

**Drainage Design Report**  
FOR:  
**Dons Dock**



**Gulf Coast Consulting, Inc.**  
Engineering · Planning · Transportation · Permitting  
13825 ICOT Boulevard - Suite 605  
Palm Harbor, Florida 33762  
Ph: (727) 524-1818

SUBMITTED TO:  
City of Madeira Beach

Digitally  
Signed by  
Sean P. Cashen  
42505  
Date: 2024.02.16  
10:59:17  
-05'00'

Sean P. Cashen, State of Florida, P.E. #42505

This item has been electronically signed and sealed by Sean P. Cashen, P.E. on the date indicated here using a SHA authentication code.

February 2024

GCC PROJECT No. 22-065

*Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies*

# Description of attachments

Vicinity Map

Drainage Map

NRCS Soils Information

FDEP Mean High Water Determination

DRA Storage Volume Calculations

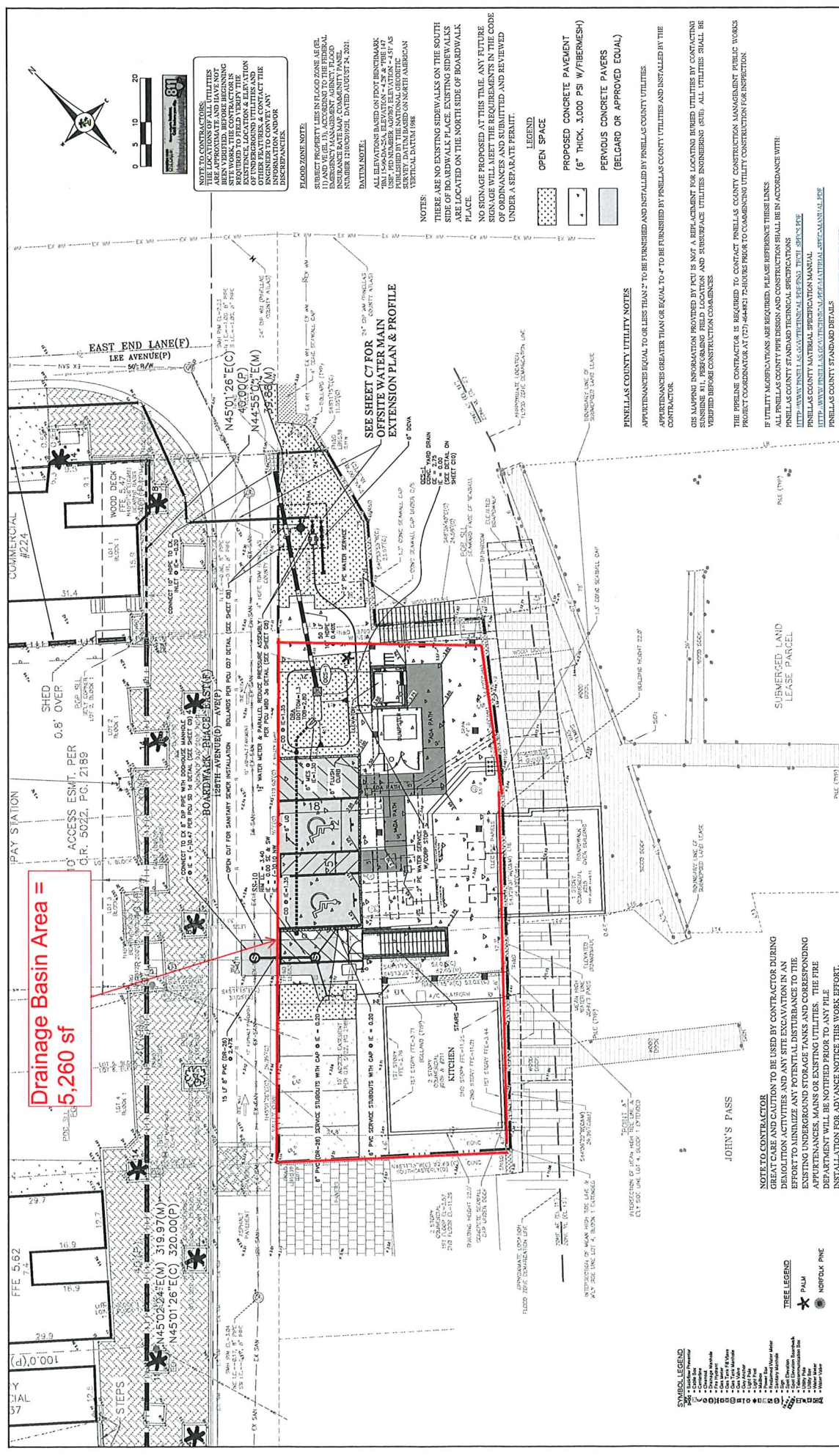
ICPR Input & Output Data for Drawdown Model

