

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	1-37-1 (2) 000	1
STATE	COUNTY	STATE
16	NUECES	74-6-38

# STATE OF TEXAS STATE HIGHWAY DEPARTMENT

## PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT. 1-37-1 (2) 000  
INTERSTATE HIGHWAY 37

PLAN 1 IN. = 40 FT.  
PROFILE 1 IN. HOR. = 50 FT. 1 IN. VERT. = 10 FT.  
CROSS-SECTIONS 1 IN. HOR. AND VERT. = 5 FT.  
OTHERS AS NOTED.

NET LENGTH OF PROJECT = 5,575.00 FT. = 1.054 MI. — [ROADWAY MUNICIPAL 4,535.51 FT. = 0.858 MI.  
BRIDGES MUNICIPAL 1,039.49 FT. = 0.196 MI.  
TOTAL 5,575.00 FT. = 1.054 MI.]

NUECES COUNTY  
FROM WACO STREET WESTWARD TO PEABODY ST.  
GRADING, STRUCTURES, FLEX. BASE & ASPHALTIC CONCRETE PAVEMENT.

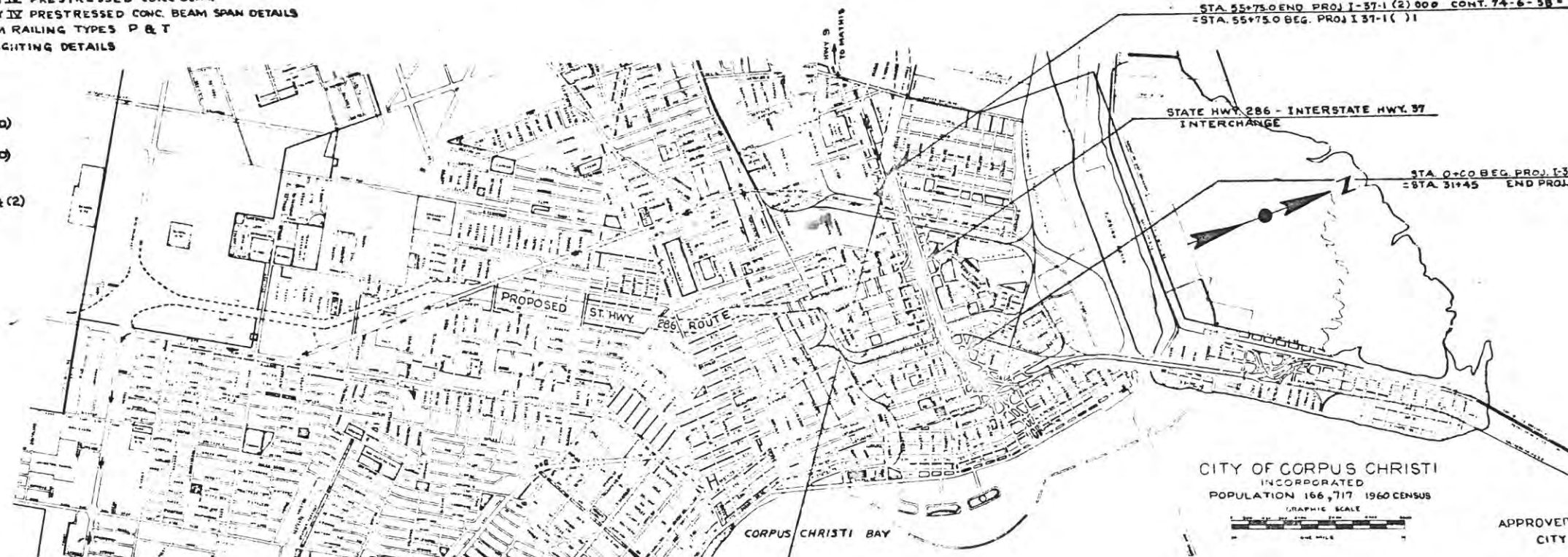
DESIGN SPEEDS  
50 MPH ON FREEWAY LANES  
30 MPH MIN. THROUGH INTERCHANGE

"FINAL PLANS"  
Project Completed  
May 9, 1963  
Plans corrected as  
actually constructed

*James H. Jones*  
Supervising Resident  
Engineer

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CITY OF CORPUS CHRISTI  
INCORPORATED  
POPULATION 166,717 1960 CENSUS



APPROVED *May 12 1961* 1961

CITY OF CORPUS CHRISTI  
TEXAS

*W. H. [Signature]*  
CITY MANAGER

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS  
JANUARY 2, 1961  
AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS:  
REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID INTERSTATE PROJECTS APR. OCT. 25, 1960  
NOTE:-  
SEE SPECIAL PROVISIONS FOR DETOURS, BARRICADES, WARNING SIGNS ETC.

NO EQUATIONS  
NO EXCEPTIONS  
TWO RAILROAD GRADE CROSSINGS (FRONTAGE ST.)

Limits on 104(B) 5 Needs Estimate  
Begin A1 End A2.1

STATE HIGHWAY DEPARTMENT

APPROVED *May 10 1961* 1961

CORRECT

*J. H. [Signature]*  
SUPERVISING RESIDENT ENGINEER

RECORDED  
FOR APPROVAL

*6-2-61*

*J. O. [Signature]*  
DISTRICT ENGINEER

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

APPROVED

DIVISION ENGINEER

DATE

COUNTY  
HWY. NO.  
DATE ACCEPTED

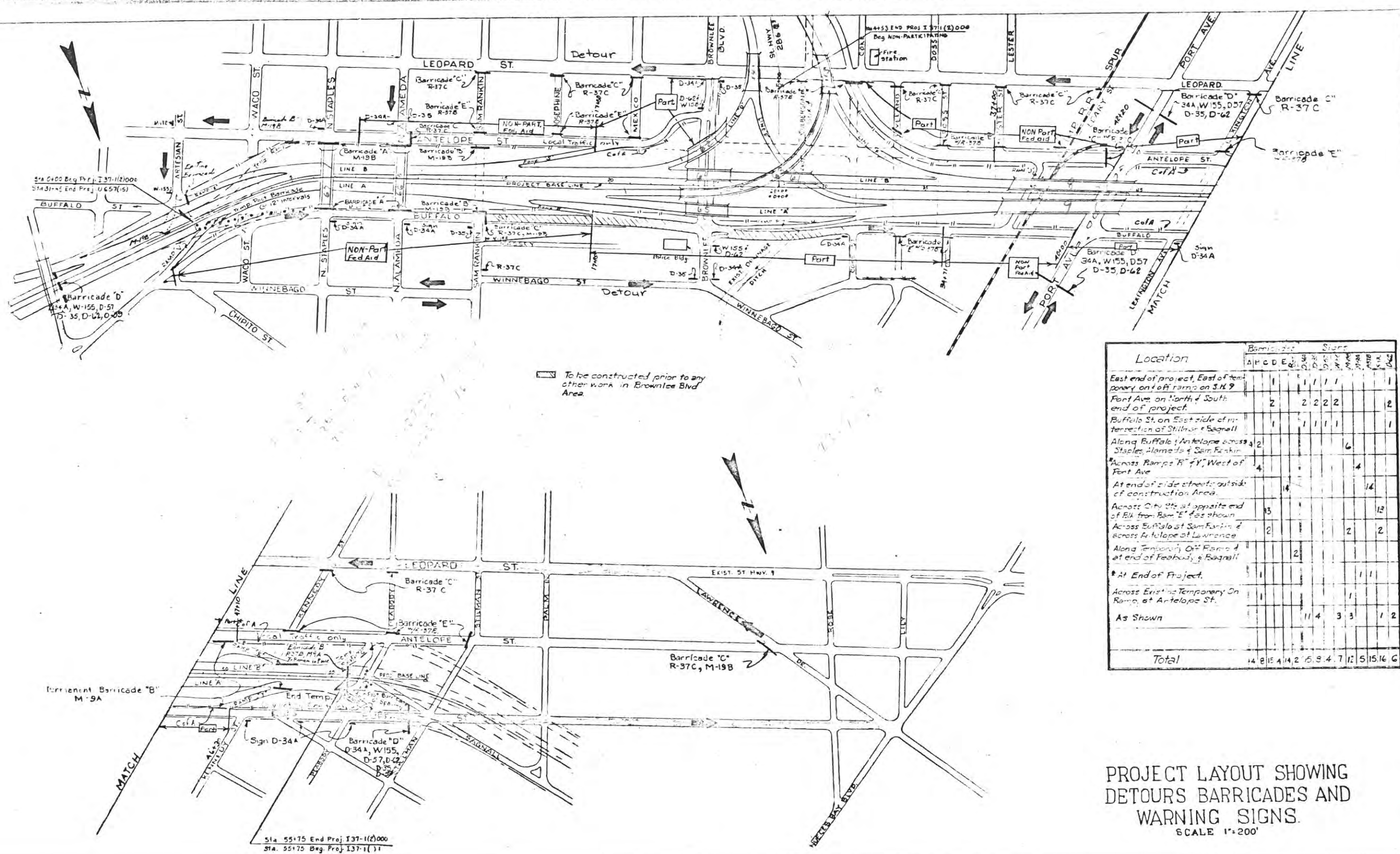
PROJ. NO.  
LETTING DATE



8

FINAL 736 08

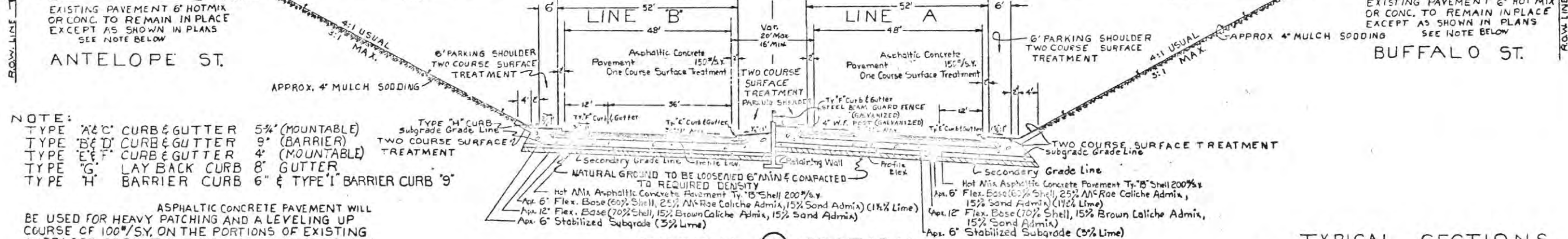
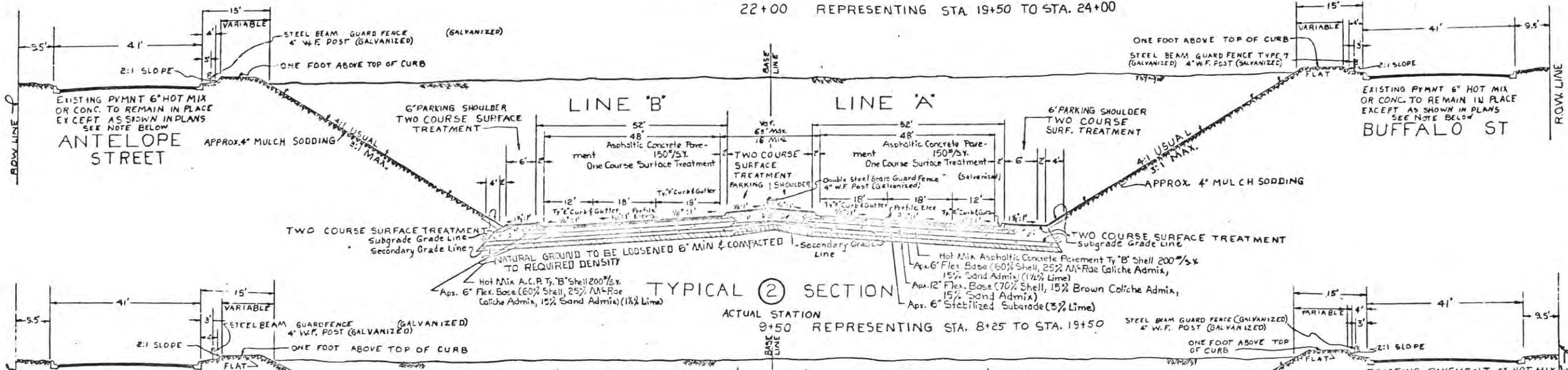
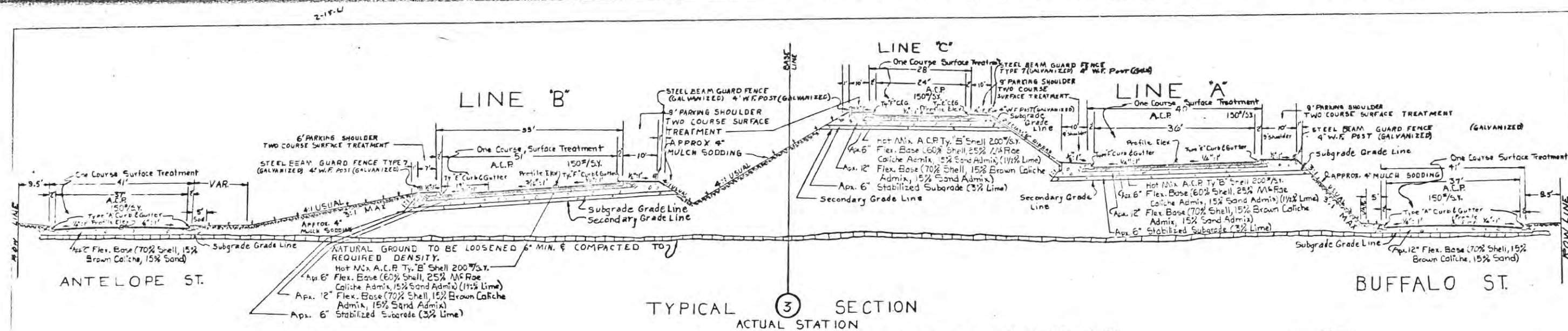
11 x 18



Location	Barricade												Signs	
	A	P	C	D	E	D-34A	D-35	D-62	D-57	D-68	D-34A	D-35	D-62	D-57
East end of project, East of temporary end of ramp on S.H. 9	1			1	1	1								1
Port Ave. on North & South end of project	2			2	2	2								2
Buffalo St. on East side of intersection of Stillman & Bagwell	1			1	1	1								1
Along Buffalo & Antelope across Staples, Alameda & Sam. Ferkel	4	2										6		
Across Ramps R-1 & R-2, West of Port Ave	4												4	
At end of side streets outside of construction Area				1										14
Across City St. at opposite end of RLA from Barr. E* as shown	3													12
Across Buffalo St. Sam. Ferkel & across Antelope at Lawrence	2											2		2
Along Temporary Off Ramp at end of Featway & Bagwell				2										
* At End of Project	1												1	1
Across Existing Temporary On Ramp at Antelope St.	1													1
As Shown							11	4		3	3			12
Total	14	2	1	4	4	2	15	9	4	7	12	5	15	16

PROJECT LAYOUT SHOWING  
DETOURS BARRICADES AND  
WARNING SIGNS.  
SCALE 1"=200'



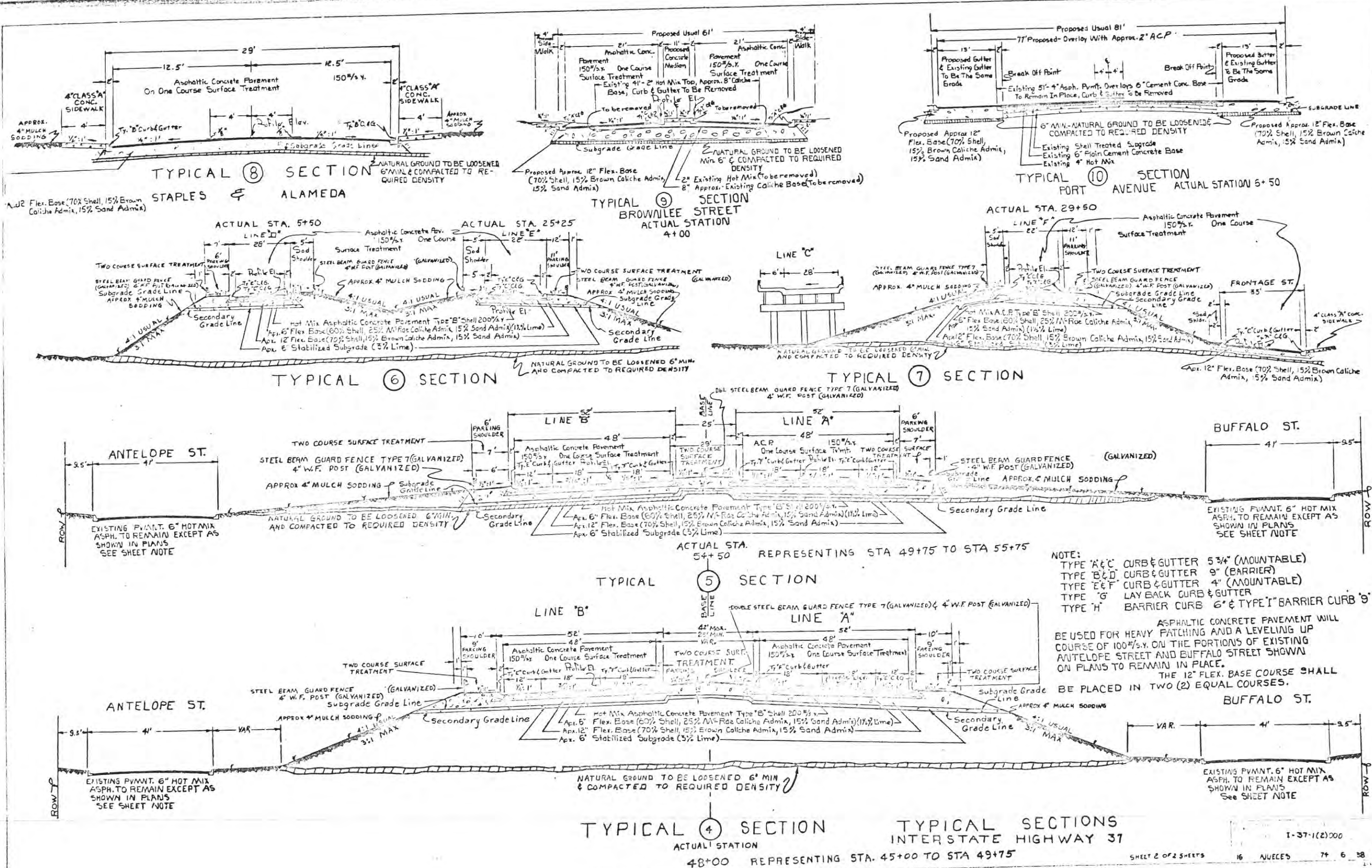


NOTE:  
 TYPE 'A' & 'C' CURB & GUTTER 5" (MOUNTABLE)  
 TYPE 'B' & 'D' CURB & GUTTER 9" (BARRIER)  
 TYPE 'E' & 'F' CURB & GUTTER 4" (MOUNTABLE)  
 TYPE 'G' LAY BACK CURB 8" GUTTER  
 TYPE 'H' BARRIER CURB 6" & TYPE 'I' BARRIER CURB 9"

ASPHALTIC CONCRETE PAVEMENT WILL BE USED FOR HEAVY PATCHING AND A LEVELING UP COURSE OF 100#/SY. ON THE PORTIONS OF EXISTING ANTELOPE STREET AND BUFFALO STREET SHOWN ON PLANS TO REMAIN IN PLACE.  
 THE 12" FLEX. BASE COURSE SHALL BE PLACED IN TWO (2) EQUAL COURSES.

TYPICAL SECTIONS  
 INTERSTATE HIGHWAY 37







# SUMMARY OF STORM SEWERS INT. HWY. No. 37

Sheet No.	Storm Sewer Line	Designation	Sewer Excavation (C.V.)	R.C. Class III Pipe Sewers						R.C. Class IV Pipe Sewers			42" Ash. C.G.M. Pipe
				18"	24"	30"	36"	42"	48"	18"	24"	42"	
B3	Line X	CI-4 CI-7	280.0	331									
B3	"	CI-7 CI-9	206.9		281								
B3	"	CI-9 MH-2	53.5			50							
B3	"	MH-2 CI-14	255.5			220							
B4	"	CI-14 CI-15	446.2				430						
B4	"	CI-15 CI-17	607.4				390						
B4	"	CI-17 CI-28	1365.5					432					
E	"	CI-28 CI-34	2,981.4					634					
E	"	CI-34 CI-33	1,289.3						544				
E	"	MH-33 Line U	269.0						122				
E	Lateral X1	CI-2 CI-3	35.8	63									
E	"	CI-3 CI-4	35.5	66									
E	Lateral X2	SGD-1 CI-4	1.4	7									
E	Lateral X3	SGD-2 CI-5	17.6	33									
E	"	CI-5 CI-6	35.5	78									
E	"	CI-6 CI-7	37.8	66									
E	Lateral X4	SGD-3 CI-7	1.1	7									
E	Lateral X5	CI-8 CI-9	71.4	152									
E	Lateral X6	SGD-4 CI-9	1.5	7									
E	Lateral X7	SGD-5 CI-10	28.0	58									
E	"	CI-10 MH-2	38.5	81									
E	Lateral X8	CI-11 CI-12	21.5	40									
E	"	CI-12 MH-3	110.9	152									
E	"	MH-3 SGD-6	37.8	72									
E	"	SGD-6 CI-13	2.2	7									
E	"	CI-13 CI-14	81.2	130									
E	Lateral X9	SGD-7 CI-14	2.0	7									
E	Lateral X10	SGD-8 CI-16	1.6	7									
E	"	CI-16 CI-15	12.1	24									
E	Lateral X11	DI-2 CI-17	44.2	87									
E	Line Y	CI-18 MH-4	40.8	71									
E	"	MH-4 CI-19	56.2	80									
E	"	CI-19 CI-20	105.7	173									
E	"	CI-20 CI-21	41.1	57									
E	"	CI-21 CI-1	20.3										
E	"	DI-1 CI-17	228.4			21							
E	Lateral Y1	SGD-9 CI-20	1.9	7									
E	Line Z	CI-22 CI-23	17.4	33									
E	"	CI-23 MH-5	273.0	438									
E	"	MH-5 CI-25	86.5	206									
E	"	CI-25 CI-26	167.3	320									
E	"	CI-26 CI-28	42.3	73									
E	Lateral L1	CI-24 MH-5	28.9	55									
E	Lateral L2	CI-27 CI-26	23.8	47									
E	Lateral L3	CI-29 CI-30	36.7	74									
E	"	CI-30 CI-31	20.6	54									
E	"	CI-31 CI-28	31.4	77									
E	Lateral X12	CI-35 CI-36	20.3	39									
E	Line Z	CI-32 CI-33	51.7	100									
E	"	CI-33 MH-6	120.1										
E	"	MH-6 CI-34	51.5	54									
E	"	CI-34 CI-28	285.1			171							
E	Lateral W1	CI-37 CI-38	91.0	110									
E	"	CI-38 CI-39	119.9							111			
E	"	CI-39 MH-7	232.0							212			
E	Line W	CI-40 CI-41	24.7										
E	"	CI-41 CI-42	62.2										
E	"	CI-42 CI-4	81.7										
E	"	DI-4 MH-7	25.3										
E	"	MH-7 CI-36	150.4										
E	Lateral U2	CI-92 MH-21	14.5	35									
E	"	MH-21 Line U	33.6	77									
E	Lateral U3	CI-93 DI-18	18.2	46									
E	"	DI-18 Line U	28.0	83									
E	Lateral U4	CI-94 MH-32	26.5	62									
E	"	MH-32 Line U	39.1	89									
E	Lateral U5	CI-95 CI-96	90.4	202									
E	"	CI-96 MH-22	15.0	36									
E	"	MH-22 CI-97	25.7	35									
E	"	CI-97 Line U	49.7	103									
100	Lateral Z	DI-15 MH-21	25.0	51									
100	Lateral B	CI-75 DI-14	115.7	107									
100	"	DI-14 MH-8	40.9	46									
99	Lateral C	CI-77 MH-9	55.1	51									
99	Lateral D	CI-76 MH-9	23.2	33									

Sheet No.	Storm Sewer Line	Designation	Sewer Excavation (CV)	R.C. Class III Pipe Sewers						R.C. Class IV Pipe Sewers			42" Ash. C.G.M. Pipe	
				Type "A"						Type "A"				Type "B"
				18"	24"	30"	36"	42"	48"	18"	24"	42"		
99	Lateral E	CI-79 MH-20	32.7	48										
99	Lateral F	CI-78 MH-20	10.2	17										
97	Lateral H	CI-80 MH-12	5.3	10										
97	Lateral I	CI-82 CI-83	30.3	42										
95	Line P	294.7 DI-5	207.3											
95	"	DI-5 MH-8	207.7											
95	"	MH-8 CI-49	324.5											
95	"	CI-49 CI-54	108.2											
95	"	CI-54 DI-6	45.7											
94	"	DI-6 MH-9	178.7											
94	"	MH-9 MH-10	402.9											
94	"	MH-10 CI-59	208.3											
94	"	CI-59 MH-11	368.2											
94	"	MH-11 MH-12	204.2											
94	"	MH-12 MH-13	207.9											
94	"	MH-13 MH-14	245.3											
94	"	MH-14 MH-19	2369.2											
93	"	MH-19 CI-84	835.1											
93	"	CI-84 Outfall	119.2											
96	Line T	CI-85 CI-86	151.6	205										
96	"	CI-86 MH-20	66.1	118										
96	"	MH-20 DI-15	194.5											
96	"	DI-15 CI-89	124.3											
96	"	CI-89 DI-16	51.1											
96	"	DI-16 Outfall	16.2											
96	Lateral T1	CI-87 MH-20	24.1	85										
97	Lateral T2	CI-88 MH-20	51.4	116										
97	Line S	CI-72 CI-73	127.9	276										
97	"	CI-73 MH-18	67.7	152										
97	"	MH-18 MH-19	12.2	36										
97	Lateral S1	CI-74 MH-18	31.8	73										
98	Line R	CI-65 CI-66	82.3	184										
98	"	CI-66 CI-69	36.0	69										
98	"	CI-69 CI-68	87.4	180										
98	"	CI-68 MH-16	18.2	54										
98	"	MH-16 DI-12	20.5	48										
98	"	DI-12 MH-19	246.0											
98	Lateral R1	CI-67 CI-68	76.3	174										
98	Line Q	CI-70 DI-11	21.4	50										
98	"	DI-11 MH-17	123.1	214										
98	"	MH-17 DI-12	39.5	90										
98	Lateral Q1	CI-71 MH-17	9.7	27										
99	Line Q	CI-62 MH-15	71.9	108										
99	"	MH-15 CI-61	81.0	132										
99	"	CI-61 MH-14	43.7											
99	Lateral Q1	CI-63 CI-64	20.5	48										
99	"	CI-64 MH-15	21.0	39										
100	Lateral R1	CI-43 CI-44	45.3	73										
100	"	CI-44 DI-5	112.9	158										
100	Lateral R2	CI-45 CI-46	47.3	124										
100	"	CI-46 CI-47	8.4	24										
100	"	CI-47 MH-9	11.5	26										
100	Lateral R3	CI-48 CI-49	11.3											
100	"	CI-49 CI-51	35.8	55										
100	"	CI-51 CI-52	81.5	113										
100	"	CI-52 DI-6	85.6	111										
100	Lateral N	CI-1 MH-1	16.5	40										
100	Lateral PS	CI-53 CI-54	37.3	53										
96	Lateral B3	CI-84 Inlet	35.6	57										
100	Lateral P4	CI-55 CI-56	54.1	122										
100	"	CI-56 MH-9	30.6	68										
100	Lateral P5	DI-7 MH-10	101.0	123										
100	Lateral P6	CI-57 CI-58	8.4	81										
100	"	CI-58 MH-11	27.1	27										
100	Lateral P9	CI-60 CI-61	71.1	81										
99	Lateral T	CI-86 MH-11	151.2	137										
99	Lateral P	CI-90 DI-10	52.7	57										
99	"	DI-10 MH-13	141.5	153										
97	Lateral P	CI-90 CI-91	17.1	42										
97	"	CI-91 CI-81	24.7	58										
97	Line R	CI-83 MH-19	14.0											
Total				71,661.9	5,689	1,052	1,122	1,315	2,037	931	111	669	827	97



# SUMMARY OF INLETS AND MANHOLES INT. HWY. No. 37

Sheet No.	Line No.	LOCATION	Designation	Height H. ft.	Structural Excav. (CY)	Curb Inlets A B E	S.G.D. C	Drop Inlet D	Manholes A B	M.H. Frame H. ft.	M.H. Frame L. ft.
85	Lat X	Line F Rt. Sta. 0+10	CI-1	1.91	5.3						
86	"	" " " Sta. 0+09	MH-1	5.40							
86	X-Lat H	Ramp X " Sta. 1+78	CI-2	6.37	13.8						
86	"	Line F " Sta. 1+77	CI-3	3.33	8.4						
83	"	" " " Sta. 1+92	CI-4	4.71	8.1						
86	X-Lat H	" " " Sta. 1+93.5	SGD-1	3.31	5.1						
86	X-Lat H	Ramp X " Lt. Sta. 4+89.5	SGD-2	6.10	8.1						
86	"	" " " Rt. Sta. 4+86	CI-5	6.08	12.9						
86	"	Line B " Sta. 5+57	CI-6	3.89	7.6						
83	"	Line A " Sta. 5+40	CI-7	5.13	10.3						
86	X-Lat H	" " " Sta. 5+42	SGD-3	3.30	3.8						
86	X-Lat H	Line B " Sta. 7+24.5	CI-8	4.55	10.0						
83	"	Line A " Sta. 8+36.5	CI-9	5.81	12.8						
86	X-Lat H	" " " Sta. 8+38.5	SGD-4	3.84	5.4						
86	X-Lat H	Line B " Lt. Sta. 8+60	SGD-5	5.74	8.3						
86	"	" " " Sta. 8+79	CI-10	4.67	10.2						
83	"	Line A " Rt. Sta. 8+95	MH-2	6.00	5.7						
87	X-Lat H	Antelope Lt. Sta. 8+09	CI-11	3.69	6.8						
87	"	" " " Rt. Sta. 8+09	CI-12	3.64	6.7						
87	"	" " " Sta. 4+68	MH-3	2.70	3.0						
87	"	Line B " Lt. Sta. 11+50	SGD-6	4.38	6.8						
87	"	" " " Sta. 11+47.5	CI-13	4.75	10.2						
84	"	Line A " Rt. Sta. 11+19	CI-14	6.50	19.2						
87	X-Lat H	" " " Sta. 11+21	SGD-7	4.30	7.1						
87	X-Lat H	Ramp H " Sta. 15+52	SGD-8	4.72	5.7						
87	"	" " " Sta. 15+50	CI-16	5.08	11.4						
84	"	Line A " Rt. Sta. 15+58	CI-15	6.44	13.6						
86	"	Antelope Lt. Sta. 11+95	CI-18	3.58	9.5						
88	"	" " " Rt. Sta. 12+23	MH-4	2.68	3.8						
88	"	Line B " Lt. Sta. 14+51	CI-19	5.23	12.1						
88	X-Lat H	Ramp S " Sta. 16+25	SGD-9	4.23	6.1						
88	"	" " " Sta. 16+24	CI-20	5.83	7.5						
88	"	Line B " Rt. Sta. 16+25	CI-21	5.45	8.4						
88	"	" " " Lt. Sta. 16+13	DI-1	5.06	7.7						
84	"	Line A " Rt. Sta. 17+61	CI-17	3.42	38.9						
87	X-Lat H	" " " Sta. 15+15	DI-2	2.40	3.5						
90	"	Buffalo " Sta. 8+12	CI-22	2.91	5.3						
90	"	" " " Lt. Sta. 8+12	CI-23	3.69	8.1						
87	X-Lat H	" " " Rt. Sta. 11+93	CI-24	3.58	6.6						
90	"	" " " Lt. Sta. 5+06	MH-5	3.20	3.9						
90	"	" " " Sta. 14+33	CI-25	2.33	5.6						
87	X-Lat H	" " " Rt. Sta. 17+55	CI-27	3.13	5.7						
90	"	" " " Lt. Sta. 17+66	CI-26	3.78	8.3						
83	"	Line A " Rt. Sta. 19+02	CI-28	14.33	41.0						
83	X-Lat H	" " " Sta. 22+10	CI-29	3.59	8.5						
88	"	" " " Sta. 21+04	CI-30	3.89	8.8						
83	"	Line C " Rt. Sta. 31+25	CI-31	5.59	8.8						
89	"	Antelope Lt. Sta. 15+59	CI-32	3.30	9.5						
89	"	" " " Rt. Sta. 16+42	CI-33	8.21	18.3						
89	"	Line B " Lt. Sta. 19+15	MH-6	7.96	9.1						
89	"	" " " Rt. Sta. 19+09	CI-34	7.76	18.0						
88	X-Lat H	Buffalo " Sta. 25+25	CI-35	6.50	7.1						
83	"	" " " Lt. Sta. 22+10	CI-36	9.04	20.2						
89	"	Antelope " Sta. 19+17	CI-37	4.87	12.9						
89	"	Line B " Sta. 21+50	CI-38	12.80	9.0						
89	"	" " " Sta. 21+41	CI-39	15.51	12.7						
91	"	Antelope " Sta. 22+37	CI-40	3.60	5.5						
91	"	" " " Rt. Sta. 22+45	CI-41	3.45	5.6						
91	"	Brownlee " Sta. 34+25	CI-42	3.85	8.7						
91	"	Line B " Sta. 24+35	DI-4	3.10	6.0						
91	"	Brownlee " Sta. 34+36	MH-7	4.81	6.7						
100	Plat R	Line A " Rt. Sta. 53+45	CI-43	6.88	8.3						
100	"	Line B " Sta. 55+50	CI-44	7.45	8.5						
95	"	" " " Lt. Sta. 54+29	DI-5	4.62	7.8						
100	Plat R	Line A " Rt. Sta. 51+25	CI-45	4.25	5.6						
100	"	Line B " Lt. Sta. 52+37	CI-46	4.71	8.8						
100	"	Ramp R " Sta. 52+37	CI-47	4.44	8.7						
95	"	Antelope Rt. Sta. 50+25	MH-8	5.39	10.5						
100	Plat R	" " " Sta. 51+44	CI-48	5.48	4.4						
95	"	Ramp R " Lt. Sta. 49+19	CI-49	6.42	11.4						
100	Plat R	Ramp Y " Rt. Sta. 49+25	CI-50	4.50	5.6						
100	"	Line A " Sta. 49+15	CI-51	8.40	8.7						
100	"	Line B " Lt. Sta. 49+34	CI-52	10.44	11.4						
95	"	" " " Sta. 47+16	DI-6	5.93	11.2						
100	Plat R	Antelope Lt. Sta. 47+10	CI-53	4.87	7.3						
100	"	Ramp R " Sta. 47+05	CI-54	5.01	9.5						
100	Plat R	Line A " Sta. 47+05	CI-55	5.03	8.8						
100	"	Line B " Lt. Sta. 47+20	CI-56	8.05	3.9						

Sheet No.	Line No.	LOCATION	Designation	Height H. ft.	Structural Excav. (CY)	Curb Inlets S.G.D				Drop Inlet D	Manholes		MH Frame		MH Frame L	
						A	B	E	C		A	B	Feet	H		
94	"	Antelope Rt. Sta. 45+20	MH-9	6.99	10.0											
100	Plat A7	" " " Sta. 44+31	DI-7	3.54	4.8											
94	"	Antelope Rt. Sta. 43+67	MH-10	7.61	10.9											
100	Plat A8	" " " Lt. Sta. 44+14	CI-57	6.73	12.3											
100	"	" " " Rt. Sta. 43+68	CI-58	6.68	12.2											
100	Plat A9	" " " Lt. Sta. 42+92	CI-60	5.52	10.1											
94	"	Port Ave Rt. Sta. 41+96	CI-59	7.38	13.5											
99	PLA190	" " " Sta. 41+88.5	DI-8	3.57	4.8											
94	"	Antelope Rt. Sta. 40+65	MH-11	8.69	12.4											
94	"	" " " Sta. 39+66	MH-12	8.91	12.7											
99	Plat A11	" " " Sta. 40+25	DI-9	6.96	8.6											
99	"	" " " Sta. 39+70	DI-10	7.03	8.7											
94	"	Antelope Rt. Sta. 38+64	MH-13	9.15	13.1											
99	"	" " " Lt. Sta. 38+55	CI-62	2.23	4.1											
99	Q-Lat Q	Line "F" " " Sta. 37+25	CI-63	4.10	5.2											
99	"	" " " Rt. Sta. 36+21	CI-64	3.13	5.7											
99	"	" " " Lt. Sta. 36+25	MH-15	3.00	3.4											
99	"	Antelope " " Sta. 37+40	CI-61	4.79	13.2											
99	"	" " " Rt. Sta. 37+51.5	MH-14	9.02	16.1											
98	"	Line "F" Lt. Sta. 32+50	CI-65	3.01	5.9											
98	"	" " " Sta. 31+57	CI-66	4.79	5.9											
98	"	Line "B" " " Sta. 34+00	CI-69	5.22	5.9											
98	Plat R1	" " " " Sta. 30+30.5	CI-67	3.10	5.9											
98	"	" " " " Sta. 32+16	CI-68	5.40	5.9											
98	"	" " " Rt. Sta. 32+09	MH-16	6.51	3.6											
98	"	" " " " Sta. 32+75	CI-70	4.73	8.8											
98	"	" " " " Sta. 35+57	DI-11	3.50	3.6											
98	Q-Lat O	Line "E" Lt. Sta. 32+73	CI-71	3.33	4.2											
98	"	" " " " Sta. 32+74	MH-17	3.53	3.6											
98	"	" " " Rt. Sta. 31+93	DI-12	6.45	8.3											
97	"	Line "A" " " Sta. 35+46.5	CI-72	6.03	8.8											
97	"	" " " " Sta. 32+60	CI-73	3.07	8.8											
97	S-Lat S	" " " " Sta. 30+35.5	CI-74	4.97	5.9											
97	"	" " " " Sta. 31+00	MH-18	4.54	3.6											
100	Buffalo	" " " " Sta. 34+50	DI-13	3.86	5.2											
100	"	Buffalo Lt. Sta. 47+05	MH-31	6.36	7.8											
100	B-Lat B	Ramp "Y" " Sta. 45+00	CI-75	5.79	7.6											
100	"	Line "A" Rt. Sta. 47+91	DI-14	5.72	7.3											
99	Buffalo	" " " " Sta. 41+21	CI-77	4.39	8.0											
99	Buffalo	" " " Lt. Sta. 41+25	CI-76	4.85	8.9											
99	Buffalo	" " " Rt. Sta. 40+07	CI-79	4.12	7.5											
99	Buffalo	" " " Lt. Sta. 40+55	CI-78	4.59	8.4											
97	Buffalo	" " " Lt. Sta. 32+65	CI-80	4.81	11.2											
97	Buffalo	" " " Rt. Sta. 24+59	CI-82	4.87	7.5											
97	Buffalo	" " " Lt. Sta. 24+57	CI-83	6.28	13.2											
93	"	" " " " Sta. 24+77	MH-19	13.28	20.8											
97	PLA112	Ramp "P" Rt. Sta. 24+01	CI-84	4.54	4.3											
97	"	Buffalo Lt. Sta. 24+05	CI-91	4.87	9.7											
93	"	" " " Rt. Sta. 26+72	CI-84	5.84	17.2											
96	"	Antelope Rt. Sta. 33+67	CI-85	4.54	8.3											
96	"	" " " Sta. 30+50	CI-83	4.11	6.8											
96	PLat F1	" " " Sta. 26+54	CI-87	3.15	4.4											
97	PLat F2	Line "F" Lt. Sta. 28+73	CI-88	6.57	5.9											
96	"	Antelope Rt. Sta. 27+32	MH-20	6.59	19.9											
96	"	Line "C" " " Sta. 13+20	DI-15	3.40	5.5											
96	"	Line "E" Lt. Sta. 26+14	CI-89	6.34	9.3											
96	"	" " " Rt. Sta. 26+36	DI-16	5.79	7.2											
85	"	Buffalo Lt. Sta. 25+41	MH-22	3.73	0											
92	U-Lat U	Line "D" Lt. Sta. 51+00	CI-92	4.20	5.9											
92	"	" " " Rt. Sta. 51+07	MH-21	7.50	3.6											
92	U-Lat U	Brownlee Lt. Sta. 34+25	CI-93	2.92	6.2											
92	"	" " " Sta. 34+15	DI-18	2.67	3.3											
92	U-Lat U	Line "B" Lt. Sta. 26+11	CI-94	5.41	5.9											
92	"	" " " Rt. Sta. 26+53	MH-23	6.89	3.6											
92	U-Lat U	Line "A" Lt. Sta. 26+02	CI-95	4.12	5.9											
92	"	" " " " Sta. 25+32	CI-96	4.50	5.9											
92	"	" " " Rt. Sta. 26+04.5	MH-22	7.72	3.6											
92	"	Ramp "P" Lt. Sta. 26+00	CI-97	2.73	4.7											
83	Culb Box	See Plan Sheet	VI-23	3.93	0											
83	"	" " " " " " " " " " " "	MH-24	10.44	0											
83	"	" " " " " " " " " " " "	MH-25	2.23	0											
83	"	" " " " " " " " " " " "	MH-26	2.82	0											
101	"	" " " " " " " " " " " "	MH-27	2.83	0											
83	Culb Box	" " " " " " " " " " " "	MH-34	3.33	0											
83	"	" " " " " " " " " " " "	MH-35	3.19	0											
83	"	" " " " " " " " " " " "	MH-36	2.69	0											
83	"	" " " " " " " " " " " "	MH-37	2.55	0											
Totals						1255.9	46	41	9	9	16	24	13	56	86	



2 BP + 2 gals. James C

35,420	24,131	817
35,521	24,922.7	952.9

FORCE ACCOUNT WORK TO BE PERFORMED  
BY MISSOURI PACIFIC RAILROAD CO.

(New-Prop) 1. Install timber crossing pavements at Buffalo Street and Antelope Street frontage roads and remove track No. 50-80, (120' long)

(PART.) 2. Relocate one flashing light Signal and install underground signal line.

NON-Participating Bridge	
Cl A Conc	Rein <sup>2</sup> Str.
CY	LB
3.90	1,010 Pd

## B A S I S O F E S T I M A T E

ITEM	BASIS
SPRINKLING	1,000 MG Dust Control 70 Gal / Cu.Yd. Mulch Sodding
ROLLING (Flat Wheel)	1 Hr. / 500 Sq. Yd. Two Crse Surf. Treatment
FERTILIZER	$\frac{1}{8}$ lb / SQ.Yd. Mulch Sodding
LIME SOIL STABILIZATION	Soil Wt. 100 Lbs/cu.Ft. 3% Lime by wt.
LIME BASE STABILIZATION	$1\frac{1}{2}$ % Lime by Wt. Base wt. 118 Lbs / cu.ft.
Seeding	8 Lb / Ac.
Tack Coat (RC-2)	0.05 Gal / SY
Asph Ty "D"	7.5% Hot Mix By weight
Aggr. Ty "D"	92.5 % Hot Mix By weight.
Asph. Ty "B"	7.5 % Hot Mix By weight.
Aggr Ty "B"	92.5 % Hot Mix By weight

ESTIMATE & QUANTITY SHEET  
SHEET 3 OF 5 SHEETS

Rev 8-10-61 (A A Part of New Part)

FED DIV #	STATE	FEDERAL PROJECT OR				SHEET
8	TEXAS	I-37-1 (2) 000				7
STAT DIV #	COUNTY	FOOT	SECT	JOE	HIGHWAY NO	
16	NUECES	74	6	20	I-37	



## ESTIMATE SUMMARY

URBAN				NON-PARTICIPATING		ALT.	ITEM- CODE		ITEM DESCRIPTION	UNIT	TOTAL	
ROADWAY		BRIDGES		ITEM- CODE			ITEM NO	DESC SP NO			EST.	FINAL
EST.	FINAL	EST.	FINAL	EST.	FINAL							
							100	001	Prep ROW	Ac	61	61
							102	001	Clear and Grub	Ac	3	3
248,250	240,276						110	006	Com Rd Excav (Dens Cont)	CY	248,250	240,276
							162	005	Mulch Sodding	CY	19,500	21,684
175,500	142,000						164	001	Broadcast Seeding (Ty I)	SY	175,500	142,000
11	8,875						166	001	Fertilizer (16-20-0)	Ton	11	8,875
							204	001	Sprinkling	MG	1,366	2,117.9
142	83						210	001	Rolling (Flat Wheel)	Hr.	142	83
							248	088	Flex Base (Dens Cont)(Ty E Gr 4)	CY	70,277	79,725
15,486	17,478						248	089	Sand Admix	CY	15,486	17,478
12,495	14,396						248	100	Caliche Admix (Brown)	CY	12,495	14,396
4,986	5,342						248	101	Caliche Admix (McRae)	CY	4,986	5,342
1,005,100	1,144,806						248	093	Add Qtr Mi Haul (Sand Admix)	CY	1,005,100	1,144,806
2,031,988	2,341,282						248	102	Add Qtr Mi Haul (Brown Caliche Admix)	CY	2,031,988	2,341,282
751,689	805,085						248	103	Add Qtr Mi Haul (McRae Caliche Admix)	CY	751,689	805,085
8	8						252	002	Salv and Repl Base (Dens Cont)	Sq ft	8	8
250.8	636,725						260	002	Lime (Ty B)	Ton	250.8	636,725
86,624	86,028.32						260	005	Lime Treat Subgr (Dens Cont)	SY	86,624	86,028.32
584.6	254,088						262	002	Lime (Ty B)	Ton	584.6	254,088
							320	038	Aggr (Ty PB Gr 2)	CY	951	839.1
21,410	17,960						320	123	Asph (OM 175)	Gal	21,410	17,960
200	258.5						322	005	Aggr (Ty A Gr 5)	CY	200	258.5
329	452.4						322	038	Aggr (Ty PB Gr 2)	CY	329	452.4
12,573	16,465						322	123	Asph (OM 175)	Gal	12,573	16,465
410	442,576						340	019	Asph (Base)	Ton	410	442,576
5,048	5,272,424						340	020	Asph (Ty B)(Shell)	Ton	5,048	5,272,424
2,729	395						340	021	Tack Coat (Base)	Gal	2,729	395
478	505,374						340	001	Asph	Ton	478	505,374
5,947	7,021,574						340	013	Asph (Ty D)(Shell)	Ton	5,947	7,021,574
5,097	1,945						340	008	Tack Coat	Gal	5,097	1,945
270	530						350	012	Hot Mix Cold Laid ACP (Ty CC)(Patch)	Ton	270	530
							350	008	Tack Coat	Gal	270	530
415	815						400	004	Uncl Struct Excav (Culv)	CY	415	815
2,515	3,773						400	005	Uncl Struct Excav (Br)	CY	2,515	3,773
227	227						400	007	Uncl Struct Excav (Ret Wall)	CY	227	227
1,256	1,256						401	011	Uncl Struct Excav (Inlets and Manholes)	CY	1,256	1,256
21,022	21,022						401	001	Sew Excav	CY	21,022	21,022
8,070	7,425.5						410	003	Lug Piling (16in)	LF	8,070	7,425.5
180	169.2						410	007	Lug Test Piling (16in)	LF	180	169.2
							421	001	CI A Conc (Culv)	CY	1532.00	1,527,274
1,134	1,120.24						421	002	CI A Conc (Bents)	CY	2595.10	2,592,14
							421	004	CI A Conc (Slabs)	CY	3931.30	3,937,36
644.94	644.94						421	008	CI A Conc (Ret Walls)	CY	644.94	644.94
							425	002	Prestressed Conc Beams (Ty B)	LF	2177.53	2,177.64
							425	009	Prestressed Conc Beams (Ty B-I)	LF	297.02	297.02
							425	003	Prestressed Conc Beams (Ty C)	LF	5631.99	5,631.45
							425	005	Prestressed Conc Beams (Ty C-I)	LF	2100.34	2,100.51
							425	010	Prestressed Conc Beams (Ty C-1)	LF	1092.75	1,094.16
							425	011	Prestressed Conc Beams (Ty C-2)	LF	3016.20	3,017.0
							425	014	Prestressed Conc Beams (Ty C-3)	LF	566.59	566.62
							425	015	Prestressed Conc Beams (Ty C-4)	LF	1073.25	1,073.88
							425	016	Prestressed Conc Beams (Ty C-5)	LF	474.84	476.07
							425	017	Prestressed Conc Beams (Ty C-6)	LF	1251.80	1,252.86
							425	018	Prestressed Conc Beams (Ty C-7)	LF	1530.49	1,530.17
							425	019	Prestressed Conc Beams (Ty C-8)	LF	487.67	486.57
							425	020	Prestressed Conc Beams (Ty C-9)	LF	557.67	556.50
							425	021	Prestressed Conc Beams (Ty C-10)	LF	807.00	805.59
							425	022	Prestressed Conc Beams (Ty C-11)	LF	89.11	89.11
							425	023	Prestressed Conc Beams (Ty C-12)	LF	374.25	374.28
							425	024	Prestressed Conc Beams (Ty C-13)	LF	98.15	98.16
							430	002	CI A Conc for Ext Str (Culv)	CY	671.00	674.85
							432	012	Riprap (Cone) (CIB)	CY	1,299	1,452.73
							440	001	Reinf Stl	LB	1,670,169	1,674,211
							442	006	Struct Stl (Armor Jts)	LB	3,555.0	3,555.0
							450	027	Railing (A1)(Ty P)	LF	900	900
							450	028	Railing (A1)(Ty T)	LF	5820.83	5,810.83
							465	003	Pipe Sewers (CI III)(18in)	LF	8,742	8,598.2
							465	005	Pipe Sewers (CI III)(24in)	LF	1,633	1,502
							465	007	Pipe Sewers (CI III)(30in)	LF	1,008	1,263
							465	009	Pipe Sewers (CI III)(36in)	LF	1,375	1,364
							465	010	Pipe Sewers (CI III)(42in)	LF	2,037	2,026
							465	011	Pipe Sewers (CI III)(48in)	LF	981	960.3
							465	020	Pipe Sewers (CI IV)(18in)	LF	111	108
							465	022	Pipe Sewers (CI IV)(24in)	LF	669	678
							465	027	Pipe Sewers (CI IV)(42in)	LF	827	832

ESTIMATE & QUANTITY SHEET  
SHEET 4 OF 5 SHEETS

STATE	16	COUNTY	NUECES	CONTRACT NO.	74	SHEET NO.	6	DATE	1-37-1(2) 000	8
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## ESTIMATE SUMMARY

URBAN				NON-PARTICIPATING				TOTAL	
I 37-1 (2) 000				BRIDGES					
CONTROL 74-6-38									
ROADWAY									
EST.	FINAL	EST.	FINAL	EST.	FINAL				
24	24								
13	13								
46	46								
41	41								
9	9								
16	16								
9	9								
86	86								
56	55								
97	97								
185	107								
1,580	1,728.2								
44,285	43,314.8								
2,420	2,523.36								
95	92								
14,100	14,559.2								
950	736.3								
3,530	3,530								
545	535								
1,193	1,188.57								
1,775	1,668.96								
11	13								
1,418	1,566.26	3,987	4,183.06						
1,287	1,326.03								
1,812	2,062.93								
176,100	159,915								
1	1								

[illegible]

★ - Approximate lengths of different types of Curbs and Gutter are estimated as follows:

Type A + C 20,554 Lin. Ft.

Type E + F 23,243 Lin. Ft.

Type B + D 488 Lin Ft.

Type	H	1,375 Lin. Ft.

Type I 205 Lin Ft.

Type G is included in above lengths.

## Approved Field Changes And Extra Work Orders

Approved Field Change No. 1

Install 3" rigid PVC conduit for signal lights crossing Antelope and Buffalo Streets is a part of this project.

Approved Field Change No. 2

Ramp "X" change from a two lane exit to a one lane exit.

Approved Field Change No. 3

Approved Field Change No. \_\_\_\_\_  
Wall of existing Culberson Conc. Drainage Structure to be shaped around Column #5 of Bent #2 of Line "E" Overpass Line "B", as shown on attached sketch, to reduce turbulence and head loss of the storm drainage flowing through this Drainage Structure.

Note: Void and not used.

Approved Extra Work Order No. 1

Work Consists of, Relaying Approximate 110LF of storm sewer pipe station, right of station 10+13 Line "A", under the Alameda street underpass

Approved Extra Work Order No.2

Work consists of, removing one (1) concrete footing (Footing "Y" of Bent 15), and drilling holes for previously poured concrete footing in Bent 14, 15, and 16 of the Lines "B & E" Overpass line "C" bridge structure.

FD NO DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
8	TEXAS	I-37-1(2) 000	9
STATE DIST. NO.	COUNTY	CURT. SECT.	JOB
16	NUECES	74 6 38	1-37



# **SPECIFICATION DATA** Test to be in accordance with Texas Highway Department Standard Test Methods

ITEM	DESCRIPTION	GRADING REQUIREMENTS Percent Retained, Sieves								WET BALL MILL	SEE NOTE
		2 1/2"	2"	1 3/4"	1"	1/2"	#4	#10	#40		
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
248	Flex Base (Dens. Cont.) (Ty E Gr 4)			0-15					45-65	2.5	A, C, E
248	Flex Base (Dens. Cont.) (Ty E Gr 4)			0-15					40-70	1.0	B, C, D, F
839	Borrow (Div.) (Dens. Cont.) (Ty B, C II)									40	

- A Course 1 - Approx. 12" (70% Shell, 15% Brown Caliche, 15% Gonzalez Sand)
- B Course 2 - Approx. 6" (60% Shell, 25% McRae Caliche, 15% Gonzalez Sand) (1 1/2% Lime)
- C All shell material shall be durable particles of washed Oyster shell containing not more than 12% soil binder.
- D The one course surface treatment shall be applied to the finished base as soon as is practical after the curing of the lime stabilized base is completed. It is intended that the flexible base shall be placed and surfaced in increments of length to preclude the necessity of reworking the lime stabilized base after curing is completed. In the event that circumstances are such as to require reworking of the lime stabilized base additional lime, as determined by the engineer, shall be added and mixed with the base as directed.
- E Triaxial Class I to 2.5 Min. compressive strength, P.S.I. 30 at 0 lb lateral pressure and 160 at 15 lb lateral pressure.
- F Triaxial Class I - Min. compressive strength P.S.I. 75 at 0 lb lateral pressure and 200 at 15 lb lateral pressure.

## **SURFACE TREATMENT DATA**

ITEM	APPLICATION		
	First	Second	Third
Asphalt, Type	OA 175	OA 175	
Asphalt, Rate (gal/sy)	0.25	0.20	
Aggregate, Type	PB	A	
Aggregate, Grade	2	5	
Aggregate, Rate (cy/sy) 1-Crse	90		
Aggregate, Rate (cy/sy) 2-Crse	85	140	

SURFACE TREATMENT AREA One Crse. 85,638 sq  
 Two Crse. 27,959 sq  
 TOTAL 113,597 sq

## **COMPACTION REQUIREMENTS FOR BASE COURSES** Percent of Density as Determined by Compaction Ratio (Tex-114-E)

ITEM	MATERIAL	THROUGHWAY		FRONTAGE RD.	
		Course	Density	Course	Density
248	Flex Base (Dens. Cont.) (Ty E Gr 4)	1	100 MIN	1	100 MIN
		2	100 MIN		
252	Salv and Repl Base (Dens. Cont.)	1	100 MIN		
260	Lime Treat Subgr (Dens. Cont.)	1	100 MIN		
110 & 839	Subgrade Compaction	1	98-102		

- Course 1 - Approx. 12" (70% Shell, 15% Brown Caliche, 15% Gonzalez sand) or salv. base.  
 Course 2 - Approx. 6" (60% Shell, 25% McRae Caliche, 15% Gonzalez Sand) (1 1/2% Lime)

## **GENERAL NOTES AND SPECIFICATION DATA CONTINUED**

- 28 Item 640 See Sheet N° 77 for details of precast concrete pull box and bronz disks which will be furnished and installed as shown on the plans by the contractor. The payment for precast concrete pull boxes and bronz disks will be subsidiary to the Item of Rigid P.V.C. Conduit.
- 29 Item 859 The Estimate of Quantities for one Irrigation System complete are on Sheet N° 58.
- 30 In earth cuts, full width or part width cuts inside hill, the material to be lime treated shall be excavated to the secondary grade (proposed bottom of lime treatment) and removed or windrowed to expose the secondary grade. Material below the secondary grade shall then be scarified to a depth of at least 6" and the scarified material shall then be mixed and reshaped by blading and then sprinkled and rolled in accordance with requirements outlined for earth embankments and to the same density as that required for the adjacent embankments. The work required to remove or windrow material to be lime treated shall be paid for in accordance with Item 260. The work required to scarify, reshape and recompact materials below the secondary grade shall be considered subsidiary work as provided in Item 132.
- 31 Item 330, 340, 350 Asphaltic Conc. Pavt will have a min. stability of 40.
- 32 Item 340 The sand equivalent test will not be required for this item.
- 33 Item 410 When Shown on plans Test Piling will be paid for as Displacement Test Piling.
- 34 Item 410 Displacement piling at the option of the Contractor may be either 16" sq. Precast concrete, 16" Prestressed concrete or 16" Round Metal shell Piling.

## **SPECIFICATION DATA SHEET A**

FED. RD. DIST. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
16	TEXAS	1-37-1 (2) 000	10
		COUNTY	CITY
		74	6
		30	1-37

## **GENERAL NOTES AND SPECIFICATION DATA:**

- 1 All necessary adjustments in utility lines will be made by owners. Contractor shall protect same in his operation.
- 2 In those instances where fixed features require, the governing slopes indicated on the typical cross sections may be varied between the limits and to the extent determined by the engineer.
- 3 For more detailed information relative to pavements, curbs & gutters, transitions, etc., see "Roadway Detail Sheets".
- 4 All Superelevation and widening of pavements on the project shall be in accordance with provisions on "Roadway Detail Sheets".
- 5 All street pavements shown to remain in place on plans, and cut by contractors in the process of his work will be replaced as quickly as possible using similar type base and surface.
- 6 195,000 sy of sub-grade (6 in. depth) shall be compacted to required density, payment for which will be subsidiary to the various bid items.
- 7 Item 100 The area to be included in this project under the item of Preparing Right of Way will be all the acreage found between Right of Way lines and from beginning to end of project.
- 8 Item 100 Existing abandoned railroad ties and rails, if found in the following intersections, may remain in place and be covered with the proposed Asphaltic Level-Up course, provided the proposed lines and grades do not require their removal: 1. Staples & Buffalo Streets 2. Staples & Antelope Streets 3. Alameda & Buffalo Streets 4. Alameda & Antelope Streets.
- 9 Item 100 Extra work required for removing existing curb & gutter and restoring the pavement to its original condition on the detour connection at the corner of Buffalo St. & Artesian St. will be subsidiary to the item of Preparing Right-of-Way.
- 10 Item 100 All additional structures or obstructions other than those listed or indicated on plans found necessary to be removed during construction (in the Right-of-Way for the project) shall also be removed and paid for under the item of "Preparing Right-of-Way".
- 11 Item 102 Clearing and Grubbing quantities for this project are estimated for Material Sources.
- 12 Items 110, 248, 252, 260, 262, 839 All embankment, Natural Subgrade, Lime treated Subgrade, Salvaged base & flexible base material which is designed to support pavements shall be compacted in accordance with the provisions of "Controlled Density Method" Item 132 (Embankment) Rolling, sprinkling and blading necessary for the compaction of embankment, natural ground, subgrades and Flexible Bases will not be paid for directly but shall be considered subsidiary items to the various bid items.
- 13 Item 164 & 165 Hulled Bermuda Grass Seed and fertilizer will be broadcast over the entire mulch sod area after the mulch sod has been leveled to true lines and grades and the irrigation system is complete in place.
- 14 Item 248 It is not estimated that there will be any Stripping required on any of the material sources it shall be considered subsidiary to the items of Caliche Admixture (McRae & Reeves Brown) and "Sand Admixture".
- 15 Item 248 All Flexible base materials shall be temporarily stockpiled by the contractor on a site approved by the Engineer prior to their arrival on the project for mixing. The Contractor shall use a traveling mechanical road mixing machine, approved by the Engineer, for all materials required to be mixed on this project. Stockpiled material shall consist of not less than 5 layers, each layer not exceeding 2 ft. in depth (Stockpiling sand not required).
- 16 Item 248 If the contractor desires the use of a caliche source other than the McRae source, the necessary lab tests must be run on the source prior to the approval of the source, to assure the planned design results of better than Triaxial Class I is obtained after the proposed 1 1/2% lime, shell and sand admixture have been added.
- 17 Item 340 All type "B" Shell Hot Mix asphaltic concrete pavement mixtures shall have a minimum cohesiometer value of 100.
- 18 Item 252 The existing Flexible base and Asphaltic surface of the temporary on & off ramps at beginning of this project will be Salvaged & used in the bottom 12" course of flexible base on the main lanes or on frontage Sts. or Ramps, & paid for under Item 252 Salvaging & Replacing Base.
- 19 Item 340 Material for fines in Hot Mix Asphaltic Concrete may be obtained from Gonzales Material Source. Royalty will be charged.
- 20 Item 400 See sheet N° 6 for Sewer Excavation and Structural Excavation (Inlet and Manhole) Diagrams.
- 21 Item 421 Exposed surfaces of concrete structures shall be given a Type I surface finish, or as indicated on the Plans.
- 22 Omit
- 23 Item 421 Payment for 3" Asph. Tile Pipe & stone wall drains, pre-moulded expansion joint filler and rubber joint sealers found in the retaining walls will be subsidiary to the Item of Class A Concrete Retaining Walls.
- 24 Item 465 All sewer pipe shall be bedded as follows: Use Class C Bedding for all reinforced concrete Pipe Class III: Use Class B Bedding for all reinforced concrete Pipe Class IV: Use Class A Bedding on line T (Between DI 15 and MH 20 only).
- 25 Item 500 There will be an estimated 26 galvanized terminal plates & 4 straight end plates for the item of Galvanized Metal Beam Guard Fence Class B (Single and Double sections) for this project.
- 26 Item 560 Galv. steel beam guard fence class B, will be measured from ends of beams in place where beams are indicated on plans to be attached to bridge wing walls.
- 27 Item 630 If in the opinion of the engineer, the presence of excess water & an unstable condition in subgrade exists prevents excavation to the lines & depths indicated on plans for Roadway Illumination assembly foundations, the contractor shall provide expedient means to ensure conformity to the required lines & depths. Where casing is used exceeding pre-drilled casing shall be limited to the interior of the casing. All loose material shall be removed from the casing before the cone is placed. Any water shall be removed by pumping or bailing. The use of explosives will not be permitted. (CONTINUED SEE SPECIFICATION SHEET "A")

## **SPECIFICATION DATA SHEET B**

FED. RD. DIST. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
16	TEXAS	1-37-1 (2) 000	10
		COUNTY	CITY
		74	6
		30	1-37



Curve X	Curve XII	Curve XII	Curve XII	Curve LXVI
Δ 25'22.04'	Δ 25'22.04'	Δ 25'22.04'	Δ 25'21.07'	Δ 6'01.52'
D 3'55.20'	D 3'55.20'	D 3'45.46'	D 6'15.06'	D 7'36.26'
R 1461.03'	R 1491.99'	R 1523.03'	R 916.98'	R 753.74'
T 369.26'	T 377.09'	T 384.93'	T 75.00'	T 39.71'
L 723.26'	L 738.53'	L 753.90'	L 149.59'	L 79.28'
PC 0+85.23	PC 0+85.23	PC 0+85.23	PC 0+85.23	PC 4+23.14
PI 0+85.23	PI 4+62.32	PI 8+29.70	PI 2+32.18	PI 5+01.02
PT 8+17.74	PT 8+23.76			

Curve XI	Curve XII	Curve XII	Curve XII
Δ 25'22.04'	Δ 25'22.04'	Δ 25'22.04'	Δ 25'21.07'
D 3'55.20'	D 3'55.20'	D 3'45.46'	D 6'15.06'
R 1461.03'	R 1491.99'	R 1523.03'	R 916.98'
T 369.26'	T 377.09'	T 384.93'	T 75.00'
L 723.26'	L 738.53'	L 753.90'	L 149.59'
PC 0+85.23	PC 0+85.23	PC 0+85.23	PC 0+85.23
PI 0+85.23	PI 4+62.32	PI 8+29.70	PI 2+32.18
PT 8+17.74	PT 8+23.76		

Base Line  
 Δ 25'22.04'  
 D 4'00.00'  
 R 1432.69'  
 T 362.10'  
 L 709.20'  
 PC 0+85.23  
 PI 4+47.33  
 PT 7+54.43

STA 0+00  
 BEGIN PROJECT 1-ST-1000  
 CONT. 74-6-35

50' of Exist Chain Link Fence Will be removed and retained by Tex. Hwy. Dept. Maintenance Forces.

BUFFALO ST

ARTESIAN

WACO ST.

ANTELOPE ST.

154' X 6" 6" V. WRIGHT  
 1" DIA. PIPE CASING  
 (SPRINKLER)

6" T.Y.H. Cont.

MATCH LINE

50' of First Chain Link Fence to be removed or retained by State Maint. Forces.  
 Exist 2 Course Surf. Treatm.  
 Exist Curb to be removed  
 Exist Front St Pmt.

Free Asphaltic Conc. Pmt.  
 Exist Curb  
 Exist 2 Course Surf. Treatm.

Section A-A

Note:  
 That portion of the detour which extends Artesian St. into Line 'B' shall be constructed by removing approx.

30' of frontage st. curb & sufficient other materials so that a detour roadway 20' wide will have approx. 6" flexible base & 150' of 2" asphaltic conc. pmt. The gutter of Line 'B' at this point shall be filled with asphaltic conc. pmt. & feathered to meet exist pmt. in approx. 10'. Upon completion of the project this extension shall be restored to its original condition.

Approx. Pay Quantities  
 1 Chain Link Barrier Fence 50 LF  
 2 Curb & gutter 30 LF  
 3 Flexible Base 10 CY  
 4 Asphaltic Conc. Pmt. 20 ton

Items 1, 2 & 3 will be paid for at the unit bid prices. Remaining work will be considered subsidiary to item of Prop. of ROW.

NOTE: Appx. 1501 CY. SALVAGED Flex. Base From Existing Off and on Ramps to be used in 12" Flex Base Crse.

All dimensions are to back of curb or to 6" behind face of median or island.

Common Rdwy. Excav.	104,947	C.Y.
Common Emb.	415	C.Y.
Emb. + 2% Shr.	415	C.Y.
Flex. Base (3505)	8937	C.Y.
Cl. "B" Conc. (Islands)	155	S.Y.
Cl. "B" Conc. Riprap	2.63	C.Y.
Mulch Sodding	1435	C.Y.
Conc. Curb 6" T.Y.H.	60	LF
Conc. Curb & Gutter 4"	3010	LF
Conc. Curb & Gutter 5"		LF
Conc. Curb & Gutter 9"		LF
R.O.W. Markers (City Type)		Ea.
Conc. Sidewalks & Driveways		S.Y.
Steel Bm. Gu. Fence	42	LF
Rigid PVC Conduit 1 1/2"		LF
" 2"		LF
" 3"		LF
Conc. Fdn. For Light Side		Ea.
Dbl. Steel Bm. Gu. Fence		LF
Chain Link Box Fence 6"	50	LF
Barbed Wire Fence	1518	LF
Conc. Curb 9" T.Y.H.	91	LF

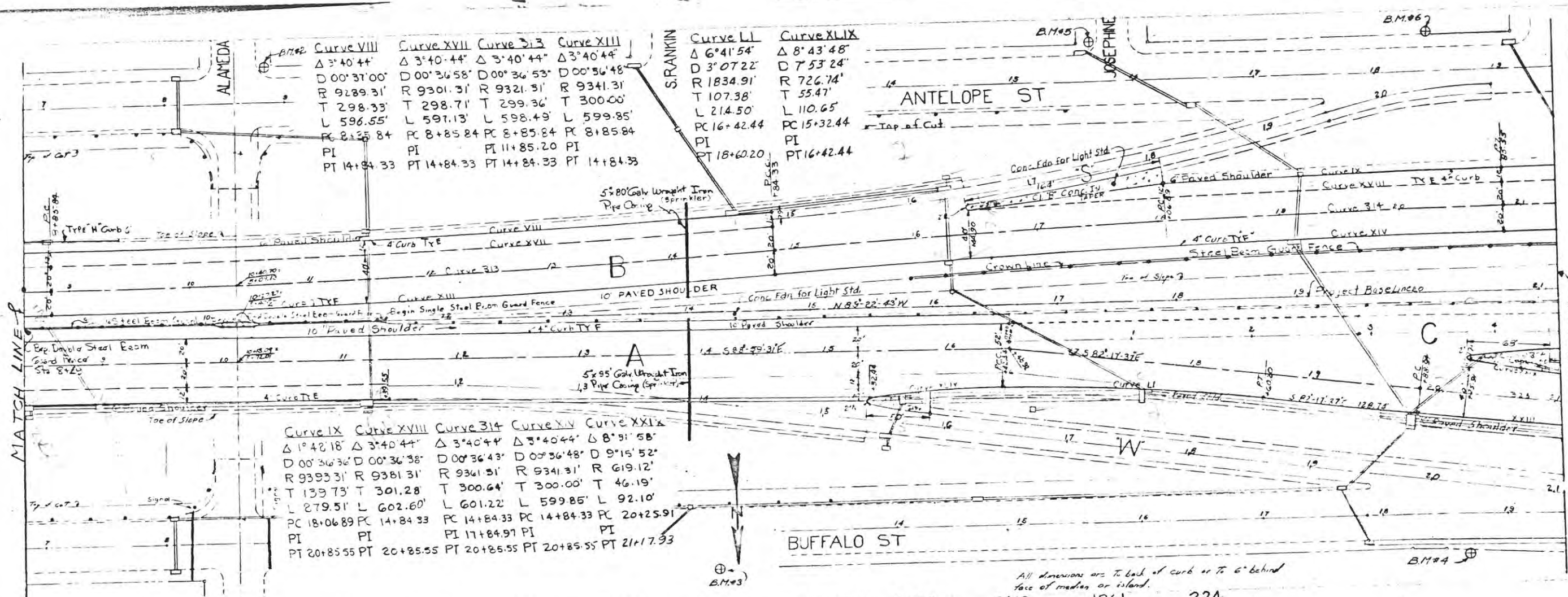
40 Profile Elevations Shown  
 Haxon and Finished  
 Pavement Grades

B.M. 1 1/2" Steel Rod in Conc. App. N.L.  
 Cor. Buffalo & Staples. El. 40.07

PLAN & PROFILE  
 LINES A & B  
 SHEET 1 OF 23 SHEETS

10 10 HUSCO I-37-1000



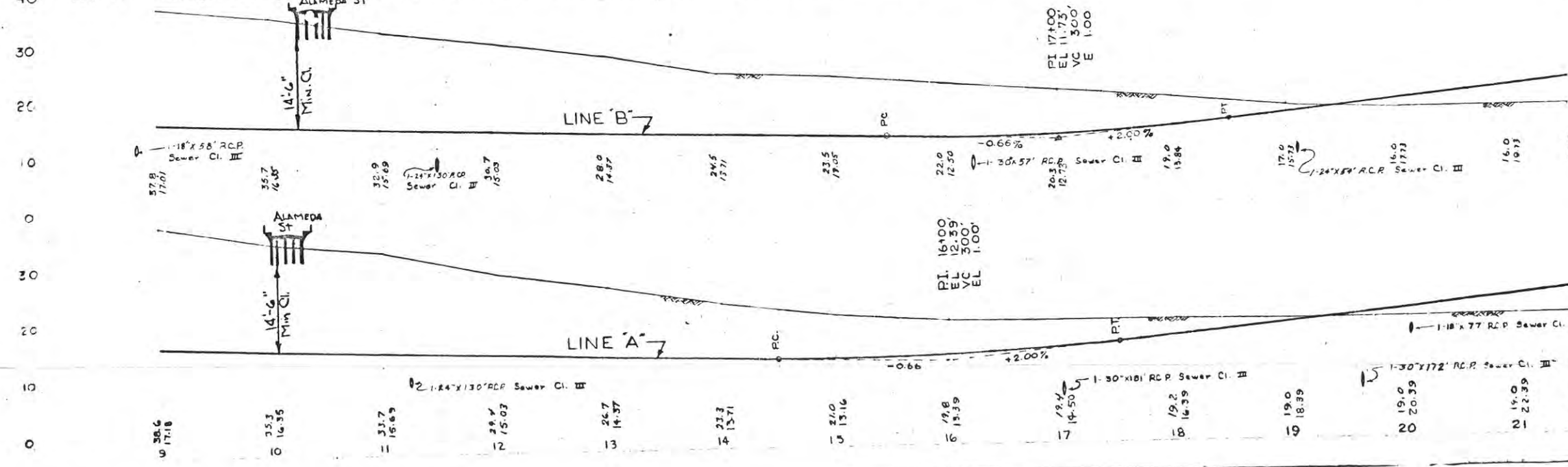


Curve VIII	Curve XVII	Curve 313	Curve XIII	Curve LI	Curve XLIX
Δ 3°40'44"	Δ 3°40'44"	Δ 3°40'44"	Δ 3°40'44"	Δ 6°41'54"	Δ 8°43'48"
D 00°37'00"	D 00°36'58"	D 00°36'53"	D 00°36'48"	D 3°07'22"	D 7°53'24"
R 9289.31'	R 9301.31'	R 9321.31'	R 9341.31'	R 1834.91'	R 726.74'
T 298.33'	T 298.71'	T 299.36'	T 300.00'	T 107.38'	T 55.47'
L 596.55'	L 597.13'	L 598.49'	L 599.85'	L 214.50'	L 110.65'
PC 8+25.84	PC 8+85.84	PC 8+85.84	PC 8+85.84	PC 16+42.44	PC 15+32.44
PI 14+84.33	PI 14+84.33	PI 14+84.33	PI 14+84.33	PI 18+60.20	PI 16+42.44
PT 14+84.33	PT 14+84.33	PT 14+84.33	PT 14+84.33	PT 18+60.20	PT 16+42.44

Curve IX	Curve XVIII	Curve 314	Curve XIV	Curve XXI
Δ 1°42'18"	Δ 3°40'44"	Δ 3°40'44"	Δ 3°40'44"	Δ 8°31'58"
D 00°36'36"	D 00°36'38"	D 00°36'43"	D 00°36'48"	D 9°15'52"
R 9393.31'	R 9381.31'	R 9361.31'	R 9341.31'	R 619.12'
T 139.73'	T 301.28'	T 300.64'	T 300.00'	T 46.19'
L 279.51'	L 602.60'	L 601.22'	L 599.85'	L 92.10'
PC 18+06.89	PC 14+84.33	PC 14+84.33	PC 14+84.33	PC 20+25.91
PI 20+85.55	PI 20+85.55	PI 20+85.55	PI 20+85.55	PI 21+17.93
PT 20+85.55	PT 20+85.55	PT 20+85.55	PT 20+85.55	PT 21+17.93

Common Rdwy Excc.  
Common Borrow STA.  
Emb. + 20% Shr.  
Flex. Base  
40 (6) 12" (396) 1037

17,298	15,464	14,667	13,351	11,562	9,455	7,955	5,579	4,653	3,418	1,261	224	1342	1285
0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	18	54	44	61	54	34	17	20	21	301	1349	450	1285

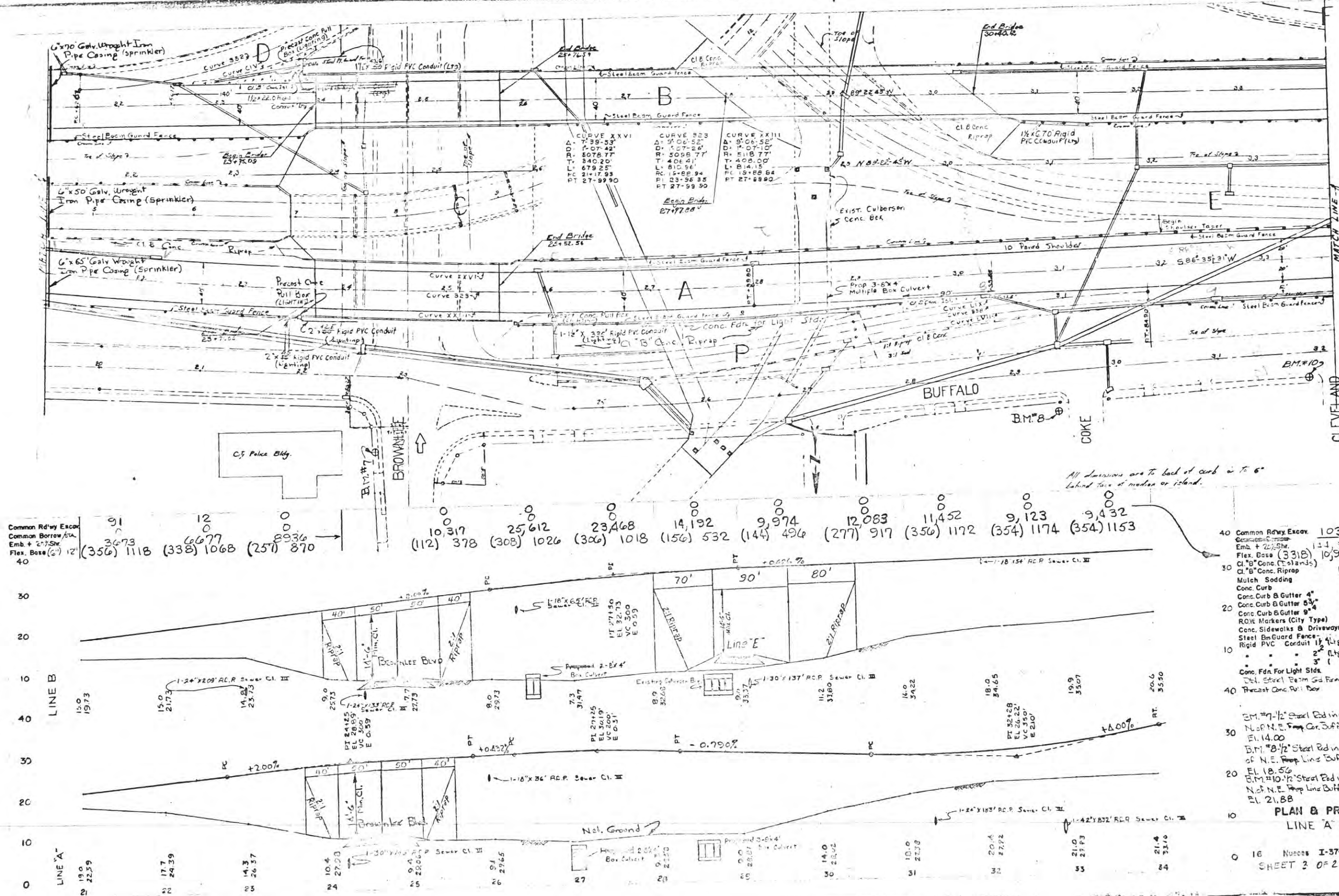


40	Common Rdwy Excc.	104,857	CY
	Common Borrow	2,002	CY
	Emb. + 20% Shr.	(5156) 14487	CY
30	Flex. Base	308	S-Y
	Cl. B Conc. (Islands)	3248	CY
	Cl. B Conc. Riprap	20	LF
	Mulch Sodding	4111	LF
	Conc. Curb 6" Type H		LF
	Conc. Curb 8" Gutter 4"		LF
	Conc. Curb 8" Gutter 5"		LF
	Conc. Curb 8" Gutter 9"		LF
20	R.O.W. Markers (City Type)		Ea.
	Conc. Sidewalks & Driveways	1129	S-Y
10	Rigid PVC Conduit 12"		LF
	" 18"		LF
	" 24"		LF
	Conc. Fdn. For Light Stds.	1	Ea.
0	Dbl. Steel B&G Guard Fence	260	LF

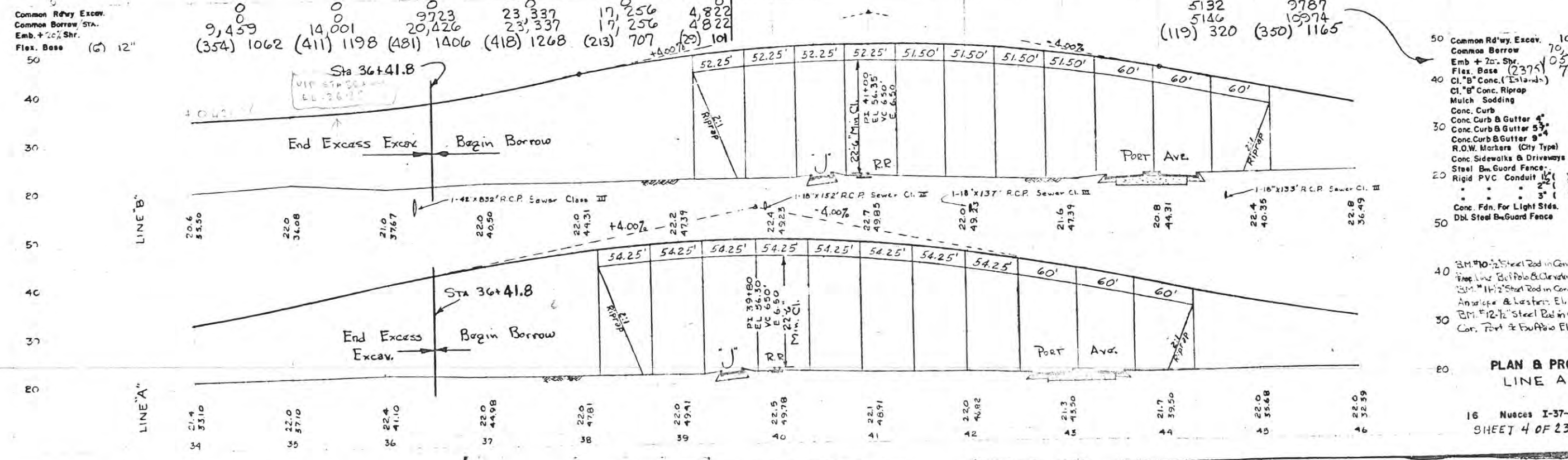
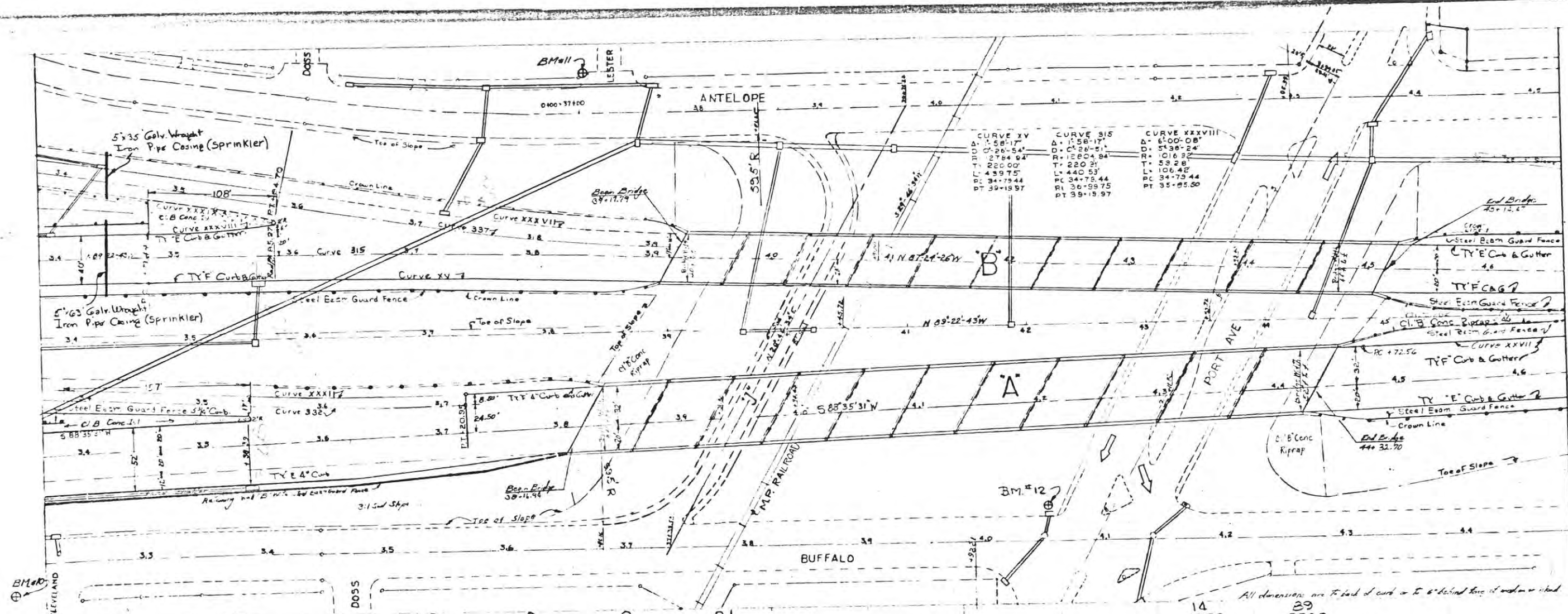
B.M. #2 1/2" Steel B&G Guard Apr. SW 1/4  
Antelope & Alameda EL. 5454  
B.M. #3 1/2" Steel B&G Guard Apr. NW 1/4  
Buffalo & Alameda EL. 22.28  
B.M. #4 1/2" Steel B&G Guard Apr. NE 1/4  
Buffalo & Alameda EL. 11.96  
B.M. #5 1/2" Steel B&G Guard Apr. SE 1/4  
Antelope & Alameda EL. 20.23  
B.M. #6 1/2" Steel B&G Guard Apr. SW 1/4  
Antelope & Alameda EL. 11.34

**PLAN & PROFILE**  
**LINE 'A' & 'B'**  
16 Nueces I-37-1(2)00. 1/2  
SHEET 2 OF 23 SHEETS







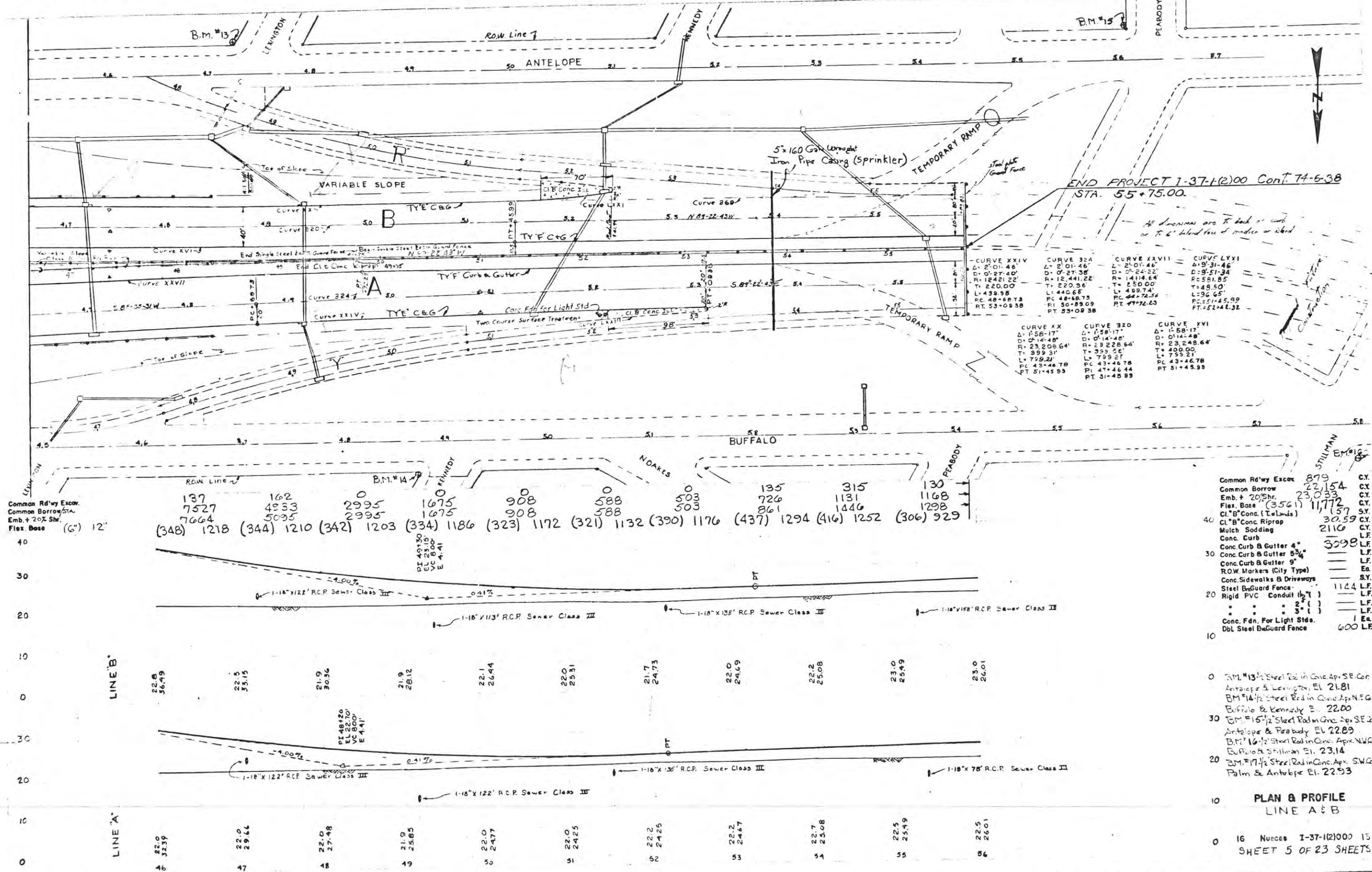


50	Common Rd'wy. Escav.	103	C.Y.
	Common Borrow	70,057	C.Y.
	Emb. + 2% Shr.	105,421	C.Y.
	Flex. Base (2375)	7227	C.Y.
40	Cl. B' Conc. (Islands)	395	S.Y.
	Cl. B' Conc. Riprap	35.56	C.Y.
	Mulch Sodding	2849	C.Y.
	Conc. Curb		L.F.
	Conc. Curb & Gutter 4"	2156	L.F.
30	Conc. Curb & Gutter 5 1/2"		L.F.
	Conc. Curb & Gutter 9"		L.F.
	R.O.W. Markers (City Type)		Ea.
	Conc. Sidewalks & Driveways		S.Y.
	Steel Beam Guard Fence	1282	L.F.
20	Rigid PVC Conduit 12"		L.F.
	" 24"		L.F.
	" 36"		L.F.
	Conc. Fdn. For Light Stds.		Ea.
50	Dbl. Steel Beam Guard Fence		L.F.

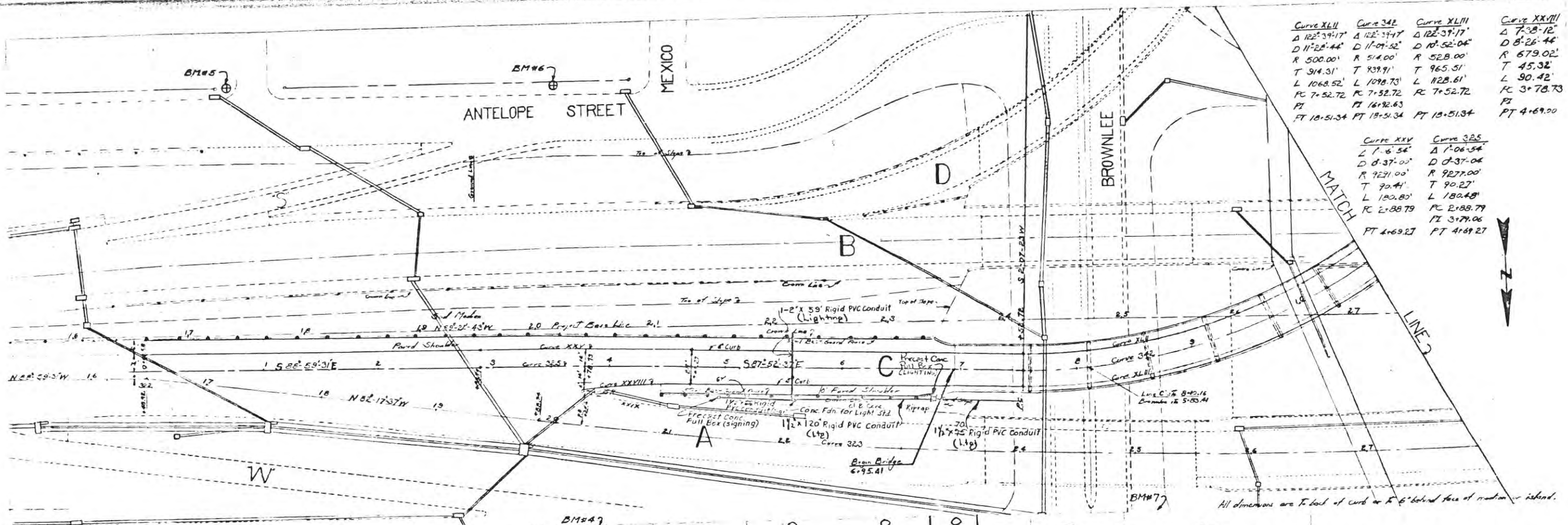
40 B.M. #10 1/2" Steel Rod in Conc. Apr. B.N. of N.E. Tree Line Buffalo & Cleveland El. 21.88  
 B.M. #11 1/2" Steel Rod in Conc. Apr. S.E. Cor. Antelope & Laster El. 21.60  
 30 B.M. #12 1/2" Steel Rod in Conc. Apr. S.E. Cor. Port & Buffalo El. 20.58

**PLAN & PROFILE  
LINE A & B**









Curve XLII	Curve XLIII	Curve XLIV	Curve XLV
Δ 122° 39' 17"	Δ 122° 39' 17"	Δ 122° 39' 17"	Δ 7° 38' 12"
D 11° 28' 44"	D 11° 01' 52"	D 10° 52' 04"	D 8° 26' 44"
R 500.00'	R 514.00'	R 528.00'	R 679.02'
T 914.31'	T 939.91'	T 965.51'	T 45.32'
L 1068.52'	L 1098.73'	L 1128.61'	L 90.42'
PC 7+52.72	PC 7+52.72	PC 7+52.72	PC 3+78.73
PT 18+51.34	PT 18+51.34	PT 18+51.34	PT 4+69.00

Curve XLVI	Curve XLVII
Δ 1° 06' 54"	Δ 1° 06' 54"
D 0° 37' 05"	D 0° 37' 04"
R 9291.00'	R 9277.00'
T 90.41'	T 90.27'
L 180.80'	L 180.49'
PC 2+88.79	PC 2+88.79
PT 4+69.27	PT 4+69.27

Common Right of Way Excav.  
Common Right of Way STA.  
Embt 20% Shn.  
Flex. Base (6") 12"

Earthwork and Base  
Included in Line "A" Quantities  
Sta 3+50 Line C - Sta 20+00 Line A

340	1475	3084	5293	1660
(36) 116	(116) 462	(112) 450	(106) 428	

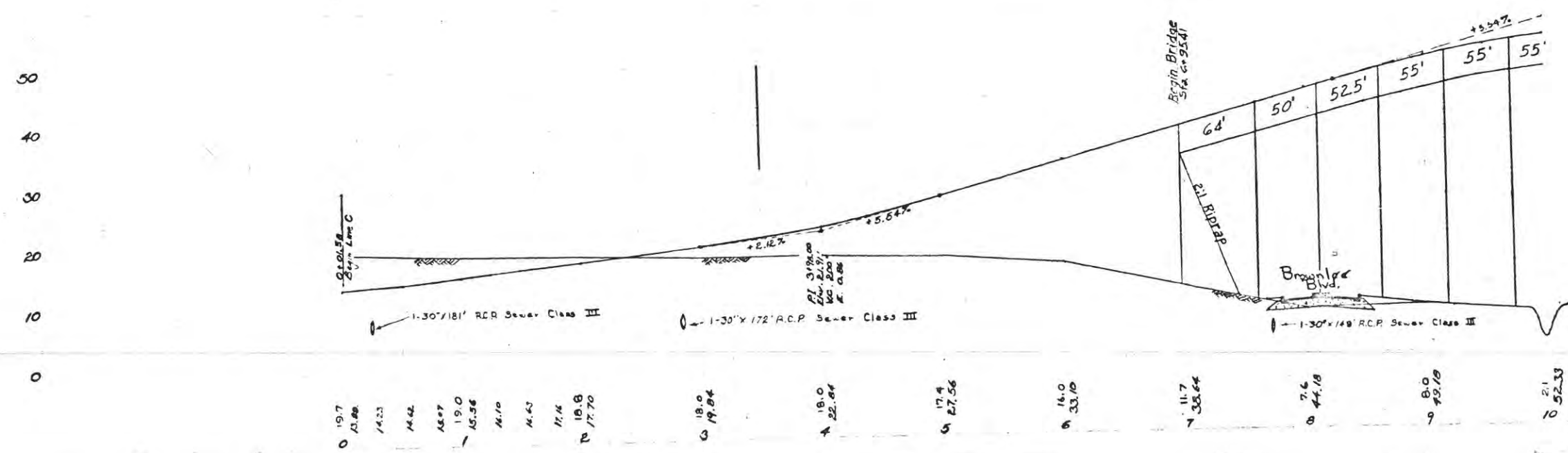
BRIDGE

Common Right of Way Excav.	0	CY
Common Right of Way STA.	0	CY
Embt + 20% Shn.	0	CY
Flex. Base (370) 11	1456	CY
CL "B" Conc.		SY
CL "B" Conc. Riprap	38.84	CY
Mulch Sodding		CY
Conc. Curb		LF
Conc. Curb B Gutter 4"	1013	LF
Conc. Curb B Gutter 5 1/4"		LF
Conc. Curb B Gutter 9"		LF
R.O.W. Markers (City Type)		EA
Conc. Sidewalks & Driveways		SY
Steel E-Board Fence	905	LF
50 Rigid PVC Conduit 1 1/2" (4 ft)		LF
" " " 2" (1 ft)		LF
" " " 3" (1 ft)		LF
Conc. Fdn. For Light Stds.	1	EA
40 Precast Conc. Pull Box	2	EA

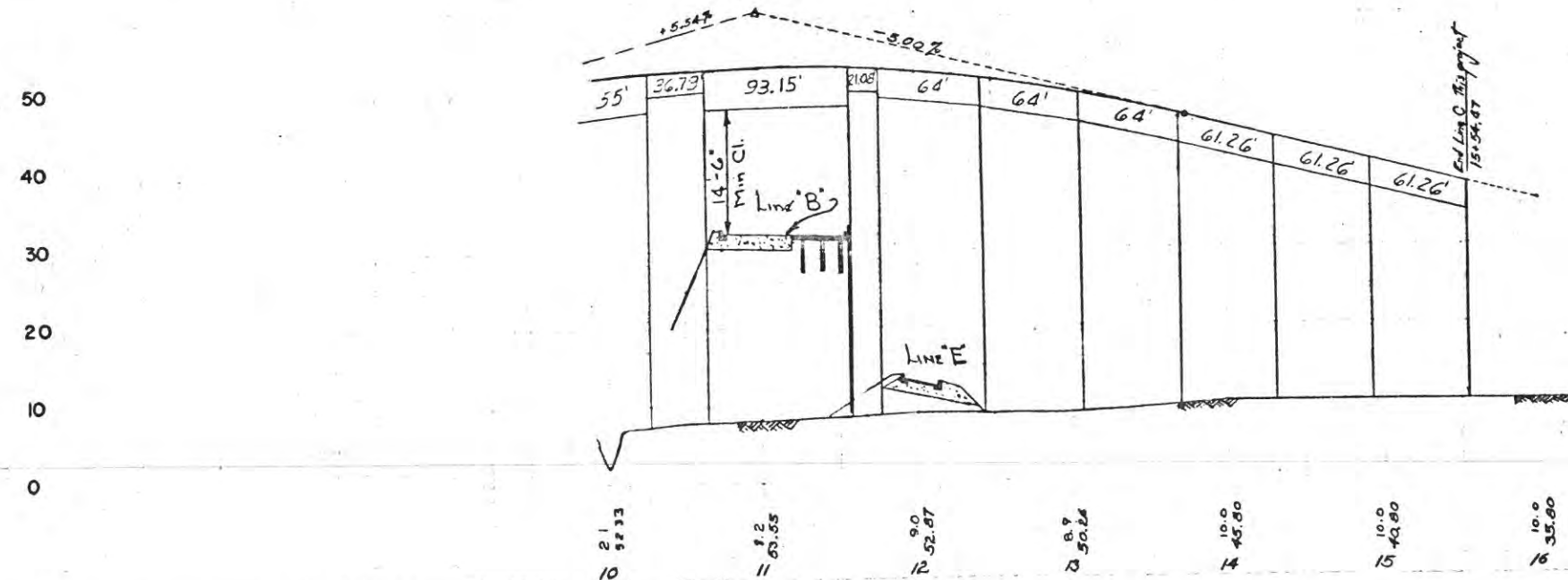
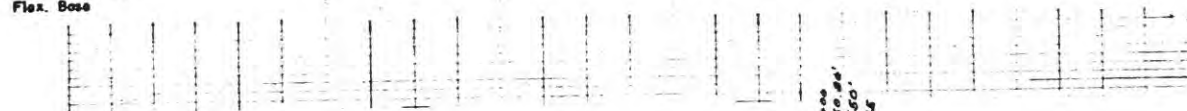
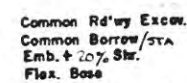
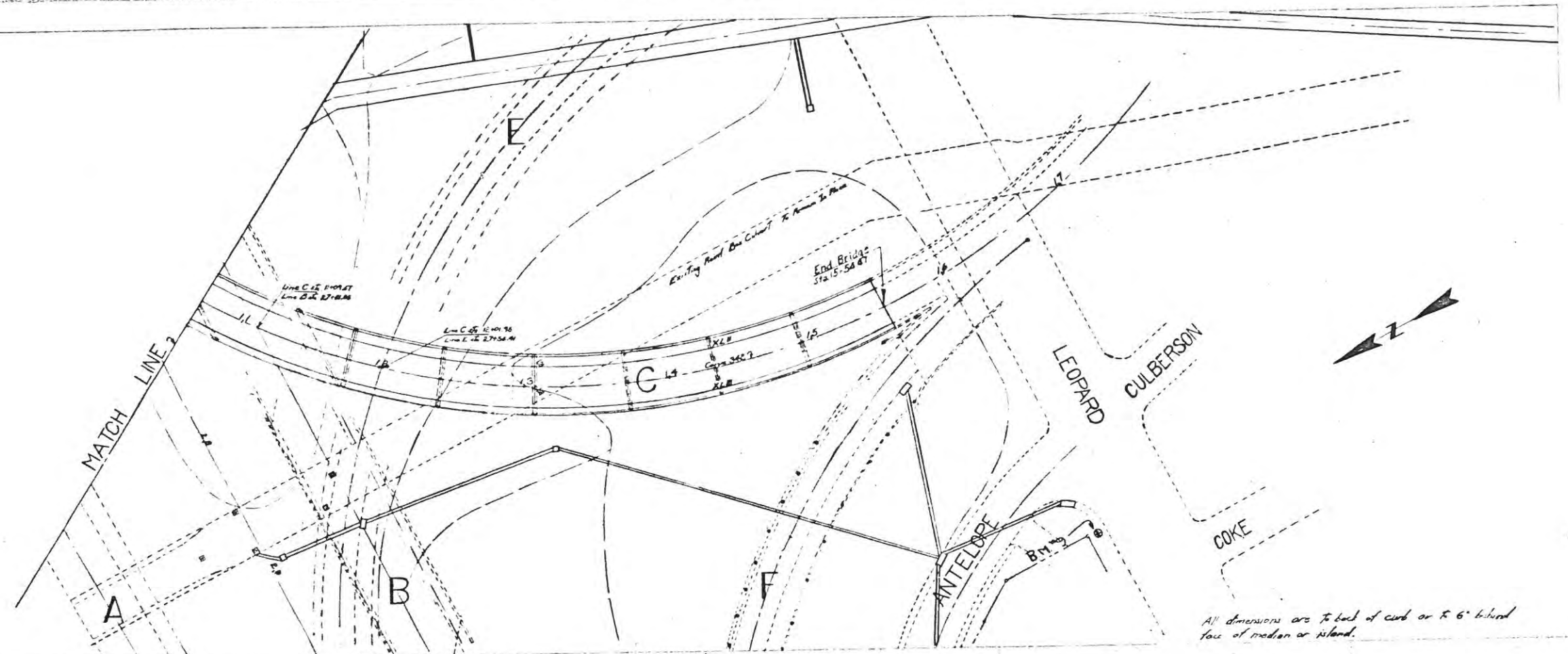
- 30 B.M. #2 1/2" Steel Rod in Conc. Apr. N. Prop. Line of Building, Apr. 400' E. of Bunker El. 17.36
- 20 B.M. #5 1/2" Steel Rod in Conc. Apr. S.E. Cor.
- 20 Antelope & Josephine El. 20.23
- B.M. #6 1/2" Steel Rod in Conc. Apr. 100' West of Mexico Apr. S. Prop. Line Antelope El. 11.34
- B.M. #7 1/2" Steel Rod in Conc. Apr. 40' N. of NE
- 10 B.M. #8 Buffalo & Bunker El. 14.00

PLAN & PROFILE  
LINE "C"

16 Nueces 1-37-(12) 000 16  
SHEET 6 OF 23 SHEETS







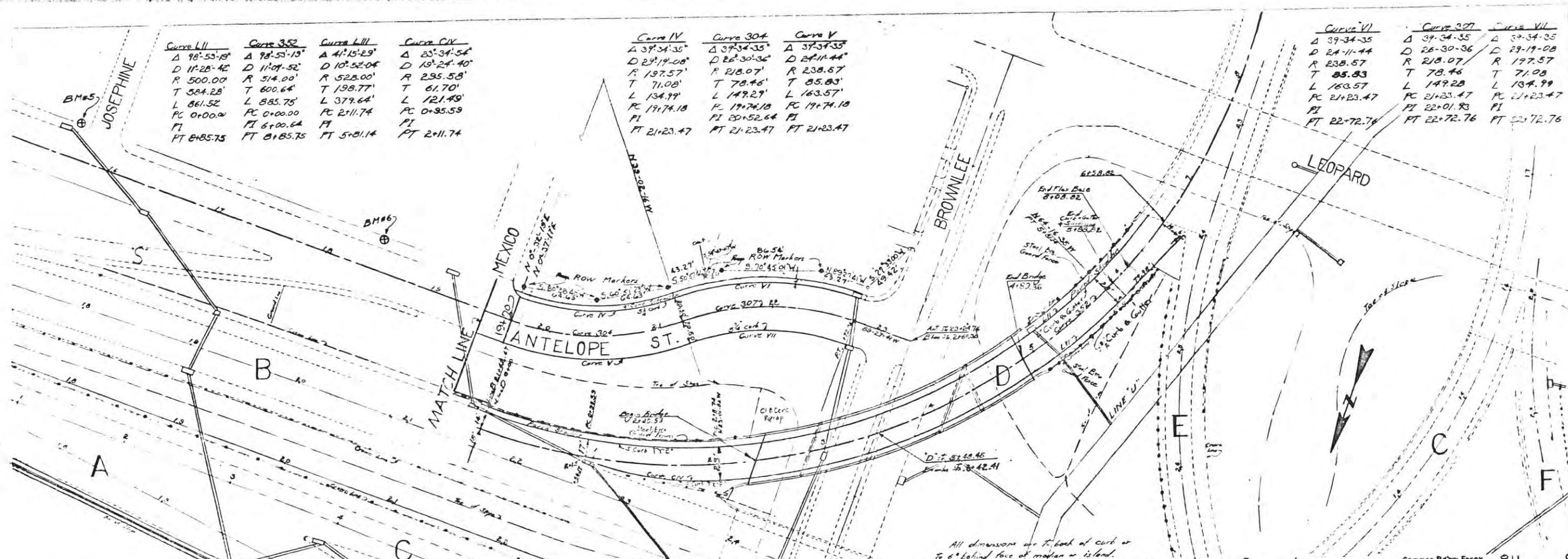
Common Rdwy Escape	0	C.Y.
<del>Common Concrete</del>	0	C.Y.
Emb. + 20% Str	0	C.Y.
Flex. Base	—	C.Y.
Cl. 8" Conc.	—	S.Y.
Cl. 8" Conc. Rigrap	—	C.Y.
Mulch Soddling	1104	C.Y.
Conc. Curb	—	L.F.
Conc. Curb & Gutter 4"	—	L.F.
Conc. Curb & Gutter 5 1/2"	—	L.F.
Conc. Curb & Gutter 9"	—	L.F.
R.O.W. Markers (City Type)	—	Ea.
Conc. Sidewalks & Driveways	—	S.Y.
Steel BeGuard Fence	—	L.F.
50 Rigid PVC Conduit 1 1/2" ( )	—	L.F.
" " 2" ( )	—	L.F.
" " 3" ( )	—	L.F.
Conc. Fdn. For Light Stds.	—	Ea.

