

MODIFIED RATIONAL METHOD (DETENTION VOLUME CALCULATIONS)
North Side Addison Airport 1.67-acre Tract

INPUT:
Area: 0.730 acre
Top: 10 min
Runoff Coefficient: 0.9
Peak Inflow: 5.800 cfs
Max. Outflow: 1.66 cfs

$S = (60 \times \text{inflow} \times \text{td}) - (0.5 \times 1.66 (\text{top} + \text{td}) 60)$
where:
S = Storage Volume Required (cf)
td = storm duration (min)
top = time of concentration (min)

OUTPUT:

Interval	Duration (min)	Intensity (in/hr)	Qin (cfs)	Volume (in) (cf)	Volume (out) (cf)	Volume (storage) (cf)
1	5	10.37	6.8	2,044	747	1,297
2	10	8.76	5.8	3,453	996	2,457
3	15	7.65	5.0	4,523	1,245	3,278
4	20	6.93	4.5	5,385	1,494	3,891
5	25	6.20	4.1	6,110	1,743	4,367
6	30	5.69	3.7	6,729	1,992	4,737
7	35	5.35	3.5	7,361	2,241	5,140
8	40	4.93	3.2	7,774	2,490	5,284
9	45	4.60	3.0	8,160	2,739	5,421
10	50	4.37	2.9	8,613	2,988	5,625
11	55	4.20	2.8	9,106	3,237	5,869
12	60	3.95	2.6	9,343	3,486	5,857
13	70	3.56	2.3	9,823	3,984	5,839
14	80	3.27	2.1	10,312	4,482	5,830
15	90	3.04	2.0	10,785	4,980	5,805

RAINFALL INTENSITIES (1):

Storm Event (yr)	Intensity (in/hr)
100	10.37
5	8.76
15	7.65
20	6.93
25	6.20
30	5.69
35	5.35
40	4.93
45	4.60
50	4.37
55	4.20
60	3.95
70	3.56
80	3.27
90	3.04

North Detention Area - Landscaped Sump

Area = 0.73 Acres
C = 0.35
I = 7.65
Q (max release rate) = 1.66 CFS

Release Structure - 8" Sch 40 PVC Pipe

BENCH MARK:
FOUND SQUARE CUT ON TOP OF INLET AT
NORTHWEST CORNER OF WESTGROVE ROAD
AND SUNBELT. ELEV. 629.54

MODIFIED RATIONAL METHOD (DETENTION VOLUME CALCULATIONS)
Southeast Side Addison Airport 1.67-acre Tract

INPUT:
Area: 0.250 acre
Top: 10 min
Runoff Coefficient: 0.9
Peak Inflow: 2.000 cfs
Max. Outflow: 0.964 cfs

$S = (60 \times \text{inflow} \times \text{td}) - (0.5 \times 0.964 (\text{top} + \text{td}) 60)$
where:
S = Storage Volume Required (cf)
td = storm duration (min)
top = time of concentration (min)

OUTPUT:

Interval	Duration (min)	Intensity (in/hr)	Qin (cfs)	Volume (in) (cf)	Volume (out) (cf)	Volume (storage) (cf)
1	5	10.37	2.3	700	434	266
2	10	8.76	2.0	1,183	578	604
3	15	7.65	1.7	1,949	723	826
4	20	6.93	1.5	1,844	868	977
5	25	6.20	1.4	2,093	1,012	1,080
6	30	5.69	1.3	2,304	1,157	1,148
7	35	5.35	1.2	2,528	1,301	1,226
8	40	4.93	1.1	2,662	1,446	1,216
9	45	4.60	1.0	2,795	1,591	1,204
10	50	4.37	1.0	2,950	1,735	1,215
11	55	4.20	0.9	3,119	1,880	1,239
12	60	3.95	0.9	3,200	2,024	1,175
13	70	3.56	0.8	3,364	2,314	1,051
14	80	3.27	0.7	3,532	2,603	929
15	90	3.04	0.7	3,694	2,892	802

