People and Internal Operations Department
111 NW 1st Street, Suite 2420
Miami, Florida 33128
T 305-375-1163

miamidade.gov

ADDENDUM NO. TWO

DATE:	July 29, 2026
DEPARTMENT:	People and Internal Operations Department (PIOD)
PIOD PROJECT NAME:	Data Processing Communication Center Flood Mitigation
PIOD PROJECT NUMBER:	I190295-R
BID DUE DATE:	**August 4, 2026 (revised)**
CONTRACT COORDINATOR:	Kristina Hagberg

This Addendum is issued to clarify and/or modify the previously issued Invitation to Bid, and is hereby made part of the Contract Documents. All requirements of the Invitation to Bid not modified herein shall remain in full force and effect as originally set forth. **Bidders are required to acknowledge receipt of any and all addenda as instructed in the bid proposal form provided to that effect.**

Words in ~~strikethrough~~ type are deletions from existing text. Words in **bold underlined** type are additions to existing text.

CHANGE(S):

1. **The following RPQ Bid Documents, Plans/Specs have been added and attached hereto as "I190295-R_Drainage Report Percolation Exfiltration Test Report"**

2. The RPQ Bid Documents, ~~Plans/Specs Index dated 06/09/26~~ have been deleted in its entirety and attached hereto as **I190295-R_Plans_Specs_Index_Revised_Add2_072926.**

RESPONSES TO REQUESTS FOR INFORMATION (RFIs):

Q5. Will Miami-Dade provide construction survey control points and benchmarks, or is the Contractor responsible for all layout and staking?

A5. The Contractor shall be responsible for all construction layout, surveying, and staking required to complete the Work in accordance with the Contract Documents. Miami-Dade County will not provide construction survey control points or benchmarks.

Q6. Is groundwater expected at the proposed drainage excavation locations? Can geotechnical information be provided?

A6. Depending on the time of the year, the Contractor might encounter the ground water when performing the drainage excavations. The excavation for the exfiltration trench will encounter the ground water. For reference, the seasonal high ground water is around elevation 2.00 NGVD 29. Based on the Percolation/ Exfiltration Test Report prepared by Terracon, the ground water was encountered about 7' below the existing ground. Refer to the attached report.

Q7. Can the Owner provide the anticipated groundwater elevation (groundwater table) at the project site?

A7. The seasonal high ground water is about elevation 2.00 NGVD 29.

Q19. Who pays for compaction testing, asphalt testing, or special inspections, if required? any special inspections required for this project?

A19. The Contractor is responsible for testing. No special inspections required.

Q21. During excavation and construction of the proposed stormwater drainage system, the areas adjacent to the trench will be accessed by excavators, trucks, and other construction equipment. This activity may damage the existing parking lot striping. Should the Contractor include the cost of restoring any damaged pavement striping as part of the Base Bid, or will restriping be performed by the Owner under a separate contract?

A21. The Contractor shall be responsible for any damage made to the existing parking lot pavement, striping and any other existing features that are to remain. Any damage to the public or private property shall be restored by the Contractor at no expense to the County.

Q22. Considering that the work will be performed within an existing paved parking lot, please confirm the temporary erosion and sediment control measures required for this project. Specifically, is the Contractor required to provide and maintain:

a. Silt fence?
b. Inlet protection?
c. Other erosion and sediment control devices not specifically shown on the drawings

A22. The Contractor shall provide the temporary erosion and sediment control measures as required. At a minimum, the Contractor shall provide inlet protection to the existing and proposed catch basins.

ALL OTHER PROVISIONS OF THE ORIGINAL INVITATION TO BID, AS AMENDED, REMAIN UNCHANGED.

Attachment(s):

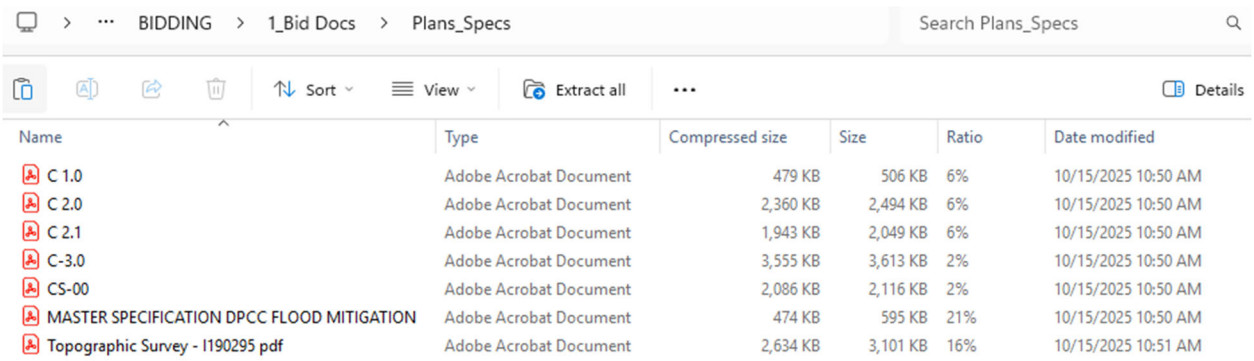
1. I190295-R_Drainage Report Percolation Exfiltration Test Report
2. I190295-R_Plans_Specs_Index_Revised_Add2_072926

cc: Marc Lafrance, PIOD
Carlos Belliard, PIOD
Julia Aden, PIOD
Kristina Hagberg, PIOD
Marcela Rodriguez, PIOD
Eric Perez, SPD
Caesar Suarez, SPD
Clerk of the Board

DATA PROCESSING COMMUNICATION CENTER FLOOD MITIGATION

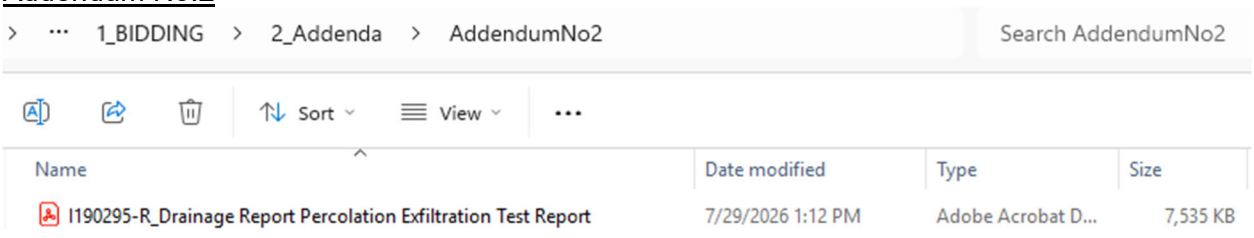
PIOD PROJECT NO. I190295-R

Bid Documents: Plans/Specs Index
June 9, 2026, Revised 7/29/26



Name	Type	Compressed size	Size	Ratio	Date modified
C 1.0	Adobe Acrobat Document	479 KB	506 KB	6%	10/15/2025 10:50 AM
C 2.0	Adobe Acrobat Document	2,360 KB	2,494 KB	6%	10/15/2025 10:50 AM
C 2.1	Adobe Acrobat Document	1,943 KB	2,049 KB	6%	10/15/2025 10:50 AM
C-3.0	Adobe Acrobat Document	3,555 KB	3,613 KB	2%	10/15/2025 10:50 AM
CS-00	Adobe Acrobat Document	2,086 KB	2,116 KB	2%	10/15/2025 10:50 AM
MASTER SPECIFICATION DPCC FLOOD MITIGATION	Adobe Acrobat Document	474 KB	595 KB	21%	10/15/2025 10:50 AM
Topographic Survey - I190295 pdf	Adobe Acrobat Document	2,634 KB	3,101 KB	16%	10/15/2025 10:51 AM

<u>Addendum No.2</u>



Name	Date modified	Type	Size
I190295-R_Drainage Report Percolation Exfiltration Test Report	7/29/2026 1:12 PM	Adobe Acrobat D...	7,535 KB

DRAINAGE REPOT

Miami Dade Data Processing and Communication Center

Flood Mitigation

5080 SW 87th Ave
Miami, Florida

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY: IGNACIO SERRALTA, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

IGNACIO SERRALTA
LICENSE
No 45609
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

9/26/24

Ignacio Serralta
Reg. Engineers No. 45609
State of Florida

SRS ENGINEERING,INC.

5001 SW 74TH COURT, SUITE 201, MIAMI, FLORIDA 33155
TEL: 305-662-8887 FAX: 305-662-8858
WWW.SRS-CORP.COM EB-00007317

5001 SW 74TH COURT, SUITE 201, MIAMI, FLORIDA 33155
TEL: 305-662-8887 FAX: 305-662-8858
WWW.SRS-CORP.COM EB-00007317
SRS ENGINEERING,INC.

Drainage Calculation

A. Project Information

The proposed drainage improvements project takes place at the Miami Dade County Data Processing and Communications Center (DPCC) located at 5680 SW 87th Ave, Miami, Florida. Refer to **Appendix A** for project location. The existing drainage system providing flood protection to a section of the existing parking lot and the loading ramp is not capable of draining successfully the stormwater runoff, causing flooding in the parking lot and the loading ramp. To provide adequate drainage for these areas, it is necessary to retrofit the drainage system by adding more exfiltration trench. The analysis described in this report is limited to the 0.50 acres depicted in **Appendix B,** Drainage Basin Exhibit.

