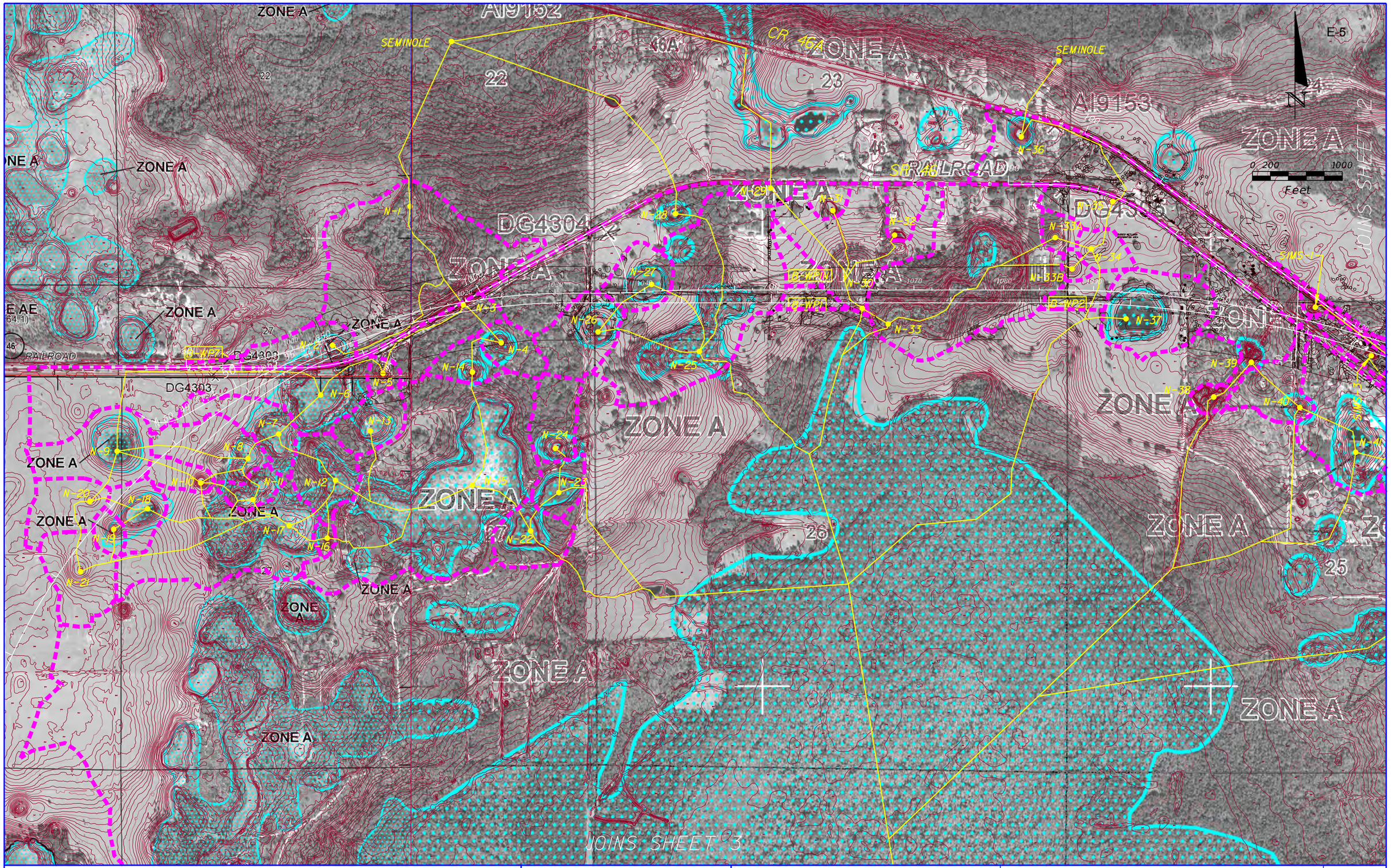
EXISTING CONDITIONS

ICPR NODAL MAPS



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

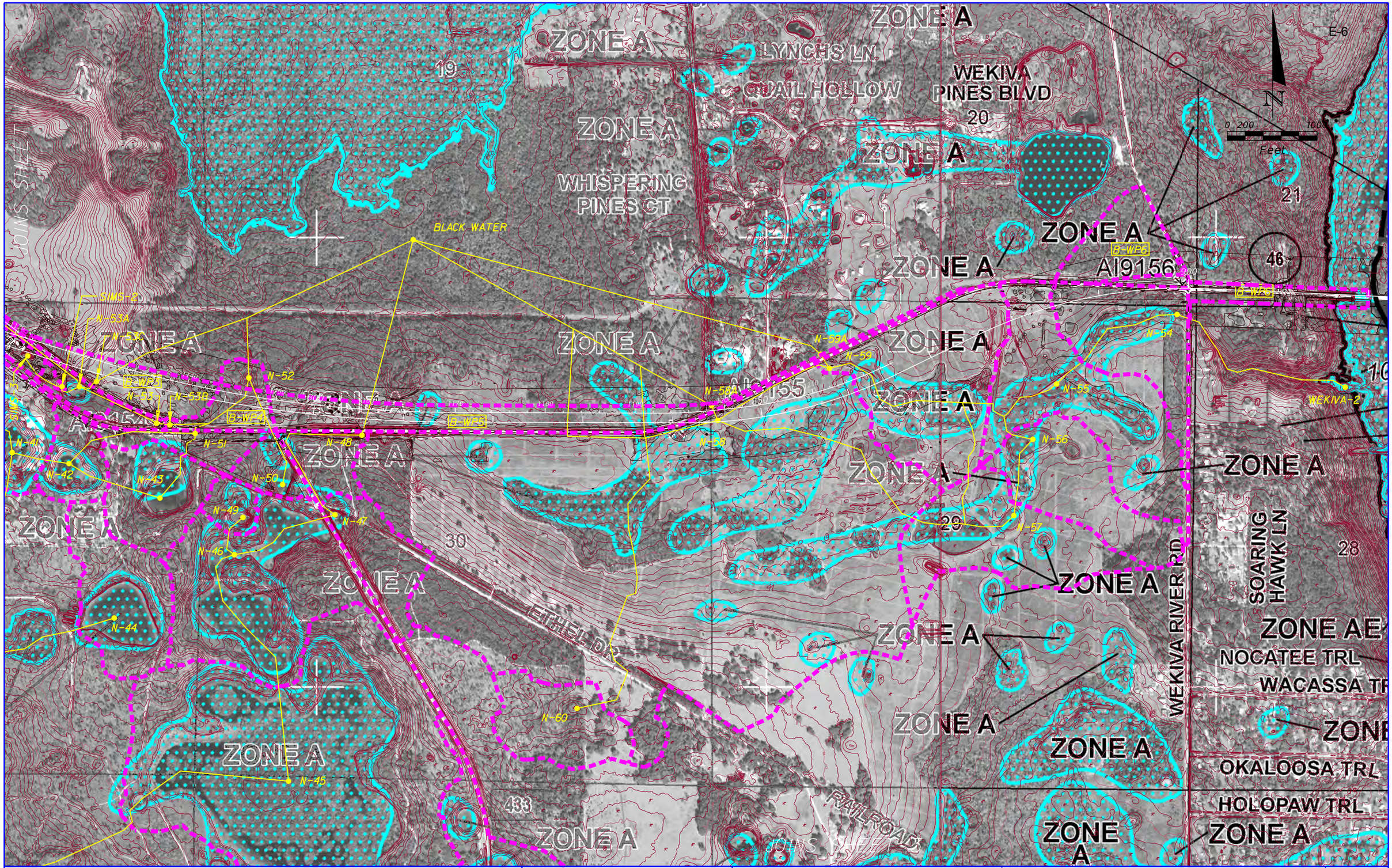
J. ALEXANDER GEORGE, P.E.
P.E. LICENSE NUMBER 59006
BCC ENGINEERING, INC.
160 N. WESTMONTE DRIVE, SUITE 2000
ALTAMONTE SPRINGS, FLORIDA 32714
CERTIFICATE OF AUTHORIZATION NO. 7184

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE	238275-7-52-01

SR 429 SECTION 6
EX. DRAIN NODAL MAP (1)

SHEET NO. 1 OF 3



REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE	238275-7-52-01

SR 429 SECTION 6
EX. DRAIN NODAL MAP (2)

SHEET NO. 2 OF 3

bwhitegon 8/8/2014 4:26:08 PM X:\431081332\01-D5-Wekiva 6\2382757520\drainage\PLAN_EXIST NODAL MAP02.dgn

JOINS SHEET 1

JOINS SHEET 2

E-7

N-45

N-60

ZONE A

ZONE AE

ZONE X

PARK BOUNDARY

ORANGE COUNTY

Orange County Unincorporated Areas 120179

WEKIWA SPRINGS STATE PARK

ROCK SPRINGS RUN STATE RESERVE

Lake Barthe

Lake Lerla

Rock Springs Run

Wekiva River

Mill Creek

FLOODING EFFECTS FROM WEKIVA RIVER

LIMIT OF DETAILED STUDY

ORANGE COUNTY

SEMINOLE COUNTY

MT PLYMOUTH RD

WEKIWA SPRINGS STATE PARK

PREVO DR

EAST COUNTRY LN

LONGHORN DR

SLAYDEN CT

BRANSFORD CT

CORD CT

KATI LYNN DR

ANTON AVE

FLORENCE ST

W WILLIAM AVE

BRAFORD RD

BRANGUS RD

HEREFORD RD

HOLSTEIN RD

BAPTIST CAMP RD

PINE ST

DAVIES ST

E PONKAN RD

AA6716

WMB

RSR

M12

M13

PROFILE BAS

0 300 600 Feet

N

R. 28 E.

R. 29 E.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

J. ALEXANDER GEORGE, P.E.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE	238275-7-52-01

SR 429 SECTION 6
EX. DRAIN NODAL MAP (3)

SHEET NO. 3 OF 3

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EXISTING CONDITIONS

HYDROLOGY

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-1**
RECEIVING NODE:	**N-1**
TOTAL AREA:	**60.90**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	3.67	132.12
Woods - (fair)	D	79	18.64	1472.56
Brush - (fair)	A	35	3.83	134.05
Brush - (fair)	D	77	17.14	1319.78
Wetland	D	98	17.62	1726.76
		Totals =	60.90	4785.27

Composite CN = 79

2. Time of Concentration (TC)

	Equations		
Sheet Flow	$T_t = \frac{60(0.007)(nL)^{0.8}}{4.8^{0.5}S^{0.4}}$	where:	Tt= travel time (min) L ≤ 300 ft S = slope (ft/ft) n = Manning's "n"
Shallow Concentrated Flow	$T_t = \frac{L}{60V}$	where:	Unpaved: $V=16.1345(S)^{0.5}$ Paved: $V=20.3282(S)^{0.5}$ 60 = conversion from sec. to min.
Channel/Pipe Flow	$T_t = \frac{L}{60V}$	where:	V=2.5 fps (assumed) 60 = conversion from sec. to min.

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0027	-	68.3
Shallow Conc. (Unpaved)	200		0.0027	0.83	4.0
Shallow Conc. (Unpaved)	545		0.0239	2.49	3.6
Shallow Conc. (Unpaved)	467		0.0021	0.75	10.4

Time of Concentration = 86 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-2**
RECEIVING NODE:	**N-2**
TOTAL AREA:	**10.44**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Brush - (fair)	A	35	5.67	198.45
Brush - (fair)	D	77	4.76	366.52
Pasture/grassland/range (grazing) - (fair)	A	49	0.01	0.49
		Totals =	10.44	565.46

Composite CN = 54

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0067	-	27.2
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	459		0.0109	1.68	4.5
Shallow Conc. (Unpaved)	116		0.0603	3.96	0.5

Time of Concentration = 35 Minutes

BASIN:	**B-3**
RECEIVING NODE:	**N-3**
TOTAL AREA:	**12.98**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	7.30	262.8
Woods - (fair)	D	79	5.55	438.45
Brush - (fair)	D	77	0.13	10.01
		Totals =	12.98	711.26

Composite CN = 55

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0067	-	47.4
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	187		0.0080	1.45	2.2
Shallow Conc. (Unpaved)	520		0.0038	1.00	8.7

Time of Concentration = 61 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN: B-4
RECEIVING NODE: N-4
TOTAL AREA: 7.14

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	7.14	257.04
		Totals =	7.14	257.04

Composite CN = 36

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0050	-	53.2
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	223		0.0314	2.86	1.3

Time of Concentration = 57 Minutes

BASIN: B-5
RECEIVING NODE: N-5
TOTAL AREA: 2.62

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.57	20.52
Woods - (fair)	D	79	1.89	149.31
Brush - (fair)	A	35	0.12	4.2
Brush - (fair)	D	77	0.04	3.08
		Totals =	2.62	177.11

Composite CN = 68

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0316	-	14.6
Shallow Conc. (Unpaved)	58		0.0316	2.87	0.3

Time of Concentration = 15 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-6**
RECEIVING NODE:	**N-6**
TOTAL AREA:	**48.44**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	2.04	73.44
Woods - (fair)	D	79	5.48	432.92
Brush - (fair)	A	35	0.13	4.55
Brush - (fair)	D	77	0.72	55.44
Pasture/grassland/range (grazing) - (fair)	A	49	33.37	1635.13
Pasture/grassland/range (grazing) - (fair)	D	84	0.79	66.36
Wetland	D	98	5.91	579.18
		Totals =	48.44	2847.02

Composite CN = 59

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0033	-	35.9
Shallow Conc. (Unpaved)	200		0.0033	0.93	3.6
Shallow Conc. (Unpaved)	693		0.0087	1.50	7.7
Shallow Conc. (Unpaved)	2519		0.0075	1.40	30.0

Time of Concentration = 77 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-7**
RECEIVING NODE:	**N-7**
TOTAL AREA:	**12.19**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.20	43.2
Woods - (fair)	D	79	1.49	117.71
Brush - (fair)	A	35	0.25	8.75
Brush - (fair)	D	77	0.47	36.19
Pasture/grassland/range (grazing) - (fair)	A	49	5.84	286.16
Pasture/grassland/range (grazing) - (fair)	D	84	0.52	43.68
Wetland	D	98	2.42	237.16
		Totals =	12.19	772.85

Composite CN = 63

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0150	-	19.7
Shallow Conc. (Unpaved)	200		0.0150	1.98	1.7
Shallow Conc. (Unpaved)	190		0.0026	0.83	3.8
Shallow Conc. (Unpaved)	449		0.0156	2.01	3.7
Shallow Conc. (Unpaved)	114		0.0614	4.00	0.5

Time of Concentration = 29 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-8**
RECEIVING NODE:	**N-8**
TOTAL AREA:	**14.35**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.25	9
Woods - (fair)	D	79	0.39	30.81
Brush - (fair)	A	35	0.28	9.8
Brush - (fair)	D	77	1.66	127.82
Pasture/grassland/range (grazing) - (fair)	A	49	8.70	426.3
Pasture/grassland/range (grazing) - (fair)	D	84	1.28	107.52
Wetland	D	98	1.79	175.42
		Totals =	14.35	886.67

Composite CN = 62

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0083	-	24.9
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	354		0.0311	2.84	2.1

Time of Concentration = 29 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-9**
RECEIVING NODE:	**N-9**
TOTAL AREA:	**18.95**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	16.10	788.9
Pasture/grassland/range (grazing) - (fair)	D	84	0.07	5.88
Water Surface	N/A	100	0.71	71
Wetland	D	98	2.07	202.86
		Totals =	18.95	1068.64

Composite CN = 56

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0033	-	35.9
Shallow Conc. (Unpaved)	200		0.0033	0.93	3.6
Shallow Conc. (Unpaved)	202		0.0025	0.80	4.2
Shallow Conc. (Unpaved)	234		0.0385	3.16	1.2

Time of Concentration = 45 Minutes

BASIN:	**B-10**
RECEIVING NODE:	**N-10**
TOTAL AREA:	**4.73**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	4.49	220.01
Woods - (fair)	A	36	0.24	8.64
		Totals =	4.73	228.65

Composite CN = 48

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0100	-	23.1
Shallow Conc. (Unpaved)	200		0.0100	1.61	2.1
Shallow Conc. (Unpaved)	168		0.0208	2.33	1.2
Shallow Conc. (Unpaved)	107		0.0935	4.93	0.4

Time of Concentration = 27 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-11**
RECEIVING NODE:	**N-11**
TOTAL AREA:	**4.95**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.07	38.52
Woods - (fair)	D	79	0.62	48.98
Brush - (fair)	A	35	0.02	0.7
Brush - (fair)	D	77	1.27	97.79
Wetland	D	98	1.97	193.06
		Totals =	4.95	379.05

Composite CN = 77

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0217	-	29.6
Shallow Conc. (Unpaved)	200		0.0217	2.37	1.4

Time of Concentration = 31 Minutes

BASIN:	**B-12**
RECEIVING NODE:	**N-12**
TOTAL AREA:	**12.39**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	4.81	173.16
Woods - (fair)	D	79	2.21	174.59
Brush - (fair)	A	35	0.02	0.7
Brush - (fair)	D	77	0.30	23.1
Wetland	D	98	5.05	494.9
		Totals =	12.39	866.45

Composite CN = 70

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0267	-	27.2
Shallow Conc. (Unpaved)	200		0.0267	2.63	1.3
Shallow Conc. (Unpaved)	134		0.0299	2.79	0.8

Time of Concentration = 29 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-13**
RECEIVING NODE:	**N-13**
TOTAL AREA:	**9.18**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	4.43	159.48
Brush - (fair)	A	35	3.57	124.95
Brush - (fair)	D	77	0.52	40.04
Wetland	D	98	0.66	64.68
		Totals =	9.18	389.15

Composite CN = 42

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0067	-	47.4
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	167		0.0389	3.18	0.9

Time of Concentration = 51 Minutes

BASIN:	**B-14**
RECEIVING NODE:	**N-14**
TOTAL AREA:	**6.10**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	5.45	196.2
Wetland	D	98	0.65	63.7
		Totals =	6.10	259.90

Composite CN = 43

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0100	-	40.3
Shallow Conc. (Unpaved)	200		0.0100	1.61	2.1
Shallow Conc. (Unpaved)	125		0.0400	3.23	0.6

Time of Concentration = 43 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-15**
RECEIVING NODE:	**N-15**
TOTAL AREA:	**91.45**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	24.69	888.84
Woods - (fair)	D	79	8.12	641.48
Brush - (fair)	A	35	17.10	598.5
Brush - (fair)	D	77	8.74	672.98
Wetland	D	98	32.80	3214.4
		Totals =	91.45	6016.20

Composite CN = 66

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0167	-	32.8
Shallow Conc. (Unpaved)	200		0.0167	2.08	1.6
Shallow Conc. (Unpaved)	231		0.0216	2.37	1.6

Time of Concentration = 36 Minutes

BASIN:	**B-16**
RECEIVING NODE:	**N-16**
TOTAL AREA:	**1.60**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.30	10.8
Woods - (fair)	D	79	0.03	2.37
Brush - (fair)	A	35	0.27	9.45
Brush - (fair)	D	77	1.00	77
		Totals =	1.60	99.62

Composite CN = 62

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0238	-	28.5
Shallow Conc. (Unpaved)	89		0.0238	2.49	0.6

Time of Concentration = 29 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-17**
RECEIVING NODE:	**N-17**
TOTAL AREA:	**40.81**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	5.49	197.64
Woods - (fair)	D	79	2.90	229.1
Brush - (fair)	A	35	5.57	194.95
Brush - (fair)	D	77	2.07	159.39
Pasture/grassland/range (grazing) - (fair)	A	49	14.91	730.59
Wetland	D	98	9.87	967.26
		Totals =	40.81	2478.93

Composite CN = 61

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0133	-	20.6
Shallow Conc. (Unpaved)	200		0.0133	1.86	1.8
Shallow Conc. (Unpaved)	1130		0.0212	2.35	8.0

Time of Concentration = 30 Minutes

BASIN:	**B-18**
RECEIVING NODE:	**N-18**
TOTAL AREA:	**8.34**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	7.06	345.94
Pasture/grassland/range (grazing) - (fair)	D	84	0.04	3.36
Wetland	D	98	1.24	121.52
		Totals =	8.34	470.82

Composite CN = 56

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0217	-	17.0
Shallow Conc. (Unpaved)	200		0.0217	2.37	1.4
Shallow Conc. (Unpaved)	62		0.0806	4.58	0.2

Time of Concentration = 19 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-19**
RECEIVING NODE:	**N-19**
TOTAL AREA:	**3.16**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	3.16	154.84
		Totals =	3.16	154.84

Composite CN = 49

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0354	-	13.9
Shallow Conc. (Unpaved)	168		0.0354	3.04	0.9

Time of Concentration = 15 Minutes

BASIN:	**B-20**
RECEIVING NODE:	**N-20**
TOTAL AREA:	**11.30**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	11.30	553.7
		Totals =	11.30	553.70

Composite CN = 49

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0067	-	27.2
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	577		0.0095	1.58	6.1

Time of Concentration = 36 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-21**
RECEIVING NODE:	**N-21**
TOTAL AREA:	**15.34**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	15.34	751.66
		Totals =	15.34	751.66

Composite CN = 49

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0067	-	27.2
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	370		0.0311	2.84	2.2

Time of Concentration = 32 Minutes

BASIN:	**B-22**
RECEIVING NODE:	**N-22**
TOTAL AREA:	**11.18**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	7.63	602.77
Brush - (fair)	D	77	0.15	11.55
Wetland	D	98	3.40	333.2
		Totals =	11.18	947.52

Composite CN = 85

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0321	-	25.3
Shallow Conc. (Unpaved)	165		0.0321	2.89	1.0

Time of Concentration = 26 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-23**
RECEIVING NODE:	**N-23**
TOTAL AREA:	**6.91**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	2.32	83.52
Woods - (fair)	D	79	1.54	121.66
Wetland	D	98	3.05	298.9
		Totals =	6.91	504.08

Composite CN = 73

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0390	-	23.4
Shallow Conc. (Unpaved)	131		0.0390	3.18	0.7

Time of Concentration = 24 Minutes

BASIN:	**B-24**
RECEIVING NODE:	**N-24**
TOTAL AREA:	**10.31**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	9.31	335.16
Wetland	D	98	1.00	98
		Totals =	10.31	433.16

Composite CN = 42

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0050	-	53.2
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	583		0.0120	1.77	5.5
Shallow Conc. (Unpaved)	162		0.0432	3.35	0.8

Time of Concentration = 62 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-25**
RECEIVING NODE:	**N-25**
TOTAL AREA:	**61.58**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	5.53	199.08
Woods - (fair)	D	79	19.73	1558.67
Pasture/grassland/range (grazing) - (fair)	A	49	5.89	288.61
Pasture/grassland/range (grazing) - (fair)	D	84	22.75	1911
Wetland	D	98	7.68	752.64
		Totals =	61.58	4710.00

Composite CN = 76

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.3	0.0050	-	24.3
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	684		0.0161	2.05	5.6
Shallow Conc. (Unpaved)	122		0.0410	3.27	0.6

Time of Concentration = 33 Minutes

BASIN:	**B-26**
RECEIVING NODE:	**N-26**
TOTAL AREA:	**14.49**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	9.37	337.32
Woods - (fair)	D	79	0.11	8.69
Pasture/grassland/range (grazing) - (fair)	A	49	1.96	96.04
Pasture/grassland/range (grazing) - (fair)	D	84	3.05	256.2
		Totals =	14.49	698.25

Composite CN = 48

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0050	-	53.2
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	340		0.0353	3.03	1.9

Time of Concentration = 58 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-27**
RECEIVING NODE:	**N-27**
TOTAL AREA:	**9.70**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	0.85	67.15
Pasture/grassland/range (grazing) - (fair)	A	49	1.33	65.17
Pasture/grassland/range (grazing) - (fair)	D	84	5.51	462.84
Wetland	D	98	2.01	196.98
		Totals =	9.70	792.14

Composite CN = 82

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0183	-	18.2
Shallow Conc. (Unpaved)	200		0.0183	2.18	1.5
Shallow Conc. (Unpaved)	40		0.0750	4.42	0.2

Time of Concentration = 20 Minutes

BASIN:	**B-28**
RECEIVING NODE:	**N-28**
TOTAL AREA:	**32.41**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	10.24	368.64
Woods - (fair)	D	79	11.41	901.39
Pasture/grassland/range (grazing) - (fair)	A	49	4.39	215.11
Pasture/grassland/range (grazing) - (fair)	D	84	5.95	499.8
Wetland	D	98	0.42	41.16
		Totals =	32.41	2026.10

Composite CN = 63

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0050	-	53.2
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	380		0.0158	2.03	3.1
Shallow Conc. (Unpaved)	1700		0.0021	0.73	38.7

Time of Concentration = 98 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-29**
RECEIVING NODE:	**N-29**
TOTAL AREA:	**3.56**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.96	70.56
Woods - (fair)	D	79	0.15	11.85
Pasture/grassland/range (grazing) - (fair)	A	49	0.98	48.02
Pasture/grassland/range (grazing) - (fair)	D	84	0.47	39.48
		Totals =	3.56	169.91

Composite CN = 48

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0067	-	47.4
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5

Time of Concentration = 50 Minutes

BASIN:	**B-30**
RECEIVING NODE:	**N-30**
TOTAL AREA:	**30.31**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	5.60	442.4
Pasture/grassland/range (grazing) - (fair)	A	49	8.10	396.9
Pasture/grassland/range (grazing) - (fair)	D	84	15.92	1337.28
Residential - 2 acre	D	82	0.03	2.46
Water Surface	N/A	100	0.02	2
Wetland	D	98	0.64	62.72
		Totals =	30.31	2243.76

Composite CN = 74

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.3	0.0067	-	21.6
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	400		0.0188	2.21	3.0
Shallow Conc. (Unpaved)	293		0.0375	3.13	1.6

Time of Concentration = 29 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-31**
RECEIVING NODE:	**N-31**
TOTAL AREA:	**3.64**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	1.36	66.64
Pasture/grassland/range (grazing) - (fair)	D	84	2.28	191.52
		Totals =	3.64	258.16

Composite CN = 71

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0151	-	19.6
Shallow Conc. (Unpaved)	165		0.0151	1.98	1.4

Time of Concentration = 21 Minutes

BASIN:	**B-32**
RECEIVING NODE:	**N-32**
TOTAL AREA:	**5.32**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	2.38	116.62
Pasture/grassland/range (grazing) - (fair)	D	84	0.95	79.8
Residential - 2 acre	A	46	0.42	19.32
Residential - 2 acre	D	82	1.14	93.48
Water Surface	N/A	100	0.42	42
Wetland	D	98	0.01	0.98
		Totals =	5.32	352.20

Composite CN = 66

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.3	0.0133	-	16.4
Shallow Conc. (Unpaved)	200		0.0133	1.86	1.8
Shallow Conc. (Unpaved)	320		0.0156	2.02	2.6
Shallow Conc. (Unpaved)	30		0.1667	6.59	0.1

Time of Concentration = 21 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-33**
RECEIVING NODE:	**N-33**
TOTAL AREA:	**62.75**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	5.75	207
Woods - (fair)	D	79	3.18	251.22
Pasture/grassland/range (grazing) - (fair)	A	49	8.20	401.8
Pasture/grassland/range (grazing) - (fair)	D	84	4.69	393.96
Residential - 2 acre	A	46	10.07	463.22
Residential - 2 acre	D	82	1.95	159.9
Wetland	D	98	28.91	2833.18
		Totals =	62.75	4710.28

Composite CN = 75

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0083	-	24.9
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	303		0.0726	4.35	1.2

Time of Concentration = 28 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-33A**
RECEIVING NODE:	**N-33A**
TOTAL AREA:	**3.68**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.84	30.24
Woods - (fair)	D	79	1.60	126.4
Pasture/grassland/range (grazing) - (fair)	A	49	0.50	24.5
Pasture/grassland/range (grazing) - (fair)	D	84	0.72	60.48
Residential - 2 acre	A	46	0.02	0.92
		Totals =	3.68	242.54

Composite CN = 66

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0317	-	25.4
Shallow Conc. (Unpaved)	200		0.0317	2.87	1.2

Time of Concentration = 27 Minutes

BASIN:	**B-33B**
RECEIVING NODE:	**N-33B**
TOTAL AREA:	**1.96**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	0.15	11.85
Pasture/grassland/range (grazing) - (fair)	A	49	1.81	88.69
		Totals =	1.96	100.54

Composite CN = 51

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0262	-	15.7
Shallow Conc. (Unpaved)	110		0.0262	2.61	0.7

Time of Concentration = 16 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-34**
RECEIVING NODE:	**N-34**
TOTAL AREA:	**5.28**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	5.27	258.23
Pasture/grassland/range (grazing) - (fair)	D	84	0.01	0.84
		Totals =	5.28	259.07

Composite CN = 49

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0100	-	23.1
Shallow Conc. (Unpaved)	200		0.0100	1.61	2.1
Shallow Conc. (Unpaved)	85		0.0353	3.03	0.5

Time of Concentration = 26 Minutes

BASIN:	**B-35**
RECEIVING NODE:	**N-35**
TOTAL AREA:	**18.44**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.74	62.64
Brush - (fair)	A	35	0.30	10.5
Pasture/grassland/range (grazing) - (fair)	A	49	16.22	794.78
Residential - 2 acre	A	46	0.18	8.28
		Totals =	18.44	876.20

Composite CN = 48

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0083	-	24.9
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	256		0.0137	1.89	2.3

Time of Concentration = 29 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-36**
RECEIVING NODE:	**N-36**
TOTAL AREA:	**45.53**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	12.17	438.12
Woods - (fair)	D	79	1.25	98.75
Brush - (fair)	A	35	9.25	323.75
Pasture/grassland/range (grazing) - (fair)	A	49	6.86	336.14
Residential - 2 acre	A	46	16.00	736
		Totals =	45.53	1932.76

Composite CN = 42

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0123	-	21.3
Shallow Conc. (Unpaved)	104		0.0123	1.79	1.0
Channel/Pipe	2431			2.50	16.2

Time of Concentration = 39 Minutes

BASIN:	**B-37**
RECEIVING NODE:	**N-37**
TOTAL AREA:	**21.38**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.32	11.52
Brush - (fair)	A	35	1.94	67.9
Pasture/grassland/range (grazing) - (fair)	A	49	13.84	678.16
Pasture/grassland/range (grazing) - (fair)	D	84	1.43	120.12
Imperv. - paved parking lots,roofs,drives	D	98	3.85	377.3
		Totals =	21.38	1255.00

Composite CN = 59

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0150	-	19.7
Shallow Conc. (Unpaved)	200		0.0150	1.98	1.7
Shallow Conc. (Unpaved)	215		0.0279	2.70	1.3

Time of Concentration = 23 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-38**
RECEIVING NODE:	**N-38**
TOTAL AREA:	**2.61**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.27	9.72
Woods - (fair)	D	79	2.34	184.86
		Totals =	2.61	194.58

Composite CN = 75

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0552	-	20.3
Shallow Conc. (Unpaved)	45		0.0552	3.79	0.2

Time of Concentration = 21 Minutes

BASIN:	**B-39**
RECEIVING NODE:	**N-39**
TOTAL AREA:	**16.56**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	12.94	465.84
Woods - (fair)	D	79	1.61	127.19
Brush - (fair)	A	35	1.40	49
Pasture/grassland/range (grazing) - (fair)	A	49	0.55	26.95
Residential - 2 acre	A	46	0.06	2.76
		Totals =	16.56	671.74

Composite CN = 41

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0083	-	24.9
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	472		0.0117	1.74	4.5

Time of Concentration = 32 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-40**
RECEIVING NODE:	**N-40**
TOTAL AREA:	**11.80**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	8.43	303.48
Woods - (fair)	D	79	0.17	13.43
Pasture/grassland/range (grazing) - (fair)	A	49	0.03	1.47
Residential - 2 acre	A	46	3.17	145.82
		Totals =	11.80	464.20

Composite CN = 39

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0167	-	32.8
Shallow Conc. (Unpaved)	200		0.0167	2.08	1.6
Shallow Conc. (Unpaved)	109		0.0275	2.68	0.7

Time of Concentration = 35 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-41**
RECEIVING NODE:	**N-41**
TOTAL AREA:	**29.64**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	5.59	201.24
Woods - (fair)	D	79	0.50	39.5
Pasture/grassland/range (grazing) - (fair)	A	49	7.11	348.39
Pasture/grassland/range (grazing) - (fair)	D	84	3.94	330.96
Residential - 2 acre	A	46	9.47	435.62
Residential - 2 acre	D	82	0.09	7.38
Water Surface	N/A	100	0.93	93
Wetland	D	98	2.01	196.98
		Totals =	29.64	1653.07

Composite CN = 56

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0233	-	28.7
Shallow Conc. (Unpaved)	200		0.0233	2.46	1.4
Shallow Conc. (Unpaved)	828		0.0169	2.10	6.6

Time of Concentration = 37 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-42**
RECEIVING NODE:	**N-42**
TOTAL AREA:	**13.66**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.20	43.2
Woods - (fair)	D	79	0.27	21.33
Pasture/grassland/range (grazing) - (fair)	A	49	1.83	89.67
Pasture/grassland/range (grazing) - (fair)	D	84	0.25	21
Residential - 2 acre	A	46	5.20	239.2
Residential - 2 acre	D	82	1.15	94.3
Water Surface	N/A	100	0.84	84
Wetland	D	98	2.92	286.16
		Totals =	13.66	878.86

Composite CN = 64

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0117	-	37.9
Shallow Conc. (Unpaved)	200		0.0117	1.74	1.9
Shallow Conc. (Unpaved)	171		0.0292	2.76	1.0

Time of Concentration = 41 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-43**
RECEIVING NODE:	**N-43**
TOTAL AREA:	**26.44**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	5.00	180
Woods - (fair)	D	79	2.35	185.65
Pasture/grassland/range (grazing) - (fair)	A	49	1.68	82.32
Residential - 2 acre	A	46	9.97	458.62
Residential - 2 acre	D	82	2.12	173.84
Water Surface	N/A	100	1.19	119
Wetland	D	98	4.13	404.74
		Totals =	26.44	1604.17

Composite CN = 61

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0067	-	27.2
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	401		0.0200	2.28	2.9

Time of Concentration = 33 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-44**
RECEIVING NODE:	**N-44**
TOTAL AREA:	**35.51**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	13.16	473.76
Woods - (fair)	B	60	0.66	39.6
Woods - (fair)	D	79	7.21	569.59
Pasture/grassland/range (grazing) - (fair)	A	49	4.99	244.51
Residential - 2 acre	A	46	0.09	4.14
Residential - 2 acre	D	82	0.03	2.46
Wetland	D	98	9.37	918.26
		Totals =	35.51	2252.32

Composite CN = 63

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0067	-	47.4
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	390		0.0192	2.24	2.9

Time of Concentration = 53 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-45**
RECEIVING NODE:	**N-45**
TOTAL AREA:	**212.45**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	51.44	1851.84
Woods - (fair)	D	79	38.29	3024.91
Pasture/grassland/range (grazing) - (fair)	A	49	0.59	28.91
Pasture/grassland/range (grazing) - (fair)	D	84	14.17	1190.28
Water Surface	N/A	100	27.64	2764
Wetland	D	98	80.32	7871.36
		Totals =	212.45	16731.30

Composite CN = 79

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0050	-	53.2
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	317		0.0300	2.79	1.9

Time of Concentration = 58 Minutes

BASIN:	**B-46**
RECEIVING NODE:	**N-46**
TOTAL AREA:	**73.65**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	15.61	561.96
Woods - (fair)	D	79	36.54	2886.66
Wetland	D	98	21.50	2107
		Totals =	73.65	5555.62

Composite CN = 75

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0150	-	34.3
Shallow Conc. (Unpaved)	200		0.0150	1.98	1.7
Shallow Conc. (Unpaved)	267		0.0637	4.07	1.1

Time of Concentration = 37 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-47**
RECEIVING NODE:	**N-47**
TOTAL AREA:	**20.81**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	14.62	526.32
Woods - (fair)	D	79	6.19	489.01
		Totals =	20.81	1015.33

Composite CN = 49

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0067	-	47.4
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	1000		0.0170	2.10	7.9

Time of Concentration = 58 Minutes

BASIN:	**B-48**
RECEIVING NODE:	**N-48**
TOTAL AREA:	**12.22**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.61	21.96
Woods - (fair)	D	79	11.61	917.19
		Totals =	12.22	939.15

Composite CN = 77

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0083	-	43.3
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	464		0.0119	1.76	4.4

Time of Concentration = 50 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-49**
RECEIVING NODE:	**N-49**
TOTAL AREA:	**6.85**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.58	56.88
Woods - (fair)	D	79	4.29	338.91
Wetland	D	98	0.98	96.04
		Totals =	6.85	491.83

Composite CN = 72

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0267	-	27.2
Shallow Conc. (Unpaved)	200		0.0267	2.63	1.3
Shallow Conc. (Unpaved)	174		0.0402	3.24	0.9

Time of Concentration = 29 Minutes

BASIN:	**B-50**
RECEIVING NODE:	**N-50**
TOTAL AREA:	**8.78**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.06	38.16
Woods - (fair)	D	79	6.08	480.32
Wetland	D	98	1.64	160.72
		Totals =	8.78	679.20

Composite CN = 77

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0150	-	34.3
Shallow Conc. (Unpaved)	200		0.0150	1.98	1.7
Shallow Conc. (Unpaved)	414		0.0217	2.38	2.9

Time of Concentration = 39 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-51**
RECEIVING NODE:	**N-51**
TOTAL AREA:	**11.11**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	4.92	177.12
Woods - (fair)	D	79	3.98	314.42
Imperv. - paved parking lots,roofs,drives	D	98	2.21	216.58
		Totals =	11.11	708.12

Composite CN = 64

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0183	-	31.6
Shallow Conc. (Unpaved)	200		0.0183	2.18	1.5
Shallow Conc. (Unpaved)	130		0.0308	2.83	0.8

Time of Concentration = 34 Minutes

BASIN:	**B-52**
RECEIVING NODE:	**N-52**
TOTAL AREA:	**3.32**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	1.65	130.35
Pasture/grassland/range (grazing) - (fair)	D	84	0.52	43.68
Wetland	D	98	1.15	112.7
		Totals =	3.32	286.73

Composite CN = 86

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0183	-	31.6
Shallow Conc. (Unpaved)	200		0.0183	2.18	1.5
Shallow Conc. (Unpaved)	79		0.0443	3.40	0.4

Time of Concentration = 34 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-53**
RECEIVING NODE:	**N-53**
TOTAL AREA:	**6.61**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	2.19	78.84
Woods - (fair)	D	79	1.44	113.76
Pasture/grassland/range (grazing) - (fair)	A	49	2.71	132.79
Pasture/grassland/range (grazing) - (fair)	D	84	0.12	10.08
Imperv. - rds paved open ditch (incl ROW)	A	83	0.15	12.45
		Totals =	6.61	347.92

Composite CN = 53

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0162	-	33.2
Shallow Conc. (Unpaved)	54		0.0162	2.06	0.4
Shallow Conc. (Unpaved)	345		0.0087	1.50	3.8

Time of Concentration = 37 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-53A**
RECEIVING NODE:	**N-53A**
TOTAL AREA:	**5.98**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.26	45.36
Woods - (fair)	D	79	1.54	121.66
Pasture/grassland/range (grazing) - (fair)	A	49	1.58	77.42
Pasture/grassland/range (grazing) - (fair)	B	69	0.70	48.3
Pasture/grassland/range (grazing) - (fair)	D	84	0.07	5.88
Wetland	D	98	0.83	81.34
		Totals =	5.98	379.96

Composite CN = 64

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0179	-	31.9
Shallow Conc. (Unpaved)	68		0.0179	2.16	0.5
Shallow Conc. (Unpaved)	202		0.0149	1.97	1.7

Time of Concentration = 34 Minutes

BASIN:	**B-54**
RECEIVING NODE:	**N-54**
TOTAL AREA:	**36.72**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.36	12.96
Woods - (fair)	D	79	14.37	1135.23
Brush - (fair)	D	77	16.08	1238.16
Imperv. - rds paved open ditch (incl ROW)	A	83	0.23	19.09
Imperv. - rds paved open ditch (incl ROW)	D	93	0.37	34.41
Wetland	D	98	5.31	520.38
		Totals =	36.72	2960.23

Composite CN = 81

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0050	-	30.5
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	462		0.0065	1.30	5.9

Time of Concentration = 39 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-55**
RECEIVING NODE:	**N-55**
TOTAL AREA:	**61.46**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	2.15	77.4
Woods - (fair)	D	79	4.58	361.82
Brush - (fair)	D	77	39.71	3057.67
Imperv. - rds paved open ditch (incl ROW)	A	83	0.46	38.18
Wetland	D	98	14.56	1426.88
		Totals =	61.46	4961.95

Composite CN = 81

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0083	-	24.9
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	760		0.0086	1.49	8.5

Time of Concentration = 36 Minutes

BASIN:	**B-56**
RECEIVING NODE:	**N-56**
TOTAL AREA:	**38.03**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	5.24	188.64
Woods - (fair)	D	79	0.35	27.65
Brush - (fair)	A	35	1.33	46.55
Brush - (fair)	D	77	25.47	1961.19
Wetland	D	98	5.64	552.72
		Totals =	38.03	2776.75

Composite CN = 73

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0100	-	40.3
Shallow Conc. (Unpaved)	200		0.0100	1.61	2.1
Shallow Conc. (Unpaved)	1239		0.0073	1.38	15.0

Time of Concentration = 57 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-57**
RECEIVING NODE:	**N-57**
TOTAL AREA:	**47.96**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.67	24.12
Woods - (fair)	D	79	1.23	97.17
Brush - (fair)	A	35	0.53	18.55
Brush - (fair)	D	77	37.03	2851.31
Wetland	D	98	8.50	833
		Totals =	47.96	3824.15

Composite CN = 80

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0083	-	43.3
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	860		0.0064	1.29	11.1

Time of Concentration = 57 Minutes

BASIN:	**B-58**
RECEIVING NODE:	**N-58**
TOTAL AREA:	**390.44**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	60.18	2166.48
Woods - (fair)	D	79	1.65	130.35
Brush - (fair)	A	35	57.56	2014.6
Brush - (fair)	D	77	190.81	14692.37
Pasture/grassland/range (grazing) - (fair)	A	49	27.04	1324.96
Pasture/grassland/range (grazing) - (fair)	D	84	0.05	4.2
Wetland	D	98	53.15	5208.7
		Totals =	390.44	25541.66

Composite CN = 65

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0083	-	24.9
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	2526		0.0075	1.40	30.1
Shallow Conc. (Unpaved)	712		0.0056	1.21	9.8

Time of Concentration = 67 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-59**
RECEIVING NODE:	**N-59**
TOTAL AREA:	**61.95**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	0.19	15.01
Brush - (fair)	D	77	40.03	3082.31
Pasture/grassland/range (grazing) - (fair)	D	84	0.11	9.24
Wetland	D	98	21.62	2118.76
		Totals =	61.95	5225.32

Composite CN = 84

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0067	-	27.2
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	520		0.0106	1.66	5.2

Time of Concentration = 35 Minutes

BASIN:	**B-60**
RECEIVING NODE:	**N-60**
TOTAL AREA:	**27.59**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	20.96	754.56
Pasture/grassland/range (grazing) - (fair)	A	49	6.63	324.87
		Totals =	27.59	1079.43

Composite CN = 39

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0083	-	43.3
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	528		0.0095	1.57	5.6

Time of Concentration = 51 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**SIMS-1**
RECEIVING NODE:	**SIMS-1**
TOTAL AREA:	**1.27**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.78	28.08
Pasture/grassland/range (grazing) - (fair)	A	49	0.49	24.01
		Totals =	1.27	52.09

Composite CN = 41

2. Time of Concentration (TC) *TC input data from Sim's Landscaping ERP

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.1	0.0580	-	3.8
Shallow Conc. (Unpaved)	146		0.0580	3.89	0.6

Time of Concentration = 4 Minutes
Note: Minimum TC is 10 minutes

BASIN:	**SIMS-2**
RECEIVING NODE:	**SIMS-2**
TOTAL AREA:	**1.14**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	1.14	55.86
		Totals =	1.14	55.86

Composite CN = 49

2. Time of Concentration (TC) *TC input data from Sim's Landscaping ERP

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.1	0.0483	-	4.1
Shallow Conc. (Unpaved)	200		0.0483	3.55	0.9

Time of Concentration = 5 Minutes
Note: Minimum TC is 10 minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**SIMS-3**
RECEIVING NODE:	**SIMS-3**
TOTAL AREA:	**4.90**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	2.52	123.48
Pasture/grassland/range (grazing) - (fair)	B	69	2.38	164.22
		Totals =	4.90	287.70

Composite CN = 59

2. Time of Concentration (TC) *TC input data from Sim's Landscaping ERP

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.1	0.0483	-	4.1
Shallow Conc. (Unpaved)	200		1.0483	16.52	0.2
Shallow Conc. (Unpaved)	288		0.0277	2.69	1.8

Time of Concentration = 6 Minutes
Note: Minimum TC is 10 minutes

BASIN:	**B-WP1**
RECEIVING NODE:	**WMB**
TOTAL AREA:	**3.52**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	3.45	169.05
Wetland	D	98	0.07	6.86
		Totals =	3.52	175.91

Composite CN = 50

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0267	-	15.6
Shallow Conc. (Unpaved)	200		0.0267	2.63	1.3
Shallow Conc. (Unpaved)	512		0.0283	2.72	3.1

Time of Concentration = 20 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-WP1N**
RECEIVING NODE:	**WMB**
TOTAL AREA:	**4.47**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	0.57	27.93
Pasture/grassland/range (grazing) - (fair)	D	84	3.90	327.6
		Totals =	4.47	355.53

Composite CN = 80

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0083	-	24.9
Shallow Conc. (Unpaved)	200		0.0083	1.47	2.3
Shallow Conc. (Unpaved)	1240		0.0230	2.45	8.4

Time of Concentration = 36 Minutes

BASIN:	**B-WP2**
RECEIVING NODE:	**WMB**
TOTAL AREA:	**5.56**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	0.40	14.4
Pasture/grassland/range (grazing) - (fair)	A	49	5.16	252.84
		Totals =	5.56	267.24

Composite CN = 48

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0067	-	27.2
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	2216		0.0149	1.97	18.8

Time of Concentration = 48 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN: B-WP3
RECEIVING NODE: BLACK WATER
TOTAL AREA: 18.59

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	A	49	2.04	99.96
Pasture/grassland/range (grazing) - (fair)	D	84	12.64	1061.76
Imperv. - rds paved open ditch (incl ROW)	A	83	0.99	82.17
Imperv. - rds paved open ditch (incl ROW)	B	89	0.35	31.15
Imperv. - rds paved open ditch (incl ROW)	D	93	1.21	112.53
Residential - 2 acre	A	46	1.08	49.68
Residential - 2 acre	B	65	0.28	18.2
		Totals =	18.59	1455.45

Composite CN = 78

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0050	-	30.5
Shallow Conc. (Unpaved)	200		0.0050	1.14	2.9
Shallow Conc. (Unpaved)	3000		0.0098	1.60	31.3

Time of Concentration = 65 Minutes

BASIN: B-WP4
RECEIVING NODE: N-52
TOTAL AREA: 9.02

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	1.29	101.91
Imperv. - rds paved open ditch (incl ROW)	D	93	1.63	151.59
Pasture/grassland/range (grazing) - (fair)	D	84	6.10	512.4
		Totals =	9.02	765.90

Composite CN = 85

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0167	-	32.8
Shallow Conc. (Unpaved)	200		0.0167	2.08	1.6
Shallow Conc. (Unpaved)	311		0.0257	2.59	2.0

Time of Concentration = 36 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN: B-WP5
RECEIVING NODE: BLACK WATER
TOTAL AREA: 37.10

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	D	79	1.10	86.9
Pasture/grassland/range (grazing) - (fair)	D	84	27.39	2300.76
Imperv. - rds paved open ditch (incl ROW)	A	83	0.14	11.62
Imperv. - rds paved open ditch (incl ROW)	D	93	8.47	787.71
		Totals =	37.10	3186.99

Composite CN = 86

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0067	-	27.2
Shallow Conc. (Unpaved)	200		0.0067	1.32	2.5
Shallow Conc. (Unpaved)	4784		0.0031	0.90	88.3

Time of Concentration = 118 Minutes

BASIN: B-WP6
RECEIVING NODE: WEKIVA-2
TOTAL AREA: 11.96

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.94	69.84
Woods - (fair)	D	79	4.09	323.11
Imperv. - rds paved open ditch (incl ROW)	A	83	1.26	104.58
Imperv. - rds paved open ditch (incl ROW)	D	93	3.20	297.6
Wetland	D	98	1.47	144.06
		Totals =	11.96	939.19

Composite CN = 79

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0133	-	35.9
Shallow Conc. (Unpaved)	50		0.0133	1.86	0.4
Shallow Conc. (Unpaved)	1873		0.0152	1.99	15.7

Time of Concentration = 52 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-WP6A**
RECEIVING NODE:	**WEKIVA-2**
TOTAL AREA:	**19.62**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	6.85	246.6
Woods - (fair)	D	79	12.52	989.08
Imperv. - rds paved open ditch (incl ROW)	D	93	0.25	23.25
		Totals =	19.62	1258.93

Composite CN = 64

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0050	-	53.2
Shallow Conc. (Unpaved)	3118		0.0115	1.73	30.0

Time of Concentration = 83 Minutes

BASIN:	**B-WP7**
RECEIVING NODE:	**SEMINOLE**
TOTAL AREA:	**1.15**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Pasture/grassland/range (grazing) - (fair)	D	84	0.65	54.6
Imperv. - rds paved open ditch (incl ROW)	D	93	0.50	46.5
		Totals =	1.15	101.10

Composite CN = 88

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.4	0.0050	-	30.5

Time of Concentration = 31 Minutes

WEKIVA PARKWAY - SECTION 6
EXISTING CONDITIONS HYDROLOGY

DATE: 1/30/2014
REV: 8/7/2014
BY: BCW
CK: JAG

BASIN:	**B-WMB**
RECEIVING NODE:	**WMB**
TOTAL AREA:	**10613.27**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1248.27	44937.72
Woods - (fair)	B	60	1.46	87.6
Woods - (fair)	D	79	1729.38	136621.02
Brush - (fair)	A	35	214.43	7505.05
Brush - (fair)	D	77	601.61	46323.97
Pasture/grassland/range (grazing) - (fair)	A	49	788.99	38660.51
Pasture/grassland/range (grazing) - (fair)	D	84	189.22	15894.48
Residential - 2 acre	A	46	774.05	35606.3
Residential - 2 acre	D	82	38.64	3168.48
Water Surface	N/A	100	35.20	3520
Wetland	D	98	4992.02	489217.96
		Totals =	10613.27	821543.09

Composite CN = 77

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0033	-	62.5
Shallow Conc. (Unpaved)	200		0.0033	0.93	3.6
Shallow Conc. (Unpaved)	4140		0.0070	1.35	51.1

Time of Concentration = 117 Minutes

BASIN:	**B-RSR**
RECEIVING NODE:	**RSR**
TOTAL AREA:	**594.98**

1. Runoff Curve Number (CN)

Cover Description	Soil Hydrologic Group	CN	Area (Ac)	CN x A
Woods - (fair)	A	36	1.93	69.48
Woods - (fair)	D	79	157.77	12463.83
Brush - (fair)	A	35	0.27	9.45
Brush - (fair)	D	77	43.58	3355.66
Wetland	D	98	391.43	38360.14
		Totals =	594.98	54258.56

Composite CN = 91

2. Time of Concentration (TC)

Type of Flow	Flow Length (L) (ft)	Roughness Coeffecient (n)	Slope (S) (ft/ft)	Velocity (fps)	Travel Time (min)
Sheet	100	0.8	0.0100	-	40.3
Shallow Conc. (Unpaved)	200		0.0100	1.61	2.1
Shallow Conc. (Unpaved)	651		0.0246	2.53	4.3

Time of Concentration = 47 Minutes

EXISTING CONDITIONS

ICPR INPUT

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==== Basins ====================================================================
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        Name: B-1                     Node: N-1                   Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000            Time of Conc(min): 86.00
            Area(ac): 60.900              Time Shift(hrs): 0.00
        Curve Number: 79.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------
        Name: B-10                    Node: N-10                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000            Time of Conc(min): 27.00
            Area(ac): 4.730               Time Shift(hrs): 0.00
        Curve Number: 48.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------
        Name: B-11                    Node: N-11                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000            Time of Conc(min): 31.00
            Area(ac): 4.950               Time Shift(hrs): 0.00
        Curve Number: 77.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------
        Name: B-12                    Node: N-12                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000            Time of Conc(min): 29.00
            Area(ac): 12.390              Time Shift(hrs): 0.00
        Curve Number: 70.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------
        Name: B-13                    Node: N-13                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000            Time of Conc(min): 51.00
            Area(ac): 9.180               Time Shift(hrs): 0.00
        Curve Number: 42.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------
        Name: B-14                    Node: N-14                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000            Time of Conc(min): 43.00
            Area(ac): 6.100               Time Shift(hrs): 0.00
        Curve Number: 43.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------
        Name: B-15                    Node: N-15                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
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          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 36.00
              Area(ac): 91.450                  Time Shift(hrs): 0.00
          Curve Number: 66.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-16                   Node: N-16                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 29.00
              Area(ac): 1.600                   Time Shift(hrs): 0.00
          Curve Number: 62.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-17                   Node: N-17                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 30.00
              Area(ac): 40.810                  Time Shift(hrs): 0.00
          Curve Number: 61.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


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         Name: B-18                   Node: N-18                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 19.00
              Area(ac): 8.340                   Time Shift(hrs): 0.00
          Curve Number: 56.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-19                   Node: N-19                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 3.160                   Time Shift(hrs): 0.00
          Curve Number: 49.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-2                    Node: N-2                   Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 35.00
              Area(ac): 10.440                  Time Shift(hrs): 0.00
          Curve Number: 54.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-20                   Node: N-20                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 36.00
              Area(ac): 11.300                  Time Shift(hrs): 0.00
          Curve Number: 49.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


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        Name: B-21                  Node: N-21                  Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 32.00
            Area(ac): 15.340                Time Shift(hrs): 0.00
        Curve Number: 49.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-22                  Node: N-22                  Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 26.00
            Area(ac): 11.180                Time Shift(hrs): 0.00
        Curve Number: 85.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-23                  Node: N-23                  Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 24.00
            Area(ac): 6.910                 Time Shift(hrs): 0.00
        Curve Number: 73.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-24                  Node: N-24                  Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 62.00
            Area(ac): 10.310                Time Shift(hrs): 0.00
        Curve Number: 42.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-25                  Node: N-25                  Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 33.00
            Area(ac): 61.580                Time Shift(hrs): 0.00
        Curve Number: 76.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-26                  Node: N-26                  Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 58.00
            Area(ac): 14.490                Time Shift(hrs): 0.00
        Curve Number: 48.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-27                  Node: N-27                  Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 20.00
            Area(ac): 9.700                 Time Shift(hrs): 0.00
        Curve Number: 82.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00
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        Name: B-28                    Node: N-28                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 98.00
            Area(ac): 32.410                Time Shift(hrs): 0.00
        Curve Number: 63.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
        Name: B-29                    Node: N-29                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 50.00
            Area(ac): 3.560                 Time Shift(hrs): 0.00
        Curve Number: 48.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
        Name: B-3                     Node: N-3                   Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 61.00
            Area(ac): 12.980                Time Shift(hrs): 0.00
        Curve Number: 55.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
        Name: B-30                    Node: N-30                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 29.00
            Area(ac): 30.310                Time Shift(hrs): 0.00
        Curve Number: 74.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
        Name: B-31                    Node: N-31                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 21.00
            Area(ac): 3.640                 Time Shift(hrs): 0.00
        Curve Number: 71.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
        Name: B-32                    Node: N-32                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 21.00
            Area(ac): 5.320                 Time Shift(hrs): 0.00
        Curve Number: 66.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
        Name: B-33                    Node: N-33                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
```

Rainfall Amount(in): 0.000 Time of Conc(min): 28.00
Area(ac): 62.750 Time Shift(hrs): 0.00
Curve Number: 75.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-33A Node: N-33A Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 27.00
Area(ac): 3.680 Time Shift(hrs): 0.00
Curve Number: 66.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-33B Node: N-33B Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 16.00
Area(ac): 1.960 Time Shift(hrs): 0.00
Curve Number: 51.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-34 Node: N-34 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 26.00
Area(ac): 5.280 Time Shift(hrs): 0.00
Curve Number: 49.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-35 Node: N-35 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 29.00
Area(ac): 18.440 Time Shift(hrs): 0.00
Curve Number: 48.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-36 Node: N-36 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 39.00
Area(ac): 45.530 Time Shift(hrs): 0.00
Curve Number: 42.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-37 Node: N-37 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 23.00
Area(ac): 21.380 Time Shift(hrs): 0.00
Curve Number: 59.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-38 Node: N-38 Status: Onsite

```
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 21.00
              Area(ac): 2.610                   Time Shift(hrs): 0.00
          Curve Number: 75.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
         Name: B-39                     Node: N-39                  Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 32.00
              Area(ac): 16.560                  Time Shift(hrs): 0.00
          Curve Number: 41.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
         Name: B-4                      Node: N-4                   Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 57.00
              Area(ac): 7.140                   Time Shift(hrs): 0.00
          Curve Number: 36.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
         Name: B-40                     Node: N-40                  Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 35.00
              Area(ac): 11.800                  Time Shift(hrs): 0.00
          Curve Number: 39.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
         Name: B-41                     Node: N-41                  Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 37.00
              Area(ac): 29.640                  Time Shift(hrs): 0.00
          Curve Number: 56.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
         Name: B-42                     Node: N-42                  Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 41.00
              Area(ac): 13.660                  Time Shift(hrs): 0.00
          Curve Number: 64.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
         Name: B-43                     Node: N-43                  Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 33.00
              Area(ac): 26.440                  Time Shift(hrs): 0.00
          Curve Number: 61.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00
```

```
--------------------------------------------------------------------------------------------------
        Name: B-44                    Node: N-44                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 53.00
            Area(ac): 35.510              Time Shift(hrs): 0.00
        Curve Number: 63.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-45                    Node: N-45                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 58.00
            Area(ac): 212.450             Time Shift(hrs): 0.00
        Curve Number: 79.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-46                    Node: N-46                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 37.00
            Area(ac): 73.650              Time Shift(hrs): 0.00
        Curve Number: 75.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-47                    Node: N-47                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 58.00
            Area(ac): 20.810              Time Shift(hrs): 0.00
        Curve Number: 49.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-48                    Node: N-48                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 50.00
            Area(ac): 12.220              Time Shift(hrs): 0.00
        Curve Number: 77.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-49                    Node: N-49                  Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 29.00
            Area(ac): 6.850               Time Shift(hrs): 0.00
        Curve Number: 72.00           Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: B-5                     Node: N-5                   Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                  Peaking Factor: 323.0
         Rainfall File:                 Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000             Time of Conc(min): 15.00
```

```
              Area(ac): 2.620                 Time Shift(hrs): 0.00
          Curve Number: 68.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-50                   Node: N-50                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 39.00
              Area(ac): 8.780               Time Shift(hrs): 0.00
          Curve Number: 77.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-51                   Node: N-51                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 34.00
              Area(ac): 11.110              Time Shift(hrs): 0.00
          Curve Number: 64.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-52                   Node: N-52                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 34.00
              Area(ac): 3.320               Time Shift(hrs): 0.00
          Curve Number: 86.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-53                   Node: N-53                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 37.00
              Area(ac): 6.610               Time Shift(hrs): 0.00
          Curve Number: 53.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-53A                  Node: N-53A                 Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 34.00
              Area(ac): 5.980               Time Shift(hrs): 0.00
          Curve Number: 64.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-54                   Node: N-54                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 39.00
              Area(ac): 36.720              Time Shift(hrs): 0.00
          Curve Number: 81.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------------------------
         Name: B-55                   Node: N-55                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN
```

```
        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 36.00
              Area(ac): 61.460                Time Shift(hrs): 0.00
          Curve Number: 81.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: B-56                   Node: N-56                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 57.00
              Area(ac): 38.030                Time Shift(hrs): 0.00
          Curve Number: 73.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: B-57                   Node: N-57                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 57.00
              Area(ac): 47.960                Time Shift(hrs): 0.00
          Curve Number: 80.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: B-58                   Node: N-58                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 67.00
              Area(ac): 390.440               Time Shift(hrs): 0.00
          Curve Number: 65.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: B-59                   Node: N-59                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 35.00
              Area(ac): 61.950                Time Shift(hrs): 0.00
          Curve Number: 84.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: B-6                    Node: N-6                   Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 77.00
              Area(ac): 48.440                Time Shift(hrs): 0.00
          Curve Number: 59.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: B-60                   Node: N-60                  Status: Onsite
        Group: BASE                   Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                  Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000              Time of Conc(min): 51.00
              Area(ac): 27.590                Time Shift(hrs): 0.00
          Curve Number: 39.00             Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00
```

```
------------------------------------------------------------------------------------------------
        Name: B-7                   Node: N-7                   Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                   Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 29.00
            Area(ac): 12.190                Time Shift(hrs): 0.00
        Curve Number: 63.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



------------------------------------------------------------------------------------------------
        Name: B-8                   Node: N-8                   Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                   Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 29.00
            Area(ac): 14.350                Time Shift(hrs): 0.00
        Curve Number: 62.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



------------------------------------------------------------------------------------------------
        Name: B-9                   Node: N-9                   Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                   Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 45.00
            Area(ac): 18.950                Time Shift(hrs): 0.00
        Curve Number: 56.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



------------------------------------------------------------------------------------------------
        Name: B-RSR                 Node: RSR                   Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                   Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 47.00
            Area(ac): 594.980               Time Shift(hrs): 0.00
        Curve Number: 91.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



------------------------------------------------------------------------------------------------
        Name: B-WMB                 Node: WMB                   Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                   Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 117.00
            Area(ac): 10613.270             Time Shift(hrs): 0.00
        Curve Number: 77.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



------------------------------------------------------------------------------------------------
        Name: B-WP1                 Node: WMB                   Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                   Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 20.00
            Area(ac): 3.520                 Time Shift(hrs): 0.00
        Curve Number: 50.00             Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



------------------------------------------------------------------------------------------------
        Name: B-WP1N                Node: WMB                   Status: Onsite
       Group: BASE                  Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh323                   Peaking Factor: 323.0
         Rainfall File:                  Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000              Time of Conc(min): 36.00
            Area(ac): 4.470                 Time Shift(hrs): 0.00
```

Curve Number: 80.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-WP2 Node: WMB Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 48.00
Area(ac): 5.560 Time Shift(hrs): 0.00
Curve Number: 48.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-WP3 Node: BLACKWATER Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 65.00
Area(ac): 18.590 Time Shift(hrs): 0.00
Curve Number: 78.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-WP4 Node: N-52 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 36.00
Area(ac): 9.020 Time Shift(hrs): 0.00
Curve Number: 85.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-WP5 Node: BLACKWATER Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 118.00
Area(ac): 37.100 Time Shift(hrs): 0.00
Curve Number: 86.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-WP6 Node: WEKIVA-2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 52.00
Area(ac): 11.960 Time Shift(hrs): 0.00
Curve Number: 79.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-WP6A Node: WEKIVA-2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 83.00
Area(ac): 19.620 Time Shift(hrs): 0.00
Curve Number: 64.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: B-WP7 Node: SEMINOLE Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

```
        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 31.00
              Area(ac): 1.150                   Time Shift(hrs): 0.00
          Curve Number: 88.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: SIMS-1                   Node: SIMS-1                Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
              Area(ac): 1.270                   Time Shift(hrs): 0.00
          Curve Number: 41.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: SIMS-2                   Node: SIMS-2                Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
              Area(ac): 1.140                   Time Shift(hrs): 0.00
          Curve Number: 49.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
         Name: SIMS-3                   Node: SIMS-3                Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
              Area(ac): 4.900                   Time Shift(hrs): 0.00
          Curve Number: 59.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


=================================================================================================
==== Nodes ======================================================================================
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       Name: BLACKWATER          Base Flow(cfs): 0.000          Init Stage(ft): 14.000
      Group: BASE                                             Warn Stage(ft): 14.000
       Type: Time/Stage

FROM DRAINAGE REPORT FOR NEW GARDEN COAL PROPERTY BY BALMORAL GROUP, DATED 12/3/2012.

FDOT FPID 431081-3-52-01.

       Time(hrs)       Stage(ft)
---------------- ---------------
            0.00          14.000
          300.00          14.000

-------------------------------------------------------------------------------------------------
       Name: N-1                 Base Flow(cfs): 0.000          Init Stage(ft): 41.700
      Group: BASE                                             Warn Stage(ft): 47.000
       Type: Stage/Area



       Stage(ft)        Area(ac)
---------------- ---------------
          41.700          0.0000
          42.000          1.1000
          43.000          8.0900
          44.000         12.5500
          45.000         15.8000
          46.000         19.6000
          47.000         22.6200

