

APPENDIX C

**BASIN 5 REGIONAL FACILITY DESIGN INFORMATION
(From FDOT Design Documentation)**

TABLE I: Drainage Design Criteria for POND 1 (Middle Basin)

COMPONENT	AGENCY	CRITERIA
STORM SEWER	FDOT	3 YEAR STORM
	COUNTY/CITY	CHECK 25 YEAR
STORM WATER TREATMENT: WET DETENTION	FDEP	1" OVER DRAINAGE AREA
	CITY	RUNOFF FROM 3" RAINFALL (> 100 ac.)
	COUNTY	1" OVER DRAINAGE AREA
STORM WATER ATTENUATION	FDOT	2 YEAR – 100 YEAR CRITICAL DURATION
	CITY	25 YEAR 24 HOUR
	COUNTY	25 YEAR 24 HOUR *
C&G SPREAD	FDOT	4 INCHES/HOUR
CROSS DRAINS	FDOT	50, 100 & 500 YEAR
PIPE SERVICE LIFE	FDOT	100 YEAR

* **Redevelopment: natural and existing vs. proposed**

POND 1

Pond 1 is a regional, wet detention, online storm water management facility. There was no practical way to reroute the existing Mosquito Ditch #20 around the facility to make it an offline system. The facility occupies 15.28 acres and provides storm water treatment and attenuation for the present FDOT Capital Circle Project as well as compensatory treatment for the Southernmost Basin (south of Shuler Road), the east end of the Tharpe Street intersection improvement, and future treatment and attenuation for additional lanes and roadway improvements in the middle and southern basins. Additionally, this regional facility provides water quality treatment for the entire 312 acre basin. No credit is taken for those sites within the basin which have existing storm water treatment systems.

FDOT reserves treatment capacity for 10.00 acres. Future 6-laning just south of begin project requiring an estimated 6.91 acres is incorporated in this number. Another 0.21 acres is devoted for treatment for a resurfacing project located on SR 10 (US 90) from east

of the Ochlockonee River bridge to SR 263 (Capital Circle NW). The inclusion of sidewalk on the job requires 750 cubic feet of treatment for City of Tallahassee permitting and is, therefore, included as 0.21 acres compensatory treatment in Pond 1.

The remaining volume provided by the pond acts as reserved capacity for 4.65 acres for Local Government use.

Treatment volumes are derived using current storm water treatment criteria. The local government 3-inch rainfall method for areas greater than 100 acres and the Florida Department of Environmental Protection approach treating runoff for one inch over drainage area were both calculated. The FDEP technique calls for a greater treatment volume and is used. Detailed calculations are included in the appendices. The following table summarizes the resulting treatment. The 0.19 acre area from the Southern basin is accounted for in the value for storm water routed through the proposed storm sewer system, and the area from the east end of Tharpe Street drains into the existing ditch system that makes its way to Mosquito Ditch # 20 and is included in the 224.15 acres listed.

SUMMARY OF TREATMENT VOLUMES: POND 1			
Description	Acreage	11 1" over area	Total Volume
Drainage Basin Routed Through Existing Ditch and Draining Directly to Pond	224.15	18.68	18.68
Drainage Basin Routed Through Storm Sewer System	72.32	6.03	24.71
Pond 1	15.28	1.27	25.98
Reserved Capacity for FDOT	10.00	0.83	26.81
Remaining Capacity for Local Use	4.65	0.39	27.20
Total Acreage	326.40		

The proposed conditions are routed using Interconnected Channel and Pond Routing Model (ICPR), computer modeling software developed by Streamline Technologies. Encompassed in the model are both existing and proposed conditions, as well as natural conditions to meet Leon County criteria, requiring new impervious areas for redevelopment be attenuated to the predevelopment condition. All ICPR runs are included in the appendices. A model using runoff from a 3-inch rainfall is also included as a comparison. The weighted curve numbers for the drainage area contributing to Pond 1 are 67.0, 75.0 and 78.3 for natural, existing, and proposed conditions, respectively. Attenuation achieved provides for the 224.15 acres flowing through Mosquito Ditch # 20, 72.32 acres captured within the storm sewer, 15.28 acres for the pond site, and 6.91 acres of reserved capacity for future widening south of the job. Flow rates for the pond are attenuated to natural conditions for all frequency durations and are summarized below.

SUMMARY OF POND 1 DISCHARGE RATES

Frequency/ Duration	1 HR			2 HR			4 HR		
	Existing	Natural	Proposed	Existing	Natural	Proposed	Existing	Natural	Proposed
2 Year	105.20	55.12	1.88	132.31	79.90	2.66	158.90	106.56	19.36
5 Year	156.21	91.90	2.30	197.17	130.12	18.91	238.91	174.65	61.47
10 Year	197.28	123.15	2.59	248.52	170.91	39.78	305.78	232.97	99.57
25 Year	248.51	163.61	6.33	318.24	227.82	72.22	387.17	304.92	146.80
100 Year	365.57	260.27	35.40	446.46	339.17	136.32	510.84	417.19	268.63
Frequency/ Duration	8 HR			24 HR			10 Day		
	Existing	12 Natural	Proposed	Existing	Natural	Proposed	Existing	Natural	Proposed
2 Year	168.84	113.84	48.23	90.65	66.13	59.07	81.33	72.70	72.67
5 Year	253.75	185.39	94.32	140.26	110.48	100.69	104.62	96.08	95.97
10 Year	318.39	241.84	130.83	177.65	145.44	132.98	127.76	119.47	118.58
25 Year	412.41	325.41	196.11	222.33	188.39	172.13	147.89	139.87	138.19
100 Year	550.50	452.18	344.46	287.96	252.72	247.97	185.04	177.57	177.15

Plantings within the littoral zone of Pond 1 include *Juncus effusus*, *Sagittaria falcata*, *Sagittaria latifolia*, and *Pontederia cordata* (commonly known as Soft Rush, Duck Potato, Arrowhead, and Pickerel Weed, respectively). A littoral zone planting schedule is included in the appendices on the plan sheets for Pond 1.