FED. ROAD DIST. NO.	STATE	U.S.W.P.H. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293 D	1	

Rev. 3-2-36 TBG.

COLORADO
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
U.S. WORKS PROGRAM HIGHWAY PROJECT NO. W.P.M.H. 293-D
STATE HIGHWAY NO. 19
MONTROSE COUNTY

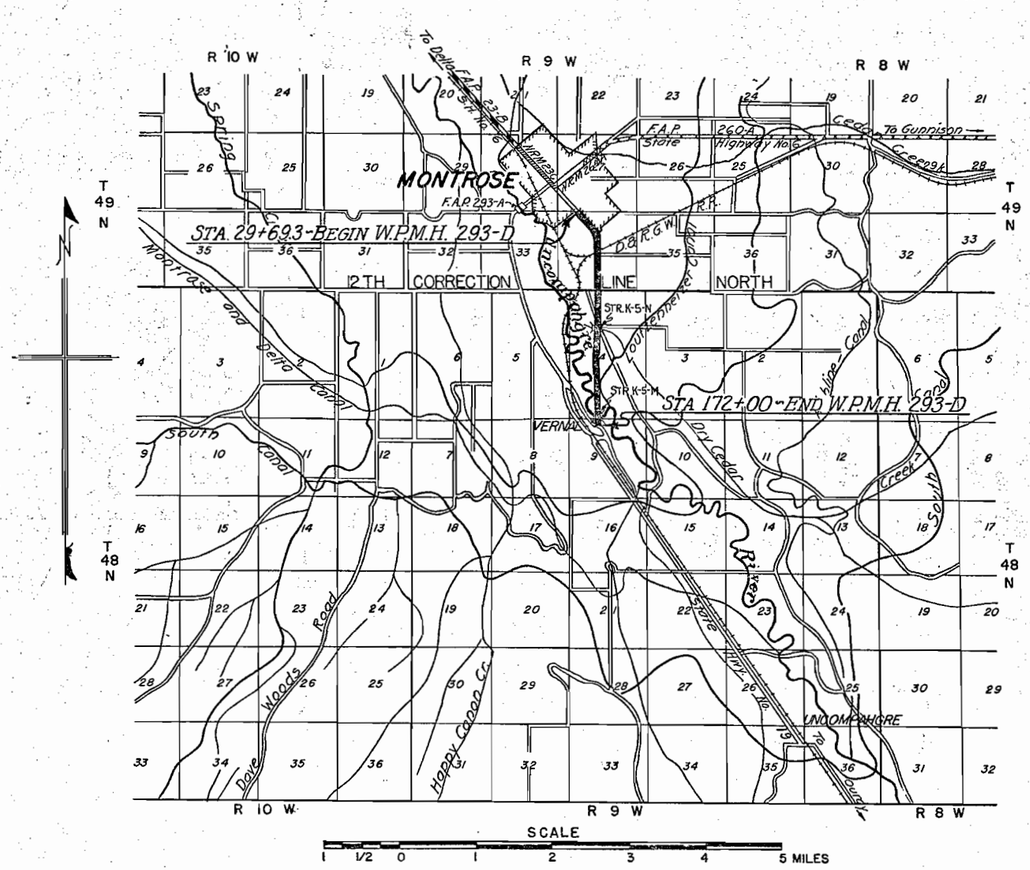
INDEX OF SHEETS

1. Sketch Map & Title
2. Typical Sections & Summary of Quantities
3. Tabulation of Structures
4. Bridge Layouts & Summary of Quantities
5-7. Details of Bridge Sta. 104+
8. Details of Truss Span for Metal Flume Sta. 105+
9 to 13. Details of Bridge Sta. 166+
14. Standard Concrete Box Culverts (6'x4'). M-103-D
15. " Headwalls for C.M.P. Culverts. M-102-E
16. " Wire Gable Guard Fence. M-20-G
17. " Wire Fence (Unfr. Wood Posts) & Marker Posts. M-24-F X
18. Standard Structure Number Lettering. M-10-A
19. " Methods for Superelevation of Curves. M-1-A
20. Typical Side Approach Roads & Roadway Construction Traffic Signs. M-2-B
21 to 25. Plan & Profile
~~26 to 62 Cross Sections~~ See Finals for X Sections

CONVENTIONAL SIGNS

Center Line of Survey
Right-of-Way Lines
Section Lines
One Quarter Lines
Railroad Tracks
Barbed Wire Fence
Telephone Poles
Present Road

SCALES ON ORIGINAL TRACINGS
ON PLAN, 1 IN. - 100 FT.
ON PROFILE { 1 IN. - 100 FT. HORIZONTAL
1 IN. - 10 FT. VERTICAL
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
GROSS LENGTH OF PROJECT } 14,230.6 FT. = 2.695 MILES
NET LENGTH OF PROJECT }



NOTE

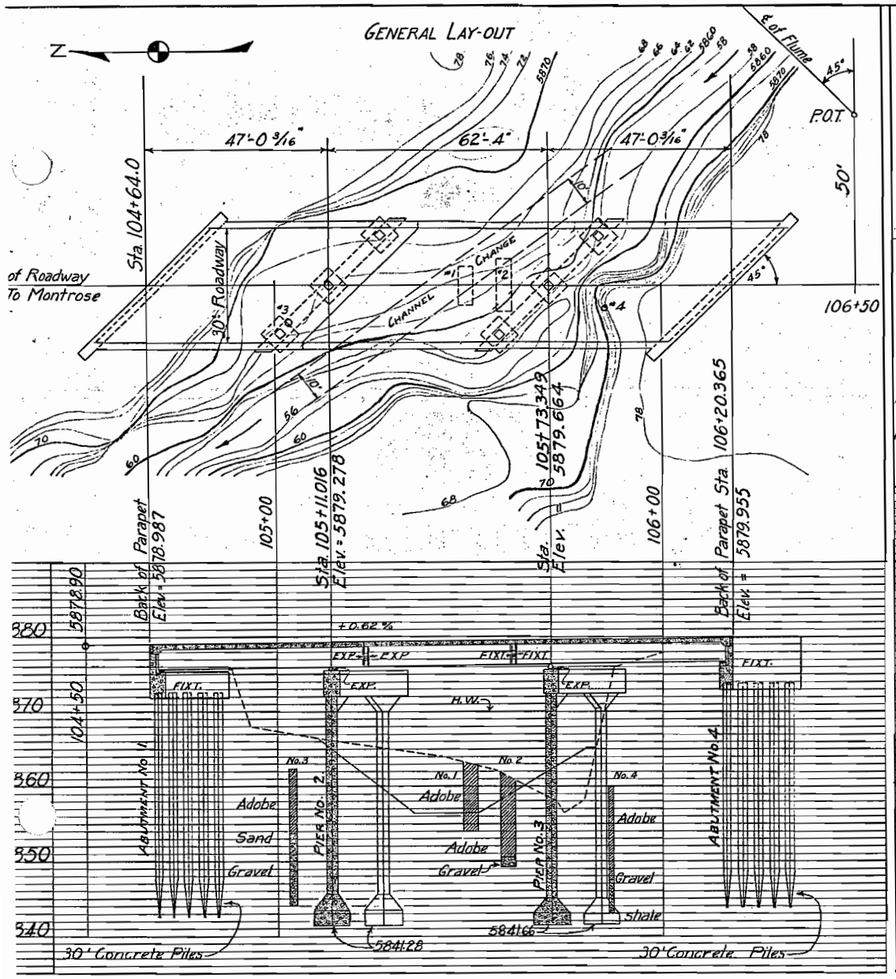
It is recommended that bidders on this project go over the plan details with one of the following field representatives of this department.
J.J. Vandenoer, Division Engineer, Grand Junction, Colo.

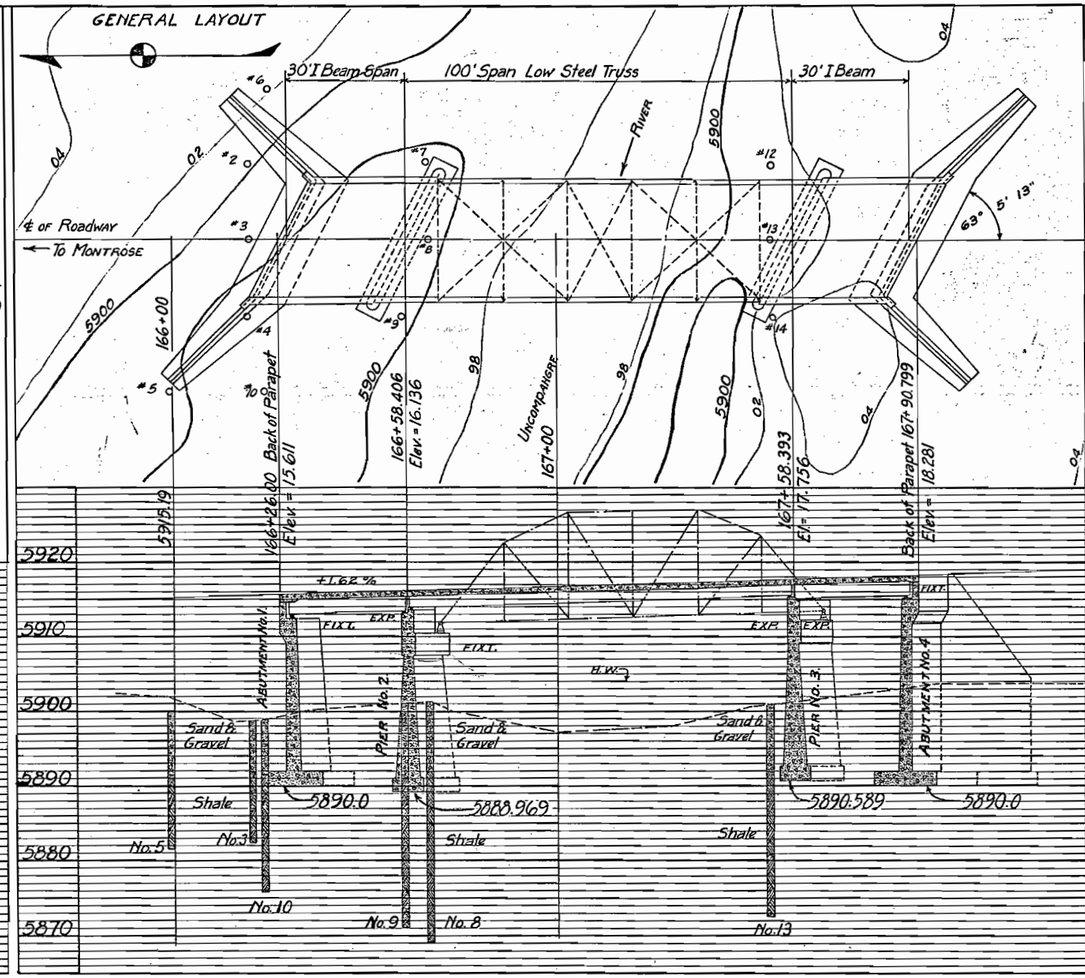
RECOMMENDED FOR APPROVAL 2/4/36
ASSISTANT ENGINEER
APPROVED
STATE HIGHWAY ENGINEER
RECOMMENDED FOR APPROVAL
DIST. ENG. BUREAU PUBLIC ROADS
RECOMMENDED FOR APPROVAL
CHIEF ENG. BUREAU PUBLIC ROADS
APPROVED
DIRECTOR BUREAU PUBLIC ROADS

Revised As Constructed. 4-22-38 R.A.D.

Revised Mar. 3, 1936 by RMA. Starkweather wgt. reduced.
Revised Mar. 30, 1936. by P.D.W.- Sway Bracing Changed. K5-M REVISED FEB. 17-1936 BY RMA. 1200 LBS ADDED REINF. PIERS K-5-N.

FED. ROAD DIST. NO.	STATE	F.E.D. AID PROJ.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293 D	4	

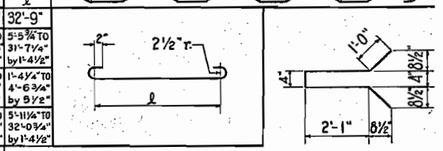




SUPERSTRUCTURE BAR LIST FOR DRY CEDAR WASH

✓ J.E.

MARK	SIZE	REQ'D	LENGTH		BENDING DIAGRAM
G1	⅝"ϕ	65	34'-0"		2½" T. 9½" 8¼" 4'-7½" 8¼" 1'-6" 8¼" 4'-7½" 8¼" 1'-6" 8¼" 4'-7½" 8¼" 1'-6" 8¼" 4'-7½" 8¼" 9½"
G2	⅝"ϕ	4	6'-2½"		a = 2'-3"- G2
G3	⅝"ϕ	4	7'-7"		a = 3'-7½"- G3
G4	⅝"ϕ	4	8'-11½"		a = 5'-0"- G4
G5	⅝"ϕ	4	10'-5¼"		a = 1'-0¾"- G5
G6	⅝"ϕ	4	11'-9¾"		a = 2'-5¼"- G6
G7	⅝"ϕ	4	13'-3½"		a = 1'-7½"- G7
G8	⅝"ϕ	4	14'-8"		a = 3'-0"- G8
G9	⅝"ϕ	4	16'-0½"		a = 4'-4½"- G9
G10	⅝"ϕ	4	17'-6¼"		a = 5¼"- G10
G11	⅝"ϕ	4	18'-10¾"		a = 1'-9¾"- G11
G12	⅝"ϕ	4	20'-4½"		a = 1'-0"- G12
G13	⅝"ϕ	4	21'-9"		a = 2'-4½"- G13
G14	⅝"ϕ	4	23'-1½"		a = 3'-9"- G14
G15	⅝"ϕ	4	24'-6"		a = 5'-1½"- G15
G16	⅝"ϕ	4	25'-11¾"		a = 1'-2¼"- G16
G17	⅝"ϕ	4	27'-4¼"		a = 2'-6¾"- G17
G18	⅝"ϕ	4	28'-10"		a = 1'-9"- G18
G19	⅝"ϕ	4	30'-2½"		a = 3'-1½"- G19
G20	⅝"ϕ	4	31'-7"		a = 4'-6"- G20
G21	⅝"ϕ	4	33'-0¾"		6¾"
E1	⅝"ϕ	252	34'-5"	32'-9"	
E2 TO E21	⅝"ϕ	8 EA.	7'-1¾" TO 33'-3¼" by 1'-4½"	5'-5¾" TO 31'-7½" by 1'-4½"	
E22 TO E29	⅝"ϕ	8 EA.	3'-0½" TO 6'-2¾" by 5½"	1'-4¼" TO 4'-6¾" by 5½"	
K2 TO K21	⅝"ϕ	8 EA.	7'-7½" TO 33'-8¾" by 1'-4½"	5'-11¼" TO 32'-0¾" by 1'-4½"	
H1	½"□	208	6'-6"		
H2	½"□	16	16'-8"		
H3	½"□	4	3'-10"		
H4	½"□	10	5'-0"		
H5	½"□	10	6'-0"		
H6	½"□	32	10'-2"		
H7	½"□	32	14'-8"		
H8	½"□	4	11'-8"		
D1	⅝"ϕ	84	28'-0"		
D2	⅝"ϕ	126	34'-10"		



STRAIGHT BARS

26,029 LIN. FT. ⅝"ϕ BARS @ 1.043 PER LIN. FT. = 27,148 LBS.
2,585 " " ½"□ " @ 0.850 " " " = 2,197 "
+1% FOR OVERRUN = 295 "
TOTAL = 29,640 LBS

SUMMARY OF QUANTITIES FOR ALL STRUCTURES

			DRY CEDAR WASH K-5-N						UNCOMPAHGRE RIVER K-5-M						TOTAL FOR IRRIGATION FLUME	TOTAL FOR ALL STRUCTURES
ITEM No.		DESCRIPTION	UNIT	ABUT. No. 1	PIER No. 2	PIER No. 3	ABUT. No. 4	SUPER-STRUCTURE	TOTAL	ABUT. No. 1	PIER No. 2	PIER No. 3	ABUT. No. 4	SUPER-STRUCTURE	TOTAL		
a		Removal of Flume	Lump Sum						Lump Sum								Lump Sum
b		Dry Common Structural Excavation	Cu. Yd.	156.9	120.7	8.4	146.0		432.0	114.2	52.3	67.9	308.6		543.0	18.1	993.1
c	*	Wet Rock " "	Cu. Yd.		43.9	50.3			94.2	113.0	70.8	52.4	201.9		438.1		532.3
d	*	Wet Common " "	Cu. Yd.		217.0	195.8			412.8	258.9	67.2	63.5	225.1		614.7		1027.5
2a		Untreated Bridge Timber	M.ft.B.M.	.276			.276		.552	.204			.204		.408		.960
2b		Treated Bridge Timber	M.ft.B.M.													1.395	1.395
7	ϕ	Reinforcing Steel Includes ±1% Overrun	Lb.	1530	9260	9260	1530	29,640	51,220	18,570	2610	2610	23,710	28,190	75,690		126,910 ①
8		Structural Steel " "	Lb.	25	40	40	25	122,400	122,530	25	420	420	25	170,100	170,990	2210	295,730 ②
6		Galv. Metal Simplex #42 Flume or Equivalent	Lin. Ft.													66	66
0a		Treated Timber Piling	Lin. Ft.													72	72
2a		Precast Concrete Piling	Lin. Ft.	270			270		540								540
6a	ϕ	Class "A" Concrete	Cu. Yd.	19	61	61	19	168	328	210	140	140	248	151	889		1217
0b		Bronze Name Plate	Each							1					1		1
			Lb.														
9a		Galv. Drain Pipe with Flange 3"ϕ x 4'-8"	Each											12	12		12
9b		" " " " " 3"ϕ x 2'-6"	"					6	6					4	4		10
		Sheet Steel #20 Gage 12" Incl. in bid price of Conc.	Sq. Ft.					85	85					65	65		150
		Expansion Joint Material ¼" thick	Sq. Ft.							64			95		159		159
		Transition for #42 Simplex Flume or Equiv.	Each													2	2
3c		Unclassified Excavation	Cu. Yd.						2202.4								

ϕ These items do not include reinforcing steel or concrete in concrete piling
* Wet Line at 5858.5 for K-5-N: and 5897.7 for K-5-M

① Pay weight 129,712 lb.
② Pay weight 289,918 lb.

REFERENCE DRAWINGS

Sheet No. 5	Details - Abutments No. 1 & No. 4. K-5-N
Sheet No. 6	Details - Piers No. 2 & No. 3 K-5-N
Sheet No. 7	Details - Superstructure K-5-N
Sheet No. 8	Details - Flume over Dry Cedar Wash
Sheet No. 9	Details - Abutment No. 1 K-5-M
Sheet No. 10	Details - Abutment No. 4 K-5-M
Sheet No. 11	Details - Piers No. 2 & No. 3, K-5-M
Sheet No. 12	Details - Superstructure K-5-M
Sheet No. 13	Details - 100' Low Steel Truss. K-5-M

MAXIMUM SOIL PRESSURE

K-5-M

Abutment No. 1 = 2250 Lbs. Per Sq. Ft.
Piers No. 2 & No. 3 = 3330 Lbs. Per Sq. Ft.
Abutment No. 4 = 3300 Lbs. Per Sq. Ft.

K-5-N

Piers No. 2 & No. 3 = 5500 Lbs. Per Sq. Ft.

GENERAL NOTES CONT'D.

Precast Concrete Piles Must be Driven in Line without Jacking or Bending.

For Driving the Concrete Piling the Steam-Hammer Shall Develop at Each Full Blow an Energy of not Less than 15,000 Foot-Pounds for Each Full Stroke of Piston.

A Drop-Hammer Shall not be Used.

Fixed Leads Required.

Pile Reinforcement Permits Picking Up at Third Points Only.

Maximum Pile Load. (Concrete) = 23 Tons.

See Sheet 8 for Notes on Irrigation Flume
See Sheet 13 for Notes on Steel Truss.

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT. ADOPTED AUG. 1, 1935.

ALL CONCRETE SHALL BE CLASS "A."

FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR TONGUE AND GROOVE LUMBER S3S UNLESS FACED WITH PANEL BOARD.

CONCRETE GIRDERS, FLOOR SLABS AND CURB SHALL BE POURED MONOLITHICALLY.

FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.

ALL REINFORCING BARS SHALL BE DEFORMED AND TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION. MAIN BARS SHALL NOT BE SPLICED.

SOUNDINGS AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA. IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.

ALL RIVETS SHALL BE ¾" DIAM. UNLESS NOTED OTHERWISE
ALL FIELD RIVETS SHALL BE POWER DRIVEN.
ALL OPEN HOLES FOR ¾" RIVETS TO BE 13/16".
MAX. LIVE LOAD DEFLECTION ALLOWED = 1/1100 OF SPAN.

