

SUPPLEMENTAL WATERSHED AGREEMENT NO. III
 FOR ELM CREEK (CEN-TEX) WATERSHED, TEXAS
 BY
 EXCHANGE OF CORRESPONDENCE

Since the original Watershed Agreement was signed on the 24th day of June 1976, and subsequent supplements since, it has become necessary to modify that agreement in order to carry out the installation of the plan.

Floodwater Retarding Structure No. 42 as planned will be moved from its original location to two separate locations known as sites 42A and 42B. Site No. 42 will be deleted from the plan. The two new sites will have drainage areas of approximately 4.6 square miles and 2.6 square miles respectively. The movement of site 42 will decrease the controlled drainage area from 7.48 square miles to 7.19 square miles. The hazard classification for both sites will remain class A and the benefits will remain the same. Tables 2 and 3 are attached. Supporting data is shown below:

	Structure 42	Structures 42A & 42B
Total Estimated Installation Cost	1,278,200	1,086,600
Est. Federal Installation Cost	1,133,600	934,500
Average Annual Cost	102,300	87,000
Average Annual Benefits	91,700	88,200
Benefit - Cost Ratio	0.9:1	1:1

A biological evaluation of the new sites indicated that no federally listed threatened or endangered plants or animals would be affected and no critical habitat is present. No fishery resources will be affected. The installation of sites 42A and 42B will affect approximately the same amount of Riverine - Intermittent wetlands as was at the original site. A cultural resource review will be made prior to construction. The installation of the sites will not create any significant adverse impact compared to those that would have occurred at the original location.

Revised Table 2, Estimated Cost Distribution - Structural and nonstructural measures
Elm Creek (CEH-TEX) Watershed, Texas

(Dollars) 1/

Structure Site No. or Name	Installation cost - P.L. 566				Installation cost - Other funds					Total Installation Cost	
	Construction	Engineering	Land Rights	Project Admin.	Total P.L. 566	Construction	Engineering	Land Rights	Other		Project Admin.
Structural Measures											
Floodwater Retarding Structure No. 42A	436,900	30,500		74,800	542,300			89,000		2,000	91,000
42B	315,800	22,200		54,100	392,200			59,100		2,000	61,100
Grand Total	752,800	52,800	0	128,900	934,500	0	0	148,100	0	4,000	152,100
											1,086,600

1/ Price Base: 1994

TABLE 3: STRUCTURAL DATA - DAMS WITH PLANNED STORAGE CAPACITY
ELM CREEK (CEN-TEX) WATERSHED, TEXAS

ITEM	UNIT	STRUCTURE NUMBERS	
		42A	42B
Class of Structures		A	A
Seismic Zone		0	0
Uncontrolled Drainage Area	SQ. MI.	4.59	2.6
Runoff Curve No. (1 Day) (Average AMC II)		76	78
Time of Concentration (Tc)	HR.	2.29	1.72
Elevation Top of Dam	FT.	411.5	405.7
Elevation Crest Emergency Spillway	FT.	408.1	402.7
Elevation Crest High Stage Inlet	FT.	397.2	394.7
Elevation Crest Lowest Ungated Outlet	FT.	391.0	392.5
Emergency Spillway Type		VEGETATED	VEGETATED
Emergency Spillway Bottom Width	FT.	150	75
Emergency Spillway Exit Slope	%	2.0	1.8
Maximum Height of Dam	FT.	34	29
Volume of Fill	CU. YD.	77,000	68,000
Total Capacity 1/	AC. FT.	1784	948
Sediment Submerged Lowest Ungated Outlet 2/	AC. FT.	189	181
Sediment Submerged 100 Years	AC. FT.	320	105
Sediment Aerated	AC. FT.	42	28
Floodwater Retarding	AC. FT.	1233	634
Surface Area			
Lowest Ungated Outlet	AC.	35.1	41.5
Sediment Pool	AC.	66.3	54.1
Floodwater Retarding Pool	AC.	204.3	122.3
Principal Spillway Design			
Rainfall Volume (1 Day)	IN.	8.50	8.00
Rainfall Volume (10 Day)	IN.	14.15	13.30
Runoff Volume (10 Day)	IN.	8.43	7.89
Capacity of High Stage (Maximum)	CFS	112	60.4
Dimensions of Conduit	IN.	30	24
Frequency Operation (Emergency Spillway)	% CHANCE	2.7	4
Emergency Spillway Hydrograph			
Rainfall Volume	IN.	8.82	7.40
Runoff Volume	IN.	5.90	4.80
Storm Duration	HR.	6	6
Velocity of Flow (Ve)	FT./SEC.	2.4	0
Maximum Reservoir Water Surface Elevation	FT.	408.6	402.4
Freeboard Hydrograph			
Rainfall Volume	IN.	13.54	10.23
Runoff Volume	IN.	10.4	7.2
Storm Duration	HR.	6	6
Maximum Reservoir Water Surface Elevation	FT.	411.5	404.6
Discharge Per Foot of Width (Oe/b)	AC. FT.	6.9	3.2
Bulk Length	FT.	590	600
Capacity Equivalents			
Sediment Volume	IN.	2.2	2.21
Floodwater Retarding Volume	IN.	5.04	4.57

