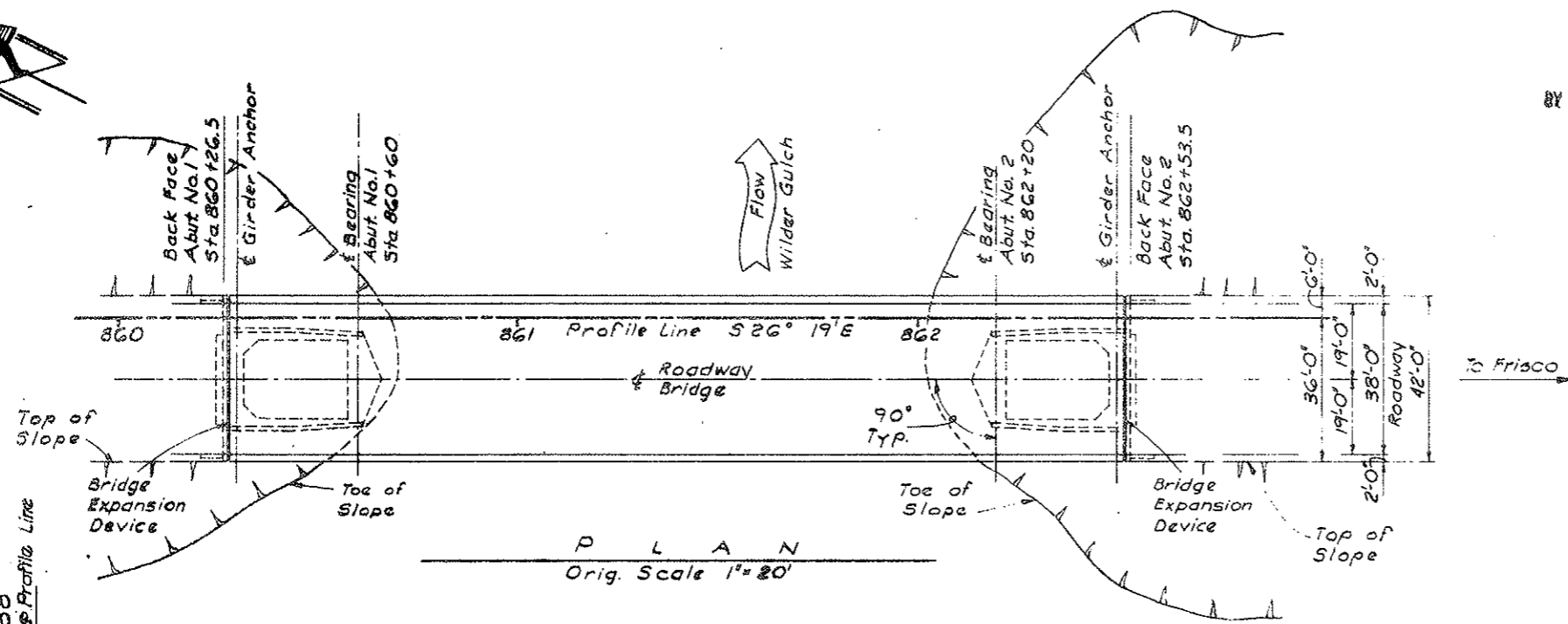
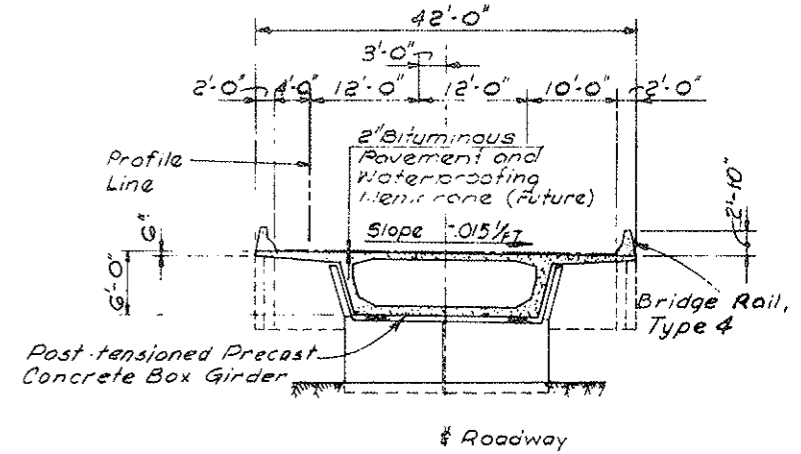


FEDERAL ROAD DISTRICT NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VII	COLORADO	170-2(52)197	16	
REVISIONS				

VOID
BY CONSTRUCTION, DATE 6-24-77

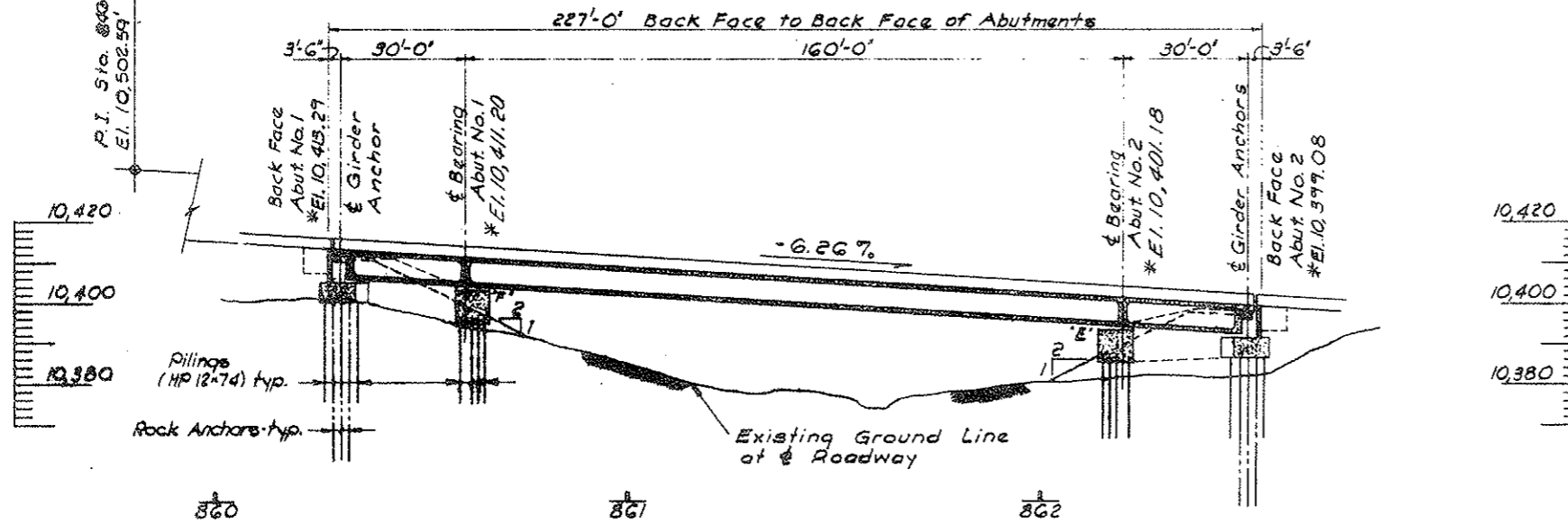


PLAN
Orig. Scale 1"=20'



TYPICAL SECTION
Orig. Scale: 1"=10'

REVISION	DATE	BY	REASON
1	8-75	A.M.	QUANTITIES BY A.M. 8-75
2	9-75	S.M.	CHECKED BY S.M. 9-75



SECTION TAKEN AT CENTERLINE OF ROADWAY
Orig. Scale: 1"=20'

'E' Indicates Expansion Bearing
'F' Indicates Fixed Bearing
* Elevations are to Finished Roadway Along Profile Line.

PILING NOTES

Type	Location	Est. Tip Elev.
HP 12 x 74	Abut. No. 1	EI. 10,375.00 ft.
HP 12 x 74	Abut. No. 2	EI. 10,367.00 ft.

ROCK ANCHOR NOTES

Type	Location	Est. Tip Elev.
Prestressed-Resin Anchored Rebars	Abut. No. 1	EI. 10,351.00 ft.
"Do."	Abut. No. 2	EI. 10,340.00 ft.

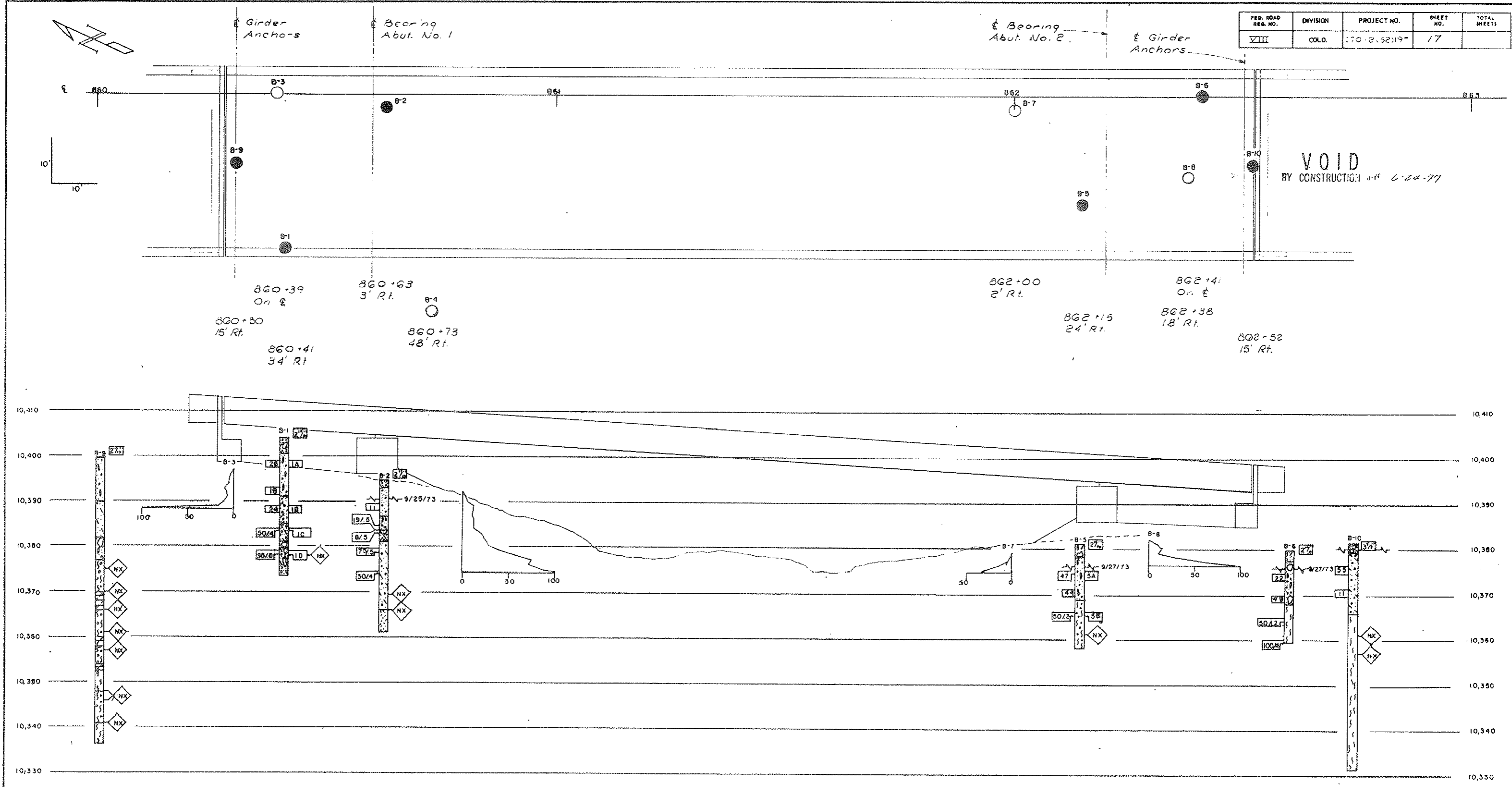
Live Loading-HS 20-44 or Interstate Alternate

DIVISION OF HIGHWAYS

GENERAL LAYOUT

Designer D. Hoftin	Structure F-12-AK
Detailer S. Martinez	Numbers
Drawing Number B-2	of 13 Drawings

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	170-2-3219-	17	



SUMMARY OF TEST RESULTS

Sample No.	Depth	Classification	Grading Analysis				Atterberg Limits			Water Cont. %	Max. Unit Weight P.C.P.	Unclassified Strength Q _u T.S.F.	Triaxial Shear Strength						Dia. of Sample (Inches)
			Percent				Liquid Limit L _w	Plastic Limit P _w	Plastic Index I _p				Unconsolidated		Consolidated		Time hrs.	Pressure P.S.I.	
Coarse of Brgs. Visual			AASHTO	Coarse Sand	Fine Sand	Silt and Clay				NV	NP	NP	B	C	B	C			
1A	5.0-6.5	SILTY SANDY GRAVEL	A-2-9(O)	33	11	23	33	NV	NP								NP	13	
1B	15-18.5	SILT	A-4(U)	5	4	6	85	23	20	3	10.5								
1C	20-20.4	SANDY GRAVEL	A-4(O)	35	10	17	38	18	16	2	8.7								
1D	25-25.8	"	A-1-g(O)	51	22	14	13	NV	NP	NP	7.9								
5A	5-6.5	"	A-1-b(O)	51	18	17	14	NV	NP	NP	10.8								
5B	15-15.8	SANDY GRAVEL	"	51	16	23	10	NV	NP	NP	7.9								

TYPE OF MATERIAL

SAND & GRAVEL w/ COBBLES	SILTY SAND & GRAVEL
SILTY SAND	SAND & GRAVEL w/ COBBLES & BOULDERS
CONGLOMERATE	SILTY SAND & GRAVEL w/ BOULDERS
SILTY SAND & GRAVEL	SANDSTONE
SILTY SAND & GRAVEL w/ BOULDERS	SILTY SAND & GRAVEL
SANDSTONE	CLAYEY SILTY w/ SAND & GRAVEL
SILTY SAND & GRAVEL w/ COBBLES & BOULDERS	METAMORPHIC

LEGEND

TEST BORING

- GRAVEL, COBBLES & BOULDERS
- SILTY w/ SAND & GRAVEL
- Hole Size
- Sample No.
- Water Table
- 2 in. O.D. Split-Tube Sampler
- 140 Lb. Hammer
- 30 in. Free Fall
- Core Size

CONTINUOUS PENETRATION TEST

- 2 in. Dia. Drive Point
- 140 Lb. Hammer
- 30 in. Free Fall
- Blows Per Foot

Location of Test Boring

- Location of Test Boring
- Location of Continuous Penetration Test
- Rotary Boring
- Auger Boring
- Core Boring

STRUCTURE NO. F-12-AK
DWG. NO. B-3 OF 13

**DIVISION OF HIGHWAYS
STATE OF COLORADO**

ENGINEERING GEOLOGY

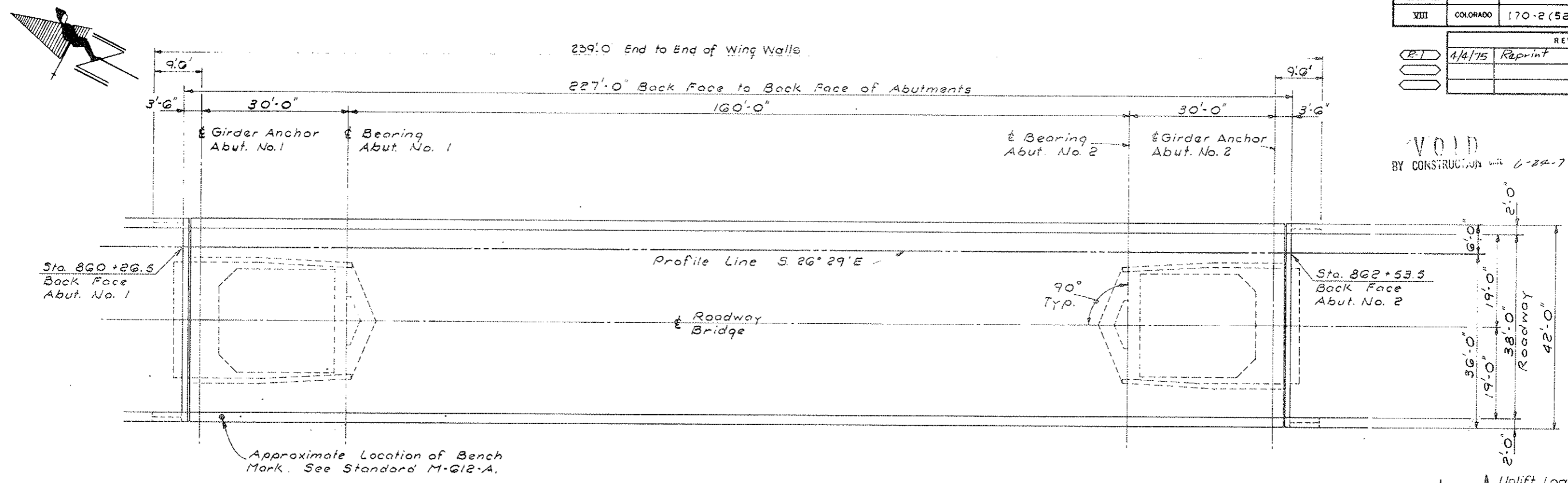
Across WILDER GULCH
Sta. 860+22.5 to 862+38.5
Near WALL Sec. 22 T. 6S R. 79W

Geologist A.C.E. Approved by S.M.O. Bridge Engineer
Made by S.M.O. Checked by S.M.O. Date: 19

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	19	

REVISIONS			
BT	4/4/75	Reprint	WCB

VOID
BY CONSTRUCTION 6-24-77



DESIGNED BY	CHANGED BY
C.A.	A.E.
CHECKED BY	QUANTITIES BY
A.E.	A.E.
DETAILS BY	CHECKED BY
O.G.	O.A.

CONSTRUCTION LAYOUT
Orig. Scale: 3/32" = 1'-0"

PILING & ROCK ANCHOR LOAD DATA

Pilings 1-5 & 37-41: Max. Allow. = 130 Tons (Temp. Loading)
Max. Design = 110 Tons

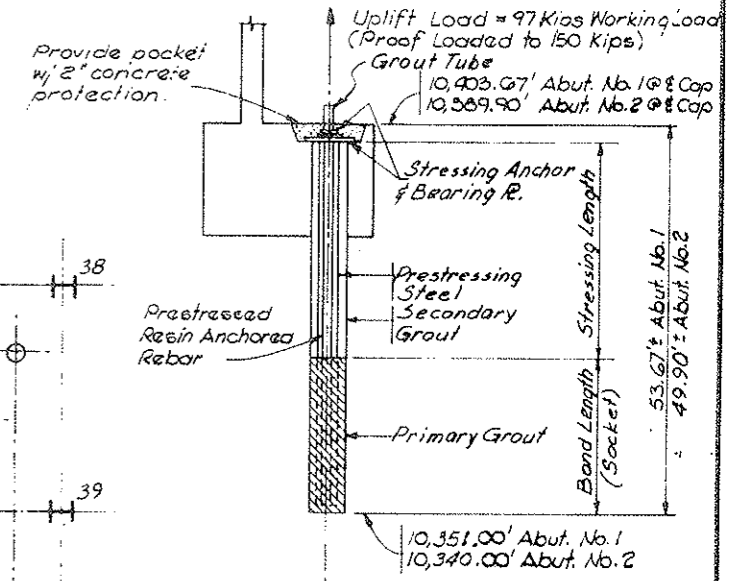
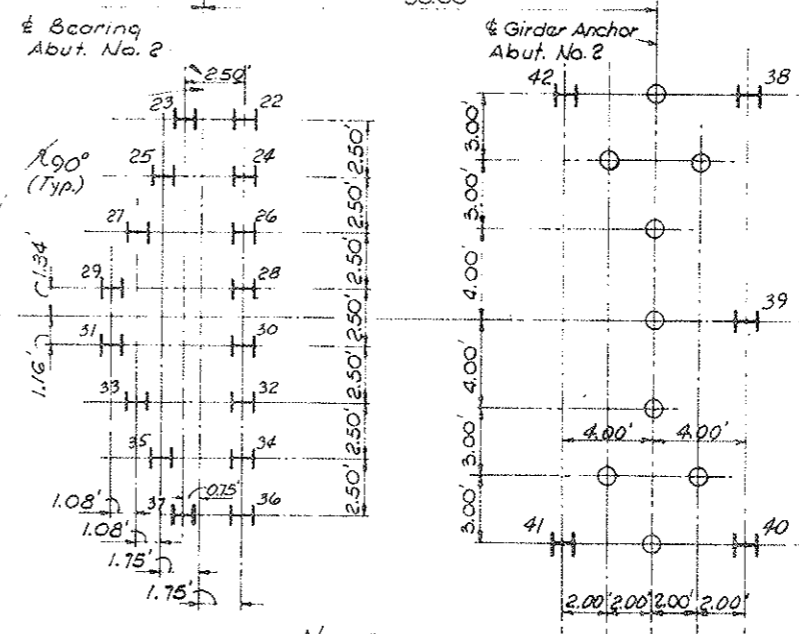
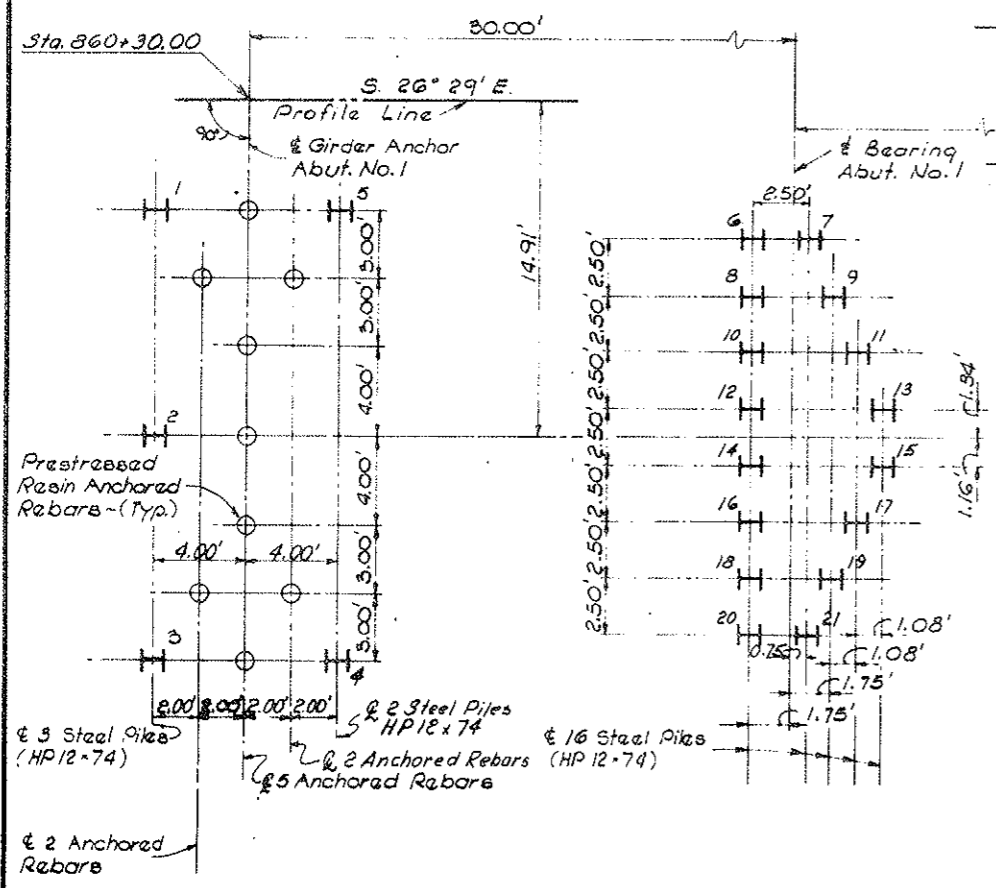
Pilings 6-21 & 22-36: Max. Allow. = 98 Tons
Max. Design = 85 Tons

Rock Anchors to be Pretensioned to Pf = 87K (Total)
(Each Anchor Pretensioned to Pf = 97K)

PILING ELEVATIONS		
No.	Top Elev.	Bot. Elev. #
1-5	10,399.50'	10,376.00'
6-21	10,390.97'	10,375.00'
22-37	10,380.87'	10,367.00'
38-42	10,365.73'	10,367.00'

* Bottom Elevations to be verified in field

PILING LAYOUT
Orig. Scale: 1/4" = 1'-0"



ROCK ANCHOR DETAIL (18 REQ.)
Orig. Scale: None

DIVISION OF HIGHWAYS

CONSTRUCTION LAYOUT AND PILING LAYOUT

Designer O. Hoffman	Structure	P-12-AK
Detailer D. Griner	Numbers	
Drawing Number B-5	of 13	Drawings

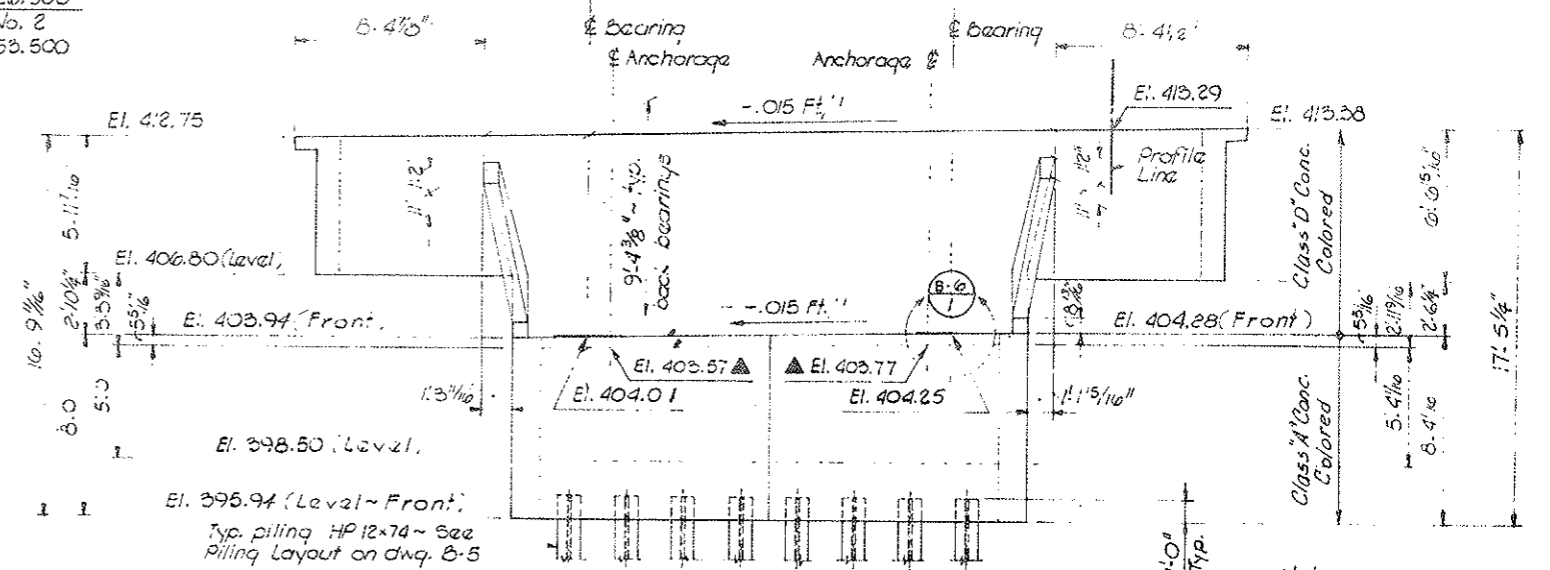
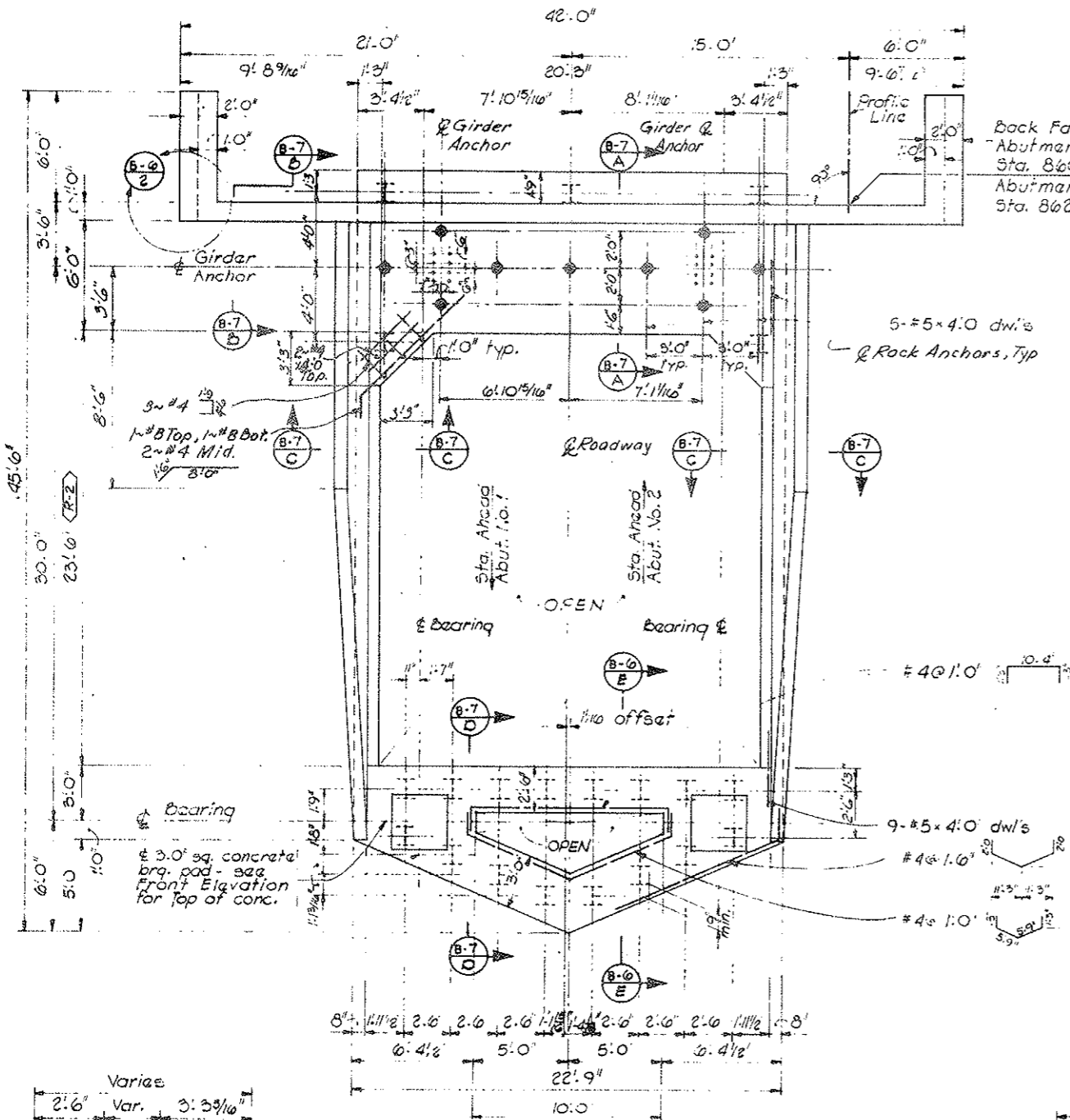
Revision Dates (Preliminary Stage Only)

- NOTES:**
- All dimensions are at bottom of concrete
 - Piling shall be end bearing HP 12 x 74. See load data in this Dwg.
 - Anchors shall be prestressed resin anchored rebar. See load data in this Dwg.
 - All Piling shall be driven prior to placing rock anchors.

