

2

Manning Pipe Calculator

Given Input Data:
 Shape Circular
 Solving for Depth of Flow
 Diameter 15.0000 in
 Flowrate 7.4800 cfs
 Slope 0.0556 ft/ft
 Manning's n 0.0130

Computed Results:
 Depth 7.4210 in
 Area 1.2272 ft²
 Wetted Area 0.6054 ft²
 Wetted Perimeter 23.4040 in
 Perimeter 47.1239 in
 Velocity 12.3582 fps
 Hydraulic Radius 3.7247 in
 Percent Full 49.4734 %
 Full flow Flowrate 15.2320 cfs
 Full flow velocity 12.4121 fps

3

WEIR CALCULATOR

Given Input Data:
 WEIR TYPE RECTANGULAR
 EQUATION SUPPRESSED
 SOLVING FOR DEPTH OF FLOW
 FLOWRATE 1.64 CFS
 COEFFICIENT 0.650
 HEIGHT 5.0 IN

Computed Results:
 DEPTH OF FLOW 4.6 IN
 FULL FLOW 1.87 CFS
 VELOCITY 2.15 FPS
 WIDTH 24.0 IN
 AREA 0.83 FT²
 PERIMETER 34.0 IN
 WET PERIMETER 33.2 IN
 WET AREA 0.76 FT²
 PERCENT FULL 91.6 %

4

Manning Pipe Calculator

Given Input Data:
 Shape Circular
 Solving for Depth of Flow
 Diameter 15.0000 in
 Flowrate 14.0200 cfs
 Slope 0.0556 ft/ft
 Manning's n 0.0130

Computed Results:
 Depth 11.3416 in
 Area 1.2272 ft²
 Wetted Area 0.9955 ft²
 Wetted Perimeter 31.6282 in
 Perimeter 47.1239 in
 Velocity 14.0835 fps
 Hydraulic Radius 4.5324 in
 Percent Full 75.6104 %
 Full flow Flowrate 15.2320 cfs
 Full flow velocity 12.4121 fps

5

CHANNEL CALCULATOR

Given Input Data:
 SLOPE 0.0667 FT/FT
 MANNING'S N 0.022

COMPUTED RESULTS:
 Q100
 DEPTH 6.6 IN
 VELOCITY 4.98 FPS
 FLOWRATE 10.91 CFS
 FLOW AREA 2.20 FT²
 FLOW PERIMETER 14.50 FT
 HYDRAULIC RADIUS 0.15 FT

STORM-FLOW EXCEEDS TOP OF CONCRETE SWALE BY 1.6 INCHES DURING 100-YR EVENT.

