

## GENERAL NOTES

DESIGN LOAD: HS20-44

DESIGN SPECIFICATIONS:

AASHTO Specifications for Highway Bridges (8th Edition with subsequent additions and modifications).

DESIGN STRESSES:

R.C. Beams and Slabs. Except as otherwise noted, see AASHTO Specifications and the Special Provisions.

$f_c = 1,200$  p.s.i.

$n = 10$

$f_s = 20,000$  p.s.i.

PRESTRESSED BEAMS:

$f'_c = 5,500$  p.s.i.

$f'_ci = 4,000$  p.s.i.

$\frac{1}{2}$ "  $\phi$  7 wire strands.

Tension Load = 25,200 lbs.

Design Load = 20,160 lbs.

MATERIALS:

- All concrete shall be Class A-1, except as otherwise noted on the plans. See Special Provisions for concrete for prestressed beams.
- See Special Provisions for Admixture in concrete.
- Neoprene Pads shall be incidental to prestressed beams and will not be paid for separately.

CONSTRUCTION METHOD:

- See Standard Specifications and Special Provisions.
- Over excavation beyond the elevations indicated on the plans for the bottom of footings shall be backfilled with a minimum of Class D concrete at the Contractor's expense and as directed by the Engineer.
- Roadway embankment at abutments shall be placed uniformly and simultaneously around the structure, up to the bottom of the abutment cap, and shall be complete in place before the abutment cap is placed. Unequal earth pressure on the abutment columns shall be kept to a minimum.
- The prestressed girders shall not be placed on the abutments until the embankment and fill behind wingwalls are complete in place.
- See Special Provisions for concrete finish. Concrete Seats and Creep Blocks shall be poured monolithically with abutment sections. Seats shall be finished, level and true to elevations.
- Forms for prestressed concrete beams shall be removed and the beams inspected before the strands are cut.
- Neoprene Pads shall be secured against displacement by adhesives, approved by the Engineer.

## ESTIMATED QUANTITIES

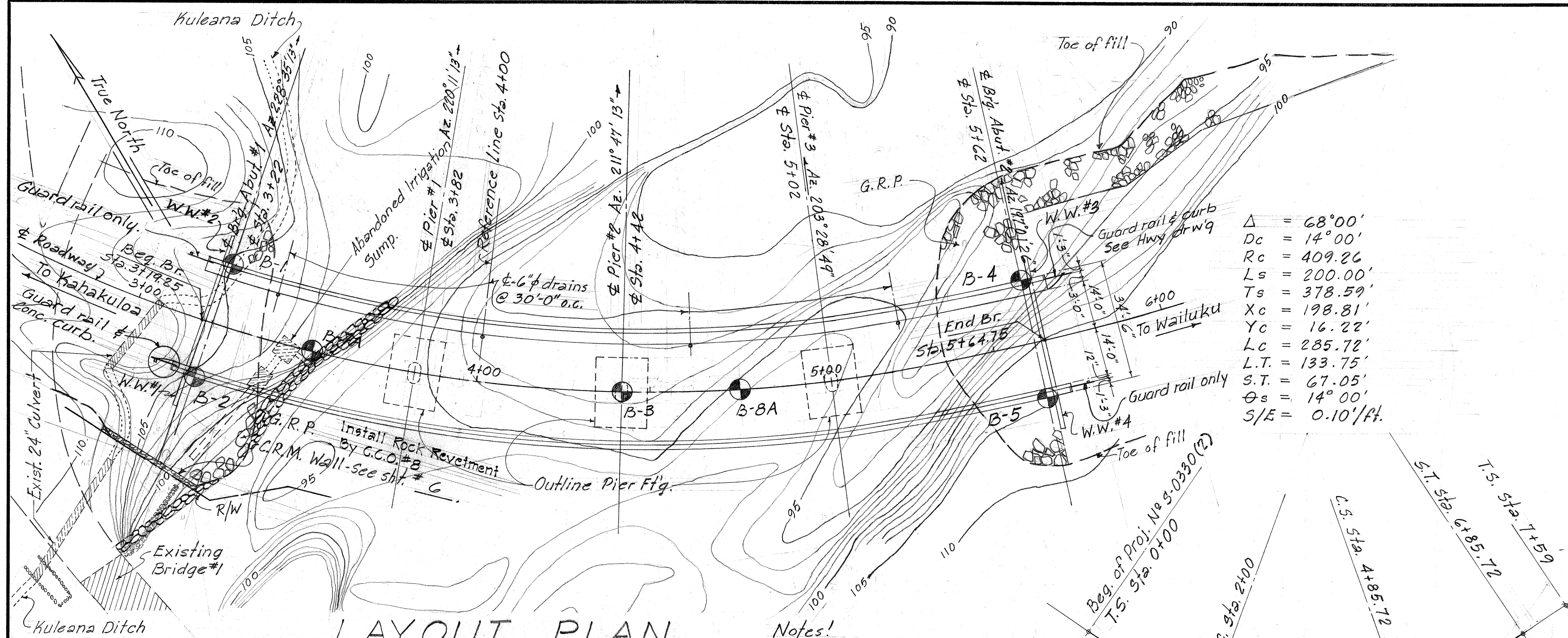
|                       |          |         |          |
|-----------------------|----------|---------|----------|
| Class A-1 Concrete    | Lump Sum | 765.5   | c.y.     |
| Reinf. Steel          | Lump Sum | 183,855 | lbs.     |
| Structural Excavation |          | 973.4   | c.y.     |
| G.R.P.                |          | 266.42  | c.y.     |
| Metal Railing         |          | 486     | lin. ft. |
| Prestressed Girder    |          | 1,195   | lin. ft. |
| C.R.M.                |          | 29.07   | c.y.     |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## WAIHEE RIVER BRIDGE

Kahekili Highway — Maui  
Scale as shown Proj. No. S-0330(2)  
May, 1966

SHEET No. 1 OF 15 SHEETS



## LAYOUT PLAN

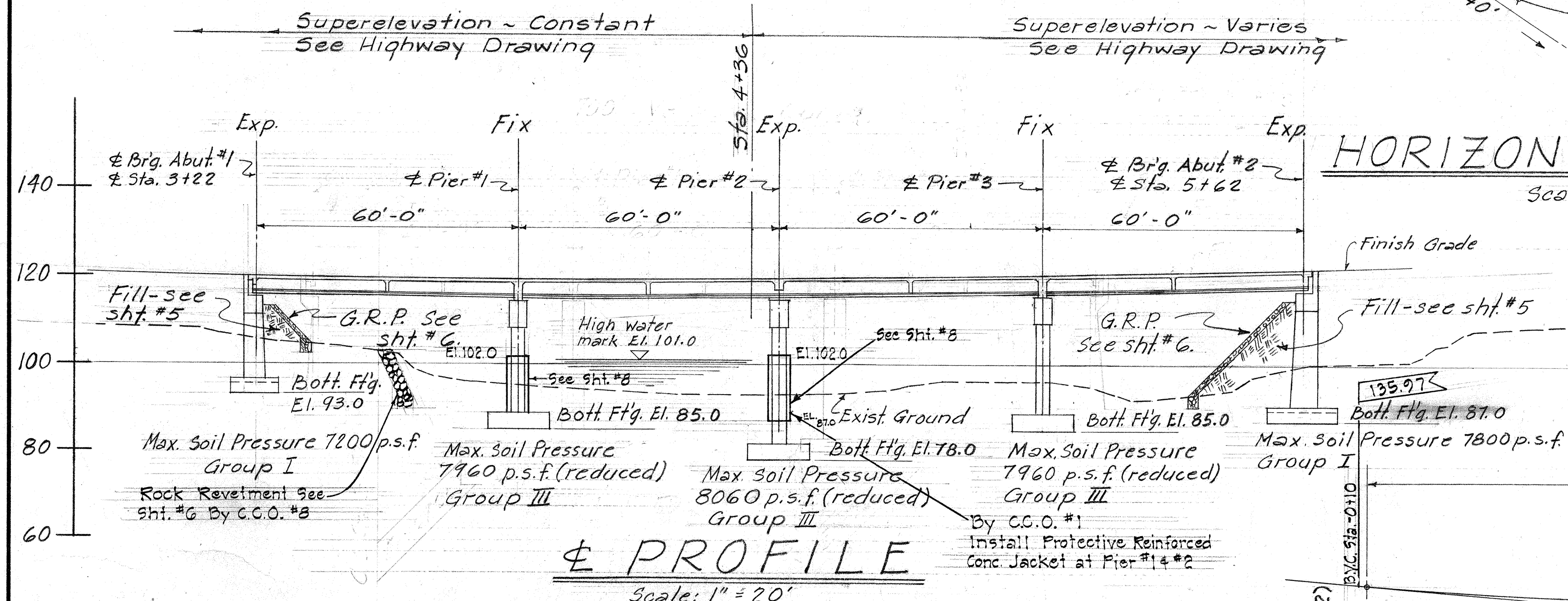
Scale: 1" = 20'

Notes:

- For "Boring Log" see sht. #15.
- For G.R.P. Limits & details, see sht. #6.

## HORIZONTAL CURVE DATA

Scale: 1" = 100'



## PROFILE

Scale: 1" = 20'

## SLAB CAMBER DIAGRAM EACH SPAN

No Scale

## 700' VERTICAL CURVE DIAGRAM

Scale: 1" = 100'

DATE: 5/66  
DRAWN BY: T. SHIBUCHI  
CHECKED BY: H.K. & V.C.  
NOTED BY: H.K. & V.C.  
ORIGINAL PLAN: 5/66



**Fig. 10**

**Fig. 11**

**WING WALL N<sup>o</sup> 1**

**WING WALL N<sup>o</sup> 2**

**Guard Rail Conn.**  
See Typ. Guard Rail Conn. Det. at Bridge End Post. Sht. # 15

**Conc. Seat & Creep-Block.** See details on Sht. # 3

**End premolded jt. filler 1"**

**End premolded jt. filler.**

**Br'g. Abut. N<sup>o</sup> 1**  
Az. 228° 35' 13"

**Ref. Edge of Structure line**

**Ref. Edge of Structure line.**

**Dimensions:**

- Wing Wall N<sup>o</sup> 1: 9'-6"
- Wing Wall N<sup>o</sup> 2: 8'-0"
- Central Roadway: 14'-0"
- Wing Wall N<sup>o</sup> 1 to Roadway: 1'-3" 1/2"
- Wing Wall N<sup>o</sup> 2 to Roadway: 3'-0" 1/2"
- Wing Wall N<sup>o</sup> 1 to Structure: 1'-0" Offset
- Wing Wall N<sup>o</sup> 2 to Structure: 1'-0" Offset
- Wing Wall N<sup>o</sup> 1 to Structure: 1/2" cont. premolded jt. filler.
- Wing Wall N<sup>o</sup> 2 to Structure: 1/2" cont. premolded jt. filler.
- Wing Wall N<sup>o</sup> 1 to Structure: 1/8" 1/2"
- Wing Wall N<sup>o</sup> 2 to Structure: 1/8" 1/2"
- Wing Wall N<sup>o</sup> 1 to Structure: 2'-2 1/2"
- Wing Wall N<sup>o</sup> 2 to Structure: 2'-2 1/2"
- Wing Wall N<sup>o</sup> 1 to Structure: 7'-6 1/4"
- Wing Wall N<sup>o</sup> 2 to Structure: 7'-6 1/4"
- Wing Wall N<sup>o</sup> 1 to Structure: 34'-6"
- Wing Wall N<sup>o</sup> 2 to Structure: 34'-6"

**Note!**  
For wing wall reinf. See "Typ. Wing Wall Details".

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For wing wall reinf. see "Typ. Wing Wall Details".

ELEVATION  
Scale:  $\frac{3}{8}" = 1'-0"$

Ref. Edge of Structure line

ABUTMENT WING WALL

El. 116.56

2-#11 extended ext. L bent bars. See "Typ. Abut. Section (A) 24"

3'-6" 5'-0" End short #6 bars.

2-#4 Bars in same plane.

#6@10" alt. short bars.

#6@10" Rear Face 2" cl.

2" cl.

#4@18" both face.

#4@12" Front Face

Typ. Abut. reinf.

Abut. Bearing.

3-#7@12". Bend bars into curb where curb occurs. See "E.P. Bracket Details" on sht. #11.

2-#7 bent E.P. bracket bars. See "E.P. Bracket Det." for exact location. Sht. #11.

SECTION (W)

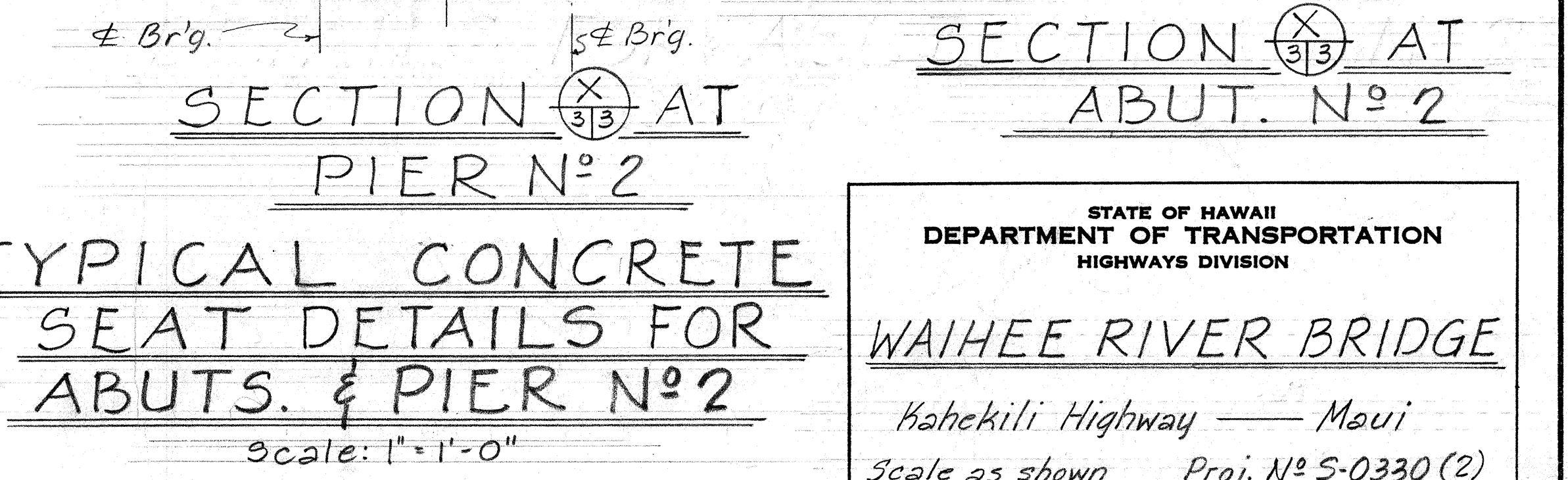
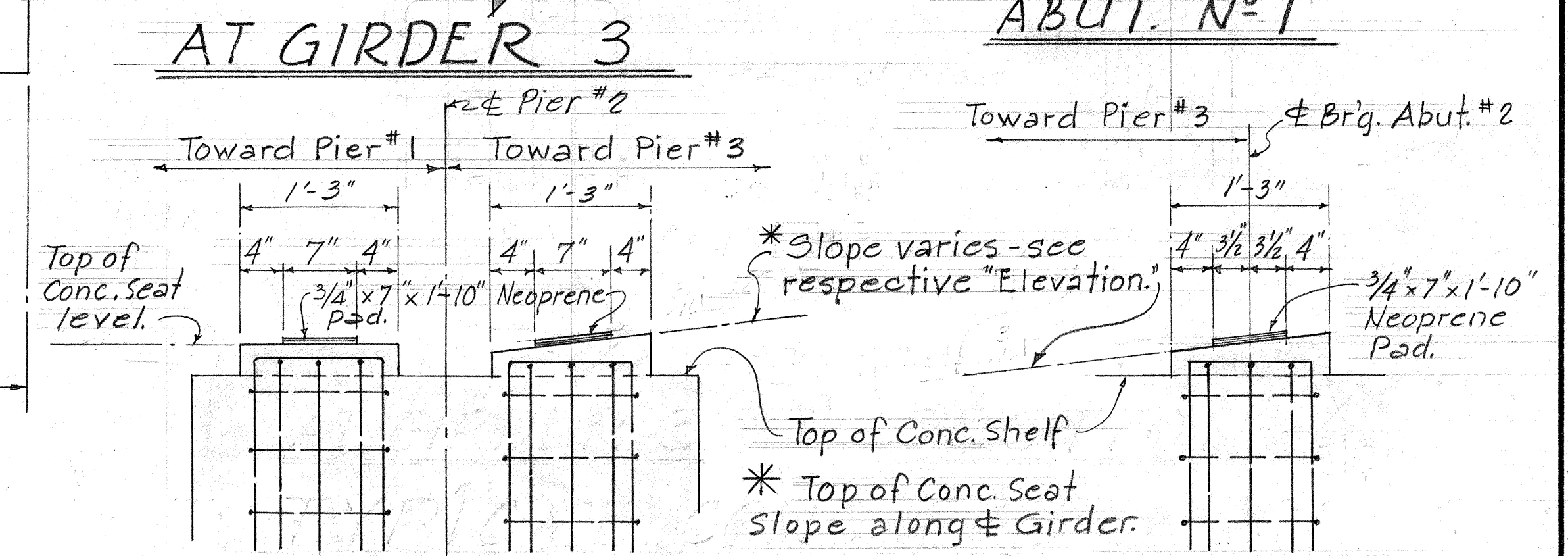
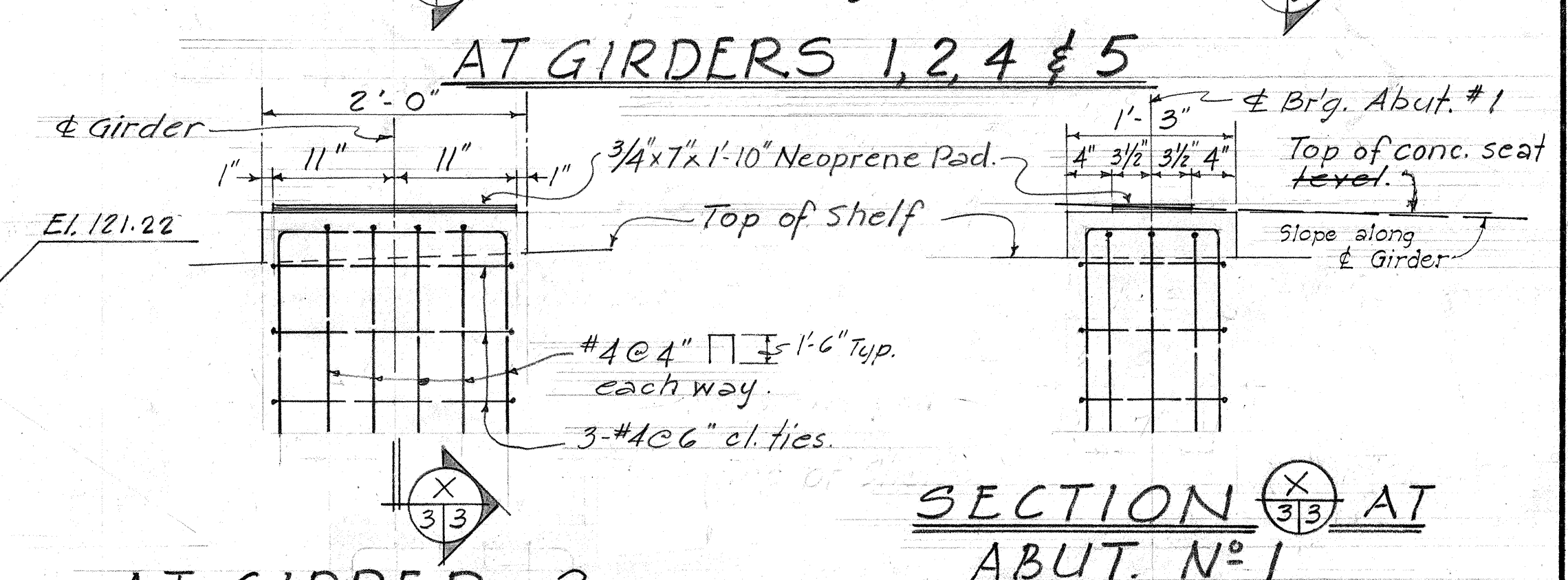
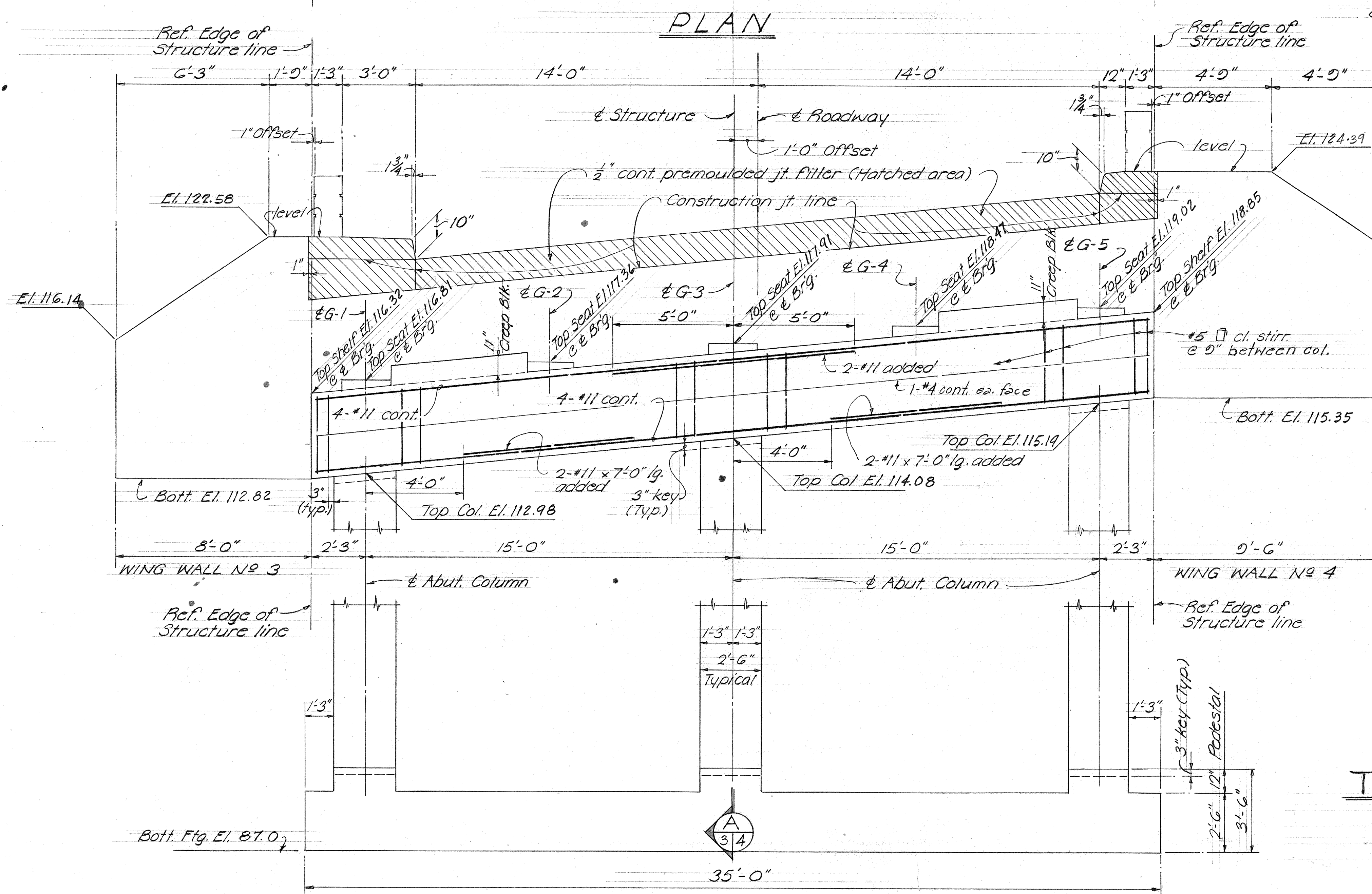
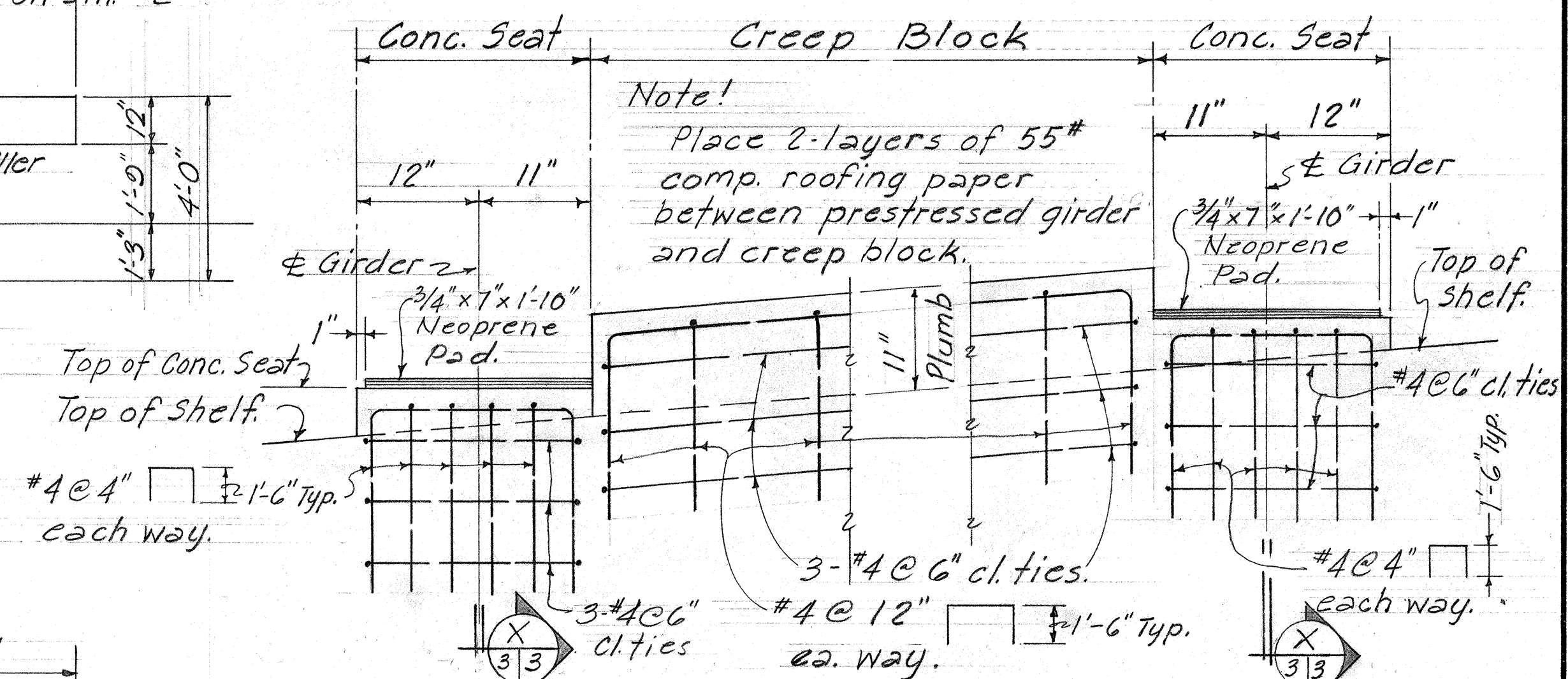
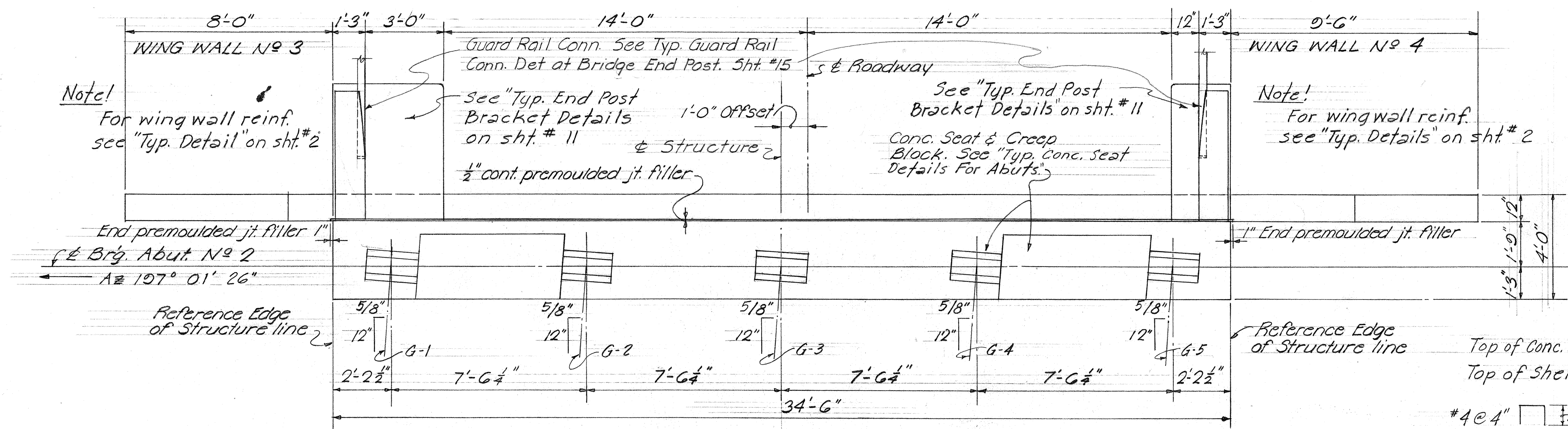
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

