

December 16, 1958

STATE OF IOWA  
STATE HIGHWAY COMMISSION  
DESIGN FOR

BRIDGES AND CULVERTS  
PRIMARY ROAD SYSTEM PROJECT NO. F - 2 (23)  
WOODBURY COUNTY

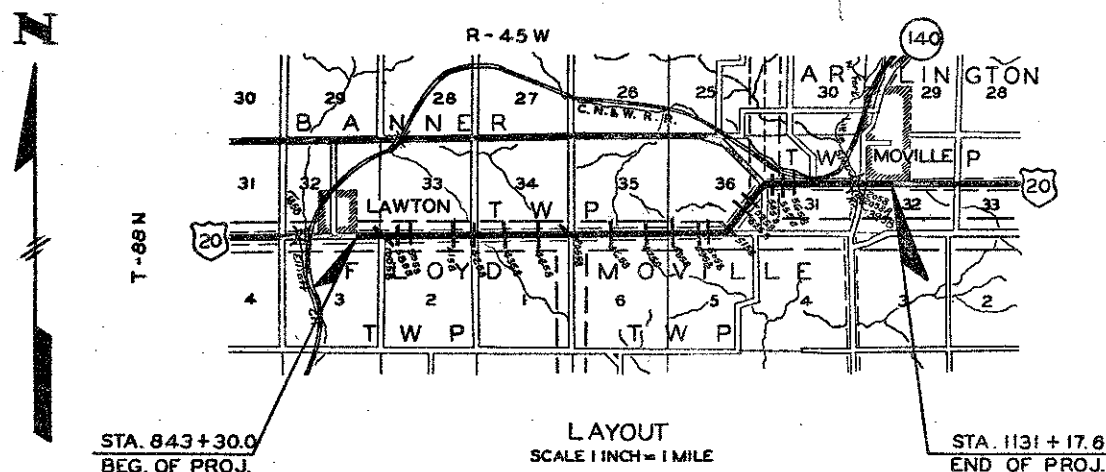
DECEMBER 1958

DESIGN	LOCATION			DESCRIPTION	ESTIMATE OF QUANTITIES										REMOVALS	SPECIAL 4" F-I PIPE WITH SECTION L.F. 36" WITH 24" WITH 18" T
	SECTION	TOWNSHIP	STATION		CONCRETE CU. YD.	REINF. STEEL LB.	EXCAV. C.Y.	CL. 20	CL. 24	24" F-I PIPE LIN. FT.	30" F-I PIPE LIN. FT.	36" F-I PIPE LIN. FT.	42" F-I PIPE LIN. FT.	48" F-I PIPE LIN. FT.		
4158	33-2	Banner - Floyd	884+41.5	30" F-I Pipe Ext.	0.2	5	22									
4258	33-2	Banner - Floyd	895+45 and 898+33	Inlet ext. for 18" R.C.B. and Connecting 4" F-I Pipe Lateral	278.9	3842	187			60'						
4358	34-1	Banner - Floyd	918+72.5	24" F-I Pipe Ext.	0.2	4	2			72'						
4458	34-1	Banner - Floyd	936+16	42" F-I Pipe Ext.	0.3	7	45						66'			
4558	35-6	Banner - Floyd	952+00.6	4" F-I R.C.B. Culv. Ext.	62.2	6018	70									
4658	35-6	Banner - Floyd	975+82.9	6" F-I R.C.B. Ext. 15' Skewed	110.2	12,036	53									
4758	35-6	Banner	993+86.5	2" F-I R.C.B. Ext. with Bell Jts. 35' Sk.	44.5	2,807	333	41								
4858	36-5	Banner - Mayville	1009+53.2	2" F-I R.C.B. Ext. with Bell Joints & Flume	43.5	3973	71	214								
4958	36-5	Banner - Mayville	1024+91.4	2" F-I R.C.B. Ext. & Flume 30' Sk.	41.2	2,761	130	109								
5058	36-5	Banner - Mayville	1027+30.6	24" F-I Pipe Ext.	71	509	83	154		72'						
5158	36	Banner	1035+27	2" F-I R.C.B. Ext. 45' Skew	35.2	2,238	123									
5258	36	Banner	1046+99	2" F-I R.C.B. Ext. 15' Skewed	33.3	2,128	142									
5358	36	Banner	1049+45.5	4" F-I R.C.B. Stockpass Ext.	35.7	3,552	43									
5458	31	Arlington	1071+45	24" F-I Conc. Pipe Ext.	0.2	5	26			66'						
5558	31	Arlington	1076+07	36" F-I Pipe Ext.	0.2	6	2	26			82'					
5658	31	Arlington	1080+65	24" F-I Pipe Ext.	0.2	4	56			76'						
5758	31	Arlington	1096+50	48" F-I Pipe Ext.	0.4	8	5	24					84'			
5858	33-2	Arlington	859+36	2" F-I R.C.B. Ext. with Bell Jts. & Flume	35.9	2,513	125									
5958	33-2	Banner - Floyd	866+76.5	2" F-I R.C.B. Ext. with Bell Joints	42.0	2,882	183									
10958	33-2	Banner - Floyd	847+10.0	24" F-I Pipe Ext. 45' Sk.	0.2	4	1	43		70'						
CULVERT TOTALS					814.8	79,036	1,824	611	362'	60'	82'	66'	84'		8	8
					779.6	74,509	1,683									

IN LETTING OF MARCH 10, 1959	DESIGN: 3958 SECTION: 31-32		STA. 2120+78.00 TWP. ARLINGTON	
	TWIN 10'x 10'x 63' R.C.B. CULVERT 15 ° SKEWED			
	ESTIMATE OF QUANTITIES			
	CONCRETE	263.7	CU. YD.	
	REINFORCING STEEL	30548	LBS.	
EXCAVATION CLASS 20	1200	CU. YD.		
REMOVAL OF OLD STRUCTURE	LUMP	SUM.		

REVISED  
PRINT

MILEAGE SUMMARY  
BR. AT STA. 803+97.56 = 153'-8" = .029 MI.  
BR. AT STA. 1115+38.70 = 214'-1 3/4" = .040 MI.  
SUB TOTAL MILEAGE = .069 MI.  
IN MARCH 10TH BR. AT STA. 2120+76.00 = 23'-3 1/2" = .004 MI.  
TOTAL MILEAGE = .073 MI.



IN LETTING OF DECEMBER 16TH 1958

DESIGN: 1458 SECTION: 3&32		STA. 803+97.56 TWP. FLOYD- BANNER	
150'x 28' CONTINUOUS CONC. GIRDER BR.			
ESTIMATE OF QUANTITIES			
CONCRETE		383.9	CU. YD.
REINFORCING STEEL		88383	LBS.
STRUCTURAL STEEL		8500	LBS.
TREATED PILING	24 @ 60'	1440	LIN. F.
UNTREATED PILING	44 @ 40'	1760	LIN. F.
CLASS 20 EXCAVATION		296	CU. YD.
CLASS 21 EXCAVATION		119	CU. YD.

MILEAGE SUMMARY  
BRIDGE AT STA. 803+97.56 = 153'-8" = .029 MI.

SPECIFICATIONS:  
ALL MATERIAL AND CONSTRUCTION TO BE IN  
ACCORDANCE WITH IOWA STATE HIGHWAY COMM.  
STANDARD SPECIFICATION SERIES 1956 PLUS  
CURRENT SPECIAL PROVISIONS.

IN LETTING OF DECEMBER 16 11 1958

DESIGN: 2058A SECTION: 31	STA. 1115+38.70 TWP. ARLINGTON
<h2 style="margin: 0;">210'x 30' CONTINUOUS I-BEAM BRIDGE</h2> <h3 style="margin: 0;">15° SKEW</h3>	
<h4 style="margin: 0;">ESTIMATE OF QUANTITIES</h4>	
CONCRETE	484.6 CU.YD.
REINFORCING STEEL	67560 LBS.
STRUCTURAL STEEL	202940 LBS.
ALUMINUM RAIL (8" END POSTS)	4073 LIN. F.
CREOSOTED PILES 26 @ 45'	1170 LIN. F.
UNTREATED PILES 76 @ 35'	2660 LIN. F.
* FORMED STEEL BEAM RAILS (10 GA.)	375 LIN. F.
CREOSOTED POSTS (8" X 6")	40 POSTS
CLASS 20 EXCAVATION	482 CU.YD.
CLASS 21 EXCAVATION	280 CU.YD.

MILEAGE SUMMARY  
BRIDGE AT STA. 1115+38.70 = 214'-1 3/4" = .040 MI.

\* PRICE BID PER LIN. FT. FORMED STEEL BEAM RAIL IS TO  
INCLUDE 20 TERMINAL END SECTIONS PLUS ALL NECESSARY  
SPICE BOLTS AND BOLTS FOR POSTS.

THESE BRIDGES WILL REQUIRE BRIDGE SIGN  
ASSEMBLIES FURNISHED AND PLACED BY  
OTHERS AS SPECIFIED IN S&T INSTRUCTIONS  
NO. 11 REVISED MARCH 1 1956.

IN LETTING OF DECEMBER 16 11A 1956

DESIGN: 2058 SECTION: 31		STA. 1115 + 38.70 TWP. ARLINGTON	
210'x 30' CONTINUOUS CONC. GIRDER BR. 15° SKEW			
ESTIMATE OF QUANTITIES			
CONCRETE		650.3	CU. YD.
REINFORCING STEEL		142,238	LBS.
STRUCTURAL STEEL		11,440	LBS.
ALUMINUM RAIL (8" END POSTS)		4073	LIN. FT.
CREOSOTED PILES 30 @ 45'		1350	LIN. FT.
UNTREATED PILES 80 @ 35'		3150	LIN. FT.
* FORMED STEEL BEAM RAILS (10 GA.)		375	LIN. FT.
CREOSOTED POSTS (8" X 6")		40	POSTS
CLASS 20 EXCAVATION		492	CU. YD.
CLASS 21 EXCAVATION		286	CU. YD.

MILEAGE SUMMARY  
BR. AT STA. 1115+38.70 = 214'-1 3/4" = .040 MI.

\* PRICE BID PER LIN. FT. FORMED STEEL BEAM RAIL IS TO  
INCLUDE 20 TERMINAL END SECTIONS PLUS ALL NECESSARY  
NECESSARY SPICE BOLTS AND BOLTS FOR POSTS.

