

STORM SEWER CALCULATIONS

PROJECT NAME: ADDITIONS TO LAKESIDE CHEVROLET										BY: STEVEN P DAUGHTRY PE									
LINE NAME: EX LN-B										DATE: 7/17/2006									
RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accumulated "CA"	Time of Upstream Solution (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Run-off "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft/ft)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Head Loss Coefficient K _j	Velocity Head Loss at Upstream Station K _j v ² /2g (feet)	Flow Time in Sewer Distance/w60 (minutes)	Time at Down stream Station (minutes)	REMARKS
Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff "C"	Incremental "CA"													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
ST-2.3	1+71.5 "LN-B"	33.66	DA-8	0.84	0.90	0.76	0.68	10.00	100.00	9.80	7.41	0.0010	18.00	4.19	0.27	0.43	0.24	10.24	EXISTING SEWER
1+71.5 "LN-B"	0+17.3 "LN-B"	154.67					0.68				7.41	0.0023	27.00	1.86	0.35	0.30	0.35	10.96	
ST-2.2	0+17.3 "LN-B"	21.66	DA-13	0.61	0.90	0.55	0.55	10.00	100.00	9.80	5.38	0.0007	18.00	3.05	0.14	0.23	0.12	10.12	EXISTING SEWER
0+17.3 "LN-B"	0+10.56 "LN-B"	17.33					1.23				12.79	0.0040	27.00	3.22	0.16	0.11	0.03	0.03	EXISTING SEWER
0+10.56 "LN-B"	0+00 "LN-B"	10.56					1.23				12.79	0.0040	27.00	3.22	0.16	0.11	0.03	10.15	EXISTING SEWER

STORM SEWER

PROJECT NAME: ADDITIONS TO LAKESIDE CHEVROLET										BY: STEVEN P DAUGHTRY PE									
LINE NAME: EX LN-A										DATE: 7/17/2006									
RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accumulated "CA"	Time of Upstream Solution (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Run-off "Q" (c.f.s.)	Slope of Hydraulic Gradient (ft/ft)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Head Loss Coefficient K _j	Velocity Head Loss at Upstream Station K _j v ² /2g	Flow Time in Sewer Distance/w60 (minutes)	Time at Down stream Station (minutes)	REMARKS
Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff "C"	Incremental "CA"													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
ST-1.1	1+36.33 "LN-A"	44.5	DA-10	1.25	0.90	1.13	1.13	10.00	100.00	9.80	10.93	0.0015	18.00	5.20	0.42	0.66	0.09	10.09	
											0.00	3.9741	27.00	0.00					

STORM SEWER

PROJECT NAME: ADDITIONS TO LAKESIDE CHEVROLET										BY: STEVEN P DAUGHTRY PE									
LINE NAME: LN-C										DATE: 7/17/2006									
RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accumulated "CA"	Time of Upstream Solution (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Run-off "Q" (c.f.s.)	Slope of Hydraulic Gradient (ft/ft)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Head Loss Coefficient K _j	Velocity Head Loss at Upstream Station K _j v ² /2g	Flow Time in Sewer Distance/w60 (minutes)	Time at Down stream Station (minutes)	REMARKS
Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff "C"	Incremental "CA"													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2+92.5 "LN-C"	2+74.5 "LN-C"	18.00	DA-1	2.39	0.90	2.15	2.15	10.00	100.00	9.80	21.08	0.0065	27.00	5.30	0.00	0.00	0.06	10.06	
STA-3.2	2+74.5 "LN-C"	48.00	DA-15	0.29	0.90	0.26	0.26	10.00	100.00	9.80	2.56	0.0004	18.00	1.45	0.00	0.00	0.55	10.61	
2+74.5 "LN-C"	0+26 "LN-C"	248.50									23.64	0.0073	27.00	5.95	0.20	0.11	0.70	11.31	
STA-3.1	0+26 "LN-C"	17.30	DA-11	0.12	0.90	0.11	1.33	10.00	100.00	9.80	1.06	0.0001	18.00	0.60	0.00	0.00	0.48	10.48	
0+26.0 "LN-C"	0+00 "LN-C"	26.00									24.70	0.0076	27.00	6.21	0.50	0.30	0.07	11.38	