SECTION 15, TOWNSHIP 31 S, RANGE 15 E  
MADEIRA BEACH, FLORIDA

LOCATION MAP



**Drainage Basin Area = 5,260 sf**



**NOTE TO CONTRACTORS**  
 THE LOCATIONS OF ALL UTILITIES ARE SHOWN ON THIS PLAN. BEFORE BEGINNING ANY WORK, THE CONTRACTOR IS TO VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND ELEVATIONS. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ENGINEER IMMEDIATELY. CONTACT THE ENGINEER TO VERIFY ANY DISCREPANCIES.

**FLOOD ZONE NOTE**  
 SUBJECT PROPERTY LIES IN FLOOD ZONE AE (EL. 10 AND VE (EL. 11), ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (COMMUNITY PANEL NUMBER 12100092H, DATED AUGUST 24, 2011).

**DATUM NOTE**  
 ALL ELEVATIONS BASED ON FOOT BENCHMARK 10M KANSAS ELEVATION + 28.4 FEET (1.4 M) PUBLISHED BY THE NATIONAL GEODETIC SURVEY (NGS) ON NORTH AMERICAN VERTICAL DATUM 1988.

**NOTES**  
 THERE ARE NO EXISTING SIDEWALKS ON THE SOUTH SIDE OF BOARDWALK PLACE. EXISTING SIDEWALKS ARE LOCATED ON THE NORTH SIDE OF BOARDWALK PLACE.  
 NO SIGNAGE PROPOSED AT THIS TIME. ANY FUTURE SIGNAGE WILL MEET THE REQUIREMENTS IN THE CODE OF ORDINANCES AND SUBMITTED AND REVIEWED UNDER A SEPARATE PERMIT.

- LEGEND**
- OPEN SPACE
  - PROPOSED CONCRETE PAVEMENT (6" THICK, 3,000 PSI W/FIBREESH)
  - PREVIOUS CONCRETE PAVERS (BELGARD OR APPROVED EQUAL)

**PNELLAS COUNTY UTILITY NOTES**  
 ALL UTILITIES SHALL BE FURNISHED AND INSTALLED BY PNELLAS COUNTY UTILITIES.  
 ALL UTILITIES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.  
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**NOTE TO CONTRACTOR**  
 GREAT CARE AND CAUTION TO BE USED BY CONTRACTOR DURING DEMOLITION ACTIVITIES AND ANY SITE EXCAVATION IN AN EFFORT TO MINIMIZE ANY POTENTIAL DISTURBANCE TO THE EXISTING UNDERGROUND STORAGE TANKS AND CORRESPONDING APPURTENANCES, MAINS OR EXISTING UTILITIES. THE FIRE INSTALLATION FOR ADVANCE NOTICE THIS WORK EFFORT.

**SYMBOL LEGEND**

1	Asphalt Paving
2	Concrete Paving
3	Gravel Paving
4	Grass
5	Open Space
6	Proposed Concrete Pavement
7	Previous Concrete Pavers
8	Belgard or Approved Equal
9	Water
10	Sanitary Sewer
11	Storm Sewer
12	Electric
13	Gas
14	Telephone
15	Cable TV
16	Other
17	Tree
18	Plant
19	Northfolk Pine

**PREPARED FOR**

**BOARDWALK PLACE PROPERTIES, LLC**  
 101 150TH AVENUE  
 MADEIRA BEACH, FL 33708

**PREPARED BY**

**Gulf Coast Consulting, Inc.**  
 Land Development Consulting  
 1000 SOUTH 1500 AVENUE SUITE 1000 PALM BEACH, FL 33406  
 Phone: 561-833-1100 Fax: 561-833-1101  
 www.gulfcoastconsulting.com

