ALANN ENGINEERING GROUP
CONSULTING ENGINEERS SINCE 1989

Stormwater Calculations

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Cole T. Buck, State of Florida,
Professional Engineer, License No.
88690
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GARDENSIDE @ ORMOND STATION
PHASE II

FLAGLER, FL

PREPARED FOR:
US. CAPITAL ALLIANCE, LLC
880 AIRPORT ROAD
SUITE 113
ORMOND BEACH, FL 32174

OCTOBER 25, 2023

880 Airport Rd. Suite 113
Ormond Beach, FL 32174
CA5479

T. 386-673-7640
www.ae-group.com

STORMWATER CALCULATIONS

GARDENSIDE @ ORMOND STATION PHASE II (FKA IRIS II AT HUNTER'S RIDGE)

OCTOBER 25, 2023

Table of Contents:

The site is located North and adjacent to the Gardenside Phase I subdivision that is currently under construction. It will also be located on the East side of Iris Branch Boulevard. This site also includes the extension of Iris Branch Boulevard, a round-a-bout, and the partial construction of a thoroughfare to the north. The limits of construction consists of 29.35 acres, however a portion of that is to remain at existing grade as it's just utility installation. The pond will capture all other improvements and consists of 27.40 acres. In the existing pre-development condition, the site is split in half by a maintenance road and the East side drains South and East to the wetland system. This is where the post development system will be discharging to, so this is all that is considered and is sized at 15.23 acres. In proposed post-development conditions, there is a single pond and a single basin. The post development design discharges from the pond into the wetland system with a concrete weir and orifice pipe.

Pre-Development:

Basin	Area	CN	Tc
1	15.23	77	1.142

Discharge for this site will be limited to the pre-development discharge.

Pre-Development Discharge

100-yr, 24-hour	36.27 cfs
25-yr, 24-hour	25.52 cfs
Mean Annual	9.86 cfs

Post-Development Discharge

100-yr, 24-hour	34.95 cfs
25-yr, 24-hour	12.01 cfs
Mean Annual	4.45 cfs

Post-Development details for Site:

Post-Development time of concentration = 10 minutes, CN = 92 (See attached TR55 calculations)
Sidewalks = 49,676 SF
Pavement = 153,680 SF
Curb & Gutter = 22,613 SF
Lots Based on 65% impervious area = 340,717 SF
Total Impervious area = 566,386 SF = 13.00 ac.
Impervious of pond at NWL = 204,433 SF = 4.69 ac.

Set NWL at SHWT in wetland = 26.06

Top of Bank elevation = 30.00

Stage Storage Calculations

POND	
CONTOUR ELEVATION	AREA (AC.)
14.06	3.81
24.06	4.39
26.06	4.69
27	4.84
28	5.00
29	5.15
30	5.32

Volume required for treatment is the greater of 1-inch of runoff or 2.5-inches over the impervious area.

Per attached wet detention calculations, the required treatment volume is 2.71 ac-ft plus 50% for discharge to an OFW which equals 4.07 ac-ft.

Based on the stage storage calculations, the weir shall be set at or above elevation 26.92.

The orifice size is 6.97 inches dia.

Following is a pre-development/post-development comparison based on the attached ICPR calculations.

STORM EVENT	PRE-DEV. DISCHARGE	POST-DEV. DISCHARGE	DWH
Mean Annual	9.86 CFS	4.45 CFS	28.17
25-year/24-hour	25.52 CFS	12.01 CFS	28.55
100-year/24-hour	36.27 CFS	34.95 CFS	27.41

