

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-07B-1(7)	1971	253	302

DESIGN NOTES

DESIGN SPECIFICATIONS AASHO

Standard Specifications for Highway Bridges (10th Edition) with subsequent Interim Specifications.

DESIGN LOADS: HS-20-44 or Interstate loading

DESIGN STRESSES:

1. R.C. beams & slabs - See AASHO Specifications and Special Provisions except as otherwise noted.

Class A	Class E
$f'_c = 3,000 \text{ psi}$	$4,500 \text{ psi}$
$f_c = 1,200 \text{ psi}$	$1,800 \text{ psi}$
$n = 10$	8
$f_s = \text{ASTM A615, see Special Provisions}$	

2. Prestressed Girders

$f'_c = 5,500 \text{ psi}$ | $\frac{1}{2}$ " dia. 7 wire strands
 $f_{ct} = 4,000 \text{ psi}$ | Tensioning load = 25,200 lbs. per strand
Design load = 20,160 lbs. per strand.
Forms must be removed and the beams inspected before the strands are cut.

3. Pile Capacity - See corresponding bridge detail drawings.

GENERAL NOTES

MATERIALS:

1. All concrete shall be class A except as otherwise noted on plans. Concrete for prestressed concrete girders see Standard Specifications and as noted under Design Stresses
2. Preformed fabric bridge bearing pads are incidental to concrete and will not be paid for separately.
3. See Special Provisions for admixture in concrete.
4. All piles to be prestressed concrete piles Type I- see Standard Det. Sht. Nos. DB-300-1, DB-300-2

CONSTRUCTION METHODS:

1. See Standard Specifications and Special Provisions
2. For Concrete finish see Special Provisions. Concrete seats and creep blocks to be poured monolithically with pier. Top surfaces of conc. seats to have hard trowel finish.
3. See details for additional surface finish.
4. In general, top & edge of concrete deck of superstructure shall be constructed to follow the finish roadway vertical & horizontal curves and grades.

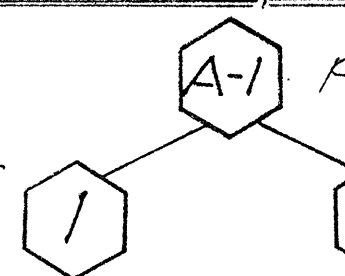
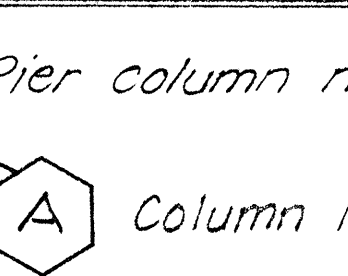
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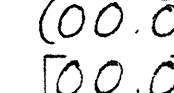
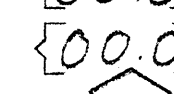
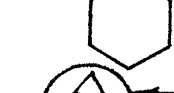
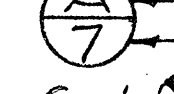
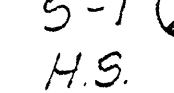
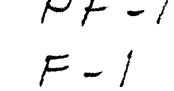
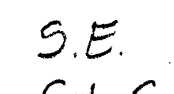
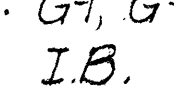
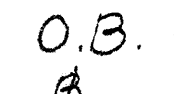
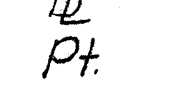
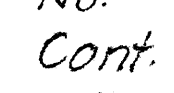
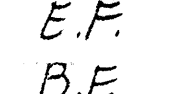
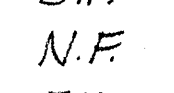
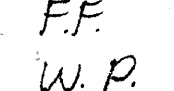
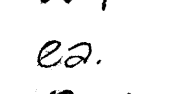
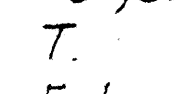
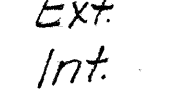
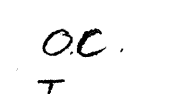
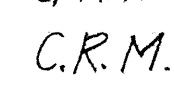
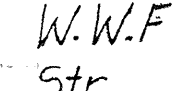
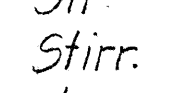
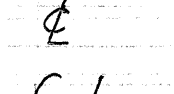
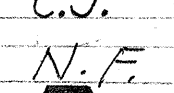
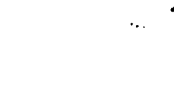
1. Refer to Standard Detailed Drawings for additional details not covered by detailed plans.
2. Typical Details drawing sheet Nos. T-1 thru T-6 inclusive refers to all bridge structures except for modification as may be required by special conditions. For such modifications see corresponding detailed plans.

GENERAL:

1. Additional structural fill where indicated on detailed drawings shall be incidental to structural excavation, roadway excavation, or imported borrow.
2. All items noted incidental will not be paid for separately.
3. Exact locations of all test piles and load test piles to be determined in the field by the Engineer.
Drive test piles indicated on plan for length determination.
Test piles shall be driven before casting balance of piles.

SYMBOLS & ABBREVIATION

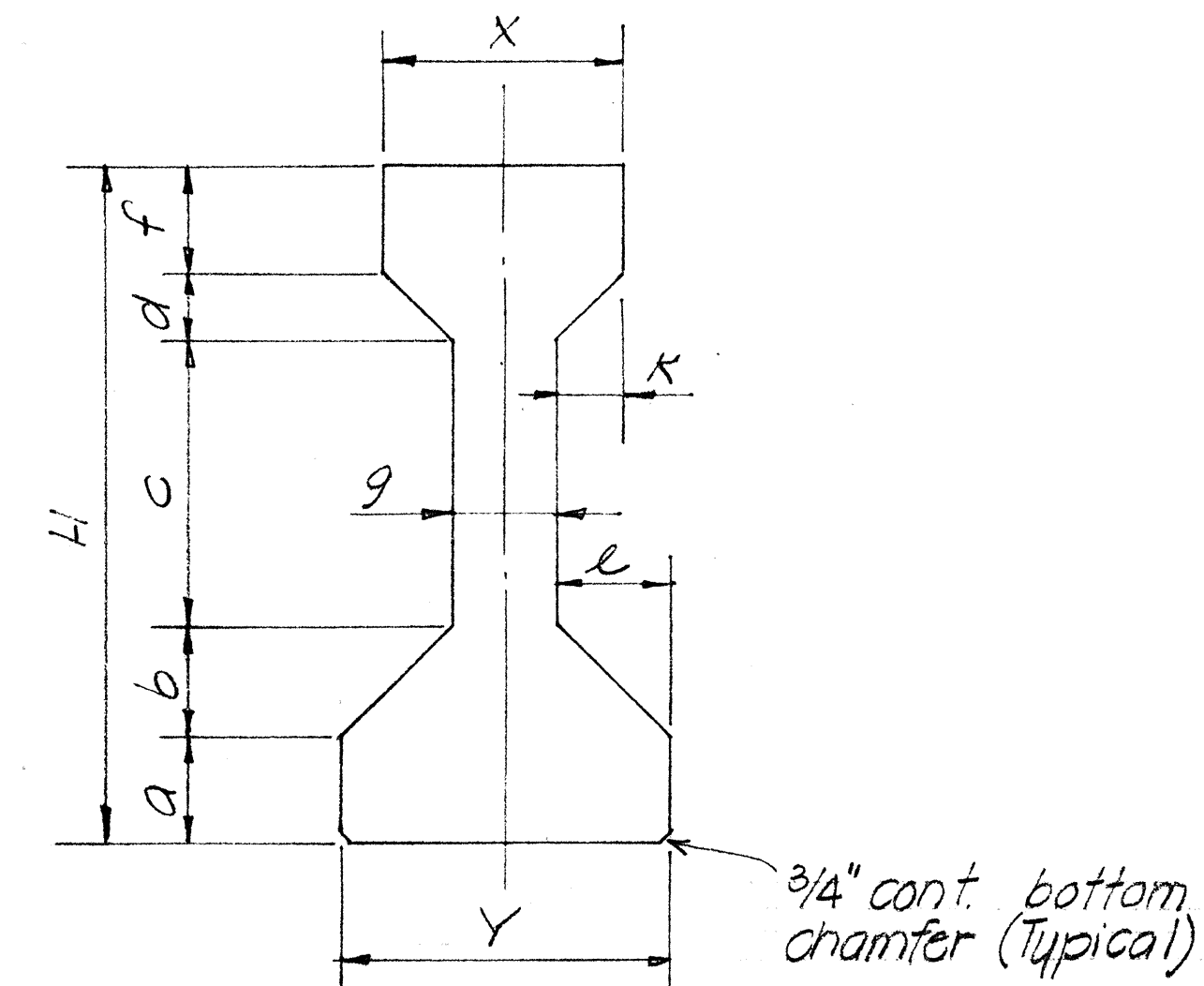
Location pier line number  Pier column number  Column line alphabet

 Location concrete seat line number
 -Bottom footing elevation
 -Pile cut-off elevation
 -Pile tip elevation
 -Type I pile
 Section Designation
 Sht. number detail is drawn on
 S-1 -Boring number and designation
 H.S. -High Strength reinf. bars ASTM designation A-432 Billet Steel.
 PF-18 -Pile Footing type
 F-1 -Spread Footing type
 S.E. -Superelevation
 G-1, G-2 -Girder numbers.
 I.B. -Inbound
 O.B. -Outbound
 B. -Baseline
 Pt. -Point
 Exp. -Expansion
 No. -Number
 Cont. -Continuous
 E.F. -Each Face
 B.F. -Both Face
 N.F. -Near Face
 F.F. -Far Face
 W.P. -Working Point
 ea. -each
 Bal. -Balance
 Bot, Bott -Bottom
 T. -Top
 Ext. -Exterior
 Int. -Interior
 oc. -on center
 Typ. -Typical
 G.R.P. -Grouted Rubble Paving
 C.R.M. -Cement Rubble Masonry
 W.W.F. -Welded Wire Fabric
 Str. -Straight
 Stirr. -Stirrup
 & -Centerline
 C.J. -Control Joint
 N.F. -North Frontage.
 T.P. - Test Pile.
 Load Test Pile

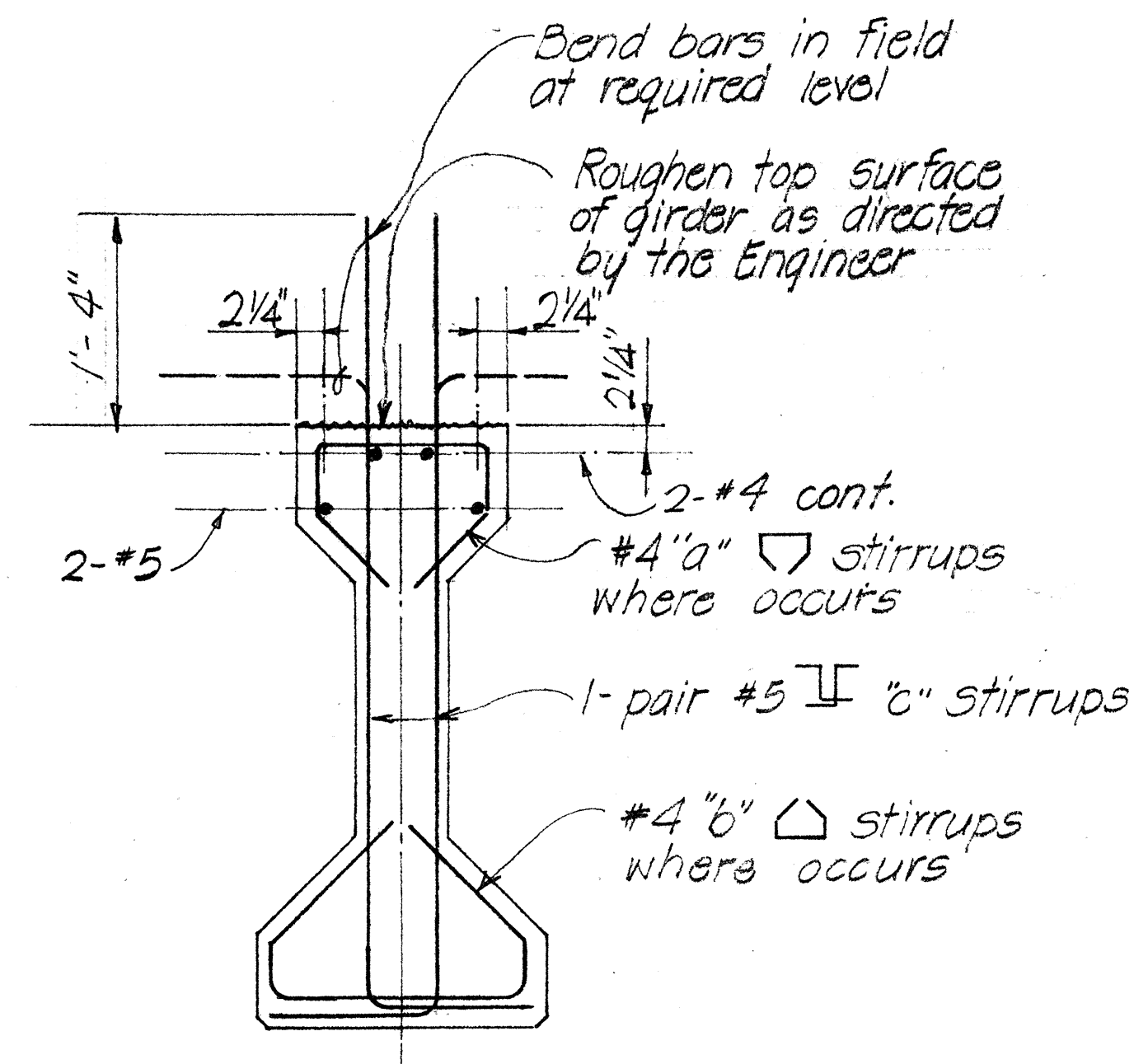
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
NOTES AND ABBREVIATIONS
LAKESIDE SEPARATION STRUCTURES No.1 & No.2
MOANALUA STREAM BRIDGE
Moanalua Road
Aug., 1970
F-07B-1(7)
SHEET No. T-1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(7)	1971	254	302

