

AREA NO.	DRAINAGE AREA 'A' (ACRES)	TIME OF CONCENTRATION (IN MINUTES)	RUNOFF COEFFICIENT 'C'	INTENSITY 'I' 100' (IN./HR.)	DESIGN FLOW Q 'Q' 100' (cfs)	REMARKS
A1	0.56	10	0.70	9.8	3.84	GRASS - AREA DRAIN
A2	0.11	10	0.70	9.8	0.75	GRASS - AREA DRAIN
A3	0.17	10	0.70	9.8	1.17	GRASS - AREA DRAIN
A4	0.67	10	0.70	9.8	4.60	BUILDING - 10' CURB INLET
A5	0.54	10	0.70	9.8	3.70	BUILDING - 10' CURB INLET
A6	0.77	10	0.70	9.8	5.28	BUILDING ROOF DRAINS
A7	0.19	10	0.70	9.8	1.30	BUILDING ROOF DRAINS
A8	0.23	10	0.70	9.8	1.58	BUILDING ROOF DRAINS
A9	0.32	10	0.70	9.8	2.20	BUILDING ROOF DRAINS
A10	0.33	10	0.70	9.8	2.26	GRASS - COURT YARD
A11	0.93	10	0.70	9.8	6.38	BUILDING ROOF DRAINS
A12	0.39	10	0.70	9.8	2.68	BUILDING ROOF DRAINS
A13	1.06	10	0.70	9.8	7.27	GRASS
A14	0.64	10	0.70	9.8	4.40	GRASS
A15	0.53	10	0.70	9.8	3.64	ROOF DRAINS - NAT.
A16	1.56	10	0.70	9.8	25.11	FUTURE VISITORS PARKING
A17	2.11	10	0.70	9.8	7.27	PARKING AND DETENTION POND
OS-A18	10.80	10	0.35	8.3	31.37	OFF - SITE
B1	0.21	10	0.70	9.8	1.44	EXISTING BUILDING ROOF DRAINS
B2	0.47	10	0.70	9.8	3.22	EXISTING BUILDING / COURTYARD ROOF DRAINS
B3	0.27	10	0.70	9.8	1.85	EXISTING BUILDING / COURTYARD ROOF DRAINS
B4	0.52	10	0.70	9.8	3.57	EXISTING BUILDING / COURTYARD ROOF DRAINS
B5	2.10	10	0.70	9.8	14.40	EXISTING BUILDING / COURTYARD ROOF DRAINS - 10' INLET
B6	0.23	10	0.70	9.8	1.58	EXISTING BUILDING ROOF DRAINS
B7	0.34	10	0.70	9.8	2.33	EXISTING BUILDING ROOF DRAINS
OS-B8	10.90	10	0.35	8.30	31.66	OFF-SITE
B9	0.20	10	0.70	9.8	1.37	EXISTING BUILDING ROOF DRAINS
B10	0.43	10	0.70	9.8	2.95	BUILDING ROOF DRAINS
B11	0.51	10	0.70	9.8	3.50	GRASS - DRIVE - 5' 10" INLET
B12	0.60	10	0.70	9.8	4.11	GRASS - DRIVE - 5' 10" INLET
C1	1.41	10	0.70	9.8	9.67	EXISTING STORM
C2	1.30	10	0.70	9.8	8.92	EXISTING STORM
C3	0.35	10	0.70	9.8	2.40	TO TOWNSEND DRIVE
C4	0.50	10	0.70	9.8	3.43	ROOF DRAINS - NAT. - TO STORM
C5	4.50	10	0.70	9.8	30.87	EXISTING STADIUM
D1	0.42	10	0.70	9.8	2.88	TO TOWNSEND DRIVE
D2	1.30	10	0.70	9.8	8.92	EXISTING 10' CURB INLET
D3	0.66	10	0.70	9.8	4.53	EXISTING 10' CURB INLET
D4	0.52	10	0.70	9.8	3.57	EXISTING 10' CURB INLET
D5	1.97	10	0.70	9.8	13.51	EXISTING STORM
D6	2.28	10	0.70	9.8	15.64	EXISTING STORM
D7	0.69	10	0.70	9.8	4.73	EXISTING 10' CURB INLET