**PROJECT INFORMATION**

**DONS DOCK - JOHNS PASS**  
 SITE DEVELOPMENT PLAN - GROUND FLOOR

**DATE** 12-08-15  
**SCALE** AS SHOWN  
**PROJECT NO.** 15072724  
**DATE OF ISSUE** 12/22/15  
**DATE OF REVISION** 12/22/15

**REVISIONS**

NO.	DATE	DESCRIPTION
1	12/22/15	ISSUED FOR PERMITS
2	12/22/15	ISSUED FOR PERMITS
3	12/22/15	ISSUED FOR PERMITS

**APPROVED FOR**

**PROJECT MANAGER** [Signature]  
**DATE** 12/22/15

**APPROVED FOR**

**ENGINEER** [Signature]  
**DATE** 12/22/15

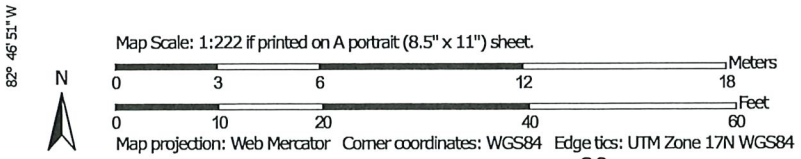
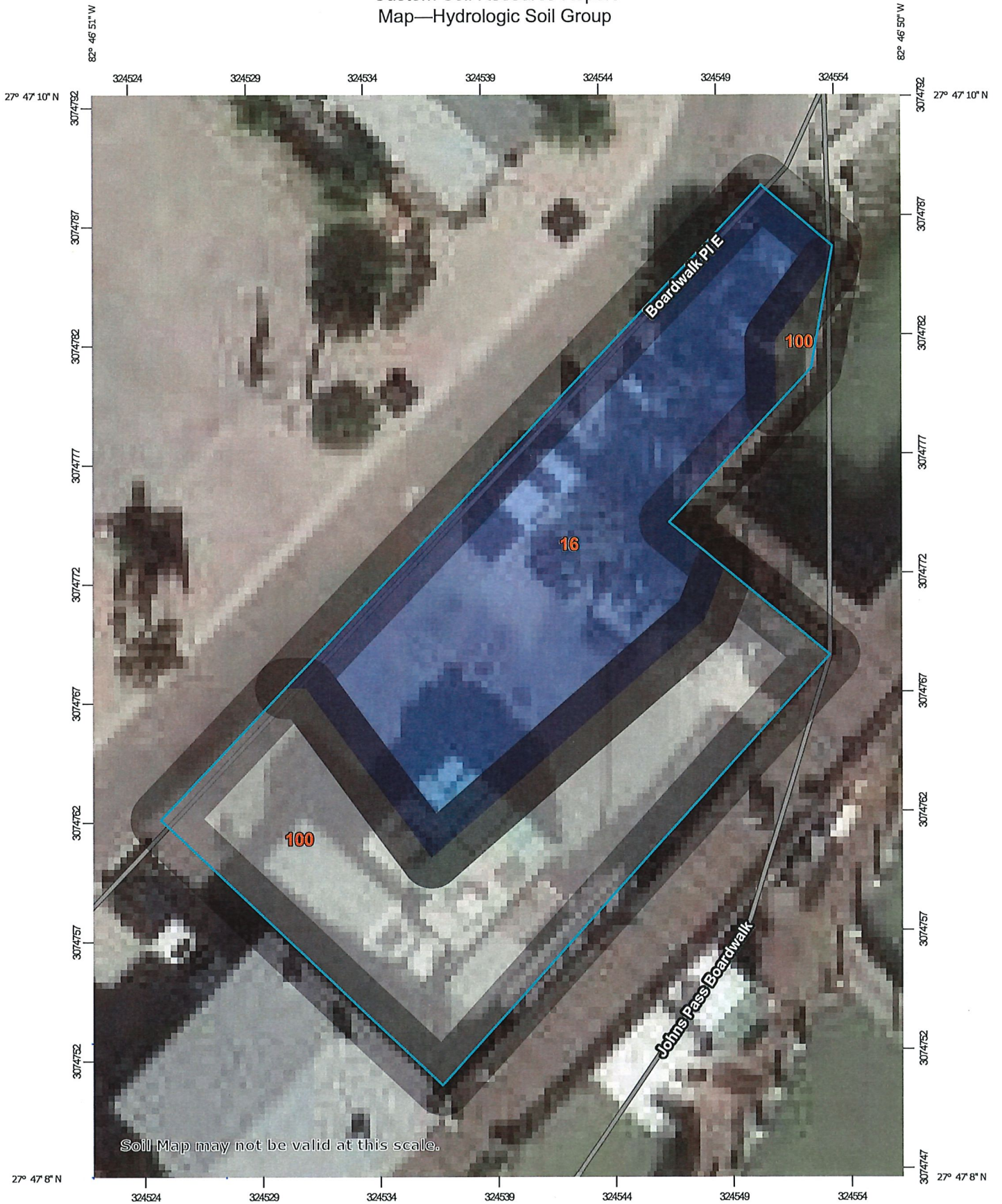
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# Custom Soil Resource Report Map—Hydrologic Soil Group



