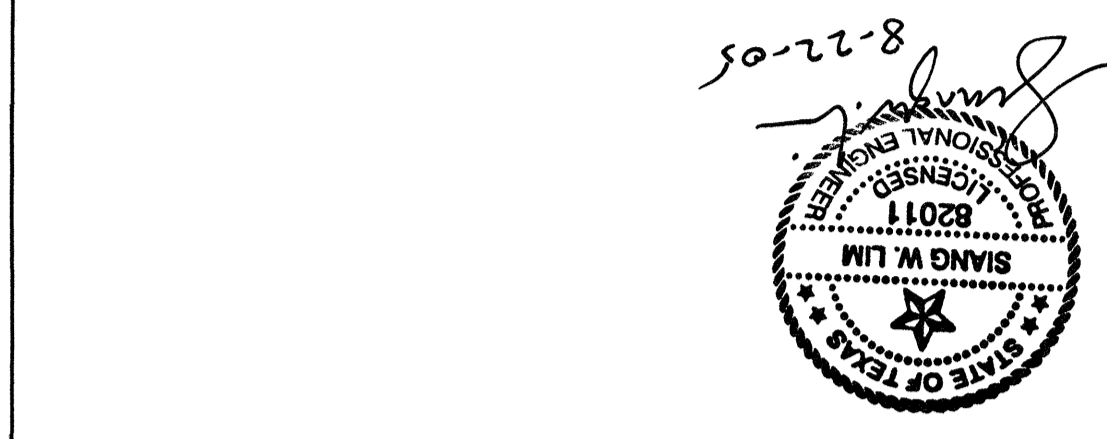


DESIGN NO.	FILE	NOTES	SCALE	DATE	DRAWN	LIM	LIM
			1" = 40'	AUG. 2005			

**LM & ASSOCIATES, Inc.**  
 Engineering & Surveying Consultants  
 1701 N. Marshall Street, Suite 405 / LB20  
 Dallas, Texas 75202  
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**DRAINAGE AREA MAP**  
**ROCKWALL OFFICE PARK**  
**CITY OF ROCKWALL**  
**ROCKWALL COUNTY, TEXAS**



CONTRACT: GWS, TELEPHONE, ELECTRICAL, TELEGRAPH AND OTHER RELEVANT AUTHORITIES AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

**CAUTION!!!**

REQUIRED STORAGE = 19,400 CU. FT.

Time	Td	C	I	A	Q	Inflow	Outflow Reg	Storage Volume (acre-ft)
1	10	0.682	9.80	3.78	25.26	15.158	6.594	8.554
2	15	0.682	9.00	3.78	23.20	20.881	8.243	12.639
3	20	0.682	8.30	3.78	21.40	25.676	9.891	15.785
4	30	0.682	6.90	3.78	17.79	32.018	13.188	18.830
5	40	0.682	5.80	3.78	14.95	35.885	14.485	18.830
6	50	0.682	5.00	3.78	12.89	38.669	16.191	18.887
7	60	0.682	4.30	3.78	11.09	39.907	23.079	16.828

Total Area contributing to pond (Areas 1, 2, 3, 8, 9) = 3.78 ac  
 Calculated "C" factor =  $(1.28 \times 0.9) + (1.50 \times 0.35) / 3.51 = 0.682$

DEVELOPED CONDITIONS  
 Area A1 0.81 ac, 7.14 cfs  
 Area A2 0.60 ac, 5.29 cfs  
 Area A3 0.47 ac, 4.15 cfs  
 Area A4 0.09 ac, 0.79 cfs  
 Area A5 0.13 ac, 1.15 cfs  
 Area A6 0.15 ac, 1.32 cfs  
 Area A7 0.03 ac, 0.26 cfs  
 Area A8 0.40 ac, 3.52 cfs  
 Area A9 1.50 ac, 4.36 cfs

10 Allowed Release from Pond = 10.99 cfs  
 14.50 cfs Released w/o Detention (Areas 4, 5, 6, 7) = 3.51 cfs  
 17.50 cfs (Total Allowed Release w/o Detention) = 7.88 (A8 & A9)  
 A (acres) = 6.62  
 Q (cfs) = 2.28 (A1 to A7)  
 I (100 yr intensity) = 8.3  
 Tc = 10 min  
 C = 0.35  
 Q-CIA = 7.88 (6.62)