DRAINAGE CALCULATIONS

DRAINAGE AREA	COEF OF RUNOFF	INTENSITY	AREA		RUN-OFF
NAME	C	I	A(ft)	A (acres)	Q100
DA-1	0.9	9.8	104124	2.39	21.08
DA-2	0.9	9.8	19144	0.44	3.88
DA-3	0.9	9.8	65833	1.51	13.33
DA-4	0.9	9.8	7041	0.16	1.43
DA-5	0.9	9.8	12006	0.28	2.43
DA-6	0.9	9.8	43586	1.00	8.83
DA-7	0.9	9.8	25730	0.59	5.21
DA-8	0.9	9.8	36402	0.84	7.37
DA-9	0.9	9.8	47389	1.09	9.60
DA-10	0.9	9.8	49364	1.13	10.00
DA-11	0.9	9.8	5136	0.12	1.04
DA-12	0.9	9.8	61888	1.42	12.53
DA-13	0.9	9.8	26595	0.61	5.38
DA-14	0.9	9.8	6027	0.14	1.22
DA-15	0.9	9.8	12634	0.29	2.56
					105.88 CFS

INLET DESIGN CALCULATIONS

PROJECT NAME: ADDITIONS TO LAKESIDE CHEVROLET										BY: STEVEN P. DAUGHTRY									
LINE NAME: LN-C										DATE: 07/17/06									
INLET		Design Storm	AREA OF RUNOFF					Carry-over from	Total	Gutter	Gutter	Crown	SELECTED INLET	Carry-over					
No.	Location	Frequency (yrs)	Time of Conc. (min)	Intensity I (in/hr)	Runoff Coeff "C"	Area (ac.)	"Q" (c.f.s.)	Upstream Inlet (c.f.s.)	Gutter Flow (c.f.s.)	Capacity (c.f.s.)	Slope (ft./100ft.)	Type	Length "L" (Feet)	Type	Stream Inlet (c.f.s.)				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
C1	3+33.82	100	11	9.8	0.9	2.39	21.08	n/a	n/a	n/a	n/a	n/a	15	1A	n/a				

INLET DESIGN CALCULATIONS

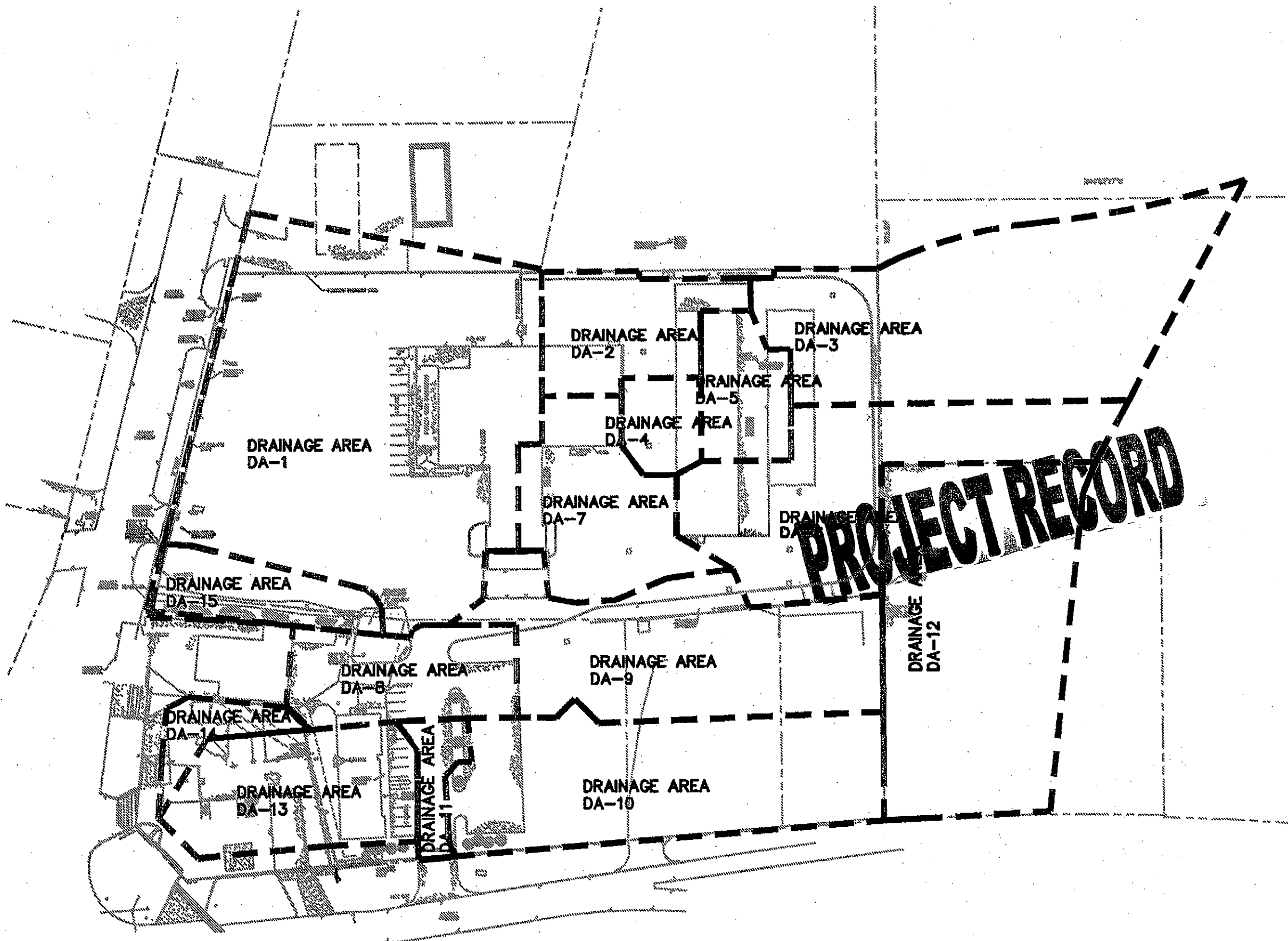
LINE NAME: LN "ST-1.1"													DATE: 07/17/06		
INLET		Design Storm	AREA OF RUNOFF					Carry-over	Total	Gutter	Gutter	Crown	SELECTED INLET	Carry-over	
No..	Location	Frequency	Time of Conc.	Intensity	Runoff	Area	"Q"	from	Gutter	Capacity	Slope	Type	Length	Type	
		(yrs)	(min)	I (in/hr)	Coeff	(ac.)	(c.f.s.)	Upstream	Flow	(c.f.s.)	(ft./100ft.)		"L" (Feet)	Stream	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
C4	00+44.5	100.00	10.00	9.80	0.90	1.13	9.97	n/a	n/a	n/a	n/a	n/a	10	1A	
								Inlet	(c.f.s.)				Inlet		

