development is situated on approximately 120 acres west of Airport Pulling Road, north of Golden Gate Parkway. Stormwater management within Poinciana Village consists primarily of open swale drainage with closed drainage to a perimeter ditch. The perimeter collection system discharges via a tributary to the Gordon River. The existing roadside swales have all been recently excavated and regraded by Collier County. The soil survey for this area suggests that rock may be 4- to 5- feet below grade creating possible conflict with the proposed stormwater management system improvements.

Site Conditions

The site is located west of Airport Pulling Road North, east of Royal Poinciana Golf Club, and north of Golden Gate Parkway in Collier County, Florida. At the time of our exploration the entire site was developed as a residential neighborhood. The existing Right of Way (ROW) can generally be described as a two-lane roadway with drainage swales on both sides of the roadway. The Site Location Map and the Boring Location Plan provided in the Appendix of this report present the site relative to its surroundings.

Field Explorations

The subsurface soils were explored with six (6) Standard Penetration Test (SPT) borings. SPT tests were performed in general accordance with ASTM Procedure D-1586-11, "Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". The SPT borings were extended to a depth of 10-feet below the existing ground surface. The SPT borings were completed through the existing roadway, adjacent to the existing drainage ditches.

An engineer from FORGE classified soil samples taken from the borings. The boring logs containing our findings are presented in the Appendix of this report. We provide a generalized profile of the subsurface conditions encountered in Table 1 below.

Table 1: Generalized Subsurface Profile

GENERALIZED SUBSURFACE PROFILE			
DEPTH (FT)		**SOIL DESCRIPTION**	**USC (1)**
FROM	**TO**		
0	0.25	ASPHALTIC CONCRETE Ranged 2 – 3-inches in thickness	N/A
0.25	0.75	LIMEROCK (Base) Ranged from 6- to 12-inches in thickness	N/A
0.75	4.5	Loose to Medium Dense Fine SAND	SP
4.5 (2)	6	Very Hard LIMESTONE (Caprock)	N/A
6	8.5	Loose to Medium Dense Gravely SAND with silt to Sandy GRAVEL with Silt (Weathered Limestone)	SW, GW
8.5	10(4)	Very Hard LIMESTONE (Caprock)	N/A

(1) Unified Soil Classification
(2) Only borings B-3, B-5, and B-6 encountered very Hard LIMESTONE. The depth encountered and thickness varied.

The groundwater level was encountered at depths ranging from 0.5- to 1.5-feet below the existing grade at the time of drilling. We anticipate the groundwater level will fluctuate due to seasonal rainfall variations, surface water runoff patterns, water levels in the nearby lakes, ditches, and Gordon River, construction operations, and other interrelated factors. The designers should anticipate that the seasonal high ground water level might rise to the surface and a few feet above existing ground surface in extreme weather events.

The Appendix of this report also contains a custom USDA/NRCS Soil Survey Report for the Poinciana Village area. The report is intended to augment the finding of this report. The predominant Map Unit identified in the area consists of No. 121—Matlacha-Boca-Urban land complex, 0 to 2 percent slopes. The Matlacha and Boca soils have granular surface soil extending to depths of about 30- to 54- inches before encountering bedrock. The soils also identify as somewhat poorly drained. Since this is an Urban Land complex often times development changes specific site soil conditions. This appears evident in our soil boring profiles.

Soil Overview

Borings B-1 through B-6 encountered various combinations of granular soils until reaching the caprock stratum. The top of the LIMESTONE stratum elevation and thickness varied across the site. The LIMESTONE began at depths ranging from 4.5- to 8.5-feet below existing grade. A visual display of the LIMESTONE strata is shown on the Soil Boring Summary in the Appendix. This stratum will likely require large, specialized excavation equipment for excavation of the hard limestone.

Table 2: Soil Strata Numbers

SOIL DESCRIPTIONS		
Stratum Number	**Soil Description**	**USC (1)**
1	Fine SAND to Slightly Silty Fine SAND	SP, SP-SM
2	Very Hard LIMESTONE	N/A
3	Gravely SAND with Silt	SW
4	Sandy GRAVEL with Silt	GW
(1) UNIFIED SOIL CLASSIFICATION		

Evaluation and Recommendations

Our evaluation and recommendations are based on the project information provided to us, the findings of our field exploration program, and our experience in the area. The subsurface conditions will vary across the site. Should new information become available during design, or the conditions encountered during construction be different from the information presented in this report, please contact us so we may evaluate the new information.

We have identified four strata within the vicinity of the proposed construction and have outlined them on the generalized subsurface profile. We recommend the following parameters be assigned to the soil strata encountered during our exploration.

Table 3: Soil Design Parameters

Stratum Number	SOIL DESIGN PARAMETERS					
	Unit Weight (pcf)	Friction Angle (ϕ)	Cohesion (psf)	Saturated Soil Unit Wt. (pcf)	Passive Earth Pressure Coefficient(k_p)	Allowable Bearing Capacity
1	105	32	0	120	3.3	2,500
2	145	36	0	160	3.9	4,500
3 & 4	120	34	0	135	3.5	3,500

Site Preparation Recommendations

We recommend the foundation and earthwork specifications include site preparation sections like those presented below and FDOT Standard Specifications for Road and Bridge Construction, preceding the first use of SPECIFICATIONS for clarity:

1. All excavation and placement work shall be completed in general accordance with Sections 125 of the current issue of the SPECIFICATONS.
2. Soil shall be moisture conditioned to +/- 3% of the materials optimum moisture content defined by the maximum dry density.
3. Soil bedding and/or backfill shall be select sand with a AASHTO Soil Classification of A-3 or A-1. The bedding material shall have less than 15 percent fines and place to the specified limits as outlined in Section 410-10.2 of the current issue of the SPECIFICATONS.
4. When backfilling under wet conditions, procedures from section 125-8.3.4 shall be followed.
5. All soil backfill shall be placed in loose lifts not exceeding 12-inches in thickness. Lift height shall be reduced to 6-inches or less for material compacted with walk behind rollers or plate compactors. Each lift shall be compacted until a density of at least 95 percent of the Modified Proctor maximum dry density is uniformly obtained.
6. Field density tests shall be conducted after compaction of the bottom of all excavations, in all backfill or fill locations, and at finished grade to verify the specified degree of compaction is obtained.
7. The test frequency should be a minimum of one test per lift, per 500 linear feet or as specified in Section 125 of the current issue of the SPECIFICATONS.

Excavations

The surficial stratum across the site consists of very loose to medium dense granular soils (stratum 1). These soils should be easily excavated but will offer little open trench sidewall stability, therefore excavations may require shoring to stabilize the sidewalls. FORGE recommends that all excavations be done in accordance with the United States Department of Labor, Occupational Safety and Health administration (OSHA) Construction Standards for Excavations, 29 CFR, part 1926, Subpart P – Excavation regulations and any other applicable standards/regulations.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavation as required to maintain stability of both the excavation sides and bottom. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

The granular stratum encountered in our test borings from existing ground surface to approximately 4.5-feet below grade is suitable for backfilling of utility excavations. If material is encountered with a fines content more than 12 percent, the material should be blended with clean SAND to reduce the fines content to acceptable limits. The very hard LIMESTONE to Gravelly SAND with silt, and Silty SAND with Gravel stratum (strata 2 through 4) beginning at 4.5- to 10 feet below existing grade, and SAND should be used as backfilling material where this stratum is encountered. **Additionally, the very hard LIMESTONE stratum will likely require large, specialized equipment during excavation to allow for the installation of the deeper utilities.**

Dewatering

With the water table encountered at depths ranging from 0.5- to 1.5-feet below existing grade within the vicinity of the proposed construction, dewatering will likely be required to construct the proposed improvements. Water levels should be maintained at least two feet below the bottom of all excavations. Depending on the size of the excavation and length of time required for construction, various dewatering techniques could be employed. Dewatering methods such as sumps may be suitable for small and quick excavation work while larger and longer excavations will likely require well points.

