APPENDIX 7

CONSTRUCTION COST ESTIMATES

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 0901 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 0901A	SMF 0901B	SMF 0901C	SMF 0901D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	385		640	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	385	250	640	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	385	250	640	
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	4	2	7	
INFLOW MITERED END SECTION, OPTIONAL ROUND, 54" CD	0430-982-142	EA	$ 10,000.00	1	1	1	
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	1
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 18"S/CD	0430-175-118	LF	$ 132.13	635	1100		290
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	635	1100		290
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	635	1100	200	290
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	7	11		3
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 42" CD	0430-982-140	EA	$ 8,970.27	1	1	1	1
REGULAR EXCAVATION	0120-1	CY	$ 12.70	9172.166	13057.431	1854.458	7085.884
EMBANKMENT	0120-6	CY	$ 62.10	4613.303	4252.398	288.390	892.554
PERFORMANCE TURF	0570-1-1	SY	$ 9.71	14733.444	13008.952	7849.512	9626.276
IMPERMEABLE POND LINER	0531-1100	SY	$ 27.50	0.000	30129.000	0.000	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	8.639	7.309	2.466	3.855
ESTIMATED CONSTRUCTION COST				**$1,624,894**	**$2,590,106**	**$1,492,593**	
ESTIMATED ROW COST				**$485,000**	**$575,000**	**$1,175,000**	**$1,835,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Impermeable Pond Liner calculated using entire surface area of pond.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 0902 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 0902A	SMF 0902B	SMF 0902C	SMF 0902D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	220	940		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	220	940		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 66"S/CD	0430-175-166	LF	$ 775.99	220	940		
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	3	9		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 66" CD	0430-982-144	EA	$ 22,000.00	1	1		
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00				6
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	350	340		2100
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	350	340		2100
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	350	340	100	2100
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	4	4		19
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 54" CD	0430-982-142	EA	$ 10,000.00	1	1	1	6
REGULAR EXCAVATION	0120-1	CY	$ 12.70	6976.072	4421.651	4726.451	1981.575
EMBANKMENT	0120-6	CY	$ 62.10	2435.191	3993.598	2751.672	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 9.71	11392.392	11751.520	14507.900	8885.756
IMPERMEABLE POND LINER	0531-1100	SY	$ 27.50	11417.076	0.000	0.000	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	3.652	4.179	4.628	4.005
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$6,484,891
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$791,455
ESTIMATED CONSTRUCTION COST				**$1,524,676**	**$2,456,224**	**$10,297,561**	
ESTIMATED ROW COST				**$200,000**	**$275,000**	**$220,000**	**$425,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Impermeable Pond Liner calculated using entire surface area of pond.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 0903 Alternatives		
				Alt. 1	Alt. 2	Alt. 3
	Pay Item Number	UNIT	Unit Cost	SMF 0903A	SMF 0903B	SMF 0903C
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 18"S/CD	0430-175-118	LF	$ 189.47	270	270	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	270	270	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	270	270	
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	3	3	
INFLOW MITERED END SECTION, OPTIONAL ROUND, 42" CD	0430-982-140	EA	$ 8,970.27	1	1	
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00			3
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 18"S/CD	0430-175-118	LF	$ 189.47		190	370
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	200	190	370
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21		2	1
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 30" CD	0430-982-133	EA	$ 6,160.57	1	1	3
REGULAR EXCAVATION	0120-1	CY	$ 12.70	259.670	1955.128	1109.015
EMBANKMENT	0120-6	CY	$ 62.10	5794.047	2816.230	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 9.71	8108.936	9214.876	3250.060
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	2.067	2.658	1.540
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$1,690,737
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$166,670
ESTIMATED CONSTRUCTION COST				**$768,267**	**$684,562**	**$2,118,597**
ESTIMATED ROW COST				**$150,000**	**$185,000**	**$290,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 0904 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 0904A	SMF 0904B	SMF 0904C	SMF 0904D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87		900		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	270	900		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	270	900		
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	2	9		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 54" CD	0430-982-142	EA	$ 10,000.00	1	1		
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00				4
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 18"S/CD	0430-175-118	LF	$ 189.47	420	1250	460	800
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	420	1250	460	800
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	420	1250	460	800
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	5	13	5	8
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 42" CD	0430-982-140	EA	$ 8,970.27	1	1	1	4
REGULAR EXCAVATION	0120-1	CY	$ 12.70	5169.717	1649.145	3550.753	1213.627
EMBANKMENT	0120-6	CY	$ 62.10	1396.377	388.342	2179.392	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 9.71	6364.600	12344.904	8286.080	1369.236
IMPERMEABLE POND LINER	0531-1100	SY	$ 27.50	6041.772	5474.040	0.000	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	1.768	2.914	3.655	0.799
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$1,968,680
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$220,815
ESTIMATED CONSTRUCTION COST				**$1,026,790**	**$2,408,850**	**$3,677,162**	
ESTIMATED ROW COST				**$135,000**	**$195,000**	**$225,000**	**$160,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Impermeable Pond Liner calculated using entire surface area of pond.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1001 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 1001A	SMF 1001B	SMF 1001C	SMF 1001D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	570	800		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 48"S/CD	0430-175-148	LF	$ 411.88	570	800		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 60"S/CD	0430-175-160	LF	$ 499.22	570	800		
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	6	8		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 60" CD	0430-982-143	EA	$ 21,000.00	1	1		
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00				11
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89		470		1650
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	300	470		1650
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 48"S/CD	0430-175-148	LF	$ 411.88	300	470	100	1650
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	2	5		13
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 48" CD	0430-982-141	EA	$ 9,506.69	1	1	1	11
REGULAR EXCAVATION	0120-1	CY	$ 12.70	6689.977	4671.278	2829.083	0.000
EMBANKMENT	0120-6	CY	$ 62.10	5669.964	6489.493	5079.756	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	15407.172	16805.932	13718.496	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	5.135	5.626	5.714	0.000
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$7,454,932
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$647,815
ESTIMATED CONSTRUCTION COST				**$1,640,365**	**$2,201,517**	**$10,386,062**	
ESTIMATED ROW COST				**$155,000**	**$205,000**	**$185,000**	**$0**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1002 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 1002A	SMF 1002B	SMF 1002C	SMF 1002D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89	950	1070		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	950	1070		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 48"S/CD	0430-175-148	LF	$ 411.88	950	1070		
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	10	11		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 48" CD	0430-982-141	EA	$ 9,506.69	1	1		
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00				4
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89		220		800
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	150	220	150	800
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21		2		3
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 36" CD	0430-982-138	EA	$ 7,598.89	1	1	1	4
REGULAR EXCAVATION	0120-1	CY	$ 12.70	5484.161	4447.583	3926.608	0.000
EMBANKMENT	0120-6	CY	$ 62.10	4840.924	5583.354	4615.848	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	11868.164	12974.104	11245.256	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	4.043	4.905	3.766	0.000
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$2,648,833
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$328,230
ESTIMATED CONSTRUCTION COST				**$1,488,893**	**$1,728,687**	**$3,923,398**	
ESTIMATED ROW COST				**$150,000**	**$175,000**	**$140,000**	**$185,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1003 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 1003A	SMF 1003B	SMF 1003C	SMF 1003D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	670	500		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	670	500		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	670	500		
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	7	5		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 54" CD	0430-982-142	EA	$ 10,000.00	1	1		
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00				6
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 18"S/CD	0430-175-118	LF	$ 189.47	270			580
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	270	175		580
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	270	175	260	580
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	3	1	1	4
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 42" CD	0430-982-140	EA	$ 8,970.27	1	1	1	5
REGULAR EXCAVATION	0120-1	CY	$ 12.70	8001.376	7817.447	3383.942	0.000
EMBANKMENT	0120-6	CY	$ 62.10	3078.658	2859.570	1952.518	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	13050.576	10321.300	7489.416	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	5.190	4.103	2.375	0.000
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$3,012,916
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$438,480
ESTIMATED CONSTRUCTION COST				**$1,435,554**	**$1,073,750**	**$4,347,666**	
ESTIMATED ROW COST				**$185,000**	**$150,000**	**$110,000**	**$0**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1004 Alternatives		
				Alt. 1	Alt. 2	Alt. 3
	Pay Item Number	UNIT	Unit Cost	SMF 1004A	SMF 1004B	SMF 1004C
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89	400		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	400	100	
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	3		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 36" CD	0430-982-138	EA	$ 7,598.89	1	1	
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00	1	1	1
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70			
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89	100	900	100
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21		3	
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 24" CD	0430-982-129	EA	$ 3,857.49	1	1	1
REGULAR EXCAVATION	0120-1	CY	$ 12.70			0.000
EMBANKMENT	0120-6	CY	$ 62.10	5292.837	3379.864	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	8931.736	7972.932	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	1.882	1.707	0.016
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$1,161,792	$1,161,792
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$228,025	$228,025
ESTIMATED CONSTRUCTION COST				**$644,984**	**$1,876,079**	**$1,412,948**
ESTIMATED ROW COST				**$100,000**	**$105,000**	**$60,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1005 Alternatives		
				Alt. 1	Alt. 2	Alt. 3
	Pay Item Number	UNIT	Unit Cost	SMF 1005A	SMF 1005B	SMF 1005C
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	875	300	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	875	300	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 66"S/CD	0430-175-166	LF	$ 775.99	875	300	150
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	9	3	
INFLOW MITERED END SECTION, OPTIONAL ROUND, 66" CD	0430-982-144	EA	$ 22,000.00	1	1	
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00			1
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87			
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	200		
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	200	300	100
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	1	1	
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 54" CD	0430-982-142	EA	$ 10,000.00	1	1	1
REGULAR EXCAVATION	0120-1	CY	$ 12.70	3039.226	1695.845	0.000
EMBANKMENT	0120-6	CY	$ 62.10	4067.375	4233.981	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	11849.288	11155.232	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	3.556	3.059	0.009
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$567,716
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$102,410
ESTIMATED CONSTRUCTION COST				**$2,077,400**	**$1,083,584**	**$846,618**
ESTIMATED ROW COST				**$135,000**	**$125,000**	**$60,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1006 Alternatives		
				Alt. 1	Alt. 2	Alt. 3
	Pay Item Number	UNIT	Unit Cost	SMF 1006A	SMF 1006B	SMF 1006C
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89	220	700	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	220	700	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 48"S/CD	0430-175-148	LF	$ 411.88	220	700	
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	2	7	
INFLOW MITERED END SECTION, OPTIONAL ROUND, 48" CD	0430-982-141	EA	$ 9,506.69	1	1	
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00			8
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89		225	870
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	150	225	870
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21		1	1
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 36" CD	0430-982-138	EA	$ 7,598.89	1	1	8
REGULAR EXCAVATION	0120-1	CY	$ 12.70	3244.195	8414.577	5348.009
EMBANKMENT	0120-6	CY	$ 62.10	6980.247	4053.277	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	13988.568	14397.064	15669.500
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	4.845	5.755	4.989
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$965,487
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$35,840
ESTIMATED CONSTRUCTION COST				**$909,247**	**$1,335,786**	**$1,717,130**
ESTIMATED ROW COST				**$255,000**	**$190,000**	**$265,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1007 Alternatives		
				Alt. 1	Alt. 2	Alt. 3
	Pay Item Number	UNIT	Unit Cost	SMF 1007A	SMF 1007B	SMF 1007C
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87	400	320	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	400	320	
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 54"S/CD	0430-175-154	LF	$ 442.11	400	320	
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	4	3	
INFLOW MITERED END SECTION, OPTIONAL ROUND, 54" CD	0430-982-142	EA	$ 10,000.00	1	1	
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00			11
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 18"S/CD	0430-175-118	LF	$ 132.13			530
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 30"S/CD	0430-175-130	LF	$ 198.87		250	530
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 42"S/CD	0430-175-142	LF	$ 311.21	100	250	530
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21		2	4
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 42" CD	0430-982-140	EA	$ 8,970.27	1	1	11
REGULAR EXCAVATION	0120-1	CY	$ 12.70	862.669	2440.780	7528.474
EMBANKMENT	0120-6	CY	$ 62.10	10131.687	7960.529	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	16471.004	14878.644	49577.088
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	6.064	6.826	13.437
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$3,322,908
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$282,765
ESTIMATED CONSTRUCTION COST				**$1,322,908**	**$1,243,522**	**$4,746,799**
ESTIMATED ROW COST				**$200,000**	**$355,000**	**$455,000**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1008 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 1008A	SMF 1008B	SMF 1008C	SMF 1008D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	300	900		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 48"S/CD	0430-175-148	LF	$ 411.88	300	900		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 60"S/CD	0430-175-160	LF	$ 665.43	300	900		
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	3	9		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 60" CD	0430-982-143	EA	$ 21,000.00	1	1		
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00				5
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89	270	220		230
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	270	220	230	230
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 48"S/CD	0430-175-148	LF	$ 411.88	270	220	230	230
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	3	2	2	1
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 48" CD	0430-982-141	EA	$ 9,506.69	1	1	1	5
REGULAR EXCAVATION	0120-1	CY	$ 12.70			1328.736	0.000
EMBANKMENT	0120-6	CY	$ 62.10	6837.632	8531.359	6284.887	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	13517.636	15294.400	12216.160	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	6.790	7.872	4.564	0.000
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$5,548,724
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$801,465
ESTIMATED CONSTRUCTION COST				**$1,358,171**	**$2,329,854**	**$7,384,725**	
ESTIMATED ROW COST				**$220,000**	**$235,000**	**$155,000**	**$0**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

Unit Costs Derived from the FDOT Long Range Estimate based on Market Area 09 or other available FDOT Historical Cost such as the 6-12 Month Statewide Moving Averages.