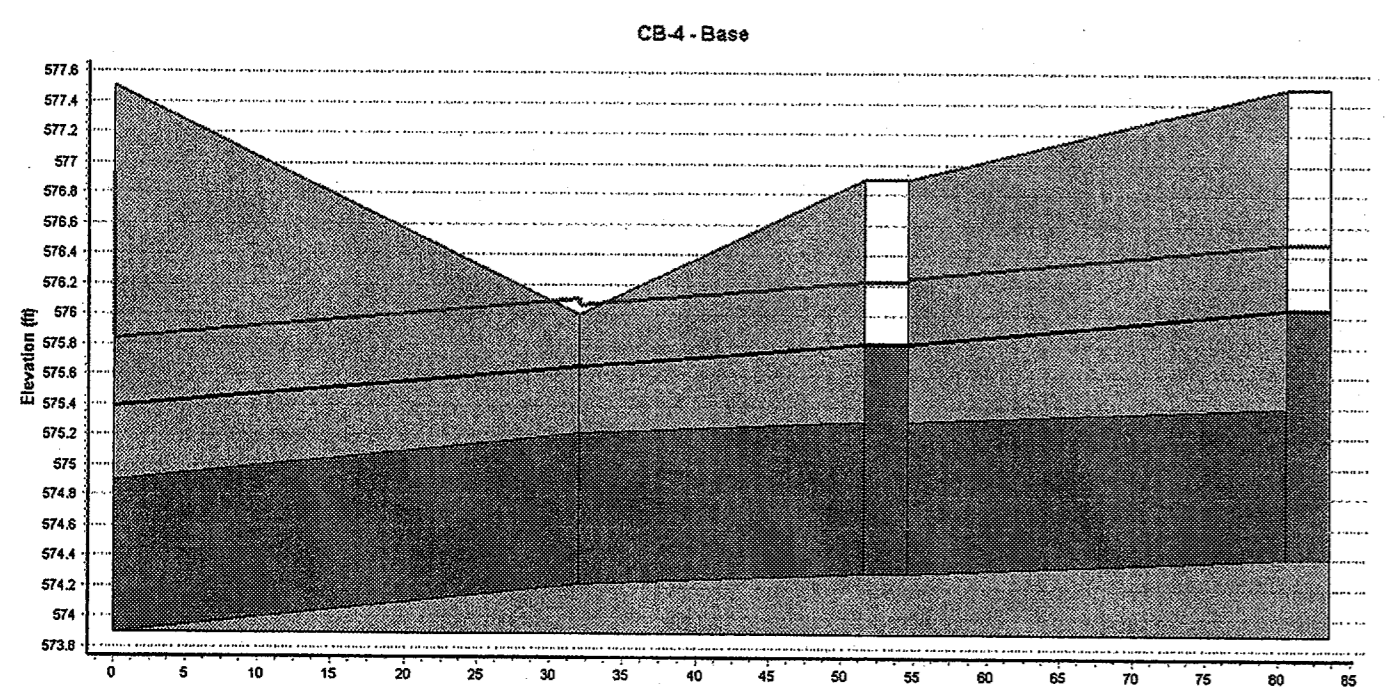
6

CHANNEL CALCULATOR

Given Input Data:
 SLOPE 0.0510 FT/FT
 MANNING'S N 0.022

COMPUTED RESULTS:
 Q100
 DEPTH 7.2 IN
 VELOCITY 4.67 FPS
 FLOWRATE 14.94 CFS
 FLOW AREA 3.20 FT²
 FLOW PERIMETER 18.83 FT
 HYDRAULIC RADIUS 0.17 FT