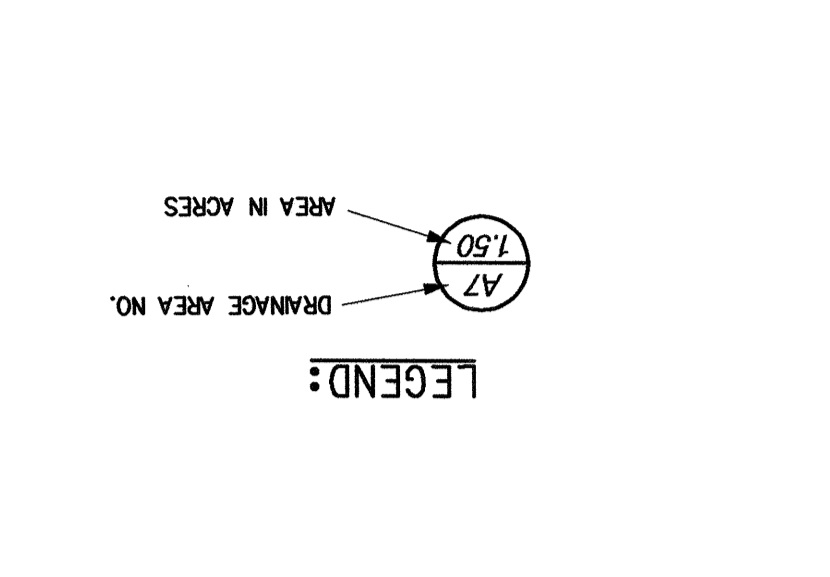
\* AREA NOT INCLUDED BY POND.

D.A. NO.	AREA (ac.)	Tc (min.)	C	100yr (in/hr)	Q100yr (cfs)	REMARKS
A1	0.81	10	0.90	9.8	7.14	
A2	0.60	10	0.90	9.8	5.29	
A3	0.47	10	0.90	9.8	4.15	
A4	0.09	10	0.90	9.8	0.79	
A5	0.13	10	0.90	9.8	1.15	
A6	0.15	10	0.90	9.8	1.32	
A7	0.03	10	0.90	9.8	0.26	
A8	0.40	10	0.90	9.8	3.52	OFFSITE
A9	1.50	20	0.35	8.3	4.36	OFFSITE

DRAINAGE CALCULATION TABLE

NOTE:  
 THESE PLANS HAVE BEEN REVISED TO CONFORM WITH CONSTRUCTION RECORDS PROVIDED BY THE CONTRACTOR. ENGINEER DID NOT CENTER TO FIELD VERIFYING ANY CHANGES MADE DURING CONSTRUCTION.

**AS-BUILT**



10 YEAR  
 Pre-development Q = 9.66 cfs  
 Post-development Q = 18.82 cfs  
 Volume Required = 10,682 CF  
 10-YR W.S. Elev = 548.92  
 Outlet L. Elev = 544.80  
 H = 4.12 ft  
 Q = 9.8 cfs max

50 YEAR  
 Pre-development Q = 11.81 cfs  
 Post-development Q = 23.20 cfs  
 Volume Required = 14,308 CF  
 50-YR W.S. Elev = 549.40  
 Outlet L. Elev = 544.80  
 H = 4.60 ft  
 Q = 10.3 cfs max

100 YEAR  
 Pre-development Q = 10.99 cfs  
 Post-development Q = 25.26 cfs  
 Volume Required = 19,400 CF  
 100-YR W.S. Elev = 550.03  
 Outlet L. Elev = 544.80  
 H = 5.23 ft  
 Q = 10.99 cfs max

POND DISCHARGE CALCULATIONS

Time	Td	C	I	A	Q	Inflow	Outflow Reg
1	10	0.682	9.80	3.78	25.26	15.158	6.594
2	15	0.682	9.00	3.78	23.20	20.881	8.243
3	20	0.682	8.30	3.78	21.40	25.676	9.891
4	30	0.682	6.90	3.78	17.79	32.018	13.188
5	40	0.682	5.80	3.78	14.95	35.885	14.485
6	50	0.682	5.00	3.78	12.89	38.669	16.191
7	60	0.682	4.30	3.78	11.09	39.907	23.079