				Basin 1009 Alternatives			
				Alt. 1	Alt. 2	Alt. 3	
	Pay Item Number	UNIT	Unit Cost	SMF 1009A	SMF 1009B	SMF 1009C	SMF 1009D
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89	270	650		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	270	650		
INFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 48"S/CD	0430-175-148	LF	$ 411.88	270	650		
INFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	3	7		
INFLOW MITERED END SECTION, OPTIONAL ROUND, 48" CD	0430-982-141	EA	$ 9,506.69	1	1		
INLETS, DT BOT, TYPE C, MODIFY	0425-1529	EA	$ 5,750.00				2
INLETS, DT BOT, TYPE E, MODIFY	0425-1559	EA	$ 12,520.70	1	1	1	
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 24"S/CD	0430-175-124	LF	$ 132.89	180	300		850
OUTFLOW PIPE CULVERT, OPT MATERIAL, ROUND, 36"S/CD	0430-175-136	LF	$ 282.87	180	300	300	850
OUTFLOW MANHOLES, J-8, <10'	0425-2-91	EA	$ 13,035.21	1	2	1	5
OUTFLOW MITERED END SECTION, OPTIONAL ROUND, 36" CD	0430-982-138	EA	$ 7,598.89	1	1	1	1
REGULAR EXCAVATION	0120-1	CY	$ 12.70		879.089	418.569	0.000
EMBANKMENT	0120-6	CY	$ 62.10	3746.247	3162.598	1977.969	0.000
PERFORMANCE TURF	0570-1-1	SY	$ 5.84	9572.068	10476.664	6524.804	0.000
CLEARING & GRUBBING	0110-1-1	AC	$ 15,000.00	3.289	3.049	1.588	0.000
ROADWAY CONSTRUCTION (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$1,992,989
ROADWAY ROW (PROFILE ADJUSTMENT)	-	-	-	$0.00	$0.00	$0.00	$244,475
ESTIMATED CONSTRUCTION COST				**$717,944**	**$1,124,123**	**$2,983,224**	
ESTIMATED ROW COST				**$185,000**	**$135,000**	**$105,000**	**$0**

Note: Inflow and outflow conveyance methods calculated using the Rational Method to find appropriate pipe sizes for the basin. Quantities were derived using distance from LEOP to the pond for inflow and distance from the pond to the outfall for outflow.

Note: Regular Excavation calculated using volume of pond below the average existing ground elevation in that area for offsite ponds and volume of pond outside the existing roadway right-of-way for linear ponds.

Note: Embankment calculated using volume of pond above the average existing ground elevation in that area for offsite ponds.

Note: Performance Turf calculated using entire surface area inside pond right-of-way and easement excluding the pond bottom.

Note: Clearing & Grubbing calculated using entire area inside pond right-of-way and easement.

COST ESTIMATES FOR FPC SITES

FPC 1001A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	2097.4	$ 12.70	$ 26,636.98
CLEARING AND GRUBBING	110-1-1	AC	4.03	$ 15,000.00	$ 60,450.00
PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 18"SD	430-174-118	LF	50.00	$ 300.00	$ 15,000.00
MITERED END SECTION, OPTIONAL ROUND, 18" SD	430-984-125	EA	2	$ 3,400.00	$ 6,800.00
PERFORMANCE TURF	570-1-1	SY	6631	$ 9.71	$ 64,387.01
				Total:	**$ 173,273.99**

FPC 1001B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	2242.6	$ 12.70	$ 28,481.02
CLEARING AND GRUBBING	110-1-1	AC	4.56	$ 15,000.00	$ 68,400.00
PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 18"SD	430-174-118	LF	50.00	$ 300.00	$ 15,000.00
MITERED END SECTION, OPTIONAL ROUND, 18" SD	430-984-125	EA	2	$ 3,400.00	$ 6,800.00
PERFORMANCE TURF	570-1-1	SY	7115	$ 9.71	$ 69,086.65
				Total:	**$ 187,767.67**

FPC 1002-NA					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	4662.6	$ 12.70	$ 59,215.02
CLEARING AND GRUBBING	110-1-1	AC	3.52	$ 15,000.00	$ 52,800.00
PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 36"SD	430-174-136	LF	150.00	$ 410.93	$ 61,639.50
MITERED END SECTION , OPTIONAL ROUND, 36" SIDE DRAIN	430-984-138	EA	6	$ 7,000.00	$ 42,000.00
PERFORMANCE TURF	570-1-1	SY	4889	$ 9.71	$ 47,472.19
				Total:	**$ 263,126.71**

FPC 1002-SB					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	1726.3	$ 12.70	$ 21,924.01
CLEARING AND GRUBBING	110-1-1	AC	1.65	$ 15,000.00	$ 24,750.00
PERFORMANCE TURF	570-1-1	SY	3679	$ 9.71	$ 35,723.09
				Total:	**$ 82,397.10**

FPC 1002-SC					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	1726.3	$ 12.70	$ 21,924.01
CLEARING AND GRUBBING	110-1-1	AC	1.97	$ 15,000.00	$ 29,550.00
PERFORMANCE TURF	570-1-1	SY	2808	$ 9.71	$ 27,265.68
				Total:	**$ 78,739.69**

FPC 1003A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	11422.4	$ 12.70	$ 145,064.48
CLEARING AND GRUBBING	110-1-1	AC	6.99	$ 15,000.00	$ 104,850.00
PERFORMANCE TURF	570-1-1	SY	6438	$ 9.71	$ 62,512.98
				Total:	**$ 312,427.46**

FPC 1003B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	11535.4	$ 12.70	$ 146,499.58
CLEARING AND GRUBBING	110-1-1	AC	7.11	$ 15,000.00	$ 106,650.00
PERFORMANCE TURF	570-1-1	SY	5808	$ 9.71	$ 56,395.68
				Total:	**$ 309,545.26**

FPC 1004A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	62290.8	$ 12.70	$ 791,093.16
CLEARING AND GRUBBING	110-1-1	AC	48.31	$ 15,000.00	$ 724,650.00
PERFORMANCE TURF	570-1-1	SY	58371.0	$ 9.71	$ 566,782.41
INLETS, DT BOT, TYPE C,<10'	0425-1521	EA	2.00	$ 11,000.00	$ 22,000.00
PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 24"SD	430-174-124	LF	170.0	$ 286.68	$ 48,735.60
				Total:	**$ 2,153,261.17**

FPC 1004B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	62097.2	$ 12.70	$ 788,634.44
CLEARING AND GRUBBING	110-1-1	AC	34.19	$ 15,000.00	$ 512,850.00
PERFORMANCE TURF	570-1-1	SY	19844	$ 9.71	$ 192,685.24
				Total:	**$ 1,494,169.68**

FPC 1004C					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	60258.0	$ 12.70	$ 765,276.60
CLEARING AND GRUBBING	110-1-1	AC	25.40	$ 15,000.00	$ 381,000.00
PERFORMANCE TURF	570-1-1	SY	12584	$ 9.71	$ 122,190.64
				Total:	**$ 1,268,467.24**

FPC 1005A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	81957.4	$ 12.70	$ 1,040,858.98
CLEARING AND GRUBBING	110-1-1	AC	41.36	$ 15,000.00	$ 620,400.00
PIPE CULVERT, OPT MATERIAL, ROUND, 72"S/CD	430-175-172	LF	150.00	$ 8,800.00	$ 1,320,000.00
MITERED END SECTION, OPTIONAL ROUND, 72" CD	430-982-145	EA	6	$ 30,000.00	$ 180,000.00
PERFORMANCE TURF	570-1-1	SY	18925	$ 9.71	$ 183,761.75
				Total:	**$ 3,345,020.73**

FPC 1005B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	75455.6	$ 12.70	$ 958,286.12
CLEARING AND GRUBBING	110-1-1	AC	32.30	$ 15,000.00	$ 484,500.00
PIPE CULVERT, OPT MATERIAL, ROUND, 72"S/CD	430-175-172	LF	150.00	$ 8,800.00	$ 1,320,000.00
MITERED END SECTION, OPTIONAL ROUND, 72" CD	430-982-145	EA	6	$ 30,000.00	$ 180,000.00
PERFORMANCE TURF	570-1-1	SY	23571	$ 9.71	$ 228,874.41
				Total:	**$ 3,171,660.53**

FPC 1005C					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	68421.5	$ 12.70	$ 868,953.05
CLEARING AND GRUBBING	110-1-1	AC	44.13	$ 15,000.00	$ 661,950.00
PERFORMANCE TURF	570-1-1	SY	30250	$ 9.71	$ 293,727.50
				Total:	**$ 1,824,630.55**

FPC 1006A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	32750.7	$ 12.70	$ 415,933.89
CLEARING AND GRUBBING	110-1-1	AC	20.05	$ 15,000.00	$ 300,750.00
PERFORMANCE TURF	570-1-1	SY	13165	$ 9.71	$ 127,832.15
				Total:	**$ 844,516.04**

FPC 1006B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	33267.0	$ 12.70	$ 422,490.90
CLEARING AND GRUBBING	110-1-1	AC	21.61	$ 15,000.00	$ 324,150.00
PERFORMANCE TURF	570-1-1	SY	18876	$ 9.71	$ 183,285.96
				Total:	**$ 929,926.86**

FPC 1007A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	9905.9	$ 12.70	$ 125,804.93
CLEARING AND GRUBBING	110-1-1	AC	4.51	$ 15,000.00	$ 67,650.00
PERFORMANCE TURF	570-1-1	SY	4840	$ 9.71	$ 46,996.40
				Total:	**$ 240,451.33**

FPC 1007B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	8760.4	$ 12.70	$ 111,257.08
CLEARING AND GRUBBING	110-1-1	AC	5.14	$ 15,000.00	$ 77,100.00
PERFORMANCE TURF	570-1-1	SY	7115	$ 9.71	$ 69,086.65
				Total:	**$ 257,443.73**

FPC 1007C					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	10164.0	$ 12.70	$ 129,082.80
CLEARING AND GRUBBING	110-1-1	AC	5.60	$ 15,000.00	$ 84,000.00
PERFORMANCE TURF	570-1-1	SY	8616	$ 9.71	$ 83,661.36
				Total:	**$ 296,744.16**

FPC 1008A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	3807.5	$ 12.70	$ 48,355.25
CLEARING AND GRUBBING	110-1-1	AC	3.80	$ 15,000.00	$ 57,000.00
PERFORMANCE TURF	570-1-1	SY	7648	$ 9.71	$ 74,262.08
				Total:	**$ 179,617.33**

FPC 1008B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	3113.8	$ 12.70	$ 39,545.26
CLEARING AND GRUBBING	110-1-1	AC	2.71	$ 15,000.00	$ 40,650.00
PERFORMANCE TURF	570-1-1	SY	3437	$ 9.71	$ 33,373.27
				Total:	**$ 113,568.53**

FPC 1008C					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	3162.2	$ 12.70	$ 40,159.94
CLEARING AND GRUBBING	110-1-1	AC	3.17	$ 15,000.00	$ 47,550.00
PIPE CULVERT, OPT MATERIAL, ROUND, 66"S/CD	430-175-166	LF	50.00	$ 775.99	$ 38,799.50
MITERED END SECTION, OPTIONAL ROUND, 66" CD	430-982-144	EA	2	$ 22,000.00	$ 44,000.00
PERFORMANCE TURF	570-1-1	SY	3872	$ 9.71	$ 37,597.12
				Total:	**$ 208,106.56**

FPC 1009A					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	3872.0	$ 12.70	$ 49,174.40
CLEARING AND GRUBBING	110-1-1	AC	6.95	$ 15,000.00	$ 104,250.00
PIPE CULVERT, OPT MATERIAL, ROUND, 72"S/CD	430-175-172	LF	150.00	$ 1,215.00	$ 182,250.00
MITERED END SECTION, OPTIONAL ROUND, 72" CD	430-982-145	EA	6	$ 30,000.00	$ 180,000.00
PERFORMANCE TURF	570-1-1	SY	5808	$ 9.71	$ 56,395.68
				Total:	**$ 572,070.08**

FPC 1009B					
Description	Pay Item	Unit	Quantity	Unit Price	Cost
REGULAR EXCAVATION	0120-1	CY	4210.8	$ 12.70	$ 53,477.16
CLEARING AND GRUBBING	110-1-1	AC	2.69	$ 15,000.00	$ 40,350.00
PERFORMANCE TURF	570-1-1	SY	3824	$ 9.71	$ 37,131.04
				Total:	**$ 130,958.20**

FPC 1009C					
Description	**Pay Item**	**Unit**	**Quantity**	**Unit Price**	**Cost**
REGULAR EXCAVATION	0120-1	CY	3872.0	$ 12.70	$ 49,174.40
CLEARING AND GRUBBING	110-1-1	AC	2.23	$ 15,000.00	$ 33,450.00
PERFORMANCE TURF	570-1-1	SY	3485	$ 9.71	$ 33,839.35
				Total:	**$ 116,463.75**

FPC 1010A					
Description	**Pay Item**	**Unit**	**Quantity**	**Unit Price**	**Cost**
REGULAR EXCAVATION	0120-1	CY	81263.6	$ 12.70	$ 1,032,047.72
CLEARING AND GRUBBING	110-1-1	AC	92.19	$ 15,000.00	$ 1,382,850.00
PERFORMANCE TURF	570-1-1	SY	23813	$ 9.71	$ 231,224.23
				Total:	**$ 2,646,121.95**

FPC 1010B					
Description	**Pay Item**	**Unit**	**Quantity**	**Unit Price**	**Cost**
REGULAR EXCAVATION	0120-1	CY	83845.0	$ 12.70	$ 1,064,831.50
CLEARING AND GRUBBING	110-1-1	AC	49.18	$ 15,000.00	$ 737,700.00
PERFORMANCE TURF	570-1-1	SY	27879	$ 9.71	$ 270,705.09
				Total:	**$ 2,073,236.59**

FPC 1010C					
Description	**Pay Item**	**Unit**	**Quantity**	**Unit Price**	**Cost**
REGULAR EXCAVATION	0120-1	CY	82683.4	$ 12.70	$ 1,050,079.18
CLEARING AND GRUBBING	110-1-1	AC	64.03	$ 15,000.00	$ 960,450.00
PERFORMANCE TURF	570-1-1	SY	49852	$ 9.71	$ 484,062.92
				Total:	**$ 2,494,592.10**

CONCEPTUAL ESTIMATE, ALTERNATES / SEGMENTS: PHASE COSTS SUMMARY

The basis for this estimate is "cost" not market value

**** EXEMPT FROM PUBLIC DISCLOSURE - FS: 337.168 ****

ITEM SEG: 4519421 **COUNTY:** Desoto **Project:** SR 70, from W of SR 31 to Highlands County Line