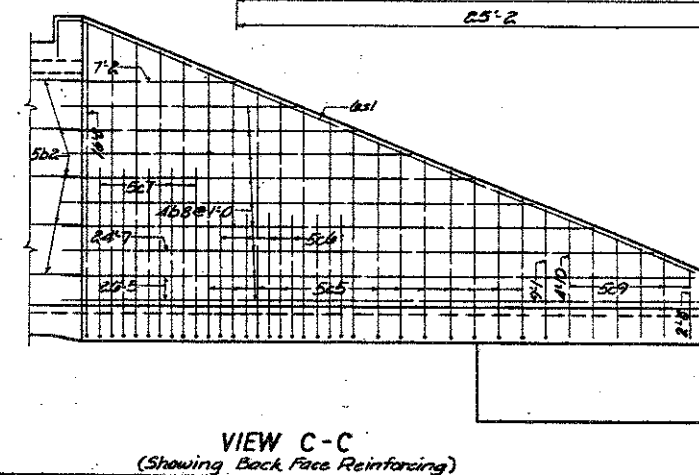
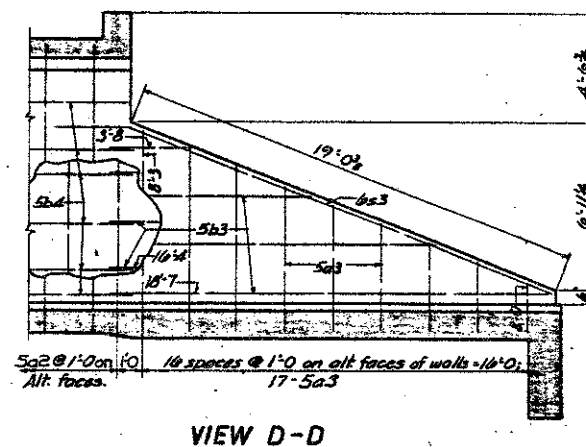
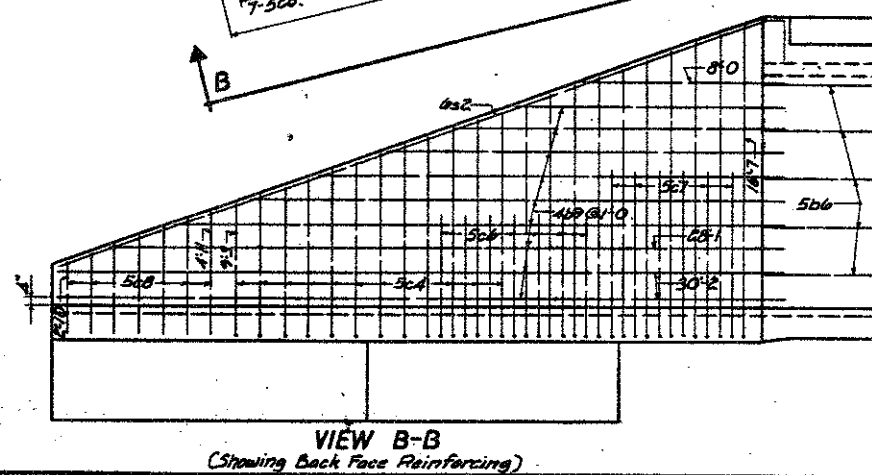
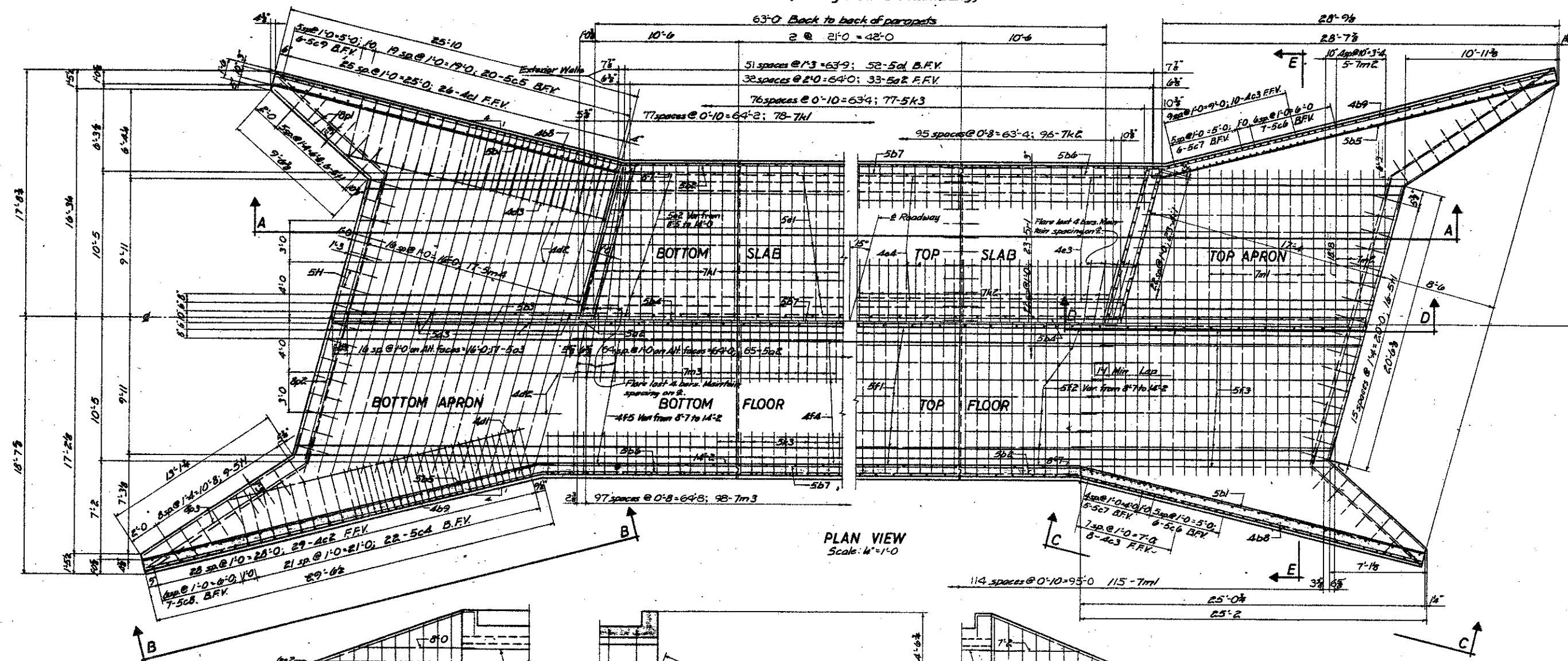
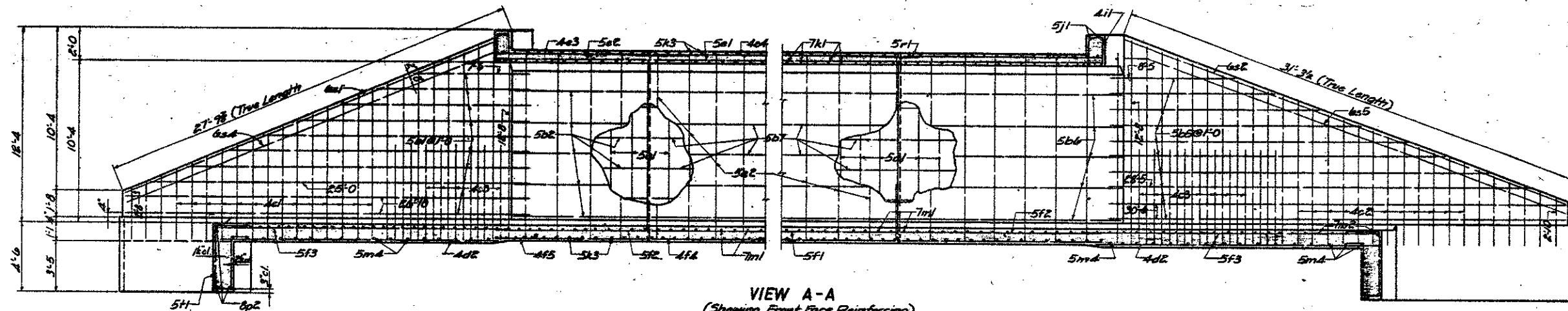
APPROVED  
CHIEF ENGINEER DATE  
IOWA HIGHWAY COMMISSION

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS  
APPROVED  
DIVISION ENGINEER DATE

(Revised 2/1/59 - Design No. 4258 quantities changed.)

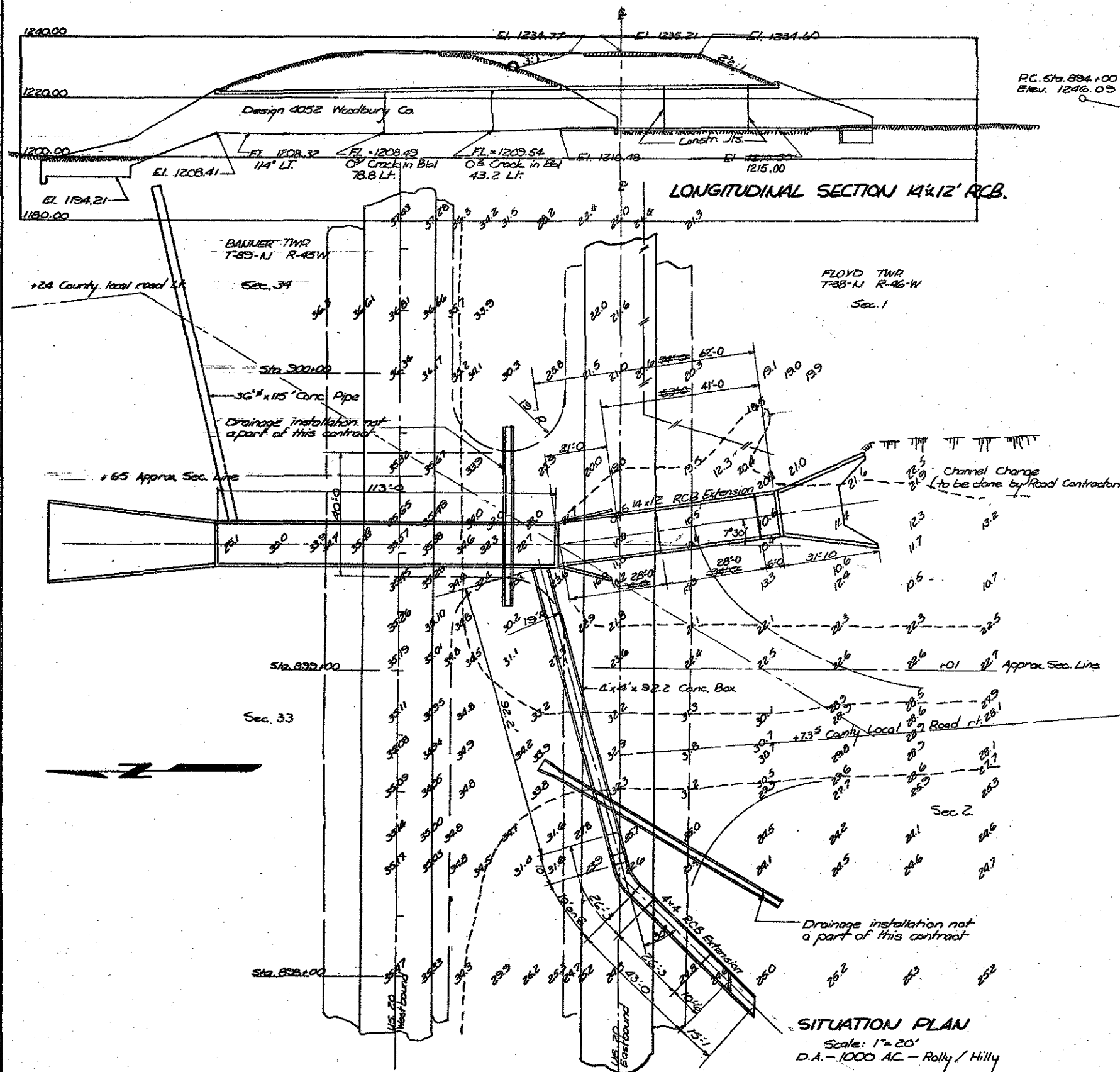
WOODBURY COUNTY PROJECT NO. F-2C23 FILE NO. 19606





Design for 15' Skew  
TWIN 10'x10'x63" REINFORCED CONCRETE  
BOX CULVERT  
STRUCTURE DETAILS  
Sta: 2120+76.00 Project F-2  
WOODBURY COUNTY

July, 1958 Sheet 2 of 2  
Design: 3958 Woodbury County File # 19606  
Detailed By: CH Traced By: jma Checked By: GJP



REVISED  
PRINT

### GENERAL NOTES —

Wings and apron of inlet headwall for existing 14'x12' RCB (Design 4052 Woodbury Co.) are to be broken back to face of parapet. Exposed longitudinal steel of existing structure shall be incorporated, in as much as is practicable, in new work except that old steel projecting beyond two feet may be cut off.

Construction joints are to be formed by beveled 2's and 2's, as called for, and placed in barrel as shown. Longitudinal reinforcing bars b, e, and f are not to extend thru joint.

Floor of barrel is to be finished smooth. Sides of footing are to be formed to insure correct line and grade.

Bars b, e, and f may be spliced using a 20 dia. lap.

All exposed corners 90° or sharper are to be finished with a 1/2\"/>

### SPECIFICATIONS —

Design: A.A.S.H.O. Series of 1957.  
Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1956, plus current special provisions.

TOTAL ESTIMATED QUANTITIES					
Item	Concrete		Reinforcing Steel	C.I. 20 Excavation	Lump Sum Items
	Above Footing	Footing			
Adjoining Section	41.55 c.y.	303.26 c.y.			Removal of old inlet headwall
Center Section	33.64 c.y.	303.26 c.y.			
Inlet Section	32.1 c.y.	41.2 c.y.	23985	147	
Sub Total	107.29 c.y.	647.78 c.y.	23985 lb	147 c.y.	
Adjoining Section	59 c.y.	38 c.y.			
Center Section	6.6 c.y.	5.1 c.y.			
Inlet Section	5.3 c.y.	5.7 c.y.			
Sub Total	70.9 c.y.	48.8 c.y.	3057 lb	40 c.y.	
Total	178.19 c.y.	696.58 c.y.	27042 lb	187 c.y.	