Any proposed construction below the water table will require dewatering and should be performed prior to the construction of any elements at the ground surface to allow for the water table in the area to recharge. If construction of structures begins prior to the water table being recharged, soils may encounter greater pressures and increased settlement may occur.

Closing

We appreciate working with you as your geotechnical consultant and look forward to working with you on the remainder of this and future projects. Please contact us when we may be of further assistance, or if you have any questions regarding this report.

Sincerely,
FORGE ENGINEERING, INC.

ROBERT J. MCGINNIS
No. 86581

Digitally signed by Robert J McGinnis
DN: c=US, o=Unaffiliated, ou=A01410D0000017459FDCDD3000039 1F, cn=Robert J McGinnis
Reason: THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ROBERT J. MCGINNIS, P.E., ON THE DATE SHOWN. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY COPIES.
Date: 2021.07.21 12:30:59 -04'00'

Robert J. McGinnis, P.E.
Project Engineer
Florida Registration No. 86581

Richard P. Lundberg

Richard P. Lundberg, P.E.
Senior Principal Engineer

Distribution: 1 – Addressee (via email),
1 – File

Appendix:
Figure 1: Site Location Map
Plate 1: Soil Boring Location Plan
Soil Boring Summary
SPT Soil Boring Logs (B-1 through B-6)
Key to Boring Logs Classification
Custom USDA Soil Survey Report

APPENDIX

FIGURE 1: SITE LOCATION MAP

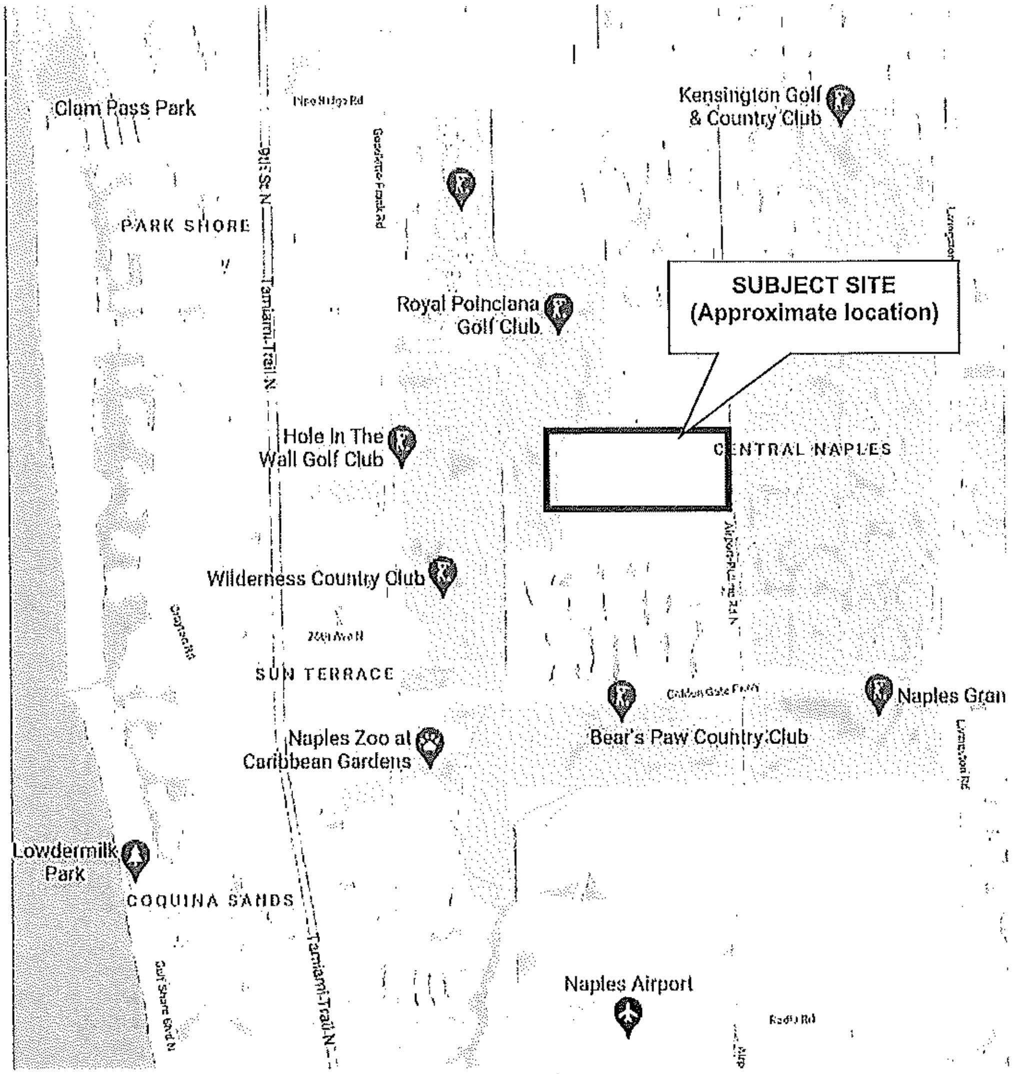

Image from Google Maps.