DEVELOPED CONDITIONS  
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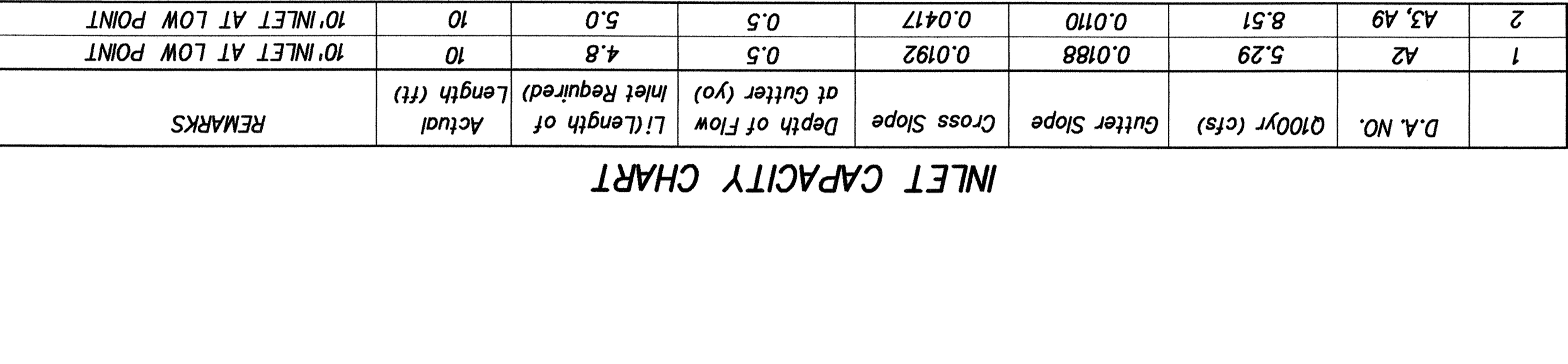
DEPTH VS. VOLUME CHART

ELEV. AREA	AREA (S.F.)	(C.F.)	CUMULATIVE VOL.
544.8	547	2682	277.2
546	818	327.2	327.2
548	4353	3517.5	5594.7
549	6720	5536.5	11131.2
550	9241	7980.5	19111.7
551	12103	10672	29783.7

DEPTH VS. VOLUME CHART

NOTE: VALUE OF LI OBTAINED FROM CITY DESIGN CALCULATION CHART.

D.A. NO.	Q100yr (cfs)	Gutter Slope	Cross Slope	Depth of Flow at Gutter (yo)	Inlet Length of Inlet Required	Actual Length (ft)	REMARKS
1	5.29	0.0188	0.0192	0.5	4.8	10	10' INLET AT LOW POINT
2	8.51	0.0110	0.0417	0.5	5.0	10	10' INLET AT LOW POINT