-------------------------------------------------------------------------------------------------
       Name: N-10                Base Flow(cfs): 0.000          Init Stage(ft): 61.600
      Group: BASE                                             Warn Stage(ft): 69.000
       Type: Stage/Area
```

Stage(ft)	Area(ac)
61.600	0.0000
62.000	0.1200
63.000	0.1600
64.000	0.2200
65.000	0.2800
66.000	0.3700
67.000	0.4800
68.000	0.7300
69.000	1.0400

Name: N-11 Base Flow(cfs): 0.000 Init Stage(ft): 57.200
Group: BASE Warn Stage(ft): 64.000
Type: Stage/Area

Stage(ft)	Area(ac)
57.200	0.0000
58.000	0.5100
59.000	1.2600
60.000	1.7000
61.000	2.2600
62.000	3.0500
63.000	3.6800
64.000	4.1800

Name: N-12 Base Flow(cfs): 0.000 Init Stage(ft): 52.700
Group: BASE Warn Stage(ft): 57.000
Type: Stage/Area

Stage(ft)	Area(ac)
52.700	0.0000
53.000	1.8300
54.000	2.3800
55.000	2.8000
56.000	3.5300
57.000	4.6700

Name: N-13 Base Flow(cfs): 0.000 Init Stage(ft): 55.100
Group: BASE Warn Stage(ft): 62.800
Type: Stage/Area

Stage(ft)	Area(ac)
55.100	0.0000
56.000	1.0200
57.000	1.2900
58.000	1.5300
59.000	1.8000
60.000	2.2100
61.000	2.8000
62.000	3.7500
63.000	5.6800

Name: N-14 Base Flow(cfs): 0.000 Init Stage(ft): 54.900
Group: BASE Warn Stage(ft): 62.000
Type: Stage/Area

Stage(ft)	Area(ac)
54.900	0.0000
55.000	0.0100
56.000	0.1000
57.000	0.1800
58.000	0.3000
59.000	0.5500
60.000	0.7600
61.000	1.3700
62.000	2.1100

Name: N-15 Base Flow(cfs): 0.000 Init Stage(ft): 49.600
Group: BASE Warn Stage(ft): 55.000
Type: Stage/Area

Stage(ft)	Area(ac)
49.600	0.0000
50.000	24.2500
51.000	26.4200
52.000	29.6400
53.000	34.6200
54.000	39.3400
55.000	44.9800

Name: N-16 Base Flow(cfs): 0.000 Init Stage(ft): 56.800
Group: BASE Warn Stage(ft): 64.000
Type: Stage/Area

Stage(ft)	Area(ac)
56.800	0.0000
57.000	0.0100
58.000	0.0800
59.000	0.2100
60.000	0.4700
61.000	1.0700
62.000	1.3300
63.000	1.4500
64.000	1.5700

Name: N-17 Base Flow(cfs): 0.000 Init Stage(ft): 57.000
Group: BASE Warn Stage(ft): 64.000
Type: Stage/Area

Stage(ft)	Area(ac)
57.000	1.2400
58.000	6.7800
59.000	9.3400
60.000	10.5600
61.000	12.3000
62.000	13.7900
63.000	15.0400
64.000	16.5600

Name: N-18 Base Flow(cfs): 0.000 Init Stage(ft): 68.400
Group: BASE Warn Stage(ft): 77.000
Type: Stage/Area

Stage(ft)	Area(ac)
68.400	0.0000
69.000	1.3000
70.000	1.5200
71.000	1.7500
72.000	2.0300
73.000	2.3600
74.000	2.8300
75.000	3.3500
76.000	3.9100
77.000	4.5400

Name: N-19 Base Flow(cfs): 0.000 Init Stage(ft): 69.900
Group: BASE Warn Stage(ft): 77.000
Type: Stage/Area

Stage(ft)	Area(ac)
69.900	0.0000
70.000	0.0600
71.000	0.1000
72.000	0.1600
73.000	0.2300

74.000	0.3700
75.000	0.4900
76.000	0.6200
77.000	0.7800

Name: N-2 Base Flow(cfs): 0.000 Init Stage(ft): 54.200
Group: BASE Warn Stage(ft): 63.000
Type: Stage/Area

Stage(ft)	Area(ac)
54.200	0.0000
55.000	0.1200
56.000	0.2100
57.000	0.3500
58.000	0.4700
59.000	0.7300
60.000	1.0300
61.000	1.7500
62.000	2.9400
63.000	4.1100

Name: N-20 Base Flow(cfs): 0.000 Init Stage(ft): 76.100
Group: BASE Warn Stage(ft): 80.000
Type: Stage/Area

Stage(ft)	Area(ac)
76.100	0.0000
77.000	0.1300
78.000	0.3300
79.000	1.4100
80.000	4.1500

Name: N-21 Base Flow(cfs): 0.000 Init Stage(ft): 75.500
Group: BASE Warn Stage(ft): 80.000
Type: Stage/Area

Stage(ft)	Area(ac)
75.500	0.0000
76.000	0.0900
77.000	0.3800
78.000	0.7900
79.000	1.3700
80.000	2.6100

Name: N-22 Base Flow(cfs): 0.000 Init Stage(ft): 44.000
Group: BASE Warn Stage(ft): 50.000
Type: Stage/Area

Stage(ft)	Area(ac)
44.000	0.0000
45.000	0.0300
46.000	0.1300
47.000	2.1000
48.000	2.5700
49.000	3.1600
50.000	4.1700

Name: N-23 Base Flow(cfs): 0.000 Init Stage(ft): 49.200
Group: BASE Warn Stage(ft): 55.000
Type: Stage/Area

Stage(ft)	Area(ac)
49.200	0.0000
50.000	2.0400
51.000	2.2500
52.000	2.5300
53.000	2.9200

54.000	3.5600
55.000	4.3700

Name: N-24 Base Flow(cfs): 0.000 Init Stage(ft): 51.000
Group: BASE Warn Stage(ft): 59.000
Type: Stage/Area

Stage(ft)	Area(ac)
51.000	0.1500
52.000	0.2000
53.000	0.2800
54.000	0.4100
55.000	0.6000
56.000	0.8000
57.000	1.0500
58.000	1.3900
59.000	1.8400

Name: N-25 Base Flow(cfs): 0.000 Init Stage(ft): 36.000
Group: BASE Warn Stage(ft): 43.000
Type: Stage/Area

Stage(ft)	Area(ac)
36.000	0.3200
37.000	3.7300
38.000	5.0200
39.000	7.3400
40.000	9.3600
41.000	10.8800
42.000	12.7100
43.000	14.6300

Name: N-26 Base Flow(cfs): 0.000 Init Stage(ft): 52.400
Group: BASE Warn Stage(ft): 60.000
Type: Stage/Area

Stage(ft)	Area(ac)
52.400	0.0000
53.000	0.7200
54.000	0.8600
55.000	1.0400
56.000	1.2900
57.000	1.9200
58.000	2.5300
59.000	3.3400
60.000	4.3600

Name: N-27 Base Flow(cfs): 0.000 Init Stage(ft): 51.000
Group: BASE Warn Stage(ft): 57.000
Type: Stage/Area

Stage(ft)	Area(ac)
51.000	0.0000
52.000	2.2500
53.000	2.6000
54.000	3.0100
55.000	3.5700
56.000	4.6300
57.000	5.4400

Name: N-28 Base Flow(cfs): 0.000 Init Stage(ft): 51.000
Group: BASE Warn Stage(ft): 57.000
Type: Stage/Area

Stage(ft)	Area(ac)
51.000	0.2400
52.000	0.3200

53.000	0.4600
54.000	1.0400
55.000	1.1700
56.000	3.3200
57.000	6.9700

Name: N-29 Base Flow(cfs): 0.000 Init Stage(ft): 54.100
Group: BASE Warn Stage(ft): 57.800
Type: Stage/Area

Stage(ft)	Area(ac)
54.100	0.0000
55.000	0.0400
56.000	0.4500
57.000	2.5300

Name: N-3 Base Flow(cfs): 0.000 Init Stage(ft): 57.000
Group: BASE Warn Stage(ft): 60.000
Type: Stage/Area

Stage(ft)	Area(ac)
57.000	0.0600
58.000	0.1700
59.000	0.3200
60.000	0.6400

Name: N-30 Base Flow(cfs): 0.000 Init Stage(ft): 28.500
Group: BASE Warn Stage(ft): 34.000
Type: Stage/Area

Stage(ft)	Area(ac)
28.500	0.0000
29.000	0.0010
30.000	0.0500
31.000	0.1600
32.000	0.3400
33.000	0.5500
34.000	0.8400
35.000	1.4000

Name: N-31 Base Flow(cfs): 0.000 Init Stage(ft): 49.200
Group: BASE Warn Stage(ft): 55.000
Type: Stage/Area

Stage(ft)	Area(ac)
49.200	0.0000
50.000	0.2400
51.000	0.3000
52.000	0.4300
53.000	0.6600
54.000	1.0200
55.000	1.6300

Name: N-32 Base Flow(cfs): 0.000 Init Stage(ft): 43.700
Group: BASE Warn Stage(ft): 50.000
Type: Stage/Area

Stage(ft)	Area(ac)
43.700	0.0000
44.000	0.1500
45.000	0.1800
46.000	0.2100
47.000	0.2700
48.000	0.4300
49.000	0.5500
50.000	0.7400

Name: N-33 Base Flow(cfs): 0.000 Init Stage(ft): 26.000
Group: BASE Warn Stage(ft): 30.000
Type: Stage/Area

Stage(ft)	Area(ac)
26.000	0.0000
27.000	0.0500
28.000	2.2600
29.000	5.3900
30.000	7.0500
31.000	8.7200
32.000	10.5400
33.000	12.5500
34.000	15.5300
35.000	18.3800

Name: N-33A Base Flow(cfs): 0.000 Init Stage(ft): 50.600
Group: BASE Warn Stage(ft): 58.000
Type: Stage/Area

Stage(ft)	Area(ac)
50.600	0.0000
51.000	0.0500
52.000	0.1700
53.000	0.3300
54.000	0.5500
55.000	0.9300
56.000	1.1700
57.000	1.5800
58.000	2.0400

Name: N-33B Base Flow(cfs): 0.000 Init Stage(ft): 53.000
Group: BASE Warn Stage(ft): 58.300
Type: Stage/Area

Stage(ft)	Area(ac)
53.000	0.0100
54.000	0.0600
55.000	0.1300
56.000	0.2600
57.000	0.4600
58.000	0.9500

Name: N-34 Base Flow(cfs): 0.000 Init Stage(ft): 54.400
Group: BASE Warn Stage(ft): 58.000
Type: Stage/Area

Stage(ft)	Area(ac)
54.400	0.0100
55.000	0.1000
56.000	0.5000
57.000	1.1500
58.000	2.0600

Name: N-35 Base Flow(cfs): 0.000 Init Stage(ft): 52.000
Group: BASE Warn Stage(ft): 58.000
Type: Stage/Area

Stage(ft)	Area(ac)
52.000	0.0100
53.000	0.0600
54.000	0.1200
55.000	0.2300
56.000	0.8900
57.000	2.9800
58.000	6.6000

Name: N-36 Base Flow(cfs): 0.000 Init Stage(ft): 42.400
Group: BASE Warn Stage(ft): 53.500
Type: Stage/Area

Stage(ft)	Area(ac)
42.400	0.0000
43.000	0.1800
44.000	0.2500
45.000	0.3300
46.000	0.4100
47.000	0.5000
48.000	0.6300
49.000	0.7900
50.000	0.9800
51.000	1.2200
52.000	2.9400
53.000	6.2600

Name: N-37 Base Flow(cfs): 0.000 Init Stage(ft): 54.800
Group: BASE Warn Stage(ft): 60.000
Type: Stage/Area

Stage(ft)	Area(ac)
54.800	0.0000
55.000	3.6800
56.000	4.9100
57.000	6.4500
58.000	8.3800
59.000	9.6500
60.000	11.3500

Name: N-38 Base Flow(cfs): 0.000 Init Stage(ft): 50.000
Group: BASE Warn Stage(ft): 61.000
Type: Stage/Area

Stage(ft)	Area(ac)
50.000	0.0400
51.000	0.1000
52.000	0.2400
53.000	0.3700
54.000	0.5500
55.000	0.6800
56.000	0.9000
57.000	1.1300
58.000	1.2500
59.000	1.3800
60.000	1.5200

Name: N-39 Base Flow(cfs): 0.000 Init Stage(ft): 50.000
Group: BASE Warn Stage(ft): 61.500
Type: Stage/Area

Stage(ft)	Area(ac)
50.000	0.0100
51.000	0.0800
52.000	0.1300
53.000	0.2100
54.000	0.2700
55.000	0.3600
56.000	0.4500
57.000	0.7700
58.000	1.8400
59.000	3.6600
60.000	5.5200
61.000	7.9600

Name: N-4 Base Flow(cfs): 0.000 Init Stage(ft): 56.600
Group: BASE Warn Stage(ft): 64.000
Type: Stage/Area

Stage(ft)	Area(ac)
56.600	0.0000
57.000	0.0200
58.000	0.1100
59.000	0.2500
60.000	0.4200
61.000	0.6600
62.000	1.1200
63.000	2.2400
64.000	3.2800

Name: N-40 Base Flow(cfs): 0.000 Init Stage(ft): 51.000
Group: BASE Warn Stage(ft): 61.000
Type: Stage/Area

Stage(ft)	Area(ac)
51.000	0.0200
52.000	0.0600
53.000	0.1000
54.000	0.1600
55.000	0.2200
56.000	0.5700
57.000	1.1600
58.000	2.2400
59.000	4.3300
60.000	7.1500
61.000	9.4500

Name: N-41 Base Flow(cfs): 0.000 Init Stage(ft): 47.000
Group: BASE Warn Stage(ft): 55.000
Type: Stage/Area

Stage(ft)	Area(ac)
47.000	2.3100
48.000	3.0500
49.000	3.6800
50.000	4.6800
51.000	5.7400
52.000	7.0300
53.000	8.9300
54.000	11.9800

Name: N-42 Base Flow(cfs): 0.000 Init Stage(ft): 47.100
Group: BASE Warn Stage(ft): 54.500
Type: Stage/Area

Stage(ft)	Area(ac)
47.100	0.0000
48.000	2.7300
49.000	3.2400
50.000	3.8100
51.000	4.5400
52.000	5.4400
53.000	6.9000
54.000	11.1600

Name: N-43 Base Flow(cfs): 0.000 Init Stage(ft): 43.900
Group: BASE Warn Stage(ft): 50.000
Type: Stage/Area

Stage(ft)	Area(ac)
43.900	0.0000
44.000	3.8100
45.000	4.5300
46.000	5.4200
47.000	6.2200
48.000	7.0600
49.000	8.0000

50.000	10.2000

Name: N-44 Base Flow(cfs): 0.000 Init Stage(ft): 44.400
Group: BASE Warn Stage(ft): 50.000
Type: Stage/Area

Stage(ft)	Area(ac)
44.400	0.0000
45.000	9.3800
46.000	9.6800
47.000	10.0000
48.000	10.4800
49.000	12.3300
50.000	15.7000

Name: N-45 Base Flow(cfs): 0.000 Init Stage(ft): 43.000
Group: BASE Warn Stage(ft): 48.000
Type: Stage/Area

Stage(ft)	Area(ac)
42.000	0.5100
43.000	105.3300
44.000	109.1600
45.000	114.5600
46.000	126.9900
47.000	138.5700
48.000	146.1100

Name: N-46 Base Flow(cfs): 0.000 Init Stage(ft): 43.000
Group: BASE Warn Stage(ft): 49.000
Type: Stage/Area

Stage(ft)	Area(ac)
43.000	21.9700
44.000	23.5900
45.000	25.2500
46.000	27.9900
47.000	32.1400
48.000	36.7100
49.000	41.0800

Name: N-47 Base Flow(cfs): 0.000 Init Stage(ft): 43.100
Group: BASE Warn Stage(ft): 53.000
Type: Stage/Area

Stage(ft)	Area(ac)
43.100	0.0000
44.000	0.4700
45.000	0.5800
46.000	0.7100
47.000	0.9300
48.000	1.1100
49.000	1.2900
50.000	1.5700
51.000	2.1300
52.000	2.8500
53.000	3.5500

Name: N-48 Base Flow(cfs): 0.000 Init Stage(ft): 44.000
Group: BASE Warn Stage(ft): 46.000
Type: Stage/Area

Stage(ft)	Area(ac)
44.000	0.1200
45.000	0.2000
46.000	0.5500

Name: N-49 Base Flow(cfs): 0.000 Init Stage(ft): 39.800
Group: BASE Warn Stage(ft): 49.000
Type: Stage/Area

Stage(ft)	Area(ac)
39.800	0.0000
40.000	0.4700
41.000	0.6100
42.000	0.8000
43.000	1.0400
44.000	1.2300
45.000	1.4200
46.000	1.7100
47.000	2.1100
48.000	2.7200
49.000	3.6700

Name: N-5 Base Flow(cfs): 0.000 Init Stage(ft): 58.500
Group: BASE Warn Stage(ft): 63.000
Type: Stage/Area

Stage(ft)	Area(ac)
58.500	0.0000
59.000	0.1100
60.000	0.2200
61.000	0.3700
62.000	0.6500
63.000	1.2800

Name: N-50 Base Flow(cfs): 0.000 Init Stage(ft): 41.000
Group: BASE Warn Stage(ft): 46.100
Type: Stage/Area

Stage(ft)	Area(ac)
41.000	1.3000
42.000	1.5000
43.000	1.7000
44.000	1.9100
45.000	2.1600
46.000	2.7500
47.000	3.7100

Name: N-51 Base Flow(cfs): 0.000 Init Stage(ft): 45.000
Group: BASE Warn Stage(ft): 47.000
Type: Stage/Area

Stage(ft)	Area(ac)
45.000	0.1800
46.000	1.1800
47.000	2.2400
48.000	3.7200

Name: N-52 Base Flow(cfs): 0.000 Init Stage(ft): 29.600
Group: BASE Warn Stage(ft): 35.000
Type: Stage/Area

Stage(ft)	Area(ac)
29.600	0.0000
30.000	0.0700
31.000	0.1400
32.000	0.3000
33.000	0.5500
34.000	1.0900
35.000	2.1000

Name: N-53 Base Flow(cfs): 0.000 Init Stage(ft): 44.000

Group: BASE Warn Stage(ft): 48.500
Type: Stage/Area

Stage(ft)	Area(ac)
44.000	0.0100
46.000	0.0200
47.000	0.1000
48.000	0.4200
49.000	0.9400
50.000	1.5200

Name: N-53A Base Flow(cfs): 0.000 Init Stage(ft): 44.400
Group: BASE Warn Stage(ft): 50.000
Type: Stage/Area

Stage(ft)	Area(ac)
44.400	0.0000
46.000	0.7000
47.000	0.8900
48.000	1.0700
49.000	1.3800
50.000	1.7500

Name: N-53B Base Flow(cfs): 0.000 Init Stage(ft): 44.000
Group: BASE Warn Stage(ft): 50.000
Type: Stage/Area

Stage(ft)	Area(ac)
44.000	0.0100
50.000	0.0200

Name: N-53C Base Flow(cfs): 0.000 Init Stage(ft): 44.000
Group: BASE Warn Stage(ft): 48.000
Type: Stage/Area

Stage(ft)	Area(ac)
44.000	0.0100
47.000	0.0200

Name: N-54 Base Flow(cfs): 0.000 Init Stage(ft): 35.500
Group: BASE Warn Stage(ft): 42.000
Type: Stage/Area

Stage(ft)	Area(ac)
35.500	0.0000
37.000	1.4200
38.000	4.1300
39.000	8.1900
40.000	13.3300
41.000	19.3100
42.000	26.7900

Name: N-55 Base Flow(cfs): 0.000 Init Stage(ft): 37.000
Group: BASE Warn Stage(ft): 42.000
Type: Stage/Area

Stage(ft)	Area(ac)
37.000	1.0900
38.000	1.6500
39.000	4.4800
40.000	10.5900
41.000	21.8700
42.000	33.9300

Name: N-56 Base Flow(cfs): 0.000 Init Stage(ft): 38.500
Group: BASE Warn Stage(ft): 42.000
Type: Stage/Area

Stage(ft)	Area(ac)
38.500	0.0000
39.000	2.1200
40.000	2.8800
41.000	6.6800
42.000	12.8000

Name: N-57 Base Flow(cfs): 0.000 Init Stage(ft): 40.000
Group: BASE Warn Stage(ft): 43.000
Type: Stage/Area

Stage(ft)	Area(ac)
40.000	0.4900
41.000	1.7700
42.000	8.6100
43.000	18.8800
44.000	25.0000

Name: N-58 Base Flow(cfs): 0.000 Init Stage(ft): 30.000
Group: BASE Warn Stage(ft): 42.000
Type: Stage/Area

Stage(ft)	Area(ac)
30.000	0.0000
31.000	0.0900
32.000	0.7900
33.000	4.8400
34.000	12.8700
35.000	40.7600
36.000	61.4400
37.000	83.9400
38.000	102.0600
39.000	120.5700
40.000	136.5600
41.000	153.0200
42.000	168.8900

Name: N-58A Base Flow(cfs): 0.000 Init Stage(ft): 30.000
Group: BASE Warn Stage(ft): 33.500
Type: Stage/Area

Stage(ft)	Area(ac)
30.000	0.0100
32.500	0.0200

Name: N-59 Base Flow(cfs): 0.000 Init Stage(ft): 34.000
Group: BASE Warn Stage(ft): 42.000
Type: Stage/Area

Stage(ft)	Area(ac)
34.000	0.0000
37.000	1.3600
38.000	12.4600
39.000	24.8300
40.000	31.9700
41.000	38.8000
42.000	44.4100

Name: N-59A Base Flow(cfs): 0.000 Init Stage(ft): 34.000
Group: BASE Warn Stage(ft): 38.000
Type: Stage/Area

Stage(ft)	Area(ac)
34.000	0.0100
38.000	0.0200

Name: N-6 Base Flow(cfs): 0.000 Init Stage(ft): 56.500
Group: BASE Warn Stage(ft): 63.000
Type: Stage/Area

Stage(ft)	Area(ac)
56.500	0.0000
57.000	4.9400
58.000	5.5500
59.000	6.4800
60.000	7.3000
61.000	8.0500
62.000	9.0800
63.000	11.0900

Name: N-60 Base Flow(cfs): 0.000 Init Stage(ft): 56.300
Group: BASE Warn Stage(ft): 63.000
Type: Stage/Area

DATA DERIVED FROM LAKE COUNTY LIDAR

Stage(ft)	Area(ac)
56.300	0.0000
57.000	0.2600
58.000	0.8300
59.000	2.1400
60.000	4.4800
61.000	7.0700
62.000	10.6600
63.000	16.9300

Name: N-7 Base Flow(cfs): 0.000 Init Stage(ft): 57.400
Group: BASE Warn Stage(ft): 64.000
Type: Stage/Area

Stage(ft)	Area(ac)
57.400	0.0000
58.000	1.6300
59.000	1.8600
60.000	2.5300
61.000	3.2300
62.000	3.9100
63.000	4.7900
64.000	5.6000

Name: N-8 Base Flow(cfs): 0.000 Init Stage(ft): 57.900
Group: BASE Warn Stage(ft): 64.000
Type: Stage/Area

Stage(ft)	Area(ac)
57.900	0.0000
58.000	0.2000
59.000	1.0600
60.000	1.6500
61.000	2.0900
62.000	2.5100
63.000	3.1900
64.000	3.6600

Name: N-9 Base Flow(cfs): 0.000 Init Stage(ft): 70.000
Group: BASE Warn Stage(ft): 78.000
Type: Stage/Area

Stage(ft)	Area(ac)

70.000	0.0000
71.000	2.9600
72.000	3.4000
73.000	3.9500
74.000	4.7700
75.000	5.6000
76.000	6.6200
77.000	8.6700
78.000	10.8200

Name: RSR Base Flow(cfs): 0.000 Init Stage(ft): 15.000
Group: BASE Warn Stage(ft): 21.000
Type: Stage/Area

ROCK SPRINGS RUN

FROM FLOW CONSTRICTION POINT OF ROCK SPRINGS RUN IN WEKIVA MITIGATION BANK TO WEKIVA RIVER

DATA DERIVED FROM ORANGE COUNTY LIDAR

Stage(ft)	Area(ac)
15.000	9.6500
17.000	100.6300
20.000	261.8800
21.000	352.7100
25.000	475.8300

Name: SEMINOLE Base Flow(cfs): 0.000 Init Stage(ft): 14.000
Group: BASE Warn Stage(ft): 14.000
Type: Time/Stage

FROM DRAINAGE REPORT FOR NEW GARDEN COAL PROPERTY BY BALMORAL GROUP, DATED 12/3/2012.

FDOT FPID 431081-3-52-01.

Time(hrs)	Stage(ft)
0.00	14.000
300.00	14.000

Name: SIMS-1 Base Flow(cfs): 0.000 Init Stage(ft): 63.000
Group: BASE Warn Stage(ft): 70.000
Type: Stage/Area

POND WRA #1

FROM SIM'S LANDSCAPING
ERP# 40-069-65649-2

ASSUMED PLANS WERE IN REFERENCE TO NGVD 29. ELEVATIONS WERE CONVERTED TO NAVD 88. CONVERSION: NAVD = NGVD - 1FT

Stage(ft)	Area(ac)
63.000	0.0010
64.000	0.0200
65.000	0.0200
66.000	0.0300
67.000	0.0500
68.000	0.0900
69.000	0.1300
70.000	0.2100

Name: SIMS-2 Base Flow(cfs): 0.000 Init Stage(ft): 46.000
Group: BASE Warn Stage(ft): 49.000
Type: Stage/Area

POND WRA #2

FROM SIM'S LANDSCAPING
ERP# 40-069-65649-2

ASSUMED PLANS WERE IN REFERENCE TO NGVD 29. ELEVATIONS WERE CONVERTED TO NAVD 88. CONVERSION: NAVD = NGVD - 1FT

Stage(ft)	Area(ac)
46.000	0.0400
47.000	0.0500
48.000	0.0900
49.000	0.1400

Name: SIMS-3 Base Flow(cfs): 0.000 Init Stage(ft): 55.000
Group: BASE Warn Stage(ft): 58.000
Type: Stage/Area

POND WRA #3

FROM SIM'S LANDSCAPING
ERP# 40-069-65649-2

ASSUMED PLANS WERE IN REFERENCE TO NGVD 29. ELEVATIONS WERE CONVERTED TO NAVD 88. CONVERSION: NAVD = NGVD - 1FT

Stage(ft)	Area(ac)
49.000	0.0400
50.000	0.0500
51.000	0.0600
52.000	0.0800
53.000	0.1000
54.000	0.1400
55.000	0.1800
56.000	0.2300
57.000	0.6800
58.000	0.7900

Name: WEKIVA-1 Base Flow(cfs): 0.000 Init Stage(ft): 15.000
Group: BASE Warn Stage(ft): 15.000
Type: Time/Stage

DISCHARGE POINT FROM ROCK SPRINGS RUN TO WEKIVA RIVER

STAGE IS 100YR BFE FROM FEMA FIRM PANEL 12095C0150F FOR ORANGE COUNTY

Time(hrs)	Stage(ft)
0.00	15.000
300.00	15.000

Name: WEKIVA-2 Base Flow(cfs): 0.000 Init Stage(ft): 10.000
Group: BASE Warn Stage(ft): 10.000
Type: Time/Stage

DISCHARGE POINT FROM ROCK SPRINGS RUN TO WEKIVA RIVER

STAGE IS 100YR BFE FROM FEMA FIRM PANEL 12069C0425E FOR LAKE COUNTY

Time(hrs)	Stage(ft)
0.00	10.000
300.00	10.000

Name: WMB Base Flow(cfs): 0.000 Init Stage(ft): 19.000
Group: BASE Warn Stage(ft): 27.000
Type: Stage/Area

WEKIVA MITIGATION BANK

DATA DERIVED FROM LAKE COUNTY AND ORANGE COUNTY LIDAR

Stage(ft)	Area(ac)
19.000	8.1200
20.000	34.3200
21.000	1264.9700
25.000	3815.6400
30.000	5171.5200

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==== Cross Sections ==========
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Name: N1-SEM Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	47.000	0.000000
180.000	46.200	0.000000
393.000	46.000	0.000000
509.000	45.000	0.000000
560.000	44.000	0.000000
600.000	43.000	0.000000
620.000	42.900	0.000000

637.000	43.000	0.000000
688.000	44.000	0.000000
781.000	45.000	0.000000
840.000	46.000	0.000000
890.000	47.000	0.000000

Name: N10-N17 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	68.100	0.000000
84.000	68.400	0.000000
160.000	68.000	0.000000
170.000	67.900	0.000000
181.000	68.000	0.000000
242.000	69.000	0.000000
273.000	70.000	0.000000

Name: N10-N8 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	70.000	0.000000
50.000	69.000	0.000000
241.000	68.100	0.000000
241.000	9999.000	0.000000

Name: N11-N17 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	64.000	0.000000
39.000	63.000	0.000000
78.000	62.000	0.000000
133.000	61.500	0.000000
194.000	62.000	0.000000
244.000	62.000	0.000000
377.000	61.000	0.000000
406.000	60.800	0.000000
448.000	61.000	0.000000
465.000	62.000	0.000000
510.000	62.000	0.000000
571.000	61.000	0.000000
633.000	61.000	0.000000
681.000	60.100	0.000000
716.000	61.000	0.000000
744.000	62.000	0.000000
784.000	63.000	0.000000
815.000	64.000	0.000000

Name: N12-N15 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	57.000	0.000000
67.000	56.000	0.000000
122.000	55.000	0.000000
151.000	54.000	0.000000
177.000	53.500	0.000000
262.000	53.500	0.000000
349.000	54.000	0.000000
365.000	55.000	0.000000
382.000	56.000	0.000000
409.000	57.000	0.000000

Name: N13-N15 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	63.000	0.000000
283.000	62.000	0.000000
294.000	61.900	0.000000
306.000	62.000	0.000000
504.000	62.800	0.000000
504.000	9999.000	0.000000

Name: N15-N22 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	55.000	0.000000
38.000	54.000	0.000000
74.000	53.000	0.000000
98.000	52.000	0.000000
140.000	51.000	0.000000
182.000	50.500	0.000000
236.000	51.000	0.000000
287.000	52.000	0.000000
303.000	53.000	0.000000
341.000	54.000	0.000000
432.000	55.000	0.000000

Name: N16-N12 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	61.500	0.000000
54.000	61.000	0.000000
100.000	60.500	0.000000
142.000	61.000	0.000000
142.000	9999.000	0.000000

Name: N16-N15 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	61.000	0.000000
84.000	61.000	0.000000
140.000	60.500	0.000000
223.000	61.000	0.000000
279.000	62.000	0.000000
337.000	63.000	0.000000
416.000	64.000	0.000000

Name: N17-N12 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	64.000	0.000000
69.000	63.000	0.000000
104.000	62.000	0.000000
171.000	61.000	0.000000
262.000	60.000	0.000000
285.000	59.800	0.000000
303.000	60.000	0.000000
366.000	61.000	0.000000
426.000	61.500	0.000000
426.000	9999.000	0.000000

Name: N17-N16 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	61.500	0.000000
52.000	62.000	0.000000
102.000	62.000	0.000000
164.000	61.000	0.000000
223.000	60.900	0.000000
287.000	61.000	0.000000
321.000	62.000	0.000000
358.000	63.000	0.000000
396.000	64.000	0.000000

Name: N19-N18 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	77.000	0.000000
22.000	76.000	0.000000
43.000	75.000	0.000000
96.000	74.000	0.000000
124.000	73.500	0.000000
138.000	74.000	0.000000
151.000	75.000	0.000000
171.000	76.000	0.000000
202.000	77.000	0.000000

Name: N2-N1 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	63.000	0.000000
210.000	62.000	0.000000
343.000	61.600	0.000000
490.000	62.000	0.000000
501.000	63.000	0.000000
501.000	9999.000	0.000000

Name: N20-N9 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	81.000	0.000000
637.000	80.000	0.000000
745.000	79.700	0.000000
745.000	9999.000	0.000000

Name: N21-N19 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	80.600	0.000000
75.000	81.000	0.000000
145.000	81.200	0.000000
230.000	81.000	0.000000
353.000	80.200	0.000000
442.000	80.300	0.000000
442.000	9999.000	0.000000

Name: N21-N20 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	81.000	0.000000
227.000	80.000	0.000000
262.000	79.800	0.000000

292.000	80.000	0.000000
393.000	80.600	0.000000
393.000	9999.000	0.000000

Name: N22-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	50.000	0.000000
66.000	49.000	0.000000
142.000	48.000	0.000000
195.000	47.000	0.000000
302.000	46.100	0.000000
380.000	46.100	0.000000
434.000	47.000	0.000000
457.000	48.000	0.000000
474.000	49.000	0.000000
572.000	50.000	0.000000

Name: N23-N22 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	55.000	0.000000
76.000	54.000	0.000000
98.000	53.000	0.000000
136.000	52.000	0.000000
175.000	51.600	0.000000
224.000	52.000	0.000000
258.000	53.000	0.000000
297.000	54.000	0.000000
314.000	55.000	0.000000

Name: N23-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	55.000	0.000000
75.000	54.000	0.000000
95.000	53.000	0.000000
113.000	52.800	0.000000
135.000	53.000	0.000000
192.000	54.000	0.000000
409.000	55.000	0.000000

Name: N24-N23 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	59.000	0.000000
44.000	58.000	0.000000
66.000	57.000	0.000000
81.000	57.000	0.000000
161.000	58.000	0.000000
202.000	59.000	0.000000

Name: N25-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	43.000	0.000000
32.000	42.000	0.000000
66.000	41.000	0.000000
95.000	40.000	0.000000
132.000	39.000	0.000000
175.000	38.100	0.000000
346.000	38.000	0.000000

366.000	38.000	0.000000
398.000	39.000	0.000000
435.000	40.000	0.000000
475.000	41.000	0.000000
525.000	42.000	0.000000
586.000	43.000	0.000000

Name: N26-N25 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	59.500	0.000000
120.000	59.000	0.000000
207.000	58.300	0.000000
298.000	58.300	0.000000
338.000	59.000	0.000000
421.000	60.000	0.000000

Name: N27-N25 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	57.000	0.000000
168.000	56.000	0.000000
250.000	55.700	0.000000
420.000	56.000	0.000000
547.000	56.000	0.000000
636.000	55.600	0.000000
700.000	56.000	0.000000
814.000	57.000	0.000000

Name: N28-N25 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	57.000	0.000000
110.000	56.000	0.000000
150.000	55.800	0.000000
193.000	56.000	0.000000
550.000	57.000	0.000000

Name: N30-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	999.000	0.000000
0.000	32.000	0.000000
49.000	31.500	0.000000
83.000	32.000	0.000000
220.000	33.000	0.000000
307.000	34.000	0.000000

Name: N32-N30 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	50.000	0.000000
34.000	49.000	0.000000
57.000	48.000	0.000000
115.000	47.500	0.000000
163.000	48.000	0.000000
242.000	48.000	0.000000
260.000	47.200	0.000000
314.000	47.200	0.000000
338.000	48.000	0.000000
384.000	49.000	0.000000

425.000	50.000	0.000000

Name: N33-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	30.000	0.000000
116.000	29.000	0.000000
167.000	28.000	0.000000
189.000	27.500	0.000000
209.000	28.000	0.000000
259.000	29.000	0.000000
319.000	30.000	0.000000

Name: N34-N33B Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	999.000	0.000000
0.000	59.300	0.000000
115.000	59.000	0.000000
243.000	58.200	0.000000
331.000	58.800	0.000000
331.000	999.000	0.000000

Name: N34-N35 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	59.000	0.000000
47.000	58.000	0.000000
150.000	57.000	0.000000
165.000	56.900	0.000000
180.000	57.000	0.000000
344.000	58.000	0.000000
440.000	59.000	0.000000

Name: N35-N36 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	58.000	0.000000
287.000	57.000	0.000000
407.000	56.900	0.000000
495.000	57.000	0.000000
860.000	57.000	0.000000
974.000	58.000	0.000000
1033.000	59.000	0.000000

Name: N36-SEM Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	999.000	0.000000
0.000	53.500	0.000000
212.000	53.000	0.000000
690.000	52.500	0.000000
980.000	52.500	0.000000
1400.000	53.000	0.000000
1970.000	54.000	0.000000

Name: N37-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	60.000	0.000000
85.000	59.000	0.000000
197.000	58.000	0.000000
280.000	57.800	0.000000
354.000	58.000	0.000000
634.000	58.000	0.000000
686.000	57.800	0.000000
730.000	58.000	0.000000
818.000	59.000	0.000000
1026.000	60.000	0.000000

Name: N39-N40 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	61.500	0.000000
111.000	61.000	0.000000
258.000	60.000	0.000000
288.000	59.300	0.000000
320.000	59.300	0.000000
349.000	60.000	0.000000
375.000	61.200	0.000000
428.000	60.000	0.000000
442.000	60.000	0.000000
582.000	61.100	0.000000
697.000	61.100	0.000000
748.000	61.500	0.000000
748.000	9999.000	0.000000

Name: N4-N3 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	62.500	0.000000
90.000	62.200	0.000000
180.000	62.200	0.000000
240.000	63.000	0.000000
361.000	64.000	0.000000

Name: N40-N41 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	61.000	0.000000
175.000	60.000	0.000000
223.000	59.800	0.000000
284.000	60.400	0.000000
352.000	60.400	0.000000
389.000	60.000	0.000000
480.000	59.000	0.000000
589.000	58.500	0.000000
695.000	59.200	0.000000
809.000	59.200	0.000000
809.000	9999.000	0.000000

Name: N40-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	59.200	0.000000
35.000	58.800	0.000000
53.000	59.000	0.000000
137.000	60.000	0.000000
558.000	61.000	0.000000
558.000	9999.000	0.000000

Name: N41-N42 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	55.000	0.000000
85.000	54.000	0.000000
175.000	53.200	0.000000
288.000	53.000	0.000000
460.000	53.000	0.000000
579.000	54.000	0.000000
684.000	54.000	0.000000
751.000	54.200	0.000000
751.000	9999.000	0.000000

Name: N41-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	54.200	0.000000
124.000	54.000	0.000000
247.000	53.200	0.000000
475.000	53.200	0.000000
535.000	54.000	0.000000
759.000	55.000	0.000000
759.000	9999.000	0.000000

Name: N42-N51 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	54.000	0.000000
113.000	54.000	0.000000
313.000	53.100	0.000000
500.000	54.000	0.000000
645.000	54.500	0.000000
645.000	9999.000	0.000000

Name: N43-N51 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	50.000	0.000000
212.000	49.000	0.000000
232.000	48.000	0.000000
252.000	48.000	0.000000
281.000	49.000	0.000000
501.000	50.000	0.000000

Name: N44-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	50.000	0.000000
85.000	49.000	0.000000
216.000	48.000	0.000000
231.000	47.800	0.000000
258.000	48.000	0.000000
304.000	49.000	0.000000
495.000	49.000	0.000000
535.000	48.500	0.000000
562.000	49.000	0.000000
608.000	50.000	0.000000

Name: N45-WMB Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	48.000	0.000000
381.000	47.000	0.000000
857.000	46.000	0.000000
1212.000	45.200	0.000000
1572.000	45.200	0.000000
1710.000	46.000	0.000000
1937.000	46.500	0.000000
2054.000	46.000	0.000000
2097.000	46.000	0.000000
2200.000	46.300	0.000000
2320.000	46.000	0.000000
2406.000	45.000	0.000000
2547.000	44.200	0.000000
2697.000	45.100	0.000000
3121.000	45.100	0.000000
3369.000	46.000	0.000000
3580.000	47.000	0.000000
3739.000	48.000	0.000000

Name: N46-N45 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	49.000	0.000000
49.000	48.000	0.000000
168.000	47.000	0.000000
183.000	46.800	0.000000
214.000	47.000	0.000000
408.000	48.000	0.000000
544.000	49.000	0.000000

Name: N47-N48 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	51.200	0.000000
31.000	51.100	0.000000
66.000	52.000	0.000000
111.000	53.000	0.000000

Name: N49-N46 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	49.000	0.000000
132.000	48.000	0.000000
166.000	47.000	0.000000
181.000	46.000	0.000000
239.000	45.100	0.000000
283.000	46.000	0.000000
311.000	47.000	0.000000
345.000	48.000	0.000000
439.000	49.000	0.000000

Name: N5-N3 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	63.500	0.000000
153.000	62.500	0.000000
364.000	63.500	0.000000

Name: N51-N52 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	47.000	0.000000
100.000	46.000	0.000000
518.000	45.500	0.000000
882.000	46.000	0.000000
882.000	9999.000	0.000000

Name: N52-BLACK Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	36.000	0.000000
53.000	35.000	0.000000
149.000	35.000	0.000000
241.000	34.800	0.000000
332.000	35.100	0.000000
433.000	34.100	0.000000
559.000	35.000	0.000000
734.000	36.000	0.000000

Name: N54-WEK2 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	40.900	0.000000
139.000	40.000	0.000000
240.000	39.500	0.000000
540.000	39.500	0.000000
636.000	40.000	0.000000
794.000	41.000	0.000000
1198.000	42.000	0.000000

Name: N55-N54 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	42.000	0.000000
100.000	41.000	0.000000
167.000	40.000	0.000000
300.000	39.300	0.000000
381.000	40.000	0.000000
444.000	41.000	0.000000
539.000	41.300	0.000000
1042.000	41.400	0.000000
1428.000	42.000	0.000000

Name: N55-N59 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	42.000	0.000000
138.000	41.000	0.000000
457.000	40.000	0.000000
553.000	39.500	0.000000
684.000	40.100	0.000000
793.000	40.100	0.000000
946.000	41.000	0.000000
1006.000	42.000	0.000000

Name: N56-N55 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	42.000	0.000000
227.000	41.000	0.000000
303.000	40.100	0.000000
339.000	40.100	0.000000
391.000	41.000	0.000000
417.000	42.000	0.000000
450.000	42.000	0.000000
510.000	41.100	0.000000
608.000	41.500	0.000000
712.000	41.500	0.000000
755.000	41.100	0.000000
1000.000	41.100	0.000000
1045.000	40.900	0.000000
1161.000	41.000	0.000000
1457.000	42.000	0.000000

Name: N57-N56 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	42.500	0.000000
219.000	42.100	0.000000
527.000	42.100	0.000000
612.000	42.500	0.000000
667.000	42.300	0.000000
742.000	42.500	0.000000
800.000	43.000	0.000000
978.000	44.000	0.000000

Name: N57-N58 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	44.000	0.000000
82.000	43.700	0.000000
226.000	43.000	0.000000
318.000	42.500	0.000000
434.000	42.500	0.000000
537.000	43.000	0.000000
587.000	43.100	0.000000
777.000	43.700	0.000000
777.000	9999.000	0.000000

Name: N57-N59 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	43.700	0.000000
115.000	43.700	0.000000
233.000	43.000	0.000000
256.000	42.000	0.000000
295.000	42.000	0.000000
478.000	42.500	0.000000
478.000	9999.000	0.000000

Name: N58-BLACK Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	42.000	0.000000
306.000	37.000	0.000000
527.000	36.000	0.000000
754.000	35.000	0.000000
1020.000	34.000	0.000000

1296.000	33.600	0.000000
1592.000	34.000	0.000000
2458.000	35.000	0.000000
3728.000	36.000	0.000000
4049.000	37.000	0.000000
4356.000	38.000	0.000000
4487.000	39.000	0.000000
4487.000	9999.000	0.000000

Name: N59-N58 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	42.000	0.000000
161.000	41.000	0.000000
315.000	40.000	0.000000
444.000	40.000	0.000000
725.000	39.000	0.000000
789.000	38.800	0.000000
923.000	39.200	0.000000
1086.000	38.600	0.000000
1408.000	38.800	0.000000
1656.000	38.200	0.000000
1819.000	38.000	0.000000
1969.000	37.600	0.000000
2100.000	38.000	0.000000
2127.000	39.000	0.000000
2127.000	9999.000	0.000000

Name: N59-N59A Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	39.000	0.000000
567.000	40.000	0.000000
922.000	41.000	0.000000
1026.000	42.000	0.000000

Name: N6-N5 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	63.500	0.000000
47.000	62.400	0.000000
123.000	63.500	0.000000

Name: N60-N58 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	63.000	0.000000
116.000	62.000	0.000000
235.000	61.000	0.000000
621.000	60.000	0.000000
671.000	59.800	0.000000
723.000	60.000	0.000000
891.000	61.000	0.000000
944.000	62.000	0.000000
1266.000	63.000	0.000000

Name: N7-N12 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000

0.000	62.600	0.000000
137.000	62.000	0.000000
209.000	61.000	0.000000
257.000	61.000	0.000000
286.000	62.000	0.000000
316.000	63.000	0.000000
388.000	64.000	0.000000

Name: N7-N6 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	64.000	0.000000
110.000	63.000	0.000000
154.000	62.000	0.000000
226.000	61.000	0.000000
238.000	60.900	0.000000
256.000	61.000	0.000000
334.000	62.000	0.000000
420.000	62.600	0.000000
420.000	9999.000	0.000000

Name: N7-N8 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	63.100	0.000000
75.000	62.800	0.000000
133.000	63.000	0.000000
217.000	63.000	0.000000
234.000	62.000	0.000000
248.000	61.200	0.000000
279.000	62.000	0.000000
320.000	63.000	0.000000
330.000	64.000	0.000000

Name: N8-N11 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	9999.000	0.000000
0.000	62.800	0.000000
109.000	62.200	0.000000
161.000	63.000	0.000000
182.000	64.000	0.000000
266.000	64.000	0.000000
277.000	63.000	0.000000
285.000	62.800	0.000000
300.000	63.000	0.000000
349.000	63.000	0.000000
405.000	64.000	0.000000

Name: N9-N6 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	78.000	0.000000
335.000	77.000	0.000000
494.000	76.600	0.000000
680.000	77.000	0.000000
1040.000	78.100	0.000000
1040.000	9999.000	0.000000

Name: N9-N8 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N

0.000	9999.000	0.000000
0.000	78.100	0.000000
247.000	77.600	0.000000
247.000	9999.000	0.000000

Name: RSR-WEK1 Group: BASE
Encroachment: No

BASED ON ORANGE COUNTY LIDAR

Station(ft)	Elevation(ft)	Manning's N
0.000	21.000	0.080000
2222.000	15.000	0.080000
3375.000	21.000	0.080000

Name: WMB-1 Group: BASE
Encroachment: No

BASED ON ORANGE COUNTY LIDAR

Station(ft)	Elevation(ft)	Manning's N
0.000	27.000	0.080000
1060.000	26.800	0.080000
1967.000	25.600	0.080000
2899.000	26.700	0.080000
3150.000	26.000	0.080000
3653.000	26.800	0.080000
4352.000	26.200	0.080000
4599.000	26.000	0.080000
4671.000	20.000	0.080000
4800.000	19.000	0.080000
4851.000	19.000	0.080000
5004.000	25.000	0.080000
5303.000	30.000	0.080000

Name: WMB-2 Group: BASE
Encroachment: No

BASED ON ORANGE COUNTY LIDAR

Station(ft)	Elevation(ft)	Manning's N
0.000	27.700	0.080000
184.000	27.000	0.080000
329.000	26.000	0.080000
558.000	25.000	0.080000
1396.000	21.000	0.080000
1522.000	21.000	0.080000
1711.000	21.700	0.080000
1932.000	21.800	0.080000
2632.000	25.000	0.080000
3529.000	27.000	0.080000

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==== Pipes ==========

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Name: N25-WMB-P From Node: N-25 Length(ft): 65.00
Group: BASE To Node: WMB Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	36.060	33.920
Manning's N:	0.035000	0.035000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: N30-WMB-P1 From Node: N-30 Length(ft): 30.00
Group: BASE To Node: WMB Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
			Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	18.00	18.00	Entrance Loss Coef:	0.50
Rise(in):	18.00	18.00	Exit Loss Coef:	0.00
Invert(ft):	28.970	27.600	Bend Loss Coef:	0.00
Manning's N:	0.035000	0.035000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Name:	N30-WMB-P2	From Node: N-30	Length(ft): 23.00
Group:	BASE	To Node: WMB	Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
			Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	24.00	24.00	Entrance Loss Coef:	0.50
Rise(in):	24.00	24.00	Exit Loss Coef:	0.00
Invert(ft):	29.610	28.920	Bend Loss Coef:	0.00
Manning's N:	0.035000	0.035000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Name:	N33-WMB-P	From Node: N-33	Length(ft): 66.00
Group:	BASE	To Node: WMB	Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
			Solution Algorithm:	Most Restrictive
Geometry:	Horz Ellipse	Horz Ellipse	Flow:	Both
Span(in):	19.00	19.00	Entrance Loss Coef:	0.50
Rise(in):	12.00	12.00	Exit Loss Coef:	0.00
Invert(ft):	26.030	25.350	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Name:	N51-N52-P	From Node: N-51	Length(ft): 61.00
Group:	BASE	To Node: N-52	Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
			Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.50
Rise(in):	36.00	36.00	Exit Loss Coef:	0.00
Invert(ft):	43.000	43.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

FROM FDOT STRAIGHT LINE DIAGRAM ID 11 130 000
MP 11.160

INVERTS ASSUMED

Name:	N53-N53B-P	From Node:	N-53	Length(ft):	84.00
Group:	BASE	To Node:	N-53B	Count:	1
				Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	24.00	24.00		Entrance Loss Coef:	0.50
Rise(in):	24.00	24.00		Exit Loss Coef:	0.00
Invert(ft):	44.440	44.280		Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	N53A-N53C-P	From Node:	N-53A	Length(ft):	74.00
Group:	BASE	To Node:	N-53C	Count:	1
				Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	12.00	12.00		Entrance Loss Coef:	0.50
Rise(in):	12.00	12.00		Exit Loss Coef:	0.00
Invert(ft):	44.420	44.660		Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	N53B-N52-P	From Node:	N-53B	Length(ft):	66.00
Group:	BASE	To Node:	N-52	Count:	1
				Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	15.00	15.00		Entrance Loss Coef:	0.50
Rise(in):	15.00	15.00		Exit Loss Coef:	0.00
Invert(ft):	44.730	43.600		Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	N54-WEK2	From Node:	N-54	Length(ft):	50.00
Group:	BASE	To Node:	WEKIVA-2	Count:	1
				Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	38.00	38.00		Entrance Loss Coef:	0.50
Rise(in):	38.00	38.00		Exit Loss Coef:	0.00
Invert(ft):	35.750	30.900		Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	N58-BLACK-P1	From Node:	N-58	Length(ft): 71.00
Group:	BASE	To Node:	BLACKWATER	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	36.00	36.00		Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00		Exit Loss Coef: 0.00
Invert(ft):	31.500	31.500		Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

FROM FDOT STRAIGHT LINE DIAGRAM ID 11 130 000
MP 11.946

INVERTS ASSUMED

Name:	N58-BLACK-P2	From Node:	N-58	Length(ft): 72.00
Group:	BASE	To Node:	BLACKWATER	Count: 3
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	36.00	36.00		Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00		Exit Loss Coef: 0.00
Invert(ft):	30.500	30.500		Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

FROM FDOT STRAIGHT LINE DIAGRAM ID 11 130 000
MP 11.12.11

INVERTS ASSUMED

Name:	N58-N58A-P1	From Node:	N-58	Length(ft): 81.00
Group:	BASE	To Node:	N-58A	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	30.00	30.00		Entrance Loss Coef: 0.50
Rise(in):	30.00	30.00		Exit Loss Coef: 0.00
Invert(ft):	30.330	30.090		Bend Loss Coef: 0.00
Manning's N:	0.035000	0.035000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Name:	N58-N58A-P2	From Node:	N-58	Length(ft): 83.00

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        Group: BASE                 To Node: N-58A                Count: 1
                                                        Friction Equation: Automatic
               UPSTREAM       DOWNSTREAM               Solution Algorithm: Most Restrictive
     Geometry: Circular       Circular                           Flow: Both
     Span(in): 30.00          30.00                    Entrance Loss Coef: 0.50
     Rise(in): 30.00          30.00                        Exit Loss Coef: 0.00
   Invert(ft): 30.510         30.720                       Bend Loss Coef: 0.00
  Manning's N: 0.035000       0.035000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope



--------------------------------------------------------------------------------------------------
         Name: N58-N58A-P3         From Node: N-58              Length(ft): 83.00
        Group: BASE                  To Node: N-58A                Count: 1
                                                        Friction Equation: Automatic
               UPSTREAM       DOWNSTREAM               Solution Algorithm: Most Restrictive
     Geometry: Circular       Circular                           Flow: Both
     Span(in): 30.00          30.00                    Entrance Loss Coef: 0.50
     Rise(in): 30.00          30.00                        Exit Loss Coef: 0.00
   Invert(ft): 30.250         30.610                       Bend Loss Coef: 0.00
  Manning's N: 0.035000       0.035000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope



--------------------------------------------------------------------------------------------------
         Name: N59-N59A-P1         From Node: N-59              Length(ft): 80.00
        Group: BASE                  To Node: N-59A                Count: 1
                                                        Friction Equation: Automatic
               UPSTREAM       DOWNSTREAM               Solution Algorithm: Most Restrictive
     Geometry: Circular       Circular                           Flow: Both
     Span(in): 30.00          30.00                    Entrance Loss Coef: 0.50
     Rise(in): 30.00          30.00                        Exit Loss Coef: 0.00
   Invert(ft): 34.130         34.230                       Bend Loss Coef: 0.00
  Manning's N: 0.035000       0.035000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall



--------------------------------------------------------------------------------------------------
         Name: N59-N59A-P2         From Node: N-59              Length(ft): 79.00
        Group: BASE                  To Node: N-59A                Count: 1
                                                        Friction Equation: Automatic
               UPSTREAM       DOWNSTREAM               Solution Algorithm: Most Restrictive
     Geometry: Circular       Circular                           Flow: Both
     Span(in): 30.00          30.00                    Entrance Loss Coef: 0.50
     Rise(in): 30.00          30.00                        Exit Loss Coef: 0.00
   Invert(ft): 34.210         34.260                       Bend Loss Coef: 0.00
  Manning's N: 0.035000       0.035000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall
```

```
--------------------------------------------------------------------------------------------------
        Name: N59-N59A-P3         From Node: N-59              Length(ft): 79.00
       Group: BASE                  To Node: N-59A                Count: 1
                                                          Friction Equation: Automatic
              UPSTREAM       DOWNSTREAM                 Solution Algorithm: Most Restrictive
    Geometry: Circular       Circular                          Flow: Both
    Span(in): 30.00          30.00                      Entrance Loss Coef: 0.50
    Rise(in): 30.00          30.00                          Exit Loss Coef: 0.00
   Invert(ft): 34.160        34.320                         Bend Loss Coef: 0.00
 Manning's N: 0.035000       0.035000                    Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


================================================================================================
==== Weirs =====================================================================================
================================================================================================

        Name: N1-SEM-W            From Node: N-1
       Group: BASE                  To Node: SEMINOLE
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                        XSec: N1-SEM
                  Invert(ft): 42.900
       Control Elevation(ft): 42.900
     Struct Opening Dim(ft): 9999.00
                                       TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------
        Name: N10-N11-W           From Node: N-10
       Group: BASE                  To Node: N-11
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Rectangular

                    Span(in): 456.00
                    Rise(in): 9999.00
                  Invert(ft): 68.100
       Control Elevation(ft): 68.100
                                       TABLE
             Bottom Clip(in): 0.000
                Top Clip(in): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------
        Name: N10-N17-W           From Node: N-10
       Group: BASE                  To Node: N-17
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                        XSec: N10-N17
                  Invert(ft): 67.900
       Control Elevation(ft): 67.900
     Struct Opening Dim(ft): 9999.00
                                       TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------
        Name: N10-N8-W            From Node: N-10
       Group: BASE                  To Node: N-8
        Flow: Both                    Count: 1
```

```
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N10-N8
                  Invert(ft): 68.100
       Control Elevation(ft): 68.100
      Struct Opening Dim(ft): 9999.00
                                         TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N11-N17-W           From Node: N-11
        Group: BASE                  To Node: N-17
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N11-N17
                  Invert(ft): 60.100
       Control Elevation(ft): 60.100
      Struct Opening Dim(ft): 9999.00
                                         TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N12-N15-W           From Node: N-12
        Group: BASE                  To Node: N-15
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N12-N15
                  Invert(ft): 53.500
       Control Elevation(ft): 53.500
      Struct Opening Dim(ft): 9999.00
                                         TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N13-N15-W           From Node: N-13
        Group: BASE                  To Node: N-15
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N13-N15
                  Invert(ft): 61.900
       Control Elevation(ft): 61.900
      Struct Opening Dim(ft): 9999.00
                                         TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N14-N15-W           From Node: N-14
        Group: BASE                  To Node: N-15
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Trapezoidal

            Bottom Width(ft): 114.00
         Left Side Slope(h/v): 60.00
        Right Side Slope(h/v): 66.00
                  Invert(ft): 60.100
       Control Elevation(ft): 60.100
      Struct Opening Dim(ft): 9999.00
                                         TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600
```

```
--------------------------------------------------------------------------------------------------------
        Name: N15-N22-W           From Node: N-15
       Group: BASE                  To Node: N-22
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                      XSec: N15-N22
                Invert(ft): 50.500
     Control Elevation(ft): 50.500
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N16-N12-W           From Node: N-16
       Group: BASE                  To Node: N-12
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                      XSec: N16-N12
                Invert(ft): 60.500
     Control Elevation(ft): 60.500
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N16-N15-W           From Node: N-16
       Group: BASE                  To Node: N-15
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                      XSec: N16-N15
                Invert(ft): 60.500
     Control Elevation(ft): 60.500
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N17-N12-W           From Node: N-17
       Group: BASE                  To Node: N-12
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                      XSec: N17-N12
                Invert(ft): 59.800
     Control Elevation(ft): 59.800
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N17-N16-W           From Node: N-17
       Group: BASE                  To Node: N-16
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                      XSec: N17-N16
                Invert(ft): 60.900
     Control Elevation(ft): 60.900
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
```

```
      Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N18-N17-W           From Node: N-18
       Group: BASE                  To Node: N-17
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Trapezoidal

           Bottom Width(ft): 0.00
      Left Side Slope(h/v): 100.00
     Right Side Slope(h/v): 50.00
                Invert(ft): 74.000
     Control Elevation(ft): 74.000
     Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N19-N18-W           From Node: N-19
       Group: BASE                  To Node: N-18
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                       XSec: N19-N18
                Invert(ft): 73.500
     Control Elevation(ft): 73.500
     Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N2-N1-W             From Node: N-2
       Group: BASE                  To Node: N-1
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                       XSec: N2-N1
                Invert(ft): 61.600
     Control Elevation(ft): 61.600
     Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N20-N18-W           From Node: N-20
       Group: BASE                  To Node: N-18
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Rectangular

                    Span(in): 2724.00
                    Rise(in): 9999.00
                Invert(ft): 79.700
     Control Elevation(ft): 79.700
                                          TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N20-N9-W            From Node: N-20
       Group: BASE                  To Node: N-9
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                       XSec: N20-N9
                Invert(ft): 79.700
     Control Elevation(ft): 79.700
```

```
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N21-N17-W           From Node: N-21
        Group: BASE                  To Node: N-17
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Trapezoidal

            Bottom Width(ft): 0.00
          Left Side Slope(h/v): 0.00
         Right Side Slope(h/v): 220.00
                    Invert(ft): 80.300
         Control Elevation(ft): 80.300
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N21-N19-W           From Node: N-21
        Group: BASE                  To Node: N-19
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                          XSec: N21-N19
                    Invert(ft): 80.200
         Control Elevation(ft): 80.200
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N21-N20-W           From Node: N-21
        Group: BASE                  To Node: N-20
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                          XSec: N21-N20
                    Invert(ft): 79.800
         Control Elevation(ft): 79.800
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N22-WMB-W           From Node: N-22
        Group: BASE                  To Node: WMB
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                          XSec: N22-WMB
                    Invert(ft): 46.100
         Control Elevation(ft): 46.100
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N23-N22-W           From Node: N-23
        Group: BASE                  To Node: N-22
         Flow: Both                    Count: 1
```

```
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N23-N22
                  Invert(ft): 51.600
       Control Elevation(ft): 51.600
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



----------------------------------------------------------------------------------------------------
         Name: N23-WMB-W           From Node: N-23
        Group: BASE                  To Node: WMB
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N23-WMB
                  Invert(ft): 52.800
       Control Elevation(ft): 52.800
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



----------------------------------------------------------------------------------------------------
         Name: N24-N23-W           From Node: N-24
        Group: BASE                  To Node: N-23
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N24-N23
                  Invert(ft): 57.000
       Control Elevation(ft): 57.000
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



----------------------------------------------------------------------------------------------------
         Name: N25-WMB-W           From Node: N-25
        Group: BASE                  To Node: WMB
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N25-WMB
                  Invert(ft): 38.000
       Control Elevation(ft): 38.000
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



----------------------------------------------------------------------------------------------------
         Name: N26-N25-W           From Node: N-26
        Group: BASE                  To Node: N-25
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N26-N25
                  Invert(ft): 58.300
       Control Elevation(ft): 58.300
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



----------------------------------------------------------------------------------------------------
```

```
         Name: N26-N27-W           From Node: N-26
        Group: BASE                  To Node: N-27
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Trapezoidal

            Bottom Width(ft): 0.00
        Left Side Slope(h/v): 120.00
       Right Side Slope(h/v): 0.00
                  Invert(ft): 59.500
       Control Elevation(ft): 59.500
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N27-N25-W           From Node: N-27
        Group: BASE                  To Node: N-25
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                        XSec: N27-N25
                  Invert(ft): 55.600
       Control Elevation(ft): 55.600
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N28-N25-W           From Node: N-28
        Group: BASE                  To Node: N-25
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                        XSec: N28-N25
                  Invert(ft): 55.800
       Control Elevation(ft): 55.800
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N28-SEM-W           From Node: N-28
        Group: BASE                  To Node: SEMINOLE
         Flow: Both                    Count: 1
         Type: Vertical: Paved      Geometry: Trapezoidal

            Bottom Width(ft): 640.00
        Left Side Slope(h/v): 430.00
       Right Side Slope(h/v): 90.00
                  Invert(ft): 56.100
       Control Elevation(ft): 56.100
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N29-N30-W           From Node: N-29
        Group: BASE                  To Node: N-30
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Rectangular

                    Span(in): 4044.00
                    Rise(in): 9999.00
                  Invert(ft): 56.600
       Control Elevation(ft): 56.600
                                          TABLE
             Bottom Clip(in): 0.000
```

```
               Top Clip(in): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N29-SEM-W           From Node: N-29
         Group: BASE                  To Node: SEMINOLE
          Flow: Both                    Count: 1
          Type: Vertical: Paved      Geometry: Trapezoidal

             Bottom Width(ft): 0.00
        Left Side Slope(h/v): 170.00
       Right Side Slope(h/v): 170.00
                  Invert(ft): 57.200
       Control Elevation(ft): 57.200
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N3-N1-W             From Node: N-3
         Group: BASE                  To Node: N-1
          Flow: Both                    Count: 1
          Type: Vertical: Fread      Geometry: Trapezoidal

             Bottom Width(ft): 51.00
        Left Side Slope(h/v): 2.00
       Right Side Slope(h/v): 2.00
                  Invert(ft): 57.000
       Control Elevation(ft): 57.000
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N30-N33-W           From Node: N-30
         Group: BASE                  To Node: N-33
          Flow: Both                    Count: 1
          Type: Vertical: Fread      Geometry: Trapezoidal

             Bottom Width(ft): 0.00
        Left Side Slope(h/v): 60.00
       Right Side Slope(h/v): 0.00
                  Invert(ft): 32.000
       Control Elevation(ft): 32.000
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N30-WMB-W           From Node: N-30
         Group: BASE                  To Node: WMB
          Flow: Both                    Count: 1
          Type: Vertical: Fread      Geometry: Irregular

                        XSec: N30-WMB
                  Invert(ft): 31.500
       Control Elevation(ft): 31.500
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N31-N30-W           From Node: N-31
         Group: BASE                  To Node: N-30
```

```
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Trapezoidal

            Bottom Width(ft): 0.00
        Left Side Slope(h/v): 70.00
       Right Side Slope(h/v): 70.00
                  Invert(ft): 51.500
       Control Elevation(ft): 51.500
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N32-N30-W           From Node: N-32
        Group: BASE                  To Node: N-30
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                       XSec: N32-N30
                  Invert(ft): 47.200
       Control Elevation(ft): 47.200
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N33-WMB-W           From Node: N-33
        Group: BASE                  To Node: WMB
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                       XSec: N33-WMB
                  Invert(ft): 27.500
       Control Elevation(ft): 27.500
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N33A-N33-W          From Node: N-33A
        Group: BASE                  To Node: N-33
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Trapezoidal

            Bottom Width(ft): 100.00
        Left Side Slope(h/v): 45.00
       Right Side Slope(h/v): 55.00
                  Invert(ft): 55.500
       Control Elevation(ft): 55.500
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N33B-N33-W          From Node: N-33B
        Group: BASE                  To Node: N-33
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Trapezoidal

            Bottom Width(ft): 0.00
        Left Side Slope(h/v): 275.00
       Right Side Slope(h/v): 275.00
                  Invert(ft): 57.800
       Control Elevation(ft): 57.800
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
```

```
               Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N34-N33A-W          From Node: N-34
         Group: BASE                  To Node: N-33A
          Flow: Both                    Count: 1
          Type: Vertical: Fread      Geometry: Trapezoidal

             Bottom Width(ft): 0.00
        Left Side Slope(h/v): 0.00
       Right Side Slope(h/v): 160.00
                  Invert(ft): 58.800
       Control Elevation(ft): 58.800
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N34-N33B-W          From Node: N-34
         Group: BASE                  To Node: N-33B
          Flow: Both                    Count: 1
          Type: Vertical: Fread      Geometry: Irregular

                        XSec: N34-N33B
                  Invert(ft): 58.200
       Control Elevation(ft): 58.200
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N34-N35-W           From Node: N-34
         Group: BASE                  To Node: N-35
          Flow: Both                    Count: 1
          Type: Vertical: Fread      Geometry: Irregular

                        XSec: N34-N35
                  Invert(ft): 56.900
       Control Elevation(ft): 56.900
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N34-WMB-W           From Node: N-34
         Group: BASE                  To Node: WMB
          Flow: Both                    Count: 1
          Type: Vertical: Fread      Geometry: Trapezoidal

             Bottom Width(ft): 0.00
        Left Side Slope(h/v): 275.00
       Right Side Slope(h/v): 0.00
                  Invert(ft): 59.300
       Control Elevation(ft): 59.300
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600


-------------------------------------------------------------------------------------------------
          Name: N35-N36-W           From Node: N-35
         Group: BASE                  To Node: N-36
          Flow: Both                    Count: 1
          Type: Vertical: Paved      Geometry: Irregular
```

```
                    XSec: N35-N36
              Invert(ft): 56.900
   Control Elevation(ft): 56.900
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



------------------------------------------------------------------------------------------------
      Name: N36-SEM-W          From Node: N-36
     Group: BASE                 To Node: SEMINOLE
      Flow: Both                   Count: 1
      Type: Vertical: Paved     Geometry: Irregular

                    XSec: N36-SEM
              Invert(ft): 52.000
   Control Elevation(ft): 52.000
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



------------------------------------------------------------------------------------------------
      Name: N37-WMB-W          From Node: N-37
     Group: BASE                 To Node: WMB
      Flow: Both                   Count: 1
      Type: Vertical: Fread     Geometry: Irregular

                    XSec: N37-WMB
              Invert(ft): 57.800
   Control Elevation(ft): 57.800
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



------------------------------------------------------------------------------------------------
      Name: N38-WMB-W          From Node: N-38
     Group: BASE                 To Node: WMB
      Flow: Both                   Count: 1
      Type: Vertical: Fread     Geometry: Trapezoidal

        Bottom Width(ft): 17.00
   Left Side Slope(h/v): 6.00
  Right Side Slope(h/v): 6.00
              Invert(ft): 56.000
   Control Elevation(ft): 56.000
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



------------------------------------------------------------------------------------------------
      Name: N39-N38-W          From Node: N-39
     Group: BASE                 To Node: N-38
      Flow: Both                   Count: 1
      Type: Vertical: Fread     Geometry: Trapezoidal

        Bottom Width(ft): 0.00
   Left Side Slope(h/v): 80.00
  Right Side Slope(h/v): 20.00
              Invert(ft): 60.800
   Control Elevation(ft): 60.800
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600
```

```
--------------------------------------------------------------------------------------------------
        Name: N39-N40-W           From Node: N-39
       Group: BASE                  To Node: N-40
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N39-N40
                Invert(ft): 59.300
     Control Elevation(ft): 59.300
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600


--------------------------------------------------------------------------------------------------
        Name: N4-N14-W            From Node: N-4
       Group: BASE                  To Node: N-14
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Trapezoidal

           Bottom Width(ft): 0.00
     Left Side Slope(h/v): 180.00
    Right Side Slope(h/v): 0.00
                Invert(ft): 62.500
     Control Elevation(ft): 62.500
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600


--------------------------------------------------------------------------------------------------
        Name: N4-N3-W             From Node: N-4
       Group: BASE                  To Node: N-3
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N4-N3
                Invert(ft): 62.200
     Control Elevation(ft): 62.200
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600


--------------------------------------------------------------------------------------------------
        Name: N40-N41-W           From Node: N-40
       Group: BASE                  To Node: N-41
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N40-N41
                Invert(ft): 58.500
     Control Elevation(ft): 58.500
    Struct Opening Dim(ft): 9999.00
                                        TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600


--------------------------------------------------------------------------------------------------
        Name: N40-WMB-W           From Node: N-40
       Group: BASE                  To Node: WMB
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N40-WMB
                Invert(ft): 58.800
     Control Elevation(ft): 58.800
    Struct Opening Dim(ft): 9999.00
                                        TABLE
```

```
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
        Name: N41-N42-W           From Node: N-41
       Group: BASE                  To Node: N-42
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                       XSec: N41-N42
                 Invert(ft): 53.000
      Control Elevation(ft): 53.000
     Struct Opening Dim(ft): 9999.00
                                       TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
        Name: N41-WMB-W           From Node: N-41
       Group: BASE                  To Node: WMB
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                       XSec: N41-WMB
                 Invert(ft): 53.200
      Control Elevation(ft): 53.200
     Struct Opening Dim(ft): 9999.00
                                       TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
        Name: N42-N43-W           From Node: N-42
       Group: BASE                  To Node: N-43
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Trapezoidal

           Bottom Width(ft): 208.00
      Left Side Slope(h/v): 230.00
     Right Side Slope(h/v): 0.00
                 Invert(ft): 54.000
      Control Elevation(ft): 54.000
     Struct Opening Dim(ft): 9999.00
                                       TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
        Name: N42-N51-W           From Node: N-42
       Group: BASE                  To Node: N-51
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                       XSec: N42-N51
                 Invert(ft): 53.100
      Control Elevation(ft): 53.100
     Struct Opening Dim(ft): 9999.00
                                       TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
        Name: N43-N51-W           From Node: N-43
       Group: BASE                  To Node: N-51
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular
```

```
                    XSec: N43-N51
              Invert(ft): 48.000
   Control Elevation(ft): 48.000
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
     Name: N44-WMB-W           From Node: N-44
    Group: BASE                  To Node: WMB
     Flow: Both                    Count: 1
     Type: Vertical: Fread      Geometry: Irregular

                    XSec: N44-WMB
              Invert(ft): 47.800
   Control Elevation(ft): 47.800
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
     Name: N45-WMB-W           From Node: N-45
    Group: BASE                  To Node: WMB
     Flow: Both                    Count: 1
     Type: Vertical: Fread      Geometry: Irregular

                    XSec: N45-WMB
              Invert(ft): 44.200
   Control Elevation(ft): 44.200
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
     Name: N46-N45-W           From Node: N-46
    Group: BASE                  To Node: N-45
     Flow: Both                    Count: 1
     Type: Vertical: Fread      Geometry: Irregular

                    XSec: N46-N45
              Invert(ft): 46.800
   Control Elevation(ft): 46.800
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
     Name: N47-N46-W           From Node: N-47
    Group: BASE                  To Node: N-46
     Flow: Both                    Count: 1
     Type: Vertical: Paved      Geometry: Trapezoidal

        Bottom Width(ft): 0.00
   Left Side Slope(h/v): 742.00
  Right Side Slope(h/v): 0.00
              Invert(ft): 51.200
   Control Elevation(ft): 51.200
  Struct Opening Dim(ft): 9999.00
                                        TABLE
         Bottom Clip(ft): 0.000
            Top Clip(ft): 0.000
     Weir Discharge Coef: 3.200
  Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
```

```
         Name: N47-N48             From Node: N-47
        Group: BASE                  To Node: N-48
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                      XSec: N47-N48
                Invert(ft): 51.100
       Control Elevation(ft): 51.100
      Struct Opening Dim(ft): 9999.00
                                        TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N48-BLACK           From Node: N-48
        Group: BASE                  To Node: BLACKWATER
         Flow: Both                    Count: 1
         Type: Vertical: Paved      Geometry: Trapezoidal

            Bottom Width(ft): 40.00
       Left Side Slope(h/v): 3.00
      Right Side Slope(h/v): 3.00
                Invert(ft): 44.100
       Control Elevation(ft): 44.100
      Struct Opening Dim(ft): 9999.00
                                        TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N49-N46-W           From Node: N-49
        Group: BASE                  To Node: N-46
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                      XSec: N49-N46
                Invert(ft): 45.100
       Control Elevation(ft): 45.100
      Struct Opening Dim(ft): 9999.00
                                        TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N5-N3-W             From Node: N-5
        Group: BASE                  To Node: N-3
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                      XSec: N5-N3
                Invert(ft): 62.500
       Control Elevation(ft): 62.500
      Struct Opening Dim(ft): 9999.00
                                        TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N50-N52-W           From Node: N-50
        Group: BASE                  To Node: N-52
         Flow: Both                    Count: 1
         Type: Vertical: Paved      Geometry: Rectangular

                  Span(in): 1488.00
                  Rise(in): 9999.00
                Invert(ft): 46.100
       Control Elevation(ft): 46.100
                                        TABLE
            Bottom Clip(in): 0.000
               Top Clip(in): 0.000
        Weir Discharge Coef: 3.200
```

```
      Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N51-N52-W           From Node: N-51
       Group: BASE                  To Node: N-52
        Flow: Both                    Count: 1
        Type: Vertical: Paved      Geometry: Irregular

                     XSec: N51-N52
                Invert(ft): 45.500
     Control Elevation(ft): 45.500
     Struct Opening Dim(ft): 9999.00
                                       TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N52-BLACK-W         From Node: N-52
       Group: BASE                  To Node: BLACKWATER
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Irregular

                     XSec: N52-BLACK
                Invert(ft): 34.100
     Control Elevation(ft): 34.100
     Struct Opening Dim(ft): 9999.00
                                       TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N53-N52-W           From Node: N-53
       Group: BASE                  To Node: N-53B
        Flow: Both                    Count: 1
        Type: Vertical: Paved      Geometry: Rectangular

                  Span(in): 1200.00
                  Rise(in): 9999.00
                Invert(ft): 48.500
     Control Elevation(ft): 48.500
                                       TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N53A-N53-W          From Node: N-53A
       Group: BASE                  To Node: N-53
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Trapezoidal

           Bottom Width(ft): 0.00
      Left Side Slope(h/v): 5.00
     Right Side Slope(h/v): 62.00
                Invert(ft): 48.800
     Control Elevation(ft): 48.800
     Struct Opening Dim(ft): 9999.00
                                       TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------------
        Name: N53B-N52-W          From Node: N-53B
       Group: BASE                  To Node: N-52
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Rectangular

                  Span(in): 1200.00
                  Rise(in): 9999.00
                Invert(ft): 47.200
```

```
       Control Elevation(ft): 47.200
                                          TABLE
             Bottom Clip(in): 0.000
                Top Clip(in): 0.000
          Weir Discharge Coef: 3.200
        Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N53C-BLACK-W        From Node: N-53C
        Group: BASE                  To Node: BLACKWATER
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Trapezoidal

            Bottom Width(ft): 0.00
          Left Side Slope(h/v): 35.00
         Right Side Slope(h/v): 35.00
                   Invert(ft): 47.500
         Control Elevation(ft): 47.500
        Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
        Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N54-WEK2-W          From Node: N-54
        Group: BASE                  To Node: WEKIVA-2
         Flow: Both                    Count: 1
         Type: Vertical: Paved      Geometry: Irregular

                         XSec: N54-WEK2
                   Invert(ft): 39.500
         Control Elevation(ft): 39.500
        Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
        Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N55-N54-W           From Node: N-55
        Group: BASE                  To Node: N-54
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N55-N54
                   Invert(ft): 39.300
         Control Elevation(ft): 39.300
        Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
        Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N55-N59-W           From Node: N-55
        Group: BASE                  To Node: N-59
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N55-N59
                   Invert(ft): 39.500
         Control Elevation(ft): 39.500
        Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
        Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
         Name: N56-N55-W           From Node: N-56
        Group: BASE                  To Node: N-55
         Flow: Both                    Count: 1
```

```
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N56-N55
                  Invert(ft): 40.100
       Control Elevation(ft): 40.100
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N57-N56-W           From Node: N-57
        Group: BASE                  To Node: N-56
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N57-N56
                  Invert(ft): 42.100
       Control Elevation(ft): 42.100
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N57-N58-W           From Node: N-57
        Group: BASE                  To Node: N-58
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N57-N58
                  Invert(ft): 42.500
       Control Elevation(ft): 42.500
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N57-N59-W           From Node: N-57
        Group: BASE                  To Node: N-59
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N57-N59
                  Invert(ft): 42.000
       Control Elevation(ft): 42.000
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N58-BLACK-W         From Node: N-58
        Group: BASE                  To Node: BLACKWATER
         Flow: Both                    Count: 1
         Type: Vertical: Paved      Geometry: Irregular

                         XSec: N58-BLACK
                  Invert(ft): 33.600
       Control Elevation(ft): 33.600
      Struct Opening Dim(ft): 9999.00
                                          TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
```

```
         Name: N58A-BLACK          From Node: N-58A
        Group: BASE                  To Node: BLACKWATER
         Flow: Both                    Count: 1
         Type: Vertical: Paved      Geometry: Rectangular

                    Span(in): 1200.00
                    Rise(in): 9999.00
                  Invert(ft): 32.500
       Control Elevation(ft): 32.500
                                        TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N59-BLACK-W         From Node: N-59
        Group: BASE                  To Node: BLACKWATER
         Flow: Both                    Count: 1
         Type: Vertical: Paved      Geometry: Irregular

                         XSec: N59-N59A
                  Invert(ft): 39.000
       Control Elevation(ft): 39.000
      Struct Opening Dim(ft): 9999.00
                                        TABLE
              Bottom Clip(ft): 0.000
                 Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N59-N58-W           From Node: N-59
        Group: BASE                  To Node: N-58
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N59-N58
                  Invert(ft): 38.600
       Control Elevation(ft): 38.600
      Struct Opening Dim(ft): 9999.00
                                        TABLE
              Bottom Clip(ft): 0.000
                 Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N59A-BLACK-W        From Node: N-59A
        Group: BASE                  To Node: BLACKWATER
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Rectangular

                    Span(in): 1200.00
                    Rise(in): 9999.00
                  Invert(ft): 37.500
       Control Elevation(ft): 37.500
                                        TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N6-N5-W             From Node: N-6
        Group: BASE                  To Node: N-5
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                         XSec: N6-N5
                  Invert(ft): 62.400
       Control Elevation(ft): 62.400
      Struct Opening Dim(ft): 9999.00
                                        TABLE
              Bottom Clip(ft): 0.000
                 Top Clip(ft): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600
```

```
--------------------------------------------------------------------------------------------------
        Name: N60-N58-W           From Node: N-60
       Group: BASE                  To Node: N-58
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N60-N58
                Invert(ft): 59.800
     Control Elevation(ft): 59.800
    Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------
        Name: N7-N12-W            From Node: N-7
       Group: BASE                  To Node: N-12
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N7-N12
                Invert(ft): 61.000
     Control Elevation(ft): 61.000
    Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------
        Name: N7-N6-W             From Node: N-7
       Group: BASE                  To Node: N-6
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N7-N6
                Invert(ft): 60.900
     Control Elevation(ft): 60.900
    Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------
        Name: N7-N8-W             From Node: N-7
       Group: BASE                  To Node: N-8
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N7-N8
                Invert(ft): 61.200
     Control Elevation(ft): 61.200
    Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
       Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600



--------------------------------------------------------------------------------------------------
        Name: N8-N11-W            From Node: N-8
       Group: BASE                  To Node: N-11
        Flow: Both                    Count: 1
        Type: Vertical: Fread     Geometry: Irregular

                      XSec: N8-N11
                Invert(ft): 62.200
     Control Elevation(ft): 62.200
    Struct Opening Dim(ft): 9999.00
                                          TABLE
           Bottom Clip(ft): 0.000
              Top Clip(ft): 0.000
```

```
        Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N9-N10-W           From Node: N-9
        Group: BASE                 To Node: N-10
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Trapezoidal

            Bottom Width(ft): 0.00
       Left Side Slope(h/v): 0.00
      Right Side Slope(h/v): 285.00
                Invert(ft): 77.600
      Control Elevation(ft): 77.600
     Struct Opening Dim(ft): 9999.00
                                          TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N9-N6              From Node: N-9
        Group: BASE                 To Node: N-6
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Irregular

                       XSec: N9-N6
                Invert(ft): 76.600
      Control Elevation(ft): 76.600
     Struct Opening Dim(ft): 9999.00
                                          TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: N9-N8-W            From Node: N-9
        Group: BASE                 To Node: N-8
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Irregular

                       XSec: N9-N8
                Invert(ft): 77.600
      Control Elevation(ft): 77.600
     Struct Opening Dim(ft): 9999.00
                                          TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: RSR-WEK1-W         From Node: RSR
        Group: BASE                 To Node: WEKIVA-1
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Irregular

                       XSec: RSR-WEK1
                Invert(ft): 15.000
      Control Elevation(ft): 15.000
     Struct Opening Dim(ft): 9999.00
                                          TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600

DISCHARGE FROM ROCK SPRINGS RUN TO WEKIVA RIVER

-------------------------------------------------------------------------------------------------------
         Name: SIMS-1             From Node: SIMS-1
        Group: BASE                 To Node: N-53A
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Rectangular

                    Span(in): 1200.00
                    Rise(in): 9999.00
```

```
                Invert(ft): 70.000
      Control Elevation(ft): 70.000
                                          TABLE
            Bottom Clip(in): 0.000
               Top Clip(in): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600

WRA#1 TOP OF BANK

FROM SIM'S LANDSCAPING
ERP# 40-069-65649-2

ASSUMED PLANS WERE IN REFERENCE TO NGVD 29. ELEVATIONS WERE CONVERTED TO NAVD 88. CONVERSION: NAVD = NGVD - 1FT

-------------------------------------------------------------------------------------------------
         Name: SIMS-2             From Node: SIMS-2
        Group: BASE                 To Node: N-53A
         Flow: Both                   Count: 1
         Type: Vertical: Mavis     Geometry: Trapezoidal

           Bottom Width(ft): 1.00
      Left Side Slope(h/v): 4.00
     Right Side Slope(h/v): 4.00
                Invert(ft): 48.100
      Control Elevation(ft): 48.100
     Struct Opening Dim(ft): 9999.00
                                          TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600

WRA#2 BROAD CREST WEIR

FROM SIM'S LANDSCAPING
ERP# 40-069-65649-2

ASSUMED PLANS WERE IN REFERENCE TO NGVD 29. ELEVATIONS WERE CONVERTED TO NAVD 88. CONVERSION: NAVD = NGVD - 1FT

-------------------------------------------------------------------------------------------------
         Name: SIMS-3             From Node: SIMS-3
        Group: BASE                 To Node: SIMS-2
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Rectangular

                  Span(in): 840.00
                  Rise(in): 9999.00
                Invert(ft): 58.000
      Control Elevation(ft): 58.000
                                          TABLE
            Bottom Clip(in): 0.000
               Top Clip(in): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600

WRA#3 TOP OF BANK

FROM SIM'S LANDSCAPING
ERP# 40-069-65649-2

ASSUMED PLANS WERE IN REFERENCE TO NGVD 29. ELEVATIONS WERE CONVERTED TO NAVD 88. CONVERSION: NAVD = NGVD - 1FT

-------------------------------------------------------------------------------------------------
         Name: WMB-RSR-W          From Node: WMB
        Group: BASE                 To Node: RSR
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Irregular

                      XSec: WMB-1
                Invert(ft): 19.000
      Control Elevation(ft): 19.000
     Struct Opening Dim(ft): 9999.00
                                          TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600

FLOW CONSTRICTION POINT OF  ROCK SPRINGS RUN IN WEKIVA MITIGATION BANK

-------------------------------------------------------------------------------------------------
         Name: WMB-WEK1-W         From Node: WMB
        Group: BASE                 To Node: WEKIVA-1
         Flow: Both                   Count: 1
         Type: Vertical: Fread     Geometry: Irregular
```

```
                    XSec: WMB-2
                Invert(ft): 21.000
     Control Elevation(ft): 21.000
    Struct Opening Dim(ft): 9999.00
                                          TABLE
          Bottom Clip(ft): 0.000
             Top Clip(ft): 0.000
      Weir Discharge Coef: 3.200
    Orifice Discharge Coef: 0.600

EASTWARD DISCHARGE FROM WEKIVA MITIGATION BANK DIRECTLY TO WEKIVA RIVER WATERSHED

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

        Name: 100-24
    Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-24.R32

     Override Defaults: Yes
   Storm Duration(hrs): 24.00
         Rainfall File: Flmod
   Rainfall Amount(in): 10.60

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

--------------------------------------------------------------------------------------------------------
        Name: 100-240
    Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-240.R32

     Override Defaults: Yes
   Storm Duration(hrs): 240.00
         Rainfall File: FDOT-240
   Rainfall Amount(in): 18.50

Time(hrs)       Print Inc(min)
--------------- ---------------
245.000         5.00

--------------------------------------------------------------------------------------------------------
        Name: 100-8
    Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-8.R32

     Override Defaults: Yes
   Storm Duration(hrs): 8.00
         Rainfall File: Fdot-8
   Rainfall Amount(in): 8.00

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

--------------------------------------------------------------------------------------------------------
        Name: 100-96
    Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-96.R32

     Override Defaults: Yes
   Storm Duration(hrs): 96.00
         Rainfall File: Sjrwmd96
   Rainfall Amount(in): 15.00

Time(hrs)       Print Inc(min)
--------------- ---------------
96.000          5.00

--------------------------------------------------------------------------------------------------------
        Name: 25-24
    Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\25-24.R32

     Override Defaults: Yes
   Storm Duration(hrs): 24.00
         Rainfall File: Flmod
   Rainfall Amount(in): 8.60

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

--------------------------------------------------------------------------------------------------------
        Name: 25-96
    Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\25-96.R32

     Override Defaults: Yes
   Storm Duration(hrs): 96.00
         Rainfall File: Sjrwmd96
```

```
    Rainfall Amount(in): 11.00

Time(hrs)       Print Inc(min)
--------------- ---------------
96.000          5.00

-------------------------------------------------------------------------------------------------
         Name: 50-96
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\50-96.R32

      Override Defaults: Yes
    Storm Duration(hrs): 96.00
          Rainfall File: Sjrwmd96
    Rainfall Amount(in): 13.00

Time(hrs)       Print Inc(min)
--------------- ---------------
96.000          5.00

-------------------------------------------------------------------------------------------------
         Name: Mean
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\Mean.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 4.50

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

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

         Name: 100-24              Hydrology Sim: 100-24
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-24.I32

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

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 60.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:



Time(hrs)       Print Inc(min)
--------------- ---------------
15.000          60.000
30.000          15.000
60.000          60.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 100-240             Hydrology Sim: 100-240
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-240.I32

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

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 245.00
     Min Calc Time(sec): 0.2500              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:

100 yr / 240 hr

Time(hrs)       Print Inc(min)
--------------- ---------------
999.000         5.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 100-8               Hydrology Sim: 100-8
```

```
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-8.I32

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

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 15.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:



Time(hrs)       Print Inc(min)
--------------- ---------------
999.000         15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 100-96              Hydrology Sim: 100-96
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\100-96.I32

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

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 130.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:



Time(hrs)       Print Inc(min)
--------------- ---------------
60.000          60.000
100.000         15.000
130.000         60.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 25-24               Hydrology Sim: 25-24
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\25-24.I32

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

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 60.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:



Time(hrs)       Print Inc(min)
--------------- ---------------
15.000          60.000
30.000          15.000
60.000          60.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 25-96               Hydrology Sim: 25-96
     Filename: X:\DISTRICT5\WEKIVA 6\5.0  DESIGN-PLANNING\5.3  TECHNICAL DATA-CALCULATIONS\5.3.2  DRAINAGE\CALCS\PRE\25-96.I32

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

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 130.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:
```

Time(hrs)	Print Inc(min)
60.000	60.000
100.000	15.000
130.000	60.000

Group	Run
BASE	Yes

Name: 50-96 Hydrology Sim: 50-96
Filename: X:\DISTRICT5\WEKIVA 6\5.0 DESIGN-PLANNING\5.3 TECHNICAL DATA-CALCULATIONS\5.3.2 DRAINAGE\CALCS\PRE\50-96.I32

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

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 130.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
60.000	60.000
100.000	15.000
130.000	60.000

Group	Run
BASE	Yes

Name: Mean Hydrology Sim: Mean
Filename: X:\DISTRICT5\WEKIVA 6\5.0 DESIGN-PLANNING\5.3 TECHNICAL DATA-CALCULATIONS\5.3.2 DRAINAGE\CALCS\PRE\Mean.I32

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

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 60.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
999.000	15.000

Group	Run
BASE	Yes

EXISTING CONDITIONS

ICPR BASIN SUMMARIES

Name:	B-1	B-10	B-11	B-12	B-13
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-1	N-10	N-11	N-12	N-13
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	11.47	3.60	4.13	3.87	6.80
Comp Time Inc(min):	5.00	3.60	4.13	3.87	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	86.00	27.00	31.00	29.00	51.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	60.900	4.730	4.950	12.390	9.180
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.000	1.000
Curve Num:	79.000	48.000	77.000	70.000	42.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.92	12.24	12.26	12.24	12.58
Flow Max(cfs):	126.18	8.44	18.20	41.72	8.25
Runoff Volume(in):	7.964	3.693	7.703	6.767	2.835
Runoff Volume(ft3):	1760578	63408	138412	304338	94475

Name:	B-14	B-15	B-16	B-17	B-18
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-14	N-15	N-16	N-17	N-18
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	5.73	4.80	3.87	4.00	2.53
Comp Time Inc(min):	5.00	4.80	3.87	4.00	2.53
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	43.00	36.00	29.00	30.00	19.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	6.100	91.450	1.600	40.810	8.340
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	43.000	66.000	62.000	61.000	56.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.50	12.32	12.24	12.27	12.12
Flow Max(cfs):	6.48	253.54	4.50	109.73	24.13
Runoff Volume(in):	2.976	6.224	5.668	5.531	4.828
Runoff Volume(ft3):	65897	2065985	32921	819414	146164

Name:	B-19	B-2	B-20	B-21	B-22
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-19	N-2	N-20	N-21	N-22
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	2.00	4.67	4.80	4.27	3.47
Comp Time Inc(min):	2.00	4.67	4.80	4.27	3.47
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	35.00	36.00	32.00	26.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	3.160	10.440	11.300	15.340	11.180
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	49.000	54.000	49.000	49.000	85.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.37	12.40	12.30	12.19
Flow Max(cfs):	7.84	20.77	18.14	26.28	49.75
Runoff Volume(in):	3.836	4.543	3.836	3.833	8.743
Runoff Volume(ft3):	43997	172166	157329	213432	354822

Name:	B-23	B-24	B-25	B-26	B-27
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-23	N-24	N-25	N-26	N-27
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.20	8.27	4.40	7.73	2.67
Comp Time Inc(min):	3.20	5.00	4.40	5.00	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00

Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	24.00	62.00	33.00	58.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	6.910	10.310	61.580	14.490	9.700
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	73.000	42.000	76.000	48.000	82.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.16	12.75	12.25	12.67	12.13
Flow Max(cfs):	27.13	8.17	216.32	16.78	47.20
Runoff Volume(in):	7.174	2.836	7.571	3.690	8.359
Runoff Volume(ft3):	179938	106155	1692489	194111	294342

Name:	B-28	B-29	B-3	B-30	B-31
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-28	N-29	N-3	N-30	N-31
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	13.07	6.67	8.13	3.87	2.80
Comp Time Inc(min):	5.00	5.00	5.00	3.87	2.80
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	98.00	50.00	61.00	29.00	21.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	32.410	3.560	12.980	30.310	3.640
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	63.000	48.000	55.000	74.000	71.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	13.08	12.58	12.67	12.24	12.13
Flow Max(cfs):	44.38	4.52	19.32	109.75	14.64
Runoff Volume(in):	5.806	3.690	4.682	7.305	6.903
Runoff Volume(ft3):	683017	47681	220608	803708	91214

Name:	B-32	B-33	B-33A	B-33B	B-34
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-32	N-33	N-33A	N-33B	N-34
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	2.80	3.73	3.60	2.13	3.47
Comp Time Inc(min):	2.80	3.73	3.60	2.13	3.47
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	21.00	28.00	27.00	16.00	26.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	5.320	62.750	3.680	1.960	5.280
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	66.000	75.000	66.000	51.000	49.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.13	12.20	12.18	12.09	12.25
Flow Max(cfs):	19.30	236.07	11.81	5.10	10.05
Runoff Volume(in):	6.222	7.436	6.224	4.120	3.834
Runoff Volume(ft3):	120162	1693850	83136	29316	73482

Name:	B-35	B-36	B-37	B-38	B-39
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-35	N-36	N-37	N-38	N-39
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.87	5.20	3.07	2.80	4.27
Comp Time Inc(min):	3.87	5.00	3.07	2.80	4.27
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	29.00	39.00	23.00	21.00	32.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	18.440	45.530	21.380	2.610	16.560
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	48.000	42.000	59.000	75.000	41.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.31	12.42	12.16	12.13	12.37
Flow Max(cfs):	31.69	47.94	62.09	11.26	18.18
Runoff Volume(in):	3.691	2.836	5.249	7.439	2.696
Runoff Volume(ft3):	247067	468784	407383	70483	162040

Name:	B-4	B-40	B-41	B-42	B-43
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-4	N-40	N-41	N-42	N-43
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	7.60	4.67	4.93	5.47	4.40
Comp Time Inc(min):	5.00	4.67	4.93	5.00	4.40
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	57.00	35.00	37.00	41.00	33.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	7.140	11.800	29.640	13.660	26.440
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	36.000	39.000	56.000	64.000	61.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.75	12.44	12.33	12.42	12.32
Flow Max(cfs):	3.70	10.62	61.52	33.53	67.57
Runoff Volume(in):	1.999	2.414	4.823	5.940	5.530
Runoff Volume(ft3):	51820	103397	518966	294559	530712

Name:	B-44	B-45	B-46	B-47	B-48
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-44	N-45	N-46	N-47	N-48
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	7.07	7.73	4.93	7.73	6.67
Comp Time Inc(min):	5.00	5.00	4.93	5.00	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	53.00	58.00	37.00	58.00	50.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	35.510	212.450	73.650	20.810	12.220
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	63.000	79.000	75.000	49.000	77.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.50	12.58	12.33	12.67	12.50
Flow Max(cfs):	73.18	568.41	239.77	25.23	34.64
Runoff Volume(in):	5.803	7.963	7.433	3.833	7.699
Runoff Volume(ft3):	748059	6141170	1987314	289536	341513

Name:	B-49	B-5	B-50	B-51	B-52
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-49	N-5	N-50	N-51	N-52
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.87	2.00	5.20	4.53	4.53
Comp Time Inc(min):	3.87	2.00	5.00	4.53	4.53
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	29.00	15.00	39.00	34.00	34.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	6.850	2.620	8.780	11.110	3.320
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	72.000	68.000	77.000	64.000	86.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.24	12.07	12.33	12.32	12.24
Flow Max(cfs):	23.95	11.48	28.71	30.23	13.07
Runoff Volume(in):	7.037	6.497	7.698	5.943	8.868
Runoff Volume(ft3):	174972	61794	245351	239695	106872

Name:	B-53	B-53A	B-54	B-55	B-56
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-53	N-53A	N-54	N-55	N-56
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.93	4.53	5.20	4.80	7.60
Comp Time Inc(min):	4.93	4.53	5.00	4.80	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600

Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	37.00	34.00	39.00	36.00	57.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	6.610	5.980	36.720	61.460	38.030
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	53.000	64.000	81.000	81.000	73.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.33	12.32	12.33	12.32	12.58
Flow Max(cfs):	12.33	16.27	127.09	221.44	93.30
Runoff Volume(in):	4.399	5.943	8.222	8.230	7.171
Runoff Volume(ft3):	105548	129017	1095886	1836041	989974

Name:	B-57	B-58	B-59	B-6	B-60
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-57	N-58	N-59	N-6	N-60
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	7.60	8.93	4.67	10.27	6.80
Comp Time Inc(min):	5.00	5.00	4.67	5.00	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	57.00	67.00	35.00	77.00	51.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	47.960	390.440	61.950	48.440	27.590
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	80.000	65.000	84.000	59.000	39.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.58	12.67	12.29	12.83	12.58
Flow Max(cfs):	131.43	730.20	235.19	70.25	19.93
Runoff Volume(in):	8.097	6.084	8.613	5.247	2.413
Runoff Volume(ft3):	1409599	8622850	1936790	922550	241665

Name:	B-7	B-8	B-9	B-RSR	B-WMB
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	N-7	N-8	N-9	RSR	WMB
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.87	3.87	6.00	6.27	15.60
Comp Time Inc(min):	3.87	3.87	5.00	5.00	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	29.00	29.00	45.00	47.00	117.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	12.190	14.350	18.950	594.980	10613.270
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	63.000	62.000	56.000	91.000	77.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.24	12.24	12.42	12.42	13.25
Flow Max(cfs):	35.14	40.32	35.07	2057.08	17172.59
Runoff Volume(in):	5.807	5.668	4.823	9.503	7.701
Runoff Volume(ft3):	256961	295260	331782	20524355	296681647

Name:	B-WP1	B-WP1N	B-WP2	B-WP3	B-WP4
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	WMB	WMB	WMB	BLACKWATER	N-52
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	2.67	4.80	6.40	8.67	4.80
Comp Time Inc(min):	2.67	4.80	5.00	5.00	4.80
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	20.00	36.00	48.00	65.00	36.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	3.520	4.470	5.560	18.590	9.020
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	50.000	80.000	48.000	78.000	85.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.13	12.32	12.50	12.67	12.32
Flow Max(cfs):	7.96	15.90	7.25	45.64	34.04
Runoff Volume(in):	3.978	8.099	3.691	7.836	8.745
Runoff Volume(ft3):	50830	131423	74495	528758	286345

Name:	B-WP5	B-WP6	B-WP6A	B-WP7	SIMS-1
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-24	100-24	100-24
Node:	BLACKWATER	WEKIVA-2	WEKIVA-2	SEMINOLE	SIMS-1
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	15.73	6.93	11.07	4.13	1.33
Comp Time Inc(min):	5.00	5.00	5.00	4.13	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	118.00	52.00	83.00	31.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	37.100	11.960	19.620	1.150	1.270
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	86.000	79.000	64.000	88.000	41.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	13.25	12.50	12.92	12.26	12.07
Flow Max(cfs):	67.68	34.19	31.01	4.82	2.41
Runoff Volume(in):	8.867	7.960	5.946	9.124	2.698
Runoff Volume(ft3):	1194166	345572	423454	38087	12437

