

**SOUTH REGIONAL DETENTION POND**

**Detention Computations for 5 yr Proposed Development**  
City of Rockwall

	Undeveloped	Developed	Bypass
Area	A= 11,610 AC	10,010 AC	1,270
Runoff Coefficient	C= 0.35	0.80	0.80
Time of Concentration	Tc= 20.0 MIN	10.0 MIN	10.0
Rainfall Intensity	I5= 4.90 IN/HR	6.10 IN/HR	6.10
Peak Rate of Runoff	Q5= 19.9 CFS	48.8 CFS	6.2
Allowable Outflow	Q5= 13.7 CFS		

Tc	I5	Q5	Inflow	Outflow	Storage	Required
MIN	IN/HR	CFS	CF	CF	AC-FT	AC-FT
5	7.00	56.1	16,817	6,171	10,646	0.244
10	6.10	48.8	29,309	8,228	21,081	0.484
15	5.50	44.0	39,640	10,285	29,354	0.674
20	4.90	39.2	47,087	12,342	34,745	0.798
30	4.10	32.8	59,099	16,456	42,643	0.979
40	3.40	27.2	65,345	20,570	44,775	1.028
50	2.80	22.4	67,267	24,684	42,583	0.978
60	2.60	20.8	74,955	28,798	46,156	1.060
90	2.10	16.8	90,811	41,141	49,670	1.140
100	1.90	15.2	91,291	45,255	46,036	1.057
110	1.80	14.4	95,135	49,369	45,766	1.051
120	1.60	12.8	92,252	53,483	38,769	0.890

**Detention Computations for 25 yr Proposed Development**  
City of Rockwall

	Undeveloped	Developed	Bypass
Area	A= 11,610 AC	10,010 AC	1,270
Runoff Coefficient	C= 0.35	0.80	0.80
Time of Concentration	Tc= 20.0 MIN	10.0 MIN	10.0
Rainfall Intensity	I25= 6.60 IN/HR	8.30 IN/HR	8.30
Peak Rate of Runoff	Q25= 26.8 CFS	66.5 CFS	8.4
Allowable Outflow	Q25= 18.4 CFS		

Tc	I25	Q25	Inflow	Outflow	Storage	Required
MIN	IN/HR	CFS	CF	CF	AC-FT	AC-FT
5	9.30	74.5	22,342	8,274	14,068	0.323
10	8.30	66.5	39,880	11,032	28,848	0.662
15	7.50	60.1	54,054	13,790	40,264	0.924
20	6.60	52.9	63,423	16,548	46,876	1.076
30	5.50	44.0	79,279	22,064	57,216	1.313
40	4.60	36.8	88,408	27,579	60,829	1.396
50	4.00	32.0	96,096	33,095	63,001	1.446
60	3.50	28.0	100,901	38,611	62,290	1.430
90	2.90	23.2	125,405	55,159	70,246	1.613
100	2.70	21.6	129,730	60,675	69,055	1.585
110	2.50	20.0	132,132	66,191	65,941	1.514
120	2.20	17.6	126,847	71,707	55,140	1.266

**Detention Computations for 10 yr Proposed Development**  
City of Rockwall

	Undeveloped	Developed	Bypass
Area	A= 11,610 AC	10,010 AC	1,270
Runoff Coefficient	C= 0.35	0.80	0.80
Time of Concentration	Tc= 20.0 MIN	10.0 MIN	10.0
Rainfall Intensity	I10= 5.90 IN/HR	7.10 IN/HR	7.10
Peak Rate of Runoff	Q10= 24.0 CFS	56.9 CFS	7.2
Allowable Outflow	Q10= 16.8 CFS		

Tc	I10	Q10	Inflow	Outflow	Storage	Required
MIN	IN/HR	CFS	CF	CF	AC-FT	AC-FT
5	8.30	66.5	19,940	7,542	12,397	0.285
10	7.10	56.9	34,114	10,057	24,057	0.552
15	6.50	52.1	46,847	12,571	34,276	0.787
20	5.90	47.2	56,697	15,085	41,612	0.955
30	4.80	38.4	69,189	20,113	49,076	1.127
40	4.00	32.0	76,877	25,142	51,735	1.188
50	3.50	28.0	84,084	30,170	53,914	1.238
60	3.00	24.0	86,486	35,198	51,288	1.177
90	2.50	20.0	108,108	50,283	57,825	1.327
100	2.40	19.2	115,315	55,311	60,004	1.377
110	2.30	18.4	121,561	60,340	61,222	1.405
120	1.70	13.6	98,018	65,368	32,650	0.750