B. Requirements

The methodologies implemented during the design of the proposed surface water management system comply with the standards methods of the SFWMD, FDEP, and DRER. The design criteria are as follows:

- Water Quality (SFWMD):
    - The first inch of runoff from the entire site,
    - Or the amount of 2.5 in over the total impervious area, whichever is higher.
- Water Quantity:
    - 1-Day - 5-Year Rainfall: The post-development runoff from a storm event with duration of 1-day and 5-year return frequency must be completely retained below the lowest inlet.

SRS ENGINEERING,INC.

C. Drainage Design

The proposed drainage system comprises of a combination of catch basins and perforated pipes with exfiltration trench.

The subject site, with a total area of 0.493 acres, will be considered as two basins, Basin A and B. Refer to Tables 1 and 2 below, and **Appendix B** for Drainage Basin Limits Exhibit.

Table 1: Acreages Basin A

Land Use	Area (ft^2)	Area (acre)	%
Impervious (R/W)	12,002	0.276	100
Pervious (R/W)	0.000	0.000	0.0
Total	**12,002**	**0.276**	**100.00%**

Table 2: Acreages Basin B

Land Use	Area (ft^2)	Area (acre)	%
Impervious (R/W)	9,595	0.217	100
Pervious (R/W)	0.000	0.000	0.0
Total	**9,595**	**0.217**	**100.00%**

Water Quality:

Basin A and B require a total of 5 LF of exfiltration trench with 18" perforated pipe to meet the water quality criterion set by SFWMD. The basin has been provided with 55 LF of perforated pipe (exfiltration trench) which exceeds the water quality criterion. Refer to **Sections 2** and **2.1** of the Water Surface Management Calculations hereon.

Water Quantity:

Basins A and B require a total of 25 LF of exfiltration trench with 18" perforated pipe, including a factor of safety of 2, to completely retain the 5-year-1day rainfall event below the lowest catch basin. The site has been provided with a total of 55 LF of 18" perforated pipe. Refer to **Section 3** of the Water Surface Management Calculations and **Appendix F**, hereon.

D. Conclusion

The proposed stormwater management system for the subject drainage improvements meets the criteria for the water quality and quantity set by the corresponding regulatory agencies.

1. Design Conditions

Table 3: Design Conditions

Description		
Miami-Dade County Flood Criteria (Appendix C)	10.52	N.G.V.D. 29
FEMA Federal Flood Zone (Zone: X) (Appendix D)	N/A	N/A
Seasonal High-Water Table (Appendix B)	2.07	N.G.V.D. 29
Proposed Lowest Inlet Elevation	7.23	N.G.V.D. 29
Average Hydraulic Conductivity (K) (Appendix G)	2.11E-03	cfs/ft^2-ft

2. Water Quality

The Water Quality criterion has been outlined in **Section B** of the Drainage Report hereon.

Basin A

a. First inch of runoff

Volume required = 1 in. X 0.276 ac. = **0.276 ac-in**

b. 2.5 inches times the percentage of imperviousness

Area = Total Area = 0.276 ac.

Percentage of impervious = 100 % (Table 1)

Inches to be treated = 2.5 in. x 1.0 = 2.5 in.

Volume required = Inches to be treated x Total Area (Basin)
=2.5 in x 0.276 ac = **0.690 ac-in**

Since 0.690 ac.-Ft.> 0.276 ac.-ft, then 0.690 ac-in controls

Basin B

a. First inch of runoff

Volume required = 1 in. X 0217 ac. = **0.217 ac-in**

b. 2.5 inches times the percentage of imperviousness

Area = Total Area = 0.217 ac.

Percentage of impervious = 100 % (Table 1) Inches

to be treated = 2.5 in. x 1.0 = 2.5 in.

Volume required = Inches to be treated x Total Area (Basin)
=2.5 in x 0.217 ac = **0.543 ac-in**

Since 0.543 ac.-Ft.> 0.217 ac.-ft, then 0.543 ac-in controls

2.1 Water Quality Treatment

Basin A

Water quality treatment will be provided to the site via exfiltration trench. The SFWMD empirical formula, shown below, is used to compute the length of exfiltration trench required to provide water quality.

$L = V / [k (2H_2 Du - D_u^2 + 2H_2D_s) + 0.000139WDu]$ For Ds > Du

Where:
L = length of trench required (Feet)
V = volume to be treated = 0.690 ac.-in.
W = trench width = 3.5 ft
K = hydraulic conductivity = 2.11 E-03 cfs/Ft.^{2}-Ft.Head (refer to Table 2)
H = trench depth = 15 ft
H_2 = Heff = depth to water table = 6.33 ft
Du = non-saturated trench depth (Feet) = 4.43 ft
Ds = saturated trench depth = 8.67 ft

L= (0.690) /[2.11E-03 (2x6.33x4.43-4.43 ^{2}+2x6.33x8.67)+0.000139x3.5x4.43] = 2.5 LF

Length of Trench Provided L=30 LF

Since 30 LF > 2.5 LF, then the water quality criterion is met for the subject site Basin A.

SRSI ENGINEERING,INC.

Basin B

Water quality treatment will be provided to the site via exfiltration trench. The SFWMD empirical formula, shown below, is used to compute the length of exfiltration trench required to provide water quality.

$L = V / [k (2H_2 Du - D_u^2 + 2H_2D_s) + 0.000139WDu]$ For Ds > Du

Where:

L = length of trench required (Feet)
V = volume to be treated = 0.543 ac.-in.
W = trench width = 3.5 ft
K = hydraulic conductivity = 2.11 E-03 cfs/Ft.^{2}-Ft.Head (refer to Table 2)
H = trench depth = 15 ft
H_2 = Heff = depth to water table = 5.16 ft
Du = non-saturated trench depth (Feet) = 3.26 ft
Ds = saturated trench depth = 7.74 ft

L= (0.690) /[2.11E-03 (2x5.16x3.26-3.26 ^{2}+2x5.16x7.74)+0.000139x3.5x3.26] = 2.5 LF

Length of Trench Provided L=25 LF

Since 25 LF > 2.5 LF, then the water quality criterion is met for the subject site Basin B.

3. Water Quantity

The water quality criteria have been outlined in **Section B** of the Drainage Report hereon.

5-Year-1-Day

To mitigate the runoff generated by the 5-year – 1-day event, the site has been provided with a combination of exfiltration trench and drainage structures.

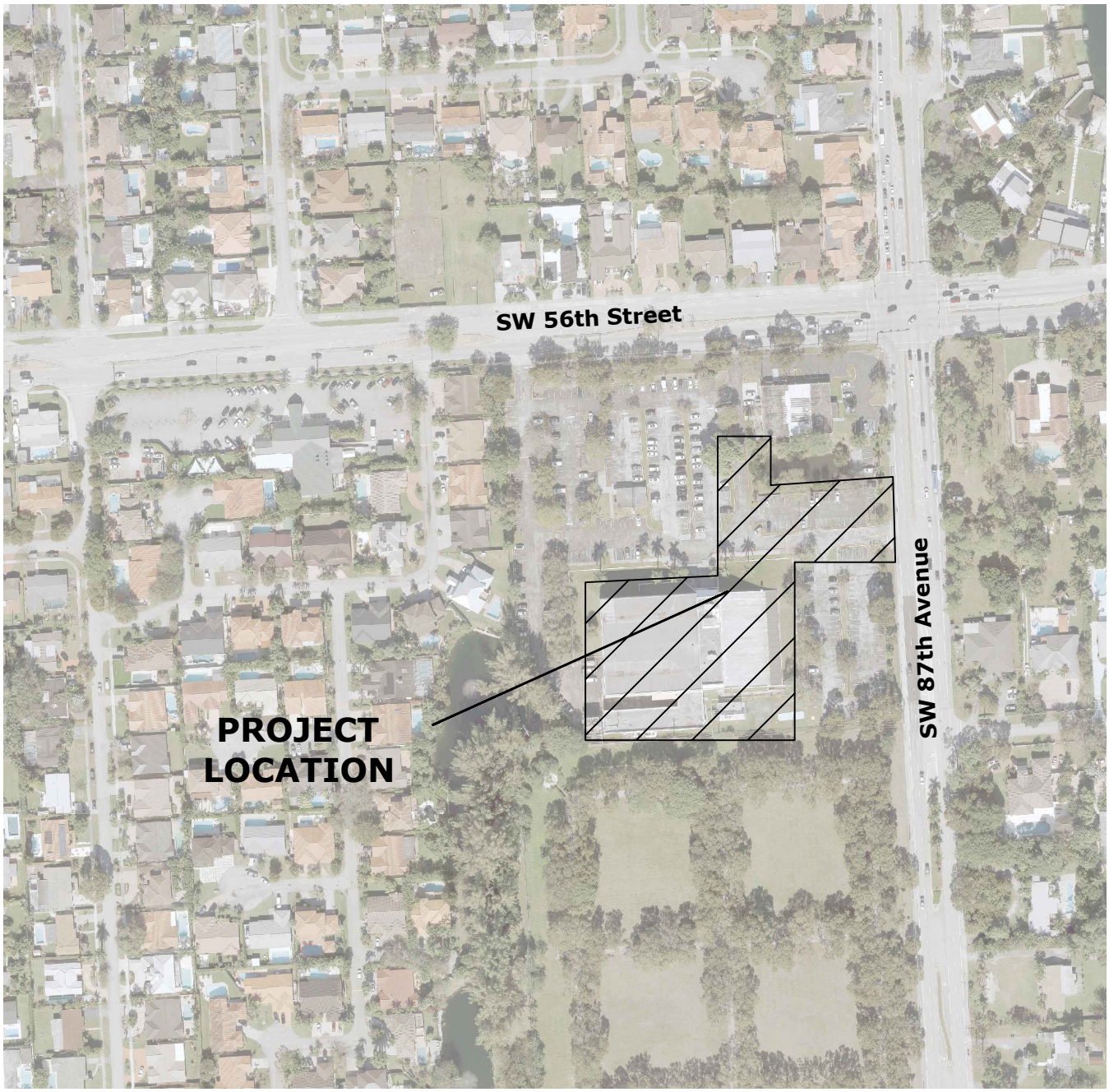
Based on the calculations performed using the SFWMD empirical formula (refer to Appendix F) Basin A requires 14 LF of exfiltration trench, including a factor of safety of 2. The basin has been provided with 30 LF of 15' deep exfiltration trench. Likewise, Basin B requires 11 LF of exfiltration trench, including a factor of safety of 2. The basin has been provided with 25 LF of 15' deep exfiltration trench.