II. PRE-DEVELOPMENT CONDITIONS

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IIa. SOILS - USDA

880 Airport Rd. Suite 113
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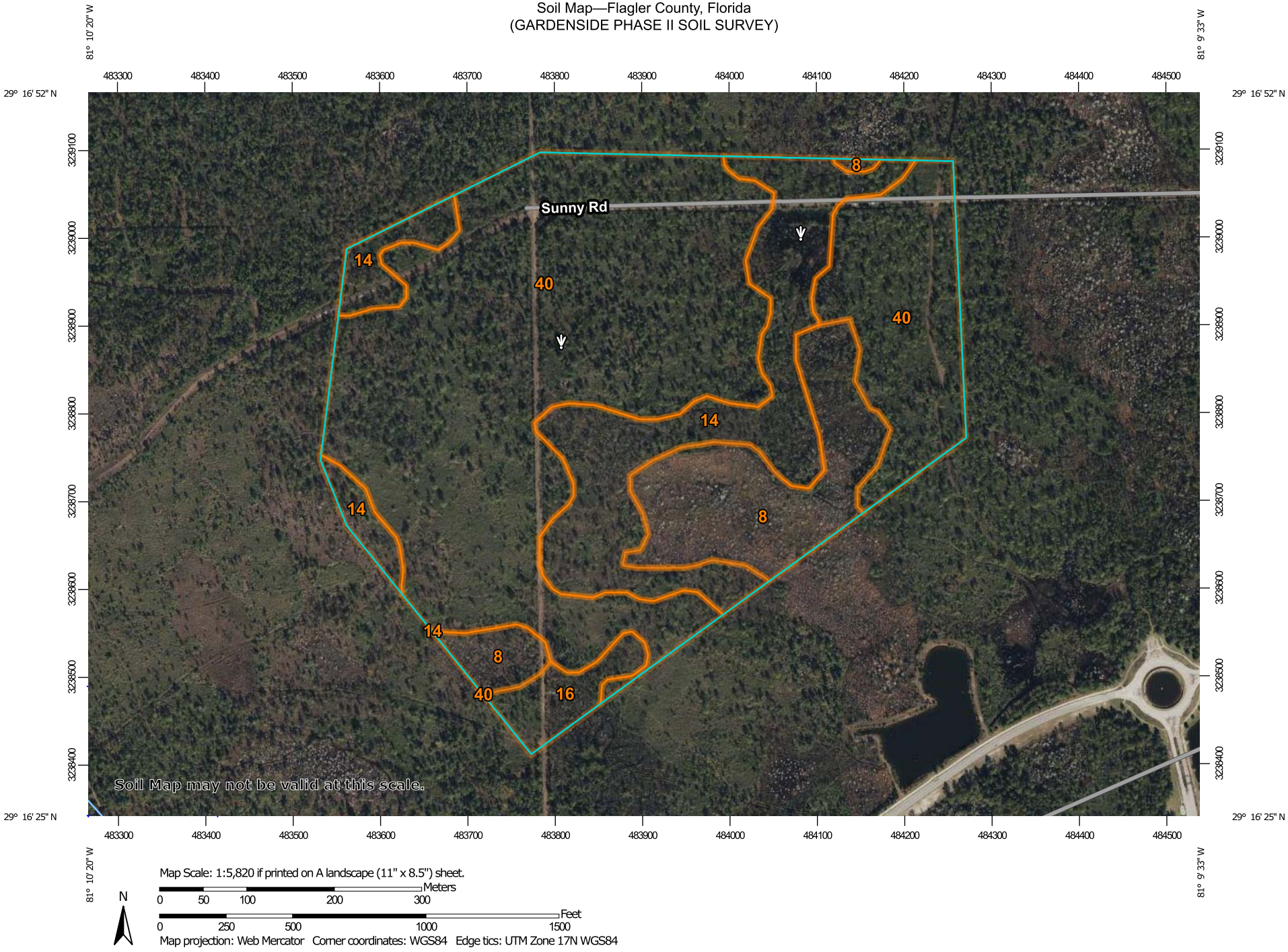
Soil Map—Flagler County, Florida
(GARDENSIDE PHASE II SOIL SURVEY)



Map Scale: 1:5,820 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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 1:15,800.