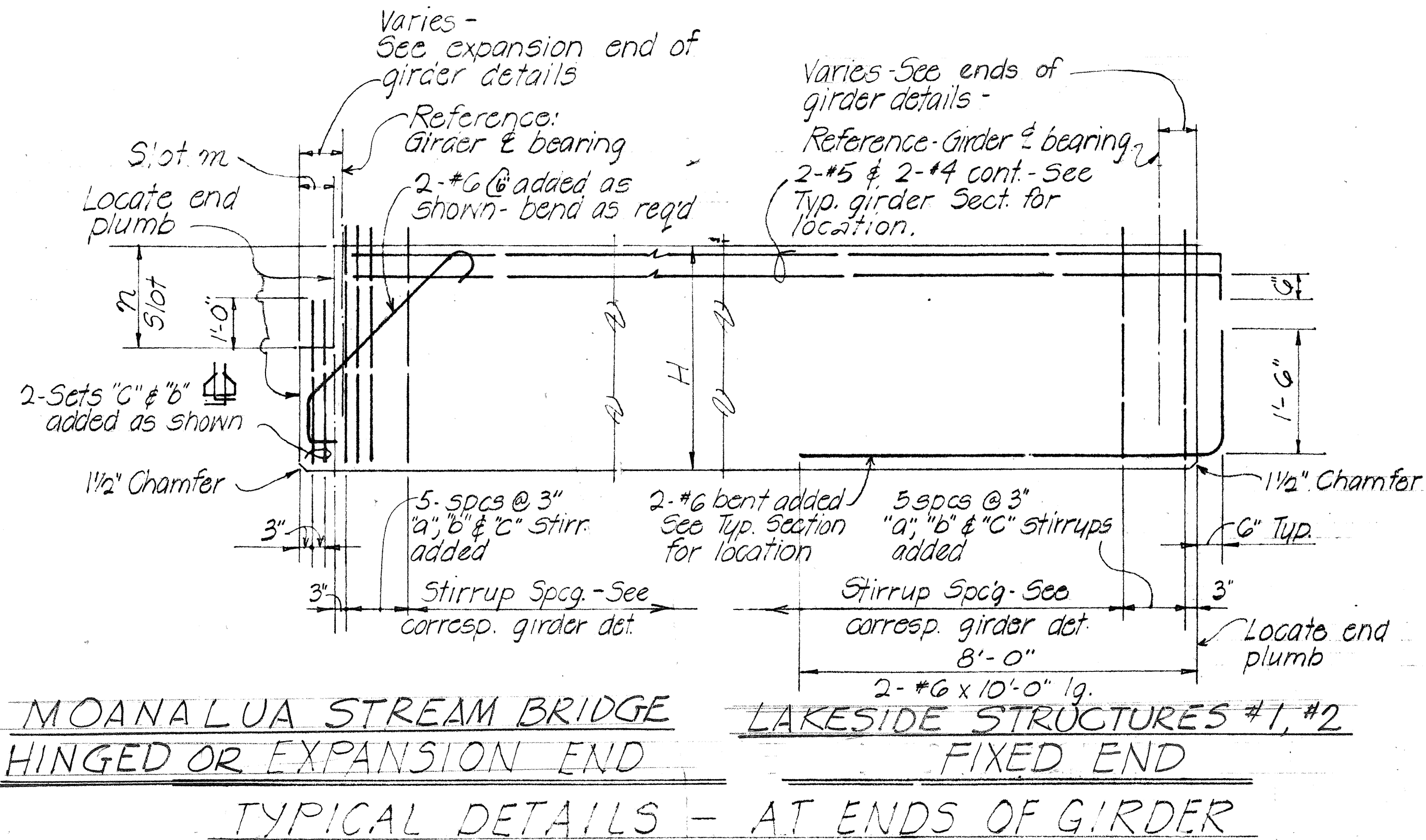
AASHO-PCI STANDARD BRIDGE GIRDER DIMENSION																
GIRDER TYPE	H	X	Y	a	b	c	d	e	f	g	J	K	L	m	n	
I	2'-4"	1'-0"	1'-4"	5"	5"	11"	3"	—	4"	6"	—	3"	5"			
II	3'-0"	1'-0"	1'-6"	6"	6"	1'-3"	3"	—	6"	6"	—	3"	6"			
III	3'-9"	1'-4"	1'-10"	7"	7 1/2"	1'-7"	4 1/2"	—	7"	7"	—	4 1/2"	7 1/2"			
IV	4'-6"	1'-8"	2'-2"	8"	8"	1'-11"	6"	—	8"	8"	—	6"	9"			



TYPE I THRU TYPE IV



TYPE I THRU TYPE IV
TYPICAL SECTION PRESTRESSED CONC GIRDERS



MOANALUA STREAM BRIDGE
HINGED OR EXPANSION END
LAKESIDE STRUCTURES #1, #2
FIXED END
TYPICAL DETAILS - AT ENDS OF GIRDER

GENERAL NOTES

For design stresses refer to sheet # T-1 and corresponding girder detail drawings.

Forms must be removed and the beams inspected before the strands are cut.
For additional holes and inserts in prestressed girders for beam connections, refer to corresponding beam details.
For additional prestressed girder details not covered by these drawings refer to corresponding Detail plans.

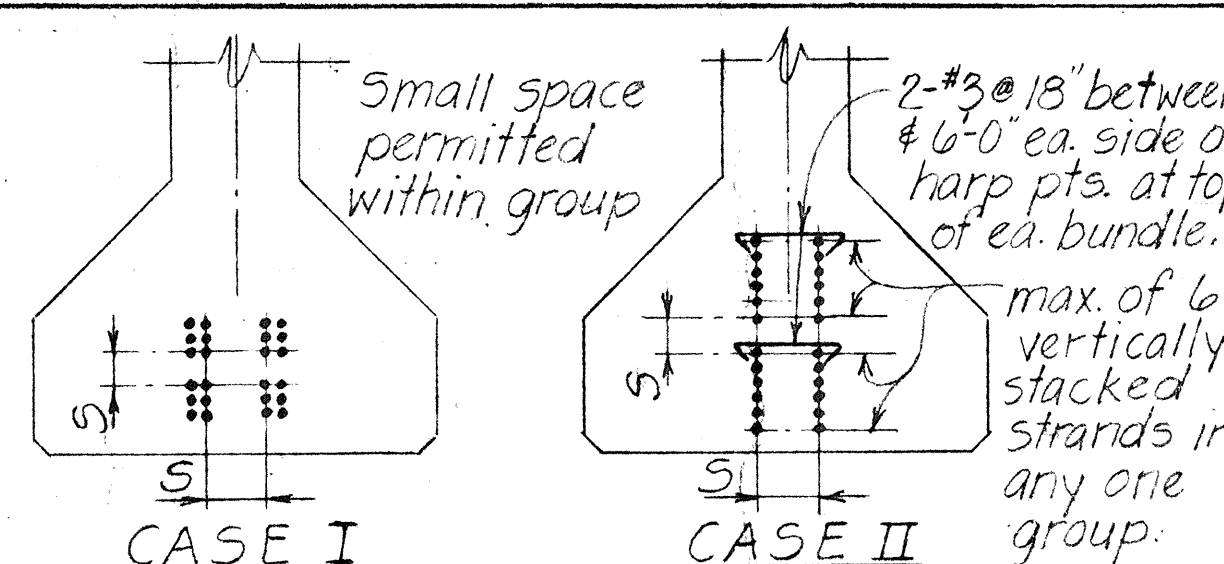
BUNDLING OF PRESTRESSING REINFORCEMENT

ARRANGEMENT AND CLEARANCE FOR POST TENSIONED UNITS

- Horizontal clearance between units equals 2" min.
- Units may be bundled vertically in groups of 3 maximum.
- Vertical clearance between bundled units equal 3" minimum.
- Approval of the Engineer is required for deviation.

ARRANGEMENT AND CLEARANCE FOR PRETENSIONED STRANDS

- Strands may be bundled in groups as shown.
- The minimum distance "S" between groups or individual strands is 2" for 1/2 inch strands.
- "S" is measured between centers of adjacent strands.



STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TYPICAL DETAILS

PRESTRESSED GIRDER

LAKESIDE SEPARATION STRUCTURES No.1 & No.2

MOANALUA STREAM BRIDGE

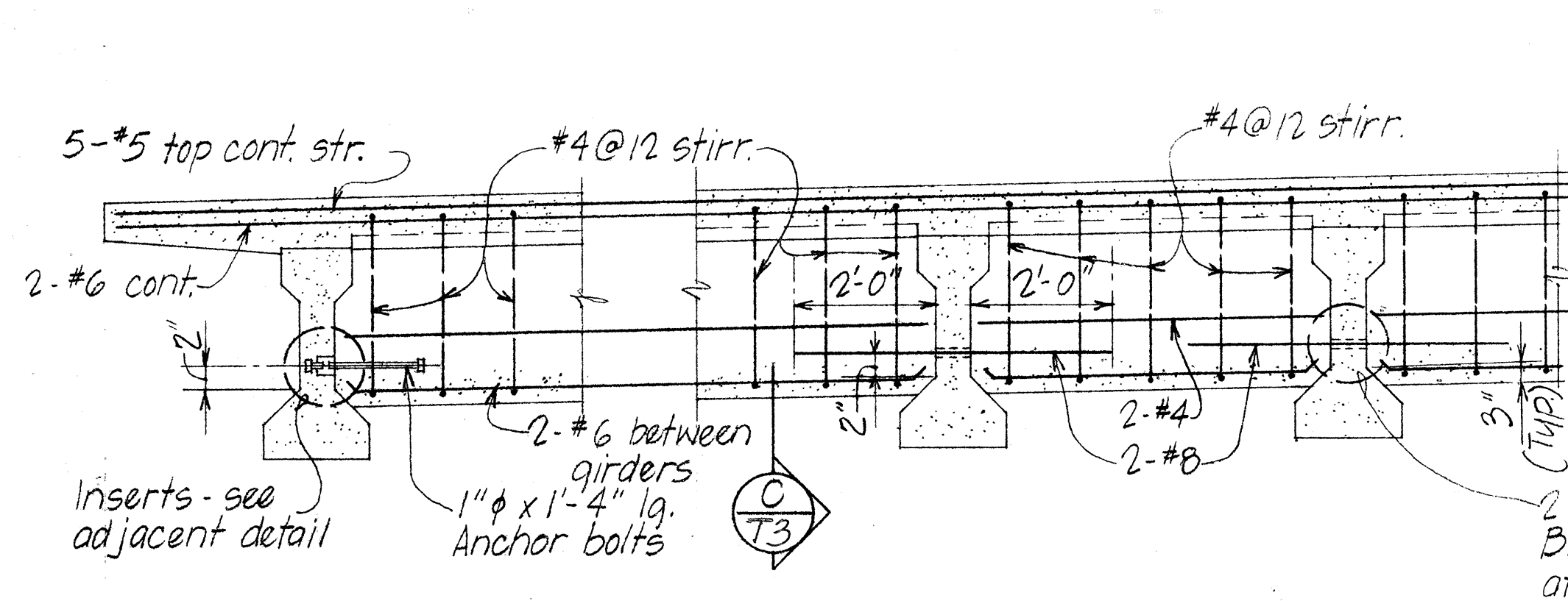
Moanalua Road

Aug, 1970

F-078-1(7)