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POND DISCHARGE CALCULATIONS

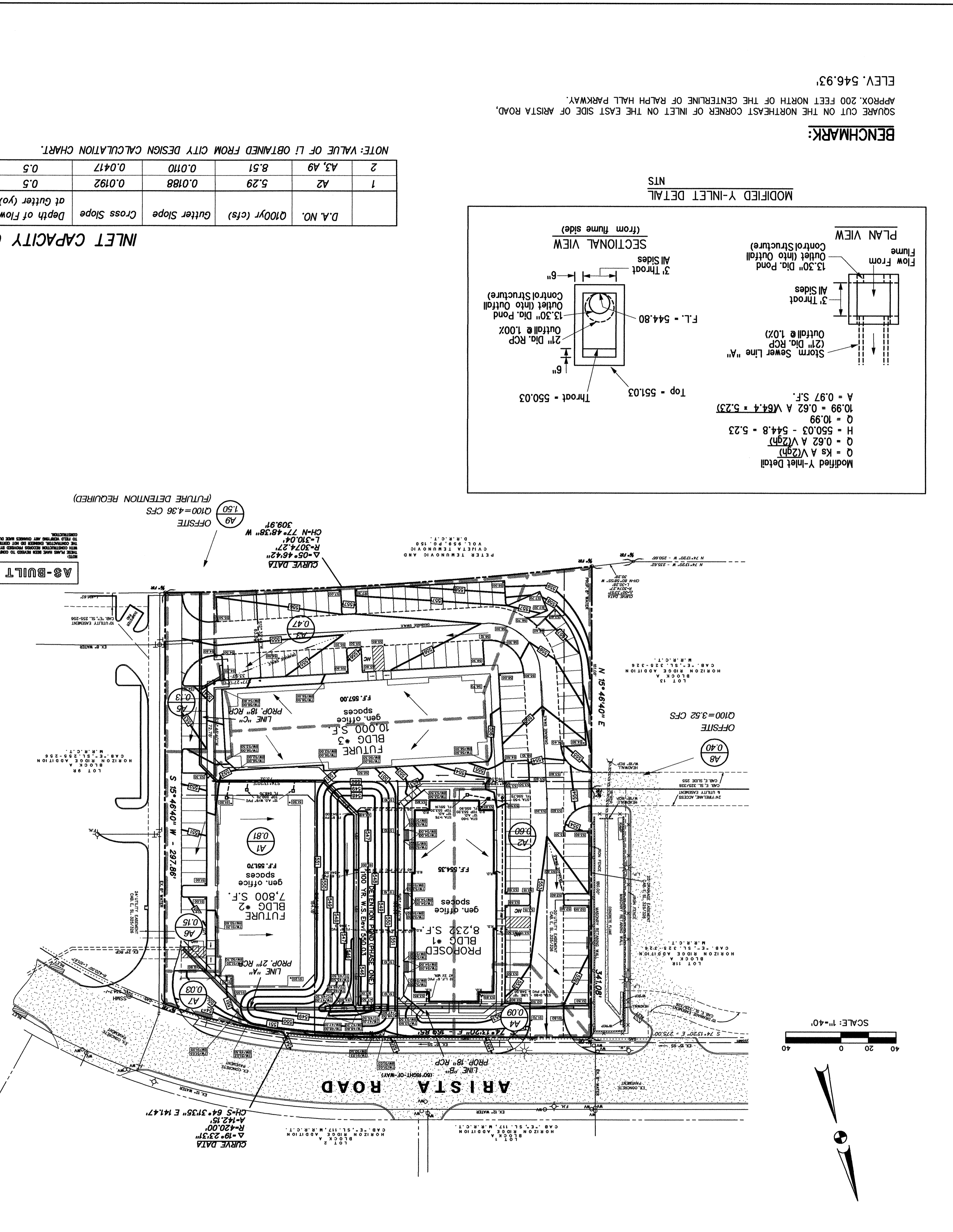
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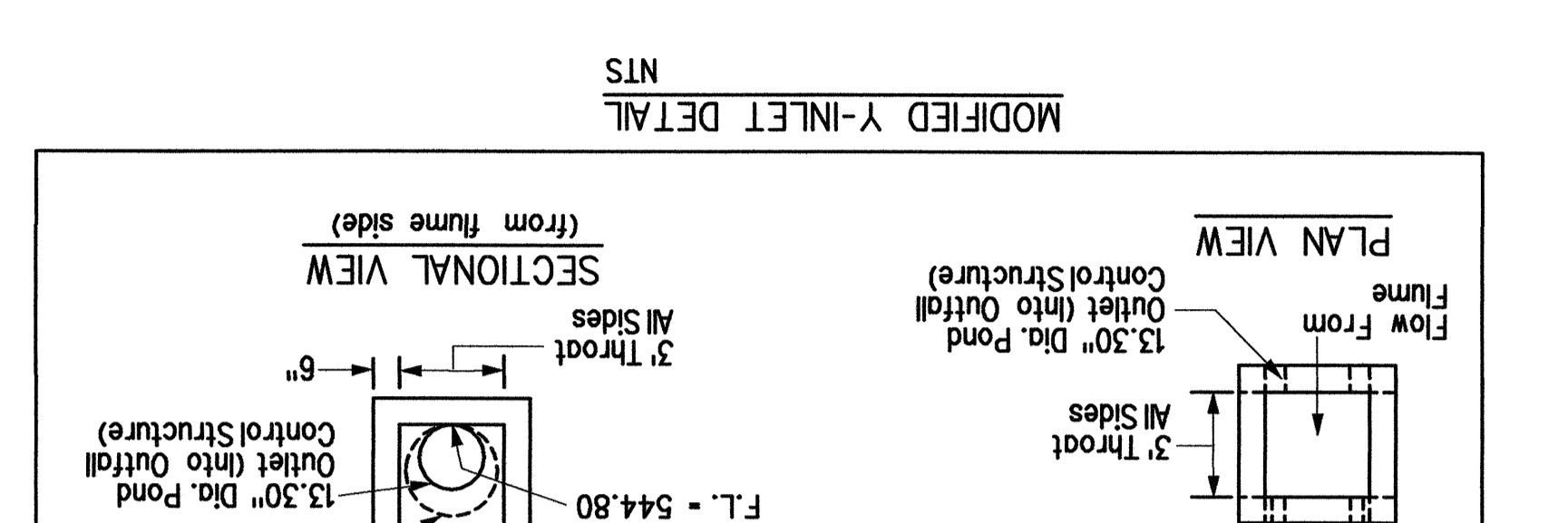
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551	12103	10672	29783.7

DEPTH VS. VOLUME CHART



BENCHMARK:  
 SQUARE CUT ON THE NORTHEAST CORNER OF INLET ON THE EAST SIDE OF ARISTA ROAD.  
 APPROX. 200 FEET NORTH OF THE CENTERLINE OF RALPH HALL PARKWAY.  
 ELEV. 546.93'



Modified Y-Inlet Detail  
 Q = Ks A V<sup>2/3</sup>  
 Q = 0.62 A V<sup>2/3</sup>  
 H = 550.03 - 544.8 = 5.23  
 Q = 10.99  
 A = 0.97 S.F.  
 $10.99 = 0.62 A \sqrt{6.4} = 5.23$