**Detention Computations for 50 yr Proposed Development**  
City of Rockwall

	Undeveloped	Developed	Bypass
Area	A= 11,610 AC	10,010 AC	1,270
Runoff Coefficient	C= 0.35	0.80	0.80
Time of Concentration	Tc= 20.0 MIN	10.0 MIN	10.0
Rainfall Intensity	I50= 7.50 IN/HR	9.00 IN/HR	9.00
Peak Rate of Runoff	Q50= 30.5 CFS	72.1 CFS	9.1
Allowable Outflow	Q50= 21.3 CFS		

Tc	I50	Q50	Inflow	Outflow	Storage	Required
MIN	IN/HR	CFS	CF	CF	AC-FT	AC-FT
5	10.00	80.1	24,024	9,600	14,424	0.331
10	9.00	72.1	43,243	12,799	30,444	0.699
15	8.10	64.9	58,378	15,999	42,379	0.973
20	7.50	60.1	72,072	19,199	52,873	1.214
30	6.10	48.8	87,928	25,599	62,329	1.431
40	5.20	41.6	99,940	31,998	67,941	1.560
50	4.50	36.0	108,108	38,398	69,710	1.600
60	3.90	31.2	112,432	44,798	67,635	1.553
90	3.30	26.4	142,703	63,997	78,706	1.807
100	3.00	24.0	144,144	70,396	73,748	1.693
110	2.90	23.2	153,273	76,796	76,477	1.756
120	2.40	19.2	138,378	83,196	55,182	1.267

**Detention Computations for 100 yr Proposed Development**  
City of Rockwall

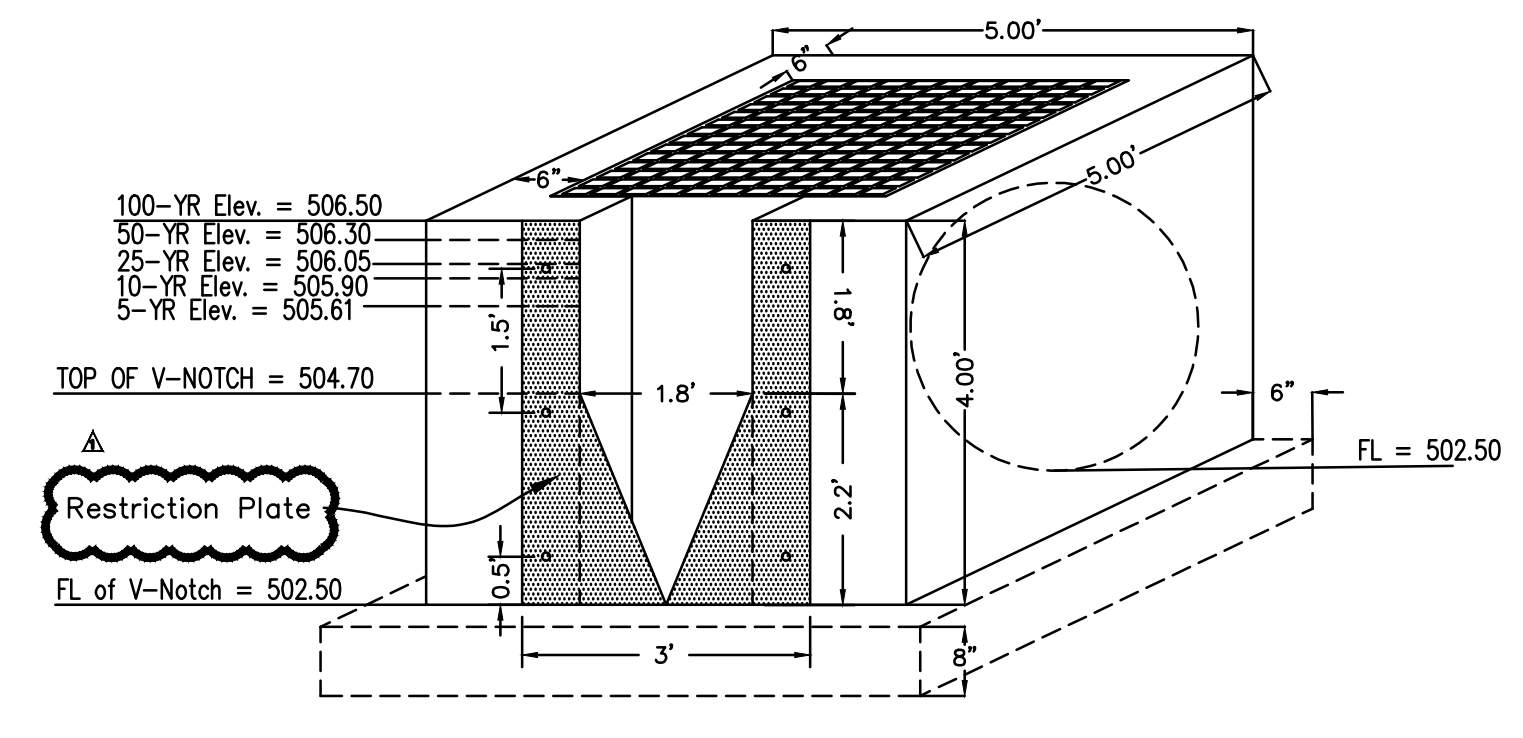
	Undeveloped	Developed	Bypass
Area	A= 11,610 AC	10,010 AC	1,270
Runoff Coefficient	C= 0.35	0.80	0.80
Time of Concentration	Tc= 20.0 MIN	10.0 MIN	10.0
Rainfall Intensity	I100= 8.30 IN/HR	9.80 IN/HR	9.80
Peak Rate of Runoff	Q100= 33.7 CFS	78.5 CFS	10.0
Allowable Outflow	Q100= 23.8 CFS		

