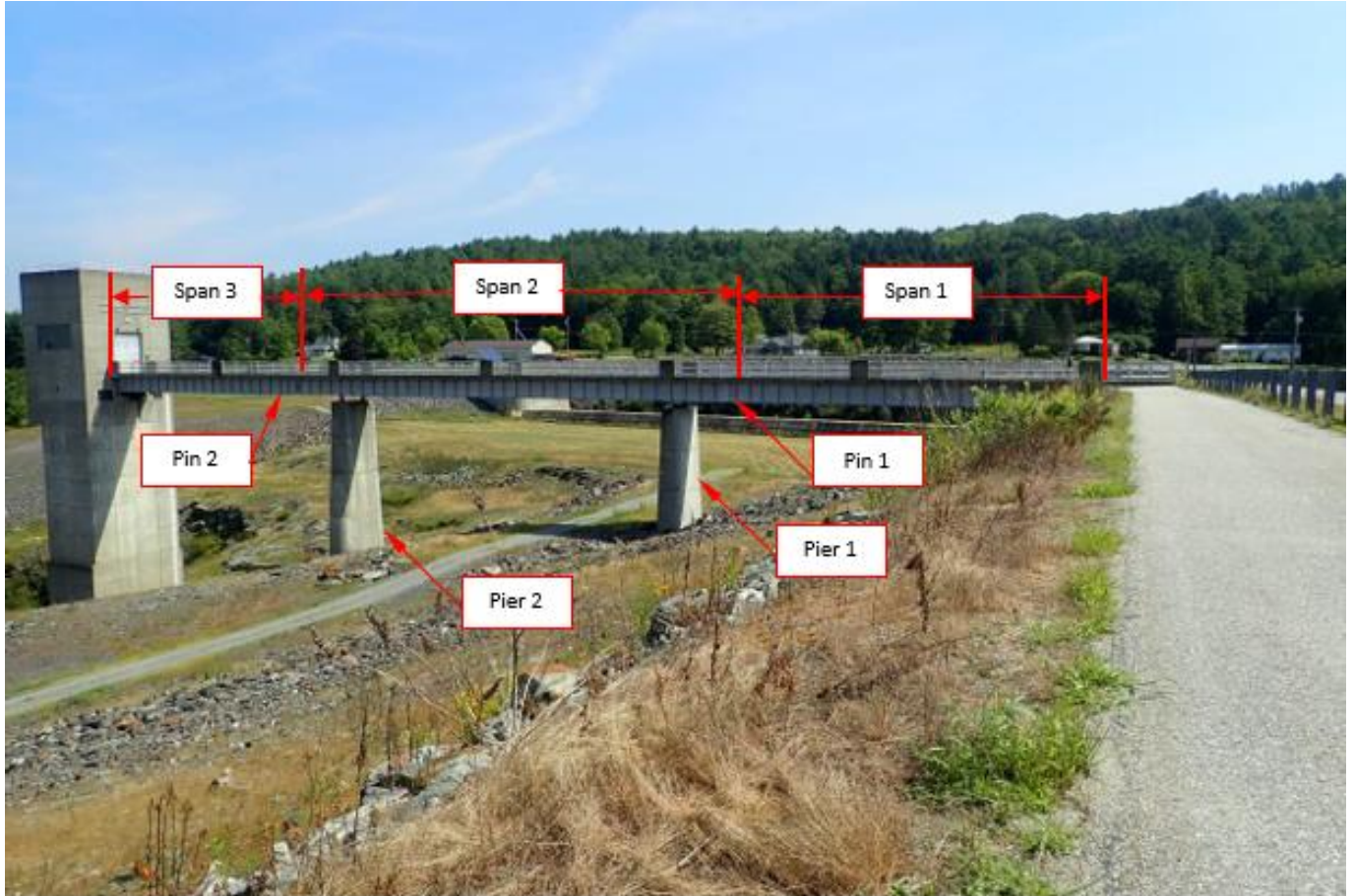


**BRIGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
PERFORMANCE WORK STATEMENT**

**Informational Photos**



**Informational Photo 1:** North Springfield Lake Service Bridge Profile looking West

**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
PERFORMANCE WORK STATEMENT**

**Informational Photos**



**Informational Photo 2:** Typical Girder Pin on North Springfield Lake Service Bridge

**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
PERFORMANCE WORK STATEMENT**

**Informational Photos**



**Informational Photo 3:** North Springfield Lake Service Bridge Approach



**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
PERFORMANCE WORK STATEMENT**

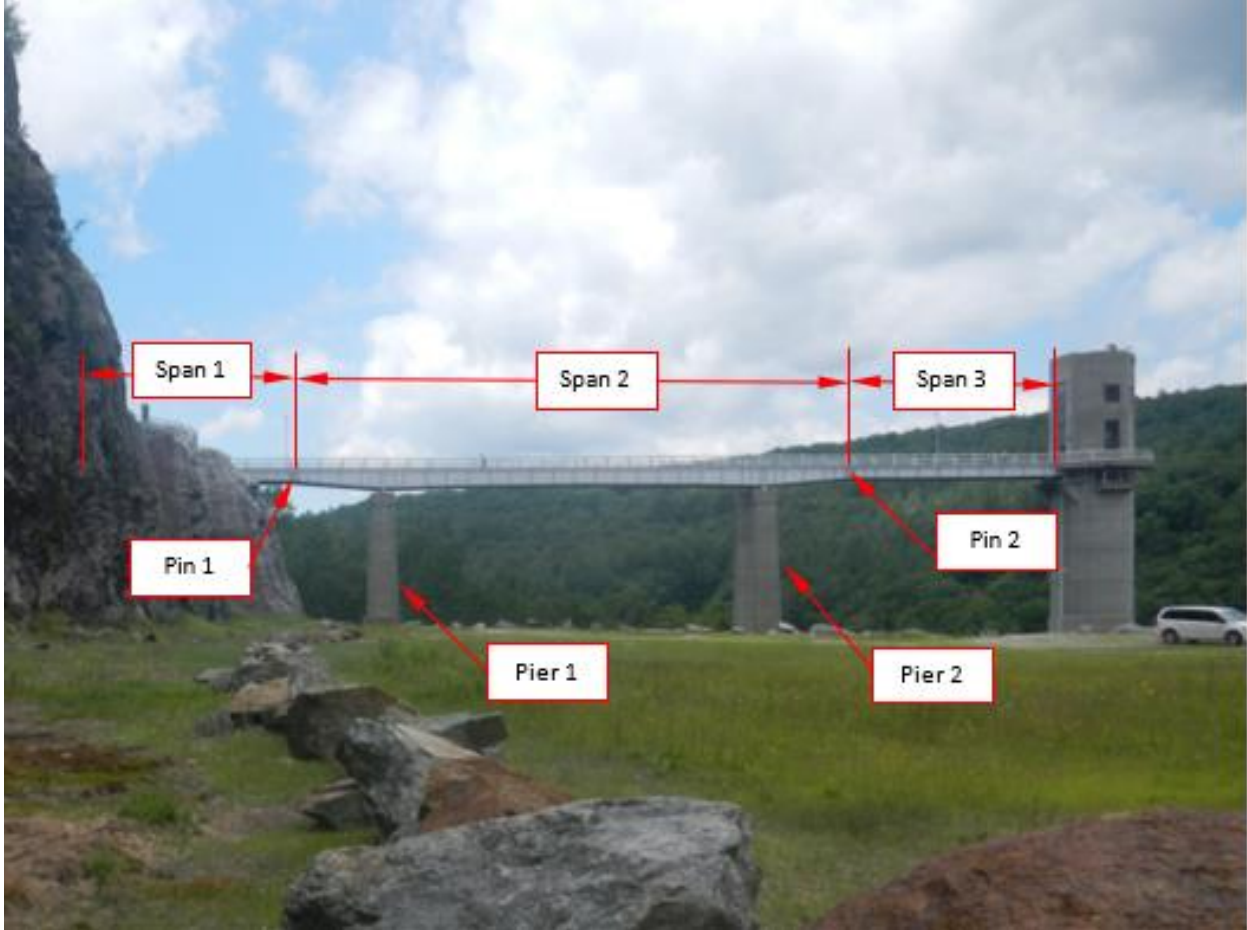
**Informational Photos**



**Informational Photo 5:** Snooper truck on the North Springfield Lake Service Bridge

**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
PERFORMANCE WORK STATEMENT**

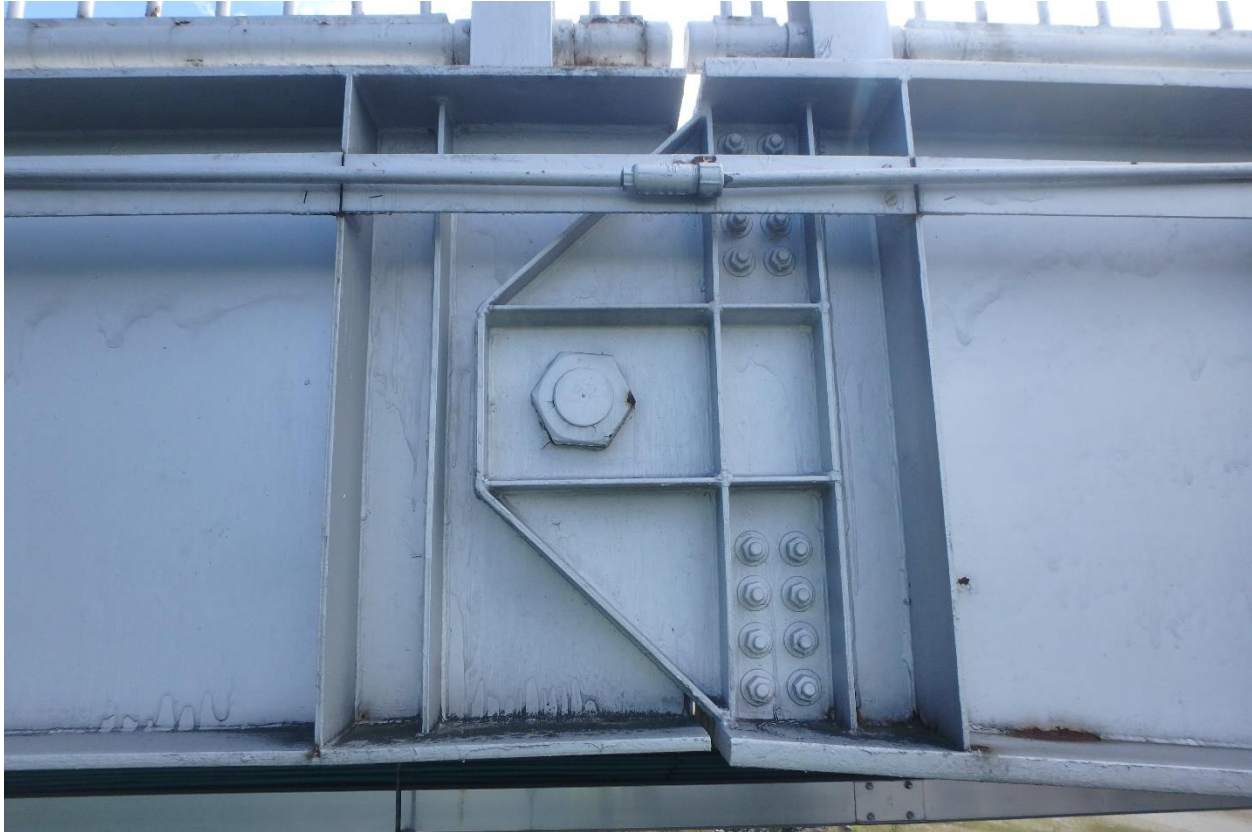
**Informational Photos**



**Informational Photo:** Ball Mountain Lake Service Bridge Profile looking East

**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
PERFORMANCE WORK STATEMENT**

**Informational Photos**



**Informational Photo 2:** Typical Girder Pin on Ball Mountain Lake Service



**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
PERFORMANCE WORK STATEMENT**

**Informational Photos**

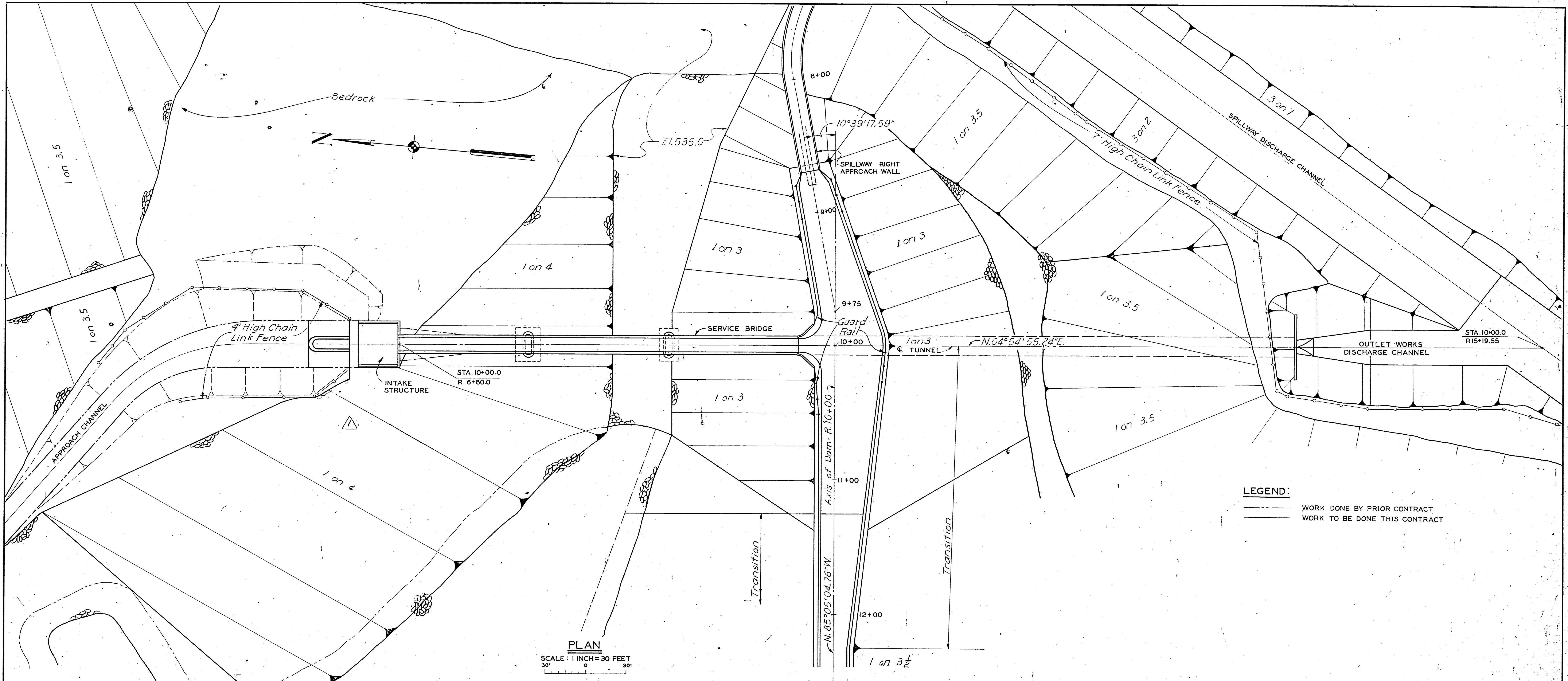


**Informational Photo 3:** Approach to the Ball Mountain Lake Service Bridge

**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
STATEMENT OF WORK**

**Informational Plans  
North Springfield Service Bridge**

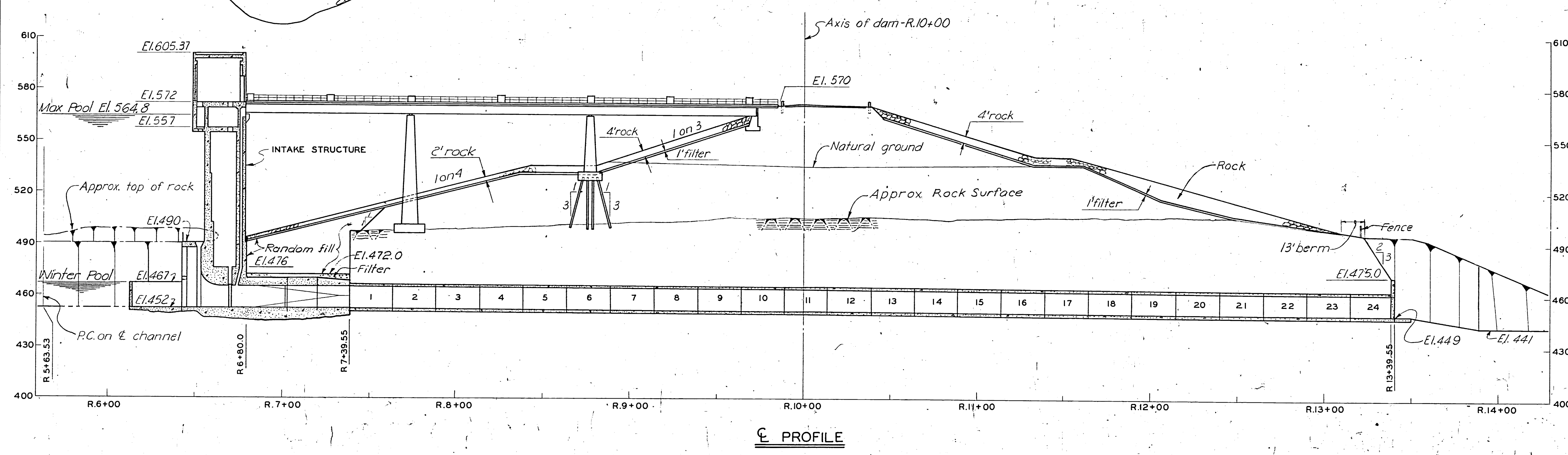




**PLAN**  
SCALE: 1 INCH = 30 FEET

**LEGEND:**  
 - - - - - WORK DONE BY PRIOR CONTRACT  
 \_\_\_\_\_ WORK TO BE DONE THIS CONTRACT

**Record Drawing**  
 Contract No. DA-19-016-CIV E: 18332



**PROFILE**

DATE	REV.	DESCRIPTION	J.C.	MADE	APPROV.
3-24-57		Turnaround deleted	J.C.	RM	JD

REVISIONS

CORPS OF ENGINEERS, U. S. ARMY  
 OFFICE OF THE DISTRICT ENGINEER  
 OMAHA DISTRICT  
 OMAHA, NEBRASKA

DESIGNED BY: J. D. M.  
 DRAWN BY: C. J. R.  
 TRACED BY: C. J. R.  
 CHECKED BY: R. L. R. P.E.D.  
 SUBMITTED BY: [Signature]  
 APPROVED BY: [Signature]  
 CHIEF, CIV. DESIGN BRANCH

**CONNECTICUT RIVER FLOOD CONTROL  
 NORTH SPRINGFIELD DAM  
 AND RESERVOIR  
 OUTLET WORKS  
 PLAN AND PROFILE  
 BLACK RIVER, VERMONT**