30 B.M. #9-1/2" Steel Rod in Conc. Apr. 9's ci  
N.W. Prop. Cor. Coker & Leopard Eb 1077

PLAN & PROFILE  
LINE "C"

16 Nueces I-37-1(2)000 17  
SHEET 7 OF 23 SHEETS





Curve III	Curve 352	Curve LIII	Curve CIV
Δ 98°55'18"	Δ 98°55'19"	Δ 41°15'29"	Δ 23°34'54"
D 11°28'42"	D 11°04'52"	D 10°52'04"	D 19°24'40"
R 500.00'	R 514.00'	R 528.00'	R 295.58'
T 584.28'	T 600.64'	T 199.77'	T 61.70'
L 861.52'	L 885.75'	L 379.64'	L 121.49'
PC 0+00.00'	PC 0+00.00'	PC 2+11.74'	PC 0+95.59'
PI 6+00.64'	PI 6+00.64'	PI 5+01.14'	PI 2+11.74'
PT 6+85.75'	PT 6+85.75'	PT 5+01.14'	PT 2+11.74'

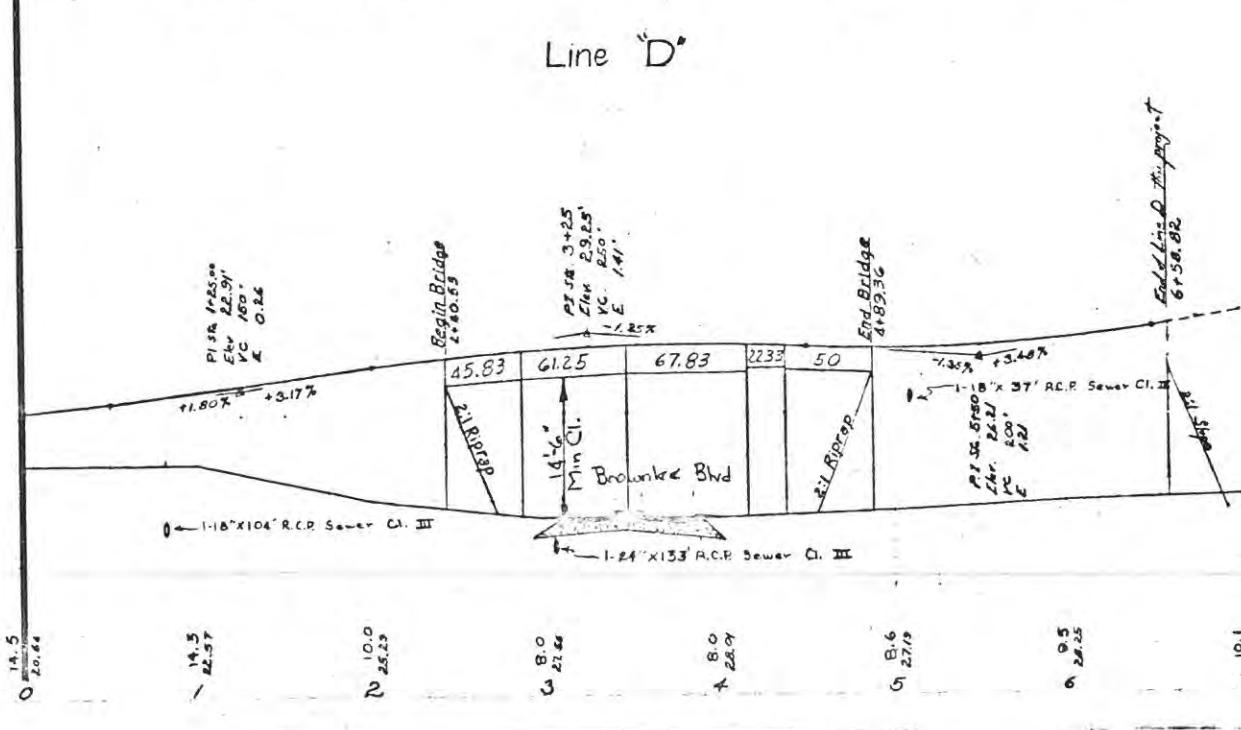
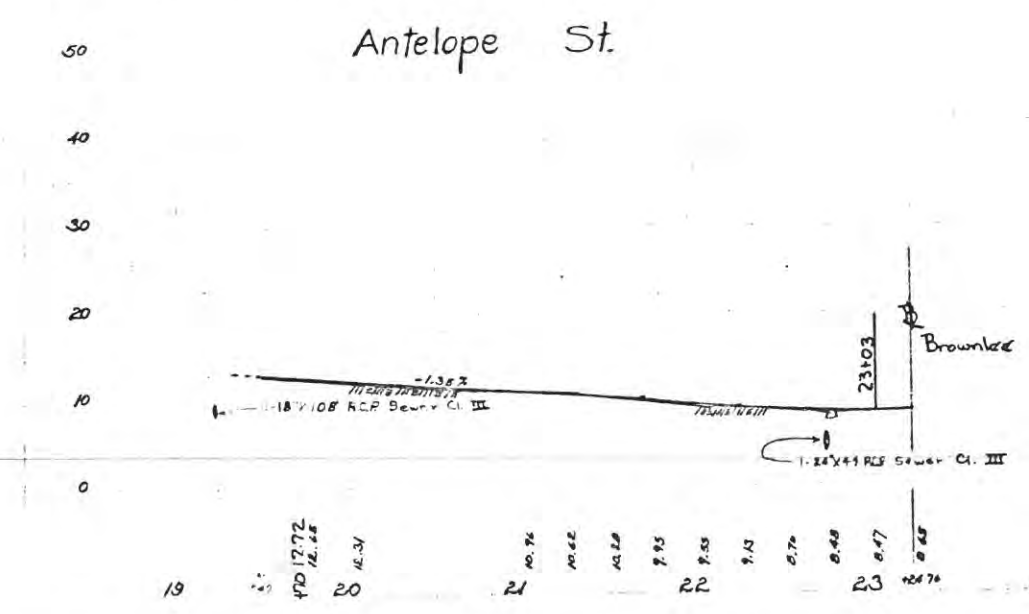
Curve IV	Curve 304	Curve V
Δ 39°34'35"	Δ 39°34'35"	Δ 37°34'35"
D 29°14'08"	D 26°30'36"	D 24°11'44"
R 197.57'	R 218.07'	R 238.67'
T 71.08'	T 78.46'	T 85.83'
L 134.99'	L 149.29'	L 163.57'
PC 19+74.18'	PC 17+74.18'	PC 19+74.18'
PI 21+23.47'	PI 21+23.47'	PI 21+23.47'
PT 21+23.47'	PT 21+23.47'	PT 21+23.47'

Curve VI	Curve 307	Curve VII
Δ 39°34'35"	Δ 39°34'35"	Δ 39°34'35"
D 24°11'44"	D 26°30'36"	D 29°19'08"
R 238.67'	R 218.07'	R 197.57'
T 85.83'	T 78.46'	T 71.08'
L 163.57'	L 149.29'	L 134.99'
PC 21+23.47'	PC 21+23.47'	PC 21+23.47'
PI 22+01.93'	PI 22+01.93'	PI 22+01.93'
PT 22+72.74'	PT 22+72.74'	PT 22+72.74'

Common Rd'wy Excav.	56	182	267	306
Common Borrow/TA	0	0	0	0
Emb. + 2% Shr.	6	30	29	23
Flex. Base (6")	93	308	308	332

Common Rd'wy Excav.	811	20,437	9837	4750
Common Borrow	0	0	0	0
Emb. + 2% Shr.	0	0	0	0
Flex. Base	0	0	0	0
CL "B" Conc.	0	0	0	0
CL "B" Conc. Riprap	0	0	0	0
Mulch Seeding	0	0	0	0
Conc. Curb	0	0	0	0
Conc. Curb & Gutter 4"	0	0	0	0
Conc. Curb & Gutter 5"	0	0	0	0
Conc. Curb & Gutter 6"	0	0	0	0
R.O.W. Markers (City Type)	0	0	0	0
Conc. Sidewalk & Driveways	0	0	0	0
Steel Bn Guard Fence	0	0	0	0
Rigid PVC Conduit 12"	0	0	0	0
Rigid PVC Conduit 18"	0	0	0	0
Conc. Fdn. For Light Sids.	0	0	0	0

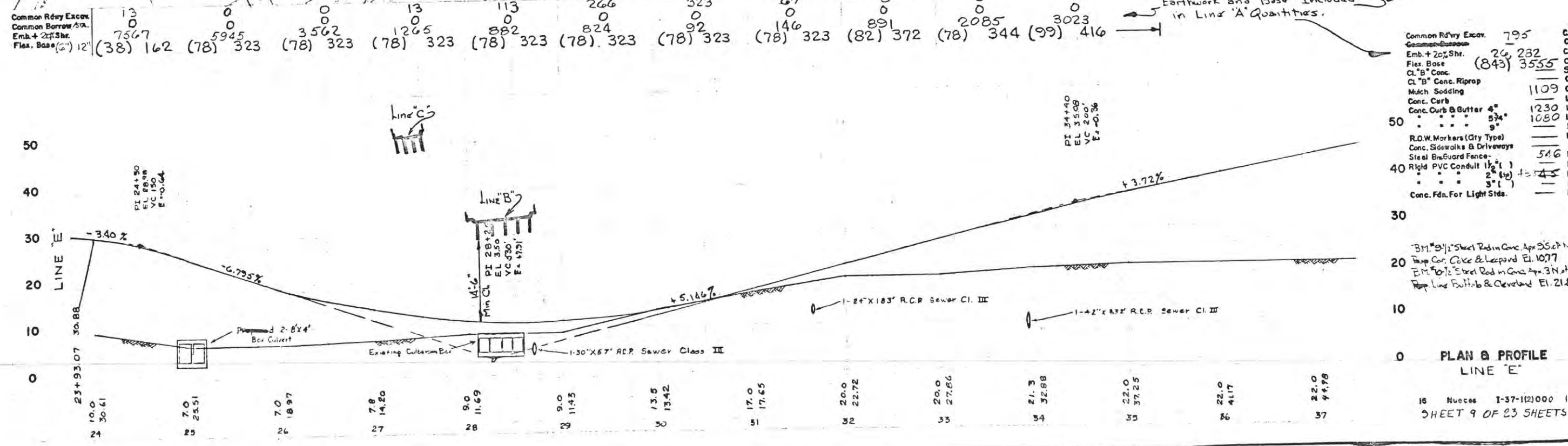
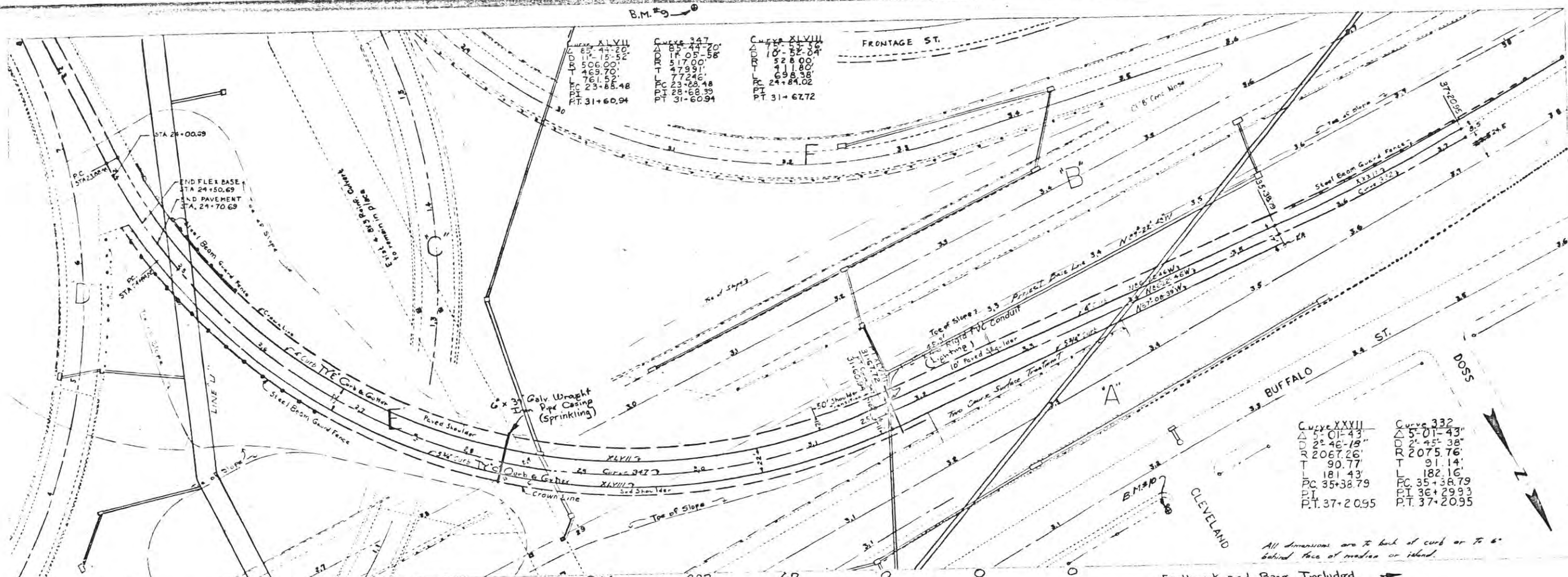
Common Rd'wy Excav.	811	CY
Common Borrow	20,437	CY
Emb. + 2% Shr.	0	CY
Flex. Base	(275) 1908	CY
CL "B" Conc.	0	CY
CL "B" Conc. Riprap	0	CY
Mulch Seeding	404	CY
Conc. Curb	0	L.F.
Conc. Curb & Gutter 4"	485	L.F.
Conc. Curb & Gutter 5"	764	L.F.
Conc. Curb & Gutter 6"	0	L.F.
R.O.W. Markers (City Type)	6	Ea.
Conc. Sidewalk & Driveways	142	S.Y.
Steel Bn Guard Fence	424	L.F.
Rigid PVC Conduit 12"	0	L.F.
Rigid PVC Conduit 18"	0	L.F.
Conc. Fdn. For Light Sids.	0	Ea.



B.M. 5'-1/2" Steel Rod in Conc. Apr. S.E. Cor.  
 20 Antelope & Josephine E. 20.23  
 B.M. 6'-1/2" Steel Rod in Conc. Apr. N.E. of  
 Mexico Apr. S. Slope line of Antelope E. 11.34

PLAN & PROFILE  
 ANTELOPE LINE "D"





**PLAN & PROFILE LINE 'E'**

16 Nueces 1-37-1(2)000 19  
SHEET 9 OF 23 SHEETS

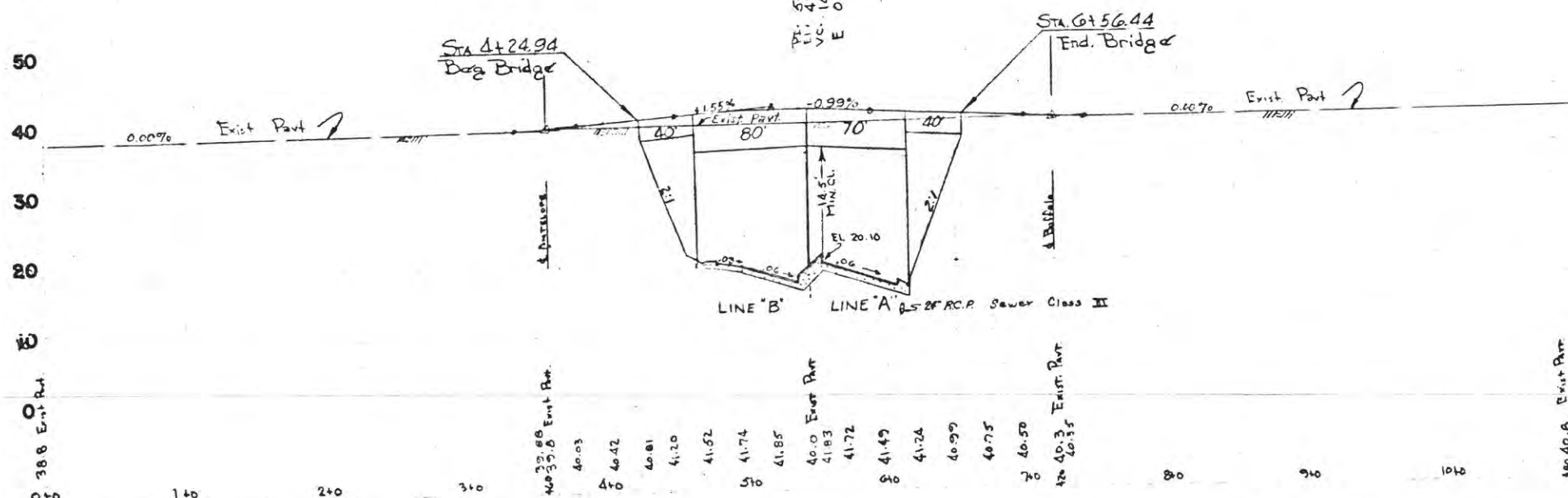




Common Rd'wy Excav.  
Common Borrow STA.  
Emb. + 20% Shr.  
Flex. Base 12"

All dimensions are to back of curb or to 6'  
behind face of median or island.

Common Rd'wy Excav.	239	CY
Common Borrow	28	CY
Emb. + 20% Shr.	312	CY
Flex. Base		CY
Cl. "B" Conc.		CY
Cl. "B" Conc. Riprap		CY
Mulch Sodding		LF
Conc. Curb 9"	38	LF
Conc. Curb & Gutter	53	LF
"	9	LF
"	225	LF
R.Q.W. Markers (City Type)	2	Ea
Conc. Sidewalks & Driveways	89	SY
Steel Bn. Guard Fence	4	LF
Rigid PVC Conduit 1 1/2"	1	LF
"	2	LF
"	100	LF
Conc. Fdn. For Light Sids.		Ea



# PLAN & PROFILE STAPLES ST.

16 Nueces 1-37-1(200) 21  
SHEET 11 OF 23 SHEETS





BROWNLEE

LEOPARD

BUFFALO

Identical Curves L.V. & R.V.  
 $\Delta$  20°00'23"  
 $L$  112°53'06"  
 $R$  60.00'  
 $T$  10.59'  
 $L$  17.72'  
 $PC$  7+85.22  
 $PT$  8+05.06

Common Rd'wy Excec.  
 Common Borrow/STA.  
 Emb. + 20% Shr.  
 Flex. Base 12"

351	285	302	482	500	242	599	Included in Buffalo St.	399
0	0	0	0	0	0	0	0	0
28	47	130	324	26	82	115	35	605
365	424	430	450	450	450	562		

All dimensions are to face of curb or to 6" behind face of median or island.

Common Rd'wy Excec.	3160	C.Y.
Common Borrow		C.Y.
Emb. + 20% Shr.	787	C.Y.
Flex. Base	3736	C.Y.
Cl. B' Conc. Islands	71	S.Y.
Cl. B' Riprap		C.Y.
Mulch Sodding	799	C.Y.
Conc. Curb		L.F.
Conc. Curb & Gutter 4"		L.F.
Conc. Curb & Gutter 5 1/4"	963	L.F.
Conc. Curb & Gutter 9"		L.F.
R.O.W. Markers (City Type)	12	Ea.
Conc. Sidewalks & Driveways	723	S.Y.
Steel Bn Guard Fence		L.F.
Rigid PVC Conduit 1 1/2" (1)		L.F.
" " " 2" (13)	550	L.F.
" " " 3" (5)	579	L.F.
Conc. Fdn. For Light Sds.		Ea.
Precast Conc. Pull Box	8	Ea.
Cl. B' Conc. (Medians)	650	S.Y.

30 B.M. 47 1/2" Steel Rod in Conc. Apron at N.E. of Prop. Cor. Buffalo & Union St. El. 14.60

20

10

0 PLAN & PROFILE  
BROWNLEE

16 Notes I-37-112)00 23  
SHEET 13 OF 23 SHEETS

50

40

30

20

10

0

LINE C

Line D

Line B

Line A

00-248 RCP Sewer C.I. II

0 11.60

1 9.40

2 8.20

3 8.20

4 8.17

5 8.64

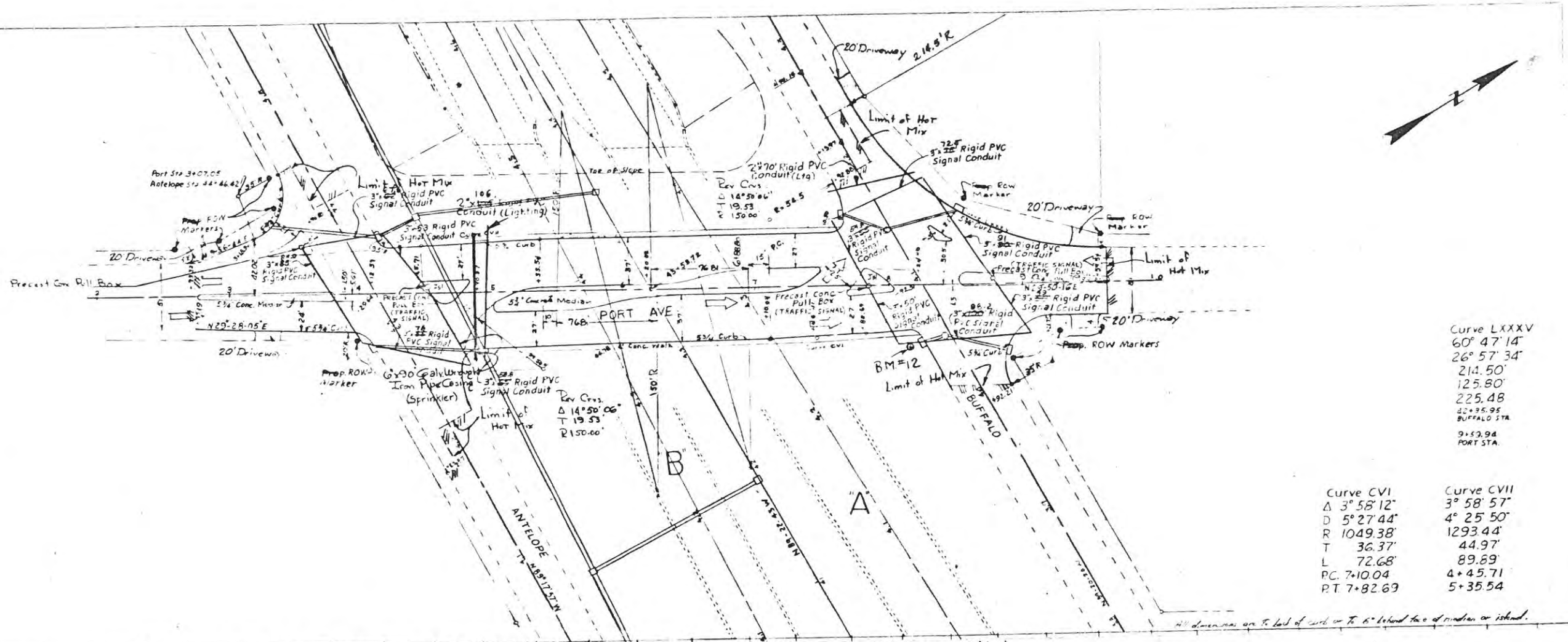
6 10.0

7 11.6

8 13.0

9





Curve LXXXV  
 60° 47' 14"  
 26° 57' 34"  
 214.50'  
 125.80'  
 225.48  
 42+35.95  
 BUFFALO STA  
 9+53.94  
 PORT STA

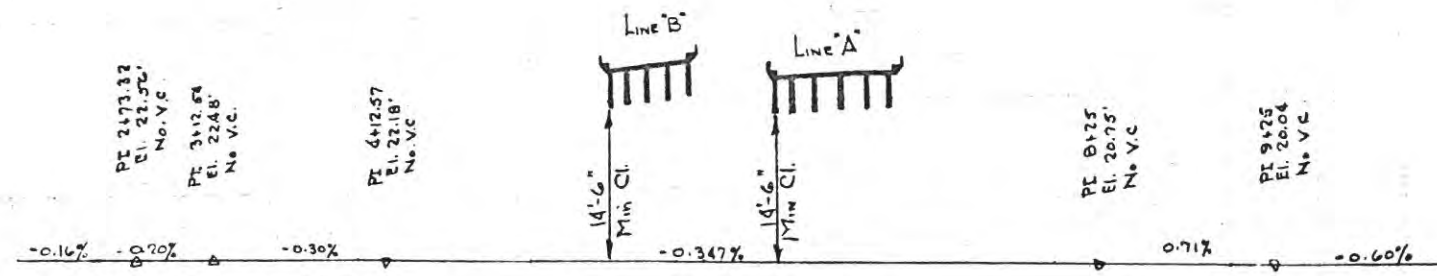
Curve CVI	Curve CVII
Δ 3° 58' 12"	3° 58' 57"
D 5° 27' 44"	4° 25' 50"
R 1049.38'	1293.44'
T 36.37'	44.97'
L 72.68'	89.69'
PC 7+10.04	4+45.71
PT 7+82.69	5+35.54

Common Rd'wy Excav.  
 Common Borrow STA.  
 Emb. + 20% Shr.  
 Flex. Base 12"

73	336	629	1075	693	691	160	141
13600	21	100	26	44	56	103	10
	160	123	224	226	181	193	24

Common Rd'wy Excav.	3796	CY.
Common Borrow	195	CY.
Emb. + 20% Shr.	1144	CY.
Flex. Base	151	SY.
Cl. "B" Conc. (Islands)		CY.
Cl. "B" Conc. Riprap	331	CY.
Mulch Sodding		L.F.
Conc. Curb		L.F.
Conc. Curb & Gutter 4"	1412	L.F.
Conc. Curb & Gutter 8"		L.F.
Conc. Curb & Gutter 9"		L.F.
R.O.W. Markers (City Type)	10	Ea.
Conc. Sidewalks & Driveways	345	S.Y.
Steel Guard Fence		L.F.
Rigid PVC Conduit 1 1/2" ( )	795	L.F.
2" ( )	775	L.F.
3" ( )	775	L.F.
Conc. Fdn. For Light Sids.		Ea.
Precast Conc. Pull Box	1	Ea.
Cl. "B" Conc. (Medians)	543	S.Y.

50  
40  
30  
20  
10  
0



20 BM #12 1/2" Steel Rod in Conc. Apr. SE. Cor.  
 Port & Buffalo El. 20.58

10

0 PLAN & PROFILE  
 PORT AVE.

16 NUSCOE 1-37-1(2)000 24  
 SHEET 14 OF 23 SHEETS

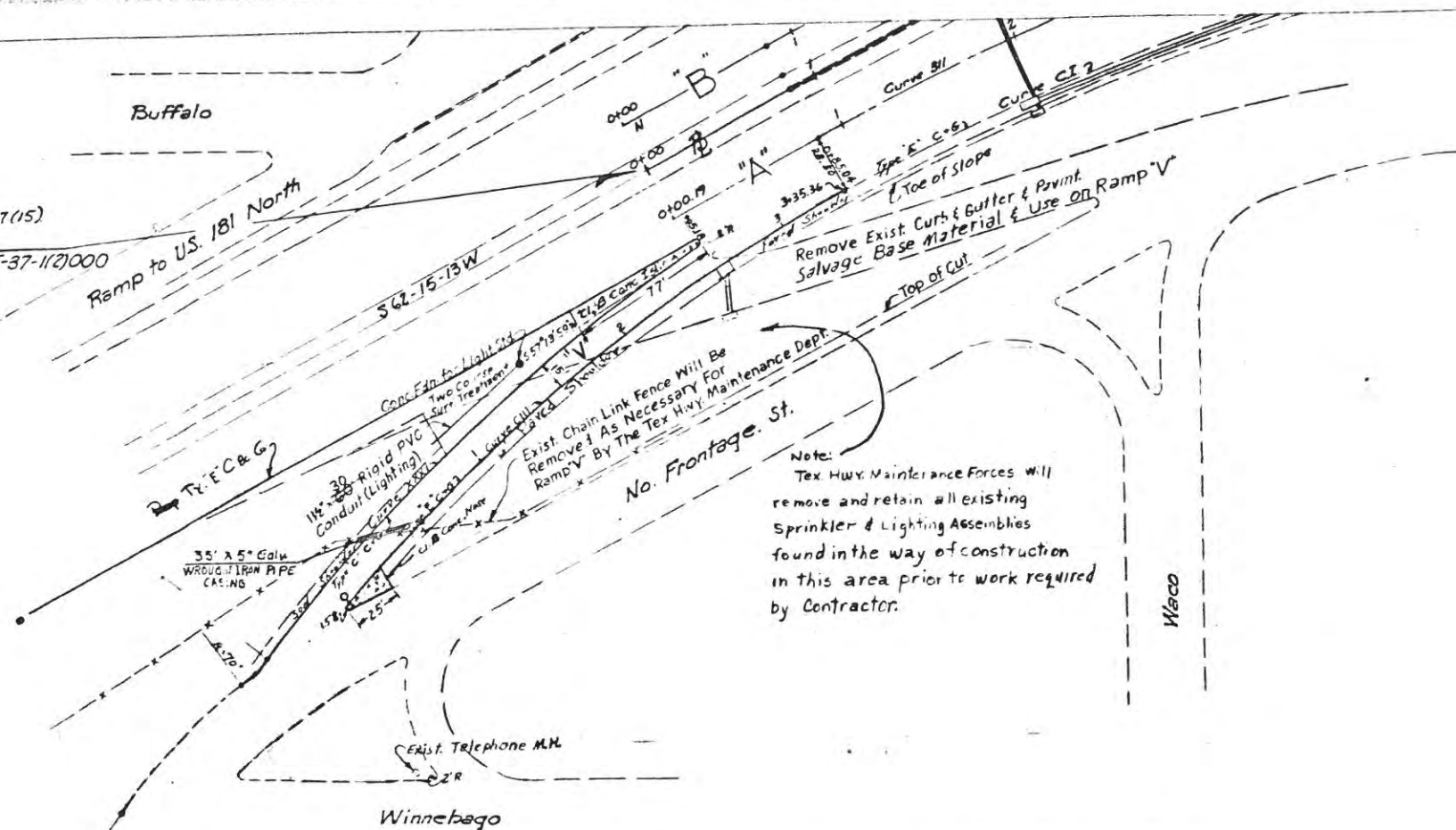
Curve XXXI  
 $\Delta$  21° 22' 44"  
 D 6' 17' 56"  
 R 910.46'  
 T 171.86'  
 L 339.41'

Curve CIII  
 $\Delta$  21° 28' 30"  
 D 6' 24' 06"  
 R 895.46'  
 T 169.81'  
 L 335.46'  
 PT 0+85.04

Common Rdwy Excav.  
 Common Borrow/5%  
 Emb. + 20% Shr.  
 Flex. Base 12"

End Project U657(15)  
 Sta 31+45.00  
 Begin Project I-37-112000  
 Sta 0+00.00

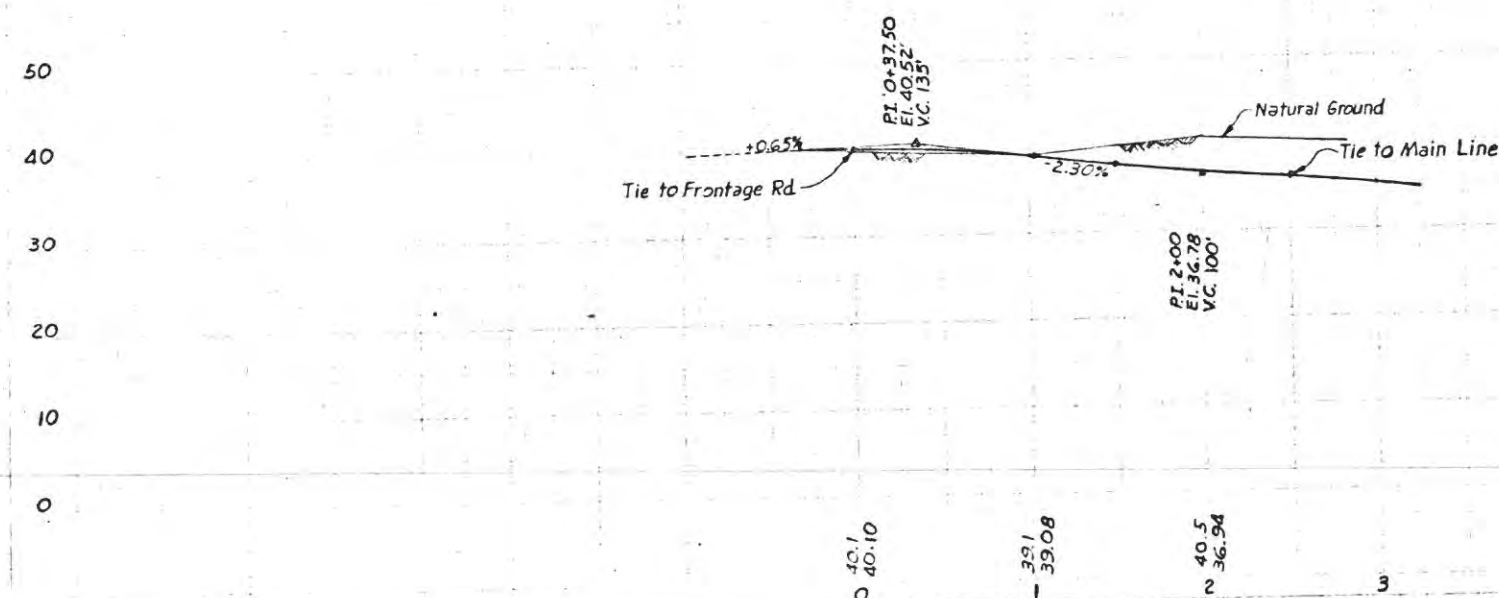
Buffalo  
 Ramp to U.S. 181 North  
 S 62° 15' 13" W



30	81	92	63
0	172	84	55
67	248	146	116
44	187	177	101

All dimensions are to the back of curb or 6' behind face of median or island.

Common Rdwy Excav.	266	C.Y.
Common Borrow	311	C.Y.
Emb. + 20% Shr.	577	C.Y.
Flex. Base	509	S.Y.
Cl. "B" Conc. (Island)	87	S.Y.
Mulch Sodding	188	C.Y.
Conc. Curb	740	L.F.
Conc. Curb & Gutter 4"	467	L.F.
" " " " 5"		L.F.
" " " " 9"		L.F.
R.O.W. Markers (City Type)		Ea.
Cl. "B" Conc. Riprap		C.Y.
Conc. Sidewalks & Driveways		S.Y.
Steel Bn Guard Fence		L.F.
Rigid PVC Conduit 1 1/2" (L.F.)	88	L.F.
" " " " 2" (L.F.)		L.F.
" " " " 3" (L.F.)		L.F.
Conc. Fdn. For Light Stds.	1	Ea.

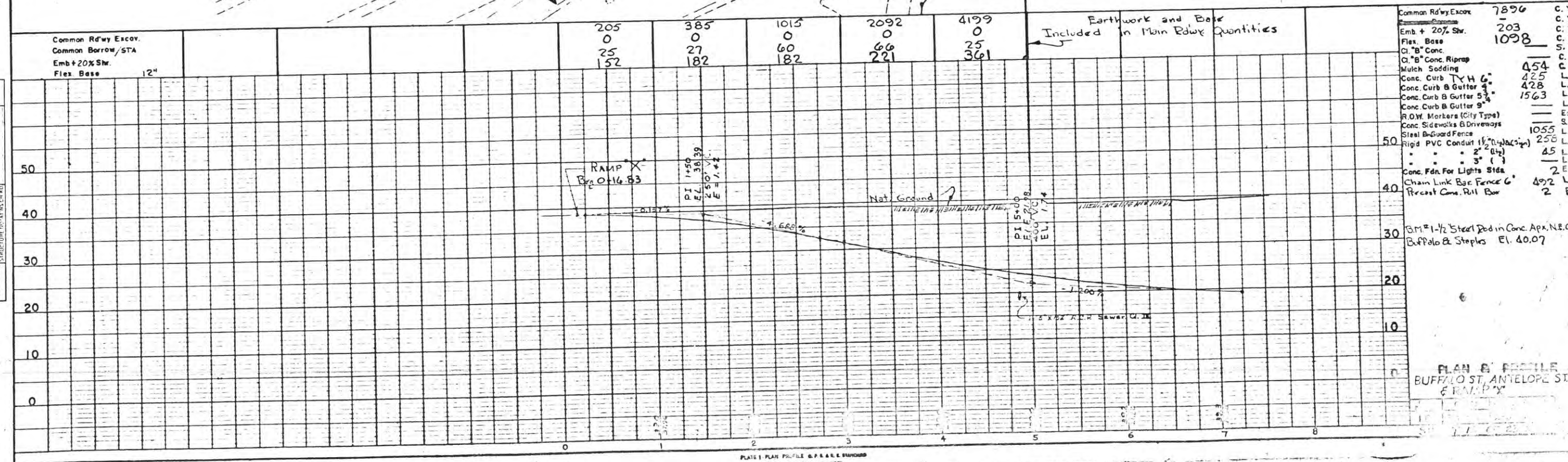


# PLAN & PROFILE RAMP V

16 VUECES I-37-112000 25  
 SHEET 15 OF 23 SHEETS

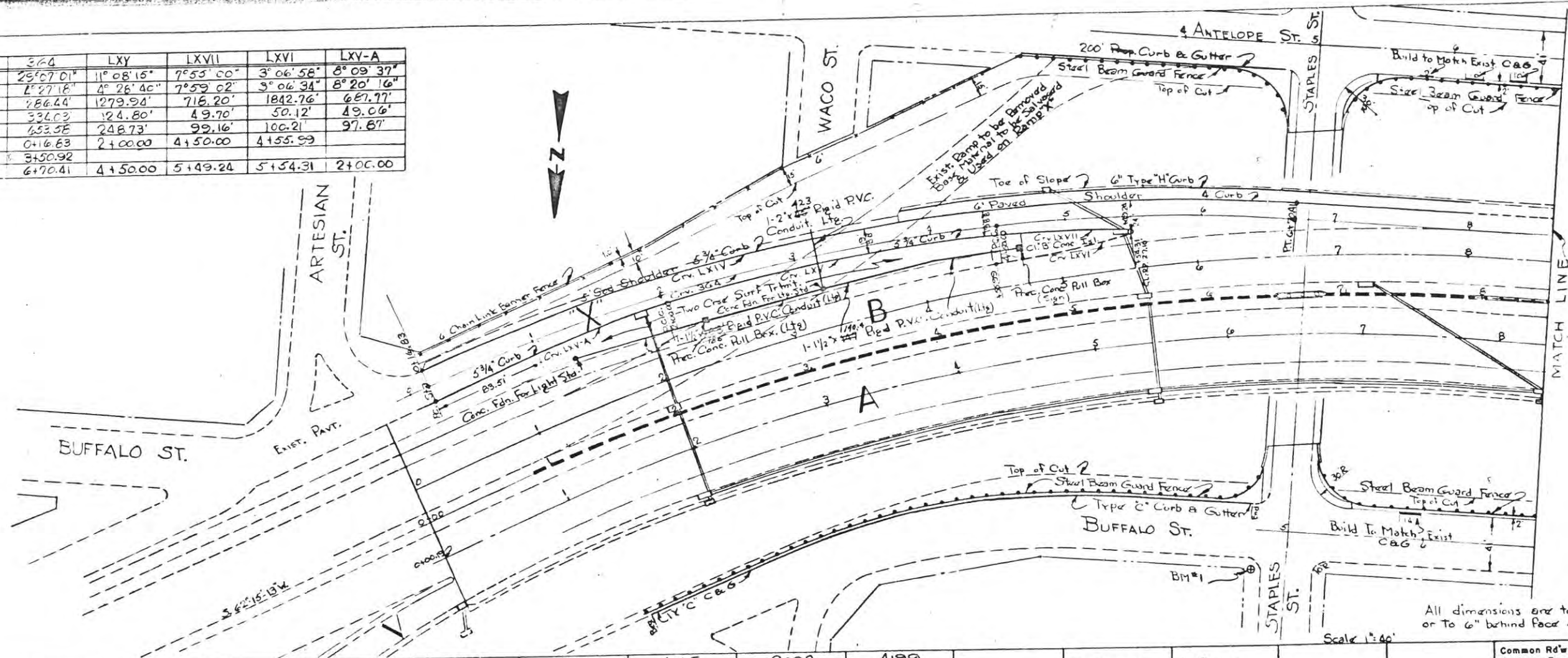


PROFILE NO. _____	SURVEYED <input checked="" type="checkbox"/>	HW _____	DATE _____
	PLOTTED _____ CHECKED _____ B. M. PLOTTED _____		





N	LXIV	LXV	LXVI	LXVII	LXVIII	LXIX-A
A	29° 07' 01"	29° 07' 01"	11° 08' 15"	7° 55' 00"	3° 06' 58"	6° 09' 37"
D	1° 24' 44"	1° 27' 18"	4° 26' 40"	7° 59' 02"	3° 06' 34"	8° 20' 16"
R	1296.94'	186.44'	1279.94'	716.20'	1842.76'	667.77'
T	337.34'	334.03'	124.80'	49.70'	50.12'	49.06'
L	459.92'	453.55'	248.73'	99.16'	100.21'	97.67'
PC	0+16.58	0+16.63	2+00.00	4+50.00	4+55.99	
PT	2+43.50	2+50.92				
BT	6+70.41	6+70.41	4+50.00	5+49.24	5+54.31	2+00.00

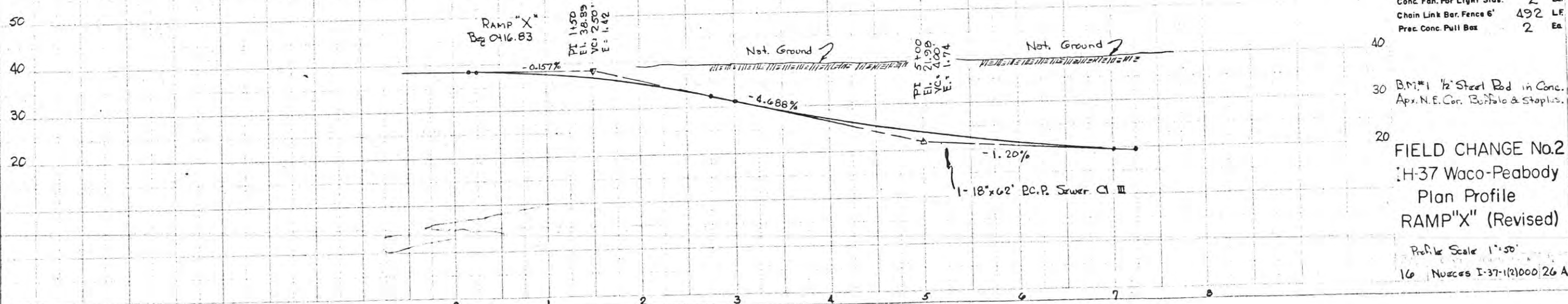


Common Rd'wy Excav  
Common Borrow / Sto.  
Emb + 20% Shr.  
Flex. Base 12"

205	385	1015	2092	4199
0	0	0	0	0
25	27	60	66	25
144	152	128	163	289

Earthwork and Base  
Included in Main Roadway Quantities

Common Rd'wy Excav	7896	CY
Common Borrow		CY
Emb + 20% Shr.	203	CY
Flex. Base	876	CY
Mulch Sodding	454	CY
Conc. Curb 6" TX "H"	425	LF
Conc. Curb & Gutter 4"	428	LF
Conc. Curb & Gutter 5"	1563	LF
Steel Beam Guard Fence TX 7 1053		LF
Rigid P.V.C. Conduit 1 1/2" (Ltg. B Sign)	335	LF
Rigid P.V.C. Conduit 2" (Ltg.)	45	LF
Conc. Fdn. For Light Stds.	2	Ea.
Chain Link Bar. Fence 6'	492	LF
Pre. Conc. Pull Box	2	Ea.

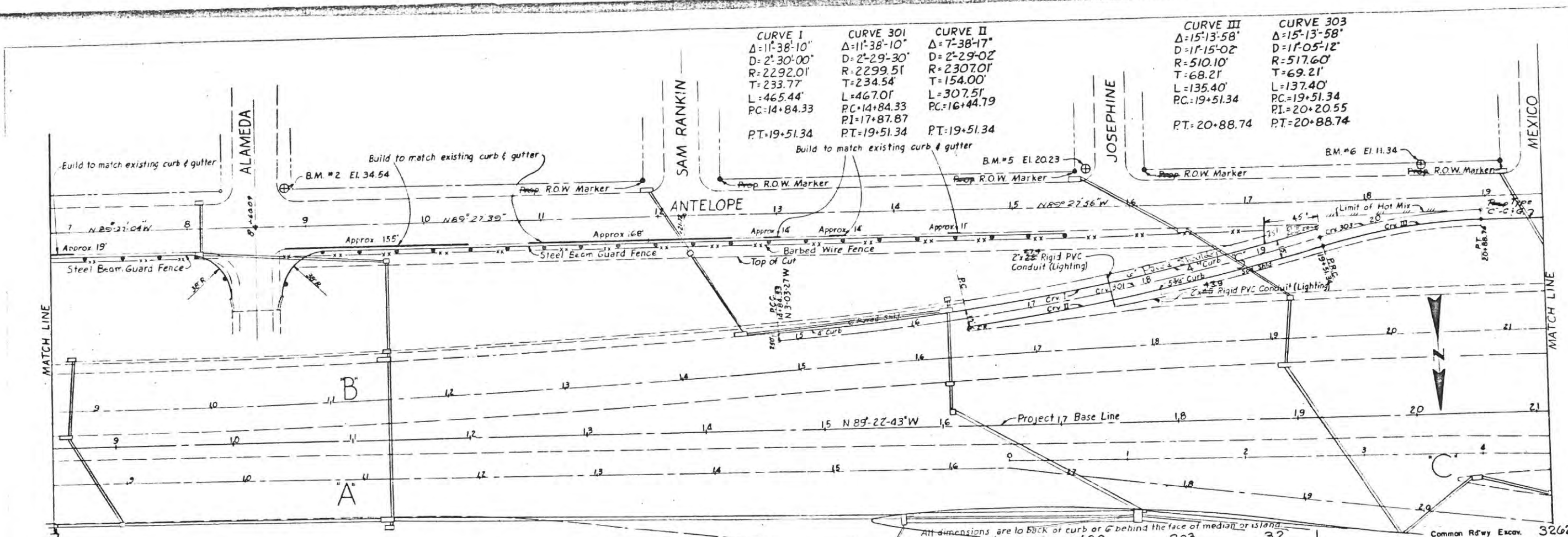


BM#1 1/2" Steel Rod in Conc.  
Apex N.E. Cor. Buffalo & Staples.

FIELD CHANGE No.2  
H-37 Waco-Peabody  
Plan Profile  
RAMP "X" (Revised)

Profile Scale 1"=50'  
16 Nov 65 I-37-1(2)000 26 A



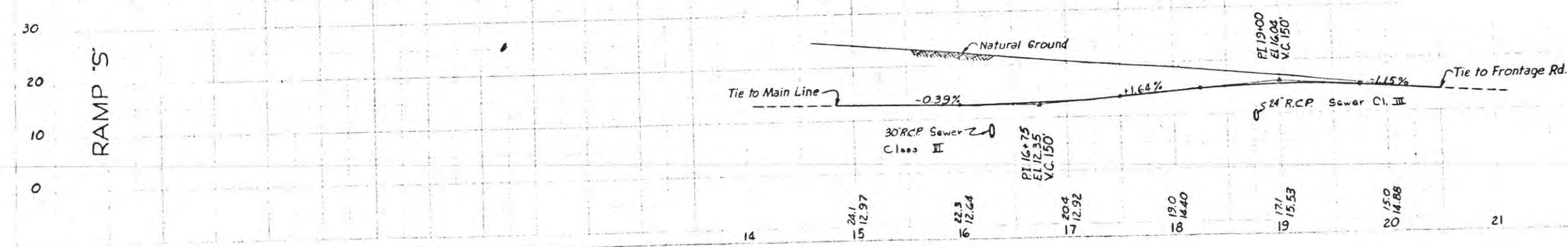


<b>CURVE I</b> Δ=11°38'10" D=2°30'00" R=2292.01' T=233.77' L=465.44' PC=14+84.33 PT=19+51.34	<b>CURVE 301</b> Δ=11°38'10" D=2°29'30" R=2299.51' T=234.54' L=467.01' PC=14+84.33 PT=19+51.34	<b>CURVE II</b> Δ=7°38'17" D=2°29'02" R=2307.01' T=154.00' L=307.51' PC=16+44.79 PT=19+51.34	<b>CURVE III</b> Δ=15°13'58" D=1°15'02" R=510.10' T=68.21' L=135.40' PC=19+51.34 PT=20+88.74	<b>CURVE 303</b> Δ=15°13'58" D=1°05'12" R=517.60' T=69.21' L=137.40' PC=19+51.34 PT=20+88.74
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Common Rdwy Excav.  
Common Borrow/STA  
Emb + 20% Shr.  
Flex. Base 12"

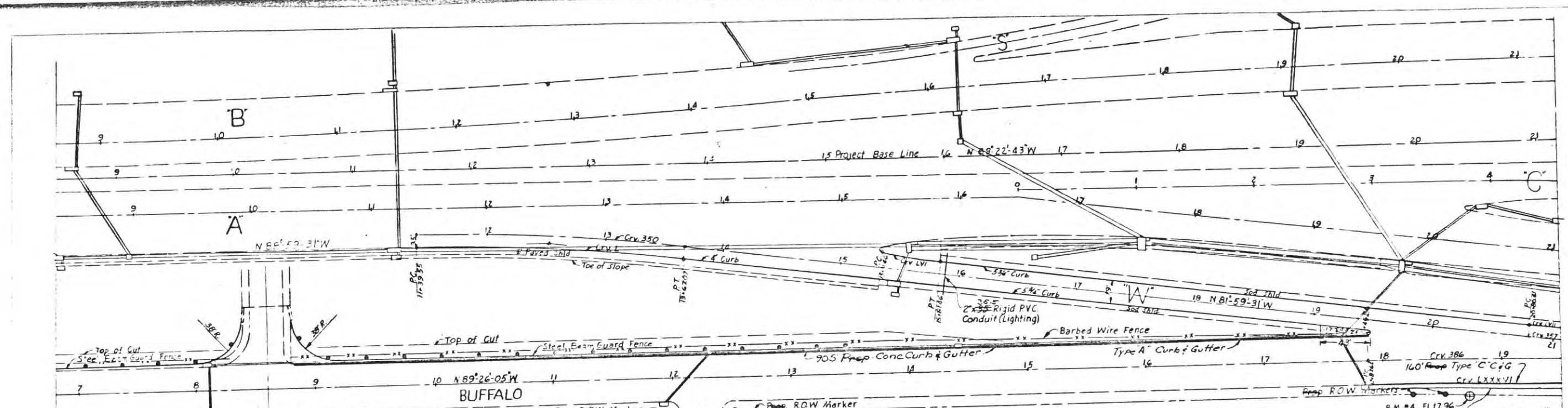
1524	1023	480	203	32	2088
0	0	0	0	0	
36	38	23	13	9	
87	173	177	135	44	

Common Rdwy Excav.	3262	C.Y.
Common Borrow	0	C.Y.
Emb + 20% Shr.	119	C.Y.
Flex. Base	616	C.Y.
CL "B" Conc. (Island)	53	S.Y.
CL "B" Conc. Riprap	164	C.Y.
Mulch Sodding		L.F.
Conc. Curb	460	L.F.
Conc. Curb & Gutter 4"	913	L.F.
Conc. Curb 8"		L.F.
R.O.W. Markers (City Type)	5	Ea.
Conc. Sidewalks & Driveways	855	L.F.
Steel Bm Guard Fence		L.F.
Rigid PVC Conduit 1 1/2"	73	L.F.
Conc. Fdn. For Light Stds.		L.F.
Barbed Wire Fence	998	L.F.



B.M. #2 - 1/2" Steel Rod in Conc. Apr. SW Corner Antelope & Alameda, El. 34.54  
B.M. #3 - 1/2" Steel Rod in Conc. Apr. NW Corner Buffalo & Sam Rankin, El. 22.28  
B.M. #4 - 1/2" Steel Rod in Conc. Apr. N. Main Line at Buffalo Apr. 300 E. of Brownlee, El. 17.92  
B.M. #5 - 1/2" Steel Rod in Conc. Apr. SE Corner Antelope & Josephine, El. 20.23  
B.M. #6 - 1/2" Steel Rod in Conc. Apr. 100' W. of Mexico Apr. S. Prop. Line of Antelope, El. 11.34

**PLAN & PROFILE**  
**ANTELOPE ST. & RAMP 'S'**  
16 Nueces 1-37-1 (2) OCY 27  
SHEET 17 OF 23 SHEETS



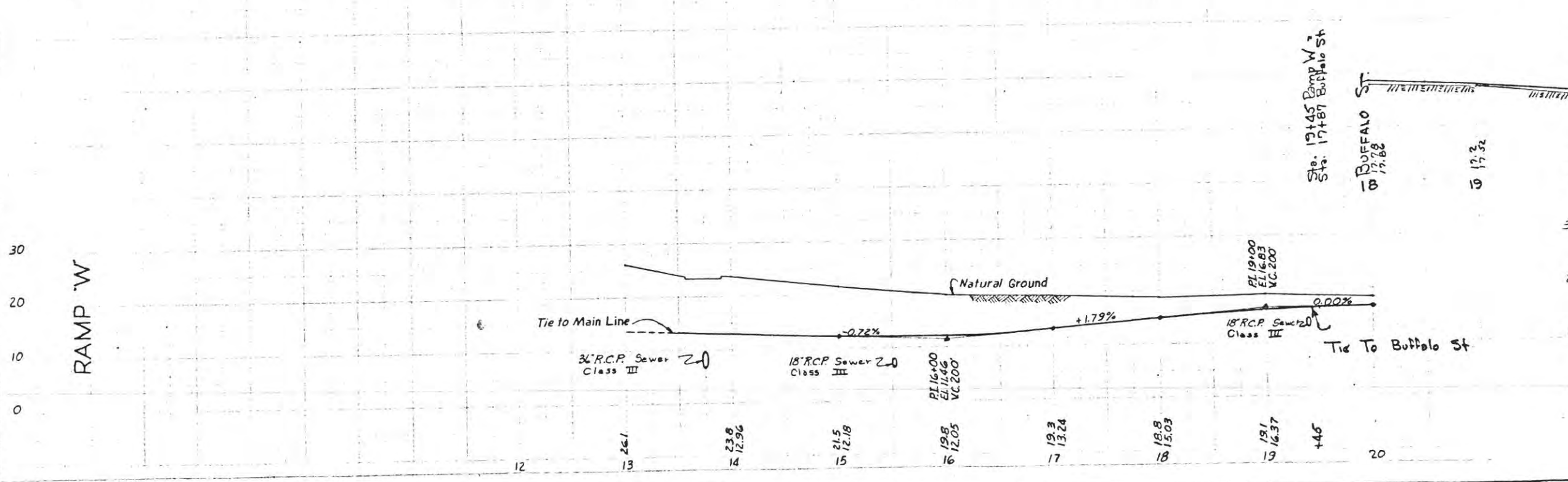
CURVE L	CURVE 350	CURVE LXXXVI	CURVE 386	CURVE LVI
Δ=7°00'00"	Δ=7°00'00"	Δ=2°37'31"	Δ=2°37'31"	Δ=6°52'02"
D=3°05'34"	D=3°04'36"	D=1°13'42"	D=1°13'22"	D=13°40'08"
R=1852.93	R=1862.43	R=4664.87	R=4685.37	R=420.17
T=113.33	T=113.91	T=106.89	T=107.36	T=25.21
L=226.34	L=227.52	L=213.72	L=214.70	L=50.24
PC=11+39.55	PC=11+39.55	PC=17+87.62	PC=17+87.62	PC=15+31.46
PT=13+67.07	PT=12+53.46	PT=20+02.32	PT=18+94.98	PT=15+81.46

All dimensions are to back of curb or to 6" behind face of median or island

Common Rdwy Excav.	7270	C.Y.
Common Borrow/STA	0	C.Y.
Emb + 20% Shr.	181	C.Y.
Flex. Base	1453	C.Y.
CL "B" Conc. (Islands)	36	S.Y.
CL "B" Conc. Riprap	127	C.Y.
Mulch Sodding	—	L.F.
Conc. Curb	392	L.F.
Conc. Curb & Gutter 4"	2063	L.F.
Conc. Curb 5"	—	L.F.
Conc. Curb 9"	—	L.F.
R.O.W. Markers (City Type)	4	Ea.
Conc. Sidewalks & Driveways	71	S.Y.
Steel Bn Guard Fence	653	L.F.
Rigid PVC Conduit 1/2"	—	L.F.
Conc. Fdn. For Light Stds.	35.5	L.F.
Barbed Wire Fence	1015	L.F.

Common Rdwy Excav.	12"
Common Borrow/STA	
Emb + 20% Shr.	
Flex. Base	

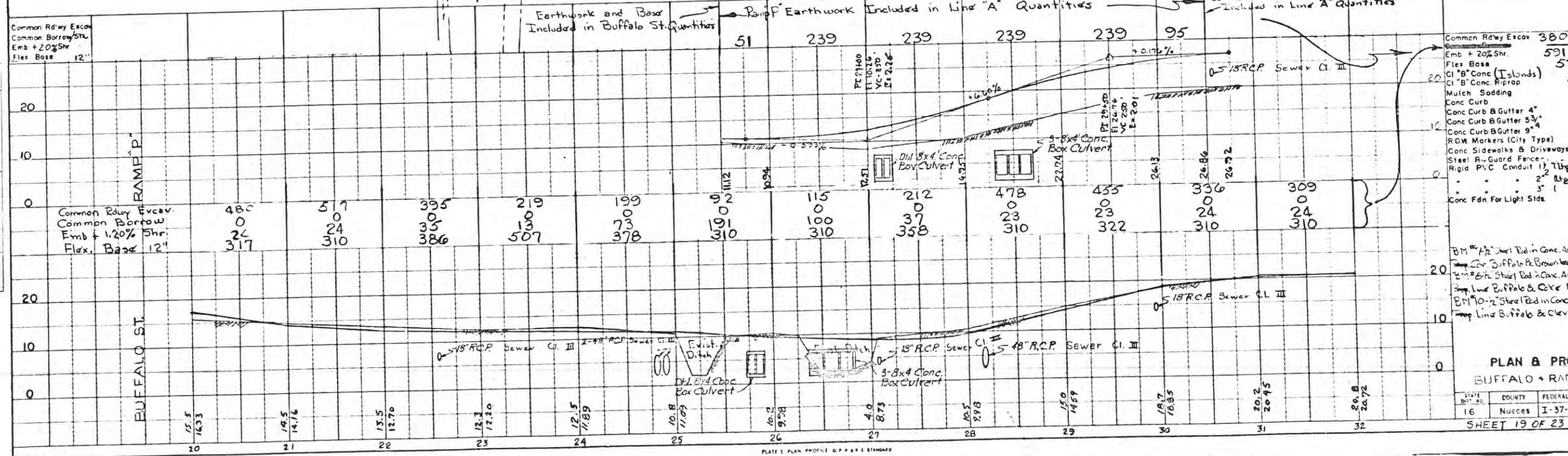
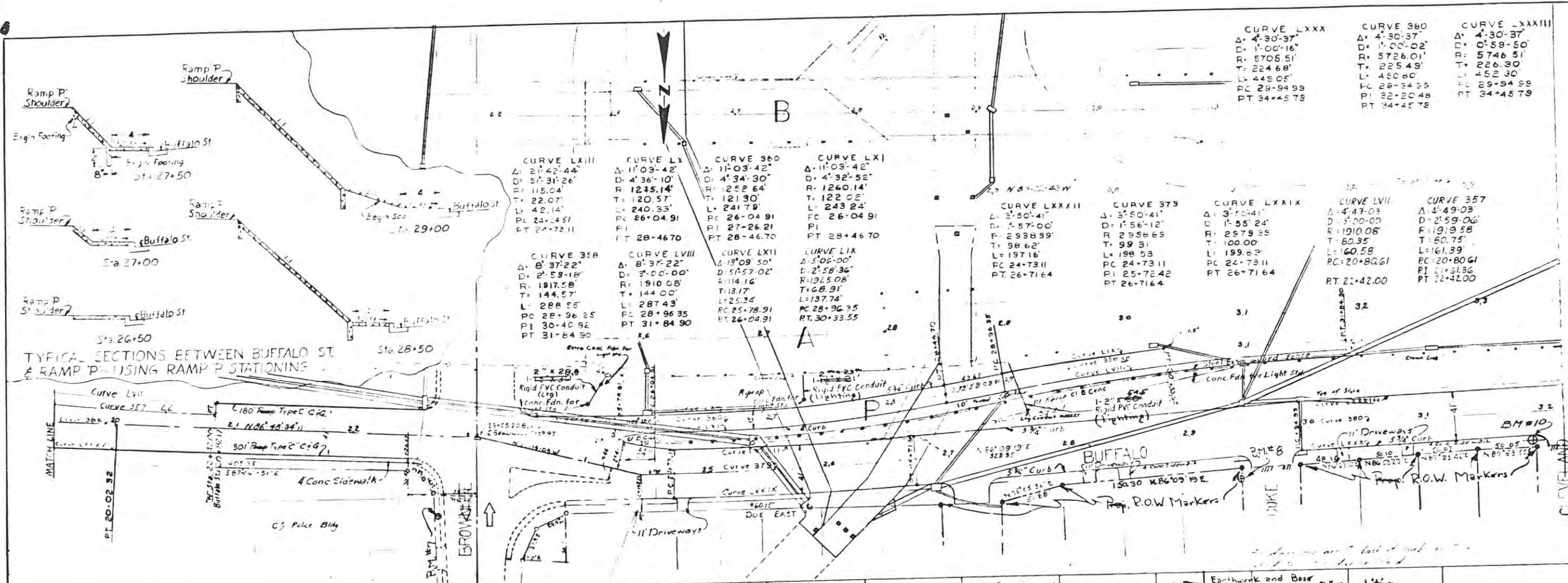
1042	1931	1537	958	588	186	576	452
0	0	0	0	0	0	0	0
18	27	23	20	23	8	35	27
18	82	154	154	154	78	479	352



B.M. #2 - 1/2" Steel Rod in Conc. Apr. SW Corner Antelope & Alameda El. 34.54  
 S.M. #3 - 1/2" Steel Rod in Conc. Apr. NW Corner Buffalo & Sam Rankin El. 22.28  
 S.M. #4 - 1/2" Steel Rod in Conc. Apr. N. Property Line of Buffalo Apr. 400' E of Browner El. 117.76  
 S.M. #5 - 1/2" Steel Rod in Conc. Apr. SE Corner Antelope & Josephine El. 20.23  
 B.M. #6 - 1/2" Steel Rod in Conc. Apr. 100' N of & of Mexico Apr. S. Prop. Line of Antelope El. 11.34



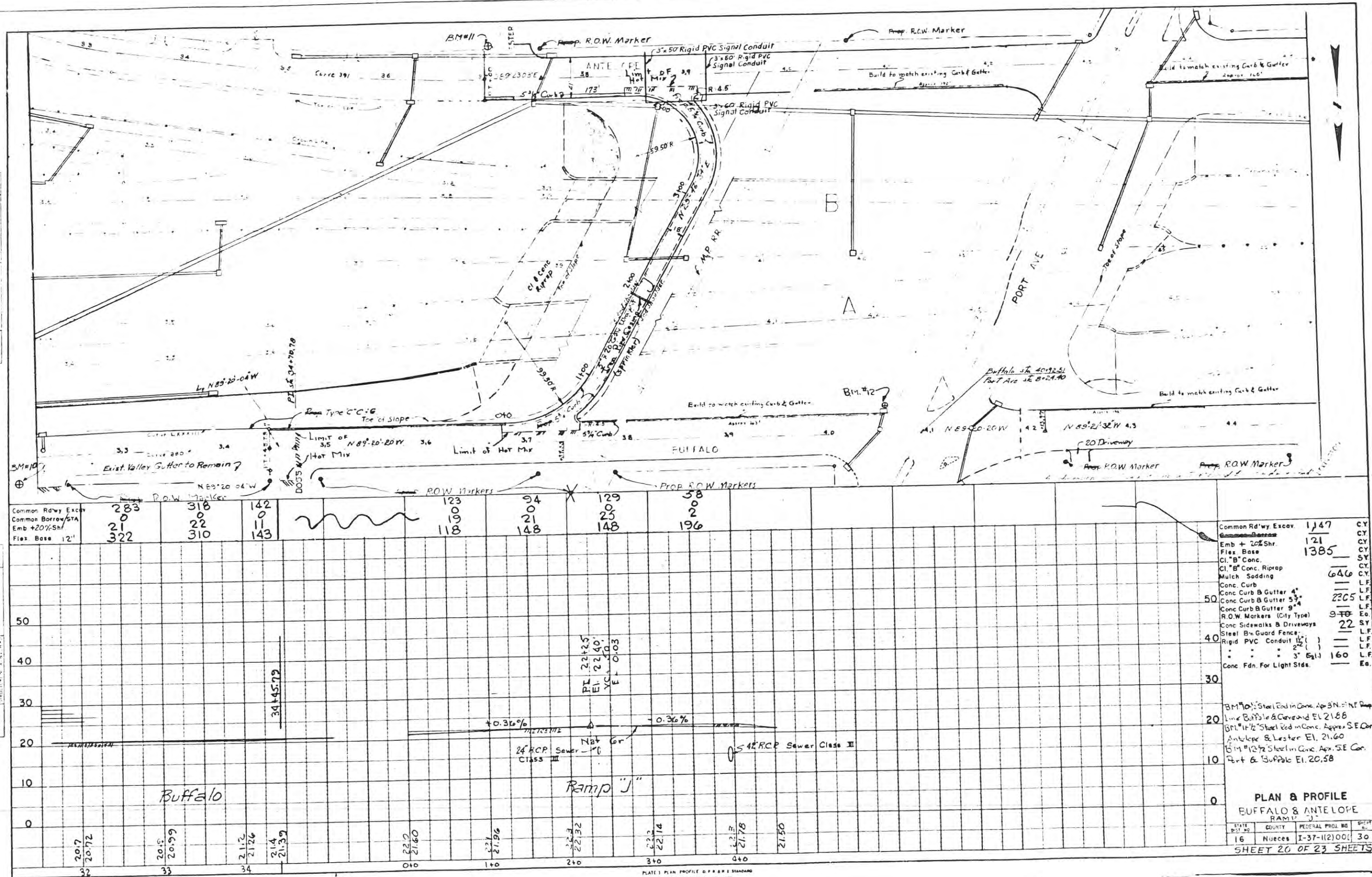
PLAN





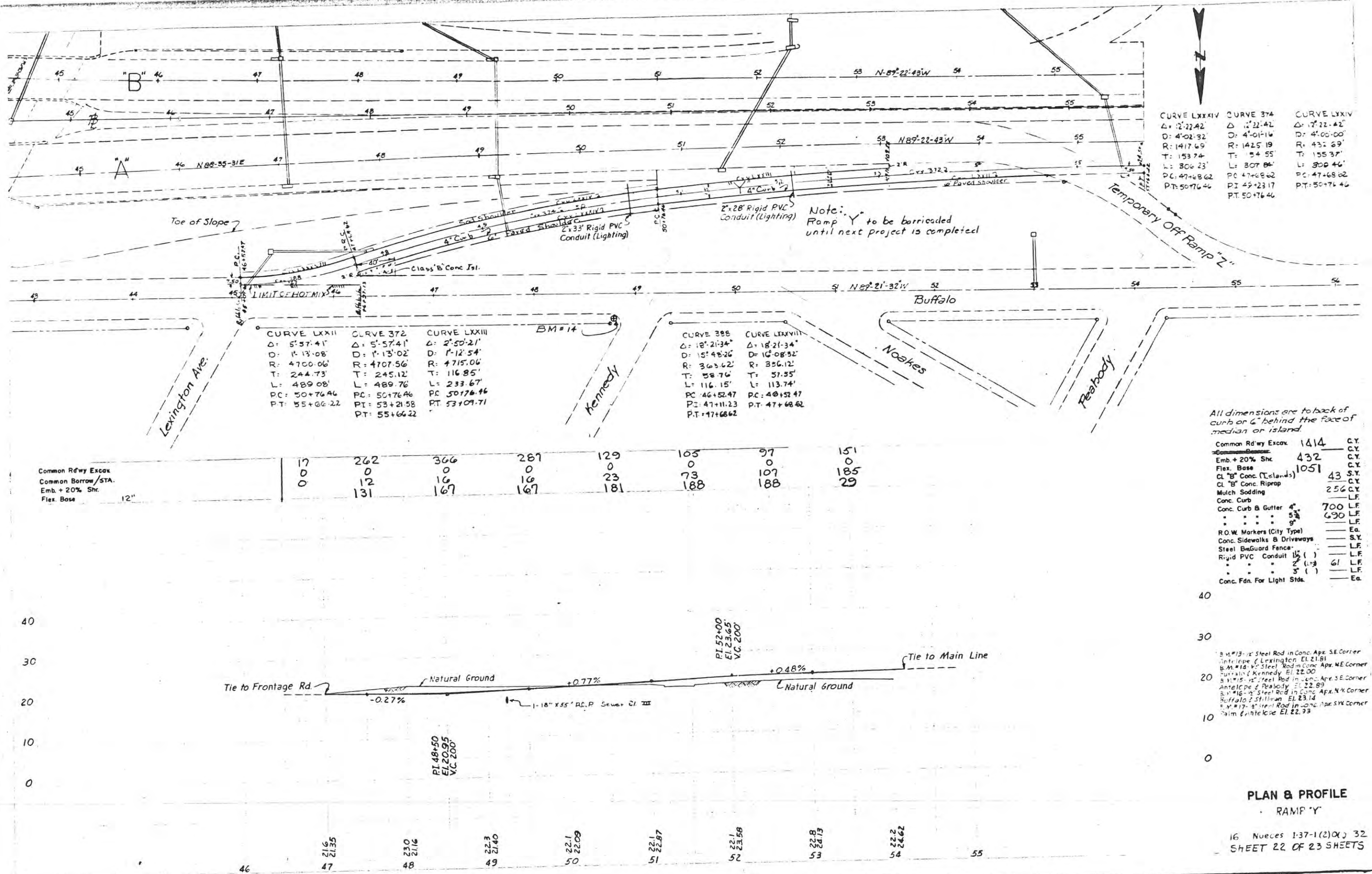
PLAN	DATE
NO. 100	10/1/72
NO. 101	10/1/72
NO. 102	10/1/72
NO. 103	10/1/72
NO. 104	10/1/72
NO. 105	10/1/72
NO. 106	10/1/72
NO. 107	10/1/72
NO. 108	10/1/72
NO. 109	10/1/72
NO. 110	10/1/72

PROFILE	DATE
NO. 100	10/1/72
NO. 101	10/1/72
NO. 102	10/1/72
NO. 103	10/1/72
NO. 104	10/1/72
NO. 105	10/1/72
NO. 106	10/1/72
NO. 107	10/1/72
NO. 108	10/1/72
NO. 109	10/1/72
NO. 110	10/1/72









CURVE LXXXIV	CURVE 374	CURVE LXXIV
Δ: 12°22'42"	Δ: 12°22'42"	Δ: 12°22'42"
D: 4°02'32"	D: 4°01'16"	D: 4°00'00"
R: 1417.69	R: 1425.19	R: 432.89
T: 153.74	T: 154.55	T: 155.37
L: 306.23	L: 307.84	L: 308.46
PC: 47+68.62	PC: 47+68.62	PC: 47+68.62
PT: 50+76.46	PT: 49+23.17	PT: 50+76.46
	PT: 50+76.46	

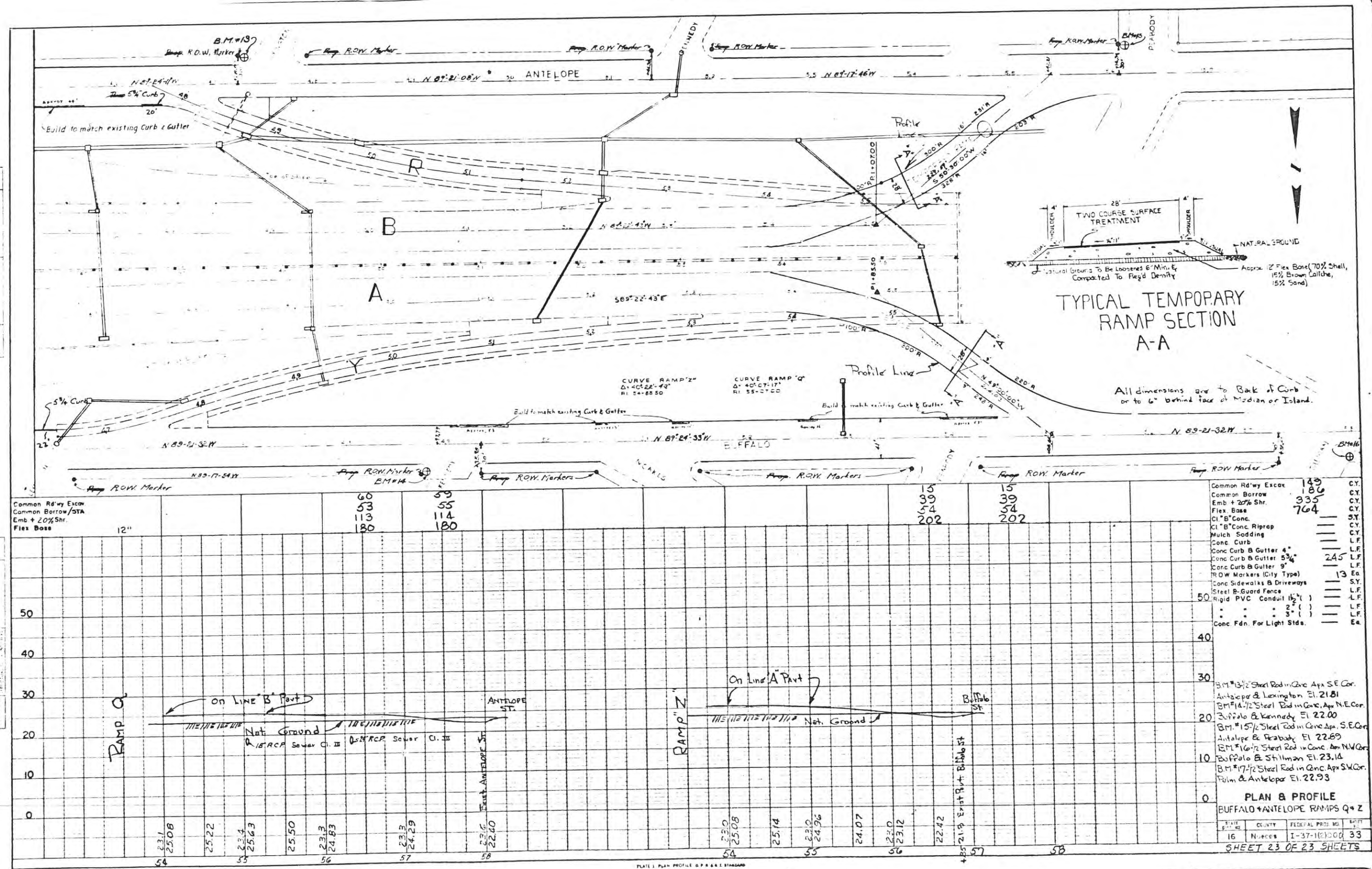
Common Rdwy Excav	1414	C.Y.
Emb. + 20% Shr.	432	C.Y.
Flex. Base	1051	C.Y.
Cl. "B" Conc. (Islands)	43	S.Y.
Cl. "B" Conc. Riprap	256	C.Y.
Mulch Sodding	—	L.F.
Conc. Curb	—	L.F.
Conc. Curb & Gutter	700	L.F.
Conc. Sidewalks & Driveways	690	L.F.
R.O.W. Markers (City Type)	—	Ea.
Steel B&G Guard Fence	—	S.Y.
Rigid PVC Conduit 1 1/2"	—	L.F.
Rigid PVC Conduit 2"	61	L.F.
Rigid PVC Conduit 3"	—	L.F.
Conc. Fdn. For Light Stds.	—	Ea.

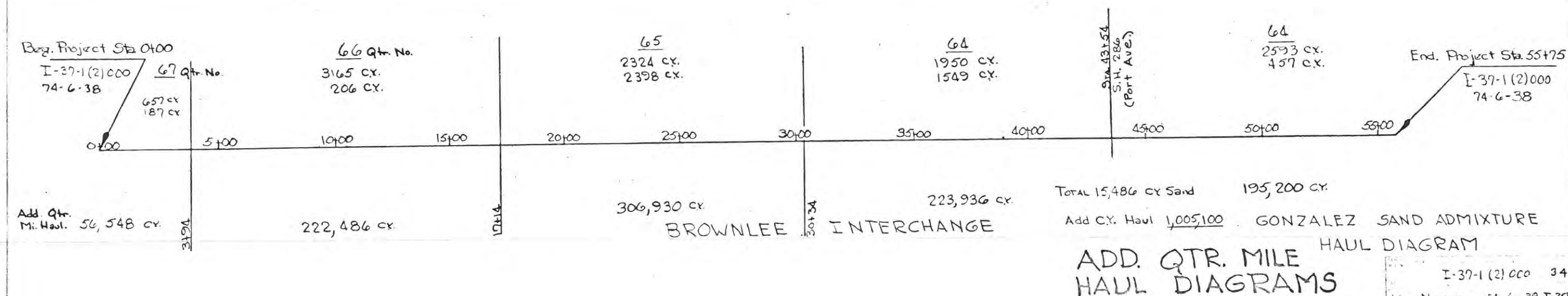
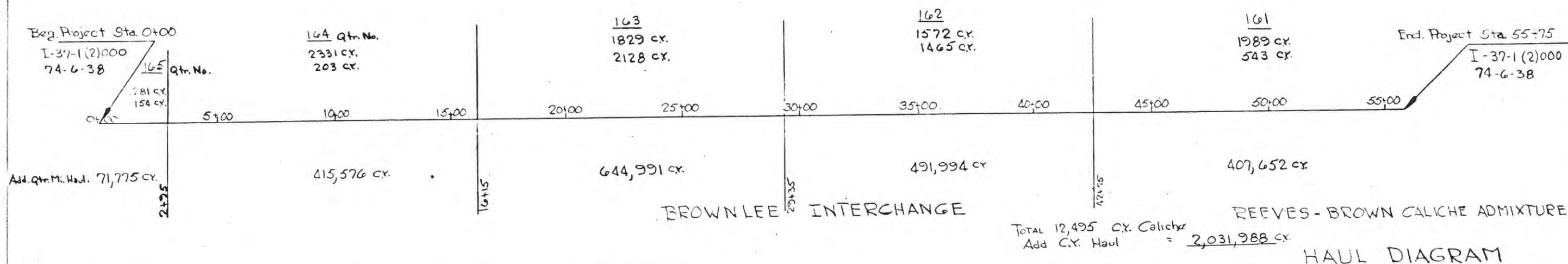
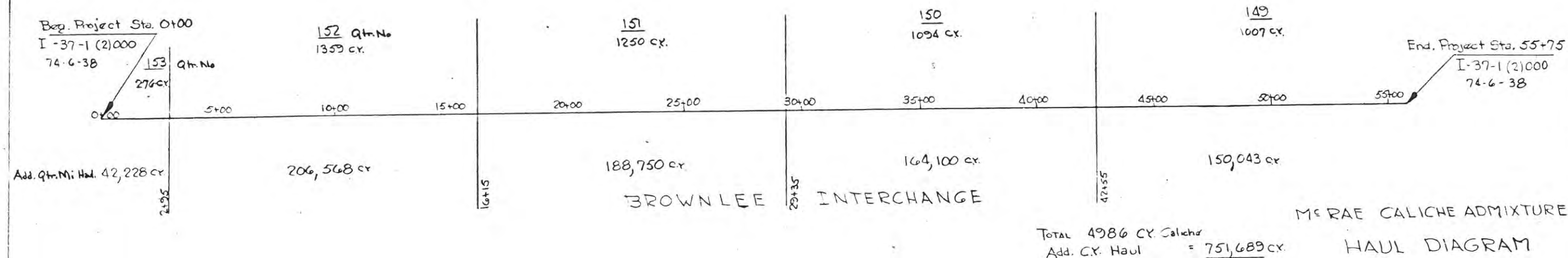
3/4" x 1/8" Steel Rod in Conc. Apr. SE Corner  
Antelope & Lexington EL 21.81  
B.M. #18 1/2" Steel Rod in Conc. Apr. NE Corner  
Antelope & Kennedy EL 22.00  
3/4" x 1/8" Steel Rod in Conc. Apr. SE Corner  
Antelope & Peabody EL 22.89  
3/4" x 1/8" Steel Rod in Conc. Apr. NW Corner  
Buffalo & Stillman EL 23.14  
3/4" x 1/8" Steel Rod in Conc. Apr. SW Corner  
Antelope EL 22.73



PLAN  
 1. GENERAL NOTES  
 2. MATERIALS  
 3. CONSTRUCTION  
 4. FINISHES  
 5. UTILITIES  
 6. EROSION CONTROL  
 7. TRAFFIC CONTROL  
 8. SIGNAGE  
 9. LIGHTING  
 10. FENCE  
 11. LANDSCAPE  
 12. OTHER

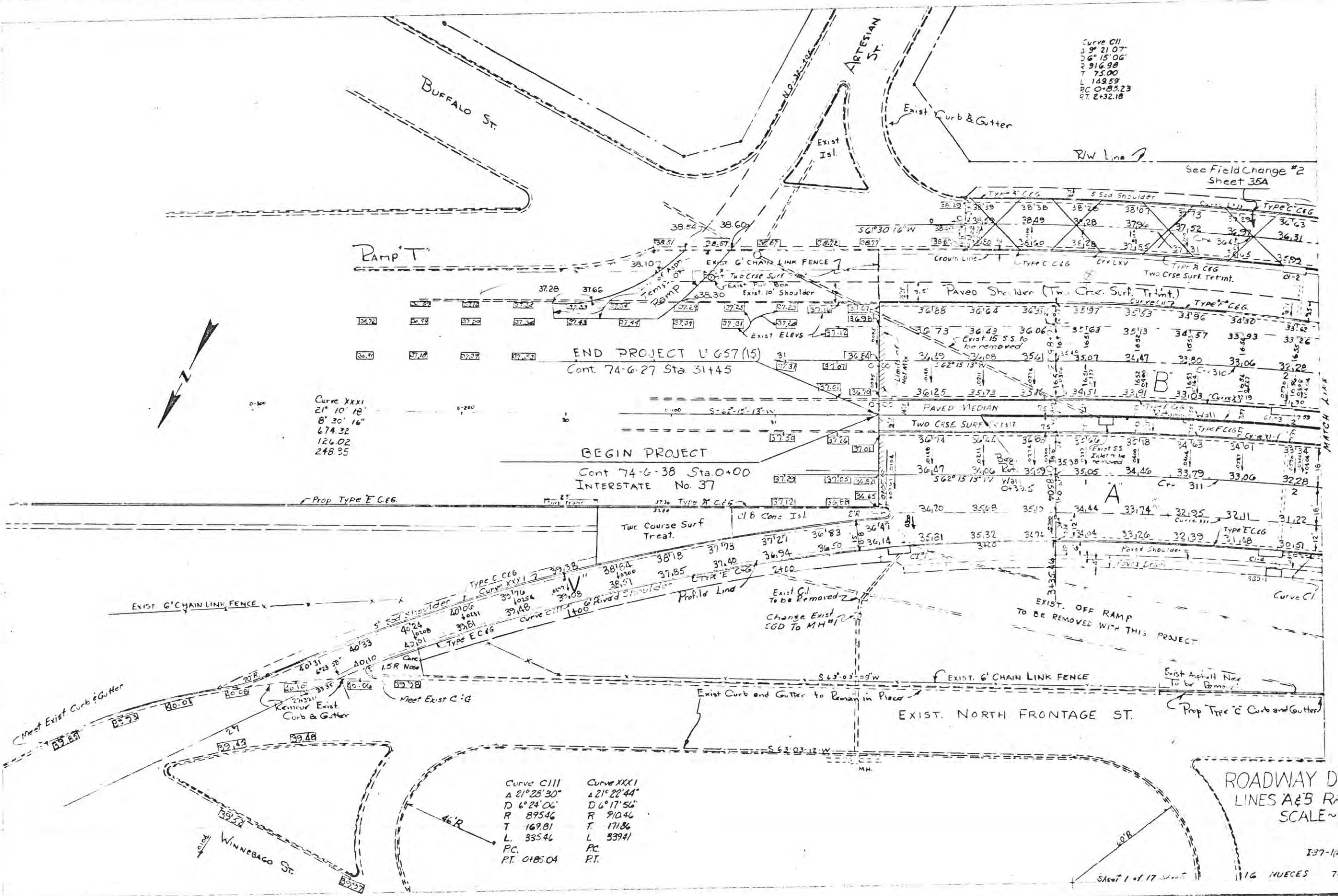
PROFILE  
 1. GENERAL NOTES  
 2. MATERIALS  
 3. CONSTRUCTION  
 4. FINISHES  
 5. UTILITIES  
 6. EROSION CONTROL  
 7. TRAFFIC CONTROL  
 8. SIGNAGE  
 9. LIGHTING  
 10. FENCE  
 11. LANDSCAPE  
 12. OTHER











Curve CII  
L 21.07  
D 6° 15' 06"  
R 916.98  
T 75.00  
L 149.59  
PC 0+83.23  
PT 2+32.18

Curve XXXI  
L 21° 10' 18"  
D 8° 30' 16"  
R 674.32  
T 126.02  
PC 248.95

Curve CIII  
L 21° 25' 30"  
D 6° 24' 06"  
R 895.46  
T 169.81  
L 335.46  
PC  
PT 0+185.04

Curve XXXI  
L 21° 22' 44"  
D 6° 17' 56"  
R 910.46  
T 171.86  
L 339.41  
PC  
PT

ROADWAY DETAILS  
LINES A & B RAMPS V & X  
SCALE ~ 1" = 20'

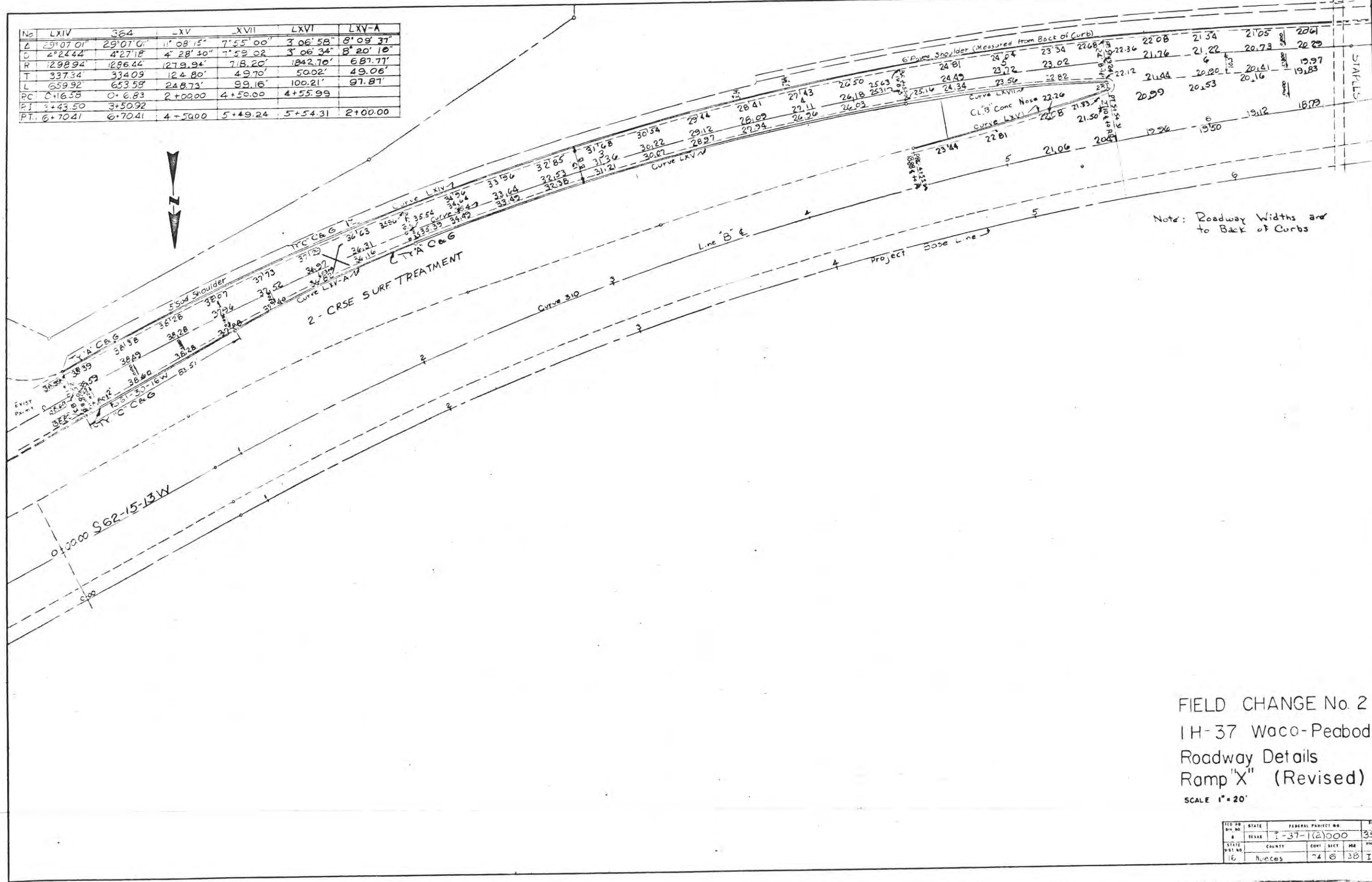
137-1(2)000 33

116 HUECES 74 6 38 137

Sheet 1 of 17 sheets



No	LXIV	364	LXV	LXVII	LXVI	LXV-A
Δ	29°07'01"	29°07'01"	11°08'15"	7°55'00"	3°06'58"	8°09'37"
D	4°24'44"	4°27'18"	4°28'40"	7°59'02"	3°06'34"	8°20'10"
R	1298.94'	1296.44'	1278.94'	718.20'	1842.70'	687.77'
T	337.34'	334.09'	124.80'	49.70'	50.02'	49.06'
L	659.92'	653.58'	248.73'	99.16'	100.21'	97.87'
PC	0+16.38	0+6.83	2+00.00	4+50.00	4+55.99	
PJ	3+43.50	3+50.92				
PT	6+70.41	6+70.41	4+50.00	5+49.24	5+54.31	2+00.00



FIELD CHANGE No. 2  
 IH-37 Waco-Peabody  
 Roadway Details  
 Ramp "X" (Revised)

SCALE 1" = 20'

STATE	COUNTY	CONTRACT NO.	SHEET NO.
TEXAS	NUECES	1-37-1(2)000	35A

Curve 364  
 L 29° 07' 01"  
 D 4° 27' 18"  
 P 1286.44'  
 T 334.09'  
 L 653.58'  
 PC 0+16.83  
 PT 3+50.32  
 PT 6+70.41

LXIV  
 L 29° 07' 01"  
 D 4° 24' 44"  
 P 1298.94'  
 T 337.34'  
 L 659.92'  
 PC 0+16.55  
 PT 6+70.41

Curve XII  
 L 28° 22' 04"  
 D 3° 45' 46"  
 P 1523.03'  
 T 384.93'  
 L 753.90'  
 PC 0+85.23  
 PT 8+29.70

LXVI LXVII  
 L 28° 22' 04" 7° 55' 00"  
 D 3° 45' 46" 7° 59' 02"  
 P 1523.03 798.20  
 T 384.93 49.70  
 L 753.90 93.16  
 PC 0+85.23 4+59  
 PT 8+29.70 5+42.21

Exist Pipe to be  
 Plugged  
 Exist. Pipe  
 & Inlet To Be  
 Removed

See Field Change #2  
 Sheet #35A

LXV  
 L 28° 22' 04"  
 D 3° 55' 20"  
 P 1461.03'  
 T 369.26'  
 L 723.26'  
 PC 0+85.23  
 PT 8+17.74

LXVI  
 L 28° 22' 04"  
 D 3° 55' 20"  
 P 1461.03'  
 T 369.26'  
 L 723.26'  
 PC 0+85.23  
 PT 8+17.74

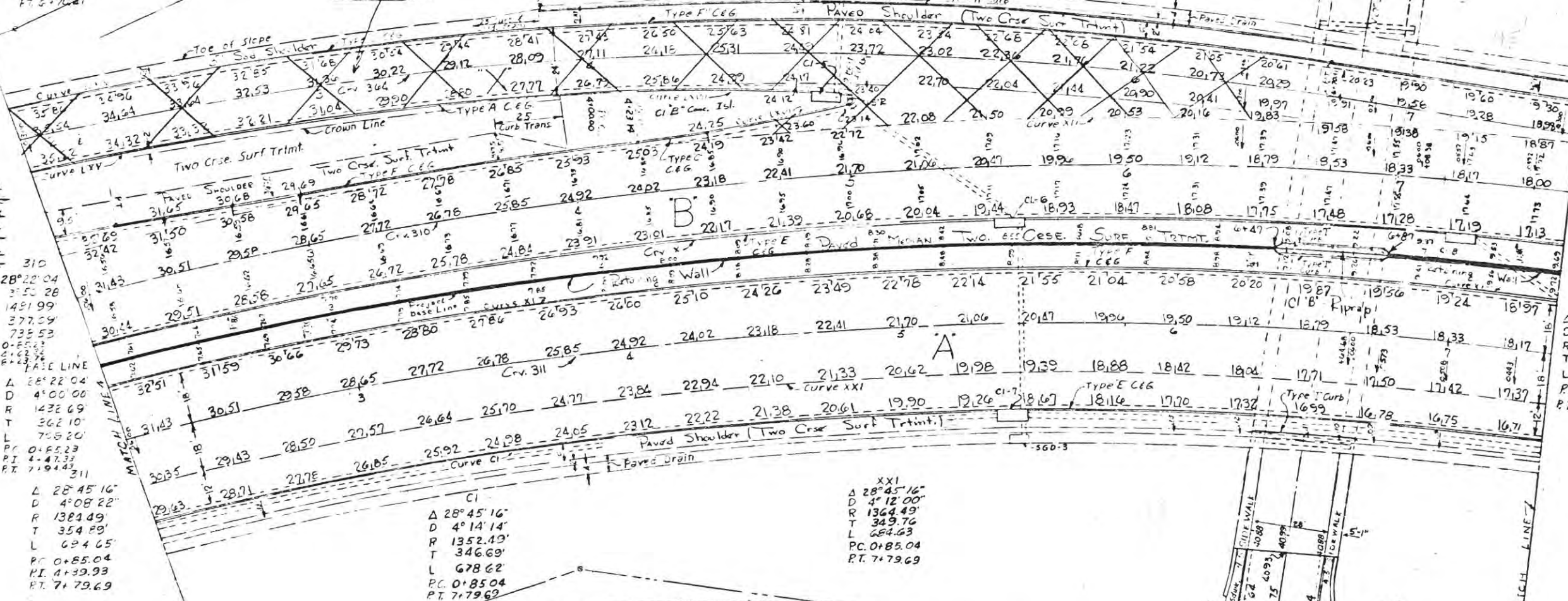
LXVII  
 L 28° 22' 04"  
 D 3° 55' 20"  
 P 1461.03'  
 T 369.26'  
 L 723.26'  
 PC 0+85.23  
 PT 8+17.74

LXVIII  
 L 28° 45' 16"  
 D 4° 08' 22"  
 P 1384.49'  
 T 354.89'  
 L 694.65'  
 PC 0+85.04  
 PT 1+39.93  
 PT 7+79.69

CI  
 L 28° 45' 16"  
 D 4° 14' 14"  
 P 1352.43'  
 T 346.69'  
 L 678.62'  
 PC 0+85.04  
 PT 7+79.69

XXI  
 L 28° 45' 16"  
 D 4° 12' 00"  
 P 1364.49'  
 T 349.76'  
 L 654.63'  
 PC 0+85.04  
 PT 7+79.69

XXI  
 L 28° 45' 16"  
 D 4° 04' 50"  
 P 1404.43'  
 T 360.02'  
 L 704.66'  
 PC 0+85.04  
 PT 7+79.69



ROADWAY DETAILS  
 LINES A&B RAMP X  
 SCALE 1"=20'

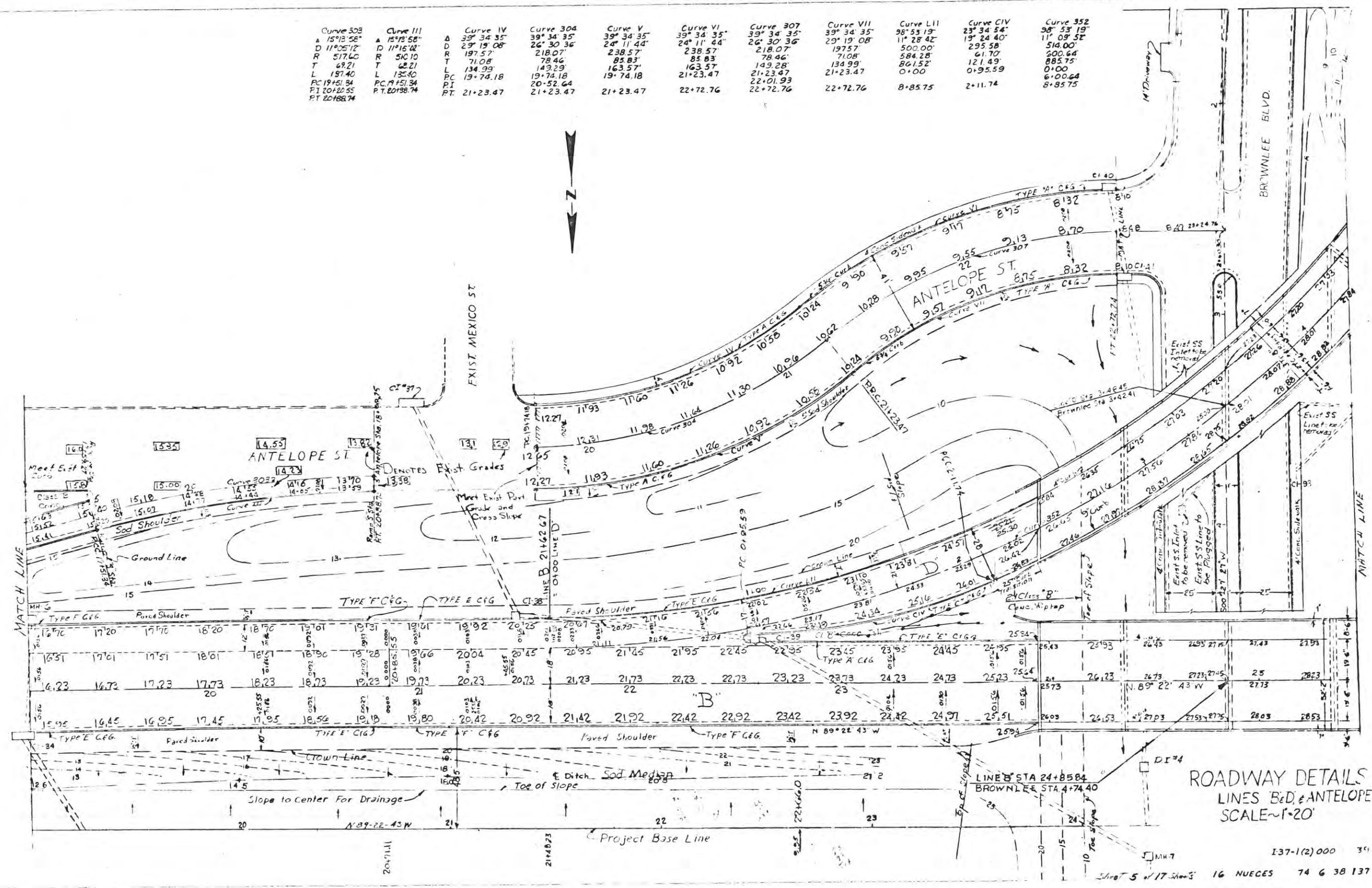








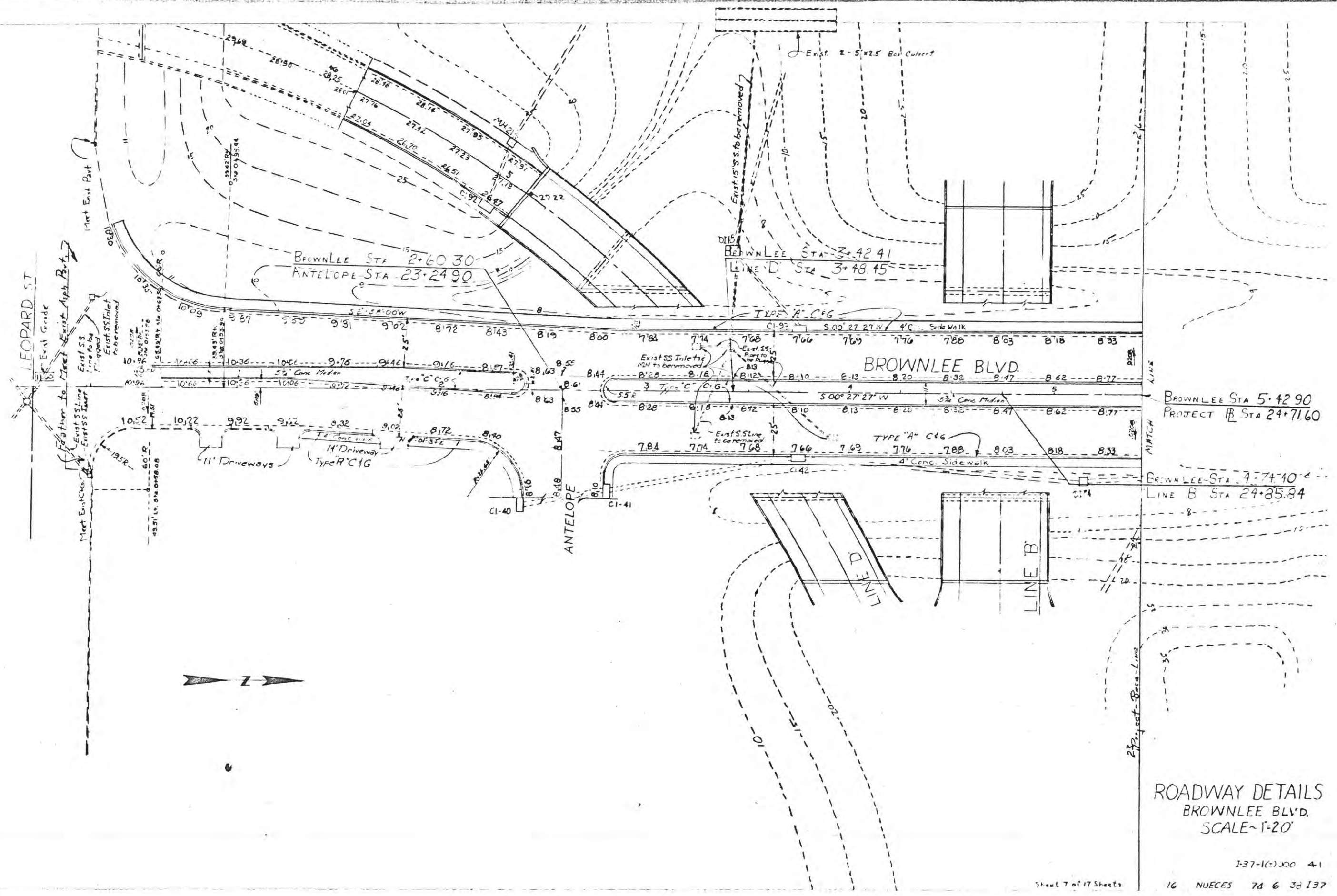
Curve 303 A 15°13'58" D 11°05'12" R 517.40 T 69.21 L 197.40 PC 19+51.34 PT 20+20.55 ET 20+188.74	Curve III A 15°13'58" D 11°05'12" R 517.40 T 69.21 L 197.40 PC 19+51.34 PT 20+20.55 ET 20+188.74	Curve IV A 39°34'35" D 29°19'08" R 197.57 T 71.08 L 134.99 PC 19+74.18 PT 21+23.47	Curve 304 A 39°34'35" D 26°30'36" R 218.07 T 78.46 L 143.29 PC 19+74.18 PT 21+23.47	Curve V A 39°34'35" D 24°11'44" R 238.57 T 85.83 L 163.57 PC 19+74.18 PT 21+23.47	Curve VI A 39°34'35" D 24°11'44" R 238.57 T 85.83 L 163.57 PC 21+23.47 PT 22+72.76	Curve 307 A 39°34'35" D 26°30'36" R 218.07 T 78.46 L 143.29 PC 21+23.47 PT 22+72.76	Curve VII A 39°34'35" D 29°19'08" R 197.57 T 71.08 L 134.99 PC 21+23.47 PT 22+72.76	Curve LII A 98°53'19" D 11°28'42" R 500.00 T 584.28 L 861.52 PC 0+00 PT 8+85.75	Curve CIV A 23°34'54" D 19°24'40" R 295.58 T 61.70 L 121.49 PC 0+95.59 PT 2+11.74	Curve 352 A 38°53'19" D 11°09'52" R 514.00 T 600.64 L 885.75 PC 0+00 PT 8+85.75
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ROADWAY DETAILS  
LINES B&D, ANTELOPE  
SCALE 1"=20'







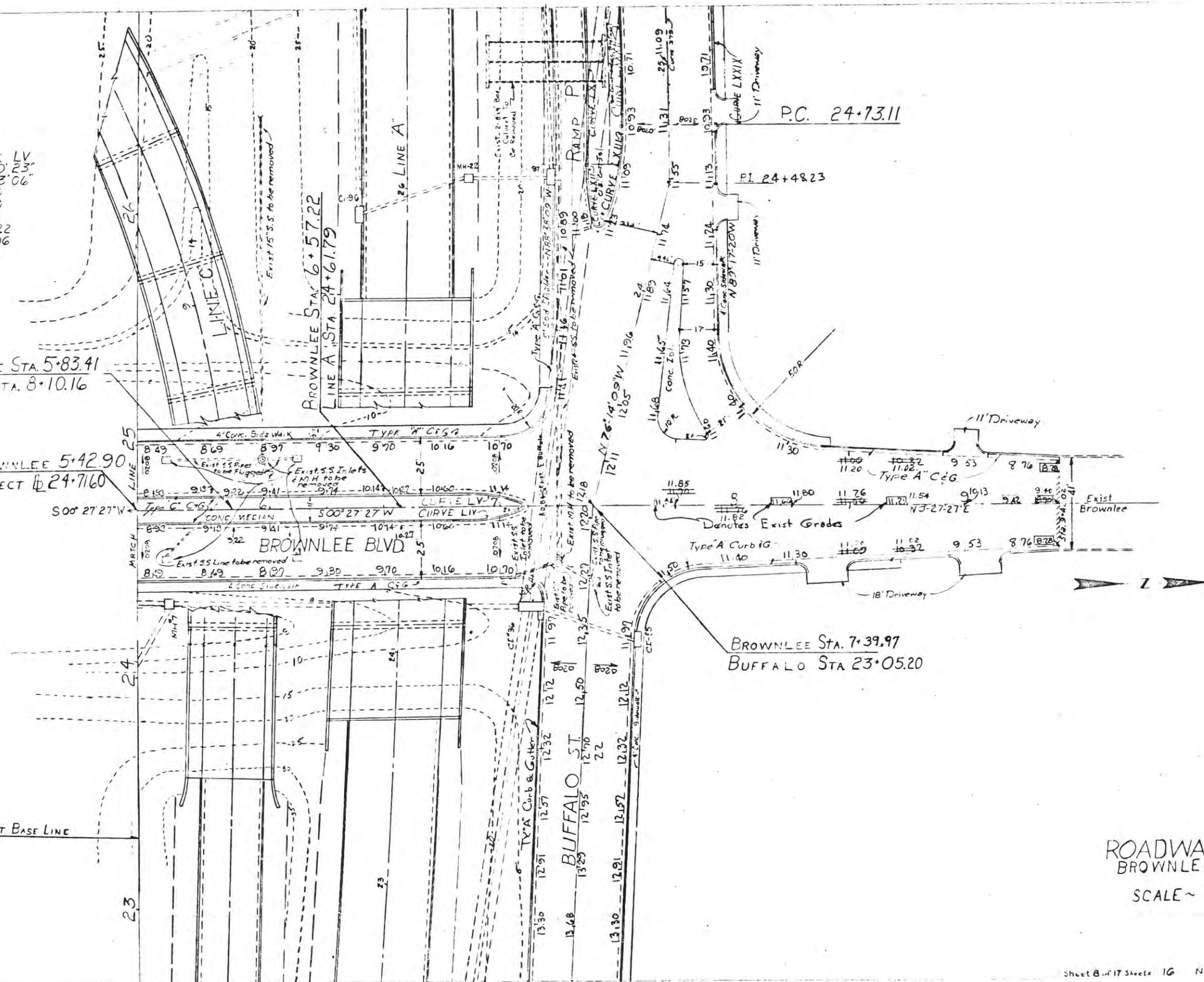
CURVE LIV  
 Δ 20° 00' 23"  
 RT 112° 53' 06"  
 T 60.00  
 L 10.59  
 PC 17.72  
 PT 7+85.22  
 8+05.06

CURVE LV  
 Δ 20° 00' 23"  
 RT 112° 53' 06"  
 T 60.00  
 L 10.59  
 PC 17.72  
 PT 7+85.22  
 8+05.06

BROWNLEE STA. 5+83.41  
 LINE C STA. 8+10.16

BROWNLEE 5+42.90  
 PROJECT 24+71.60

PROJECT BASE LINE



ROADWAY DETAILS  
 BROWNLEE & BUFFALO  
 SCALE ~ 1" = 20'









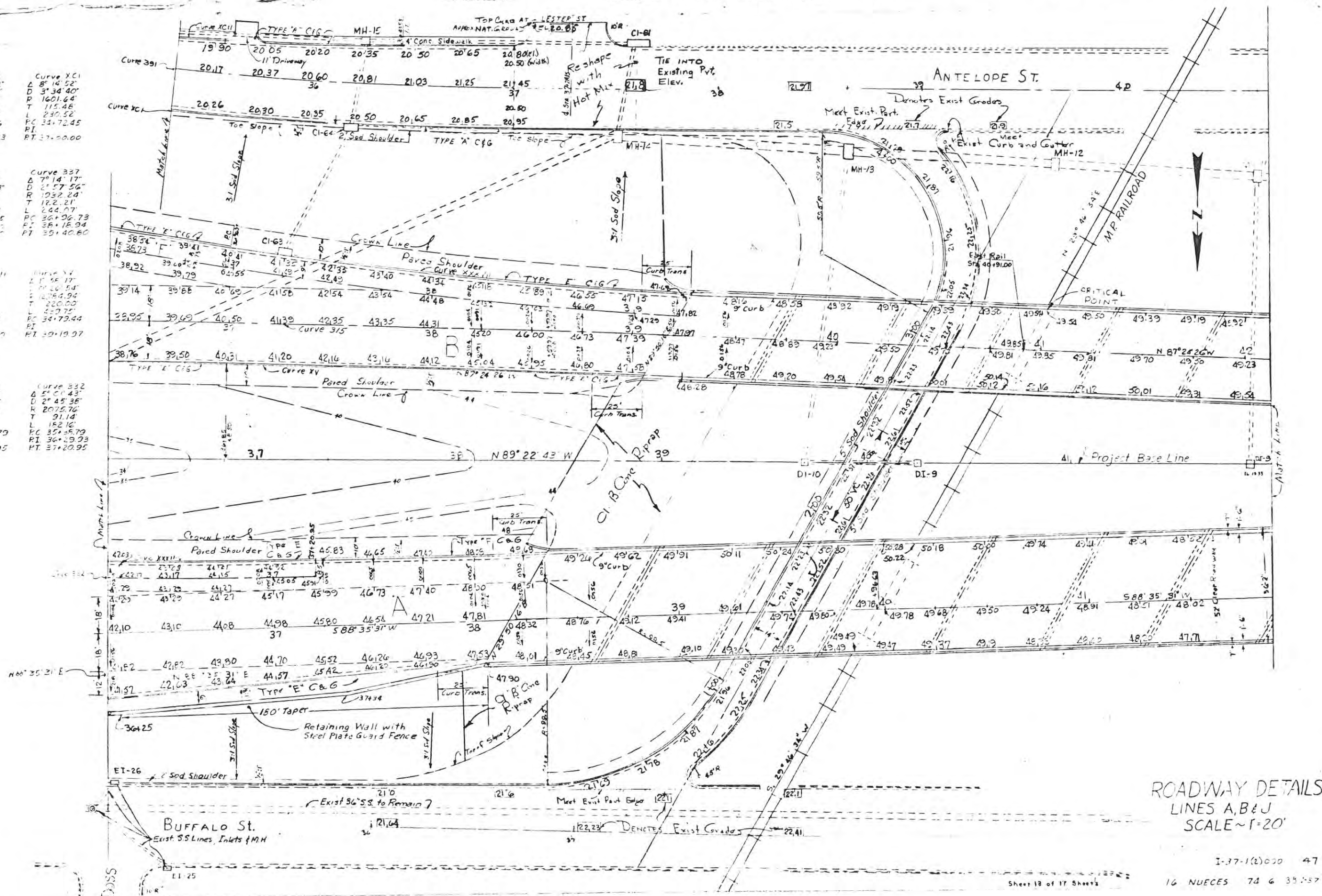








Curve 332  
Δ 5° 00' 43"  
D 2° 45' 36"  
R 2075.76'  
T 91.14'  
L 182.16'  
P.C. 35+59.79  
P.I. 36+29.9  
P.T. 37+20.9

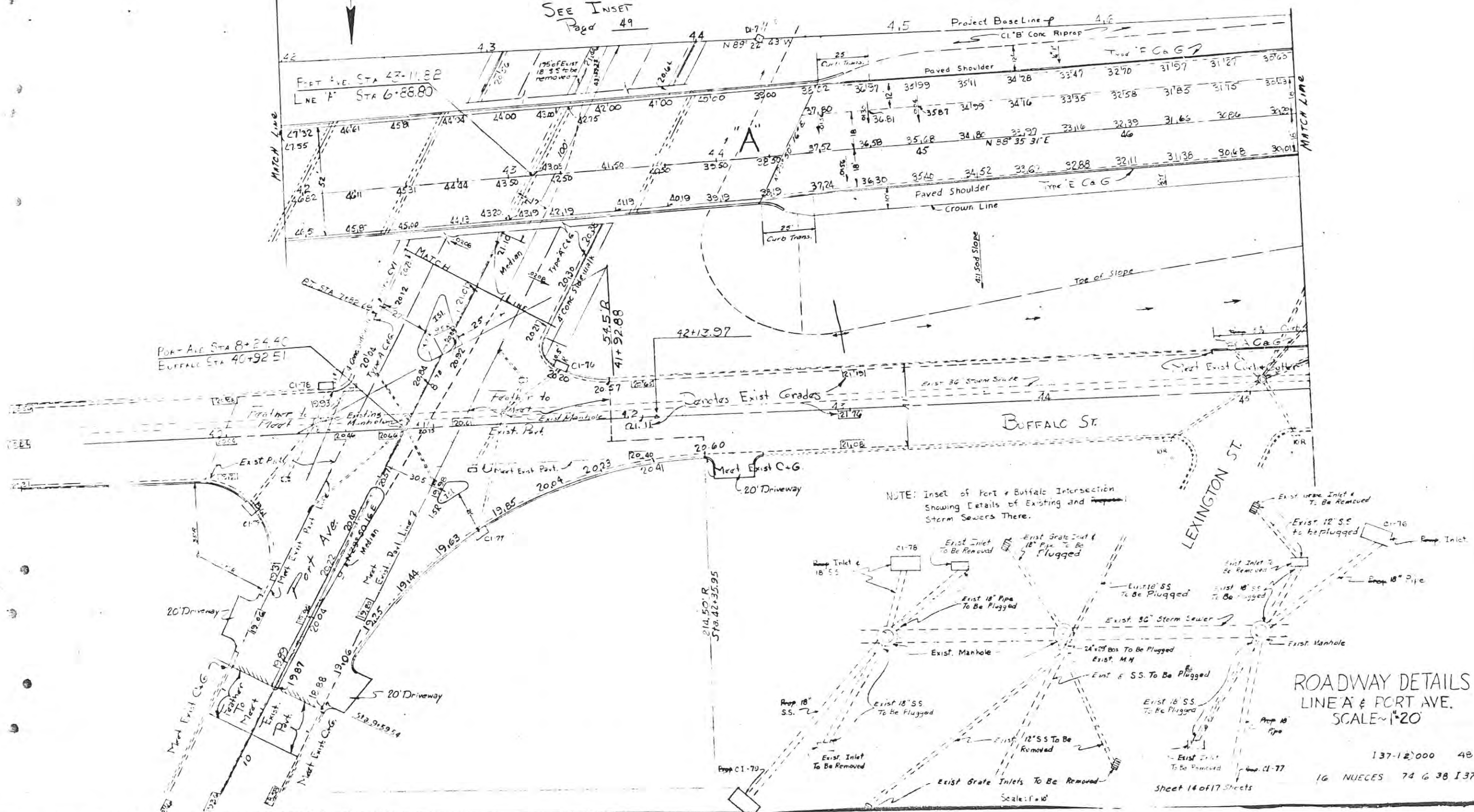


ROADWAY DETAILS  
LINES A, B & J  
SCALE ~ 1" = 20'

I-37-1(2)000 47

16 NUECES 74 6 35:57

SEE INSET  
Page 49



NOTE: Inset of Port & Buffalo Intersection  
Showing Details of Existing and  
Storm Sewers There.

