

Ridgetop Meadows
 Detention Basin Requirements (25 Year)
 Differential Runoff:
 Substation Area = 4.97 Ac.
 Developed Runoff Factor = 0.86 c/f/ac.
 Undeveloped Runoff Factor = 0.31 c/f/ac.
 Differential Runoff = 0.55-0.31 = 0.24 c/f/ac.
 Storage Requirements:
 For Differential Runoff:
 4.97 Ac. x 0.24 c/f/ac x 1000 sec. = 1200 c.f. (required)
 By sediment storage:
 Drainage Area to Basin = 1.92 ac.
 C = 0.6 Vol. per year per ac. = 100 c.f. (Rain Chart)
 Sediment volume:
 100 c.f./year x 1.92 ac/yr = 192 c.f. (required)
 Total Storage Required = 1392 c.f.
 Storage Volume provided per plan = 1392 c.f. > 1392 c.f.
 Allowable Discharge from Basin:
 Discharge to Basin: (25Y)
 0.77 ac x 0.54 c/f/ac = 0.42 cfs
 1.18 ac x 0.31 c/f/ac = 0.37 cfs
 Total = 0.79 cfs
 Discharge to Basin: (25Y)
 0.77 ac x 0.54 c/f/ac = 0.42 cfs
 0.43 ac x 0.26 c/f/ac = 0.11 cfs
 Total = 0.53 cfs
 Discharge to Basin: (100Y)
 0.87 cfs x 1.13 x 1.18 = 1.18 cfs