APPROVED: [Signature]  
 CHIEF, ENGINEERING DIVISION

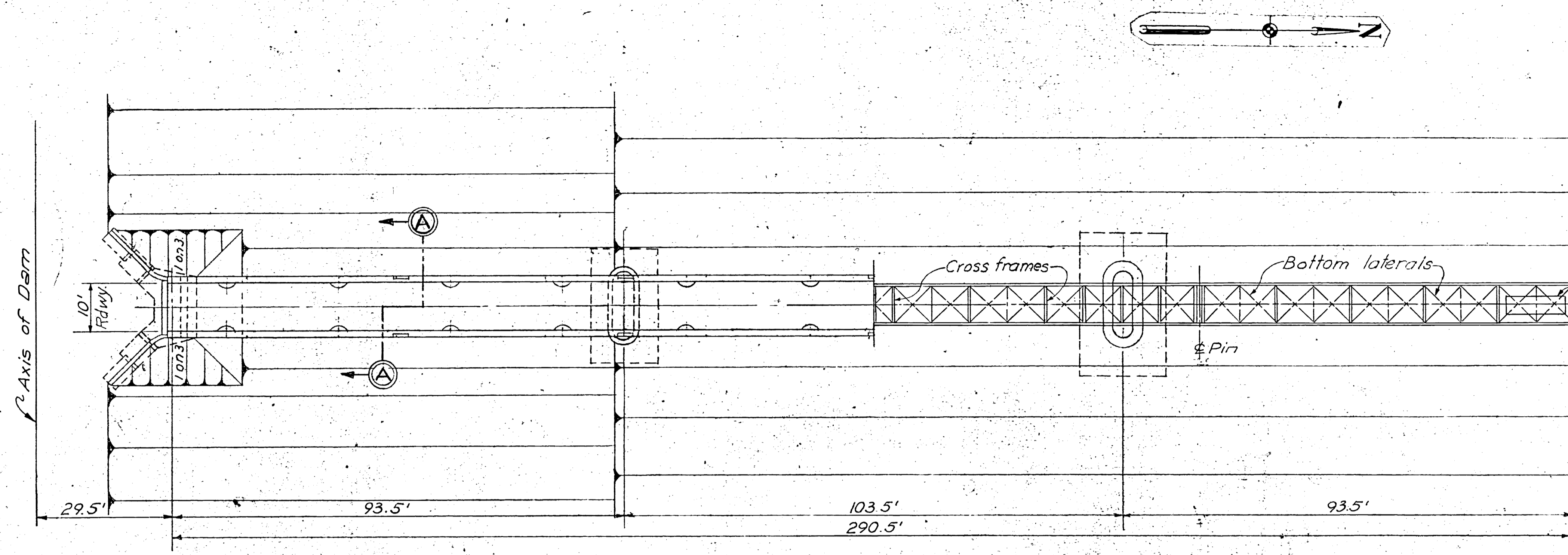
DATE: FEB. 1958

SCALE: AS SHOWN SPEC. NO. C1VENG-19-014-55-34  
 DRAWING NUMBER: CT-1-5065  
 SHEET 30 OF 134

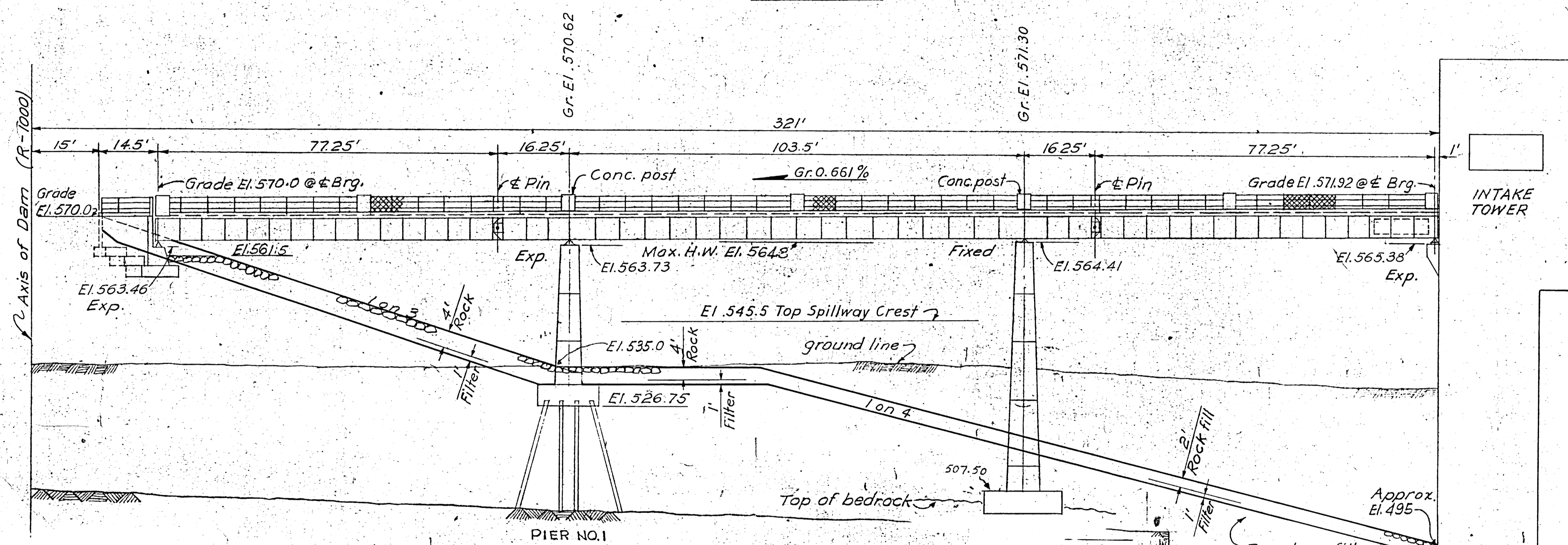
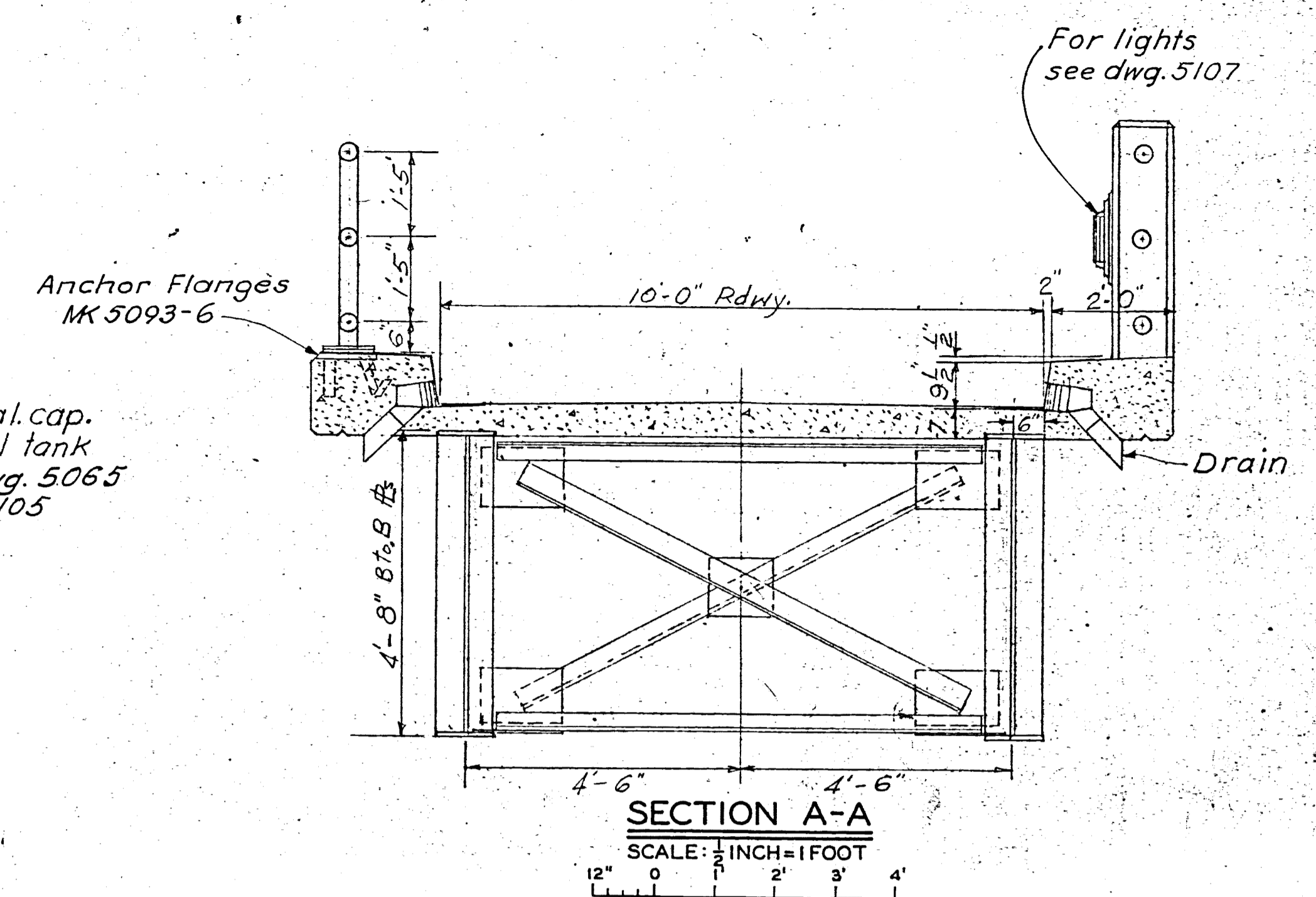
PREPARED BY THE OMAHA DISTRICT FOR THE U.S. ARMY ENGINEER DIVISION, NEW ENGLAND.

[Signature]  
 COL, C. E. DISTRICT ENGINEER





**PARTIAL PLAN**  
SCALE: 1 INCH = 15 FEET



**ELEVATION**  
SCALE: 1 INCH = 15 FEET

- GENERAL NOTES**
- This bridge is designed for the following loads at normal stresses in accordance with AASHTO Design Specification - 1958 Edition:
    - (A) Dead load as specified - 1 1/2" slab thickness allowed.
    - (B) Live load - standard MSB-15 loading.
  - All exposed corners of concrete shall be chamfered 1" except as shown.
  - Structural steel:
    - (A) All steel to be welded in girders, expansion plates, sheets and as required elsewhere shall be A.S.T.M. A373-54 with the same welding stresses as for A.S.T.M. A7 steel.
    - (B) All other steel is to be A.S.T.M. A7.
  - Design loads on piles:
    - (A) The basic design load for axial loading for 10" 42 lb. pile is 37 tons. Loads on piles may be increased for combination loading as per U.S.N.C. specs. All piles to be driven to refusal in rock.
  - Threads on pins to be burred on ends to prevent turning.
  - All elevations shown refer to M.S.L. 1929 Gen. Adj.
  - For handrail details see dwg. 5091 and 5092.
  - For electrical details see dwg. 5107.
  - All welded work shall be in accordance with standard Specifications for Welded Highway and Railway Bridges, American Welding Society, 1953.
  - Concrete shall have the following properties:
    - (A) Superstructure  $f'_c = 4000$  p.s.i.,  $n = 8$ ,  $f_c = 1600$  p.s.i.
    - (B) Substructure  $f'_c = 3000$  p.s.i.,  $n = 10$ ,  $f_c = 1200$  p.s.i.
  - Reinforcement shall be deformed bars meeting A.S.T.M. A305-54T, immediate grade above bench steel, A.S.T.M. A305-54T,  $f_s = 20,000$  p.s.i.
  - Bearing value of compacted random fill 4000 p.s.i.

DATE	REV.	DESCRIPTION	MADE	APPROV.
2/24/58	1	Final Field Corrections		
	2	Delete Rev. 1. ADD #2		
	3	Payline for random excavation and fill added		

DESIGNED BY: E.S.  
 DRAWN BY: C.J.R.  
 TRACED BY: C.J.R.  
 CHECKED BY: A.E.B.  
 SUBMITTED BY: *[Signature]*  
 APPROVED BY: *[Signature]*  
 DATE: FEB. 1958

**CORPS OF ENGINEERS, U. S. ARMY**  
 OFFICE OF THE DISTRICT ENGINEER  
 OMAHA DISTRICT  
 OMAHA, NEBRASKA

**CONNECTICUT RIVER FLOOD CONTROL**  
**NORTH SPRINGFIELD DAM**  
**AND RESERVOIR**  
 OUTLET WORKS-SERVICE BRIDGE  
 GENERAL PLAN AND ELEVATION  
 BLACK RIVER VERMONT

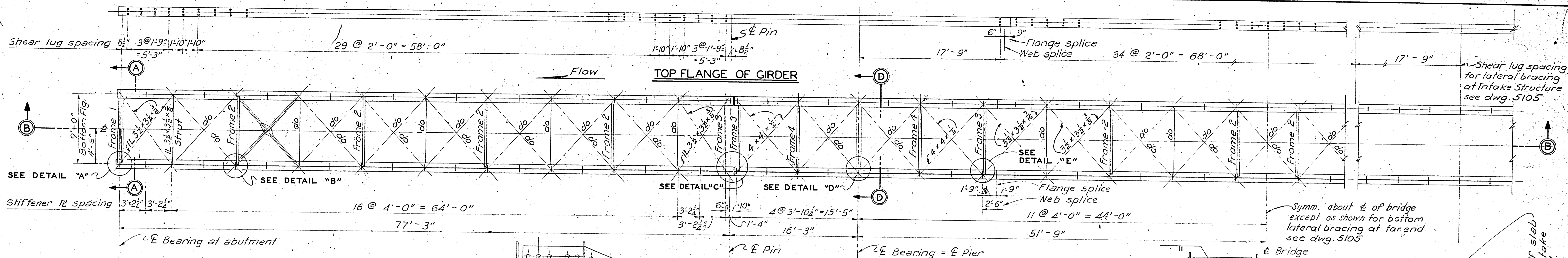
APPROVED: *[Signature]*  
 COL. C. E. DISTRICT ENGINEER

SCALE: AS SHOWN SPEC. NO. CIV. ENG. 19-016-59-16  
 DRAWING NUMBER: CT-1-5101  
 SHEET 65 OF 134

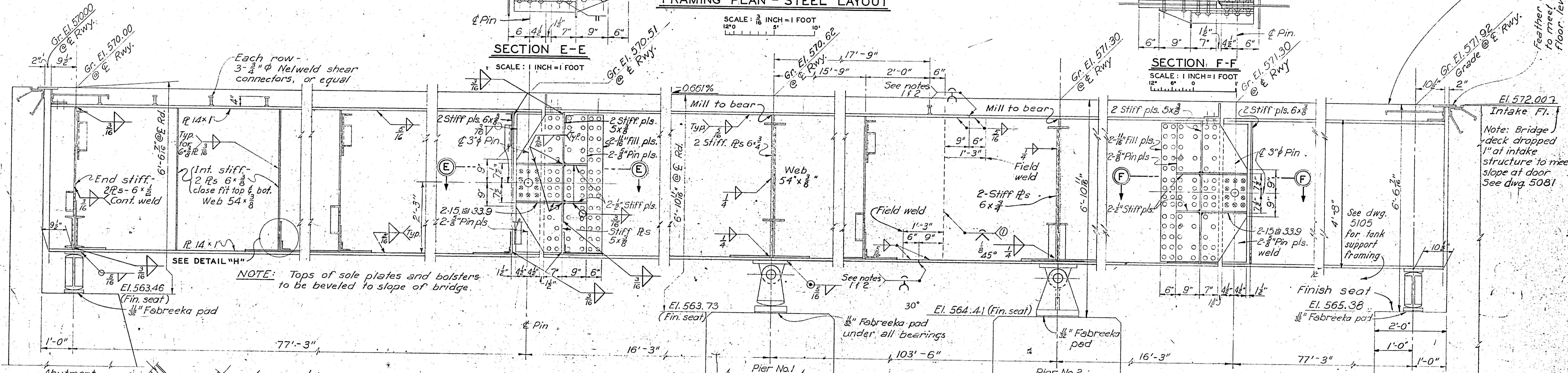
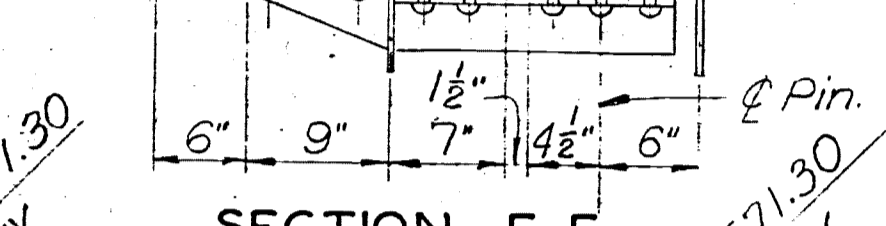
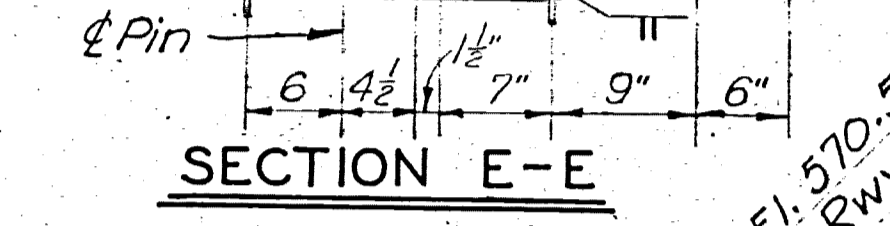
**Record Drawing**  
 Contract No. DA-19-10 CIV. 2

PREPARED BY THE OMAHA DISTRICT FOR THE U.S. ARMY ENGINEER DIVISION, NEW ENGLAND.