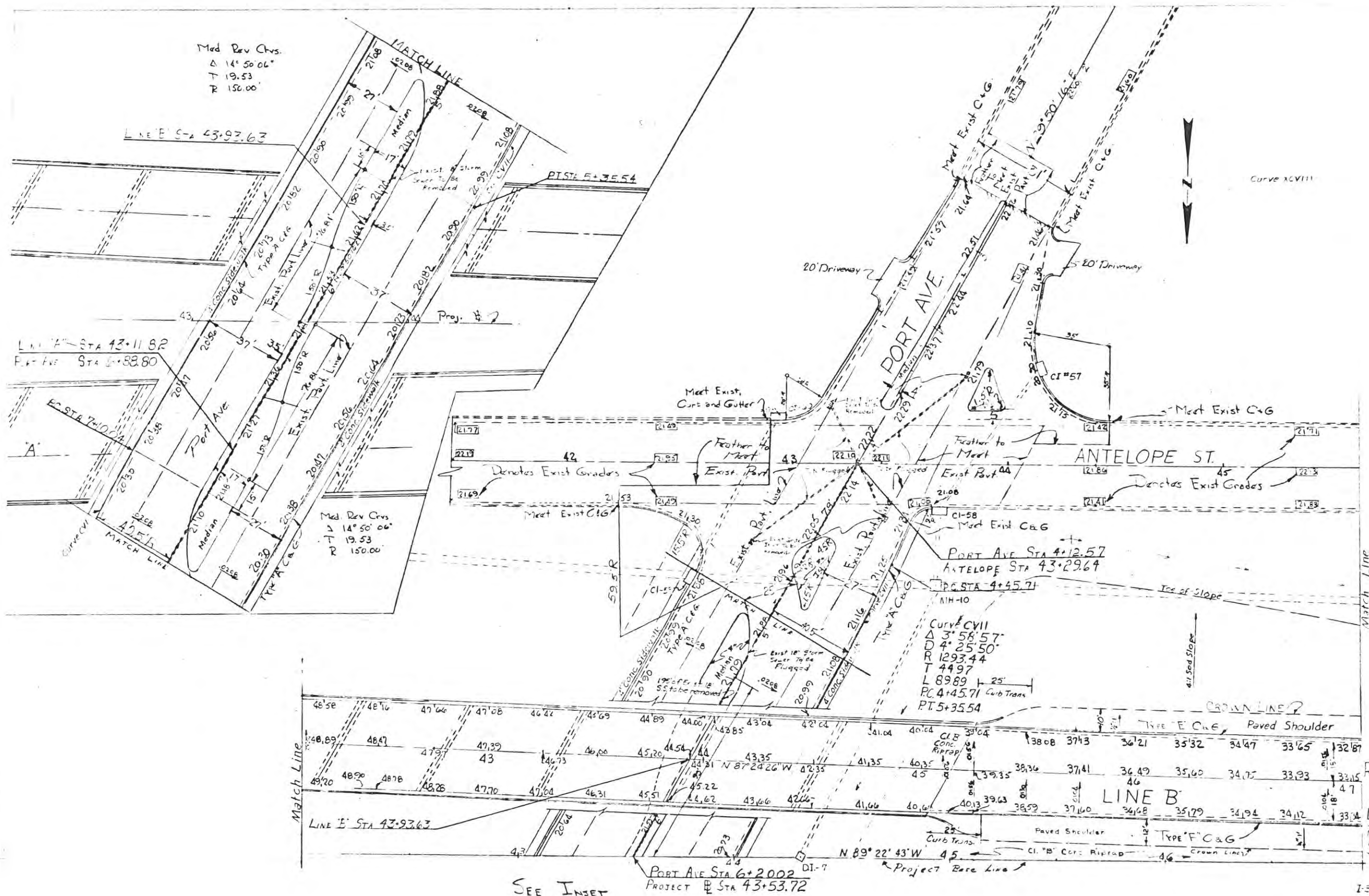
ROADWAY DETAILS  
LINE A & PORT AVE.  
SCALE 1"=20'

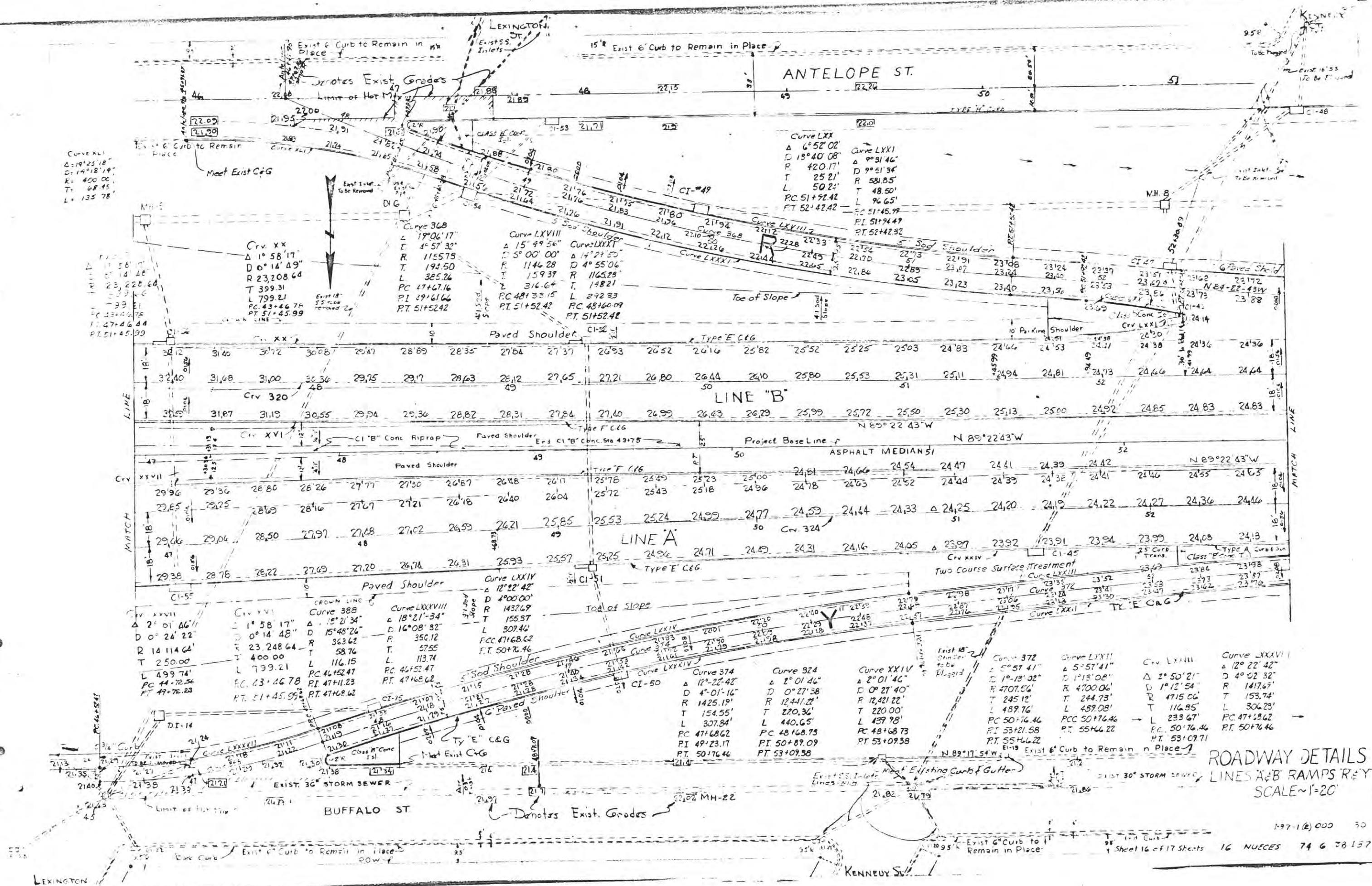
137-12000 48  
16 NUECES 74 6 38 137

Sheet 14 of 17 Sheets

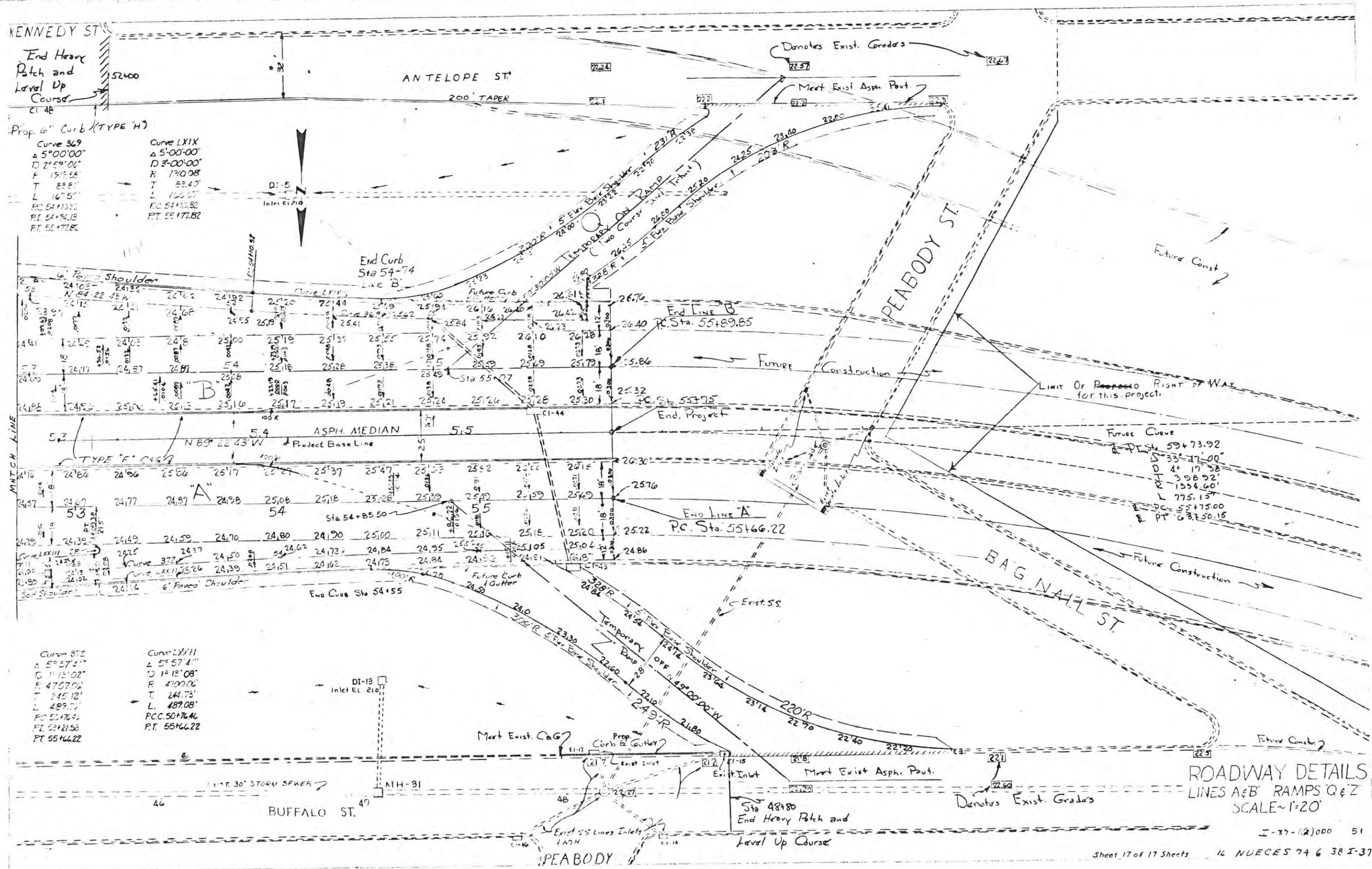
Scale: 1"=10'











ROADWAY DETAILS  
 LINES A&B' RAMPS Q&Z  
 SCALE 1"=20'

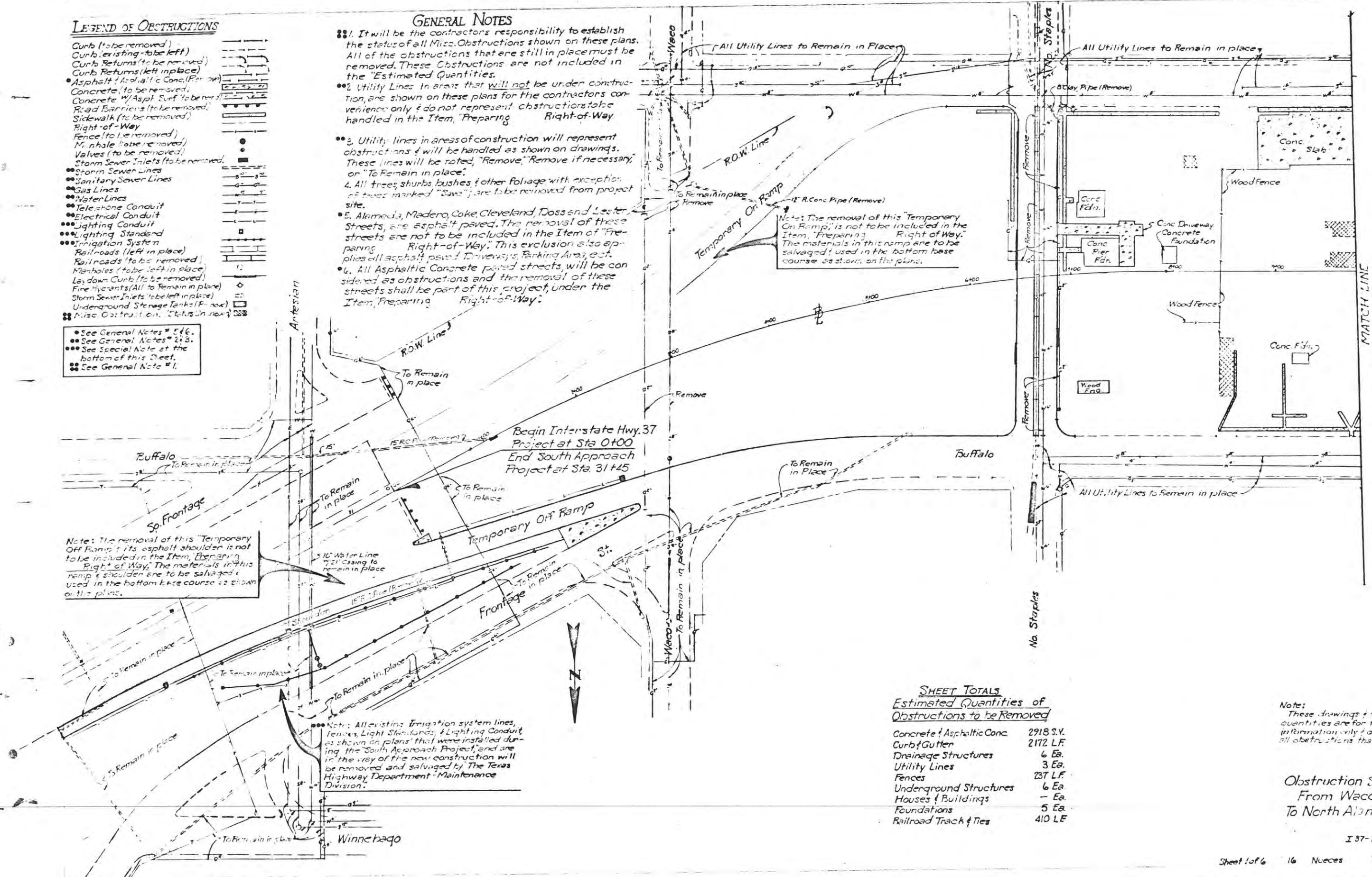
# LEGEND OF OBSTRUCTIONS

- Curb (to be removed)
- Curb (existing - to be left)
- Curb Returns (to be removed)
- Curb Returns (left in place)
- Asphalt / Asphaltic Conc. (Remove)
- Concrete (to be removed)
- Concrete w/Asph. Surf. (to be removed)
- Road Barriers (to be removed)
- Sidewalk (to be removed)
- Right-of-Way
- Fence (to be removed)
- Manhole (to be removed)
- Valves (to be removed)
- Storm Sewer Inlets (to be removed)
- Storm Sewer Lines
- Sanitary Sewer Lines
- Gas Lines
- Water Lines
- Telephone Conduit
- Electrical Conduit
- Lighting Conduit
- Lighting Standard
- Irrigation System
- Railroads (left in place)
- Railroads (to be removed)
- Manholes (to be left in place)
- Lay down Curb (to be removed)
- Fire Hydrants (All to remain in place)
- Storm Sewer Inlets (to be left in place)
- Underground Storage Tanks (Remove)
- Misc. Construction (Status in new)

- See General Notes # 1 & 2.
- See General Notes # 2 & 3.
- See Special Note at the bottom of this sheet.
- See General Note # 1.

## GENERAL NOTES

- It will be the contractor's responsibility to establish the status of all Misc. Obstructions shown on these plans. All of the obstructions that are still in place must be removed. These Obstructions are not included in the "Estimated Quantities".
- Utility Lines in areas that will not be under construction, are shown on these plans for the contractor's convenience only & do not represent obstructions to be handled in the Item, "Preparing Right-of-Way".
- Utility lines in areas of construction will represent obstructions & will be handled as shown on drawings. These lines will be noted, "Remove," "Remove if necessary," or "To Remain in place".
- All trees, shrubs, bushes, & other foliage with exception of those marked "Save" are to be removed from project site.
- Alameda, Madero, Coke, Cleveland, Doss and Lester Streets, are asphalt paved. The removal of these streets are not to be included in the Item of "Preparing Right-of-Way". This exclusion also applies all asphalt paved Driveways, Parking Areas, etc.
- All Asphaltic Concrete paved streets, will be considered as obstructions and the removal of these streets shall be part of this project, under the Item, "Preparing Right-of-Way".



Note: The removal of this "Temporary Off Ramp" & its asphalt should not be included in the Item, "Preparing Right-of-Way". The materials in this ramp should be salvaged & used in the bottom base course as shown on the plans.

Note: All existing Irrigation system lines, fences, light standards, & lighting conduit as shown on plans that were installed during the "South Approach Project" and are in the way of the new construction will be removed and salvaged by The Texas Highway Department - Maintenance Division.

Note: The removal of this "Temporary On Ramp" is not to be included in the Item, "Preparing Right-of-Way". The materials in this ramp are to be salvaged & used in the bottom base course as shown on the plans.

## SHEET TOTALS Estimated Quantities of Obstructions to be Removed

Concrete & Asphaltic Conc.	2918 S.Y.
Curb & Gutter	2172 L.F.
Drainage Structures	6 Ea.
Utility Lines	3 Ea.
Fences	237 L.F.
Underground Structures	6 Ea.
Houses & Buildings	1 Ea.
Foundations	5 Ea.
Railroad Track & Ties	410 L.F.

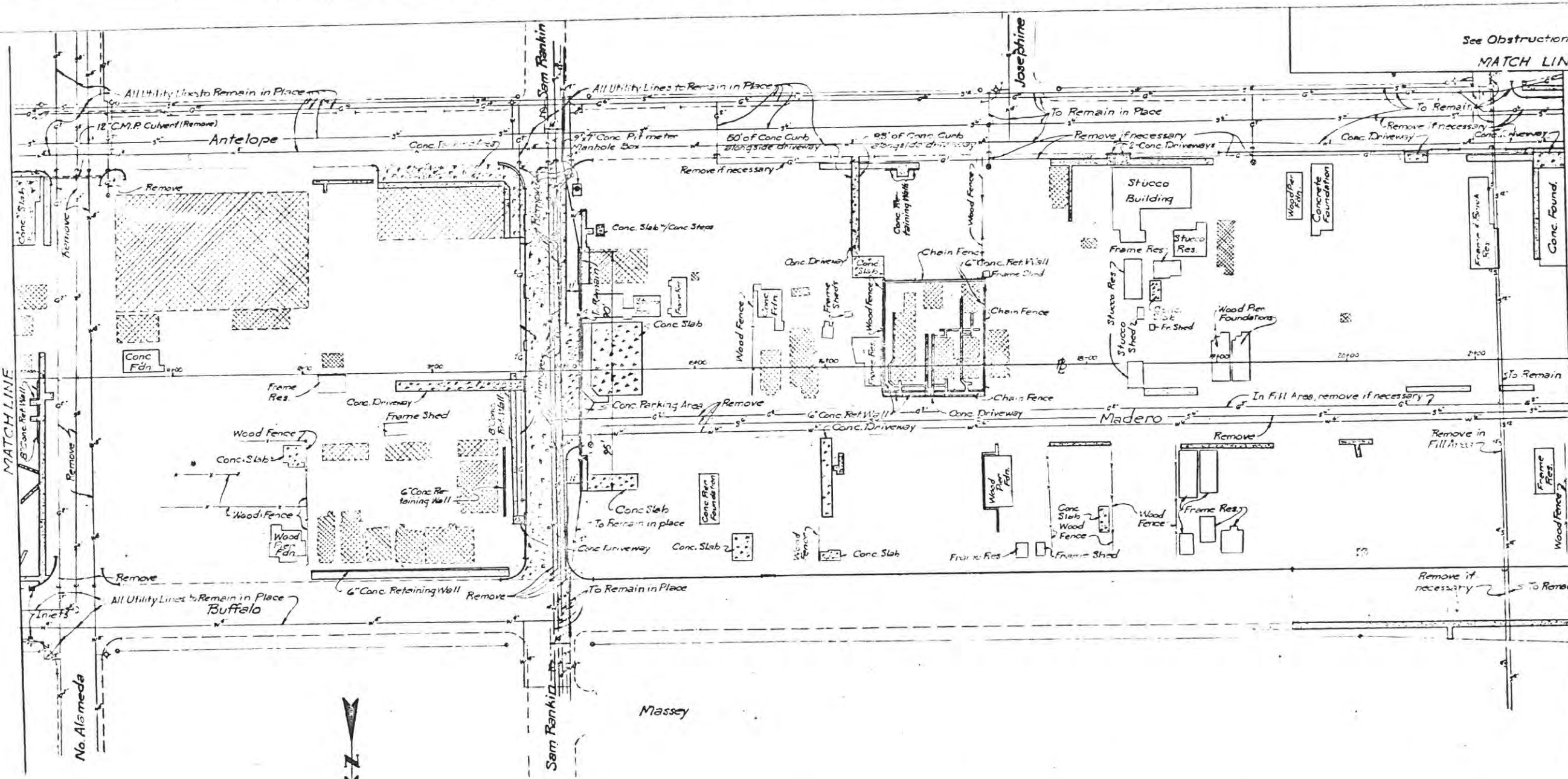
Note: These drawings & the estimated quantities are for the contractor's information only & do not represent all obstructions that require removal.

Obstruction Sheet  
From Waco Street  
To North Alameda Street



See Obstruction Sheet No 1

MATCH LINE



See Obstruction Sheet No 3

MATCH LINE

**SHEET TOTALS**  
**Estimated Quantities of**  
**Obstructions to be Removed**

Concrete & Asphaltic Conc.	3871 S.Y.
Curb & Gutter	2085 L.F.
Drainage Structures	5 Ea.
Utility Lines	9 Ea.
Fences	1785 L.F.
Underground Structures	11 Ea.
Houses & Buildings	24 Ea.
Foundations	10 Ea.

Note:  
These drawings & the estimated quantities are for the contractors information only & do not represent all obstruction that require removal

Obstruction Sheet  
From Alameda Street  
To Mexico Street

See Obstruction Sheet No 3A

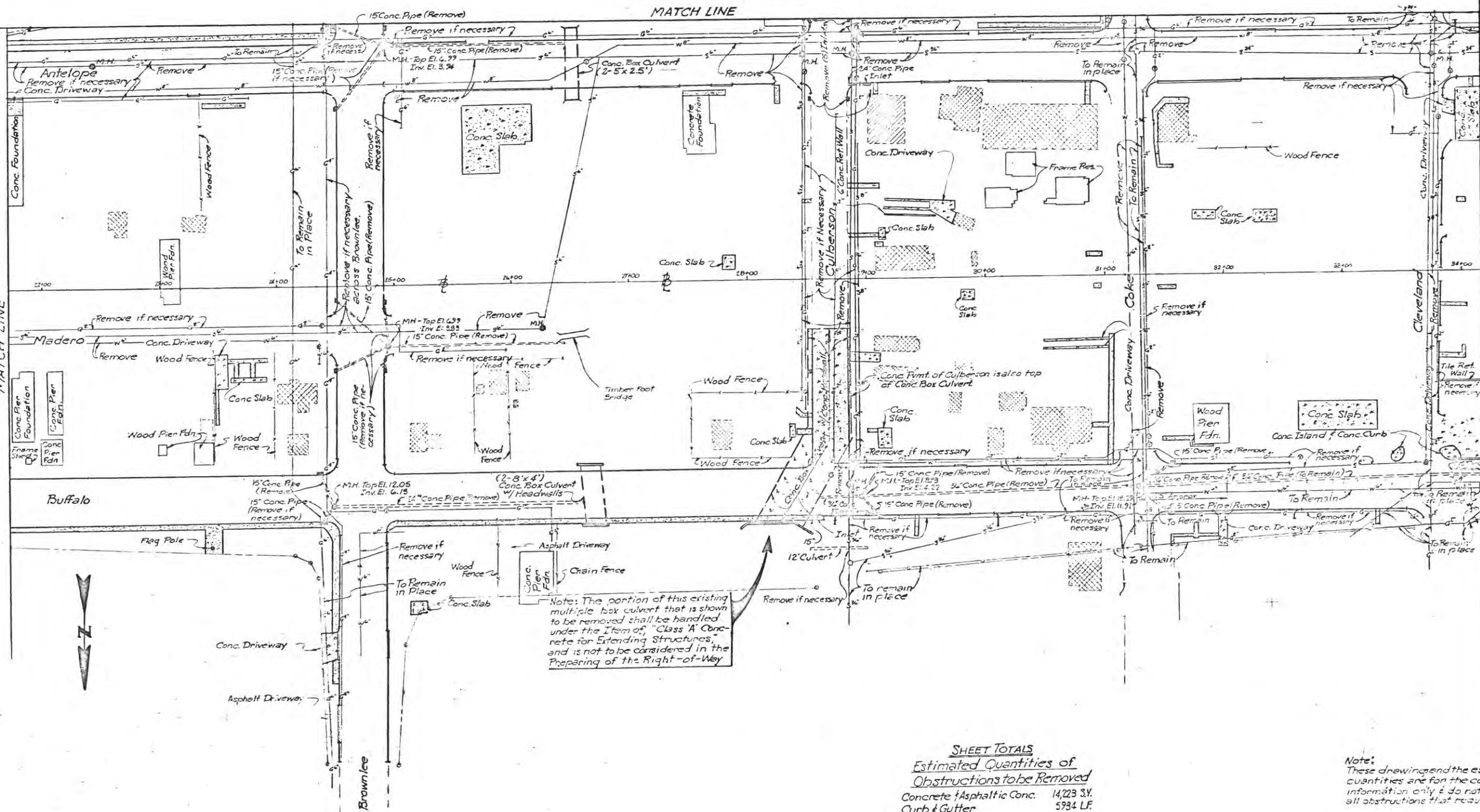
MATCH LINE

See Obstruction Sheet No 2

MATCH LINE

See Obstruction Sheet No 4

MATCH LINE



**SHEET TOTALS**  
Estimated Quantities of  
Obstructions to be Removed

Concrete & Asphaltic Conc.	14,223 SY.
Curb & Gutter	5934 LF.
Drainage Structures	27 Ea.
Utility Lines	3 Ea.
Fences	980 LF.
Underground Structures	57 Ea.
Houses & Buildings	4 Ea.
Foundations	9 Ea.
Flag Pole	1 Ea.

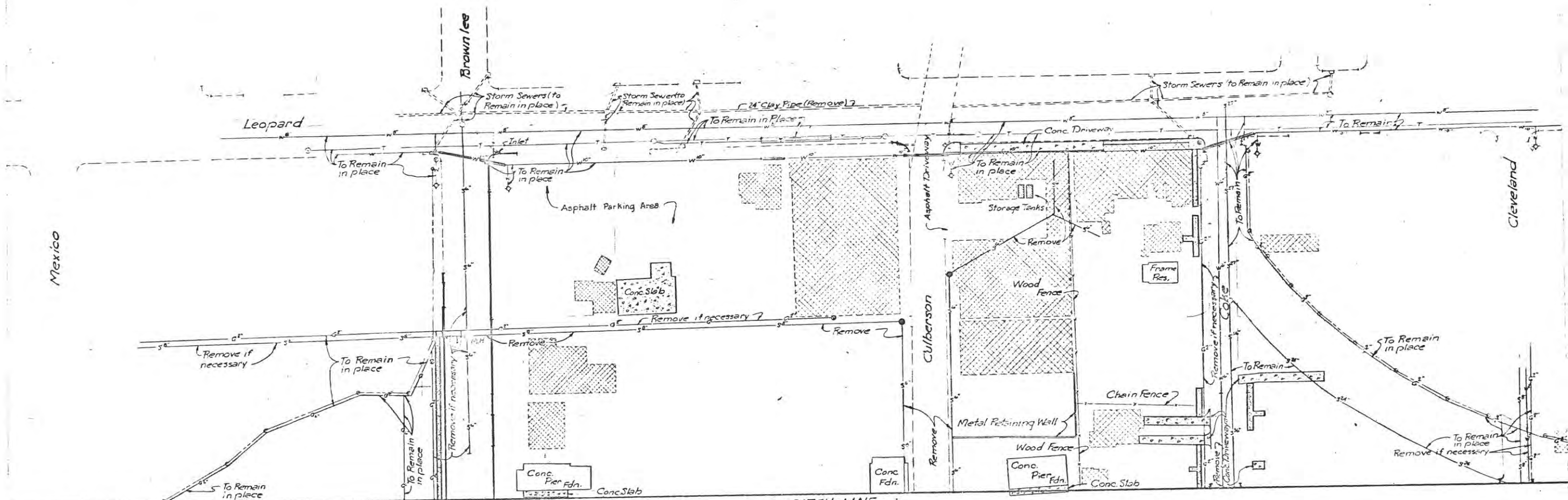
Note:  
These drawings and the estimated quantities are for the contractors information only & do not represent all obstructions that require removal.

Obstruction Sheet  
From Mexico Street  
To Cleveland Street

137-112100 54

Sheet 3 of 6 16 Nueces 74 6 33 1-37





MATCH LINE  
See Obstruction Sheet #2

MATCH LINE  
See Obstruction Sheet #3

**SHEET TOTALS**  
**Estimated Quantities of**  
**Obstructions to be Removed**

Concrete & Asphaltic Conc.	1953 SY.
Curb & Gutter	638 L.F.
Drainage Structures	5 Ea.
Utility Lines	— Ea.
Fences	545 L.F.
Underground Structures	10 Ea.
Houses & Buildings	1 Ea.
Foundations	3 Ea.

**Note:**  
These drawings and the estimated quantities are for the contractors information only & do not represent all obstructions that require removal.

**Obstruction Sheet**  
**From Mexico Street**  
**To Cleveland Street**

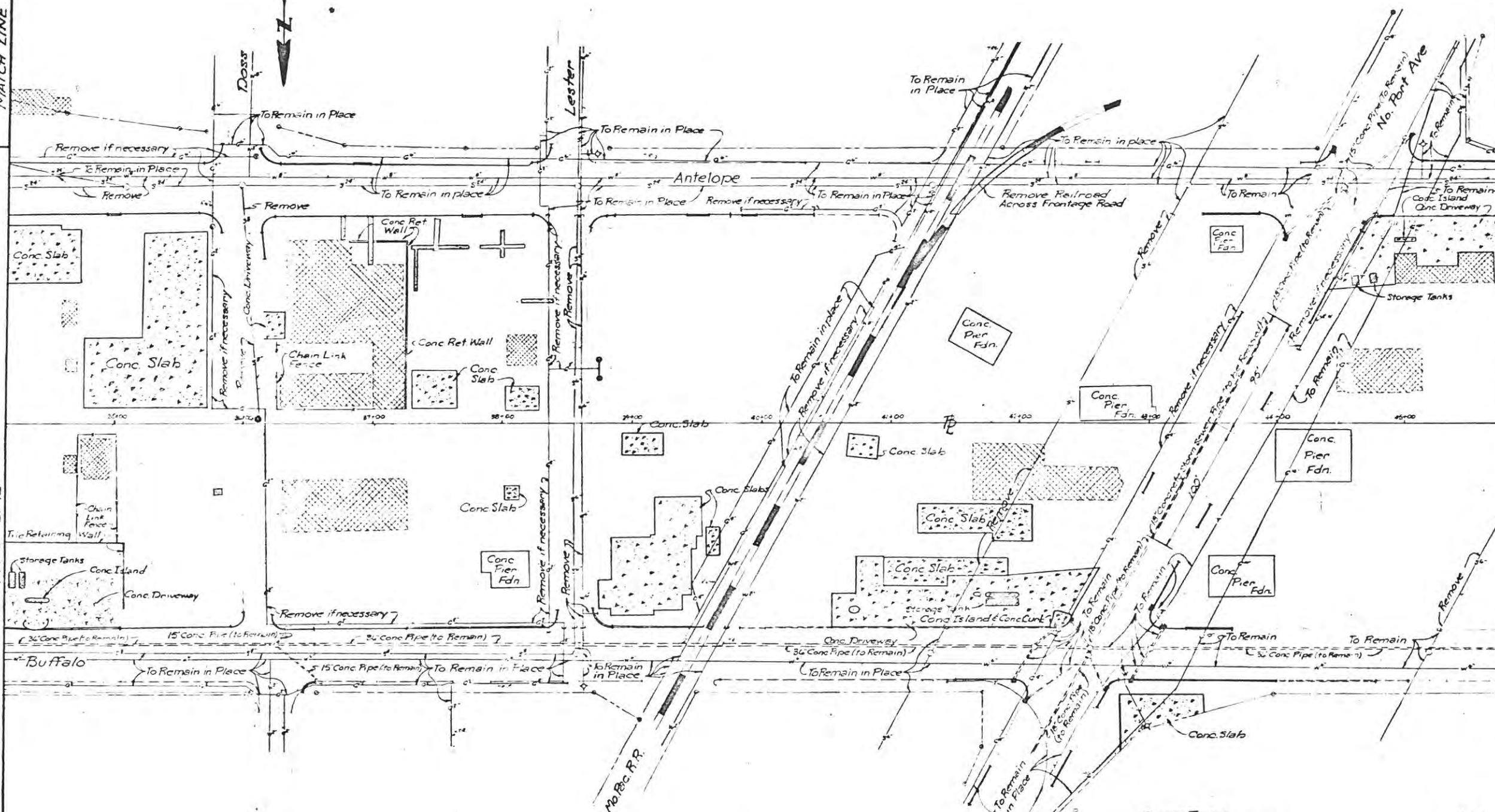
See Obstruction Plan No 3A

MATCH LINE

See Obstruction Sheet No 3

MATCH LINE

MATCH LINE  
See Obstruction Sheet No 5



**SHEET TOTALS**  
**Estimated Quantities of Obstructions to be Removed**

Concrete & Asphaltic Conc	7310 SY.
Curb & Gutter	2411 LF.
Drainage Structures	5 Ea.
Utility Lines	1 Ea.
Fences	612 LF.
Underground Structures	23 Ea.
Houses & Buildings	- Ea.
Foundations	6 Ea.
Railroad Track & Ties	80 LF.

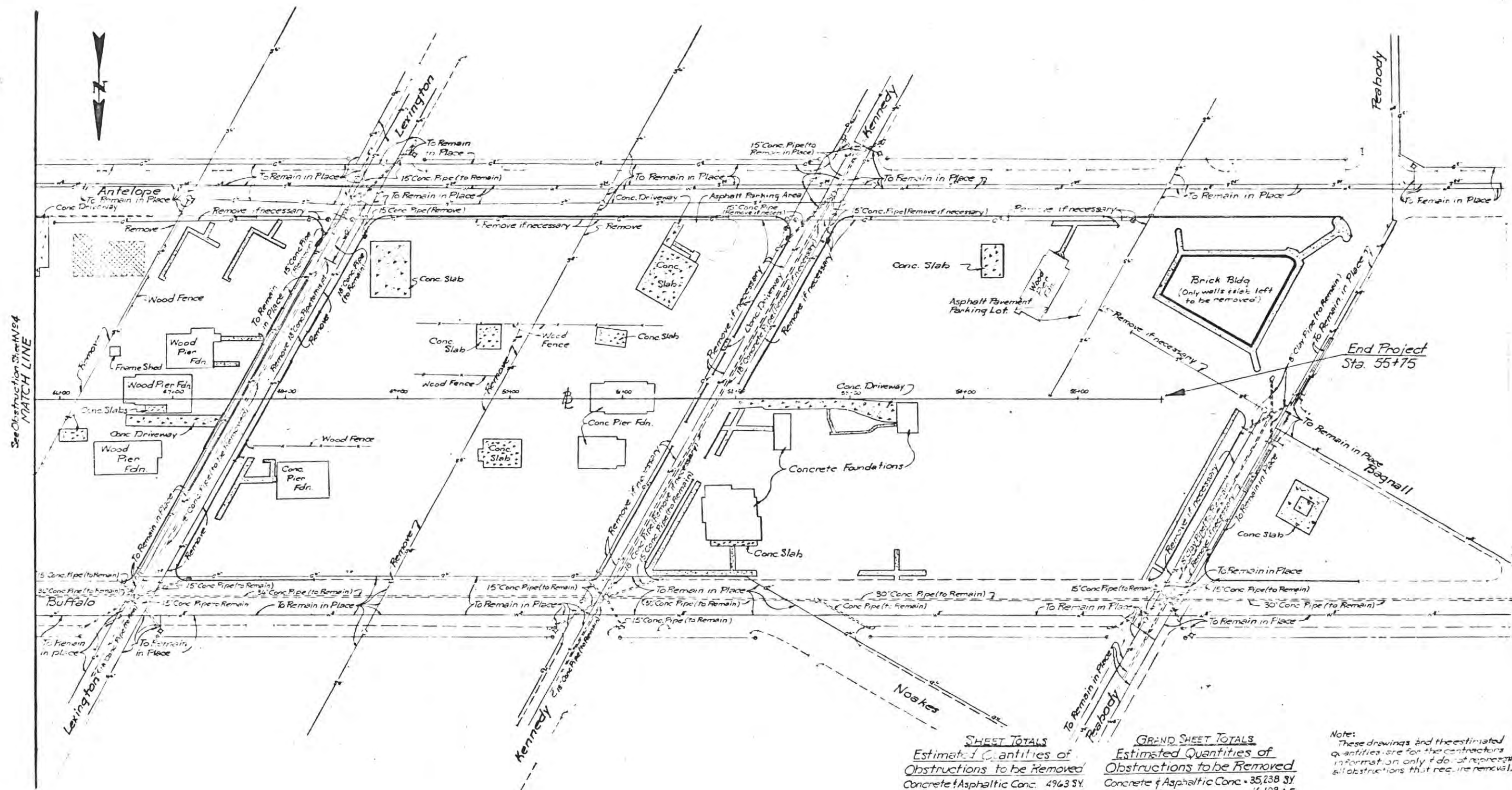
Note:  
These drawings and the estimated quantities are for the contractors information only & do not represent all obstructions that require removal.

Obstruction Sheet  
From Cleveland Street  
To North Port Avenue

I-57-112100 56

Sheet 5 of 6 16 Pieces 74 6 93 I-57





See Obstruction Sheet W-154  
MATCH LINE

**SHEET TOTALS**

Estimated Quantities of Obstructions to be Removed

Concrete & Asphaltic Conc.	4963 SY.
Curb & Gutter	2863 LF.
Drainage Structures	5 Ea.
Utility Lines	1 Ea.
Fences	554 LF.
Underground Structures	11 Ea.
Houses & Buildings	2 Ea.
Foundations	10 Ea.

**GRAND SHEET TOTALS**

Estimated Quantities of Obstructions to be Removed

Concrete & Asphaltic Conc.	35,238 SY.
Curb & Gutter	16,103 LF.
Drainage Structures	53 Ea.
Utility Lines	17 Ea.
Fences	4713 LF.
Underground Structures	118 Ea.
Houses & Buildings	30 Ea.
Foundations	43 Ea.
Railroad Tracks & Ties	490 LF.
Flag Pole	1 Ea.

Note:  
These drawings and the estimated quantities are for the contractor's information only & do not represent all obstructions that require removal.

Obstruction Sheet  
From North Port Avenue  
To Peabody Avenue

# ESTIMATE & QUANTITY SUMMARY

DESCRIPTION	SIZE OR NUMBER	UNIT	QUANTITIES	
			EST.	FINAL
STANDARD GALVANIZED STEEL PIPE	1/2"	LIN. FT.	292	
"	3/4"	"	2058	
"	1"	"	1973	
"	1 1/4"	"	6547	
"	1 1/2"	"	5269	
"	2"	"	5652	
"	2 1/2"	"	4933	
"	3"	"	5050	
"	4"	"	2215	
GALVANIZED WROUGHT IRON PIPE CASING	5"	"	574	
"	6"	"	466	
POP-UP SPRAY WITH 1/2" RISER OPENING	BUCKNER NO. 400-Q	EACH	9	
"	" 400-H	"	35	
"	" 400-F	"	1	
"	" 403-Q	"	1	
"	" 403-H	"	12	
POP-UP SPRAY WITH 3/4" RISER OPENING	" 404-Q	"	5	
"	" 404-H	"	221	
"	" 404-F	"	32	
QUICK COUPLING VALVE WITH 3/4" RISER OPENING - BUCKNER NO.	13	"	325	
3/4" COUPLER	13C	"	50	
1/2" PART-CIRCLE SPRINKLER - 5/32" NOZZLE	BUCKNER NO. 503P	"	12	
WITH SPRAY MAKER PIN	"	"		
3/4" PART-CIRCLE SPRINKLER - 7/32" NOZZLE	BUCKNER NO. 512G	"	38	
WITH SPRAY MAKER PIN	CRANE NO. 440	"	4	
1 1/2" BRONZE GATE VALVE	"	"	14	
2" " "	"	"	18	
3" BRONZE CHECK VALVE	CRANE NO. 34	"	3	
4" " "	"	"	5	
VACUUM RELIEF VALVE-H.L. GEE MFG. CO. MODEL-B	"	"	8	
CAST IRON VALVE BOX	ALAMO IRON WORKS NO. 813-O	"	36	
PRECAST CONCRETE PROTECTOR (CLASS "A" CONC.)	18" X 4"	"	641	
CREOSOTE TIMBER POST	8" MIN. DIA. LIN. FT.		184	
U BOLT	6 1/2" X 1-5"	EACH	8	

General Notes: The Contractor Shall Furnish Quick Couplers And Agricultural Sprinkler Heads As Listed Above. Estimate & Quantity Summary As Shown is For Information Purposes And The Contractor Shall Verify The Quantities. Casings Under Pavements Shall Consist Of Galvanized Wrought Iron Pipe Conforming To The Latest Requirements Of A.S.T.M. Standard Specifications, Designation A-72 For Standard Weight Pipe. The Contractor Will Coat All Exposed (Above Ground) Galvanized Steel Water Pipe Required In The Installation Of Vacuum Relief Valves With The Following Materials Or Equal: GR-3 Tex. Hwy. Dept. Paint; 1" Layer Of Fibrocel Covering And A Layer Of Polyvinyl Tape (Trans. Tex.) (Both Produced By Johns-Manville Co.) All Pipe Lengths Given Are Scaled Horizontally-Except For Pipe On Vacuum Breaker Installations.

1-2" Vacuum Relief Valve  
H.L. Gee Mfg Co Model "B"

1-Tee Reducing On The Run

1-U Bolt

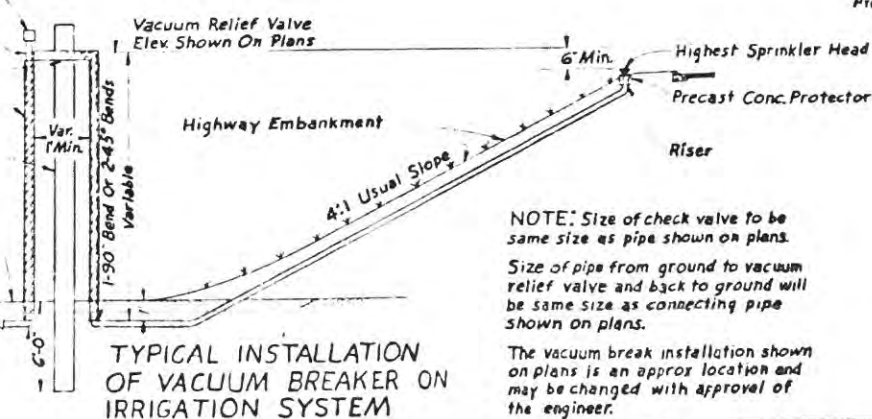
Insulate Pipes To Keep From  
Freezing & Rusting

Creosote Timber Support  
Pole 8" Min Dia.

N.G. Elev. Shown On Plans

Begin Our Pipe Here

Tap Connection  
On City Water Main  
Std Gate Valve Crane No. 40  
Std. Horiz. Check Valve  
Crane No. 34  
1-90° Bend Or 2-45° Bends



TYPICAL INSTALLATION  
OF VACUUM BREAKER ON  
IRRIGATION SYSTEM

## LEGEND FOR SPRINKLER SYSTEM

POP-UP SPRINKLER HEAD NO. 400 TO BE INSTALLED

1/2" RISER FULL HALF QUARTER

POP-UP SPRINKLER HEAD NO. 403 TO BE INSTALLED

FULL HALF QUARTER

POP-UP SPRINKLER HEAD NO. 404 TO BE INSTALLED

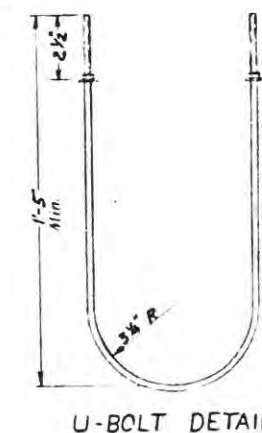
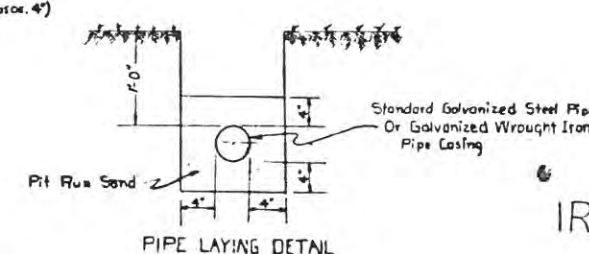
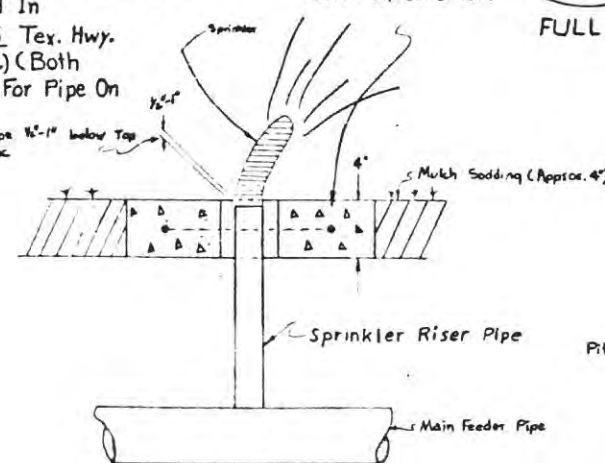
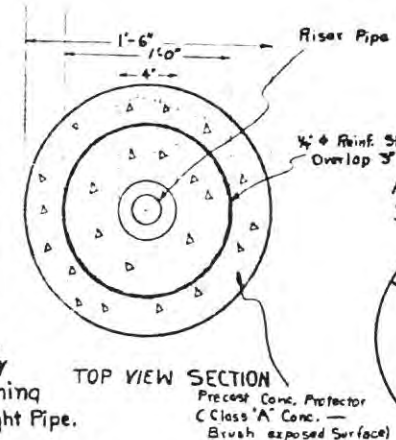
3/4" RISER FULL HALF QUARTER

AGRICULTURAL SPRINKLER NO. 503-P-3/4" RISER  
SELF CLOSING VALVE TO BE INSTALLED

FULL HALF QUARTER

AGRICULTURAL SPRINKLER NO. 512-G-3/4" RISER  
SELF CLOSING VALVE TO BE INSTALLED

FULL HALF QUARTER



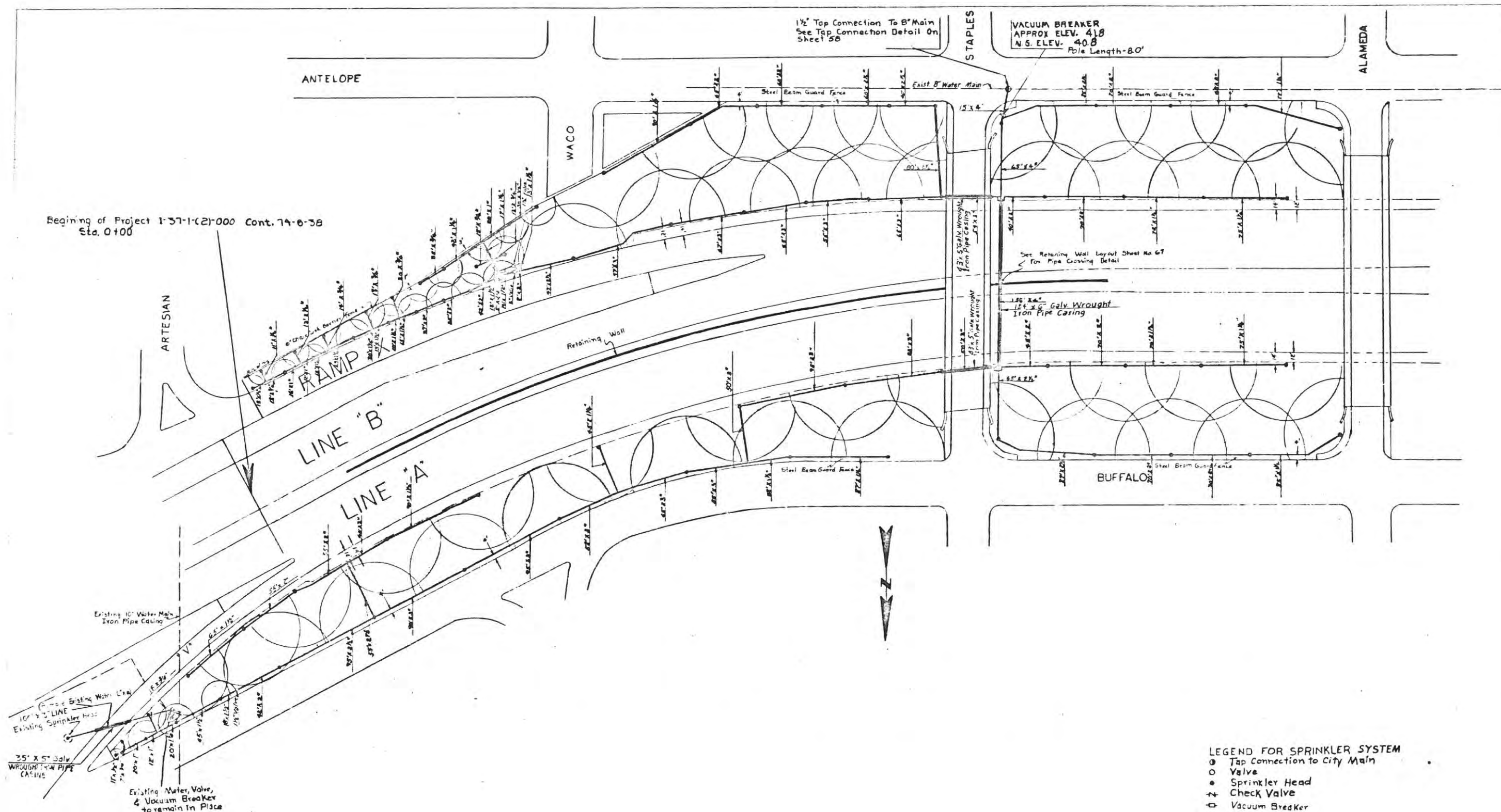
## IRRIGATION SYSTEM

SHEET 1 OF 8 SHEETS

1-37-1(2)000 58

16 NUECES 74 6 38 1-37



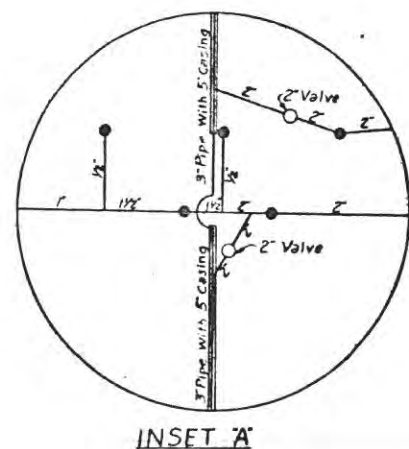
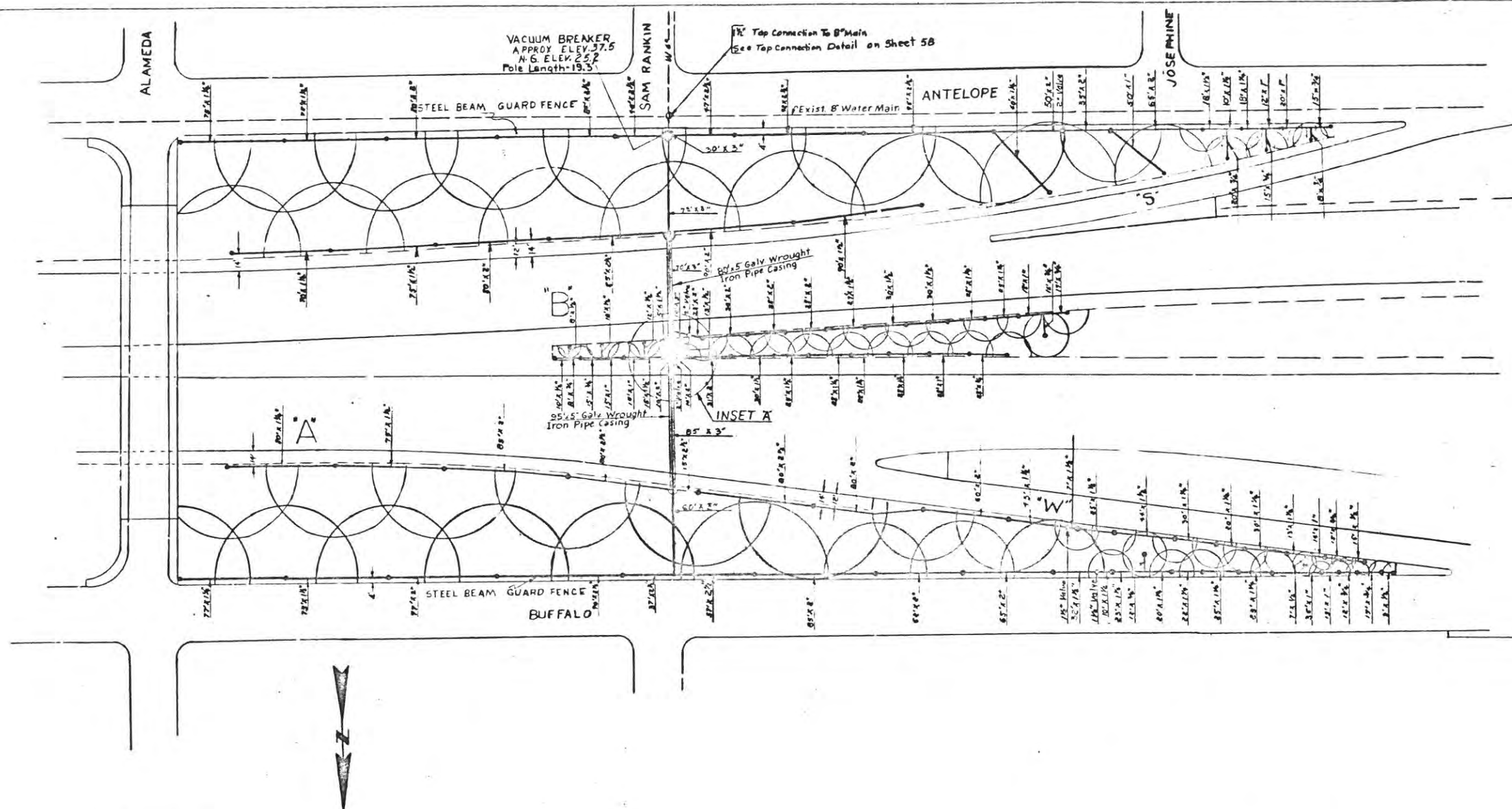


# IRRIGATION SYSTEM

SHEET 2 OF 8 SHEETS  
SCALE - 1"=40'

1-37-1(2) 000 59

16 NUECES 74 6 38 1-37



LEGEND FOR SPRINKLER SYSTEM

- Tap Connection To City Main
- Valve
- Sprinkler Head
- ⌵ Check Valve
- Vacuum Breaker

# IRRIGATION SYSTEM

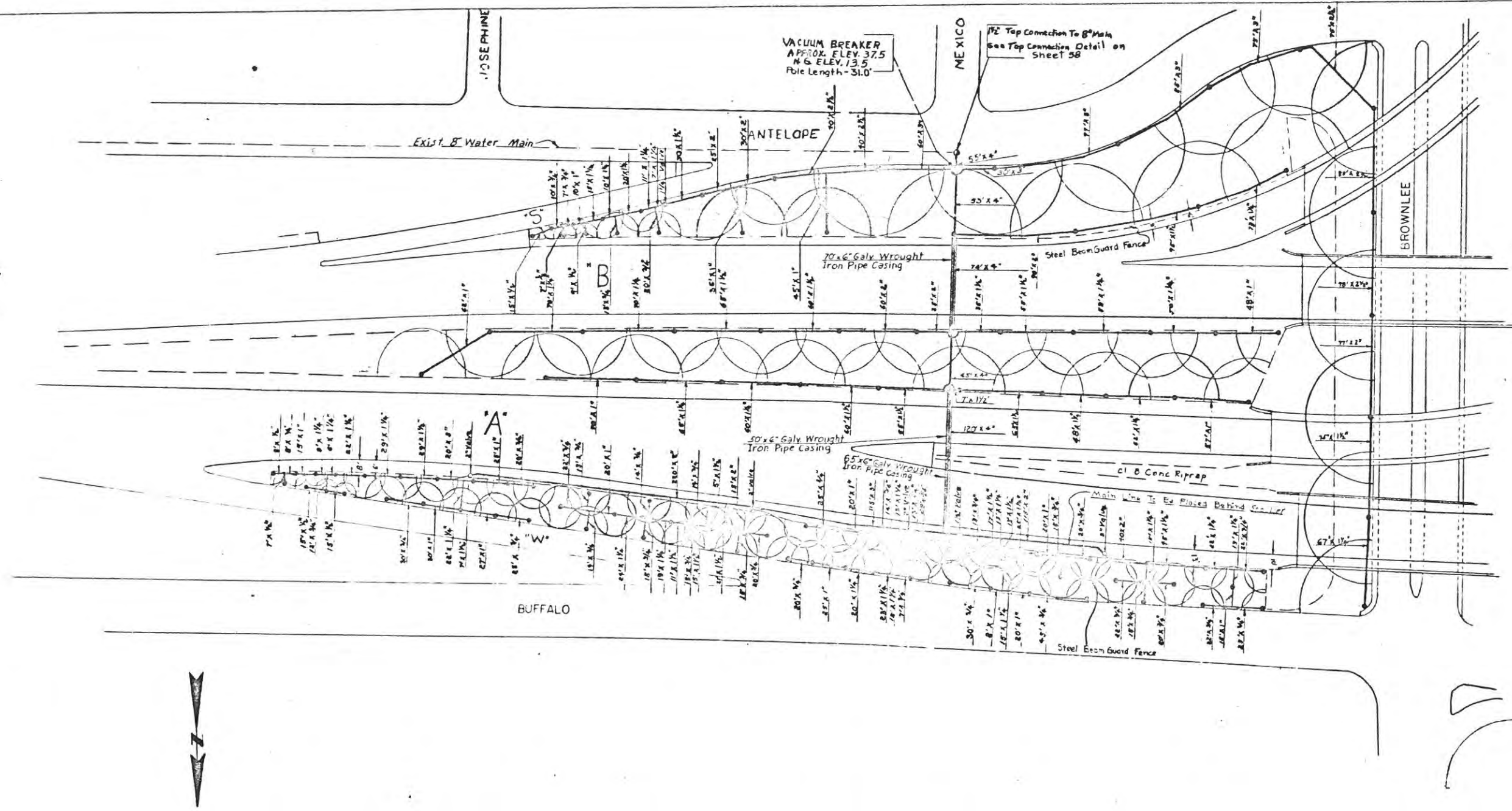
SHEET 3 OF 8 SHEETS

SCALE ~ 1" = 40'

I-37-1(2)000 60

16 NUECES 74 6 38 I-37





- LEGEND FOR SPRINKLER SYSTEM
- Tap Connection To City Main
  - Valve
  - Sprinkler Head
  - Check Valve
  - Vacuum Breaker

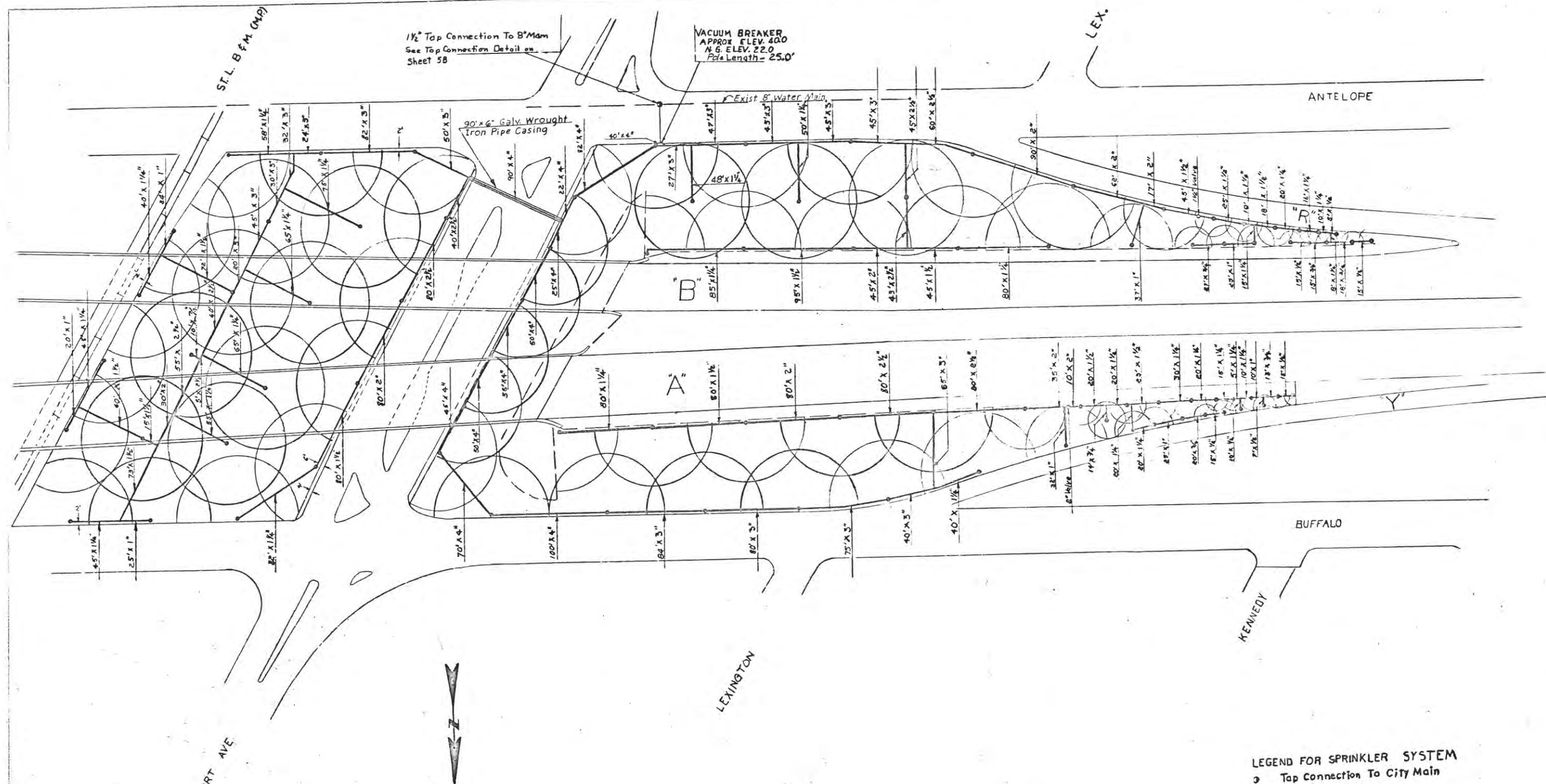
IRRIGATION SYSTEM

SHEET 4 OF 8 SHEETS  
SCALE - 1" = 40'









- LEGEND FOR SPRINKLER SYSTEM
- Tap Connection To City Main
  - Valve
  - Sprinkler Head
  - Check Valve
  - Vacuum Breaker

# IRRIGATION SYSTEM

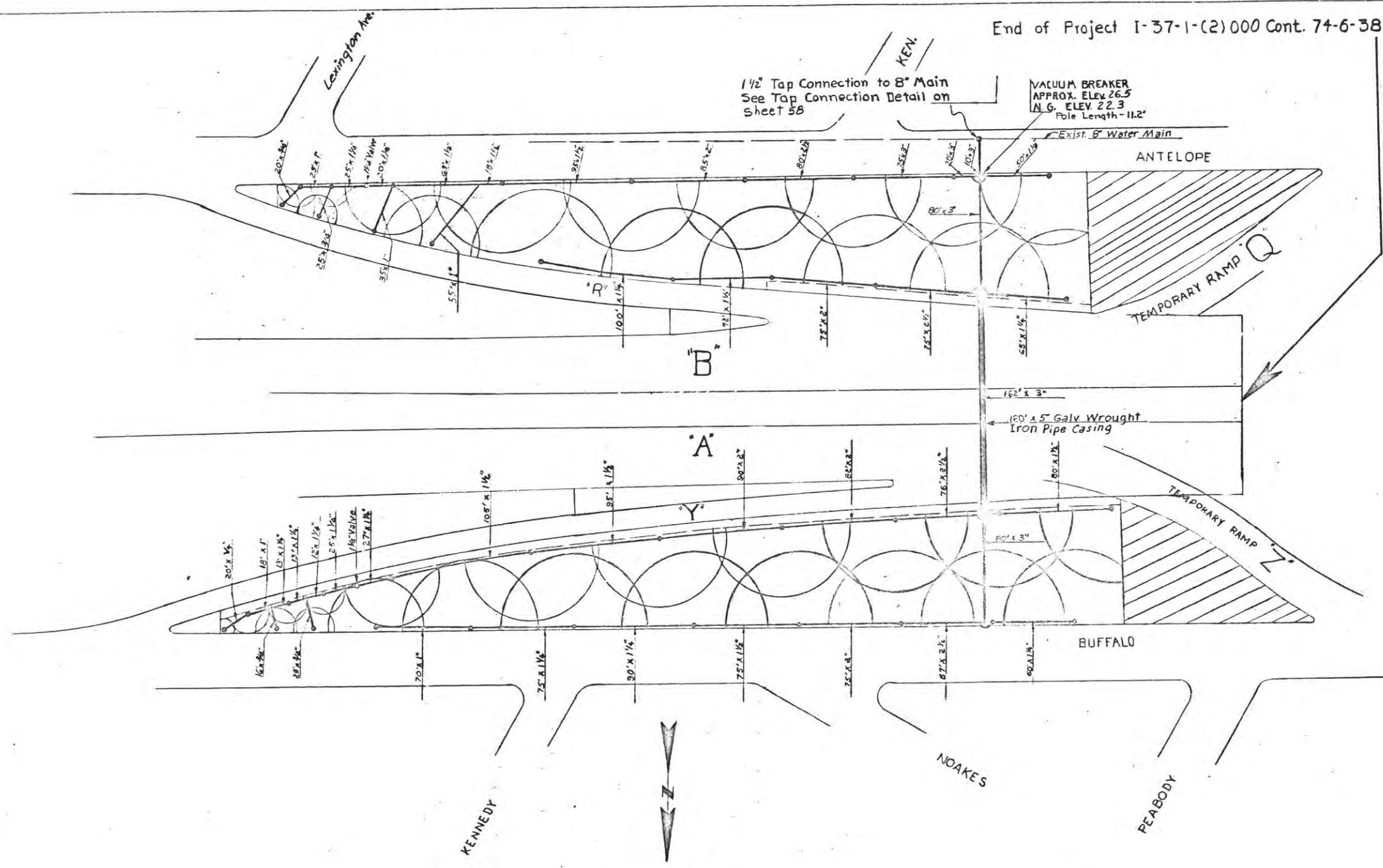
SHEET 7 OF 8 SHEETS

SCALE - 1"=40'

1-37-1(2) 000 64

16 NUECES 74 6 38 I-37

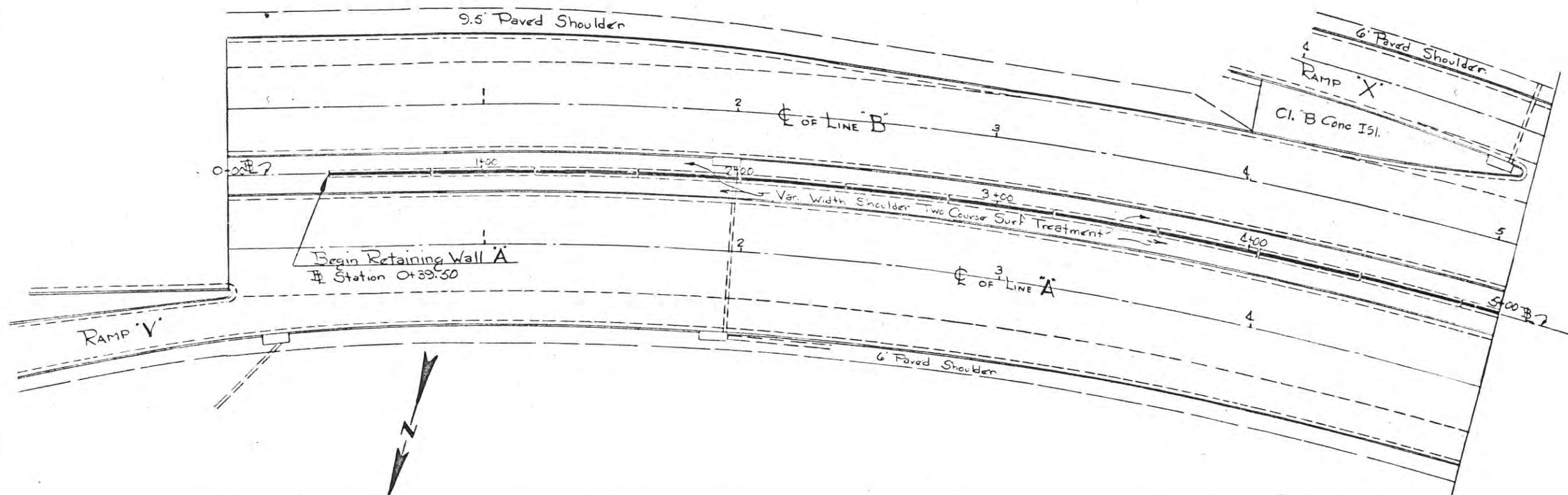




- LEGEND FOR SPRINKLER SYSTEM
- Tap Connection To City Main
  - Valve
  - Sprinkler Head
  - ⌵ Check Valve
  - Vacuum Breaker

IRRIGATION SYSTEM

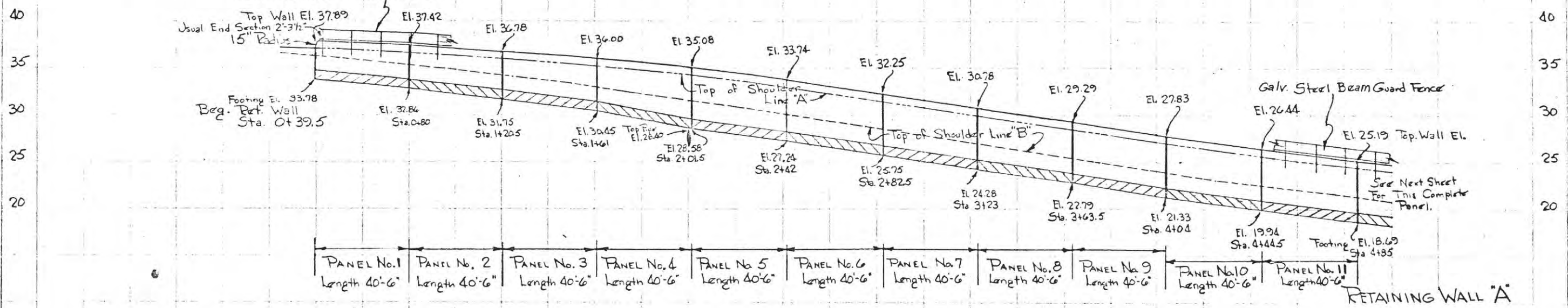
SHEET 8 OF 8 SHEETS  
SCALE ~ 1" = 40'



Scale 1"=20'

STATIONS FOR Steel  
Plate Guard Fence Post Spacing  
12' G.C.C. 4" WF #13

Galv. Steel Beam Guard Fence

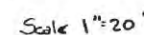


Top of Wall Elev.	37.89	37.79	37.49	37.12	36.72	36.24	35.69	35.11	34.35	33.45	32.53	31.62	30.70	29.78	28.87	27.97	27.10	26.26	25.48	24.65	23.82	22.99	22.16	21.33	20.50	19.67	18.84	18.01	17.18	16.35	15.52	14.69	13.86	13.03	12.20	11.37	10.54	9.71	8.88	8.05	7.22	6.39	5.56	4.73	3.90	3.07	2.24	1.41	0.58	-0.25	-1.08	-1.91	-2.74	-3.57	-4.40	-5.23	-6.06	-6.89	-7.72	-8.55	-9.38	-10.21	-11.04	-11.87	-12.70	-13.53	-14.36	-15.19	-16.02	-16.85	-17.68	-18.51	-19.34	-20.17	-21.00	-21.83	-22.66	-23.49	-24.32	-25.15	-25.98	-26.81	-27.64	-28.47	-29.30	-30.13	-30.96	-31.79	-32.62	-33.45	-34.28	-35.11	-35.94	-36.77	-37.60	-38.43	-39.26	-40.09	-40.92	-41.75	-42.58	-43.41	-44.24	-45.07	-45.90	-46.73	-47.56	-48.39	-49.22	-50.05	-50.88	-51.71	-52.54	-53.37	-54.20	-55.03	-55.86	-56.69	-57.52	-58.35	-59.18	-60.01	-60.84	-61.67	-62.50	-63.33	-64.16	-64.99	-65.82	-66.65	-67.48	-68.31	-69.14	-70.00	-70.80	-71.60	-72.40	-73.20	-74.00	-74.80	-75.60	-76.40	-77.20	-78.00	-78.80	-79.60	-80.40	-81.20	-82.00	-82.80	-83.60	-84.40	-85.20	-86.00	-86.80	-87.60	-88.40	-89.20	-90.00	-90.80	-91.60	-92.40	-93.20	-94.00	-94.80	-95.60	-96.40	-97.20	-98.00	-98.80	-99.60	-100.00																																																																																																																																																																																																																																																																																																																																																																																																																															
Top of Shoulder Line A	37.20	37.06	36.96	36.66	36.29	35.89	35.41	34.86	34.28	33.52	32.62	31.70	30.79	29.87	28.95	28.04	27.14	26.27	25.43	24.65	23.82	22.99	22.16	21.33	20.50	19.67	18.84	18.01	17.18	16.35	15.52	14.69	13.86	13.03	12.20	11.37	10.54	9.71	8.88	8.05	7.22	6.39	5.56	4.73	3.90	3.07	2.24	1.41	0.58	-0.25	-1.08	-1.91	-2.74	-3.57	-4.40	-5.23	-6.06	-6.89	-7.72	-8.55	-9.38	-10.21	-11.04	-11.87	-12.70	-13.53	-14.36	-15.19	-16.02	-16.85	-17.68	-18.51	-19.34	-20.17	-21.00	-21.83	-22.66	-23.49	-24.32	-25.15	-25.98	-26.81	-27.64	-28.47	-29.30	-30.13	-30.96	-31.79	-32.62	-33.45	-34.28	-35.11	-35.94	-36.77	-37.60	-38.43	-39.26	-40.09	-40.92	-41.75	-42.58	-43.41	-44.24	-45.07	-45.90	-46.73	-47.56	-48.39	-49.22	-50.05	-50.88	-51.71	-52.54	-53.37	-54.20	-55.03	-55.86	-56.69	-57.52	-58.35	-59.18	-60.01	-60.84	-61.67	-62.50	-63.33	-64.16	-64.99	-65.82	-66.65	-67.48	-68.31	-69.14	-70.00	-70.80	-71.60	-72.40	-73.20	-74.00	-74.80	-75.60	-76.40	-77.20	-78.00	-78.80	-79.60	-80.40	-81.20	-82.00	-82.80	-83.60	-84.40	-85.20	-86.00	-86.80	-87.60	-88.40	-89.20	-90.00	-90.80	-91.60	-92.40	-93.20	-94.00	-94.80	-95.60	-96.40	-97.20	-98.00	-98.80	-99.60	-100.00																																																																																																																																																																																																																																																																																																																																																																																																																															
Top of Shoulder Line B	36.58	36.48	36.38	36.08	35.68	35.28	34.80	34.30	33.70	33.00	32.20	31.30	30.40	29.50	28.60	27.70	26.80	25.90	25.00	24.10	23.20	22.30	21.40	20.50	19.60	18.70	17.80	16.90	16.00	15.10	14.20	13.30	12.40	11.50	10.60	9.70	8.80	7.90	7.00	6.10	5.20	4.30	3.40	2.50	1.60	0.70	-0.20	-1.10	-2.00	-2.90	-3.80	-4.70	-5.60	-6.50	-7.40	-8.30	-9.20	-10.10	-11.00	-11.90	-12.80	-13.70	-14.60	-15.50	-16.40	-17.30	-18.20	-19.10	-20.00	-20.90	-21.80	-22.70	-23.60	-24.50	-25.40	-26.30	-27.20	-28.10	-29.00	-29.90	-30.80	-31.70	-32.60	-33.50	-34.40	-35.30	-36.20	-37.10	-38.00	-38.90	-39.80	-40.70	-41.60	-42.50	-43.40	-44.30	-45.20	-46.10	-47.00	-47.90	-48.80	-49.70	-50.60	-51.50	-52.40	-53.30	-54.20	-55.10	-56.00	-56.90	-57.80	-58.70	-59.60	-60.50	-61.40	-62.30	-63.20	-64.10	-65.00	-65.90	-66.80	-67.70	-68.60	-69.50	-70.40	-71.30	-72.20	-73.10	-74.00	-74.90	-75.80	-76.70	-77.60	-78.50	-79.40	-80.30	-81.20	-82.10	-83.00	-83.90	-84.80	-85.70	-86.60	-87.50	-88.40	-89.30	-90.20	-91.10	-92.00	-92.90	-93.80	-94.70	-95.60	-96.50	-97.40	-98.30	-99.20	-100.00																																																																																																																																																																																																																																																																																																																																																																																																																																													
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I-37-11(2)000 I-37

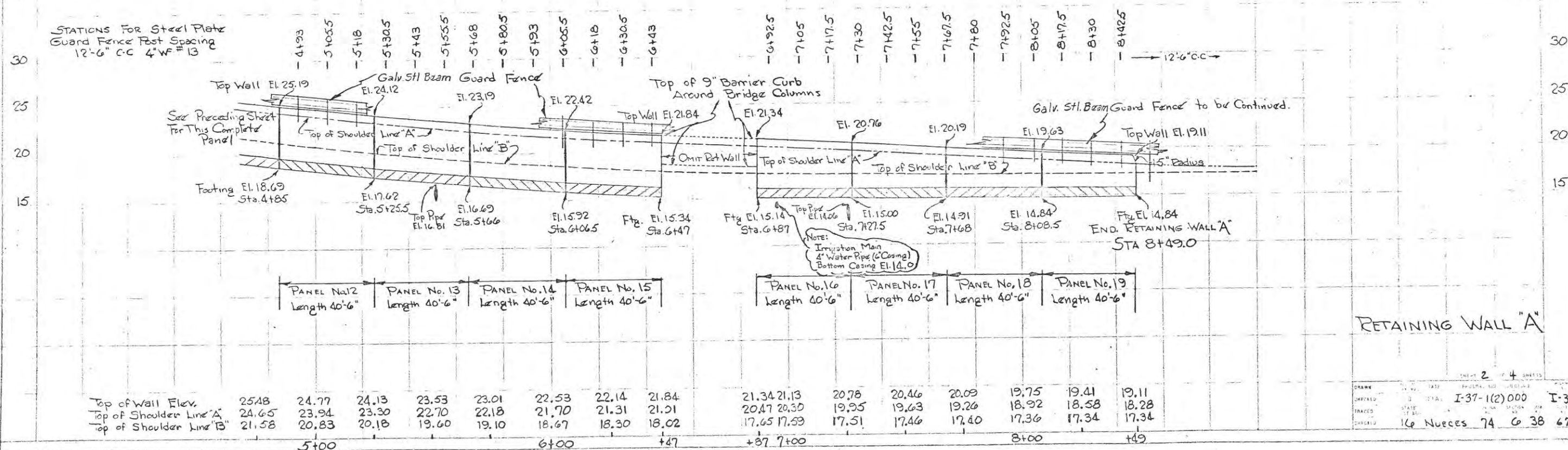
16 Pieces 74 6 38 66

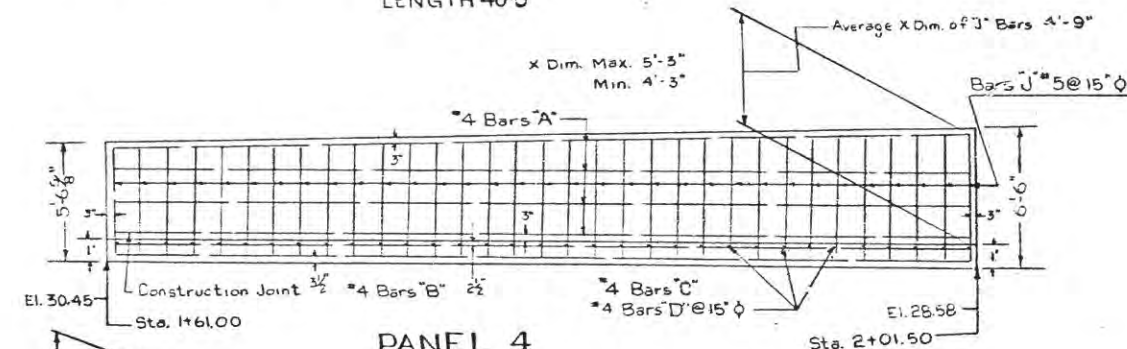
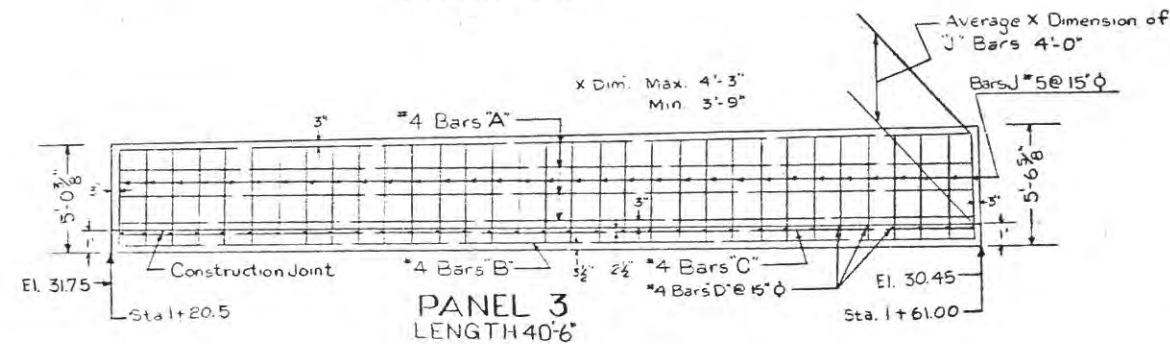
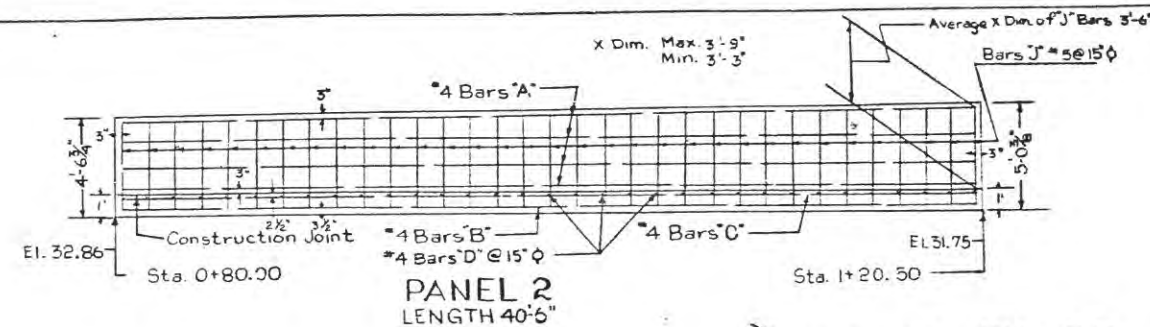
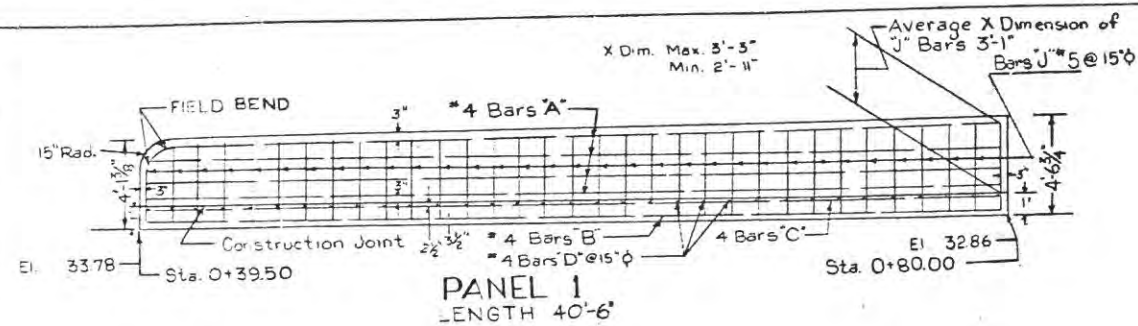




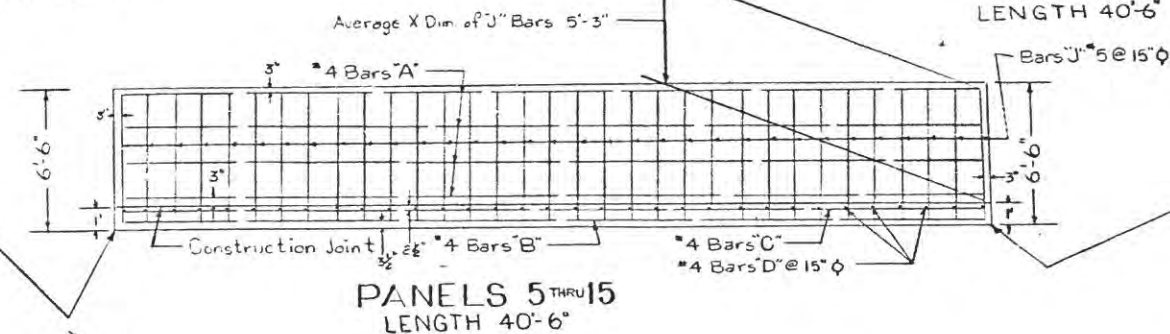
ESTIMATED QUANTITIES.

Uncl. Structural Excav. (Ret Wall)	84 CY.
Class "A" Concrete (Ret Wall)	214.73 CY.
Reinforcing Steel	10,844 Lbs
Galv. Stl. Beam Guard Fence	770 LF

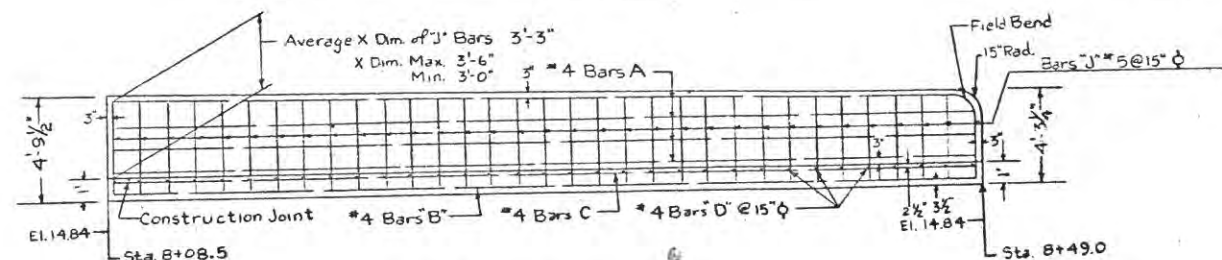
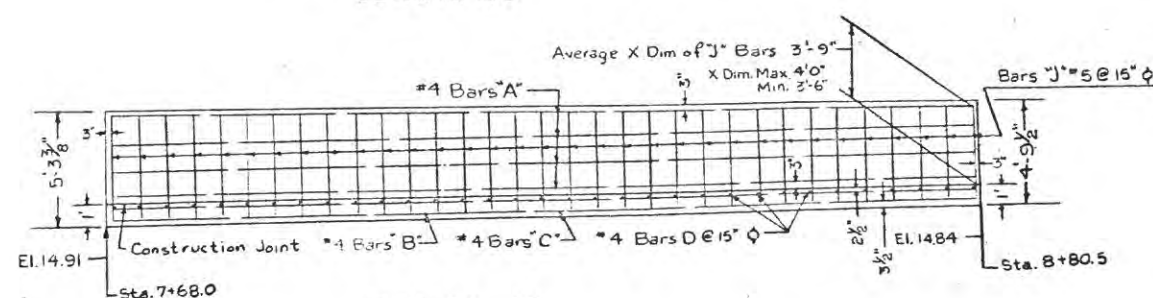
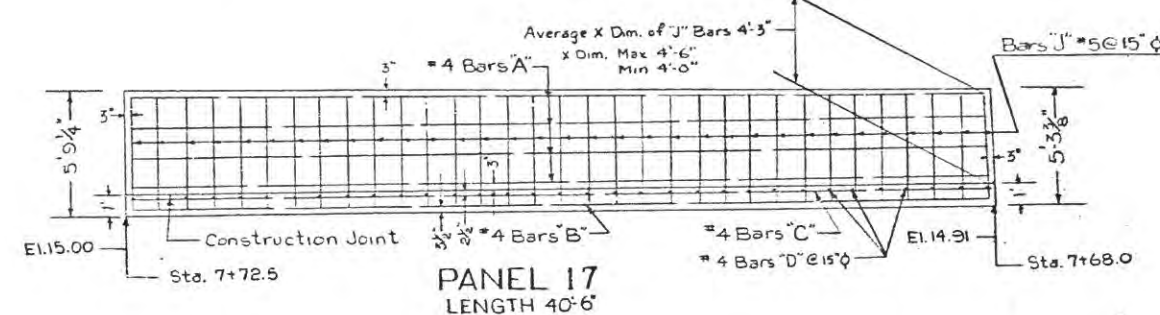
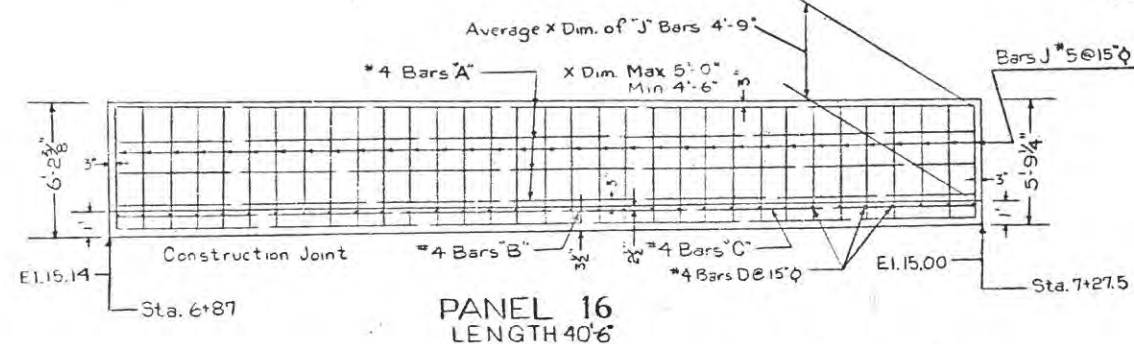




Panel 5	El. 28.58	Sta. 2+01.5
6	El. 27.24	Sta. 2+42.0
7	El. 25.75	Sta. 2+82.5
8	El. 24.28	Sta. 3+23.0
9	El. 22.79	Sta. 3+63.5
10	El. 21.33	Sta. 4+04.0
11	El. 19.94	Sta. 4+44.5
12	El. 18.69	Sta. 4+85.0
13	El. 17.62	Sta. 5+25.5
14	El. 16.69	Sta. 5+66.0
15	El. 15.92	Sta. 6+06.5



Panel 5	El. 27.24	Sta. 2+42.0
6	El. 25.75	Sta. 2+82.5
7	El. 24.28	Sta. 3+23.0
8	El. 22.79	Sta. 3+63.5
9	El. 21.33	Sta. 4+04.0
10	El. 19.94	Sta. 4+44.5
11	El. 18.69	Sta. 4+85.0
12	El. 17.62	Sta. 5+25.5
13	El. 16.69	Sta. 5+66.0
14	El. 15.92	Sta. 6+06.5
15	El. 15.34	Sta. 6+47.0



RETAINING WALL "A"

Sheet 3 of 4 Sheets

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16 NUECES 74 6 38 I-37

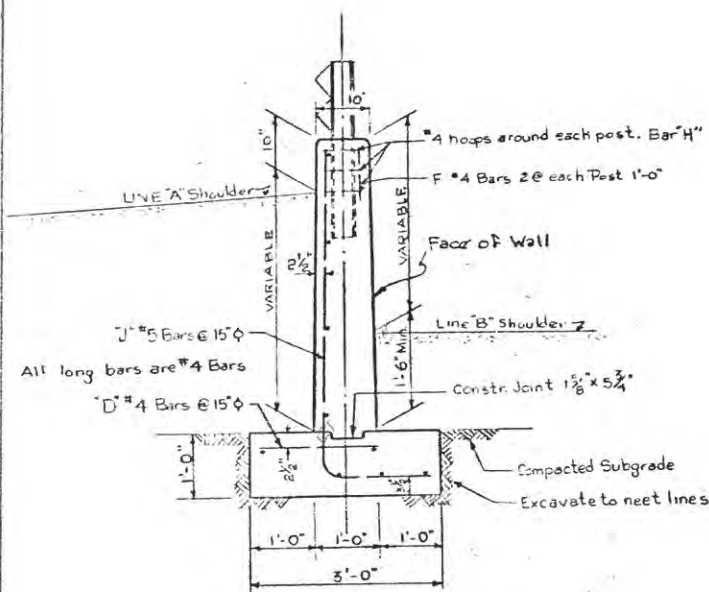


PANEL NUMBERS	WALLS										FOOTINGS						
	Bars A #4 Length 40'-0"		Bars J # 5 @ 15"φ Avg X Dim. + 2'-3"			Bars F #4 Length 1'-0"		Bars H #4 Length 2'-6"		TOTAL Weight	Bars B #4 Length 40'-0"		Bars C #4 Length 40'-0"		Bars D #4 @ 15"φ Length 2'-0"		TOTAL WEIGHT
	Nº	Wt.	Nº	Length	Wt.	Nº	Wt.	Nº	Wt.		Nº	Wt.	Nº	Wt.	Nº	Wt.	
1	5	134	33	5'-4"	184	6	4	9	15	337	3	80	2	53	33	44	177
2	5	134	33	5'-9"	198	8	5	12	20	357	3	80	2	53	33	44	177
3	5	134	33	6'-3"	215	6	4	9	15	368	3	80	2	53	33	44	177
4	5	134	33	7'-0"	241	6	4	9	15	394	3	80	2	53	33	44	177
5 Thru 15	55	1470	363	7'-6"	2840	72	48	108	180	4538	33	882	22	588	363	485	1955
16	5	134	33	7'-0"	241	6	4	9	15	394	3	80	2	53	33	44	177
17	5	134	33	6'-6"	224	8	5	12	20	383	3	80	2	53	33	44	177
18	5	134	33	6'-0"	207	6	4	9	15	360	3	80	2	53	33	44	177
19	5	134	33	5'-6"	189	6	4	9	15	342	3	80	2	53	33	44	177
Totals		2542			4539		82		310	7473		1522		1012		837	3371

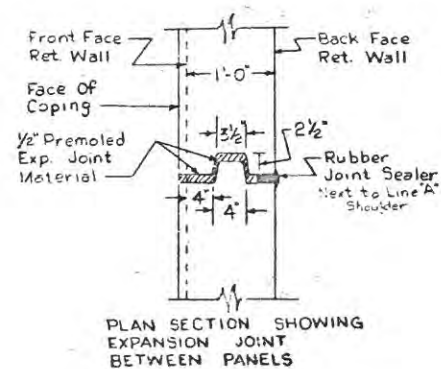
SUMMARY	
Total Weight of Steel in Walls	7473
Total Wt. of Steel in Footings Lb.	3371
Grand Total.	10,844

#### CONCRETE QUANTITIES WALLS & FOOTINGS

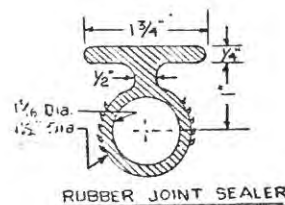
Panel Nº	CLASS "A" CONCRETE	
	WALLS	FOOTINGS
1	4.83	4.40
2	5.32	4.40
3	6.00	4.40
4	7.01	4.40
5	7.66	4.40
6	7.66	4.40
7	7.66	4.40
8	7.66	4.40
9	7.66	4.40
10	7.66	4.40
11	7.66	4.40
12	7.66	4.40
13	7.66	4.40
14	7.66	4.40
15	7.66	4.40
16	6.95	4.40
17	6.31	4.40
18	5.65	4.40
19	4.95	4.40
SUBTOTAL	131.13	83.60
TOTAL	214.73 cu yds.	



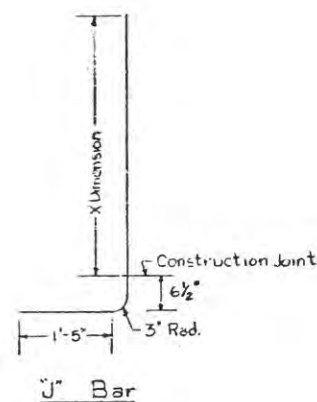
TYPICAL SECTION



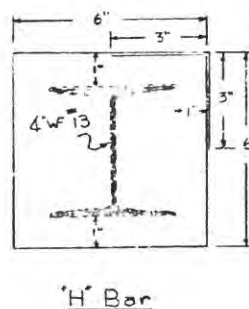
PLAN SECTION SHOWING  
EXPANSION JOINT  
BETWEEN PANELS



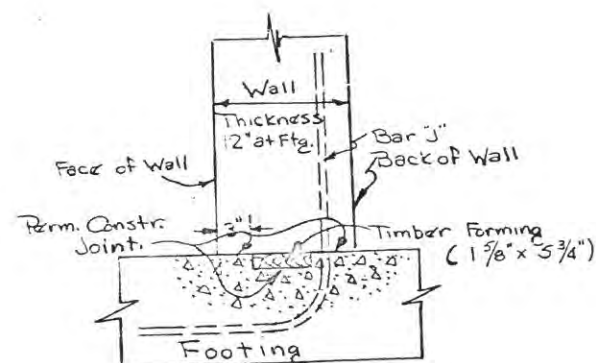
RUBBER JOINT SEALER



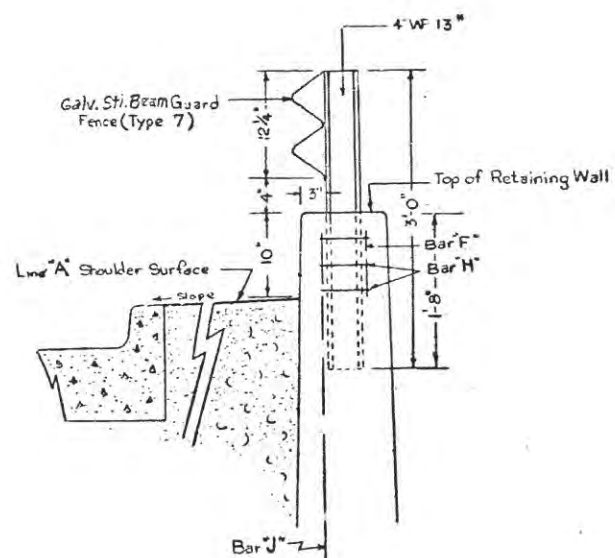
J Bar



H Bar



DETAIL OF  
CONSTRUCTION JOINT & KEY  
Continuous Throughout Wall



#### GENERAL NOTES:

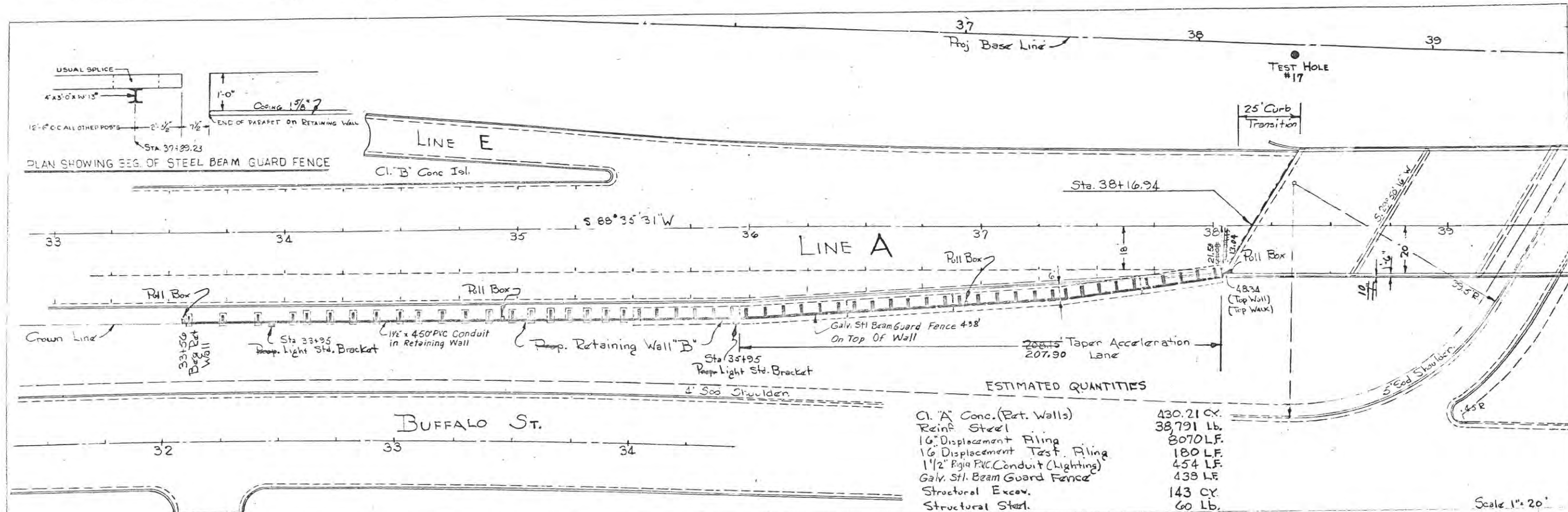
- All dimensions for reinforcing Bars are to centers of Bars  
All exposed edges of Retaining wall shall be cambered 3/4" inch  
Cost of furnishing and placing the following materials and Items shall be included in the unit bid price for Class "A" Concrete Retaining Walls  
1. Premolded Expansion Joint Filler  
2. Rubber Joint Sealers  
Neat Excavation lines will be permitted in Compacted Subgrade for Footings, Subject to the Approval of The Engineer.  
Under no circumstances will backfill be permitted below bottom-footing Elevation.  
Backfill shall be Compacted Mechanically to the proper Density as Required by the Engineer.