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: Flagler County, Florida
Survey Area Data: Version 22, 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 6, 2022—Feb 10, 2022

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
8	Hicoria, Riviera, and Gator soils, depressional	11.8	13.3%
14	Pineda-Pineda, wet, fine sand, 0 to 2 percent slopes	18.1	20.4%
16	Malabar fine sand, 0 to 2 percent slopes	2.4	2.8%
40	Pomona fine sand, 0 to 2 percent slopes	56.2	63.5%
Totals for Area of Interest		**88.5**	**100.0%**

IIb. PRE-DEVELOPMENT BASIN MAP

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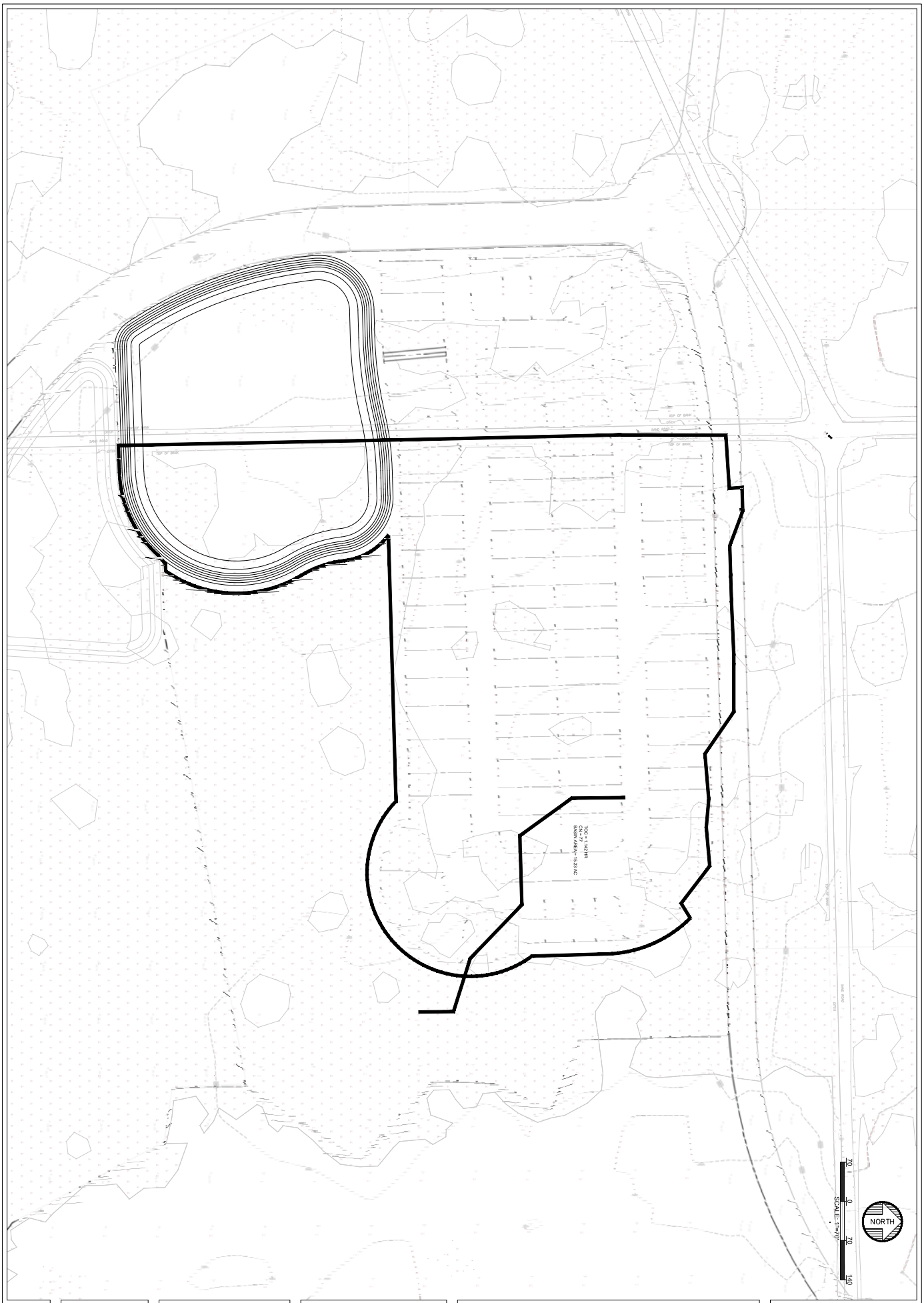
P:\2314-1 Iris Phase 2 @ HP\Design\Base\BASE_IRIS P2_Current.dwg, PREDEVELOPMENT CONDITION, 10/25/2023 11:02:49 AM