PROPOSED SOLANA ROAD STORMWATER IMPROVEMENTS

Collier County Project No. 50200

Section 22, Township 49, Range 25
Naples, Collier County, Florida 34109

FORGE Project No. 109-104.01

July 2021

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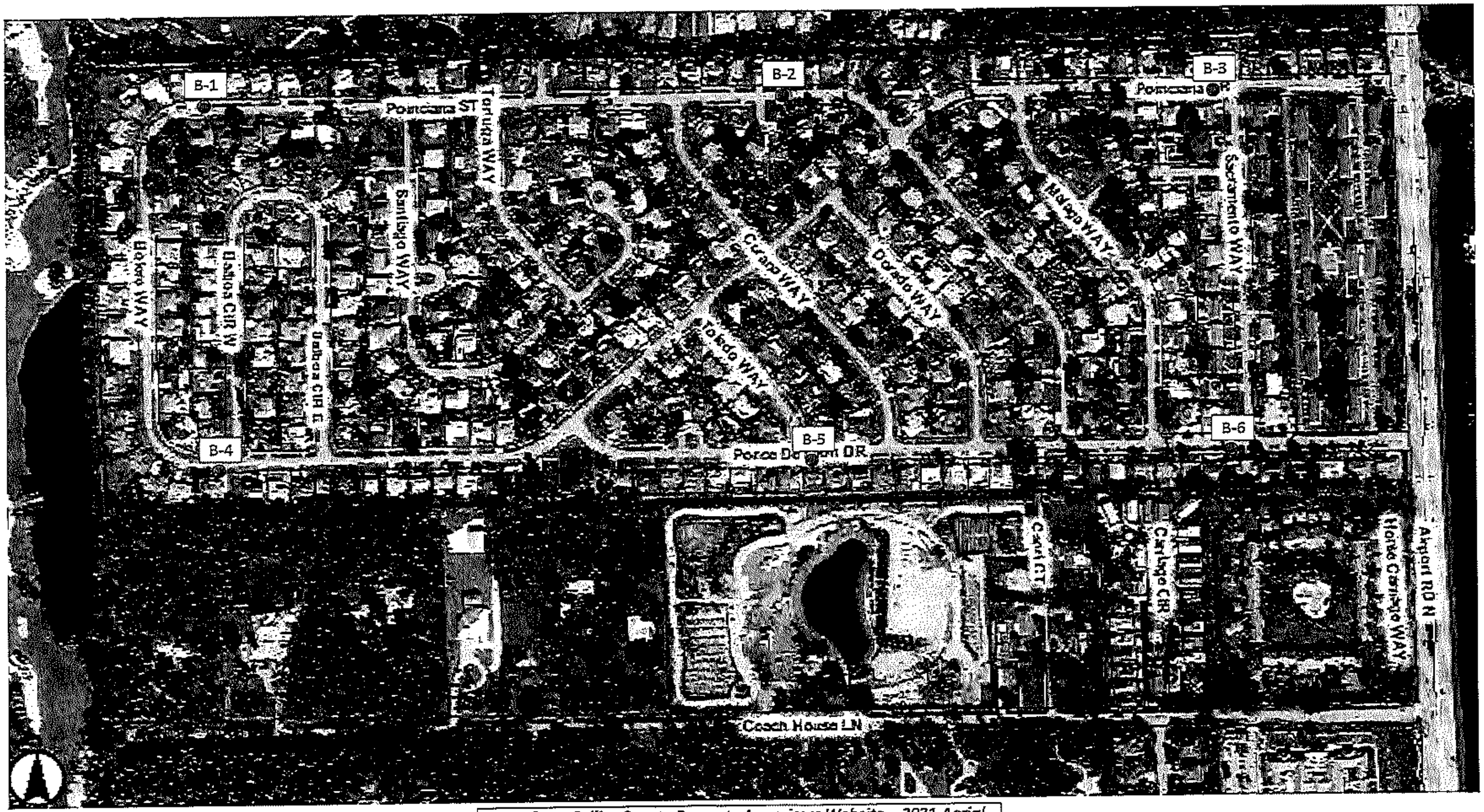

Image from Collier County Property Appraisers Website – 2021 Aerial.

● B-1 Number and Approximate Standard Penetration Test (SPT) Soil Boring Location

PLATE 1 of 1

SOIL BORING LOCATION PLAN

POINCIANA VILLAGE STORMWATER IMPROVEMNTS

COLLIER COUNTY PROJECT NO.: 50200

LOCATED IN SECTION 23 – TOWNSHIP 49 – RANGE 25
POINCIANA VILLAGE OFF AIRPORT PULLING ROAD
NAPLES, COLLIER COUNTY, FLORIDA 34109

FORGE PROJECT NO. 109-104.01

FORGE ENGINEERING INC
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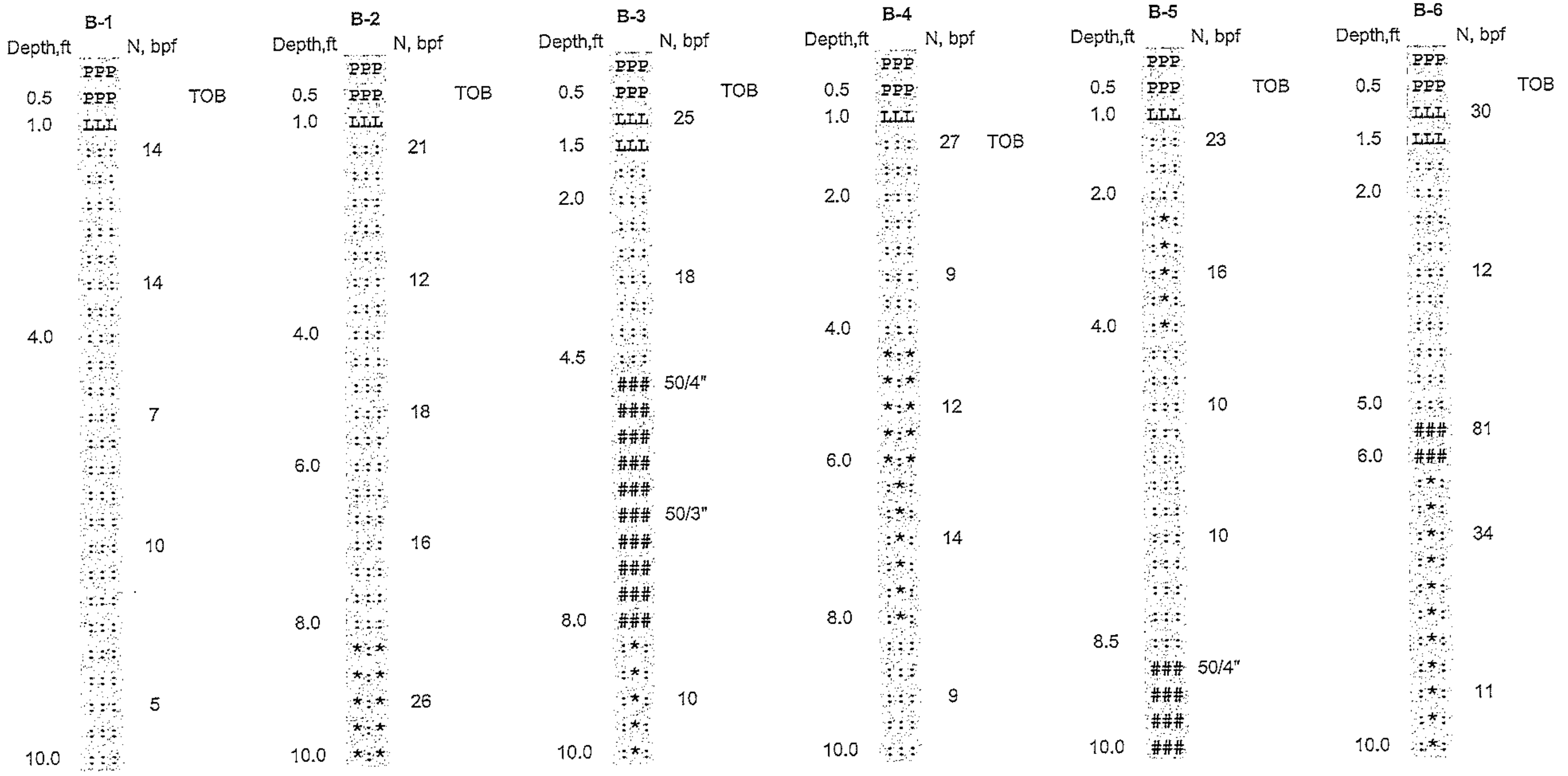
Drawn By: RJM
Date 06/15/21
Revised:



LEGEND

PPP Asphalt PAVEMENT
LLL LIMEROCK Base
:::: Loose to Medium Dense Fine SAND to Slightly Silty Fine SAND
Hard to Very Hard LIMESTONE (Caprock)
: Medium Dense Sandy GRAVEL with Silt (Weathered Limestone)
:*: Loose to Dense Gravely SAND with Silt (Weathered Limestone)

LOSS Loss of drilling fluid
TOB Groundwater depth at Time Of Boring

Soil Boring Summary

POINCIANA VILLAGE STORMWATER IMPROVEMENTS

Poinciana Village off Airport Pulling Road
Naples, Collier County, Florida 34109

Forge Engineering Project No. 109-104.01

July 2021

Depth (feet)	Material Description						Elev. (feet)	Groundwater	Unified	AASHTO	Symbol	N B/F	N (blows per foot) 0 10 20 30 40 50	Laboratory Test Results					
	Strength	Primary >50%	Secondary >12%	Tertiary >5%	Color	Remarks								Water Content, %	Fines Content, %	Organic Content, %	Liquid Limit, %	Plasticity Index, %	Time Rate of Drilling (minutes:seconds)
0.5		PAVEMENT			black	Asphalt 2-Inches Thick		TOB			PPP PPP								
1.0		LIMEROCK			light gray	6-Inches Thick					LLL								
	Medium Dense											14	»»»»»»»						
	Medium Dense											14	»»»»»»»						
4.0		SAND			light brown				SP										
	Loose											7	»»»»						
	Loose											10	»»»»»						
	Loose											5	»»						
10.0		SAND		silt	gray	Trace Small Roots			SP-SM										
						Boring Terminated at 10.0 ft.													

Forge Engineering, Inc.
Naples, Florida

Sheet 1 of 1

Project Name: Poinciana Village Stormwater
Job Number: 109-104.01

Boring Number: B-1
Date Drilled: 7/7/2021

	Material Description													Laboratory Test Results					
Depth (feet)	Strength	Primary >50%	Secondary >12%	Tertiary >5%	Color	Remarks	Elev. (feet)	Groundwater	Unified	AASHTO	Symbol	N B/F	N (blows per foot) 0 10 20 30 40 50	Water Content, %	Fines Content, %	Organic Content, %	Liquid Limit, %	Plasticity Index, %	Time Rate of Drilling (minutes:seconds)
0.5		PAVEMENT			black	Asphalt 2.5-Inches Thick		TOB			PPP PPP								
1.0		LIMEROCK			light gray	8-Inches Thick					LLL								
	Medium Dense											21	»»»»»»»»»»»						
	Medium Dense											12	»»»»»»						
4.0		SAND			light gray				SP										
	Medium Dense											18	»»»»»»»»»»						
6.0		SAND		shell	light gray	With Shell Fragments			SP										
	Medium Dense											16	»»»»»»»»»						
8.0		SAND		gravel	light gray	Weathered Limestone			SP										
	Medium Dense											26	»»»»»»»»»»»»»»						
10.0		GRAVEL	Sand		light gray	Weathered Limestone			GW										
						Boring Terminated at 10.0 ft.													

Forge Engineering, Inc.
Naples, Florida

Sheet 1 of 1

Project Name: Poinciana Village Stormwater
Job Number: 109-104.01

Boring Number: B-2
Date Drilled: 7/7/2021

	Material Description													Laboratory Test Results					
Depth (feet)	Strength	Primary >50%	Secondary >12%	Tertiary >5%	Color	Remarks	Elev. (feet)	Groundwater	Unified	AASHTO	Symbol	N B/F	N (blows per foot) 0 10 20 30 40 50	Water Content, %	Fines Content, %	Organic Content, %	Liquid Limit, %	Plasticity Index, %	Time Rate of Drilling (minutes:seconds)
0.5		PAVEMENT			black	Asphalt 2.5-Inches Thick		TOB			PPP PPP								
											LLL	25	»»»»»»»»»»»»»						
1.5		LIMEROCK			light gray	12-Inches Thick					LLL								
2.0		SAND			light brown				SP										
	Medium Dense											18	»»»»»»»»»»						
4.5		SAND		silt	light brown	Trace Small Roots			SP-SM										
	Very Hard										### ###	50/4"	»»»»»»»»»»»»»»»»»»»»»»»»»»»»+						2:00 6:00
	Very Hard										### ### ###	50/3"	»»»»»»»»»»»»»»»»»»»»»»»»»»»»+						3:00
8.0		LIMESTONE			light gray	Caprock					###								
	Loose											10	»»»»»						
10.0		SAND	Gravel		light gray	Weathered Limestone			SW										
						Boring Terminated at 10.0 ft.													

Forge Engineering, Inc.
Naples, Florida

Sheet 1 of 1

Project Name: Poinciana Village Stormwater
Job Number: 109-104.01

Boring Number: B-3
Date Drilled: 7/7/2021

Depth (feet)	Material Description: Strength	Primary >50%	Secondary >12%	Tertiary >5%	Color	Remarks	Elev. (feet)	Groundwater	Unified	AASHTO	Symbol	N B/F	N (blows per foot) 0 10 20 30 40 50	Water Content, %	Fines Content, %	Organic Content, %	Liquid Limit, %	Plasticity Index, %	Time Rate of Drilling (minutes:seconds)
0.5		PAVEMENT			black	Asphalt 2.5-Inches Thick					PPP PPP								
1.0		LIMEROCK			light gray	8-Inches Thick					LLL								
2.0	Medium Dense	SAND			light gray			TOB	SP			27	»»»»»»»»»»»»»»»»						
4.0	Loose	SAND			light brown				SP			9	»»»»»						
6.0	Medium Dense	GRAVEL	Sand		gray	Weathered Limestone			GW			12	»»»»»»»						
8.0	Medium Dense	SAND	Gravel		light gray				SW			14	»»»»»»»»						
10.0	Loose	SAND		shell	light gray	Shell Fragments			SP			9	»»»»»						

Boring Terminated at 10.0 ft.

Forge Engineering, Inc.
Naples, Florida

Sheet 1 of 1

Project Name: Poinciana Village Stormwater
Job Number: 109-104.01

Boring Number: B-4
Date Drilled: 7/7/2021

Depth (feet)	Material Description Strength	Primary >50%	Secondary >12%	Tertiary >5%	Color	Remarks	Elev. (feet)	Groundwater	Unified	AASHTO	Symbol	N B/F	N (blows per foot) 0 10 20 30 40 50	Laboratory Test Results Water Content, %	Fines Content, %	Organic Content, %	Liquid Limit, %	Plasticity Index, %	Time Rate of Drilling (minutes:seconds)
0.5		PAVEMENT			black	Asphalt 3.0-Inches Thick		TOB			PPP PPP								
1.0		LIMEROCK			light gray	6-Inches Thick					LLL								
	Medium Dense											23	»»»»»»»»»»»»						
2.0		SAND			light brown				SP										
	Medium Dense										*	16	»»»»»»»»»						
4.0		SAND	Gravel		light brown				SW		*								
	Loose											10	»»»»»»						
	Loose											10	»»»»»»						
8.5		SAND		shell	light gray	Shell Fragments			SP										
	Hard										### ###	50/4"	»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»+						2:00
											### ###								3:00
10.0		LIMESTONE			light gray	Caprock													
						Boring Terminated at 10.0 ft.													