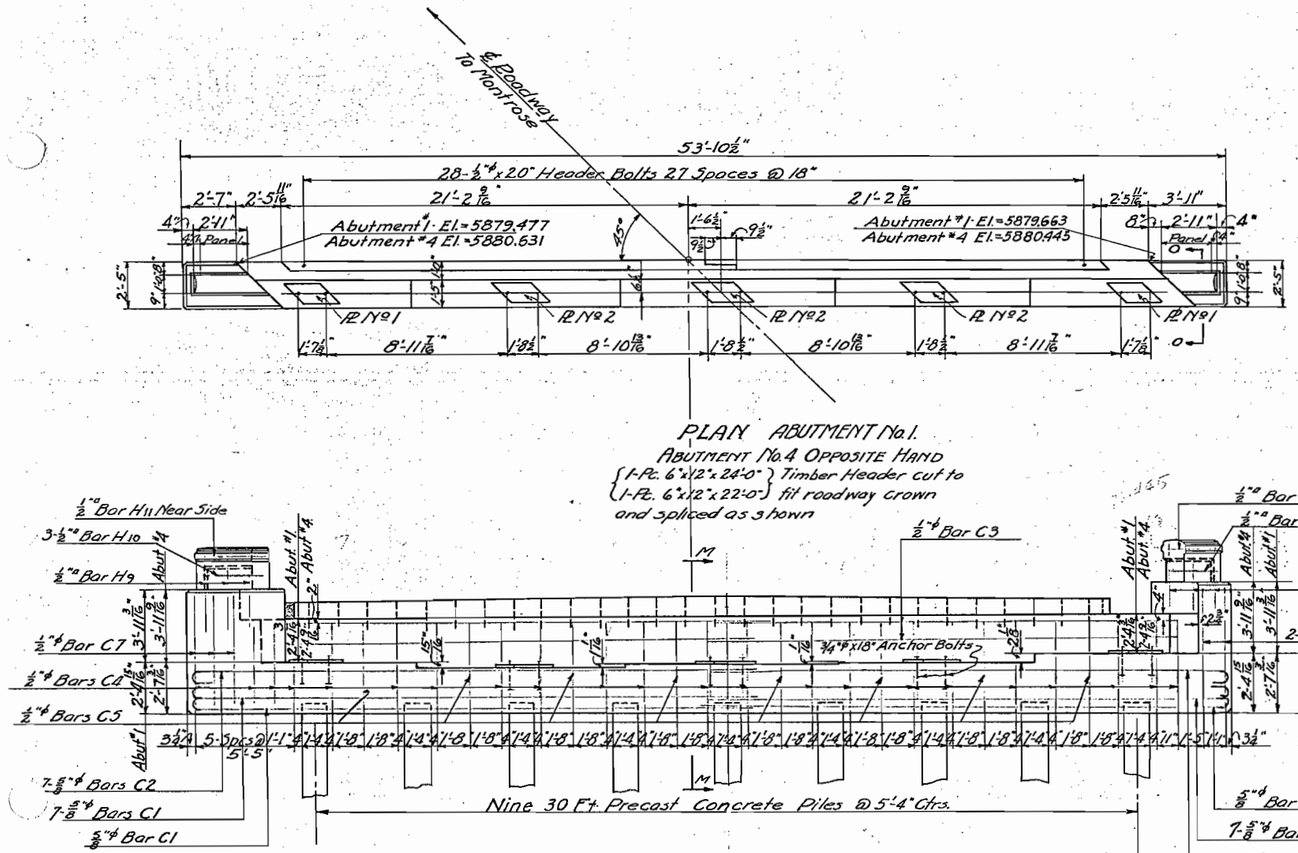
COLORADO
STATE HIGHWAY DEPARTMENT
GENERAL LAYOUTS AND SUMMARY OF QUANTITIES
FOR BRIDGES K-5-N, K-5-M, & FLUME
Across watercourses shown
Stas as shown
Near Montrose Sec. 4/9 T. 48N R. 9W N.M.P.M.

Designed by
Made by P.D.W.
Check Design
Check Detail RMA

Approved by P. A. Bailey
Bridge Engineer
Date: Jan. 3/31 1936

STRUCTURE NOS. K-5-N & K-5-M

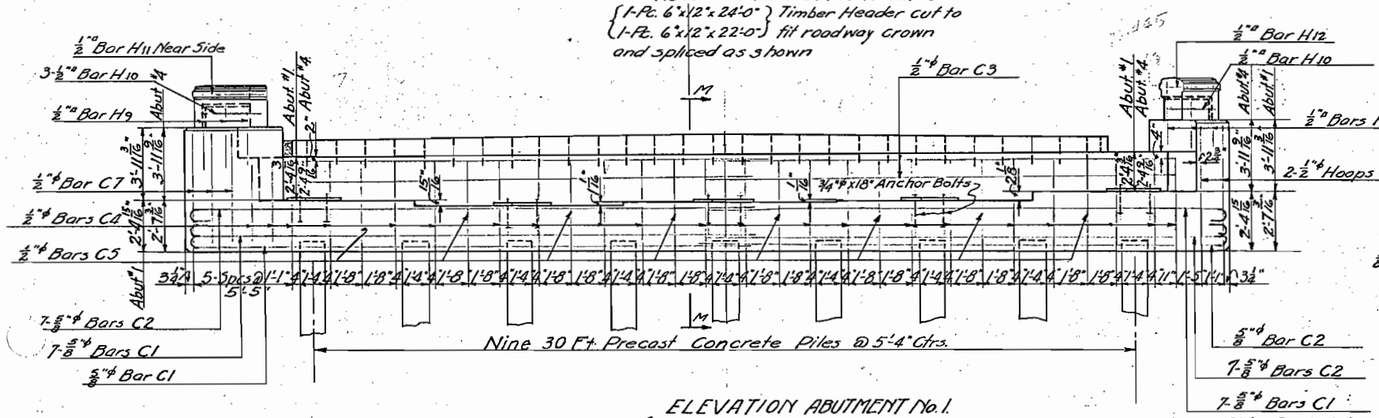
FED. ROAD DIST. NO.	STATE	W.P.M.H.	SHEET NO.	TOTAL SHEETS
3	COLO.	293-D	5	



PLAN ABUTMENT No. 1.

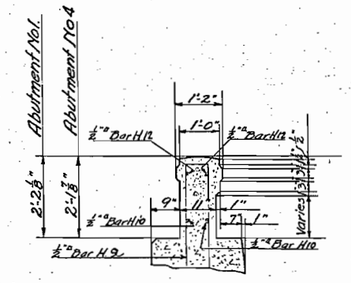
ABUTMENT No. 4 OPPOSITE HAND

{1-Pc. 6"x12"x24'-0" / 1-Pc. 6"x12"x22'-0"} Timber Header cut to fit roadway crown and spliced as shown

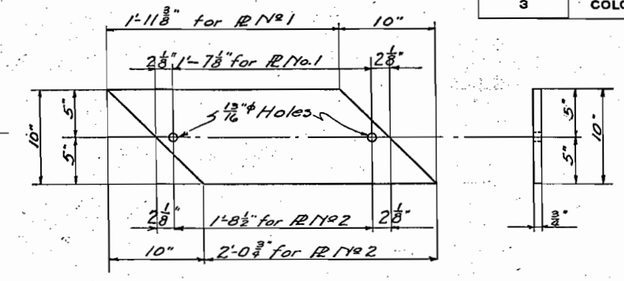


ELEVATION ABUTMENT No. 1.

(ABUTMENT No. 4 OPPOSITE HAND)



SECTION O-O

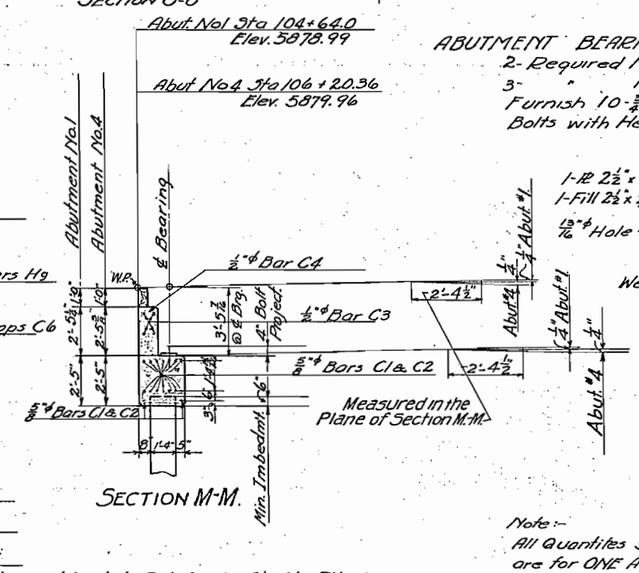


ABUTMENT BEARING PLATES (STR'L. STEEL.)

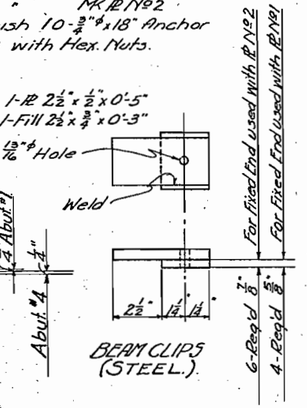
2- Required Mk Pl. No. 1

3- " Mk Pl. No. 2

Furnish 10-¾"φ x 18" Anchor Bolts with Hex. Nuts.



SECTION M-M.



BEAM CLIPS (STEEL.)

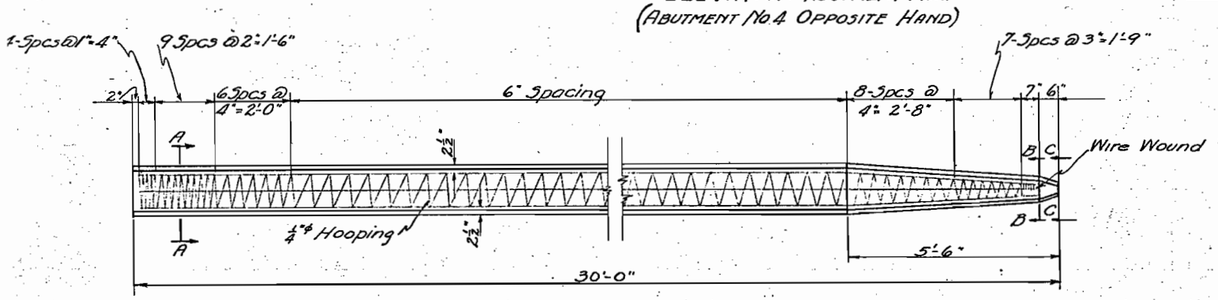
Note:-
All Quantities shown on this sheet are for ONE Abutment only.

Note: Bar List does not include Reinforcing Steel in Piles

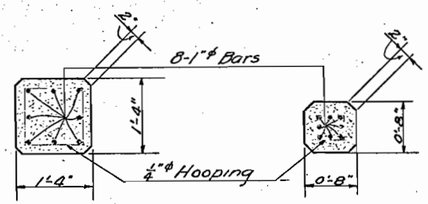
BAR LIST FOR ONE ABUTMENT ONLY ADN. RDW.

MARK	SIZE	No.	LENGTH	BENDING DIAGRAM
C1	⅝"φ	16	30'-7"	2½" R; 29'-9" C1; 26'-0" C2
C2	⅝"φ	16	26'-10"	
C3	½"φ	8	24'-9"	
C4	½"φ	21	15'-9"	7"; 2" R; 2'-1"
C5	½"φ	8	14'-3"	
C6	½"φ	2	17'-4"	2'-1"; 6'-0⅜" C6; 5'-10½" C7
C7	½"φ	3	16'-11"	
H9	½"□	6	8'-11"	7"; 4'-2"
H10	½"□	6	2'-9"	
H11	½"□	2	3'-4"	
H12	½"□	2	1'-8"	

919 Lin. ft. ⅝"φ @ 1.043#/ft. =	959	Lbs.
728 Lin. ft. ½"φ @ 0.668#/ft. =	486	"
80 Lin. ft. ½"□ @ 0.850#/ft. =	68	"
±1%	1.7	"
TOTAL	1530	LBS.



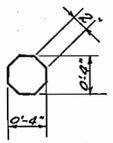
ELEVATION



SECTION A-A

SECTION B-B

Use this Section when Pile rests on rock



SECTION C-C

PRECAST CONCRETE PILE DETAILS

9-Req'd. per Abutment

REFERENCE DRAWINGS

General Layout & Summary of Quantites Sheet 4
Details of Superstructure Sheet 7
Details of Piers Nos. 1 & 2 Sheet 6
Details & Layout of Irrigation Flume Sheet 8
Plan & Profile of Location Sheet 23.

LOADING DATA.
LIVE LOAD = A.A.S.H.O. , 1935 CLASS A. (H-15)
DEAD LOAD = ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE WHICH INCLUDES THE ¾ IN. CONCRETE MONOLITHIC WEARING SURFACE SHOWN.
DEFLECTION DUE TO LIVE LOAD NOT MORE THAN 1/1100 OF SPAN.

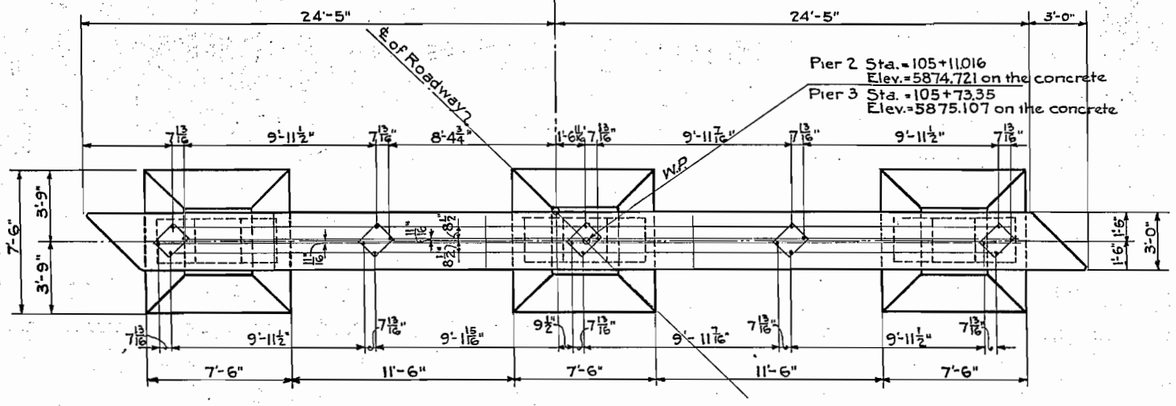
COLORADO
STATE HIGHWAY DEPARTMENT
ABUTMENT DETAILS
3-Span I-Beam & Concrete Floor
30-Ft. Clear Rdwy.
Across Dry Cedar Wash
Sta. 104+64.0 to 106+20.36
Near Montrose Sec. 4 T. 48N R. 9W. N.M.P.M.

Designed by R.M.A.
Made by ADN.
Check Design A.D.N.
Check Detail P.D.W.

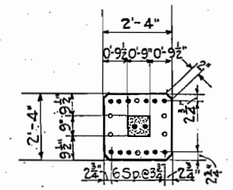
Approved by P. A. Bailey
Bridge Engineer
Date: Jan. 31st, 1936

FED. ROAD DIST. NO.	STATE	FED. AID PROJ.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H.293 D	6	

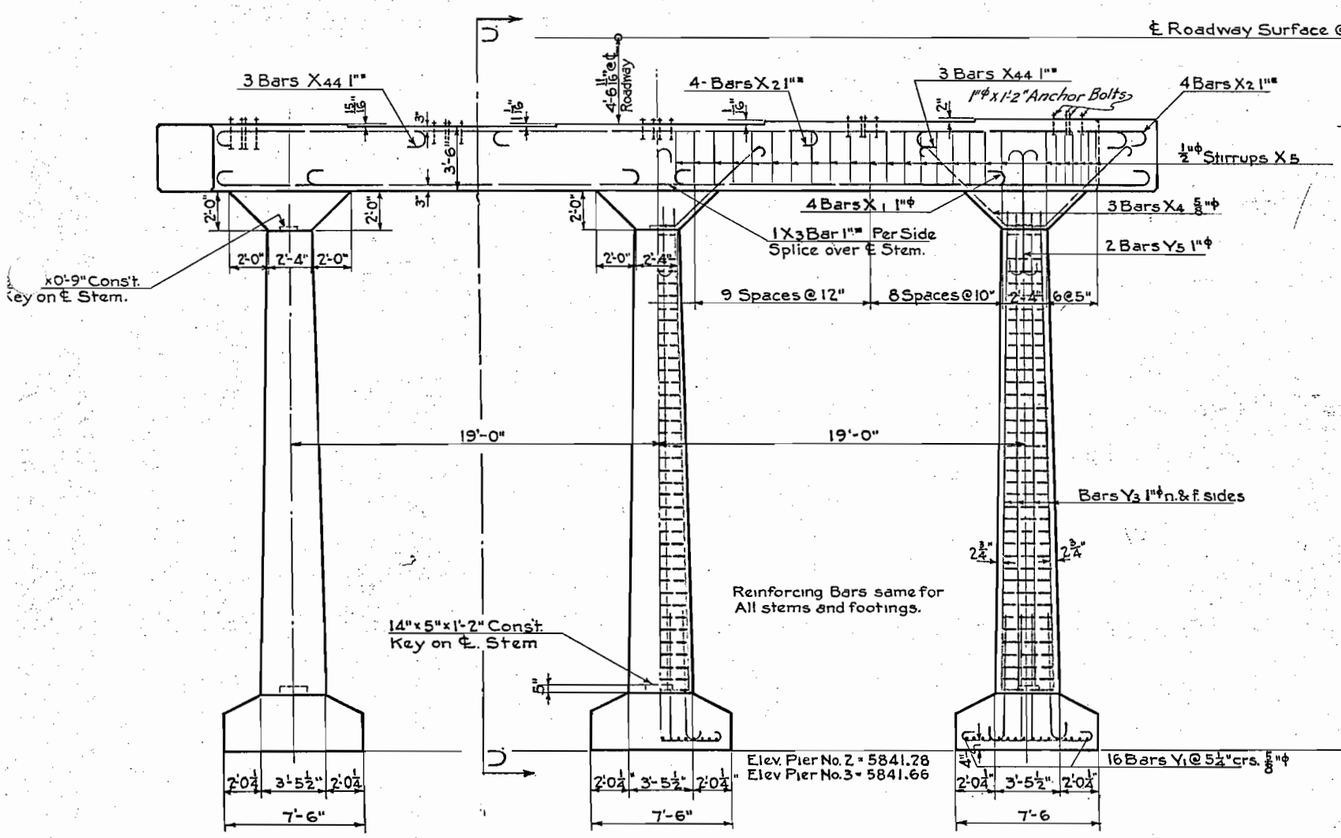
Revised Feb. 17-1936 by RMA. Added X_{44} Bars & X_3 Bars.



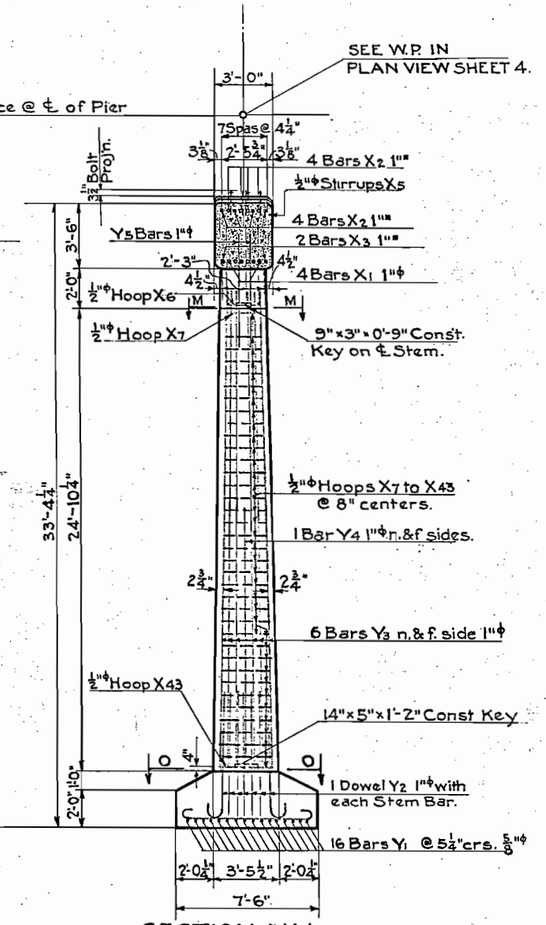
PLAN~PIERS NOS. 2 AND 3.