SHEET
EXHIBIT

DESIGNER	FILE	DATE
CTB	2314-1	7/10/2023
DRAWN BY	PROJECT	SCALE
CTB	2314-1	AS NOTED

NO.	DATE	REVISION	BY

GARDENSIDE AT ORMOND STATION PHASE II

FLAGLER COUNTY, FL

PREDEVELOPMENT BASIN MAP

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CONSULTING ENGINEERS
CERTIFICATE No. EB5479
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IIc. PRE-DEVELOPMENT TIME OF CONCENTRATION

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Iris Phase 2
Predevelopment
Flagler County, Florida

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Pre-Basin1	15.23	1.142	77		

Total Area: 15.23 (ac)

Iris Phase 2
Predevelopment
Flagler County, Florida

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Pre-Basin1							
SHEET	100	0.0036	0.800				0.990
SHALLOW	529	0.0036	0.050				0.152
						Time of Concentration	1.142

Iris Phase 2
Predevelopment
Flagler County, Florida

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Pre-Basin1Woods	(good)	D	15.23	77
Total Area / Weighted Curve Number			15.23	77

IId. PRE-DEVELOPMENT ICPR MODEL

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II.d.i. INPUT

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Simple Basin: Pre-Basin1

Scenario:	Solo Pond
Node:	99East Pre
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	68.5200 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	15.2300 ac
Curve Number:	77.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: 99East Pre

Scenario:	Solo Pond
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	0.00 ft
Warning Stage:	0.00 ft
Boundary Stage:	

Comment:

Simulation: 100YR24HR

Scenario: Solo Pond
Run Date/Time: 10/9/2023 10:41:46 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	12.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 10YR24HR

Scenario: Solo Pond
Run Date/Time: 10/9/2023 10:42:50 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	7.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 25YR24HR

Scenario: Solo Pond
Run Date/Time: 10/9/2023 10:43:32 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	9.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: MEAN ANNUAL

Scenario: Solo Pond
Run Date/Time: 10/9/2023 10:44:29 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	5.00 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

II.d.ii. BASIN RUNOFF SUMMARY

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Simple Basin Runoff Summary [Solo Pond]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Pre-Basin1	100YR24HR	36.28	12.7667	12.50	9.51	15.2300	77.0	0.00	0.00
Pre-Basin1	10YR24HR	18.42	12.8000	7.50	4.82	15.2300	77.0	0.00	0.00
Pre-Basin1	25YR24HR	25.52	12.7833	9.50	6.66	15.2300	77.0	0.00	0.00
Pre-Basin1	MEAN ANNUAL	9.86	12.8167	5.00	2.62	15.2300	77.0	0.00	0.00

II.d.iii. OUTPUT

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Node Max Conditions [Solo Pond]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
99East Pre	100YR24HR	0.00	0.00	0.0000	36.27	0.00	0
99East Pre	10YR24HR	0.00	0.00	0.0000	18.42	0.00	0
99East Pre	25YR24HR	0.00	0.00	0.0000	25.52	0.00	0
99East Pre	MEAN ANNUAL	0.00	0.00	0.0000	9.86	0.00	0