Kahakili Highway — Maui  
Scale as shown Proj. No S-0330(2)  
May, 1966

**SHEET No. 2 OF 15 SHEETS**

|               |                                      |             |
|---------------|--------------------------------------|-------------|
| ORIGINAL PLAN | SURVEY PLOTTED BY                    | DATE        |
| NOTE BOOK     | DRAWN BY <u>T. SHIROMA</u>           | <u>5/66</u> |
|               | TRACED BY                            | "           |
|               | DESIGNED BY <u>Y. Ching</u>          | <u>4/66</u> |
|               | QUANTITIES BY                        | "           |
| No. ....      | CHECKED BY <u>V.C. LA &amp; U.O.</u> | <u>6/66</u> |





ELEVATION - ABUTMENT No 2  
Scale:  $3/8" = 1'-0"$

TYPICAL CONCRETE  
SEAT DETAILS FOR  
ABUTS. & PIER N<sup>o</sup> 2  
Scale: 1" = 1'-0"

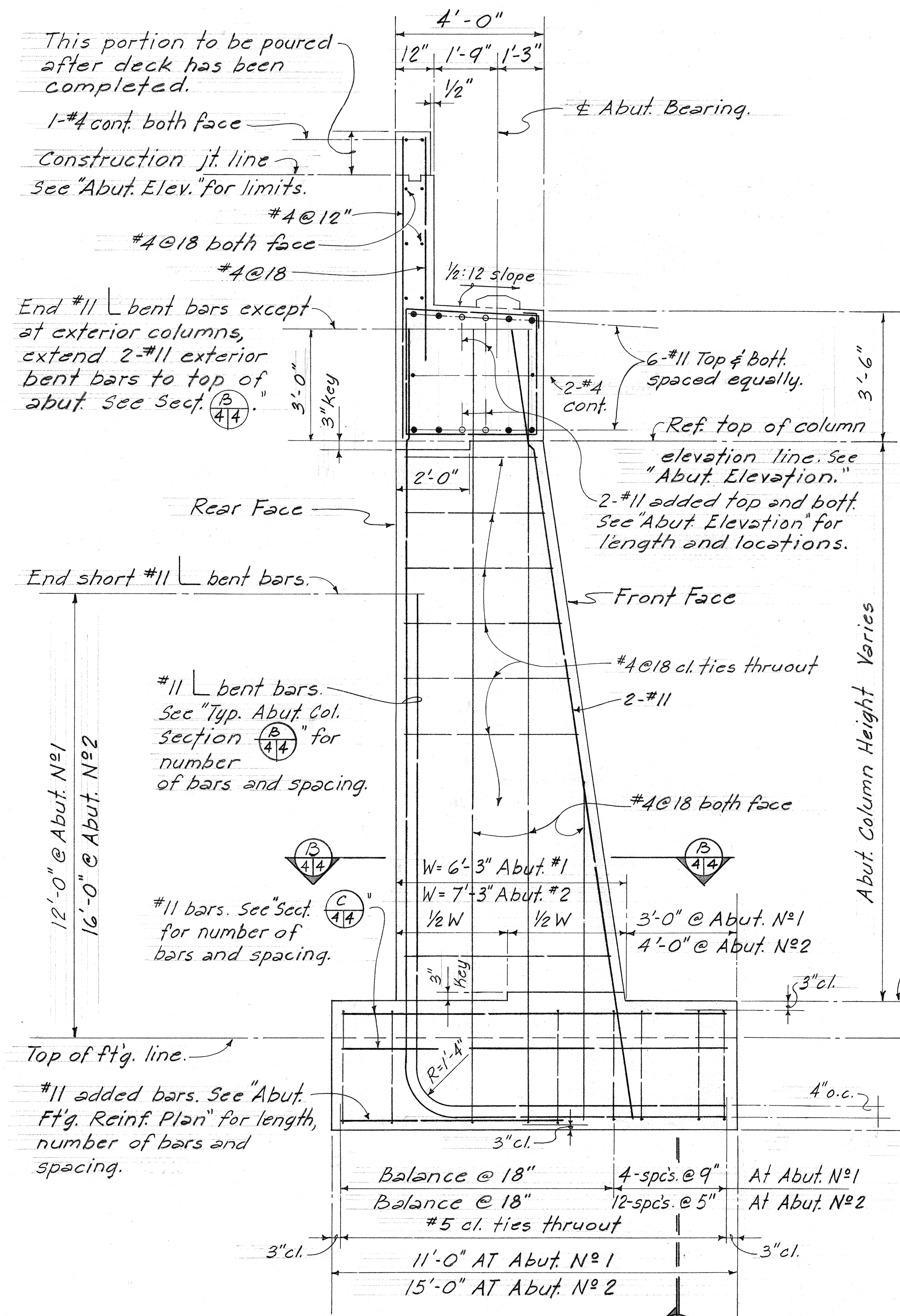
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

