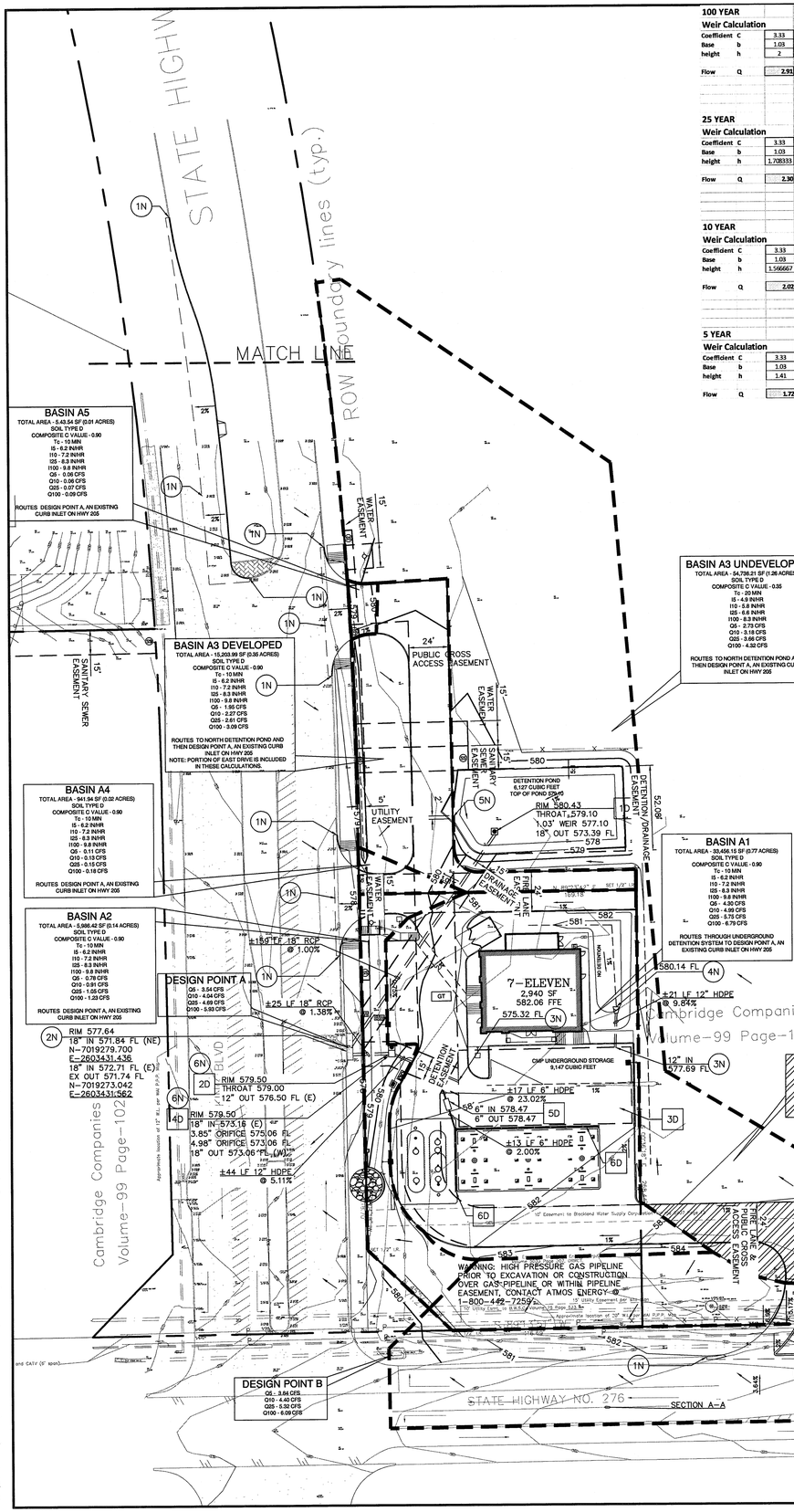

100 YEAR
Weir Calculation

Coefficient	C	3.33		
Base	b	1.03	ft	
height	h	2	ft	24 in
Flow	Q	2.91	cfs	

25 YEAR
Weir Calculation

Coefficient	C	3.33		
Base	b	1.03	ft	
height	h	1.708333	ft	20.5 in
Flow	Q	2.30	cfs	

10 YEAR
Weir Calculation

Coefficient	C	3.33		
Base	b	1.03	ft	
height	h	1.566667	ft	18.8 in
Flow	Q	2.02	cfs	