III. POST-DEVELOPMENT CONDITIONS

III.a. POST-DEVELOPMENT BASIN MAP

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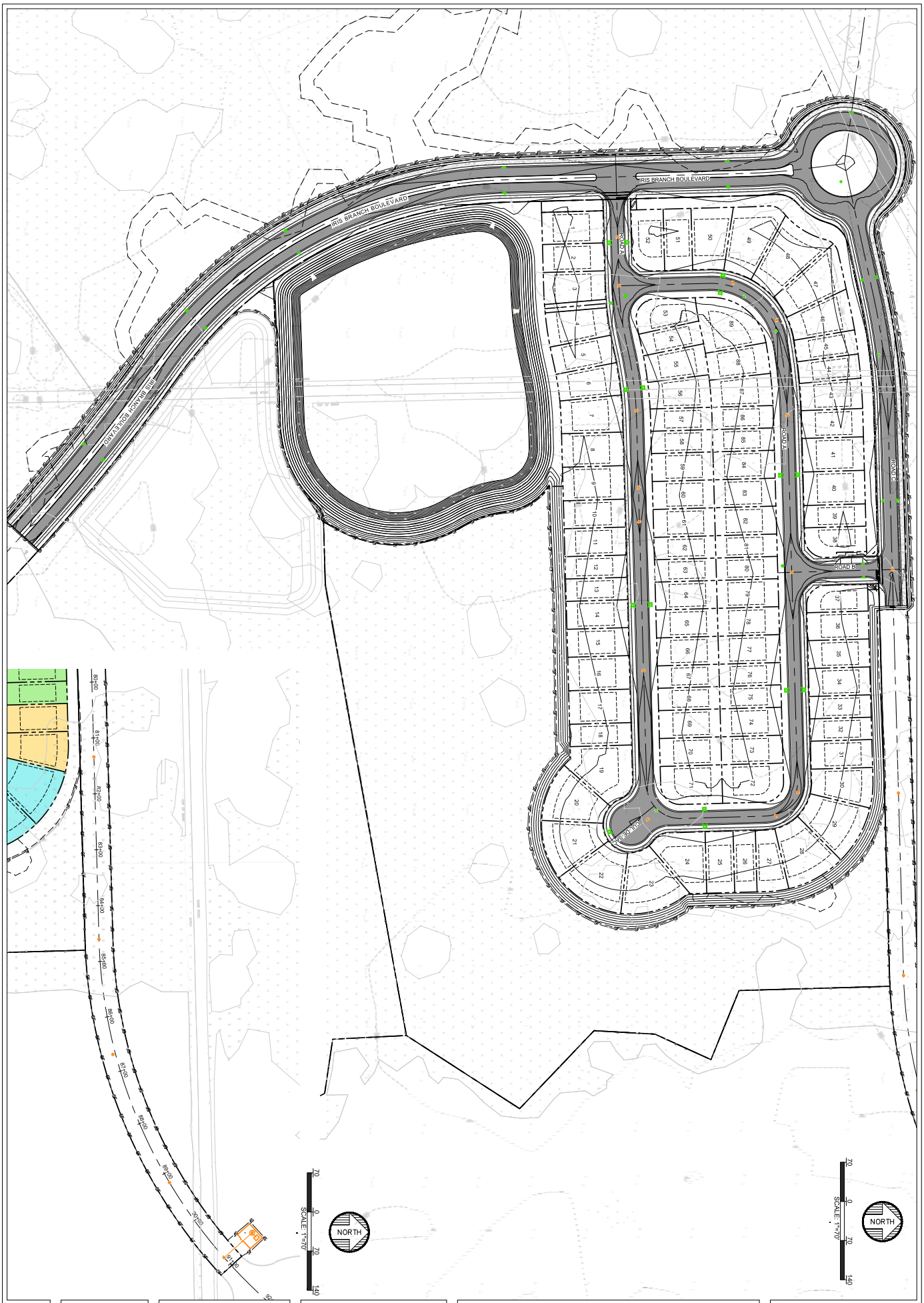
P:\2314-1 Iris Phase 2 @ HP\Design\Board\MGE_IRIS P2_Current.dwg, POST DEVELOPMENT CONDITION, 10/25/2023 11:05:18 AM



SHEET
EXHIBIT

DESIGNER	FILE	DATE
CTB	2314-1	7/10/2023
DRAWN BY	PROJECT	SCALE
CTB	2314-1	AS NOTED

NO.	DATE	REVISION	BY

GARDENSIDE AT ORMOND STATION PHASE II

FLAGLER COUNTY, FL

POST DEVELOPMENT CONDITION

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III.b. POST-DEVELOPMENT TIME OF CONCENTRATION

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Cole Buck

Iris Phase 2
Post Development
Flagler County, Florida

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Basin 1	27.40	0.000	92		

Total Area: 27.40 (ac)

Iris Phase 2
Post Development
Flagler County, Florida

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Basin 1							
					Time of Concentration		<undef>

Iris Phase 2
Post Development
Flagler County, Florida

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Basin 1	Open space; grass cover > 75% (good)	D	9.69	80
	Paved parking lots, roofs, driveways	D	17.708	98
	Total Area / Weighted Curve Number		27.4	92