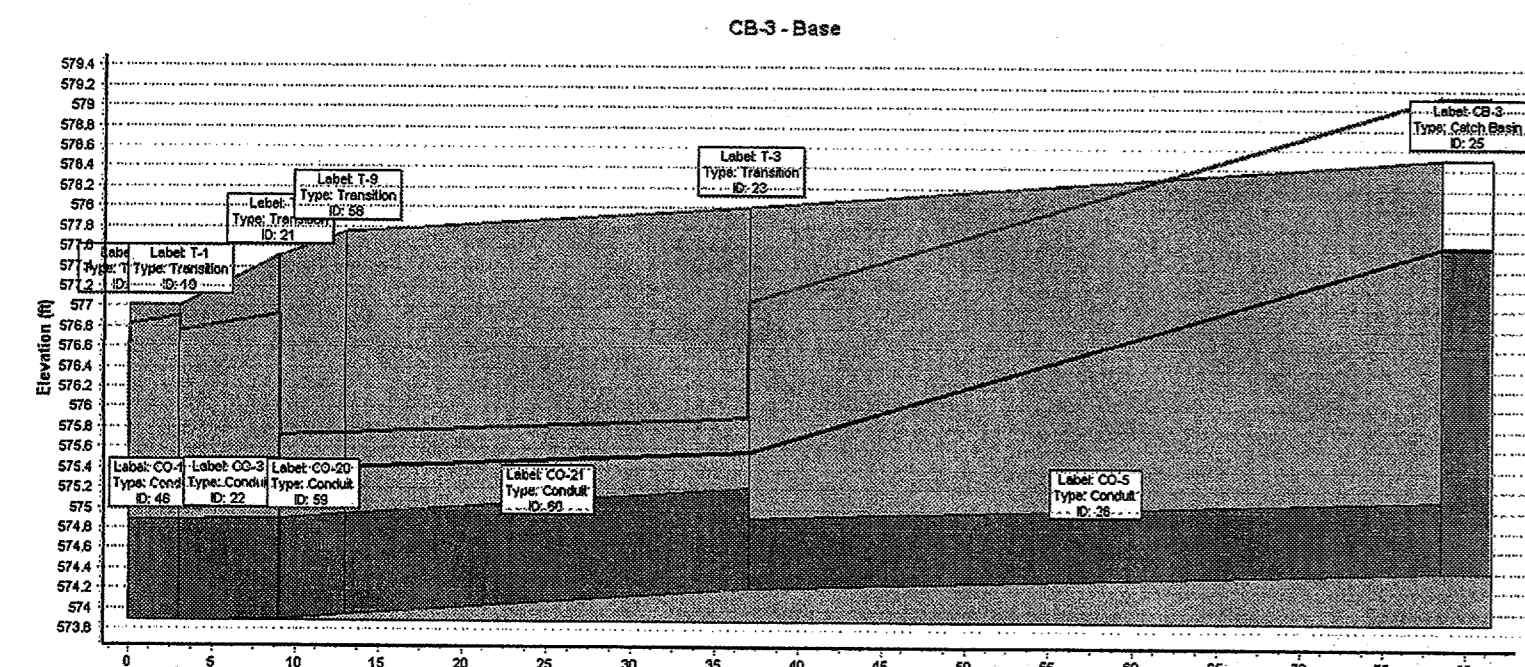
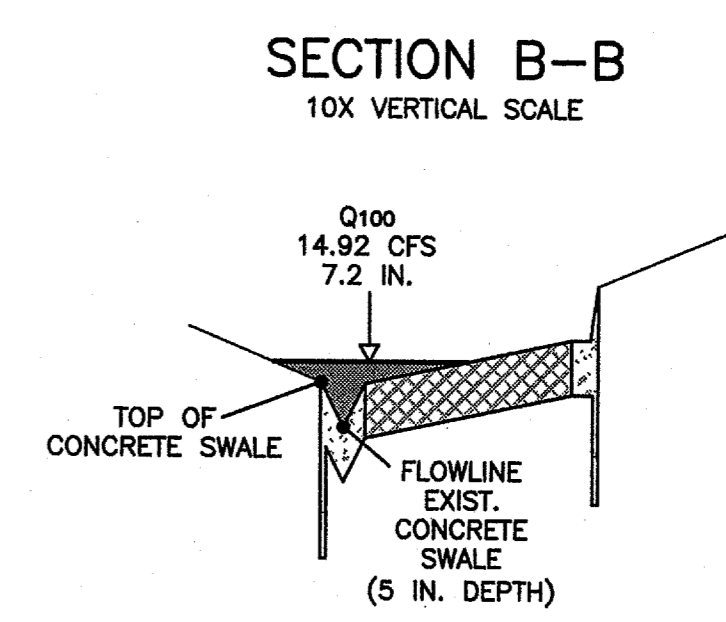
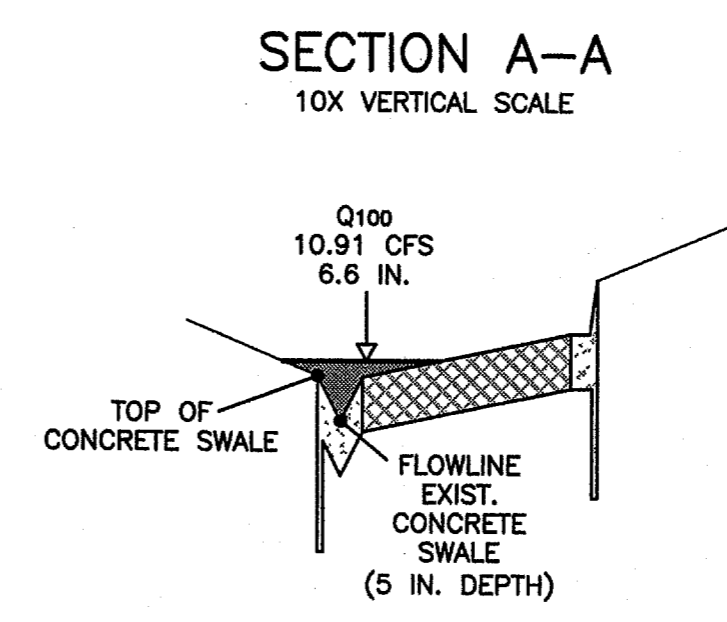
STORM-FLOW EXCEEDS TOP OF CONCRETE SWALE BY 2.2 INCHES DURING 100-YR EVENT.