5 YEAR
Weir Calculation

Coefficient	C	3.33		
Base	b	1.03	ft	
height	h	1.41	ft	16.92 in
Flow	Q	1.72	cfs	

NORTH DETENTION POND OFF SITE
100 YEAR DETENTION CALCULATION

	Offsite Rate A3 Developed	Offsite Rate A3 Undeveloped	Pre Rate A3 & A4	Pond Bypass Rate A4+A5
Drainage Area (Ac)	0.35	1.26	1.1	0.03
Comp C-Factor	0.90	0.35	0.35	0.9

NOTE: THE PRE RATE AREA DOES NOT EQUAL POST DUE TO ADDITION OF A PORTION OF PRE DEVELOPED BASIN B

Duration Time (min)	Intensity for 100 yr storm (in/hr)	Offsite Rate A3 Developed (cfs)	Offsite Rate A3 Undeveloped (cfs)	Pre Rate A3 & A4 (cfs)	Pond Bypass Rate A4 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	9.8	3.09	4.32	3.20	0.26	2.93	4445.28	1758.54	2687
20	8.3	2.61	3.66	3.20	0.26	2.93	7529.76	2637.81	4892
30	6.9	2.17	3.04	3.20	0.26	2.93	9389.52	3517.08	5872
40	5.8	1.83	2.56	3.20	0.26	2.93	10523.52	4396.35	6127
50	5	1.58	2.21	3.20	0.26	2.93	11340.00	5275.62	6064
60	4.5	1.42	1.98	3.20	0.26	2.93	12247.20	6154.89	6092
70	4	1.26	1.76	3.20	0.26	2.93	12700.80	7034.16	5667
80	3.7	1.17	1.63	3.20	0.26	2.93	13426.56	7913.43	5513
90	3.5	1.10	1.54	3.20	0.26	2.93	14288.40	8792.70	5496
100	3.3	1.04	1.46	3.20	0.26	2.93	14968.80	9671.97	5297
110	2.9	0.91	1.28	3.20	0.26	2.93	14469.84	10551.24	3919

25 YEAR DETENTION CALCULATION

	Offsite Rate A3 Developed	Offsite Rate A3 Undeveloped	Pre Rate A3 & A4	Pond Bypass Rate A4+A5
Drainage Area (Ac)	0.35	1.26	1.1	0.03
Comp C-Factor	0.90	0.35	0.35	0.9

Duration Time (min)	Intensity for 25 yr storm (in/hr)	Offsite Rate A3 Developed (cfs)	Offsite Rate A3 Undeveloped (cfs)	Pre Rate A3 & A4 (cfs)	Pond Bypass Rate A4 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	8.3	2.61	3.66	2.54	0.22	2.32	3764.88	1390.14	2375
20	6.6	2.08	2.91	2.54	0.22	2.32	5987.52	2085.21	3902
30	5.5	1.73	2.43	2.54	0.22	2.32	7484.40	2780.28	4704
40	4.6	1.45	2.03	2.54	0.22	2.32	8346.24	3475.35	4871
50	4	1.26	1.76	2.54	0.22	2.32	9072.00	4170.42	4902
60	3.5	1.10	1.54	2.54	0.22	2.32	9525.60	4865.49	4660
70	3.25	1.02	1.43	2.54	0.22	2.32	10319.40	5560.56	4759
80	3	0.95	1.32	2.54	0.22	2.32	10886.40	6255.63	4631
90	2.8	0.88	1.23	2.54	0.22	2.32	11430.72	6950.70	4480
100	2.4	0.76	1.06	2.54	0.22	2.32	10886.40	7645.77	3241
110	2.2	0.69	0.97	2.54	0.22	2.32	10977.12	8340.84	2636

10 YEAR DETENTION CALCULATION

	Offsite Rate A3 Developed	Offsite Rate A3 Undeveloped	Pre Rate A3 & A4	Pond Bypass Rate A4+A5
Drainage Area (Ac)	0.35	1.26	1.1	0.03
Comp C-Factor	0.90	0.35	0.35	0.9