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	20	

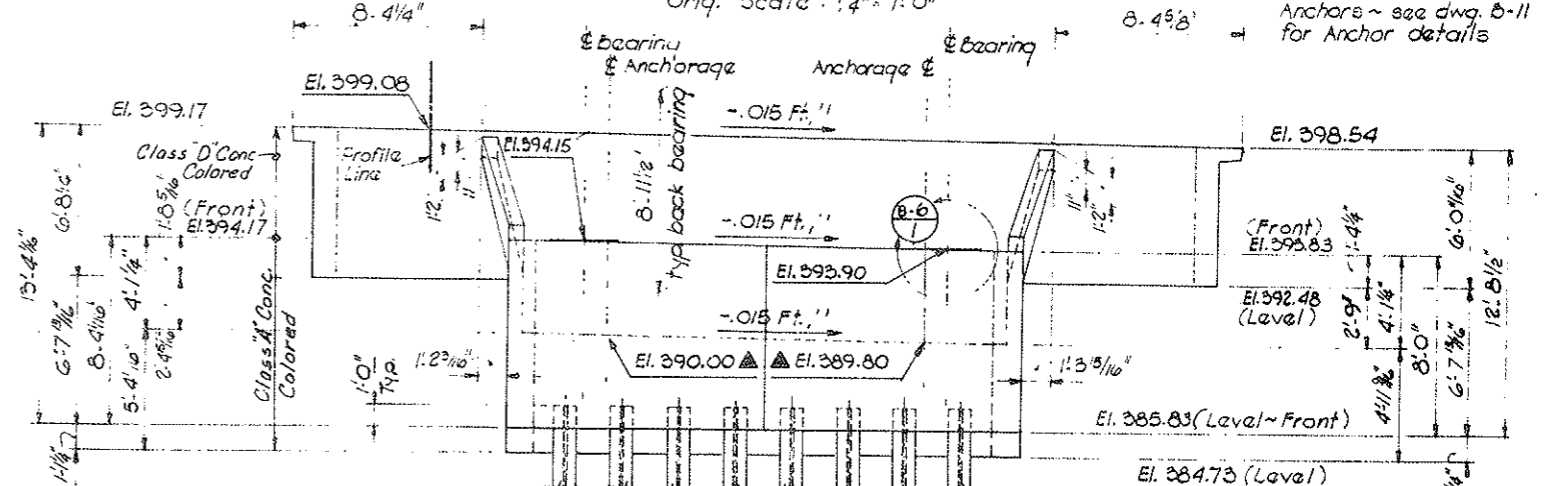
REVISIONS				
R-1	4/14/75	Reprint		WCB
R-2	4-17-75	Changed Pressures, dimension		CLB

VOID
BY CONSTRUCTION DATE 6-24-77



FRONT ELEVATION ABUTMENT No. 1
Orig. Scale: 1/4" = 1'-0"

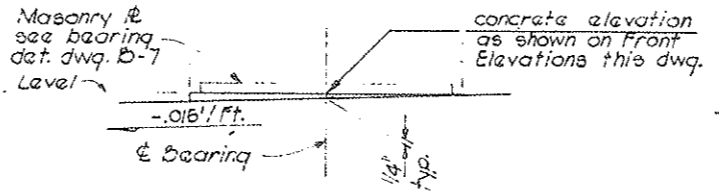
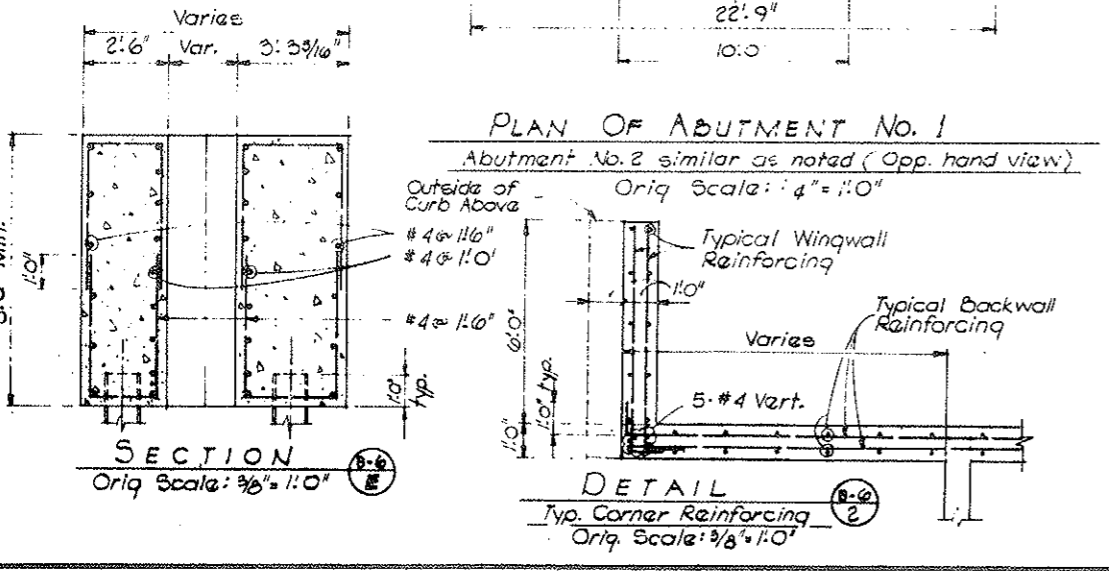
Notes:
▲ Indicates top of conc. elevations of & Girder Anchors ~ see dwg. B-11 for Anchor details



FRONT ELEVATION- ABUTMENT No. 2
Orig. Scale: 1/4" = 1'-0"

Allowable Ultimate Bearing Pressure:
Abutment (f'c=3000 psi) = 1785 psi
Superstructure (f'c=5500 psi) = 3273 psi

- Notes:
- All elevations shown are plus 10,000 Ft.
 - Abutments to be filled to bearing level with Class II Backfill.
 - Location of all construction joints shall be approved by Engineer.
 - For expansion joint detail see Dwg. B-12 & B-13



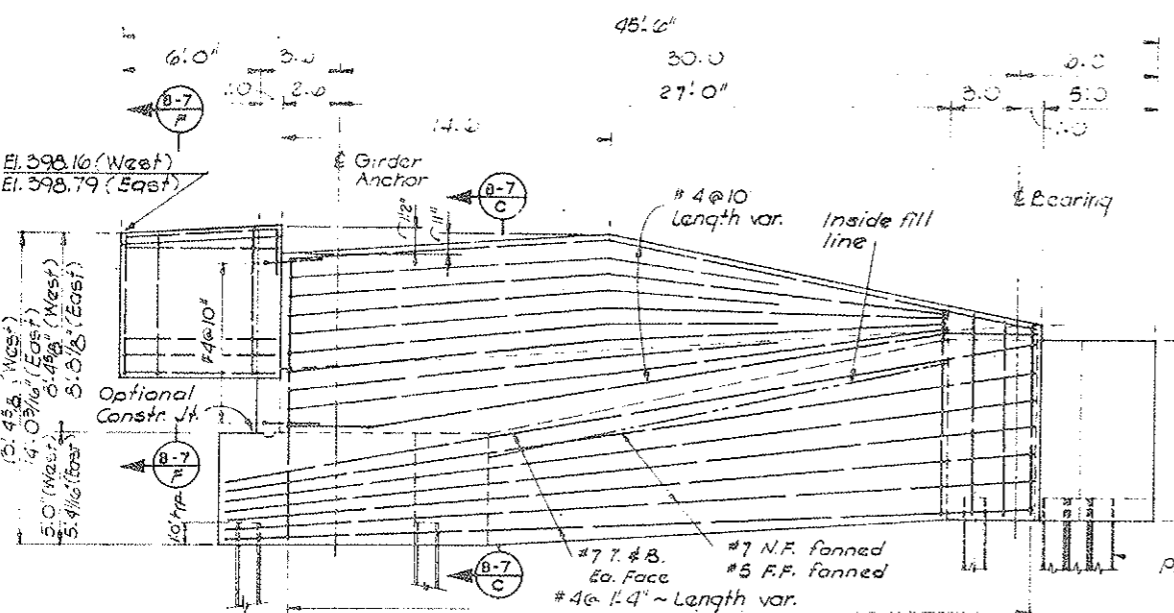
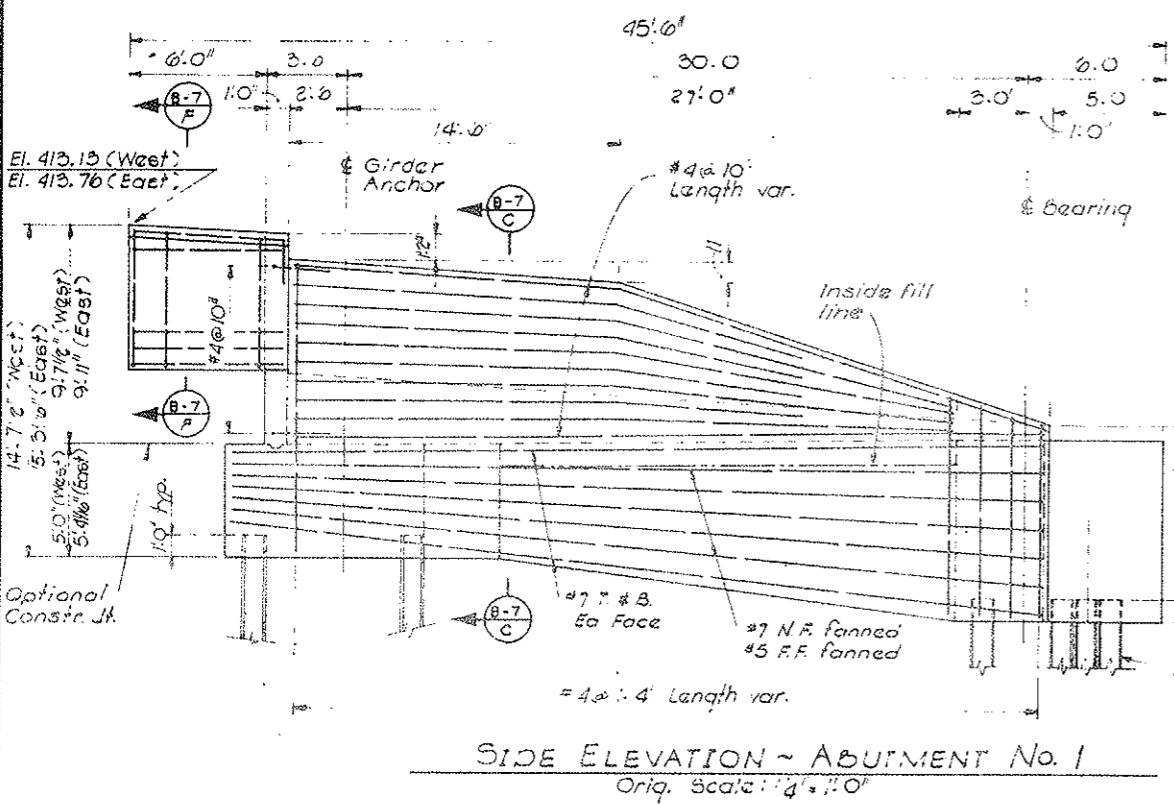
DETAIL
Orig. Scale: None
Detail for Abut. No. 1 as shown - opposite hand for Abut. No. 2

DIVISION OF HIGHWAYS			
ABUTMENT 1 AND 2 DETAILS			
Sheet 1 of 2			
Designer	A. Erikan	Structure	F-12-AK
Detailer	J. Williams	Numbers	
Drawing Number	B-6	of	13 Drawings
Revision Dates	(Preliminary Stage Only)		

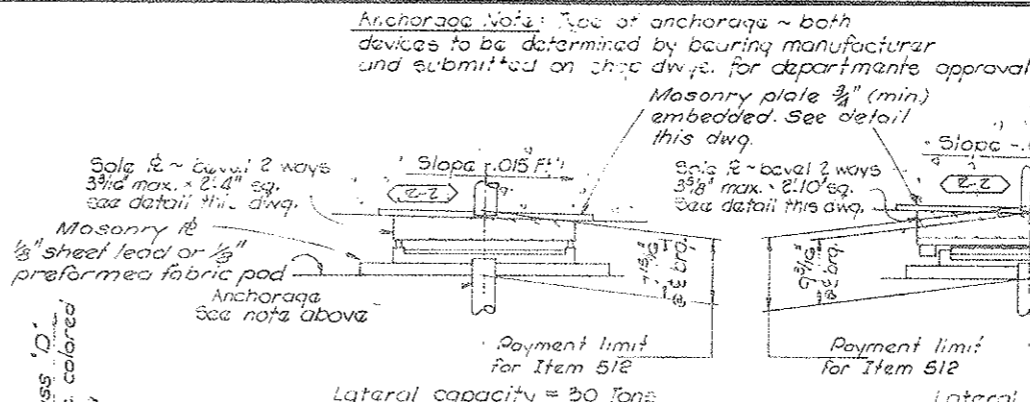
DESIGNED BY	DATE	CHECKED BY	DATE
A. E.	2-75	J. W.	3-75
DESIGNED BY	DATE	CHECKED BY	DATE
J. W.	3-75	D. H.	3-75

FEDERAL ROAD DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2,521-197	21

REVISIONS			
1	4/4/75	REPRINT	WCB
2	4-17-75	ADD Note 2 on page 2	WCB



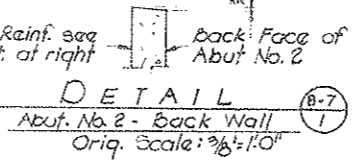
DESIGNED BY	DATE	CHECKED BY	DATE
W.A.	3-7-75	A.E.	3-7-75
Detailed by		Checked by	



FIXED FLOATING BEARING
Abut. No. 1 ~ Cap. = 700 Tons (2 req'd)
Capacity = D.L. + L.L. + I Tot. Mov. = 0 in.
Orig. Scale: None

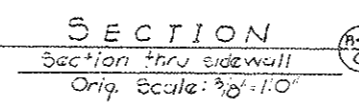
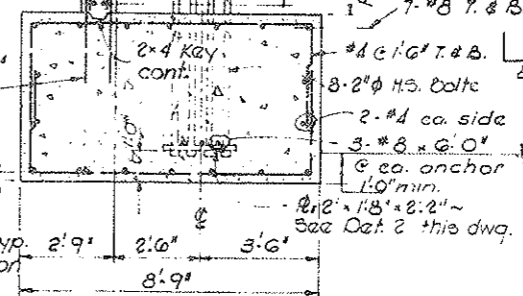
GUIDED EXPAN. BEARING
Abut. No. 2 ~ Cap. = 700 Tons (2 req'd)
Capacity = D.L. + L.L. + I Tot. Mov. = 1 1/2"
Orig. Scale: None

ABUT. No. 2 ~ SOLE PLATE ~ EXPAN.
Orig. Scale: 3/4" = 1'-0"



BEARING DEVICES

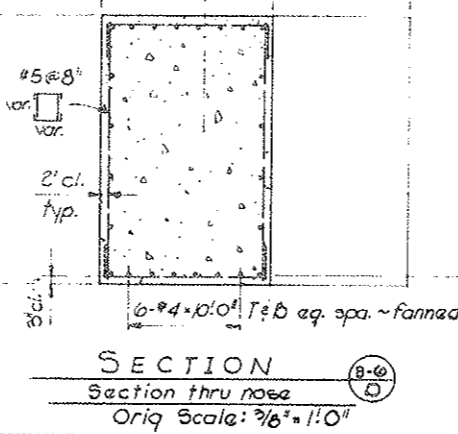
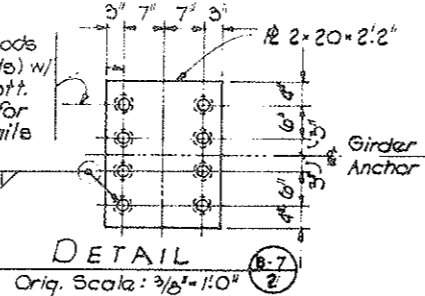
Item	Bearing Type	Horiz. Capacity		Actual Load	Ultim. Load
		Longit. Kips	Transv. Kips		
Abut. 1	P-700	40	60	1351	1983
Abut. 2	E-700	70	60	1351	1983



SECTION
Section thru wing wall
Orig. Scale: 3/8" = 1'-0"

ABUT. No. 1 ~ SOLE PLATE ~ FIXED
Orig. Scale: 3/4" = 1'-0"

Note: Numbers in corners of sole plates indicates plate thickness at corners - typ.



DIVISION OF HIGHWAYS

ABUTMENT 1 AND 2 DETAILS

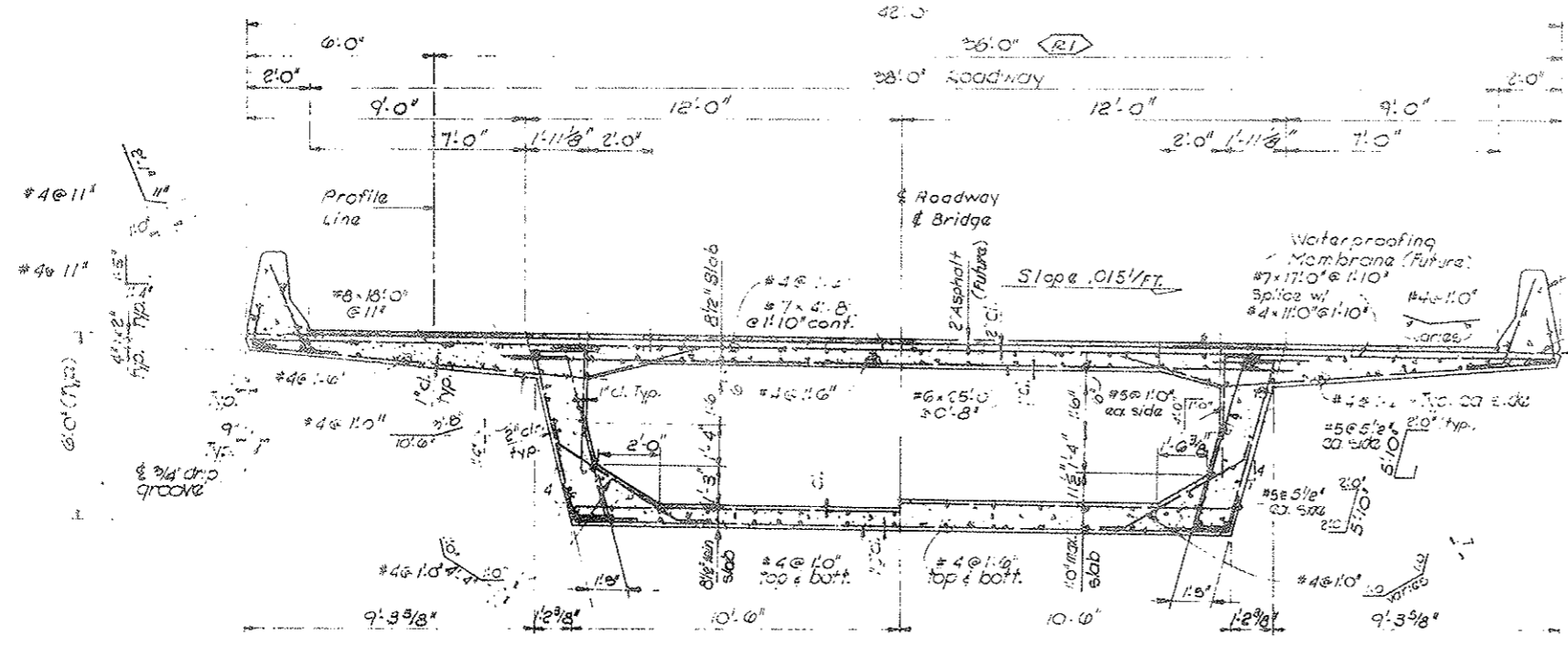
Sheet 2 of 2

Designer	A. Erikan	Structure	P-12-AR
Dataller	J. Williams	Numbers	
Drawing Number	B-7	of	13 Drawings

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	22	

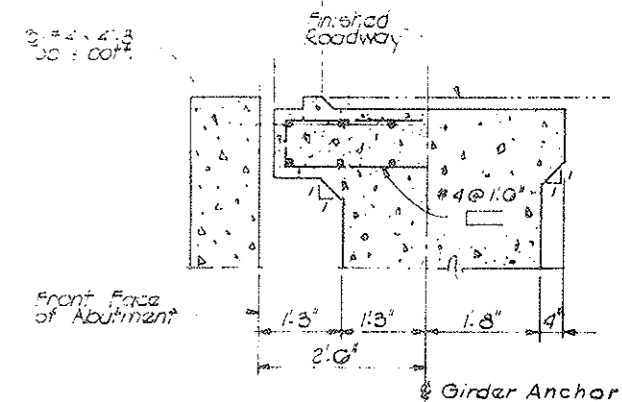
REVISIONS				
21	4-17-75	Rev Dimension	JRE	
22	4-17-75	Added total expected movement	CLB	

VOID
BY CONSTRUCTION 6-22-77



For details of Bridge
See Dwg. B-11
Roughened surface
3" Chamfer (typ.)

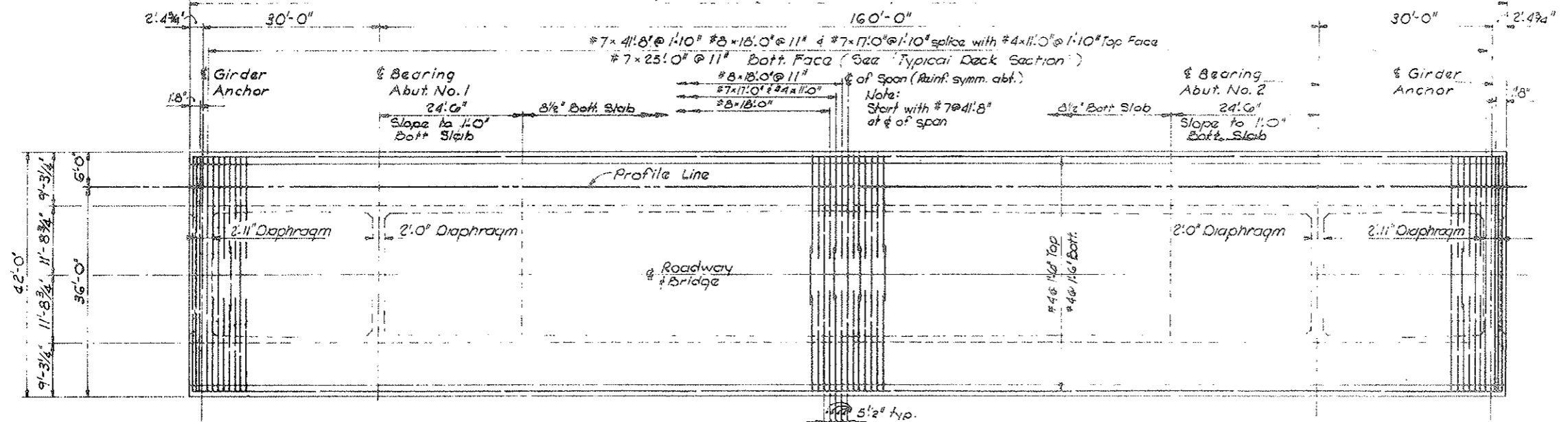
Total expected movement - 0.4" @ Abut. 1
1.2" @ Abut. 2
Construction Temperature
See Dwg. B-12



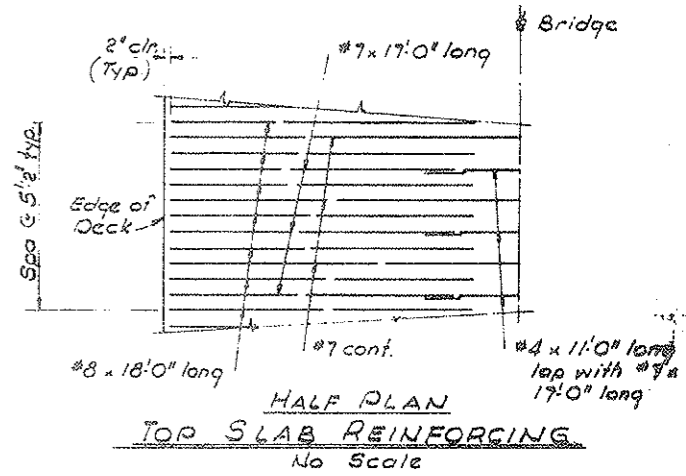
TYR INTERMEDIATE AT ABUTMENT

TYPICAL DECK SECTION
Orig. Scale: 3/8" = 1'-0"

Overall Length @ 60° F = 224'-9 1/2"



DECK PLAN
Orig. Scale: 3/32" = 1'-0"



HALF PLAN TOP SLAB REINFORCING
No Scale

DIVISION OF HIGHWAYS

DECK PLAN AND TYPICAL DECK SECTION

Designer	A. Erikson	Structure	P-12-AK
Detailer	J. Williams	Number	
Drawing Number	B-3	of	13

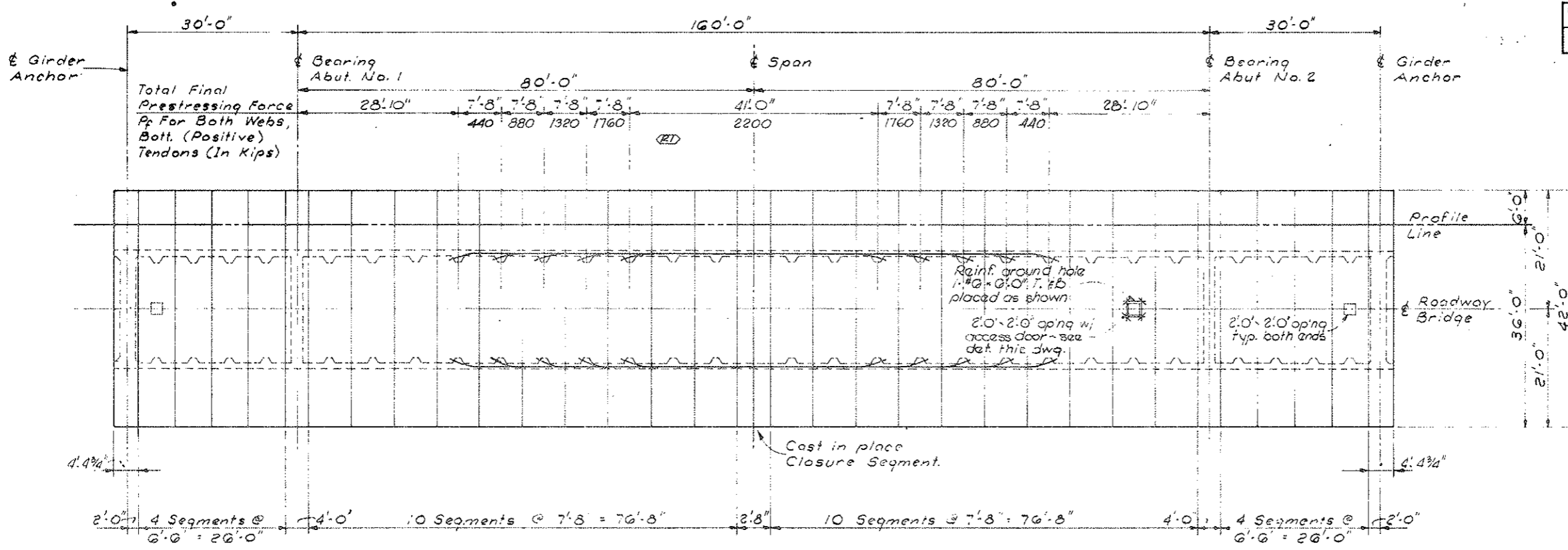
Revision Data (Preliminary Stage Only)

DATE	BY	REVISION
4-17-75	A.E.	DESIGNED BY
4-17-75	A.E.	CHECKED BY
4-17-75	J.W.	DETAILS BY

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	23	

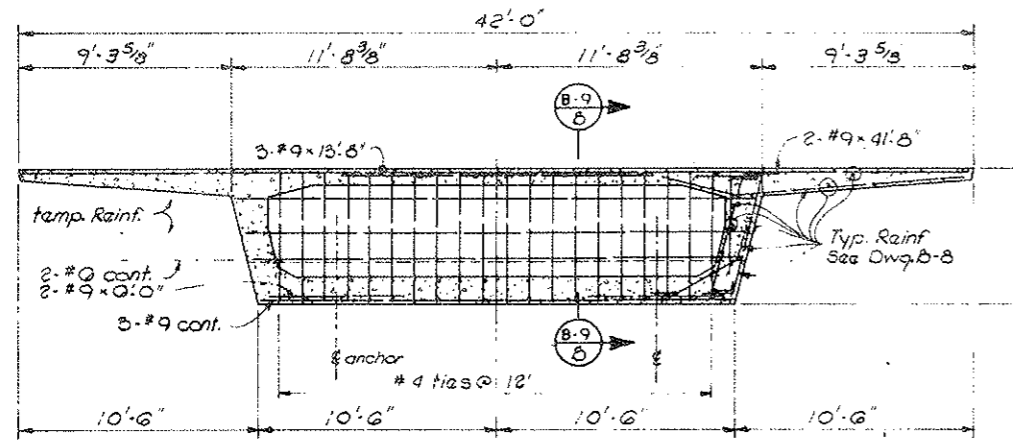
REVISIONS				
4-17-75	REVISED FOR PRESTRESSING FORCES	AB.		

VOID
BY CONSTRUCTION DATE 6-24-77



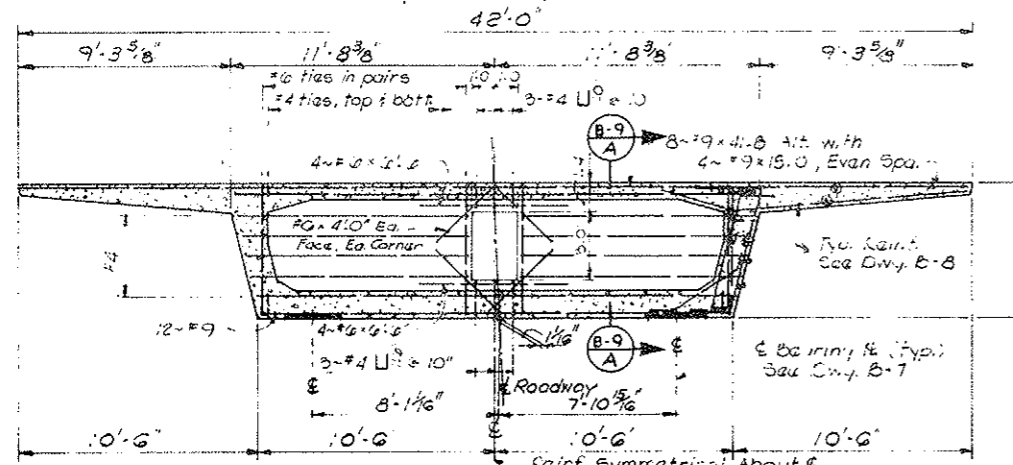
BOTTOM (CONTINUITY) PRESTRESSING TENDON LAYOUT

Note: 1. Cast in place Closure Segment to have same reinforcing as Prefabricated Segments. Cast in place concrete strength to be not less than adjacent Segments.



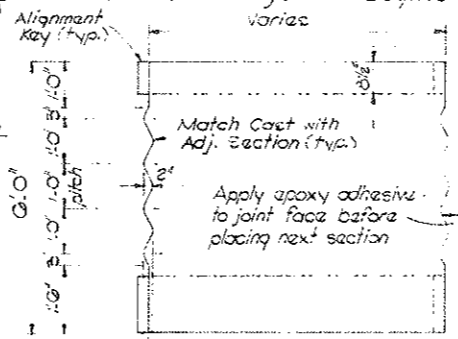
TYPICAL DIAPHRAGM AT GIRDER ANCHOR

Orig. Scale: 1/4" = 1'-0"



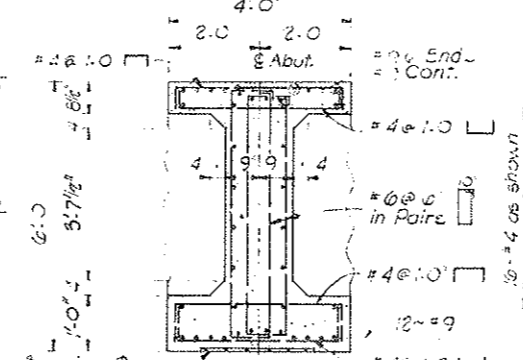
TYPICAL DIAPHRAGM AT BEARING

Orig. Scale: 1/4" = 1'-0"



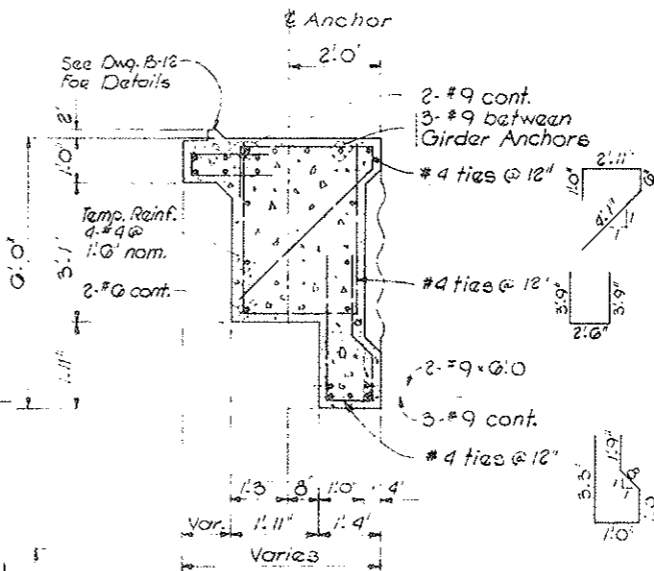
TYPICAL SEGMENT ELEVATION

Orig. Scale: 1/2" = 1'-0"



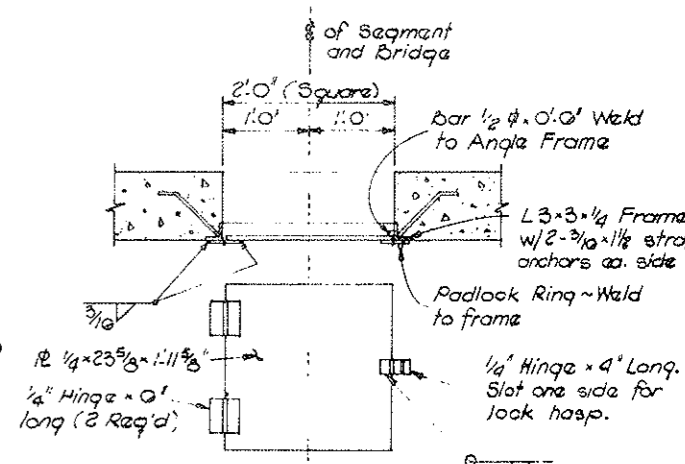
SECTION

Orig. Scale: 1/2" = 1'-0"



SECTION

Orig. Scale: 1/2" = 1'-0"



METAL ACCESS DOOR DETAIL

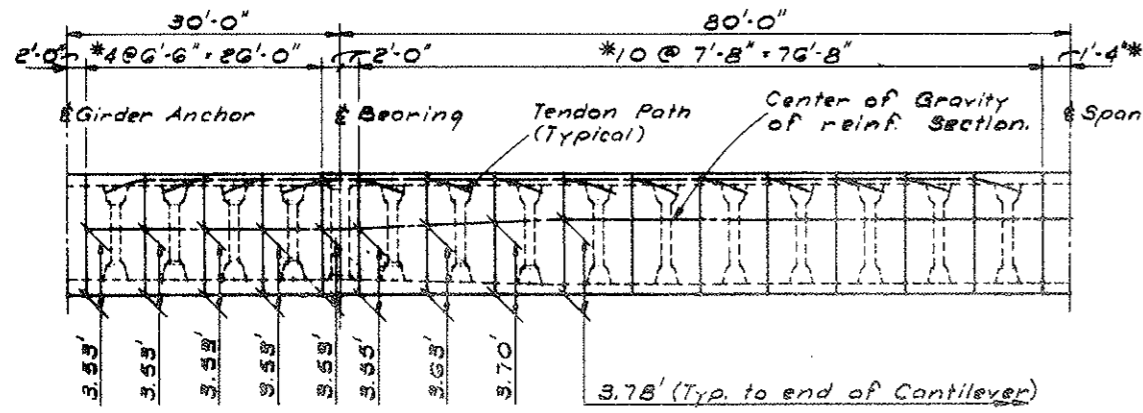
(1 REQ'D - ABUT. NO. 2)

Orig. Scale: 3/4" = 1'-0"