SHEET No. T-2 OF 6 SHEETS

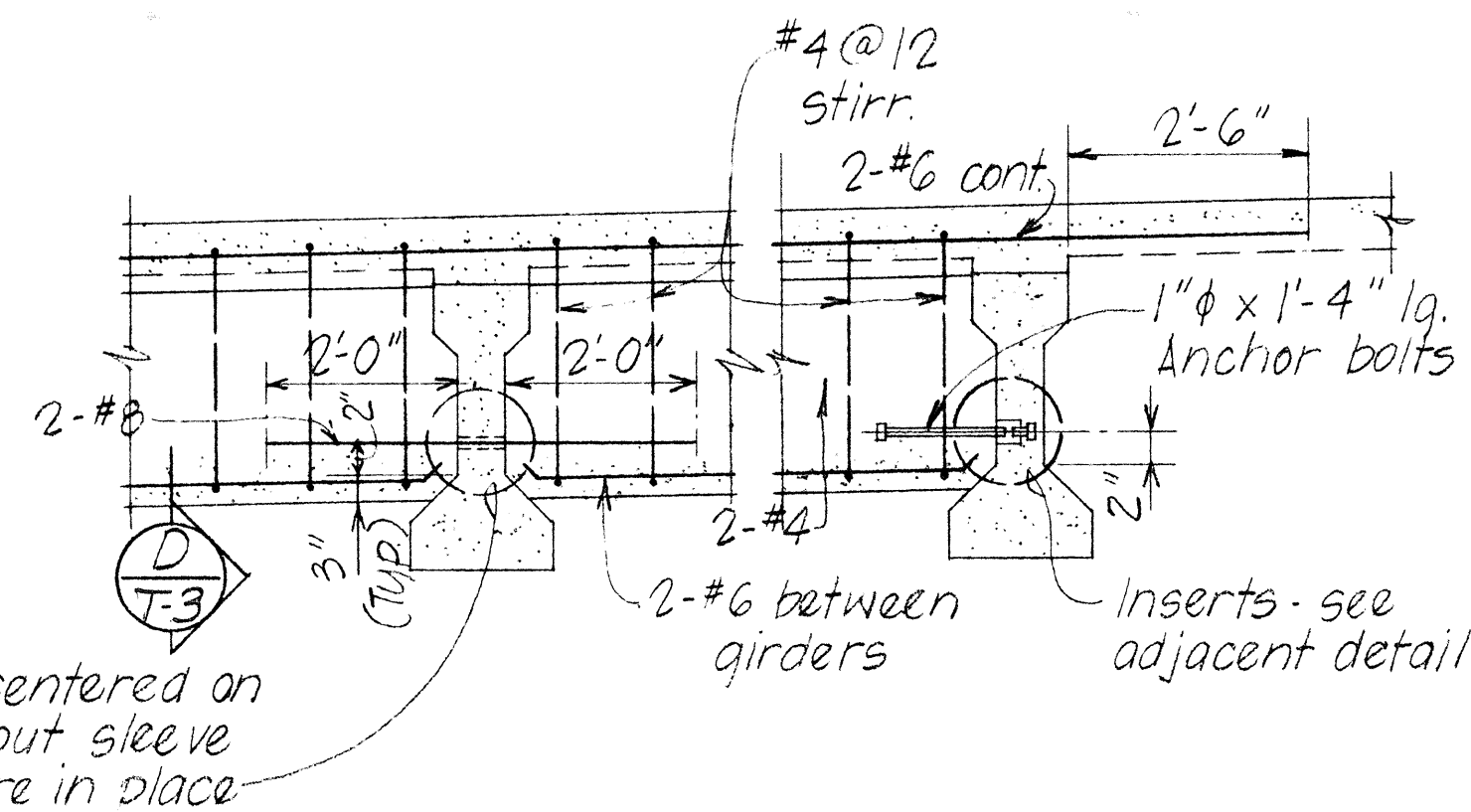
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(7)	1971	255	302



AT EXTERIOR GIRDERS

BETWEEN INTERIOR GIRDERS

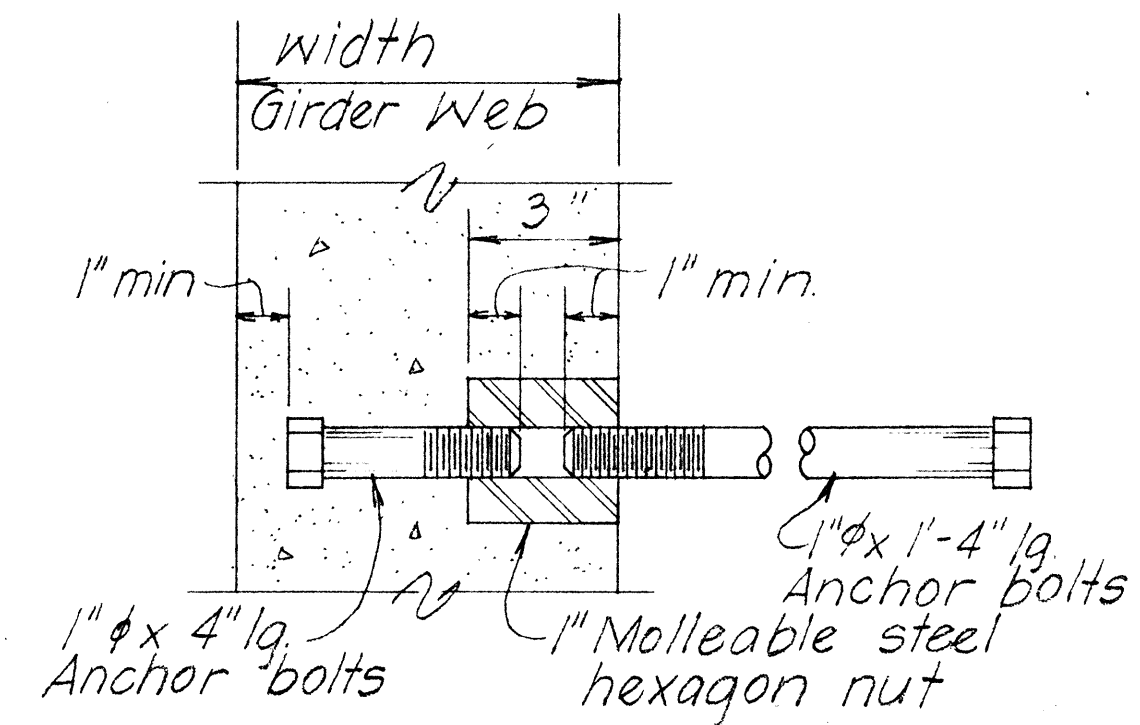
AT TYPE I or II GIRDERS



BETWEEN INTERIOR GIRDERS

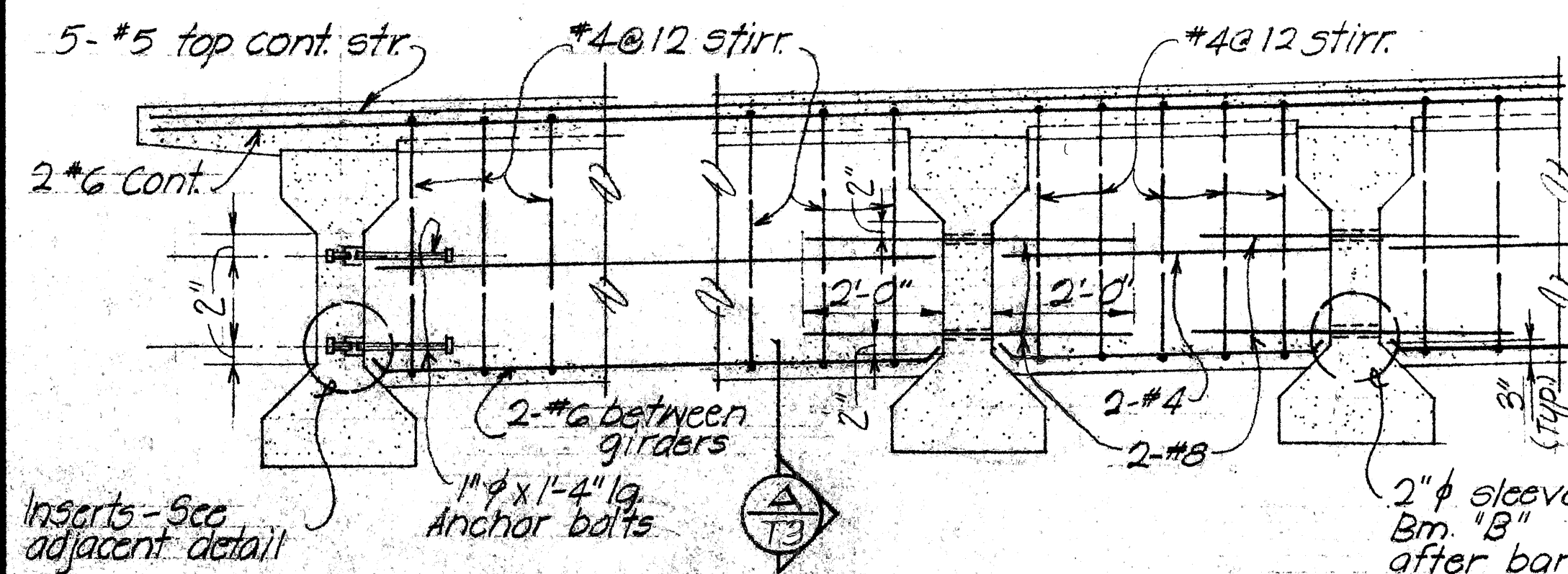
AT NON-CONT. END

AT TYPE I or II GIRDERS



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

Note: Anchor bolts & Inserts incidental to concrete and will not be paid for separately.

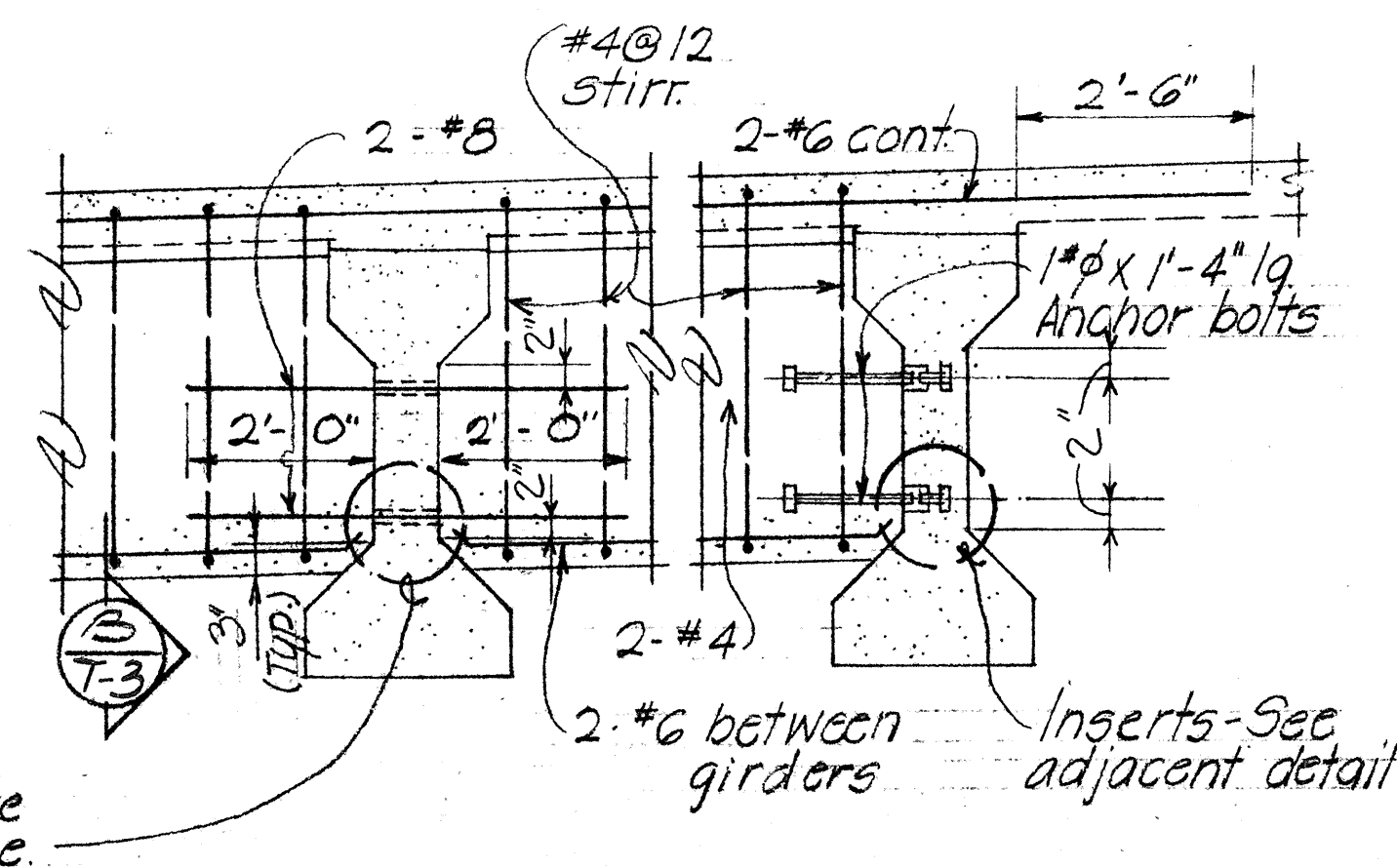


AT EXTERIOR GIRDERS

BETWEEN INTERIOR GIRDERS

AT TYPE III or IV GIRDERS

TYPICAL BEAM "B" DETAIL Scale: 1/2" = 1'-0"

