

WILLOUGHBY CREEK STORMWATER QUALITY RETROFIT IMPROVEMENT PROJECT

Project No. 1477.27



DRAINAGE REPORT

PREPARED FOR:

Martin County Engineering Department
Ecosystem Restoration and Management Division
& South Florida Water Management District



BY:
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November 2017



3-27-18
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FLORIDA P.E. LICENSE NO. 65626

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- Existing ICPR Input Report
- Existing Max Conditions Report
- Proposed ICPR Input Report
- Proposed Max Conditions Report

Willoughby Creek Stormwater Quality Retrofit Project

Introduction

Willoughby Creek is a tributary of the St Lucie River. The Willoughby Creek Retrofit Project is a stormwater quality retrofit improvement designed to provide the necessary amount of water quality treatment volume needed for previously constructed developments upstream, reduce nutrient loads into the St. Lucie Estuary and eliminate downstream flooding that has occurred on The Martin County Golf Course property. It is located south of the Witham Field airport in Martin County (**Exhibit 1**).

Research

Original research from the Willoughby Creek Basin Reconnaissance Study in June 2000 and February 2015 has determined a deficiency in water quality detention and treatment volume. This prompted the design of this retrofit improvement. Additional research from the Willoughby Creek Nutrient Loading Study in 2014 reinforces the ultimate need for additional upstream water quality treatment volume.

As seen on **Exhibit 2**, the proposed stormwater retrofit area will receive discharges from the following areas:

- Willoughby Creek Area Existing Developments
 - Residential
 - Light Industrial
 - Retail, Sales and Service
- Indian Street and CR A1A Dixie Highway Permit No. 43-01229-P Dated 4/6/01
 - Roadway
 - Residential
 - Light Industrial
- Martin County Airport Master Drainage Permit No. 43-00674-S Dated 2/14/02
 - Witham Field Airport
 - Martin Count Public Works Department
 - CR A1A Dixie Highway
- Martin County School Board Property
 - School Bus Complex

Willoughby Creek Area Existing Developments

Stormwater runoff from the areas near CR A1A Dixie Hwy ultimately runoff into Willoughby Creek. As seen on **Exhibit 2**, the areas shown in yellow consisting of 222 AC have been determined to have substandard water quality treatment volumes per SFWMD criteria of 1" over the area, which equates to a volume of 18.5 ac-ft. The proposed retrofit will capture these areas and provide the necessary water quality treatment for these developed areas.

Indian Street and CR A1A Dixie Hwy Permit No. 43-01229-P

Runoff from this area flows through an existing drainage ditch into the main drainage ditch flowing eastward and northward. Water quality is provided in the 1.00 acre detention pond in the amount of 0.769 ac-ft. which discharges to the Fairgrounds Ditch and into Willoughby Creek. The proposed retrofit will continue to provide water quality treatment for this area.

Martin County Airport Master Drainage Plan Permit No. 43-0067-S

Water quality treatment volume is held within detention ponds located in Basins 5, 5a and 6 which discharge south to the Martin County Golf Course and into Willoughby Creek. As seen in **Exhibit 2**, the areas shown in yellow have been determined to have substandard water quality treatment volume.

Martin County Public Works, which currently discharges into Willoughby Creek, will be rerouted to discharge into the retrofit treatment area.

Stuart Jet Center retention pond, which currently discharges into Willoughby Creek, will be rerouted to discharge into the retrofit treatment area.

The southeast Witham Field retention pond, which currently discharges into the Golf Course property, will be rerouted into the retrofit treatment area.

Martin County School Board, Bus and Warehouse Complex

The 15.6 acre Martin County School Board, Bus and Warehouse Complex (Bus Complex) has been found to be deficient in water quality treatment volumes. The proposed retrofit project will provide the remaining water quality volume needed to satisfy SFWMD's standard of 1" over the site.

The project also has the potential ability to provide 1.4 ac-ft of water quality treatment volume for the Bus Complex for future development of a 14.4 acre site, assuming a maximum 65% impervious area, and

that the current 0.55 ac-ft of treatment continues to be provided, for a total maximum treatment volume of 1.95 ac-ft of treatment. If future development plans for the Bus Complex exceeds these parameters, the School Board would need to provide the additional treatment volume above the 1.95 ac-ft account for within this project.

Proposed Retrofit Improvements

The proposed retrofit area will be split into two separate STA's and will have two control structures. The upstream half of the retrofit (STA Cell 2) is a 5.04 AC shallow water stormwater treatment area (STA) and deep water lake system. It is controlled by two drop structures, each consisting of a 48" RCP with one structure having a 12" notch at elevation 8.0 NAVD and both structures having a 6' wide weir with a crest elevation of 10.0 NAVD. The downstream half of the retrofit (STA Cell 1) is a 3.20 AC deep water lake with littoral shelves and STA controlled by a weir with a 12" notch at elevation 6.0 NAVD and a 30' wide overflow at elevation 8.0 NAVD.

Stormwater modeling was performed using ICPR version 4 using the North American Vertical Datum of 1988 (NAVD-88). FEMA flood map (**Exhibit 3**), USDA Soils Map (**Exhibit 4**), and the SFWMD Rainfall Maps (**Exhibit 5A-5C**) were used to facilitate the stormwater modeling.

Additionally, downstream of the proposed retrofit are two (2) 72" CMP culverts that have been found to be failing and are in need of replacement. These culverts will be replaced with 60" RCP culverts.

Water Quality

The retrofit improvement has been designed to achieve the following parameters:

	Area at Control (Acres)	Control Elev. (NAVD-88)	Weir Crest (NAVD-88)	Water Quality (ac-ft)
STA 1	3.20 Acres	6.00 ft	8.00 ft	7.15 ac-ft
STA 2	5.04 Acres	8.00 ft	10.00 ft	11.98 ac-ft

Flood Control

The node max tables and Time-Stage graphs (**Figure 1** and **Figure 2**) below show the stage and discharge analysis applicable to flood control as well as the time to recovery. During the 100-Year storm event simulation, the downstream half of the retrofit (STA 1) has a maximum stage of 9.67 NAVD and the upstream half (STA 2) has a maximum stage of 11.75 NAVD.

Node Max Conditions [Proposed]

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]
Prop STA Cell 1	010Y1D	14.00	8.83	0.0010	72.30	71.03	170451
Prop STA Cell 1	025Y3D	14.00	9.43	0.0003	108.35	106.97	175255
Prop STA Cell 1	100Y3D	14.00	9.67	0.0004	118.93	117.36	176998

Node Max Conditions [Proposed]

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]
Prop STA Cell 2	010Y1D	14.00	11.09	0.0010	76.76	57.45	279012
Prop STA Cell 2	025Y3D	14.00	11.61	0.0004	97.10	92.66	286931
Prop STA Cell 2	100Y3D	14.00	11.75	0.0004	107.92	102.75	288754

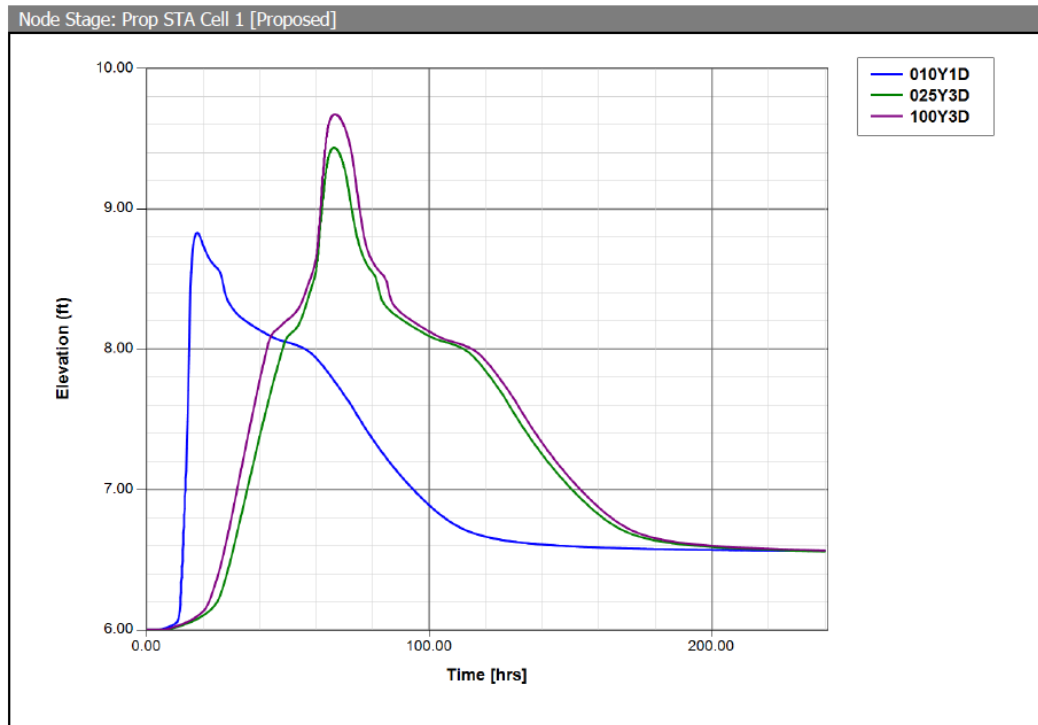


Figure 1: STA Cell 1 Time-Stage Graph

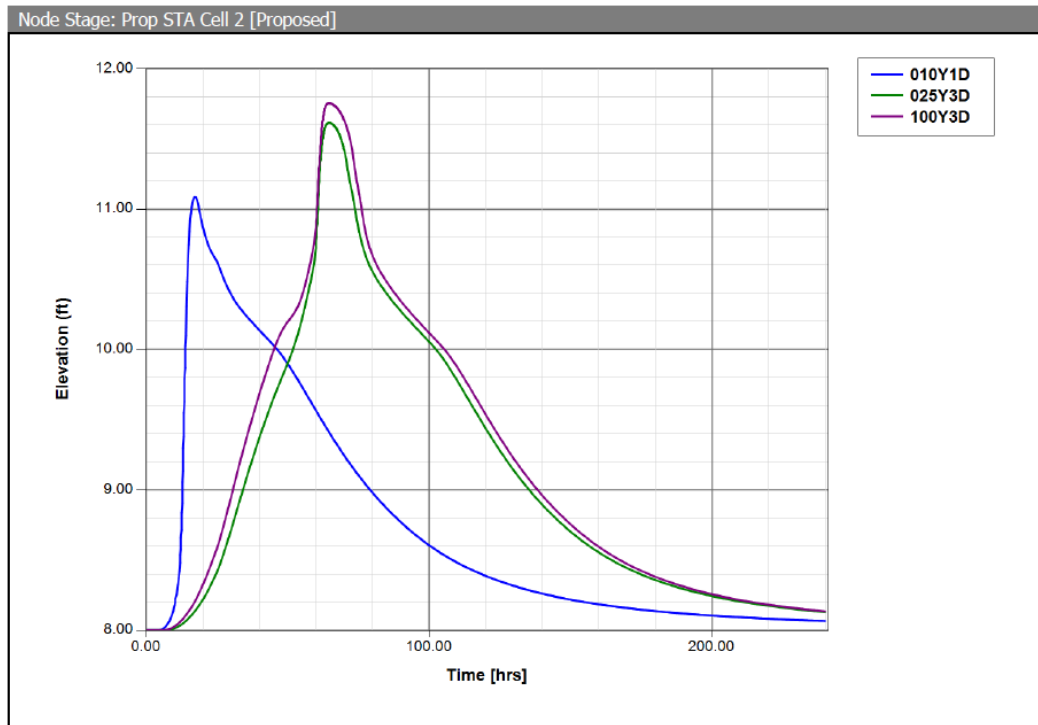


Figure 2: STA Cell 2 Time-Stage Graph

Conclusion

The Willoughby Creek Retrofit Project will provide water quality treatment for previously constructed development upstream of the project, the project will reduce nutrient loads into the St. Lucie River, and also improve downstream flooding issues. The proposed STA will provide approximately 19.13 ac-ft of water quality treatment to satisfy SFWMD's standard of 1" of treatment over an area, for the upstream existing developed contributing areas that have substandard water quality treatment volumes. The 19.13 ac-ft of treatment that the project will provide, exceeds the 18.5 ac-ft of treatment required for the 222 acres of contributing area. The 0.63 ac-ft of excess treatment is not expected to be utilized for future credits without permit modifications for future County projects.

As currently designed, the project has the potential ability to provide an additional 1.40 ac-ft of water quality treatment for the future development of the Martin County School Board Bus and Warehouse Complex based on the assumptions described in the report. If the Bus Complex is developed in the future to the assumptions stated within this report the additional 0.63 ac-ft of excess credit identified above will be reduced to 0.53 ac-ft of excess credit.

This project does not intend to provide water quality credits for future development / re-development in the Willoughby Creek basin, other than what has been identified within this report. Any future

development / re-development with the Willoughby Creek basin will need to comply with all County and SFWMD water quality treatment standards through the customary permitting processes.

In addition to providing water quality treatment, the STA and replacement of the two downstream culverts within Willoughby Creek will reduce flooding in the Martin County Golf Course during large storm events.

**Willoughby Creek
Stormwater Quality Retrofit
Improvement Project**
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EXHIBITS



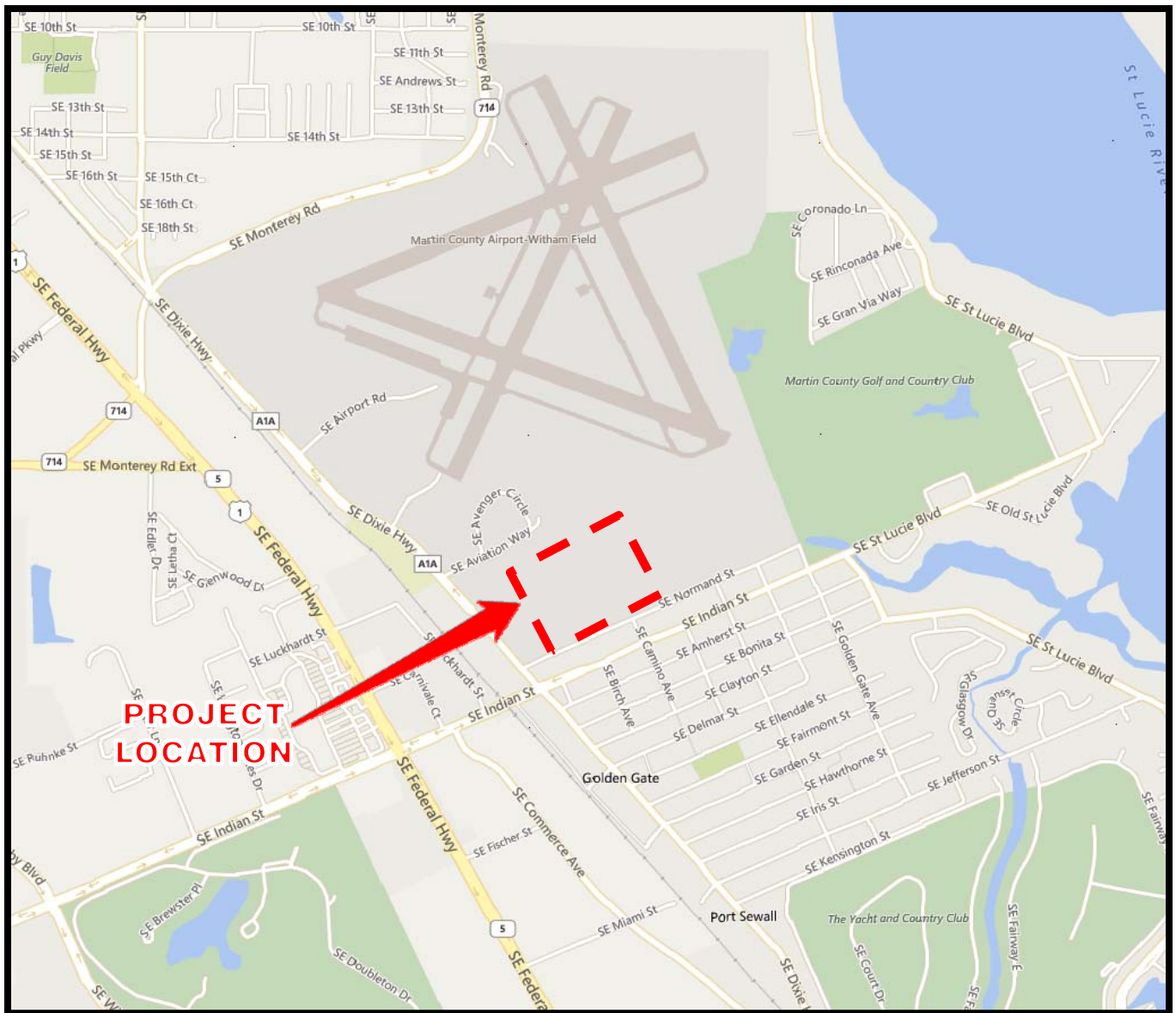
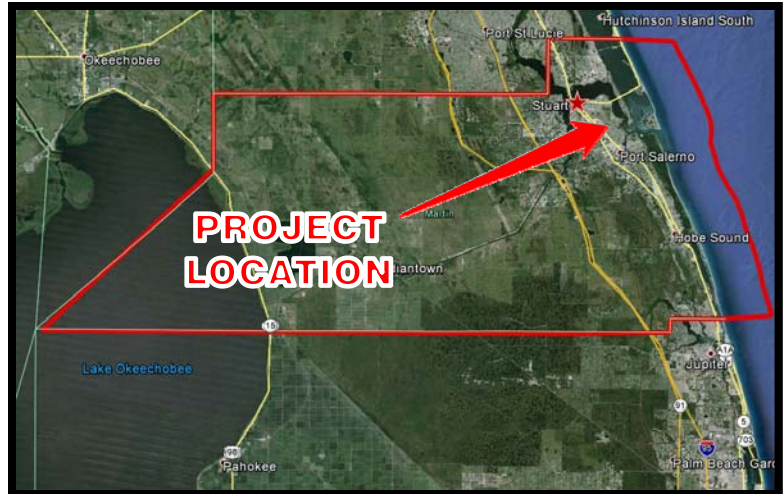
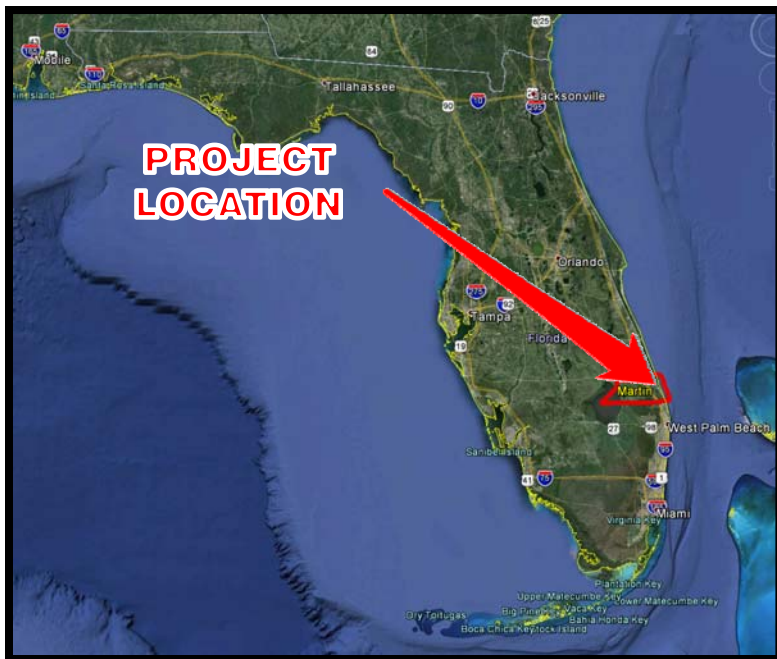