Since 55 LF > 25 LF, then the water quantity criterion for the subject rainfall event is met forthe site (Basin A and B).

SRSI ENGINEERING,INC.

APPENDIX A

Project Location Exhibit



SCALE: 1"=250'

SRS ENGINEERING, INC.
CONSULTING ENGINEERS
EB-00007317
5001 S.W. 74TH COURT, SUITE 201
MIAMI, FLORIDA 33155
TEL. 305-662-8887 FAX 305-662-8858
WWW.SRS-CORP.COM

SHEET TITLE

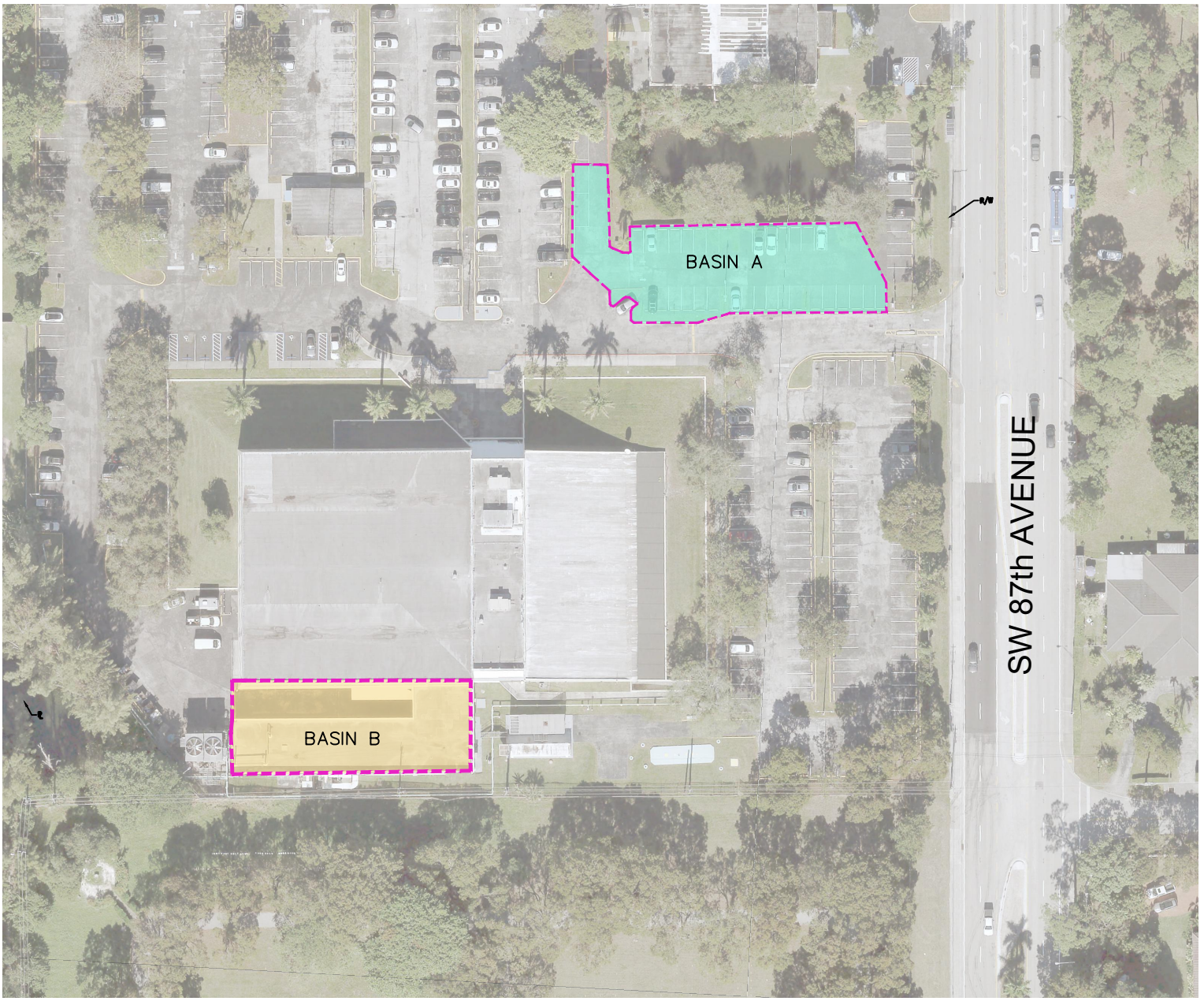
PROJECT LOCATION EXHIBIT

PROJECT NAME

DPCC FLOOD MITIGATION

APPENDIX B

Drainage Basin Limits Exhibit



LEGEND:

BASIN A (0.28 ACRES)

BASIN B (0.22 ACRES)

SCALE: 1"=100'

SRS ENGINEERING, INC.
CONSULTING ENGINEERS
EB-00007317
5001 S.W. 74TH COURT, SUITE 201
MIAMI, FLORIDA 33155
TEL. 305-662-8887 FAX 305-662-8858
WWW.SRS-CORP.COM