#### RETAINING WALL "A"

Sheet 4 of 4 Sheets

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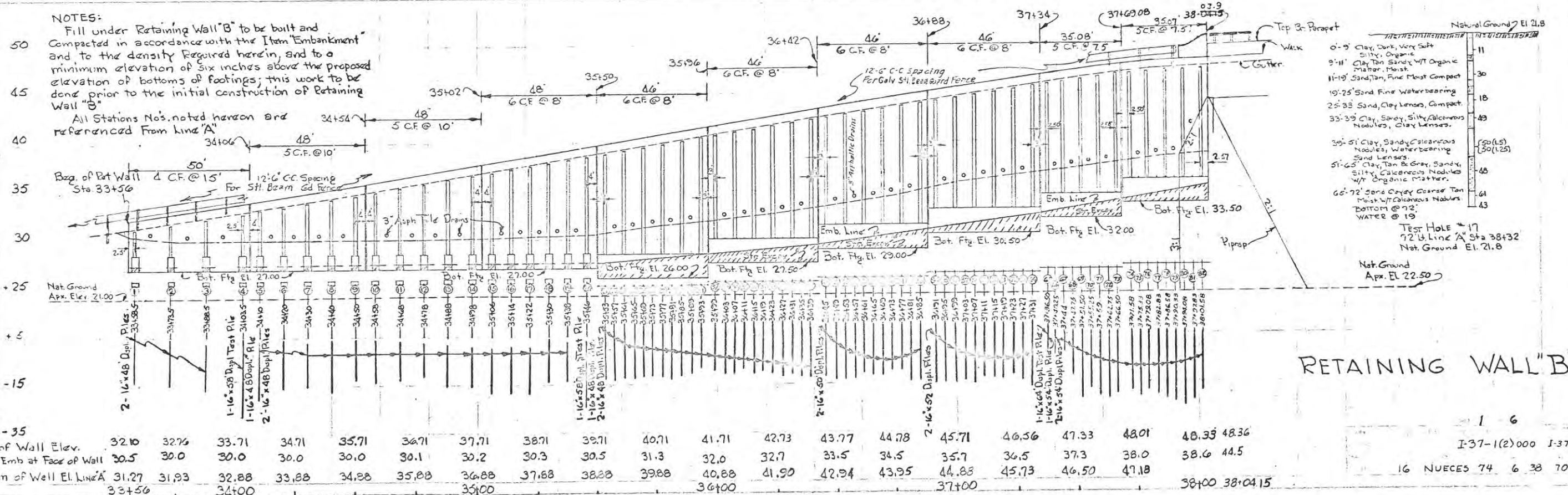
16 NUECES 74 6 38 157



NOTES:

50 Fill under Retaining Wall "B" to be built and  
Compacted in accordance with the Item "Embankment"  
and to the density Required herein, and to a  
minimum elevation of six inches above the proposed  
45 elevation of bottoms of footings; this work to be  
done prior to the initial construction of Retaining  
Wall "B"

All Stations No's. noted hereon and referenced from line "A"



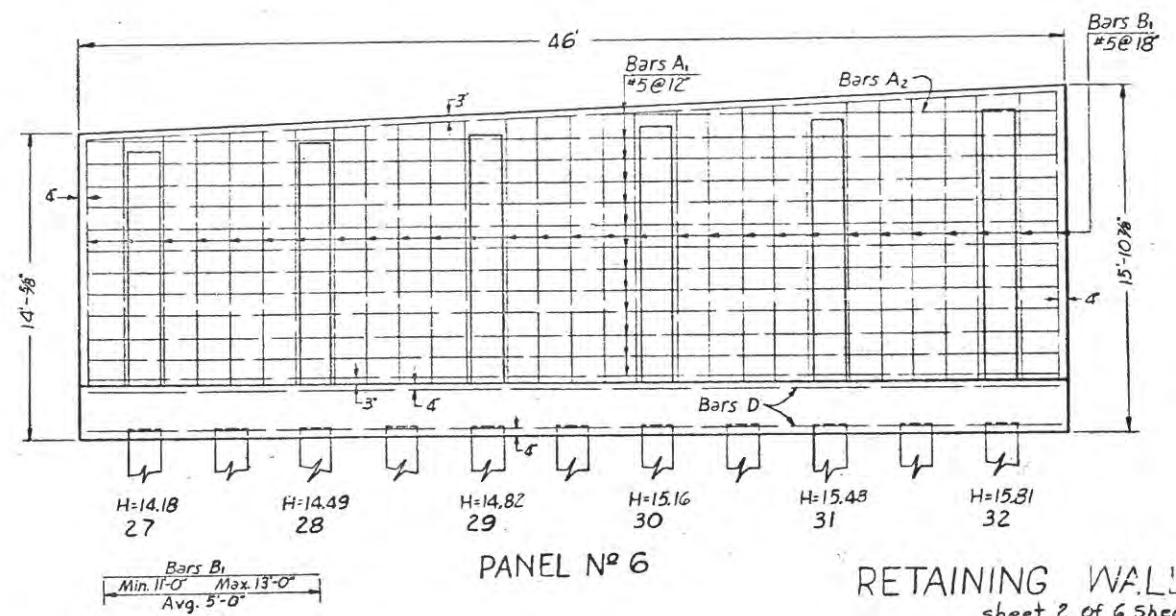
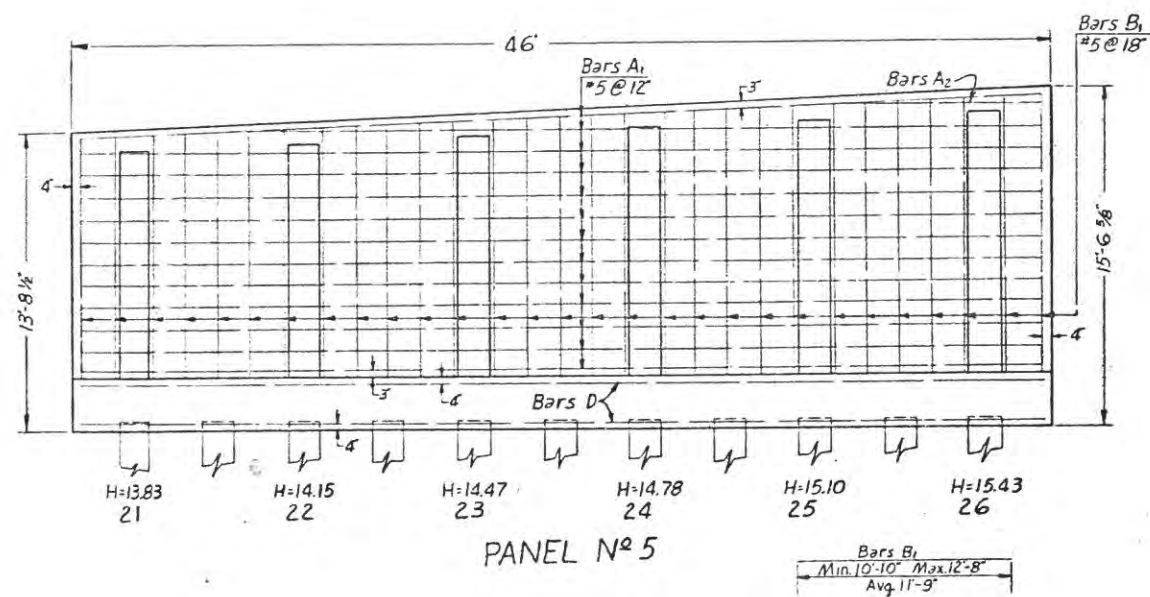
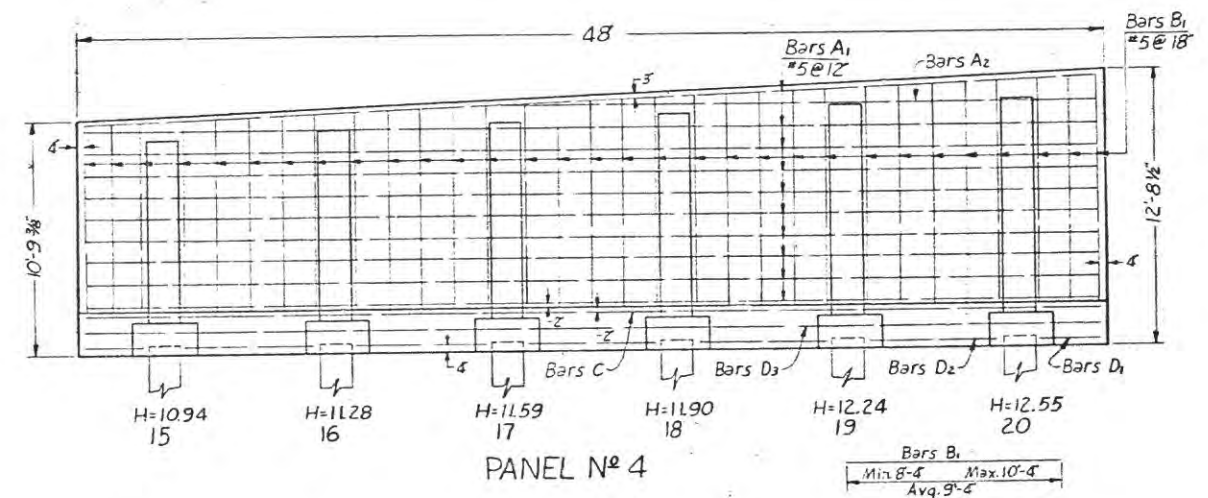
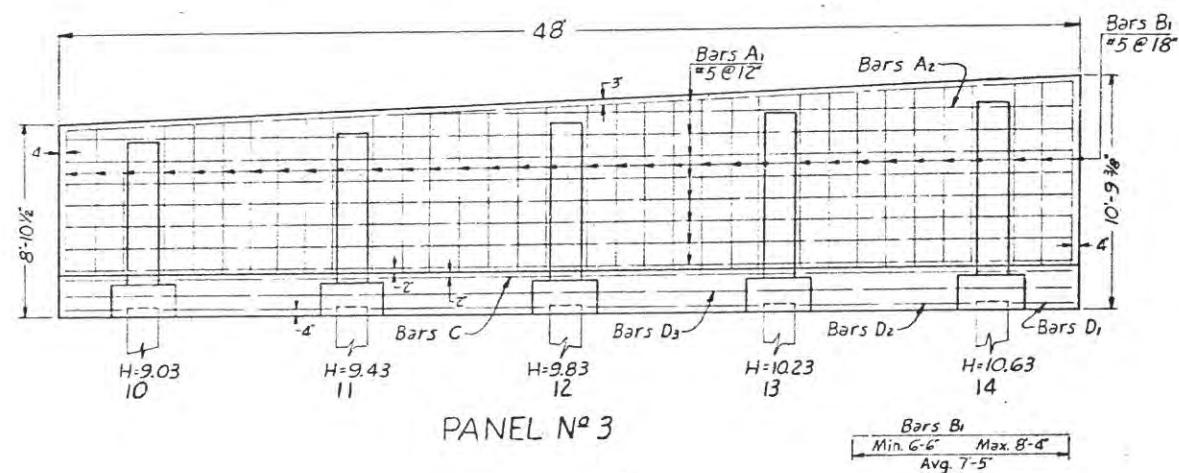
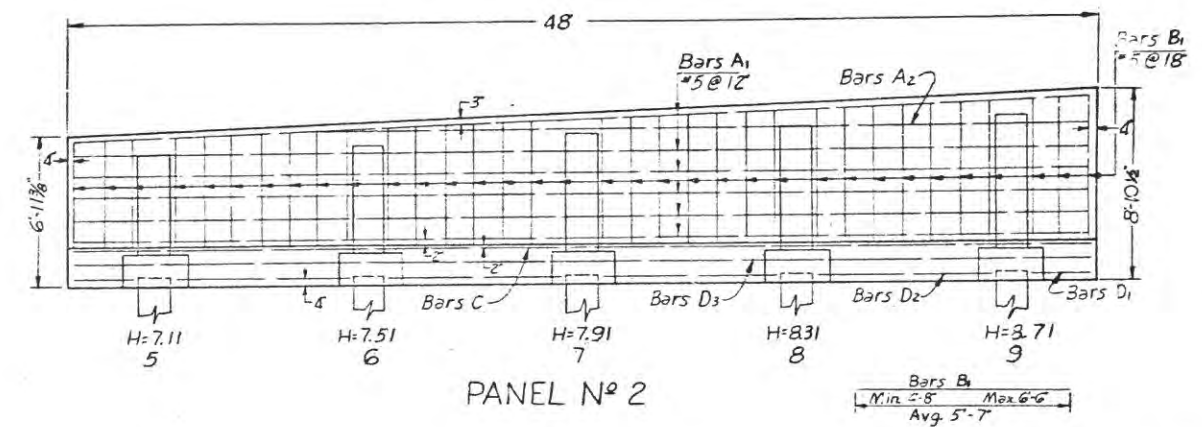
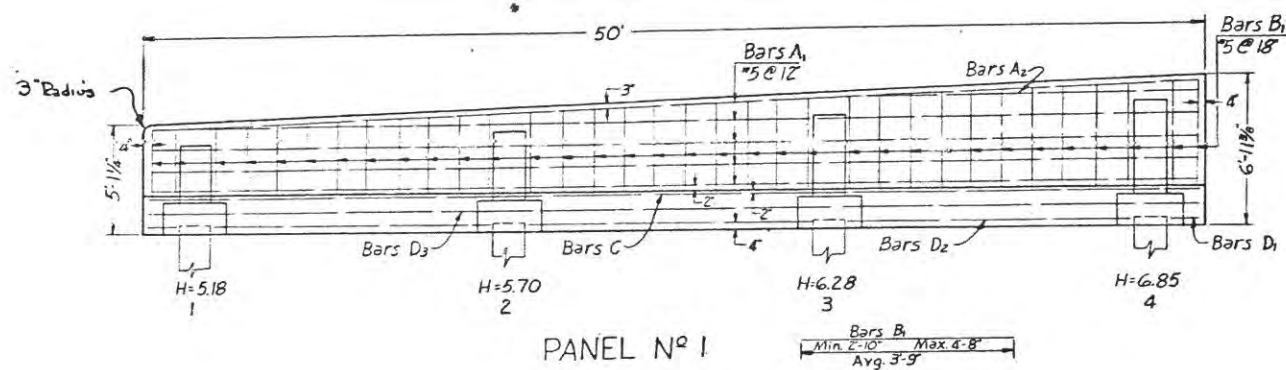
RETAINING WALL "B"

1 - 0

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16 NUECES 74 6 38 70

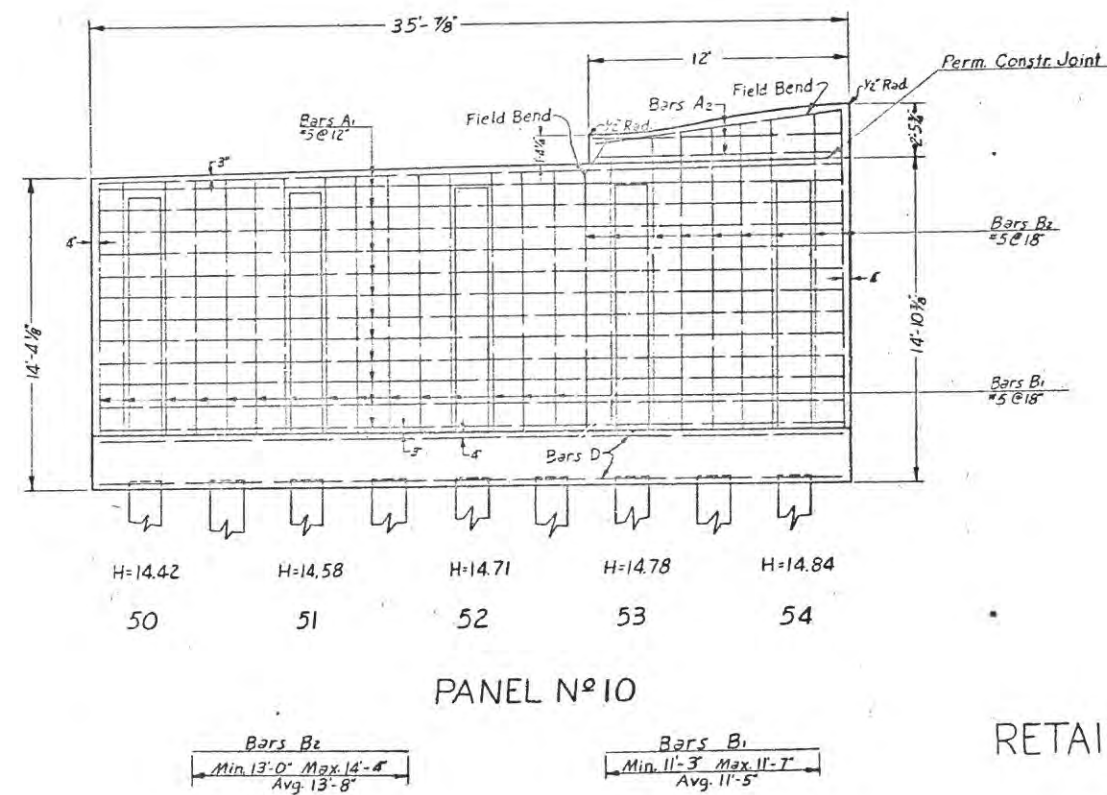
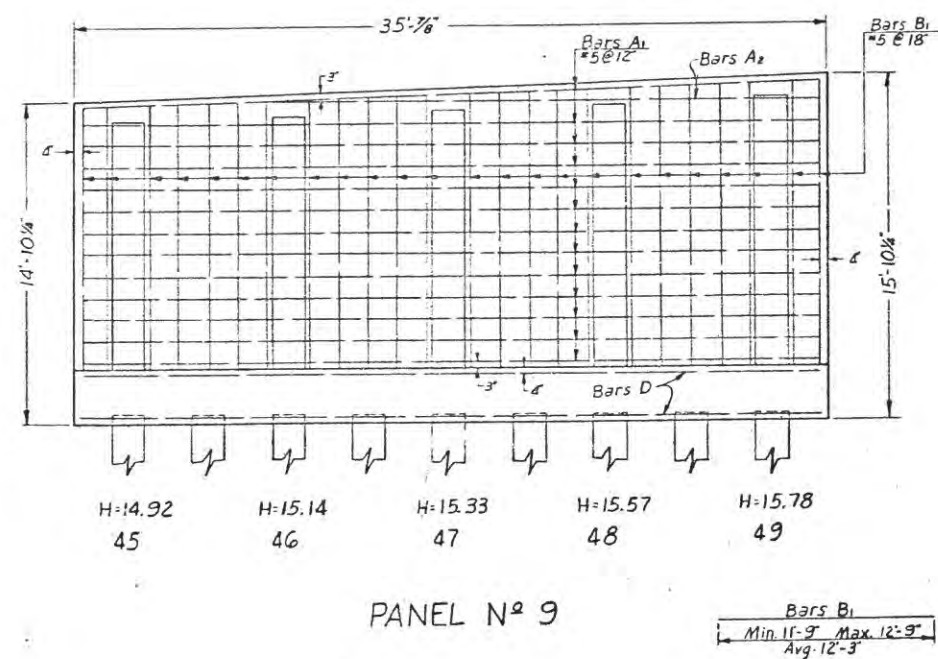
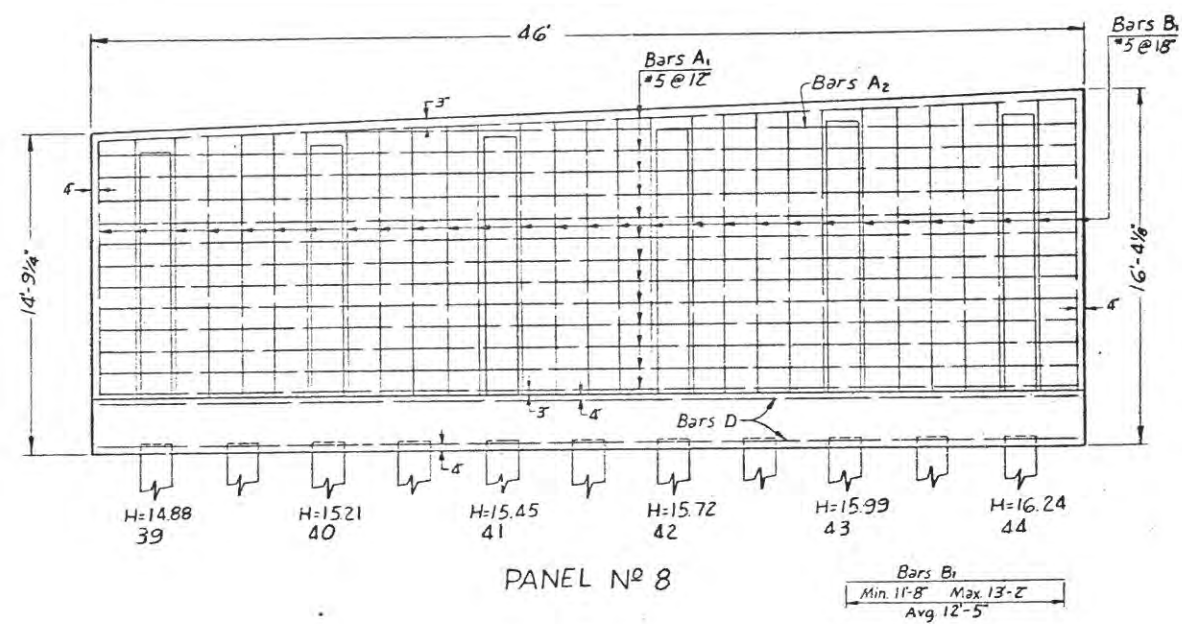
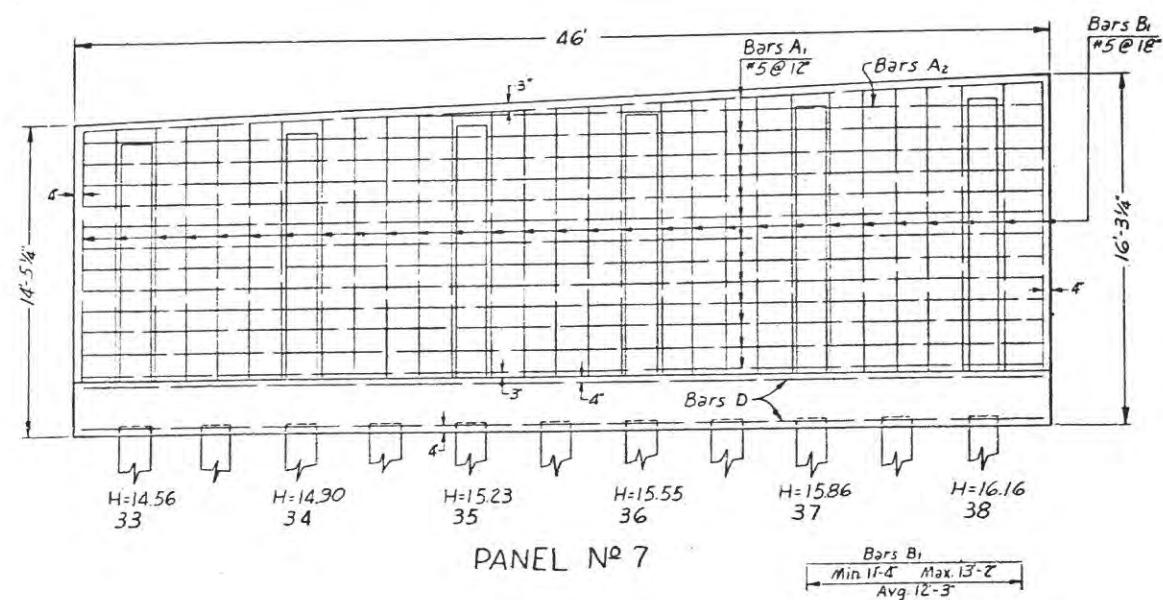




RETAINING WALL 'B'  
sheet 2 of 6 sheets

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RETAINING WALL "B"

sheet 3 of 6 sheets

16 NUECES 74 6 38 I-3



**BILL OF REINFORCING STEEL - H BARS #5 @ 12" Spacing in Counterforts**

BILL OF REINFORCING STEEL - H BARS 5 @ 12 Spacing in Counterforts																																			SUB TOTAL																		
COUNTERFORT NUMBERS	H <sub>1</sub>				H <sub>2</sub>				H <sub>3</sub>				H <sub>4</sub>				H <sub>5</sub>				H <sub>6</sub>				H <sub>7</sub>				H <sub>8</sub>				H <sub>9</sub>				H <sub>10</sub>				H <sub>11</sub>				WEIGHTS								
	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°	Nº	X	L	WT. N°													
																																														12							
1	1	2'-3"	6'-6"	7	1	1'-4"	4'-8"	5																																						17							
2	1	2'-6"	7'-0"	7	1	1'-9"	5'-6"	6	1	1'-0"	4'-0"	4																																			18						
3	1	2'-7"	7'-2"	7	1	2'-0"	6'-0"	6	1	1'-4"	4'-8"	5																																			24						
4	1	2'-8"	7'-4"	8	1	2'-2"	6'-4"	7	1	1'-7"	5'-2"	5	1	1'-0"	4'-0"	4																																27					
5	1	3'-3"	8'-6"	9	1	2'-6"	7'-0"	7	1	1'-9"	5'-6"	6	1	1'-3"	4'-6"	5																																27					
6	1	3'-3"	8'-6"	9	1	2'-7"	7'-2"	7	1	1'-10"	5'-8"	6	1	1'-4"	4'-8"	5																																32					
7	1	3'-3"	8'-6"	9	1	2'-8"	7'-4"	8	1	2'-1"	6'-2"	6	1	1'-6"	5'-0"	5	1	1'-1"	4'-2"	4																												33					
8	1	3'-3"	8'-6"	9	1	2'-8"	7'-4"	8	1	2'-1"	6'-2"	6	1	1'-7"	5'-2"	5	1	1'-2"	4'-4"	5																												35					
9	1	3'-3"	8'-6"	9	1	2'-8"	7'-4"	8	1	2'-2"	6'-4"	7	1	1'-9"	5'-6"	6	1	1'-3"	4'-6"	5																												39					
10	1	3'-3"	8'-6"	9	1	2'-9"	7'-6"	8	1	2'-3"	6'-6"	7	1	1'-10"	5'-8"	6	1	1'-4"	4'-8"	5	1	1'-0"	4'-0"	4																								39					
11	1	3'-4"	8'-8"	9	1	2'-10"	7'-8"	8	1	2'-4"	6'-8"	7	1	1'-11"	5'-10"	6	1	1'-5"	4'-10"	5	1	1'-1"	4'-2"	4																								40					
12	1	3'-4"	8'-8"	9	1	2'-11"	7'-10"	8	1	2'-5"	6'-10"	7	1	2'-0"	6'-0"	6	1	1'-7"	5'-2"	5	1	1'-3"	4'-6"	5																								45					
13	1	3'-4"	8'-8"	9	1	2'-11"	7'-10"	8	1	2'-6"	7'-0"	7	1	2'-1"	6'-2"	6	1	1'-8"	5'-4"	6	1	1'-4"	4'-8"	5	1	1'-0"	4'-0"	4																					47				
14	1	3'-4"	8'-8"	9	1	2'-11"	7'-10"	8	1	2'-7"	7'-2"	7	1	2'-2"	6'-4"	7	1	1'-9"	5'-6"	6	1	1'-5"	4'-10"	5	1	1'-2"	4'-4"	5																					50				
15	1	3'-9"	9'-6"	10	1	3'-3"	8'-6"	9	1	2'-10"	7'-8"	8	1	2'-6"	7'-0"	7	1	2'-1"	6'-2"	6	1	1'-7"	5'-2"	5	1	1'-2"	4'-4"	5																					56				
16	1	3'-9"	9'-6"	10	1	3'-4"	8'-8"	9	1	2'-11"	7'-10"	8	1	2'-7"	7'-2"	7	1	2'-2"	6'-4"	7	1	1'-8"	5'-4"	6	1	1'-3"	4'-6"	5	1	1'-0"	4'-0"	4																	56				
17	1	3'-9"	9'-6"	10	1	3'-4"	8'-8"	9	1	2'-11"	7'-10"	8	1	2'-7"	7'-2"	7	1	2'-3"	6'-6"	7	1	1'-10"	5'-8"	6	1	1'-5"	4'-10"	5	1	1'-2"	4'-4"	5																	57				
18	1	3'-9"	9'-6"	10	1	3'-4"	8'-8"	9	1	2'-11"	7'-10"	8	1	2'-7"	7'-2"	7	1	2'-3"	6'-6"	7	1	1'-10"	5'-8"	6	1	1'-5"	4'-10"	5	1	1'-2"	4'-4"	5	1	1'-0"	4'-0"	4													62				
19	1	3'-9"	9'-6"	10	1	3'-5"	8'-10"	9	1	3'-0"	8'-0"	8	1	2'-8"	7'-4"	8	1	2'-4"	6'-8"	7	1	2'-0"	6'-0"	6	1	1'-7"	5'-2"	5	1	1'-3"	4'-6"	5	1	1'-0"	4'-0"	4														62			
20	1	3'-9"	9'-6"	10	1	3'-5"	8'-10"	9	1	3'-0"	8'-0"	8	1	2'-8"	7'-4"	8	1	2'-4"	6'-8"	7	1	2'-0"	6'-0"	6	1	1'-7"	5'-2"	5	1	1'-3"	4'-6"	5	1	1'-0"	4'-0"	4														70			
21	1	4'-4"	10'-8"	11	1	3'-10"	9'-8"	10	1	3'-6"	9'-0"	9	1	3'-11"	8'-2"	9	1	2'-9"	7'-6"	8	1	2'-4"	6'-8"	7	1	2'-0"	6'-0"	6	1	1'-6"	5'-0"	5	1	1'-3"	4'-6"	5													379				
22, 23, 27, 28 and 50	5	4'-4"	53'-4"	59	5	3'-11"	49'-2"	51	5	3'-7"	45'-10"	48	5	3'-2"	41'-5"	43	5	2'-10"	38'-4"	40	5	2'-5"	34'-2"	34	5	2'-1"	30'-10"	32	5	1'-8"	26'-8"	28	5	1'-4"	23'-4"	24	5	1'-0"	20'-0"	21										617			
24, 29, 33, 39, 51, 52, 53 and 54	8	4'-4"	65'-4"	69	8	3'-11"	73'-8"	82	8	3'-7"	73'-4"	76	8	3'-3"	68'-0"	71	8	2'-10"	61'-4"	64	8	2'-6"	56'-0"	58	8	2'-2"	50'-8"	53	8	1'-9"	44'-0"	46	8	1'-6"	40'-0"	42	8	1'-2"	34'-8"	36										549			
25, 30, 34, 35, 40, 45 and 46	7	4'-4"	74'-8"	78	7	4'-0"	70'-0"	73	7	3'-7"	64'-2"	67	7	3'-3"	59'-6"	62	7	2'-10"	53'-8"	56	7	2'-7"	50'-2"	52	7	2'-3"	45'-6"	47	7	1'-11"	40'-10"	43	7	1'-7"	36'-2"	38	7	1'-3"	31'-6"	33											496		
26, 31, 36, 41, 47 and 48	6	4'-4"	64'-0"	67	6	4'-0"	60'-0"	63	6	3'-7"	55'-0"	57	6	3'-3"	51'-0"	53	6	2'-10"	46'-0"	48	6	2'-7"	43'-0"	45	6	2'-3"	39'-0"	41	6	1'-11"	35'-0"	37	6	1'-7"	31'-0"	32	6	1'-3"	27'-0"	28	6	1'-0"	24'-0"	25								419	
32, 37, 42, 43, and 49	5	4'-4"	53'-4"	56	5	4'-0"	50'-0"	52	5	3'-7"	45'-10"	48	5	3'-3"	42'-6"	44	5	2'-11"	39'-2"	41	5	2'-8"	36'-8"	38	5	2'-4"	33'-4"	35	5	2'-0"	30'-0"	31	5	1'-8"	26'-8"	28	5	1'-4"	23'-4"	24	5	1'-1"	20'-10"	22								169	
38 and 44	2	4'-4"	21'-4"	22	2	4'-0"	20'-0"	21	2	3'-8"	18'-8"	19	2	3'-4"	17'-4"	18	2	3'-0"	16'-0"	17	2	2'-8"	14'-8"	15	2	2'-5"	13'-8"	14	2	2'-1"	12'-4"	13	2	1'-9"	11'-0"	11	2	1'-5"	9'-8"	10												TOTAL WT.	3477

**CONCRETE QUANTITIES**  
Counterforts and Footings Panels 1 thru 4

Counterfort No	Cu. Yd. C1'A' Conc.	Counterfort No	Cu. Yd. C1'A' Conc.
1	0.19	11	0.58
2	0.22	12	0.61
3	0.26	13	0.64
4	0.30	14	0.68
5	0.38	15	0.82
6	0.42	16	0.85
7	0.45	17	0.88
8	0.48	18	0.91
9	0.52	19	0.95
10	0.54	20	0.98

**Counterforts Panels 5 thru 10**

Counterfort No	C1'A' Conc. Cu. Yd.	Counterfort No	C1'A' Conc. Cu. Yd.
21	1.15	33	1.23
22	1.18	34	1.27
23	1.22	35	1.30
24	1.25	36	1.34
25	1.29	37	1.37
26	1.33	38	1.41
27	1.19	39	1.26
28	1.22	40	1.30
29	1.26	41	1.33
30	1.30	42	1.36
31	1.33	43	1.39
32	1.37	44	1.42

**Walls Panels 1 thru 4**

Panel No	UP Panel	LP Panel
1	7.98	2.73
2	11.01	2.43
3	14.41	2.43
4	17.83	2.26

**Walls and Footings Panels 5 thru 10**

Panel No	C1'A' Conc. Cu. Yd.
5	20.86
6	21.45
7	22.09
8	22.43
9	16.84
10	15.87

**TOTAL QUANTITIES**

Counterforts	55.50 CY.
* Walls	180.73 CY.
Footings	193.08 CY.
PARAPET Panel (10)	0.35 CY.
<b>TOTALS</b>	<b>430.25 CY.</b>

\* Includes 0.16 CY. in light brackets

# Bill of Reinforcing Steel in Walls Panels 1-10 & Footings - Panels 5-10

PANEL NO	BARS A SIZE # 5 Space 12" OC						BARS B SIZE # 5 Space 18" OC						BARS C SIZE # 7 Space ~			BARS D SIZE # 6			BARS D <sub>1</sub> - D <sub>2</sub> and D <sub>3</sub>									DOWEL BARS G SIZE # 5 SPACE 18" OC			BARS L # 6 @ 18" OC			BARS O 5 @ 18" OC			SUB TOTALS WEIGHT Lbs.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	A <sub>1</sub>			A <sub>2</sub>			B <sub>1</sub>			B <sub>2</sub>									D <sub>1</sub> SIZE # 5			D <sub>2</sub> SIZE # 5			D <sub>3</sub> SIZE # 5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	No	Length	Wt.	No	Length	Wt.	No	Avg Length	Wt.	No	Avg Length	Wt.	No	Length	Wt.	No	Length	Wt.	No	Length	Wt.	No	Length	Wt.	No	Length	Wt.	No	Length	Wt.	No	Length	Wt.	No	Length	Wt.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
1	10	51'-0"	532	2	14'-0"	29	68	3'-9"	266				2	51'-8"	211				4	1'-4"	6	6	13'-4"	83	2	51'-0"	106	68	2'-8"	189							1422																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
2	12	49'-0"	613	2	36'-0"	75	68	5'-7"	396				2	49'-8"	203				4	2'-10"	12	8	8'-2"	68	2	49'-0"	102	68	2'-8"	189							1658																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
3	16	49'-0"	818	2	33'-0"	69	68	7'-5"	526				2	49'-8"	203				4	2'-10"	12	8	8'-2"	68	2	49'-0"	102	68	2'-8"	189							1987																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
4	20	49'-0"	1022	2	28'-0"	58	62	9'-4"	604				2	49'-8"	203				4	2'-10"	12	10	6'-2"	64	2	49'-0"	102	62	2'-8"	172							2237																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
5	26	47'-0"	1275	2	12'-0"	25	58	11'-9"	711							10	47'-4"	711										58	3'-0"	181	30	8'-4"	375	30	6'-10"	214	3492																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
6	26	47'-0"	1275	2	22'-0"	46	58	12'-0"	726							10	47'-4"	711										58	3'-0"	181	30	8'-4"	375	30	6'-10"	214	3528																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
7	26	47'-0"	1275	2	34'-0"	71	58	12'-3"	741							10	47'-4"	711										58	3'-0"	181	30	8'-4"	375	30	6'-10"	214	3568																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
8	26	47'-0"	1275	2	38'-0"	79	58	12'-5"	751							10	47'-4"	711										58	3'-0"	181	30	8'-4"	375	30	6'-10"	214	3586																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
9	26	34'-7"	938	2	26'-0"	54	48	12'-3"	613							10	34'-7"	519										48	3'-0"	150	23	8'-4"	288	23	6'-10"	164	2726																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
10	26	34'-7"	938	6	11'-6"	72	30	11'-5"	357	18	13'-8"	257				10	34'-7"	519										48	3'-0"	150	23	8'-4"	288	23	6'-10"	164	2745																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
* TOTAL REINF. STEEL IN WALLS INCL. D-BARS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

\* TOTAL REINF. STEEL IN WALLS INCL. D-BARS

\* Includes 42 Lbs. in Light Bracket

## Bill of Reinforcing Steel in Footings Panels 1-4 ALL COUNTERFORTS

COUNTER FORT NO	BARS E SIZE #5			BARS F SIZE #5			DOWEL BARS J SIZE #9			BARS K Space ~			DOWEL BARS Q SIZE #11			Sub TOTALS Weights Lbs.	COUNTERFORT NUMBERS	BARS E SIZE #5			BARS F SIZE #5			DOWEL BARS J. SIZE #9			BARS K Space ~			DOWEL BARS Q SIZE #11			Sub TOTALS Weights Lbs.		
	No	Length	Wt.	No	Length	Wt.	No	Length	Wt.	No	Size	Length	Wt.	No	Length			Wt.	No	Length	Wt.	No	Length	Wt.	No	Size	Length	Wt.	No	Length	Wt.				
1	1	16'-4"	17	2	5'-6"	11	1	7'-2"	24	2	9	3'-3"	22			74	15	1	18'-4"	19	2	6'-6"	14	1	7'-2"	24	2	9	9'-3"	63			120		
2	1	16'-4"	17	2	5'-6"	11	1	7'-2"	24	2	9	3'-10"	26			78	16	1	18'-4"	19	2	6'-6"	14	1	7'-2"	24	2	9	9'-7"	65			122		
3	1	16'-4"	17	2	5'-6"	11	1	7'-2"	24	2	9	4'-5"	30			82	17	1	18'-4"	19	2	6'-6"	14	1	7'-2"	24	2	9	10'-0"	68			125		
4	1	16'-4"	17	2	5'-6"	11	1	7'-2"	24	2	9	5'-0"	34			86	18	1	18'-4"	19	2	6'-6"	14	1	7'-2"	24	2	9	10'-3"	70			127		
5	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	5'-7"	38			93	19	1	18'-4"	19	2	6'-6"	14	1	7'-2"	24	2	9	10'-7"	72			129		
6	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	6'-0"	41			96	20	1	18'-4"	19	2	6'-6"	14	1	7'-2"	24	2	9	10'-10"	74			131		
7	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	6'-4"	43			98	21											2	11	11'-3"	120	2	4'-10"	51	171
8	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	6'-8"	45			100	22, 23, 27, 28 and 50											10	11	11'-8"	620	10	4'-10"	257	877
9	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	7'-0"	48			103	24, 29, 33, 39, 51, 52, 53 and 54											16	11	12'-1"	1027	16	4'-10"	411	1438
10	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	7'-2"	49			104	25, 30, 34, 35, 40, 45 and 46											14	11	12'-4"	917	14	4'-10"	359	1276
11	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	7'-7"	52			107	26, 31, 36, 41, 47 and 48											12	11	12'-7"	862	12	4'-10"	308	1110
12	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	8'-0"	54			109	32, 37, 42, 43, and 49											10	11	13'-1"	695	10	4'-10"	257	952
13	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	8'-5"	57			112	38 and 44											4	11	13'-5"	285	4	4'-10"	103	388
14	1	17'-4"	18	2	6'-0"	13	1	7'-2"	24	2	9	8'-9"	60			115																		8323	
																	TOTAL EXCEPTING H Bars																8323		
																	TOTAL WEIGHT OF H Bars See Sheet No 73																3477		
																	TOTAL WEIGHT Steel in COUNTERFORTS.																11,800		

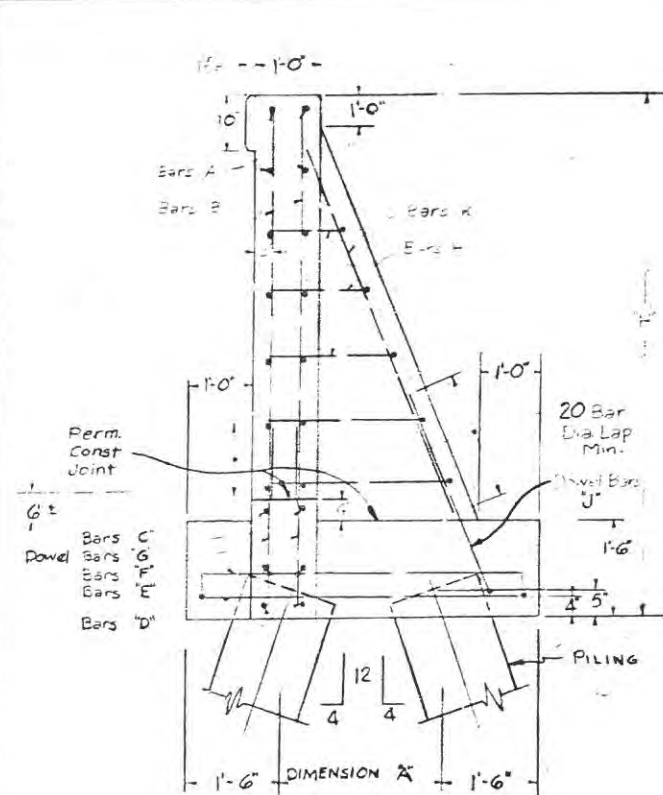
RETAINING WALL "B"

I-37-1(2)000 74

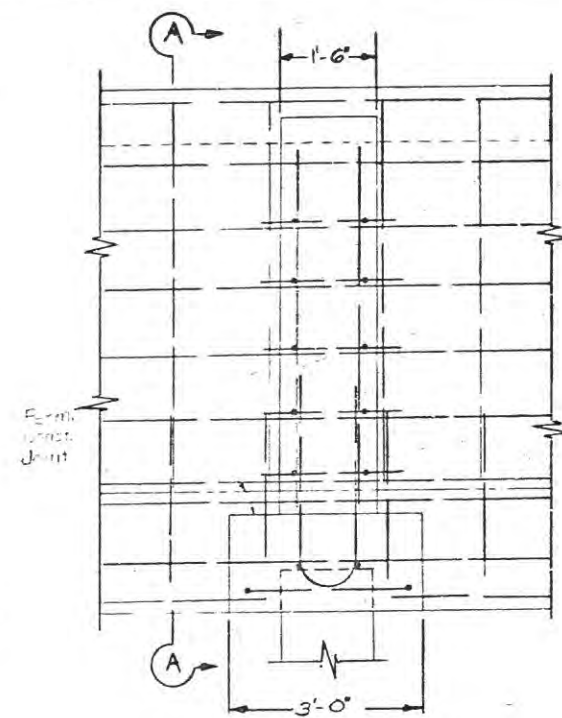
Sheet 5 of 6 Sheets

16 NUCCES 74 6 37 I-37

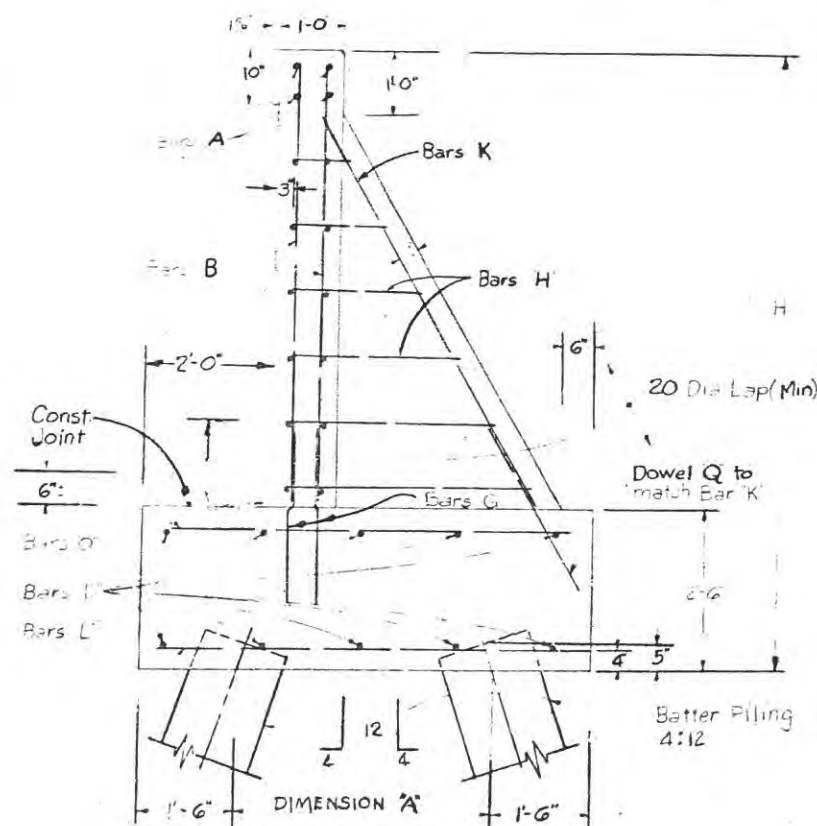




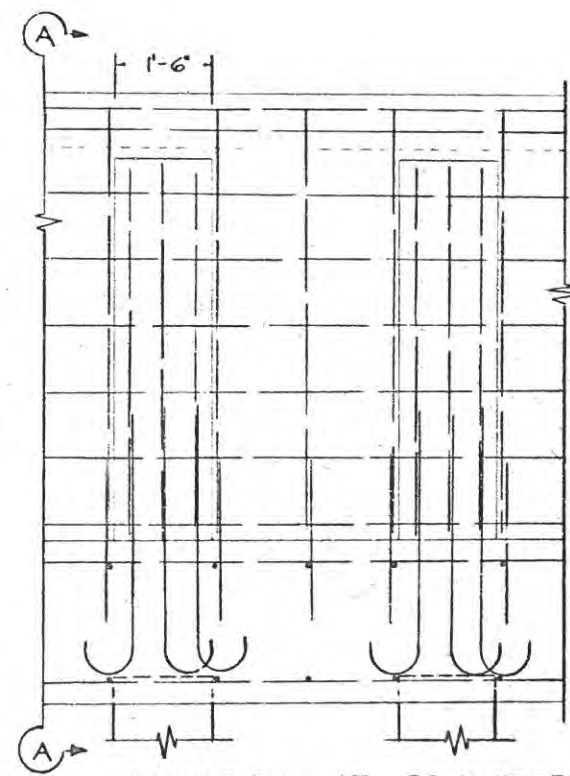
SECTION A-A



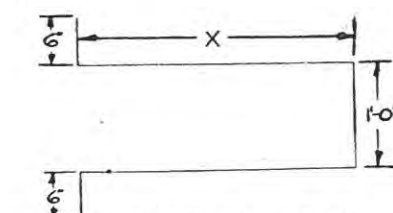
ELEVATION AT COUNTERFORT  
For Panels 1, 2, 3 & 4



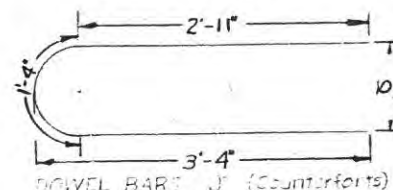
SECTION A-A



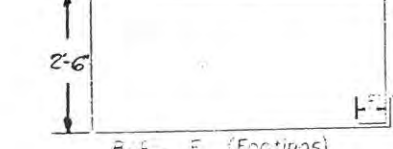
ELEVATION AT COUNTERFORT  
For Panels 5, 6, 7, 8, 9 & 10



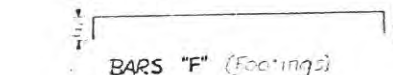
BARS "H" (Counterforts)  
See Bill of Reinr Steel in  
Cfts. for Dimensions



DOWEL BARS "J" (Counterforts)



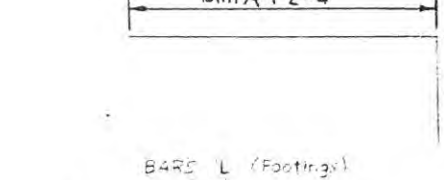
BARS "E" (Footings)



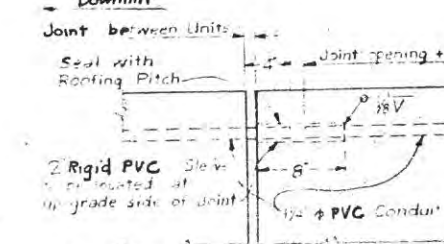
BARS "F" (Footings)



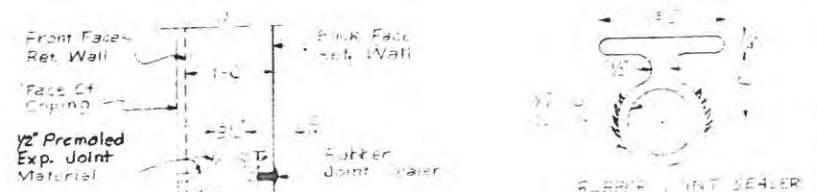
DOWEL BARS "Q" (Counterforts)



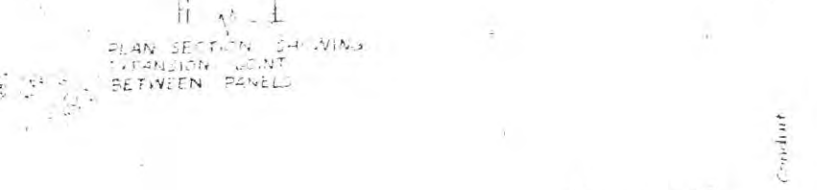
BARS "L" (Footings)



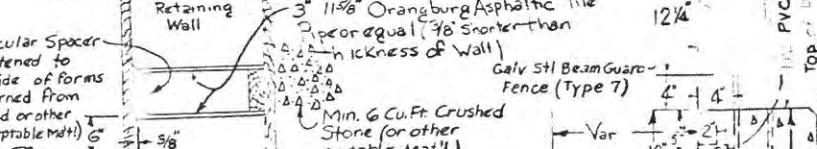
BARS "L" (Footings)



BARS "L" (Footings)



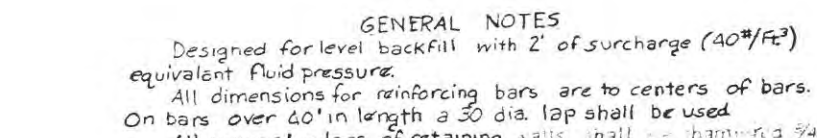
BARS "L" (Footings)



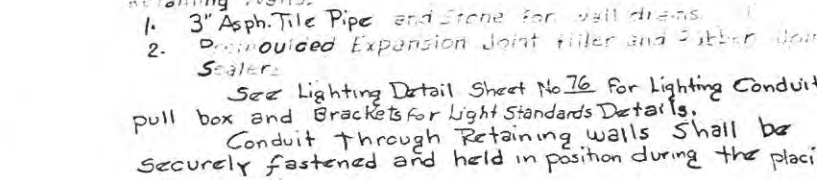
BARS "L" (Footings)



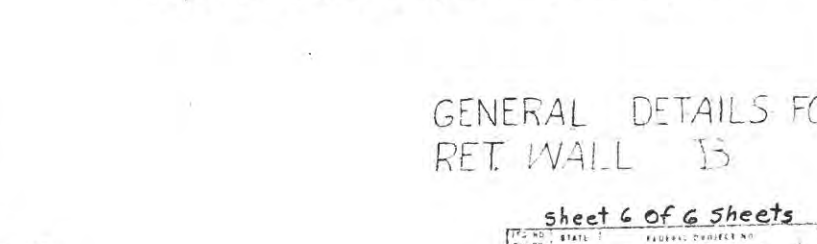
BARS "L" (Footings)



BARS "L" (Footings)



BARS "L" (Footings)



BARS "L" (Footings)

ELEVATION SHOWING  
3" ASPH. TILE DRAINS  
to be placed as shown  
at midpoints between counterforts

PROF. NORMAL RETAINING WALL SECTION

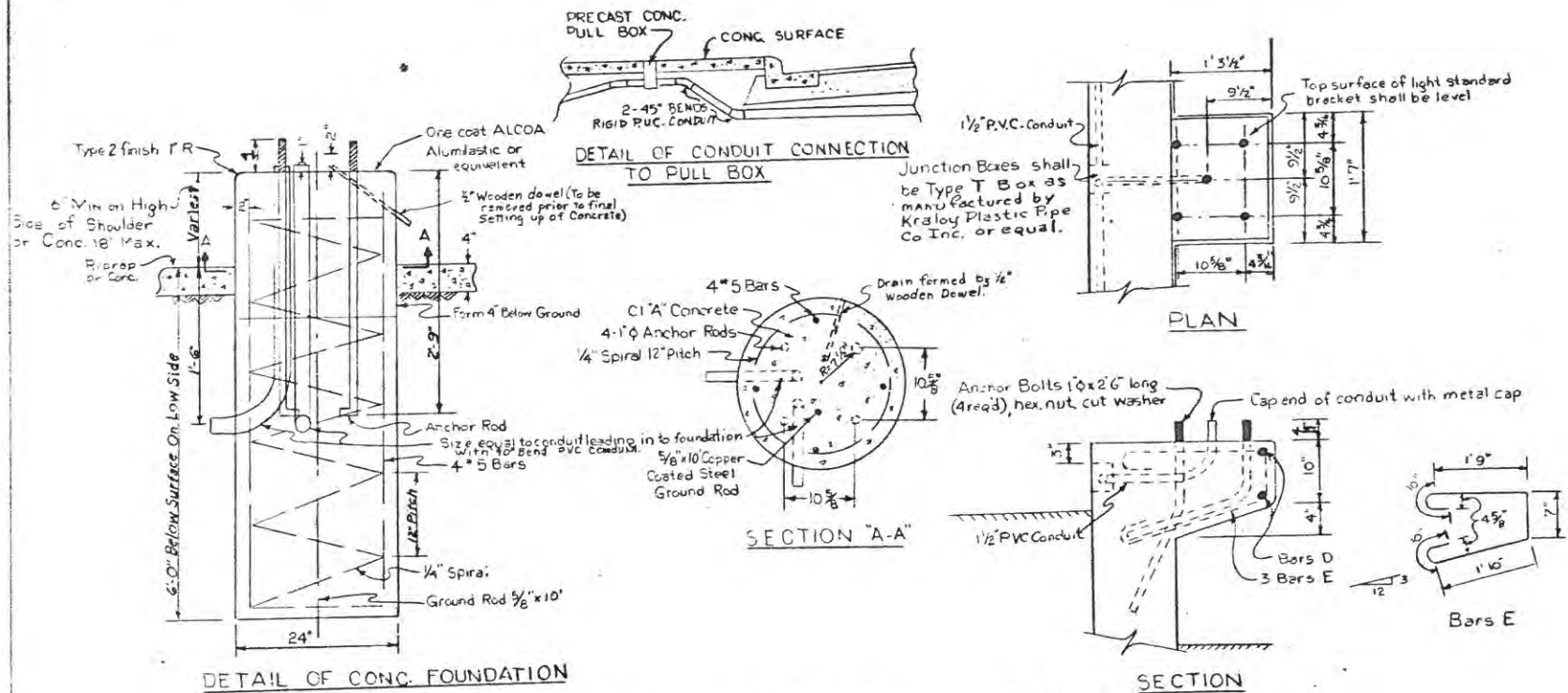
# GENERAL NOTES

Designed for level backfill with 2' of surcharge (40#/ft<sup>3</sup>) equivalent fluid pressure.  
All dimensions for reinforcing bars are to centers of bars. On bars over 40' in length a 50 dia. lap shall be used.  
All exposed edges of retaining walls shall be finished 9/4".  
Cost of furnishing and placing the following materials and items shall be included in the unit bid price for Class A Concrete Retaining Walls:  
1. 3" Asph. Tile Pipe and Stone for wall drains.  
2. Provided Expansion Joint filler and Rubber Joint Sealers.  
See Lighting Detail Sheet No 76 for Lighting Conduit, pull box and Brackets for Light Standards Details.  
Conduit through Retaining walls shall be securely fastened and held in position during the placing of concrete.  
Backfill shall be Compacted Mechanically to The Proper Density as Required by the Engineer.

## GENERAL DETAILS FOR RET. WALL IS

Sheet 6 of 6 Sheets			
STATE	TEXAS	FEDERAL PROJECT NO.	75
COUNTY		CONTRACT NO.	I-37-1(2) 000
SECTION		DATE	74 6 38 I-37

EXPANSION DEVICE FOR RIGID PVC CONDUIT  
to be used at fixed and expansion joints between all units



CONC. FOUNDATION FOR LIGHT STANDARD

NOTE:  
Anchor bolts, nuts & washers shall, after fabrication, be cadmium coated by the Udylite Process in accordance with A.S.T.M. Spec. A-165 or galvanized in accordance with A.S.T.M. Spec. A-153.

BILL OF REINFORCING STEEL-ONE RETAINING WALL BRACKET					
Bar	No.	Size	Spe.	Length	Weight
D	2	#5	-	1'-3"	3
E	3	#5	7"	5'-10"	18
TOTAL					Lbs. 21
4-1" x 2'-6" Anchor Bolts					Lbs. 30

ESTIMATED QUANTITIES-ONE RETAINING WALL BRACKET		
Item	Unit	Quantities
Class 'A' Conc.	Cu.Yds	0.08
Reinf. Steel	Lbs	21
Struct Steel	Lbs	30

ESTIMATED QUANTITIES-ONE CONC. FDN. FOR LIGHT STD.		
Item	Unit	Quantities
Uncl. Struct. Excav.	Cu.Yds	1
Class 'A' Conc.	Cu.Yds	0.79
Reinf. Steel	Lbs.	34
Struct Steel	Lbs.	41
1-3/8" x 10' Copper Coated Ground Rod		
2" PVC. Conduit Lin Ft.		7

#### GENERAL NOTES:

All conduit shall be threaded with a No.9 galvanized pull wire. All conduit shall have a minimum of 1/4" clear concrete cover. The conduit shall be held rigidly in place so as not to be displaced when concrete is poured.

The cost of all pull-wires, expansion sleeves, Junction Boxes, Pull Boxes, Precast Concrete Pull Boxes, and all fittings shall be included in the unit Price Bid for Conduit.

Light Standards are not included in this Contract. Concrete shall be Class 'A' Chamfer all exposed corners 3/4" unless otherwise noted.

Retaining Wall Brackets shall be poured monolithically with retaining walls and shall be paid for at the unit prices bid for Class 'A' Concrete, Reinforcing Steel, & Structural Steel.

Spacing of Light Standard Brackets is based on design using 20,000 Lumen Luminaire.

Neat excavation lines will be permitted for footings. Subject to the approval of the Engineer.

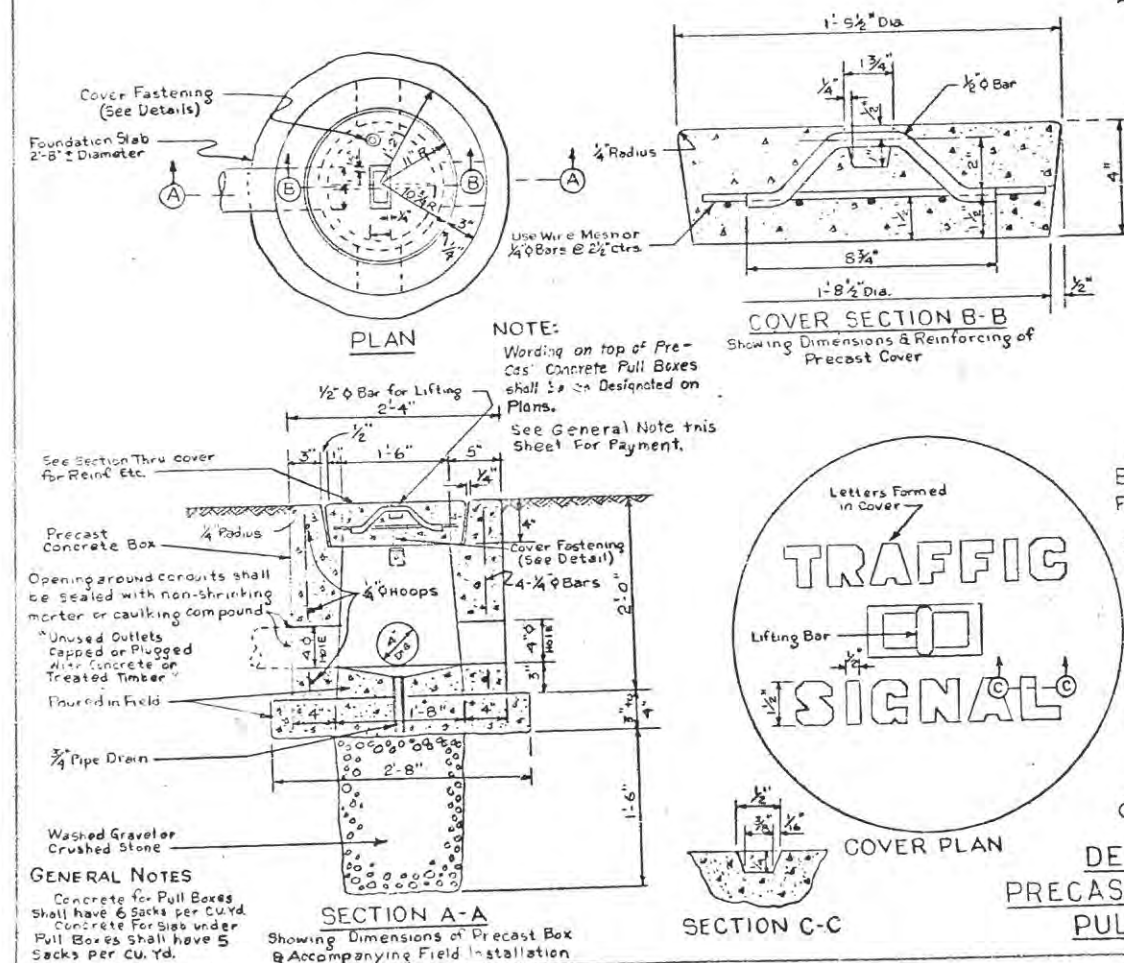
Pull boxes shall be Type T Box as made by Kralor Plastic Pipe Company Inc. or equal, and spaced at 100' max. distance apart.

The Contractor shall deliver to the Texas Highway Department the required number of anchor Bolt Nuts and washers for future use.

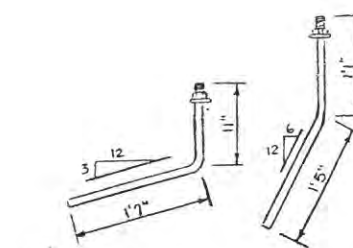
Precast Concrete Pull Box shall be as shown on this sheet or equal. 3" Radius

CONC. FOUNDATIONS FOR LIGHT STANDARDS				
LINE	STATION & LOCATION	"X" DIM.	"Y" DIM.	
LINE A	27+29 RT.	12'	0'-2"	
LINE A	29+00 RT.	12'	0'-2"	
LINE C	3+59 RT.	12'	0'-3"	
RAMP P	27+28 LT.	6'	4'-9"	
RAMP P	30+57 RT.	10'	0'-3"	
RAMP X	1+25 RT.	12'	0'-2"	
RAMP X	2+15 RT.	12'	0'-2"	
GLFFALOS	24+00 LT.	10'	0'-0"	
LINE A	22+11 RT.	5'		
LINE B	17+66 LT.	6'		

Average Length of Conc. Foundations:  
Extra Line A 25+75  
Brownlee 7+75

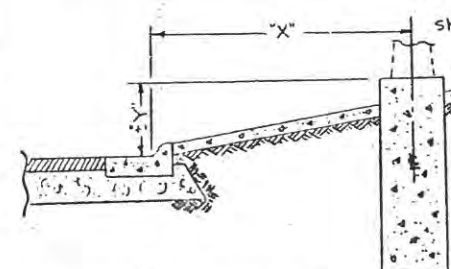


#### RETAINING WALL BRACKET

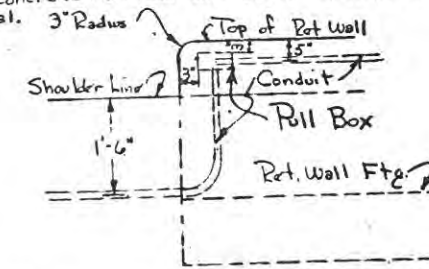


NOTE:  
Anchor bolts shall be measured and paid for as structural steel.

#### RETAINING WALL ANCHOR BOLT DETAILS



#### DETAIL OF PULL BOX AT END OF RETAINING WALL



#### ROADWAY LIGHTING DETAILS

I-37-1(2) 000 76

16 NUECES 74 6 38 I-37







D.A.		Avg C	TOTAL C.A.	TIME OF CONCENTRATION I <sub>10</sub> I <sub>100</sub>	Q <sub>10</sub> cfs
No	Ac				
151	11343	.630	77.76	Avg Time 25 min 4.20	314.8
152	102246	.461	47.181	" " 95 min 2.25	1048.35

# DRAINAGE AREA MAP

SCALE 1" = 800'

Sheet 3 of 4 Sheets

I-37-1(2)000

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16 PIECES 74 6 38 I 37

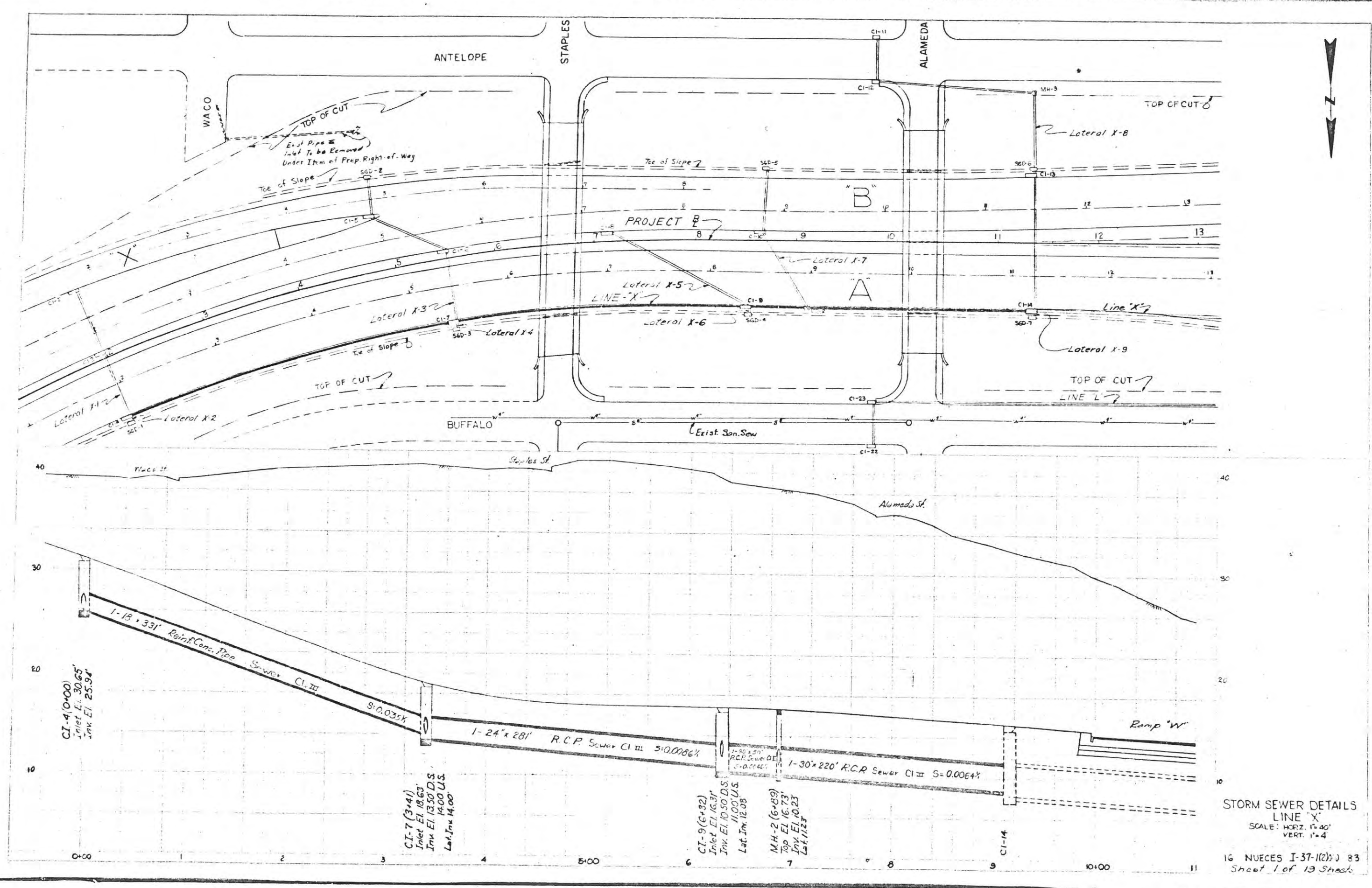


# RUNOFF COMPUTATIONS

ACRES DRAINED							TOTAL CA	TIME OF CONCENTRATION MINUTES	150 INCHES PER HOUR	110 INCHES PER HOUR	15 INCHES PER HOUR	Q5 C.F.S.
NO	ACRES	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.						
1	.35	.31					.303	10 min.	7.4			2.24
2	.19	.19					.171	"	"			1.27
3	.47	.47					.423	"	"			3.13
4	.28	.28					.252	"	"			1.82
5	.24	.04					.19	"	"			1.18
6	.59	.12					.47	"	"			2.69
7	.25	.29					.261	"	"			1.93
8	.57	.57					.513	"	"			3.00
9	.45	.45					.405	"	"			1.51
10	.30	.08					.22	"	"			2.13
11	.32	.32					.288	"	"			2.46
12	.37	.37					.333	"	"			2.38
13	.50	.07					.43	"	"			3.11
14	.66	.08					.58	"	"			1.67
15	.25	.25					.225	"	"			2.02
16	.82	.20	.62				.397	"	"	5.1		1.50
17	.33	.26					.255	"	"			2.13
18	.45	.06					.39	"	7.4			2.66
19	.40	.40					.360	"	"			2.80
20	.42	.42					.378	"	"			2.46
21	.52	.07					.45	"	"			1.60
22	.24	.24					.216	"	"			3.37
23	.71		.12				.59	"	"			6.79
24	1.02	1.02					.918	"	"			2.33
25	.35						.315	"	"			5.1
26	2.06	.36	.67	1.03			1.087	"	"	5.1		2.53
27	.38	.38					.342	"	7.4			4.47
28	.93	.21					.621	10 min.	7.2			1.40
29	.21	.21					.189	"	7.4			2.13
30	.32	.32					.288	"	"			7.77
31	1.48		.65	.83	1.050	10 min.	1.050	"	"			1.04
32	.30		.09	.21			.140	"	"			5.1
33	.63	.29	.54				.450	"	"	5.1		1.24
34	.31	.25					.243	"	"			1.53
35	.42	.29					.300	"	"			1.61
36	.41	.32					.315	"	"			.84
37	.25	.15					.165	"	"			1.62
38	.52	.27					.318	"	"			1.47
39	.22	.22					.198	10 min.	7.4			1.47
40	.22	.22					.198	"	"			1.13
41	.11	.11					.153	"	"			1.33
42	.20	.20					.180	"	"			5.1
43	2.63	.37	2.26				1.124	"	"	5.1		2.43
44	.79	.40					.477	"	"			.44
45	.10	.04	.06				.087	"	"			1.93
46	.29	.29					.261	"	7.4			2.34
47	.67	.28	.59				.459	10 min.	5.1			2.02
48	.57	.11	.12	.03	.31		.396	10 min.	"			5.45
49	2.47	.97	2.10				1.068	"	"			1.36
50	.26	.26					.234	"	5.8			

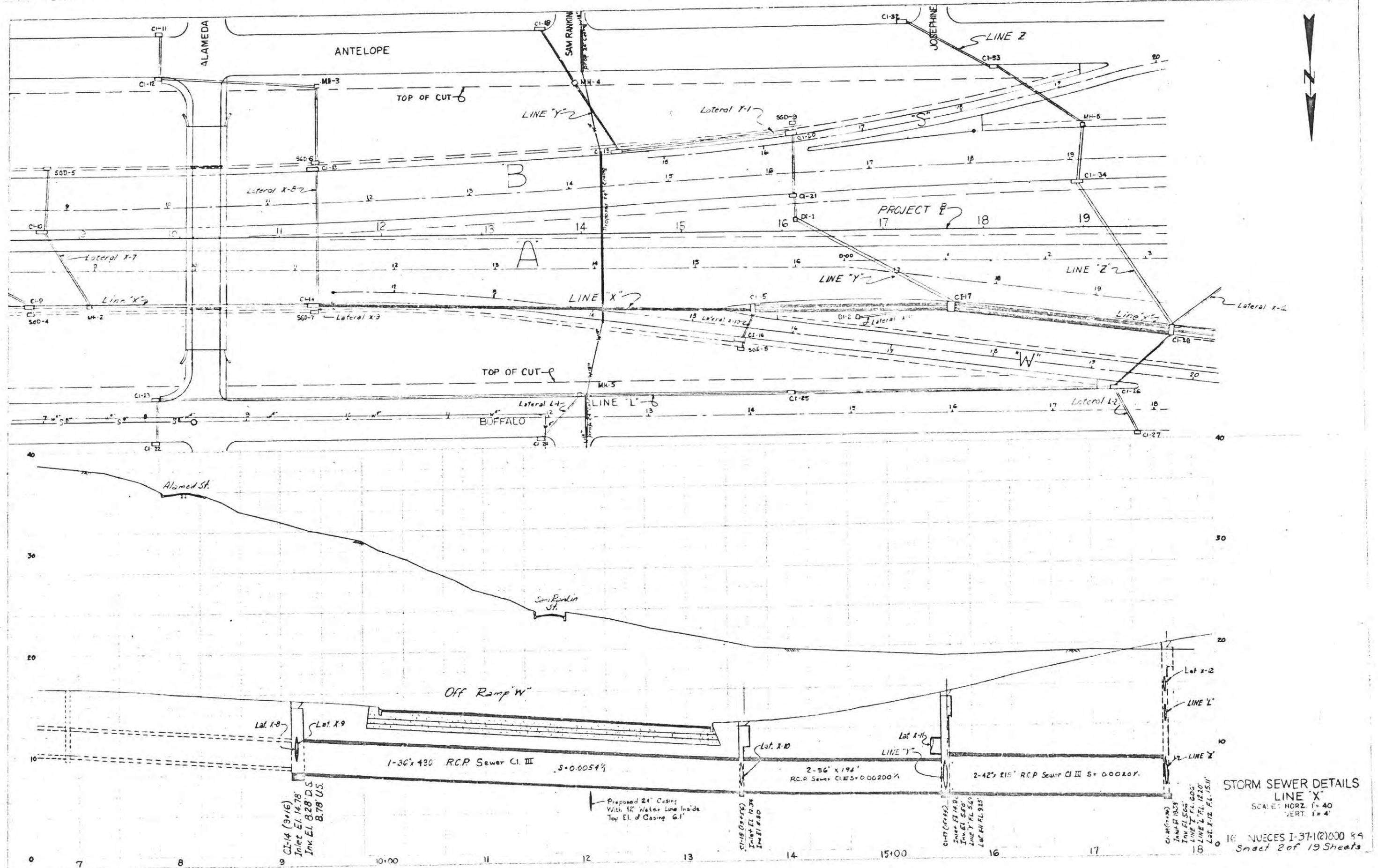
ACRES DRAINED							TOTAL CA	TIME OF CONCENTRATION MINUTES	150 INCHES PER HOUR	110 INCHES PER HOUR	15 INCHES PER HOUR	Q5 C.F.S.
NO	ACRES	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.						
51	.10	.10					.090	10 min.		5.8		.52
52	2.13	.47		.93	.73		.968	"			5.1	4.94
53	.84	.34		.06	.10	.34	.591	"				3.01
54	.16	.16					.144	"		5.8		.84
55	1.24	.74		.20	.30		.926	"				5.37
56	.34	.34					.306	"				1.77
57	.44	.44					.396	"				2.30
58	1.79		.25	1.54			.675	10 min.			4.6	3.11
59	.51	.51					.459	10 min.		5.8		2.66
60	.37	.37					.333	"				1.93
61	.43	.43					.387	"				2.24
62	2.40	.45	.74	1.21			1.273	10 min.			3.7	4.71
63	1.05	.8	.87				.684	10 min.				3.49
64	.52	.52					.468	10 min.			4.4	2.06
65	.11	.11					.099	10 min.		5.8		.57
66	.61	.61					.549	10 min.		5.7		3.13
67	.32	.32					.288	10 min.		5.8		1.67
68	.28	.28					.252	"				1.46
69	.68	.15	.53				.453	"			5.1	2.31
70	.65	.14	.51				.432	"				2.20
71	.09	.09					.081	"				.41
72	.14	.14					.126	"				.64
73	1.04		.15	.46	.43		.524	"				2.67
74	.42	.42					.378	"		5.8		2.19
75	.27	.27					.243	"				1.41
76	.76		.24	.52			.360	"			5.1	1.84
77	.66	.26	.40				.474	"				2.42
78	.13	.13					.117	"				.60
79	1.86	.23	1.08				.900	10 min.			4.4	3.96
80	.20	.20					.180	10 min.			5.1	.92
81	1.91			.191			.573	"				2.92
82	.36			.36			.108	"				.55
83	.73		.31	.42			.390	"				1.99
84	1.05	.12	.93				.666	10 min.			4.6	3.06
85	.43	.17	.14	.04	.01	.12	.346	"			5.1	1.76
86	.10	.10					.090	"		5.8		.52
87	.60	.28		.05	.02	.25	.451	"			5.1	2.30
88	.11	.11					.099	"				.57
89	.24	.24					.216	"				1.25
90	.17	.17					.153	"				.89
91	.17	.17					.153	"				.89
92	.17	.17					.153	"				1.36
93	.26	.26					.234	"			5.1	2.64
94	.79		.17	.62			.517	"				1.15
95	.22	.22					.198	"		5.8		1.93
96	.58		.12	.46			.378	"			5.1	1.97
97	.35	.34	.04				.340	"				2.08
98	.40	.37	.03				.359	"				1.10
99	.21	.21					.189	"				4.1
100	1.44	.31					.675	10 min.				2.77

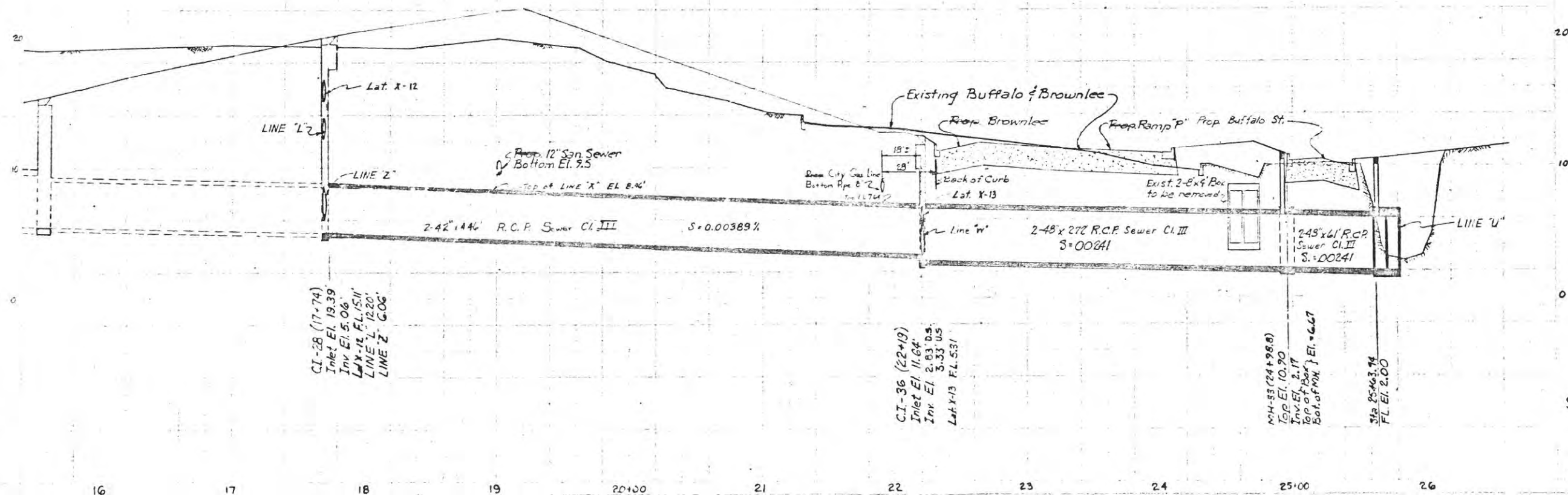
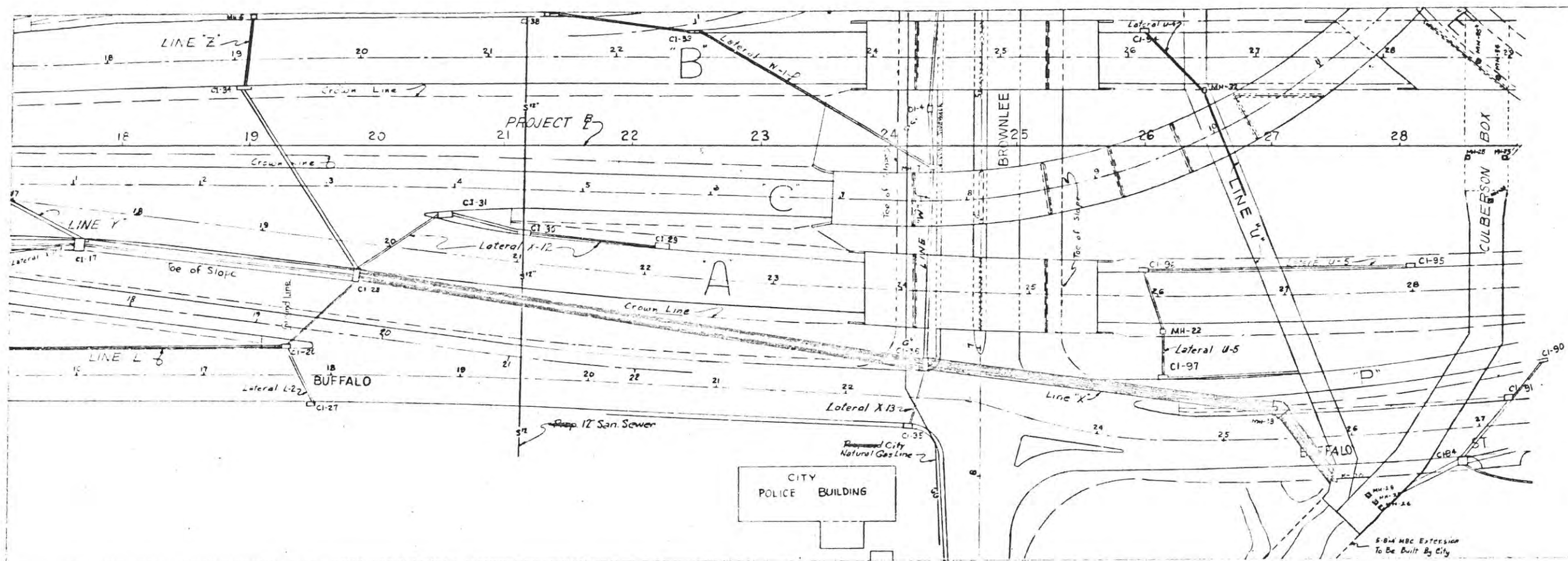
ACRES DRAINED							TOTAL CA	TIME OF CONCENTRATION MINUTES	150 INCHES PER HOUR	110 INCHES PER HOUR	15 INCHES PER HOUR	Q5 C.F.S.
NO	ACRES	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.	PERCENT C.O.B.						
101	1.47	.30		.17			.680	10 min.				4.8
102	.78	.23		.55			.400	10 min.				5.1
103	1.52	.66		.86			.895	"				2.08
104	.99	.11		.88			.509	"				1.94
105	.88	.24		.64			.440	10 min.				5.1
106	1.20	.23		.97			.546	10 min.				.88
107	.32	.11		.21			.173	"				1.96
108	.69	.26		.43			.385	"				2.31
109	.96	.21		.75			.452	"				.60
110	.13	.13					.117	"				1.08
111	.25	.16		.19			.211	"				.41
112	.09	.09					.081	"				2.47
113	2.06			.206			.618	10 min.			4.0	.96
114	.30	.15		.15			.188	10 min.				.50
115	.11	.11					.099	"				3.08
116	1.40	.25		.115			.628	10 min.			4.9	1.19
117	.46	.13		.33			.233	10 min.				.87
118	.19	.19					.171	"				2.92
119	1.41	.21		1.20			.609	10 min.			4.8	1.37
120	.50	.17		.33			.269	10 min.			5.1	.50
121	.11	.11					.099	"				2.40
122	.93		.15	.42	.36		.470	"				2.39
123	.52	.52					.468	"				2.56
124	.73	.21	.52				.501	"				1.93
125	.42	.42					.378	"				1.39
126	.34	.23	.11				.273	"				1.50
127	.41	.16	.25				.294	"				1.53
128	.41	.23		.01	.17	.312	10 min.				4.9	1.07
129	.40	.12		.02	.16	.210	10 min.					2.19
130	.60	.23	.37				.429	"				2.10
131	.61	.15	.46				.411	"				1.13
132	.31	.11		.03	.02	.15	.221	"				2.25
133	.64	.21	.07	.08	.03	.25	.441	"				2.14
134	.63	.15	.04	.07	.02	.33	.420	"				3.32
135	.89	.36	.07	.07	.03	.36	.651	"				1.04
136	.20	.20					.180	"		5.8		7.38
137	2.17		.17	.80			1.447	"			5.1	2.30
138	.44	.44					.396	"				5.0
139	.88		.14	.29	.45		.476	10 min.			5.8	1.93



STORM SEWER DETAILS  
LINE "X"  
SCALE: HORIZ. 1"=40'  
VERT. 1"=4'  
16 NUECES I-37-11(2) 83  
Sheet 1 of 13 Sheets







STORM SEWER DETAILS  
LINE "X"  
SCALE: HORIZ 1"=40'  
VERT 1"=4'

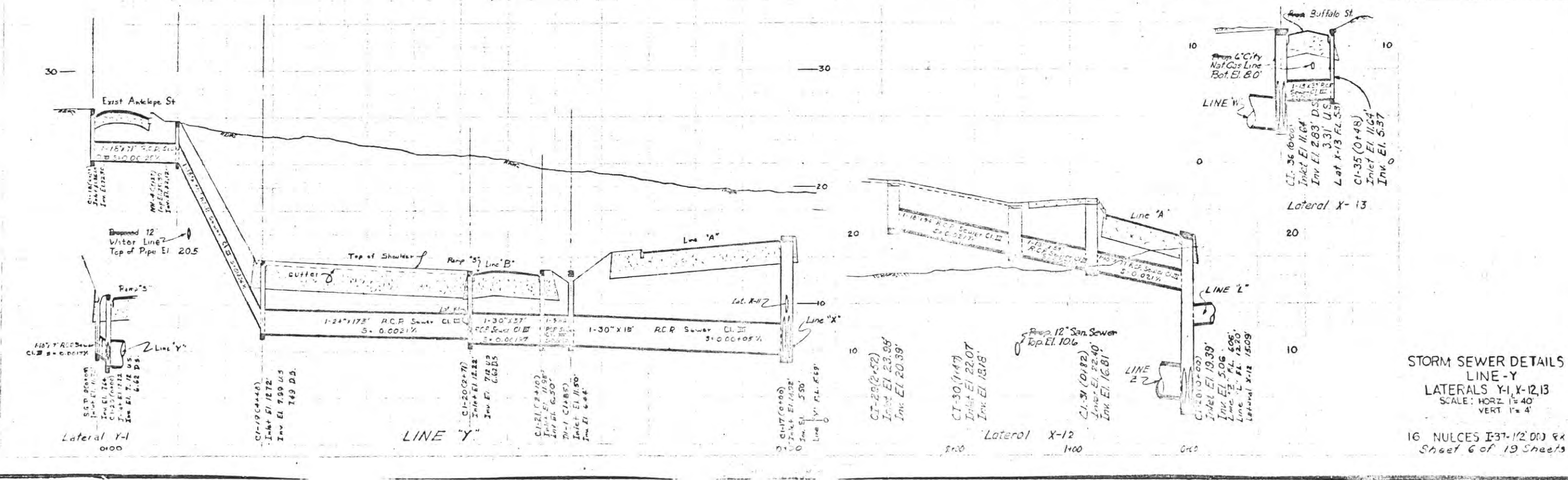
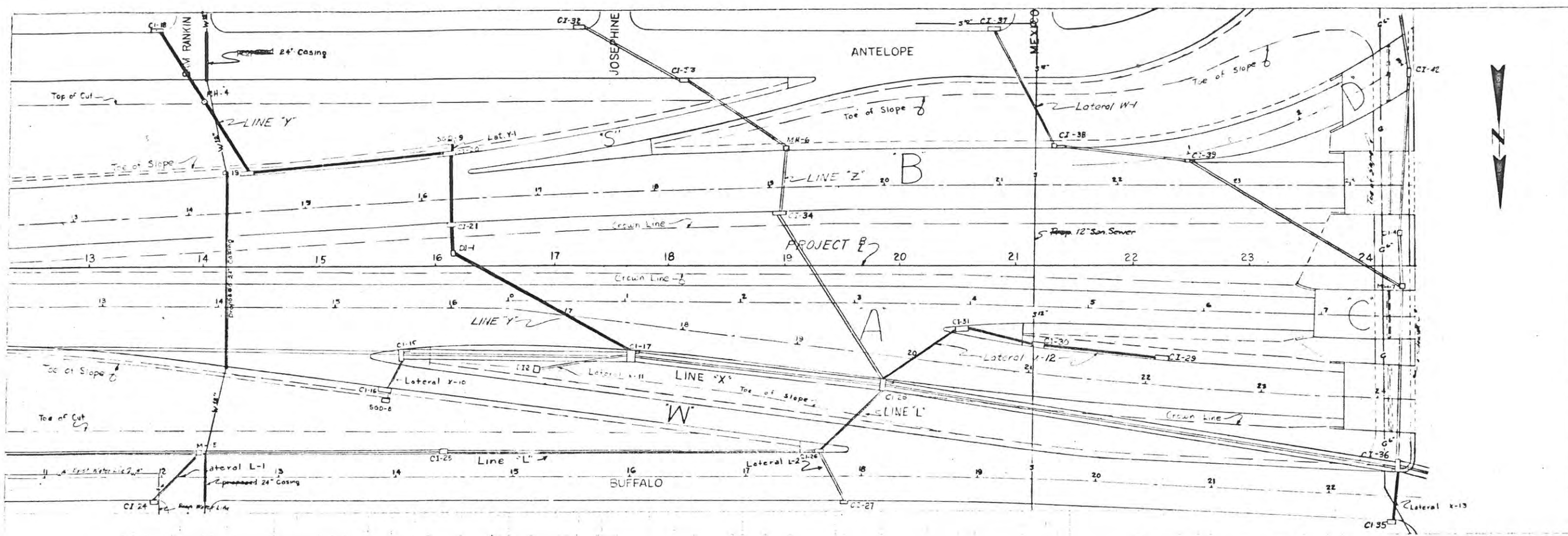
16 INUCES I-37-12) 00 25  
Sheet 3 of 19 Sheets





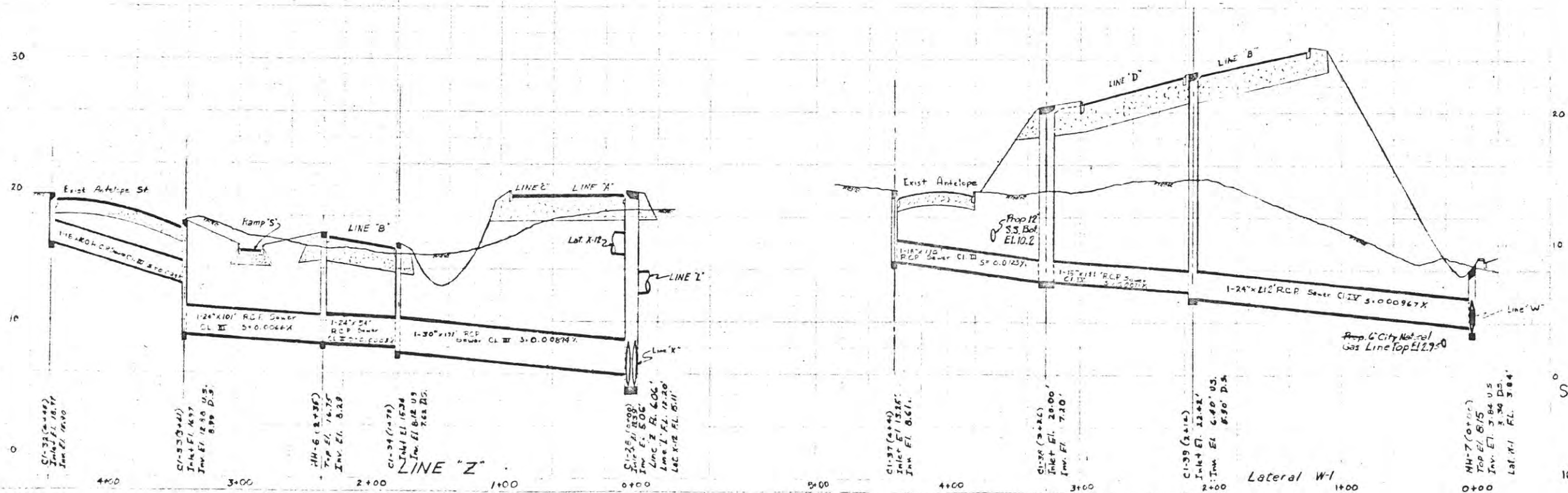
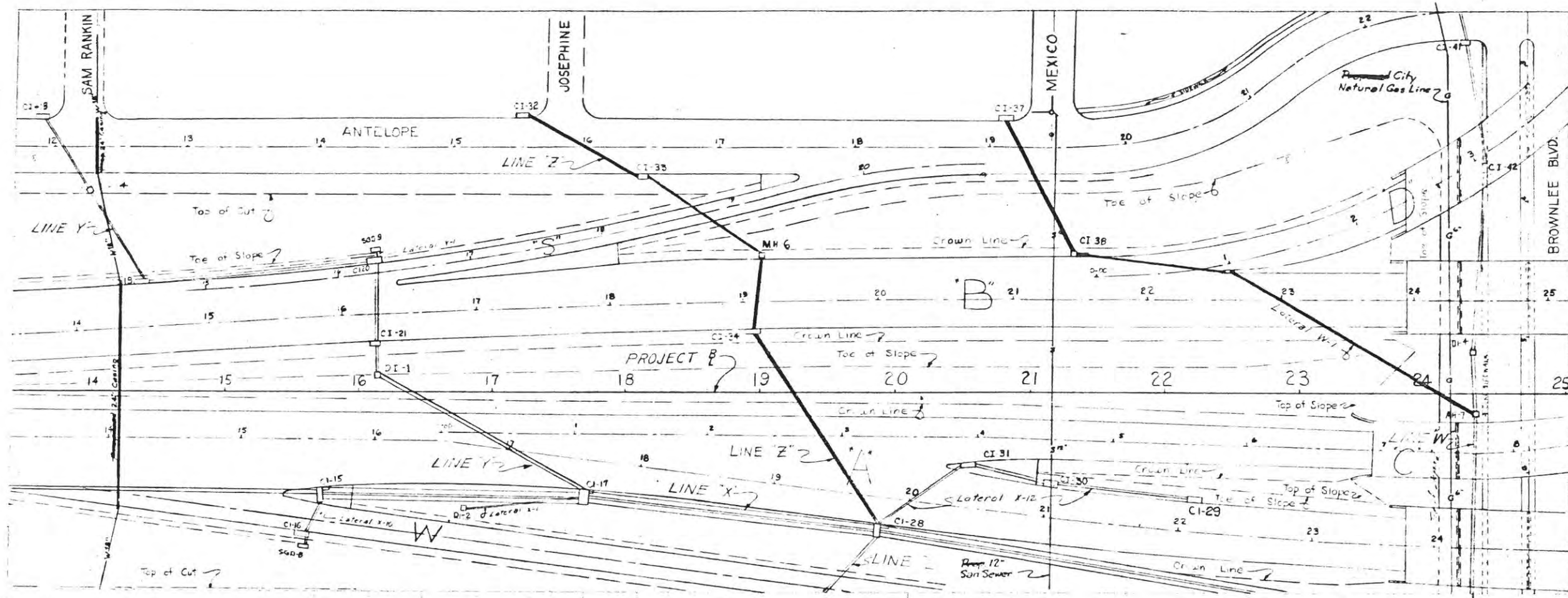






STORM SEWER DETAILS  
 LINE-Y  
 Laterals Y-1, X-12, 13  
 SCALE: HORIZ 1" = 40'  
 VERT 1" = 4'

16 NULCES I37-1/2" DIA 84  
 Sheet 6 of 19 Sheets



STORM SEWER DETAILS  
LINE Z  
LATERALS W-1  
SCALE: HORZ. 1"=40'  
VERT. 1"=4'

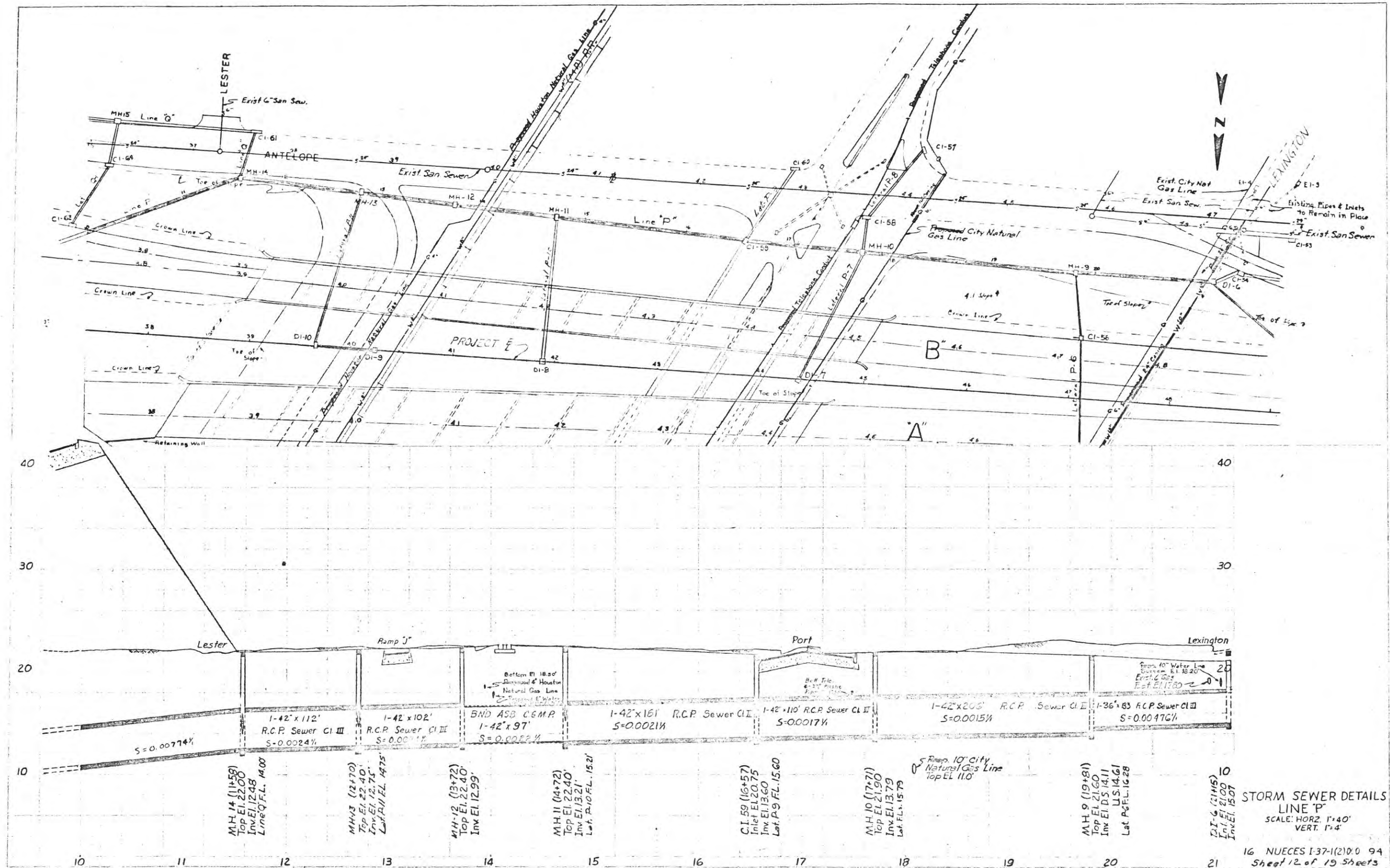








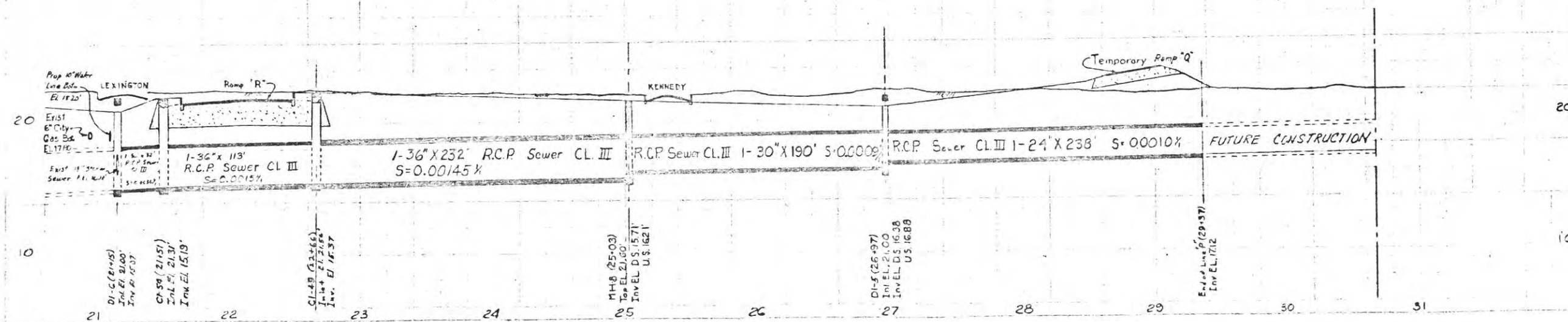
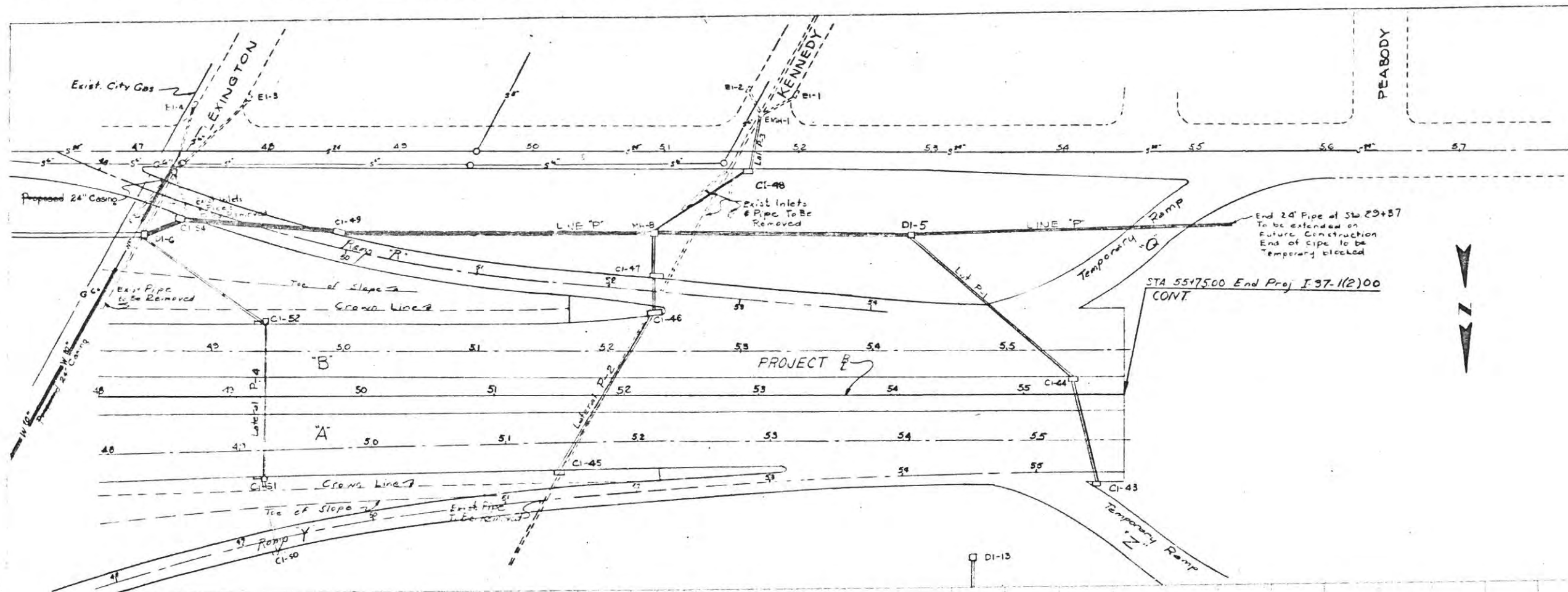