## 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: Pinellas County, Florida  
 Survey Area Data: Version 20, Aug 28, 2023

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

Date(s) aerial images were photographed: Jan 20, 2020—Jan 28, 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 LEGEND

 Area of Interest (AOI)	 C
 Area of Interest (AOI)	 C/D
<b>Soils</b>	 D
<b>Soil Rating Polygons</b>	 Not rated or not available
 A	<b>Water Features</b>
 A/D	 Streams and Canals
 B	<b>Transportation</b>
 B/D	 Rails
 C	 Interstate Highways
 C/D	 US Routes
 D	 Major Roads
 Not rated or not available	 Local Roads
<b>Soil Rating Lines</b>	<b>Background</b>
 A	 Aerial Photography
 A/D	
 B	
 B/D	
 C	
 C/D	
 D	
 Not rated or not available	
<b>Soil Rating Points</b>	
 A	
 A/D	
 B	
 B/D	

**Table—Hydrologic Soil Group**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
16	Matlacha and St. Augustine soils and Urban land	B	0.1	52.4%
100	Waters of the Gulf of Mexico		0.1	47.6%
<b>Totals for Area of Interest</b>			<b>0.1</b>	<b>100.0%</b>

**Rating Options—Hydrologic Soil Group**

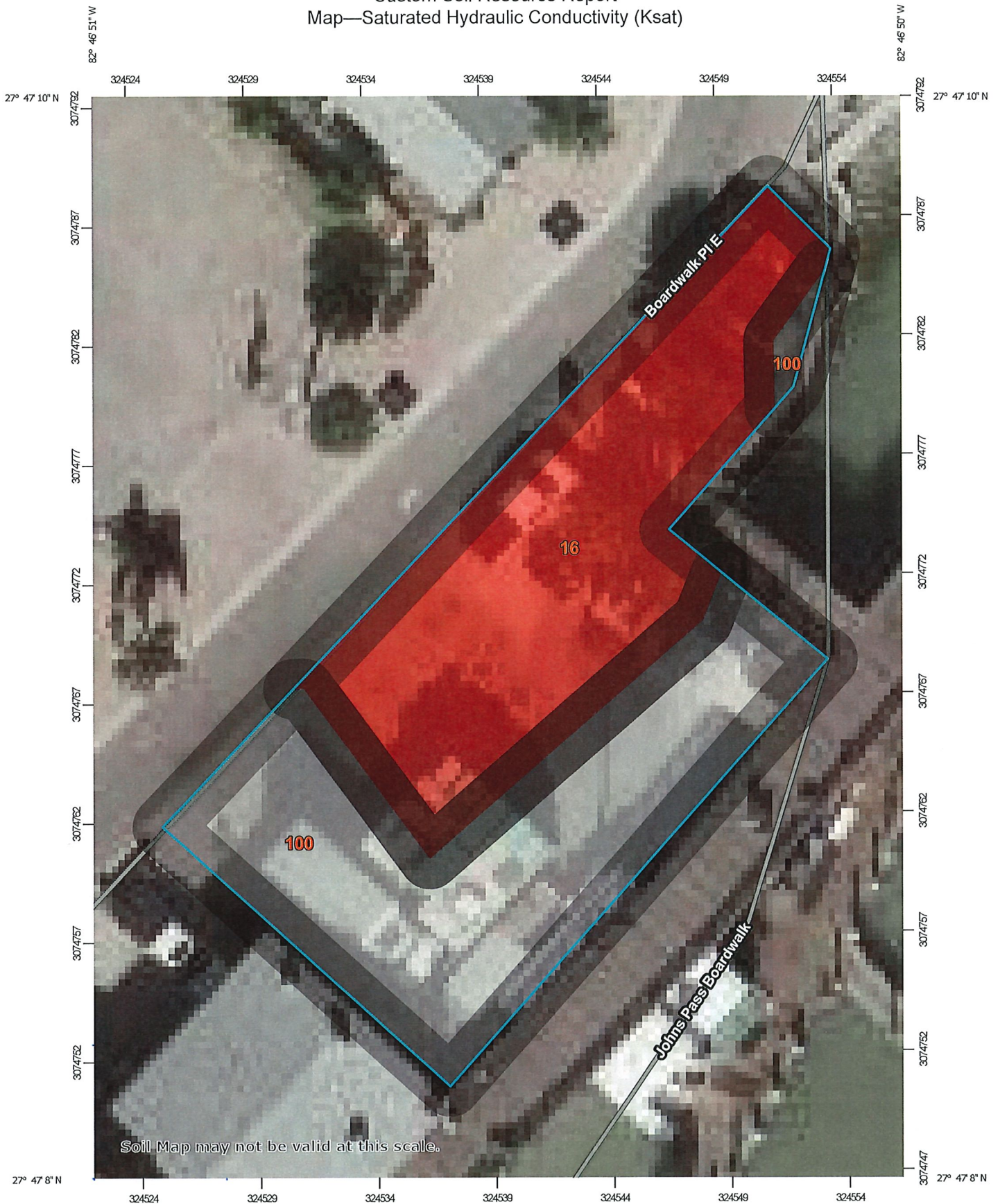
*Aggregation Method: Dominant Condition*