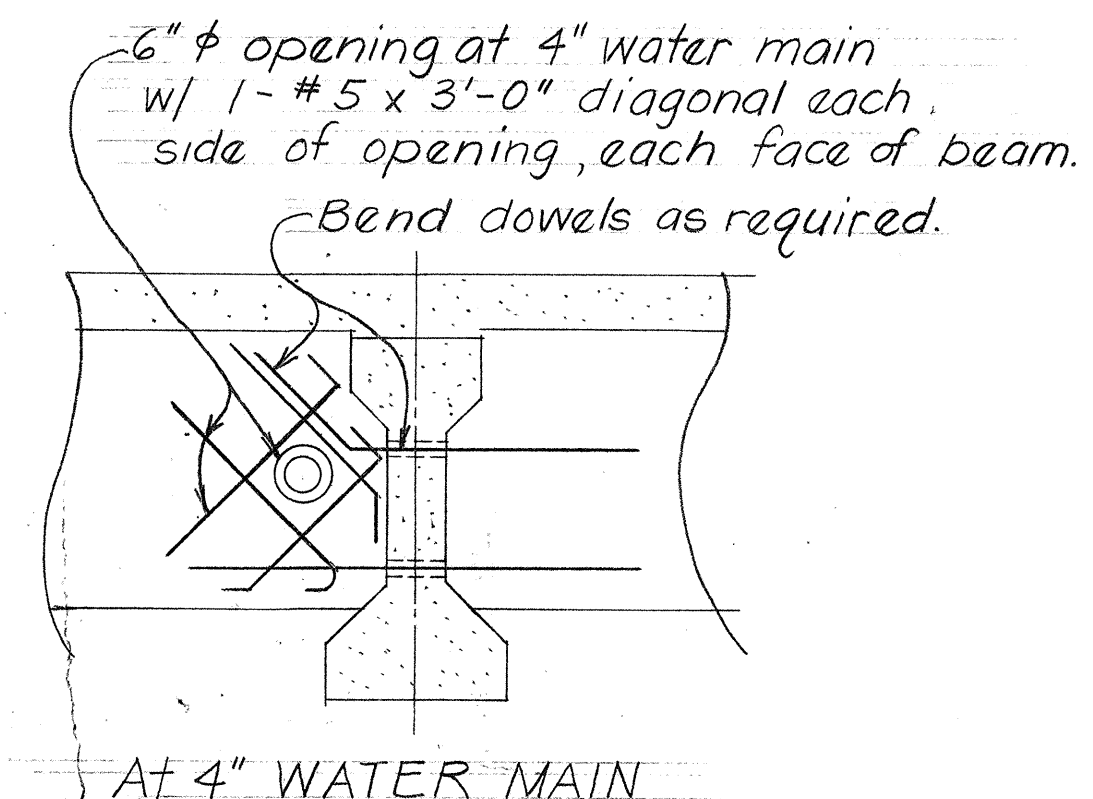


BETWEEN INTERIOR GIRDERS

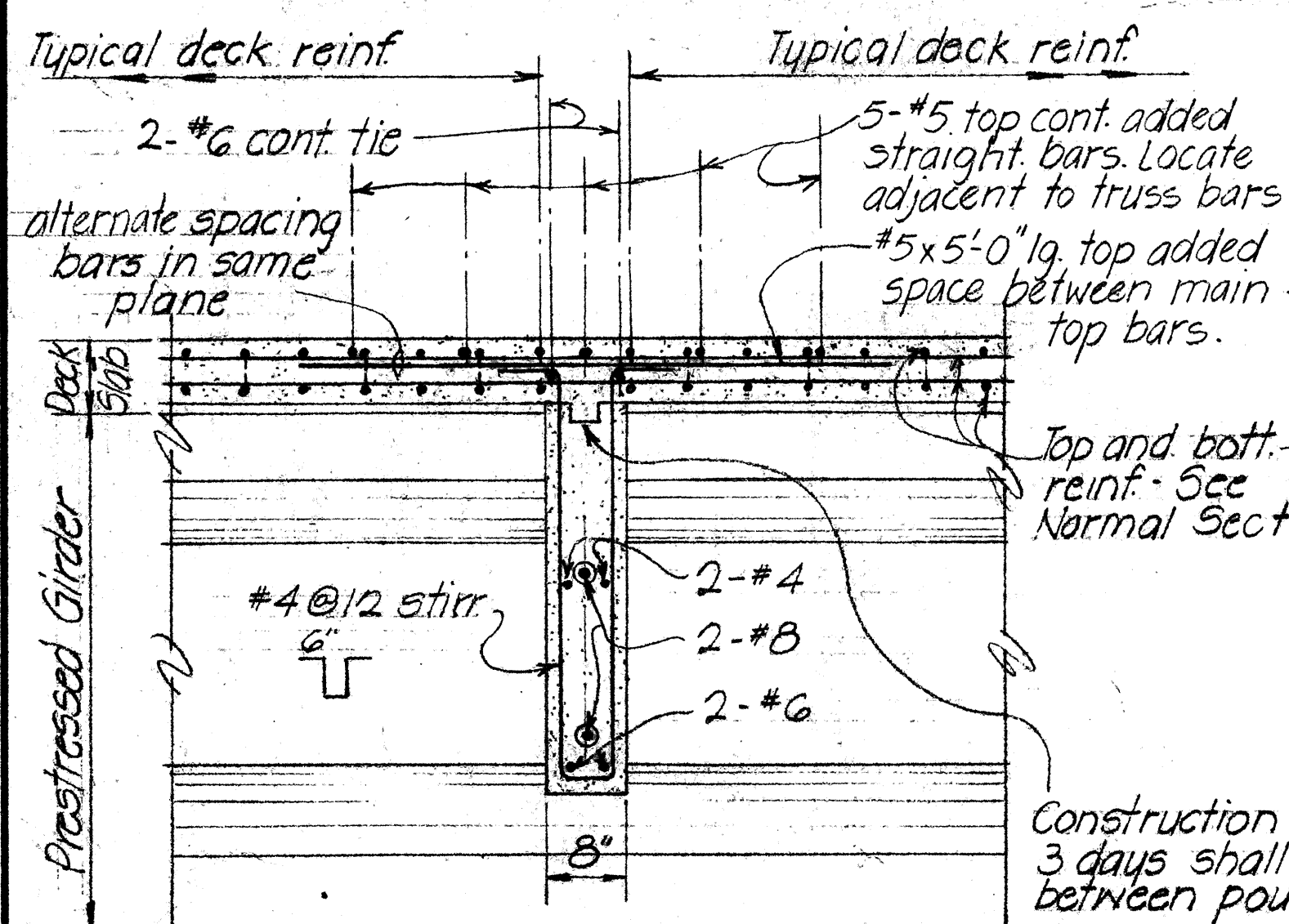
AT NON-CONT. ENDS

AT TYPE III or IV GIRDERS

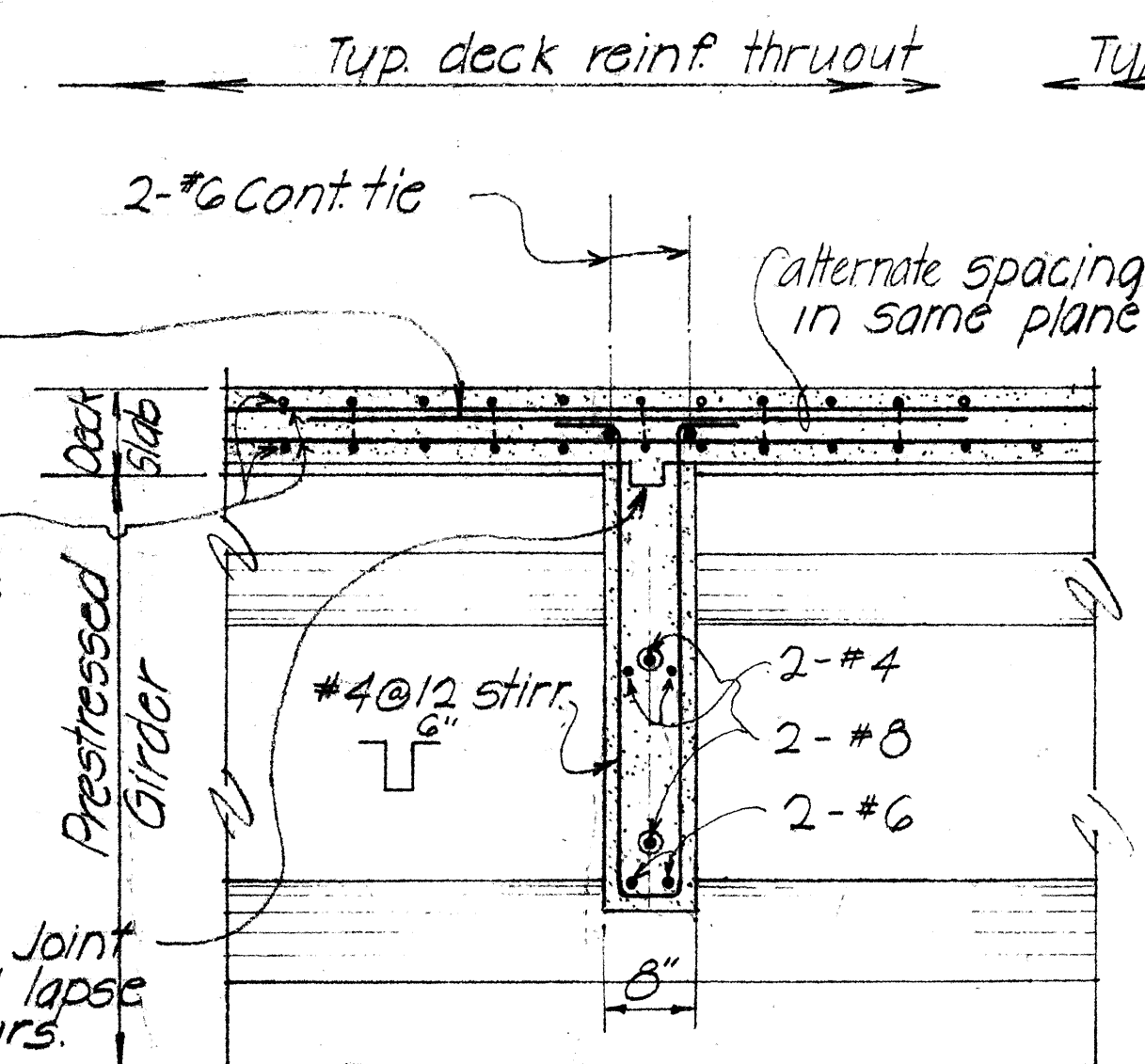
TYPICAL BEAM "Ba" DETAIL Scale: 1/2" = 1'-0"