EXHIBIT 2 – Project Diagram
1477.27 – Willoughby Creek Stormwater Quality Retrofit Project



MAP SCALE 1" = 500'



NFIP

PANEL 0161G

FIRM

FLOOD INSURANCE RATE MAP

MARTIN COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 161 OF 527
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:		NUMBER	PANEL	SUFFIX
COMMUNITY	MARTIN COUNTY	120161	0161	G
	STUART, CITY OF	120163	0161	G

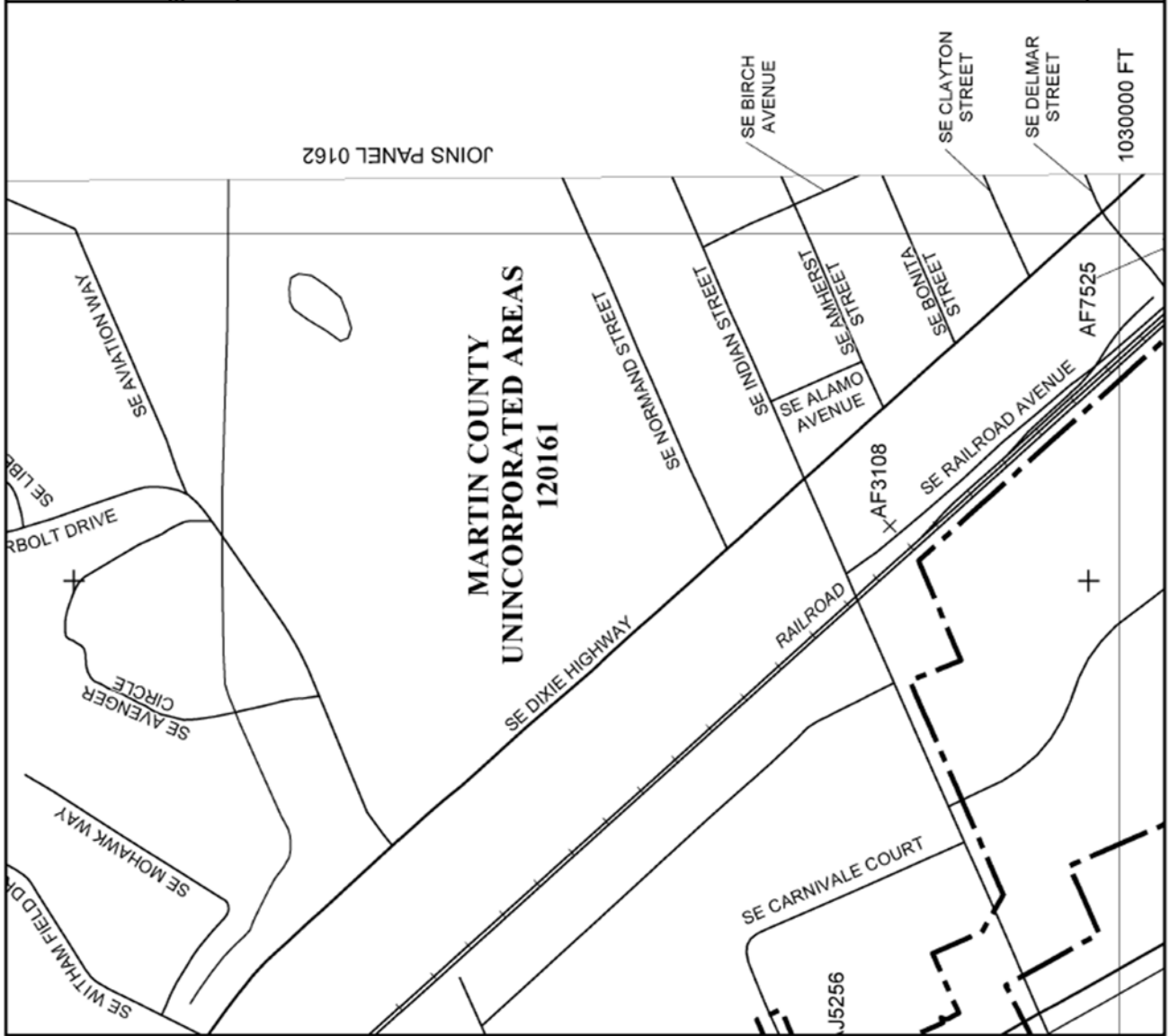
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



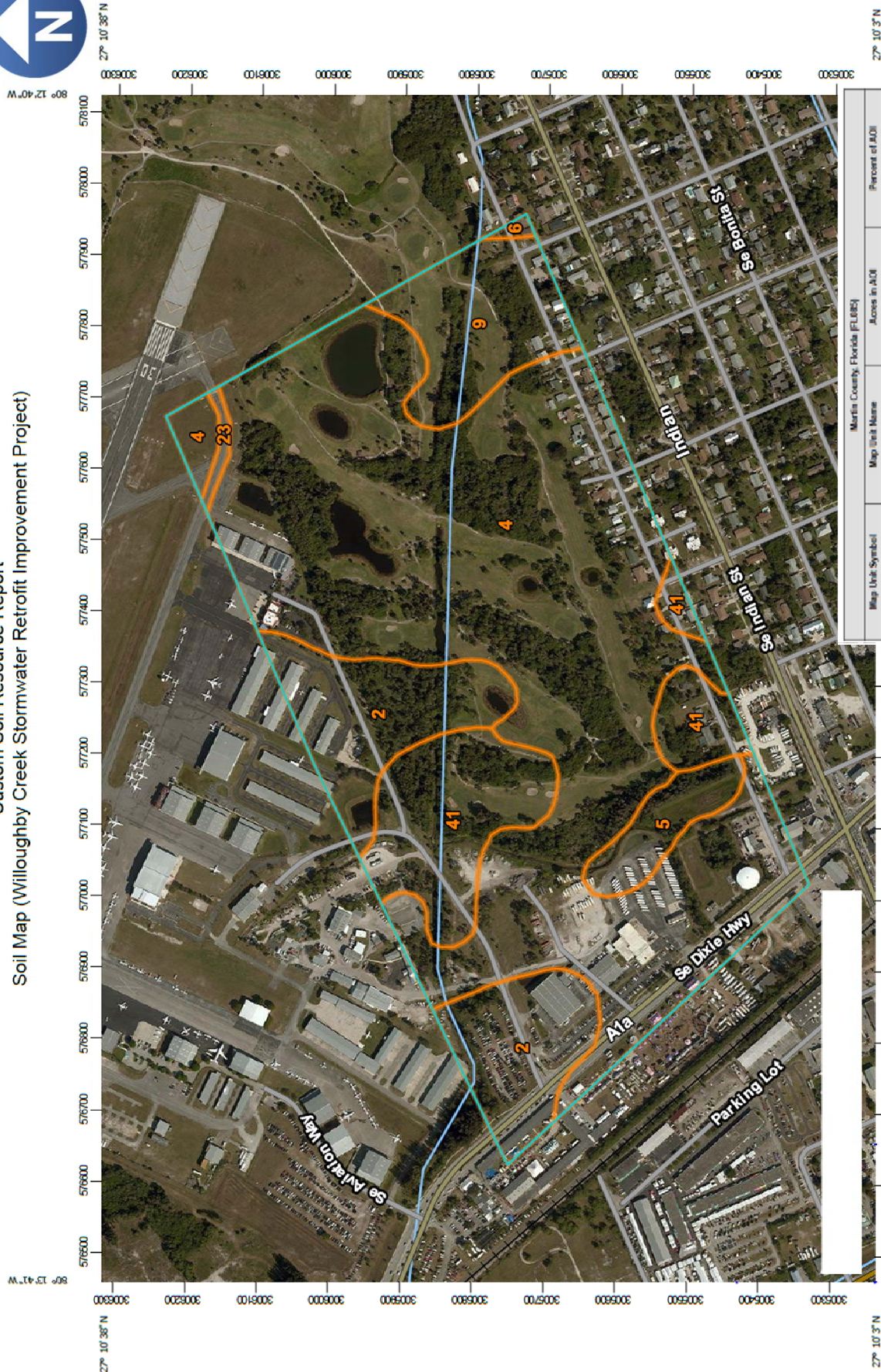
MAP NUMBER
12085C0161G
MAP REVISED
MARCH 16, 2015

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT Ch-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Custom Soil Resource Report
Soil Map (Willoughby Creek Stormwater Retrofit Improvement Project)

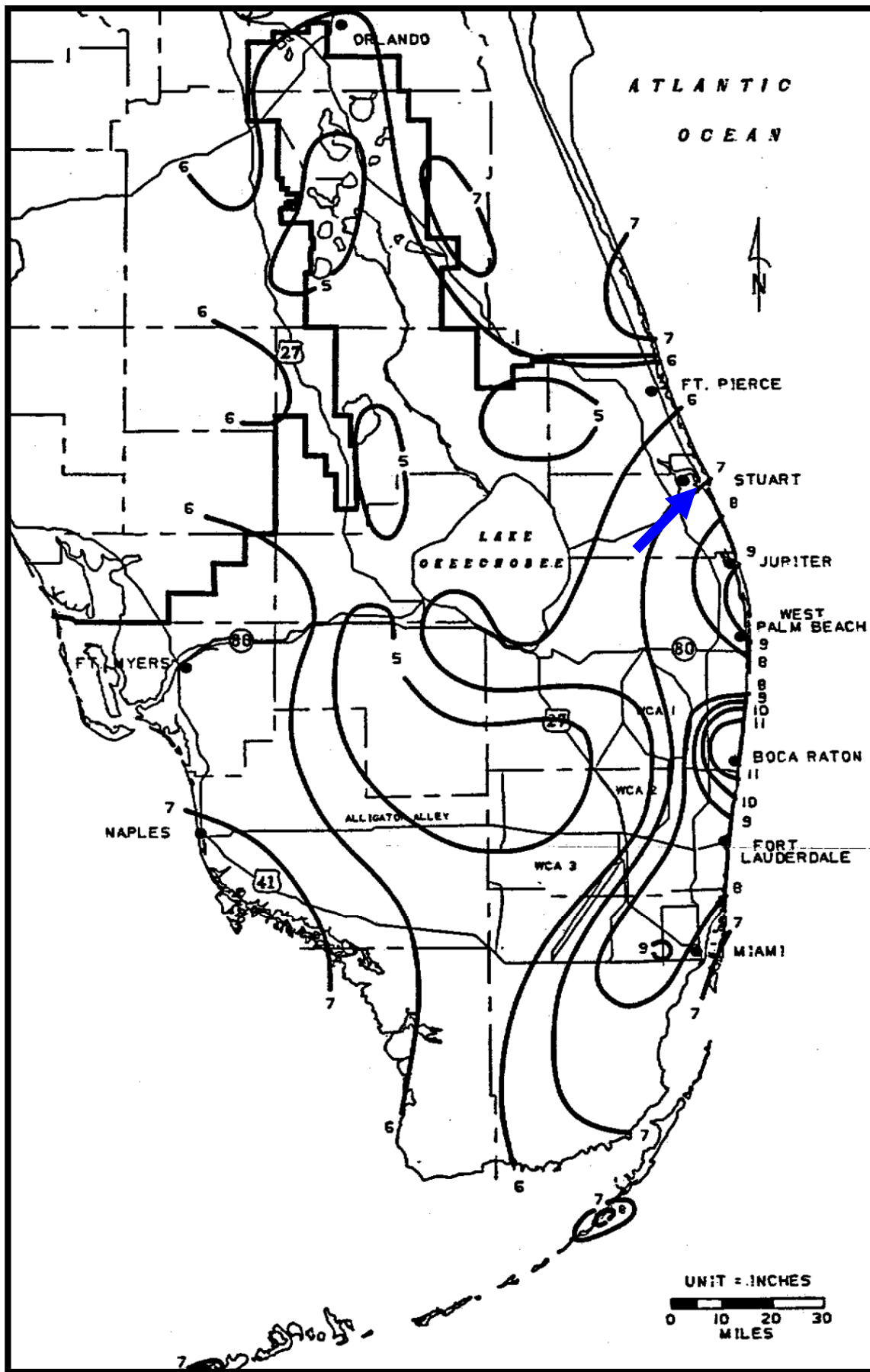


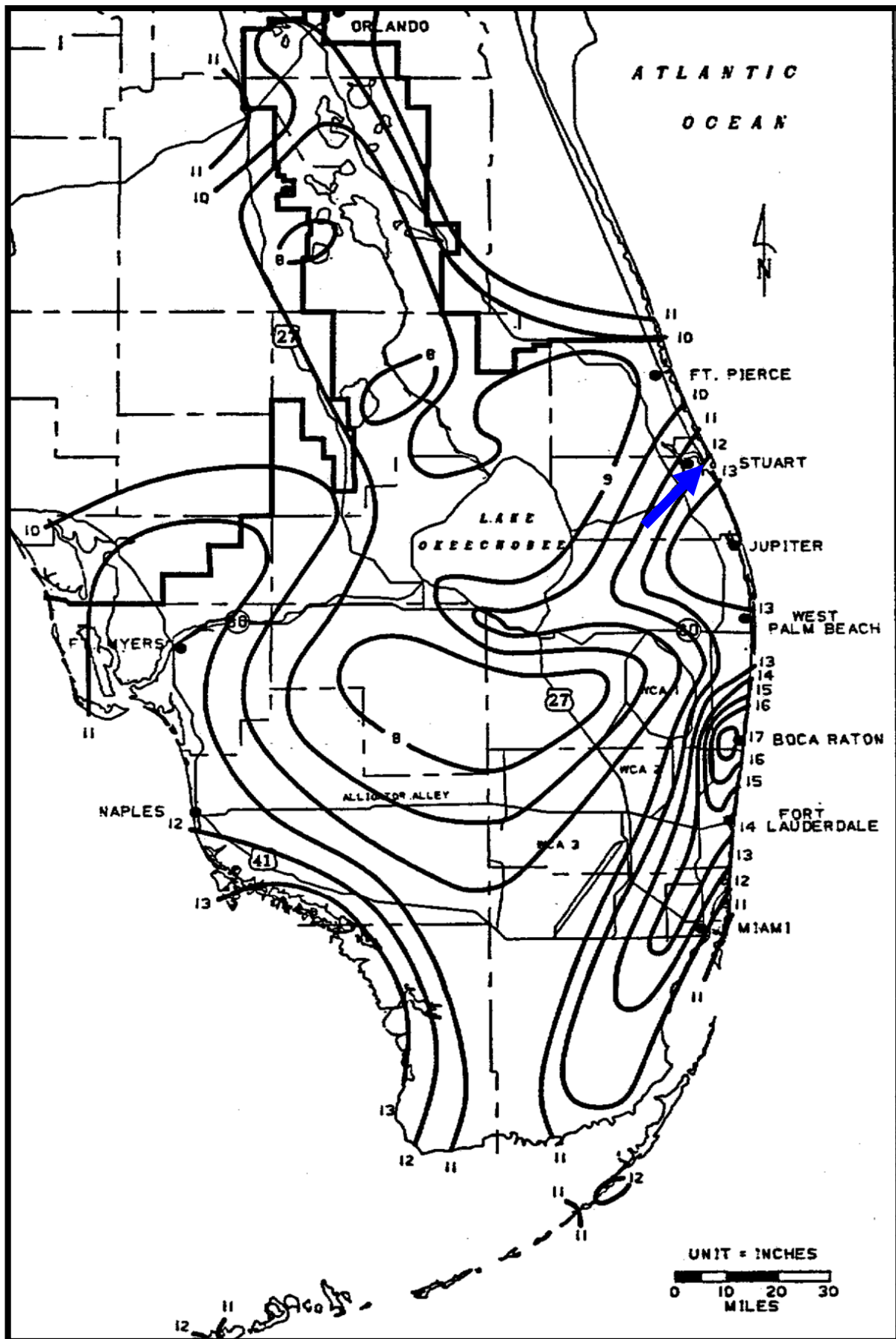
Maricopa County, Florida (FL085)			
Map Unit Symbol	Map Unit Name	Acres in AUI	Percent of AUI
2	Lamwood and Myakka fine sands	20.6	13.6%
4	Woodland and immediate fine sands	96.9	64.9%
5	Woodland and Lamwood fine sands, depositional	4.4	2.9%
9	Palatka and St. Lucie sands, 0 to 5 percent slopes	0.3	0.2%
23	Pomalo sand, 0 to 5 percent slopes	10.9	7.2%
41	Urban land	0.6	0.4%
46	Jonathan sand, 0 to 5 percent slopes	16.5	10.8%
Totals for Area of Interest		152.4	100.0%

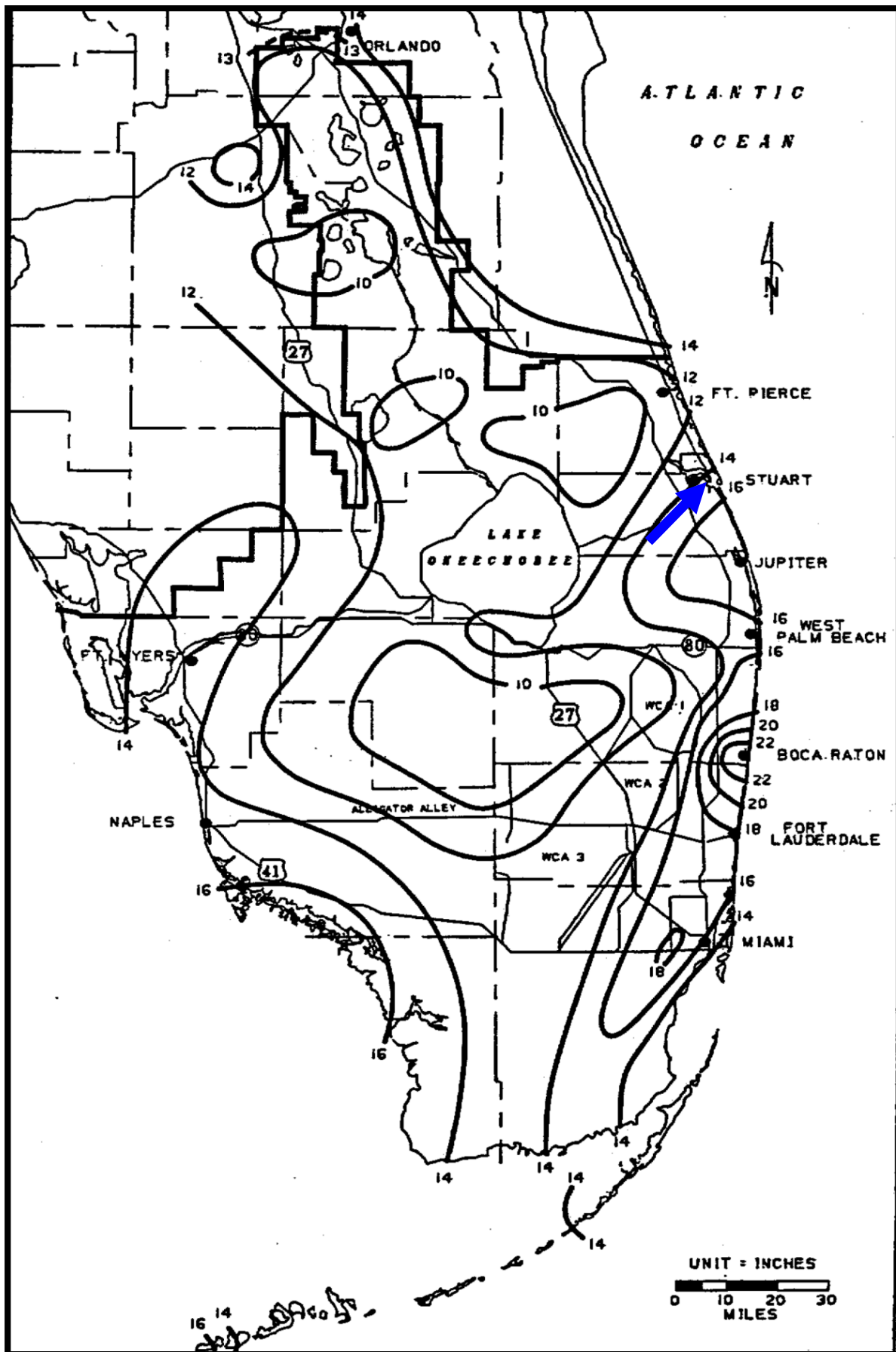
Map Scale: 1:7,610 if printed on A landscape (11" x 8.5") sheet.



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







**Willoughby Creek
Stormwater Quality Retrofit
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ATTACHMENT 1

ICPR Existing Input Report



Node: 0000FG

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.09 ft
Warning Stage: 16.04 ft

Comment:

Node: 0041FG

Scenario: Existing
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 12.92 ft
Warning Stage: 16.04 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
12.92	0.10	4356
13.50	1.58	68825
14.50	20.99	914324
15.50	77.32	3368059

Comment: Offsite receiving node

Node: 0304A

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.60 ft

Comment:

Node: 0304B

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.50 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
8.50	0.0000	0
9.00	0.4900	21344
10.00	1.3900	60548
11.00	2.3400	101930
12.00	3.2400	141134
13.00	4.1800	182081

Comment: Stage/Vol based on C. Montgomery study

Node: 0338FG

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 11.26 ft
Warning Stage: 16.23 ft

Comment:

Node: 0394

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 10.81 ft

Comment:

Node: 0450FG

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 10.98 ft
Warning Stage: 16.04 ft

Comment:

Node: 0923AFG

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 10.07 ft
Warning Stage: 15.08 ft

Comment:

Node: 0923BFG

Scenario: Existing
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 11.00 ft
Warning Stage: 15.08 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
11.00	0.10	4356
14.00	1.85	80586
14.50	2.44	106286
15.00	3.33	145055
15.50	10.00	435600

Comment: Stage/Vol based C. Montgomery Study

Node: 1369A

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.38 ft

Comment:

Node: 1369B

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.38 ft

Comment:

Node: 1369C

Scenario: Existing
 Type: Stage/Volume
 Base Flow: 0.00 cfs
 Initial Stage: 7.50 ft
 Warning Stage: 16.50 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
9.99	0.00	83
10.49	1.45	62992
10.99	1.75	76056
11.49	2.08	90465
11.99	2.44	106243
12.49	10.78	469503
12.99	13.45	586061
13.49	15.92	693541
13.99	18.07	787125
14.49	36.42	1586246
14.99	38.55	1679395
15.49	41.00	1786051
15.99	43.90	1912358
16.49	48.22	2100346
16.99	48.22	2100346

Comment: Stage/Vol based on C. Montgomery Study

Node: 1369D

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 7.50 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.1000	4356
8.50	1.7400	75794
9.50	3.4800	151589
10.50	5.2200	227383
11.50	6.9600	303178
12.50	8.7100	379408
13.50	9.9900	435164

Comment: Sheet flow from Basin 5B

Node: 1468A

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.38 ft

Comment:

Node: 1468B

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.61 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
5.61	3.2100	139828
6.50	3.4400	149846
7.50	3.7100	161608
8.50	7.9200	344995
9.50	12.1400	528818
10.50	16.3500	712206
11.50	20.3300	885575
12.50	24.2200	1055023

Comment: Stage/Vol based on C.Montgomery Study

Node: 1784A

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.94 ft

Comment:

Node: 1784B

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 7.50 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.2700	11761
8.00	1.5300	66647
9.00	4.0600	176854
10.00	6.5900	287060
11.00	9.1100	396832
12.00	11.6100	505732
13.00	14.0900	613760

Comment: Stage/Vol from C.Montgomery Study

Node: 1860A

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 4.50 ft
 Warning Stage: 12.02 ft

Comment:

Node: 1860B

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 7.47 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.47	0.4100	17860
7.50	0.4100	17860
8.50	4.4200	192535
9.50	8.4300	367211
10.50	12.4400	541886
11.50	16.4500	716562
12.50	20.4200	889495
13.50	23.3500	1017126

Comment: Stage/Vol from C.Montgomery Study

Node: 1860C

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 14.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.0000	0
8.50	1.1500	50094
9.50	2.3100	100624
10.50	3.4600	150718
11.50	4.6200	201247
12.50	5.7700	251341
13.50	6.5900	287060

Comment:

Node: 2959A

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.83 ft
Warning Stage: 13.57 ft

External Hydrograph

2959A#1

Comment:

Node: 2959B

Scenario: Existing
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 4.83 ft
Warning Stage: 13.57 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	4.83
0	0	0	100.0000	4.83

Comment: Proposed Flow from Jet Center (omitted)

Node: 2959C

Scenario: Existing
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 8.58 ft
Warning Stage: 15.08 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
6.50	0.10	4356
7.50	0.35	15246
8.50	0.79	34412
9.50	1.30	56628
10.50	1.90	82764
11.50	2.58	112385
12.50	3.35	145926
13.50	12.53	545807
14.50	37.54	1635242
15.50	79.23	3451259

Comment: Stage/Vol from C. Montgomery Study

Node: 3071

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.70 ft
Warning Stage: 13.47 ft

Comment:

Node: 3574

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.51 ft

Warning Stage: 13.10 ft

Comment:

Node: 3633

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.64 ft
Warning Stage: 13.31 ft

Comment:

Node: 4623

Scenario: Existing
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.56 ft
Warning Stage: 14.29 ft

Comment:

Node: 5041

Scenario: Existing
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 6.28 ft
Warning Stage: 13.03 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
6.50	0.10	4356
7.50	0.35	15246
8.50	0.79	34412
9.50	1.30	56628
10.50	1.90	82764
11.50	2.58	112385
12.50	3.35	145926
13.50	12.53	545807
15.50	37.54	1635242

Stage [ft]	Volume [ac-ft]	Volume [ft3]
16.50	79.23	3451259

Comment: Stage/Volume from C.Montgomery Study

Node: A

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 0.55 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
0.55	1.5700	68389
1.50	1.6200	70567
2.50	1.8100	78844
3.50	2.0200	87991
4.50	2.1600	94090
5.50	7.0800	308405
6.50	11.8600	516622
7.50	16.7700	730501
8.50	21.5500	938718
9.50	26.4700	1153033
10.50	31.2500	1361250

Comment:

Node: A-OUTFALL

Scenario: Existing
 Type: Time/Stage
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 10.50 ft
 Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.50
0	0	0	120.0000	0.50

Comment: OUTFALL FOR BASIN A

Node: B

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
0.50	3.1000	135036
2.50	3.6000	156816
3.50	4.0900	178160
4.50	6.1500	267894
5.50	16.4200	715255
6.50	20.4500	890802
7.50	30.7200	1338163
8.50	34.3400	1495850
9.50	44.2000	1925352
10.50	47.8200	2083039
11.50	50.9400	2218946

Comment:

Node: C

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 0.00 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
0.00	0.0000	0
10.50	16.9000	736164

Comment:

Node: C-OUT

Scenario: Existing
 Type: Time/Stage
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 3.50 ft
 Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.50
0	0	0	120.0000	0.50

Comment:

Node: D

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 1.00 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
1.00	1.0000	43560
1.50	1.0400	45302
2.50	1.1300	49223
3.50	1.2200	53143
4.50	1.3100	57064
5.50	1.4000	60984
6.50	6.3800	277913
7.50	11.3600	494842
8.50	16.3400	711770
9.50	21.3200	928699
10.50	26.3000	1145628

Comment:

Node: E

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 4.50 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
4.50	0.0000	0
5.00	1.5700	68389
6.00	4.7200	205603
7.00	7.8900	343688
8.00	11.1700	486565
9.00	14.3600	625522
10.00	17.6400	768398
11.00	20.8300	907355
12.00	24.0900	1049360
13.00	27.1500	1182654

Comment:

Node: WEIR

Scenario: Existing
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 4.50 ft
 Warning Stage: 12.39 ft

Comment: Willoughby Creek Weir (to be modified)

Node: Z

Scenario: Existing
 Type: Time/Stage
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 12.39 ft
 Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.50
0	0	0	12.5000	0.50
0	0	0	62.5000	0.50
0	0	0	120.0000	0.50

Comment: Boundary Node

Channel Link: 0000FG

	Upstream	Downstream
Scenario: Existing	Invert: 13.09 ft	Invert: 11.26 ft
From Node: 0000FG	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 0338FG	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 0149	Cross Section: 0149
Flow Direction: Both		
Damping: 0.0000 ft		
Length: 338.00 ft		
Contraction Coef: 0.00		
Expansion Coef: 0.00		
Entr Loss Coef: 0.00		
Exit Loss Coef: 0.00		
Bend Loss Coef: 0.00		
Bend Location: 0.00 ft		
Energy Switch: Energy		

Comment: Fairground Ditch from 00+00 to 03+38

Pipe Link: 0041FG		Upstream	Downstream
Scenario:	Existing	Invert: 12.10 ft	Invert: 13.13 ft
From Node:	0041FG	Manning's N: 0.0120	Manning's N: 0.0120
To Node:	0000FG	Geometry: Circular	Geometry: Circular
Link Count:	2	Max Depth: 2.50 ft	Max Depth: 2.50 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	41.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0120	Manning's N: 0.0120
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0120	Manning's N: 0.0120
Comment: Fairgrounds Ditch -00+41 to 00+00			

Channel Link: 0304A		Upstream	Downstream
Scenario:	Existing	Invert: 0.73 ft	Invert: 0.54 ft
From Node:	0304A	Manning's N: 0.0000	Manning's N: 0.0000
To Node:	WEIR	Geometry: Irregular	Geometry: Irregular
Link Count:	1	Cross Section: 0195	Cross Section: 0195
Flow Direction:	Both		
Damping:	0.0000 ft		
Length:	304.00 ft		
Contraction Coef:	0.00		
Expansion Coef:	0.00		
Entr Loss Coef:	0.00		
Exit Loss Coef:	0.00		
Bend Loss Coef:	0.00		
Bend Location:	0.00 ft		
Energy Switch:	Energy		
Comment: Willoughby Main Ditch 03+04 to weir			

Weir Link: 0304B		Bottom Clip
Scenario:	Existing	Default: 0.00 ft
From Node:	0304B	Op Table:
To Node:	0304A	Ref Node:
Link Count:	1	
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:	8.50 ft	Discharge Coefficients
Control Elevation:	8.50 ft	Weir Default: 3.130

Max Depth: 999.00 ft
 Extrapolation Method: Normal Projection
 Bottom Width: 50.00 ft
 Left Slope: 0.000 (h:v)
 Right Slope: 0.000 (h:v)

Weir Table:
 Orifice Default: 0.060
 Orifice Table:

Comment: OverFlow from Basin 9 to Willoughby Ditch

Pipe Link: 0338FG	Upstream	Downstream
Scenario: Existing	Invert: 11.31 ft	Invert: 10.92 ft
From Node: 0338FG	Manning's N: 0.0120	Manning's N: 0.0120
To Node: 0450FG	Geometry: Circular	Geometry: Circular
Link Count: 2	Max Depth: 3.00 ft	Max Depth: 3.00 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 112.00 ft	Op Table:	Op Table:
FHWA Code: 4	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0120	Manning's N: 0.0120
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0120	Manning's N: 0.0120

Comment: Fairgrounds Ditch 03+38 to 04+50

Pipe Link: 0394	Upstream	Downstream
Scenario: Existing	Invert: -0.24 ft	Invert: -0.46 ft
From Node: 0394	Manning's N: 0.0240	Manning's N: 0.0240
To Node: 0304A	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 6.00 ft	Max Depth: 6.00 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 90.00 ft	Op Table:	Op Table:
FHWA Code: 6	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0240	Manning's N: 0.0240

Comment: Willoughby Main Ditch 03+94 to 03+04 (MODIFIED)

Channel Link: 0450FG	Upstream	Downstream
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Scenario:	Existing	Invert:	10.98 ft	Invert:	10.07 ft
From Node:	0450FG	Manning's N:	0.0000	Manning's N:	0.0000
To Node:	0923AFG	Geometry:	Irregular	Geometry:	Irregular
Link Count:	1	Cross Section:	0739	Cross Section:	0739
Flow Direction:	Both				
Damping:	0.0000 ft				
Length:	473.00 ft				
Contraction Coef:	0.00				
Expansion Coef:	0.00				
Entr Loss Coef:	0.00				
Exit Loss Coef:	0.00				
Bend Loss Coef:	0.00				
Bend Location:	0.00 ft				
Energy Switch:	Energy				

Comment: Fairground Ditch from 04+50 to 09+23

Channel Link: 0923AFG		Upstream	Downstream		
Scenario:	Existing	Invert:	10.07 ft	Invert:	4.81 ft
From Node:	0923AFG	Manning's N:	0.0000	Manning's N:	0.0000
To Node:	2959A	Geometry:	Irregular	Geometry:	Irregular
Link Count:	1	Cross Section:	1653	Cross Section:	1653
Flow Direction:	Both				
Damping:	0.0000 ft				
Length:	1177.00 ft				
Contraction Coef:	0.00				
Expansion Coef:	0.00				
Entr Loss Coef:	0.00				
Exit Loss Coef:	0.00				
Bend Loss Coef:	0.00				
Bend Location:	0.00 ft				
Energy Switch:	Energy				

Comment: Fairground Ditch from 09+23 to 21+00 (EOD)

Pipe Link: 0923BFG		Upstream	Downstream		
Scenario:	Existing	Invert:	12.01 ft	Invert:	11.53 ft
From Node:	0923BFG	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	0923AFG	Geometry:	Circular	Geometry:	Circular
Link Count:	1	Max Depth:	3.00 ft	Max Depth:	3.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	30.00 ft	Op Table:		Op Table:	
FHWA Code:	6	Ref Node:		Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0240	Manning's N:	0.0240
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft

Bend Location: 0.00 ft
Energy Switch: Energy

Op Table:
Ref Node:
Manning's N: 0.0240

Op Table:
Ref Node:
Manning's N: 0.0240

Comment: Culvert from Bus lot

Channel Link: 1369A	Upstream	Downstream
Scenario: Existing	Invert: 2.33 ft	Invert: 0.93 ft
From Node: 1369A	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 0394	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 0565	Cross Section: 0565
Flow Direction: Both		
Damping: 0.0000 ft		
Length: 975.00 ft		
Contraction Coef: 0.00		
Expansion Coef: 0.00		
Entr Loss Coef: 0.00		
Exit Loss Coef: 0.00		
Bend Loss Coef: 0.00		
Bend Location: 0.00 ft		
Energy Switch: Energy		

Comment: Willoughby Main Ditch 13+69 to 03+94

Channel Link: 1369B	Upstream	Downstream
Scenario: Existing	Invert: 2.33 ft	Invert: 2.33 ft
From Node: 1369B	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 1369A	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 1503	Cross Section: 1503
Flow Direction: Both		
Damping: 0.0000 ft		
Length: 500.00 ft		
Contraction Coef: 0.00		
Expansion Coef: 0.00		
Entr Loss Coef: 0.00		
Exit Loss Coef: 0.00		
Bend Loss Coef: 0.00		
Bend Location: 0.00 ft		
Energy Switch: Energy		

Comment: North/South Ditch connecting Basin 7 to Ditch

Drop Structure Link: 1369C	Upstream Pipe	Downstream Pipe
Scenario: Existing	Invert: 4.91 ft	Invert: 4.47 ft
From Node: 1369C	Manning's N: 0.0120	Manning's N: 0.0120

To Node:	1468B	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	1.25 ft	Max Depth:	1.25 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Split	Default:	0.00 ft	Default:	0.00 ft
Pipe Count:	1	Op Table:		Op Table:	
Damping:	0.0000 ft	Ref Node:		Ref Node:	
Length:	60.00 ft	Manning's N:	0.0000	Manning's N:	0.0000
FHWA Code:	6	Top Clip			
Entr Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Exit Loss Coef:	0.00	Op Table:		Op Table:	
Bend Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Location:	0.00 ft	Manning's N:	0.0000	Manning's N:	0.0000
Energy Switch:	Energy				
Pipe Comment:					

Weir Component		
Weir:	1	Bottom Clip
Weir Count:	1	Default: 0.00 ft
Weir Flow Direction:	Both	Op Table:
Damping:	0.0000 ft	Ref Node:
Weir Type:	Sharp Crested Vertical	Top Clip
Geometry Type:	Circular	Default: 0.00 ft
Invert:	8.16 ft	Op Table:
Control Elevation:	8.16 ft	Ref Node:
Max Depth:	2.00 ft	Discharge Coefficients
		Weir Default: 3.200
		Weir Table:
		Orifice Default: 0.600
		Orifice Table:

Weir Comment:

Drop Structure Comment:

Weir Link: 1369D			
Scenario:	Existing	Bottom Clip	
From Node:	1369D	Default:	0.00 ft
To Node:	1369A	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:	Irregular	Ref Node:	
Invert:	9.50 ft	Discharge Coefficients	
Control Elevation:	5.59 ft	Weir Default:	3.200
Cross Section:	1369D	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Pipe Link: 1468A	Upstream	Downstream
Scenario: Existing	Invert: 4.05 ft	Invert: 2.31 ft
From Node: 1468A	Manning's N: 0.0240	Manning's N: 0.0240
To Node: 1369A	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 6.00 ft	Max Depth: 6.00 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 100.00 ft	Op Table:	Op Table:
FHWA Code: 6	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0240	Manning's N: 0.0240

Comment: Willoughby Main Ditch 14+68 to 13+69

Weir Link: 1468BW	
Scenario: Existing	Bottom Clip
From Node: 1468B	Default: 0.00 ft
To Node: 1468A	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: 10.50 ft	Discharge Coefficients
Control Elevation: 5.59 ft	Weir Default: 3.200
Max Depth: 9999.00 ft	Weir Table:
Extrapolation Method: Normal Projection	Orifice Default: 0.600
Bottom Width: 10.00 ft	Orifice Table:
Left Slope: 20.000 (h:v)	
Right Slope: 20.000 (h:v)	

Comment: OVERFLOW FROM BASIN 8 TO W. CREEK
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Channel Link: 1784A	Upstream	Downstream
Scenario: Existing	Invert: 2.57 ft	Invert: 4.07 ft
From Node: 1784A	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 1468A	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 1503	Cross Section: 1503

Flow Direction: Both
 Damping: 0.0000 ft
 Length: 315.00 ft
 Contraction Coef: 0.00
 Expansion Coef: 0.00
 Entr Loss Coef: 0.00
 Exit Loss Coef: 0.00
 Bend Loss Coef: 0.00
 Bend Location: 0.00 ft
 Energy Switch: Energy

Comment: Willoughby Main Ditch 17+84 to 14+68

Pipe Link: 1784B	Upstream	Downstream
Scenario: Existing	Invert: 9.28 ft	Invert: 7.50 ft
From Node: 1784B	Manning's N: 0.0090	Manning's N: 0.0090
To Node: 1784A	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 0.50 ft	Max Depth: 0.50 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 362.00 ft	Op Table:	Op Table:
FHWA Code: 6	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0090	Manning's N: 0.0090
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0090	Manning's N: 0.0090

Comment: Flow from Basin 6 to Willoughby Ditch

Weir Link: 1784BW		
Scenario:	Existing	Bottom Clip
From Node:	1784B	Default: 0.00 ft
To Node:	1784A	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:	11.00 ft	Discharge Coefficients
Control Elevation:	7.50 ft	Weir Default: 3.200
Max Depth:	9999.00 ft	Weir Table:
Extrapolation Method:	Normal Projection	Orifice Default: 0.600
Bottom Width:	10.00 ft	Orifice Table:
Left Slope:	20.000 (h:v)	
Right Slope:	20.000 (h:v)	

Comment: OVERLAND FLOW FROM BASIN 6 TO W. CREEK

Pipe Link: 1860A	Upstream	Downstream
Scenario: Existing	Invert: 2.63 ft	Invert: 2.55 ft
From Node: 1860A	Manning's N: 0.0240	Manning's N: 0.0240
To Node: 1784A	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 6.00 ft	Max Depth: 6.00 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 77.00 ft	Op Table:	Op Table:
FHWA Code: 6	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0240	Manning's N: 0.0240

Comment: Willoughby Main Ditch 18+60 to 17+84

Weir Link: 1860B	
Scenario: Existing	Bottom Clip
From Node: 1860B	Default: 0.00 ft
To Node: 1860A	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: Irregular	Ref Node:
Invert: 11.50 ft	Discharge Coefficients
Control Elevation: 7.47 ft	Weir Default: 3.130
Cross Section: 1860B	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Comment: Overflow to Willoughby Ditch from Basin 5

Weir Link: 1860C	
Scenario: Existing	Bottom Clip
From Node: 1860C	Default: 0.00 ft
To Node: 1860A	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
 Geometry Type: Irregular
 Invert: 13.50 ft
 Control Elevation: 7.47 ft
 Cross Section: 1860C

Op Table:
 Ref Node:
 Discharge Coefficients
 Weir Default: 3.130
 Weir Table:
 Orifice Default: 0.600
 Orifice Table:

Comment: Willoughby Creek Weir

Channel Link: 2959A		Upstream	Downstream
Scenario:	Existing	Invert: 4.83 ft	Invert: 2.65 ft
From Node:	2959A	Manning's N: 0.0000	Manning's N: 0.0000
To Node:	1860A	Geometry: Irregular	Geometry: Irregular
Link Count:	1	Cross Section: 2885	Cross Section: 2885
Flow Direction:	Both		
Damping:	0.0000 ft		
Length:	1099.00 ft		
Contraction Coef:	0.00		
Expansion Coef:	0.00		
Entr Loss Coef:	0.00		
Exit Loss Coef:	0.00		
Bend Loss Coef:	0.00		
Bend Location:	0.00 ft		
Energy Switch:	Energy		

Comment: Willoughby Main Ditch 29+59 to 18+60

Pipe Link: 2959B		Upstream	Downstream
Scenario:	Existing	Invert: 6.81 ft	Invert: 6.41 ft
From Node:	2959B	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	2959A	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction:	None	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	180.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0240	Manning's N: 0.0240

Comment: Pipe from Jet Center (omitted directly into a)

Pipe Link: 2959C		Upstream	Downstream
Scenario:	Existing	Invert: 8.35 ft	Invert: 8.69 ft
From Node:	2959C	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	2959A	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	77.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0240	Manning's N: 0.0240
Comment: Basin 3 inflow			

Pipe Link: 3071		Upstream	Downstream
Scenario:	Existing	Invert: 6.70 ft	Invert: 4.65 ft
From Node:	3071	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	2959A	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 4.00 ft	Max Depth: 4.00 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	112.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0240	Manning's N: 0.0240
Comment: Willoughby Main Ditch 30+71 to 29+59			

Channel Link: 3574		Upstream	Downstream
Scenario:	Existing	Invert: 5.51 ft	Invert: 5.70 ft
From Node:	3574	Manning's N: 0.0000	Manning's N: 0.0000
To Node:	3071	Geometry: Irregular	Geometry: Irregular
Link Count:	1	Cross Section: 3272	Cross Section: 3272
Flow Direction:	Both		
Damping:	0.0000 ft		
Length:	503.00 ft		
Contraction Coef:	0.00		
Expansion Coef:	0.00		
Entr Loss Coef:	0.00		

Exit Loss Coef: 0.00
 Bend Loss Coef: 0.00
 Bend Location: 0.00 ft
 Energy Switch: Energy

Comment: Willoughby Main Ditch 35+74 to 30+71

Pipe Link: 3633	Upstream	Downstream
Scenario: Existing	Invert: 5.39 ft	Invert: 5.34 ft
From Node: 3633	Manning's N: 0.0240	Manning's N: 0.0240
To Node: 3574	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 4.00 ft	Max Depth: 4.00 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 60.00 ft	Op Table:	Op Table:
FHWA Code: 4	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0240	Manning's N: 0.0240

Comment: Willoughby Main Ditch 36+33 to 35+74

Channel Link: 4623	Upstream	Downstream
Scenario: Existing	Invert: 5.56 ft	Invert: 5.64 ft
From Node: 4623	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 3633	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 4230	Cross Section: 4230
Flow Direction: Both		
Damping: 0.0000 ft		
Length: 990.00 ft		
Contraction Coef: 0.00		
Expansion Coef: 0.00		
Entr Loss Coef: 0.00		
Exit Loss Coef: 0.00		
Bend Loss Coef: 0.00		
Bend Location: 0.00 ft		
Energy Switch: Energy		

Comment: Willoughby Main Ditch 46+23 to 36+33

Pipe Link: 5041	Upstream	Downstream
Scenario: Existing	Invert: 6.28 ft	Invert: 5.56 ft

From Node:	5041	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	4623	Geometry:	Circular	Geometry:	Circular
Link Count:	1	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	420.00 ft	Op Table:		Op Table:	
FHWA Code:	4	Ref Node:		Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0240	Manning's N:	0.0240
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0240	Manning's N:	0.0240
Comment: Willoughby Main Ditch 50+41 to 46+23					

Weir Link: BLEED			
Scenario:	Existing	Bottom Clip	
From Node:	WEIR	Default:	0.00 ft
To Node:	Z	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Sharp Crested Vertical	Op Table:	
Geometry Type:	Circular	Ref Node:	
Invert:	4.50 ft	Discharge Coefficients	
Control Elevation:	4.50 ft	Weir Default:	3.130
Max Depth:	0.25 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Pipe Link: C-OUT-PIPE					
		Upstream		Downstream	
Scenario:	Existing	Invert:	-0.46 ft	Invert:	-0.63 ft
From Node:	C	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C-OUT	Geometry:	Circular	Geometry:	Circular
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	623.00 ft	Op Table:		Op Table:	
FHWA Code:	6	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0240	Manning's N:	0.0240
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	

Manning's N: 0.0240

Manning's N: 0.0240

Comment:

Drop Structure Link: DROP-08		Upstream Pipe	Downstream Pipe
Scenario:	Existing	Invert: 5.59 ft	Invert: 5.59 ft
From Node:	1468B	Manning's N: 0.0090	Manning's N: 0.0090
To Node:	1468A	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 0.50 ft	Max Depth: 0.50 ft
Flow Direction:	Both	Bottom Clip	
Solution:	Split	Default: 0.00 ft	Default: 0.00 ft
Pipe Count:	1	Op Table:	Op Table:
Damping:	0.0000 ft	Ref Node:	Ref Node:
Length:	193.00 ft	Manning's N: 0.0090	Manning's N: 0.0090
FHWA Code:	6	Top Clip	
Entr Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Exit Loss Coef:	0.00	Op Table:	Op Table:
Bend Loss Coef:	0.00	Ref Node:	Ref Node:
Bend Location:	0.00 ft	Manning's N: 0.0090	Manning's N: 0.0090
Energy Switch:	Energy		

Pipe Comment:

Weir Component	
Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Horizontal
Geometry Type:	Circular
Invert:	5.59 ft
Control Elevation:	5.59 ft
Max Depth:	0.48 ft
Bottom Clip	
Default: 0.00 ft	
Op Table:	
Ref Node:	
Top Clip	
Default: 0.00 ft	
Op Table:	
Ref Node:	
Discharge Coefficients	
Weir Default: 3.200	
Weir Table:	
Orifice Default: 0.600	
Orifice Table:	

Weir Comment:

Drop Structure Comment:

Drop Structure Link: DROP-A		Upstream Pipe	Downstream Pipe
Scenario:	Existing	Invert: -0.04 ft	Invert: 0.59 ft
From Node:	A	Manning's N: 0.0100	Manning's N: 0.0100
To Node:	A-OUTFALL	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction:	Both	Bottom Clip	

Solution:	Split	Default:	0.00 ft	Default:	0.00 ft
Pipe Count:	1	Op Table:		Op Table:	
Damping:	0.0000 ft	Ref Node:		Ref Node:	
Length:	36.00 ft	Manning's N:	0.0100	Manning's N:	0.0100
FHWA Code:	6	Top Clip			
Entr Loss Coef:	0.50	Default:	0.00 ft	Default:	0.00 ft
Exit Loss Coef:	0.00	Op Table:		Op Table:	
Bend Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Location:	0.00 ft	Manning's N:	0.0100	Manning's N:	0.0100
Energy Switch:	Energy				
Pipe Comment:					

Weir Component		
Weir: 1	Bottom Clip	
Weir Count: 1	Default:	0.00 ft
Weir Flow Direction: Both	Op Table:	
Damping: 0.0000 ft	Ref Node:	
Weir Type: Sharp Crested Vertical	Top Clip	
Geometry Type: Circular	Default:	0.00 ft
Invert: 1.04 ft	Op Table:	
Control Elevation: 1.04 ft	Ref Node:	
Max Depth: 0.42 ft	Discharge Coefficients	
	Weir Default:	3.130
	Weir Table:	
	Orifice Default:	0.600
	Orifice Table:	
Weir Comment:		

Weir Component			
Weir:	2	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	2.50 ft	Op Table:	
Control Elevation:	2.50 ft	Ref Node:	
Max Depth:	8.25 ft	Discharge Coefficients	
Max Width:	2.00 ft	Weir Default:	3.130
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	
Weir Comment:			

Drop Structure Comment:

Drop Structure Link: DROP-B	Upstream Pipe	Downstream Pipe
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Scenario:	Existing	Invert:	0.40 ft	Invert:	-0.30 ft
From Node:	B	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C	Geometry:	Circular	Geometry:	Circular
Link Count:	1	Max Depth:	1.00 ft	Max Depth:	1.00 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Split	Default:	0.00 ft	Default:	0.00 ft
Pipe Count:	1	Op Table:		Op Table:	
Damping:	0.0000 ft	Ref Node:		Ref Node:	
Length:	389.00 ft	Manning's N:	0.0240	Manning's N:	0.0240
FHWA Code:	4	Top Clip			
Entr Loss Coef:	0.50	Default:	0.00 ft	Default:	0.00 ft
Exit Loss Coef:	0.00	Op Table:		Op Table:	
Bend Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Location:	0.00 ft	Manning's N:	0.0240	Manning's N:	0.0240
Energy Switch:	Energy				

Pipe Comment:

Weir Component	
Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Circular
Invert:	0.50 ft
Control Elevation:	0.50 ft
Max Depth:	0.52 ft
Bottom Clip	
Default: 0.00 ft	
Op Table:	
Ref Node:	
Top Clip	
Default: 0.00 ft	
Op Table:	
Ref Node:	
Discharge Coefficients	
Weir Default: 3.130	
Weir Table:	
Orifice Default: 0.600	
Orifice Table:	

Weir Comment:

Weir Component	
Weir:	2
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Rectangular
Invert:	1.75 ft
Control Elevation:	1.75 ft
Max Depth:	8.25 ft
Max Width:	1.00 ft
Fillet:	0.00 ft
Bottom Clip	
Default: 0.00 ft	
Op Table:	
Ref Node:	
Top Clip	
Default: 0.00 ft	
Op Table:	
Ref Node:	
Discharge Coefficients	
Weir Default: 3.130	
Weir Table:	
Orifice Default: 0.600	
Orifice Table:	

Weir Comment:

Drop Structure Comment:

Drop Structure Link: DROP-D		Upstream Pipe	Downstream Pipe
Scenario:	Existing	Invert: 0.73 ft	Invert: 0.50 ft
From Node:	D	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	C	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction:	Both	Bottom Clip	
Solution:	Split	Default: 0.00 ft	Default: 0.00 ft
Pipe Count:	1	Op Table:	Op Table:
Damping:	0.0000 ft	Ref Node:	Ref Node:
Length:	110.00 ft	Manning's N: 0.0240	Manning's N: 0.0240
FHWA Code:	4	Top Clip	
Entr Loss Coef:	0.50	Default: 0.00 ft	Default: 0.00 ft
Exit Loss Coef:	0.00	Op Table:	Op Table:
Bend Loss Coef:	0.00	Ref Node:	Ref Node:
Bend Location:	0.00 ft	Manning's N: 0.0240	Manning's N: 0.0240
Energy Switch:	Energy		
Pipe Comment:			

Weir Component		Bottom Clip
Weir:	1	Default: 0.00 ft
Weir Count:	1	Op Table:
Weir Flow Direction:	Both	Ref Node:
Damping:	0.0000 ft	Top Clip
Weir Type:	Sharp Crested Vertical	Default: 0.00 ft
Geometry Type:	Circular	Op Table:
Invert:	1.00 ft	Ref Node:
Control Elevation:	1.00 ft	Discharge Coefficients
Max Depth:	0.42 ft	Weir Default: 3.130
		Weir Table:
		Orifice Default: 0.600
		Orifice Table:

Weir Comment:

Weir Component		Bottom Clip
Weir:	2	Default: 0.00 ft
Weir Count:	1	Op Table:
Weir Flow Direction:	Both	Ref Node:
Damping:	0.0000 ft	Top Clip
Weir Type:	Sharp Crested Vertical	Default: 0.00 ft
Geometry Type:	Rectangular	Op Table:
Invert:	3.00 ft	Ref Node:
Control Elevation:	3.00 ft	Discharge Coefficients
Max Depth:	8.25 ft	Weir Default: 3.130
Max Width:	2.00 ft	Weir Table:
Fillet:	0.00 ft	Orifice Default: 0.600
		Orifice Table:

Weir Comment:

Drop Structure Comment:

Weir Link: WEIR OVERFLOW

Scenario:	Existing	Bottom Clip
From Node:	WEIR	Default: 0.00 ft
To Node:	Z	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:	Irregular	Ref Node:
Invert:	6.50 ft	Discharge Coefficients
Control Elevation:	6.50 ft	Weir Default: 3.200
Cross Section:	WEIR	Weir Table:
		Orifice Default: 0.600
		Orifice Table:

Comment:

Weir Link: WEIR-E

Scenario:	Existing	Bottom Clip
From Node:	E	Default: 0.00 ft
To Node:	z	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:	5.50 ft	Discharge Coefficients
Control Elevation:	4.50 ft	Weir Default: 3.200
Max Depth:	9999.00 ft	Weir Table:
Extrapolation Method:	Normal Projection	Orifice Default: 0.600
Bottom Width:	175.00 ft	Orifice Table:
Left Slope:	0.100 (h:v)	
Right Slope:	0.100 (h:v)	

Comment: OVERLAND FLOW FROM NODE E TO W. CREEK

Weir Link: Weir-B

Scenario:	Existing	Bottom Clip
From Node:	B	Default: 0.00 ft
To Node:	C	Op Table:
Link Count:	1	Ref Node:
Flow Direction:	Both	Top Clip

Damping: 0.0000 ft
 Weir Type: Broad Crested Vertical
 Geometry Type: Irregular
 Invert: 4.00 ft
 Control Elevation: 1.54 ft
 Cross Section: B

Default: 0.00 ft
 Op Table:
 Ref Node:
 Discharge Coefficients
 Weir Default: 3.200
 Weir Table:
 Orifice Default: 0.600
 Orifice Table:

Comment: Overflow from node-b to node-c.

Weir Link: Weir-D

Scenario: Existing
 From Node: D
 To Node: C
 Link Count: 1
 Flow Direction: Both
 Damping: 0.0000 ft
 Weir Type: Broad Crested Vertical
 Geometry Type: Trapezoidal
 Invert: 5.50 ft
 Control Elevation: 1.28 ft
 Max Depth: 9999.00 ft
 Extrapolation Method: Normal Projection
 Bottom Width: 440.00 ft
 Left Slope: 0.300 (h:v)
 Right Slope: 0.300 (h:v)

Bottom Clip
 Default: 0.00 ft
 Op Table:
 Ref Node:
 Top Clip
 Default: 0.00 ft
 Op Table:
 Ref Node:
 Discharge Coefficients
 Weir Default: 3.200
 Weir Table:
 Orifice Default: 0.600
 Orifice Table:

Comment: Overflow from node-d to node-c

Simulation: 010Y1D

Scenario: Existing
 Run Date/Time: 11/2/2017 8:13:47 AM
 Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		60.0000	

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	60.0000
0	0	0	8.0000	30.0000
0	0	0	10.0000	15.0000
0	0	0	12.0000	5.0000
0	0	0	14.0000	15.0000
0	0	0	16.0000	30.0000
0	0	0	24.0000	30.0000
0	0	0	36.0000	30.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: ICPR3
Reference ET Folder:
Unit Hydrograph ICPR3
Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set: 10Y1DQ
Curve Number Set: ICPR3

Green-Ampt Set: ICPR3
Vertical Layers Set:
Impervious Set: ICPR3
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec
Fact:

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False

dZ Tolerance: 0.0010 ft	Manual Basin Rain Opt: Global
Max dZ: 1.0000 ft	OF Region Rain Opt: Region Specification
Link Optimizer Tol: 0.0001 ft	Rainfall Name: FLMOD
	Rainfall Amount: 6.50 in
Edge Length Option: Automatic	Storm Duration: 24.0000 hr
Dflt Damping (2D): 0.0050 ft	Dflt Damping (1D): 0.0050 ft
Min Node Srf Area 1 ft2	Min Node Srf Area 113 ft2
(2D):	(1D):
Energy Switch (2D): Energy	Energy Switch (1D): Energy

Comment: Willoughby Creek Weir Through M.C. Golf Course
 Analyzed: 10-year, 1-day (El. 8.0')
 (02/05)

Willoughby Creek Weir Through M.C. Golf Course
 Analyzed: 10-year, 1-day (El. 8.0')
 (02/05)

Simulation: 025Y3D

Scenario: Existing
 Run Date/Time: 11/2/2017 8:15:33 AM
 Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		60.0000	

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	60.0000

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	48.0000	30.0000
0	0	0	56.0000	15.0000
0	0	0	60.0000	5.0000
0	0	0	70.0000	15.0000
0	0	0	76.0000	60.0000
0	0	0	90.0000	120.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: ICPR3
Reference ET Folder:
Unit Hydrograph ICPR3
Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set: 25Y3DQ
Curve Number Set: ICPR3

Green-Ampt Set: ICPR3
Vertical Layers Set:
Impervious Set: ICPR3
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR	IA Recovery Time: 24.0000 hr
Max Iterations: 6	ET for Manual Basins: False
Over-Relax Weight: 0.5 dec	
Fact:	
dZ Tolerance: 0.0010 ft	Manual Basin Rain Opt: Global
Max dZ: 1.0000 ft	OF Region Rain Opt: Region Specification
Link Optimizer Tol: 0.0001 ft	Rainfall Name: SFWMD72
	Rainfall Amount: 11.60 in
Edge Length Option: Automatic	Storm Duration: 72.0000 hr
Dflt Damping (2D): 0.0050 ft	Dflt Damping (1D): 0.0050 ft
Min Node Srf Area: 1 ft2	Min Node Srf Area: 113 ft2
(2D):	(1D):
Energy Switch (2D): Energy	Energy Switch (1D): Energy

Comment: Willoughby Creek Weir Through M.C. Golf Course

Analyzed: 25-year, 3-day (El. 8.0')
(02/05)

Willoughby Creek Weir Through M.C. Golf Course
Analyzed: 25-year, 3-day (El. 8.0')
(02/05)

Simulation: 100Y3D

Scenario: Existing
Run Date/Time: 11/2/2017 8:17:08 AM
Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000
	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]	
Min Calculation Time:	60.0000	0.1000	900.0000	
Max Calculation Time:		60.0000		

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	60.0000
0	0	0	48.0000	30.0000
0	0	0	56.0000	15.0000
0	0	0	60.0000	5.0000
0	0	0	70.0000	15.0000
0	0	0	76.0000	60.0000
0	0	0	90.0000	120.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: ICPR3
 Reference ET Folder:
 Unit Hydrograph ICPR3
 Folder:

Lookup Tables

Boundary Stage Set:
 Extern Hydrograph Set: 100Y3DQ
 Curve Number Set: ICPR3

 Green-Ampt Set: ICPR3
 Vertical Layers Set:
 Impervious Set: ICPR3
 Roughness Set:
 Crop Coef Set:
 Fillable Porosity Set:
 Conductivity Set:
 Leakage Set:

Tolerances & Options

Time Marching: SAOR	IA Recovery Time: 24.0000 hr
Max Iterations: 6	ET for Manual Basins: False
Over-Relax Weight 0.5 dec	
Fact:	
dZ Tolerance: 0.0010 ft	Manual Basin Rain Opt: Global
Max dZ: 1.0000 ft	OF Region Rain Opt: Region Specification
Link Optimizer Tol: 0.0001 ft	Rainfall Name: SFWMD72
	Rainfall Amount: 13.60 in
Edge Length Option: Automatic	Storm Duration: 72.0000 hr
Dflt Damping (2D): 0.0050 ft	Dflt Damping (1D): 0.0050 ft
Min Node Srf Area 1 ft2	Min Node Srf Area 113 ft2
(2D):	(1D):
Energy Switch (2D): Energy	Energy Switch (1D): Energy

Comment: Willoughby Creek Weir Through M.C. Golf Course

Analyzed: 100-year, 3-day (El. 8.0')
 (02/05)

Willoughby Creek Weir Through M.C. Golf Course
 Analyzed: 100-year, 3-day (El. 8.0')
 (02/05)

**Willoughby Creek
Stormwater Quality Retrofit
Improvement Project
Project No. 1477.27**

ATTACHMENT 2

ICPR Existing Max Conditions Report



Node Max Conditions [Existing]

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]
0000FG	010Y1D	16.04	14.20	0.0002	20.47	20.48	1997
0000FG	025Y3D	16.04	14.55	0.0004	33.71	33.71	2308
0000FG	100Y3D	16.04	14.70	0.0003	39.93	39.93	2437

Node Max Conditions [Existing]

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]
0041FG	010Y1D	16.04	14.57	0.0010	83.25	20.47	1765897
0041FG	025Y3D	16.04	14.99	0.0010	123.58	33.71	2430385
0041FG	100Y3D	16.04	15.14	0.0010	145.87	39.93	2679509

Node Max Conditions [Existing]

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]
0304A	010Y1D	11.60	7.46	0.0010	84.08	84.08	6383
0304A	025Y3D	11.60	7.69	0.0010	114.75	114.76	6547
0304A	100Y3D	11.60	7.79	0.0010	129.15	129.14	6620

Node Max Conditions [Existing]

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]
0304B	010Y1D	16.50	8.58	0.0001	3.58	3.58	3440
0304B	025Y3D	16.50	8.67	0.0002	11.21	11.16	7343
0304B	100Y3D	16.50	8.70	0.0002	14.26	14.21	8622

Node Max Conditions [Existing]

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]
0338FG	010Y1D	16.23	13.31	0.0010	20.48	28.80	2599
0338FG	025Y3D	16.23	13.79	0.0010	33.71	33.78	2901
0338FG	100Y3D	16.23	14.00	0.0009	39.93	39.94	2987

Node Max Conditions [Existing]

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]
0394	010Y1D	10.81	7.58	0.0010	83.64	83.63	19816
0394	025Y3D	10.81	7.91	0.0008	113.95	113.96	20669
0394	100Y3D	10.81	8.08	0.0009	128.11	128.12	21072

Node Max Conditions [Existing]

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]
0450FG	010Y1D	16.04	13.30	0.0010	28.80	20.51	2122
0450FG	025Y3D	16.04	13.76	0.0010	33.78	33.71	2257
0450FG	100Y3D	16.04	13.94	0.0010	39.94	39.93	2257

Node Max Conditions [Existing]

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]
0923AFG	010Y1D	15.08	11.07	0.0002	24.25	24.00	10722
0923AFG	025Y3D	15.08	11.51	0.0002	41.69	41.50	12057
0923AFG	100Y3D	15.08	11.69	0.0002	49.89	49.70	12596

Node Max Conditions [Existing]

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]
0923BFG	010Y1D	15.08	14.16	0.0008	28.50	19.30	46685
0923BFG	025Y3D	15.08	14.57	0.0010	39.88	25.20	103741
0923BFG	100Y3D	15.08	14.72	0.0010	46.92	27.27	179969

Node Max Conditions [Existing]

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]
1369A	010Y1D	11.38	7.96	0.0010	104.75	83.73	43326
1369A	025Y3D	11.38	8.41	0.0007	114.29	114.00	46692
1369A	100Y3D	11.38	8.62	0.0008	128.47	128.18	48228

Node Max Conditions [Existing]

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]
1369B	010Y1D	11.38	7.96	0.0010	10.84	2.09	24516
1369B	025Y3D	11.38	8.41	0.0007	3.91	1.77	27008
1369B	100Y3D	11.38	8.62	0.0008	6.01	1.60	28139

Node Max Conditions [Existing]

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]
1369C	010Y1D	16.50	12.37	0.0036	54.45	12.86	456513
1369C	025Y3D	16.50	13.44	0.0010	79.73	13.83	479816
1369C	100Y3D	16.50	13.89	0.0010	94.18	14.22	759081

Node Max Conditions [Existing]

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]
1369D	010Y1D	16.50	8.77	0.0005	8.22	0.00	95936
1369D	025Y3D	16.50	9.51	0.0003	25.69	1.90	152383
1369D	100Y3D	16.50	9.52	0.0003	32.70	11.80	153370

Node Max Conditions [Existing]

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]
1468A	010Y1D	11.38	7.99	0.0010	84.54	103.78	11702
1468A	025Y3D	11.38	8.54	0.0010	113.31	113.18	13249
1468A	100Y3D	11.38	8.81	0.0010	126.22	126.06	14023

Node Max Conditions [Existing]

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]
1468B	010Y1D	16.50	9.65	0.0004	38.45	0.82	555486
1468B	025Y3D	16.50	10.79	0.0004	86.53	8.40	763151
1468B	100Y3D	16.50	10.86	0.0004	107.81	11.76	774605

Node Max Conditions [Existing]

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]
1784A	010Y1D	11.94	8.12	0.0010	84.87	84.54	13936
1784A	025Y3D	11.94	8.68	0.0010	112.98	112.77	15698
1784A	100Y3D	11.94	8.95	0.0010	125.88	125.65	16633

Node Max Conditions [Existing]

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]
1784B	010Y1D	16.50	8.73	0.0005	12.87	0.00	146672
1784B	025Y3D	16.50	9.66	0.0003	38.69	0.24	249174
1784B	100Y3D	16.50	9.93	0.0003	49.07	0.51	279638

Node Max Conditions [Existing]

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]
1860A	010Y1D	12.02	8.21	0.0010	85.61	84.87	20780
1860A	025Y3D	12.02	8.86	0.0009	113.39	112.92	22213
1860A	100Y3D	12.02	9.18	0.0009	126.03	125.56	22952

Node Max Conditions [Existing]

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]
1860B	010Y1D	16.50	8.73	0.0005	20.45	0.00	232377
1860B	025Y3D	16.50	9.68	0.0003	61.47	0.00	399448
1860B	100Y3D	16.50	10.00	0.0003	77.96	0.00	454336

Node Max Conditions [Existing]

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]
1860C	010Y1D	14.50	8.82	0.0006	5.78	0.00	66186
1860C	025Y3D	14.50	9.77	0.0003	17.37	0.00	113942
1860C	100Y3D	14.50	10.08	0.0003	22.03	0.00	129536

Node Max Conditions [Existing]

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]
2959A	010Y1D	13.57	9.52	0.0010	86.43	85.61	33234
2959A	025Y3D	13.57	10.14	0.0006	113.94	113.39	36254
2959A	100Y3D	13.57	10.41	0.0008	126.79	126.03	47308

Node Max Conditions [Existing]

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]
2959B	010Y1D	13.57	4.83	0.0000	0.00	0.00	0
2959B	025Y3D	13.57	4.83	0.0000	0.00	0.00	0
2959B	100Y3D	13.57	4.83	0.0000	0.00	0.00	0

Node Max Conditions [Existing]

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]
2959C	010Y1D	15.08	11.75	0.0009	23.75	15.12	78025
2959C	025Y3D	15.08	12.61	0.0010	43.89	20.04	277198
2959C	100Y3D	15.08	12.84	0.0010	53.00	21.51	397660

Node Max Conditions [Existing]

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]
3071	010Y1D	13.47	9.86	0.0010	47.68	47.26	10370
3071	025Y3D	13.47	10.60	0.0009	51.97	52.01	11020
3071	100Y3D	13.47	10.93	0.0009	53.48	53.59	11354

Node Max Conditions [Existing]

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]
3574	010Y1D	13.10	10.01	0.0010	48.37	47.68	10443
3574	025Y3D	13.10	10.69	0.0008	51.97	51.97	11163
3574	100Y3D	13.10	11.00	0.0009	53.40	53.48	11488

Node Max Conditions [Existing]

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]
3633	010Y1D	13.31	10.23	0.0010	49.40	48.37	15030
3633	025Y3D	13.31	10.96	0.0009	52.50	51.97	16438
3633	100Y3D	13.31	11.28	0.0010	53.51	53.40	17070

Node Max Conditions [Existing]

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]
4623	010Y1D	14.29	10.51	0.0009	50.89	49.40	15400
4623	025Y3D	14.29	11.14	0.0008	54.34	52.50	16712
4623	100Y3D	14.29	11.43	0.0008	55.58	53.51	17312

Node Max Conditions [Existing]

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]
5041	010Y1D	13.03	12.17	0.0010	80.16	50.89	156370
5041	025Y3D	13.03	13.05	0.0010	117.07	54.34	356457
5041	100Y3D	13.03	13.42	0.0010	138.28	55.58	452429

Node Max Conditions [Existing]

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]
A	010Y1D	16.50	2.97	0.0005	21.91	2.87	83185
A	025Y3D	16.50	4.82	0.0009	55.15	20.43	162314
A	100Y3D	16.50	5.25	0.0010	68.97	23.26	254328

Node Max Conditions [Existing]

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]
A-OUTFALL	010Y1D	10.50	0.50	0.0000	2.87	0.00	0
A-OUTFALL	025Y3D	10.50	0.50	0.0000	20.43	0.00	0
A-OUTFALL	100Y3D	10.50	0.50	0.0000	23.26	0.00	0

Node Max Conditions [Existing]

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]
B	010Y1D	16.50	2.41	0.0003	29.72	1.02	155812
B	025Y3D	16.50	4.37	0.0009	84.09	17.06	255948
B	100Y3D	16.50	5.01	0.0008	106.33	44.52	496678

Node Max Conditions [Existing]

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]
C	010Y1D	16.50	1.62	0.0010	35.36	4.51	114685
C	025Y3D	16.50	4.36	0.0010	96.48	7.76	306165
C	100Y3D	16.50	5.01	0.0010	126.25	8.38	351396

Node Max Conditions [Existing]

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]
C-OUT	010Y1D	3.50	0.50	0.0000	4.18	1.38	0
C-OUT	025Y3D	3.50	0.50	0.0000	7.76	1.38	0
C-OUT	100Y3D	3.50	0.50	0.0000	8.38	1.38	0

Node Max Conditions [Existing]

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]
D	010Y1D	16.50	3.37	0.0004	15.17	2.24	52626
D	025Y3D	16.50	5.53	0.0008	44.97	21.19	66680
D	100Y3D	16.50	5.58	0.0008	57.20	46.08	78165

Node Max Conditions [Existing]

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]
E	010Y1D	16.50	5.54	0.0002	8.39	4.93	142845
E	025Y3D	16.50	5.63	0.0001	26.31	25.95	154699
E	100Y3D	16.50	5.65	0.0001	33.64	33.24	157876

Node Max Conditions [Existing]

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]
WEIR	010Y1D	12.39	7.38	0.0010	84.08	84.07	6418
WEIR	025Y3D	12.39	7.56	0.0010	114.76	114.75	6564
WEIR	100Y3D	12.39	7.64	0.0010	129.14	129.14	6627

Node Max Conditions [Existing]

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]
Z	010Y1D	12.39	0.50	0.0000	88.96	0.00	0
Z	025Y3D	12.39	0.50	0.0000	128.00	0.00	0
Z	100Y3D	12.39	0.50	0.0000	147.04	0.00	0

**Willoughby Creek
Stormwater Quality Retrofit
Improvement Project
Project No. 1477.27**

ATTACHMENT 3

ICPR Proposed Input Report



Node: 0000FG

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.09 ft
Warning Stage: 16.04 ft

Comment:

Node: 0041FG

Scenario: Proposed
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 12.92 ft
Warning Stage: 16.04 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
12.92	0.10	4356
13.50	1.58	68825
14.50	20.99	914324
15.50	77.32	3368059

Comment: Offsite receiving node

Node: 0304A

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.60 ft

Comment:

Node: 0304B

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.50 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
8.50	0.0000	0
9.00	0.4900	21344
10.00	1.3900	60548
11.00	2.3400	101930
12.00	3.2400	141134
13.00	4.1800	182081

Comment: Stage/Vol based on C. Montgomery study

Node: 0338FG

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 11.26 ft
Warning Stage: 16.23 ft

Comment:

Node: 0394

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 10.81 ft

Comment:

Node: 0450FG

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 10.98 ft
Warning Stage: 16.04 ft

Comment:

Node: 0923BFG

Scenario: Proposed
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 11.00 ft
Warning Stage: 15.08 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
11.00	0.10	4356
14.00	1.85	80586
14.50	2.44	106286
15.00	3.33	145055
15.50	10.00	435600

Comment: Stage/Vol based C. Montgomery Study

Node: 1369A

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.38 ft

Comment:

Node: 1369B

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.38 ft

Comment:

Node: 1369C

Scenario: Proposed
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 16.50 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
9.99	0.00	83
10.49	1.45	62992
10.99	1.75	76056
11.49	2.08	90465
11.99	2.44	106243
12.49	10.78	469503
12.99	13.45	586061
13.49	15.92	693541
13.99	18.07	787125
14.49	36.42	1586246
14.99	38.55	1679395
15.49	41.00	1786051
15.99	43.90	1912358
16.49	48.22	2100346
16.99	48.22	2100346

Comment: Stage/Vol based on C. Montgomery Study

Node: 1369D

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.1000	4356
8.50	1.7400	75794
9.50	3.4800	151589
10.50	5.2200	227383
11.50	6.9600	303178
12.50	8.7100	379408
13.50	9.9900	435164

Comment: Sheet flow from Basin 5B

Node: 1468A

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.38 ft

Comment:

Node: 1468B

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.61 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
5.61	3.2100	139828
6.50	3.4400	149846
7.50	3.7100	161608
8.50	7.9200	344995
9.50	12.1400	528818
10.50	16.3500	712206
11.50	20.3300	885575
12.50	24.2200	1055023

Comment: Stage/Vol based on C.Montgomery Study

Node: 1784A

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 11.94 ft

Comment:

Node: 1784B

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.2700	11761
8.00	1.5300	66647

Stage [ft]	Area [ac]	Area [ft2]
9.00	4.0600	176854
10.00	6.5900	287060
11.00	9.1100	396832
12.00	11.6100	505732
13.00	14.0900	613760

Comment: Stage/Vol from C.Montgomery Study

Node: 1860A

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 4.50 ft
 Warning Stage: 12.02 ft

Comment:

Node: 1860B

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 7.47 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.47	0.4100	17860
7.50	0.4100	17860
8.50	4.4200	192535
9.50	8.4300	367211
10.50	12.4400	541886
11.50	16.4500	716562
12.50	20.4200	889495
13.50	23.3500	1017126

Comment: Stage/Vol from C.Montgomery Study

Node: 1860C

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs

Initial Stage: 7.50 ft
Warning Stage: 14.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.0000	0
8.50	1.1500	50094
9.50	2.3100	100624
10.50	3.4600	150718
11.50	4.6200	201247
12.50	5.7700	251341
13.50	6.5900	287060

Comment:

Node: 2959A

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.83 ft
Warning Stage: 13.57 ft

External Hydrograph

2959A#1

Comment:

Node: 2959B

Scenario: Proposed
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 4.83 ft
Warning Stage: 13.57 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	4.83
0	0	0	100.0000	4.83

Comment: Proposed Flow from Jet Center (omitted)

Node: 2959C

Scenario: Proposed
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 8.58 ft
Warning Stage: 15.08 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
6.50	0.10	4356
7.50	0.35	15246
8.50	0.79	34412
9.50	1.30	56628
10.50	1.90	82764
11.50	2.58	112385
12.50	3.35	145926
13.50	12.53	545807
14.50	37.54	1635242
15.50	79.23	3451259

Comment: Stage/Vol from C. Montgomery Study

Node: 3071

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.00 ft
Warning Stage: 13.47 ft

Comment:

Node: 3574

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.00 ft
Warning Stage: 13.10 ft

Comment:

Node: 3633

Scenario: Proposed

Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 8.00 ft
 Warning Stage: 13.31 ft

Comment:

Node: 4623

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 8.00 ft
 Warning Stage: 14.29 ft

Comment:

Node: 5041

Scenario: Proposed
 Type: Stage/Volume
 Base Flow: 0.00 cfs
 Initial Stage: 8.00 ft
 Warning Stage: 13.03 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
6.50	0.10	4356
7.50	0.35	15246
8.50	0.79	34412
9.50	1.30	56628
10.50	1.90	82764
11.50	2.58	112385
12.50	3.35	145926
13.50	12.53	545807
15.50	37.54	1635242
16.50	79.23	3451259

Comment: Stage/Volume from C.Montgomery Study

Node: A

Scenario: Proposed
 Type: Stage/Area

Base Flow: 0.00 cfs
 Initial Stage: 0.55 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
0.55	1.5700	68389
1.50	1.6200	70567
2.50	1.8100	78844
3.50	2.0200	87991
4.50	2.1600	94090
5.50	7.0800	308405
6.50	11.8600	516622
7.50	16.7700	730501
8.50	21.5500	938718
9.50	26.4700	1153033
10.50	31.2500	1361250

Comment:

Node: A-OUTFALL

Scenario: Proposed
 Type: Time/Stage
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 10.50 ft
 Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.50
0	0	0	120.0000	0.50

Comment: OUTFALL FOR BASIN A

Node: B

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
0.50	3.1000	135036
2.50	3.6000	156816
3.50	4.0900	178160
4.50	6.1500	267894

Stage [ft]	Area [ac]	Area [ft2]
5.50	16.4200	715255
6.50	20.4500	890802
7.50	30.7200	1338163
8.50	34.3400	1495850
9.50	44.2000	1925352
10.50	47.8200	2083039
11.50	50.9400	2218946

Comment:

Node: C

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 0.00 ft
 Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
0.00	0.0000	0
10.50	16.9000	736164

Comment:

Node: C-OUT

Scenario: Proposed
 Type: Time/Stage
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 3.50 ft
 Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.50
0	0	0	120.0000	0.50

Comment:

Node: D

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs

Initial Stage: 1.00 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
1.00	1.0000	43560
1.50	1.0400	45302
2.50	1.1300	49223
3.50	1.2200	53143
4.50	1.3100	57064
5.50	1.4000	60984
6.50	6.3800	277913
7.50	11.3600	494842
8.50	16.3400	711770
9.50	21.3200	928699
10.50	26.3000	1145628

Comment:

Node: E

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.50 ft
Warning Stage: 16.50 ft

Stage [ft]	Area [ac]	Area [ft2]
4.50	0.0000	0
5.00	1.5700	68389
6.00	4.7200	205603
7.00	7.8900	343688
8.00	11.1700	486565
9.00	14.3600	625522
10.00	17.6400	768398
11.00	20.8300	907355
12.00	24.0900	1049360
13.00	27.1500	1182654

Comment:

Node: Prop STA Cell 1

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 6.00 ft
Warning Stage: 14.00 ft

Stage [ft]	Area [ac]	Area [ft2]
-2.00	0.8517	37100
-1.50	0.9579	41725
-1.00	1.0692	46575
-0.50	1.1754	51200
0.00	1.4101	61425
0.49	1.5111	65825
0.99	1.6253	70800
1.49	1.7373	75675
1.99	1.8406	80175
2.49	1.9605	85400
2.99	2.0587	89675
3.49	2.1780	94875
3.99	2.2819	99400
4.49	2.3823	103775
4.99	2.5063	109175
5.49	2.8880	125800
5.99	3.2122	139925
6.49	3.4745	151350
6.99	3.5755	155750
7.49	3.6610	159475
7.99	3.7517	163425
8.49	3.8562	167975
8.99	3.9388	171575
9.49	4.0335	175700
9.99	4.1144	179225
10.49	4.1948	182725
10.99	4.2726	186115
11.49	4.3360	188875
11.99	4.4089	192050
12.49	4.4645	194475
12.99	4.5133	196600
13.49	4.5877	199840
13.99	4.6195	201225
14.49	4.6413	202175
14.99	4.6600	202990
15.49	4.7655	207585
15.99	4.7655	207585

Comment:

Node: Prop STA Cell 2

Scenario: Proposed
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.00 ft

Warning Stage: 14.00 ft

Stage [ft]	Area [ac]	Area [ft2]
-0.01	0.0006	25
0.00	0.7754	33775
0.50	0.8747	38100
1.00	0.9757	42500
1.50	1.0577	46075
2.00	1.1301	49225
2.50	1.1903	51850
3.00	1.2609	54925
3.50	1.3237	57663
4.00	1.3912	60600
4.50	1.4580	63512
5.00	1.6362	71275
5.50	1.7287	75300
6.00	3.0888	134550
6.50	3.4831	151725
7.00	4.0714	177350
7.50	4.5868	199800
8.00	5.2634	229275
8.50	5.4557	237650
9.00	5.6307	245275
9.50	5.8259	253775
10.00	5.9986	261300
10.50	6.1886	269575
11.00	6.3590	277000
11.50	6.5324	284550
12.00	6.6787	290925
12.50	6.8033	296350
13.00	6.9163	301275
13.50	6.9867	304342
14.00	7.0380	306575
14.50	7.0646	307734
15.00	7.0688	307915
15.50	7.0688	307915

Comment:

Node: WEIR

Scenario: Proposed
 Type: Stage/Area
 Base Flow: 0.00 cfs
 Initial Stage: 4.50 ft
 Warning Stage: 12.39 ft

Comment: Willoughby Creek Weir (to be modified)

Node: Z

Scenario: Proposed
 Type: Time/Stage
 Base Flow: 0.00 cfs
 Initial Stage: 0.50 ft
 Warning Stage: 12.39 ft
 Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.50
0	0	0	12.5000	0.50
0	0	0	62.5000	0.50
0	0	0	120.0000	0.50

Comment: Boundary Node

Channel Link: 0000FG

	Upstream	Downstream
Scenario: Proposed	Invert: 13.09 ft	Invert: 11.26 ft
From Node: 0000FG	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 0338FG	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 0149	Cross Section: 0149
Flow Direction: Both		
Damping: 0.0000 ft		
Length: 338.00 ft		
Contraction Coef: 0.00		
Expansion Coef: 0.00		
Entr Loss Coef: 0.00		
Exit Loss Coef: 0.00		
Bend Loss Coef: 0.00		
Bend Location: 0.00 ft		
Energy Switch: Energy		

Comment: Fairground Ditch from 00+00 to 03+38

Pipe Link: 0041FG

	Upstream	Downstream
Scenario: Proposed	Invert: 12.10 ft	Invert: 13.13 ft
From Node: 0041FG	Manning's N: 0.0120	Manning's N: 0.0120
To Node: 0000FG	Geometry: Circular	Geometry: Circular
Link Count: 2	Max Depth: 2.50 ft	Max Depth: 2.50 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft

Length:	41.00 ft	Op Table:		Op Table:	
FHWA Code:	4	Ref Node:		Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0120	Manning's N:	0.0120
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0120	Manning's N:	0.0120
Comment: Fairgrounds Ditch -00+41 to 00+00					

Channel Link: 0304A		Upstream		Downstream	
Scenario:	Proposed	Invert:	0.73 ft	Invert:	0.54 ft
From Node:	0304A	Manning's N:	0.0000	Manning's N:	0.0000
To Node:	WEIR	Geometry: Irregular		Geometry: Irregular	
Link Count:	1	Cross Section:	0195	Cross Section:	0195
Flow Direction:	Both				
Damping:	0.0000 ft				
Length:	304.00 ft				
Contraction Coef:	0.00				
Expansion Coef:	0.00				
Entr Loss Coef:	0.00				
Exit Loss Coef:	0.00				
Bend Loss Coef:	0.00				
Bend Location:	0.00 ft				
Energy Switch:	Energy				
Comment: Willoughby Main Ditch 03+04 to weir					

Weir Link: 0304B			
Scenario:	Proposed	Bottom Clip	
From Node:	0304B	Default:	0.00 ft
To Node:	0304A	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:	8.50 ft	Discharge Coefficients	
Control Elevation:	8.50 ft	Weir Default:	3.130
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.060
Bottom Width:	50.00 ft	Orifice Table:	
Left Slope:	0.000 (h:v)		
Right Slope:	0.000 (h:v)		
Comment: OverFlow from Basin 9 to Willoughby Ditch			

Pipe Link: 0338FG		Upstream	Downstream
Scenario:	Proposed	Invert: 11.31 ft	Invert: 10.92 ft
From Node:	0338FG	Manning's N: 0.0120	Manning's N: 0.0120
To Node:	Prop STA Cell 2	Geometry: Circular	Geometry: Circular
Link Count:	2	Max Depth: 3.00 ft	Max Depth: 3.00 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	112.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0120	Manning's N: 0.0120
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0120	Manning's N: 0.0120
Comment: Fairgrounds Ditch 03+38 to 04+50			

Pipe Link: 0394		Upstream	Downstream
Scenario:	Proposed	Invert: -0.24 ft	Invert: -0.46 ft
From Node:	0394	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	0304A	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 6.00 ft	Max Depth: 6.00 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	90.00 ft	Op Table:	Op Table:
FHWA Code:	6	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0240	Manning's N: 0.0240
Comment: Willoughby Main Ditch 03+94 to 03+04 (MODIFIED)			

Channel Link: 0450FG		Upstream	Downstream
Scenario:	Proposed	Invert: 10.98 ft	Invert: 10.07 ft
From Node:	0450FG	Manning's N: 0.0000	Manning's N: 0.0000
To Node:	Prop STA Cell 2	Geometry: Irregular	Geometry: Irregular
Link Count:	1	Cross Section: 0739	Cross Section: 0739
Flow Direction:	Both		
Damping:	0.0000 ft		
Length:	202.95 ft		
Contraction Coef:	0.00		
Expansion Coef:	0.00		
Entr Loss Coef:	0.00		

Exit Loss Coef: 0.00
 Bend Loss Coef: 0.00
 Bend Location: 0.00 ft
 Energy Switch: Energy

Comment:

Pipe Link: 0923BFG	Upstream	Downstream
Scenario: Proposed	Invert: 12.01 ft	Invert: 11.53 ft
From Node: 0923BFG	Manning's N: 0.0240	Manning's N: 0.0240
To Node: Prop STA Cell 2	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 3.00 ft	Max Depth: 3.00 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 30.00 ft	Op Table:	Op Table:
FHWA Code: 6	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0240	Manning's N: 0.0240

Comment: Culvert from Bus lot

Channel Link: 1369A	Upstream	Downstream
Scenario: Proposed	Invert: 2.33 ft	Invert: 0.93 ft
From Node: 1369A	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 0394	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 0565	Cross Section: 0565
Flow Direction: Both		
Damping: 0.0000 ft		
Length: 975.00 ft		
Contraction Coef: 0.00		
Expansion Coef: 0.00		
Entr Loss Coef: 0.00		
Exit Loss Coef: 0.00		
Bend Loss Coef: 0.00		
Bend Location: 0.00 ft		
Energy Switch: Energy		

Comment: Willoughby Main Ditch 13+69 to 03+94

Channel Link: 1369B	Upstream	Downstream
Scenario: Proposed	Invert: 2.33 ft	Invert: 2.33 ft

From Node:	1369B	Manning's N:	0.0000	Manning's N:	0.0000
To Node:	1369A	Geometry:	Irregular	Geometry:	Irregular
Link Count:	1	Cross Section:	1503	Cross Section:	1503
Flow Direction:	Both				
Damping:	0.0000 ft				
Length:	500.00 ft				
Contraction Coef:	0.00				
Expansion Coef:	0.00				
Entr Loss Coef:	0.00				
Exit Loss Coef:	0.00				
Bend Loss Coef:	0.00				
Bend Location:	0.00 ft				
Energy Switch:	Energy				

Comment: North/South Ditch connecting Basin 7 to Ditch

Weir Link: 1369D

Scenario:	Proposed	Bottom Clip	
From Node:	1369D	Default:	0.00 ft
To Node:	1369A	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:	Irregular	Ref Node:	
Invert:	9.50 ft	Discharge Coefficients	
Control Elevation:	5.59 ft	Weir Default:	3.200
Cross Section:	1369D	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Pipe Link: 1468A

	Upstream	Downstream	
Scenario:	Proposed		
	Invert:	3.00 ft	
From Node:	1468A	Manning's N:	0.0120
To Node:	1369A	Manning's N:	0.0120
	Geometry:	Circular	
Link Count:	1	Geometry:	Circular
	Max Depth:	5.00 ft	
Flow Direction:	Both	Max Depth:	5.00 ft
	Bottom Clip		
Damping:	0.0000 ft	Default:	0.00 ft
Length:	100.00 ft	Op Table:	
FHWA Code:	6	Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0120
Exit Loss Coef:	0.00	Manning's N:	0.0120
	Top Clip		
Bend Loss Coef:	0.00	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:	
Energy Switch:	Energy	Ref Node:	

Manning's N: 0.0120

Manning's N: 0.0120

Comment: Willoughby Main Ditch 14+68 to 13+69

Weir Link: 1468BW

Scenario: Proposed	Bottom Clip
From Node: 1468B	Default: 0.00 ft
To Node: 1468A	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: 10.50 ft	Discharge Coefficients
Control Elevation: 5.59 ft	Weir Default: 3.200
Max Depth: 9999.00 ft	Weir Table:
Extrapolation Method: Normal Projection	Orifice Default: 0.600
Bottom Width: 10.00 ft	Orifice Table:
Left Slope: 20.000 (h:v)	
Right Slope: 20.000 (h:v)	

Comment: OVERFLOW FROM BASIN 8 TO W. CREEK
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Channel Link: 1784A

	Upstream	Downstream
Scenario: Proposed	Invert: 2.57 ft	Invert: 4.07 ft
From Node: 1784A	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 1468A	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 1503	Cross Section: 1503
Flow Direction: Both		
Damping: 0.0000 ft		
Length: 315.00 ft		
Contraction Coef: 0.00		
Expansion Coef: 0.00		
Entr Loss Coef: 0.00		
Exit Loss Coef: 0.00		
Bend Loss Coef: 0.00		
Bend Location: 0.00 ft		
Energy Switch: Energy		

Comment: Willoughby Main Ditch 17+84 to 14+68

Pipe Link: 1784B

	Upstream	Downstream
Scenario: Proposed	Invert: 9.28 ft	Invert: 7.50 ft
From Node: 1784B	Manning's N: 0.0090	Manning's N: 0.0090
To Node: 1784A	Geometry: Circular	Geometry: Circular

Link Count:	1	Max Depth:	0.50 ft	Max Depth:	0.50 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	362.00 ft	Op Table:		Op Table:	
FHWA Code:	6	Ref Node:		Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0090	Manning's N:	0.0090
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0090	Manning's N:	0.0090
Comment: Flow from Basin 6 to Willoughby Ditch					

Weir Link: 1784BW			
Scenario:	Proposed	Bottom Clip	
From Node:	1784B	Default:	0.00 ft
To Node:	1784A	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:	11.00 ft	Discharge Coefficients	
Control Elevation:	7.50 ft	Weir Default:	3.200
Max Depth:	9999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	10.00 ft	Orifice Table:	
Left Slope:	20.000 (h:v)		
Right Slope:	20.000 (h:v)		
Comment: OVERLAND FLOW FROM BASIN 6 TO W. CREEK			

Pipe Link: 1860A					
		Upstream		Downstream	
Scenario:	Proposed	Invert:	3.00 ft	Invert:	3.00 ft
From Node:	1860A	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	1784A	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	5.00 ft	Max Depth:	5.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	77.00 ft	Op Table:		Op Table:	
FHWA Code:	6	Ref Node:		Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0120	Manning's N:	0.0120
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	

Manning's N: 0.0120

Manning's N: 0.0120

Comment: Willoughby Main Ditch 18+60 to 17+84

Weir Link: 1860B

Scenario: Proposed	Bottom Clip
From Node: 1860B	Default: 0.00 ft
To Node: 1860A	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: Irregular	Ref Node:
Invert: 11.50 ft	Discharge Coefficients
Control Elevation: 7.47 ft	Weir Default: 3.130
Cross Section: 1860B	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Comment: Overflow to Willoughby Ditch from Basin 5
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Weir Link: 1860C

Scenario: Proposed	Bottom Clip
From Node: 1860C	Default: 0.00 ft
To Node: 1860A	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: Irregular	Ref Node:
Invert: 13.50 ft	Discharge Coefficients
Control Elevation: 7.47 ft	Weir Default: 3.130
Cross Section: 1860C	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Comment: Willoughby Creek Weir

Channel Link: 2959A

	Upstream	Downstream
Scenario: Proposed	Invert: 4.83 ft	Invert: 2.65 ft
From Node: 2959A	Manning's N: 0.0000	Manning's N: 0.0000
To Node: 1860A	Geometry: Irregular	Geometry: Irregular
Link Count: 1	Cross Section: 2885	Cross Section: 2885
Flow Direction: Both		
Damping: 0.0000 ft		

Length: 230.00 ft
 Contraction Coef: 0.00
 Expansion Coef: 0.00
 Entr Loss Coef: 0.00
 Exit Loss Coef: 0.00
 Bend Loss Coef: 0.00
 Bend Location: 0.00 ft
 Energy Switch: Energy

Comment: Willoughby Main Ditch 29+59 to 18+60

Pipe Link: 2959B	Upstream	Downstream
Scenario: Proposed	Invert: 6.81 ft	Invert: 6.41 ft
From Node: 2959B	Manning's N: 0.0240	Manning's N: 0.0240
To Node: Prop STA Cell 2	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction: None	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 180.00 ft	Op Table:	Op Table:
FHWA Code: 4	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0240	Manning's N: 0.0240
Comment: Pipe from Jet Center (omitted directly into a)		

Pipe Link: 2959C	Upstream	Downstream
Scenario: Proposed	Invert: 8.35 ft	Invert: 8.69 ft
From Node: 2959C	Manning's N: 0.0240	Manning's N: 0.0240
To Node: Prop STA Cell 2	Geometry: Circular	Geometry: Circular
Link Count: 1	Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction: Both	Bottom Clip	
Damping: 0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length: 77.00 ft	Op Table:	Op Table:
FHWA Code: 4	Ref Node:	Ref Node:
Entr Loss Coef: 0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef: 0.00	Top Clip	
Bend Loss Coef: 0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location: 0.00 ft	Op Table:	Op Table:
Energy Switch: Energy	Ref Node:	Ref Node:
	Manning's N: 0.0240	Manning's N: 0.0240
Comment: Basin 3 inflow		

Pipe Link: 3071		Upstream	Downstream
Scenario:	Proposed	Invert: 6.70 ft	Invert: 4.65 ft
From Node:	3071	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	Prop STA Cell 2	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 4.00 ft	Max Depth: 4.00 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	112.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0240	Manning's N: 0.0240
Comment: Willoughby Main Ditch 30+71 to 29+59			

Channel Link: 3574		Upstream	Downstream
Scenario:	Proposed	Invert: 5.51 ft	Invert: 5.70 ft
From Node:	3574	Manning's N: 0.0000	Manning's N: 0.0000
To Node:	3071	Geometry: Irregular	Geometry: Irregular
Link Count:	1	Cross Section: 3272	Cross Section: 3272
Flow Direction:	Both		
Damping:	0.0000 ft		
Length:	503.00 ft		
Contraction Coef:	0.00		
Expansion Coef:	0.00		
Entr Loss Coef:	0.00		
Exit Loss Coef:	0.00		
Bend Loss Coef:	0.00		
Bend Location:	0.00 ft		
Energy Switch:	Energy		
Comment: Willoughby Main Ditch 35+74 to 30+71			

Pipe Link: 3633		Upstream	Downstream
Scenario:	Proposed	Invert: 5.39 ft	Invert: 5.34 ft
From Node:	3633	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	3574	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 4.00 ft	Max Depth: 4.00 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	60.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef:	0.00	Top Clip	

Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0240	Manning's N:	0.0240

Comment: Willoughby Main Ditch 36+33 to 35+74

Channel Link: 4623		Upstream	Downstream
Scenario:	Proposed	Invert: 5.56 ft	Invert: 5.64 ft
From Node:	4623	Manning's N: 0.0000	Manning's N: 0.0000
To Node:	3633	Geometry: Irregular	Geometry: Irregular
Link Count:	1	Cross Section: 4230	Cross Section: 4230
Flow Direction:	Both		
Damping:	0.0000 ft		
Length:	990.00 ft		
Contraction Coef:	0.00		
Expansion Coef:	0.00		
Entr Loss Coef:	0.00		
Exit Loss Coef:	0.00		
Bend Loss Coef:	0.00		
Bend Location:	0.00 ft		
Energy Switch:	Energy		

Comment: Willoughby Main Ditch 46+23 to 36+33

Pipe Link: 5041		Upstream	Downstream
Scenario:	Proposed	Invert: 6.28 ft	Invert: 5.56 ft
From Node:	5041	Manning's N: 0.0240	Manning's N: 0.0240
To Node:	4623	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 4.00 ft	Max Depth: 4.00 ft
Flow Direction:	Both	Bottom Clip	
Damping:	0.0000 ft	Default: 0.00 ft	Default: 0.00 ft
Length:	420.00 ft	Op Table:	Op Table:
FHWA Code:	4	Ref Node:	Ref Node:
Entr Loss Coef:	0.00	Manning's N: 0.0240	Manning's N: 0.0240
Exit Loss Coef:	0.00	Top Clip	
Bend Loss Coef:	0.00	Default: 0.00 ft	Default: 0.00 ft
Bend Location:	0.00 ft	Op Table:	Op Table:
Energy Switch:	Energy	Ref Node:	Ref Node:
		Manning's N: 0.0240	Manning's N: 0.0240

Comment: Willoughby Main Ditch 50+41 to 46+23

Weir Link: BLEED	
Scenario:	Proposed
	Bottom Clip

From Node: WEIR
 To Node: Z
 Link Count: 1
 Flow Direction: None
 Damping: 0.0000 ft
 Weir Type: Sharp Crested Vertical
 Geometry Type: Circular
 Invert: 4.50 ft
 Control Elevation: 4.50 ft
 Max Depth: 0.25 ft

Default: 0.00 ft

Op Table:

Ref Node:

Top Clip

Default: 0.00 ft

Op Table:

Ref Node:

Discharge Coefficients

Weir Default: 3.130

Weir Table:

Orifice Default: 0.600

Orifice Table:

Comment: Willoughby Creek Weir--Proposed Bleeder

Pipe Link: C-OUT-PIPE

Scenario: Proposed
 From Node: C
 To Node: C-OUT
 Link Count: 1
 Flow Direction: Both
 Damping: 0.0000 ft
 Length: 623.00 ft
 FHWA Code: 6
 Entr Loss Coef: 0.50
 Exit Loss Coef: 0.00
 Bend Loss Coef: 0.00
 Bend Location: 0.00 ft
 Energy Switch: Energy

Upstream

Invert: -0.46 ft

Manning's N: 0.0240

Geometry: Circular

Max Depth: 2.00 ft

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Manning's N: 0.0240

Top Clip

Default: 0.00 ft

Op Table:

Ref Node:

Manning's N: 0.0240

Downstream

Invert: -0.63 ft

Manning's N: 0.0240

Geometry: Circular

Max Depth: 2.00 ft

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Manning's N: 0.0240

Top Clip

Default: 0.00 ft

Op Table:

Ref Node:

Manning's N: 0.0240

Comment:

Drop Structure Link: DROP-08

Scenario: Proposed
 From Node: 1468B
 To Node: 1468A
 Link Count: 1
 Flow Direction: Both
 Solution: Split
 Pipe Count: 1
 Damping: 0.0000 ft
 Length: 193.00 ft
 FHWA Code: 6
 Entr Loss Coef: 0.00
 Exit Loss Coef: 0.00

Upstream Pipe

Invert: 5.59 ft

Manning's N: 0.0090

Geometry: Circular

Max Depth: 0.50 ft

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Manning's N: 0.0090

Top Clip

Default: 0.00 ft

Op Table:

Downstream Pipe

Invert: 5.59 ft

Manning's N: 0.0090

Geometry: Circular

Max Depth: 0.50 ft

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Manning's N: 0.0090

Top Clip

Default: 0.00 ft

Op Table:

Bend Loss Coef: 0.00	Ref Node:	Ref Node:
Bend Location: 0.00 ft	Manning's N: 0.0090	Manning's N: 0.0090
Energy Switch: Energy		

Pipe Comment:

Weir Component	
Weir: 1	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Horizontal	Top Clip
Geometry Type: Circular	Default: 0.00 ft
Invert: 5.59 ft	Op Table:
Control Elevation: 5.59 ft	Ref Node:
Max Depth: 0.48 ft	Discharge Coefficients
	Weir Default: 3.200
	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Weir Comment:

Drop Structure Comment:

Drop Structure Link: DROP-A		Upstream Pipe	Downstream Pipe
Scenario: Proposed		Invert: -0.04 ft	Invert: 0.59 ft
From Node: A		Manning's N: 0.0100	Manning's N: 0.0100
To Node: A-OUTFALL		Geometry: Circular	Geometry: Circular
Link Count: 1		Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction: Both		Bottom Clip	
Solution: Split		Default: 0.00 ft	Default: 0.00 ft
Pipe Count: 1		Op Table:	Op Table:
Damping: 0.0000 ft		Ref Node:	Ref Node:
Length: 36.00 ft		Manning's N: 0.0100	Manning's N: 0.0100
FHWA Code: 6		Top Clip	
Entr Loss Coef: 0.50		Default: 0.00 ft	Default: 0.00 ft
Exit Loss Coef: 0.00		Op Table:	Op Table:
Bend Loss Coef: 0.00		Ref Node:	Ref Node:
Bend Location: 0.00 ft		Manning's N: 0.0100	Manning's N: 0.0100
Energy Switch: Energy			

Pipe Comment:

Weir Component	
Weir: 1	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip

Geometry Type: Circular
 Invert: 1.04 ft
 Control Elevation: 1.04 ft
 Max Depth: 0.42 ft

Default: 0.00 ft

Op Table:

Ref Node:

Discharge Coefficients

Weir Default: 3.130

Weir Table:

Orifice Default: 0.600

Orifice Table:

Weir Comment:

Weir Component

Weir: 2

Bottom Clip

Weir Count: 1

Default: 0.00 ft

Weir Flow Direction: Both

Op Table:

Damping: 0.0000

Ref Node:

Weir Type: Sharp Crested Vertical

Top Clip

Geometry Type: Rectangular

Default: 0.00 ft

Invert: 2.50 ft

Op Table:

Control Elevation: 2.50 ft

Ref Node:

Max Depth: 8.25 ft

Discharge Coefficients

Max Width: 2.00 ft

Weir Default: 3.130

Fillet: 0.00 ft

Weir Table:

Orifice Default: 0.600

Orifice Table:

Weir Comment:

Drop Structure Comment:

Drop Structure Link: DROP-B

Upstream Pipe

Downstream Pipe

Scenario: Proposed

Invert: 0.40 ft

Invert: -0.30 ft

From Node: B

Manning's N: 0.0240

Manning's N: 0.0240

To Node: C

Geometry: Circular

Geometry: Circular

Link Count: 1

Max Depth: 1.00 ft

Max Depth: 1.00 ft

Flow Direction: Both

Bottom Clip

Solution: Split

Default: 0.00 ft

Default: 0.00 ft

Pipe Count: 1

Op Table:

Op Table:

Damping: 0.0000

Ref Node:

Ref Node:

Length: 389.00 ft

Manning's N: 0.0240

Manning's N: 0.0240

FHWA Code: 4

Top Clip

Entr Loss Coef: 0.50

Default: 0.00 ft

Default: 0.00 ft

Exit Loss Coef: 0.00

Op Table:

Op Table:

Bend Loss Coef: 0.00

Ref Node:

Ref Node:

Bend Location: 0.00 ft

Manning's N: 0.0240

Manning's N: 0.0240

Energy Switch: Energy

Pipe Comment:

Weir Component	
Weir: 1	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip
Geometry Type: Circular	Default: 0.00 ft
Invert: 0.50 ft	Op Table:
Control Elevation: 0.50 ft	Ref Node:
Max Depth: 0.52 ft	Discharge Coefficients
	Weir Default: 3.130
	Weir Table:
	Orifice Default: 0.600
	Orifice Table:
Weir Comment:	

Weir Component	
Weir: 2	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip
Geometry Type: Rectangular	Default: 0.00 ft
Invert: 1.75 ft	Op Table:
Control Elevation: 1.75 ft	Ref Node:
Max Depth: 8.25 ft	Discharge Coefficients
Max Width: 1.00 ft	Weir Default: 3.130
Fillet: 0.00 ft	Weir Table:
	Orifice Default: 0.600
	Orifice Table:
Weir Comment:	

Drop Structure Comment:

Drop Structure Link: DROP-D		Upstream Pipe	Downstream Pipe
Scenario: Proposed		Invert: 0.73 ft	Invert: 0.50 ft
From Node: D		Manning's N: 0.0240	Manning's N: 0.0240
To Node: C		Geometry: Circular	Geometry: Circular
Link Count: 1		Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction: Both		Bottom Clip	
Solution: Split		Default: 0.00 ft	Default: 0.00 ft
Pipe Count: 1		Op Table:	Op Table:
Damping: 0.0000 ft		Ref Node:	Ref Node:
Length: 110.00 ft		Manning's N: 0.0240	Manning's N: 0.0240
FHWA Code: 4		Top Clip	
Entr Loss Coef: 0.50		Default: 0.00 ft	Default: 0.00 ft
Exit Loss Coef: 0.00		Op Table:	Op Table:

Bend Loss Coef: 0.00
 Bend Location: 0.00 ft
 Energy Switch: Energy

Ref Node:
 Manning's N: 0.0240

Ref Node:
 Manning's N: 0.0240

Pipe Comment:

Weir Component	
Weir: 1	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip
Geometry Type: Circular	Default: 0.00 ft
Invert: 1.00 ft	Op Table:
Control Elevation: 1.00 ft	Ref Node:
Max Depth: 0.42 ft	Discharge Coefficients
	Weir Default: 3.130
	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Weir Comment:

Weir Component	
Weir: 2	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip
Geometry Type: Rectangular	Default: 0.00 ft
Invert: 3.00 ft	Op Table:
Control Elevation: 3.00 ft	Ref Node:
Max Depth: 8.25 ft	Discharge Coefficients
Max Width: 2.00 ft	Weir Default: 3.130
Fillet: 0.00 ft	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Weir Comment:

Drop Structure Comment:

Weir Link: Prop STA	
Scenario: Proposed	Bottom Clip
From Node: Prop STA Cell 1	Default: 0.00 ft
To Node: 2959A	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: Irregular
 Invert: 6.00 ft
 Control Elevation: 6.00 ft
 Cross Section: Prop STA

Ref Node:

Discharge Coefficients

Weir Default: 2.800

Weir Table:

Orifice Default: 0.600

Orifice Table:

Comment:

Drop Structure Link: Proposed Airport Outfall		Upstream Pipe	Downstream Pipe
Scenario: Proposed		Invert: 5.21 ft	Invert: 4.00 ft
From Node: 1369C		Manning's N: 0.0120	Manning's N: 0.0120
To Node: Prop STA Cell 1		Geometry: Circular	Geometry: Circular
Link Count: 1		Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction: Both		Bottom Clip	
Solution: Split		Default: 0.00 ft	Default: 0.00 ft
Pipe Count: 1		Op Table:	Op Table:
Damping: 0.0000 ft		Ref Node:	Ref Node:
Length: 950.00 ft		Manning's N: 0.0000	Manning's N: 0.0000
FHWA Code: 6		Top Clip	
Entr Loss Coef: 0.00		Default: 0.00 ft	Default: 0.00 ft
Exit Loss Coef: 0.00		Op Table:	Op Table:
Bend Loss Coef: 0.00		Ref Node:	Ref Node:
Bend Location: 0.00 ft		Manning's N: 0.0000	Manning's N: 0.0000
Energy Switch: Energy			

Pipe Comment:

Weir Component	
Weir: 1	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip
Geometry Type: Circular	Default: 0.00 ft
Invert: 8.58 ft	Op Table:
Control Elevation: 8.58 ft	Ref Node:
Max Depth: 0.25 ft	Discharge Coefficients
	Weir Default: 3.200
	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Weir Comment:

Weir Component	
Weir: 2	Bottom Clip
Weir Count: 1	Default: 0.00 ft

Weir Flow Direction: Both
 Damping: 0.0000 ft
 Weir Type: Horizontal
 Geometry Type: Rectangular
 Invert: 10.25 ft
 Control Elevation: 10.25 ft
 Max Depth: 4.42 ft
 Max Width: 3.33 ft
 Fillet: 0.00 ft

Op Table:
 Ref Node:
 Top Clip
 Default: 0.00 ft
 Op Table:
 Ref Node:
 Discharge Coefficients
 Weir Default: 3.200
 Weir Table:
 Orifice Default: 0.600
 Orifice Table:

Weir Comment:

Drop Structure Comment:

Drop Structure Link: STA DS		Upstream Pipe	Downstream Pipe
Scenario:	Proposed	Invert: 2.00 ft	Invert: 2.00 ft
From Node:	Prop STA Cell 2	Manning's N: 0.0120	Manning's N: 0.0120
To Node:	Prop STA Cell 1	Geometry: Circular	Geometry: Circular
Link Count:	2	Max Depth: 4.00 ft	Max Depth: 4.00 ft
Flow Direction:	Both	Bottom Clip	
Solution:	Combine	Default: 0.00 ft	Default: 0.00 ft
Increments:	10	Op Table:	Op Table:
Pipe Count:	1	Ref Node:	Ref Node:
Damping:	0.0000 ft	Manning's N: 0.0000	Manning's N: 0.0000
Length:	100.00 ft	Top Clip	
FHWA Code:	1	Default: 0.00 ft	Default: 0.00 ft
Entr Loss Coef:	0.00	Op Table:	Op Table:
Exit Loss Coef:	0.00	Ref Node:	Ref Node:
Bend Loss Coef:	0.00	Manning's N: 0.0000	Manning's N: 0.0000
Bend Location:	0.00 ft		
Energy Switch:	Energy		
Pipe Comment:			

Weir Component		
Weir:	1	Bottom Clip
Weir Count:	1	Default: 0.00 ft
Weir Flow Direction:	Both	Op Table:
Damping:	0.0000 ft	Ref Node:
Weir Type:	Sharp Crested Vertical	Top Clip
Geometry Type:	Rectangular	Default: 0.00 ft
Invert:	8.00 ft	Op Table:
Control Elevation:	8.00 ft	Ref Node:
Max Depth:	2.00 ft	Discharge Coefficients
Max Width:	0.50 ft	Weir Default: 3.200
Fillet:	0.00 ft	Weir Table:

Orifice Default: 0.600

Orifice Table:

Weir Comment:

Weir Component

Weir: 2
Weir Count: 1
Weir Flow Direction: Both
Damping: 0.0000 ft
Weir Type: Sharp Crested Vertical
Geometry Type: Rectangular
Invert: 10.00 ft
Control Elevation: 10.00 ft
Max Depth: 999.00 ft
Max Width: 6.00 ft
Fillet: 0.00 ft

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Top Clip

Default: 0.00 ft

Op Table:

Ref Node:

Discharge Coefficients

Weir Default: 3.200

Weir Table:

Orifice Default: 0.600

Orifice Table:

Weir Comment:

Drop Structure Comment:

Weir Link: WEIR OVERFLOW

Scenario: Proposed
From Node: WEIR
To Node: Z
Link Count: 1
Flow Direction: Both
Damping: 0.0000 ft
Weir Type: Broad Crested Vertical
Geometry Type: Irregular
Invert: 6.50 ft
Control Elevation: 6.50 ft
Cross Section: WEIR

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Top Clip

Default: 0.00 ft

Op Table:

Ref Node:

Discharge Coefficients

Weir Default: 3.200

Weir Table:

Orifice Default: 0.600

Orifice Table:

Comment:

Weir Link: WEIR-E

Scenario: Proposed
From Node: E
To Node: z
Link Count: 1
Flow Direction: Both

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Top Clip

Damping:	0.0000 ft	
Weir Type:	Broad Crested Vertical	Default: 0.00 ft
Geometry Type:	Trapezoidal	Op Table:
Invert:	5.50 ft	Ref Node:
Control Elevation:	4.50 ft	Discharge Coefficients
Max Depth:	9999.00 ft	Weir Default: 3.200
Extrapolation Method:	Normal Projection	Weir Table:
Bottom Width:	175.00 ft	Orifice Default: 0.600
Left Slope:	0.100 (h:v)	Orifice Table:
Right Slope:	0.100 (h:v)	

Comment: OVERLAND FLOW FROM NODE E TO W. CREEK

Weir Link: Weir-B

Scenario:	Proposed	Bottom Clip
From Node:	B	Default: 0.00 ft
To Node:	C	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:	Irregular	Ref Node:
Invert:	4.00 ft	Discharge Coefficients
Control Elevation:	1.54 ft	Weir Default: 3.200
Cross Section:	B	Weir Table:
		Orifice Default: 0.600
		Orifice Table:

Comment: Overflow from node-b to node-c.

Weir Link: Weir-D

Scenario:	Proposed	Bottom Clip
From Node:	D	Default: 0.00 ft
To Node:	C	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:	5.50 ft	Discharge Coefficients
Control Elevation:	1.28 ft	Weir Default: 3.200
Max Depth:	9999.00 ft	Weir Table:
Extrapolation Method:	Normal Projection	Orifice Default: 0.600
Bottom Width:	440.00 ft	Orifice Table:
Left Slope:	0.300 (h:v)	
Right Slope:	0.300 (h:v)	

Comment: Overflow from node-d to node-c

Simulation: 010Y1D

Scenario: Proposed
 Run Date/Time: 11/1/2017 4:45:01 PM
 Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		60.0000	

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	60.0000
0	0	0	8.0000	30.0000
0	0	0	10.0000	15.0000
0	0	0	12.0000	5.0000
0	0	0	14.0000	15.0000
0	0	0	16.0000	30.0000
0	0	0	24.0000	30.0000
0	0	0	36.0000	30.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: ICPR3
 Reference ET Folder:
 Unit Hydrograph ICPR3

Lookup Tables

Boundary Stage Set:
 Extern Hydrograph Set: 10Y1DQ
 Curve Number Set: ICPR3

Folder:

Green-Ampt Set: ICPR3
 Vertical Layers Set:
 Impervious Set: ICPR3
 Roughness Set:
 Crop Coef Set:
 Fillable Porosity Set:
 Conductivity Set:
 Leakage Set:

Tolerances & Options

Time Marching: SAOR	IA Recovery Time: 24.0000 hr
Max Iterations: 6	ET for Manual Basins: False
Over-Relax Weight 0.5 dec	
Fact:	
dZ Tolerance: 0.0010 ft	Manual Basin Rain Opt: Global
Max dZ: 1.0000 ft	OF Region Rain Opt: Region Specification
Link Optimizer Tol: 0.0001 ft	Rainfall Name: FLMOD
	Rainfall Amount: 6.50 in
Edge Length Option: Automatic	Storm Duration: 24.0000 hr
Dflt Damping (2D): 0.0050 ft	Dflt Damping (1D): 0.0050 ft
Min Node Srf Area 1 ft2	Min Node Srf Area 113 ft2
(2D):	(1D):
Energy Switch (2D): Energy	Energy Switch (1D): Energy

Comment: Willoughby Creek Weir Through M.C. Golf Course

Analyzed: 10-year, 1-day (El. 8.0')
 (02/05)

Willoughby Creek Weir Through M.C. Golf Course

Analyzed: 10-year, 1-day (El. 8.0')
 (02/05)

Simulation: 025Y3D

Scenario: Proposed
 Run Date/Time: 11/1/2017 4:46:36 PM
 Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		60.0000	

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	60.0000
0	0	0	48.0000	30.0000
0	0	0	56.0000	15.0000
0	0	0	60.0000	5.0000
0	0	0	70.0000	15.0000
0	0	0	76.0000	60.0000
0	0	0	90.0000	120.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: ICPR3
 Reference ET Folder:
 Unit Hydrograph ICPR3
 Folder:

Lookup Tables

Boundary Stage Set:
 Extern Hydrograph Set: 25Y3DQ
 Curve Number Set: ICPR3

 Green-Ampt Set: ICPR3
 Vertical Layers Set:
 Impervious Set: ICPR3
 Roughness Set:
 Crop Coef Set:
 Fillable Porosity Set:
 Conductivity Set:
 Leakage Set:

Tolerances & Options

Time Marching: SAOR

IA Recovery Time: 24.0000 hr

Max Iterations: 6	ET for Manual Basins: False
Over-Relax Weight 0.5 dec	
Fact:	
dZ Tolerance: 0.0010 ft	Manual Basin Rain Opt: Global
Max dZ: 1.0000 ft	OF Region Rain Opt: Region Specification
Link Optimizer Tol: 0.0001 ft	Rainfall Name: SFWMD72
	Rainfall Amount: 11.60 in
Edge Length Option: Automatic	Storm Duration: 72.0000 hr
Dflt Damping (2D): 0.0050 ft	Dflt Damping (1D): 0.0050 ft
Min Node Srf Area 1 ft2	Min Node Srf Area 113 ft2
(2D):	(1D):
Energy Switch (2D): Energy	Energy Switch (1D): Energy

Comment: Willoughby Creek Weir Through M.C. Golf Course
 Analyzed: 25-year, 3-day (El. 8.0')
 (02/05)

Willoughby Creek Weir Through M.C. Golf Course
 Analyzed: 25-year, 3-day (El. 8.0')
 (02/05)

Simulation: 100Y3D

Scenario: Proposed
 Run Date/Time: 11/1/2017 4:48:20 PM
 Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		60.0000	

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	60.0000
0	0	0	48.0000	30.0000
0	0	0	56.0000	15.0000
0	0	0	60.0000	5.0000
0	0	0	70.0000	15.0000
0	0	0	76.0000	60.0000
0	0	0	90.0000	120.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: ICPR3
Reference ET Folder:
Unit Hydrograph ICPR3
Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set: 100Y3DQ
Curve Number Set: ICPR3

Green-Ampt Set: ICPR3
Vertical Layers Set:
Impervious Set: ICPR3
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec
Fact:
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
ET for Manual Basins: False

Manual Basin Rain Opt: Global
OF Region Rain Opt: Region Specification
Rainfall Name: SFWMD72
Rainfall Amount: 13.60 in
Storm Duration: 72.0000 hr

Dflt Damping (2D): 0.0050 ft
Min Node Srf Area 1 ft2
(2D):
Energy Switch (2D): Energy

Dflt Damping (1D): 0.0050 ft
Min Node Srf Area 113 ft2
(1D):
Energy Switch (1D): Energy

Comment: Willoughby Creek Weir Through M.C. Golf Course

Analyzed: 100-year, 3-day (El. 8.0')

(02/05)

Willoughby Creek Weir Through M.C. Golf Course

Analyzed: 100-year, 3-day (El. 8.0')

(02/05)

**Willoughby Creek
Stormwater Quality Retrofit
Improvement Project
Project No. 1477.27**

ATTACHMENT 4

ICPR Proposed Max Conditions Report



Node Max Conditions [Proposed]

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]
0000FG	010Y1D	16.04	14.12	0.0003	20.47	20.47	1826
0000FG	025Y3D	16.04	14.44	0.0004	33.70	33.70	2108
0000FG	100Y3D	16.04	14.56	0.0003	39.92	39.92	2217

Node Max Conditions [Proposed]

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]
0041FG	010Y1D	16.04	14.57	0.0010	83.25	20.47	1765918
0041FG	025Y3D	16.04	14.99	0.0010	123.58	33.70	2430505
0041FG	100Y3D	16.04	15.14	0.0010	145.87	39.92	2679651

Node Max Conditions [Proposed]

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]
0304A	010Y1D	11.60	7.35	0.0010	70.66	70.65	6307
0304A	025Y3D	11.60	7.67	0.0010	111.61	111.62	6532
0304A	100Y3D	11.60	7.77	0.0010	125.16	125.18	6601

Node Max Conditions [Proposed]

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]
0304B	010Y1D	16.50	8.58	0.0001	3.58	3.58	3439
0304B	025Y3D	16.50	8.67	0.0002	11.21	11.17	7343
0304B	100Y3D	16.50	8.70	0.0002	14.26	14.21	8622

Node Max Conditions [Proposed]

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]
0338FG	010Y1D	16.23	12.71	0.0005	20.47	20.47	2571
0338FG	025Y3D	16.23	13.16	0.0006	33.70	33.70	2840
0338FG	100Y3D	16.23	13.36	0.0004	39.92	39.92	2888

Node Max Conditions [Proposed]

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]
0394	010Y1D	10.81	7.43	0.0010	70.36	70.35	19446
0394	025Y3D	10.81	7.88	0.0005	111.10	111.11	20586
0394	100Y3D	10.81	8.03	0.0004	124.55	124.54	20967

Node Max Conditions [Proposed]

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]
0450FG	010Y1D	16.04	11.09	0.0002	0.01	0.00	141
0450FG	025Y3D	16.04	11.61	0.0008	0.04	0.01	362
0450FG	100Y3D	16.04	11.75	0.0007	0.04	0.01	421

Node Max Conditions [Proposed]

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]
0923BFG	010Y1D	15.08	14.16	0.0010	28.51	19.30	46685
0923BFG	025Y3D	15.08	14.57	0.0009	39.88	25.20	103770
0923BFG	100Y3D	15.08	14.72	0.0010	46.92	27.27	179973

Node Max Conditions [Proposed]

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]
1369A	010Y1D	11.38	7.75	0.0010	70.81	70.45	41569
1369A	025Y3D	11.38	8.37	0.0005	111.17	111.12	46297
1369A	100Y3D	11.38	8.56	0.0005	124.61	124.57	47803

Node Max Conditions [Proposed]

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]
1369B	010Y1D	11.38	7.75	0.0010	9.51	0.78	23386
1369B	025Y3D	11.38	8.37	0.0005	2.15	0.88	26776
1369B	100Y3D	11.38	8.56	0.0005	3.85	0.97	27851

Node Max Conditions [Proposed]

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]
1369C	010Y1D	16.50	12.34	0.0010	54.45	18.10	450315
1369C	025Y3D	16.50	13.41	0.0010	79.73	16.12	479805
1369C	100Y3D	16.50	13.85	0.0010	94.18	16.60	702703

Node Max Conditions [Proposed]

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]
1369D	010Y1D	16.50	8.77	0.0004	8.22	0.00	95935
1369D	025Y3D	16.50	9.51	0.0004	25.69	1.90	152383
1369D	100Y3D	16.50	9.52	0.0003	32.70	11.80	153370

Node Max Conditions [Proposed]

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]
1468A	010Y1D	11.38	7.81	0.0010	71.46	71.30	10991
1468A	025Y3D	11.38	8.52	0.0010	110.04	110.02	12970
1468A	100Y3D	11.38	8.75	0.0010	123.20	123.18	13660

Node Max Conditions [Proposed]

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]
1468B	010Y1D	16.50	7.08	0.0007	28.36	0.37	156666
1468B	025Y3D	16.50	8.67	0.0008	76.62	0.63	375596
1468B	100Y3D	16.50	9.06	0.0006	96.18	0.70	447627

Node Max Conditions [Proposed]

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]
1784A	010Y1D	11.94	7.92	0.0010	71.69	71.46	13242
1784A	025Y3D	11.94	8.66	0.0007	110.09	110.04	15627
1784A	100Y3D	11.94	8.90	0.0007	123.03	123.00	16446

Node Max Conditions [Proposed]

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]
1784B	010Y1D	16.50	8.73	0.0003	12.87	0.00	146670
1784B	025Y3D	16.50	9.66	0.0004	38.69	0.24	249126
1784B	100Y3D	16.50	9.93	0.0003	49.07	0.51	279899

Node Max Conditions [Proposed]

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]
1860A	010Y1D	12.02	7.97	0.0010	71.78	71.69	4107
1860A	025Y3D	12.02	8.78	0.0010	109.96	109.95	4511
1860A	100Y3D	12.02	9.04	0.0010	122.63	122.62	4643

Node Max Conditions [Proposed]

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]
1860B	010Y1D	16.50	8.73	0.0003	20.45	0.00	232375
1860B	025Y3D	16.50	9.68	0.0004	61.47	0.00	399450
1860B	100Y3D	16.50	10.00	0.0003	77.96	0.00	454337

Node Max Conditions [Proposed]

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]
1860C	010Y1D	14.50	8.82	0.0004	5.78	0.00	66185
1860C	025Y3D	14.50	9.77	0.0004	17.37	0.00	113943
1860C	100Y3D	14.50	10.08	0.0003	22.03	0.00	129537

Node Max Conditions [Proposed]

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]
2959A	010Y1D	13.57	8.49	0.0010	71.82	71.78	3647
2959A	025Y3D	13.57	9.27	0.0008	109.97	109.96	4082
2959A	100Y3D	13.57	9.52	0.0009	122.64	122.63	4208

Node Max Conditions [Proposed]

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]
2959B	010Y1D	13.57	4.83	0.0000	0.00	0.00	0
2959B	025Y3D	13.57	4.83	0.0000	0.00	0.00	0
2959B	100Y3D	13.57	4.83	0.0000	0.00	0.00	0

Node Max Conditions [Proposed]

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]
2959C	010Y1D	15.08	11.73	0.0010	23.75	15.89	74786
2959C	025Y3D	15.08	12.81	0.0008	43.89	15.28	379416
2959C	100Y3D	15.08	13.04	0.0010	52.99	15.85	501467

Node Max Conditions [Proposed]

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]
3071	010Y1D	13.47	11.23	0.0010	41.88	38.98	11647
3071	025Y3D	13.47	11.94	0.0010	42.01	41.91	12378
3071	100Y3D	13.47	12.12	0.0010	44.39	44.35	12567

Node Max Conditions [Proposed]

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]
3574	010Y1D	13.10	11.24	0.0010	44.37	41.88	11751
3574	025Y3D	13.10	11.96	0.0010	42.19	42.01	12484
3574	100Y3D	13.10	12.14	0.0010	44.44	44.39	12772

Node Max Conditions [Proposed]

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]
3633	010Y1D	13.31	11.33	0.0009	47.96	44.37	17104
3633	025Y3D	13.31	12.13	0.0008	42.87	42.19	18705
3633	100Y3D	13.31	12.33	0.0008	44.82	44.44	19108

Node Max Conditions [Proposed]

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]
4623	010Y1D	14.29	11.37	0.0007	50.64	47.96	17243
4623	025Y3D	14.29	12.18	0.0005	44.33	42.87	18849
4623	100Y3D	14.29	12.38	0.0005	46.19	44.82	19251

Node Max Conditions [Proposed]

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]
5041	010Y1D	13.03	12.25	0.0010	80.16	50.64	170686
5041	025Y3D	13.03	13.43	0.0008	117.07	44.33	454312
5041	100Y3D	13.03	13.76	0.0008	138.28	46.19	565809

Node Max Conditions [Proposed]

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]
A	010Y1D	16.50	2.97	0.0007	21.91	2.87	83185
A	025Y3D	16.50	4.82	0.0008	55.15	20.43	162315
A	100Y3D	16.50	5.25	0.0009	68.97	23.26	254329

Node Max Conditions [Proposed]

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]
A-OUTFALL	010Y1D	10.50	0.50	0.0000	2.87	0.00	0
A-OUTFALL	025Y3D	10.50	0.50	0.0000	20.43	0.00	0
A-OUTFALL	100Y3D	10.50	0.50	0.0000	23.26	0.00	0

Node Max Conditions [Proposed]

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]
B	010Y1D	16.50	2.41	0.0004	29.72	1.02	155812
B	025Y3D	16.50	4.37	0.0008	84.09	17.06	255949
B	100Y3D	16.50	5.01	0.0008	106.33	44.52	496677

Node Max Conditions [Proposed]

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]
C	010Y1D	16.50	1.62	0.0010	35.36	4.51	114682
C	025Y3D	16.50	4.36	0.0010	96.48	7.76	306166
C	100Y3D	16.50	5.01	0.0010	126.26	8.38	351396

Node Max Conditions [Proposed]

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]
C-OUT	010Y1D	3.50	0.50	0.0000	4.18	1.38	0
C-OUT	025Y3D	3.50	0.50	0.0000	7.76	1.38	0
C-OUT	100Y3D	3.50	0.50	0.0000	8.38	1.38	0

Node Max Conditions [Proposed]

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]
D	010Y1D	16.50	3.37	0.0007	15.17	2.24	52626
D	025Y3D	16.50	5.53	0.0010	44.96	21.18	66678
D	100Y3D	16.50	5.58	0.0010	57.20	46.08	78165

Node Max Conditions [Proposed]

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]
E	010Y1D	16.50	5.54	0.0003	8.39	4.93	142845
E	025Y3D	16.50	5.63	0.0003	26.31	25.95	154699
E	100Y3D	16.50	5.65	0.0001	33.64	33.24	157876

Node Max Conditions [Proposed]

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]
Prop STA Cell 1	010Y1D	14.00	8.83	0.0010	72.30	71.03	170451
Prop STA Cell 1	025Y3D	14.00	9.43	0.0003	108.35	106.97	175255

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]
Prop STA Cell 1	100Y3D	14.00	9.67	0.0004	118.93	117.36	176998

Node Max Conditions [Proposed]

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]
Prop STA Cell 2	010Y1D	14.00	11.09	0.0010	76.76	57.45	279012
Prop STA Cell 2	025Y3D	14.00	11.61	0.0004	97.10	92.66	286931
Prop STA Cell 2	100Y3D	14.00	11.75	0.0004	107.92	102.75	288754

Node Max Conditions [Proposed]

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]
WEIR	010Y1D	12.39	7.29	0.0010	70.65	70.65	6348
WEIR	025Y3D	12.39	7.54	0.0010	111.62	111.61	6550
WEIR	100Y3D	12.39	7.62	0.0010	125.18	125.17	6611

Node Max Conditions [Proposed]

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]
Z	010Y1D	12.39	0.50	0.0000	74.09	0.00	0
Z	025Y3D	12.39	0.50	0.0000	119.17	0.00	0
Z	100Y3D	12.39	0.50	0.0000	134.68	0.00	0