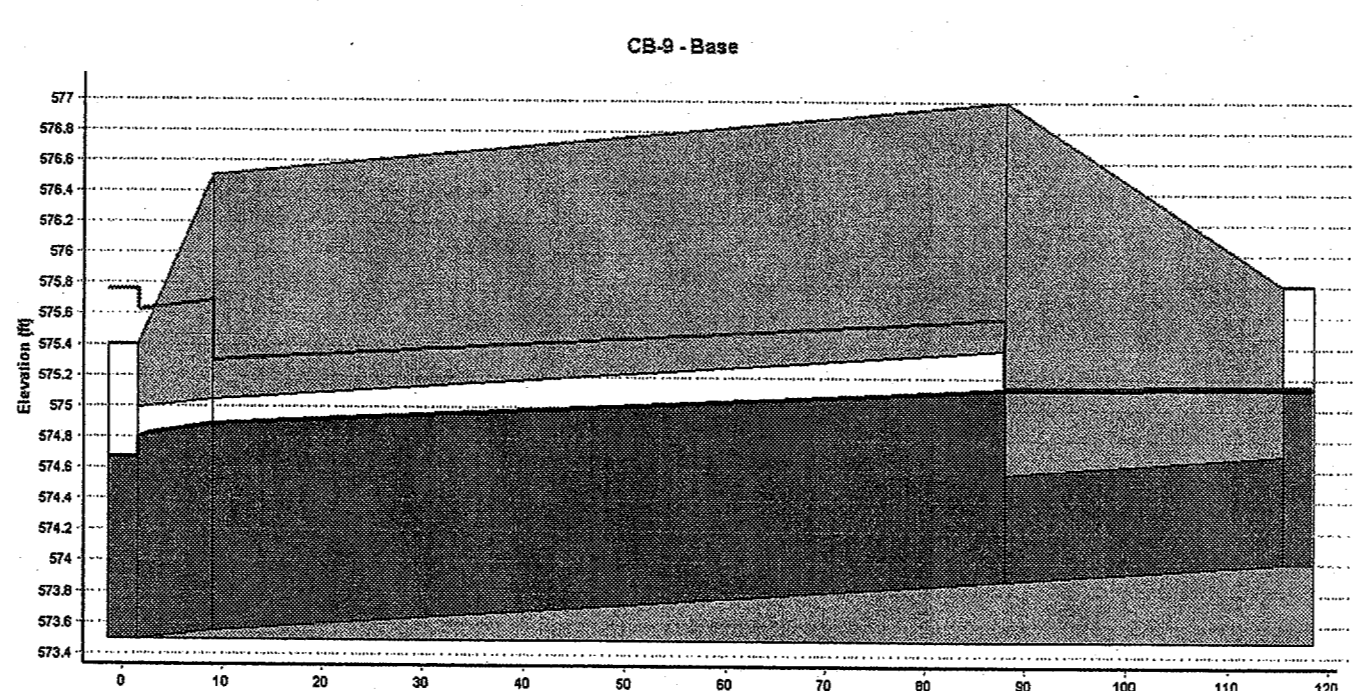
Station	21+00.0	21+00.7	21+00.8
Use Length (ft)	32	18	38
Manhole	11PVC	11PVC	11PVC
Flow (cfs)	4.22	4.03	4.55
Flow (ft/s)	0.81	0.80	0.90
Station	21+11.2	21+11.4	21+10.5
Ground (ft)	57.5	57.8	57.5
Invert (ft)	57.8	57.4	57.4
Station	0	22	55