INLET DESIGN CALCULATIONS		PROJECT NAME UTLEY SITE												BY RAH		
		LINE NAME N/A												DATE 05/29/08		
Drain Area	Inlet Location	AREA RUNOFF Q = CIA						SELECTED INLET								
		Design Storm Frequency (yrs.)	Time of Conc. (min.)	Intensity I (in./hr.)	Runoff Coeff. "C"	Area (ac.)	"Q" (c.f.s.)	Carry-Over From Upstream Inlet (c.f.s.)	Total Gutter Flow (c.f.s.)	Gutter Capacity (c.f.s.)	Gutter Slope (ft./100ft.)	Crown Type	Length "L" (Feet)	Inlet Capacity (c.f.s.)	Type	Carry-Over To Downstream Inlet (c.f.s.)
A5	0+42 - LINE "B3"	100	10	9.8	0.70	0.54	3.70	0	N/A	LOW	POINT	N/A	10	10	C.I.	0
A4	0+36 - LINE "B2"	100	10	9.8	0.70	0.67	4.60	0	N/A	LOW	POINT	N/A	10	10	C.I.	0
PART OF A13	0+27 - LINE "B7"	100	10	9.8	0.70	0.19	1.32	0	N/A	LOW	POINT	N/A	5	5	C.I.	0
PART OF A13	0+54 - LINE "B6"	100	10	9.8	0.70	0.13	0.90	0	N/A	LOW	POINT	N/A	24"x24"	4.5	GRATE	0
A14	0+52 - LINE "B5"	100	10	9.8	0.70	0.64	4.40	0	N/A	LOW	POINT	N/A	24"x24"	4.5	GRATE	0
B1,2,3,4,6,7	5+14 - LINE "C"	100	10	9.8	0.70	2.04	13.99	0	N/A	LOW	POINT	N/A	1-4"x4"	20	"Y"	0
B5	0+30 - LINE "C2"	100	10	9.8	0.70	2.10	14.4	0	N/A	LOW	POINT	N/A	15'	15	C.I.	0
PART OF A12	0+20 - LINE "C1"	100	10	9.8	0.70	0.58	4.0	0	N/A	LOW	POINT	N/A	5'	5	C.I.	0
PART OF A12	0+06 - LINE "C4"	100	10	9.8	0.70	1.07	7.38	0	N/A	LOW	POINT	N/A	10'	10	C.I.	0

LEGEND

- = PROPOSED DRAINAGE DIVIDE
- = PROPOSED DRAINAGE AREA
- = PROPOSED NUMBER OF ACRES
- = PROPOSED CONTOUR
- = PROPOSED FINISH FLOOR
- = PROPOSED STORM SEWER
- = DIRECTION OF FLOW
- = EXISTING CONTOUR
- = EXISTING STORM SEWER

FF = 582.00

PRESENT CONDITIONS

Q = C*I*A
C = 0.35
Tc = 20 MINUTES
I100 = 8.3 in/hr
Q100 = (0.35)(8.3)(56.69 ACRES) = 164.68 MAXIMUM RELEASE RATE

PROPOSED CONDITIONS

Q = C*I*A
C = 0.70 SCHOOL
Tc = 10 MINUTES
I100 = 9.8 in/hr
Q100 = (0.70)(9.8)(35.0 ACRES) = 240.10

STORM DURATIONS

STORM DURATIONS	ONSITE DEVELOPED
10 MINUTES	I = 9.8 Q = (0.70)(9.8)(35 ACRES) = 240.10
15 MINUTES	I = 9.0 Q = (0.70)(9.0)(35 ACRES) = 220.50
20 MINUTES	I = 8.3 Q = (0.70)(8.3)(35 ACRES) = 203.35
30 MINUTES	I = 6.9 Q = (0.70)(6.9)(35 ACRES) = 169.05
40 MINUTES	I = 5.8 Q = (0.70)(5.8)(35 ACRES) = 142.10
50 MINUTES	I = 5.0 Q = (0.70)(5.0)(35 ACRES) = 122.50
60 MINUTES	I = 4.5 Q = (0.70)(4.5)(35 ACRES) = 110.25
70 MINUTES	I = 4.0 Q = (0.70)(4.0)(35 ACRES) = 98.00
80 MINUTES	I = 3.7 Q = (0.70)(3.7)(35 ACRES) = 90.65
90 MINUTES	I = 3.5 Q = (0.70)(3.5)(35 ACRES) = 85.75