COST ESTIMATE NUMBER: 25057 Rev. B **FAP NO.:** n/a

FOR: E. Ponce, PE, HNTB

BY: A. Perry, J. Harper, CPM, FDOT R/W **DATE:** 9/4/2025

Alternate / Segment: Stormwater Management Facility Alternative Sites for Pond Siting Report - 9/03/25 Revisions

Description:	Size Acres:	Parcels	Relo.Cnt					Total:
SMF 0901A	8.64	1	0					$485,000
SMF 0901B	7.31	1	0					$575,000
SMF 0901C	2.47	1	0					$1,175,000
SMF 0901D	3.85	1	0					$1,835,000
SMF 0902A	3.65	2	0					$200,000
SMF 0902B	4.18	1	0					$275,000
SMF 0902C	4.63	2	0					$220,000
SMF 0902D	4.00	3	0					$425,000
SMF 0903A	2.07	1	0					$150,000
SMF 0903B	2.66	1	0					$185,000
SMF 0903C	1.54	3	1					$290,000
SMF 0904A	1.77	1	0					$135,000
SMF 0904B	2.91	1	0					$195,000
SMF 0904C	3.65	1	0					$225,000
SMF 0904D	0.80	2	0					$160,000
SMF1001A	5.13	1	0					$155,000
SMF1001B	5.63	1	0					$205,000
SMF1001C	5.71	1	0					$185,000
SMF1002A	4.04	1	0					$150,000
SMF1002B	4.91	1	0					$175,000
SMF1002C	3.77	1	0					$140,000
SMF1003A	5.19	1	0					$185,000
SMF1003B	4.10	1	0					$150,000
SMF1003C	2.38	1	0					$110,000
SMF1004A	1.88	1	0					$100,000
SMF1004B	1.71	1	0					$105,000
SMF1004C	0.02	1	0					$60,000
SMF1005A	3.56	1	0					$135,000
SMF1005B	3.06	1	0					$125,000
SMF1005C	0.01	1	0					$60,000
SMF1006A	4.84	1	0					$255,000
SMF1006B	5.76	1	0					$190,000
SMF1006C	4.99	1	0					$265,000
SMF1007A	6.06	1	0					$200,000
SMF1007B	6.83	1	0					$355,000
SMF1007C	13.44	1	0					$455,000
SMF1008A	6.79	1	0					$220,000
SMF1008B	7.87	1	0					$235,000
SMF1008C	4.56	1	0					$155,000
SMF1009A	3.29	1	0					$185,000
SMF1009B	3.05	1	0					$135,000
SMF1009C	1.59	1	0					$105,000

CONCEPTUAL ESTIMATE, ALTERNATES / SEGMENTS: PHASE COSTS SUMMARY

The basis for this estimate is "cost" not market value

**** EXEMPT FROM PUBLIC DISCLOSURE - FS: 337.168 ****

ITEM SEG: 4519421 **COUNTY:** Desoto **Project:** SR 70, from W of SR 31 to Highlands County Line

COST ESTIMATE NUMBER: 25057 Rev. B **FAP NO.:** n/a

FOR: E. Ponce, PE, CPM, HNTB

BY: A. Perry, J. Harper, CPM, FDOT R/W **DATE:** 9/4/2025

Alternate / Segment: Stormwater Management Facility Alternative Sites for Pond Siting Report - 9/03/25 Revisions

Description:	Size Acres:	Parcels	Relo.Cnt					Total:
FPC 1001A	4.03	1	0					$145,000
FPC 1001B	4.55	1	0					$165,000
FPC 1002A	3.52	1	0					$140,000
FPC 1002B	1.65	1	0					$90,000
FPC 1002C	2.01	2	0					$155,000
FPC 1003A	6.98	2	0					$275,000
FPC 1003B	7.11	2	0					$275,000
FPC 1004A	48.31	2	0					$1,445,000
FPC 1004B	34.19	1	0					$1,555,000
FPC 1004C	25.40	1	0					$3,975,000
FPC 1005A	41.35	1	0					$1,525,000
FPC 1005B	32.29	1	0					$815,000
FPC 1005C	44.13	1	0					$1,805,000
FPC 1006A	20.05	1	0					$530,000
FPC 1006B	21.61	1	0					$555,000
FPC 1007A	4.50	1	0					$160,000
FPC 1007B	5.14	1	0					$175,000
FPC 1007C	5.59	1	0					$190,000
FPC 1008A	3.79	1	0					$145,000
FPC 1008B	2.70	1	0					$125,000
FPC 1008C	3.17	1	0					$1,505,000
FPC 1009A	6.94	1	0					$365,000
FPC 1009B	2.69	1	0					$120,000
FPC 1009C	2.23	1	0					$108,000
FPC 1010A	92.19	1	0					$4,195,000
FPC 1010B	49.17	1	0					$1,205,000
FPC 1010C	64.03	1	0					$1,555,000

APPENDIX 8

COMMENTS

Submittal Report

Financial Project:	451942-2	Submittal Type:	POND SITING REPORT
Submittal Phase:	INITIAL	Submittal Staff Type:	CONSULTANT
Received Date:	7/7/2025	Response Due Date:	8/18/2025
Grace Period:	0	District:	FIRST
Status:	OPEN	Create Date:	7/7/2025
Create User Id:	KNPLGJO	Last Update:	7/7/2025
		Last Update User Id:	KNPLGJO

Description:

Draft PSR for 451942-2 SR 70 from SR 31 to Highlands Co line Rd.

Threads:

Name	Assignment	Due Date	Status	Comments
BRENT SETCHELL	LEAD REVIEWER	8/4/2025	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Joe Lauk	IN-HOUSE PROJECT MANAGER	8/4/2025	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
KARINA DELLA SERA	LEAD REVIEWER	8/4/2025	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
KISAN PATEL	LEAD REVIEWER	8/4/2025	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
LORI STANFILL	REVIEWER	8/4/2025	ACTIVE	5

No	Status	Current Holder	Reference	Categories
2	COMMENT SUBMITTED FOR RESPONSE	SAM CHIU		DRAINAGE

Created By	Created On	Version	Delegate For
LORI STANFILL	8/4/2025	1	GREG SEIDEL

The following was noted in the Main Text of the Pond Siting Report: (Cont)	
The PSR investigation appears to include in-depth and reasonable documentation in support of the proposed alternatives for stormwater management and floodplain compensation. Please confirm anticipated LDCA is before June 28, 2026 and the new 2024 criteria does not apply.	The anticipated LDCA date for this project is prior to June 28, 2026. Therefore, ERP AH Volume 1 Section 8.3 does not apply to this project.
Executive Summary: Suggest adding footers to the Recommended SMF Alternatives Table for source of each cost estimate. For example – Wetland and species Mitigation and costs may be in a separate document. Suggest discussing how the overall cost is estimated and referencing the additional sources as there may be confusion between Appendix 7 and the table.	Agree. Footnotes will be added to the Recommended Alternatives Tables in the Executive Summary to clarify the source of cost estimate. Section 2.8 will be reviewed and modified (as needed) with the Environmental Scientists. Please note that the mitigation and cost estimates for wetlands, species, and conservation impacts are based on the work product of the Environmental Scientists.
The SMF Maps in Appendix 6 show an easement parallel to the road (example – App 6, Page 64). Please add discussion on these easements and why they are avoided.	Discussion of the easements shown in Appendix 6 will be added to the narrative. These easements were avoided in siting SMFs and FPCs to prevent conflicts with existing utilities, access, or jurisdictional constraints.
Multiple pond sites have gaps between the adjacent FPC Site (Example SMF 1005A and FPC 1005B). Suggest eliminating these gaps to prevent unusable remnants.	Agree.

Was consideration given to excavating the FPC Sites and maintaining a flood rights easement as opposed to full purchase? Example FPC 1003B adjacent to Mossy Gully. (App 6, Page 82)	FDOT generally acquires FPC sites as a taking. This allows FDOT the full ownership right on their FPC sites. The owner could negotiate with FDOT during the right-of-way acquisition process.
Was consideration given to providing floodplain storage within the pond. Also, could the ponds be located closer to the roadway in the floodplain? Example SMF1005A. (App 6 Page 54).	This PSR estimates the SMF storage needs based on the difference in pre- and post-development runoff volume. In order to use the SMF storage for floodplain compensation, the SWFWMD generally requires substantial H&H modeling in order to demonstrate the timing of the difference in SMF and floodplain peak stages; and the unrestricted connections between the SMF and the floodplains. Therefore, the flood storage within a SMF has not been considered as part of this PSR. Some of the ponds (such as SMF 1005A) are located further from the roadway due to the presence of existing easements and/or canals adjacent to the road. These constraints limited the feasibility of placing SMFs closer to the roadway.
Is there a reason not to locate SMF 1004A or 1004B north of the gas line and closer to the road to avoid crossing the gas lines and needed outfall easements? (App 6 Page 52).	Agree and will evaluate the feasibility to place SMF 1004A and SMF 1004B between existing roadway R/W and the utility easement.
Section 2.1 indicates that there was a meeting on May 19, 2025. Are checkpoint meeting minutes available? If so, please add to Appendix 2.	Agree and will add.
The following comments are clean up and do not have a significant impact on the document. - Table 2-1, Pg. 2-2 and Section 3.1.1 , Pg. 3-2: The Permit No. column in the table and first paragraph in Section 3.1.1 refer to Permit ERP 32402.00, however excerpts of this is not included in Appendix 9 of References. It is suggested to include them in Appendix 9.	Agree and will add.
Section 3.1.3 , Pg. 3-3: The required attenuation volume is indicated as 6.64 ac-ft when 6.54 ac-ft appears to be shown in the calculations.	Agree. The required attenuation volumes in the narrative, tables, and calculations will be reconciled.
Section 3.1.4 , Pg. 3-3: The required attenuation volume is indicated as 8.50 ac-ft when 8.40 ac-ft appears to be shown in the calculations.	Agree. The required attenuation volumes in the narrative, tables, and calculations will be reconciled.
Section 3.1.5 , Pg. 3-4: The required attenuation volume is indicated as 4.80 ac-ft when 4.70 ac-ft appears to be shown in the calculations.	Agree. The required attenuation volumes in the narrative, tables, and calculations will be reconciled.
Table 3-1, Pg. 3-5: It is suggested update the required attenuation volumes for Alt-1, Alt-2, and Alt-3 according to previous comments.	Agree. The required attenuation volumes in the narrative, tables, and calculations will be reconciled.
Section 3.1.4, Pg 3-3 and Table 3-1, Pg. 3-5: The predominant soil name for Alternative 2 is indicated as Basinger, however Basinger, Immokalee and Pompano soils appears to be present in the calculations.	Agree. The predominant soil name in the narrative, tables, and calculations will be reconciled.
Section 3.2.3, Pg 3-7 and Table 3-2, Pg. 3-10: The predominant soil name for Alternative 1 is indicated as Smyrna, however Smyrna and Ona soils appears to be present in the calculations.	Agree. The predominant soil name in the narrative, tables, and calculations will be reconciled.
Section 3.3.1, Pg. 3-11: The description indicated that the basin extends from 4159+96 to 4210+77 (WB) and 4159+96 to 4207+10 (EB), however the calculations in Appendix 3 Pg. 3 indicated from 4160+49 to 4210+77 (WB) and 4160+49 to 4207+10 (EB).	Agree. The basin limits in the narrative and drainage map will be reconciled.

No	Status	Current Holder	Reference	Categories
3	COMMENT SUBMITTED FOR RESPONSE	SAM CHIU		DRAINAGE

Created By	Created On	Version	Delegate For
LORI STANFILL	8/4/2025	1	GREG SEIDEL

The following was noted in the Main Text of the Pond Siting Report: (Cont)	
Section 3.4.1, Pg. 3-16: The description indicated that the basin extends from 4210+57 to 4279+56 (WB) and 4207+07 to 4279+56 (EB), however the calculations in Appendix 3 Pg. 8 indicated from 4210+77 to 4279+56 (WB) and 4207+10 to 4279+56 (EB).	Agree. The basin limits in the narrative and drainage map will be reconciled.
Table 3-4, Pg. 3-20: The required treatment volume is indicated as 0.44 ac-ft when 0.22 ac-ft appears to be shown in the calculations.	Agree. The required treatment volumes in the narrative, tables, and calculations will be reconciled.
Section 3.5.1, Pg. 3-21: The description indicated that the basin extends from 4279+42 to 4358+94 (WB) and 4279+42 to 4362+01 (EB), however the calculations in Appendix 3 Pgs. 10/39 indicated from 4279+57 to 4358+94 (WB) and 4279+57 to 4362+01 (EB).	Agree. The basin limits in the narrative and drainage map will be reconciled.
Table 3-5, Pg. 3-25: The required treatment volumes appear to be different from the volumes indicated in the calculations for three alternatives.	Agree. The required treatment volumes in the narrative, tables, and calculations will be reconciled.
Table 3-5, Pg. 3-25: Provided attenuation volume for Alternative 3 volume is indicated as 6.15 ac-ft when 6.16 ac-ft appears to be shown in the calculations	The required attenuation volumes in the narrative, tables, and calculations will be reconciled.
Section 3.6.1, Pg. 3-26: The description indicated that the basin extends from 4358+91 to 4416+44 (WB) and 4361+99 to 4392+25 (EB), however the calculations in Appendix 3 Pgs. 12/41/73 indicated from 4358+95 to 4416+44 (WB) and 4362+01 to 4392+25 (EB).	Agree. The basin limits in the narrative and drainage map will be reconciled.
Table 3-6, Pg. 3-30: The required treatment volumes appear to be different from the volumes indicated in the calculations for three alternatives.	Agree. The required treatment volumes in the narrative, tables, and calculations will be reconciled.
Table 3-7, Pg. 3-35: The required treatment volumes appear to be different from the volumes indicated in the calculations for three alternatives.	Agree. The required treatment volumes in the narrative, tables, and calculations will be reconciled.
Section 3.8.1, Pg. 3-36: The description indicated that the basin extends from 4464+65 to 4501+54 (WB) and 4464+65 to 4511+67 (EB), however the calculations in Appendix 3 Pgs. 16/45/79 indicated from 4465+05 to 4501+54 (WB) and 4465+70 to 4511+67 (EB).	Agree. The basin limits in the narrative and drainage map will be reconciled.
Section 3.9.1, Pg. 3-40: The description indicated that the basin extends from 4501+52 to 4623+01 (WB) and 4511+38 to 4595+05 (EB), however the calculations in Appendix 3 Pgs. 18/47/81 indicated from 4501+54 to 4623+02 (WB) and 4511+67 to 4595+05 (EB).	Agree. The basin limits in the narrative and drainage map will be reconciled.
Table 3-9, Pg. 3-44: The required treatment volumes appear to be different from the volumes indicated in the calculations for three alternatives. The provided treatment volumes, required attenuation volumes and provide attenuation volumes appear to be different from the volumes indicated in the calculations for Alternatives 2 and 3.	Agree. The required treatment volumes and attenuation volumes in the narrative, tables, and calculations will be reconciled.
bb) Table 3-10, Pg. 3-49: The required treatment volumes appear to be different from the volumes indicated in the calculations for Alternatives 1 and 2.	Agree. The required treatment volumes in the narrative, tables, and calculations will be reconciled.
Section 3.11.3, Pg. 3-51: The percent of removals appear not match the calculation results in Appendix 3, page 103.	Agree. The nutrient removal efficiency in the narrative and calculations will be reconciled.
Section 3.11.4, Pg. 3-52: The percent of removals appear not match the calculation results in Appendix 3, page 110.	Agree. The nutrient removal efficiency in the narrative and calculations will be reconciled.
Section 3.11.5, Pg. 3-52: The percent of removals appear not match the calculation results in Appendix 3, page 117.	Agree. The nutrient removal efficiency in the narrative and calculations will be reconciled.