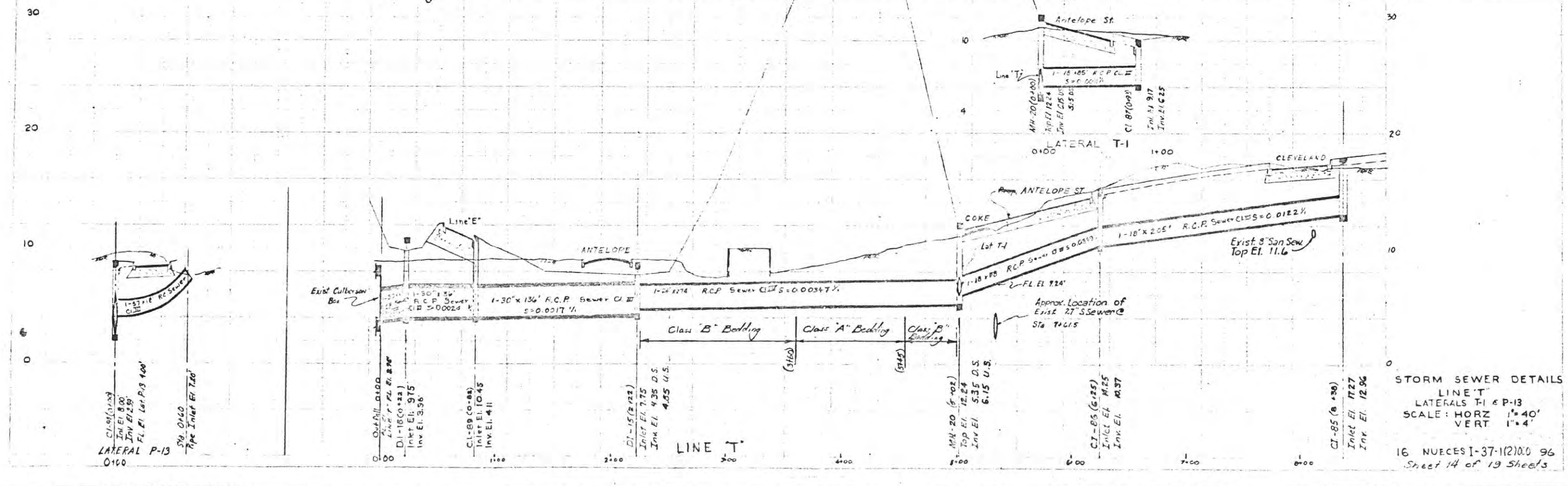
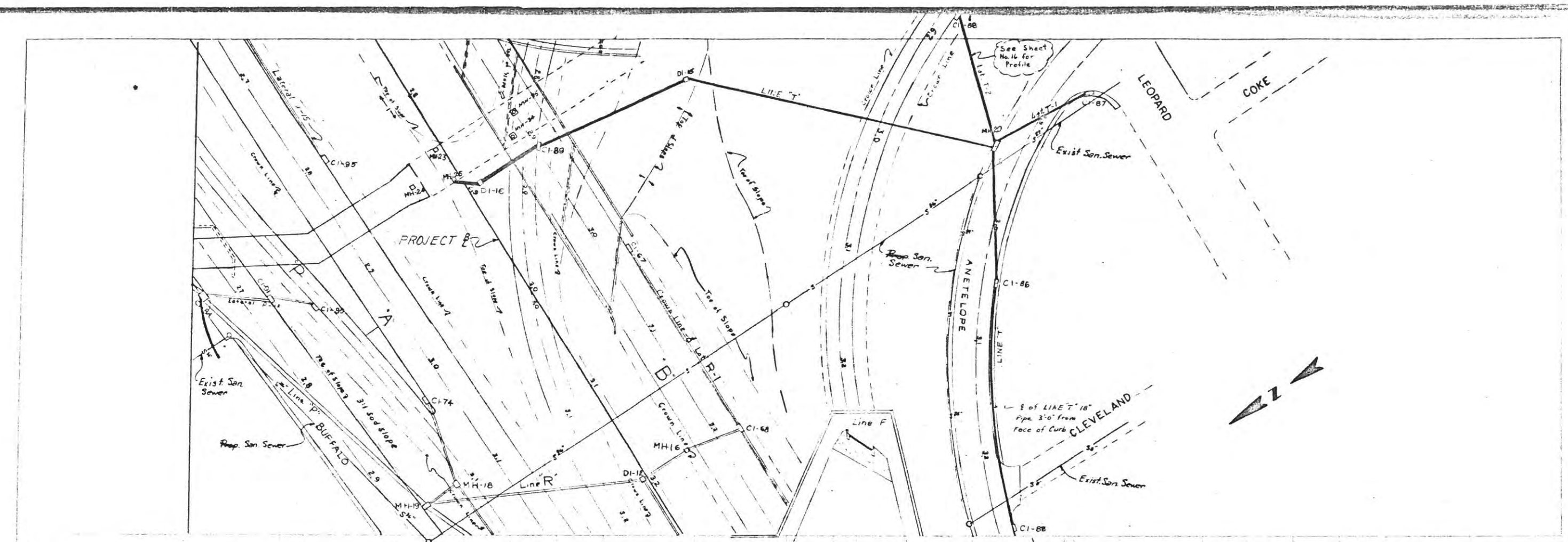
STORM SEWER DETAILS  
 LINE "P"  
 SCALE: HORZ. 1"=40'  
 VERT. 1"=4'

16 NUECES 1-37-1(2)0.0 94  
 Sheet 12 of 19 Sheets

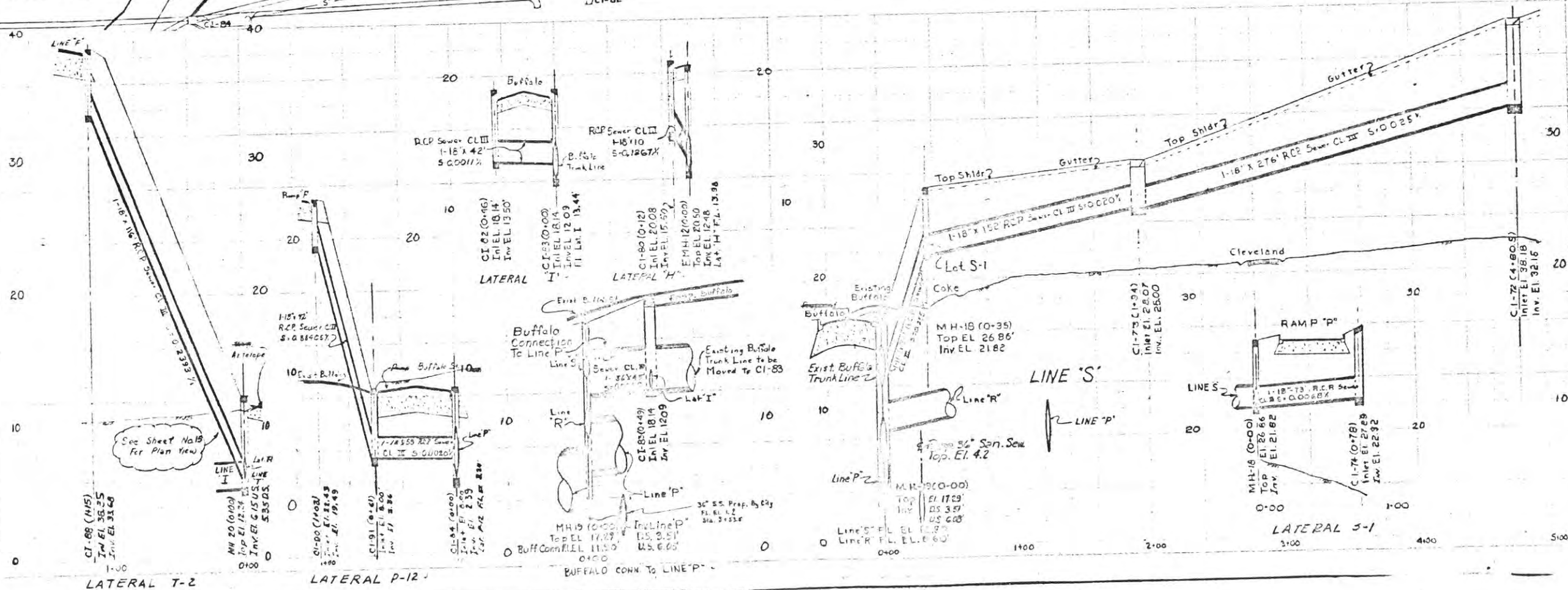
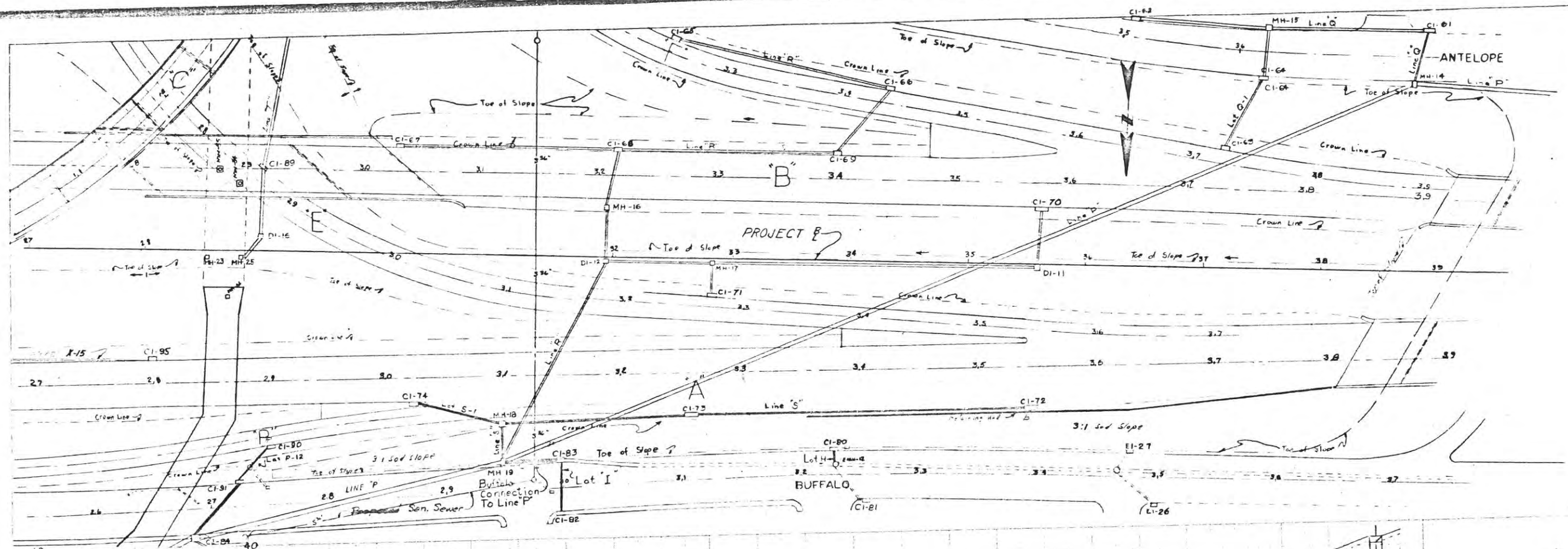




STORM SEWER DETAILS  
 LINE P  
 SCALE: HORZ. 1"=40'  
 VERT. 1"=4'  
 16 NUECES I-37-1(2) 0 95  
 Sheet 19 of 19 Sheets





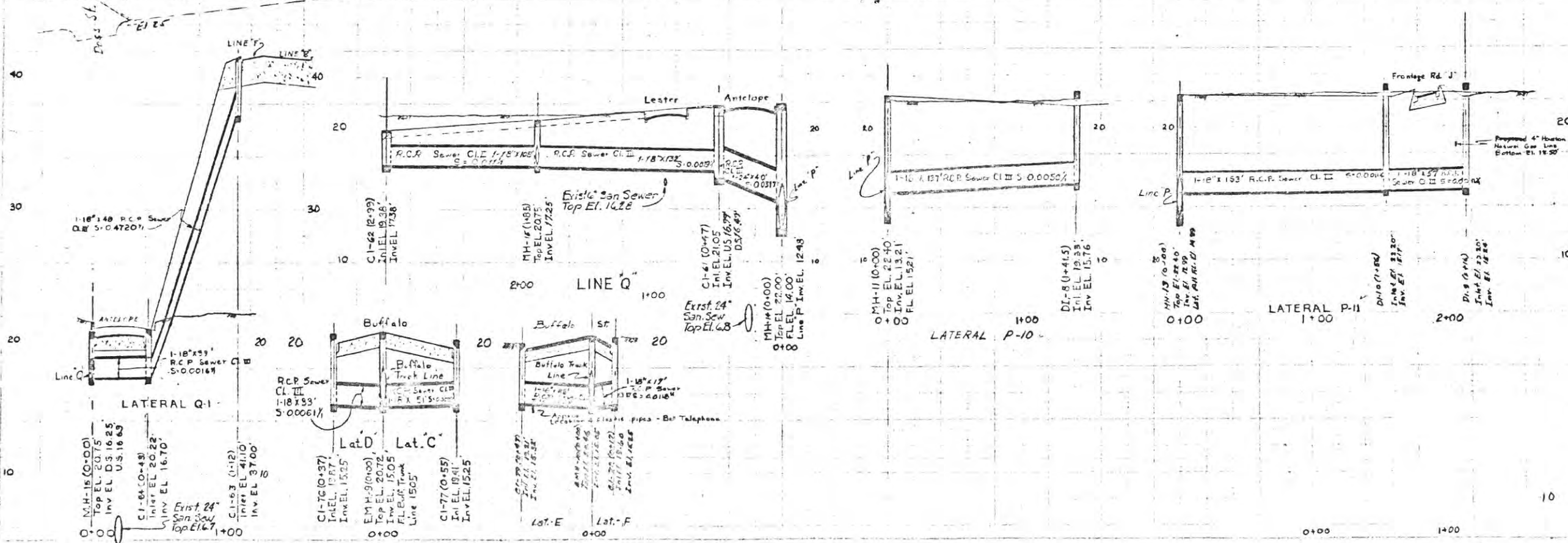
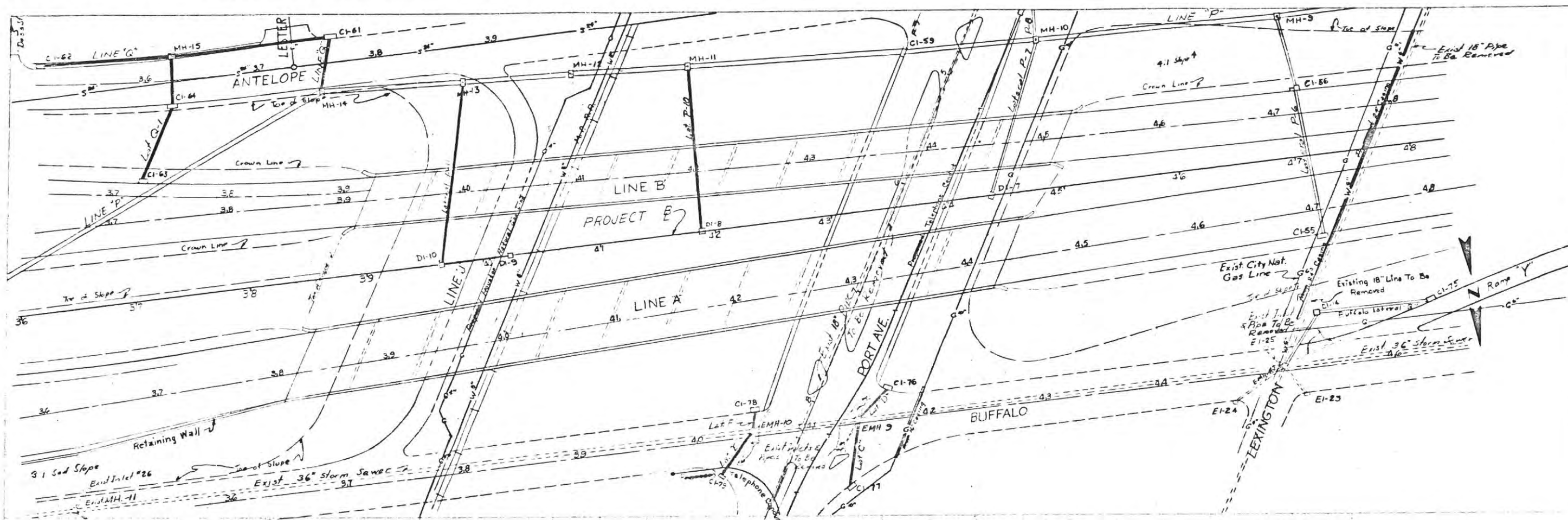


STORM SEWER DETAILS  
LINE 'S'  
BUFFALO CONN TO LINE 'P'  
LATERALS S-1, T-2, P-12, H-41  
SCALE: HORZ. 1"=40'  
VERT. 1"=4'

16 NUECES I-37-K21000 97  
Sheet 15 of 19 Sheets

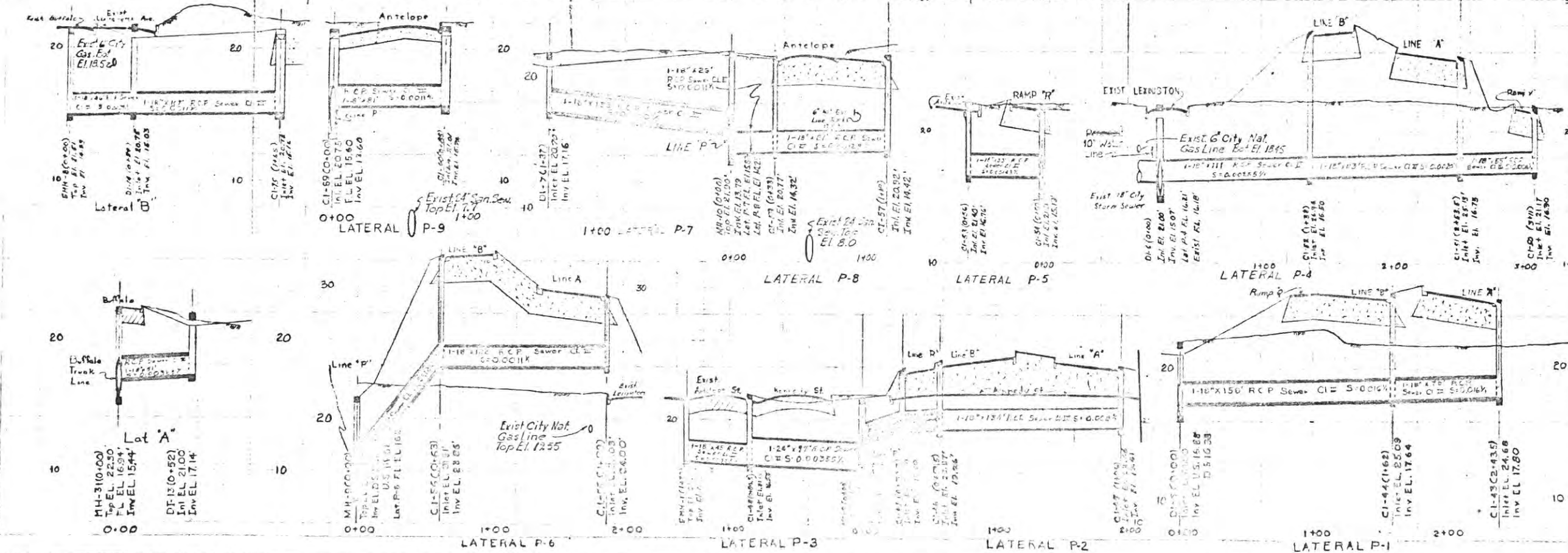
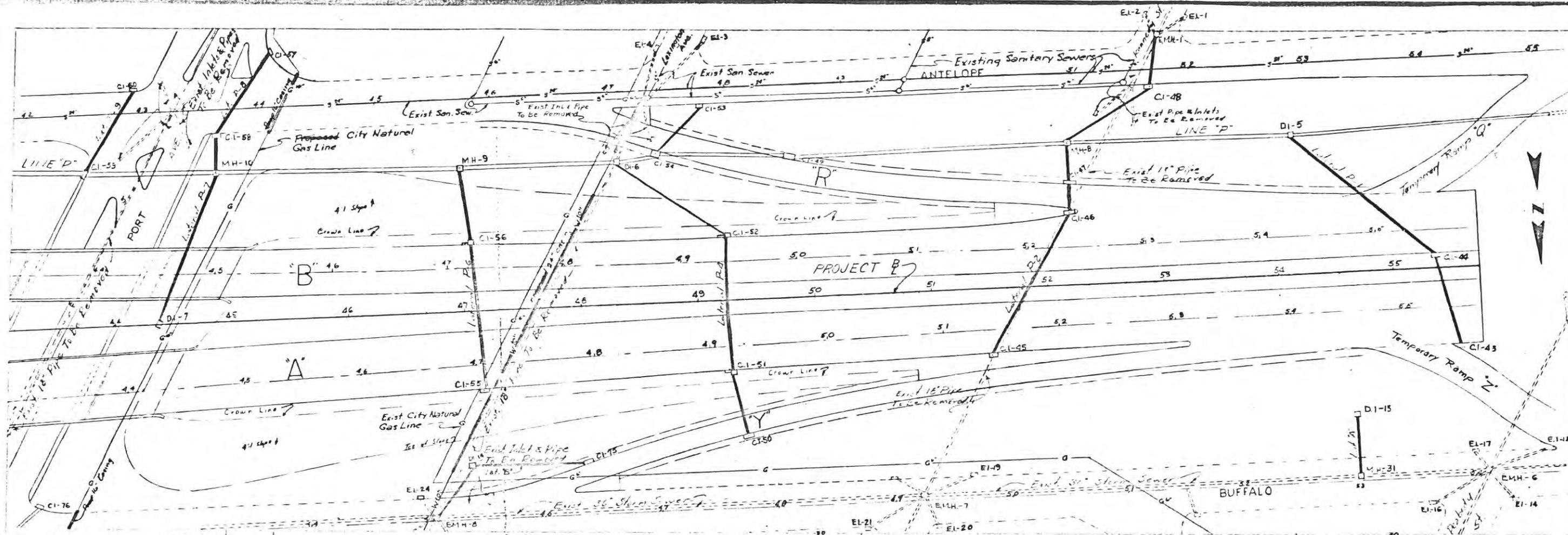






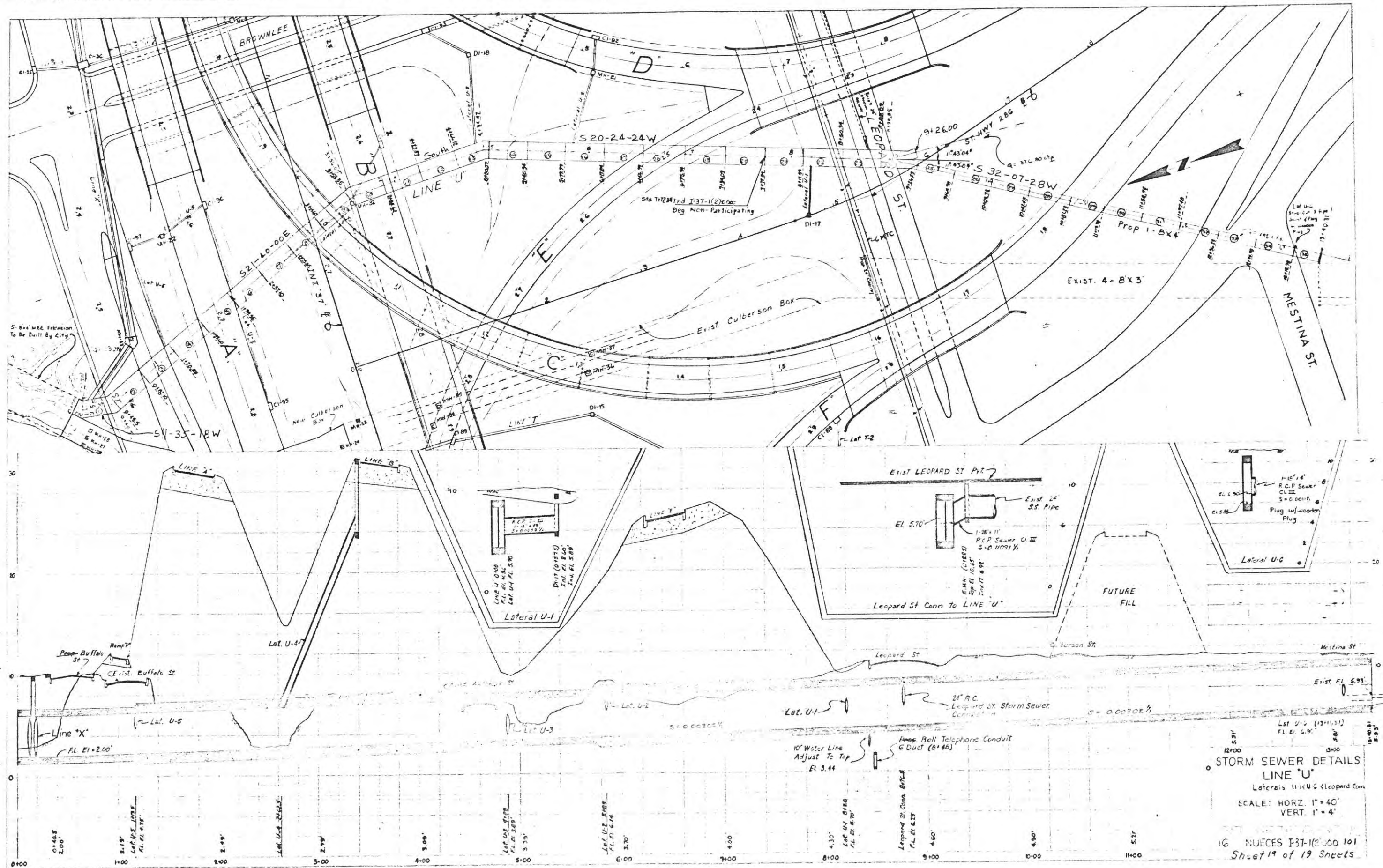
STORM SEWER DETAILS  
 LATERALS Q-1, P-10, P-11  
 LINE Q  
 BUFFALO LATS. C, D, E, F  
 SCALE: HORIZ. 1"=40'  
 VERT. 1"=4'

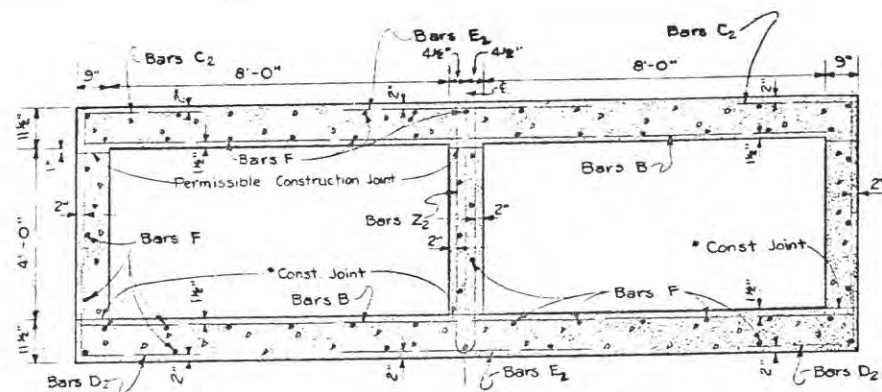
16 NUCES 1-37-(12) 00 99  
 Sheet 17 of 19 Sheets



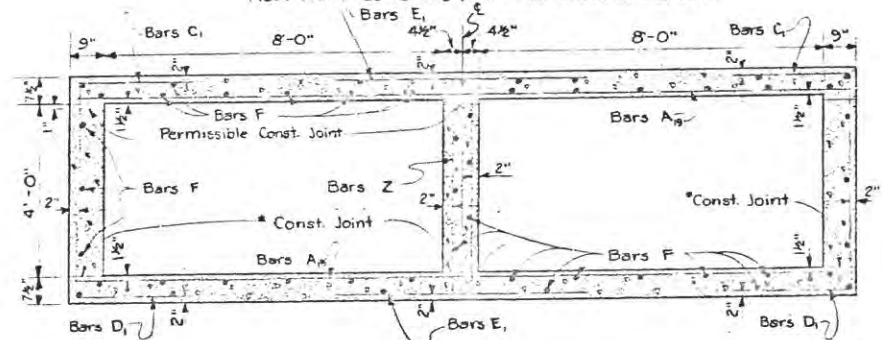
STORM SEWER DETAILS  
 LATERALS P-1, 2, 3, 4,  
 5, 6, 7, 8, 9, Buffalo A&B  
 SCALE: HORIZ. 1" = 40'  
 VERT. 1" = 4'  
 16 NUECES I-37-1(2'00) 100  
 Sheet 18 of 19 Sheets





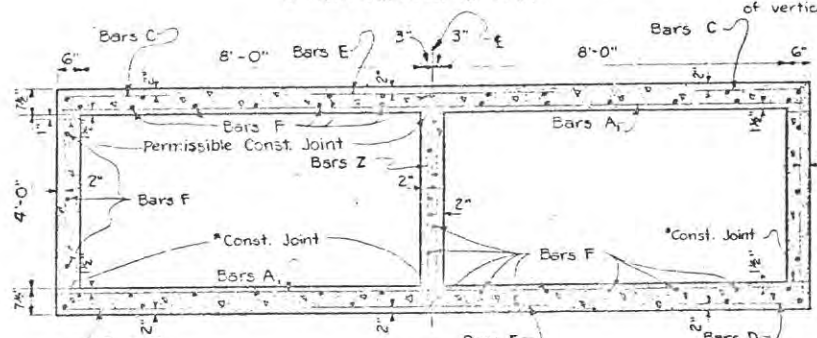


SECTION DD  
2'-8'x4' MC8-3 Modified  
From Sta. 1+120 To 4+37 & From 5+80 To Sta 7+69

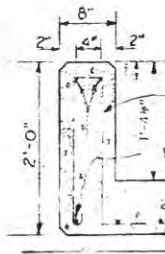


SECTION CC  
2'-8'x4' MC8-3 Modified  
From Sta. 0+40.10 to Sta. 1+17.00  
& From Sta. 4+40 To 5+77

\* Construction Joint shown at flowline may be raised a maximum of 6" at the option of the contractor. Adjust length of vertical steel as required.

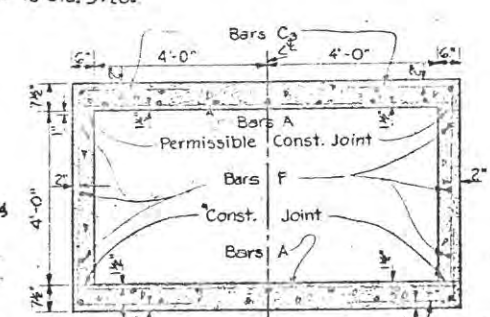
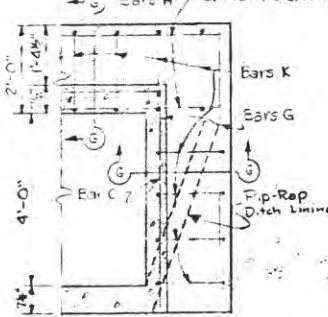


SECTION BB  
2'-8'x4' MC8-3  
From Sta. 0+110.20 to 0+40.10  
& From Sta. 7+72. To Sta. 9+20.

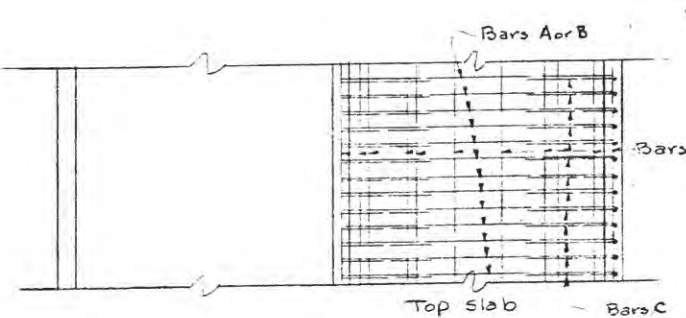


Section GG

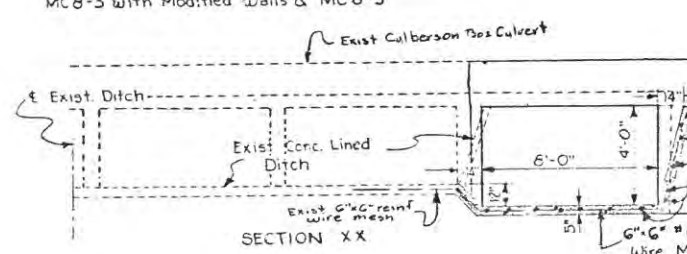
DETAIL OF HEADWALL (SC-NC) & LING WALL (Spec)



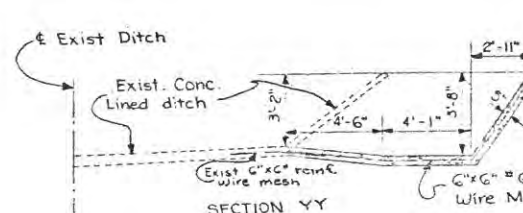
SECTION AA  
8'x4' SC-NC  
From Sta. 9+20 to Sta. 13+40.40



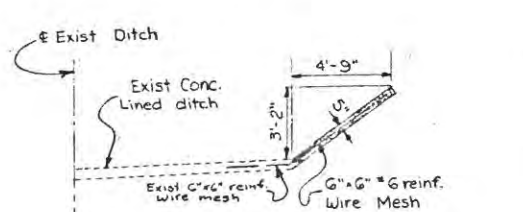
PART PLAN VIEW  
Showing Top & Bottom slabs  
& Wall details for MC8-3 Modified,  
MC8-3 with Modified Walls & MC8-3



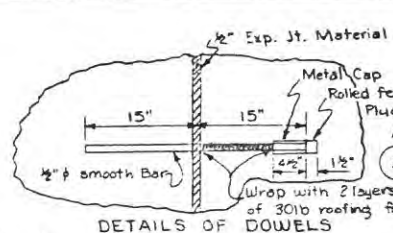
SECTION XX



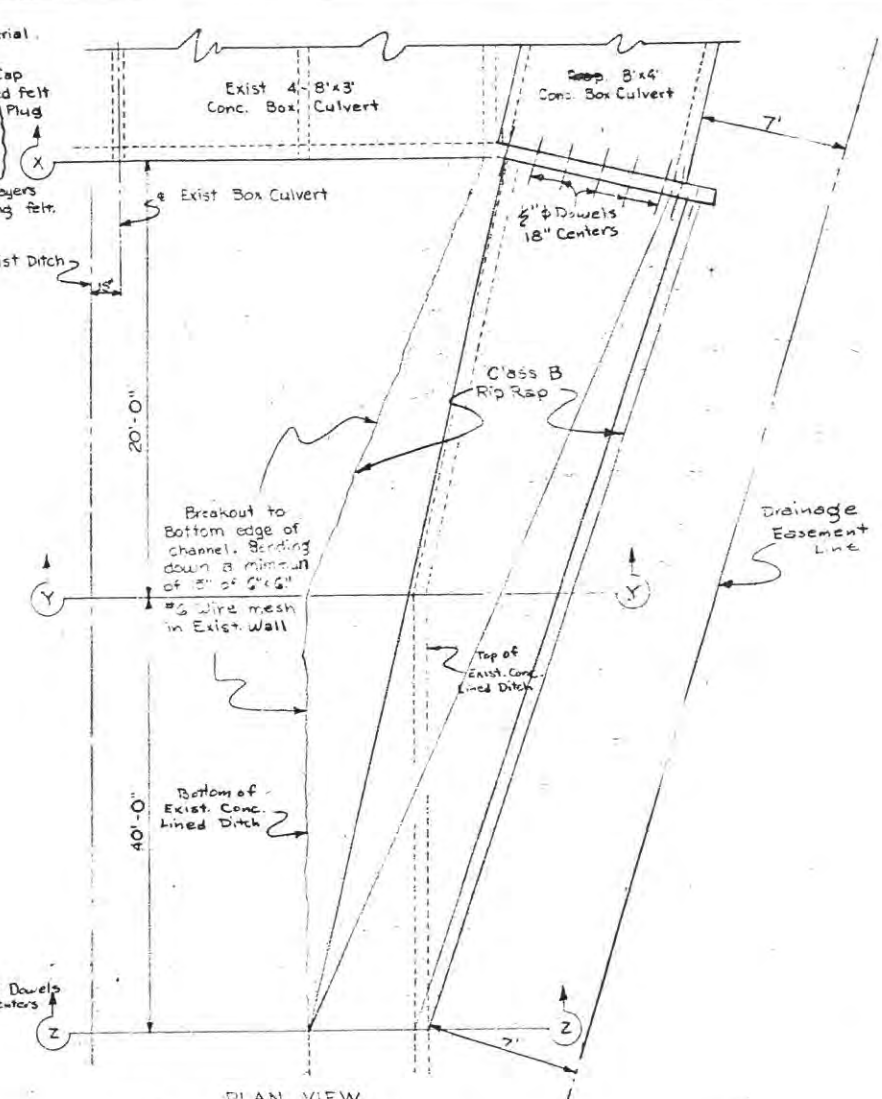
SECTION YY



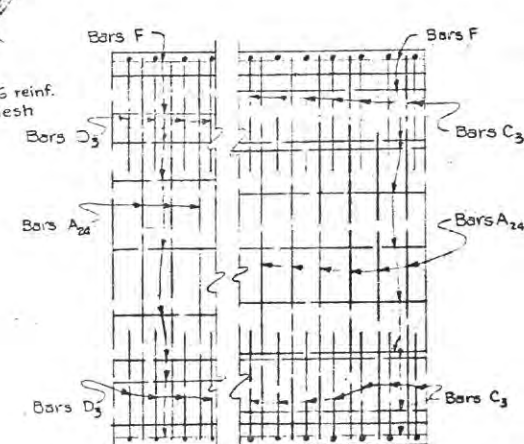
SECTION ZZ



DETAILS OF DOWELS



PLAN VIEW  
Conc. Lined Ditch Transition



PART PLAN  
Bottom Slab  
DETAILS OF REINF. STEEL  
SC-NC

**GENERAL NOTE**  
Design Loading H20 or H20 S16 in accordance with A.A.S.H.O. 1957 Standard Specifications.  
All concrete shall be Class "A" if not specified otherwise. Chamfer all exposed corners 3/4".  
All dimensions relating to reinforcing steel are to centers of Bars.  
Construction joints shall be provided at maximum spacing of 40' along entire length of Culvert. No break in steel at joints.  
All splices in steel shall have a min. of 20 dia lap. Splicing of longitudinal steel will be paid for at a rate of 20 dia lap per 60 ft. If the Contractor elects to use longitudinal steel in length less than 60 ft. The extra cost of providing 20 dia laps shall be borne by the Contr.

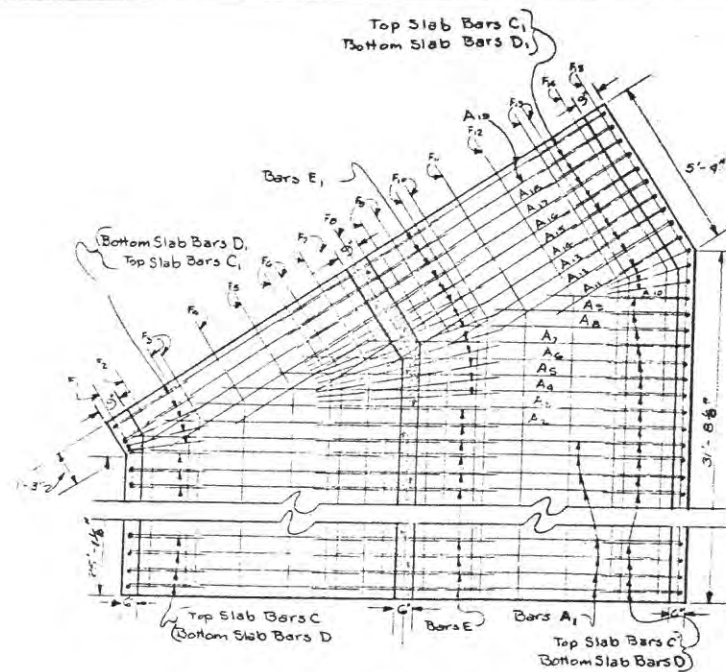
LINE "U"  
MC8-3 (Mod)  
& SC-NC

SHEET 1 OF 3 SHEETS

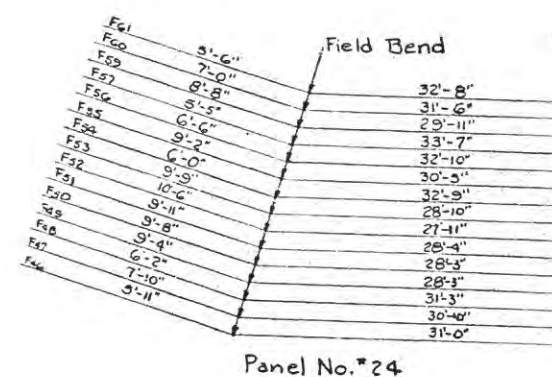
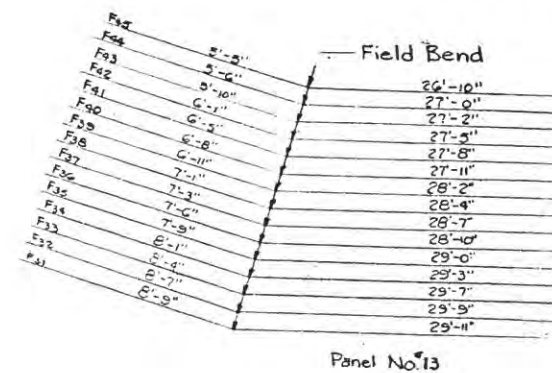
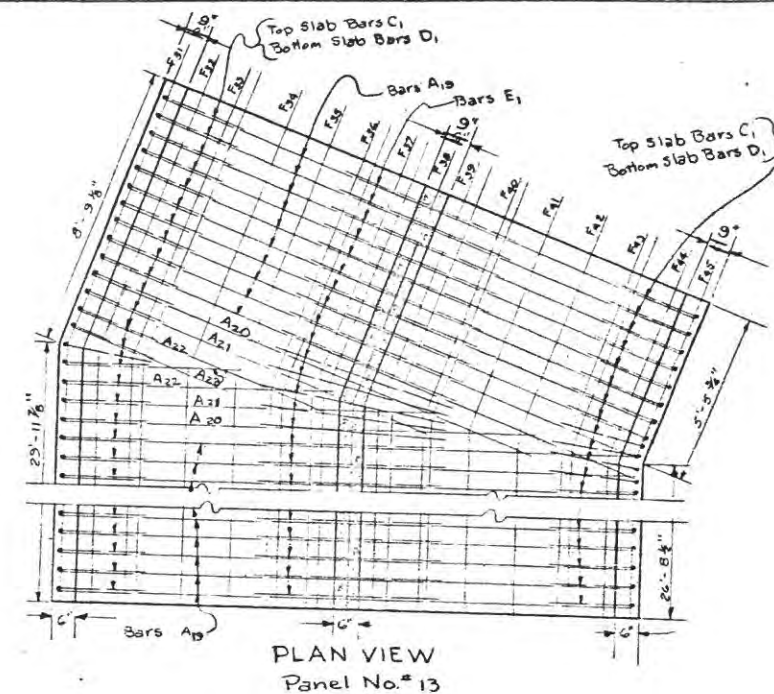
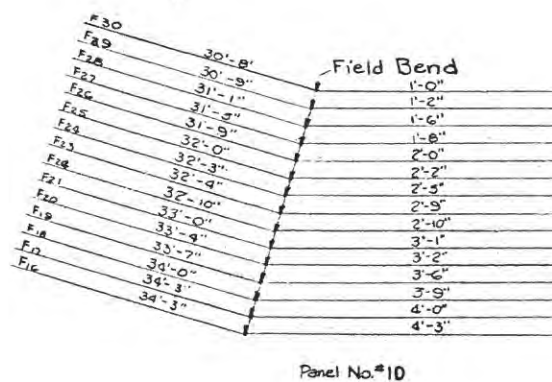
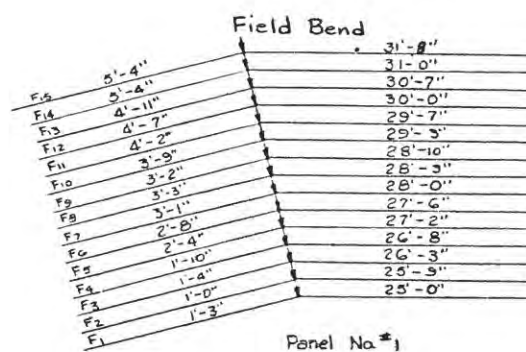
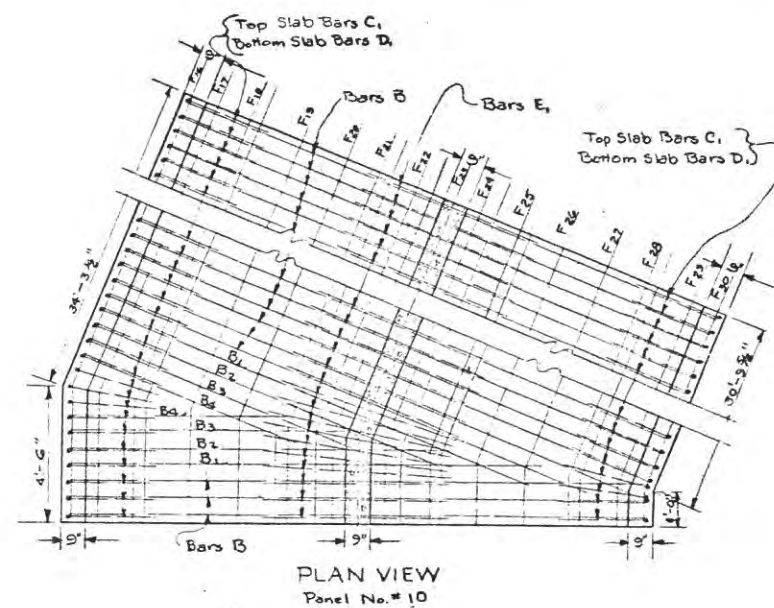
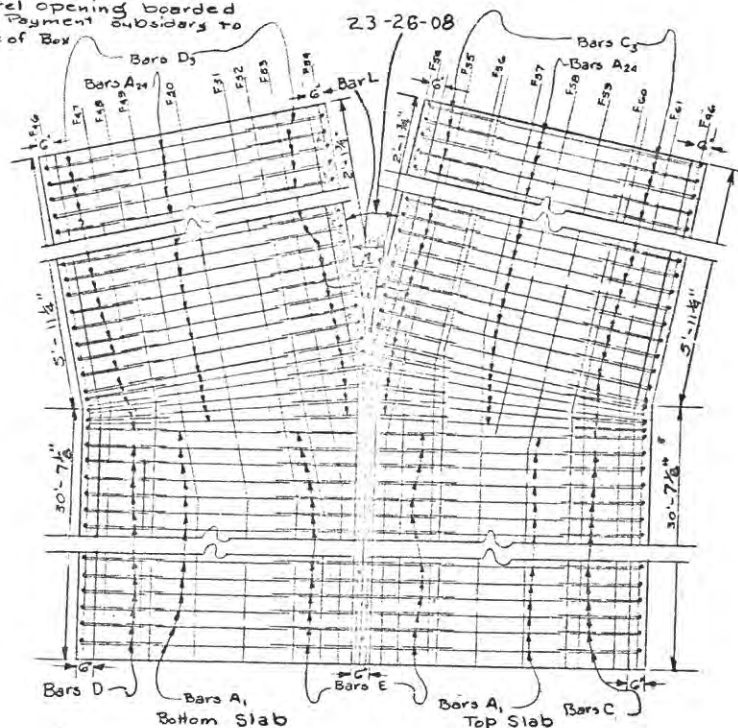
1-37-1 (2) 000 102

16 NUCCES 74 6 38 1-37





For East Barrel only, A 20 dia.  
lap shall be left exposed &  
Barrel opening boarded  
up. Payment subsidiary to  
Const of Box



LINE "U"  
SPECIAL PANEL  
DETAILS

Panel No. 1

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slab	A <sub>1</sub>	#4	100	6"	17'-2"	1,147
"	A <sub>2</sub>	#4	2		16'-3"	22
"	A <sub>3</sub>	#4	2		15'-3"	20
"	A <sub>4</sub>	#4	2		14'-3"	19
"	A <sub>5</sub>	#4	2		13'-3"	18
"	A <sub>6</sub>	#4	2		12'-3"	16
"	A <sub>7</sub>	#4	2		10'-0"	13
"	A <sub>8</sub>	#4	2		8'-0"	11
"	A <sub>9</sub>	#4	2		6'-0"	8
"	A <sub>10</sub>	#4	2		4'-0"	5
"	A <sub>11</sub>	#4	2		2'-0"	6
"	A <sub>12</sub>	#4	2		6'-3"	8
"	A <sub>13</sub>	#4	2		7'-9"	10
"	A <sub>14</sub>	#4	2		9'-9"	13
"	A <sub>15</sub>	#4	2		12'-0"	16
"	A <sub>16</sub>	#4	2		14'-5"	20
"	A <sub>17</sub>	#4	2		15'-6"	21
"	A <sub>18</sub>	#4	2		17'-0"	23
"	A <sub>19</sub>	#4	4		17'-11"	48
Top Slab & Sidelwalls	C <sub>1</sub>	#4	110	6"	6'-11"	508
"	C <sub>2</sub>	#4	18	6"	7'-2"	86
Bottom Slab & Sidelwalls	D <sub>1</sub>	#4	110	6"	4'-2"	306
"	D <sub>2</sub>	#4	18	6"	4'-5"	53
Top & Bottom Slabs	E <sub>1</sub>	#6	106	6"	5'-8"	502
"	E <sub>2</sub>	#6	13	6"	5'-11"	116
Top, Bottom & Sidelwalls	F <sub>1</sub>	#4	5		26'-4"	88
Top & Bottom Slabs	F <sub>2</sub>	#4	2		26'-9"	36
"	F <sub>3</sub>	#4	4		27'-7"	74
"	F <sub>4</sub>	#4	2		28'-6"	38
"	F <sub>5</sub>	#4	2		29'-6"	39
"	F <sub>6</sub>	#4	3		30'-2"	60
"	F <sub>7</sub>	#4	4		31'-1"	83
Top, Bottom & Center wall	F <sub>8</sub>	#4	8		31'-6"	168
Top & Bottom Slab	F <sub>9</sub>	#4	4		32'-0"	86
"	F <sub>10</sub>	#4	3		33'-0"	66
"	F <sub>11</sub>	#4	2		33'-9"	45
"	F <sub>12</sub>	#4	2		34'-7"	46
"	F <sub>13</sub>	#4	4		35'-6"	95
"	F <sub>14</sub>	#4	2		36'-2"	48
Top, Bottom & Sidelwall	F <sub>15</sub>	#4	5		37'-0"	124
Interior wall	Z <sub>1</sub>	#4	28	12"	10'-0"	187
"	Z <sub>2</sub>	#4	3	12"	10'-0"	20
TOTAL						4,718

Panel Nos. 2, 3, 14, 15

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slabs	A <sub>19</sub>	#4	156	6"	17'-11"	1,867
Top & Sidelwalls	C <sub>1</sub>	#4	156	6"	7'-2"	747
Bottom & Sidelwalls	D <sub>1</sub>	#4	156	6"	4'-5"	460
Top & Bottom Slabs	E <sub>1</sub>	#6	156	6"	5'-11"	1,369
Top, Bottom & walls	F <sub>1</sub>	#4	52		38'-9"	1,346
Interior walls	Z <sub>1</sub>	#4	38	12"	10'-0"	254
TOTAL						6,061

Panel Nos. 4, 5, 6, 7, 8, 9, 11, 17, 18, 19, 16, &amp; 20

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slabs	B <sub>1</sub>	#6	134	7"	17'-11"	3,606
Top & Sidelwalls	C <sub>2</sub>	#6	134	7"	7'-6"	1,510
Bottom & Sidelwalls	D <sub>2</sub>	#6	134	7"	4'-8"	939
Top & Bottom Slabs	E <sub>2</sub>	#8	134	7"	5'-11"	2,141
Top, Bottom & walls	F <sub>2</sub>	#4	52		38'-9"	1,346
Interior walls	Z <sub>2</sub>	#4	38	12"	11'-4"	288
TOTAL						9,830

Panel No. 12

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slabs	A <sub>20</sub>	#4	106	6"	17'-11"	1,267
"	B <sub>2</sub>	#6	44	7"	17'-11"	1,164
Top Slab & Sidelwalls	C <sub>2</sub>	#4	106	6"	7'-2"	507
"	C <sub>2</sub>	#4	44	7"	7'-6"	496
Bottom Slab & Sidelwalls	D <sub>2</sub>	#4	106	6"	4'-5"	313
"	D <sub>2</sub>	#4	44	7"	4'-8"	308
Top & Bottom Slabs	E <sub>2</sub>	#6	106	6"	5'-11"	942
"	E <sub>2</sub>	#4	44	7"	5'-11"	774
Top, Bottom & Walls	F <sub>2</sub>	#4	52		38'-9"	1,346
Interior wall	Z <sub>1</sub>	#4	26	12"	10'-0"	91
"	Z <sub>2</sub>	#4	12	12"	11'-4"	51
TOTAL						6,802

Panel Nos. 25, 26, 27, 28, 29, 30, 31, 32, 33, &amp; 34

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slab	A <sub>21</sub>	#6	118	8"	8'-8"	1,536
Top slab & walls	C <sub>3</sub>	#5	126	7 1/2"	7'-3"	952
Bottom & walls	D <sub>3</sub>	#5	126	7 1/2"	4'-5"	580
Top, Bottom & walls	F <sub>3</sub>	#4	26		38'-9"	673
TOTAL						3,742

Panel No. 10

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom	B <sub>1</sub>	#6	108	7"	17'-11"	2,906
"	B <sub>2</sub>	#6	4		14'-6"	87
"	B <sub>3</sub>	#6	4		11'-9"	71
"	B <sub>4</sub>	#6	4		9'-0"	54
"	B <sub>5</sub>	#6	4		6'-9"	41
Top & Sides	C <sub>2</sub>	#6	125	7"	7'-6"	1,408
Bottom & sides	D <sub>2</sub>	#6	125	7"	4'-8"	876
Top & Bottom Slabs	E <sub>2</sub>	#8	128	7"	5'-11"	2,022
Top, Bottom & side	F <sub>2</sub>	#4	5		38'-6"	129
Top & Bottom	F <sub>3</sub>	#4	2		38'-3"	51
"	F <sub>4</sub>	#4	4		37'-9"	101
"	F <sub>5</sub>	#4	2		37'-1"	50
"	F <sub>6</sub>	#4	2		36'-6"	49
"	F <sub>7</sub>	#4	3		36'-1"	78
"	F <sub>8</sub>	#4	4		35'-10"	96
Top, Bottom & wall	F <sub>9</sub>	#4	8		35'-1"	187
Top & Bottom	F <sub>10</sub>	#4	4		34'-8"	93
"	F <sub>11</sub>	#4	3		34'-2"	68
"	F <sub>12</sub>	#4	2		33'-9"	45
"	F <sub>13</sub>	#4	2		33'-1"	44
"	F <sub>14</sub>	#4	4		32'-7"	87
"	F <sub>15</sub>	#4	4		31'-11"	43
Top, Bottom & Sidelwall	F <sub>16</sub>	#4	5		31'-8"	106
Interior wall	Z <sub>2</sub>	#4	36	12"	11'-4"	265
TOTAL						8,951

Panel No. 13

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom slab	A <sub>22</sub>	#4	134	6"	17'-11"	1,604
"	A <sub>23</sub>	#4	4		14'-9"	40
"	A <sub>24</sub>	#4	4		11'-9"	31
"	A <sub>25</sub>	#4	4		8'-9"	23
"	A <sub>26</sub>	#4	4		5'-9"	15
Top Slab & Sidelwalls	C <sub>3</sub>	#4	137	6"	7'-2"	656
Bottom Slab & Sidelwalls	D <sub>3</sub>	#4	137	6"	4'-5"	404
Top & Bottom Slabs	E <sub>3</sub>	#6	142	6"	5'-11"	1,262
Top, Bottom & Sidelwalls	F <sub>3</sub>	#4	5		38'-8"	129
Top & Bottom	F <sub>4</sub>	#4	2		38'-4"	51
"	F <sub>5</sub>	#4	4		37'-11"	101
"	F <sub>6</sub>	#4	2		37'-4"	50
"	F <sub>7</sub>	#4	2		37'-0"	49
"	F <sub>8</sub>	#4	3		36'-4"	73
"	F <sub>9</sub>	#4	4		35'-10"	96
Top, Bottom & wall	F <sub>10</sub>	#4	8		35'-5"	189
Top & Bottom	F <sub>11</sub>	#4	4		35'-1"	94
"	F <sub>12</sub>	#4	3		34'-7"	69
"	F <sub>13</sub>	#4	2		34'-1"	46
"	F <sub>14</sub>	#4	2		33'-6"	45
"	F <sub>15</sub>	#4	4		33'-0"	88
"	F <sub>16</sub>	#4	2		32'-6"	43
Top, Bottom & Sidelwall	F <sub>17</sub>	#4	5		32'-3"	108
Interior wall	Z <sub>1</sub>	#4	36	12"	10'-0"	240
TOTAL						5,506

Panel No. 24

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slab	A <sub>1</sub>	#4	126	6"	17'-2"	1,445
"	A <sub>2</sub>	#6	60	8"	8'-8"	781
Top & Sidelwalls	C <sub>1</sub>	#4	126	6"	6'-11"	582
Top & walls	C <sub>2</sub>	#5	58	7 1/2"	7'-3"	438
Bottom & walls	D <sub>1</sub>	#4	126	6"	4'-2"	350
"	D <sub>2</sub>	#5	58	7 1/2"	4'-5"	267
Top, Bottom & Sidelwalls	F <sub>2</sub>	#4	10		36'-11"	247
Bottom slab	F <sub>3</sub>	#4	2		36'-8"	52
"	F <sub>4</sub>	#4	2		37'-5"	50
"	F <sub>5</sub>	#4	2		37'-7"	50
"	F <sub>6</sub>	#4	2		37'-11"	51
"	F <sub>7</sub>	#4	2		38'-2"	51
"	F <sub>8</sub>	#4	2		38'-5"	51
"	F <sub>9</sub>	#4	2		38'-7"	52
Top, Bottom & wall	F <sub>10</sub>	#4	10		38'-9"	259
Top Slab	F <sub>11</sub>	#4	2		35'-7"	53
"	F <sub>12</sub>	#4	4		35'-4"	105
"	F <sub>13</sub>	#4	2		35'-0"	52
"	F <sub>14</sub>	#4	2		35'-0"	12
"	F <sub>15</sub>	#4	2		38'-7"	52
"	F <sub>16</sub>	#4	4		38'-6"	103
"	F <sub>17</sub>	#4	2		38'-2"	51
Interior Wall	Z <sub>1</sub>	#4	30	12"	10'-0"	200
Top & Bottom Slab	E <sub>1</sub>	#6	60	6"	5'-8"	222
TOTAL						5,521

Panel No. 35

Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slabs	A <sub>28</sub>	#6	76	8"	8'-8"	990
Top Slab & walls	C <sub>3</sub>	#5	80	7 1/2"	7'-3"	605
Bottom Slab & walls	D <sub>3</sub>	#5	80	7 1/2"	4'-5"	367
Top, Bottom & walls	F <sub>3</sub>	#4	26		24'-9"	430
Headwall	G <sub>3</sub>	#4	2		6'-4"	8
"	H <sub>3</sub>	#4	3		11'-6"	23
"	K <sub>3</sub>	#4	18	12"	4'-2"	50
TOTAL						2,473

Panel Nos. 21, 22 &amp; 23

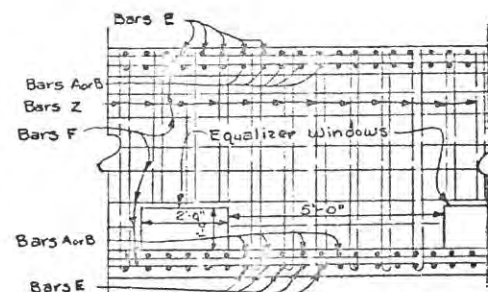
Location	Bars	Size	No	Spacing	Length	Weight
Top & Bottom Slab	A <sub>1</sub>	#4	136	6"	17'-2"	1,789
Top Slab & Sidelwalls	C <sub>1</sub>	#4	156	6"	6'-11"	721
Bottom Slab & Sidelwalls	D <sub>1</sub>	#4	156	6"	4'-2"	434
Top & Bottom Slab	E <sub>1</sub>	#6	156	6"	5'-8"	1,328
Top, Bottom & Walls	F <sub>1</sub>	#4	52		38'-9"	1,346
Interior Wall	Z <sub>1</sub>	#4	39	12"	10'-0"	261
TOTAL						5,879

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class "A" Concrete (cu/yd)	Cu Yd	1,127
Reinforcing Steel	lbs.	168,528*
Und Struct Excav (cu/yd)	Cu Yd.	2,463

\*Quantity includes one 20 dia lap per 60 ft.

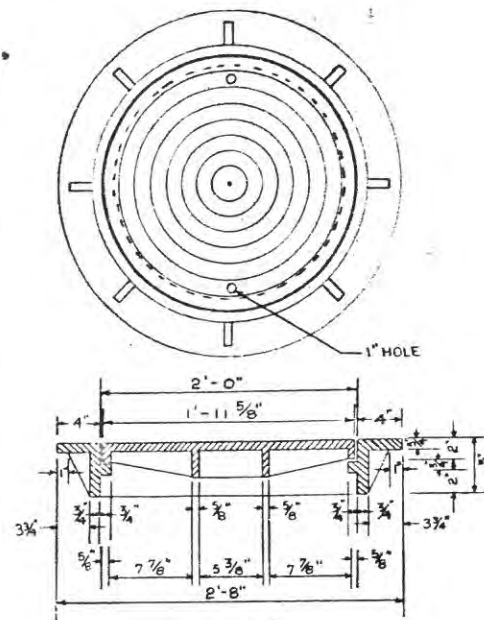
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class "A" Concrete (cu/yd)	Cu Yd	398
Reinforcing Steel	lbs.	63,273*
Und Struct Excav (cu/yd)	Cu Yd.	2,138
Class "B" Conc Riprap	Cu Yd.	9

\*Quantity includes one 20 dia lap per 60 ft.

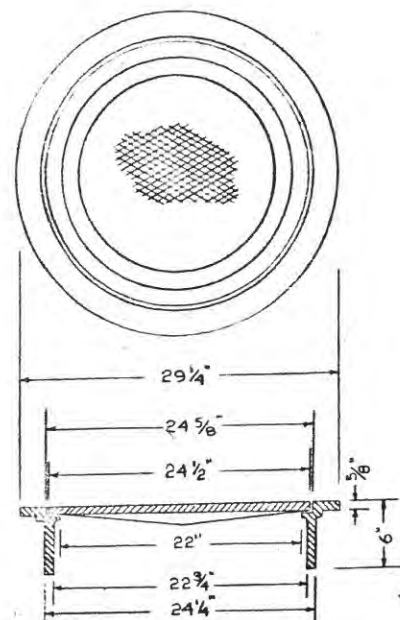
EQUALIZER WINDOWS DETAILS  
Bar Z cut to allow for window openings

3 Equalizersto be

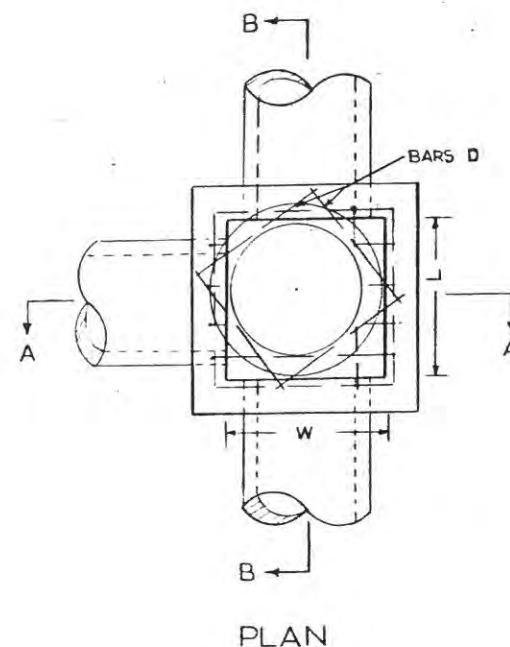




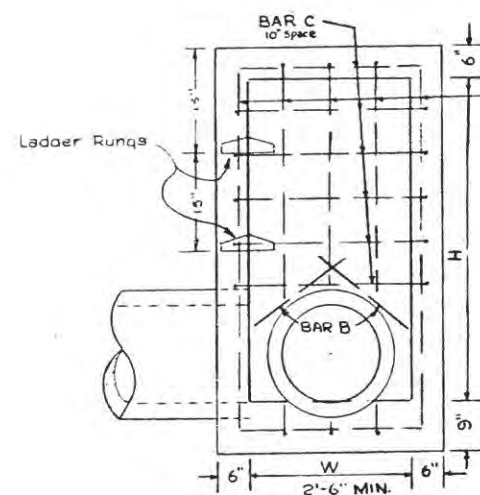
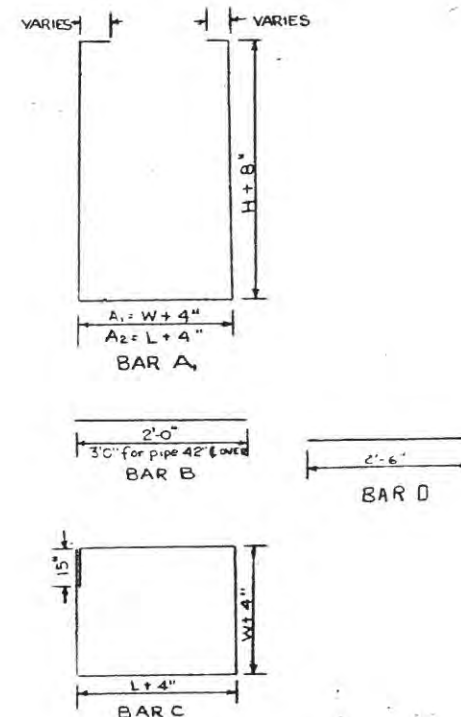
MANHOLE RING & COVER  
USE IN PAVED TRAFFIC AREAS  
ALAMO IRON WORKS # 860-72  
OR EQUAL  
TYPE H



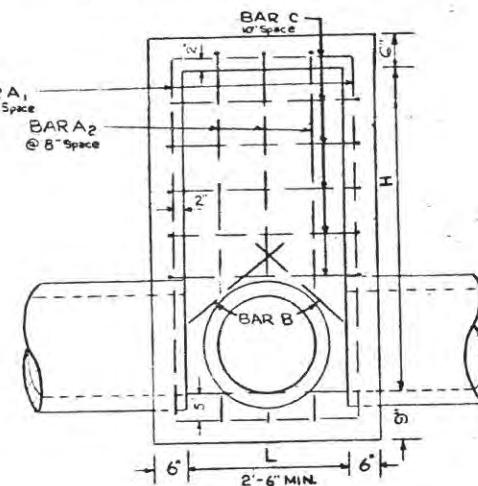
MANHOLE RING & COVER  
USE IN NON TRAFFIC AREA  
ALAMO IRON WORKS # 860-95  
OR EQUAL  
TYPE L



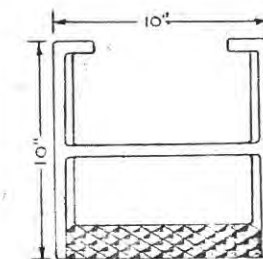
PLAN



SECTION A-A



SECTION B-B



LADDER RUNGS  
Depth Exceeding 5'-0"  
Alamo No. 860-100-2 or Equal  
Spacing 15"

NO	Location	Storm Sewer Sta.	Location	Roadway Sta.	Top EL.	Inv. EL.	H	W	L	MANHOLE RING AND COVER
1	Lateral N	Sta. 0+09	68' Rt. LINE "A"	Sta. 0+09	39.50	33.60	5.40	*	*	TYPE L
2	LINE "X"	Sta. 0+39	35' " " " "	Sta. 8+95	16.73	10.23	6.00	3'-6"	2'-6"	TYPE H
3	Lateral X-8	Sta. 2+18	33' Rt. ANTELOPE	Sta. 4+68	31.10	27.90	2.70	2'-6"	"	TYPE L
4	LINE "Y"	Sta. 5+27	33' Rt. ANTELOPE	Sta. 12+23	25.33	22.12	2.68	"	"	"
5	LINE "L"	Sta. 6+4	22' Lt. BUFFALO	Sta. 5+06	23.00	19.30	3.20	"	"	"
6	LINE "Z"	Sta. 2+35	34' Lt. LINE "B"	Sta. 3+15	18.75	8.29	7.96	3'-6"	"	TYPE H
7	LINE "W"	Sta. 1+55	41' Rt. BROWNLEE	Sta. 5+56	8.15	3.34	4.31	3'-0"	3'-0"	TYPE L
8	LINE "P"	Sta. 25+03	61' Rt. ANTELOPE	Sta. 50+35	21.60	15.71	5.39	4'-0"	3'-6"	"
9	"	Sta. 3+8	61' Rt. ANTELOPE	Sta. 45+20	21.22	14.11	5.99	"	2'-6"	"
10	"	Sta. 17+71	22' Rt. ANTELOPE	Sta. 43+67	21.30	13.79	7.61	"	"	"
11	"	Sta. 14+72	42' Rt. ANTELOPE	Sta. 40+8	22.40	13.21	9.69	"	"	"
12	"	Sta. 14+72	36' Rt. ANTELOPE	Sta. 39+66	22.40	13.39	8.91	"	"	"
13	"	Sta. 2+70	31' Rt. ANTELOPE	Sta. 30+4	22.40	13.75	3.15	"	"	"
14	"	Sta. 1+55	24' Rt. ANTELOPE	Sta. 27+51	22.10	12.45	9.62	5'-0"	3'-0"	"
15	LINE "Q"	Sta. 1+55	38' Lt. ANTELOPE	Sta. 36+25	22.75	17.45	5.00	2'-6"	2'-6"	"
16	LINE "R"	Sta. 2+35	28' Rt. LINE "B"	Sta. 32+09	31.19	27.78	6.51	"	"	TYPE H
17	LINE "O"	Sta. 0+90	38' Lt. LINE "E"	Sta. 32+76	22.52	18.83	5.53	"	"	TYPE L
18	LINE "S"	Sta. 0+35	40' Rt. LINE "A"	Sta. 31+00	22.56	21.82	4.54	"	"	TYPE H
19	LINE "P"	Sta. 3+05	25' Lt. BUFFALO	Sta. 20+37	17.39	3.51	13.26	5'-0"	3'-0"	TYPE L
20	LINE "T"	Sta. 5+04	22' Rt. ANTELOPE	Sta. 23+32	22.14	13.35	8.39	3'-6"	10'-0"	"
21	Lateral J-2	Sta. 0+15	16' Rt. LINE "D"	Sta. 5+07	22.10	22.00	7.50	2'-6"	2'-6"	"
22	"	Sta. 1+43	27' Rt. LINE "A"	Sta. 26+04	22.32	22.00	7.72	"	"	TYPE H
23	Lateral K-4	Sta. 47+65	55' Lt. BUFFALO	Sta. 47+65	22.30	15.44	3.6	"	"	"
24	Lateral M-4	Sta. 0+87	23' Rt. LINE "B"	Sta. 26+58	21.52	23.93	6.89	"	"	"

\* An Existing S.G.D. will be converted into MH-I

#### MANHOLE QUANTITIES \*

Average Concrete for One Manhole	2.24 Cu.Yd.
Average Steel for One Manhole	197 Lbs.

\* For Bidders Information Only

#### GENERAL NOTES

All concrete shall be class "A"

Top of Manholes will be finished to level of top elevation shown on plans; will conform to slope

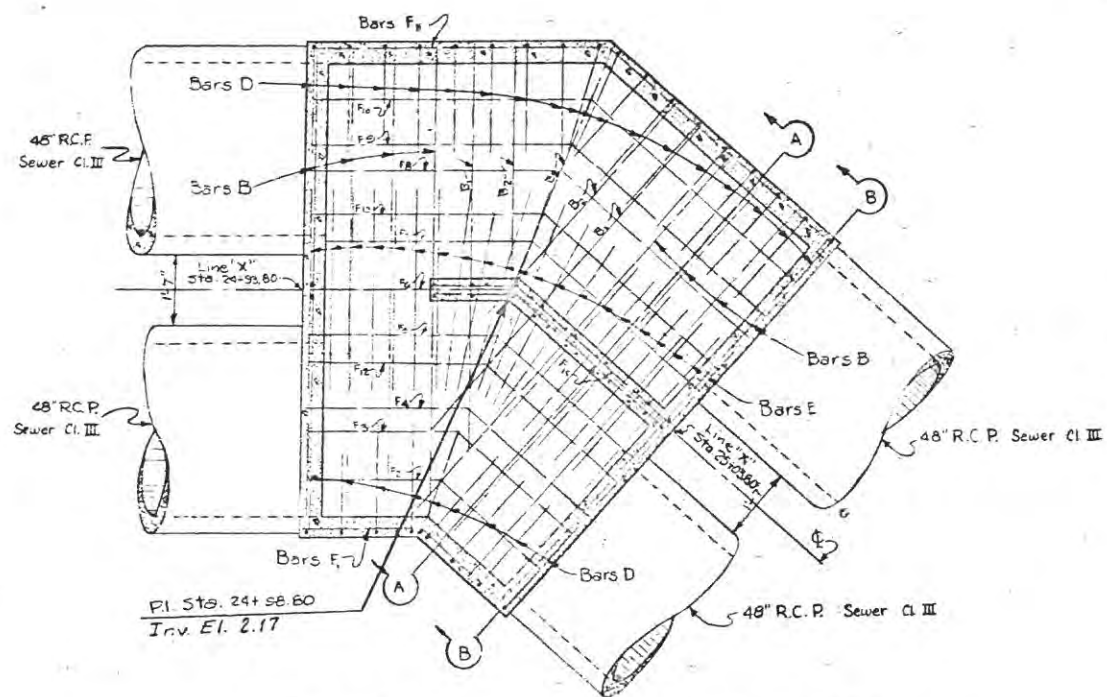
Ladder rungs spaced 15" and located as directed by the Engineer; shall be provided and installed in all Manholes where depth exceeds 5'-0"

Manhole ring and cover as shown on table of Manholes  
All reinforcing steel shall be # 4 deformed bars.

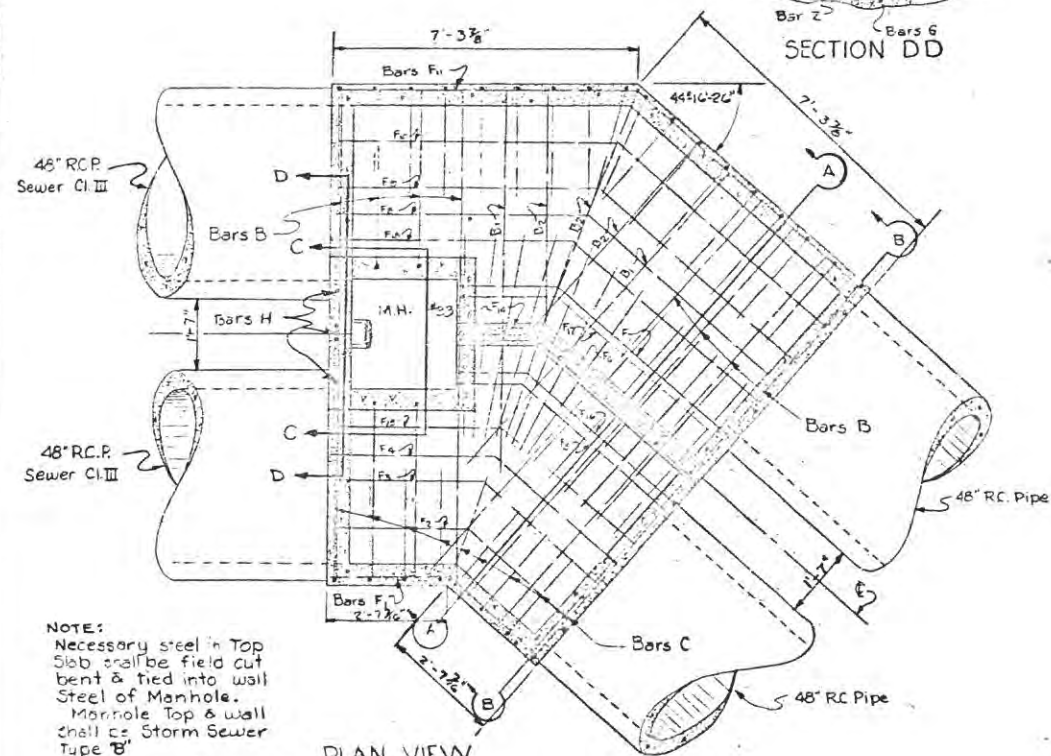
#### DETAILS - STORM SEWER MANHOLES TYPE A

#### DETAILS - MANHOLE RING AND COVERS & LADDER RUNGS

STATE	FEDERAL PROJECT NO.
STATE	1-37-1(2)000
COUNTY	16 NJECP
DATE	74 5 31

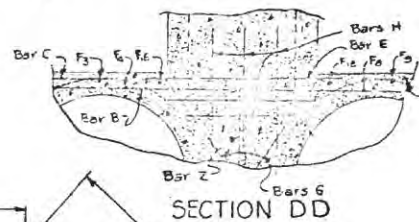


PLAN VIEW  
Bottom Slab Reinf. Steel

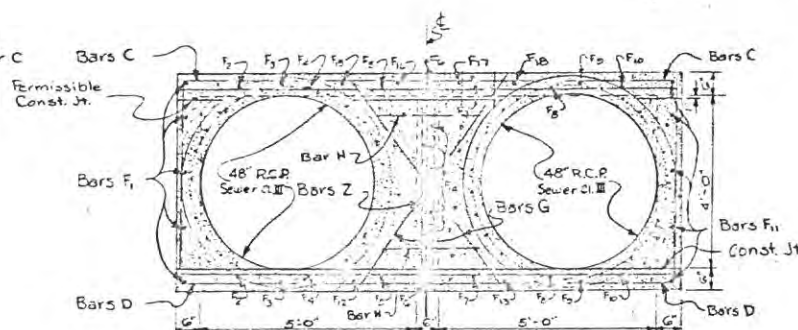


NOTE:  
Necessary steel in Top  
Slab shall be field cut  
bent & tied into wall  
Steel of Manhole.  
Manhole Top & wall  
shall be Storm Sewer  
Type 'B'.  
See Storm Sewer  
Manhole Details

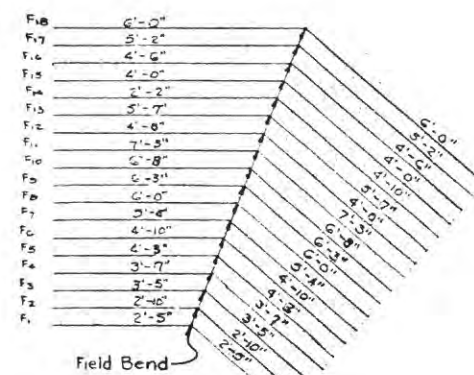
PLAN VIEW  
Top Slab Reinf. Steel



SECTION DD



SECTION BB

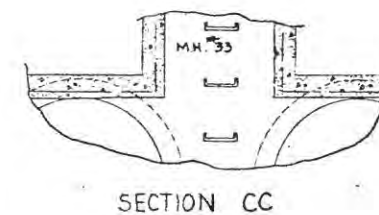


DETAILS OF 'F' BARS

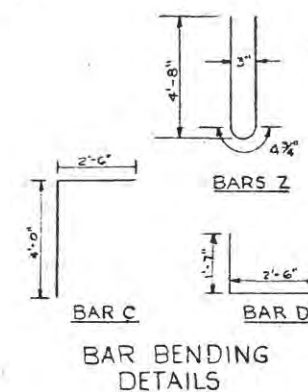
B<sub>1</sub> 9'-0"  
B<sub>2</sub> 6'-6"  
DETAILS OF 'B' BARS

BILL OF REINFORCING STEEL									
Mark	B <sub>1</sub> & B <sub>2</sub>	B	C	D	E	F	G	H	Z
Number	10	8	27	27	35	40	4	7	9
Size	#4	#4	#4	#4	#4	#4	#4	#4	#4
Spacing	12"	12"	10"	10"	6"	~	~	~	12"
Length	A-C: 7'-6"	11'-2"	6'-10"	4'-1"	4'-5"	A-L: 9'-3"	5'-9"	2'-6"	9'-6"
Weight	50	60	123	74	109	247	14	12	57

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class 'A' Concrete	Cu. Yd.	7
Reinforcing Steel	lbs	746
Unclassified Struct. Excav.	Cu. Yd.	52



SECTION CC



BAR BENDING  
DETAILS

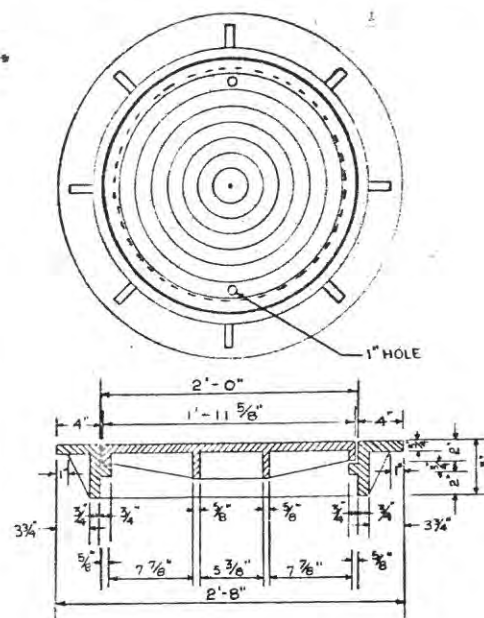
GENERAL NOTES  
Design H20- or H20-SIG- Load  
in accordance with A.A.S.H.O. 1957  
Standard Specifications.  
All concrete shall be Class A. Cham-  
fered corners 3/4".  
All dimensions relating to reinforcing  
steel are to centers of bars.  
Construction Joint shown at flow 1  
may be raised a maximum of 6" at  
option of the contractor. Adjust length  
of vertical steel as required.

LINE "X"  
CONCRETE BOX CONNECTION  
FOR 2-48" CONCRETE SEWER PIPES  
From Sta. 24+93.80 to Sta. 25+03.80  
STD. - MC5-2

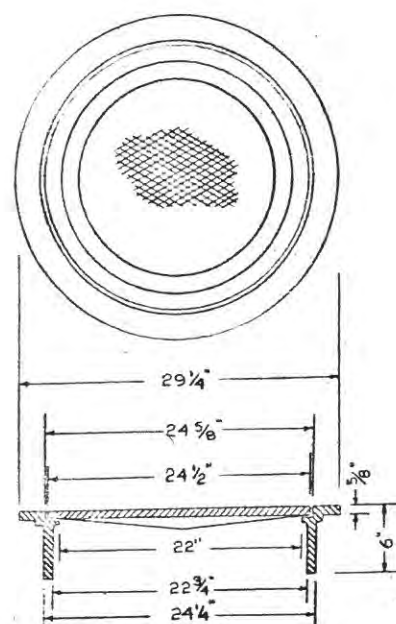
Sheet 1 of 1 Sheet

1-37-1(2)000  
16 Nueces 74 6 3

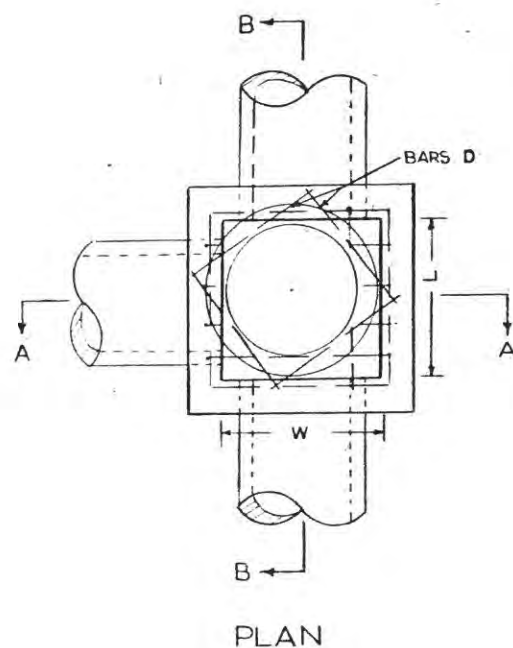




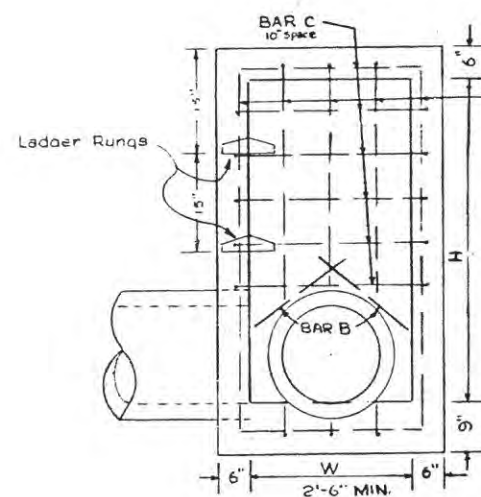
MANHOLE RING & COVER  
USE IN PAVED TRAFFIC AREAS  
ALAMO IRON WORKS # 860-72  
OR EQUAL  
TYPE H



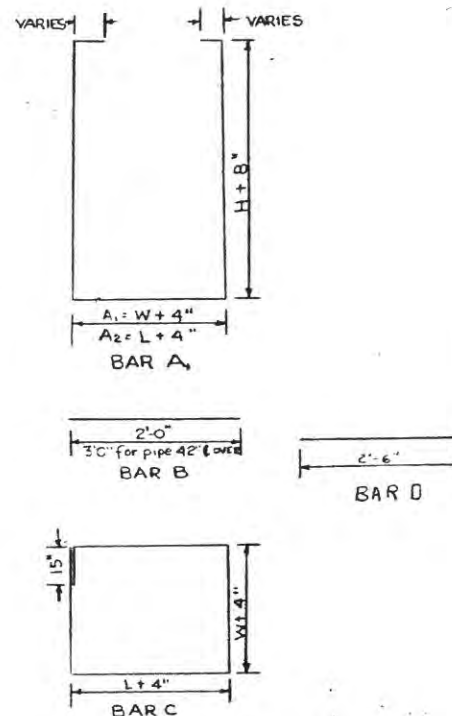
MANHOLE RING & COVER  
USE IN NON TRAFFIC AREA  
ALAMO IRON WORKS # 860-95  
OR EQUAL  
TYPE L



PLAN



SECTION A-A



SECTION B-B

NO	Location	Storm Sewer Sta.	Location	Roadway Sta.	Top EL.	Inv. EL.	H	W	L	MANHOLE RING AND COVER
1	Lateral N	Sta. 0+69	68' Rt. LINE 'A'	Sta. 0+09	39.50	33.60	5.40	*	*	TYPE L
2	LINE 'X'	Sta. 3+89	35' " " "	Sta. 8+95	16.73	10.23	6.00	3'-6"	2'-6"	TYPE H
3	Lateral X-8	Sta. 2+18	33' Rt. ANTELOPE	Sta. 4+68	31.10	27.90	2.70	2'-6"	"	TYPE L
4	LINE 'Y'	Sta. 5+27	23' Rt. ANTELOPE	Sta. 12+23	25.30	22.12	2.68	"	"	"
5	LINE 'L'	Sta. 6+14	22' Lt. BUFFALO	Sta. 5+06	23.00	19.30	3.20	"	"	"
6	LINE 'Z'	Sta. 2+35	34' Lt. LINE 'B'	Sta. 3+15	16.75	8.29	7.96	3'-6"	"	TYPE H
7	LINE 'W'	Sta. 1+55	41' Rt. BROWNLEE	Sta. 5+56	8.15	3.34	4.31	3'-0"	3'-0"	TYPE L
8	LINE 'P'	Sta. 25+03	61' Rt. ANTELOPE	Sta. 50+935	21.60	15.71	5.39	4'-0"	3'-6"	"
9	"	Sta. 2+81	61' Rt. ANTELOPE	Sta. 4+5120	21.20	14.11	5.99	"	2'-6"	"
10	"	Sta. 17+71	22' Rt. ANTELOPE	Sta. 43+67	21.80	13.79	7.61	"	"	"
11	"	Sta. 14+72	42' Rt. ANTELOPE	Sta. 40+43	22.40	13.21	8.69	"	"	"
12	"	Sta. 3+72	36' Rt. ANTELOPE	Sta. 39+66	23.10	12.39	8.91	"	"	"
13	"	Sta. 2+73	31' Rt. ANTELOPE	Sta. 36+4	22.30	12.75	3.5	"	"	"
14	"	Sta. 1+55	24' Rt. ANTELOPE	Sta. 27+517	22.10	12.45	9.02	5'-0"	3'-0"	"
15	LINE 'O'	Sta. 1+55	28' Lt. ANTELOPE	Sta. 32+25	20.75	17.15	3.00	2'-6"	2'-6"	"
16	LINE 'R'	Sta. 2+35	28' Rt. LINE 'B'	Sta. 32+09	30.79	27.78	2.51	"	"	TYPE H
17	LINE 'C'	Sta. 6+90	38' Lt. LINE 'E'	Sta. 32+70	22.20	18.83	3.53	"	"	TYPE L
18	LINE 'S'	Sta. 0+35	40' Lt. LINE 'A'	Sta. 31+02	15.50	27.82	4.54	"	"	TYPE H
19	LINE 'P'	Sta. 2+35	25' Lt. BUFFALO	Sta. 29+137	17.09	3.51	13.28	5'-0"	3'-0"	TYPE L
20	LINE 'T'	Sta. 5+02	22' Rt. ANTELOPE	Sta. 23+32	13.14	3.35	3.39	3'-0"	10'-0"	"
21	Lateral U-2	Sta. 6+75	16' Rt. LINE 'D'	Sta. 8+07	28.10	26.00	7.50	2'-6"	2'-6"	"
22	"	Sta. 1+40	27' Rt. LINE 'A'	Sta. 26+015	30.32	23.00	7.72	"	"	TYPE H
23	Buffalo Line	Sta. 47+25	55' Lt. BUFFALO	Sta. 47+064	22.00	10.44	3.36	"	"	"
24	Lateral U-4	Sta. 0+87	23' Rt. LINE 'B'	Sta. 26+15	21.22	23.93	6.89	"	"	"

\* An. Existing S.G.D. will be converted into MH-1

Average Concrete for One Manhole	2.24 Cu.Yd.
Average Steel for One Manhole	197 Lbs.

\* For Bidders Information Only

### GENERAL NOTES

All concrete shall be class "A"

Top of Manholes will be finished to level of top elev. shown on plans; will conform to slope

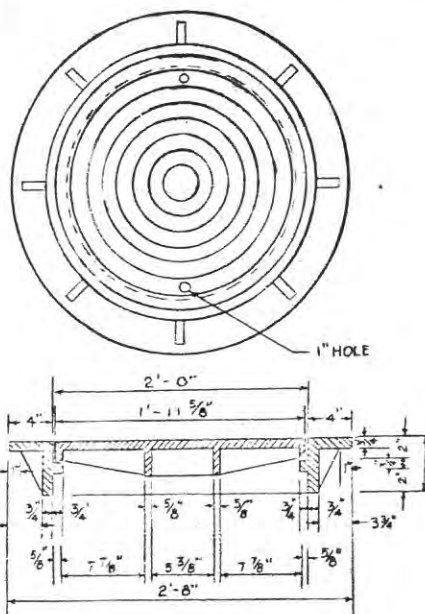
Ladder rungs spaced 15" and located as directed the Engineer; shall be provided and installed in all M's where depth exceeds 5'-0"

Manhole ring and cover as shown on table of Manho. All reinforcing steel shall be # 4 deformed bars.

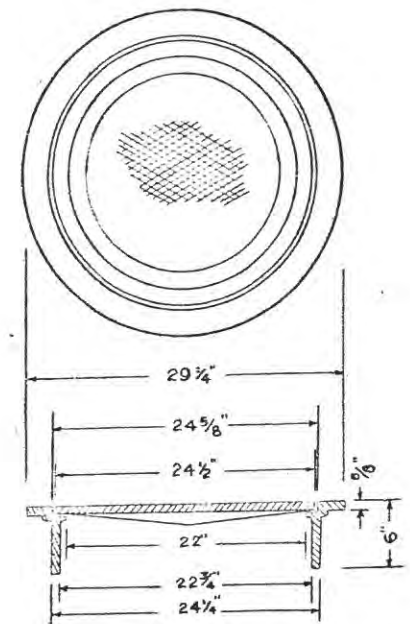
DETAILS - STORM SEWER MANHOL  
TYPE A

DETAILS - MANHOLE RING AND COVER  
& LADDER RUNGS

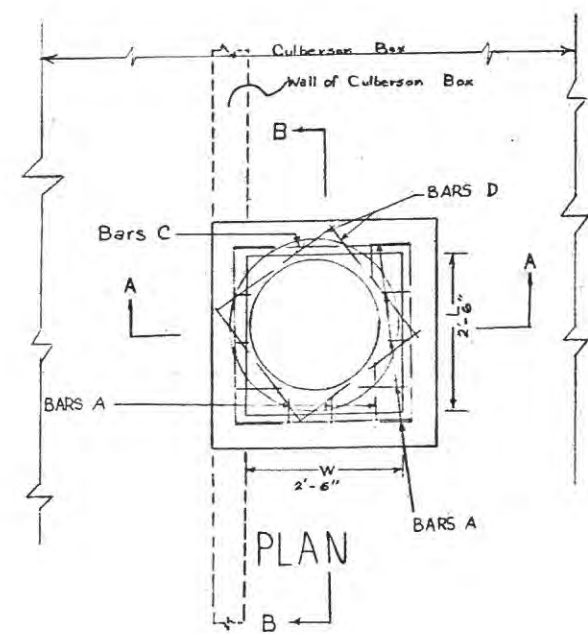
STATE	PROJECT NO.
0	1-37-1(2)000
COUNTY	DIST. 11
16	NJCECS - 74



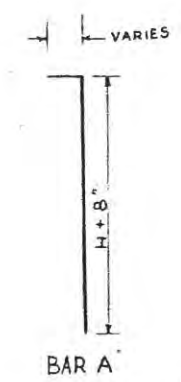
MANHOLE RING & COVER  
USE IN PAVED TRAFFIC AREAS  
ALAMO IRON WORKS # 860-72  
OR EQUAL  
TYPE H



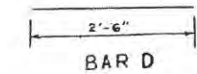
MANHOLE RING & COVER  
USE IN NON TRAFFIC AREA  
ALAMO IRON WORKS # 860-95  
OR EQUAL  
TYPE L



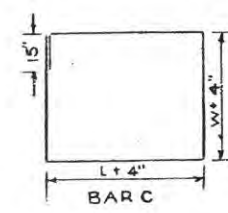
PLAN



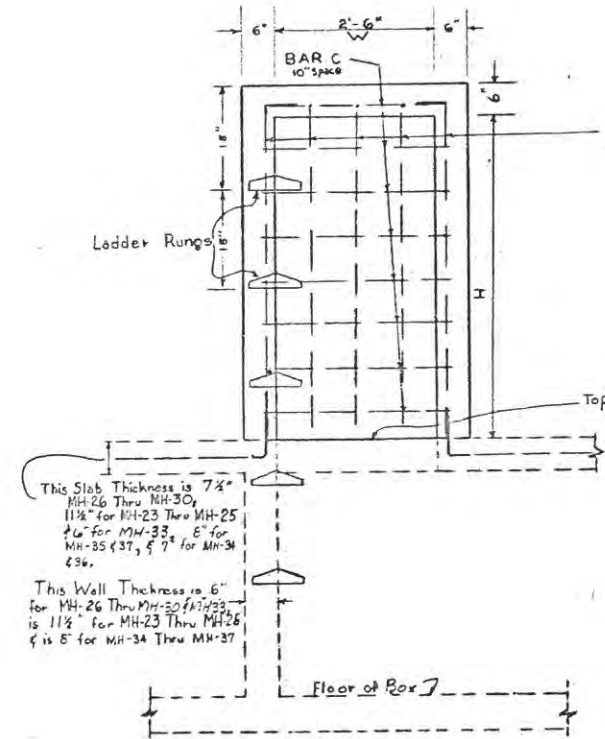
BAR A



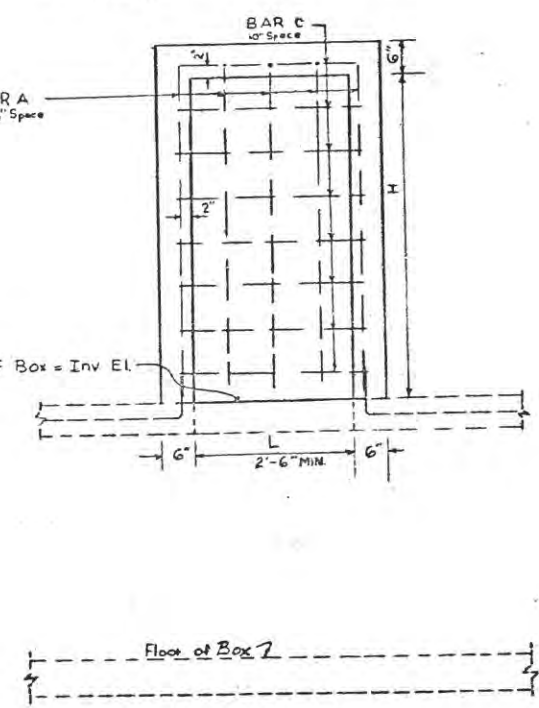
BAR D



BAR C



SECTION A-A



SECTION B-B

TABLE OF MANHOLES								MANHOLE RING AND COVER	
NO	Location	Storm Sewer Sta.	Roadway Sta.	Top El.	Inv. El.	H*	W	L	ALAMO IRON WORKS OR EQUAL TYPE L
23	Culberson Box	Sta 3+21	See Plan Sheet	12.31	7.88	3.93	2'-6"	2'-6"	"
24	"	Sta 2+87	"	18.72	7.78	10.44	"	"	"
25	"	Sta 3+21	"	10.81	7.88	2.23	"	"	"
26	"	Sta 0+22	"	10.00	6.68	2.82	"	"	"
27	"	Sta 0+22	"	10.00	6.68	2.82	"	"	"
28	"	Sta 0+22	"	10.00	6.68	2.82	"	"	"
29	Line "U"	Sta 0+05	"	10.00	6.62	2.88	"	"	"
30	Line "U"	Sta 0+24	"	10.00	6.62	2.88	"	"	"
33	Line "X"	Sta 24+98.8	"	10.90	6.67	3.73	"	"	"
34	Culberson Box	Sta. 3+83	"	12.10	8.27	3.33	"	"	"
35	"	Sta. 8+97	"	12.10	8.41	3.19	"	"	"
36	"	Sta. 5+44.5	"	12.00	8.81	2.69	"	"	"
37	"	Sta. 5+54.5	"	12.00	8.75	2.55	"	"	"

\* H = Top of Culvert to Top of Manhole El. - 0.50 ft.

MANHOLE QUANTITIES #		
Average Concrete for One Manhole	1.02	Cu yd.
Average Steel for One Manhole	96	Lbs.

\* For Bidders Information Only

### GENERAL NOTES

All concrete shall be class "A"

Top of Manholes will be finished to level of top el. shown on plans, & will conform to slope.

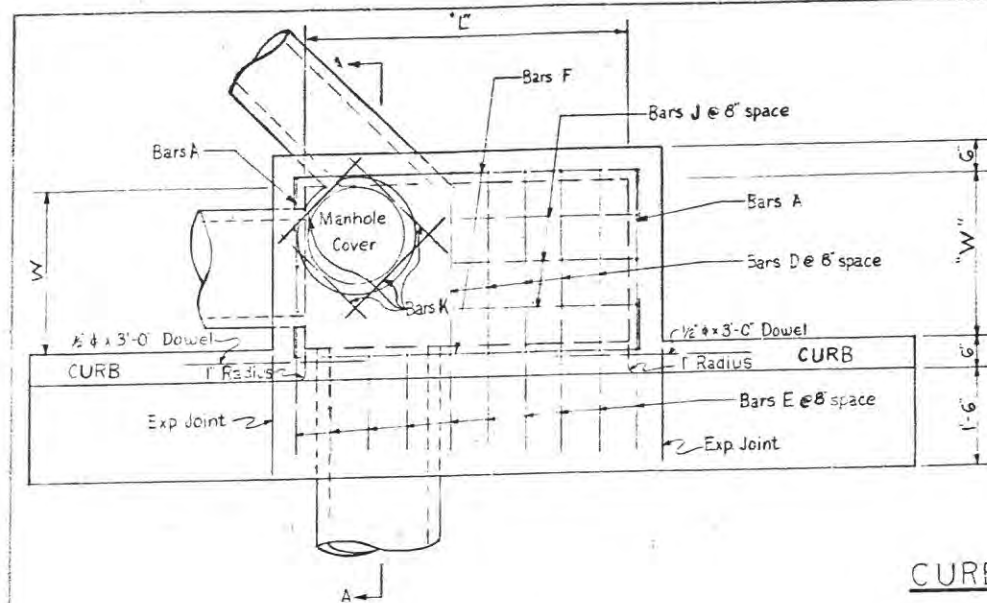
Ladder rungs spaced 16" and located as directed by the Engineer, shall be provided and installed in all M where depth exceeds 5'-0"

Manhole ring and cover as shown on table of Manh. All reinforcing steel shall be # 4 deformed bars.

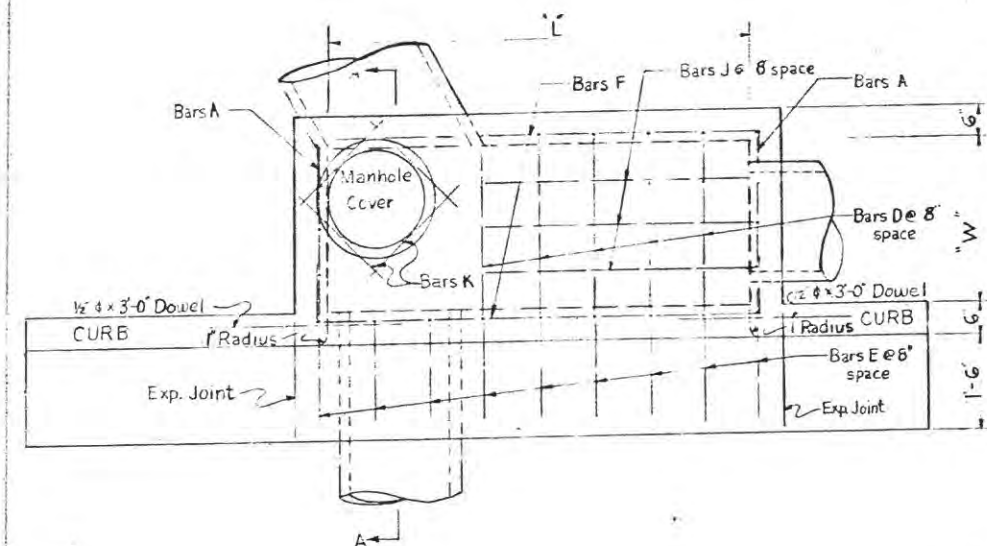
### DETAILS - STORM SEWER MANHOLE TYPE 'B'

### DETAILS - MANHOLE RING AND COVER

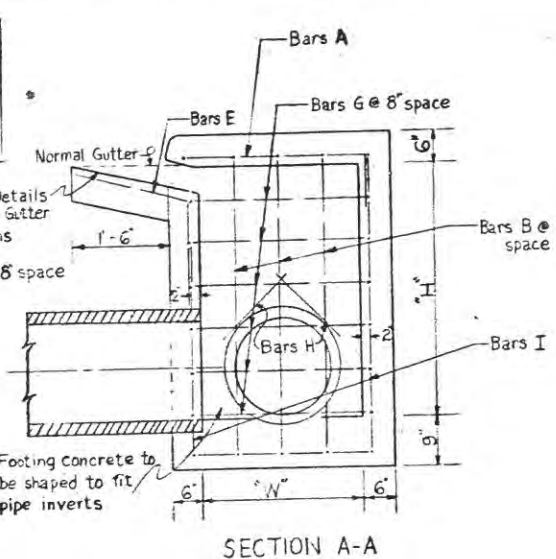
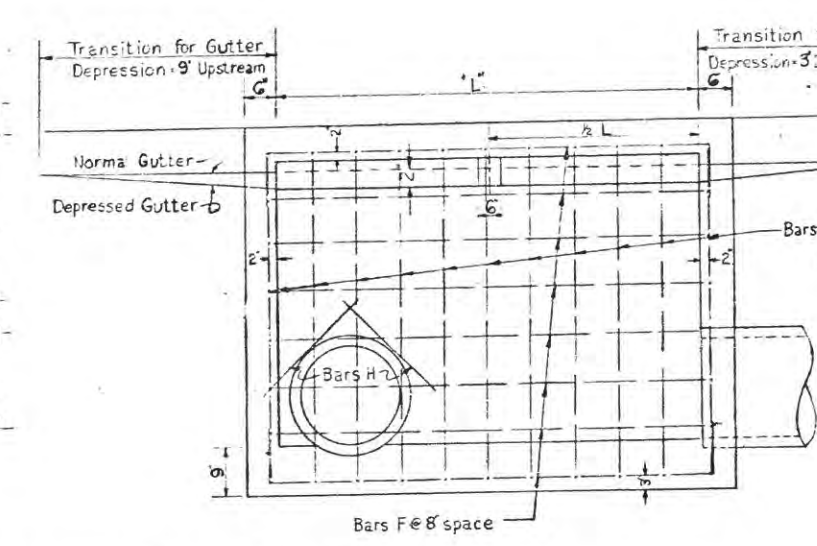
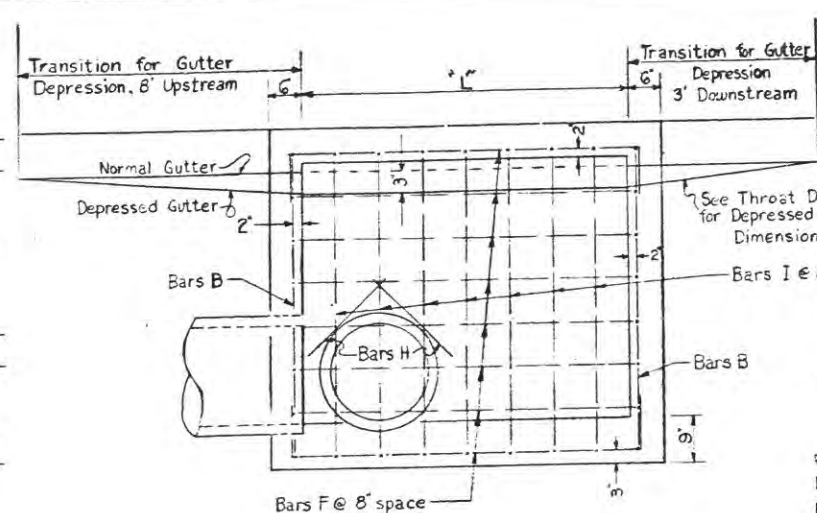




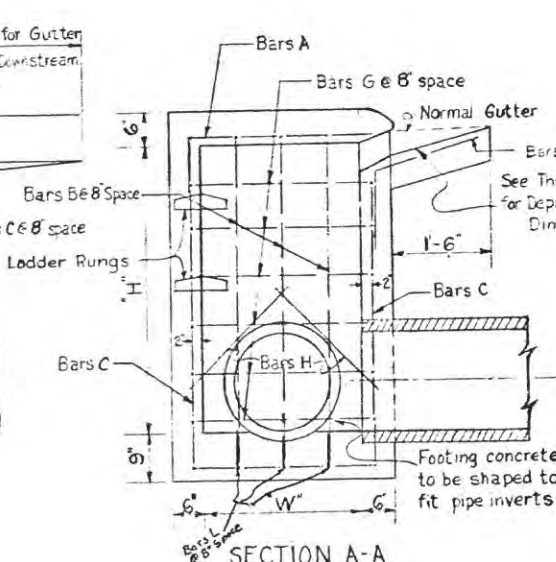
CURB INLET TYPE 'A'



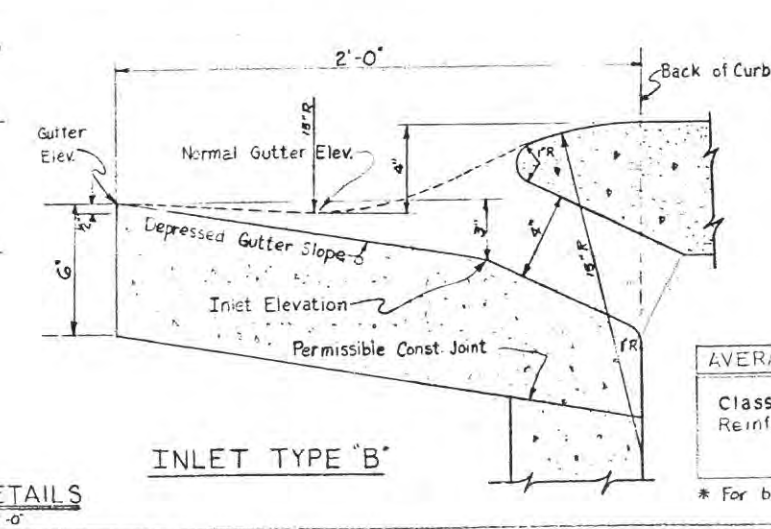
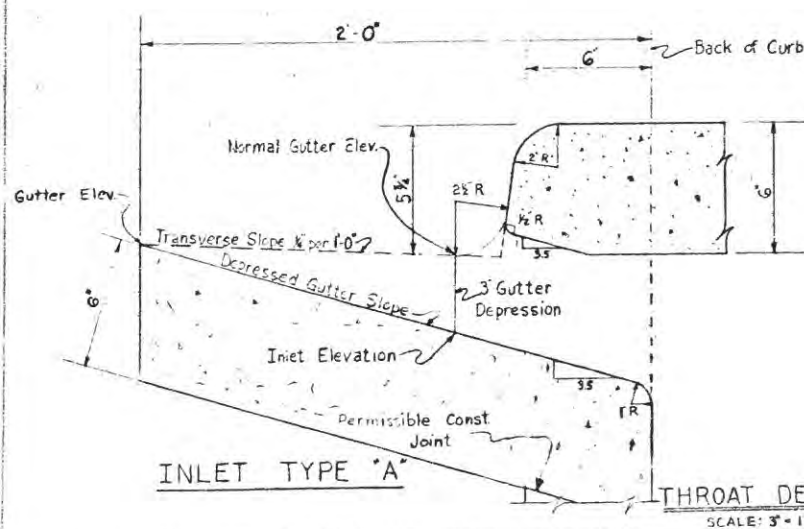
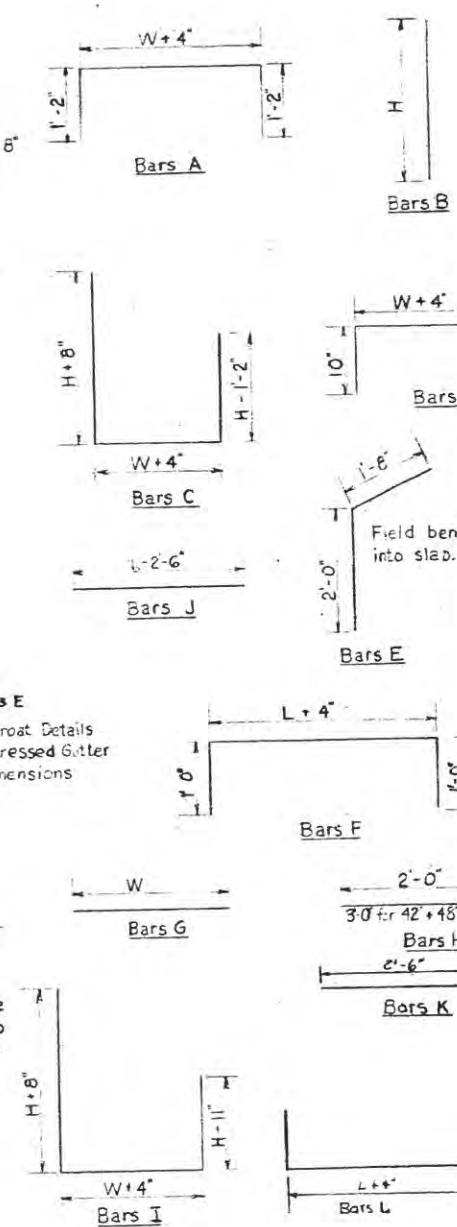
CURB INLET TYPE 'B'



SECTION A-A



SECTION A-A

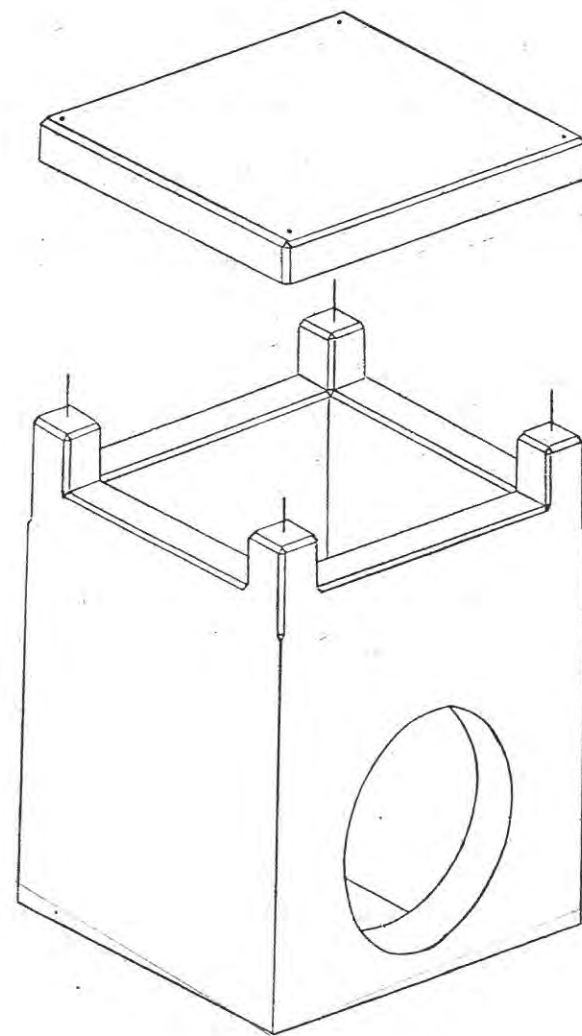


AVERAGE INLET QUANTITIES *	
Class 'A' Concrete	2.97 CuYds
Reinforcing Steel	316 Lbs

\* For bidders information only

# CURB INLET DETAILS TYPE 'A' & 'B'

- GENERAL NOTES**
- All concrete shall be Class 'A' Concrete. Pipe shall be Reinforced Conc. Sewer Pipe Class III & Class IV.
  - Expansion joints of 3/4" Expansion Mat'l. shall be installed between all inlets. Ladder rungs, spaced 15' and located as directed by the Engineer, shall be provided and installed in all inlets where the depth exceeds 5'-0". See sheet No 106 for details.
  - Manhole rings and covers to be Alamo Iron Works pattern number 860-72 and 860-95 or equal as approved by the engineer. See sheet No 106 for details.
  - All reinforcing steel shall be 1/2" x deformed bars.