Duration Time (min)	Intensity for 10 yr storm (in/hr)	Offsite Rate A3 Developed (cfs)	Offsite Rate A3 Undeveloped (cfs)	Pre Rate A3 & A4 (cfs)	Pond Bypass Rate A4 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	7.2	2.27	3.18	2.23	0.19	2.04	3265.92	1223.16	2043
20	5.8	1.83	2.56	2.23	0.19	2.04	5261.76	1834.74	3427
30	4.8	1.51	2.12	2.23	0.19	2.04	6531.84	2446.32	4086
40	4	1.26	1.76	2.23	0.19	2.04	7257.60	3057.90	4200
50	3.4	1.07	1.50	2.23	0.19	2.04	7711.20	3669.48	4042
60	3	0.95	1.32	2.23	0.19	2.04	8164.80	4281.06	3884
70	2.9	0.91	1.28	2.23	0.19	2.04	9208.08	4892.64	4315
80	2.7	0.85	1.19	2.23	0.19	2.04	9797.76	5504.22	4294
90	2.4	0.76	1.06	2.23	0.19	2.04	9797.76	6115.80	3682
100	2.2	0.69	0.97	2.23	0.19	2.04	9979.20	6727.38	3252
110	2	0.63	0.88	2.23	0.19	2.04	9979.20	7338.96	2640

5 YEAR DETENTION CALCULATION

	Offsite Rate A3 Developed	Offsite Rate A3 Undeveloped	Pre Rate A3 & A4	Pond Bypass Rate A4+A5
Drainage Area (Ac)	0.35	1.26	1.1	0.03
Comp C-Factor	0.90	0.35	0.35	0.9

Duration Time (min)	Intensity for 5 yr storm (in/hr)	Offsite Rate A3 Developed (cfs)	Offsite Rate A3 Undeveloped (cfs)	Pre Rate A3 & A4 (cfs)	Pond Bypass Rate A4 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	6.2	1.95	2.73	1.89	0.17	1.72	2812.32	1031.46	1781
20	4.9	1.54	2.16	1.89	0.17	1.72	4445.28	1547.19	2898
30	4	1.26	1.76	1.89	0.17	1.72	5443.20	2062.92	3380
40	3.4	1.07	1.50	1.89	0.17	1.72	6168.96	2578.65	3590
50	2.9	0.91	1.28	1.89	0.17	1.72	6577.20	3094.38	3483
60	2.5	0.79	1.10	1.89	0.17	1.72	6804.00	3610.11	3194
70	2.4	0.76	1.06	1.89	0.17	1.72	7620.48	4125.84	3495
80	2.2	0.69	0.97	1.89	0.17	1.72	7983.36	4641.57	3342
90	2	0.63	0.88	1.89	0.17	1.72	8164.80	5157.30	3008
100	1.8	0.57	0.79	1.89	0.17	1.72	8164.80	5673.03	2492
110	1.6	0.50	0.71	1.89	0.17	1.72	7983.36	6188.76	1795

GENERAL DRAINAGE NOTES

1. AREA B DRAINS TO THE INLET ON THE NORTH SIDE OF 276. THIS DRAINAGE AREA LIES IN THE ATMOS ENERGY EASEMENT AND CANNOT BE USED FOR DETENTION. AREA A IS OVER DETAINING FOR THIS POST DEVELOPED AREA.
2. THE NORTH DETENTION POND WAS DESIGNED FOR THE DEVELOPMENT OF THE ACCESS DRIVES TO THE NORTH AND EAST OF THE 7-ELEVEN LOT. THIS POND WAS NOT DESIGNED FOR DEVELOPED CONDITIONS FOR BASIN A3. WHEN FUTURE DEVELOPMENT OCCURS THIS POND WILL NEED TO BE ADJUSTED TO ACCOUNT FOR THE ADDITIONAL STORMWATER RUNOFF.

GENERAL GRADING NOTES

1. ALL STORM PIPE MATERIAL SHALL COMPLY WITH LOCAL REGULATIONS.
2. CONTRACTOR SHALL INSURE THAT ALL STORM PIPE CONNECTIONS ARE WATER TIGHT.
3. ALL STORM SEWER STRUCTURES PLACED IN A PAVED AREA SHALL BE FLUSH WITH FINISH GRADE AND SHALL HAVE A TRAFFIC BEARING FRAME AND LID. ALL STORM SEWER STRUCTURES PLACED IN UNPAVED AREAS SHALL BE 6 INCHES ABOVE FINISH GRADE, UNLESS OTHERWISE NOTED.
4. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR PAVED AND UNPAVED AREAS.
5. ALL STORM STRUCTURES SHALL HAVE A UNIFORM SMOOTH POURED MORTAR SLOPE FROM INVERT IN TO INVERT OUT.
6. ALL STORM SEWER TRENCHING AND BEDDING SHALL BE PER NCTCOG 3RD EDITION AND ROCKWALL STANDARDS.
7. ALL FILL TO BE COMPACTED TO MIN OF 95% STANDARD DENSITY USING A SHEEP'S FOOT ROLLER.
8. ALL STORM STRUCTURES TO BE MIN 4,200 PSI WITH A 6.5 SACK MIX MINIMUM.
9. ALL DETENTION TO BE INSTALLED AND FUNCTIONING AS DESIGNED PRIOR TO ANY PAVING. FOR ABOVE GROUND DETENTION THE SIDES AND BOTTOM MUST HAVE SOD OR ANCHORED CURLEX PRIOR TO PAVING.