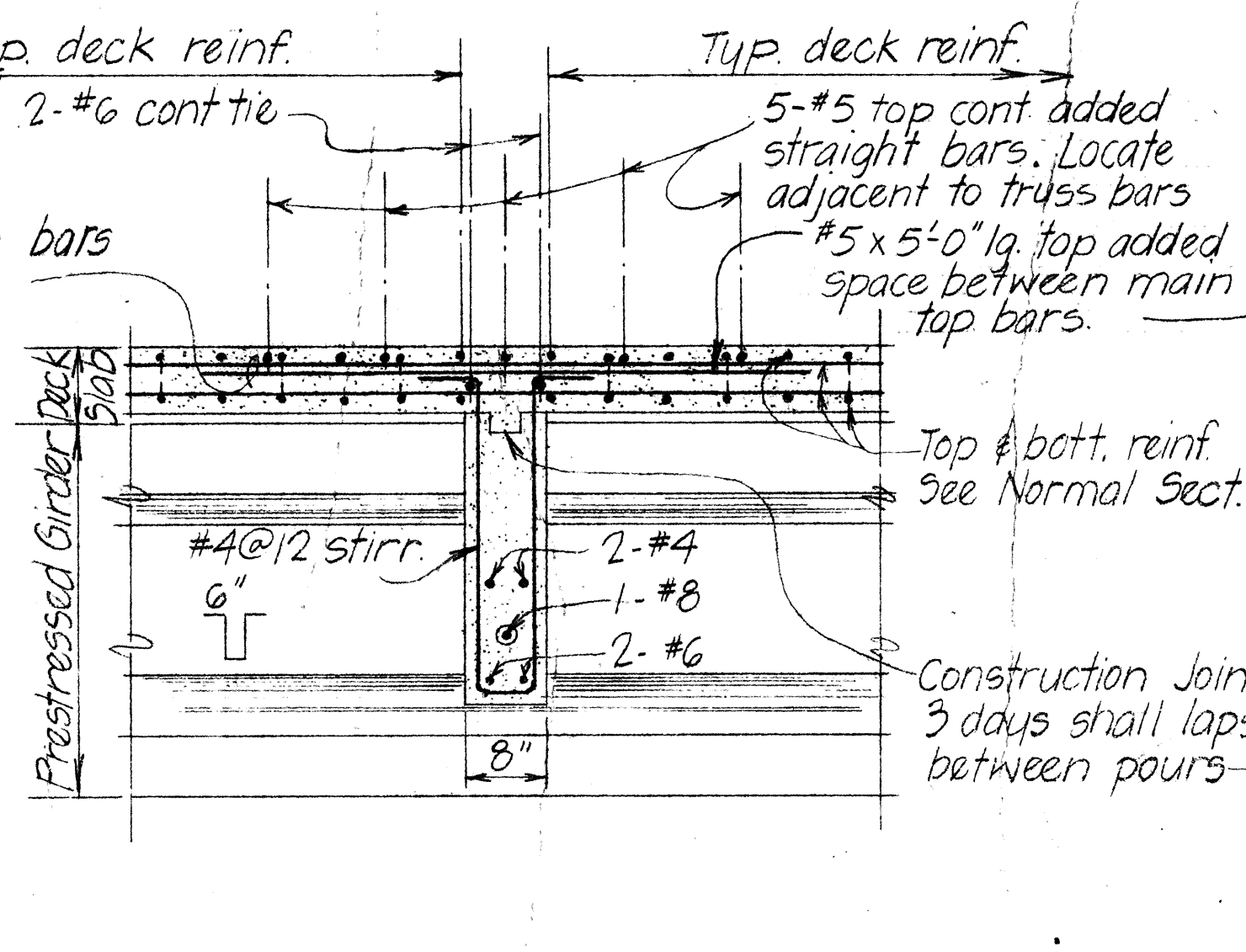
At 4" WATER MAIN



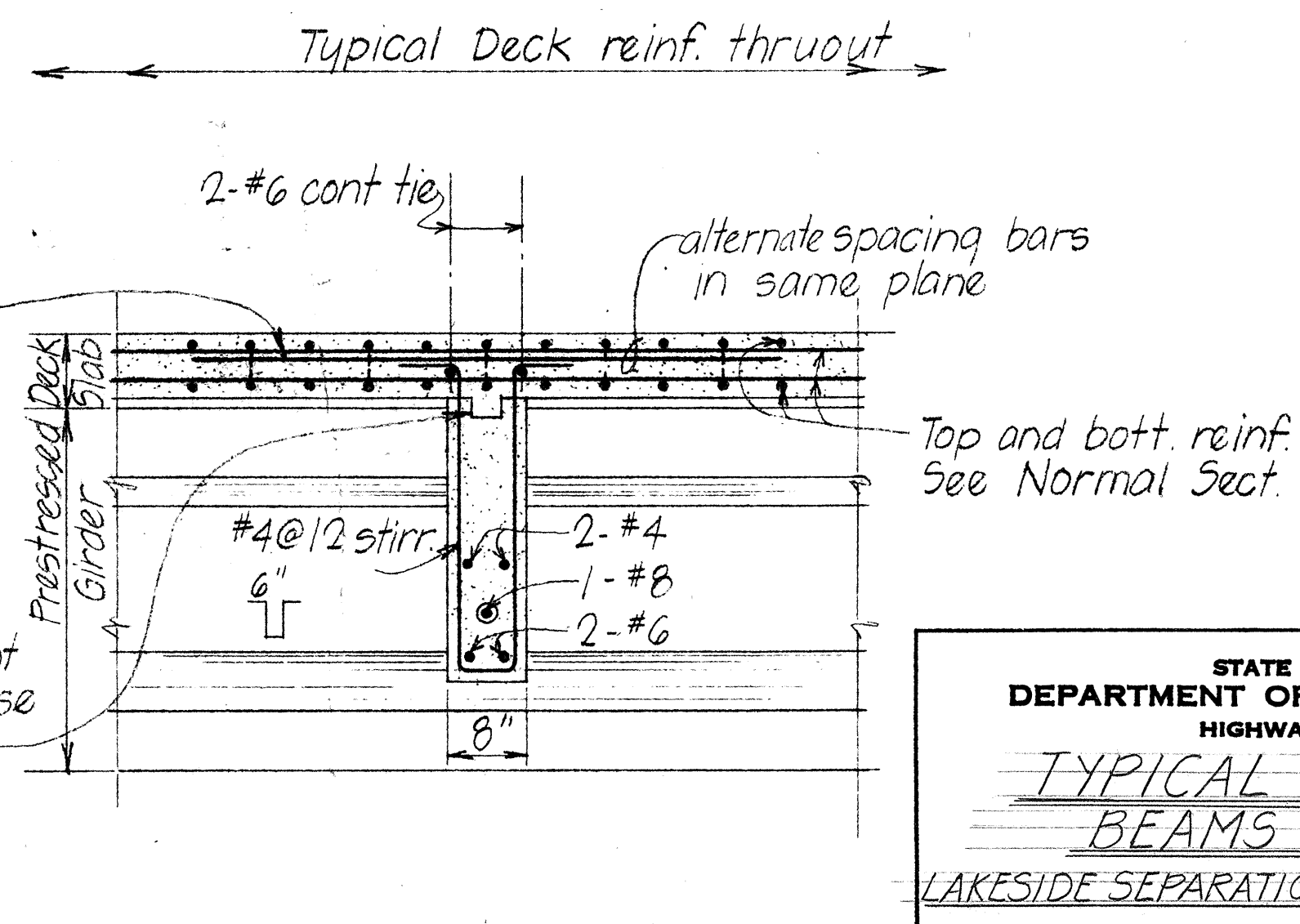
TYPICAL SECTION **A**
Scale: 3/4" = 1'-0"



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



TYPICAL SECTION **C**
Scale: 3/4" = 1'-0"



SECTION **D**
Scale: 3/4" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
BEAMS "B" & "Ba"

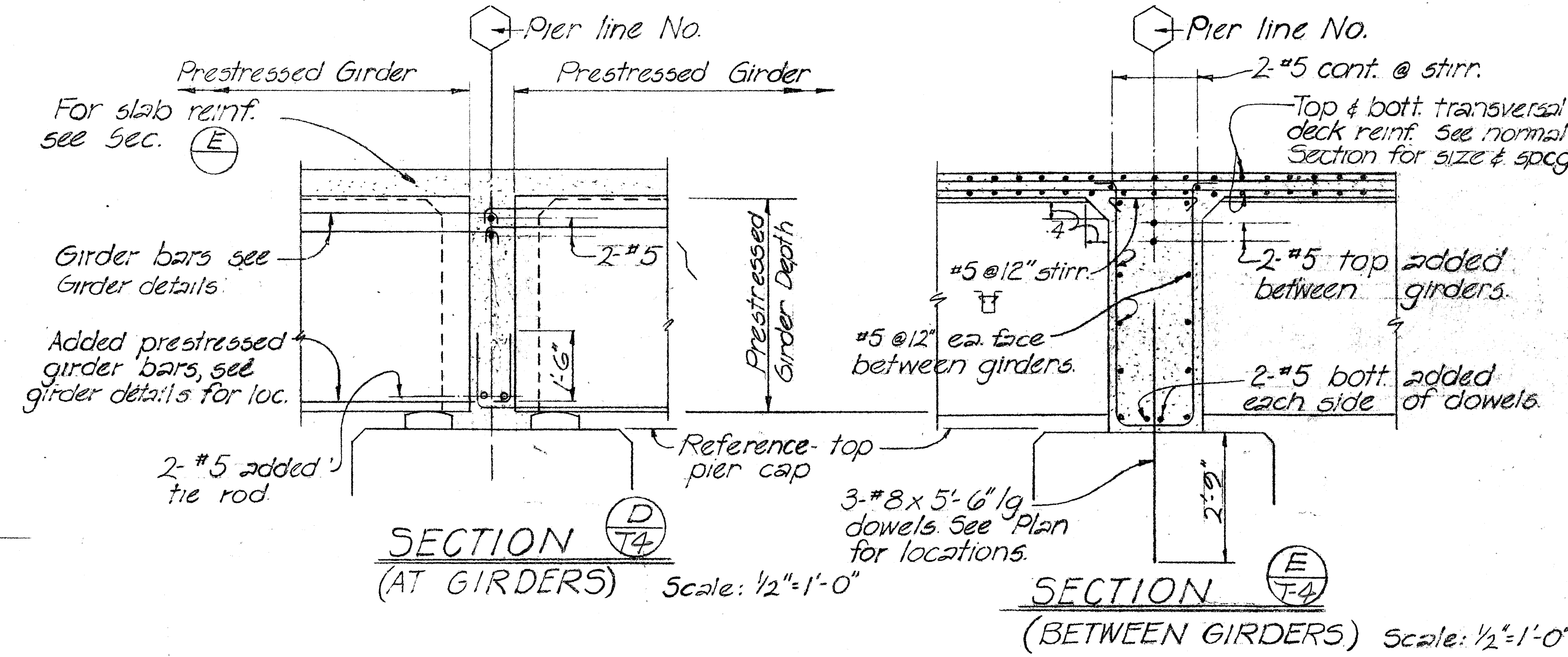
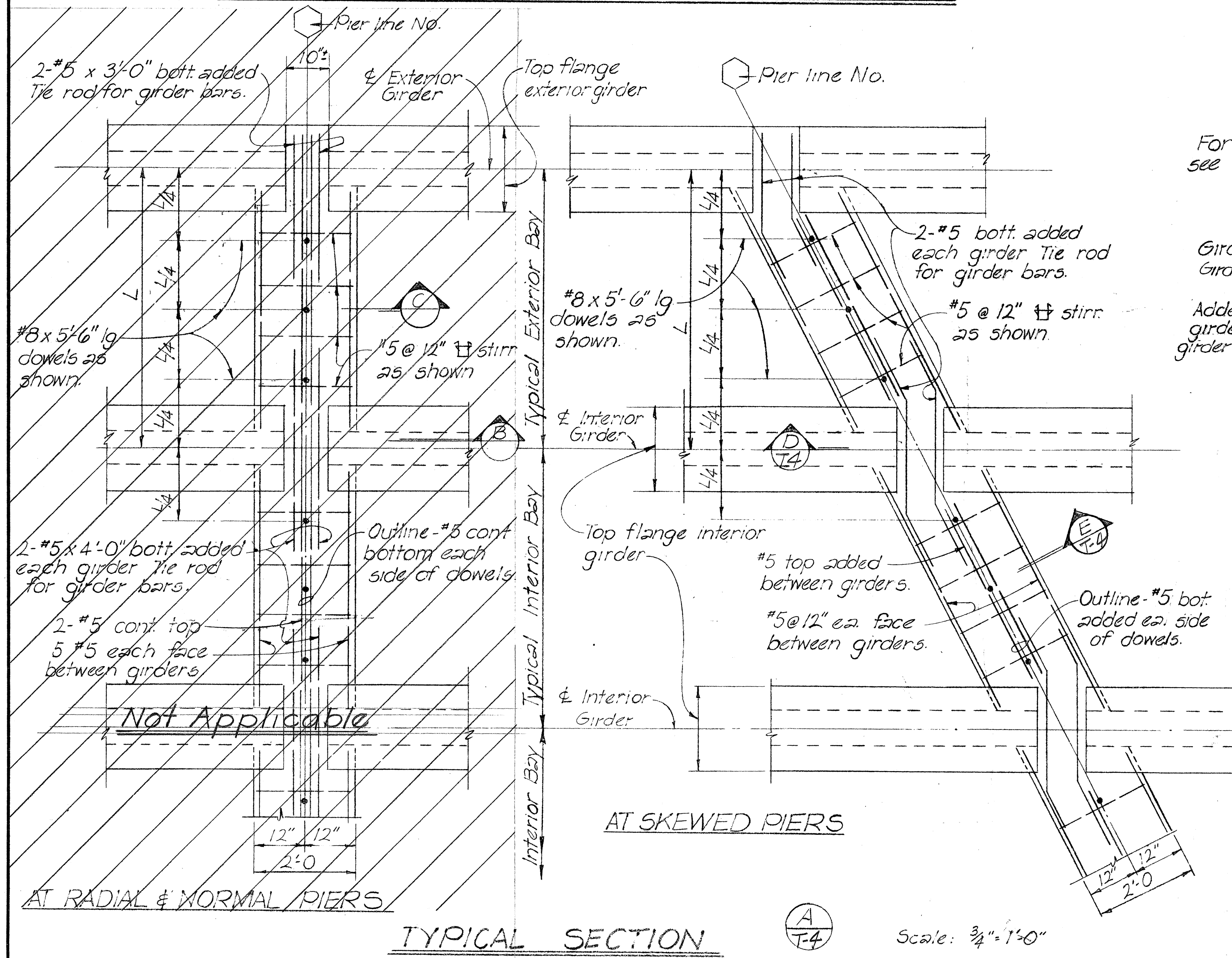
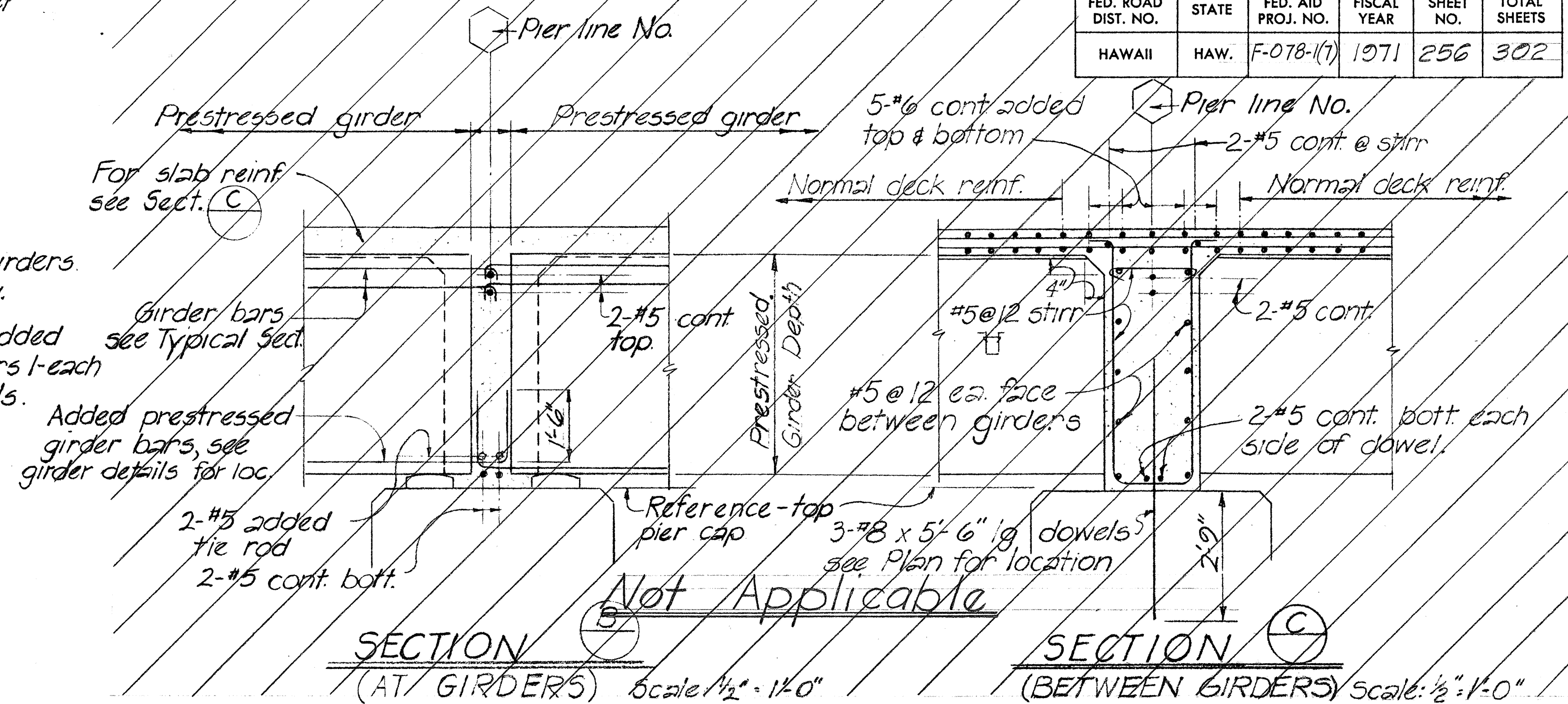
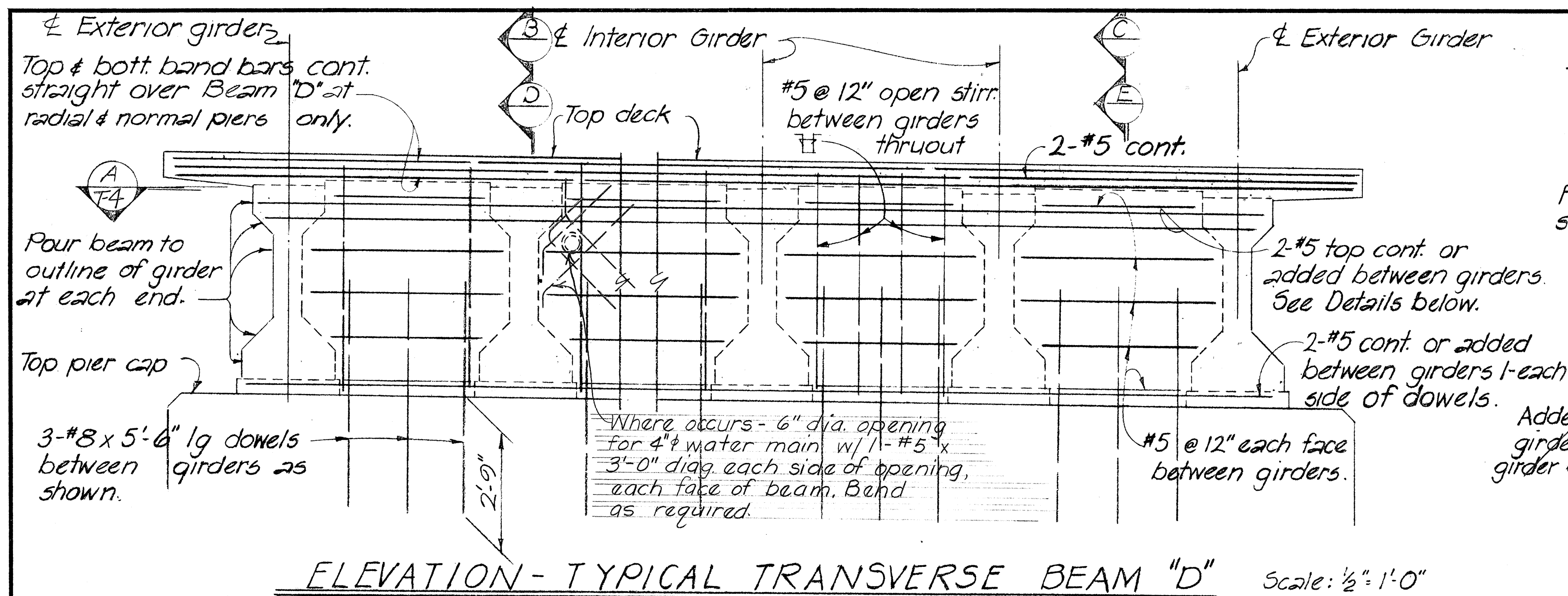
LAKESIDE SEPARATION STRUCTURES No. 1 & No. 2
MOANALUA STREAM BRIDGE