ISOMETRIC VIEW

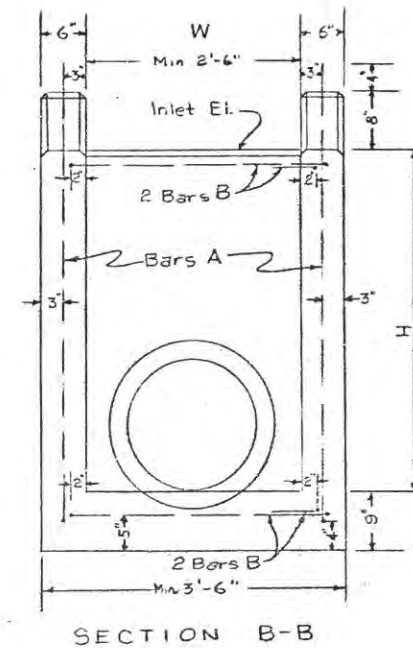
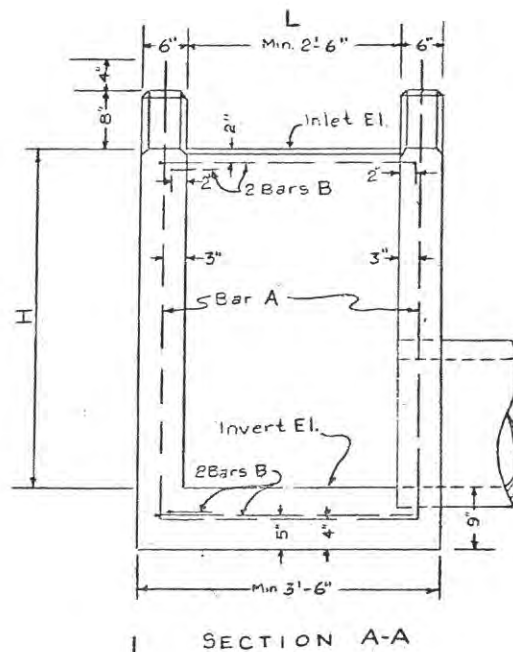
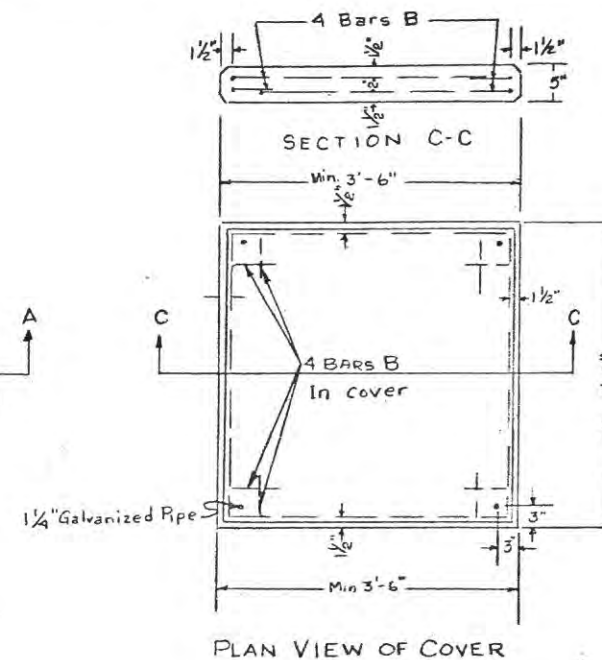
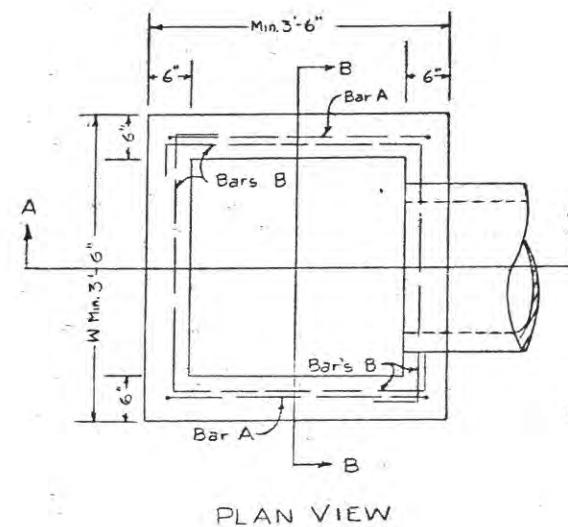
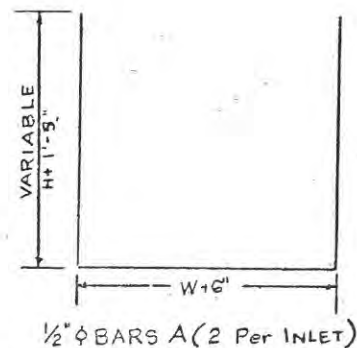
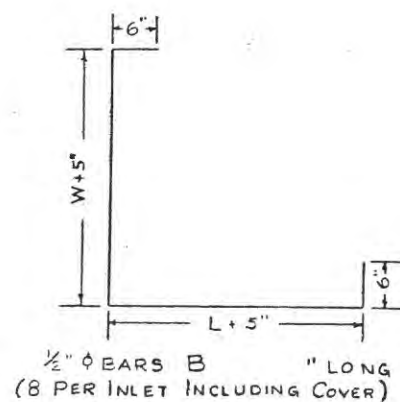


TABLE OF DROP INLETS							
No.	STORM SEWER STATION	ROADWAY STATION	Inlet El.	Inv. El.	H	W	
1	LINE "Y" Sta. 1+85	BASELINE 12 Lt Sta. 15+15	11.50	6.44	5.06	2'-6"	
2	Lateral X-11 Sta. 0+93	LINE "A" 45 Rt Sta. 15+15	1.75	9.35	2.40	2'-6"	
3							
4	LINE "W" Sta. 2+05	LINE "B" 40 Rt Sta. 2+25	7.10	4.00	3.10	3'-6"	
5	LINE "P" Sta. 26+97	27 Lt Sta. 54+23	21.00	16.38	4.62	3'-0"	
6	" " Sta. 21+15	" " 25 Lt Sta. 43+44	21.00	15.07	5.93	4'-0"	
7	Lateral P-7 Sta. 1+37	BASELINE Sta. 44+31	20.70	17.16	3.54	2'-6"	
8	" " P-10 Sta. 1+41.5	" " Sta. 41+38.5	19.33	15.76	3.57		
9	" " P-11 Sta. 2+16	" " Sta. 40+25	22.20	15.24	6.96		
10	" " P-11 Sta. 1+56	" " Sta. 33+79	22.20	15.17	7.03		
11	LINE "O" Sta. 3+64	" " 25 Rt Sta. 55+07	31.54	25.04	6.50		
12	" " " Sta. 1+89	" " 4 Rt Sta. 3+03	19.19	12.74	6.45		
13	Buff. Lat. "A" Sta. 0+52	LINE "A" 53 Rt Sta. 54+53	21.00	17.14	3.86		
14	" " " Sta. 0+54	" " 86 Rt Sta. 47+9	20.75	15.03	5.72		
15	LINE "T" Sta. 2+22	LINE "C" 41 Rt Sta. 13+20	7.75	4.35	3.40	3'-6"	
16	" " Sta. 0+22	LINE "E" 36 Rt Sta. 28+96	9.75	3.96	5.79	2'-6"	
18	" " U-3 Sta. 0+96	BRIDGE 69 Lt Sta. 3+41.5	6.75	4.08	2.67	3'-0"	

\* H = Inlet elevation minus Invert elevation  
 \* Drop Inlet No. 3 has been omitted

TYPE "D" INLET AVG. QUANTITIES *	
Class "A" Concrete	1.64 Cu Yds
Reinforcing Steel	60 Lbs.

\* For Bidders information only

General Notes

All concrete shall be Class "A"  
 All exposed corners shall be chamfered  $\frac{1}{4}$ ". All of the four corner posts and the top and sides of cover shall receive a Type I surface finish in accordance with the governing specifications.  
 The cover shall not be removed off its base support until it has aged 14 days.

After setting the cover in place fill the holes with asphalt to  $\frac{1}{2}$ " below the top.  
 All reinforcing steel shall be #4 deformed bars.  
 Ladder rungs spaced 15" and located as directed Engineer, shall be provided and installed in all Dr. where depth exceeds 5'-0". See sheet No. 106.

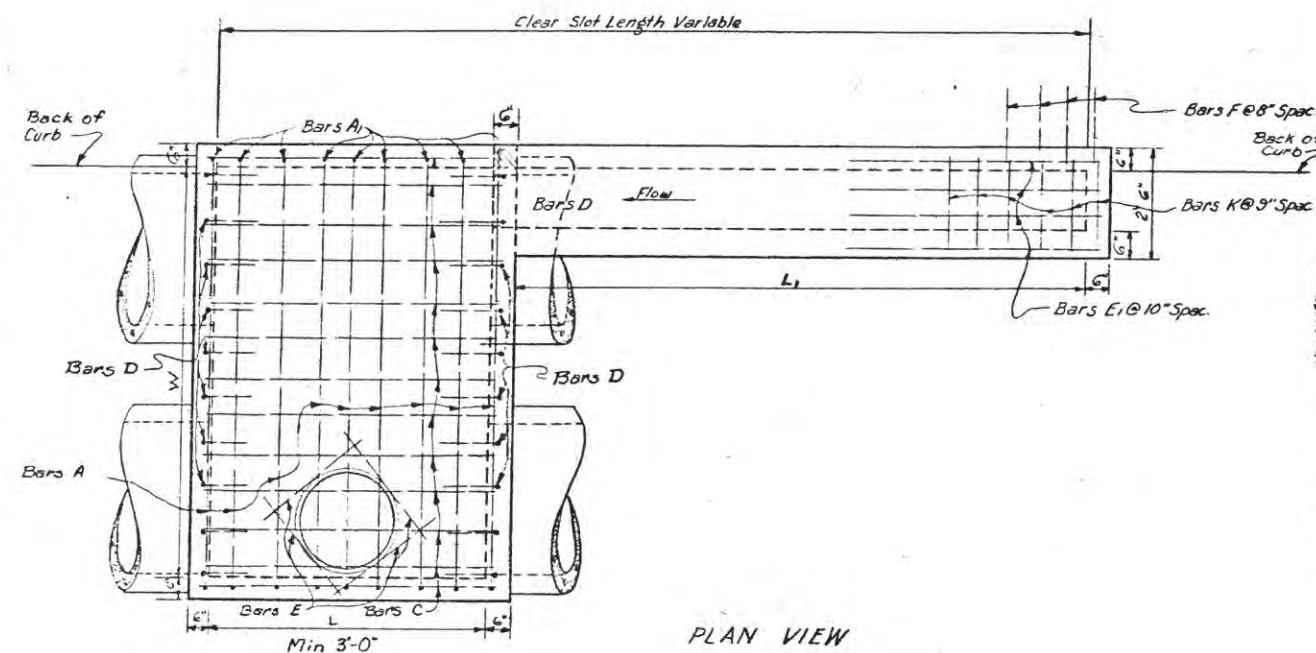
INLET TYPE DETAILS

I-37-1(2)000

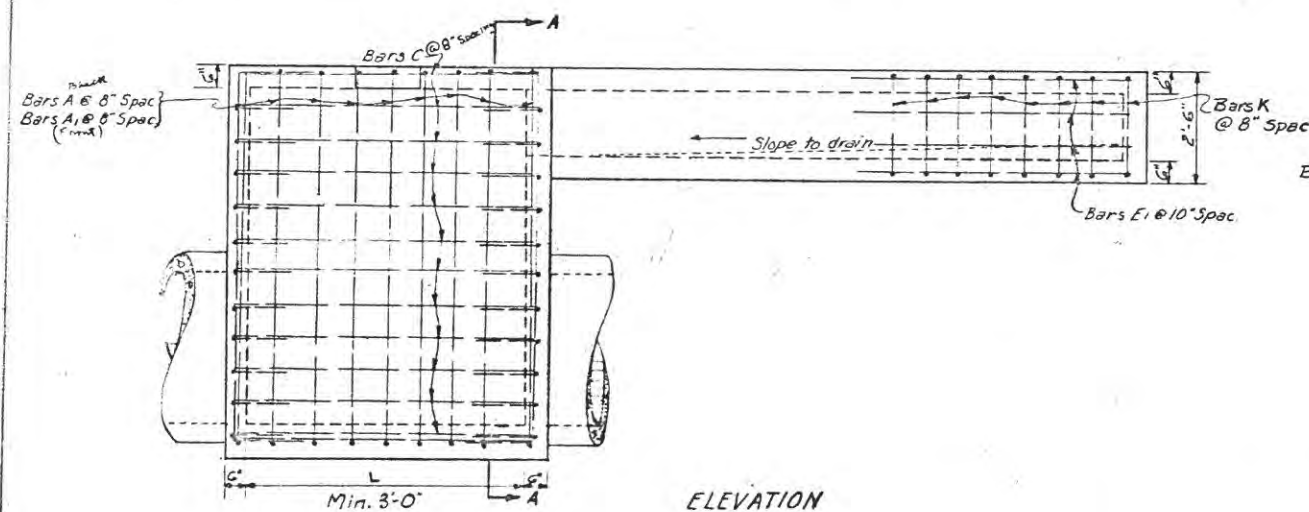


# CURB INLETS TYPES "E"

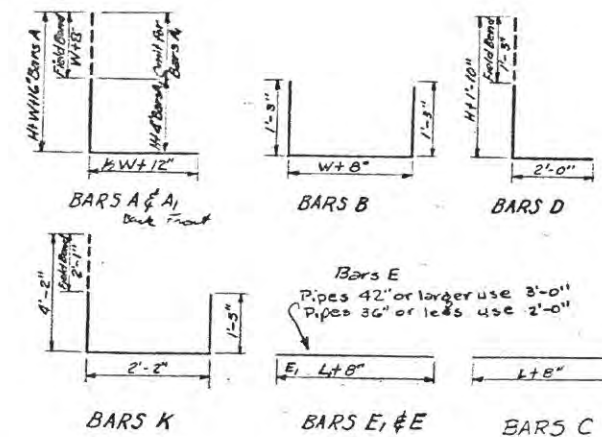
No	TYPE	LOCATION & OF INLETS		Inlet El.	Inv. El.	H	W	L	L <sub>1</sub>	MANHOLE RING AND COVER
		STORM SEWER STATION	ROADWAY STATION							
15	E	LINE "X" Sta. 13+52	LINE "A" Rt. 3+55	2.34	5.90	6.44	10'-0"	3'-0"	7'-6"	TYPE H
17	E	" Sta. 15+55	" Rt. 17+61	4.92	5.50	9.42	"	6'-6"	4'-0"	"
23	E	" Sta. 17+74	" Rt. 9+80.5	19.83	5.06	14.33	"	3'-6"	7'-0"	"
32	E	" Sta. 22+19	BUFFALO Lt. 22+60	11.64	2.83	9.04	11'-0"	"	3'-6"	TYPE L
38	E	Lateral W-1 Sta. 3+26	LINE "B" Lt. 21+50	20.00	7.20	12.60	2'-6"	"	7'-6"	TYPE H
39	E	" W-1 Sta. 2+14	" Lt. 22+61	22.42	5.90	16.52	3'-0"	"	3'-6"	"
51	E	" P-4 Sta. 2+25.5	LINE "A" Rt. 49+25	25.13	6.73	8.40	2'-6"	"	7'-6"	"
52	E	" P-4 Sta. 4+5	" Lt. 49+34	26.94	16.50	10.44	"	"	"	"
56	E	" P-6 Sta. 0+03	" D Lt. 47+20	31.91	23.66	8.05	"	"	"	"



PLAN VIEW



ELEVATION



SECTION A-A

## MANHOLE QUANTITIES \*

Average Concrete for One Manhole	5.41 CuYd
Average Steel for One Manhole	713 lbs

## GENERAL NOTES:

- All concrete to be Class "A".
- All dimensions pertaining to reinforcing bars are to centers of bars.
- All reinforcing bars except Bars K shall be #4.
- Bars K shall be #5.
- Expansion Joints of  $\frac{3}{4}$ " Precast Expansion Joints shall be installed between all inlets and curbs.
- Ladder rungs spaced 15" and located directed by the Engineer, shall be provided and installed in all inlets where depth is 5'-0". See sheet No. 106 for details.

## CURB INLET DETAILS TYPE E

No.	TYPE	LOCATION & OF INLETS		Inlet El.	Inv. El.	H	W	L	MANHOLE RINGS & COVERS
		STORM SEWER STATION	ROADWAY STATION						
1	B	Lateral N Sta.	LINE A Rt. 0+08	35.54	33.05	1.91	2'-6"	10'-6"	TYPE H
2	A	" X-1 Sta. 1+35.5	RAMP X Rt. 1+78	35.74	29.60	6.37	"	"	TYPE L
3	B	" X-1 Sta. 0+68	LINE B Rt. 1+97	30.05	26.72	3.33	"	"	TYPE H
4	B	LINE X Sta. 0+00	LINE A Rt. 1+92	30.65	25.94	4.71	"	"	"
5	A	Lateral X-3 Sta. 1+52	RAMP T Rt. 4+82	23.53	17.08	6.08	"	"	TYPE L
6	B	" X-3 Sta. 0+70	LINE B Rt. 5+57	19.03	15.14	3.89	"	"	TYPE H
7	B	LINE X Sta. 3+41	LINE A Rt. 5+40	18.63	13.50	5.13	"	"	"
8	B	Lateral X-5 Sta. 1+56	LINE B Rt. 7+23.5	16.94	12.39	4.55	3'-0"	"	"
9	B	LINE X Sta. 6+32	LINE A Rt. 8+36	16.31	10.50	5.81	"	"	"
10	B	Lateral X-7 Sta. 0+85	LINE B Rt. 8+78	16.61	11.94	4.67	2'-6"	"	"
11	A	" X-8 Sta. 4+13	ANTELOPE Lt. 8+09	34.75	31.29	3.69	"	6'-0"	TYPE L
12	A	" X-8 Sta. 3+76	" Rt. 8+09	34.65	31.24	3.64	"	"	"
13	B	" X-8 Sta. 1+33	LINE B Lt. 11+47	14.58	9.83	4.75	"	10'-6"	TYPE H
14	B	LINE X Sta. 9+16	LINE A Rt. 11+20	14.78	8.28	6.50	3'-6"	"	"
15	**								
16	B	Lateral X-10 Sta. 0+30	Ramp W Rt. 15+50	11.56	6.48	5.08	3'-0"	10'-6"	TYPE H
17	**								
18	A	LINE Y Sta. 5+94	ANTELOPE Lt. 1+95	25.65	22.30	3.58	2'-6"	10'-6"	TYPE L
19	B	" Y Sta. 4+48	LINE B Rt. 4+51	12.72	7.49	5.23	"	"	TYPE H
20	B	" Y Sta. 2+71	RAMP S Lt. 2+25	12.22	6.22	5.83	"	6'-0"	"
21	B	" Y Sta. 2+10	LINE B Rt. 16+24	11.95	6.50	5.45	"	6'-6"	"
22	A	" L Sta. 10+81	BUFFALO Rt. 8+12	35.15	22.24	2.91	"	6'-0"	TYPE L
23	A	" L Sta. 10+37	" Lt. 8+12	35.15	31.69	3.49	"	"	"
24	A	Lateral L-1 Sta. 0+59	" Rt. 11+93	22.85	19.50	3.58	"	"	"
25	A	LINE L Sta. 4+05	" Lt. 14+38	18.50	14.40	2.33	"	"	"
26	A	" L Sta. 0+81	" Lt. 17+66	16.75	13.20	3.78	"	"	"
27	A	Lateral L-2 Sta. 0+50	" Rt. 17+85	16.86	14.00	3.13	"	"	"
28	**								
29	B	Lateral X-12 Sta. 2+52	LINE A Lt. 22+14	23.95	20.39	3.56	2'-6"	10'-6"	TYPE H
30	B	" X-12 Sta. 1+47	" Lt. 21+04	22.07	18.18	3.89	"	"	"
31	B	" X-12 Sta. 0+82	LINE C Rt. 3+94.5	22.40	16.81	5.59	"	10'-6"	"
32	A	LINE Z Sta. 4+45	ANTELOPE Lt. 15+59	18.91	15.90	3.30	3'-0"	"	TYPE L
33	A	" Z Sta. 3+41	" Rt. 16+42	16.97	8.99	8.21	3'-6"	6'-6"	"
34	B	" Z Sta. 1+78	LINE B Rt. 19+09	15.34	7.62	7.72	2'-6"	10'-6"	TYPE H
35	A	Lateral X-13 Sta. 0+48	BUFFALO Rt. 28+47.5	11.64	5.37	6.50	"	6'-0"	TYPE L
36	**								
37	A	Lateral W-1 Sta. 4+41	ANTELOPE Lt. 19+17	19.25	8.61	4.87	2'-6"	10'-6"	TYPE L
38	**								
39	**								
40	A	LINE W Sta. 4+52	ANTELOPE Lt. 22+67	7.77	4.40	3.60	2'-6"	6'-0"	TYPE L
41	A	" W Sta. 4+35	" Rt. 22+74.5	7.77	4.35	3.65	2'-6"	6'-0"	"
42	A	" W Sta. 3+42	BROWNLEE Rt. 31+75.5	7.83	4.81	3.85	3'-0"	"	"
43	B	Lateral P-1 Sta. 2+43.5	LINE A Rt. 55+42.5	24.68	7.80	6.86	2'-6"	"	TYPE H
44	B	" P-1 Sta. 1+62	" Rt. 55+50	25.09	17.64	7.45	"	"	"
45	B	" P-2 Sta. 1+96	" Rt. 51+40.5	23.22	19.41	4.25	"	"	"
46	B	" P-2 Sta. 0+58.5	" Lt. 52+37	23.97	19.26	4.71	"	10'-6"	"
47	A	" P-2 Sta. 0+30.5	RAMP R Lt. 52+34	23.30	19.09	4.44	"	"	TYPE L
48	A	" P-3 Sta. 0+61.5	ANTELOPE Rt. 51+64	21.15	16.70	4.68	"	6'-0"	"
49	A	LINE P Sta. 22+66	RAMP R Lt. 49+91	21.56	15.37	6.42	4'-0"	"	"
50	A	Lateral P-4 Sta. 2+85	" Y Rt. 49+25	21.17	16.90	4.50	2'-6"	"	"
51	**								
52	**								
53	A	" P-5 Sta. 0+56	ANTELOPE Rt. 47+80	21.40	16.75	4.87	"	6'-0"	TYPE L
54	A	LINE P Sta. 21+51	RAMP R Rt. 48+75	21.31	16.53	5.01	4'-6"	"	"
55	B	" P-6 Sta. 1+89	LINE A Rt. 47+05	29.03	24.00	5.03	2'-6"	10'-6"	TYPE H
56	**								
57	A	Lateral P-8 Sta. 1+18	ANTELOPE Lt. 44+14	20.92	14.42	6.73	2'-6"	6'-0"	TYPE L
58	A	" P-8 Sta. 0+33	" Rt. 43+68	20.77	13.32	6.68	"	"	"
59	A	LINE P Sta. 16+57	PORT AVE Rt. 4+96	20.75	13.60	7.38	"	"	"
60	A	Lateral P-9 Sta. 0+85	ANTELOPE Lt. 42+92	21.01	15.72	5.52	"	"	"

\* 4" CURB "B"  
 † 5 1/2" CURB "A"  
 \*\* TYPE E Inlets See Sheet No. 111

# CURB INLETS TYPES A&B

No.	TYPE	LOCATION & OF INLETS		Inlet El.	Inv. El.	H	W	L	MANHOLE RINGS & COVERS
		STORM SEWER STATION	ROADWAY STATION						
61	A	LINE Q Sta. 0+47	ANTELOPE Lt. 37+60	21.05	16.49	4.79	2'-6"	10'-6"	TYPE L
62	A	" Q Sta. 2+99	" Lt. 35+05.5	19.38	17.38	2.23	"	6'-0"	"
63	B	Lateral Q-1 Sta. 1+12	LINE F Lt. 37+25	41.10	37.00	4.10	"	6'-6"	TYPE H
64	A	" Q-1 Sta. 0+43	ANTELOPE Rt. 32+21	20.22	17.32	3.13	"	6'-0"	TYPE L
65	B	LINE R Sta. 7+22	LINE F Lt. 32+50	37.24	34.23	3.01	"	"	TYPE H
66	B	" R Sta. 5+38	" F Lt. 34+37	34.86	30.07	4.79	"	"	"
67	B	Lateral R-1 Sta. 1+85	" B Lt. 30+30.5	33.40	30.00	3.40	"	"	"
68	B	LINE R Sta. 2+89	" B Lt. 32+16	34.18	28.78	5.40	"	"	"
69	B	" R Sta. 4+68	" B Lt. 34+00	34.79	29.57	5.22	"	"	"
70	B	" O Sta. 4+14	" B Rt. 35+75	36.73	32.00	4.73	"	10'-6"	"
71	B	Lateral O-1 Sta. 0+27	" E Lt. 32+73	26.19	22.86	3.33	"	6'-0"	"
72	B	LINE S Sta. 4+80.5	" A Rt. 35+48.5	38.18	32.15	6.03	"	10'-6"	"
73	B	" S Sta. 1+94	" A Rt. 32+60	28.07	25.00	3.07	"	"	"
74	B	Lateral S-1 Sta. 0+78	" A Rt. 30+25.5	27.29	22.32	4.97	"	6'-0"	"
75	A	" B Sta. 1+60	RAMP Y Lt. 48+00	20.72	15.16	5.79	"	"	TYPE L
76	A	" D Sta. 0+37	BUFFALO Lt. 41+68.5	19.87	15.25	4.85	"	"	"
77	A	" C Sta. 0+55	" Rt. 41+27	19.41	15.25	4.39	"	"	"
78	A	" F Sta. 0+17	" Lt. 40+55.5	19.60	15.25	4.58	"	"	"
79	A	" E Sta. 0+53	" Rt. 40+09	19.21	15.32	4.12	"	"	"
80	A	" H Sta. 0+12	" Lt. 32+25	20.08	15.50	4.81	"	"	"
81	**								
82	A	Lateral I Sta. 0+46	BUFFALO Rt. 29+99	18.14	13.50	4.87	2'-6"	6'-0"	TYPE L
83	A	Buff. Conn. to LINE P Sta. 0+49	" Lt. 29+99	18.14	12.09	6.28	4'-0"	"	"
84	A	LINE P Sta. 0+50	" Rt. 26+72	8.00	2.39	5.84	5'-0"	"	"
85	A	" T Sta. 2+38	ANTELOPE Rt. 32+67	17.27	12.92	4.54	2'-6"	"	"
86	A	" T Sta. 6+25.1	" Rt. 30+50	14.25	10.37	4.11	"	"	"
87	A	Lateral T-1 Sta. 0+93	" Rt. 28+54	9.17	6.25	3.15	3'-0"	"	"
88	B	" T-2 Sta. 1+15	LINE F Lt. 28+73	38.35	33.68	4.67	2'-6"	"	TYPE H
89	B	LINE T Sta. 0+82	" E Lt. 28+64	10.45	4.11	6.34	"	"	"
90	B	Lateral P-12 Sta. 1+03	RAMP P Rt. 29+01	22.43	19.49	2.94	"	"	"
91	A	" P-12 Sta. 0+61	BUFFALO Lt. 27+25	8.00	3.36	4.87	3'-0"	"	TYPE L
92	B	" U-2 Sta. 1+08	LINE D Lt. 5+00	26.22	22.02	4.20	2'-6"	"	TYPE H
93	A	" U-3 Sta. 1+39	BROWNLEE Lt. 3+75.5	7.33	4.64	2.92	"	"	TYPE L
94	B	" U-4 Sta. 0+31	LINE B Lt. 26+11	29.47	24.00	5.41	"	"	TYPE H
95	B	" U-5 Sta. 3+99	" A Lt. 28+00	29.07	24.65	4.42	"	"	"
96	B	" U-5 Sta. 1+91	" A Lt. 25+89	28.99	24.49	4.50	"	"	"
97	A	" U-5 Sta. 1+04	RAMP P Lt. 26+00	10.50	8.00	2.73	"	"	TYPE L

\* CI-81 Omitted

# SHOULDER GUTTER DRAINS TYPE C

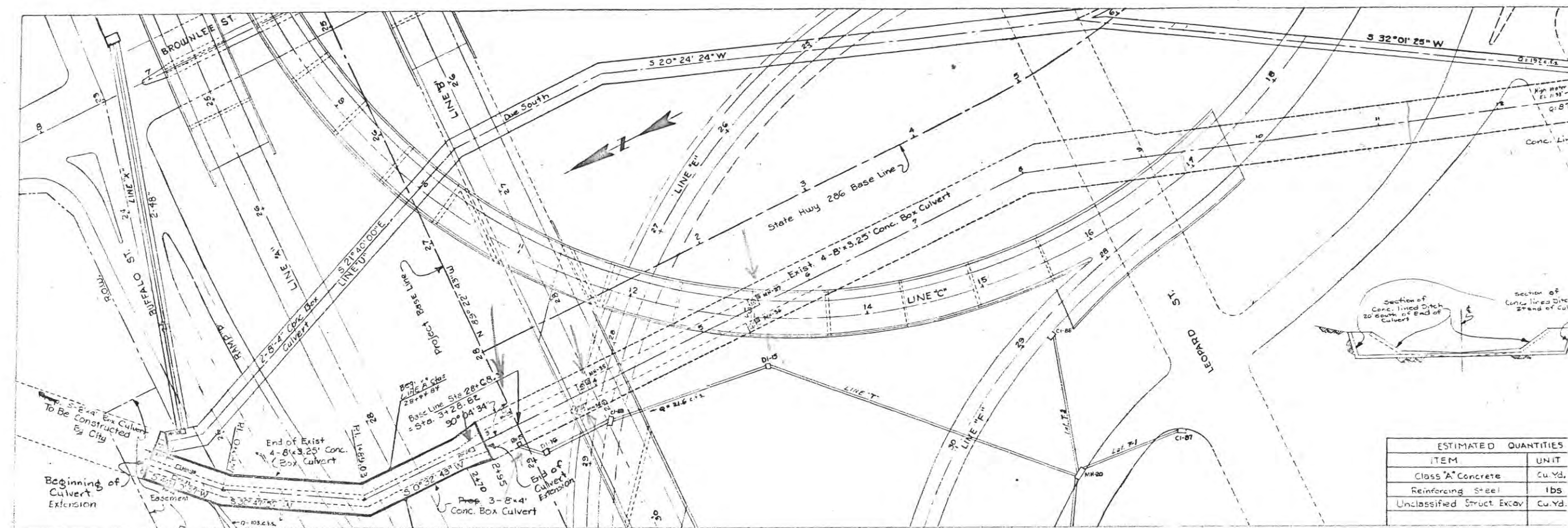
No.	TYPE	LOCATION & OF DRAINS		Inlet El.	Inv. El.	H	W	L	MANHOLE RINGS & COVERS
		STORM SEWER STATION	ROADWAY STATION						
1	A	Lateral X-2 Sta. 0+09	LINE A Rt. 1+93.5	29.80	26.70	3.31	2'-6"	6'-0"	TYPE L
2	"	" X-3 Sta. 1+89	RAMP X Lt. 4+88.5	24.75	18.80	6.10	"	"	"
3	"	" X-4 Sta. 0+09	LINE A Rt. 5+42	17.87	14.72	3.30	"	"	"
4	"	" X-6 Sta. 0+09	" A Rt. 8+38.5	15.81	12.12	3.84	"	"	"
5	"	" X-7 Sta. 1+47	" B Lt. 8+80	17.60	12.01	5.74	"	"	"
6	"	" X-8 Sta. 1+42	" B Lt. 11+50	14.08	9.85	4.38	"	"	"
7	"	" X-9 Sta. 0+09	" A Rt. 11+21	14.20	10.05	4.30	"	"	"
8	"	" X-10 Sta. 0+39	RAMP W Rt. 15+52	11.06	6.99	4.22	"	"	"
9	"	" Y-1 Sta. 0+09	" S Lt. 16+25.5	11.72	7.64	4.23	"	"	"

# INLET TABLE

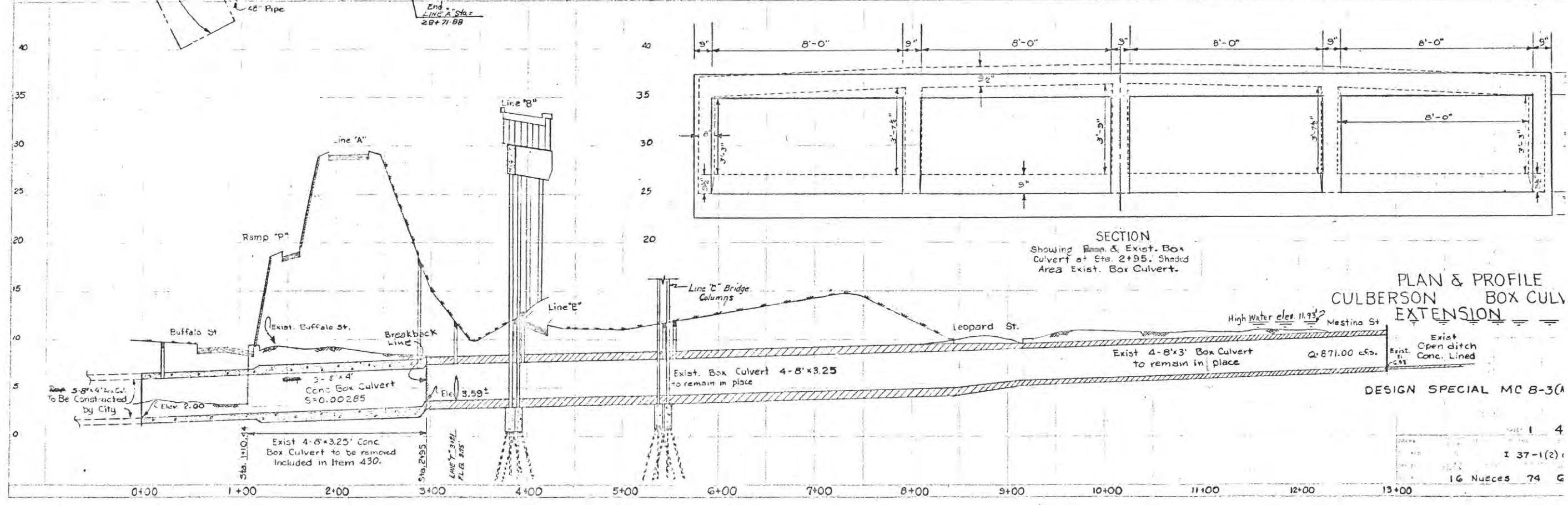
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16 NUECES 74 G 38





ESTIMATED QUANTITIES	
ITEM	UNIT
Class "A" Concrete	Cu. Yd.
Reinforcing Steel	Lbs
Unclassified Struct. Excav	Cu. Yd.

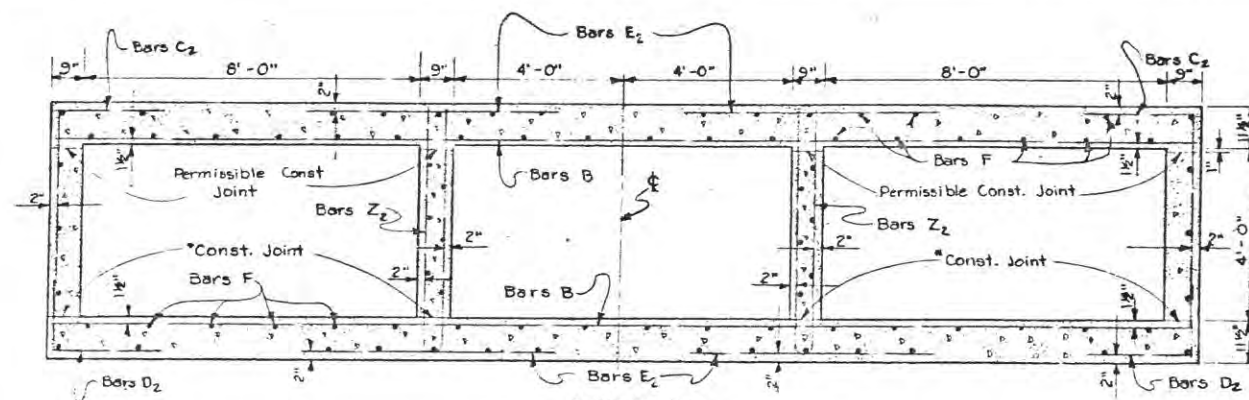


SECTION  
Showing Prop. & Exist. Box  
Culvert at Sta. 2+95. Shaded  
Area Exist. Box Culvert.

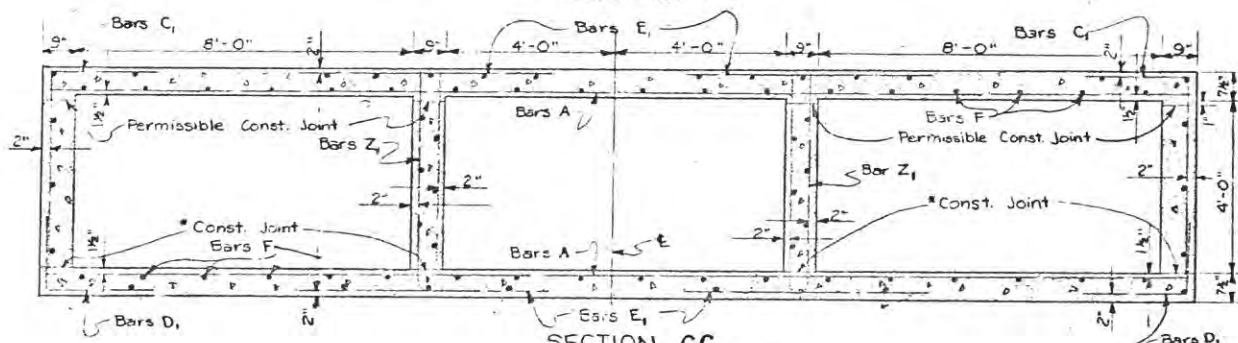
# PLAN & PROFILE CULBERSON BOX CULVERT EXTENSION

DESIGN SPECIAL MC-B-3(A)

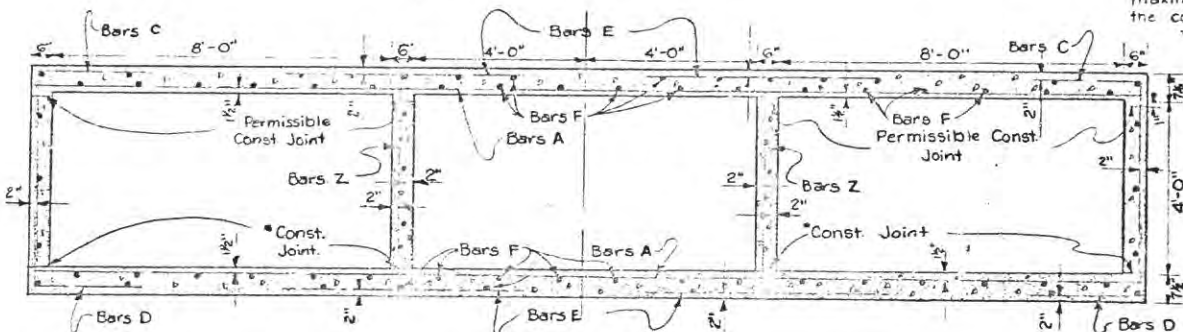
1 4  
1 37-1(2)  
16 Nueces 74 G



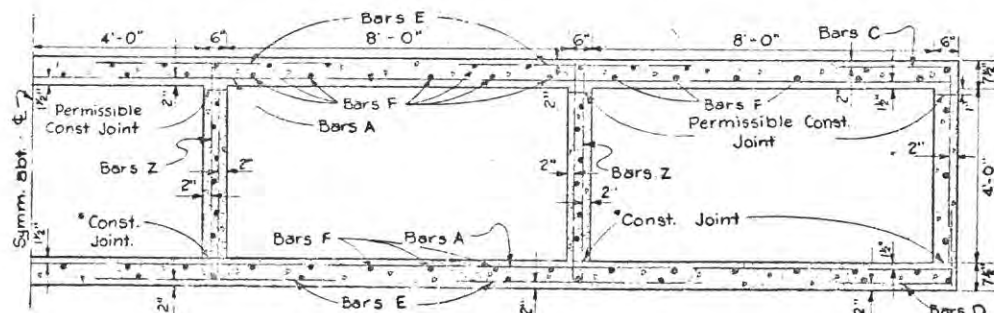
SECTION DD  
Sta. 1+10 to Sta. 2+70  
MCB-3 Modified



SECTION CC  
Sta. 0+64.57 to Sta. 1+10  
MCB-3 Modified

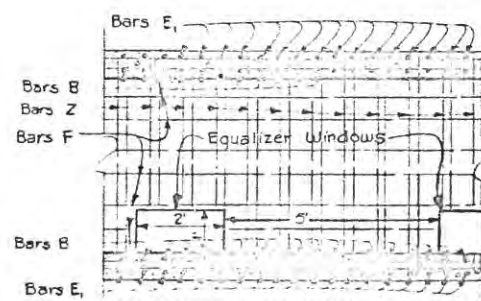


SECTION BB  
Sta. 0+07.61 to Sta. 0+64.57  
MCB-3

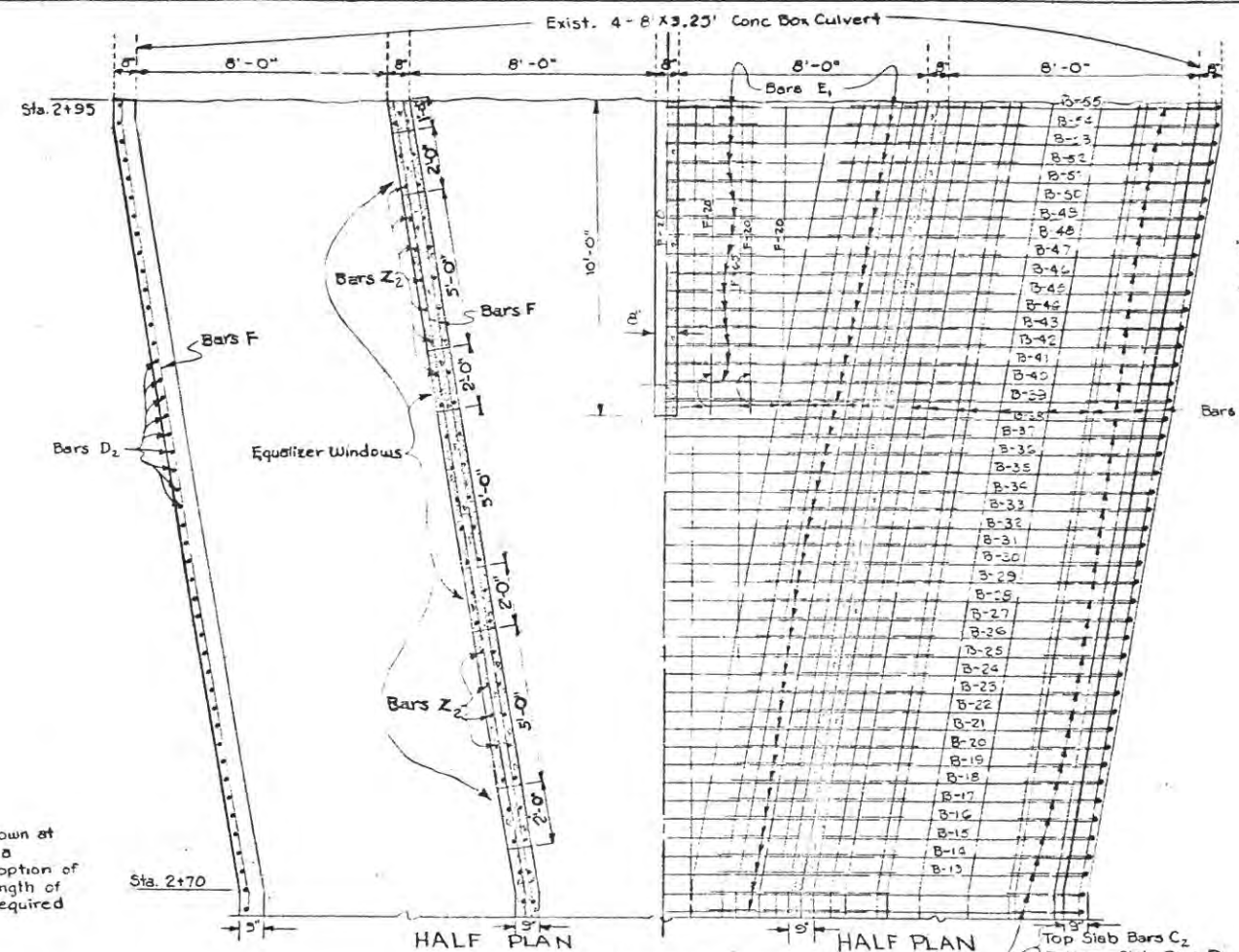


HALF SECTION AA  
Sta. 0+00 to Sta. 0+07.61  
MCB-3

\* Construction Joints shown at flowline may be raised a maximum of 6" at the option of the contractor. Adjust length of vertical steel as required

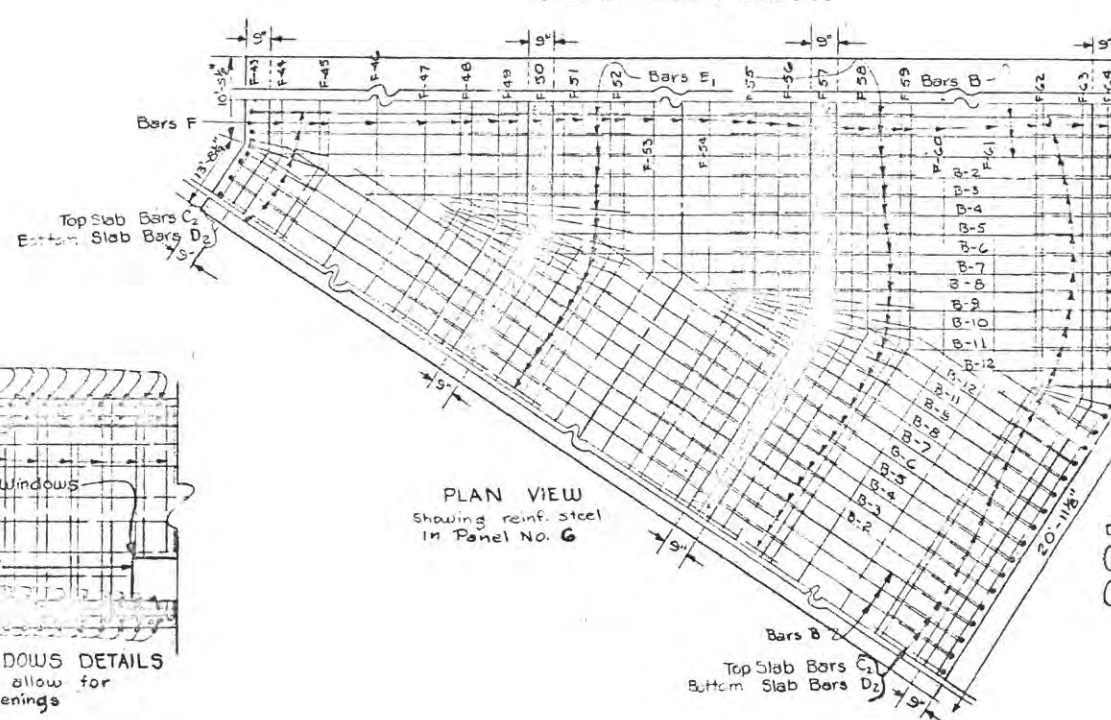


EQUALIZER WINDOWS DETAILS  
Bars Z cut to allow for window openings



HALF PLAN  
Showing placement of reinf. steel from Sta. 2+70 to Sta. 2+95

Exist Culvert broken out to Sta. 2+95 except a minimum of 30 dia. of Rebar Steel. This will not be for directly shall be in the inter Class A Cover Extending Sta.



PLAN VIEW  
Showing reinf. steel in Panel No. 6

# GENERAL NOTE

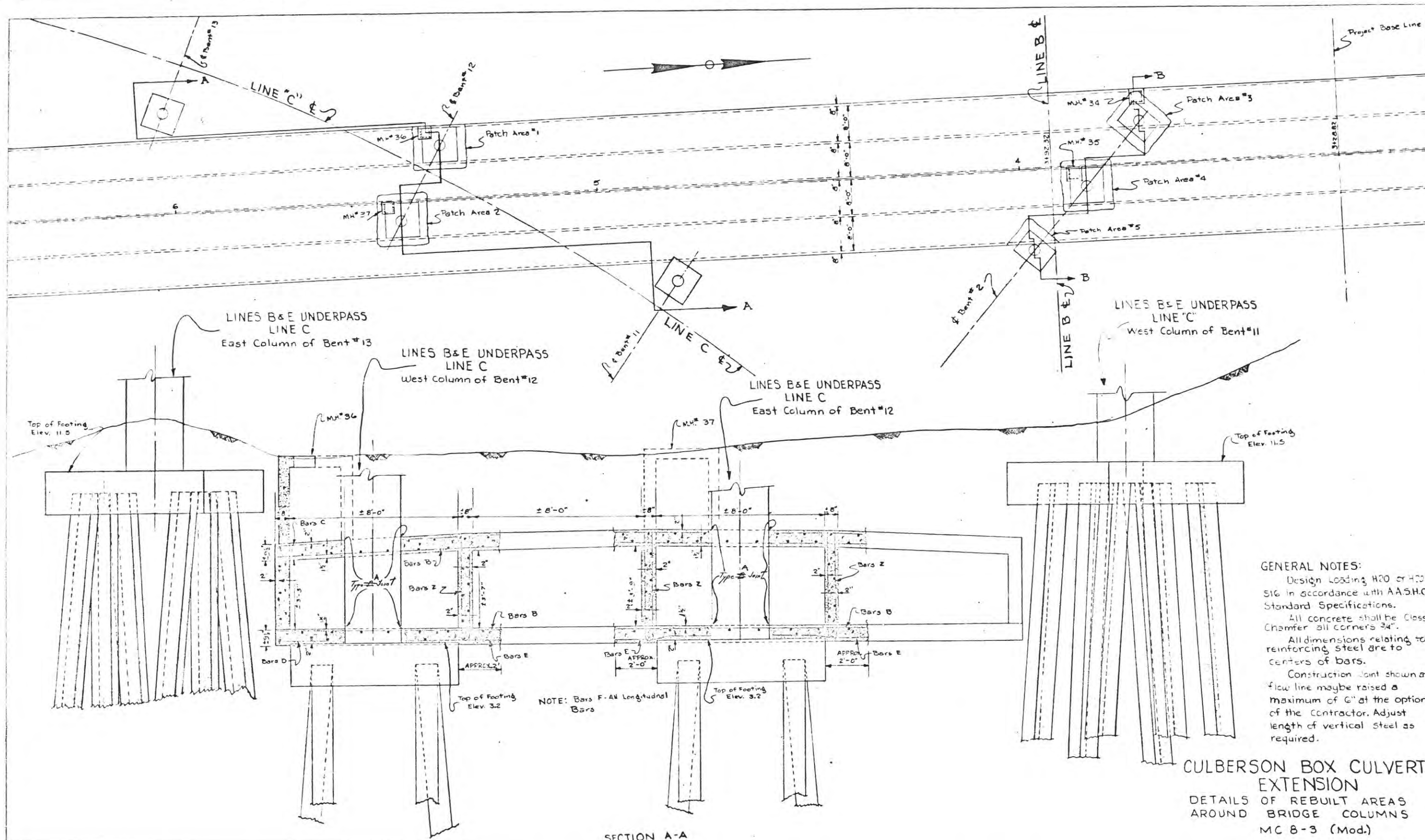
Design Loading H:  
H20 S16 in accordance with AASHTO, 1957 Standard Specifications.  
All concrete shall be if not specified otherwise. Chamfer all exposed corners.  
All dimensions relative to reinforcing steel are. Construction joints: be provided at maximum spacing of 40' along entire length of culvert. No bars steel at joints.  
All splices in steel shall be a minimum of 20 dia. lap. Spacing of longitudinal steel will be for at a rate of one 20' per 60 ft. If the Contractor to use longitudinal steel lengths less than 60 ft. extra cost of providing laps shall be borne by Contractor.

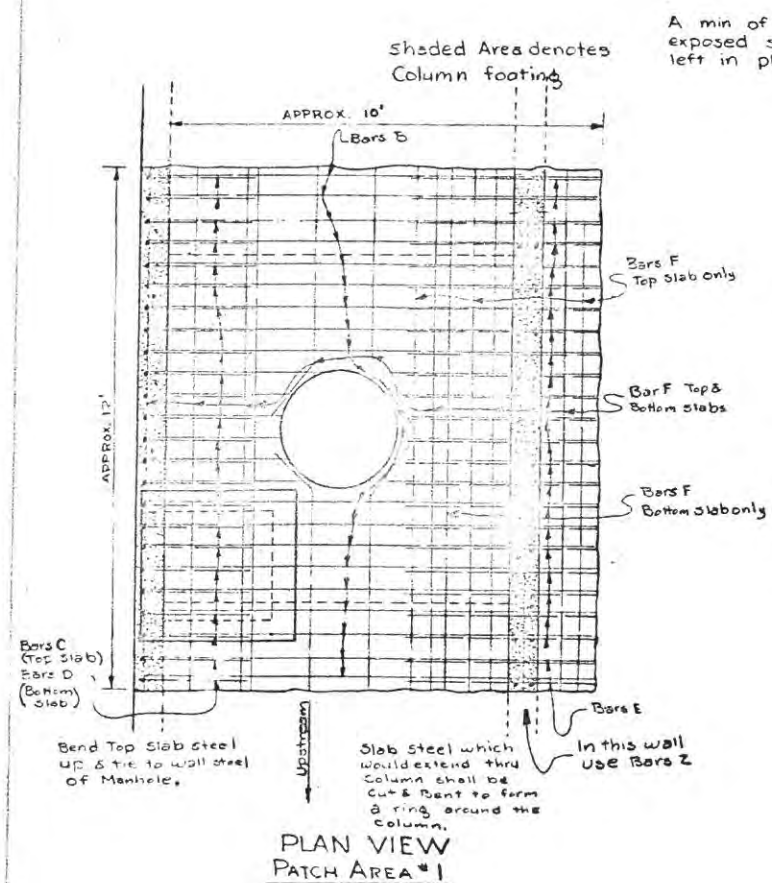
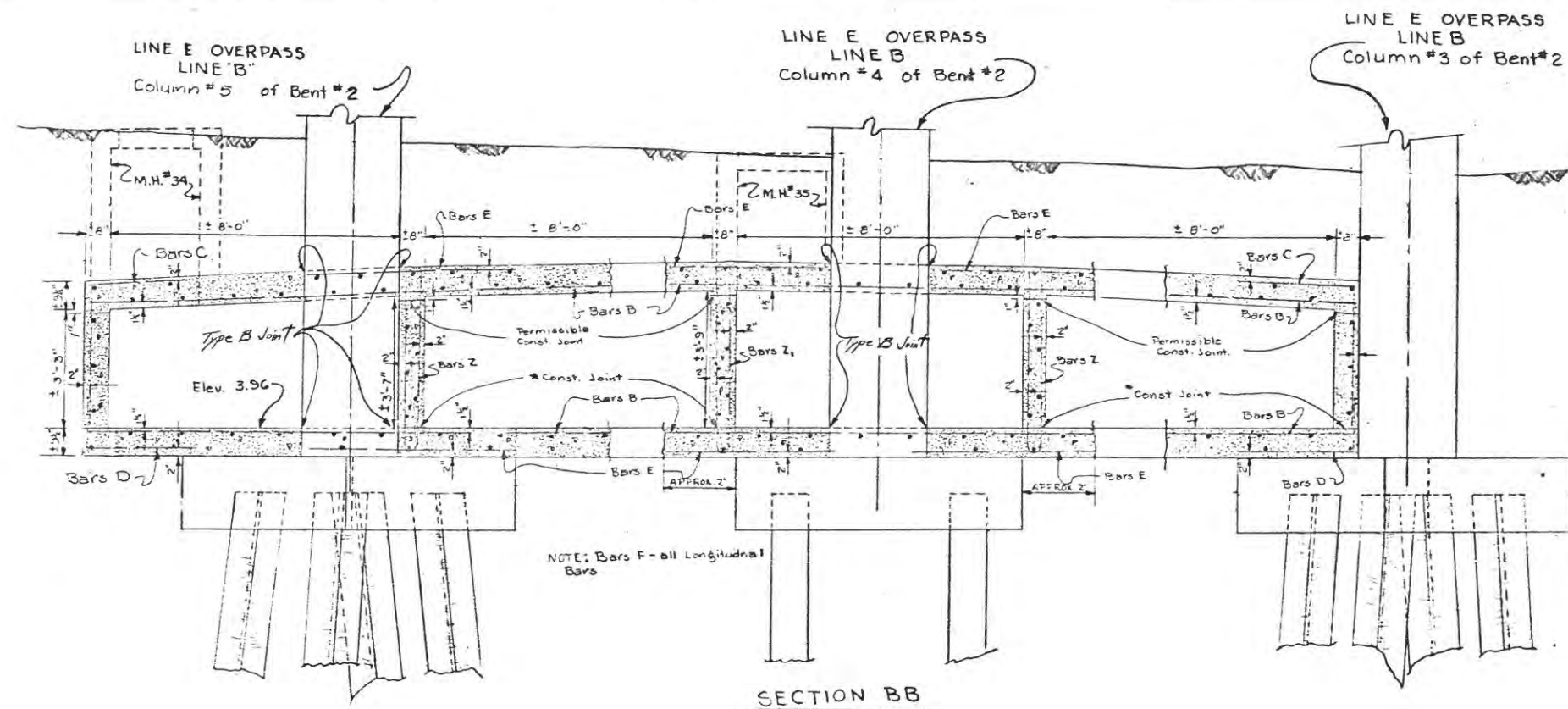
DETAILS OF REINFORCING STEEL  
CULBERTSON BOX  
CULVERT EXTENSION  
MCB-3 (Mod)

SHEET 3 OF 4 SH

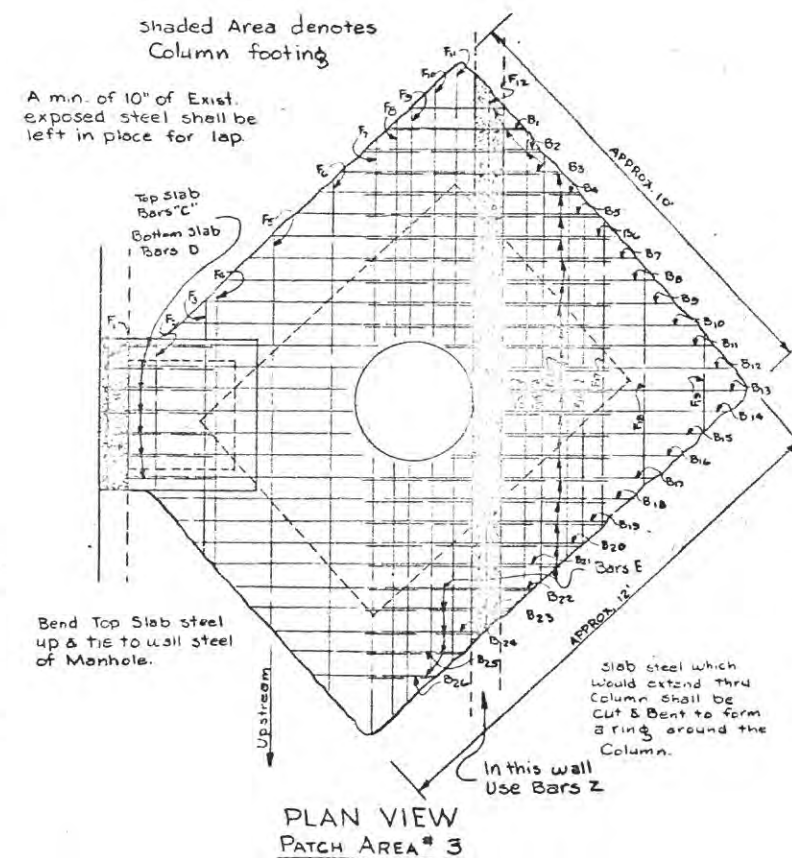
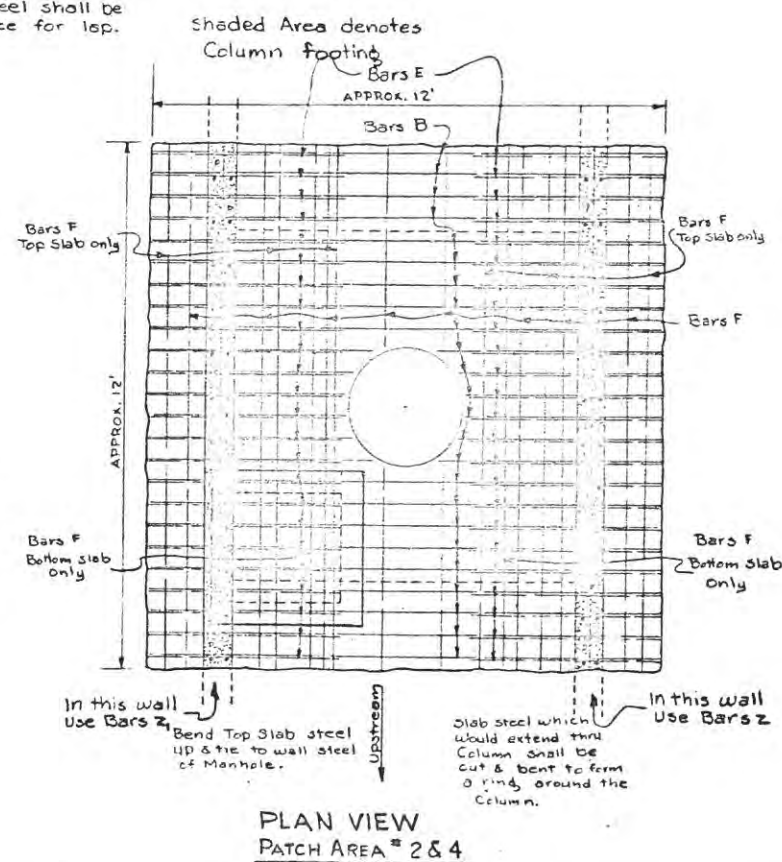
DATE	1-37-1(2) 000
BY	16 Nueces 74 6







A min of 10" of Exist. exposed steel shall be left in place for lap.



#### GENERAL NOTES:

Design Loading: H20 or S16 in accordance with AASHTO Standard Specifications.

All concrete shall be C-1500. Chamfer all corners 3/4".

All dimensions relating to reinforcing steel are to center of bars.

Construction Joints at flow line may be raised maximum of 6" at the option of the contractor. Adjust length of vertical steel required.

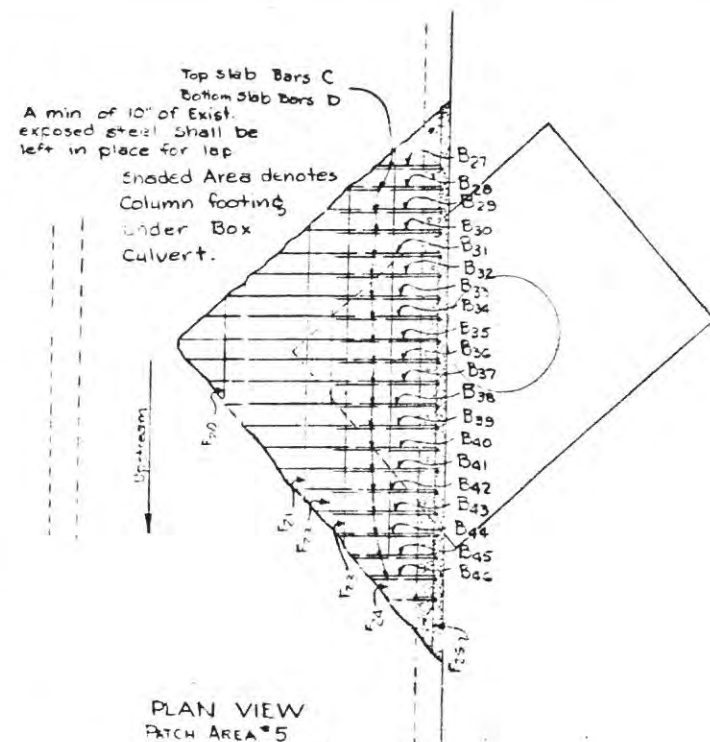
CULBERSON BOX CULVERT  
EXTENSION  
DETAILS OF REBUILT AREAS  
AROUND BRIDGE COLUMNS  
MC 8-3 (Mod.)

SHEET 2 OF 3 SHEETS

I-37-1(2)000

16 NUECES 74 G 34





# BILL OF REINFORCING STEEL

Patch Area #1

MARK	NUMBER	SIZE	SPACING	LENGTH	WEIGHT
B	48	#4	6"	10'-6"	337
C	24	#4	6"	6'-4 1/2"	102
D	24	#4	6"	4'-6"	72
E	48	#6	6"	4'-6"	324
F	33	#4	5"	12'-0"	265
Z	12	#4	12"	9'-10"	79
TOTAL					1,179

Class 'A' Concrete 9.5 C.Y.

Patch Area #2 & 4

MARK	NUMBER	SIZE	SPACING	LENGTH	WEIGHT
B	48	#4	6"	12'-0"	385
E	96	#4	6"	4'-6"	649
F	40	#4	5"	12'-0"	321
Z	12	#4	12"	9'-10"	79
Z	12	#4	12"	10'-2"	82
TOTAL					1,516

Class 'A' Concrete 10.5 C.Y.

Patch Area #3

MARK	NUMBER	SIZE	SPACING	LENGTH	WEIGHT
B	52	#4	6"	Avg 9'-1"	316
C	7	#4	6"	6'-4 1/2"	33
D	7	#4	6"	4'-6"	21
E	52	#6	6"	5'-8"	442
F	12	#4	5"	Avg 7'-8"	240
Z	12	#4	12"	9'-10"	79
TOTAL					1,131

Class 'A' Concrete 10 C.Y.

Patch Area #5

MARK	NUMBER	SIZE	SPACING	LENGTH	WEIGHT
B	20	#4	6"	Avg 3'-5 1/2"	50
C	20	#4	6"	6'-4 1/2"	85
D	20	#4	6"	4'-6"	60
F	15	#4	5"	Avg 11'-2 1/2"	90
TOTAL					285

Class 'A' Concrete 2.5 C.Y.

## Patch Area #5 Bar Length Chart

B27 1'-6"	F20 2'-6"
B28 2'-3"	F21 6'-6"
B29 2'-9"	F22 7'-6"
B30 3'-3"	F23 8'-6"
B31 3'-9"	F24 10'-6"
B32 4'-4"	F25 12'-6"
B33 5'-0"	
B34 5'-6"	
B35 6'-2"	
B36 6'-0"	
B37 5'-6"	
B38 5'-0"	
B39 4'-6"	
B40 4'-2"	
B41 3'-9"	
B42 3'-4"	
B43 2'-10"	
B44 2'-4"	
B45 2'-0"	
B46 1'-6"	

## LINE "C" Patch Areas #1 & 2

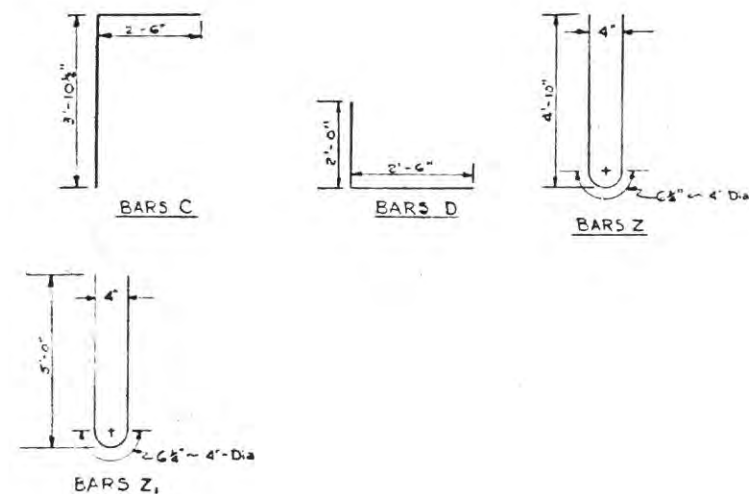
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class A concrete	C.Y.	20
Reinforcing Steel	lbs.	2,695

## LINE "B" Patch Areas 3, 4 & 5

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class A concrete	C.Y.	23
Reinforcing Steel	lbs.	2,932

## TOTAL OF PATCHES 1,2,3,4,5

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class 'A' Concrete	Cu Yd.	43
Reinforcing Steel	lbs.	5,627



## BAR BENDING DETAILS

Patch Area #3  
Bar Length Chart

B1 3'-0"	F1 3'-6"
B2 4'-0"	F2 3'-6"
B3 5'-0"	F3 3'-11"
B4 6'-0"	F4 6'-6"
B5 7'-0"	F5 5'-0"
B6 8'-0"	F6 11'-9"
B7 9'-0"	F7 12'-9"
B8 10'-0"	F8 12'-9"
B9 11'-0"	F9 13'-9"
B10 12'-0"	F10 13'-9"
B11 14'-1"	F11 13'-9"
B12 14'-7"	F12 12'-5"
B13 14'-11"	F13 10'-8"
B14 14'-5"	F14 9'-9"
B15 13'-9"	F15 6'-7"
B16 12'-4"	F16 7'-9"
B17 12'-9"	F17 7'-0"
B18 11'-0"	F18 4'-10"
B19 10'-0"	F19 2'-0"
B20 9'-0"	
B21 8'-0"	
B22 7'-0"	
B23 6'-0"	
B24 5'-0"	
B25 4'-0"	
B26 3'-0"	

GENERAL NOTE:  
Design Loading: H20- or H20 S16- in  
accordance with A.A.S.H.O. 1957 Standard  
Specifications.  
All concrete shall be Class A. Chamfer  
exposed corners 3/4".  
All dimensions relating to reinforcing  
steel are to centers of bars.

CULBERSON BOX CULVERT  
EXTENSION  
DETAILS OF REBUILT AREAS  
AROUND BRIDGE COLUMNS  
MC 8-3 (Mod.)

SHEET 3 OF 3 SHEETS

1-37-1(2)000 119

16 NUECES 74 G 38 I-37







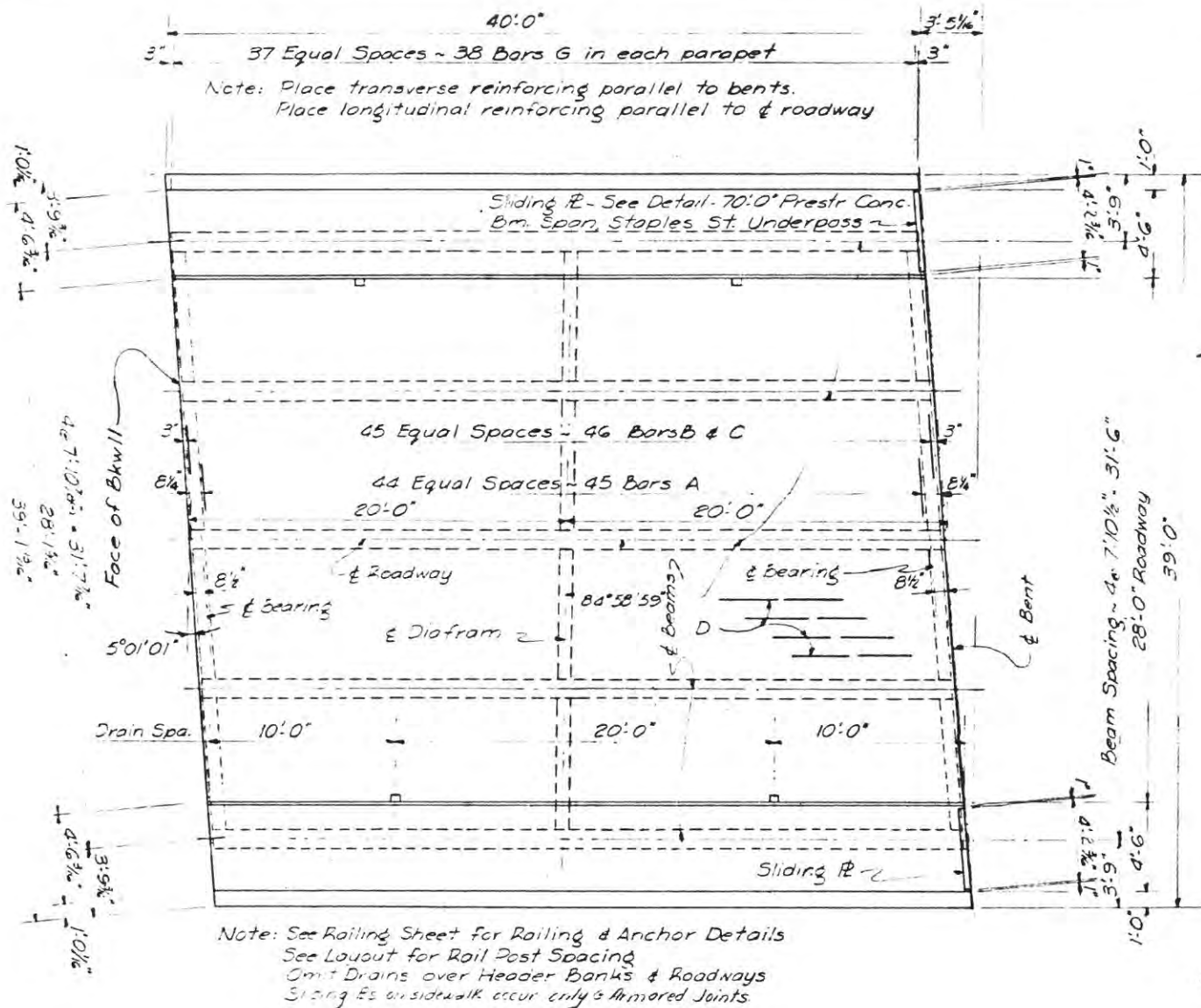




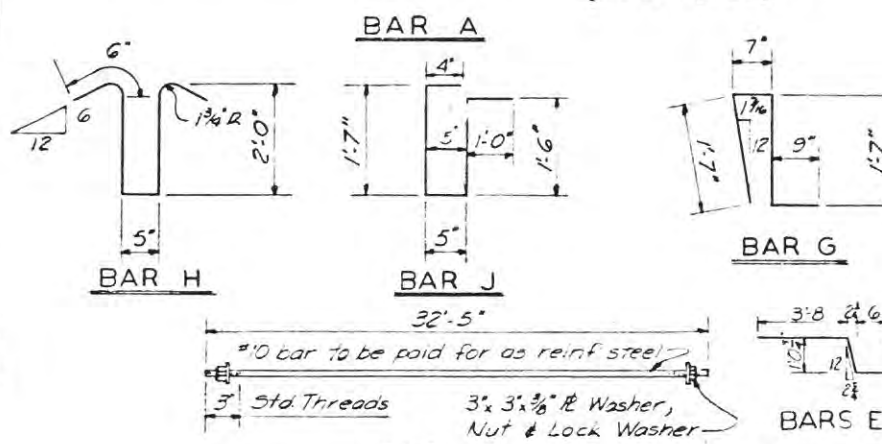
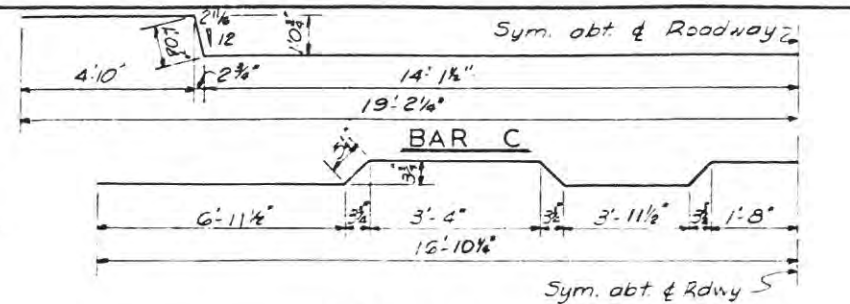
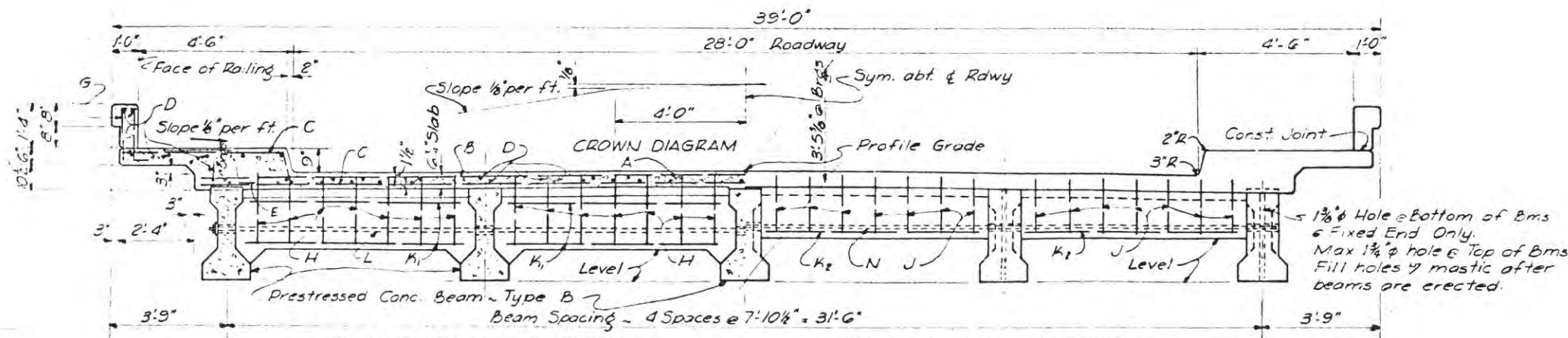




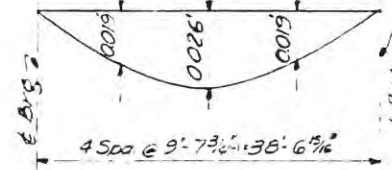




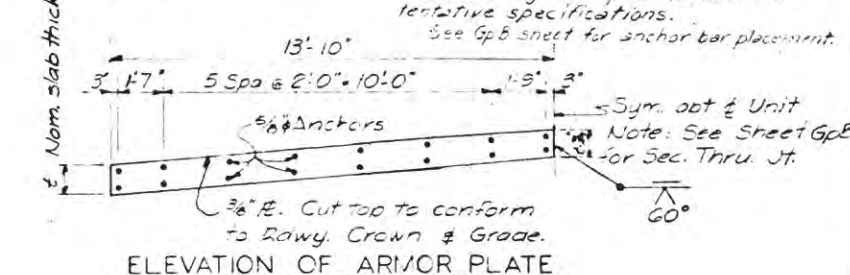
PLAN



After Bars L are fabricated, the plate, washers, nuts & 1'-0" of each end of the bar shall be galvanized in accordance with A.S.T.M. Spec. 153, or 1 1/4" x 1'-0" galvanized bolts may be butt welded to ends of 10 bar. End of bar may be painted with Dinitrol, m.f. by Amercoat Corp. or equal, in accordance with manufacturers specifications.



Note: See also General Notes on Gp B Sheet.



Note: The two Armor R's for a complete joint after being cut to crown, shall be matched for fit and the matched plates bolted together for shipment.  
Armor Joints to be provided where shown on Bridge Layout.

BILL OF REINFORCING STEEL					
Bar	No	Size	Spacing	Length	Weight
A	45	#5	10 1/2"	33'-5"	1616
B	46	#5	10 1/2"	33'-5"	1623
C	46	#5	10 1/2"	40'-1"	1923
D	60	#5	~	39'-8"	2433
G	76	#5	1'-0"	4'-6"	228
H	26	#5	1'-0"	5'-1"	95
J	56	#4	1'-0"	4'-10"	181
K	16	#5	~	6'-7"	110
L	16	#5	~	6'-7"	110
L	1	#0	~	32'-5"	140
E	30	#3	10 1/2"	5'-2"	311
N	2	#8	~	32'-2"	172
Total					3992

TABLE OF ESTIMATED QUANTITIES		
Item	Unit	Quantity
Class A Concrete	Cu Yd	45.1
Reinforcing Steel	Lb	3992
Type B Prest. Conc. Bm.	Lin Ft	198.33
Structural Steel	Lb	322
Type P Aluminum Rail	Lin Ft	6000

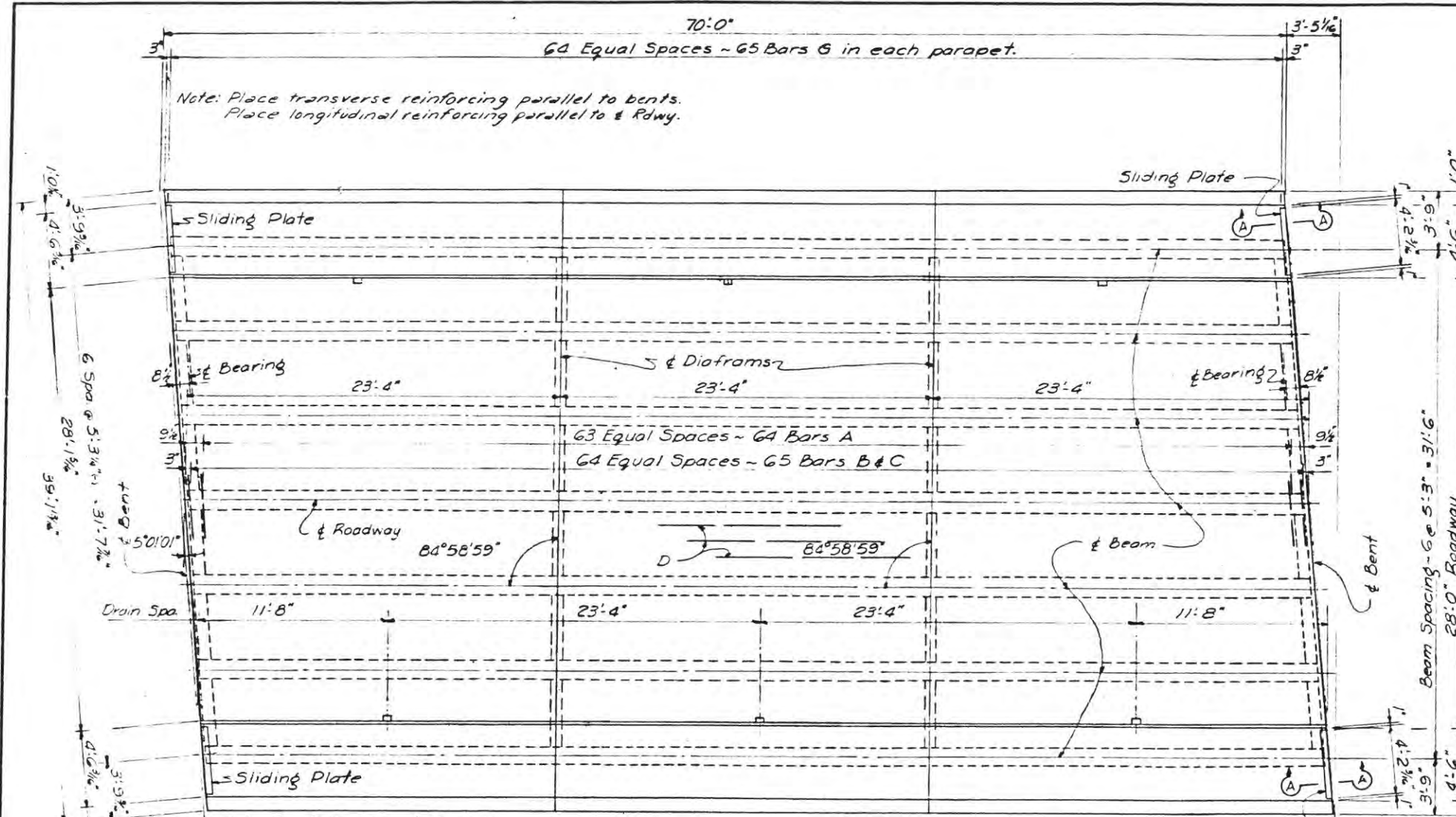
\*\* One Armor Plate & 1 Sliding R.  
\* Does not include quantities in prestressed concrete beams.

GENERAL NOTES:  
Design: H20-44 in accordance with AASHTO 1957 Standard Spec.  
Design stress for reinforcing steel = 20,000 psi.  
Slab design complies with 1959 tentative specifications.  
See Gp B sheet for anchor bar placement.

TYPE B BEAMS  
TEXAS HIGHWAY DEPARTMENT  
40'-0" PRESTRESSED  
CONCRETE BEAM SPAN  
5'-0" 1' 0" R.F. SKEW  
28'-0" ROADWAY 4'-6" SIDEWALKS  
STAPLES ST. UNDERPASS

By	Check	Date	By	Check	Date
W.H.	W.H.	Original	W.H.	W.H.	Nov. 1959
W.H.	W.H.		W.H.	W.H.	
W.H.	W.H.		W.H.	W.H.	
W.H.	W.H.		W.H.	W.H.	





PLAN

GENERAL NOTES:

Design: H20-44 in accordance with AASHTO 1957 Stand. Spec.

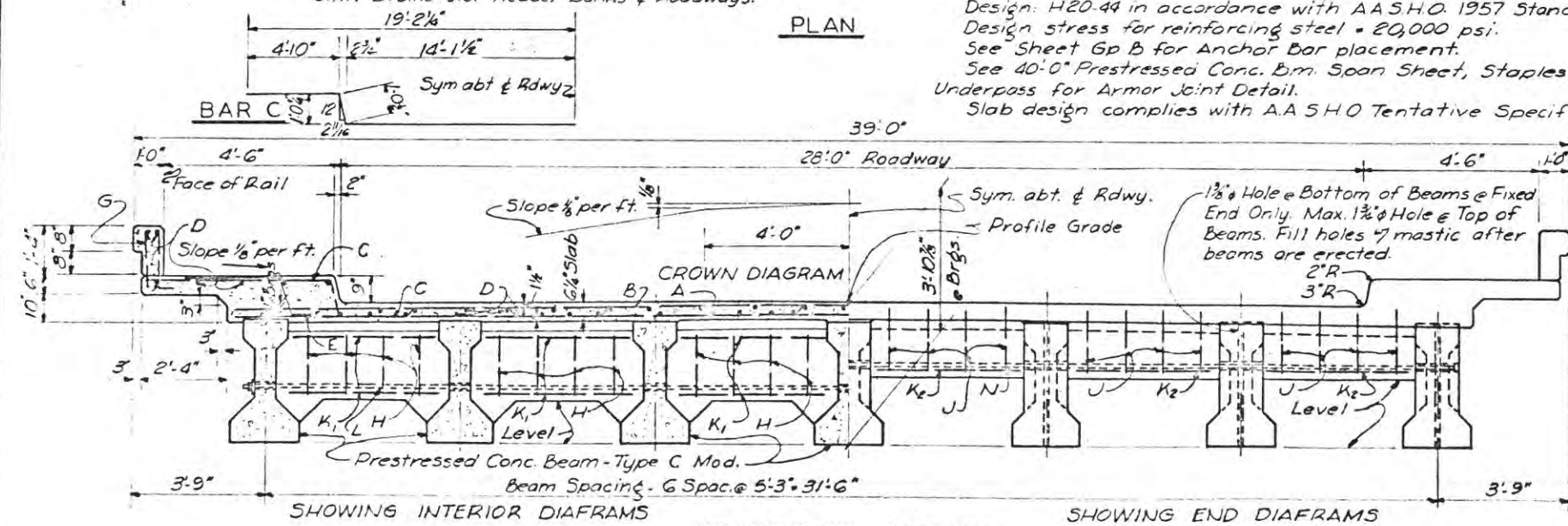
Design stress for reinforcing steel = 20,000 psi.

See Sheet Gp B for Anchor Bar placement.

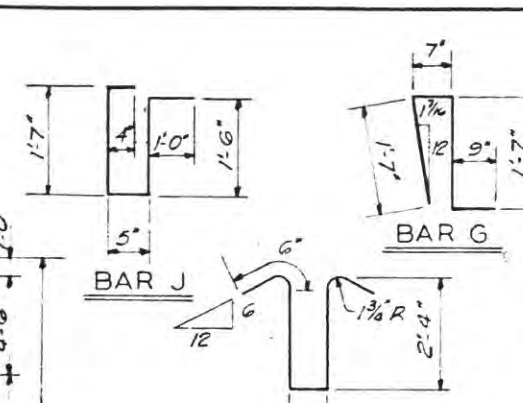
See 40'-0" Prestressed Conc. Bm. Span Sheet, Staples St.

Underpass for Armor Joint Detail.

Slab design complies with AASHTO Tentative Specifications (1959).

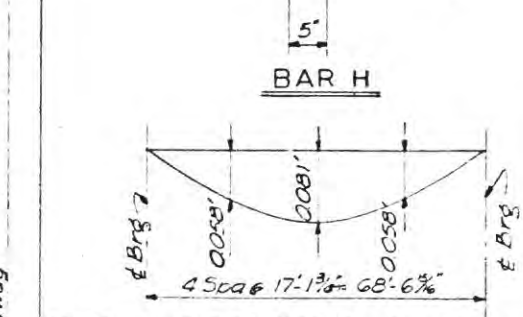


TRANSVERSE SECTION



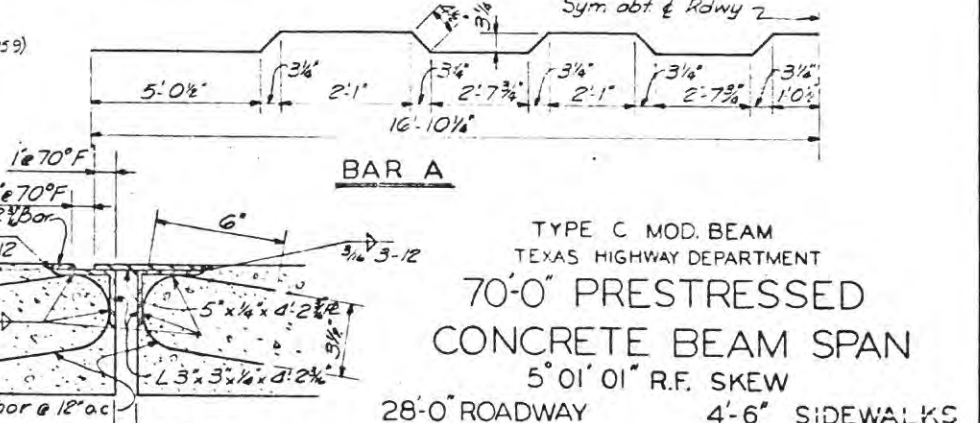
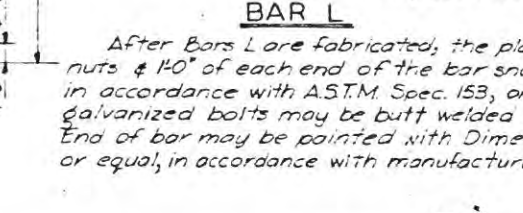
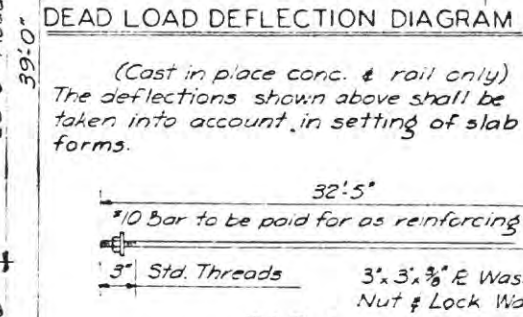
Bar No	Size	Spacing	Length	Weight
A	64	#5	1'-1"	34'-9"
B	65	#5	1'-1"	33'-7"
C	65	#5	1'-1"	40'-1"
D	66	#5	~	70'-10"
G	130	#4	1'-1"	4'-6"
H	48	#4	1'-0"	5'-9"
J	48	#4	1'-0"	4'-10"
K	45	#5	~	3'-10"
L	24	#5	~	3'-10"
L	2	#10	~	32'-5"
E	138	#4	1'-1"	5'-2"
N	2	#8	~	32'-4"
Total				14,102

\* Includes 20 dia lap.



Item	Unit	Quantity
Class A Concrete	Cu Yd	73.9
Reinforcing Steel	Lb	14,102
Type C Mod. Prest. Conc. Bm. Lin. Ft.	Lt	487.67
Structural Steel	Lb	630
Type P Aluminum Rail Lin. Ft.	Lt	140.00

\* Does not include quantities in prestressed concrete beams.   
 \*\* One armor joint & 2 sliding R.J.s

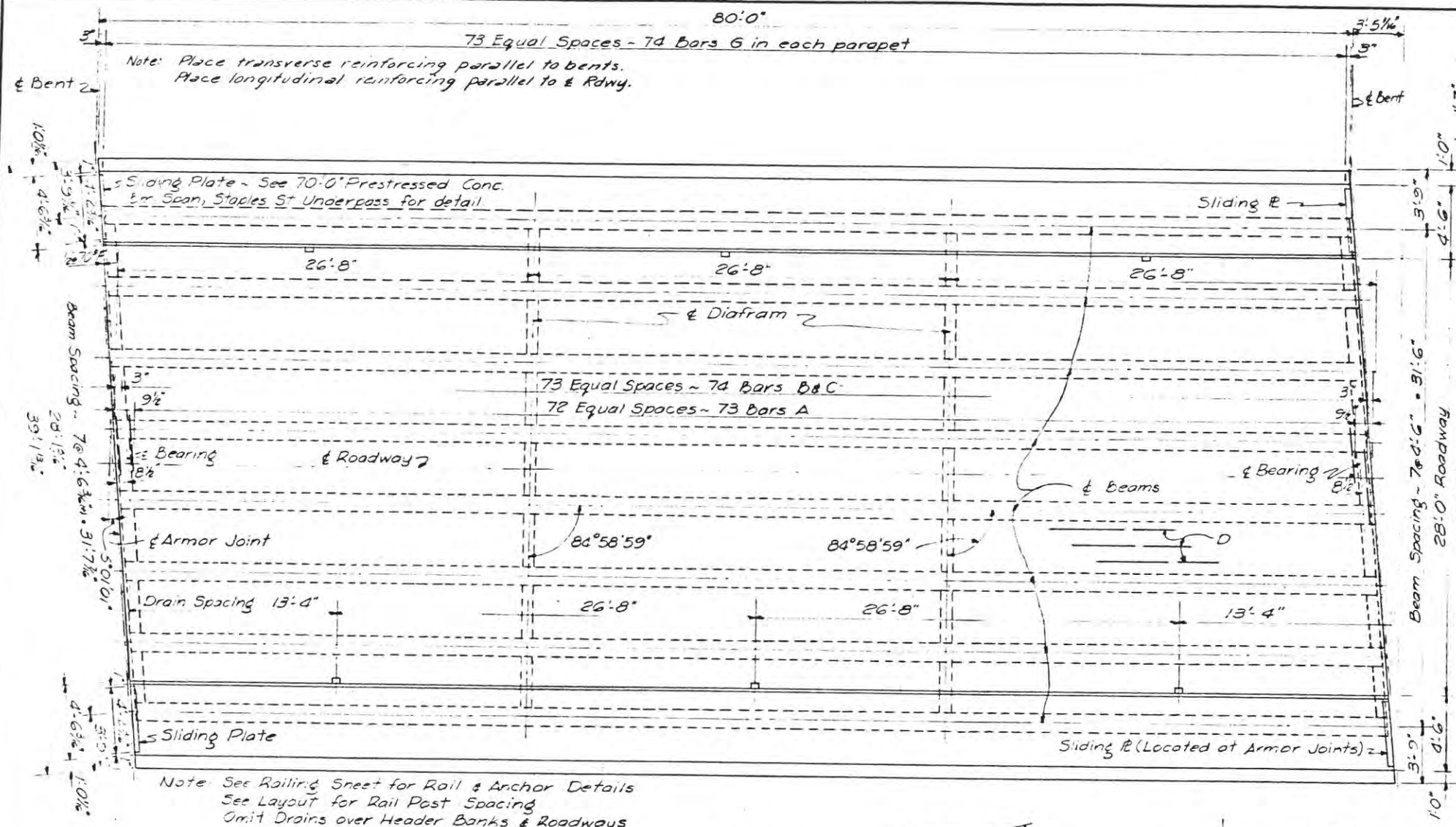


DATE	BY	CHKD BY	DATE	BY	CHKD BY	DATE	BY	CHKD BY
10/1/59	Original		10/1/59					

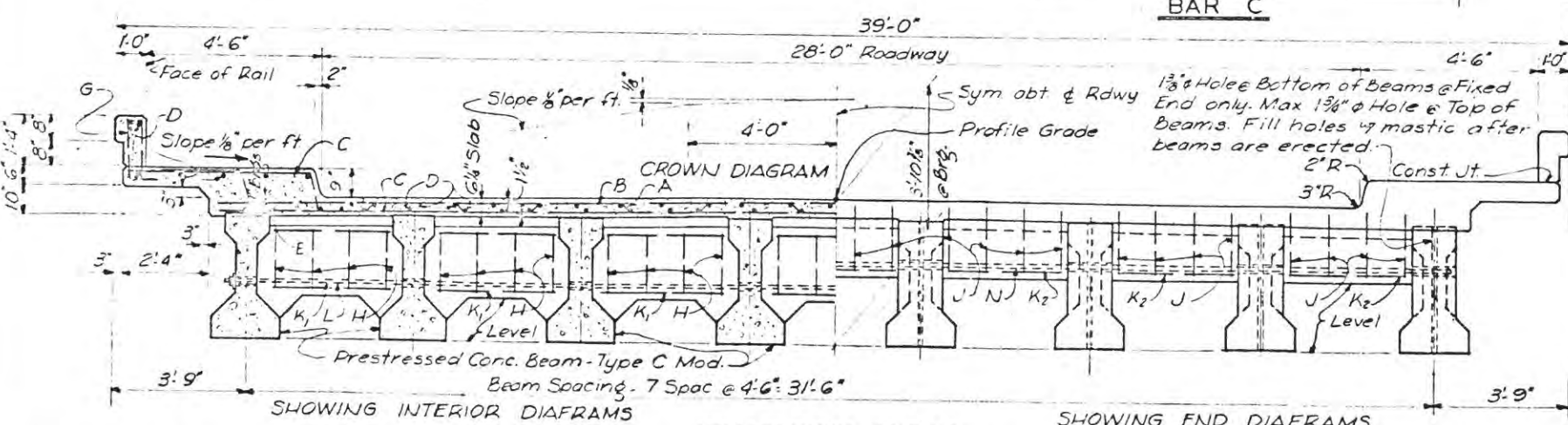
STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	37-1(2)000	126

COUNTY	POSTMILE	SECTION	DATE
Nueces	74	6	38



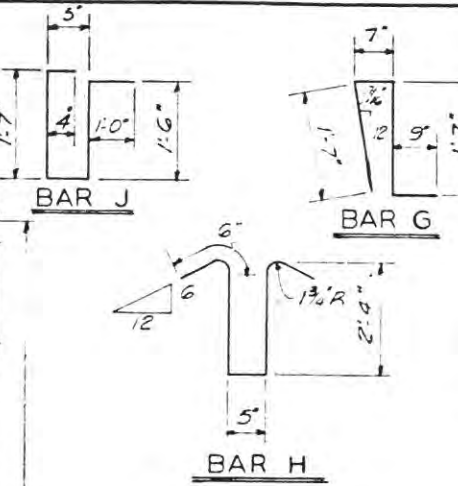


PLAN



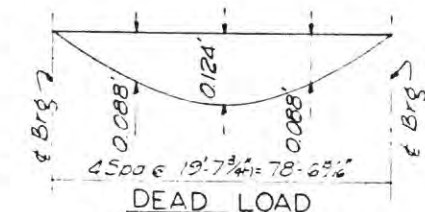
TRANSVERSE SECTION

SHOWING END DIAPHRAGMS



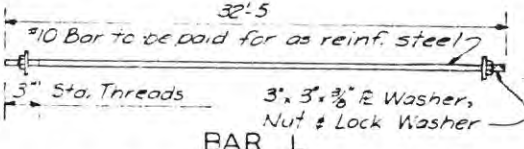
Bar	No	Size	Spac	Length	Weight
A	73	#5	1'1"	34'11"	2659
B	74	#5	1'1"	33'8"	2599
C	74	#5	1'1"	40'1"	3093
D	68	#5	~	80'3"	5727
G	148	#4	1'1"	4'6"	445
H	56	#4	1'0"	5'9"	215
J	56	#4	1'0"	4'10"	181
K	56	#5	~	3'1"	180
L	28	#5	~	3'1"	90
N	2	#10	~	32'5"	279
E	146	#4	1'1"	5'2"	504
N	2	#8	~	32'4"	173
Total					16,145

\* Includes 20 dia lap.

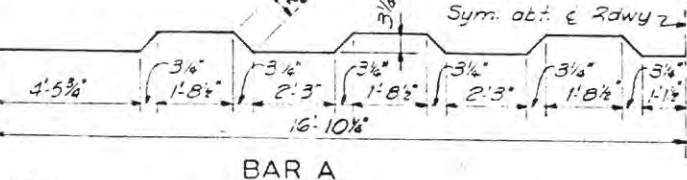


DEAD LOAD DEFLECTION DIAGRAM

(Cast in place conc. & rail only)  
The deflections shown above shall be taken into account in setting of slab forms.



After Bars L are fabricated, the plate, washers, nuts, & 1'0" of each end of the bar shall be galvanized in accordance with A.S.T.M. Spec, 153 or 1 1/2" x 1'0" galvanized bolts may be butt welded to ends of #10 bar. End of bar may be painted with Dimetcoat, mfg. by Amercoat Corp., or equal, in accordance with manufacturers specifications.



GENERAL NOTES:  
Design: H20-44 in accordance with A.A.S.H.O. 1957 Stand. Spec.  
Design stress for reinforcing steel - 20,000 psi.  
See also General Notes on Sheet Gp.B.  
See Armor Joint Detail - 40'0" Prestressed Conc. Beam Span Sheet - Staples St. Underpass.  
SAB design complies with A.A.S.H.O. 1959 tentative specifications.

TYPE C MOD. BEAM  
TEXAS HIGHWAY DEPARTMENT  
80'0" PRESTRESSED  
CONCRETE BEAM SPAN  
5'01'01" R.F. SKEW  
28'0" ROADWAY 4'6" SIDEWALKS

STAPLES STREET UNDERPASS

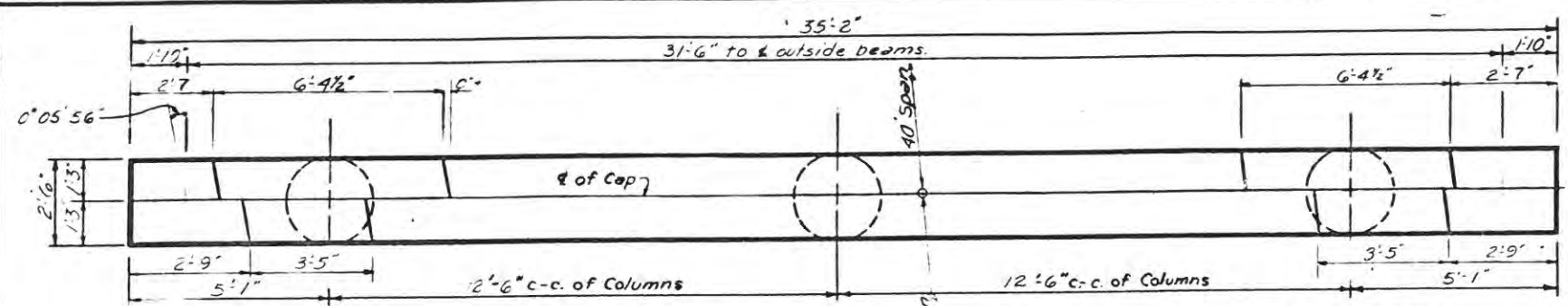
See Gp.B Sheet for Anchor Bar placement.