Name:	SIMS-2	SIMS-3	B-1	B-10	B-11
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-24	100-24	100-96	100-96	100-96
Node:	SIMS-2	SIMS-3	N-1	N-10	N-11
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	1.33	1.33	11.47	3.60	4.13
Comp Time Inc(min):	1.33	1.33	5.00	3.60	4.13
Rain File:	Flmod	Flmod	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	10.600	10.600	15.000	15.000	15.000
Duration(hrs):	24.00	24.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	10.00	86.00	27.00	31.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	1.140	4.900	60.900	4.730	4.950
Vol of Unit Hyd(in):	1.000	1.000	1.001	1.000	1.000
Curve Num:	49.000	59.000	79.000	48.000	77.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.04	12.04	60.75	60.12	60.14
Flow Max(cfs):	3.32	20.12	147.46	14.53	22.65
Runoff Volume(in):	3.836	5.252	12.221	6.962	11.931
Runoff Volume(ft3):	15872	93411	2701578	119534	214387

Name:	B-12	B-13	B-14	B-15	B-16
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-12	N-13	N-14	N-15	N-16
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.87	6.80	5.73	4.80	3.87
Comp Time Inc(min):	3.87	5.00	5.00	4.80	3.87
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	29.00	51.00	43.00	36.00	29.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	12.390	9.180	6.100	91.450	1.600
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	70.000	42.000	43.000	66.000	62.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.13	60.42	60.33	60.24	60.13
Flow Max(cfs):	54.84	15.70	12.09	342.14	6.36
Runoff Volume(in):	10.856	5.744	5.948	10.210	9.534
Runoff Volume(ft3):	488246	191411	131711	3389460	55374

Name:	B-17	B-18	B-19	B-2	B-20
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-17	N-18	N-19	N-2	N-20
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.00	2.53	2.00	4.67	4.80
Comp Time Inc(min):	4.00	2.53	2.00	4.67	4.80
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96

Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	30.00	19.00	15.00	35.00	36.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	40.810	8.340	3.160	10.440	11.300
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	61.000	56.000	49.000	54.000	49.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.13	60.08	60.07	60.20	60.24
Flow Max(cfs):	156.71	36.67	13.05	32.20	30.49
Runoff Volume(in):	9.364	8.474	7.157	8.106	7.157
Runoff Volume(ft3):	1387174	256532	82099	307208	293583

Name:	B-21	B-22	B-23	B-24	B-25
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-21	N-22	N-23	N-24	N-25
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.27	3.47	3.20	8.27	4.40
Comp Time Inc(min):	4.27	3.47	3.20	5.00	4.40
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	32.00	26.00	24.00	62.00	33.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	15.340	11.180	6.910	10.310	61.580
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	49.000	85.000	73.000	42.000	76.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.16	60.09	60.11	60.50	60.21
Flow Max(cfs):	43.97	58.59	34.78	15.47	268.90
Runoff Volume(in):	7.157	13.076	11.328	5.747	11.784
Runoff Volume(ft3):	398545	530652	284147	215074	2634150

Name:	B-26	B-27	B-28	B-29	B-3
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-26	N-27	N-28	N-29	N-3
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	7.73	2.67	13.07	6.67	8.13
Comp Time Inc(min):	5.00	2.67	5.00	5.00	5.00
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	58.00	20.00	98.00	50.00	61.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	14.490	9.700	32.410	3.560	12.980
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	48.000	82.000	63.000	48.000	55.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.50	60.09	60.92	60.33	60.50
Flow Max(cfs):	27.80	56.65	59.59	7.53	28.74
Runoff Volume(in):	6.957	12.659	9.701	6.956	8.282
Runoff Volume(ft3):	365931	445727	1141308	89887	390208

Name:	B-30	B-31	B-32	B-33	B-33A
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-30	N-31	N-32	N-33	N-33A
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.87	2.80	2.80	3.73	3.60
Comp Time Inc(min):	3.87	2.80	2.80	3.73	3.60
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	29.00	21.00	21.00	28.00	27.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	30.310	3.640	5.320	62.750	3.680
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	74.000	71.000	66.000	75.000	66.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.13	60.11	60.11	60.11	60.12
Flow Max(cfs):	139.84	18.95	26.14	295.58	16.13
Runoff Volume(in):	11.479	11.016	10.210	11.630	10.210

Runoff Volume(ft3):	1262987	145557	197170	2649214	136394
Name:	B-33B	B-34	B-35	B-36	B-37
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-33B	N-34	N-35	N-36	N-37
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	2.13	3.47	3.87	5.20	3.07
Comp Time Inc(min):	2.13	3.47	3.87	5.00	3.07
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	16.00	26.00	29.00	39.00	23.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	1.960	5.280	18.440	45.530	21.380
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	51.000	49.000	48.000	42.000	59.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.05	60.15	60.19	60.25	60.11
Flow Max(cfs):	8.29	16.99	54.45	93.02	91.23
Runoff Volume(in):	7.543	7.156	6.960	5.747	9.013
Runoff Volume(ft3):	53665	137147	465858	949776	699482
Name:	B-38	B-39	B-4	B-40	B-41
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-38	N-39	N-4	N-40	N-41
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	2.80	4.27	7.60	4.67	4.93
Comp Time Inc(min):	2.80	4.27	5.00	4.67	4.93
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	21.00	32.00	57.00	35.00	37.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	2.610	16.560	7.140	11.800	29.640
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	75.000	41.000	36.000	39.000	56.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.06	60.23	60.50	60.20	60.27
Flow Max(cfs):	14.12	36.32	8.55	22.53	91.64
Runoff Volume(in):	11.633	5.545	4.482	5.124	8.473
Runoff Volume(ft3):	110218	333308	116177	219473	911596
Name:	B-42	B-43	B-44	B-45	B-46
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-42	N-43	N-44	N-45	N-46
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	5.47	4.40	7.07	7.73	4.93
Comp Time Inc(min):	5.00	4.40	5.00	5.00	4.93
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	41.00	33.00	53.00	58.00	37.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	13.660	26.440	35.510	212.450	73.650
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	64.000	61.000	63.000	79.000	75.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.25	60.21	60.42	60.42	60.19
Flow Max(cfs):	45.99	96.34	99.76	674.55	298.07
Runoff Volume(in):	9.864	9.364	9.697	12.219	11.631
Runoff Volume(ft3):	489128	898686	1249991	9423528	3109509
Name:	B-47	B-48	B-49	B-5	B-50
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-47	N-48	N-49	N-5	N-50
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	7.73	6.67	3.87	2.00	5.20
Comp Time Inc(min):	5.00	5.00	3.87	2.00	5.00

Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	58.00	50.00	29.00	15.00	39.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	20.810	12.220	6.850	2.620	8.780
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	49.000	77.000	72.000	68.000	77.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.50	60.33	60.13	60.03	60.25
Flow Max(cfs):	41.06	42.05	30.98	15.14	35.29
Runoff Volume(in):	7.152	11.923	11.170	10.538	11.922
Runoff Volume(ft3):	540289	528895	277758	100218	379971

Name:	B-51	B-52	B-53	B-53A	B-54
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-51	N-52	N-53	N-53A	N-54
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.53	4.53	4.93	4.53	5.20
Comp Time Inc(min):	4.53	4.53	4.93	4.53	5.00
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	34.00	34.00	37.00	34.00	39.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	11.110	3.320	6.610	5.980	36.720
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	64.000	86.000	53.000	64.000	81.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.22	60.22	60.27	60.22	60.25
Flow Max(cfs):	41.70	15.23	19.18	22.44	152.06
Runoff Volume(in):	9.874	13.212	7.919	9.874	12.504
Runoff Volume(ft3):	398214	159223	189999	214340	1666733

Name:	B-55	B-56	B-57	B-58	B-59
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-55	N-56	N-57	N-58	N-59
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.80	7.60	7.60	8.93	4.67
Comp Time Inc(min):	4.80	5.00	5.00	5.00	4.67
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	36.00	57.00	57.00	67.00	35.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	61.460	38.030	47.960	390.440	61.950
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	81.000	73.000	80.000	65.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.24	60.42	60.42	60.58	60.20
Flow Max(cfs):	265.93	115.98	155.46	965.15	277.70
Runoff Volume(in):	12.516	11.324	12.369	10.041	12.938
Runoff Volume(ft3):	2792422	1563315	2153329	14231371	2909448

Name:	B-6	B-60	B-7	B-8	B-9
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	N-6	N-60	N-7	N-8	N-9
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	10.27	6.80	3.87	3.87	6.00
Comp Time Inc(min):	5.00	5.00	3.87	3.87	5.00
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	77.00	51.00	29.00	29.00	45.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	48.440	27.590	12.190	14.350	18.950
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	59.000	39.000	63.000	62.000	56.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.67	60.42	60.13	60.13	60.33
Flow Max(cfs):	98.78	41.54	49.20	57.03	52.33

Runoff Volume(in):	9.005	5.117	9.705	9.534	8.464
Runoff Volume(ft3):	1583419	512524	429441	496633	582245

Name:	B-RSR	B-WMB	B-WP1	B-WP1N	B-WP2
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	RSR	WMB	WMB	WMB	WMB
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	6.27	15.60	2.67	4.80	6.40
Comp Time Inc(min):	5.00	5.00	2.67	4.80	5.00
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	47.00	117.00	20.00	36.00	48.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	594.980	10613.270	3.520	4.470	5.560
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	91.000	77.000	50.000	80.000	48.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.33	61.17	60.09	60.24	60.33
Flow Max(cfs):	2311.42	20278.96	13.27	19.21	12.15
Runoff Volume(in):	13.881	11.926	7.351	12.373	6.958
Runoff Volume(ft3):	29979622	459465618	93927	200763	140435

Name:	B-WP3	B-WP4	B-WP5	B-WP6	B-WP6A
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	100-96
Node:	BLACKWATER	N-52	BLACKWATER	WEKIVA-2	WEKIVA-2
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	8.67	4.80	15.73	6.93	11.07
Comp Time Inc(min):	5.00	4.80	5.00	5.00	5.00
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96
Rain Amount(in):	15.000	15.000	15.000	15.000	15.000
Duration(hrs):	96.00	96.00	96.00	96.00	96.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	65.00	36.00	118.00	52.00	83.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	18.590	9.020	37.100	11.960	19.620
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	78.000	85.000	86.000	79.000	64.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.50	60.24	61.17	60.33	60.75
Flow Max(cfs):	54.32	39.95	74.96	40.60	41.24
Runoff Volume(in):	12.079	13.078	13.206	12.214	9.873
Runoff Volume(ft3):	815082	428195	1778502	530275	703164

Name:	B-WP7	SIMS-1	SIMS-2	SIMS-3	B-1
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100-96	100-96	100-96	100-96	25-24
Node:	SEMINOLE	SIMS-1	SIMS-2	SIMS-3	N-1
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.13	1.33	1.33	1.33	11.47
Comp Time Inc(min):	4.13	1.33	1.33	1.33	5.00
Rain File:	Sjrwmd96	Sjrwmd96	Sjrwmd96	Sjrwmd96	Flmod
Rain Amount(in):	15.000	15.000	15.000	15.000	8.600
Duration(hrs):	96.00	96.00	96.00	96.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	31.00	10.00	10.00	10.00	86.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	1.150	1.270	1.140	4.900	60.900
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.001
Curve Num:	88.000	41.000	49.000	59.000	79.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.14	60.02	60.02	60.02	12.92
Flow Max(cfs):	5.63	4.66	5.35	28.13	96.54
Runoff Volume(in):	13.482	5.545	7.157	9.014	6.068
Runoff Volume(ft3):	56282	25562	29618	160325	1341401

Name:	B-10	B-11	B-12	B-13	B-14
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-10	N-11	N-12	N-13	N-14
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.60	4.13	3.87	6.80	5.73

Comp Time Inc(min):	3.60	4.13	3.87	5.00	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	27.00	31.00	29.00	51.00	43.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	4.730	4.950	12.390	9.180	6.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	48.000	77.000	70.000	42.000	43.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.30	12.26	12.24	12.67	12.50
Flow Max(cfs):	5.17	13.86	30.73	4.54	3.64
Runoff Volume(in):	2.398	5.828	4.984	1.733	1.840
Runoff Volume(ft3):	41173	104717	224169	57748	40752

Name:	B-15	B-16	B-17	B-18	B-19
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-15	N-16	N-17	N-18	N-19
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.80	3.87	4.00	2.53	2.00
Comp Time Inc(min):	4.80	3.87	4.00	2.53	2.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	36.00	29.00	30.00	19.00	15.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	91.450	1.600	40.810	8.340	3.160
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	66.000	62.000	61.000	56.000	49.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.32	12.24	12.27	12.12	12.10
Flow Max(cfs):	182.39	3.15	76.53	16.15	4.89
Runoff Volume(in):	4.506	4.027	3.910	3.319	2.511
Runoff Volume(ft3):	1495900	23389	579224	100479	28806

Name:	B-2	B-20	B-21	B-22	B-23
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-2	N-20	N-21	N-22	N-23
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.67	4.80	4.27	3.47	3.20
Comp Time Inc(min):	4.67	4.80	4.27	3.47	3.20
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	35.00	36.00	32.00	26.00	24.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	10.440	11.300	15.340	11.180	6.910
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	54.000	49.000	49.000	85.000	73.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.37	12.40	12.37	12.19	12.16
Flow Max(cfs):	13.70	11.31	16.31	39.09	20.26
Runoff Volume(in):	3.084	2.511	2.509	6.794	5.347
Runoff Volume(ft3):	116872	103009	139732	275742	134130

Name:	B-24	B-25	B-26	B-27	B-28
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-24	N-25	N-26	N-27	N-28
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	8.27	4.40	7.73	2.67	13.07
Comp Time Inc(min):	5.00	4.40	5.00	2.67	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	62.00	33.00	58.00	20.00	98.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	10.310	61.580	14.490	9.700	32.410
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	42.000	76.000	48.000	82.000	63.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.75	12.25	12.67	12.13	13.08

Flow Max(cfs):	4.51	163.67	10.27	36.72	31.20
Runoff Volume(in):	1.734	5.708	2.396	6.434	4.145
Runoff Volume(ft3):	64888	1275861	126044	226543	487661

Name:	B-29	B-3	B-30	B-31	B-32
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-29	N-3	N-30	N-31	N-32
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	6.67	8.13	3.87	2.80	2.80
Comp Time Inc(min):	5.00	5.00	3.87	2.80	2.80
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	50.00	61.00	29.00	21.00	21.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	3.560	12.980	30.310	3.640	5.320
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	48.000	55.000	74.000	71.000	66.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.58	12.67	12.24	12.13	12.13
Flow Max(cfs):	2.77	12.80	82.45	10.84	13.89
Runoff Volume(in):	2.396	3.199	5.466	5.106	4.505
Runoff Volume(ft3):	30961	150728	601384	67460	87004

Name:	B-33	B-33A	B-33B	B-34	B-35
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-33	N-33A	N-33B	N-34	N-35
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.73	3.60	2.13	3.47	3.87
Comp Time Inc(min):	3.73	3.60	2.13	3.47	3.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	28.00	27.00	16.00	26.00	29.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	62.750	3.680	1.960	5.280	18.440
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	75.000	66.000	51.000	49.000	48.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.20	12.24	12.12	12.25	12.31
Flow Max(cfs):	177.88	8.49	3.26	6.25	19.48
Runoff Volume(in):	5.585	4.506	2.740	2.510	2.397
Runoff Volume(ft3):	1272182	60196	19493	48109	160421

Name:	B-36	B-37	B-38	B-39	B-4
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-36	N-37	N-38	N-39	N-4
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	5.20	3.07	2.80	4.27	7.60
Comp Time Inc(min):	5.00	3.07	2.80	4.27	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	39.00	23.00	21.00	32.00	57.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	45.530	21.380	2.610	16.560	7.140
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	42.000	59.000	75.000	41.000	36.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.50	12.16	12.13	12.44	12.83
Flow Max(cfs):	26.50	42.61	8.50	9.78	1.72
Runoff Volume(in):	1.734	3.671	5.588	1.627	1.115
Runoff Volume(ft3):	286546	284920	52938	97809	28901

Name:	B-40	B-41	B-42	B-43	B-44
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-40	N-41	N-42	N-43	N-44
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0

Spec Time Inc(min):	4.67	4.93	5.47	4.40	7.07
Comp Time Inc(min):	4.67	4.93	5.00	4.40	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	35.00	37.00	41.00	33.00	53.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	11.800	29.640	13.660	26.440	35.510
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	39.000	56.000	64.000	61.000	63.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.44	12.33	12.42	12.32	12.58
Flow Max(cfs):	5.45	41.11	23.86	47.18	51.62
Runoff Volume(in):	1.417	3.316	4.262	3.909	4.143
Runoff Volume(ft3):	60695	356727	211321	375138	534100

Name:	B-45	B-46	B-47	B-48	B-49
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-45	N-46	N-47	N-48	N-49
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	7.73	4.93	7.73	6.67	3.87
Comp Time Inc(min):	5.00	4.93	5.00	5.00	3.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	58.00	37.00	58.00	50.00	29.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	212.450	73.650	20.810	12.220	6.850
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	79.000	75.000	49.000	77.000	72.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.58	12.33	12.67	12.50	12.24
Flow Max(cfs):	435.62	180.84	15.67	26.35	17.82
Runoff Volume(in):	6.067	5.583	2.510	5.825	5.225
Runoff Volume(ft3):	4679016	1492560	189571	258379	129919

Name:	B-5	B-50	B-51	B-52	B-53
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-5	N-50	N-51	N-52	N-53
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	2.00	5.20	4.53	4.53	4.93
Comp Time Inc(min):	2.00	5.00	4.53	4.53	4.93
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	39.00	34.00	34.00	37.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	2.620	8.780	11.110	3.320	6.610
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	68.000	77.000	64.000	86.000	53.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.33	12.32	12.24	12.42
Flow Max(cfs):	8.38	21.83	21.51	10.29	8.03
Runoff Volume(in):	4.746	5.824	4.264	6.913	2.966
Runoff Volume(ft3):	45137	185626	171952	83312	71171

Name:	B-53A	B-54	B-55	B-56	B-57
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-53A	N-54	N-55	N-56	N-57
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.53	5.20	4.80	7.60	7.60
Comp Time Inc(min):	4.53	5.00	4.80	5.00	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	34.00	39.00	36.00	57.00	57.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	5.980	36.720	61.460	38.030	47.960
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	64.000	81.000	81.000	73.000	80.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000

Time Max(hrs):	12.32	12.33	12.32	12.58	12.58
Flow Max(cfs):	11.58	98.27	171.37	69.61	101.18
Runoff Volume(in):	4.264	6.307	6.313	5.346	6.190
Runoff Volume(ft3):	92554	840663	1408442	737954	1077674

Name:	B-58	B-59	B-6	B-60	B-7
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-58	N-59	N-6	N-60	N-7
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	8.93	4.67	10.27	6.80	3.87
Comp Time Inc(min):	5.00	4.67	5.00	5.00	3.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	67.00	35.00	77.00	51.00	29.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	390.440	61.950	48.440	27.590	12.190
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	65.000	84.000	59.000	39.000	63.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.75	12.29	12.83	12.67	12.24
Flow Max(cfs):	520.64	184.02	48.04	10.23	24.83
Runoff Volume(in):	4.385	6.672	3.670	1.417	4.146
Runoff Volume(ft3):	6215114	1500346	645247	141883	183459

Name:	B-8	B-9	B-RSR	B-WMB	B-WP1
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	N-8	N-9	RSR	WMB	WMB
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	3.87	6.00	6.27	15.60	2.67
Comp Time Inc(min):	3.87	5.00	5.00	5.00	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	29.00	45.00	47.00	117.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	14.350	18.950	594.980	10613.270	3.520
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	62.000	56.000	91.000	77.000	50.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.24	12.50	12.42	13.25	12.18
Flow Max(cfs):	28.30	23.54	1644.98	12996.94	5.00
Runoff Volume(in):	4.027	3.316	7.520	5.826	2.625
Runoff Volume(ft3):	209767	228086	16242521	224460988	33544

Name:	B-WP1N	B-WP2	B-WP3	B-WP4	B-WP5
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	WMB	WMB	BLACKWATER	N-52	BLACKWATER
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.80	6.40	8.67	4.80	15.73
Comp Time Inc(min):	4.80	5.00	5.00	4.80	5.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	36.00	48.00	65.00	36.00	118.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	4.470	5.560	18.590	9.020	37.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	80.000	48.000	78.000	85.000	86.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.32	12.58	12.67	12.32	13.25
Flow Max(cfs):	12.25	4.43	34.82	26.74	53.12
Runoff Volume(in):	6.192	2.397	5.949	6.796	6.913
Runoff Volume(ft3):	100476	48372	401464	222528	930936

Name:	B-WP6	B-WP6A	B-WP7	SIMS-1	SIMS-2
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	25-24	25-24	25-24	25-24	25-24
Node:	WEKIVA-2	WEKIVA-2	SEMINOLE	SIMS-1	SIMS-2
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323

Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	6.93	11.07	4.13	1.33	1.33
Comp Time Inc(min):	5.00	5.00	4.13	1.33	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	52.00	83.00	31.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	11.960	19.620	1.150	1.270	1.140
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	79.000	64.000	88.000	41.000	49.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.50	12.92	12.26	12.07	12.04
Flow Max(cfs):	26.20	21.97	3.82	1.29	2.08
Runoff Volume(in):	6.065	4.266	7.156	1.629	2.511
Runoff Volume(ft3):	263295	303792	29874	7508	10392

Name:	SIMS-3
Group:	BASE
Simulation:	25-24
Node:	SIMS-3
Type:	SCS
Unit Hydrograph:	Uh323
Peaking Factor:	323.0
Spec Time Inc(min):	1.33
Comp Time Inc(min):	1.33
Rain File:	Flmod
Rain Amount(in):	8.600
Duration(hrs):	24.00
Status:	Onsite
TC(min):	10.00
Time Shift(hrs):	0.00
Area(ac):	4.900
Vol of Unit Hyd(in):	1.000
Curve Num:	59.000
DCIA(%):	0.000
Time Max(hrs):	12.04
Flow Max(cfs):	13.94
Runoff Volume(in):	3.673
Runoff Volume(ft3):	65333

EXISTING CONDITIONS

ICPR NODE MAX REPORT

Wekiva Parkway - Section 6
Existing Conditions

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
BLACKWATER	BASE	100-24	0.00	14.00	14.00	0.0000	22	12.92	983.27	0.00	0.00
BLACKWATER	BASE	100-96	0.00	14.00	14.00	0.0000	22	60.78	1413.20	0.00	0.00
BLACKWATER	BASE	25-24	0.00	14.00	14.00	0.0000	22	12.90	682.42	0.00	0.00
N-1	BASE	100-24	13.45	43.67	47.00	0.0006	483154	12.83	144.39	13.45	115.88
N-1	BASE	100-96	61.20	43.77	47.00	-0.0006	502159	60.75	173.77	61.20	148.53
N-1	BASE	25-24	13.67	43.54	47.00	0.0006	457475	12.84	108.55	13.67	78.74
N-10	BASE	100-24	26.17	67.20	69.00	0.0019	23104	12.25	8.43	0.00	0.00
N-10	BASE	100-96	68.06	67.99	69.00	0.0029	31700	60.17	14.49	68.06	0.67
N-10	BASE	25-24	26.17	66.04	69.00	0.0021	16327	12.25	5.15	0.00	0.00
N-11	BASE	100-24	23.57	60.22	64.00	0.0008	79477	12.25	18.18	23.57	0.62
N-11	BASE	100-96	61.93	60.35	64.00	0.0008	82475	60.17	22.56	61.93	3.50
N-11	BASE	25-24	26.50	59.90	64.00	0.0009	72166	12.25	13.83	0.00	0.00
N-12	BASE	100-24	12.42	53.73	57.00	0.0008	97239	12.25	41.64	12.42	37.59
N-12	BASE	100-96	60.23	53.78	57.00	0.0003	98397	60.17	54.54	60.23	52.03
N-12	BASE	25-24	12.58	53.67	57.00	0.0009	95878	12.25	30.67	12.58	23.43
N-13	BASE	100-24	28.00	57.41	62.80	0.0009	60523	12.58	8.25	0.00	0.00
N-13	BASE	100-96	96.00	58.81	62.80	0.0013	76202	60.42	15.70	0.00	0.00
N-13	BASE	25-24	28.00	56.77	62.80	0.0007	53501	12.67	4.54	0.00	0.00
N-14	BASE	100-24	27.42	60.00	62.00	0.0018	33075	12.50	6.48	0.00	0.00
N-14	BASE	100-96	62.31	60.14	62.00	0.0018	36799	60.33	12.09	62.31	2.86
N-14	BASE	25-24	27.42	59.13	62.00	0.0018	25177	12.50	3.64	0.00	0.00
N-15	BASE	100-24	14.37	51.05	55.00	0.0005	1157357	12.33	288.76	14.37	53.97
N-15	BASE	100-96	61.15	51.36	55.00	0.0007	1200842	60.25	391.47	61.15	157.01
N-15	BASE	25-24	16.73	50.86	55.00	0.0005	1137321	12.42	196.63	16.73	18.59
N-16	BASE	100-24	26.34	60.38	64.00	0.0014	30510	12.25	4.49	0.00	0.00
N-16	BASE	100-96	64.24	60.55	64.00	0.0010	34977	60.17	6.34	64.24	0.41
N-16	BASE	25-24	26.33	60.01	64.00	0.0014	20798	12.25	3.15	0.00	0.00
N-17	BASE	100-24	60.00	59.73	64.00	0.0008	445614	12.25	109.49	0.00	0.00
N-17	BASE	100-96	64.71	60.07	64.00	0.0010	465145	60.17	156.41	64.71	9.66
N-17	BASE	25-24	26.42	59.13	64.00	0.0009	413771	12.25	76.25	0.00	0.00
N-18	BASE	100-24	60.00	72.34	77.00	0.0013	93362	12.17	23.82	0.00	0.00
N-18	BASE	100-96	70.38	74.21	77.00	0.0031	128047	60.16	41.22	70.38	3.88
N-18	BASE	25-24	60.00	70.40	77.00	0.0008	70214	12.17	16.05	0.00	0.00
N-19	BASE	100-24	14.02	73.65	77.00	0.0034	13990	12.08	7.78	14.02	0.95
N-19	BASE	100-96	70.39	74.21	77.00	0.0028	17220	60.08	12.83	60.23	8.94
N-19	BASE	25-24	20.35	73.59	77.00	0.0028	13602	12.08	4.82	20.35	0.24
N-2	BASE	100-24	26.84	61.10	63.00	0.0028	81325	12.33	20.74	0.00	0.00
N-2	BASE	100-96	68.21	61.68	63.00	0.0022	111421	60.25	31.72	68.21	1.56
N-2	BASE	25-24	26.84	60.27	63.00	0.0029	53198	12.33	13.62	0.00	0.00
N-20	BASE	100-24	17.96	79.73	80.00	0.0022	148572	12.33	18.10	17.96	3.88
N-20	BASE	100-96	61.21	79.81	80.00	0.0010	158215	61.01	30.55	61.21	28.74
N-20	BASE	25-24	26.92	79.56	80.00	0.0022	127746	12.42	11.26	0.00	0.00
N-21	BASE	100-24	17.94	79.92	80.00	0.0022	109570	12.33	26.18	17.94	2.23
N-21	BASE	100-96	61.13	80.08	80.00	0.0017	117780	60.17	43.93	61.13	16.71
N-21	BASE	25-24	26.59	79.71	80.00	0.0022	98048	12.33	16.28	0.00	0.00

Wekiva Parkway - Section 6
Existing Conditions

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
N-22	BASE	100-24	14.33	46.42	50.00	0.0050	41956	14.29	59.22	14.33	59.19
N-22	BASE	100-96	61.09	46.69	50.00	0.0044	64804	61.05	173.52	61.09	173.39
N-22	BASE	25-24	12.23	46.35	50.00	0.0050	35741	12.17	38.84	12.23	38.36
N-23	BASE	100-24	26.00	51.50	55.00	0.0006	104161	12.17	27.07	0.00	0.00
N-23	BASE	100-96	65.04	51.77	55.00	0.0009	107406	60.08	34.50	65.04	3.35
N-23	BASE	25-24	26.00	51.05	55.00	0.0006	98651	12.17	20.23	0.00	0.00
N-24	BASE	100-24	28.92	56.54	59.00	0.0024	40772	12.75	8.17	0.00	0.00
N-24	BASE	100-96	64.53	57.11	59.00	0.0025	47385	60.50	15.47	64.53	2.30
N-24	BASE	25-24	28.92	55.35	59.00	0.0021	29218	12.75	4.51	0.00	0.00
N-25	BASE	100-24	12.46	38.47	43.00	0.0016	266118	12.25	216.21	12.46	196.34
N-25	BASE	100-96	60.31	38.56	43.00	0.0015	274916	60.17	270.63	60.31	257.93
N-25	BASE	25-24	12.58	38.36	43.00	0.0018	255550	12.25	163.61	12.58	131.88
N-26	BASE	100-24	28.58	56.86	60.00	0.0021	79689	12.67	16.78	0.00	0.00
N-26	BASE	100-96	92.49	58.32	60.00	0.0022	121463	60.50	27.80	92.49	0.75
N-26	BASE	25-24	28.58	55.82	60.00	0.0016	54240	12.67	10.27	0.00	0.00
N-27	BASE	100-24	25.67	54.13	57.00	0.0010	134342	12.08	46.55	0.00	0.00
N-27	BASE	100-96	96.00	55.16	57.00	0.0012	162686	60.08	56.62	0.00	0.00
N-27	BASE	25-24	25.67	53.61	57.00	0.0009	124082	12.08	36.14	0.00	0.00
N-28	BASE	100-24	13.92	56.11	57.00	0.0027	162889	13.08	44.38	13.92	33.56
N-28	BASE	100-96	60.98	56.15	57.00	0.0010	168001	60.92	59.58	60.98	59.41
N-28	BASE	25-24	14.93	56.05	57.00	0.0031	152601	13.08	31.20	14.93	16.63
N-29	BASE	100-24	19.87	56.61	57.80	0.0017	74468	12.58	4.52	19.87	0.45
N-29	BASE	100-96	61.58	56.62	57.80	0.0006	75869	60.33	7.53	61.58	3.29
N-29	BASE	25-24	27.92	56.47	57.80	0.0019	62604	12.58	2.77	0.00	0.00
N-3	BASE	100-24	12.67	57.24	60.00	0.0002	3763	12.67	19.32	12.67	19.31
N-3	BASE	100-96	60.51	57.31	60.00	-0.0003	4108	60.50	28.73	60.51	28.71
N-3	BASE	25-24	12.68	57.18	60.00	0.0002	3488	12.67	12.80	12.68	12.79
N-30	BASE	100-24	12.27	32.26	34.00	0.0050	17227	12.25	138.74	12.27	138.34
N-30	BASE	100-96	60.17	32.37	34.00	0.0050	18185	60.17	182.19	60.17	182.11
N-30	BASE	25-24	12.45	32.10	34.00	0.0050	15775	12.42	87.84	12.45	87.54
N-31	BASE	100-24	12.33	51.85	55.00	0.0022	17860	12.17	14.47	12.33	12.53
N-31	BASE	100-96	60.11	51.90	55.00	0.0006	18192	60.08	18.94	60.11	18.52
N-31	BASE	25-24	12.57	51.77	55.00	0.0021	17429	12.17	10.73	12.57	6.74
N-32	BASE	100-24	12.25	47.41	50.00	0.0040	14623	12.17	19.12	12.25	18.01
N-32	BASE	100-96	60.10	47.46	50.00	0.0005	14996	60.08	26.11	60.10	25.80
N-32	BASE	25-24	12.47	47.35	50.00	0.0037	14176	12.17	13.80	12.47	10.20
N-33	BASE	100-24	12.37	28.78	30.00	-0.0049	204311	12.25	236.45	12.37	218.35
N-33	BASE	100-96	60.25	28.90	30.00	-0.0046	221695	60.17	301.73	60.25	276.99
N-33	BASE	25-24	12.39	28.63	30.00	-0.0049	184178	12.25	176.75	12.39	161.05
N-33A	BASE	100-24	26.17	55.37	58.00	0.0018	44361	12.25	11.72	0.00	0.00
N-33A	BASE	100-96	62.22	55.53	58.00	0.0014	46048	60.17	15.96	62.22	1.65
N-33A	BASE	25-24	26.17	54.81	58.00	0.0018	37404	12.25	8.46	0.00	0.00
N-33B	BASE	100-24	25.34	56.97	58.30	0.0027	19812	12.08	5.07	0.00	0.00
N-33B	BASE	100-96	96.00	57.82	58.30	0.0018	37539	60.08	8.20	96.00	0.04
N-33B	BASE	25-24	25.34	56.41	58.30	0.0024	14877	12.08	3.22	0.00	0.00

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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
N-34	BASE	100-24	14.87	57.01	58.00	0.0015	50296	12.25	10.04	14.94	1.31
N-34	BASE	100-96	60.68	57.12	58.00	0.0011	54974	60.17	16.77	60.68	8.79
N-34	BASE	25-24	23.20	56.96	58.00	0.0018	49022	12.25	6.25	23.35	0.35
N-35	BASE	100-24	13.58	57.00	58.00	0.0049	129980	12.25	31.61	13.58	8.65
N-35	BASE	100-96	60.50	57.06	58.00	0.0012	139708	60.15	53.52	60.50	44.64
N-35	BASE	25-24	17.57	56.95	58.00	0.0050	125566	12.33	19.40	17.57	1.75
N-36	BASE	100-24	14.78	52.07	53.50	0.0041	137469	12.42	47.94	14.78	17.68
N-36	BASE	100-96	60.62	52.19	53.50	0.0050	155594	60.31	134.38	60.62	112.82
N-36	BASE	25-24	22.88	52.03	53.50	0.0047	131955	12.50	26.50	22.88	4.27
N-37	BASE	100-24	25.83	56.84	60.00	0.0006	270469	12.17	62.05	0.00	0.00
N-37	BASE	100-96	96.00	57.79	60.00	0.0011	347073	60.08	90.46	0.00	0.00
N-37	BASE	25-24	25.84	56.36	60.00	0.0007	238165	12.17	42.59	0.00	0.00
N-38	BASE	100-24	25.67	55.00	61.00	0.0019	29606	12.17	11.11	0.00	0.00
N-38	BASE	100-96	95.93	56.02	61.00	0.0016	39414	60.08	14.11	95.93	0.17
N-38	BASE	25-24	25.67	54.37	61.00	0.0018	26035	12.17	8.40	0.00	0.00
N-39	BASE	100-24	26.59	58.25	61.50	0.0042	100281	12.33	18.06	0.00	0.00
N-39	BASE	100-96	96.00	59.34	61.50	0.0044	186745	60.17	36.26	96.00	0.75
N-39	BASE	25-24	26.59	57.37	61.50	0.0041	50699	12.42	9.78	0.00	0.00
N-4	BASE	100-24	28.50	61.10	64.00	0.0016	30679	12.75	3.70	0.00	0.00
N-4	BASE	100-96	96.00	62.21	64.00	0.0019	59052	60.50	8.54	96.00	0.29
N-4	BASE	25-24	28.50	60.18	64.00	0.0014	20177	12.83	1.72	0.00	0.00
N-40	BASE	100-24	26.84	57.48	61.00	0.0035	72883	12.42	10.60	0.00	0.00
N-40	BASE	100-96	96.00	58.59	61.00	0.0034	151283	60.25	22.38	96.00	1.14
N-40	BASE	25-24	26.84	56.71	61.00	0.0035	43203	12.50	5.42	0.00	0.00
N-41	BASE	100-24	26.92	50.35	55.00	0.0011	219933	12.33	61.51	0.00	0.00
N-41	BASE	100-96	130.00	51.95	55.00	0.0014	303514	60.25	91.61	0.00	0.00
N-41	BASE	25-24	26.92	49.54	55.00	0.0009	183971	12.33	41.11	0.00	0.00
N-42	BASE	100-24	27.25	49.74	54.50	0.0008	159476	12.42	33.53	0.00	0.00
N-42	BASE	100-96	96.00	50.83	54.50	0.0009	192492	60.25	45.99	0.00	0.00
N-42	BASE	25-24	27.25	49.19	54.50	0.0006	145942	12.42	23.86	0.00	0.00
N-43	BASE	100-24	26.67	46.51	50.00	0.0008	253764	12.25	67.31	0.00	0.00
N-43	BASE	100-96	96.00	47.82	50.00	0.0011	300965	60.17	95.57	0.00	0.00
N-43	BASE	25-24	26.67	45.87	50.00	0.0007	230878	12.33	47.01	0.00	0.00
N-44	BASE	100-24	28.17	46.49	50.00	0.0009	428559	12.50	73.18	0.00	0.00
N-44	BASE	100-96	96.00	47.62	50.00	0.0011	448612	60.42	99.76	0.00	0.00
N-44	BASE	25-24	28.17	45.99	50.00	0.0006	421550	12.58	51.62	0.00	0.00
N-45	BASE	100-24	26.88	44.30	48.00	0.0006	4826189	12.58	568.40	26.88	1.47
N-45	BASE	100-96	69.25	44.55	48.00	0.0007	4883506	60.42	674.54	69.25	30.80
N-45	BASE	25-24	28.58	44.00	48.00	0.0005	4755377	12.58	435.61	0.00	0.00
N-46	BASE	100-24	26.92	44.94	49.00	0.0006	1095409	12.33	239.74	0.00	0.00
N-46	BASE	100-96	96.80	45.92	49.00	0.0008	1209279	60.25	296.31	0.00	0.00
N-46	BASE	25-24	26.92	44.48	49.00	0.0005	1062236	12.33	180.81	0.00	0.00
N-47	BASE	100-24	28.58	50.47	53.00	0.0031	79802	12.67	25.23	0.00	0.00
N-47	BASE	100-96	64.99	51.25	53.00	0.0031	100564	60.50	41.06	64.99	4.04
N-47	BASE	25-24	28.58	48.95	53.00	0.0024	55770	12.67	15.67	0.00	0.00

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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
N-48	BASE	100-24	12.50	44.51	46.00	0.0004	7010	12.50	34.64	12.50	34.62
N-48	BASE	100-96	60.35	44.57	46.00	0.0005	7202	60.33	42.05	60.35	41.93
N-48	BASE	25-24	12.50	44.44	46.00	0.0004	6773	12.50	26.35	12.50	26.32
N-49	BASE	100-24	26.34	44.52	49.00	0.0015	57910	12.25	23.90	0.00	0.00
N-49	BASE	100-96	96.00	45.92	49.00	0.0017	73433	60.17	30.80	67.00	0.41
N-49	BASE	25-24	26.33	43.70	49.00	0.0017	51067	12.25	17.79	0.00	0.00
N-5	BASE	100-24	24.09	62.48	63.00	0.0022	41398	12.08	11.47	0.00	0.00
N-5	BASE	100-96	61.34	62.55	63.00	0.0016	43384	60.00	14.88	61.34	0.25
N-5	BASE	25-24	25.25	62.06	63.00	0.0020	29906	12.08	8.37	0.00	0.00
N-50	BASE	100-24	27.09	44.42	46.10	0.0011	87791	12.33	28.71	0.00	0.00
N-50	BASE	100-96	96.00	45.77	46.10	0.0013	113953	60.25	35.29	0.00	0.00
N-50	BASE	25-24	27.09	43.71	46.10	0.0009	80554	12.33	21.83	0.00	0.00
N-51	BASE	100-24	12.50	45.35	47.00	-0.0500	23266	12.33	30.06	12.50	27.36
N-51	BASE	100-96	60.32	45.60	47.00	-0.0500	33913	60.17	41.34	60.32	38.33
N-51	BASE	25-24	12.39	45.03	47.00	-0.0500	9406	12.33	21.41	12.39	21.01
N-52	BASE	100-24	12.42	34.68	35.00	0.0418	77649	12.33	80.52	12.42	79.65
N-52	BASE	100-96	60.35	34.74	35.00	0.0418	80286	60.29	103.38	60.35	101.76
N-52	BASE	25-24	12.43	34.63	35.00	0.0418	75247	12.33	63.62	12.43	62.26
N-53	BASE	100-24	12.71	47.60	48.50	-0.0045	12704	12.33	12.33	12.71	9.86
N-53	BASE	100-96	60.58	48.04	48.50	-0.0050	19164	60.25	19.16	60.58	14.27
N-53	BASE	25-24	12.67	46.96	48.50	0.0033	4220	12.42	8.03	12.61	6.84
N-53A	BASE	100-24	18.04	48.10	50.00	0.0012	47908	12.33	16.41	18.04	2.07
N-53A	BASE	100-96	61.89	49.06	50.00	0.0021	61149	60.19	43.50	61.89	6.88
N-53A	BASE	25-24	24.19	47.71	50.00	0.0012	44342	12.33	11.53	24.18	0.81
N-53B	BASE	100-24	12.72	47.23	50.00	-0.0036	685	12.71	9.86	12.72	9.86
N-53B	BASE	100-96	60.58	47.27	50.00	-0.0044	688	60.58	14.27	60.58	14.27
N-53B	BASE	25-24	12.68	46.78	50.00	0.0050	653	12.61	6.84	12.68	6.82
N-53C	BASE	100-24	18.05	47.72	48.00	0.0016	978	18.04	2.07	18.05	2.07
N-53C	BASE	100-96	61.89	47.78	48.00	0.0020	987	61.89	3.83	61.89	3.83
N-53C	BASE	25-24	24.20	47.65	48.00	0.0023	968	24.18	0.81	24.20	0.81
N-54	BASE	100-24	13.25	39.78	42.00	-0.0028	530689	12.64	266.52	13.25	216.27
N-54	BASE	100-96	60.72	39.88	42.00	0.0016	553585	60.36	366.31	60.72	325.95
N-54	BASE	25-24	13.88	39.65	42.00	-0.0023	502922	12.58	180.25	13.88	116.54
N-55	BASE	100-24	12.91	40.03	42.00	0.0011	475201	12.79	288.12	12.91	282.43
N-55	BASE	100-96	60.55	40.12	42.00	0.0005	518604	60.42	398.77	60.55	392.07
N-55	BASE	25-24	13.17	39.91	42.00	0.0012	438574	13.04	176.80	13.17	173.08
N-56	BASE	100-24	12.98	40.83	42.00	0.0008	262668	12.74	169.32	12.98	153.70
N-56	BASE	100-96	60.69	40.94	42.00	-0.0007	280987	60.50	217.84	60.69	206.10
N-56	BASE	25-24	13.23	40.67	42.00	0.0013	237137	12.95	107.94	13.23	95.42
N-57	BASE	100-24	12.81	42.27	43.00	0.0006	496834	12.58	131.43	12.81	118.81
N-57	BASE	100-96	60.57	42.30	43.00	0.0002	508900	60.42	155.45	60.57	148.97
N-57	BASE	25-24	13.05	42.23	43.00	0.0007	477666	12.58	101.18	13.05	77.54
N-58	BASE	100-24	12.97	34.19	42.00	-0.0029	792503	12.83	750.31	12.97	742.44
N-58	BASE	100-96	60.80	34.34	42.00	-0.0030	978750	60.67	1138.05	60.80	1121.91
N-58	BASE	25-24	12.91	34.05	42.00	-0.0030	625733	12.75	520.64	12.91	495.18

Wekiva Parkway - Section 6
Existing Conditions

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
N-58A	BASE	100-24	12.97	32.81	33.50	0.0050	1041	12.97	55.36	12.97	55.36
N-58A	BASE	100-96	60.80	32.82	33.50	0.0050	1042	60.80	58.19	60.80	58.19
N-58A	BASE	25-24	12.92	32.80	33.50	0.0048	1041	12.91	52.72	12.92	52.72
N-59	BASE	100-24	13.46	39.06	42.00	0.0028	1101355	12.51	313.07	13.46	183.07
N-59	BASE	100-96	60.95	39.18	42.00	0.0019	1138859	60.31	438.45	60.95	300.38
N-59	BASE	25-24	14.10	38.89	42.00	0.0026	1019854	12.42	203.11	14.10	86.52
N-59A	BASE	100-24	13.46	37.79	38.00	0.0050	864	13.46	51.04	13.46	51.04
N-59A	BASE	100-96	60.95	37.80	38.00	0.0050	865	60.95	53.25	60.95	53.25
N-59A	BASE	25-24	14.10	37.78	38.00	-0.0050	862	14.10	47.61	14.10	47.61
N-6	BASE	100-24	60.00	60.40	63.00	0.0019	331207	12.83	70.25	0.00	0.00
N-6	BASE	100-96	68.33	61.19	63.00	0.0027	359265	60.67	98.77	0.00	0.00
N-6	BASE	25-24	30.00	59.35	63.00	0.0015	294772	12.83	48.04	0.00	0.00
N-60	BASE	100-24	23.83	59.90	63.00	0.0013	184754	12.58	19.93	23.83	1.95
N-60	BASE	100-96	62.41	60.00	63.00	0.0013	195601	60.42	41.54	62.41	12.21
N-60	BASE	25-24	28.00	59.43	63.00	0.0014	137053	12.67	10.23	0.00	0.00
N-7	BASE	100-24	23.85	61.03	64.00	0.0010	141551	12.25	35.08	24.05	1.29
N-7	BASE	100-96	68.23	61.17	64.00	0.0018	145860	60.17	49.02	62.12	7.65
N-7	BASE	25-24	60.00	60.09	64.00	0.0009	112967	12.25	24.80	0.00	0.00
N-8	BASE	100-24	16.44	61.49	64.00	0.0013	100000	12.25	40.26	0.00	0.00
N-8	BASE	100-96	61.05	61.80	64.00	0.0016	105734	60.17	56.84	0.00	0.00
N-8	BASE	25-24	24.26	61.37	64.00	0.0014	97737	12.25	28.27	0.00	0.00
N-9	BASE	100-24	60.00	72.82	78.00	0.0010	167859	12.42	35.07	0.00	0.00
N-9	BASE	100-96	130.00	74.18	78.00	0.0013	214186	60.33	52.33	0.00	0.00
N-9	BASE	25-24	27.59	72.17	78.00	0.0007	152112	12.50	23.54	0.00	0.00
RSR	BASE	100-24	16.61	17.00	21.00	0.0014	4380913	16.36	4047.59	16.61	4044.01
RSR	BASE	100-96	64.03	17.11	21.00	0.0006	4636637	63.88	4628.51	64.03	4626.15
RSR	BASE	25-24	17.00	16.84	21.00	0.0013	4070209	16.75	3300.02	17.00	3296.93
SEMINOLE	BASE	100-24	0.00	14.00	14.00	0.0000	0	13.44	117.26	0.00	0.00
SEMINOLE	BASE	100-96	0.00	14.00	14.00	0.0000	0	60.88	252.91	0.00	0.00
SEMINOLE	BASE	25-24	0.00	14.00	14.00	0.0000	0	13.66	79.65	0.00	0.00
SIMS-1	BASE	100-24	24.83	69.08	70.00	0.0050	5925	12.08	2.35	0.00	0.00
SIMS-1	BASE	100-96	72.00	70.00	70.00	0.0050	9164	60.00	4.60	72.00	0.11
SIMS-1	BASE	25-24	24.83	68.07	70.00	0.0039	4050	12.08	1.27	0.00	0.00
SIMS-2	BASE	100-24	14.38	48.51	49.00	0.0033	5020	12.08	3.21	14.38	1.89
SIMS-2	BASE	100-96	60.20	49.33	49.00	0.0034	6814	60.13	23.52	60.20	21.34
SIMS-2	BASE	25-24	22.68	48.31	49.00	0.0025	4597	12.08	2.03	22.68	0.52
SIMS-3	BASE	100-24	14.13	58.04	58.00	0.0030	34595	12.00	19.30	14.13	1.67
SIMS-3	BASE	100-96	60.14	58.20	58.00	0.0021	35358	60.00	27.99	60.14	19.64
SIMS-3	BASE	25-24	22.52	58.02	58.00	0.0031	34488	12.08	13.38	22.52	0.45
WEKIVA-1	BASE	100-24	0.00	15.00	15.00	0.0000	0	16.66	6386.88	0.00	0.00
WEKIVA-1	BASE	100-96	0.00	15.00	15.00	0.0000	0	64.04	8047.76	0.00	0.00
WEKIVA-1	BASE	25-24	0.00	15.00	15.00	0.0000	0	17.02	4506.55	0.00	0.00
WEKIVA-2	BASE	100-24	0.00	10.00	10.00	0.0000	4	13.22	265.21	0.00	0.00
WEKIVA-2	BASE	100-96	0.00	10.00	10.00	0.0000	4	60.71	400.71	0.00	0.00
WEKIVA-2	BASE	25-24	0.00	10.00	10.00	0.0000	4	13.84	142.03	0.00	0.00

Wekiva Parkway - Section 6
Existing Conditions

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
WMB	BASE	100-24	16.68	22.39	27.00	0.0014	93613244	13.25	17461.76	16.68	6212.64
WMB	BASE	100-96	64.05	22.64	27.00	0.0016	100571591	61.08	20779.76	64.05	7847.82
WMB	BASE	25-24	17.04	22.04	27.00	0.0012	84104871	13.25	13203.32	17.04	4376.60

EXISTING CONDITIONS

FLOODPLAIN IMPACTS

WEKIVA PARKWAY - SECTION 6
FLOODPLAIN IMPACTS

DATE: 8/7/14
BY: BCW
CK: JAG

NODE:	**N-2**
FP ID:	**FP-15**
BFE:	**61.10 ft**

1. Existing Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
54.20	0.00	0.00	0.00
55.00	0.12	0.05	0.05
56.00	0.21	0.17	0.21
57.00	0.35	0.28	0.49
58.00	0.47	0.41	0.90
59.00	0.73	0.60	1.50
60.00	1.03	0.88	2.38
61.00	1.75	1.39	3.77
62.00	2.94	2.35	6.12

Total Existing Storage Volume at BFE = 4.01 Ac-Ft

2. Proposed Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
54.20	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00

Total Proposed Storage Volume at BFE = 0.00 Ac-Ft

Floodplain Impact = 4.01 Ac-Ft

WEKIVA PARKWAY - SECTION 6
FLOODPLAIN IMPACTS

DATE: 8/7/14
BY: BCW
CK: JAG

NODE:	**N-6**
FP ID:	**FP-15**
BFE:	**60.40 ft**

1. Existing Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
56.50	0.00	0.00	0.00
57.00	4.94	1.24	1.24
58.00	5.55	5.25	6.48
59.00	6.48	6.02	12.50
60.00	7.30	6.89	19.39
61.00	8.05	7.68	27.06

Total Existing Storage Volume at BFE = 22.46 Ac-Ft

2. Proposed Condition Volume (After Impacts Only)

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
56.50	0.00	0.00	0.00
57.00	4.94	1.24	1.24
58.00	5.55	5.25	6.48
59.00	6.47	6.01	12.49
60.00	7.16	6.82	19.31
61.00	7.72	7.44	26.75

Total Proposed Storage Volume at BFE = 22.28 Ac-Ft

Floodplain Impact = 0.17 Ac-Ft

WEKIVA PARKWAY - SECTION 6
FLOODPLAIN IMPACTS

DATE: 8/7/14
BY: BCW
CK: JAG

NODE:	**N-50**
FP ID:	**FP-24A**
BFE:	**44.42 ft**

1. Existing Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
41.00	1.30	0.00	0.00
42.00	1.50	1.40	1.40
43.00	1.70	1.60	3.00
44.00	1.91	1.81	4.81
45.00	2.16	2.04	6.84

Total Existing Storage Volume at BFE = 5.66 Ac-Ft

2. Proposed Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
41.00	1.30	0.00	0.00
42.00	1.50	1.40	1.40
43.00	1.70	1.60	3.00
44.00	1.91	1.81	4.81
45.00	2.16	2.04	6.84

Total Proposed Storage Volume at BFE = 5.66 Ac-Ft

Floodplain Impact = 0.00 Ac-Ft

WEKIVA PARKWAY - SECTION 6
FLOODPLAIN IMPACTS

DATE: 8/7/14
BY: BCW
CK: JAG

NODE: N-53A
FP ID: FP-24
BFE: 48.10 ft

1. Existing Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
44.40	0.00	0.00	0.00
46.00	0.70	0.56	0.56
47.00	0.89	0.80	1.36
48.00	1.07	0.98	2.34
49.00	1.38	1.23	3.56

Total Existing Storage Volume at BFE = 2.46 Ac-Ft

2. Proposed Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
44.40	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00

Total Proposed Storage Volume at BFE = 0.00 Ac-Ft

Floodplain Impact = 2.46 Ac-Ft

WEKIVA PARKWAY - SECTION 6
FLOODPLAIN IMPACTS

DATE: 8/7/14
BY: BCW
CK: JAG

NODE: N-54
FP ID: FP-28
BFE: 39.78 ft

1. Existing Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
35.50	0.00	0.00	0.00
37.00	1.42	1.07	1.07
38.00	4.13	2.78	3.84
39.00	8.19	6.16	10.00
40.00	13.33	10.76	20.76

Total Existing Storage Volume at BFE = 18.39 Ac-Ft

2. Proposed Condition Volume (After Impacts Only)

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
35.50	0.00	0.00	0.00
37.00	1.42	1.07	1.07
38.00	4.10	2.76	3.83
39.00	6.75	5.43	9.25
40.00	9.68	8.22	17.47

Total Proposed Storage Volume at BFE = 15.66 Ac-Ft

Floodplain Impact = 2.74 Ac-Ft

WEKIVA PARKWAY - SECTION 6
FLOODPLAIN IMPACTS

DATE: 8/7/14
BY: BCW
CK: JAG

NODE: N-58
FP ID: FP-26
BFE: 34.19 ft

1. Existing Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
30.00	0.00	0.00	0.00
31.00	0.09	0.05	0.05
32.00	0.79	0.44	0.49
33.00	4.84	2.82	3.30
34.00	12.87	8.86	12.16
35.00	40.76	26.82	38.97

Total Existing Storage Volume at BFE = 17.25 Ac-Ft

2. Proposed Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
30.00	0.00	0.00	0.00
31.00	0.08	0.04	0.04
32.00	0.64	0.36	0.40
33.00	3.37	2.01	2.41
34.00	8.34	5.86	8.26
35.00	33.09	20.72	28.98

Total Proposed Storage Volume at BFE = 12.20 Ac-Ft

Floodplain Impact = 5.05 Ac-Ft

WEKIVA PARKWAY - SECTION 6
FLOODPLAIN IMPACTS

DATE: 8/7/14
BY: BCW
CK: JAG

NODE: N-59
FP ID: FP-27
BFE: 39.06 ft

1. Existing Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
34.00	0.00	0.00	0.00
37.00	1.36	2.04	2.04
38.00	12.46	6.91	8.95
39.00	24.83	18.65	27.60
40.00	31.97	28.40	56.00

Total Existing Storage Volume at BFE = 29.30 Ac-Ft

2. Proposed Condition Volume

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
34.00	0.00	0.00	0.00
37.00	0.38	0.57	0.57
38.00	7.58	3.98	4.55
39.00	15.36	11.47	16.02
40.00	20.10	17.73	33.75
41.00	38.80	29.45	63.20

Total Proposed Storage Volume at BFE = 17.08 Ac-Ft

Floodplain Impact = 12.22 Ac-Ft

EXISTING CONDITIONS

COMPENSATING STORAGE

WEKIVA PARKWAY - SECTION 6
COMPENSATING STORAGE

DATE: 8/7/14
BY: BCW
CK: JAG

NODE: COMP-1
FP ID: FP-15
BFE: 60.40 ft

1. Proposed Condition Volume (After Impacts Only)

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
56.50	0.00	0.00	0.00
57.00	4.94	1.24	1.24
58.00	5.55	5.25	6.48
59.00	6.47	6.01	12.49
60.00	7.16	6.82	19.31
61.00	7.72	7.44	26.75

Total Impacted Storage Volume at BFE = 22.28 Ac-Ft

2. Proposed Condition Volume (After Impacts and Comp Storage)

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
56.50	0.00	0.00	0.00
57.00	6.69	1.67	1.67
58.00	7.48	7.09	8.76
59.00	8.41	7.95	16.70
60.00	9.04	8.73	25.43
61.00	9.60	9.32	34.75

Total Proposed Storage Volume at BFE = 29.16 Ac-Ft

Comp Storage = 6.87 Ac-Ft

WEKIVA PARKWAY - SECTION 6
COMPENSATING STORAGE

DATE: 8/7/14
BY: BCW
CK: JAG

NODE: COMP-2
FP ID: FP-28
BFE: 39.78 ft

1. Proposed Condition Volume (After Impacts Only)

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
35.50	0.00	0.00	0.00
37.00	1.42	1.07	1.07
38.00	4.10	2.76	3.83
39.00	6.75	5.43	9.25
40.00	9.68	8.22	17.47

Total Impacted Storage Volume at BFE = 15.66 Ac-Ft

2. Proposed Condition Volume (After Impacts and Comp Storage)

Stage (ft)	Area (Ac)	Incremental Storage Volume (Ac-ft)	Total Storage Volume (Ac-ft)
35.50	0.00	0.00	0.00
37.00	1.42	1.07	1.07
38.00	6.07	3.75	4.81
39.00	8.59	7.33	12.14
40.00	11.74	10.17	22.31

Total Proposed Storage Volume at BFE = 20.07 Ac-Ft

Comp Storage = 4.41 Ac-Ft

WEKIVA PARKWAY - SECTION 6
COMPENSATING STORAGE

DATE: 3/28/14
REV: 6/7/14
BY: BCW
CK: JAG

FLOODPLAIN ID	NODE ID	BFE (100YR/24HR EL) (FT)	FLOODPLAIN IMPACT (AC-FT)	COMPENSATING AREA/POND	COMPENSATING STORAGE (AC-FT)	NOTES
FP-15	N-2; N-6	61.10; 60.40	4.18	FPC-1	6.87	
FP-24	N-53A	48.10	2.46	BW1-E-2	3.49	1
FP-24A	N-50	44.42	0.00	N/A	0.00	
FP-26	N-58	34.19	5.05	N/A	0.00	2
FP-27	N-59	39.06	12.22	N/A	0.00	3
FP-28	N-54	39.78	2.74	FPC-2	4.41	
TOTAL			26.65		14.77	

Notes:

1) Compensating storage volume based on calculated required storage (see Appendix B), which is the greater of the required treatment volume and required attenuation volume.
2) Dead storage comparison from existing to proposed conditions while maintaining the existing BFE, indicates an increase in stage to approximately 34.50 ft. Floodplain impacts will be mitigated using the dynamic method in the future.
3) Dead storage comparison from existing to proposed conditions while maintaining the existing BFE, indicates an increase in stage to approximately 40.10 ft. Floodplain impacts will be mitigated using the dynamic method in the future.

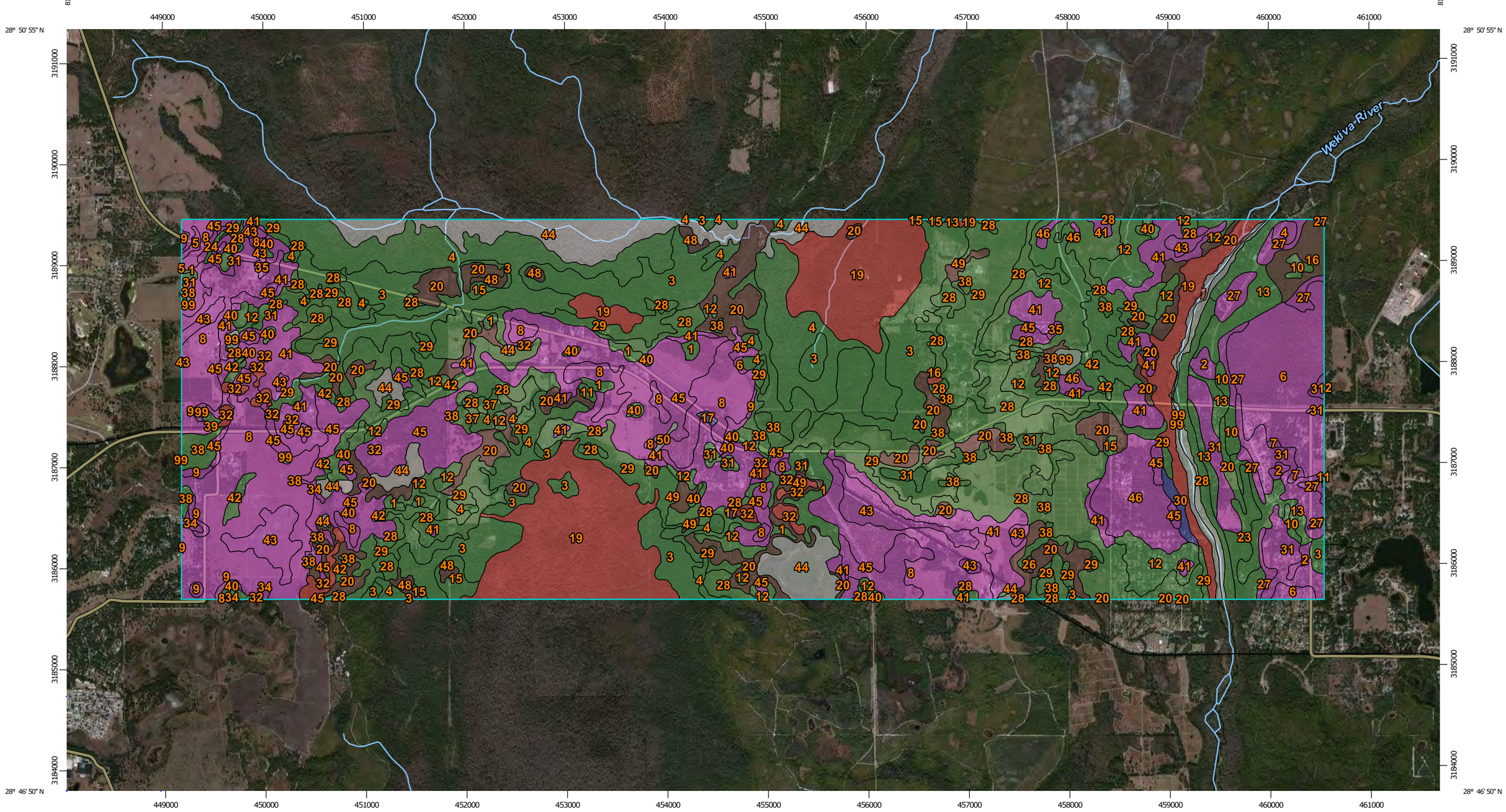
APPENDIX F

Geotechnical Information

NRCS SOIL SURVEY

INFORMATION

Hydrologic Soil Group—Lake County Area, Florida, and Seminole County, Florida
(Wekiva 6 - Hydrologic Soil Groups)



Map Scale: 1:36,800 if printed on B landscape (17" x 11") sheet.

N

0 500 1000 2000 3000 Meters

0 1500 3000 6000 9000 Feet

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Lake County Area, Florida
Survey Area Data: Version 10, May 4, 2012

Soil Survey Area: Seminole County, Florida
Survey Area Data: Version 10, Sep 26, 2012

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Dec 8, 2010—Mar 13, 2011

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

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Lake County Area, Florida (FL607)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
1	Sparr sand, 0 to 5 percent slopes	A/D	102.6	1.0%
3	Anclote fine sand	A/D	789.6	7.4%
4	Anclote and Myakka soils	A/D	801.4	7.6%
5	Apopka sand, 0 to 5 percent slopes	A	5.6	0.1%
6	Apopka sand, 5 to 12 percent slopes	A	3.2	0.0%
8	Candler sand, 0 to 5 percent slopes	A	918.5	8.7%
9	Candler sand, 5 to 12 percent slopes	A	34.4	0.3%
11	Brighton muck, depressional	A/D	5.2	0.0%
12	Cassia sand	A/D	467.1	4.4%
13	Emeralda fine sand	C/D	1.4	0.0%
15	Felda fine sand	A/D	41.8	0.4%
16	Fellowship fine sandy loam, depressional	D	2.4	0.0%
17	Arents	B	6.6	0.1%
19	Bluff and Manatee soils, frequently flooded	D	953.0	9.0%
20	Immokalee sand	B/D	561.1	5.3%
24	Kendrick sand, 0 to 5 percent slopes	A	1.4	0.0%
26	Manatee fine sand, depressional	B/D	2.6	0.0%
28	Myakka sand	A/D	1,045.0	9.9%
29	Myakka and Placid sand, 2 to 8 percent slopes	A/D	815.7	7.7%
30	Lochloosa sand	B	17.2	0.2%
31	Ocoee mucky peat	A/D	40.6	0.4%
32	Oklawaha muck	D	84.6	0.8%
34	Orlando fine sand, 0 to 5 percent slopes	A	11.6	0.1%
35	Paola sand, 0 to 5 percent slopes	A	8.5	0.1%
37	Ellzey sand	A/D	11.8	0.1%

Hydrologic Soil Group— Summary by Map Unit — Lake County Area, Florida (FL607)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
38	Placid sand, depressional	A/D	189.5	1.8%
39	Seffner sand	A/D	4.9	0.0%
40	Placid and Myakka sands, depressional	A/D	80.7	0.8%
41	Pomello sand, 0 to 5 percent slopes	A	449.2	4.2%
42	Pompano sand	A/D	162.0	1.5%
43	St. Lucie sand, 0 to 5 percent slopes	A	192.7	1.8%
44	Swamp		405.5	3.8%
45	Tavares sand, 0 to 5 percent slopes	A	907.7	8.6%
46	Orsino sand	A	171.4	1.6%
48	Wabasso sand	B/D	37.3	0.4%
49	Wauchula sand	B/D	55.7	0.5%
50	Borrow Pits		5.7	0.1%
99	Water		69.5	0.7%
Subtotals for Soil Survey Area			**9,464.9**	**89.3%**
Totals for Area of Interest			**10,599.8**	**100.0%**

Hydrologic Soil Group— Summary by Map Unit — Seminole County, Florida (FL117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
2	Adamsville-Sparr fine sands	A	26.8	0.3%
3	Arents, 0 to 5 percent slopes	A/D	10.9	0.1%
4	Astatula fine sand, 0 to 5 percent slopes	A	12.0	0.1%
6	Astatula-Apopka fine sands, 0 to 5 percent slopes	A	313.3	3.0%
7	Astatula-Apopka fine sands, 5 to 8 percent	A	5.9	0.1%
10	Basinger, Samsula, and Hontoon soils, depressional	A/D	38.1	0.4%
11	Basinger and Smyrna fine sands, depressional	A/D	0.3	0.0%
13	EauGallie and Immokalee fine sands	A/D	183.2	1.7%
16	Immokalee sand	B/D	56.0	0.5%
20	Myakka and EauGallie fine sands	A/D	16.7	0.2%

Hydrologic Soil Group— Summary by Map Unit — Seminole County, Florida (FL117)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
23	Nittaw, Okeelanta, and Basinger soils, frequently flooded	A/D	53.9	0.5%
27	Pomello fine sand, 0 to 5 percent slopes	A	95.7	0.9%
28	Pompano fine sand, occasionally flooded	A/D	64.8	0.6%
31	Tavares-Millhopper fine sands, 0 to 5 percent slopes	A	210.5	2.0%
99	Water		46.7	0.4%
Subtotals for Soil Survey Area			**1,134.9**	**10.7%**
Totals for Area of Interest			**10,599.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

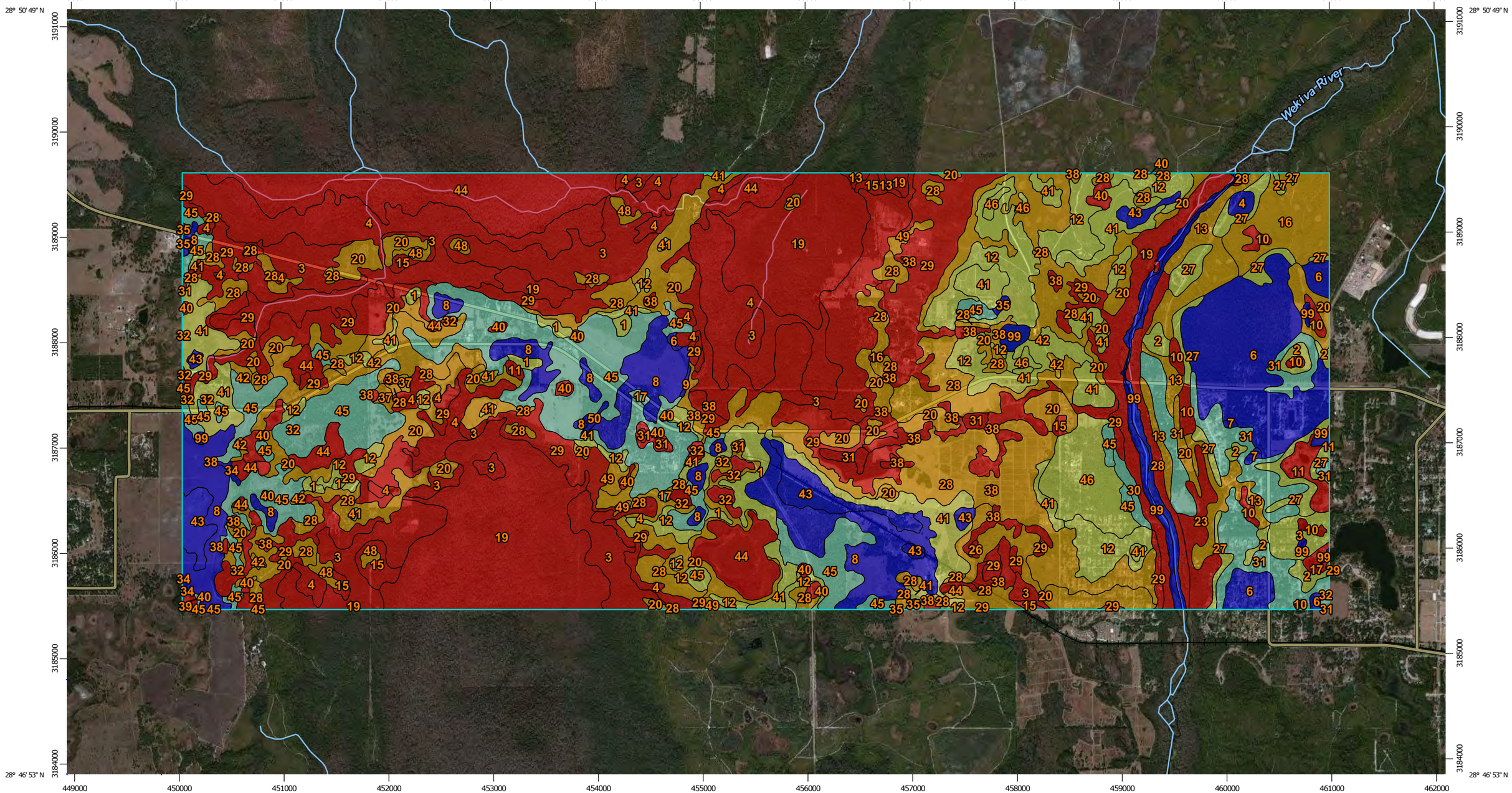
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Depth to Water Table—Lake County Area, Florida, and Seminole County, Florida
(Depth to Water Table)



Map Scale: 1:35,500 if printed on B landscape (17" x 11") sheet.

N

0 500 1000 2000 3000 Meters

0 1500 3000 6000 9000 Feet

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Lake County Area, Florida
Survey Area Data: Version 11, Dec 18, 2013

Soil Survey Area: Seminole County, Florida
Survey Area Data: Version 11, Dec 7, 2013

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Dec 8, 2010—Mar 13, 2011

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

Depth to Water Table

Depth to Water Table— Summary by Map Unit — Lake County Area, Florida (FL607)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
1	Sparr sand, 0 to 5 percent slopes	56	101.7	0.9%
3	Anclote fine sand	0	871.4	7.7%
4	Anclote and Myakka soils	0	851.3	7.6%
6	Apopka sand, 5 to 12 percent slopes	>200	3.2	0.0%
8	Candler sand, 0 to 5 percent slopes	>200	520.1	4.6%
9	Candler sand, 5 to 12 percent slopes	>200	2.7	0.0%
11	Brighton muck, depressional	0	5.2	0.0%
12	Cassia sand	56	513.6	4.6%
13	Emeralda fine sand	8	9.7	0.1%
15	Felda fine sand	15	56.2	0.5%
16	Fellowship fine sandy loam, depressional	0	2.4	0.0%
17	Arents	114	6.6	0.1%
19	Bluff and Manatee soils, frequently flooded	8	1,117.6	9.9%
20	Immokalee sand	31	638.7	5.7%
26	Manatee fine sand, depressional	0	2.6	0.0%
28	Myakka sand	31	1,141.5	10.1%
29	Myakka and Placid sand, 2 to 8 percent slopes	7	859.0	7.6%
30	Lochloosa sand	122	17.2	0.2%
31	Ocoee mucky peat	0	26.9	0.2%
32	Oklawaha muck	0	64.7	0.6%
34	Orlando fine sand, 0 to 5 percent slopes	>200	5.4	0.0%
35	Paola sand, 0 to 5 percent slopes	>200	6.3	0.1%
37	Ellzey sand	31	11.8	0.1%
38	Placid sand, depressional	15	156.3	1.4%
39	Seffner sand	31	0.7	0.0%
40	Placid and Myakka sands, depressional	0	71.3	0.6%

Depth to Water Table— Summary by Map Unit — Lake County Area, Florida (FL607)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
41	Pomello sand, 0 to 5 percent slopes	84	442.5	3.9%
42	Pompano sand	31	145.4	1.3%
43	St. Lucie sand, 0 to 5 percent slopes	>200	143.1	1.3%
44	Swamp	0	596.6	5.3%
45	Tavares sand, 0 to 5 percent slopes	129	848.3	7.5%
46	Orsino sand	84	171.8	1.5%
48	Wabasso sand	31	37.9	0.3%
49	Wauchula sand	31	60.5	0.5%
50	Borrow Pits	>200	5.7	0.1%
99	Water	>200	66.0	0.6%
Subtotals for Soil Survey Area			**9,581.8**	**85.2%**
Totals for Area of Interest			**11,249.1**	**100.0%**

Depth to Water Table— Summary by Map Unit — Seminole County, Florida (FL117)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
2	Adamsville-Sparr fine sands	84	55.3	0.5%
3	Arents, 0 to 5 percent slopes	60	46.5	0.4%
4	Astatula fine sand, 0 to 5 percent slopes	>200	12.0	0.1%
6	Astatula-Apopka fine sands, 0 to 5 percent slopes	>200	436.8	3.9%
7	Astatula-Apopka fine sands, 5 to 8 percent	>200	5.9	0.1%
10	Basinger, Samsula, and Hontoon soils, depressional	0	57.7	0.5%
11	Basinger and Smyrna fine sands, depressional	0	34.6	0.3%
13	EauGallie and Immokalee fine sands	31	188.5	1.7%
16	Immokalee sand	31	145.6	1.3%
17	Brighton, Samsula, and Sanibel mucks	0	9.0	0.1%
20	Myakka and EauGallie fine sands	31	48.2	0.4%
23	Nittaw, Okeelanta, and Basinger soils, frequently flooded	8	65.7	0.6%

Depth to Water Table— Summary by Map Unit — Seminole County, Florida (FL117)				
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
27	Pomello fine sand, 0 to 5 percent slopes	84	144.6	1.3%
28	Pompano fine sand, occasionally flooded	15	70.5	0.6%
29	St. Johns and EauGallie fine sands	31	0.5	0.0%
31	Tavares-Millhopper fine sands, 0 to 5 percent slopes	145	282.2	2.5%
32	Tavares-Millhopper fine sands, 5 to 8 percent slopes	145	2.5	0.0%
99	Water	>200	61.0	0.5%
Subtotals for Soil Survey Area			**1,667.3**	**14.8%**
Totals for Area of Interest			**11,249.1**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

POND GEOTECHNICAL

LETTER REPORT

(UPDATED 8/8/14)

August 8, 2014

GAI Consultants, Inc.
618 E. South Street, Suite 700
Orlando, FL 32801

Attn: Mr. Stephen A. Boylan, P.E.
P: [407] 423-8398 (ext. 3083)
F: [407] 843-1070

Re: Report of Pond Borings
Wekiva Parkway (SR 429/SR 46) – Section 6 from
West of Old McDonald Road to River Oaks Circle
Lake and Seminole Counties, Florida
FPID: 238275-7-32-02
Terracon Project Number: H1135080

Dear Mr. Boylan:

Terracon Consultants, Inc. (Terracon) is pleased to present to you this report of pond borings for the above referenced project. This evaluation was performed in general accordance with our negotiated scope of services.

This letter report presents the findings of the subsurface exploration in the areas of the proposed retention areas for the project and provides geotechnical parameters to assist with design of the proposed construction. The contents of this letter report will be included in the Soil Survey Report for this project, to be submitted at a later time.

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

Sincerely,
Terracon Consultants, Inc.
Certificate of Authorization Number 8830

Elias N. Jammal, P.E.
Senior Geotechnical Engineer
Florida PE #60126

Richard G. Acree, P.E.
Principal
Florida PE #53962

TABLE OF CONTENTS

REPORT OF POND BORINGS
WEKIVA PARKWAY (SR 429/SR 46) FROM WEST OF OLD McDONALD ROAD TO RIVER OAKS CIRCLE LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02

Terracon Project No. H1135080

August 8, 2014

1.0 INTRODUCTION

This letter report has been prepared for the proposed retention areas for the proposed improvements associated with the construction of Wekiva Parkway (SR 429/SR 46) – Section 6 from West of Old McDonald Road to River Oaks Circle in Lake and Seminole Counties, Florida. The project alignment is shown on the Topographic Vicinity Map included as **Exhibit A-1** in **Appendix A.** The contents of this letter report will be included in the Soil Survey Report for this project, to be submitted at a later time.

2.0 PROJECT INFORMATION

2.1 Project Description

Item	Description
Site Layout	See **Appendix A, Exhibit A-1.**
Drainage	The project will include the construction of 16 retention areas throughout the project alignment.

2.2 Site Location and Description

Item	Description
Location	The retention areas are located throughout the project alignment, along/near SR 46 from west of Old McDonald Road to east of the Wekiva River in Lake and Seminole Counties, Florida.
Existing Topography	The USGS topographic quadrangle maps "Sorrento, Florida" and "Sanford SW, Florida" depict the ground surface elevations range from about +5 to +30 feet, NGVD, throughout the project alignment.
Surface Water	The USGS topographic quadrangle maps "Sorrento, Florida" and "Sanford SW, Florida" depict multiple wetland areas throughout the project alignment. The Wekiva River intersects the project alignment near the eastern limit.

3.0 SUBSURFACE CONDITIONS

3.1 Soil Survey

The Soil Surveys of Lake and Seminole Counties, Florida as prepared by the United States Department of Agriculture (USDA), Soil Conservation Service (SCS; later renamed the Natural Resource Conservation Service - NRCS), identifies multiple soil types along the project alignment. Descriptions of the mapped soil units are included in **Appendix A** as **Exhibit A-8**. It should be noted that the Soil Survey is not intended as a substitute for site-specific geotechnical exploration; rather it is a useful tool in planning a project scope in that it provides information on soil types likely to be encountered. Boundaries between adjacent soil types on the Soil Survey maps are approximate (included in **Appendix** as **Exhibit A-2**). A summary of the soil unit types, normal seasonal high groundwater depths, and an average estimated seasonal high groundwater elevation for each pond is presented in **Table 1** in **Appendix A**.

3.2 Fieldwork Program

Multiple auger borings were performed to depths ranging between about 5 to 20 feet below the existing ground surface within or near the proposed retention areas. Soil boring profiles are included in **Appendix A** of this report. One (1) piezometer was also installed at the majority of the retention areas in order to continually observe groundwater levels over a period of time.

3.3 Typical Profile

The soil survey presented in the **Appendix** of this report includes a description for a total of nine (9) soil strata encountered throughout the project alignment. The soil borings performed for the retention areas typically encountered Stratum 1 (A-3), Stratum 2 (A-2-4), and Stratum 3 (A-2-6, A-2-7) materials. Stratum 4 (A-3, A-2-4)(hardpan), Stratum 5 (A-8), Stratum 6 (A-6), Stratum 7 (A-2-4, A-2-6), and Stratum 8 (A-7-6) materials were occasionally encountered at various depth and thicknesses in several of the ponds.

Conditions encountered at each boring location are indicated on the individual boring profiles. Stratification boundaries on the boring profiles represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for each of the borings can be found on the boring profiles in **Appendix A** of this report. Descriptions of our field exploration are included as **Exhibit A-9** in **Appendix A**.

3.4 Groundwater

The boreholes were observed during drilling for the presence and level of groundwater. Groundwater was observed in a majority of the borings, between depths of about 1 and 17 feet

below existing grade. Two (2) borings did not encounter groundwater to a depth of 20 feet and are designated *GNE* adjacent to the boring profiles. A summary of the groundwater levels observed at each of the piezometer locations is included in **Appendix B** of this report.

It should be recognized that fluctuations of the groundwater table will occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the boring was performed. In addition, perched water can develop within higher permeability soils overlying less permeable soils. Therefore, groundwater levels during construction or at other times in the future may be higher or lower than the levels indicated on the boring logs.

We estimate that during the normal wet season with rainfall and recharge at a maximum, groundwater levels will vary throughout the retention areas from the ground surface to depths of about 15 feet below the existing grade. Our estimates of the seasonal groundwater conditions are based on the USDA Soil Survey, available survey data, the encountered soil types, recent weather conditions, and the encountered water levels and piezometer readings. The groundwater levels in the retention areas near the Wekiva River may be influenced by the river water levels.

These seasonal water table estimates do not represent the temporary rise in water table that occurs immediately following a storm event, including adjacent to other stormwater management facilities or water bodies. The seasonal high water table may vary from normal when affected by extreme weather changes, localized or regional flooding, karst activity, future grading, drainage improvements, or other construction that may occur on our around the site following the date of this report.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The following evaluations are based on the project characteristics previously described, the data obtained in our field exploration and our experience with similar subsurface conditions and construction types. If final pond locations or grades are significantly different from those previously described in this report, or if subsurface conditions different from those discussed by the borings are encountered during construction, we should be notified immediately so that we might review and modify, if necessary, the following recommendations.

As previously noted, the contents of this letter report will be included in the Soil Survey Report for this project, to be submitted at a later time. Also, it should be noted that although the attached Report of Soil Survey indicates nine (9) soil strata, the pond borings primarily encountered Strata 1 through 3 materials, and occasionally encountered Strata 4 through 8 materials.