No	Status	Current Holder	Reference	Categories
4	COMMENT SUBMITTED FOR RESPONSE	SAM CHIU		DRAINAGE

Created By	Created On	Version	Delegate For
LORI STANFILL	8/4/2025	1	GREG SEIDEL

The following was noted in the Main Text of the Pond Siting Report:(Cont)	
Section 3.12.3, Pg. 3-56: The percent of removal requirements appear not match the calculation results in Appendix 3, page 127.	Agree. The nutrient removal efficiency in the narrative and calculations will be reconciled.
Section 3.12.5, Pg. 3-57: The percent of removals appear not match the calculation results in Appendix 3, page 147.	Agree. The nutrient removal efficiency in the narrative and calculations will be reconciled.
Section 3.12.5 , Pg. 3-57: The provided attenuation volume is indicated as 6.09 ac-ft when 6.11 ac-ft appears to be shown in the calculations.	The required attenuation volumes in the narrative, tables, and calculations will be reconciled.
Table 3-12, Pg. 3-59: The treatment and attenuations volumes appear to be different from the volumes indicated in the calculations for Alternative 3.	Agree. The required treatment volumes and attenuation volumes in the narrative, tables, and calculations will be reconciled.
Section 3.13.4 , Pg. 3-61: The area of the dry detention pond is indicated as 1.29 ac when 1.43 ac appears to be shown in the calculations.	Agree. The pond area in the narrative and calculations will be reconciled.
Section 3.13.5, Pg. 3-62: The percent of removals appear not match the calculation results in Appendix 3, page 168.	Agree. The nutrient removal efficiency in the narrative and calculations will be reconciled.
Table 4-2, Pg. 4-3: The impact volume of FIA 1002 is indicated as 3.79 ac-ft when 3.86 ac-ft appears to be shown in the calculations.	Agree. The floodplain impact volumes in the narrative and calculations will be reconciled.

No	Status	Current Holder	Reference	Categories
5	COMMENT SUBMITTED FOR RESPONSE	SAM CHIU		DRAINAGE

Created By	Created On	Version	Delegate For
LORI STANFILL	8/4/2025	1	GREG SEIDEL

The following minor items are noted in the Appendices of the Pond Siting Report:	
Appendix 3, Pg 3: The required treatment volume is indicated as 0.83 ac-ft when the total sum of the existing and new volume appears to be 0.54 ac-ft. It is suggested verify the calculations for treatment and total volumes.	As shown in Table 2-1, the existing treatment volume is based on dry retention ponds (i.e. 0.5-inch of runoff). When the proposed SMF is a wet detention pond, the required treatment volume will need to be doubled to account for the wet pond requirement (i.e. 1.0 inch of runoff). Notes will be added to the calculations to clarify.
Appendix 3, Pg 11: The required treatment volume is indicated as 1.03 ac-ft when the total sum of the existing and new volume appears to be 0.99 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 13: The required treatment volume is indicated as 0.78 ac-ft when the total sum of the existing and new volume appears to be 0.65 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 15: The required treatment volume is indicated as 0.77 ac-ft when the total sum of the existing and new volume appears to be 0.68 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 18: The required treatment volume is indicated as 0.44 ac-ft when the volume appears to be 0.66 ac-ft. It is suggested verify the calculations for treatment and total volumes	
Appendix 3, Pg 19: The required treatment volume is indicated as 1.59 ac-ft when the total sum of the existing and new volume appears to be 1.37 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 23: The required treatment volume is indicated as 0.82 ac-ft when the total sum of the existing and new volume appears to be 0.72 ac-ft. It is suggested verify the calculations for treatment and total volumes.	

No	Status	Current Holder	Reference	Categories
6	COMMENT SUBMITTED FOR RESPONSE	SAM CHIU		DRAINAGE

Created By	Created On	Version	Delegate For
LORI STANFILL	8/4/2025	1	GREG SEIDEL

The following minor items are noted in the Appendices of the Pond Siting Report: (CONT)	
Appendix 3, Pg 40: The required treatment volume is indicated as 1.03 ac-ft when the total sum of the existing and new volume appears to be 0.99 ac-ft. It is suggested verify the calculations for treatment and total volumes.	As shown in Table 2-1, the existing treatment volume is based on dry retention ponds (i.e. 0.5-inch of runoff). When the proposed SMF is a wet detention pond, the required treatment volume will need to be doubled to account for the wet pond requirement (i.e. 1.0-inch of runoff). Notes will be added to the calculations to clarify.
Appendix 3, Pg 42: The required treatment volume is indicated as 0.78 ac-ft when the total sum of the existing and new volume appears to be 0.65 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 44: The required treatment volume is indicated as 0.77 ac-ft when the total sum of the existing and new volume appears to be 0.68 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 47/48: The required treatment volume is indicated as 0.79 ac-ft when the total sum of the existing and new volume appears to be 1.02 ac-ft. It is suggested verify the calculations for treatment and total volumes. Due to that the required total	
Appendix 3, Pg 52: The required treatment volume is indicated as 0.82 ac-ft when the total sum of the existing and new volume appears to be 0.72 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 61: The required treatment volume is indicated as 0.83 ac-ft when the total sum of the existing and new volume appears to be 0.54 ac-ft. It is suggested verify the calculations for treatment and total volumes.	
Appendix 3, Pg 81/82: The required treatment volume is indicated as 0.79 ac-ft when the total sum of the existing and new volume appears to be 1.02 ac-ft. It is suggested verify the calculations for treatment and total volumes. Due to that the required total volume values changed, it appears that the provided total volume needs to be verified.	

Name	Assignment	Due Date	Status	Comments
MELISSA MONIES	LEAD REVIEWER	8/4/2025	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
Nicolas Leon	CONSULTANT PROJECT MANAGER	8/18/2025	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
RAMASAMY VENKATESAN	REVIEWER	8/4/2025	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
RYAN MOLLOY	LEAD REVIEWER	8/4/2025	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
SAM CHIU	LEAD DESIGNER	8/18/2025	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Tia Norman	REVIEWER	8/4/2025	ACTIVE	1

No	Status	Current Holder	Reference	Categories
1	COMMENT SUBMITTED FOR RESPONSE	SAM CHIU		ENVIRONMENTAL PERMITS

Created By	Created On	Version	Delegate For
Tia Norman	7/18/2025	1	

Comments also provided in attached PSR checklist.	
The majority of the preferred alternatives do not meet Section 404(b)(1) of the CWA which requires the use of the least environmentally damaging and practicable alternative. The USACE may find the selection of the preferred alternatives as unpermittable. Please coordinate with the PD&E team to ensure that the preferred alternatives meet Section 404(b)(1) for permitting with USACE and review the USACE alternatives analysis guidance.	Agree. The environmental assessment data will be refined and updated. The selection of the preferred alternatives will be coordinated with the PD&E team.
Section 3.5.6, add "No wetland impacts" and "No protected species impacts" to Pros list for SMF 1001A; add "Most protected species impacts" to Cons list for SMF 1001C and 1001D.	Agree. The pros and cons lists in Section 3.5.6 will be updated as follows: Add "No wetland impacts" and "No protected species impacts" to the Pros list for SMF 1001A. Add "Most protected species impacts" to the Cons lists for SMF 1001C and SMF 1001D.
On pros and cons lists for all basins, please add any environmental impact considerations for all alternatives for comparison if they differ between alternatives (i.e., wetlands, protected species, cultural, Section 4(f), etc.).	Agree. The pros and cons lists for all basins and alternatives will be reviewed and updated to include relevant environmental impact considerations, including wetlands, protected species, cultural resources, Section 4(f) impacts, and others where applicable.

APPENDIX 9

REFERENCES

ERP Permit No. 32402.001

ERP Permit No. 32402.000

ERP Permit No. 33219.000

ERP Permit No. 8749.008

ERP Permit No. 8749.010

PBS&J

Subject: SR 70 (Desoto County)
Ditch Stage Storage Volume Calculations

Designed By:	DKA
Date:	3/26/2008
Checked By:	TP
Date:	3/26/2008

Ditch No. 1090

STA. 1802+20.00 TO STA. 1804+74.00

Ditch Variables

Increment	Ditch Bottom		Ditch Top	
El. (ft.)	El. (ft.)	Area (sf)	El. (ft.)	Area (sf)
0.05	64.00	2980	65.50	6242

Ditch Stage Storage Volumes

	Depth	Elevation	Area	Volume	
	(ft.)	(ft.)	(sf)	(cf)	(acre-ft)
Ditch Bottom	0.00	64.00	2980	n/a	n/a
	0.05	64.05	3088.73	151.72	0.003
	0.10	64.10	3197.47	308.87	0.007
	0.15	64.15	3306.20	471.47	0.011
	0.20	64.20	3414.93	639.49	0.015
	0.25	64.25	3523.67	812.96	0.019
Treatment Volume	0.30	64.30	3632.40	991.86	0.023
	0.35	64.35	3741.13	1176.20	0.027
	0.40	64.40	3849.87	1365.97	0.031
	0.45	64.45	3958.60	1561.19	0.036
	0.50	64.50	4067.33	1761.83	0.040
	0.55	64.55	4176.07	1967.92	0.045
	0.60	64.60	4284.80	2179.44	0.050
	0.65	64.65	4393.53	2396.40	0.055
	0.70	64.70	4502.27	2618.79	0.060
	0.75	64.75	4611.00	2846.63	0.065
	0.80	64.80	4719.73	3079.89	0.071
	0.85	64.85	4828.47	3318.60	0.076
	0.90	64.90	4937.20	3562.74	0.082
	0.95	64.95	5045.93	3812.32	0.088
	1.00	65.00	5154.67	4067.33	0.093
	1.05	65.05	5263.40	4327.78	0.099
	1.10	65.10	5372.13	4593.67	0.105
	1.15	65.15	5480.87	4865.00	0.112
	1.20	65.20	5589.60	5141.76	0.118
	1.25	65.25	5698.33	5423.96	0.125
	1.30	65.30	5807.07	5711.59	0.131
	1.35	65.35	5915.80	6004.66	0.138
	1.40	65.40	6024.53	6303.17	0.145
	1.45	65.45	6133.27	6607.12	0.152
Ditch Top	1.50	65.50	6242.00	6916.50	0.159
	1.55	65.55	6350.73	7231.32	0.166
	1.60	65.60	6459.47	7551.57	0.173
	1.65	65.65	6568.20	7877.27	0.181
	1.70	65.70	6676.93	8208.39	0.188
	1.75	65.75	6785.67	8544.96	0.196
	1.80	65.80	6894.40	8886.96	0.204

PBS&J

Subject: SR 70 (Desoto County)
Ditch Stage Storage Volume Calculations

Designed By:	DKA
Date:	3/26/2008
Checked By:	TP
Date:	3/26/2008

Ditch No. 1100

STA. 1805+23.00 TO STA. 1807+05.00

Ditch Variables

Increment	Ditch Bottom		Ditch Top	
El. (ft.)	El. (ft.)	Area (sf)	El. (ft.)	Area (sf)
0.05	64.00	2825	65.50	5326

Ditch Stage Storage Volumes

	Depth (ft.)	Elevation (ft.)	Area (sf)	Volume (cf)	Volume (acre-ft)
Ditch Bottom	0.00	64.00	2825	n/a	n/a
	0.05	64.05	2908.37	143.33	0.003
	0.10	64.10	2991.73	290.84	0.007
	0.15	64.15	3075.10	442.51	0.010
	0.20	64.20	3158.47	598.35	0.014
	0.25	64.25	3241.83	758.35	0.017
Treatment Volume	0.30	64.30	3325.20	922.53	0.021
	0.35	64.35	3408.57	1090.87	0.025
	0.40	64.40	3491.93	1263.39	0.029
	0.45	64.45	3575.30	1440.07	0.033
	0.50	64.50	3658.67	1620.92	0.037
	0.55	64.55	3742.03	1805.93	0.041
	0.60	64.60	3825.40	1995.12	0.046
	0.65	64.65	3908.77	2188.47	0.050
	0.70	64.70	3992.13	2386.00	0.055
	0.75	64.75	4075.50	2587.69	0.059
	0.80	64.80	4158.87	2793.55	0.064
	0.85	64.85	4242.23	3003.57	0.069
	0.90	64.90	4325.60	3217.77	0.074
	0.95	64.95	4408.97	3436.13	0.079
	1.00	65.00	4492.33	3658.67	0.084
	1.05	65.05	4575.70	3885.37	0.089
	1.10	65.10	4659.07	4116.24	0.094
	1.15	65.15	4742.43	4351.27	0.100
	1.20	65.20	4825.80	4590.48	0.105
	1.25	65.25	4909.17	4833.85	0.111
	1.30	65.30	4992.53	5081.40	0.117
	1.35	65.35	5075.90	5333.11	0.122
	1.40	65.40	5159.27	5588.99	0.128
	1.45	65.45	5242.63	5849.03	0.134
Ditch Top	1.50	65.50	5326.00	6113.25	0.140
	1.55	65.55	5409.37	6381.63	0.147
	1.60	65.60	5492.73	6654.19	0.153
	1.65	65.65	5576.10	6930.91	0.159
	1.70	65.70	5659.47	7211.80	0.166
	1.75	65.75	5742.83	7496.85	0.172
	1.80	65.80	5826.20	7786.08	0.179