### LOCATION —

Banner — Floyd Townships  
T89N, T88N — R45W, R46W  
Sections 34-1, 33-2  
Woodbury County

### Design for INLET EXTENSIONS FOR

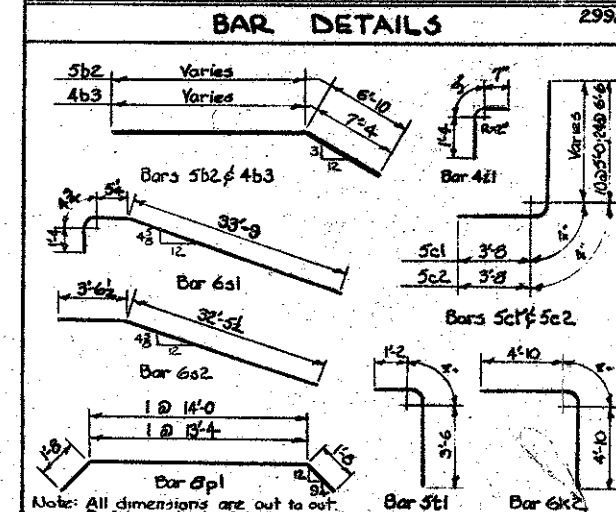
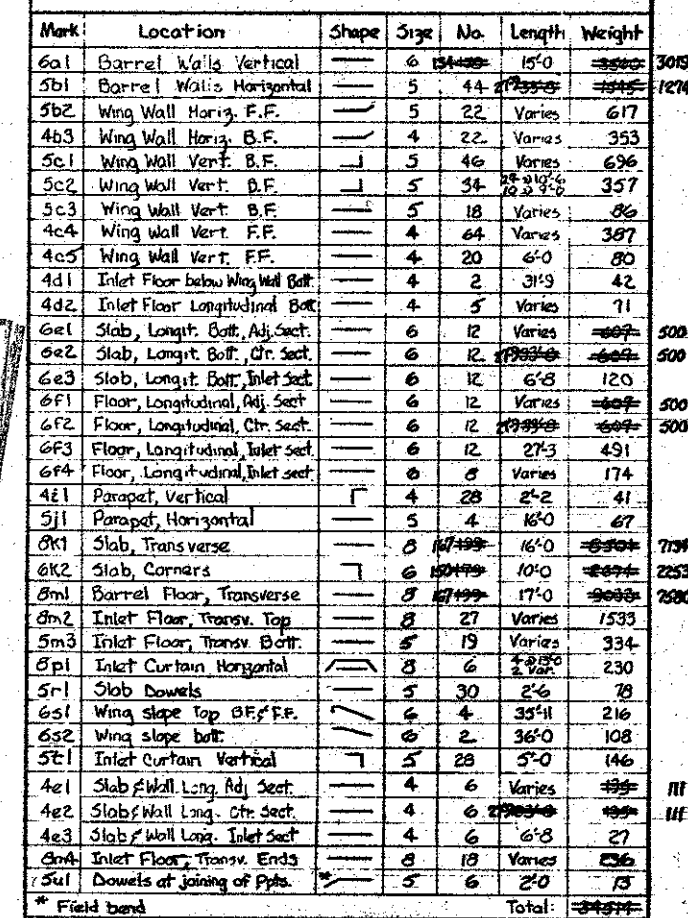
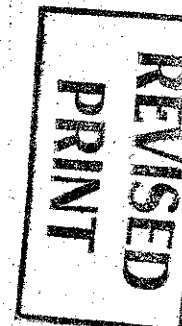
### 14'x12' REINFORCED CONCRETE BOX AND CONNECTING 4'x4' R.C.B. LATERAL

Sta. 899+45 and Sta. 898+33 Project F-2(23)  
WOODBURY COUNTY

Iowa State Highway Commission  
October 1968 Sheet 1 of 3

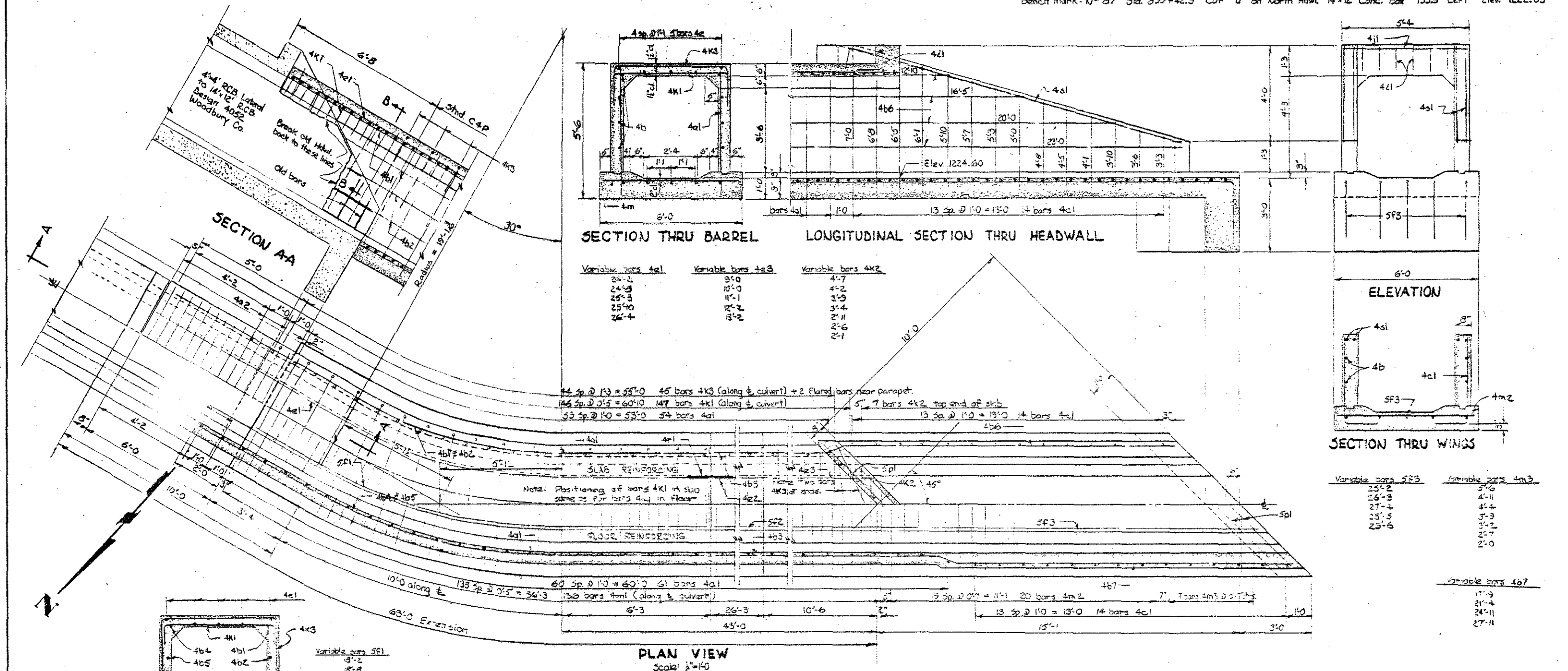


## REINFORCING - MAIN STRUCTURE

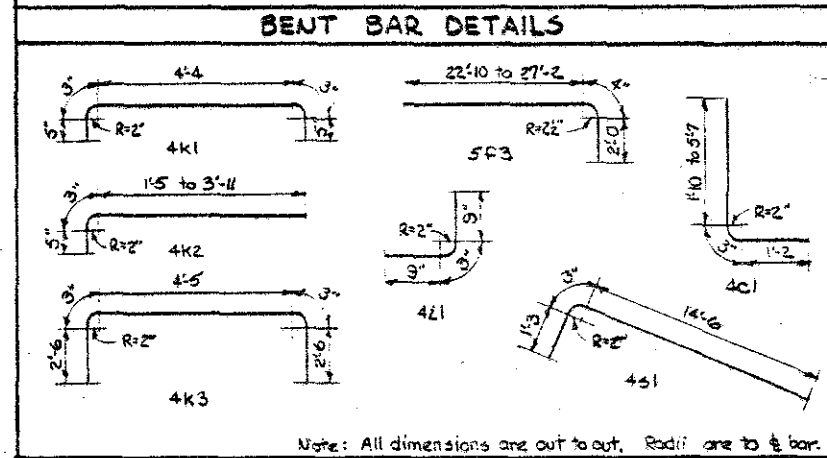


Rad. are to & of bar			
CONCRETE			
Part	Above Footing	Footing	Total
Adjoining Section	241.667 cy	303.367 cy	545.034 cy
Center Section	235.667 cy	303.367 cy	539.034 cy
Inlet Section	32.1 cy	41.2 cy	73.3 cy
		Total	246.667 cy
			241.5 cy

Design for  
INLET EXTENSIONS  
FOR  
14'x12' REINFORCED CONCRETE BOX CULVERT  
AND  
CONNECTING 4'x4' R.C.B. LATERAL  
Sta. 899+45 and Sta 898+33  
Project F-2(2)  
WOODBURY COUNTY  
Iowa State Highway Commission  
October 1958  
Sheet 2 of 3  
Design 4258 Woodbury Co.  
File No. 19606  
Designed By: D.J.P. Drawn By: D.J.P. Checked By: J.L.R.

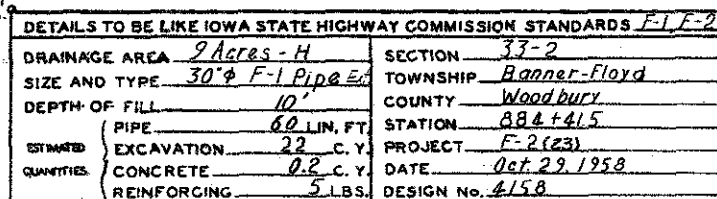
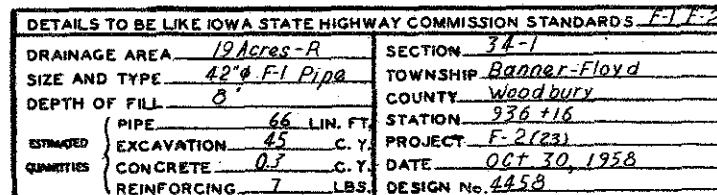


REINFORCING STEEL FOR 4'x4' LATERAL RCB EXTENSION									
Mark	Location	Shape	Size	No.	Length	Weight	Mark	Location	Shape
4a1	Walls, Vertical Sbl.	—	5/8"	115	5'-2	397	4m1	Floor transv. Sbl. sections	—
4a2	" " Old hawl.	—	4	4	4'-4	12	4m2	" " Inlet	—
4b1	Walls, horiz. Sbl. short side	—	3/4"	1	24'-2	16	4m3	" " Inlet end	—
4b2	" " " "	—	3/4"	3	20'-2	40	5p1	Parapet and Curtain wall	—
4b3	" " " both sides ctr. side	—	3/4"	8	25'-11	139	4m1	Slab downsls	—
4b4	" " " " " " "	—	3/4"	1	26'-4	18	4s1	Wing Slope	—
4b5	" " " " " " "	—	3/4"	3	22'-6	45			
4b6	Wing walls, short side	—	3/4"	4	Shown	48			
4b7	" " " long side	—	3/4"	4	Shown	61			
4c1	Wing walls, Vertical	—	3/4"	23	Shown	96			
4c1	Slab, longit. adjoining sect.	—	3/4"	5	Shown	84			
4c2	" " " center sect.	—	3/4"	5	25'-11	87			
4c3	" " " inlet sect.	—	3/4"	5	Shown	37			
5p1	Floor, longit. adjoining sect.	—	3/4"	5	Shown	100			
5p2	" " " center sect.	—	3/4"	5	25'-11	135			
5p3	" " " inlet sect.	—	3/4"	5	Shown	143			
4c1	Parapet, vertical	—	3/4"	6	1'-9	7			
4c1	" " longitudinal	—	3/4"	1	7'-1	5			
4k1	Slab, transverse	—	3/4"	147	5'-8	556			
4k2	" " " " "	—	3/4"	7	Shown	14			
4k3	" " " " "	—	3/4"	27	0'-11	309			
Total: 3057 lb.									
CONCRETE QUANTITIES									
Part	Above Footing	Footing	Total						
Adjoining Section	5.90 c.y.	3.80 c.y.	9.70 c.y.						
Center Section	6.60 c.y.	5.10 c.y.	11.70 c.y.						
Inlet Section	5.30 c.y.	5.70 c.y.	11.00 c.y.						
			Total: 32.40 c.y.						

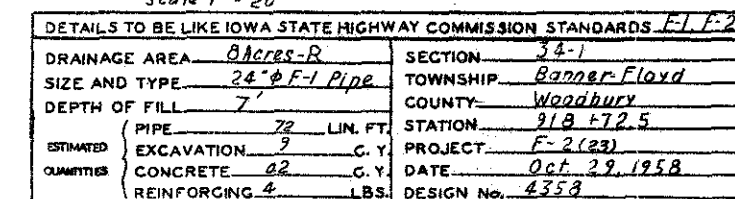


Design for  
INLET EXTENSIONS  
FOR  
14'x12' REINFORCED CONCRETE BOX CULVERT  
AND  
CONNECTING 4'x4' R.C.B. LATERAL  
WOODBURY COUNTY  
Iowa State Highway Commission  
October 1958  
Design 4353 Woodbury Co.  
Designed & Drawn by: D.B.P.  
Project 2-2 (33)  
Sheet 1 of 3  
Checked by: D.B.P.

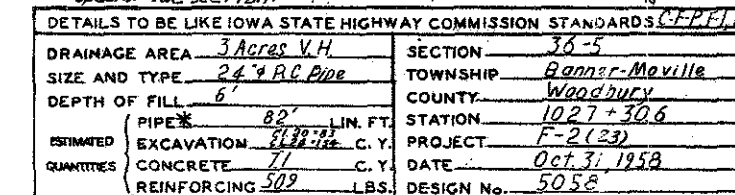
On 4.74% Grade

~~On 472 to Grade~~

On 2.12% Grade



1. *Journal of the American Medical Association*, 2000; 283: 2686-2692.