1/ At Emergency Spillway Crest

2/ Included in Sediment Submerged 100 Years

May 1994

TABLE 3: STRUCTURAL DATA - DAMS WITH PLANNED STORAGE CAPACITY
ELM CREEK (CEN-TEX) WATERSHED, TEXAS

ITEM	UNIT	STRUCTURE NUMBERS	
		42A	42B
Class of Structures		A	A
Seismic Zone		0	0
Uncontrolled Drainage Area	Sq. Km.	11.89	6.73
Runoff Curve No. (1 Day) (Average AMC II)		76	76
Time of Concentration (Tc)	HR.	2.29	1.72
Elevation Top of Dam	M.	125.4	123.7
Elevation Crest Emergency Spillway	M.	124.4	122.7
Elevation Crest High Stage Inlet	M.	121.1	120.3
Elevation Crest Lowest Ungated Outlet	M.	119.2	119.6
Emergency Spillway Type		VEGETATED	VEGETATED
Emergency Spillway Bottom Width	M.	45.7	22.9
Emergency Spillway Exit Slope	%	2.0	1.8
Maximum Height of Dam	M.	10.4	8.8
Volume of Fill	Cu. M.	58,870.7	51,989.7
Total Capacity 1/	Cu. M.	2,200,209.3	1,169,169.5
Sediment Submerged Lowest Ungated Outlet 2/	Cu. M.	233,093.9	223,227.5
Sediment Submerged 100 Years	Cu. M.	394,656.4	129,496.6
Sediment Aerated	Cu. M.	51,798.6	34,532.4
Floodwater Retarding	Cu. M.	1,520,660.3	781,912.9
Surface Area			
Lowest Ungated Outlet	Ha.	14.20	16.79
Sediment Pool	Ha.	26.83	21.89
Floodwater Retarding Pool	Ha.	82.68	49.49
Principal Spillway Design			
Rainfall Volume (1 Day)	Cm.	21.6	20.3
Rainfall Volume (10 Day)	Cm.	35.9	33.8
Runoff Volume (10 Day)	Cm.	21.4	19.5
Capacity of High Stage (Maximum)	C.M.S.	3.2	1.7
Dimensions of Conduit	M.	0.8	0.6
Frequency Operation (Emergency Spillway)	% Chance	2.7	4.0
Emergency Spillway Hydrograph			
Rainfall Volume	Cm.	22.4	18.8
Runoff Volume	Cm.	15.0	11.7
Storm Duration	Hr.	6	6
Velocity of Flow (Ve)	M./Sec.	0.7	0.0
Maximum Reservoir Water Surface Elevation	M.	124.5	122.7
Freeboard Hydrograph			
Rainfall Volume	Cm.	34.4	26.0
Runoff Volume	Cm.	26.4	18.3
Storm Duration	HR.	6	6
Maximum Reservoir Water Surface Elevation	M.	125.4	123.3
Discharge Per Foot of Width (Oe/b)	Cu. M.	7.9	7.9
Bulk Length	M.	179.8	182.9
Capacity Equivalents			
Sediment Volume	Cm.	5.59	5.61
Floodwater Retarding Volume	Cm.	12.80	11.61

1/ At Emergency Spillway Crest

2/ Included in Sediment Submerged 100 Years