STORM DURATIONS

STORM DURATIONS	OFFSITE UNDEVELOPED
10 MINUTES	I = 9.8 Q = (0.35)(9.8)(21.7 ACRES) = 74.43
15 MINUTES	I = 9.0 Q = (0.35)(9.0)(21.7 ACRES) = 68.36
20 MINUTES	I = 8.3 Q = (0.35)(8.3)(21.7 ACRES) = 63.04
30 MINUTES	I = 6.9 Q = (0.35)(6.9)(21.7 ACRES) = 52.41
40 MINUTES	I = 5.8 Q = (0.35)(5.8)(21.7 ACRES) = 44.05
50 MINUTES	I = 5.0 Q = (0.35)(5.0)(21.7 ACRES) = 37.98
60 MINUTES	I = 4.5 Q = (0.35)(4.5)(21.7 ACRES) = 34.18
70 MINUTES	I = 4.0 Q = (0.35)(4.0)(21.7 ACRES) = 31.14
80 MINUTES	I = 3.7 Q = (0.35)(3.7)(21.7 ACRES) = 29.62
90 MINUTES	I = 3.5 Q = (0.35)(3.5)(21.7 ACRES) = 27.34

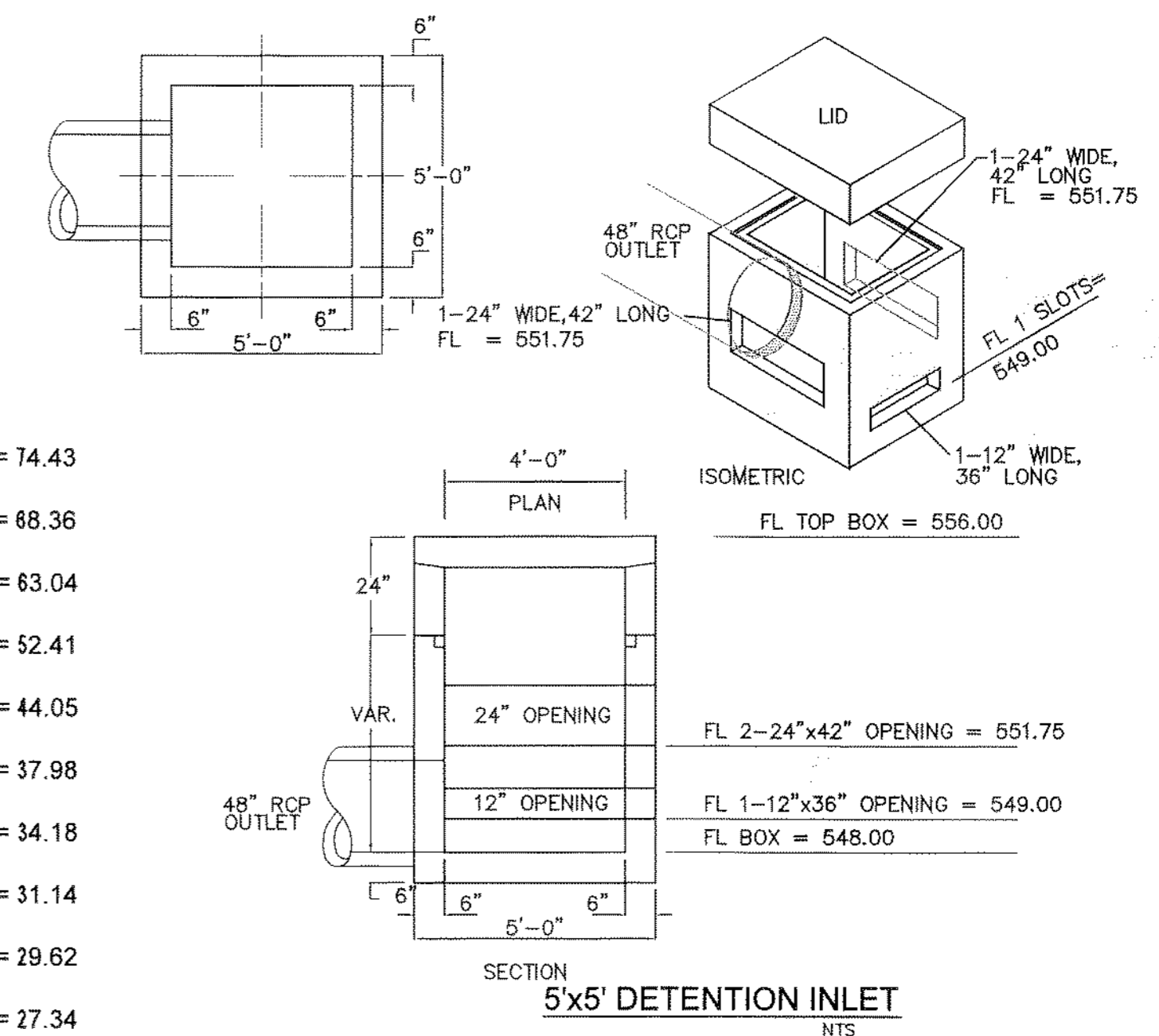
MAXIMUM STORM VOLUMES

STORM DURATION	INFLOW	OUTFLOW
10 MINUTES	(10 min)*(314.53 cfs)*(60 sec/min) = 188,718 cf	(0.50)*(20 min)*(164.68 cfs)*(60 sec/min) = 98,808 cf
15 MINUTES	(15 min)*(288.86 cfs)*(60 sec/min) = 259,974 cf	(0.50)*(25 min)*(164.68 cfs)*(60 sec/min) = 123,510 cf
20 MINUTES	(20 min)*(266.39 cfs)*(60 sec/min) = 319,668 cf	(0.50)*(30 min)*(164.68 cfs)*(60 sec/min) = 148,212 cf
30 MINUTES	(30 min)*(221.46 cfs)*(60 sec/min) = 398,628 cf	(0.50)*(40 min)*(164.68 cfs)*(60 sec/min) = 201,012 cf
40 MINUTES	(40 min)*(186.15 cfs)*(60 sec/min) = 446,760 cf	(0.50)*(50 min)*(164.68 cfs)*(60 sec/min) = 247,020 cf
50 MINUTES	(50 min)*(122.50 cfs)*(60 sec/min) = 481,440 cf	(0.50)*(60 min)*(101.68 cfs)*(60 sec/min) = 185,016 cf

MAXIMUM VOLUME REQUIRED IS 201,012 CF AT THE 30 MIN. STORM DURATION

MAXIMUM VOLUME PROVIDED IS 205,147 AT THE 30 MIN. STORM DURATION

TOP OF POND = 557.00
100 YEAR WATER SURFACE = 554.61 ws



SPECIFICATIONS