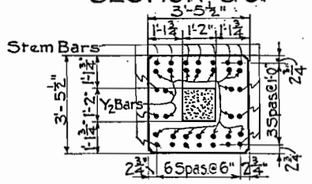
SECTION M-M.



ELEVATION.
(FOR PIERS NOS. 2 AND 3 LOOKING DOWN STATION)



SECTION U-U.



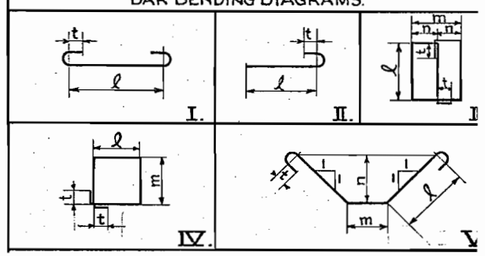
SECTION O-O.

BAR LIST FOR PIER NO. 2 (PIER 3 SAME EXC.)

MARK	SIZE	REQ'D	LENGTH	TYPE	DIMENSIONS l	m	n	r	t
Y1	⅝"φ	96	8'-1"	I.	6'-5"			2½"	2"
Y2	1"φ	54	7'-10"	II.	6'-6"			4"	3½"
Y3	1"φ	48	25'-8"	—					
Y4	1"φ	6	14'-0"	—					
Y5	1"φ	6	8'-4"	I	5'-8"			4"	3½"
X1	1"ⁿ	8	18'-8"	I	16'-0"			4"	3½"
X2	1"ⁿ	8	33'-0"	I	30'-4"			4"	3½"
X3	1"ⁿ	4	28'-4"	II	27'-0"			4"	3½"
X4	⅝"φ	9	14'-7"	V	5'-6"	1'-11"	3'-10¾"	2½"	2"
X5	½"φ	52	15'-10½"	III	3'-1½"	2'-7"	1'-3½"		8"
X6	½"φ	3	9'-4"	IV	2'-0"	2'-0"			8"
X7 TO X43	½"φ	3 Each	9'-5"ⁿ 13'-9" BY 1½"	IV	2'-0¼" to 3'-1¾" BY ⅜"	2'-0¼" to 3'-1¾" BY ⅜"			8
X44	1"ⁿ	6	11'-2"	I	8'-6"			4"	3½"

2139 LIN. FT. ½"φ BARS	@	0.668	LBS. PER FT.	=	1429	LB
907 LIN. FT. ⅝"φ "	@	1.043	" " "	=	946	"
1789 LIN. FT. 1"φ "	@	2.670	" " "	=	4777	"
593 LIN. FT. 1"ⁿ "	@	3.400	" " "	=	2016	"
1% ± ADDITIONAL FOR OVERRUN				=	92	"
			TOTAL	=	9260	LB

BAR BENDING DIAGRAMS.



REFERENCE DRAWINGS

GENERAL LAYOUT GENERAL NOTES AND SUMMARY OF QUANTITIES	SHEET No. 4
DETAILS OF ABUTMENTS NOS. 1 AND 4	SHEET No. 5
DETAILS OF SUPERSTRUCTURE	SHEET No. 7
GENERAL LOCATION ON PROJECT	PLAN & PROFILE SHEET 2

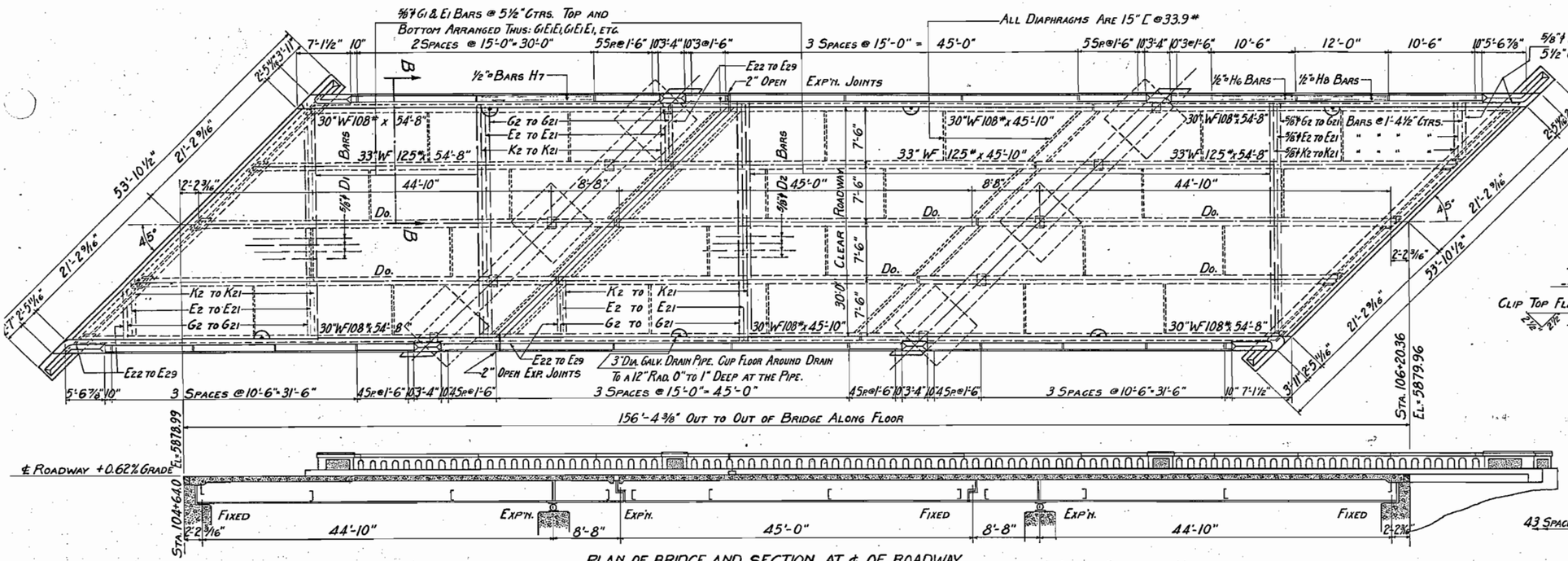
COLORADO
STATE HIGHWAY DEPARTMENT

DETAILS FOR PIERS NOS. 2 & 3
2 SPANS @ 42'-10½" 1 SPAN 62'-4"
I-BEAM CONCRETE BRIDGE
Across DRY CEDAR WASH
Sta. 104+64 To 106+20.36
Near Montrose Sec. 4/9 T. 48 N R. 9 W N.M.P.M.

Designed by RMA Made by R.M.A. Check Design EDW Check Detail N.L.C.	Approved by P. A. Bailey Bridge Engineer Date: Jan. 31st 1936

FED. ROAD DIST. NO.	STATE		SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293-D	7	

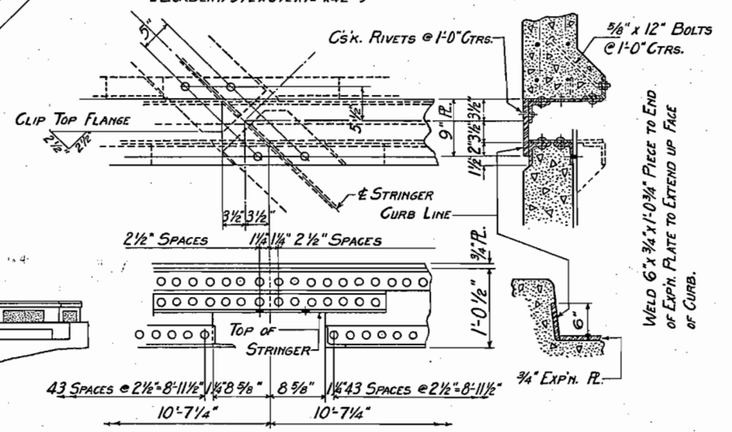
Revised Feb. 17-1936 by R.M.A. Shift Ls @ Brgs. & Defl Conc @ ℄ Br.



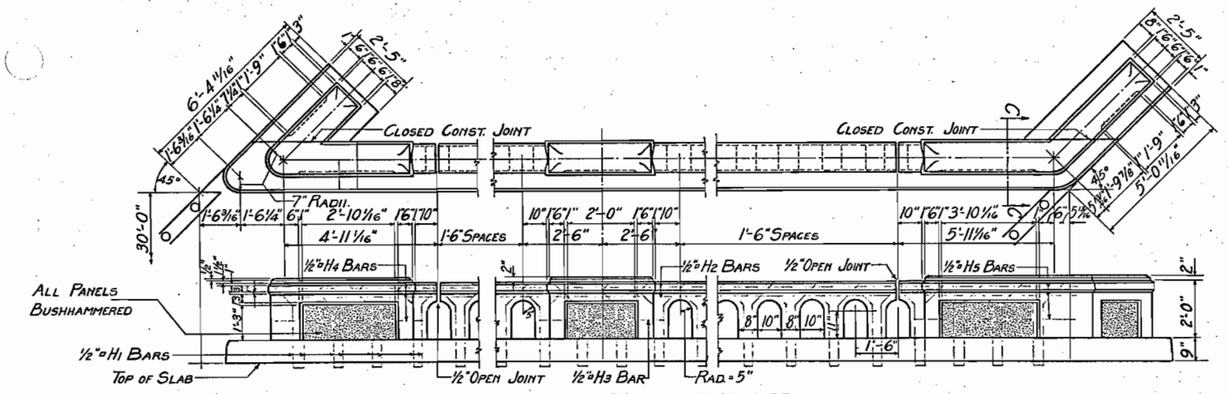
PLAN OF BRIDGE AND SECTION AT ℄ OF ROADWAY

STEEL FOR EXP'N. DEVICE
1 Pl. 9" x ¾" x 42'-5⅛"
2 Pl's. 6" x ¾" x 1'-0¾"
8 Pl's. 12" x ½" x 9'-2"
8 Pl's. 7" x ½" x 1'-5"
6 L's. 3½" x 3" x ½" x 3'-0"
4 L's. 3½" x 3" x ½" x 1'-6"
8 L's. 3½" x 3½" x ½" x 9'-2"
2 L's (Bent) 3½" x 3½" x ½" x 42'-9"

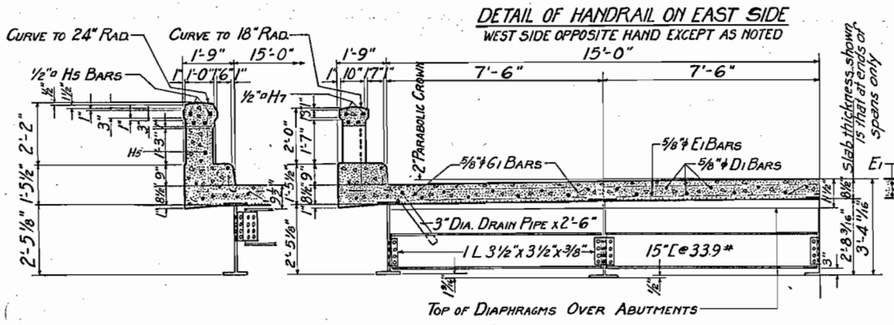
REFERENCE DRAWINGS
Sheet No. 5 Details-Abutments No. 1 & No.
Sheet No. 6 Details-Piers No. 2 & No. 3
Sheet No. 4 General Layout, General Note and Summary of Quantities



DETAILS OF EXPANSION DEVICE AND DIAPHRAGMS



DETAIL OF HANDRAIL ON EAST SIDE
WEST SIDE OPPOSITE HAND EXCEPT AS NOTED



SECTION C-C

SECTION B-B

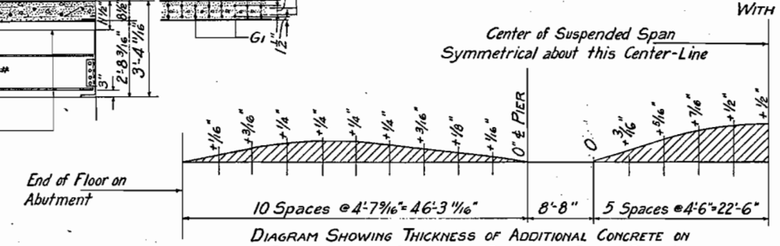
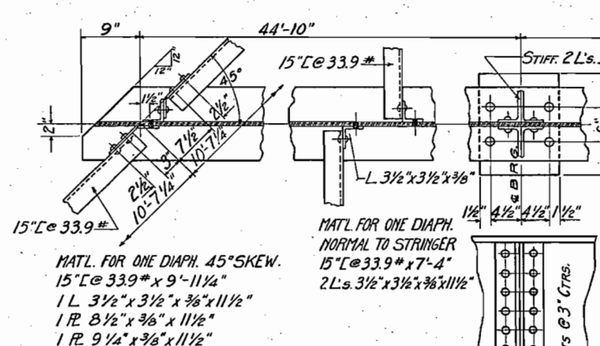
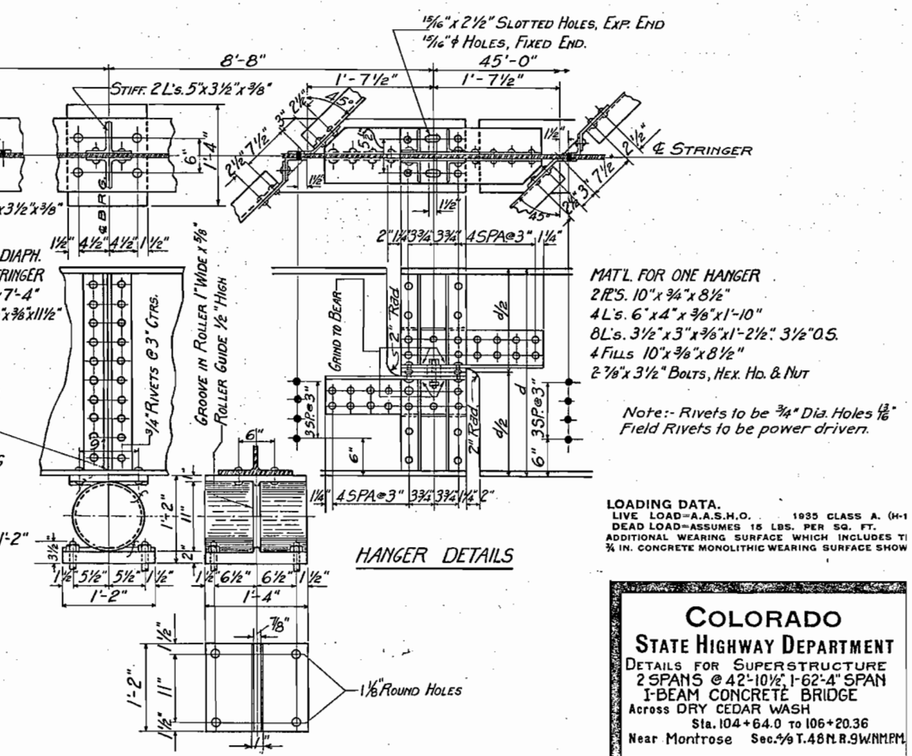


DIAGRAM SHOWING THICKNESS OF ADDITIONAL CONCRETE ON BRIDGE-FLOOR TO COMPENSATE DEFLECTION DUE TO DEAD LOAD



CONNECTION FOR DIAPHRAGMS



BEARING DETAILS AT EACH PIER
10 Req'd. - Annealed Cast, or Str. Grade Steel Except Roller to be Annealed Cast Steel or Cold Rolled Shafting

HANGER DETAILS

LOADING DATA.
LIVE LOAD = A.A.S.H.O. 1935 CLASS A. (H-1
DEAD LOAD = ASSUMES 15 LBS. PER SQ. FT.
ADDITIONAL WEARING SURFACE WHICH INCLUDES T
¾ IN. CONCRETE MONOLITHIC WEARING SURFACE SHOW

COLORADO
STATE HIGHWAY DEPARTMENT

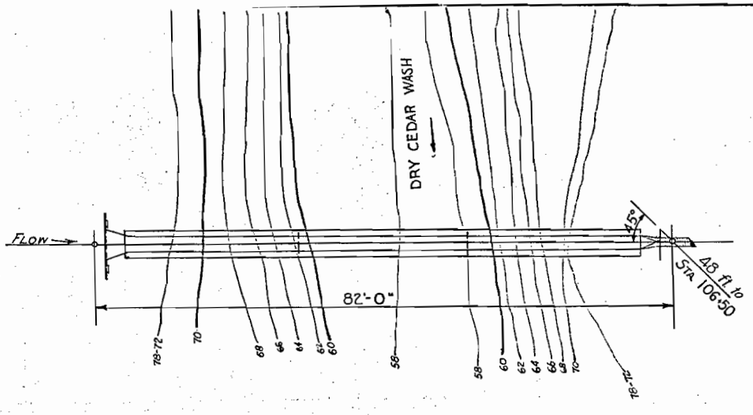
DETAILS FOR SUPERSTRUCTURE
2 SPANS @ 42'-10½", 1-62'-4" SPAN
I-BEAM CONCRETE BRIDGE
Across DRY CEDAR WASH
Sta. 104+64.0 to 106+20.36
Near Montrose Sec. 4/9 T. 48 N. R. 9 W. N.M.P.M.

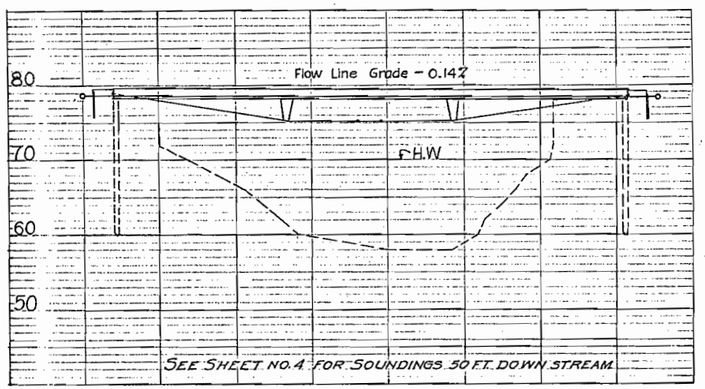
Designed by	R.M.A. W.W.D.	Approved by P. J. Bailey
Made by	F.D.W.	Bridge Engineer
Check Design	W.W.D. R.M.A.	Date: Jan. 31st, 1936
Check Detail	R.M.A.	

K.R.N.

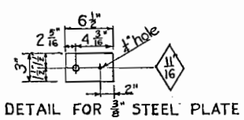
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	COLO.	WPMH 293D	8	

Revised Feb. 17, 1936 by RMA Transitions Located.

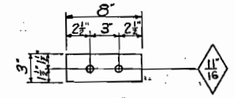




SITUATION PLAN



DETAIL FOR 3/8" STEEL PLATE "B"
56 Required



DETAIL FOR 3/8" STEEL PLATE "C"
4 Required

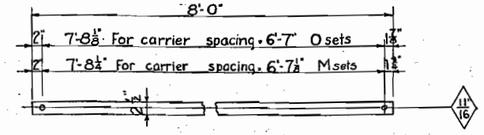
MATERIAL LIST — GRB

ITEM 42b TREATED TIMBER				
Cut-off wall	8 Pcs.	2"×12"×8'-0"	= 128 BD. FT.	
" " "	4 "	2"×8"×4'-0"	= 22 "	
Stringers	2 Pcs.	2"×14"×10'-4"	= 48 BD. FT.	
"	4 "	2"×14"×10'-6"	= 98 "	
"	4 "	2"×14"×15'-6"	= 144 "	
"	4 "	2"×14"×18'-0"	= 168 "	
"	4 "	2"×14"×20'-0"	= 187 "	
"	2 "	2"×14"×20'-8"	= 96 "	
"	4 "	2"×14"×21'-0"	= 196 "	
Spreaders	36 "	1"×12"×1'-8"	= 42 "	
"	8 "	1"×14"×2'-8"	= 25 "	
"	12 "	1"×14"×10'-0"	= 140 "	
Carriers	21 "	2"×4"×4'-4 1/8"	= 61 "	
Sills	2 "	6"×8"×5'-0"	= 40 "	
TOTAL TREATED TIMBER			1395 BD. FT.	
ITEM 60a PILING TREATED 4 PCS. @ 18 LIN. FT. = 72 LIN. FT.				
BOLTS AND WASHERS				

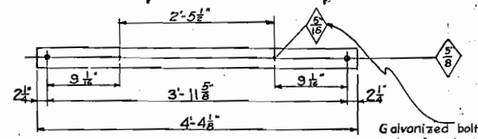
LOCATION	ITEM	SIZE	NO.	LENGTH	WT. EACH	TOTAL WT.
Stringers to carriers	Bolts	5/8"	38	16"	1.74 LBS.	66 LBS.
" " " struts	"	5/8"	8	18 1/2"	1.78 "	14 "
" " struts	"	5/8"	8	18"	1.74 "	14 "
" transverse	"	5/8"	166	10"	1.08 "	179 "
Sills to piles	Drift Pin	3/4"	4	18"	2.25 "	9 "
Washers-std-C.I.O.G.	Washers	5/8"	340		0.65 "	221 "
TOTAL HARDWARE						503 LBS.