Forge Engineering, Inc.
Naples, Florida

Sheet 1 of 1

Project Name: Poinciana Village Stormwater
Job Number: 109-104.01

Boring Number: B-5
Date Drilled: 7/7/2021

Depth (feet)	Material Description						Elev. (feet)	Groundwater	Unified	AASHTO	Symbol	N B/F	N (blows per foot)	Laboratory Test Results					
	Strength	Primary >50%	Secondary >12%	Tertiary >5%	Color	Remarks							0 10 20 30 40 50	Water Content, %	Fines Content, %	Organic Content, %	Liquid Limit, %	Plasticity Index, %	Time Rate of Drilling (minutes:seconds)
0.5		PAVEMENT			black	Asphalt 2-Inches Thick		TOB			PPP PPP								
											LLL	30	»»»»»»»»»»»»»»»»						
1.5		LIMEROCK			light gray	12-Inches Thick					LLL								
2.0		SAND			light brown				SP										
	Medium Dense											12	»»»»»»						
5.0		SAND		silt	light gray				SP-SM		###	81	»»»»»»»»»»»»»»»»»»»»»»»»»»»+						2:00
	Hard																		
6.0		LIMESTONE			light gray	Caprock					###								
	Dense											34	»»»»»»»»»»»»»»»»»»						
	Medium Dense											11	»»»»»						
10.0		SAND	Gravel	shell	light gray	Weathered Limestone			SW										
						Boring Terminated at 10.0 ft.													

Forge Engineering, Inc.
Naples, Florida

Sheet 1 of 1

Project Name: Poinciana Village Stormwater
Job Number: 109-104.01

Boring Number: B-6
Date Drilled: 7/7/2021

Key To Boring Log Classification

Forge Engineering, Inc.
Naples, Florida

Depth (feet)	Strength	Material Description Primary >50%	Secondary >12%	Tertiary >5%	Color	Remarks	Elev. (feet)	Groundwater	Unified	AASHTO	Symbol	N B/F	N (blows per foot) 0 10 20 30 40 50	Laboratory Test Results Water Content, %	Fines Content, %	Organic Content, %	Liquid Limit, %	Plasticity Index, %	Other

Primary soil type: Over 50% of soil by visual estimation or laboratory test

Secondary soil type: Between 12% and 50% of soil by visual estimation or laboratory test

Tertiary soil type: Between 5% and 12% of soil by visual estimation or laboratory test

N: Standard Penetration Resistance.
Number of blows to drive a standard split-spoon sampler one foot using a 140 pound hammer dropping 30 inches

woh: Split-spoon penetrated soil under weight of 140 pound hammer only.

wor: Split-spoon penetrated soil under weight of drill rods only.

Table of Strength Descriptions

N	Sand / Gravel	Silt / Clay	Limestone / Sandstone
0	Very Loose	Very Soft	Very Soft
2	Very Loose	Very Soft	Very Soft
3	Very Loose	Soft	Very Soft
4	Very Loose	Soft	Very Soft
5	Loose	Firm	Very Soft
8	Loose	Firm	Very Soft
9	Loose	Stiff	Very Soft
10	Loose	Stiff	Very Soft
11	Medium Dense	Stiff	Soft
15	Medium Dense	Stiff	Soft
16	Medium Dense	Very Stiff	Soft
30	Medium Dense	Very Stiff	Soft
31	Dense	Hard	Soft
50	Dense	Hard	Soft
51	Very Dense	Hard	Hard
60	Very Dense	Hard	Hard
100	Very Dense	Hard	Very Hard
100+	Very Dense	Hard	Very Hard

Symbol Key

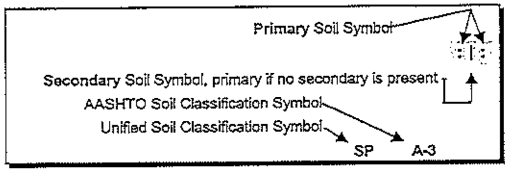
TOPSOIL	T
GRAVEL	*
SAND	:
SILT	[
CLAY	/
LIMESTONE	#
DEBRIS	D
FILL	F
SHELL	S
MUCK	~
PEAT	~
ORGANIC	~
LIMEROCK	L
PAVEMENT	P
CONCRETE	C
WATER	W
VOID	V

Laboratory Test Summary

Water Content:	Weight of Water / Weight of all Dry Soil
Fines Content:	Weight of Dry Soil Finer than No. 200 Sieve / Weight of all Dry Soil
Organic Content:	Weight of Organics Lost by Ignition / Weight of all Dry Soil
Liquid Limit:	Moisture content of a soil at the transition between liquid and plastic states. (ASTM D-4318)
Plastic Limit:	Moisture content of a soil at the transition between plastic and semisolid states. (ASTM D-4318)
Plasticity Index:	Liquid Limit - Plastic Limit

15.0 Depth of soil change. The transition between materials may be gradual. Soil conditions will vary between boring locations.

All descriptions are based on the visual examination of the retrieved soil samples, unless laboratory data is indicated. Therefore, estimates of material types and concentrations should be considered approximate.



Representative Material Description Definitions

SAND	Material that pass a No. 4 and is retained on a No. 200 sieve.
SILT	Low plasticity material that passes a No. 200 sieve.
CLAY	Moderate to high plasticity soil that passes a No. 200 sieve.
LIMESTONE	Natural occurring rock with at least 50% calcium carbonate.
SANDSTONE	Natural occurring rock of hardened (not by calcium carbonate) sand-size particles.
LIMEROCK	Mined or processed limestone used as a fill or pavement base.
ORGANIC	Containing partially decomposed material that can be ignited when dried.

Groundwater Symbols

TOB	Initial groundwater level at time of boring
GWL	Groundwater level measured a day or more after drilling
LOSS	Drill fluid circulation loss