PBS&J

Designed By:	DKA
Date:	9/19/2005
Checked By:	TP
Date:	11/2/2005

Subject: SR 70 (Desoto County)
Ditch Stage Storage Volume Calculations

Ditch No. 2130

STA. 1832+28.00 TO STA. 1842+67.50

Ditch Variables

Increment	Ditch Bottom		Ditch Top	
El. (ft.)	El. (ft.)	Area (sf)	El. (ft.)	Area (sf)
0.05	64.00	4592.00	65.82	22937.60

Ditch Stage Storage Volumes

	Depth (ft.)	Elevation (ft.)	Area (sf)	Volume (cf)	Volume (acre-ft)
Ditch Bottom	0.00	64.00	4592	n/a	n/a
	0.05	64.05	5096.00	242.20	0.006
	0.10	64.10	5600.00	509.60	0.012
	0.15	64.15	6104.00	802.20	0.018
	0.20	64.20	6608.00	1120.00	0.026
	0.25	64.25	7112.00	1463.00	0.034
Treatment Volume	0.30	64.30	7616.00	1830.20	0.042
	0.35	64.35	8120.00	2224.60	0.051
	0.40	64.40	8624.00	2643.20	0.061
	0.45	64.45	9128.00	3087.00	0.071
	0.50	64.50	9632.00	3556.00	0.082
	0.55	64.55	10136.00	4050.20	0.093
	0.60	64.60	10640.00	4569.60	0.105
	0.65	64.65	11144.00	5114.20	0.117
	0.70	64.70	11648.00	5684.00	0.130
	0.75	64.75	12152.00	6279.00	0.144
	0.80	64.80	12656.00	6899.20	0.158
	0.85	64.85	13160.00	7544.60	0.173
	0.90	64.90	13664.00	8215.20	0.189
	0.95	64.95	14168.00	8911.00	0.205
	1.00	65.00	14672.00	9632.00	0.221
	1.05	65.05	15176.00	10378.20	0.238
	1.10	65.10	15680.00	11149.60	0.256
	1.15	65.15	16184.00	11946.20	0.274
	1.20	65.20	16688.00	12768.00	0.293
	1.25	65.25	17192.00	13615.00	0.313
	1.30	65.30	17696.00	14487.20	0.333
	1.35	65.35	18200.00	15384.60	0.353
	1.40	65.40	18704.00	16307.20	0.374
	1.45	65.45	19208.00	17255.00	0.396
	1.50	65.50	19712.00	18228.00	0.418
	1.55	65.55	20216.00	19226.20	0.441
Ditch Top	1.60	65.60	20720.00	20249.60	0.465
	1.65	65.65	21224.00	21298.20	0.489
	1.70	65.70	21728.00	22372.00	0.514
	1.75	65.75	22232.00	23471.00	0.539
	1.80	65.80	22736.00	24595.20	0.565

PBS&J

Subject: SR 70 (Descto County)
Ditch Stage Storage Volume Calculations

Designed By:	DKA
Date:	9/19/2005
Checked By:	TP
Date:	11/2/2005

Ditch No. 2131

STA. 1842+67.50 TO STA. 1852+06.00

Ditch Variables

Increment	Ditch Bottom		Ditch Top	
El. (ft.)	El. (ft.)	Area (sf)	El. (ft.)	Area (sf)
0.05	64.00	29862.00	65.82	44604.00

Ditch Stage Storage Volumes

	Depth (ft.)	Elevation (ft.)	Area (sf)	Volume (cf)	Volume (acre-ft)
Ditch Bottom	0.00	64.00	29862	n/a	n/a
	0.05	64.05	30267.00	1503.22	0.035
	0.10	64.10	30672.00	3026.70	0.069
	0.15	64.15	31077.00	4570.43	0.105
	0.20	64.20	31482.00	6134.40	0.141
	0.25	64.25	31887.00	7718.63	0.177
Treatment Volume	0.30	64.30	32292.00	9323.10	0.214
	0.35	64.35	32697.00	10947.82	0.251
	0.40	64.40	33102.00	12592.80	0.289
	0.45	64.45	33507.00	14258.03	0.327
	0.50	64.50	33912.00	15943.50	0.366
	0.55	64.55	34317.00	17649.22	0.405
	0.60	64.60	34722.00	19375.20	0.445
	0.65	64.65	35127.00	21121.43	0.485
	0.70	64.70	35532.00	22887.90	0.525
	0.75	64.75	35937.00	24674.63	0.566
	0.80	64.80	36342.00	26481.60	0.608
	0.85	64.85	36747.00	28308.82	0.650
	0.90	64.90	37152.00	30156.30	0.692
	0.95	64.95	37557.00	32024.03	0.735
	1.00	65.00	37962.00	33912.00	0.779
	1.05	65.05	38367.00	35820.22	0.822
	1.10	65.10	38772.00	37748.70	0.867
	1.15	65.15	39177.00	39697.43	0.911
	1.20	65.20	39582.00	41666.40	0.957
	1.25	65.25	39987.00	43655.63	1.002
	1.30	65.30	40392.00	45665.10	1.048
	1.35	65.35	40797.00	47694.82	1.095
	1.40	65.40	41202.00	49744.80	1.142
	1.45	65.45	41607.00	51815.03	1.190
	1.50	65.50	42012.00	53905.50	1.238
	1.55	65.55	42417.00	56016.22	1.286
Ditch Top	1.60	65.60	42822.00	58147.20	1.335
	1.65	65.65	43227.00	60298.43	1.384
	1.70	65.70	43632.00	62469.90	1.434
	1.75	65.75	44037.00	64661.63	1.484
	1.80	65.80	44442.00	66873.60	1.535

0.983

44032402.0000

09 20 07 (Bottom Widths are Adjusted to Meet the 36' clear zone Requirement)

BERMED SWALES WITH DITCH BLOCKS

SWALE BEGINS AT (Sta 1137+65)

SEGMENT 1A (Sta 1137+65 to Sta 1147+00)

SEGMENT 1B (Sta 1147+00 to Sta 1150+00)

Sta		
1147+00	Bottom Ditch Elevation	66.60 ft NAVD
1147+00	Left Berm Elevation	68.10 ft NAVD
1150+00	Bottom Ditch Elevation	68.01 ft NAVD
1150+00	Left Bank Elevation	69.51 ft NAVD

L = 300 **ft** Length of Segment

What is 5 - is that the side slope?

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel

d = ft

Cross-section area @ STA 1147+00

b = **9.8** ft

d = **1.5** ft

Cross-section area @ STA 1150+00 — Where this data

b = **14.2** ft

d = **0.09** ft

A1 = 25.95 ft^2 End Area Section at STA 1147+00

A2 = 1.3185 ft^2 End Area Section at STA 1150+00

A avg 13.6343 ft^2 End Area Average

V = 3892.5 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 68.01 ft NAVD
y1 = 66.60 ft NAVD
L = 300 **ft** Length of Segment

Slope = 0.0047

Cross-section area@STA 1147+00
b = **9.8** ft
d = **0.52** ft **Iterated depth**

A = bd+5d^2

A = 6.448 ft^2 End area section@STA 1147+00
Aavg = 3.224 ft^2 End area section@STA 1147+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 110.6383 ft

y = mx +b
y = new upstream channel bottom Elevation
m = **Slope**
Elev.= beginning channel bottom Elevation @STA 1147+00
x = L

y = 67.12 ft NAVD
Elev. top of ditch block = 67.12 ft NAVD

Elev. = 66.60 ft NAVD
L = 110.638 ft STA 1148+10.6383
m = 0.0047

V = Avg End Area x L
PAV attained = 356.698 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 300 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft** **Total Width**

Drainage Area = 8400 **ft^2**

Polution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 8400 **ft^2** x 0.5 **inches**
PAV = 8400 **ft^2** x 0.04167 **ft**
PAV = 350 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = **Drainage Area x delta Q**
Attenuation Volume Required = 745.283 **ft^3**

SEGMENT 1C (Sta 1150+00 to Sta 1156+60)

Sta		
1150+00	Bottom Ditch Elevation	68.01 ft NAVD
1150+00	Left Bank Elevation	69.51 ft NAVD
1160+00	Bottom Ditch Elevation	69.57 ft NAVD
1160+00	Left Bank Elevation	71.07 ft NAVD

L = 1000 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft

Cross-section area@STA 1150+00
b = **14.2** ft
d = **1.5** ft

Cross-section area@STA 1160+00
b = **15.9** ft
d = **0.06** ft

A1 = 32.55 ft^2 End Area Section at STA 1150+00
A2 = 0.972 ft^2 End Area Section at STA 1160+00
A avg 16.761 ft^2 End Area Average
V = 16761 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 69.57 ft NAVD
y1 = 68.01 ft NAVD
L = 1000 **ft** Length of Segment

Slope = 0.00156

Cross-section area@STA 1150+00
b = **14.2** ft
d = **0.47** ft **Iterated depth**

A = bd+5d^2

A = 7.7785 ft^2 End area section@STA 1150+00
Aavg = 3.88925 ft^2 End area section@STA 1150+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 301.28205 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**

Elev.= beginning channel bottom Elevation @STA 1147+00
x = L

y = 68.48 ft NAVD
Elev. top of ditch block = 68.48 ft NAVD

b = 68.01 ft NAVD
L = 301.282 ft
m = 0.00156

V = Avg End Area x L
PAV attained = 1171.76 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 1000 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft Total Width**

Drainage Area = 28000 **ft^2**

Polution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 28000 **ft^2** x 0.5 **inches**
PAV = 28000 **ft^2** x 0.04167 **ft**
PAV = 1166.67 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = **Drainage Area x delta Q**
Attenuation Volume Required = 2484.28 **ft^3**

SWALE ENDS AT (Sta 1156+60)

DRIVEWAY AT (Sta 1156+70 to Sta 1156+80)

SWALE BEGINS AT (Sta 1156+90)

SEGMENT 1D (Sta 1156+90 to Sta 1175+00)

Sta		
1160+00	Bottom Ditch Elevation	69.57 ft NAVD
1160+00	Left Bank Elevation	71.07 ft NAVD
1175+00	Bottom Ditch Elevation	70.09 ft NAVD
1175+00	Left Bank Elevation	71.59 ft NAVD

L = 1500 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft

Cross-section area @ STA 1160+00
b = **15.9** ft
d = **1.5** ft

Cross-section area @ STA 1175+00
b = **14** ft
d = **0.98** ft

A1 = 35.1 ft^2 End Area Section at STA 1160+00
A2 = 18.522 ft^2 End Area Section at STA 1175+00
A avg 26.811 ft^2 End Area Average
V = 40216.5 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 69.57 ft NAVD
y1 = 70.09 ft NAVD
L = 1500 **ft** Length of Segment

Slope = -0.000347

Cross-section area @ STA 1160+00
b = **14** ft **MAX WIDTH FOR CALCULATION**
d = **0.3** ft **Iterated depth**

A = bd+5d^2

A = 4.65 ft^2 End area section @ STA 1160+00
Aavg = 2.325 ft^2 End area section @ STA 1160+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = -865.3846 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @ STA 1160+00
x = L

y = 69.87 ft NAVD
Elev. top of ditch block = 69.87 ft NAVD

b = 69.57 ft NAVD
L = -865.385 ft STA 1168+65.385
m = -0.00035

V = Avg End Area x L
PAV attained = -2012 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L =	1500	**ft**	Length of Segment
W =	12	**ft**	**Width of Passing Lane**
	5	**ft**	**Width of Paved Shoulder**
	11	**ft**	**Width of grass shoulder**
W =	28	**ft**	**Total Width**

Drainage Area = 42000 **ft^2**

Polution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV =	42000 **ft^2**	x	0.5 **inches**	
PAV =	42000 **ft^2**	x	0.04167 **ft**	
PAV =	1750 **ft^3**			

Pre-Development Q =	5.85976	**inches**
Post-Development Q =	6.92445	**inches**

delta	**Q=**	1.06469	**inches**
delta	**Q=**	0.08872	**ft**

Attenuation Volume Required = **Drainage Area x delta Q**

Attenuation Volume Required = 3726.42 **ft^3**

SEGMENT 1E (Sta 1175+00 to Sta 1179+00)

Sta		
1175+00	Bottom Ditch Elevation	70.09 ft NAVD
1175+00	Left Bank Elevation	71.59 ft NAVD
1179+00	Bottom Ditch Elevation	69.10 ft NAVD
1179+00	Left Bank Elevation	70.60 ft NAVD

L = 400 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b =	5	ft	bottom width of channel
d =		ft	

Cross-section area@STA 1175+00

b =	**14**	ft
d =	**0.511**	ft

Cross-section area@STA 1179+00

b =	**6.5**	ft
d =	**1.5**	ft

A1 =	8.45961	End Area Section at STA 1175+00
A2 =	21 ft^2	End Area Average at STA 1179+00
A avg	14.7298 ft^2	End Area Average
V =	5891.92 **ft^3**	**Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 70.09 ft NAVD
y1 = 69.10 ft NAVD
L = 400 **ft** Length of Segment