DATE	BY	CHKD	DATE	STATE	FEDERAL AID PROJ. NO.	SHEET NO.
10/1/59	Original		Nov, 1959	TEXAS	I-37-1(2)500	127
10/1/59	Rev			TEXAS		
10/1/59	Rev			TEXAS		

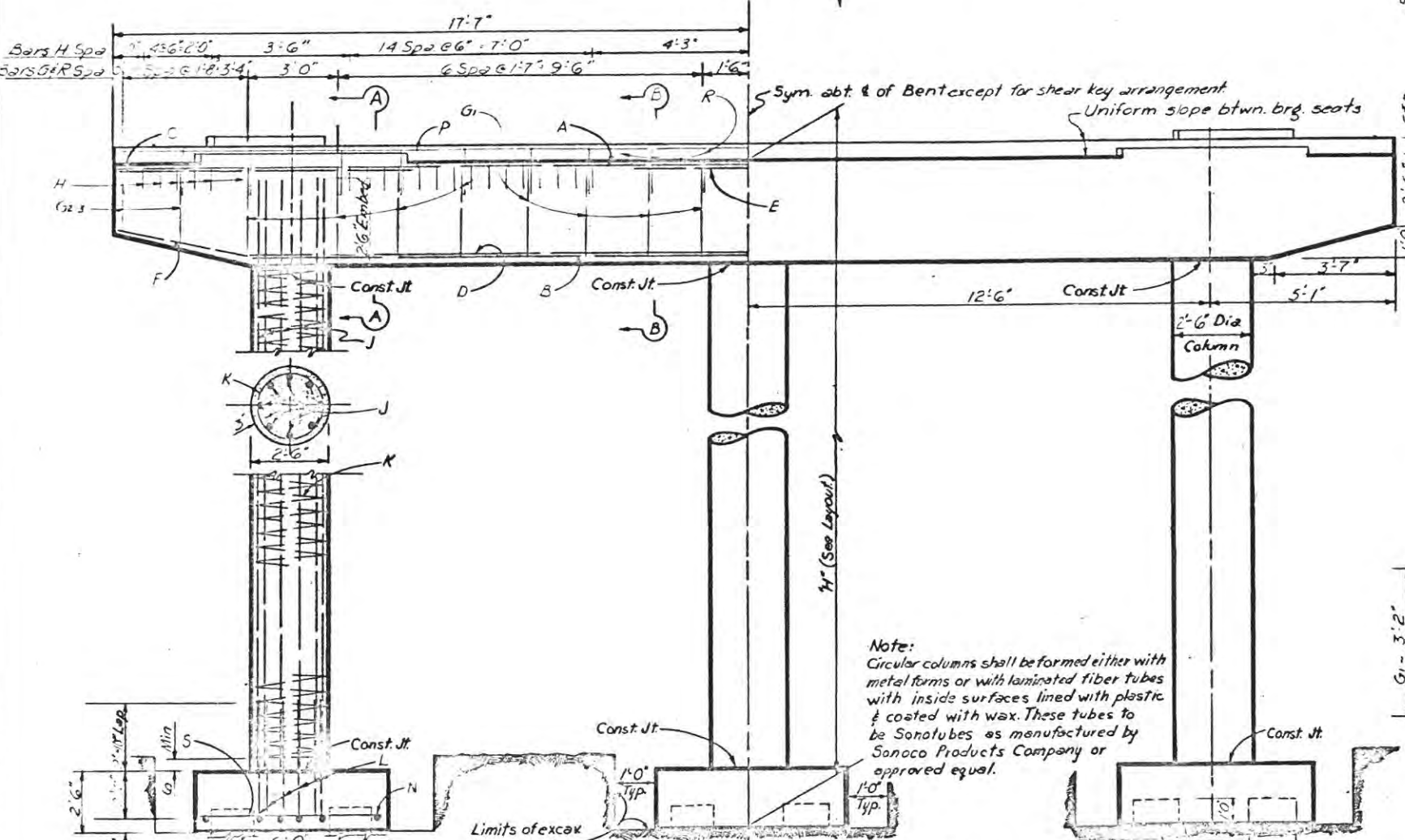




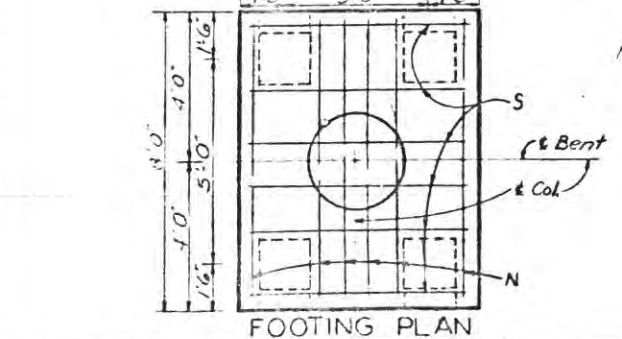




PLAN \* Bent No 4 as shown. Bent = 2 opposite hand.



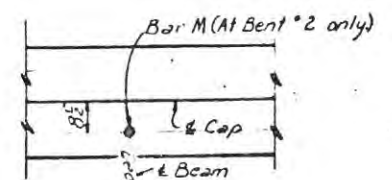
ELEVATION \*



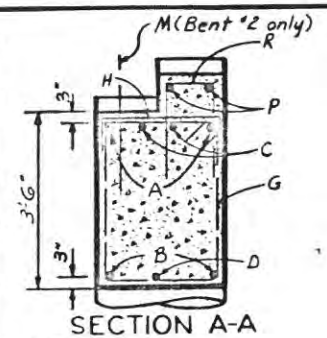
FOOTING PLAN

Note: See Layout for type, size, & length of piling.  
 \*Note: Bent #4 as shown, Bent #2 opposite hand.

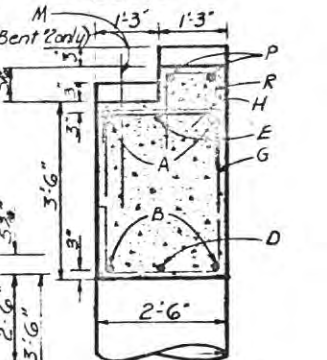
Batter piles 1/2-12 in direction shown on footing plan.



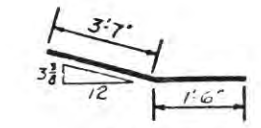
BEARING SEAT PLAN (Bent #2 only)



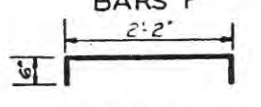
SECTION A-A



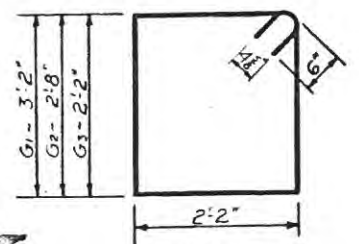
SECTION B-B



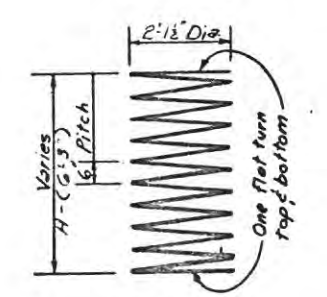
BARS F



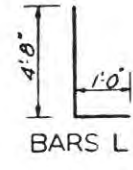
BARS H



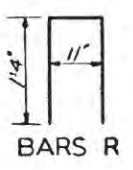
BARS G



BARS K



BARS L



BARS R

\*Note: Omit bars M in Bent #4.

**BILL OF CONSTANT REINF. STEEL**

Bar	No	Size	Sp	Length	Weight
M	7	#6	~	1'-6"	16
A	2	#9	~	34'-11"	237
B	2	#9	~	28'-0"	190
C	4	#9	~	5'-0"	122
D	1	#9	~	22'-6"	77
E	1	#9	~	10'-0"	34
F	4	#6	~	5'-1"	31
G	16	#5	shown	11'-9"	196
G2	4	#5	shown	10'-3" Avg	43
H	40	#4	shown	3'-2"	65
L	24	#9	~	5'-8"	463
S	18	#8	~	5'-6"	264
N	18	#8	~	7'-6"	360
P	2	#5	~	34'-11"	73
R	20	#4	shown	3'-7"	49
Total					2230

BILL OF VARIABLE REINF. STEEL					
"H"	5" #2 Bars K		24" #9 Bars J		Total
	Length	Weight	Length	Weight	Weight
19	184	92	15'-6"	1265	1357
20	197	99	16'-6"	1346	1445
21	211	106	17'-6"	1428	1534
22	224	112	18'-6"	1510	1622
23	238	119	19'-6"	1591	1710
24	251	126	20'-6"	1673	1799
25	264	132	21'-6"	1754	1886
26	278	139	22'-6"	1836	1975

### ESTIMATED QUANTITIES

"H"	CL Conc.	Reinforcing Steel-Lb.		nc Str Excess
	Cu Yd	Bent #2	Bent #4	Cu Yd
19	32.5	3596	3580	36
20	33.0	3684	3668	36
21	33.5	3773	3757	36
22	34.1	3861	3845	36
23	34.7	3949	3933	36
24	35.3	4035	4022	36
25	35.8	4125	4109	36
26	36.3	4214	4198	36

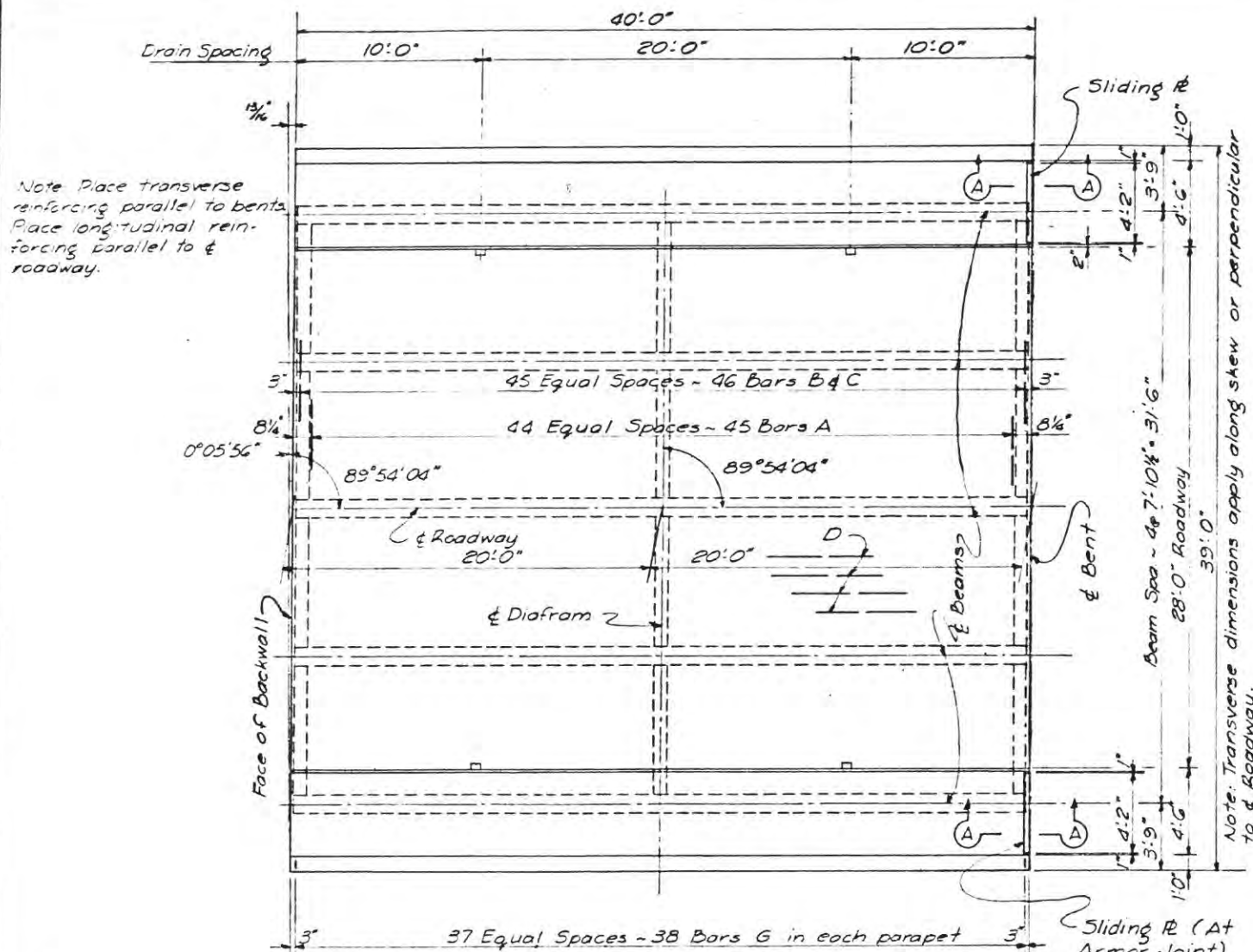
**General Notes:**  
 Design: H20-44 loading in accordance with A.A.S.H.O. 1957 Standard Specifications.  
 All concrete shall be Class A. Chamfer all exposed corners 3" unless otherwise noted.  
 Dimensions relating to reinforcing steel are to centers of bars.  
 Design stress for reinforcing steel = 20,000 P.S.I.  
 Calculated pile load = 29.1 tons/pile.

TEXAS HIGHWAY DEPARTMENT  
**BENT NO. 2 OR 4**  
 28'-0" ROADWAY 4'-6" SIDEWALK  
 0° 05' 56" LF SKEW  
 ALAMEDA ST. UNDERPASS

Project No.	Sheet No.	Scale	Date	State	Federal Aid Project No.	Sheet No.
57-123000	130			TEXAS	57-123000	130
				COUNTY		
				Notes		

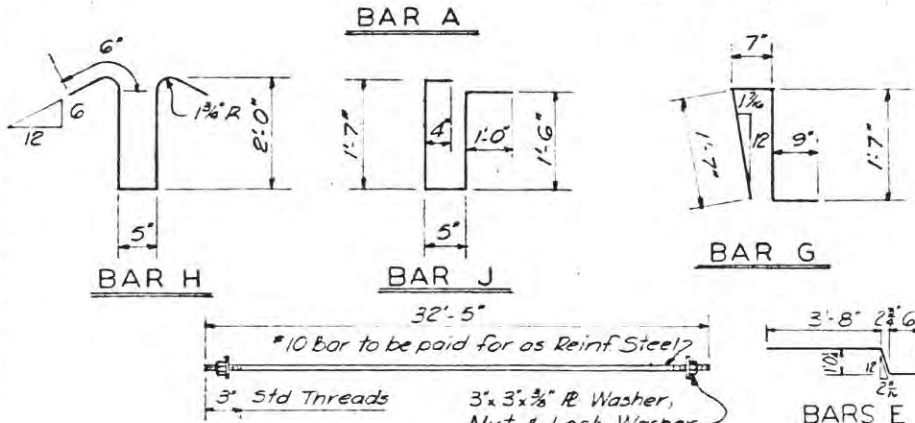
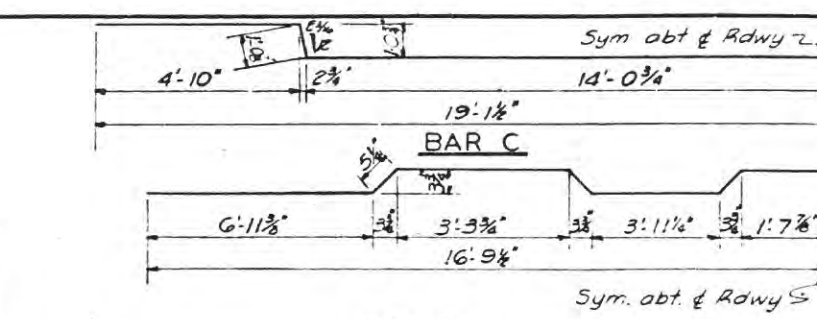




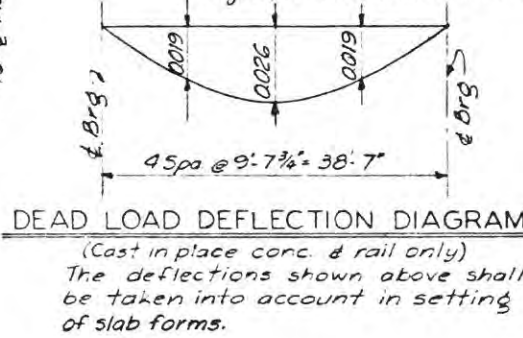


Note: Place transverse reinforcing parallel to bents. Place longitudinal reinforcing parallel to roadway.

Note: See Railing Sheet for Railing & Anchor Details. See Layout for Rail Post Spacing & Armor Joint Location. Omit drains over Header Banks & Roadways.



After Bars L are fabricated, the plate, washers, nuts & 1'-0" of each end of the bar shall be galvanized in accordance with A.S.T.M. Spec. 153, or 1 1/2" x 1'-0" galvanized bolts may be butt welded to ends of #10 bar. End of bar may be painted with Dimetecote, mfg. by Amercoat Corp, or equal, in accordance with manufacturers specifications.



BILL OF REINFORCING STEEL				
Bar No	Size	Spacing	Length	Weight
A	45	#5	10 1/2"	34.4'
B	46	#5	10 1/2"	33.7'
C	46	#5	10 1/2"	39.1'
D	60	#5	~	39.8'
G	76	#4	1'-1"	4'-6"
H	28	#4	1'-0"	5'-1"
J	36	#4	1'-0"	4'-10"
K	16	#5	~	6'-7"
L	16	#5	~	6'-7"
E	90	#4	10 1/2"	5'-2"
N	2	#8	~	32'-2"
Total				8967

TABLE OF ESTIMATED QUANTITIES		
Item	Unit	Quantity
Class 2 Concrete	Cu Yd	45.1
Reinforcing Steel	Lb	8967
Type B Prest. Conc. Bm	Lin Ft.	198.33
Structural Steel	Lb	315
Type P Aluminum Rail	Lin Ft	80.00
* One Armor Plate & 1 Sliding R. J.		
* Does not include quantities in prestressed concrete beams.		

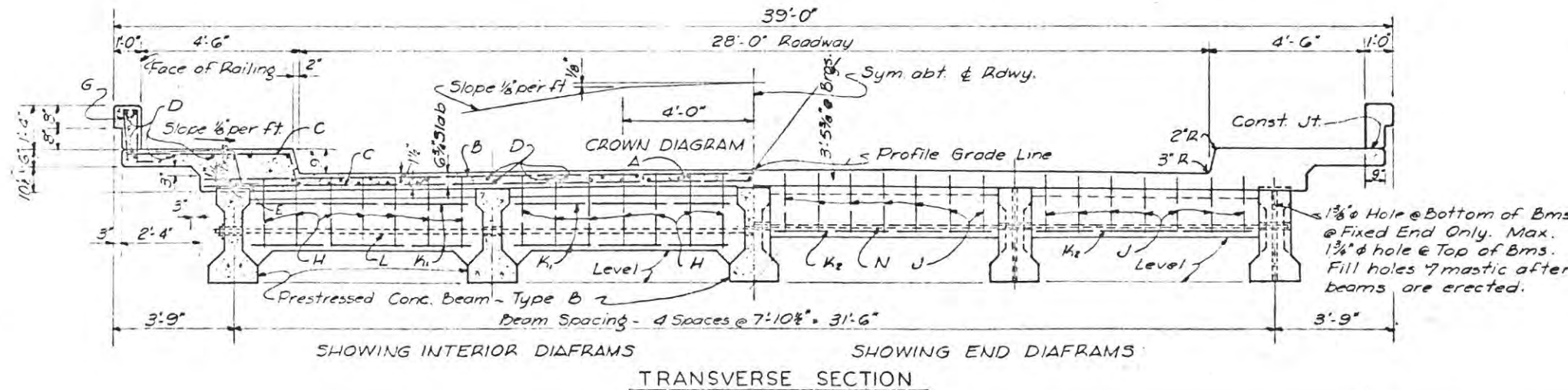
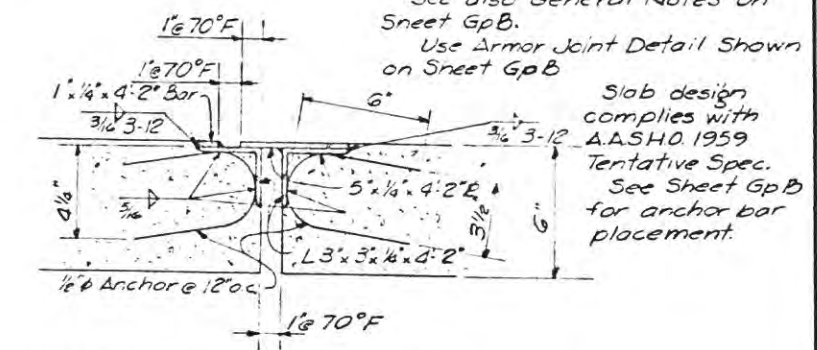
GENERAL NOTES:

Design: H20-44 in accordance with A.A.S.H.O. 1957 Stand Spec.

Design stress for reinforcing steel = 20,000 psi.

See also General Notes on Sheet Gp B.

Use Armor Joint Detail Shown on Sheet Gp B.

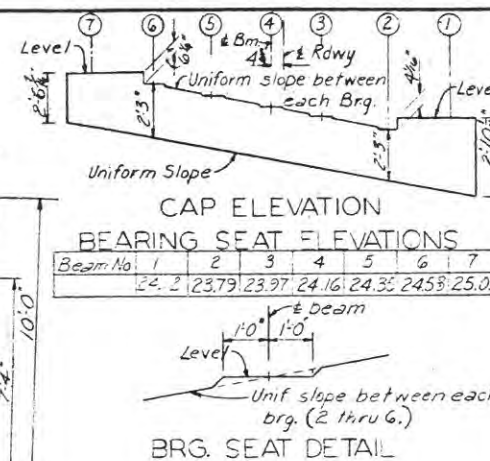
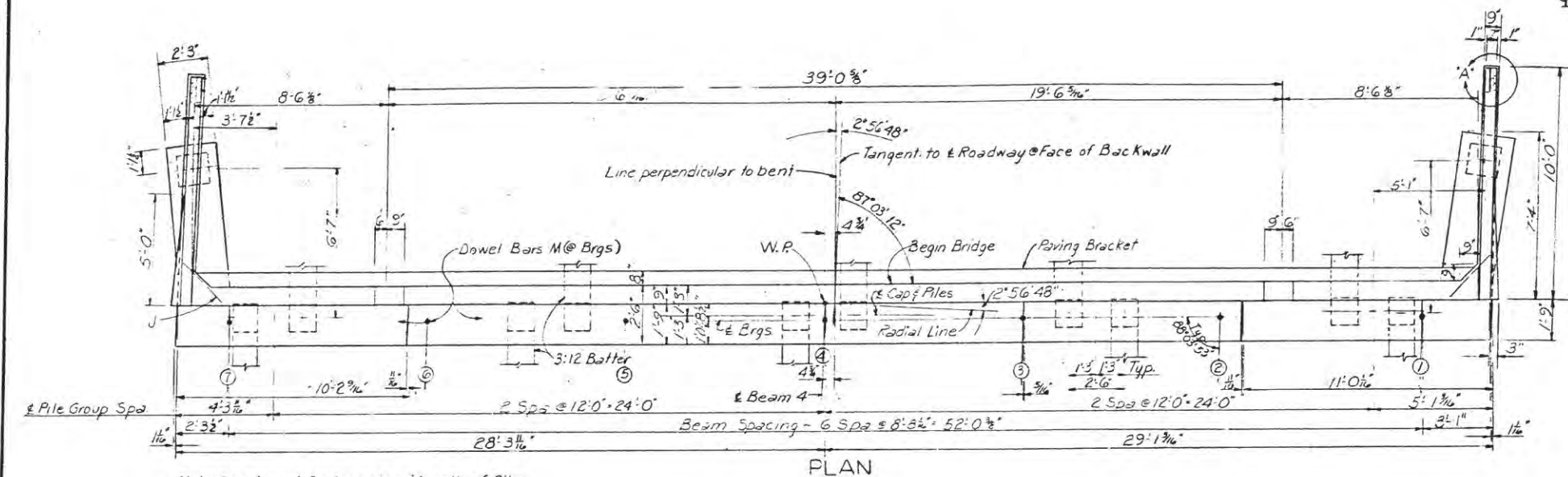


TYPE B BEAMS  
TEXAS HIGHWAY DEPARTMENT  
40'-0" PRESTRESSED CONCRETE BEAM SPAN  
0° 5' 56" L.F. SKEW  
28'-0" ROADWAY 4'-6" SIDEWALKS  
ALAMEDA ST. UNDERPASS

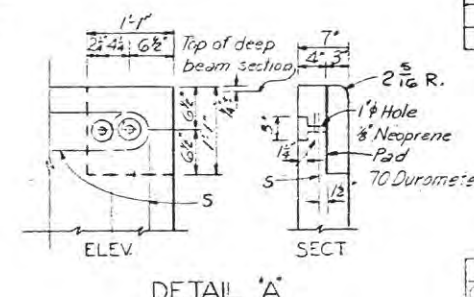
Dist.	Project	Date	Rev.	State	Federal Aid Project No.	Sheet No.
102	Alameda	11/1/59	1	TEXAS	1-1-1(2)000	132
Dist.	County	Section	Sub-section	Sheet No.		
102	Nueces	74	G	35		







BILL OF REINFORCING STEEL						
Bar	No.	Size	Spa	Length	Weight	
A	4	#11	~	57'1"	1213	
B	2	#9	~	7'4"	50	
C	8	#11	~	9'0"	383	
D <sub>1</sub>	45	#5	shown	9'3"	434	
D <sub>2</sub>	12	#5	1'-0"	8'3"	103	
E	7	#5	~	57'1"	417	
F	57	#4	1'-0"	3'10"	146	
G	57	#5	1'-0"	9'4"	555	
H	4	#5	~	16'2"	42	
J	8	#5	1'-0"	2'4"	19	
K	22	#5	1'-0"	8'10"	203	
L	8	#5	~	3'3"	81	
M	7	#5	~	1'6"	16	
N <sub>1</sub>	16	#5	1'-0"	11'0"	184	
N <sub>2</sub>	6	#5	1'-0"	4'8"	29	
P <sub>1</sub>	10	#5	3'± 13"	10'5"	109	
P <sub>2</sub>	6	#5	3'± 13"	7'9"	48	
S	9	#9	~	8'6"	231	
S	4	#5	~	3'3"	14	
Total					4,276	



ESTIMATED QUANTITIES		
Item	Unit	Quantity
Class A Concrete	Cu.Yd.	24.7
Reinforcing Steel	Lb.	4,276
Structural Excavation	Cu.Yd.	32

General Notes:

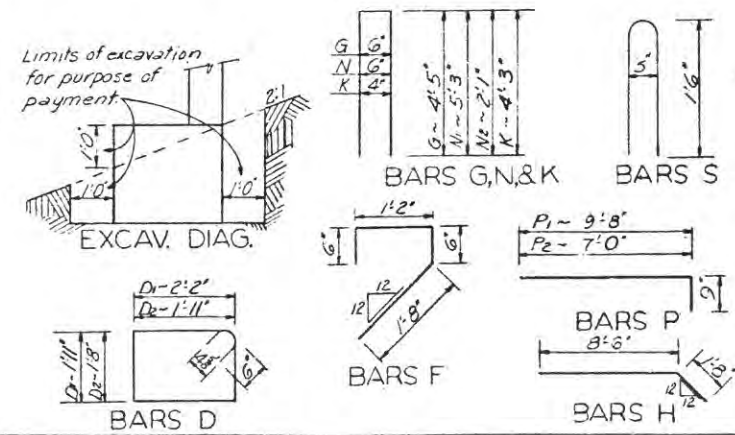
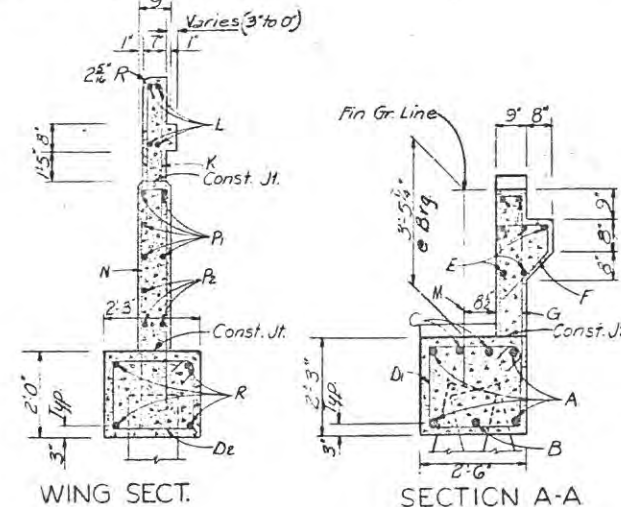
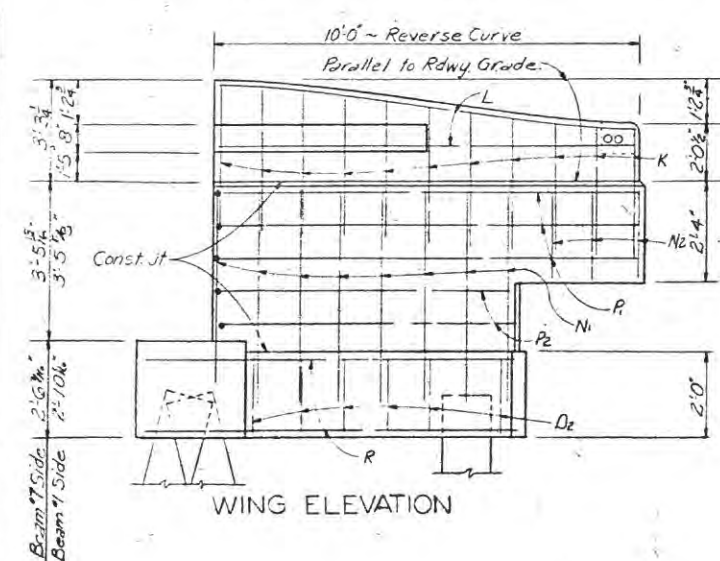
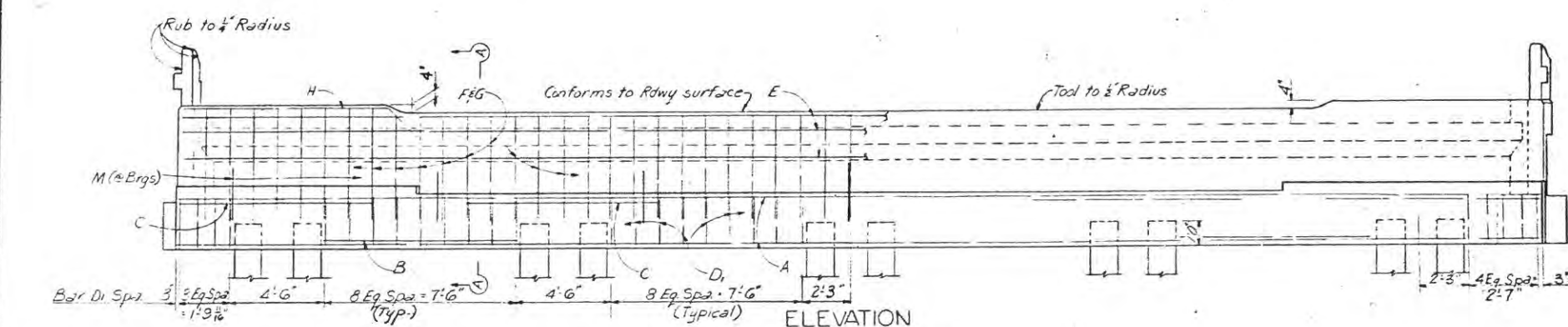
Design H20-S16 loading in accordance with AASHTO 1957 Standard Specifications & complies with PRM 20-4, Sect. 4c.

All concrete shall be class A. Chamfer all exposed corners  $\frac{3}{4}$ " unless otherwise noted.

All dimensions relating to reinforcing steel are to centers of bars.

Design stress for reinforcing steel = 20,000 p.s.i.

Piling under wingwalls shall be driven to a minimum resistance of 10 tons/pile; all other piling shall be driven to a minimum resistance equal to the calculated pile load of 36 tons/pile.



TEXAS HIGHWAY DEPARTMENT

ABUTMENT BENT NO. 1

39'-0" ROADWAY

8'-6" SHOULDERS

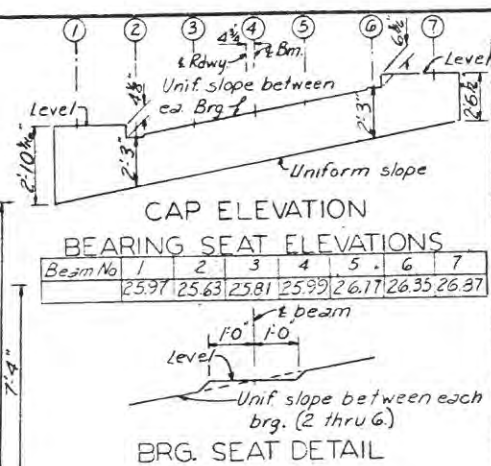
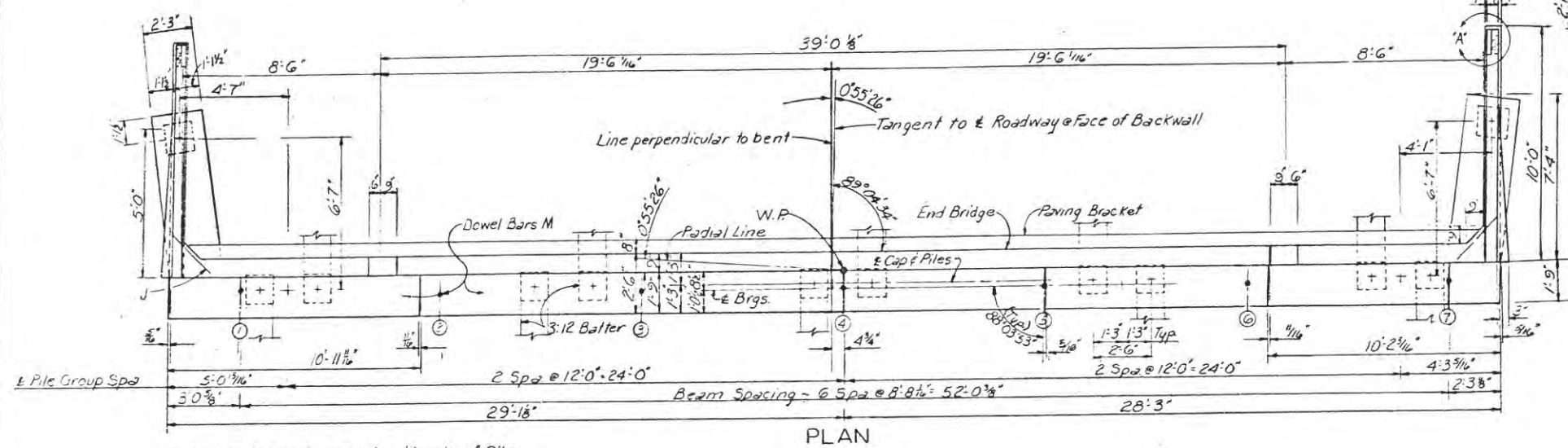
1° 07' 25.5" HORIZONTAL CURVE

BROWNLEE OVERPASS - LINE 'A'

DESIGNED BY	DATE	FILE NO.
CH. BY	REVISED	SEPT. 1960
CH. BY	DATE	FILE NO.
TR. BY	DATE	FILE NO.

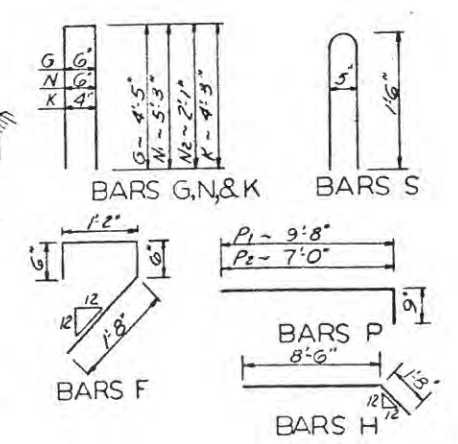
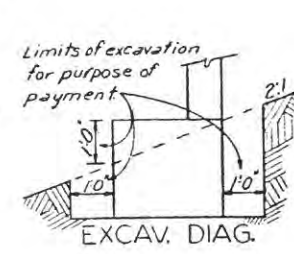
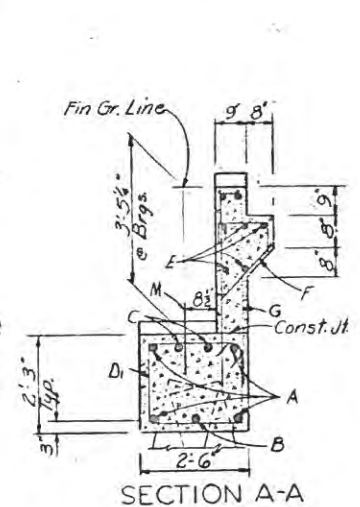
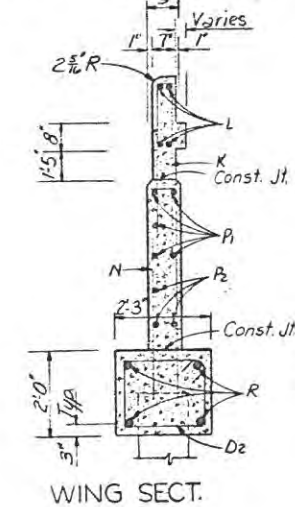
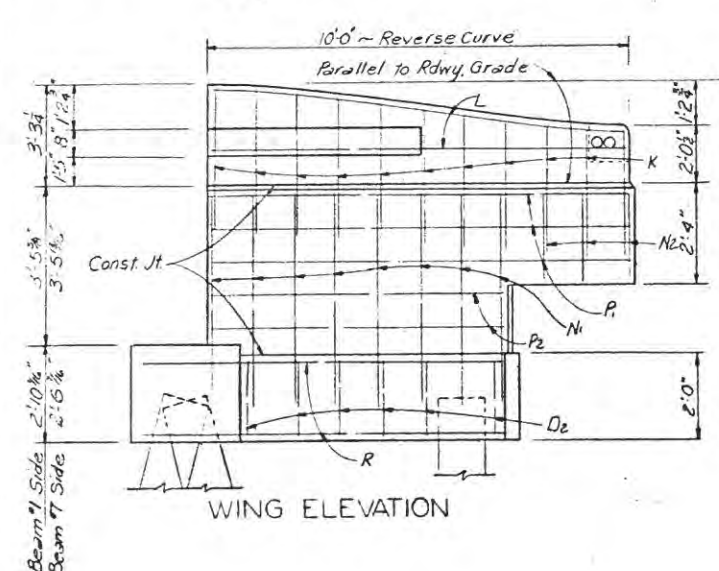
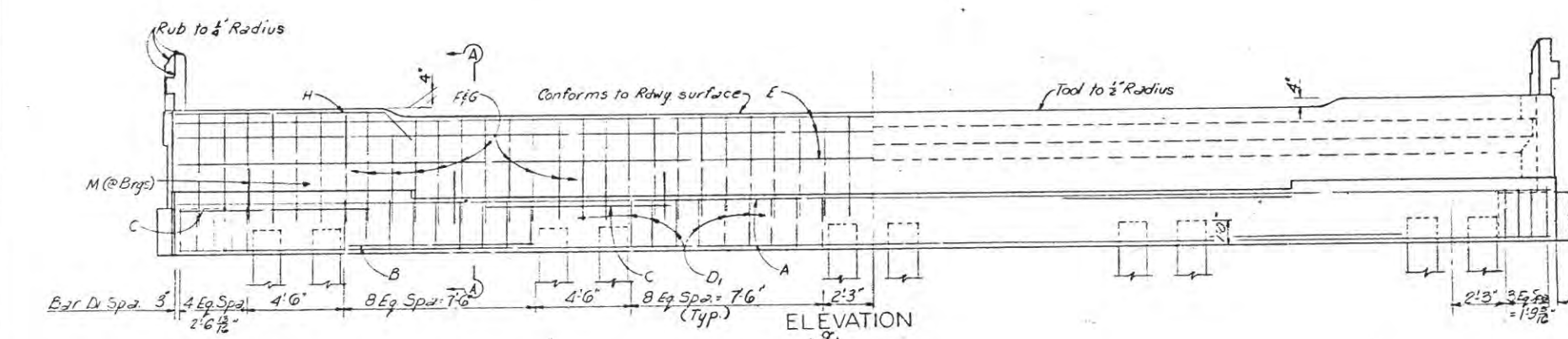
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6	TEXAS 1-37-1(2)000	135
COUNTY	CONTRACT NO.	SECTION NO.
13	11-2000	14 6 38 1-37





BILL OF REINFORCING STEEL					
Bar	No	Size	Spa	length	Weight
A	4	#11	~	57'1"	1213
B	2	#9	~	7'4"	50
C	8	#11	~	9'0"	383
D1	45	#5	shown	9'3"	434
D2	12	#5	1'0"	8'3"	103
E	7	#5	~	57'1"	417
F	37	#4	1'0"	3'10"	146
G	57	#5	1'0"	3'4"	555
H	4	#5	~	10'2"	42
J	8	#5	1'0"	2'4"	19
K	22	#5	1'0"	8'10"	203
L	8	#5	~	3'8"	81
M	7	#6	~	1'6"	16
N1	16	#5	1'0"	11'0"	184
N2	6	#5	1'0"	4'8"	29
P1	10	#5	3'4'18"	10'5"	109
P2	6	#5	3'4'18"	7'9"	49
R	8	#9	~	8'6"	231
S	4	#5	~	3'3"	14
Total					4,276

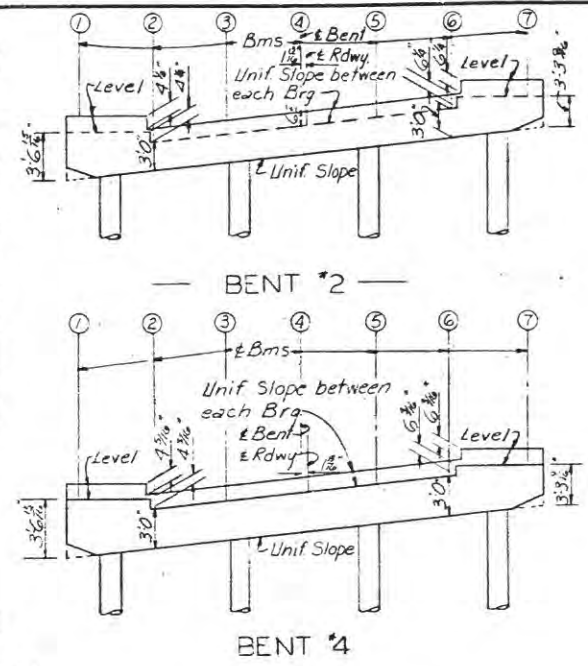
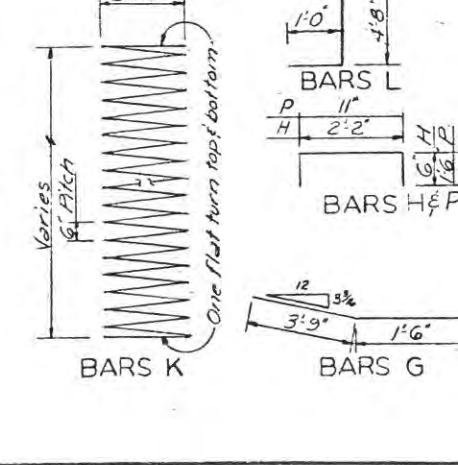
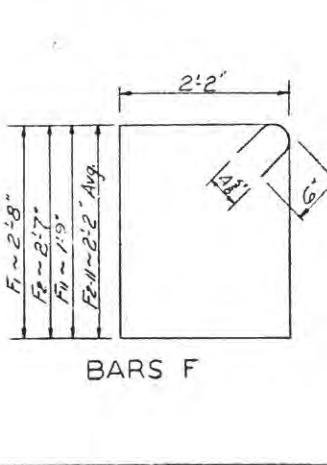
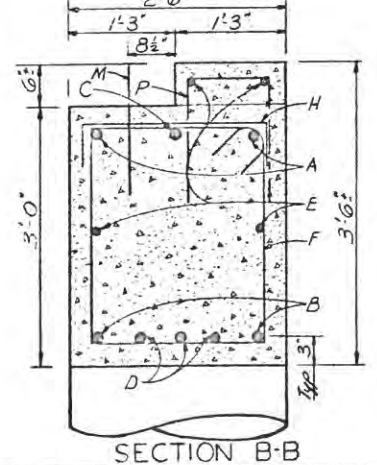
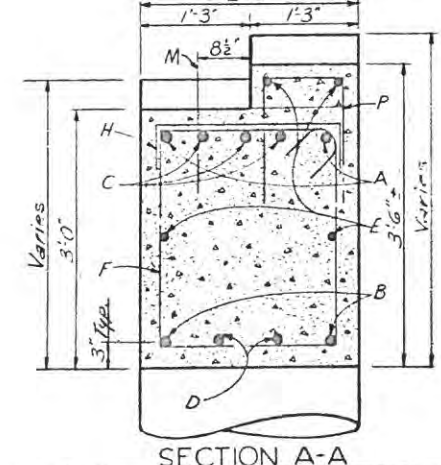
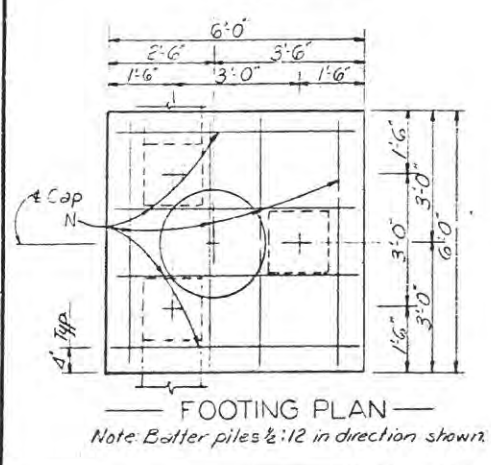
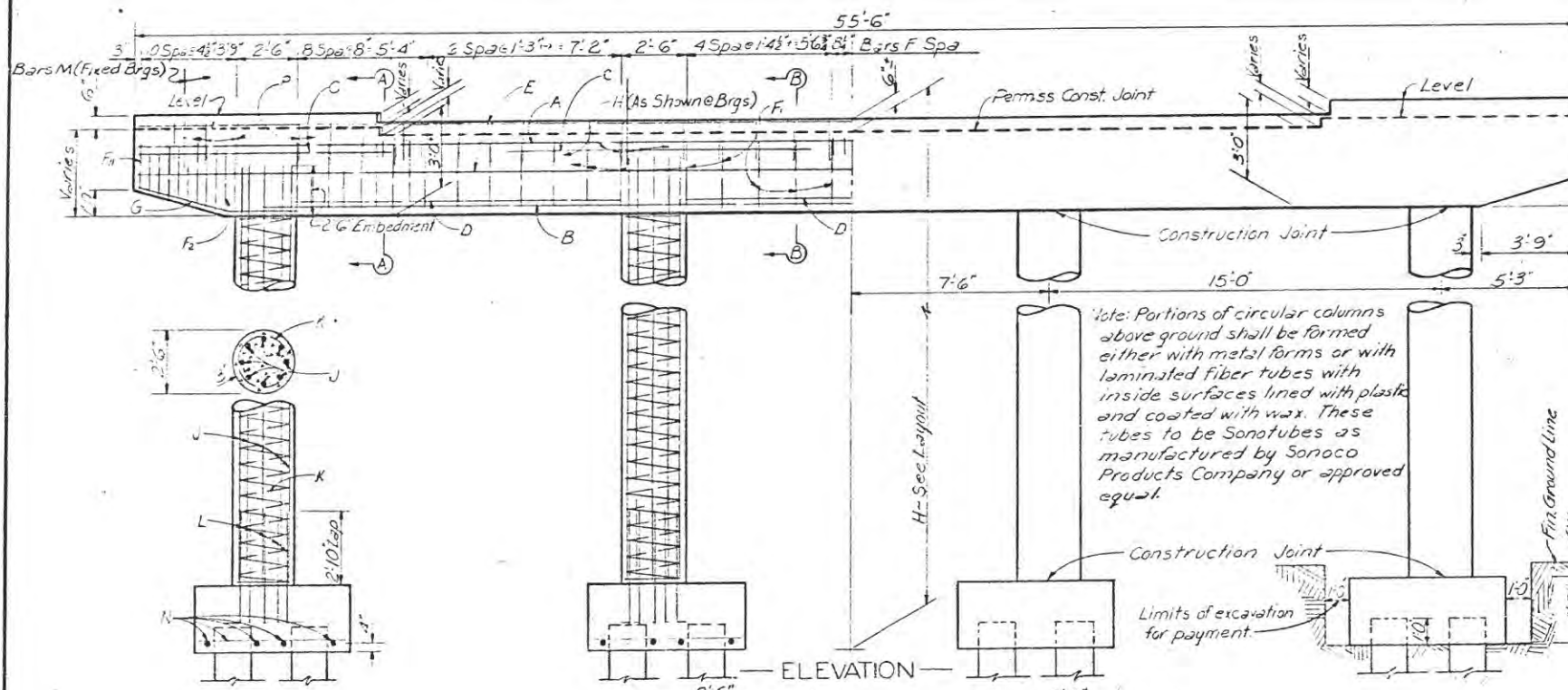
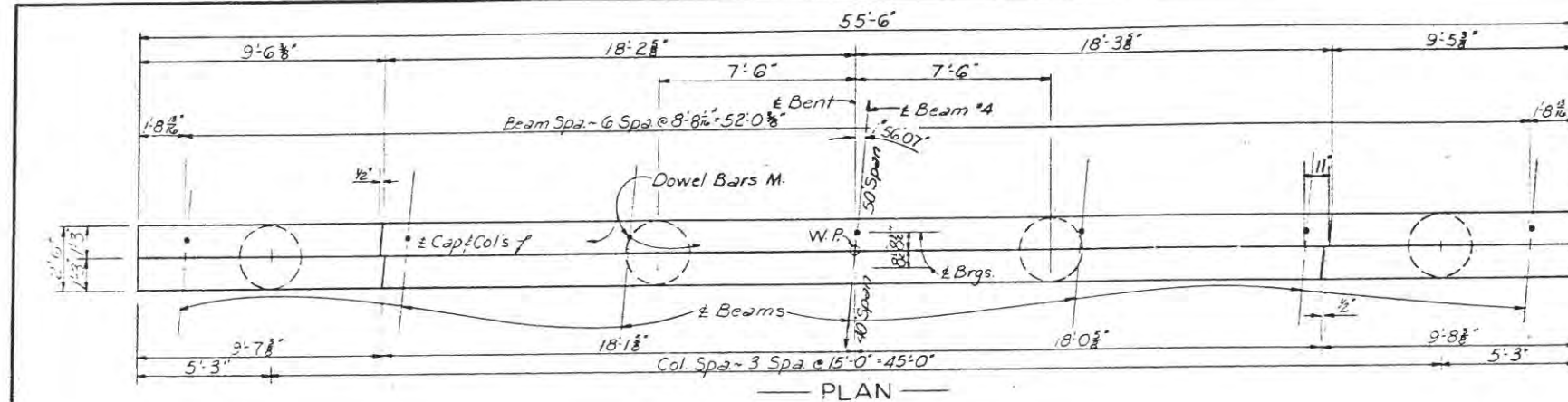
ESTIMATED QUANTITIES		
Item	Unit	Quantity
Class A Concrete	Cu Yd.	24.7
Reinforcing Steel	Lb.	4,276
Structural Excavation	Cu Yd.	32



General Notes:  
 Design H20-S16 loading in accordance with A.A.S.H.O. 1957 Standard Specifications & complies with P.R.M. 20.4 Sect. 4c.  
 All concrete shall be class A. Chamfer all exposed corners  $\frac{3}{4}$ " unless otherwise noted.  
 All dimensions relating to reinforcing steel are to centers of bars.  
 Design stress for reinforcing steel = 20,000 psi.  
 Piling under wingwalls shall be driven to a minimum resistance of 10 tons/pile; all other piling shall be driven to a minimum resistance equal to the calculated pile load of 36 tons/pile.

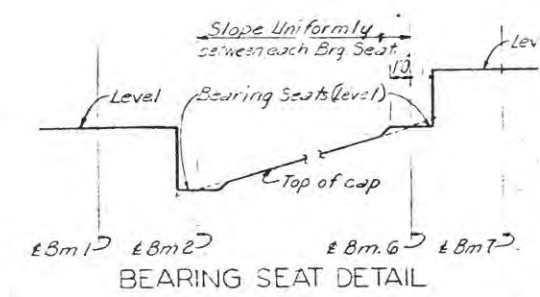
TEXAS HIGHWAY DEPARTMENT  
**ABUTMENT BENT NO. 5**  
 39'-0" ROADWAY 8'-6" SHOULDERS  
 1°07' 25.5" HORIZONTAL CURVE  
 BROWNLEE OVERPASS - LINE "A"

DR - LEC	DATE	PER. NAME	STATE	FEDERAL AID PROJECT NO.	SHEET
CH. EN. DMW	ORIGINAL	SEPT. 1960	TEXAS	7-37-21000	36
DR - RDS					
CH. EN. LEC					
CH. TO					
			16	Nueces	74 G 33 1-37



BEARING SEAT ELEVATIONS

Beam No.	1	2	3	4	5	6	7
Bent 2	24.67	24.31	24.50	24.68	24.87	25.05	25.57
Bent 4	24.19	23.83	24.02	24.20	24.39	24.57	25.09
Bent 4	25.21	24.85	25.03	25.21	25.40	25.58	26.09
Bent 4	25.72	25.36	25.54	25.73	25.91	26.09	26.60



\*BILL OF CONSTANT REINF. STEEL

Bar	No.	Size	Spa.	Length	Weight
A	2	#11	~	55'-3"	587
B	2	#11	~	48'-0"	510
C	8	#11	~	10'-0"	425
D	10	#10	~	12'-6"	538
E	4	#6	~	55'-3"	332
F	42	#5	shown	10'-9"	471
F-11	20	#5	shown	9'-5 1/2"	203
G	4	#6	~	5'-3"	32
H	20	#4	6"	3'-2"	42
L	32	#9	~	5'-8"	617
N	32	#8	~	5'-6"	470
P	45	#4	1-3"	3'-11"	118
M	7	#6	~	1'-6"	16
Total					4,361

\*BILL OF VARIABLE REINF. STEEL

Bar	Length	Weight	Length	Weight	Total Weight
4	4~12 Spirals K	32~9 Bars J			
19	131' 1/2"	128	16' 0 1/2"	1,741	1,869
20	204' 1/2"	136	17' 0 1/2"	1,950	1,986
21	218' 1/2"	146	18' 0 1/2"	1,958	2,104
22	231' 1/2"	154	19' 0 1/2"	2,067	2,221
23	244' 1/2"	163	20' 0 1/2"	2,176	2,339

\*ESTIMATED QUANTITIES

Class A Conc.	Reinforcing Steel	Struct. Excav.
19	40.1	6,230
20	40.8	6,347
21	41.6	6,465
22	42.3	6,582
23	43.0	6,700

\*For one bent only.

General Notes:  
 Design: H20-S16 loading in accordance with A.A.S.H.O. 1957 Std. Specifications, & complies with P.P.M. 20-4, Sect. 4c.  
 All concrete shall be class A. Chamfer all exposed corners 3/4" unless otherwise noted.  
 All dimensions relating to reinforcing steel are to centers of bars.  
 Design stress for reinforcing steel 20,000 psi.  
 Calculated pile load = 38 tons/pile.

TEXAS HIGHWAY DEPARTMENT

TRANSITION BENT NO. 2 OR 4

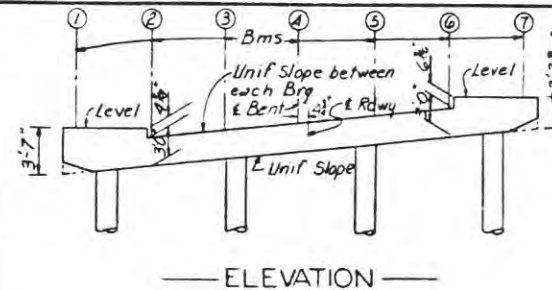
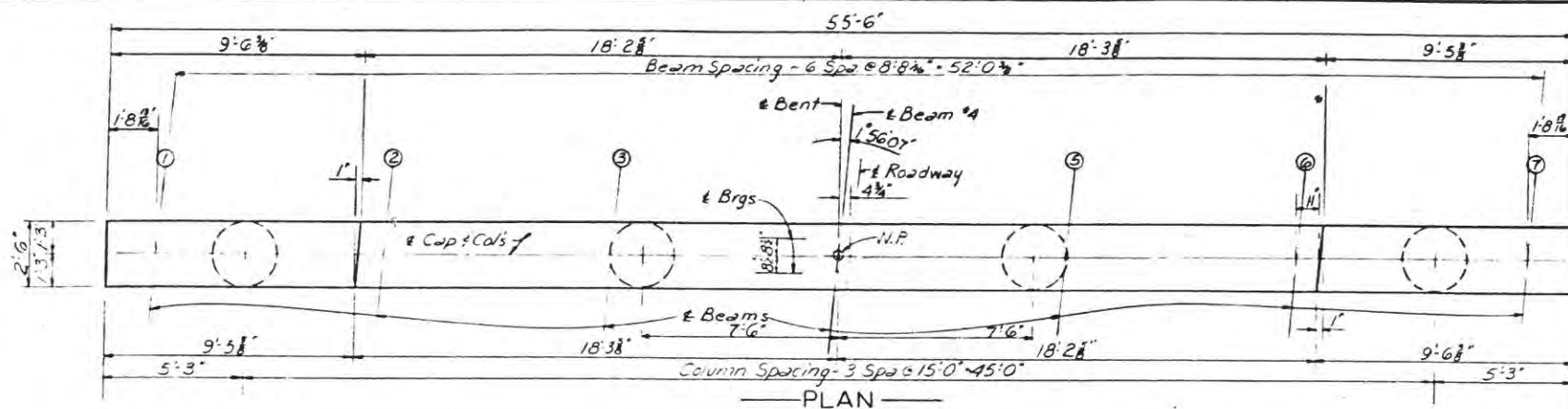
39'-0" ROADWAY 8'-6" SHOULDERS

1° 07' 25.5" HORIZONTAL CURVE

BROWNLEE OVERPASS-LINE 'A'

DATE	BY	DATE	BY	DATE	BY
10/1/60	LEC	10/1/60	LEC	10/1/60	LEC
10/1/60	ROS	10/1/60	ROS	10/1/60	ROS
10/1/60	LEC	10/1/60	LEC	10/1/60	LEC





BEARING SEAT ELEVATIONS

Beam No.	1	2	3	4	5	6	7
Back	2476	2435	2457	2476	2454	2513	2564
Foreward	2477	2441	2459	2477	2496	2514	2566

BILL OF CONSTANT REINF STEEL

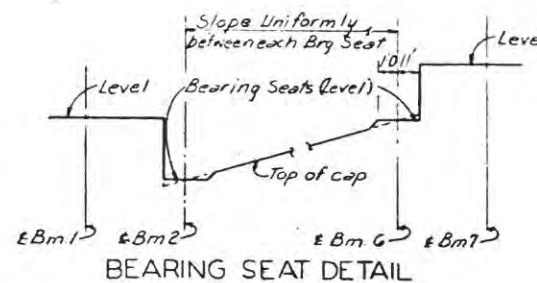
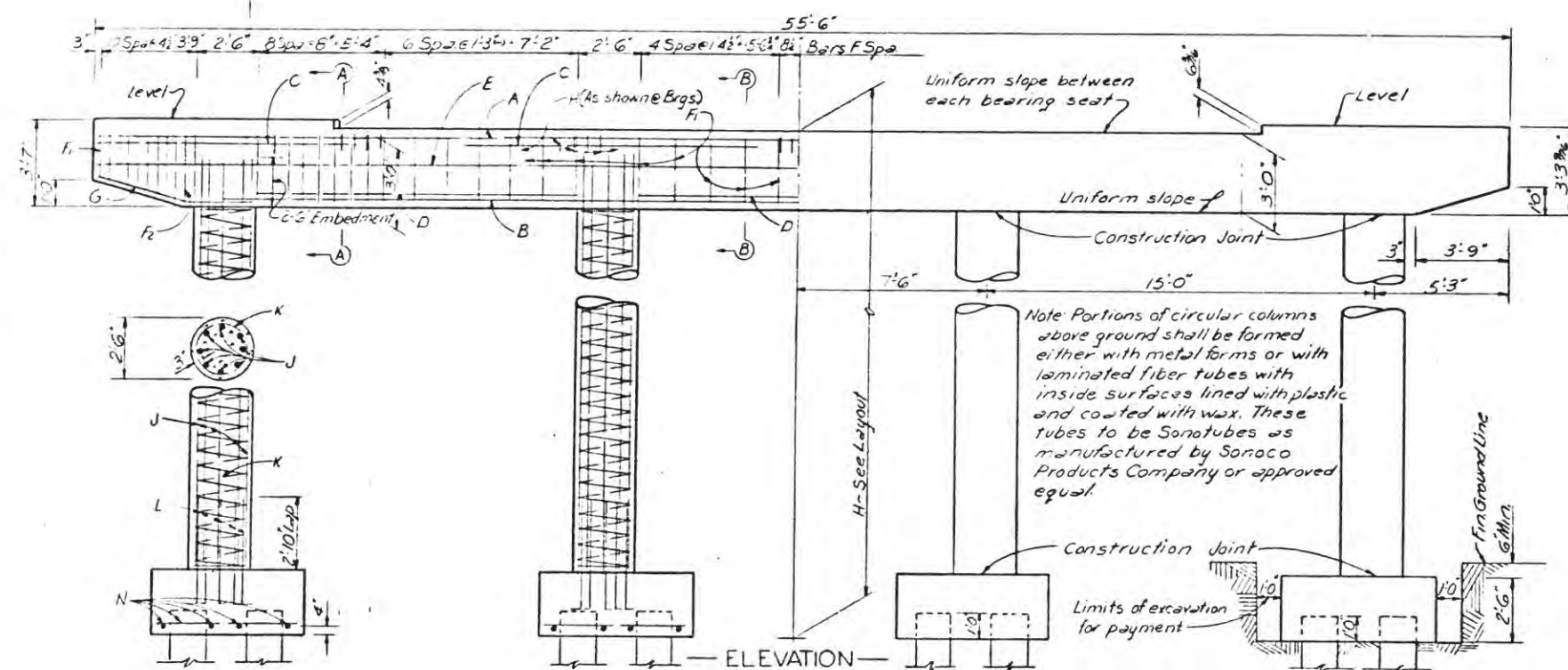
Bar	No	Size	Spa	Length	Weight
A	2	#11	~	55'-3"	587
B	2	#11	~	48'-0"	510
C	3	#11	~	10'-0"	423
D	10	#10	~	12'-6"	538
E	2	#6	~	55'-3"	166
F	42	#5	shown	10'-9"	471
F2-H	20	#5	shown	9'-5"	203
G	4	#6	~	5'-3"	32
H	20	#4	6'	3'-2"	42
L	32	#9	~	5'-3"	617
N	32	#8	~	5'-6"	470
Total					4061

BILL OF VARIABLE REINF STEEL

H'	4-#2 Spirals K	32-#9 Bars J	Total Weight
Ft	Length	Weight	Lbs.
19	191' 1/2"	123	1,869
20	204' 1/2"	136	1,986
21	218' 1/2"	146	2,104
22	231' 1/2"	154	2,221
23	244' 1/2"	163	2,339
24	258' 1/2"	172	2,457

ESTIMATED QUANTITIES

H'	Class A Conc	Reinforcing Steel	Struct Excav
Ft	Cu Yd	Lb	Cu Yd
19	39.8	5,930	47
20	40.5	6,047	47
21	41.2	6,165	47
22	41.9	6,232	47
23	42.7	6,300	47
24	43.4	6,518	47



General Notes:

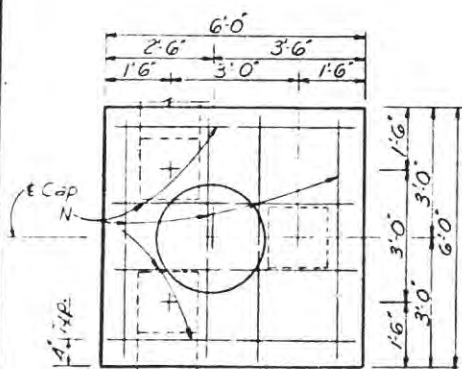
Design: H20-S16 loading in accordance with AASHTO 1957 Std. Specifications & complies with P.P.M. 20-4, Sect. 4c.

All concrete shall be class A. Chamfer all exposed corners unless otherwise noted.

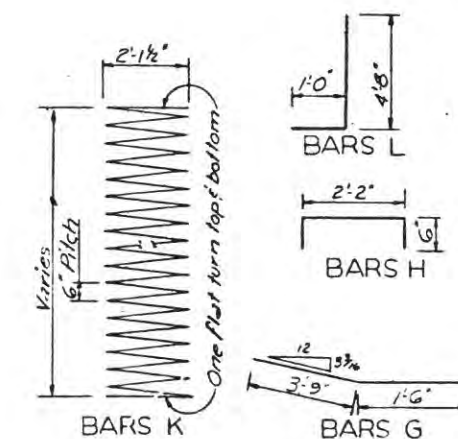
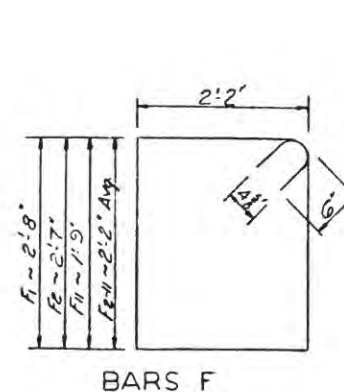
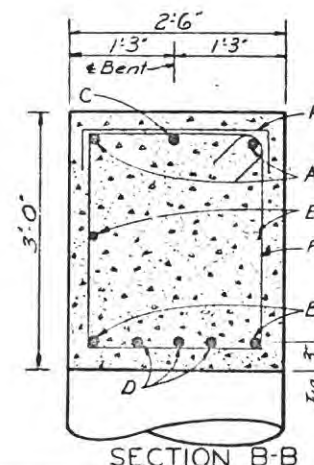
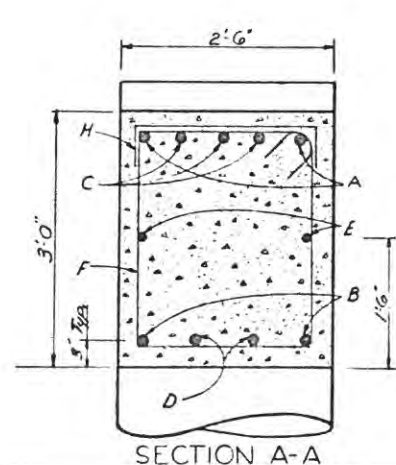
All dimensions relating to reinforcing steel are to centers of bars.

Design stress for reinforcing steel: 20,000 psi.

Avg calculated pile load = 33 tons/pile.



Note: Batter piles 1/2:12 in direction shown.



TEXAS HIGHWAY DEPARTMENT

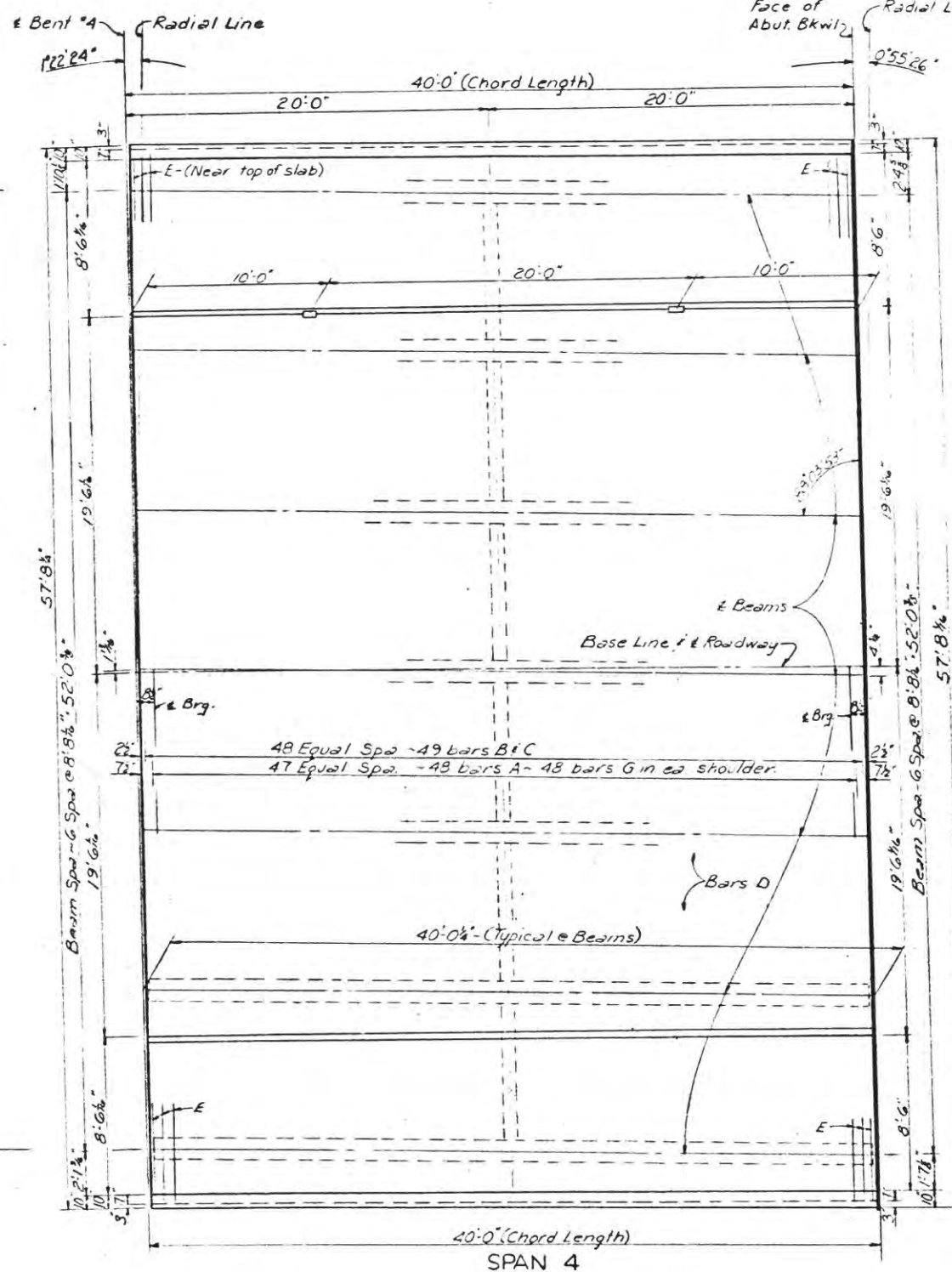
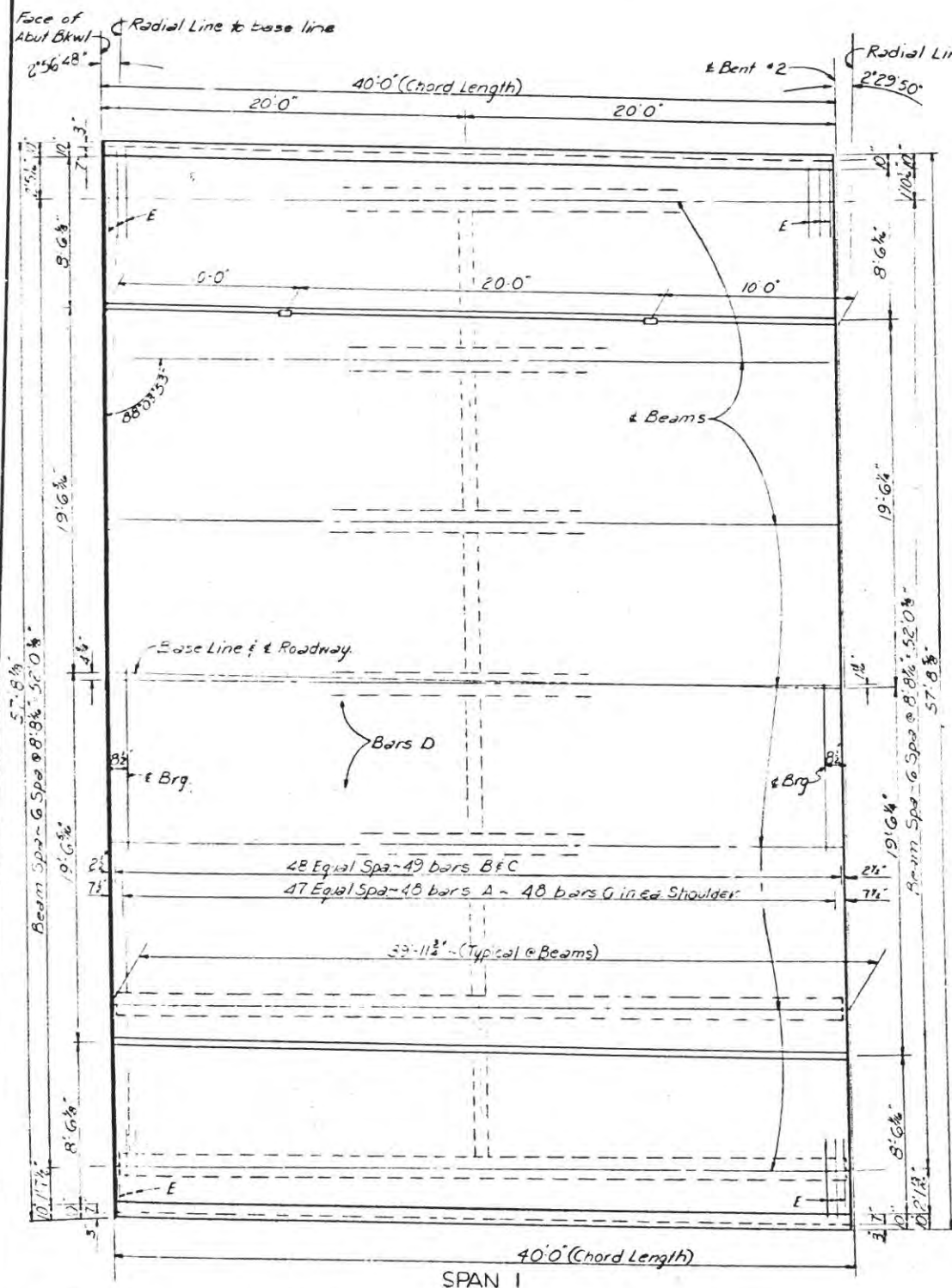
INTERIOR BENT NO. 3

39'-0" ROADWAY 8'-6" SHOULDERS

1° 07' 25.5" HORIZONTAL CURVE

BROWNLEE OVERPASS - LINE 'A'

DESIGNED BY	CHECKED BY	DATE	SCALE	FEDERAL AID PROJECT NO.	SHEET NO.
LEG	RDS	SEPT 1960	1" = 10'	1-37-12000	133
CONSTRUCTED BY	APPROVED BY				
LEG					
1/6	Notes	74	6	35	737



**BILL OF REINFORCING STEEL**

Bar	No	Size	Sp	Length	Weight
A	48	#5	10'-0"	53'-1"	2657
B	49	#5	10'-0"	56'-10"	2904
C	49	#5	10'-0"	57'-3"	2935
D	86	#5	~	39'-8"	3558
E	12	#6	5'	4'-6"	81
F	82	#2	1'-0"	5'-10"	319
G	56	#5	10'-0"	~	1134
H	38	#4	1'-0"	5'-2"	131
J	76	#4	1'-0"	4'-10"	245
K	24	#5	~	7'-3"	181
K2	24	#5	~	7'-3"	181
L	1	#10	~	52'-1"	228
H2	10	#4	1'-0"	5'-10"	39
N	2	#3	~	52'-10"	252
J2	20	#4	1'-0"	5'-6"	73
<b>Total</b>					<b>14,948</b>

**ESTIMATED QUANTITIES**

Item	Unit	Quantity
Class A Concrete	cu yd	60.2
Reinforcing Steel	Lb	14,948
Aluminum Rolling-Type T	Lin Ft	50.0
Structural Steel - 1/2" x 1/2" x 1/2"	Lb	550
Prest Conc Bms-Type B-Span #1	Lin Ft	277.52
Prest Conc Bms-Type B-Span #4	Lin Ft	277.51

\* For one - 40' Span

\* For one - 40' Span

Note All beams are parallel to tangent to base line & Brownlee.  
All bents & diaphragms are parallel to & Brownlee.  
See Layout for Rail Post Spacing.  
See Railing Sheet for Railing & Anchor Details.  
See Sp B Sheet for Diaphragm Details & Reinforcement.  
Omit Drains over header bents & roads.  
See Sheet 3 of 3 for General Notes & Bar Details.  
All transverse reinforcing steel is parallel to bents.  
See Layout for location of Armor Joints.  
See Bridge Lighting Details for location of PVC.  
Conduit & Light Standard Brackets.

PLAN

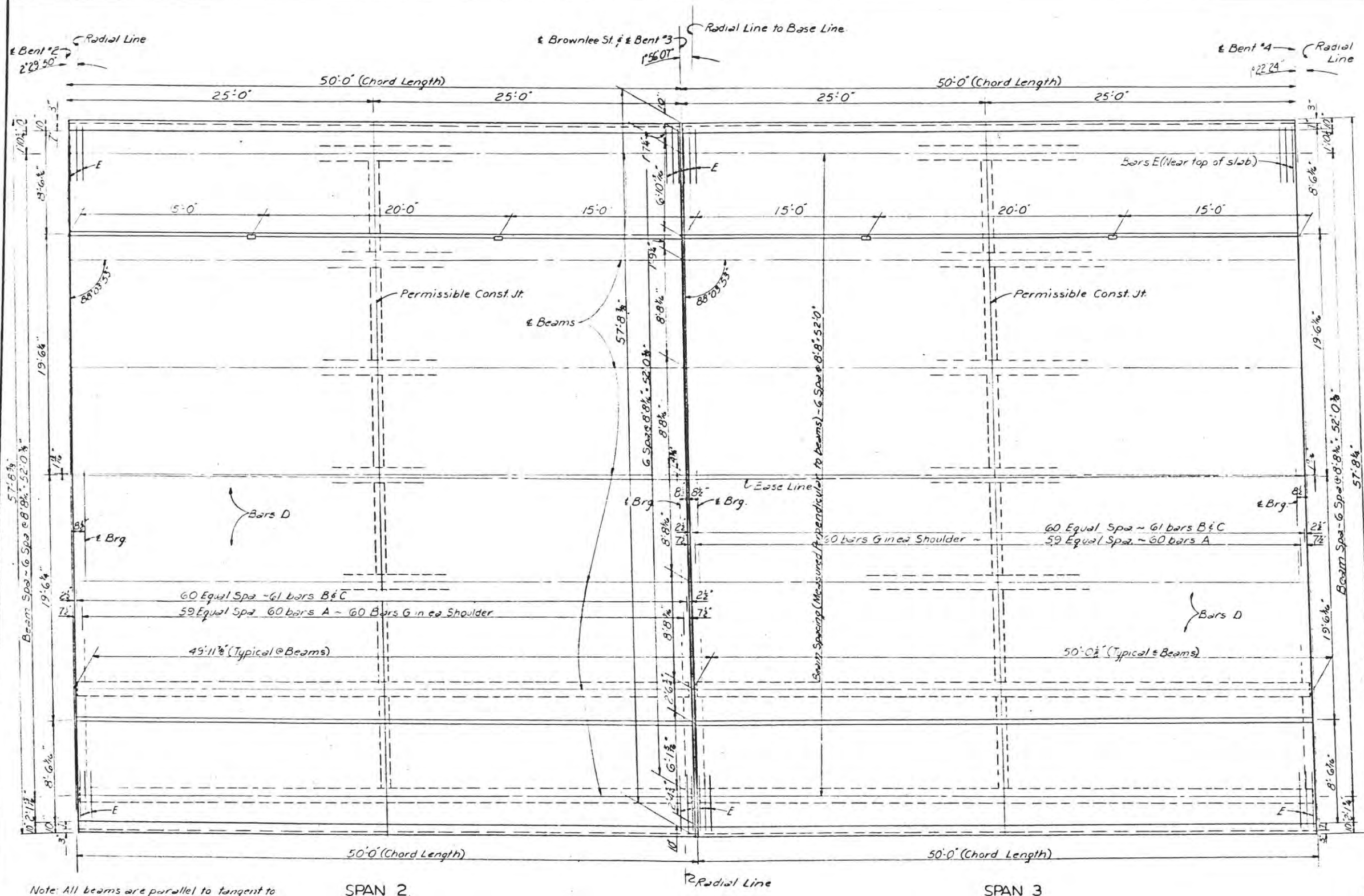
TEXAS HIGHWAY DEPARTMENT

# 40'-0" PRESTRESSED CONCRETE BEAM SPAN

39'-0" ROADWAY 8'-6" SHOULDERS  
1" 07' 25.5" HORIZONTAL CURVE  
BROWNLEE OVERPASS-LINE A

Drawn by	Checked by	Date	State	FEDERAL AID PROJECT NO.	SHEET NO.
W. J. S.	W. J. S.	10/10/53	TEXAS	1-37-1(2)000	133
By	Check	Date	State	FEDERAL AID PROJECT NO.	SHEET NO.
W. J. S.	W. J. S.	10/10/53	TEXAS	1-37-1(2)000	133





**BILL OF REINFORCING STEEL**

Bar	No.	Size	Spa	Length	Weight
A	60	#5	10'-4"	53'-1"	3322
B	61	#5	10'-4"	53'-10"	3616
C	61	#5	10'-4"	57'-5"	3653
D	86	#5	~	49'-8"	4455
E	12	#6	5'	4'-6"	81
F	102	#4	1'-0"	5'-10"	397
G	120	#5	10'-4"	11'-4"	1418
H3	38	#4	1'-0"	5'-10"	143
J1	76	#4	1'-0"	4'-10"	245
K1	24	#5	~	7'-3"	181
K2	24	#5	~	7'-3"	181
L	1	#10	~	52'-11"	228
M4	10	#4	1'-0"	6'-0"	40
N	2	#5	~	52'-10"	282
U2	20	#4	1'-0"	5'-6"	73
<b>Total</b>					<b>18,320</b>

\* For one ~ 50 Span

**ESTIMATED QUANTITIES**

Item	Unit	Quantity
Class A Concrete	Cu Yd	74.5*
Reinforcing Steel	Lb	18,320*
Prestressing Railing-Type T	Lb	100.0*
Structural Steel-Two Arms	Lb	1,100*
Prestressing Railing-Type C-Span 2	Lin. Ft	347.59*
Prestressing Railing-Type C-Span 3	Lin. Ft	347.74*

\* For one ~ 50 Span

Note: All beams are parallel to tangent to base line @ Bent #2.

All bents & diaphragms are parallel to Brownlee.

See Layout for Rail Post Spacing.

See Railing Sheet for Railing & Anchor Details.

See Sp B Sheet for Diaphragm Details & Reinforcement.

Omit Drains over header banks & roads.

See Sheet 3 of 3 for General Notes & Bar Details.

All transverse reinforcing steel is parallel to bents.

See Layout for location of Armor Joints.

See Bridge Lighting Details for location of P.V.C. Conduit & Light Standard Brackets.

**PLAN**

TEXAS HIGHWAY DEPARTMENT

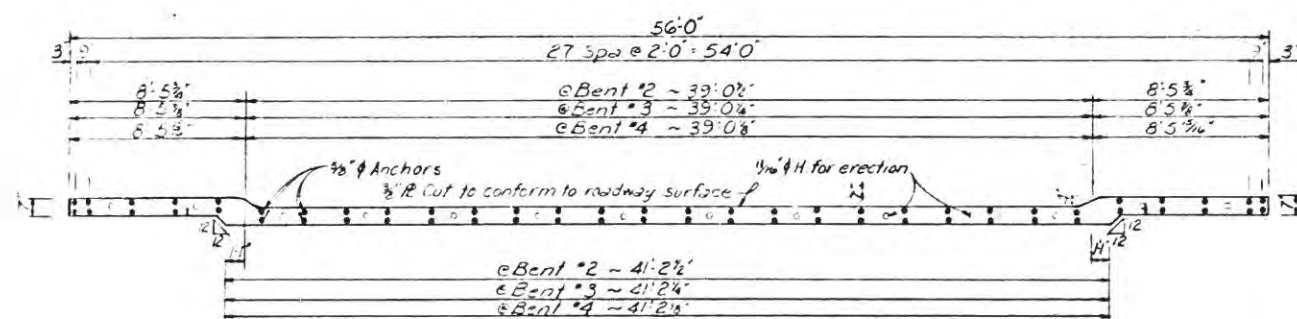
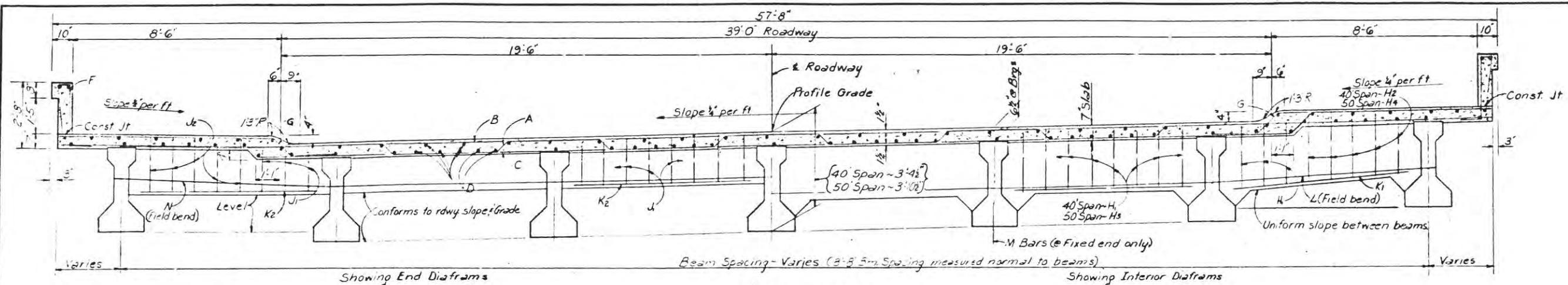
**50'-0" PRESTRESSED CONCRETE BEAM SPAN**

39'-0" ROADWAY 8'-6" SHOULDERS

1°07'25.5" HORIZONTAL CURVE

BROWNLEE OVERPASS ~ LINE 'A'

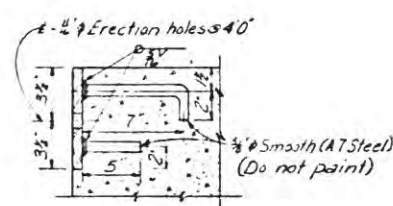
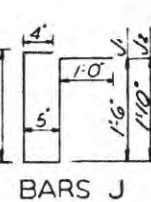
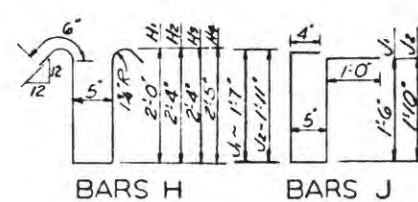
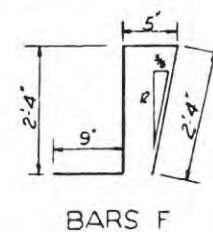
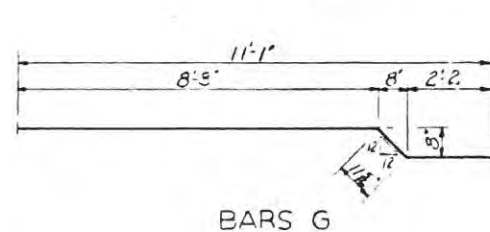
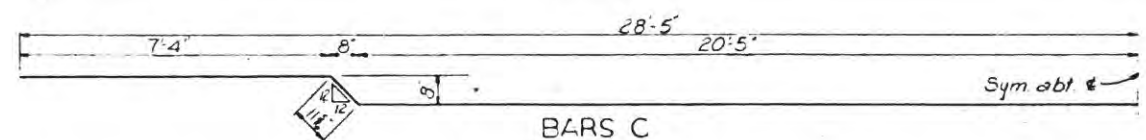
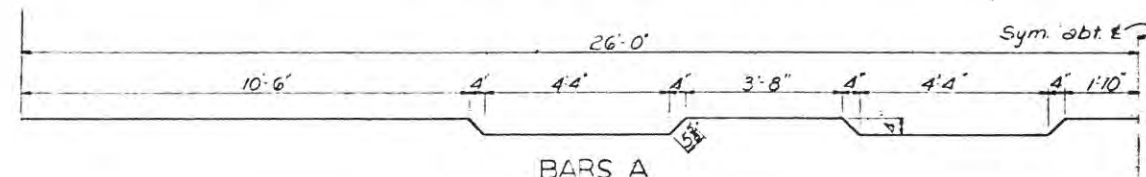
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DESIGN	1965	RD5	RD5	1965	RD5	RD5	1965	RD5	RD5
DESIGN	1965	RD5	RD5	1965	RD5	RD5	1965	RD5	RD5



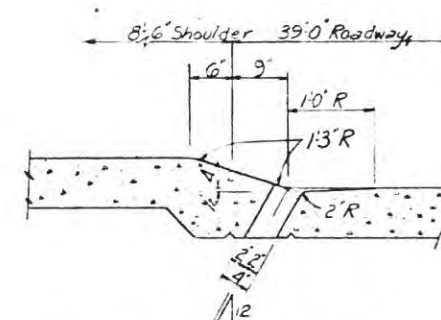
## ELEVATION

## ARMORED JOINT DETAILS

The two armor fl's for a complete joint, after being cut to crown, shall be matched for fit; the matched plates bolted together for shipment. Plates shall be shipped in convenient lengths (20'-0" Maximum) and field butt welded.

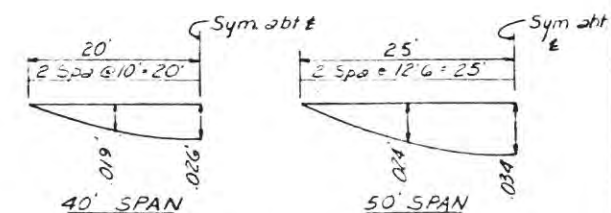


## SECTION



CURB & DRAIN DETAIL

4' x 6' formed drain Trowel entrance  
to give a 1/2" entrance depression.  
Provide a 1/2" drip bead around drain.  
Bend reinforcing steel to clear drain l.



## DEAD LOAD DEFLECTION DIAGRAMS

(Cast in place concrete & rail only)  
Note: The deflections shown above shall be taken into account in setting of forms

General Notes:

Design: H20-S16 loading in accordance with AASHTO 1957 Standard Spec. & complies with FPM 20-4, Section 4c.  
Slab design complies with 1959 tentative Spec.  
All concrete shall be class A. Chamfer all exposed corners & unless otherwise noted.

All dimensions relating to reinforcing steel are to centers of bars.

Design stress for reinforcing steel = 20,000 p.s.i.  
For Beam Details, see sheets Gp A1 & Gp A2.

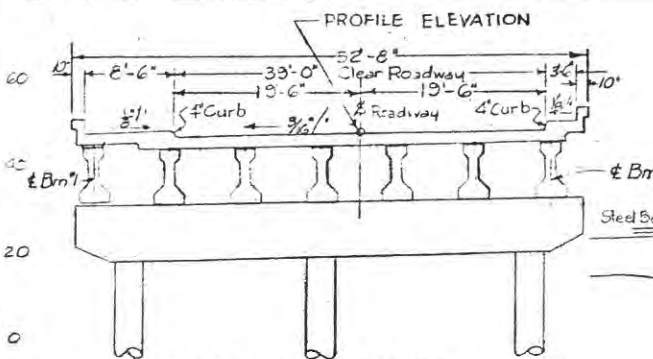
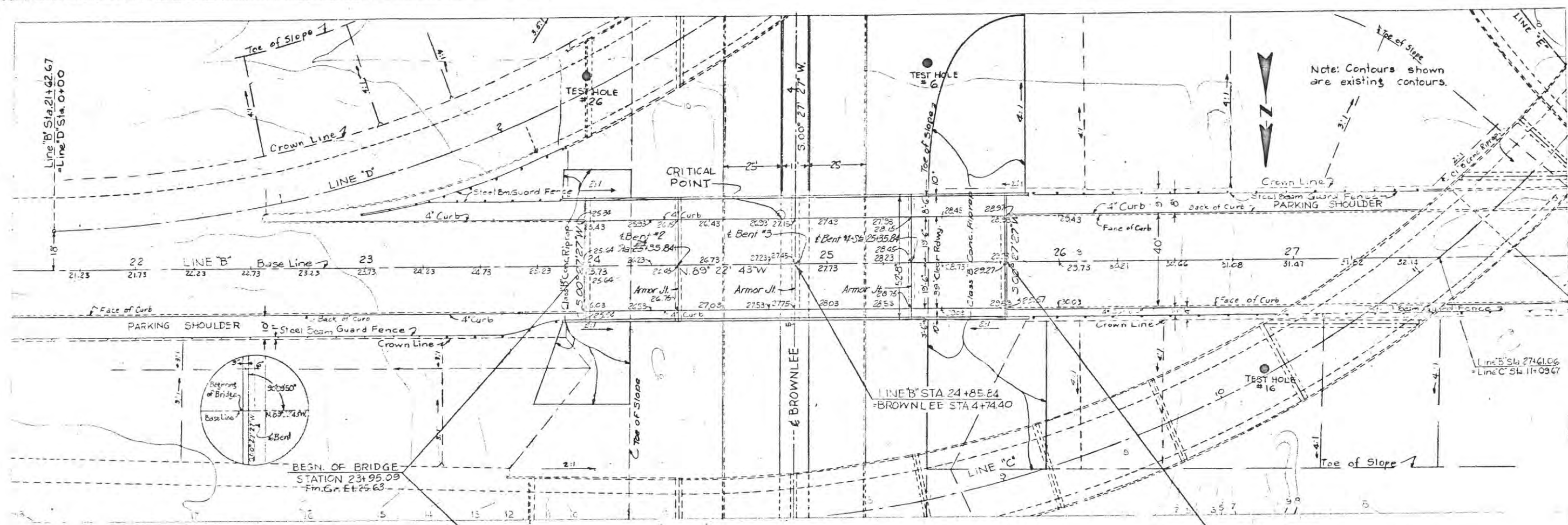
TEXAS HIGHWAY DEPARTMENT

40'-0" & 50'-0" PRESTRESSED  
CONCRETE BM. SPAN DETAILS

39'-0" ROADWAY 8'-6" SHOULDERS  
1" 07' 25.5" HORIZONTAL CURVE  
BROWNLEE OVERPASS ~ LINE 'A'

[illegible]



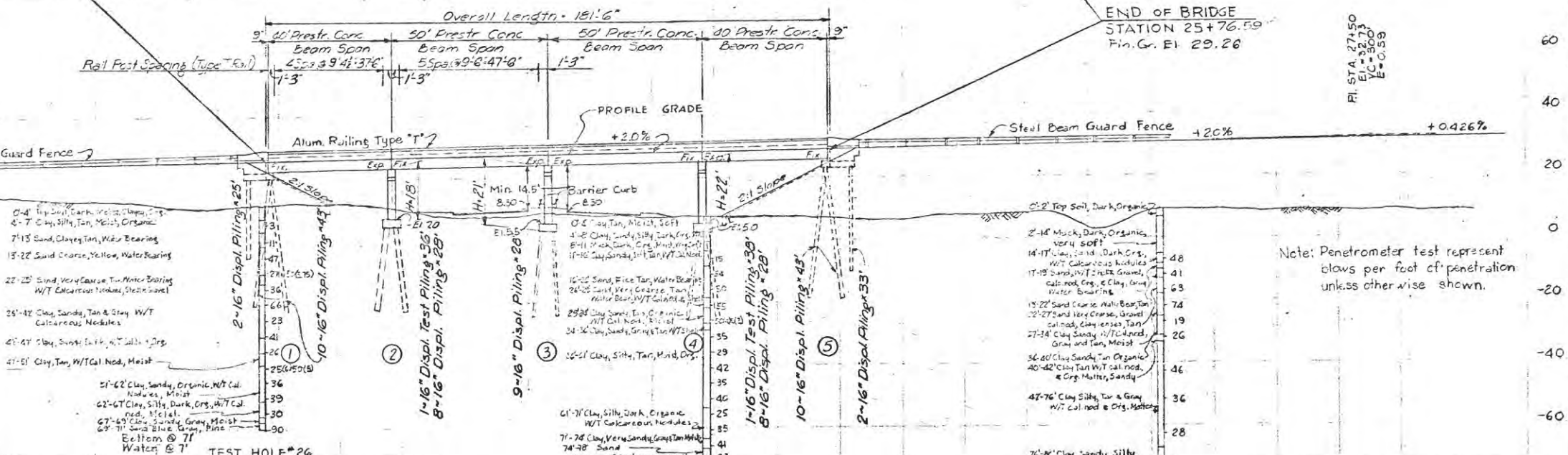


TYPICAL BRIDGE SECTION  
BEARING SEAT ELEVATIONS

Beam #	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7
1	22.14	21.96	22.03	22.20	22.32	22.43	22.55
2	22.91	22.73	22.85	22.97	23.09	23.21	23.32
3	22.44	22.26	22.38	22.50	22.62	22.73	22.85
4	23.41	23.23	23.35	23.47	23.59	23.71	23.82
5	23.44	23.26	23.38	23.50	23.62	23.73	23.85
6	24.41	24.23	24.35	24.47	24.59	24.71	24.82
7	24.94	24.76	24.88	25.00	25.12	25.23	25.35
8	25.71	25.53	25.65	25.77	25.89	26.01	26.12

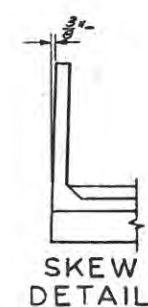
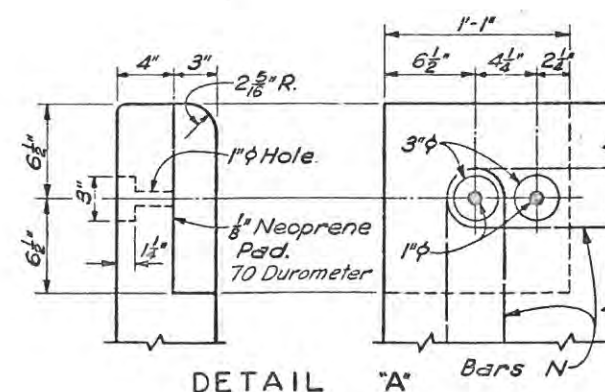
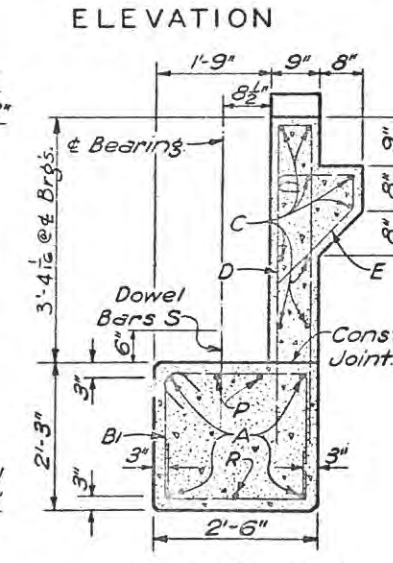
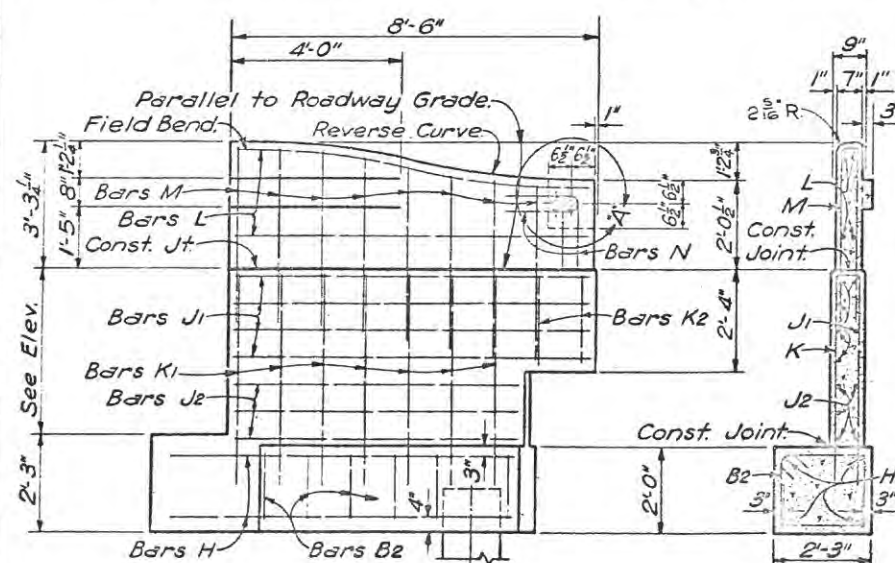
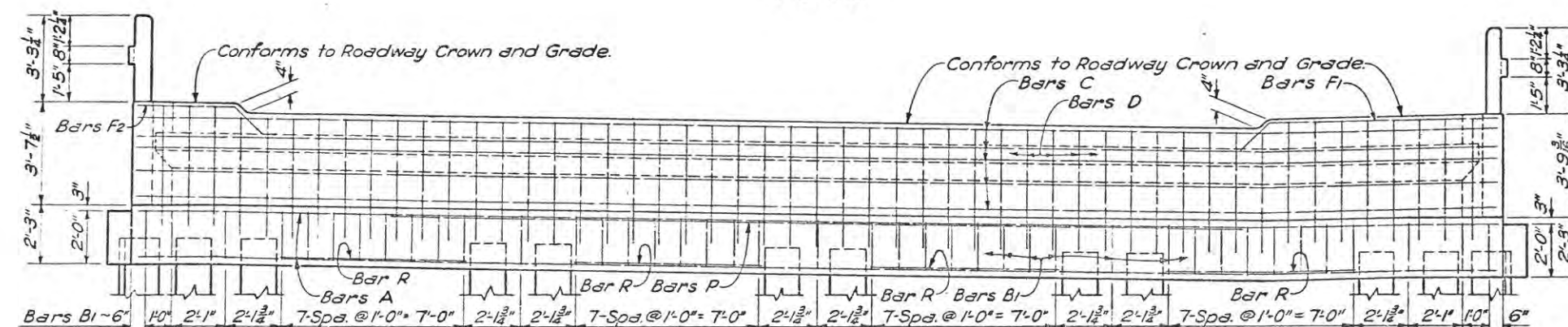
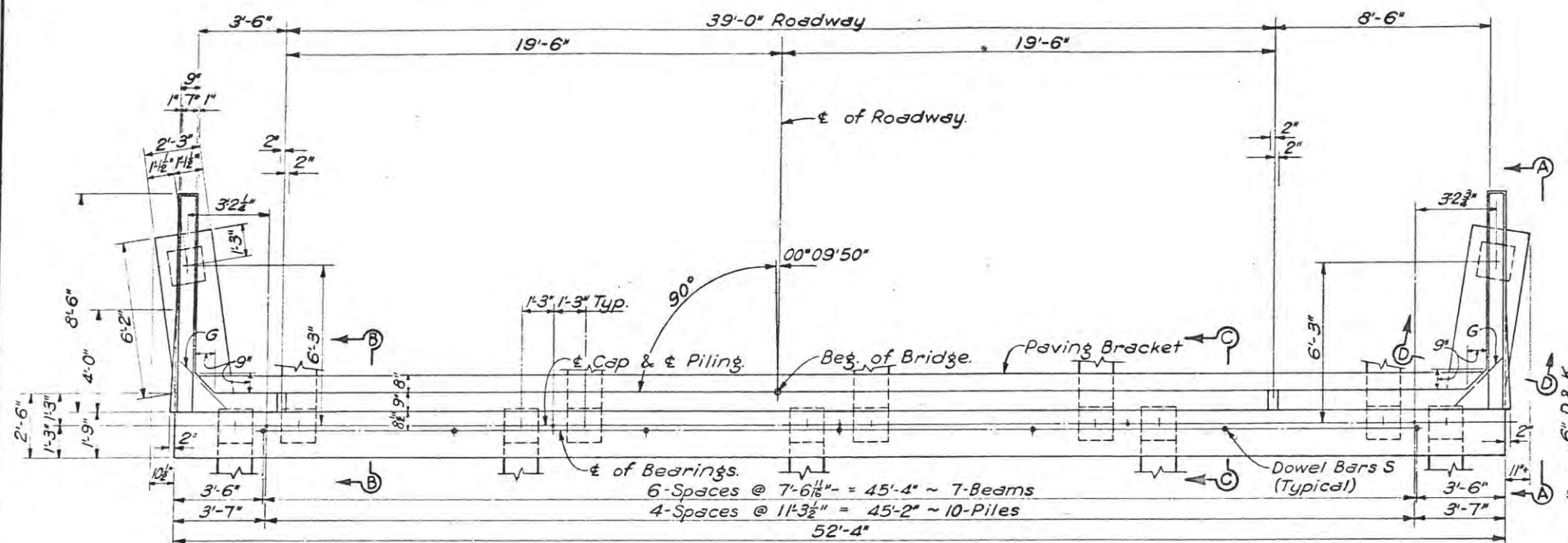
TABLE OF ESTIMATE QUANTITIES

Item	Uncl. Struc. Easr.	Class A Concrete	Rein. Steel	Struct. Steel	Displ. Piling (16')	Displ. Test Piling (16')	Railing (Type A)	Prestr. Conc. Beam	CLB Conc. Rip Rep	12" PVC Conduits
2-Abutment Bents	48	41.0	7,526		976				137	
2-Transition Bents	28	71.8	9,559		448	74				
1-Interior Bent #3	48	35.3	4,650		252					
2-40' Prestr. Conc. Bm Spans		105.6	24,042	980			160.0	555.3		
2-50' Prestr. Conc. Bm Spans		132.0	29,473	1,960			200.0	695.33		
Lighting Bracket #5	1.4	143.1	236.0	75.25	3,020	1,676	36.00	355.53	137	455



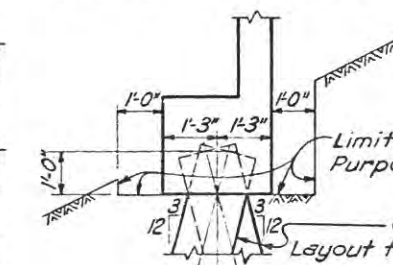
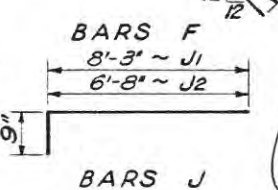
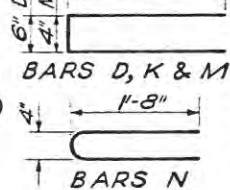
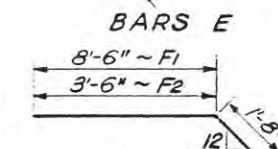
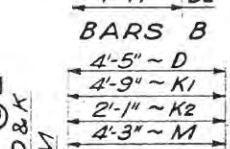
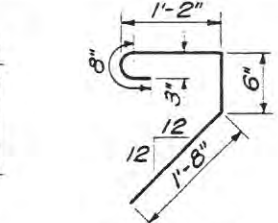
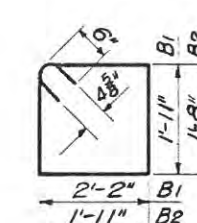
BROWNLEE OVERPASS  
LINE 'B'  
SCALE: HORIZ. 1"=20'  
VERT. 1"=20'  
LOADING: H-20 S16  
RNR  
DHW  
137-1(2)000 I-37  
16 NUECES 74 6 38 142





ESTIMATED QUANTITIES		
Item	Unit	Quantity
Uncl. Struct. Excav.	Cu.Yds.	24.0
Class A Concrete	Cu.Yds.	20.5
Reinforcing Steel	Lbs.	3763

BILL OF REINFORCING STEEL					
Bar No.	Size	Spec.	Length	Weight	
A	4	#10	~ 52'-0"	895	
B1	41	#5	Shown: 9'-2"	392	
B2	12	#5	12'+" 8'-2"	102	
C	10	#5	~ 52'-0"	542	
D	51	#5	12'+" 9'-4"	496	
E	50	#4	12'+" 3'-10"	128	
F1	2	#5	~ 10'-2"	21	
F2	2	#5	~ 5'-2"	11	
G	10	#5	12'+" 2'-6"	26	
H	8	#9	~ 8'-0"	218	
J1	12	#5	7'+" 9'-0"	113	
J2	10	#5	7'+" 7'-5"	77	
K1	14	#5	12'+" 10'-0"	146	
K2	4	#5	12'+" 4'-8"	19	
L	8	#5	~ 8'-3"	69	
M	16	#5	12'+" 8'-10"	147	
N	4	#5	~ 3'-7"	15	
P	2	#9	~ 32'-6"	221	
R	4	#9	~ 7'-2"	97	
S	7	#8	~ 1'-6"	28	
Total,			Lbs.	3763	



SECTION C-C

GENERAL NOTES:-

Design: H20-S16 Loading in accordance with A.A.S.H.O. 1957  
Standard Specifications & P.P.M. 20-4, Section 4c.

Standard Specifications & P.P.M. 20-4, Section 4c.  
All concrete shall be Class A. Chamfer all exposed corners  $\frac{3}{4}$ " unless otherwise noted.

All dimensions relating to reinforcing steel are to centers of bars.