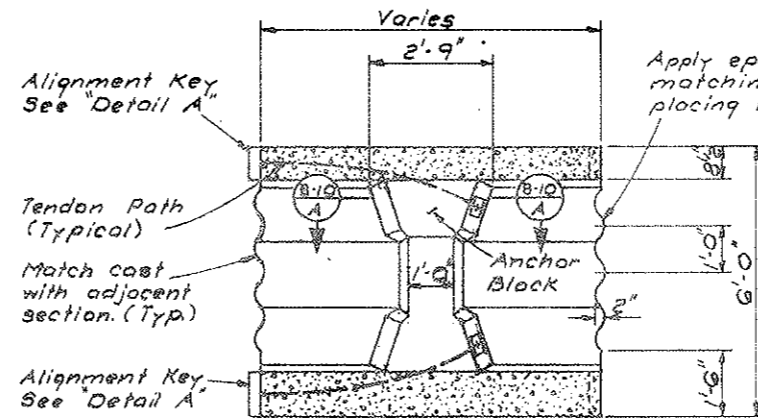
DESIGNED BY	CHECKED BY	DATE
A.E.	A.E.	2-75
D.G.	D.G.	3-75
C.A.	C.A.	3-75

DIVISION OF HIGHWAYS		
BOTTOM PRESTRESSING TENDON LAYOUT AND DIAPHRAGM DETAILS		
Designer A. Eriksen	Structure	F-12-AK
Detailer D. Griner	Numbers	
Drawing Number B-9	of 13	Drawings

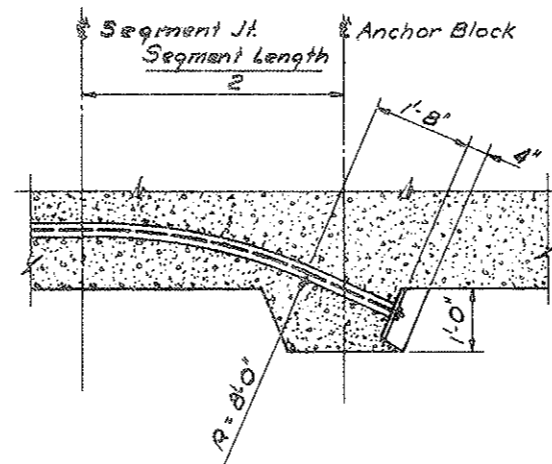
Revision Dates (Preliminary Stage Only)



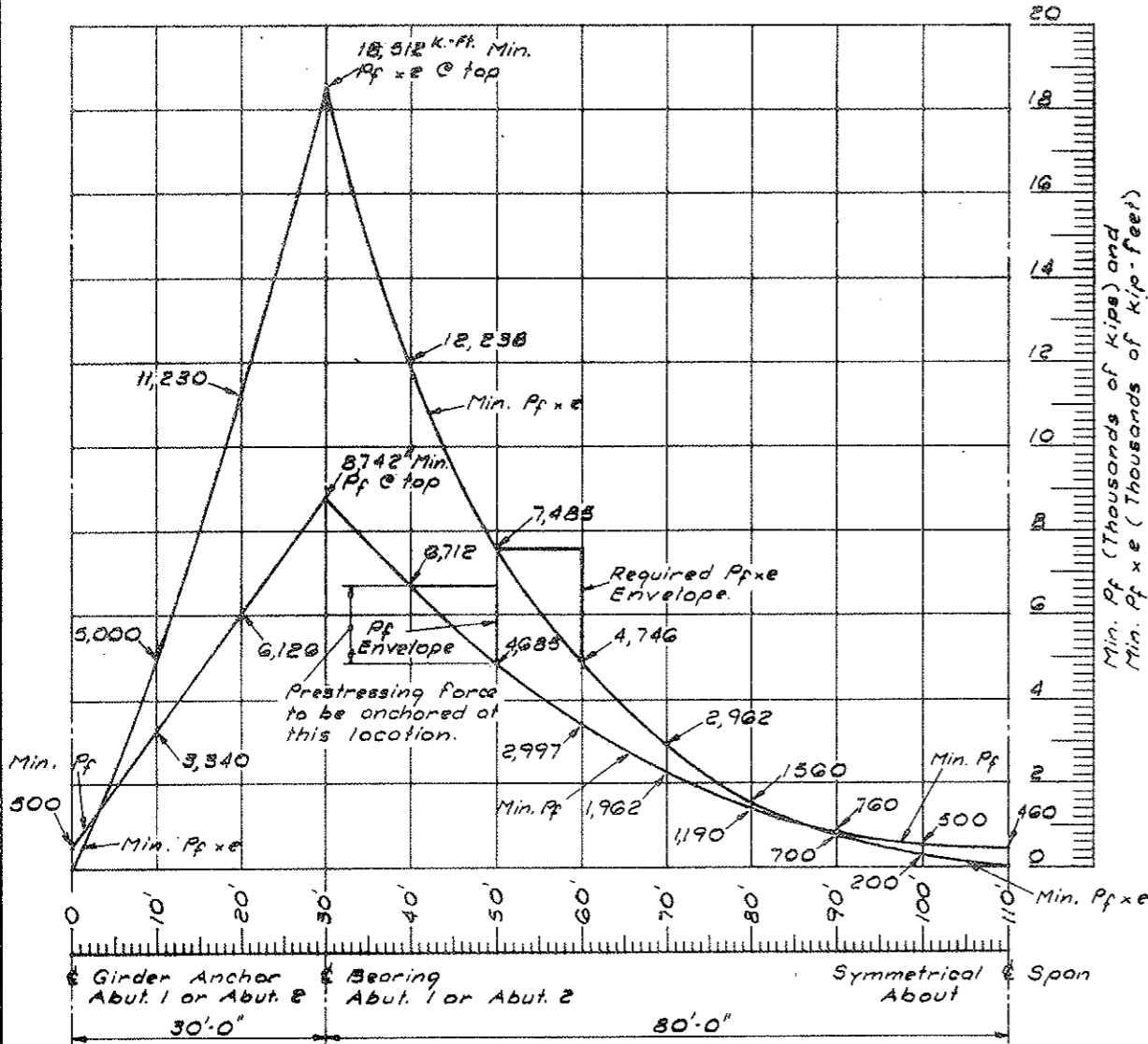
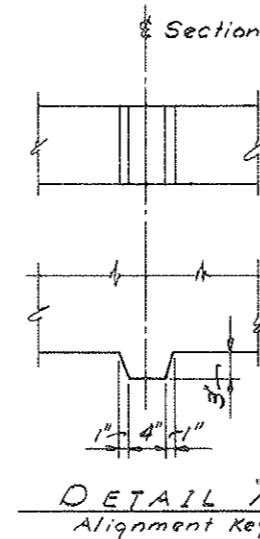
Notes:
Tendon paths are for illustration only.
*Actual Segment length at Contractor's option.



TYPICAL SEGMENT ELEVATION
Orig. Scale: 1/2" = 1'-0"



SECTION (B-10)
Orig. Scale: 3/4" = 1'-0"



MINIMUM PRESTRESSING FORCES AND PRESTRESSING MOMENTS
FOR TOP (NEGATIVE) TENDONS

VOID
BY CONSTRUCTION JMS
6-24-77

FEDERAL ROAD DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII COLORADO	170-2(52)197	24	

REVISIONS			
R-1	4/14/75	REPRINT	WCB
R-2	5/14/75	Added Note	CLB

PRESTRESSING NOTES:

- " P_f " IS THE TOTAL PRESTRESSING FORCE REMAINING AT A SPECIFIC POINT AFTER ALL LOSSES INCLUDING CREEP, SHRINKAGE AND ELASTIC SHORTENING OF CONCRETE, CREEP AND ELONGATION OF STEEL TENDONS AND FRICTION.
- THE VALUE OF P_f SHALL BE FURNISHED AT THE MIDDLE OF LENGTH FOR WHICH IT IS GIVEN IN THE CASE OF BOTTOM PRESTRESSING THROUGH THE CLOSURE POURS. P_f FOR ALL OTHER BOTTOM PRESTRESSING SHALL BE FURNISHED AT THE END NEAREST MID-SPAN OF THE LENGTH FOR WHICH IT IS GIVEN. P_f FOR TOP PRESTRESSING SHALL BE FURNISHED AT END NEAREST THE SUPPORT OF THE LENGTH FOR WHICH IT IS GIVEN.
- " e " IS THE ECCENTRICITY OF THE PRESTRESSING FORCE ABOVE OR BELOW THE CENTER OF GRAVITY OF THE CONCRETE BOX CROSS-SECTION.
- PRESTRESSING OF THE STRUCTURES SHALL BE DONE IN A MANNER SUCH THAT NO TENSILE STRESSES ARE CREATED IN THE CONCRETE.
- ALL SEGMENTS SHALL BE MATCH CAST TO ENSURE PROPER FIT DURING THE ERECTION STAGES. DURING CASTING, SEGMENTS MUST BE ALIGNED TO ACHIEVE FINAL STRUCTURE GEOMETRY. AT THIS TIME, ALL CORRECTIONS FOR DEFLECTIONS, CAMBER, AND DEFORMATIONS DUE TO CREEP, ELASTIC SHORTENING, ETC. MUST BE COMPENSATED FOR IN THE FORM.
- PRESTRESSING STEEL PROPERTIES USED IN THE DESIGN CALCULATIONS ARE FOR TENDONS WITH AN ULTIMATE STRENGTH OF 270 K.S.I. CALCULATIONS MUST BE SUBMITTED FOR DEPARTMENT APPROVAL IF ANOTHER TYPE OF PRESTRESSING STEEL IS SUBSTITUTED. TENDONS SHALL BE SHIPPED IN MOISTURE-PROOF CONTAINERS THAT CAN BE STORED AT THE JOB SITE FOR AN EXTENDED PERIOD OF TIME WITHOUT CORRODING FROM ATMOSPHERIC CONDITIONS.
- REQUIRED PRESTRESSING FORCES (P_f) AND MOMENTS ($P_f \times e$) ARE BASED ON A SEGMENT LENGTH OF 6'-6" OR 7'-8" AS SHOWN ON THIS DRAWING OR DRAWING B-9. DESIGN CALCULATIONS FOR ALTERNATIVE CONSTRUCTION SCHEMES MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- PROVISIONAL PRESTRESSING USED DURING CONSTRUCTION MUST HAVE ENGINEERS APPROVAL.
- IF ONE END STRESSING IS USED, ALTERNATE TENDONS SHALL BE STRESSED FROM OPPOSITE ENDS. LONGITUDINAL TENDONS LOCATED IN BOTTOM SLAB SHALL BE STRESSED AFTER CLOSURE POUR IS MADE AND TOP SLAB TENDONS ARE STRESSED.
- RECTANGULAR ANCHOR PLATES SHALL BE USED TO MINIMIZE FLARES. ALTERNATE ANCHORAGE AND CONSTRUCTION JOINT DETAILS, TO FIT THE PRESTRESSING SYSTEM USED, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- GIRDER STEMS SHALL BE FLARED AS NECESSARY NEAR ANCHORAGE TO PROVIDE A 2" MINIMUM OF CONCRETE COVERING THE DUCTS: THE FLARE SHALL BE ON INSIDE OF THE GIRDER ONLY.
- BAR REINFORCING INTERFERING WITH THE PRESTRESSING TENDON ALIGNMENT SHALL BE ADJUSTED AS DIRECTED BY ENGINEER.
- TENDON DUCTS MUST BE PRECISELY ALIGNED DURING PRODUCTION. IMPLANTABLE RUBBER OR SUITABLY RIGID MATERIAL SHALL BE USED TO PREVENT ANY INDENTATIONS OR COLLAPSE OF DUCTS.
- PROVIDE ADEQUATE SUPPORT FOR TENDON DUCTS TO PREVENT ALIGNMENT CHANGES DURING CONCRETE PLACEMENT.
- A MAXIMUM OF 3 DUCTS MAY BE BUNDLED INTO VERTICAL UNITS. MINIMUM HORIZONTAL CLEARANCE BETWEEN DUCT UNITS SHALL BE 2-1/2 IN. MINIMUM VERTICAL CLEARANCE BETWEEN DUCT UNITS SHALL BE 3 IN.
- GROUTING IS TO BE DONE AFTER PRESTRESSING IS COMPLETED IN ANY ONE SPAN IN SUCH A WAY THAT GROUTING CANNOT INTERFERE WITH THREADING AND STRESSING OF TENDONS.
- CARE SHALL BE EXERCISED IN JOINING THE SEGMENTS TO ENSURE THAT A MINIMUM COMPRESSION OF 30 PSI IS MAINTAINED OVER THE ENTIRE JOINT AREA UNTIL THE PERMANENT POST-TENSIONED TENDONS ARE STRESSED.
- SEGMENT JOINTS SHALL HAVE A THOROUGH COATING OF EPOXY TO ELIMINATE VOIDS BETWEEN TENDON DUCTS.
- A COMPLETE SET OF DEFLECTION CALCULATIONS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL 60 DAYS PRIOR TO STARTING SUPERSTRUCTURE CONSTRUCTION.
- THE CAMBER TO BE USED WILL DEPEND ON SEGMENT LENGTH, STRENGTH, WEIGHT AND CREEP OF CONCRETE, PRESTRESSING, WEIGHT OF FALSE-WORK, AND INCIDENTAL CONSTRUCTION LOADS.
- CONTRACTOR WILL BE REQUIRED TO CHECK CAMBER AT INTERMEDIATE ERECTION STEPS AND PROVIDE CAMBER ADJUSTMENTS WITH SUPPORTING CALCULATIONS.
- FALSEWORK AT CLOSURE POURS SHALL BE SUPPORTED SUCH THAT APPLIED LOADS WILL RESULT IN EQUAL DEFLECTIONS OF EACH CANTILEVER.
- TYPICAL SECTION REINFORCING (SEE DWG. NO. B-8) SHALL EXTEND INTO CLOSURE POURS.
- SUPERSTRUCTURE CONCRETE FOR THE SEGMENTS FROM THE GIRDER ANCHORS TO THE SECOND SEGMENT BEYOND THE BEARINGS AT EACH ABUTMENT SHALL HAVE $f'_c = 5500$ P.S.I. ALL OTHER SUPERSTRUCTURE CONCRETE TO HAVE $f'_c = 5000$ P.S.I.
- WEB STIFFENERS AS SHOWN ON THE PLANS ARE FOR ILLUSTRATION ONLY. THE CONTRACTOR MUST SUBMIT CALCULATIONS FOR APPROVAL IF OTHER TYPES OF ANCHORAGE DETAILS ARE TO BE USED.
- WEB STIFFENER REINFORCING DETAILS SHALL BE SUBMITTED FOR THE ANCHORAGE SYSTEM USED.

DIVISION OF HIGHWAYS

NEGATIVE (CANTILEVER)
PRESTRESSING CURVE
AND
PRESTRESSING DETAILS

Designer A. Eriksen	Structure F-12-AK
Detailer D. Griner	Numbers
Drawing Number B-10	of 13 Drawings

Revision Order (Preliminary Stage Only)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XIII	COLORADO	170-2(80)197	26	

REVISIONS	

NOTES
THE EXPANSION DEVICE SHALL BE INSTALLED ON GRADE, PARALLEL TO THE SLOPE AND GRADE OF THE DECK.

AFTER THE CONCRETE HAS ATTAINED INITIAL SET, THE ATTACHMENTS USED TO HOLD THE ANGLE ASSEMBLY IN ITS PROPER POSITION SHALL BE REMOVED.

DO NOT PAINT STEEL SURFACES IN CONTACT WITH CONCRETE AND PREMOLDED EXPANSION DEVICE.

"W", "T", "Ø", AND "Δ" DIMENSIONS ARE DEPENDENT UPON THE PARTICULAR PREMOLDED DEVICE SUPPLIED, AND SHALL BE SHOWN ON THE SHOP DRAWINGS.

THE SHOP DRAWINGS SHALL INDICATE THE "W" DIMENSION AT A RANGE OF TEMPERATURES FROM 30° TO 100° ASSUMING A MID-POINT TEMPERATURE OF 40°.

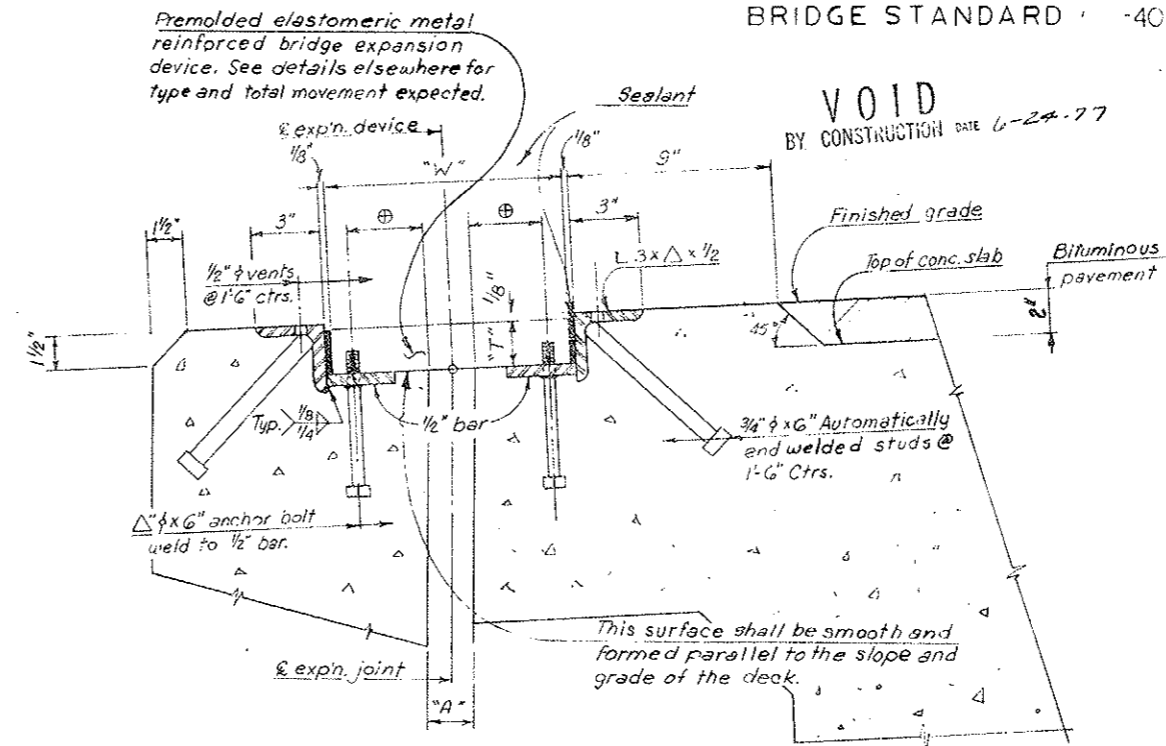
ANGLE AND PLATE ASSEMBLIES TO EXTEND GUTTER TO GUTTER ONLY.

ALL SECTIONS OF THE PREMOLDED EXPANSION DEVICE SHALL BE JOINED BY USING THE MANUFACTURER'S STANDARD WATERPROOF JOINT.

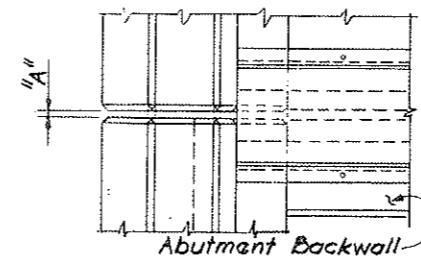
ALL CURB UNITS SHALL BE FULL WIDTH, OR GUTTER LINE, FOR SKEW ANGLES AS SPECIFIED ON THE PLANS.

ALL ANCHORS SHALL BE CAST IN PLACE BOLTS OR THREADED CAST IN PLACE CONCRETE INSERTS EXCEPT FOR CURB AND WALK UNITS WHICH MAY BE INSTALLED BY THE USE OF APPROVED DRILLED IN PLACE ANCHOR UNITS.

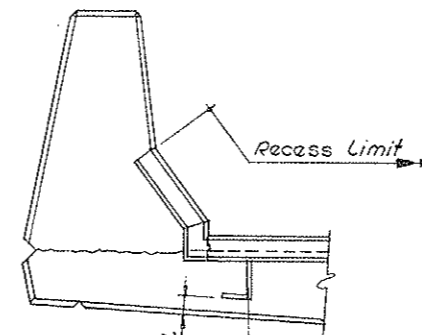
OPENING IN CURB AND SIDEWALK TO BE CONSTRUCTED TO THE EXACT WIDTH OF THE EXISTING DECK OPENING.



SECTION THRU EXPN. DEVICE



PLAN



ELEVATION

DETAILS OF EXPANSION JOINT AT GUARDRAIL

*Bridge Expansion Device Type 1 to be used for both Abutments

Premolded Bridge Expansion Device			
Outside Temp.	*Type 1	(Type 2)	(Type 3)
	Dim. "A" (Min.)	Dim. "A" (Min.)	Dim. "A" (Min.)
30°	1 5/8"	2 1/4"	2 3/8"
40°	1 1/2"	2 1/8"	2 3/8"
50°	1 3/8"	2"	2 1/2"
60°	1 1/4"	1 7/8"	2 3/8"
70°	1 1/8"	1 5/8"	2 1/8"
80°	1"	1 1/2"	2"
90°	7/8"	1 1/8"	1 3/4"
100°	3/4"	1 1/4"	1 5/8"

Premolded Bridge Expansion Device			
Outside Temp.	(Type 4)	(Type 6)	(Type 7)
	Dim. "A" (Min.)	Dim. "A" (Min.)	Dim. "A" (Min.)
30°	4 3/8"	5 3/8"	
40°	4 1/8"	4 7/8"	
50°	3 7/8"	4 1/2"	
60°	3 3/8"	4"	
70°	3 1/4"	3 3/4"	
80°	3"	3 1/4"	
90°	2 3/4"	2 3/4"	
100°	2 1/2"	2 3/8"	

DIVISION OF HIGHWAYS

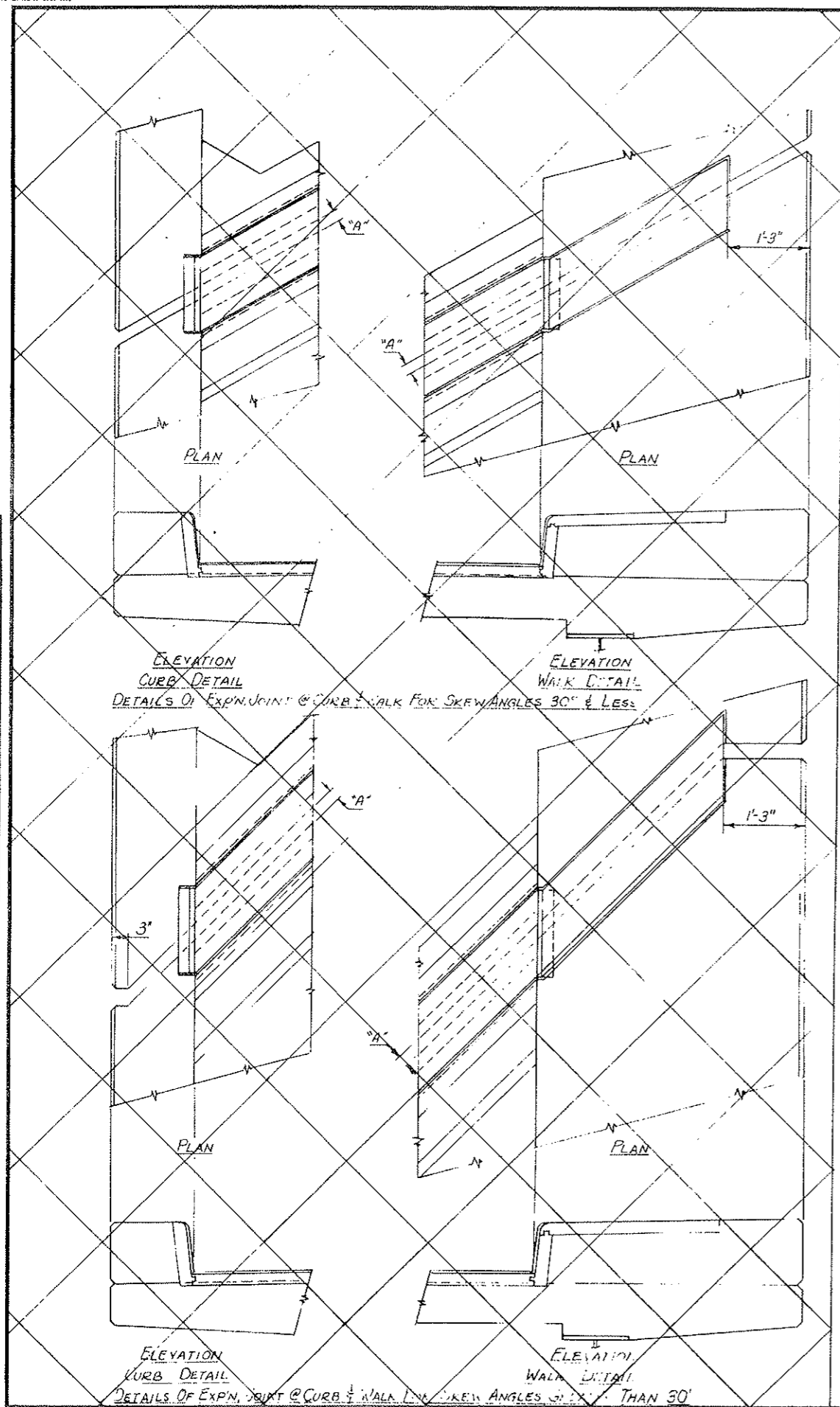
BRIDGE EXPANSION DEVICE
PREMOLDED ARMORED

Designer D. Hoflin	Structure Numbers F-12-AK
Detailer J.R. EWERT	Drawings of 13
Drawing Number B-12	

Revision Dates (Preliminary Stage Only)

(7114)

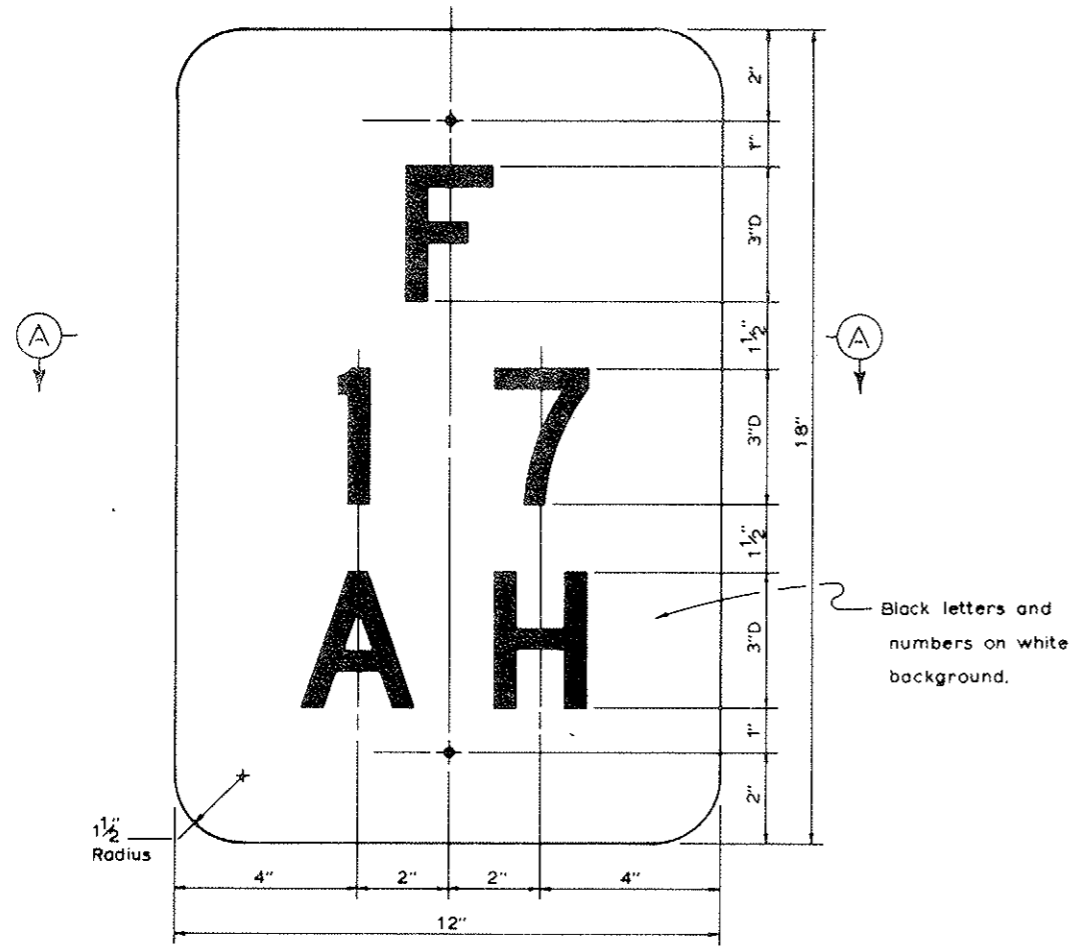
DESIGNED BY	CHECKED BY
DRAWN BY	CHECKED BY
DATE	DATE



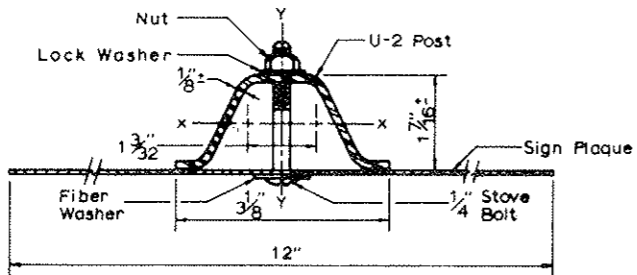
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-2(52)197	27	

REVISIONS	

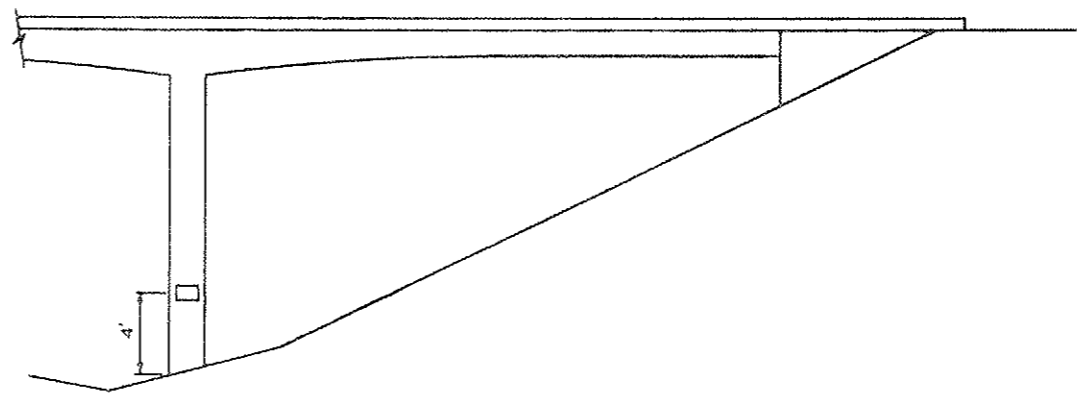
VOID
 BY CONSTRUCTION DATE 6-27-77



STRUCTURE IDENTIFICATION PANEL
 (SAMPLE NUMBERS & LETTERS)

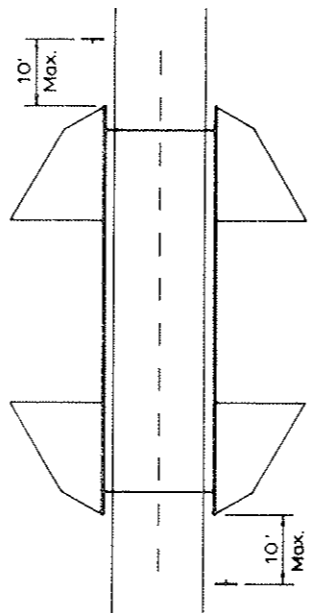


SECTION A

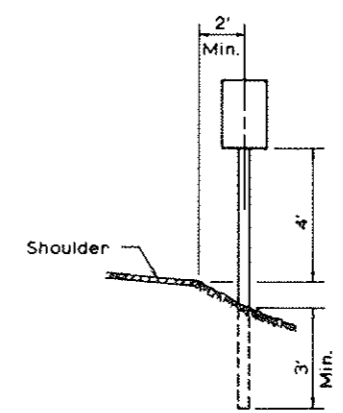


STRUCTURE NUMBER LOCATION
 ON PIERS

Black letters and numbers on white background.



STANDARD LOCATION DETAIL



U-2 POST IN GROUND

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.

SIGN PANEL SHALL BE FABRICATED FROM EITHER SHEET STEEL 0.0598 MIN. THICKNESS OR SHEET ALUMINUM 0.080 MIN. THICKNESS.

SIGN PANEL SHALL BE GROUND MOUNTED.

U-2 POST SHALL MEET REQUIREMENTS OF PAR. 4.5 U.S. DEPT. OF COMMERCE, COMMERCIAL STANDARD 184-81. ACCEPTABLE MATERIAL INCLUDES REROLLED RAILROAD RAILS. U-2 POST SHALL WEIGH 2 LBS. PER FT. EXCEPT THAT A MILL TOLERANCE OF MINUS 3-1/2% OF THE WEIGHT OF ANY ONE POST WILL BE ALLOWED. ALTERNATE METAL POST WILL BE ACCEPTABLE IF SECTION MODULUS IS AT LEAST 0.200 IN.³ ABOUT THE X-X AXIS AND AT LEAST 0.260 IN.³ ABOUT THE Y-Y AXIS.

SIGN PANEL SHALL BE FASTENED DIRECTLY TO THE POST WITH TWO 1/4" GALVANIZED OR CADMIUM PLATED STOVE BOLTS. A PLASTIC FIBER WASHER SHALL BE PLACED BETWEEN THE BOLTS HEAD AND THE FACE OF THE PANEL. A GALVANIZED OR CADMIUM PLATED LOCK WASHER SHALL BE PLACED UNDER THE NUT ON THE BACK OF THE POST. EXPOSED BOLT HEADS AND FIBER WASHERS ON THE FACE OF THE SIGN PANEL SHALL BE PAINTED TO MATCH THE SURROUNDING COLOR.