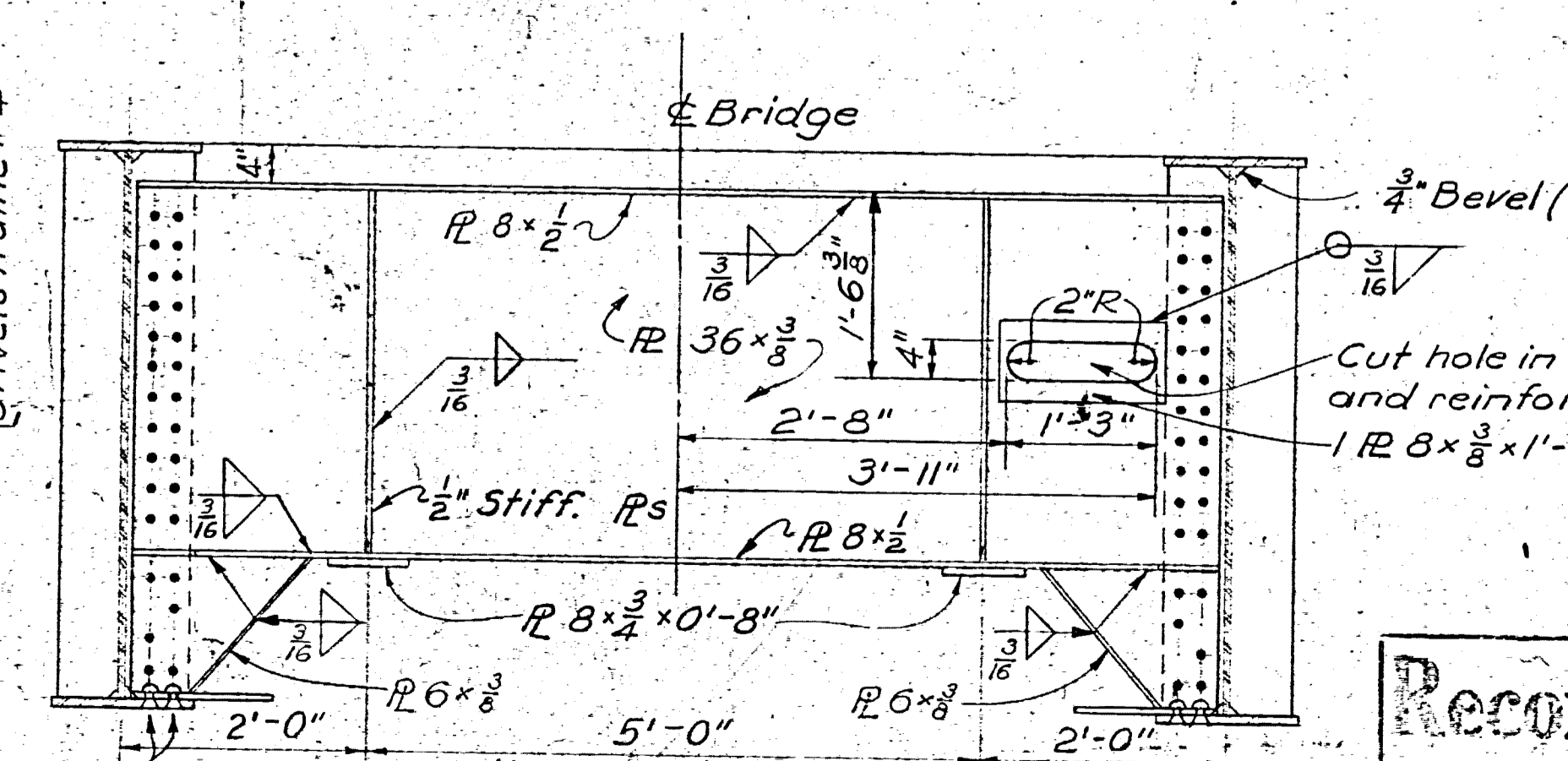
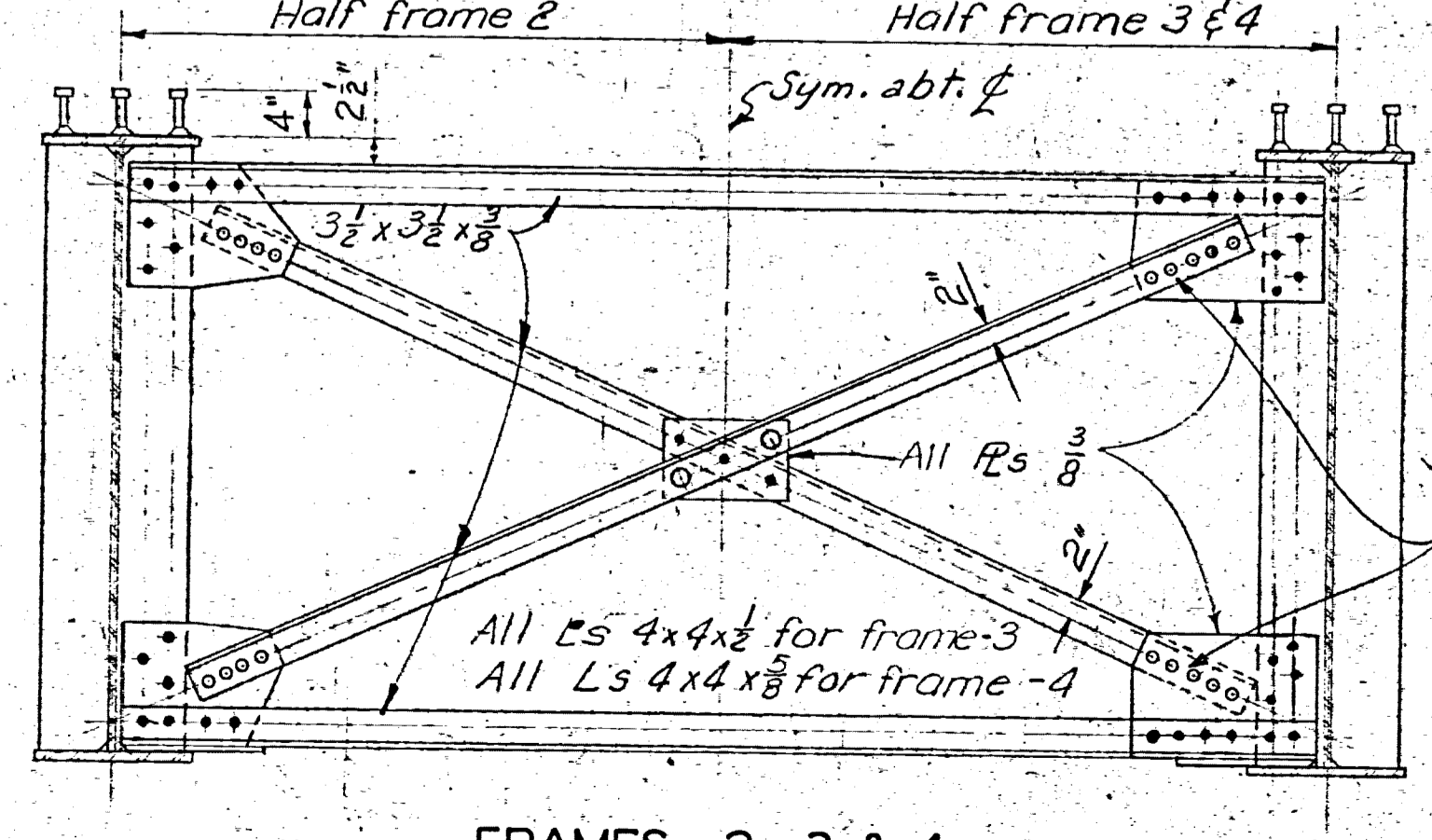
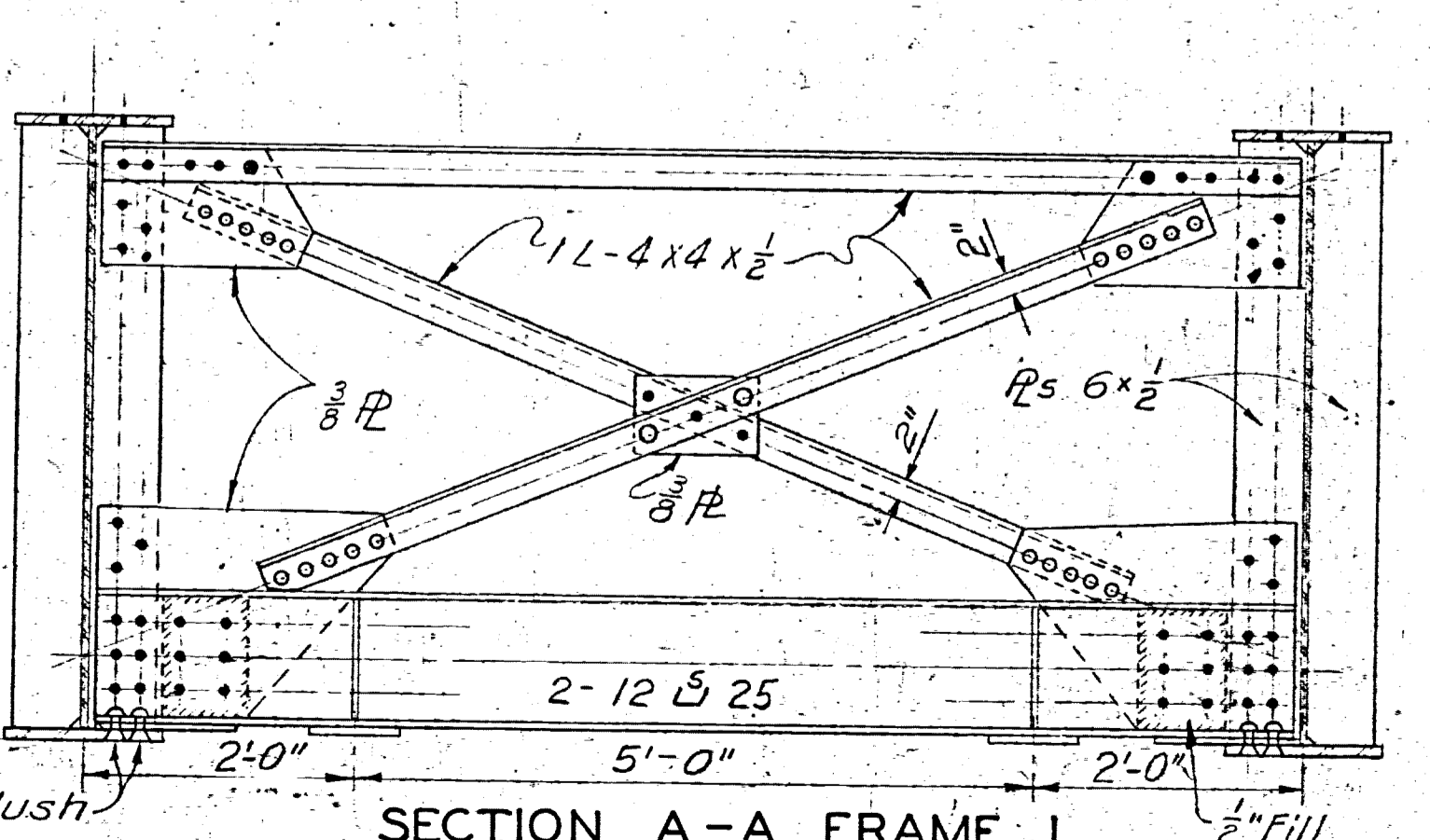
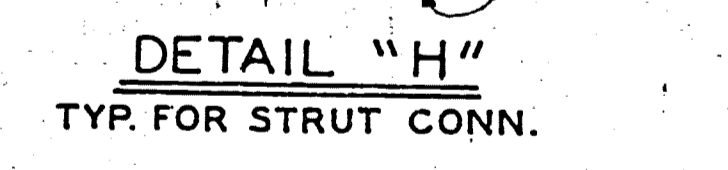
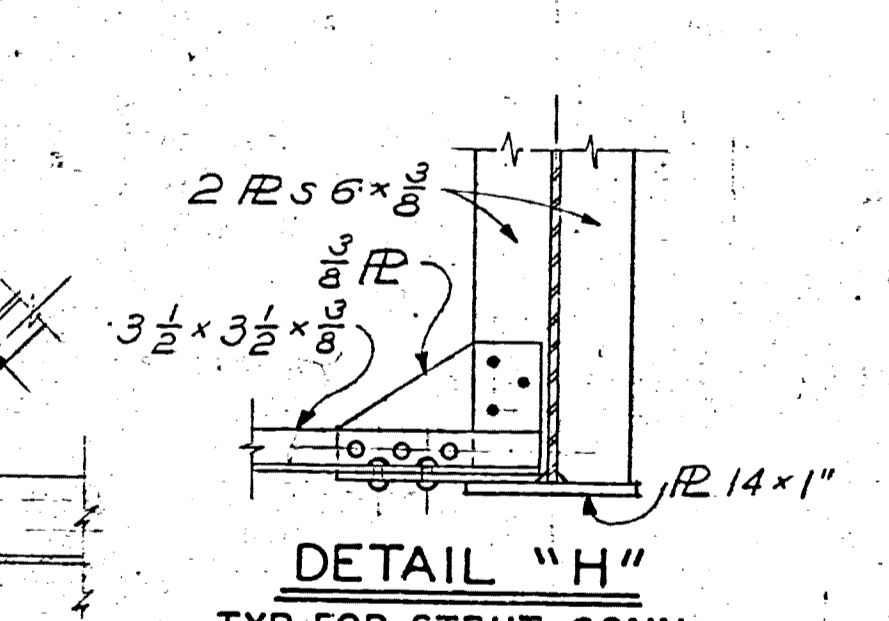
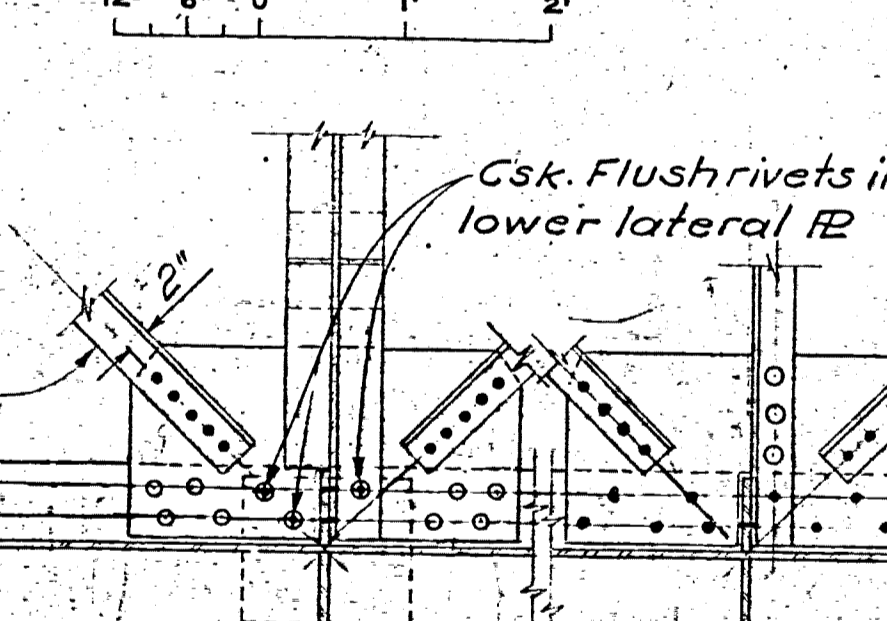
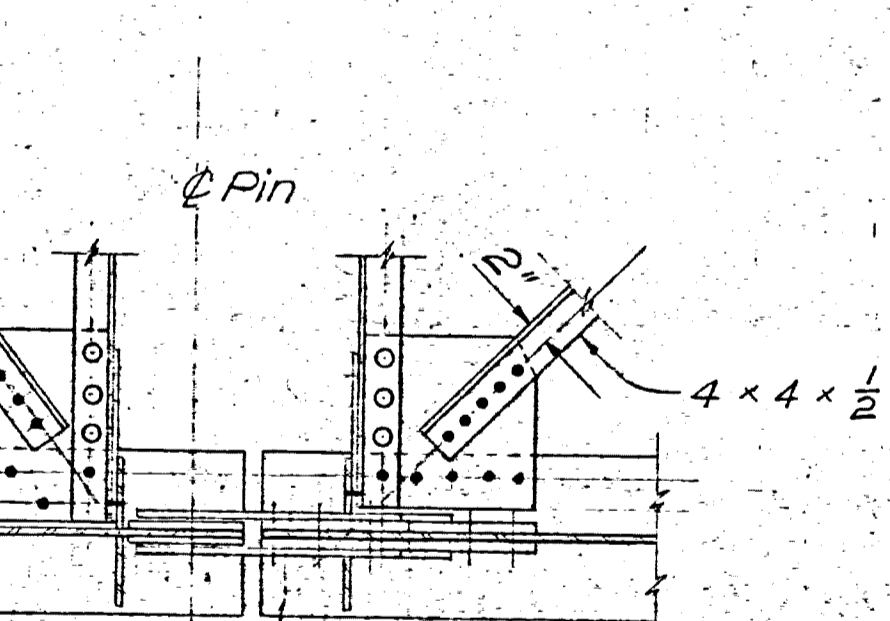
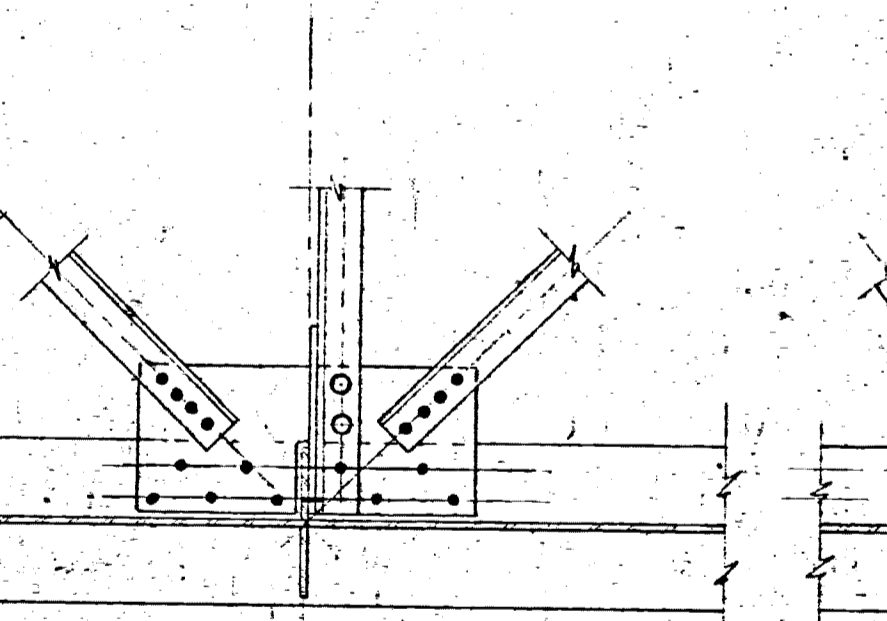
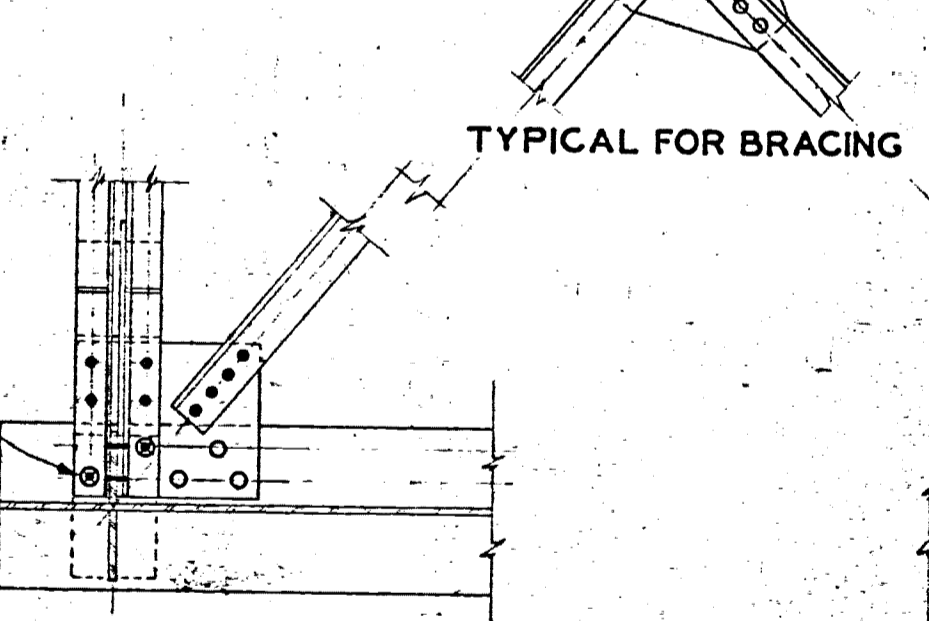
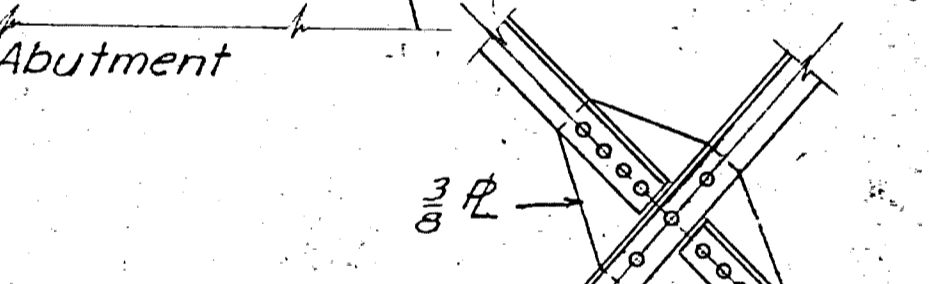




FRAMING PLAN - STEEL LAYOUT



- GENERAL NOTES:**
1. Grind all buff welds approx. flush in direction parallel to length of plate.
  2. See Fig. 2201, pg. 14, Specs. for Welded Highway and Railway Bridges, A.W. 5, 1956
  3. Rivets 3/4" Open holes 1/2" except for pins and anchors.
  4. Field connections to be bolted with high strength structural bolts with hardened washers.
  5. All gusset plates 3/8" unless otherwise noted.
  6. Design of pins and nuts shall be according to the AASHTO, Spec. -1953-par. 3-6-42 with recessed nuts and washers.



**Record Drawing**  
Contract No. DA-19-01C CIV ENG 58552

PREPARED BY THE OMAHA DISTRICT FOR THE U.S. ARMY ENGINEER DIVISION, NEW ENGLAND.

DATE	REV.	DESCRIPTION	MADE	APPR'D

DESIGNED BY: E.S.  
DRAWN BY: G.P.D.  
TRACED BY: G.P.D.  
CHECKED BY: A.E.B.