3.54 CFS COMBINES WITH 10.00 CFS PIPE FLOW TO YIELD 13.54 CFS DISCHARGED TO DOWNSTREAM 15" S.D.R. SEWER.

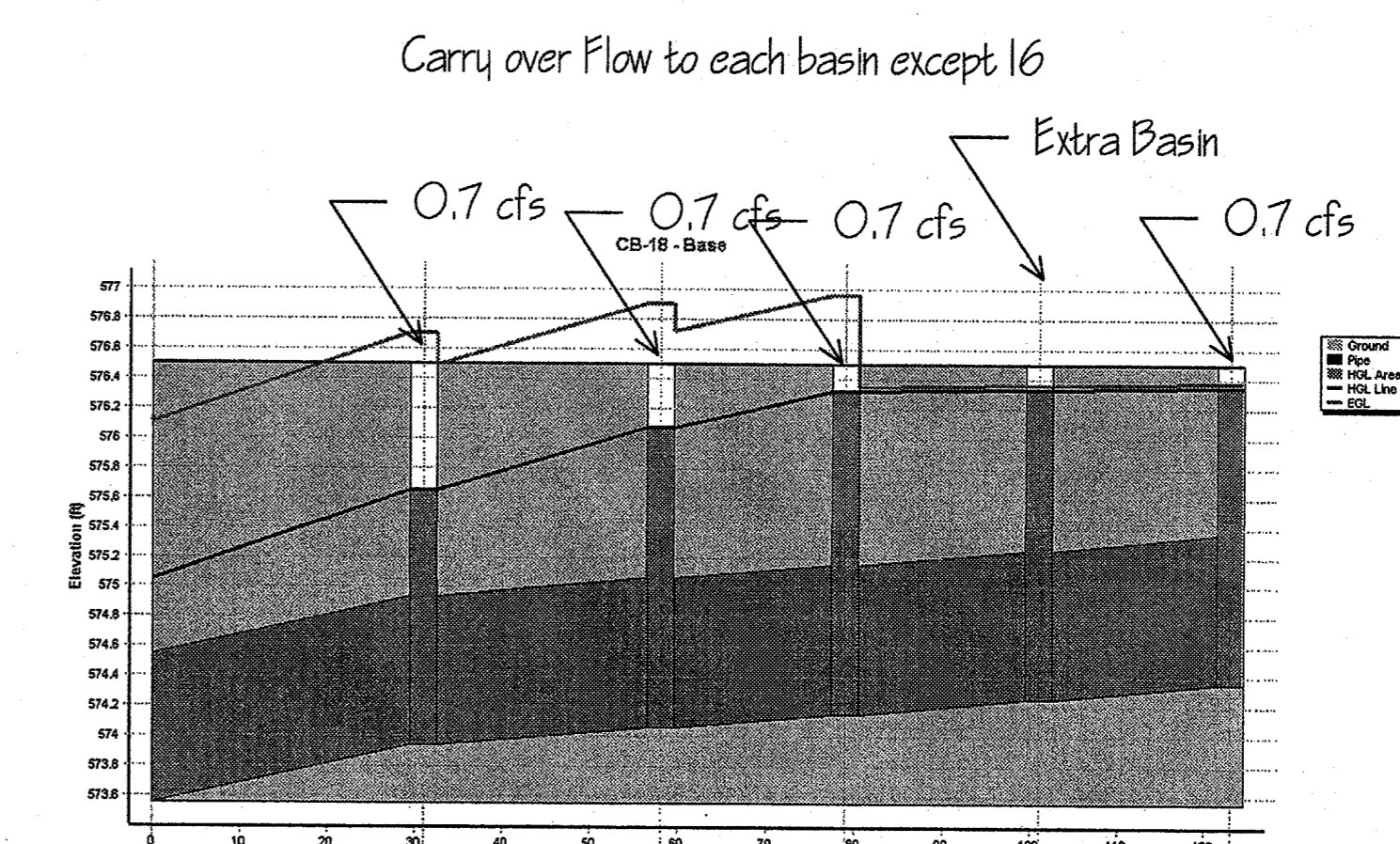
HEAD	WEIR FLOW
0.00000000	0.00000000
0.30000000	0.02748082
0.60000000	0.07727249
0.90000000	0.14279451
1.20000000	0.21984653
1.50000000	0.30724487
1.80000000	0.40388387
2.10000000	0.50895184
2.40000000	0.62181990
2.70000000	0.74198205
3.00000000	0.86901972
3.30000000	1.00257913
3.60000000	1.14235609
3.90000000	1.28808541
4.20000000	1.43953320
4.50000000	1.59649117
4.80000000	1.75877226
5.00000000	1.86983273