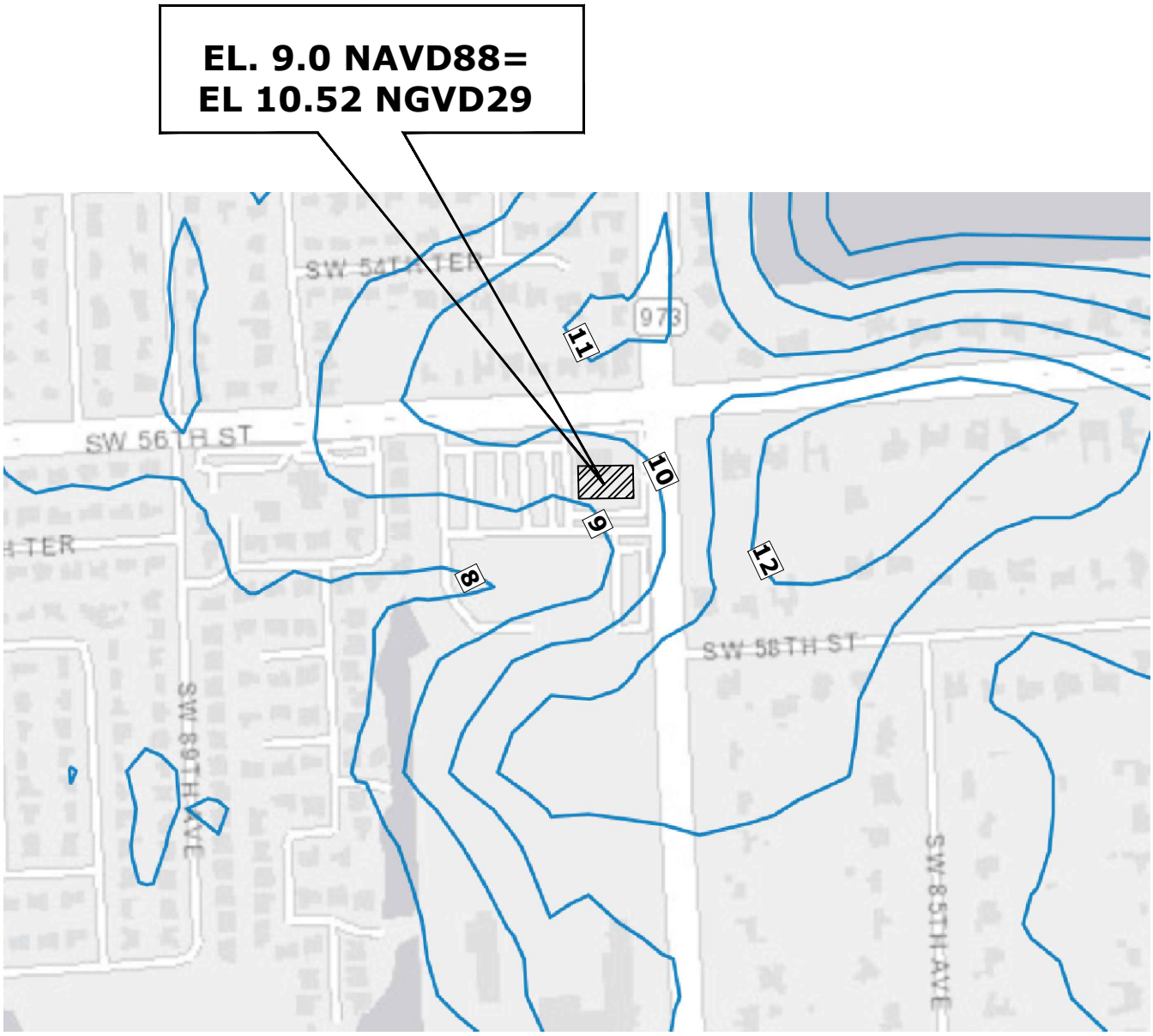
SHEET TITLE

DRAINAGE BASIN LIMITS

PROJECT NAME

DPCC FLOOD MITIGATION

APPENDIX C
Miami-Dade Flood Criteria



SOURCE:
https://gis-mdc.opendata.arcgis.com/datasets/500625d5715f4279895b85ef570f7de2/explore?filters=ey&location=25.716507%2C-80.332554%2C17.07

SRS ENGINEERING, INC.
CONSULTING ENGINEERS
EB-00007317
5001 S.W. 74TH COURT, SUITE 201
MIAMI, FLORIDA 33155
TEL. 305-662-8887 FAX 305-662-8858
WWW.SRS-CORP.COM

SHEET TITLE

FLOOD CRITERIAL EXHIBIT

PROJECT NAME

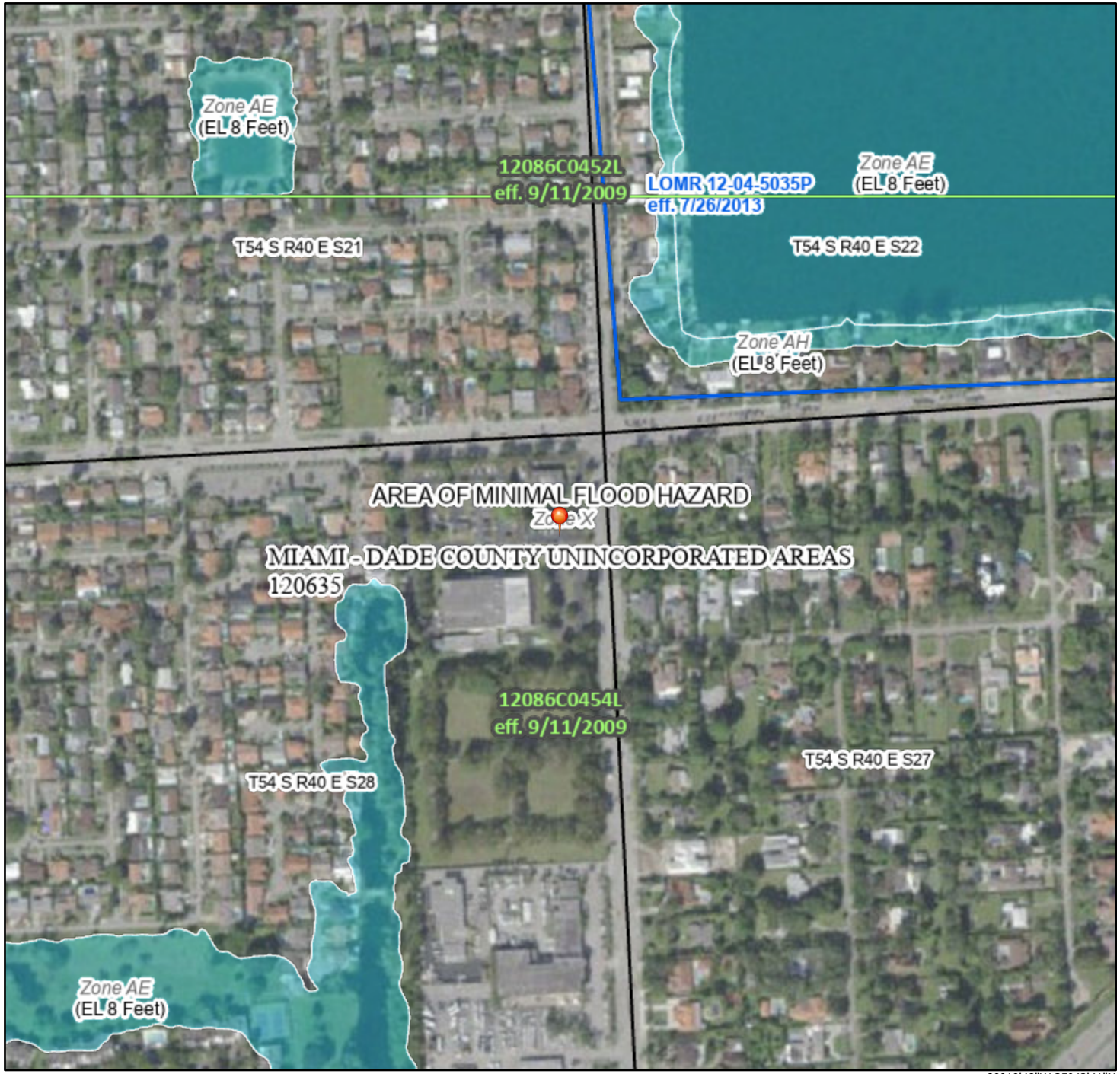
DPCC FLOOD MITIGATION

APPENDIX D
FEMA Map

National Flood Hazard Layer FIRMette

FEMA

80°20'26"W 25°43'13"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

80°19'48"W 25°42'41"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/24/2024 at 8:50 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

APPENDIX E

October High Seasonal Water Table



SRS ENGINEERING, INC.
CONSULTING ENGINEERS
EB-00007317
5001 S.W. 74TH COURT, SUITE 201
MIAMI, FLORIDA 33155
TEL. 305-662-8887 FAX 305-662-8858
WWW.SRS-CORP.COM

SHEET TITLE

MIAMI-DADE COUNTY AVERAGE OCTOBER WATER TABLE

PROJECT NAME

DPCC FLOOD MITIGATION

APPENDIX F
Drainage Calculations

1 SW 74 COURT SUITE 201
MIAMI, FLORIDA 33155
TEL: (305) 662-8887
FAX: (305) 662-8858

PROJECT: DPCC Flood Mitigation

PROJECT NO.: 2420
FILE NO:
COMPUTED BY: A.L
CHECKED BY: O.M DATE: 09/11/24

DRAINAGE CALCULATIONS - BASIN A

GIVEN:

RAINFALL FREQUENCY	5	[YEARS]
TOTAL AREA	0.276	[ACRES]
IMPERVIOUS AREA	0.276	[ACRES]
PERVIOUS AREA	0.000	[ACRES]
IMPERV. COEFFICIENT	0.90	[CONST]
PERVIOUS COEFFICIENT	0.30	[CONST]
RUNOFF COEFFICIENT (C)	0.90	[CONST]
DESIGN WATER TABLE (October)	2.07	[FEET ABOVE N.G.V.D.]
FLOOD CRITERIA	10.52	[FEET ABOVE N.G.V.D.]
INLET GRATE/ WEIR ELEVATION	8.40	[FEET ABOVE N.G.V.D., LOWEST]
TRENCH BOTTOM ELEV.	-6.60	[FEET, N.G.V.D.]
PVMNT SECTION DEPTH	1.90	[FEET]
SAFETY FACTOR	2.00	[CONST](in addition to a safety factor of 2 built into the formula)
HYDRAULIC CONDUCTIVITY (k) (SEE ATTACHED TESTS)	2.11E-03	[C.F.S./S.F./FT. OF HEAD]
WIDTH bottom =	3.50	[FEET]
TRENCH SLOPE =1 VERT. TO	0.00	[HORZ.]
INVERT PIPE ELEVATION	3.90	[FEET ABOVE N.G.V.D., LOWEST]
DRAINAGE PIPE DIAMETER	1.50	[FEET]

CALCULATED

H2 =	6.33	FT
Du =	4.43	FT
Ds =	8.67	FT
Wavg =	3.5	FT
STORAGE AREA =	8.64	SF
STORAGE VOLUME =	8.64	CU.FT./L.F.
ACTUAL Q/LF =	0.311	C.F.S./L.F. OF TRENCH
DESIGN Q/LF=	0.155	C.F.S./L.F. OF TRENCH
NEED TO BE < 0.1 C.F.S./L.F.		
DESIGN Q/LF =	0.100	C.F.S./L.F. OF TRENCH

Saturated condition
Q/LF = k((2 H2 Du)-(Du)^2+(2 H2 Ds))+.000139WI

TOTAL TRENCH LENGTH REQUIRED=	**14**	LF
TOTAL TRENCH LENGTH PROVIDED=	**30**	

TOTAL STORAGE VOLUME (S) =	120.91	CU.FT.
ACTUAL EXFILTRATION =	4.35	C.F.S.
DESIGN EXFILTRATION =	1.40	C.F.S.