ITEM 48 STRUCTURAL STEEL			
End Plates "A"	4 Pcs.	6"×3/4"×0'-8" @ 15.3 LB/FT	= 41 LBS.
Plate Washers "B"	56 "	3"×3/8"×0'-6 1/2" @ 3.83 "/"	= 116 "
" " "C"	4 "	3"×3/8"×0'-6" @ 3.83 "/"	= 10 "
Braces	20 "	2 1/2"×3/8"×8'-0" @ 2.125 "/"	= 340 "
Struts (assembly)	2 "	@ 450 LB. EA.	= 900 "
Tension rods	4	1" φ × 32'-5 1/8" @ 2.670 "/"	= 346 "
" "	4	1" φ × 35'-5 1/8" @ 2.670 "/"	= 382 "
Turnbuckles	4	1" φ	@ 8.00 LB. EA. = 32 "
Hex. Nuts	8	1" φ	@ 1.50 " = 12 "
			★ TOTAL 2179 LBS.
			±1 1/2% OVERRUN 31 "
			TOTAL STRUCT. STEEL 2210 LBS ★
Item 56 - No. 42 Simplex Flume or equivalent = 66 Lin. Ft.			
56a - 2 Transfers for " " " = 2 Pieces			

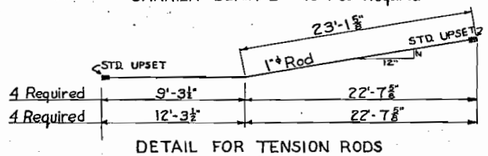
★ Bolts for timber not included in weight of structural steel.



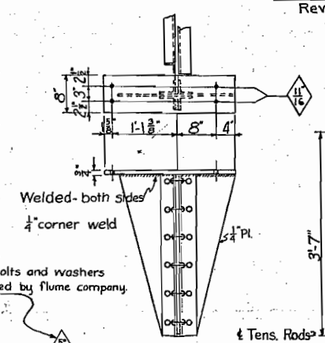
DETAIL FOR 2 1/2"×1/4" STEEL BRACE
8 Pcs. Set O Required 12 Pcs. Set M Required

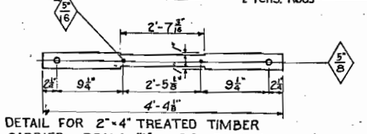


DETAIL FOR 2"×4" TREATED TIMBER
CARRIER BEAM "B" 13 Pcs. Required

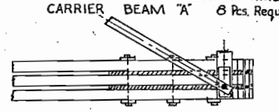


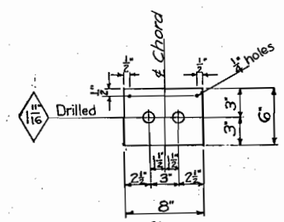
DETAIL FOR TENSION RODS
Furnish 4 of each with 8 Hex. nuts and 4 Turnbuckles.



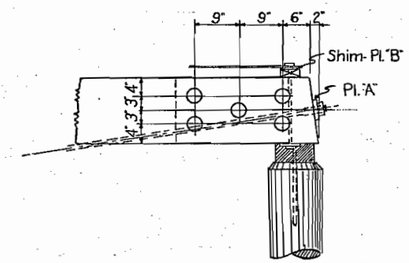


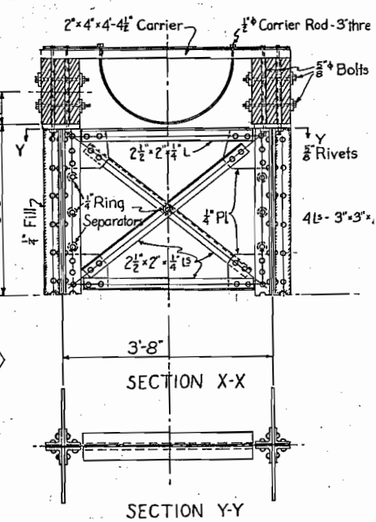
DETAIL FOR 2"×4" TREATED TIMBER
CARRIER BEAM "A" 8 Pcs. Required





DETAIL FOR 3/4" STEEL END PLATE "A"
4 Required





SECTION X-X

SECTION Y-Y

GENERAL NOTES
CONTINUED FROM SHEET 4.

All work shall be done according to the standard specifications of The Colorado State Highway Department.

All timber and piling shall be treated and full-sawed.

All timber and piling shall be dense southern yellow pine or west coast douglas fir.

All cut surfaces or bored holes in treated timber or piles shall be thoroughly saturated with hot creosote oil.

All bolts more than 12 inches long must be threaded not less than 4 inches.

Bolts in the finished structure shall not project more than one half inch beyond the nut.

All bolts not shown with a plate washer shall have a std. C.I.O.G. or Malleable Cast washer under each head and nut.

Bolt lengths are calculated for timber thickness and and for kind of washers shown on details. The contractor is cautioned to check bolt lengths before ordering because of variations in timber and piling.

Bid price for treated timber shall include cost of all bolts, drift pins and C.I.O.G. washers.

All structural steel including 2 1/2"×1/4" steel braces shall be painted as follows:

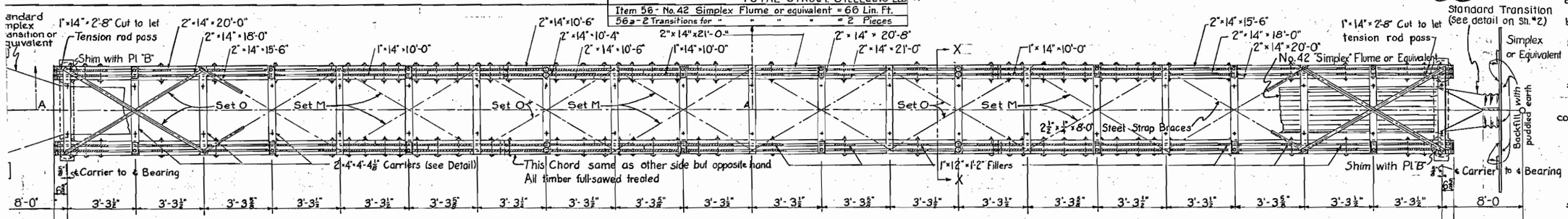
Shop coat as per article 191 of specifications.
Field " " " " " " "

The engineer must give the elevations for top of stringers at each end of structure after material is delivered on the job. These elevations must be compatible with the grades and alignement of the type of conveyor at either end of the flume.

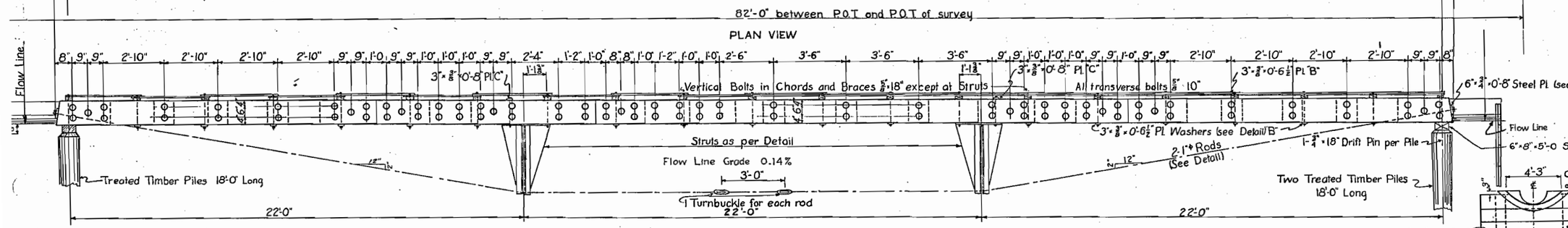
Hydraulic properties of the flume as designed:
Q = 3.25 sec. ft. A = 1.06 sq. ft V = 3.06 ft./sec.
n = 0.012 s = 0.0014 freeboard = 4"

REFERENCE DRAWINGS

For summary of quantities in flume structure see sheet 4.
For details of bridge at location of present flume structure see sheets 5, 6, and 7.
For location on project see plan and profile sheet 23

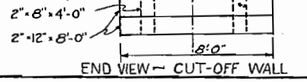


PLAN VIEW



HALF SECTIONAL ELEVATION A-A

HALF SIDE ELEVATION



END VIEW — CUT-OFF WALL

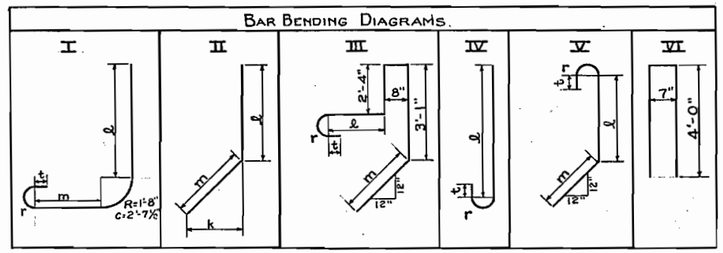
NAILING DIRECTIONS
Cut-off wall: two 10d nails per 2"×12" per 2"×8"
Plate "B" one 10d nail per plate.
Plate "A" two 10d nails per plate.

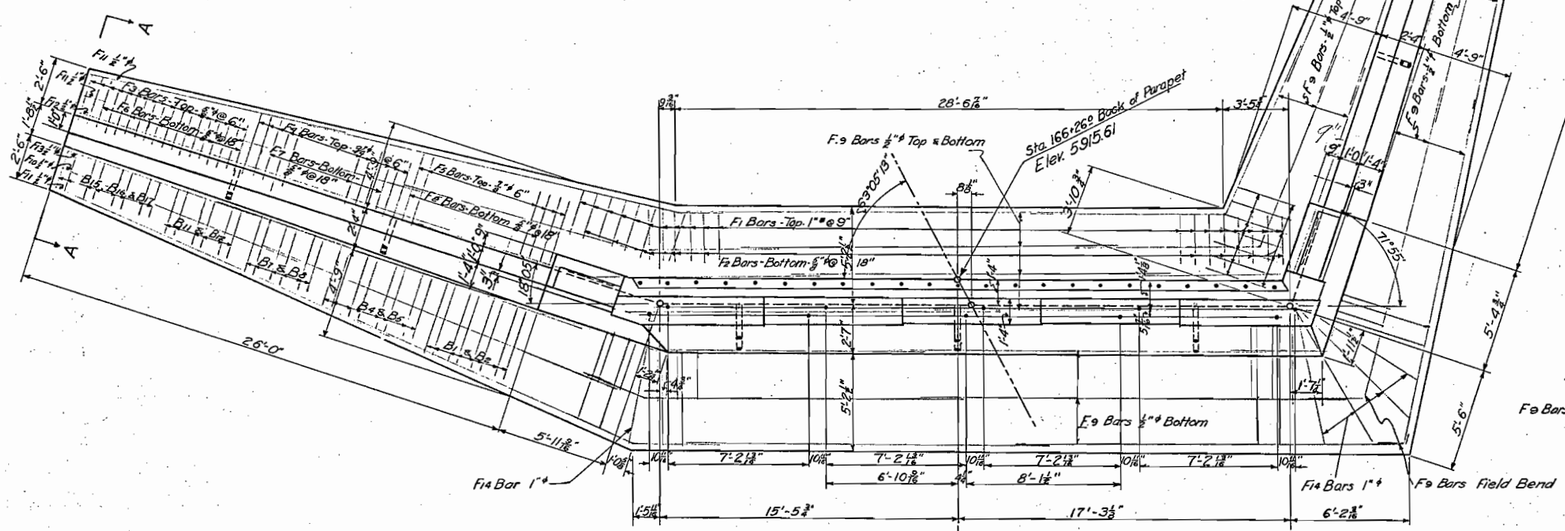
COLORADO STATE HIGHWAY DEPARTMENT
DETAILS FOR 66-FT. SPAN TRUSS SUPPORT FOR 2-FT. SEMI-CIRCULAR FLUME FOR IRRIGATION WATER.
Across Dry Cedar Wash
Sta. 45' East of Sta. 106+50
Near Montrose Sec. 4/5 T. 48 N R. 9 W N.M.P.M.

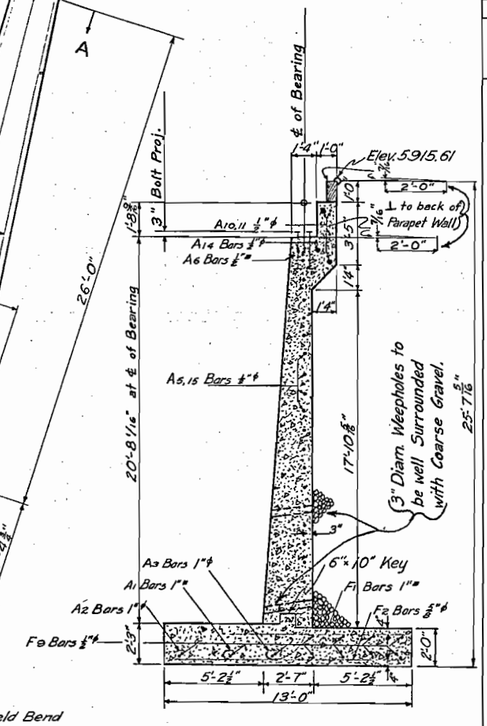
Designed by RMA
Made by N.J.C.
Check Design E.D.W.
Check Detail RMA
Approved by P. D. Bailey, Bridge Engineer
Date: Jan. 31st 1936

Revised Feb. 17, 1936 3" reveal o/c wingwall
Deflection

FED. ROAD DIST. NO.	STATE	FED. AID PROJ.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293-D	9	