LETTERS AND NUMBERS SHALL BE SERIES "D". THEY SHALL BE 3" HIGH.

THE CORRECT STRUCTURE NUMBER IS SHOWN ON THE PLANS.

① OMIT STRUCTURE NUMBER STANDARDS WHERE A RAILROAD TRACK CROSSES OVER THE ROADWAY.

STRUCTURE NUMBER STANDARD SHALL NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE WORK.

IN ADDITION TO THE REQUIREMENTS STATED ABOVE, STRUCTURE NUMBERS FOR HIGHWAYS PASSING UNDER CROSSROADS ARE TO BE PLACED AT THE FOLLOWING POINTS:

- (A) FOR STRUCTURES OF THREE OR MORE SPANS, THE STRUCTURE NUMBER SHALL BE STENCILED, FACING TRAFFIC, ON THE OUTSIDE FACE OF THE END COLUMN OF THE RIGHT HAND PIER.
- (B) FOR TWO SPAN STRUCTURES, THE STRUCTURE NUMBER SHALL BE STENCILED, FACING TRAFFIC, ON THE OUTSIDE FACE OF EACH END COLUMN OF THE CENTER PIER.

DIVISION OF HIGHWAYS	
STRUCTURE NUMBER STANDARD	
Designer <i>D. Hoflin</i>	Structure Numbers <i>P-12-AK</i>
Detailer <i>B. R. Lape</i>	
Drawing Number <i>B-</i>	<i>1</i> of <i>1</i> Drawings

GENERAL NOTES:

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE DIVISION OF HIGHWAYS, STATE OF COLORADO, APPLICABLE TO THE PROJECT.

ALL CONCRETE SURFACES AS REFERRED TO IN THE SPECIFICATIONS SHALL RECEIVE A CLASS 7 SURFACE FINISH.

ALL CONCRETE CHAMFERS SHALL BE 3/4 INCH UNLESS OTHERWISE NOTED.

EXPANSION JOINT MATERIAL SHALL MEET A.A.S.H.T.O. SPECIFICATION M 213-65 AND SHALL BE INCLUDED IN THE PAYMENT FOR ITEM NO. 601.

SOUNDINGS AND DEPTH OF FOOTINGS ARE IN ACCORDANCE WITH THE BEST AVAILABLE DATA. WHEN DIFFERENT CONDITIONS ARE ENCOUNTERED, THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.

WHEN EXCAVATING FOR FOOTINGS, THE FINAL SIX INCHES IN DEPTH SHALL BE DONE BY HAND LABOR METHODS.

FOOTINGS IN ROCK SHALL NOT BE FORMED BUT SHALL BE PLACED AGAINST UNDISTURBED ROCK.

FOR DETAILS OF STRUCTURE EXCAVATION AND STRUCTURE BACKFILL, SEE STANDARD M-206-AA.

ALL STRUCTURAL STEEL NOT OTHERWISE NOTED SHALL BE A.A.S.H.T.O. SPECIFICATION M-222 (A.S.T.M. A 388).

STRUCTURAL STEEL FOR ALL SECONDARY MEMBERS WITH THE EXCEPTION OF BEARING STIFFENERS AND LONGITUDINAL STIFFENERS IN THE BOTTOM FLANGE MAY BE AASHTO SPECIFICATION M-183 (A.S.T.M. A 36).

IF A.S.T.M. A 36 STRUCTURAL STEEL IS USED FOR SECONDARY MEMBERS, ALL SUCH MEMBERS SHALL BE PAINTED WITH TWO COATS SHOP PAINT EXCEPT FOR EXTERIOR DIAPHRAGMS (X) EXTERIOR DIAPHRAGMS SHALL BE LEFT UNPAINTED.

ALL STRUCTURAL STEEL NOT OTHERWISE NOTED SHALL BE PAINTED IN ACCORDANCE WITH SECTION 509 FOR () PAINT.

NO WELDING OF ANY KIND SHALL BE PERMITTED ON THE FLANGES OF STEEL GIRDERS UNLESS SPECIFICALLY CALLED FOR IN THE PLANS.

BOLTS SHALL BE FURNISHED IN THE AMOUNT OF TWOPERCENT IN EXCESS OF THE NOMINAL NUMBER REQUIRED.

STRUCTURE WAS ANALYZED USING LOAD FACTOR DESIGN EXCEPT TRANSVERSE DECK SLAB WHICH WAS ANALYZED USING SERVICE LOAD DESIGN.

GRADE 60 REINFORCING STEEL REQUIRED FOR #5 BARS AND LARGER. GRADE 40 OR GRADE 60 MAY BE FURNISHED FOR #4 BARS.

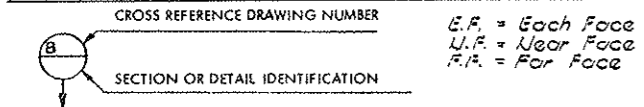
APPLIED WIND LOADS AND EARTHQUAKE LOADS WERE NOT CONSIDERED IN ANALYZING THE STRUCTURE FOR STABILITY DURING THE CONSTRUCTION STAGES.

The exterior face of the outside web of each steel box girder shall be sand blast cleaned in accordance with subsection 509.33 (b) 2 of the standard specifications. All other exposed surfaces shall be cleaned as outlined in section 509.33 (b) 1.

Welds which are exposed to view will require weld metal with coloring characteristics similar to that of the base metal.

The following table shows the minimum lap for common bar sizes

Bar Size	Number	4	5	6	7	8	9	10	11
Splice Grade 40	11.0"	1.3"	1.6"	1.9"	2.2"	2.8"	3.5"	4.3"	
Length Grade 60	1.6"	1.11"	2.3"	2.8"	3.0"	3.5"	4.2"	5.0"	



LOADING DATA

LIVELOAD: A.A.S.H.T.O. 115-20-44 OR INTERSTATE ALTERNATE
DEADLOAD: ASSUMES 25 LBS. PER SQ. FT. FOR BITUMINOUS PAVEMENT

DESIGN DATA:

A.A.S.H.T.O. 1973 LIMIT STRESSES, AND 1974 INTERIM SPECIFICATIONS, EXCEPT AS NOTED.

REINFORCING STEEL: GRADE 60 - FY = 60,000 LBS. PER SQ. IN., FS = 24,000 LBS. PER SQ. IN.
GRADE 40 - FY = 40,000 LBS. PER SQ. IN., FS = 20,000 LBS. PER SQ. IN.

STRUCTURAL STEEL: A36, GRADE 36 - FY = 36,000 LBS. PER SQ. IN., A588, GRADE 50 - FY = 50,000 LBS. PER SQ. IN.

CONCRETE: CLASS A & D - F_c = 3000 LBS. PER SQ. IN., N_c = 9

SUMMARY OF QUANTITIES

Item	Description	Unit	Super-structure	Abut. U#1	Abut. U#2	Totals
200	Structure Excavation	Cu.Yd.	221	442	466.19	908.240
200	Structure Backfill (Class 2)	Cu.Yd.		90	90.75	172.171
211	Rock Anchor	Lin.Ft.		215	204	420
②	403 Hot Bituminous Pavement ()	Ton	115			115
②	411 Asphalt Cement ()	Ton				
502	Steel Piling (HP 12 x 74)	Lin.Ft.		295.6	332.0	627.6
①	509 Structural Steel	Lbs.	307,345	8894	8894	325,333
②	512 Bearing Device (Capacity = 251-500 tons)	Eq.		2	2	4
③	515 Waterproofing (Membrane)	Sq.Yd.	950			950
③	518 Bridge Expansion Device (Type 1)	Lin.Ft.			38	38
(R-1)	518 Bridge Expansion Device (Type 2)	Lin.Ft.		38		38
001	Concrete Class "A" (Bridge)	Cu.Yd.		30.89	30.11	61.00
001	Concrete Class "A" (Bridge) (Colored)	Cu.Yd.		57	57	114
001	Concrete Class "D" (Bridge)	Cu.Yd.	190.95	48.35	57.48	296.78
001	Concrete Class "D" (Bridge) (Colored)	Cu.Yd.	190.95	48.35	57.48	296.78
002	Reinforcing Steel	Lbs.	97,505	8966	9,083	115,552
020	Mobilization	L.S.				0.1

AS CONSTRUCTED
REVISED DATE: 6-24-77

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	28	

REVISIONS			
(R-1)	11/17/76	Changed Expan. Device	TCF
(R-2)	4-29-75	Removed "D2" from note	B.D.E.

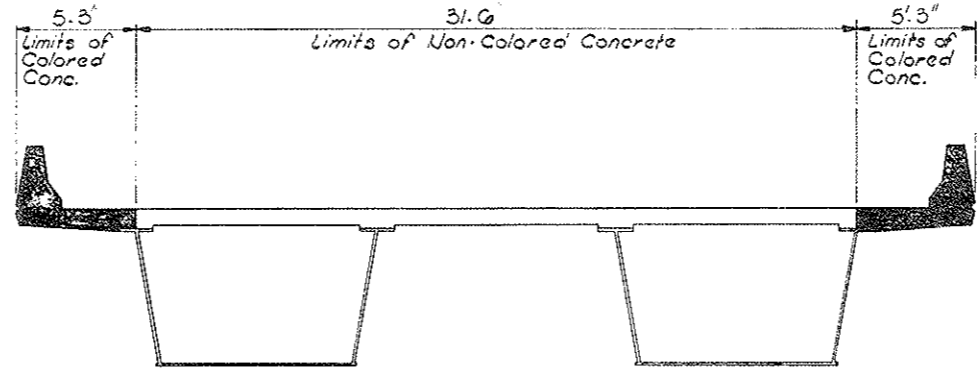
INDEX OF DRAWINGS

Dwg. No.	Title
B-1	General Information - Summary of Quantities
B-2	General Layout
B-3	Engineering Geology
B-4	Elevations
B-5	Construction Layout and Piling Layout
B-6	Abutment 1 and 2 Details (Sheet 1 of 2)
B-7	Abutment 1 and 2 Details (Sheet 2 of 2)
B-8	Deck Plan and Typical Deck Section
B-9	Superstructure Framing - Plan and Details
B-10	Girder Details
B-11	Bridge Rail Type 4
B-12	Bridge Expansion Device - Pramolded
B-13	Structure Number Standard

BRIDGE EXPANSION DEVICES
TRANSFLEX TYPES 150C, 200A, 400A, 65D
1 2

- ② Includes masonry plates
- ③ Future Items
- ① Includes: 285,365 Lbs. ASTM A588 Steel (Girders)
35,556 Lbs. ASTM A36 Steel (Girder Anchors, Connector Plates, Rolled Shapes)
1,903 Lbs. ASTM A325 Steel (Anchor Bolts and Shear Studs)
1,608 Lbs. ASTM A325 Steel - Type B (Splice Bolts)
786 Lbs. ASTM A327 Class A Steel (Connector Pins)

BRIDGE DESCRIPTION
3-Continuous Spans (30'-0", 100'-0", 30'-0")
Composite Concrete Slab and Welded Steel Box Girder Bridge



PORTIONS OF DECK TO BE POURED WITH COLORED CONCRETE
Orig. Scale: 1/4" = 1'-0"

DIVISION OF HIGHWAYS
GENERAL INFORMATION
SUMMARY OF QUANTITIES

Station 8G0+26.5 to 8G2+53.5
Station

Near Vail Pass Sec. 22 T. 6 R. 79 W

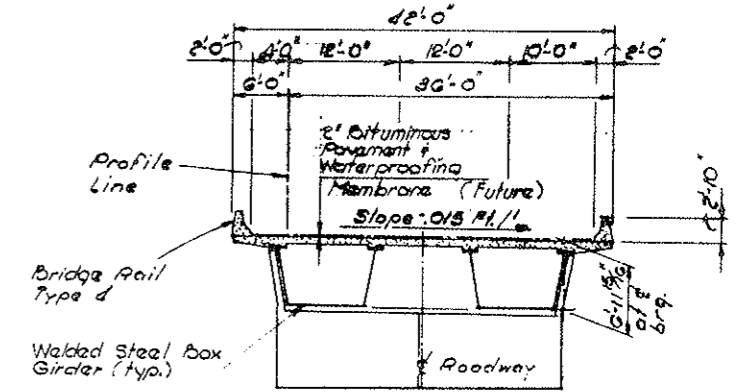
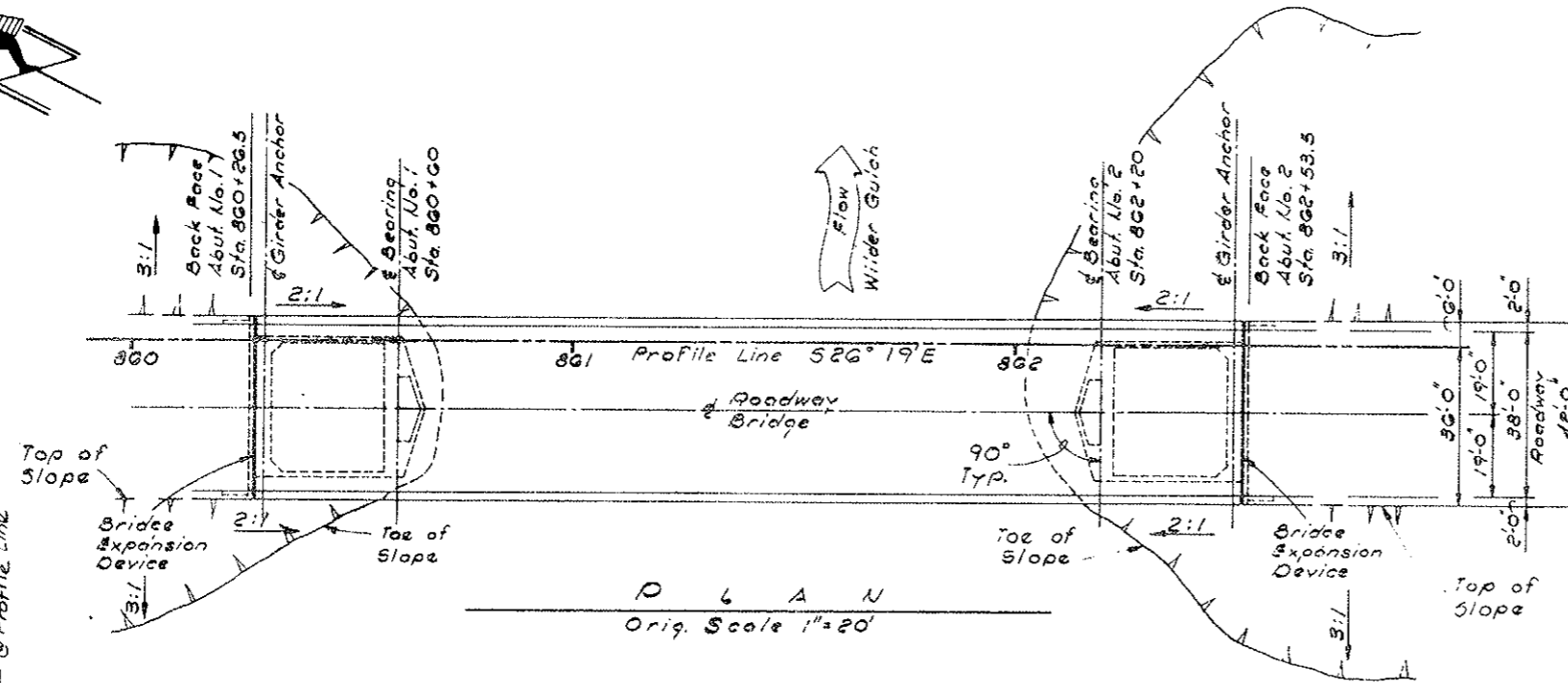
Designer D. Hoplin Structure Numbers F-12-AK
Detailer U. Williams
Drawing Number B 1 of 13 Drawings

Revision Dates	(Preliminary Stage Only)

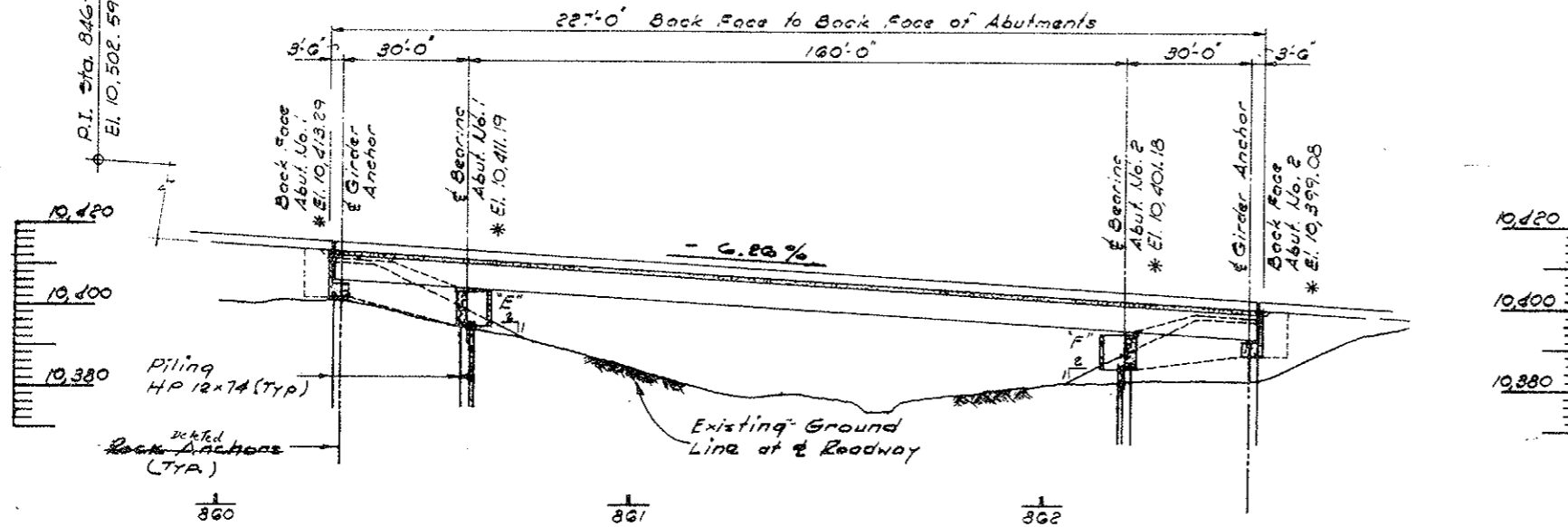
FEDERAL ROAD DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	29

REVISIONS	

AS CONSTRUCTED
REVISED DATE: 12-24-77



DESIGNED BY	CHECKED BY
DRAWN BY	QUANTITIES BY
CHECKED BY	CHECKED BY
DETERMINED BY	DETERMINED BY



3" Indicates Expansion Bearing
2" Indicates Fixed Bearing
* Elevations are to finished roadway taken along Profile Line

PILING NOTES

Type	Location	Est. Tip Elev.
HP 12x74	Abut. No. 1	10,375.00 10,376.97
HP 12x74	Abut. No. 2	10,367.00 10,368.67

~~ROCK ANCHOR NOTES~~

Type	Location	Est. Tip Elev.
Prestressed resin anchored rebars	Abut. No. 1	10,351.00
Prestressed resin anchored rebars	Abut. No. 2	10,340.00

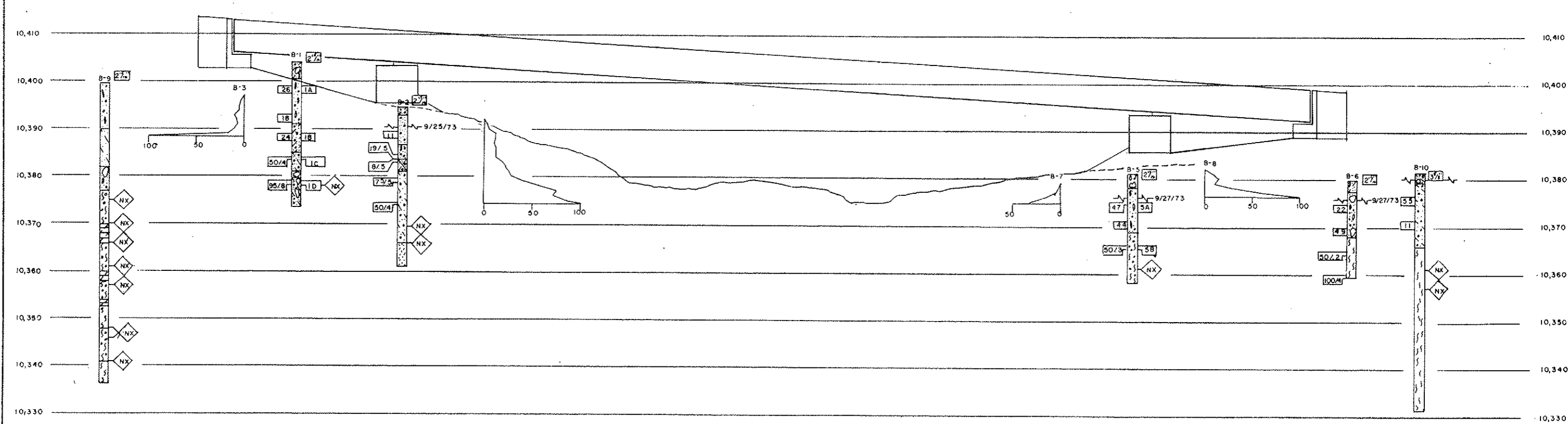
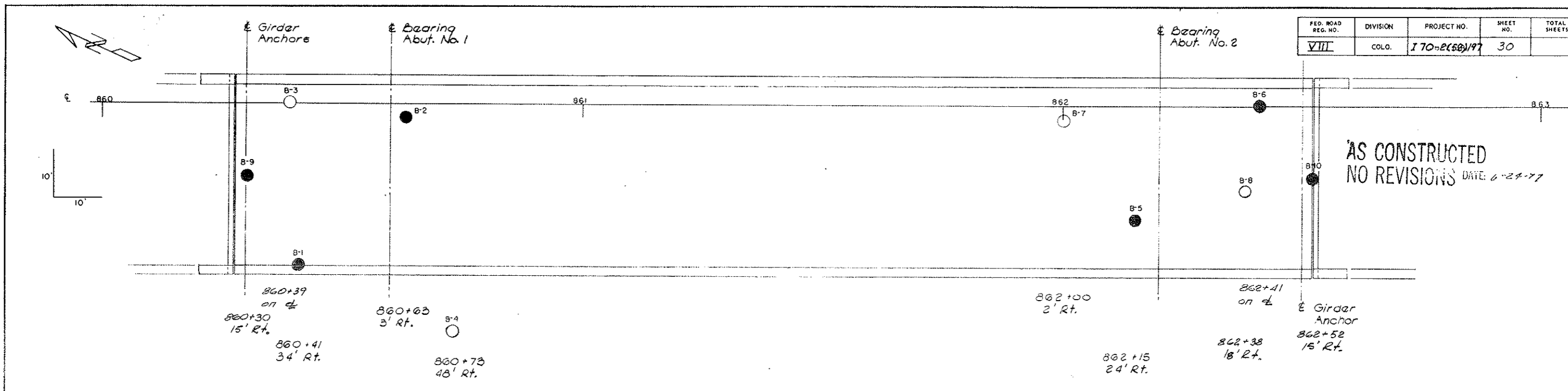
"Live Loading - HS 20-44 or Interstate Alternate."

DIVISION OF HIGHWAYS

GENERAL LAYOUT

Designer H. Mehen	Structure Numbers F-12-AR
Detailer D. Grogan	of 13 Drawings
Drawing Number 5-2	

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	170-2(56)/97	30	



SUMMARY OF TEST RESULTS

Sample No.	Depth	Classification	Grading Analysis				Atterberg Limits			Water Cont. %	Unconfined Strength Q_u	Triaxial Shear Strength						Dia. of Sample (Inches)
			AASHTO	Percent			Liquid Limit w_L	Plastic Limit w_P	Plasticity Index I_P			Unconsolidated		Consolidated		Time (hrs.)	Pressure (P.S.I.)	
				Gravel	Coarse Sand	Fine Sand						β	c	β	c			
1A	5.0 - 6.5	SILTY SANDY GRAVEL	A-2-4(0)	33	1	23	33	NV	NP	NP	13							
1B	15 - 16.5	SILT	A-4(1)	5	4	8	85	23	20	3	10.5							
1C	20 - 20.4	SILTY SANDY GRAVEL	A-4(0)	35	10	17	38	18	16	2	8.7							
1D	25 - 25.8	"	A-1-a(0)	51	22	14	13	NV	NP	NP	7.6							
5A	5 - 6.5	"	A-1-b(0)	51	18	17	14	NV	NP	NP	10.8							
5B	15 - 15.8	SANDY GRAVEL	"	51	16	23	10	NV	NP	NP	7.9							

TYPE OF MATERIAL

1A SAND & GRAVEL w/ COBBLES	2A SANDY, GRAVELLY SILT
1B SILTY SAND	2B SILTY SAND & GRAVEL
1C SAND & GRAVEL w/ COBBLES & BOULDERS	2C BOULDERS
1D CONGLOMERATE	2D SILTY SAND & GRAVEL w/ BOULDERS
1E SILTSTONE	2E SAND & GRAVEL
1F SANDSTONE	2F CLAYEY SILT w/ SAND & GRAVEL
1G SANDY, GRAVELLY SILT w/ COBBLES & BOULDERS	2G METAMORPHIC

LEGEND

TEST BORING

- Gravel, Cobbles & Boulders
- Silt w/ Sand & Gravel
- 2 in. O.D. Split-Tube Sampler
- 140 Lb. Hammer
- 30 in. Free Fall
- Hole Size
- Sample No.
- Water Table
- 2/16/67
- Core Size

CONTINUOUS PENETRATION TEST

- 2 in. Dia. Drive Point
- 140 Lb. Hammer
- 30 in. Free Fall
- Blows per Foot
- 0 50 100
- Blows per Foot

- Location of Test Boring
- Location of Continuous Penetration Test
- Rotary Boring
- Auger Boring
- ◇ Core Boring

**DIVISION OF HIGHWAYS
 STATE OF COLORADO**

ENGINEERING GEOLOGY

Across WILDER GULCH
 Sta. 860+26.50 TO 862+55.50
 Near WALK BASIN, Sec. 22, T. 25S, R. 77W
 Geologist A.C.E. Approved by
 Made by S.M.O. Bridge Engineer
 Checked by S.M.O. Date: 19

STRUCTURE NO. F-12-AK
 DWG. NO. 8-2 OF 13

VAIL PASS BRIDGE AT I-70
 STA. 861+00
 HEWEN ENGINEERING CO.
 ELEVATIONS ARE TOP
 OF CONCRETE DECK.

INPUT DATA FOR BRIDGE

POT = 860 + 26.5000 ALPHA = 0 0 0.00 ROWY = 36.0000 GVK = -6.2600
 PI = 851 + 0.0000 EPI = 10471.1233 VC = 10 GAV = -6.2600
 TYPE = 1 SLOPE = -.0150

BACK FACE ABUT. 1	STATION	ELEVATION
EAST OUTSIDE	860 + 21.50	10412.08
EAST INSIDE	860 + 26.50	10412.15
CL 1	860 + 21.50	10412.01
PROFILE LINE	860 + 21.50	10412.09
CL 22	860 + 21.50	10412.15
CL ROADWAY	860 + 26.50	10412.07
CL 27	860 + 21.50	10412.09
CL 34	860 + 21.50	10412.07
WEST INSIDE	860 + 21.50	10412.28
WEST OUTSIDE	860 + 26.50	10412.15

CL ANCHOR ABUT. 1
 CL BEARING ABUT. 1

EAST OUTSIDE

STA BACK	STATION	ELEVATION
STA BACK	860 + 30.00	10413.00
1 20TH	860 + 31.50	10412.90
2 20TH	860 + 33.00	10412.81
3 20TH	860 + 34.50	10412.71
4 20TH	860 + 36.00	10412.62
5 20TH	860 + 37.50	10412.53
6 20TH	860 + 39.00	10412.43
7 20TH	860 + 40.50	10412.34
8 20TH	860 + 42.00	10412.24
9 20TH	860 + 43.50	10412.15
10 20TH	860 + 45.00	10412.06
11 20TH	860 + 46.50	10411.96
12 20TH	860 + 48.00	10411.87
13 20TH	860 + 49.50	10411.77
14 20TH	860 + 51.00	10411.68
15 20TH	860 + 52.50	10411.59
16 20TH	860 + 54.00	10411.49
17 20TH	860 + 55.50	10411.40
18 20TH	860 + 57.00	10411.31
19 20TH	860 + 58.50	10411.21
STA AHEAD	860 + 60.00	10411.12

CL G1

STA BACK	STATION	ELEVATION
STA BACK	860 + 30.00	10412.92
1 20TH	860 + 31.50	10412.82
2 20TH	860 + 33.00	10412.73
3 20TH	860 + 34.50	10412.63
4 20TH	860 + 36.00	10412.54
5 20TH	860 + 37.50	10412.45
6 20TH	860 + 39.00	10412.35
7 20TH	860 + 40.50	10412.26
8 20TH	860 + 42.00	10412.17
9 20TH	860 + 43.50	10412.07
10 20TH	860 + 45.00	10411.98
11 20TH	860 + 46.50	10411.88
12 20TH	860 + 48.00	10411.79
13 20TH	860 + 49.50	10411.70
14 20TH	860 + 51.00	10411.60
15 20TH	860 + 52.50	10411.51
16 20TH	860 + 54.00	10411.41
17 20TH	860 + 55.50	10411.32
18 20TH	860 + 57.00	10411.23
19 20TH	860 + 58.50	10411.13
STA AHEAD	860 + 60.00	10411.04

CL G2

STA BACK	STATION	ELEVATION
STA BACK	860 + 30.00	10412.76
1 20TH	860 + 31.50	10412.67
2 20TH	860 + 33.00	10412.57
3 20TH	860 + 34.50	10412.48
4 20TH	860 + 36.00	10412.38
5 20TH	860 + 37.50	10412.29
6 20TH	860 + 39.00	10412.20
7 20TH	860 + 40.50	10412.10
8 20TH	860 + 42.00	10412.01
9 20TH	860 + 43.50	10411.91
10 20TH	860 + 45.00	10411.82
11 20TH	860 + 46.50	10411.73
12 20TH	860 + 48.00	10411.63
13 20TH	860 + 49.50	10411.54
14 20TH	860 + 51.00	10411.44
15 20TH	860 + 52.50	10411.35
16 20TH	860 + 54.00	10411.26
17 20TH	860 + 55.50	10411.16
18 20TH	860 + 57.00	10411.07
19 20TH	860 + 58.50	10410.97
STA AHEAD	860 + 60.00	10410.88

CL G3

STA BACK	STATION	ELEVATION
STA BACK	860 + 30.00	10412.60
1 20TH	860 + 31.50	10412.51
2 20TH	860 + 33.00	10412.41
3 20TH	860 + 34.50	10412.32
4 20TH	860 + 36.00	10412.23
5 20TH	860 + 37.50	10412.13
6 20TH	860 + 39.00	10412.04
7 20TH	860 + 40.50	10411.94
8 20TH	860 + 42.00	10411.85
9 20TH	860 + 43.50	10411.76
10 20TH	860 + 45.00	10411.66
11 20TH	860 + 46.50	10411.57
12 20TH	860 + 48.00	10411.47
13 20TH	860 + 49.50	10411.38
14 20TH	860 + 51.00	10411.29
15 20TH	860 + 52.50	10411.19
16 20TH	860 + 54.00	10411.10
17 20TH	860 + 55.50	10411.01
18 20TH	860 + 57.00	10410.91
19 20TH	860 + 58.50	10410.82
STA AHEAD	860 + 60.00	10410.72

CL G4

STA BACK	STATION	ELEVATION
STA BACK	860 + 30.00	10412.44
1 20TH	860 + 31.50	10412.35
2 20TH	860 + 33.00	10412.26
3 20TH	860 + 34.50	10412.16
4 20TH	860 + 36.00	10412.07
5 20TH	860 + 37.50	10411.97
6 20TH	860 + 39.00	10411.88
7 20TH	860 + 40.50	10411.79
8 20TH	860 + 42.00	10411.69
9 20TH	860 + 43.50	10411.60
10 20TH	860 + 45.00	10411.51
11 20TH	860 + 46.50	10411.41
12 20TH	860 + 48.00	10411.32
13 20TH	860 + 49.50	10411.22
14 20TH	860 + 51.00	10411.13
15 20TH	860 + 52.50	10411.04
16 20TH	860 + 54.00	10410.94
17 20TH	860 + 55.50	10410.85
18 20TH	860 + 57.00	10410.75
19 20TH	860 + 58.50	10410.66
STA AHEAD	860 + 60.00	10410.57

WEST OUTSIDE

STA BACK	STATION	ELEVATION
STA BACK	860 + 30.00	10412.37
1 20TH	860 + 31.50	10412.27
2 20TH	860 + 33.00	10412.18
3 20TH	860 + 34.50	10412.08
4 20TH	860 + 36.00	10411.99
5 20TH	860 + 37.50	10411.90
6 20TH	860 + 39.00	10411.80
7 20TH	860 + 40.50	10411.71
8 20TH	860 + 42.00	10411.61
9 20TH	860 + 43.50	10411.52
10 20TH	860 + 45.00	10411.43
11 20TH	860 + 46.50	10411.33
12 20TH	860 + 48.00	10411.24
13 20TH	860 + 49.50	10411.14
14 20TH	860 + 51.00	10411.05
15 20TH	860 + 52.50	10410.96
16 20TH	860 + 54.00	10410.86
17 20TH	860 + 55.50	10410.77
18 20TH	860 + 57.00	10410.68
19 20TH	860 + 58.50	10410.58
STA AHEAD	860 + 60.00	10410.49