WAIHEE RIVER BRIDGE

*Kahakili Highway — Maui*  
*Scale as shown Proj. No S-0330 (2)*  
*May, 1966*

**SHEET No. 3 OF 15 SHEETS**

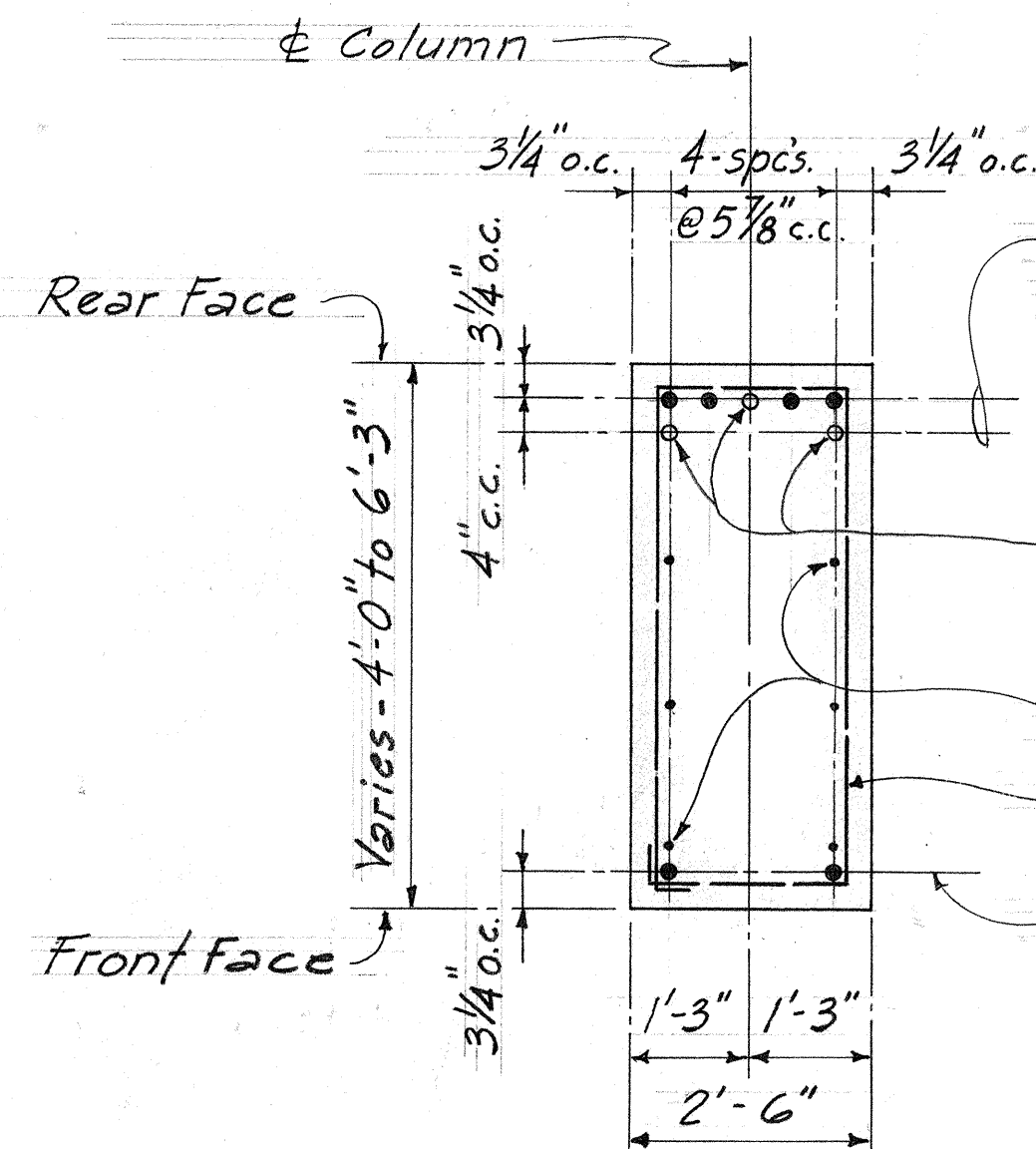




# TYPICAL ABUTMENT SECTION

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

(A) 2/4 & (A) 3/4

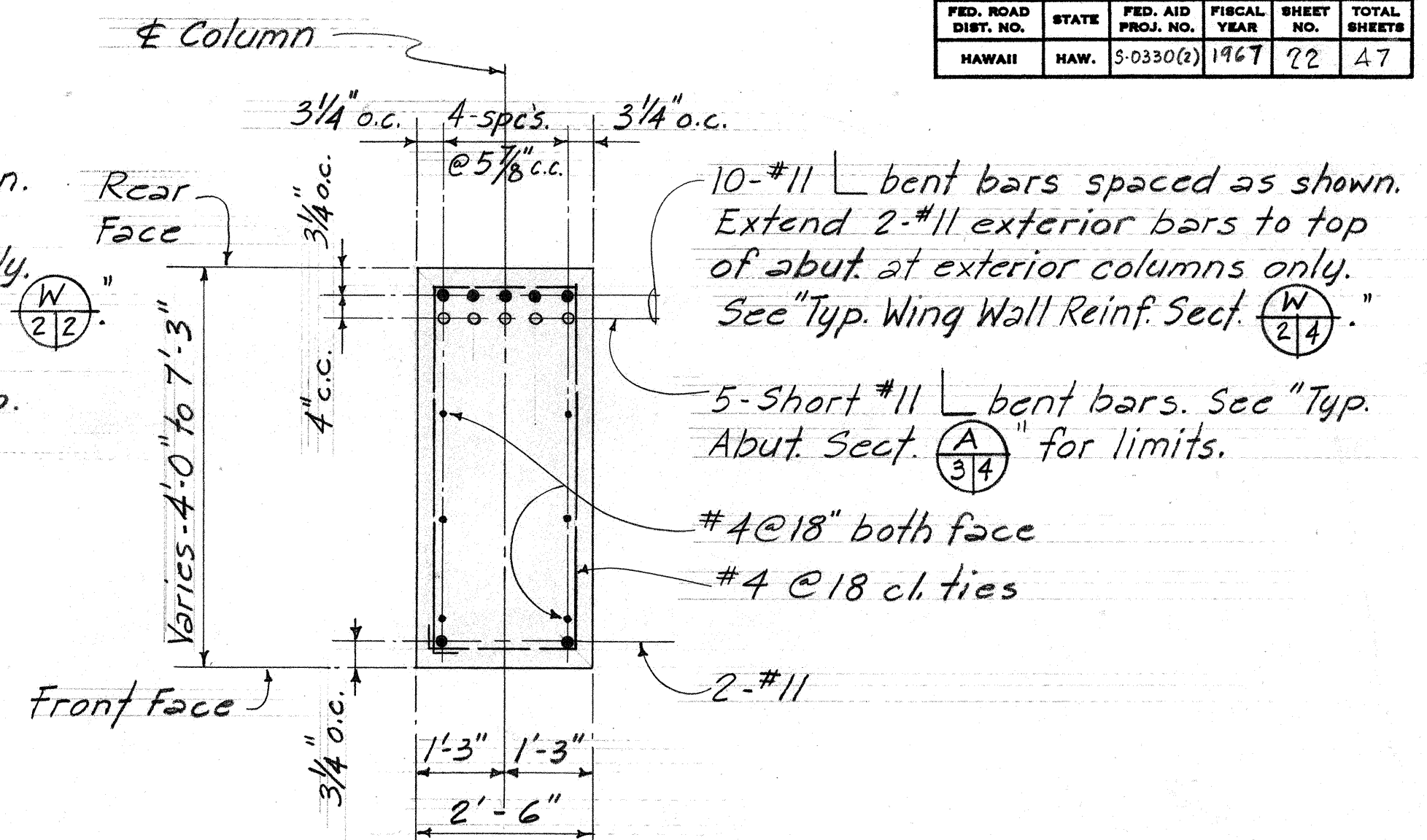


## AT ABUT. N°1

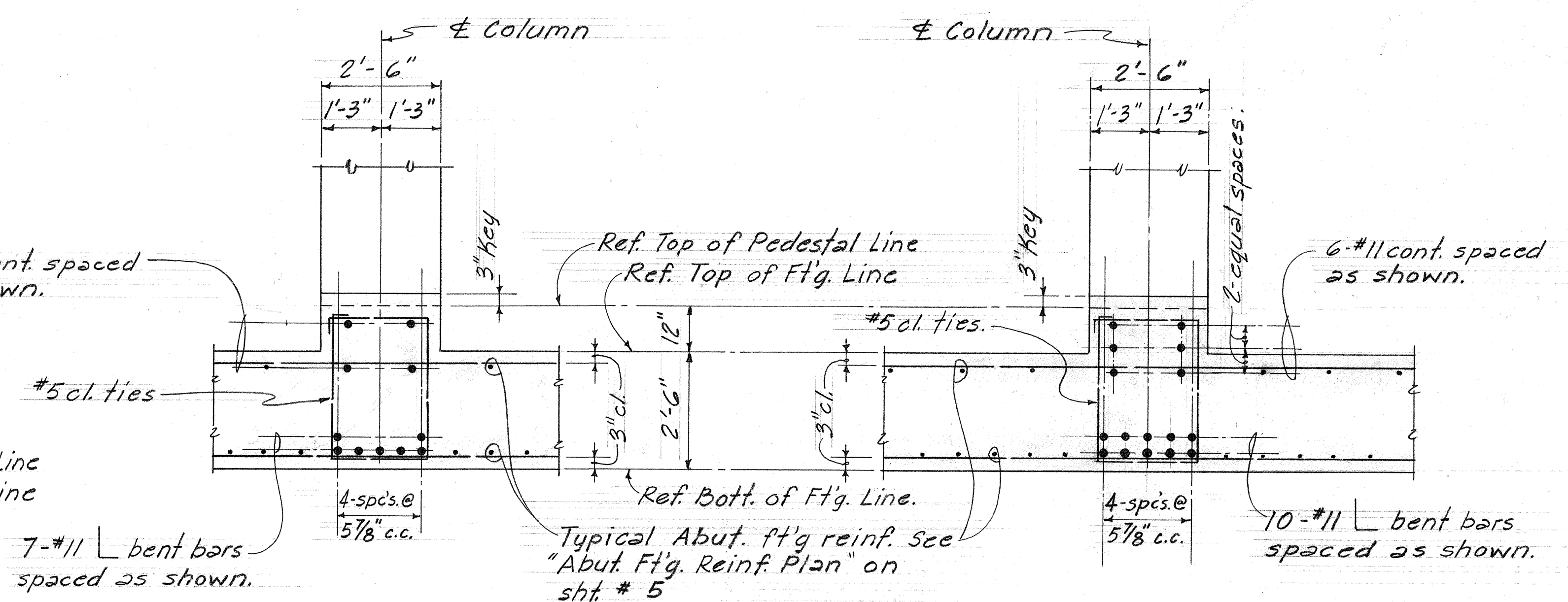
# TYPICAL ABUT. COLUMN SECTION

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

(B) 4/4



## AT ABUT. N°2



## AT ABUT. N°1

## AT ABUT. N°2

# TYPICAL ABUT. FT'G. SECTIONS

# AT PEDESTALS - SECTION

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

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HIGHWAYS DIVISION

WAIHEE RIVER BRIDGE

Kahakili Highway — Maui

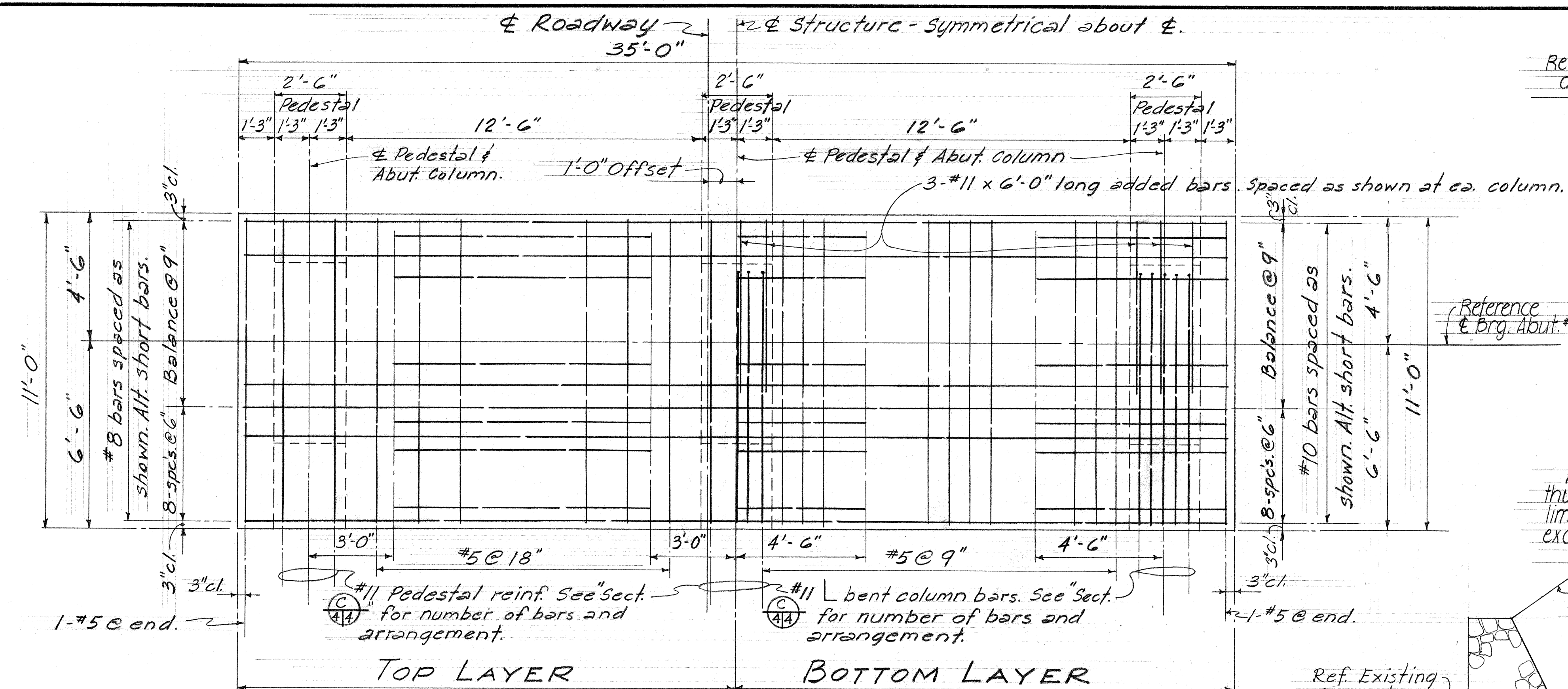
Scale as shown Proj. N° S-0330(2)

May, 1966

ORIGINAL PLAN  
DATE 5/66  
DRAWN BY T. SHIMODA  
CHECKED BY V. CHUNG  
NOTED BY J. C. L. A. J. O.

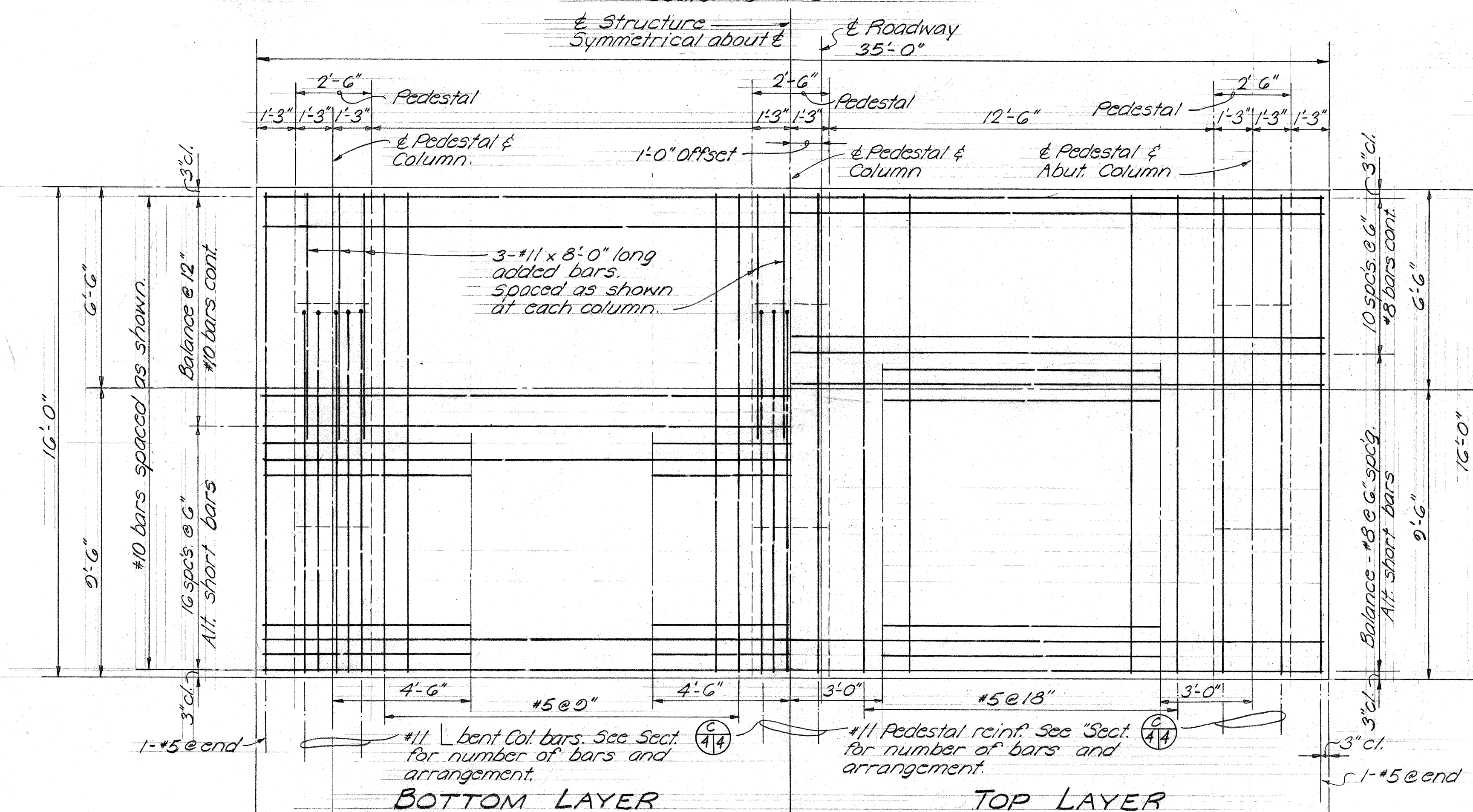


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|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| HAWAII                 | HAW.  | 5-0330(2)             | 1967           | 23           | 47              |



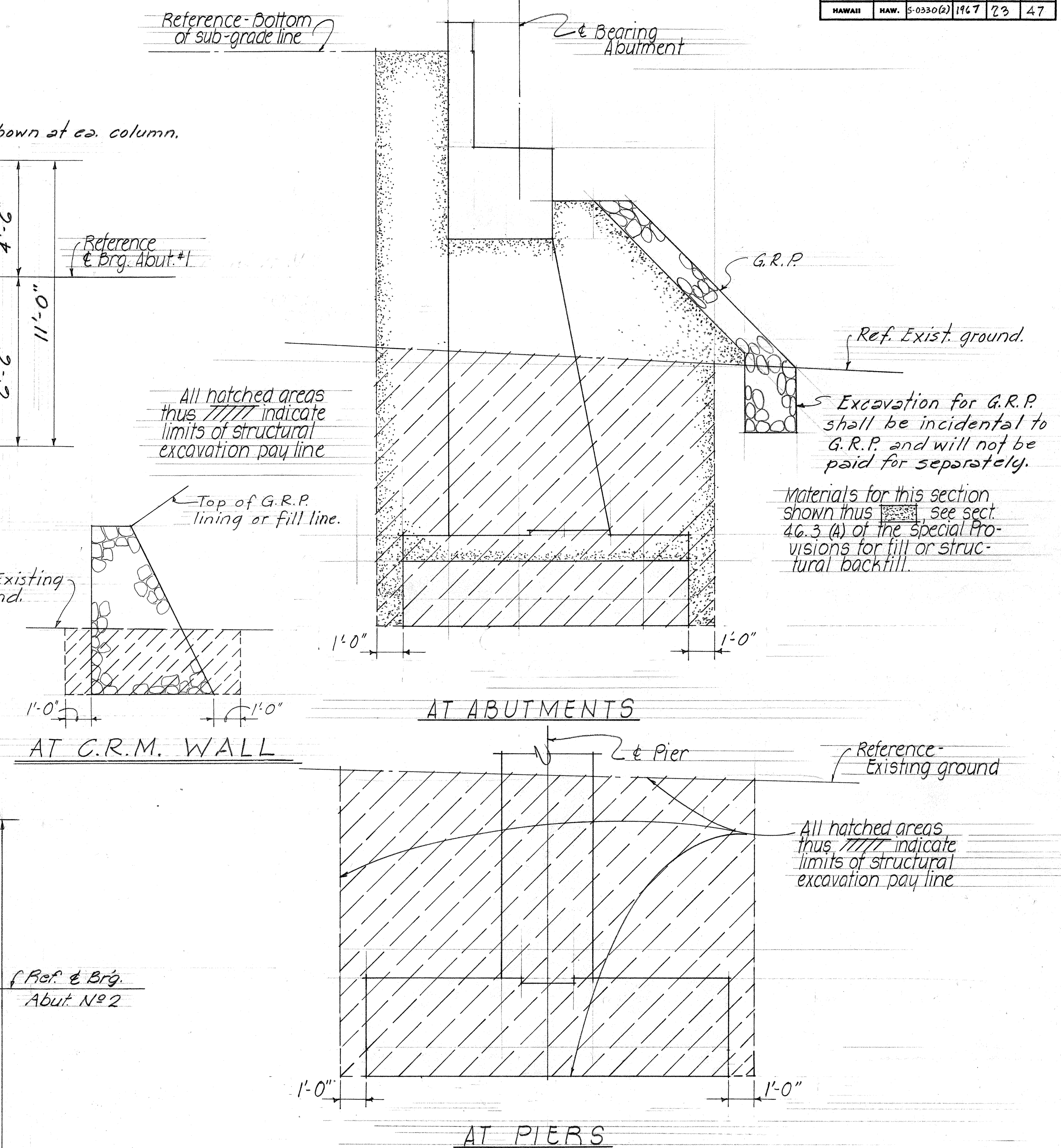
ABUT. N<sup>o</sup> 1 FT'G. REINF. PLAN

Scale:  $3/8" = 1'-0"$



ABUT. NO 2 FTG. REINF. PLAN

Scale:  $3/8" = 1'-0"$



## EXCAVATION PAY LINE & BACKFILL DETAILS

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DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

WAIHEE RIVER BRIDGE

Kahakili Highway — Maui

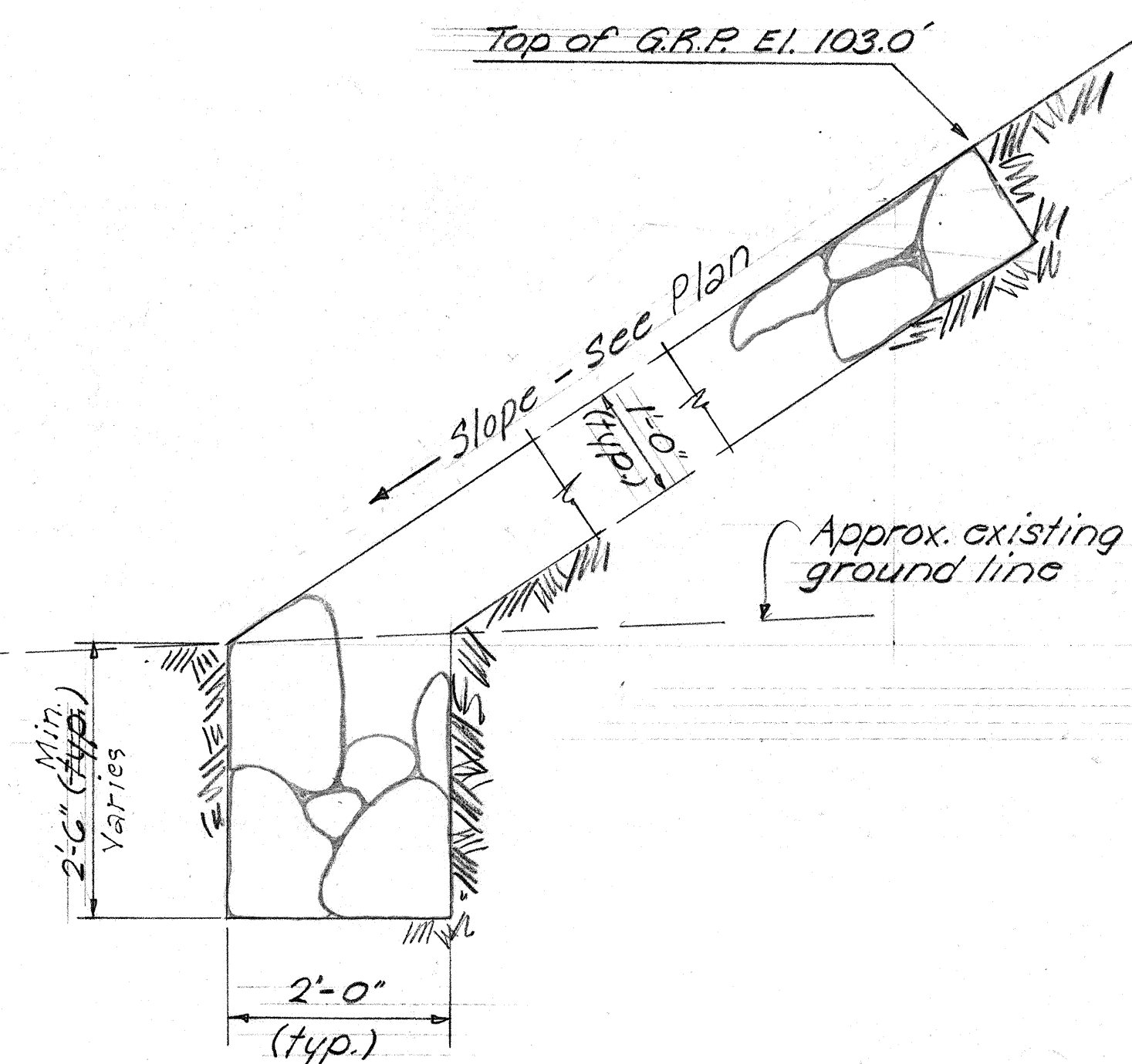
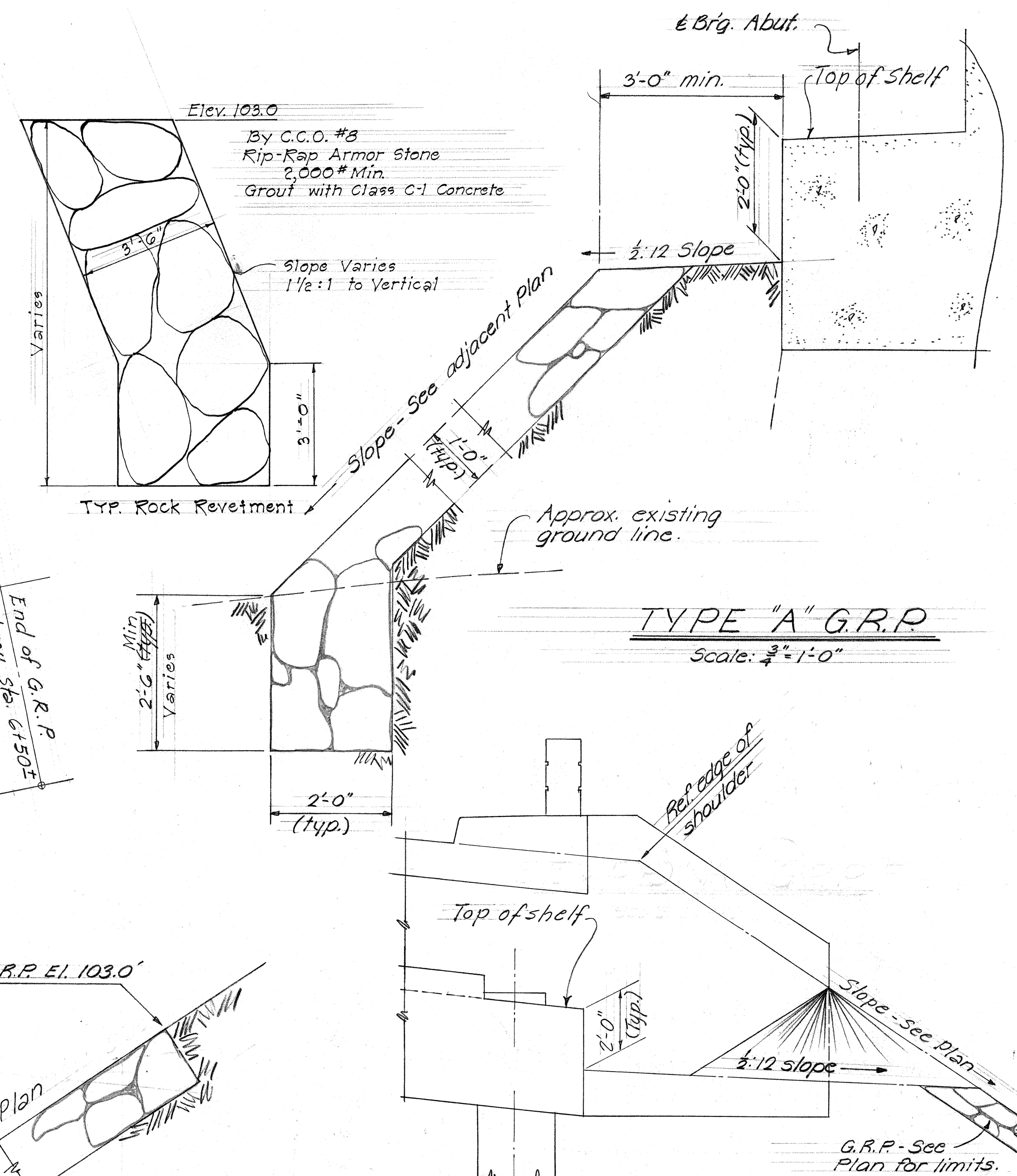
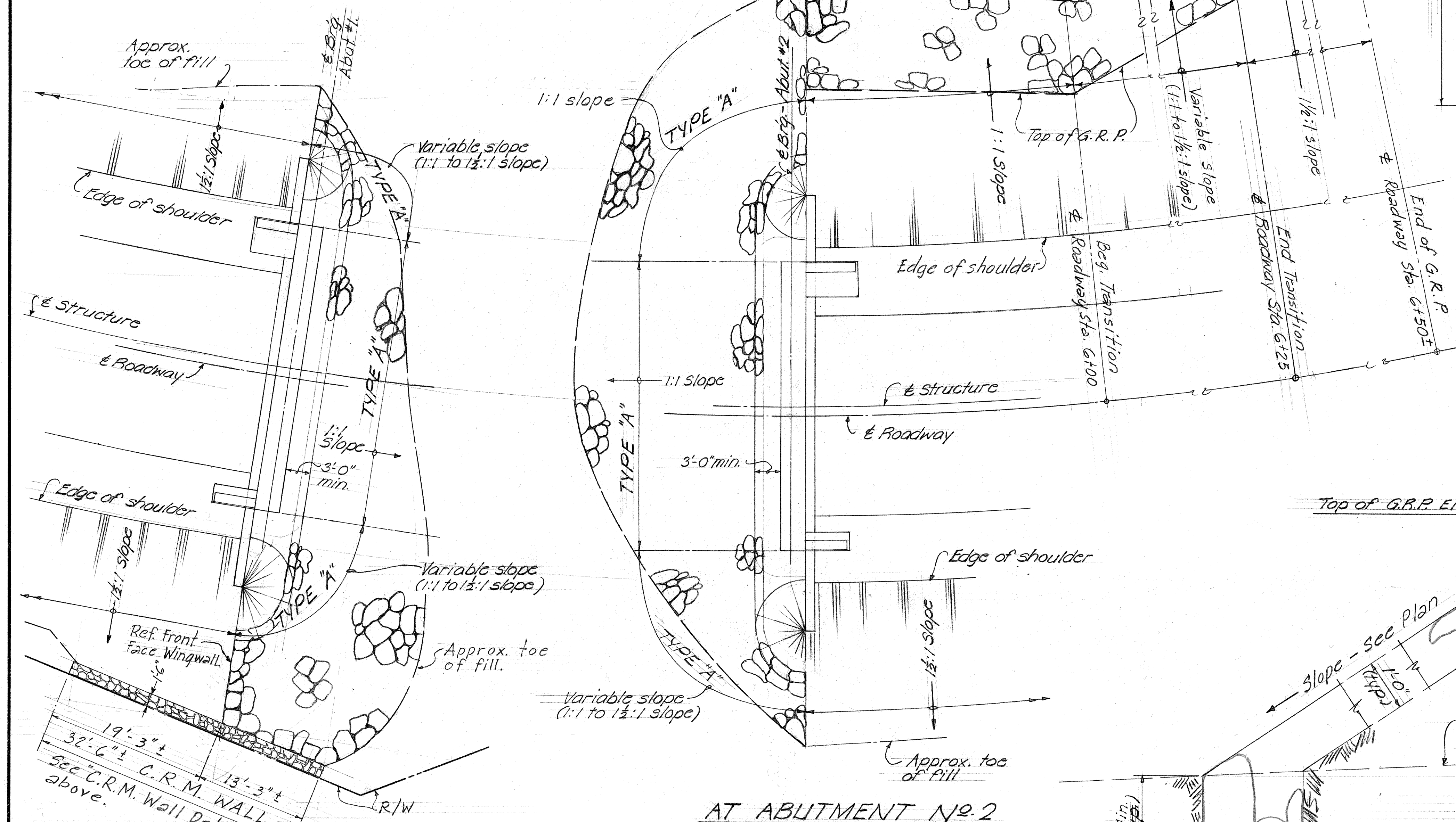
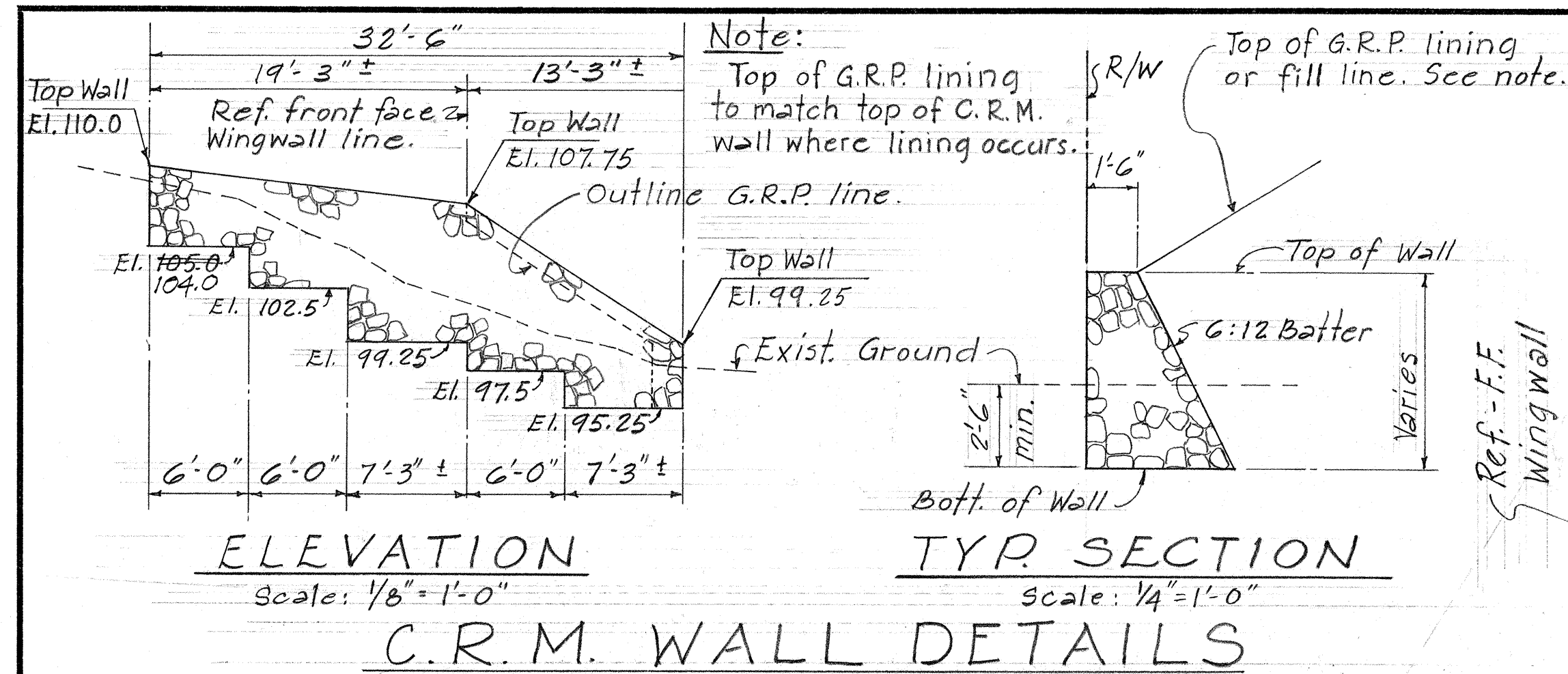
Scale as shown Proj. No S-0330(2)