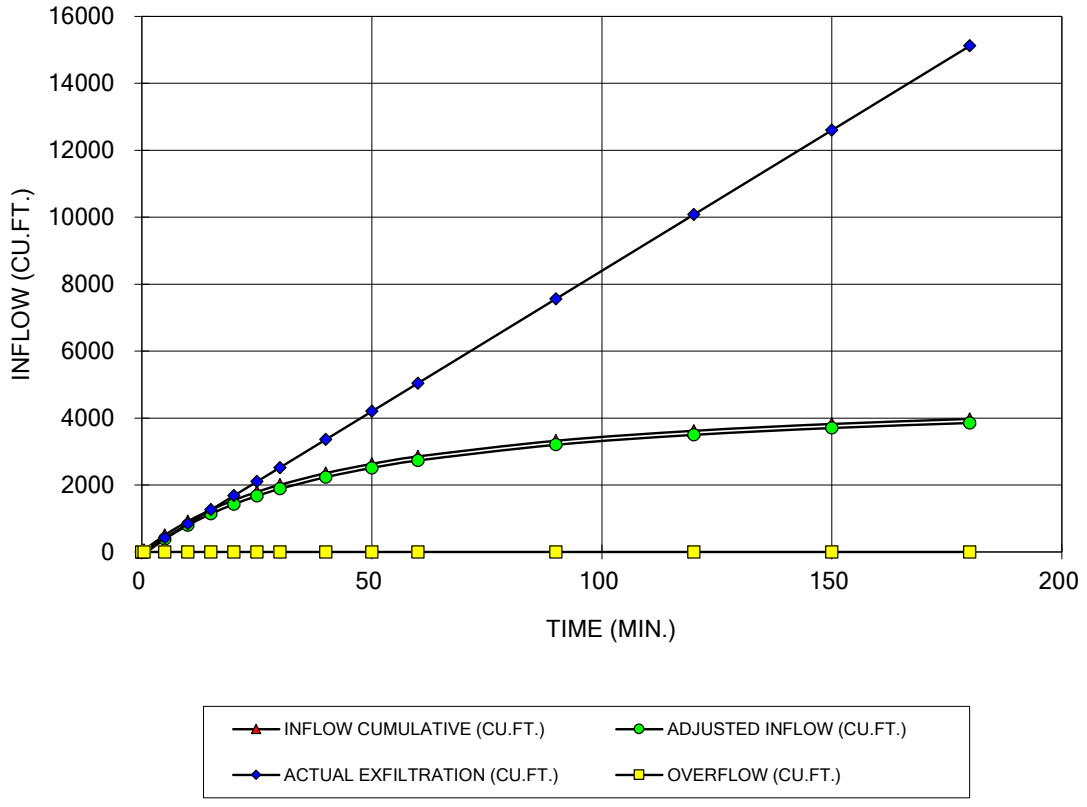
DESIGN CURVE FOR 5-YR FREQUENCY STORM

(MIAMI)

DRAINAGE CALCULATIONS - BASIN A

TIME [MIN.] (t)	INTENSITY [IN./HR.] (i)	INFLOW [C.F.S.] (Q=CIA)	INFLOW CUMULATIVE [CU. FT.] (Q=CIA)	STORAGE [CU. FT.] (S)	ADJUSTED INFLOW [CU. FT.] (Q-S)	ACTUAL EXFILTRA. [CU. FT.]	OVERFLOW [CU. FT.] (Ponding)
0	0.00	0.00	0	121	-121	0	0
0.5	7.46	1.85	56	121	-65	42	0
5	6.78	1.68	505	121	384	420	0
10	6.15	1.53	916	121	795	840	0
15	5.63	1.40	1258	121	1137	1260	0
20	5.19	1.29	1546	121	1425	1680	0
25	4.81	1.20	1793	121	1672	2100	0
30	4.49	1.11	2006	121	1885	2520	0
40	3.95	0.98	2356	121	2235	3360	0
50	3.53	0.88	2631	121	2511	4200	0
60	3.19	0.79	2854	121	2733	5040	0
90	2.48	0.62	3322	121	3201	7560	0
120	2.02	0.50	3619	121	3498	10080	0
150	1.71	0.42	3825	121	3704	12600	0
180	1.48	0.37	3975	121	3854	15120	0

DESIGN CURVES (5-YR FREQ.)



ENGINEERING,INC.

5001 SW 74 COURT SUITE 201
MIAMI, FLORIDA 33155
TEL: (305) 662-8887
FAX: (305) 662-8858

PROJECT: DPCC Flood Mitigation

PROJECT NO.: 2420
FILE NO: 0
COMPUTED BY: A.L
CHECKED BY: O.M DATE: 09/11/24

DRAINAGE CALCULATIONS FOR WATER QUALITY

"C" FACTOR FOR IMPERVIOUS AREAS	0.9	[CONST]
"C" FACTOR FOR PERVIOUS AREAS	0.3	[CONST]
ACRES OF IMPERVIOUS AREAS	0.276	[ACRES]
ACRES OF PERVIOUS AREAS	0.000	[ACRES]
LENGTH (L.F.) OF FRENCH DRAIN CALCULATED	14	[FEET]
SEEPAGE CAPACITY IN C.F.S./L.F.	0.1000	[C.F.S./L.F. OF TRENCH]
AVAILABLE STORAGE PER L.F.	8.64	CU.FT./L.F.
WEIGHTED COEFFICIENT OF RUNOFF	0.90	[CONST]
TOTAL DRAINAGE AREA IN ACRES (AC)	0.276	[ACRES]
VOLUME OF ONE INCH OF RUNOFF IN CU.FT.	1,002	[CU.FT.]
STORM FREQUENCY IN YEARS	5	[YEARS]
INITIAL TIME OF CONCENTRATION IN MIN.	5	[MIN.]
TIME TO GENERATE ONE INCH OF RUNOFF	11	[MIN.]
TIME TO GENERATE AND FLOW ONE INCH OF RUNOI	16	[MIN.]

L SW 74 COURT SUITE 201
MIAMI, FLORIDA 33155
TEL: (305) 662-8887
FAX: (305) 662-8858

PROJECT: DPCC Flood Mitigation

PROJECT NO.: 2420
FILE NO:
COMPUTED BY: A.L
CHECKED BY: O.M. DATE: 09/11/24

DRAINAGE CALCULATIONS - BASIN B

GIVEN:

RAINFALL FREQUENCY	5	[YEARS]
TOTAL AREA	0.217	[ACRES]
IMPERVIOUS AREA	0.217	[ACRES]
PERVIOUS AREA	0.000	[ACRES]
IMPERV. COEFFICIENT	0.90	[CONST]
PERVIOUS COEFFICIENT	0.30	[CONST]
RUNOFF COEFFICIENT (C)	0.90	[CONST]
DESIGN WATER TABLE (October)	2.07	[FEET ABOVE N.G.V.D.]
FLOOD CRITERIA	10.52	[FEET ABOVE N.G.V.D.]
INLET GRATE/ WEIR ELEVATION	7.23	[FEET ABOVE N.G.V.D., LOWEST]
TRENCH BOTTOM ELEV.	-5.67	[FEET, N.G.V.D.]
PVMNT SECTION DEPTH	1.90	[FEET]
SAFETY FACTOR	2.00	[CONST](in addition to a safety factor of 2 built into the formula)
HYDRAULIC CONDUCTIVITY (k) (SEE ATTACHED TESTS)	2.11E-03	[C.F.S./S.F./FT. OF HEAD]
WIDTH bottom =	3.50	[FEET]
TRENCH SLOPE =1 VERT. TO	0.00	[HORZ.]
INVERT PIPE ELEVATION	3.00	[FEET ABOVE N.G.V.D., LOWEST]
DRAINAGE PIPE DIAMETER	1.50	[FEET]

CALCULATED

H2 =	5.16	FT
Du =	3.26	FT
Ds =	7.74	FT
Wavg =	3.5	FT
STORAGE AREA =	6.59	SF
STORAGE VOLUME =	6.59	CU.FT./L.F.
ACTUAL Q/LF =	0.219	C.F.S./L.F. OF TRENCH
DESIGN Q/LF =	0.109	C.F.S./L.F. OF TRENCH
	NEED TO BE < 0.1 C.F.S./L.F.	
DESIGN Q/LF =	0.100	C.F.S./L.F. OF TRENCH

Saturated condition
Q/LF = k((2 H2 Du)-(Du)^2+(2 H2 Ds))+.000139WI

TOTAL TRENCH LENGTH REQUIRED=	**11**	LF
TOTAL TRENCH LENGTH PROVIDED=	**25**	

TOTAL STORAGE VOLUME (S) =	72.47	CU.FT.
ACTUAL EXFILTRATION =	2.41	C.F.S.
DESIGN EXFILTRATION =	1.10	C.F.S.