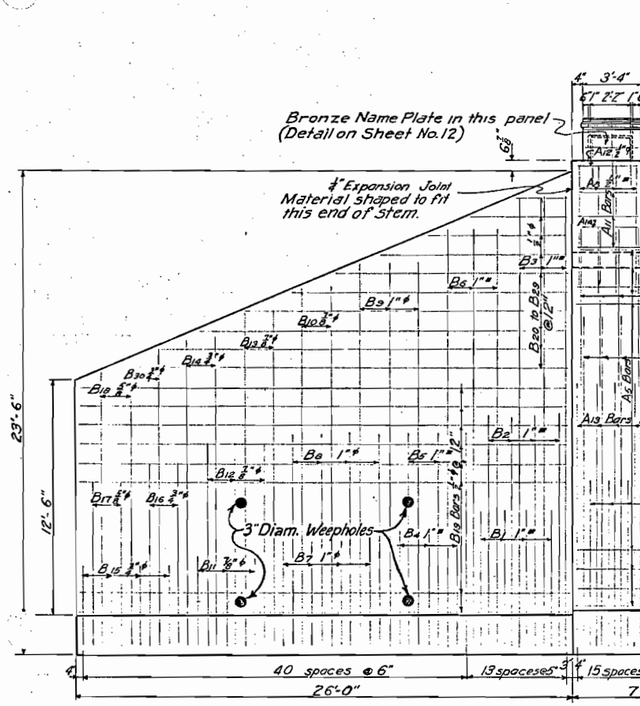


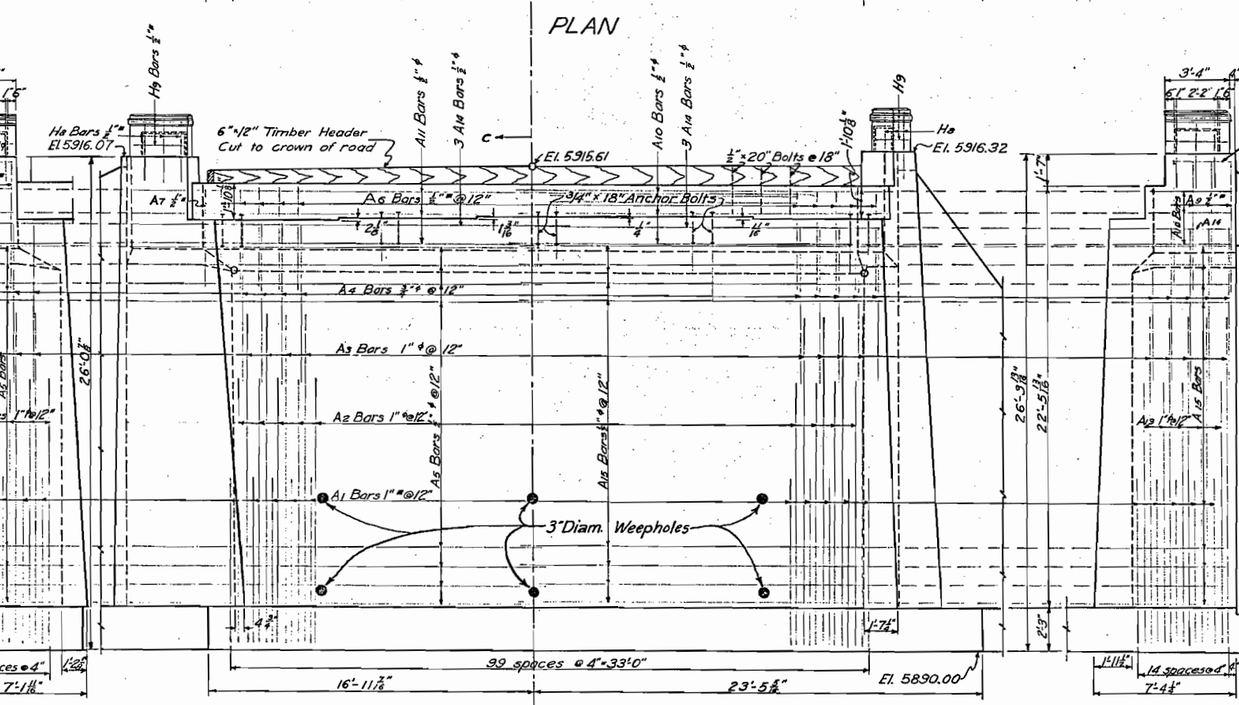
BAR LIST FOR ABUTMENT No. 1

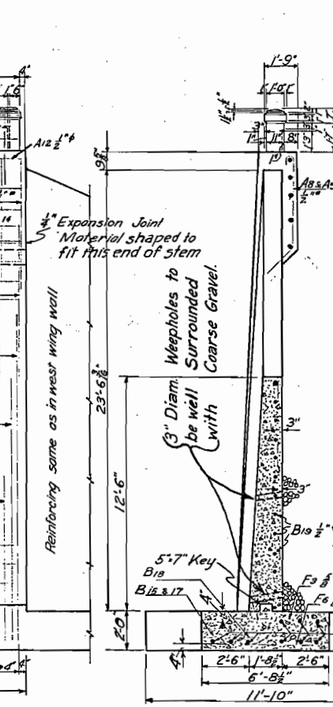
MARK	SIZE	TYPE	NUMBER	LENGTH	ℓ	m	r	t	
A1	1"□	I	44	13'-9½"	7'-0"	2'-10"	4"	3½"	
A2	1"ϕ	I	33	21'-6"	12'-4"	5'-2½"	4"	3½"	
A3	1"ϕ	I	44	20'-1½"	15'-9"	0'-5"	4"	3½"	
A4	¾"ϕ	—	44	7'-7"					
A5	½"ϕ	II	20	22'-8"	17'-0"	5'-8"			1'-5
A6	½"□	III	33	10'-9"	1'-2"	2'-10"	2"	2"	
A7	½"□	III	1	10'-5"	0'-10"	2'-10"	2"	2"	
A8	½"□	V	4	6'-6"	4'-1"	1'-9"	2"	2"	
A9	½"□	V	4	6'-9"	4'-4"	1'-9"	2"	2"	
A10	½"ϕ	II	4	22'-7"	18'-7"	4'-4"			4'-
A12	½"ϕ	—	2	3'-0"					
A13	1"ϕ	I	11	20'-9½"	12'-4"	4'-6"	4"	3½"	
A14	½"ϕ	—	6	18'-0"					
A15	½"ϕ	II	20	23'-3"	18'-0"	5'-3"			4'-
B1	1"□	I	8	13'-4½"	5'-6"	3'-11"	4"	3½"	
B2	1"□	I	8	17'-4½"	10'-6"	3'-11"	4"	3½"	
B3	1"□	I	6	26'-7½"	22'-0"	8"	4"	3½"	
B4	1"□	I	6	11'-8½"	4'-6"	3'-3"	4"	3½"	
B5	1"□	I	6	16'-8½"	9'-6"	3'-3"	4"	3½"	
B6	1"□	I	6	24'-10½"	20'-4"	0'-7"	4"	3½"	
B7	1"ϕ	I	8	10'-8½"	4'-0"	2'-9"	4"	3½"	
B8	1"ϕ	I	8	16'-2½"	9'-6"	2'-9"	4"	3½"	
B9	1"ϕ	I	6	22'-11½"	18'-6"	0'-6"	4"	3½"	
B10	⅞"ϕ	I	4	21'-5½"	17'-4"	0'-4"	3½"	3"	
B11	⅞"ϕ	I	6	9'-1"	3'-0"	2'-3½"	3½"	3"	
B12	⅞"ϕ	I	6	15'-1"	9'-0"	2'-3½"	3½"	3"	
B13	⅞"ϕ	I	4	20'-1"	16'-0"	0'-3½"	3½"	3"	
B14	¾"ϕ	I	4	18'-9"	14'-9"	0'-2½"	3"	2½"	
B15	¾"ϕ	I	8	8'-2"	2'-9"	1'-7½"	3"	2½"	
B16	¾"ϕ	I	4	13'-3"	8'-0"	1'-7½"	3"	2½"	
B17	⅝"ϕ	I	4	12'-1"	7'-0"	1'-7½"	2½"	2"	
B18	⅝"ϕ	I	4	16'-4"	12'-9"	0'-1½"	2½"	2"	
B19	½"ϕ	—	26	25'-5"					
B20	½"ϕ	—	2	23'-8"					
B21	½"ϕ	—	2	21'-3½"					
B22	½"ϕ	—	2	18'-11¼"					
B23	½"ϕ	—	2	16'-7"					
B24	½"ϕ	—	2	14'-2½"					
B25	½"ϕ	—	2	11'-10"					
B26	½"ϕ	—	2	9'-5¾"					
B27	½"ϕ	—	2	7'-1½"					
B28	½"ϕ	—	2	4'-9"					
B29	½"ϕ	—	2	2'-4½"					
B30	¾"ϕ	I	2	17'-9½"	14'-0"	0'-2"	3"	2½"	
F1	1"□	IV	59	10'-1"	8'-9"		4"	3½"	
F2	⅝"ϕ	IV	31	8'-2"	7'-4"		2½"	2"	
F3	⅝"ϕ	IV	36	6'-2"	5'-4"		2½"	2"	
F4	¾"ϕ	IV	34	7'-6½"	6'-6½"		3"	2½"	
F5	⅞"ϕ	IV	34	9'-2"	8'-0"		3½"	3"	
F6	⅝"ϕ	IV	12	6'-2"	5'-4"		2½"	2"	
F7	⅝"ϕ	IV	8	6'-10"	6'-0"		2½"	2"	
F8	⅝"ϕ	IV	12	7'-6"	6'-8"		2½"	2"	
F9	½"ϕ	—	43	20'-0"					
F10	½"ϕ	—	3	13'-6"					
F11	½"ϕ	—	3	19'-6"					
F12	½"ϕ	—	2	20'-6"					
F13	½"ϕ	—	1	10'-6"					
F14	1"ϕ	IV	5	10'-10"	9'-6"		4"	3½"	
H8	½"□	VI	6	8'-7"					
H9	½"□	—	10	3'-0"					
A11	½"ϕ	II	4	22'-7"	18'-10"	3'-9"			1'-2

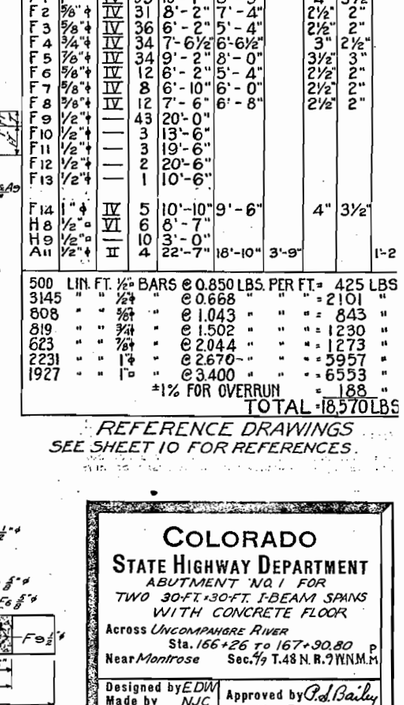
500	LIN. FT.	½"ϕ	BARS @ 0.850	LBS. PER FT.	=	425 LBS
3145	" "	½"ϕ	" @ 0.668	" "	=	2101 "
808	" "	⅝"ϕ	" @ 1.043	" "	=	843 "
819	" "	¾"ϕ	" @ 1.502	" "	=	1230 "
623	" "	⅞"ϕ	" @ 2.044	" "	=	1273 "
2231	" "	1"ϕ	" @ 2.670	" "	=	5957 "
1927	" "	1"□	" @ 3.400	" "	=	6553 "
			±1% FOR OVERRUN		=	188 "
				TOTAL	=	18,570 LBS

REFERENCE DRAWINGS
SEE SHEET 10 FOR REFERENCES.









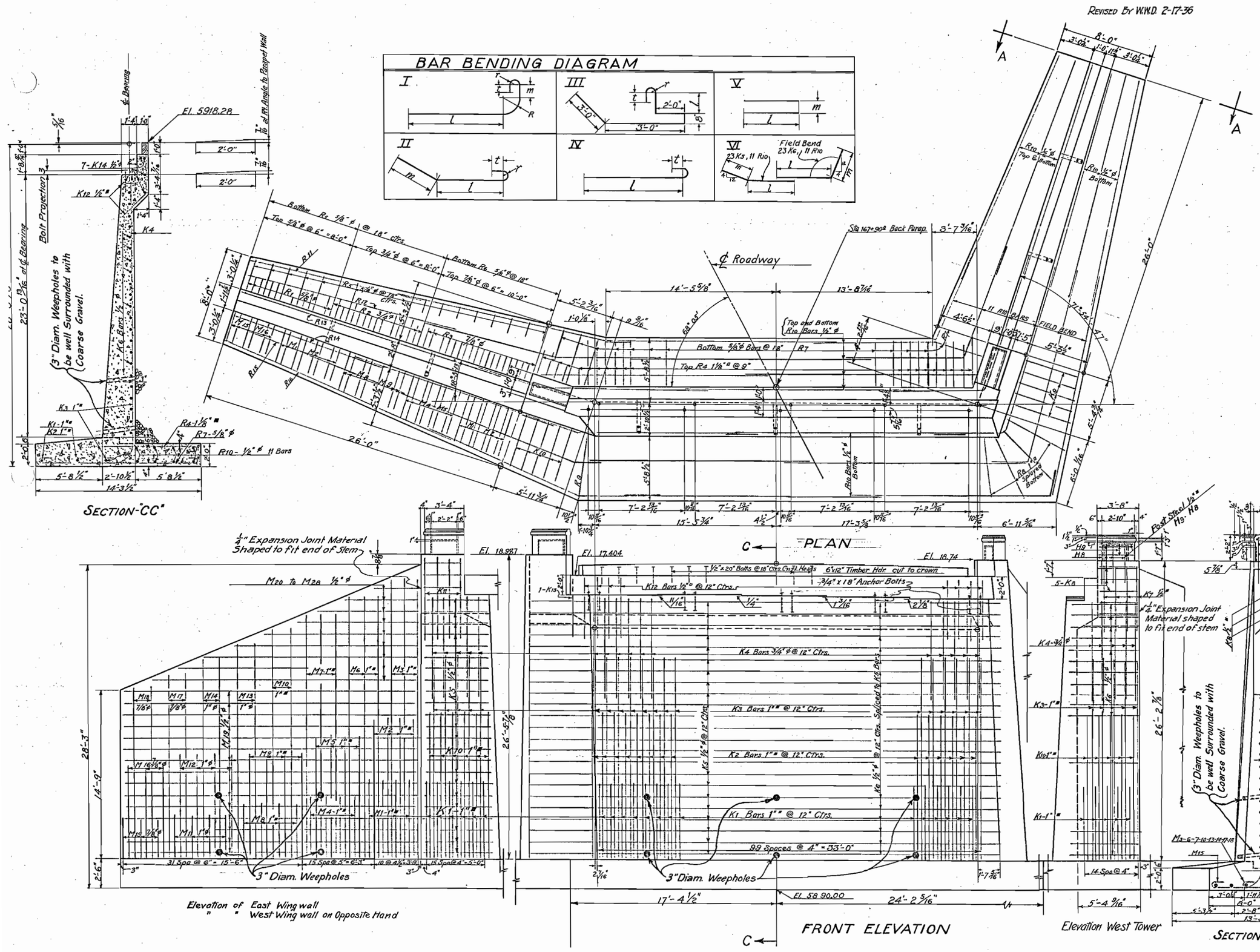
COLORADO
STATE HIGHWAY DEPARTMENT
ABUTMENT NO. 1 FOR
TWO 30-FT.+30-FT. I-BEAM SPANS
WITH CONCRETE FLOOR
Across UNCOMPAHGRE RIVER
Sta. 166+26 to 167+90.80
Near Montrose Sec. 19 T. 48 N. R. 9 W. N.M.P.M.

Designed by E.D.W.
Made by N.J.C.
Check Design R.M.A.
Check Detail P.D.W.

Approved by Ped Bailey
Bridge Engineer
Date: Jan. 31st 1936

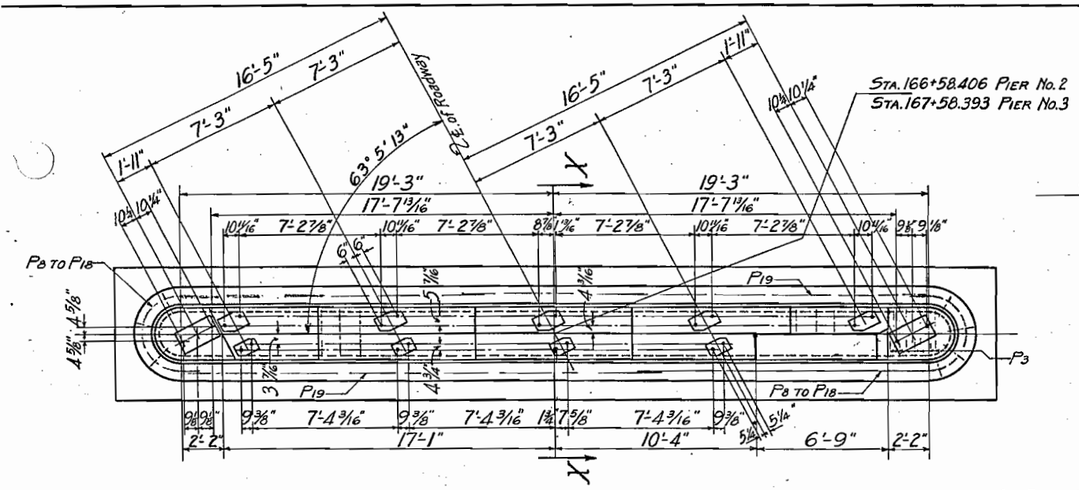
K-5-M

FED. ROAD DIST. NO.	STATE	W.M.P.H.	SHEET NO.	TOTAL SHEETS
3	COLO.	293-D	10	

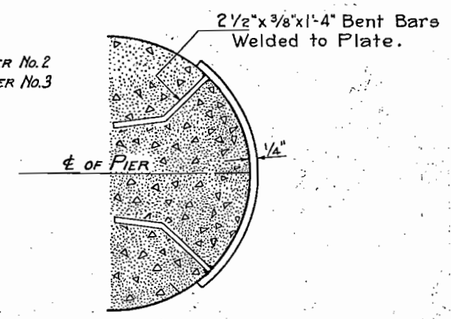

Revised By W.H.D. 2-17-36
BAR BENDING DIAGRAM
SECTION-"CC"
PLAN
FRONT ELEVATION
Elevation of East Wing wall
" " West Wing wall on Opposite Hand
Elevation West Tower
SECTION A-A
℄ Roadway
3" Diam. Weepholes to be well Surrounded with Coarse Gravel.
3" Diam. Weepholes
1/4" Expansion Joint Material Shaped to fit end of Stem
1/4" Expansion Joint Material shaped to fit end of stem
99 Spaces @ 4" = 33'-0"
Sta 167+90.8 Back Parap.
El. 5918.28
El. 18.987
El. 17.404
El. 18.74
El. 58 90.00
Field Bend
23 Ks, 11 R10
Top and Bottom R10 Bars 1/2" ϕ
Bottom 5/8" ϕ Bars @ 18" R7
Top R4 1 1/8" ϕ @ 9"
Bottom R8 5/8" ϕ @ 18" Ctrs.
Top 5/8" ϕ @ 6" = 8'-0"
Top 3/4" ϕ @ 6" = 8'-0"
Top 7/8" ϕ @ 6" = 10'-0"
Bottom R6 5/8" ϕ @ 18"
R10 - 1/2" ϕ 11 Bars
K4 Bars 3/4" ϕ @ 12" Ctrs.
K3 Bars 1" ■ @ 12" Ctrs.
K2 Bars 1" ■ @ 12" Ctrs.
K1 Bars 1" ■ @ 12" Ctrs.
K12 Bars 1/2" ϕ @ 12" Ctrs.
1/2" x 20" Bolts @ 18" Ctrs. Cut Hexagon Heads
6" x 12" Timber Hdr. cut to crown
3/4" x 18" Anchor Bolts
Bolt Projection
7-K14 1/2" ■
K12 1/2" ■
K4
K6 Bars 1/2" ϕ
K3 1" ■
K1-1" ■
K2 1" ■
R4-1 1/8" ■
R7-5/8" ϕ
R10-1/2" ϕ 11 Bars
31 Spa @ 6" = 15'-6"
13 Spa @ 5" = 6'-3"
10 @ 4 1/2" = 3'-9"
13 Spa @ 4" = 5'-0"
14 Spa @ 4"
Post Steel 1/2" ■ H9, H8
3" Diam. Weepholes to be well Surrounded with Coarse Gravel.
M3-6-7-10-13-14-17-18
M15
R1
R10
R5-5/8" ϕ
Ra Spaced Bottom
R10 Bars 1/2" ϕ Bottom
R10 1/2" ϕ Top & Bottom
R10 1/2" ϕ Bottom
11 R10 Bars - Field Bend
Ra-1 1/8" ■
Ra-1 1/8" ■ Spaced Bottom
K7-Bent
K8
H9
H8
K7 1/2"
K4-3/4" ϕ
K3-1" ■
K10 1" ■
K1-1" ■
K7 1/2" ϕ
K8-1/2" ■
M19
M20 to M28 1/2" ϕ
K11
K10 1" ■
K5 1/2" ϕ
M10
M2 1" ■
M5 1" ■
M8 1" ■
M4-1" ■
M1-1" ■
K1-1" ■
M16 7/8" ϕ
M12 1" ϕ
M19 7/8" ϕ
M11 1" ϕ
M7-1" ■
M6 1" ■
M3 1" ■
M14
M13
M17
M18
7/8" ϕ
1" ϕ
1" ■
1/2" ϕ
K5 1/2" ϕ
K3 1/2" ϕ @ 12" Ctrs.
K6 1/2" ϕ @ 12" Ctrs. Spliced to K5 Bars
K4-3/4" ϕ
K3-1" ■
K10 1" ■
K1-1" ■
K8
K7-Bent
M19
M15
R1
R10
R5-5/8" ϕ
Ra
H9
H8

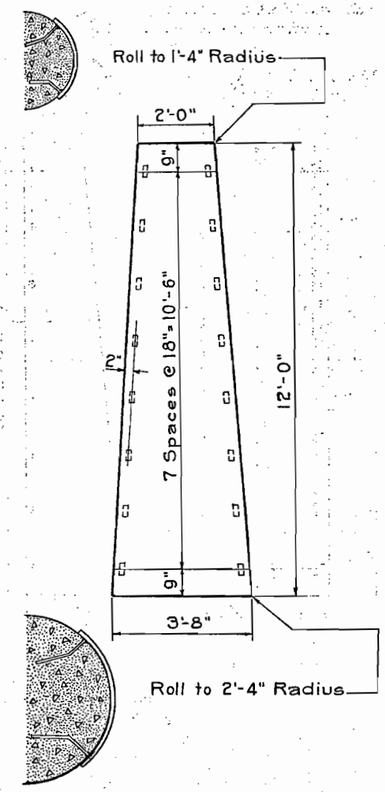
FED. ROAD DIST. NO.	STATE	W.P.M.H.	SHEET NO.	TOTAL SHEETS
3	COLO.	293-D	11	

Revised March 4, 1936 by P.D.W. Starkwater Changed.



PLAN OF PIERS No. 2 & No. 3





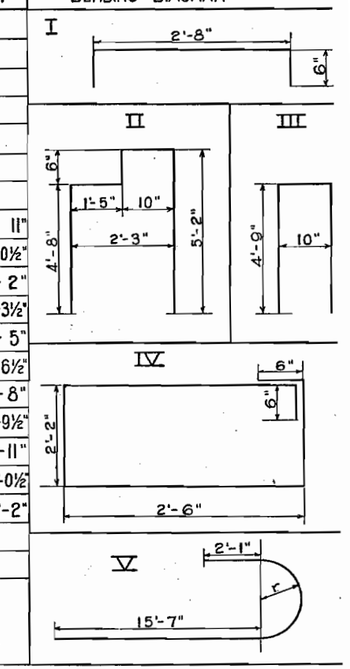
DETAILS FOR STARKWATER
ONE REQ'D. ON UPSTREAM END OF BOTH PIERS.
STRUCTURAL STEEL AS SHOWN

BAR LIST FOR TWO PIERS

A.D.N.

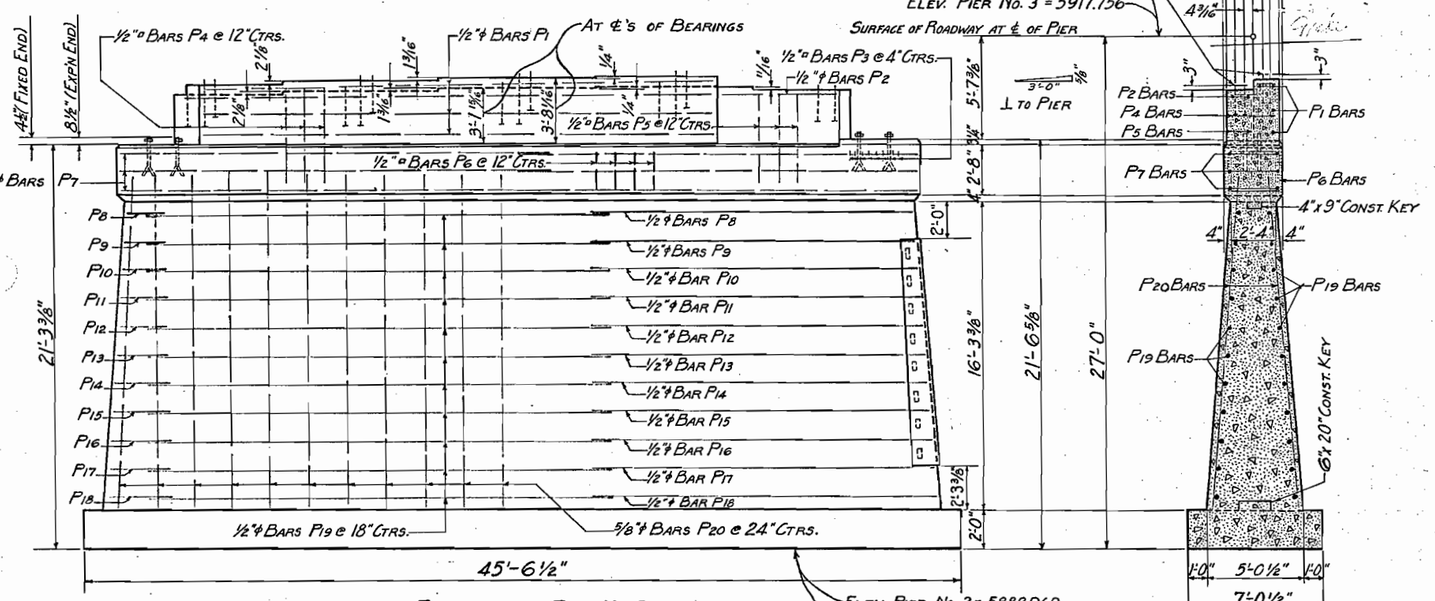
MARK	SIZE	TYPE	NUMBER	LENGTH	r
P1	1/2"ϕ	—	8	26'-5"	
P2	1/2"ϕ	—	4	33'-8"	
P3	1/2"□	I	32	3'-8"	
P4	1/2"□	II	54	12'-7"	
P5	1/2"□	III	14	10'-4"	
P6	1/2"□	IV	78	10'-4"	
P7	1/2"ϕ	—	24	20'-4"	
P8	1/2"ϕ	V	4	20'-6"	11"
P9	1/2"ϕ	V	4	20'-11"	1'-0 1/2"
P10	1/2"ϕ	V	4	21'-4"	1'-2"
P11	1/2"ϕ	V	4	21'-8"	1'-3 1/2"
P12	1/2"ϕ	V	4	22'-1"	1'-5"
P13	1/2"ϕ	V	4	22'-6"	1'-6 1/2"
P14	1/2"ϕ	V	4	22'-10"	1'-8"
P15	1/2"ϕ	V	4	23'-3"	1'-9 1/2"
P16	1/2"ϕ	V	4	23'-8"	1'-11"
P17	1/2"ϕ	V	4	24'-1"	2'-0 1/2"
P18	1/2"ϕ	V	4	24'-5"	2'-2"
P19	1/2"ϕ	—	44	25'-0"	
P20	5/8"ϕ	—	94	17'-8"	

BENDING DIAGRAM



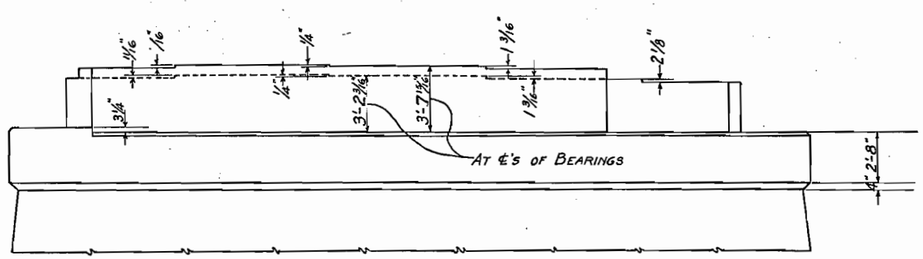
1748 LIN. FT. 1/2"□ BARS @ 0.850 LBS. PER. LIN. FT. = 1485 LBS.
2923 " " 1/2"ϕ " @ 0.668 " " " " = 1953 "
1661 " " 5/8"ϕ " @ 1.043 " " " " = 1732 "
±1% FOR OVERRUN = 50 "
TOTAL = 5220 LBS.