SUBMITTED BY: *[Signature]*  
PROJECT ENGINEER

APPROVED: *[Signature]*  
CHIEF, CIVIL DES. BRANCH

CORPS OF ENGINEERS, U. S. ARMY  
OFFICE OF THE DISTRICT ENGINEER  
OMAHA DISTRICT  
OMAHA, NEBRASKA

**CONNECTICUT RIVER FLOOD CONTROL  
NORTH SPRINGFIELD DAM  
AND RESERVOIR  
OUTLET WORKS-SERVICE BRIDGE  
GIRDER WORKS-FRAMING DETAILS  
BLACK RIVER VERMONT**

DATE: FEB. 1958

SCALE: AS SHOWN SPEC. NO. CIV. ENG. 1-16-50-34

DRAWING NUMBER: CT-1-5104

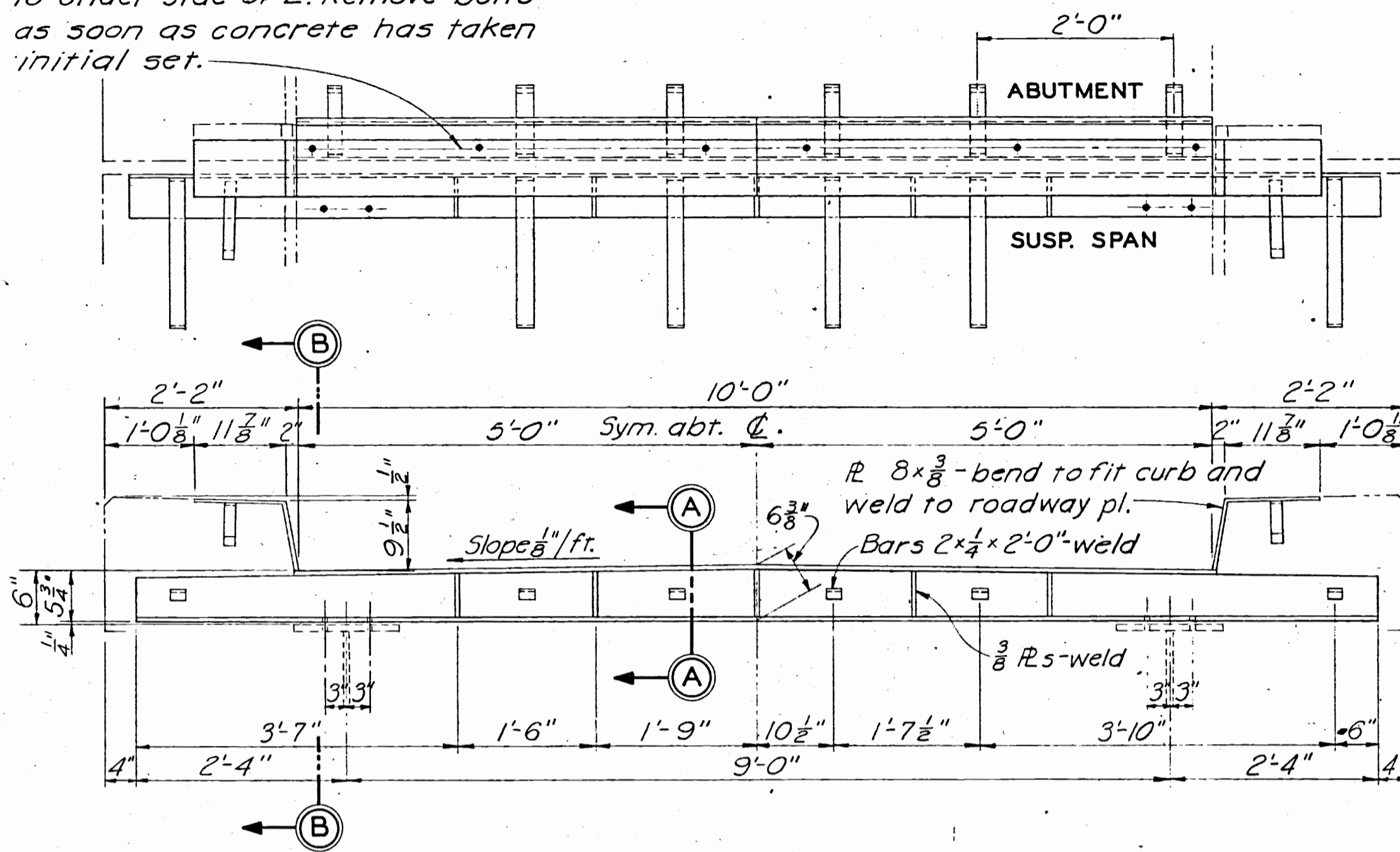
SHEET 68 OF 134

PREPARED BY THE OMAHA DISTRICT FOR THE U.S. ARMY ENGINEER DIVISION, NEW ENGLAND.

COL. C. E. DISTRICT ENGINEER

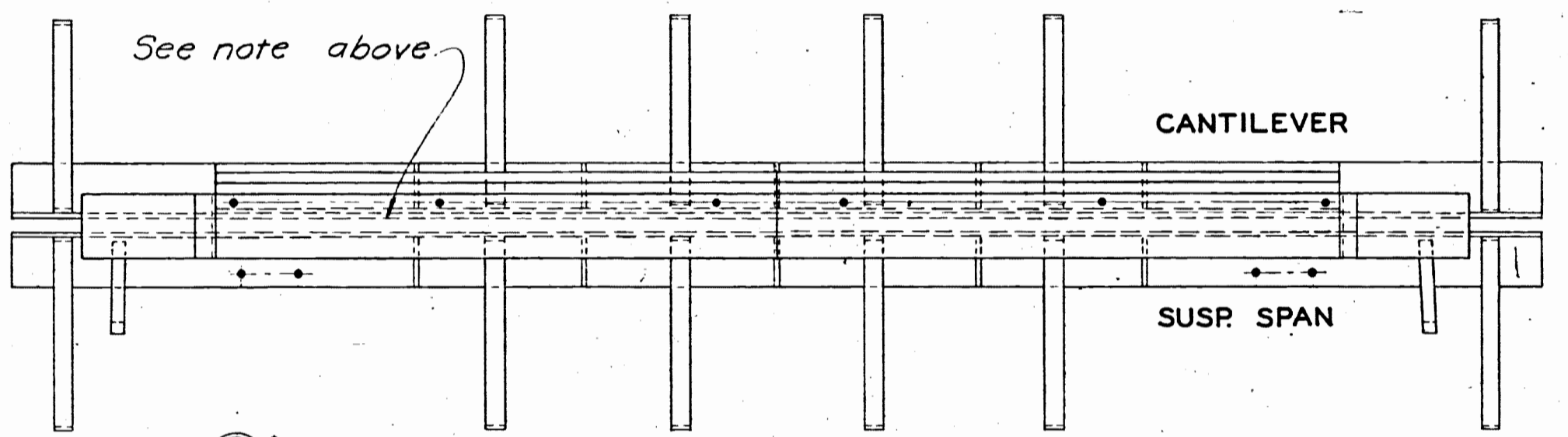


Note:  
 1" x 2 1/8" slotted holes in 8" x 1/2" L and 3/8" holes  
 in angle for 3/8" bolts. Weld nuts  
 to under side of L. Remove bolts  
 as soon as concrete has taken  
 initial set.



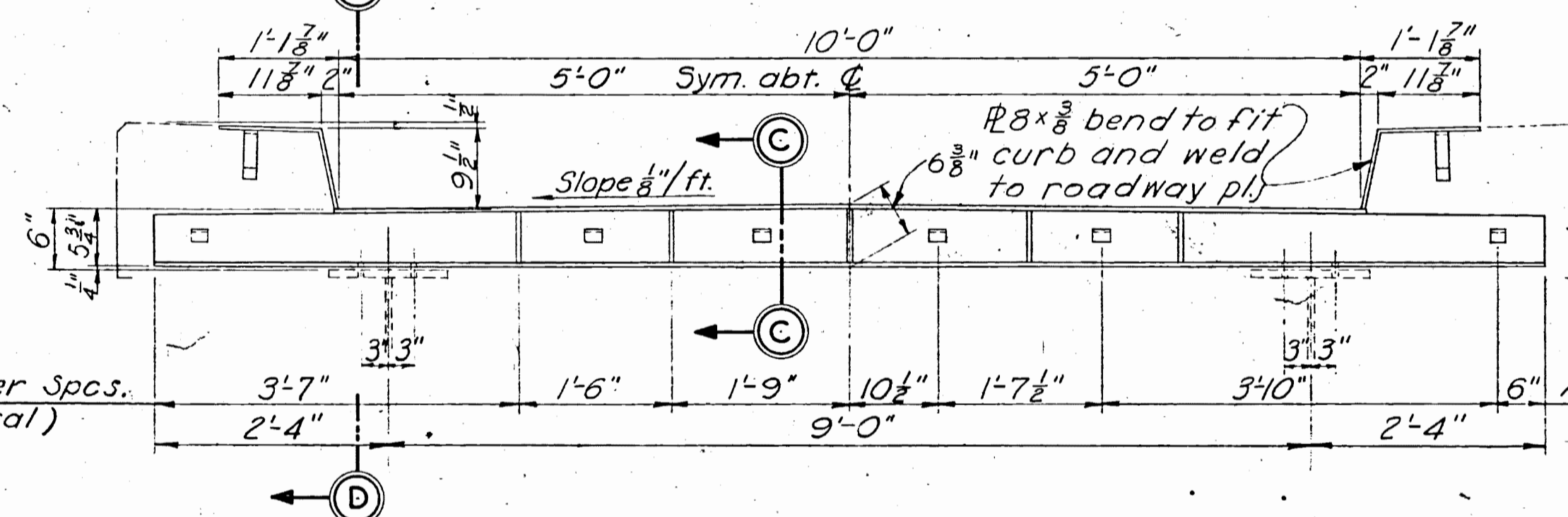
EXPANSION PLATE AT ABUTMENT

SCALE: 3/8" INCH = 1 FOOT



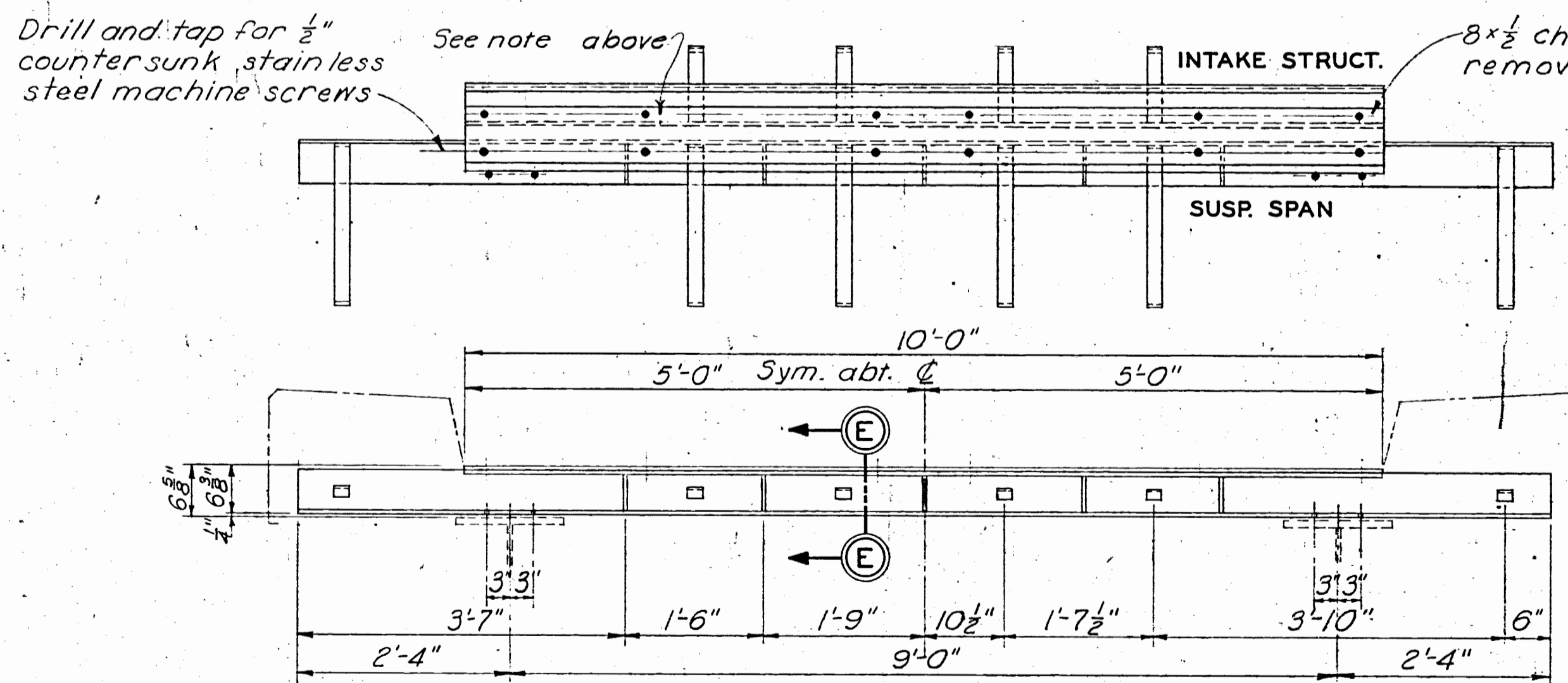
EXPANSION PLATE AT PIN

SCALE: 3/8" INCH = 1 FOOT



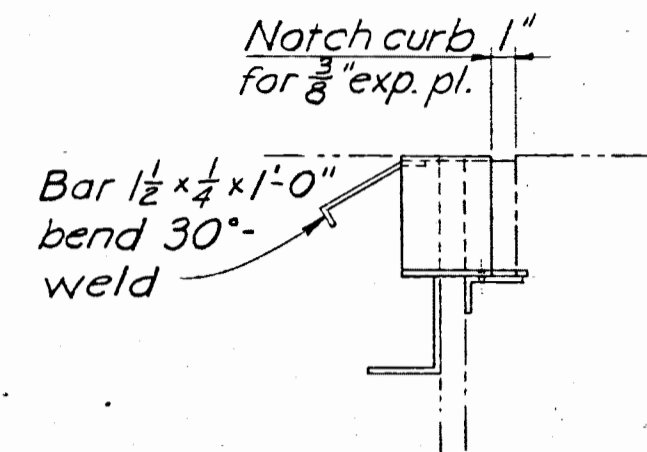
EXPANSION PLATE AT INTAKE STRUCTURE

SCALE: 3/8" INCH = 1 FOOT



EXPANSION PLATE AT INTAKE STRUCTURE

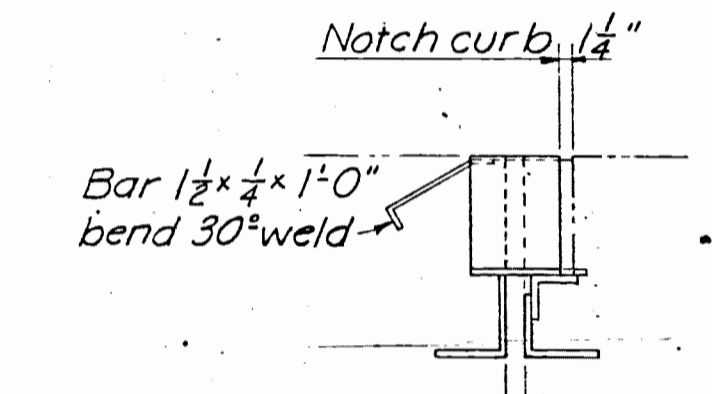
SCALE: 3/8" INCH = 1 FOOT



SECTION B-B

Exp. pl. and Ls to be attached to girder to provide flush surface in blockout  
 L-6 x 6 x 1/2 - trim to fit 8 x 2 rdwy. pl. Weld with 3/8" cont. weld.  
 Bars 2 x 1/2 x 2'-0" weld  
 Note: L-6 x 6 x 1/2 to be welded to R 7 1/2 x 1/2 on bevel of slope of bridge.  
 Note: L-6 x 6 x 1/2 to be welded to R 7 1/2 x 1/2 on bevel of slope of bridge.

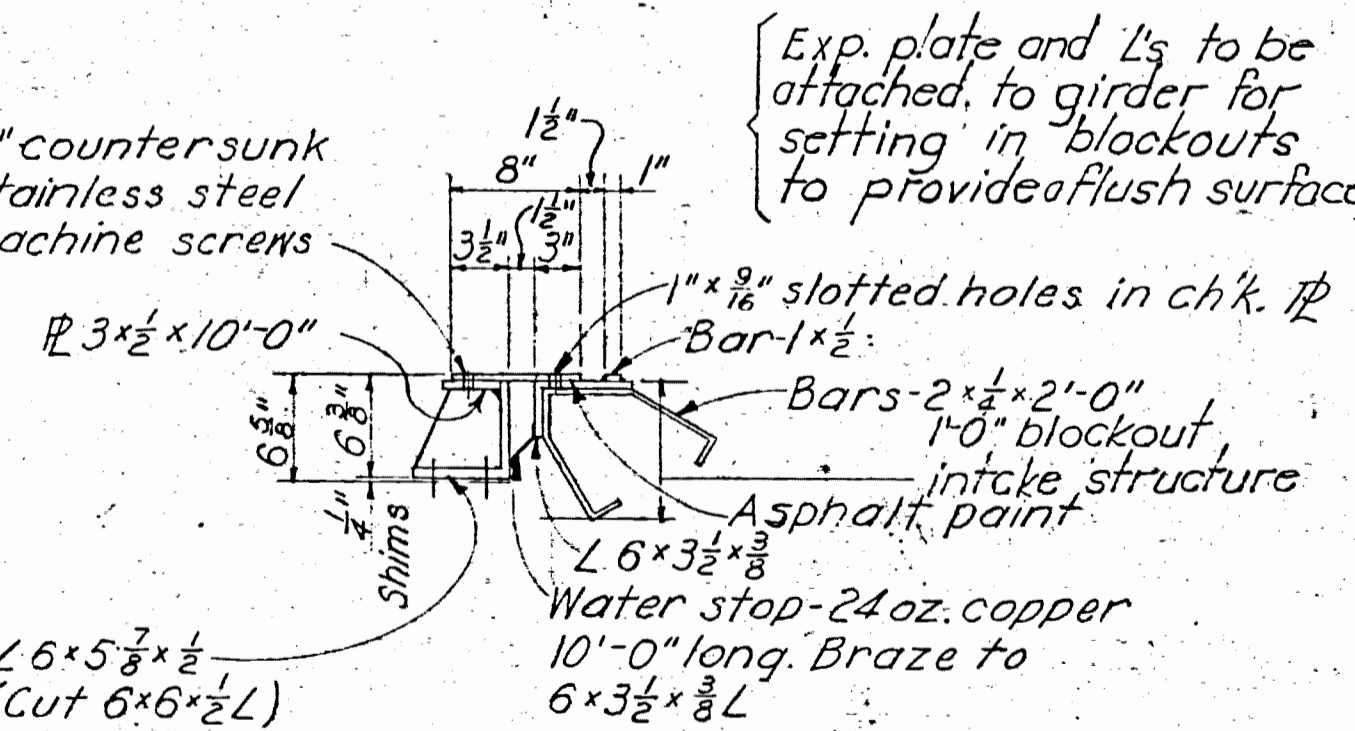
SECTION A-A



SECTION D-D

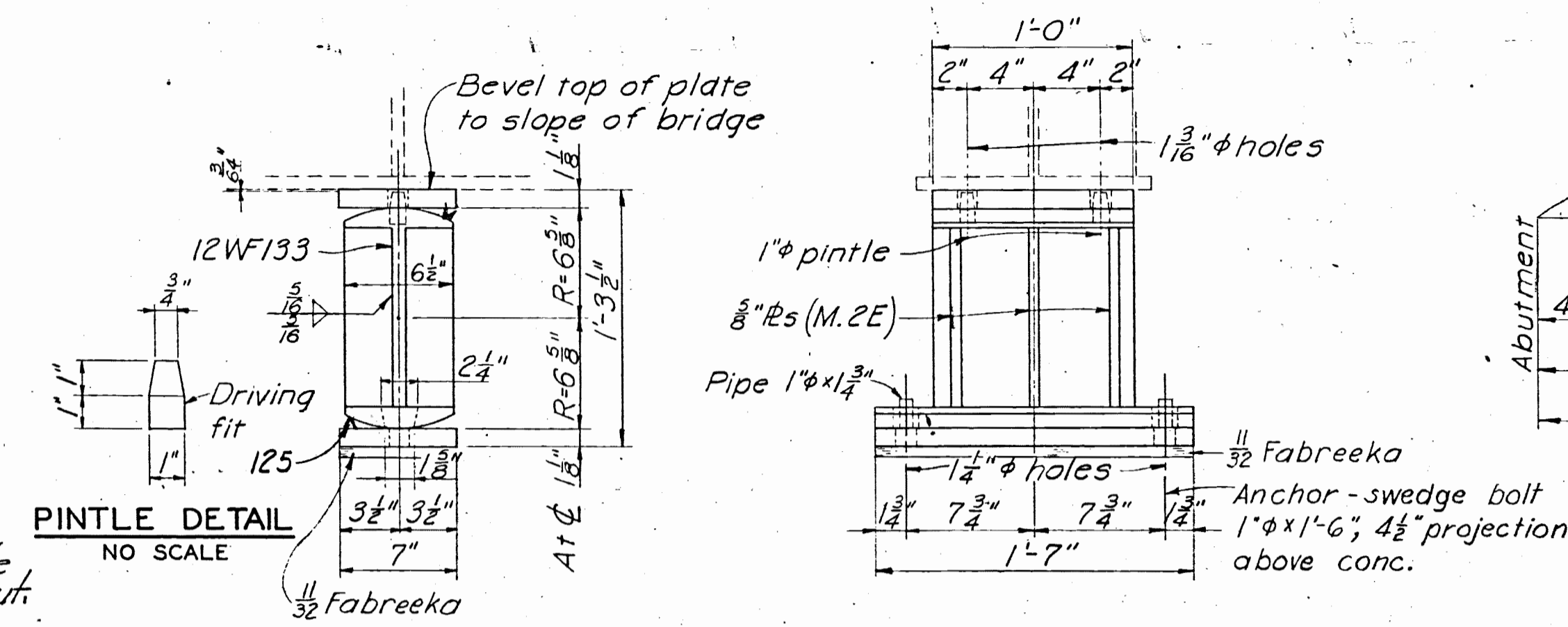
6 x 6 x 1/2 L - trim to fit 8 x 2 rdwy. pl. weld with cont. weld  
 8 x 1/2 R  
 6 x 6 x 1/2 L  
 3/8" stiffener pls.  
 L-6 x 4 x 1/2  
 3/8" cont. welds  
 Same as Section A-A except as noted

SECTION C-C



SECTION E-E

Note:  
 Position of End Expansion Shoe to be vertical at 45°F under dead load. For each 10° rise in temperature, set of rocker 'B' = .07" & 'A' = .15" away from fixed shoe. For each 10° drop in temperature set of rocker 'B' = .07" & 'A' = .15" toward fixed shoe.