4.2 Pond Borings

The material from Strata 1, 2 and 4 can be classified as Select (S) and can be used as embankment material in accordance with Index 505. The material from Strata 2 and 4 will retain excess moisture and be difficult to dry and compact. The Stratum 4 material may be difficult to excavate and/or penetrate, and may require special equipment and/or procedures to facilitate excavation and/or penetration. The material from Stratum 4 shall be pulverized prior to use as fill. The material from Strata 3, 6 and 7 shall be classified as Plastic (P) material. The material from Stratum 8 shall be classified as High Plastic (H) material. The material from Stratum 5 shall be treated as muck/peat (M).

If plastic and/or organic material is encountered along the project alignment during construction, at locations that were not indicated in this report or where soil borings were not performed, these materials should be removed in accordance with Index 500 and utilized in accordance with 505.

4.3 Laboratory Testing

During the field exploration, a portion of each recovered sample was sealed in a glass jar and transported to our laboratory for further visual observation and laboratory testing. Selected samples retrieved from the borings were tested for moisture (water) content, fines content (soil passing a US standard #200 sieve), Atterberg Limits, and laboratory permeability. Those results are included in **Table 2** in **Appendix A** of this report. The visual classifications were modified as appropriate based upon the laboratory testing results.

4.4 Permeability Testing

Permeability testing was performed on Strata 1 and 2 materials and at various depths, at the soil boring locations performed for the pond areas. A summary of the results including the measured vertical permeability rate and the estimated horizontal permeability rate are presented in **Table 3** in **Appendix A**.

4.5 Environmental Classification

Multiple soil samples were obtained from the borings performed for the ponds, to determine subsurface environmental conditions. Corrosion tests were performed in accordance with FDOT Structure Design Guidelines. Testing included pH, chlorides, sulfates and resistivity tests. The environmental classification ranges from slightly to extremely aggressive for use of concrete and steel (pH ranged from 3.8 to 8.0). The corrosion series test results are summarized in **Table 4** in **Appendix A.**

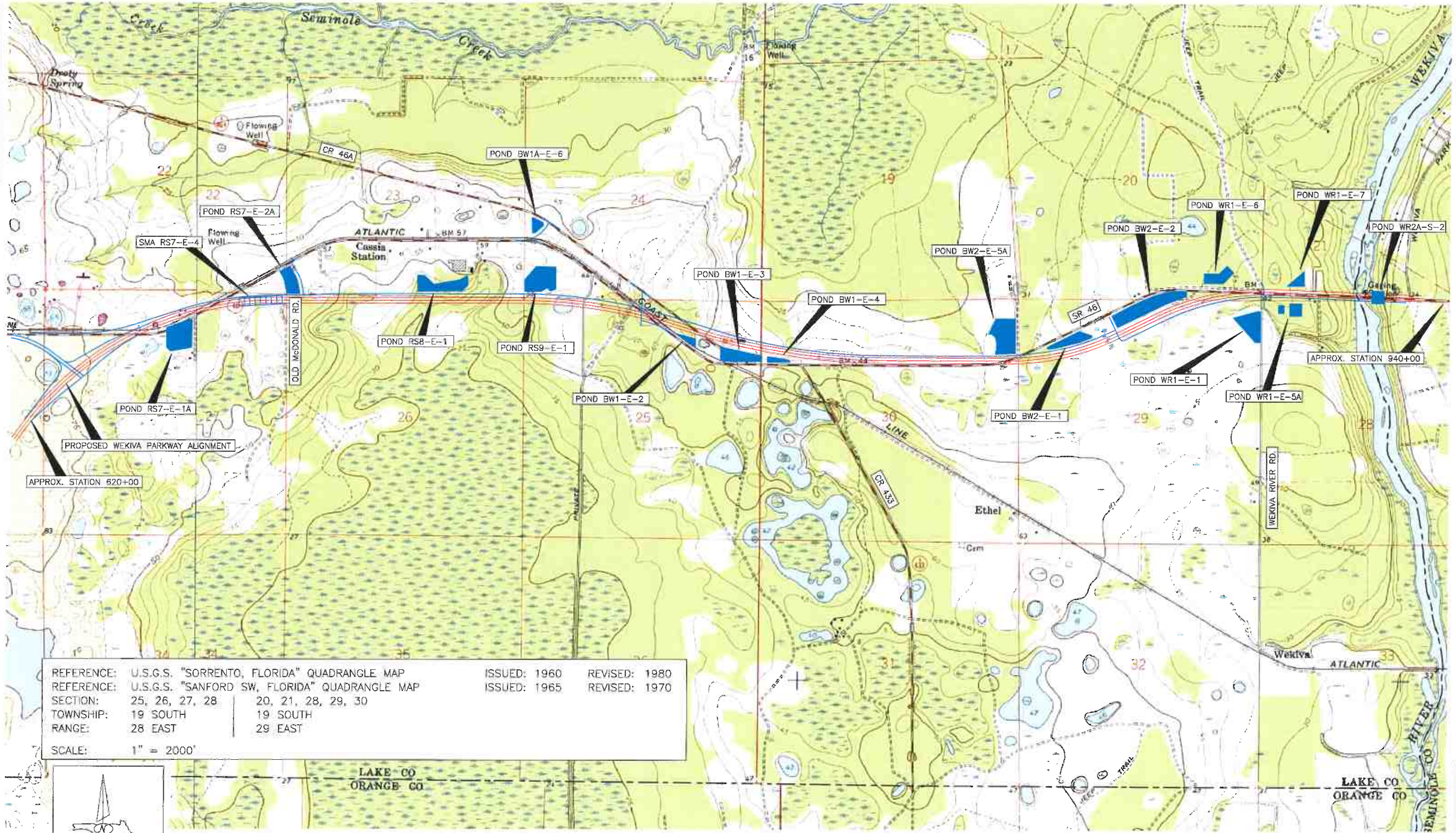
4.6 Piezometers

A total of 15 piezometers were installed throughout the ponds sites. The initial and subsequent data obtained from the piezometers, as well as rainfall data (based on data from the NOAA Sanford station gauge), are presented in **Appendix B** of this report. Groundwater readings were recorded daily in the piezometers.

5.0 GENERAL COMMENTS

The analysis and recommendations presented in this letter report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

APPENDIX A
FIELD EXPLORATION AND TESTING RESULTS SUMMARY



REFERENCE:	U.S.G.S. "SORRENTO, FLORIDA" QUADRANGLE MAP	ISSUED: 1960	REVISED: 1980
REFERENCE:	U.S.G.S. "SANFORD SW, FLORIDA" QUADRANGLE MAP	ISSUED: 1965	REVISED: 1970
SECTION:	25, 26, 27, 28	20, 21, 28, 29, 30	
TOWNSHIP:	19 SOUTH	19 SOUTH	
RANGE:	28 EAST	29 EAST	
SCALE:	1" = 2000'		

Project Mngr:	ENJ
Drawn By:	SW
Checked By:	ENJ
Approved By:	RGA
Project No.	H1135080
Scale:	AS SHOWN
File No.	H1135080-1
Date:	8-7-14

Terracon
Consulting Engineers and Scientists
1675 LEE ROAD WINTER PARK, FLORIDA 32789
PH. (407) 740-6110 FAX. (407) 740-6112

U.S.G.S. TOPOGRAPHIC MAP
GEOTECHNICAL ENGINEERING EVALUATION
WEKIVA PARKWAY (SR 429 / SR 46)
FROM OLD McDONALD RD. TO RIVER OAKS CIRCLE
LAKE AND SEMINOLE COUNTIES, FLORIDA

EXHIBIT
A-1

POND BW1A-E-6
CR 46A
POND RS7-E-2A
SMA RS7-E-4
Cassia Station
POND RS8-E-1
POND RS9-E-1
OLD McDONALD RD
POND BW1-E-3
POND BW1-E-4
POND BW2-E-5A
POND BW2-E-2
POND WR1-E-6
POND WR1-E-7
POND WR2A-S-2
SR 46
APPROX. STATION 940+00
POND WR1-E-1
POND WR1-E-5A
POND BW1-E-2
POND BW2-E-1
POND RS7-E-1A
PROPOSED WEKIVA PARKWAY ALIGNMENT
APPROX. STATION 520+00
CR 435
WEKIVA RIVER RD.
SEABOARD
PETER MIRANDA GRANT
WEKIVA SWAMP
ORANGE COUNTY

REFERENCE:	U.S.D.A. SOIL SURVEY FOR LAKE COUNTY, FLORIDA		ISSUED: 1971
REFERENCE:	U.S.D.A. SOIL SURVEY FOR SEMINOLE COUNTY, FLORIDA		ISSUED: 1990
SECTION:	25, 26, 27, 28	20, 21, 28, 29, 30	
TOWNSHIP:	19 SOUTH	19 SOUTH	
RANGE:	28 EAST	29 EAST	
SCALE:	1" = 2000'		

Project Mngr:	ENJ
Drawn By:	SW
Checked By:	ENJ
Approved By:	RGA

Project No.	H1135080
Scale:	AS SHOWN
File No.	H1135080-2
Date:	8-7-14

Terracon
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U.S.D.A. SOILS MAP
GEOTECHNICAL ENGINEERING EVALUATION
WEKIVA PARKWAY (SR 429 / SR 46)
FROM OLD McDONALD RD. TO RIVER OAKS CIRCLE
LAKE AND SEMINOLE COUNTIES, FLORIDA

EXHIBIT
A-2

Aug08, 2014--10:06am N:\Projects\2013\H1135080\PROJECT DOCUMENTS (Reports--Letters--Emails to Clients)\Cad\roadway\usda2.dwg

PROJECT No. 238275-7-32-02
ROAD No. SR 429
DISTRICT No. 5
SUBMITTED BY: ELIAS JAMMAL, P.E. AND RICHARD ACREE, P.E.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
MATERIALS AND RESEARCH CROSS SECTION
OF SOIL SURVEY REPORT OF TESTS
MECHANICAL ANALYSIS

DATE OF SURVEY: JUNE 2013 TO JULY 2014

SURVEYED BY: TERRACON
SURVEY BEGINS: 640+00
SURVEY ENDS: 931+20
DATE REPORTED: JULY 2014

		CHARACTERISTICS OF MATERIAL PASSING No. 40 SIEVE															SUBSTRUCTURE ENVIRONMENTAL CLASSIFICATION	
STRATUM NO.	LBR VALUE	% PASSING 10 MESH	% PASSING 40 MESH	% PASSING 60 MESH	% PASSING 100 MESH	% PASSING 200 MESH	LIQUID LIMIT	PLASTICITY INDEX	ORGANIC CONTENT	NO. LBR TESTS	NO. GRAD. TESTS	NO. LL-PI TESTS	NO. ORGANIC CONTENT TESTS	CLASS GROUP	MATERIAL DESCRIPTION	pH	RESISTIVITY OHM-CM	CHLORIDES PPM	SULFATES PPM	CONCRETE	STEEL
1	–	99–100	89–99	66–94	19–53	1–10	–	–	–	–	43(FULL) 12(–200)	–	–	A–3	LIGHT GRAY TO DARK BROWN FINE SAND TO FINE SAND WITH SILT	3.8–8.0	1700–150000	60	<5–1107	EXTREMELY AGGRESSIVE	EXTREMELY AGGRESSIVE
2	–	100	74–99	45–94	20–59	11–28	NP–36	NP–10	–	–	66	28	–	A–2–4	BROWN TO DARK BROWN SILTY FINE SAND	5.0–7.1	4700–79000	60	<5–63	MODERATELY AGGRESSIVE	EXTREMELY AGGRESSIVE
3	–	100	92–99	75–92	33–56	17–31	25–47	11–34	–	–	9	9	–	A–2–6 A–2–7	LIGHT BROWN AND LIGHT GRAY TO GREENISH–GRAY CLAYEY FINE SAND	4.6–4.8	35000–45000	60	<5–47	EXTREMELY AGGRESSIVE	EXTREMELY AGGRESSIVE
4	–	100	96	79	39	21	27	8	–	–	1	1	–	A–3 A–2–4	REDDISH–BROWN TO DARK BROWN FINE SAND TO SILTY FINE SAND, WITH CEMENTATION (HARDPAN)	–	–	–	–	–	–
5	–	100	95	79	42	26	–	–	20	–	1	–	1	A–8	BROWN TO DARK BROWN SANDY MUCK/PEAT	–	–	–	–	–	–
6	–	100	100	96	84	45	37	14	–	–	1	1	–	A–6	LIGHT BROWN TO GRAYISH–BROWN AND GREENISH–GRAY CLAY	–	–	–	–	–	–
7	–	100	92–97	73–85	34–57	20–34	–	–	2–6	–	2	–	2	A–2–4 A–2–6	BROWN SILTY TO CLAYEY FINE SAND, WITH TRACE TO SOME ORGANICS	–	–	–	–	–	–
8	–	100	97–100	91–97	59–91	37–63	44–54	30–38	–	–	6	5	–	A–7–6	GREENISH–GRAY SANDY CLAY TO CLAY	–	–	–	–	–	–
9	–	–	–	–	–	–	–	–	–	–	–	–	–	A–4	BROWN SANDY SILT	–	–	–	–	–	–

NOTES:

1) STRATA BOUNDARIES ARE APPROXIMATE AND REPRESENT SOIL STRATA AT EACH TEST HOLE LOCATION ONLY. ANY STRATUM CONNECTING LINES THAT ARE SHOWN ARE FOR ESTIMATING EARTHWORK ONLY AND DO NOT INDICATE ACTUAL STRATUM LIMITS. SUBSURFACE VARIATIONS BETWEEN BORINGS SHOULD BE ANTICIPATED AS INDICATED IN SECTION 2–4. FOR FURTHER DETAILS SEE SECTION 120–3.
2) WATER TABLE SHOWN AS ▼ WHERE ENCOUNTERED AT TIME OF SURVEY. GROUNDWATER NOT ENCOUNTERED SHOWN AS "GNE". ESTIMATED SEASONAL HIGH GROUNDWATER SHOWN AS ▽.
3) REMOVAL OF MUCK AND PLASTIC MATERIAL OCCURRING WITHIN ROADWAY SHALL BE ACCOMPLISHED IN ACCORDANCE WITH INDEX NO. 500, UNLESS OTHERWISE SHOWN ON THE PLANS, AND THE MATERIAL UTILIZED IN EMBANKMENT CONSTRUCTION SHALL BE IN ACCORDANCE WITH INDEX 505.
4) SOIL ANALYSIS INCLUDES DATA FROM ROADWAY AND POND AREAS.
5) THE SYMBOL "–" REPRESENTS AN UNMEASURED PARAMETER.
6) THE SYMBOL "NP" REPRESENTS NON–PLASTIC.
7) STRATA 1, 2 AND 4 CAN BE CLASSIFIED AS SELECT (S).
8) STRATA 3, 6, 7 AND 9 SHOULD BE TREATED AS PLASTIC MATERIAL (P).
9) STRATUM 8 SHOULD BE TREATED AS HIGH PLASTIC MATERIAL (H).
10) THE MATERIAL FROM STRATUM 4 CAN BE CLASSIFIED AS SELECT. HOWEVER, SEE NOTE 13. THIS MATERIAL MAY NEED TO BE PULVERIZED IN ACCORDANCE WITH SPECIFICATION 120–7–2 TO BE USED AS EMBANKMENT MATERIAL.
11) STRATUM 5 SHOULD BE TREATED AS MUCK/PEAT (M).
12) STRATA 2 AND 4 MAY RETAIN EXCESS MOISTURE AND MAY BE DIFFICULT TO DRY AND COMPACT. THEY SHOULD BE USED IN THE EMBANKMENT ABOVE THE WATER LEVEL EXISTING AT THE TIME OF CONSTRUCTION. THEY MAY BE USED IN THE SUBGRADE PORTION OF THE ROADBED WHEN APPROVED BY THE TURNPIKE ENTERPRISE GEOTECHNICAL ENGINEER.
13) LAYERS OF VERY HARD MATERIALS SUCH AS CEMENTED SAND/SILT, HARDPAN, ETC. MAY BE ENCOUNTERED IN VARIOUS AREAS OF THIS PROJECT. SUCH MATERIALS WILL BE DIFFICULT TO EXCAVATE OR PENETRATE. THE CONTRACTOR SHALL EXPECT TO ENCOUNTER THESE VERY HARD MATERIALS IN ALL EXCAVATIONS AND SHALL USE SPECIALIZED EQUIPMENT AND/OR PROCEDURES AS NECESSARY TO FACILITATE EXCAVATION/PENETRATION.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

RICHARD G. ACREE, P.E.
P.E. LICENSE NUMBER 53962
1675 LEE ROAD
WINTER PARK, FLORIDA 32789
TERRACON
CERTIFICATE OF AUTHORIZATION No. 8830

DRAWN BY: SW 8-8-14
CHECKED BY: ENJ 8-8-14
DESIGNED BY:
CHECKED BY:

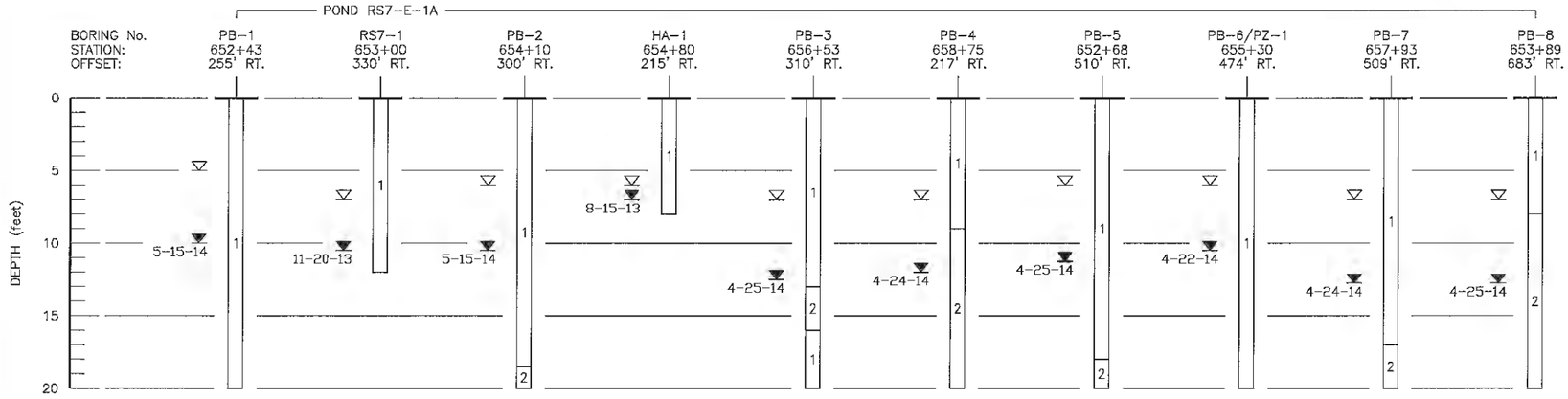
STATE OF FLORIDA
DEPARTMENT OF TRANSPORATATION

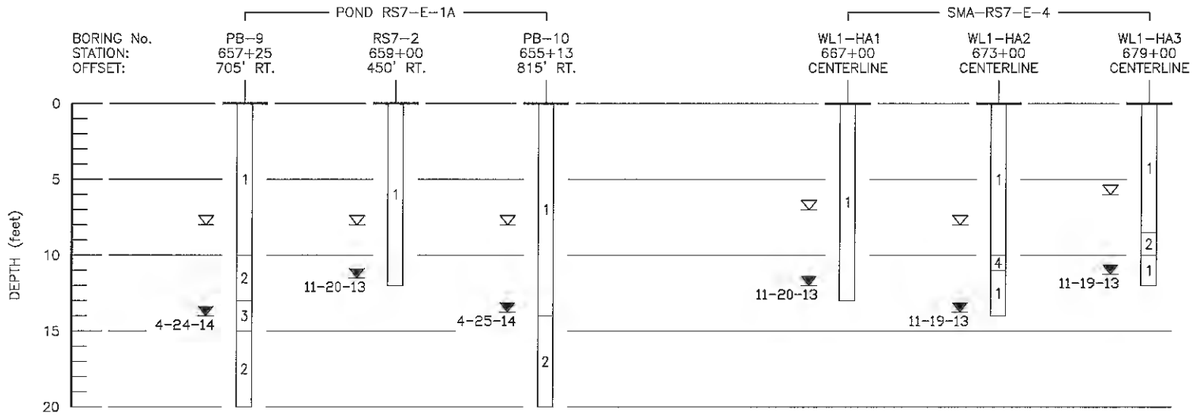
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE SEMINOLE	238275-7-32-02

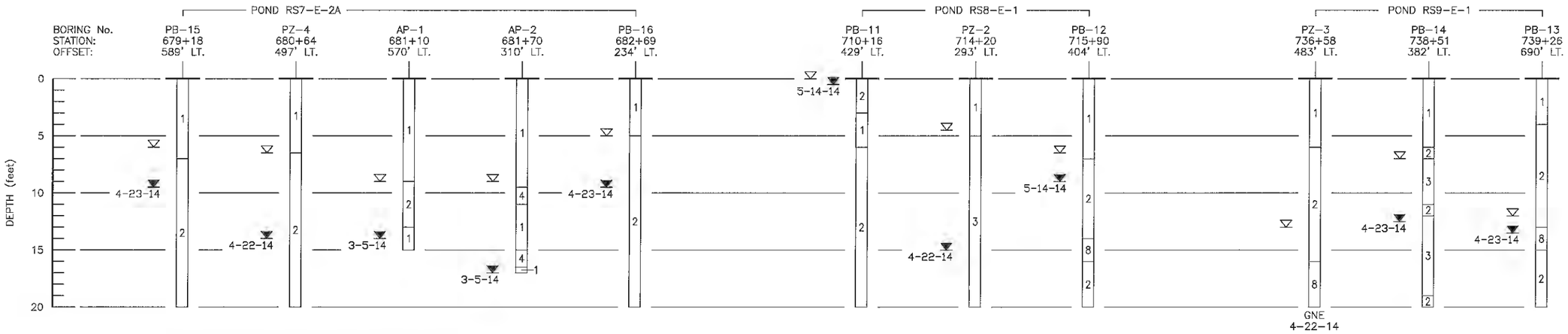
SHEET TITLE: REPORT OF SOIL SURVEY
PROJECT NAME: WEKIVA PARKWAY (SR 429/SR 46) SECTION 6
REF. DWG. NO.
SHEET NO. –

TERRACON No. H1 13 5080 EXHIBIT: A–3

Aug08, 2014–11:25am N:\Projects\2013\H113508O\PROJECT DOCUMENTS (Reports–Letters–Drafts to Clients)\Cad\roadway\soil survey 3.dwg







1 LIGHT GRAY TO DARK BROWN FINE SAND TO FINE SAND WITH SILT (A-3)

2 BROWN TO DARK BROWN SILTY FINE SAND (A-2-4)

3 LIGHT BROWN AND LIGHT GRAY TO GREENISH-GRAY CLAYEY FINE SAND (A-2-6)(A-2-7)

4 REDDISH-BROWN TO DARK BROWN FINE SAND TO SILTY FINE SAND, WITH CEMENTATION (HARDPAN) (A-3)(A-2-4)

5 BROWN TO DARK BROWN SANDY MUCK/PEAT (A-8)

6 LIGHT BROWN TO GRAYISH-BROWN AND GREENISH-GRAY CLAY (A-6)

7 BROWN SILTY TO CLAYEY FINE SAND, WITH TRACE TO SOME ORGANICS (A-2-4)(A-2-6)

8 GREENISH-GRAY SANDY CLAY TO CLAY (A-7-6)

9 BROWN SANDY SILT (A-4)

(A-3) A.A.S.H.T.O. SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL EXAMINATION

11-8-03 ENCOUNTERED GROUNDWATER LEVEL (DATE OF READING)

ESTIMATED NORMAL SEASONAL HIGH GROUNDWATER LEVEL

GNE GROUNDWATER LEVEL NOT ENCOUNTERED TO DEPTH OF BORING

NOTES: 1) STATIONS AND OFFSETS REFERENCED FROM THE CENTERLINE OF CONSTRUCTION OF SR 429, EXCEPT BORINGS AR-1 AND AR-2 WHICH REFERENCE THE CENTERLINE OF CONSTRUCTION OF ACCESS ROAD 1.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

RICHARD C. ACREE, P.E.
P.E. LICENSE NUMBER 53962
1675 LEE ROAD
WINTER PARK, FLORIDA 32789
TERRACON
CERTIFICATE OF AUTHORIZATION No. 8830

DRAWN BY: SW 8-8-14
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CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORATATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE SEMINOLE	238275-7-32-02

SHEET TITLE: REPORT OF AUGER BORINGS FOR PONDS

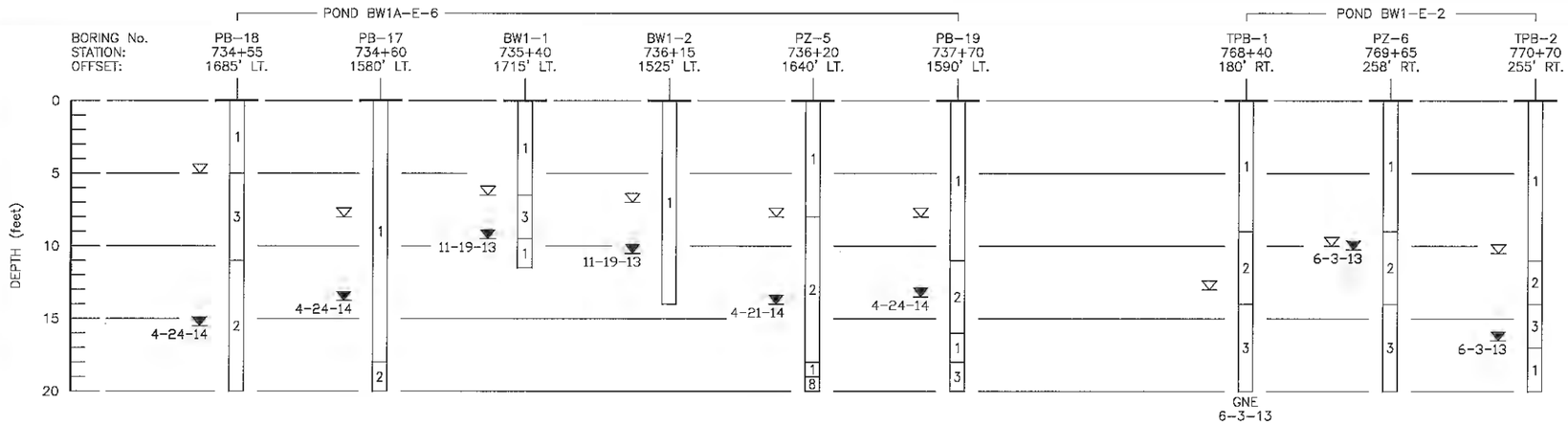
PROJECT NAME: WEKIVA PARKWAY (SR 429/SR 46) SECTION 6

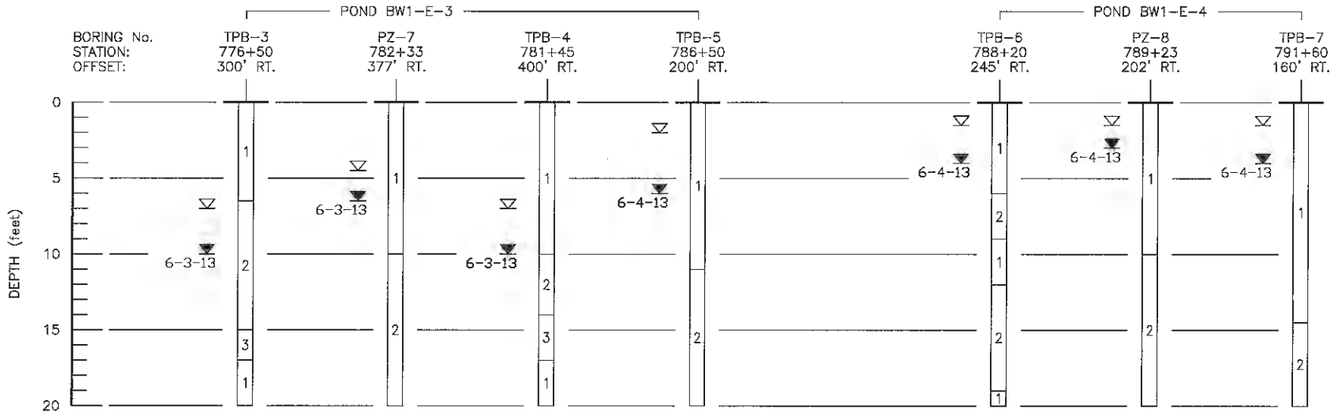
REF. DWG. NO.

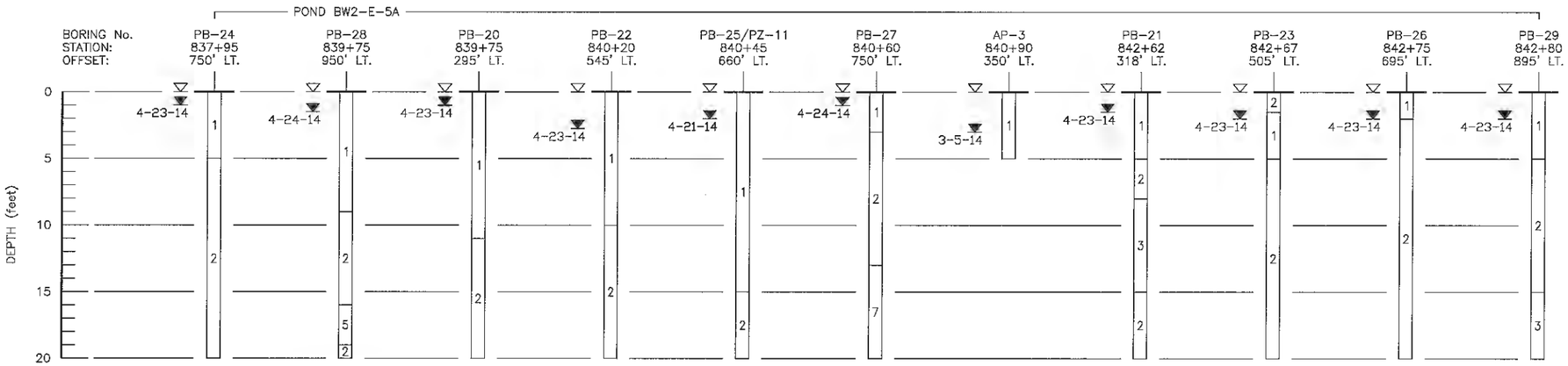
SHEET NO. —

TERRACON No. H1 13 5080 EXHIBIT: A-4

Aug08, 2014-1:40pm N:\Projects\2013\H1135080\PROJECT DOCUMENTS (Reports-Letters-Drafts to Clients)\Cad\roadway\ponds exh4.dwg







1	LIGHT GRAY TO DARK BROWN FINE SAND TO FINE SAND WITH SILT (A-3)
2	BROWN TO DARK BROWN SILTY FINE SAND (A-2-4)
3	LIGHT BROWN AND LIGHT GRAY TO GREENISH-GRAY CLAYEY FINE SAND (A-2-6)(A-2-7)
4	REDDISH-BROWN TO DARK BROWN FINE SAND TO SILTY FINE SAND, WITH CEMENTATION (HARDPAN) (A-3)(A-2-4)
5	BROWN TO DARK BROWN SANDY MUCK/PEAT (A-8)
6	LIGHT BROWN TO GRAYISH-BROWN AND GREENISH-GRAY CLAY (A-6)
7	BROWN SILTY TO CLAYEY FINE SAND, WITH TRACE TO SOME ORGANICS (A-2-4)(A-2-6)
8	GREENISH-GRAY SANDY CLAY TO CLAY (A-7-6)
9	BROWN SANDY SILT (A-4)
(A-3)	A.A.S.H.T.O. SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL EXAMINATION
11-8-03	ENCOUNTERED GROUNDWATER LEVEL (DATE OF READING)
	ESTIMATED NORMAL SEASONAL HIGH GROUNDWATER LEVEL
GNE	GROUNDWATER LEVEL NOT ENCOUNTERED TO DEPTH OF BORING

NOTES: 1) STATIONS AND OFFSETS REFERENCED FROM THE CENTERLINE OF CONSTRUCTION OF SR 429, EXCEPT BORINGS AR-1 AND AR-2 WHICH REFERENCE THE CENTERLINE OF CONSTRUCTION OF ACCESS ROAD 1.

Aug08, 2014-1:41pm N:\Projects\2013\H1135080\PROJECT DOCUMENTS (Reports-Letters-Drafts to Clients)\Cad\roadway\ponds ext5.dwg

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

RICHARD G. ACREE, P.E.
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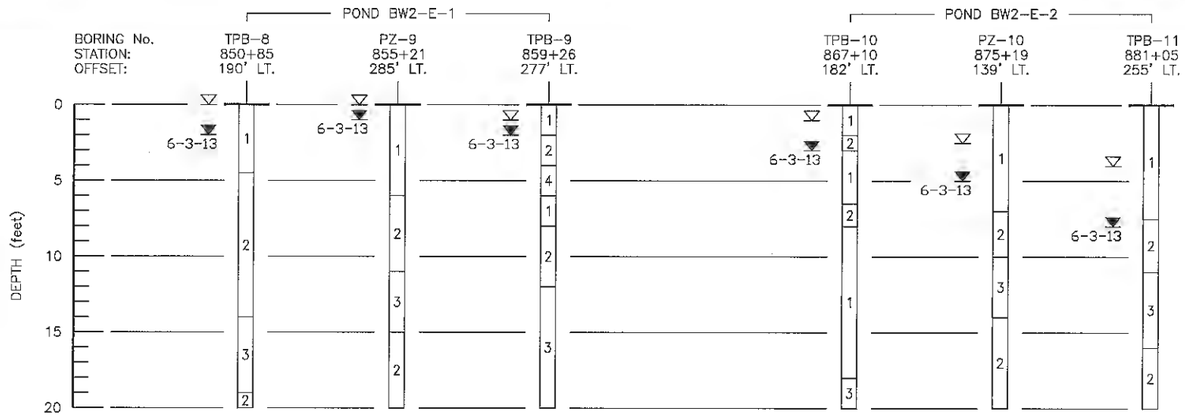
CHECKED BY:

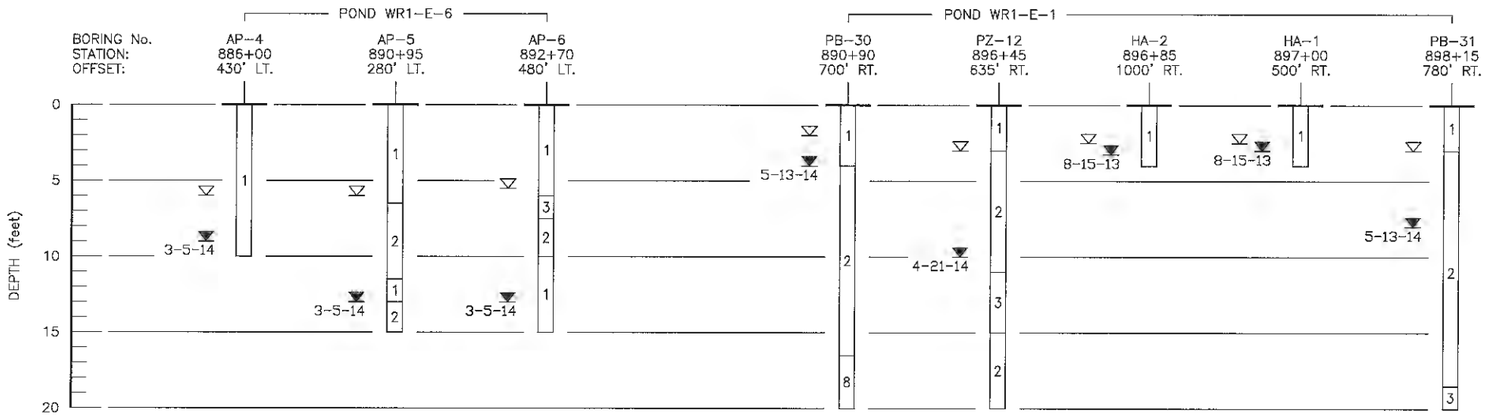
STATE OF FLORIDA
DEPARTMENT OF TRANSPORATATION

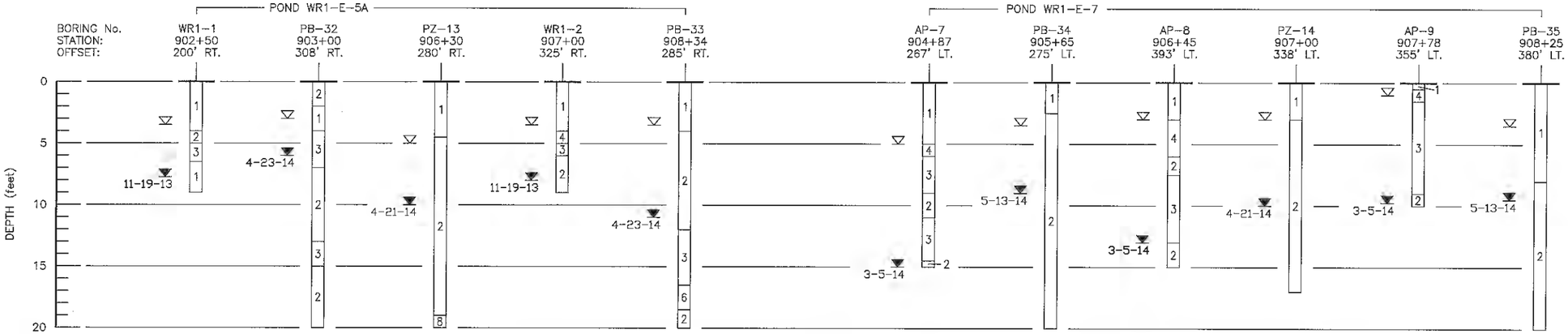
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE SEMINOLE	238275-7-32-02

SHEET TITLE: REPORT OF AUGER BORINGS FOR PONDS
PROJECT NAME: WEKIVA PARKWAY (SR 429/SR 46) SECTION 6
REF. DWG. NO.
SHEET NO. -

TERRACON No. H1 13 5080 EXHIBIT: A-5







1 LIGHT GRAY TO DARK BROWN FINE SAND TO FINE SAND WITH SILT (A-3)

2 BROWN TO DARK BROWN SILTY FINE SAND (A-2-4)

3 LIGHT BROWN AND LIGHT GRAY TO GREENISH-GRAY CLAYEY FINE SAND (A-2-6)(A-2-7)

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5 BROWN TO DARK BROWN SANDY MUCK/PEAT (A-8)

6 LIGHT BROWN TO GRAYISH-BROWN AND GREENISH-GRAY CLAY (A-6)

7 BROWN SILTY TO CLAYEY FINE SAND, WITH TRACE TO SOME ORGANICS (A-2-4)(A-2-6)

8 GREENISH-GRAY SANDY CLAY TO CLAY (A-7-6)

9 BROWN SANDY SILT (A-4)

(A-3) A.A.S.H.T.O. SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL EXAMINATION

11-8-03 ENCOUNTERED GROUNDWATER LEVEL (DATE OF READING)

ESTIMATED NORMAL SEASONAL HIGH GROUNDWATER LEVEL

GNE GROUNDWATER LEVEL NOT ENCOUNTERED TO DEPTH OF BORING

NOTES: 1) STATIONS AND OFFSETS REFERENCED FROM THE CENTERLINE OF CONSTRUCTION OF SR 429, EXCEPT BORINGS AR-1 AND AR-2 WHICH REFERENCE THE CENTERLINE OF CONSTRUCTION OF ACCESS ROAD 1.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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1675 LEE ROAD
WINTER PARK, FLORIDA 32789
TERRACON
CERTIFICATE OF AUTHORIZATION No. 8830

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CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE SEMINOLE	238275-7-32-02

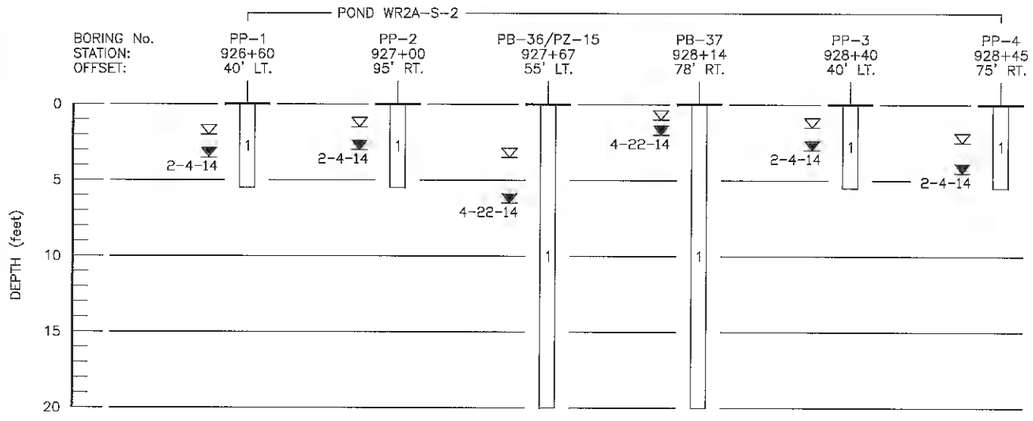
SHEET TITLE: REPORT OF AUGER BORINGS FOR PONDS

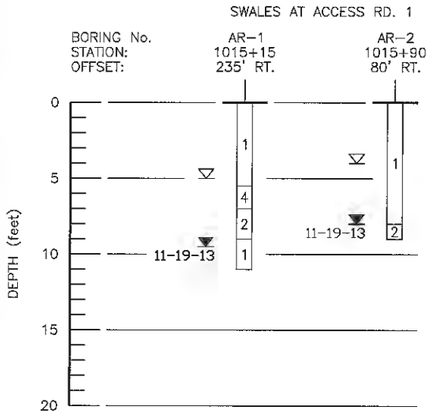
PROJECT NAME: WEKIVA PARKWAY (SR 429/SR 46) SECTION 6

REF. DWG. NO.

SHEET NO. -

TERRACON No. H1 13 5080 EXHIBIT: A-6





1	LIGHT GRAY TO DARK BROWN FINE SAND TO FINE SAND WITH SILT (A-3)
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3	LIGHT BROWN AND LIGHT GRAY TO GREENISH-GRAY CLAYEY FINE SAND (A-2-6)(A-2-7)
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8	GREENISH-GRAY SANDY CLAY TO CLAY (A-7-6)
9	BROWN SANDY SILT (A-4)
(A-3)	A.A.S.H.T.O. SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL EXAMINATION
11-8-03	ENCOUNTERED GROUNDWATER LEVEL (DATE OF READING)
	ESTIMATED NORMAL SEASONAL HIGH GROUNDWATER LEVEL
GNE	GROUNDWATER LEVEL NOT ENCOUNTERED TO DEPTH OF BORING

NOTES: 1) STATIONS AND OFFSETS REFERENCED FROM THE CENTERLINE OF CONSTRUCTION OF SR 429, EXCEPT BORINGS AR-1 AND AR-2 WHICH REFERENCE THE CENTERLINE OF CONSTRUCTION OF ACCESS ROAD 1.

Aug08, 2014-10:50am N:\Projects\2013\H1135080\PROJECT DOCUMENTS (Reports-Letters-Drafts to Clients)\Cad\roadway\ponds exh7.dwg

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

RICHARD G. ACREE, P.E.
P.E. LICENSE NUMBER 53962
1675 LEE ROAD
WINTER PARK, FLORIDA 32789
TERRACON
CERTIFICATE OF AUTHORIZATION No. 8830

DRAWN BY: SW 8-8-14
CHECKED BY: ENJ 8-8-14
DESIGNED BY:
CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORATATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE SEMINOLE	238275-7-32-02

SHEET TITLE: REPORT OF AUGER BORINGS FOR PONDS

PROJECT NAME: WEKIVA PARKWAY (SR 429/SR 46) SECTION 6

REF. DWG. NO.

SHEET NO. -

TERRACON No. H1 13 5080 EXHIBIT: A-7

Soil Survey Descriptions

Lake County

AbB / 1 – Sparr sand, 0 to 5 percent slopes. This soil type is nearly level to gently sloping and somewhat poorly drained. It is typically found on uplands of the Coastal Plain. This soil type has a seasonal high water table at a depth of 18 to 42 inches (1.5 to 3.5 feet). This soil type is predominantly sandy to a depth of 48 inches (4 feet). Thereafter, to the maximum defined depth of 99 inches (8.3 feet), this soil type exists as sandy clay or loam.

Ac / 3 – Anclote fine sand. This soil type is nearly level and very poorly drained. It is typically found in depressions, drainageways, and swamps in the Lower Coastal Plain. In its natural state and during years of normal rainfall, groundwater is at the surface to 2 feet above the surface of this soil type from June through December (apparent water table). This soil type is generally predominantly sandy through the defined profile of 80 inches. The upper 16 inches of Anclote fine sand typically has an organic content of between 2 and 9 percent.

Am / 4 – Anclote and Myakka soils. This soil type is nearly level and very poorly drained. It is typically found in depressions, drainageways, and swamps in the Lower Coastal Plain and on the flatwoods. In its natural state and during years of normal rainfall, groundwater is at the surface to 2 feet above the surface of this soil type from June through December (apparent water table). This soil type is generally predominantly sandy through the defined profile of 80 inches.

AtB / 8 – Candler sand, 0 to 5 percent slopes. This soil type is nearly level to gently sloping and excessively drained. It is typically found on rolling uplands of the central ridge. This soil type has a seasonal high water table at a depth of greater than 120 inches (10 feet). This soil type is predominantly sandy to a typical depth of 95 inches (7.9 feet). Thereafter, to the maximum defined depth of 99 inches (8.3 feet), this soil type exists as silty sand.

Ca / 12 – Cassia sand. This soil type is nearly level and somewhat poorly drained. It is typically found on low ridges and knolls that are slightly higher than nearby flatwoods. This soil type has a seasonal high water table at a depth of 10 to 40 inches (0.8 to 3.3 feet). This soil type is predominantly sandy through the defined profile of 80 inches.

Fm / 17 – Arents. This soil type consists of heterogenous soil that has been excavated, reworked, and reshaped by earth-moving equipment. Arents occur as areas of filled-in sloughs, marshes, shallow depressions, swamps and other low-lying areas, or as final cover for sanitary landfills. In normal rainfall years, the seasonal high water table is typically between depths of 24 and 36 inches (2.0 and 3.0 feet) for 2 to 4 months. During extended dry periods, the water table recedes to below a depth of 5 feet (60 inches). Although the composition somewhat variable, Arents are generally predominantly sandy throughout the defined depth of 60 inches (5.0 feet).

Im / 19 - Bluff and Manatee soils, frequently flooded. This soil type is nearly level and very poorly drained. It is typically found in low areas and is covered with shallow water during much of the rainy season. Organic matter is typically found within the surficial 18 inches (1.5 feet) of this soil type. In its natural state and during years of normal precipitation, this soil type has a seasonal high water table at or above the surface.

Is / 20 – Immokalee sand. This soil type is nearly level and poorly drained. It is typically found in broad areas in the flatwoods and in low areas between sand ridges and lakes, ponds, and sloughs. In its natural state and during years of normal precipitation, this soil type has a seasonal high water table within 10 inches (0.8 feet) of the surface.

Mk / 28 – Myakka sand. This soil map unit consists of areas of poorly drained soils. This soil map unit is typically found on the flatwoods. In its natural state, during years of normal rainfall, the groundwater table is normally between depths of about 6 to 18 inches (0.5 to 1.5 feet) below the ground surface from June through November. This soil type is predominantly sandy throughout the defined profile of 80 inches (6.7 feet).

MpC / 29 – Myakka and Placid sand, 2 to 8 percent slopes. This soil group is nearly level to gently sloping and very poorly drained and poorly drained. It is typically found in low depressional areas. In its natural state and during years of normal precipitation, the water table is at or near the surface most of the year. This soil is predominantly sandy throughout the defined profile of 80 inches (6.7 feet). The upper 20 inches (1.7 feet) of Placid soils have a typical organic content of between 2 and 10 percent. The upper 6 inches of Myakka soils have a typical organic content of between 2 and 7 percent.

Pe / 38 – Placid sand, depressional. This soil type is nearly level and very poorly drained and poorly drained. It is typically found in low depressional areas. In its natural state and during years of normal precipitation, the water table is within 12 inches (1 foot) of the surface most of the year. This soil is predominantly sandy throughout the defined profile of 80 inches (6.7 feet). The upper 20 inches (1.7 feet) have a typical organic content of between 2 and 10 percent.

PmA / 40 Placid and Myakka sands, depressional. This soil group is nearly level and very poorly drained and poorly drained. It is typically found in low depressional areas. In its natural state and during years of normal precipitation, the water table is at or near the surface most of the year. This soil is predominantly sandy throughout the defined profile of 80 inches (6.7 feet). The upper 20 inches (1.7 feet) of Placid soils have a typical organic content of between 2 and 10 percent. The upper 6 inches of Myakka soils have a typical organic content of between 2 and 7 percent.

Pn / 41 – Pomello sand, 0 to 5 percent slopes. This soil type is nearly level to gently sloping and moderately well drained. It is typically found throughout the flatwoods. This soil type has a seasonal high water table at depth of about 45 inches (3.8 feet) during years of normal rainfall.

Po / 42 – Pompano sand. This soil type is nearly level and poorly drained. It is typically found on broad, low flats and in poorly defined drainageways on the flatwoods. During years of normal precipitation, this soil type has a seasonal high water table within 10 inches (0.8 feet) of the surface for 2 to 6 months, and within a depth of 30 inches (2.5 feet) for more than 9 months. This soil type is predominantly sand throughout the defined profile.

Ta / 45 – Tavares sand, 0 to 5 percent slopes. This soil type is nearly level to gently sloping and moderately well drained. In its natural state and during years of normal precipitation, this soil type has a seasonal high water table between depths of 40 and 60 inches (3.3 and 5.0 feet) of the surface for 6 months. This soil is predominantly sandy throughout the defined profile of 80 inches (6.7 feet).

Te / 46 – Orsino sand. This soil type is nearly level to gently sloping and moderately well drained. In its natural state and during years of normal precipitation, this soil type has a seasonal high water table between depths of 24 and 42 inches (2 and 3.5 feet) of the surface for 6 months. This soil is predominantly sandy throughout the defined profile of 80 inches (6.7 feet).

Seminole County

13 – EauGallie and Immokalee fine sands. This soil type is nearly level and poorly drained. It is typically found in broad plains on the flatwoods areas. During years of normal precipitation, this soil type has a seasonal high water table within 12 inches (1.0 foot) of the surface for 1 to 4 months.

28 – Pompano fine sand, occasionally flooded. This soil type is nearly level and poorly drained. It is typically found on the floodplains. During years of normal precipitation, this soil type has a seasonal high water table within 12 inches (1.0 foot) of the surface for 2 to 6 months. This soil type is subject to occasional flooding, typically following heavy rains.

31 – Tavares-Millhopper fine sands, 0 to 5 percent slopes. This soil type is nearly level to gently sloping and moderately well drained. It is typically found on low ridges and knolls on the uplands. In its natural state and during years of normal rainfall, the soils in this map unit have a seasonal high water table at a depth of between 36 and 60 inches (3.0 and 5.0 feet) for 2 to 6 months. The seasonal high water table is apparent in Tavares soil but perched in Millhopper soil.

Field Exploration Description

The boring locations were laid out at the project site by Terracon personnel. The locations indicated on the attached diagram are approximate and were measured by pacing distances and estimating right angles, across vegetated/wooded terrain. The locations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

The auger soil borings were drilled with either a track or ATV-mounted, rotary drilling rig. Portions of the samples from the borings were sealed in glass jars to reduce moisture loss, and then the jars were taken to our laboratory for further observation and classification. Upon completion, the boreholes were backfilled with the site soil.

Field logs of each boring were prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. The boring logs included with this report represent an interpretation of the field logs and include modifications based on laboratory observation of the samples.

The piezometers were installed using a hollow-stem auger drilling rig. This consisted of installing 2-inch inner diameter polyvinyl chloride (PVC) well pipe with a 10-foot section of 0.006-inch slotted screen, and solid PVC casing riser extending to stick up above ground surface. Native soils were placed in the remaining annulus space to the ground surface. A transducer was placed in the well pipe to record the water level in the piezometer on a daily basis.

TABLE 1
SUMMARY OF SOIL SURVEY SOIL UNIT TYPES AND
NORMAL SEASONAL HIGH GROUNDWATER DEPTHS - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

Pond Name	Mapped Soil Unit Symbol(s)	Range of Normal Seasonal High Groundwater Depths (based on soil unit types)	Range of Normal Seasonal High Groundwater Depths (based on soil borings)	Average Estimated Seasonal High Groundwater Elevation (based on soil borings and piezometers)
RS7-E-1A	Ca, Po, Ta	0.5 to 5 feet	5 to 8 feet	+56 feet
SMA RS7-E-4	Ta	3.5 to 5 feet	6 to 8 feet	+54.7 feet
RS7-E-2A	Ca, Po, Ta	0.5 to 5 feet	5 to 9 feet	+52.7 feet
RS8-E-1	Am, Is, MpC, Pn	+0.0 to 4 feet	0 to 6.5 feet	+38.7 feet
RS9-E-1	AtB, Ta	3.5 to 10+ feet	7 to 12 feet	+48.7 feet
BW1A-E-6	AbB, Ta	1.5 to 5 feet	5 to 8 feet	+46 feet
BW1-E-2	AtB, PmA, Ta	3.5 to 10+ feet	10 to 13 feet	+45 feet
BW1-E-3	Ca, Ta	1 to 5 feet	1.5 to 6 feet	+42.5 feet
BW1-E-4	Mk, MpC	0 to 1.5 feet	1.5 feet	+40.4 feet
BW2-E-5A	Is, MpC, Pe	0 to 1 feet	0.0 feet	+30 feet
BW2-E-1	Is, Mk	0 to 1.5 feet	0 to 1 feet	+36 feet
BW2-E-2	Ca, Mk	0.5 to 1.5 feet	1 to 4 feet	+41 feet*
WR1-E-6	Ca, Te	1 to 3.5 feet	5.5 to 6 feet	+41.8 feet
WR1-E-1	Is	within 1 foot	2 to 3 feet	+38 feet
WR1-E-5A	Mk, Pn	0.5 to 4 feet	3.5 to 5 feet	+35 feet
WR1-E-7	Pn	3.5 to 4 feet	1 to 5 feet	+34.5 feet
WR2A-S-2	13, 28, 31	within 1 foot to 5 feet	1 to 3.5 feet	+20.5 feet

Note: Soil unit symbols are per Lake County soil survey except Pond WR2A-S-2 which is per Seminole County.

** For design, and based anticipated pond bottom, +39 feet can be considered.*

TABLE 2
LABORATORY TESTING RESULTS - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

Stratum Number	Boring Number	Station	Offset (feet)	Approximate Sample Depth (feet)	Passing Sieve Number (%)					Moisture Content (%)	Organic Content (%)	Atterberg Limits		AASHTO Soil Classification
					10	40	60	100	200			LL	PI	
	PB-1	652+43	255 RT	10.0	100	98	87	36	6	15	-	-	-	A-3
	RS7-1	653+00	330 RT	10.0	-	-	-	-	1	6	-	-	-	A-3
	PB-2	654+10	300 RT	15.5	100	98	89	37	5	25	-	-	-	A-3
	PB-3	656+53	310 RT	2.0	100	98	87	32	4	4	-	-	-	A-3
	PB-3	656+53	310 RT	8.0	100	98	90	37	5	11	-	-	-	A-3
	PB-4	658+75	217 RT	5.0	100	98	90	39	7	10	-	-	-	A-3
	PB-5	652+68	510 RT	7.0	100	98	89	37	5	5	-	-	-	A-3
	PB-5	652+68	510 RT	15.0	100	98	90	36	4	21	-	-	-	A-3
	PB-6	655+30	474 RT	3.0	100	97	87	31	2	4	-	-	-	A-3
	PB-6	655+30	474 RT	10.0	100	98	90	40	8	19	-	-	-	A-3
	PB-7	657+93	509 RT	7.0	100	98	89	37	6	6	-	-	-	A-3
	PB-8	653+89	683 RT	7.0	100	99	91	42	8	9	-	-	-	A-3
	PB-9	657+25	705 RT	6.0	100	98	89	33	4	4	-	-	-	A-3
	PB-10	655+13	815 RT	2.0	100	98	89	37	7	7	-	-	-	A-3
	RS7-2	659+00	450 RT	6.0	-	-	-	-	4	4	-	-	-	A-3
1	WL1-HA2	679+00	CL	4.0	-	-	-	-	5	3	-	-	-	A-3
	PB-15	679+18	589 LT	5.0	100	98	89	42	10	7	-	-	-	A-3
	AP-1	681+10	570 LT	7.0	-	-	-	-	5	6	-	-	-	A-3
	AP-2	681+70	310 LT	1.5	-	-	-	-	7	7	-	-	-	A-3
	AP-2	681+70	310 LT	4.0	100	98	87	36	7	6	-	-	-	A-3
	PB-17	734+60	1580 LT	9.0	100	97	82	31	3	4	-	-	-	A-3
	BW1-1	735+40	1715 LT	5.5	-	-	-	-	3	3	-	-	-	A-3
	PB-19	737+10	1590 LT	7.0	100	97	86	37	5	4	-	-	-	A-3
	TPB-2	770+70	255 RT	4.0	99	95	78	28	8	4	-	-	-	A-3
	TPB-4	781+45	400 RT	2.5	100	95	78	26	6	3	-	-	-	A-3
	TPB-4	781+45	400 RT	6.0	100	95	79	30	8	4	-	-	-	A-3
	TPB-5	786+50	200 RT	2.5	100	95	77	28	8	5	-	-	-	A-3
	TPB-7	791+60	160 RT	3.5	100	96	78	28	8	17	-	-	-	A-3
	TPB-7	791+60	160 RT	11.0	100	89	66	19	5	27	-	-	-	A-3
	PB-20	839+75	295 LT	4.0	100	94	73	24	6	21	-	-	-	A-3
	PB-20	839+75	295 LT	5.0	100	95	76	29	10	21	-	-	-	A-3

TABLE 2
LABORATORY TESTING RESULTS - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

Stratum Number	Boring Number	Station	Offset (feet)	Approximate Sample Depth (feet)	Passing Sieve Number (%)					Moisture Content (%)	Organic Content (%)	Atterberg Limits		AASHTO Soil Classification
					10	40	60	100	200			LL	PI	
1	PB-21	842+62	318 LT	4.0	100	94	75	28	9	20	-	-	-	A-3
	PB-22	840+20	545 LT	3.0	100	94	76	27	9	19	-	-	-	A-3
	PB-24	837+95	750 LT	0.5	100	94	76	28	10	17	-	-	-	A-3
	PB-25	840+45	660' LT	3.0	100	94	75	25	5	24	-	-	-	A-3
	PB-27	840+60	750' LT	2.0	100	94	75	28	7	16	-	-	-	A-3
	PB-28	839+75	950 LT	2.0	100	95	76	23	5	17	-	-	-	A-3
	PB-28	839+75	950 LT	5.0	100	95	77	28	10	20	-	-	-	A-3
	PB-29	842+80	895 LT	0.5	100	95	74	25	5	17	-	-	-	A-3
	PB-29	842+80	895 LT	2.0	100	94	75	26	6	25	-	-	-	A-3
	AP-3	840+90	350 LT	4.5	100	94	73	24	6	23	-	-	-	A-3
	TPB-11	881+05	255 LT	3.0	99	94	73	23	7	6	-	-	-	A-3
	AP-4	886+00	430 LT	4.0	-	-	-	-	6	7	-	-	-	A-3
	AP-6	892+70	480 LT	2.0	-	-	-	-	9	10	-	-	-	A-3
	PB-32	903+00	308 RT	2.5	100	95	79	26	8	5	-	-	-	A-3
	AP-7	904+87	267 LT	4.0	-	-	-	-	5	5	-	-	-	A-3
	AP-8	906+45	393 LT	1.0	-	-	-	-	4	4	-	-	-	A-3
	WR1-2	907+00	325 RT	3.0	-	-	-	-	6	2	-	-	-	A-3
	PP-1	926+60	40 LT	3.0	100	93	66	21	5	10	-	-	-	A-3
	PB-36	927+67	55 LT	2.0	100	99	87	23	3	5	-	-	-	A-3
	PB-36	927+67	55 LT	15.0	100	99	94	53	8	27	-	-	-	A-3
	PB-37	928+14	78 RT	2.0	100	98	88	25	6	22	-	-	-	A-3
	PB-37	928+14	78 RT	10.0	100	98	86	23	8	21	-	-	-	A-3
	PP-4	928+45	75 RT	4.0	100	98	86	25	3	6	-	-	-	A-3
	AR-1*	1015+15	235 RT	2.0	-	-	-	-	6	4	-	-	-	A-3
2	PB-4	658+75	217 RT	13.0	100	99	94	59	21	18	-	NP	NP	A-2-4
	PB-9	657+25	705 RT	11.0	100	99	94	56	21	11	-	NP	NP	A-2-4
	PB-15	679+18	589 LT	10.0	100	99	90	50	20	18	-	NP	NP	A-2-4
	PZ-4	680+64	497 LT	7.0	100	99	91	52	20	11	-	-	-	A-2-4
	PZ-4	680+64	497 LT	10.0	100	98	86	44	20	18	-	NP	NP	A-2-4
	AP-1	681+10	570 LT	9.5	100	98	91	47	16	12	-	-	-	A-2-4

TABLE 2
LABORATORY TESTING RESULTS - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

Stratum Number	Boring Number	Station	Offset (feet)	Approximate Sample Depth (feet)	Passing Sieve Number (%)					Moisture Content (%)	Organic Content (%)	Atterberg Limits		AASHTO Soil Classification
					10	40	60	100	200			LL	PI	
2	PB-16	682+69	234 LT	5.5	100	98	89	42	11	8	-	-	-	A-2-4
	PB-16	682+69	234 LT	12.0	100	99	91	46	12	19	-	-	-	A-2-4
	PB-11	710+16	429 LT	0.5	100	97	83	38	13	23	-	-	-	A-2-4
	PB-11	710+16	429 LT	6.5	100	98	87	43	16	21	-	-	-	A-2-4
	PB-11	710+16	429 LT	14.0	100	98	87	46	25	18	-	NP	NP	A-2-4
	PB-12	715+90	404 LT	7.5	100	97	84	42	16	13	-	NP	NP	A-2-4
	PZ-3	736+58	483 LT	6.5	100	98	87	46	16	9	-	-	-	A-2-4
	PB-14	738+51	382 LT	6.5	100	98	88	49	22	13	-	-	-	A-2-4
	PB-13	739+26	690 LT	4.5	100	98	86	48	19	12	-	NP	NP	A-2-4
	PB-17	734+60	1580 LT	18.5	100	98	88	45	16	17	-	-	-	A-2-4
	PB-18	734+55	1685 LT	18.0	100	98	76	20	11	16	-	-	-	A-2-4
	PZ-5	736+20	1640 LT	8.5	100	99	91	56	27	10	-	-	-	A-2-4
	PB-19	737+70	1590 LT	13.0	100	99	91	50	20	16	-	NP	NP	A-2-4
	TPB-1	768+40	180 RT	9.5	100	97	82	38	19	18	-	-	-	A-2-4
	TPB-1	768+40	180 RT	11.5	100	98	86	44	25	15	-	27	8	A-2-4
	TPB-2	770+70	255 RT	11.5	100	96	82	40	24	11	-	-	-	A-2-4
	TPB-3	776+50	300 RT	6.5	100	96	78	28	11	8	-	-	-	A-2-4
	TPB-3	776+50	300 RT	10.5	100	96	77	31	17	19	-	-	-	A-2-4
	TPB-3	776+50	300 RT	13.5	100	97	80	34	22	19	-	23	5	A-2-4
	TPB-4	781+45	400 RT	10.5	100	94	74	41	12	20	-	-	-	A-2-4
	TPB-5	786+50	200 RT	11.5	100	97	81	32	17	22	-	-	-	A-2-4
	TPB-5	786+50	200 RT	13.0	100	98	82	35	21	21	-	25	6	A-2-4
	TPB-6	788+20	245 RT	6.5	100	95	78	31	11	17	-	-	-	A-2-4
	TPB-6	788+20	245 RT	12.5	100	96	79	29	13	25	-	-	-	A-2-4
	TPB-7	791+60	160 RT	15.5	100	96	81	40	18	21	-	NP	NP	A-2-4
	PB-20	839+75	295 LT	15.0	100	94	74	35	21	17	-	-	-	A-2-4
	PB-20	839+75	295 LT	18.0	100	94	72	29	15	20	-	NP	NP	A-2-4
	PB-22	840+20	545 LT	15.0	100	95	75	32	18	19	-	NP	NP	A-2-4
	PB-23	842+67	505 LT	5.5	100	95	77	27	11	20	-	-	-	A-2-4
	PB-23	842+67	505 LT	11.0	100	96	78	36	21	19	-	23	6	A-2-4

TABLE 2
LABORATORY TESTING RESULTS - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

Stratum Number	Boring Number	Station	Offset (feet)	Approximate Sample Depth (feet)	Passing Sieve Number (%)					Moisture Content (%)	Organic Content (%)	Atterberg Limits		AASHTO Soil Classification
					10	40	60	100	200			LL	PI	
2	PB-24	837+95	750 LT	9.0	100	96	80	33	15	21	-	-	-	A-2-4
	PB-25	840+45	660' LT	15.0	100	94	75	27	11	24	-	-	-	A-2-4
	PB-25	840+45	660' LT	19.0	100	93	74	34	18	20	-	NP	NP	A-2-4
	PB-27	840+60	750' LT	16.0	100	92	73	32	18	19	-	NP	NP	A-2-4
	PB-26	842+75	695' LT	5.0	100	95	78	30	12	23	-	-	-	A-2-4
	PB-26	842+75	695' LT	13.0	100	94	76	34	19	19	-	NP	NP	A-2-4
	PB-28	839+75	950 LT	15.5	100	94	73	28	13	25	-	-	-	A-2-4
	PB-28	839+75	950 LT	19.5	100	93	73	35	20	20	-	26	9	A-2-4
	PB-29	842+80	895 LT	10.0	100	95	78	32	14	20	-	-	-	A-2-4
	TPB-8	850+85	190 LT	4.5	100	96	80	36	21	25	-	-	-	A-2-4
	TPB-8	850+85	190 LT	11.0	100	97	80	38	21	20	-	29	8	A-2-4
	TPB-9	859+26	277 LT	8.5	100	96	79	39	22	19	-	-	-	A-2-4
	TPB-10	867+10	182 LT	2.5	100	96	77	30	14	17	-	-	-	A-2-4
	TPB-10	867+10	182 LT	6.5	100	97	82	40	22	18	-	29	9	A-2-4
	TPB-11	881+05	255 LT	7.5	100	96	80	36	19	20	-	26	7	A-2-4
	AP-5	890+95	280 LT	6.5	100	88	68	31	20	17	-	25	6	A-2-4
	AP-6	892+70	480 LT	8.0	100	96	80	37	20	13	-	28	6	A-2-4
	PB-30	890+90	700 RT	9.0	100	95	79	33	16	20	-	NP	NP	A-2-4
	PZ-12	896+45	635 RT	3.5	100	96	82	43	26	19	-	-	-	A-2-4
	PB-31	898+15	780 RT	3.5	100	96	83	46	28	14	-	-	-	A-2-4
	PB-31	898+15	780 RT	14.0	100	97	86	41	21	19	-	-	-	A-2-4
	PB-32	903+00	308 RT	0.5	100	98	91	49	20	23	-	-	-	A-2-4
	PB-32	903+00	308 RT	7.5	100	91	61	20	15	21	-	-	-	A-2-4
	AP-7	904+87	267 LT	9.5	100	95	78	26	12	10	-	-	-	A-2-4
	AP-8	906+45	393 LT	6.5	100	95	80	36	22	12	-	NP	NP	A-2-4
	PZ-13	906+30	280 RT	5.0	100	96	81	34	16	9	-	-	-	A-2-4
	PB-33	908+34	285 RT	4.5	100	97	83	38	25	14	-	23	10	A-2-4
	PB-34	905+65	275 LT	3.0	100	96	80	31	12	12	-	-	-	A-2-4
	PZ-14	907+00	338 LT	9.0	100	74	51	30	23	18	-	36	4	A-2-4
	PB-35	908+25	380 LT	8.5	100	76	45	21	14	20	-	-	-	A-2-4

TABLE 2
LABORATORY TESTING RESULTS - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

Stratum Number	Boring Number	Station	Offset (feet)	Approximate Sample Depth (feet)	Passing Sieve Number (%)					Moisture Content (%)	Organic Content (%)	Atterberg Limits		AASHTO Soil Classification
					10	40	60	100	200			LL	PI	
3	PB-14	738+51	382 LT	9.0	100	98	88	51	22	16	-	32	14	A-2-6
	PB-14	738+51	382 LT	15.0	100	99	90	55	31	15	-	47	34	A-2-7
	PB-18	734+55	1685 LT	5.5	100	99	92	56	28	15	-	31	15	A-2-6
	PB-21	842+62	318 LT	8.5	100	95	75	35	22	19	-	26	11	A-2-6
	PB-29	842+80	895 LT	15.5	100	93	75	33	17	19	-	25	11	A-2-6
	PZ-12	896+45	635 RT	11.5	100	97	86	43	24	17	-	28	12	A-2-6
	PB-32	903+00	308 RT	4.5	100	96	83	42	25	19	-	37	17	A-2-6
	AP-9	907+78	355 LT	5.5	100	97	85	36	22	15	-	30	11	A-2-6
	PB-33	908+34	285 RT	12.5	100	92	75	53	27	16	-	33	17	A-2-6
4	TPB-9	859+26	277 LT	4.0	100	96	79	39	21	18	-	27	8	A-2-4
5	PB-28	839+75	950' LT	16.5	100	95	79	42	26	68	20	-	-	A-8
6	PB-33	908+34	285 RT	17.0	100	100	96	84	45	50	-	37	14	A-6
7	PB-27	840+60	750' LT	13.5	100	97	85	57	34	36	6	-	-	A-2-4
	PB-27	840+60	750' LT	14.5	100	92	73	34	20	20	2	-	-	A-2-4
8	PB-12	715+90	404 LT	14.5	100	99	91	61	43	17	-	47	34	A-7-6
	PZ-3	736+58	483 LT	16.5	100	99	91	59	37	15	-	44	30	A-7-6
	PB-13	739+26	690 LT	13.5	100	99	92	64	41	18	-	48	34	A-7-6
	PZ-5	736+20	1640 LT	19.5	100	99	93	77	58	24	-	-	-	A-7-6
	PB-30	890+90	700 RT	18.0	100	100	97	91	63	33	-	54	38	A-7-6
	PZ-13	906+30	280 RT	19.5	100	97	91	84	42	50	-	50	35	A-7-6

NP = Non-Plastic

* Referencing centerline of Access Road 1

TABLE 3
SUMMARY OF PERMEABILITY TESTING - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

Pond Name	Station & Offset	Boring Number	Test Depth (feet)	Stratum Number	Measured Vertical Permeability (feet/day)	Estimated Horizontal Permeability (feet/day)
RS7-E-1A	653+00; 330' RT	RS7-1	10.0	1	15	15
RS7-E-1A	659+00; 450' RT	RS7-2	6.0	1	13	13
SMA RS7-E-4	679+00; Centerline	WL1-HA2	4.0	1	20	20
RS7-E-2A	681+10; 570' LT	AP-1	7.0	1	17	17
RS7-E-2A	681+70; 310' LT	AP-2	1.5	1	24	24
BW1A-E-6	735+40; 1715' LT	BW1-1	5.5	1	14	14
BW1-E-2	768+40; 180' RT	TPB-1	9.5	2	< 1	< 1
BW1-E-2	770+70; 255' RT	TPB-2	4.0	1	24	24
BW1-E-3	776+50; 300' RT	TPB-3	6.5	2	29	29
BW1-E-3	781+45; 400' RT	TPB-4	6.0	1	6	6
BW1-E-3	786+50; 200' RT	TPB-5	2.5	1	15	15
BW1-E-4	788+20; 245' RT	TPB-6	6.5	2	< 1	< 1
BW1-E-4	791+60; 160' RT	TPB-7	3.5	1	12	12
WR1-E-6	886+00; 430' LT	AP-4	4.0	1	20	20
WR1-E-6	892+70; 480' LT	AP-6	2.0	1	20	20
WR1-E-5A	907+00; 325' RT	WR1-2	3.0	1	13	13
WR1-E-7	804+87; 267' LT	AP-7	4.0	1	16	16
WR1-E-7	906+45; 393' LT	AP-8	1.0	1	26	26
WR2A-S-2	926+60; 40' LT	PP-1	3.0	1	30	30
WR2A-S-2	928+45; 75' RT	PP-4	4.0	1	24	24
Access Road 1 swale	1015+15; 235' RT*	AR-1	2.0	1	9	9

* Referencing centerline of Access Road 1

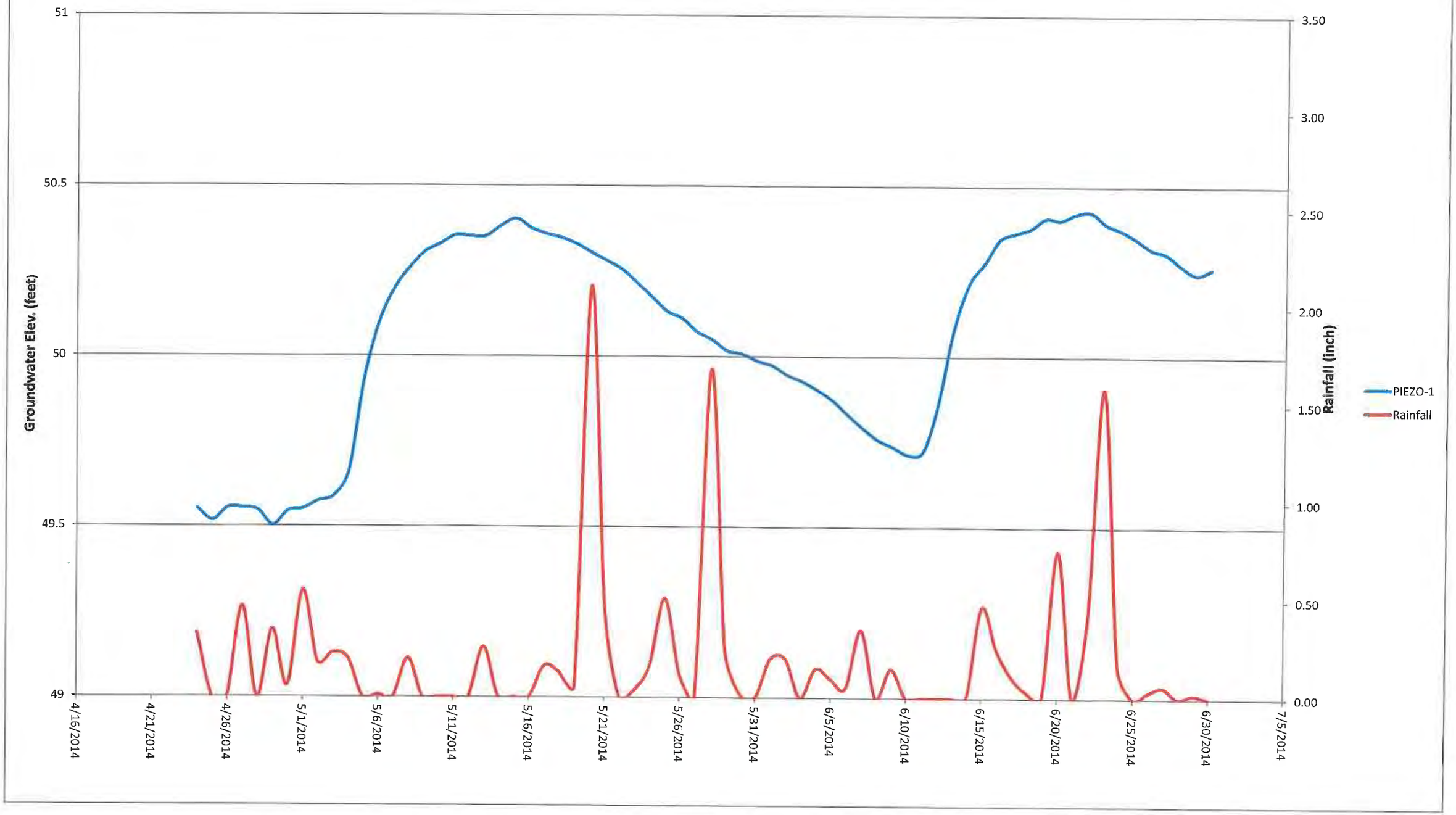
TABLE 4
CORROSION SERIES TESTING RESULTS - POND AREAS
WEKIVA PARKWAY (STATE ROAD 429/STATE ROAD 46) - SECTION 6
LAKE AND SEMINOLE COUNTIES, FLORIDA
FPID: 238275-7-32-02
TERRACON PROJECT NO. H1135080

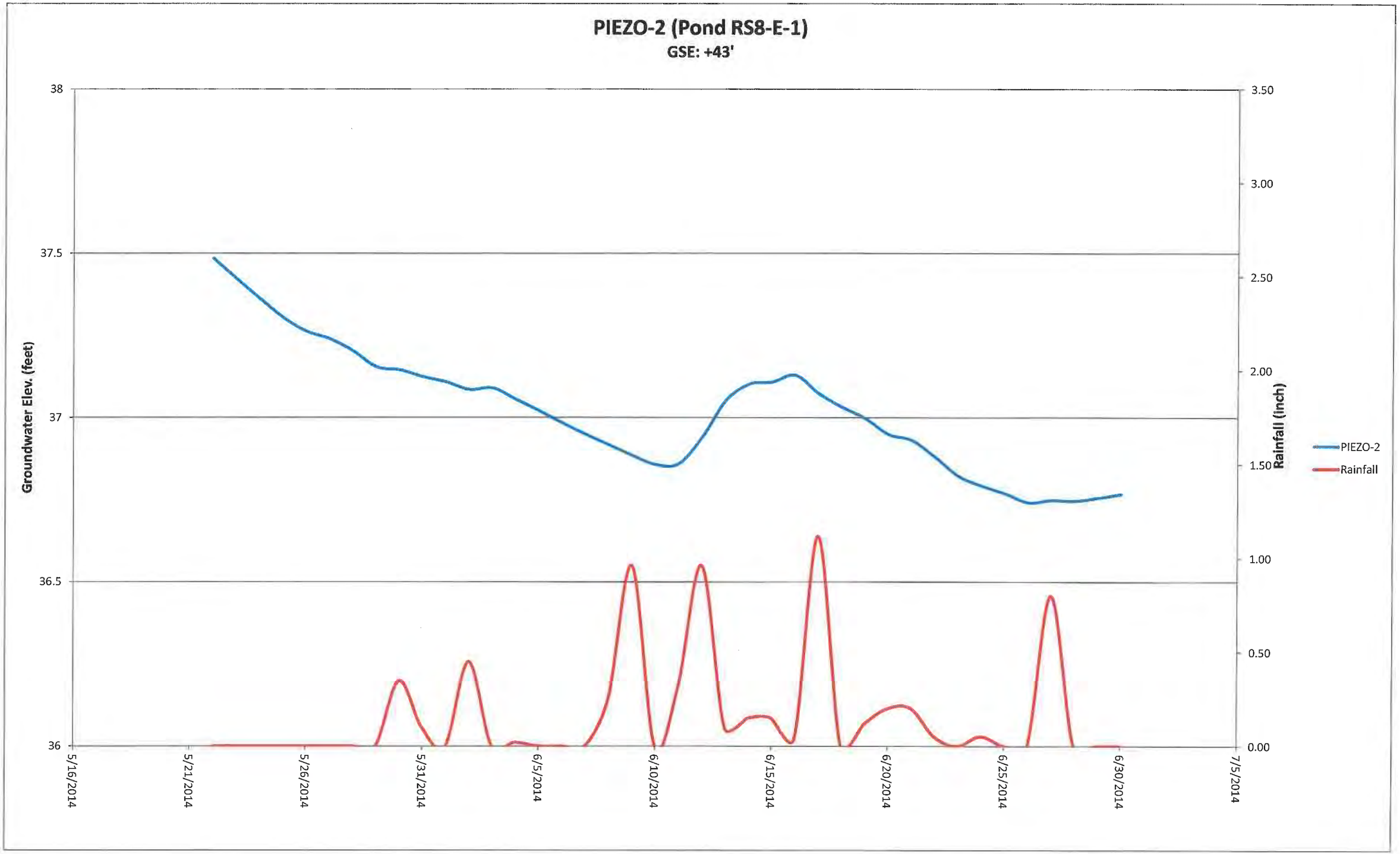
Boring Number	Station & Offset	Sample Depth (feet)	pH	Minimum Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	Substructural Environmental Classification	
							Concrete	Steel
PB-4	658+75; 217' RT	2.0	5.0	81,000	60	24.9	Moderately Aggressive	Extremely Aggressive
PB-7	657+93; 509' RT	4.0	6.8	150,000	60	33.6	Slightly Aggressive	Moderately Aggressive
PB-10	655+13; 815' RT	7.5	5.0	16,000	60	45.3	Moderately Aggressive	Extremely Aggressive
PB-12	715+90; 404' LT	1.5	6.8	15,000	60	< 5	Slightly Aggressive	Moderately Aggressive
PB-13	739+26; 690' LT	6.0	4.7	35,000	60	43.5	Extremely Aggressive	Extremely Aggressive
PB-14	738+51; 382' LT	2.0	6.4	25,000	60	< 5	Slightly Aggressive	Moderately Aggressive
PB-15	679+18; 589' LT	2.0	5.1	71,000	60	174.6	Moderately Aggressive	Extremely Aggressive
PB-16	682+69; 234' LT	7.0	5.1	79,000	60	< 5	Moderately Aggressive	Extremely Aggressive
PB-18	734+55; 1685' LT	7.0	4.8	45,000	60	47.4	Extremely Aggressive	Extremely Aggressive
PB-19	737+70; 1590' LT	3.0	4.9	40,000	60	9.9	Extremely Aggressive	Extremely Aggressive
TPB-1	768+40; 180' RT	6.0	5.2	9,900	60	72.3	Moderately Aggressive	Extremely Aggressive
TPB-5	786+50; 200' RT	0.5	4.7	34,000	60	< 5	Extremely Aggressive	Extremely Aggressive
TPB-7	791+60; 160' RT	0.5	4.1	27,000	60	75.6	Extremely Aggressive	Extremely Aggressive
PB-22	840+20; 545' LT	2.0	4.4	17,000	60	14.7	Extremely Aggressive	Extremely Aggressive
PB-25/PZ-11	840+45; 660' LT	0.5	4.2	10,000	60	1107	Extremely Aggressive	Extremely Aggressive
PB-27	840+60; 750' LT	0.5	3.8	1,700	60	< 5	Extremely Aggressive	Extremely Aggressive
TPB-8	850+85; 190' LT	0.5	5.5	15,000	60	49.5	Moderately Aggressive	Extremely Aggressive
TPB-11	881+05; 255' LT	0.5	8.0	15,000	60	< 5	Slightly Aggressive	Slightly Aggressive
PB-31	898+15; 780' RT	5.0	5.1	14,000	60	63	Moderately Aggressive	Extremely Aggressive
PB-33	908+34; 285' RT	1.5	5.7	39,000	60	60.0	Moderately Aggressive	Extremely Aggressive
PZ-13	906+30; 280' RT	6.5	4.6	35,000	60	< 5	Extremely Aggressive	Extremely Aggressive
PB-34	905+65; 275' LT	4.0	5.2	50,000	60	41.4	Moderately Aggressive	Extremely Aggressive
PB-36/PZ-15	927+67; 55' LT	5.5	7.1	4,700	60	63.0	Slightly Aggressive	Moderately Aggressive
PB-37	928+14; 78' RT	0.5	7.4	3,600	60	< 5	Slightly Aggressive	Moderately Aggressive