III.c. WET DETENTION CALCULATIONS

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BASIN # 1

TOTAL AREA: 27.40
IMPERVIOUS AREA: 13.02
PERVIOUS AREA: 14.38
PERCENT IMPERVIOUS: 48%

RUNOFF COEFFICIENT: 0.53

NWL 26.06

STAGE/STORAGE:

	STAGE (FT)	AREA (AC)	STORAGE (AC-FT)	CUMULATIVE STOARGE (AC-FT)	CUMULATIVE STORAGE ABOVE ORIFICE
	16.56	3.81	0.00	0.00	
	24.06	4.39	30.76	30.76	
NWL	26.06	4.69	9.08	39.84	0.00
	27.00	4.84	4.48	44.32	4.48
	28.00	5.00	4.92	49.24	9.40
	29.00	5.15	5.08	54.32	14.47
	30.00	5.32	5.24	59.55	19.71

REQ'D TREATMENT VOL.: Area x 1 inch of runoff OR 2.5" x impervious area, whichever is greater
(add 50% to above number for OFW water quality standards)

2.28 OR 2.71
VOLUME REQ'D.= 2.71
4.07 Plus 50% for OFW 1.36

SET CONTROL ELEV.

ORIFICE INVERT: 26.06
WEIR ELEV: 26.92
TREATMENT VOL. DEPTH= 0.86

PERM. POOL VOLUME:

RUNOFF COEFF.= 0.53
2 WEEK RES. TIME: 21 days/153 days

MIN. PERM POOL VOL. = Area x runoff coefficient x wet season rainfall of 30" x 3 week res. Time divided by 12"/'

MIN. PERM POOL VOL = 5.01 AC-FT.

POND VOLUME BELOW
ORIFICE INVERT = 39.84 AC-FT.

SIZE CONTROL STRUCTURE:
Note: volume to draw down is 2.72 ac-ft
DETERMINE ORIFICE SIZE TO DRAWDOWN VOLUME IN 24 - 30 HOURS

A = Q / C(2gh) to 1/2 power

h = (h1 + h2)/2

h1 =	0.86		
h2 =	0.43		
C =	0.60		
g =	32.20		
Q =	treatment volume x 43560 sf/ac x 1/2 x 1/24 hrs x 1hr/3600 sec =		1.03
h =	0.65		
A =	0.27	SQ. FT.	
DIA. OF ORIFICE =	SQ. RT. OF (4A/3.1416) =	0.58	FT.
	OR	6.97	INCHES

MEAN DEPTH OF POND: volume of pond at orifice inv. Divided by area of pond at orifice invert

VOLUME OF POND =	39.84
AREA OF POND =	4.69
MEAN DEPTH OF POND =	8.49

LITTORAL ZONE ALTERNATE:

IN LIEU OF LITTORAL ZONE PLANTINGS ADD 50% PERM. POOL VOLUME:

NORMAL PERM POOL VOL:	5.01
REQ'D VOLUME:	7.51
VOLUME PROVIDED:	39.84

III.d. PRE & POST-DEVELOPMENT ICPR MODEL

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III.d.i. INPUT

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Simple Basin: Post Basin 1

Scenario:	Solo Pond
Node:	Pond 1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	27.4000 ac
Curve Number:	92.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: 99East

Scenario:	Solo Pond
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	0.00 ft
Warning Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: Pond 1

Scenario:	Solo Pond
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	26.06 ft
Warning Stage:	30.00 ft

Stage [ft]	Area [ac]	Area [ft2]
26.06	4.6900	204296
27.00	4.8400	210830

Stage [ft]	Area [ac]	Area [ft2]
28.00	5.0000	217800
29.00	5.1500	224334
30.00	5.3200	231739

Comment:

Pipe Link: Orifice Pipe		Upstream		Downstream	
Scenario:	Solo Pond	Invert:	26.06 ft	Invert:	25.50 ft
From Node:	Pond 1	Manning's N:	0.0100	Manning's N:	0.0100
To Node:	99East	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	0.58 ft	Max Depth:	0.58 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	35.00 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	1.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Weir Link: Weir			
Scenario:	Solo Pond	Bottom Clip	
From Node:	Pond 1	Default:	0.00 ft
To Node:	99East	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	26.92 ft	Discharge Coefficients	
Control Elevation:	26.92 ft	Weir Default:	3.200
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	2.33 ft	Orifice Table:	
Left Slope:	0.250 (h:v)		
Right Slope:	0.250 (h:v)		