CL BEARING ABUT. 1
 CL BEARING ABUT. 2

EAST OUTSIDE

STA BACK	STATION	ELEVATION
STA BACK	860 + 60.00	10411.12
1 20TH	860 + 60.00	10410.62
2 20TH	860 + 76.00	10410.12
3 20TH	860 + 84.00	10409.61
4 20TH	860 + 92.00	10409.11
5 20TH	861 + 0.00	10408.61
6 20TH	861 + 8.00	10408.11
7 20TH	861 + 16.00	10407.61
8 20TH	861 + 24.00	10407.11
9 20TH	861 + 32.00	10406.61
10 20TH	861 + 40.00	10406.11
11 20TH	861 + 48.00	10405.61
12 20TH	861 + 56.00	10405.11
13 20TH	861 + 64.00	10404.61
14 20TH	861 + 72.00	10404.11
15 20TH	861 + 80.00	10403.61
16 20TH	861 + 88.00	10403.10
17 20TH	861 + 96.00	10402.60
18 20TH	862 + 4.00	10402.10
19 20TH	862 + 12.00	10401.60
STA AHEAD	862 + 20.00	10401.10

CL G1

STA BACK	STATION	ELEVATION
STA BACK	860 + 60.00	10411.04
1 20TH	860 + 68.00	10410.54
2 20TH	860 + 76.00	10410.04
3 20TH	860 + 84.00	10409.54
4 20TH	860 + 92.00	10409.04
5 20TH	861 + 0.00	10408.53
6 20TH	861 + 8.00	10408.03
7 20TH	861 + 16.00	10407.53
8 20TH	861 + 24.00	10407.03
9 20TH	861 + 32.00	10406.53
10 20TH	861 + 40.00	10406.03
11 20TH	861 + 48.00	10405.53
12 20TH	861 + 56.00	10405.03
13 20TH	861 + 64.00	10404.53
14 20TH	861 + 72.00	10404.03
15 20TH	861 + 80.00	10403.53
16 20TH	861 + 88.00	10403.03
17 20TH	861 + 96.00	10402.52
18 20TH	862 + 4.00	10402.02
19 20TH	862 + 12.00	10401.52
STA AHEAD	862 + 20.00	10401.02

CL G2

STA BACK	STATION	ELEVATION
STA BACK	860 + 60.00	10410.88
1 20TH	860 + 68.00	10410.38
2 20TH	860 + 76.00	10409.88
3 20TH	860 + 84.00	10409.38
4 20TH	860 + 92.00	10408.88
5 20TH	861 + 0.00	10408.38
6 20TH	861 + 8.00	10407.88
7 20TH	861 + 16.00	10407.38
8 20TH	861 + 24.00	10406.87
9 20TH	861 + 32.00	10406.37
10 20TH	861 + 40.00	10405.87
11 20TH	861 + 48.00	10405.37
12 20TH	861 + 56.00	10404.87
13 20TH	861 + 64.00	10404.37
14 20TH	861 + 72.00	10403.87
15 20TH	861 + 80.00	10403.37
16 20TH	861 + 88.00	10402.87
17 20TH	861 + 96.00	10402.37
18 20TH	862 + 4.00	10401.87
19 20TH	862 + 12.00	10401.37
STA AHEAD	862 + 20.00	10400.87

CL G3

STA BACK	STATION	ELEVATION
STA BACK	860 + 60.00	10410.72
1 20TH	860 + 68.00	10410.22
2 20TH	860 + 76.00	10409.72
3 20TH	860 + 84.00	10409.22
4 20TH	860 + 92.00	10408.72
5 20TH	861 + 0.00	10408.22
6 20TH	861 + 8.00	10407.72
7 20TH	861 + 16.00	10407.22
8 20TH	861 + 24.00	10406.72
9 20TH	861 + 32.00	10406.22
10 20TH	861 + 40.00	10405.72
11 20TH	861 + 48.00	10405.21
12 20TH	861 + 56.00	10404.71
13 20TH	861 + 64.00	10404.21
14 20TH	861 + 72.00	10403.71
15 20TH	861 + 80.00	10403.21
16 20TH	861 + 88.00	10402.71
17 20TH	861 + 96.00	10402.21
18 20TH	862 + 4.00	10401.71
19 20TH	862 + 12.00	10401.21
STA AHEAD	862 + 20.00	10400.71

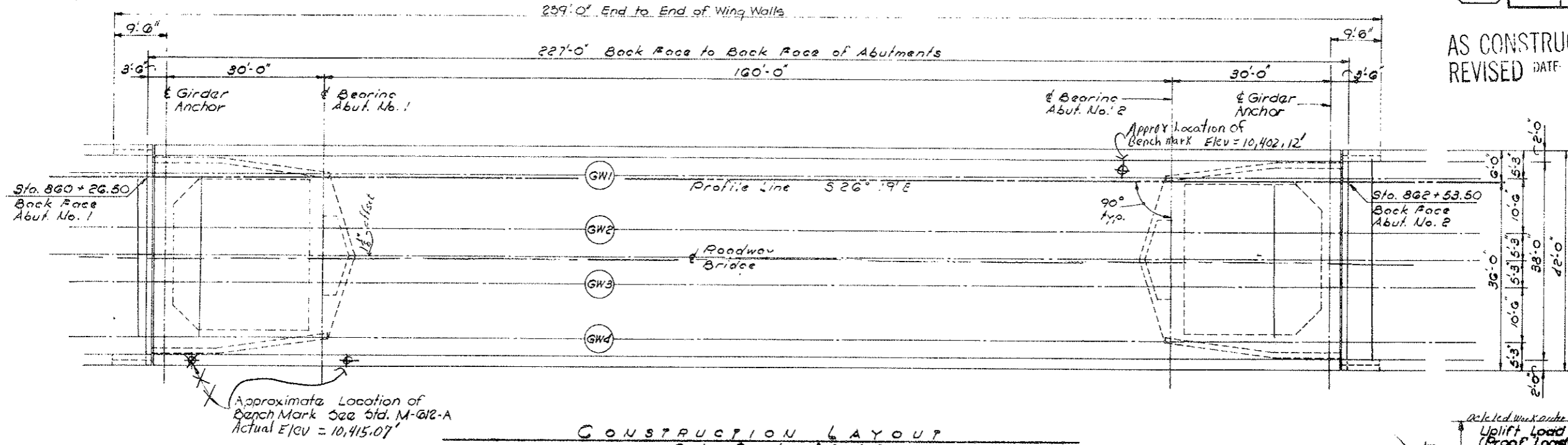
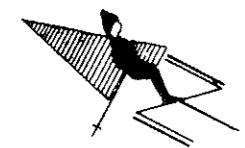
CL G4

STA BACK	STATION	ELEVATION
STA BACK	860 + 60.00	10410.57
1 20TH	860 + 68.00	10410.07
2 20TH	860 + 76.00	10409.56
3 20TH	860 + 84.00	10409.06
4 20TH	860 + 92.00	10408.56
5 20TH	861 + 0.00	10408.06
6 20TH	861 + 8.00	10407.56
7 20TH	861 + 16.00	10407.06
8 20TH	861 + 24.00	10406.56
9 20TH	861 + 32.00	10406.06
10 20TH	861 + 40.00	10405.56
11 20TH	861 + 48.00	10405.06
12 20TH	861 + 56.00	10404.56
13 20TH	861 + 64.00	10404.06
14 20TH	861 + 72.00	10403.55
15 20TH	861 + 80.00	10403.05
16 20TH	861 + 88.00	10402.55
17 20TH	861 + 96.00	10402.05
18 20TH	862 + 4.00	10401.55
19 20TH	862 + 12.00	10401.05
STA AHEAD	862 + 20.00	10400.55

WEST OUTSIDE

FEDERAL ROAD DISTRICT NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	32	

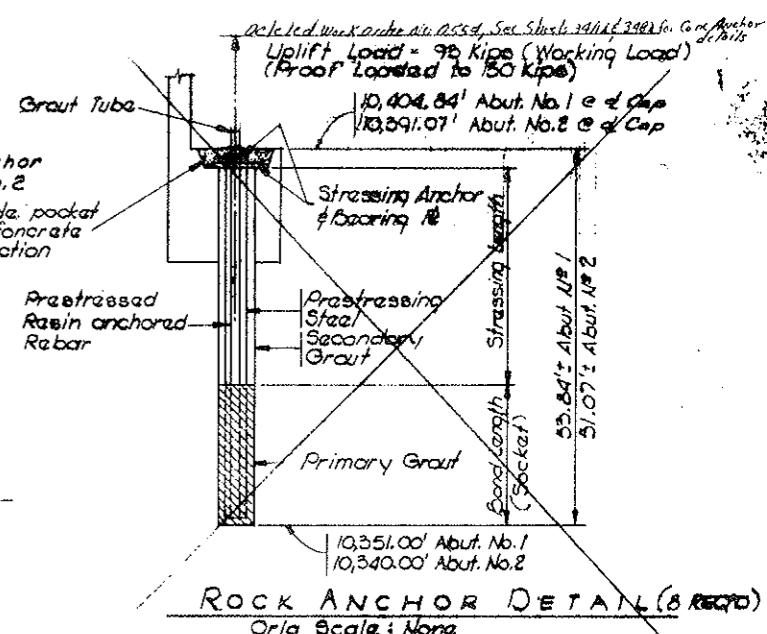
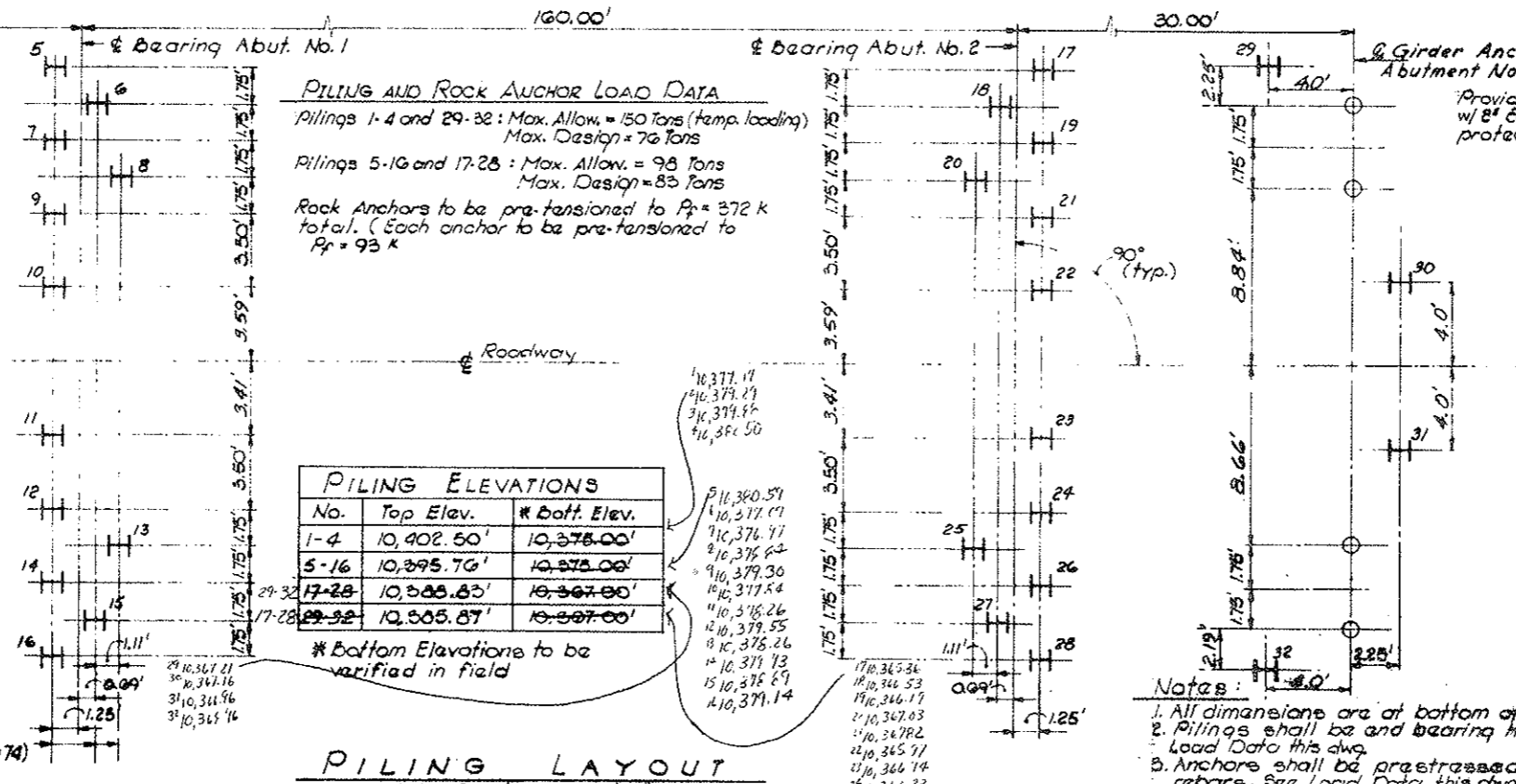
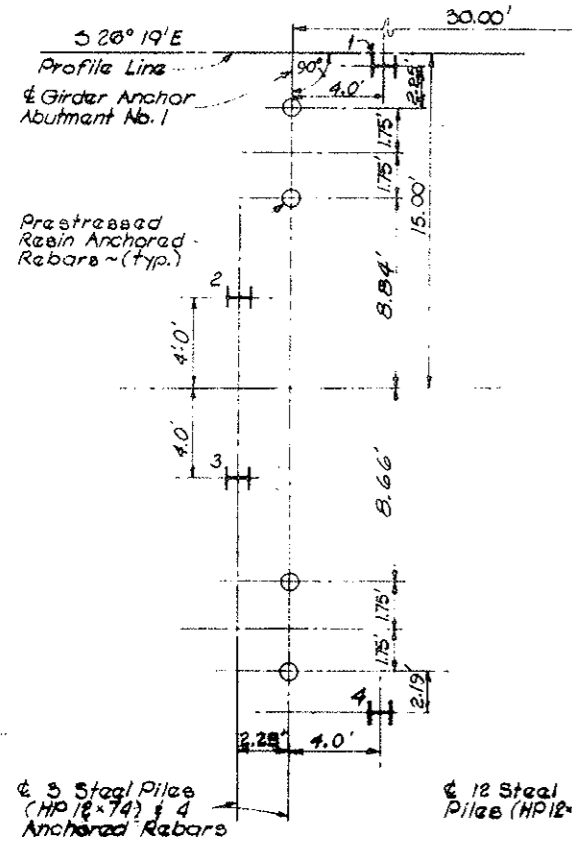
REVISIONS	



AS CONSTRUCTED
 REVISED DATE: 6-27-77

CONSTRUCTION LAYOUT
 Orig. Scale: 3/32" = 1'-0"

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DIVISION OF HIGHWAYS

CONSTRUCTION LAYOUT AND PILING LAYOUT

Designer: D. Hoffin
 Detailer: D. Grogan, Griner
 Drawing Number: B-5 of 13 Drawings

Structure: F-12-AK
 Numbers:

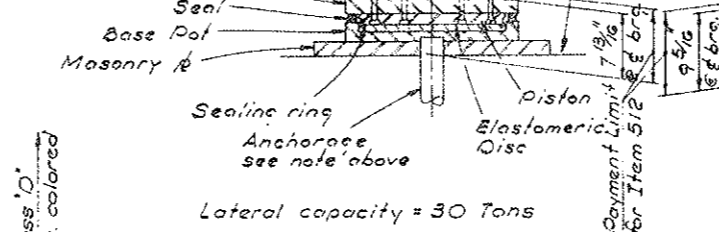
FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	34	

REVISIONS				
12-1	4-14-75	REPRINT		WCB
22	4-17-75	Added Note & Revised Anchorage		LS

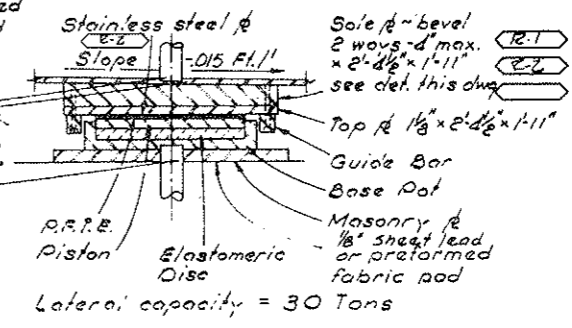
Note:
For allowable ultimate bearing pressures see dwg. B-6

Anchorage Note: Type of anchorage - both devices to be determined by bearing manufacturer and submitted on shop dwg's for Department approval.

Sole Pl. - bevel 2 ways
3/8" max. x 1'-11" sq.
see detail this dwg.



Lateral capacity = 30 Tons



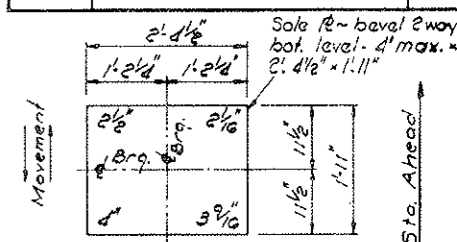
Lateral capacity = 30 Tons

FIXED FLOATING BEARING
Abut. No. 2 - Cap. = 500 Tons (2 req'd.)
Capacity = D.L. + L.L. + I.
Orig. Scale: None

GUIDED EXPAN. BEARING
Abut. No. 1 - Cap. = 500 Tons (2 req'd.)
Capacity = D.L. + L.L. + I. Total Mov. = 1 1/4"
Orig. Scale: None

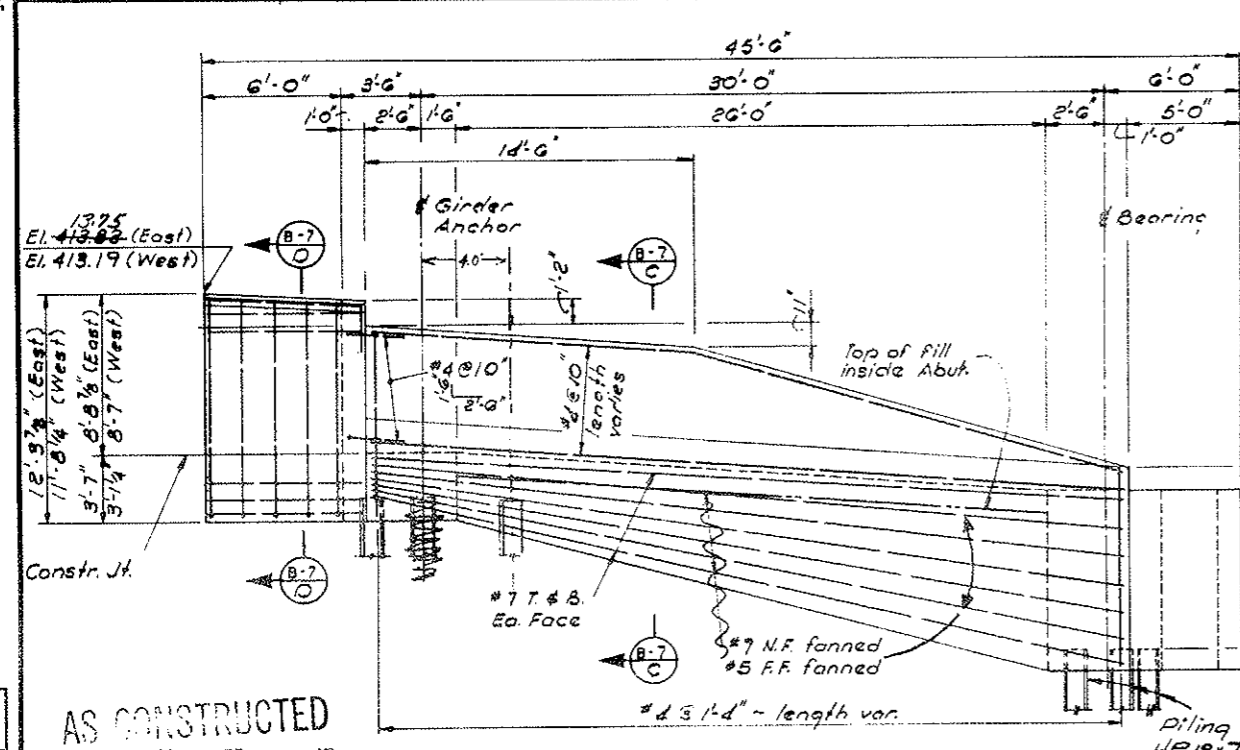
Note: For connection of bearing device to girder see "Connection Detail" on dwg. B-9

Note: Numbers in corners of sole plates indicates plate thickness at corners. Typical



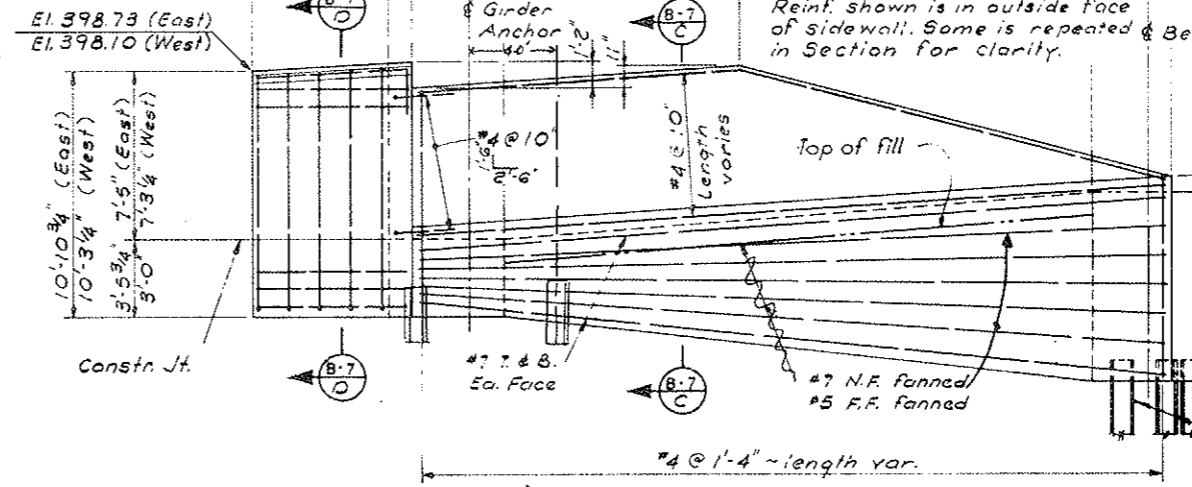
ABUT. No. 1 - SOLE PL. - EXPAN.
Orig. Scale: 3/4" = 1'-0"

ABUT. No. 2 - SOLE PL. - FIXED
Orig. Scale: 3/4" = 1'-0"



SIDE ELEVATION - ABUTMENT No. 1
West Side Shown - East Side Similar
Orig. Scale: 1/4" = 1'-0"

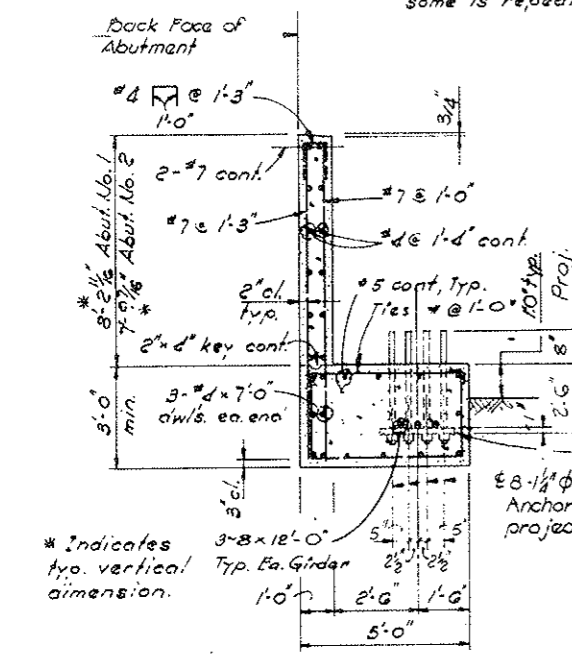
Note: Reinf. shown here is in outside face of sidewall, some is repeated in Section for clarity.



SIDE ELEVATION - ABUTMENT No. 2
East Side Shown - West Side Similar
Orig. Scale: 1/4" = 1'-0"

DATE	CHECKED BY	QUANTITIES BY
3-75	A.E.	A.E.
3-75	D.C.	D.C.

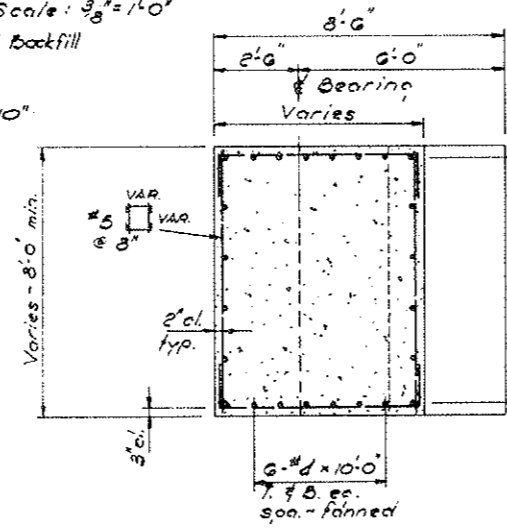
AS CONSTRUCTED
REVISED DATE: 6-24-77



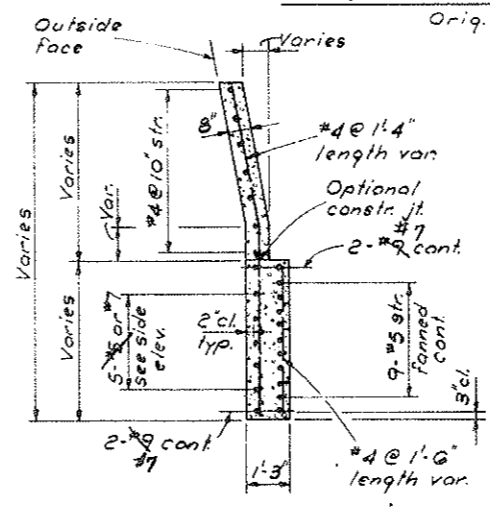
DETAIL (B-7)
Abut. No. 2 - back wall
Orig. Scale: 3/8" = 1'-0"

SECTION (B-6)
Section thru back bearing
Orig. Scale: 3/8" = 1'-0"

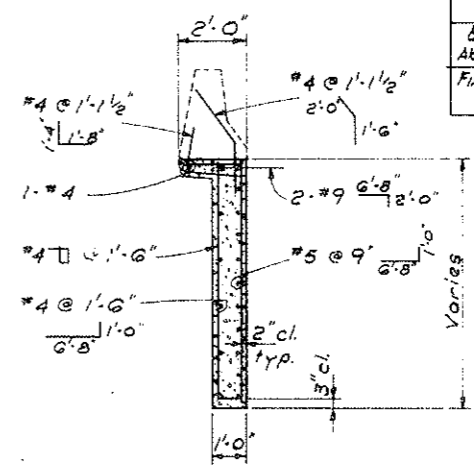
Note: Abutment No. 1 as shown - see Det. 1 this dwg. for top of back wall of Abutment No. 2.



SECTION (B-6)
Section thru nose
Orig. Scale: 3/8" = 1'-0"



SECTION (B-7)
Section thru sidewall
Orig. Scale: 3/8" = 1'-0"



SECTION (B-7)
Orig. Scale: 3/8" = 1'-0"

Bearing Type & Capacity (Tons)	Horiz. Longit. Capacity (Kips)	Transv. Capacity (Kips)	Actual Load (Kips)	Dim. (Inches)	Ultimate Load (Kips)
Expan. Abut. 1 - 500	12	60	913	99 1/2"	1,404
Fixed Abut. 2 - 500	18	60	913	79 1/2"	1,404

(E-2) * Actual load shall be used to determine bearing capacity.

DIVISION OF HIGHWAYS

ABUTMENT 1 AND 2 DETAILS

Sheet 2 of 2

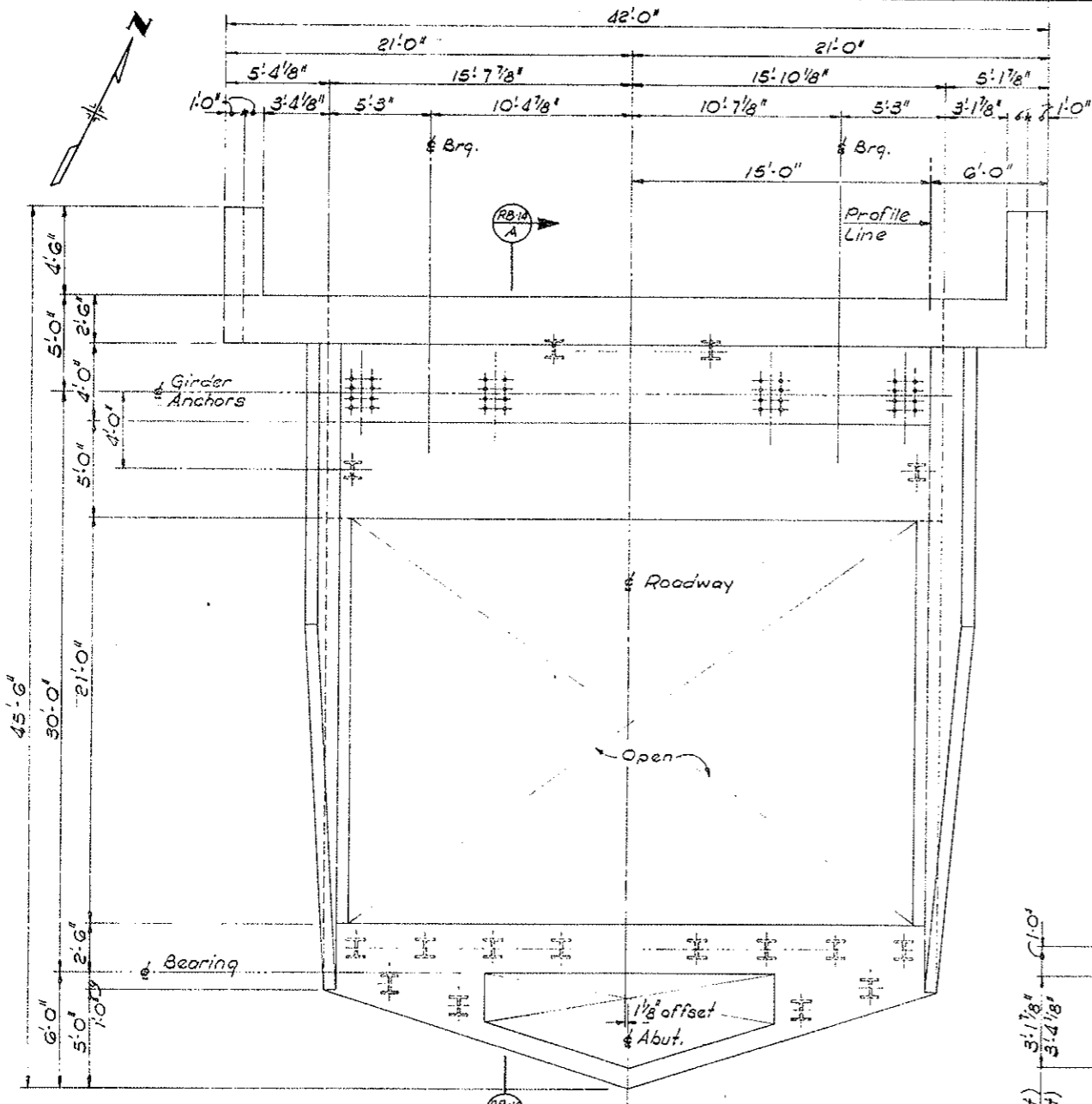
Designer D. Hoffman	Structure F-12-AK
Detailer D. Grogan	Numbers
Drawing Number B-7	of 13 Drawings

AS CONSTRUCTED
REVISED DATE 6-24-77

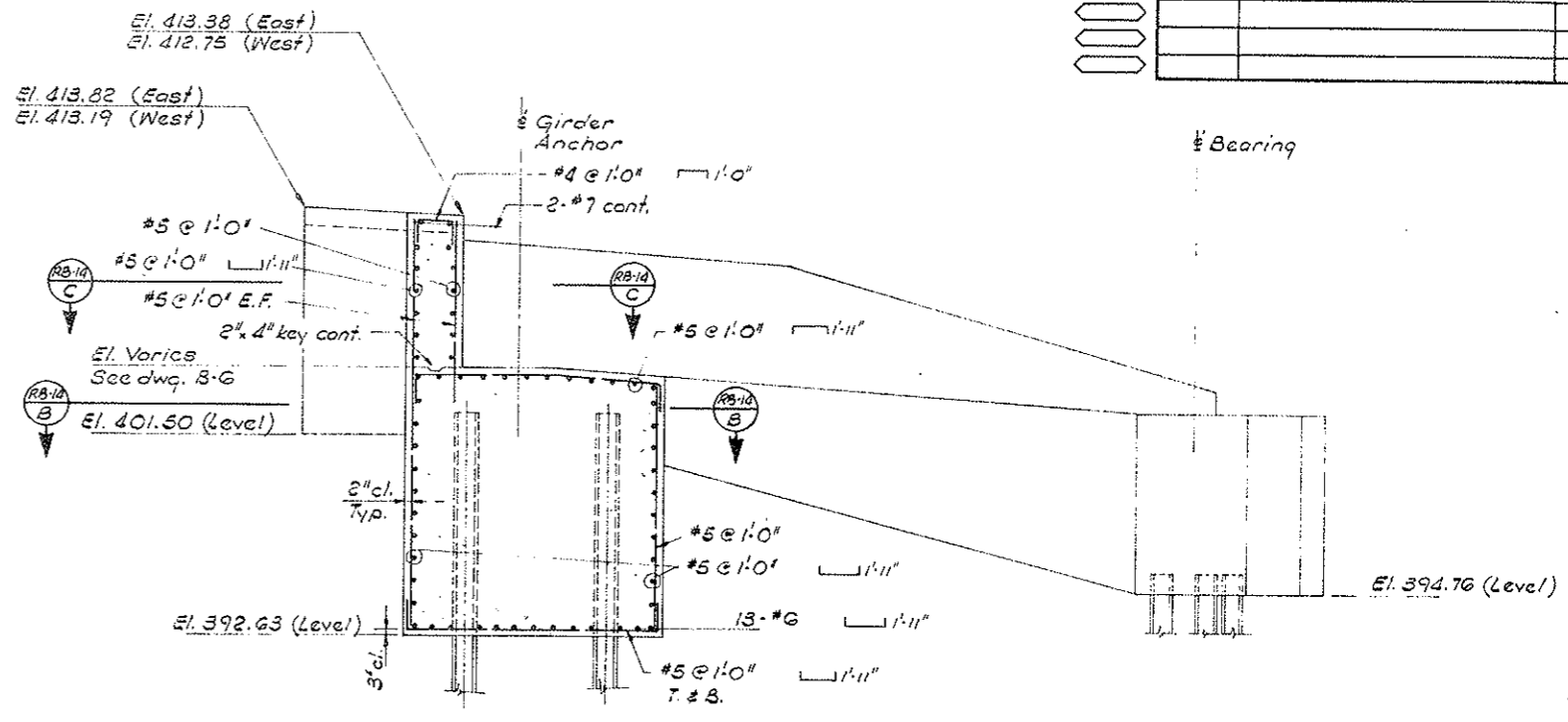
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	34 AX	

REVISIONS	

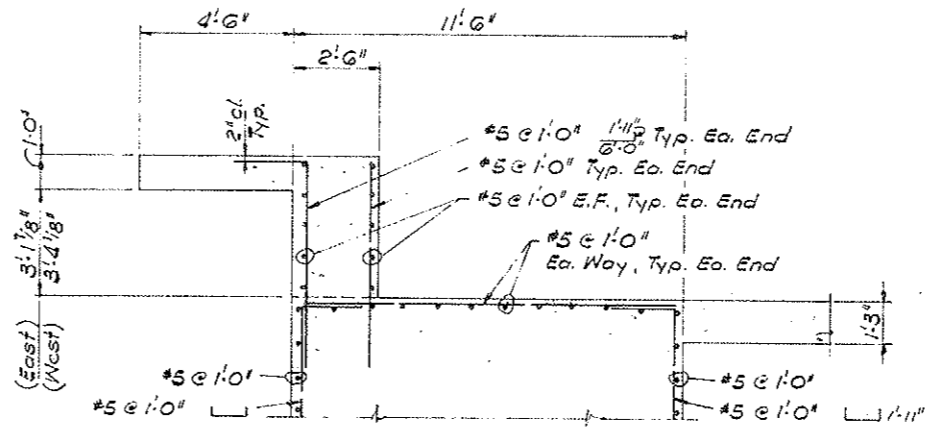
DESIGNED BY	CHECKED BY	DATE	QUANTITIES BY	CHECKED BY	DATE



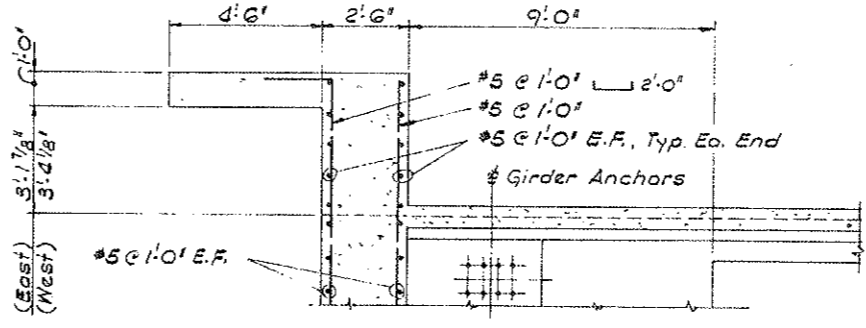
PLAN OF ABUTMENT No. 1
Orig. Scale: 1/4" = 1'-0"



SECTION A-A
Orig. Scale: 1/4" = 1'-0"



SECTION B-B
Orig. Scale: 3/8" = 1'-0"



SECTION C-C
Orig. Scale: 3/8" = 1'-0"

Note:
Work this drawing with drawings B-6 & B-7.