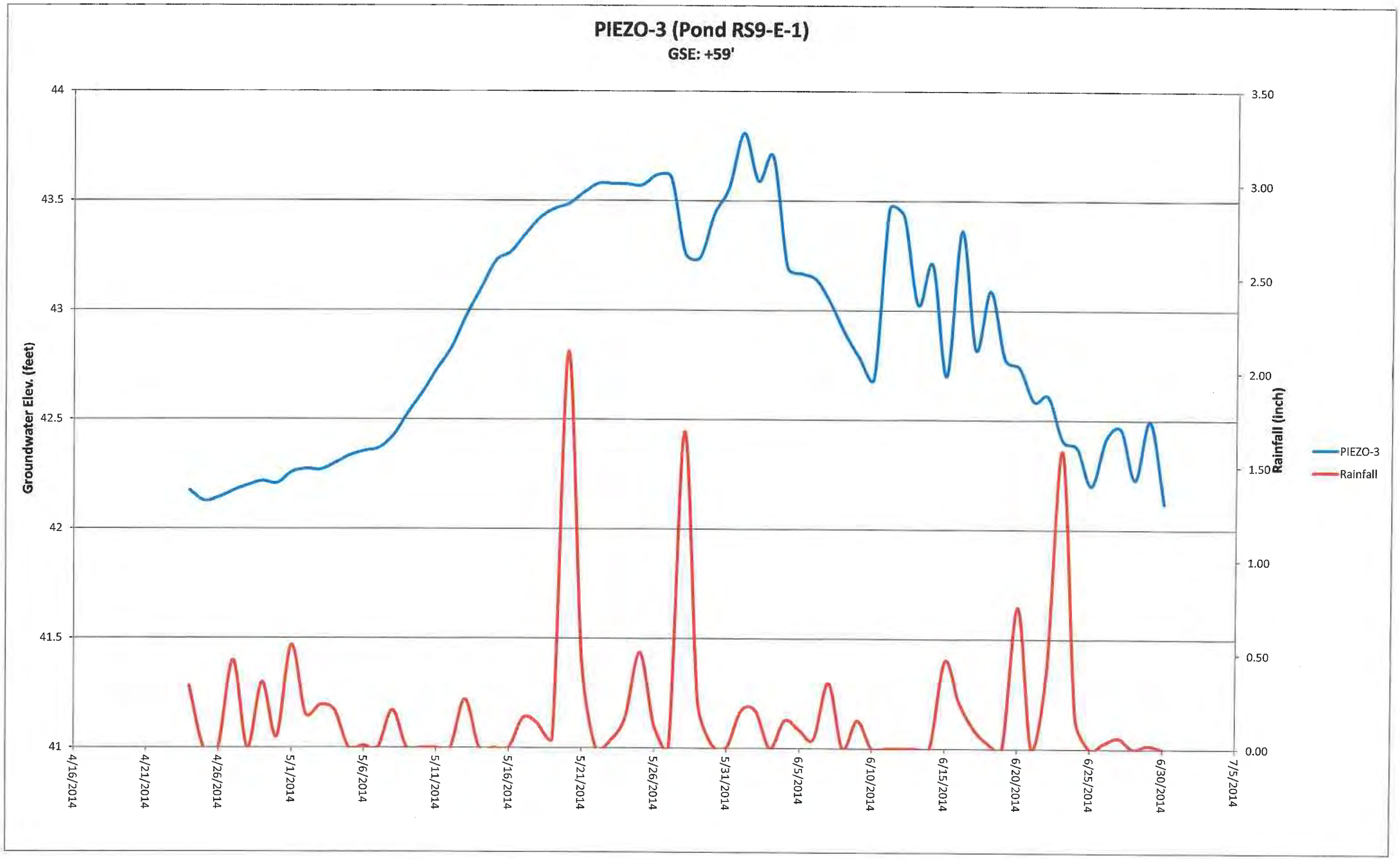
APPENDIX B
PIEZOMETER DATA

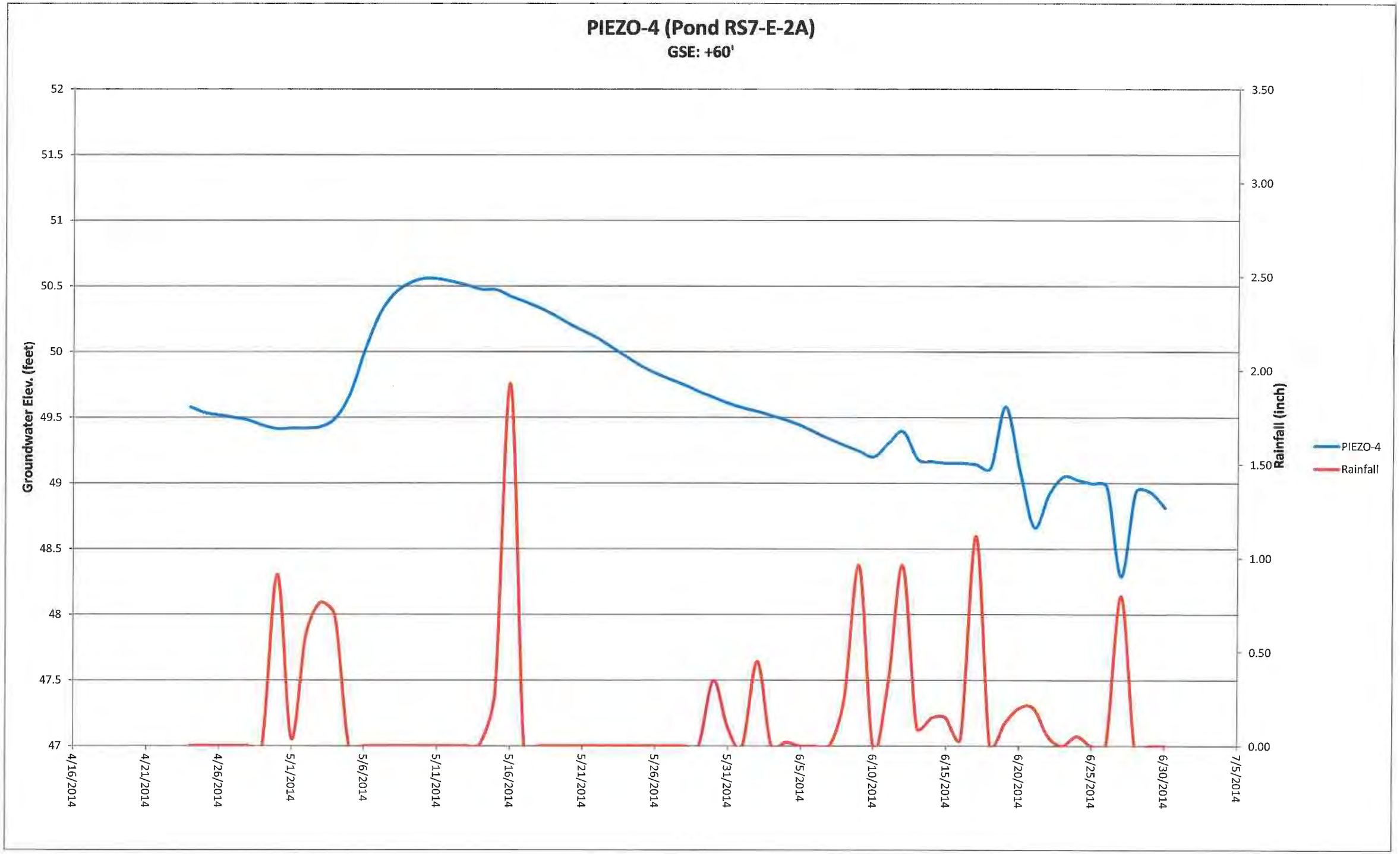
PIEZO-1 (Pond RS7-E-1A)

GSE: +60'



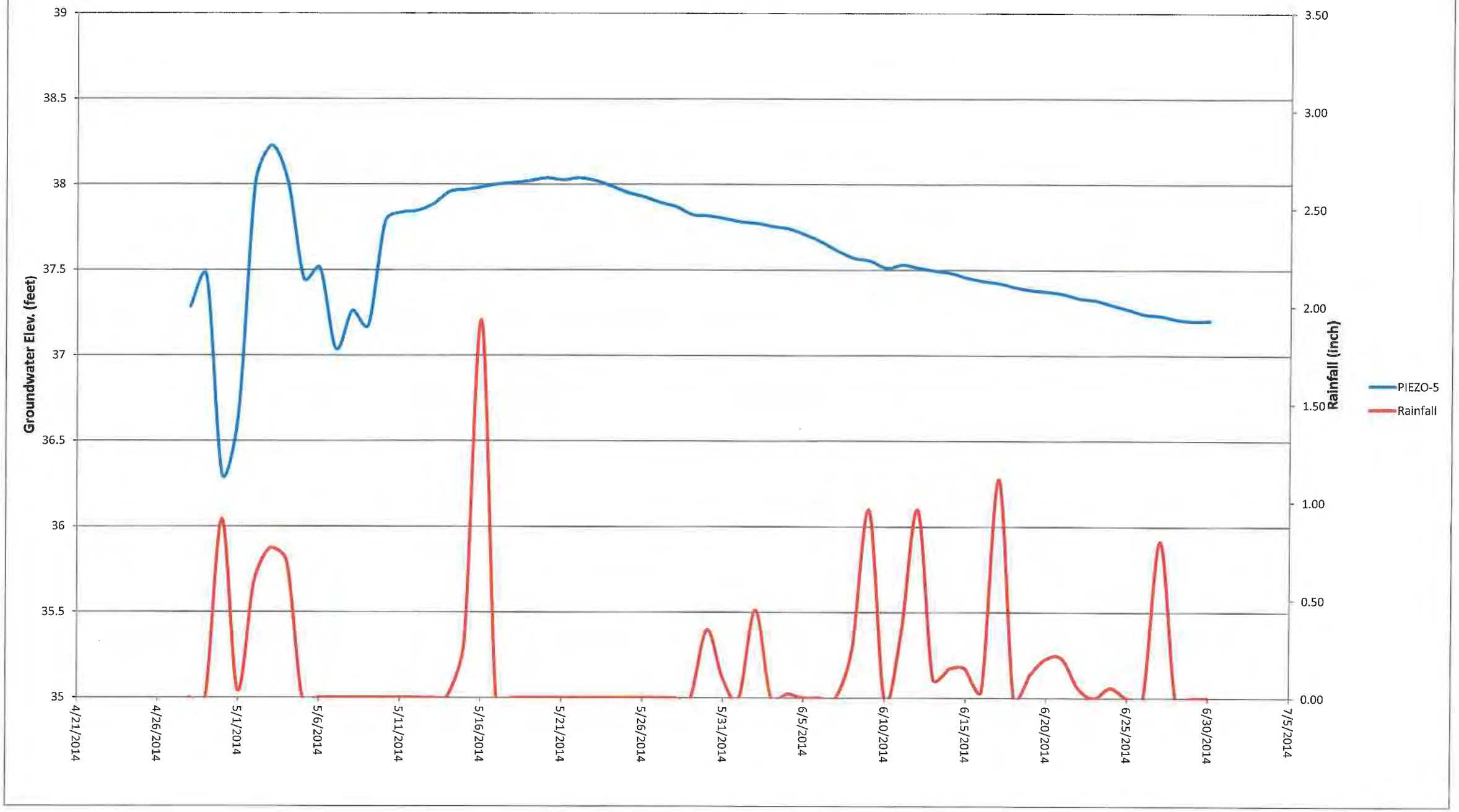

PIEZO-2 (Pond RS8-E-1)
GSE: +43'
Groundwater Elev. (feet)
Rainfall (inch)
38
37.5
37
36.5
36
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
5/16/2014
5/21/2014
5/26/2014
5/31/2014
6/5/2014
6/10/2014
6/15/2014
6/20/2014
6/25/2014
6/30/2014
7/5/2014
PIEZO-2
Rainfall

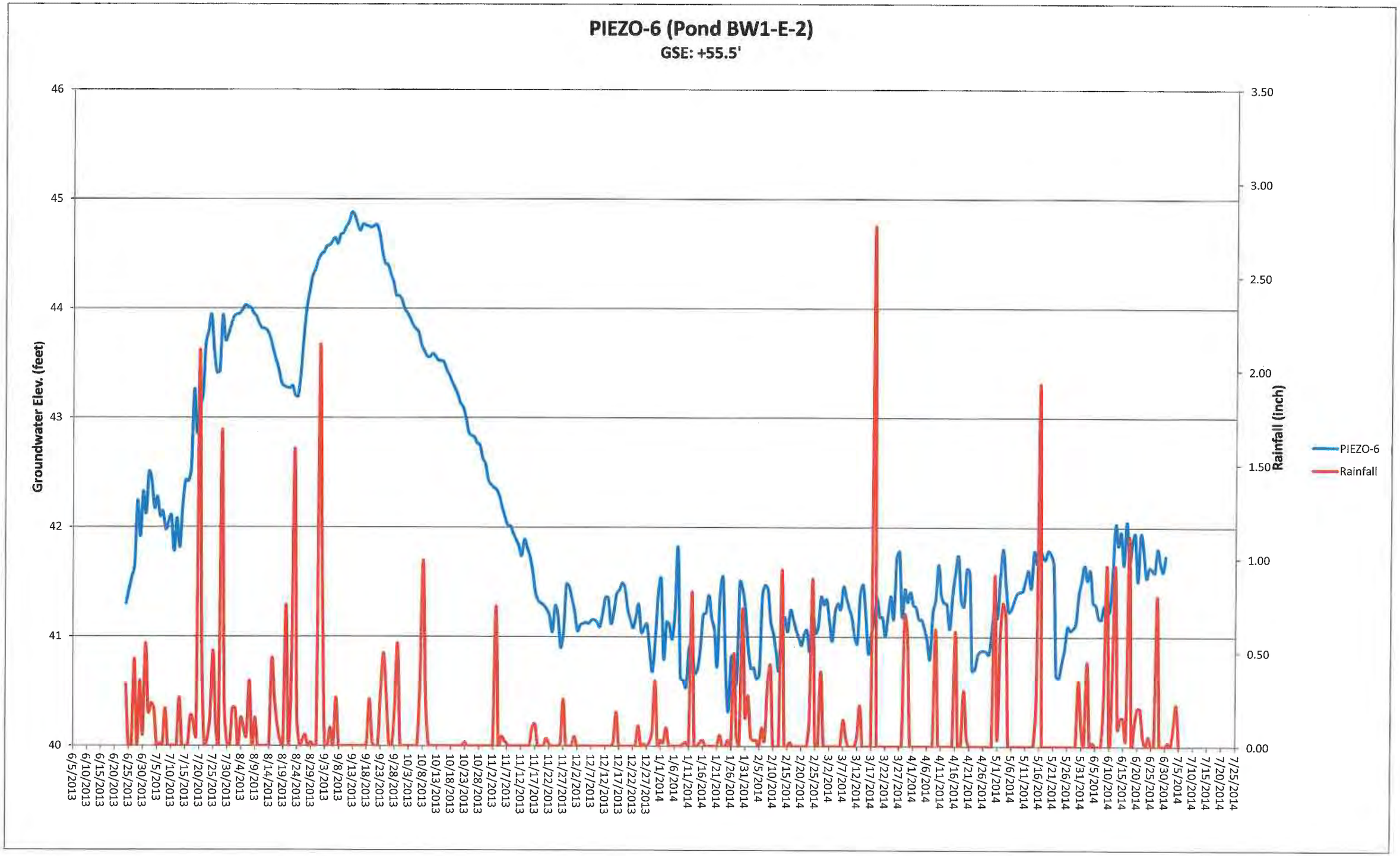

PIEZO-3 (Pond RS9-E-1)
GSE: +59'
Groundwater Elev. (feet)
Rainfall (inch)
44
43.5
43
42.5
42
41.5
41
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
PIEZO-3
Rainfall
4/16/2014
4/21/2014
4/26/2014
5/1/2014
5/6/2014
5/11/2014
5/16/2014
5/21/2014
5/26/2014
5/31/2014
6/5/2014
6/10/2014
6/15/2014
6/20/2014
6/25/2014
6/30/2014
7/5/2014


PIEZO-4 (Pond RS7-E-2A)
GSE: +60'
Groundwater Elev. (feet)
Rainfall (inch)
52
51.5
51
50.5
50
49.5
49
48.5
48
47.5
47
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
4/16/2014
4/21/2014
4/26/2014
5/1/2014
5/6/2014
5/11/2014
5/16/2014
5/21/2014
5/26/2014
5/31/2014
6/5/2014
6/10/2014
6/15/2014
6/20/2014
6/25/2014
6/30/2014
7/5/2014
PIEZO-4
Rainfall

PIEZO-5 (Pond BW1A-E-6)

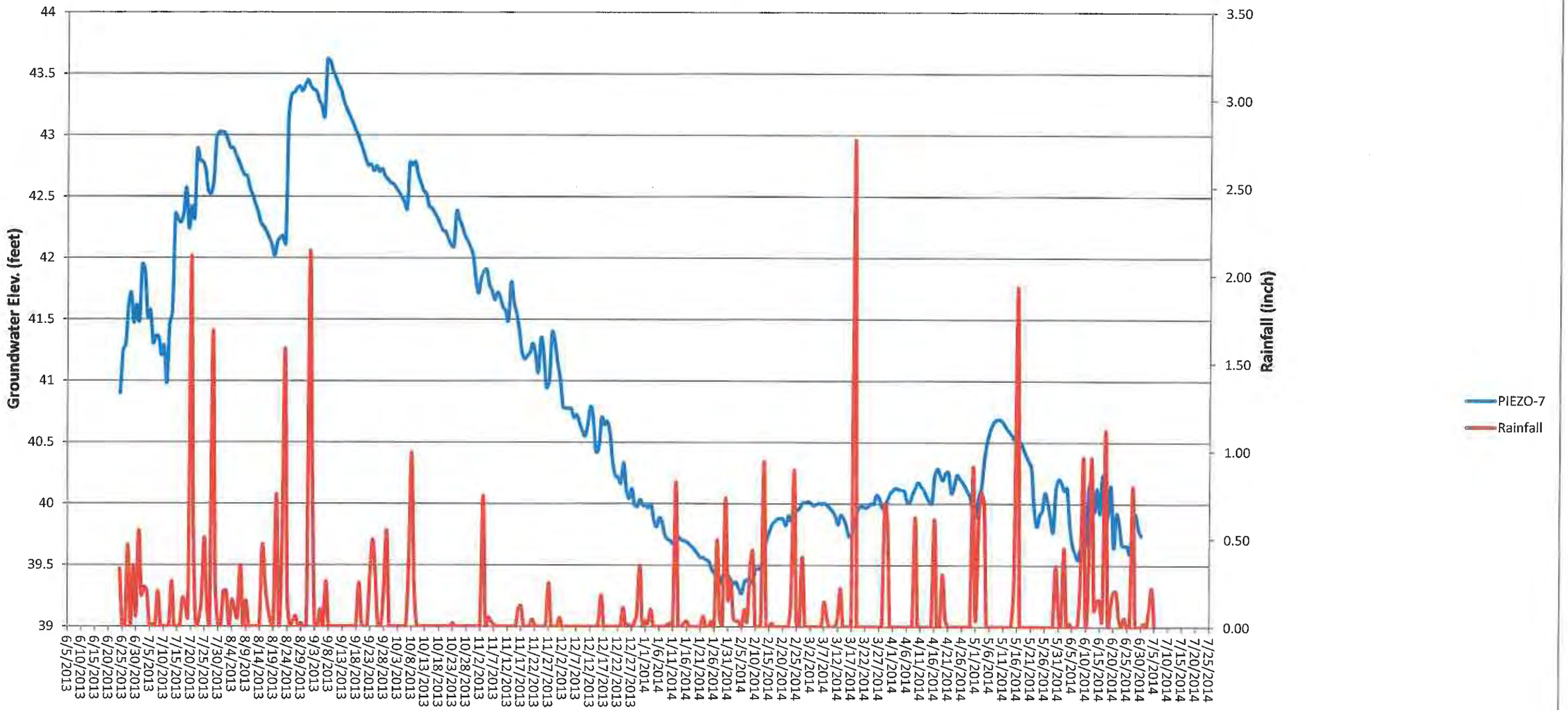
GSE: +52'




PIEZO-6 (Pond BW1-E-2)
GSE: +55.5'
Groundwater Elev. (feet)
Rainfall (inch)
46
45
44
43
42
41
40
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
PIEZO-6
Rainfall
6/5/2013
6/10/2013
6/15/2013
6/20/2013
6/25/2013
6/30/2013
7/5/2013
7/10/2013
7/15/2013
7/20/2013
7/25/2013
7/30/2013
8/4/2013
8/9/2013
8/14/2013
8/19/2013
8/24/2013
8/29/2013
9/3/2013
9/8/2013
9/13/2013
9/18/2013
9/23/2013
9/28/2013
10/3/2013
10/8/2013
10/13/2013
10/18/2013
10/23/2013
10/28/2013
11/2/2013
11/7/2013
11/12/2013
11/17/2013
11/22/2013
11/27/2013
12/2/2013
12/7/2013
12/12/2013
12/17/2013
12/22/2013
12/27/2013
1/1/2014
1/6/2014
1/11/2014
1/16/2014
1/21/2014
1/26/2014
1/31/2014
2/5/2014
2/10/2014
2/15/2014
2/20/2014
2/25/2014
3/2/2014
3/7/2014
3/12/2014
3/17/2014
3/22/2014
3/27/2014
4/1/2014
4/6/2014
4/11/2014
4/16/2014
4/21/2014
4/26/2014
5/1/2014
5/6/2014
5/11/2014
5/16/2014
5/21/2014
5/26/2014
5/31/2014
6/5/2014
6/10/2014
6/15/2014
6/20/2014
6/25/2014
6/30/2014
7/5/2014
7/10/2014
7/15/2014
7/20/2014
7/25/2014

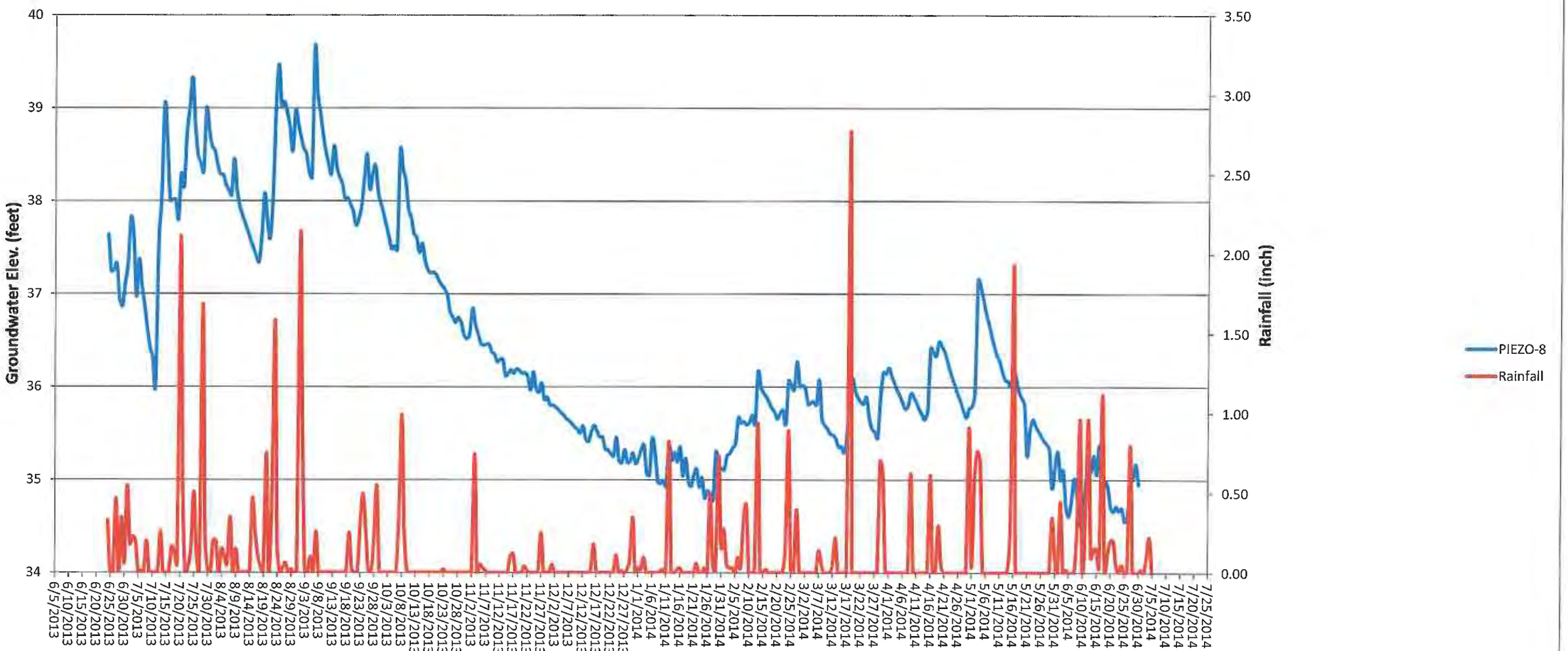
PIEZO-7 (Pond BW1-E-3)

GSE: +47.4'



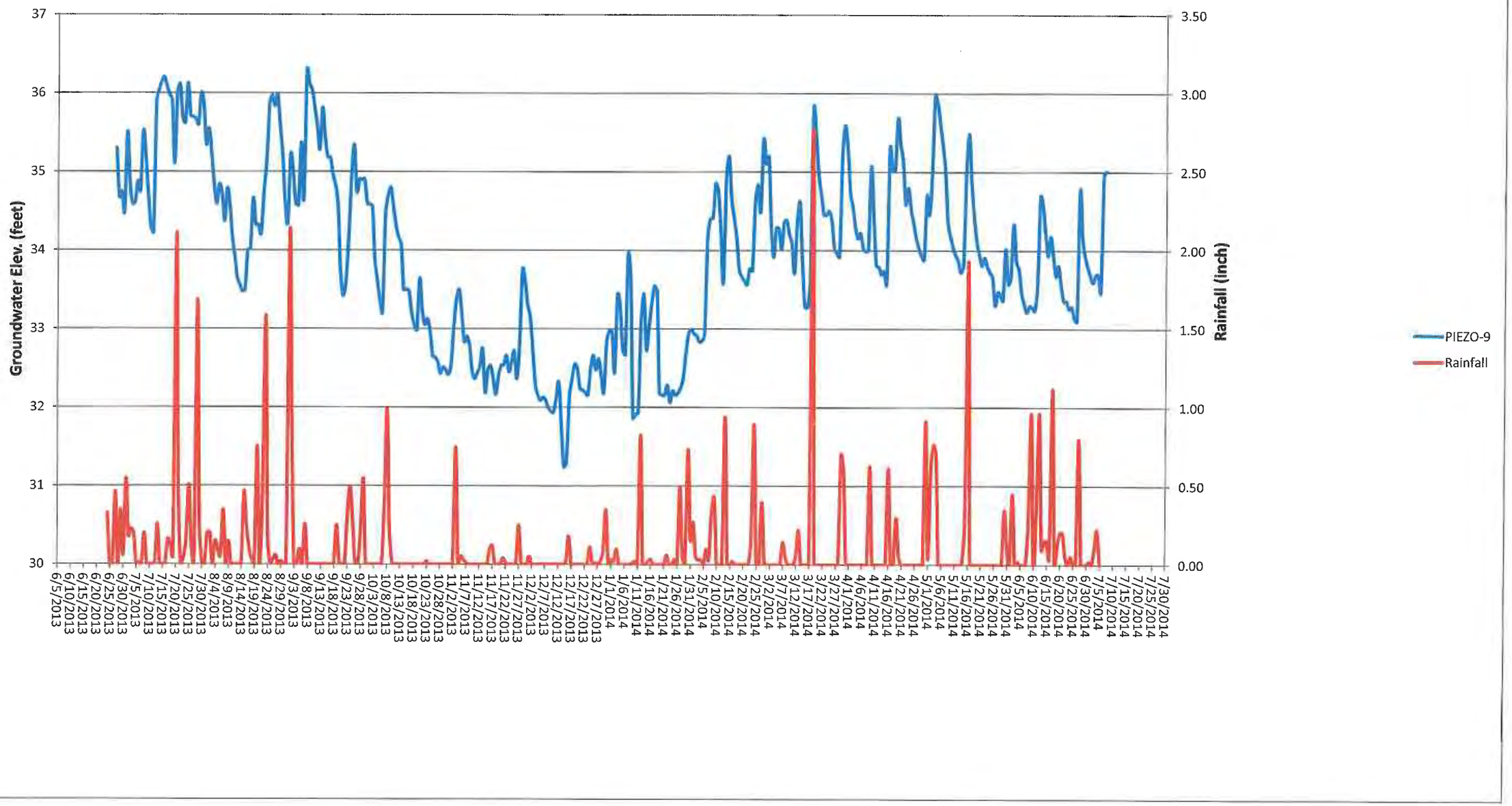
PIEZO-8 (Pond BW1-E-4)

GSE: +40.6



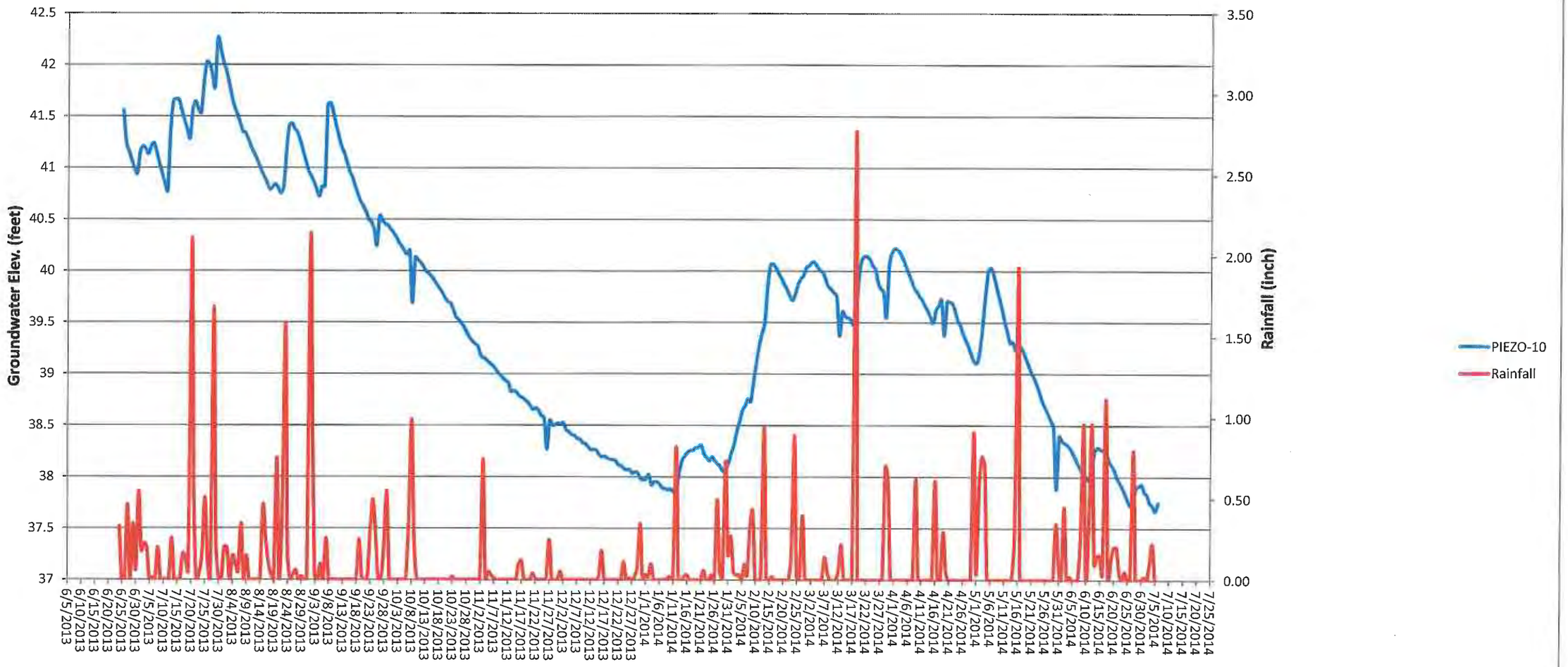
PIEZO-9 (Pond BW2-E-1)

GSE: +36.1'



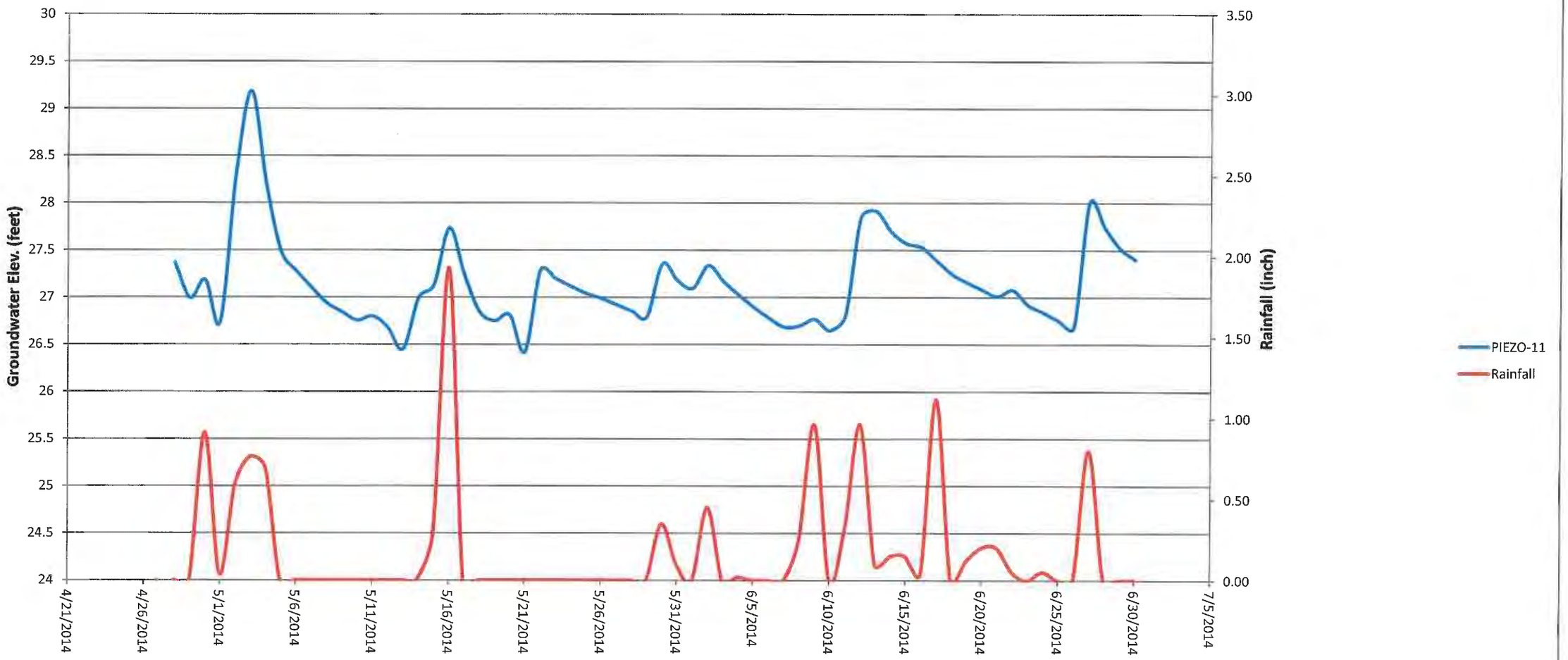
PIEZO-10 (Pond BW2-E-2)

GSE: +44.7'



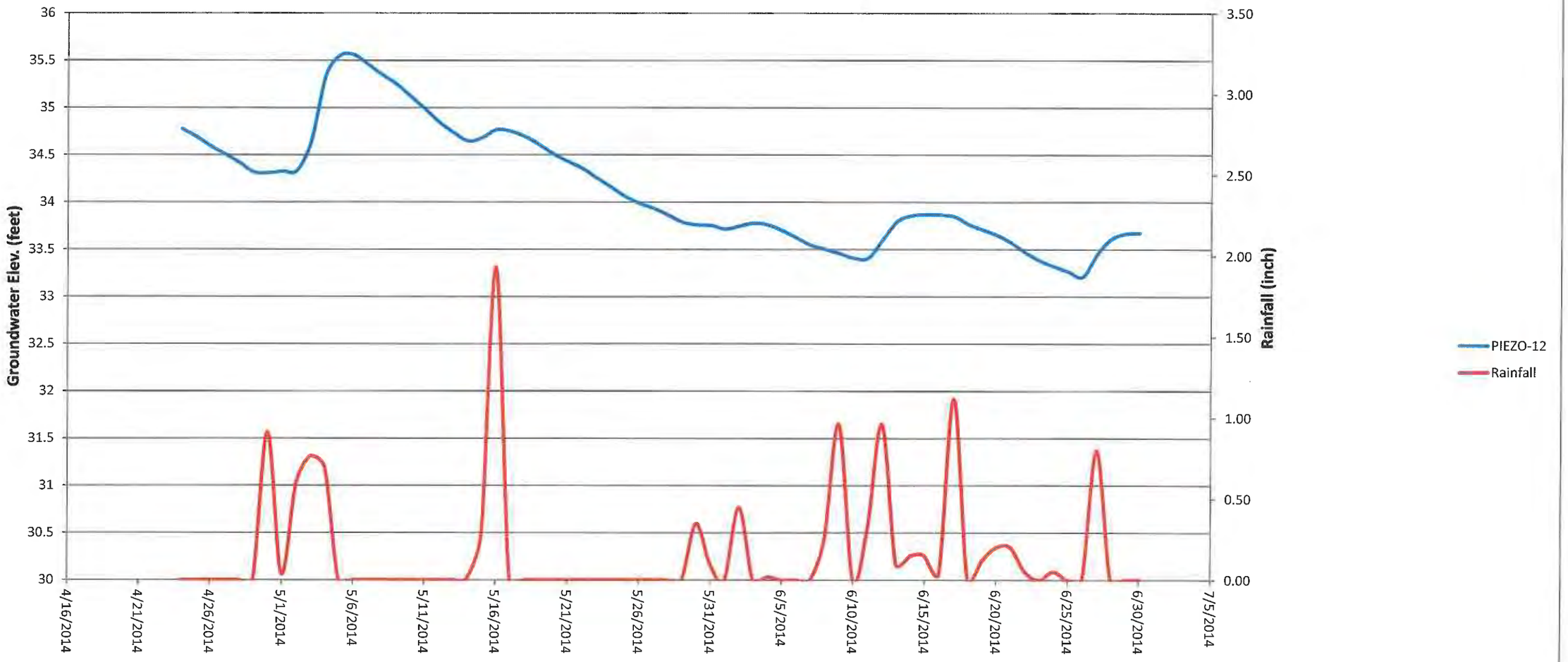
PIEZO-11 (Pond BW2-E-5A)

GSE: +30'



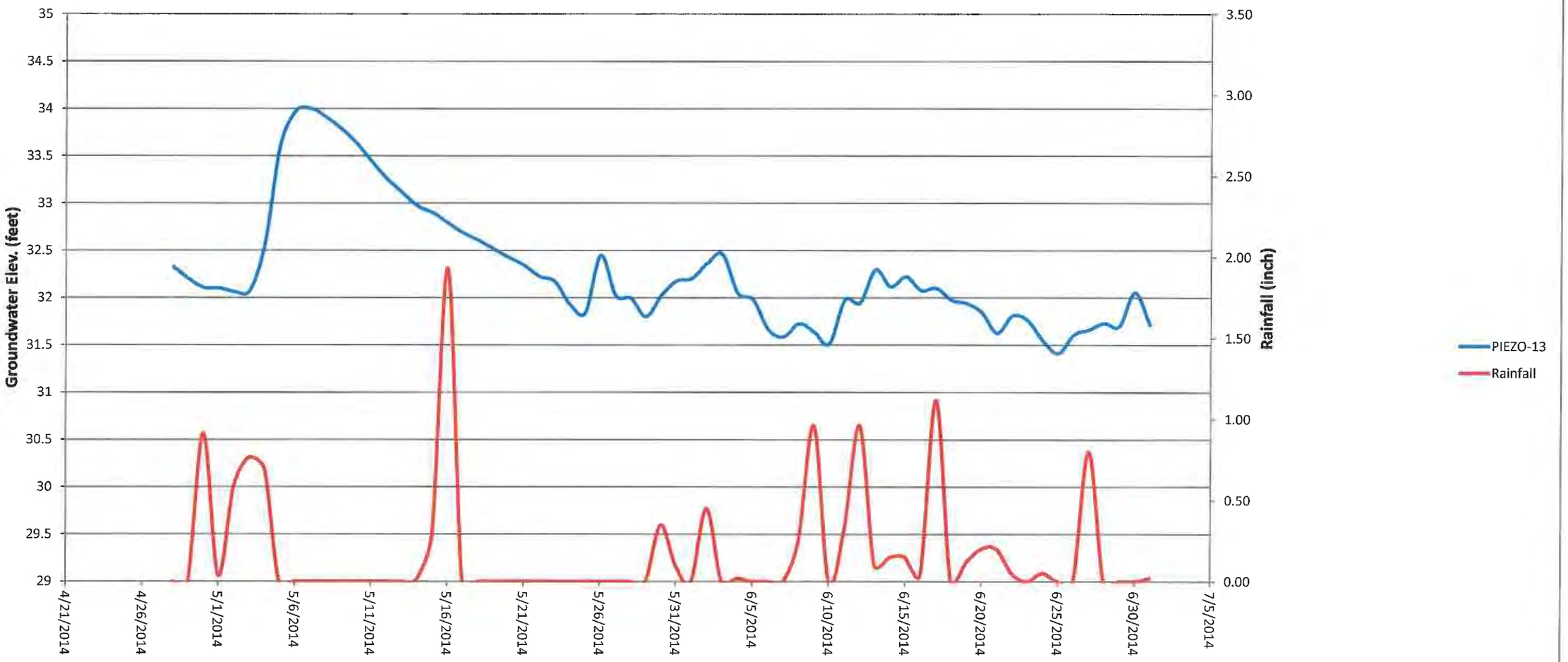
PIEZO-12 (Pond WR1-E-1)

GSE: +40'



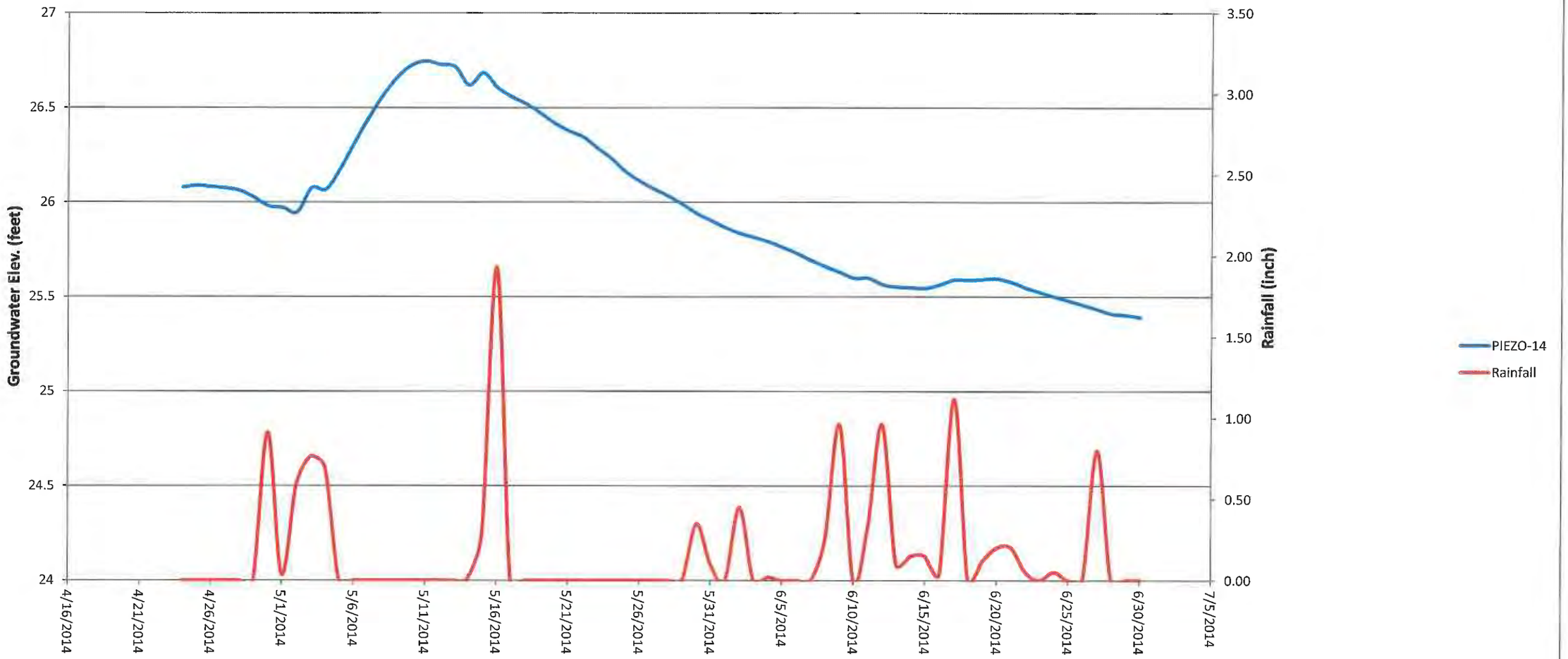
PIEZO-13 (Pond WR1-E-5A)

GSE: +39'



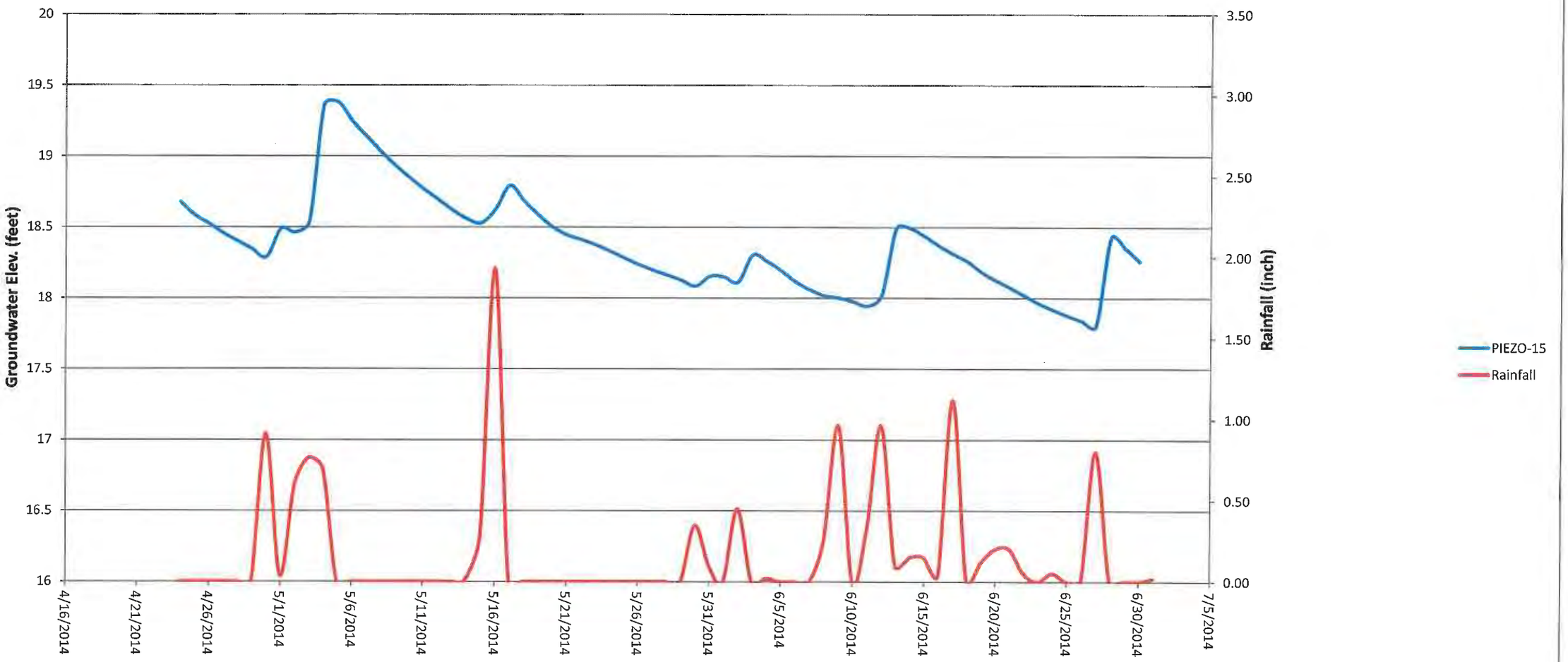
PIEZO-14 (Pond WR1-E-7)

GSE: +37'



PIEZO-15 (Pond WR2A-S-2)

GSE: +23'



APPENDIX G

Correspondence

Alex George

From: Cammie Dewey <cdewey@sjrwmd.com>
Sent: Wednesday, November 07, 2012 11:55 AM
To: Alex George
Cc: Chou Fang
Subject: RE: vegetative natural buffer memo

Alex, the older AH information can be used when designing the VNB, the only difference is that really just the infiltration methodology is accepted. If you need the older section text and/or design example, let me know and I think I have it electronically and can sent it to you.

Cammie

From: Alex George [mailto:ageorge@bcceng.com]
Sent: Wednesday, November 07, 2012 11:38 AM
To: Cammie Dewey
Cc: Chou Fang
Subject: RE: vegetative natural buffer memo

Thanks, Cammie. I appreciate it.

Chou - since the VNBs have been deleted from the Applicant's Handbook, do you recall what was discussed in terms of design criteria (i.e., using old Applicant's Handbook, etc) earlier this year? I have an older 2006 Applicant's Handbook, but the VNB section was deleted there as well.

Thanks again,
Alex

J. Alexander George, P.E.
Senior Drainage Engineer
BCC Engineering, Inc.
Orlando • Miami • Ft. Lauderdale
500 Winderley Place, Suite 324
Maitland, FL 32751
T: 407-951-6444
C: 407-697-2079
F: 407-982-7520
ageorge@bcceng.com

From: Cammie Dewey [mailto:cdewey@sjrwmd.com]
Sent: Wednesday, November 07, 2012 11:29 AM
To: Alex George

Cc: Chou Fang
Subject: RE: vegetative natural buffer memo

Alex,

Attached is a letter written to FDOT in 2009 regarding the use of VNB's for the SR 40 design, I don't recall writing a Memo, just this letter. Please let Chou or I know if you have any further questions or if we can provide any further assistance. Thanks.

Cammie

Cammie Dewey, P.E.
Environmental Resource Program Manager

SJRWMD - Maitland Service Center
601 S. Lake Destiny Rd., Suite 200
Maitland, FL 32751

(407) 659-4839 (office) (407) 832-3704 (cell)
(407) 659-4805 (fax)

cdewey@sjrwmd.com

From: Alex George [mailto:ageorge@bcceng.com]
Sent: Tuesday, November 06, 2012 5:30 PM
To: Cammie Dewey
Subject: vegetative natural buffer memo

Cammie-

This email is a follow-up to my VM this afternoon regarding your memo on the use of vegetative natural buffers for linear (transportation) projects.

I was talking with Chou Fang this afternoon on this subject, as he had recently attended a pre-app meeting for SR 40 that was proposing the use of VNB/flowage easements. Chou suggested that I talk to you and get a copy of the memo you prepared on the use of VNB as a stormwater treatment option (Chou didn't have a copy on hand). Could you please tell me where I might find this memo??

Thanks,
Alex George

J. Alexander George, P.E.
Senior Drainage Engineer
BCC Engineering, Inc.
Orlando • Miami • Ft. Lauderdale
500 Winderley Place, Suite 324
Maitland, FL 32751
T: 407-951-6444

MEETING MINUTES

SUBJECT	**Wekiva Section 6** SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 Miles E of River Oaks Cir **USACE Pre-Application Meeting** FPID No. 431081-3			
LOCATION	USACE Cocoa Permits Section 400 High Point Drive, Suite 600 Cocoa, FL 32926			
DATE	May 20, 2013			
TIME	1:15 pm			
ATTENDEES	Andy Phillips Hannah Hernandez Steve Boylan Tom Roberts Alex George	USACE FDOT GAI E Sciences BCC	(321) 504-3771 x14 (386) 943-5601 (407) 423-8398 (386) 734-1950 (407) 951-6444	andrew.w.wphillips@usace.army.mil hannah.hernandez@dot.state.fl.us s.boylan@gaiconsultants.com troberts@esciencesinc.com ageorge@bcceng.com

MEETING PURPOSE

The purpose of this meeting was to hold a pre-application meeting with the U.S. Army Corps of Engineers (USACE) for the above-referenced project.

I. PROJECT OVERVIEW

Mr. Phillips was given a brief overview of the project, including the following:

- Identification of Project limits
- Number and length of proposed wildlife crossings
- Previous efforts (PD&E, Line & Grade, initial bridge charette process)
- Current status of project
- Final deliverables (final plans for section containing Wekiva River Bridges, RFP concept plans for remaining areas within project limits)

II. WEKIVA RIVER MITIGATION BANK (WRMB)

a. The USACE permit for the WRMB, including bank mitigation, has already been modified to address the proposed impacts
b. Mr. Phillips would like the limits of the WRMB and all state lands to be clearly shown and labeled on the construction plans.

III. VEGETATED NATURAL BUFFERS

a. The use of Vegetated Natural Buffers (VNBs) will be investigated as a potential water quality treatment option in the areas of Wildlife Crossings Nos. 1 and 2.
b. Mr. Phillips has not previously permitted projects using VNBs. The following topics were discussed in relation to the use of VNBs:
    - The FDEP ERP would serve as the water quality certification.
    - Ms. Hernandez stated that the easement required to provide the necessary water quality treatment would be recorded as a line easement in order to minimize the impacts to the state land managers for future activities in those areas. Mr. Phillips requested that a separate set of documents be submitted for areas using VNBs that showing:
        - Limits of any VNBs used
        - Data showing VNB information
        - Line easement locations
    - This separate set of documents would be used as a reference for any future permit modifications.

IV. SECTION 7A CONSULTATION & CONCURRENCE

a. Ms. Hernandez spoke to Dr. Duncan of the National Park Service (NPS) prior to this meeting, and Dr. Duncan agreed that the USACE would serve as the lead agency for Section 7A concurrence.
b. The previous coordination efforts between FDOT and NPS were discussed, as well as the current status of the NPS review. Specifically:
    - Coordination with NPS took place during the PD&E, including an initial charette process with various bridge alternatives.
    - NPS has not formally accepted the recommended bridge alternate, based on the need to address 2 Outstanding Remarkable Values (ORVs):
        - Noise
        - Viewshed
    - A noise study will be completed as part of this project to address the noise ORV, and Figg Engineering Group (the Engineer of Record for the Wekiva River bridges) will incorporate viewshed components into the bridge design in order to address the outstanding ORV issues.

c. As the USACE does not have subject matter expertise to review the noise study, Mr. Phillips suggested that the noise study be validated by another agency (FDOT or FHWA) prior to submission in order to streamline the review process.
d. Mr. Phillips suggested that the Wekiva River bridges be permitted separately from the rest of the project in order to expedite the Section 7A consultation. The Wekiva River bridges will be taken to final design, and no modifications to the permit for these bridges will allowed as part of the Design-Build process.
e. Mr. Phillips will check to see if the USACE can initiate Section 7A consultation with an incomplete permit application in order to expedite the scheduling.
f. Once formal Section 7A consultation has been initiated, all correspondence with go through Mr. Phillips and the USACE.
g. Upcoming events – a workshop for the Wekiva System Advisory Management Committee is scheduled for June 17, which will be followed by another bridge charette with stakeholders in July. The additional charettes are the result of commitments made during the PD&E. Mr. Phillips would like to be kept informed of all activities prior to the formal permit submission.

V. WETLANDS

a. Wetlands within the project limits are composed of both connected and isolated wetland systems.
b. A formal Jurisdictional Determination (JD) will be performed for all wetlands within the project limits.
c. Mr. Phillips stated that data sheets and Rapanos forms should be submitted for the JD done by E Sciences.
d. All wetland impacts will be mitigated using bank credits.

VI. ADDITIONAL PERMITTING INFORMATION

a. FDOT will discuss the approach to permit the Wekiva River bridges separately, and make a final determination at a later date.
b. Ms. Hernandez stated that FDOT would seek a 10-year permit for the project.
c. The drainage design should incorporate provisions for wood stork foraging habitat in accordance with commitments made during the PD&E.
d. Mr. Philips suggested that all notifications to adjacent property owners include “or current resident” in order to minimize the mailings that are returned to sender.
e. A US Coast Guard (USCG) permit will <u>not</u> be required for the proposed Wekiva River crossing.

VII. ACTION ITEMS

a. Mr. Phillips will notify E Sciences if an incomplete application is acceptable to begin Section 7A consultation.
b. FDOT and E Sciences will keep Mr. Phillips aware of upcoming activities involving the Wekiva River bridge charette process and ongoing communication with NPS prior to the formal application.
c. Mr. Phillips will be notified when a final determination regarding the permitting approach used for the project has been made.

MEETING MINUTES

SUBJECT	**Wekiva Section 6** SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir **Drainage Kickoff Meeting** FPID No. 238275-7			
LOCATION	FDOT District 5 719 S Woodland Blvd Deland, FL 32720			
DATE	May 22, 2013			
TIME	1:30 pm			
ATTENDEES	Kevin Moss Hannah Hernandez Brad Bauknecht Steve Tonjes Dan Smith Tom Roberts Tony Bryan Alex George	FDOT FDOT FDOT FDOT UCF E Sciences GAI BCC	(386) 943-5255 (386) 943-5601 (386) 943-5429 (386) 943-5394 (386) 785-1565 (386) 734-1950 (407) 320-1862 (407) 951-6444	kevin.moss@dot.state.fl.us hannah.hernandez@dot.state.fl.us bradley.bauknecht@dot.state.fl.us stephen.tonjes@dot.state.fl.us djs3@ucf.edu troberts@esciencesinc.com tony2244@bellsouth.net ageorge@bcceng.com

MEETING PURPOSE

The purpose of this meeting was to discuss drainage concepts and criteria to be used for the above-referenced project.

I. PROJECT OVERVIEW

a. A brief overview of the project was given, including the following:
   i. Identification of Project limits
   ii. Number and length of proposed wildlife crossings
   iii. Previous efforts (PD&E, Line & Grade)
   iv. Current status of project
   v. Final deliverables (final plans for section containing Wekiva River Bridges, RFP concept plans for remaining areas within project limits)

b. The drainage design will be for the ultimate 6-laning of the Wekiva Parkway

c. Permitting will be through FDEP utilizing SJRWMD criteria

d. BCC and GAI have split the roadway and drainage work efforts for the project as follows:
    i. Mr. George (BCC) will be the lead drainage engineer for the project
    ii. BCC is responsible for the design of the stormwater management systems, floodplain compensation, cross drains and Bridge Hydraulic Report for the Wekiva River crossing.
    iii. The roadway and drainage design efforts will be split between GAI and BCC. BCC will design the roadway and drainage from Begin Project to Tree Frog Ct (Sta. 758+50), and GAI will design the roadway and drainage from Tree Frog Ct. to End Project.

II. DESIGN CRITERIA

a. FDEP
    i. The project is located within the Middle St. Johns River basin and Wekiva River Planning Unit. Therefore, special basin criteria for the Wekiva River will apply to the project. The special basin standards and criteria for the Wekiva River include:
        - Recharge standard – 3" of retention required for Most Effective Recharge Areas (directly connected impervious areas on Type A soils) for systems within the Wekiva Recharge Protection Zone (the entire project is located within the Wekiva Recharge Protection Zone). Alternatively, demonstrate that the post-development recharge will be equal to or greater than the pre-development recharge.
        - Storage standard – no net reduction in flood storage for the 100-year floodplain of a stream or other water course which has a drainage area more than one square mile and has a direct connection to the Wekiva River, Little Wekiva River and Black Water Creek.
        - Standards for Erosion and Sediment Control and Water Quality – erosion and sediment control plans must be submitted as part of the ERP (for projects within ½ mile of the Wekiva River).
        - Standard for Limiting Drawdown in the Wekiva River Water Quantity Protection Zone
        - Standard for Riparian Habitat Protection Zone
        - Local government notification

    ii. The Wekiva River and its tributaries (Rock Springs Run and Black Water Creek) are classified as Outstanding Florida Waters (OFW). Therefore, pre-treatment or an additional 50% of water quality treatment volume and permanent pool volume (if applicable) will be required for systems with direct discharges to OFWs.

    iii. Rock Springs Run (WBID 2967) and the Wekiva River (WBID 2956) are nutrient-impaired waterbodies, and will require nutrient-loading calculations.

    iv. Attenuation for the 25-year/24-hour storm

b. FDOT
    i. Stormwater
        - Open basins (Basin RS7-E to be verified as open basin)
        - No history of flooding
        - No Ch. 14-86, F.A.C. requirements
        - If Basin RS7-E is closed basin, then Ch. 14-86, F.A.C. criteria up to 100-year/10-day storm for rate and volume

    ii. Drainage
        - Cross drains shall be sized for the 50-year storm
        - Ditches shall be sized for the 10-year storm
        - Outfall channels shall be sized for the 25-year storm
        - Storm drains with DBIs shall be sized for the 10-year storm

III. POND SITING

a. Pond siting will not be performed for basins RS8-E and RS9-E. These basins are within the Wekiva River Mitigation Bank (WRMB) area, and the design-level pond siting completed by The Balmoral Group as part of the Line & Grade efforts will be used as the recommended alternative for each basin. Right-of-way sketches and descriptions are currently being prepared for the WRMB parcel.

b. Pond siting for the easternmost portion of the project (Basin WR2) will be discussed at a later date. FDOT, GAI and BCC met with URS (the design team for Wekiva Section 7A) on May 12, 2013 to briefly discuss future coordination efforts regarding the drainage design at the project limits, but a more in-depth discussion concerning this area will be held once URS has NTP. A follow-up meeting with the FDOT and the design teams will be held on July 9, 2013.

IV. BRIDGE HYDRAULIC REPORT (BHR) FOR THE WEKIVA RIVER BRIDGES

a. As the proposed substructure for the bridges will be located within the Wekiva river floodplain, a BHR will be prepared.

b. The FEMA Flood Insurance Rate Map indicates that the Wekiva River is designated as a Zone AE floodplain (base flood elevations determined), and it is not a designated floodway.

c. Based on the revisions to the vertical profile at the bridges during the GAI presentation and the width of the proposed bridges, it is anticipated that closed storm drain systems will be required for the bridge deck drainage at both ends of the bridges.

V. STORMWATER ALTERNATIVES AT WILDLIFE CROSSINGS NOS. 1 AND 2

a. Several alternatives for stormwater management at Wildlife Crossings Nos. 1 and 2, including:
   i. Vegetated Natural Buffers (VNBs) will be investigated as a potential water quality treatment option in the areas of Wildlife Crossings Nos. 1 and 2. , The use of shallow rectangular retention areas under the wildlife crossing bridges was also discussed. Based on preliminary calculations, the maximum depth of water in the shallow retention areas would be approximately 1' with full recovery within 24 hours. The shallow retention areas would cover approximately 40-50% of the area under Wildlife Crossings Nos. 1 and 2.
   ii. The use of shallow retention areas outside of the limits of Wildlife Crossings Nos. 1 and 2 (located in state lands) was also discussed.
   iii. Potential area for offsite ponds adjacent to the wildlife crossings was provided for discussion.
   iv. Exfiltration was brought up as a potential option that may limit obstruction of the wildlife crossings.

b. Comments regarding VNBs:
   i. The use of VNBs is dependent on soil types and whether there is potential of downstream flooding at these locations. Preliminary analysis revealed that the area downstream of Wildlife Crossing No. 1 may be a closed basin, but the area downstream of Wildlife Crossing No. 2 was an open basin. If feasible, the VNBs would be the preferred option for both FDOT and the state land managers.
   ii. The effect of VNBs on the hydroperiod of adjacent wetlands must also be checked.
   iii. Potential erosion issues from scupper or vertical drain outfalls under the wildlife crossings were discussed. Strategies to address erosion issues will be implemented for the bridge deck drainage systems.
   iv. Mr. Tonjes suggested the use of a Memorandum of Understanding rather than a line easement for VNBs.

c. Comments regarding rectangular shallow retention areas under the wildlife crossings:
   i. Mr. Smith noted that there may be pushback from the stakeholders/regulatory agencies if the shallow retention areas cover a significant amount of the crossing area. It was estimated that the shallow retention areas would cover approximately 60% of the area under the crossings.
   ii. Mr. Smith also suggested following the existing contours when grading ponds in these areas to provide a more "natural" feel
   iii. If this option undermined the previous commitments made regarding the wildlife crossings, then this option should not be pursued. Lengthening the bridges to make up for the areas obstructed by shallow retention areas is estimated to cost $12,000 per LF of bridge.

d. Comments regarding the use of offsite ponds:

i. Mr. Smith suggested that the natural flow patterns be used to locate sites for offsite ponds for Wildlife Crossings Nos. 1 and 2 in order to limit any proposed ditches that may obstruct the crossings.

ii. Suggestions for potential pond/shallow retention area sites for Wildlife Crossing No. 1 included the area south of the SR 46/SR 429 interchange constructed as part of Wekiva Section 4A/4B and the parcel to the west of Service Road No. 1 northeast of the end of the bridge.

iii. Mr. Tonjes stated that there is a plan to restore Rock Springs State Reserve and that there may be opportunity to accommodate elements of this plan with the proposed drainage design. This are may be feasible for stormwater treatment of Wildlife Crossing No. 2.

e. Comments regarding exfiltration:

i. If the other options are deemed infeasible, then exfiltration was suggested as a possible alternative. The exfiltration pipes could be connected to bridge drains to eliminate the potential erosion and maintenance concerns with scuppers or vertical drains, and the underground system would not obstruct the wildlife crossings.

ii. This option will be included for analysis at the wildlife crossing locations if deemed feasible and needed.

VI. PERMITTING

a. Attendees were given a brief overview of the discussion regarding permitting at the USACE pre-application meeting on May 20, 2013. Mr. Phillips of the USACE suggested that the Wekiva River bridges be permitted separately from the rest of the project in order to expedite the Section 7A consultation. The Wekiva River bridges will be taken to final design, and no modifications to the permit for these bridges will allowed as part of the Design-Build process.

b. Based on the Department's previous experience with permit modifications made as part of the Design-Build process, permitting for the remaining portion of the project (outside of the Wekiva River bridges area) may be excluded from the scope given that the successful Design-Build team would most likely seek a permit modification. The drainage design would still be taken to a 60% level, but a second permit application package for the remaining portion of the project would not be prepared. FDOT will discuss this option internally, and provide the design team with a final determination regarding the permitting approach.

c. Ms. Hernandez will set up a pre-application meeting with FDEP in mid- to late-June 2013.

d. Contact Amy Windham at CH2MHill for Wekiva permit application templates.

VII. OTHER ITEMS

a. Mr. Smith noted that there is new UCF software for nutrient loading calculations. Mr. George will review the software for use on this project.

b. Even if no permit application is prepared for the project outside of the Wekiva River bridges, a formal Jurisdictional Determination (JD) will be performed for all wetlands within the project limits. This formal determination will set the wetland lines so that the successful Design-Build team can permit the remaining portions of the project.

c. Linear ponds should be avoided on this project due to maintenance concerns. Swales used for stormwater treatment should be designed for open conveyance in accordance with Ch. 15 of the SJRWMD Applicant's Handbook.

d. Mr. Moss noted that Balmoral had submitted an updated Pond Siting Report to the Department. Mr. Bauknecht will forward a copy to Mr. George.

VIII. ACTION ITEMS

a. Ms. Hernandez will set up a pre-application meeting date with FDEP.

b. Mr. Moss will set up a coordination meeting between Section 6 and Section 7A.

c. Mr. Bauknecht will provide the most recent copy of the Line & Grade Pond Siting Report and contact information for Amy Windham at CH2MHill.

Alex George

From: Laisure, Debra <Debra.Laisure@dep.state.fl.us>
Sent: Wednesday, August 14, 2013 12:11 PM
To: dustin.perkins@urs.com; Martin, Nicole; Prather, Lisa; khale@emd-inc.net; Alex George; Moss, Kevin; 'Hernandez, Hannah'; s.boylan@gaiconsultants.com; troberts@esciencesinc.com; alvaro.alonso@urs.com
Subject: Wekiva Section 6 & 7A
Attachments: 35_Wekiva_Pkwy_6-7A_TMDL.jpg

I wanted to send this before you got too far down the road on these sections. I went back to GIS and pulled up both the impaired waters layer and the TMDL layer. Although the impaired layer only notes mercury, the TMDL layer indicates total phosphorus and total nitrogen (nutrients). Evidently the Wekiva got to the TMDL stage a little differently than other water bodies and didn't get a listing of impaired for nutrients; however, because it has a TMDL that specifically lists nitrogen and phosphorus, a demonstration of net improvement will be required. The pre-development condition is the condition of SR 46 now. SR 46 does have some treatment and the pre-development load must account for the reduction provided by what existing treatment is out there. I have verified this with SJR as well and that is consistent with their approach. Sorry for the misinformation that I provided in the meeting.

Debra

Debra Laisure, P.E.
Professional Engineer
Water Resources
DEP - Central District
407-897-2952
Debra.Laisure@dep.state.fl.us

If you have received an authorization from the ERP program, please click on the survey link (below) to provide us valuable feedback about your experience:

Additional web resources:

MEETING MINUTES

SUBJECT	**Wekiva Section 6 and 7A** SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir SR 429 from 0.04 Miles E of River oaks Cir to 0.1 Miles East of Orange Blvd **FDEP Meeting to Discuss Nutrient Loading Requirements** FPID Nos. 238275-7 and 240200-2			
LOCATION	FDOT District 5 719 S Woodland Blvd Deland, FL 32720			
DATE	October 1, 2013			
TIME	1:00 pm			
ATTENDEES	Debra Laisure	FDEP	(407) 897-2952	debra.laisure@dep.state.fl.us
	David Baggett	FDEP	(407) 897-2962	david.baggett@dep.state.fl.us
	Lisa Prather	FDEP	(407) 897-2947	lisa.prather@dep.state.fl.us
	Nicole Martin	FDEP	(407) 897-2947	nicole.martin@dep.state.fl.us
	Cammie Dewey	SJRWMD	(407) 659-4839	cammie.dewey@sjrwmd.com
	Reid Hilliard	SJRWMD	(407) 659-4873	reid.hilliard@sjrwmd.com
	Kevin Moss	FDOT	(386) 943-5255	kevin.moss@dot.sstate.fl.us
	Ferrell Hickson	FDOT	(386) 943-5433	ferrell.hickson@dot.state.fl.us
	Hannah Hernandez	FDOT	(386) 943-5601	hannah.hernandez@dot.state.fl.us
	Brad Bauknecht	FDOT	(386) 943-5429	brad.bauknecht@dot.state.fl.us
	Robert Potts	E Sciences	(407) 481-9006	rpotts@esciencesinc.com
	Jim Bassett	E Sciences	(407) 481-9006	jbassett@esciencesinc.com
	Dustin Perkins	URS	(407) 992-4392	dustin.perkins@urs.com
	Alex George	BCC	(407) 951-6444	ageorge@bcceng.com

MEETING PURPOSE

The purpose of this meeting was to follow up with the FDEP regarding the determination that the Rock Springs Run basin (at the western end of Wekiva 6) and the Wekiva River basin (at the eastern end of Wekiva 6 and the western end of Wekiva 7A) were subject to "net improvement" criteria for nitrogen (TN) and phosphorus (TP).

MEETING MINUTES

Description and Status of Wekiva 6 and 7A

a. Mr. George gave a brief overview of the Wekiva 6 project. This project will be let as a Design-Build project, and concept plans were being developed. An ERP application would be prepared for only a portion of the project limits (from Wekiva River Rd to east of the Wekiva River bridges) during the development of the concept plans, and permitting of the remaining

portion of the Wekiva 6 project would be the responsibility of the successful Design-Build Team.

b. Mr. Perkins gave a brief overview of the Wekiva 7A project. This project is a conventional project that will be taken through Final Plans, and an ERP application would be prepared for the entire project.

c. Both projects are in the Pond Siting phase.

FDEP Early Coordination Meeting Review

d. Mr. George stated that Ms. Laisure has sent out an email following the August 14, 2013 Early Coordination meeting:

"Although the impaired layer only notes mercury (for the Wekiva River basin), the TMDL layer indicates total phosphorus and total nitrogen (nutrients). Evidently the Wekiva got to the TMDL stage a little differently than other water bodies and didn't get a listing of impaired for nutrients; however, **because it has a TMDL that specifically lists nitrogen and phosphorus, a demonstration of net improvement will be required.** The pre-development condition is the condition of SR 46 now. SR 46 does have some treatment and the pre-development load must account for the reduction provided by what existing treatment is out there. I have verified this with SJR as well and that is consistent with their approach." (email attached)

e. Mr. Moss stated that the Wekiva Parkway project has been going on for 10 years, and that it was anticipated that approximately $80 million dollars would be (or already has been) spent on environmental improvements, including wildlife crossings, wildlife fencing, trails and naturally contoured ponds. However, the "net improvement" nutrient load requirement [i.e., the post-development nitrogen and phosphorus loads must be no greater than the pre-development nutrient loads] was a new requirement, and heard for the first time by FDOT following the August 14, 2013 FDEP Early Coordination meeting.

f. Ms. Hernandez asked if there were any meeting minutes or documented discussions with FDEP or SJRWMD regarding this issue during the Line & Grade phase of the project. Ms. Laisure and Ms. Dewey stated that there were no previous meetings or discussions on this topic.

g. Mr. George summarized the discussion at the August 14, 2013 regarding the status of 2 basins within the Wekiva 6 and 7A projects – the Rock Springs Run basin (WBID 2967) and the Wekiva River basin (WBID 2956A):

   i. Rock Springs Run is not on the verified impaired waters list, but does have an adopted TMDL for TP and Nitrate-N.
   ii. The Wekiva River basin is verified impaired for mercury, and have an adopted TMDL for TP and Nitrate-N.

h. Mr. George stated that, based on previous discussions with Ms. Laisure, nutrient loading calculations would not be required for basins that do not have direct discharge to these WBIDs. Ms. Laisure agreed.

i. Mr. George asked whether FDEP or SJRWMD had previously reviewed a report prepared for FDOT District 1 (which is located in southwest Florida) that recommended lower Event Mean Concentrations (EMCs) for nitrogen and phosphorus associated with highway land use. The report, "Determination of Appropriate Highway EMC Values for Use within FDOT District 1" by Applied Technology & Management (August 2010). The report is based on EMC sampling data taken statewide, and the FDOT would like to use the values contained in the report if found to be acceptable by FDEP.

   Ms. Laisure and Ms. Dewey stated that they had not seen the report, and asked Mr. George for a copy of the report for their review prior to making a decision.

j. Mr. Hickson stated that a statewide analysis of EMC values was underway, but had not been completed yet. He asked Mr. George to contact Ken Kneill or Don Brown at DRMP to inquire about the status of this updated statewide report.

Rock Springs Run basin

k. The Rock Springs Run basin extends from the beginning of the Wekiva 6 project (Sta. 640+00) to the bridge over Tree Frog Court (approximately Sta. 758+31). This portion of the Wekiva 6 project is within the Wekiva River Mitigation bank (WRMB) property, and the right-of-way acquisition process has already started based on the Line & Grade design. Two (2) stormwater management facilities were sized to provide water quality treatment and attenuation within the WRMB parcel, and the right-of-way acquisition was based on this sizing. A description of the ponds are as follows:

i. Pond RS8-E-1 is a wet detention pond sized to provide the required water quality treatment and attenuation. The control elevation of Pond RS8-E-1 has been set 2.3 feet above the SHGWT in order to provide historical basin storage within the pond.
ii. Pond RS9-E-1 is a dry retention pond sized to provide recharge volume for almost the entire Wekiva 6 project, as well as provide the required water quality treatment and attenuation.

l. Mr. George stated that a preliminary nutrient loading analysis had been completed for the Rock Springs Run basin using both the Lake Apopka and Harper methodologies. The preliminary analysis showed that Rock Springs Run meets "net improvement" criteria when utilizing the variables as described below, and wanted to get concurrence on the approach used.

m. Ms. Dewey asked how much retention depth was provided in Pond RS9-E-1, and stated that SJRMWD does not like to see more that 3.5" as it exceeds the typical rainfall event. Mr. George stated he would check on the depth provided in Pond RS9-E-1.

n. Mr. George stated that the historical basin storage provided below the control elevation within Pond RS8-E-1 was used in the preliminary analysis for the purposes of nutrient load reduction, as this volume acts in the same manner as the local depressions near the pond outfall (i.e., no positive outfall except through retention).

Ms. Dewey stated that SJRWMD allows the portion of this volume that can recover within 72 hours to be used for nutrient load reduction, as this volume needs to be available for the following storm event. Historical basin storage more for larger storm events, and that a longer drawdown period would be acceptable for this application.

Mr. George stated that recovery calculations would be included in the analysis, and the portion of historical basin storage available after 72 hours would be included as retention in the nutrient loading analysis.

o. Ms. Dewey reminded the group to incorporate any removal of existing pavement into the post-development nutrient loading analysis. The removal of existing pavement will be included in the analysis.

p. Ms. Dewey asked if the pasture land use was utilized in the preliminary nutrient loading analysis. Mr. George stated that pasture land use was used, as this was the land use shown in the 2009 SJRWMD GIS shapefile. Ms. Dewey stated that pasture can only be used if livestock are present. As no livestock are present on the site, the analysis will be revised to utilize an undeveloped condition.

q. Mr. Baggett inquired whether Pond RS8-E-1 could be changed from a wet detention pond to a dry retention pond. Mr. George stated that a design-level pond siting analysis and routing had been completed for Pond RS8-E-1 during the Line & Grade phase, and that it was unknown if the pond type could be changed. Mr. George believed that it was unlikely, given the level of detail provided in the Line & Grade analysis, but he would verify.

r. As the right-of-way acquisition for the ponds within the WRMB property is already underway, there is limited opportunity to expand the ponds or change the type of ponds to increase the nutrient removal provided. Mr. George inquired whether this hardship condition could reduce the nutrient removal requirements for this basin. Ms. Laisure asked to review the nutrient removal calculations for the Rock Springs Run basin once the calculations have been revised to reflect the comments made in the meeting, and FDEP and SJRWMD will make a determination on the nutrient removal requirements. The report should utilize the Line & Grade design of Ponds RS8-E-1 and RS9-E-1 in order to quantify the nutrient removal provided. The preference is to use the Harper methodology, but the Lake Apopka methodology can also be shown if the level of nutrient removal differs significantly.

   Mr. George stated that the calculations would be updated, and a report created for FDEP review.

Wekiva River basin

s. Mr. Perkins gave a brief explanation of the Wekiva River drainage issues within the Wekiva 7A project. There are poorly drained soils near the Wekiva River which limit the use of retention within the Wekiva River basin.

t. There is existing treatment provided on the west side (a sand filter) and the east side (treatment swales) of the existing Wekiva River bridge. This existing treatment must be incorporated into the pre-development nutrient loading analysis.

Alternative Approaches to Nutrient Removal

u. Several alternatives were discussed in order to increase the nutrient removal provided:

   i. Credit for acquisition of lands within the Wekiva Study area might be feasible, but the acquired land must be within the same basin. Further review and analysis would be required if areas are identified.

ii. Ms. Dewey asked whether Bold & Gold™ could be used on the projects. Mr. Hickson stated that they were using Bold & Gold™ on SR 40, but he worried about potential future problems (i.e., bacteria, maintenance concerns). Therefore,

Alex George

From: Laisure, Debra <Debra.Laisure@dep.state.fl.us>
Sent: Friday, October 25, 2013 2:09 PM
To: Alex George
Cc: Ferraro, Chris; Marchman, Lee; Musgrove, Richard; Prather, Lisa; Prather, Jeff; Cammie Dewey; Baggett, David; Rach, Timothy; May, Andrew; Martin, Nicole
Subject: DEP review of EMC values proposed for the Wekiva projects

Alex -

Thank you for the information that you have provided regarding the proposed Event Mean Concentration (EMC) values for highway runoff.
The EMC values proposed for calculating the average annual load of nitrogen and phosphorus for Sections 6 and 7A of the proposed Wekiva Parkway have been reviewed by both Central District staff and Tallahassee staff and we have coordinated with staff from the St. Johns River Water Management District. Based on staff review, the EMC values derived from data collected in the FDOT District 1 study are not representative of the values expected in the area of the proposed roadway because of the differences in the rainfall patterns between central and southwest Florida. The more appropriate EMC values for this area of the Wekiva Parkway are 1.37 mg/L for Total Nitrogen and 0.17 mg/L for Total Phosphorus. This determination is made based on the sampling locations and the rigorous analysis and review that went into the determination of these values even though they are derived from older sampling data.