 Allowable Discharge: (25Y)
 0.77 ac (1.13 x 1.18) = 1.00 cfs (Av.)

Site of outlet pipe at OS-4 Detention Basin.
 Use 8" pipe as an orifice at full detention.
 $Q = C \cdot A \cdot \sqrt{2gh}$
 $Q = 0.60(0.345)\sqrt{2(32.2)(3.17)}$
 $Q = 0.98 cfs = 3.00 cfs$
 For 100Y Runoff w/ bottom pipe plugged
 100Y Discharge = 1.89 cfs
 Using an area inlet w/ 48" dia opening in center
 Flow calculated as sharp crested weir
 $Q = C \cdot L \cdot H^{3/2}$
 $1.89 = 3.33(11.4)H^{3/2}$
 $H = 0.21'$
 with weir H = 48.5
 Maximum High Water El. (100Y) = 528.72
 Note: outlet pipe from OS-4 to R.E. 4
 For 25Y storm
 Flow to SE1 to RB 3 (25Y)
 0.77 ac @ 0.54 c/f/ac = 0.42 cfs
 0.43 ac @ 0.26 c/f/ac = 0.11 cfs
 Total = 0.53 cfs

SEWER DESIGN SHEET A

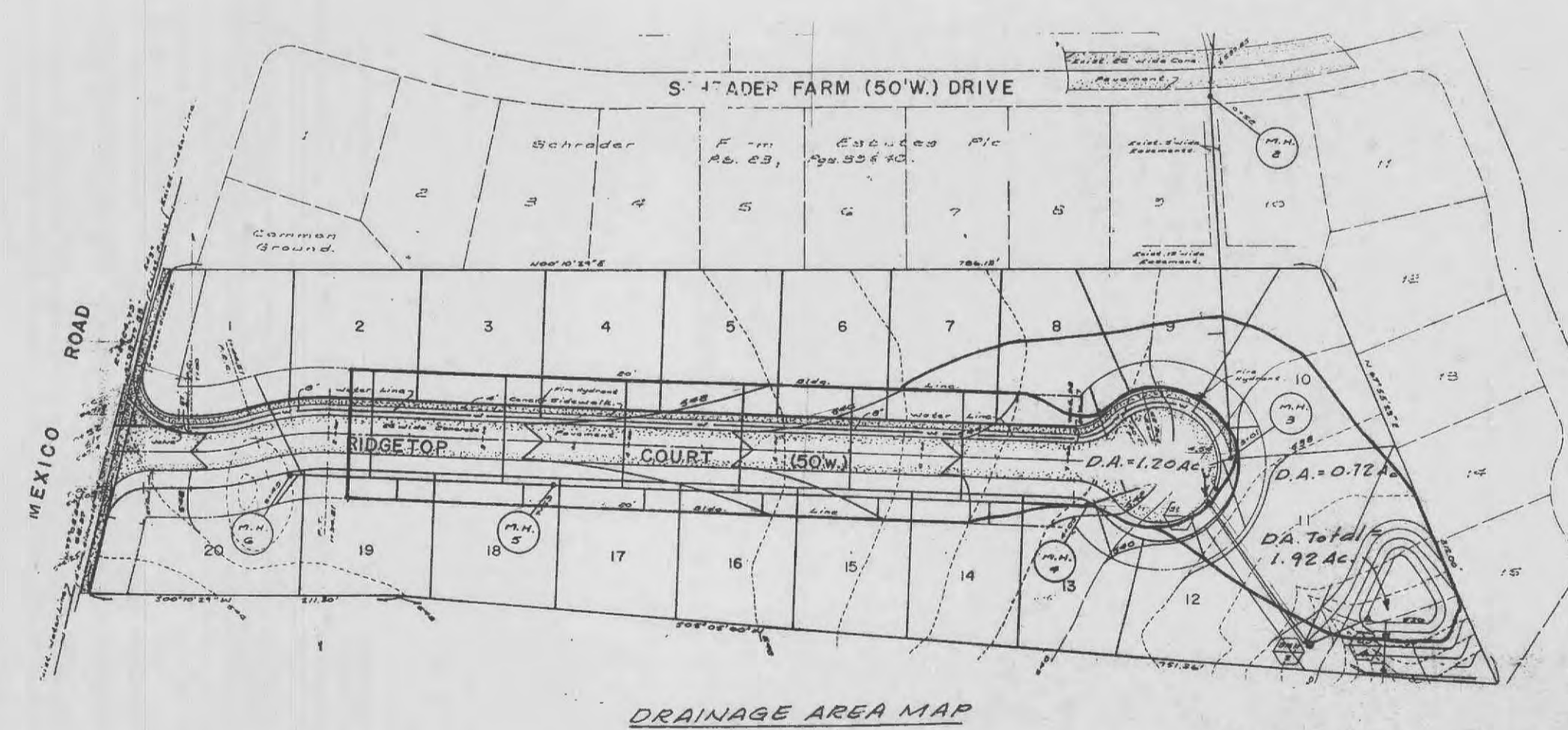
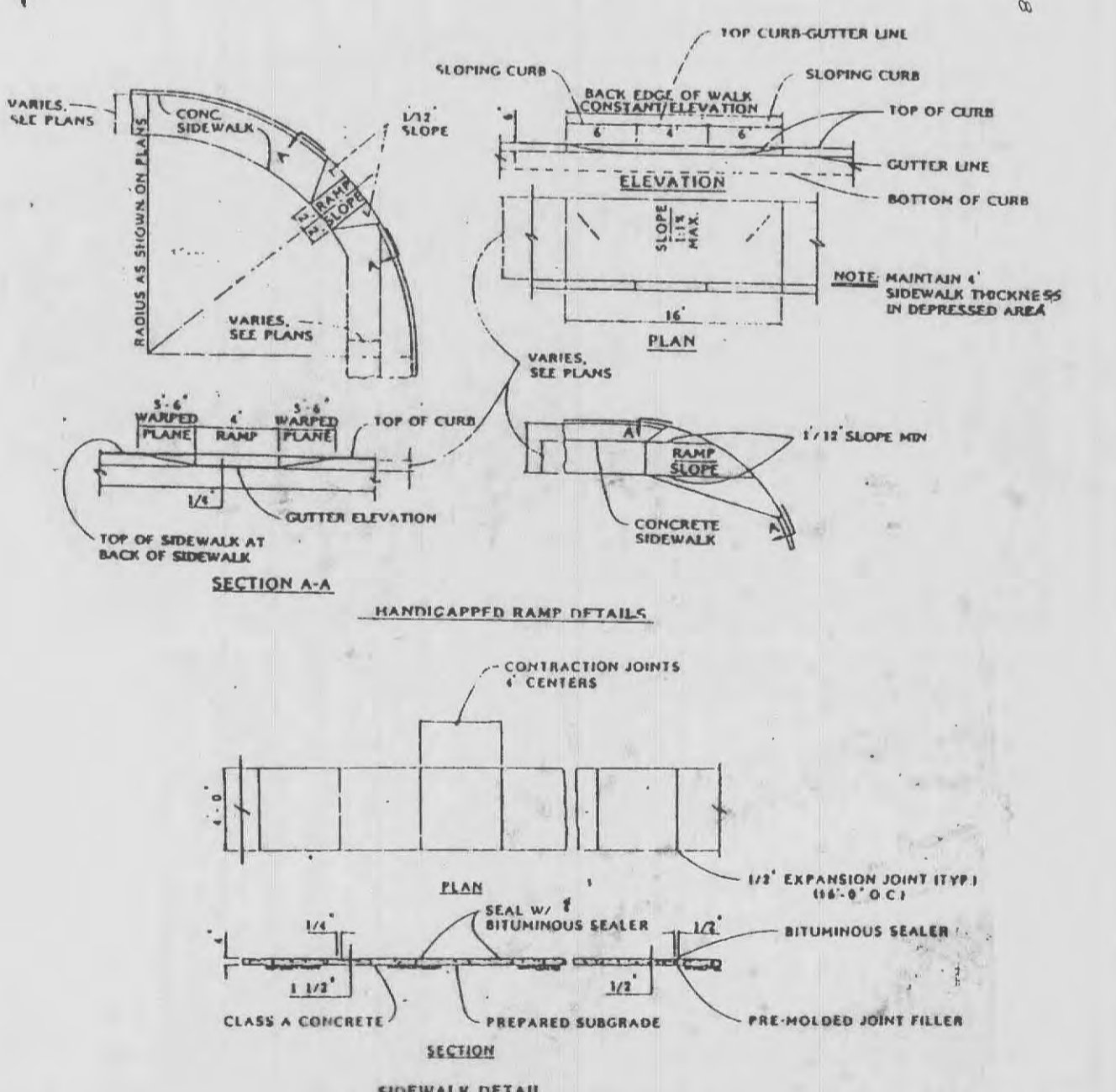
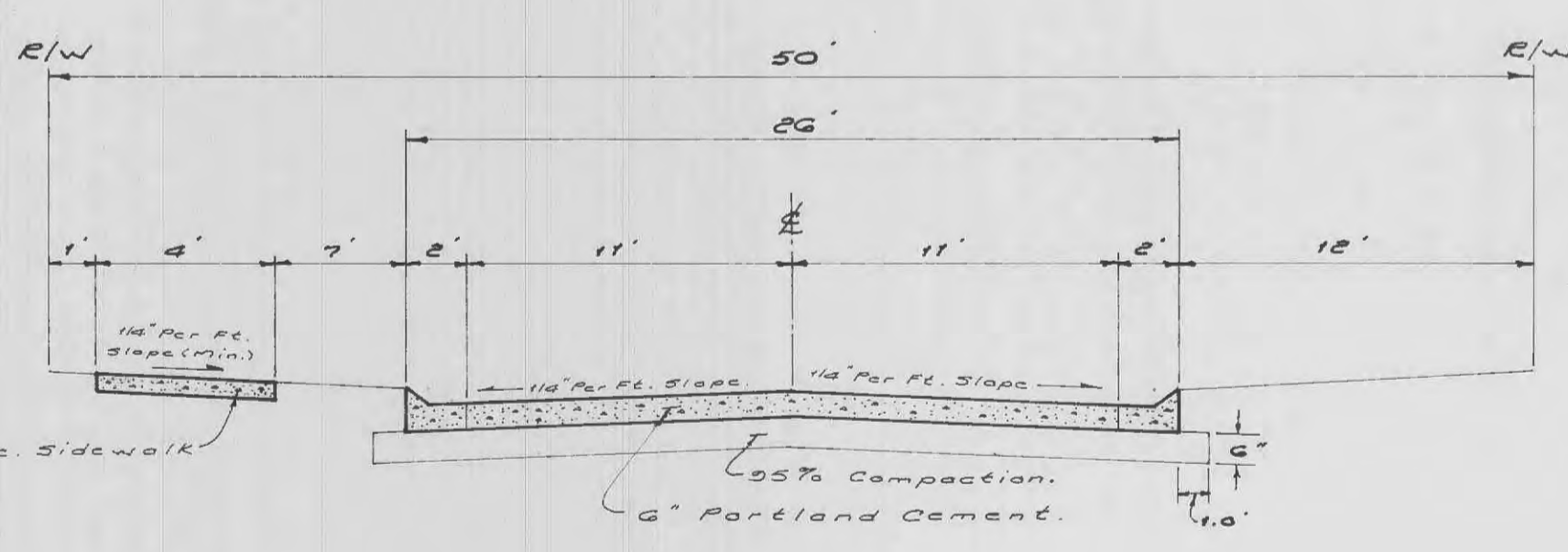
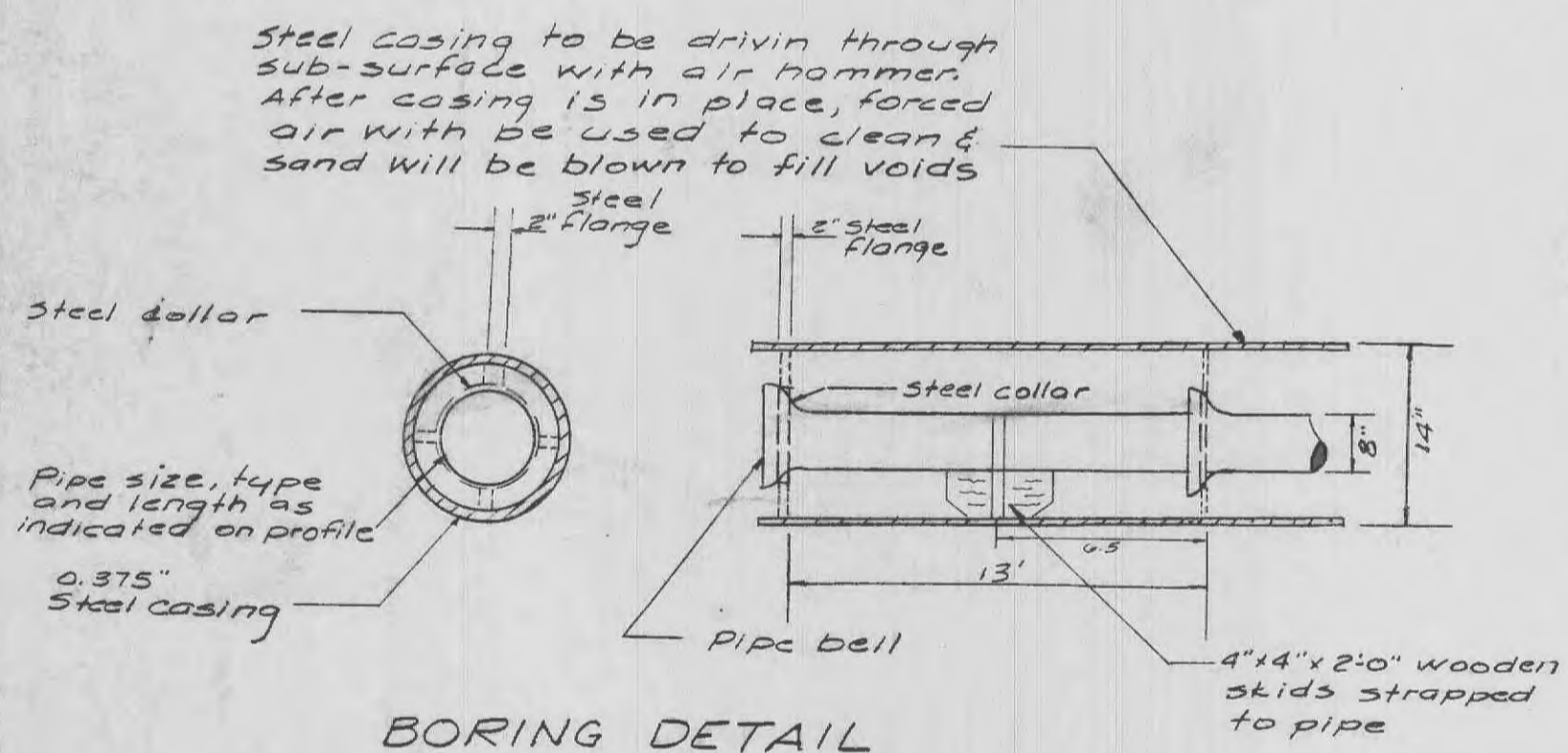
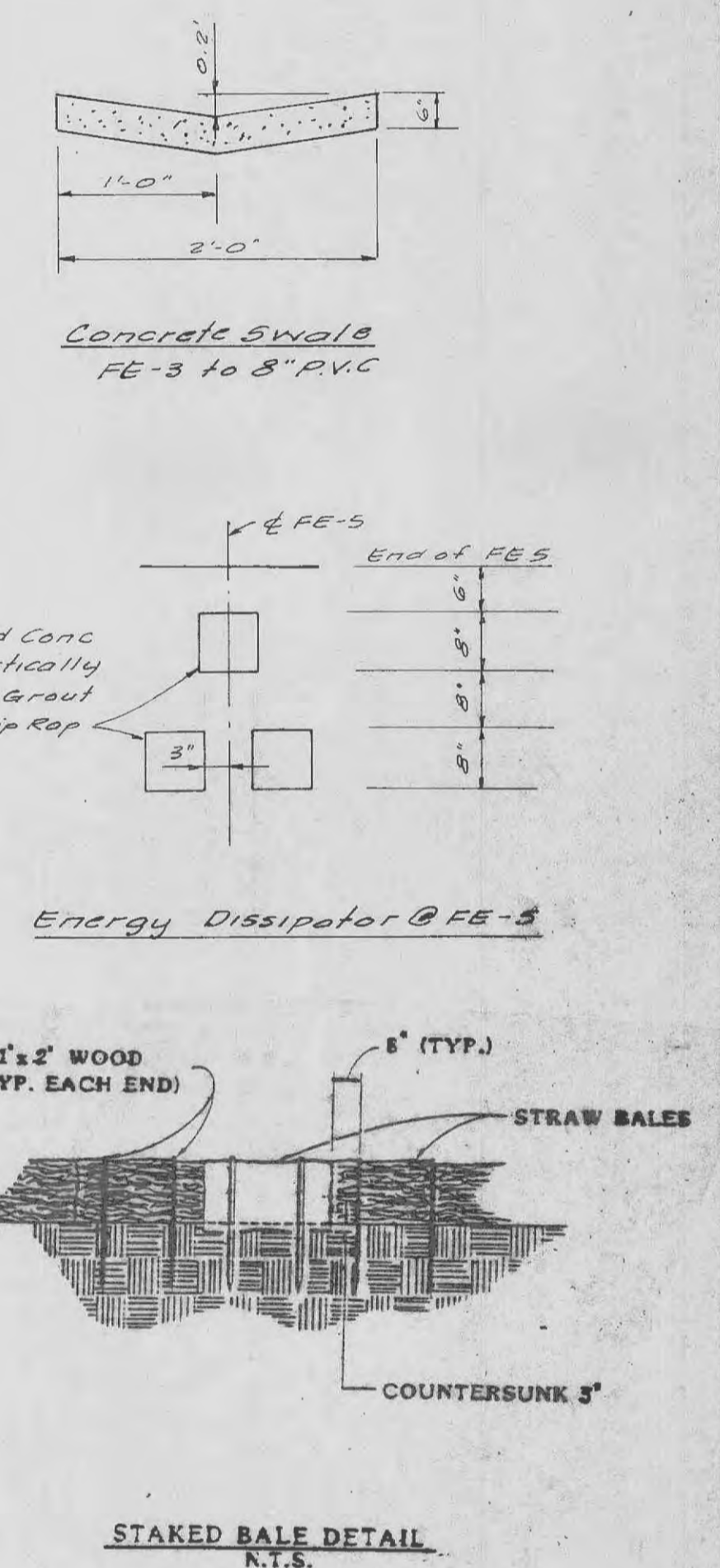
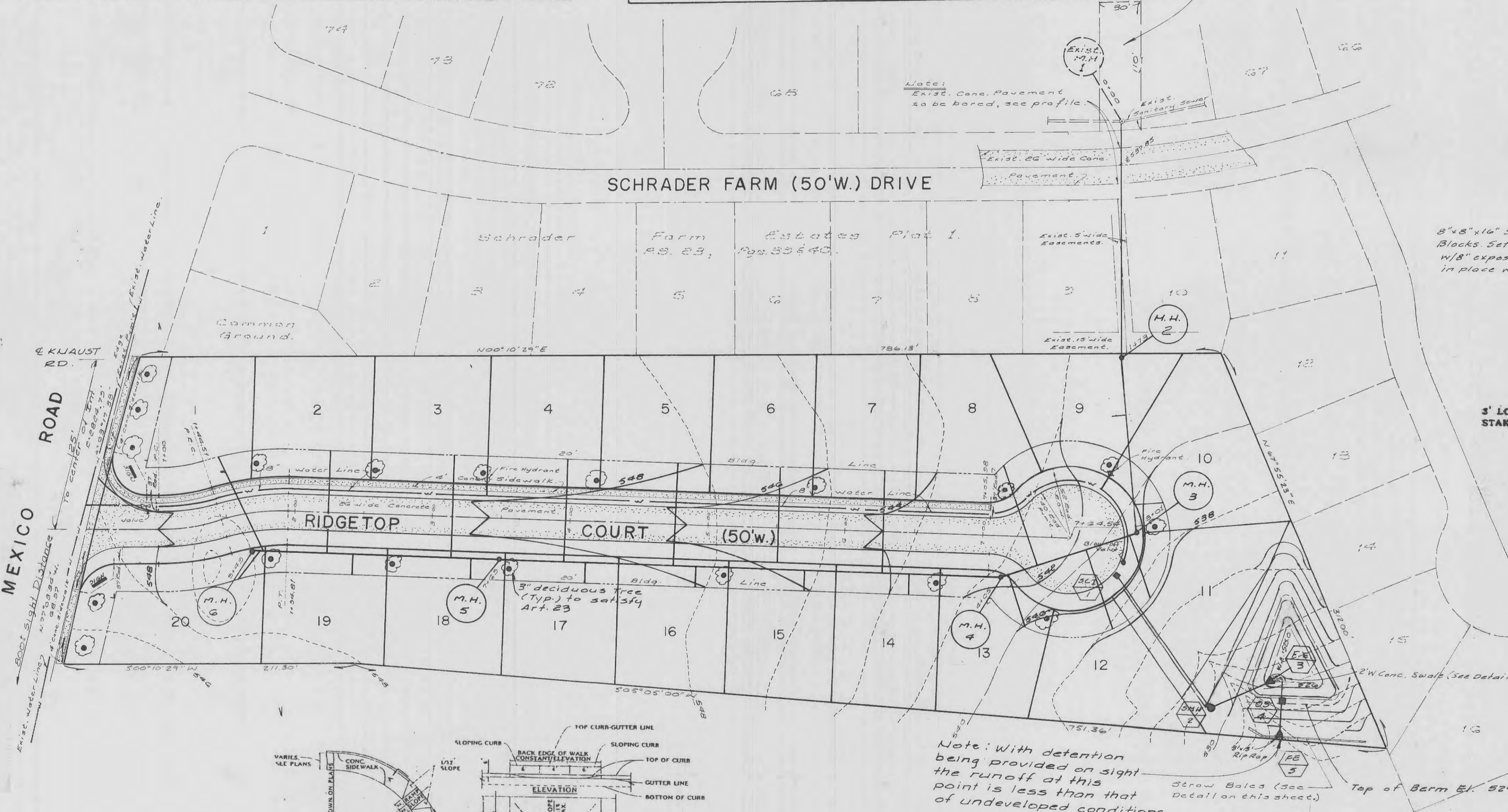