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DIVISION OF HIGHWAYS

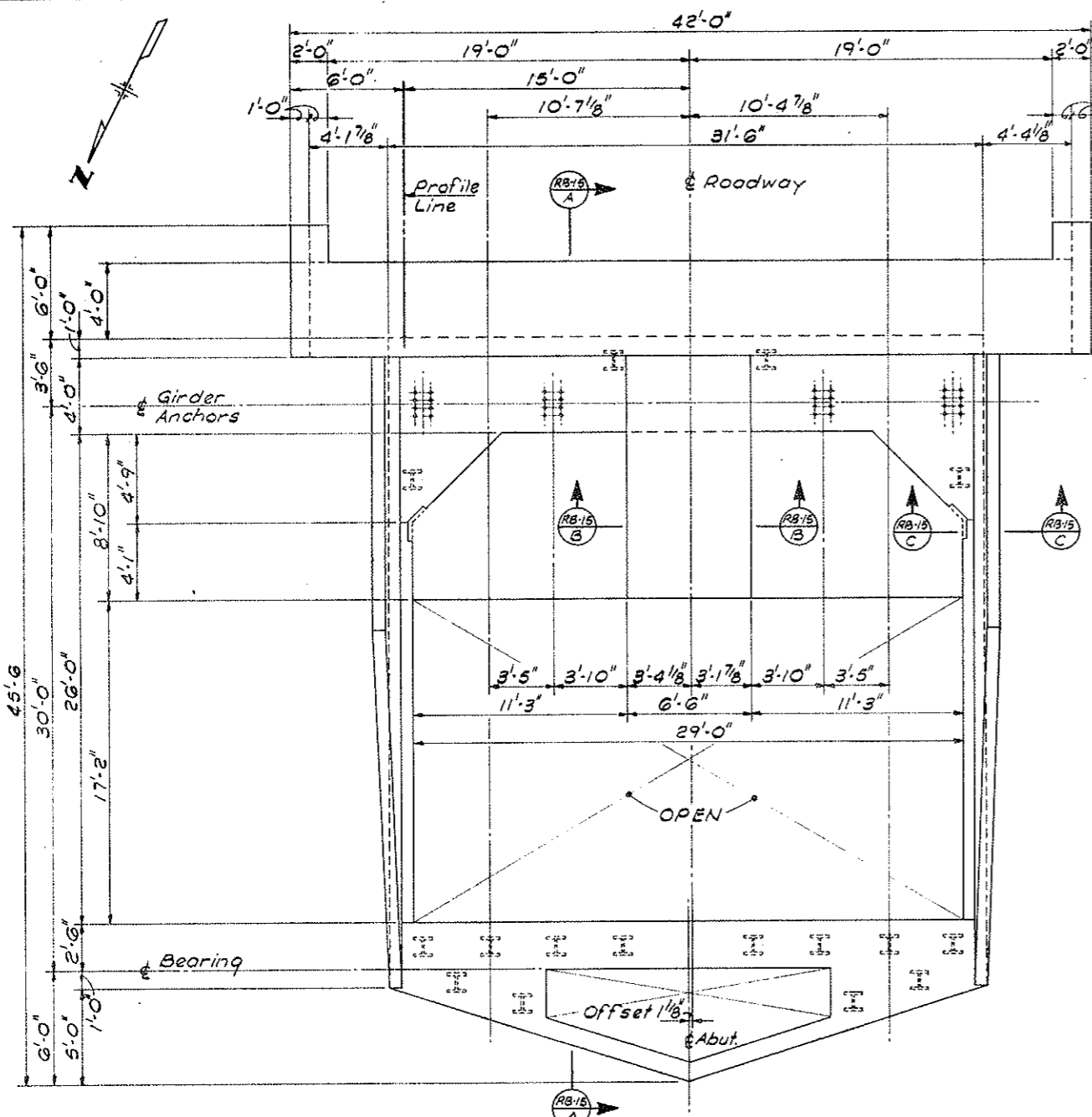
REVISION TO
ABUTMENT No. 1 DETAILS

Designer	O. Hoffman	Structure	F-12-AK
Detailer	P. Lantz	Numbers	
Drawing Number	RB-14	of	Drawings

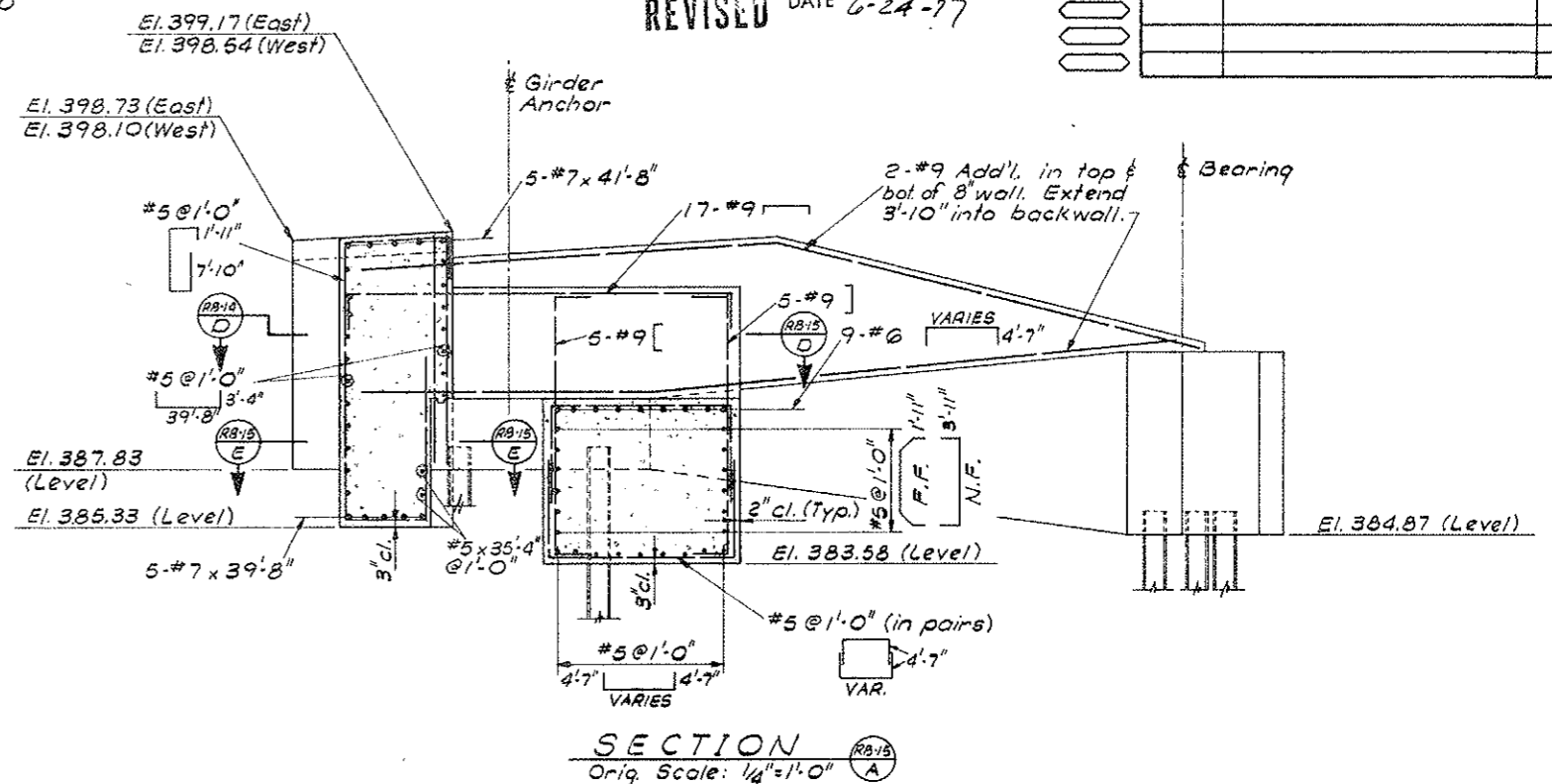
Revision Dates (Preliminary Stage Only)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XIII	COLORADO	170-2(52)197	34 BX	
REVISIONS				

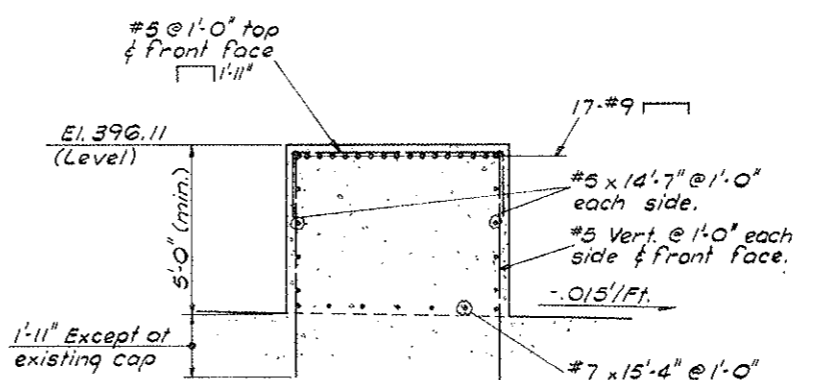
AS CONSTRUCTED
REVISED DATE 6-24-77



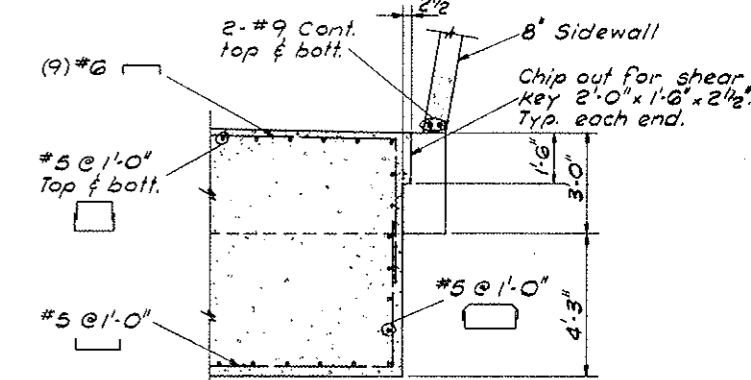
PLAN OF ABUTMENT No. 2
Orig. Scale: 1/4" = 1'-0"



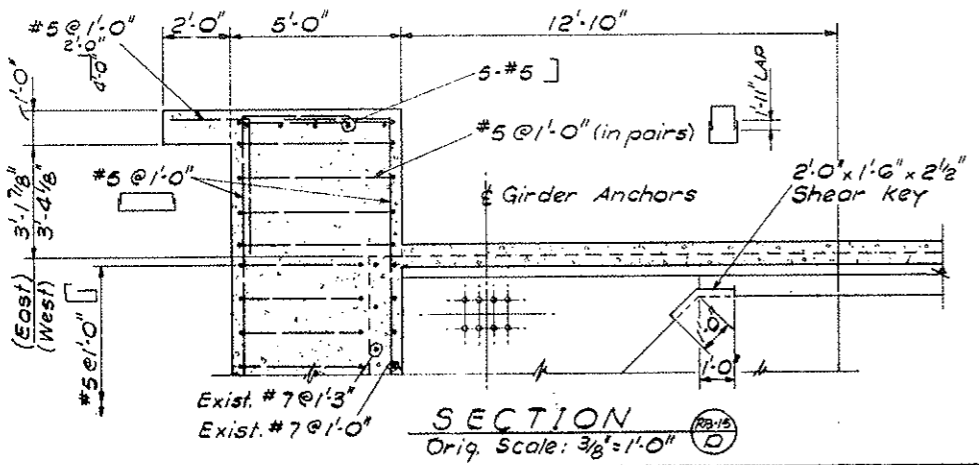
SECTION A-A
Orig. Scale: 1/4" = 1'-0"



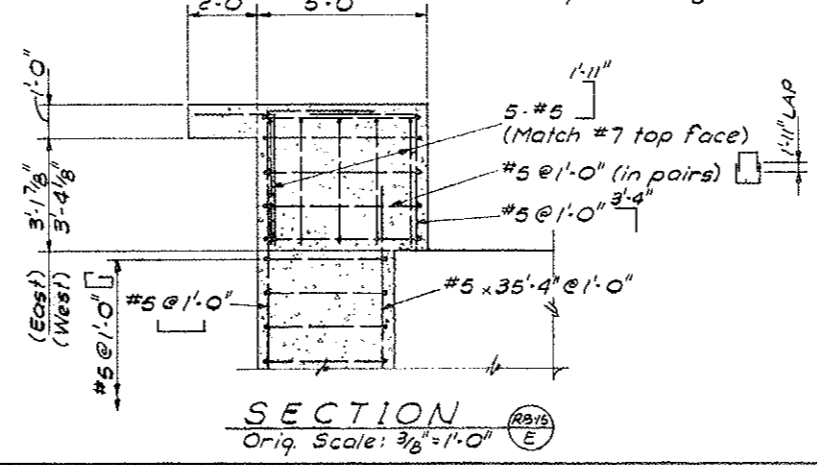
SECTION B-B
Orig. Scale: 3/8" = 1'-0"



SECTION C-C
Orig. Scale: 3/8" = 1'-0"



SECTION D-D
Orig. Scale: 3/8" = 1'-0"



SECTION E-E
Orig. Scale: 3/8" = 1'-0"

NOTE:
Work this drawing with drawings B-6 & B-7.

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DIVISION OF HIGHWAYS

REVISION TO
ABUTMENT No. 2 DETAILS

Designer	D. Hoplin	Structure	F-12-AK
Detailer	D. Griner	Numbers	
Drawing Number	RB-15	of	Drawings

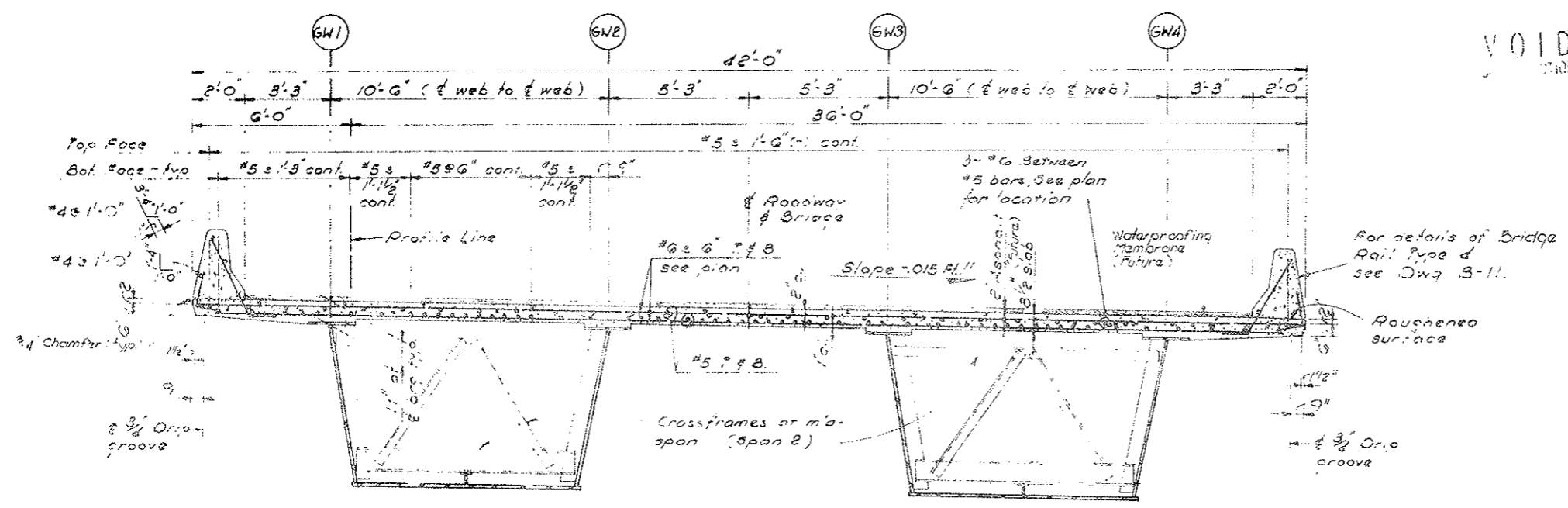


Revision Dates (Preliminary Stage Only)

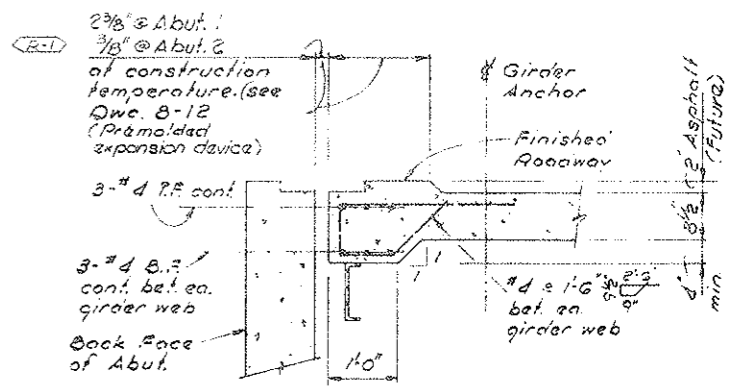
FEDERAL ROAD DISTRICT	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	35

REVISIONS		
R-1	4-17-75	Changed Invention Dimension

VOID
 DATE 6-24-77



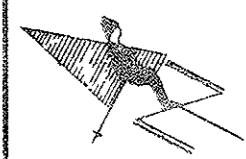
DECK SECTION
 Orig. Scale: 3/8" = 1'-0"



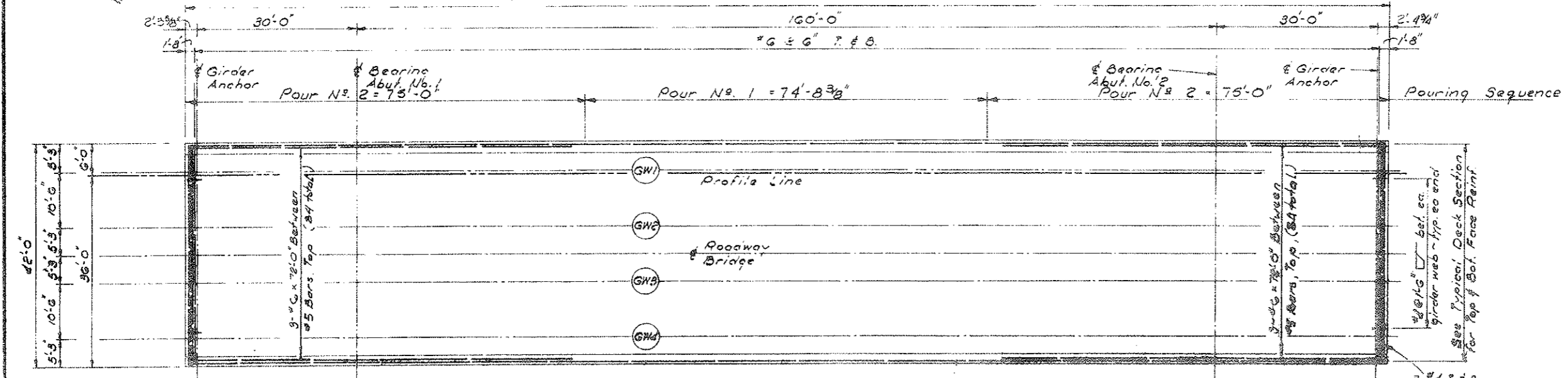
SECTION THRU END OF DECK
 Orig. Scale: 3/4" = 1'-0"

Note: For details of Diaphragms and Cross Frames see dwg. B-9

DESIGNED BY	DATE	CHECKED BY	DATE
AW	3-7-75	AW	3-7-75
CHECKED BY	DATE	CHECKED BY	DATE
AW	3-7-75	AW	3-7-75
DETAILER BY	DATE	DETAILER BY	DATE
AW	3-7-75	AW	3-7-75



Overall Length @ 60° = 224'-8 3/8"



DECK PLAN
 Orig. Scale: 3/32" = 1'-0"

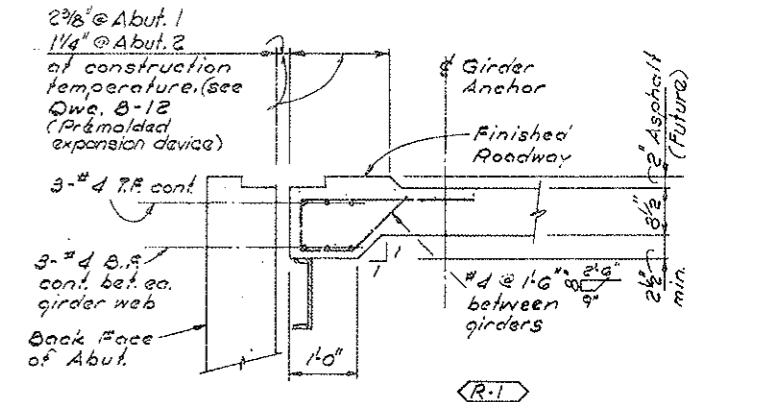
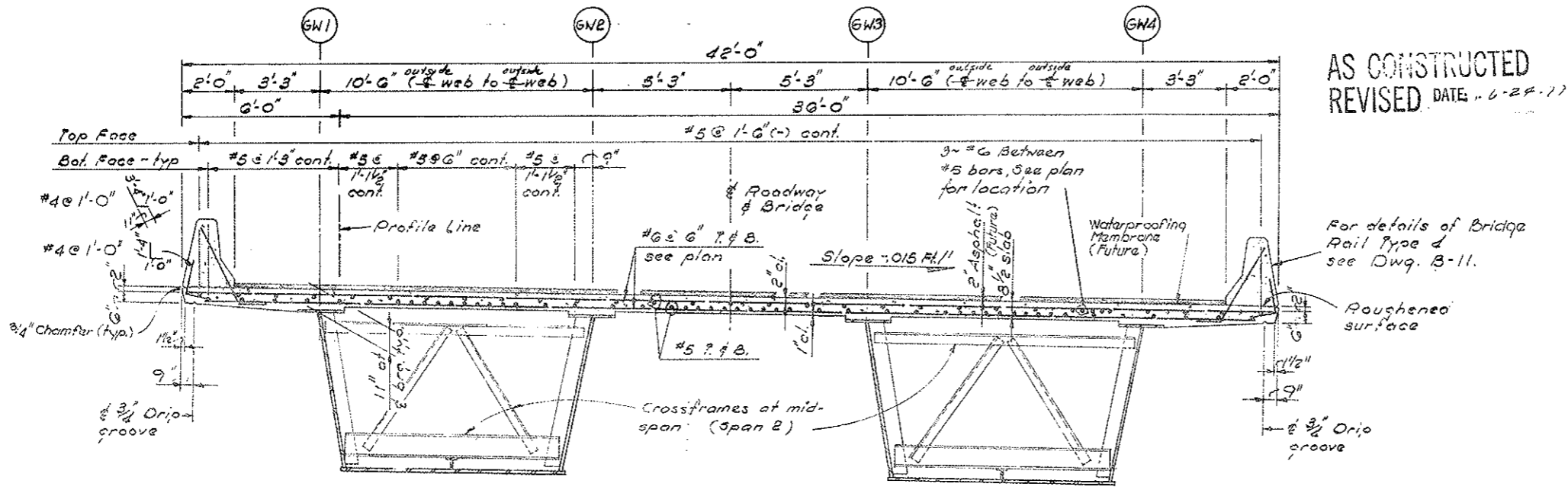
DIVISION OF HIGHWAYS

DECK PLAN AND DECK SECTION

Designer	D. Hoffman	Structure	F-12-AK
Detailer	D. Grogan	Numbers	
Drawing Number	B-8	of 13	Drawings

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	35A	

REVISIONS			
(R-1)	B-13-75	Changed Deck End Reinf.	D.M.G.

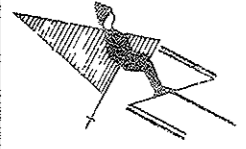


DECK SECTION
 Orig. Scale: 3/8" = 1'-0"

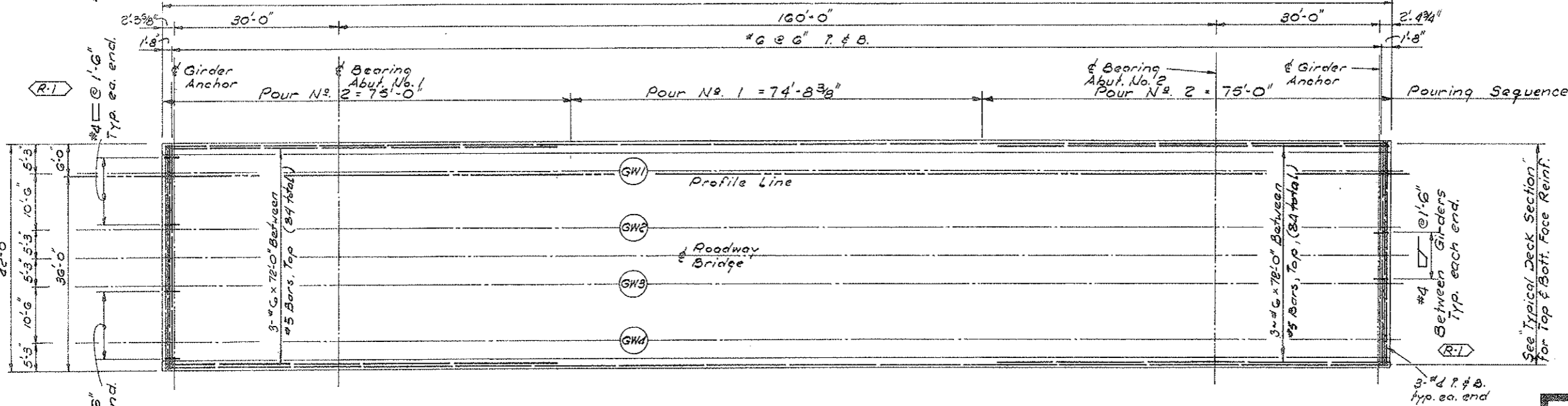
Note: For details of Diaphragms and Cross Frames see dwg. B-9

SECTION THRU END OF DECK BETWEEN GIRDERS
 Orig. Scale: 3/4" = 1'-0"

INITIAL	DATE	CHECKED BY	QUANTITIES BY
D.H.	2-7-75	A.E.	A.E.
D.G.	3-7-75	D.G.	D.G.