Slope = 0.002475

Cross-section area @STA 1179+00

b = **6.5** ft
d = **0.51** ft **Iterated depth**

A = bd+5d^2

A = 4.6155 ft^2 End area section @STA 1179+00
Aavg = 2.30775 ft^2 End area section @STA 1179+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 206.06061 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1160+00
x = L

y = 69.61 ft NAVD
Elev. top of ditch block = 69.61 ft NAVD

b = 69.10 ft NAVD
L = 206.061 ft STA 1181+06.06
m = 0.00248

V = Avg End Area x L
PAV attained = 475.536 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 400 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft** **Total Width**

Drainage Area = 11200 **ft^2**

Polution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 11200 **ft^2** x 0.5 **inches**
PAV = 11200 **ft^2** x 0.04167 **ft**
PAV = 466.667 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = **Drainage Area x delta Q**
Attenuation Volume Required = 993.711 **ft^3**

SEGMENT 1F (Sta 1179+00 to Sta 1184+00)

SWALE ENDS AT (Sta 1181+00)

CULVERT AT (Sta 1182+40)

DRIVEWAY FROM (Sta 1184+20 to Sta 1184+40)

SWALE BEGINS AT (Sta 1184+50)

SEGMENT 1G (Sta 1184+50 to Sta 1200+00)

Sta		
1184+00	Bottom Ditch Elevation	70.09 ft NAVD
1184+00	Left Bank Elevation	71.59 ft NAVD
1200+00	Bottom Ditch Elevation	70.43 ft NAVD
1200+00	Left Bank Elevation	71.93 ft NAVD

L = 1600 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2
b = 5 ft bottom width of channel
d = ft

Cross-section area@STA 1184+00
b = **8.2** ft
d = **1.5** ft

Cross-section area@STA 1200+00
b = **12.4** ft
d = **0.23** ft

A1 = 23.55 End Area Section at STA 1184+00
A2 = 3.1165 ft^2 End Area Section at STA 1200+00
A avg 13.3333 ft^2 End Area Average
V = 21333.2 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 70.09 ft NAVD

y1 = 70.43 ft NAVD
L = 1600 **ft** Length of Segment

Slope = -0.000213

Cross-section area@STA 1184+00
b = **8.2** ft
d = **0.3** ft **Iterated depth**

A = bd+5d^2

A = 2.91 ft^2 End area section@STA 1184+00
Aavg = 1.455 ft^2 End area section@STA 1184+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = -1411.765 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1184+00
x = L

y = 70.39 ft NAVD
Elev. top of ditch block = 70.39 ft NAVD

b = 70.09 ft NAVD
L = -1411.76 ft STA 1198+11.80
m = -0.00021

V = *Avg End Area x L*
PAV attained = -2054.1 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 1600 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft Total Width**

Drainage Area = 44800 **ft^2**

Polution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 44800 **ft^2** x 0.5 **inches**
PAV = 44800 **ft^2** x 0.04167 **ft**
PAV = 1866.67 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = ***Drainage Area x delta Q***
Attenuation Volume Required = 3974.84 **ft^3**

SEGMENT 1H (Sta 1200+00 to Sta 1205+00)
AND
SEGMENT 1I (Sta 1205+00 to Sta 1208+00)

Minimized Pollution Abatement Volume Storage by End Area Calculations

STATION	ELEVATION	PE BETW	ATER DEP	CAL LENGTH	ENGTH USE	TTOM WID	END AREA	ATION VOL	TAL VOLUME	
120000.00		70.43	0.0650			12.40	0.8271		0.0000	
		-0.02000		425.00	100.00			92.0375		
120100.00	70.41		0.0850			11.50	1.0136		92.0375	
		-0.02000		525.00	100.00			109.0875		
120200.00	70.39		0.1050			10.60	1.1681		201.1250	
		-0.03000		450.00	100.00			132.4875		
120300.00	70.36		0.1350			10.30	1.4816		333.6125	
		-0.02000		775.00	100.00			148.2875		
120400.00	70.34		0.1550			8.80	1.4841		481.9000	
		-0.02000		875.00	100.00			150.1125		
120500.00	70.32		0.1750			7.80	1.5181		632.0125	
		0.02000		875.00	100.00			139.2625		
120600.00	70.34		0.1550			7.40	1.2671		771.2750	
		0.03000		516.67	100.00			116.0125		
120700.00	70.37		0.1250			7.80	1.0531		887.2875	
		0.03000		416.67	100.00			94.3375		
120800.00	70.40		0.0950			8.30	0.8336		981.6250	vs 933 CF

PAV attained = 981.6 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 800 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft** **Total Width**

Drainage Area = 22400 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 22400 **ft^2** x 0.5 **inches**
PAV = 22400 **ft^2** x 0.04167 **ft**
PAV = 933.333 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = **Drainage Area x delta Q**
Attenuation Volume Required = 1987.42 **ft^3**

SEGMENT 1J (Sta 1208+00 to Sta 1215+00)

SWALE ENDS AT (Sta 1216+00)

CULVERT AT (Sta 1217+00)

SWALE BEGINS AT (Sta 1218+00)

SEGMENT 2A (Sta 1218+00 to Sta 1226+00)

SEGMENT 2B (Sta 1226+00 to Sta 1237+00)

Sta		
1226+00	Bottom Ditch Elevation	71.90 ft NAVD
1226+00	Left Bank Elevation	73.40 ft NAVD
1237+00	Bottom Ditch Elevation	73.33 ft NAVD
1237+00	Left Bank Elevation	74.83 ft NAVD

L = 1100 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft

Cross-section area@STA 1226+00
b = **6.8** ft
d = **1.5** ft

Cross-section area@STA 1237+00
b = **10.9** ft
d = **0.07** ft

A1 = 21.45 ft^2 End Area Section at STA 1226+00
A2 = 0.7875 ft^2 End Area Section at STA 1237+00
A avg 11.1188 ft^2 End Area Average
V = 12230.6 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 71.9 ft NAVD
y1 = 73.33 ft NAVD
L = 1100 **ft** Length of Segment

Slope = -0.0013

Cross-section area@STA 1226+00
b = **6.8** ft
d = **0.6** ft **Iterated depth**

A = bd+5d^2

A = 5.88 ft^2 End area section@STA 1179+00

Aavg = 2.94 ft^2 End area section @STA 1179+00

L = depth/Slope (Calculated Length of Ditch Section based on the new iterated depth)
L = -461.5385 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1160+00
x = L

y = 68.61 ft NAVD
Elev. top of ditch block = 68.61 ft NAVD

b = 68.01 ft NAVD
L = -461.538 ft STA 1230+61.54
m = -0.0013

V = Avg End Area x L
PAV attained = -1356.9 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 1100 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft Total Width**

Drainage Area = 30800 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 30800 **ft^2** x 0.5 **inches**
PAV = 30800 **ft^2** x 0.04167 **ft**
PAV = 1283.33 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = ***Drainage Area x delta Q***
Attenuation Volume Required = 2732.7 **ft^3**

SEGMENT 2C (Sta 1237+00 to Sta 1249+00)

Sta		
1237+00	Bottom Ditch Elevation	73.33 ft NAVD
1237+00	Left Bank Elevation	74.83 ft NAVD
1249+00	Bottom Ditch Elevation	74.84 ft NAVD
1249+00	Left Bank Elevation	76.34 ft NAVD

L = 1200 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft

Cross-section area@STA 1237+00
b = **10.9** ft
d = **1.5** ft

Cross-section area@STA 1249+00
b = **15.5** ft
d = **0.9** ft

A1 = 27.6 End Area Section at STA 1237+00
A2 = 18 ft^2 End Area Section at STA 1249+00
A avg 22.8 ft^2 End Area Average
V = 27360 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 73.33 ft NAVD
y1 = 74.84 ft NAVD
L = 1200 **ft** Length of Segment

Slope = -0.001258

Cross-section area@STA 1237+00
b = **10.9** ft
d = **0.52** ft **Iterated depth**

A = bd+5d^2

A = 7.02 ft^2 End area section@STA 1237+00
Aavg = 3.51 ft^2 End area section@STA 1237+00

L = depth/Slope (Calculated Length of Ditch Section based on the new iterated depth)
L = -413.245 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1237+00
x = L

y = 73.85 ft NAVD
Elev. top of ditch block = 73.85 ft NAVD

b = 73.33 ft NAVD
L = -413.245 ft STA 1241+13.25
m = -0.00126

V = *Avg End Area x L*
PAV attained = -1450.5 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L =	1200 **ft**	Length of Segment	
W =	12 **ft**	**Width of Passing Lane**	
	5 **ft**	**Width of Paved Shoulder**	
	11 **ft**	**Width of grass shoulder**	
W =	28 **ft**	**Total Width**	

Drainage Area = 33600 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV =	33600 **ft^2**	x	0.5 **inches**
PAV =	33600 **ft^2**	x	0.04167 **ft**
PAV =	1400 **ft^3**		

Pre-Development Q =	5.85976 **inches**	
Post-Development Q =	6.92445 **inches**	
delta Q=	1.06469 **inches**	
delta Q=	0.08872 **ft**	

Attenuation Volume Required = **Drainage Area x delta Q**

Attenuation Volume Required = 2981.13 **ft^3**

SEGMENT 2D (Sta 1249+00 to Sta 1261+80)

Sta		
1249+00	Bottom Ditch Elevation	74.84 ft NAVD
1249+00	Left Bank Elevation	76.34 ft NAVD
1260+00	Bottom Ditch Elevation	75.44 ft NAVD
1260+00	Left Bank Elevation	76.94 ft NAVD

L = 1100 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b =	5 ft	bottom width of channel
d =	ft	depth of flow

Cross-section area@STA 1249+00

b =	**15.5** ft
d =	**1.5** ft

Cross-section area@STA 1260+00

b =	**21.4** ft
d =	**0.9** ft

A1 =	34.5 ft^2	End Area Section at STA 1249+00
A2 =	23.31 ft^2	End Area Section at STA 1260+00
A avg	28.905 ft^2	End Area Average
V =	31795.5 **ft^3**	**Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 74.84 ft NAVD
y1 = 75.44 ft NAVD
L = 1100 **ft** Length of Segment

Slope = -0.000545

Cross-section area@STA 1249+00

b = **15.5** ft
d = **0.3** ft **Iterated depth**

A = bd+5d^2

A = 5.1 ft^2 End area section@STA 1249+00
Aavg = 2.55 ft^2 End area section@STA 1249+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = -550 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1249+00
x = L

y = 75.14 ft NAVD
Elev. top of ditch block = 75.14 ft NAVD

b = 74.84 ft NAVD
L = -550 ft STA 1254+50
m = -0.00055

V = Avg End Area x L
PAV attained = -1402.5 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 1100 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft Total Width**

Drainage Area = 30800 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 30800 **ft^2** x 0.5 **inches**
PAV = 30800 **ft^2** x 0.04167 **ft**
PAV = 1283.33 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = **Drainage Area x delta Q**

Attenuation Volume Required = 2732.7 **ft^3**

SWALE ENDS AT (Sta 1261+80)

DRIVEWAY FROM (Sta 1262+00 to Sta 1263+00)

SWALE BEGINS AT (Sta 1263+20)

SEGMENT 2E (Sta 1263+20 to Sta 1286+80)

Sta		
1260+00	Bottom Ditch Elevation	75.44 ft NAVD
1260+00	Left Bank Elevation	76.94 ft NAVD
1277+00	Bottom Ditch Elevation	73.76 ft NAVD
1277+00	Left Bank Elevation	75.26 ft NAVD

L = 1700 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft depth of flow

Cross-section area@STA 1260+00
b = **21.4** ft
d = **0.18** ft

Cross-section area@STA 1277+00
b = **6.3** ft
d = **1.5** ft

A1 = 4.014 ft^2 End Area Section at STA 1260+00
A2 = 20.7 ft^2 End Area Section at STA 1277+00
A avg 12.357 ft^2 End Area Average
V = 21006.9 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 75.44 ft NAVD
y1 = 73.76 ft NAVD
L = 1700 **ft** Length of Segment

Slope = 0.0009882

Cross-section area@STA 1277+00
b = **6.3** ft
d = **0.65** ft **Iterated depth**

A = bd+5d^2

A = 6.2075 ft^2 End area section @STA 1277+00
Aavg = 3.10375 ft^2 End area section @STA 1277+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 657.7381 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1277+00
x = L

y = 74.41 ft NAVD
Elev. top of ditch block = 74.41 ft NAVD

b = 73.76 ft NAVD
L = 657.738 ft STA 1283+57.74
m = 0.00099

V = Avg End Area x L
PAV attained = 2041.45 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 1700 **ft** Length of Segment
W = 12 **ft Width of Passing Lane**
5 **ft Width of Paved Shoulder**
11 **ft Width of grass shoulder**
W = 28 **ft Total Width**

Drainage Area = 47600 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 47600 **ft^2** x 0.5 **inches**
PAV = 47600 **ft^2** x 0.04167 **ft**
PAV = 1983.33 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = **Drainage Area x delta Q**
Attenuation Volume Required = 4223.27 **ft^3**

SWALE ENDS AT (Sta 1286+00)

CULVERT AT (Sta 1287+00)

CULVERT AT (Sta 1396+00)

SWALE BEGINS AT (Sta 1396+40)

SEGMENT 3A (Sta 1396+40 to Sta 1406+00)

SEGMENT 3B (Sta 1406+00 to Sta 1420+00)

Sta		
1406+00	Bottom Ditch Elevation	77.59 ft NAVD
1406+00	Left Bank Elevation	79.09 ft NAVD
1420+00	Bottom Ditch Elevation	78.06 ft NAVD
1420+00	Left Bank Elevation	79.56 ft NAVD

L = 1400 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft depth of flow

Cross-section area@STA 1406+00
b = **15.2** ft
d = **1.5** ft

Cross-section area@STA 1420+00
b = **21.4** ft
d = **1.03** ft

A1 = 34.05 ft^2 End Area Section at STA 1406+00
A2 = 27.3465 ft^2 End Area Section at STA 1420+00
A avg 30.6983 ft^2 End Area Average
V = 42977.6 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 78.06 ft NAVD
y1 = 77.59 ft NAVD
L = 1400 **ft** Length of Segment

Slope = 0.0003357

Cross-section area@STA 1406+00
b = **15.2** ft
d = **0.26** ft **Iterated depth**