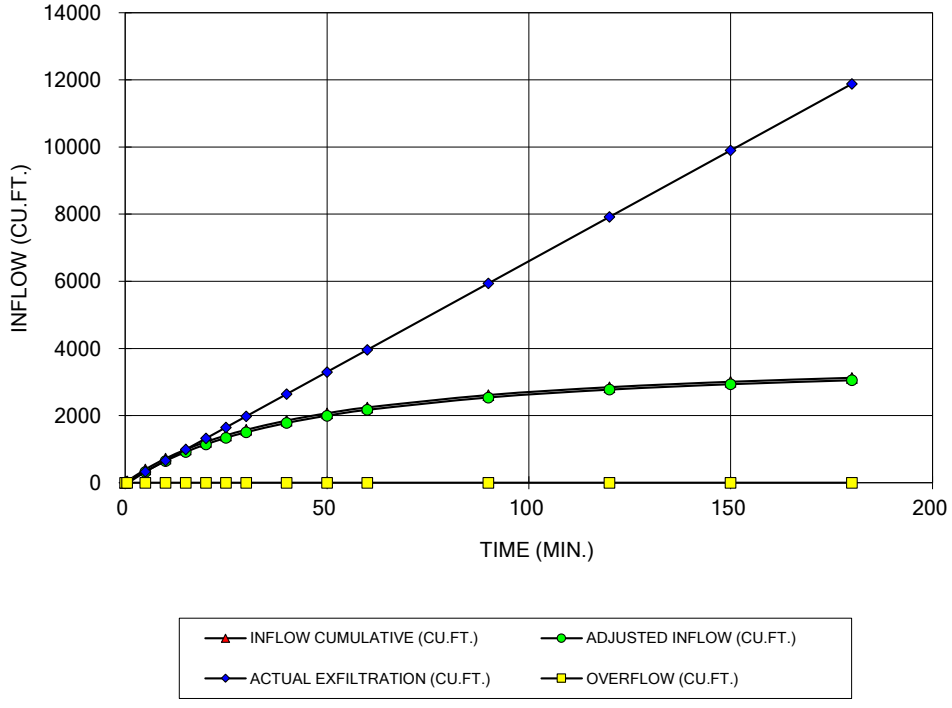
DESIGN CURVE FOR 5-YR FREQUENCY STORM

(MIAMI)

DRAINAGE CALCULATIONS - BASIN B

TIME [MIN.] (t)	INTENSITY [IN./HR.] (i)	INFLOW [C.F.S.] (Q=CIA)	INFLOW CUMULATIVE [CU. FT.] (Q=CIA)	STORAGE [CU. FT.] (S)	ADJUSTED INFLOW [CU. FT.] (Q-S)	ACTUAL EXFILTRA. [CU. FT.]	OVERFLOW [CU. FT.] (Ponding)
0	0.00	0.00	0	72	-72	0	0
0.5	7.46	1.46	44	72	-29	33	0
5	6.78	1.32	397	72	325	330	0
10	6.15	1.20	720	72	648	660	0
15	5.63	1.10	989	72	917	990	0
20	5.19	1.01	1216	72	1143	1320	0
25	4.81	0.94	1409	72	1337	1650	0
30	4.49	0.88	1577	72	1504	1980	0
40	3.95	0.77	1852	72	1780	2640	0
50	3.53	0.69	2069	72	1996	3300	0
60	3.19	0.62	2244	72	2171	3960	0
90	2.48	0.48	2612	72	2540	5940	0
120	2.02	0.40	2846	72	2773	7920	0
150	1.71	0.33	3007	72	2934	9900	0
180	1.48	0.29	3125	72	3053	11880	0

DESIGN CURVES (5-YR FREQ.)



ENGINEERING,INC.
5001 SW 74 COURT SUITE 201
MIAMI, FLORIDA 33155
TEL: (305) 662-8887
FAX: (305) 662-8858

PROJECT: DPCC Flood Mitigation

PROJECT NO.: 2420
FILE NO: 0
COMPUTED BY: A.L
CHECKED BY: O.M. DATE: 09/11/24

DRAINAGE CALCULATIONS FOR WATER QUALITY

"C" FACTOR FOR IMPERVIOUS AREAS	0.9	[CONST]
"C" FACTOR FOR PERVIOUS AREAS	0.3	[CONST]
ACRES OF IMPERVIOUS AREAS	0.217	[ACRES]
ACRES OF PERVIOUS AREAS	0.000	[ACRES]
LENGTH (L.F.) OF FRENCH DRAIN CALCULATED	11	[FEET]
SEEPAGE CAPACITY IN C.F.S./L.F.	0.1000	[C.F.S./L.F. OF TRENCH]
AVAILABLE STORAGE PER L.F.	6.59	CU.FT./L.F.
WEIGHTED COEFFICIENT OF RUNOFF	0.90	[CONST]
TOTAL DRAINAGE AREA IN ACRES (AC)	0.217	[ACRES]
VOLUME OF ONE INCH OF RUNOFF IN CU.FT.	788	[CU.FT.]
STORM FREQUENCY IN YEARS	5	[YEARS]
INITIAL TIME OF CONCENTRATION IN MIN.	5	[MIN.]
TIME TO GENERATE ONE INCH OF RUNOFF	11	[MIN.]
TIME TO GENERATE AND FLOW ONE INCH OF RUNOI	16	[MIN.]

APPENDIX G
Geotechnical Report

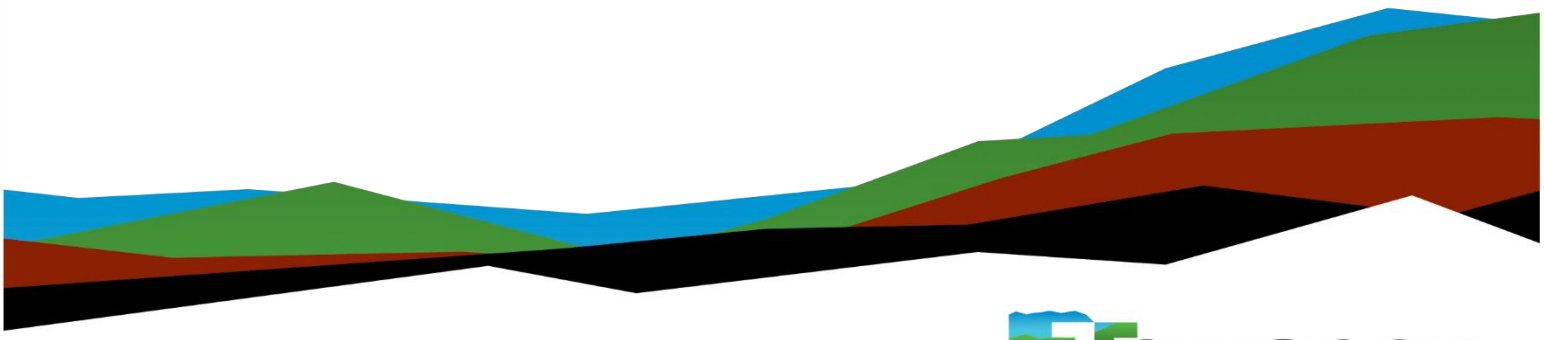
Data Processing and Communications Center

Percolation/Exfiltration Test Report

June 20, 2024 | Terracon Project No. H8245029

Prepared for:

HNTB Corporation
5200 Waterford District Drive, Suite 900
Miami, FL 33126



Terracon
Explore with us

Nationwide
Terracon.com

- Facilities
- Environmental
- Geotechnical
- Materials

16200 NW 59th Avenue, Suite 106
Miami Lakes, Florida 33014
P (305) 820-1997
Terracon.com

June 20, 2024

HNTB Corporation
5200 Waterford District Drive, Suite 900
Miami, FL 33126

Attn: Ms. Y. Beatriz De Paulis
P: (305) 222-1204
E: ydepaulis@hntb.com

Re: Percolation/Exfiltration Test Report
Data Processing and Communications Center
5680 SW 87th Avenue
Miami, FL
Terracon Project No. H8245029

Dear Ms. De Paulis:

We have completed the scope of Percolation/Exfiltration test for the above referenced project. These services were performed in general accordance with Terracon Proposal No. PH8245029 dated April 2, 2024. Terracon Consultants, Inc. (Terracon) is pleased to submit this Percolation/Exfiltration test Report to support the drainage improvements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon
Registry Number 8830

Edwin Roa Ramos
Senior Staff Engineer

HUGO E SOTO
LICENSE
No. 36440
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Hugo E. Soto, P.E.
Principal
Florida Registration No.: 36440

Table of Contents

Introduction 1
Project Description 1
Site Conditions 2
Geotechnical Characterization 2
Percolation/Exfiltration Testing 3
General Comments 3

Attachments

Site Location and Exploration Plans
Exploration and Testing Procedures
Exploration Results
Percolation/Exfiltration Test Results

Introduction

This Percolation/Exfiltration Test Report includes the results from one (1) Percolation/Exfiltration test and presents the boring log that graphically represent the soil profile at the Percolation/Exfiltration test location and a table with the Hydraulic Conductivity (k Value) Result. The test was performed to a depth of 15 feet below the existing ground surface at one (1) location.

Drawings showing the site and boring location are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the Percolation/Exfiltration test including the boring log are presented in the attachment.