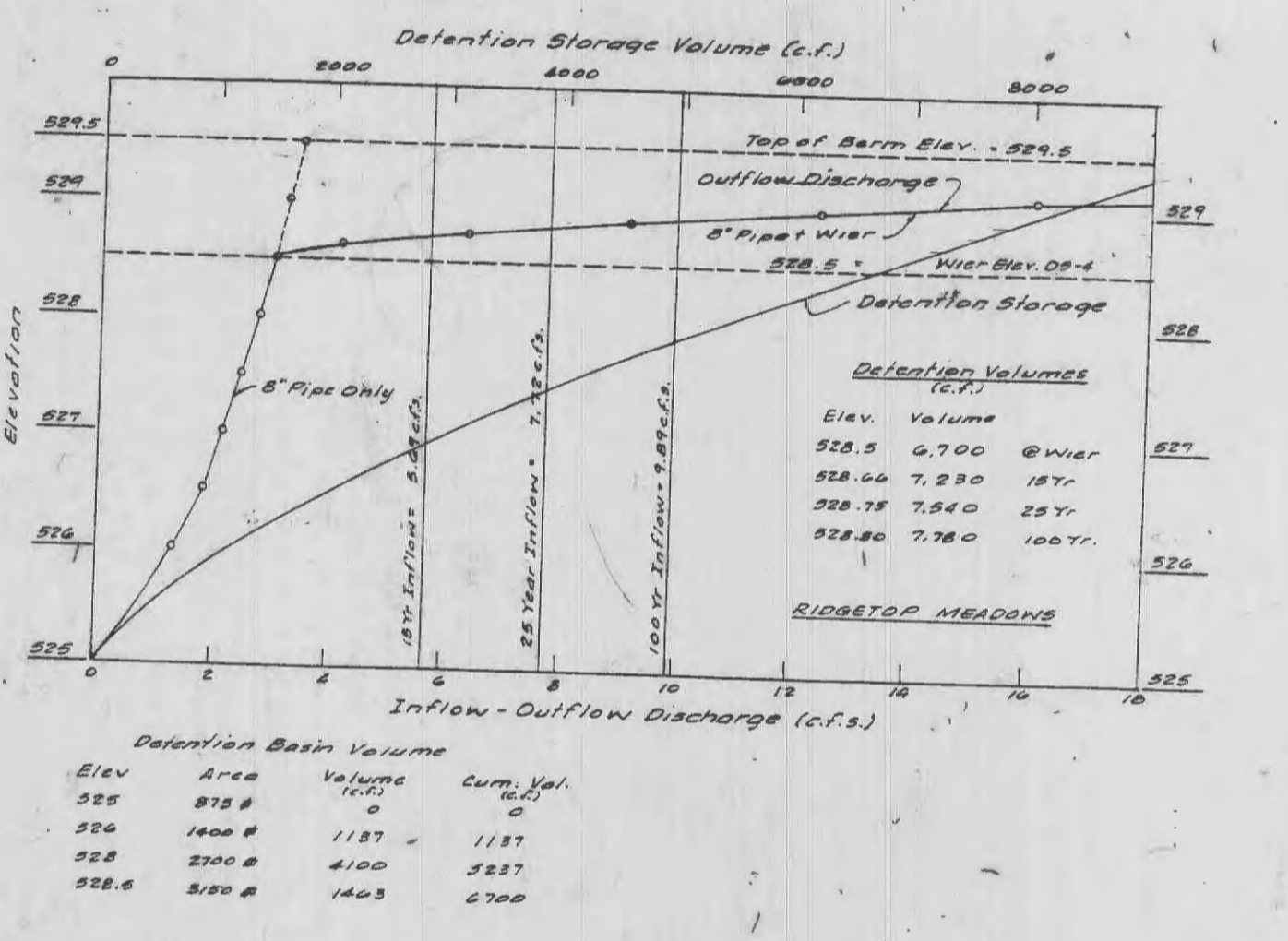
LINE	R	D	L	Q	FL	H	@ M.H.	N ₁	N ₂	N ₃	N ₄	N ₅	Total	Outside M.M.	Ground	H _{1/2}	Flow	Q _{1/2}	REMARKS	
15 Yr. Discharge																				
SE1	3.82	12"	0.785	4.87	528.44								1.04	0.25	0.25					
M.H.2	1.18	1.00	35.64	0.37	528.52								0.37	3.82	0.4					Fin. Cap.
M.H.3	3.82	12"	0.785	4.87	528.52								1.04	3.82	0.4					Fin. Cap.
FE3	45'	1.00	35.64	0.37	528.44								0.37	3.82	0.4					5.09 cfs
25 Yr. Discharge																				
SE2	7.72	12"	1.571	9.83	528.29								1.05	7.72	0.4					Fin. Cap.
FE3	30'	1.00	35.64	1.50	528.24								1.50	7.72	0.4					7.99 cfs

Project: Ridgetop Meadows No. Date: 11-19-92 Sheet 1 of 2

SEWER DESIGN SHEET B

LINE	D	L	Q	FL	H	@ M.H.	N ₁	N ₂	N ₃	N ₄	N ₅	Total	Outside M.M.	Ground	H _{1/2}	Flow	Q _{1/2}	REMARKS		
SE1	1.00	0.83	6.48	0.47	0.47	10.82							0.47	0.47	0.47					
M.H.2	1.00	0.48	0.47	0.353	0.46	1.82							0.46	1.82	0.46					
M.H.3	2.00	1.11	1.11	0.46	0.46								0.46							
FE3	0.83			0.46									0.46							
OS4	3.00	Full Flow																		
FE5																				

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NOTE:
 Underground utilities and structures have been plotted from available information and therefore, their location must be considered approximate only. It is the responsibility of the individual contractors to notify the utility companies before actual construction.



Revised: 1-21-93
 Rev. 2-05-93