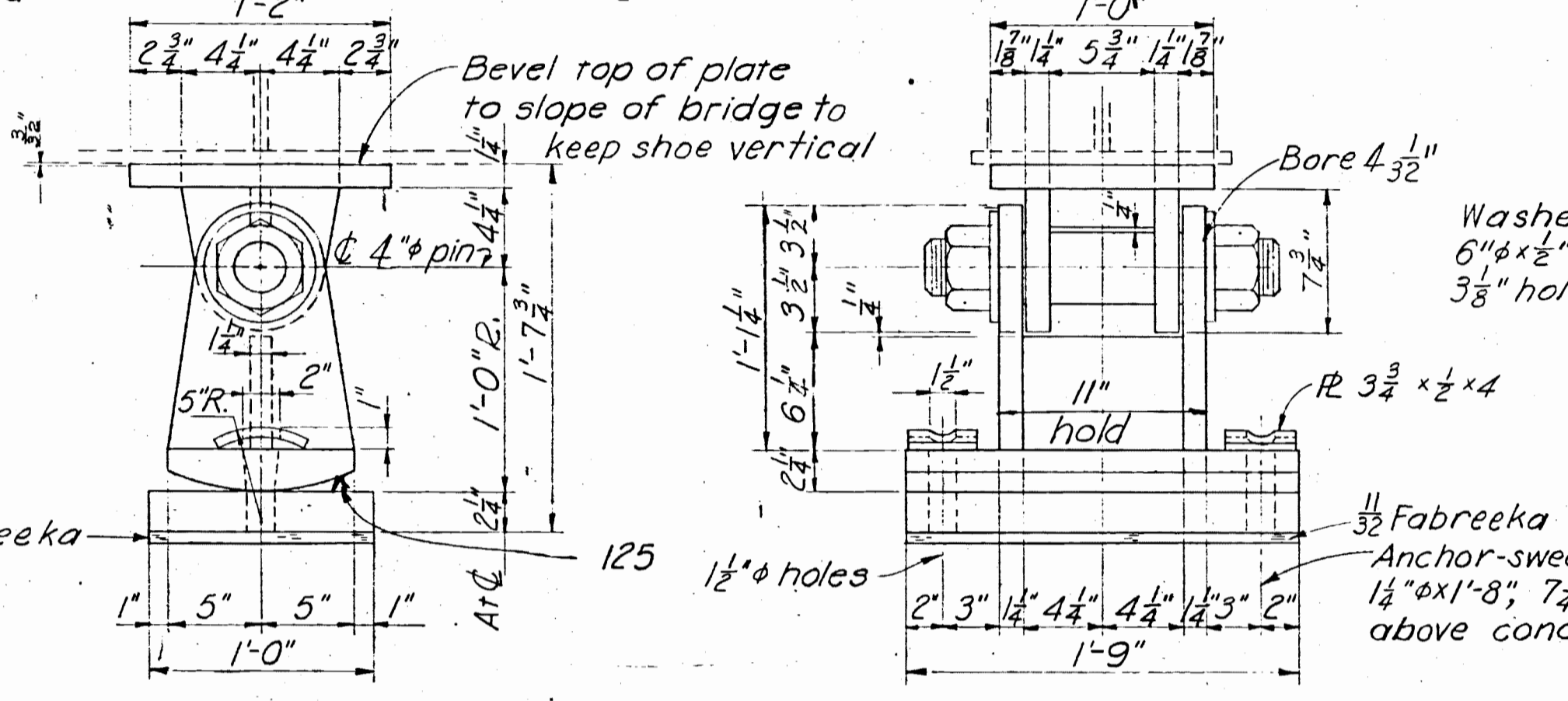


PINTLE DETAIL

NO SCALE

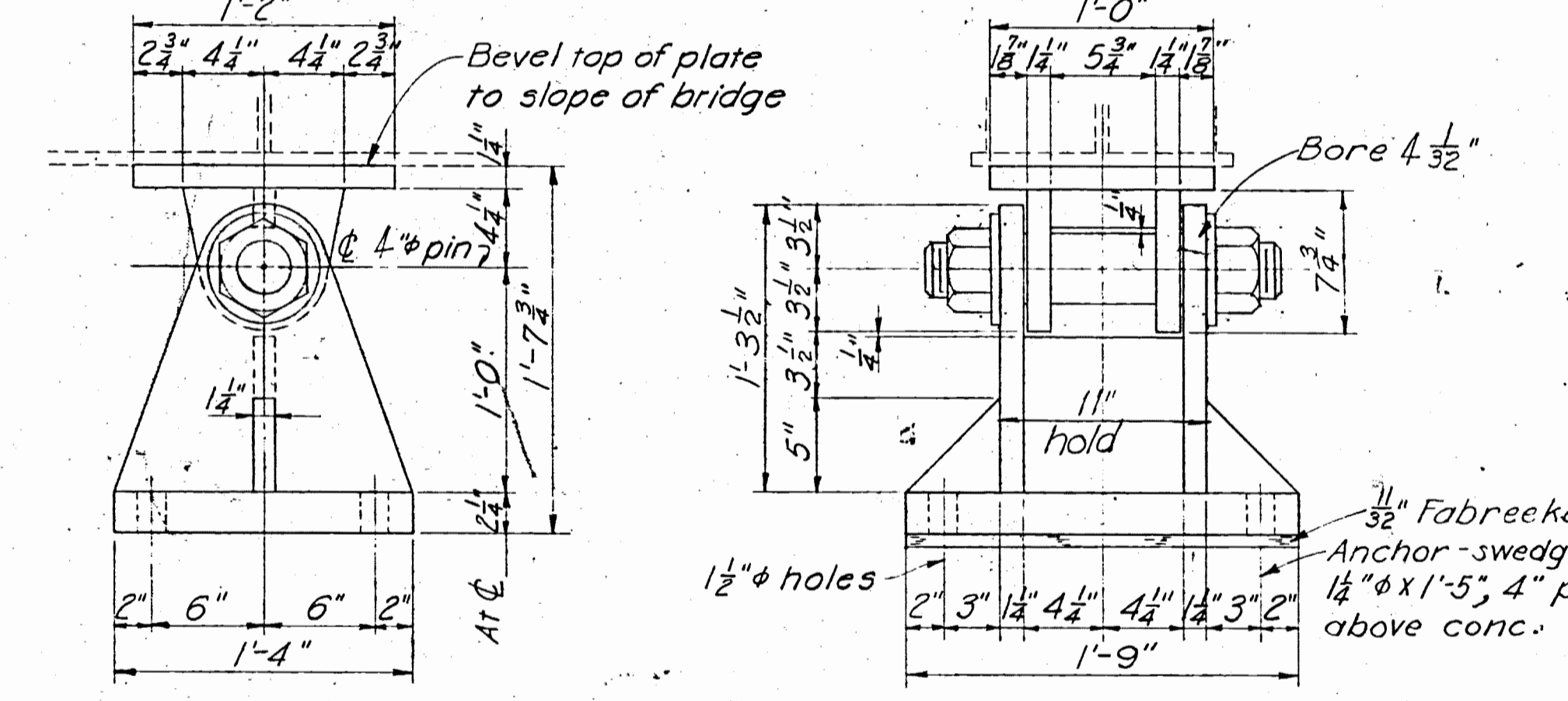
EXPANSION SHOE AT END OF GIRDER AT ABT. & INTAKE STRUCTURE

4 REQ'D. SCALE: 1/2 INCHES = 1 FOOT



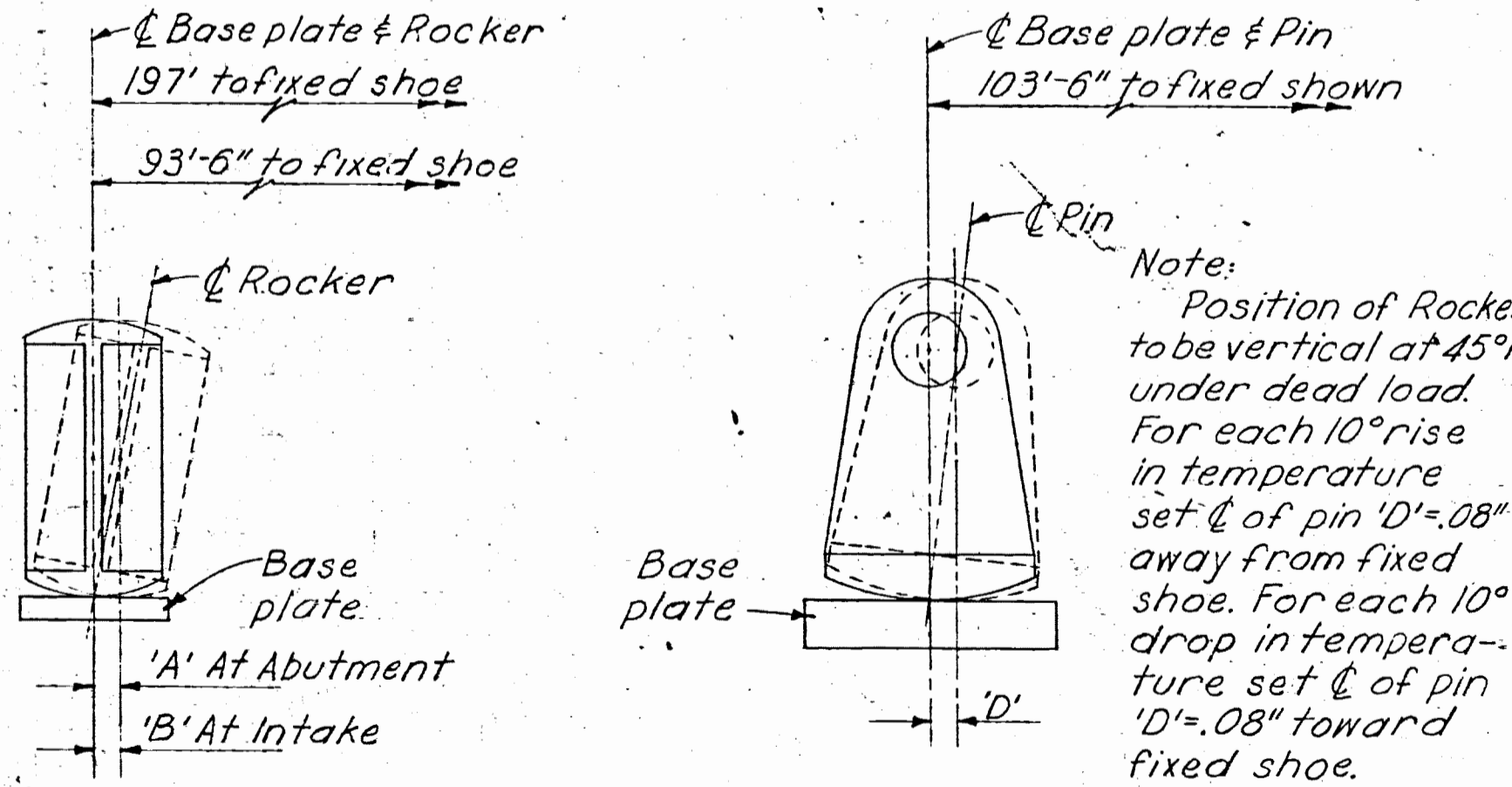
INTERIOR EXPANSION SHOE AT PIER NO. 2

2 REQ'D. SCALE: 1/2 INCHES = 1 FOOT



FIXED SHOE

2 REQ'D. SCALE: 1/2 INCHES = 1 FOOT

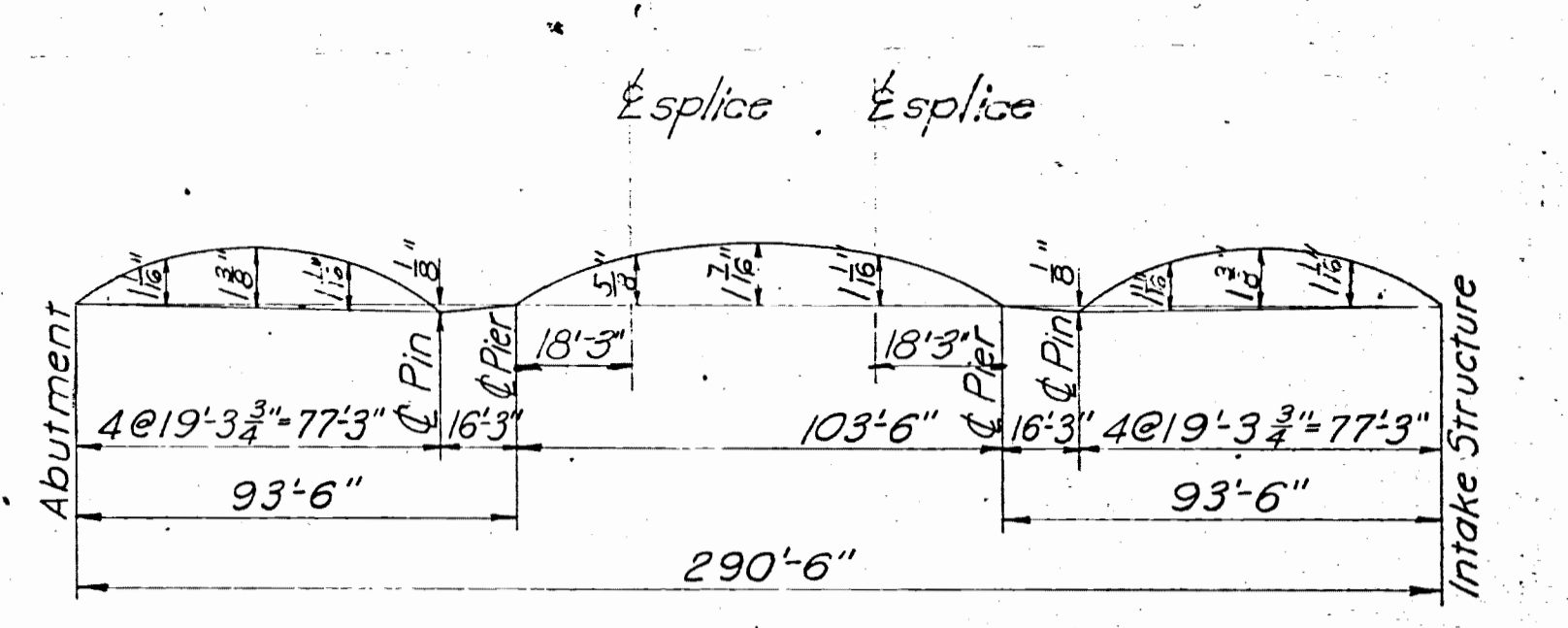


ROCKER AT ABUTMENT AND INTAKE

SCALE: 1/2 INCHES = 1 FOOT

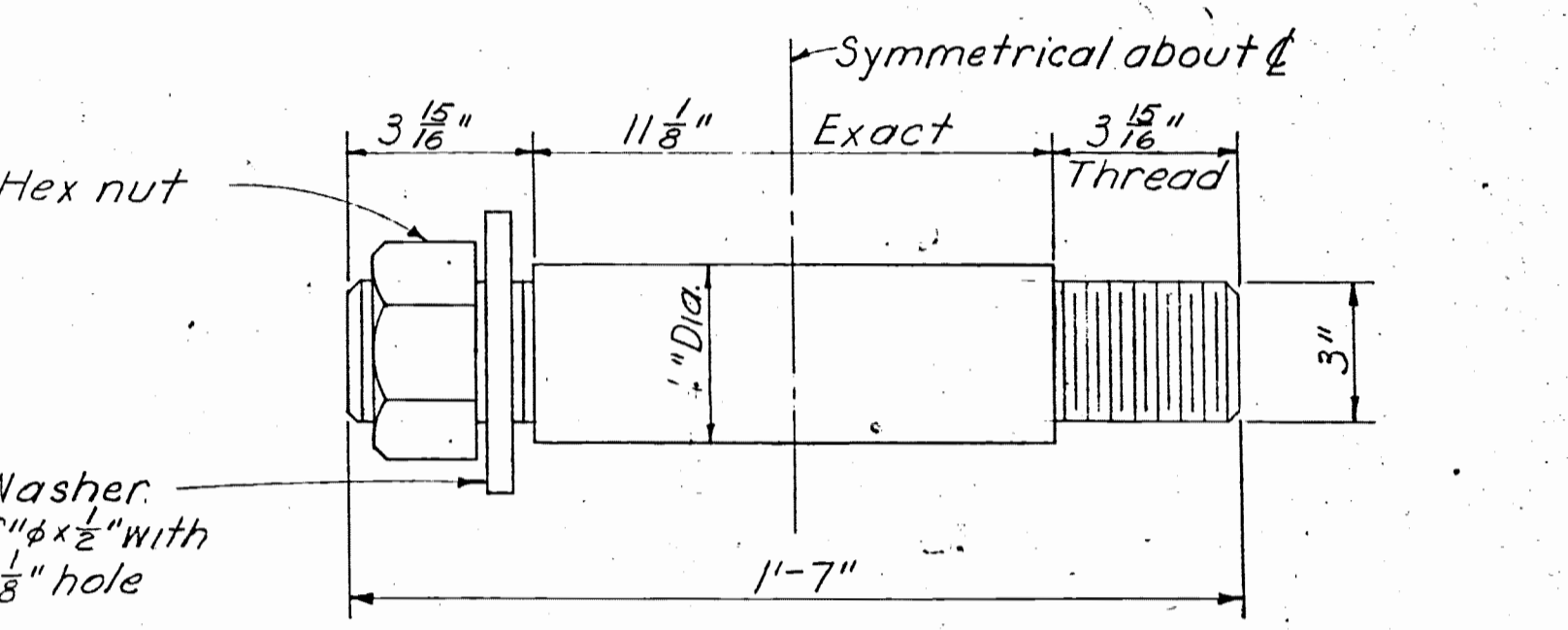
ROCKER AT PIER NO. 1

SCALE: 1/2 INCHES = 1 FOOT



CAMBER DIAGRAM FOR GIRDERS

NO SCALE



DETAIL OF PIN FOR GIRDER SHOES

SCALE: 3/8 INCHES = 1 FOOT

GENERAL NOTES:

1. Provide 21 ply 3/8" Fabreeka pads or equal under all bearings.
2. All shoes shall be structural steel welded together with 3/8" fillet or vee welds. Surfaces in contact shall be milled to bear before welding.
3. Threads of shoe pins to be burred after erection.
4. Finished surfaces on rockers to be milled after welding.