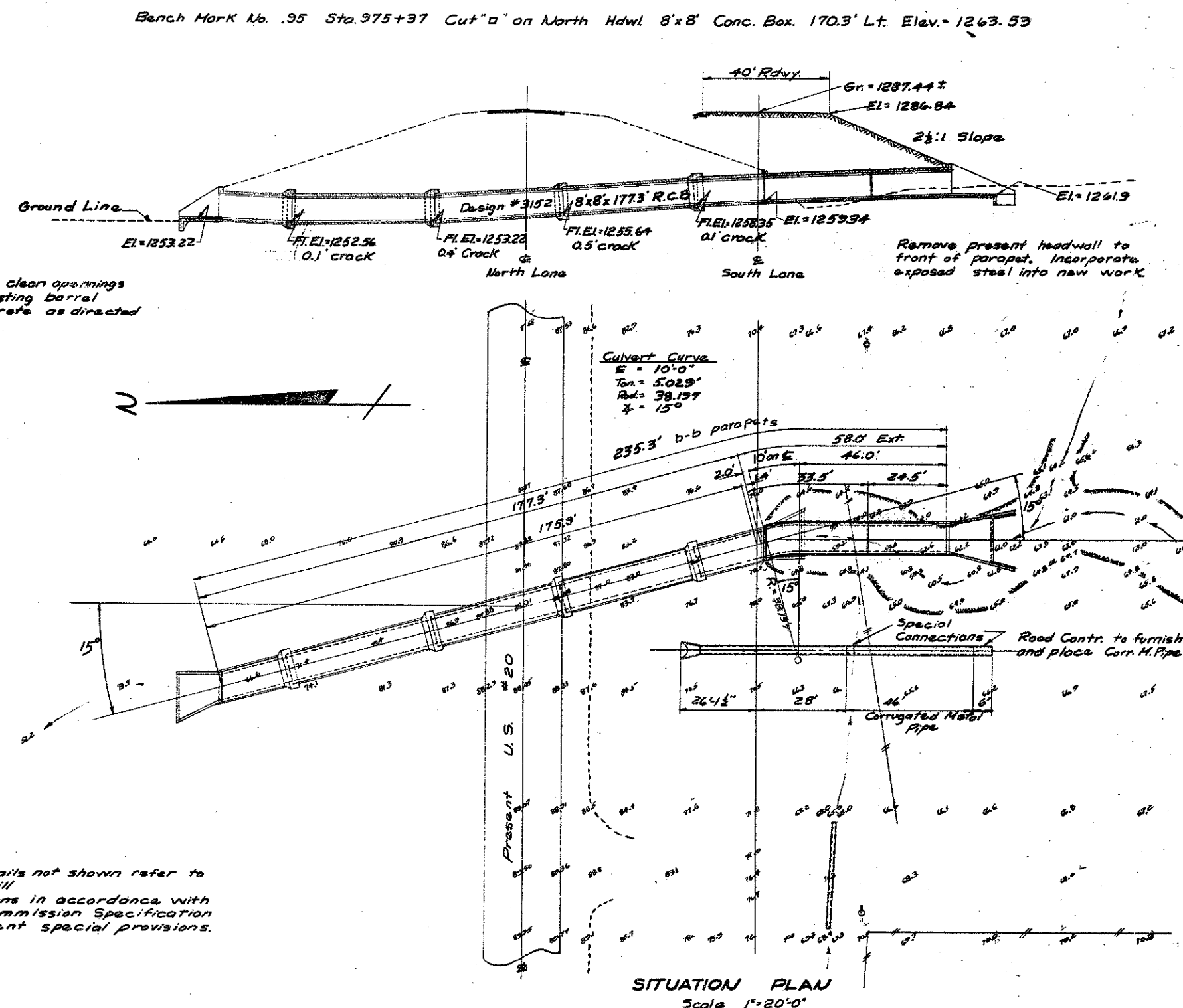
File No. 19606

REINFORCING					ESTIMATE				
Mark	Location	Shape	Size	No	Length	Linear Feet			
a	Walls Vert.	—	5	122	10'6"	1281.0			
b1	Walls Horiz. Cent. Sec. FF	—	5	16	32'4"	517.3			
b2	" " End " FF	—	5	16	Shown	627.2			
b3	" " " BF	—	4	14	"	265.5			
c	Wing Vert.	BF	5	26	"	323.2			
c1	" " " BF	—	5	14	3'0"	126.0			
c2	" " " BF	—	5	18	Shown	127.2			
c3	" " " FF	—	4	44	"	301.2			
d	Below Wings	—	4	2	21'6"	43.0			
d1	Hdwl Floor	"	4	2	32'0"	35.0			
e	Slab long. Both. Cent. Sec.	"	5	6	32'3"	123.5			
e1	" " Top " "	"	4	2	32'3"	64.5			
e2	" " Both. End Sec.	"	5	6	25'0"	150.0			
e3	" " Top " "	"	4	2	25'0"	50.0			
f	Floor " Cent. Sec.	"	6	7	32'3"	225.8			
f1	" " End " "	"	6	7	38'10"	271.8			
f2	" " Hdwl	"	6	2	10'6"	21.0			
i	Parapet Vert.	—	4	8	1'8"	13.3			
j	" Horiz.	—	5	2	9'2"	18.3			
k	Slab Trans.	"	8	85	9'6"				801.5
k1	" " "	"	8	1	8'0"				12.5
k2	" " Corners	—	5	56	16'0"	233.4			
k3	" " "	—	5	1	7'5"	20.0			
m	Floor Trans. Barr.	—	8	85	10'0"				850.0
m1	" " " "	"	8	1	8'0"				13.2
m2	" " Hdwl	"	7	21	Shown				267.0
m3	" " " "	"	5	3	"	72.0			
p	Contain " "	"	6	2	15'10"	31.6			
r	Slab downl	"	5	9	2'6"	22.5			
s	Wing slope	—	6	4	24'9"	22.0			
s1	" " " "	—	6	2	24'9"	42.5			
t	Contain Vert	—	5	11	4'0"	44.0			
w	" Horiz.	—	6	4	10'6"	42.0			
w1	" " " "	—	6	6	10'6"	63.0			
					Length	772.5	4095.4	803.7	267.0
					Weight	54.0	52730	2013	5457
					Total Weight				12,036
Total Concrete								110.2	C.Y.
Total Reinforcing steel								12,036	lbs.
Excavation Class 20								53	C.Y.

CONCRETE IN PARTS			
	Above Keyway	Below Keyway	Total
Hdwl.	8.72	13.20	21.92
End Sec.	23.95	13.72	37.67
Center Sec.	32.31	18.28	50.59
Totals	64.98	45.20	110.18 cu. yd.

Culvert Contractor to thoroughly clean openings at the bell joints of the existing barrel sections and fill with concrete as directed by the Engineers.

General Notes:  
For general notes & details not shown refer to standard C&G with 19' fill.  
Material & specifications in accordance with Iowa State Highway Commission Specification Series of 1956 + current special provisions.



LOCATION  
SECTION 35-6  
BANNER-MOVIILE TWP.  
WOODBURY COUNTY

DESIGN FOR  
8'x8'x58' REINFORCED CONCRETE BOX CULVERT EXTENSION

STATION 975 + 82.9 PROJECT NO. F-2(23)

WOODBURY COUNTY

IOWA STATE HIGHWAY COMMISSION

OCTOBER 1958

SCALE 1"=20'-0"

SHEET 1 OF 2

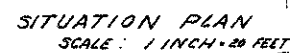
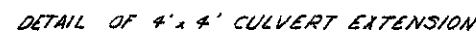
DESIGN 4658

WOODBURY COUNTY

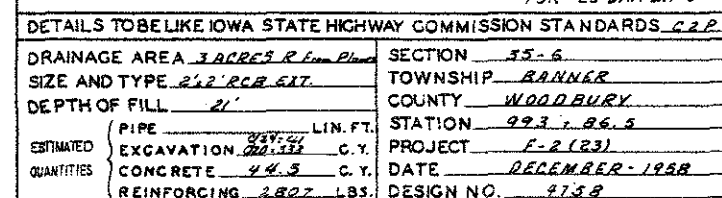
FILE NO. 19606



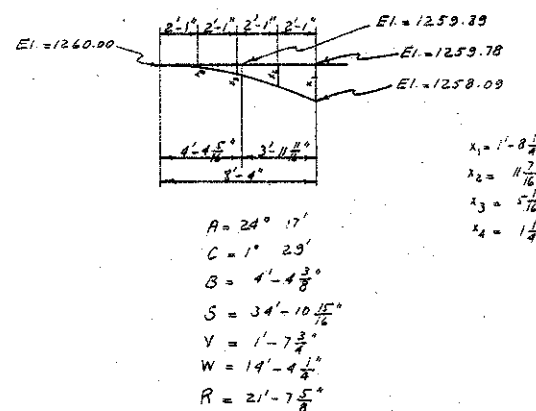
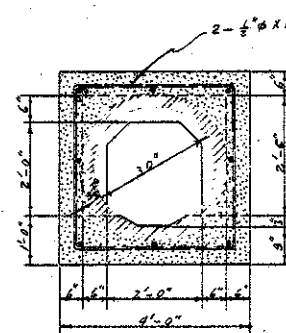
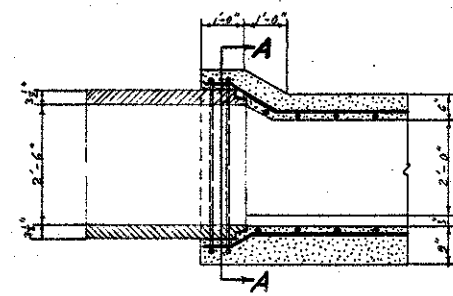
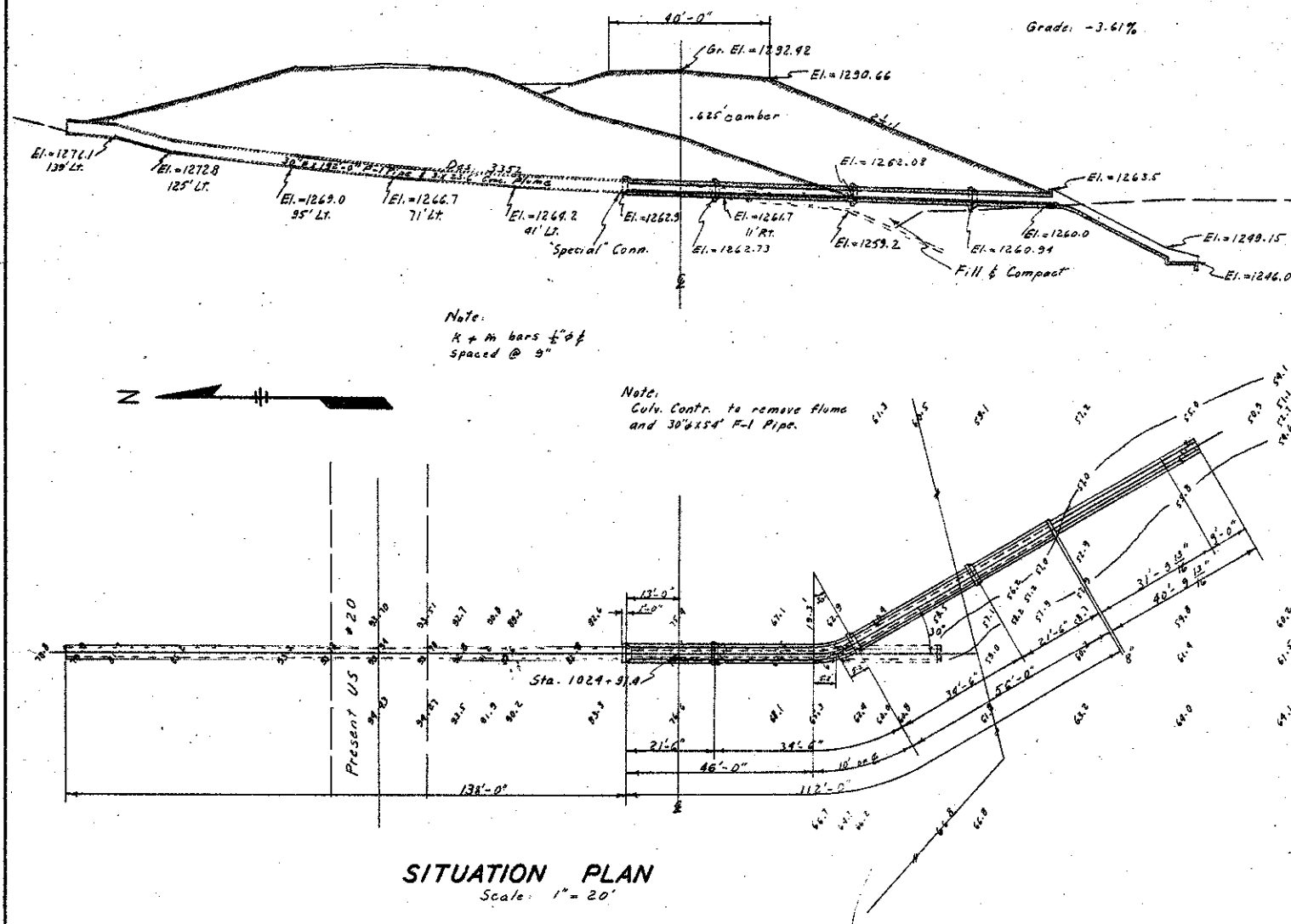