REFERENCE DRAWINGS
Sheet No. 4 General Layout, General Notes, & Summary of Quantities.
Sheet No. 9 Details of Abutment No. 1.
Sheet No. 10 Details of Abutment No. 4.
Sheet No. 12 Details of Superstructure, I-Beam Conc. Spans
Sheet No. 13 Details of Superstructure, 100' Low Steel Truss
Sheet No. 25 Plan & Profile Sheet.

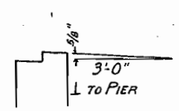


ELEVATION OF PIER No. 2
SEEN FROM ℄ OF STREAM
PIER No. 3 SIMILAR EXCEPT STRINGER SEATS

SECTION X-X
PIER No. 2
PIER No. 3 SIMILAR EXCEPT
SLOPE OF STRINGER SEATS



PART ELEVATION OF PIER No. 3
SEEN FROM ℄ OF STREAM



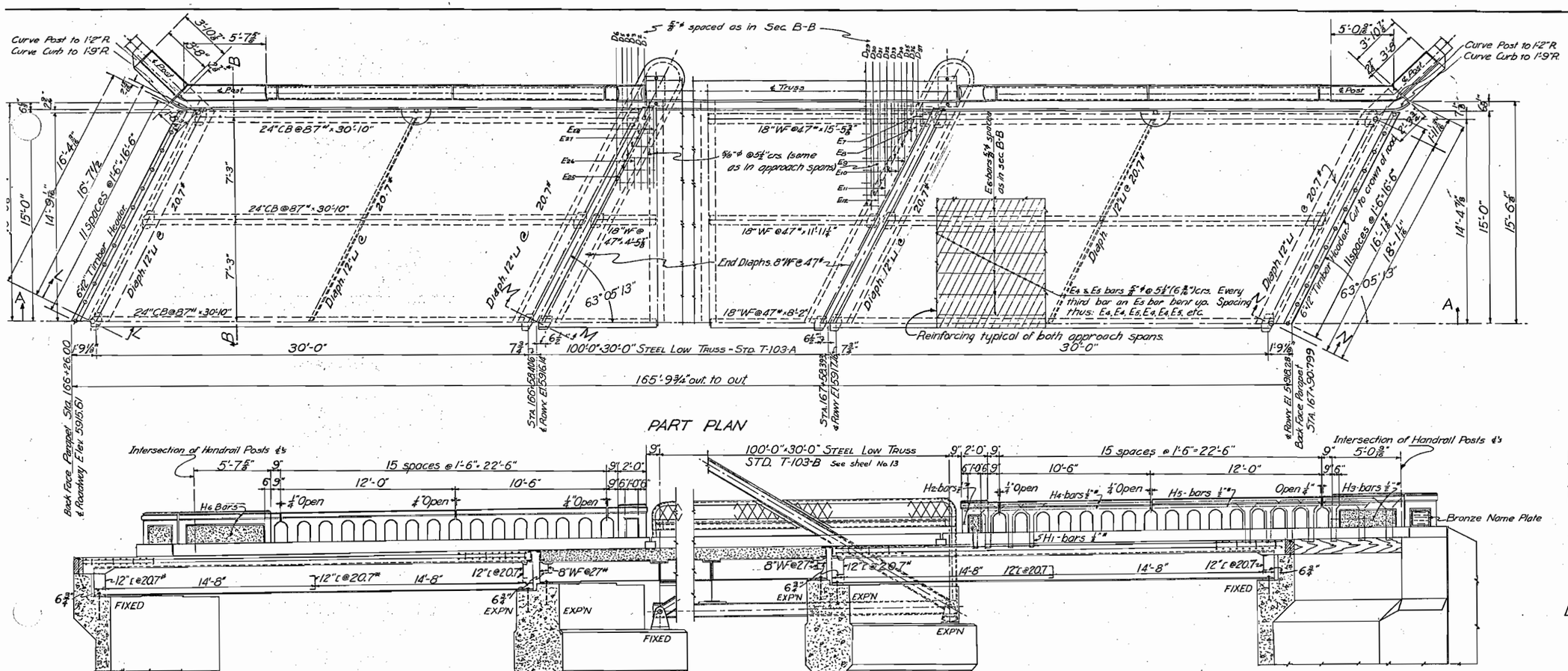
PART SECTION
PIER No. 3

LOADING DATA.
LIVE LOAD=A.A.S.H.O. 1935, CLASS A. (H-15)
DEAD LOAD=ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE WHICH INCLUDES THE ¾ IN. CONCRETE MONOLITHIC WEARING SURFACE SHOWN.

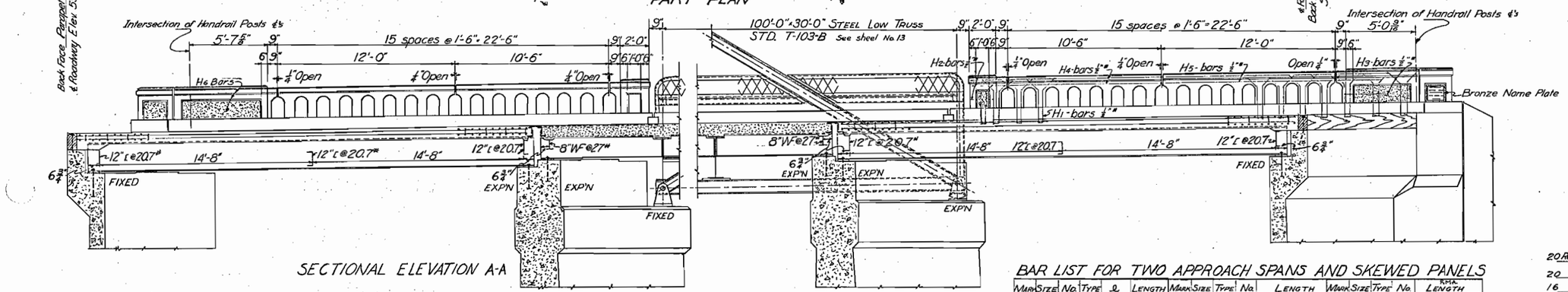
COLORADO
STATE HIGHWAY DEPARTMENT
DETAILS FOR PIERS No. 2 & No. 3
FOR 1 SPAN @ 100' LOW STEEL TRUSS
& 2 @ 30' I-BEAM CONC.
Across Uncompahgre River
Sta. 166+26.0 to 167+90.8
Near Montrose Sec. 1/2 T. 48 N. R. 9 W.

Designed by R.M.A.	Approved by P. A. Bailey
Made by P.D.W.	Bridge Engineer
Check Design	Date: Jan. 31st 1936
Check Detail A.D.N.	

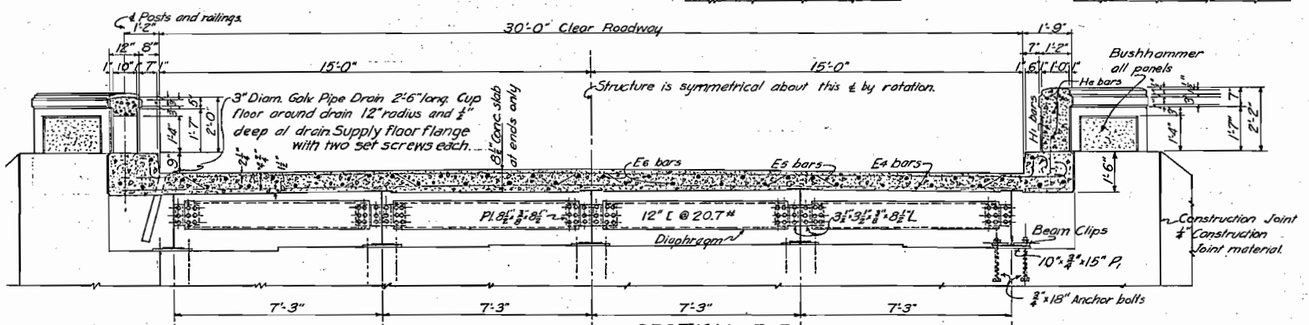
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	WPMH 293-D	12	



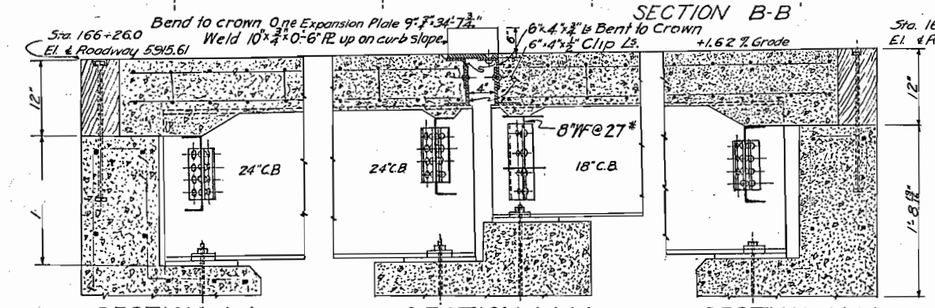
PART PLAN



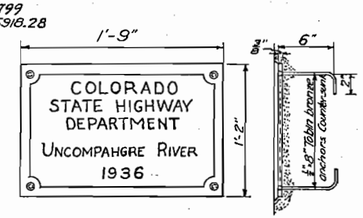
SECTIONAL ELEVATION A-A



SECTION B-B



SECTION L-L SECTION M-M SECTION N-N

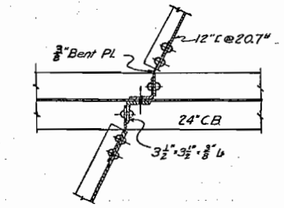


DETAIL OF NAME PLATE

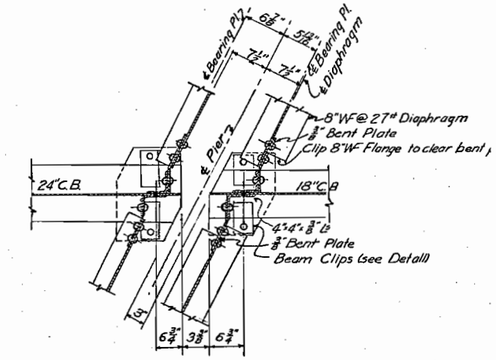
BRONZE - ONE REQUIRED

Place Name Plate in panel of designated end post, sheet 9.
Letters and border to be raised 1/8".
Design of name plate shall be approved by Bridge Engr.

NOTE:- All rivets to be 3/4" Diam except as noted on Sheet. 13. All open holes to be 13/16".



DETAILS OF MIDDLE DIAPHRAGM CONNECTION



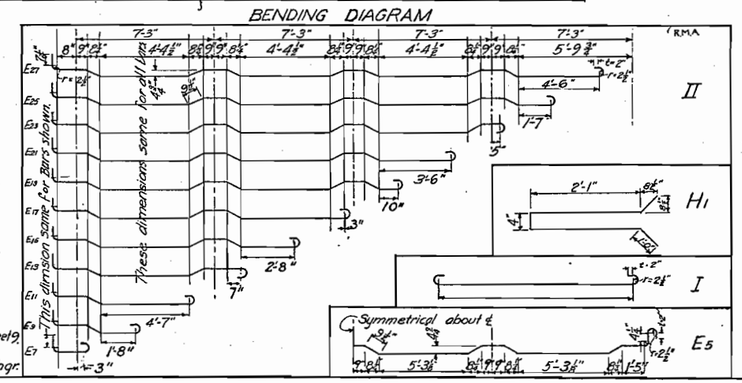
DETAILS OF END DIAPHRAGM CONNECTION

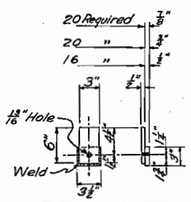
BAR LIST FOR TWO APPROACH SPANS AND SKEWED PANELS

MARK	SIZE	No.	TYPE	ℓ	LENGTH	MARK	SIZE	TYPE	No.	LENGTH	MARK	SIZE	TYPE	No.	RMA LENGTH
E6	5/8"φ	164	I	36'-9"	38'-5"	E17	5/8"φ	II	2	16'-9"	TO	2 each	at	5'Δ	
E6	5/8"φ	84	—		31'-2"	E19	5/8"φ	II	2	19'-9"	D17	7/8"φ	—	2	7'-3"
E8	5/8"φ	8	I	1'-11"	3'-7"	E21	5/8"φ	II	2	22'-5"	D18	7/8"φ	—	2	7'-6"
E10	5/8"φ	8	I	4'-8"	6'-4"	E23	5/8"φ	II	2	25'-2"	D19	7/8"φ	—	2	8'-0"
E12	5/8"φ	8	I	7'-4"	9'-0"	E25	5/8"φ	II	2	27'-11"	D20	7/8"φ	—	2	8'-4"
E14	5/8"φ	8	I	10'-2"	11'-10"	E27	5/8"φ	II	2	30'-10"	TO	2 each	at	5'Δ	
E16	5/8"φ	8	I	13'-0"	14'-8"	H1	1/2"□	H1	80	6'-6"	D26	5/8"φ	—	2	10'-10"
E18	5/8"φ	8	I	15'-5"	17'-4"	H2	1/2"□	—	16	2'-0"	D27	5/8"φ	—	2	11'-3"
E20	5/8"φ	8	I	18'-4"	20'-0"	H3	1/2"□	—	8	5'-2"	D28	5/8"φ	—	2	11'-9"
E22	5/8"φ	8	I	21'-0"	22'-8"	H4	1/2"□	—	16	10'-3"	D29	5/8"φ	—	2	12'-1"
E24	5/8"φ	8	I	23'-10"	25'-6"	H5	1/2"□	—	16	11'-9"	TO	2 each	at	5'Δ	
E26	5/8"φ	8	I	26'-6"	28'-2"	H6	1/2"□	—	8	5'-9"	D35	5/8"φ	—	2	14'-7"
E28	5/8"φ	8	I	29'-0"	30'-8"	D1	5/8"φ	—	2	0'-6"	D36	5/8"φ	—	2	14'-10"
E5	5/8"φ	40	E5		37'-9"	D2	5/8"φ	—	2	1'-0"	D37	5/8"φ	—	6	15'-6"
E7	5/8"φ	2	II		2'-8"	TO	2 each	at	0'5'Δ						
E9	5/8"φ	2	II		3'-8"	D8	5/8"φ	—	2	3'-6"					
E11	5/8"φ	2	II		8'-7"	D9	5/8"φ	—	2	3'-10"					
E13	5/8"φ	2	II		11'-3"	D10	5/8"φ	—	2	4'-4"					
E15	5/8"φ	2	II		14'-1"	D11	5/8"φ	—	2	4'-9" TO					

12.548	lin. ft. 5/8"φ =	13,088 lbs.
3.91	" " 1/2"□ =	842 "
	1% Overrun	140 "
	TOTAL	14,070 lbs.

BENDING DIAGRAM

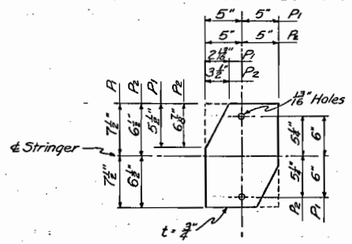




BEAM CLIPS

STRUCTURAL STEEL

Furnish with each beam clip one 3/4"×18" anchor bolt with one hex-nut.
56 anchors required.



BEARING PLATES

STRUCTURAL STEEL

20 Required	mark P_1
8 "	" P_2

REFERENCE DRAWINGS

General layout, summary of quantities, and general notes,	Sheet 4
Details for 100-foot Low Steel Truss,	Sheet 13
Details for abutment no. 1,	Sheet 9
Details for abutment no. 4	Sheet 10
Details for piers no. 2 & 3	Sheet 11
Plan and Profile	Sheet 25

LOADING DATA.

LIVE LOAD=A.A.S.H.O. 1935, CLASS A. (H-15
DEAD LOAD=ASSUMES 15 LBS. PER SQ. FT.
ADDITIONAL WEARING SURFACE WHICH INCLUDES THE 3/4 IN. CONCRETE MONOLITHIC WEARING SURFACE SHOWN

COLORADO
STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE FOR
TWO 30-FT.×30-FT. I-BEAM SPANS
WITH CONCRETE FLOOR
Across UNCOMPAHGRE RIVER
Sta. 166+26.0 TO 167+90.8
Near MONTROSE Sec. 4/9 T.48 N. R.9 W N.M.P.M.

Designed by RMA.
Made by N.J.C.
Check Design N.J.C.
Check Detail PWSAN

Approved by R. J. Bailey
Bridge Engineer
Date: Jan. 31st, 1936

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293-D	13	

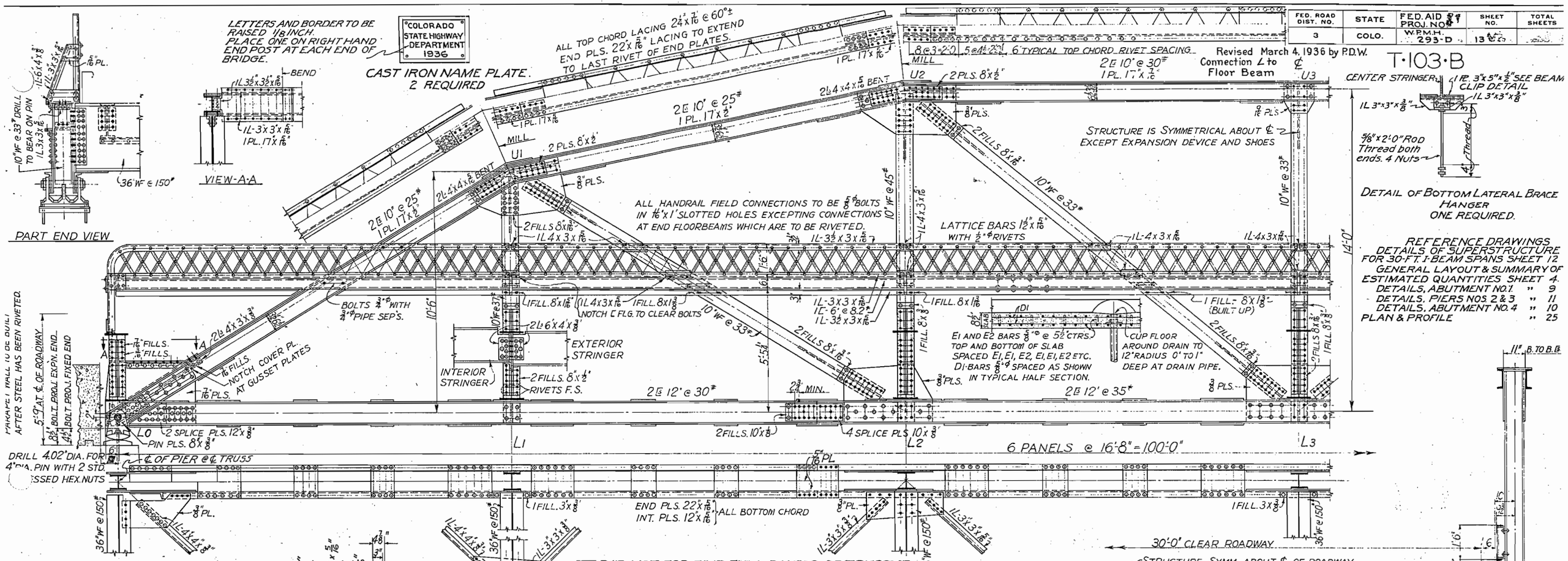
Revised March 4, 1936 by P.D.W.
Connection ∠ to Floor Beam

T·103·B

LETTERS AND BORDER TO BE RAISED 1/8 INCH. PLACE ONE ON RIGHT HAND END POST AT EACH END OF BRIDGE.