DATE	REV.	DESCRIPTION	MADE	APPR'D.

DESIGNED BY: E. S.  
 DRAWN BY: W. R. L.  
 TRACED BY: W. R. L.  
 CHECKED BY: A. E. B.  
 SUBMITTED BY: E. S. (Signature)  
 PROJECT ENGINEER  
 APPROVED: J. C. (Signature)  
 CHIEF, CIVIL DESIGN BRANCH  
 APPROVED: J. C. (Signature)  
 CHIEF, ENGINEERING DIVISION  
 DATE: FEB. 1958  
 SCALE: AS SHOWN  
 SPEC. NO. CIV. ENG-19-016-78-38  
 DRAWING NUMBER  
 CT-1-5106  
 SHEET 70 OF 124

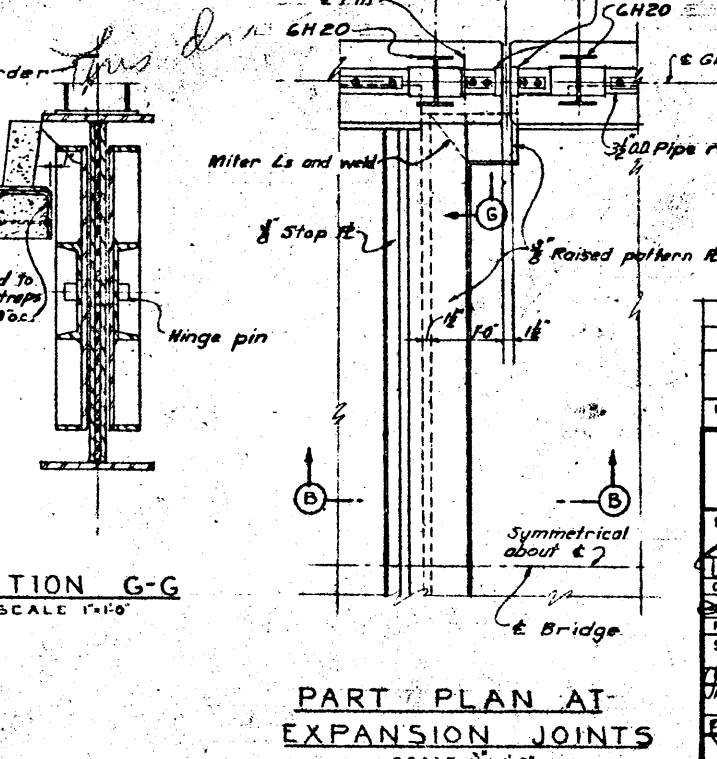
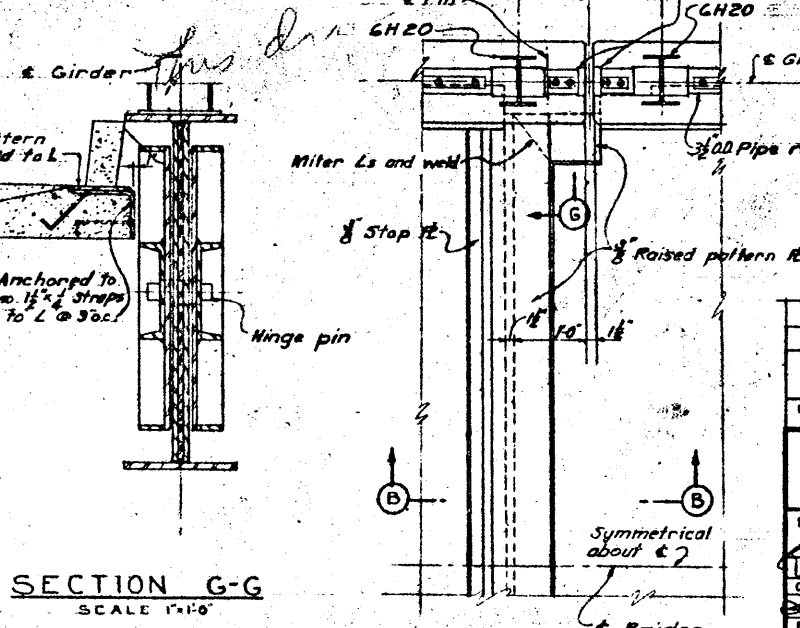
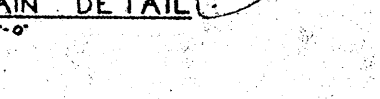
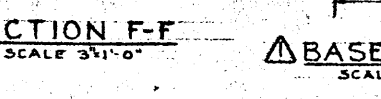
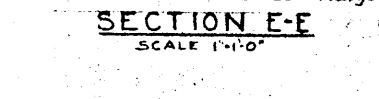
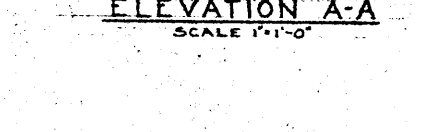
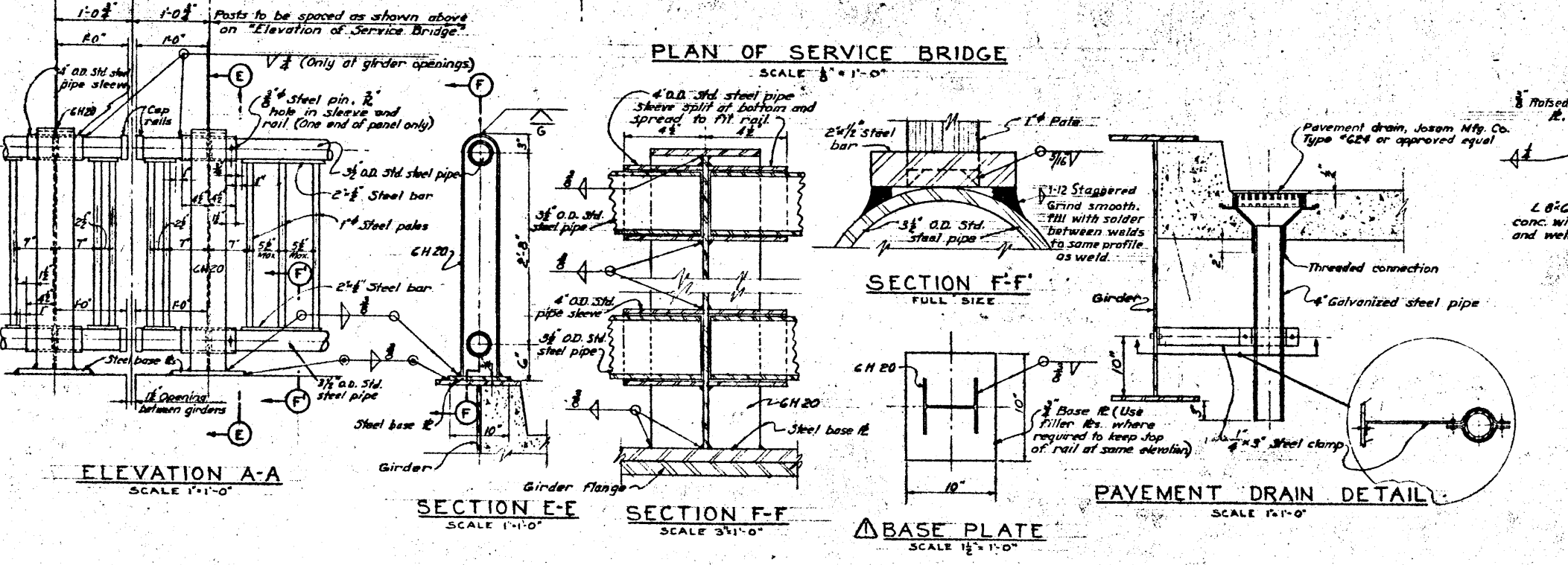
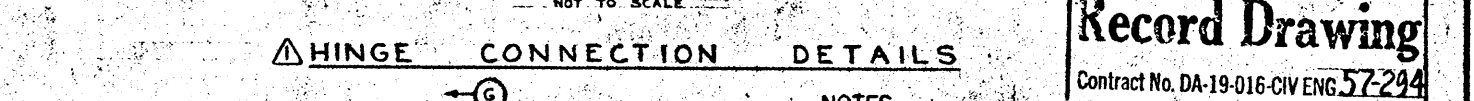
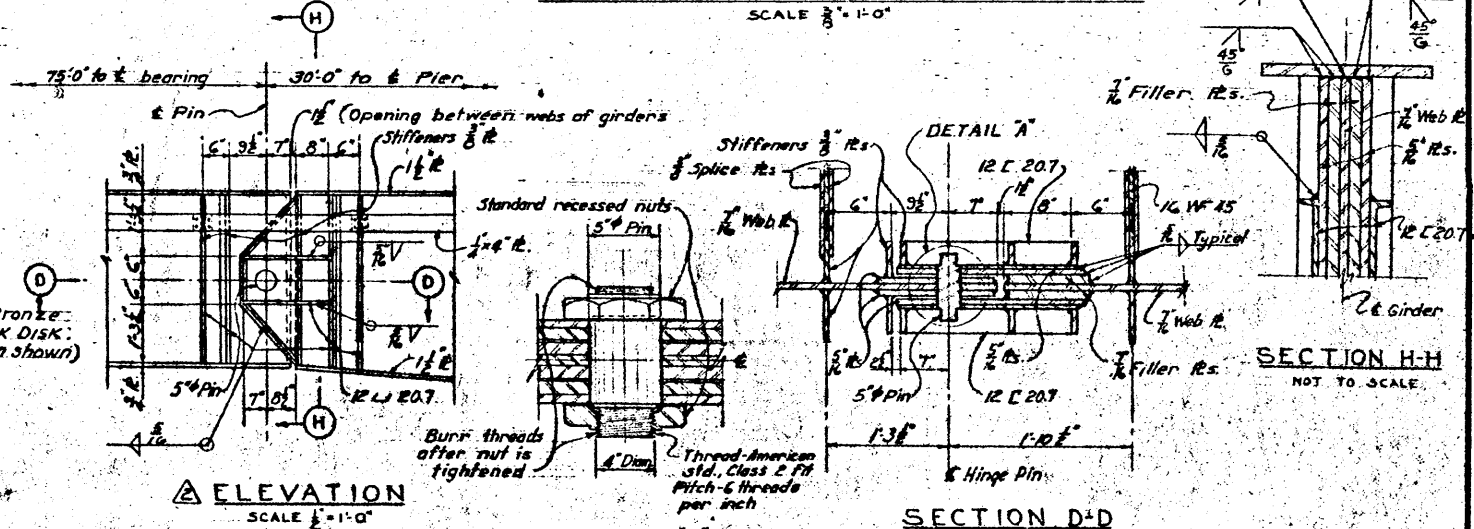
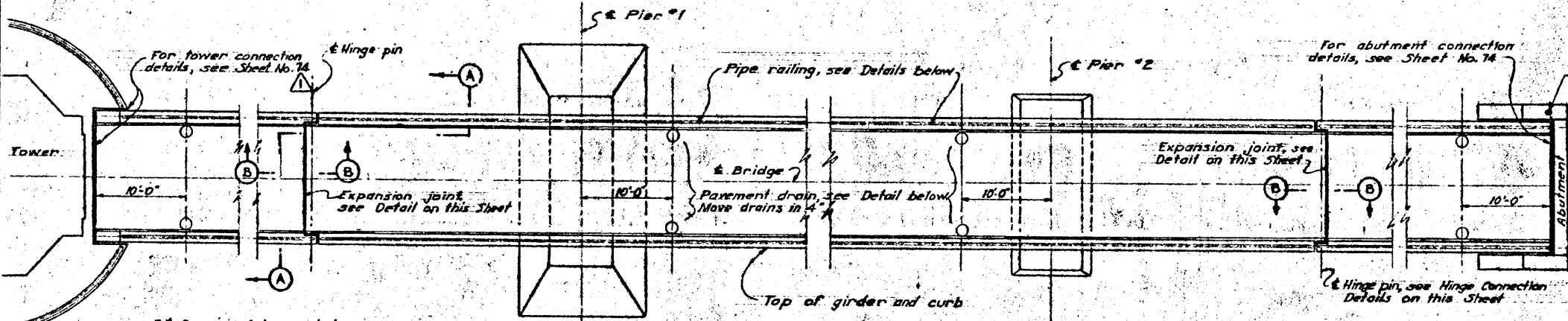
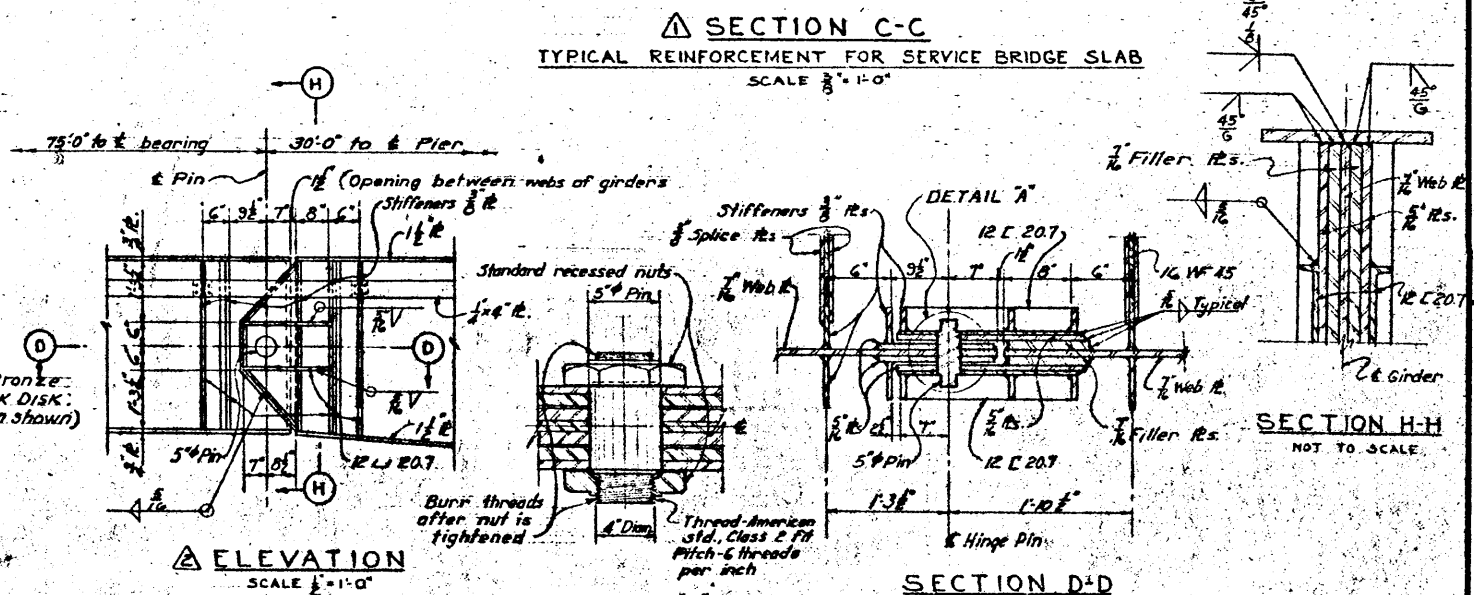
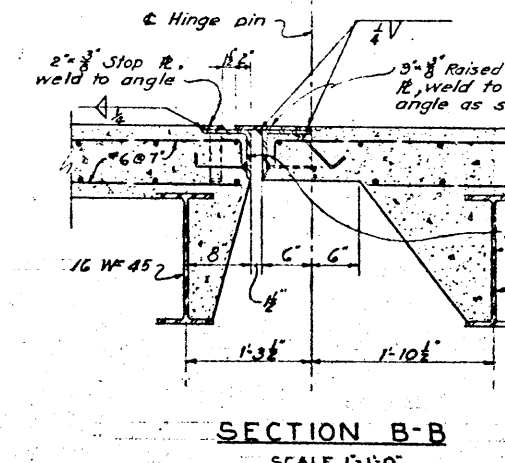
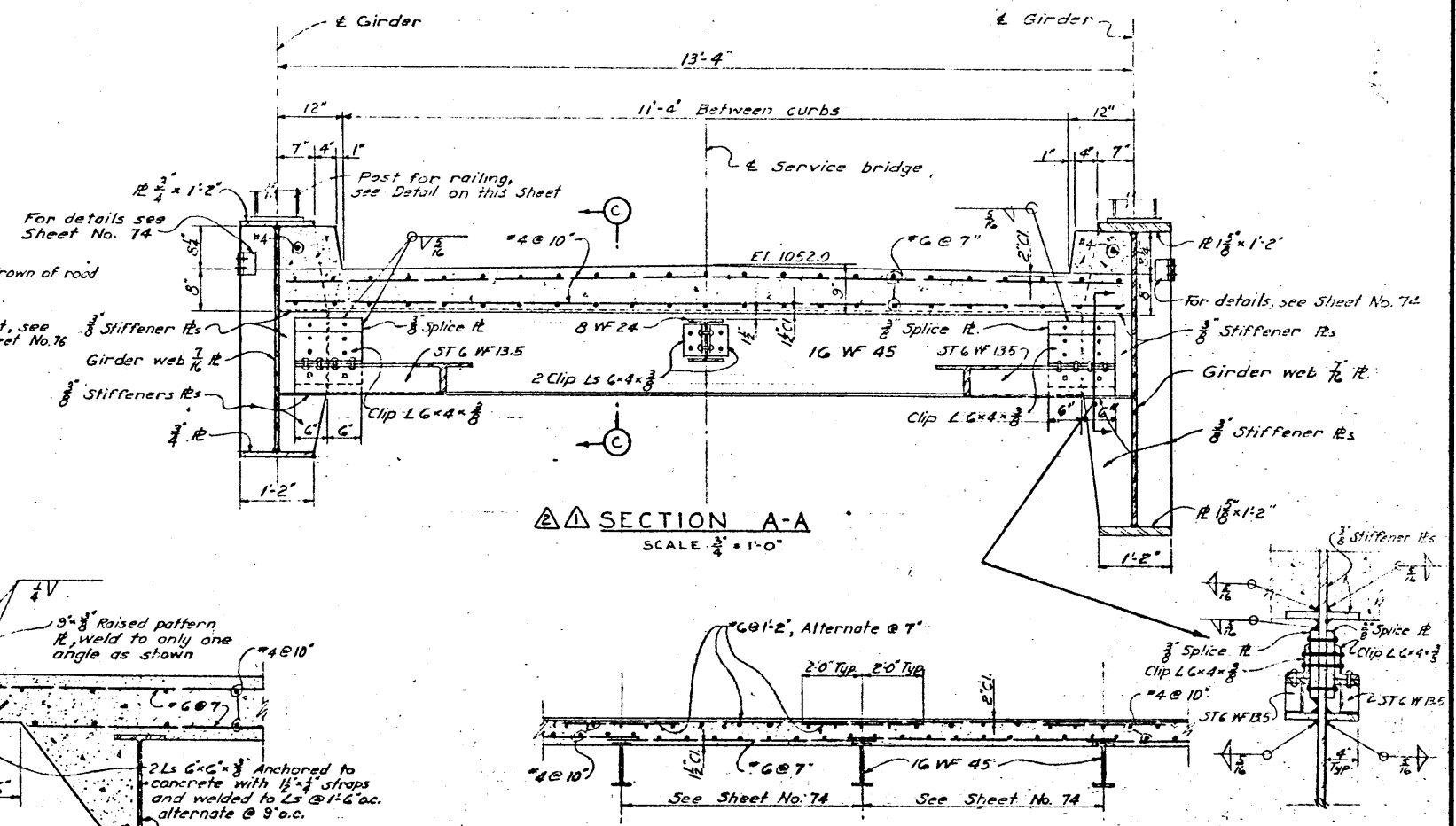
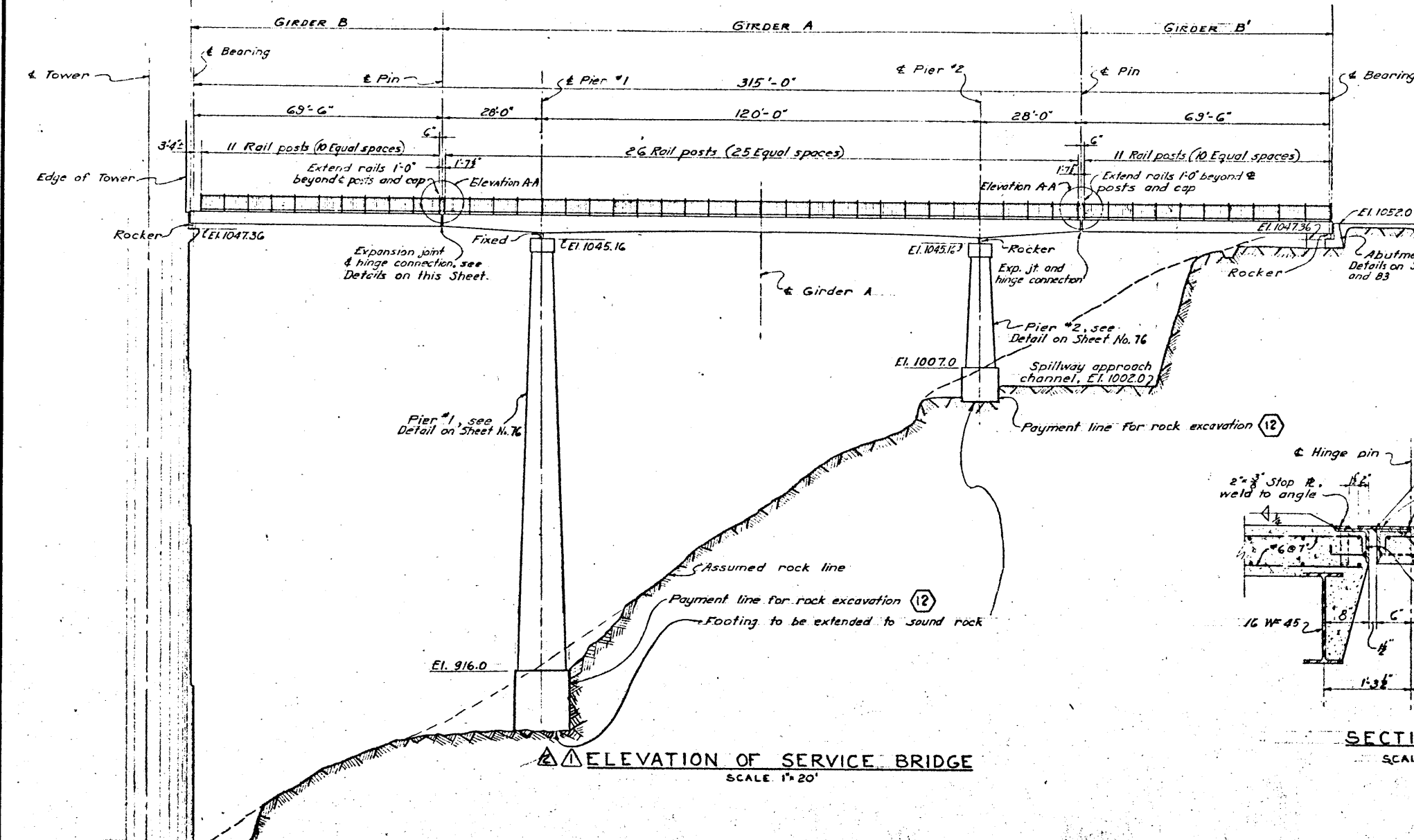
PREPARED BY THE OMAHA DISTRICT FOR THE U.S. ARMY ENGINEER DIVISION, NEW ENGLAND.