The option for the development of site specific EMCs always remains open. Should you choose to avail yourself of this option, the Department will lend any assistance it can to ensure the development of the most accurate values possible.

Sincerely,
Debra

Debra Laisure, P.E.
Professional Engineer
Water Resources
DEP - Central District
407-897-2952
Debra.Laisure@dep.state.fl.us

If you have received an authorization from the ERP program, please click on the survey link (below) to provide us valuable feedback about your experience:

Additional web resources:

PLEASE NOTE: Florida has a very broad public records law. Electronic communications regarding state business are public records available upon request. Your e-mail communications may therefore be subject to public disclosure.

TELEPHONE MEMORANDUM

CALL FROM	Mark Easley, KCA
PHONE NUMBER	(813) 871-5331 x4144
CALL TO	Alex George
PROJECT	SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir FPID 238275-7
SUBJECT	Drainage and stormwater systems under Wildlife Crossings Nos. 1 and 2
DATE	January 15, 2014
TIME	11:00 AM

Mr. George and Mr. Easley discussed the proposed placement of drainage and stormwater infrastructure under Wildlife Crossings Nos. 1 and 2 for the above-referenced project in order to determine if there might be any potential concerns regarding adverse impacts to the wildlife. The Line & Grade plans dated August 2012 show Wildlife Crossing No. 1 composed of 3-1800' long bridges (Sta. 662+00.00 to Sta. 680+00.00), and Wildlife Crossing No. 2 composed of 3-3872.4' bridges (Sta. 796+64.60 to Sta. 385+37.00).

Specifically, the following improvements were discussed:

1. Due to the presence of well-drained soils (Hydrologic Soil Group A) and depth to SHGWT under Wildlife Crossing No. 1, a series of shallow retention areas are a proposed option underneath the bridge within the proposed right-of-way. The retention areas would be spaced at intervals in accordance with the bridge scupper spacing in order to provide direct discharge to the retention areas. The anticipated depth of the shallow retention areas would be approximately 2 feet. No longitudinal ditches to collect and convey flow to the retention areas is anticipated with this option.

   Mr. Easley stated that this option did not seem to have a significant impact on the wildlife crossing in his opinion, as the retention areas were spaced so as not to create a continuous barrier along the crossing. Mr. George stated that the retention areas would be sized to provide complete retention of the 25-year/24-hour storm event, and that the recovery was anticipated to be less than 24 hours. Easley requested a copy of the recovery analysis of this option, and will review further as more information becomes available.

2. A flowage easement/vegetative natural buffer option was also discussed as a potential option at Wildlife Crossing No. 1. Runoff from the bridge decks would discharge to level spreaders to simulate a sheet flow condition from the bridge to the adjacent state lands. The use of level spreaders may create an additional longitudinal barrier to the wildlife crossing under the bridge.

3. The SHGWT at Wildlife Crossing No. 2 is significantly higher (at or near the existing ground surface), and is composed of poorly drained soils (Hydrologic Soil Group A/D). Portions of the area under Wildlife may be subject to frequent ponding. Therefore, the use of shallow retention or vegetative natural buffer at Wildlife Crossing is not feasible. As a result, it is anticipated that runoff from the Wildlife Crossing No. 2 bridges would be collected and conveyed by scuppers and storm drain system to an offsite pond.

   Mr. Easley asked if longitudinal ditches would be used under the bridges, as these ditches may create a barrier for wildlife during storm events. Mr. George stated that ditches would not be used, as they would also collect runoff from a large offsite area to the south which drains north towards Blackwater Creek. It is anticipated that the bridge scuppers would discharge into ditch bottom inlets (DBIs) located under the bridge, and runoff would be conveyed to the stormwater management facility through storm drain system (similar to Figure 22.1-1 in the Structures Detailing Manual). This option would not adversely affect the offsite drainage patterns, and would limit the obstruction to wildlife crossing under the bridges.

4. Mr. Easley requested a roll map of the project in order to better visualize the project alignment and surrounding areas. Mr. George stated that he would provide a pdf of the project roll map.

5. Mr. George will continue to coordinate with Mr. Easley regarding the wildlife crossings as the design progresses.

MEETING MINUTES

SUBJECT	**Wekiva Section 6** SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir **Wekiva Sections 5 and 6 Design Coordination Meeting** FPID No. 238275-7			
LOCATION	BCC Engineering, Inc. 500 Winderley Place, Suite 300 Maitland, FL 32751			
DATE	January 27, 2014			
TIME	10:30 am			
ATTENDEES	Nick Benedico Ed Colon Quan Le Le Nguyen	CDM Smith BCC CDM Smith BCC	(407) 660-2552 (407) 951-6444 (407) 660-2552 (407) 951-6444	benedicona@cdmsmith.com ecolon@bcceng.com LeQ@cdmsmith.com lnguyen@bcceng.com

MEETING PURPOSE

The purpose of this meeting was to discuss the preliminary alignments and project tie-ins between Wekiva Section 5 (CDM Smith – EOR) and the western section of Wekiva Section 6 (BCC-EOR).

MEETING MINUTES

The following is a summary of the key design issues discussed:

a. Project limits were reviewed. Both sections currently depict the construction of the Service Road 2 intersection with CR 46A. Section 5 60% plans are estimated to be complete by end of March 2014, and based on current schedules expected to be under construction in advance of Section 6.
b. Mr. Benedico explained that Lake County has plans for a trailhead along the Section 5 project limits (south of the roadway) and just west of the Service Road 2 tie-in to CR 46A. The Section 5 design provides a 12 foot shared use pathway along the north side of the roadway. This pathway will tie into the Wekiva Section 6 pathway at Service Road 2. Based on coordination with Lake County, it was agreed that the width of the pathway will be 12 feet. BCC will update the design to include a 12 foot shared use pathway.
c. It was agreed that Section 5 should complete the intersection design of the Service Road 2 tie-in to CR 46A since they are further along in design and this would also simplify the coordination between the two projects.
d. Match lines between the two projects at Service Road 2 will be established following review of queue lengths, drainage requirements, and superelevation transitions along the Ramp. It is anticipated that the match point will be defined from either the full superelevation transition

from Service Road 2 to SR 46 and/or the required queue lengths for turn lanes. This will be determined following further research and refinement of both design projects.

e. The SR 46 alignment (the T connection to proposed SR 46) did not connect to the tangent of the existing SR 46 at the PT Sta. 8+64.56, so the ahead tangent is off about 0.316' Lt. BCC copied the SR 46 alignment from the Bowyer Singleton concept GPK file. Section 5 utilized the tangent alignment from their R/W Control Survey. BCC will review this issue with McKim & Creed (R/W Map and Survey Consultant for Section 6).
f. The Service Road 2 intersection curb returns should be designed for the appropriate design vehicle (WB 62-FL). Section 5 plans will meet the appropriate turning radii requirements.
g. Mr. Benedico provided the conceptual plans for the Wekiva Trail PD&E Study prepared by Inwood.

TELEPHONE MEMORANDUM

CALL FROM	Alex George, BCC
CALL TO	Debra Laisure, FDEP
PHONE NUMBER	(407) 897-2952
PROJECT	SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir FPID 238275-7
SUBJECT	Compensatory nutrient load reduction in Seminole Creek and Black Water Creek basins
DATE	February 11, 2014
TIME	2:00 PM

Mr. George called Ms. Laisure to discuss the upcoming meeting between FDOT, FDEP and BCC. Ms. Laisure mentioned that she had a decision regarding the use of compensatory nutrient load reduction in the Seminole Creek and Black Water Creek basins to offset increases in the Rock Springs Run and the Wekiva River basins. This issue was discussed during the December 13, 2013 teleconference to discuss nutrient loads in Rock Springs Run. Specifically, the compensatory nutrient load reduction proposed at that meeting would be accomplished through treatment of existing SR 46 – as SR 46 generally serves as the basin divide between Rock Springs Run, Seminole Creek and Black Water Creek on the west end of the project, compensatory nutrient load reduction would allow treatment on the north side of existing SR 46 to offset increases to Rock Springs Run.

Ms. Laisure stated that she had discussed this issue with Cammie Dewey of the SJRWMD, and it was determined that nutrient load reductions in an adjacent basin cannot be used to offset increases in an impaired basin (or a basin with adopted TMDLs) even though all basins ultimately discharge to the Wekiva River.

Therefore, treatment swales on the north side of existing SR 46 will not be investigated further to reduce the nutrient load to Rock Springs Run.

MEETING MINUTES

SUBJECT	**Wekiva Section 6** SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir **Rock Springs Run and Wekiva River Basins - Nutrient Removal Approach** FPID No. 238275-7			
LOCATION	St. Johns River Water Management District (SJRWMD) 601 South Lake Destiny Road, Suite 200 Maitland, FL 32751			
DATE	February 13, 2014			
TIME	10:00 am			
ATTENDEES	Kevin Moss Karen Snyder Debra Laisure David Baggett Lee Marchman Cammie Dewey Alex George Bill Whitegon	FDOT FDOT FDEP FDEP FDEP SJRWMD BCC BCC	(386) 943-5255 (386) 943-5434 (407) 897-2952 (407) 897-2962 (850) 245-8520 (407) 659-4839 (407) 951-6444 (407) 951-6444	kevin.moss@dot.state.fl.us karen.snyder@dot.state.fl.us debra.laisure@dep.state.fl.us david.baggett@dep.state.fl.us lee.marchman@dep.state.fl.us cammie.dewey@sjrwmd.com ageorge@bcceng.com bwhitegon@bcceng.com

MEETING PURPOSE

The purpose of this meeting was to discuss updates to the stormwater approach used to meet 'net improvement' criteria for nutrient loading in the Rock Springs Run and Wekiva River basins.

MEETING MINUTES

Introductions were performed, and Mr. George provided 2 sheets (22" x 34") of the Wekiva 6 project for the group.

1. Rock Springs Run Basin

Mr. George provided an overview of the stormwater revisions to the Rock Springs Run basin since the draft nutrient loading calculations (submitted to FDEP as part of the Draft Technical Memo dated October 30, 2013). The revisions were based on comments made by FDEP in a teleconference on December 13, 2013. The following items were discussed:

a. The pre-development contributing drainage area used in the nutrient loading analysis was revised to include the entire project area (within the estimated proposed right-of-way limits). The area has been expanded since the October 30, 2013 calculations, which did not include the portion of project area which drained to local depressions/closed basins.

b. The removal of existing SR 46 pavement has been incorporated into the post-development nutrient loading analysis where applicable.

c. Pond RS7-E-1, a proposed wet detention pond, will discharge north to Seminole Creek in post-development conditions (no change since the October 30, 2013 analysis).

d. A series of shallow retention is proposed under Wildlife Crossing No. 1. Based on the preliminary analysis, the shallow retention areas will retain the runoff from the 25-year/24-hour storm and recover quickly. Ms. Laisure inquired about the potential impacts to the wildlife crossing from the retention areas. Mr. Moss stated that FDOT is using a wildlife crossing expert (Mark Easley of KCA) to evaluate any potential impacts. Based on previous discussions with Mr. Easley and his preliminary evaluation, there will be no adverse impacts to the wildlife using the crossing. Mr. George will continue to coordinate with Mr. Easley as the design progresses (no change since the October 30, 2013 analysis).

e. FDEP has suggested maximizing the contributing drainage area to retention areas within the Rock Springs Run basin during the December 13, 2013 teleconference in order to increase nutrient load removal. Mr. George stated that Pond RS9-E-1 (a dry retention pond within the property acquired from the Wekiva River Mitigation Bank [WRMB]) was evaluated to determine if the retention depth could be increased from the Line & Grade design and Pond Siting Report analysis. Mr. George stated that any increase in the retention depth resulted in a recovery time of greater than 72 hours. As right-of-way has already been purchased for this pond, increasing the retention volume within Pond RS9-E-1 was deemed infeasible.

f. Mr. George stated that pond RS7-E-2 had been added. This was a pond alternate proposed in the 2010 Pond Siting Report by CH2MHill (called Pond RS8-E-2 in the 2010 Pond Siting Report), but eliminated as part of the Line & Grade pond siting analysis. Due to conflicting geotechnical information gathered in the vicinity of the pond site during Line & Grade and during recent geotechnical investigations of the area by Terracon, further analysis is required to determine if this site will be a proposed wet or dry pond. In either event, Pond RS7-E-2 is able to treat a portion of the contributing drainage area from Pond RS8-E-1 (a wet detention pond within the property acquired from WRMB) and reduce the post-development loading to Rock Springs Run. The post-development nutrient loading from Basin RS8-E-1 was the primary impediment to meeting net improvement criteria in the October 30, 2103 analysis. If the geotechnical investigation shows that a wet pond is recommended, the pond will discharge to Seminole Creek. If dry retention is feasible, the pond outfall would still be able to discharge to Rock Springs Run. In pre-development conditions, this area discharges to Rock Springs Run.

g. No changes to Pond RS8-E-1 are proposed, other than the reduction in contributing drainage area described above. Mr. George noted that the Line & Grade pond design set the control elevation of Pond RS8-E-1 above the SHGWT in order to provide historical basin storage below the control elevation. Based on discussions at the October 1, 2013 meeting, the volume of historical basin storage that recovered within 72 hours was included as retention in the nutrient loading analysis. The nutrient loading calculations were developed to show a retention/wet detention treatment train for Pond RS8-E-1. Ms. Dewey and Ms. Laisure concurred with this treatment train approach for the analysis.

h. As this project is still in the pond siting phase, Mr. George offered several alternatives for treatment of existing impervious area to meet nutrient loading requirements:

   i. Placement of treatment swales along the south side of exiting SR 46, excluding the area adjacent to the WRMB property. Mr. George noted that, based on field investigation and review of parcel maps, right-of-way acquisition will be required along the south side of SR 46 in order to have sufficient room to place treatment swales.

   ii. Pond RS7-E-3, an offsite dry retention pond to treat the south side of existing SR 46.

   iii. Mr. Moss stated that this section of SR 46 will be deeded to Lake County, so these alternatives may have to be included in the agreement with the County. Mr. George noted that these options were alternatives, and are not the current recommended options.

   iv. Mr. George noted that the use of compensatory nutrient loading on the north side of SR 46 (within the Seminole Creek and Black Water Creek basins) was not investigated to provide compensatory treatment in accordance with his conversation with Ms. Laisure on February 11, 2013 (see telephone memo dated February 11, 2014 on this topic).

i. Mr. George stated that the alternatives discussed met net improvement criteria for nitrogen, and were very close (less than 0.5 kg/yr difference) for phosphorus. In addition, no alternate proposed created additional impacts within the WRMB property. Final nutrient loading numbers will be completed once the geotechnical investigation for Pond RS7-E-2 were completed and the type of facility could be determined.

2. Wekiva River Basin

   Mr. George provided an overview of the stormwater approach within the Wekiva River basin to meet net improvement criteria for nitrogen and phosphorus. The scope of the discussion was limited to the basin on the west side of the Wekiva River. The following items were discussed:

   a. The pre-development nutrient loading analysis incorporates existing stormwater facilities currently in place. Existing SR 46 west of the Wekiva River is largely untreated today prior to discharge into the Wekiva River. The existing SR 46 bridge over the Wekiva River is treated by a sand filter (located west of the bridge) constructed as part of the bridge replacement in the 1990s, and has been included in the pre-development nutrient loading calculations.

   b. The post-development stormwater approach was discussed. The basin limits have been revised to reflect the change in roadway grades proposed for the Wekiva River bridges, and then split into 2 sub-basins. The Line & Grade pond siting analysis proposed a wet detention pond (Pond WR1-E-1, called Pond BW2-E-5 during the Line & Grade design) to provide treatment and attenuation for the entire basin. However, a wet detention pond provides insufficient nutrient removal to meet net improvement criteria. Therefore, alternatives to provide retention within the basin were investigated.

   c. The soils within the Wekiva River basin are classified as hydrologic soil groups A, A/D and D. Potential retention sites were evaluated in Type A and A/D soils using preliminary geotechnical boring information.

   d. Mr. George presented an alternative to provide a dry retention area (Pond WR1-E-5) to provide water quality and some attenuation for the eastern sub-basin (between Wekiva River Road and the high point of the bridges). The western sub-basin would be treated through wet detention in Pond WR1-E-1. Mr. George noted that the preliminary layout of Pond WR1-E-5 impacted 3 parcels in order to accommodate potential roadway improvements and a cell tower located south of SR 429.

   e. Mr. Moss and Ms. Laisure asked if the retention area could be relocated on to existing State land located north of SR 429, rather than impacting multiple private parcels on the south side of SR 429. Mr. George stated that while there were some Type A and A/D soils located on the north side of SR 429, the proposed FGT gas easement, a nearby Zone A floodplain and the sloping topography of the land limited the viability of this alternative. Mr. George stated that BCC would evaluate feasible options north of SR 429, but would require geotechnical investigation to determine if dry retention would recover in this area. Mr. George will keep Mr. Moss and Ms. Snyder apprised of the results of this evaluation.

f. A second alternative to meet net improvement for nutrient loading was presented. A smaller dry retention pond would be required at Pond WR1-E-5, and Pond WR1-E-6 (located on the north side of SR 429 on State lands) would provide pre-treatment of runoff prior to entering Pond WR1-E-1. Geotechnical investigation is required to verify the feasibility of Pond WR1-E-6 as a dry retention pond, as the SHGWT is approximate based on adjacent borings.

g. Mr. Baggett asked why Pond WR1-E-6 had an odd shape. Mr. George stated that the pond shape was dictated by the location of Type A soils from the Lake County Soil Survey and topographic constraints.

h. Discussion of the stormwater approach on the east side of the Wekiva River will take place in a future meeting once design has progressed, as that discussion will involve URS (the design consultant for Wekiva Section 7A). Ms. Snyder will set up a meeting to discuss this item.

i. Mr. George noted that the final pond siting layout for the Wekiva River basin on the west side of the river would be dependent on the cell tower location (the cell tower location shown on the exhibit is approximate, and based on a pdf), and any required over-attenuation of peak discharges should there be insufficient room to provide adequate attenuation on the east side of the river.

j. Mr. Moss asked if the proposed 12' trail was included in this analysis. Mr. George stated that the Line & Grade design file was used for the stormwater analysis, and he was not sure whether the trail had been incorporated into the plans. Mr. George further noted that the analysis did assume that the roadway section was entirely impervious from edge of pavement to edge of pavement in the mainline limits (i.e., the median was considered fully paved) to remain conservative and allow flexibility if additional treatment is needed for a trail. Ms. Dewey stated than an exemption may be possible for the trail since it is 12'wide, but would need to meet the permitting thresholds for this type of Minor Safety Project Exemption that includes no wetland and/or surface water impacts. Ms. Dewey will coordinate with Ms. Laisure and the Team on this issue as the design progresses.

3. <u>Other</u>

a. Ms. Dewey stated that FDEP has been revising its list of Impaired Water Bodies, with some being added and some removed. Ms. Laisure stated that this work was being done within the Watershed Restoration Department within FDEP, which is in a different section than Permitting. Therefore, Ms. Laisure is not aware of all the upcoming changes or proposed actions within the Wekiva River basin.

There was concern that the Black Water Creek or Seminole Creek basins could added as Impaired Water Bodies in the future, and this could invalidate the stormwater approach for nutrient loading currently being discussed. Ms. Dewey stated any new regulations or criteria that are enacted prior to receiving an ERP for the project would have to be incorporated into the project design. Ms. Dewey further stated that a Conceptual Permit would not alleviate the need to meet current criteria at the time the construction permit (ERP) is applied for.

If an ERP for the entire project is obtained during the development of the Concept Plans (this phase of the design), then this would eliminate the risk of potential changes to any basin impairment status. Ms. Dewey stated if a Design-Build Team proposed changes to the permitted design that exceeded the threshold of a letter modification (i.e., a major modification) after FDEP had changed the basin impairment status or adopted TMDL, then the Design-Build Team would simply be required to maintain the level of nutrient load reduction provided in the permitted design. The nutrient loading calculations for these basins would be prepared by the Design-Build Team (using the permitted design as the baseline for the post-development condition). A letter modification of the permitted design would not require any additional nutrient loading calculations or demonstration of nutrient load reduction.

Mr. Marchman stated that a good FDEP contact to discuss the direction of BMAP and TMDL activity is Beth Alvy. She can be reached at (850) 245-8559.

Ms. Snyder stated she would check with Robert Potts at E Sciences, District Five's NPDES Consultant, to see if he has any information regarding proposed impairments or TMDLs within the Wekiva River basin.

b. Ms. Dewey asked if other stormwater alternatives had been considered to meet the nutrient loading. Specifically, the use of a filter media (Bold and Gold™) to provide nutrient load removal. Ms. Dewey referenced the SR 40 design currently being performed by Horizon Engineering. Mr. George stated that while only 'conventional' stormwater alternatives were being discussed now in order to estimate right-of-way needs, alternate methods could also be evaluated as design progresses. Ms. Snyder stated that she would contact Pete Manz at Horizon Engineering to discuss any updates to the stormwater alternatives employed on SR 40.

MEETING MINUTES

SUBJECT	**Wekiva Section 6** SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir **Permitting Approach for the Recreational Trail** FPID No. 238275-7			
LOCATION	Teleconference			
DATE	July 24, 2014			
TIME	10:00 am			
ATTENDEES	Karen Snyder Debra Laisure Cammie Dewey Alex George Tom Roberts	FDOT FDEP SJRWMD BCC E Sciences	(386) 943-5434 (407) 897-2952 (407) 659-4839 (407) 951-6444 (386) 734-0521	karen.snyder@dot.state.fl.us debra.laisure@dep.state.fl.us cammie.dewey@sjrwmd.com ageorge@bcceng.com troberts@esciencesinc.com

MEETING PURPOSE

The purpose of this meeting was to discuss the following:

A. The permitting approach for the 12' multi-use trail proposed within Wekiva Section 6
B. The proposed multi-use trail in Wekiva Section 4A/4B (which is currently in the PD&E phase), as this trail has several of the same project issues as encountered in Wekiva Section 6
C. The groundwater drawdown requirements for the ponds in Basin BW2 was

MEETING MINUTES

Mr. George provided 2 pdf documents to the group:

- A Project Layout of Wekiva Section 6 project.
- The typical sections showing the proposed trail from the 30% submission.

1. **Permitting Approach** – Mr. George explained the current permitting approach for the Wekiva Section 6 project. As the Wekiva River bridges must be reviewed by the National Park Service (NPS), it was determined to split the project into 2 separate ERP applications in order to expedite consultation with the NPS under the Section 7(a) of the Wild and Scenic Rivers Act. Therefore, the project has been broken out into the following segments for permitting purposes:

    a. Begin project to Wekiva River Rd (Sta. 640+00 to Sta. 900+37, SR 429) – hereinafter referred to as Segment 1

b. Wekiva River Rd to end project (Sta. 900+37 to Sta. 931+20) – hereinafter referred to as Segment 2 [note: the project limits of this permit extend beyond the end project, and include a small portion of the Wekiva Section 7A project. The limits were extended to include the ponds necessary to provide treatment and attenuation of runoff for the Wekiva River bridges]

The status of permitting for each section is provided below:

c. Segment 1: No ERP application has been made to FDEP or USACE as of this date. It is anticipated that the permit application packages will be submitted following FDOT approval of 60% plans (currently scheduled for December 2014, but may be advanced).
d. Segment 2: An ERP application has been prepared and submitted to the U.S. Army Corps of Engineers (USACE) to initiate the Section 7(a) consultation with the NPS. No ERP application has been made to FDEP as of this date.

2. **SJRWMD Criteria for the Wekiva River Basin** – discussion followed o the current threshold criteria for the Wekiva River basin under the Statewide ERP (SWERP) rules adopted on October 1, 2013:

a. Ms. Dewey stated that the Riparian Habitat Protection Zone criteria listed in Section 1.2.2 of the SJRWMD Permit Information Manual ("Activities in the Wekiva Riparian Habitat Protection Zone") is now the only permitting threshold criteria for work within the Wekiva River Basin. This section states that a permit is required for any activity that is located wholly or partially within the Wekiva River Hydrologic Basin's Riparian Habitat Protection Zone (RHPZ).
b. Other threshold criteria for the Wekiva River Basin that were previously included in 40C-4, F.A.C. are now included in Section 3.1 of the SJRWMD Permit Information Manual ("Projects that Must Meet Water Quantity Criteria").
c. Ms. Dewey noted that the construction of multi-use recreational paths for pedestrians, bicycles and golf carts are exempt from permitting under Ch. 62-330.051(10), F.A.C., provided they meet the conditions listed therein.

3. **Permitting Approach for the Trail in the ERP Applications for Segments 1 and 2** – there was discussion on the permitting approach for Segments 1 and 2:

a. The approach of splitting the trail out from the rest of the project improvements was discussed in order to allow the trail to meet exemption criteria for Segment 1. The trail within Segment 2 cannot be exempt from permitting, as it is partially within the Wekiva River RHPZ. It was determined that splitting the trail out for a separate exemption request would complicate the permitting process, and all parties agreed that the Segment 1 improvements (including the trail) should be included in one ERP application.

b. A majority of the Segment 1 trail is either drained via sheet flow to adjacent properties, or is collected and conveyed by swales. Water quality treatment for these areas may be addressed through the use of Best Management Practices (i.e., providing overland flow for the runoff from the trail to promote infiltration) rather than using presumptive design (i.e., ponds) for treatment. Ms. Dewey stated that the SJRWMD recommends the use of Best Management Practice for trail projects.
c. Portions of the Segment 1 trail which are bounded by wall or barrier (and therefore cannot drain via overland flow to promote infiltration) will be conveyed to ponds.
d. The trail (both within Segment 1 and Segment 2) does not need to be included in the net improvement analysis for nutrient loading. A non-vehicular multi-use trail creates a de minimis impact to nutrient loads, as evidenced by its inclusion in Ch. 62-330.051, F.A.C. The trail will be included in the post-development routing to meet attenuation requirements. Email correspondence from FDEP and SJRWMD on this issue is attached herewith.
e. A narrative describing the approach used for the multi-use trail will be included in the Drainage Report submitted to FDEP as part of the ERP application.

4. **Segment 1: Use of Ditch Blocks as a Best Management Practice for Water Quality Treatment** – the use of ditch blocks in the roadside ditch adjacent to the trail as a method to provide water quality treatment was discussed. Ms. Dewey stated that SJRWMD does not consider ditch blocks in this instance to be a good idea, as the roadside swales collect and conveys offsite flow and the ditch blocks will hinder the conveyance capacity of the swales. Ms. Snyder agreed, and stated that the FDOT prefers not to use ditch blocks due to maintenance concerns. All agreed that ditch blocks will not be used as a Best Management Practice for the multi-use trail on Wekiva Section 6.

5. **Segement 1: Groundwater Drawdown in Basin BW2** – the requirements for a groundwater drawdown in Basin BW2 (within the Blackwater Creek WBID, from Wildlife Crossing No. 2 to west of Wekiva River Rd) were discussed.
   a. Long-term piezometer data has been collected in the Blackwater Creek basins [Basins BW1 and BW2 in Wekiva Section 6] since July 2013 in order to verify seasonal high groundwater table (SHGWT) data collected during the Line & Grade phase of the project.
   b. The long-term piezometer readings indicate higher SHGWT elevations than previously indicated during the Line & Grade phase.
   c. As a portion of existing SR 46 will remain within Basin BW2 in order to provide access to residential parcels north of the Wekiva Parkway, there is a risk that higher groundwater tables will cause failure of the base material. The SHGWT calculated from the piezometer data shows that there is not adequate base clearance (between the SHGWT and the bottom of base on existing SR 46) to meet FDOT criteria.
   d. A proposed solution to this issue is drawing down the groundwater table using the interconnected wet ponds proposed in between existing SR 46 and the Wekiva Parkway in

this area (Ponds BW2-E-1 and BW2-E-2). The approximate drawdown of the average groundwater elevation needed to meet base clearance requirements is 2 feet. There is a 3rd wet pond proposed for this basin (Pond BW2-E-4), which is located downstream of the interconnected ponds.

e. Ponds BW2-E-1 and BW2-E-2 are not located within the Water Quantity Protection Zone of the Wekiva River Hydrologic Basin.
f. Mr. George stated that calculations showing the zone of influence would be included in the ERP application, and the base flow from the groundwater drawdown would be included in the analysis of the ponds. He asked if any additional information would be required.
g. Ms. Dewey and Ms. Laisure suggested that the ponds with groundwater drawdown not be interconnected to the 3rd proposed wet pond in order to minimize dilution of the water quality treatment provided due to nutrient loads from the groundwater. Mr. George stated that a separate outfall would be provided for the interconnected ponds, and that a level spreader could be used for both pond outfalls to discharge to the adjacent wetlands.

Alex George

From: Laisure, Debra <Debra.Laisure@dep.state.fl.us>
Sent: Thursday, August 07, 2014 2:00 PM
To: Alex George; Cammie Dewey (cdewey@sjrwmd.com)
Subject: RE: meeting minutes for trail on Wekiva 6

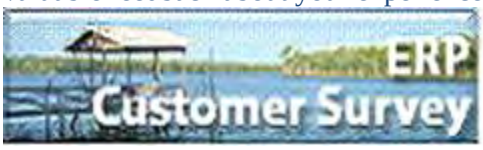
Alex –
My apologies for checking you first email more closely. I set it aside to review later thinking it contained minutes, but didn't realize you had a question in it.

I just talked to Cammie. Our recollection is that you don't need to include the recreational trail on the bridge in your nutrient loading analysis, but that you do need to account for it when routing your storm event.

Does that help?

Deb Laisure
DEP Central District Water Permitting
407-897-2952
Debra.Laisure@dep.state.fl.us

If you have received an authorization from the ERP program, please click on the survey link (below) to provide us valuable feedback about your experience:



Additional web resources:

From: Alex George [mailto:ageorge@bcceng.com]
Sent: Thursday, August 07, 2014 1:55 PM

To: Cammie Dewey (cdewey@sjrwmd.com)
Cc: Laisure, Debra
Subject: FW: meeting minutes for trail on Wekiva 6

Cammie-

I wanted to follow up on an email I sent about a week ago (see below) to get a clarification for the meeting minutes (for our Wekiva 6 teleconference on the trail on 7/24). If you have a chance, could you please let me know if the segment of trail that impacts the RHPZ needs to be included in the nutrient loading? Or that none of the trail (including the portion that impacts the RHPZ) can be excluded from the nutrient loading calcs?

Please let me know when you have a chance.

Thanks,
Alex

Alex George, PE
Senior Drainage Engineer

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160 N. Westmonte Drive, Suite 2000
Altamonte Springs, FL 32714
t. (407) 951-6444
f. (407) 982-7520
m. (407) 697-2079
e. ageorge@bcceng.com
w. www.bcceng.com

From: Alex George
Sent: Wednesday, July 30, 2014 10:38 AM
To: 'Laisure, Debra'; 'Cammie Dewey (cdewey@sjrwmd.com)'
Cc: 'Snyder, Karen'
Subject: meeting minutes for trail on Wekiva 6

Deb and Cammie-

I'm trying to wrap up the minutes from our teleconference last week regarding the trail permitting for Wekiva 6, and I came across some contradictory notes that I made – I wanted to see if you could clarify one issue for the me.

Cammie, you stated that the trail does not need to be included in the net improvement calculations for nutrient loading – and that either best management practices be employed or the runoff be taken to ponds (where wall is used adjacent to the trail).

As we're splitting the project into 2 segments (for the purposes of the ERP applications), does this statement hold true for the trail on the Wekiva River bridges (i.e., the portion of the project within the RHPZ)? We would be conveying the trail runoff from the bridges to ponds, but does this trail within this section need to be included in the nutrient loading calculations?

Please let me know when you have a chance.

Thanks,
Alex

MEETING MINUTES

SUBJECT	**Wekiva Section 6** SR 429/SR 46 from 0.758 Miles W of Old McDonald Rd to 0.04 miles E of River Oaks Cir **Meeting with Mr. and Mrs. Mehl** **RE: Pond WR1-E-8** FPID No. 238275-7			
LOCATION	32115 Peachtree Lane, Sorrento, FL 32776			
DATE	June 5, 2014			
TIME	2:00 pm			
ATTENDEES	Kevin Moss Diane Taylor Steve Boylan Alex George Mary Brooks	FDOT FDOT GAI BCC Quest	(386) 943-5434 (407) 897-2952 (407) 423-8398 (407) 951-6444 (866) 662-6273	kevin.moss@dot.state.fl.us diane.taylor@dot.state.fl.us s.boylan@gaiconsultants.com ageorge@bcceng.com mary.brooks@QCAusa.com

Note: The minutes below do not constitute complete meeting minutes. The minutes cover a conversation regarding historical flooding on the property.

MEETING MINUTES

Mr. George asked Mr. Mehl whether he was aware of any flooding that had occurred in the ditch behind his house. Mr. and Mrs. Mehl stated that they were unaware of any past flooding in the ditch since they had purchased the property in the late 1990s. (Property records from the Lake County Property Appraisers website indicate that the Mehls purchased the property in 1998).

The ditch begins at a cross drain under Wekiva River Rd, and flows east to the Wekiva River. The ditch is approximately 15 feet deep in the vicinity of thee Mehl property.

APPENDIX H

Excerpts from Previous Permit Documentation

EXISTING WEKIVA RIVER BRIDGE

PERMIT

ERP 4-117-22408-1

Permit with conditions 1728

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Henry Dean, Executive Director
John R. Wehle, Assistant Executive Director
Charles T. Myers III, Deputy Assistant Executive Director

POST OFFICE BOX 1429 PALATKA, FLORIDA 32178-1429
TELEPHONE 904/329-4500 SUNCOM 904/860-4500
TDD 904/329-4450 TDD SUNCOM 860-4450
FAX (EXECUTIVE/LEGAL) 329-4125 (PERMITTING) 329-4315 (ADMINISTRATION/FINANCE) 329-4508

FIELD STATION

618 E. South Street
Orlando, Florida 32801
407/897-4300
TDD 407/897-5960

7775 Baymeadows Way
Suite 102
Jacksonville, Florida 32256
904/730-6270
TDD 904/730-7900

PERMITTING:
305 East Drive
Melbourne, Florida 32904
407/984-4940
TDD 407/722-5368

OPERATIONS:
2133 N. Wickham Road
Melbourne, Florida 32935-8109
407/254-1762
TDD 407/253-1203

January 9, 1996

FLORIDA DEPARTMENT OF TRANSPORTATION
719 S. WOODLAND BOULEVARD
DELAND, FL 32720

SUBJECT: Management and Storage of Surface Waters
Individual Permit Number 4-117-0377G

Dear Sir:

Enclosed is your permit as authorized by the Governing Board of the St. Johns River Water Management District on January 9, 1996.

This permit is a legal document and should be kept with your other important documents. The attached MSSW/Stormwater As-Built Certification Form should be filled in and returned to the Palatka office within thirty days after the work is completed. By so doing, you will enable us to schedule a prompt inspection of the permitted activity.

In addition to the MSSW/Stormwater As-Built Certification Form, your permit also contains conditions which require submittal of additional information. All information submitted as compliance to permit conditions must be submitted to the Palatka office address.

Permit issuance does not relieve you from the responsibility of obtaining permits from any federal, state and/or local agencies asserting concurrent jurisdiction for this work.

In the event you sell your property, the permit will be transferred to the new owner, if we are notified by you within thirty days of the sale. Please assist us in this matter so as to maintain a valid permit for the new property owner.

Thank you for your cooperation and if this office can be of any further assistance to you, please do not hesitate to contact us.

Sincerely,

Quen Johnson

Quen Johnson, Data Control Technician
Permit Data Services Division

Enclosures: Permit with EN form(s), if applicable

cc: District Permit File
BOWYER-SINGLETON AND ASSOCIATES, INC.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Post Office Box 1429
Palatka, Florida 32178-1429

PERMIT NO. 4-117-0377G DATE ISSUED January 9, 1996

A PERMIT AUTHORIZING:

CONSTRUCTION OF A SURFACE WATER MANAGEMENT SYSTEM THAT CONSISTS OF REPLACING A SUBSTANDARD 252-FOOT LONG, 27-FOOT WIDE TWO-LANE BRIDGE WITH A 561-FOOT LONG, 47-FOOT WIDE (INCLUDES 10-FOOT WIDE SAFETY SHOULDERS ON THE BRIDGE), 8-FOOT WIDE SAFETY SHOULDERS ON BOTH SIDES OF THE ROAD.

LOCATION:

Section 21, Township 19 South, Range 29 East
Seminole County

ISSUED TO:
(owner)

FLORIDA DEPARTMENT OF TRANSPORTATION
719 S. WOODLAND BOULEVARD
DELAND, FL 32720

Permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This Permit may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes:

PERMIT IS CONDITIONED UPON:

See conditions on attached "Exhibit A", dated January 9, 1996

AUTHORIZED BY: St. Johns River Water Management District

Department of Resource Management Governing Board

By: _____ By: _____
(DIRECTOR) (ASSISTANT SECRETARY)
JEFF ELLEDGE HENRY DEAN

"EXHIBIT A"

CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 4-117-0377G

FLORIDA DEPARTMENT OF TRANSPORTATION

DATED JANUARY 9, 1996

1. All construction, operation and maintenance shall be as set forth in the plans, specifications and performance criteria as approved by this permit.

2. District authorized staff, upon proper identification, will have permission to enter, inspect and observe the system to insure conformity with the plans and specifications approved by the permit.

3. The permittee must implement and maintain all erosion and sediment control measures (best management practices) required to retain sediment on-site and to prevent violations of the water quality criteria and standards in chapters 62-4, 62-302, F.A.C. All practices must be in accordance with the guidelines and specifications in section 6 of the Florida Land Development Manual: A Guide to Sound Land and Water Management (Florida Department of Environmental Regulation 1988) unless a project-specific erosion and sediment control plan is approved as part of the permit in which case the practices must be in accordance with the plan. If site specific conditions require additional measures during any phase of construction or operation to prevent erosion or control sediment, beyond those specified in the erosion and sediment control plan, the permittee must implement additional best management practices as necessary, in accordance with the specifications in section 6 of the Florida Land Development Manual: A Guide to Sound Land and Water Management (Florida Department of Environmental Regulation, 1988).

4. Stabilization measures shall be initiated for erosion and sediment control on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

5. The operation phase of the permit shall not become effective until a Florida registered Professional Engineer certifies that the system, or independent portion of a system, has been constructed in accordance with the permit issued by the District, and the permittee

receives written notification by District staff that the construction, alteration, or maintenance has been completed according to the permit. Within 30 days after completion of construction of the surface water management system, or independent portion of the system, the permittee shall submit the certification or one set of plans which reflect the surface water management system as actually constructed. This submittal shall serve to notify the District that the system is ready for inspection. The permit may not be transferred to an operation and maintenance entity approved by the District until the operation phase of the permit becomes effective.

6. If any other regulatory agency should require revisions or modification to the permitted project, the District is to be notified of the revisions so that a determination can be made whether a permit modification is required.

7. The District must be notified, in writing, within 30 days of any sale, conveyance, or other transfer of a permitted system or facility or within 30 days of any transfer of ownership or control of the real property at which the permitted system or facility is located. All transfers of a permit are subject to the requirements of section 40C-1.612, F.A.C.

8. The permittee must require the contractor to review and maintain a copy of this permit, complete with all conditions, attachments, exhibits, and modifications in good condition at the construction site. The complete permit shall be available for review upon request by District representatives.

9. Construction or alteration of each phase or independent portion of the permitted surface water management system (system) must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be complete in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of that phase or portion of the system to local government or other responsible entity.

10. To the extent permitted by Florida law, the permittee must hold and save the District harmless from any and all liability arising from property damage or personal injury as a result of the permitted activities.

11. Nothing contained herein relieves the permittee from timely complying with applicable laws or other federal, state, or local governments.

12. If an entity other than the permittee has been approved as the operation and maintenance entity, the permittee may request transfer of the permit for a completed system or independent portion of a system to the District approved operation and maintenance entity at the time of submittal of the as-builts or Professional Engineer certification for construction of the permitted surface water management system.

13. This permit for construction will expire five years from the date of issuance.

14. Construction or alteration of the surface water management system must be completed and all disturbed areas must be stabilized in accordance with permitted plans and permit conditions prior to any of the following events (whichever occurs first): issuance of a certificate of occupancy; use of the infra-structure for its intended use; or transfer of responsibility for operation and maintenance to a local government or other responsible entity.

15. The permittee must obtain a General or Individual permit from the District prior to beginning construction of subsequent phases or any other work not specifically authorized by this permit.

16. A Registered Professional Engineer (P.E.) or his or her designee must be on-site to verify that the filtration system is constructed according to the permitted plans. This P.E. must submit a signed and sealed inspection report to the District using form number EN-42 within 30 days of completion of the filter system. An annual inspection of the filter system must be made by a P.E. or his or her designee in the month of May. A signed and sealed inspection report must be submitted to the District by the inspecting P.E. within 30 days of the inspection date. If the filtration system is not functioning as designed and permitted, maintenance must be performed immediately and reported in the annual inspection report. If maintenance measures are insufficient to enable the system to meet the design and performance standards in chapter 40C-42, the permittee must obtain District approval of an alternate design.

17. All wetland areas or water bodies that are outside of the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity, and dewatering.

18. Prior to construction, the permittee must clearly designate the limits of construction on-site. The permittee must advise the contractor that any work outside the limits of construction, including clearing, is a violation of this permit.

19. The operation and maintenance entity shall submit inspection reports to the District one year after the operation phase permit becomes effective and every two years thereafter on District form EN-46. The inspection form must be signed and sealed by an appropriate registered professional.

20. The proposed project must be constructed as per plans received by the District on December 13, 1994, sheets 1 through 71 and bridge plans sheets B-1 through b-27, and EB-1 through EB-5, and revised plans received December 13, 1995.

21. The permittee is responsible for implementation of detailed erosion and turbidity control plans appropriate to the construction technique utilized and any additional measures necessary to prevent violations of water quality standards as specified in chapters 62-3 and 62-4, F.A.C. Alternative methods must be provided if state water quality standards are not maintained by the measure specified.

22. Within thirty (30) days of the issuance of his permit, the permitted must submit an Erosion and Sediment Control Plan to the District for review and approval. The erosion and sediment control plan must demonstrate that the permittee will retain sediment onsite and prevent the violation of any water quality standard as set forth in Chapters 62-4 and 62-302, F.A.C. The plan must demonstrate that the permittee will use best management practices to control erosion during the construction, operation and abandonment of the proposed temporary bridge and roadway, and the construction, operation, and maintenance of the proposed permanent bridge and roadway. The plan must provide that each disturbed area will be permanently stabilized within (7) days of completion of construction on that area and temporarily stabilized in each instance where no construction activity occurs on that area for a period of seven (7) or more days. All slopes equal to or steeper than 2:1 shall be permanently stabilized by sodding and staking the slopes. The erosion and sediment control plan must include the following minimum information as described in Section 18.3 of the Applicant s Handbook: Management and Storage of Surface Waters. The plan must include consideration of the site specific erosion potential, including slopes, soil erodability, vegetation cover, and runoff characteristics. The following is a listing of the minimum information , which must be included in the plan, to be shown on construction plans, detail sheets, or other appropriate documents:

    (a) The existing and proposed topography;

    (b) A general description of the predominant soil types on the site, and the corresponding erodability potential as described by the appropriate soil survey information or onsite investigation;

(c) Proposed schedule and general description of each construction phase of the project. At a minimum, the following applicable phases must be addressed: clearing, excavation earthwork, embankment earthwork, site utilities, roads, site grading and stabilization. The schedule must include estimated starting date and duration. Description must include limits of area impacted by each phase; and

(d) For each construction phase, a description of the following:

1. Storm drainage characteristics, including flow patterns and the peak velocity and discharge from the 1-in-2 year 24 hour storm at all locations where control measures are proposed and a points of offsite discharge; and

2. Individual control measures (to be shown on construction plans or detail sheets);

a. Estimated date of installation and removal,

b. Location,

c. Purpose of measure and are served,

d. Detailed construction drawings and specifications,

e. Operation and maintenance schedule, and

f. All supporting calculation and documentation including referenced design standards and specification.

This Erosion and Sediment Control Plan must be approved by the District prior to the commencement of any construction.

23. The permittee must have an engineer inspect the erosion, sediment and turbidity control measures and flow maintenance measures on at least a daily basis to ensure that their effectiveness is maintained, throughout the duration of construction. The name, address and phone number of the inspector must be submitted to the District prior to construction.

24. The permittee must submit two(2) copies of as-built plans for restoration of the 0.8-acre temporary detour road area and the 0.7-acre area under the new bridge, certified by a registered surveyor or professional engineer, showing dimensions, grade, ground elevations, water surface elevations, and an inventory of the planted species. The inventory must include the type, number, distribution and size of the planted vegetation, and must be referenced to the as-built survey. The as-built must

be submitted within thirty(30) days of completion of the initial planting on the 1.25 acre tract.

25. The permittee must restore the 0.8 acre and the 0.7 acre areas and enhance the 1.25-acre area as shown in the plans received on November 1, 1994 and amended on December 13, 1995. Planting within the 0.7 acre area under the new bridge must be completed within 21 days of completion of construction of the new bridge. Planting within the 0.8 acre temporary road construction area must begin within 5 days of removal of the temporary road and be completed within 21 days of initial planting. The ditch blocks on the 1.25 acre tract must be constructed within 30 days of the start of construction of this project (includes land clearing). Planting on the 1.25 acre tract must be completed within 30 days of construction of the ditch blocks.

26. Within 30 days of completion of initial planting on the 1.25 acre tract, the permittee must submit to the District for review and approval a plan describing precisely the site-specific methods to be used to monitor planted vegetation within the 0.7 acre and 0.8 acre restored areas and the 1.25 acre enhancement tract so that compliance with success criteria can be clearly demonstrated. The plan must be sufficient to furnish the District with the following information:

    a. monthly surface water elevations from either the 0.7 acre or 0.8 acre restoration areas, on both sides of the river. The data must be measured from a staff gauge calibrated to the National Geodetic Vertical Datum and placed to best determine wetland inundation patterns within the restoration areas. Data must be collected during the first week of each month for each month during the five-year monitoring period and shall be reported annually along with river stage information and with plant community data.

    b. survivorship of trees planted in the 0.8 acre restoration area and the 1.25 acre tract, calculated independently for each planted area (i.e., by planting zone and by east side and west side of the river). At least 25% of planted trees must be examined regularly.

    c. percent cover of shrubs and herbaceous plants. An accepted quantitative sample technique (e.g., line-intercept method) shall be used to quantify percent-cover of these plants along multiple, fixed transects in each individual planted area.

d. panoramic photographs from at least two, well-separated points on the east and west sides of the river for each of the 0.7 acre and 0.8 acre restoration areas and in the 1.25 acre tract.

Following the initial as-built report, plant-community data must be collected annually between July 1 - July 31 for each year of a five-year monitoring interval. The data must be reported to the District within 90 days of sampling. Reports shall include descriptions of any sampling problems or loss of data, and any other information useful in assessing the state of on-site plant communities.

27. Successful establishment of the plantings in the 0.7 acre, 0.8 acre and 1.25 acre tracts will occur when, by the end of the five-year monitoring interval,

a. planted herbs (or other desirable, indigenous wetland vegetation) achieve not less than 80% area cover (as determined by a suitable percent-cover sampling technique, e.g. line-intercept method); and

b. tree survivorship is 80% or greater.

28. If the project fails to comply with the above condition, the permittee must apply for a District permit modification no later than 30 days after the end of the five-year monitoring period. The application must include a narrative describing the type and causes of failure and contain a complete set of plans for the redesign of the 0.7 acre, 0.8 acre and 1.25 acre areas so that the success criteria will be achieved. Within 30 days of District approval and issuance of the permit modification, the permittee must implement the revised mitigation plan. Upon completion of the modification, the project must comply with the above condition(or any modified condition required by the permit modification). Also, site-sampling and monitoring shall be performed as required by any permit condition.

29. The permittee shall provide the District with no fewer than two copies of each annual monitoring report. All photographs submitted with each report shall be duplicated from color film negatives or color photocopies. Black-and-white photocopies of photographs do not adequately depict trends in on-site plant community evolution and are not suitable for analysis by District staff.

30. The District must be notified (in writing) of any supplemental plantings in the 0.7 acre, 0.8 acre, and 1.25 acre areas within 14 days of planting. No supplemental vegetation may be planted within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

31. Within the 0.7 acre, 0.8 acre, and 1.25 acre areas, noxious vegetation (i.e., Alteranthera philoxeroides, Colocasia esculenta, Azolla caroliniana, Eichhornia crassipes, Ludwigia peruviana, L. decurrens, L. leptocarpa, L. octovalvis, Pistia stratiotes, Salvinia rotundifolia, Typha spp., Vitis spp., Kubus spp.,Dioscorea bulbifera, Paederia foetida, Cynodon dactylon, Paspalum notatum) must be controlled by hand-clearing (or other methods approved by the District) so that these species constitute no more than 10% (by aerial cover) of any vegetation stratum. No noxious vegetation may be cleared within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

32. The use of non-native grasses, or the placement of sod in the 0.7 acre, 0.8 acre and 1.25 acre areas is specifically prohibited.

33. The permittee must record a conservation easement pursuant to section 704.06, F.S., over the real property as described in the approved mitigation plan, dated November 1, 1994 and amended December 13, 1995. The easement must prohibit all construction including clearing, dredging or filling except that which is specifically authorized by this permit within the 1.25-acre enhancement area as delineated on the final plans approved by this permit. The easement must contain provisions as set forth in paragraphs 1(a)-(h) of section 704.06, F.S. as well as provisions that the easement may be enforced by the District and may not be amended without District approval. The draft easement must be submitted for District review and approval prior to recording and no later than 30 days from the date of issuance of this permit. A surveyor s sketch of the area included in the legal description and an additional surveyor s sketch of the easement area plotted on the appropriate USGS topographic map must be submitted with the draft easement. The easement must be recorded and the easement boundaries must be permanently monumented on the project site prior to the sale of any lot or parcel, initiation of construction, or within 90 days of the issuance of this permit, whichever occurs first.

    The permittee must provide the District with a certified copy of the final recorded easement showing the official records book and page number no later than 30 days after receipt of District approval of the draft easement.

"EXHIBIT A"

CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 4-117-0377G

FLORIDA DEPARTMENT OF TRANSPORTATION

DATED JANUARY 9, 1996

1. All construction, operation and maintenance shall be as set forth in the plans, specifications and performance criteria as approved by this permit.

2. District authorized staff, upon proper identification, will have permission to enter, inspect and observe the system to insure conformity with the plans and specifications approved by the permit.

3. The permittee must implement and maintain all erosion and sediment control measures (best management practices) required to retain sediment on-site and to prevent violations of the water quality criteria and standards in chapters 62-4, 62-302, F.A.C. All practices must be in accordance with the guidelines and specifications in section 6 of the Florida Land Development Manual: A Guide to Sound Land and Water Management (Florida Department of Environmental Regulation 1988) unless a project-specific erosion and sediment control plan is approved as part of the permit in which case the practices must be in accordance with the plan. If site specific conditions require additional measures during any phase of construction or operation to prevent erosion or control sediment, beyond those specified in the erosion and sediment control plan, the permittee must implement additional best management practices as necessary, in accordance with the specifications in section 6 of the Florida Land Development Manual: A Guide to Sound Land and Water Management (Florida Department of Environmental Regulation, 1988).

4. Stabilization measures shall be initiated for erosion and sediment control on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

5. The operation phase of the permit shall not become effective until a Florida registered Professional Engineer certifies that the system, or independent portion of a system, has been constructed in accordance with the permit issued by the District, and the permittee

receives written notification by District staff that the construction, alteration, or maintenance has been completed according to the permit. Within 30 days after completion of construction of the surface water management system, or independent portion of the system, the permittee shall submit the certification or one set of plans which reflect the surface water management system as actually constructed. This submittal shall serve to notify the District that the system is ready for inspection. The permit may not be transferred to an operation and maintenance entity approved by the District until the operation phase of the permit becomes effective.

6. If any other regulatory agency should require revisions or modification to the permitted project, the District is to be notified of the revisions so that a determination can be made whether a permit modification is required.

7. The District must be notified, in writing, within 30 days of any sale, conveyance, or other transfer of a permitted system or facility or within 30 days of any transfer of ownership or control of the real property at which the permitted system or facility is located. All transfers of a permit are subject to the requirements of section 40C-1.612, F.A.C.

8. The permittee must require the contractor to review and maintain a copy of this permit, complete with all conditions, attachments, exhibits, and modifications in good condition at the construction site. The complete permit shall be available for review upon request by District representatives.

9. Construction or alteration of each phase or independent portion of the permitted surface water management system (system) must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be complete in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of that phase or portion of the system to local government or other responsible entity.

10. To the extent permitted by Florida law, the permittee must hold and save the District harmless from any and all liability arising from property damage or personal injury as a result of the permitted activities.

11. Nothing contained herein relieves the permittee from timely complying with applicable laws or other federal, state, or local governments.

12. If an entity other than the permittee has been approved as the operation and maintenance entity, the permittee may request transfer of the permit for a completed system or independent portion of a system to the District approved operation and maintenance entity at the time of submittal of the as-builts or Professional Engineer certification for construction of the permitted surface water management system.

13. This permit for construction will expire five years from the date of issuance.

14. Construction or alteration of the surface water management system must be completed and all disturbed areas must be stabilized in accordance with permitted plans and permit conditions prior to any of the following events (whichever occurs first): issuance of a certificate of occupancy; use of the infra-structure for its intended use; or transfer of responsibility for operation and maintenance to a local government or other responsible entity.

15. The permittee must obtain a General or Individual permit from the District prior to beginning construction of subsequent phases or any other work not specifically authorized by this permit.

16. A Registered Professional Engineer (P.E.) or his or her designee must be on-site to verify that the filtration system is constructed according to the permitted plans. This P.E. must submit a signed and sealed inspection report to the District using form number EN-42 within 30 days of completion of the filter system. An annual inspection of the filter system must be made by a P.E. or his or her designee in the month of May. A signed and sealed inspection report must be submitted to the District by the inspecting P.E. within 30 days of the inspection date. If the filtration system is not functioning as designed and permitted, maintenance must be performed immediately and reported in the annual inspection report. If maintenance measures are insufficient to enable the system to meet the design and performance standards in chapter 40C-42, the permittee must obtain District approval of an alternate design.

17. All wetland areas or water bodies that are outside of the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity, and dewatering.

18. Prior to construction, the permittee must clearly designate the limits of construction on-site. The permittee must advise the contractor that any work outside the limits of construction, including clearing, is a violation of this permit.

19. The operation and maintenance entity shall submit inspection reports to the District one year after the operation phase permit becomes effective and every two years thereafter on District form EN-46. The inspection form must be signed and sealed by an appropriate registered professional.

20. The proposed project must be constructed as per plans received by the District on December 13, 1994, sheets 1 through 71 and bridge plans sheets B-1 through b-27, and EB-1 through EB-5, and revised plans received December 13, 1995.

21. The permittee is responsible for implementation of detailed erosion and turbidity control plans appropriate to the construction technique utilized and any additional measures necessary to prevent violations of water quality standards as specified in chapters 62-3 and 62-4, F.A.C. Alternative methods must be provided if state water quality standards are not maintained by the measure specified.

22. Within thirty (30) days of the issuance of his permit, the permitted must submit an Erosion and Sediment Control Plan to the District for review and approval. The erosion and sediment control plan must demonstrate that the permittee will retain sediment onsite and prevent the violation of any water quality standard as set forth in Chapters 62-4 and 62-302, F.A.C. The plan must demonstrate that the permittee will use best management practices to control erosion during the construction, operation and abandonment of the proposed temporary bridge and roadway, and the construction, operation, and maintenance of the proposed permanent bridge and roadway. The plan must provide that each disturbed area will be permanently stabilized within (7) days of completion of construction on that area and temporarily stabilized in each instance where no construction activity occurs on that area for a period of seven (7) or more days. All slopes equal to or steeper than 2:1 shall be permanently stabilized by sodding and staking the slopes. The erosion and sediment control plan must include the following minimum information as described in Section 18.3 of the Applicant s Handbook: Management and Storage of Surface Waters. The plan must include consideration of the site specific erosion potential, including slopes, soil erodability, vegetation cover, and runoff characteristics. The following is a listing of the minimum information , which must be included in the plan, to be shown on construction plans, detail sheets, or other appropriate documents:

    (a) The existing and proposed topography;

    (b) A general description of the predominant soil types on the site, and the corresponding erodability potential as described by the appropriate soil survey information or onsite investigation;

(c) Proposed schedule and general description of each construction phase of the project. At a minimum, the following applicable phases must be addressed: clearing, excavation earthwork, embankment earthwork, site utilities, roads, site grading and stabilization. The schedule must include estimated starting date and duration. Description must include limits of area impacted by each phase; and

(d) For each construction phase, a description of the following:

1. Storm drainage characteristics, including flow patterns and the peak velocity and discharge from the 1-in-2 year 24 hour storm at all locations where control measures are proposed and a points of offsite discharge; and

2. Individual control measures (to be shown on construction plans or detail sheets);

a. Estimated date of installation and removal,

b. Location,

c. Purpose of measure and are served,

d. Detailed construction drawings and specifications,

e. Operation and maintenance schedule, and

f. All supporting calculation and documentation including referenced design standards and specification.

This Erosion and Sediment Control Plan must be approved by the District prior to the commencement of any construction.

23. The permittee must have an engineer inspect the erosion, sediment and turbidity control measures and flow maintenance measures on at least a daily basis to ensure that their effectiveness is maintained, throughout the duration of construction. The name, address and phone number of the inspector must be submitted to the District prior to construction.

24. The permittee must submit two(2) copies of as-built plans for restoration of the 0.8-acre temporary detour road area and the 0.7-acre area under the new bridge, certified by a registered surveyor or professional engineer, showing dimensions, grade, ground elevations, water surface elevations, and an inventory of the planted species. The inventory must include the type, number, distribution and size of the planted vegetation, and must be referenced to the as-built survey. The as-built must

be submitted within thirty(30) days of completion of the initial planting for the 1.25 acre tract. ~~and within 30 days of planting of each restoration area.~~

25. The permittee must restore the 0.8 acre and the 0.7 acre areas and enhance the 1.25-acre area as shown in the plans received on November 1, 1994 and amended on December 13, 1995. Planting within the 0.7 acre area under the new bridge must be completed within 21 days of completion of construction of the new bridge. Planting within the 0.8 acre temporary road construction area must begin within 5 days of removal of the temporary road and be completed within 21 days of initial planting. The ditch blocks on the 1.25 acre tract must be constructed within 30 days of the start of construction of this project (includes land clearing). Planting on the 1.25 acre tract must be completed within 30 days of construction of the ditch blocks.

26. Within 30 days of completion of initial planting on the 1.25 acre tract, the permittee must submit to the District for review and approval a plan describing precisely the site-specific methods to be used to monitor planted vegetation within the 0.7 acre and 0.8 acre restored areas and the 1.25 acre enhancement tract so that compliance with success criteria can be clearly demonstrated. The plan must be sufficient to furnish the District with the following information:

    a. monthly surface water elevations from either the 0.7 acre or 0.8 acre restoration areas, on both sides of the river. The data must be measured from a staff gauge calibrated to the National Geodetic Vertical Datum and placed to best determine wetland inundation patterns within the restoration areas. Data must be collected during the first week of each month for each month during the five-year monitoring period and shall be reported annually along with river stage information and with plant community data.

    b. survivorship of trees planted in the 0.8 acre restoration area and the 1.25 acre tract, calculated independently for each planted area (i.e., by planting zone and by east side and west side of the river). At least 25% of planted trees must be examined regularly.

    c. percent cover of shrubs and herbaceous plants. An accepted quantitative sample technique (e.g., line-intercept method) shall be used to quantify percent-cover of these plants along multiple, fixed transects in each individual planted area.

d. panoramic photographs from at least two, well-separated points on the east and west sides of the river for each of the 0.7 acre and 0.8 acre restoration areas and in the 1.25 acre tract.

Following the initial as-built report, plant-community data must be collected annually between July 1 - July 31 for each year of a five-year monitoring interval. The data must be reported to the District within 90 days of sampling. Reports shall include descriptions of any sampling problems or loss of data, and any other information useful in assessing the state of on-site plant communities.

27. Successful establishment of the plantings in the 0.7 acre, 0.8 acre and 1.25 acre tracts will occur when, by the end of the five-year monitoring interval,

a. planted herbs (or other desirable, indigenous wetland vegetation) achieve not less than 80% area cover (as determined by a suitable percent-cover sampling technique, e.g. line-intercept method); and

b. tree survivorship is 80% or greater.

28. If the project fails to comply with the above condition, the permittee must apply for a District permit modification no later than 30 days after the end of the five-year monitoring period. The application must include a narrative describing the type and causes of failure and contain a complete set of plans for the redesign of the 0.7 acre, 0.8 acre and 1.25 acre areas so that the success criteria will be achieved. Within 30 days of District approval and issuance of the permit modification, the permittee must implement the revised mitigation plan. Upon completion of the modification, the project must comply with the above condition(or any modified condition required by the permit modification). Also, site-sampling and monitoring shall be performed as required by any permit condition.

29. The permittee shall provide the District with no fewer than two copies of each annual monitoring report. All photographs submitted with each report shall be duplicated from color film negatives or color photocopies. Black-and-white photocopies of photographs do not adequately depict trends in on-site plant community evolution and are not suitable for analysis by District staff.

30. The District must be notified (in writing) of any supplemental plantings in the 0.7 acre, 0.8 acre, and 1.25 acre areas within 14 days of planting. No supplemental vegetation may be planted within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

31. Within the 0.7 acre, 0.8 acre, and 1.25 acre areas, noxious vegetation (i.e., Alteranthera philoxeroides, Colocasia esculenta, Azolla caroliniana, Eichhornia crassipes, Ludwigia peruviana, L. decurrens, L. leptocarpa, L. octovalvis, Pistia stratiotes, Salvinia rotundifolia, Typha spp., Vitis spp., Kubus spp.,Dioscorea bulbifera, Paederia foetida, Cynodon dactylon, Paspalum notatum) must be controlled by hand-clearing (or other methods approved by the District) so that these species constitute no more than 10% (by aerial cover) of any vegetation stratum. No noxious vegetation may be cleared within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

32. The use of non-native grasses, or the placement of sod in the 0.7 acre, 0.8 acre and 1.25 acre areas is specifically prohibited.

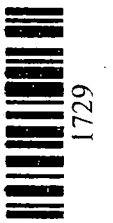
33. The permittee must record a conservation easement pursuant to section 704.06, F.S., over the real property as described in the approved mitigation plan, dated November 1, 1994 and amended December 13, 1995. The easement must prohibit all construction including clearing, dredging or filling except that which is specifically authorized by this permit within the 1.25-acre enhancement area as delineated on the final plans approved by this permit. The easement must contain provisions as set forth in paragraphs 1(a)-(h) of section 704.06, F.S. as well as provisions that the easement may be enforced by the District and may not be amended without District approval. The draft easement must be submitted for District review and approval prior to recording and no later than 30 days from the date of issuance of this permit. A surveyor s sketch of the area included in the legal description and an additional surveyor s sketch of the easement area plotted on the appropriate USGS topographic map must be submitted with the draft easement. The easement must be recorded and the easement boundaries must be permanently monumented on the project site prior to the sale of any lot or parcel, initiation of construction, or within 90 days of the issuance of this permit, whichever occurs first.

    The permittee must provide the District with a certified copy of the final recorded easement showing the official records book and page number no later than 30 days after receipt of District approval of the draft easement.

EXISTING WEKIVA RIVER BRIDGE

TECHNICAL STAFF REPORT

ERP 4-117-22408-1



Technical Staff Report

1729

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Henry Dean, Executive Director
John R. Wehle, Assistant Executive Director
Charles T. Myers III, Deputy Assistant Executive Director

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SERVICE CENTERS

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Orlando, Florida 32801
407-897-4300
TDD 407-897-5960

7775 Baymeadows Way
Suite 102
Jacksonville, Florida 32256
904-730-6270
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PERMITTING:
305 East Drive
Melbourne, Florida 32904
407-984-4940
TDD 407-727-5368

OPERATIONS:
2133 N. Wickham Road
Melbourne, Florida 32935-8109
407-254-1762
TDD 407-253-1203

January 3, 1996

Francine Ffolkes, Esquire
Florida Department of Transportation
605 Suwannee St.
Tallahassee, Fl 32399-0450

VIA FACSIMILE 904-488-4412

RE: STATE ROAD WEKIVA RIVER BRIDGE REPLACEMENT

Dear Francine:

Enclosed are the technical staff reports for Florida Department of Transportation's permit application nos. 4-117-0377AG and 12-117-0094AG for the above-referenced project. These will be presented to the Governing Board on Wednesday, January 10, 1996.

If you have any questions do not hesitate to call me at (904)329-4215.

Sincerely yours,

Kristie L. Cushman

for Kathryn L. Mennella,
Sr. Asst. General Counsel

KLM:klc

/enclosure

MANAGEMENT AND STORAGE OF SURFACE WATERS TECHNICAL STAFF REPORT
January 2, 1996

APPLICANT: Florida Department of Transportation
Attn: Richard Fowler
719 S. Woodland Boulevard
DeLand, FL 32720

AGENT: Bowyer-Singleton and Associates, Inc.
Attn: William L. Stewart, P.E.
520 South Magnolia Avenue
Orlando, FL 32801

COUNTY: Seminole/Lake **PROJECT NAME:** SR 46 Wekiva River Bridge Replacement
SECTION(S): 21 **TOWNSHIP(S):** 19S **RANGE(S):** 29E
ACRES OWNED: _____ **PROJECT ACREAGE:** 6.85

AUTHORITY: Section 40C-4.041(1),(2)(b)9; 40C-41.063(3)(e), F.A.C. WB/WP

GENERAL DESCRIPTION OF APPLICATION NO. 4-117-0377AG
This application is for authorization to construct a surface water management system that consists of replacing a substandard 252-foot long, 27-foot wide two-lane bridge with a 561-foot long, 47-foot wide (includes 10-foot wide safety shoulders on the bridge), 8-foot wide safety shoulders on both side of the road. The length of the road improvements to the State Road 46 consists of 0.318 miles including the 0.106 miles new bridge.

RECEIVING WATER BODIES: Wekiva River (Class III-OFW); Aquatic Reserve

EXISTING LAND USE: Wekiva River, forested and herbaceous wetlands, forested uplands, road and grassed road right-of-way

OPERATION AND MAINTENANCE ENTITY: Applicant

STAFF COMMENTS:

The project consists of replacing a substandard 252-foot long, 27-foot wide two-lane bridge with a 561-foot long, 47-foot wide (includes 10-foot wide safety shoulders), two-lane bridge, and 8-foot wide safety shoulders on both side of the road to meet Federal Roadway Safety Standards. State Road 46 is the main east-west roadway between northern Seminole County/Interstate-4 and Lake County (Attachment A). The existing structure is a concrete bridge with two 12 foot travel lanes with no shoulders. The bridge was constructed in 1939 and has been determined to be structurally deficient and functionally obsolete and to be a safety hazard because of the narrow substandard deck. The project is located within the Wekiva River Hydrologic Basin, the Wekiva River Protection Area, and is entirely within the Wekiva River Riparian Habitat Protection Zone (RHPZ).

The bridge replacement will occur in phases, all of which result in impacts to RHPZ (waters of the state wetlands and uplands):

- clear the temporary construction easement and construct the temporary detour road and bridge;
- demolish and remove the existing bridge structure;
- remove the existing fill for the lengthening of the new bridge;
- construct the new bridge;
- construct the new road approaches; and,
- remove the temporary detour road and bridge, and revegetate the temporary construction easement.

The proposed bridge replacement project includes the construction of ditch blocks and a triple 12-foot by 70-foot by 9-foot sand filter box to provide treatment of surface water runoff for the replacement bridge and new approaches, and the construction of a temporary bridge and road for detour of traffic during construction. Presently surface water runoff discharges to the river from the bridge and the approach portions of the roadway without treatment. The ditches to be blocked are roadside ditches within the road's right-of-way that are vegetated with bahia grass and will provide treatment for the new 8 foot paved shoulder at each side of the proposed bridge. The ditches are maintained (mowed) frequently by FDOT.

<u>New bridge construction</u>
The proposed 561-foot bridge will be constructed on the same alignment as the existing bridge. The new bridge will consist of 11 spans, each 51 feet long and 47 feet wide. There will be 6 piles (18 inch by 18 inch) for each section and at each end of the bridge. The piles will be installed parallel to the river flow to eliminate the need for special scour-protection measures. Rubble rip-rap, with a

2:1 (horizontal to vertical) side slope, will be constructed at either end of the bridge for scour-protection if river flows exceed the normal high water elevation of 8-foot NGVD.

There will be 9.79 feet of vertical clearance between the bottom of the bridge platform and the normal high water elevation. The eastern end of the bridge deck will have an elevation of 24 feet NGVD and the western end will have an elevation of 20.9 feet. There will be a slight slope (0.02 foot/foot) from south to north to facilitate surface water runoff to the proposed sand box for off-line treatment.

Temporary detour road and bridge

Standard clearing methods will be employed for the construction of the temporary detour road and bridge. Fill for the temporary road will be placed on a geotextile mat overlain by 2 feet of clean sand and a geogrid material. This construction method will facilitate removal of the temporary detour road and restoration of the native vegetation.

The temporary detour bridge will be 540 feet long and 34 feet 6 inches wide, with 18 spans. This bridge will be constructed 64 feet south of the existing bridge. The temporary detour bridge will have a steel grid deck. Each span will have 5 timber piles (12 inch diameter), except for the ramp supports which will have 7 piles. The piles will be driven into the river bottom, and will be spaced 30 feet apart with a vertical clearance of 9.86 feet at the normal high water elevation. The pilings will be installed parallel to the flow of the river to eliminate the need for special scour-protection measures.

Wetlands

There are several vegetative communities within the project site. The most prominent feature is the Wekiva River, which is an Outstanding Florida Water (OFW). The project is also within an Aquatic Preserve. Vegetation within the river channel consists of floating species such as water-lettuce and water-hyacinth. Rooted aquatics and emergent vegetation include tape grass, arrowheads, and minimal amounts of cattails. The river channel and the zone of emergent vegetation on the shoreline represents about 1.1 acre of project area.

Adjacent to the river on both sides of the channel are forested floodplain wetlands vegetated with cypress mixed-hardwoods. There is a steep gradient from the floodplain to the adjacent uplands, resulting in wetlands that, due to high groundwater conditions, extend up-gradient of the river's influence. Tree species within the forested wetlands are dominated by bald cypress, red maple, sweet gum, and cabbage palm. A variety of fern species are the dominant ground cover in the floodplain community. There is approximately 1.9 acres of forested wetlands within the project area.

There is about 0.2 acres of herbaceous wetlands adjacent to the roadway that are the result of the deposition of sediments from roadway erosion, and right-of-way maintenance activities of FDOT.

These areas are vegetated with ruderal, opportunist herbaceous species. A substantial amount of the existing roadway exists as fill within the floodplain of the river, with the existing bridge spanning only the channel. Portions of the channel may have been filled when SR 46 was constructed in 1939.

Riparian Habitat Protection Zone

The entire project is located within the Wekiva River RHPZ, which includes the wetlands described above, uplands, and a portion of the roadway area. The limit of the RHPZ is 550 feet from the waterward edge of the river channel on the east side, and is 50 feet landward of the landward edge of the wetlands on the west side. There is a total of 3.8 acres of upland RHPZ consisting of forested areas (0.2-acre), field (0.7-acre), road and maintained road right of way (2.9 acre). The forested component of the upland RHPZ is vegetated by loblolly pine and sweetgum with a ground cover of jasmine and partridge berry..

The Wekiva River basin has been identified as an important habitat for numerous wildlife species. As well as providing habitat for many wildlife species, the riparian system provides a corridor linking the state owned lands of the Wekiva Geo Park with the federally owned Ocala National Forest. The riparian function of the Wekiva River has been identified as important in maintaining the viability of the population of black bear (Ursus americanus floridanus) present in the Wekiva Geo Park and the Ocala Forest. The black bear is listed as "threatened" by the Florida Game and Fresh Water Fish Commission (FGFWFC). Several bears have been killed crossing SR 46 in the vicinity of the bridge. Other species are listed by the FGFWFC as "species of special concern" known to use the river floodplain including the limpkin, tricolor heron, little blue heron, snowy egret, round-tail muskrat, white ibis, bluenose shinner, and the American alligator. Manatee are not known to range this far up from the St. Johns River.

In general, habitat within the river and floodplain wetlands, and the adjacent forested uplands, is excellent for aquatic species such as fish and invertebrates, and other wildlife species.

Wetland and Upland RHPZ Impacts

As a result of construction of the new bridge and roadway 0.04-acre of forested wetlands will be filled and 0.08-acre of forested wetlands will be dredged. Construction of the temporary detour road and bridge will result in the clearing of 0.8-acre of forested wetlands. There will be some minimal impacts to the river channel with the construction of the new and temporary detour bridge piles with less than 0.01 of an acre of river bottom to be impacted.

Some of the forested uplands (0.007-acre) within the RHPZ will be impacted by the construction of the temporary detour road as will portions of the RHPZ including the road and road right-of-way. The road and the road right-of-way provide little benefit to aquatic and wetland dependent fish and other wildlife that utilize the river corridor.

Water Quality Protection

In the existing condition, untreated runoff sheet flows from each side of the existing bridge to the Wekiva River. In the post-development condition, run-off from the new bridge will be conveyed to proposed triple 12-foot by 70-foot by 9-foot concrete sand filter boxes which will be constructed beneath the west side of the proposed bridge. Road side swales with ditch blocks will also be utilized to provide treatment of runoff for the roadway approaches to the bridge. The runoff will then discharge to the Wekiva River.

The proposed sand filter boxes and roadside swales with ditch blocks will provide treatment and recovery of the required pollution abatement volume of run-off pursuant to Chapter 40C-42., F.A.C.

The applicant will control turbidity by the best available means during construction. A turbidity control plan appropriate to the construction technique utilized by the contractor will be developed and implemented. Containment structures (i.e., coffer dams) will be constructed around each pile during construction and demolition, and will remain in place until sediments have settled out to ensure that violations of state water quality standards do not occur. Monitoring of turbidity and dissolved oxygen will be required during construction to document compliance with state water quality standards. A maximum of 0.08-acre of river bottom may be disturbed with the construction of the containment structures.

Turbidity curtains will be utilized as needed during construction, and silt screens and hay bales will be utilized adjacent to sloped areas and the turbidity curtains. To reduce the potential for erosion during construction, all exposed surface areas will be temporarily stabilized in each instance where no construction activity occurs on that area for a period of seven(7) or more days. Permanent stabilization will occur within seven(7) days of completion of construction on an area.

Floodplain Impacts

A hydraulic analysis for proposed flood conditions was performed to determine the impact of construction of the proposed 561-foot bridge. The proposed bridge was represented in the hydraulic model as a single bridge having a flow through overall length of 561 feet.

The results of the hydraulic analysis indicate that the proposed 561-foot bridge will not cause greater than a one foot increase in the 100 year flood elevation immediately upstream, and will not cause greater than a 0.1 foot increase in the 100 year flood elevation 500 feet upstream, pursuant to criteria delineated in Sections 10.5.2(a) and 11.3.2(a), A.H. The proposed bridge will have a vertical clearance of 7.692 feet above the 100 year flood.

Mitigation

As a result of this project, only 0.12 of an acre of wetlands will be permanently lost due to dredge and fill activities. However, 0.8 of an acre of mature forested wetlands will be cleared for construction of the temporary detour bridge and road on both sides of the river.

Increasing the length of the bridge span will result in the restoration of 0.7 acres of floodplain that had been filled when SR 46 was constructed. This area will be vegetated with desirable wetland herbaceous species. This will result in restoration of 190 feet of floodplain on the west side of the river (Lake County) and 130 feet of floodplain on the east side of the river (Seminole). This design should enhance the corridor function of the Wekiva River by providing an area for black bear and other wildlife species to cross under SR 46, where before they had to contend with traffic on SR 46.

The bridge is being designed to provide stormwater treatment for runoff from the bridge and new portions of the road. This will benefit water quality conditions of the river at the site of the bridge.

The areas of forested wetlands that will be cleared for construction of the temporary detour road and bridge will be revegetated and monitored to ensure success. Both of these areas on either side of the river will be preserved by conservation easements pursuant to an agreement between FDOT and Petitioners Florida Audubon Society and Friends of the Wekiva River, Inc., settling the Section 120.57, F.S., administrative proceeding filed by Petitioners to challenge the proposed issuance of the MSSW permit for this project. (Under the terms of another settlement agreement between FDOT and Petitioners Daryl Carter, Maury Carter and Pamela Wray, FDOT acquired the western parcel which will be encumbered by one of these conservation easements). A survey of tree diversity and density has been done by the applicant to provide a guide for the type of species that will be replanted in the 0.8 of an acre disturbed by the temporary road and bridge. Shrub and groundcover species will also be replanted. Revegetation of these areas and the 0.7 of an acre of restored floodplain under the bridge will provide cover for wildlife that may forage or migrate within the Wekiva River corridor, as well as provide stabilization of the soils.

FDOT will also enhance and preserve 1.25 acres of a field located adjacent to the river's forested floodplain wetlands on the northwest side of the project. This area contains 0.5 of an acre of uplands within the RHPZ and .75 of an acre of uplands adjacent to the RHPZ. The 0.5 acre of RHPZ uplands will be planted with desirable tree and groundcover species. In addition, a ditch that had been historically excavated perpendicular to the flow gradient will be blocked, and an additional 60-foot wide strip (0.45 acre), from the ditch down gradient to the RHPZ will similarly be planted. Blocking the ditch should restore the sheet flow characteristics and groundwater condition to the adjacent wetlands and uplands down gradient of the ditch.

The applicant has demonstrated the standards and criteria for issuance of permits for projects within the Wekiva River Hydrologic Basin have been satisfied as follows:

- Recharge Standard - The proposed project does not lie in the Most Effective Recharge Area, as delineated in section 11.3.1, A.H.

- Storage Standard - The proposed project will not cause any net reduction in flood storage within the 100-year flood plain as required by section 11.3.2., A.H., The applicant has demonstrated that there will be no reduction in the Wekiva River floodplain.

- Erosion and Sediment Control and Water Quality - The project lies within the Water Quality Protection Zone. The applicant has demonstrated that an appropriate erosion and sediment control plan will be implemented to minimize erosion and sedimentation to the Wekiva River as required by section 11.3.3, A.H.

- Standard for Limiting Drawdown - The proposed project is within the Water Quantity Protection Zone, but none of the proposed work will result in the lowering of the ground water table within this zone, as delineated in section 11.3.4, A.H.

- Standard for Riparian Wildlife Habitat - With all of the impacts occurring within the RHPZ, the project is presumed to affect adversely the abundance, food sources,and habitat of aquatic and wetland dependent species. Restoring the 0.7 acre of floodplain under the bridge, enhancing and preserving the 1.25 acre upland area, blocking the ditch to restore hydrology, replanting the area disturbed by the temporary bridge, and improving stormwater treatment should sufficiently mitigate the adverse effects of the project on the functions provided by the RHPZ.

- Local Government Notification for the Wekiva River Protection Area. The proposed project lies within the Wekiva River Protection Area as delineated in section 11.3.6. The applicant received local government notification on February 17, 1994.

Staff has determined that the project as proposed, with the mitigation plan, is consistent with the wetland review criteria of section 10.7.4, A.H.:MSSW and the Standard for Riparian Wildlife Habitat. Furthermore, the project will not result in unacceptable adverse cumulative impacts to water quality or wetland functions and will not result in unacceptable secondary impacts to the wetlands, water quality, and uplands that provide habitat to "listed" wetland dependent species, such as the Florida black bear. It is anticipated that the project design should benefit the Florida black bear by providing additional area for the species to cross under SR 46 while moving between the Wekiva State Geo Park region and the Ocala Forest.

Therefore, staff believes that this project is in conformance with Chapters 40C-4, 40C-41, and 40C-42, F.A.C.

A Wetland Resource Management (WRM) permit application (12-117-0094AG) has been reviewed and is being recommended for approval at the January 1996 Regulatory Board Meeting concurrently with this permit application.

WETLAND INVENTORY

TOTAL WETLANDS INVOLVED:	3.2 acres
TOTAL WETLANDS PRESERVED:	0.0 acres
TOTAL WETLANDS DISTURBED:	0.8 acres
TOTAL WETLANDS LOST:	0.12 acres
1. WATERS OF THE STATE: (SEE D/F #12-117-0094AG)	0.12 acres
2. CONTIGUOUS TO WATERS:	0.0 acres
3. ISOLATED WETLANDS:	0.0 acres
TOTAL WETLANDS RESTORED/CREATED AS MITIGATION:	0.7 acres
TOTAL WETLANDS ENHANCED AS MITIGATION:	0.0 acres
OTHER COMPENSATION:	1.25 acre of upland enhancement and preservation

RECOMMENDATION: APPROVAL

CONDITIONS FOR APPLICATION NUMBER: 4-117-0377AG

GENERAL (SEE CONDITION SHEET): 2 - 13

SPECIAL CONDITIONS: 1, 2, 5, 7, 16, 19, 39

MSSW/STORMWATER SPECIAL CONDITIONS:

OTHER CONDITIONS:

1. The proposed project must be constructed as per plans received by the District on December 13, 1994, sheets 1 through 71 and bridge plans sheets B-1 through b-27, and EB-1 through EB-5, and revised plans received December 13, 1995.

2. The permittee is responsible for implementation of detailed erosion and turbidity control plans appropriate to the construction technique utilized and any additional measures necessary to prevent violations of water quality standards as

specified in chapters 62-3 and 62-4, F.A.C. Alternative methods must be provided if state water quality standards are not maintained by the measure specified.