May, 1966

**SHEET No. 5 OF 15 SHEETS**



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|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| HAWAII                 | HAW.  | 5-0330(2)             | 1967           | 24           | 47              |



TREATMENT OF  
FILL AT WING WALLS.  
Scale:  $\frac{3}{8}'' = 1'-0''$

STATE OF HAWAII  
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HIGHWAYS DIVISION

WAIHEE RIVER BRIDGE

Kahakili Highway — Maui

Scale as shown Proj. No S-0330(2)

May, 1966

**SHEET No. 6 OF 15 SHEETS**

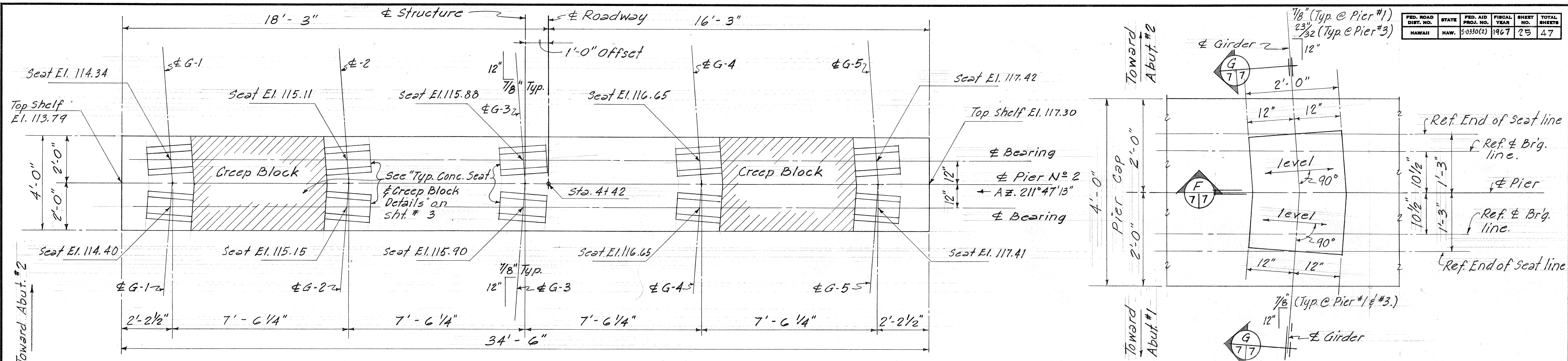
41

|               |                             |      |
|---------------|-----------------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY           | DATE |
| NOTE BOOK     | DRAWN BY T. M. P. SHIRO     | 5/66 |
|               | TRACED BY                   |      |
|               | DESIGNED BY K. CHING        |      |
|               | QUANTITIES BY               |      |
| No.           | CHECKED BY L. L. A. & J. O. |      |

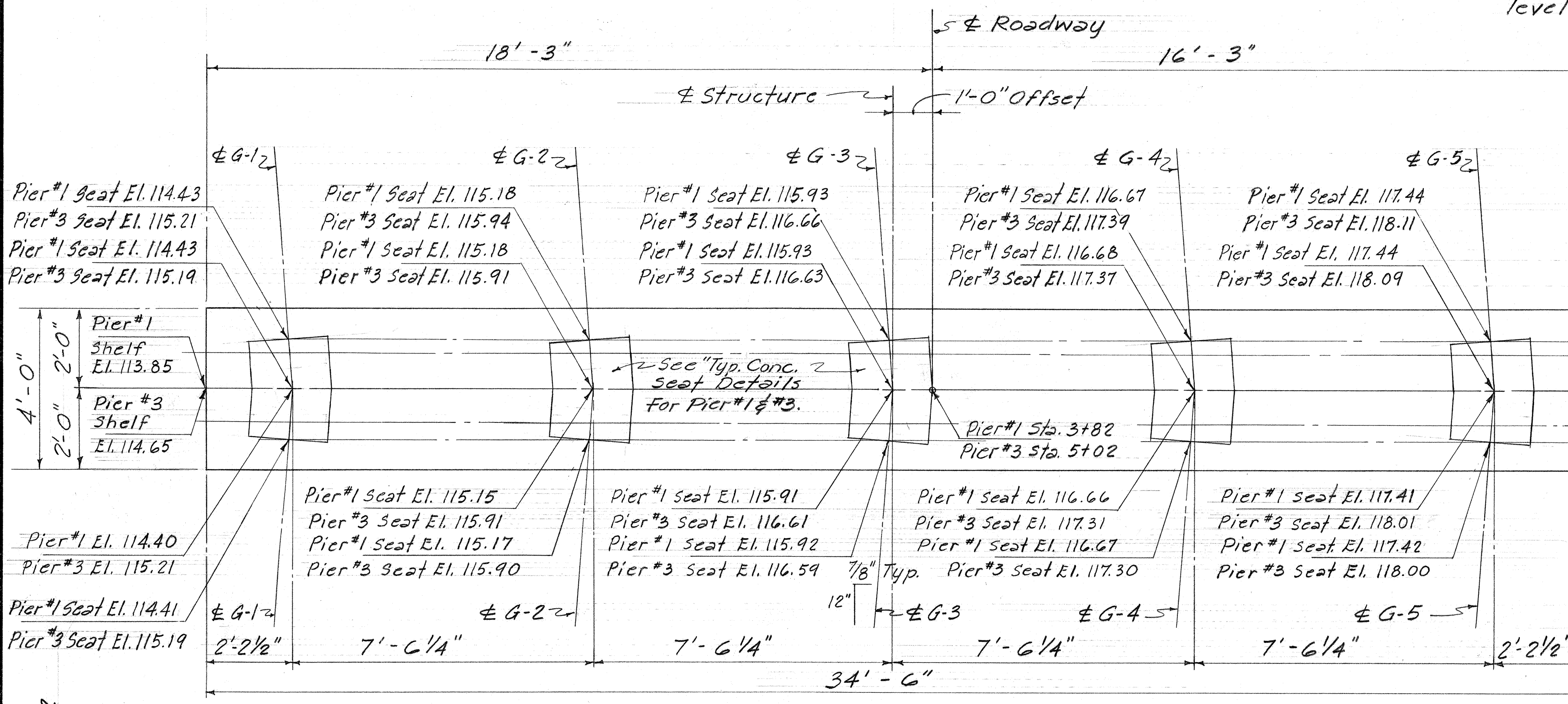
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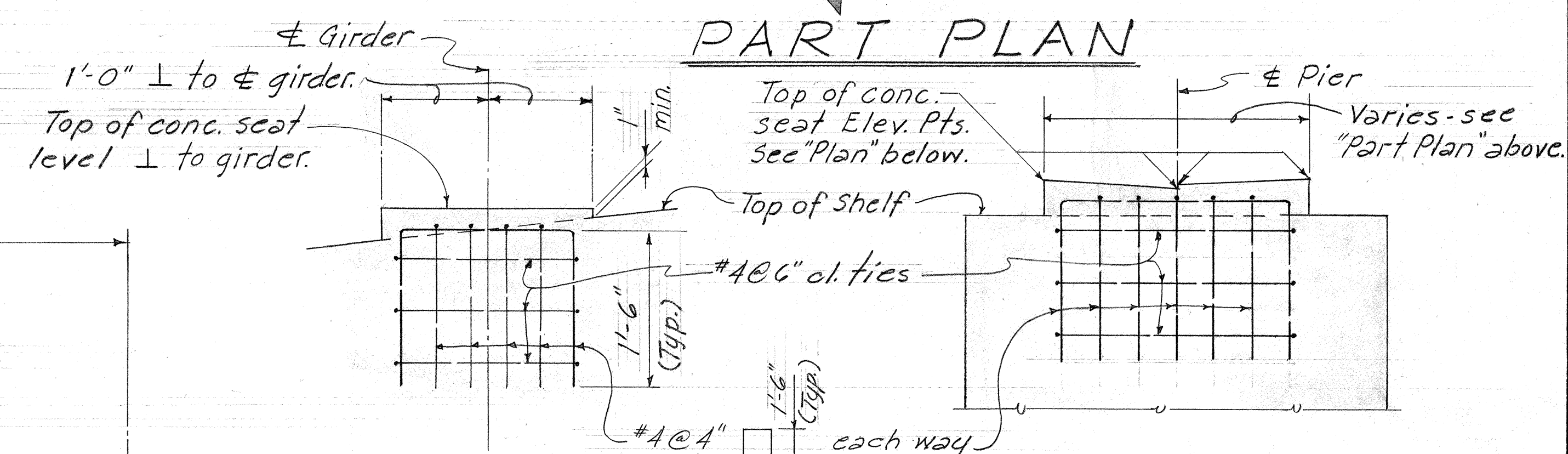
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|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | S-0330(2)          | 1967        | 25        | 47           |



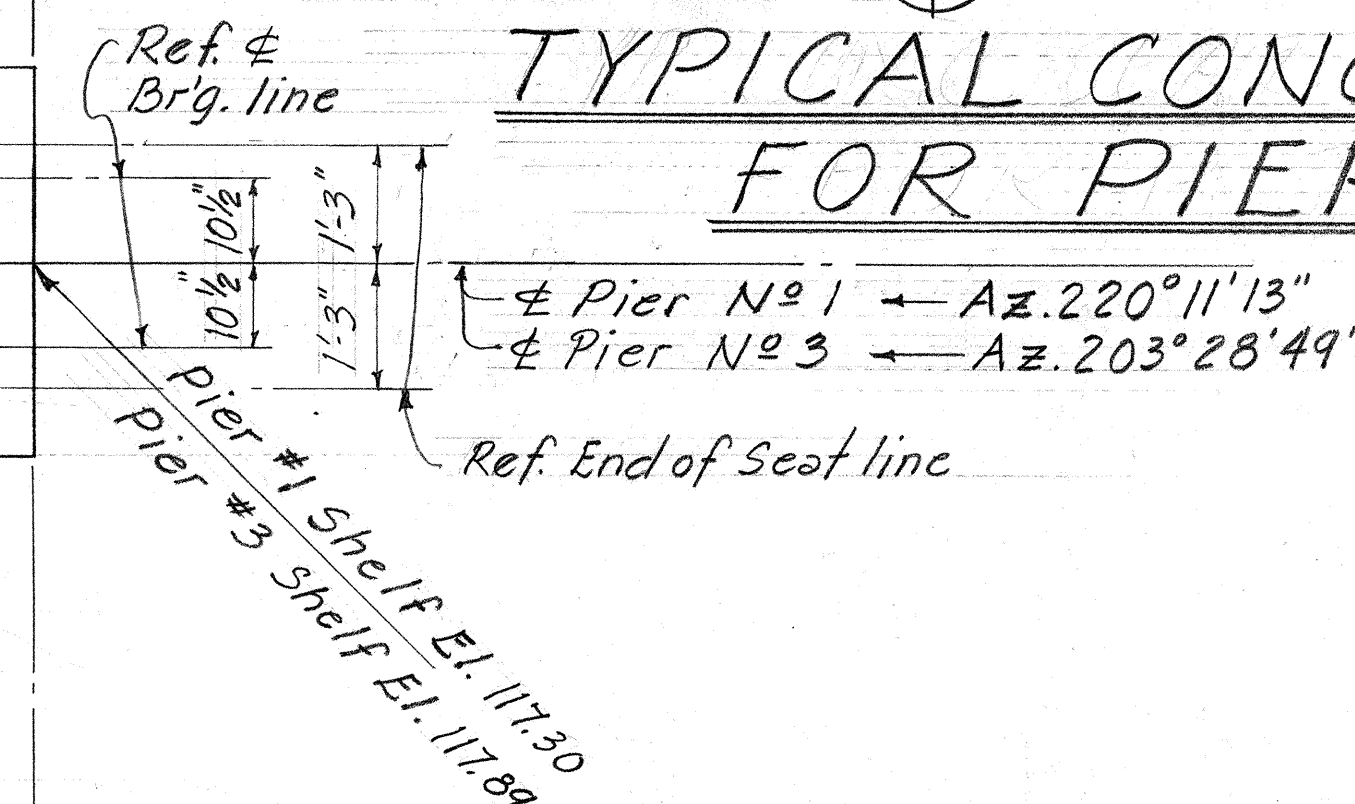
PLAN - PIER NO 2  
Scale: 1/2" = 1'-0"



PLAN - PIER NO 1 & 3  
Scale: 1/2" = 1'-0"



SECTION F  
TYPICAL CONC. SEAT DETAILS  
FOR PIERS NO 1 & 3  
Scale: 1" = 1'-0"