COL. C. E. DISTRICT ENGINEER



**BRIDGE PIN ULTRASONIC PHASED ARRAY TESTING  
U.S. ARMY CORPS OF ENGINEERS  
NORTH SPRINGFIELD & BALL MOUNTAIN LAKES  
NORTH SPRINGFIELD & JAMAICA, VERMONT  
STATEMENT OF WORK**

**Informational Plans  
Ball Mountain Service Bridge**



**Record Drawing**  
Contract No. DA-19-016-CIV ENG. 57-294

**NOTES**  
Bar splices shall equal 30 diameters of the smaller bar.  
All concrete in the Bridge Piers and Abutment will be paid for under Item No. 43.  
All concrete in the Service Bridge will be paid for under Item No. 44.  
All structural steel except metal railing will be paid for under Item No. 53.  
Metal railing will be paid for under Items No. 53 and 54.  
Payment for furnishing, bending and placing of all steel reinforcement will be paid for under Item No. 49.

REVISION	DATE	DESCRIPTION	BY
10-31-63		Final field corrections	
2-11-68		Girder dimensions & size of flange R's revised	
		Sheet No. added, Sections A-A, C-C, Elevation of Service Bridge, Hinge Connection and Base R details (Add'l 43)	

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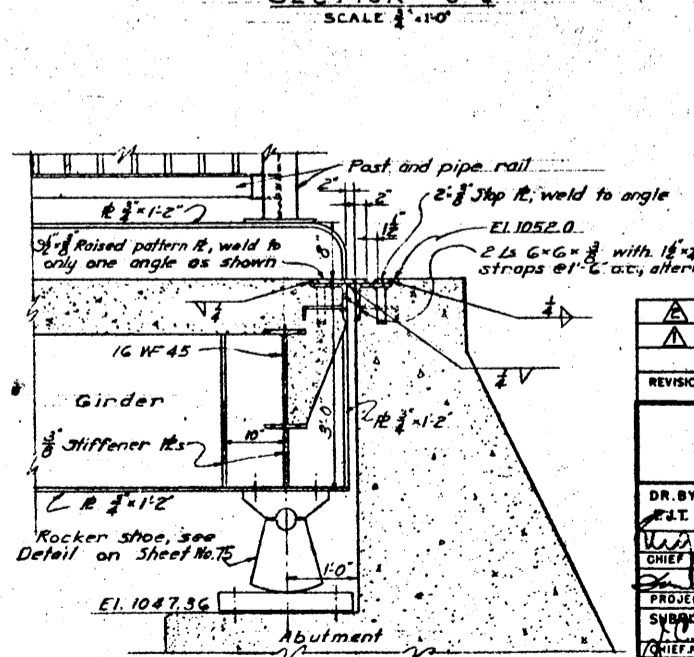
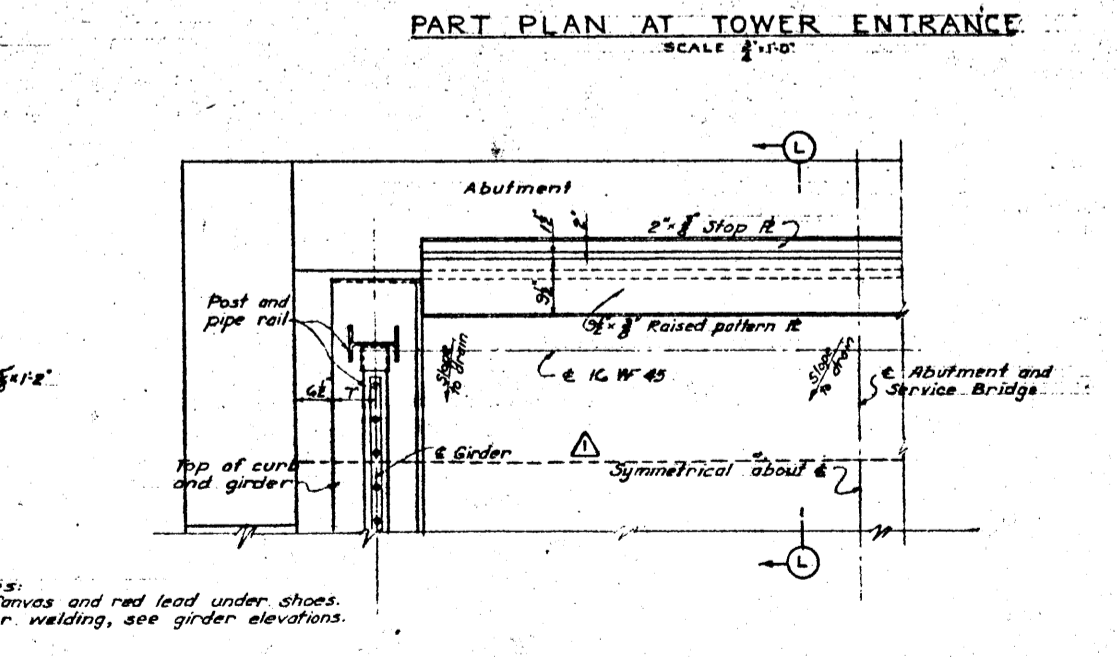
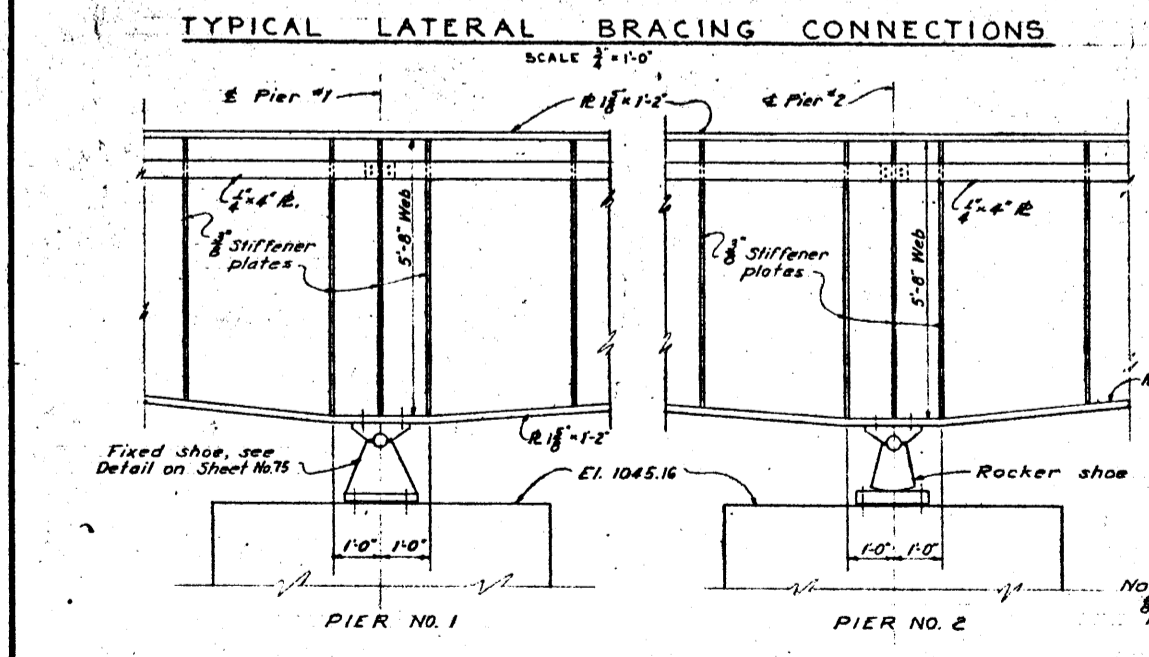
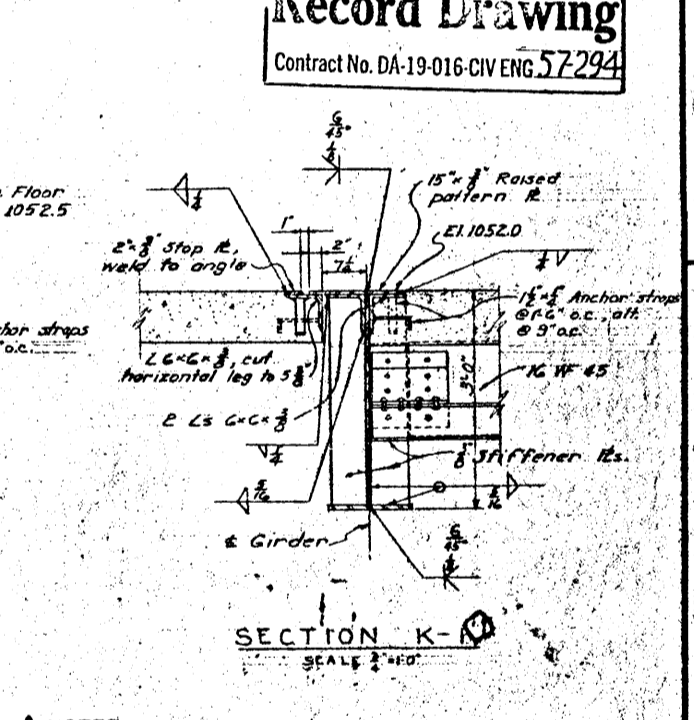
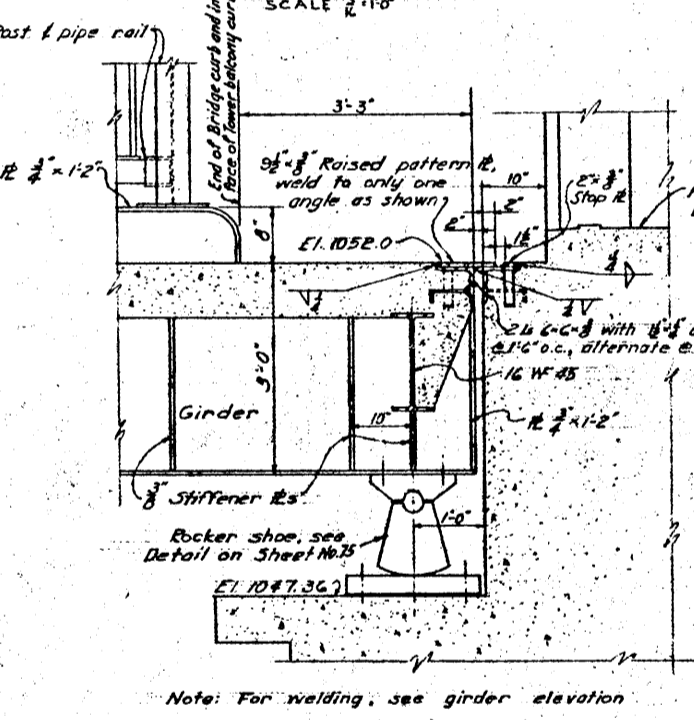
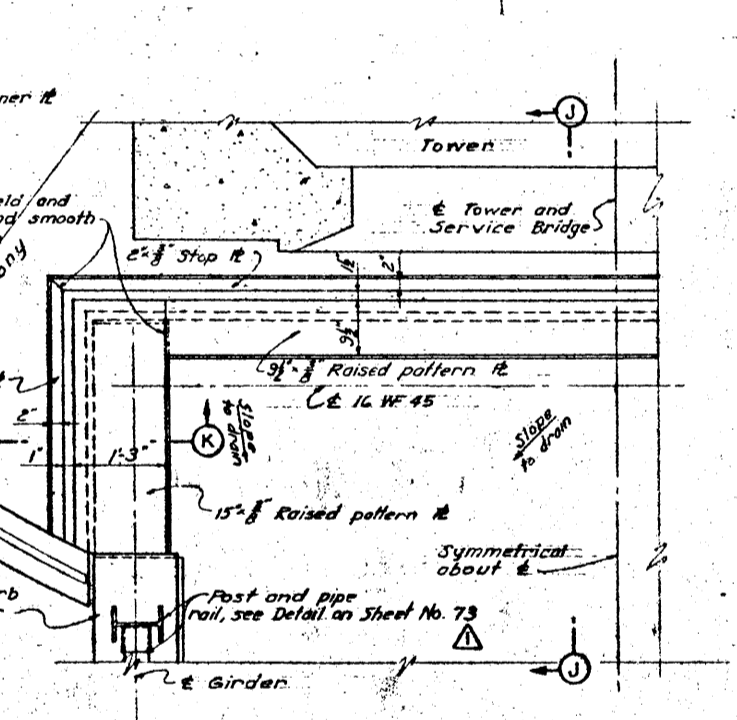
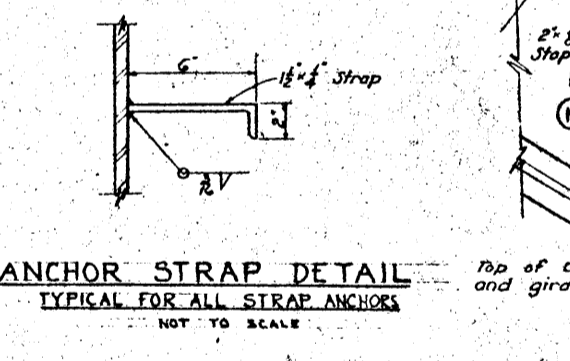
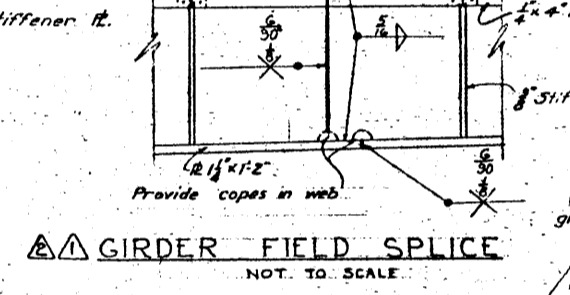
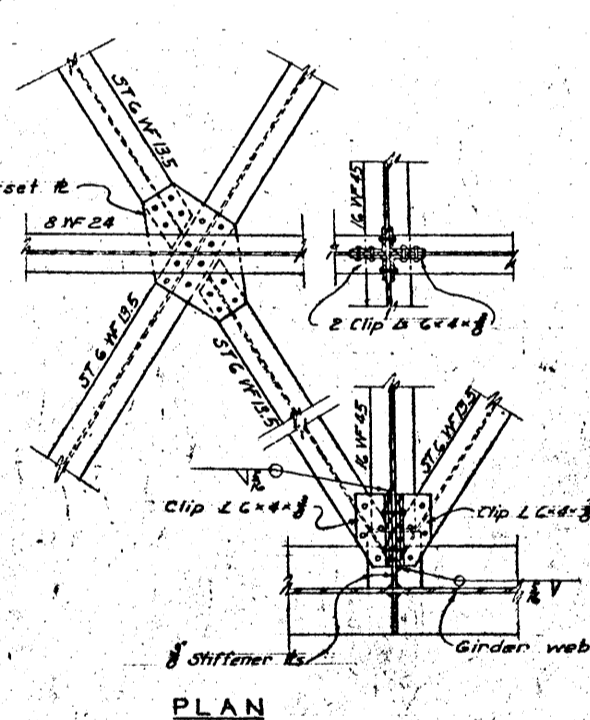
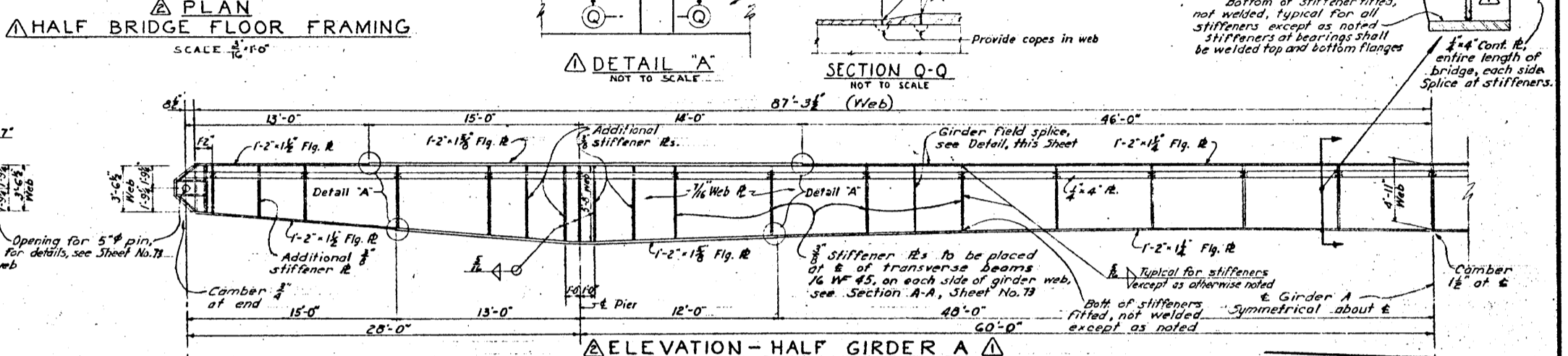
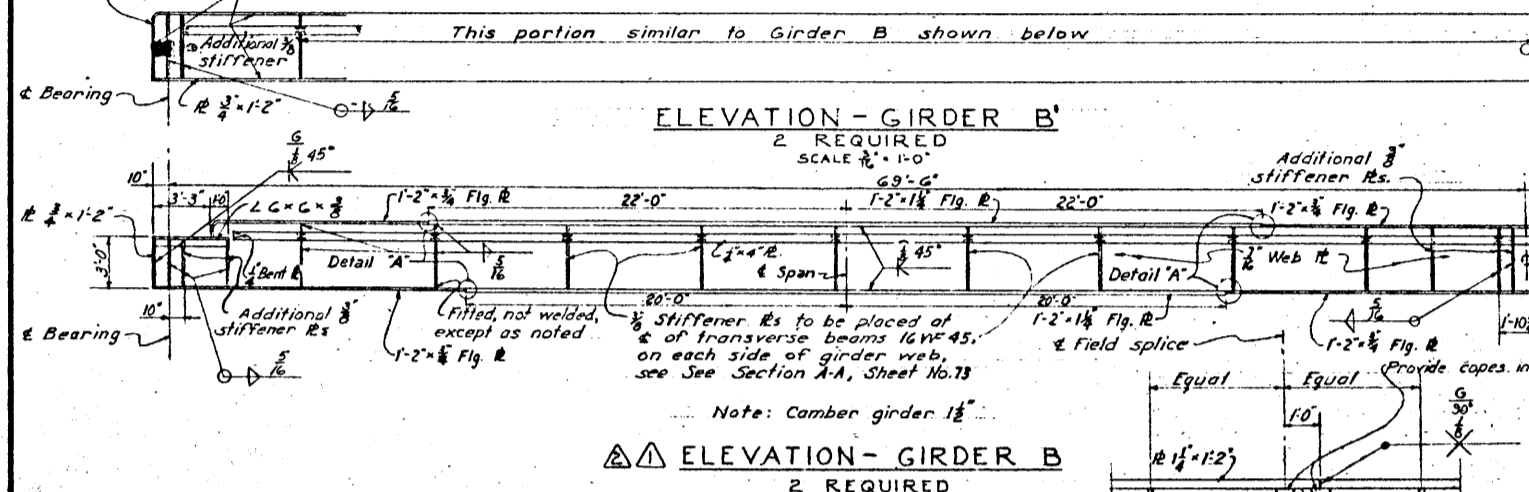
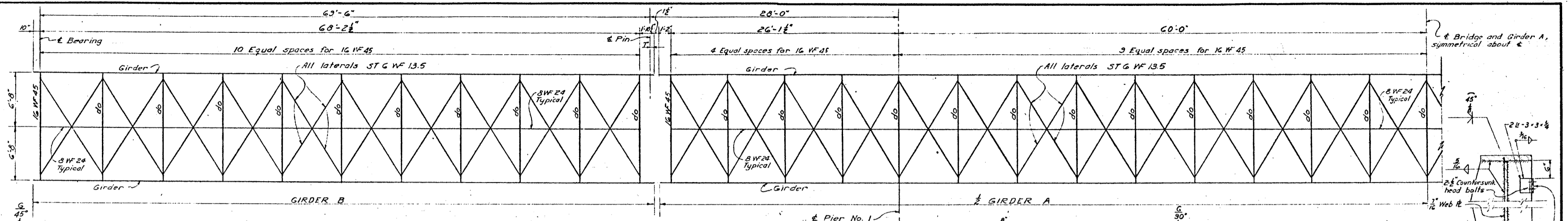
**CONNECTICUT RIVER FLOOD CONTROL  
BALL MOUNTAIN DAM  
SERVICE BRIDGE**

