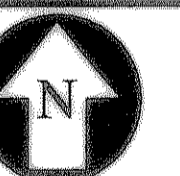


DATE SIGNED: 3/20/04

A New Site Design for
ROCKWALL TOWNE CENTRE, REPLAT
SHAFFER PROPERTIES
ROCKWALL, TEXAS
 DRAINAGE AREA MAP



SCALE:
 Horizontal: 1" = 30'
 Vertical: N/A

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Project No.: BSPC002
 Date: 03/29/04
 Issue: AS BUILT
 Drawn By: TDK
 Checked By: JMC
 Revisions:

SHEET

C1.05

DRAINAGE SUMMARY TABLE: (DEVELOPED)						
DRAINAGE AREA NO.	AREA (Acres)	L (Time Con.)	C ¹ K Design	I ₁₀₀ (in./hr.)	Q ₁₀₀ (cfs)	REMARKS
A-1	0.428	10	0.90	9.80	3.775	UNDETAINED: NATURAL OVERLAND COURSE THRU GRANDY'S
A-2	0.027	10	0.90	9.80	0.238	UNDETAINED: OVERLAND TO I-30 BARROW DITCH, BELOW SD-2
A-3	0.023	10	0.90	9.80	0.203	UNDETAINED: OVERLAND TO I-30 BARROW DITCH, BELOW SD-2
A-4	0.411	10	0.90	9.80	3.625	DETAINED: PICKED UP AT INLET SD-1, LINE SD-1.
A-5	0.060	10	0.90	9.80	0.529	UNDETAINED: OVERLAND TO I-30 BARROW DITCH LINE SD-2
A-6	0.294	10	0.90	9.80	2.593	DETAINED: PICKED UP AT INLET SD-2, LINE SD-1.
A-7	0.601	10	0.90	9.80	5.301	DETAINED: PICKED UP AT INLET SD-3, LINE SD-1.
B-1	0.050	10	0.90	9.80	0.441	UNDETAINED: OVERLAND FLOW TO NORTH AND EAST
*OS-1	0.933	10	0.90	9.80	8.23	SCHLOTZKY'S AND UPSTREAM BARROW DITCH TO LINE SD-2

SITE STORAGE REQUIREMENTS:
 UNDETAINED AREAS A-1, A-2, A-3, A-5 & B-1 = 0.588 ACRES
 DETAINED AREAS A-4, A-6 & A-7 = 1.306 ACRES
 11.52 cfs (DEVELOPED) - 0.32 cfs (ALLOWABLE) = 11.20 cfs
 REQUIRED DETENTION: 11.20 cfs FOR 10 MINUTES
 11.20 cfs x 60 SECONDS/MINUTES x 10 MINUTES = 6,720.00 CUBIC FEET
 MAXIMUM REQUIRED STORAGE = 17,987.35 CUBIC FEET AT 50 MINUTES (SEE TABLE 1)

PARKING LOT SUMPS AND STORM PIPE.
 STORAGE PROVIDED: 25,682 CUBIC FEET (23,760 SURFACE, 1922 PIPE)
 ALLOWABLE DISCHARGE: 5.502-(3.775+0.238+0.203+0.529+0.441)= 0.32 CFS ALLOWABLE OUT STORAGE AREA:

DRAINAGE LEGEND

- A-1
5.00
- — — — — DRAINAGE AREA DIVIDE
- DRAINAGE FLOW ARROW

LEGEND

- +ETP600.0 EX. TOP OF PVMT.
- +ETG600.0 EX. TOP OF GRND.
- +ETC600.0 EX. TOP OF CURB
- +600.0 FIN. FL. SPOT ELEV.
- TP600.0 TOP OF PAVEMENT
- TC600.0 TOP OF CONCRETE
- TG600.0 TOP OF GROUND
- [600.0] TOP OF CURB
- 650- PROP. GRADE LINE
- 650- EX. GRADE LINE
- FF FINISHED FLOOR
- ↑ GUY WIRE ANCHOR
- ⊗ POWER POLE
- ⊕ STREET/CABLE SIGN
- ⊕ WATER VALVE
- ⊕ UTILITY BOX
- ⊕ WOOD BOLLARD
- ⊕ GAS METER
- ⊕ CURB INLET
- ⊕ GRATE INLET
- ⊕ FIRE HYDRANT
- ⊕ WATER METER
- ⊕ STORM/SS MANHOLE
- ⊕ TREE
- ⊕ LIGHT POLE
- ⊕ SIGNAL POLE
- ⊕ SIGNAL PULL BOX

BENCHMARK:
 SQUARE CUT ON NORTH CORNER OF INLET
 ON EAST SIDE OF TACO BUENO.
 ELEVATION = 541.75

**TABLE 1: TOTAL RUNOFF
 MODIFIED RATIONAL METHOD DETENTION DESIGN**

Project Description: ROCKWALL TOWNE CENTRE, ROCKWALL, TEXAS
 Project No.: E-SPC-002
 Date: 03/09/02
 Checked By: JMC

STEP	K	C	I (in/hr)	A (acres)	Q PEAK (cfs)	VOLUME (acre-ft)
1	1.0	0.90	9.80	1.306	11,520	11,520
2	1.0	0.90	9.80	0.32	2,800	2,800
3	1.0	0.90	9.80	0.32	2,800	2,800

STEP 3 (DETENTION STORAGE)

TIME STEP	K	C	I (in/hr)	A (acres)	Q PEAK (cfs)	VOLUME (acre-ft)
10	1.0	0.90	9.80	1.306	11,520	11,520
20	1.0	0.90	9.80	1.306	11,520	11,520
30	1.0	0.90	9.80	1.306	11,520	11,520
40	1.0	0.90	9.80	1.306	11,520	11,520
50	1.0	0.90	9.80	1.306	11,520	11,520
60	1.0	0.90	9.80	1.306	11,520	11,520

NOTE: 1. The use of the Modified Rational method for detention design is limited to drainage basins with less than 200 acres.
 2. The detention pond shall be designed using the 100-year storm peak flows.

* FROM DRAINAGE AREA MAP FOR ROCKWALL TOWNE CENTRE PREPARED BY HALFF ASSOCIATES INC., SHEET D-1, DATED FEB. 1995.
 1.306 ACRES (AREAS A-4, A-6 & A-7) OF TOTAL AREA OF 1.8939 ACRES IS BEING DETAINED ON-SITE.

RUNOFF COLLECTION POINT (Inlet or Manhole)	Distance Between Collection Points (ft)	Area No.	Storage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"	Accumulated "CA"	Time at Upstream Station (min.)	Design Storm Frequency (yrs.)	Intensity "I" (inches/hr.)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Size	Velocity Between Stations (ft./s.)	Head Loss Coeff. K ₁	Velocity Head Loss (feet)	Flow Time Between Stations (min.)	Time of Upstream Station (min.)	REMARKS
SD-1																		
0+00.00	1+85.33	185.33	A7	0.60	0.54	0.54	10.00	100	9.80	5.29	0.0011	(2)21"	2.20	0.05	0.06	2.81	12.81	-
1+85.33	3+81.98	196.65	A6	0.29	0.26	0.80	11.40	100	9.80	7.84	0.0024	(2)21"	3.26	0.05	0.12	2.01	14.82	-
3+81.98	5+45.81	183.83	A4	0.41	0.37	1.17	12.41	100	9.80	11.47	0.0053	(2)21"	4.77	0.05	0.21	1.15	15.97	-
										(0.32 ALL)								
SD-2																		
0+00.00	0+70.00	70.00	OS-1 A-5	0.99	0.90	0.89	10.00	100	9.80	8.73	0.0027	21"	3.63	0.00	0.19	0.32	10.34	-

NOTE: "*" denotes calculated at allowable discharge as noted above.