DETAILS TO BE LIKE IOWA STATE HIGHWAY COMMISSION STANDARDS <u>C&amp;D</u>	
DRAINAGE AREA <u>39 ACRES R-H</u>	SECTION <u>(33-6) (39-1)</u>
SIZE AND TYPE <u>4" x 4" RCB CURB LIT.</u>	TOWNSHIP <u>RAINIER-MANVILLE-FLOYD</u>
DEPTH OF FILL <u>17'</u>	COUNTY <u>WOOD-BURY</u>
PIPE	STATION <u>952+00.6</u>
ESTIMATED QUANTITIES	PROJECT <u>F-2 (23)</u>
EXCAVATION <u>61.20± 702 C. Y.</u>	DATE <u>DECEMBER 1950</u>
CONCRETE <u>62.8 C. Y.</u>	DESIGN No. <u>435A</u>
REINFORCING <u>601.8 LBS.</u>	

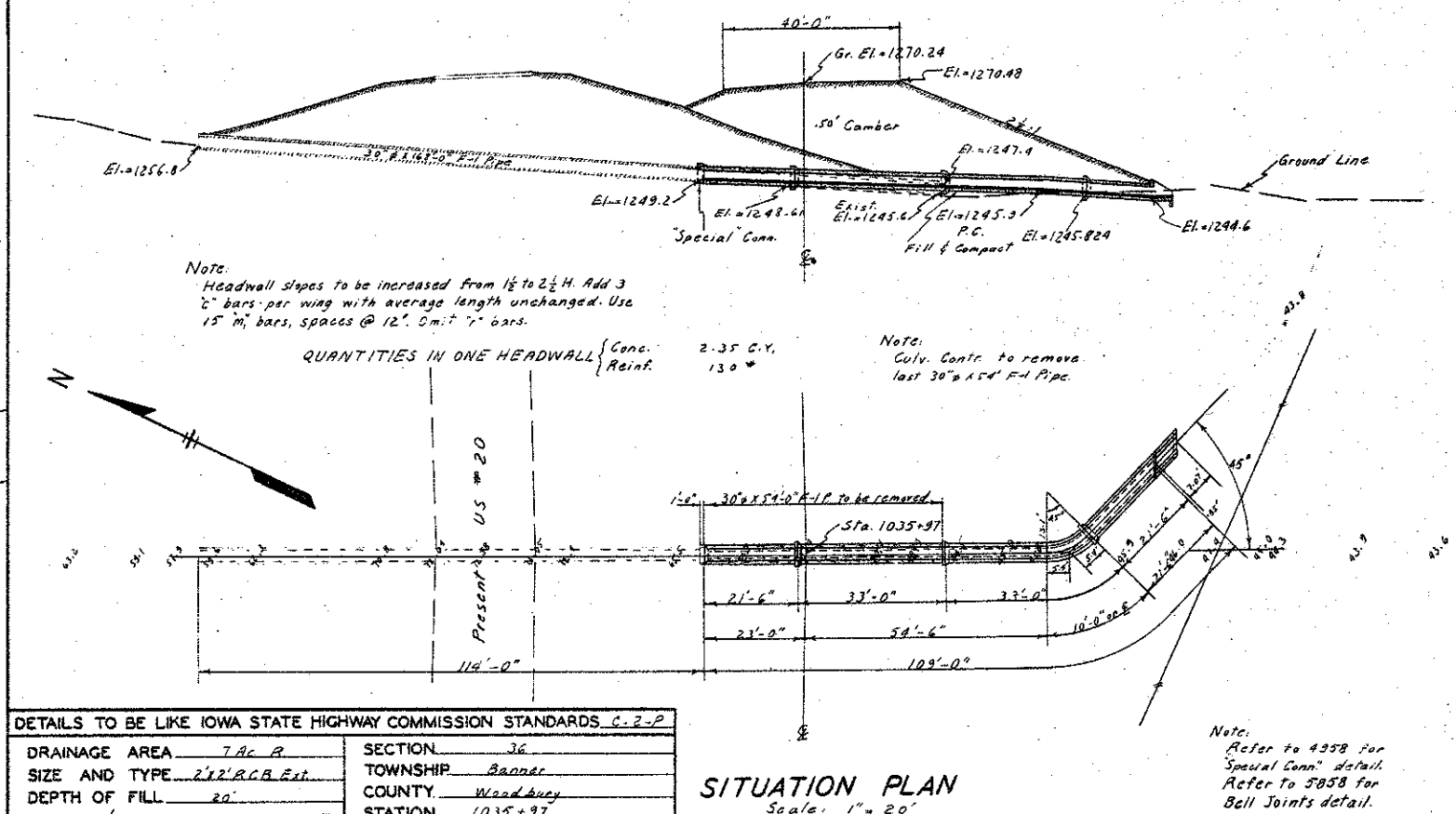


BENCH MARK No. 101 Sta. 1027+30.6 Cut "a" on North end 24" Conc. Pipe 104' Lt. Elev.=1284.13



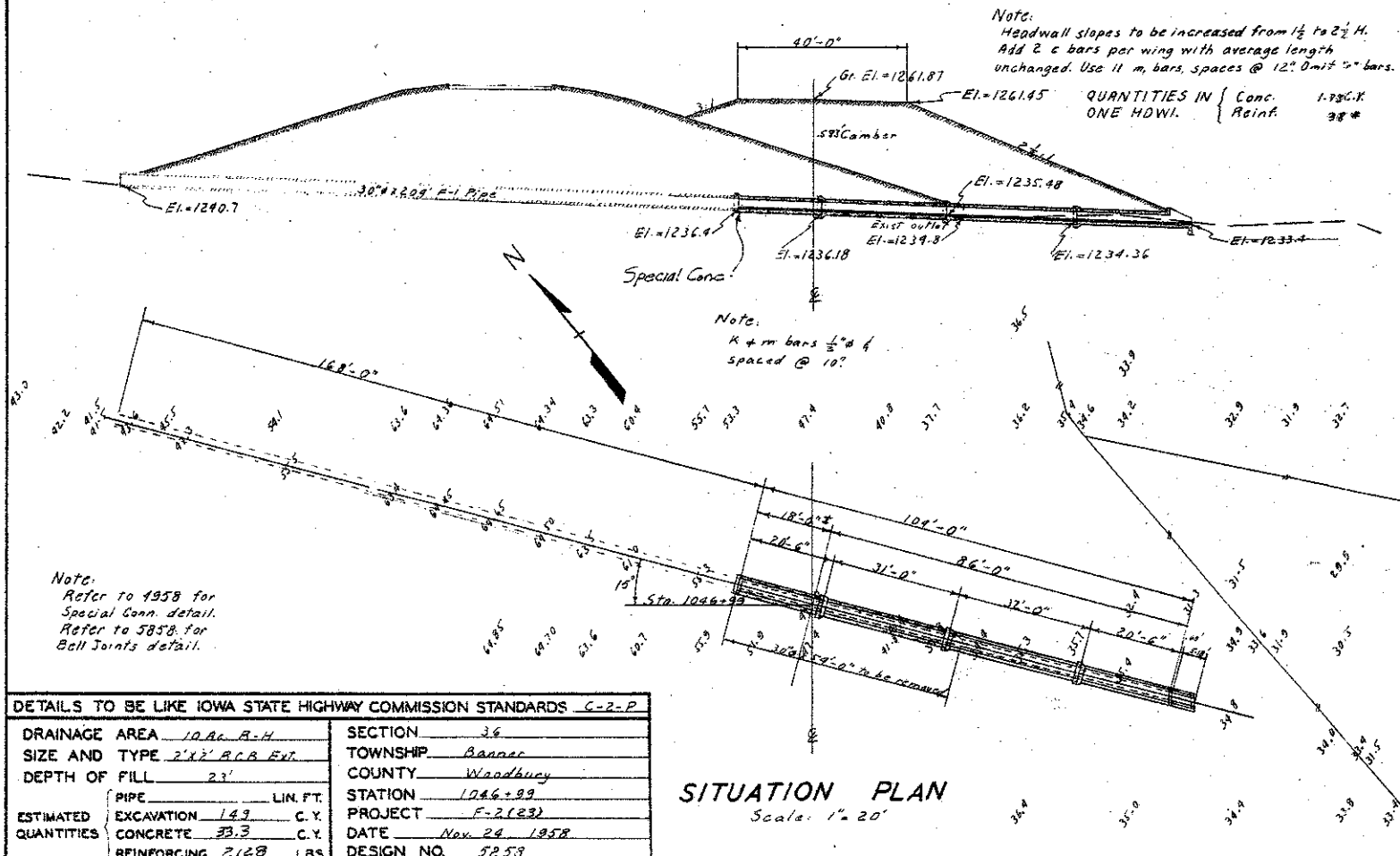
DETAILS TO BE LIKE IOWA STATE HIGHWAY COMMISSION STANDARDS C-2-P			
DRAINAGE AREA	36.5	SECTION	36-5
SIZE AND TYPE	2' x 2' R.C.B. Ext.	TOWNSHIP	Banner-Menville
DEPTH OF FILL	25'	COUNTY	Woodbury
PIPE	24" LIN. FT.	STATION	1027+31.4
ESTIMATED EXCAVATION	12.3 C.Y.	PROJECT	F-2 (23)
QUANTITIES CONCRETE	36.2 C.Y.	DATE	Nov. 18, 1958
REINFORCING	2238 LBS.	DESIGN NO.	4958

BENCH MARK No. 102 Sta. 1035+97 Cut "a" on Northwest end 30" Conc. Pipe 136' Lt. Elev.=1259.61