NOTES

1N. SAWCUT LINE/ MATCH EXISTING ELEVATIONS. MINIMUM 2 FEET. LONGITUDINAL BUTT JOINT AT 12"
2N. CONNECT TO EXISTING CURB INLET
3N. CONNECT TO EXISTING UNDERGROUND CMP STORAGE
4N. ADS FLARED END SECTION SEE DETAIL SHEET C7.1 FOR SPECIFICATIONS
5N. 2' CURB CUT
6N. 5' CURB INLET AND OUTFALL STRUCTURE SHALL SHARE A COMMON WALL WITH A 12" ORIFICE TO ALLOW STORM WATER CONVEYANCE.

DETAILS

1D. 4'x4' DROP INLET OUTFALL STRUCTURE
2D. 5' CURB INLET
3D. CONTECH CMP UNDERGROUND DETENTION
4D. 5' JUNCTION BOX OUTFALL STRUCTURE
5D. CONTECH VORTCLAREX OIL/WATER SEPARATOR

SCALE
40 0 40 80
1 inch = 40 ft.

N

PROPOSED

PROPERTY LINE
BREAKLINE
STORM SEWER
BASIN AREA
FLOW ARROW

TXDOT STANDARDS, SPECIFICATIONS, AND GUIDELINES MUST BE UTILIZED WITHIN TXDOT RIGHT OF WAY.

100 YEAR
Orifice 1 Calculation

Coefficient	C	0.6		
Diameter	d	4.98	in	0.415 ft
Open Area	A			0.135265 sq. ft.
	g	32.2	ft/s^2	
Head	H	35	in	2.9167 ft
Flow	Q	1.07	cfs	

Orifice 2 Calculation

Coefficient	C	0.6		
Diameter	d	3.85	in	0.320833 ft
Open Area	A			0.080844 sq. ft.
	g	32.2	ft/s^2	
Head	H	11	in	0.9167 ft
Flow	Q	0.34	cfs	

25 YEAR
Orifice 1 Calculation

Coefficient	C	0.6		
Diameter	d	4.98	in	0.415 ft
Open Area	A			0.135265 sq. ft.
	g	32.2	ft/s^2	
Head	H	26	in	2.1667 ft
Flow	Q	0.91	cfs	

Orifice 2 Calculation

Coefficient	C	0.6		
Diameter	d	3.85	in	0.320833 ft
Open Area	A			0.080844 sq. ft.
	g	32.2	ft/s^2	
Head	H	3	in	0.2500 ft
Flow	Q	0.12	cfs	

10 YEAR
Orifice 1 Calculation

Coefficient	C	0.6		
Diameter	d	4.98	in	0.415 ft
Open Area	A			0.135265 sq. ft.
	g	32.2	ft/s^2	
Head	H	24	in	2.0000 ft
Flow	Q	0.87		

5 YEAR
Orifice 1 Calculation

Coefficient	C	0.6		
Diameter	d	4.98	in	0.415 ft
Open Area	A			0.135265 sq. ft.
	g	32.2	ft/s^2	
Head	H	19.8	in	1.6500 ft
Flow	Q	0.78		

UNDERGROUND DETENTION
100 YEAR DETENTION CALCULATION

	Onsite Rate A1	Pre Rate A1 & A2	Pond Bypass Rate A2
Drainage Area (Ac)	0.77	0.91	0.14
Comp C-Factor	0.90	0.35	0.9

Duration Time (min)	Intensity for 100 yr storm (in/hr)	Onsite Rate (cfs)	Pre Rate A1 & A2 (cfs)	Pond Bypass Rate A2 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	9.8	6.79	2.64	1.23	1.41	4074.84	845.25	3230
20	8.3	5.75	2.64	1.23	1.41	6902.28	1267.88	5634
30	6.9	4.78	2.64	1.23	1.41	8607.06	1690.50	6917
40	5.8	4.02	2.64	1.23	1.41	9646.56	2113.13	7533
50	5	3.47	2.64	1.23	1.41	10395.00	2535.75	7859
60	4.5	3.12	2.64	1.23	1.41	11226.00	2958.38	8268
70	4	2.77	2.64	1.23	1.41	11642.40	3381.00	8261
80	3.7	2.56	2.64	1.23	1.41	12307.68	3803.63	8504
90	3.5	2.43	2.64	1.23	1.41	13097.70	4226.25	8871
100	3.3	2.29	2.64	1.23	1.41	13721.40	4648.88	9073
110	2.9	2.01	2.64	1.23	1.41	13264.02	5071.50	8193