USDA United States Department of Agriculture

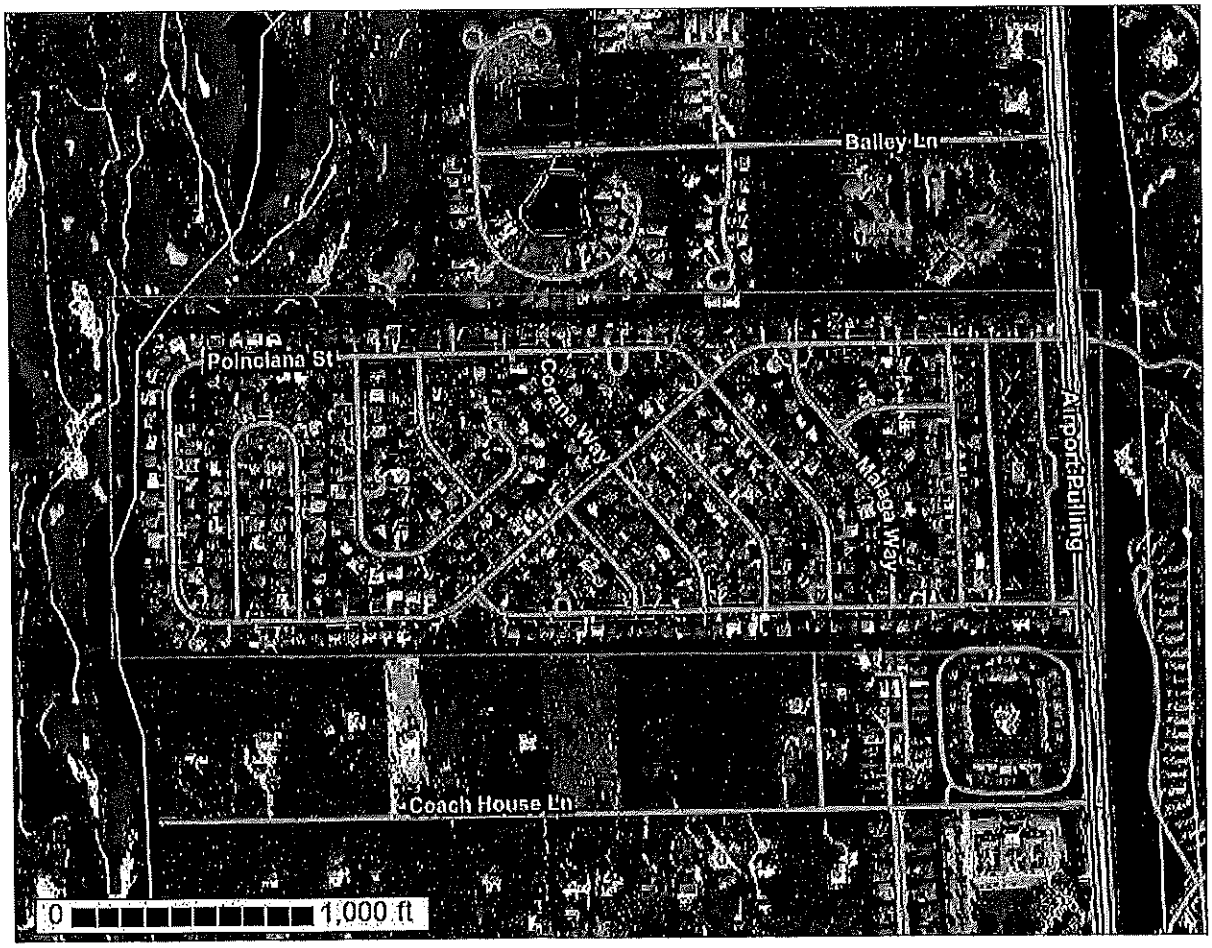
NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Collier County Area, Florida

Poinciana Village Stormwater Improvements



June 18, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

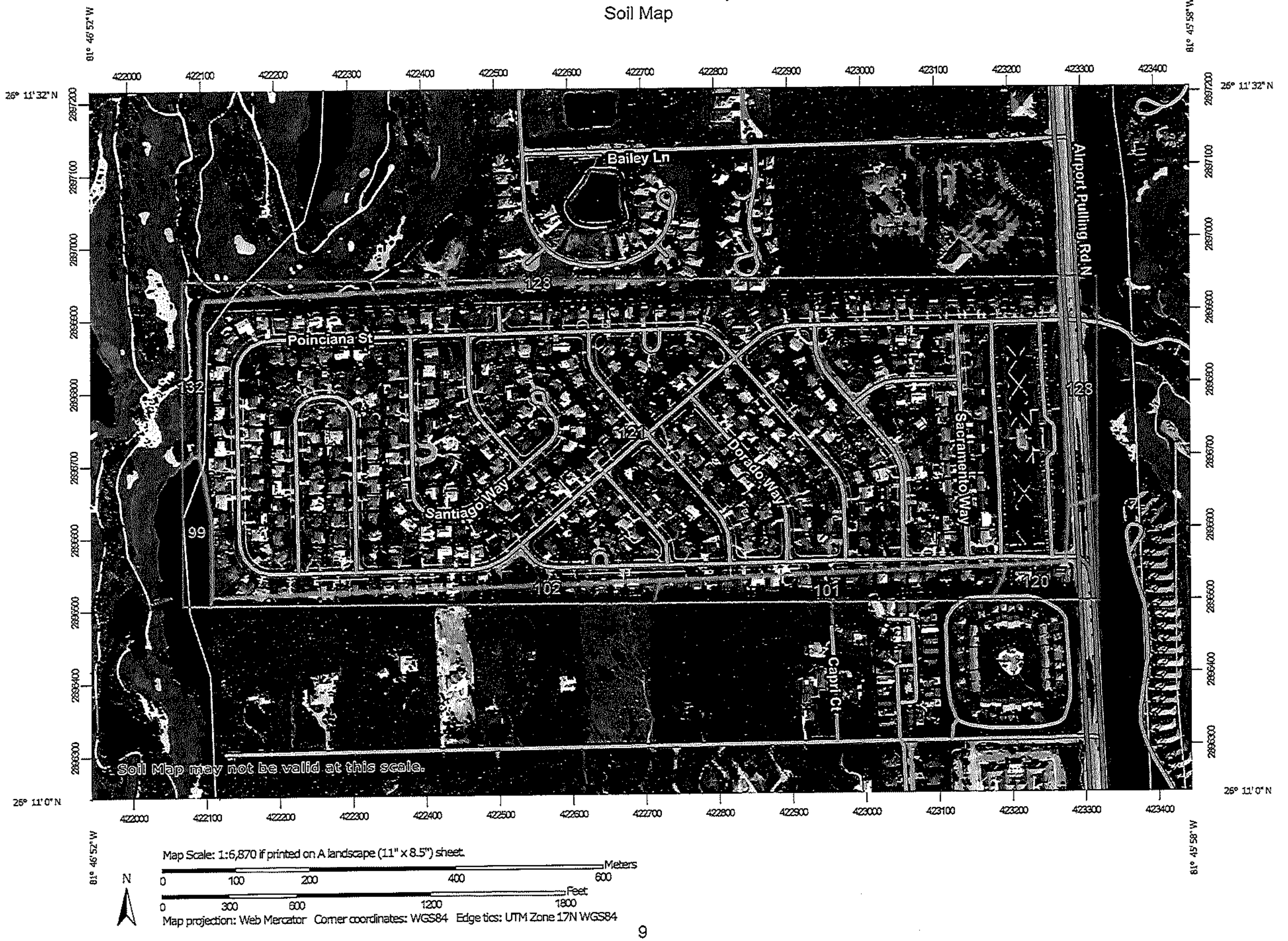
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:6,870 if printed on A landscape (11" x 8.5") sheet.