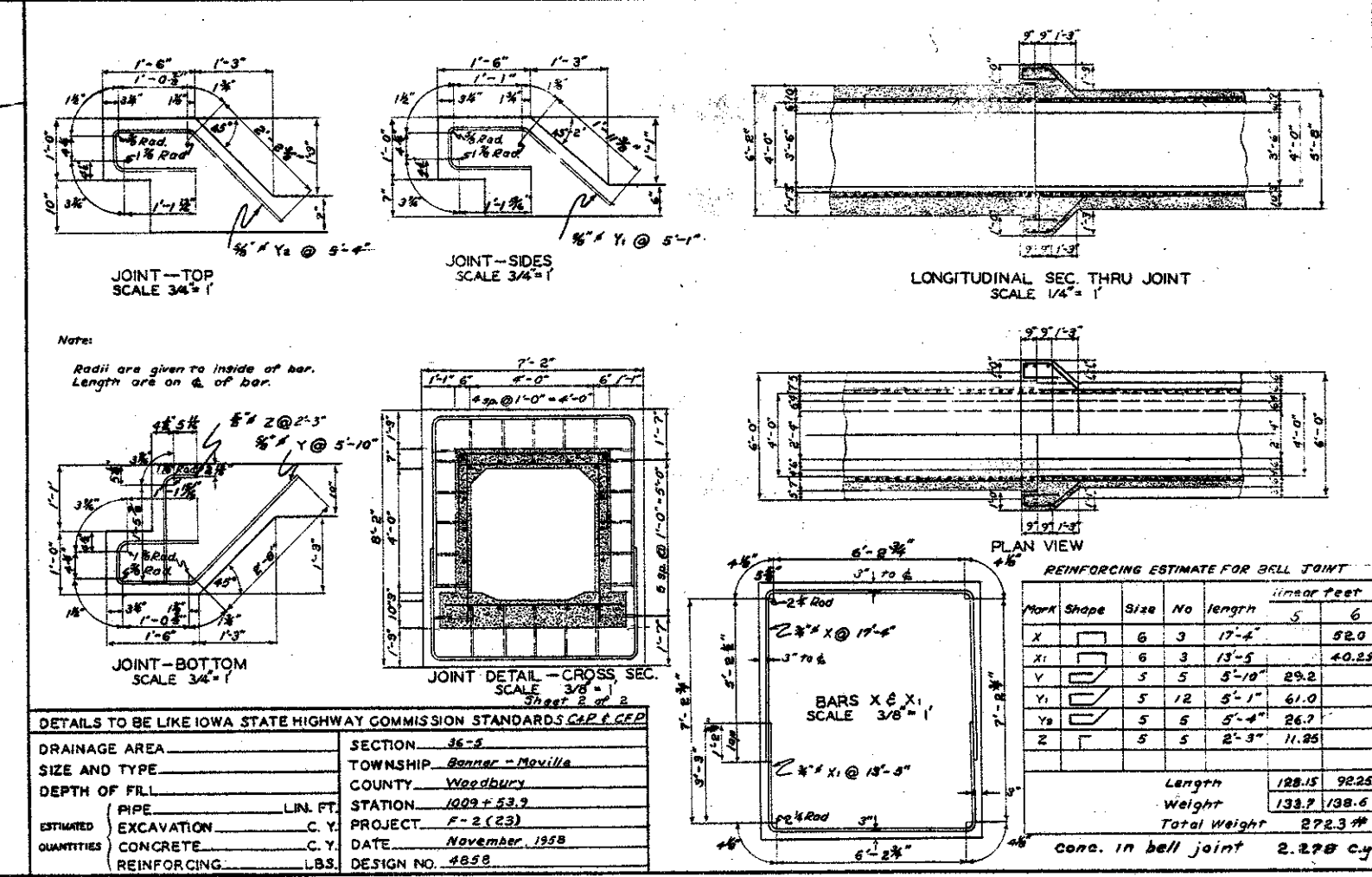
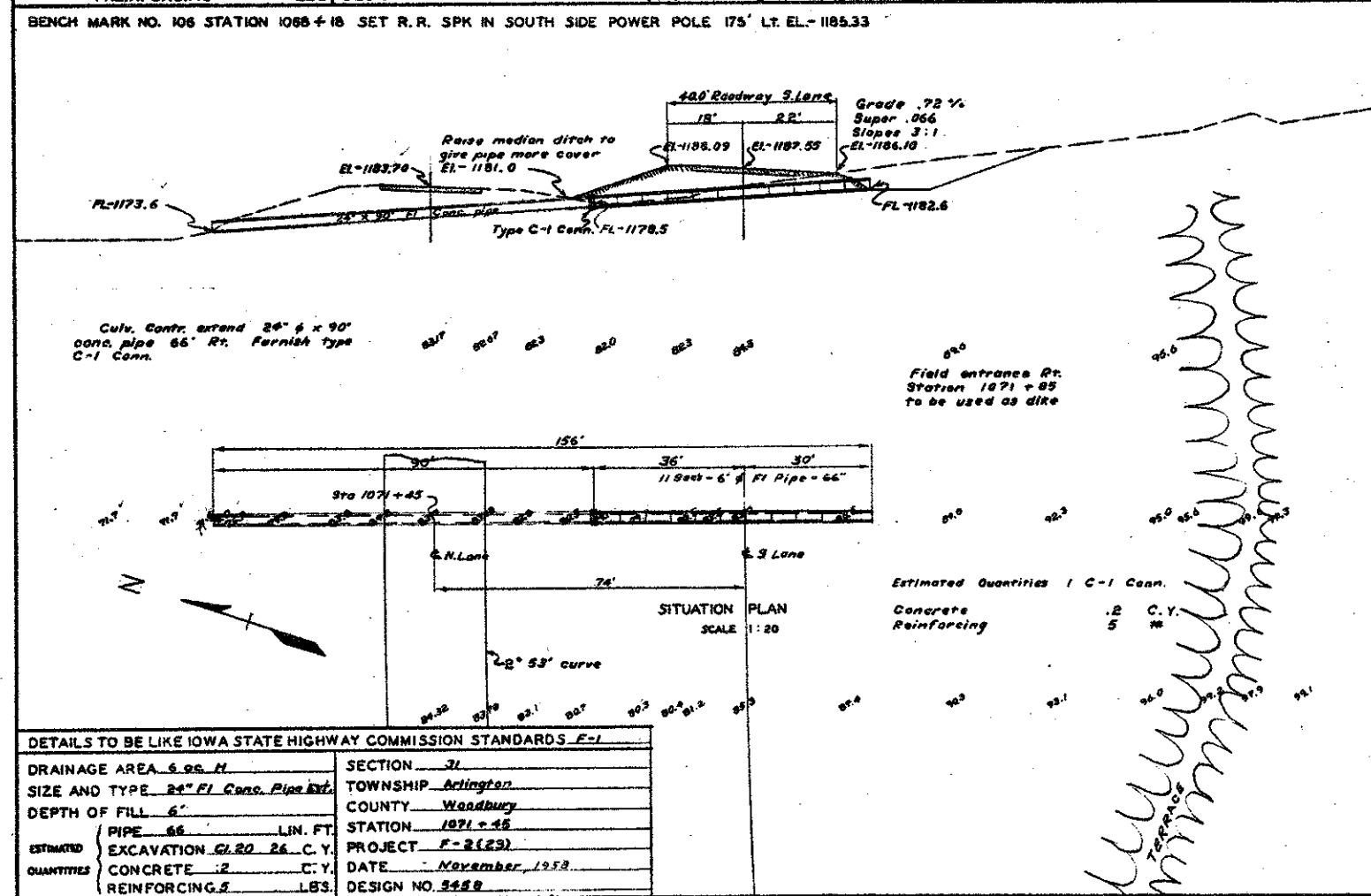
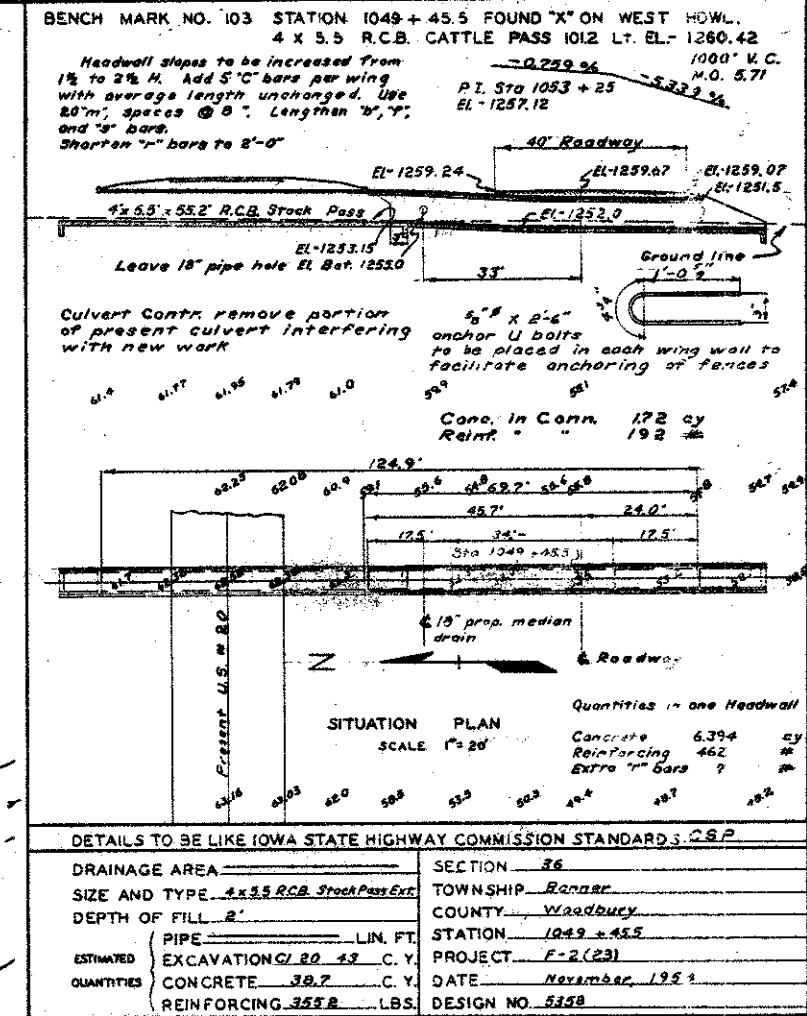
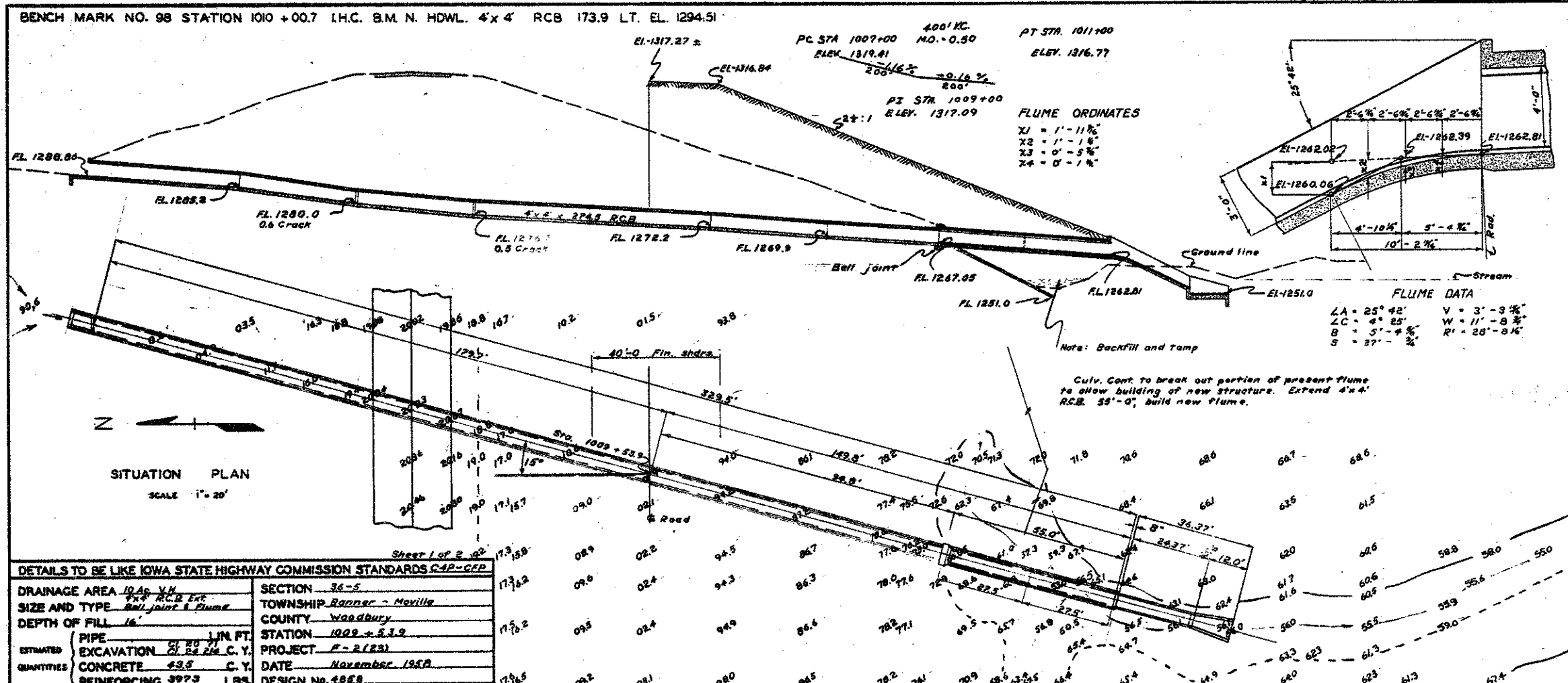


DETAILS TO BE LIKE IOWA STATE HIGHWAY COMMISSION STANDARDS C-2-P			
DRAINAGE AREA	74.8	SECTION	36
SIZE AND TYPE	2' x 2' R.C.B. Ext.	TOWNSHIP	Banner
DEPTH OF FILL	20'	COUNTY	Woodbury
PIPE	30" LIN. FT.	STATION	1035+97
ESTIMATED EXCAVATION	12.3 C.Y.	PROJECT	F-2 (23)
QUANTITIES CONCRETE	36.2 C.Y.	DATE	Nov. 21, 1958
REINFORCING	2238 LBS.	DESIGN NO.	5158

BENCH MARK No. 103 Sta. 1049+45.9 Found 'X' on West Hdwl. of 4' x 5.5' Conc. Box (Cattle Pass) 101.2' Lt. Elev.=1260.42