25 YEAR DETENTION CALCULATION

	Onsite Rate A1	Pre Rate A1 & A2	Pond Bypass Rate A2
Drainage Area (Ac)	0.77	0.91	0.14
Comp C-Factor	0.90	0.35	0.9

Duration Time (min)	Intensity for 25 yr storm (in/hr)	Onsite Rate (cfs)	Pre Rate A1 & A2 (cfs)	Pond Bypass Rate A2 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	8.3	5.75	2.10	1.05	1.06	3451.14	633.78	2817
20	6.6	4.57	2.10	1.05	1.06	5488.56	950.67	4538
30	5.5	3.81	2.10	1.05	1.06	6860.70	1267.56	5593
40	4.6	3.19	2.10	1.05	1.06	7650.72	1584.45	6066
50	4	2.77	2.10	1.05	1.06	8316.00	1901.34	6415
60	3.5	2.43	2.10	1.05	1.06	8731.80	2218.23	6514
70	3.25	2.25	2.10	1.05	1.06	9459.45	2535.12	6924
80	3	2.08	2.10	1.05	1.06	9979.20	2852.01	7127
90	2.8	1.94	2.10	1.05	1.06	10478.16	3168.90	7309
100	2.4	1.66	2.10	1.05	1.06	9979.20	3485.79	6493
110	2.2	1.52	2.10	1.05	1.06	10062.36	3802.68	6260

10 YEAR DETENTION CALCULATION

	Onsite Rate A1	Pre Rate A1 & A2	Pond Bypass Rate A2
Drainage Area (Ac)	0.77	0.91	0.14
Comp C-Factor	0.90	0.35	0.9

Duration Time (min)	Intensity for 10 yr storm (in/hr)	Onsite Rate (cfs)	Pre Rate A1 & A2 (cfs)	Pond Bypass Rate A2 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	7.2	4.99	1.85	0.91	0.94	2993.76	564.06	2430
20	5.8	4.02	1.85	0.91	0.94	4823.28	846.09	3977
30	4.8	3.33	1.85	0.91	0.94	5987.52	1128.12	4859
40	4	2.77	1.85	0.91	0.94	6652.80	1410.15	5243
50	3.4	2.36	1.85	0.91	0.94	7068.60	1692.18	5376
60	3	2.08	1.85	0.91	0.94	7484.40	1974.21	5510
70	2.9	2.01	1.85	0.91	0.94	8440.74	2256.24	6185
80	2.7	1.87	1.85	0.91	0.94	8981.28	2538.27	6443
90	2.4	1.66	1.85	0.91	0.94	8981.28	2820.30	6161
100	2.2	1.52	1.85	0.91	0.94	9147.60	3102.33	6045
110	2	1.39	1.85	0.91	0.94	9147.60	3384.36	5763

5 YEAR DETENTION CALCULATION

	Onsite Rate A1	Pre Rate A1 & A2	Pond Bypass Rate A2
Drainage Area (Ac)	0.77	0.91	0.14
Comp C-Factor	0.90	0.35	0.9

Duration Time (min)	Intensity for 5 yr storm (in/hr)	Onsite Rate (cfs)	Pre Rate A1 & A2 (cfs)	Pond Bypass Rate A2 (cfs)	Outflow Allowed (cfs)	Inflow (cf)	Outflow (cf)	Required Storage (cf)
10	6.2	4.30	1.56	0.78	0.78	2577.96	467.67	2110
20	4.9	3.40	1.56	0.78	0.78	4074.84	701.51	3373
30	4	2.77	1.56	0.78	0.78	4989.60	935.34	4054
40	3.4	2.36	1.56	0.78	0.78	5654.88	1169.18	4486
50	2.9	2.01	1.56	0.78	0.78	6029.10	1403.01	4626
60	2.5	1.73	1.56	0.78	0.78	6237.00	1636.85	4600
70	2.4	1.66	1.56	0.78	0.78	6985.44	1870.68	5115
80	2.2	1.52	1.56	0.78	0.78	7318.08	2104.52	5214
90	2	1.39	1.56	0.78	0.78	7484.40	2338.35	5146
100	1.8	1.25	1.56	0.78	0.78	7484.40	2572.19	4912
110	1.6	1.11	1.56	0.78	0.78	7318.08	2806.02	4512

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POST DEVELOPED DRAINAGE MAP

AS-BUILT

SHEET: C2.3