**STRUCTURAL DETAILS NO. 1**

WEST RIVER VERMONT  
DATE FEB. 1957

SCALE: AS SHOWN (SPD. NO. CIV. ENG. 18-018-97-73)  
DRAWING NUMBER CT-1-4422  
SHEET 75 OF 80





**NOTES**

For general notes applying to this Sheet see Sheet No. 73. For anchor bolt details, see Sheet No. 75. Girders shall be bolted to shoes with four 1/4" turned bolts with standard cut washers. All field connections shall be bolted with 3/8" rib bolts in 1/2" holes with lock nuts utilizing a self-contained locking device, unless otherwise shown. All shop connections shall be riveted or welded. Shop riveted connections shall be made with 3/8" rivets, in 1/2" holes. Series 'A' connections.

REVISION	DATE	DESCRIPTION	BY
2-17-58		Girder dimensions & size of flange re. revised	
		Sheet No. added, Part Plan of Abutment and Girders revised. Notes added (Add. 12)	

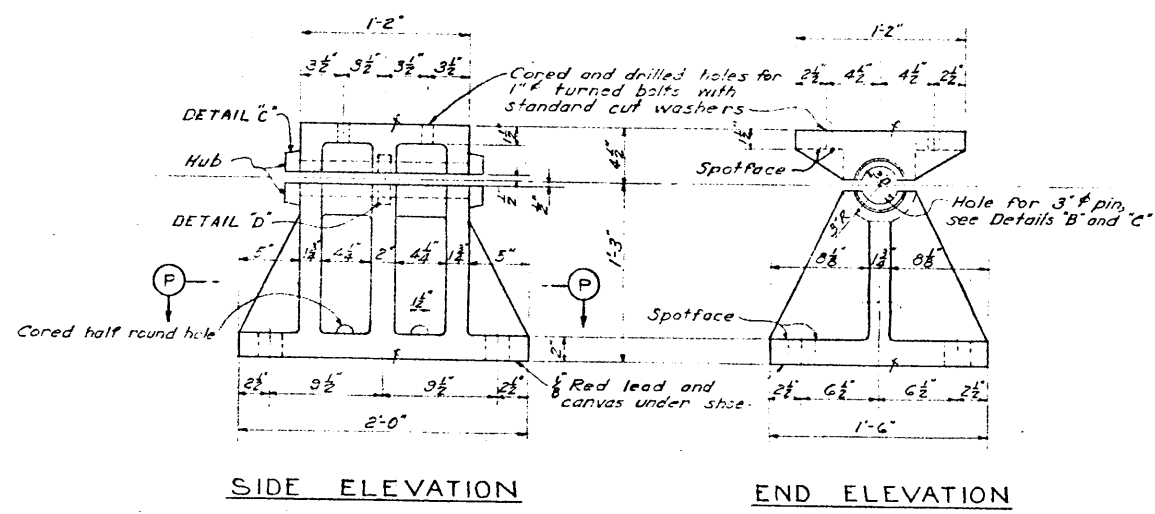
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BOSTON, MASS.

CONNECTICUT RIVER FLOOD CONTROL  
**BALL MOUNTAIN DAM SERVICE BRIDGE**  
STRUCTURAL DETAILS NO. 2

WEST RIVER VERMONT  
DATE FEB. 1957

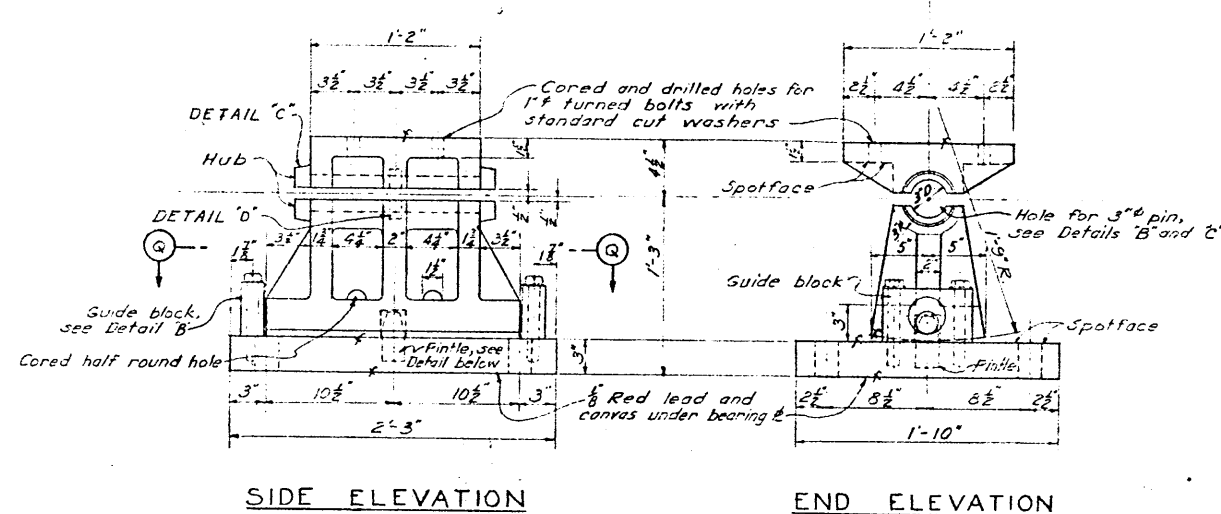
SCALE: AS SHOWN (SPEC. NO. CIV. ENG. 18-5018-ST-73)  
DRAWING NUMBER  
**CT-1-4423**  
SHEET 24 OF 88

**Record Drawing**  
Contract No. DA-19-016-CIV ENG. 57294



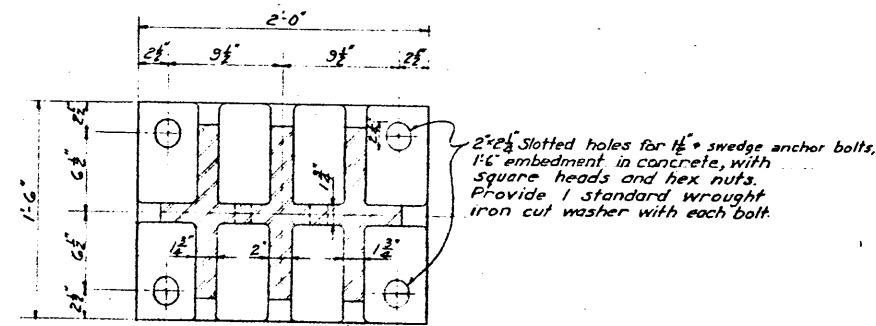
SIDE ELEVATION

END ELEVATION



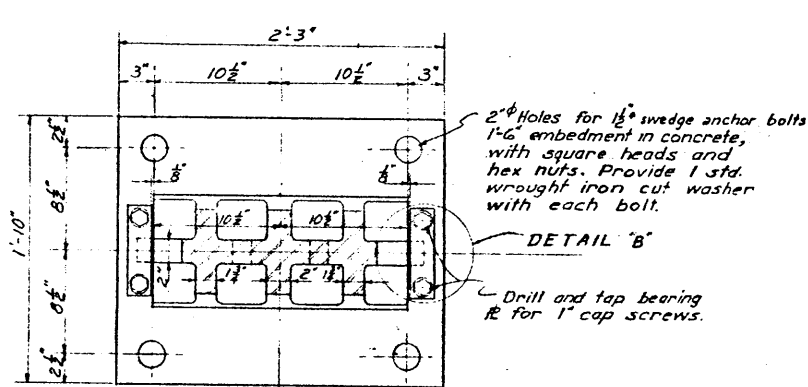
SIDE ELEVATION

END ELEVATION



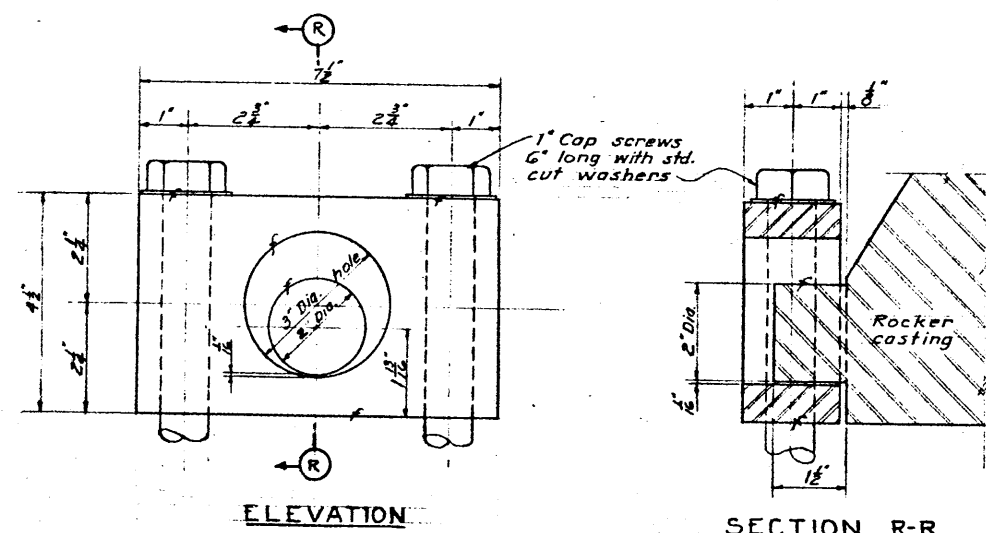
SECTION P-P

FIXED SHOE  
2 REQUIRED  
SCALE 1/2" = 1'-0"



SECTION Q-Q

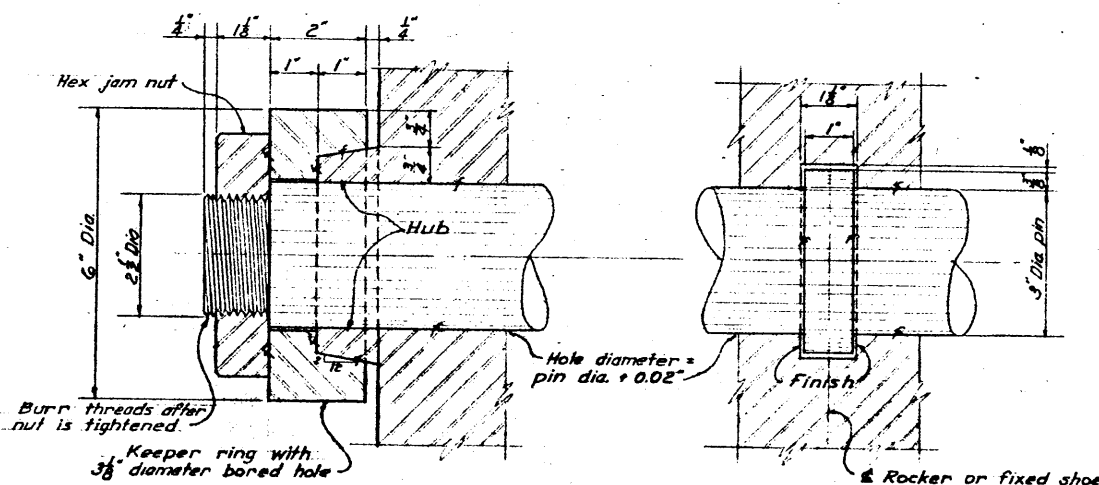
ROCKER SHOE  
6 REQUIRED  
SCALE 1/2" = 1'-0"



ELEVATION

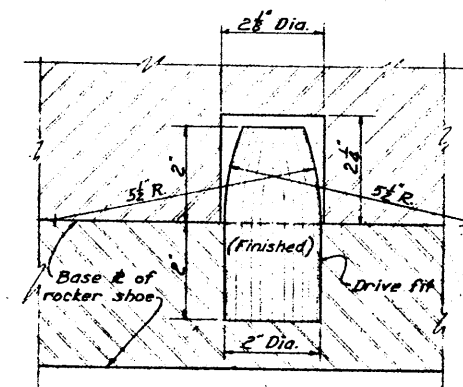
SECTION R-R

DETAIL "B"  
SCALE - HALF SIZE



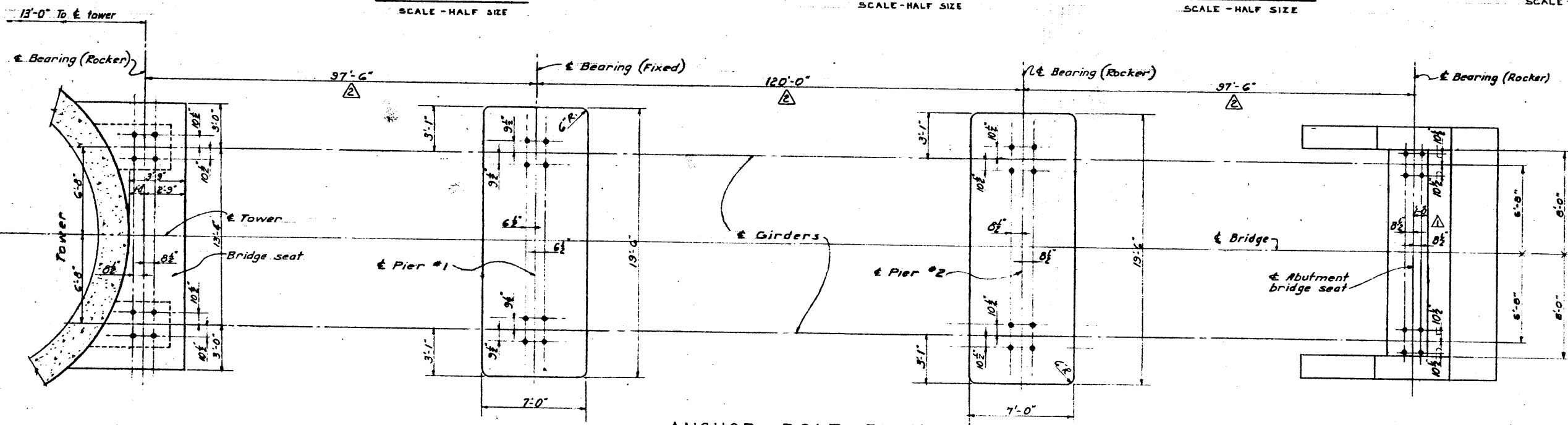
DETAIL "C"  
SCALE - HALF SIZE

DETAIL "D"  
SCALE - HALF SIZE



PINTLE  
SCALE - HALF SIZE

**NOTES:**  
For general notes applying to this sheet see Sheet No. 73.  
Rockers shall be set vertical at 50° F.  
Rockers, top bearings and fixed shoes to be cast carbon steel.  
Pins, rings, nuts, pintles, base plates, guide blocks, and bolts to be structural carbon steel.  
Finished surfaces shall be shop painted.



ANCHOR BOLT PLAN  
NOT TO SCALE

**NOTE:**  
All anchors shall be 1/2 inch swedge bolts grouted in 2 inch holes with minimum 1'-6 inch embedment in concrete.

**Record Drawing**  
Contract No. DA-19-016-CIV.ENG.57-294

REVISION	DATE	DESCRIPTION
1	4-24-57	Dimensions revised
2	4-24-57	Dimension and No. of Sheets changed (Add 42)

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CONNECTICUT RIVER FLOOD CONTROL  
**BALL MOUNTAIN DAM**  
SERVICE BRIDGE  
STRUCTURAL DETAILS NO. 3

WEST RIVER VERMONT  
DATE FEB. 1957

SCALE: AS SHOWN SPEC. NO. CIV. ENG. 19-016-57-73  
DRAWING NUMBER  
CT-1-4424  
SHEET 75 OF 86