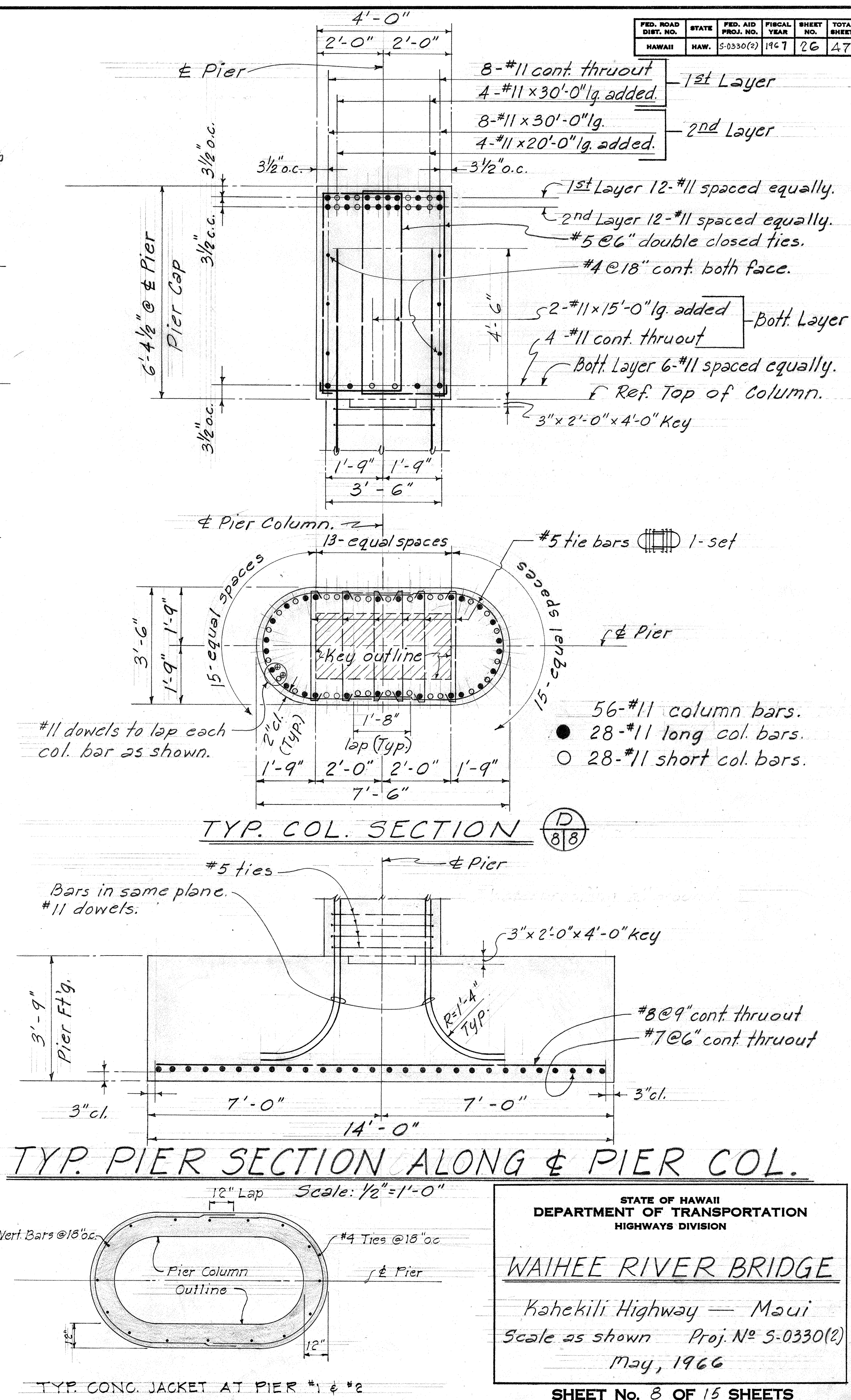
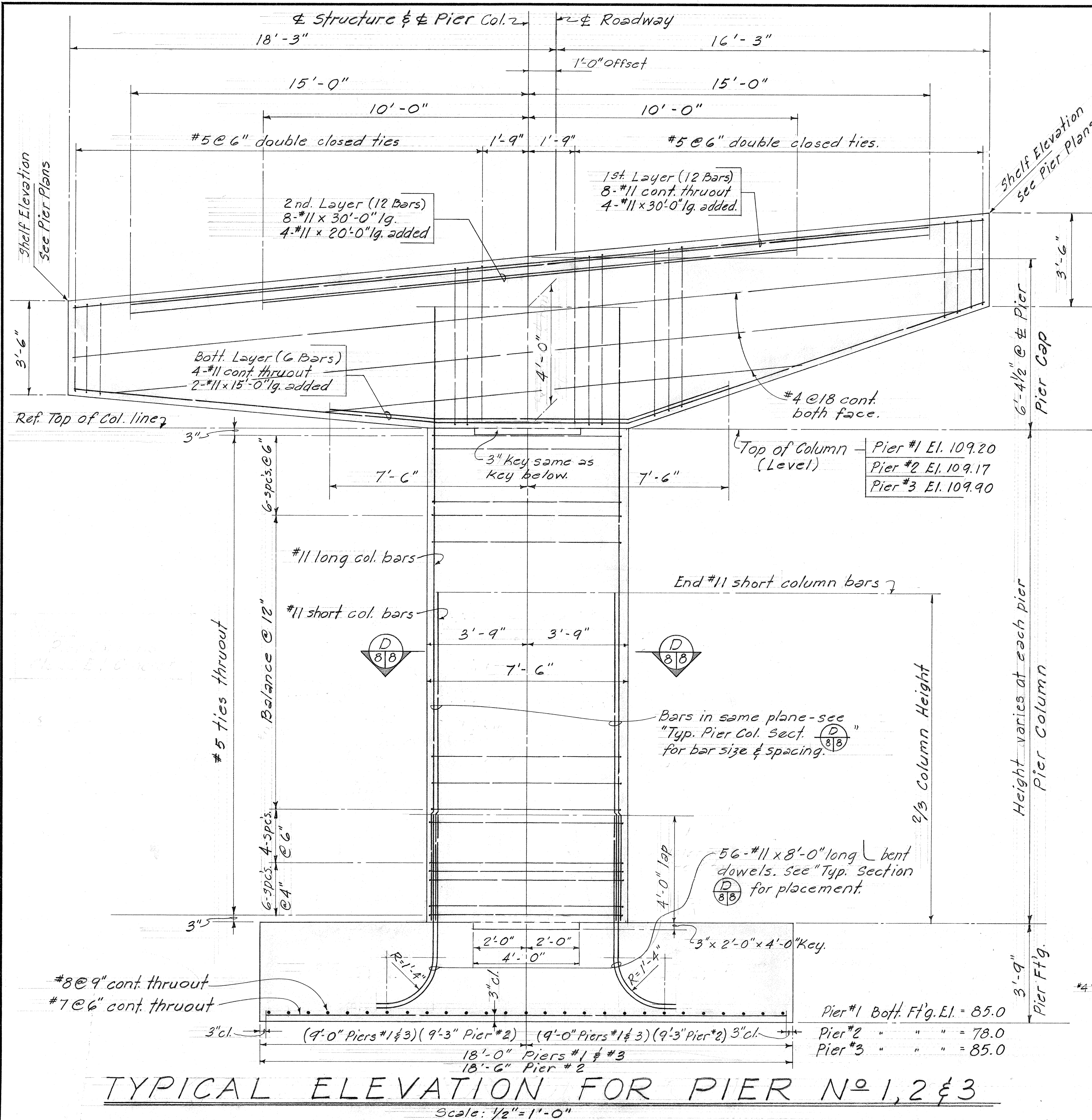


STATE OF HAWAII  
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WAIHEE RIVER BRIDGE  
Kahakili Highway — Maui  
Scale as shown Proj. No. S-0330(2)  
May, 1966

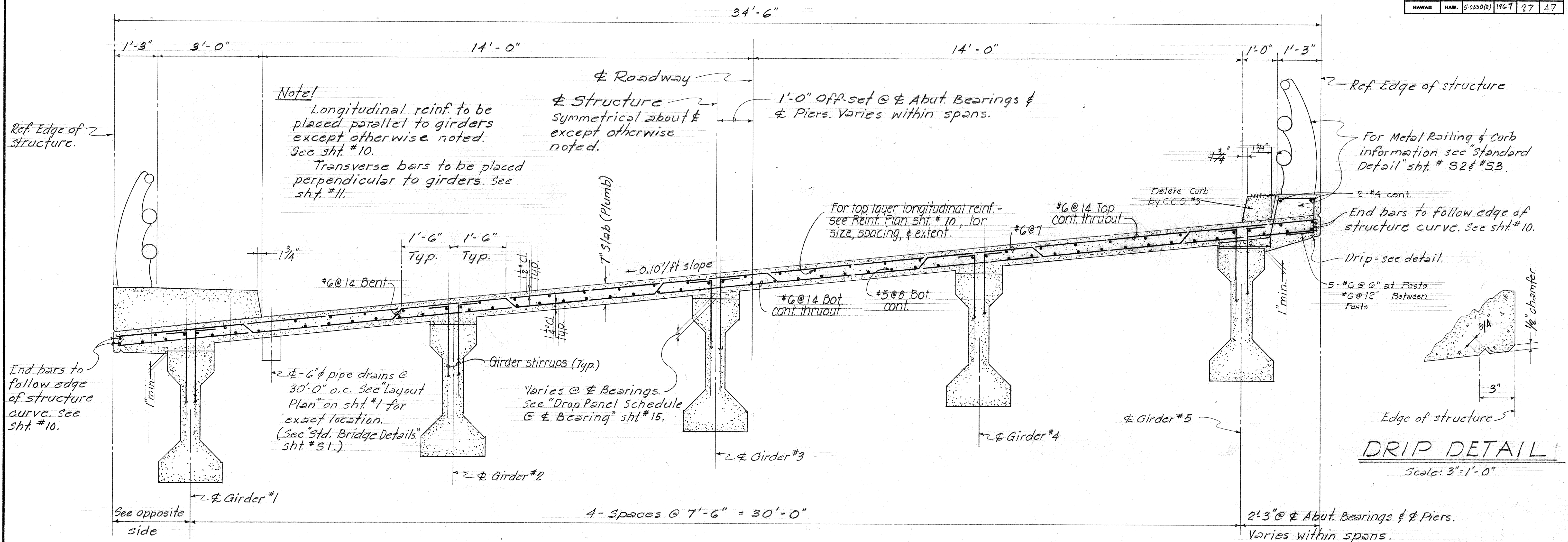
SHEET No. 7 OF 15 SHEETS



SURVEY PLOTTED BY: DATE: 5/66  
 DRAWN BY: T. SHIOMMA  
 CHECKED BY: H. KIDDO  
 QUANTITIES BY: H. KIDDO  
 NO. 10

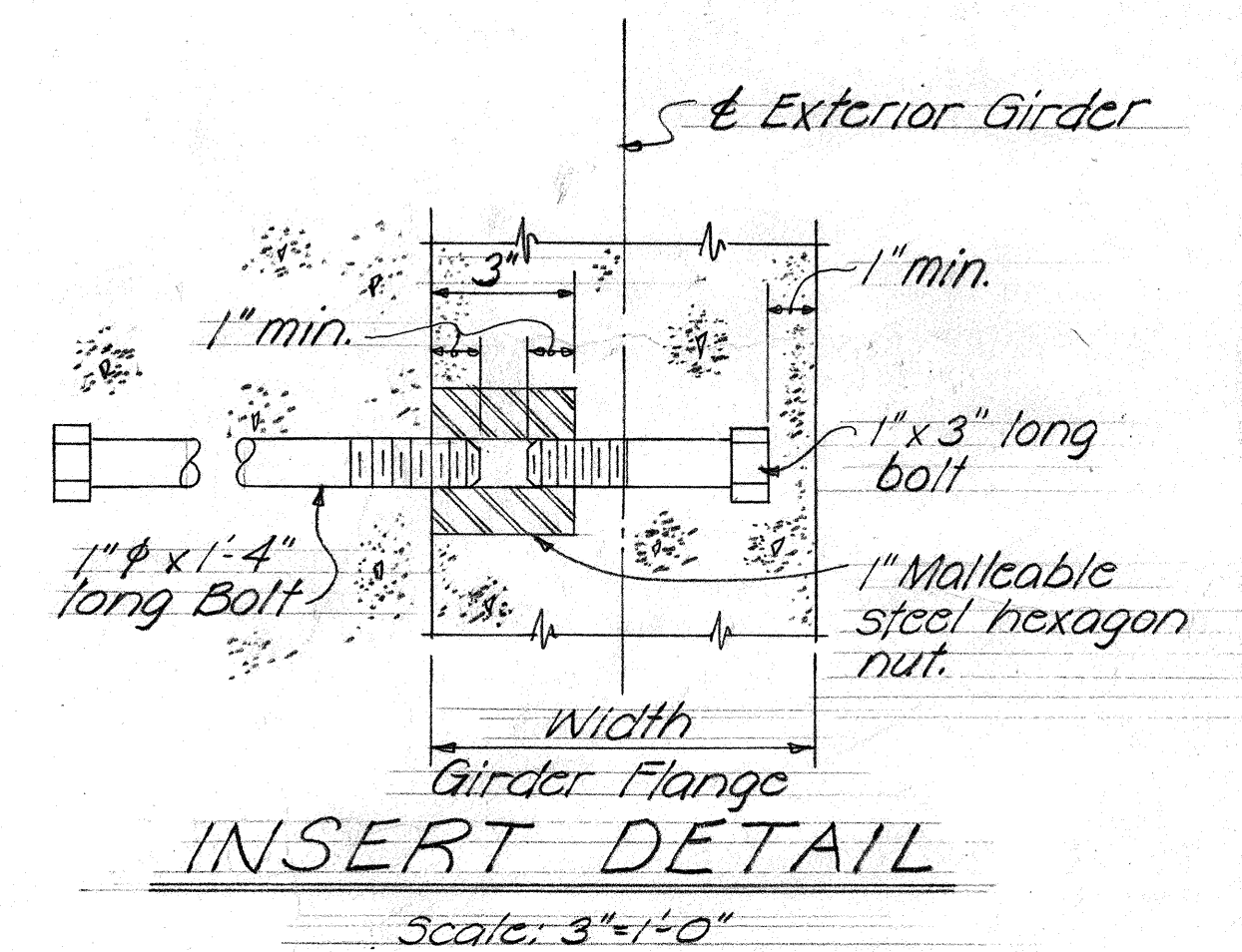
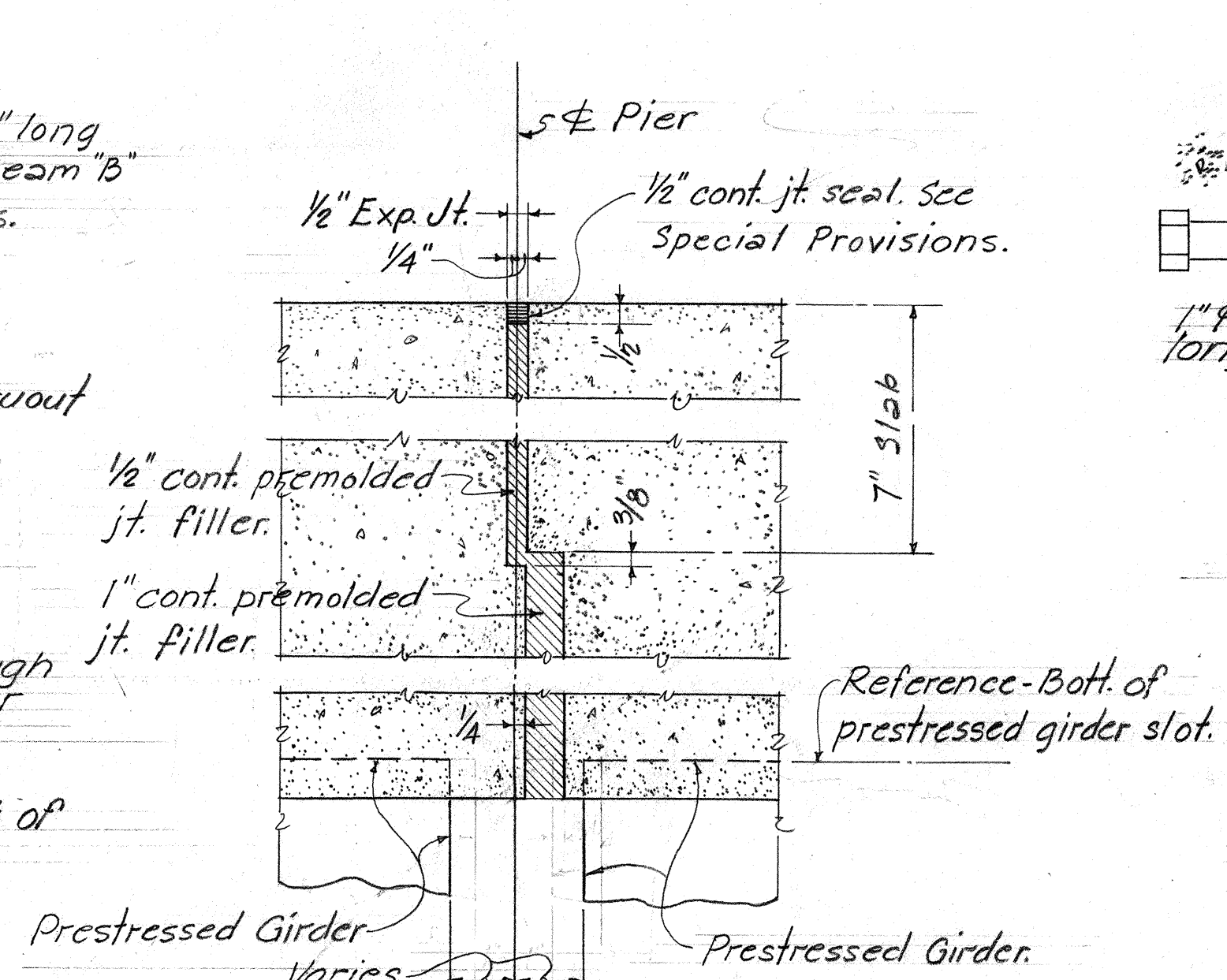
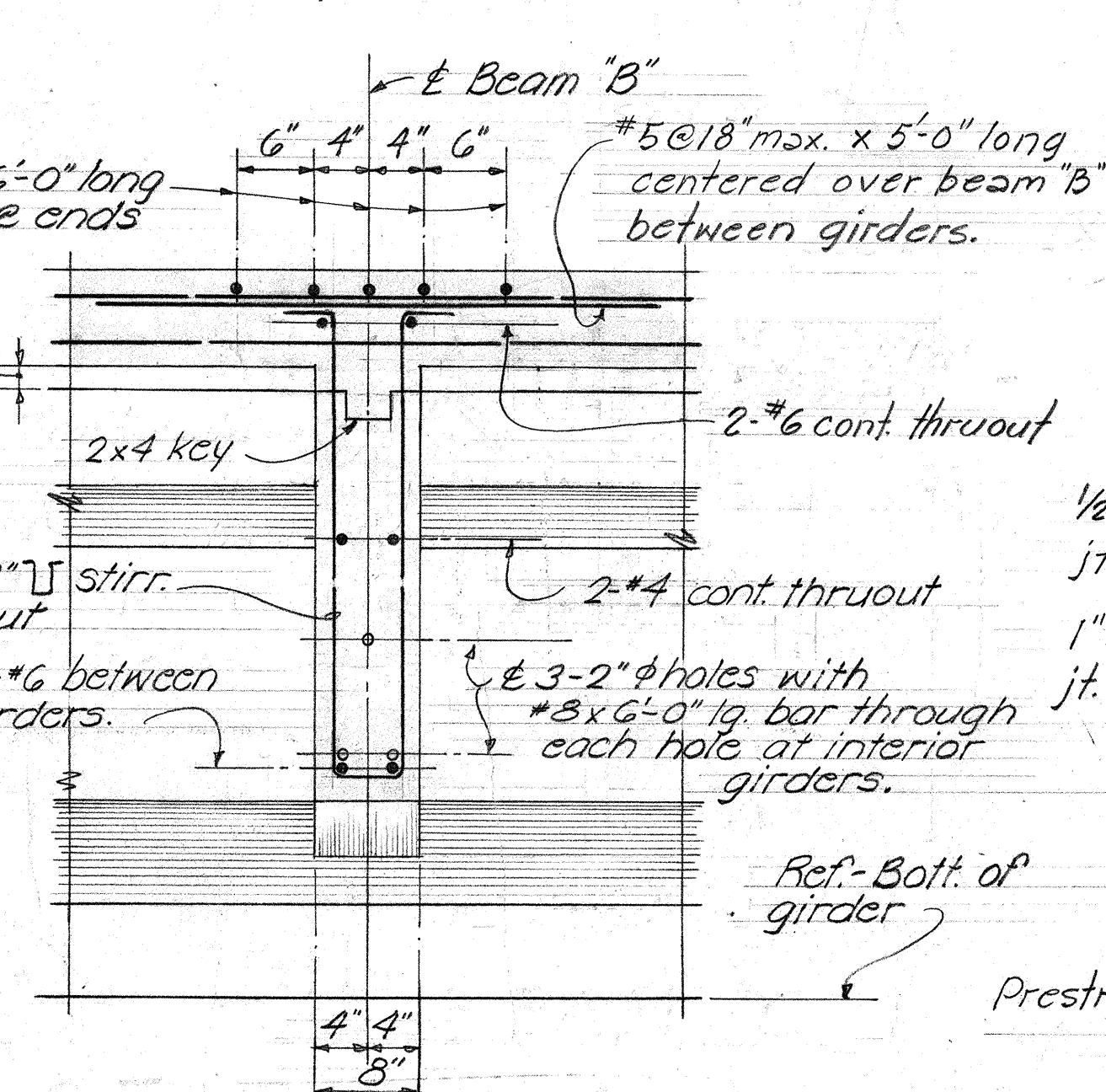
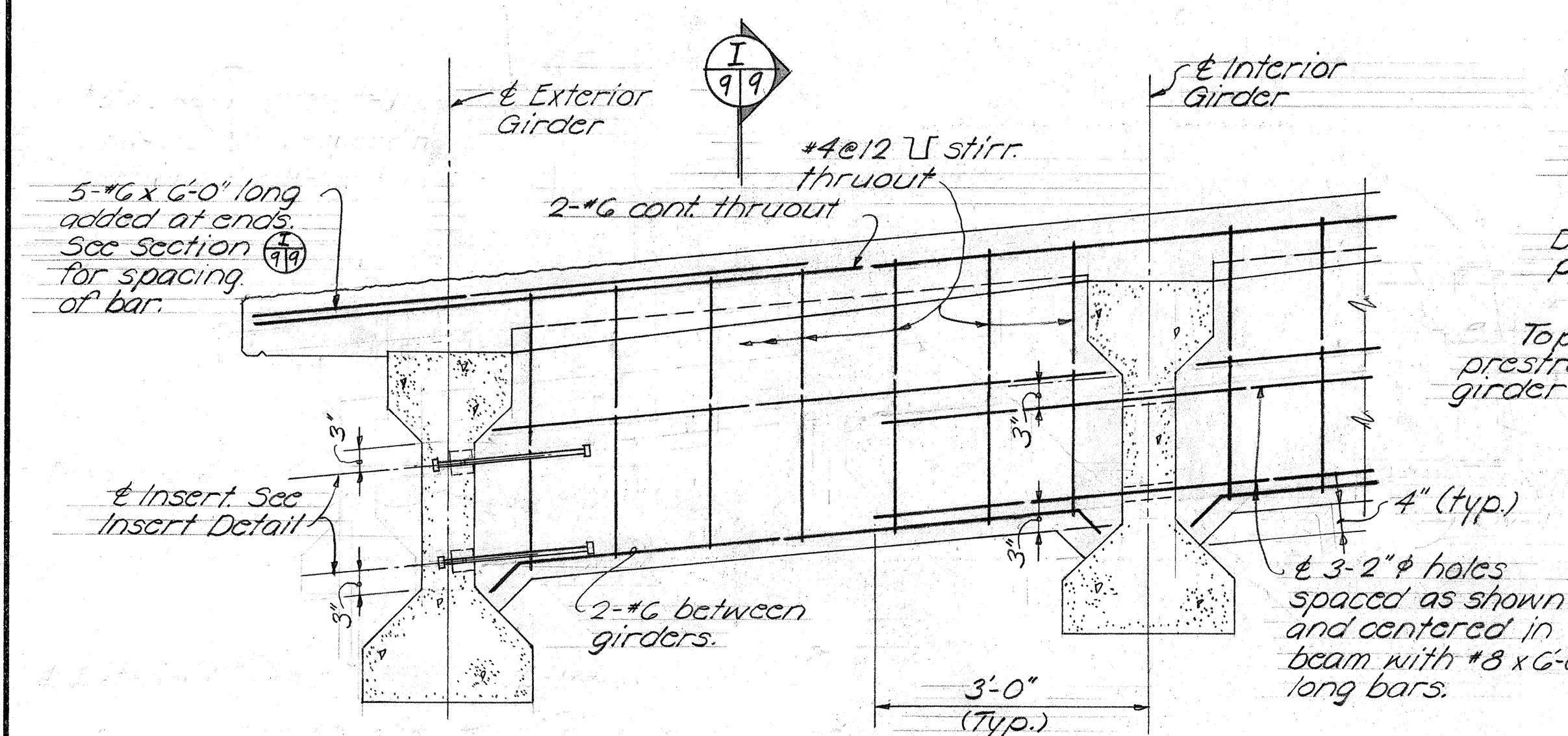






## NORMAL SECTION

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



STATE OF HAWAII  
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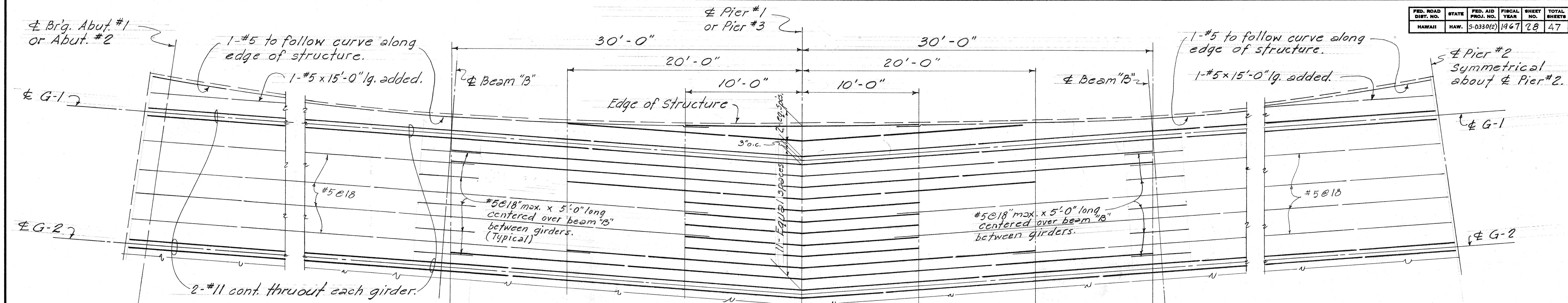
## WAIHEE RIVER BRIDGE

Kahekili Highway — Maui  
Scale as shown Proj. No. 5-0330(2)  
May, 1966

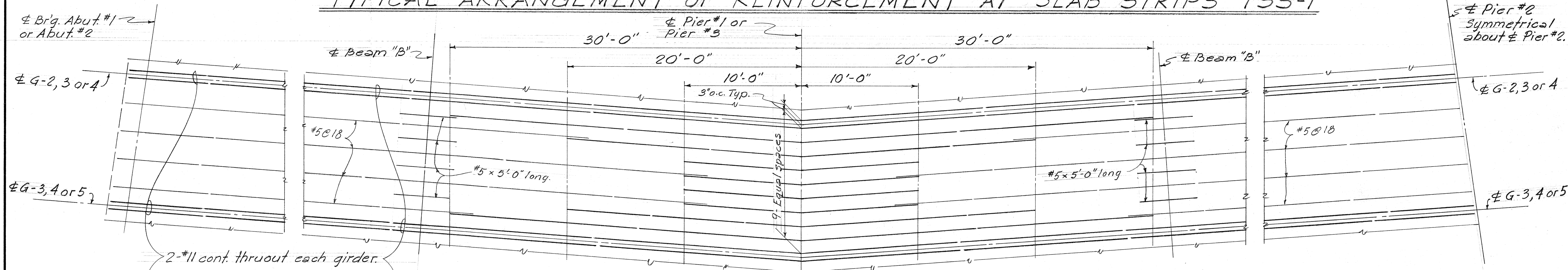
SHEET No. 9 OF 15 SHEETS

DATE: 5/6/66  
DRAWN BY: H.K.A. & J.S.  
CHECKED BY: H.K.A. & J.S.  
NOTE BOOK  
No.