A = bd+5d^2

A = 4.29 ft^2 End area section@STA 1406+00
Aavg = 2.145 ft^2 End area section@STA 1406+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 774.46809 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1406+00
x = L

y = 77.85 ft NAVD
Elev. top of ditch block = 77.85 ft NAVD

b = 77.59 ft NAVD
L = 774.468 ft STA 1413+74.47
m = 0.00034

V = Avg End Area **x** L
PAV attained = 1661.23 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 1400 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft** **Total Width**

Drainage Area = 39200 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 39200 **ft^2** x 0.5 **inches**
PAV = 39200 **ft^2** x 0.04167 **ft**
PAV = 1633.33 **ft^3**

Pre-Development Q = 5.97741 **inches**
Post-Development Q = 6.80556 **inches**

delta Q= 0.82815 **inches**
delta Q= 0.06901 **ft**

Attenuation Volume Required = ***Drainage Area x delta Q***
Attenuation Volume Required = 2705.29 **ft^3**

SWALE ENDS AT (Sta 1420+00)

DRIVEWAY FROM (Sta 1420+10 to Sta 1420+95)

SWALE BEGINS AT (Sta 1421+20)

SEGMENT 3C (Sta 1421+20 to Sta 1426+30)

Sta

1420+00	Bottom Ditch Elevation	78.06 ft NAVD
1420+00	Left Bank Elevation	79.56 ft NAVD
1426+00	Bottom Ditch Elevation	77.02 ft NAVD
1426+00	Left Bank Elevation	78.52 ft NAVD

L = 600 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft depth of flow

Cross-section area @ STA 1420+00
b = 21.4 ft
d = 0.46 ft

Cross-section area @ STA 1426+00
b = 10.25 ft
d = 1.5 ft

A1 = 10.902 ft^2 End Area Section at STA 1420+00
A2 = 26.625 ft^2 End Area Section at STA 1426+00
A avg 18.7635 ft^2 End Area Average
V = 11258.1 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 77.02 ft NAVD
y1 = 78.06 ft NAVD
L = 600 **ft** Length of Segment

Slope = -0.001733

Cross-section area @ STA 1426+00
b = 10.25 ft
d = 0.45 ft **Iterated depth**

A = bd+5d^2

A = 5.625 ft^2 End area section @ STA 1426+00
Aavg = 2.8125 ft^2 End area section @ STA 1426+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = -259.6154 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @ STA 1160+00
x = L

y = 77.47 ft NAVD
Elev. top of ditch block = 77.47 ft NAVD

b = 77.02 ft NAVD
L = -259.615 ft STA 1422+59.62
m = -0.00173

V = Avg End Area x L
PAV attained = -730.17 ft^3 Pollution Abatement Volume Attained

Drainage Area = Length of Segment x Width

L = 600 **ft** Length of Segment
W = 12 **ft Width of Passing Lane**
5 **ft Width of Paved Shoulder**
11 **ft Width of grass shoulder**
W = 28 **ft Total Width**

Drainage Area = 16800 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 16800 **ft^2** x 0.5 **inches**
PAV = 16800 **ft^2** x 0.04167 **ft**
PAV = 700 **ft^3**

Pre-Development Q = 5.97741 **inches**
Post-Development Q = 6.80556 **inches**

delta Q= 0.82815 **inches**
delta Q= 0.06901 **ft**

Attenuation Volume Required = Drainage Area x delta Q
Attenuation Volume Required = 1159.41 ft^3

SWALE ENDS AT (Sta 1426+30)

SEGMENT 3D-A (Sta 1426+30 to Sta 1429+00)

CULVERT AT (Sta 1427+20)

SWALE BEGINS AT (Sta 1428+80)

SEGMENT 3D (Sta 1429+00 to Sta 1439+00)

Sta		
1429+00	Bottom Ditch Elevation	77.44 ft NAVD
1429+00	Left Bank Elevation	78.94 ft NAVD
1439+00	Bottom Ditch Elevation	78.98 ft NAVD
1439+00	Left Bank Elevation	80.48 ft NAVD

L = 1000 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b =	5 ft	bottom width of channel
d =	ft	depth of flow

Cross-section area@STA 1429+00

b =	**11.8** ft	
d =	**1.5** ft	

Cross-section area@STA 1439+00

b =	**16.3** ft	
d =	**0.04** ft	

A1 =	28.95 ft^2	End Area Section at STA 1429+00
A2 =	0.66 ft^2	End Area Section at STA 1439+00
A avg	14.805 ft^2	End Area Average
V =	14805 **ft^3**	**Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 =	78.98 ft NAVD	
y1 =	77.44 ft NAVD	
L =	1000 **ft**	Length of Segment

Slope = 0.00154

Cross-section area@STA 1429+00

b =	**11.8** ft	
d =	**0.51** ft	**Iterated depth**

A = bd+5d^2

A =	7.3185 ft^2	End area section@STA	1429+00
Aavg =	3.65925 ft^2	End area section@STA	1429+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 331.16883 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1429+00
x = L

y =	77.95 ft NAVD
Elev. top of ditch block =	77.95 ft NAVD

b =	77.44 ft NAVD	
L =	331.169 ft	STA 1432+31.17
m =	0.00154	

V = Avg End Area x L

PAV attained = 1211.83 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 1000 ft Length of Segment
W = 12 ft **Width of Passing Lane**
5 ft **Width of Paved Shoulder**
11 ft **Width of grass shoulder**
W = 28 ft **Total Width**

Drainage Area = 28000 ft^2

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 28000 ft^2 x 0.5 inches
PAV = 28000 ft^2 x 0.04167 ft
PAV = 1166.67 ft^3

Pre-Development Q = 5.97741 inches
Post-Development Q = 6.80556 inches

delta Q= 0.82815 inches
delta Q= 0.06901 ft

Attenuation Volume Required = **Drainage Area x delta Q**
Attenuation Volume Required = 1932.35 ft^3

SEGMENT 3E-F (Sta 1439+00 to Sta 1460+00)

Sta		
1439+00	Bottom Ditch Elevation	78.98 ft NAVD
1439+00	Left Bank Elevation	80.48 ft NAVD
1445+00	Bottom Ditch Elevation	79.55 ft NAVD
1445+00	Left Bank Elevation	81.05 ft NAVD
1451+00	Bottom Ditch Elevation	79.28 ft NAVD
1451+00	Left Bank Elevation	80.78 ft NAVD
1452+00	Bottom Ditch Elevation	79.42 ft NAVD
1452+00	Left Bank Elevation	80.92 ft NAVD
1458+00	Bottom Ditch Elevation	80.14 ft NAVD
1458+00	Left Bank Elevation	81.64 ft NAVD

L = 1900 ft Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2
b = 5 ft bottom width of channel
d = ft depth of flow

Cross-section area@STA 1439+00
b = **16.3** ft
d = **1.5** ft

Cross-section area@STA 1445+00
b = **18.975** ft
d = **0.93** ft

Cross-section area@STA 1451+00
b = **11.9** ft
d = **1.5** ft

Cross-section area@STA 1452+00

b = **12.1** ft
d = **1.36** ft

Cross-section area@STA 1458+00

b = **12.85** ft
d = **1.36** ft

A1 =	35.7 ft^2	End Area Section at STA 1439+00
A2 =	21.9713 ft^2	End Area Section at STA 1445+00
A avg	28.8356 ft^2	End Area Average between STA 1439+00 and STA 1445+00
V =	17301.4 **ft^3**	Volume of Storage Provided between STA 1439+00 and STA 1445+00
A3 =	21.9713 ft^2	End Area Section at STA 1445+00
A4 =	29.1 ft^2	End Area Section at STA 1451+00
A avg	25.5356 ft^2	End Area Average between STA 1445+00 and STA 1451+00
V =	15321.4 **ft^3**	Volume of Storage Provided between STA 1445+00 and STA 1451+00
A5 =	29.1 ft^2	End Area Section at STA 1451+00
A6 =	25.704 ft^2	End Area Section at STA 1452+00
A avg	27.402 ft^2	End Area Average between STA 1451+00 and STA 1452+00
V =	2740.2 **ft^3**	Volume of Storage Provided between STA 1451+00 and STA 1452+00
A7 =	25.704 ft^2	End Area Section at STA 1452+00
A8 =	26.724 ft^2	End Area Section at STA 1458+00
A avg	26.214 ft^2	End Area Average between STA 1452+00 and STA 1458+00
V =	15728.4 **ft^3**	Volume of Storage Provided between STA 1452+00 and STA 1458+00

V total = 35363 **ft^3** **Total Storage Volume between STA 1439+00 and STA 1458+00**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 79.55 ft NAVD
y1 = 78.98 ft NAVD
L = 600 **ft** Length of Segment

Slope = 0.00095

Cross-section area@STA 1439+00

b = **16.3** ft
d = **0.48** ft **Iterated depth**

A = bd+5d^2

A = 8.976 ft^2 End area section@STA 1439+00
Aavg = 4.488 ft^2 End area section@STA 1439+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 505.26316 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1160+00
x = L

y = 79.46 ft NAVD
Elev. of ditch block = 79.46 ft NAVD

b = 78.98 ft NAVD
L = 505.263 ft STA 1444+05.26
m = 0.00095

V = Avg End Area x L
PAV attained = 2267.62 ft^3 Pollution Abatement Volume Attained

Drainage Area = Length of Segment x Width

L = 1900 ft Length of Segment
W = 12 ft **Width of Passing Lane**
5 ft **Width of Paved Shoulder**
11 ft **Width of grass shoulder**
W = 28 ft **Total Width**

Drainage Area = 53200 ft^2

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 53200 ft^2 x 0.5 inches
PAV = 53200 ft^2 x 0.04167 **ft**
PAV = 2216.67 ft^3

Pre-Development Q = 5.97741 inches
Post-Development Q = 6.80556 inches

delta Q= 0.82815 inches
delta Q= 0.06901 ft

Attenuation Volume Required = ***Drainage Area x delta Q***
Attenuation Volume Required = 3671.47 ft^3

SWALE ENDS AT (Sta 1460+10)

DRIVEWAY FROM (Sta 1460+10 to Sta 1461+10)

SWALE BEGINS AT (Sta 1461+50)

SEGMENT 3G (Sta 1461+50 to Sta 1467+00)

SWALE ENDS AT (Sta 1467+00)

CULVERT AT (Sta 1467+40)

SEGMENT 4A (Sta 1514+80 to Sta 1521+00)

SWALE BEGINS AT (Sta 1514+80)

SWALE ENDS AT (Sta 1521+00)

CULVERT AT (Sta 1522+00)

SWALE BEGINS AT (Sta 1522+80)

SEGMENT 4B (Sta 1524+00 to Sta 1557+80)

Sta		
1524+00	Bottom Ditch Elevation	83.59 ft NAVD
1524+00	Left Bank Elevation	85.09 ft NAVD
1555+00	Bottom Ditch Elevation	84.85 ft NAVD
1555+00	Left Bank Elevation	86.35 ft NAVD

L = 3100 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft depth of flow

Cross-section area@STA 1524+00
b = **12.3** ft
d = **1.5** ft

Cross-section area@STA 1555+00
b = **12.5** ft
d = **0.24** ft

A1 = 29.7 ft^2 End Area Section at STA 1524+00
A2 = 3.288 ft^2 End Area Section at STA 1555+00
A avg 16.494 ft^2 End Area Average
V = 51131.4 **ft^3** **Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 84.85 ft NAVD
y1 = 83.59 ft NAVD
L = 3100 **ft** Length of Segment

Slope = 0.0004065

Cross-section area@STA 1524+00
b = **12.3** ft
d = **0.45** ft **Iterated depth**

A = bd+5d^2

A = 6.5475 ft^2 End area section @ STA 1524+00
Aavg = 3.27375 ft^2 End area section @ STA 1524+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = 1107.1429 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @ STA 1524+00
x = L

y = 84.04 ft NAVD
Elev. top of ditch block = 84.04 ft NAVD

b = 83.59 ft NAVD
L = 1107.14 ft STA 1535+07.10
m = 0.00041

V = Avg End Area x L
PAV attained = 3624.51 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 3100 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft** **Total Width**

Drainage Area = 86800 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 86800 **ft^2** x 0.5 **inches**
PAV = 86800 **ft^2** x 0.04167 **ft**
PAV = 3616.67 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

~~Attenuation Volume Required = Drainage Area x delta Q~~
Attenuation Volume Required = 7701.26 **ft^3**

SWALE ENDS AT (Sta 1557+80)

DRIVEWAY FROM (Sta 1557+95 to Sta 1558+25)

SWALE BEGINS AT (Sta 1558+60)

SEGMENT 4C (Sta 1558+60 to Sta 1585+00)

Sta		
1555+00	Bottom Ditch Elevation	84.85 ft NAVD
1555+00	Left Bank Elevation	86.35 ft NAVD
1582+00	Bottom Ditch Elevation	83.25 ft NAVD
1582+00	Left Bank Elevation	84.75 ft NAVD

L = 2700 **ft** Length of Segment

Area of Trapezoidal Cross-sectional area = bd + 5d^2

b = 5 ft bottom width of channel
d = ft depth of flow

Cross-section area @ STA 1555+00

b = **12.5** ft
d = **0.06** ft

Cross-section area @ STA 1582+00

b = **10.98** ft
d = **1.5** ft

A1 =	0.768 ft^2	End Area Section at STA 1555+00
A2 =	27.72 ft^2	End Area Section at STA 1582+00
A avg	14.244 ft^2	End Area Average
V =	38458.8 **ft^3**	**Volume of Storage Attainable**

Minimized Pollution Abatement Volume Storage

Slope of Ditch Segment

Slope = y2-y1/Length of Segment

y2 = 83.25 ft NAVD
y1 = 84.85 ft NAVD
L = 2700 **ft** Length of Segment

Slope = -0.000593

Cross-section area @ STA 1582+00

b = **11** ft
d = **0.53** ft **Iterated depth**

A = bd+5d^2

A =	7.2345 ft^2	End area section @ STA	1582+00
Aavg =	3.61725 ft^2	End area section @ STA	1582+00

L = depth/Slope (Calculated Length of Ditch Section based on the iterated depth)
L = -894.375 ft

y = mx +b
y = new upstream channel bottom Elevation
m= **Slope**
Elev.= beginning channel bottom Elevation @STA 1582+00
x = L

y = 85.38 ft NAVD
Elev. top of ditch block = 85.38 ft NAVD

b = 84.85 ft NAVD
L = -894.375 ft STA 1563+94.38
m = -0.00059

V = Avg End Area x L
PAV attained = -3235.2 **ft^3** **Pollution Abatement Volume Attained**

Drainage Area = Length of Segment x Width

L = 2700 **ft** Length of Segment
W = 12 **ft** **Width of Passing Lane**
5 **ft** **Width of Paved Shoulder**
11 **ft** **Width of grass shoulder**
W = 28 **ft Total Width**

Drainage Area = 75600 **ft^2**

Pollution Abatement Volume Required (PAV) = Drainage Area x 0.5 inches

PAV = 75600 **ft^2** x 0.5 **inches**
PAV = 75600 **ft^2** x 0.04167 **ft**
PAV = 3150 **ft^3**

Pre-Development Q = 5.85976 **inches**
Post-Development Q = 6.92445 **inches**

delta Q= 1.06469 **inches**
delta Q= 0.08872 **ft**

Attenuation Volume Required = ***Drainage Area x delta Q***
Attenuation Volume Required = 6707.55 **ft^3**

SEGMENT 4D (Sta 1585+60 to Sta 1590+80)

SWALE ENDS AT (Sta 1590+80)

CULVERT AT (Sta 1591+25)

SR 70 Flood Plain Compensation

Flood plain losses are calculated as all fill placed between the existing ground elevation of the plan cross sections, and the published FEMA flood elevation. Flood plain compensation is calculated as the soil removed in the compensation areas between the existing ground elevation of the plan cross sections and the estimated seasonal high water elevation. All elevations are referenced to NGVD '29. Gains and Losses are in cubic feet. The compensation swales are 28.5 feet wide in the first section, and 17.5 feet wide in the second to compensate for the Flood Plain fill and the Pollution Abatement Volumes in the treatment swale being unavailable for Flood Plain Compensation.