Overall Length @ 60°F = 224.878"



DECK PLAN
 Orig. Scale: 3/32" = 1'-0"

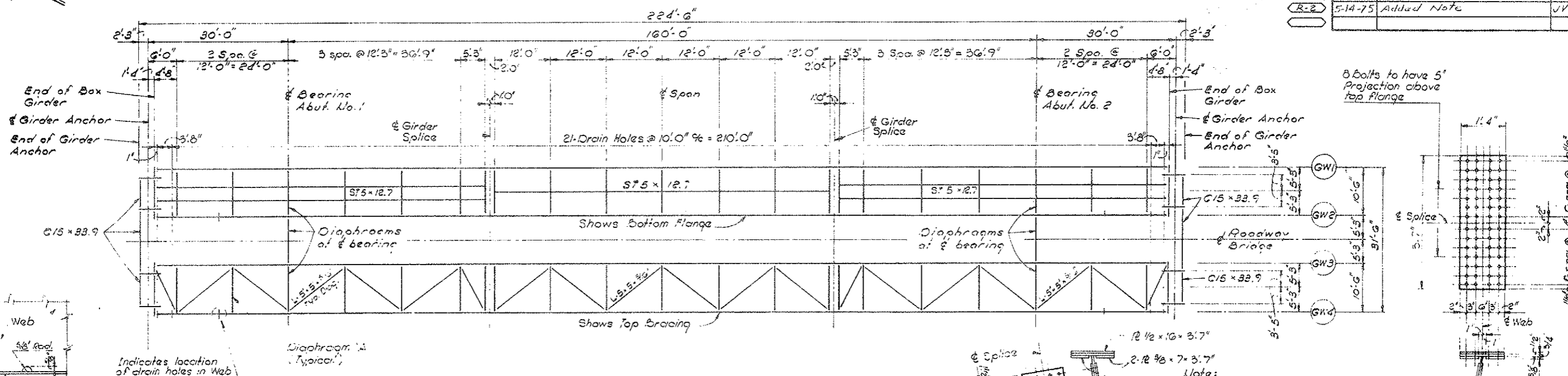
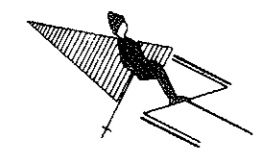
REVISED FOR
 CHANGE ORDER
 NO. _____

DIVISION OF HIGHWAYS			
DECK PLAN AND DECK SECTION			
Designer D. Hoffin	Structure Numbers	F-12-AK	
Detaller D. Grogan			
Drawing Number B-3	of 13	Drawings	

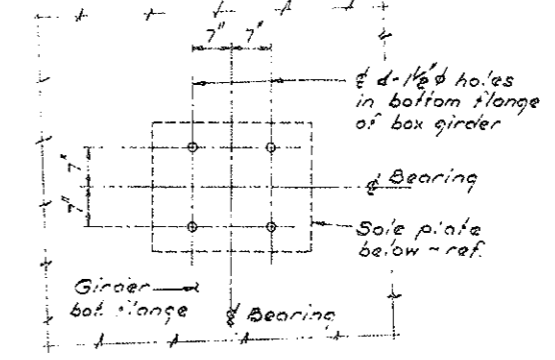
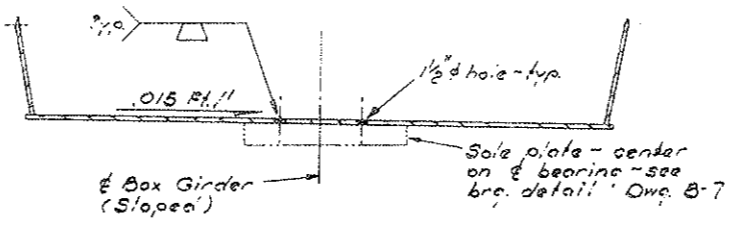
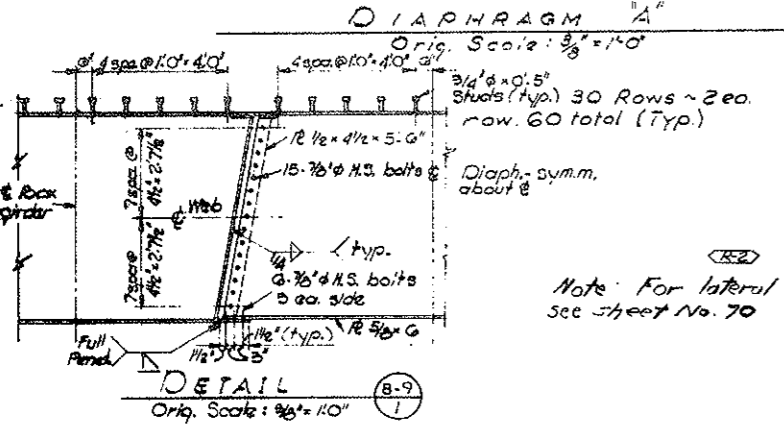
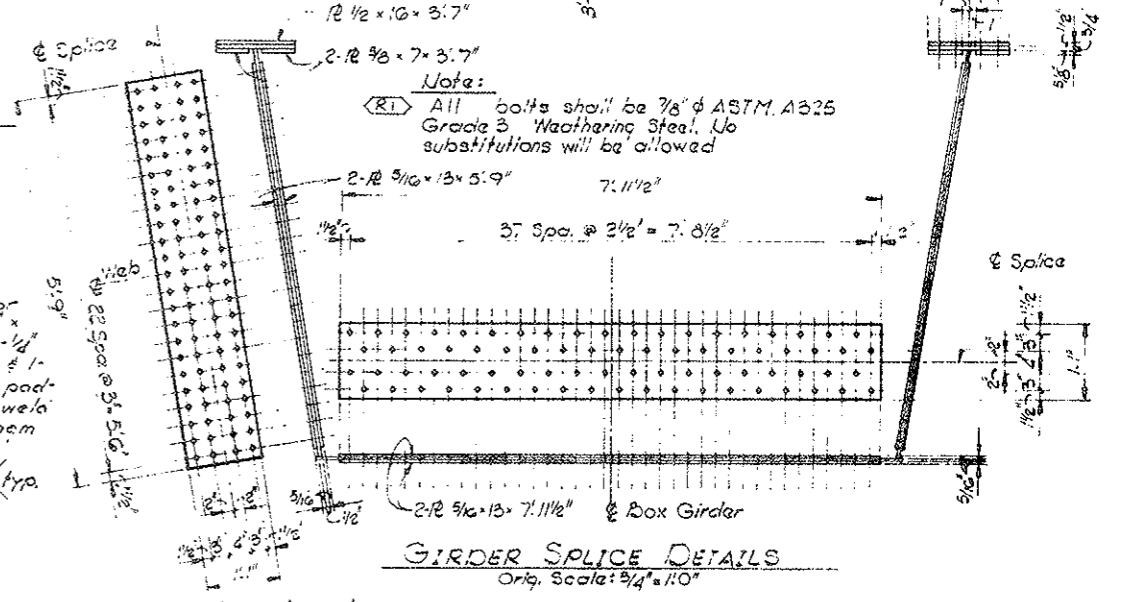
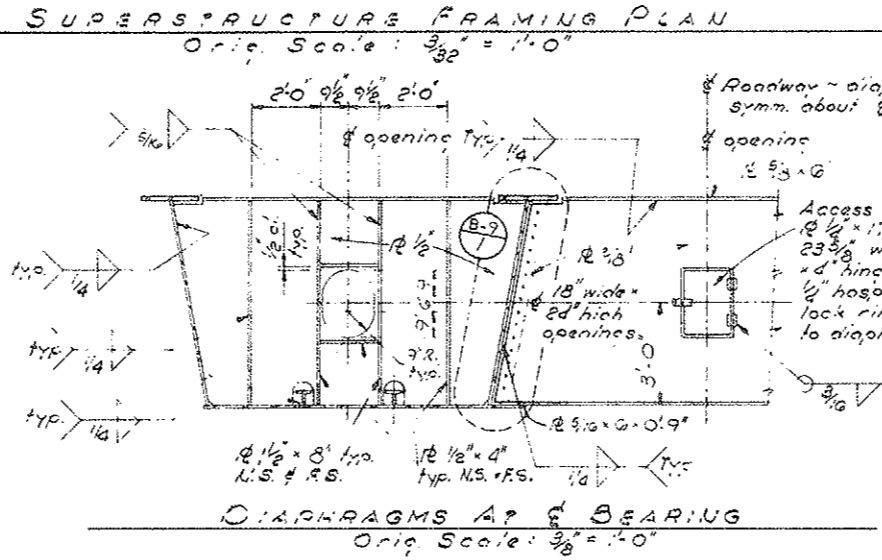
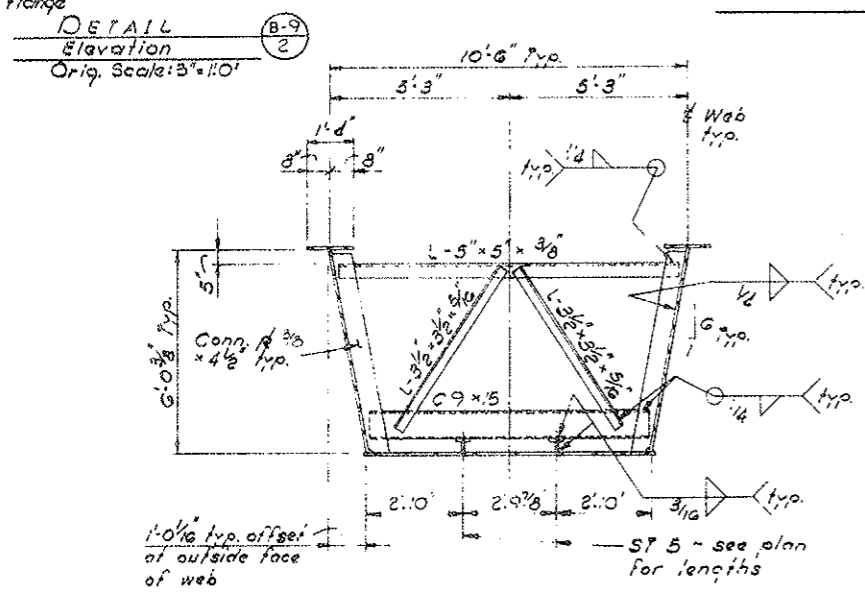
FEDERAL ROAD DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	70-2(52)197	36	

REVISIONS		
R1	4-29-75	Revised first word in note. B.O.E.
R-2	5-14-75	Added Note. J.V.G.

VOID
 BY CONSTRUCTION DATE 6-24-77



DESIGNED BY	CHECKED BY
DRAWN BY	CHECKED BY
DATE	DATE
BY	BY



Note: For lateral bracing connection detail see sheet No. 70

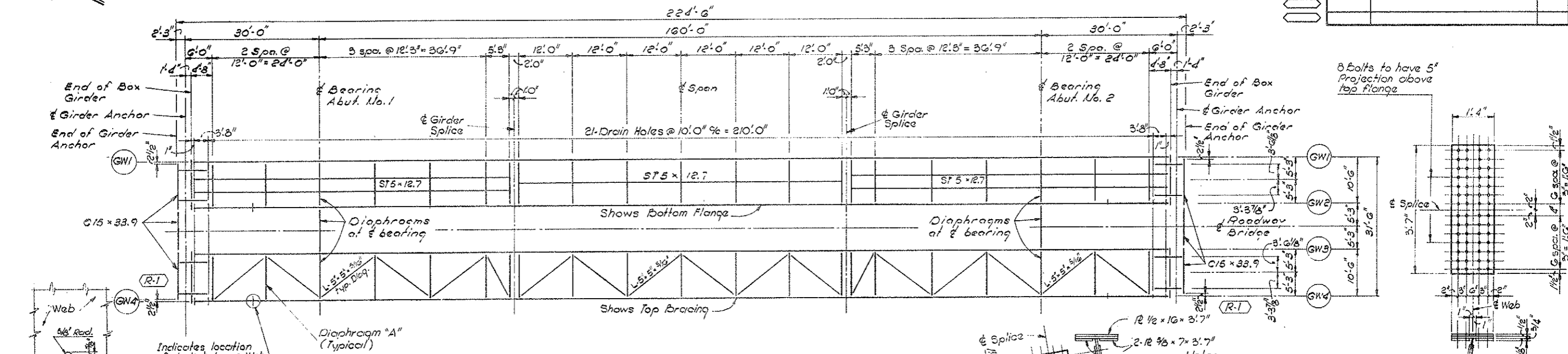
CONNECTION DETAIL
 Bearing Device to Box Girder Looking up station
 Orig. Scale: 3/4" = 1'-0"

DIVISION OF HIGHWAYS	
SUPERSTRUCTURE FRAMING PLAN AND DETAILS	
Designer O. Heflin	Structure F-12-AK
Detailer O. Grogan	Numbers
Drawing Number B-9	of 13 Drawings

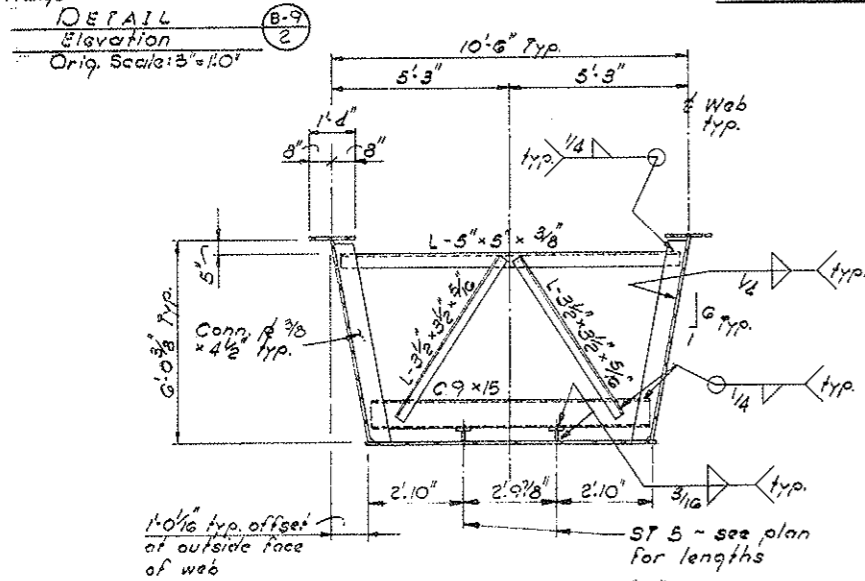
AS CONSTRUCTED
REVISED DATE: 6-24-77

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	36AK	

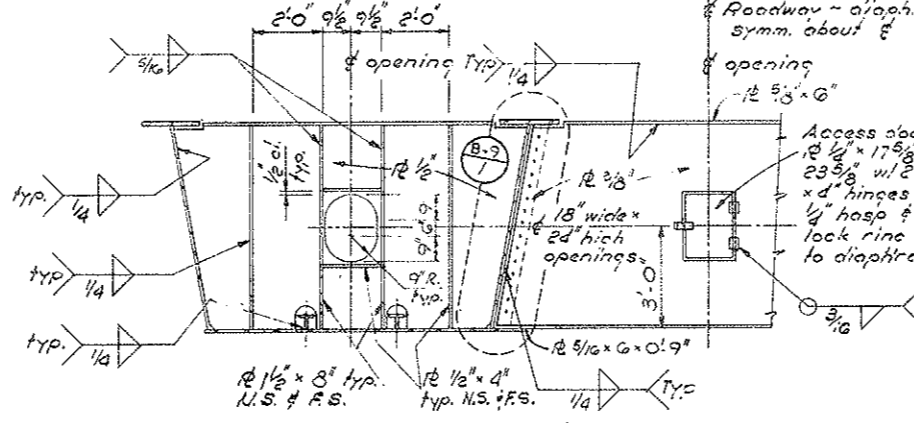
REVISIONS				
R-1	8-11-75	Changed girder anchor dims.	J.W.	



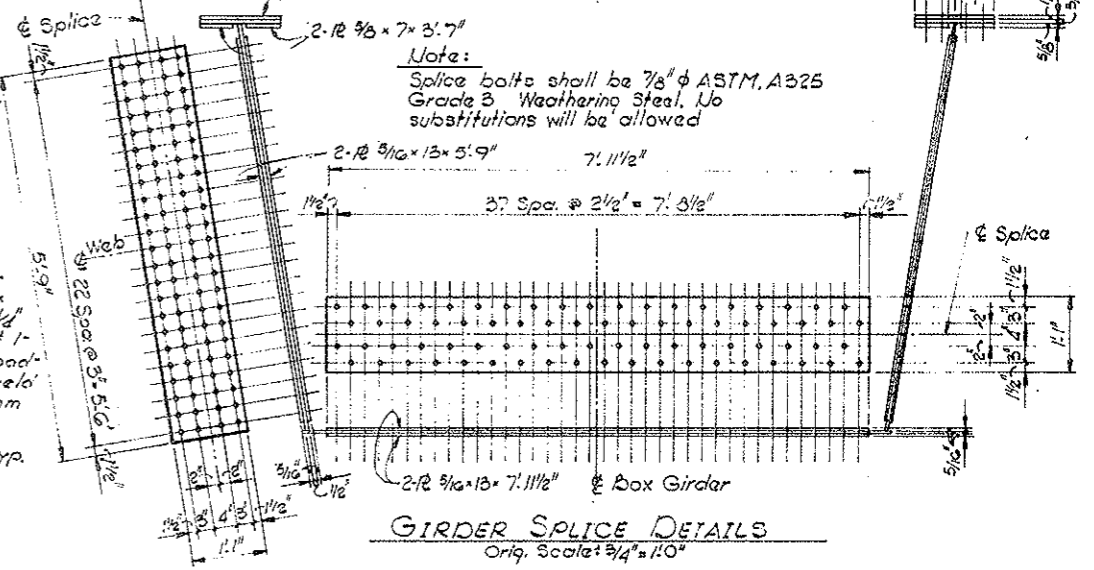
SUPERSTRUCTURE FRAMING PLAN
Orig. Scale: 3/32" = 1'-0"



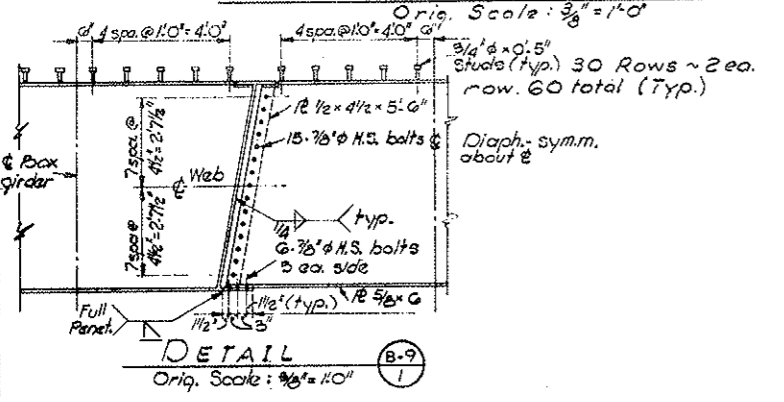
DIAPHRAGM "A"
Orig. Scale: 3/8" = 1'-0"



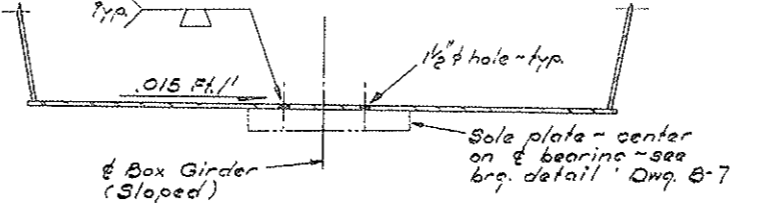
DIAPHRAGMS AT BEARING
Orig. Scale: 3/8" = 1'-0"



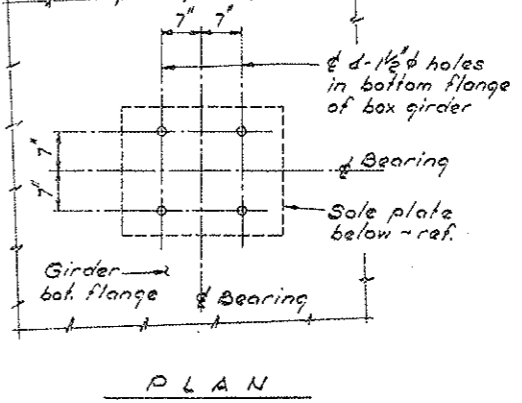
GIRDER SPICE DETAILS
Orig. Scale: 3/4" = 1'-0"



DETAIL
Orig. Scale: 3/8" = 1'-0"



SECTION CONNECTION DETAIL
Bearing Device to Box Girder Looking up station
Orig. Scale: 3/4" = 1'-0"



PLAN

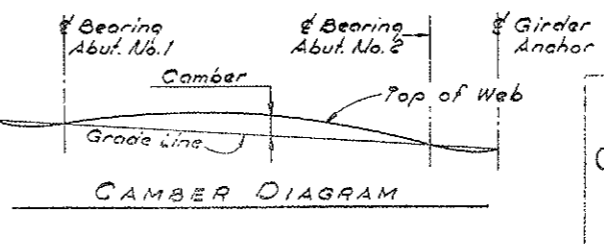
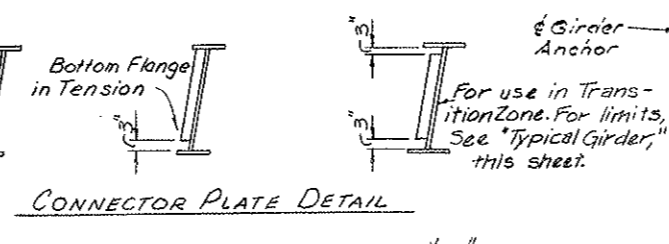
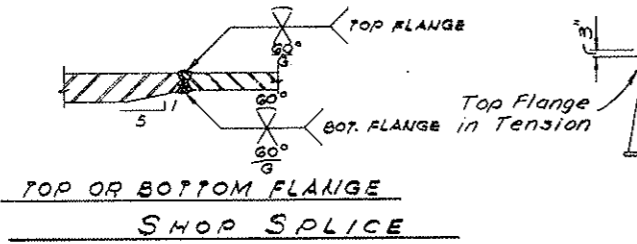
REVISED FOR
CHANGE ORDER
NO. 0522

DIVISION OF HIGHWAYS

SUPERSTRUCTURE FRAMING
PLAN AND DETAILS

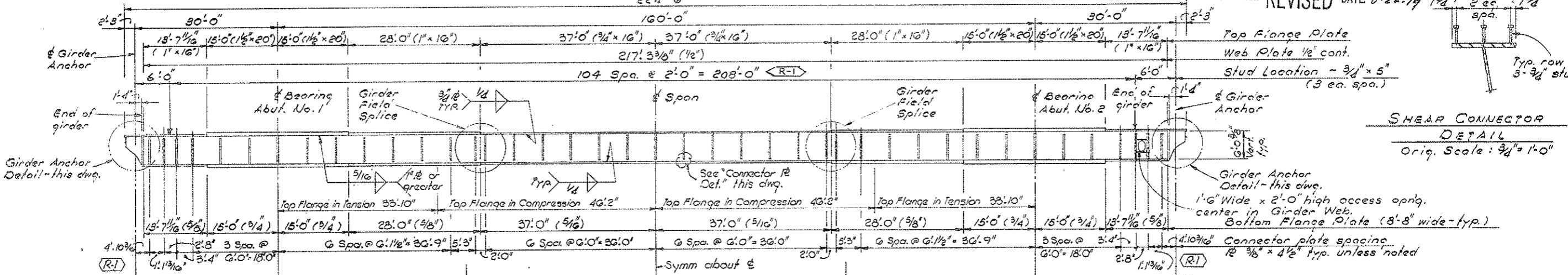
Designer D. Hoffin	Structure F-12-AK
Detailer D. Grogan	Numbers
Drawing Number B-9	of 13 Drawings

INITIAL	DATE	CHECKED BY
	5-75	QUANTITIES BY
	5-75	CHECKED BY
	5-75	CHECKED BY



REVISED FOR CHANGE ORDER NO. 1562 AS CONSTRUCTED REVISED DATE: 6-24-79

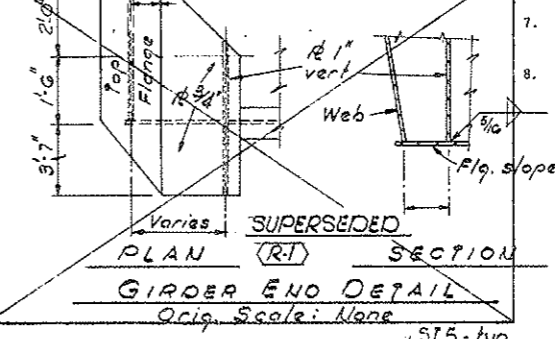
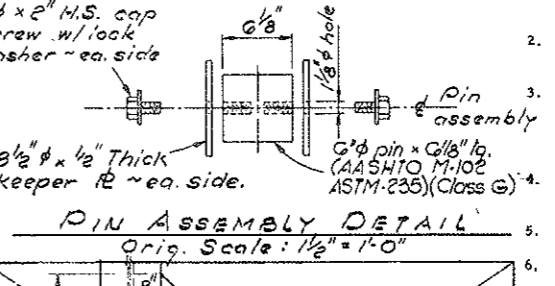
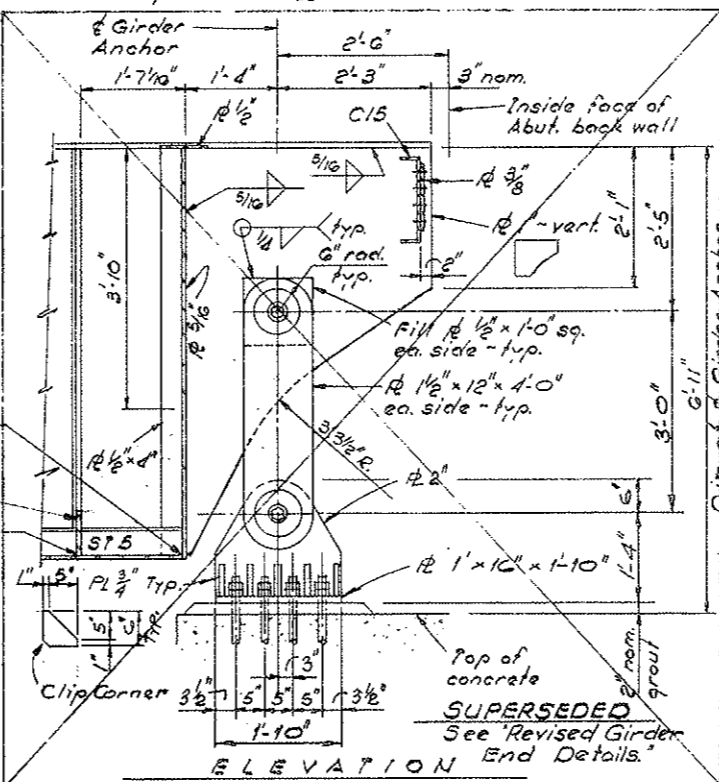
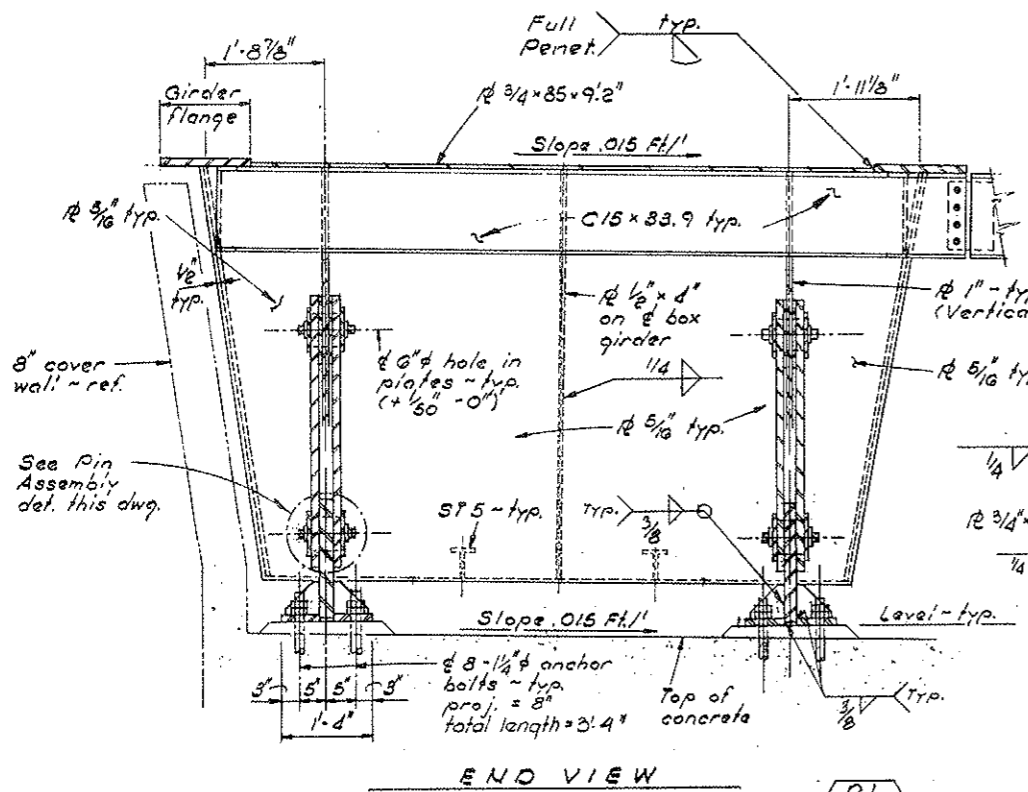
REVISIONS			
R-1	8-11-75	Changed Girder Anchor Detail	JW



Stationing	25L	30L	75L	80L	104	115L	120L	25L	30L	35L	40L	45L	50L	55L	60L	65L	70L	75L	80L	85L	90L	95L	100L	105L	110L	115L	120L
Dead Load Deflection (inches) Non Composite	0.082	0.126	0.106	0.082	0.124	0.167	0.180	0.234	0.267	0.280	0.330	0.325	0.279	0.275	0.230	0.175	0.123	0.075	0.037	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Dead Load Deflection (inches) Non Composite and Composite	0.082	0.126	0.106	0.082	0.124	0.167	0.180	0.234	0.267	0.280	0.330	0.325	0.279	0.275	0.230	0.175	0.123	0.075	0.037	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DESIGNED BY	DATE	CHECKED BY	DATE
AE	3-75	OG	3-75
DRAWN BY		CHECKED BY	
OG		OG	

TYPICAL GIRDER & Required - As Noted Orig. Scale: 3/8" = 1'-0"



GIRDER ANCHOR DETAIL Orig. Scale: 3/4" = 1'-0"

Location of 20th. or 4th. point
Dead Load Deflection (inches) Non Composite
Total Dead Load Deflection (inches) Non Composite and Composite

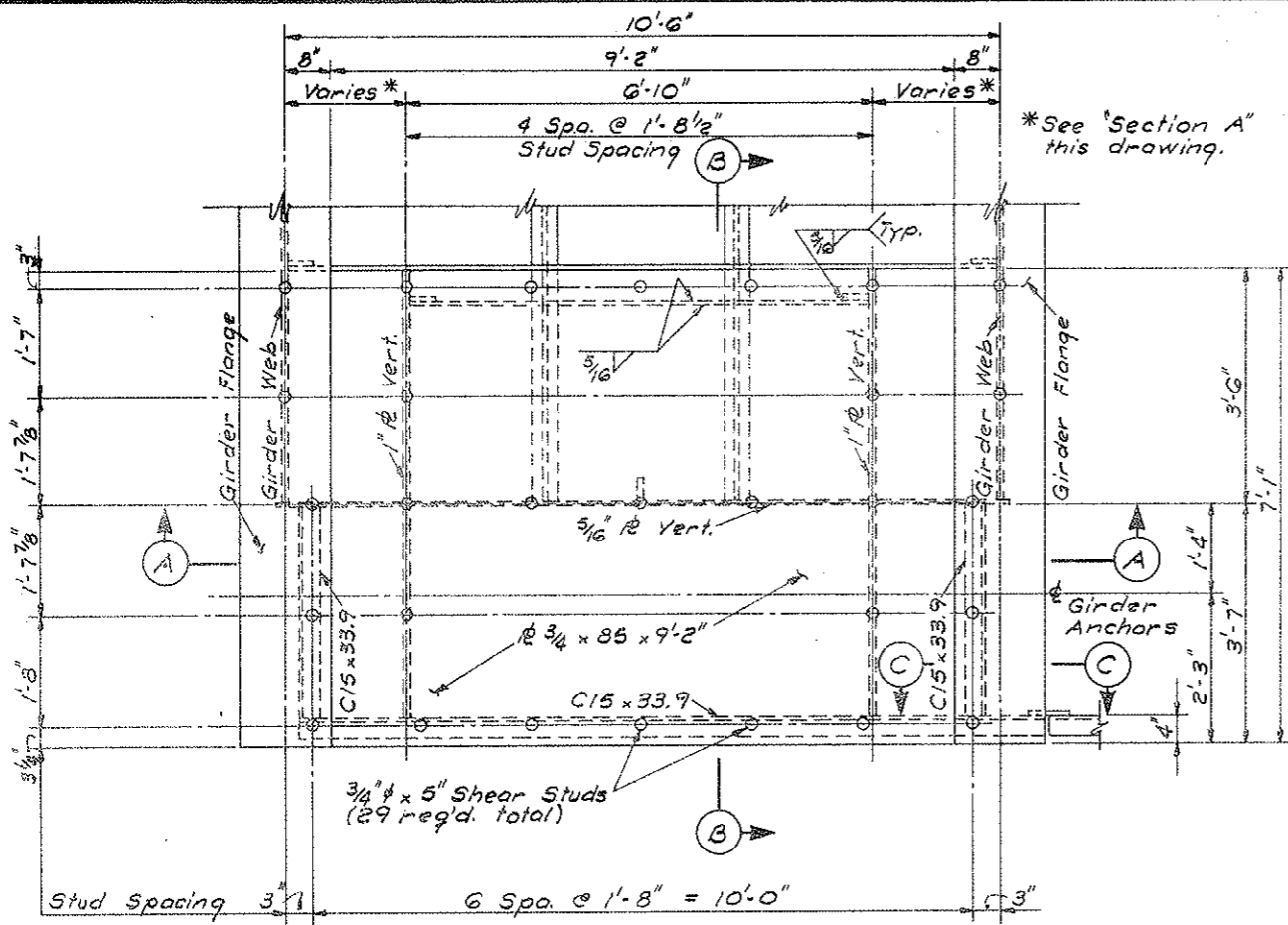
- NOTES:
1. ALTERNATE GIRDER SPLICES WILL BE PERMITTED SUBJECT TO APPROVAL BY THE ENGINEER.
 2. COMPLETE WEB TO FLANGE FILLET WELDS AFTER WELDING FLANGE AND WEB BUTT WELDS.
 3. GRINDING IS NOT REQUIRED FOR SHOP BUTT WELDS IN TOP FLANGES WHICH ARE IN COMPRESSION, EXCEPT THE EDGES OF ALL FLANGE BUTT WELDS SHALL BE GROUND. OTHER AREAS SHALL BE GROUND AS DIRECTED BY THE ENGINEER.
 4. WEB BUTT JOINTS SHALL BE FULL PENETRATION GROOVE WELDS. IF FIELD SPLICES ARE WELDED, WEB WELDS SHALL BE GROUND FLUSH.
 5. STIFFENERS NEAR A FIELD SPLICE MAY BE FIELD WELDED.
 6. GIRDER ENDS AND BEARING STIFFENERS SHALL BE VERTICAL EXCEPT THAT THEY MAY BE NORMAL TO GRADE FOR GRADES LESS THAN 2%.
 7. AT THE CONTRACTORS OPTION, WELDED GIRDER SPLICES MAY BE USED WHEN BOLTED SPLICES ARE SHOWN ON THE PLANS.
 8. METHOD OF SUPPORTING GIRDERS WHILE GIRDER FIELD WELDED SPLICES ARE BEING MADE SHALL BE SHOWN ON THE SHOP DRAWINGS.
 9. Girder View shown is inside face of one girder - 4 Req'd. Typical girder detailed is for Girder Web 1 of 3 as shown; opposite hand for Girder Web 2 of 4.
 10. Connector plate locations shown shall be for inside face of Box Girder. See Superstructure Framing Plan on Dwg. R-9 for additional plates.