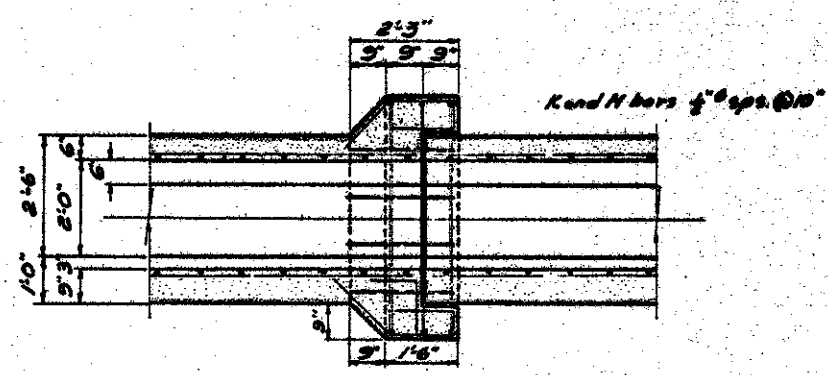
DETAILS TO BE LIKE IOWA STATE HIGHWAY COMMISSION STANDARDS C-2-P			
DRAINAGE AREA	104.6	SECTION	36
SIZE AND TYPE	2' x 2' R.C.B. Ext.	TOWNSHIP	Banner
DEPTH OF FILL	23'	COUNTY	Woodbury
PIPE	48" LIN. FT.	STATION	1046+89
ESTIMATED EXCAVATION	14.9 C.Y.	PROJECT	F-2 (23)
QUANTITIES CONCRETE	33.3 C.Y.	DATE	Nov. 24, 1958
REINFORCING	2168 LBS.	DESIGN NO.	5258



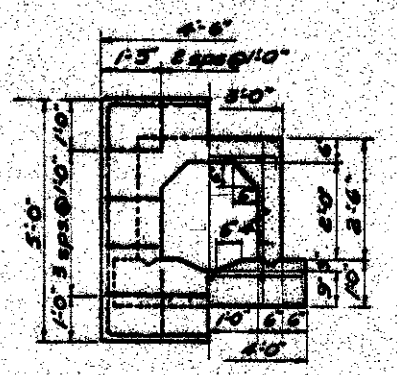




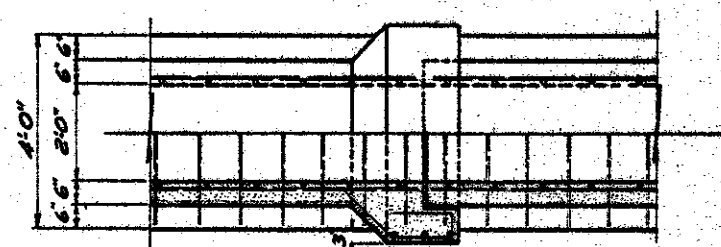
Bench Mark No. 82 Sta. 853+36 Cut "D" on North End 30" Conc. Pipe 141' L. Elev. 1276.31



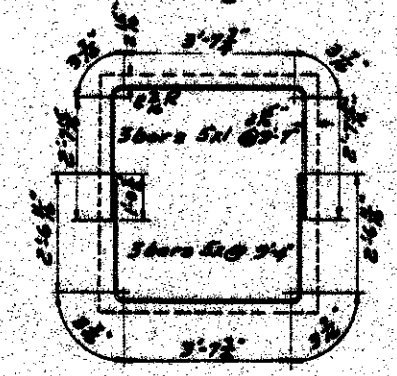
LONGITUDINAL SECTION  
Scale 1/2"=1'-0"



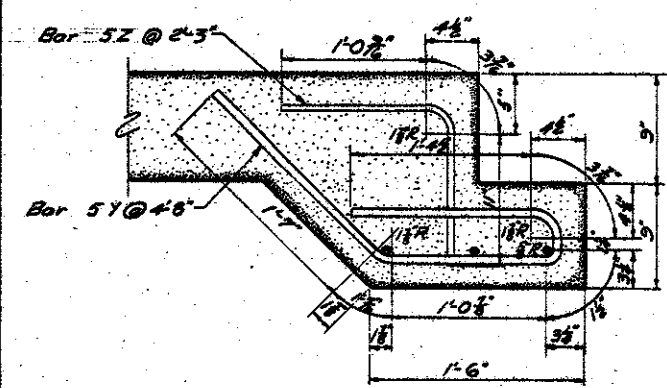
SECTION A-A  
Scale 1/2"=1'-0"



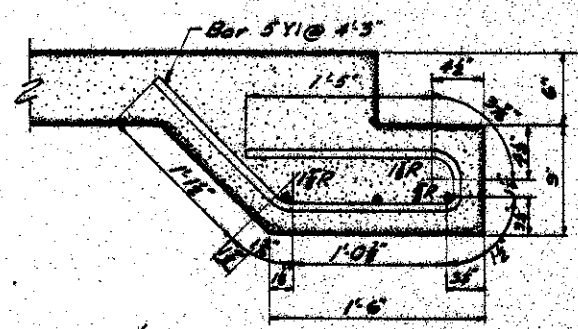
PLAN VIEW  
Scale 1/2"=1'-0"



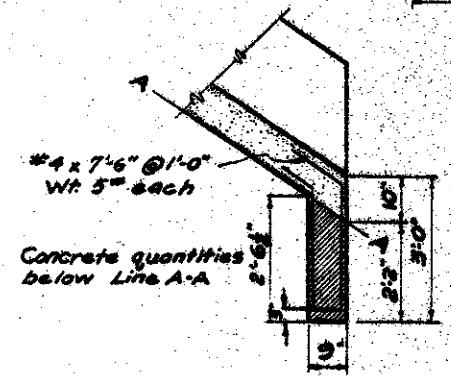
BARS X & XI DETAIL  
Scale 1/2"=1'-0"



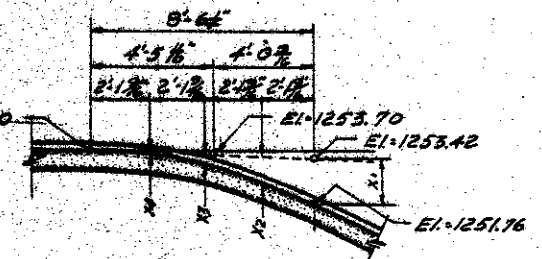
FLOOR  
Scale 1/2"=1'-0"



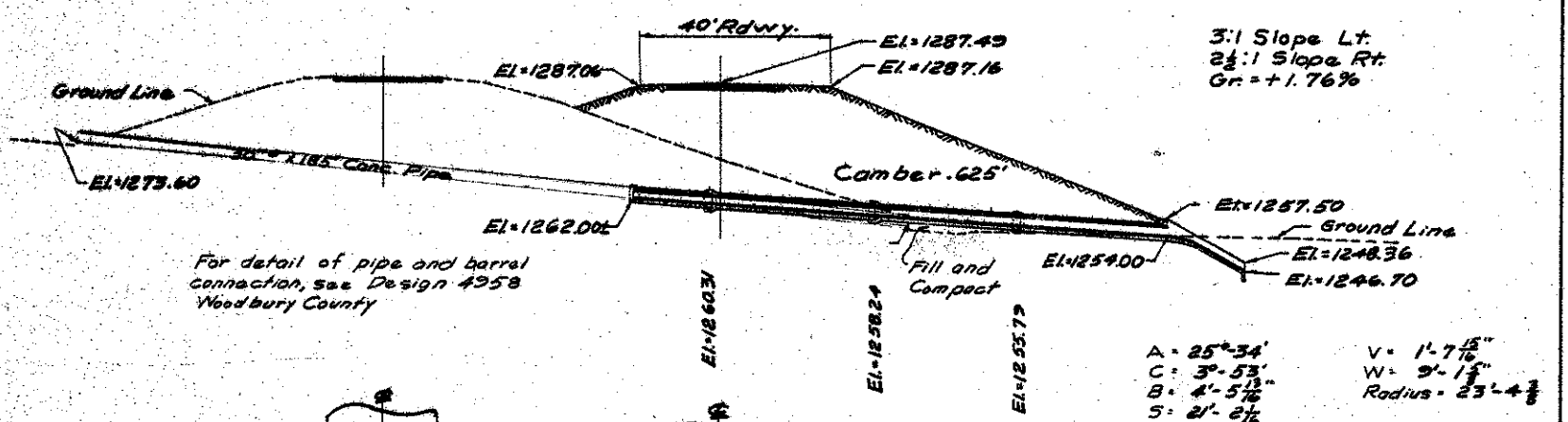
TOP & SIDES  
Scale 1/2"=1'-0"



STUB FLUME DETAIL



FLUME ORDINATES



SITUATION PLAN  
Scale 1/2"=1'-0"

BELL JOINT REINFORCING (3 Jt.)					
Mark	Shape	Size	No.	Length	Lin. Ft.
X	U	5	9	3'-4"	84.0'
XI	U	5	9	3'-7"	86.2'
Y	U	5	9	4'-6"	42.0'
YI	U	5	33	4'-5"	140.3'
Z	U	5	9	2'-5"	20.3'
Total Length					372.8'
Total Weight					388.8#
Total Concrete (3 joints)					2.20 CY.

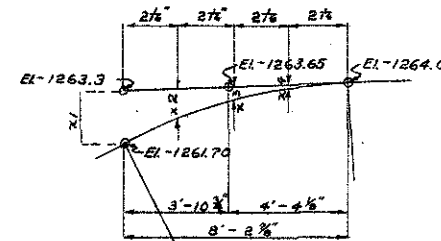
Total Quantities	
Concrete	38.9 CY.
Reinforcing	2,513 lbs.
Excavation Class 20	125 CY.

DESIGN FOR  
2'x2'x118' REINFORCED CONCRETE BARREL EXT.  
AND FLUME  
STATION 853 + 36 PROJECT NO. F-2 (23)

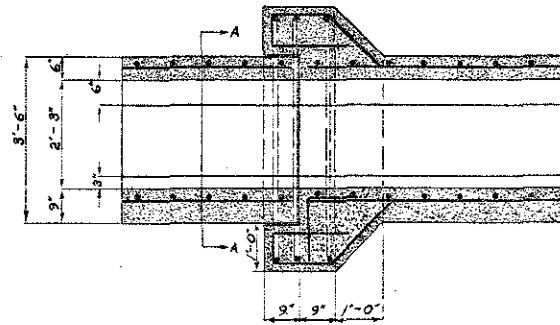
WOODBURY COUNTY  
IOWA STATE HIGHWAY COMMISSION  
DECEMBER 1958 SCALE AS NOTED

BENCH MARK NO. 83 STA. 866+76.5 CUT "V" ON NORTH END 24" CONC. PIPE 138' LT. ELEV. 1287.33

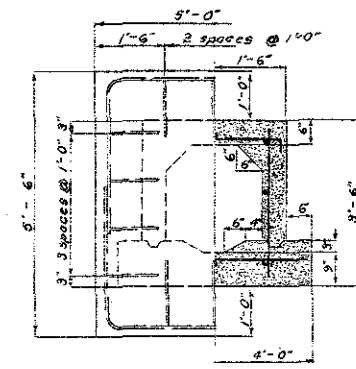
CAMBER 7 1/2"  
SLAB 6"  
K & M 1/2" @ 9"  
GRADE = +1.76 %



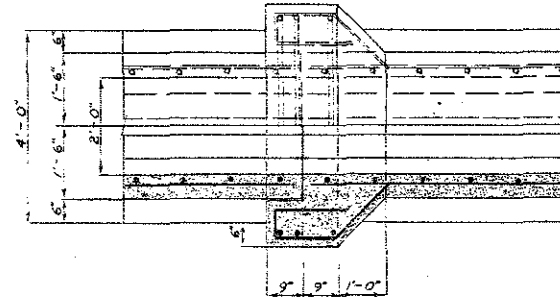
FLUME DATA	
L.A. = 26° 34'	V = 1' - 8 1/2"
L.C. = 4' 35"	W = 10' - 3 1/2"
B = 4' - 4 1/4"	R = 22' - 5 1/2"
S = 23' - 1"	
ORDINATES	
X1 = 1' - 2 1/2"	X3 = 0' - 4 1/2"
X2 = 0' - 11 1/2"	X4 = 0' - 1 1/2"



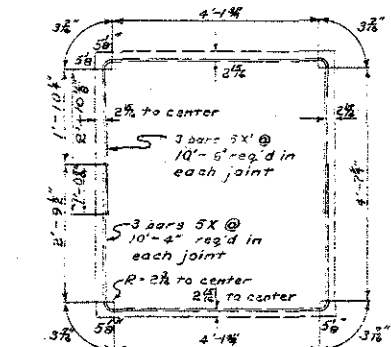
LONGITUDINAL SECTION



SECTION A-A



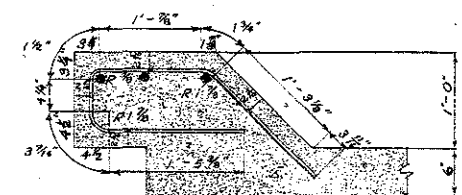
PLAN



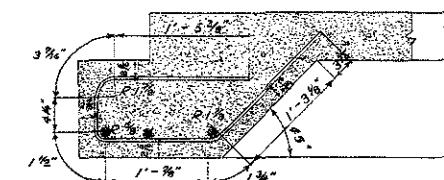
BARS X & Y DETAIL

SCALE 1/2" = 1'-0"

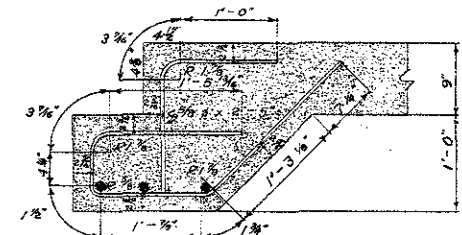
REINFORCING STEEL PER JOINT				
MARK	SIZE	SHAPE	NO.	LENGTH IN FT.
X	5		3	10'-4"
X'	5		3	10'-6"
Y	5		11	5'-0"
Y'	5		3	5'-4"
Z	5		3	2'-5"
TOTAL LENGTH				140.75
WEIGHT - LBS.				146.8
Conc. in one joint = 1.2 C.Y.				