*Component Percent Cutoff: None Specified*

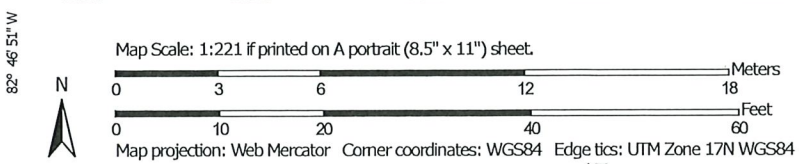
*Tie-break Rule: Higher*

**Depth to Any Soil Restrictive Layer**

Custom Soil Resource Report  
Map—Saturated Hydraulic Conductivity (Ksat)

















Soil Map may not be valid at this scale.





### MAP LEGEND

- Area of Interest (AOI)**  
 Area of Interest (AOI)
- Soils**
  - Soil Rating Polygons**  
 = 28.0000  
 Not rated or not available
  - Soil Rating Lines**  
 = 28.0000  
 Not rated or not available
  - Soil Rating Points**  
 = 28.0000  
 Not rated or not available
- Water Features**  
 Streams and Canals
- Transportation**
  -  Rails
  -  Interstate Highways
  -  US Routes
  -  Major Roads
  -  Local Roads
- Background**  
 Aerial Photography

### MAP INFORM

The soil surveys that comprise your A 1:24,000.

Warning: Soil Map may not be valid at

Enlargement of maps beyond the scale may cause a misunderstanding of the detail of map line placement. The maps do not show contrasting soils that could have been scale.

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

Source of Map: Natural Resources Canada  
 Web Soil Survey URL: [http://websoilsurvey.nrc.ca](#)  
 Coordinate System: Web Mercator (NAD83)

Maps from the Web Soil Survey are based on a map projection, which preserves direction but not distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used for accurate calculations of distance or area.

This product is generated from the USGS National Soil Survey Data of the version date(s) listed below.

Soil Survey Area: Pinellas County, Florida  
 Survey Area Data: Version 20, August 2010

Soil map units are labeled (as space permits) on maps at a scale of 1:50,000 or larger.

Date(s) aerial images were photographed: August 28, 2020

The orthophoto or other base map on which the soil map is compiled and digitized probably differs from the imagery displayed on these maps. As a result, shifting of map unit boundaries may be observed.