Project Description

Our understanding of the project conditions is as follows:

Item	Description
Information Provided	The project information was provided to us via email dated April 2nd, 2024.
Drainage System Type	Data Processing and Communications Center drainage improvements.
Project Description	We understand that the project consists of drainage improvements at Data Processing and Communications Center parking lots in Miami, Florida. A site location map is presented in the attach **Site Location and Exploration Plans**

Terracon should be notified if any of the above information is inconsistent with the planned construction, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration.

Item	Description
Parcel Information	The project is located at the Data Processing and Communications Center at 5680 SW 87th Avenue in Miami, Florida. See **Site Location** in the attachments.
Current Ground Cover	Asphalt paved parking area.
Existing Topography	The site is relatively flat.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, geologic setting, and our understanding of the project. Conditions observed at the exploration point is indicated on the individual log. The individual log can be found in the **Exploration Results**.

Terracon conducted a field exploration program consisting of one (1) Standard Penetration Test (SPT) boring and one (1) Percolation/Exfiltration test at the same location. The field tests were located utilizing normal standard procedures, aerial photographs, and existing landmarks. The approximate location of the soil boring is presented in attachments.

Groundwater

Boring Number	Approximate Depth to Groundwater While Drilling (feet)[1]	Date Drilled
B-1/EX-1	7.3	6/10/2024

1. Below Ground Surface

These observations represent groundwater conditions at the time of the field exploration, and may not be indicative of other times, or at other locations. Groundwater levels can be expected to seasonal, and weather conditions. Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the boring was performed. In addition, perched water can develop over low permeability soil

strata following periods of heavy or prolonged precipitation. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the level indicated on the boring log. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Percolation/Exfiltration Testing

One (1) Percolation/Exfiltration test was performed at the site. The percolation/Exfiltration test was performed at one (1) location to a depth of 15 feet below the existing ground surface.

The Percolation/Exfiltration test was performed in general accordance with the South Florida Water Management District (SFWMD) procedures for the "Usual Condition Constant Head" exfiltration Tests. The test was performed in a 6-inch diameter borehole. A 4-inch diameter perforated PVC pipe was placed in the borehole. Water was then pumped into the borehole in order to raise the water level in the borehole to the ground surface. Once the inflow stabilized with the outflow rate, the average pumping rate and the elevation of the water obtained with this stabilized flow rate were recorded. The hydraulic conductivity value was then calculated from the test results and is reported in units of cubic feet per second per square foot, per foot of head (cfs/ft^2-ft head).

The Percolation/Exfiltration test resulted in the hydraulic conductivity value shown in the table below.

Test No.	Depth of Test (ft)	K, Hydraulic Conductivity SFWMD Equation (cfs/ft2-ft Head)
B-1/EX-1	15	2.11 E-03

The Percolation/Exfiltration test location is shown on the **Exploration Plan** and the Percolation/Exfiltration result is shown in the Percolation/Exfiltration Test Results section of the attachments.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and

supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Attachments

Site Location and Boring Location Plans

Site Location Plan
Exploration Plan

Exploration and Testing Procedures

Exploration Results

Boring Log
Exploration and Testing Procedures
Supporting Information

Percolation/Exfiltration Test Results

Site Location and Boring Location Plans

Site Location Plan

Data Processing and Communications Center | Miami, FL

June 20, 2024 | Terracon Project No. H8245029

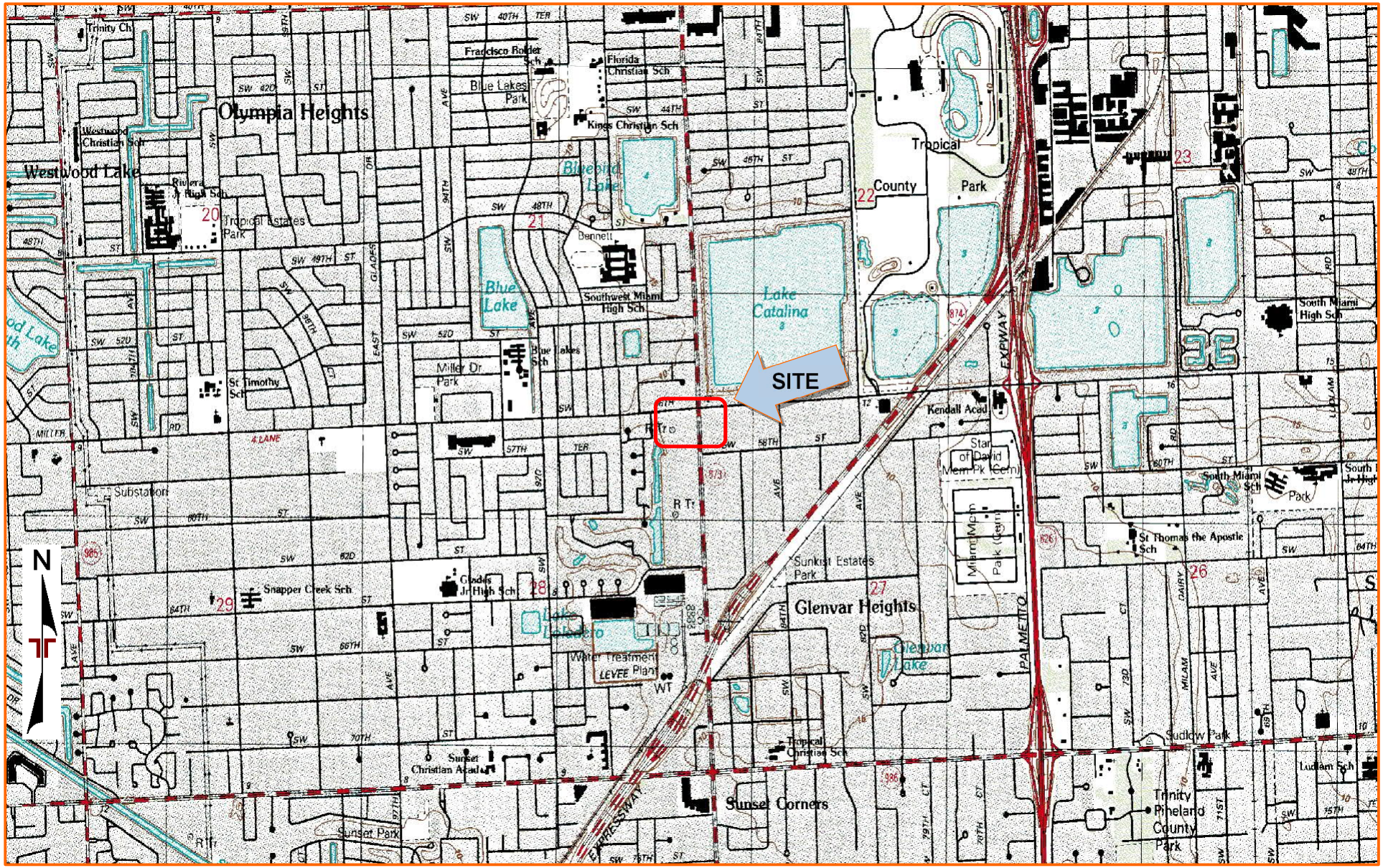


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: SOUTH MIAMI, FL (1/1/1994).

Exploration Plan
Data Processing and Communications Center | Miami, FL
June 20, 2024 | Terracon Project No. H8245029



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

Exploration Plan
Data Processing and Communications Center | Miami, FL
June 20, 2024 | Terracon Project No. H8245029