INLET DESIGN CALCULATIONS

LINE NAME: "ST-2.3"												DATE: 07/17/06			
INLET		Design Storm	Time of	AREA OF RUNOFF			Carry-over	Total	Gutter	Gutter	Crown	SELECTED INLET	Carry-over		
No..	Location	Frequency	Conc.	Intensity	Runoff	Area	"Q"	from	Gutter	Capacity	Type	Length	to Down		
		(yrs)	(min)	I (in/hr)	Coeff	(ac.)	(c.f.s.)	Upstream	Flow	(c.f.s.)		"L"	Stream		
					"C"			Inlet	(c.f.s.)			(Feet)	Inlet		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
C2	0+33.66	100.00	10.00	9.80	0.90	0.84	7.41	n/a	n/a	n/a	n/a	n/a	5	1A	n/a

INLET DESIGN CALCULATIONS

LINE NAME: "ST-2.2"												DATE: 07/17/06			
INLET		Design Storm Frequency	Time of Conc.	AREA OF RUNOFF			"Q"	Carry-over from	Total Gutter	Gutter Capacity	Gutter Slope	Crown Type	SELECTED INLET	Carry-over to	
No..	Location	(yrs)	(min)	Intensity I (in/hr)	Runoff Coeff "C"	Area (ac.)	(c.f.s.)	Upstream Inlet	Flow (c.f.s.)	(c.f.s.)	(ft./100ft.)	Type	Length "L" (Feet)	Down Stream Inlet	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
C3	0+21.66	100.00	10.00	9.80	0.90	0.61	5.38	n/a	n/a	n/a	na	n/a	5	1A	

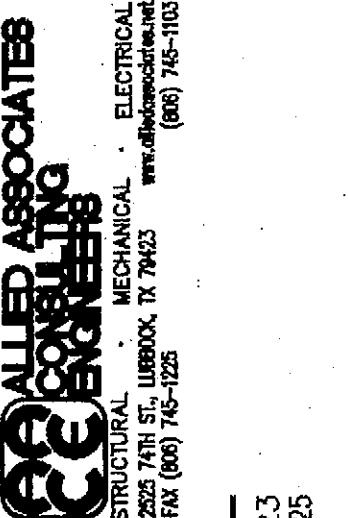


OFFSITE DRAINAGE PLAN

SCALE: 1" = 100'-0"



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY STEVEN P. DAUGHTRY, P.E. 60172



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PARKING LOT IMPROVEMENTS TO LAKESIDE CHEVROLET
2005 SOUTH GOLIAD STREET
ROCKWALL, TEXAS

PROJECT NO. P05-0101
DATE: 7/17/2006
DRW BY: SPD CHK BY: SPD
REVISIONS:

SHEET NO. C7

OF 12

SITE STORM WATER SYSTEM CALCULATION AND DETAILS

M:\LAKESIDE\LAKE CHEVROLET - ROCKWALL, TEXAS\Sheets\07 SITE STORM WATER SYSTEM CALCULATION AND DETAILS.dwg, 7/17/2006 9:02:36 PM, Station: 0+00