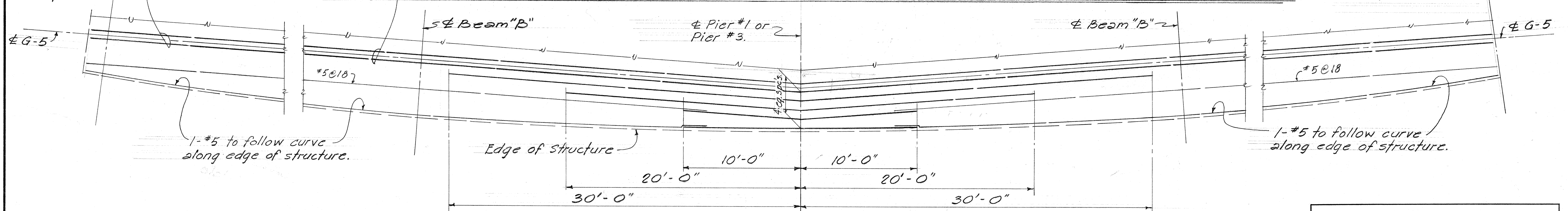




TYPICAL ARRANGEMENT OF REINFORCEMENT AT SLAB STRIPS TSS-1



TYPICAL ARRANGEMENT OF REINFORCEMENT AT SLAB STRIPS TSS-2



TYPICAL ARRANGEMENT OF REINFORCEMENT AT SLAB STRIPS TSS-3

NOTES:

- Except as otherwise noted all slab strip bars to be #11.
- Slab strip reinforcement to be placed parallel with girders except as otherwise noted.
- All #5 @ 18" max. bars shall be extended and lap at a minimum of 2'-0" with adjacent #11 bars as shown.
- For location of slab strips see "Framing Plan" on sht. #13.

TYPICAL SLAB STRIPS REINFORCEMENT PLAN

Scale: Horizontal: 1/4" = 1'-0"  
Vertical: 3/8" = 1'-0"

STATE OF HAWAII  
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WAIHEE RIVER BRIDGE

Kahakili Highway — Maui

Scale as shown Proj. No. 5-0330(2)

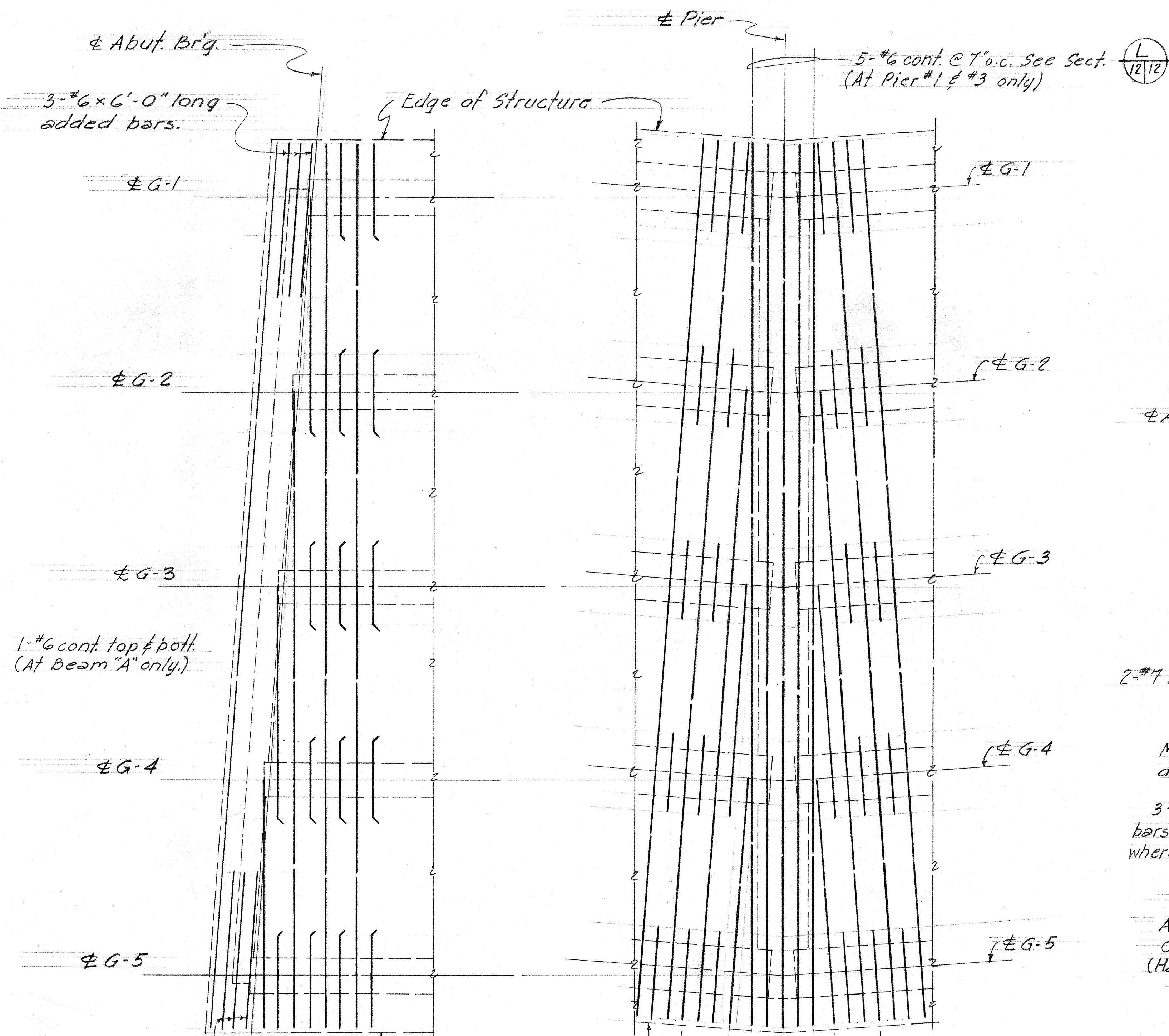
May, 1966

SHEET No. 10 OF 15 SHEETS

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          | DATE |
| TRACED BY         | DATE |
| NOTED BY          | DATE |
| CHECKED BY        | DATE |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 5-0330(2)          | 1967        | 29        | 47           |



3-#6 x 6'-0" long added bars.  
See "Typ. Beams A" & "C" Details" on sh't. #12.

Edge of Structure

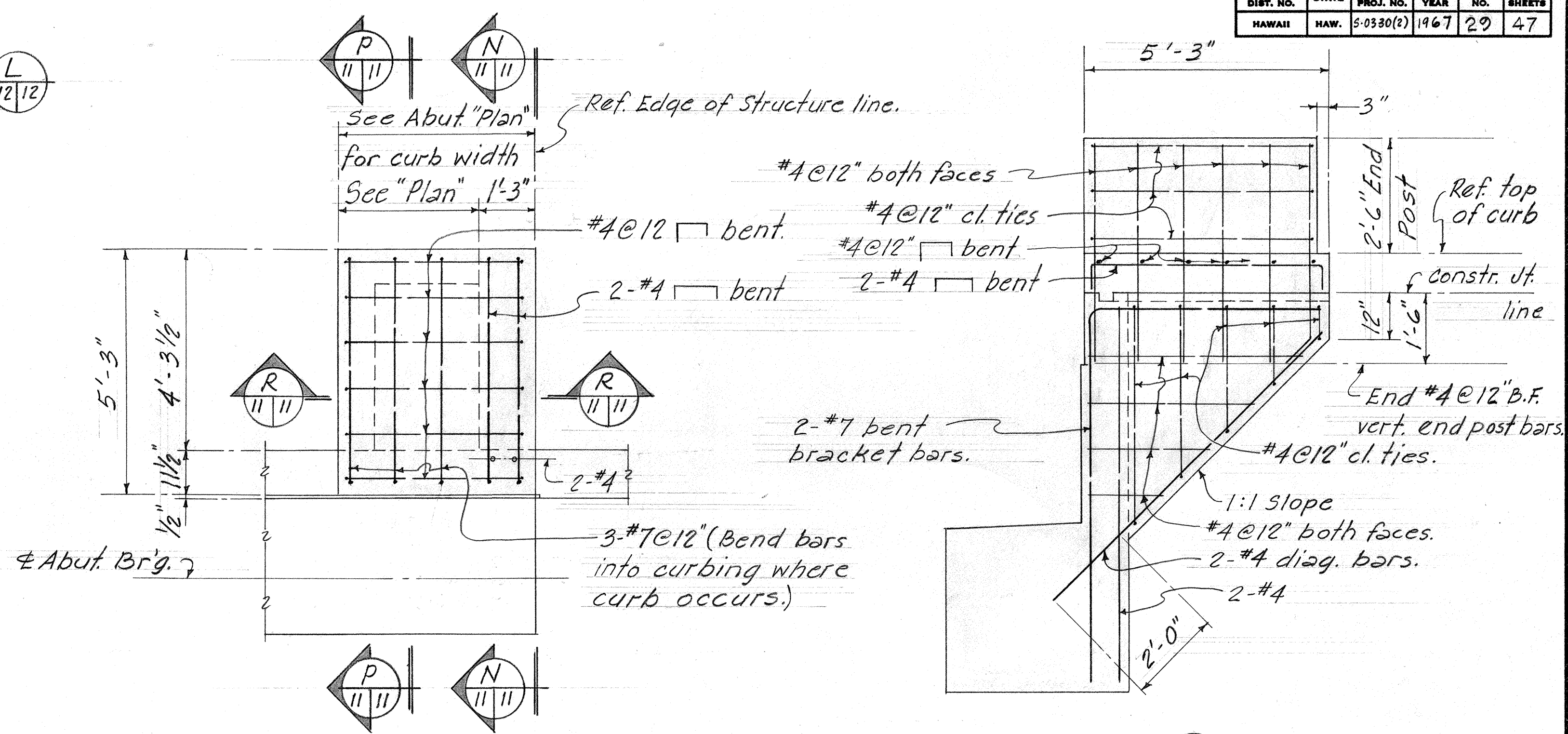
See "Normal Section" on sh't. #9 for bar size & spacing

Cut bars as required in skewed section as shown. Bar size & spacing same as that shown in "Normal Section."

AT ABUT. ENDS

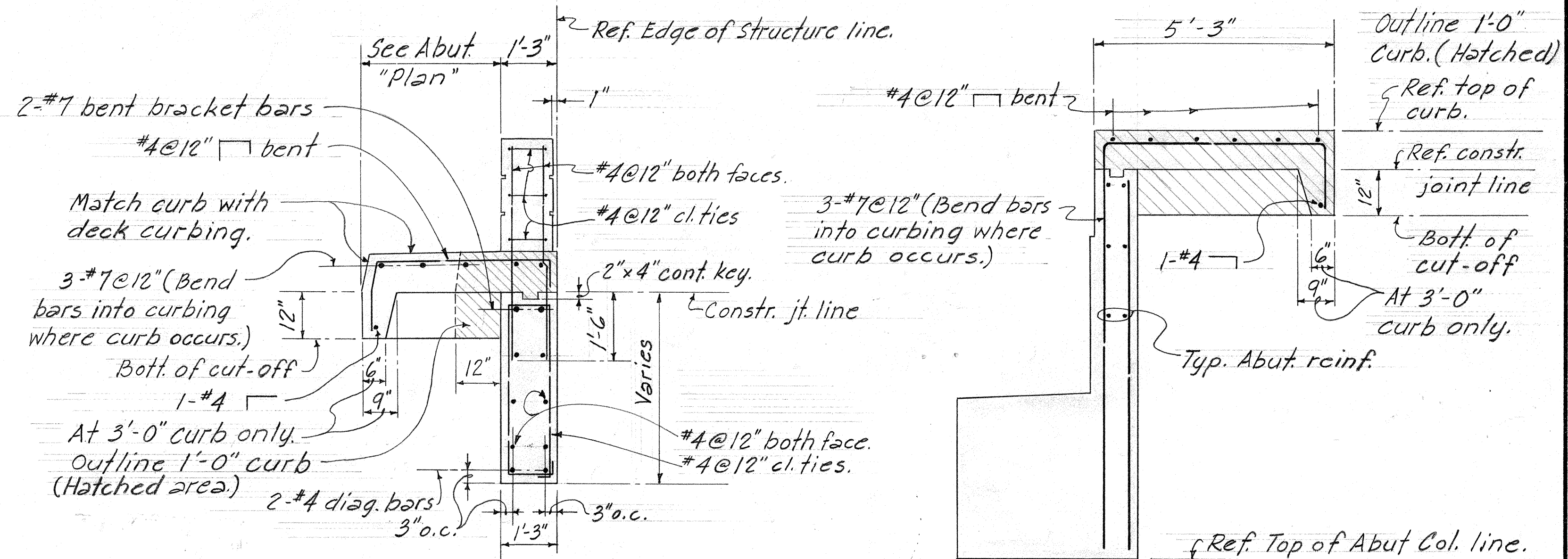
AT PIERS

## PART PLAN - TYPICAL ARRANGEMENT OF TRANSVERSED SLAB REINF. AT SKEWED ENDS



PART PLAN

SECTION



SECTION

SECTION

## TYPICAL END POST BRACKET DETAILS

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

WAIHEE RIVER BRIDGE

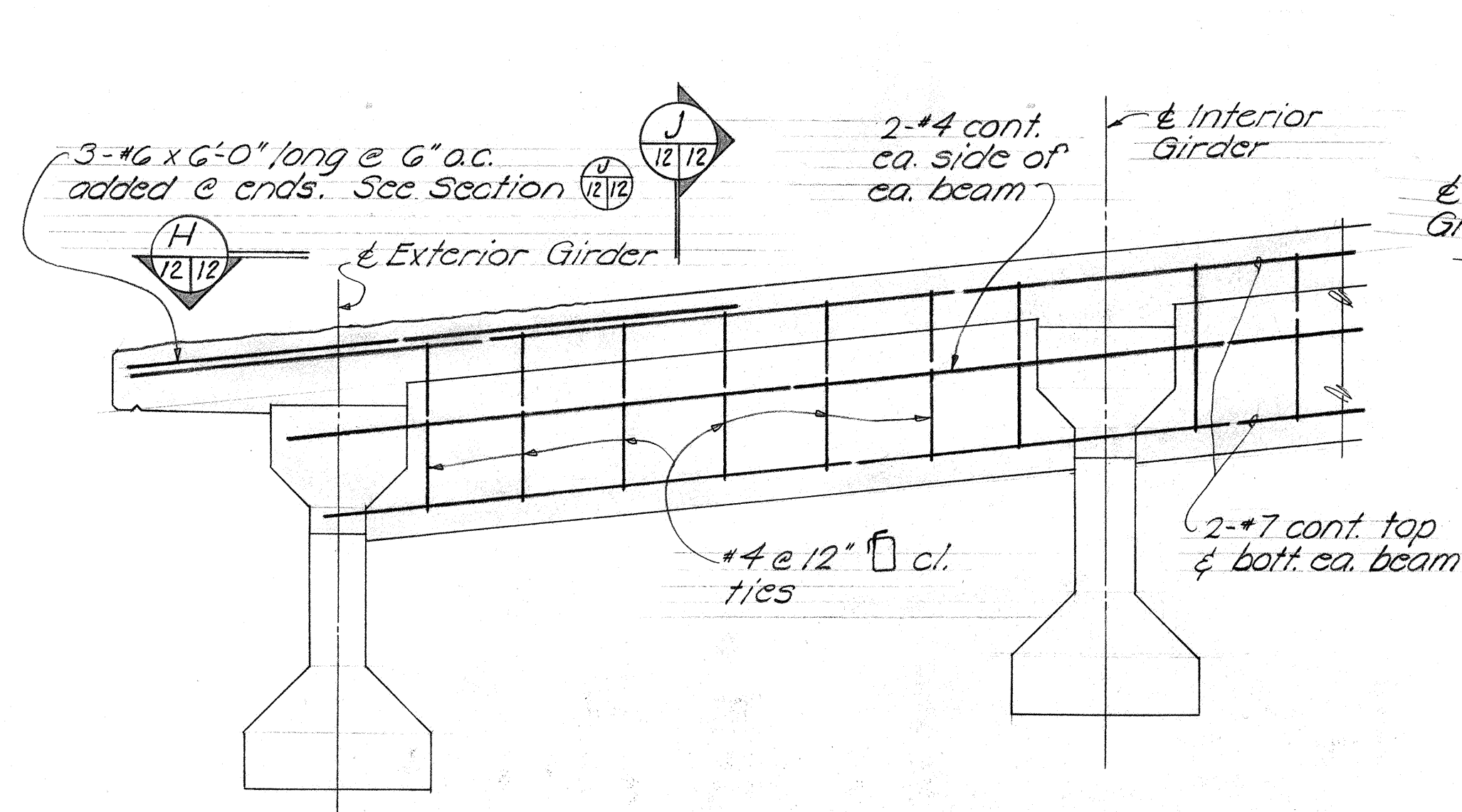
Kahakili Highway — Maui

Scale as shown Proj. No. 5-0330(2)