Comment:

Simulation: 100YR24HR

Scenario: Solo Pond
Run Date/Time: 10/9/2023 10:41:46 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:

Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	12.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 10YR24HR

Scenario:	Solo Pond
Run Date/Time:	10/9/2023 10:42:50 AM
Program Version:	ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	7.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 25YR24HR

Scenario: Solo Pond
Run Date/Time: 10/9/2023 10:43:32 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	9.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: MEAN ANNUAL

Scenario:	Solo Pond
Run Date/Time:	10/9/2023 10:44:29 AM
Program Version:	ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	30.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FLMOD
Rainfall Amount: 5.00 in
Storm Duration: 24.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

III.d.ii. BASIN RUNOFF SUMMARY

880 Airport Rd. Suite 113
Ormond Beach, FL 32174
CA5479

T. 386-673-7640
www.ae-group.com

Simple Basin Runoff Summary [Solo Pond]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Post Basin 1	100YR24 HR	221.15	12.0333	12.50	11.54	27.4000	92.0	0.00	0.00
Post Basin 1	10YR24 HR	129.53	12.0333	7.50	6.56	27.4000	92.0	0.00	0.00
Post Basin 1	25YR24 HR	166.32	12.0333	9.50	8.55	27.4000	92.0	0.00	0.00
Post Basin 1	MEAN ANNUAL	83.05	12.0333	5.00	4.10	27.4000	92.0	0.00	0.00

III.d.iii. OUTPUT

880 Airport Rd. Suite 113
Ormond Beach, FL 32174
CA5479

T. 386-673-7640
www.ae-group.com

III.d.iii.1. NODE SUMMARY

880 Airport Rd. Suite 113
Ormond Beach, FL 32174
CA5479

T. 386-673-7640
www.ae-group.com

Node Max Conditions [Solo Pond]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
99East	100YR24HR	0.00	0.00	0.0000	34.95	0.00	0
99East Pre	100YR24HR	0.00	0.00	0.0000	36.27	0.00	0
Pond 1	100YR24HR	30.00	29.26	0.0010	221.14	34.95	226263
99East	10YR24HR	0.00	0.00	0.0000	12.01	0.00	0
99East Pre	10YR24HR	0.00	0.00	0.0000	18.42	0.00	0
Pond 1	10YR24HR	30.00	28.05	0.0010	129.53	12.01	218116
99East	25YR24HR	0.00	0.00	0.0000	20.17	0.00	0
99East Pre	25YR24HR	0.00	0.00	0.0000	25.52	0.00	0
Pond 1	25YR24HR	30.00	28.55	0.0010	166.32	20.17	221382
99East	MEAN ANNUAL	0.00	0.00	0.0000	4.45	0.00	0
99East Pre	MEAN ANNUAL	0.00	0.00	0.0000	9.86	0.00	0
Pond 1	MEAN ANNUAL	30.00	27.41	0.0010	83.04	4.45	213720

III.d.iii.2. LINK SUMMARY

880 Airport Rd. Suite 113
Ormond Beach, FL 32174
CA5479

T. 386-673-7640
www.ae-group.com

Link Min/Max Conditions [Solo Pond]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Orifice Pipe	100YR24HR	2.89	0.00	0.01	10.95	11.22	11.08
Weir	100YR24HR	32.06	0.00	-0.02	4.70	4.70	4.70
Orifice Pipe	10YR24HR	2.21	0.00	0.01	8.36	8.57	8.47
Weir	10YR24HR	9.80	0.00	0.01	3.33	3.33	3.33
Orifice Pipe	25YR24HR	2.51	0.00	0.01	9.51	9.75	9.63
Weir	25YR24HR	17.65	0.00	-0.02	3.96	3.96	3.96
Orifice Pipe	MEAN ANNUAL	1.75	0.00	0.01	6.62	6.79	6.70
Weir	MEAN ANNUAL	2.70	0.00	0.01	2.23	2.23	2.23