Moanalua Road
Aug. 1970

F-078-1(7)

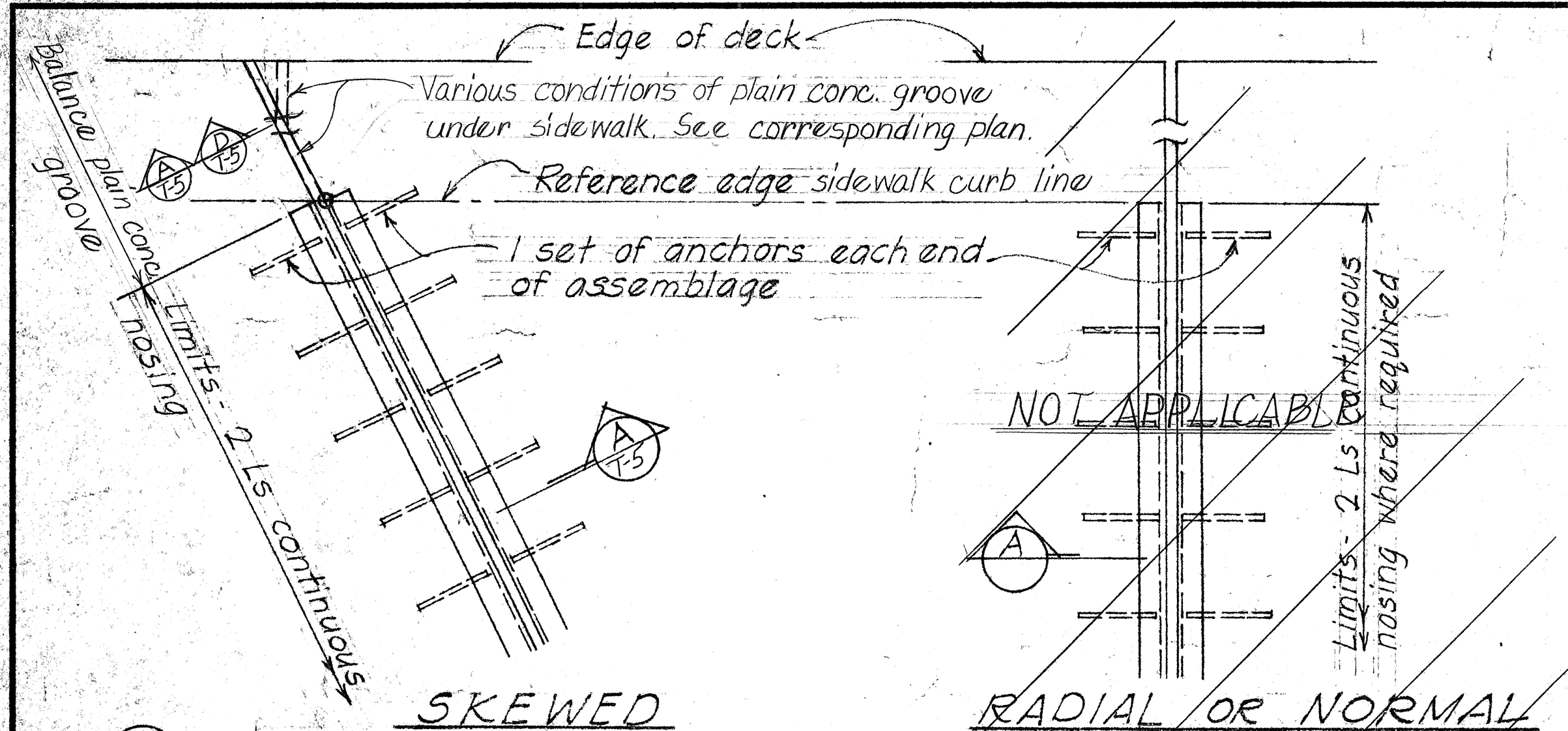
SHEET No. 7-3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(7)	1971	256	302



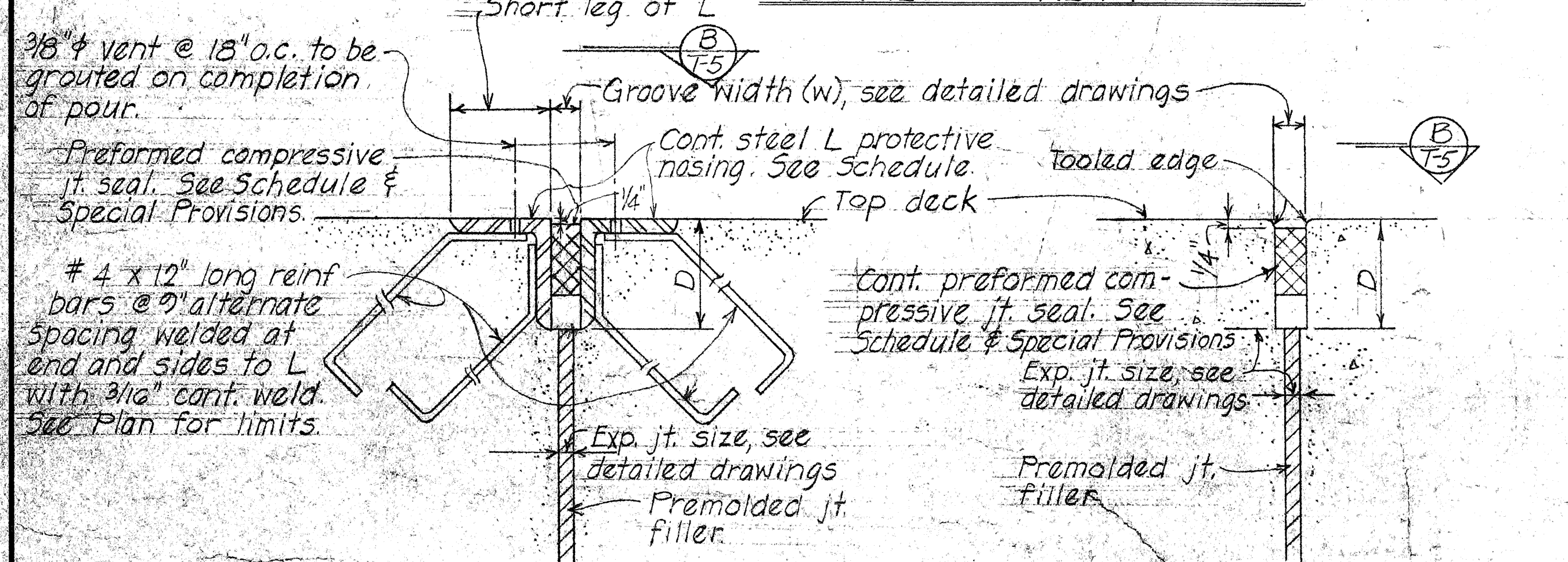
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TYPICAL DETAILS
BEAM "D"
 LAKESIDE SEPARATION STRUCTURES No. 1 & No. 2
 Moanalua Road
 Aug. 1970
 F-078-1(7)
 SHEET No. 7-4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(7)	1970	257	302