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

MAP LEGEND

Area of Interest (AOI)
- ☐ Area of Interest (AOI)

Soils
- ☐ Soil Map Unit Polygons
- Soil Map Unit Lines
- ▣ Soil Map Unit Points

Special Point Features
- Blowout
- ⊠ Borrow Pit
- Clay Spot
- ◇ Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- ◎ Miscellaneous Water
- Perennial Water
- Rock Outcrop
- + Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- △ Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- ■ Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Collier County Area, Florida
Survey Area Data: Version 14, Jun 8, 2020

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

Date(s) aerial images were photographed: Nov 21, 2019—Mar 14, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
99	Water	1.8	1.3%
101	Basinger fine sand-Urban land complex, 0 to 2 percent slopes	4.5	3.3%
102	Boca fine sand-Urban land complex, 0 to 2 percent slopes	3.1	2.3%
120	Malabar fine sand-Urban land complex, 0 to 2 percent slopes	2.6	1.9%
121	Matlacha-Boca-Urban land complex, 0 to 2 percent slopes	119.3	86.2%
128	Pineda fine sand, limestone substratum-Urban land complex, 0 to 2 percent slopes	3.8	2.7%
132	Riviera, limestone substratum-Copeland fine sand-Urban land association, 0 to 2 percent slopes	3.2	2.3%
Totals for Area of Interest		**138.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Collier County Area, Florida

99—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G156AC999FL)
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

101—Basinger fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9fl
Elevation: 0 to 150 feet
Mean annual precipitation: 42 to 68 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Basinger and similar soils: 42 percent
Urban land: 36 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger

Setting

Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, convex
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

Ag - 0 to 2 inches: fine sand
Eg - 2 to 18 inches: fine sand
Bh/E - 18 to 36 inches: fine sand
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Myakka

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Placid

Percent of map unit: 4 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Margate

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Matlacha

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

Basinger

Percent of map unit: 2 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, convex
Across-slope shape: Linear, concave
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Felda

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY011FL - Slough
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

102—Boca fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9c3
Elevation: 0 to 70 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Boca and similar soils: 42 percent
Urban land: 36 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boca

Setting

Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 14 inches: fine sand
E/B - 14 to 25 inches: fine sand
Btg - 25 to 30 inches: fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 8 to 40 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: R155XY003FL - South Florida Flatwoods
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Hallandale

Percent of map unit: 8 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Boca

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY003FL - South Florida Flatwoods
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Ft. drum

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

120—Malabar fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9cd
Elevation: 10 to 130 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Malabar and similar soils: 45 percent
Urban land: 38 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand

Bw - 17 to 42 inches: fine sand
Btg - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY011FL - Slough
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Valkaria

Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Oldsmar

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY011FL - Slough
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

121—Matlacha-Boca-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2y0j9
Elevation: 0 to 40 feet
Mean annual precipitation: 45 to 64 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days

Farmland classification: Not prime farmland

Map Unit Composition

Matlacha, limestone substratum, and similar soils: 32 percent
Boca and similar soils: 28 percent
Urban land: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matlacha, Limestone Substratum

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy human-transported material over sandy marine deposits over limestone

Typical profile

^C - 0 to 21 inches: gravelly fine sand
2Ab - 21 to 24 inches: fine sand
2Eb - 24 to 51 inches: fine sand
2Cb - 51 to 54 inches: fine sandy loam
3Rb - 54 to 64 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 34 to 100 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

Description of Boca

Setting

Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave

Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 14 inches: fine sand
E/B - 14 to 25 inches: fine sand
Btg - 25 to 30 inches: fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 8 to 40 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: R155XY003FL - South Florida Flatwoods
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Hallandale

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pineda, limestone substratum

Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

St. augustine

Percent of map unit: 3 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

128—Pineda fine sand, limestone substratum-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9fz
Elevation: 0 to 150 feet
Mean annual precipitation: 42 to 68 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pineda, limestone substratum, and similar soils: 43 percent
Urban land: 38 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pineda, Limestone Substratum

Setting

Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 12 inches: fine sand
Bw - 12 to 18 inches: fine sand
E' - 18 to 30 inches: fine sand
Btg/E - 30 to 38 inches: sandy clay loam
Btg - 38 to 55 inches: fine sandy loam
2R - 55 to 65 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Pineda, limestone substratum ponded

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Hallandale

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Boca

Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Ecological site: R155XY003FL - South Florida Flatwoods
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 3 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY011FL - Slough
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Pineda, limestone substratum

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear

Across-slope shape: Concave, linear
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Wabasso

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

132—Riviera, limestone substratum-Copeland fine sand-Urban land association, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9g3
Elevation: 0 to 30 feet
Mean annual precipitation: 46 to 64 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Riviera, limestone substratum, and similar soils: 36 percent
Urban land: 30 percent
Copeland and similar soils: 27 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riviera, Limestone Substratum

Setting

Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 32 inches: fine sand
Btg/E - 32 to 45 inches: sandy clay loam
Btg - 45 to 54 inches: sandy clay loam
2R - 54 to 64 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 31 to 80 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G156AC241FL)
Other vegetative classification: Wetland Hardwood Hammock (R156AY012FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G156AC241FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Description of Copeland

Setting

Landform: Depressions on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A1 - 0 to 6 inches: fine sand
A2 - 6 to 14 inches: fine sand
E - 14 to 18 inches: fine sand
Btg - 18 to 24 inches: sandy clay loam
2Ck - 24 to 30 inches: marly silt loam
3R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 16 to 54 inches to lithic bedrock
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C/D
Forage suitability group: Loamy and clayey soils on flats of hydric or mesic lowlands (G156AC341FL)
Other vegetative classification: Slough (R156BY011FL), Loamy and clayey soils on flats of hydric or mesic lowlands (G156AC341FL)
Hydric soil rating: Yes

Minor Components

Boca

Percent of map unit: 5 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Riviera, limestone substratum

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, convex
Across-slope shape: Linear, concave
Other vegetative classification: Wetland Hardwood Hammock (R156AY012FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G156AC241FL)
Hydric soil rating: No

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POINCIANA VILLAGE STORMWATER IMPROVEMENTS

SUPPLEMENTAL REQUIREMENTS
ADDITIONAL ITEMS – SUBSURFACE UTILITY EXPLORATION

Following is a copy of AIM Engineering & Surveying, Inc. Subsurface Utility Exploration Report for Poinciana Village Stormwater Improvement. Additional information may be found on the plans including the location of the investigation and data recovered. This information is provided for the bidders general information only. During construction, the contractor shall be responsible for having all utilities marked and for providing pot holing at all locations in which work is to be performed. Any questions concerning this report shall be directed to the County Project Manager and Engineer.

Subsurface Utility Engineering Test Hole Datasheet

AIM Engineering & Surveying, Inc.
2161 Fowler Street, Suite 100
Fort Myers, Florida 33901
www.aimengr.com
Phone: (239) 332-4569
Toll Free: (800) 226-4569
LICENSED BUSINESS No. 3114

Financial Project Number:	21-1326
Project Road Name:	Ponce De Leon Dr, Poinciana Dr, Bolero Way, Poinciana St, Santiago Way
Project Description:	Poinciana Village Stormwater Improvements
Date of Field Work:	July 13 to July 22, 2021

Utility Type

BE: Buried Electric
BT: Buried Telephone
FM: Force Main
GSSL: Gravity Sanitary Sewer Lateral
IMM: Indeterminable Metallic Material
WM: Water Main

Utility Material

ACP: Asbestos Concrete Pipe
DBC: Direct Buried Cable
DIP: Ductile Iron Pipe
HDPE: High-Density Polyethylene
VCP: Vitrified Clay Pipe

Additional Abbreviations

NFV: Not Field Verified
Vvh: Verified Vertical Horizontal

Survey Markers:

SIRC: Set 5/8" Iron Rod with Cap "TEST HOLE LB 3114"
SMAGD: Set Mag Nail and Disk "AIM ENG LB 3114"
CHISELED X: "X" Chiseled in concrete

Horizontal Datum:

Florida State Plane, East Zone, NAD 83
Units: US Survey Feet

Vertical Datum:

Vertical Datum, GPS derived NAVD88 (North American Vertical Datum of 1988)

Equipment:

Vacuum System-Vacmaster 4000
Locators-Radio Detection RD-8000, RD1000 GPR
Carlson BRx6+