Tc	I100	Q100	Inflow	Outflow	Storage	Required
MIN	IN/HR	CFS	CF	CF	AC-FT	AC-FT
5	10.70	85.7	25,706	10,697	15,009	0.345
10	9.80	78.5	47,087	14,262	32,825	0.754
15	9.00	72.1	64,865	17,828	47,037	1.080
20	8.30	66.5	79,760	21,393	58,366	1.340
30	6.90	55.3	99,459	28,524	70,935	1.628
40	5.80	46.4	111,471	35,655	75,816	1.740
50	5.00	40.0	120,120	42,786	77,334	1.775
60	4.50	36.0	129,730	49,918	79,812	1.832
90	3.50	28.0	151,351	71,311	80,040	1.837
100	3.40	27.2	163,363	78,442	84,921	1.950
110	3.20	25.6	169,129	85,573	83,556	1.918
120	2.70	21.6	155,676	92,704	62,972	1.446

**Rockwall, Texas**  
Overall Detention Computations for Ladera RW South Pond 17191

	Undeveloped	Developed	Bypass
Area	A(ac)= 11.610	10.010	1.270
Runoff Coefficient	C= 0.350	0.800	0.800
Time of Concentration	Tc(min)= 20.0	10.0	10.0

STORM YEAR	I IN/HR	Qundev CFS	I IN/HR	Qin CFS	Qbypass CFS	Qout CFS	REQUIRED AC-FT	REQUIRED CF
5	4.90	19.9	6.10	48.8	6.2	13.7	1.1403	49670.07
10	5.90	24.0	7.10	56.9	7.2	16.8	1.4055	61221.66
25	6.60	26.8	8.30	66.5	8.4	18.4	1.6126	70246.38
50	7.50	30.5	9.00	72.1	9.1	21.3	1.8068	78705.81
100	8.30	33.7	9.80	78.5	10.0	23.8	1.9495	84921.38