Station	49+100.15	49+100.2	49+100.21	49+100.2
Use Length (ft)	3	4	34	41.5
Manhole	11PVC	11PVC	11PVC	67PVC
Flow (cfs)	8.2	7.82	3.85	3.84
Flow (ft/s)	-0.003	-0.002	-0.013	-0.001
Station	49+11.0	49+11.1	49+11.0	49+11.0
Ground (ft)	57.7	57.7	57.5	57.8
Invert (ft)	57.8	57.8	57.4	57.4
Station	0	9	19	50



Station	38+100.11	48+100.14	48+100.16
Use Length (ft)	7.5	79	27.5
Manhole	11PVC	11PVC	67PVC
Flow (cfs)	11.88	1.81	0.31
Flow (ft/s)	-0.007	-0.004	-0.001
Station	48+128.13	48+111.5	48+111.0
Ground (ft)	57.4	57.5	57.7
Invert (ft)	57.4	57.5	57.4
Station	0	1	117

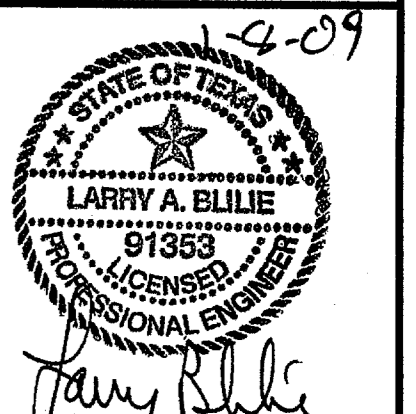


Station	41+100.13	48+100.25	48+100.24	49+100.27	49+100.26
Use Length (ft)	29.5	24	18	18	18
Manhole	11PVC	11PVC	11PVC	11PVC	11PVC
Flow (cfs)	8.43	0.76	0.07	1.08	1.08
Flow (ft/s)	0.003	0.001	0.001	0.005	0.002
Station	48+11.6	48+128.8	48+128.7	48+128.6	48+128.6
Ground (ft)	57.5	57.5	57.5	57.5	57.5
Invert (ft)	57.5	57.4	57.4	57.4	57.4
Station	0	51	79	101	123

REVISIONS	BY	DATE

LARRY BLILIE P.E.
 OLSON LAND DEVELOPMENT SERVICES
 999 CR 106
 WHITESBORO, TX 76273
 PH. 940.595.0528
 CONTACT: NATHAN OLSON

LOT 1B, MILLIKEN ADDITION
 VICTOR MEYERS CUSTOM HOMES, LLC
 (OWNER LOT 1B) MICHAEL & RACHEL HARDIN
 DRAINAGE CALCULATIONS



PROJECT MANAGER
 NJO
 PROJECT TECHNICIAN
 NJO
 JOB NUMBER
 2006.018
 SHEET NUMBER
 3.3