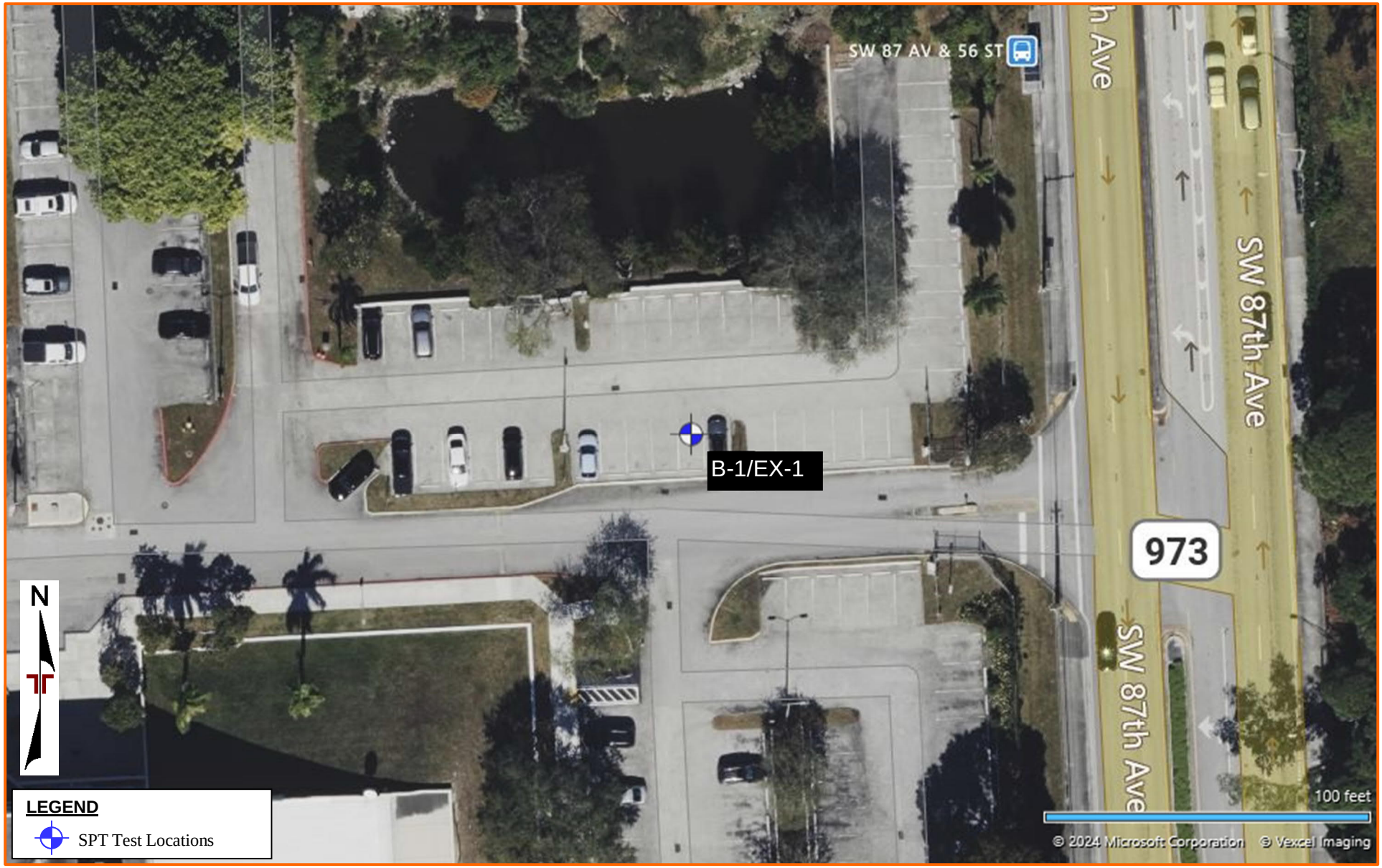


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

Exploration and Testing Procedures

Exploration and Testing Procedures

Field Exploration

Borings	Type of exploration Test Performed	Exploration Depth (feet)[1]	Location
B-1/EX-1	Soil Boring (SPT) and Percolation/Exfiltration test.	15	Parking lot

1. Below Ground Surface

Boring Layout and Elevations: Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit with an accuracy of +/-10 feet. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advanced the boring with a truck-mounted rotary drill rig using slurry drilling methods. Five samples were obtained in the upper 10 feet of the boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon for each six-inch penetration is recorded. The 2nd and 3rd six-increments are added together and reported as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring log at the test depths. We observed and recorded groundwater levels during drilling and sampling.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring log. The samples were placed in appropriate containers and taken to our soil laboratory for classification by a Geotechnical Engineer. Our exploration team prepared field boring log as part of the drilling operations. That field log included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring log was prepared from the field log. The final boring log represent the Geotechnical Engineer's interpretation of the field log and include modifications based on observations and visual classification of the samples in our laboratory.

Laboratory Testing

The laboratory testing program included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Exploration Results

Boring Log

Exploration and Testing Procedures

Supporting Information

Proposal for Exfiltration Testing Services
5680 SW 87th Ave | Miami, FL
Terracon Project No. H8245029

Terracon
16200 NW 59th Ave Ste 106
Miami Lakes, FL

Boring Log No. B-1/EX-1

Location: See Exploration Plan

Latitude: 25.4256° Longitude: 80.2007°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results
0.3	**Asphalt**, Gray, [3" thick]			
	FILL - Limerock, with fine sand, Light Brown			18-12-9-5 N=21
2.0	**Limestone**, with fine sand, Light brown			10-10-8-7 N=18
5				5-3-4-7 N=7
		▽		3-3-4-3 N=7
				2-2-2-3 N=4
10				
				2-2-3 N=5
15.0				
15	***Boring Terminated at 15 Feet***			

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Water Initially Encountered at 7.3'

Drill Rig
CME-55

Hammer Type
Automatic

Driller
OC

Logged by

Boring Started
06-11-2024

Boring Completed
06-11-2024

Notes

Advancement Method
Mud Drilling and Casing

Abandonment Method
Boring filled with grout upon Completion

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING

- Auger Cuttings
- Rock Core
- Grab Sample
- No Recovery
- Shelby Tube
- Standard Penetration Test

WATER LEVEL

- Water Initially Encountered
- Water Level After a Specified Period of Time
- Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(DCP)	Dynamic Cone Penetrometer
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS

(More than 50% retained on No. 200 sieve.)
Density determined by Standard Penetration Resistance

Descriptive Term (Density)	Automatic Hammer SPT N-Value (Blows/Ft.)
Very Loose	< 3
Loose	3 – 8
Medium Dense	8 – 24
Dense	24 – 40
Very Dense	> 40

CONSISTENCY OF FINE-GRAINED SOILS

(50% of more passing the No. 200 sieve)
Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (psf)	Automatic Hammer SPT N-Value (Blows/Ft.)
Very Soft	Less than 500	< 1
Soft	500 to 1,000	1 – 3
Medium Stiff	1,000 to 2,000	3 – 6
Stiff	2,000 to 4,000	6 – 12
Very Stiff	4,000 to 8,000	12 – 24
Hard	> 8,000	> 24

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobble	12 in. to 3 in. (300 mm to 75 mm)
Gravel	3 in. to #4 sieve (75 mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other consituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Particle Size
Non-Plastic	0
Low	1 – 10
Medium	11 – 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [$Cc<1$ or $Cc>3.0$] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [$Cc<1$ or $Cc>3.0$] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

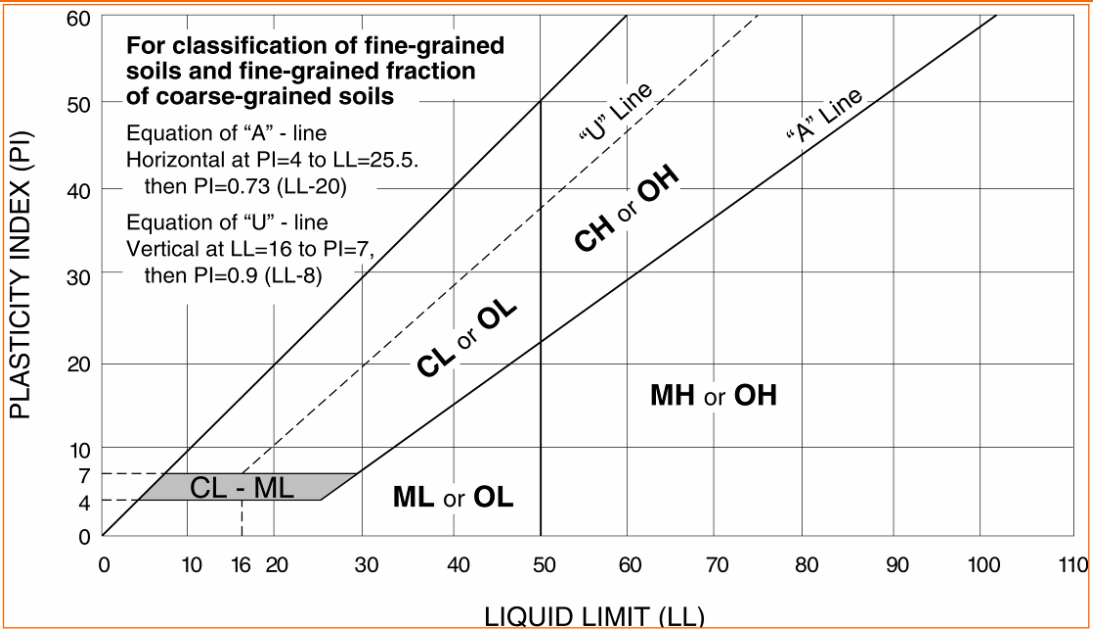
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Percolation/Exfiltration Test Results

HYDRAULIC CONDUCTIVITY TEST RESULT REPORT

PERCOLATION / EXFILTRATION TESTS

Data Processing and Communications Center

5680 SW 87th Avenue
Miami, Florida

TERRACON PROJECT #. H8245029

Test No.	Date	Diameter		Depth of	Depth to Groundwater Level		Saturated	Average	K, Hydraulic
(Boring No.)	Performed	Hole (inches)	Perforated Casing (inches)	Hole (Feet)	Below Ground Surface (Feet) Prior to Test	During Test	Hole Depth Ds (Feet)	Flow Rate (gpm)	Conductivity (cfs/ft^2-ft Head)
B-1/EX-1	06/10/24	6	4	15	7.3	2.00	7.7	55.0	2.11E-03

NOTES:

(1) The above hydraulic conductivity value is for a French drain installed to the same depth as the borehole test. The values represent an ultimate value. The designer should decide on the required factor of safety.

(2) The hydraulic conductivity value was calculated based on the South Florida Water Management Districts's USUAL OPEN HOLE CONSTANT HEAD exfiltration test procedure as shown below.

(3) The diameter of the perforated casing of 4 inches was used in the computation of the hydraulic conductivity values presented in the above table

(4) Refer to boring logs for subsurface stratification information.

USUAL OPEN-HOLE CONSTANT HEAD EXFILTRATION TEST SCHEMATIC