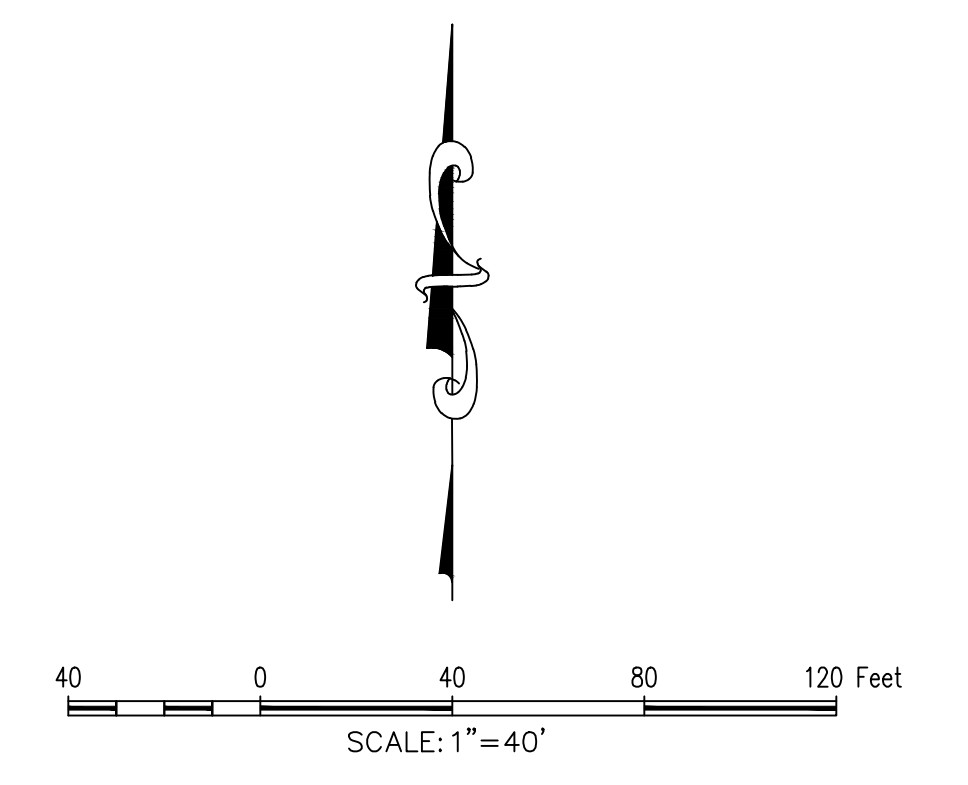


**Detail of Proposed South Detention Pond Structure (N.T.S.)**

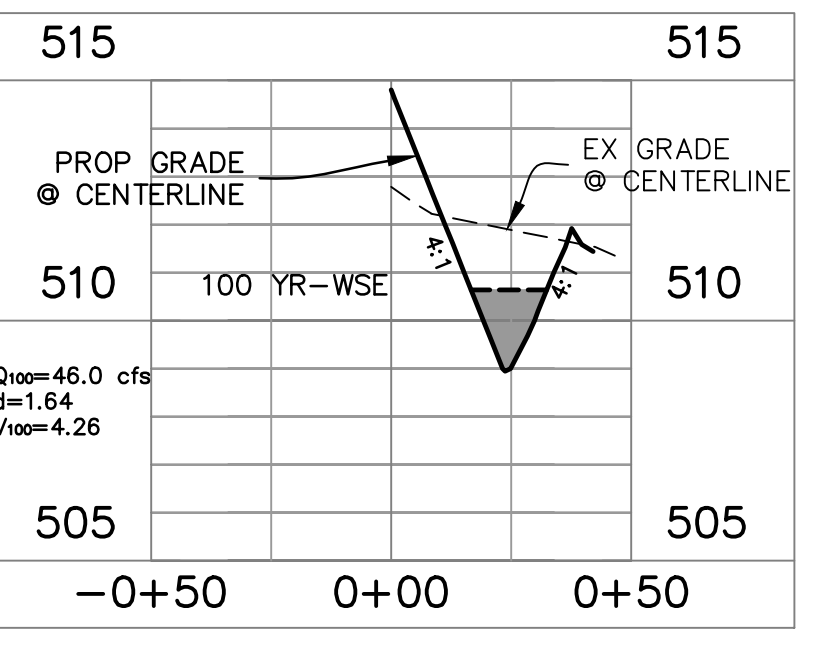
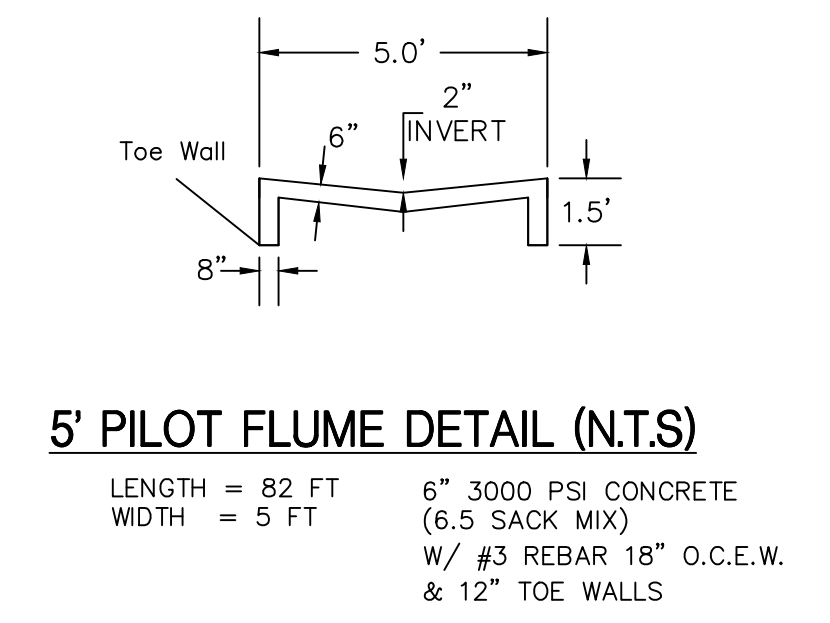
- Notes:
- 4,200 psi conc. w/ #4 bars 12" O.C.E.W, min 7.0 sack mix
  - The sides and front of the outlet structure is to be clad in stone.
  - Outlet pipe to be a 36" RCP FL= 502.50
  - Opening is to be field cut or factory furnished
  - V-Notch Restriction Plate to be 1/2" thick steel plate, affixed to the outlet structure with 1/2" stainless steel bolts drilled & epoxied into place.