COLORADO STATE HIGHWAY DEPARTMENT 1936

CAST IRON NAME PLATE. 2 REQUIRED



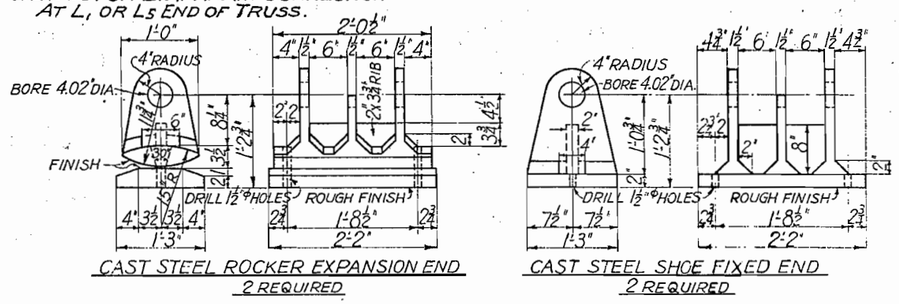
BAR LIST FOR FIVE FULL PANELS OF TRUSS BRIDGE FLOOR. FOR SKEW PANELS SEE SHEET 12

MARK	SIZE	NO.	LENGTH	BENDING DIAGRAMS.
D1	5/8" ϕ	200	16'-6"	STRAIGHT
E1	5/8" ϕ	242	32'-0"	30'-4"
E2	5/8" ϕ	60	32'-8"	SYMM. ABOUT ℄

13404 LIN. FT. OF 5/8" ϕ BARS @ 1.043 LBS. PER LIN. FT. = 13980 LBS.
PLUS 1% ± FOR OVERRUN = 140 LBS
TOTAL = 14120 LBS.

ESTIMATED QUANTITIES

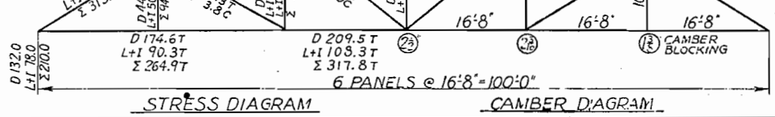
ITEM №	DESCRIPTION	UNIT	ONE SPAN	SPANS
46a	CONCRETE CLASS "A"	CU. YD.	84	
47	REINFORCING STEEL (INCLUDES 1% ± FOR OVERRUN)	LBS.	14120	
48	STRUCTURAL STEEL (INCLUDES 2½% ± FOR OVERRUN)	LBS.	137500	
89a	DRAIN PIPE (FLANGE INCLUDED) (GALVANIZED IRON)	EACH	12	



CAST STEEL ROCKER EXPANSION END
2 REQUIRED

CAST STEEL SHOE FIXED END
2 REQUIRED

FURNISH ALSO
8 ANCHOR BOLTS 1½" ϕ x 24" HEX. NUT-SQ. HD.
AND 8 CUT WASHERS (UNDER NUT)



STRESS DIAGRAM — CAMBER DIAGRAM

GENERAL NOTES CONTINUED.

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT ADOPTED AUGUST 1, 1935.
ALL RIVETS SHALL BE 3/4" ϕ EXCEPT IN HANDRAIL.
ALL FIELD CONNECTIONS SHALL BE POWER RIVETED.
ALL FIELD HOLES IN TOP AND BOTTOM CHORD SPLICES AND FLOORBEAM TO TRUSS CONNECTIONS TO BE SUB-PUNCHED 11/16" ϕ AND REAMED TO 13/16" ϕ. NO OTHER REAMING OTHER.
CONTRACTOR TO FURNISH ONE PILOT NUT & ONE DRIVING NUT-SEE SPECS. PA. 185
STRUCTURAL STEEL QUANTITIES ARE CALCULATED FROM DESIGN PLANS AND ARE THEREFORE APPROXIMATE ONLY.
A VERTICAL CONSTRUCTION JOINT IS REQUIRED TRANSVERSLY IN THE CONCRETE FLOOR OVER EACH FLOORBEAM EXCEPT END BEAMS.
~~* DETAILS OF SUBSTRUCTURE SEE SH~~
FOR DETAILS OF EXPANSION DEVICE SEE SHEET 12.

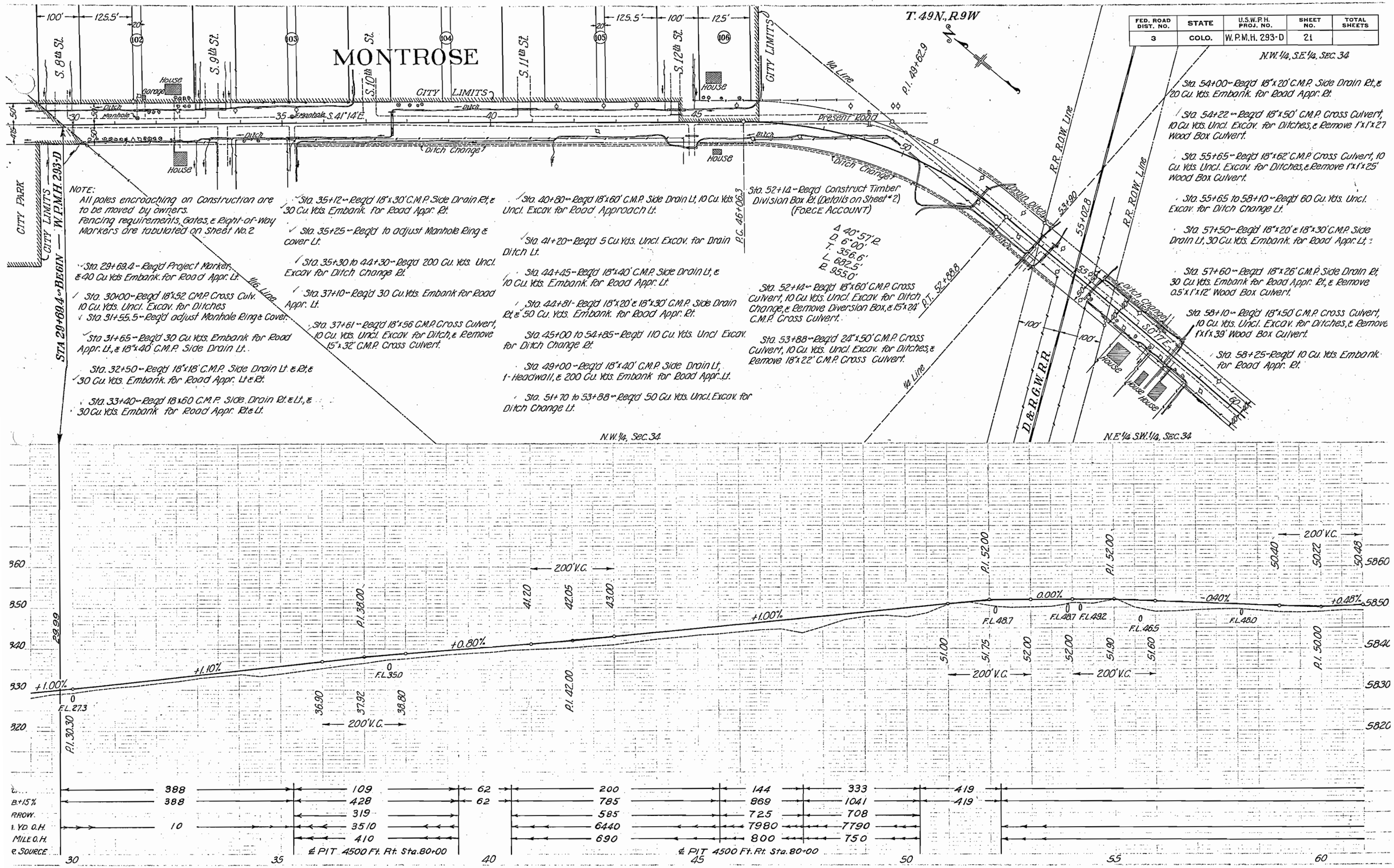
LOADING DATA.
LIVE LOAD A.A.S.H.O. AUG. 1935 CLASS A. H-15
DEAD LOAD ASSUMES 25 LBS. PER SQ. FT.
ADDITIONAL WEARING SURFACE WHICH INCLUDES THE 3/4 IN. CONCRETE MONOLITHIC WEARING SURFACE SHOWN.
EXCEPTIONS TO 1935 SPECIFICATIONS.
CONCRETE fc = 650 N = 15

COLORADO STATE HIGHWAY DEPARTMENT
100 FT. SPAN STEEL LOW TRUSS
30 FT. CLEAR ROADWAY
CONCRETE FLOOR
Across UNCOMPAHGRE RIVER.
Sta. 166+26.9 TO 167+90.799
Near MONTROSE Sec. 29 T.48N. R.9W N.M.P.M.

Designed by K.B.	Approved by Ord Bailey
Made by W.M.M.	Bridge Engineer
Check Design	Date: Jan. 31st, 1936
Check Detailing	

	INITIAL	DATE
ORIGINAL BY	RMA	1-27-36
CHECKED BY		
LAYOUT BY	RMA	1-27-36
CHECKED BY		

FED. ROAD DIST. NO.	STATE	U.S.W.P.H. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293-D	21	


MONTROSE
CITY LIMITS
S. 8th St.
S. 9th St.
S. 10th St.
S. 11th St.
S. 12th St.
House
Garage
Ditch
Manhole
Manhole S. 41°14'E.
Present Road
Ditch Change
Drain Ditch
Ditch Change
CITY PARK
CITY LIMITS
W.P.M.H. 293-D
STA 29+69.4 = BEGIN
1/4 Line
P.I. 49+62.9
T. 49N., R.9W
R.R. R.O.W. Line
D. & R.G.W.R.R.
S.37°E.
N.W. 1/4, S.E. 1/4, SEC. 34
N.W. 1/4, SEC. 34
N.E. 1/4 S.W. 1/4, SEC. 34
P.C. 46+06.3
P.T. 52+88.8
Δ 40°57'R
D. 6°00'
T. 356.6'
L. 682.5'
R. 955.0'
NOTE:
All poles encroaching on construction are to be moved by owners.
Fencing requirements, Gates, & Right-of-Way Markers are tabulated on Sheet No. 2
Sta. 29+69.4 - Req'd Project Marker, & 40 Cu. Yds. Embank. for Road Appr. Lt.
Sta. 30+00 - Req'd 18"x52' C.M.P. Cross Culv. 10 Cu. Yds. Uncl. Excav. for Ditches
Sta. 31+55.5 - Req'd adjust Manhole Ring & Cover.
Sta. 31+65 - Req'd 30 Cu. Yds. Embank for Road Appr. Lt., & 18"x40' C.M.P. Side Drain Lt.
Sta. 32+50 - Req'd 18"x18' C.M.P. Side Drain Lt. & Rt., & 30 Cu. Yds. Embank. for Road Appr. Lt. & Rt.
Sta. 33+40 - Req'd 18x60' C.M.P. Side Drain Rt. & Lt., & 30 Cu. Yds. Embank for Road Appr. Rt. & Lt.
Sta. 35+12 - Req'd 18"x30' C.M.P. Side Drain Rt., & 30 Cu. Yds. Embank. for Road Appr. Rt.
Sta. 35+25 - Req'd to adjust Manhole Ring & cover Lt.
Sta. 35+30 to 44+30 - Req'd 200 Cu. Yds. Uncl. Excav. for Ditch Change Rt.
Sta. 37+10 - Req'd 30 Cu. Yds. Embank for Road Appr. Lt.
Sta. 37+61 - Req'd 18"x56' C.M.P. Cross Culvert, 10 Cu. Yds. Uncl. Excav. for Ditch, & Remove 15"x32' C.M.P. Cross Culvert.
Sta. 40+80 - Req'd 18"x60' C.M.P. Side Drain Lt, 10 Cu. Yds. Uncl. Excav. for Road Approach Lt.
Sta. 41+20 - Req'd 5 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.
Sta. 44+45 - Req'd 18"x40' C.M.P. Side Drain Lt, & 10 Cu. Yds. Embank. for Road Appr. Lt.
Sta. 44+81 - Req'd 18"x20' & 18"x30' C.M.P. Side Drain Rt, & 50 Cu. Yds. Embank. for Road Appr. Rt.
Sta. 45+00 to 54+85 - Req'd 110 Cu. Yds. Uncl. Excav. for Ditch Change Rt.
Sta. 49+00 - Req'd 18"x40' C.M.P. Side Drain Lt, 1-Headwall, & 200 Cu. Yds. Embank for Road Appr. Lt.
Sta. 51+70 to 53+88 - Req'd 50 Cu. Yds. Uncl. Excav. for Ditch Change Lt.
Sta. 52+14 - Req'd Construct Timber Division Box Rt. (Details on Sheet #2) (FORCE ACCOUNT)
Sta. 52+14 - Req'd 18"x60' C.M.P. Cross Culvert, 10 Cu. Yds. Uncl. Excav. for Ditch Change, & Remove Diversion Box, & 15"x24' C.M.P. Cross Culvert.
Sta. 53+88 - Req'd 24"x50' C.M.P. Cross Culvert, 10 Cu. Yds. Uncl. Excav. for Ditches, & Remove 18"x22' C.M.P. Cross Culvert.
Sta. 54+00 - Req'd 18"x20' C.M.P. Side Drain Rt., & 20 Cu. Yds. Embank. for Road Appr. Rt.
Sta. 54+22 - Req'd 18"x50' C.M.P. Cross Culvert, 10 Cu. Yds. Uncl. Excav. for Ditches, & Remove 1'x1'x27' Wood Box Culvert.
Sta. 55+65 - Req'd 18"x62' C.M.P. Cross Culvert, 10 Cu. Yds. Uncl. Excav. for Ditches, & Remove 1'x1'x25' Wood Box Culvert.
Sta. 55+65 to 58+10 - Req'd 60 Cu. Yds. Uncl. Excav. for Ditch Change Lt.
Sta. 57+50 - Req'd 18"x20' & 18"x30' C.M.P. Side Drain Lt, 30 Cu. Yds. Embank. for Road Appr. Lt.
Sta. 57+60 - Req'd 18"x26' C.M.P. Side Drain Rt, 30 Cu. Yds. Embank for Road Appr. Rt., & Remove 0.5'x1'x12' Wood Box Culvert.
Sta. 58+10 - Req'd 18"x50' C.M.P. Cross Culvert, 10 Cu. Yds. Uncl. Excav. for Ditches, & Remove 1'x1'x39' Wood Box Culvert.
Sta. 58+25 - Req'd 10 Cu. Yds. Embank. for Road Appr. Rt.
House
House
House

FED. ROAD DIST. NO.	STATE	U.S.W.P.H. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293-D	22	

N.W.¼, S.E.¼, SEC. 34

T.49N., R.9W.

S.W.¼, S.E.¼, SEC. 34

LOT 3, SEC 4

LOT 6, SEC. 4

63+81 to 73+70 - Req'd 250 Cu. Yds. Uncl. Excav. for Ditch Change Lt.

Sta. 63+81 to 80+13 - Req'd 400 Cu. Yds. Uncl. Excav. for Ditch Change Rt.

Sta. 67+00 - Req'd 18"x30' & 18"x18' C.M.P. Side Drain, & 40 Cu. Yds. Embank for Road Appr. Lt.

Sta. 73+72 - Req'd 18"x60' C.M.P. Cross Culvert (No Hdwlls), & Remove 24"x31' C.M.P. Cross Culvert.

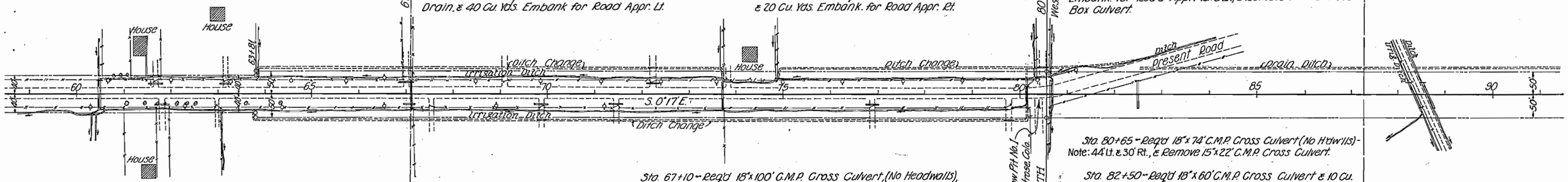
Sta. 74+91 to 84+00 - Req'd 250 Cu. Yds. Uncl. Excav. for Ditch Change Lt.

Sta. 76+87 - Req'd 18"x18' & 18"x30' C.M.P. Side Drain, & 20 Cu. Yds. Embank. for Road Appr. Rt.

Sta. 79+70 - Req'd 18"x18' C.M.P. Side Drain & 20 Cu. Yds. Embank. for Road Appr. Rt.

Sta. 80+13 - Req'd 18"x50' C.M.P. Cross Culvert & Remove 15"x24' C.M.P. Cross Culvert.

Sta. 80+30 - Req'd 18"x26' C.M.P. Side Drain Lt, 40 Cu. Yds. Embank. for Road Appr. Rt. & Lt., & Remove 1'x1'x18' Wood Box Culvert.



Sta. 60+50 - Req'd 18"x60' C.M.P. Cross Culvert, 10 Cu. Yds. Uncl. Excav. for Ditches, & Remove 18"x28' C.M.P. Cross Culvert.

Sta. 61+65 - Req'd 18"x30' C.M.P. Side Drain, & 20 Cu. Yds. Embankment for Road Appr. Lt.; Remove 0.5'x0.5'x15' Wood Box Culvert.

Sta. 61+79 - Req'd 18"x30' C.M.P. Side Drain & 20 Cu. Yds. Embank. for Road Appr. Rt.

Sta. 63+16 - Req'd 18"x30' C.M.P. Side Drain & 20 Cu. Yds. Embank. for Road Appr. Lt.

N.E.¼, S.W.¼, SEC. 34

Sta. 67+10 - Req'd 18"x100' C.M.P. Cross Culvert (No Headwalls), 18"x18' C.M.P. Side Drain Rt, & Remove 15"x24' C.M.P. Cross Culvert.

Sta. 69+88 - Req'd 18"x18' & 18"x30' C.M.P. Side Drain, 20 Cu. Yds. Embank. for Road Appr. Rt., & Remove 2'x1'x12' Wood Box Culvert.

Sta. 71+47 - Req'd 18"x18' & 18"x30' C.M.P. Side Drain & 20 Cu. Yds. Embank. for Road Appr. Rt.

Sta. 72+23 - Req'd 18"x18' & 18"x30' C.M.P. Side Drain & 20 Cu. Yds. Embank. for Road Appr. Lt.

S.E.¼, S.W.¼, SEC. 34

4500 ft. Westerly to Borrow Pit No. 1 Owner - L.W. Blevins, Montrose, Colo.

12th CORRECTION LINE NORTH

Sta. 80+65 - Req'd 18"x74' C.M.P. Cross Culvert (No Hdwlls) - Note: 44' Lt. & 30' Rt., & Remove 15"x22' C.M.P. Cross Culvert.

Sta. 82+50 - Req'd 18"x60' C.M.P. Cross Culvert & 10 Cu. Yds. Uncl. Excav. for Ditches.