TOP SECTION  
BAR Y DETAIL

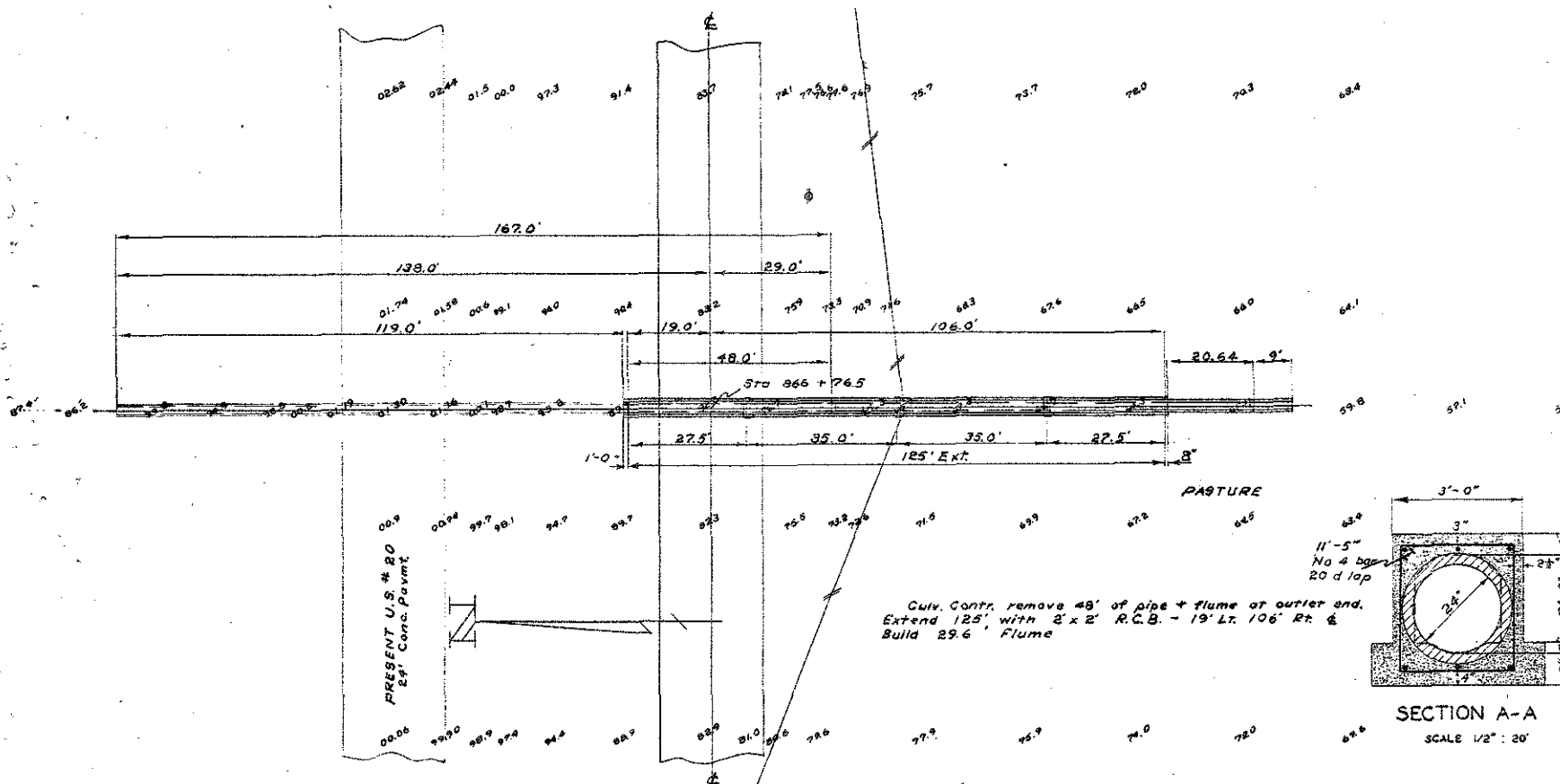
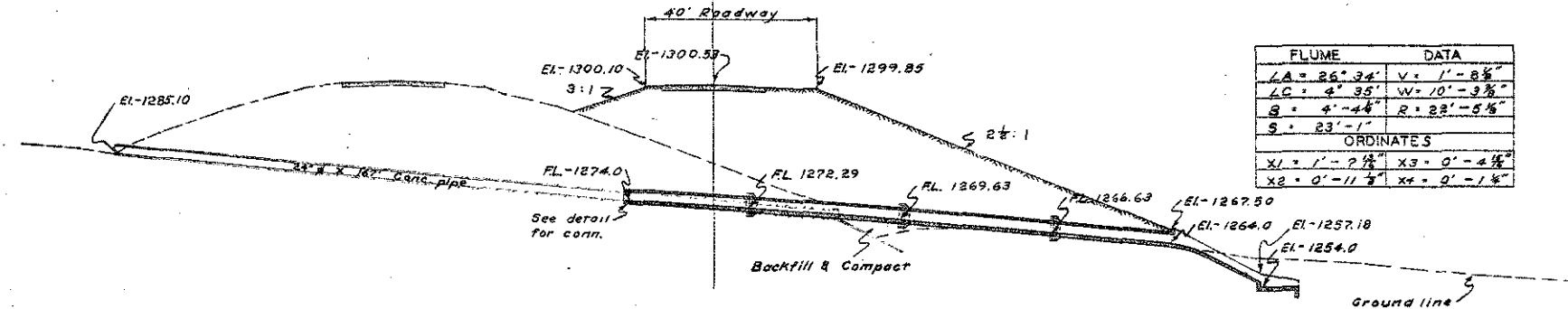


SIDE SECTION  
BAR Y DETAIL



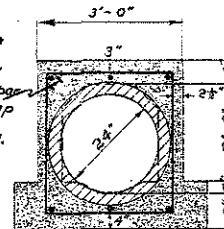
FLOOR SECTION  
BAR Y & Z DETAIL

SCALE 1" = 1'-0"



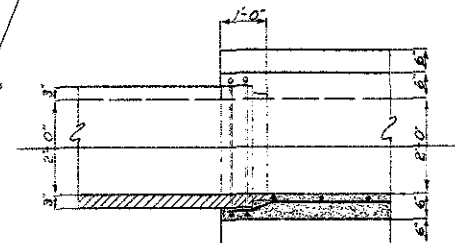
SITUATION PLAN

SCALE 1" = 20'



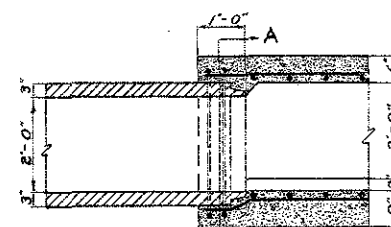
SECTION A-A

SCALE 1/2" = 20'



PLAN VIEW

SCALE 1/2" = 20'



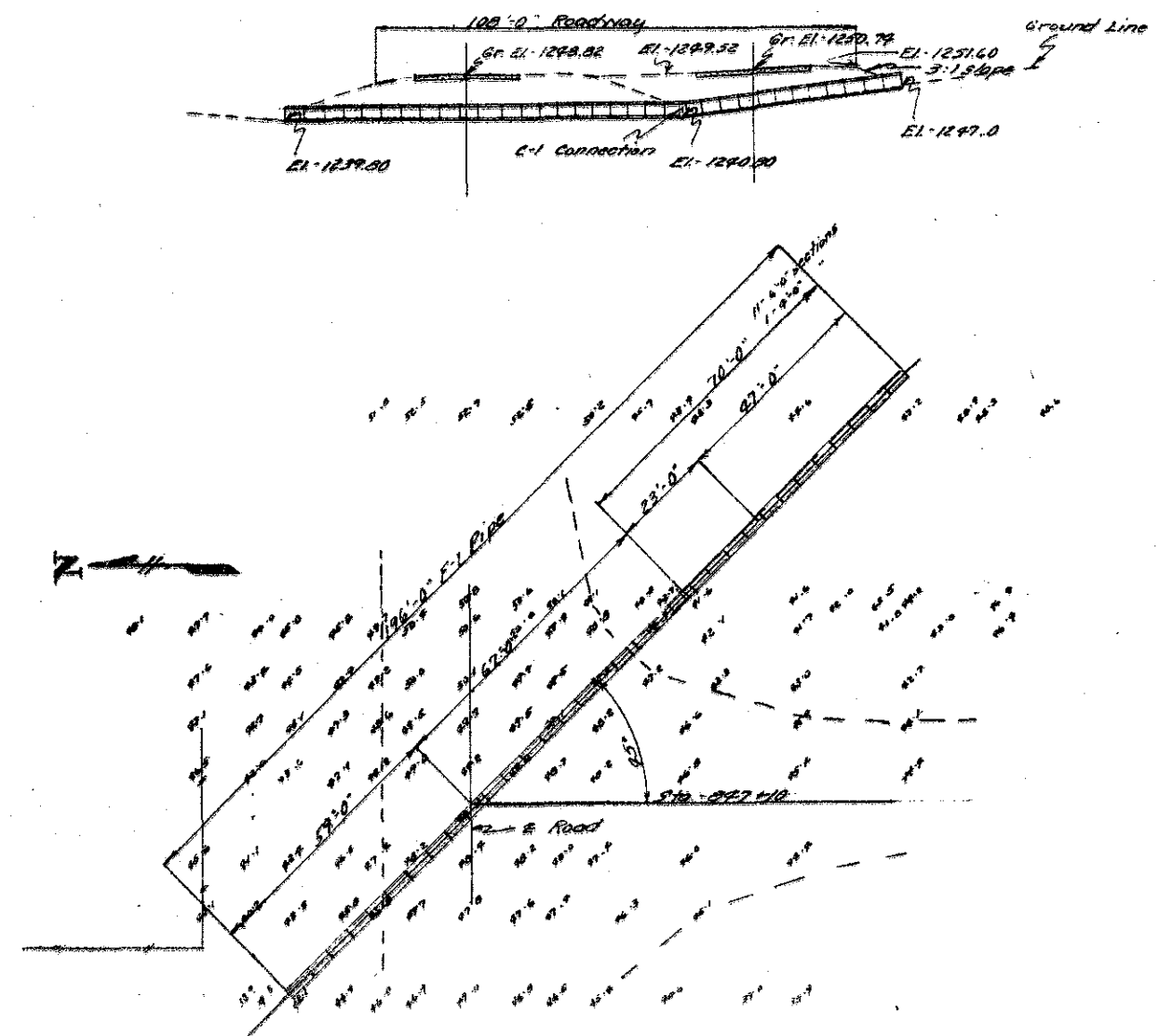
LONGITUDINAL SECT.

SCALE 1/2" = 20'

DETAILS TO BE LIKE IOWA STATE HIGHWAY COMMISSION STANDARDS C-F-80-24	
DRAINAGE AREA 2 1/2 ac. Hilly	SECTION 33-2
SIZE AND TYPE 24" x 125' R.C.B. R.T.H.	TOWNSHIP Banner - Floyd
DEPTH OF FILL 24'	COUNTY Woodbury
PIPE 24" x 125' R.C.B.	STATION 866+76.5
ESTIMATED EXCAVATION 41.20 C.Y.	PROJECT F-2 (23)
QUANTITIES CONCRETE 42.0 C.Y.	DATE November 23, 1978
REINFORCING 2229 LBS.	DESIGN NO. 5958

Bench Mark: No. 61 Sta. 881+27 Found R.R. Spike in W. side 10' Elm. 63' Lt. El. 1247.61

Gr. +9.17%



SITUATION PLAN

SCALE 1" = 20'-0"

DETAILS TO BE LIKE IOWA STATE HIGHWAY COMMISSION STANDARDS			
DRAINAGE AREA	2 ACRES Hilly	SECTION	23.62 26.2
SIZE AND TYPE	24" C-1 PIPE ETC	TOWNSHIP	23.62 26.2
DEPTH OF FILL	2'-0"	COUNTY	WOODBURY
ESTIMATED QUANTITY	PIPE 70'-0" LIN. FT.	STATION	881+27
	EXCAVATION 60'-0" C.Y.	PROJECT	2-2-123
	CONCRETE 2 C.Y.	DATE	APRIL 14, 1929
	REINFORCING 1 C.Y.	DESIGN NO.	0-259

Woodbury County Design No. 10958 - Project 2-2 File No. 1929

B.H. J.