Appendix A

Catch Basin/Storm Drain Hydraulic Calculations

Bud Wheeler
2658 Country Club Drive, Glendora
7/23/2001

INLET NUMBER LENGTH 10.0 STATION

TOTAL PEAK DISCHARGE = 44.00 (cfs)

GUTTER SLOPE = 0.0010 FT/FT PAVEMENT CROSS SLOPE = 0.0200 FT/FT

SPREAD AT A SLOPE OF .001 (ft./ft.) AND 22.00 (cfs) IS 35.21 (ft.)

XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX

P EFFEC. LENGTH (ft) = 12.70 H (ft) = 1.000

DEPTH OF WATER (ft) = 1.17 SPREAD (ft) = 58.48

INLET NUMBER LENGTH 14.0 STATION

TOTAL PEAK DISCHARGE = 49.00 (cfs)

GUTTER SLOPE = 0.0010 FT/FT PAVEMENT CROSS SLOPE = 0.0200 FT/FT

SPREAD AT A SLOPE OF .001 (ft./ft.) AND 24.50 (cfs) IS 36.68 (ft.)

XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX

P EFFEC. LENGTH (ft) = 16.70 H (ft) = 1.000

DEPTH OF WATER (ft) = 1.18 SPREAD (ft) = 58.82

Appendix B

Catch Basin/Storm Drain Hydraulic Calculations

Bud Wheeler
2658 Country Club Drive, Glendora
7/23/2001

CURRENT DATE: 01-24-2002
CURRENT TIME: 14:48:42

FILE DATE: 01-24-2002
FILE NAME: WHEELER

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.0

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1005.00	995.75	188.23	1 RCP	3.50	3.50	.010	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: WHEELER DATE: 01-24-2002

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1005.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1006.09	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1006.76	18.6	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1007.29	27.9	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1007.75	37.2	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1008.18	46.5	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1008.62	55.8	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1009.10	65.1	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1009.64	74.4	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1010.25	83.7	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1010.94	93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: WHEELER DATE: 01-24-2002

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1005.00	0.000	0.00	0.00	0.00
1006.09	0.000	9.30	0.00	0.00
1006.76	0.000	18.60	0.00	0.00
1007.29	0.000	27.90	0.00	0.00
1007.75	0.000	37.20	0.00	0.00
1008.18	0.000	46.50	0.00	0.00
1008.62	0.000	55.80	0.00	0.00
1009.10	0.000	65.10	0.00	0.00
1009.64	0.000	74.40	0.00	0.00
1010.25	0.000	83.70	0.00	0.00
1010.94	0.000	93.00	0.00	0.00

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 01-24-2002
CURRENT TIME: 14:48:42

FILE DATE: 01-24-2002
FILE NAME: WHEELER

PERFORMANCE CURVE FOR CULVERT 1 - 1(3.50 (ft) BY 3.50 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1005.00	0.00	-6.40	0-NF	0.00	0.00	0.00	2.85	0.00	0.00
9.30	1006.09	1.09	1.09	1-S1f	0.41	0.91	1.10	3.53	3.58	3.73
18.60	1006.76	1.76	1.76	1-S1f	0.58	1.31	1.50	3.86	4.72	4.58
27.90	1007.29	2.29	2.29	1-S1f	0.73	1.62	1.80	4.12	5.60	5.14
37.20	1007.75	2.75	2.75	1-S1f	0.83	1.89	2.00	4.34	6.55	5.57
46.50	1008.18	3.18	3.18	1-S1f	0.93	2.13	2.30	4.53	6.95	5.91
55.80	1008.62	3.62	3.62	1-S1f	1.04	2.33	2.50	4.70	7.60	6.21
65.10	1009.10	4.10	4.10	1-S1f	1.12	2.52	2.70	4.86	8.19	6.47
74.40	1009.64	4.64	4.64	1-S1f	1.20	2.69	2.80	5.01	9.02	6.69
83.70	1010.25	5.25	5.25	1-S1f	1.28	2.84	3.00	5.14	9.57	6.90
93.00	1010.94	5.94	5.94	1-S1f	1.36	2.96	3.10	5.27	10.34	7.09

El. inlet face invert 1005.00 ft El. outlet invert 995.75 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	1.00 ft
INLET ELEVATION	1005.00 ft
OUTLET STATION	189.00 ft
OUTLET ELEVATION	995.75 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0492
CULVERT LENGTH ALONG SLOPE	188.23 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	3.50 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.010
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

FILE DATE: 01-24-2002
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CURRENT DATE: 01-24-2002
CURRENT TIME: 14:48:42

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	3.00 ft
SIDE SLOPE H/V (X:1)	1.0
CHANNEL SLOPE V/H (ft/ft)	0.047
MANNING'S n (.01-0.1)	0.055
*CHANNEL INVERT ELEVATION	998.60 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	995.75 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	998.60	0.000	0.00	0.00	0.00
9.30	999.28	0.797	0.68	3.73	1.99
18.60	999.61	0.803	1.01	4.58	2.97
27.90	999.87	0.804	1.27	5.14	3.73
37.20	1000.09	0.804	1.49	5.57	4.37
46.50	1000.28	0.804	1.68	5.91	4.93
55.80	1000.45	0.804	1.85	6.21	5.43
65.10	1000.61	0.804	2.01	6.47	5.89
74.40	1000.76	0.803	2.16	6.69	6.32
83.70	1000.89	0.803	2.29	6.90	6.72
93.00	1001.02	0.803	2.42	7.09	7.10

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	15.00 ft
CREST LENGTH	15.00 ft
OVERTOPPING CREST ELEVATION	1010.58 ft