**South Pond Storage Summary**

Year	Ex. Q** (cfs)	Allowed Q* (cfs)	Pond. Elev. (ft.)	Outlet Elev. (ft.)	Q Released (cfs.)	Storage (cf.)
5	19.90	13.70	505.61	502.50	13.70	50,035
10	24.00	16.80	505.90	502.50	16.80	61,305
25	26.80	18.40	506.05	502.50	18.40	70,450
50	30.50	21.30	506.30	502.50	21.30	79,500
100	33.70	23.80	506.50	502.50	23.80	85,200



BM: CITY OF ROCKWALL CONTROL MONUMENT "COR-1" CALLED ELEV. 523.27. MEASURED ELEV. = 523.56  
 BM: CITY OF ROCKWALL CONTROL MONUMENT "COR-2" CALLED ELEV. 529.10. MEASURED ELEV. = 529.37



**CROSS SECTION A-A**

**AS-BUILT RECORD DRAWING**

TO THE BEST OF OUR KNOWLEDGE, THE JOHN R. MCADAMS COMPANY, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.

MCADAMS, *Michael D. Duval*  
 Date: 5/2/2020

The John R. McAdams Company, Inc.  
 111 Hillside Drive  
 Lewisville, Texas 75057  
 972.436.9712  
 201 Country View Drive  
 Rockwall, Texas 75087  
 940.240.1012  
 TBP#: 19762 TBPUS: 10194440  
 www.jrmco.com

**MCADAMS**  
 LADERA ROCKWALL PHASE 1

**LADERA ROCKWALL PHASE 1**  
 Lot 1, Block A & Lot 1, Block B  
 LADERA ROCKWALL  
 47.694 Acres  
 M. JONES SURVEY, ABSTRACT NO. 122  
 CITY OF ROCKWALL  
 ROCKWALL COUNTY, TEXAS

**DETENTION CALCULATIONS**

STATE OF TEXAS  
 MICHAEL D. DUVAL  
 133095  
 LICENSED PROFESSIONAL ENGINEER

MCADAMS  
 TBP#: 19762

GENERAL NOTES

- ALL RESPONSIBILITIES FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.
- REGIONAL DETENTION PONDS SIZED FOR RESIDENTIAL DEVELOPMENT, WILL NEED TO BE RESIZED FOR FUTURE COMMERCIAL DEVELOPMENT.
- FOR MORE INFORMATION ON THE CROSS SECTIONS FOR THE ULTIMATE 100 YR FLOODPLAIN REFER TO "HYDROLOGIC AND HYDRAULIC STUDY IN SUPPORT OF LADERA ROCKWALL DEVELOPMENT" PREPARED BY JEA-HYDROTECH ENGINEERING, INC.

Drawn By: MD  
 Date: 02/23/2018  
 Scale: 1"=40'  
 Revisions:  
 04/23/2018  
 07/16/2018  
 09/06/2018  
 01/28/2019  
 02/11/2019  
 03/11/2019 Signed  
 04/17/2019

**17191**

**C36**

OWNER/DEVELOPER  
 RW LADERA, LLC.  
 361 W. BYRON NELSON BLVD, STE. 104  
 ROANOK, TX 76262  
 Ph. 817.430.3318  
 Contact: John Dellin