CONCRETE: Class 1 concrete with of design strength of 4500 Psi at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Rated for H-20 Loading.
REINFORCEMENT: Grade 60 reinforced. No. 4 steel rebar to conform to ASTM A615 on required centers or equal.
C.I. CASTINGS: Cast iron frames and grates are manufactured of grey cast iron conforming to ASTM A48-76 Class 30.

OUTLET - 1 - 12" x 36" OPENING
OUTLET - 2 - 24" x 42" OPENINGS

Q allowable OUT OF POND	Q actual OUT OF OUT FALL STRUCTURE	
Q5 = 69.44	65.20 cfs	553.11 W.S.
Q25 = 116.07	98.22 cfs	553.78 W.S.
Q50 = 148.81	116.48 cfs	554.33 W.S.
Q100 = 164.68	124.59 cfs	554.61 W.S.

RECORD DRAWING

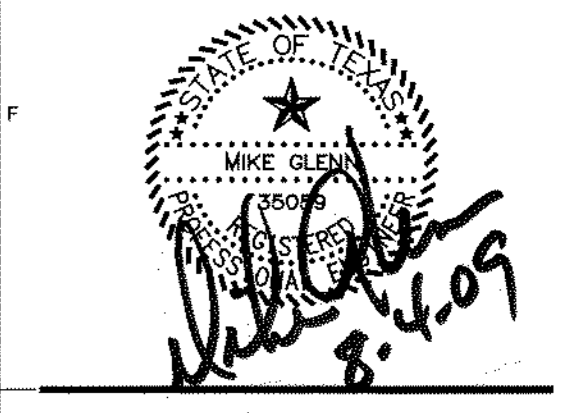
This is to certify that changes and corrections have been made to conform to the contractor's record of this project.

Signed *Glenn* 8.4.09 Date
Glenn Engineering Corporation



CIVIL: GLENN ENGINEERING, INC.
STRUCTURAL: SHW GROUP LLP
MEP: ESTES, McCLURE & ASSOCIATES
LANDSCAPING: GRUBBS-RAMSEY, INC.
FOOD SERVICE: JMK DESIGNS
AQUATICS: AQUATIC EXCELLENCE

FINAL PLANS
FOR BIDDING AND CONSTRUCTION



HERMAN E. UTLEY MIDDLE SCHOOL

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ISSUE: 08/22/2008

NO.	DATE	REVISIONS
1	08/19/08	CITY REVISIONS #1
2	09/28/08	CITY REVISIONS #2
3	10/01/08	CITY REVISIONS #3
4	10/13/08	REVISIONS #4
5	11/18/08	GRADING REVISIONS
6	12/02/08	UTILITY REVISIONS
7	01/14/09	GRADING REVISIONS
8	02/26/09	GRADING REVISIONS
9	05/20/09	COURTYARD STORM
10	07/27/09	RECORD SET

Sheet Title:
DRAINAGE AREA CALCULATIONS

CG1.10
SHW Group 4107.043.00

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