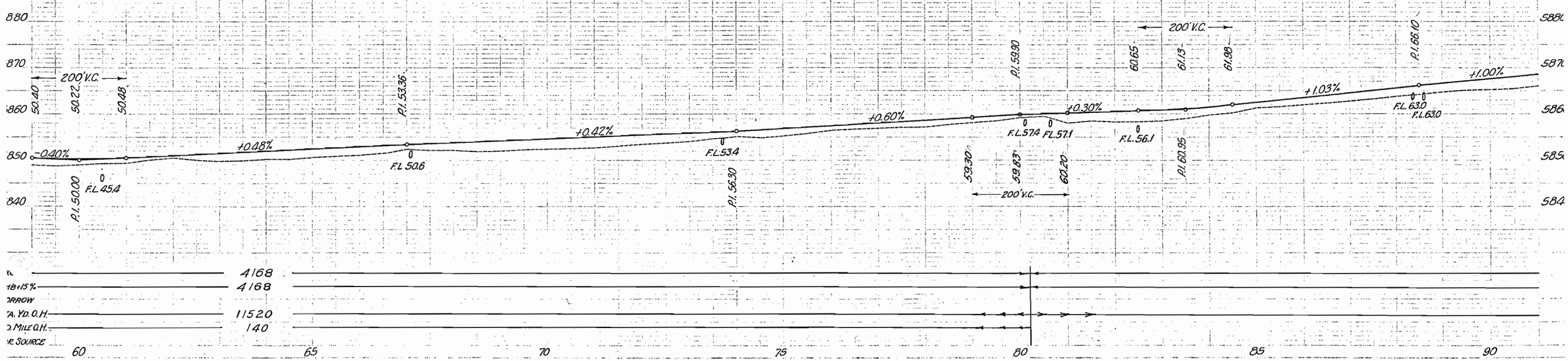
Sta. 82+50 to 88+00 - Req'd 110 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

Sta. 88+38 - Req'd 18"x58' C.M.P. Cross Culvert (Sk. 68')

Sta. 88+50 - Req'd 80 Cu. Yds. Embank. for Rd. Appr. R. & L.

Sta. 88+60 - Req'd 18"x58' C.M.P. Cross Culvert (Sk. 68')

Sta. 88+60 to 94+00 - Req'd 110 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.



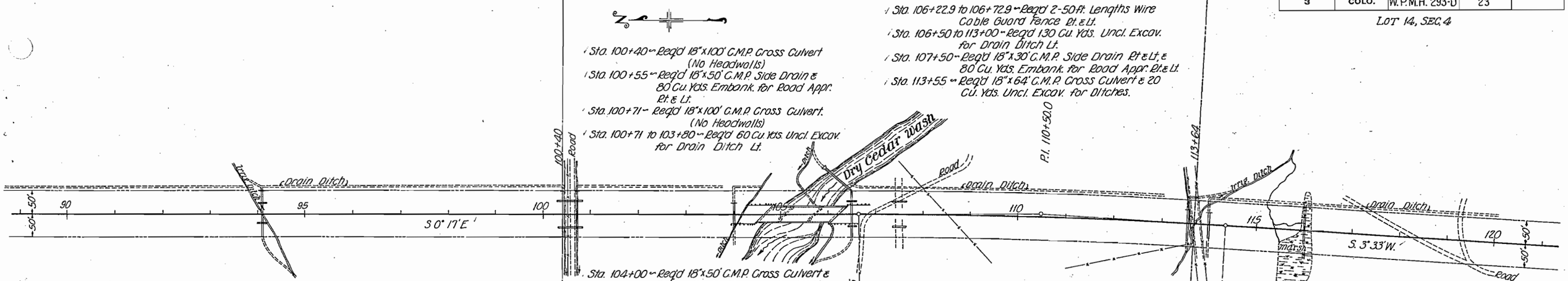
FED. ROAD DIST. NO.	STATE	U.S.W.P.H. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293-D	23	

LOT 6, SEC. 4

T. 48 N., R. 9 W.

LOT 11, SEC. 4

LOT 14, SEC. 4



✓ Sta. 94+11 ~ Req'd 18"x100' C.M.P. Cross Culv. (No Htdwlls), 18"x16' C.M.P. Side Drain Rt. & Lt., & 20 Cu. Yds. Uncl. Excav. for Ditch Change.

✓ Sta. 94+11 to 100+30 ~ Req'd 125 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

✓ Sta. 100+40 ~ Req'd 18"x100' C.M.P. Cross Culvert (No Headwalls)

✓ Sta. 100+55 ~ Req'd 18"x50' C.M.P. Side Drain & 80 Cu. Yds. Embank. for Road Appr. Rt. & Lt.

✓ Sta. 100+71 ~ Req'd 18"x100' C.M.P. Cross Culvert. (No Headwalls)

✓ Sta. 100+71 to 103+80 ~ Req'd 60 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

✓ Sta. 104+00 ~ Req'd 18"x50' C.M.P. Cross Culvert & 30 Cu. Yds. Uncl. Excav. for Ditch Change.

✓ Sta. 104+11.5 to 104+61.5 ~ Req'd 2-50' Lengths Wire Cable Guard Fence Rt. & Lt.

Sta. 104+64 to 106+20.4 ~ Req'd. 2 Spans @ 44'-10" & 1 span @ 62'-4" Conc. T-Beam Bridge, (Details on Sh. No. 4 to 7) and 1400 Cu. Yds. Uncl. Excav. for Channel Change. Also Req'd. 1-66' Span Truss Support & 66 ft. of #42 Metal Flume (Simplex Type), and 2 Standard Metal Transitions (18" C.M.P. to #42 Flume), (Details on Sh. #2) and remove 8"x8"x124' Wood Flume.

Sta. 106+50 ~ Req'd. 18"x100' C.M.P. Cross Culvert (No Htdwlls), 1-45° Elbow for 18" C.M.P., 2-18"x16' C.M.P. Side Drains Rt. & Lt., and 200 Cu. Yds. Uncl. Excav. for Ditch Change.

✓ Sta. 106+22.9 to 106+72.9 ~ Req'd 2-50 ft. Lengths Wire Cable Guard Fence Rt. & Lt.

✓ Sta. 106+50 to 113+00 ~ Req'd 130 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

✓ Sta. 107+50 ~ Req'd 18"x30' C.M.P. Side Drain Rt. & Lt., & 80 Cu. Yds. Embank. for Road Appr. Rt. & Lt.

✓ Sta. 113+55 ~ Req'd 18"x64' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Ditches.

✓ Sta. 113+85 ~ Req'd 18"x30' C.M.P. Side Drain Lt., 100 Cu. Yds. Embank. for Road Appr. Rt. & Lt., & 30 Cu. Yds. Uncl. Excav. for Ditch Change, & Rem. Wood Box.

✓ Sta. 114+00 to 120+00 ~ Req'd 120 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

✓ Sta. 114+00 ~ Req'd 18"x56' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Ditches.

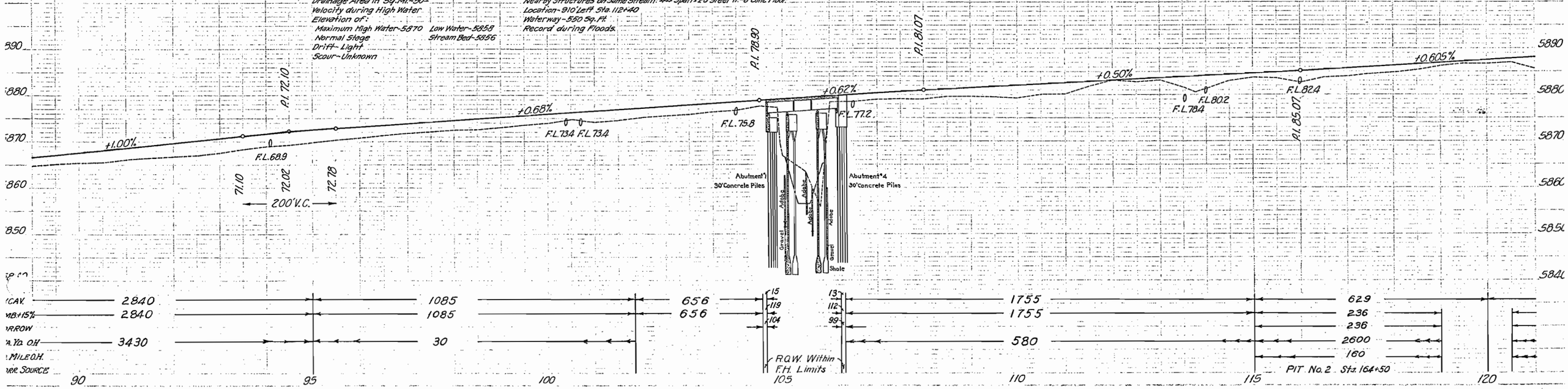
✓ Sta. 116+00 ~ Req'd 18"x50' C.M.P. Cross Culvert & 10 Cu. Yds. Uncl. Excav. for Ditchs.

NOTES ON STRUCTURE No. K-5-N

PRESENT STRUCTURE:
Span
Clear Roadway (New Alignment)
Clear Waterway
Type of Superstructure
Type of Substructure
Requirements as to Removal

STREAM DATA:
Drainage Area in Sq. Mi. ~ 50±
Velocity during High Water
Elevation of:
Maximum High Water ~ 5870 Low Water ~ 5858
Normal Stage Stream Bed ~ 5856
Drift ~ Light
Scour ~ Unknown

PROPOSED STRUCTURE:
Position Referred to Present Structure ~ 900± Downstream
Span ~ 2 @ 44'-10" & 1 @ 62'-4" Clear Roadway ~ 30'-0"
Clear Waterway ~ 1100 Sq. Ft.
Type of Superstructure ~ I-Beam Conc. Hinged Type Stgr.
Type of Substructure ~ Open Conc. Piers and Abuts.
Detour Structure Requirements ~ Use County Road Bridge
R.R. Siding ~ Montrose Haul to Bridge Site ~ 1½ Miles.
Nearby Structures on Same Stream: 44' Span x 20' Steel Tr. ~ 6" Conc. Floor.
Location ~ 910' Left Sta. 112+40
Waterway ~ 550 Sq. Ft.
Record during Floods.



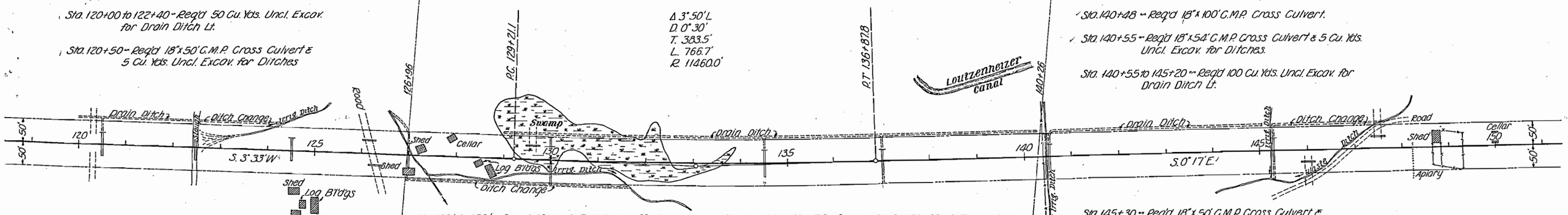
FED. ROAD DIST. NO.	STATE	U.S. W.P.R. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H. 293-D	24	

LOT 14, SEC. 4 — T.48 N., R.9 W. — LOT 19, SEC. 4 — NE¼, SW¼, SEC. 4

Sta. 120+30 – Req'd 100 Cu. Yds. Embank. for Road Appr. Rt. & Lt.

Sta. 120+00 to 122+40 – Req'd 50 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

Sta. 120+50 – Req'd 18"x50' C.M.P. Cross Culvert & 5 Cu. Yds. Uncl. Excav. for Ditches



Sta. 122+50 – Req'd 18"x60' C.M.P. Cross Culvert.

Sta. 122+50 to 124+25 – Req'd 35 Cu. Yds. Uncl. Excav. for Ditch Change Lt.

Sta. 124+50 – Req'd 18"x50' C.M.P. Cross Culvert.

Sta. 126+25 – Req'd 18"x30' C.M.P. Side Drain Rt. & Lt., & 100 Cu. Yds. Embank. for Road Appr. Rt. & Lt.

Sta. 126+ to 128+ – Req'd Move 4 Buildings off R.O.W. (FORCE ACCOUNT)

Sta. 127+00 – Req'd 18"x52' C.M.P. Cross Culvert & 5 Cu. Yds. Uncl. Excav. for Ditches.

Sta. 127+00 to 131+50 – Req'd 90 Cu. Yds. Uncl. Excav. for Ditch Change Rt.

Sta. 127+35 – Req'd Remove 1-4"x12' Pole Bridge Lt.

Sta. 127+90 – Req'd Remove 12'x12' Cellar & 30 Cu. Yds. Embank. for Backfilling.

P.I. 133+04.6

Sta. 129+00 to 132+50 – Req'd 1000 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

Sta. 129+60 – Req'd 18"x30' C.M.P. Side Drain & 50 Cu. Yds. Embank. for Road Appr. Lt.

Sta. 130+00 – Req'd 24"x100' C.M.P. Cross Culvert (No. H8"11) & 20 Cu. Yds. Uncl. Excav. for Ditch.

Sta. 132+50 to 140+40 – Req'd 160 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

Sta. 134+50 – Req'd 18"x56' C.M.P. Cross Culvert & 10 Cu. Yds. Uncl. Excav. for Ditches.

Sta. 137+00 – Req'd 18"x54' C.M.P. Cross Culvert & 10 Cu. Yds. Uncl. Excav. for Ditches.

Sta. 140+48 – Req'd 18"x100' C.M.P. Cross Culvert.

Sta. 140+55 – Req'd 18"x54' C.M.P. Cross Culvert & 5 Cu. Yds. Uncl. Excav. for Ditches.

Sta. 140+55 to 145+20 – Req'd 100 Cu. Yds. Uncl. Excav. for Drain Ditch Lt.

Sta. 145+30 – Req'd 18"x50' C.M.P. Cross Culvert & 10 Cu. Yds. Uncl. Excav. for Ditches.

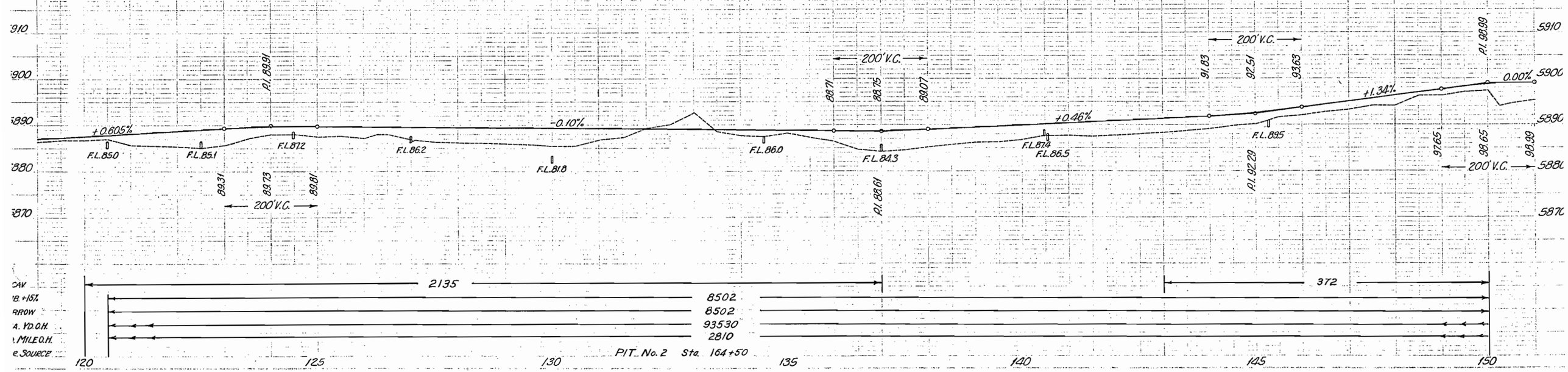
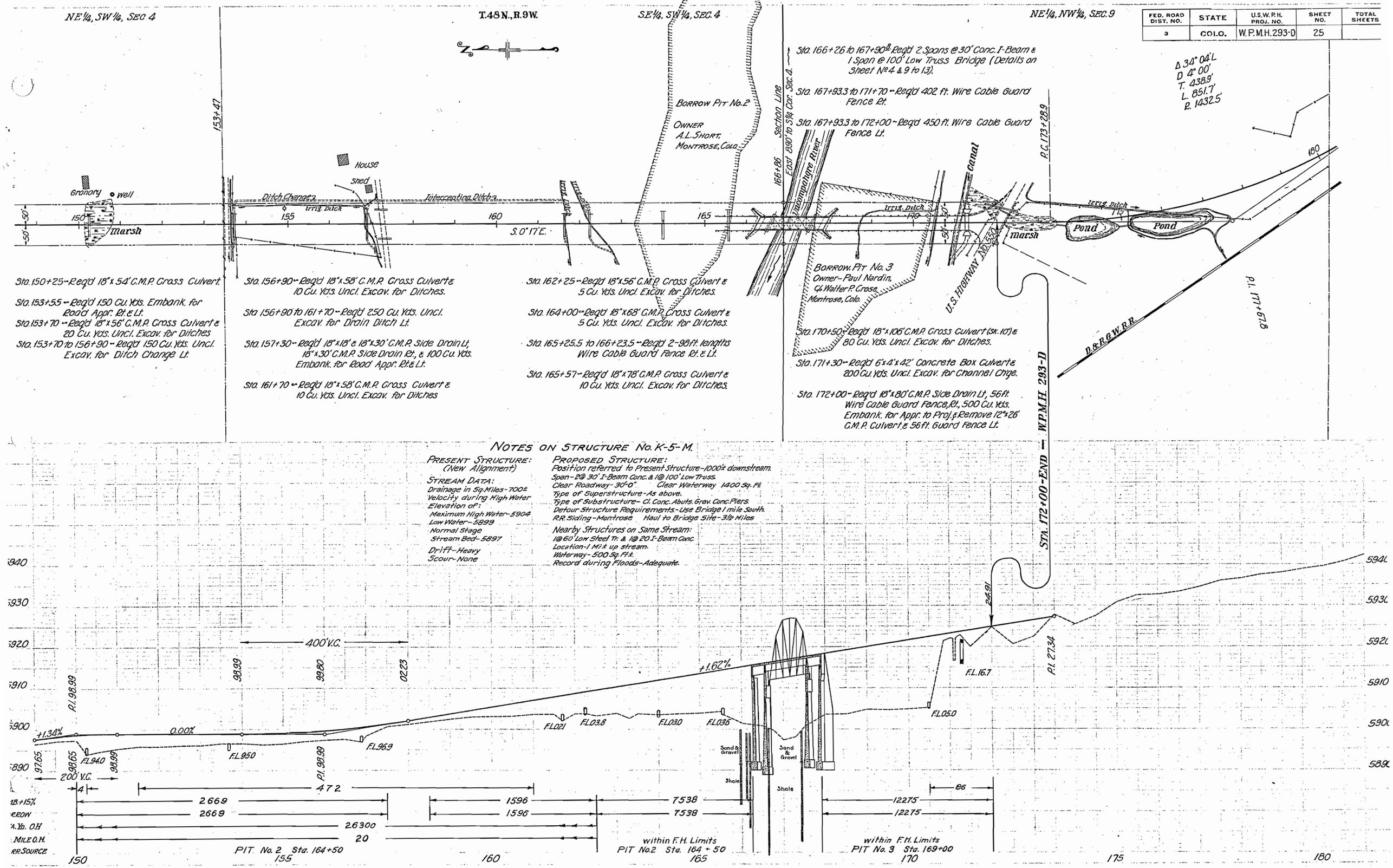
Sta. 145+30 to 147+60 – Req'd 50 Cu. Yds. Uncl. Excav. for Ditch Change Lt.

Sta. 146+00 – Req'd 18"x30' C.M.P. Side Drain, & 50 Cu. Yds. Embank. for Road Appr. Rt.

Sta. 147+50 – Req'd 18"x30' C.M.P. Side Drain & 50 Cu. Yds. Embank. for Road Appr. Lt.

Sta. 148+ to 150+ – Req'd Move Apiary, Shed, & Corral off R.O.W. (FORCE ACCOUNT)

Sta. 150+00 – Remove 12'x24' Cellar & 60 Cu. Yds. Embank. for Backfilling.



FED. ROAD DIST. NO.	STATE	U.S.W.P.H. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	W.P.M.H.293-D	25