(B) PLAN TRANSVERSE DECK EXPANSION JOINT

MOANALUA STREAM BRIDGE



AT STEEL ANGLE PROTECTIVE NOSING

AT PLAIN CONCRETE GROOVE

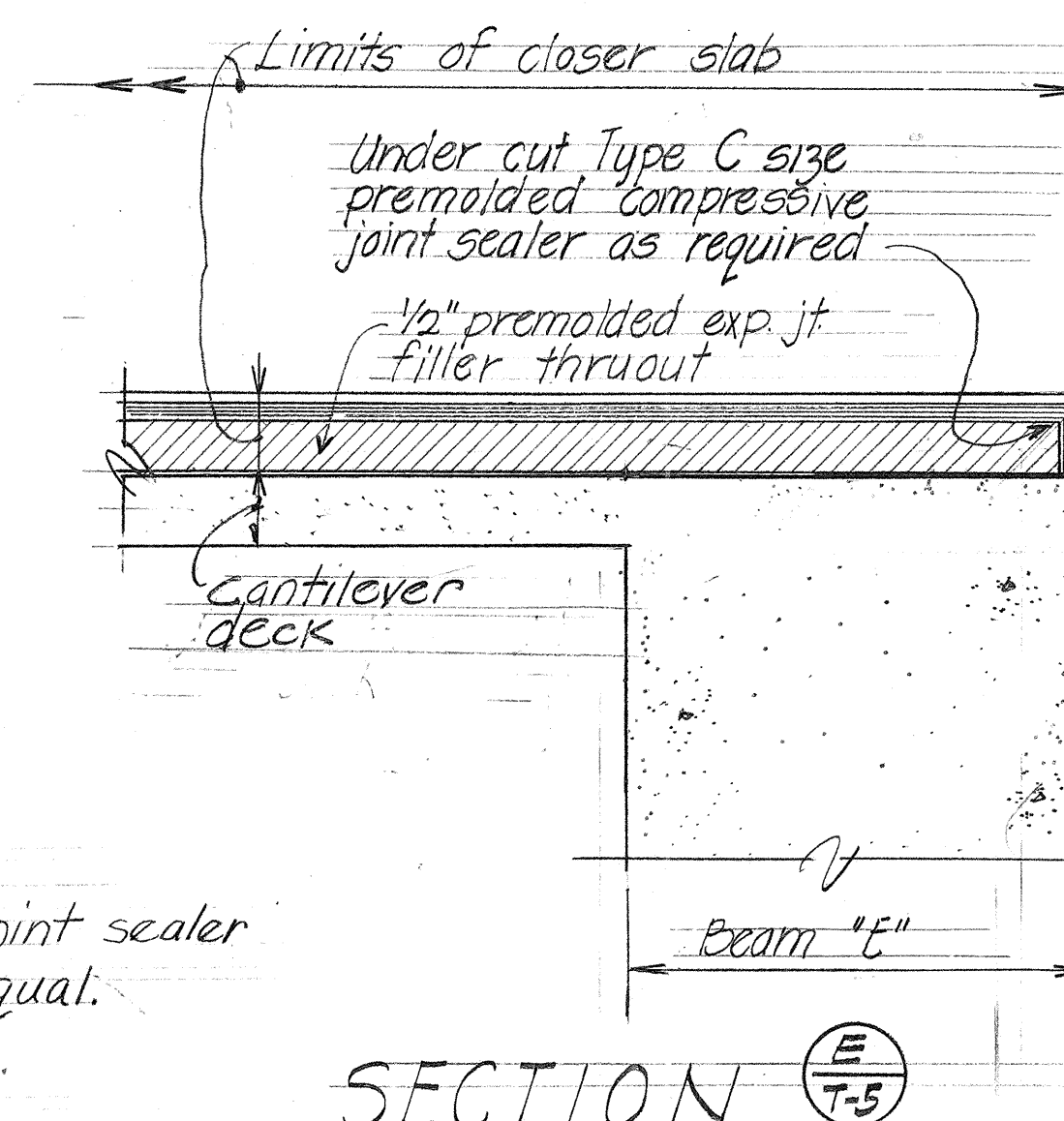
TYPICAL SECTION

Scale: 3" = 1'-0"

NOTE: At miter corner and cap ends of preformed concrete compressive joint sealer use ARON Alpha Adhesive or equal.

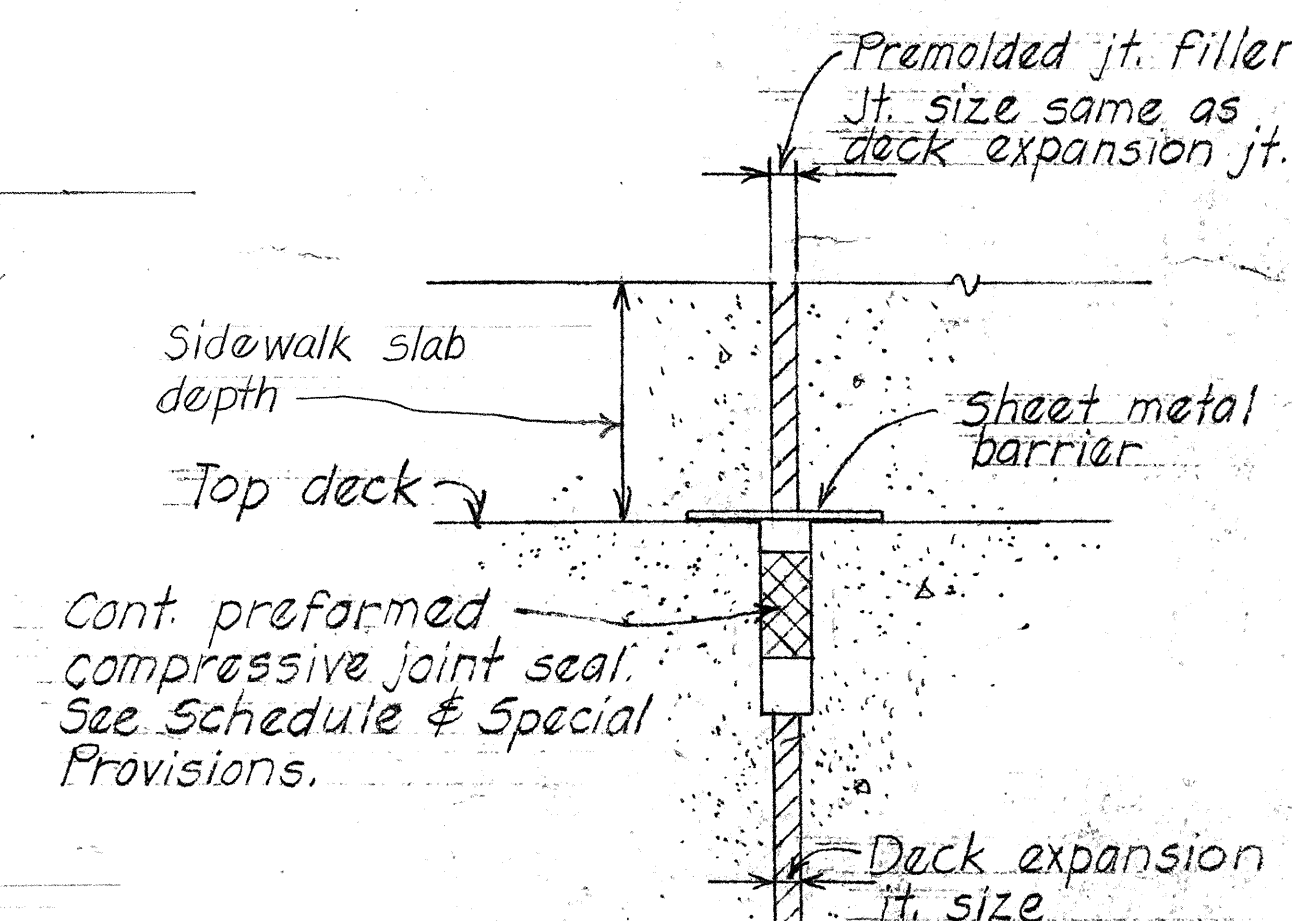
Steel angle protective nosing assembly to be hot dipped galvanized after fabrication.

Steel angle protective nosing assembly and joint sealer incidental to concrete and will not be paid for separately.



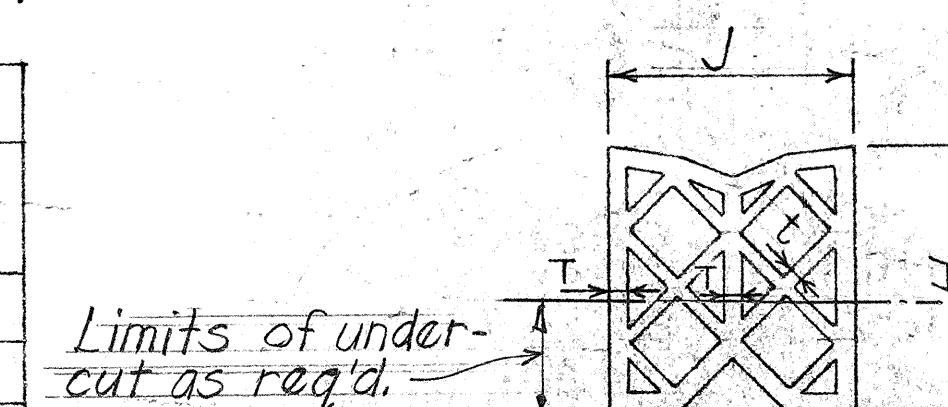
SECTION

Scale: 1" = 1'-0"

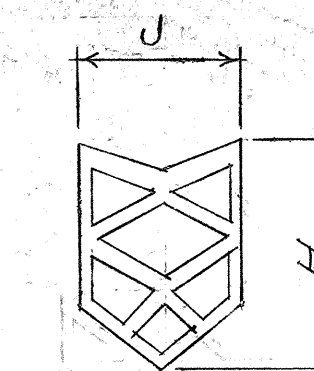


SECTION

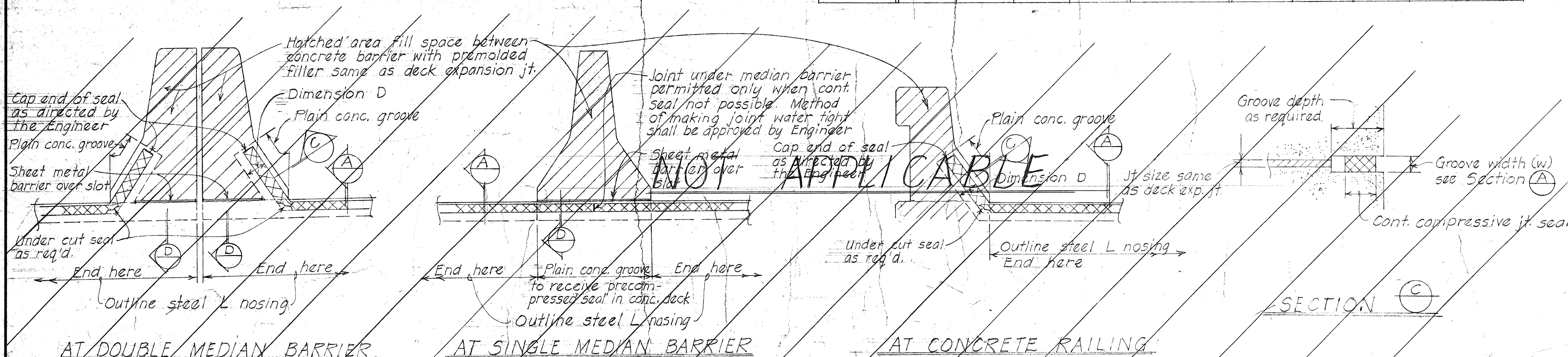
EXPANSION JOINT SEALER SCHEDULE										
Joint Seal Size	Type A - Joint Sealer (Dimensions and Tolerances)				Steel Angle Protective Nosing	Groove Dim. D	Type C - Joint sealer (Dimensions and Tolerances)			
	Thickness		Thickness				Thickness		Thickness	
J	H	T	t	J	H	T	t			
①					—	—	13/16	15/32		
②	3/4 +3/16 -0	2 ± 1/8	1/8 +1/32 -1/64	3/32 +1/64 -1/32	3 1/2" x 3 1/2" x 1/2"	3 1/2"			—	
③	2 +3/16 -0	2 1/16 ± 1/8	1/8 +1/32 -1/64	3/32 +1/32 -1/64	4" x 3 1/2" x 1/2"	4"			—	
④	2 1/2 +1/4 -0	2 3/4 ± 1/8	3/16 +3/64 -1/64	3/32 +1/32 -1/64	5" x 3 1/2" x 1/2"	5"				
⑤	3 +1/4 -0	3 1/2 ± 3/16	3/16 +3/64 -1/64	1/8 +3/64 -1/64	6" x 3 1/2" x 1/2"	6"				
⑥	4 +5/16 -0	4 23/32 ± 1/4	1/4 +3/64 -1/32	3/16 +3/64 -1/64	7" x 4" x 1/2"	7"				



TYPE A



TYPE C



SECTION

LAKE SIDE SEPERATION STRUCTURES #142
MOANALUA STREAM BRIDGE

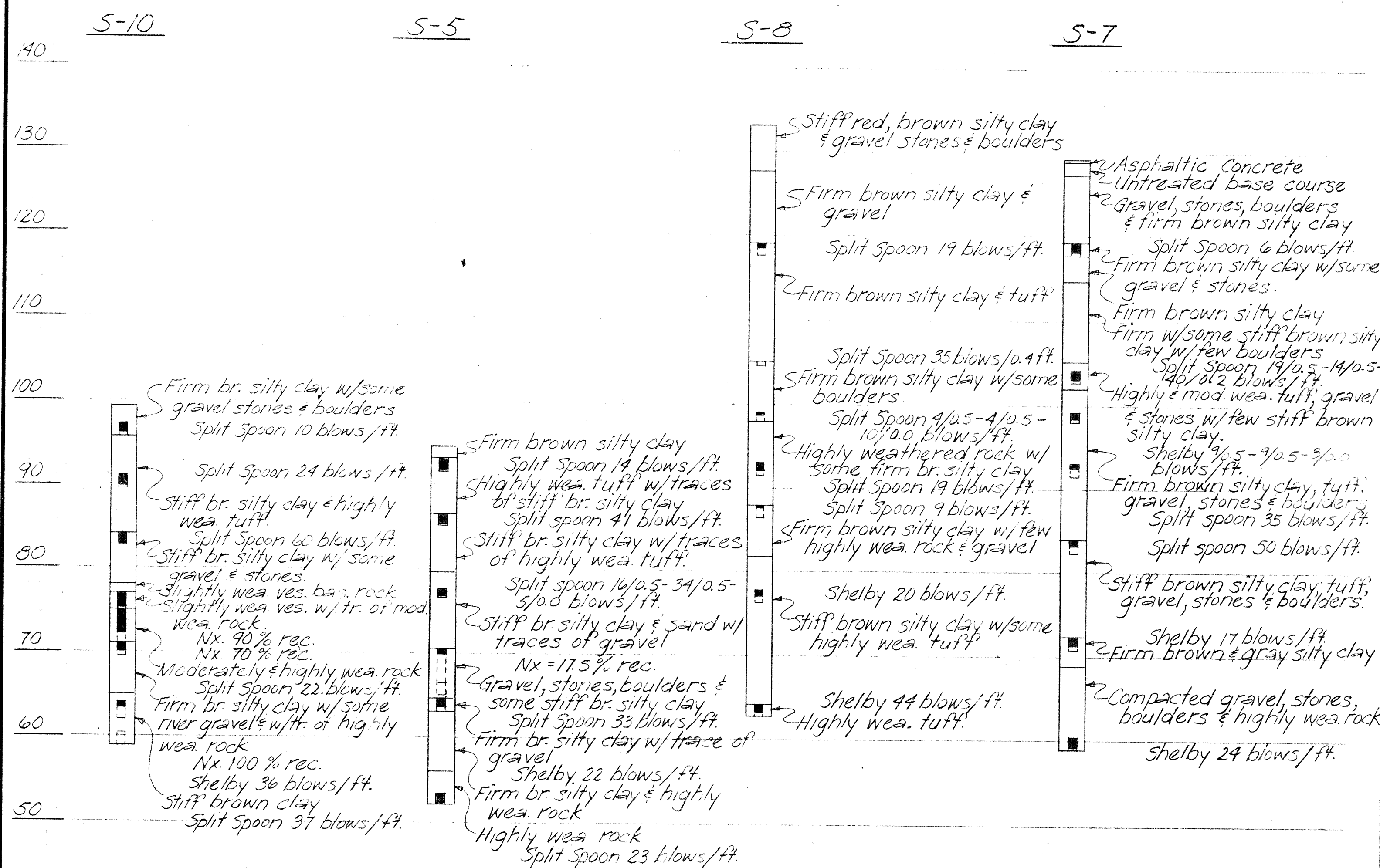
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
EXPANSION JOINT PREFORMED
COMPRESSIVE JOINT SEALER
WATERPROOFING DETAILS

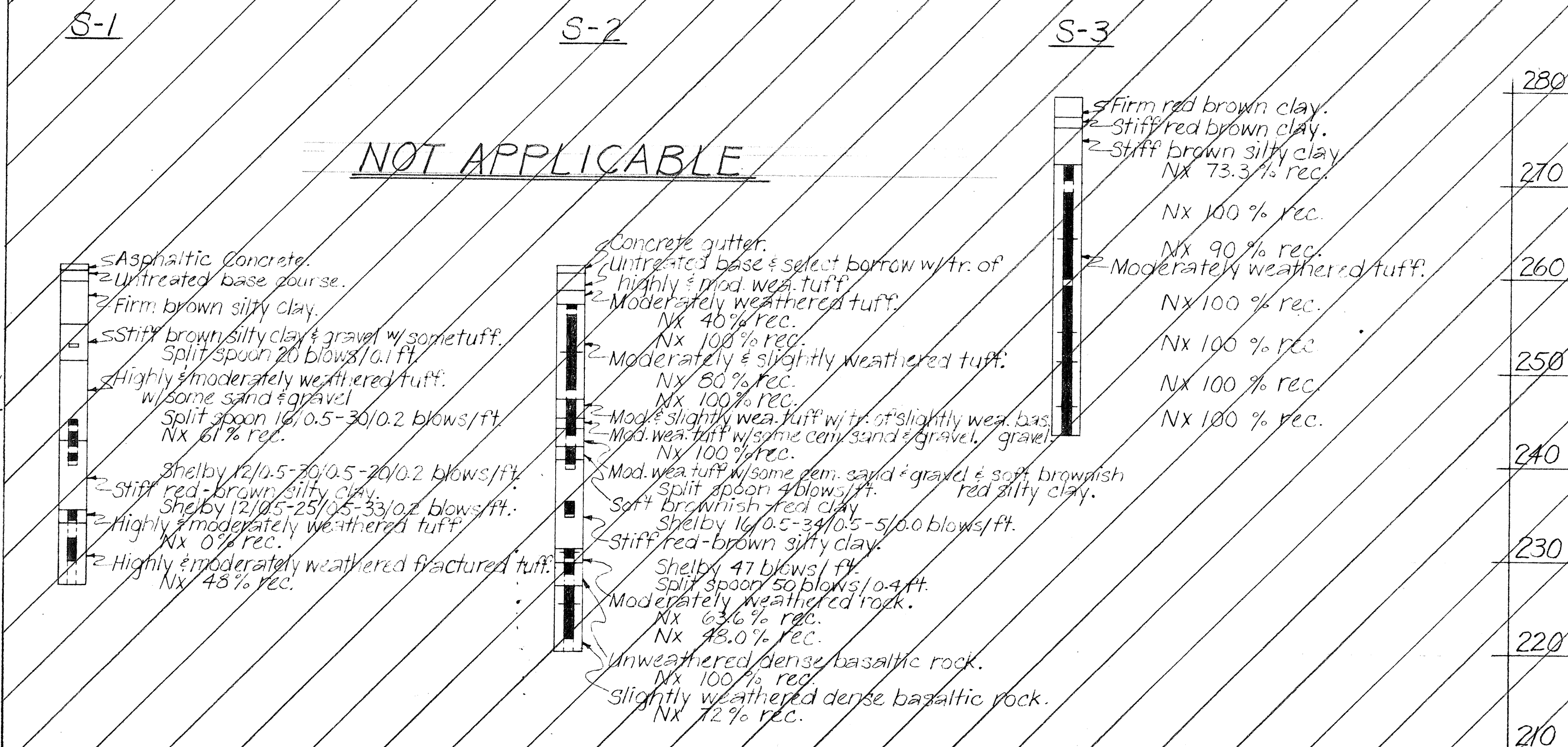
Moanalua Road
Aug. 1970

F-078-1(7)
SHEET No. T-5 OF 6 SHEETS

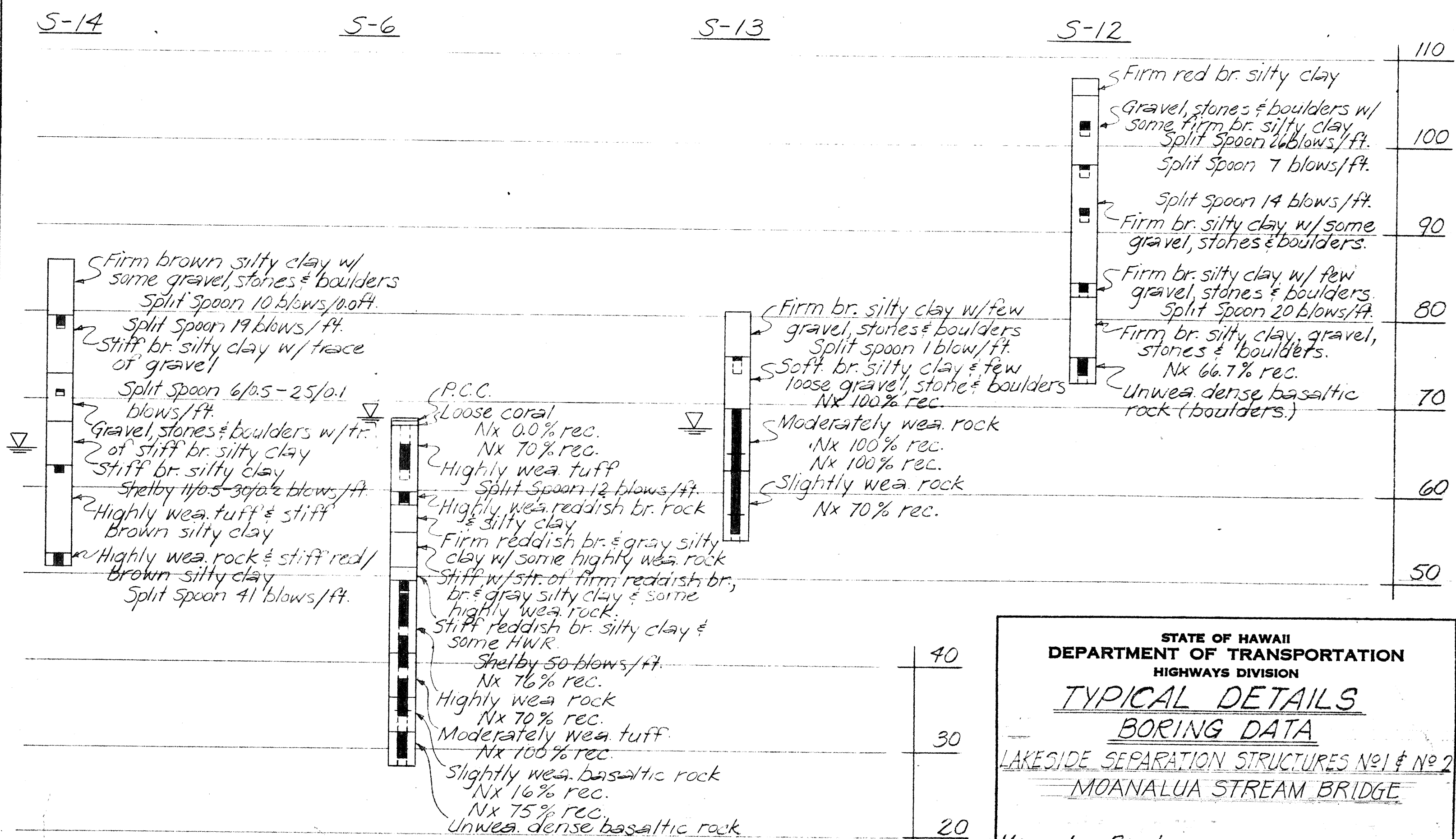
LAKESIDE SEPARATION STRUCTURES No. 1 & No. 2



RED HILL SEPARATION



MOANALUA STREAM BRIDGE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
BORING DATA
LAKESIDE SEPARATION STRUCTURES No. 1 & No. 2
MOANALUA STREAM BRIDGE
Moanalua Road
Aug., 1970
F-078-1(7)
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