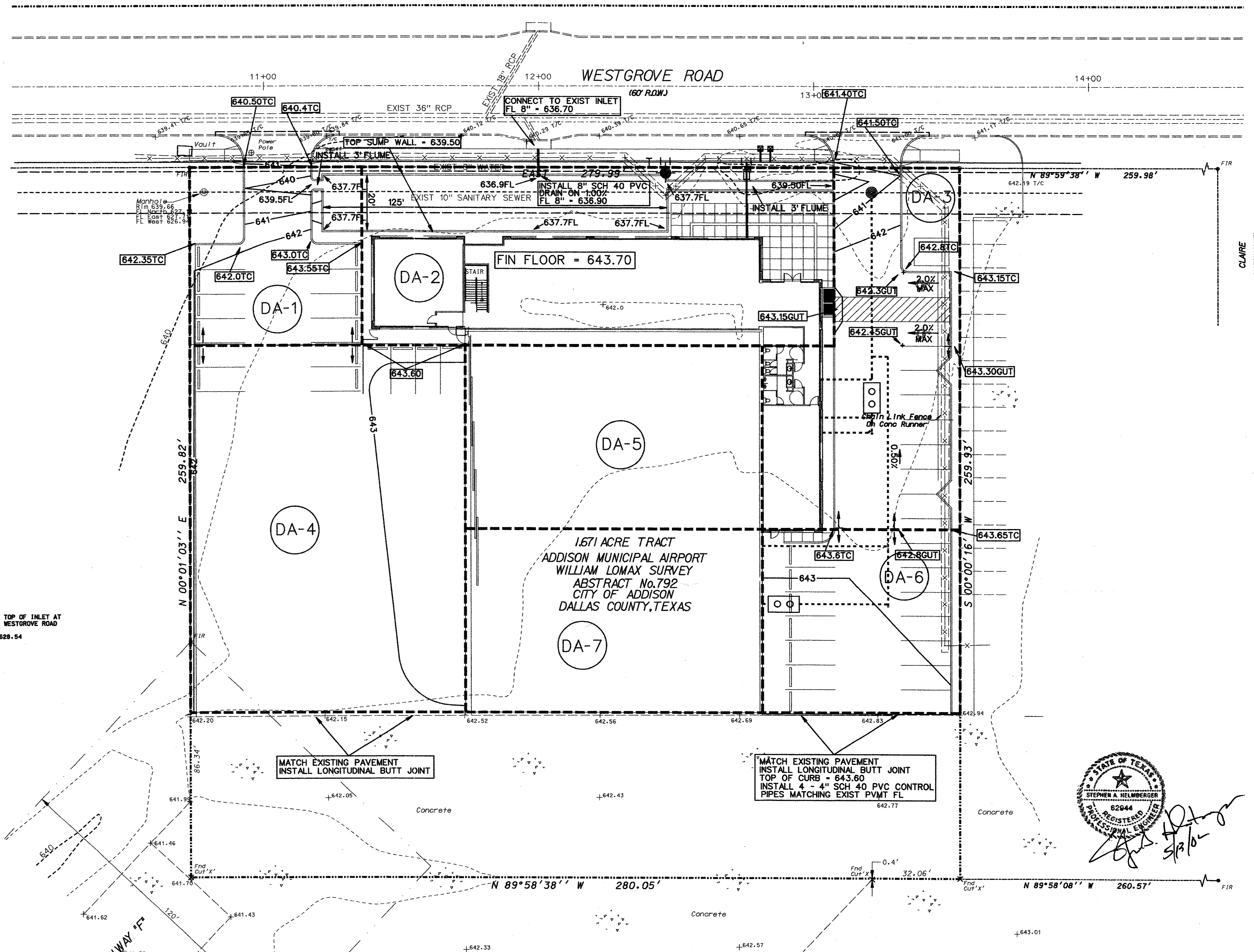
RAINFALL INTENSITIES (1):

Storm Event (yr)	Intensity (in/hr)
100	10.37
5	8.76
15	7.65
20	6.93
25	6.20
30	5.69
35	5.35
40	4.93
45	4.60
50	4.37
55	4.20
60	3.95
70	3.56
80	3.27
90	3.04

Southeast Detention Area - Parking Lot

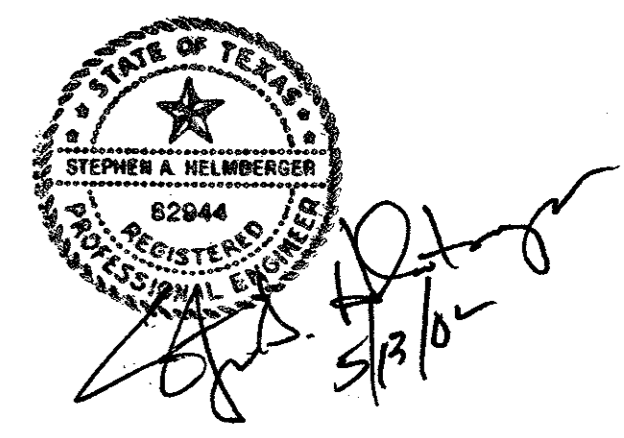
Area = 0.25 Acres
C = 0.35
I = 7.65
Q (max release rate) = 0.96 CFS

Release Structure - 4 - 4" Sch 40 PVC Pipe Openings through curb



STORMWATER RUNOFF CALCULATIONS

LOCATION	To (MINUTES)	I (100)	A (ACRES)	C	Q100
DA-1	10	8.80	0.09	0.90	0.7 CFS
DA-2	10	8.80	0.26	0.90	2.1 CFS
DA-3	10	8.80	0.18	0.90	1.4 CFS
DA-4	10	8.80	0.41	0.90	3.2 CFS
DA-5	10	8.80	0.17	0.90	1.3 CFS
DA-6	10	8.80	0.11	0.90	0.9 CFS
DA-7	10	8.80	0.17	0.90	1.3 CFS



GRADING AND DRAINAGE PLAN
LOT 1, BLOCK 1 MISSION COMPANY ADDITION
MISSION COMPANY
4600 CLAIRE CHENNAULT, ADDISON, TEXAS

HELMBERGER ASSOCIATES, INC.
CIVIL AND ENVIRONMENTAL ENGINEERS
124 HOOPER ROAD, WYLLIE, TEXAS 75098 (214) 442-7400

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HELM.	CADD	MAY 2002	1"=20'	GDBORDER	0216	C2