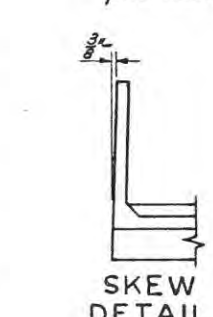
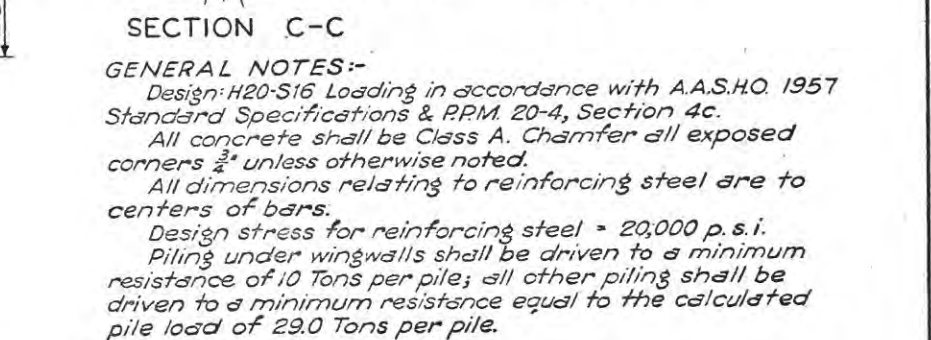
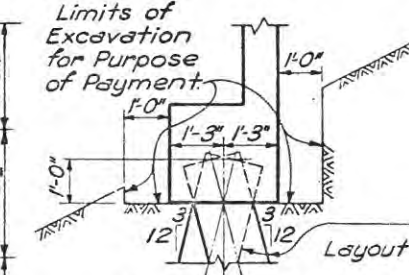
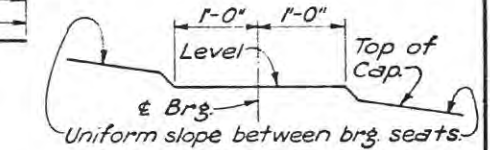
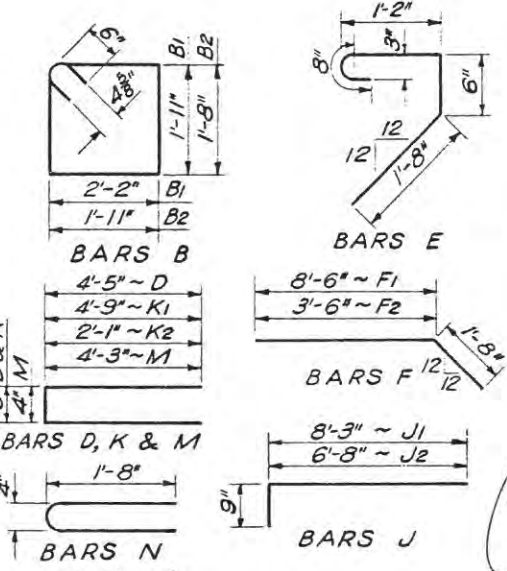
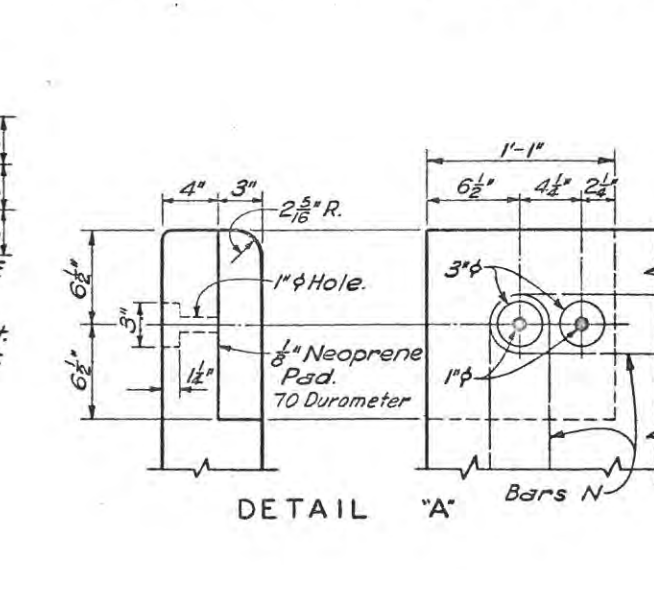
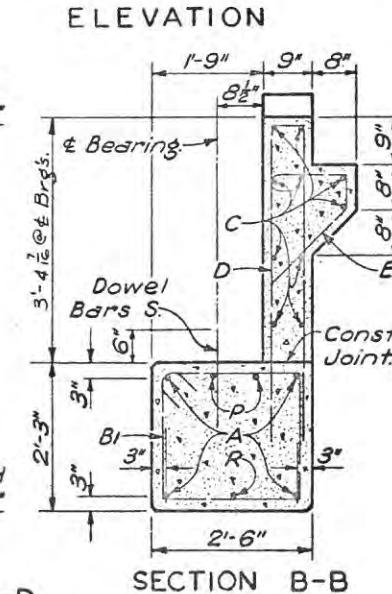
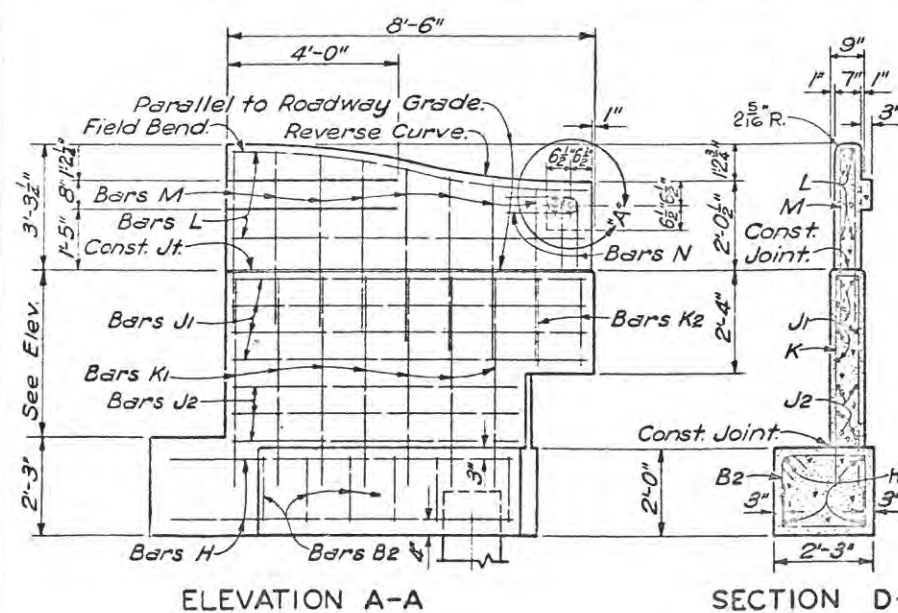
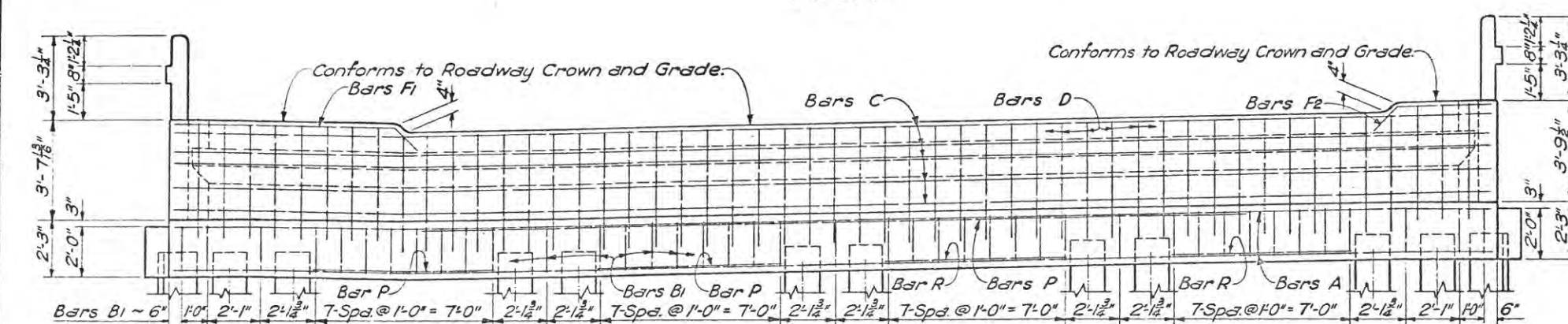
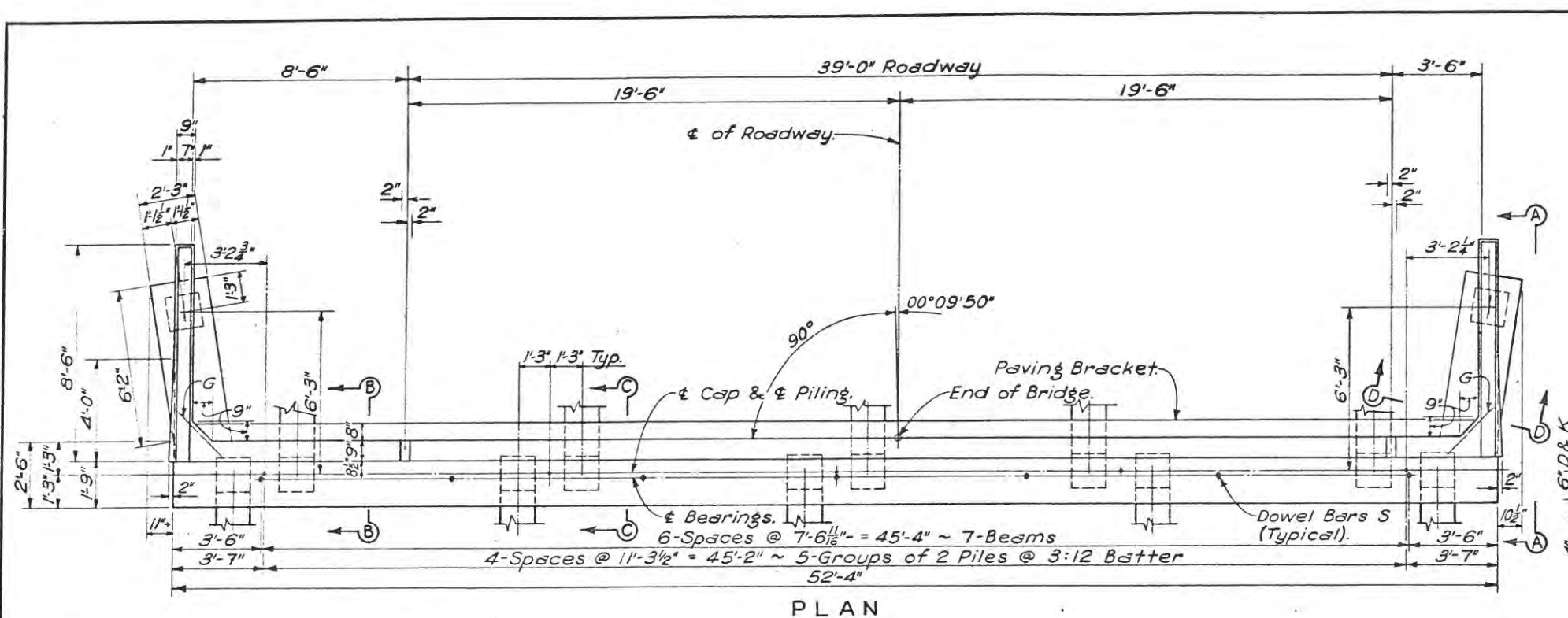
Design stress for reinforcing steel = 20,000 p.s.i.

Piling under wingwalls shall be driven to a minimum resistance of 10 Tons per pile; all other piling shall be driven to a minimum resistance equal to the calculated pile load of 29.0 Tons per pile.

TEXAS HIGHWAY DEPARTMENT  
ABUTMENT BENT NO. 1  
BROWNLEE OVERPASS  
LINE 'B'  
00° 09' 50" RIGHT FORWARD SKEW

FM. <u>BPM</u>	EXAMINE	DATE	FILE NO.	STATE	FEDERAL AID PROJECT NO.	TRIST NO.
CA. FN. <u>L. C.</u>	<u>ORIGINAL SEPT. 1950</u>					
CA. FN. <u>C. C.</u>			6	TEXAS	<u>I-37-1(2)000</u>	<u>143</u>
CA. DN. <u>B.W.</u>			STATE	COUNTY	SECTION	JOB
CA. TA.			DIST. NO.	NO.	NO.	NO.
CA. TA.				<u>16</u>	<u>Nueces</u>	<u>74</u>
						<u>33</u>
						<u>I-37</u>



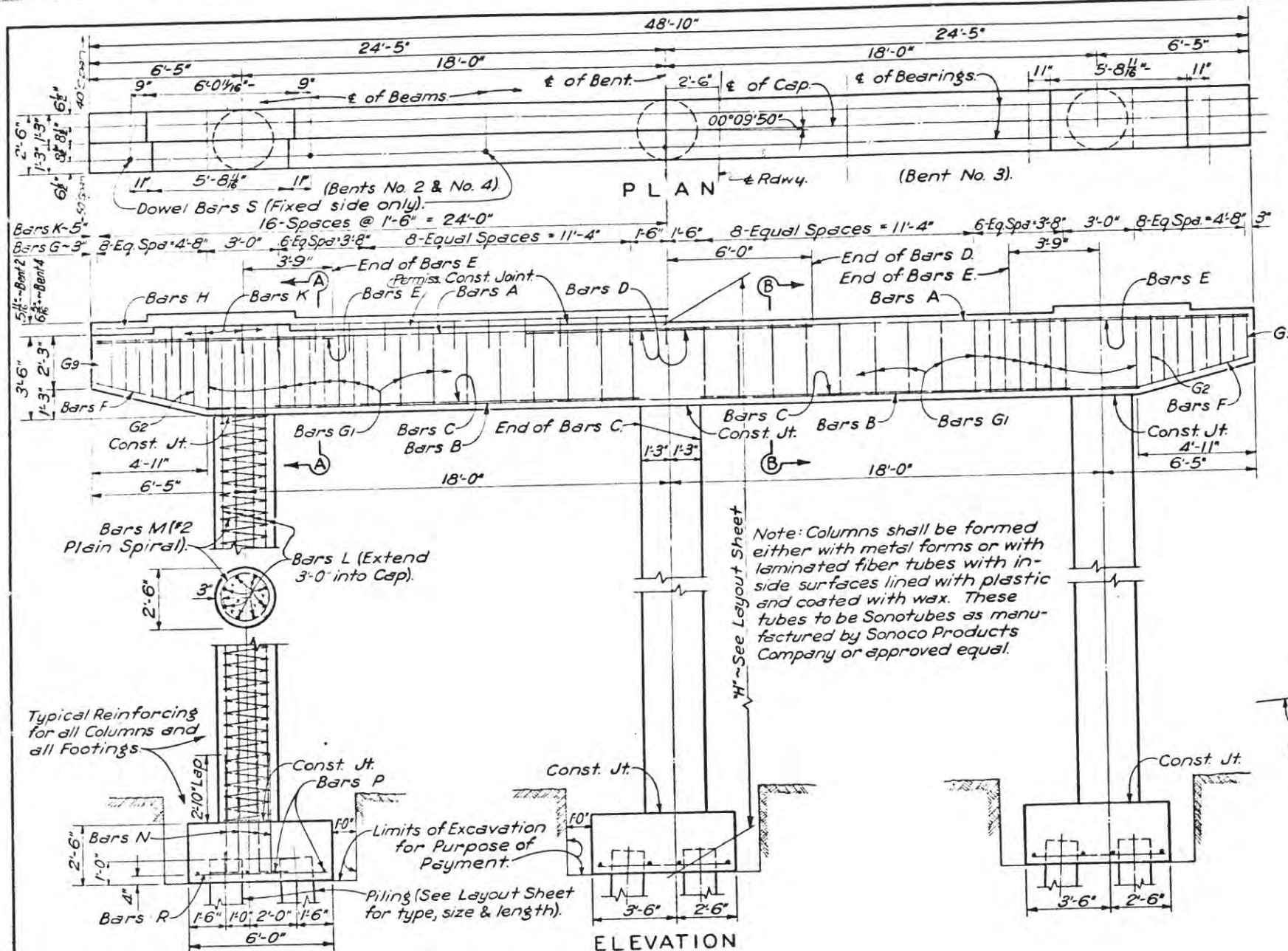


ESTIMATED QUANTITIES	
Item	Unit Quantity
Uncl. Struct. Excav.	Cu.Yds. 24.0
Class A Concrete	Cu.Yds. 20.5
Reinforcing Steel	Lbs. 3763

BILL OF REINFORCING STEEL				
Bar	No.	Size	Spac.	Length Weight
A	4	#10	~	52'-4" 895
B	41	#5	Shown	9'-2" 392
B2	12	#5	12"±	8'-2" 102
C	10	#5	~	52'-0" 542
D	51	#5	12"	9'-4" 496
E	50	#4	12"	3'-10" 128
F1	2	#5	~	10'-2" 21
F2	2	#5	~	5'-2" 11
G	10	#5	12"	2'-6" 26
H	8	#9	~	8'-0" 218
J1	12	#5	7'± & F3	9'-0" 113
J2	10	#5	7'± & F3	7'-5" 77
K1	14	#5	12"±	10'-0" 146
K2	4	#5	12"±	4'-8" 19
L	8	#5	~	8'-3" 69
M	16	#5	12"±	8'-10" 147
N	4	#5	~	3'-7" 15
P	2	#9	~	32'-6" 221
R	4	#9	~	7'-2" 97
S	7	#8	~	1'-6" 28
Total,			Lbs.	3763

DN	BRW	CREATING	DATE	FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
Ca DN	LEC	ORIGINAL	SEPT 1960	5	TEXAS	F-37-1(2)000	144
Ca DN	ZCF						
Ca DN	BRW			STATE DIST. NO.	COUNTY	COUNTY SECTION NO.	SUB. NO.
TR				16	Nueces	74	6
Ca TR						33	F-37





BILL OF CONSTANT REINFORCING STEEL											
Bar Size Spec.	BENT NO. 2		BENT NO. 3		BENT NO. 4						
No. Length Weight	No.	Length Weight	No.	Length Weight	No.	Length Weight	No.	Length Weight	No.	Length Weight	
A #11 ~	2	48'-6"	515	2	48'-6"	515	2	48'-6"	515	2	48'-6"
B #11 ~	2	39'-0"	414	2	39'-0"	414	2	39'-0"	414	2	39'-0"
C #10 ~	6	15'-6"	400	6	15'-6"	400	6	15'-6"	400	6	15'-6"
D #10 ~	3	12'-0"	155	3	12'-0"	155	3	12'-0"	155	3	12'-0"
E #10 ~	8	10'-0"	344	8	10'-0"	344	8	10'-0"	344	8	10'-0"
F #6 ~	4	6'-3"	38	4	6'-3"	38	4	6'-3"	38	4	6'-3"
G1 #5 Shown	32	11'-8"	389	32	11'-8"	389	32	11'-8"	389	32	11'-8"
G2 #5 Shown	16	10'-4" Avg.	172	16	10'-4" Avg.	172	16	10'-4" Avg.	172	16	10'-4" Avg.
H #4 ~	2	48'-6"	65	-	-	-	2	48'-6"	65	-	-
K #4 Shown	33	3'-5"	75	-	-	-	33	3'-5"	75	-	-
N #9 ~	24	5'-8"	463	24	5'-8"	463	24	5'-8"	463	24	5'-8"
P #8 ~	12	6'-6"	208	12	6'-6"	208	12	6'-6"	208	12	6'-6"
R #8 ~	12	5'-6"	176	12	5'-6"	176	12	5'-6"	176	12	5'-6"
S #8 ~	7	1'-6"	28	-	-	-	7	1'-6"	28	-	-
Totals, Lbs	3442		3274		3442						

VARIABLE REINFORCING STEEL			
"H"	24-#9 3-Bars M	Bars L #2 Plain Spiral	Totals
Avg. Length Weight	Length Weight	Length Weight	Lbs.
18' 15'-0"	1224	174'-0"	87 1311
19' 16'-0"	1306	187'-0"	94 1400
20' 17'-0"	1387	201'-0"	101 1488
21' 18'-0"	1469	214'-0"	107 1576
22' 19'-0"	1550	228'-0"	114 1664
23' 20'-0"	1632	241'-0"	121 1753
24' 21'-0"	1714	254'-0"	127 1841

ESTIMATED QUANTITIES											
"H"	BENT NO. 2			BENT NO. 3			BENT NO. 4				
	Class A	Reinf.	Uncl. Str.	Class A	Reinf.	Uncl. Str.	Class A	Reinf.	Uncl. Str.	Conc.	Steel
18'	34.8	4753	48.0	33.7	4585	48.0	34.8	4753	40.0		
19'	35.4	4842	48.0	34.3	4674	48.0	35.4	4842	40.0		
20'	35.9	4930	48.0	34.8	4762	48.0	35.9	4930	40.0		
21'	36.5	5018	48.0	35.3	4850	48.0	36.5	5018	40.0		
22'	37.0	5106	48.0	35.9	4938	48.0	37.0	5106	40.0		
23'	37.5	5195	48.0	36.4	5027	48.0	37.5	5195	40.0		
24'	38.1	5283	48.0	37.0	5115	48.0	38.1	5283	40.0		

**GENERAL NOTES:-**

Design: H20-S16 Loading in accordance with A.A.S.H.O. 1957 Standard Specifications and R.R.M. 20-4, Section 4c.

All concrete shall be Class A. Chamfer all exposed corners  $\frac{3}{4}$ " unless otherwise noted.

All dimensions relating to reinforcing steel are to centers of bars.

Design stress for reinforcing steel = 20,000 p.s.i.

Maximum Pile Load = 40 Tons per pile.

TEXAS HIGHWAY DEPARTMENT

**TRANSITION BENTS 2 & 4**

**INTERIOR BENT NO. 3**

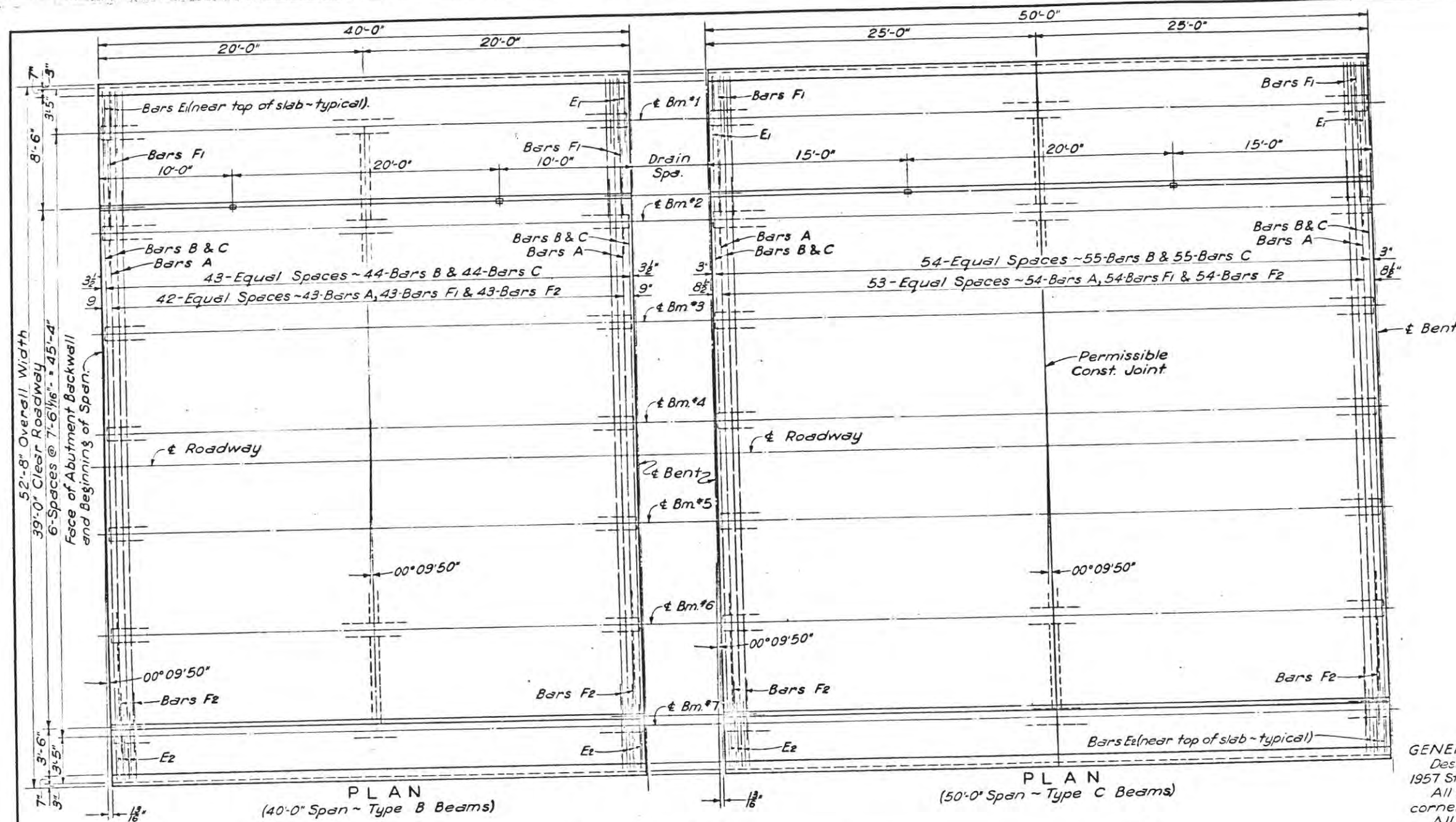
BROWNLEE OVERPASS

LINE "B"

00° 09' 50" RIGHT FORWARD SKEW

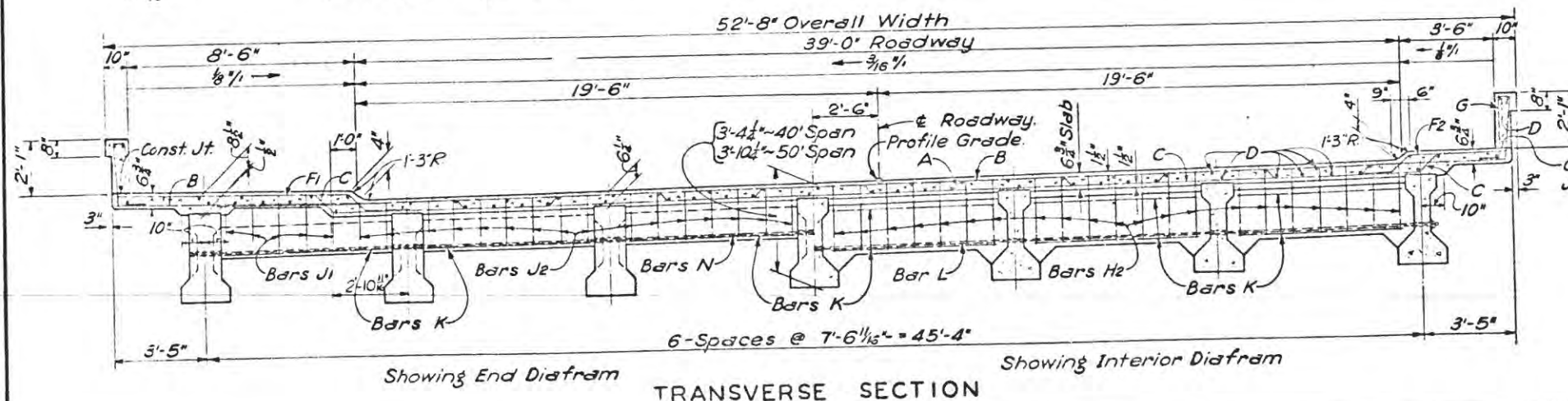
By: BRW	Drawn: LFC	Check: ZOR	Scale: 1"=10'-0"	Sheet: 145
Approved: BRW	Original: AUG 1960	State: TEXAS	Federal Aid Project No: 7-37-1(2)000	Project No: 145
Count: 16	Nueces	74	6	38





PLAN  
(40'-0" Span ~ Type B Beams)

PLAN  
(50'-0" Span ~ Type C Beams)



TRANSVERSE SECTION

BILL OF REINFORCING STEEL					
Bar No.	Size	Spec.	Length	Weight	
40'-0" SPAN					
A	43	#5	11'±	46'-11"	2104
B	44	#5	11'±	51'-10"	2379
C	44	#5	11'±	52'-5"	2406
D	64	#5	~	39'-8"	2648
E1	6	#6	5 1/2'	5'-0"	45
F1	43	#5	11'±	11'-1"	497
F2	43	#5	11'±	6'-1"	273
G	74	#5	1'-1"	5'-10"	450
H1	5	#4	1'-0"	5'-9"	19
H2	37	#4	1'-0"	5'-10"	126
J1	10	#4	1'-0"	5'-10"	39
J2	74	#4	1'-0"	4'-10"	239
K	48	#5	~	6'-4"	317
L	1	#10	~	46'-3"	199
N	2	#8	~	46'-0"	246
E2	6	#6	5 1/2'	3'-9"	34
Total,					Lbs. 12,021

50'-0" SPAN					
A	54	#5	11'±	46'-11"	2642
B	55	#5	11'±	51'-10"	2973
C	55	#5	11'±	52'-5"	3007
D	64	#5	~	49'-8"	3315
E1	6	#6	5 1/2'	5'-0"	45
F1	54	#5	11'±	11'-1"	624
F2	54	#5	11'±	6'-1"	343
G	92	#5	1'-1"	5'-10"	560
H1	5	#4	1'-0"	6'-5"	21
H2	37	#4	1'-0"	5'-9"	142
J1	10	#4	1'-0"	5'-10"	39
J2	74	#4	1'-0"	4'-10"	239
K	48	#5	~	6'-2"	309
L	1	#10	~	46'-3"	199
N	2	#8	~	46'-2"	247
E2	6	#6	5 1/2'	3'-9"	34
Total,					Lbs. 14,739

#### ESTIMATED QUANTITIES

Item	Unit	Quantity	40' Span	50' Span
Class A Concrete	Cu Yds	52.8	65.0	
Reinforcing Steel	Lbs.	12,021	14,739	
Structural Steel (Armor Jt)	Lbs.	*490	*980	
Railing	Lin. Ft.	80	100	
Prestressed Conc. Bms.	Lin. Ft.	277.67	347.67	

\* 1-R. \* 2-Rs

**GENERAL NOTES:-**  
 Design: H20-S16 Loading in accordance with A.A.S.H.O. 1957 Standard Specifications and PPM. 20-4, Sec. 4c.  
 All concrete shall be Class A. Chamfer all exposed corners 1/2" unless otherwise noted.  
 All dimensions relating to reinforcing steel are to centers of bars.  
 Design stress for reinforcing steel = 20,000 p.s.i.  
 Slab Design: 1959 Tentative Specifications.

**Note:**  
 See Layout Sheet for Type of Railing and Rail Post Spacing. See Railing Sheet for Railing Details.  
 See Layout Sheet for Armor Joint location.  
 See Bridge Lighting Details for location of PVC Conduit and Light Standard Brackets.

TEXAS HIGHWAY DEPARTMENT  
**40' & 50' PRESTRESSED CONCRETE BEAM SPANS**  
 BROWNLEE OVERPASS  
 LINE "B"  
 00° 09' 50" RIGHT FORWARD SKEW  
 Sheet 1 of 2

DESIGNED BY	DATE	STATE	FEDERAL AID PROJECT NO.	SCALE
CHECKED BY	DATE	STATE	FEDERAL AID PROJECT NO.	SCALE
APPROVED BY	DATE	STATE	FEDERAL AID PROJECT NO.	SCALE
PROJECT NO.	16	TEXAS	1-57-1(2)000	1/4"
COUNTY	16	Nueces	74	6
DATE	1/1/37			



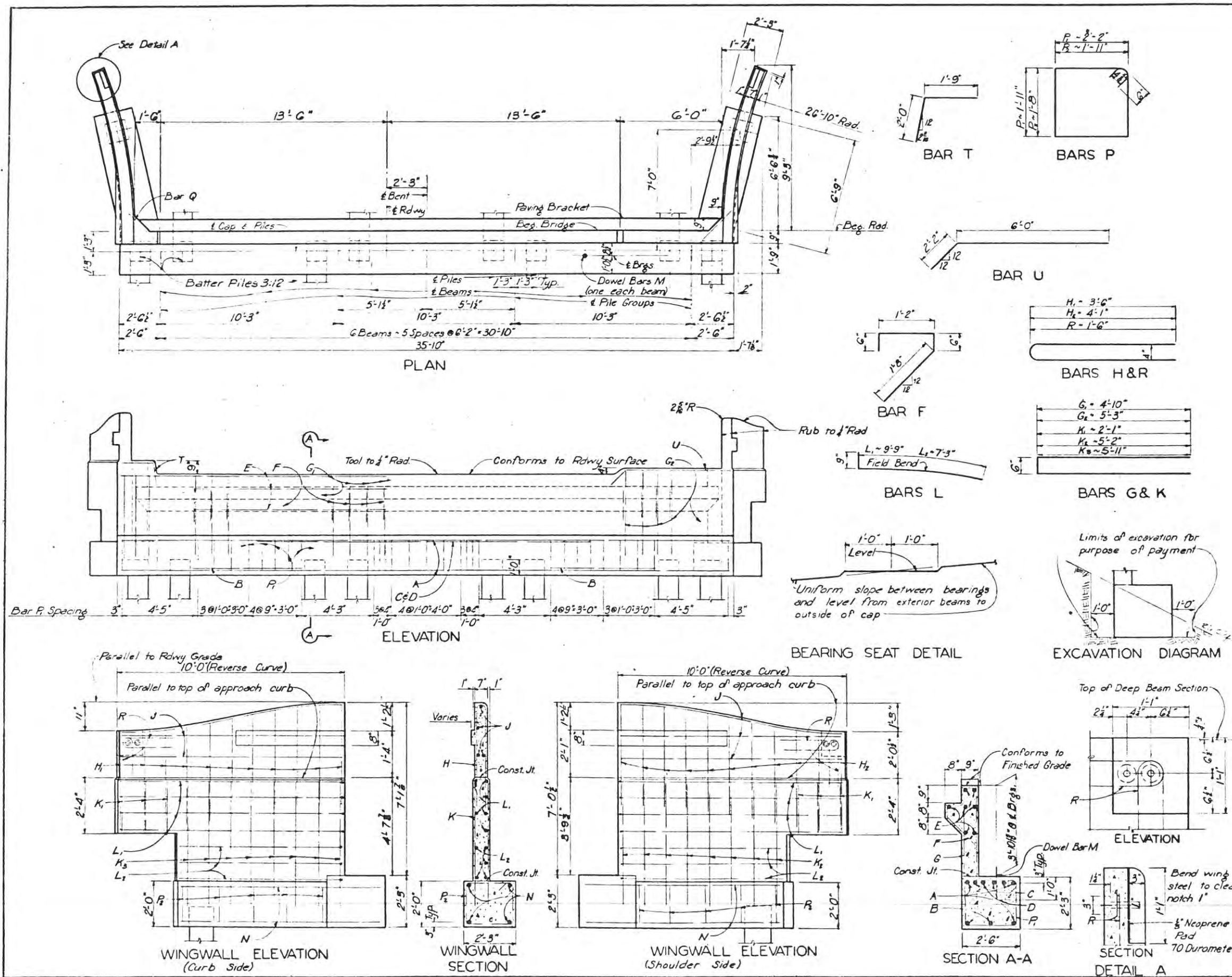












**BILL OF REINFORCING STEEL**

Bar	No	Size	Spacing	Length	Weight
A	4	#11	~	35'-6"	754
B	2	#10	~	6'-2"	53
C	2	#11	~	19'-3"	205
D	2	#10	~	19'-3"	166
E	7	#5	~	35'-6"	259
F	36	#4	1'-0"	3'-10"	92
G	28	#5	1'-0"	10'-2"	297
H	8	#5	1'-0"	11'-0"	92
I	11	#4	1'-0"	7'-2"	53
J	11	#4	1'-0"	8'-4"	61
K	8	#5	1'-0"	9'-9"	81
L	6	#4	1'-0"	4'-8"	19
M	8	#4	1'-0"	10'-10"	58
N	12	#5	8'-1'-4"	10'-6"	131
O	10	#5	8'-1'-4"	8'-0"	83
P	6	#6	~	1'-6"	14
Q	8	#9	~	9'-0"	245
R	29	#5	Shown	9'-3"	280
S	10	#5	1'-6"	8'-3"	86
T	8	#5	1'-0"	2'-6"	21
U	4	#4	~	3'-2"	8
V	2	#5	~	3'-9"	8
W	2	#5	~	8'-2"	17
X	8	#4	1'-0"	12'-4"	66
Total				Lb	3149

**TABLE OF ESTIMATED QUANTITIES**

Item	Unit	Quantity
Class A Concrete	Cu Yd.	17.7
Reinforcing Steel	Lb.	3149
Structural Excavation Uncl.	Cu Yd.	24

**GENERAL NOTES:**  
 Design H20-S16-44 loading in accordance with AASHTO, 1957 Standard Specifications and complies with P.P.M. 20-4 Sect. 4c.  
 All concrete shall be Class A. Chamfer all exposed corners 3/4" unless otherwise noted.  
 Dimensions relating to reinforcing steel are to centers of bars.  
 Design stress for reinforcing steel equals 20,000 p.s.i.  
 Piling under wingwalls shall be driven to a min. resistance of 10 tons/pile and all remaining piling to a min. resistance equal to the calculated pile load of 32 tons/pile.

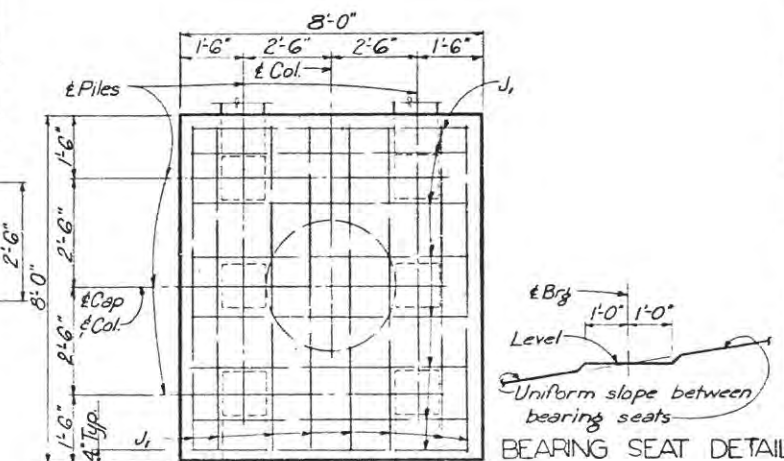
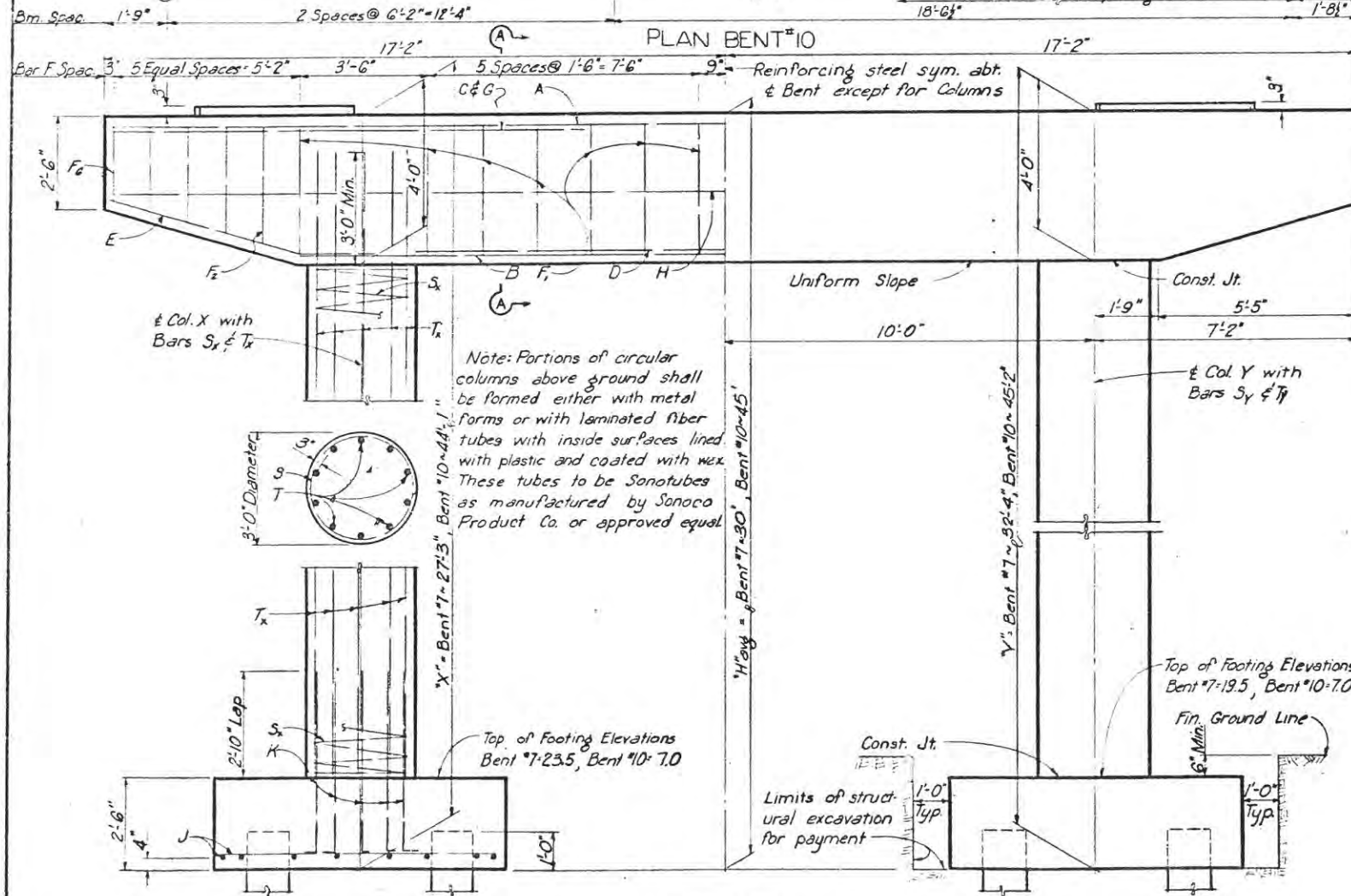
TEXAS HIGHWAY DEPARTMENT  
**ABUTMENT BENT NO. 1**  
 LINE B & E UNDERPASS  
 LINE C

DATE	BY	CHKD	APP'D	STATE	FEDERAL AID PROJ. NO.	SHEET
1-37-11	LEC	Original	Nov. 1960	6	TELEAS 1-37-11(2) 000	150
1-37-11	LEC					
1-37-11	CWG					
1-37-11					16 NUJECES 74 G 38 UN 37	

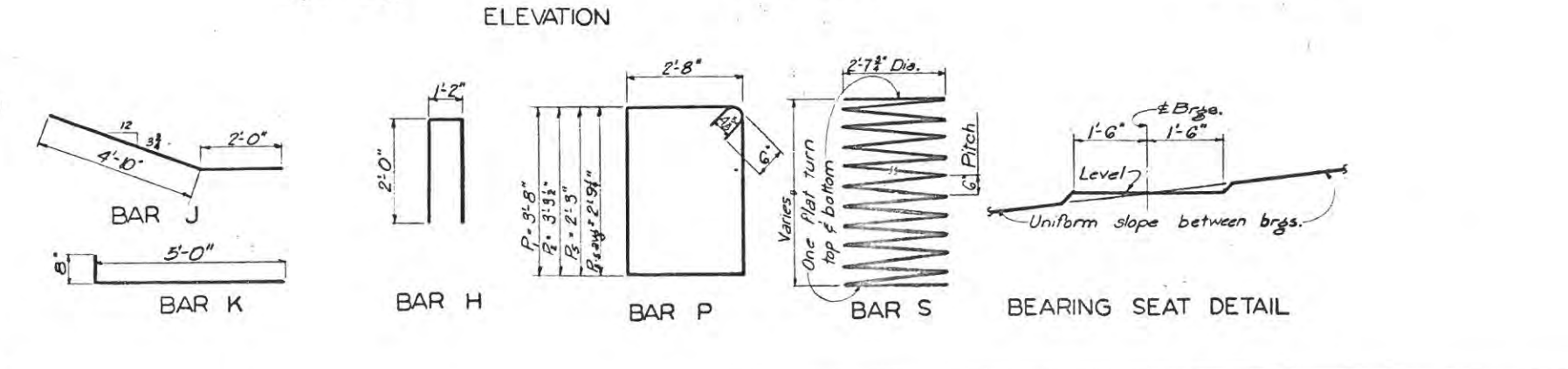
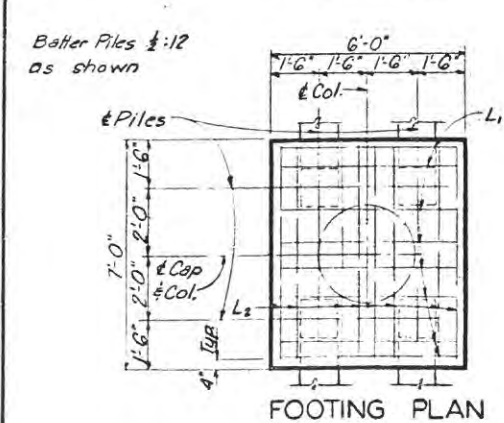
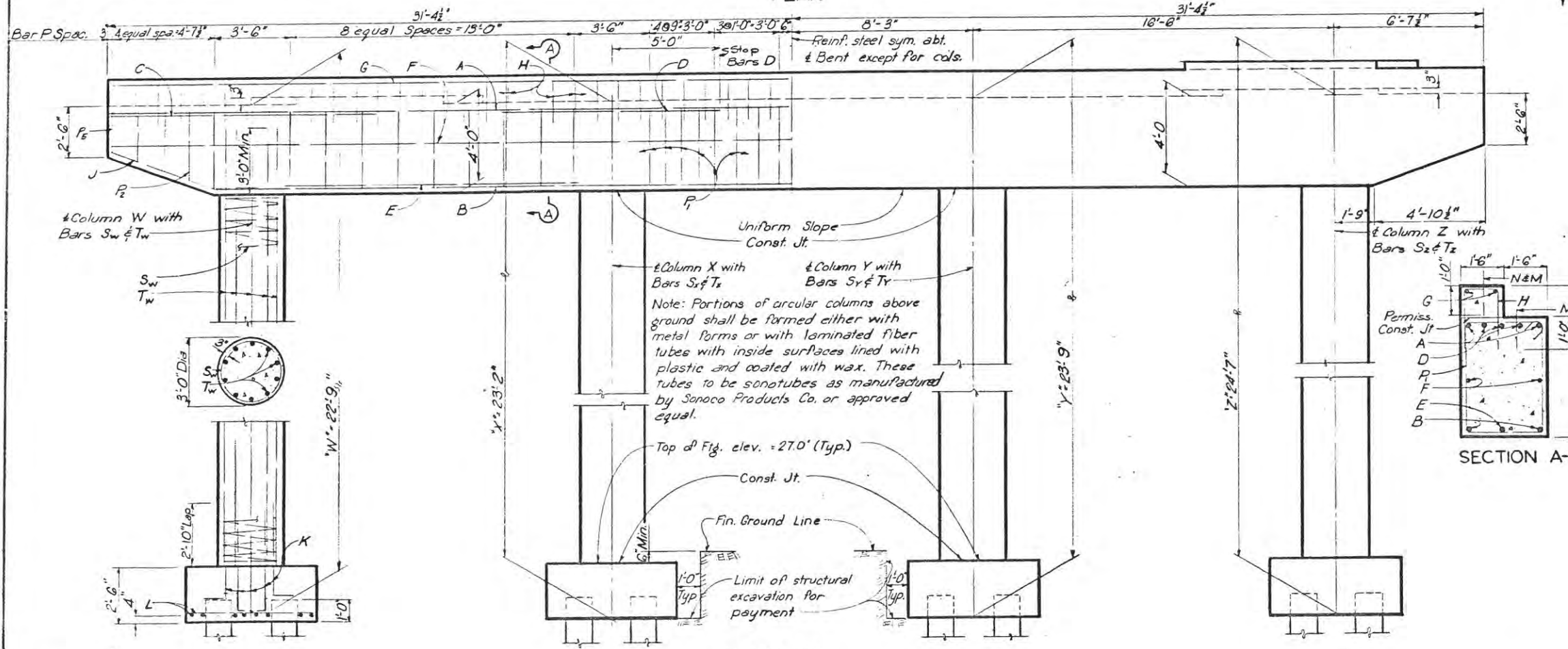
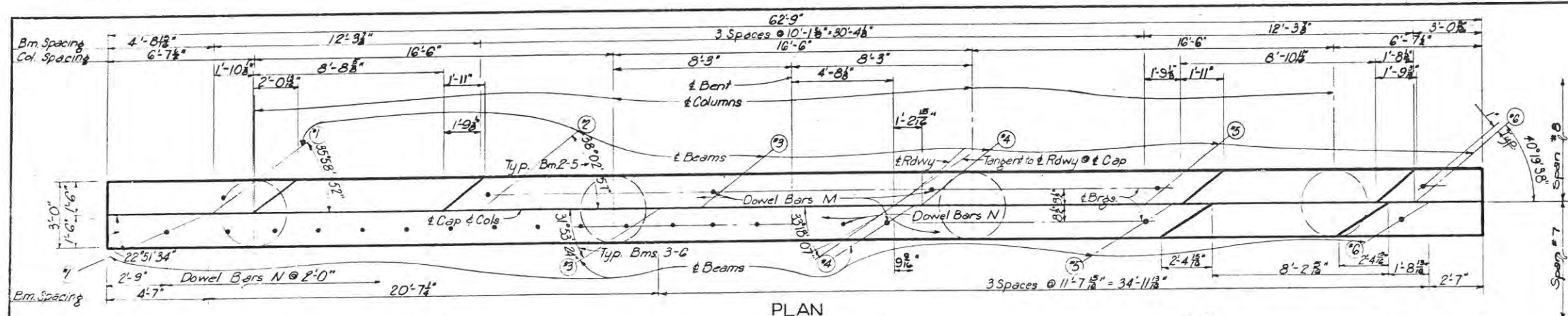








DN	BRW	DRAWING	DATE	FTS ROAD	STATE	FEDERAL AID PROJECT NO.	SHEET
CR	DL	Original	Nov. 1920	6	TEXAS	1-37-1 (2) 000	152
CD	LEC			STATE	COUNTY	SECTION	HWY
CR	DL			6	NUECES	74	38
CD	CWG			16		G	38
CR	DL						11737



BILL OF REINFORCING STEEL					
Bar	No.	Size	Spac.	Length	Weight
A	2	#11	~	66'-5"	706
B	2	#11	~	53'-0"	569
C	4	#11	~	12'-0"	255
D	6	#10	~	10'-0"	258
E	2	#11	~	13'-6"	143
F	2	#5	~	64'-3"	134
G	2	#2	~	64'-7"	194
H	63	#4	1'-0"	5'-2"	218
J	4	#8	~	6'-10"	73
K	40	#9	~	5'-8"	771
L	32	#8	~	5'-6"	470
M	32	#8	~	6'-6"	555
N	9	#6	~	1'-6"	20
P	16	#5	2'-0"	2'-0"	33
Q	36	#5	Shown	13'-9"	516
R	8	#5	Shown	12'-0"	100
S	1	#3	~	287	108
T	10	#9	~	19'-3"	655
U	1	#3	~	294	110
V	10	#9	~	19'-8"	669
W	1	#3	~	304	114
X	10	#9	~	20'-3"	689
Y	1	#3	~	318	120
Z	10	#9	~	21'-1"	717
Total				Lb.	8191

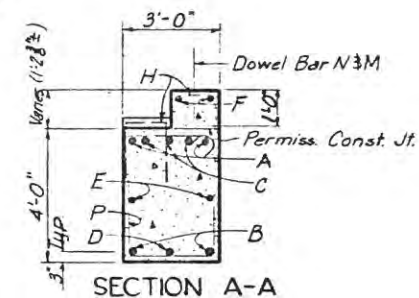
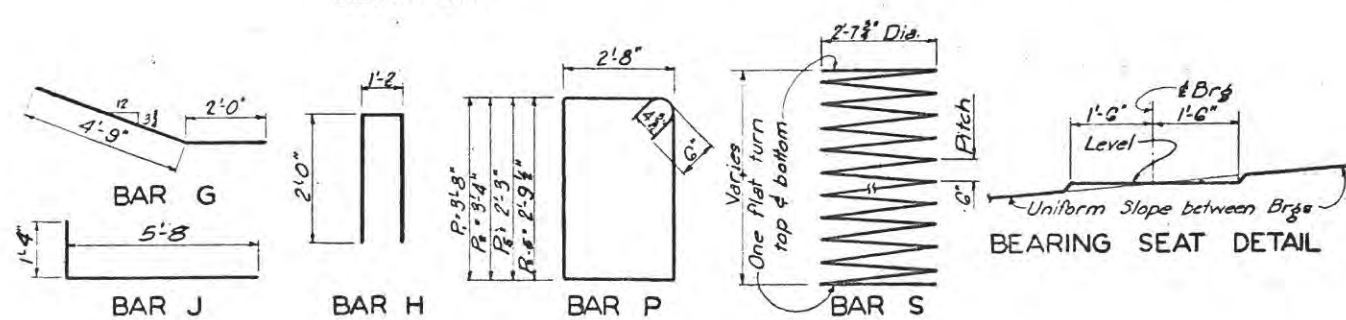
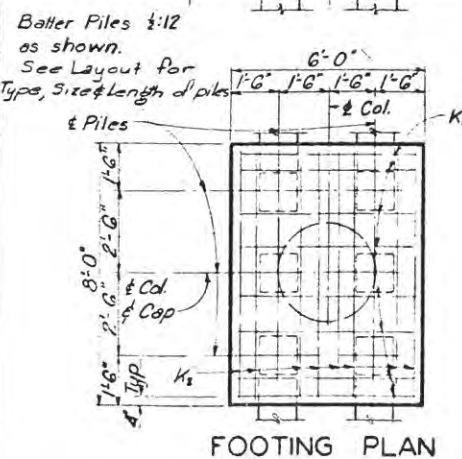
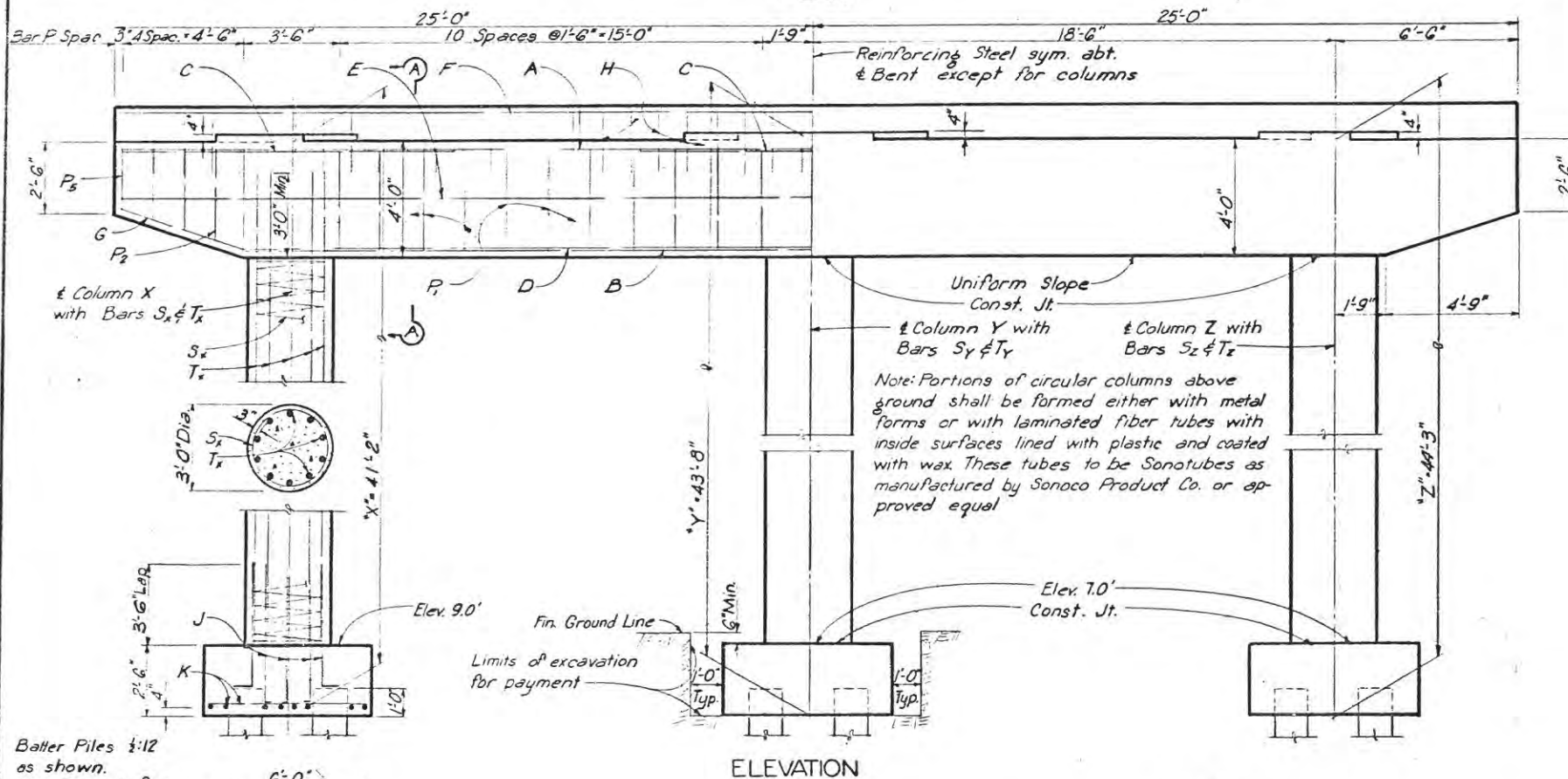
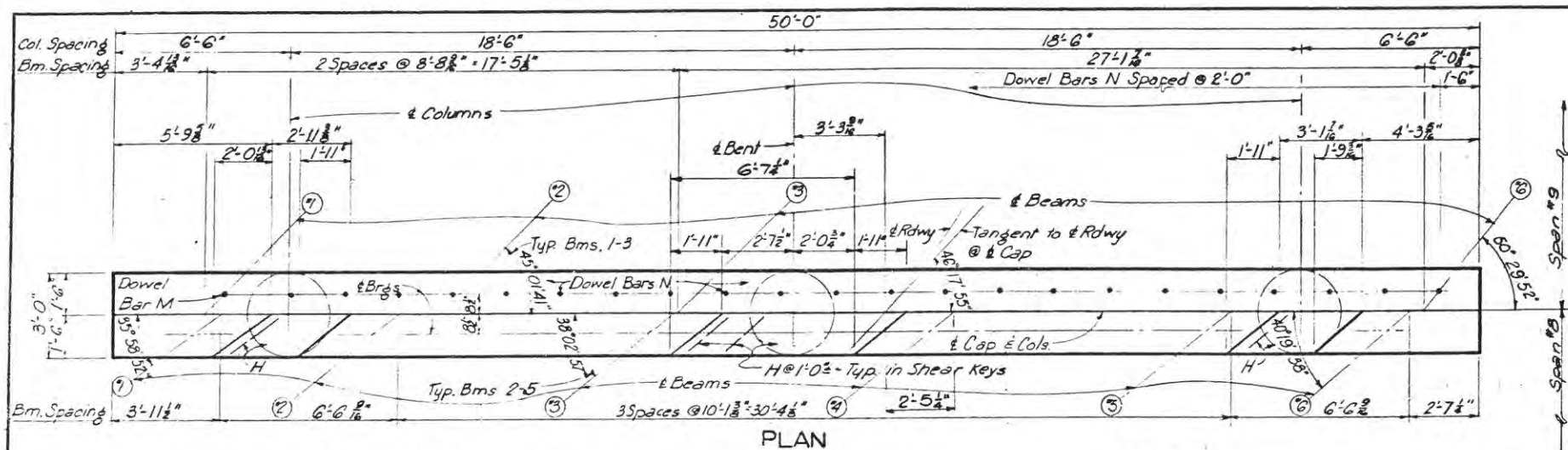
TABLE OF ESTIMATED QUANTITIES		
Item	Unit	Quant.
Class A Concrete	Cu. Yd.	65.2
Reinforcing Steel	Lb.	8191
Structural Excavation (Uncl.)	Cu. Yd.	70

**GENERAL NOTES:**  
 Design: H20-S16-44 Loading in accordance with AASHTO, 1957 Standard Specifications and complies with R.P.M. 20-4 sec 4.6  
 All concrete shall be Class A. Chamfer all exposed corners 3" unless otherwise noted.  
 All dimensions relating to reinforcing steel are to centers of bars.  
 Design stress for reinforcing steel is 20,000 psi.  
 Calculated pile load is 39 Tons/pile.

TEXAS HIGHWAY DEPARTMENT  
**TRANSITION BENT NO. 8**  
 1° 09' 52" HORIZ. CURVE  
 LINE B & E UNDERPASS  
 LINE C

DR	REV	DATE	BY	CHKD	STATE	FEDERAL AID PROJECT NO.	POST
DR	1	Nov. 1960	LEG	LEG	6	TEXAS 1-37-1(2) 000	153
CHKD	1		CWG	CWG	16	NUECES 74 6 33	1437





BILL OF REINFORCING STEEL					
Bar	No.	Size	Spacing	Length	Weight
A	2	#11	~	49'-8"	528
B	2	#11	~	40'-6"	430
C	9	#9	~	12'-0"	367
D	2	#11	~	15'-6"	165
E	2	#5	~	49'-8"	104
F	2	#6	~	49'-8"	149
G	4	#8	~	6'-9"	72
H	63	#4	1'-0"	5'-2"	217
J	30	#11	~	7'-0"	1116
K1	24	#9	~	5'-6"	443
K2	24	#9	~	7'-6"	612
M	1	#6	~	1'-6"	2
N	22	#5	2'-0"	2'-0"	46
Sx	1	#3	~	59'-0"	221
Tx	10	#11	~	37'-8"	2001
Sy	1	#3	~	63'-1"	237
Ty	10	#11	~	40'-2"	2134
Sz	1	#3	~	64'-1"	241
Tz	10	#11	~	40'-9"	2165
P	24	#5	Shown	13'-9"	344
P25	8	#5	Shown	12'-0"	100
Total					Lbs. 11,700

TABLE OF ESTIMATED QUANTITIES		
Item	Unit	Quantity
Class A Concrete	Cu. Yd.	675
Reinforcing Steel	Lb.	11,700
Structural Excavation (Uncl.)	Cu. Yd.	95

GENERAL NOTES:  
 Design: H20-S16-44 Loading in accordance with AASHTO, 1957 Standard Specifications in accordance with P.P.M. 20-4 sect. 4c.  
 All concrete shall be Class A. Chamfer all exposed corners  $\frac{3}{4}$ " unless otherwise noted.  
 All dimensions relating to reinforcing steel are to centers of bars.  
 Design stress for reinforcing steel is 20,000 p.s.i.  
 Calculated pile load = 40 tons/pile.

# TEXAS HIGHWAY DEPARTMENT TRANSITION BENT NO. 9

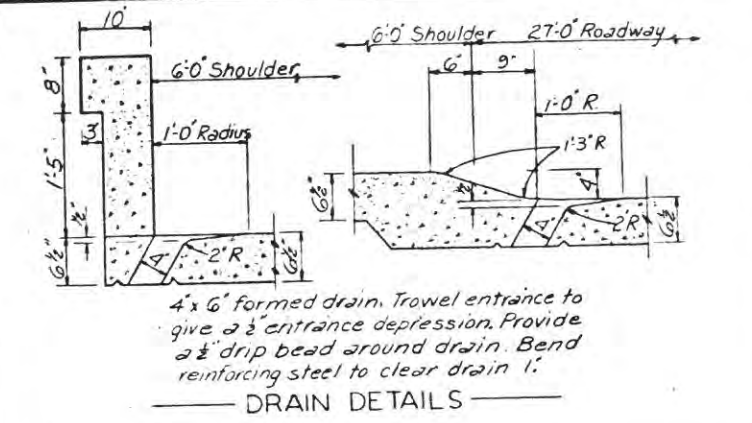
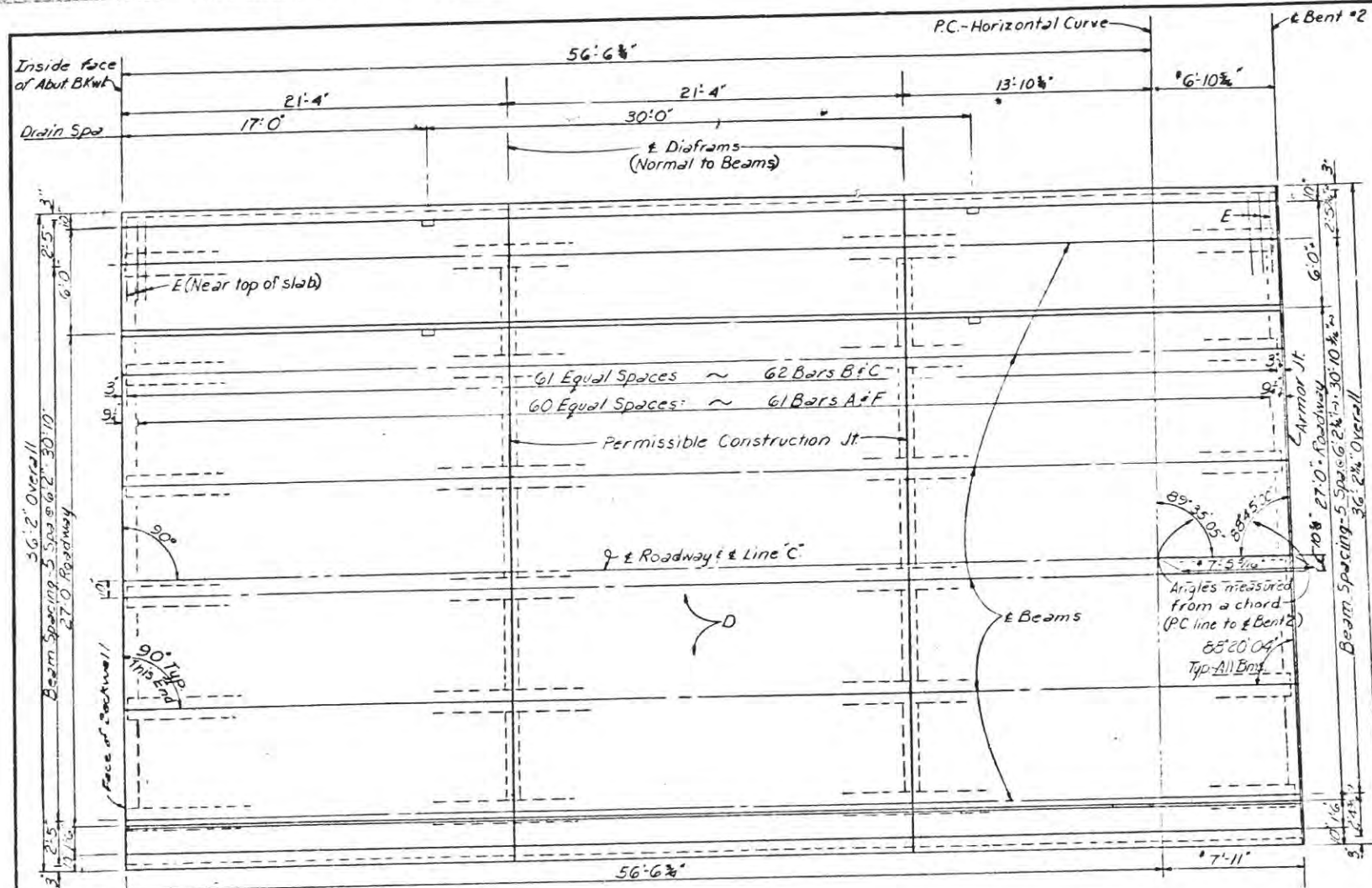
11° 09' 52" HORIZ. CURVE  
 LINE B & E UNDERPASS  
 LINE C

DR.	BY	DATE	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DR. BRW	Original	Nov. 1960	TEXAS	1-37-1(2) 000	154
DR. LEC					
DR. CWC					
DR. T					
DR. T					





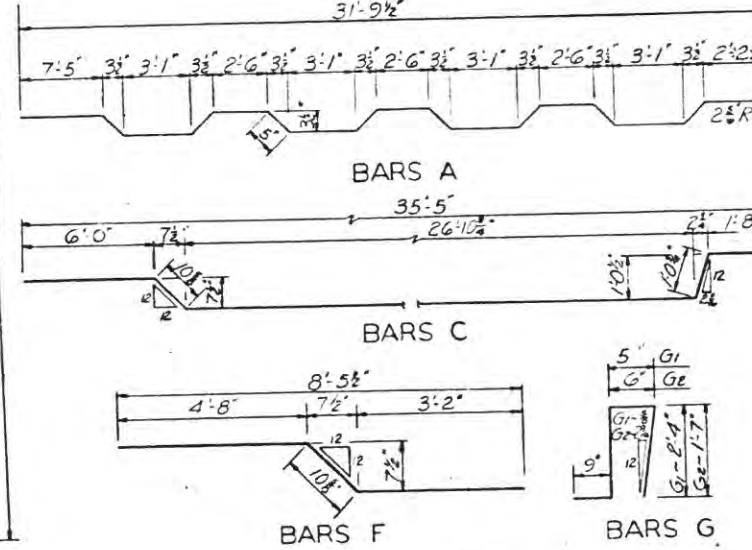




**BILL OF REINFORCING STEEL**

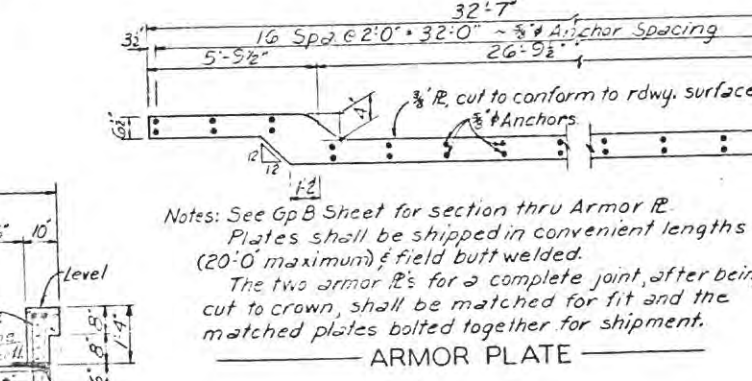
Bar	No.	Size	Spa	Length	Weight
A	61	#5	1'-0"	32'-11"	2094
B	62	#5	1'-0"	34'-1"	2204
C	62	#5	1'-0"	36'-6"	2360
D	57	#5	~	64'-9 1/2"	3349
E	6	#6	6'-0"	4'-6"	41
F	61	#5	1'-0"	8'-9"	557
G1	62	#4	1'-0"	5'-10"	241
G2	62	#4	1'-0"	4'-5"	183
H1	44	#4	1'-0"	5'-10"	171
J1	44	#4	1'-0"	4'-10"	142
K1	40	#5	~	4'-10"	202
L	2	#10	~	3'-9"	273
H2	6	#4	1'-0"	6'-4"	25
N	2	#8	~	3'-8"	169
J2	6	#4	1'-0"	5'-4"	21
<b>Total</b>					<b>12,533</b>

\*Includes 20 Diameter Lap

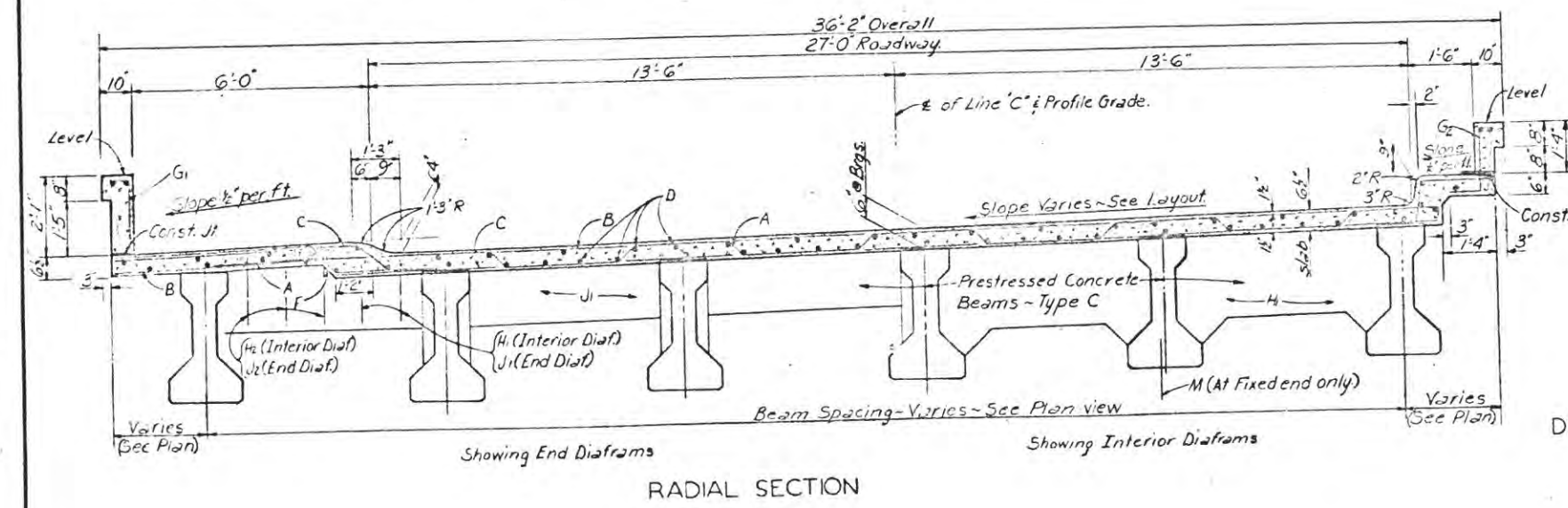
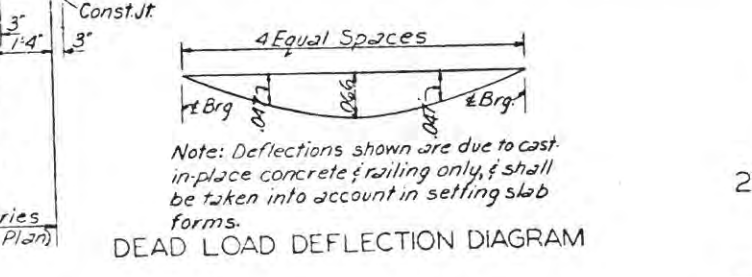


**ESTIMATED QUANTITIES**

Item	Unit	Quantity
Class A Concrete	Cu Yd	58.7
Reinforcing Steel	Lb	12,633
Structural Steel (for Armor Pl)	Lb	300
Aluminum Railing-Type T	Lin. Ft.	127.90
Prestressed Conc Bms-Type C	Lin. Ft.	381.70



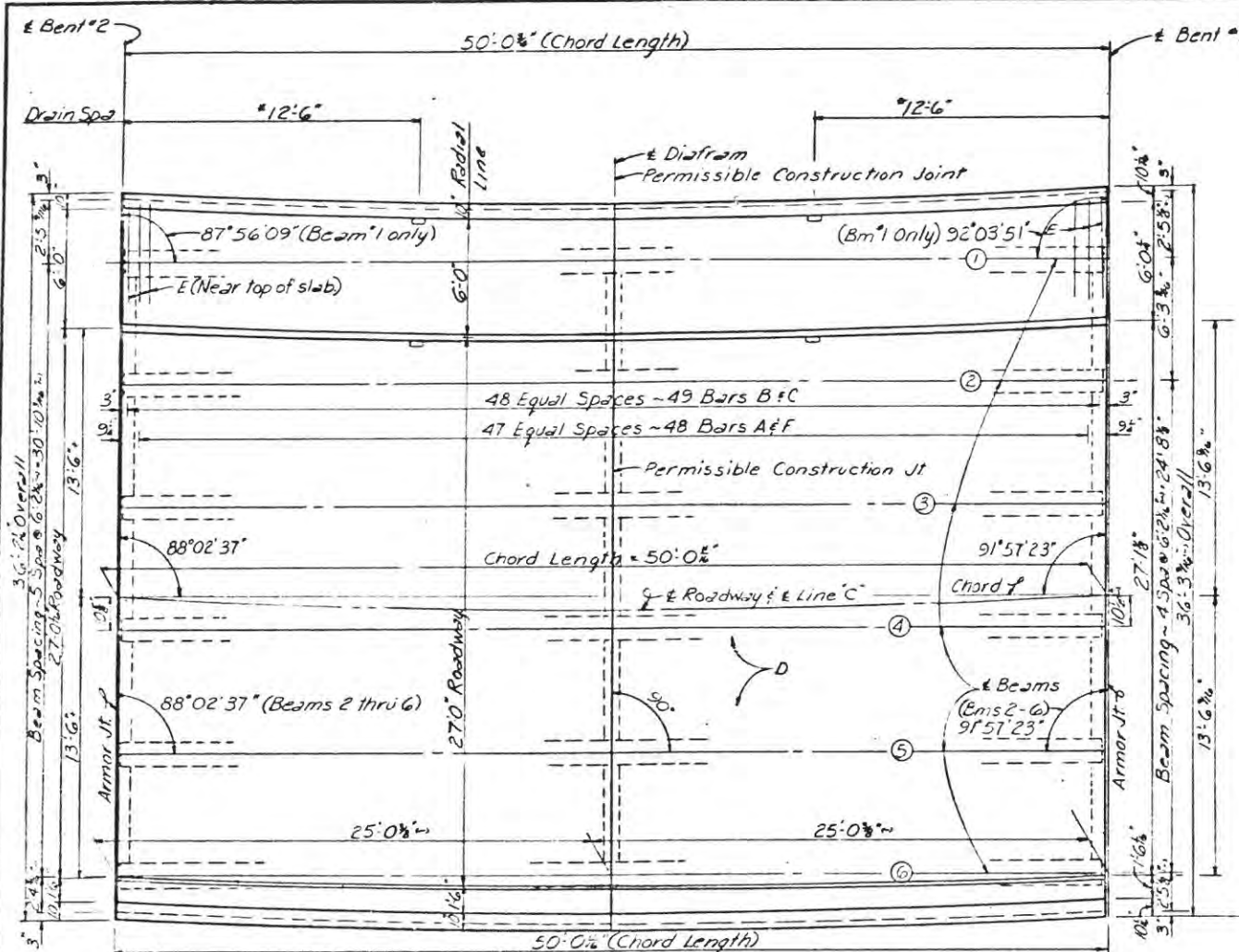
**General Notes:**  
 Design H20-S16 loading in accordance with AASHTO Std Specs & complies with PPM 20-4, Section 4c. Slab design complies with 1959 tentative specifications.  
 Dimensions relating to reinforcing steel are to centers of bars.  
 All concrete shall be class A (except beams).  
 Chamfer all corners 3/4" unless otherwise shown.  
 Design stress for reinforcing steel 20,000 psi.  
 See Gp A & Gp A2 sheets for beam details.  
 See Bridge Lighting Details for location of PVC Conduit and Light Standard Brackets.



TEXAS HIGHWAY DEPARTMENT  
**64'-0" PRESTRESSED CONCRETE BEAM SPAN**  
 (SPAN NO. 1)  
 11° 09' 52" HORIZ. CURVE  
 27'-0" ROADWAY 6'-0" SHOULDER 18' CURB  
 LINES 'B' & 'E' UNDERPASS LINE 'C'

Drawn By	Checked By	Date	Project No.	Sheet No.
W. J. Noyes	W. J. Noyes	12-1-57	1-37-1(2)000	157





Note: Omit drains over header banks & roadways.  
See Layout for Rail Post Spacing.  
See Railing sheet for Railing & Anchor Details.  
See Gp B sheet & Span #1 sheet for Diaphragm Details & Reinforcement.  
See Span #1 sheet for Armor Jt Details & Bar Details not shown.

PLAN-SPAN 2

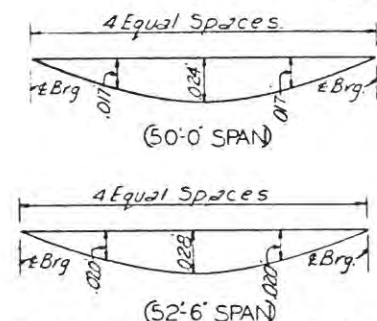
\* Chord Measurement

BILL OF REINFORCING STEEL - SPAN 2

Bar	No.	Size	Spa.	Length	Weight
A	48	#5	1'-0"	52'-11"	1648
B	49	#5	1'-0"	34'-1"	1742
C	49	#5	1'-0"	36'-6"	1865
D	57	#5	~	48'-8"	2893
E	6	#6	6'-2"	4'-6"	41
F	48	#5	1'-0"	8'-9"	438
G <sub>1</sub>	49	#4	1'-0"	5'-10"	191
G <sub>2</sub>	49	#4	1'-0"	4'-5"	145
H <sub>1</sub>	22	#4	1'-0"	5'-10"	86
H <sub>2</sub>	3	#4	1'-0"	6'-4"	13
J <sub>1</sub>	44	#4	1'-0"	4'-10"	142
J <sub>2</sub>	6	#4	1'-0"	5'-4"	21
K <sub>1</sub>	20	#5	~	4'-10"	101
K <sub>2</sub>	20	#5	~	4'-10"	101
L	1	#10	~	31'-10"	137
N	2	#8	~	31'-9"	170
Total					9,734

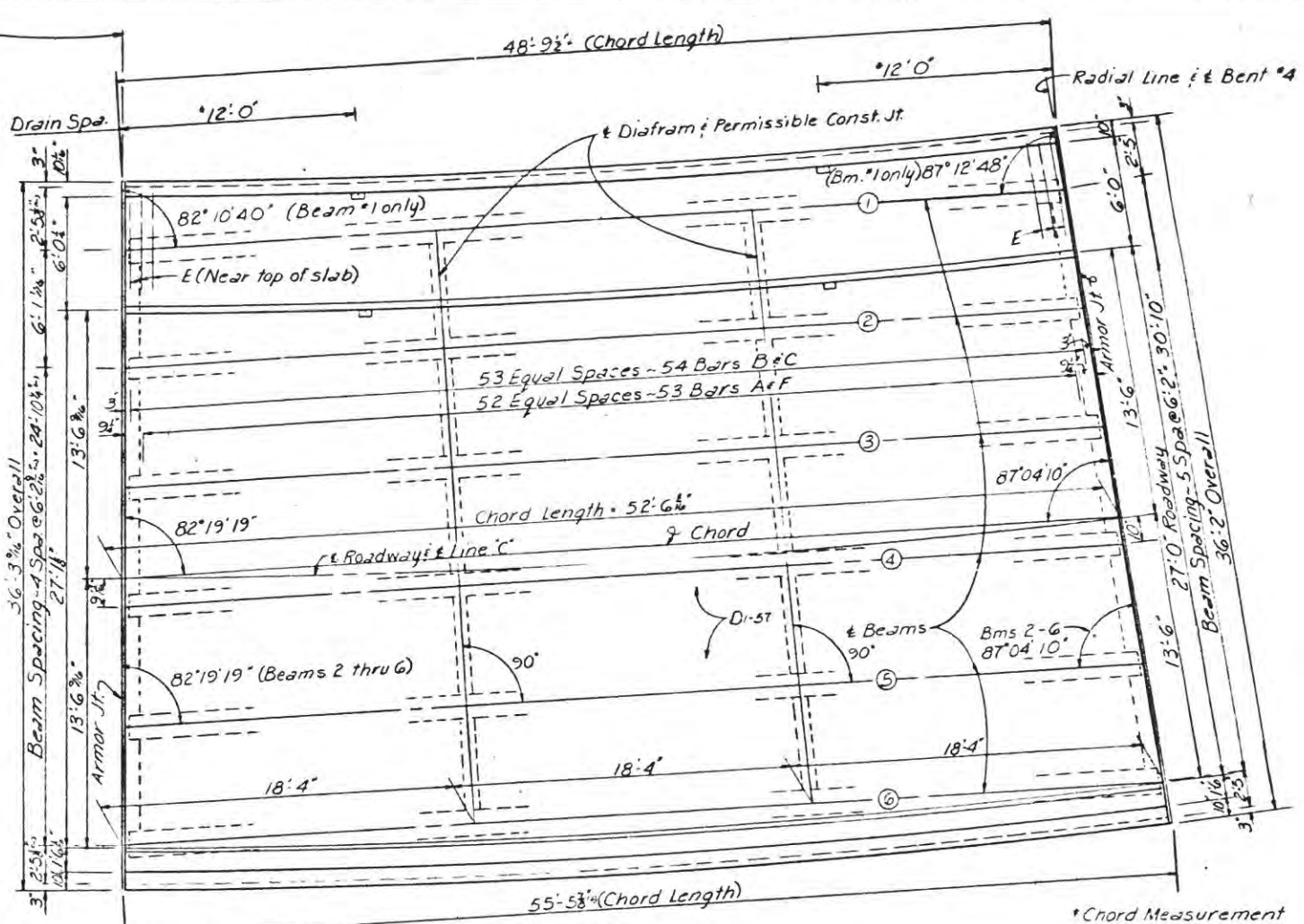
ESTIMATED QUANTITIES - SPAN 2

Item	Unit	Quantity
Class 'A' Concrete	Cu Yd	45.3
Reinforcing Steel	Lb	9,734
Structural Steel - Complete Jt	Lb	600
Prest. Conc. Brns - Type C	Lin Ft	298.36
Aluminum Railing - Type T	Lin Ft	100.16



Note: Deflections shown are due to cast in-place concrete & railing only, & shall be taken into account in setting slab forms.

DEAD LOAD DEFLECTION DIAGRAMS



Note: Omit drains over header banks & roadways.  
See Layout for Rail Post Spacing.  
See Railing sheet for Railing & Anchor Details.  
See Gp B sheet & Span #1 sheet for diaphragm details & reinforcement.  
See Span #1 sheet for Armor Jt Details & Bar Details not shown.

PLAN-SPAN 3

BILL OF REINFORCING STEEL - SPAN 3

Bar	No.	Size	Spa.	Length	Weight
A	53	#5	1'-0"	52'-11"	1820
B	54	#5	1'-0"	34'-1"	1919
C	54	#5	1'-0"	36'-6"	2056
D-57	57	#5	~	51'-9"	3,077
E	6	#6	6'-2"	4'-6"	41
F	53	#5	1'-0"	8'-9"	484
G <sub>1</sub>	54	#4	1'-0"	5'-10"	210
G <sub>2</sub>	54	#4	1'-0"	4'-5"	159
H <sub>1</sub>	44	#4	1'-0"	5'-10"	171
H <sub>2</sub>	6	#4	1'-0"	6'-4"	25
J <sub>1</sub>	44	#4	1'-0"	4'-10"	142
J <sub>2</sub>	6	#4	1'-0"	5'-4"	21
K <sub>1</sub>	40	#5	~	4'-10"	202
K <sub>2</sub>	20	#5	~	4'-10"	101
L	2	#10	~	31'-10"	274
N	2	#8	~	31'-9"	170
Total					10,872

ESTIMATED QUANTITIES - SPAN 3

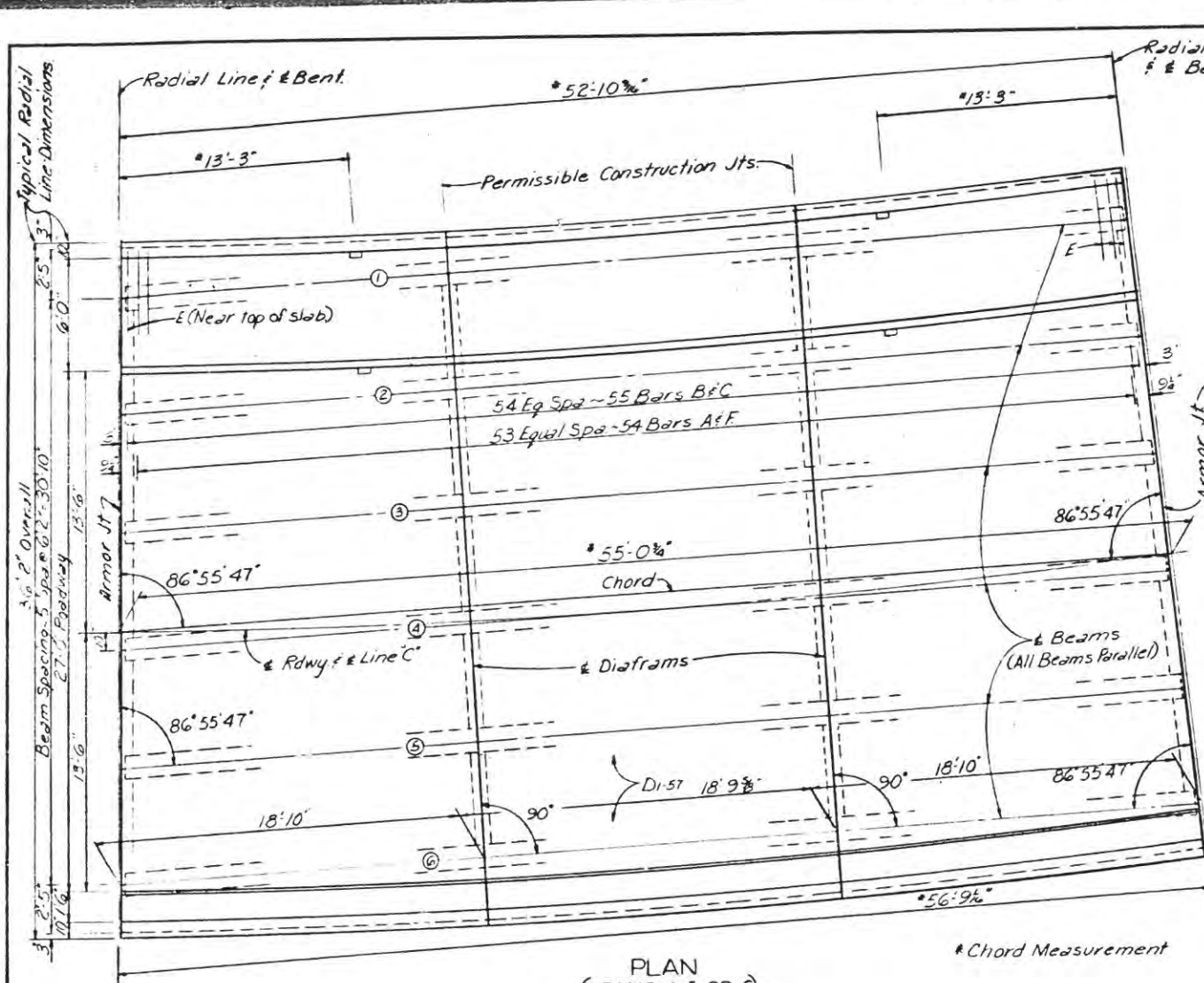
Item	Unit	Quantity
Class 'A' Concrete	Cu Yd	48.3
Reinforcing Steel	Lb	10,872
Structural Steel - Complete Jt	Lb	600
Prest. Conc. Brns - Type C	Lin Ft	310.82
Aluminum Railing - Type T	Lin Ft	104.32

Notes: See Span #1 sheet for general notes, section thru roadway, drain details, & bar details not shown on this sheet.  
See Beam Layout sheet for beam lengths.  
See Bridge Lighting Details for location of PVC Conduit and Light Standard Brackets.

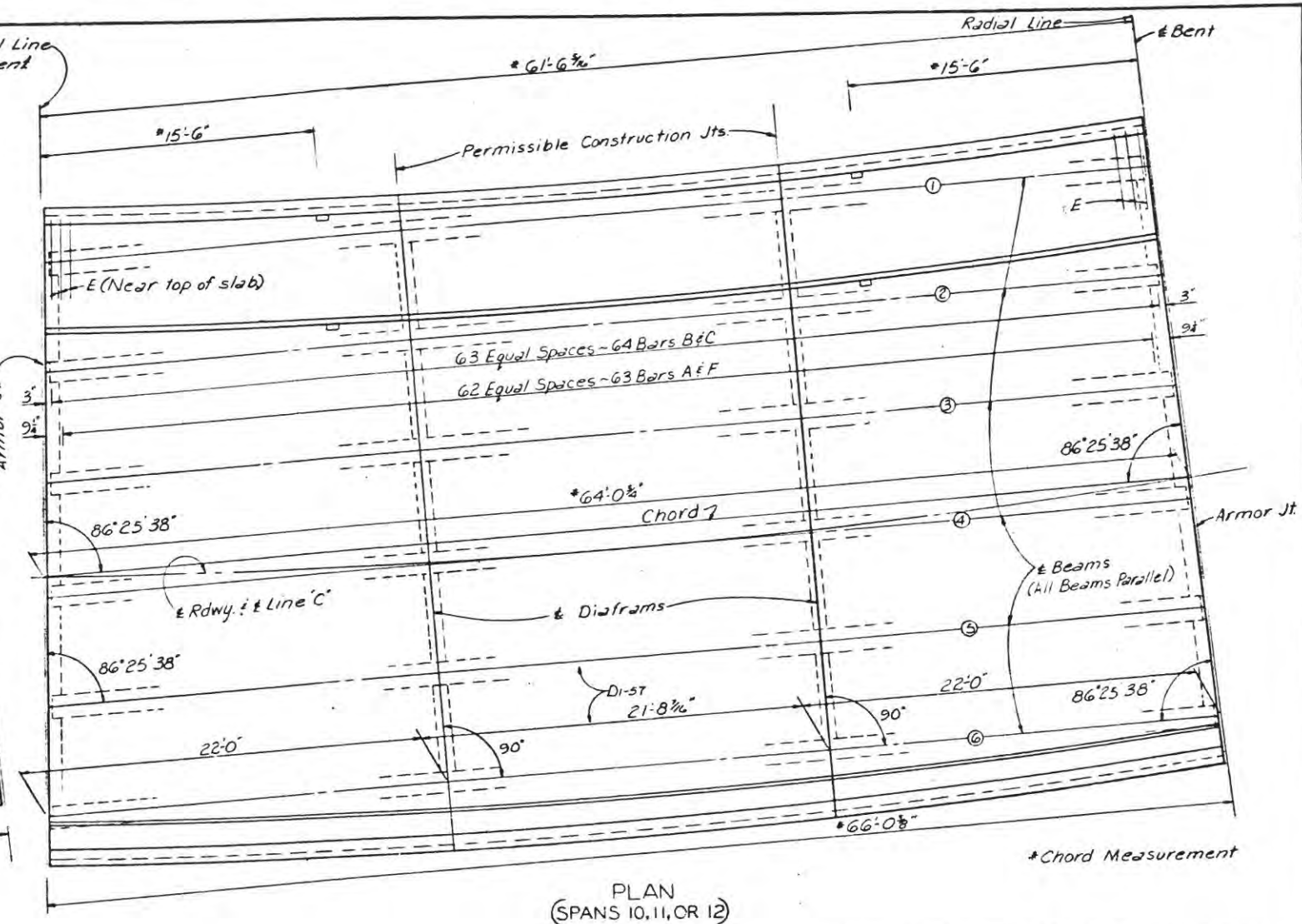
TEXAS HIGHWAY DEPARTMENT  
50'-0" & 52'-6" PRESTRESSED  
CONCRETE BEAM SPANS  
(SPAN NOS. 2 & 3)  
11°09' 52" HORIZONTAL CURVE  
27'-0" ROADWAY 6'-0" SHOULDER 18" CURB  
LINES 'B' & 'E' UNDERPASS  
LINE 'C'

Item	Unit	Quantity
Class 'A' Concrete	Cu Yd	48.3
Reinforcing Steel	Lb	10,872
Structural Steel - Complete Jt	Lb	600
Prest. Conc. Brns - Type C	Lin Ft	310.82
Aluminum Railing - Type T	Lin Ft	104.32





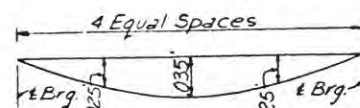
PLAN  
(SPANS 4, 5, OR 6)



PLAN  
(SPANS 10, 11, OR 12)

#### BILL OF REINF. STEEL - 55' SPAN

Bar	No.	Size	Spa	Length	Weight
A	54	#5	1'0 1/2"	32'11"	1854
B	55	#5	1'0 1/2"	34'1"	1955
C	55	#5	1'0 1/2"	36'6"	2094
Di-57	57	#5	~	54'6 1/2"	3240
E	6	#6	6 1/2"	4'6"	41
F	54	#5	1'0 1/2"	8'9"	493
G1	55	#4	1'0 1/2"	5'10"	214
G2	55	#4	1'0 1/2"	4'5"	162
H1	44	#4	1'0 1/2"	5'10"	171
H2	6	#4	1'0 1/2"	6'4"	25
J1	44	#4	1'0 1/2"	4'10"	142
J2	6	#4	1'0 1/2"	5'4"	21
K1	40	#5	~	4'10"	202
K2	20	#5	~	4'10"	101
L	2	#10	~	31'9"	273
N	2	#8	~	31'8"	169
Total					11,157

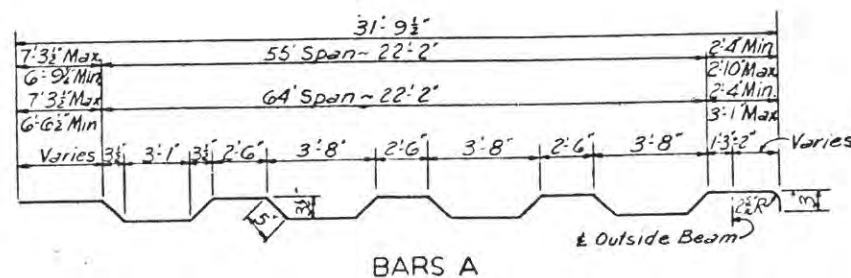


Note: Deflections shown are due to cast-in-place concrete & railing only, & shall be taken into account in setting slab forms.

DEAD LOAD DEFLECTION DIAGRAM  
(55' SPAN)

#### ESTIMATED QUANTITIES - 55' SPAN

Item	Unit	Quantity
Class A Concrete	Cu Yd	51.2
Reinforcing Steel	Lb	11,157
Structural Steel - 1 Complete Jt.	Lb	600
Type C Prestressed Concrete Beams	Lin Ft	326.92
Aluminum Railing - Type T	Lin Ft	109.69



#### BILL OF REINF. STEEL - 64' SPAN

Bar	No.	Size	Spa	Length	Weight
A	63	#5	1'0 1/2"	32'11"	2163
B	64	#5	1'0 1/2"	34'1"	2215
C	64	#5	1'0 1/2"	36'6"	2436
Di-57	57	#5	~	64'6 1/2"	3835
E	6	#6	6 1/2"	4'6"	41
F	63	#5	1'0 1/2"	8'9"	575
G1	64	#4	1'0 1/2"	5'10"	249
G2	64	#4	1'0 1/2"	4'5"	189
H1	44	#4	1'0 1/2"	5'10"	171
H2	6	#4	1'0 1/2"	6'4"	25
J1	44	#4	1'0 1/2"	4'10"	142
J2	6	#4	1'0 1/2"	5'4"	21
K1	40	#5	~	4'10"	202
K2	20	#5	~	4'10"	101
L	2	#10	~	31'9"	273
N	2	#8	~	31'8"	169
Total					12,867

\*Includes 20 diameter lap.

#### ESTIMATED QUANTITIES - 64' SPAN

Item	Unit	Quantity
Class A Concrete	Cu Yd	58.7
Reinforcing Steel	Lb	12,867
Structural Steel - 1 Complete Jt.	Lb	600
Prest. Conc. Bms. - Type C8	Lin Ft	382.93
Aluminum Railing - Type T	Lin Ft	127.64

Notes: See Span #1 Sheet for General Notes, Section thru Roadway, Bar Details not shown, Armor & Details, & Drain Details.

See Beam Layout Sheet for Beam Lengths. Omit Drains over Header Banks & Roadways. See Layout for Rail Post Spacing.

See Railing Sheet for Railing & Anchor Details. See Gp B Sheet & Span #1 Sheet for Diagram Details & Reinforcement.

See Span #1 Sheet for Dead Load Deflection Diagram for 64' Span.

See Gp A1 & Gp A2 Sheets for Beam Details. See Bridge Lighting Details for location of PVC Conduit and Light Standards Brackets.

TEXAS HIGHWAY DEPARTMENT

#### 55'-0" & 64'-0" PRESTRESSED CONCRETE BEAM SPANS

(SPANS 4, 5, OR 6 & SPANS 10, 11, OR 12)

11'09"52" HORIZONTAL CURVE

27'-0" ROADWAY 6'-0" SHOULDER 18" CURB

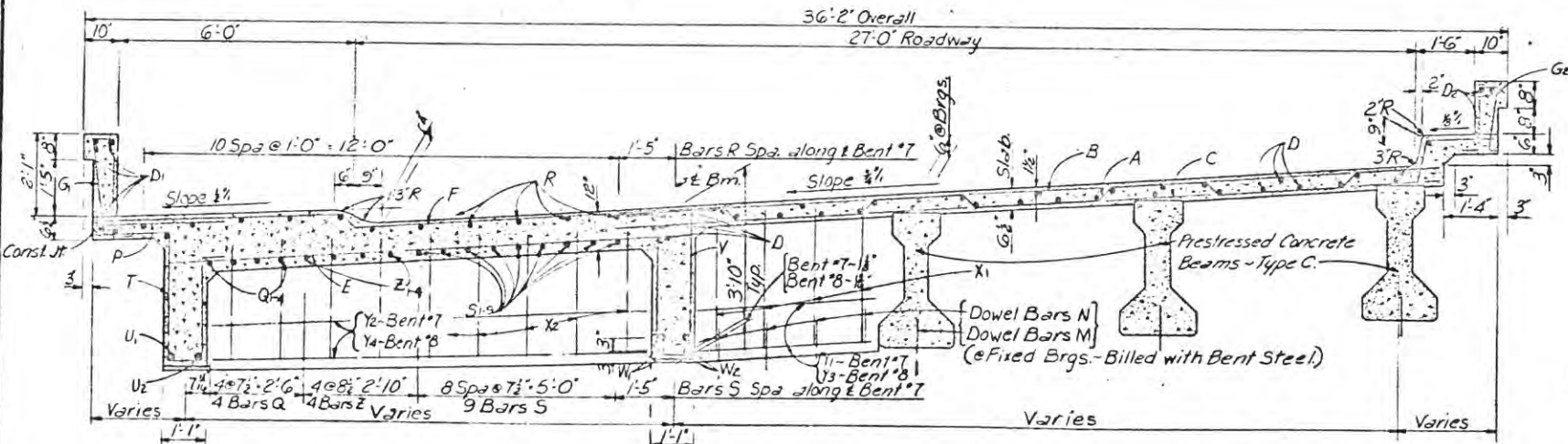
LINE 'B' & 'E' UNDERPASS

LINE 'C'

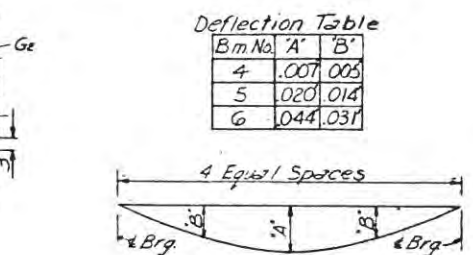
DATE	DESIGNED BY	CHECKED BY	DATE	PERMIT NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
11/1/59	ORIGINAL		NOV 1959		E	TEXAS 1-37-1(2) 000	159
11/1/59							
11/1/59							
11/1/59							

DATE	DESIGNED BY	CHECKED BY	DATE	PERMIT NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
11/1/59					16	Nueces	74
11/1/59							
11/1/59							
11/1/59							





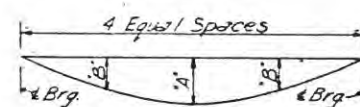
See Gp B Sheet for diagrams  
between Type C Beams.



SECT. C-C

Deflection Table

B.m.No	"A"	"B"
4	.007	.005
5	.020	.014
6	.044	.031



Note: Deflections shown are due to cast-in-place concrete railing only, it shall be taken into account in setting slab forms.

DEAD LOAD DEFLECTION DIAGRAM

ESTIMATED QUANTITIES		
Item	Unit	Quantity
Class A Concrete	Cu Yd.	42.7
Reinforcing Steel	Lb.	3150
Struct. Steel - 1" Armor Pl.	Lb.	300
Prestressed Conc. Bms. - Type C	Lin. Ft.	141.54
Aluminum Railing - Type T	Lin. Ft.	66.75

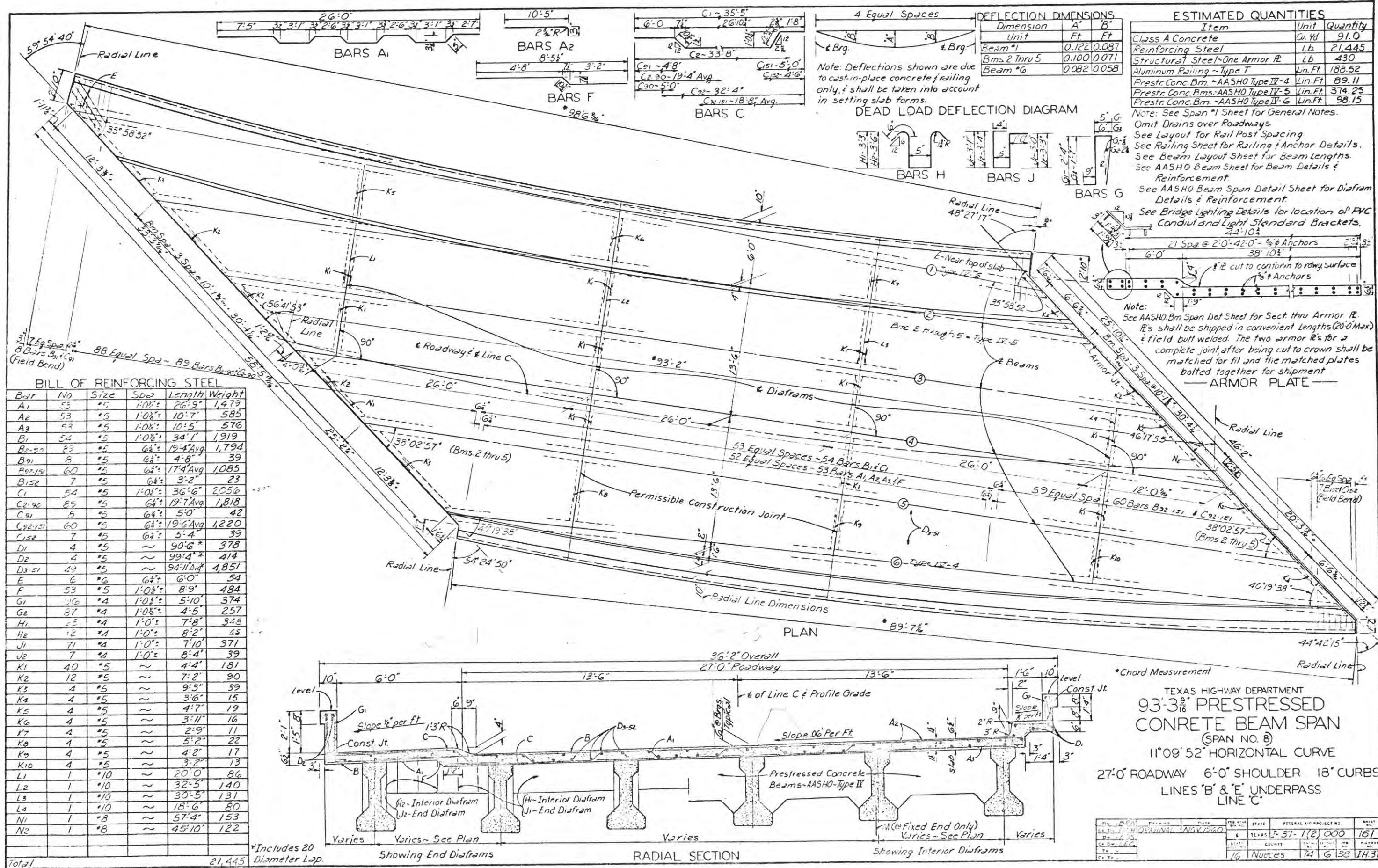
BILL OF REINFORCING STEEL					
Bar	No.	Size	Sp	Length	Weight
A	23	#5	1'-0 1/2"	22'-11"	550
B1	24	#5	1'-0 1/2"	21'-2"	530
B2-53	52	#5	6'-1/2"	13'-0" Avg	705
B54	14	#5	6'-1/2"	4'-10"	71
C1	24	#5	1'-6 1/2"	23'-4"	584
C2-53	52	#5	6'-1/2"	15'-2" Avg	823
C54	14	#5	6'-1/2"	7'-0"	102
D1	4	#5	~	7'-4"	31
D2	3	#5	~	58'-9"	184
D3-34	32	#5	~	42'-4" Avg	1,413
E1-11	11	#5	10'-1/2"	12'-5" Avg	142
E12-31	20	#5	10'-1/2"	6'-3" Avg	130
F1	4	#5	18'-1/2"	15'-0"	63
F2-11	10	#5	18'-1/2"	7'-5" Avg	77
G1	8	#4	1'-0 1/2"	5'-10"	31
G2	57	#4	1'-0 1/2"	4'-5"	168
H	25	#4	1'-0 1/2"	5'-10"	97
J	30	#4	1'-0 1/2"	4'-10"	97
K1	20	#5	~	4'-10"	101
K2	4	#5	~	4'-10"	20
K3	4	#5	~	9'-3"	39
L1	1	#10	~	19'-8"	85
L2	1	#10	~	13'-3"	57
N1	1	#8	~	13'-2"	35
N2	1	#8	~	24'-9"	66
P	10	#5	6'-1/2"	3'-3"	34
R1-11	11	#5	shown	15'-0" Avg	172
S1-9	9	#8	shown	20'-9" Avg	499
T	7	#5	18'-1/2"	9'-8"	71
U1	1	#9	~	8'-3"	28
V	19	#5	18'-1/2"	9'-4"	185
W1	2	#9	~	26'-3"	179
X1	14	#4	1'-0 1/2"	9'-11"	93
X2	28	#4	1'-0 1/2"	8'-11"	167
Y1	4	#5	~	4'-5"	18
Y2	4	#5	~	11'-0"	46
Y3	4	#5	~	8'-7"	36
Y4	4	#5	~	18'-1"	75
U2	1	#9	~	10'-0"	34
W2	2	#9	~	28'-0"	190
Q-4	4	#6	shown	13'-11" Avg	84
Z-4	4	#5	shown	9'-2" Avg	38
Total					8,150

Notes:  
See Span #1 Sheet for General Notes & Armor & Details.  
See Beam Layout Sheet for Beam Lengths  
See Layout for Rail Post Spacing.  
See Railing Sheet for Railing & Anchor Details.  
See Gp A1 & Gp A2 Sheets for Beam Details.  
See Bridge Lighting Details for location of  
PVC Conduit and Light Standard Brackets.

TEXAS HIGHWAY DEPARTMENT  
36'-9 $\frac{1}{2}$ " SLAB & GIRDER SPAN  
(SPAN NO. 7)  
(11° 09' 52" HORIZONTAL CURVE)  
27'-0" ROADWAY 6'-0" SHOULDER 18" CURB  
LINES 'B' & 'E' UNDERPASS  
LINE 'C'

On <i>FFH</i>	Exhibit	Date	Ref. Road	STATE	FEDERAL AID PROJECT NO.	Sheet	
Co. D - <i>11</i>	<i>ORIGINAL</i>	<i>NOV 1960</i>		<i>6</i>	<i>TEXAS</i>	<i>1-37-1(2)000</i>	<i>160</i>
Co. D - <i>12</i>				STATE	COUNTY	CONTRACT NO.	NUMBER
To <i>W</i>				<i>16</i>	<i>Nueces</i>	<i>14</i>	<i>638</i>
Co. Tr -							<i>1437</i>





FILE NO.	PROJECT	DATE	FED. AID BY NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CR. FILE NO.	OSMINEZ	NOV. 1960	6	TEXAS	E-37-1(2) 000	161
CR. DW. NO.				COUNTY		
CR. DW. NO.			16	Nueces	74 6 38	143