Field Crew:

D. Sheets, B. Lewis, J. Torres, A. Torres

Prepared By:

JW

QA/QC By:

DB 07-30-2021

Field Books Used:

FB1726 PG(s) 27-39

Utility Owners Identified:

Centurylink
Florida Power & Light
City of Naples

Test Hole #	Utility Type	Utility Material	Utility Size	Owner	Northing	Easting	Ground Elevation	Top of Utility Elevation	Depth of Cover	Comments
Vvh 1	WM	ACP	6"	City of Naples	674197.37	401608.72	5.45'	0.95'	4.50'	Located with probe
Vvh 2	BE	DBC	3-0.5"/1-1"	Florida Power & Light	674140.68	401639.01	6.00'	2.40'	3.60'	
Vvh 3	FM	DIP	6"	City of Naples	674148.19	401637.21	5.36'	2.26'	3.10'	
Vvh 4	BE	DBC	3-0.5"	Florida Power & Light	674369.34	400626.68	6.18'	3.93'	2.25'	
Vvh 5	WM	ACP	6"	City of Naples	674369.46	400636.97	5.60'	1.10'	4.50'	
Vvh 6	BE	DBC	1"	Florida Power & Light	674369.82	400626.48	6.20'	1.35'	4.85'	
Vvh 7	WM	ACP	6"	City of Naples	675214.16	401379.59	5.27'	1.83'	3.44'	Located with probe
Vvh 8	WM	ACP	6"	City of Naples	675219.40	401650.31	4.76'	1.19'	3.57'	Located with probe
Vvh 9	WM	ACP	6"	City of Naples	675224.83	402272.30	5.54'	1.44'	4.10'	Located with probe
Vvh 10	BT	NFV	NFV	Centurylink	675283.55	403240.27	5.45'	3.87'	1.58'	Located with probe
Vvh 11	WM	ACP	6"	City of Naples	675286.87	403239.20	5.95'	3.43'	2.52'	
Vvh 12	BE	HDPE	2"	Florida Power & Light	675287.64	403239.32	5.93'	4.03'	1.90'	
Vvh 13	BE	DBC	3-0.5"/1-1"	Florida Power & Light	675297.26	403240.99	6.43'	4.65'	1.78'	
Vvh 14	BT	HDPE	2"	Centurylink	675292.09	403902.72	6.59'	5.07'	1.52'	
Vvh 15	WM	ACP	6"	City of Naples	675294.37	403900.83	6.78'	4.06'	2.72'	
Vvh 16	BT	DBC	3-0.25"/1-0.5"	Centurylink	675300.36	403904.43	6.97'	5.55'	1.42'	
Vvh 17	BE	DBC	1"	Florida Power & Light	675303.72	403900.50	7.07'	4.77'	2.30'	
Vvh 18	WM	ACP	6"	City of Naples	674406.89	401610.60	5.90'	2.90'	3.00'	Located with probe
Vvh 19	WM	ACP	6"	City of Naples	674223.94	404266.62	6.43'	3.96'	2.47'	Located with probe
Vvh 20	WM	ACP	6"	City of Naples	674220.22	403954.42	5.53'	3.43'	2.10'	Located with probe
Vvh 21	GSSL	VCP	6"	City of Naples	674217.14	403959.84	5.43'	4.14'	1.29'	Located with probe
Vvh 22	WM	ACP	6"	City of Naples	674215.83	403673.22	5.37'	2.77'	2.60'	Located with probe
Vvh 23	GSSL	VCP	6"	City of Naples	674215.66	403677.26	5.70'	3.75'	1.95'	
Vvh 24	WM	ACP	6"	City of Naples	674212.89	403149.59	5.06'	1.99'	3.07'	Located with probe

Test Hole #	Utility Type	Utility Material	Utility Size	Owner	Northing	Easting	Ground Elevation	Top of Utility Elevation	Depth of Cover	Comments
Vvh 25	WM	ACP	6"	City of Naples	674207.71	402893.14	4.82'	2.64'	2.18'	Located with probe
Vvh 26	WM	ACP	6"	City of Naples	675296.84	404154.96	6.96'	4.96'	2.00'	
Vvh 27	BT	HDPE	2"	Centurylink	675294.12	404155.12	6.73'	5.23'	1.50'	
Vvh 28	BE	NFV	NFV	Florida Power & Light	674159.64	401787.17	5.86'	2.86'	3.00'	Located with probe
Vvh 29	FM	DIP	6"	City of Naples	674148.58	401789.85	7.02'	3.92'	3.10'	
Vvh 30	FM	DIP	6"	City of Naples	674162.29	403149.26	6.40'	2.80'	3.60'	
Vvh 31	FM	DIP	6"	City of Naples	674170.62	403952.58	6.38'	3.03'	3.35'	Located with probe
Vvh 32	BE	HDPE	2"	Florida Power & Light	674170.80	403950.08	6.54'	5.17'	1.37'	
Vvh 33	WM	HDPE	2-1"	City of Naples	674169.56	403950.45	6.53'	5.23'	1.30'	Out of service
Vvh 34	WM	IMM/HDPE	1"	City of Naples	674172.38	403951.51	6.39'	5.14'	1.25'	Out of service. Located at 90 degree bend.
Vvh 35	WM	IMM/HDPE	1"	City of Naples	674172.29	403950.84	6.35'	5.10'	1.25'	Out of service, Located at tee.
Vvh 36	BE	DBC	1.5"	Florida Power & Light	674154.66	402031.99	5.81'	2.06'	3.75'	
Vvh 37	FM	DIP	6"	City of Naples	674149.98	402031.16	6.23'	1.93'	4.30'	Located with probe
Vvh 38	GSSL	VCP	6"	City of Naples	674170.76	403158.31	5.41'	3.41'	2.00'	
Vvh 39	WM	IMM/HDPE	2-1"	City of Naples	674162.14	403159.68	6.31'	4.31'	2.00'	Located with probe
Vvh 40	WM	HDPE	2"	City of Naples	674179.87	403943.81	5.63'	4.39'	1.24'	
Vvh 41	WM	HDPE	2"	City of Naples	674218.52	403949.61	5.67'	2.47'	3.20'	Located with probe
Vvh 42	FM	DIP	6"	City of Naples	674166.21	403648.42	6.09	2.89	3.20	Located with probe

POINCIANA VILLAGE STORMWATER IMPROVEMENTS

SUPPLEMENTAL REQUIREMENTS
ADDITIONAL ITEMS – EXISTING EASEMENT ASSESSMENT REPORT

Following is a copy of the Existing Easement Report. This report was prepared initially by Hole Montes (Bowman) in early 2021. In December 2023, a field review was made, and the report updated. It contains photos of the existing easement areas with a brief description of the existing conditions and required actions. Additional information is provided on the plans. This information is provided for the bidders general information only. The bidders shall be responsible for determining the existing site conditions.

It is the intent of this project to clear the existing drainage easements (including right of way) of all existing improvements and vegetation to allow removal of the existing stormwater system, installation of the proposed stormwater system, and future of maintenance of the system including the rear yard drainage ways. This work shall include, but not be limited to, removal of vegetation, fencing, storage sheds and carports, unpermitted driveways, and storage areas. Upon completion of work, the disturbed areas shall be sodded to match existing conditions.