DIVISION OF HIGHWAYS

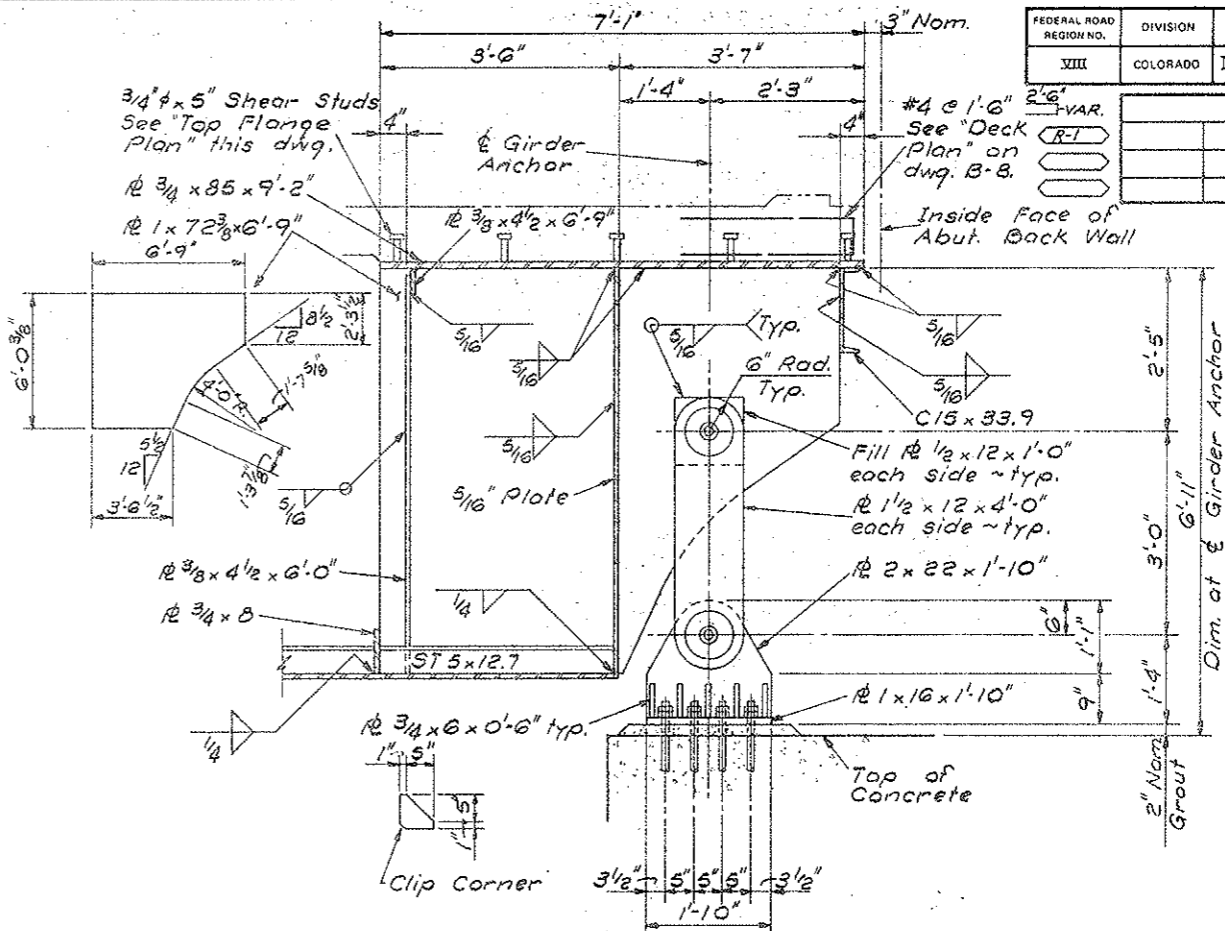
GIRDER DETAILS

Designer	D. Hoflin	Structure	F-12-AK
Detailer	D. Grogan	Numbers	
Drawing Number	B-10	of	13 Drawings

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XIII	COLORADO	170-2(52)197	376X	
REVISIONS				



TOP FLANGE PLAN
Orig. Scale: 3/4" = 1'-0"

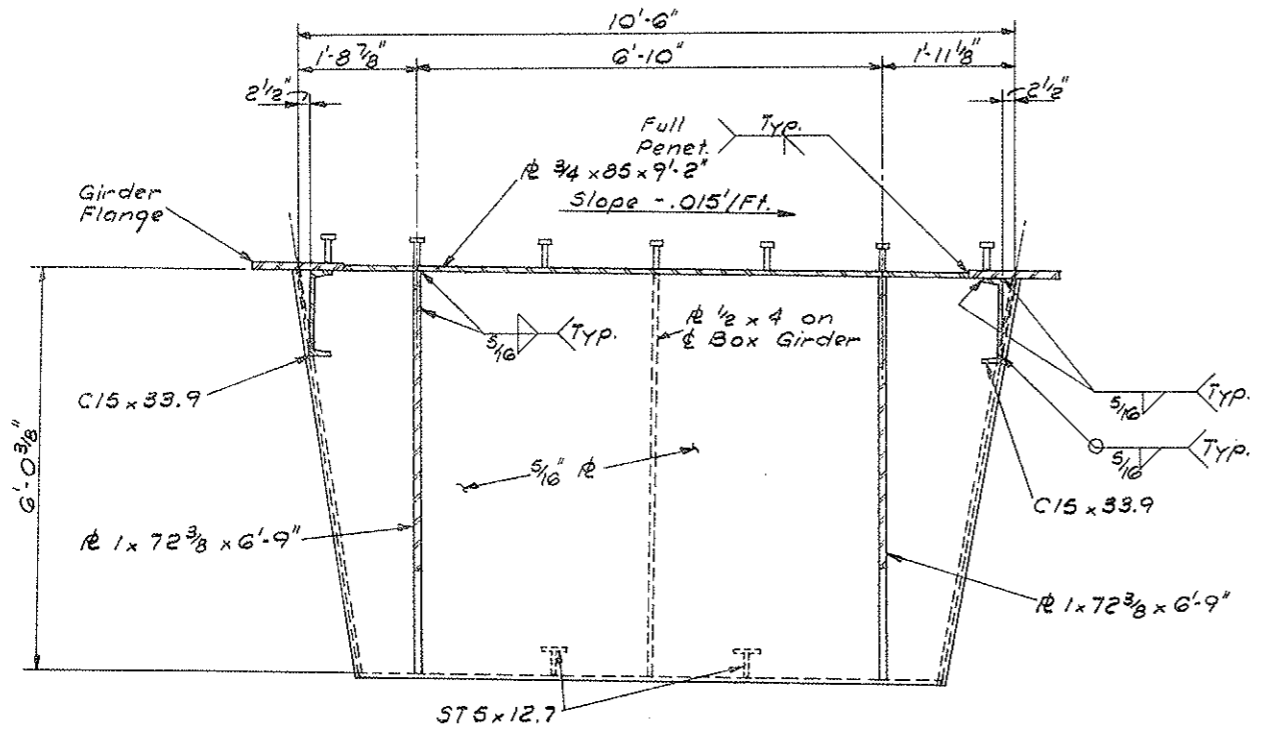


SECTION B
Orig. Scale: 3/4" = 1'-0"

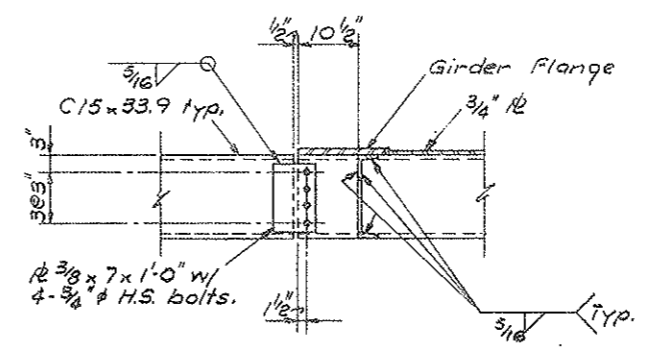
REVISED FOR
CHANGE ORDER
NO. 0512

AS CONSTRUCTED
REVISED DATE: 6-24-77

DESIGNED BY	CHECKED BY
CHECKED BY	QUANTITIES BY
INITIAL	DATE
DESIGNED BY	CHECKED BY
CHECKED BY	DETAILS BY



SECTION A
Orig. Scale: 3/4" = 1'-0"



SECTION C
Orig. Scale: 3/4" = 1'-0"

SUMMARY OF QUANTITY CHANGES

Item	Description	Unit	Super-Structure	Revised Totals
509	Structural Steel	Lbs. +	9875	317,420
601	Concrete Class D (Bridge)	Cu. Yd. +	1	198
602	Reinforcing Steel	Lbs. +	35	97,538

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DIVISION OF HIGHWAYS

**REVISED GIRDER
END DETAILS**

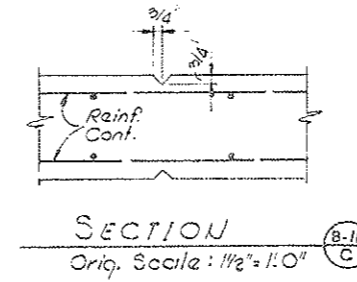
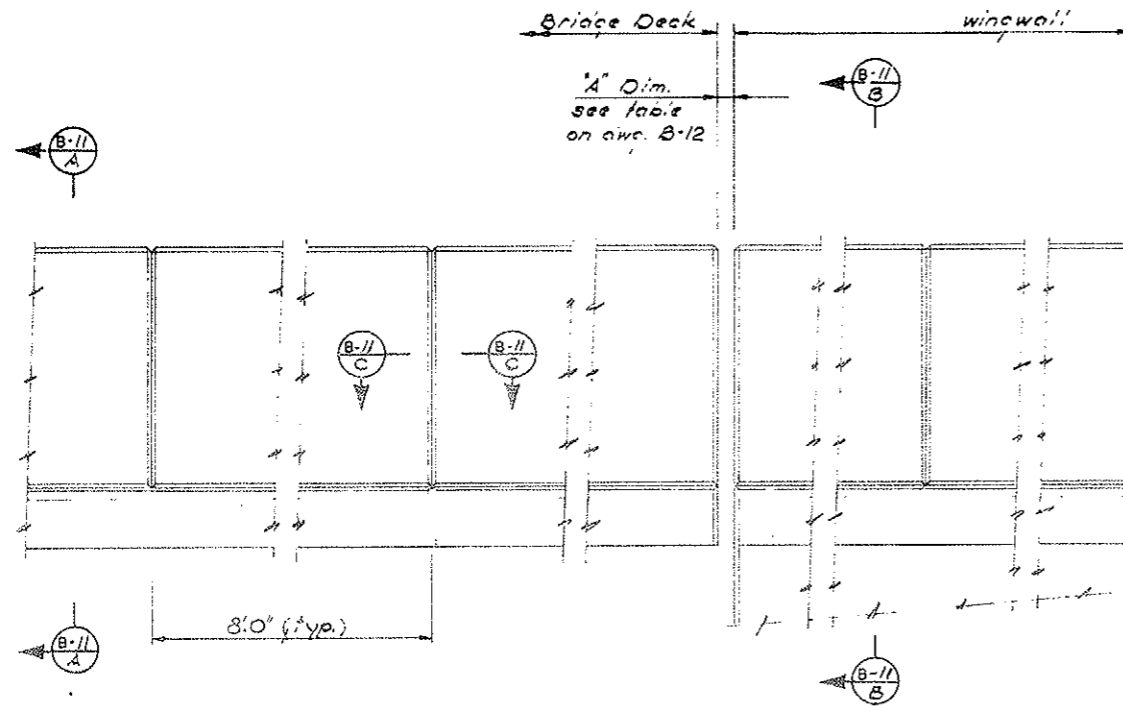
Designer A. Erikson	Structure Number F-12-AK
Detailer D.M. Griner	
Drawing Number B 10 A	of 13 Drawings

Revision Dates (Preliminary Stage Only)

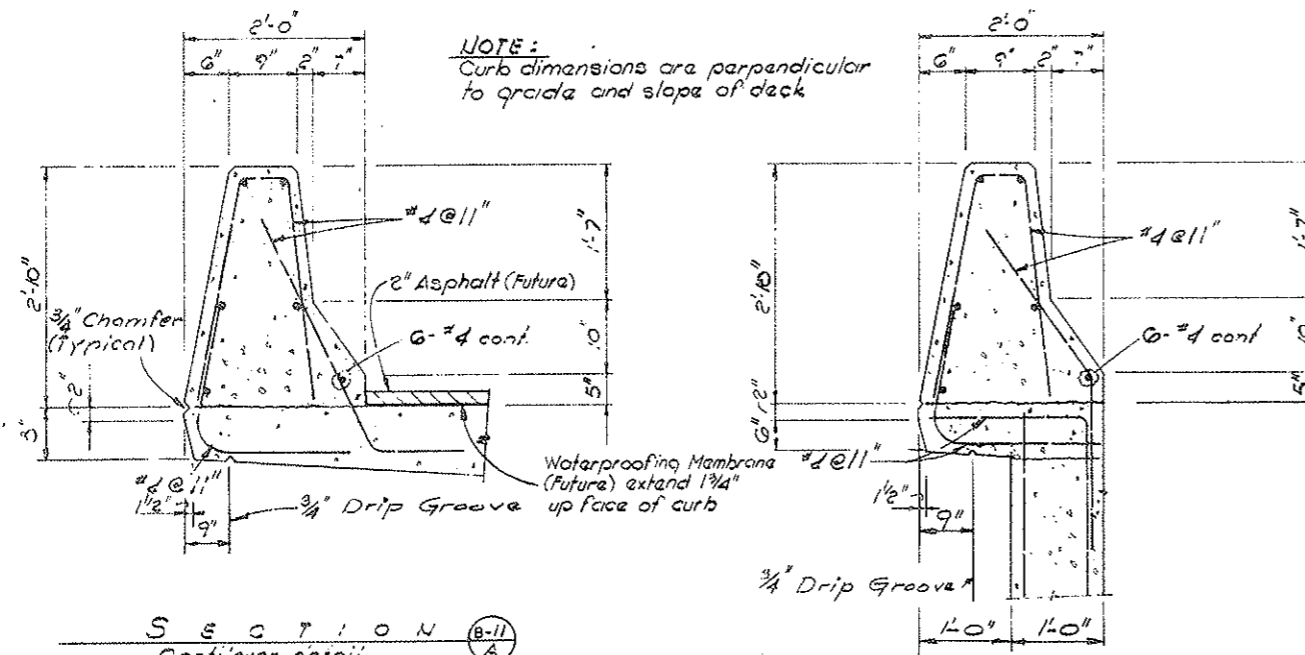
FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	F-12-SC-197	38	

REVISIONS	

AS CONSTRUCTED
NO REVISIONS DATE: 6-24-77



TYPICAL ELEVATION A-A ABUTMENT
Orig. Scale: 1" = 1'-0"



SECTION B-B A
Gantilever detail
Orig. Scale: 1" = 1'-0"

SECTION B-B B
Wing Wall detail
Orig. Scale: 1" = 1'-0"

DESIGNED BY	CHECKED BY	DATE	QUANTITIES BY	CHECKED BY	DATE

DIVISION OF HIGHWAYS	
BRIDGE RAIL TYPE 4	
Designer <i>A. Eriksen</i>	Structure <i>F-12-AK</i>
Detailer <i>A. Eriksen</i>	Numbers
Drawing Number <i>B-11</i>	of <i>13</i> Drawings

Revision	Date	By	Remarks

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	39	

REVISIONS	

NOTES
THE EXPANSION DEVICE SHALL BE INSTALLED ON GRADE, PARALLEL TO THE SLOPE AND GRADE OF THE DECK.

AFTER THE CONCRETE HAS ATTAINED INITIAL SET, THE ATTACHMENTS USED TO HOLD THE ANGLE ASSEMBLY IN ITS PROPER POSITION SHALL BE REMOVED.

DO NOT PAINT STEEL SURFACES IN CONTACT WITH CONCRETE AND PREMOLDED EXPANSION DEVICE.

"W", "T", "Ø", AND "Δ" DIMENSIONS ARE DEPENDENT UPON THE PARTICULAR PREMOLDED DEVICE SUPPLIED, AND SHALL BE SHOWN ON THE SHOP DRAWINGS.

THE SHOP DRAWINGS SHALL INDICATE THE "W" DIMENSION AT A RANGE OF TEMPERATURES FROM 30° TO 100° ASSUMING A MID-POINT TEMPERATURE OF 40°.

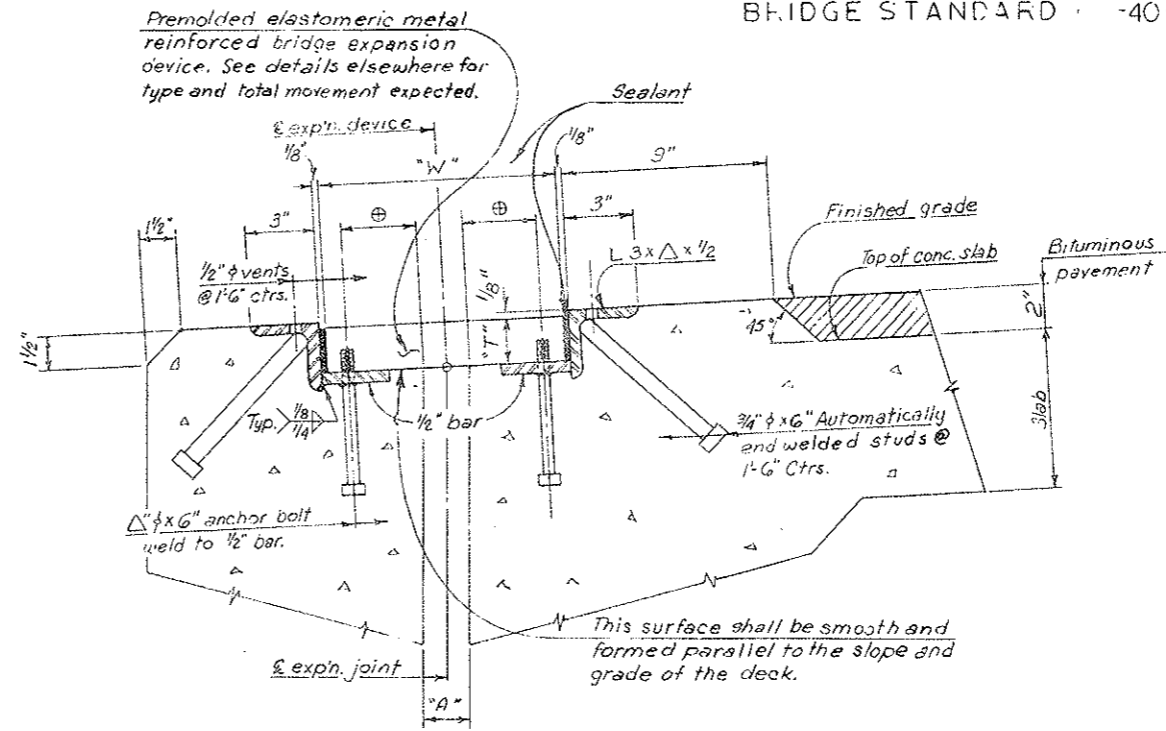
ANGLE AND PLATE ASSEMBLIES TO EXTEND GUTTER TO GUTTER ONLY.

ALL SECTIONS OF THE PREMOLDED EXPANSION DEVICE SHALL BE JOINED BY USING THE MANUFACTURER'S STANDARD WATERPROOF JOINT.

ALL CURB UNITS SHALL BE FULL WIDTH, ON GUTTER LINE, FOR SKEW ANGLES AS SPECIFIED ON THE PLANS.

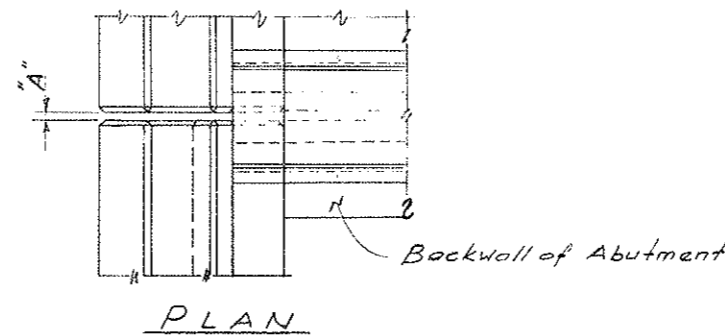
ALL ANCHORS SHALL BE CAST IN PLACE BOLTS OR THREADED CAST IN PLACE CONCRETE INSERTS EXCEPT FOR CURB AND WALK UNITS WHICH MAY BE INSTALLED BY THE USE OF APPROVED DRILLED IN PLACE ANCHOR UNITS.

OPENING IN CURB AND SIDEWALK TO BE CONSTRUCTED TO THE EXACT WIDTH OF THE EXISTING DECK OPENING.

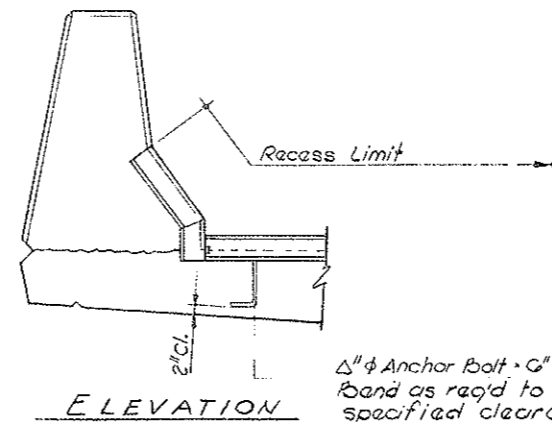


SECTION THRU EXPN. DEVICE

AS CONSTRUCTED
NO REVISIONS DATE: 6-24-77



PLAN

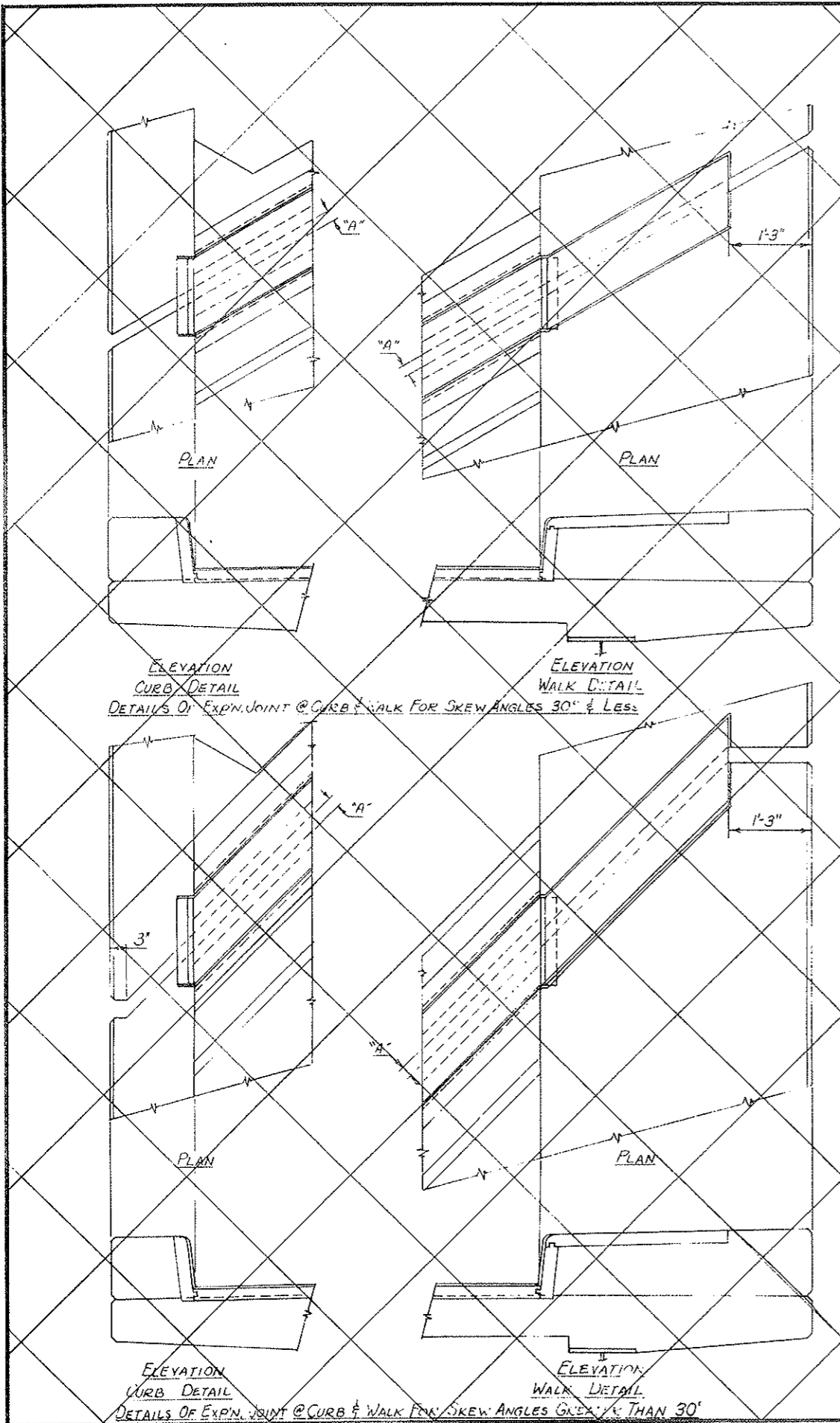


ELEVATION

DETAILS OF EXPANSION JOINT AT GUARDRAIL

Δ" Anchor Bolt - G" (Total Length)
Band as req'd to obtain specified clearance

DESIGNED BY	CHECKED BY	DATE
QUANTITIES BY	CHECKED BY	DATE
DETAILED BY	CHECKED BY	DATE
JRE	JRE	10-73



Outside Temp.	Premolded Bridge Expansion Device		
	Abut. No. 2 (Type 1)	Abut. No. 2 (Type 2)	Abut. No. 2 (Type 3)
	Dim. "A" (Min.)	Dim. "A" (Min.)	Dim. "A" (Min.)
30°	1 3/8"	2 1/4"	2 3/8"
40°	1 1/2"	2 1/8"	2 3/8"
50°	1 3/8"	2"	2 1/2"
60°	1 1/4"	1 7/8"	2 3/8"
70°	1 1/8"	1 3/4"	2 1/8"
80°	1"	1 1/2"	2"
90°	7/8"	1 1/8"	1 3/4"
100°	3/4"	1 1/4"	1 5/8"

Outside Temp.	Premolded Bridge Expansion Device		
	(Type 4)	(Type 6)	(Type)
	Dim. "A" (Min.)	Dim. "A" (Min.)	Dim. "A" (Min.)
30°	4 3/8"	5 3/8"	
40°	4 1/8"	4 3/8"	
50°	3 7/8"	4 1/2"	
60°	3 3/8"	4"	
70°	3 1/2"	3 3/8"	
80°	3"	3 1/4"	
90°	2 3/4"	2 3/4"	
100°	2 1/2"	2 3/8"	

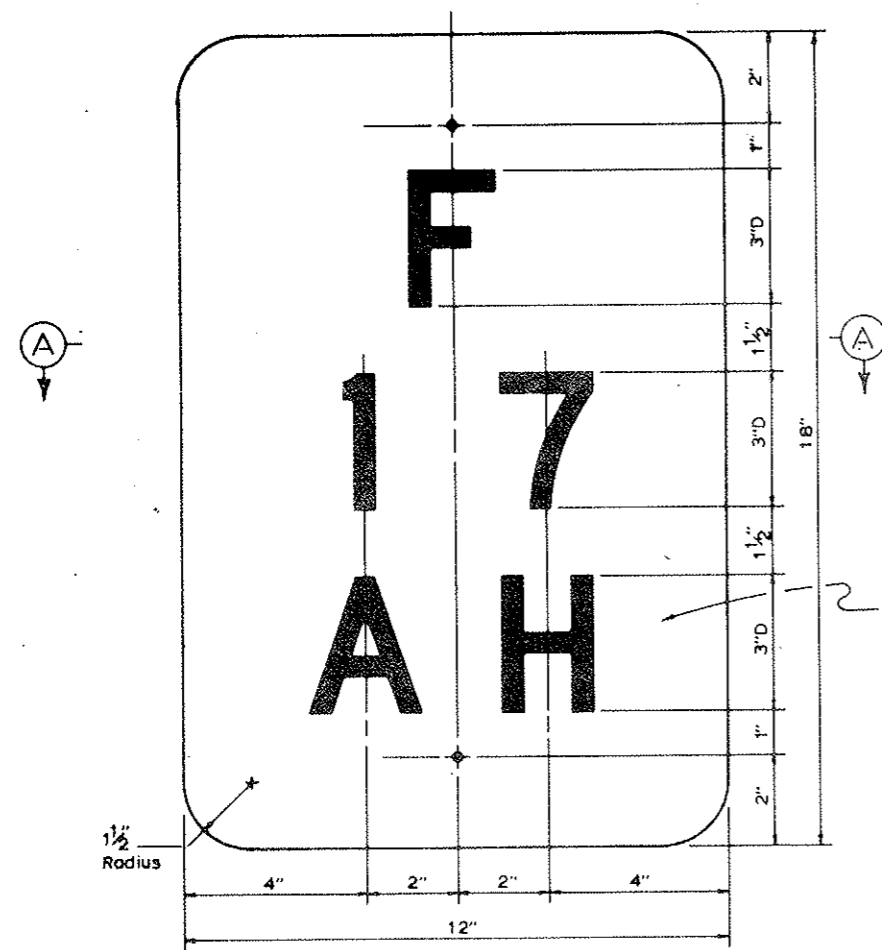
DIVISION OF HIGHWAYS

BRIDGE EXPANSION DEVICE
PREMOLDED ARMORED

Designer D. Hoflin	Structure Numbers F-12-AK
Detailer J.R. EWERT	
Drawing Number B-12	of 13 Drawings

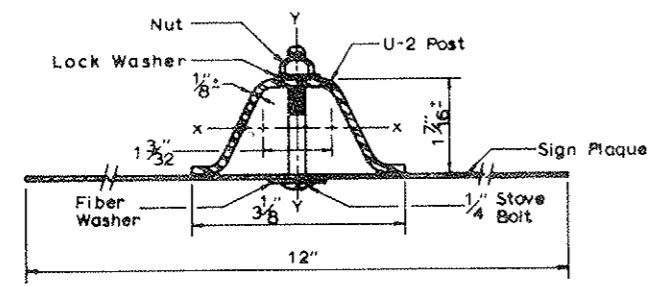
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	170-2(52)197	40	

REVISIONS				

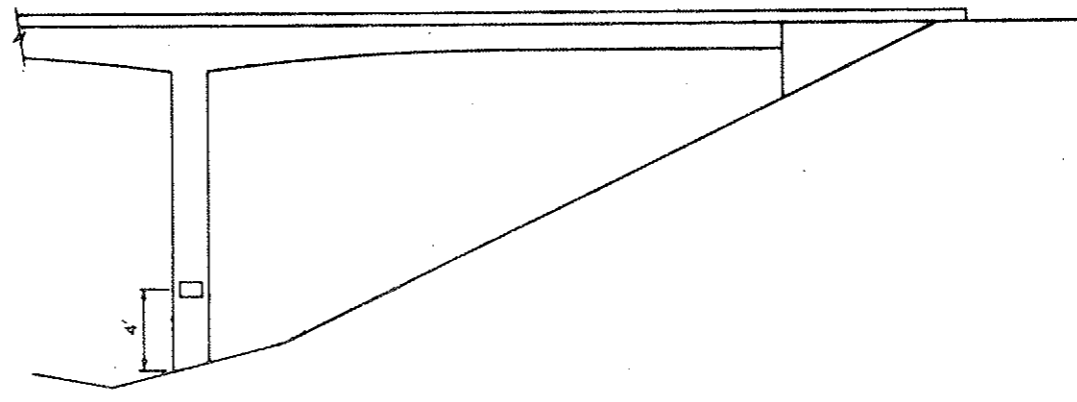


Black letters and numbers on white background.

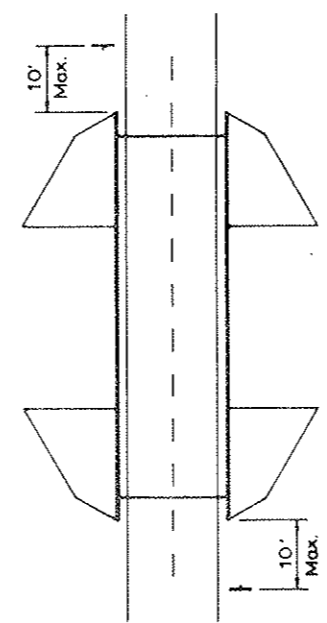
STRUCTURE IDENTIFICATION PANEL
(SAMPLE NUMBERS & LETTERS)



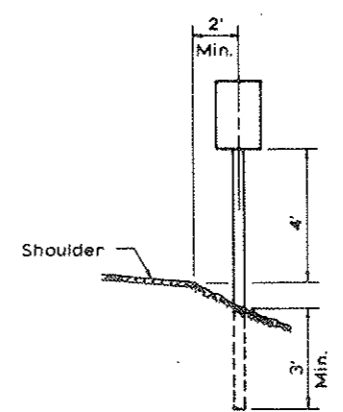
SECTION A



STRUCTURE NUMBER LOCATION ON PIERS



STANDARD LOCATION DETAIL



U-2 POST IN GROUND

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.

SIGN PANEL SHALL BE FABRICATED FROM EITHER SHEET STEEL 0.0598 MIN. THICKNESS OR SHEET ALUMINUM 0.080 MIN. THICKNESS.

SIGN PANEL SHALL BE GROUND MOUNTED.

U-2 POST SHALL MEET REQUIREMENTS OF PAR. 4.5 U.S. DEPT. OF COMMERCE, COMMERCIAL STANDARD 184-B1. ACCEPTABLE MATERIAL INCLUDES ROLLED RAILROAD RAILS. U-2 POST SHALL WEIGH 2 LBS. PER FT. EXCEPT THAT A MILL TOLERANCE OF MINUS 3-1/2% OF THE WEIGHT OF ANY ONE POST WILL BE ALLOWED. ALTERNATE METAL POST WILL BE ACCEPTABLE IF SECTION MODULUS IS AT LEAST 0.200 IN.³ ABOUT THE X-X AXIS AND AT LEAST 0.250 IN.³ ABOUT THE Y-Y AXIS.

SIGN PANEL SHALL BE FASTENED DIRECTLY TO THE POST WITH TWO 1/4" GALVANIZED OR CADMIUM PLATED STOVE BOLTS. A PLASTIC FIBER WASHER SHALL BE PLACED BETWEEN THE BOLTS HEAD AND THE FACE OF THE PANEL. A GALVANIZED OR CADMIUM PLATED LOCK WASHER SHALL BE PLACED UNDER THE NUT ON THE BACK OF THE POST. EXPOSED BOLT HEADS AND FIBER WASHERS ON THE FACE OF THE SIGN PANEL SHALL BE PAINTED TO MATCH THE SURROUNDING COLOR.

LETTERS AND NUMBERS SHALL BE SERIES "O". THEY SHALL BE 3" HIGH.

THE CORRECT STRUCTURE NUMBER IS SHOWN ON THE PLANS.

① OMIT STRUCTURE NUMBER STANDARDS WHERE A RAILROAD TRACK CROSSES OVER THE ROADWAY.

STRUCTURE NUMBER STANDARD SHALL NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE WORK.

IN ADDITION TO THE REQUIREMENTS STATED ABOVE, STRUCTURE NUMBERS FOR HIGHWAYS PASSING UNDER CROSSROADS ARE TO BE PLACED AT THE FOLLOWING POINTS:

- (A) FOR STRUCTURES OF THREE OR MORE SPANS, THE STRUCTURE NUMBER SHALL BE STENCILED, FACING TRAFFIC, ON THE OUTSIDE FACE OF THE END COLUMN OF THE RIGHT HAND PIER.
- (B) FOR TWO SPAN STRUCTURES, THE STRUCTURE NUMBER SHALL BE STENCILED, FACING TRAFFIC, ON THE OUTSIDE FACE OF EACH END COLUMN OF THE CENTER PIER.

AS CONSTRUCTED
NO REVISIONS DATE: 6-27-77

DIVISION OF HIGHWAYS			
STRUCTURE NUMBER STANDARD			
Designer <i>D. Hoflin</i>	Structure Numbers	<i>F-12-AK</i>	
Datater <i>B.F. LARSEN</i>	of 13	Drawings	
Drawing Number <i>B-13</i>			

Revision Dates	(Preliminary Stage Only)