**Table—Saturated Hydraulic Conductivity (Ksat)**

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
16	Matlacha and St. Augustine soils and Urban land	28.0000 <i>= 7.94 ft/Day</i>	0.1	51.8%
100	Waters of the Gulf of Mexico		0.1	48.2%
Totals for Area of Interest			0.1	100.0%

**Rating Options—Saturated Hydraulic Conductivity (Ksat)**

*Units of Measure:* micrometers per second

*Aggregation Method:* Dominant Component

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Fastest

*Interpret Nulls as Zero:* No

*Layer Options (Horizon Aggregation Method):* Depth Range (Weighted Average)

*Top Depth:* 0

*Bottom Depth:* 10

*Units of Measure:* Centimeters



# FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building  
3900 Commonwealth Boulevard  
Tallahassee, FL 32399

**Ron DeSantis**  
Governor

**Jeanette Nuñez**  
Lt. Governor

**Shawn Hamilton**  
Secretary

## Tidal Water Survey Procedural Approval

Date: 2/6/2024

Name: Sean Cashen, PE

Firm Name: Gulf Coast Consulting, Inc.

Address: 13825 Icot Blvd Ste 605  
Clearwater FL 33760

Phone: 727.524.1818 Email: scashen@gulfcoastconsultinginc.com

\*\*\*\*\*

Tide Interpolation Point No. 872-6533 County: Pinellas

USGS 7.5-Minute Quad Map Name: Seminole

Mean High Water (MHW): 0.46 ft Mean Low Water (MLW): -0.99 ft

Unit of Measurement: Feet Datum: NAVD88 Tidal Epoch: 1983 – 2001

Procedure: Extend the above MHW height to job if within one-half mile.

Source of Data: Florida Department of Environmental Protection, Bureau of Survey and Mapping.

This form constitutes approval of the method to be used to survey the mean high-water line or the mean low-water line within one half mile of the point identified above.

\*\*\*\*\*

Retain this form for record keeping. Submit a copy of this form with the completed survey to the Bureau of Survey and Mapping.

Contact:  
Florida Department of Environmental Protection  
Bureau of Survey and Mapping  
Mean High Water Repository  
3800 Commonwealth Boulevard, Mail Station 105  
Tallahassee, FL 32399-3000  
Tel. (850) 245-2640  
email pdf to: [mhwrequest@floridadep.gov](mailto:mhwrequest@floridadep.gov)

Approved by:

**Eric Sellers** Digitally signed by Eric Sellers  
Date: 2024.02.14 14:18:41 -05'00'

2/14/2024

(Date)

## REQUIRED TREATMENT AND POND VOLUME CALCULATIONS

PROJECT: **Dons Dock**

DATE: **Feb 2024**

JOB NO: **22-065**

BY: **SPC**

### Dry Retention Area Storage

DRA			
	Elevation	Area (sf)	Volume (cu ft)
TOB	2.80	261.00	210.75
DLW	2.50	212.80	139.68
	2.25	172.63	91.50
Bottom	1.75	92.30	25.27
	1.30	20.00	0.00

### Plus Permeable Paver Storage

Area of Pavers is 666 sf. Volume of pavers is within the 12" of Aggregate from approx elevation 2.75 to el 1.75. Total Area = 666 sf x 12" (1') = 666 cu feet with 40% voids; Volume available = 666 cu-ft x .40 = 266 cu ft. Adding this paver volume to the Retention area volume would yield:

DRA			
	Elevation	Area (sf)	Volume (cu ft)
TOB	2.80	261.00	474.75
DLW	2.50	212.80	337.68
	2.25	172.63	223.50
Bottom	1.75	92.30	25.27
	1.30	20.00	0.00

Mean High Water (MHW) El is 0.50 in this area. Bottom of Pond is 0.80 feet above this MHW EL

Project Area to be treated = 5260 sf; 5260 sf x 3/4" = 329 cu feet Water Quality Storage which is attained at elevation 2.50 within the Shared retention Area / Permeable Paver Area.