3. Within thirty (30) days of the issuance of his permit, the permitted must submit an "Erosion and Sediment Control Plan" to the District for review and approval. The erosion and sediment control plan must demonstrate that the permittee will retain sediment onsite and prevent the violation of any water quality standard as set forth in Chapters 62-4 and 62-302, F.A.C. The plan must demonstrate that the permittee will use best management practices to control erosion during the construction, operation and abandonment of the proposed temporary bridge and roadway, and the construction, operation, and maintenance of the proposed permanent bridge and roadway. The plan must provide that each disturbed area will be permanently stabilized within (7) days of completion of construction on that area and temporarily stabilized in each instance where no construction activity occurs on that area for a period of seven (7) or more days. All slopes equal to or steeper than 2:1 shall be permanently stabilized by sodding and staking the slopes. The erosion and sediment control plan must include the following minimum information as described in Section 18.3 of the Applicant's Handbook: Management and Storage of Surface Waters. The plan must include consideration of the site specific erosion potential, including slopes, soil erodability, vegetation cover, and runoff characteristics. The following is a listing of the minimum information , which must be included in the plan, to be shown on construction plans, detail sheets, or other appropriate documents:

(a) The existing and proposed topography;

(b) A general description of the predominant soil types on the site, and the corresponding erodability potential as described by the appropriate soil survey information or onsite investigation;

(c) Proposed schedule and general description of each construction phase of the project. At a minimum, the following applicable phases must be addressed: clearing, excavation earthwork, embankment earthwork, site utilities, roads, site grading and stabilization. The schedule must include estimated starting date and duration. Description must include limits of area impacted by each phase; and

(d) For each construction phase, a description of the following:

1. Storm drainage characteristics, including flow patterns and the peak velocity and discharge from the 1-in-2 year 24 hour storm at all locations where control measures are proposed and a points of offsite discharge; and

2. Individual control measures (to be shown on construction plans or detail sheets);

   a. Estimated date of installation and removal,

   b. Location,

   c. Purpose of measure and are served,

   d. Detailed construction drawings and specifications,

   e. Operation and maintenance schedule, and

   f. All supporting calculation and documentation including referenced design standards and specification.

This Erosion and Sediment Control Plan must be approved by the District prior to the commencement of any construction.

4. The permittee must have an engineer inspect the erosion, sediment and turbidity control measures and flow maintenance measures on at least a daily basis to ensure that their effectiveness is maintained, throughout the duration of construction. The name, address and phone number of the inspector must be submitted to the District prior to construction.

5. The permittee must submit two(2) copies of as-built plans for restoration of the 0.8-acre temporary detour road area and the 0.7-acre area under the new bridge, certified by a registered surveyor or professional engineer, showing dimensions, grade, ground elevations, water surface elevations, and an inventory of the planted species. The inventory must include the type, number, distribution and size of the planted vegetation, and must be referenced to the as-built survey. The as-built must be submitted within thirty(30) days of completion of the initial planting on the 1.25 acre tract.

6. The permittee must restore the 0.8 acre and the 0.7 acre areas and enhance the 1.25-acre area as shown in the plans received on November 1, 1994 and amended on December 13, 1995. Planting within the 0.7 acre area under the new bridge must be completed within 21 days of completion of construction of the new bridge. Planting within the 0.8 acre temporary road construction area must begin within 5 days of removal of the temporary road and be completed within 21 days of initial planting. The ditch blocks on the 1.25 acre tract must be constructed within 30 days of the start of construction of this project (includes land clearing). Planting on the 1.25 acre tract must be completed within 30 days of construction of the ditch blocks.

7. Within 30 days of completion of initial planting on the 1.25 acre tract, the permittee must submit to the District for review and approval a plan describing precisely the site-specific methods to be used to monitor planted vegetation within the 0.7 acre and 09.89 acre restores areas and the 1.25 acre enhancement tract so that compliance with success criteria can be clearly demonstrated. The plan must be sufficient to furnish the District with the following information:

    a. monthly surface water elevations from either the 0.7 acre or 0.8 acre restoration areas, on both sides of the river. The data must be measured from a staff gauge calibrated to the National Geodetic Vertical Datum and placed to best determine wetland inundation patterns within the restoration areas. Data must be collected during the first week of each month for each month during the five-year monitoring period and shall be reported annually along with river stage information and with plant community data.

    b. survivorship of trees planted in the 0.8 acre restoration area and the 1.25 acre tract, calculated independently for each planted area (i.e., by planting zone and by east side and west side of the river). At least 25% of planted trees must be examined regularly.

    c. percent cover of shrubs and herbaceous plants. An accepted quantitative sample technique (e.g., line-intercept method) shall be used to quantify percent-cover of these plants along multiple, fixed transects in each individual planted area.

    d. panoramic photographs from at least two, well-separated points on the east and west sides of the river for each of the 0.7 acre and 0.8 acre restoration areas and in the 1.25 acre tract.

Following the initial as-built report, plant-community data must be collected annually between July 1 - July 31 for each year of a five-year monitoring interval. The data must be reported to the District within 90 days of sampling. Reports shall include descriptions of any sampling problems or loss of data, and any other information useful in assessing the state of on-site plant communities.

8. Successful establishment of the plantings in the 0.7 acre, 0.8 acre and 1.25 acre tracts will occur when, by the end of the five-year monitoring interval,

    a. planted herbs (or other desirable, indigenous wetland vegetation) achieve not less than 80% area cover (as determined by a suitable percent-cover sampling technique, e.g. line-intercept method); and

b. tree survivorship is 80% or greater.

9. If the project fails to comply with the above condition, the permittee must apply for a District permit modification no later than 30 days after the end of the five-year monitoring period. The application must include a narrative describing the type and causes of failure and contain a complete set of plans for the redesign of the 0.7 acre, 0.8 acre and 1.25 acre areas so that the success criteria will be achieved. Within 30 days of District approval and issuance of the permit modification, the permittee must implement the revised mitigation plan. Upon completion of the modification, the project must comply with the above condition(or any modified condition required by the permit modification). Also, site-sampling and monitoring shall be performed as required by any permit condition.

10. The permittee shall provide the District with no fewer than two copies of each annual monitoring report. All photographs submitted with each report shall be duplicated from color film negatives or color photocopies. Black-and-white photocopies of photographs do not adequately depict trends in on-site plant community evolution and are not suitable for analysis by District staff.

11. The District must be notified (in writing) of any supplemental plantings in the 0.7 acre, 0.8 acre, and 1.25 acre areas within 14 days of planting. No supplemental vegetation may be planted within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

12. Within the 0.7 acre, 0.8 acre, and 1.25 acre areas, noxious vegetation (i.e., Alteranthera philoxeroides, Colocasia esculenta, Azolla caroliniana, Eichhornia crassipes, Ludwigia peruviana, L. decurrens, L. leptocarpa, L. octovalvis, Pistia stratiotes, Salvinia rotundifolia, Typha spp., Vitis spp., Kubus spp.,Dioscorea bulbifera, Paederia foetida, Cynodon dactylon, Paspalum notatum) must be controlled by hand-clearing (or other methods approved by the District) so that these species constitute no more than 10% (by aerial cover) of any vegetation stratum. No noxious vegetation may be cleared within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

13. The use of non-native grasses, or the placement of sod in the 0.7 acre, 0.8 acre and 1.25 acre areas is specifically prohibited.

14. The permittee must record a conservation easement pursuant to section 704.06, F.S., over the real property as described in the approved mitigation plan, dated November 1, 1994 and amended December 13, 1995. The easement must prohibit all construction including clearing, dredging or filling except that which is specifically authorized by this permit within the 1.25-acre

enhancement area as delineated on the final plans approved by this permit. The easement must contain provisions as set forth in paragraphs 1(a)-(h) of section 704.06, F.S. as well as provisions that the easement may be enforced by the District and may not be amended without District approval. The draft easement must be submitted for District review and approval prior to recording and no later than 30 days from the date of issuance of this permit. A surveyor's sketch of the area included in the legal description and an additional surveyor's sketch of the easement area plotted on the appropriate USGS topographic map must be submitted with the draft easement. The easement must be recorded and the easement boundaries must be permanently monumented on the project site prior to the sale of any lot or parcel, initiation of construction, or within 90 days of the issuance of this permit, whichever occurs first.

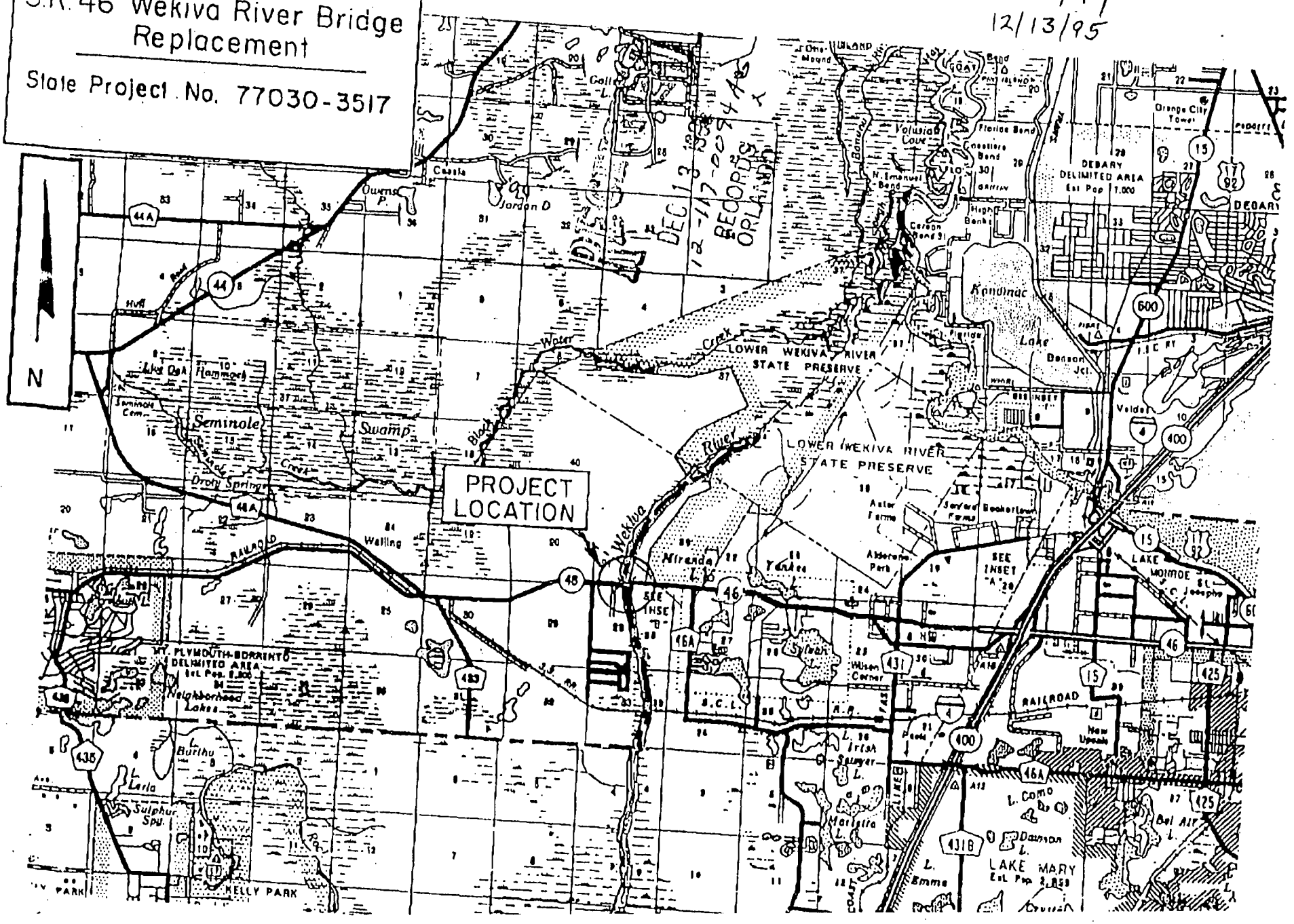
The permittee must provide the District with a certified copy of the final recorded easement showing the official records book and page number no later than 30 days after receipt of District approval of the draft easement.

Pakzadian/Hart/C.Dewey

S.R. 46 Wekiva River Bridge Replacement

State Project No. 77030-3517

Revised 12/13/94
12/13/95



WETLAND RESOURCE MANAGEMENT TECHNICAL STAFF REPORT
January 2, 1996

APPLICANT: Florida Department of Transportation
Attn: Richard Fowler
719 S. Woodland Boulevard
DeLand, FL 32720

AGENT: Bowyer-Singleton and Associates, Inc.
Attn: William L. Stewart
520 South Magnolia Avenue
Orlando, FL 32801

COUNTY: Seminole/Lake **PROJECT NAME:** SR 46 Wekiva River Bridge Replacement

SECTION(S): 21 **TOWNSHIP(S):** 19S **RANGE(S):** 29E
PROJECT ACREAGE: 3.2 acres

AUTHORITY: 62-4, 62-301, 62-302, 62-312, F.A.C., AND Chapter 373, Part IV, F.S.

GENERAL DESCRIPTION OF APPLICATION NO. 12-117-0094AG
Construction in waters of the state including the excavation of 134 cubic yards of material from 0.08 acres of forested wetlands and the placement of 109 cubic yards of material in 0.04 acres of forested wetlands and the Wekiva River, for the replacement of the existing 252-foot bridge with a 561-foot long, 47-foot wide bridge, and road approaches. The new bridge will result in 19,176 square feet of structure over waters and wetlands. Approximately 0.7 acres of floodplain wetlands will be restored by the removal of roadway fill as a result of lengthening the bridge. Also included is the placement of 9,631.7 cubic yards of material in forested wetlands and the Wekiva River for the construction of a temporary detour bridge and road. Furthermore, this permit also approves the restoration of the wetlands disturbed by the construction of the temporary bridge and road and the enhancement of uplands adjacent to Wekiva River wetlands on a 1.25 acre parcel.

AFFECTED WATER BODY: Wekiva River CLASS: OFW (III)

AQUATIC PRESERVE: Wekiva River Aquatic Reserve

STAFF COMMENTS:

The project consists of replacing a substandard 252-foot long, 27-foot wide two-lane bridge with a 561-foot long, 47-foot wide (includes 10-foot wide safety shoulders), two-lane bridge to meet Federal Roadway Safety Standards. State Road 46 is the main east-west roadway between northern Seminole County/Interstate-4 and Lake County. The existing structure is a concrete bridge with two 12 foot travel lanes with no shoulders. The bridge was constructed in 1939

and has been determined to be structurally deficient and functionally obsolete and to be a safety hazard because of the narrow substandard deck.

The bridge replacement will occur in phases, all of which result in impacts waters of the state:

- clear the temporary construction easement and construct the temporary detour road and bridge;
- demolish and remove the existing bridge structure;
- remove the existing fill for the lengthening of the new bridge;
- construct the new bridge;
- construct the new road approaches; and,
- remove the temporary detour road and bridge, and revegetate the temporary construction easement.

The project includes the construction of ditch blocks and a filter box to provide treatment of storm water runoff for the replacement bridge and new approaches, and the construction of a temporary bridge and road for detour of traffic during construction. Presently stormwater runoff discharges to the river from the bridge and the approach portions of the roadway, without treatment. The ditches to be blocked are roadside ditches within the road's right-of-way that are vegetated with bahia grass. The ditches are maintained (mowed) frequently by FDOT.

New bridge construction

The new bridge will be constructed on the same alignment as the existing bridge. The new bridge will consist of 11 spans, each 51 feet long and 47 feet wide. There will be 6 piles (18 inch by 18 inch) for each section and at each end of the bridge. The piles will be installed parallel to the river flow to eliminate the need for special scour-protection measures. Rubble rip-rap, with a 2:1 (horizontal to vertical) side slope will be constructed at either end of the bridge for scour-protection when river flows exceed the normal high water elevation of 8-foot NGVD. There will be 9.792 feet of vertical clearance between the bottom of the bridge platform and the normal high water elevation. The eastern end of the bridge deck will have an elevation of 24 feet NGVD and the western end will have an elevation of 20.9 feet. There will be a slight slope (0.02 foot/foot) from south to north to facilitate stormwater drainage to the filter box for off-line treatment.

Temporary detour road and bridge

Standard clearing methods will be employed for the construction of the temporary detour road and bridge. Fill for the temporary road will be placed on a geotextile mat overlain by 2 feet of clean sand and a geogrid material. This construction method will facilitate removal of the temporary detour road and restoration of the native vegetation.

The temporary detour bridge will be 540 feet long and 34 feet 6 inches wide, with 18 spans. This bridge will be constructed 64 feet south of the existing bridge. The temporary detour bridge will have a steel grid deck. Each span will have 5 timber piles (12 inch diameter), except for the ramp supports which will have 7 piles. The piles will be driven into the river bottom, and will be spaced 30 feet apart with a vertical clearance of 9.86 feet at the normal high water elevation. The pilings will be installed parallel to the flow of the river to eliminate the need for special scour-protection measures.

Wetlands

There are several vegetative communities within the project site. The most prominent feature is the Wekiva River, an Outstanding Florida Water (OFW) The project is also within an Aquatic Preserve. Vegetation within the river channel consists of floating species such as water-lettuce and water-hyacinth. Rooted aquatics and emergent vegetation include tape grass, arrowheads, and minimal amounts of cattails. The river channel and the zone of emergent vegetation on the shoreline represents about 1.1 acre of project area.

Adjacent to the river on both sides of the channel are forested floodplain wetlands vegetated with cypress mixed-hardwoods. There is a steep gradient from the floodplain to the adjacent uplands, resulting in wetlands that, due to high groundwater conditions, extend up-gradient of the river's influence. Tree species within the forested wetlands are dominated by bald cypress, red maple, sweet gum, and cabbage palm. A variety of fern species are the dominant

ground cover in the floodplain community. There is approximately 1.9 acres of forested wetlands within the project area.

There is about 0.2 acres of herbaceous wetlands adjacent to the roadway that are the result of the deposition of sediments from roadway erosion, and right-of-way maintenance activities of FDOT. These areas are vegetated with ruderal, opportunist herbaceous species. A substantial amount of the existing roadway exists as fill within the floodplain of the river, with the existing bridge spanning only the channel. Portions of the channel may have been filled when SR 46 was constructed in 1939.

The Wekiva River basin has been identified as an important habitat for numerous wildlife species. As well as providing habitat for many wildlife species, the riparian system provides a corridor linking the state owned lands of the Wekiva Geo Park with the federally owned Ocala National Forest. The riparian function of the Wekiva River has been identified as important in maintaining the viability of the population of black bear (Ursus americanus floridanus)present in the Wekiva Geo Park and the Ocala Forest. The black bear is listed as "threatened" by the Florida Game and Fresh Water Fish Commission (FGFWFC).Several bears have been killed crossing SR 46 in the vicinity of the bridge. Other species known to use the river floodplain that are listed by the FGFWFC as "species of special concern" include the limpkin, tricolor heron, little blue heron, snowy egret, round-tail muskrat, white ibis, bluenose shinner, and the American alligator. Manatee are not known to range this far up from the St. Johns River.

In general, habitat within the river and floodplain wetlands, and the adjacent forested uplands, is excellent for aquatic species such as fish and invertebrates, and other wildlife species.

Wetland Impacts
As a result of construction of the new bridge and roadway 0.04-acre of forested wetlands will be filled and 0.08-acre of forested wetlands will be dredged. Construction of the temporary detour road and bridge will result in the clearing of 0.8-acre of forested wetlands. There will be some minimal impacts to the river channel with the construction of the new and temporary detour bridge piles with less than 0.01 of an acre of river bottom to be impacted.

Water Quality Protection
The applicant will control turbidity by the best available means during construction. A turbidity control plan appropriate to the construction technique utilized by the contractor will be developed and implemented. Containment structures (i.e., coffer dams) will be constructed around each pile during construction and demolition and will remain in place until sediments have settled out to ensure that violation of state water quality standards do not occur. Additionally, monitoring of turbidity and dissolved oxygen will be required during construction to document compliance with state water quality standards. A maximum of 0.08-acre of river bottom may be disturbed with the construction of the containment structures.

Turbidity curtains will be placed along the river as needed during construction, and silt screens and hay bales will be utilized adjacent to sloped areas and the turbidity curtains. To reduce the potential for erosion during construction, all exposed surface areas will be temporarily stabilized in each instance where no construction activity occurs on that area for a period of seven(7) or more days. Permanent stabilization will occur within seven (7) days of completion of construction on an area.

Surface water issues were reviewed under Management and Storage of Surface Waters permit application No. 4-117-0377AG, which is recommended for approval concurrently with this application. This project is consistent with the criteria of subsection 62-312.080(10), F.A.C., for water quality issues.

Public Interest assessment
The project was assessed according to the seven public interest criteria established by subsection 62-312.080(10), F.A.C.:

(1) The project will not affect adversely the public health, safety or welfare. The project is intended to improve public safety related to the substandard condition of the existing bridge. The applicant has demonstrated that the project will not reduce the storage or conveyance of the 100-year floodplain. Channel conveyance will be maintained during construction.

(2) Wildlife will be affected adversely by the project, mostly due to the clearing of 0.8-acre of forested wetlands, and to some degree by the loss of 0.12-acre of wetlands due to dredge and fill activities. However, 0.7-acre of

floodplain wetlands will be restored with the removal of fill for the existing road in order to construct the new (longer) bridge. As addressed in correspondence from the Florida Game and Fresh Water Fish Commission(Attachment A), increasing the span of the bridge would improve conditions regarding the black bear population in Wekiva and the wildlife corridor of the river.

(3) The applicant has proposed measures to ensure that recreational use (i.e. canoeing) on the river is not interrupted by requiring that no more that 0.33 percent of the river channel can be blocked at a time by construction. Construction equipment will not be placed in the channel.

(4) Adequate protection will be provided to on-site fishery and marine recreation during project construction. The water quality benefits provided by providing stormwater treatment for the new bridge and approaches should benefit fish and other aquatic wildlife.

(5) The impacts associated with the new bridge and road access are considered to be permanent, while the temporary detour road and bridge will be temporary structures to be removed after construction.

(6) No known on-site archaeological or historical resources exist on the site according to an assessment by the Florida Division of Historical Resources (11/15/93).

(7) The project will diminish the relative value of functions provided by the on-site and off-site wetlands.

Minimization of Impacts

FDOT has employed several design methods to minimize the loss of wetlands, such as the use of sheet piling on the north side of the roadway during construction for containment of fill material, as well as the design of the roadway, bridge and roadway sideslopes. FDOT investigated using a cleared area on the north side of the road for the temporary detour road and bridge, which is currently a gas line easement. However, co-locating the temporary detour road and bridge with the gas line was not feasible as the road could not be built on top of the line due to safety considerations. In order to construct the temporary detour road on the north side, FDOT would have to move the gas line further north, which is property in public ownership as part of the Wekiva Geo Park, with the resulting clearing of forested wetlands. In addition, FDOT has no authority to condemn FDEP state lands.

Mitigation

As a result of this project, only 0.12 of an acre of wetlands will be permanently lost due to fill and dredge activities. However, 0.8 of an acre of mature forested wetlands will be cleared for construction of the temporary detour bridge and road.

Increasing the length of the bridge span will result in the restoration of 0.7 acres of floodplain that had been filled when SR 46 was constructed. This area will be vegetated with desirable wetland herbaceous species. This will result in restoration of 190 feet of floodplains on the west side of the river (Lake County) and 130 feet of floodplain on the east side of the river (Seminole). This design should enhance the corridor function of the Wekiva River by providing an area for black bear and other wildlife species to cross under SR 46, where before they had to contend with traffic on SR 46.

The project is designed to provide stormwater treatment for the new bridge and portions of the road. The stormwater system is designed to meet current water quality rules with volume provided for off-line treatment. This will benefit water quality conditions of the river at the site of the bridge.

The areas of forested wetlands that will be cleared for construction of the temporary detour road and bridge will be revegetated. These areas will be preserved by conservation easements pursuant to an agreement between FDOT and Petitioners Florida Audubon Society and Friends of the Wekiva River, Inc., settling a section 120.57, F.S., administrative proceeding filed by Petitioners to challenge the proposed issuance of the associated MSSW permit for this project. A survey of tree diversity and density has been done by the applicant to provide a guide for the type of species will be replanted in the 0.8 of an acre of disturbed area. Shrubbery and groundcover species will also be replanted. Revegetation of these areas and the 0.7 of an acre of restored floodplain under the bridge will provide cover for wildlife that may forage or migrate within the Wekiva River corridor, as well as provide stabilization of the soils.

FDOT will also enhance and preserve 1.25 acres of a field located adjacent to the forested floodplain wetlands on the northwest side of the project. This area contains 0.5 of an acre of uplands within the Wekiva River Riparian Habitat Protection Zone (RHPZ)and .75 of an acre of uplands adjacent to the RHPZ. The 0.5 acre of RHPZ uplands will be planted with desirable tree and groundcover species. In addition, a ditch that had been historically excavated perpendicular to the flow gradient will be blocked, and an additional 60-foot wide strip (0.45 acre)from the ditch down gradient to the RHPZ will similarly be planted. Blocking the ditch should restore the sheet flow characteristics and groundwater condition to the adjacent wetlands and uplands down gradient of the ditch.

After reviewing the project's immediate and long term impacts, secondary and cumulative impacts, and the proposed mitigation plan, District staff believes the project to be in the public's interest pursuant to the criteria of sections 62-312.080, and 62-312.060(10), F.A.C., and section 373.414, F.S. Staff recommends approval of this project.

WETLAND INVENTORY

TOTAL WETLAND ACREAGE ON PROJECT SITE:	3.20	acres
WETLAND ACREAGE LOST PERMANENTLY:	0.12	acres
WETLAND ACREAGE TEMPORARILY DISTURBED:	0.80	acres
WETLAND ACREAGE PRESERVED:	0.00	acres
WETLAND ACREAGE RESTORED/CREATED:	0.70	acres
WETLAND ACREAGE UNDISTURBED:	2.28	acres
WETLAND ACREAGE IMPROVED:	0.00	acres

RECOMMENDATION: APPROVAL

CONDITIONS FOR APPLICATION NUMBER: 12-117-0094AG

GENERAL (SEE CONDITION SHEET): 1 - 15

SPECIAL CONDITIONS: 3, 5, 6, 9, 10, 11, 12, 13, 14, and 15

MSSW/STORMWATER SPECIAL CONDITIONS:

OTHER CONDITIONS:

1. The proposed work must be constructed as per plans received by the District on December 13, 1994 and as amended by the plans received December 13, 1995.

2. The permittee is responsible for implementation of detailed erosion and turbidity control plans appropriate to the construction technique utilized and any additional measures necessary to prevent violations of water quality standards as specified in chapters 62-3 and 62-4, F.A.C. Alternative methods must be provided if state water quality standards are not maintained by the measure specified.

3. The permittee must submit two(2) copies of as-built plans for restoration of the 0.8-acre temporary detour road area and the 0.7-acre area under the new bridge, certified by a registered surveyor or professional engineer, showing dimensions, grade, ground elevations, water surface elevations, and an inventory of the planted species. The inventory must include the type, number, distribution and size of the planted vegetation, and must be referenced to the as-built survey. The as-built must be submitted within thirty(30) days of completion of the initial planting on the 1.25 acre tract.

4. The permittee must restore the 0.8 acre and the 0.7 acre areas and enhance the 1.25-acre area as shown in the plans received on November 1, 1994 and amended on December 13, 1995. Planting within the 0.7 acre area under the new bridge must be completed within 21 days of completion of construction of the new bridge. Planting within the 0.8 acre temporary road construction area must begin within 5 days of removal of the temporary road and be completed within 21 days of initial planting. The ditch blocks on the 1.25 acre tract must be constructed within 30 days of the start of construction of this project (includes land clearing). Planting on the 1.25 acre tract must be completed within 30 days of construction of the ditch blocks.

   Within 30 days of completion of initial planting on the 1.25 acre tract, the permittee must submit to the District for review and approval a plan describing precisely the site-specific methods to be used to monitor planted vegetation within the 0.7 acre and 09.89 acre restores areas and the 1.25 acre enhancement tract so that compliance with success criteria can be clearly demonstrated. The plan must be sufficient to furnish the District with the following information:

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   b. survivorship of trees planted in the 0.8 acre restoration area and the 1.25 acre tract, calculated independently for each planted area (i.e., by planting zone and by east side and west side of the river). At least 25% of planted trees must be examined regularly.

   c. percent cover of shrubs and herbaceous plants. An accepted quantitative sample technique (e.g., line-intercept method) shall be used to quantify percent-cover of these plants along multiple, fixed transects in each individual planted area.

   d. panoramic photographs from at least two, well-separated points on the east and west sides of the river for each of the 0.7 acre and 0.8 acre restoration areas and in the 1.25 acre tract.

Following the initial as-built report, plant-community data must be collected annually between July 1 - July 31 for each year of a five-year monitoring interval. The data must be reported to the District within 90 days of sampling. Reports shall include descriptions of any sampling problems or loss of data, and any other information useful in assessing the state of on-site plant communities.

5. Successful establishment of the plantings in the 0.7 acre, 0.8 acre and 1.25 acre tracts will occur when, by the end of the five-year monitoring interval,

    a. planted herbs (or other desirable, indigenous wetland vegetation) achieve not less than 80% area cover (as determined by a suitable percent-cover sampling technique, e.g. line-intercept method); and

    b. tree survivorship is 80% or greater.

6. If the project fails to comply with the above condition, the permittee must apply for a District permit modification no later than 30 days after the end of the five-year monitoring period. The application must include a narrative describing the type and causes of failure and contain a complete set of plans for the redesign of the 0.7 acre, 0.8 acre and 1.25 acre areas so that the success criteria will be achieved. Within 30 days of District approval and issuance of the permit modification, the permittee must implement the revised mitigation plan. Upon completion of the modification, the project must comply with the above condition(or any modified condition required by the permit modification). Also, site-sampling and monitoring shall be performed as required by any permit condition.

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8. The District must be notified (in writing) of any supplemental plantings in the 0.7 acre, 0.8 acre, and 1.25 acre areas within 14 days of planting. No supplemental vegetation may be planted within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

9. Within the 0.7 acre, 0.8 acre, and 1.25 acre areas, noxious vegetation (i.e., Alteranthera philoxeroides, Colocasia esculenta, Azolla caroliniana, Eichhornia crassipes, Ludwigia peruviana, L. decurrens, L. leptocarpa, L. octovalvis, Pistia stratiotes, Salvinia rotundifolia, Typha spp., Vitis spp., Kubus spp.,Dioscorea bulbifera, Paederia foetida, Cynodon dactylon, Paspalum notatum) must be controlled by hand-clearing (or other methods approved by the District) so that these species constitute no more than 10% (by aerial cover) of any vegetation stratum. No noxious vegetation may be cleared within 60 days prior to the annual plant-community sample date established by other conditions of this permit.

10. The use of non-native grasses, or the placement of sod in the 0.7 acre, 0.8 acre and 1.25 acre areas is specifically prohibited.

11. The permittee must record a conservation easement pursuant to section 704.06, F.S., over the real property as described in the approved mitigation plan, dated November 1, 1994 and amended December 13, 1995. The easement must prohibit all construction including clearing, dredging or filling except that which is specifically authorized by this permit within the 1.25-acre enhancement area as delineated on the final plans approved by this permit. The easement must contain provisions as set forth in paragraphs 1(a)-(h) of section 704.06, F.S. as well as provisions that the easement may be enforced by the District and may not be amended without District approval. The draft easement must be submitted for District review and approval prior to recording and no later than 30 days from the date of issuance of this permit. A surveyor's sketch of the area included in the legal description and an additional surveyor's sketch of the easement area plotted on the appropriate USGS topographic map must be submitted with the draft easement. The easement must be recorded and the easement boundaries must be permanently monumented on the project site prior to the sale of any lot or parcel, initiation of construction, or within 90 days of the issuance of this permit, whichever occurs first.

    The permittee must provide the District with a certified copy of the final recorded easement showing the official records book and page number no later than 30 days after receipt of District approval of the draft easement.

Hart/C.Dewey

FLORIDA GAME AND FRESH WATER FISH COMMISSION

JOE MARLIN HILLIARD, Clewiston
J. BEN ROWE, Gainesville
JULIE K. MORRIS, Sarasota
QUINTON L. HEDGEPETH, DDS, Miami
MRS. GILBERT W. HUMPHREY, Miccosukee

ALLAN L. EGBERT, Ph.D., Executive Director
WILLIAM C. SUMNER, Assistant Executive Director

FARRIS BRYANT BUILDING
620 South Meridian Street
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(904) 488-1960
TDD (904) 488-9542

February 3, 1995

Mr. Lance D. Hart
Supervising Environmental Specialist
St. Johns River Water Management District
618 East South Street
Orlando, FL 32801

Re: SJRWMD Permit Application
Numbers 4-117-0377AG and
12-117-0094AG, Seminole and
Lake Counties, SR-46 Wekiva River
Bridge Replacement

Dear Mr. Hart:

The Office of Environmental Services (OES) of the Florida Game and Fresh Water Fish Commission has reviewed the above referenced permit applications, which were forwarded to us from the St. Johns River Water Management District with a cover letter dated January 24, 1994. These applications, which were determined to be complete on December 13, 1994, have been recommended for approval by District staff, and are scheduled for the February 7, 1995, Regulatory Meeting of the District Board.

In our previous review of this project (letter dated March 30, 1994, enclosed), we recommended that the Florida Department of Transportation (FDOT) significantly re-design the proposed replacement bridge to span the 25-year floodplain to enhance regional habitat connectivity, and enhance the safe movement of black bears and other wildlife along the Wekiva riparian corridor. We are pleased that FDOT has modified the project to now include removal of existing causeway fill and construction of a replacement bridge which will span 130 feet and 190 feet of the east and west portions of the river floodplain, respectively.

In addition, in our discussion today with Mr. Fred Birnie of FDOT's Deland Office, his agency agreed to install animal-proof fencing along both the east and west causeway approaches which will funnel wildlife under the bridged portions of the floodplain. The animal-proof fencing should be of a similar type and design as used on the recently installed SR-46 wildlife underpass, and be erected immediately on the outside of the guardrails along the bridge causeway. Fencing should be erected along each side of the roadway on both sides of the river. The roadway fencing should include as much of the floodplain as practicable without interfering with private property or roads.

ATTACHMENT A

We have offered, and FDOT has accepted, our provision of technical assistance at a later date to design a fencing system which will serve to maximize the effectiveness of funneling wildlife at this bridge location to better take advantage of the improved bridge design. This technical assistance will be provided both by OES biologists, and biologist Jayde Roof of our Division of Wildlife, who is currently performing black bear research to evaluate the effectiveness of the SR-46 wildlife underpass.

We appreciate the opportunity to provide fish and wildlife input on these permit applications.

Sincerely,

Brian Barnett, for

Bradley J. Hartman, Director
Office of Environmental Services

TG
ENV 1-12-2
Attachment
Wekiva.fin

CC: Mr. Jayde Roof - GFC, Apopka
Mr. Steve Lau - GFC, Vero Beach
Mr. John Wooding - GFC, Gainesville
Ms. Debra Shelly - DEP, Wekiva River Aquatic Preserve
Ms. Rosi Mulholland - DEP, Wekiva Basin GEO Park
Mr. Robert Duty - DOF, Seminole Woods State Forest
Mr. Fred Birnie - FDOT, Deland
Mr. Jim Lee - President, Friends of the Wekiva
Ms. Christine Small - Defenders of Wildlife

FLORIDA GAME AND FRESH WATER FISH COMMISSION

OFFICE OF ENVIRONMENTAL SERVICES
BRADLEY J. HARTMAN, Director
FARRIS BRYANT BUILDING
620 South Meridian Street
Tallahassee, FL 32399-1600
(904) 488-6661
SUNCOM 278-6661
FAX (904) 922-5679
TDD (904) 488-9542

December 12, 1995

Mr. Brian Fuller
Florida Department of Transportation
719 South Woodland Blvd.
Deland, FL 32720

Re: Animal-proof Fence Design
For Wekiva River Bridge on
SR-46; Lake and Seminole
Counties; FDOT

Dear Mr. Fuller:

I have reviewed the design drawings for the 10-foot-high animal-proof fence which will be installed along the SR-46 right-of-way bridge approach and floodplain of the Wekiva River within Lake and Seminole counties. I concur with the changes you sent by fax on 11 December 1995, following our telephone conversation. The fencing was recommended by our agency to reduce roadkills and encourage black bear and other wildlife to use the floodplain area associated with the longer replacement bridge which will be constructed over the Wekiva River. It is our understanding that the fence will be installed immediately adjacent to the guardrail at the top of the slope on the bridge approaches. Furthermore, the terminal ends of the fence will be attached to the guardrail except on the southeast side of the Wekiva River in Seminole County where this is not feasible.

Thank you for allowing us the opportunity to provide input on design changes for the bridge replacement project which will have positive benefits for wildlife. Please call me if I may assist you further.

Sincerely,

Terry Gilbert
Biological Scientist IV

TG
ENV 1-13-2
fence.46
CC: Mr. Steve Lau - GFC, Vero Beach

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

May 2, 1994

Ms. Nancy M. Houston
Secretary, District 5
Florida Department of Transportation
719 South Woodland Boulevard
Deland, Florida 32720

Dear Ms. Houston:

Re: DSL File #: 59020237W (DOT #: 77030-3517); Application for bridge construction; SR 46 & Wekiva River; Lake and Seminole Counties

Thank you for your response to my earlier letter of February 22, 1994, concerning the above project.

The environmental importance of the Wekiva River floodplain to the protection and maintenance of the basin's native ecosystems can not be over-emphasized. Riverine floodplains provide extremely important water quality and wildlife benefits. When bridged, such areas help minimize the impact of habitat fragmentation that normally occurs as a result of highway construction.

Although, the bridge remains considerably short of the length required to span the 25-year floodplain, the modification is a tremendous improvement over the initial design. The redesigned structure provides for an additional 153 feet of bridge in Lake County. The revision substantially increases the portion of the wetland corridor that is available for safe passage of native wildlife. We commend the Department of Transportation for extending the bridge to enhance environmental protection in the Wekiva River Basin.

Sincerely,

Virginia Wetherell

Virginia B. Wetherell
Secretary

VBW/mb

EXISTING WEKIVA RIVER BRIDGE

PLANS

ERP 4-117-22408-1

FISCAL YEAR	SHEET NO.
96	1

W.P.I. NO.5117641
W.P.I. NO.5112843

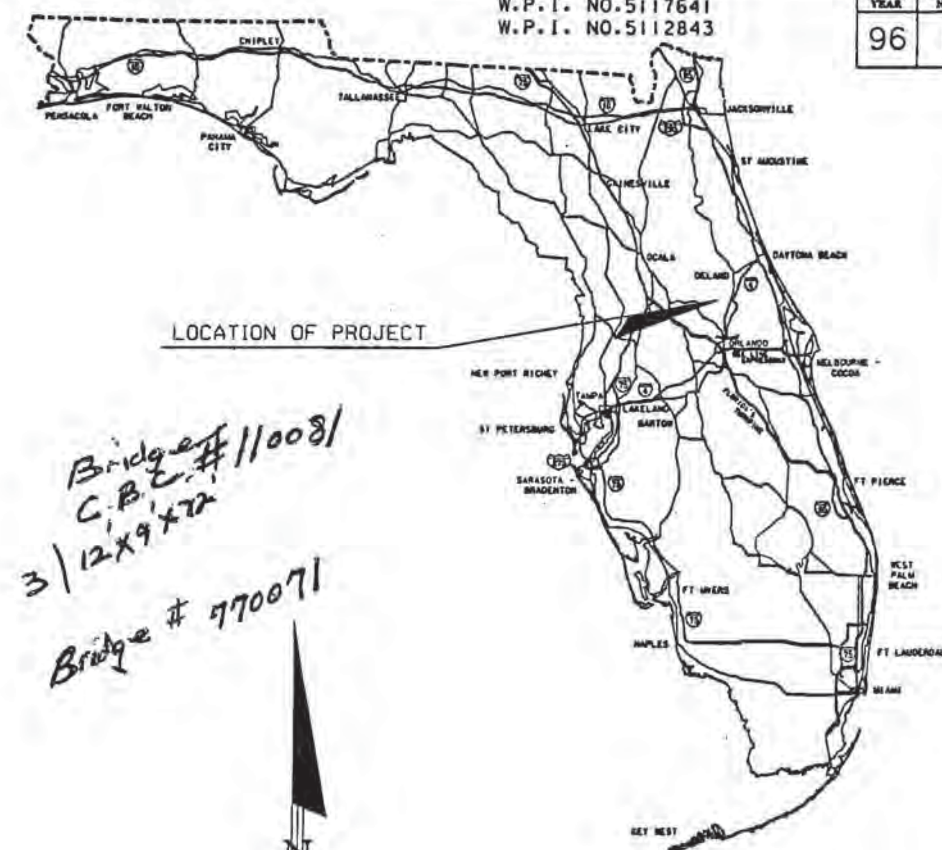
THIS CONTRACT PLAN SET INCLUDES:

ROADWAY PLANS
STRUCTURE PLANS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY

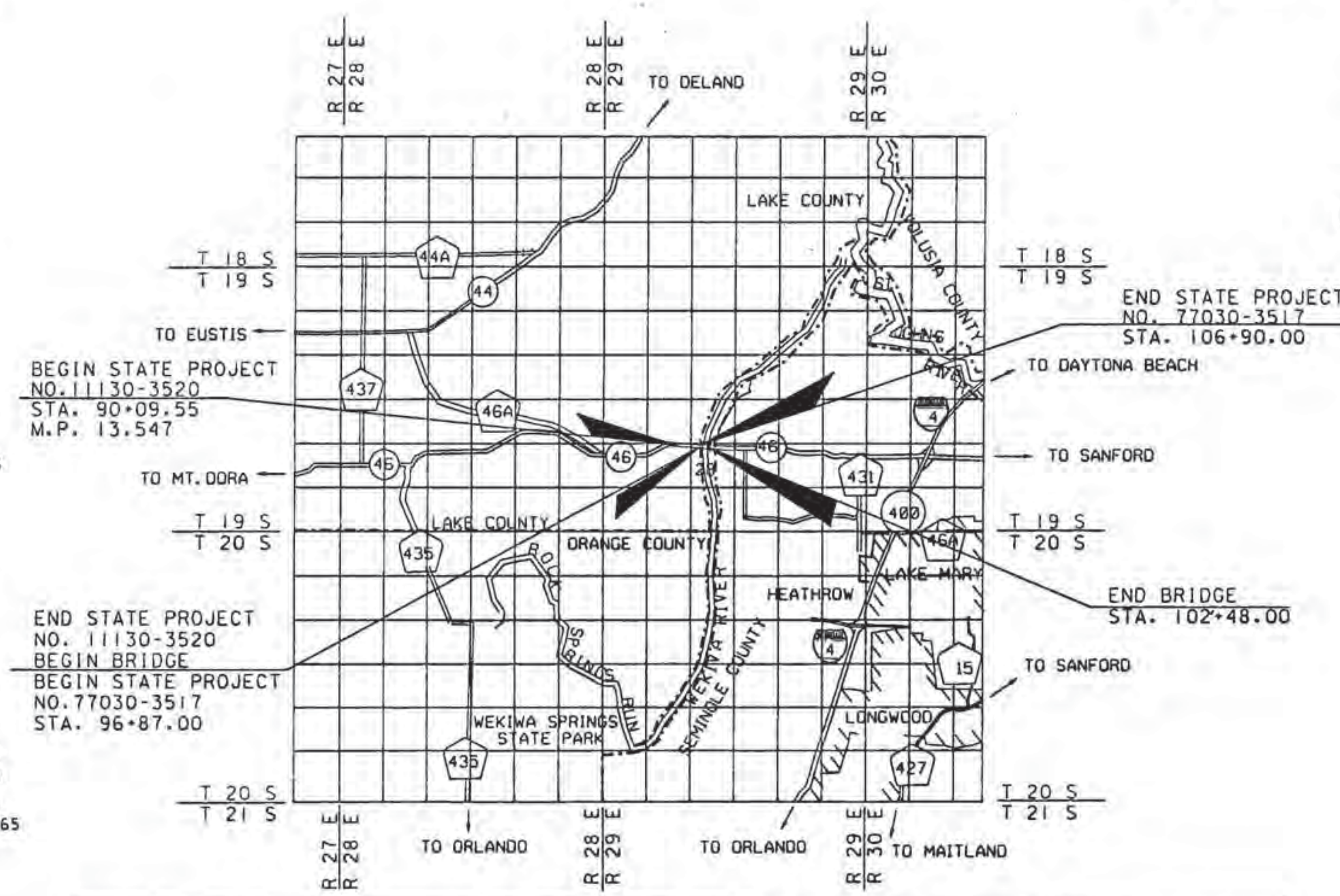
STATE PROJECT NO. 77030-3517
AND STATE PROJECT NO. 11130-3520
SEMINOLE & LAKE COUNTIES
STATE ROAD NO. 46



Bridge C.B.E. #110081
3/12'x9'x72'
Bridge # 770071

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT SET OF PLANS

INDEX OF ROADWAY PLANS



N
2 MILE

ROADWAY PLANS ENGINEER OF RECORD
MARK D. ROBINSON, P.E.
FLORIDA DEPT. OF TRANSPORTATION
DISTRICT 5 OFFICE
719 SOUTH WOODLAND BLVD.
DELAND, FLORIDA 32720

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

GOVERNING SPECIFICATIONS: STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, DATED 1991 SUPPLEMENTS AND SPECIAL PROVISIONS THERETO IF NOTED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT.

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, ROADWAY AND TRAFFIC DESIGN STANDARDS (BOOKLET DATED JANUARY, 1994).

REVISIONS
SHEET NO. 10 (REVISED 2/12/96)

LENGTH OF PROJECT

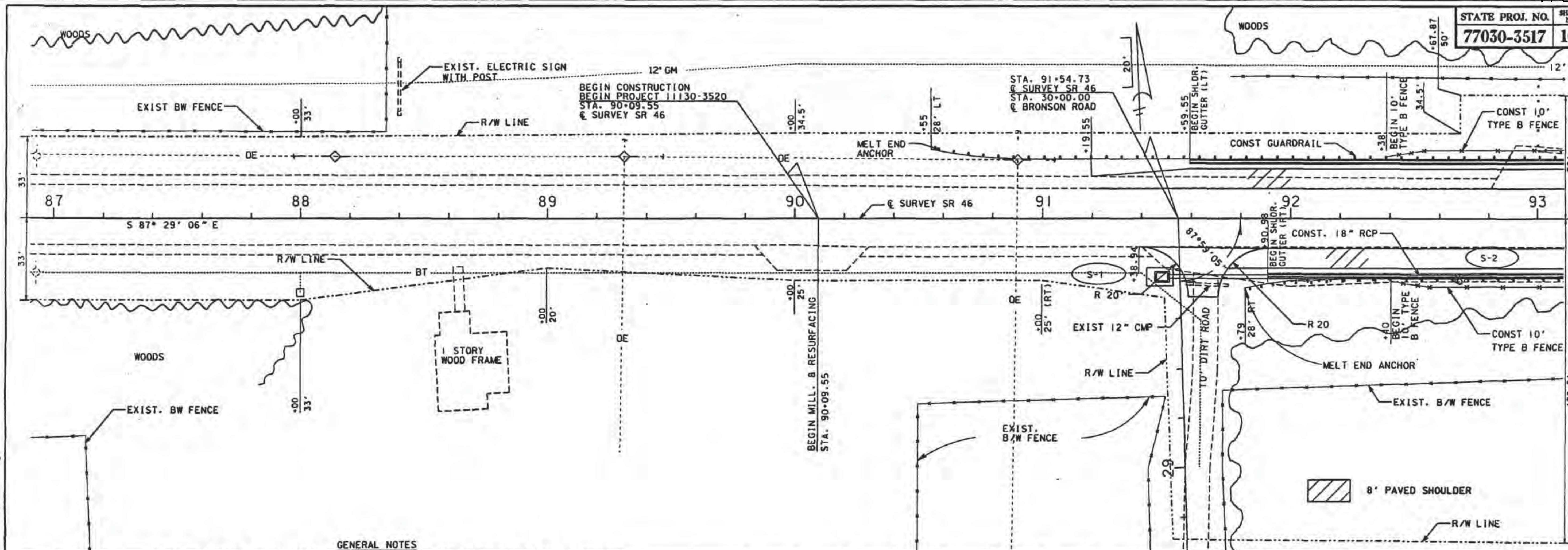
	11130-3520		77030-3517		TOTAL	
	LINEAR FT.	MILES	LINEAR FT.	MILES	LINEAR FT.	MILES
ROADWAY	677.45	0.128	442.00	0.084	1119.45	0.212
BRIDGES	0.00	0.000	561.00	0.106	561.00	0.106
NET LENGTH OF PROJ.	677.45	0.128	1003.00	0.190	1680.45	0.318
EXCEPTIONS	0.00	0.000	0.00	0.000	0.00	0.000
GROSS LENGTH OF PROJ.	677.45	0.128	1003.00	0.190	1680.45	0.318

PROJECT MANAGER : MARK D. ROBINSON, P.E. DESIGNER: C. BRIAN FULLER

ROADWAY PLANS APPROVED BY: MARK D. ROBINSON, P.E.
DATE: 1/12/96
P.E. NO.: 42054

RECYCLED PAPER

STATE PROJ. NO.	SHEET NO.
77030-3517	10

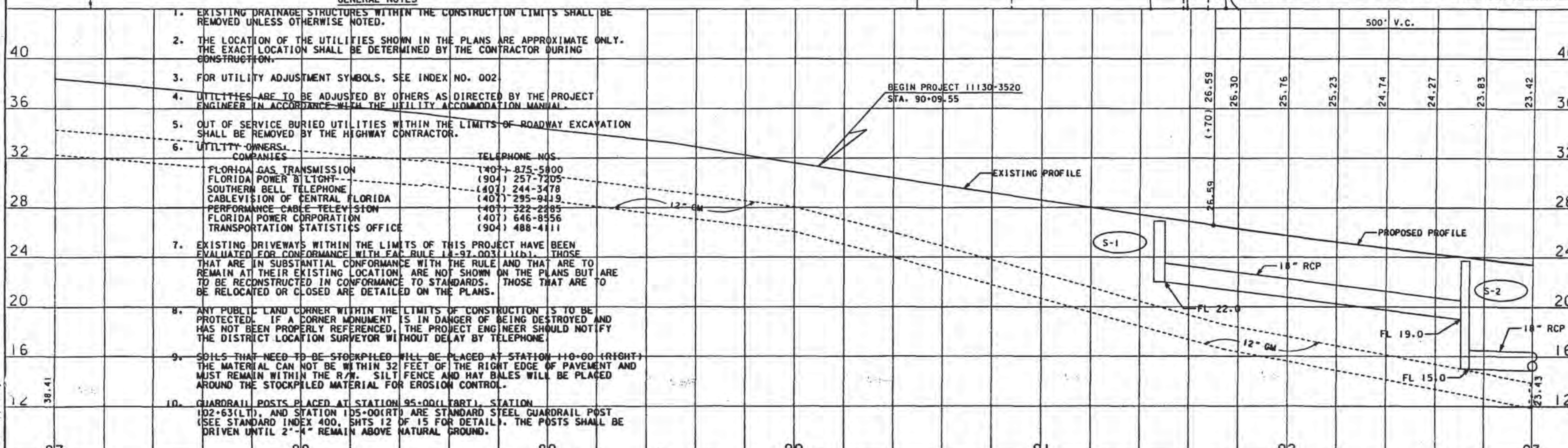


GENERAL NOTES

1. EXISTING DRAINAGE STRUCTURES WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED UNLESS OTHERWISE NOTED.
2. THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION.
3. FOR UTILITY ADJUSTMENT SYMBOLS, SEE INDEX NO. 002.
4. UTILITIES ARE TO BE ADJUSTED BY OTHERS AS DIRECTED BY THE PROJECT ENGINEER IN ACCORDANCE WITH THE UTILITY ACCOMMODATION MANUAL.
5. OUT OF SERVICE BURIED UTILITIES WITHIN THE LIMITS OF ROADWAY EXCAVATION SHALL BE REMOVED BY THE HIGHWAY CONTRACTOR.
6. UTILITY OWNERS:

COMPANIES	TELEPHONE NOS.
FLORIDA GAS TRANSMISSION	(407) 875-5800
FLORIDA POWER & LIGHT	(904) 257-7205
SOUTHERN BELL TELEPHONE	(407) 244-3478
CABLEVISION OF CENTRAL FLORIDA	(407) 295-9119
PERFORMANCE CABLE TELEVISION	(407) 322-2285
FLORIDA POWER CORPORATION	(407) 646-8556
TRANSPORTATION STATISTICS OFFICE	(904) 488-4111

7. EXISTING DRIVEWAYS WITHIN THE LIMITS OF THIS PROJECT HAVE BEEN EVALUATED FOR CONFORMANCE WITH FAC RULE 14-97.003(1)(b). THOSE THAT ARE IN SUBSTANTIAL CONFORMANCE WITH THE RULE AND THAT ARE TO REMAIN AT THEIR EXISTING LOCATION, ARE NOT SHOWN ON THE PLANS BUT ARE TO BE RECONSTRUCTED IN CONFORMANCE TO STANDARDS. THOSE THAT ARE TO BE RELOCATED OR CLOSED ARE DETAILED ON THE PLANS.
8. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE PROJECT ENGINEER SHOULD NOTIFY THE DISTRICT LOCATION SURVEYOR WITHOUT DELAY BY TELEPHONE.
9. SOILS THAT NEED TO BE STOCKPILED WILL BE PLACED AT STATION 110+00 (RIGHT) THE MATERIAL CAN NOT BE WITHIN 32 FEET OF THE RIGHT EDGE OF PAVEMENT AND MUST REMAIN WITHIN THE R/W. SILT FENCE AND HAY BALES WILL BE PLACED AROUND THE STOCKPILED MATERIAL FOR EROSION CONTROL.
10. GUARDRAIL POSTS PLACED AT STATION 95+00(LT&RT), STATION 102+63(LT), AND STATION 105+00(RT) ARE STANDARD STEEL GUARDRAIL POST (SEE STANDARD INDEX 400, SHTS 12 OF 15 FOR DETAIL). THE POSTS SHALL BE DRIVEN UNTIL 2'-4" REMAIN ABOVE NATURAL GROUND.



DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

REVISIONS

FLORIDA DEPARTMENT OF TRANSPORTATION

PLAN & PROFILE

STATE PROJ. NO.	SHEET NO.
77030-3517	11

12" GM
WOODS
EXIST. BW FENCE
CONST STEEL GUARDRAIL POST @ 3.25' CENTERS
6" UNDDR OUTLET PIPE
CONST 12" RCP (RIPRAP PROTECTION)
EXISTING GUARDRAIL (TO BE REMOVED)
END MILL & RESURFACING -80.00 BEGIN RECONSTRUCTION
R/W LINE
CONST. 10' TYPE B FENCE
CONST. 18" RCP
CONSTR. 18" RCP
CONST 14" FIBLERGLASS PIPE SEE BRIDGE PLANS FOR MORE INFORMATION
EXIST. 12" CMP
EXIST. ASPH.
CONST 18" RCP (RIPRAP PROTECTION)
℄ SURVEY SR 46
S 87° 29' 06" E
BEGIN SEDIMENT BASIN (CBC) BRIDGE NO. 110081 STA 95+00.00
END SEDIMENT BASIN (CBC) STA 95+40.00
S-3 S-4 S-5 S-6 S-7 S-8 S-9 S-10 S-11
93 94 95 96 97 98 99
50' 130.0' 134.6'
STA. 96+67.00 BEGIN APPROACH SLAB
STA. 96+87.00 END PROJ. 11130-3520 BEGIN PROJ. 77030-3517 BEGIN BRIDGE NO. 770071
CONST STEEL GUARDRAIL POST @ 3.25' CENTERS
114' RT
8' PAVED SHOULDER
R/W

500' V.C.
SPECIAL GUTTER GRADE (RIGHT)
EXISTING PROFILE
PROPOSED PROFILE
561.00' BRIDGE
(-) 2.884%
(+) 0.550%
(-) 0.31%
(+) 0.31%
(+) 0.550%
DPI +45 EL. 20.19
DPI +90 EL. 20.05
DPI +35 EL. 20.19
DPI +45 EL. 19.63
DPI +90 EL. 19.49
DPI +35 EL. 19.63
P I (+20) EI 19.38
18" RCP
14" FIBERGLASS PIPE SEE BRIDGE PLANS FL 17.22
FL 14.5
FL 15.50
FL 14.10
FL. 10.10
FL. 15.30
FL. 10.20
SPECIAL GUTTER GRADE (LEFT)
BEGIN SEDIMENT BASIN STA 95+00.00
SEDIMENT BASIN CBC TRIPLE 12'x9'
END SEDIMENT BASIN STA 95+40.00
EL. 9.0
12"GM
23.42 23.04 22.68 22.35 22.05 21.77 21.53 21.31 21.11 20.95 20.81 20.70 20.62 20.56 20.54 20.54 20.56 20.62 20.70 20.75 (+.70) 22.02
23.43 20.66
32 28 24 20 16 12 8 4

REVISIONS																	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FLORIDA DEPARTMENT OF TRANSPORTATION

PLAN & PROFILE

STATE PROJ. NO.	SHEET NO.
77030-3517	12

ISLAND
+00 68'
+00 50'
12" GM
R/W LINE
WEKIVA RIVER
50' CMP
EXIST. 30" RCP
EXIST. ℄ SURVEY SR 46
S 87°-29'-06" E
99 100 101 102 103 104 105
EXIST. GUARDRAIL (TO BE REMOVED)
END BRIDGE
BRIDGE NO. 770071
STA. 102+48.00
END APPROACH SLAB
STA. 102+68.00
+50 24' (RT)
CONST STEEL GUARDRAIL POST @ 3.25' CENTERS
CONST. 18" BCCMP
CONST. 10' TYPE B FENCE
CONST. 18" RCP
EXIST. ASPH.
WOODS
+02 END TYPE B FENCE
68'
20'
S-12 S-13 S-14 S-15 S-16 S-17 S-18 S-19 S-20 S-21
EXIST. GUARDRAIL (TO BE REMOVED)
R 125'
+00 12' (RT)
+43.5 35' (RT)
TYPE II END ANCHOR
CONST. 18" BCCMP
CONST. 10' TYPE B FENCE
DITCH BLOCK
EXIST 30" CMP
24'
134.6'
+00 132'
WOODS
8' PAVED SHOULDER
CONST STEEL GUARDRAIL POST @ 3.25' CENTERS
EXIST WOOD FENCE
+00 113' RT
R/W LINE
R/W LINE
R/W LINE

32 28 24 20 16 12 8 4

22.02
561.00' BRIDGE
PROPOSED PROFILE
(+) 0.550%
EXISTING PROFILE
STA. 102+48.00 END BRIDGE
P I (178) EL 24.10
(+) 0.550%
(+) 0.300%
18" RCP
FL 18.60
FL 18.40
S-13 S-16 S-20
PROPOSED PROFILE
(+) 0.300%
(+90) 24.73
24.77
TOP EL. 20.1
DITCH BLOCK (LT)
DPI +00 EL 19.4
SPECIAL DITCH (RT)
TOP EL. 16.5
DITCH BLOCK (RT)
(+)1.80%
(-)9.40%
12" GM
DPI +00 EL 15.7
DPI +50 EL 14.8
DPI +00 EL 10.1
20.66
23.15
12" GM
99 100 101 102 103 104 105

REVISIONS

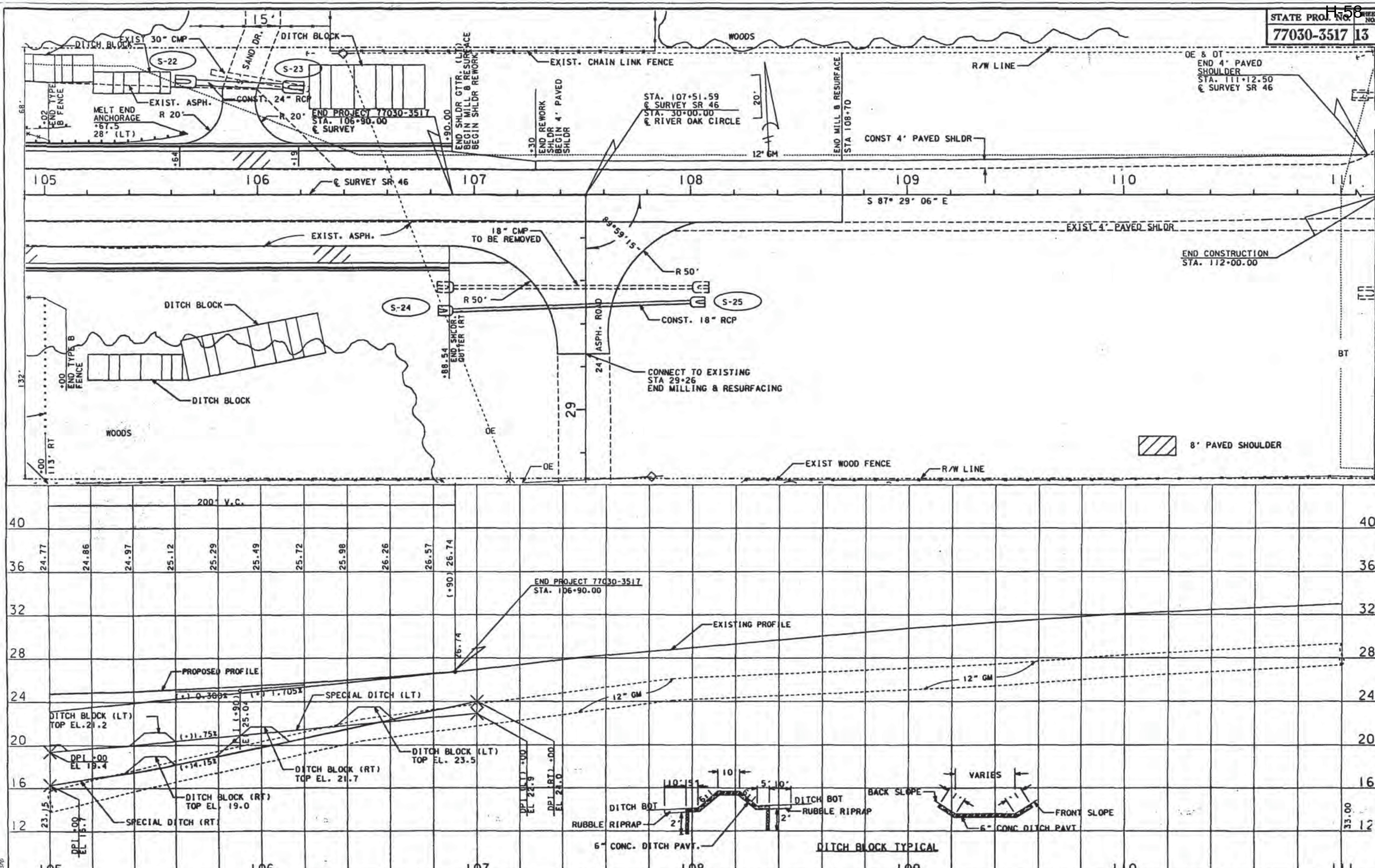
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FLORIDA DEPARTMENT OF TRANSPORTATION

PLAN & PROFILE

Mon Jan 15 14:47:56 1996
/usr2/proj/77030/35ft/pprof01.dgn

STATE PROJ. NO.	SHEET NO.
77030-3517	13

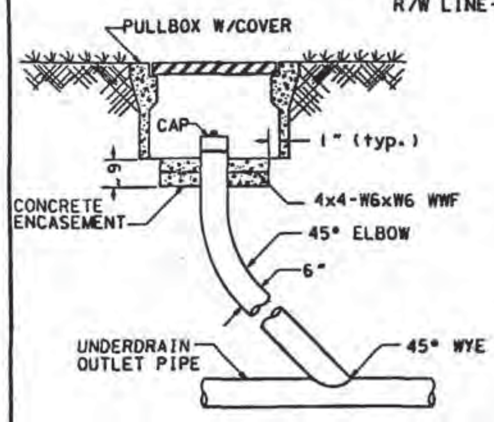

DITCH BLOCK
EXIST 30" CMP
15'
SAND DR.
DITCH BLOCK
S-22
S-23
EXIST. CHAIN LINK FENCE
WOODS
R/W LINE
OE & OT
END 4' PAVED SHOULDER
STA. 111+12.50
℄ SURVEY SR 46
EXIST. ASPH.
CONST. 24" RCP
MELT END ANCHORAGE
+67.5
28' (LT)
R 20'
END PROJECT 77030-3517
STA. 106+90.00
℄ SURVEY
END SHLDR GTTR. (LT)
BEGIN MILL & RESURFACE
BEGIN SHLDR REWORK
END REWORK SHLDR
BEGIN 4' PAVED SHLDR
STA. 107+51.59
℄ SURVEY SR 46
STA. 30+00.00
℄ RIVER OAK CIRCLE
12" GM
END MILL & RESURFACE
STA 108+70
CONST 4' PAVED SHLDR
℄ SURVEY SR 46
S 87° 29' 06" E
EXIST. ASPH.
18" CMP TO BE REMOVED
89°59'15"
EXIST 4' PAVED SHLDR
END CONSTRUCTION
STA. 112+00.00
R 50'
S-24
S-25
DITCH BLOCK
CONST. 18" RCP
END TYPE B FENCE
END SHLDR. GUTTER (RT)
ASPH. ROAD
CONNECT TO EXISTING
STA 29+26
END MILLING & RESURFACING
WOODS
OE
8' PAVED SHOULDER
EXIST WOOD FENCE
R/W LINE
BT
200' V.C.
END PROJECT 77030-3517
STA. 106+90.00
EXISTING PROFILE
PROPOSED PROFILE
SPECIAL DITCH (LT)
12" GM
DITCH BLOCK (LT)
TOP EL. 21.2
DITCH BLOCK (RT)
TOP EL. 21.7
DITCH BLOCK (LT)
TOP EL. 23.5
DITCH BLOCK (RT)
TOP EL. 19.0
SPECIAL DITCH (RT)
DPI +00
EL 19.4
DITCH BOT
RUBBLE RIPRAP
6" CONC. DITCH PAVT.
BACK SLOPE
VARIES
FRONT SLOPE
6" CONC DITCH PAVT
DITCH BLOCK TYPICAL

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

REVISIONS

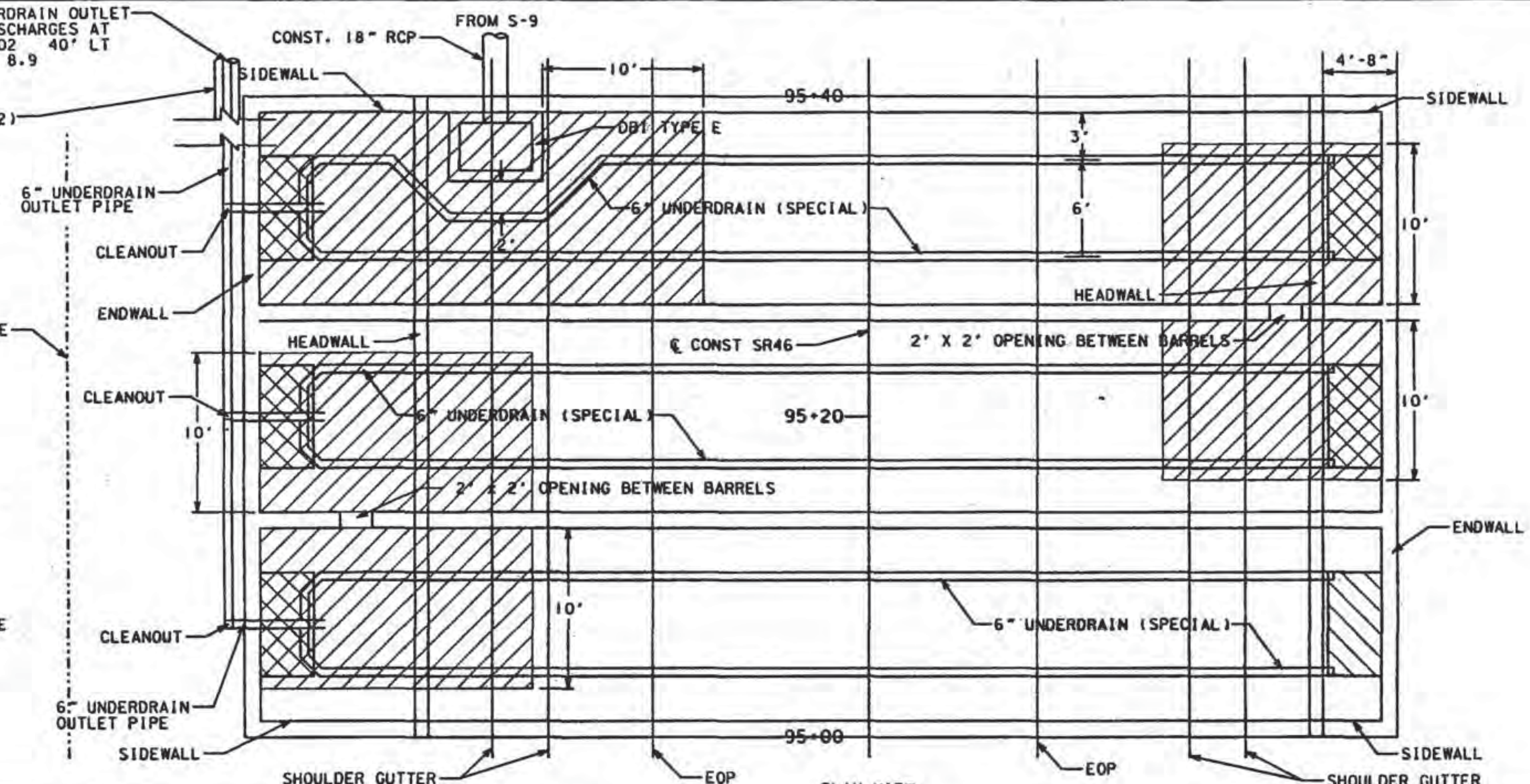
FLORIDA DEPARTMENT OF TRANSPORTATION

PLAN & PROFILE



CLEANOUT DETAIL

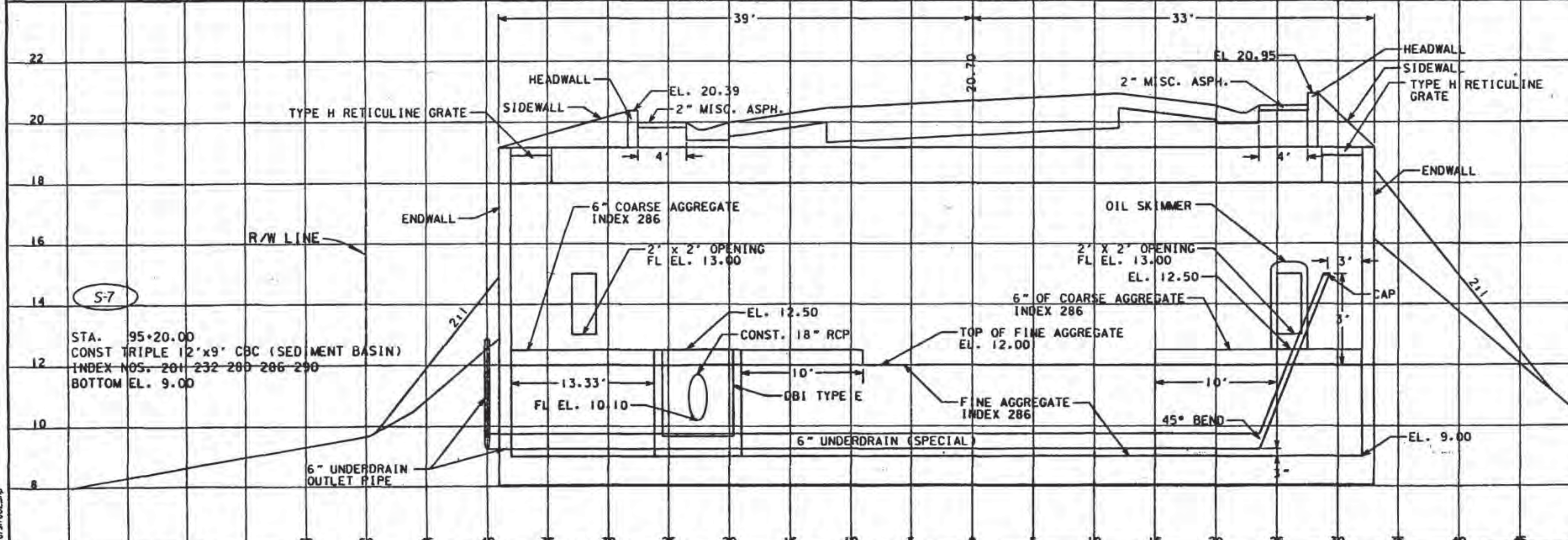
NTS



PLAN VIEW

LEGEND

- TYPE H RETICULINE GRATE
- 6" COARSE AGGREGATE INDEX 286



NOTES

1. ALL FOUNDATIONS SHALL BE CONSTRUCTED IN THE DRY. THE SOIL BENEATH THE SEDIMENT BASIN SHALL BE OVER-EXCAVATED TO REMOVE A-8 MATERIAL AND REPLACED WITH SAND MEETING THE REQUIREMENTS OF 902-4 FOR TYPE I-IV UNDERDRAINS. THE SAND BACKFILL SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 100 PERCENT OF THE MAXIMUM DENSITY AS DETERMINE BY AASHTO T-99.
2. IT SHOULD BE ANTICIPATED THAT DEWATERING WILL BE REQUIRED AT THE SEDIMENT BASIN LOCATION IN ORDER TO MAINTAIN THE WATER LEVEL A MINIMUM OF ONE FOOT BELOW THE MAXIMUM DEPTH OF THE EXCAVATION. THIS DEWATERING SHALL BE CONTINUOUS UNTIL FOUNDATION CONSTRUCTION IS COMPLETE. A DEWATERING PLAN (DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA) SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
3. SEE BOX CULVERT DATA SHEET FOR CONCRETE THICKNESSES.
4. THE UNDERDRAIN (SPECIAL) WILL REQUIRE A FILTER FABRIC SOCK (INDEX 199).

SCALE: 1" = 2' VERT.
1" = 5' HORIZ.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FLORIDA DEPARTMENT OF TRANSPORTATION

DRAINAGE STRUCTURES

Mon Jan 15 14:25:11 1996

SIMS LANDSCAPING

DRAINAGE CALCULATIONS EXCERPTS

ERP 40-069-65649-2

ENVIRONMENTAL RESOURCE PERMIT APPLICATION
SUPPORTING CALCULATIONS

(STANDARD GENERAL STORMWATER PERMIT)
Modification to Permit #40-069-65649-1

PREPARED FOR :

Sims' Landscaping Inc.
34835 C.R. 439
Eustis, Florida 32726

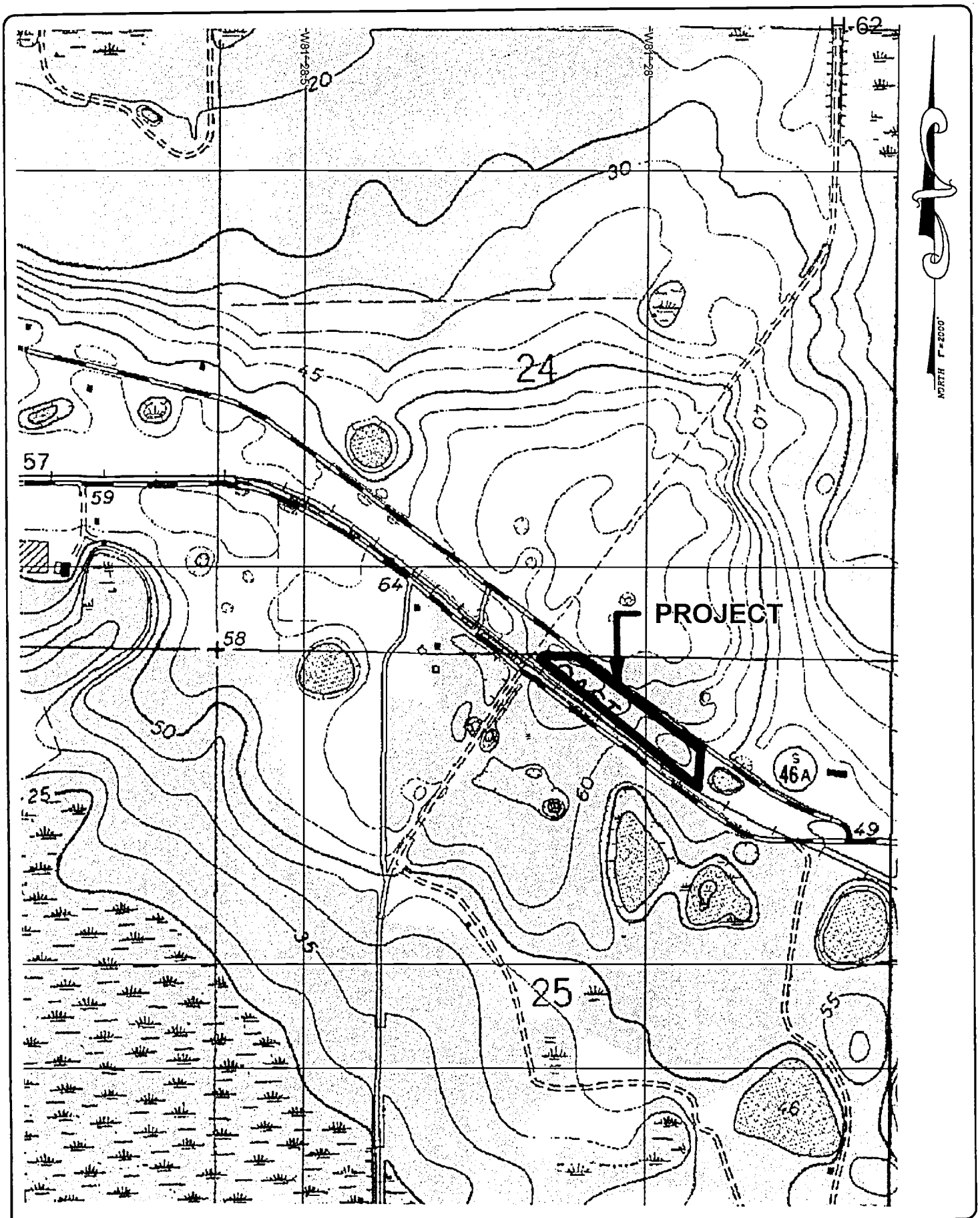
PROJECT :

Sims' Landscaping - SR 46 Site (WRA #3 Modification)
(Lake County, Florida)

July 26, 2000

WICKS CONSULTING SERVICES, INC.
225 WEST MAIN STREET
TAVARES, FLORIDA 32778

Clutts
PE 47584



Drawn:	REVISION:	DATE:
Checked:		
Date:		
Scale: 1"=2000'		
File No.:		
Sheet: 1 Of: 1		

USGS QUAD MAP – ~~SORRENTO~~, FLA. Sanford SW
SEC 25 TWP 19S RNG 28E
SIM'S LANDSCAPE SITE IMPROVEMENTS

WICKS CONSULTING SERVICES, INC.

USING A RAINFALL DEPTH OF 2.7".

V = C * I * A * D

= 0.493 (2.7"/HR.) 1.061 ACRES (3600 SEC. / HR.) (1 AC FT. / 43,560 CU. FT.)

= 0.117 AC. FT.

REQUIRED TREATMENT VOLUME TO BE PROVIDED IS : 0.088 AC. FT.

CHECK 72 HOUR RECOVERY TIME REQUIREMENT :

FOR RECOVERY CALCULATIONS, PLEASE SEE THE MODRET ANALYSIS.

STAGE / STORAGE FOR WRA #1

ELEV. (FT.)	AREA (SQ. FT.)	VOL. (AC. FT.)	VOL. (AC. FT.) CUM.	
64.00	27.50			
65.00	731.60	0.009	0.009	
66.00	833.20	0.018	0.027	
67.00	1,243.50	0.024	0.051	
68.00	2,242.65	0.040	0.091	
69.00	3,945.92	0.071	0.162	7037.7 cf
70.00	5,649.19	0.110	0.272	11835.2 cf
71.00	OVERFLOW 9,298.27	0.172	0.443	19308.9 cf
	TOTAL VOLUME BELOW OUTFALL STRUCTURE =		0.443	AC. FT.

THE TREATMENT VOLUME REQUIRED IS :	0.088	AC. FT.	3852.60	CF
THE TREATMENT VOLUME PROVIDED IS :	0.443	AC. FT.	19308.95	CF

******* DESIGN O.K. *******

CHECK RECHARGE REQUIREMENT OF 2758.5 CF ok
3" OF RUNOFF FROM THE IMPERVIOUS AREA

FOR RECOVERY CALCULATIONS, PLEASE SEE THE MODRET ANALYSIS.

STAGE / STORAGE FOR WRA #2

ELEV. (FT.)		AREA (SQ. FT.)	VOL. (AC. FT.)	VOL. (AC. FT.) CUM.	
47.00		1,606.79			
48.00		2,306.81	0.045	0.045	
49.00		3,929.15	0.072	0.117	
49.10	overflow	4.133.25	0.009	0.126	5477.9 cf
50.00		5,970.19	0.104	0.230	10024.5 cf
		TOTAL VOLUME BELOW OUTFALL STRUCTURE =		0.126	AC. FT.

THE TREATMENT VOLUME REQUIRED IS :	0.121	AC. FT.	5260.50 CF
THE TREATMENT VOLUME PROVIDED IS :	0.126	AC. FT.	5477.90 CF

******* DESIGN O.K. *******

CHECK RECHARGE REQUIREMENT OF 1700 CF ok
3" OF RUNOFF FROM THE IMPERVIOUS AREA

= 0.506 (2.7"/HR.) 4.329 ACRES (3600 SEC. / HR.) (1 AC FT. / 43,560 CU. FT.)

= 0.488 AC. FT.

REQUIRED TREATMENT VOLUME TO BE PROVIDED IS : 0.361 AC. FT.

CHECK 72 HOUR RECOVERY TIME REQUIREMENT :

FOR RECOVERY CALCULATIONS, PLEASE SEE THE MODRET ANALYSIS.