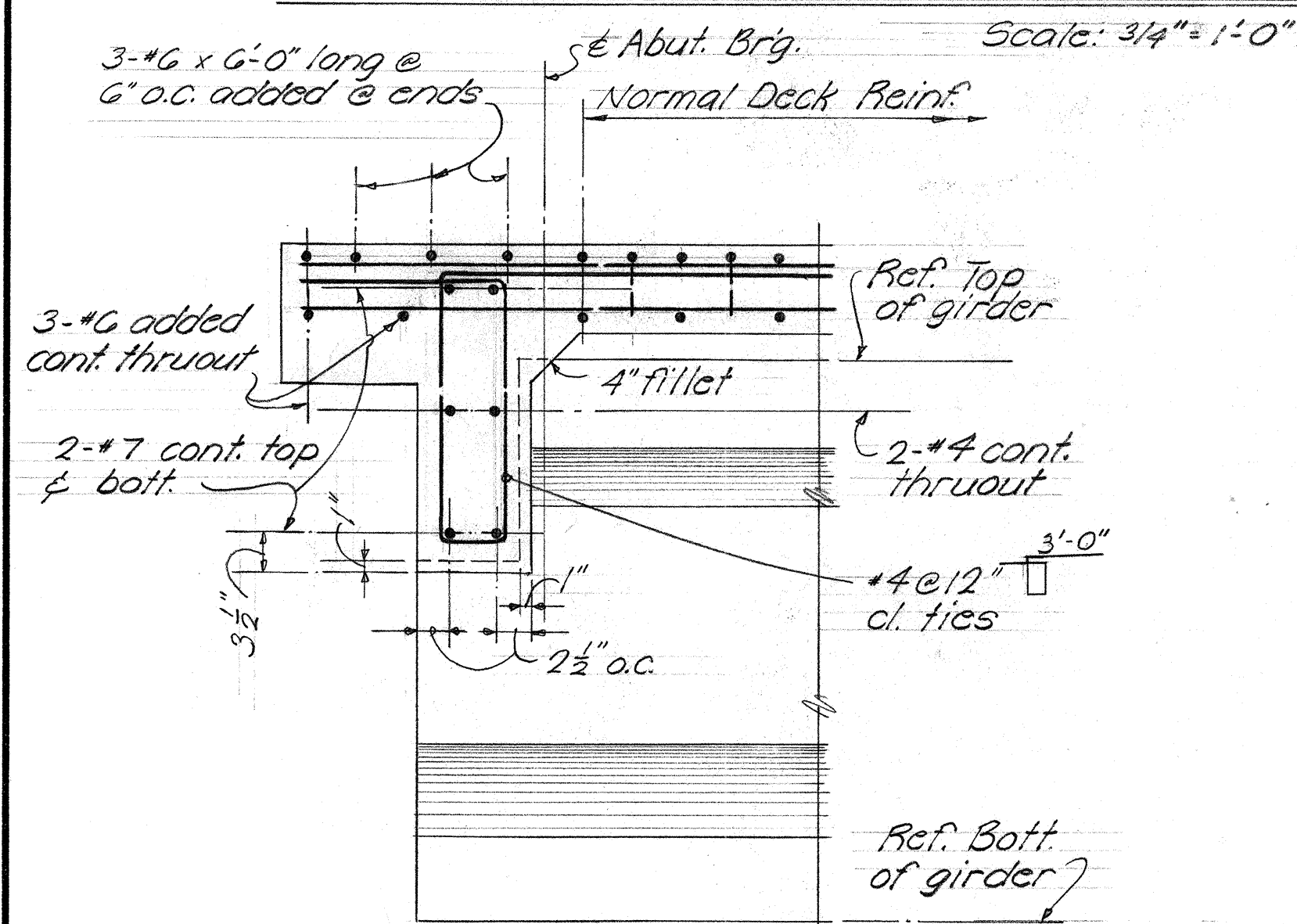
May, 1966

SHEET No. 11 OF 15 SHEETS

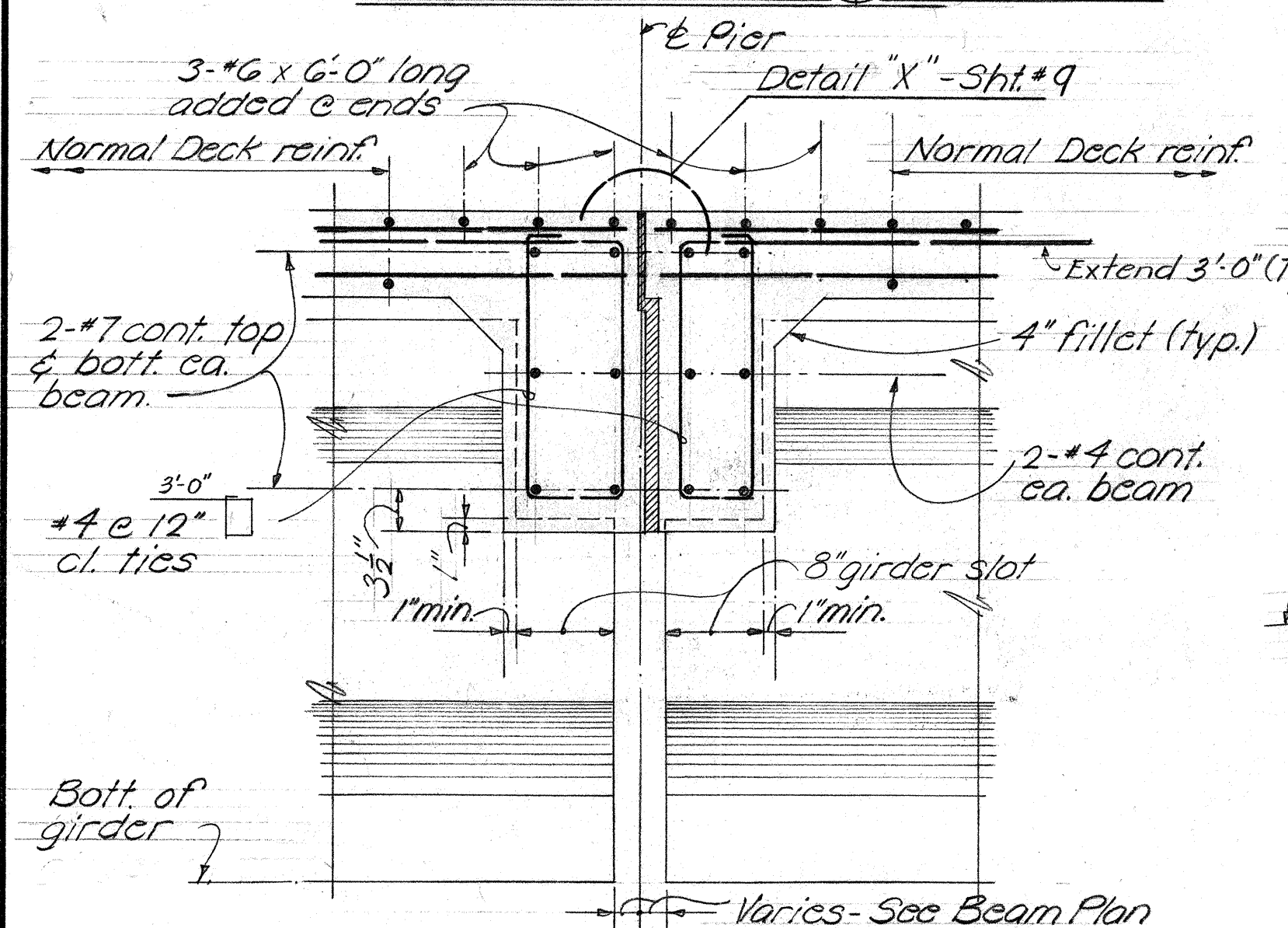




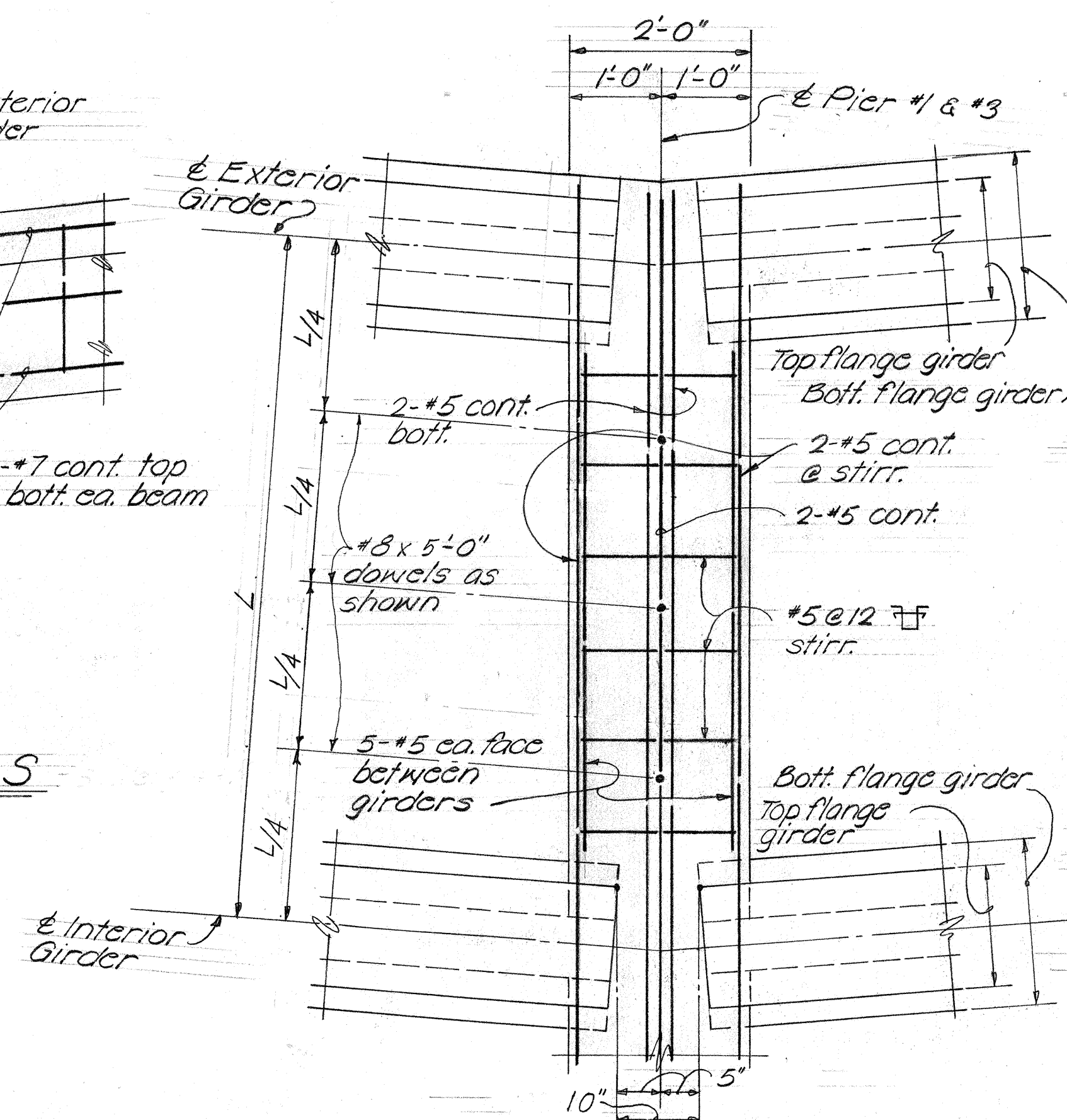
TYPICAL BEAMS "A" & "C" DETAILS



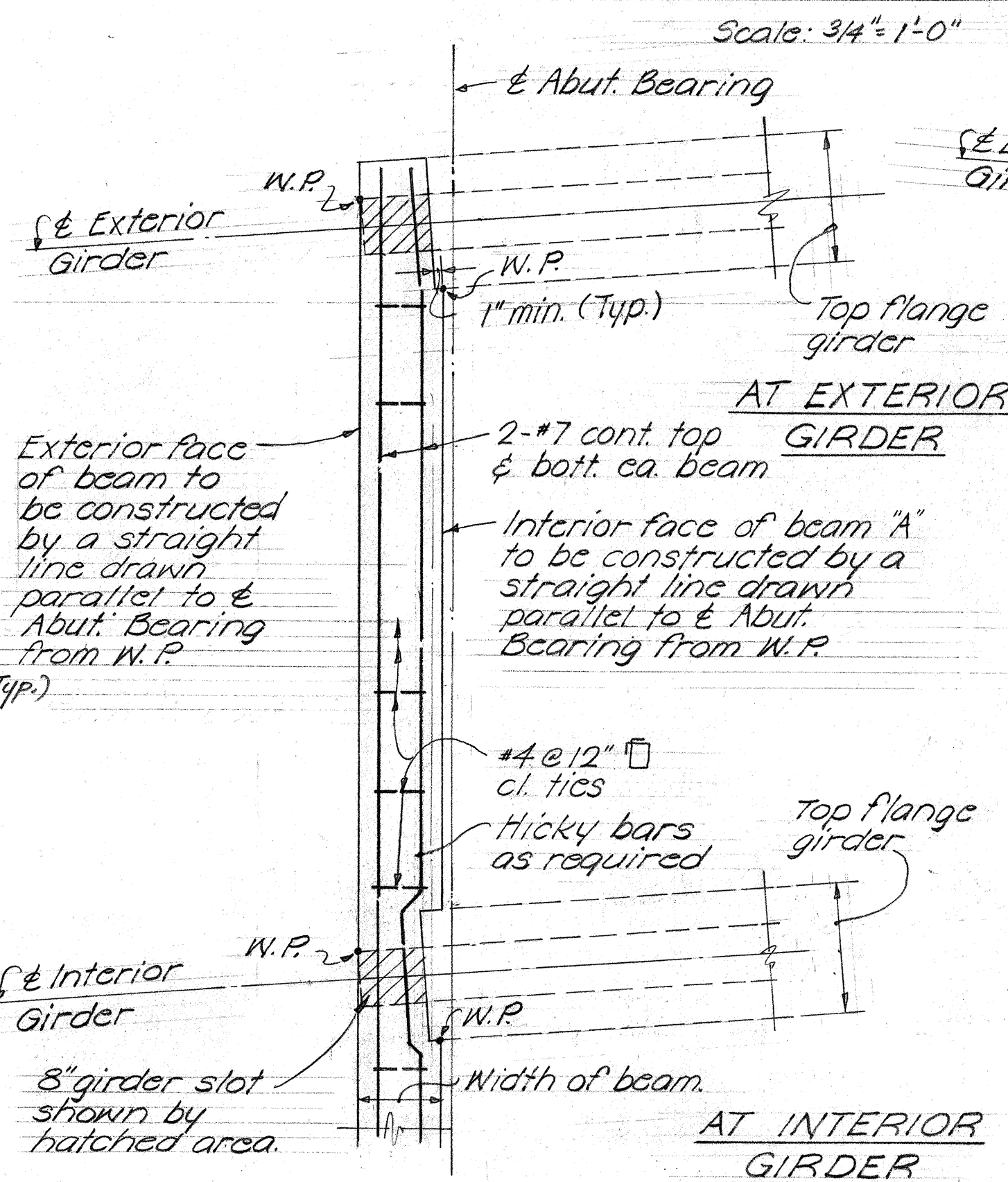
AT BEAM "A" SECTION J 12/12 Scale: 1"=1'-0"



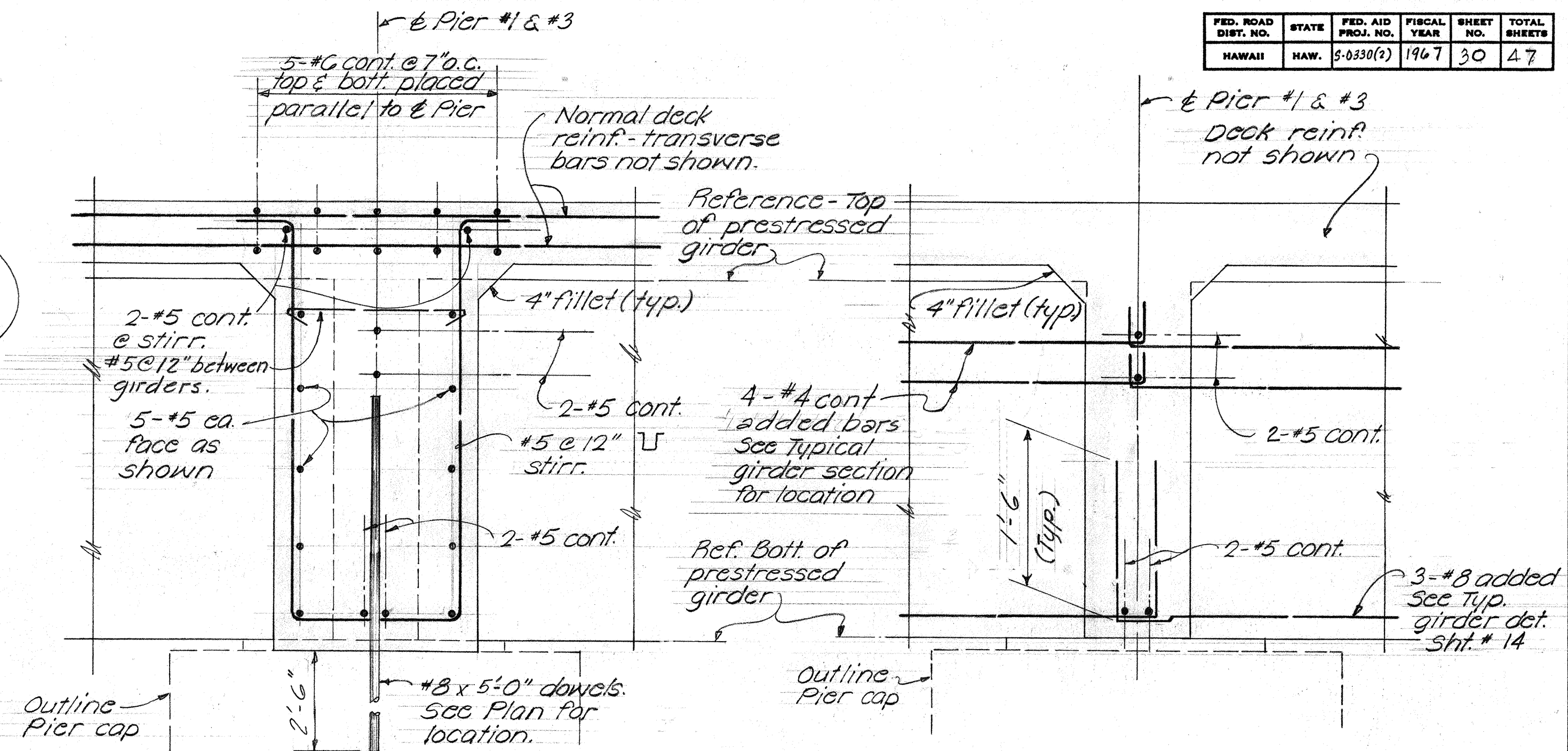
AT BEAM "C" SECTION J 12/12 Scale: 1"=1'-0"



TYPICAL TRANSVERSE BEAM "D" PLAN K 12/12 Scale: 3/4"=1'-0"

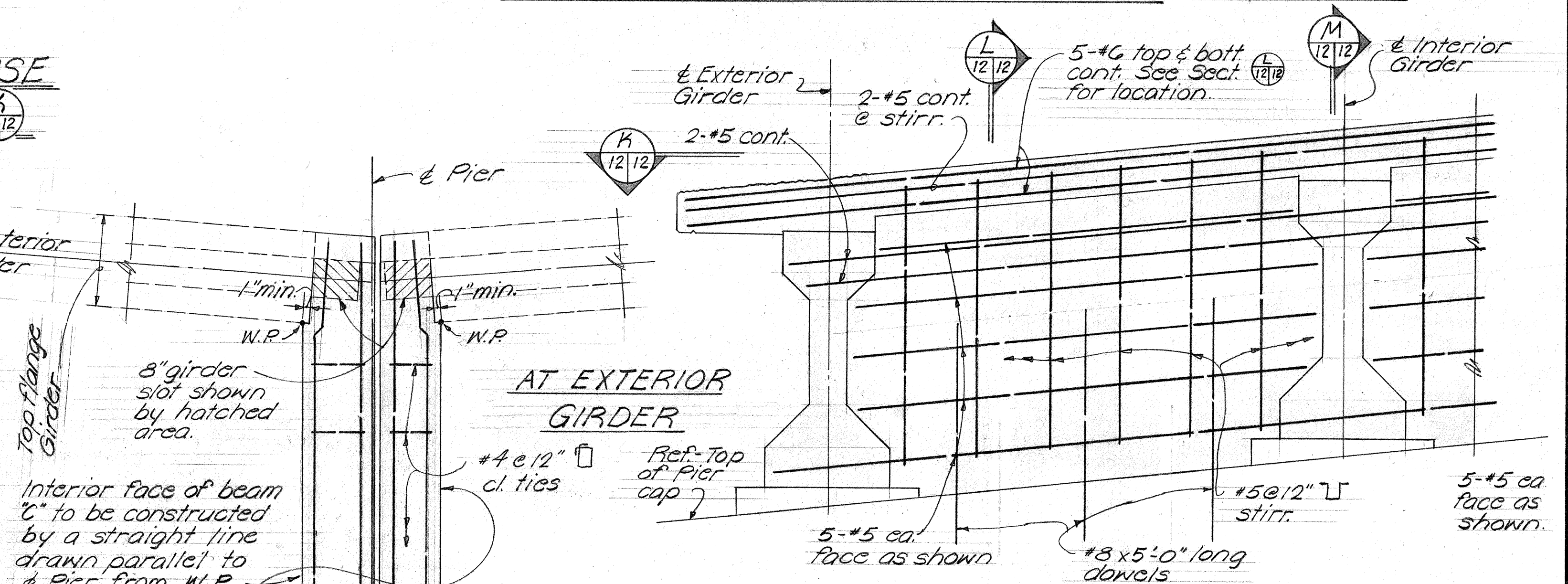


TYPICAL TRANSVERSE BEAM "A" PLAN H 12/12 Scale: 3/4"=1'-0"