Dons Dock Perc

Nodes

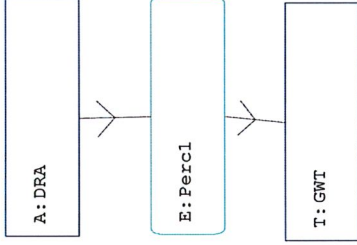
- A Stage/Area
- V Stage/Volume
- T Time/Stage
- M Manhole

Basins

- O Overland Flow
- U SCS Unit CN
- S SBUH CN
- Y SCS Unit GA
- Z SBUH GA

Links

- P Pipe
- W Weir
- C Channel
- D Drop Structure
- B Bridge
- R Rating Curve
- H Breach
- E Percolation
- F Filter
- X Exfil Trench



# ICPR Drawdown Model

Y:\PINELLAS\Dons Dock - Johns Pass (22-065)\Drainage\ICPR\22-065 Dons Dock PERC\_021624.ICP  
2/16/2024

=====  
==== Nodes =====  
=====

Name: DRA                      Base Flow(cfs): 0.000                      Init Stage(ft): 2.500  
Group: BASE                      Warn Stage(ft): 1.300  
Type: Stage/Area

Pond Bottom  
DLW=2.50

Stage (ft)	Area (ac)
1.300	0.0005
1.750	0.0021
2.500	0.0049
2.800	0.0060

-----  
Name: GWT                      Base Flow(cfs): 0.000                      Init Stage(ft): 0.000  
Group: BASE                      Warn Stage(ft): 0.000  
Type: Time/Stage

Time (hrs)	Stage (ft)
0.00	0.000
9999.00	0.000

=====  
==== Percolation Links =====  
=====

Name: Perc1                      From Node: DRA                      Flow: Both  
Group: BASE                      To Node: GWT                      Count: 1

Surface Area Option: Vary based on Stage/Area Table  
Vertical Flow Termination: Horizontal Flow Algorithm  
Aquifer Base Elev(ft): -3.500                      Perimeter 1(ft): 59.000  
Water Table Elev(ft): 0.500                      Perimeter 2(ft): 122.000  
Ann Recharge Rate(in/year): 0.000                      Perimeter 3(ft): 185.000  
Horiz Conductivity(ft/day): 11.910                      Distance 1 to 2(ft): 10.000  
Vert Conductivity(ft/day): 7.940                      Distance 2 to 3(ft): 10.000  
Effective Porosity(dec): 0.437                      Num Cells 1 to 2: 2  
Suction Head(in): 4.170                      Num Cells 2 to 3: 2  
Layer Thickness(ft): 0.000

Aquifer =  
SHW=0.50

=====  
==== Hydrology Simulations =====  
=====

Name:  
Filename:  
  
Override Defaults: Yes  
Storm Duration(hrs): 0.00  
Rainfall File:  
Rainfall Amount(in): 0.00

Time (hrs)	Print Inc (min)
30.000	5.00

=====  
==== Routing Simulations =====  
=====

Name: Perc                      Hydrology Sim:  
Filename: Y:\PINELLAS\Dons Dock - Johns Pass (22-065)\Drainage\ICPR\Perc.I32

Execute: Yes            Restart: No            Patch: No  
Alternative: No

Max Delta Z(ft): 1.00            Delta Z Factor: 0.00500  
Time Step Optimizer: 10.000  
Start Time(hrs): 0.000            End Time(hrs): 73.00  
Min Calc Time(sec): 0.5000        Max Calc Time(sec): 60.0000  
Boundary Stages:                  Boundary Flows:

Percolation w/DLW as initial stage - Less than 72 hrs

Time(hrs)	Print Inc(min)
75.000	15.000
Group	Run
-----	-----
BASE	Yes

Simulation

Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Perc	DRA	0.00	2.50	1.30	213	0.00	0.00	0.0	0.0
Perc	DRA	0.25	2.42	1.30	200	0.00	0.02	0.0	0.0
Perc	DRA	0.50	2.33	1.30	187	0.00	0.02	0.0	0.0
Perc	DRA	0.76	2.25	1.30	173	0.00	0.02	0.0	0.0
Perc	DRA	1.01	2.17	1.30	159	0.00	0.01	0.0	0.0
Perc	DRA	1.25	2.09	1.30	146	0.00	0.01	0.0	0.0
Perc	DRA	1.50	2.00	1.30	133	0.00	0.01	0.0	0.0
Perc	DRA	1.76	1.92	1.30	119	0.00	0.01	0.0	0.0
Perc	DRA	2.01	1.84	1.30	113	0.00	0.01	0.0	0.0
Perc	DRA	2.25	1.76	1.30	113	0.00	0.01	0.0	0.0
Perc	DRA	2.50	1.67	1.30	113	0.00	0.01	0.0	0.0
Perc	DRA	2.75	1.60	1.30	113	0.00	0.01	0.0	0.0
Perc	DRA	3.00	1.55	1.30	113	0.00	0.01	0.0	0.0
Perc	DRA	3.25	1.50	1.30	113	0.00	0.01	0.0	0.0
Perc	DRA	3.51	1.45	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	3.75	1.42	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	4.00	1.38	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	4.25	1.35	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	4.50	1.33	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	4.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	5.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	5.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	5.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	5.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	6.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	6.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	6.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	6.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	7.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	7.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	7.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	7.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	8.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	8.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	8.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	8.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	9.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	9.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	9.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	9.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	10.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	10.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	10.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	10.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	11.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	11.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	11.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	11.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	12.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	12.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	12.50	1.30	1.30	113	0.00	0.00	0.0	0.0

Drawdown  
to pond  
Bottom at  
Time/Hour  
4.75



Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Perc	DRA	BASE	12.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	13.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	13.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	13.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	13.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	14.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	14.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	14.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	14.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	15.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	15.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	15.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	15.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	16.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	16.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	16.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	16.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	17.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	17.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	17.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	17.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	18.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	18.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	18.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	18.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	19.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	19.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	19.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	19.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	20.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	20.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	20.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	20.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	21.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	21.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	21.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	21.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	22.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	22.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	22.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	22.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	23.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	23.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	23.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	23.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	24.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	24.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	24.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	24.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	25.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	25.25	1.30	1.30	113	0.00	0.00	0.0	0.0

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Simulation

Simulation	Note	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Perc	DRA	BASE	25.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	25.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	26.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	26.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	26.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	26.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	27.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	27.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	27.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	27.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	28.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	28.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	28.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	28.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	29.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	29.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	29.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	29.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	30.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	30.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	30.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	30.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	31.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	31.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	31.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	31.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	32.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	32.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	32.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	32.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	33.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	33.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	33.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	33.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	34.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	34.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	34.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	34.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	35.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	35.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	35.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	35.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	36.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	36.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	36.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	36.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	37.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	37.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	37.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	37.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	38.00	1.30	1.30	113	0.00	0.00	0.0	0.0

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Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Perc	DRA	BASE	38.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	38.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	38.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	39.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	39.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	39.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	39.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	40.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	40.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	40.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	40.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	41.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	41.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	41.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	41.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	42.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	42.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	42.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	42.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	43.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	43.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	43.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	43.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	44.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	44.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	44.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	44.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	45.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	45.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	45.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	45.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	46.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	46.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	46.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	46.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	47.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	47.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	47.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	47.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	48.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	48.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	48.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	48.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	49.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	49.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	49.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	49.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	50.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	50.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	50.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	50.75	1.30	1.30	113	0.00	0.00	0.0	0.0

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Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Perc	DRA	BASE	51.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	51.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	51.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	51.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	52.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	52.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	52.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	52.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	53.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	53.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	53.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	53.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	54.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	54.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	54.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	54.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	55.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	55.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	55.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	55.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	56.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	56.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	56.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	56.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	57.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	57.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	57.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	57.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	58.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	58.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	58.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	58.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	59.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	59.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	59.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	59.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	60.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	60.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	60.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	60.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	61.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	61.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	61.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	61.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	62.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	62.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	62.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	62.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	63.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	63.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	63.50	1.30	1.30	113	0.00	0.00	0.0	0.0

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Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Perc	DRA	BASE	63.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	64.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	64.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	64.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	64.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	65.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	65.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	65.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	65.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	66.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	66.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	66.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	66.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	67.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	67.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	67.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	67.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	68.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	68.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	68.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	68.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	69.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	69.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	69.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	69.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	70.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	70.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	70.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	70.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	71.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	71.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	71.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	71.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	72.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	72.25	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	72.50	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	72.75	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	73.00	1.30	1.30	113	0.00	0.00	0.0	0.0
Perc	DRA	BASE	73.01	1.30	1.30	113	0.00	0.00	0.0	0.0