TOTALS

FROM	TO	FEMA	GROUND	ESHWT	LOSS	GAIN
1421+00	1432+00	81.25	79.15	78.15	26,297	28,304
1518+20	1529+00	86.25	84.92	83.92	13,721	16,085

1421+00 TO 1432+00	ELEVATION (NGVD)	LOSS (FT^3)	GAIN (FT^3)
	82		
		1804	0
	81		
		7444	0
	80		
		9660	80
	79		
		5522	20,889
	78		
		0	7335
	77		
		24,430	**28,304** << PAV INCLUDED
	ADD PAV >>	**26,297**	

1518+20 TO 1529+00	ELEVATION (NGVD)	LOSS (FT^3)	GAIN (FT^3)
	87		
		990	0
	86		
		3215	0
	85		
		5258	3235
	84		
		2392	9635
	83		
		0	3215
	82		
		11,854	**16,085** << PAV INCLUDED
	ADD PAV >>	**13,721**	

I. Water Quantity/Quality

POND NO.	AREA ACRES @ TOP OF BANK	TREATMENT TYPE
1137	0.76	Dry Retention
1150	0.46	Dry Retention
1175	0.66	Dry Retention
1179	0.41	Dry Retention
1200	1.04	Dry Retention
1205	0.44	Dry Retention
1208	0.53	Dry Retention
1218	0.53	Dry Retention
1226	0.25	Dry Retention
1237	0.23	Dry Retention
1249	0.34	Dry Retention
1277	1.31	Dry Retention
1397	0.68	Dry Retention
1406	0.48	Dry Retention
1426	0.16	Dry Retention
1429	0.22	Dry Retention
1439	0.35	Dry Retention
1462	0.29	Dry Retention
1520	0.51	Dry Retention
1524	0.83	Dry Retention
1582	0.62	Dry Retention
1591	0.48	Dry Retention
TOTAL	11.58	

Comments: This 137.00-acre roadway project receives treatment in adjacent roadway swale/ditch block system. Treatment is provided for the newly added passing lanes and new paved shoulder. Discharge is from periodically placed concrete weirs onto FDOT owned right of way, and then ultimately into the canal just north of the project. Areas abutting wetlands and deemed a hardship to treat receive compensatory treatment on the south side of the roadway beginning at Station 14+50 and running approximately 1,000 feet.

A mixing zone is not required.
A variance is not required.

II. 100-Year Floodplain

Encroachment (Acre-Feet of fill)	Compensation (Acre-Feet of excavation)	Compensation Type*		Encroachment Result**(feet)	
		NE	[ ]	Depth	[N/A]
0.60	0.60	EE	[X]	Depth	[N/A]
		SM	[ ]	Depth	[N/A]
		MI	[ ]	Depth	[N/A]

***Codes** [X] for the type or method of compensation provided are as follows:
NE = **N**o **E**ncroachment
EE = **E**quivalent **E**xcavation to offset project filling per Section 4.4 of the District's Basis of Review;
SM = **S**torage **M**odeling hydrographs of pond and receiving stages indicate timing separat
MI = **M**inimal **I**mpact based on modeling of existing stages vs. post-project encroachment.
N/A = **N**ot **A**pplicable

IMAGED AS IS

SECTION 3

METHODOLOGY

3.1 Water Quantity Methodology

The stormwater management system consists of sheet flow into a dry detention system. The pre-development SCS Curve number for all basins is 77 using 70 for the existing pervious area and 98 for the existing asphalt roadway (See Appendix B). With the addition of the new impervious area, the curve number increases to 81 for Basin N-1, 79 for Basin N-2, and 83 for Basin S-1. The curve number for Basin N-3 remains at 77 (See Appendix C). All curve number calculations utilize the following equation:

$$Cn = \frac{[(\text{Impervious Area}/\text{Basin Area}) * 98] + [(\text{Pervious Area}/\text{Basin Area}) * 70]}{2}$$

Due to the short flow length for the site, the existing and proposed time of concentrations for all basins fall below the ten minute minimum, therefore a Tc of 10 min was used for the calculations (See Appendix D). Based on the Cn and TOC values of Basin N-3, no net increase in flow will occur. Therefore, no water quantity is required for basin N-3. For the 25-year, 24-hour storm, peak values for the remaining basins are summarized in the following table (See Appendix E):

Table 3.1 Water Quantity Summary

N-3

Water Quantity	Basin S-1	Basin N-1	Basin N-2	Basin N-3
Peak Pre-Development (CFS) (25yr/24hr)	3.45	7.23	1.46	1.17
Peak Post-Development (CFS) (25yr/24hr)	3.85	7.80	1.52	1.17
Pre – Total Runoff Volume (c.f.) (25yr/24hr)	20,313	42,543	8,624	6,899
Post – Total Runoff Volume (c.f.) (25yr/24hr)	23,021	46,318	9,006	6,899
Volume Difference (c.f.) (25yr/24hr)	2,708	3,775	382	0

Ditch N-1 and ditch S-1 are designed to overflow the northern and southern banks of the ditches, respectively. Once the water overflows the bank, the stormwater will flow naturally as it did in the pre-

Table 3.2 Engineering Data Summary

Basin/Swale Data	S-1	N-1	N-2	N-3
Pond Bottom Elevation	76.5'	76.5'	77.5'	n/a
Seasonal High Water Elevation	75.0'	75.0'	75.0'	75.0'
Design Low Water Elevation	n/a	n/a	n/a	n/a
Weir Invert Elevation	n/a	n/a	n/a	n/a
Top of Bank Elevation	77.5	77.5	78.5	n/a
Area at Top of Bank (AC)	0.14	0.22	0.054	n/a
Volume at TOB (AC-FT)	0.08	0.22	0.06	n/a
Quantity				
Design High Water Elevation	77.5	77.5	78.5	n/a
Weir Width (FT) (25yr/24hr)	South Bank Length 500 ft	North Bank Length 1350 ft.	n/a	n/a
Peak Pre-Development (CFS) (25yr/24hr)	3.45	7.23	1.46	1.17
Peak Post-Development (CFS) (25yr/24hr)	3.85	7.80	1.52	1.17
Attenuated Post-Development (CFS) (25yr/24hr)	1.75	0.42	0.00	n/a
Quality				
Treatment Area (AC)	1.06	2.22	0.45	0.36
Treatment Vol. Required (AC-FT)	0.044	0.093	0.019	0.015
Treatment Vol. Provided (AC-FT)	0.08	0.22	0.054	Included in Swale N-2
Method of Treatment	Dry Retention	Dry Retention	Dry Retention	n/a
Recovery Time (HRS) – Required Treatment	2.08	34.19	2.63	n/a

3.3 Driveway Culvert

The proposed driveway culvert was sized based on the potential flow rate of the existing swale at the top of bank versus the potential flow rate of a concrete pipe flowing full. It was determined that a single 24"x38" elliptical concrete pipe would be able to convey the same volume of water as the existing ditch (See Appendix J).

SWFWMD ENGINEERING WORKSHEET

Page ____ of ____

PERMIT NO. 44008749.008

PERMIT NAME: FDOT - Florida Civil Commitment Center, SR 70 Improvement

										TOTALS
BASIN NO. - POND NO.				O or C	S-1	O	N-1	O	N-2	O	
POND DATA	POND BOTTOM ELEVATION				76.5		76.5		77.5		
	SEASONAL HIGH WATER ELEVATION				75.0		75.0		75.0		
	CONTROL DEVICE ELEVATION				/		/		/		
	DESIGN LOW WATER ELEVATION				/		/		/		
	WEIR INVERT ELEVATION				/		/		/		
	DESIGN HIGH WATER ELEVATION				77.5		77.5		78.5		
	TOP OF BANK ELEVATION				77.5		77.5		78.5		
	AREA AT TOP OF BANK (Ac.)				0.14		0.22		0.054		0.00
	VOLUME AT DHW (Ac.-Ft.)				0.08		0.22		0.054		
	VOLUME AT TOB (Ac.-Ft.)				0.08		0.22		0.054		
QUANTITY	25YR/24HR DISCHARGE RATES	WEIR WIDTH (FT)			/		/		/		
		PRE-DEVELOPED (CFS)			3.45		7.23		1.46		
		POST-DEVELOPED (CFS)			1.75		0.42		0.00		
	100YR/24HR RETENTION VOLUMES	PROVIDED (Ac.-Ft.)			/		/		/		
		REQUIRED (Ac.-Ft.)									
QUALITY	TREATMENT AREA		OFW? Y OR N		1.06	N	2.22	N	0.81	N	
	TREATMENT VOL. REQUIRED (Ac.-Ft.)				0.044		0.093		0.034		
	TREATMENT VOL. PROVIDED (Ac.-Ft.)				0.08		0.22		0.054		
	METHOD OF TREATMENT				online retention		Online retention		Online retention		
	CONTROL DEVICE TYPE				/		/		/		
	CONTROL DEVICE DIMENSIONS				/		/		/		
	RECOVERY TIME (Hrs.)				2.08		34.19		2.63		
100-YEAR FLOODPLAIN	ENCROACHMENT (Ac.-Ft.)				Total 0.34 ac-ft						0.00
	COMPENSATION (Ac.-Ft.)				Total 0.34 ac-ft						0.00
	COMPENSATION TYPE				E. E.						
	ENCROACHMENT RESULT (feet)				NA		NA		NA		0.00

COMMENTS: 1. S-1, N-1 and N-2 are roadside swales.

2. Compensation is provided at Florida Commitment Center project site. It is accounted as part of 19.34 ac-ft excavation, permited under No. 44008749.007. A Floodplain Compensation Agreement between Dept Children and Families & FDOT is provided. The 007 project is being modified under

42.00-045 (Rev 03/01)

SWFWMD ENGINEERING WORKSHEET

PERMIT NUMBER: **43008749.010** ERP Permit No. 8749.010

PERMIT NAME: **FDOT Desoto Recycling & Disposal SR 70 Improvements**

BASIN NO. – POND NO.			O OR C	N-1A	O	N-1B	O			TOTALS
POND DATA		POND BOTTOM ELEVATION		75.33		75.33				
		SEASONAL HIGH WATER ELEVATION		73.87		73.87				
		CONTROL DEVICE ELEVATION		76.33		76.33				
		DESIGN LOW WATER ELEVATION		75.33		75.33				
		WEIR INVERT ELEVATION		76.33		76.33				
		DESIGN HIGH WATER ELEVATION		76.33		76.33				
		TOP OF BANK ELEVATION		76.33		76.33				
		AREA AT TOP OF BANK (Ac.)		0.325		0.111				0.436
		VOLUME AT DHW (Ac.-Ft.)		0.2		0.066				
		VOLUME AT TOB (Ac.-Ft.)		0.2		0.066				
QUANTITY	25 YR/24 HR DISCHARGE RATES	WEIR WIDTH (ft)		1088		680				
		PRE-DEVELOPED (cfs)		4.91		3.64				
		POST-DEVELOPED (cfs)		1.89		3.92				
	100YR/24 HR RETENTION VOLUMES	PROVIDED (Ac.-Ft.)		--		--				
		REQUIRED (Ac.-Ft.)		--		--				
QUALITY	TREATMENT AREA (Ac)		OFW? Y/N	1.636	N	0.584	N			
	TREATMENT VOLUME REQUIRED (Ac.-Ft.)			0.068		0.047				
	TREATMENT VOLUME PROVIDED (Ac.-Ft.)			0.199		0.066				
	METHOD OF TREATMENT			Online Retention						
	CONTROL DEVICE TYPE			N/A		N/A				
	CONTROL DEVICE DIMENSIONS			N/A		N/A				
	RECOVERY TIMES (Hrs)			2.75		1.75				
100 YEAR FLOODPLAIN	ENCROACHMENT (Ac.-Ft.)			0.505		N/A				0.505
	COMPENSATION (Ac.-Ft.)			0.523		N/A				0.523
	COMPENSATION TYPE			Equivalent Excavation		N/A				Equivalent Excavation
	ENCROACHMENT RESULT (ft)			N/A		N/A				N/A

COMMENTS:❶❷❸❹

UserName *M. Soko* *Date 3/1/17*