STAGE / STORAGE FOR WRA #3 mod

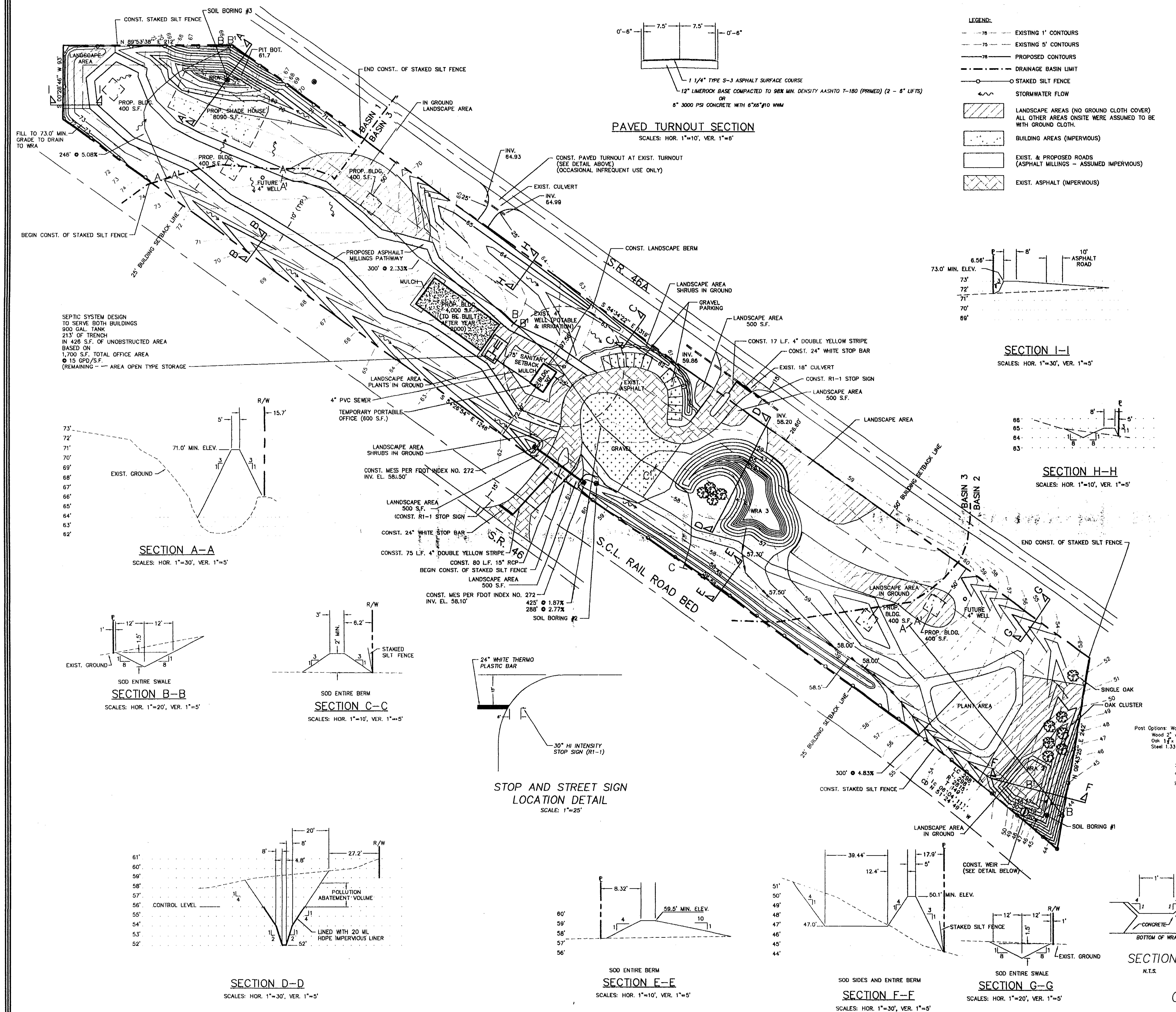
ELEV. (FT.)		AREA (SQ. FT.)	VOL. (AC. FT.)	VOL. (AC. FT.) CUM.	
50.00		1,690.76			
51.00		2,221.68	0.045	0.045	
52.00		2,821.09	0.058	0.103	
53.00		3,498.30	0.073	0.175	
54.00		4,263.33	0.089	0.264	
55.00		6,015.91	0.118	0.382	
56.00	control	7,879.40	0.159	0.542	23605.4 cf
57.00		9,845.95	0.203	0.745	
58.50	overflow	29,768.00	0.682	1.427	62178.5 cf
59.00		34,428.22	0.368	1.796	78227.6 cf

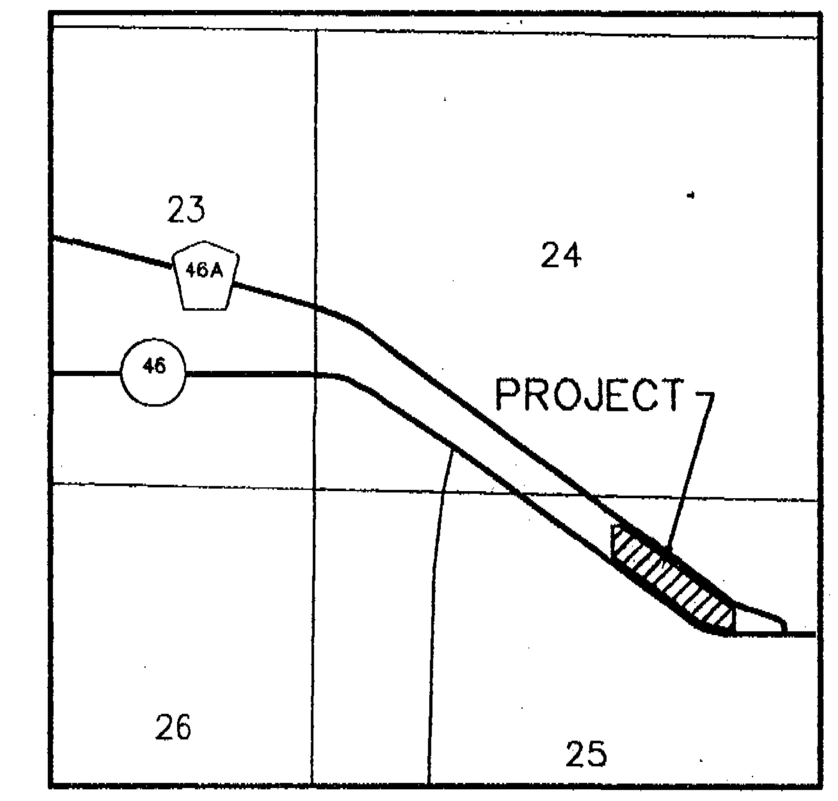
TOTAL VOLUME BELOW OUTFALL STRUCTURE AND ABOVE CONTROL= 0.886 AC. FT.

THE TREATMENT VOLUME REQUIRED IS :	0.361	AC. FT.	15714.37 CF
THE TREATMENT VOLUME PROVIDED : (BETWEEN CONTROL AND OVERFLOW)	0.886	AC. FT.	38573.14 CF

******* DESIGN O.K. *******

CHECK RECHARGE REQUIREMENT OF 12219 CF ok
3" OF RUNOFF FROM THE IMPERVIOUS AREA





LOCATION MAP

N.T.S.

LEIGAL DESCRIPTION:

THIE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 28 EAST LYING NORTH OF THIE NORTHERLY RIGHT OF WAY LINE OF S.C.L. R.R. AND SOUTH OF THE SOUTHERLY RIGHT OF WAY LINE OF S.R. NO. 46A (LAKE COUNTY, FLORIDA).

NOTES:

1. PROJECT AREA - 297,929.61 S.F. (6.84 ACRES)
   IMPERVIOUS AREA:
   PROPOSED BUILDINGS - 11,750.00 S.F. (.27 ACRES)
   EXIST. & PROPOSED ROADS- 54,960.27 S.F. (1.26 ACRES)
2. LANDSCAPE AREAS - 51,624.19 S.F. (1.19 ACRES)
3. ZONING - AGRICULTURE ("A")
4. PROJECT SOILS - ASTATULA (AtB), FILL MATERIAL ("FM") AND TAVARES SAND (Ta)
5. BOUNDARY AND TOPOGRAPHY BASED UPON SURVEY BY M. EDWARD GORDON SURVEYING DRAWING DATED 8-11-95

EROSION & SEDIMENT CONTROL

Prior to initiating construction of planned improvements, all WRA's and Swales will be excavated and rough graded to provide sediment and runoff control during construction.

All disturbed areas will be brought to final grade and seeded and mulched as soon as possible.

Areas which may erode due to slopes or concentrated runoff during construction will be treated. Temporary slope drain protection will be provided per DOT Road Design Standard Index No. 100.

Off site discharge of untreated stormwater will be prevented using temporary berms and dikes where needed.

Baled hay and straw barriers will be provided along jurisdictional wetlands and streams of other surface waters. Devices consistent with DOT Road Design Standard Index No. 102 will be used.

Upon completion of site improvements, the WRA's, swales, and other stormwater management devices will be final graded and sodded as specified in the approved construction plans.

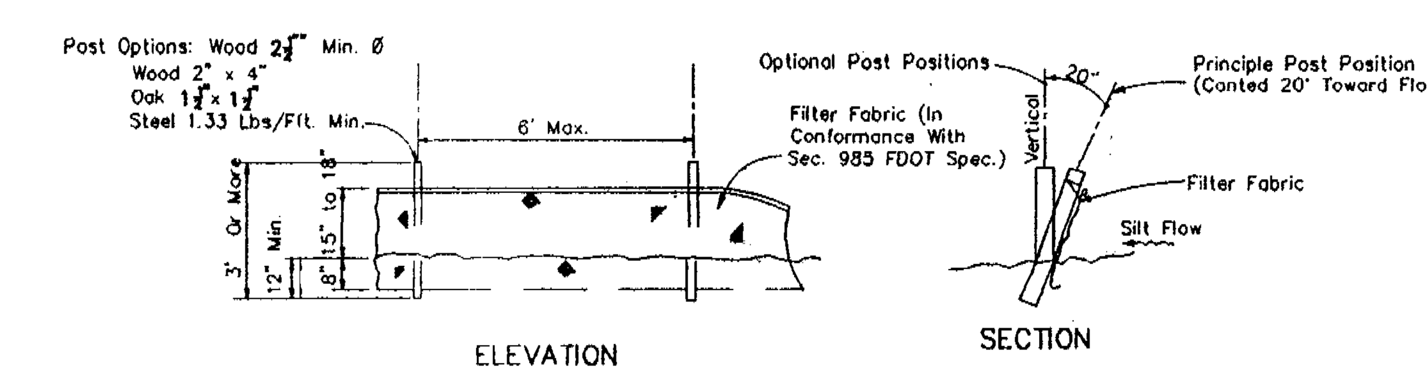
ROUTINE MAINTENANCE -- STORMWATER

After completion of construction, WRA's will be mowed and maintained as part of the normal lawn and open space maintenance.

Trash and debris that accumulates within the WRA's, swales, pipes, and inlets will be manually collected and disposed of with other normal solid waste.

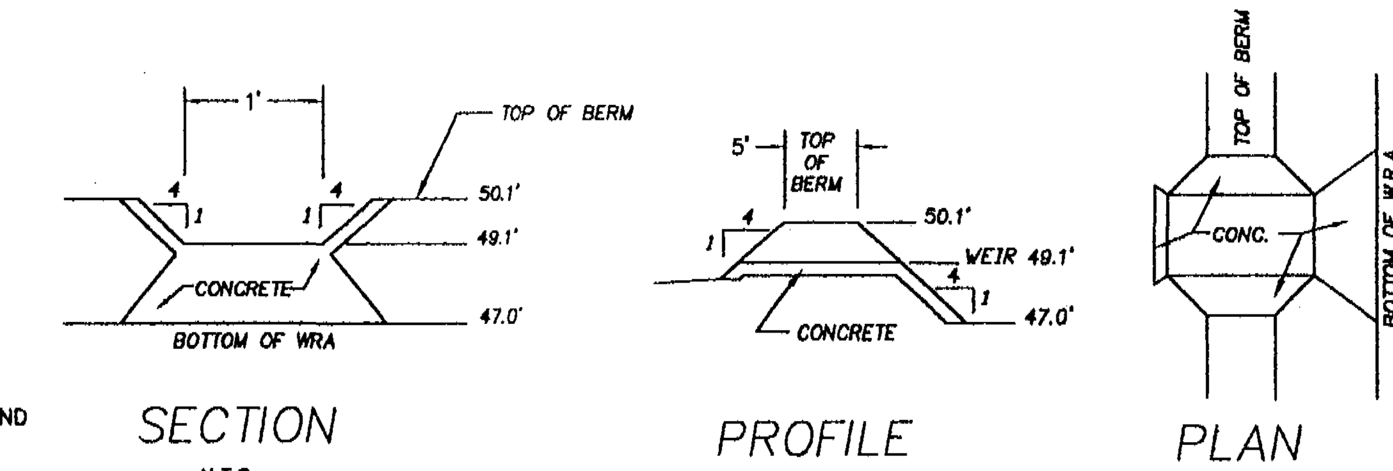
Any erosion, loss of grass, etc., will be repaired or replaced routinely and as needed.

Pipes, inlets, flumes, and other control devices will be inspected annually and repairs made as needed.



Note: Silt Fence to be paid for under the contract unit price for Staked Silt Fence (LF).

STAKED SILT FENCE



OVERFLOW STRUCTURE DETAILS

DAVID L. CLUTTS, P.E. FL. REG. NO. 47684
DATE: 7/24/00

NORTH 1"=60'

WICKS CONSULTING SERVICES, INC.
(352) 343-8667 225 West Main Street Tavares, Florida 32778-3811
Environmental, Sanitary & Water & Resources Engineering
EB 4571

ROBERT V. SIMS
34835 C.R. 439
EUSTIS, FLORIDA 32726
(352) 589-2220
FAX (352) 589-7975

SIM'S LANDSCAPING SITE PLAN

Drawn: tk
Checked: dc
Date: 5-10-99
Scale: 1"=60'
File No.: 29006
REVISION: PER CLIENT
DATE: 7-18-00
Sheet 2 of 2

RECEIVED JUL 27 2000 EDS ORLANDO SJRWMD

NEW GARDEN COAL

DRAINAGE REPORT EXCERPTS

MAY 17, 2013

FPID 431081-3-52-01

DRAINAGE REPORT

NEW GARDEN COAL PROPERTY
Wekiva Parkway

Financial Project ID No. 431081-3-52-01

LAKE COUNTY, FLORIDA

Prepared for:

Florida Department of Transportation
District Five
Project Manager: Kevin Moss
719 South Woodland Boulevard
Deland, Florida 32720-6800

Prepared by:

165 Lincoln Avenue
Winter Park, Florida 32789

Final Submittal
December 3, 2012
Revised May 17, 2013

Mr. Gregory S. Seidel, P.E.
Project Drainage Engineer
Florida Registration No. 47571

Appendix F

Post-Development Stormwater Calculations

165 Lincoln Ave
Winter Park, FL 32789
Phone: 407.629.2185
Fax: 407.629.2183
www.balmoralgroup.us

Geotechnical Summary Calculations DATE: 11/21/2012

PROJECT: Wekiva Parkway PREPARED: JAN

LOCATION LAKE COUNTY, FL CHECKED: GSS

RS8-E-1

Borings	Existing Ground Elev. (ft NAVD)	Groundwater Elev. (ft NAVD)	SHGWT Elev. (ft NAVD)	Comments
P5	45.07	39.0	41.0	Outside Pond limits
P6	36.87	34.0	36.0	
P7	37.06	32.0	34.0	Outside Pond limits
P8	43.23	37.5	39.8	Outside Pond limits
P9	46.00	38.0	41.0	Outside Pond limits
P10	40.92	31.3	34.3	Outside Pond limits
P11	34.52	32.5	34.5	
P12	40.10	33.5	35.5	
P13	42.26	29.5	35.3	
P14	44.23	29.3	34.3	
P15	42.79	29.0	33.0	
Average	**41.19**	**33.2**	**36.2**	

Design SHGWT = 36.0 ft
Max SHGWT = 36.0 (including only borings within pond limits)

RS9-E-1

Borings	Existing Ground Elev. (ft NAVD)	Groundwater Elev. (ft NAVD)	SHGWT Elev. (ft NAVD)	Boring Termination Elev. (ft NAVD)	Comments
P16	58.63	GNE	50.9	38.63	Outside Pond Limits
P17	56.83	GNE	46.1	36.83	
P18	57.93	GNE	46.5	37.93	
P19	57.89	GNE	47.4	37.89	
P20	57.49	GNE	47.5	37.49	
P21	58.96	GNE	47.5	38.96	
P22	58.36	GNE	46.9	38.36	
P23	58.41	GNE	45.7	38.41	
Average	**58.06**	**GNE**	**47.3**	**38.1**	

Design SHGWT = 47.5 ft
Max SHGWT = 47.5 (including only borings within pond limits)

Geotechnical Information provided by Nadic Engineering Services via email on September 4 2012

VOLUME CALCULATIONS FOR PROPOSED CONDITION

PROJECT: Wekiva Parkway PREPARED: JAN DATE: 11/28/2012

LOCATION: LAKE COUNTY, FLORIDA CHECKED: GSS DATE: 11/28/2012

Wet Detention Pond Treatment Calculations: Pond RS8-E-1

Existing impervious area =	0.00 Ac	
Proposed impervious area =	17.74 Ac	(includes Access Rd.)
Total Drainage area =	**23.68 Ac**	(includes AR & Pond)
2.5" runoff from impervious area =	3.70 Ac-Ft	
1.0" runoff from drainage area =	1.97 Ac-Ft	
Greater of above =	3.70 Ac-Ft	
50% Addition for OFW =	1.85 Ac-Ft	

Treatment Volume = Greater of 2.5" over Impervious Area or 1.0" over drainage area
+ 50% Additional for OFW

Required Treatment Volume (T.V.) = **5.54** Ac-ft
241445 ft^3

Historical Storage Calculations: Pond RS8-E-1

Total Amount of Historical Basin Storage Required =	8.77 ac-ft	for NGC Basins
Amount of Historical Basin Storage Required =	8.49 ac-ft	(excludes T.V.)
Amount of Historical Basin Storage Provided =	11.30 ac-ft	**(excludes T.V.)**

Pond Storage Calculations (Wet Detention - Pond RS8-E-1):

Elev.	h	Area	Area	Inc. Volume	Cum. Volume	
---	ft	sf	ac	Ac-ft	Ac-ft	
42.0	1.0	269,304	6.182	5.982	30.03	Top of Pond
41.0	0.9	251,874	5.782	5.044	24.05	
40.1	0.1	236,380	5.427	0.541	19.00	<=Weir
40.0	1.0	234,670	5.387	5.192	18.46	
39.0	0.4	217,692	4.998	1.968	13.27	Vol = 7.16 ac-ft
38.6	0.6	210,964	4.843	2.837	11.30	<=Orifice
38.0	1.0	200,940	4.613	4.422	8.47	Vol = 11.30 ac-ft
37.0	1.0	184,326	4.232	4.044	4.04	
36.0		167,969	3.856		0.00	SHGWT

Overflow Weir Elevation (Top of storage volume) (Pond RS8-E-1)

Elev.	Storage						
38.6	11.303						
40.1	19.004						
Storage Between	**40.1**	**&**	**38.6**	**=**	**7.701**	**ac-ft**	Treatment Vol.
Storage Between	**38.6**	**&**	**36.0**	**=**	**11.303**	**ac-ft**	Historic Basin Storage
Storage Between	**40.1**	**&**	**36.0**	**=**	**19.004**	**ac-ft**	Total Storage

Provided Treatment Volume = **7.701** Ac-ft

PERMANENT POOL VOLUME CALCULATIONS FOR PROPOSED CONDITION

PROJECT: Wekiva Parkway PREPARED: JAN DATE: 11/28/2012

LOCATION: LAKE COUNTY, FL CHECKED: GSS DATE:

RS8-E-1 Permanent Pool Calculations

Basin Characteristics

Land Use	Area (Acres)	Runoff Coefficient	Product
Roadways	17.74	0.95	16.85
Green Areas	2.09	0.20	0.42
Pond Area at NWL	3.86	1.00	3.86
Total	23.68		21.12

Composite C = 0.89

Wet Seasonal Normal Rainfall (P) = 30 inches
(Based on Figure 29-1 from SJRWMD Applicant's Handbook)

Residence Time (RT) = 21 days (non-littoral zone)

Length of wet season (WS) = 153 days

Minimum Permanent Pool Volume

Area x C x P x RT / WS / (12 in/ft) = 7.25 ac-ft
Additional 50% for OFW = 3.62 ac-ft
Minimum PPV Required = 10.87 ac-ft

Elev.	h	Area	Area	Inc. Volume	Cum. Volume	
---	ft	sf	ac	Ac-ft	Ac-ft	
36.0	12.0	167969	3.86	26.39	26.39	NWL
24.0	0.0	23617	0.54	0.00	0.00	Pond Bottom

Permanent Pool Volume Provided = 26.39 ac-ft
Resident Time Provided = 76.5 days

Mean Depth = 6.8 feet (between 2' - 8')

ORIFICE SIZING FOR PROPOSED CONDITION

PROJECT: Wekiva Parkway PREPARED: JAN DATE: 11/28/2012

LOCATION: LAKE COUNTY, FL CHECKED: GSS DATE: 11/28/2012

RS8-E-1 Orifice Calculations

Orifice Equation: $Q = C\ A \sqrt{2gh}$

Average Discharge Rate: Drawdown half the Treatment Volume

Required Treatment Volume =	311912.20	ft^3
Half of Treatment Volume (TV) =	155956.10	ft^3
Recovery Time (t) =	27.45	hr
Conversion Factor (CF) =	3600.00	sec/hr

$$Q = \frac{TV}{2\ t\ CF}$$

Q = 0.789 cfs

Elevation of Required Treatment Volume =	40.00	ft
Elevation of half of the Treatment Volume =	39.30	ft
Flow line Elevation =	38.60	ft

Depth of water between top of treatment volume and flow line (h1) = 1.40 ft
e when half the treatment volume has been released and flow line (h2) = 0.70 ft

$$h = \frac{(h_1 + h_2)}{2}$$

h = 1.05 ft

Orifice Equation: $$A = \frac{Q}{C\sqrt{2\ g\ h}}$$

A = 0.108 ft^2

$$D = \sqrt{\frac{4\ A}{\pi}}$$

D = 0.37 ft = 4.44 in dia

RECHARGE CALCULATIONS IN WET DETENTION POND

PROJECT: Wekiva Parkway PREPARED: JAN DATE: 11/28/2012

LOCATION: LAKE COUNTY, FL CHECKED: GSS DATE:

RS8-E-1 Historical Storage

Historical Storage in Pond RS9-E-1 = 0.28 ac-ft
Total Required Historical Storage = 8.77 ac-ft

Required Historical Storage in Pond RS8-E-1 = 8.49 ac-ft

Elev.	h	Area	Area	Inc. Volume	Cum. Volume	
---	ft	sf	ac	Ac-ft	Ac-ft	
39.0	0.4	217,692	4.998	1.922	13.22	
38.6	0.6	210,964	4.843	2.837	11.30	<=Orifice
38.0	1.0	200,940	4.613	4.422	8.47	
37.0	1.0	184,326	4.232	4.044	4.04	
36.0		167,969	3.856		0.00	SHGWT

Provided Historical Storage in Pond RS8-E-1 = 11.30 ac-ft

VOLUME CALCULATIONS FOR PROPOSED CONDITION

PROJECT: Wekiva Parkway PREPARED: JAN DATE: 4/30/2013

LOCATION: LAKE COUNTY, FLORIDA CHECKED: GSS DATE:

Dry Retention Online Pond Treatment Calculations: Pond RS9-E-1

Existing impervious area =	0.00 Ac	
Proposed impervious area =	14.24 Ac	
Total Drainage area =	**20.17 Ac**	(includes Pond)
1.25" runoff from impervious area =	1.48 Ac-Ft	
0.5" runoff from drainage area =	0.84 Ac-Ft	
Greater of above =	1.48 Ac-Ft	
Add. 0.5" over drainage area (On-line) =	0.84 Ac-Ft	
50% Addition for OFW =	1.16 Ac-Ft	

Treatment Volume = Greater of 1.25" over Impervious Area or 0.5" over drainage area
+ 0.5" runoff from drainage area for Online Retention
+ 50% Additional for OFW

Required Treatment Volume (T.V.) = **3.49** Ac-ft
151827 ft^3

Dry Retention Online Pond Recharge Calculations: Pond RS9-E-1

Proposed impervious area (Type A Soils) = 13.44 ac

" over Impervious Area over Type A Soils = **3.36** ac-ft

Historical Storage Calculations: Pond RS9-E-1

Total Amount of Historical Basin Storage Required = 8.77 ac-ft for NGC Basins

Amount of Historical Basin Storage Provided = 0.28 ac-ft (excludes T.V.)

Pond Storage Calculations (Dry Retention - Pond RS9-E-1):

Elev.	h	Area	Area	Inc. Volume	Cum. Volume	
---	ft	sf	ac	Ac-ft	Ac-ft	
53.5	0.5	303,832	6.975	3.373	22.202	Top of Pond
53.0	2.0	283,878	6.517	12.744	18.829	
51.0	1.0	271,260	6.227	6.085	6.085	
50.0	0.0	258,869	5.943	0.000	0.000	Pond Bottom

Overflow Weir Elevation (Top of storage volume) (Pond RS9-E-1)

Elev.	Storage
50.0	0.000
53.0	18.829

Elev. = 50.6 = 3.766 ac-ft
Surface Area @ TV Elev. = 263870.8 sf

Provided Treatment Volume = **3.766** Ac-ft

RECOVERY CALCULATIONS FOR PROPOSED CONDITION

PROJECT: Wekiva Parkway PREPARED: JAN DATE: 11/28/2012

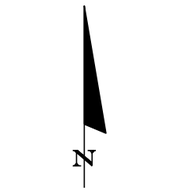
LOCATION: LAKE COUNTY, FL CHECKED: GSS DATE:

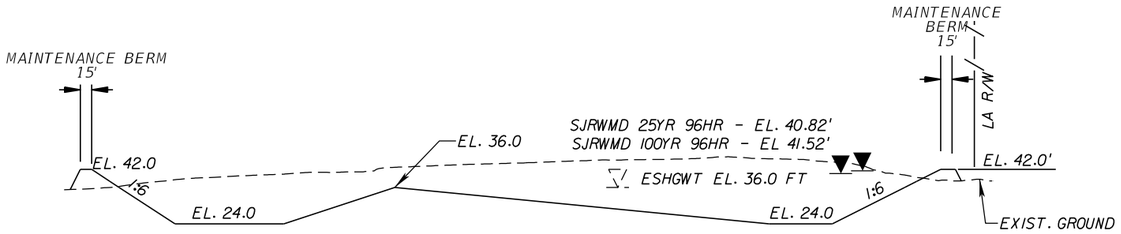
RS9-E-1 Recovery Calculations

Required Recharge Volume =	3.36	ft
Required Treatment Volume =	3.49	ft

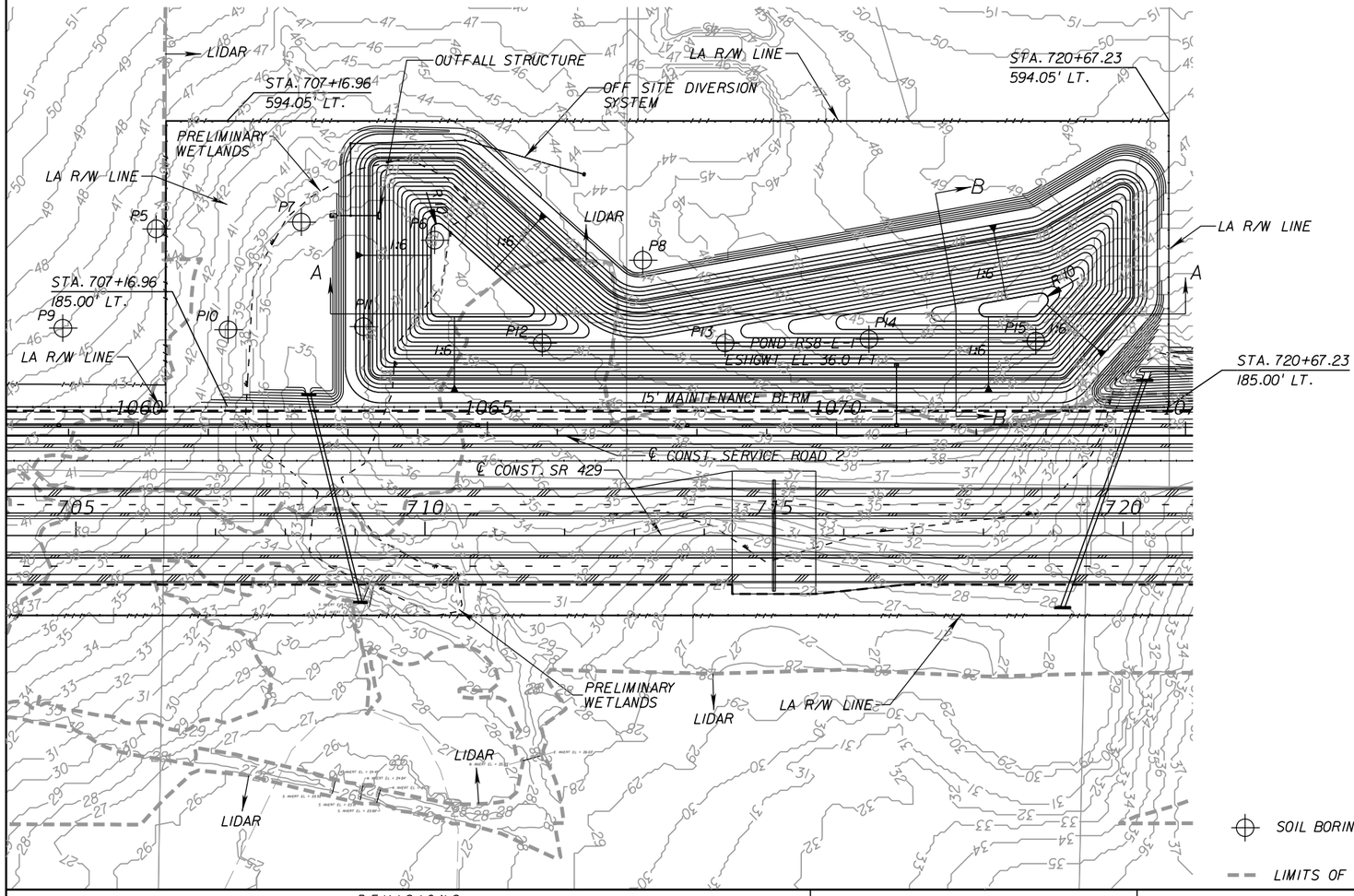
Both volumes are required to recover within 72 hours.
Treatment Volume Recovery was modeled since it is the larger volume.
ICPR PercPack was utilized for this analysis.

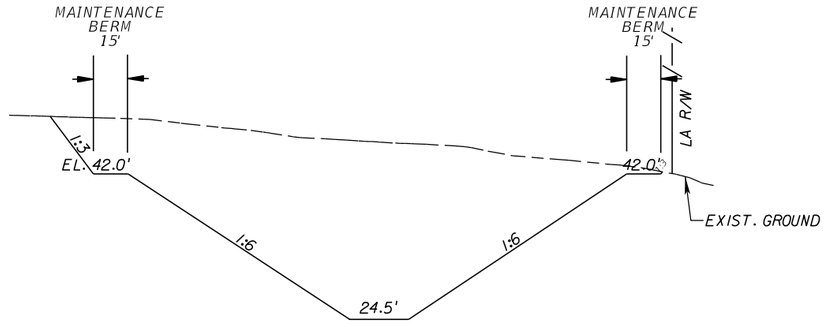
Slug Load Stage in Pond =	50.6	ft
Recovery time =	8.27	hr





POND SECTION A-A
NTS





POND SECTION B-B
NTS

SOIL BORINGS

LIMITS OF CONTOURS BASED ON LIDAR DATA FLOWN IN 2006

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

The Balmoral Group
341 N. Maitland Ave., Suite 100
Maitland, FL 32751
Phone: (407) 629-2185
Fax: (407) 629-2183
Certificate of Authorization No. 26123

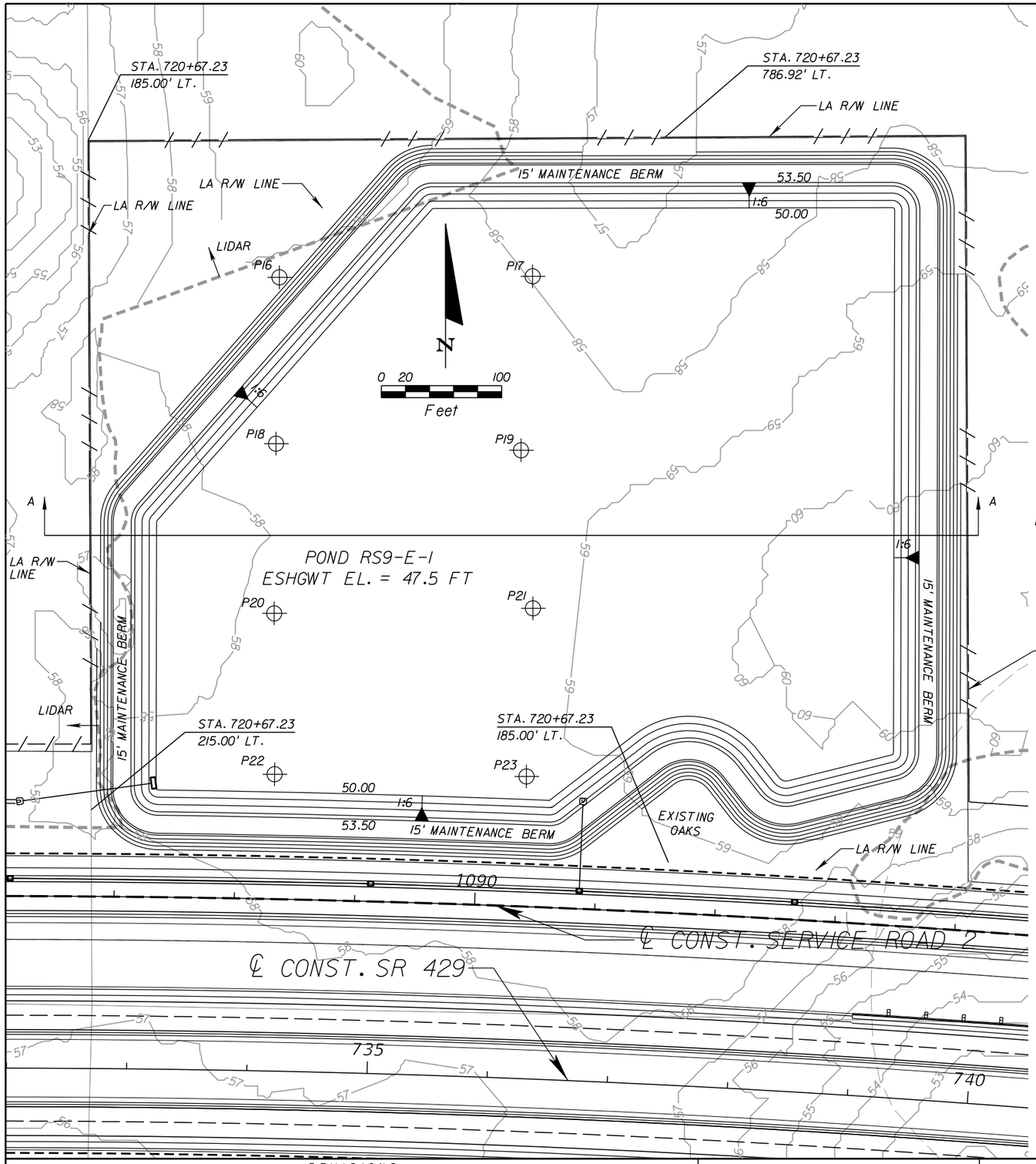
E.O.R.: Gregory S. Seidel, P.E. No. 47571

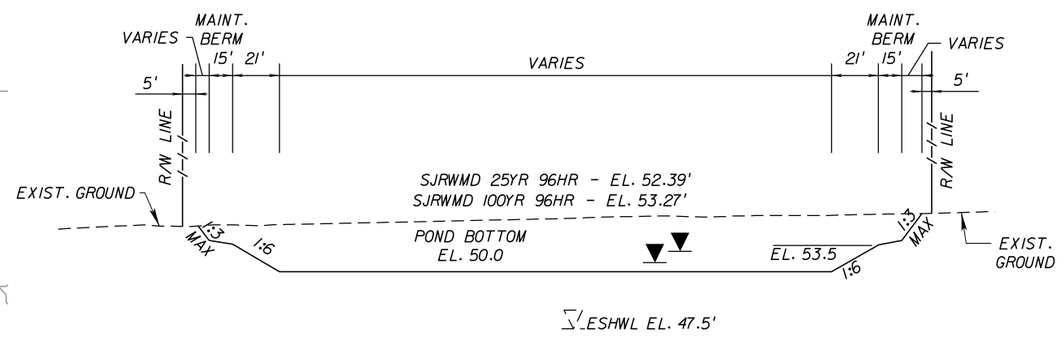
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE	431081-3-32-01

POND DETAILS
POND RS8-E-1

SHEET NO.





POND SECTION A-A
NTS

SOIL BORING LOCATIONS

LIMITS OF CONTOURS BASED ON LIDAR DATA FLOWN IN 2006

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

The Balmoral Group
341 N. Maitland Ave., Suite 100
Maitland, FL 32751
Phone: (407) 629-2185
Fax: (407) 629-2183
Certificate of Authorization No. 26123

E.O.R.: Gregory S. Seidel, P.E. No. 47571

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	LAKE	431081-3-32-01

POND RS9-E-1 DETAIL SHEET

SHEET NO.

$USER$ $DATE$ $TIME$ $FILE$

Appendix G

Correspondence

165 Lincoln Ave
Winter Park, FL 32789
Phone: 407.629.2185
Fax: 407.629.2183
www.balmoralgroup.us

WATER MANAGEMENT DISTRICT
POST OFFICE BOX 1429 • PALATKA, FLORIDA
904/328-8321

May 2, 1985

BMK FARMS
P. O. BOX 8068
ORLANDO, FL 32856

RE: Permit #4-069-0112

Dear Sir/Madam:

Enclosed is the permit as authorized by the Governing Board of the St. Johns River Water Management District on February 12, 1985.

Permit issuance does not relieve you from the responsibility of obtaining permits from any federal, state, and/or local agencies asserting concurrent jurisdiction for this work.

In the event you sell your property, the permit will be transferred to the new owner, if we are notified by you within ninety days of the sale. Please assist us in this matter so as to maintain a valid permit for the new property owner.

The permit enclosed is a legal document and should be kept with your other important documents. The attached Completion Report should be filled in and returned to us within thirty days after the work is completed. By so doing, you will enable us to schedule a prompt inspection of the permitted activity.

Thank you for your cooperation and if this office can be of any further assistance to you, please do not hesitate to contact us.

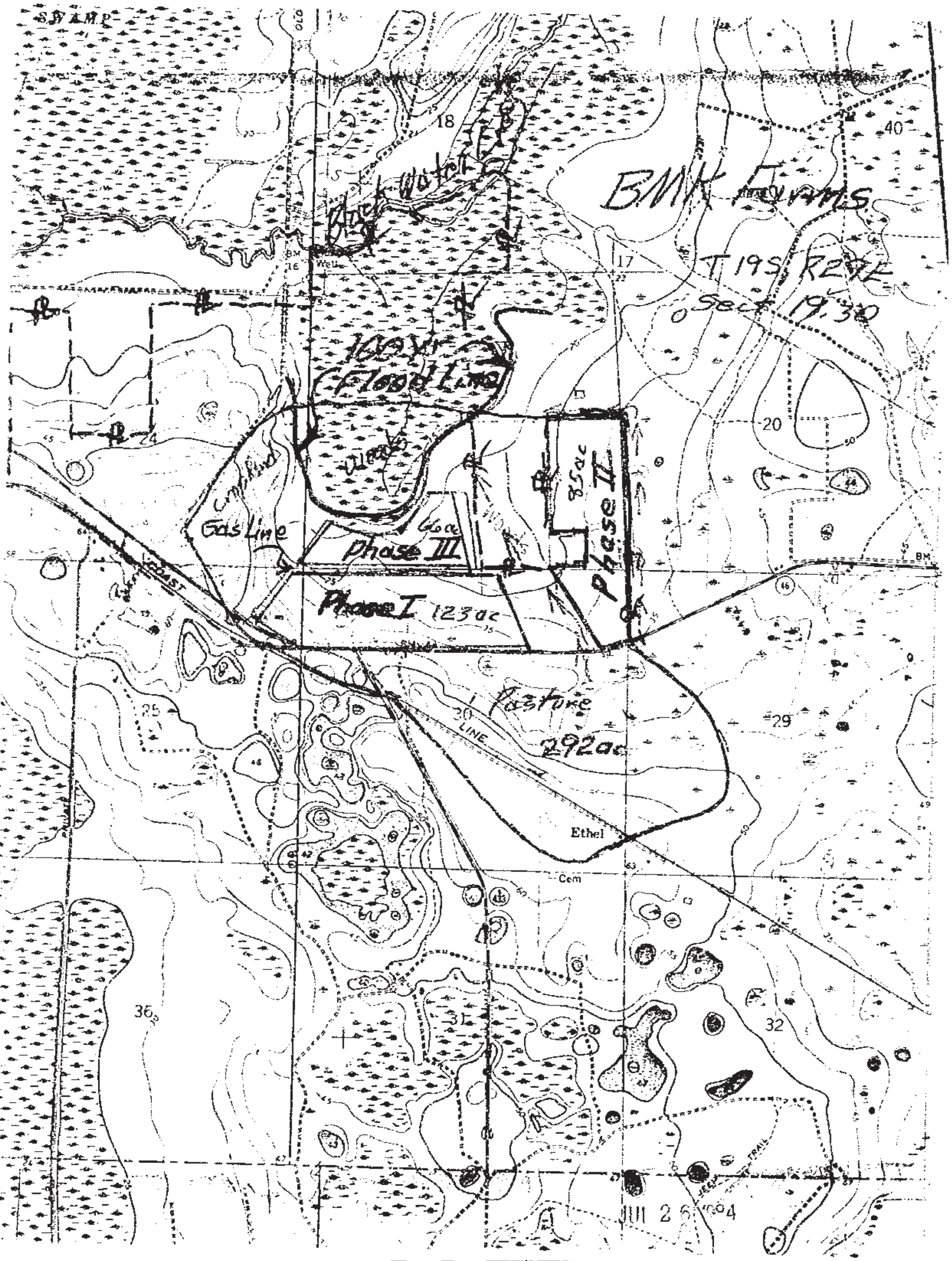
Sincerely,

Dermrse T. Kemp, Director
Division of Records

DTK:gg

Enclosures: Permit with Completion Report

cc: District Permit File
USDA SOIL & WATER CONSERVATION


SWAMP
18
BMK Farms
T19S R24E
Sec 19, 30
100 Yr Flood Line
Gas Line
Phase III
Phase II
85ac
Phase I 123 ac
Pasture
292ac
COAST
LINE
Ethel
Cem
17
20
24
25
29
30
31
32
36
40

APPENDIX I

Excerpts from Contamination Screening Evaluation Report (CSER) Update

LEVEL 1 CONTAMINATION SCREENING EVALUATION REPORT UPDATE AND LEVEL 2 CONTAMINATION IMPACT ASSESSMENT

WEKIVA PARKWAY, SECTION 6
SR 429/SR 46 FROM 0.75 MILE WEST OF OLD MCDONALD ROAD TO 0.04 MILE EAST OF RIVER OAKS CIRCLE
LAKE COUNTY AND SEMINOLE COUNTY, FLORIDA

November 11, 2013
Terracon Project No. H1137198

Prepared for:
GAI Consultants, Inc.
Orlando, Florida

Prepared by:
Terracon Consultants, Inc.
Winter Park, Florida

Groundwater Analytical Results

Groundwater samples were not collected for analysis of arsenic and do not appear warranted, based on the soil analytical results.

8.0 PROJECT IMPACTS

Potential sources of contamination and contamination risk at the CSER corridor area associated with regulated facilities and/or FDEP waste cleanup activities conducted along the corridor area are summarized on Table 1. Based on the Level 2 CIA results and review of the identified regulatory information, the identified facilities appear to present no or low risk of contaminant impacts.

9.0 REGULATORY STATUS OF SITES

Terracon did not identify facilities or properties along the roadway corridor that a regulatory agency is, has, or is planning to take an action where potential contamination could have an impact on the project at this time, except for the following:

- Rock Springs Run State Reserve AOC-1 (Cattle Dipping Vat), facility U2 on Exhibit 2. A *Cattle Dipping Vat Site Remediation Summary Report* dated September 21, 2006 prepared by AECOM indicates a dip vat structure was removed, soils within the top 2 feet of the surface containing arsenic concentrations exceeding the residential direct exposure SCTL of 2.1 mg/kg were removed along with deeper soils containing arsenic concentrations exceeding the FDEP's site-specific SCTL of 50 mg/kg. Arsenic concentrations in shallow groundwater did not exceed the GCTL. Concentrations of other contaminants of concern reportedly did not exceed SCTLs or GCTLs. Based on the reported actions, potential exists for arsenic concentrations exceeding SCTLs for direct exposure below a depth of 2 feet beneath the surface. The proposed roadway alignment appears to cross over the former cattle dipping vat area; however proposed stromwater ponds are not cited in the immediate area.
- Rock Springs Run State Reserve AOC-2 (Former Dairy Farm), facility 86 on Exhibit 2. A *Closure Analysis* dated August 2, 2013 prepared by AECOM for the FDEP indicates that in 2004 an arsenic concentration of 6.9 mg/kg was detected in soil sample SB018 collected approximately 2 feet bgs, which exceeds the residential direct exposure SCTL of 2.1 mg/kg. Concentrations of other contaminants of concern reportedly did not exceed SCTLs or GCTLs. In the *Closure Analysis*, AECOM recommended additional assessment to delineate the extent of arsenic impacted soil followed by excavation and disposal. Arsenic concentrations did not exceed SCTLs in the 10 soil samples Terracon collected on October 11, 2013 in the area of AECOM's soil sample location SB018.

A summary of available regulatory information concerning facilities identified during the CSER Update is provided on Table 1 and recommendations are provided in the following section.

10.0 RECOMMENDATIONS

Chapter 22, Section 22-2.7 of FDOT's PD&E guidelines states that a Level 2 CIA should be conducted, at a minimum on all sites rated Medium Risk or High Risk. Additionally all sites with previously documented contamination, whether or not the sites have received closure documentation defining "no existing" contamination onsite should be tested.

Based on this current CSER and Level 2 CIA results, Terracon recommends an additional Level 2 CIA for potential project impacts as follows:

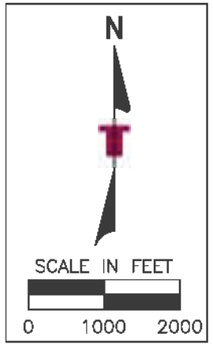
- Rock Springs Run State Reserve AOC-1 (Cattle Dipping Vat), facility U2 on Exhibit 2. In the event soils are to be removed below a depth of 2 feet bgs, the soils should be analyzed for arsenic concentration to determine whether special handling or disposal is required.

REFERENCE: BOWYER SINGLETON, PROJECT LAYOUT SHEET SR 429 (SECTION 6)

SITE RISK RATING

[#] HIGH [#] MEDIUM [#] LOW [#] NO RISK

FACILITY NUMBER	FACILITY NAME
48	FORMER BLACK BEAR NURSERY
49	GARDEN REBEL / SIMS LANDSCAPE
85	FORMER UCF AGRICULTURAL FACILITY
86	FORMER CATTLE OPRERATIONS AREA
U1	FAIRGLADES DAIRY
U2	ROCK SPRING RUN STATE RESERVE
U3	MIKELL LOGGINH
U4	TA ENTERPRISES
U7	SWEDLO CO.
U8	ROCK SPRING DEBRIS STAGING AREA
U9	WILSONS LANDINGS DEBRIS STAGING AREA



Project Mngr:	EK
Drawn By:	MG
Checked By:	EK
Approved By:	EK
Project No.	H1137198
Scale:	AS SHOWN
File No.	H1137198
Date:	10-30-13

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LAND USE AND ASSESSED POTENTIAL CONTAMINATION SITE LOCATIONS

CONTAMINATION SCREENING EVALUATION REPORT UPDATE
WEKIVA PARKWAY SECTION 6 (SR 429 / SR 46)
FROM WEST OF OLD McDONALD ROAD TO RIVER OAKS CIRCLE
LAKE AND SEMINOLE COUNTIES, FLORIDA

EXHIBIT 2

Table 1 –Contamination Risk Potential Summary

Facility	Contamination Evaluation Rating Relative to Corridor	Database / Regulatory ID#	Exhibit 2 Map ID#	Evaluation of Recognized Environmental Concerns
Fairglade Dairy	Low	STCM	U1	A FDEP *Pollutant Storage Tank System Inspection Report Form* dated July 9, 1990 indicates a 500-gallon gasoline AST and a 500-gallon diesel fuel AST installed in 1985 had been removed. Based on review of available record information and distance from the roadway corridor, the facility is considered a Low Risk.
Rock Springs Run State Reserve	Low	Contamination Locator Map – Site Investigation Section	U2	AOC-1 (Cattle Dipping Vat). A *Cattle Dipping Vat Site Remediation Summary Report* dated September 21, 2006 prepared by AECOM indicates the dip vat structure was removed, soils within the top 2 feet of the surface containing arsenic concentrations exceeding the residential direct exposure SCTL of 2.1 mg/kg were removed along with deeper soils containing arsenic concentrations exceeding the FDEP's site-specific SCTL of 50 mg/kg (528 tons). Arsenic concentrations in shallow groundwater did not exceed the GCTL. Concentrations of other contaminants of concern reportedly did not exceed SCTLs or GCTLs. AECOM provided a recommendation in a *Closure Analysis* dated August 2, 2013 to prepare a Site Rehabilitation Completion Report and issuance of a Site Rehabilitation Completion Order. Based on review of available record information, the former cattle dipping vat is considered a Low Risk, **unless excavating deeper than 2 feet bgs at the former cattle dip**.
Mikell Logging	Low	STCM	U3	A FDEP *Pollutant Storage Tank System Inspection Report Form* dated July 9, 1990 indicates a 1,000-gallon diesel fuel AST had been removed. A FDEP *Pollutant Storage Tank System Inspection Report Form* dated August 14, 1997 indicates two ASTs suspected to contain fuel were observed. Additional information was not available. Based on review of available record information and distance from the roadway corridor, the facility is considered a Low Risk.

Table 1 –Contamination Risk Potential Summary (cont.)

Facility	Contamination Evaluation Rating Relative to Corridor	Database / Regulatory ID#	Exhibit 2 Map ID#	Evaluation of Recognized Environmental Concerns
Former UCF Agricultural Facility, 28930 SR 46	Low	Public record information was not identified	85	GEC reported multiple abandoned greenhouses, a storage building, a feed silo, vehicles and a house observed during reconnaissance. GEC reported syringes and unknown containers of materials were located within one of the abandoned greenhouses and ranked the site a Medium Risk. Concentrations of contaminants of concern did not exceed SCTLs or GCTLs at the locations sampled by Terracon for the CIA. Based on the CIA results, the facility is considered a Low Risk.
Black Bear Nursery 29240 SR 46	Low	Public record information was not identified	48	GEC reported an irrigation well and a building containing various chemicals observed during reconnaissance and ranked the site a Medium Risk. Concentrations of contaminants of concern did not exceed SCTLs or GCTLs at the locations sampled by Terracon for the CIA. Based on the CIA results, the nursery is considered a Low Risk.
Garden Rebel Nursery, 29611 SR 46	Low	Public record information was not identified	49	GEC indicated the preferred Alternative intersects the facility and ranked the site a Medium Risk. Concentrations of contaminants of concern did not exceed SCTLs at the locations sampled by Terracon for the CIA. Based on the CIA results, the nursery is considered a Low Risk.
TA Enterprises	Low	Contamination Locator Map – Emergency Response Spill	U4	Information available on the FDEP's Oculus website indicates a vehicle fuel spill occurred in 1999, soil source removal was conducted and no further action (NFA) was posted in 2010. Based on the NFA status, the spill is considered a Low Risk.
Rock Springs Debris Staging Area	No	Solid Waste	U8	Information is not available at FDEP's Oculus website. Based on designation for only debris staging, the facility is considered No Risk.

Table 1 –Contamination Risk Potential Summary (cont.)

Facility	Contamination Evaluation Rating Relative to Corridor	Database / Regulatory ID#	Exhibit 2 Map ID#	Evaluation of Recognized Environmental Concerns
Suspected Cattle Operations, 31515 Wekiva River Road aka Rock Springs Run State Reserve AOC-2	Low	Contamination Locator Map – Site Investigation Section	86	GEC reported cattle feed troughs and multiple vaccine bottles and syringes were observed during reconnaissance. GEC reported two large molasses aboveground storage tanks within proposed Pond BW2-E-2 and miscellaneous debris piles at proposed Pond WR1-E-2. GEC reported potential exists for cattle dipping vats. GEC ranked the site a Medium Risk. AOC-2 (Former Dairy Farm) a *Closure Analysis* dated August 2, 2013 prepared by AECOM for the FDEP indicates that in 2004 an arsenic concentration of 6.9 mg/kg was detected in soil sample SB018 collected approximately 2 feet bgs, which exceeds the residential direct exposure SCTL of 2.1 mg/kg. Concentrations of other contaminants of concern reportedly did not exceed SCTLs or GCTLs. In the *Closure Analysis*, AECOM recommended additional assessment to delineate the extent of arsenic impacted soil followed by excavation and disposal. Concentrations of contaminants of concern did not exceed SCTLs or GCTLs at the locations sampled by Terracon for the CIA. Based on the CIA results, the facility is considered a Low Risk.
Swerdlo Co.	Low	STCM	U7	A *UST Closure Assessment Report* dated November 2, 1990 prepared by Atlanta Testing & Engineering indicates a 1,000-gallon gasoline UST and a 500-gallon UST were removed. The maximum soil organic vapor analyzer reading measured 32 parts per million and purgeable aromatics were not detected in a shallow groundwater sample collected at the tanks area. Based on the tank closure assessment results, the facility is considered a Low Risk.
Wilsons Landings Debris Staging Area	No	Solid Waste	U9	Permitting information dated May 5, 2012 listed on FDEP's Oculus website, but not downloadable. Based on designation for only debris staging, the facility is considered No Risk.

Table 1 –Contamination Risk Potential Summary (cont.)

Facility	Contamination Evaluation Rating Relative to Corridor	Database / Regulatory ID#	Exhibit 2 Map ID#	Evaluation of Recognized Environmental Concerns
Lower Wekiva River Preserve State Park 8300 W SR 46	No	Contamination Locator Map – Site Investigation Section	Not in Area	A Closure Analysis dated July 25, 2013 prepared by AECOM indicates this facility is actually located along SR 44 and is not in proximity of the SR429/SR 46 roadway corridor area, thus is considered No Risk.

LEVEL 1 CONTAMINATION SCREENING EVALUATION REPORT UPDATE AND LEVEL 2 CONTAMINATION IMPACT ASSESSMENT ADDENDUM – FORMER CATTLE DIP AREA

WEKIVA PARKWAY, SECTION 6
SR 46 WEST OF OLD MCDONALD ROAD
LAKE COUNTY, FLORIDA

July 22, 2014
Terracon Project No. H1137198

Prepared for:
GAI Consultants, Inc.
Orlando, Florida

Prepared by:
Terracon Consultants, Inc.
Winter Park, Florida

Terracon

July 22, 2014

GAI Consultants, Inc.
618 E South Street, Suite 700
Orlando, Florida 32801

Attn: Mr. Stephen A. Boylan, P.E.
GAI Consultants, Inc.
618 E. South Street, Suite 700
Orlando, Florida 32801

P: 407.423.8398 ext. 3083
E: S.Boylan@gaiconsultants.com

Re: Level 1 Contamination Screening Evaluation Report Update
and Level 2 Contamination Impact Assessment Addendum – Former Cattle Dip Area
Wekiva Parkway, Section 6
SR 46 West of Old McDonald Road
Lake County, Florida
Terracon Project No. H1137198

Dear Mr. Boylan:

We are pleased to submit the addendum documenting Level 2 Contamination Impact Assessment soil sampling activities at a former cattle dip located along the south side of State Road 46 in the area of proposed Wildlife Crossing 1 approximately 1,400 feet west of Old McDonald Road. This assessment was performed in accordance with our Subconsultant Professional Services Agreement dated June 20, 2013 authorized by GAI Consultants, Inc. for the Florida Department of Transportation Contract Number C-9A82 - Wekiva Parkway, Section 6.

We appreciate the opportunity to perform these services for you. Please contact our office at (407) 740-6110 if you have questions regarding this information or if we can provide any other services.

Sincerely,

Terracon Consultants, Inc.

Mark Mulligan, P.G.
Environmental Department Manager

Eric R. Krebill, P.G.
Senior Project Manager

7/22/14

N:\Projects\2013\H1137198\H1137198 CSER Addendum,Wekiva 6 Cattle Dip.doc

ERIC KREBILL LICENSE NO. 1162 STATE OF FLORIDA

TABLE OF CONTENTS

APPENDICES

Level 1 Contamination Screening Evaluation Report Update
and Contamination Impact Assessment Addendum – Former Cattle Dip Area
Wekiva Parkway, Section 6
SR 46 West of Old McDonald Road
Lake County, Florida

Terracon Project No. H1137198
July 22, 2014

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) previously prepared a Level 1 *Contamination Screening Evaluation Report (CSER) Update and Level 2 Contamination Impact Assessment (CIA)* dated November 11, 2013 for the proposed Wekiva Parkway, Section 6. This addendum documents Level 2 CIA sampling activities conducted to evaluate arsenic concentrations remaining in soil at a former cattle dip in the area of shallow stormwater retention areas (SMA-RS7-E-4) proposed under Wildlife Crossing 1. Runoff from the bridge would be collected by bridge deck inlets at the intermediate bents and conveyed to the shallow retention areas. The former cattle dip area is located along the south side of State Road (SR) 46 approximately 1,400 feet west of Old McDonald Road. The approximate location of the former cattle dip area is shown on a topographic map presented as Exhibit 1 and an aerial photograph presented as Exhibit 2 in Appendix A. The cattle dip area was discussed in the CSER Update as Rock Springs Run State Reserve AOC-1 (Cattle Dipping Vat), in summary:

- A *Cattle Dipping Vat Site Remediation Summary Report* dated September 21, 2006 prepared by AECOM indicates a dip vat structure was removed, and soils within the top 2 feet of the surface containing identified arsenic concentrations exceeding the residential direct exposure soil cleanup target level (SCTL) of 2.1 milligrams per kilogram (mg/kg) were removed along with deeper soils containing arsenic concentrations exceeding the Florida Department of Environmental Protection's (FDEP's) site-specific SCTL of 50 mg/kg. Arsenic concentration detected in a shallow groundwater sample did not exceed the groundwater cleanup target level (GCTL). Concentrations of other contaminants of concern analyzed in the samples reportedly did not exceed cleanup target levels. A Site Rehabilitation Completion Order has not been issued for the former cattle dip.

2.0 SOIL SAMPLING AND RESULTS – FORMER CATTLE DIP

Terracon conducted soil sampling activities to evaluate arsenic concentrations remaining in soil at a former cattle dip in the area of shallow stormwater retention areas (SMA-RS7-E-4) proposed under Wildlife Crossing 1. Field activities were conducted in general accordance with applicable portions of the FDEP's guidance document *Standard Operating Procedures for Field Activities*, DEP-SOP-001/01, effective December 3, 2008. Terracon is committed to the safety

of all its employees. As such, and in accordance with our *Incident and Injury Free*® safety culture, a site safety pre-task plan was developed to identify potential safety concerns and prepare our personnel to handle conditions during field services. Prior to commencement of daily on-site activities, Terracon held a meeting with assigned staff to review the proposed work sequence and evaluate work practices for safe completion of the project. Field activities were conducted under modified safety level D by environmental staff with OSHA 1910.120 training. Soil boring hand auger equipment was decontaminated using a wash of Liqui-Nox® detergent/water before advancing each boring.

Terracon was informed that proposed excavation for development of stormwater retention would likely extend to a depth of approximately 4 feet below ground surface (bgs). Terracon advanced shallow soil borings in a grid pattern in the area of the former cattle dip to collect soil samples for laboratory analysis. Boring locations are indicated on Exhibit 3 in Appendix A. Soil borings SV-1 to SV-9 were advanced on May 27, 2014. Soil samples were collected at 2-foot intervals including 0 to 2 feet bgs, 2 to 4 feet bgs and 4 to 6 feet bgs at each of the boring locations. Based on soil sample analytical results, additional borings were advanced to collect soil samples to delineate the horizontal extent of arsenic concentrations exceeding the SCTL applicable to direct exposure at residential settings. Soil samples were collected at boring locations SV-13 to SV-20 on June 5, 2014 and at boring locations SV-21 to SV-24 on June 20, 2014.

Soil samples were placed in laboratory prepared glassware and stored in coolers. The sample coolers and completed chain-of-custody records were delivered to Accutest Laboratories Southeast, Inc. for analysis of arsenic by EPA Method 6010. Copies of the soil analytical reports and chain-of-custody records are contained in Appendix B. A tabular summary of arsenic concentrations reported in the soil samples is contained in Appendix C. In summary:

- Reported arsenic concentrations exceeded the SCTL of 2.1 mg/kg applicable to direct exposure at residential settings in 8 of the 24 soil borings. Arsenic concentrations at five of borings exceeded the SCTL of 12 mg/kg applicable to direct exposure at commercial/industrial settings. The approximate horizontal extent of soil containing arsenic concentrations exceeding the SCTL for direct exposure at residential settings is indicated on Exhibit 4 in Appendix A.
- Arsenic concentrations exceeding the residential and/or commercial/industrial direct exposure SCTLs were reported in the deepest soil samples collected 4 to 6 feet bgs at four of the boring locations. The vertical extent of arsenic concentrations was not defined at the four boring locations.

Soil boring SV-1 was extended to a depth of approximately 11.5 feet bgs and groundwater was not encountered on May 27, 2014. Heterogeneous soils that included sands, silty sands and clayey sands were observed at the various borings and depths.

3.0 PROJECT IMPACTS

Based on the soil sampling results, arsenic concentrations exceeding direct exposure SCTLs, and perhaps the leachability-based SCTL (value may be derived using the Synthetic Precipitation Leaching Procedure [SPLP] laboratory analysis to calculate site-specific SCTL), remain in soils at the former cattle dip area where stormwater retention is proposed in connection with Wildlife Crossing 1. Based on the soil sampling results, the horizontal area where arsenic concentrations exceed SCTLs is approximately 5,000 square feet. The vertical extent of arsenic concentrations exceeding SCTLs appears to extend deeper than 6 feet bgs at boring locations SV-1, SV-3, SV-6 and SV-12. Global positioning system (GPS) coordinates of the boring locations where arsenic concentrations were reported exceeding SCTLs include the following:

- SV-1: 28 48 52.5, 81 29 50.8
- SV-3: 28 48 52.6, 81 29 50.4
- SV-6: 28 48 52.4, 81 29 50.6
- SV-7: 28 48 52.3, 81 29 50.4
- SV-9: 28 48 52.2, 81 29 50.6
- SV-11: 28 48 52.2, 81 29 50.2
- SV-12: 28 48 52.5, 81 29 50.4
- SV-16: GPS not measured, approximately 20 feet south of SV-9

4.0 RECOMMENDATIONS

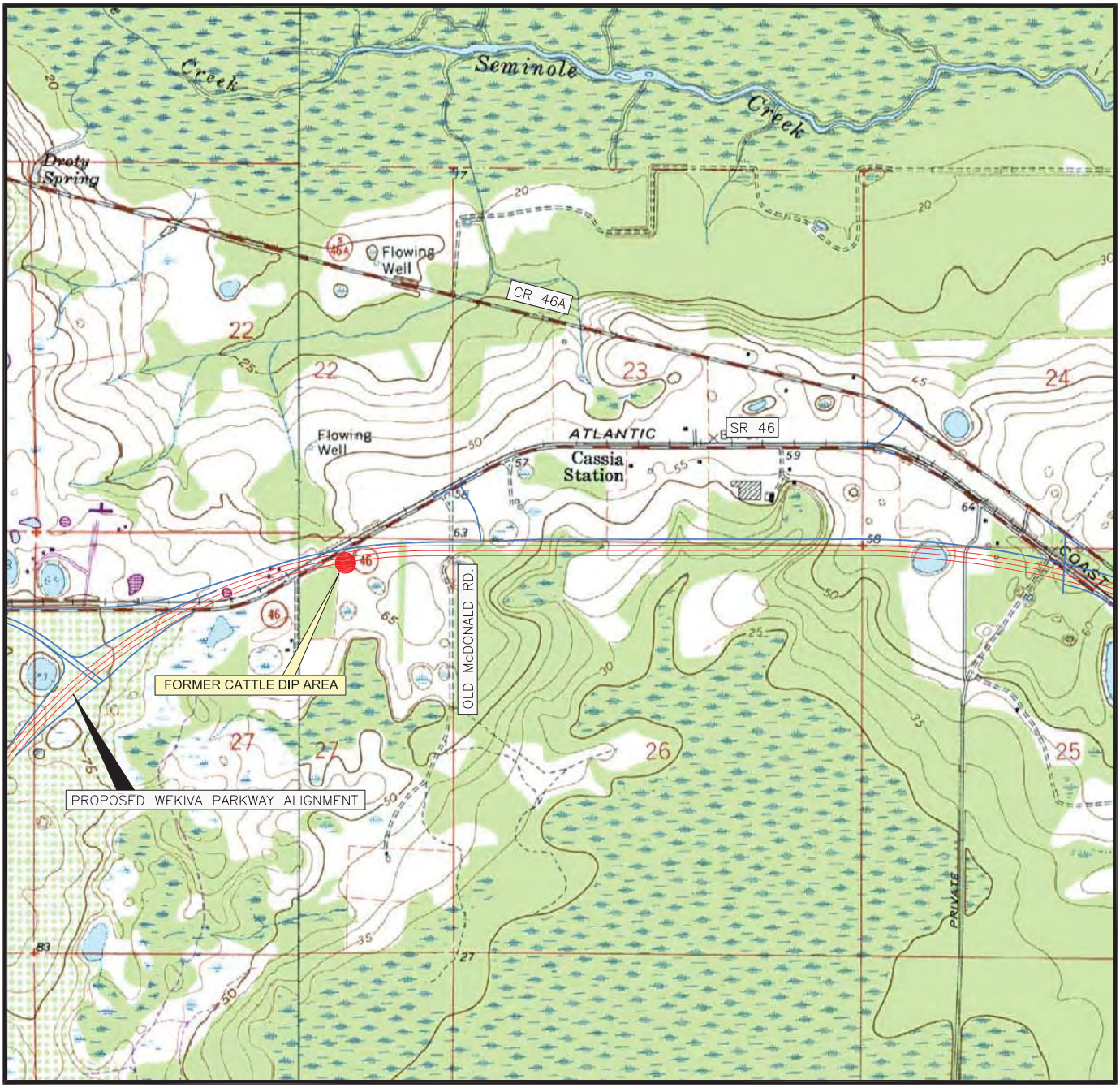
Based on the Level 2 CIA results for the former cattle dip area, Terracon recommends the following:

- Special handling such as placement under an impermeable layer such as pavement or disposal should be conducted in the event soils are excavated that contain arsenic concentrations exceeding SCTLs.
- Removal of soils to diminish potential leaching of arsenic that could adversely impact groundwater should be considered during design of proposed stormwater retention. Additional assessment of arsenic concentrations at deeper depth intervals would be warranted where elevated arsenic concentrations were identified at 4 to 6 feet bgs.
- Contractors deemed likely to be exposed to soils containing arsenic concentrations exceeding the SCTLs for direct exposure should be informed.

APPENDIX A

Exhibits

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



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1 .5 0 KILOMETERS 1 2

1000 0 1000 2000

MILES

1 .5 0 1

FEET

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

SECTION: 27
RANGE: 28 EAST
TOWNSHIP: 19 SOUTH

SORRENTO, FLORIDA
ISSUED: 1960 REVISED: 1980

SANFORD SW, FLORIDA
ISSUED: 1965 REVISED: 1970

7.5 MINUTE SERIES (QUADRANGLE)

Project Mngr:	EK
Drawn By:	SW
Checked By:	EK
Approved By:	EK

Project No.	H1137198
Scale:	AS SHOWN
File No.	H1137198-1
Date:	7-18-14

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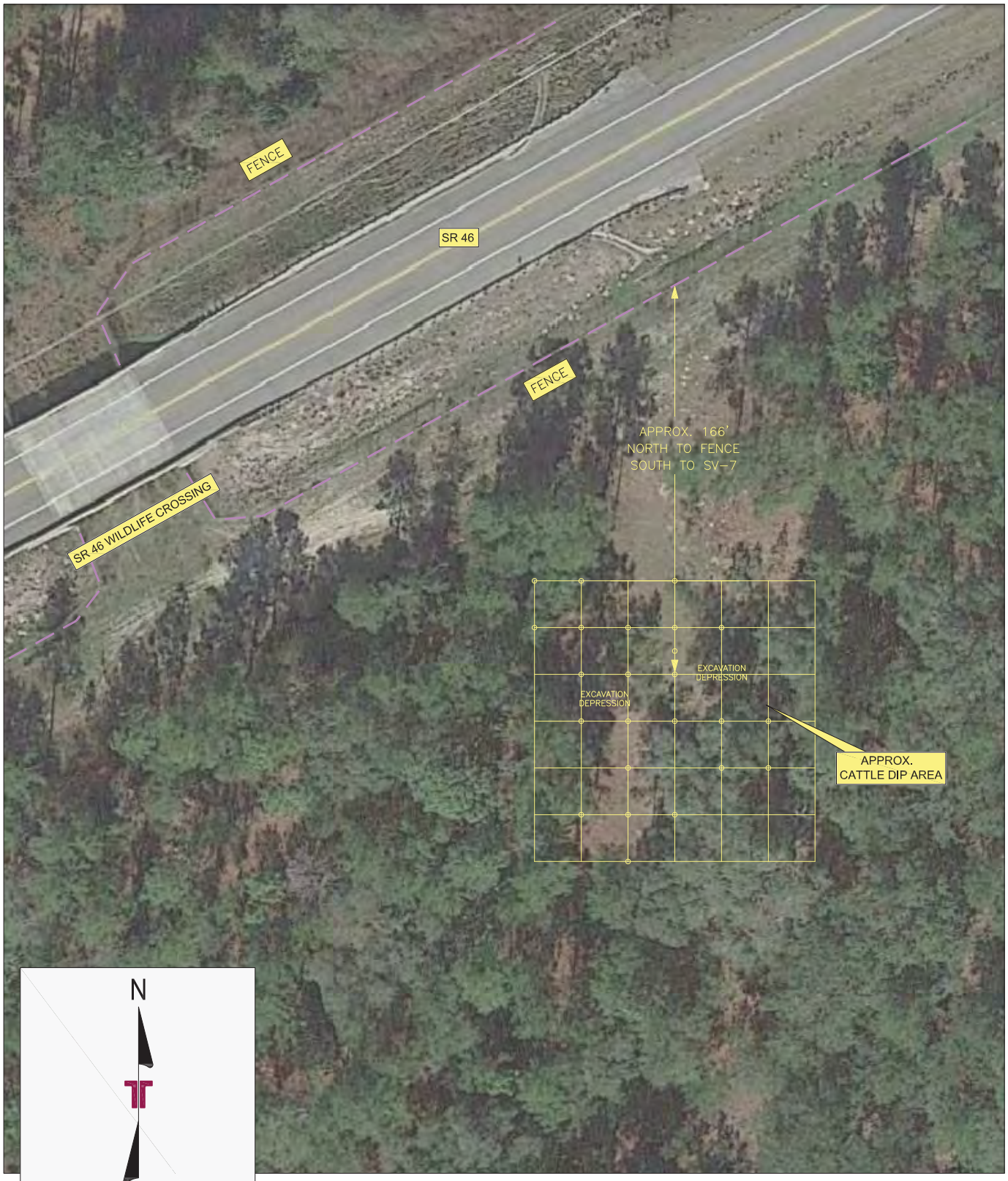
USGS TOPOGRAPHIC VICINITY MAP
CSER UPDATE ADDENDUM - FORMER CATTLE DIP AREA
WEKIVA PARKWAY SECTION 6 (SR 429 / SR 46)
SR 46, WEST OF OLD McDONALD ROAD
LAKE COUNTY, FLORIDA

EXHIBIT 1



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Project Mngr:	EK
Drawn By:	SW
Checked By:	EK
Approved By:	EK

Project No.	H1137198
Scale:	AS SHOWN
File No.	H1137198-2
Date:	7-18-14

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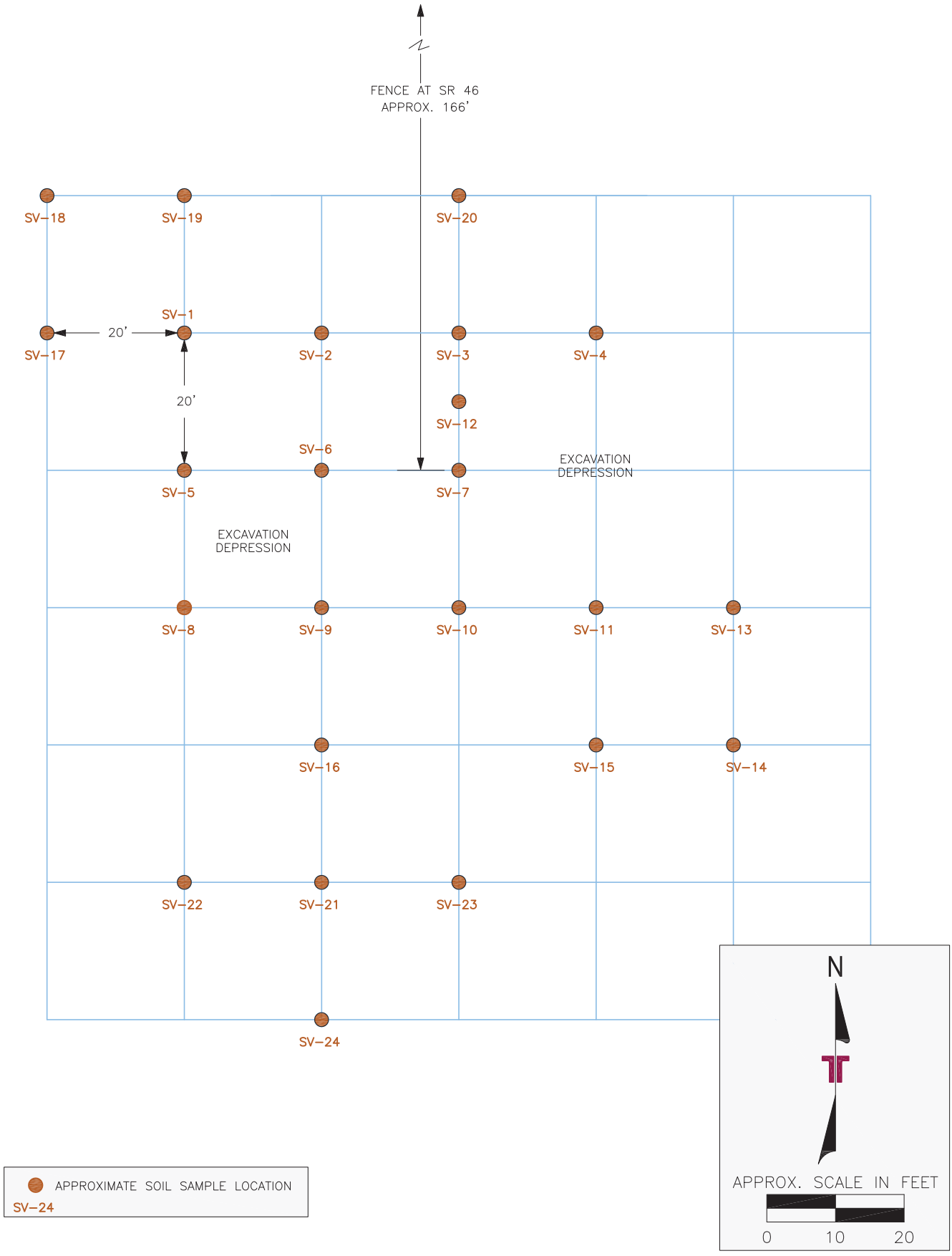
SITE AERIAL

CSER UPDATE ADDENDUM - FORMER CATTLE DIP AREA
WEKIVA PARKWAY SECTION 6 (SR 429 / SR 46)
SR 46, WEST OF OLD McDONALD ROAD
LAKE COUNTY, FLORIDA

EXHIBIT
2



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Project Mngr:	EK
Drawn By:	SW
Checked By:	EK
Approved By:	EK

Project No.	H1137198
Scale:	AS SHOWN
File No.	H1137198-3
Date:	7-18-14

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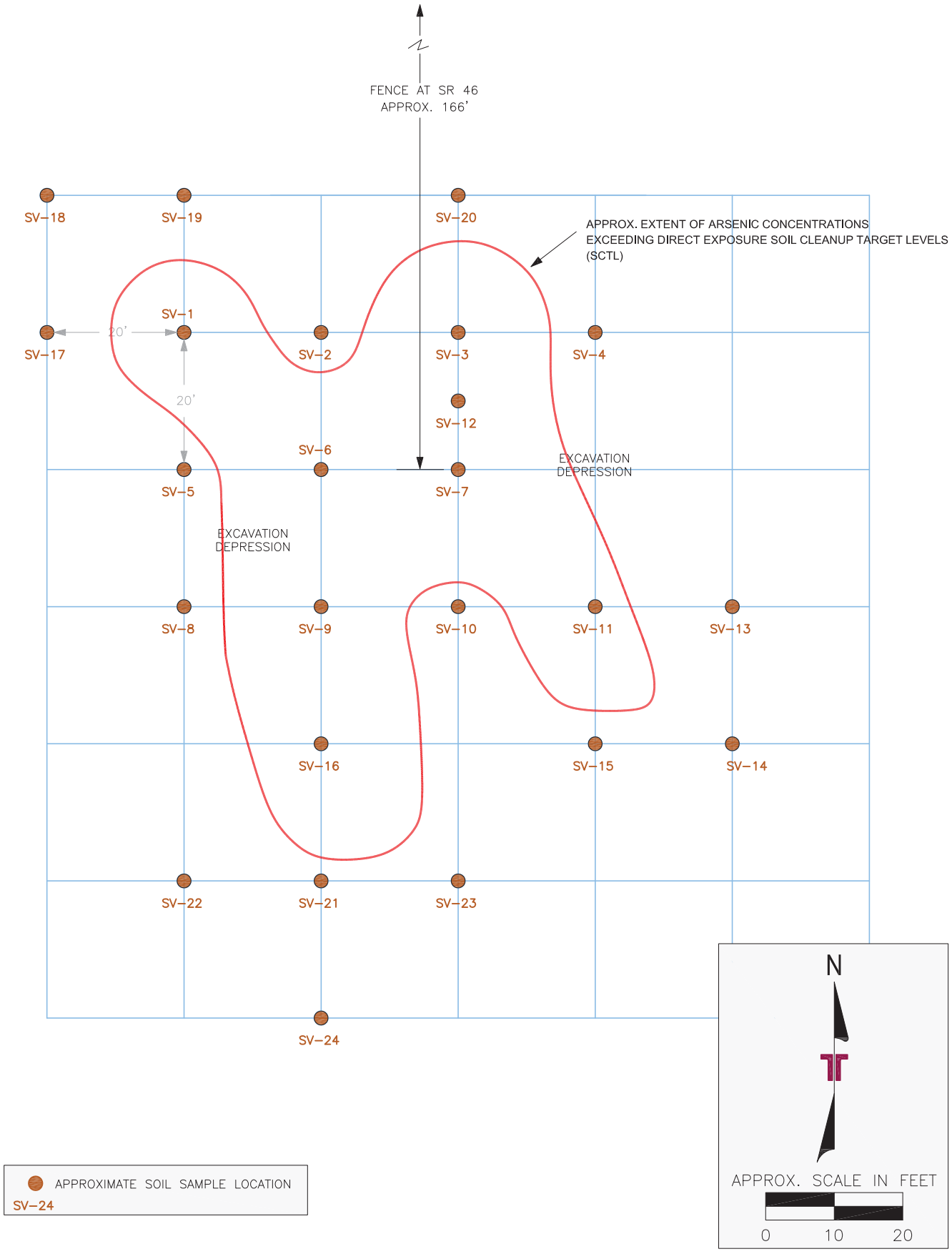
SOIL SAMPLING LOCATIONS

CSER UPDATE ADDENDUM - FORMER CATTLE DIP AREA
WEKIVA PARKWAY SECTION 6 (SR 429 / SR 46)
SR 46, WEST OF OLD McDONALD ROAD
LAKE COUNTY, FLORIDA

EXHIBIT
3



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Jul18, 2014-1:38pm

Project Mngr:	EK
Drawn By:	SW
Checked By:	EK
Approved By:	EK

Project No.	H1137198
Scale:	AS SHOWN
File No.	H1137198-4
Date:	7-18-14

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APPROX. EXTENT OF ARSENIC GREATER THAN SCTL
CSER UPDATE ADDENDUM - FORMER CATTLE DIP AREA
WEKIVA PARKWAY SECTION 6 (SR 429 / SR 46)
SR 46, WEST OF OLD McDONALD ROAD
LAKE COUNTY, FLORIDA

EXHIBIT
4

APPENDIX J

Datum Conversion

BCC Engineering

SR 429 over the Wekiva River

20 September 2013

INPUT	OUTPUT
State Plane, NAD83	State Plane, NAD83
0901 - Florida East, U.S. Feet	0901 - Florida East, U.S. Feet
Vertical - NGVD29 (Vertcon94), U.S. Feet	Vertical - NAVD88, U.S. Feet

CONVERT

1/1

Northing/Y:	1629324	**Northing/Y:**	1629324.000
Easting/X:	521792	**Easting/X:**	521792.000
Elevation/Z:	0	**Elevation/Z:**	-1.017
Convergence:	-0 12 08.11076	**Convergence:**	-0 12 08.11076
Scale Factor:	0.999961870	**Scale Factor:**	0.999961870
Combined Factor:	0.999966220	**Combined Factor:**	0.999966268

Grid Shift (U.S. ft.): X/Easting = 0.0, Y/Northing = 0.0

Remark: