ULTIMATE DRAINAGE FLOW CALCULATIONS

PROPOSED DRAINAGE FLOW CALCULATIONS

I.D. NO.	AREA (AC.)	Tc (MIN)	5 -YEAR				10 -YEAR				25 -YEAR				50 -YEAR				100 -YEAR				COMMENTS
			C	Ca	I (IN/HR)	Q (CFS)	C	Ca	I (IN/HR)	Q (CFS)	C	Ca	I (IN/HR)	Q (CFS)	C	Ca	I (IN/HR)	Q (CFS)	C	Ca	I (IN/HR)	Q (CFS)	
OUTFALL C: 77.820 CFS ALLOWED																							
C-1	2.890	10.0	0.90	1.00	6.10	15.87	0.90	1.00	7.10	18.47	0.90	1.00	8.30	21.59	0.90	1.00	9.00	23.41	0.90	1.00	9.80	25.49	DETENTION POND 1
C-2	3.920	10.0	0.90	1.00	6.10	21.52	0.90	1.00	7.10	25.05	0.90	1.00	8.30	29.28	0.90	1.00	9.00	31.75	0.90	1.00	9.80	34.57	C-2 STUBOUT TO DETENTION POND 1
C-3	0.735	10.0	0.90	1.00	6.10	4.04	0.90	1.00	7.10	4.70	0.90	1.00	8.30	5.49	0.90	1.00	9.00	5.95	0.90	1.00	9.80	6.48	FUTURE INLET TO C-2 STUBOUT
C-4	1.632	10.0	0.90	1.00	6.10	8.96	0.90	1.00	7.10	10.43	0.90	1.00	8.30	12.19	0.90	1.00	9.00	13.22	0.90	1.00	9.80	14.39	C-4 INLET TO DETENTION POND 1
C-5	9.955	10.0	0.90	1.00	6.10	54.65	0.90	1.00	7.10	63.61	0.90	1.00	8.30	74.36	0.90	1.00	9.00	80.64	0.90	1.00	9.80	87.80	C-5 STUBOUT TO DETENTION POND 1
C-6	0.996	10.0	0.90	1.00	6.10	5.47	0.90	1.00	7.10	6.36	0.90	1.00	8.30	7.44	0.90	1.00	9.00	8.07	0.90	1.00	9.80	8.78	C-6 INLET TO DETENTION POND 1
C-7	0.854	10.0	0.90	1.00	6.10	4.69	0.90	1.00	7.10	5.46	0.90	1.00	8.30	6.38	0.90	1.00	9.00	6.92	0.90	1.00	9.80	7.53	C-7 INLET TO DETENTION POND 1
C-8	0.180	10.0	0.90	1.00	6.10	0.99	0.90	1.00	7.10	1.15	0.90	1.00	8.30	1.34	0.90	1.00	9.00	1.46	0.90	1.00	9.80	1.59	C-8 INLET TO DETENTION POND 1
C-9	0.302	10.0	0.90	1.00	6.10	1.66	0.90	1.00	7.10	1.93	0.90	1.00	8.30	2.26	0.90	1.00	9.00	2.45	0.90	1.00	9.80	2.66	C-9 INLET TO DETENTION POND 1
C-10	2.500	10.0	0.90	1.00	6.10	13.73	0.90	1.00	7.10	15.98	0.90	1.00	8.30	18.68	0.90	1.00	9.00	20.25	0.90	1.00	9.80	22.05	ROOF DRAINS TO DETENTION POND 1
C-11	0.204	10.0	0.90	1.00	6.10	1.12	0.90	1.00	7.10	1.30	0.90	1.00	8.30	1.52	0.90	1.00	9.00	1.65	0.90	1.00	9.80	1.80	C-11 INLET TO DETENTION POND 1
C-12	0.940	10.0	0.90	1.00	6.10	5.16	0.90	1.00	7.10	6.01	0.90	1.00	8.30	7.02	0.90	1.00	9.00	7.61	0.90	1.00	9.80	8.29	C-12 INLET TO DETENTION POND 1
C-13	2.330	10.0	0.90	1.00	6.10	12.79	0.90	1.00	7.10	14.89	0.90	1.00	8.30	17.41	0.90	1.00	9.00	18.87	0.90	1.00	9.80	20.55	C-13 INLET TO DETENTION POND 1
C-14	0.267	10.0	0.90	1.00	6.10	1.47	0.90	1.00	7.10	1.71	0.90	1.00	8.30	1.99	0.90	1.00	9.00	2.16	0.90	1.00	9.80	2.35	C-14 INLET TO DETENTION POND 1.
C-15	0.584	10.0	0.90	1.00	6.10	3.21	0.90	1.00	7.10	3.73	0.90	1.00	8.30	4.36	0.90	1.00	9.00	4.73	0.90	1.00	9.80	5.15	C-15 INLET TO DETENTION POND 1
C-16	0.272	10.0	0.90	1.00	6.10	1.49	0.90	1.00	7.10	1.74	0.90	1.00	8.30	2.03	0.90	1.00	9.00	2.20	0.90	1.00	9.80	2.40	TO DETENTION POND 1
Total	**28.561**					**156.800**	**CFS**			**182.505**	**CFS**			**213.351**	**CFS**			**231.344**	**CFS**			**251.908**	**CFS**
OUTFALL D: 8.024 CFS ALLOWED																							
D-1	0.704	10.0	0.90	1.00	6.10	3.86	0.90	1.00	7.10	4.50	0.90	1.00	8.30	5.26	0.90	1.00	9.00	5.70	0.90	1.00	9.80	6.21	OUTFALL D (WEST SHEET FLOW BYPASS)
Total	**0.704**					**3.865**	**CFS**			**4.499**	**CFS**			**5.259**	**CFS**			**5.702**	**CFS**			**6.209**	**CFS**
OUTFALL E (UNDETAINED)																							
E-2	0.632	10.0	0.90	1.00	6.10	3.47	0.90	1.00	7.10	4.04	0.90	1.00	8.30	4.72	0.90	1.00	9.00	5.12	0.90	1.00	9.80	5.57	E-2 INLET
E-5	5.479	20.0	0.35	1.00	5.50	10.55	0.35	1.00	6.50	12.46	0.35	1.00	7.50	14.38	0.35	1.00	8.10	15.53	0.35	1.00	8.30	15.92	E-5 INLET TO OUTFALL E (FUTURE DETENTION REQUIRED
Total	**6.111**					**14.017**	**CFS**			**16.503**	**CFS**			**19.103**	**CFS**			**20.652**	**CFS**			**21.491**	**CFS**
OUTFALL E (DETAINED)																							
E-3	0.570	10.0	0.90	1.00	6.10	3.13	0.90	1.00	7.10	3.64	0.90	1.00	8.30	4.26	0.90	1.00	9.00	4.62	0.90	1.00	9.80	5.03	DETENTION POND 2
E-4	0.578	10.0	0.90	1.00	6.10	3.17	0.90	1.00	7.10	3.69	0.90	1.00	8.30	4.32	0.90	1.00	9.00	4.68	0.90	1.00	9.80	5.10	E-4 INLET
E-6	1.383	10.0	0.90	1.00	6.10	7.59	0.90	1.00	7.10	8.84	0.90	1.00	8.30	10.33	0.90	1.00	9.00	11.20	0.90	1.00	9.80	12.20	E-6 INLET
E-7	1.445	10.0	0.90	1.00	6.10	7.93	0.90	1.00	7.10	9.23	0.90	1.00	8.30	10.79	0.90	1.00	9.00	11.70	0.90	1.00	9.80	12.74	E-7 INLET
Total	**3.976**					**21.828**	**CFS**			**25.407**	**CFS**			**29.701**	**CFS**			**32.206**	**CFS**			**35.068**	**CFS**
OUTFALL E TOTAL: 40.385 CFS ALLOWED																							
UNDETAINED	6.111					14.02				16.50				19.10				20.65				21.49	DIRECTLY TO OUTFALL E
DETAINED	3.976					10.00				10.00				10.00				10.00				10.00	Q RELEASED FROM DETENTION POND 2 TO OUTFALL E
Total	**10.087**					**24.017**	**CFS**			**26.503**	**CFS**			**29.103**	**CFS**			**30.652**	**CFS**			**31.491**	**CFS**
OUTFALL F: 101.606 CFS ALLOWED																							
F-1	28.675	20.0	0.35	1.00	5.50	55.20	0.35	1.00	6.50	65.24	0.35	1.00	7.50	75.27	0.35	1.00	8.10	81.29	0.35	1.00	8.30	83.30	TO F-1 HEADWALL (FUTURE DETENTION REQUIRED)
F-2	0.330	10.0	0.90	1.00	6.10	1.81	0.90	1.00	6.50	1.93	0.90	1.00	8.30	2.47	0.90	1.00	9.00	2.67	0.90	1.00	9.80	2.91	TO F-2 INLET
F-3	0.230	10.0	0.90	1.00	6.10	1.26	0.90	1.00	6.50	1.35	0.90	1.00	8.30	1.72	0.90	1.00	9.00	1.86	0.90	1.00	9.80	2.03	TO F-3 INLET
F-4	4.583	20.0	0.35	1.00	5.50	8.82	0.35	1.00	6.50	10.43	0.35	1.00	7.50	12.03	0.35	1.00	8.10	12.99	0.35	1.00	8.30	13.31	TO F-4 HEADWALL
Total	**33.818**					**67.096**	**CFS**			**78.938**	**CFS**			**91.485**	**CFS**			**98.822**	**CFS**			**101.554**	**CFS**

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STATE OF TEXAS
WILLIAM R. WINKELMANN
120378
LICENSED
PROFESSIONAL ENGINEER

02-25-2025
THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY WILLIAM R. WINKELMANN, P.E. # 120378

ULTIMATE DRAINAGE FLOW CALCULATIONS

I-30 FRONTAGE RD & FM 3549
ROCKWALL, TX

63406

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IKEA @ ROCKWALL HEIGHTS

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