SECTION L 12/12 BETWEEN GIRDERS SECTION M 12/12 AT GIRDERS

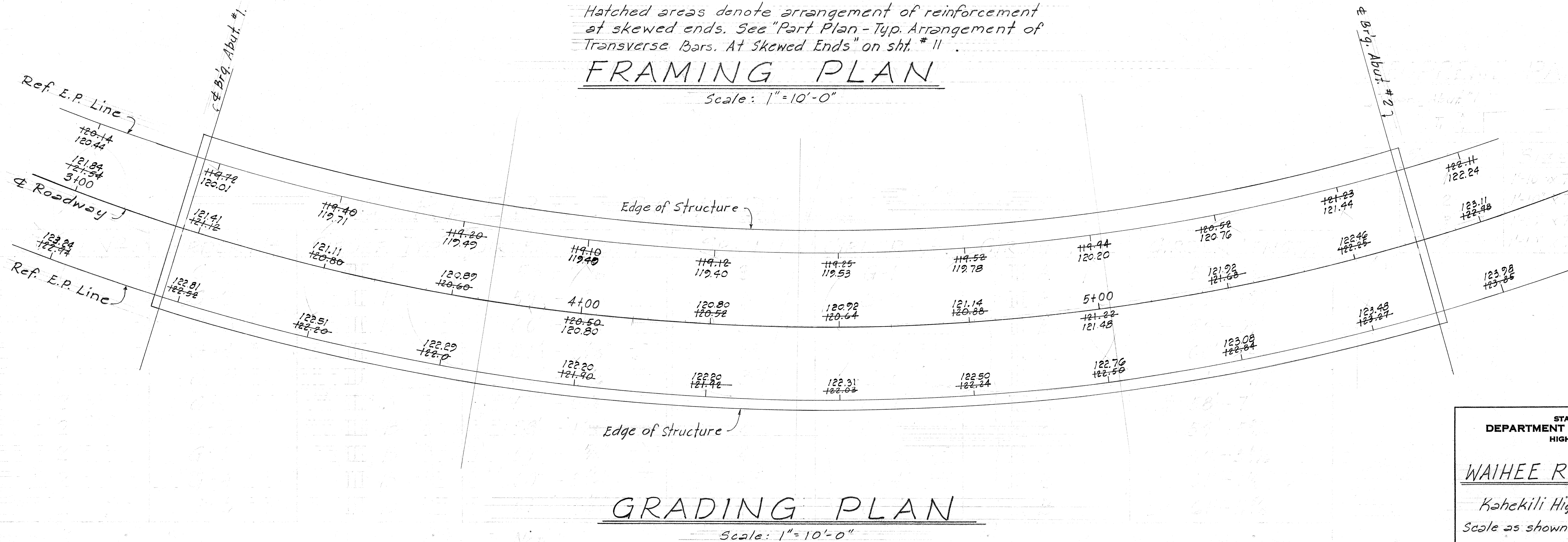
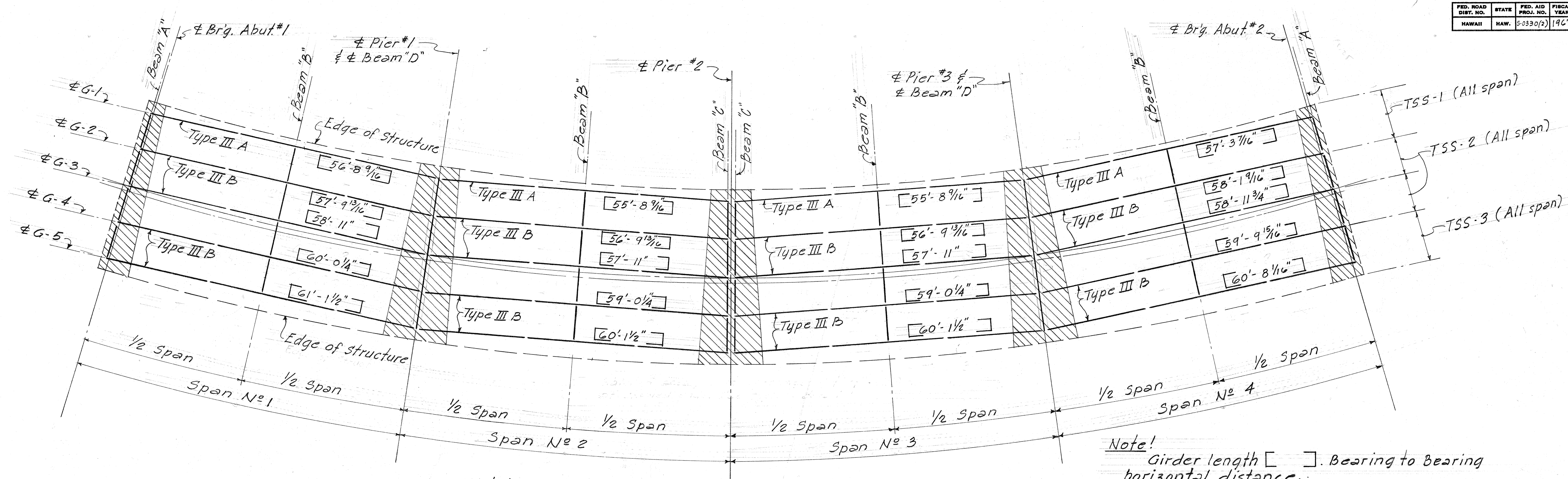
TYPICAL SECTION BEAM "D" Scale: 1"=1'-0"



TYPICAL BEAM "D" DETAIL Scale: 3/4"=1'-0"

TYPICAL TRANSVERSE BEAM "C" PLAN H 12/12 Scale: 3/4"=1'-0"





ORIGINAL PLAN  
DATE 5/66  
DESIGNED BY H. KIDO  
CHECKED BY H. K. L. A. # 100.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**WAIHEE RIVER BRIDGE**

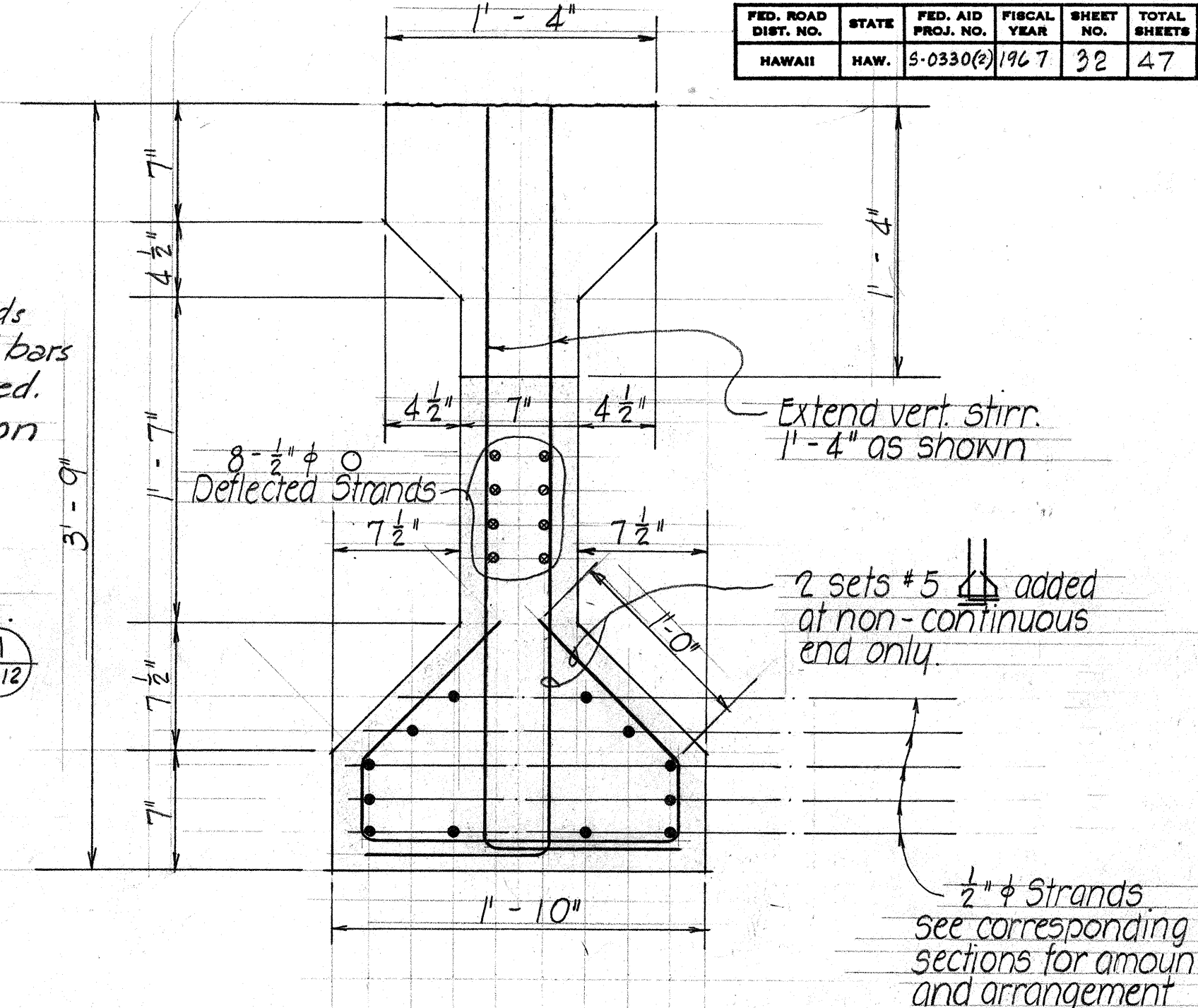
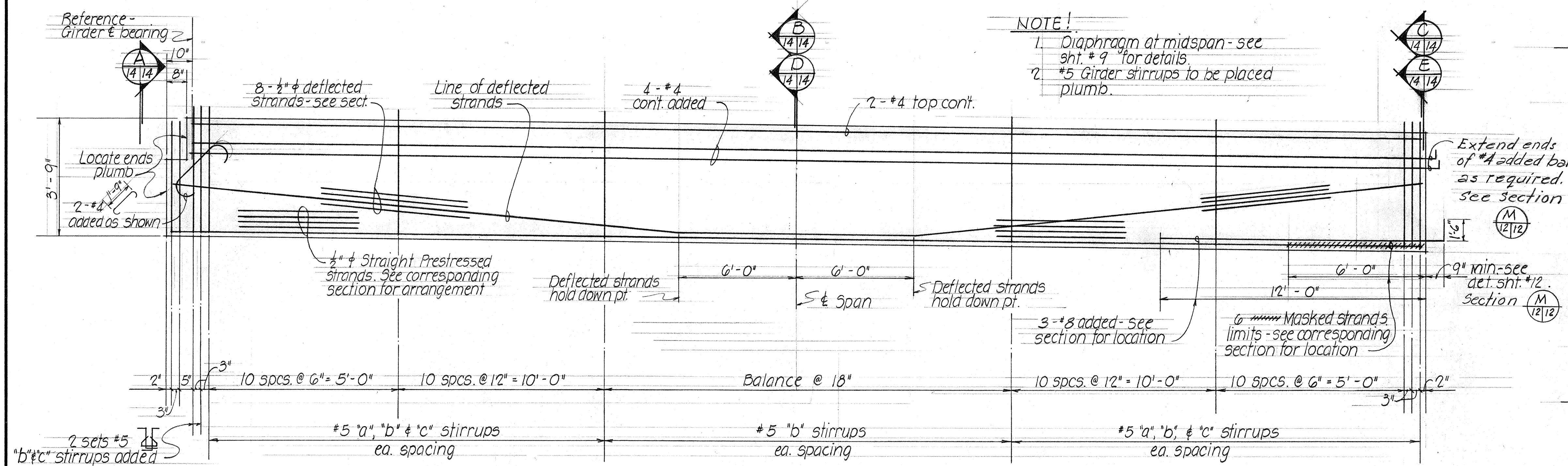
Kahekili Highway — Maui

Scale as shown Proj. No. 5-0330(2)

May, 1966

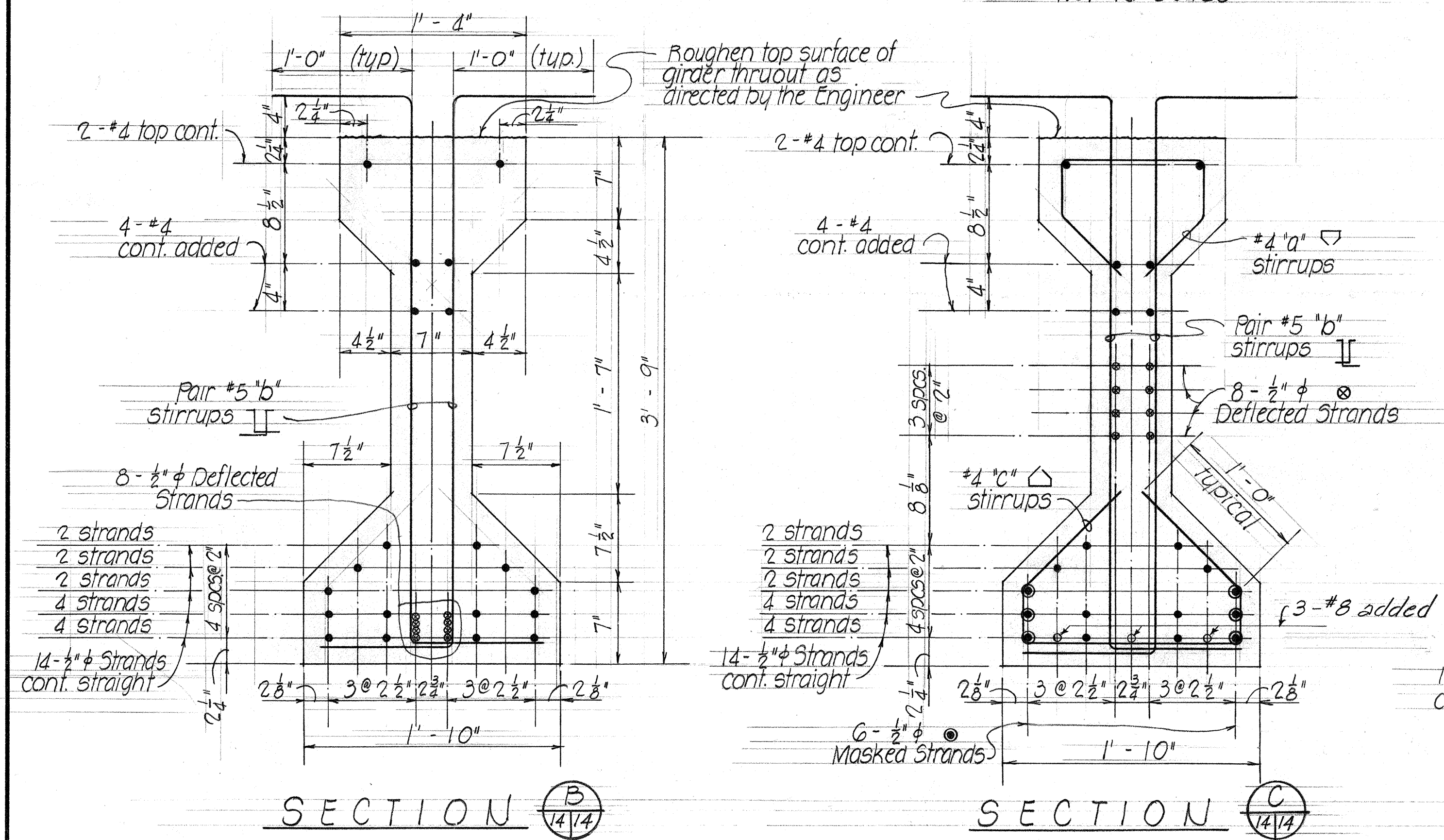
SHEET No. 13 OF 15 SHEETS



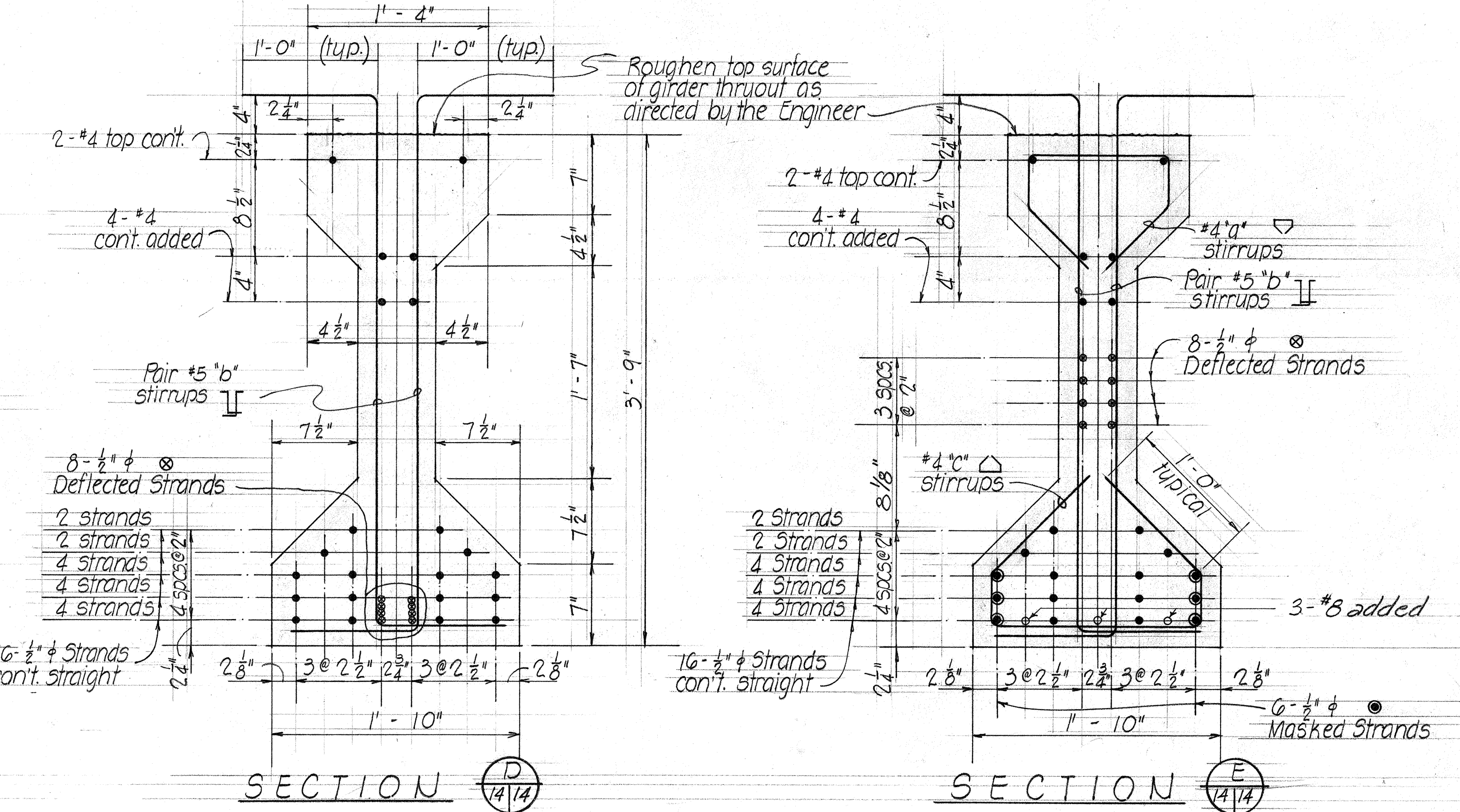


**TYPICAL TYPE III-A & III-B GIRDER DETAIL**  
NOT TO SCALE

**TYPICAL SECTION**  
SCALE: 1 1/2" = 1'-0"



**SECTION B**  
**SECTION C**  
**TYPICAL TYPE III-A GIRDER SECTIONS**  
SCALE: 1 1/2" = 1'-0"



**SECTION D**  
**SECTION E**  
**TYPICAL TYPE III-B GIRDER SECTIONS**  
SCALE: 1 1/2" = 1'-0"

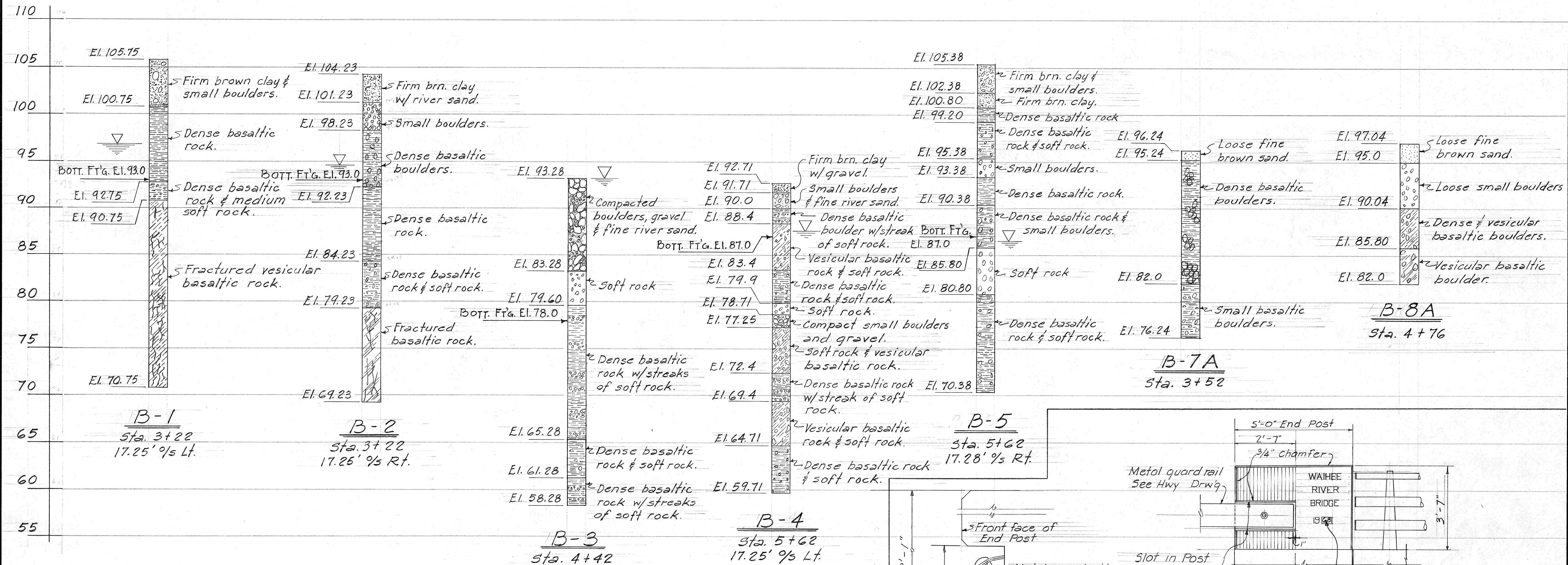
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**WAIHEE RIVER BRIDGE**

Kahekili Highway — Maui  
Scale as shown Proj. No. 5-0330(2)  
May, 1966

DATE: 5/26/66  
DRAWN BY: J. F. KID  
CHECKED BY: J. F. KID  
NOTE BOOK: No.





Note! For boring location, see "Layout Plan" on sht. #1.

# BORING LOG

Scale: 1" = 5'

## DROP PANEL SCHEDULE @ 4 BEARINGS

| GIRDER | SPAN#1 | SPAN#2 | SPAN#3   | SPAN #4  |
|--------|--------|--------|----------|----------|
| G-1    | 2 1/2" | 2 1/8" | 2 15/16" | 3 1/4"   |
| G-2    | "      | "      | 2 7/8"   | 2 3/4"   |
| G-3    | "      | "      | 2 9/16"  | 2 1/4"   |
| G-4    | "      | "      | 2 3/8"   | 1 11/16" |
| G-5    | "      | "      | 2 1/8"   | 1 3/16"  |

