

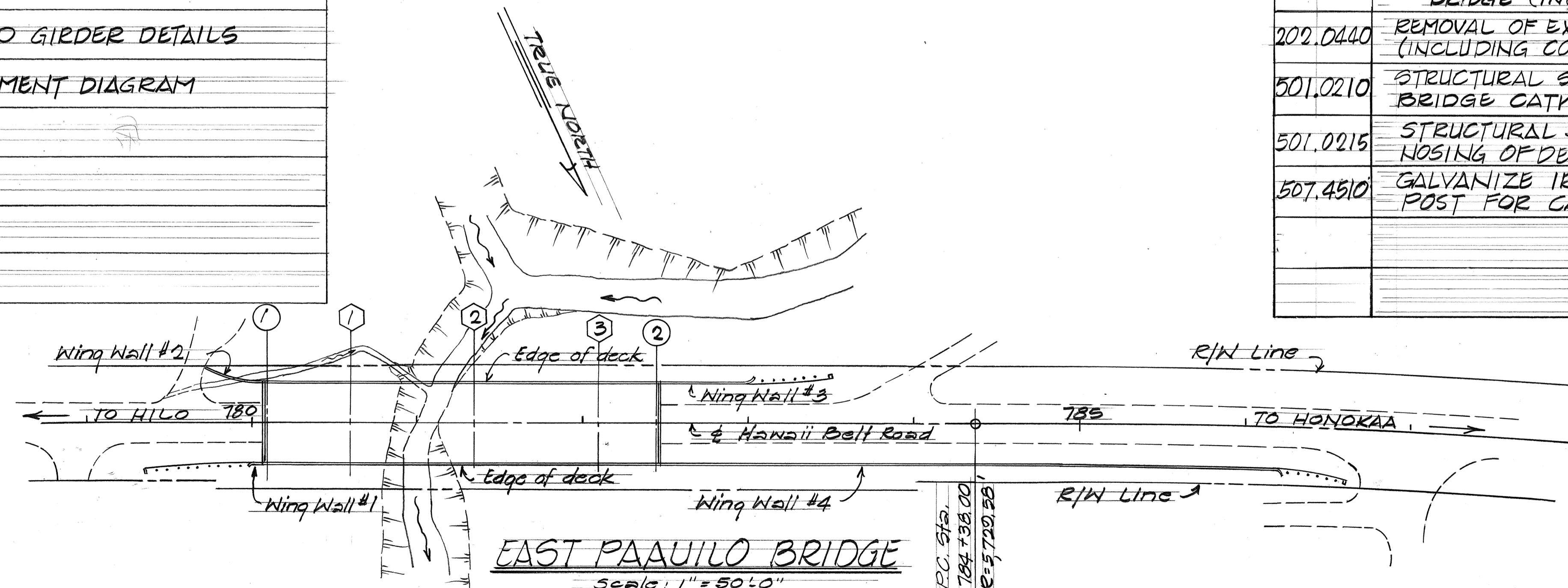
INDEX

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	20	78

SHEET NO.	DESCRIPTION
1	INDEX TO DRAWINGS ~ ESTIMATED QUANTITIES
2	GENERAL NOTES ~ SYMBOLS AND ABBREVIATIONS
3	BORING LOGS
4	LAYOUT PLAN, DECK FINISH GRADES, LONGITUDINAL DECK SECTION
5	FOUNDATION PLAN ~ PIER ELEVATIONS
6	ABUTMENTS LINE ① & ② ~ PLAN & ELEVATIONS
7	ABUTMENT LINE ① & WING WALL #1 ~ SECTIONS & DETS.
8	ABUTMENT LINE ① ~ FOOTING REINF. ~ W.W. SECTION
9	ABUTMENT LINE ② ~ SECTION & DETAILS
10	GRATED DROP INTAKE DETAILS
11	ABUTMENT LINE ① & ② ~ TYPICAL SECTIONS
12	WING WALL #2 & #3 ~ PLAN & ELEVATIONS
13	WING WALL #4 ~ PLAN & ELEVATION
14	WING WALL #2, #3 & #4 ~ SECTIONS & DETAILS
15	PIER ① ~ FOOTING SECTIONS & DETAILS
16	PIER ② & ③ ~ FOOTING SECTIONS
17	PIER ① ② & ③ ~ COLUMN DETAILS & SECTIONS
18	PIER ① ② & ③ ~ PIER CAP PLAN & DETAILS
19	PIER ① ② & ③ ~ PIER CAP ~ SECTIONS, CONC. SEAT ELEV. SCH.
20	PIER ① ② & ③ ~ GIRDER SEAT PLAN
21	DECK FRAMING PLAN ~ PRESTRESSED GIRDER DETAILS
22	NORMAL DECK SECTION ~ BAR PLACEMENT DIAGRAM
23	BEAM "A" & "D" DETAILS
24	BEAM "C _a " & "C _f " DETAILS
25	BEAM "C _b " & "C _f " DETAILS
26	

SHEET NO.	DESCRIPTION
TD 1	TYP. DETAILS ~ CONC. SEATS, HINGE BLOCK & CREEP BLOCK
TD 2	TYP. DETAILS ~ ABUT., PIER & WING WALL EXCAVATION & BACKFILL SECT.
TD 3	TYP. DETAILS ~ RETAINING WALL
TD 4	TYP. DETAILS ~ PRESTRESSED GIRDER TYPE PG IV
TD 5	TYP. DETAILS ~ CONCRETE BRIDGE RAIL
TD 6	TYP. DETAILS ~ ALUMINUM BRIDGE RAILING { ONE RAIL COMBINATION TYPE ON PARAPET
TD 7	TYP. DETAILS ~ METAL GUARD RAIL CONNECTION { ONE RAIL COMBINATION TYPE END POST
DB-100	STANDARD DETAILS ~ NOTES & MISCELLANEOUS DETAILS
DB-3001	STANDARD DETAILS ~ PRESTRESSED CONCRETE PILES
DB-3002	STANDARD DETAILS ~ PRESTRESSED CONCRETE PILES
EB-1	EXISTING BRIDGE DRAWINGS ~ PLAN & LONGITUDINAL SECTION
EB-2	EXISTING BRIDGE DRAWINGS ~ BENT ELEVATION & DETAILS
EB-3	EXISTING BRIDGE DRAWINGS ~ BENT ELEVATION & DETAILS

ESTIMATED QUANTITIES			
ITEM NO.	ITEM	UNIT	QUANTITIES
206.6000	STRUCTURE EXCAVATION FOR BRIDGE	Cu. Yd.	1,299 C.Y.
206.5100	STRUCTURE EXCAVATION FOR WING WALL AT BRIDGE	Cu. Yd.	950 C.Y.
206.7210	STRUCTURE BACKFILL FOR BRIDGE ABUTMENTS.	Cu. Yd.	338 C.Y.
206.7240	STRUCTURE BACKFILL FOR WING WALLS AT BRIDGE	Cu. Yd.	561 C.Y.
206.8207	FILTER MATERIAL FOR BRIDGE	Cu. Yd.	27 C.Y.
206.8301	FILTER MATERIAL FOR WING WALLS AT BRIDGE	Cu. Yd.	43 C.Y.
503.1090	CONCRETE IN EAST PAAUILO BRIDGE (EXCEPT FOOTING)	Lump Sum	(806 C.Y.)
503.1407	CONCRETE IN WING WALLS AT BRIDGE (EXCEPT FOOTING) (INCLUDES DROP INTAKE)	Lump Sum	(140 C.Y.)
503.1091	CONCRETE IN FOOTING FOR EAST PAAUILO BRIDGE	Lump Sum	(325 C.Y.)
503.1411	CONCRETE IN FOOTING FOR WING WALL AT BRIDGE	Lump Sum	(131 C.Y.)
504.4100	TYPE IV PRESTRESSED CONCRETE GIRDER	Lump Sum	(1,900 L.F.)
505.0410	TYPE I PRESTRESSED CONCRETE PILES (FURNISHED)	Lin. Ft.	917 L.F.
505.4100	TYPE I PRESTRESSED CONCRETE PILES (DRIVEN)	Lin. Ft.	849 L.F.
507.1000	METAL BRIDGE RAILING } AT BRIDGE	Lin. Ft.	483 L.F.
507.1010	METAL BRIDGE RAILING } AT WING WALLS	Lin. Ft.	431 L.F.
507.7010	CONCRETE BRIDGE PARAPET ~ AT BRIDGE	Lin. Ft.	483 L.F.
507.7020	CONCRETE BRIDGE PARAPET } AT WING WALLS	Lin. Ft.	482 L.F.
602.0090	REINFORCING STEEL IN EAST PAAUILO BRIDGE	Lump Sum	(411,800 LBS)
602.0051	REINFORCING STEEL IN WING WALL BRIDGE (INCLUDES DROP INTAKE)	Lump Sum	(23,100 LBS)
202.0440	REMOVAL OF EXISTING STRUCTURE (INCLUDING CONCRETE PIER FOOTINGS)	Lump Sum	()
501.0210	STRUCTURAL STEEL FOR EAST PAAUILO BRIDGE CATWALK.	Lump Sum	(5,900 LBS)
501.0215	STRUCTURAL STEEL FOR PROTECTIVE HOUSING OF DECK EXPANSION JOINTS	Lump Sum	2,348 LBS.
507.4510	GALVANIZE IRON PIPE RAILING AND POST FOR CATWALK	Lump Sum	285 L.F.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAUILO BRIDGE
INDEX & ESTIMATED QUANTITIES

HAWAII BELT ROAD
E.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 1 OF 25 SHEETS

SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN NO. _____
 NOTE BOOK NO. _____

GENERAL NOTES

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	21	78

DESIGN SPECIFICATIONS AASHTO:

Standard Specifications for Highway Bridges (12th Edition) with subsequent interim specifications.

DESIGN LOADS:

H5-20-44 or Interstate loading.

DESIGN STRESSES:

- Cast in place reinforced concrete - See AASHTO specifications and Special Provisions except as otherwise noted.

Class A & BD	All Others
$f_c = 3,000$ psi	5,000 psi
$f_t = 1,200$ psi	2,000 psi
$n = 9$	6.6
$f_s =$ ASTM A615, see Special Provisions.	

- Prestressed concrete:

Girders	$f_c = 5,500$ psi at 28 days.
	$f_{ct} = 4,000$ psi at transfer.
Piles	$f_c = 5,000$ psi at 28 days.
	$f_{ct} = 3,500$ psi at transfer.

- Prestressed strands shall be 270 Ksi ultimate strength 7 wire, stress-relieved steel strands, $1/2$ " ϕ (area = 0.153 in²) for girders, $7 - 1/2$ " ϕ (area = 0.153 in²) strands for piles in lieu of $11 - 7/16$ " ϕ grade 250 strands.

Initial strand stress (before any losses) = 180 Ksi
Initial loss = 18,000 psi
Total loss other than friction = 45,000 psi

- Pile capacity - 50 Tons.

MATERIALS:

- Except as otherwise noted on plans:
 - Bridge deck slab concrete shall be Class BD
 - Pier column footing concrete shall be 5,000 psi.
 - All other concrete shall be Class A.
- Reinforcing steel for cast-in-place concrete shall be ASTM A615 Grade 40 or as otherwise noted.
- Concrete for precast prestressed concrete girders - see Standard Specifications and as noted under Design Stresses.
- Concrete in precast prestressed concrete girders shall have a cement content of not less than 7.0 sacks but no more than 8.5 sacks per cubic yard.
- All elastomeric bearing pads, neoprene preformed fabric bearing pads, preformed joint filler, vertical restrainer assemblies and pipe hanger inserts shall be incidental to concrete and will not be paid for separately.
- See Specifications for admixture in concrete.
- All piles to be prestressed concrete piles Type I - see Standard Details sheet Nos. DB-300-1, DB-300-2.

CONSTRUCTION METHOD:

- See Standard Specification for Road & Bridge Construction, 1976 Edition and Special Provisions.
- In general, top of concrete deck of superstructure shall be constructed to follow the finish roadway vertical and horizontal curves and grades. See Highway plans.
- For concrete finish, see Special Provisions. Girder concrete seats, hinge and creep blocks to be poured monolithically with the supporting structures. Top surfaces of concrete seats to have hard trowel finish.
- Except as otherwise noted, all vertical dimensions are measured plumb.
- Abutment, wingwall and Pier Footings shall be excavated and poured neat against undisturbed ground. In case of over excavation, space between footing and ground shall be filled with concrete at the Contractor's expense and as directed by the Engineer. The minimum quality of the fill concrete shall be Class D.
- Piles shorter than 100' shall not be spliced.

CONSTRUCTION PHASING

was eliminated by the Value Engineering Change Proposal. Refer to CCC #1.

PHASE I

- Construction during this phase shall consist of excavation and the placing of reinforcing steel and concrete for Phase I footings. Pier columns and caps shall also be constructed during this phase.
- The excavation and placing of reinforcing steel and concrete for pier footings (1) and (2) shall be completed in 5 days.

CONSTRUCTION PHASING (Cont.)

- The footing concrete shall have a maximum slump of 4".
- A temporary bracing scheme to support the existing adjacent spans shall be submitted to the Engineer for approval before any excavation work can begin on the footings.
- The contractor shall be responsible for maintaining the structural integrity of the structure during the Phase I construction period.
- Excavation for all footings shall be accomplished by maintaining as near a vertical cut as possible.
- For those footing portions of piers (1) and (2) that will require no additional construction work, the footing shall be excavated and poured neat against undisturbed ground.
- In case of over excavation, space between footing and ground shall be filled with concrete at the Contractor's expense and as directed by the Engineer. If any loose material is encountered at footing grade, it shall be removed as directed by the Engineer and filled with concrete at the State's expense. The minimum quality of the fill concrete shall be Class D.
- The Contractor shall submit to the Engineer for approval, a more permanent bracing scheme to support the existing adjacent spans utilizing the poured footings as supports if he so desires. If the poured footings are to be used as supports, the concrete shall have reached a minimum compressive strength of 3000 psi before any loads are placed upon them. No work shall commence on the pier column until the more permanent bracing scheme has been implemented.
- Back filling of footings may take place provided all exposed footing steel has been adequately protected.
- All costs involved in all phases of bracing, shoring, falsework and framework shall be incidental to concrete and shall not be paid for separately.

PHASE II

- Construction during this phase shall be the completion of the Bridge Structure.
- All pier footings shall be completed. The balance of the footings shall be excavated and the protruding reinforcement shall be cleaned before mechanical splice couplings are attached.
- No loads shall be placed on the pier caps until the completed pier footings have attained a compressive stress of at least 3,000 psi.
- See Special Provisions for removal of the existing structure.

REFERENCE:

- Refer to Standard Detailed Drawings for additional details not covered by detailed and typical drawings.

GENERAL:

- All items noted incidental will not be paid for separately.
- The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencing work.
- The Contractor shall provide shop placement and detailed drawings of the following items at each construction phase for approval by the Engineer:
 - All pier columns and pier cap reinforcement.
 - All reinforcing steel locations of required mechanical splice couplings.
 - All support bracing schemes for Phase I construction.
- All preformed elastomeric bearing pads and preformed fabric bearing pads shall be secured against displacement with adhesives approved by the Engineer.
- Except as otherwise noted on plans, all exposed exterior corners 90° or less shall be chamfered $3/4$ " x $3/4$ ". All exposed exterior corners greater than 90° shall not be chamfered. Round all finish corners $1/4$ " radius unless noted otherwise.
- Exact location of bars shall be so arranged so that no interference will occur between vertical column reinforcement and bottom pier cap horizontal reinforcement.
- All falsework & bracing schemes for all phases of construction shall be prepared by or under the supervision of an Engineer who is registered as a Structural Engineer in the State of Hawaii.

SYMBOLS AND ABBREVIATIONS

Detail or section designation	Deck slab main reinforcement direction between supports.	① ② Location concrete seat line number
Sht. no. section is cut or def. location.	(E) - Expansion (F) - Fixed	⊙ Boring number and designation.
Att. no. detail is drawn.		Ⓛ Pier column number
		(H) - Hinged
A Adj. - Adjacent	E Exist. - Existing	R - Radius
Abut. - Abutment	Exc. - Excavation	Ref. - Reference
Alt. - Alternate	Ext. - Exterior	Reinf. - Reinforcement
Alum. - Aluminum		Rt. - Right
Approx. - Approximate	F Fin. - Finish	Ret. - Retaining
Az. - Azimuth	Flg. - Footing	Req'd. - Required
B Bal. - Balance	G Galv. - Galvanize	Symm. - Symmetrical
Bot. - Bottom	H ht. - Height	Sht. - Sheet
Bot. bot. - Bottom	Horiz. - Horizontal	Sta. - Station
Bm, bm - Beam	Hwy. - Highway	Stirr. - Stirrups
		Sect. - Section
C Cl. - Clear		Std. - Standard
Cont. - Continuous	I Inv. - Invert	Struct. - Structure
Const. - Construction	Int. - Interior	Str. - Straight
Contr. - Control		Spas. - Spaces
Comp. - Composition	J Jt. - Joint	
Corresp. - Corresponding		T Typ. - Typical
Conc. - Concrete	L Lg. - Long	TSS - Top Slab Strip Reinforcement Type
Col. - Column	Longit. - Longitudinal	
⊕ - Center Line	Lt. - Left	
D Det. - Detail	M Max. - Maximum	Y Vert. - Vertical
Diag. - Diagonal	Min. - Minimum	
	N No., # - Number	N.W.P. - Working Point
E Ea. - Each		W.W. - Wing Wall
Eq. - Equal	N No., # - Number	
Elev. - Elevation	P P.C. - Prestressed	
E.P. - Edge Pavement	Girder Type	

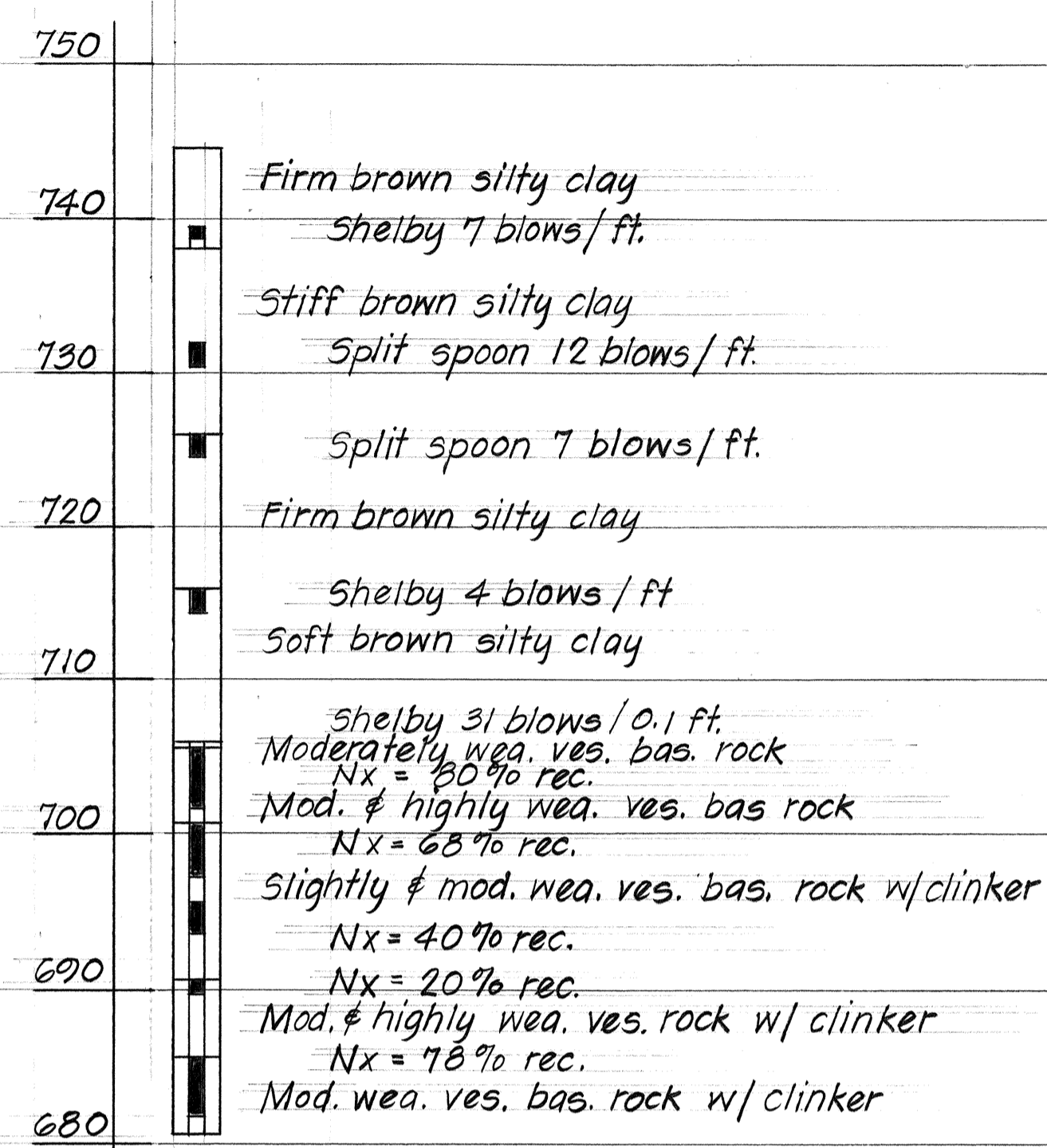
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EAST PAAULO BRIDGE
GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978

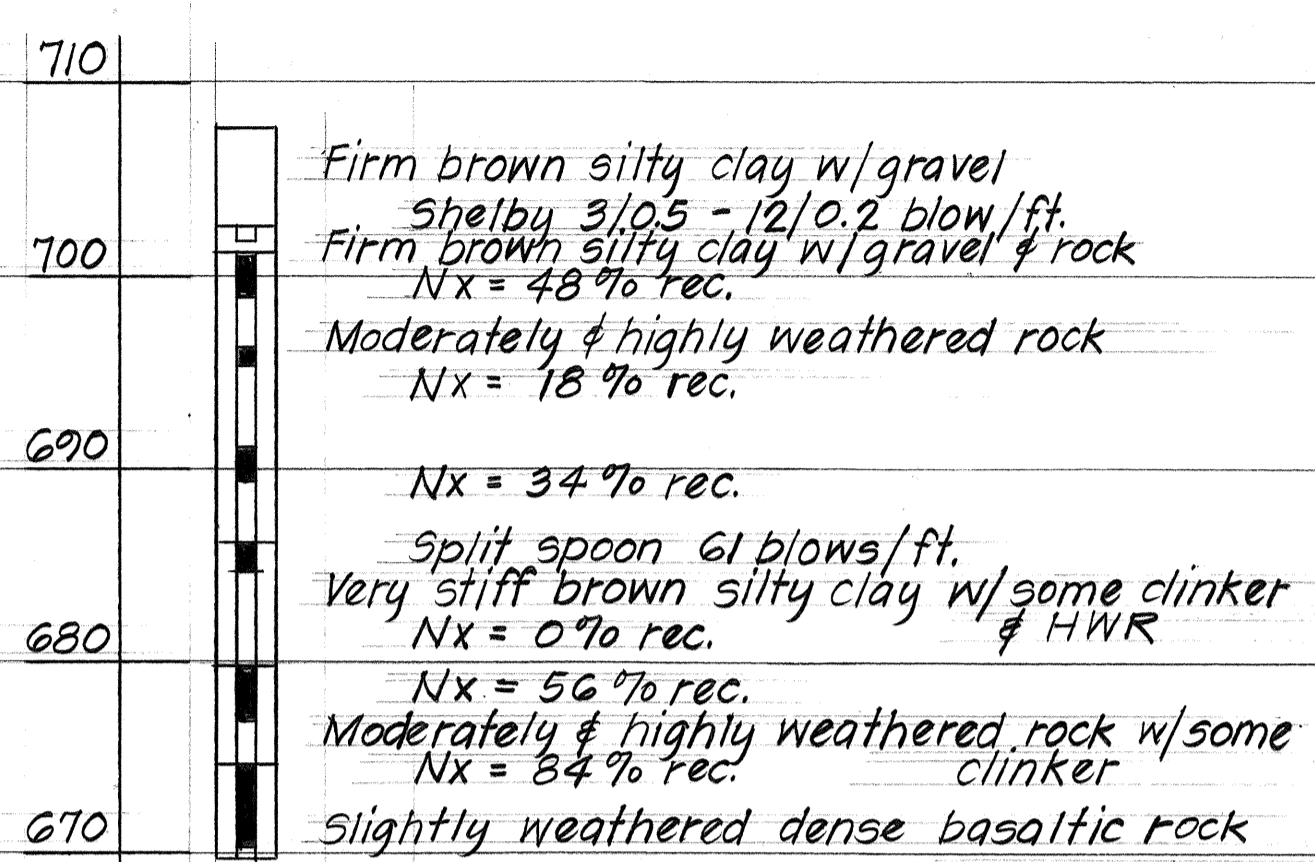
SHEET NO. 2 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	22	78

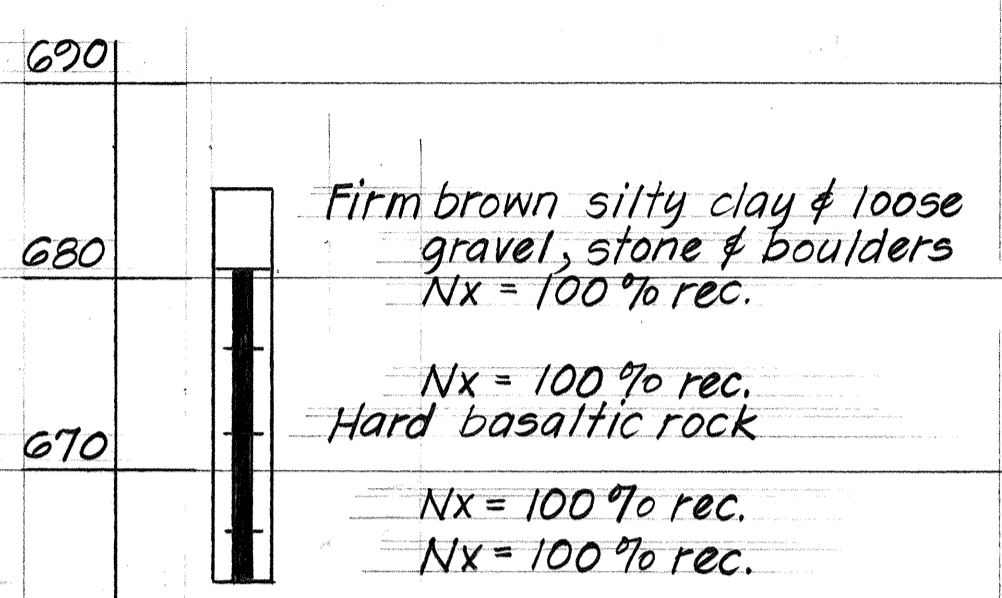
S-12
Elevation 744.5



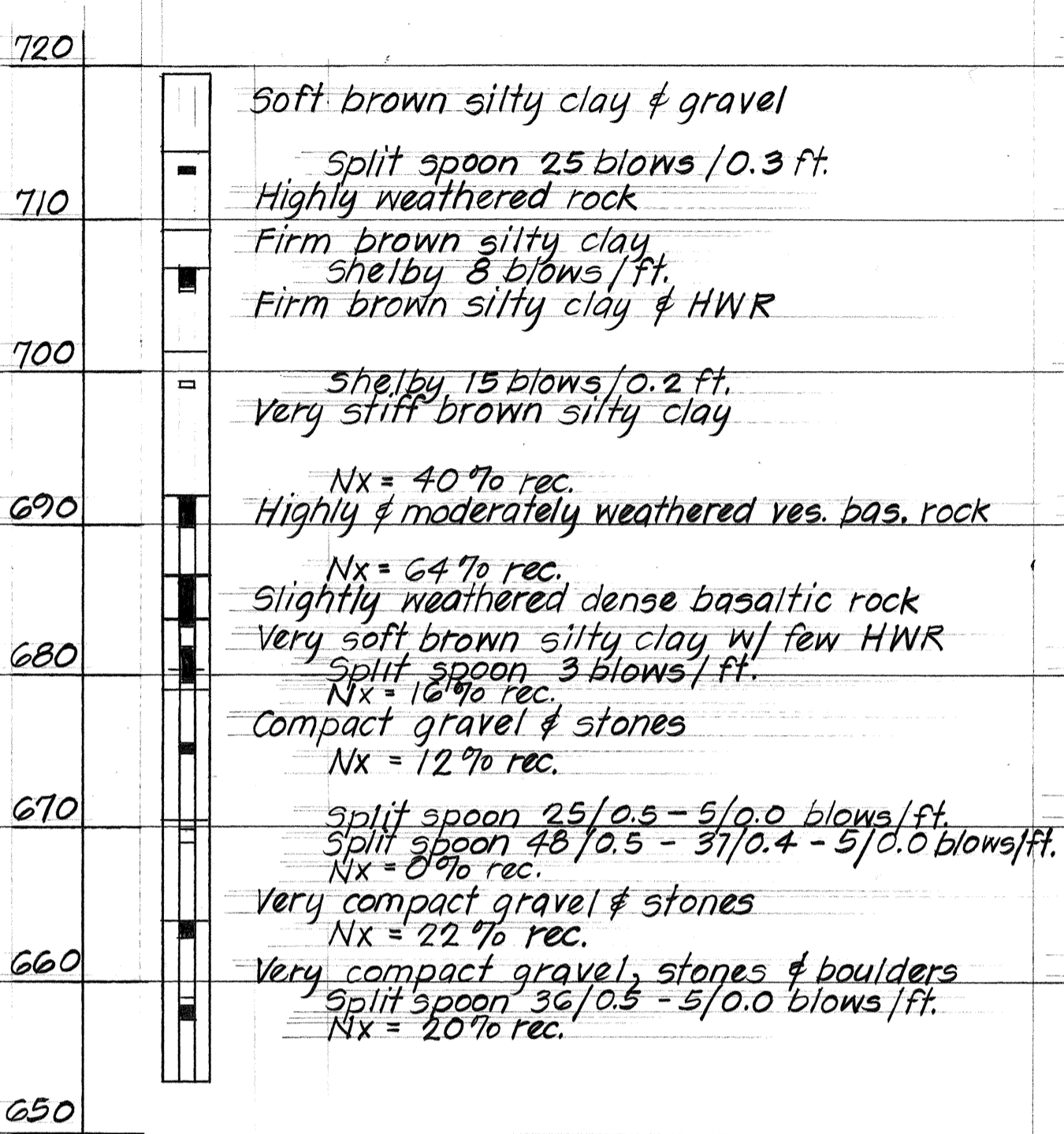
S-13
Elevation 707.5



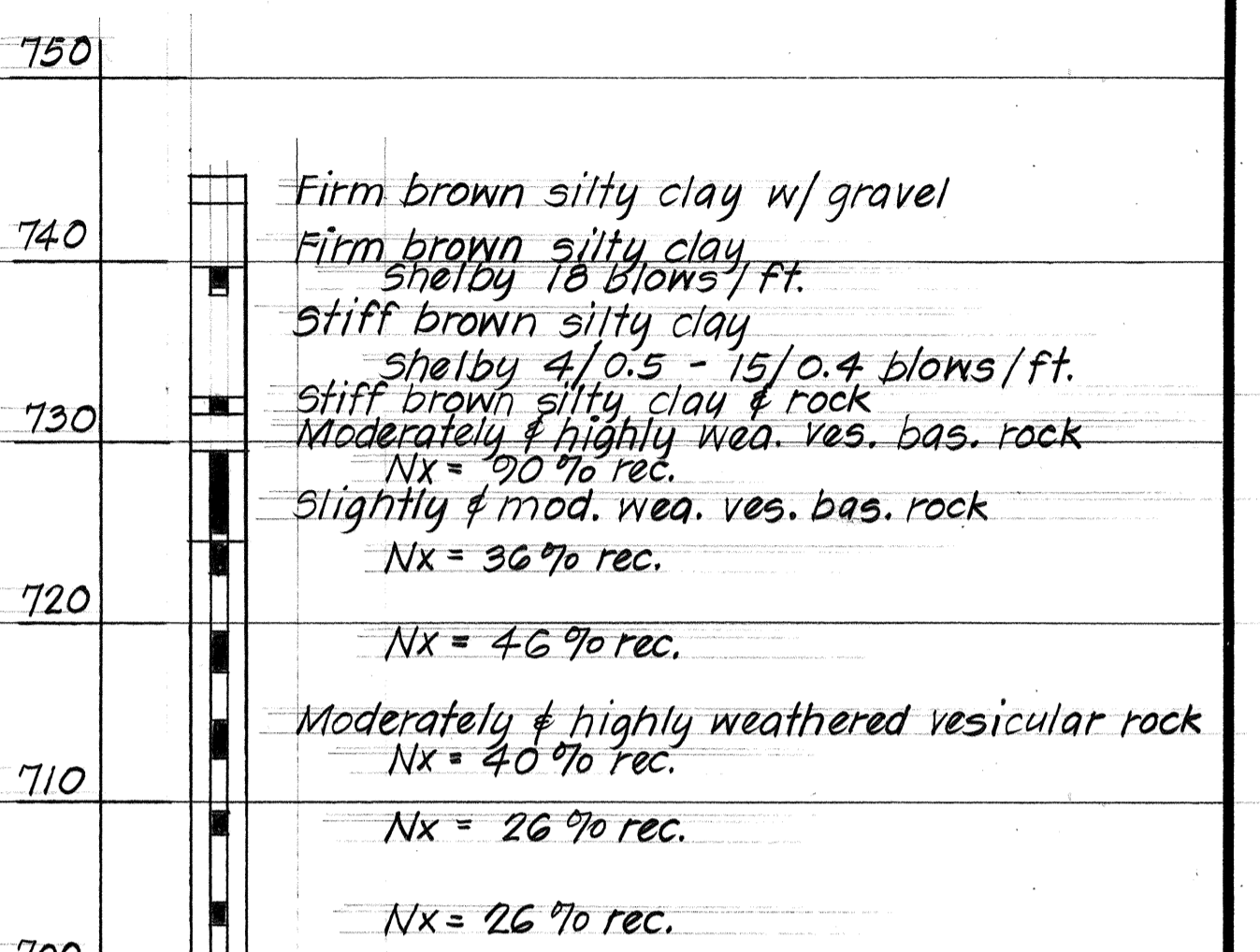
S-14
Elevation 684.4



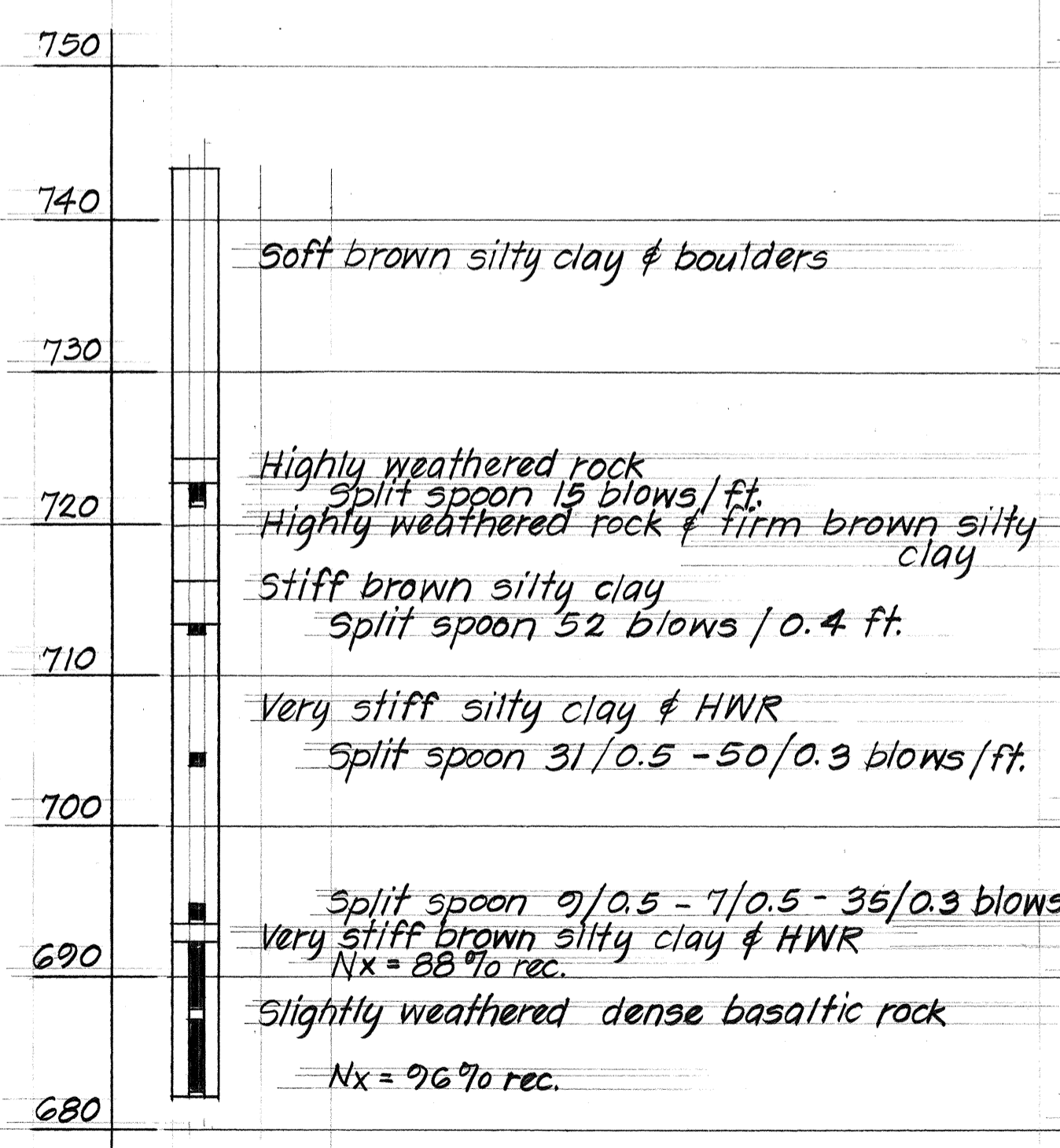
S-15
Elevation 719.4



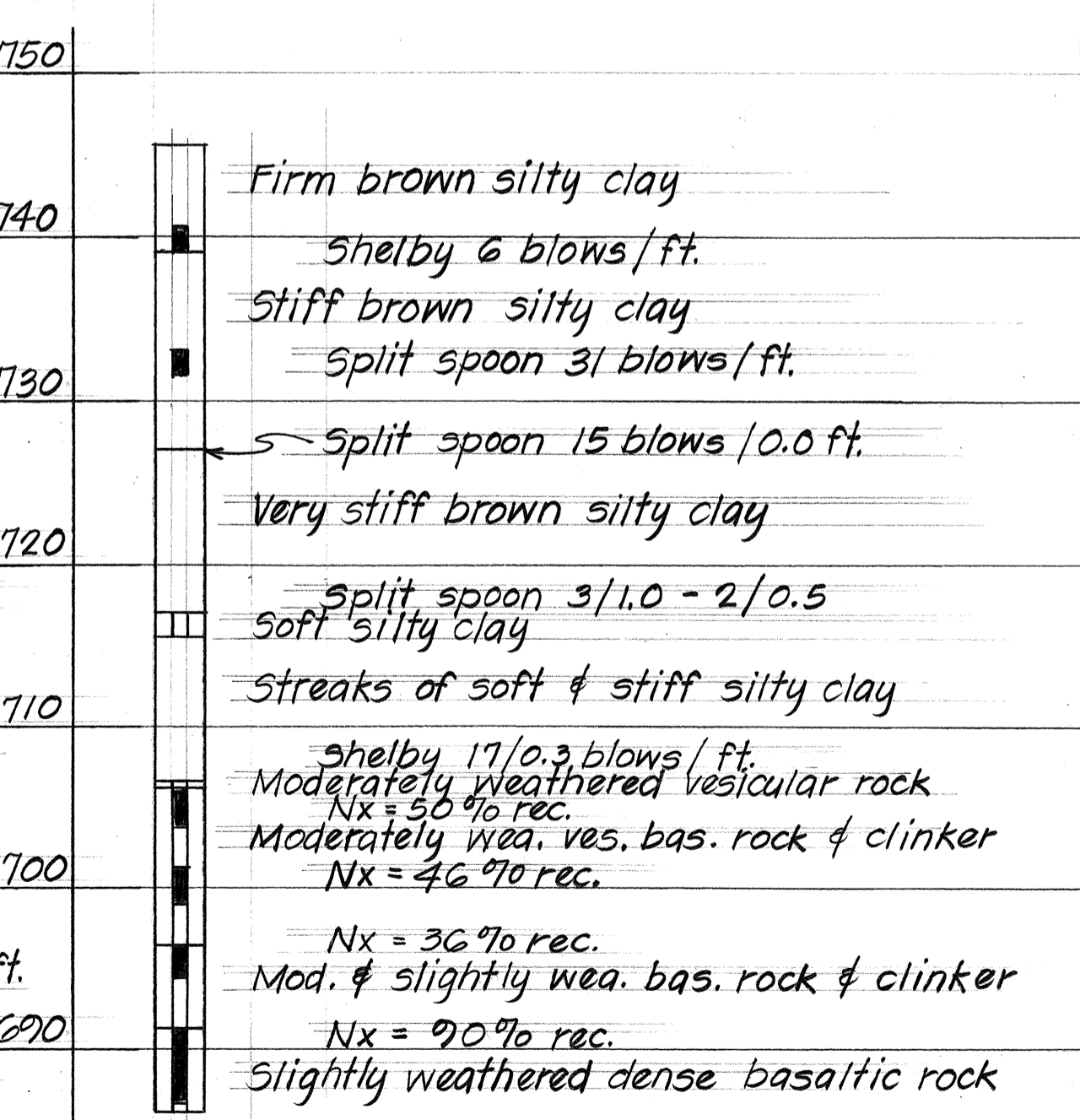
S-16
Elevation 744.6



S-19
Elevation 743.3



S-20
Elevation 745.6

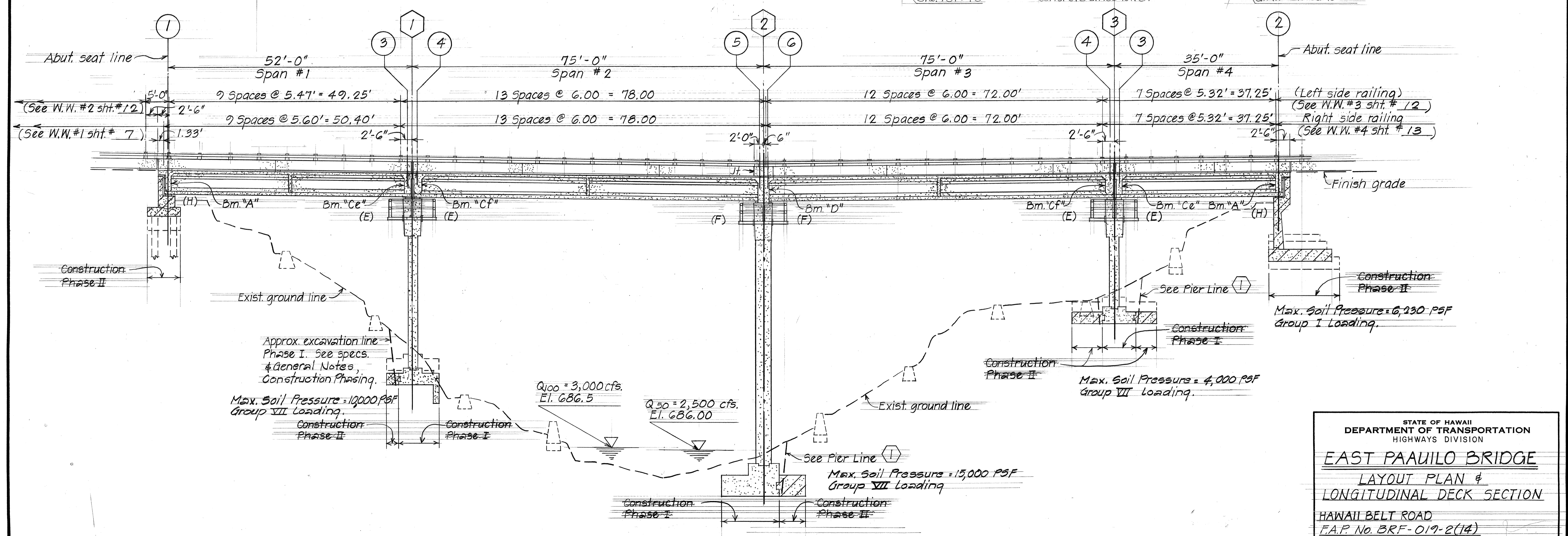
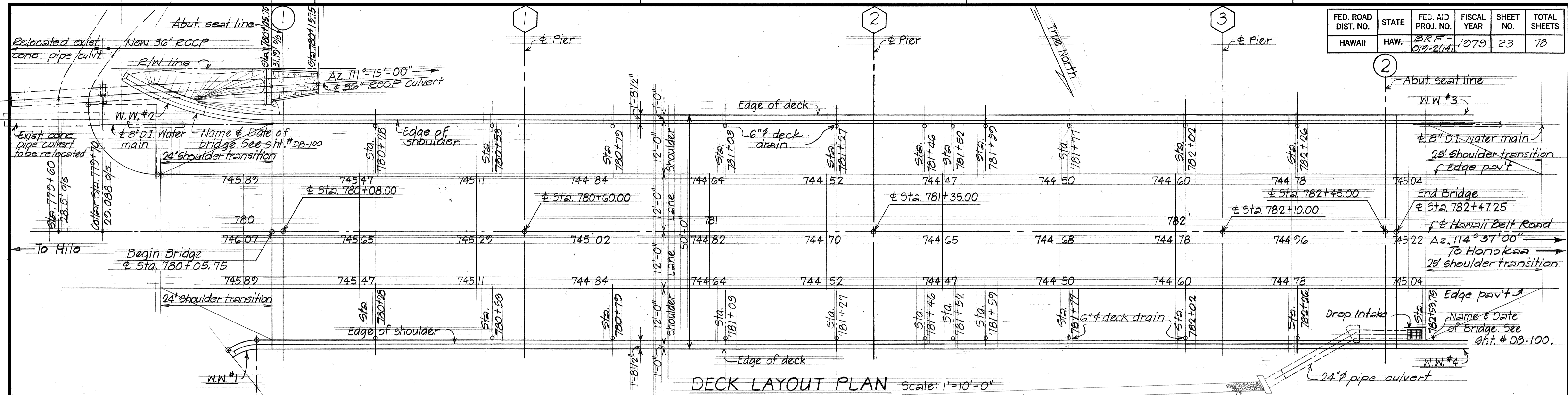


Note:
The boring data furnished in these plans are the results of the facts gathered at the specific locations indicated to primarily aid in the design of the structure, and does not necessarily typify conditions at other locations. The Department assumes no responsibility for sufficiency of boring data or the prevalence of conditions similar to that indicated by the boring data.

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EAST PAAUULO BRIDGE
BORING LOGS
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As shown Date: Aug 1978
SHEET No. 3 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	23	78



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

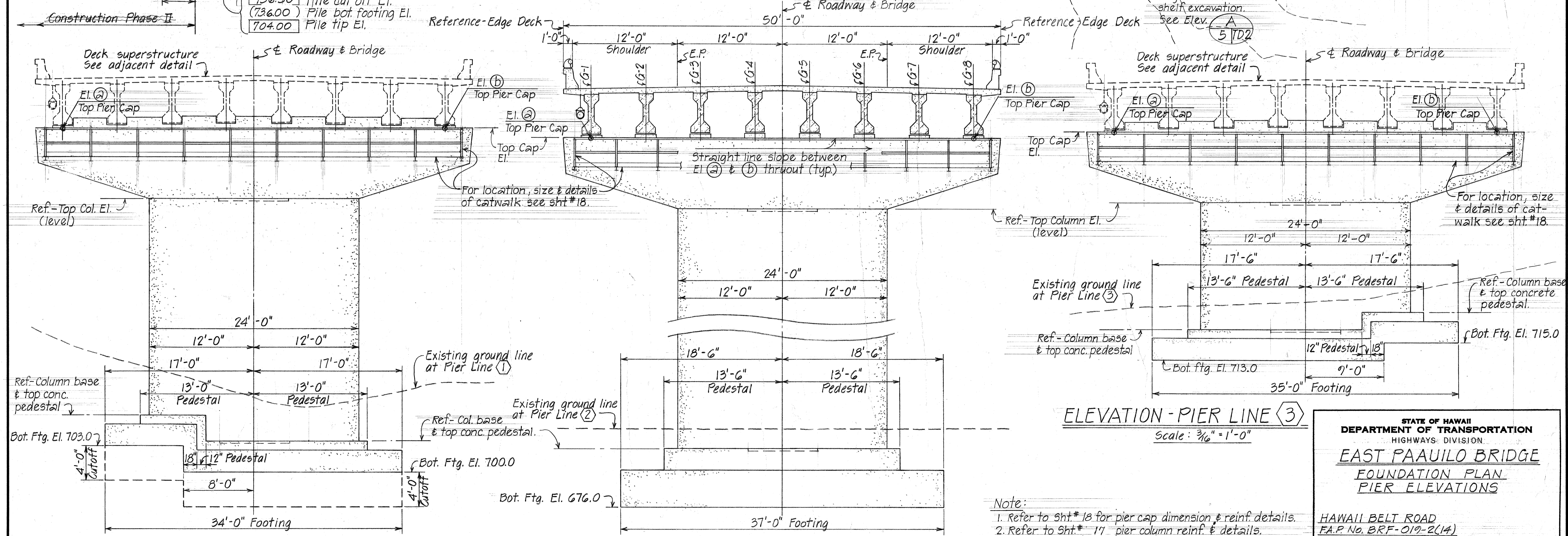
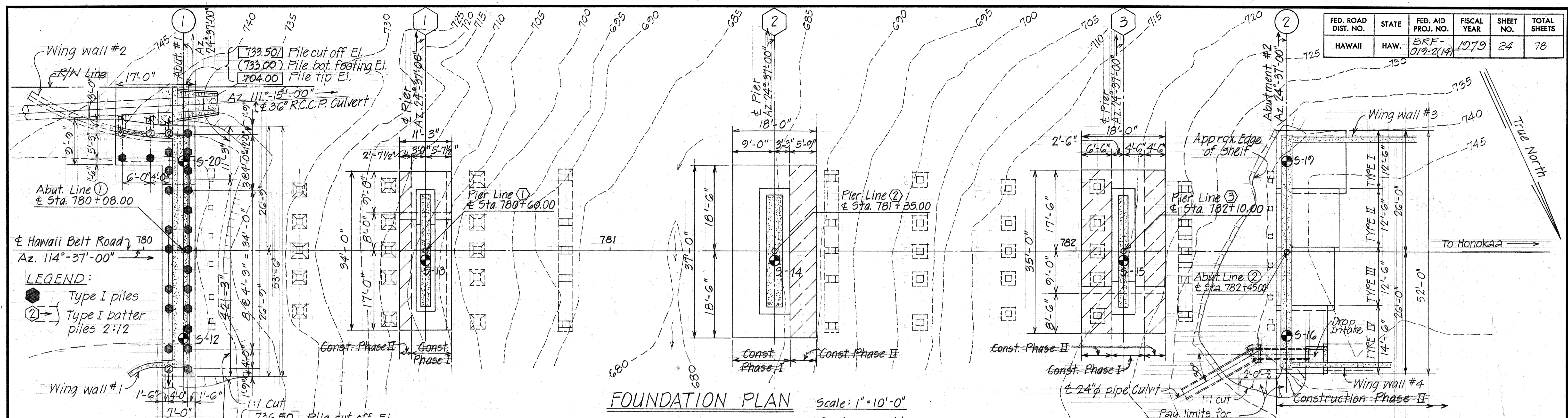
EAST PAAULO BRIDGE
LAYOUT PLAN &
LONGITUDINAL DECK SECTION

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978

SHEET No. 4 OF 25 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
DESIGNED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____
ORIGINAL PLAN No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	24	78



Note:

1. Refer to Sht. # 18 for pier cap dimension & reinf. details.
2. Refer to Sht. # 17 for pier column reinf. & details.
3. Refer to Sht. # 15, 16 for pier footing reinf. & details.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

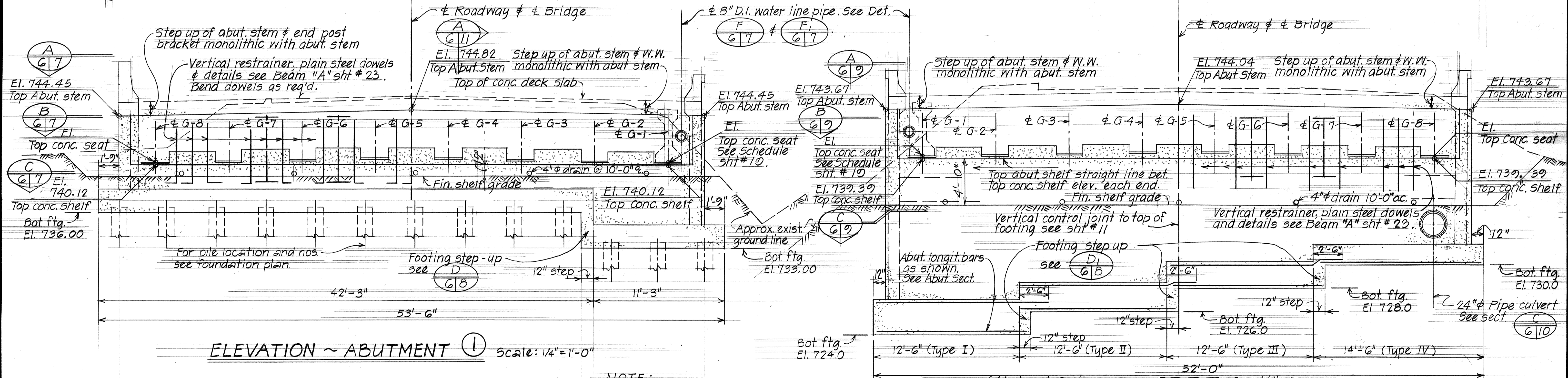
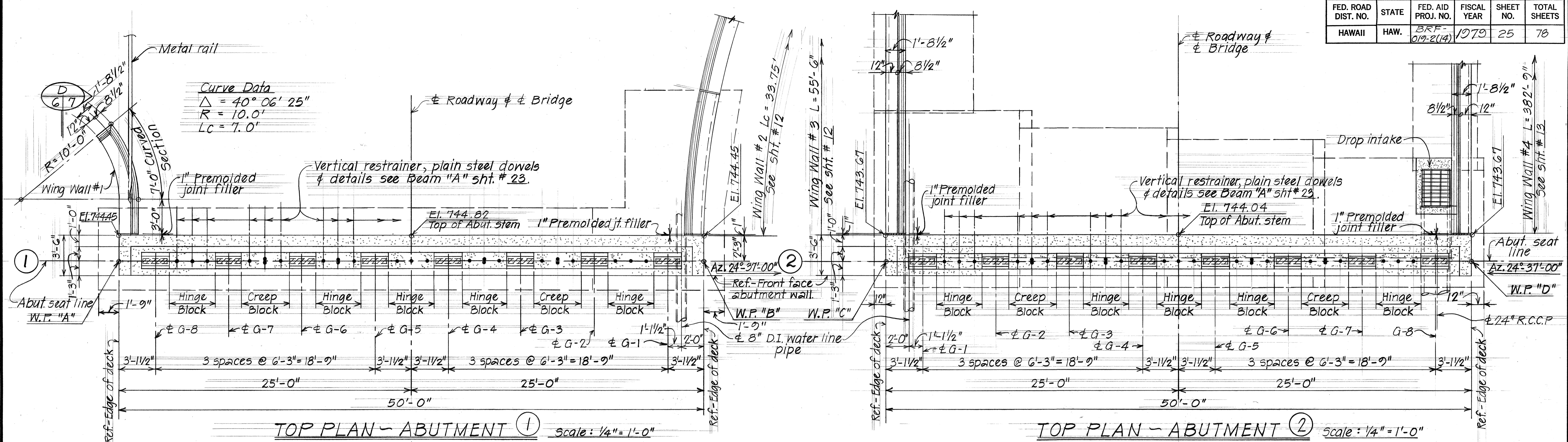
EAST PAAULO BRIDGE
FOUNDATION PLAN
PIER ELEVATIONS

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 5 OF 25 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
CHECKED BY: _____
NOTES BOOK: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	25	78



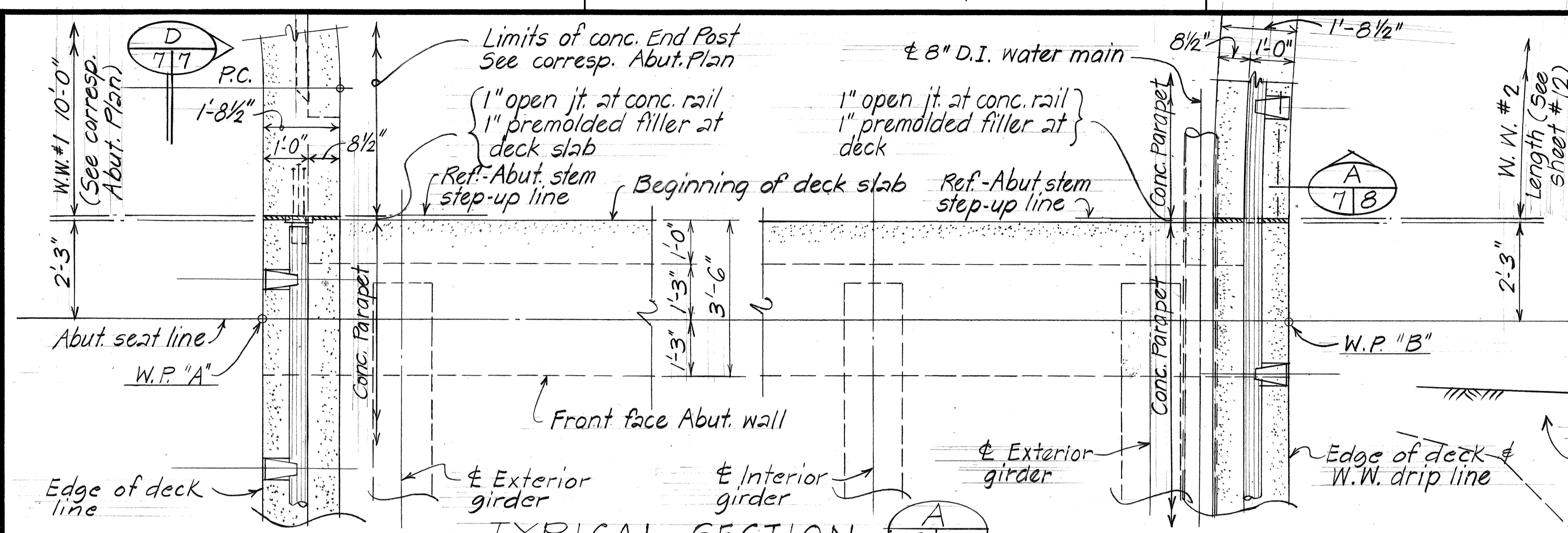
PILES
 Reference Notes:
 1- All piles to be Type I prestressed concrete vertical piles except as otherwise noted.
 2- See Standard sht. # DB-300-1, # DB-300-2.
 3- Refer to sht. # 8 for additional footing & foundation details.

NOTE:
 1) Bridge deck & superstructure not shown.
 2) For concrete seat, hinge block & creep block detail see sht. # TD1.

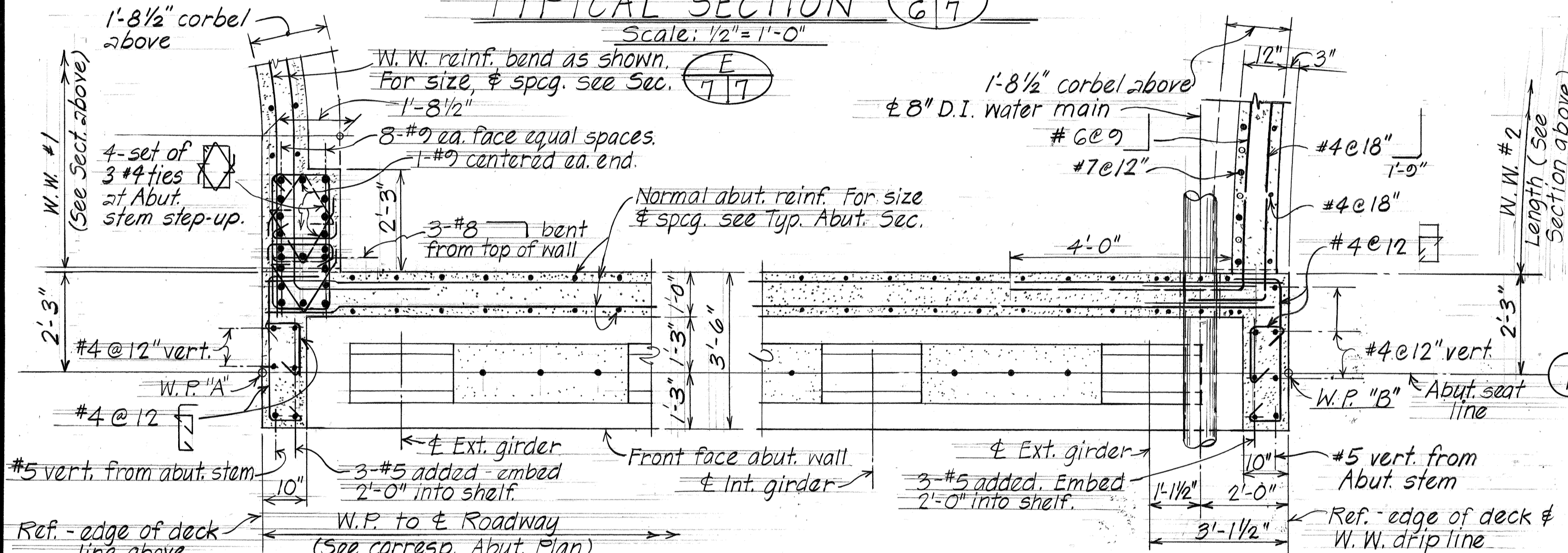
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
EAST PAAULO BRIDGE
 ABUTMENT ① & ②
 PLAN AND ELEVATION
 HAWAII BELT ROAD
 F.A.P. No. BRF-019-2(14)
 Scale: As noted Date: Aug 1978
 SHEET No. 6 OF 25 SHEETS

DATE: 8-1-78
 DRAWN BY: L.A.
 DESIGNED BY: L.A.
 QUANTITIES BY: L.A.
 CHECKED BY: L.A.
 ORIGINAL PLAN No.:

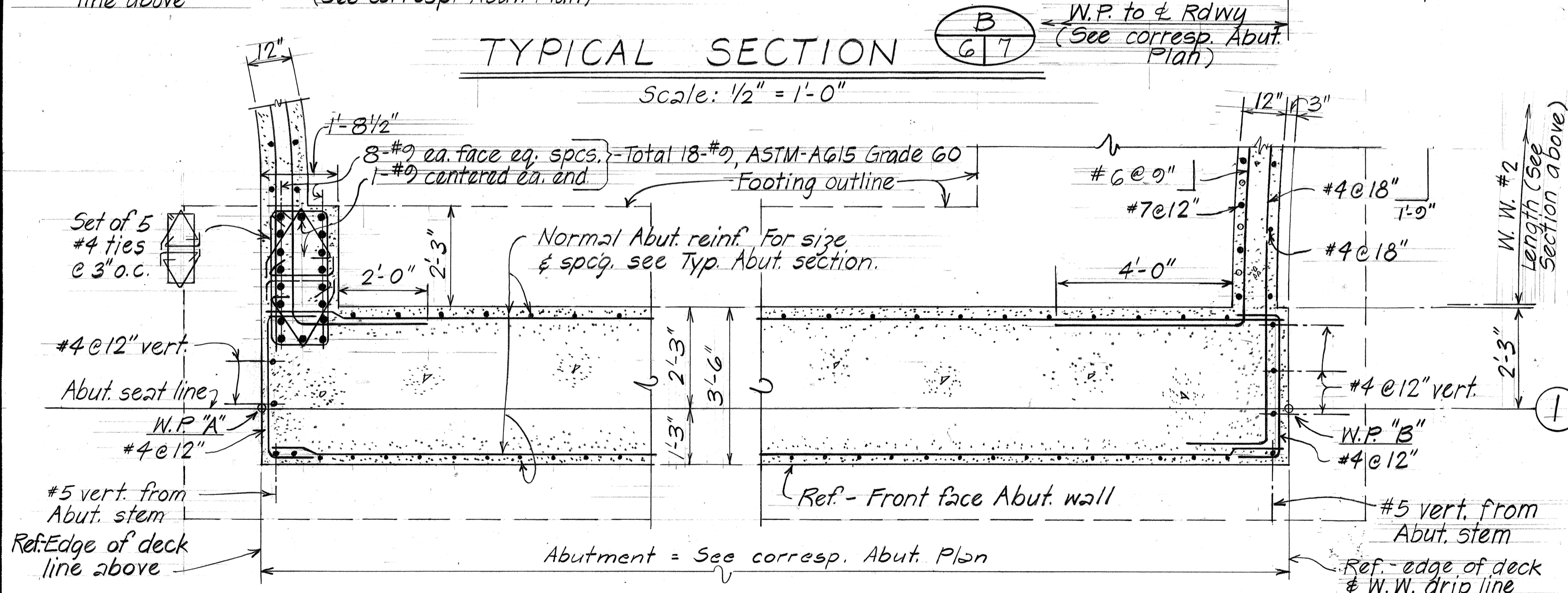
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	26	78



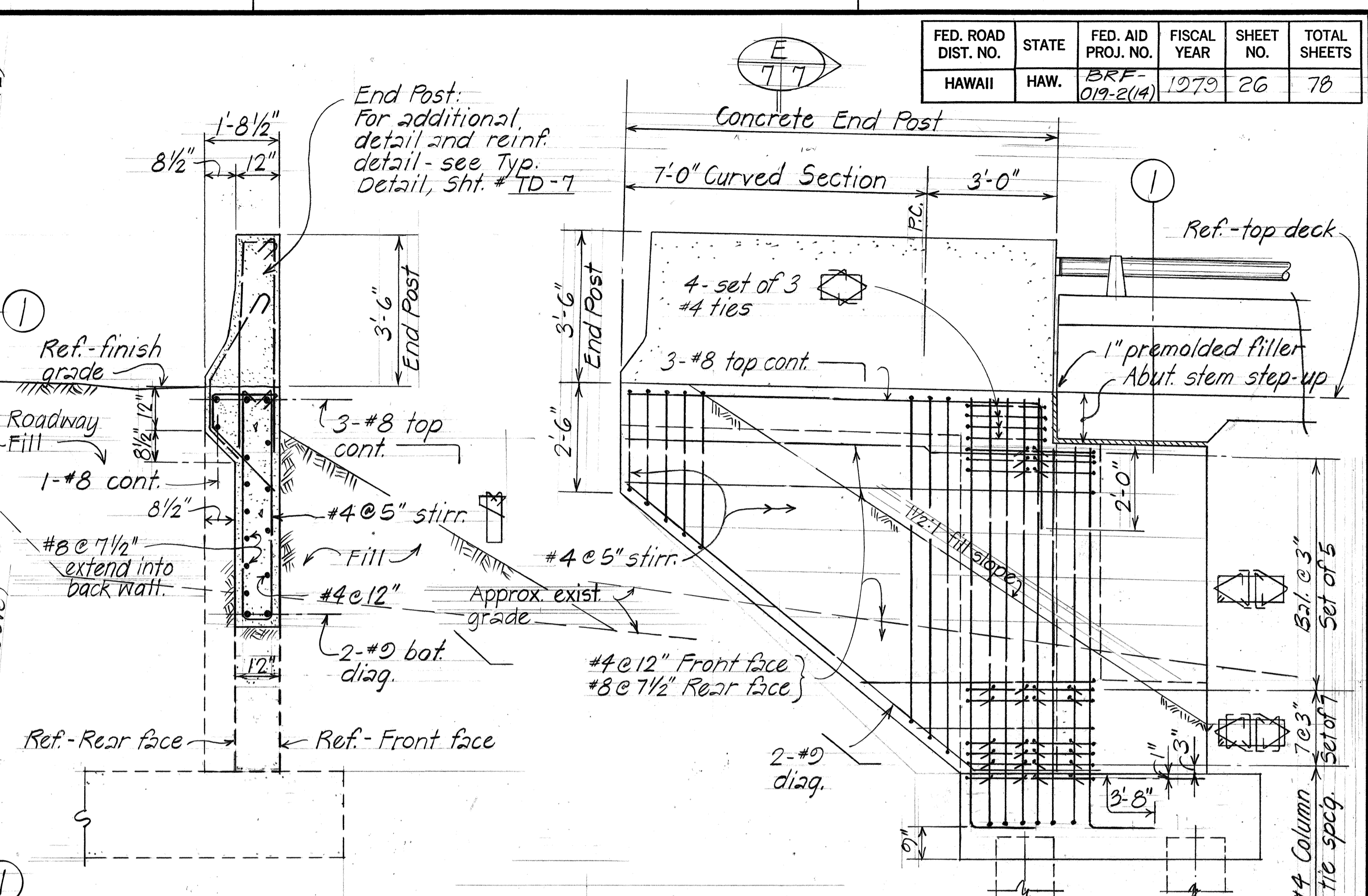
TYPICAL SECTION A-G/7
Scale: 1/2" = 1'-0"



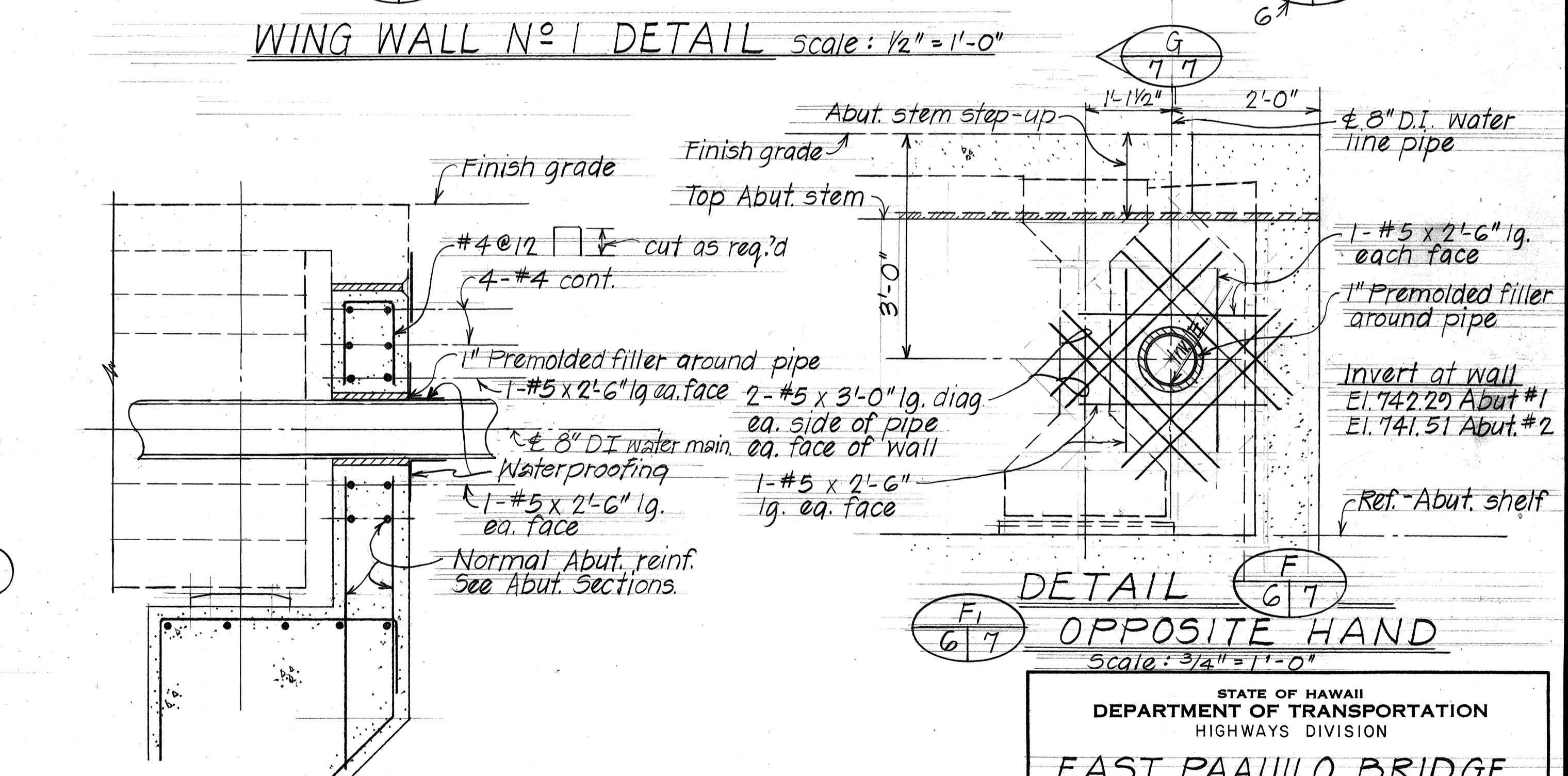
TYPICAL SECTION B-G/7
Scale: 1/2" = 1'-0"



TYPICAL SECTION C-G/7
Scale: 1/2" = 1'-0"



SECTION E-7/7 and **ELEVATION D-7/7**
Scale: 1/2" = 1'-0"

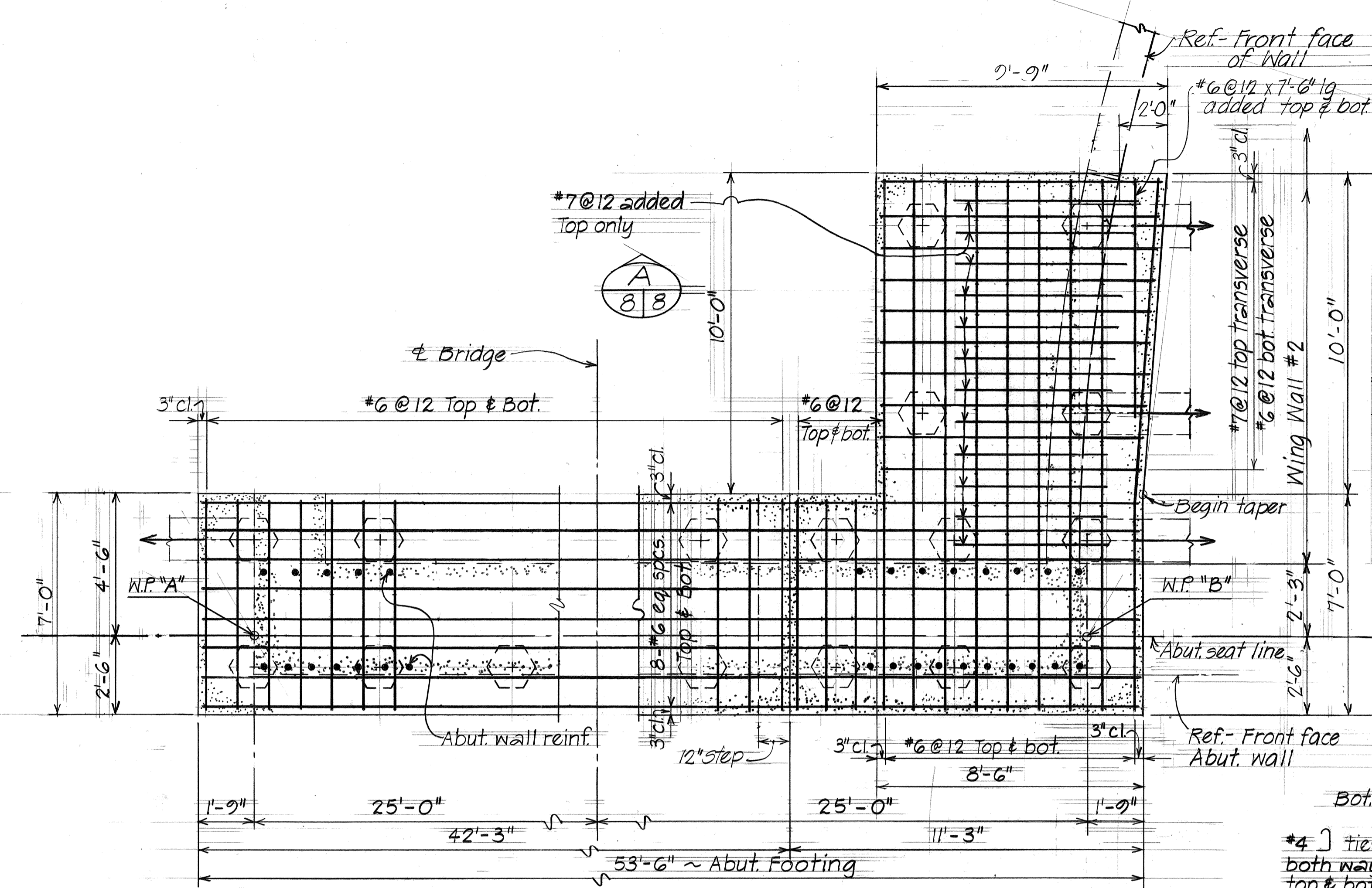


SECTION G-7/7 and **DETAIL F-6/7**
Scale: 3/4" = 1'-0"

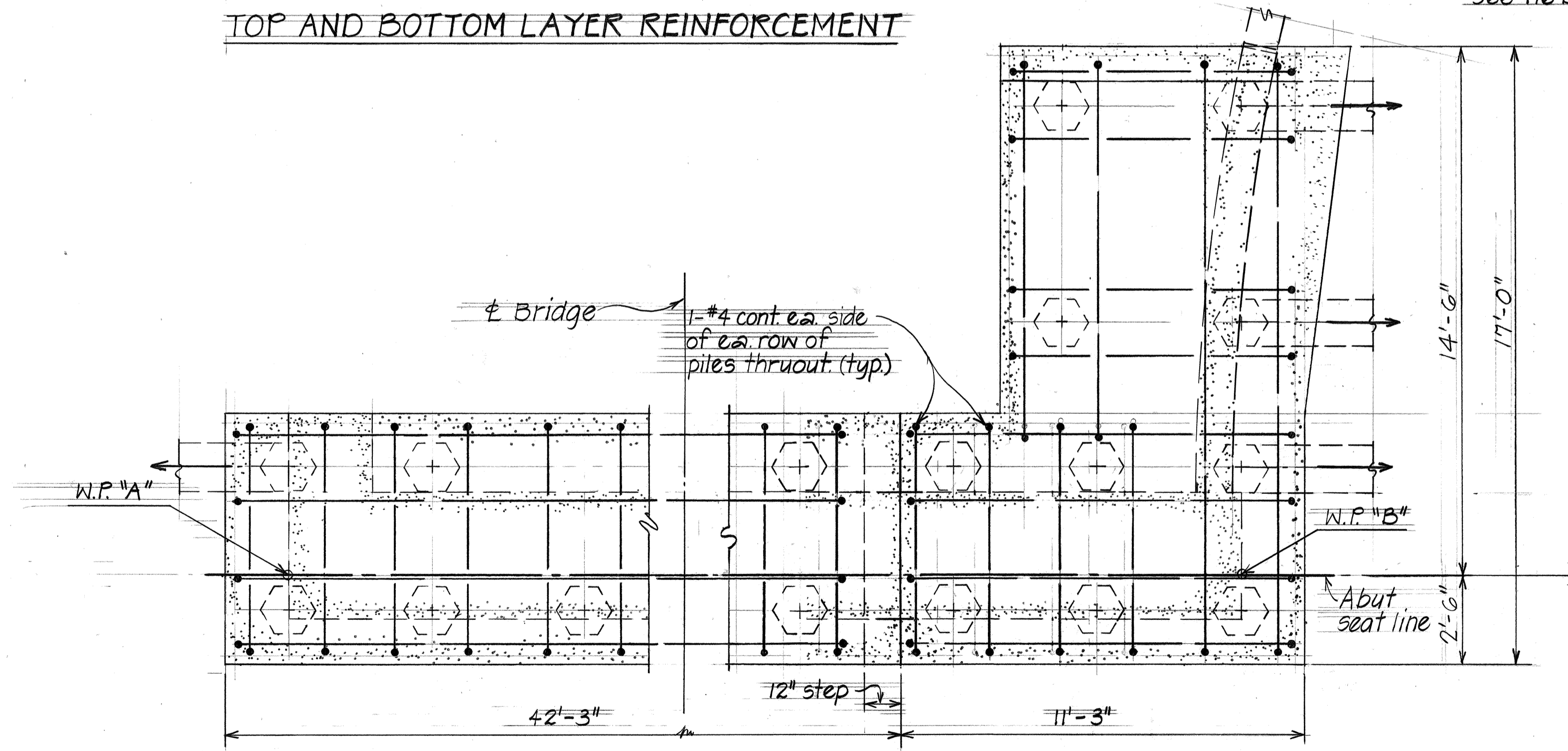
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EAST PAAULO BRIDGE
ABUT. ① - SECTIONS & DETAILS
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978
SHEET No. 7 OF 25 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
DESIGNED BY: _____
CHECKED BY: _____
ORIGINAL PLAN No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	27	78

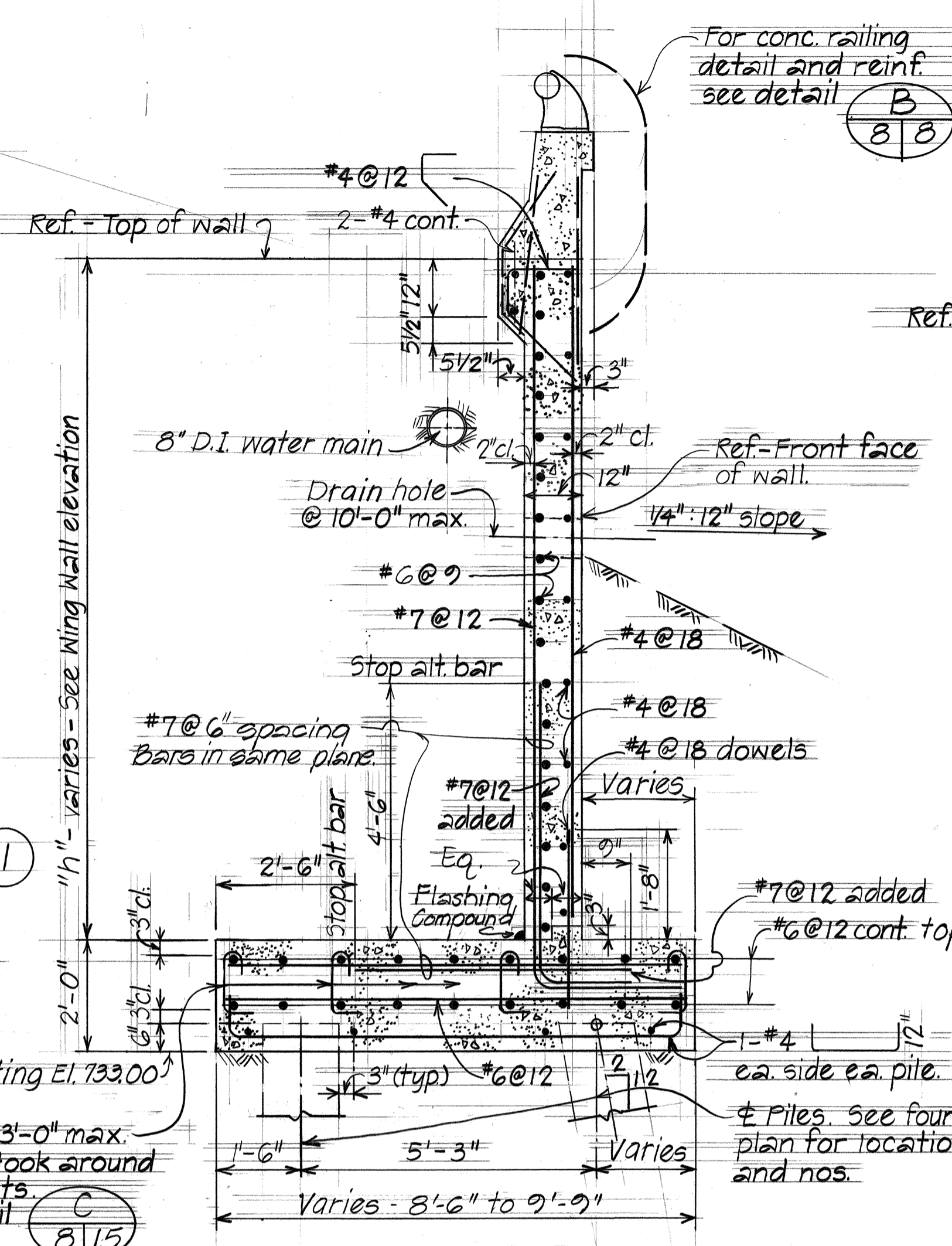


TOP AND BOTTOM LAYER REINFORCEMENT



PILE REINFORCEMENT

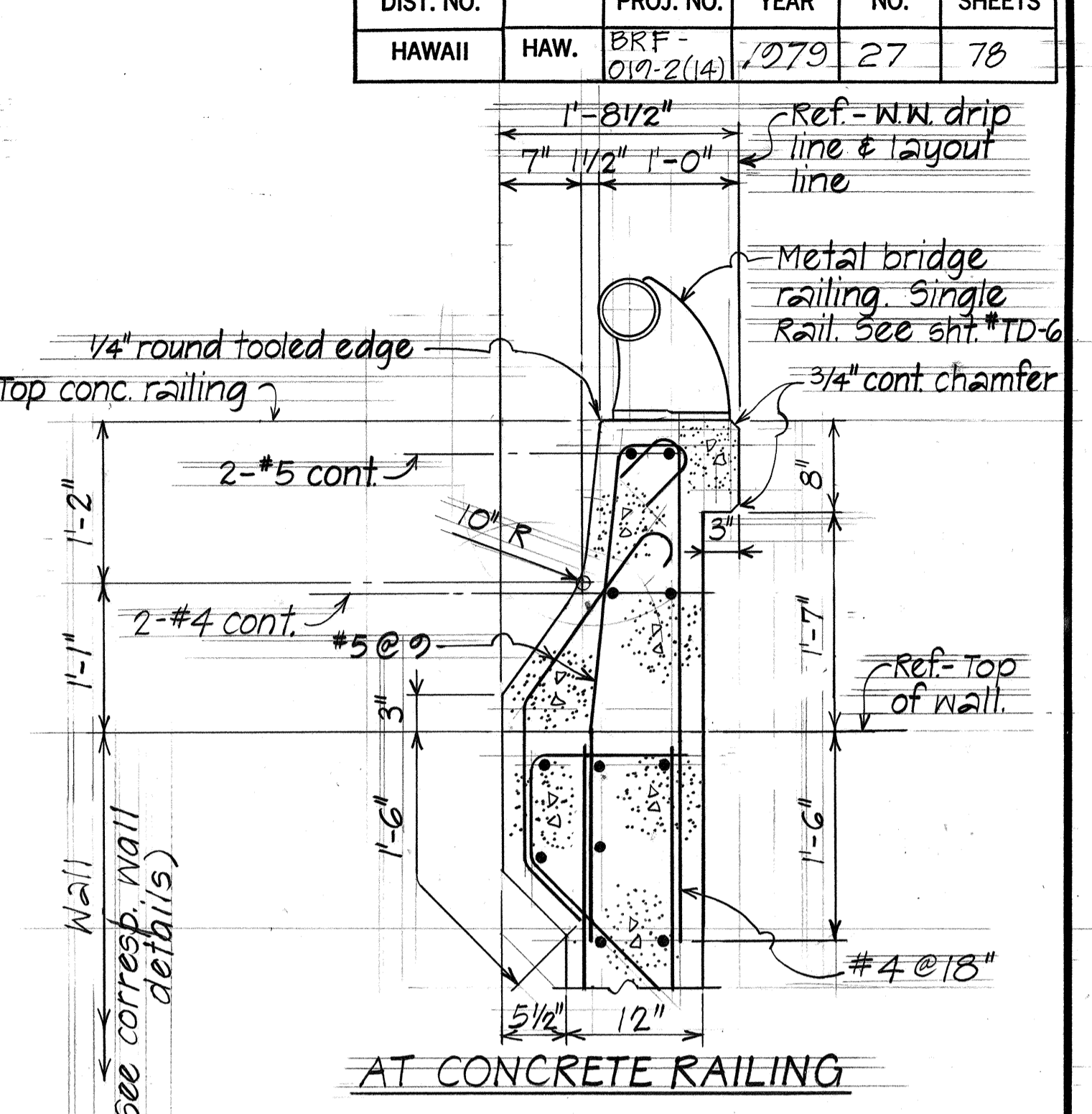
PART PLAN ABUTMENT ① ~ FOOTING REINFORCEMENT Scale: 3/8" = 1'-0"



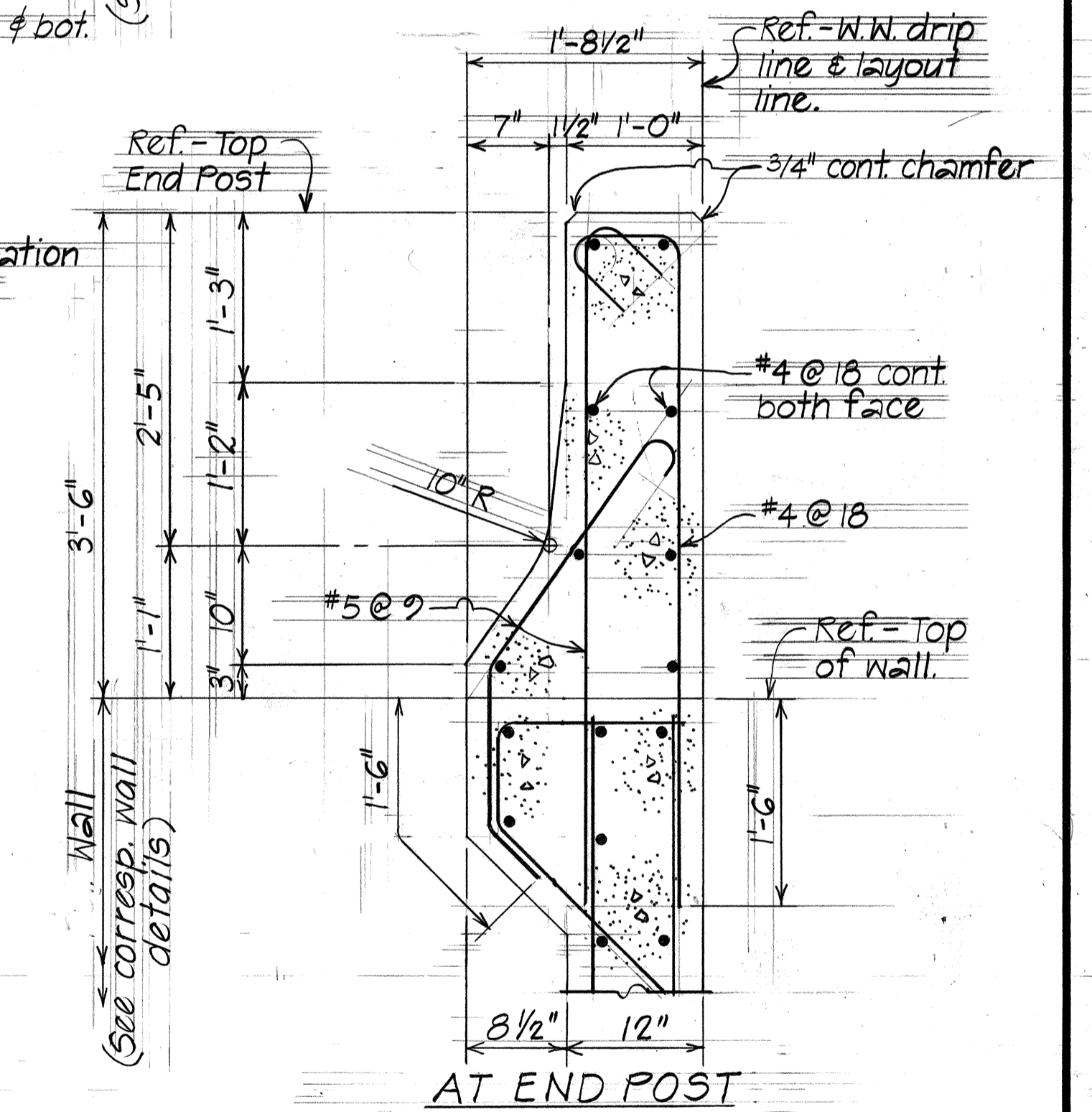
SECTION A Scale: 1/2" = 1'-0"

TYPICAL ABUTMENT FOOTING STEP-UP DETAIL

OPPOSITE HAND Scale: Not to scale



AT CONCRETE RAILING

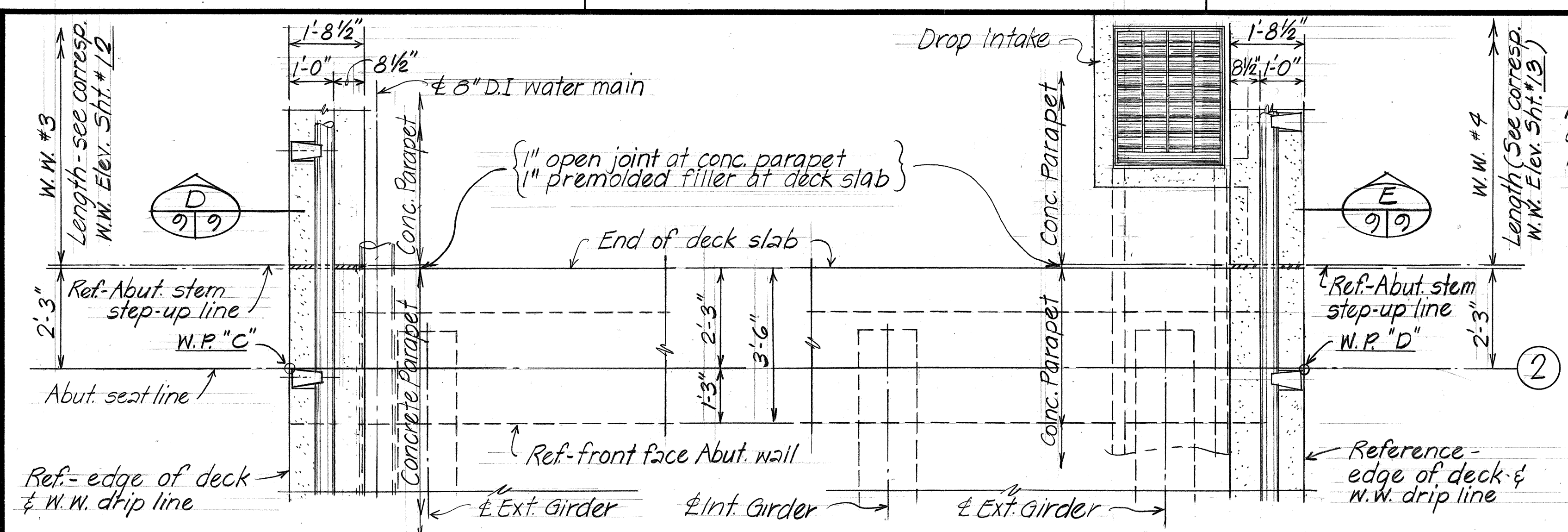


AT END POST

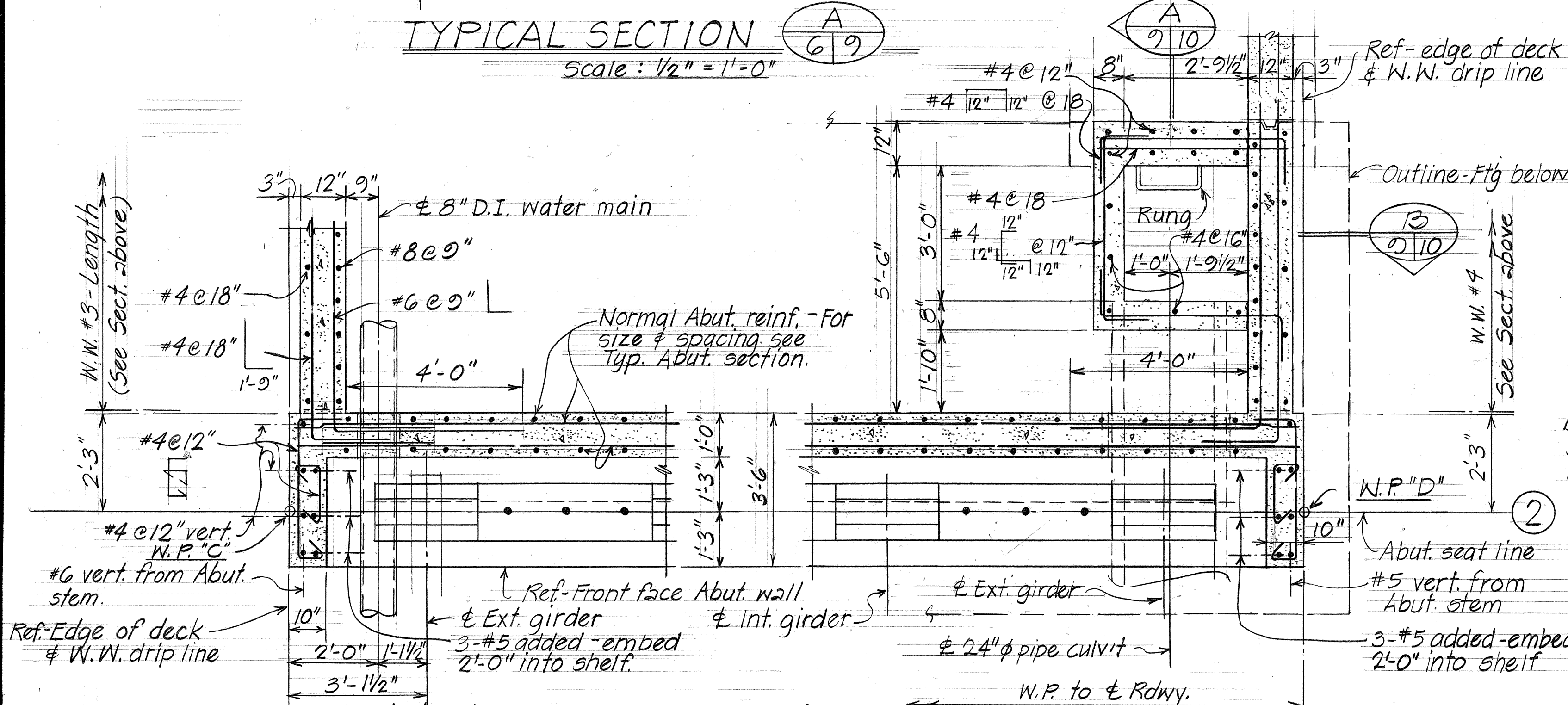
TYPICAL DETAIL B Scale: 1" = 1'-0" TD-3,9

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EAST PAAUILO BRIDGE
ABUT. ① - FOOTING REINFORCEMENT
WING WALL, CONCRETE RAILING
AND END POST SECTIONS
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978
SHEET NO. 8 OF 25 SHEETS

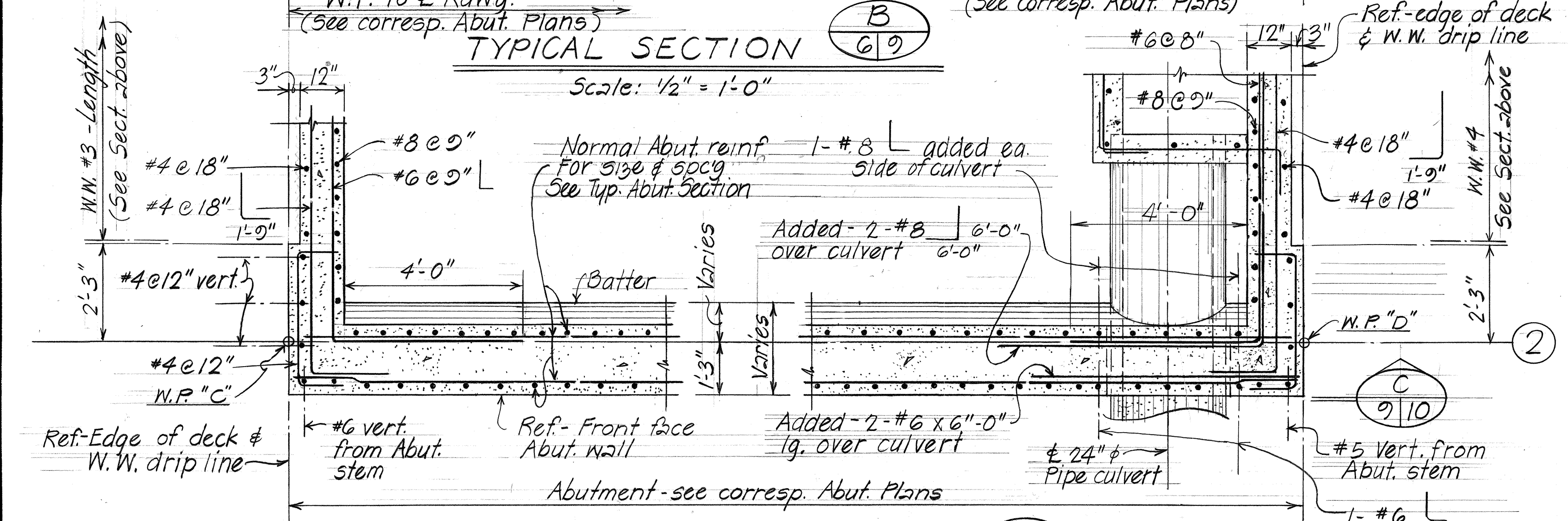
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	28	78



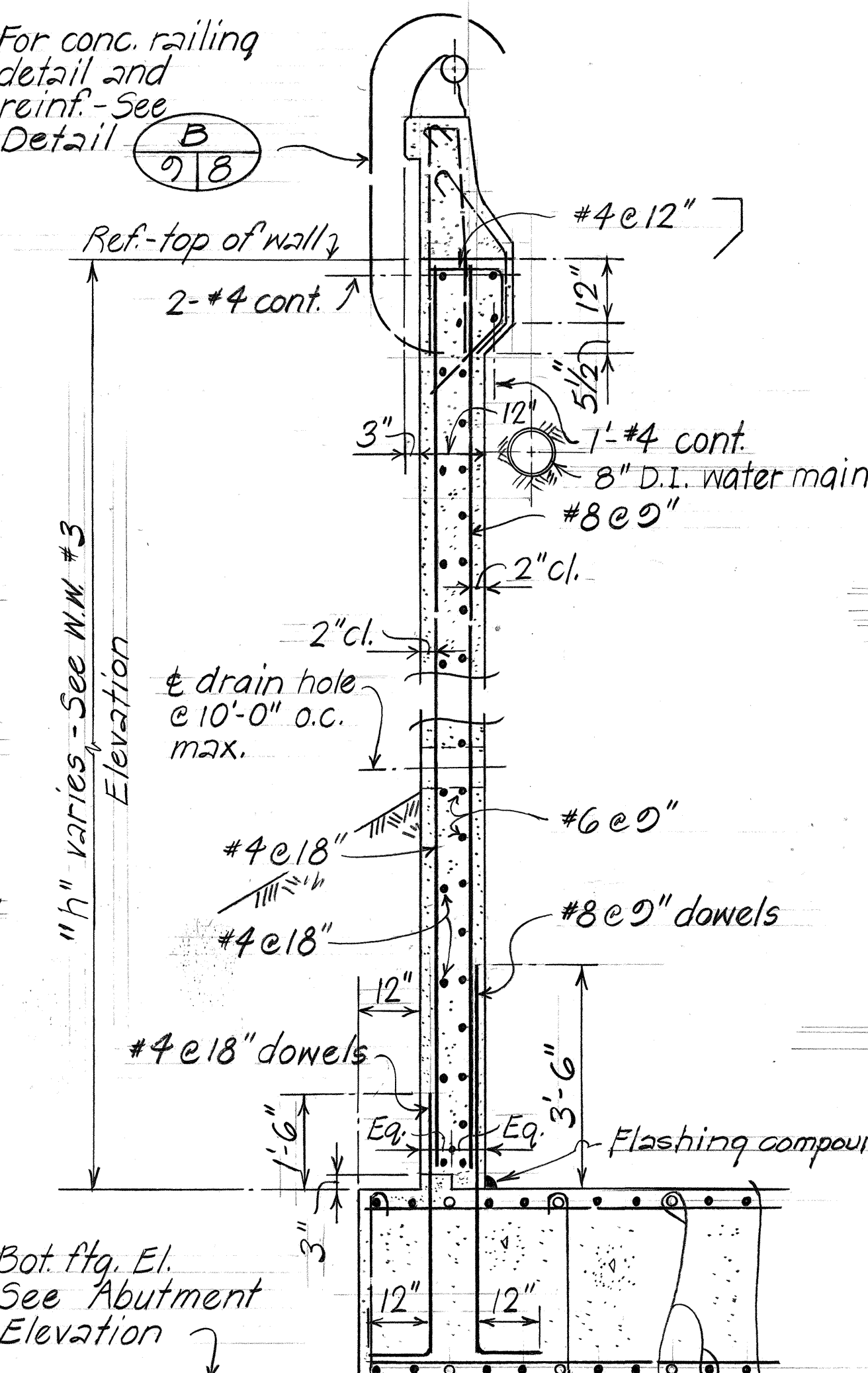
TYPICAL SECTION A 6/9
Scale: 1/2" = 1'-0"



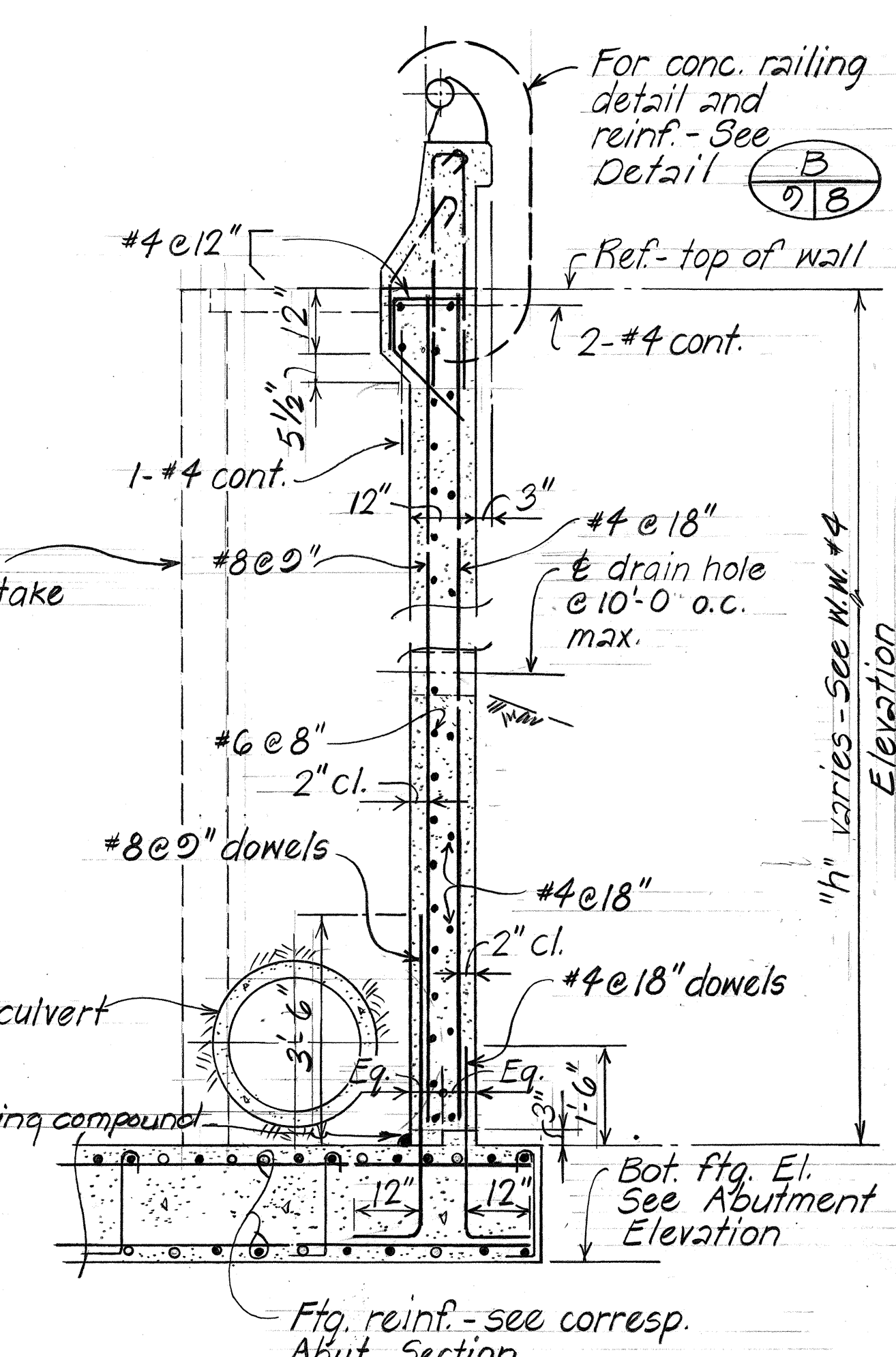
TYPICAL SECTION B 6/9
Scale: 1/2" = 1'-0"



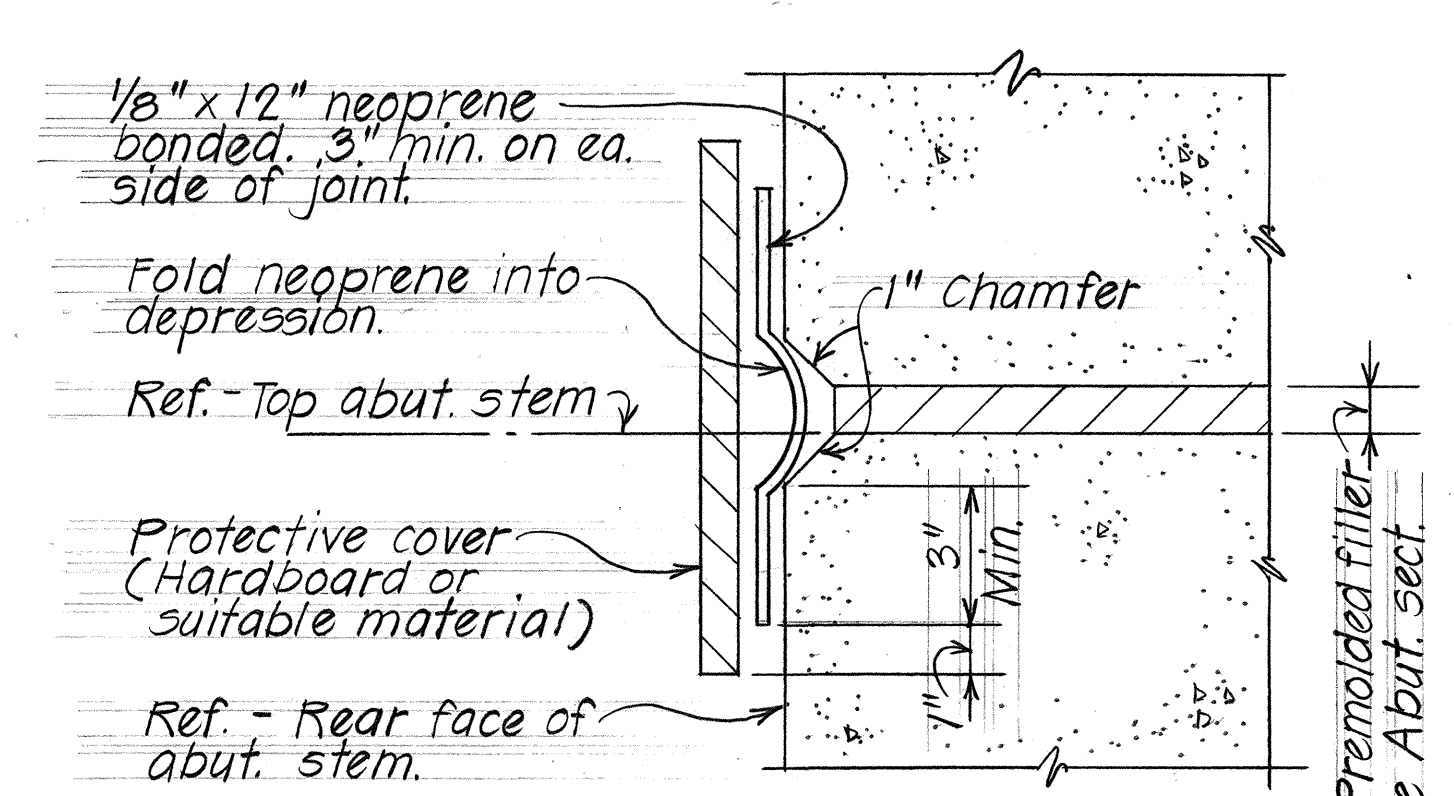
TYPICAL SECTION C 6/9
Scale: 1/2" = 1'-0"



SECTION D 9/12
Scale: 1/2" = 1'-0"



SECTION E 9/13
Scale: 1/2" = 1'-0"



TYPICAL WATERPROOFING DETAIL F 2/9
Not to scale

Note: Waterproofing assemblage incidental to concrete.

DATE	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NOTE BOOK	
ORIGINAL PLAN	
NO.	

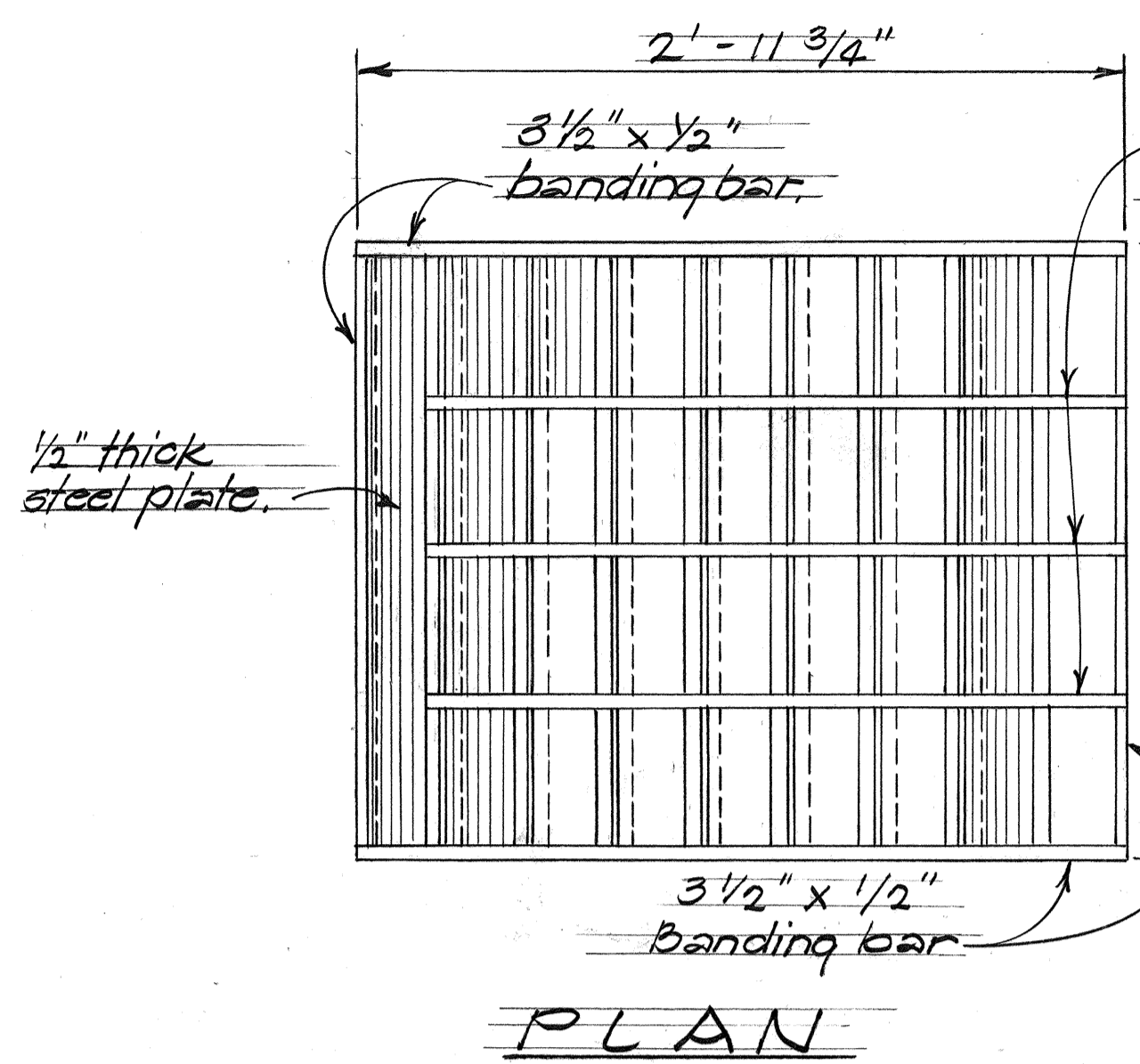
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAUILO BRIDGE
ABUT (2) - SECTIONS & DETAILS

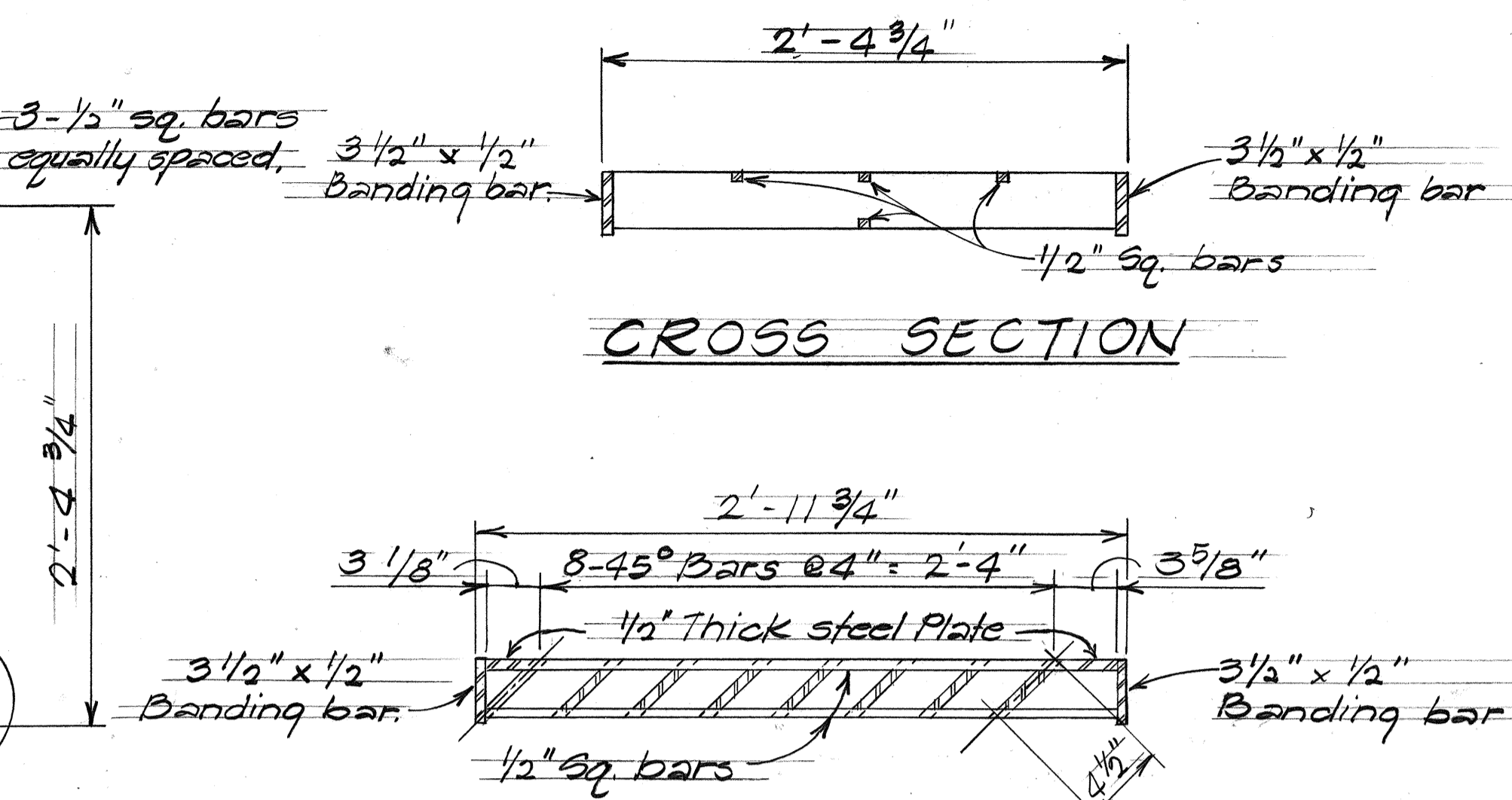
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 9 OF 25 SHEETS

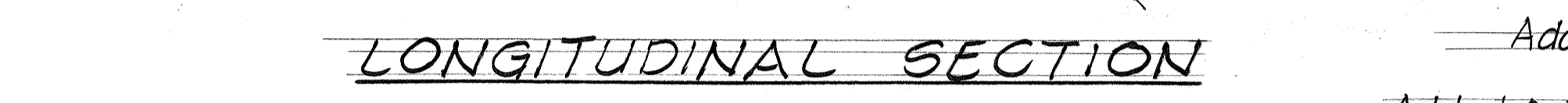
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	29	78



PLAN



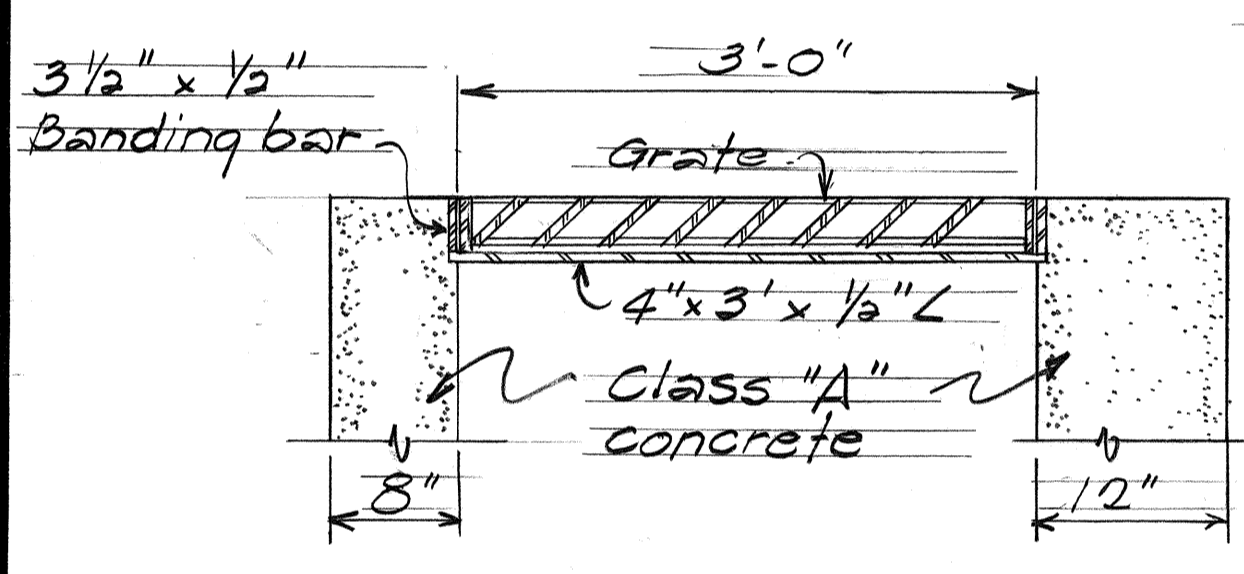
CROSS SECTION



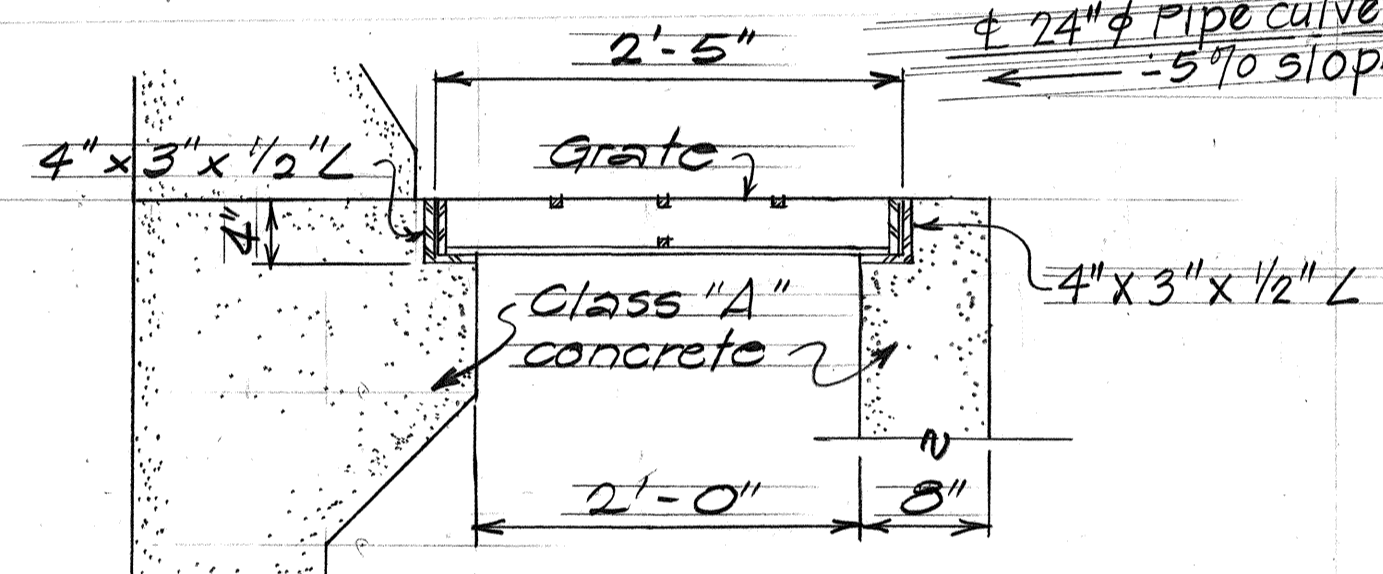
LONGITUDINAL SECTION

GRATE DETAILS

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



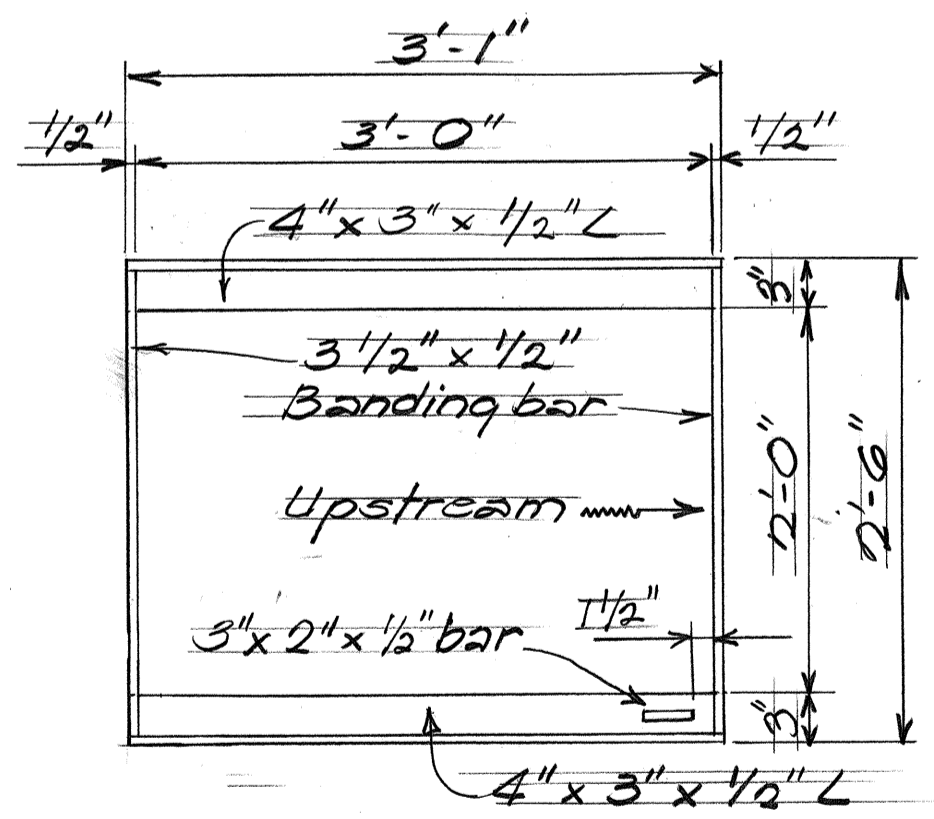
LONGITUDINAL SECTION (Thru Frame & Grate)



CROSS SECTION (Thru Frame & Grate)

FRAME DETAILS

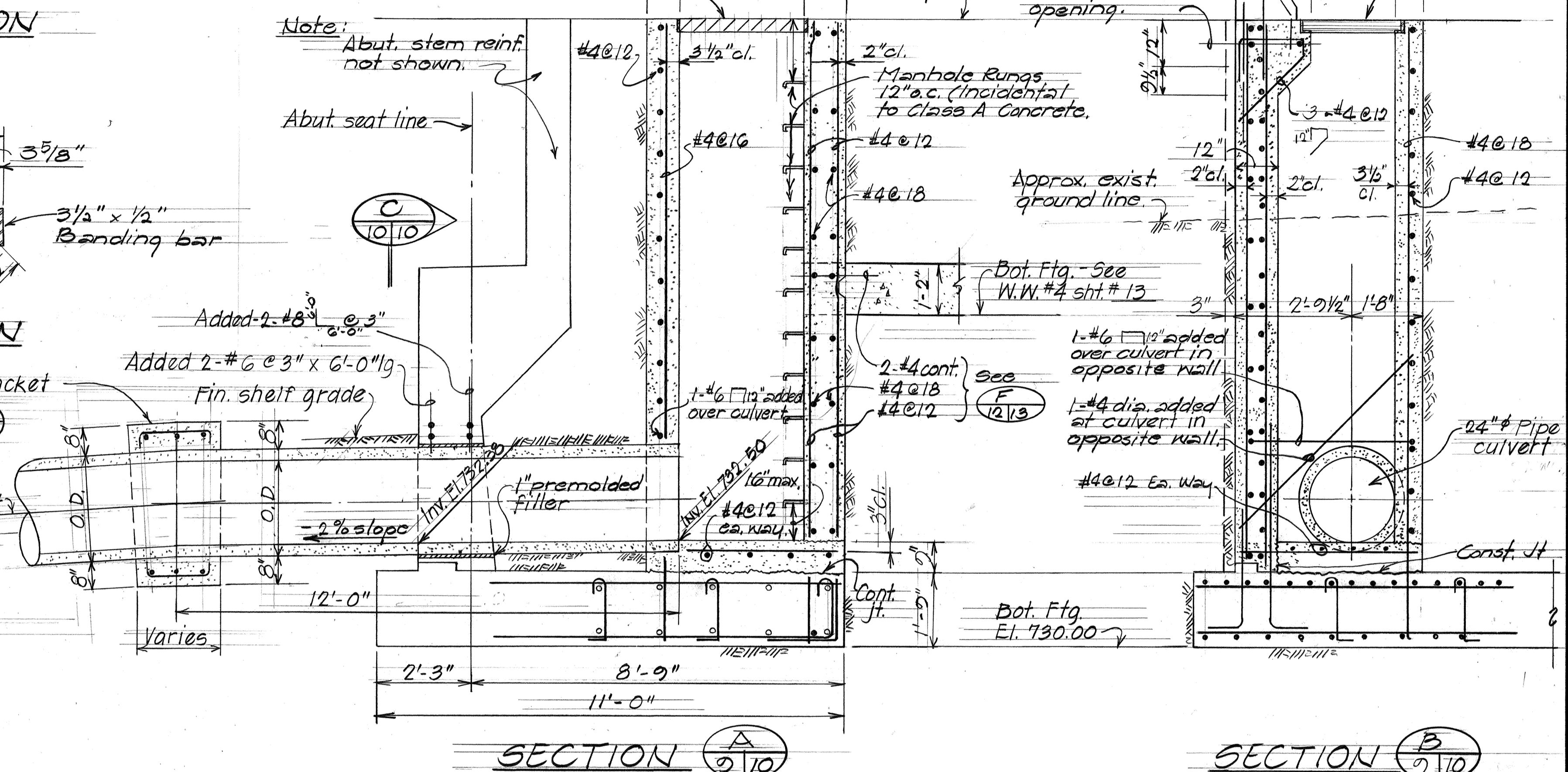
Scale: 1" = 1'-0"



PLAN

NOTE:

1. Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
2. All welds 3/8" unless otherwise noted.
3. The Frame & Grate materials shall conform to the specifications of ASTM Designation Structural Steel A283, Grade D and the Standard Specifications.
4. Manhole Rungs (12" o.c.) are required. Manhole Rungs may be placed at any location as ordered by the Engineer.



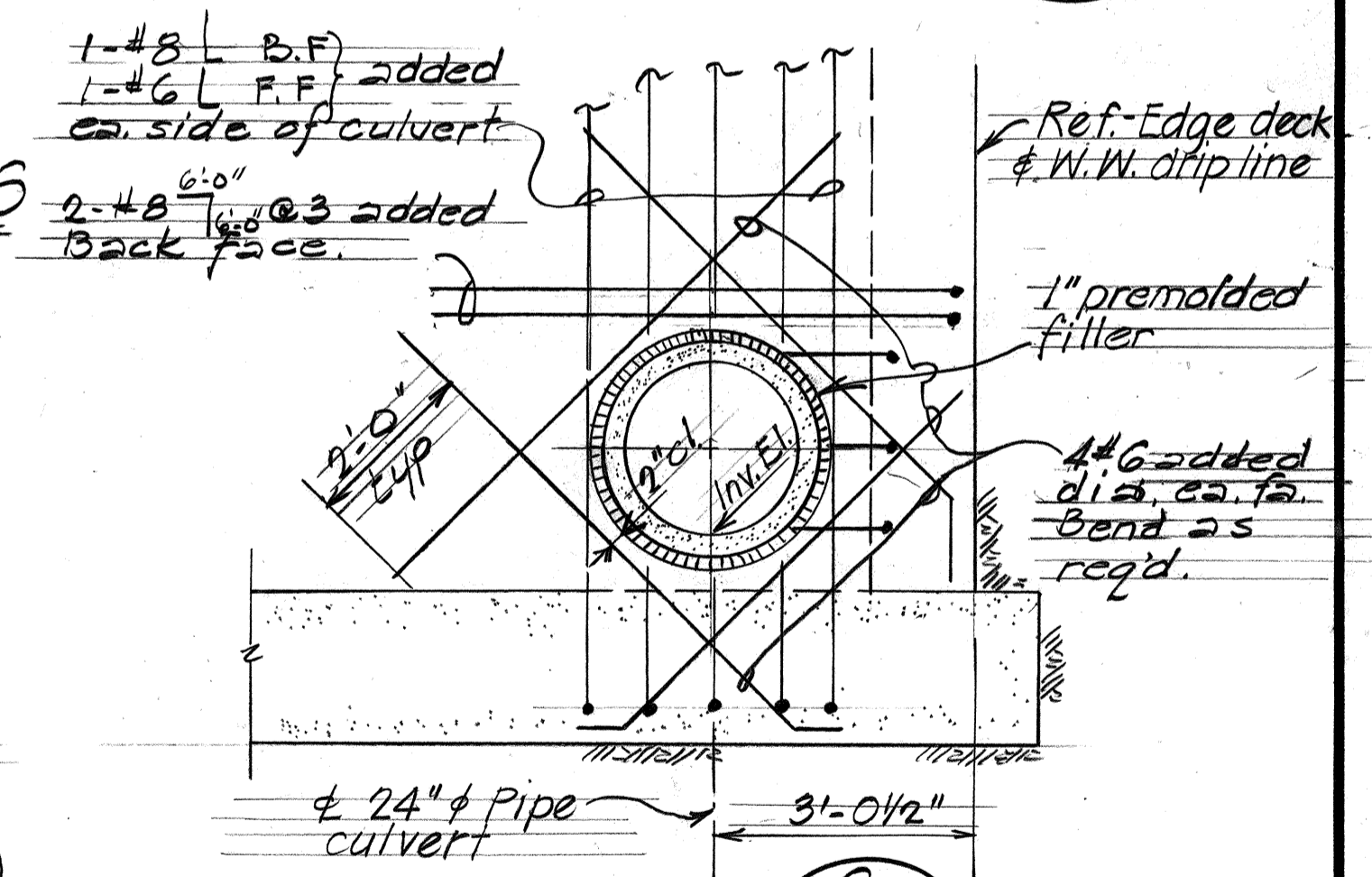
SECTION A

SECTION B

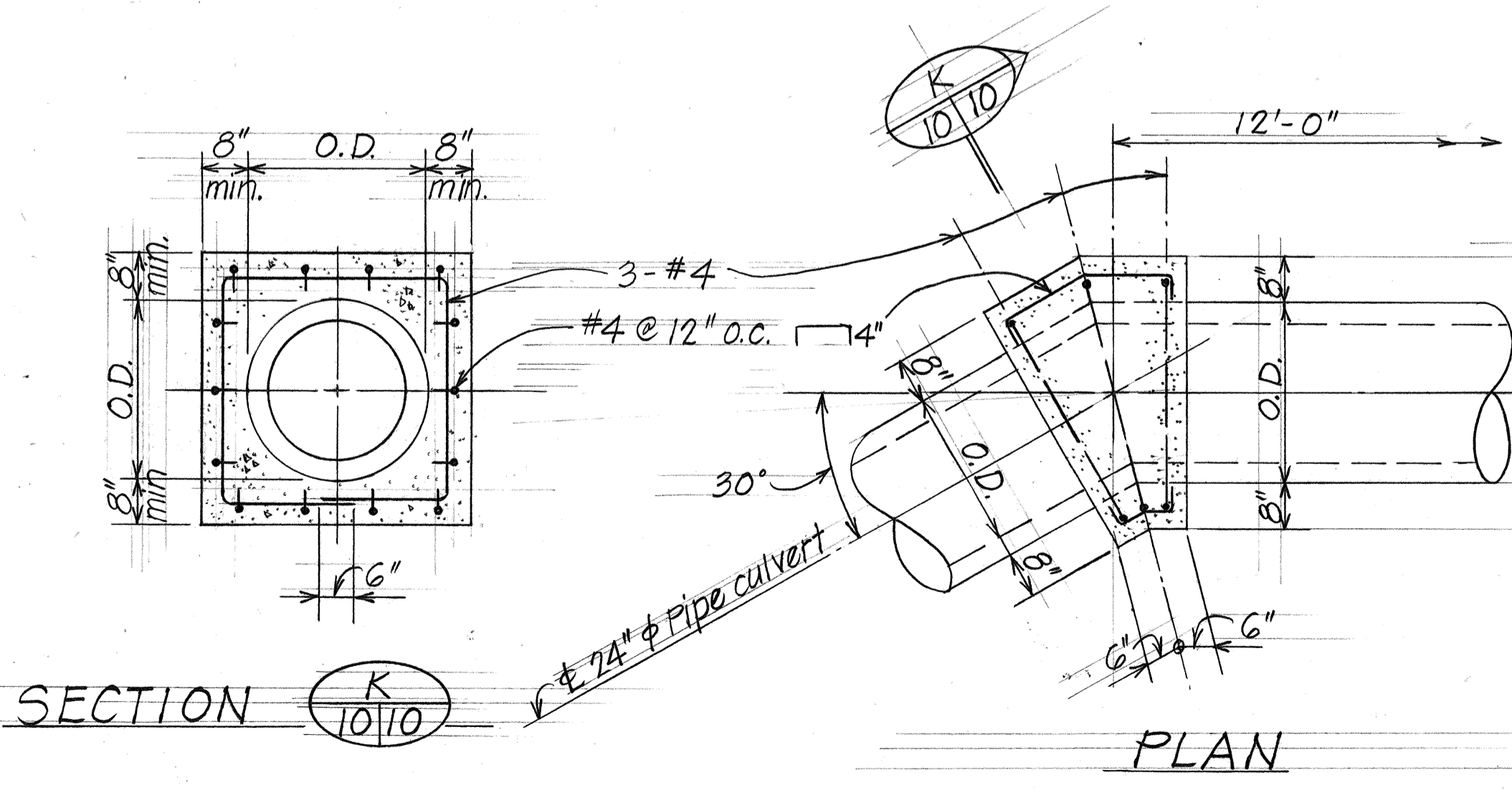
GRATED DROP INTAKE DETAILS

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

Drop intake concrete & reinf. included with Wing Wall concrete & reinf.



SECTION C



CONCRETE JACKET DETAIL

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

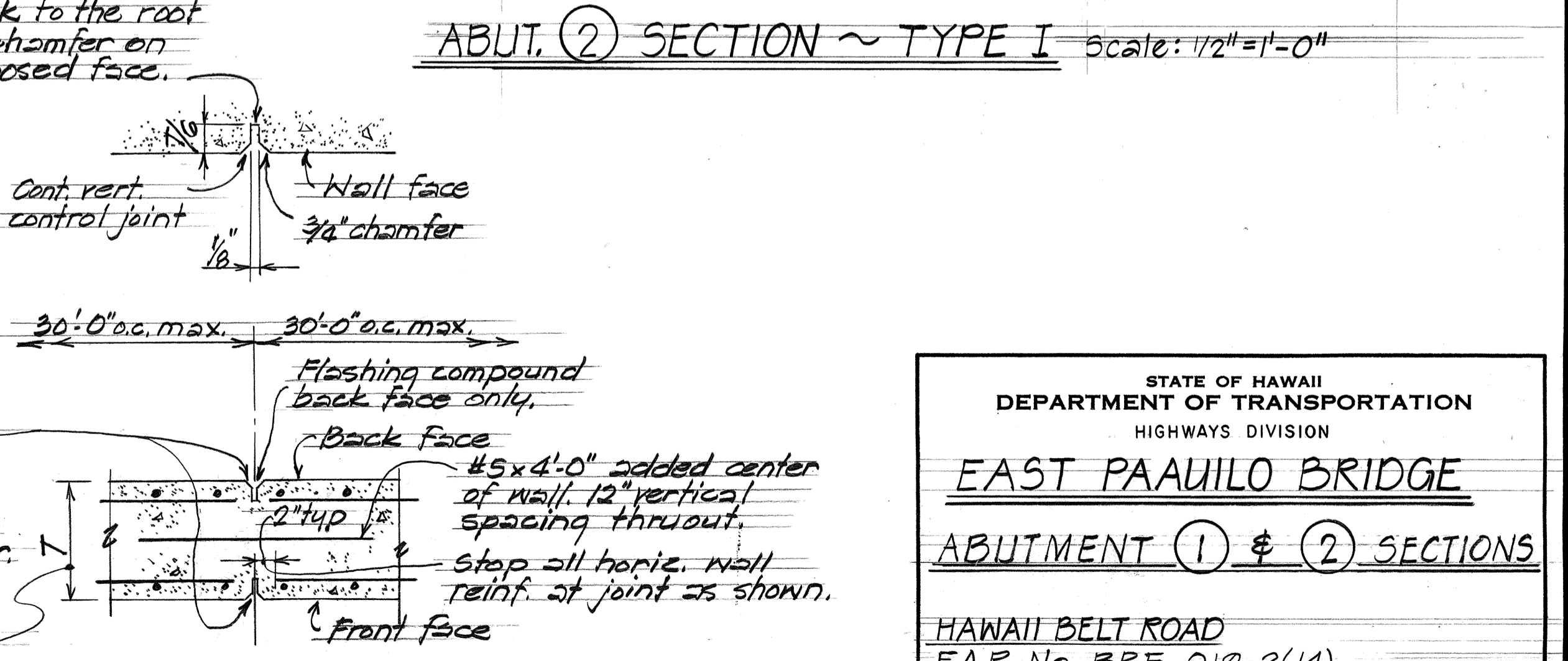
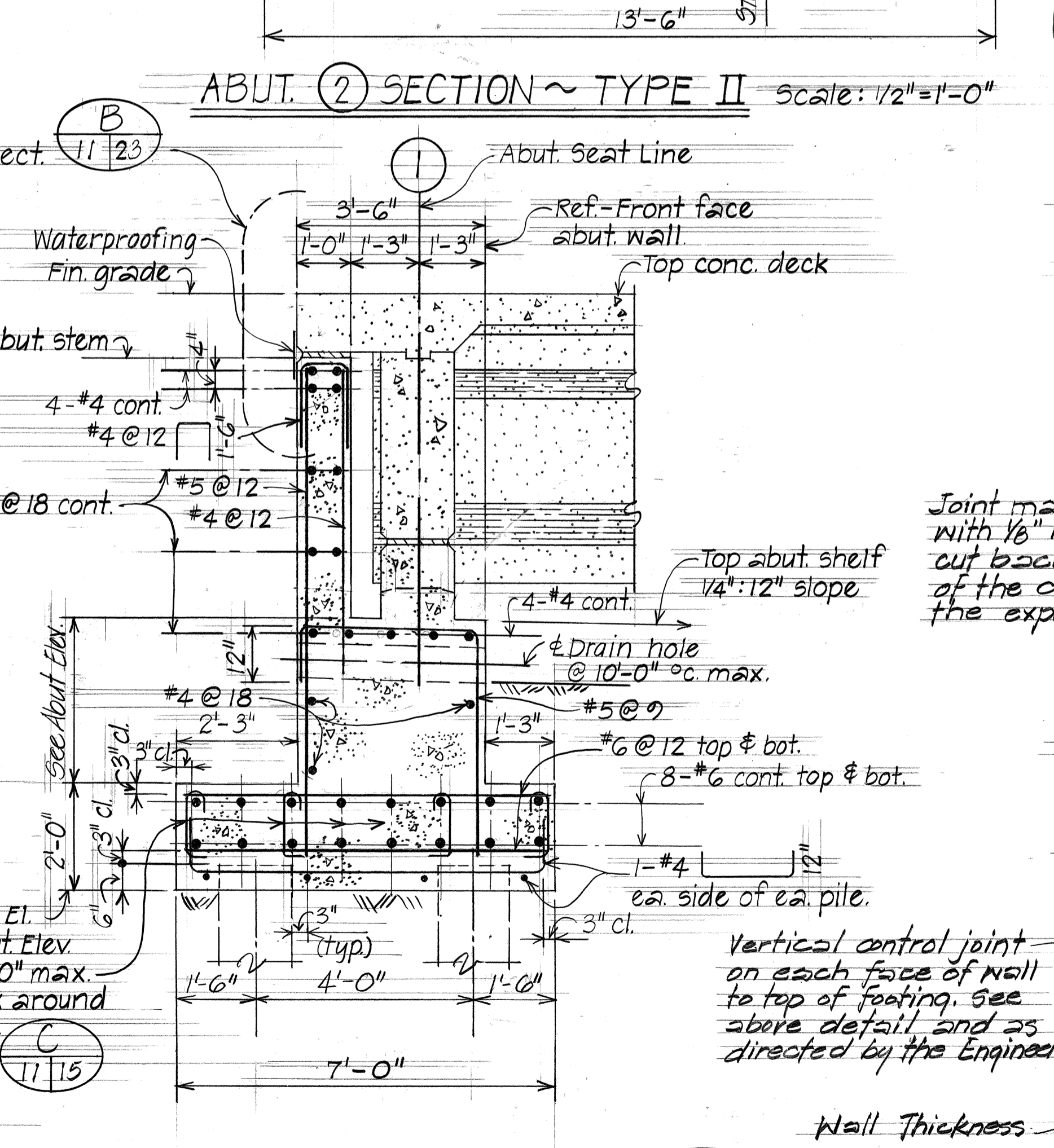
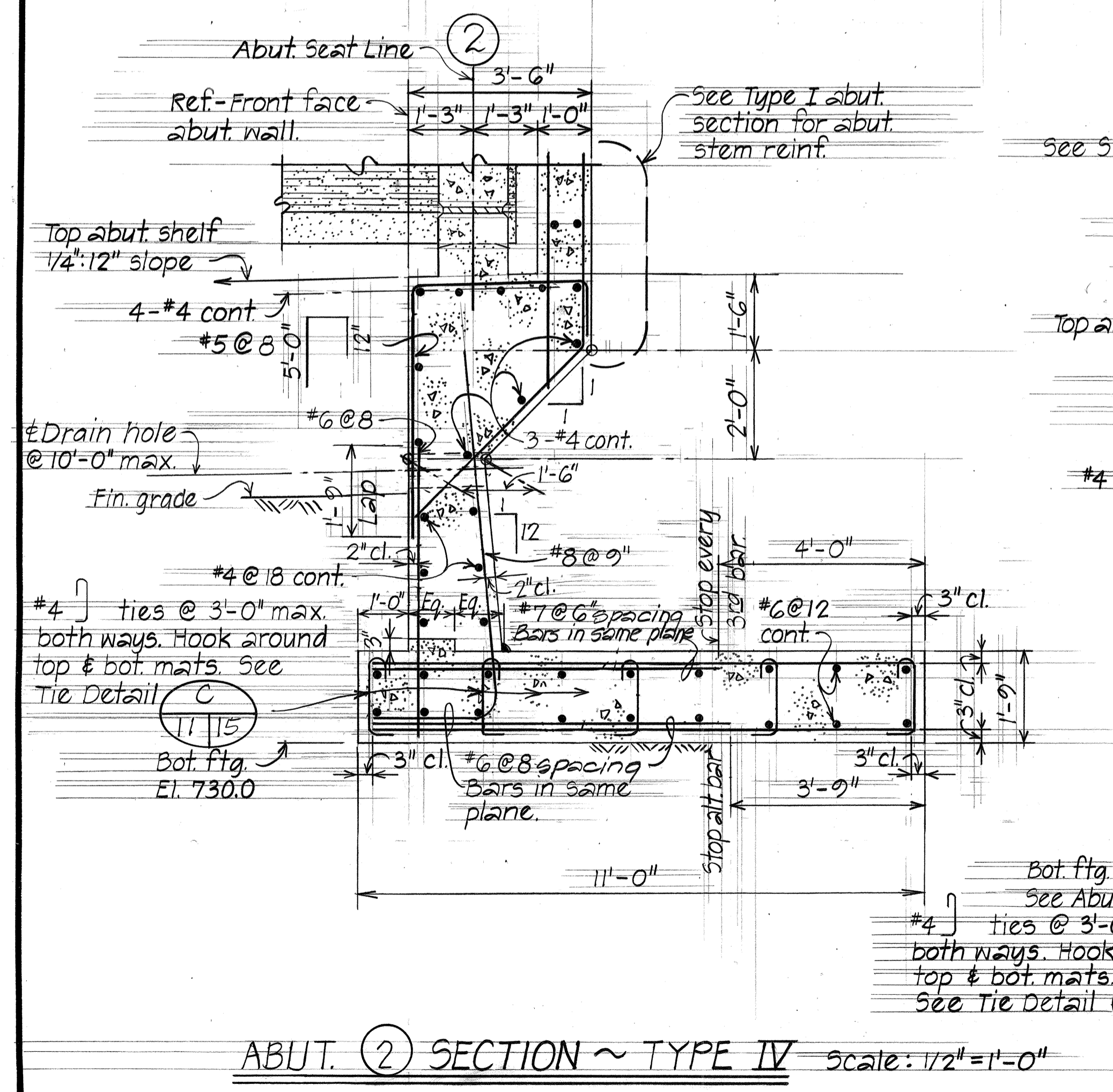
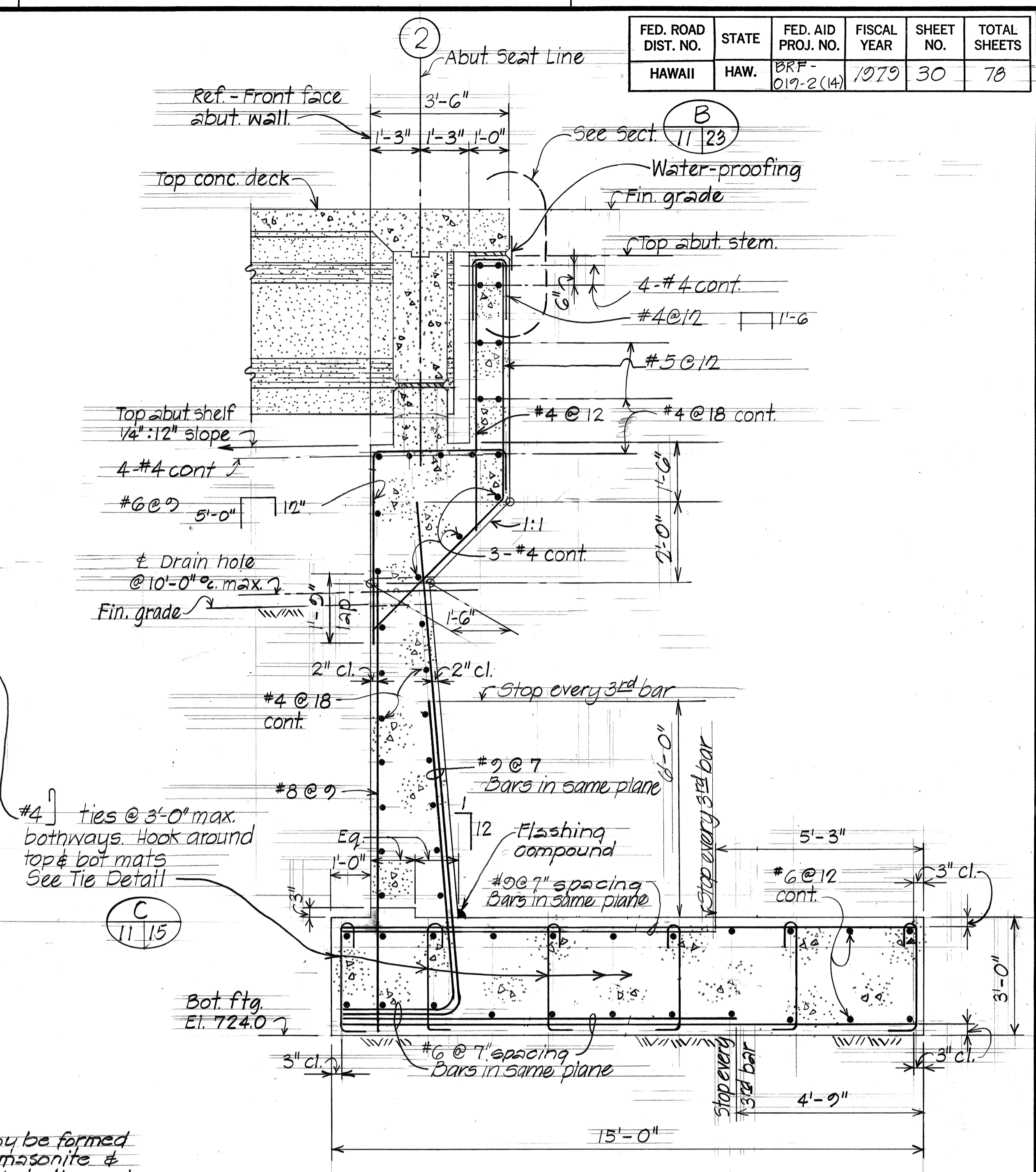
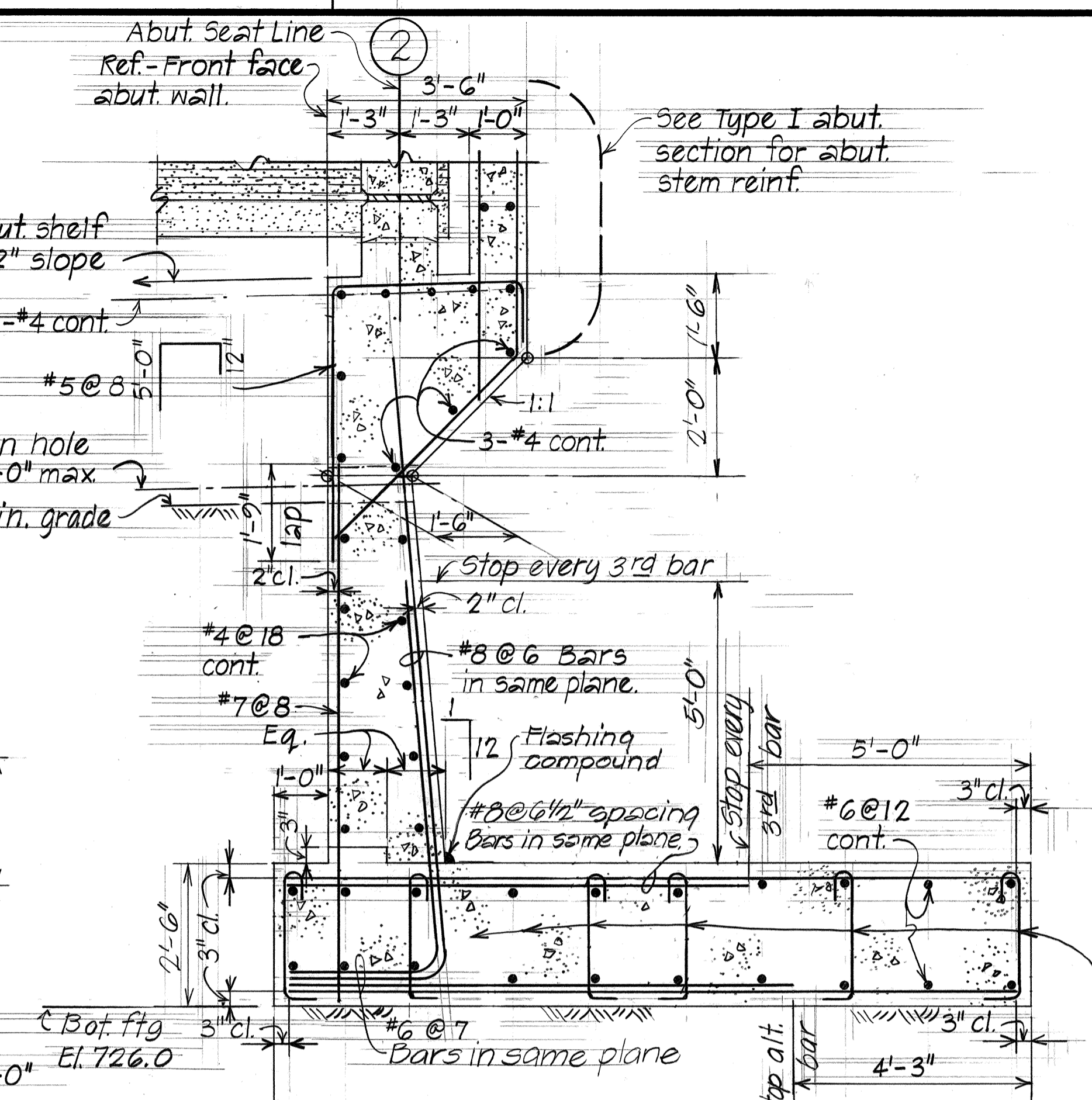
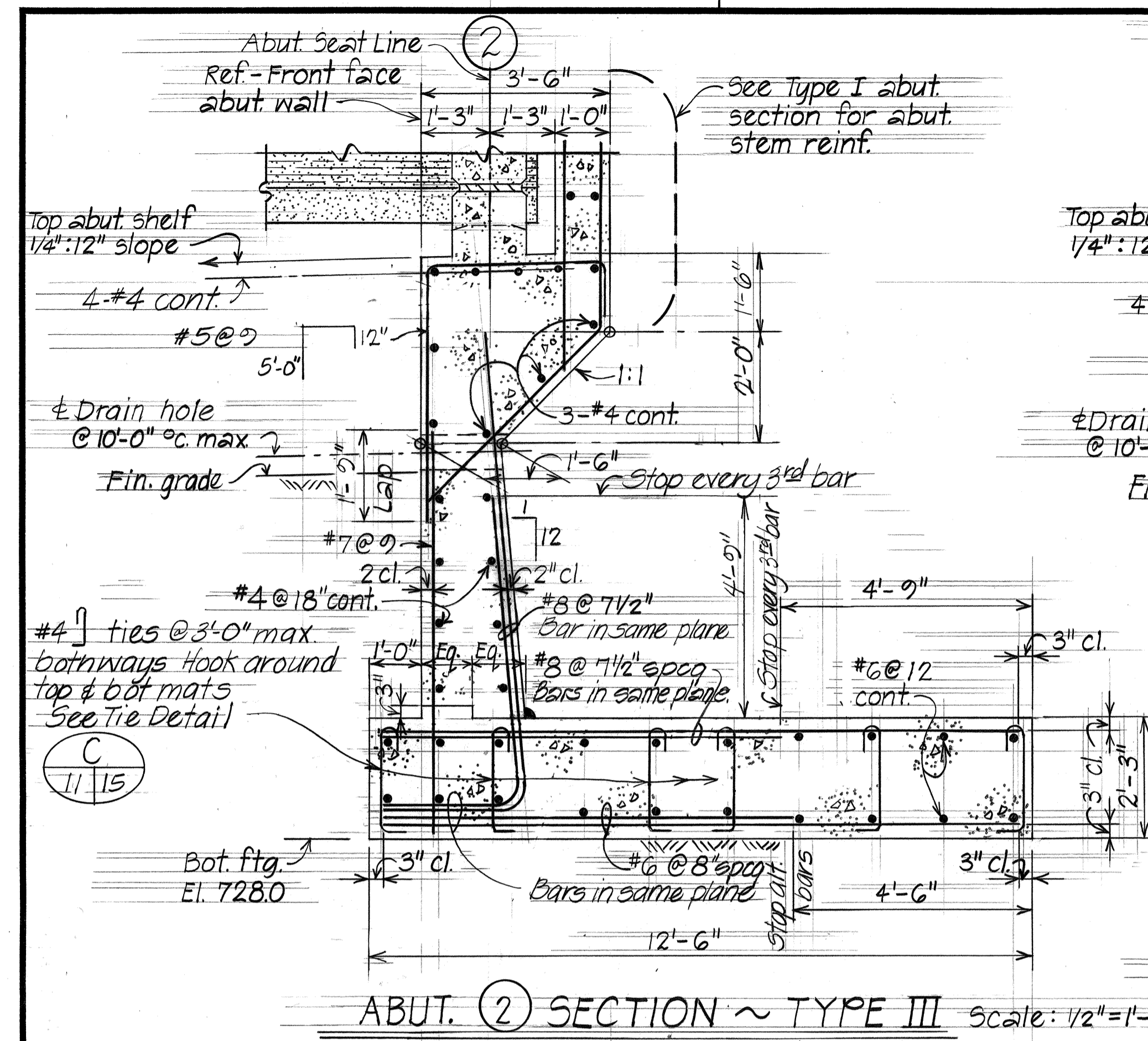
EAST PAAULO BRIDGE
GRATED DROP INTAKE DETAILS

HAWAII BELT ROAD
E.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 10 OF 25 SHEETS

DATE	
SURVEY PLOTTED BY	
ORIGINAL PLAN	
DRAWN BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	30	78



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EAST PAAULO BRIDGE
ABUTMENT (1) & (2) SECTIONS
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978
SHEET No. 11 OF 25 SHEETS

Start = 12:00 - 3:00

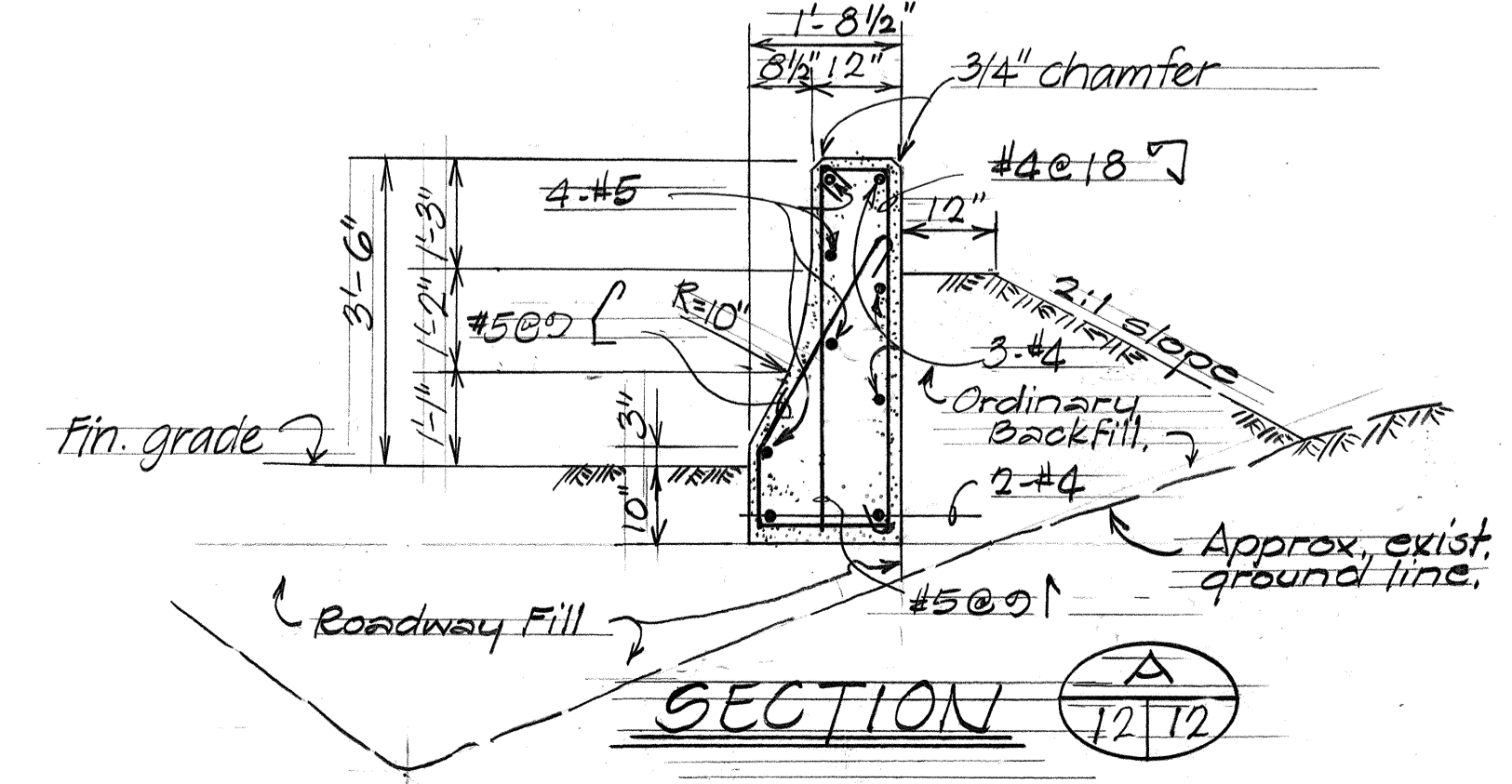
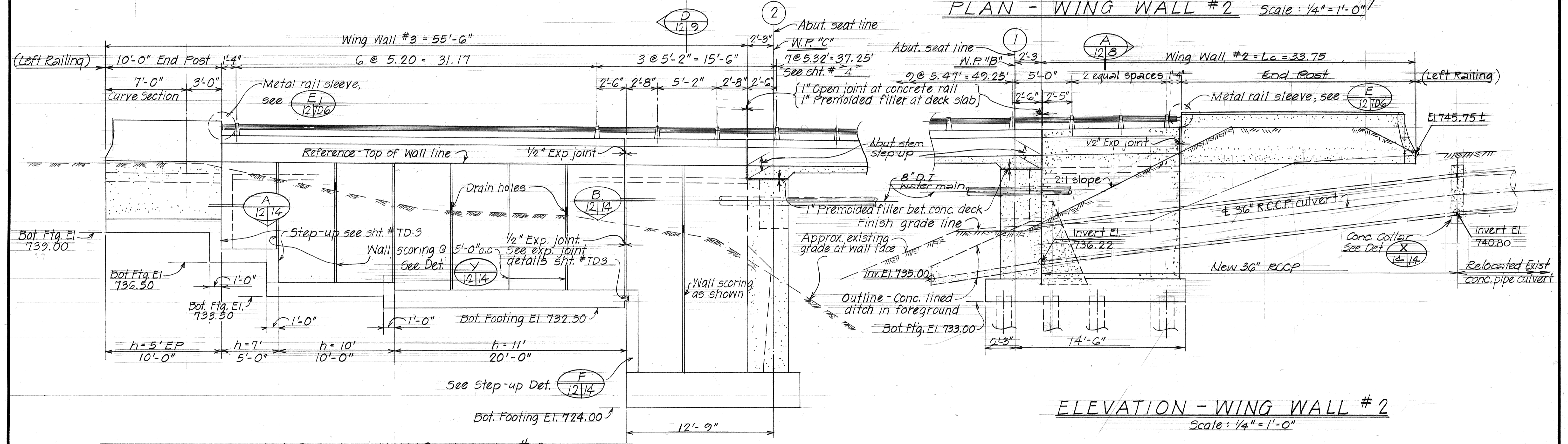
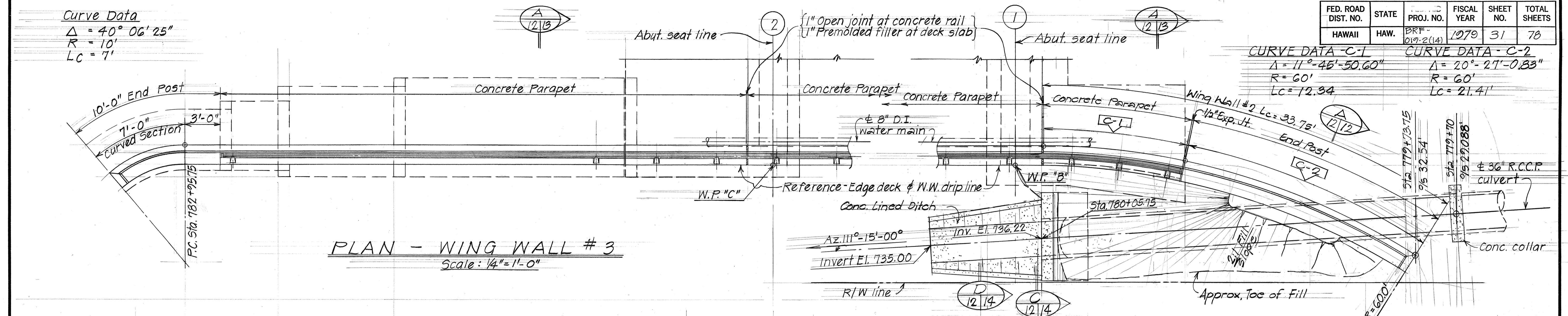
DATE: 3/27/77
SURVEY PLOTTED BY: [Signature]
DRAWN BY: [Signature]
DESIGNED BY: [Signature]
QUANTITIES BY: [Signature]
CHECKED BY: [Signature]
NO. [Blank]

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	31	78

Curve Data
 $\Delta = 40^\circ 06' 25''$
 $R = 10'$
 $LC = 7'$

CURVE DATA - C-1
 $\Delta = 11^\circ 45' 50.60''$
 $R = 60'$
 $LC = 12.34'$

CURVE DATA - C-2
 $\Delta = 20^\circ 27' 0.83''$
 $R = 60'$
 $LC = 21.41'$



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

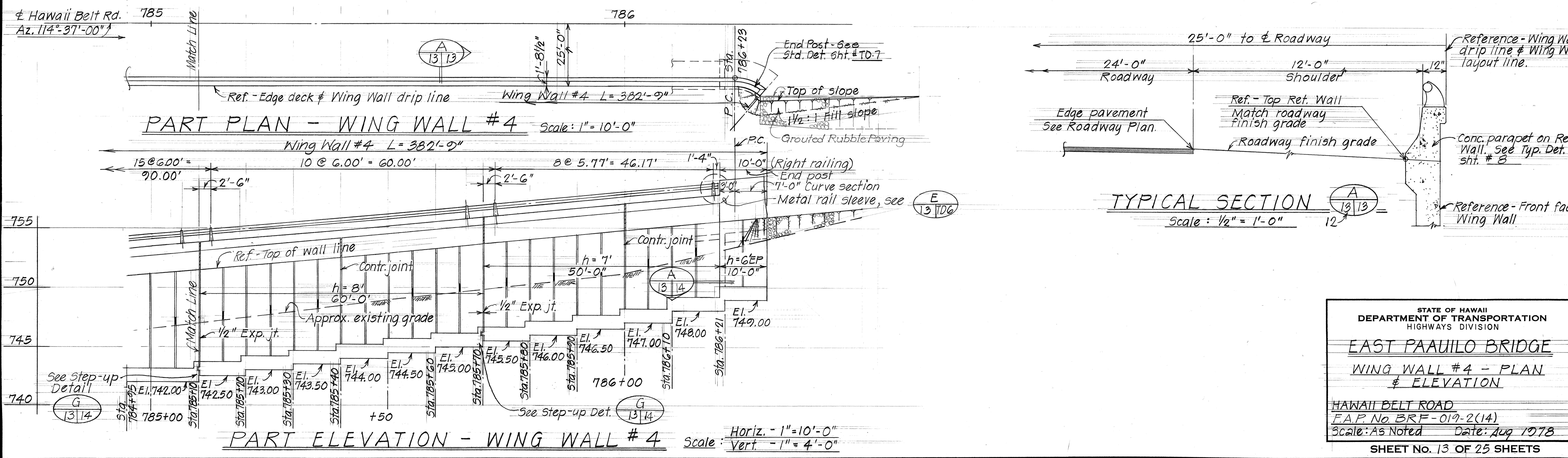
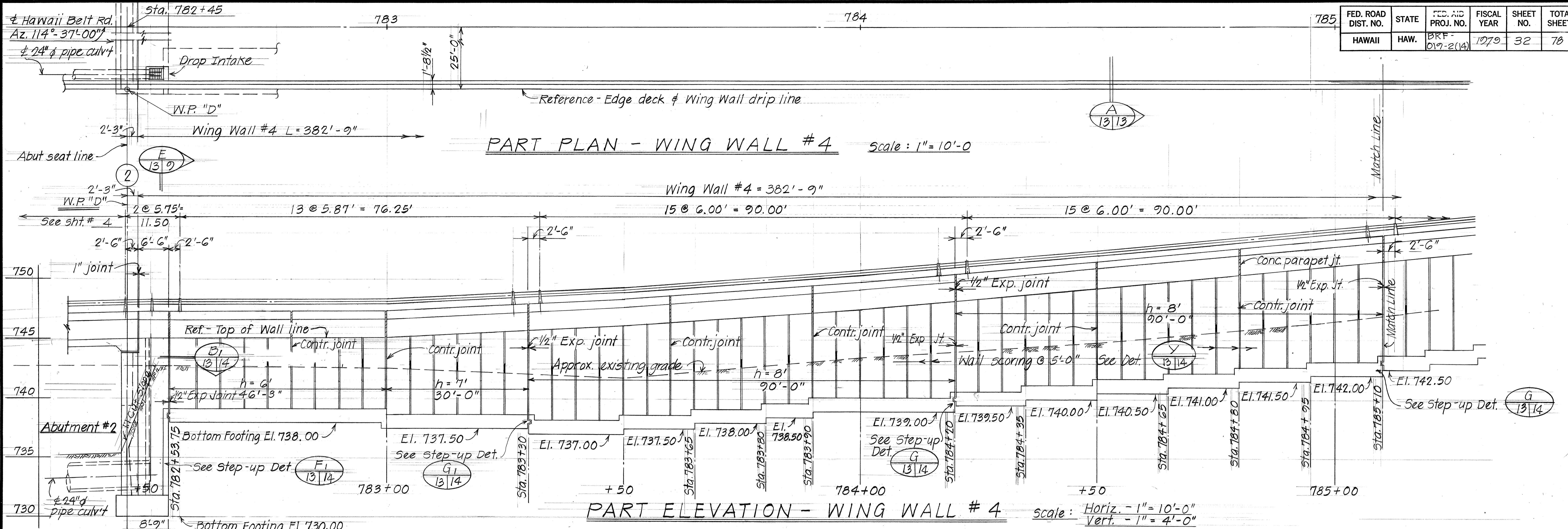
EAST PAAULU BRIDGE
WING WALL #2 & #3
PLAN & ELEVATION

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978

SHEET NO. 12 OF 25 SHEETS

ORIGINAL PLAN
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE:

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	32	78



DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAUULO BRIDGE
WING WALL #4 - PLAN
& ELEVATION

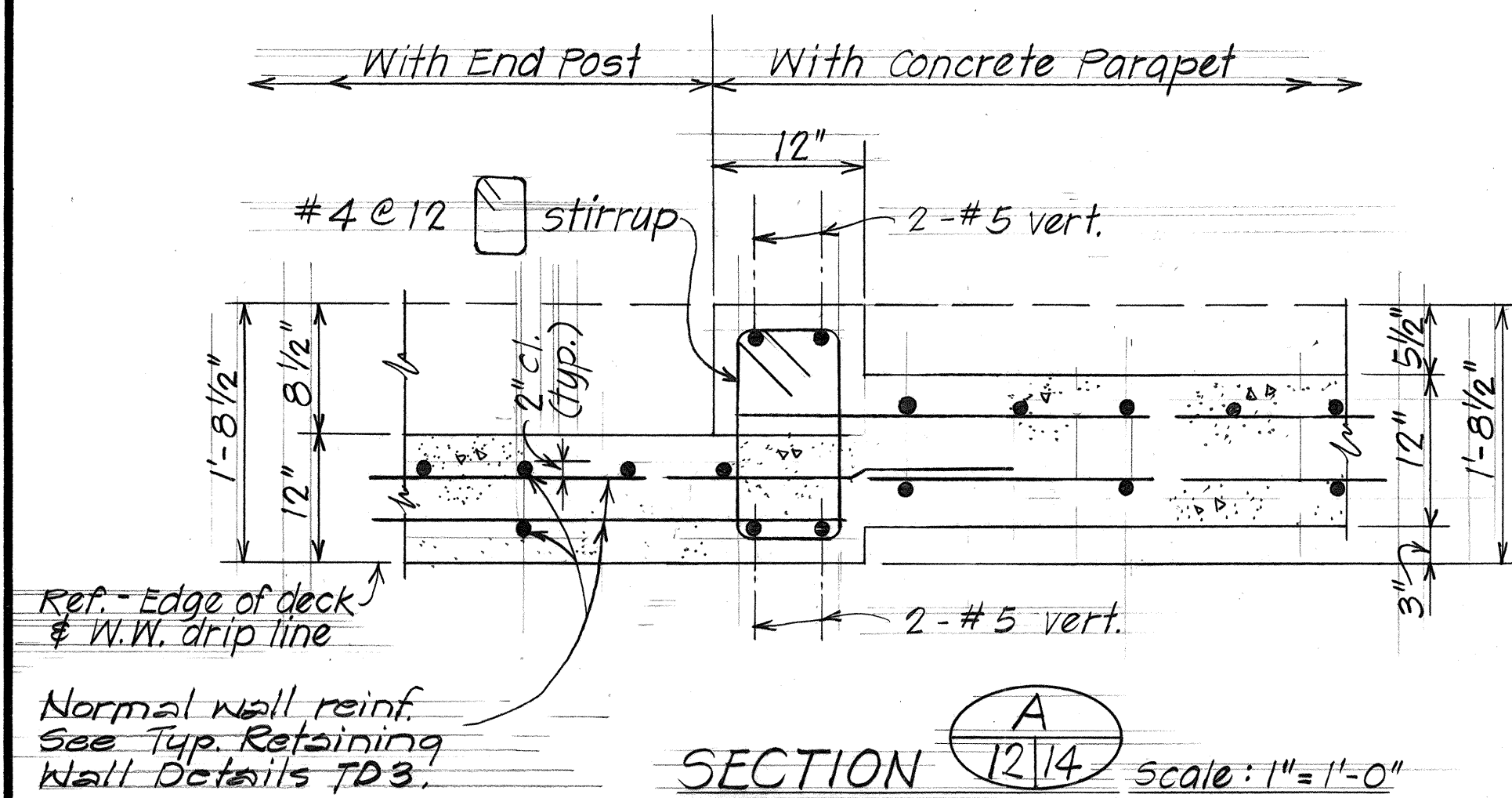
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 13 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	33	78

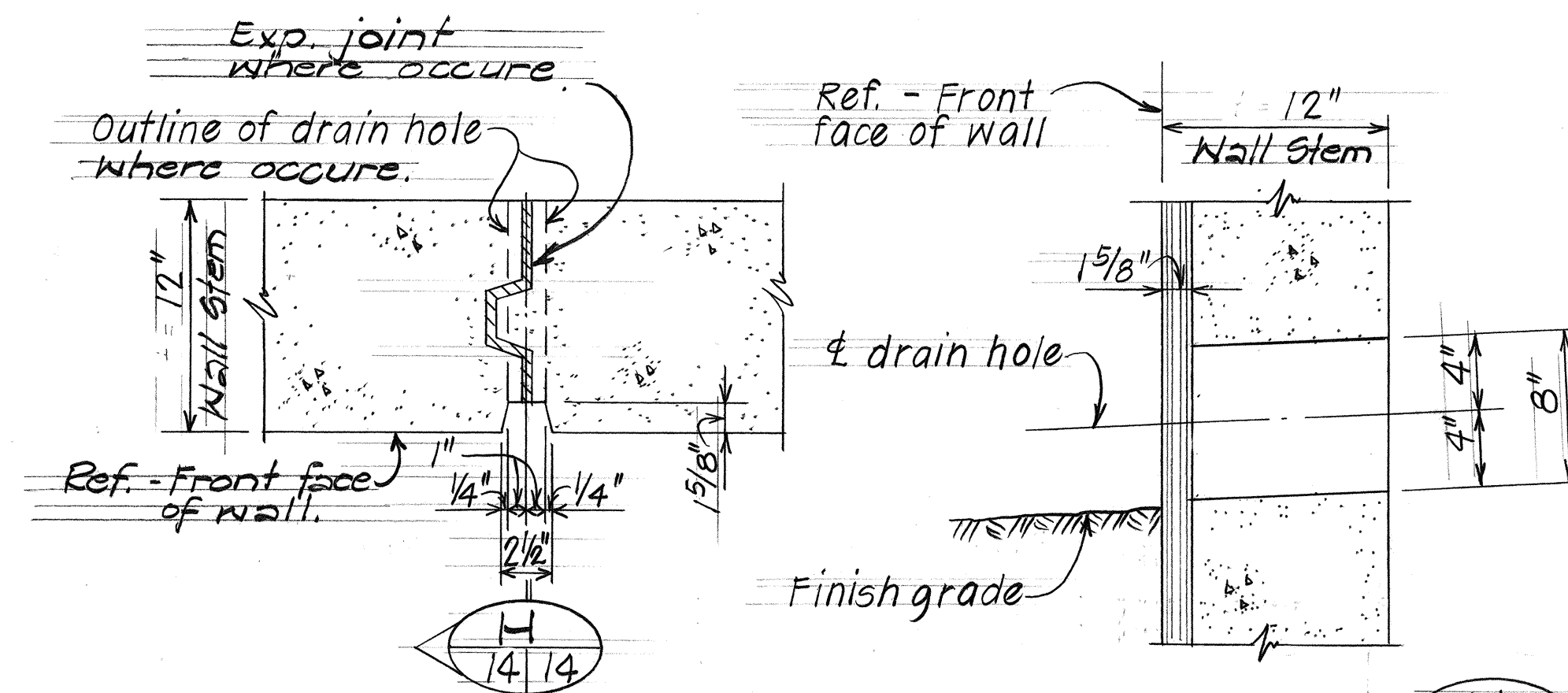
NOTE:

All concrete, reinforcing steel & structural excavation quantities for concrete headwall and concrete lined ditch are not included in estimated quantities for East Paaulo Bridge.



SECTION **A** 12/14 scale: 1" = 1'-0"

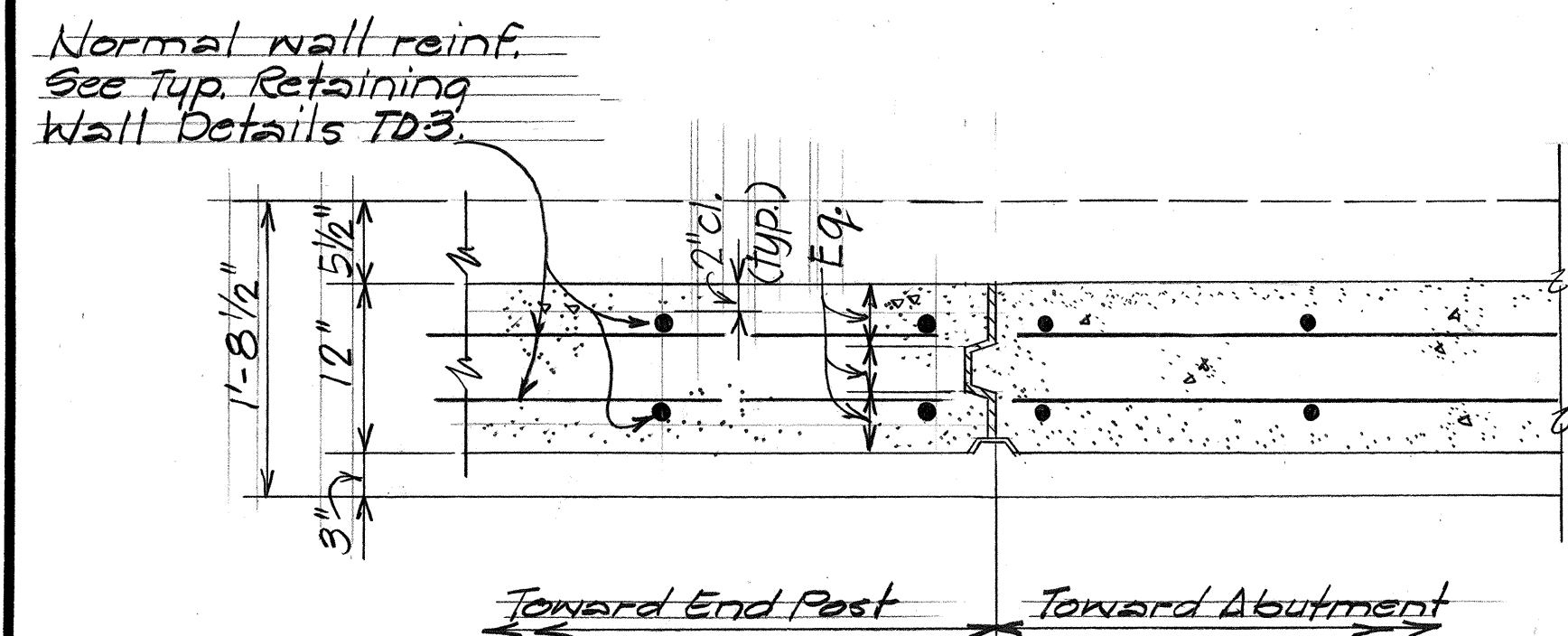
SECTION **A1** 13/14 SIMILAR EXCEPT OPPOSITE HAND



PLAN scale: 1/2" = 1'-0"

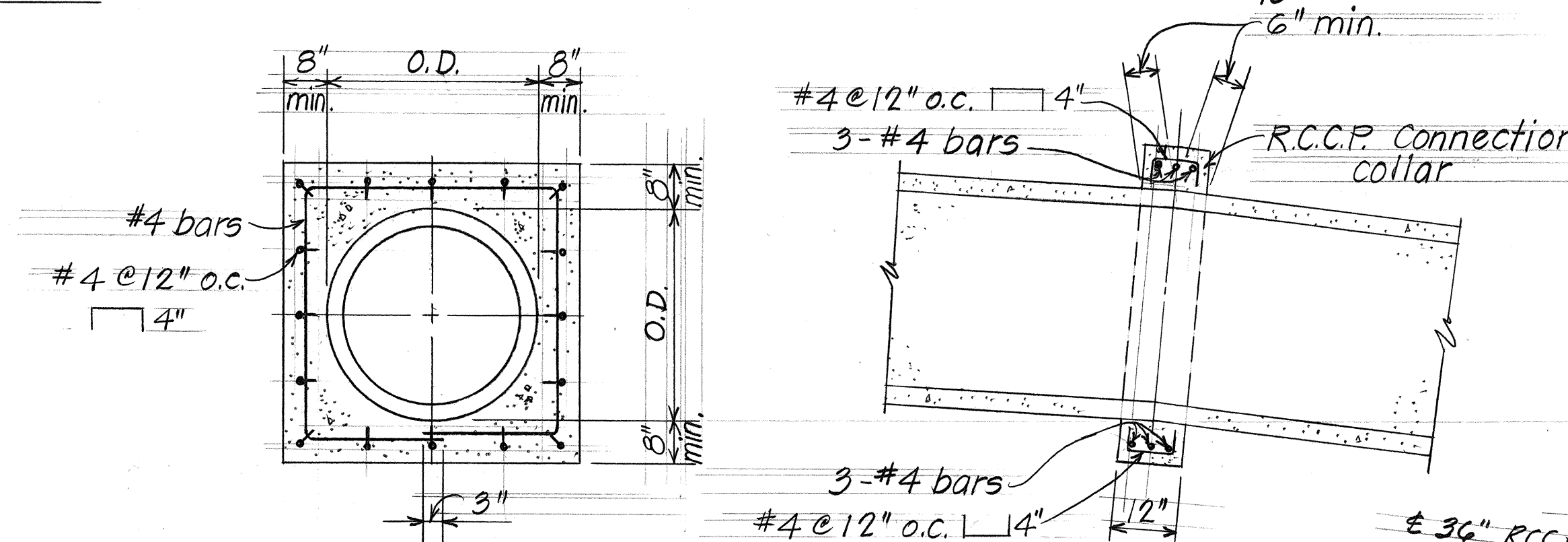
SECTION **H** 14/14 scale: 1/2" = 1'-0"

WALL SCORING DETAIL 12/14



SECTION **B** 12/14 scale: 1" = 1'-0"

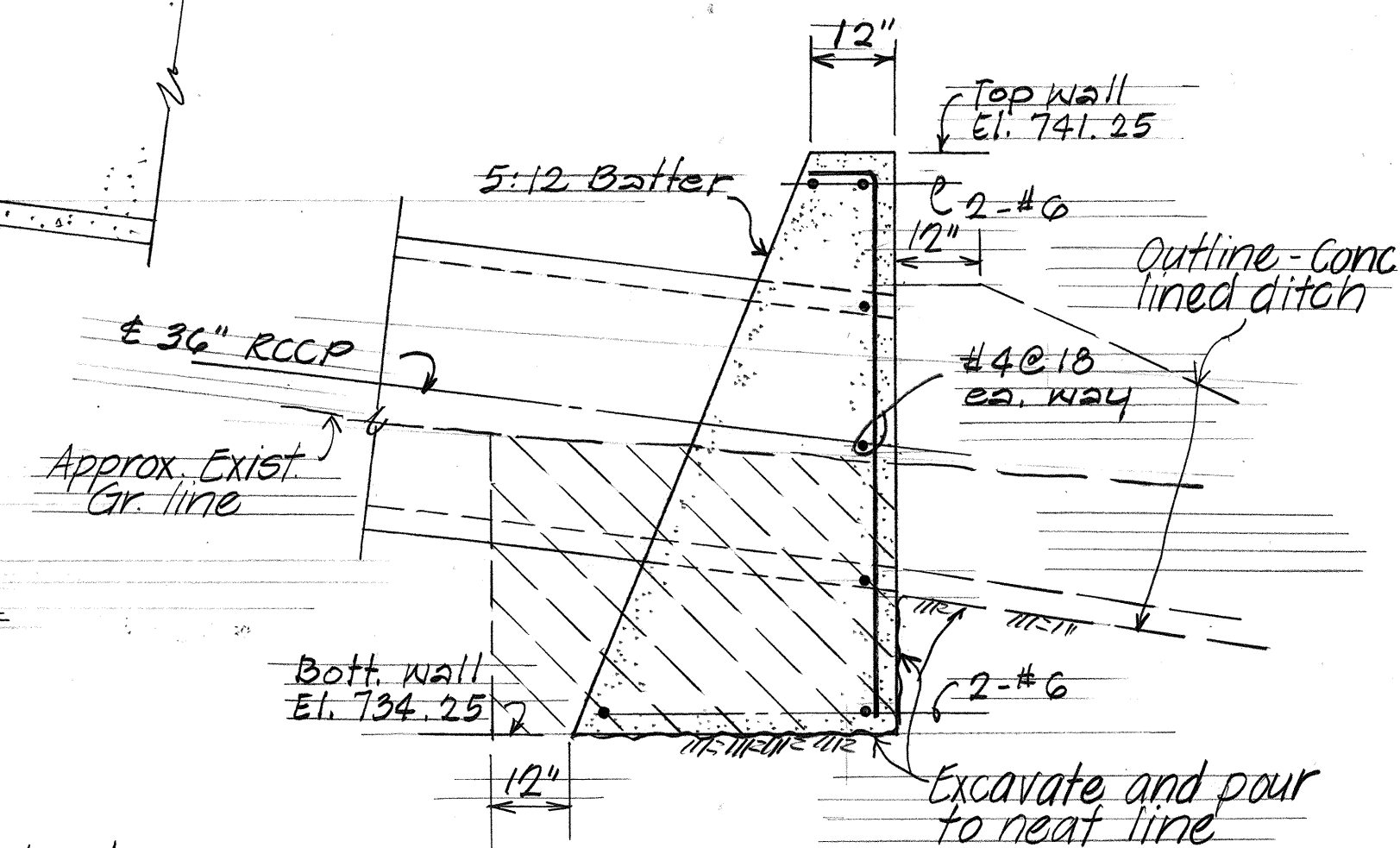
SECTION **B1** 13/14 SIMILAR EXCEPT OPPOSITE HAND



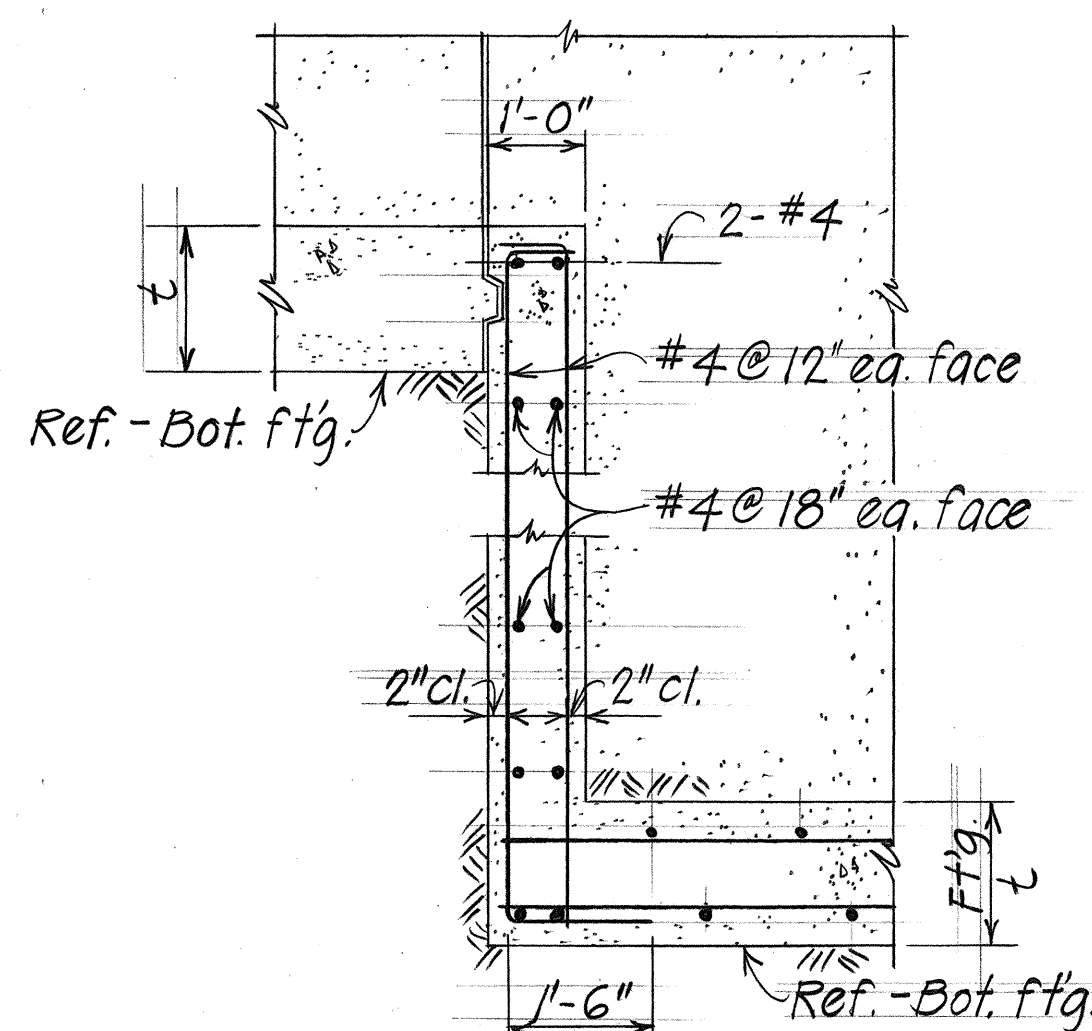
NOTE:

1. Connection Collar shall be Class "B" concrete.
2. Connection collar shall be incidental to R.C.C.P.

CONCRETE COLLAR DETAIL X 14/14 scale: 1/2" = 1'-0"

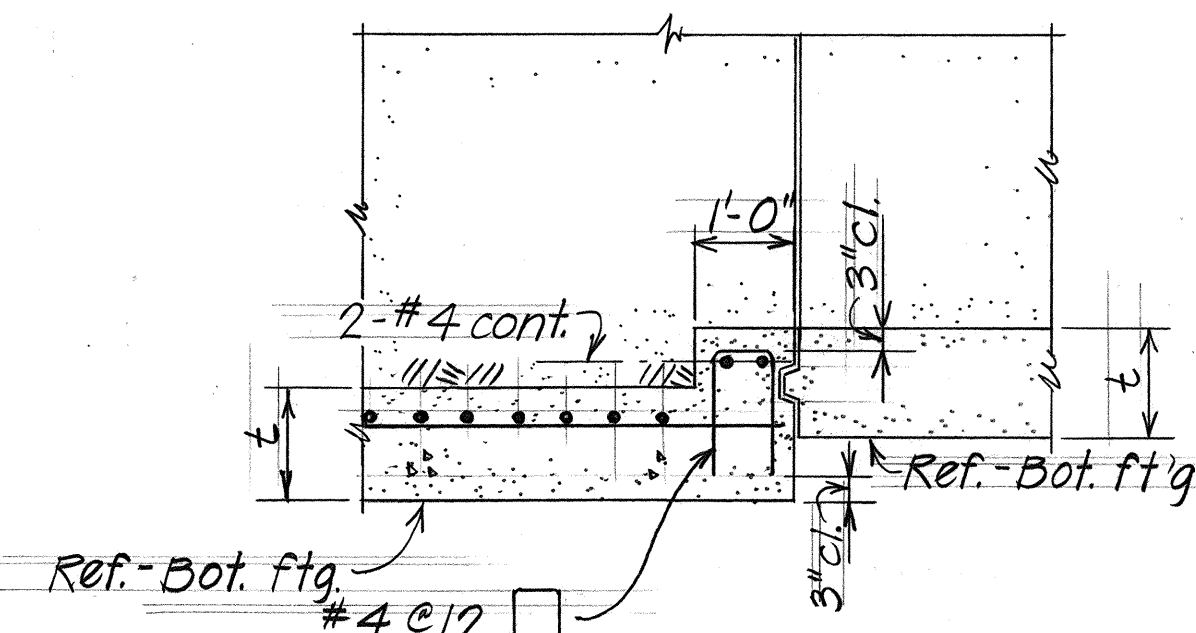


SECTION **E** 14/14 scale: 1/2" = 1'-0"



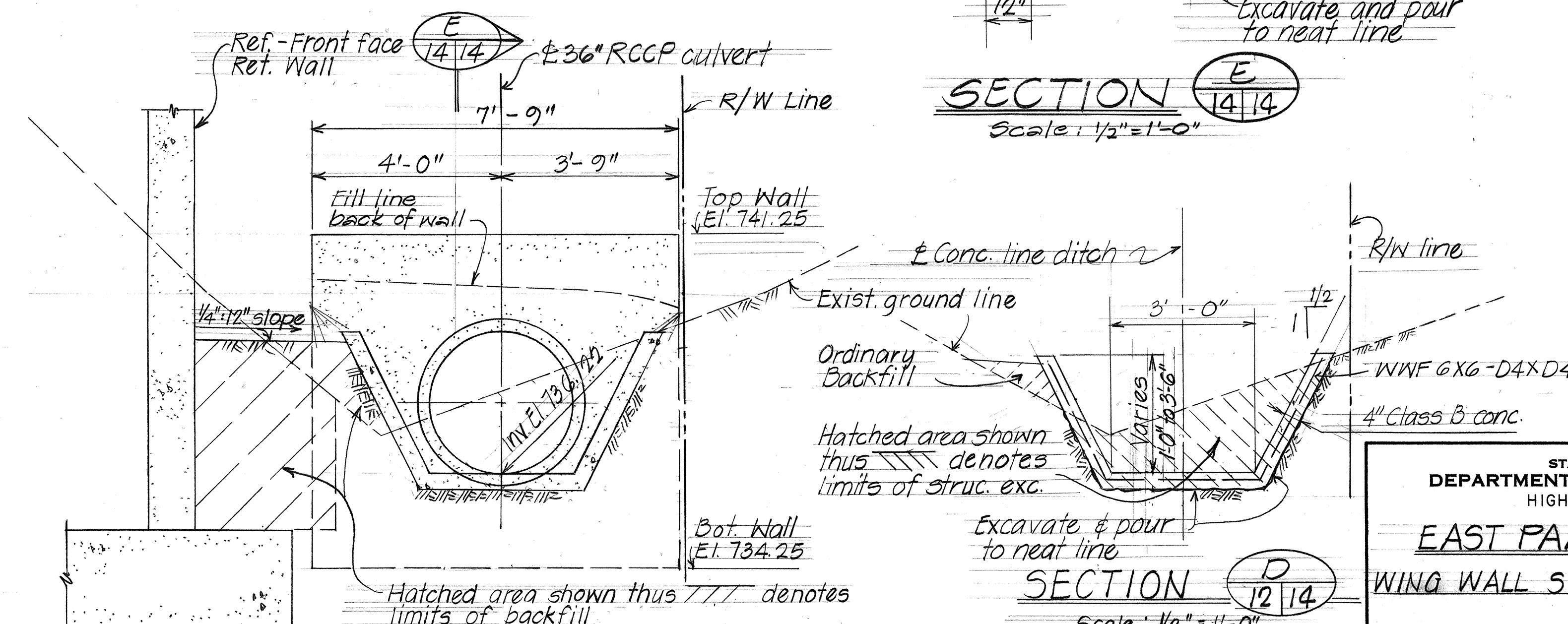
FOOTING STEP-UP DETAIL **F** 12/14

DETAIL **F1** 13/14 - SIMILAR EXCEPT OPPOSITE HAND Not to scale



FOOTING STEP-UP DETAIL **G** 13/14

DETAIL **G1** 13/14 - SIMILAR EXCEPT OPPOSITE HAND Not to scale



SECTION **C** 12/14 scale: 1/2" = 1'-0"

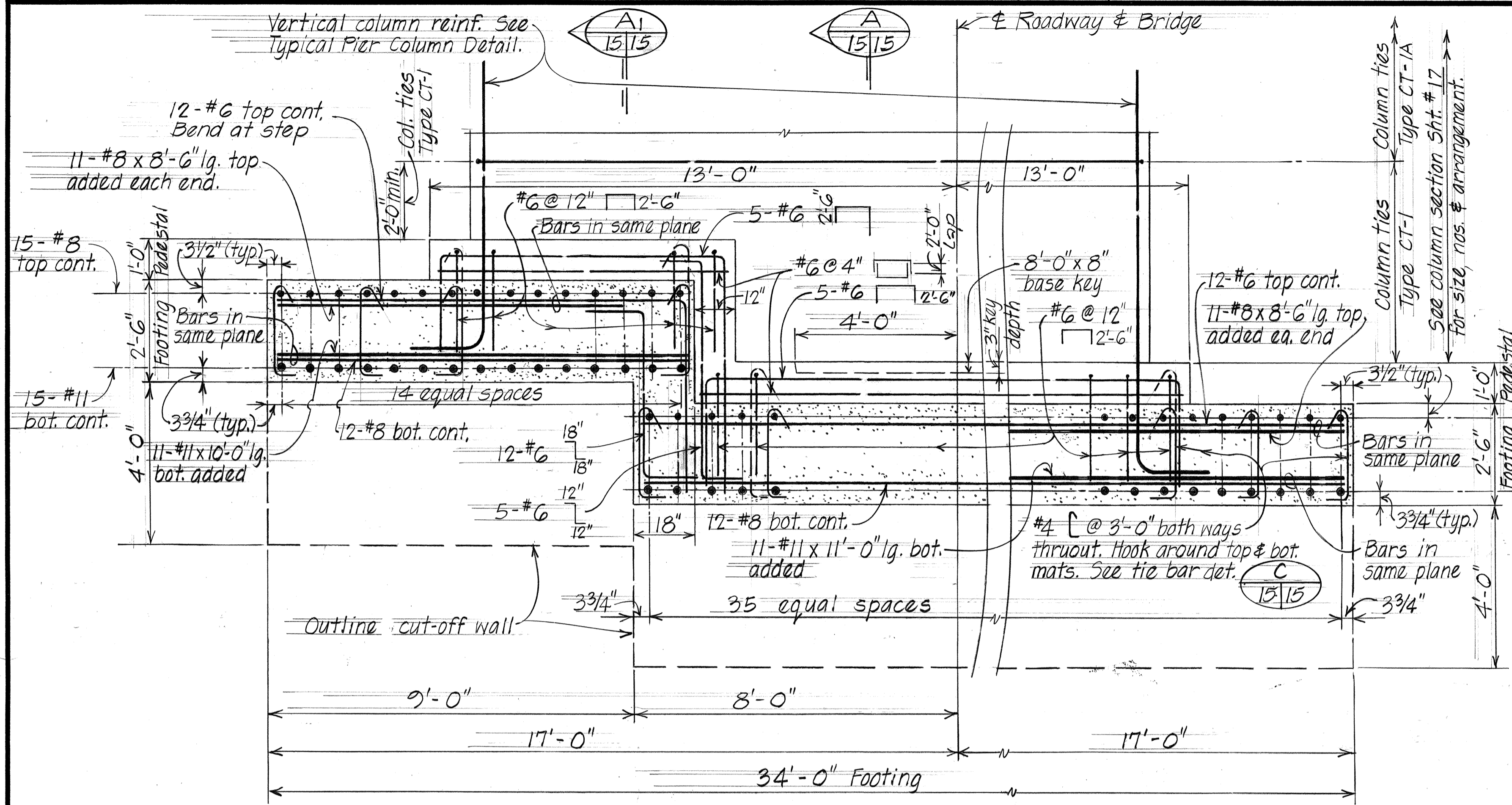
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAULO BRIDGE
WING WALL SECTIONS & DETAILS

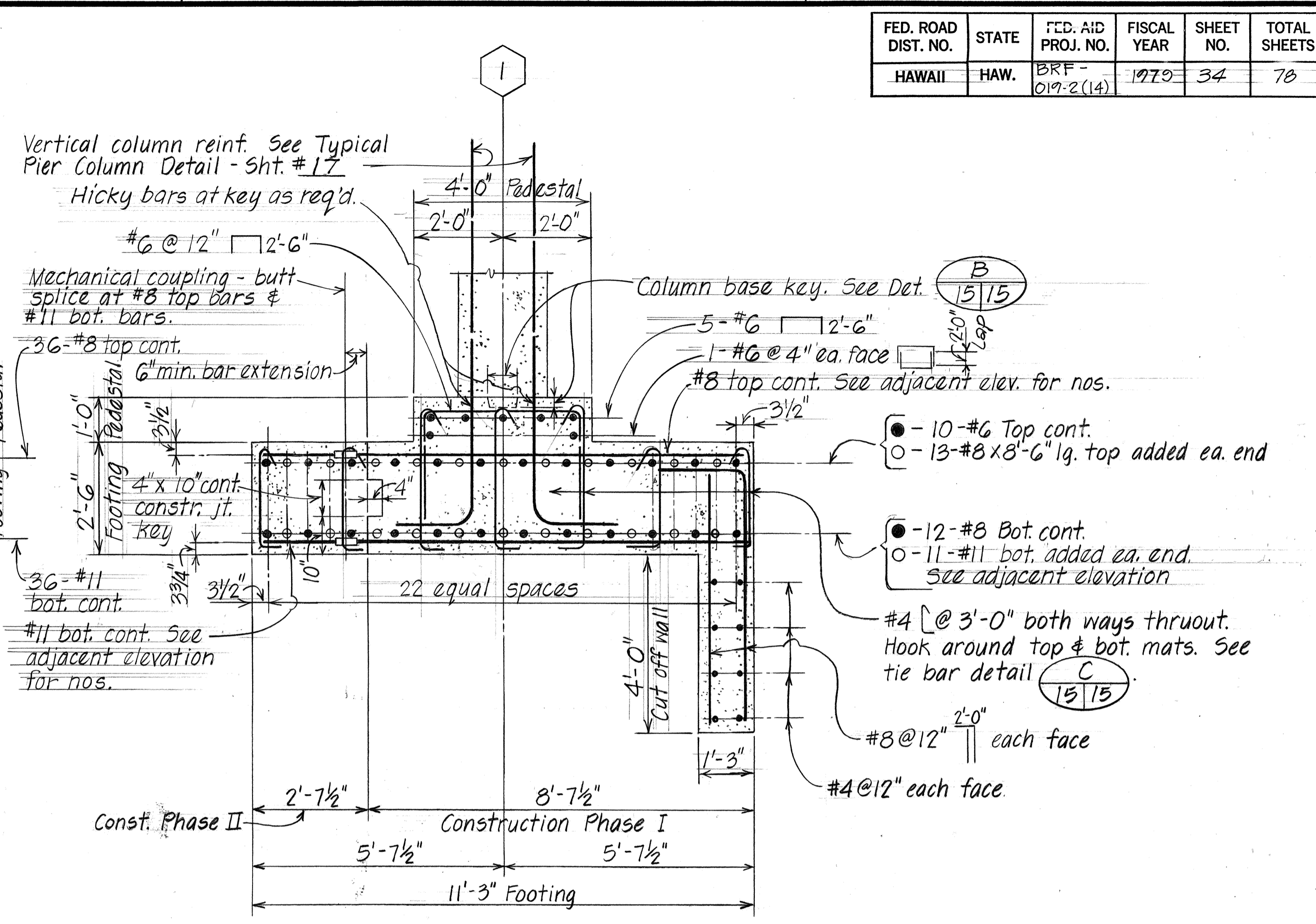
HAWAII BELT ROAD
E.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978

SHEET No. 14 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	34	70

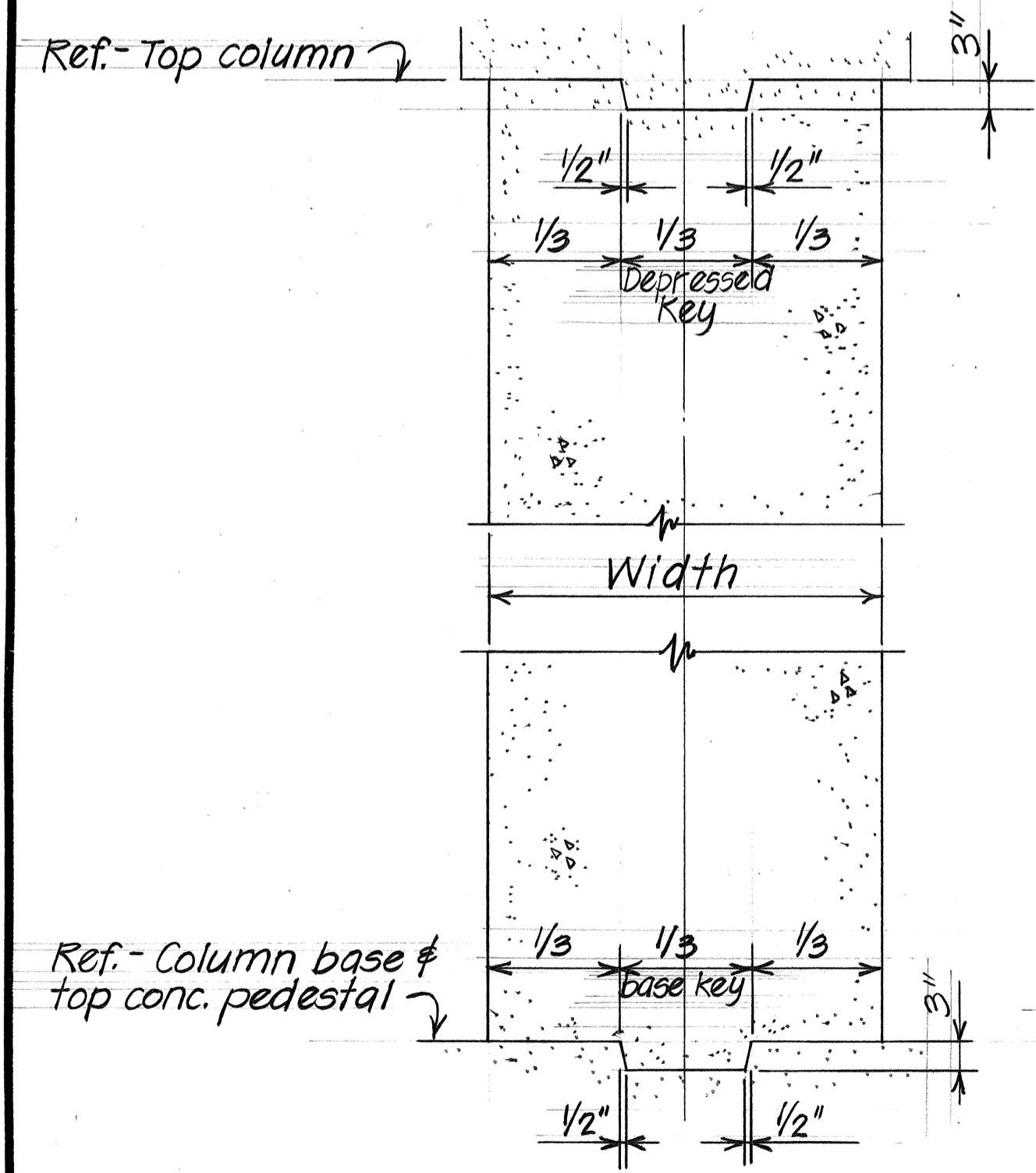


ELEVATION - PIER FOOTING AT PIER ① Scale: 1/2" = 1'-0"

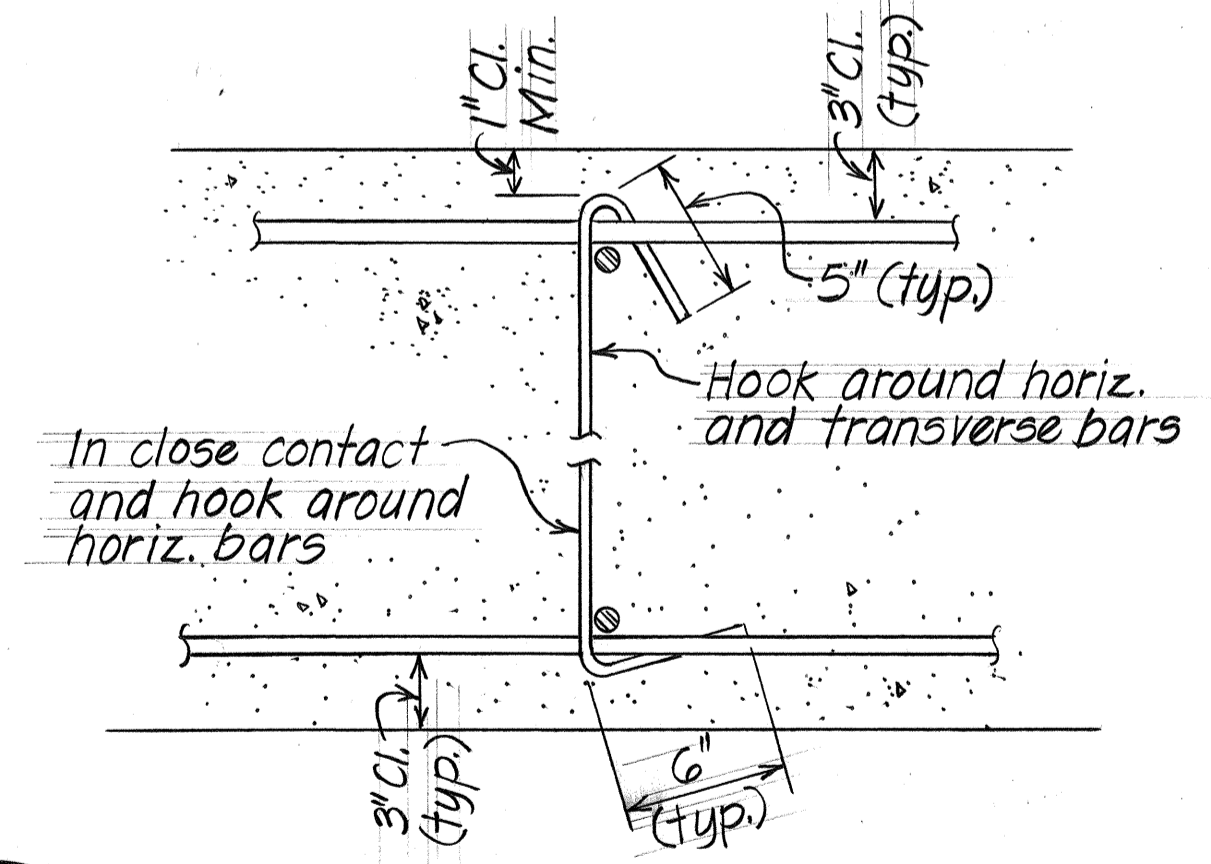


SECTION A 15/15 - AS SHOWN

SECTION A1 15/15 - SIMILAR EXCEPT AS OTHERWISE NOTED Scale: 1/2" = 1'-0"



TYPICAL COLUMN KEY DETAIL B 15/15 Scale: 3/4" = 1'-0" 16, 17, 18



TIE BAR DETAIL C 15/15 Not to Scale 8, 11, 16

- NOTES:
- All footing reinforcement steel shall be ASTM A615, Grade 60.
 - All surface areas including 4"x10" cont. key are to be cleaned & Epoxy coating applied before construction phase II concrete pour.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAULO BRIDGE

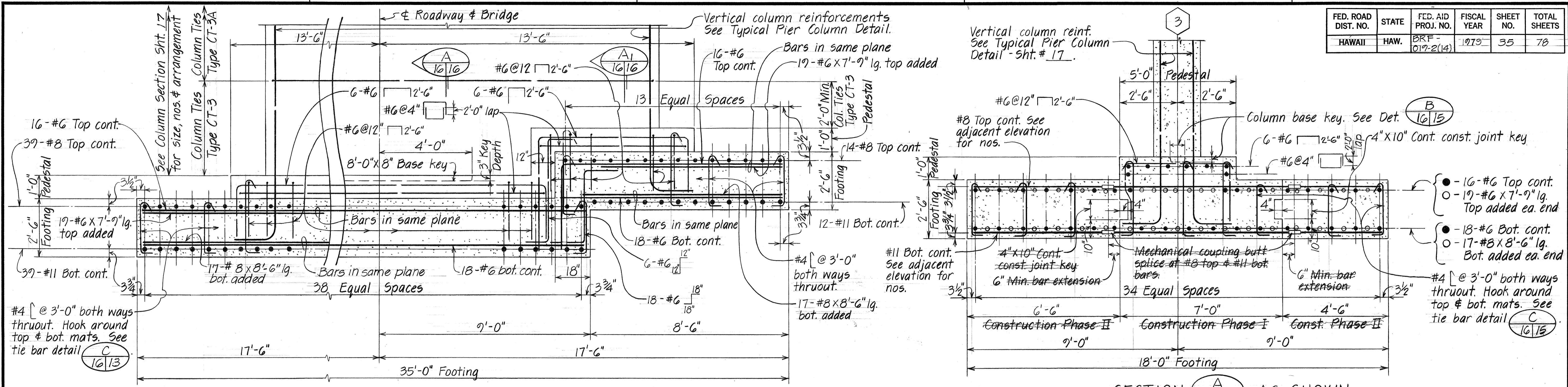
PIER ① - FOOTING SECTIONS & DETAIL

HAWAII BELT ROAD
E.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 15 OF 25 SHEETS

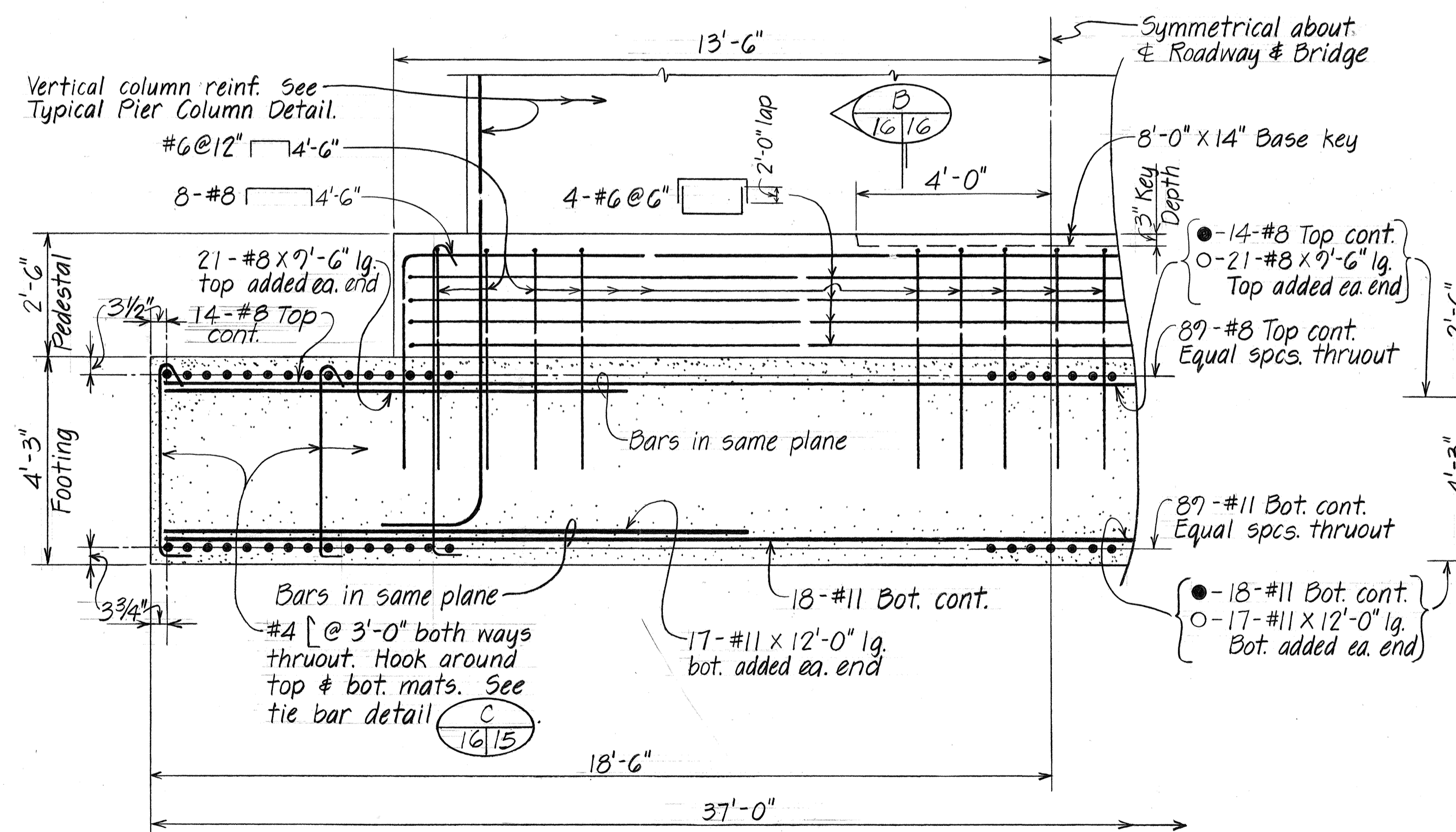
DATE	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
DESIGNED BY	
NOTE BOOK	
ORIGINAL PLAN	
SURVEY PLOTTED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	35	78

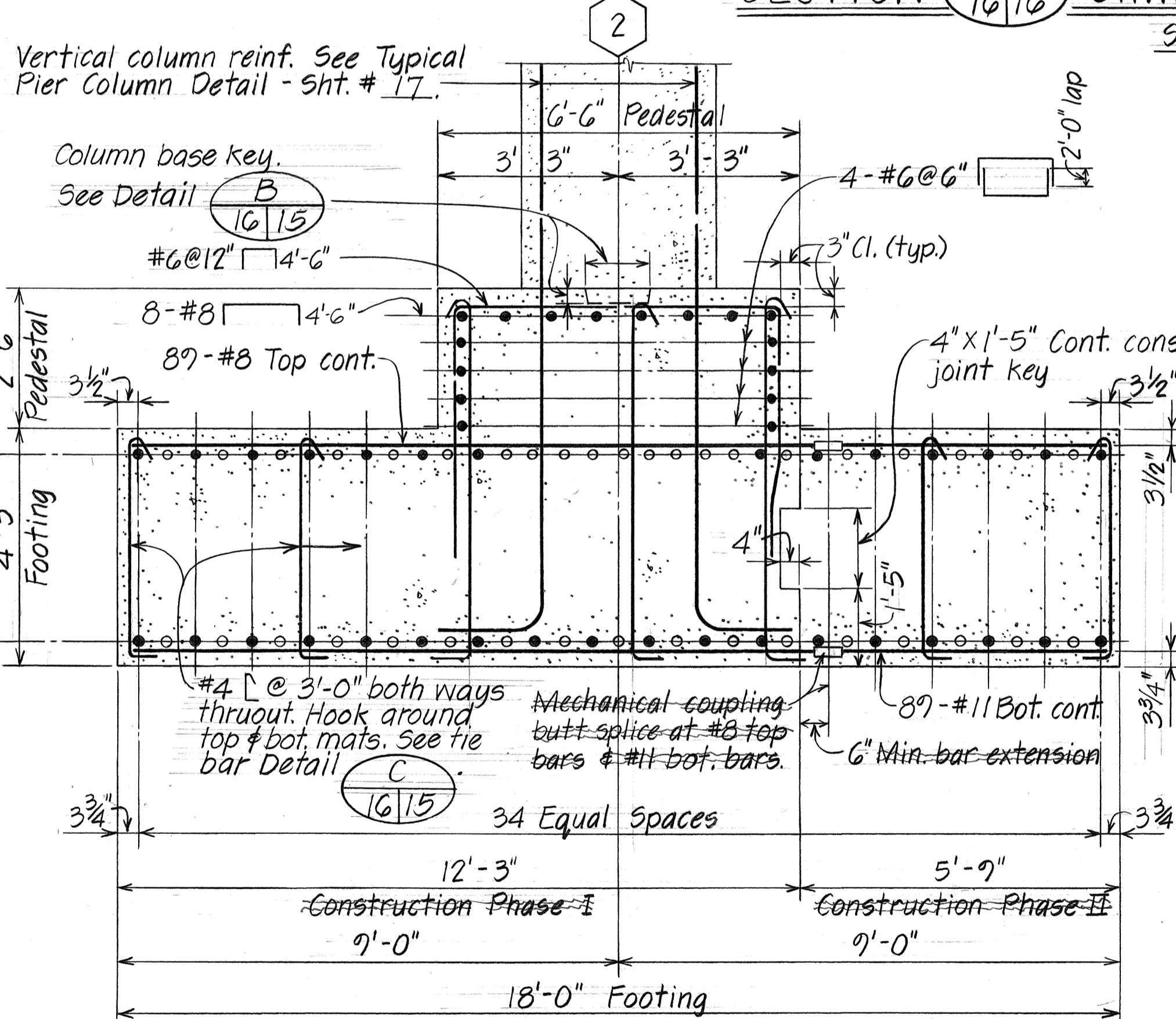


ELEVATION - PIER FOOTING AT PIER (3) Scale: 1/2" = 1'-0"

SECTION A 16/16 AS SHOWN
SECTION A1 16/16 SIMILAR EXCEPT AS OTHERWISE NOTED
Scale: 1/2" = 1'-0"



ELEVATION - PIER FOOTING AT PIER (2) Scale: 1/2" = 1'-0"



TYPICAL SECTION B 16/16 Scale: 1/2" = 1'-0"

DATE	DESIGNED BY	CHECKED BY
	OC	CSY
DESIGNED BY	CHECKED BY	
OC	CSY	
QUANTITIES BY		
CSY		
NO.		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

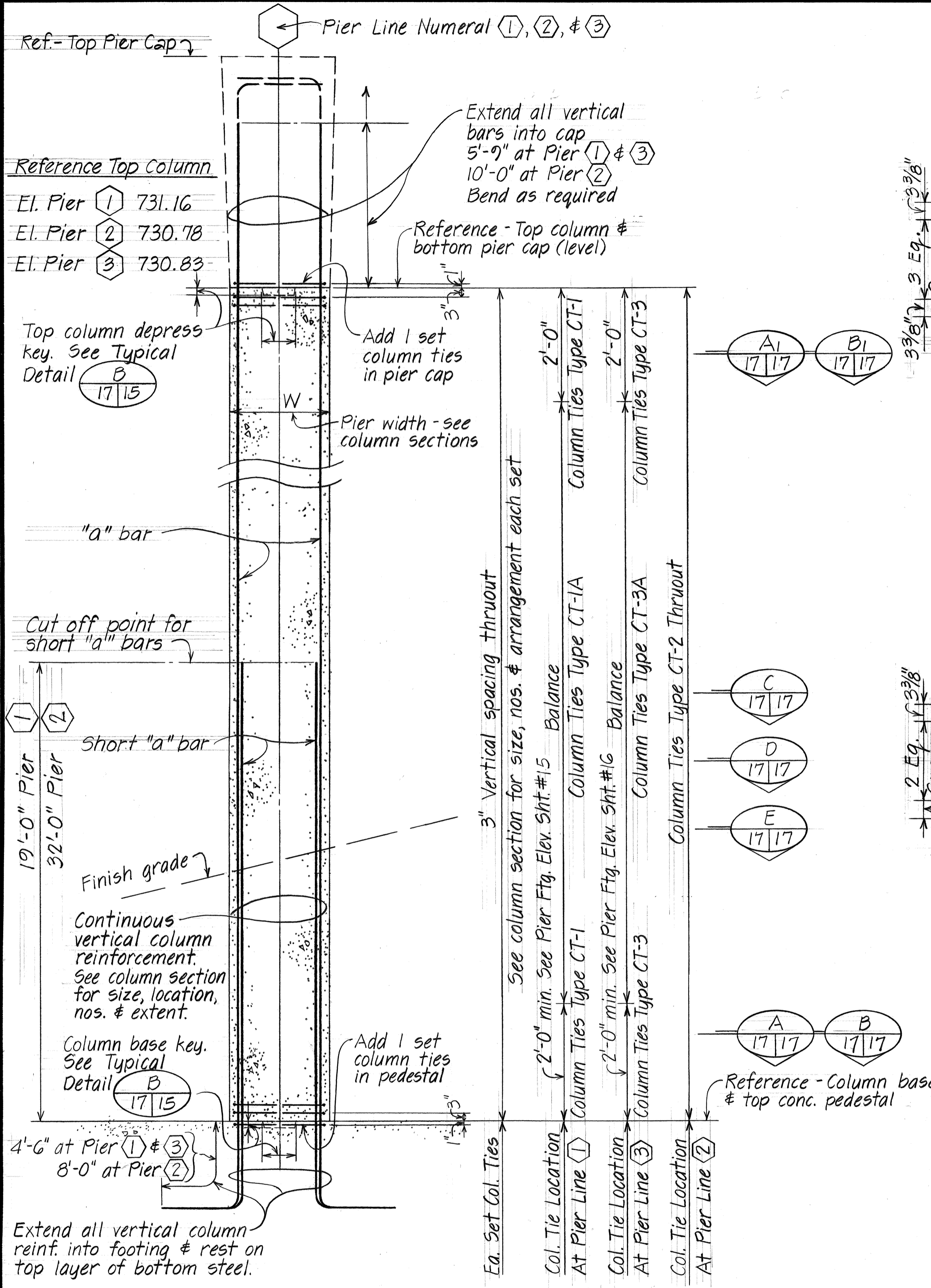
EAST PAAULO BRIDGE

PIER (2) & (3) - FOOTING SECTIONS

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 16 OF 25 SHEETS

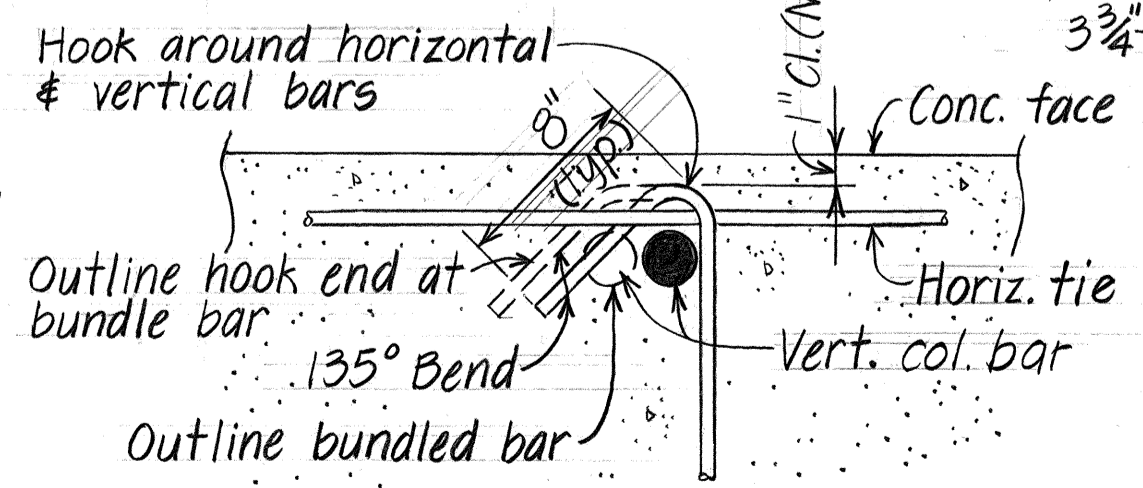
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	36	78



TYPICAL PIER COLUMN DETAIL

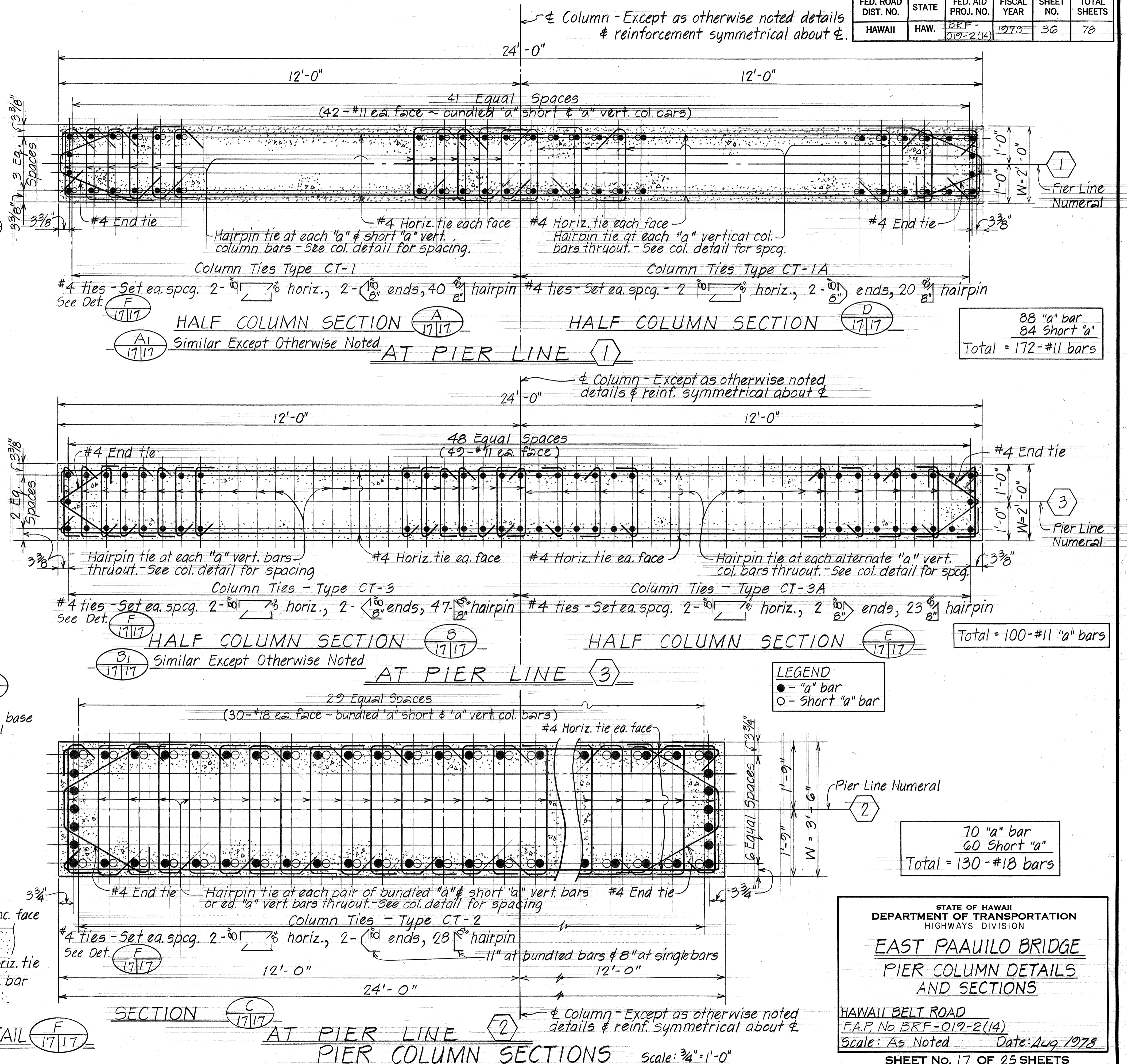
Not to Scale

- NOTES:**
- All column reinforcement to be ASTM A615, Grade 60.
 - Alternate column ties - hook locations on opposite ends at each layer



TYPICAL PIER COLUMN TIE BAR DETAIL

Not to Scale



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAULO BRIDGE
PIER COLUMN DETAILS
AND SECTIONS

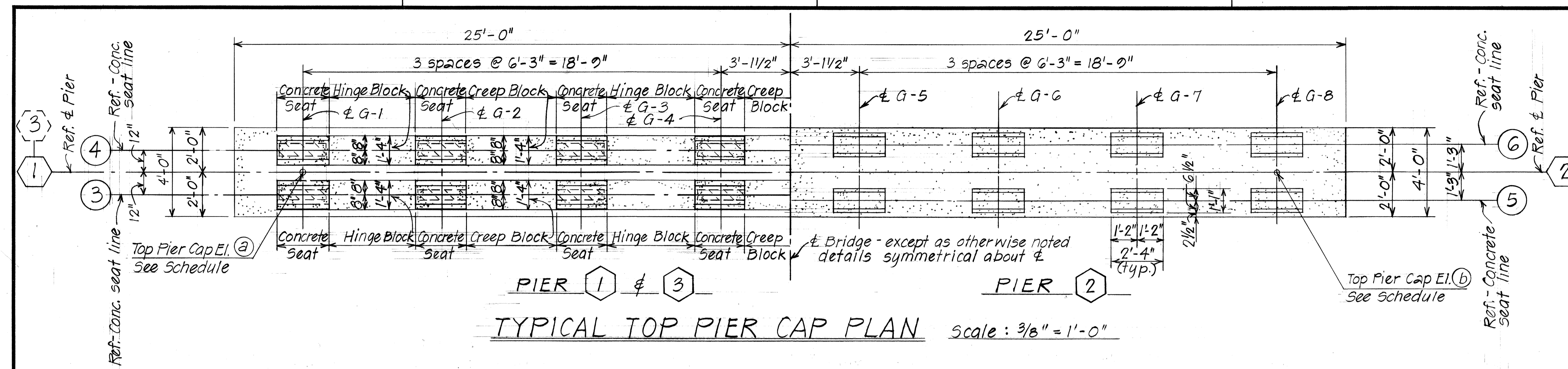
HAWAII BELT ROAD
F.A.P. No BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 17 OF 25 SHEETS

DATE	
SURVEY PLOTTED BY	
DRAWN BY	LN/LJA
DESIGNED BY	DJO
NOTE BOOK	
QUANTITIES BY	CRY
CHECKED BY	
NO.	

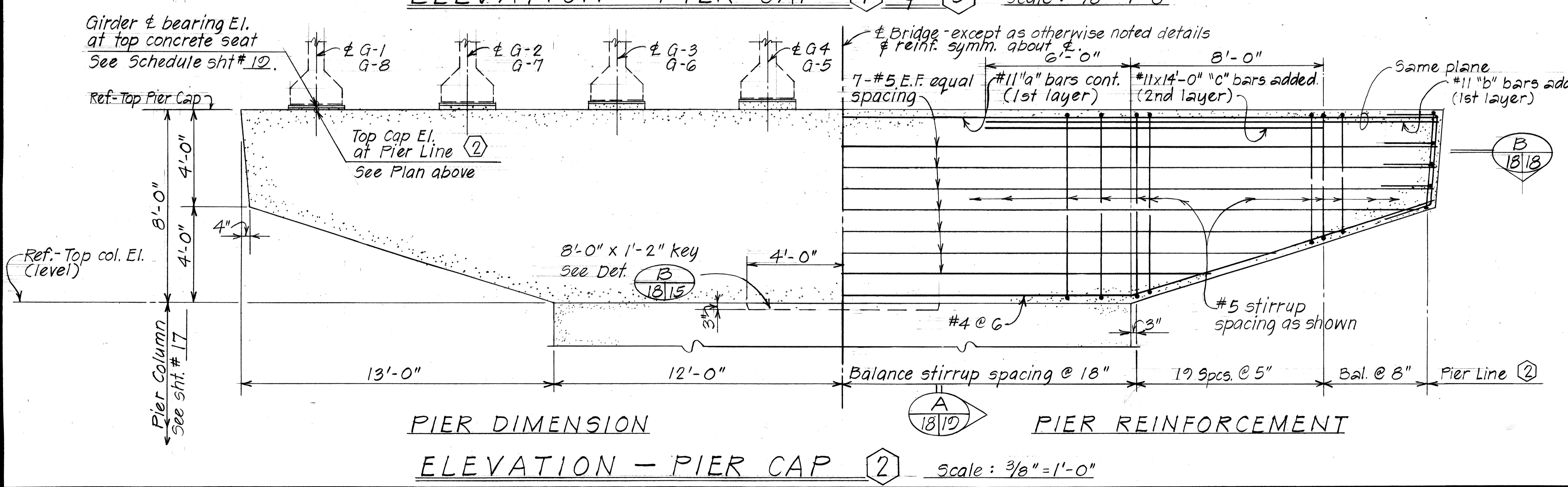
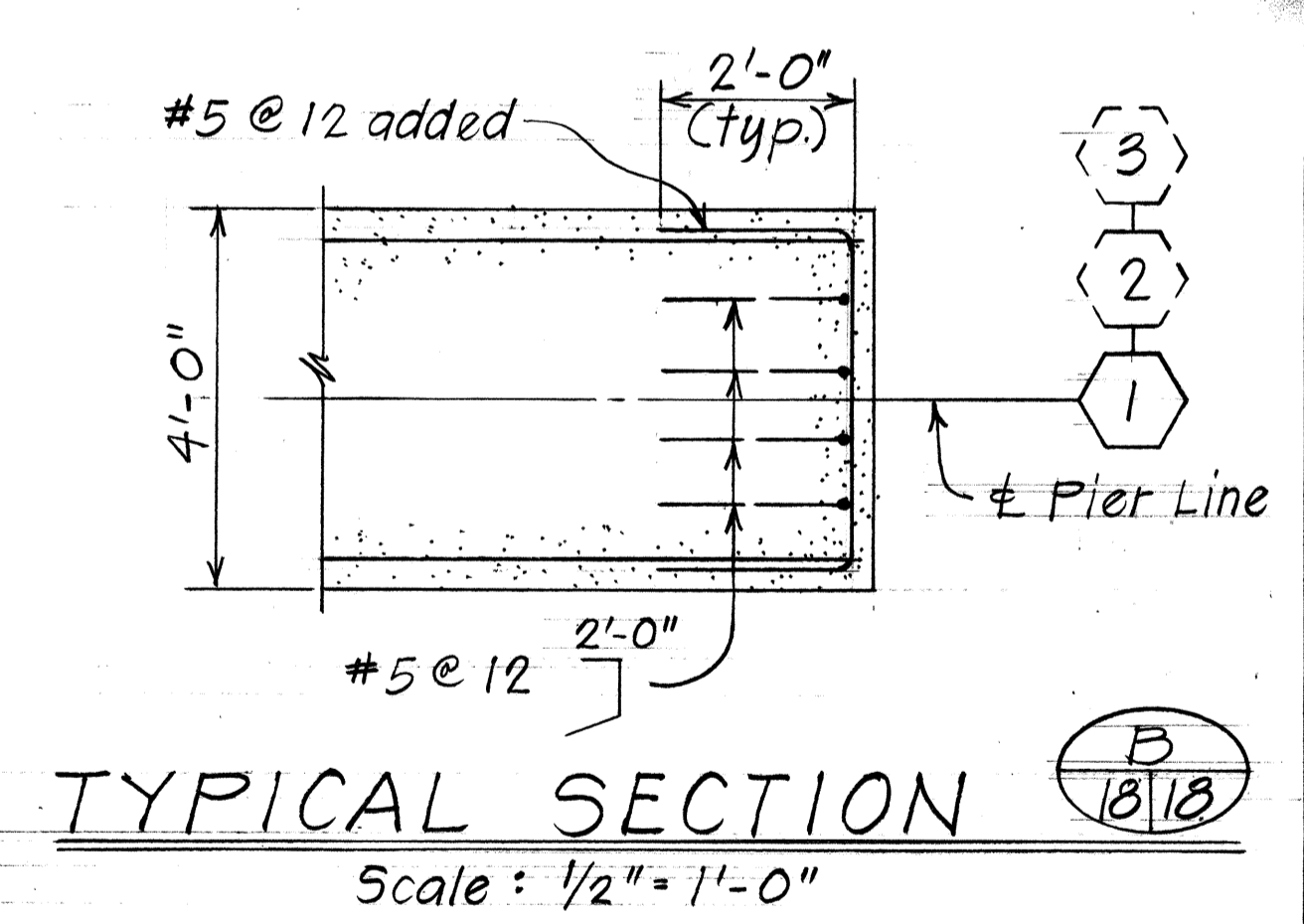
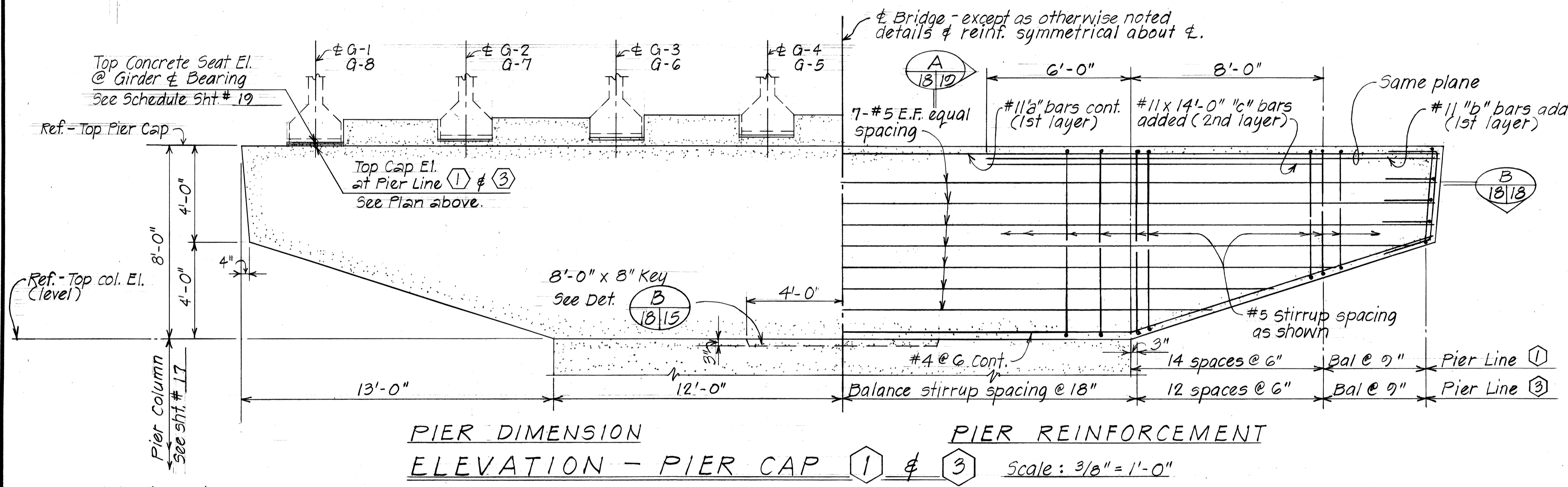
FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-017-2(14)	1979	37	78

NOTE:
1) For concrete seat, creep block & hinge block detail see sht. #TD-1.



TOP PIER CAP ELEVATION SCHEDULE (AT CENTERLINE)

PIER LINE	(a)	(b)
1	739.16	739.16
2	738.78	738.78
3	738.83	738.83



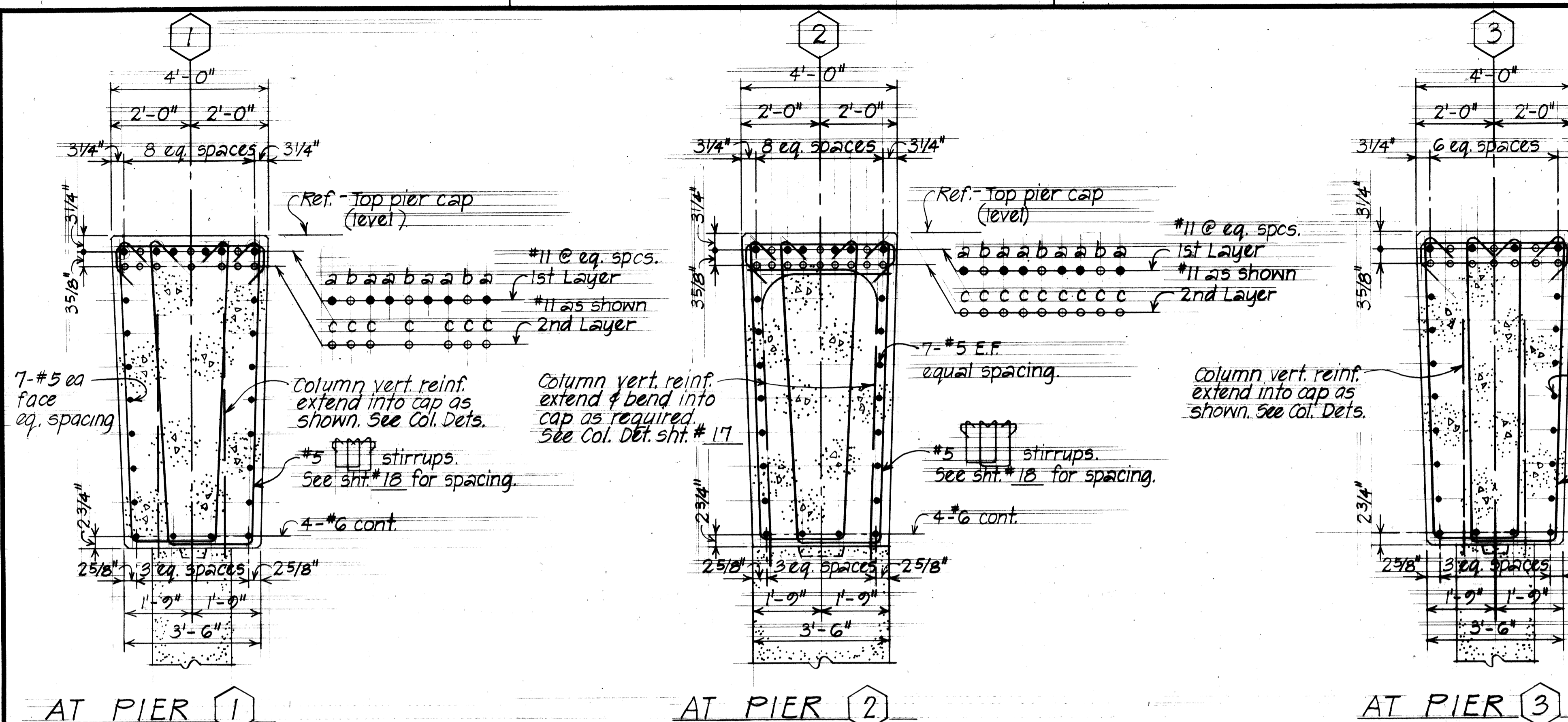
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAULO BRIDGE
PIER 1, 2 & 3
PIER CAP PLAN & DETAILS
HAWAII BELT ROAD
F.A.P. No. BRF-017-2(14)
Scale: As noted Date: Aug 1978

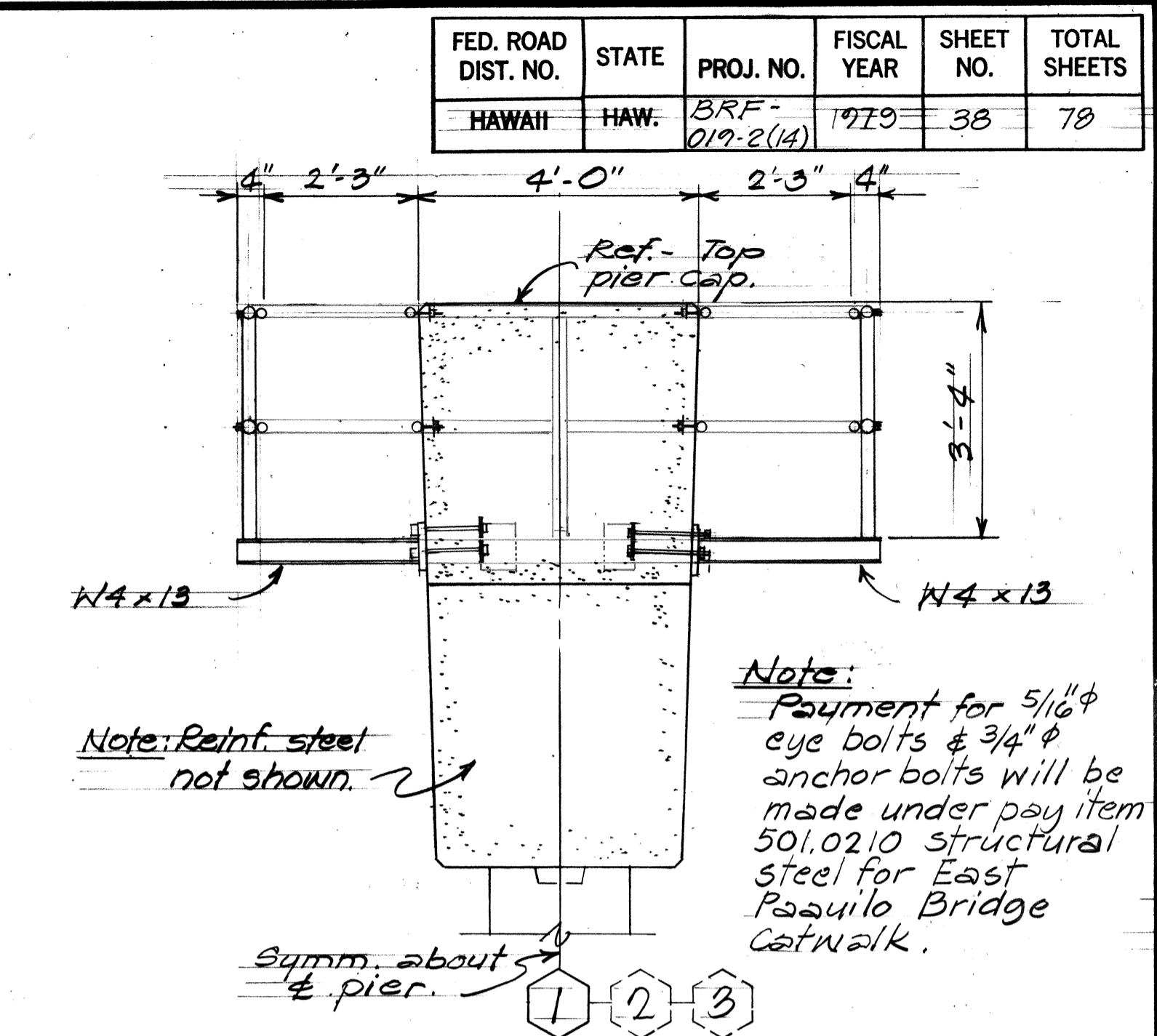
SHEET No. 18 OF 25 SHEETS

DATE: 2/2/77
DRAWN BY: LMA
CHECKED BY: [blank]
NO. [blank]

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	38	70



TYPICAL PIER CAP SECTION A 1819 scale: 1/2" = 1'-0"

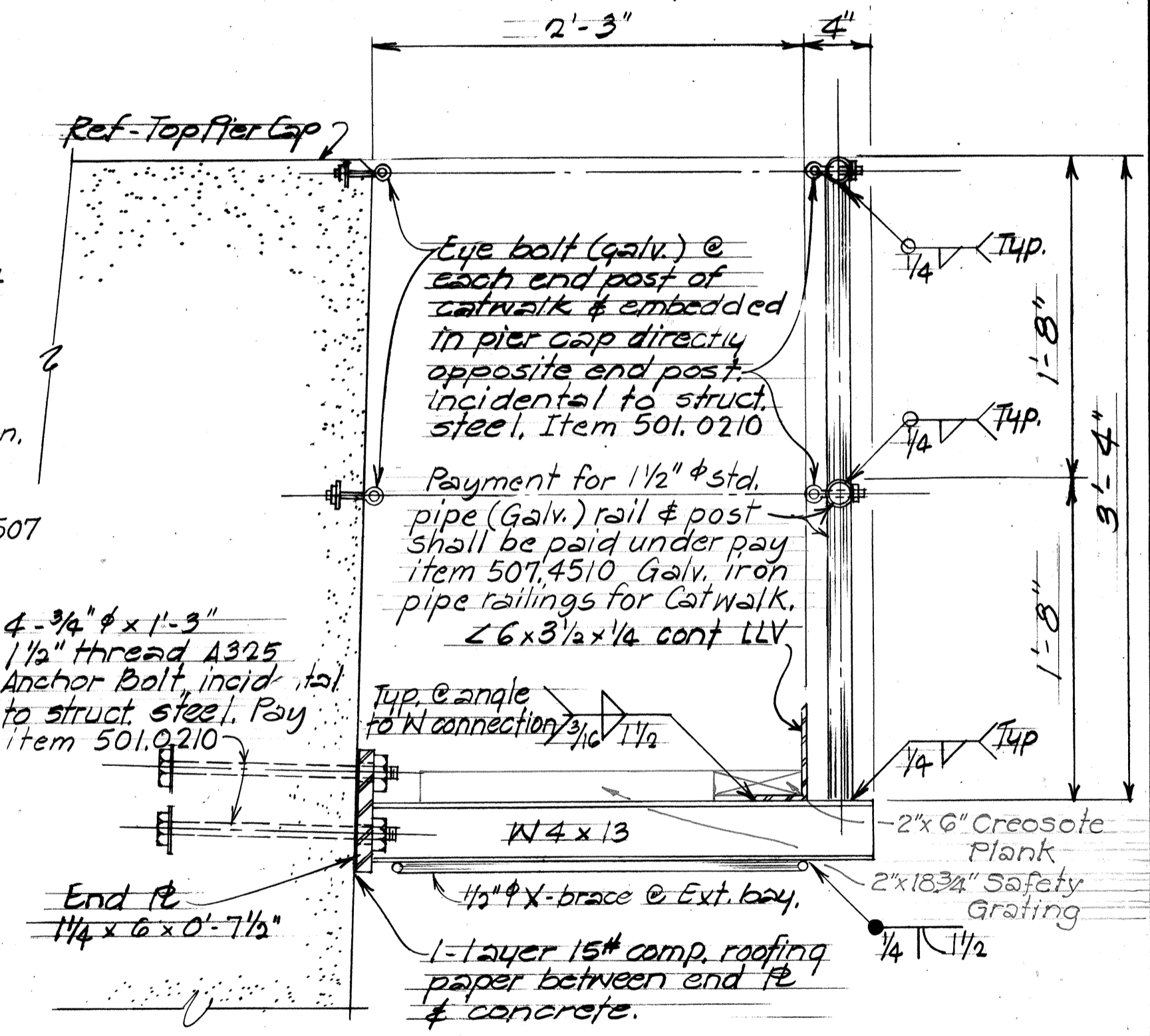


PIER ~ CATWALK DETAIL scale: 1/2" = 1'-0"

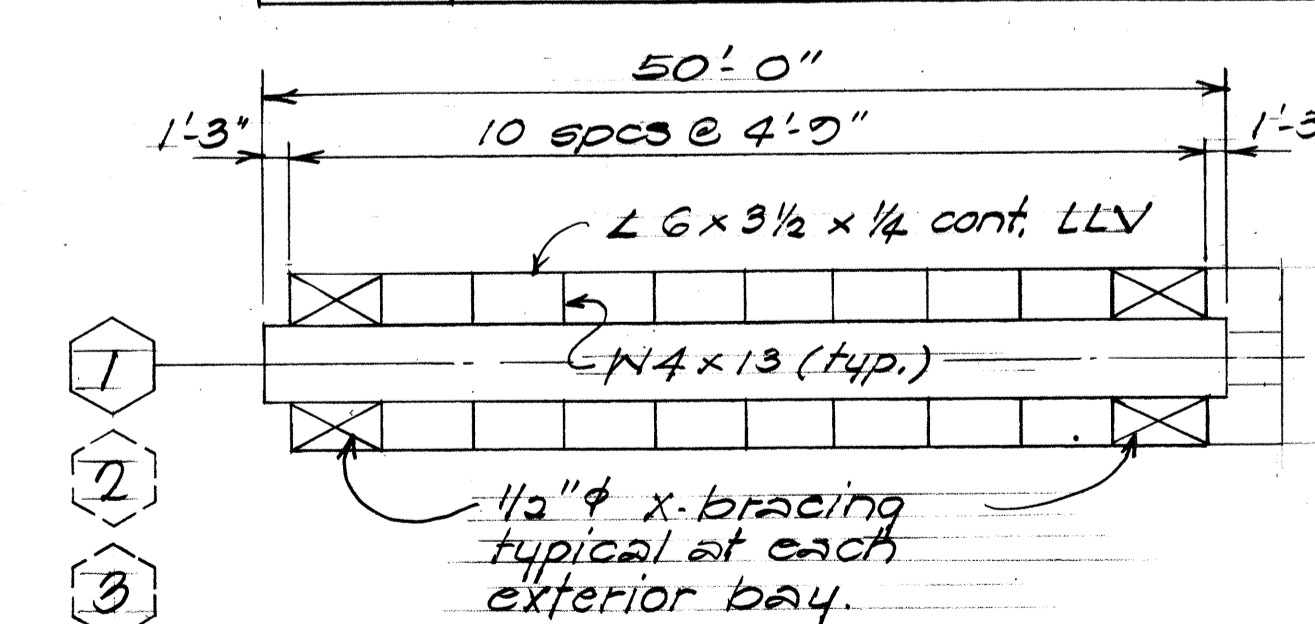
- NOTE:
1. Cut & shape pipe for neat fit and full weld.
 2. Welds on pipe shall be ground smooth.
 3. Galvanize after fabrication.
 4. 1/2" φ std. pipe railway & post shall conform to the specifications of Section 507

TOP CONCRETE SEAT ELEVATION AND SLOPE SCHEDULE (AT GIRDER & BEARING)

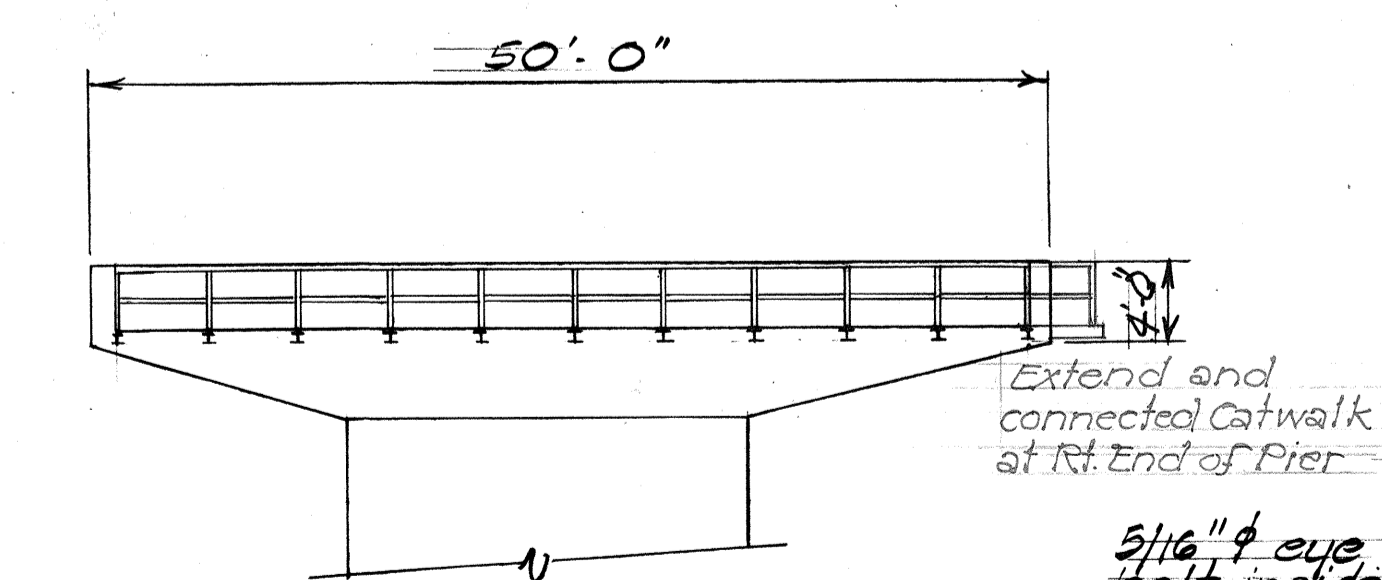
LOCATION	ABUTMENT LINE ①		DIRECTION ①		DIRECTION ②		DIRECTION ③		DIRECTION ④		ABUTMENT LINE ②	
	TOP SEAT ELEVATION	TOP SEAT SLOPE	TOP SEAT ELEVATION	TOP SEAT SLOPE	TOP SEAT ELEVATION	TOP SEAT SLOPE	TOP SEAT ELEVATION	TOP SEAT SLOPE	TOP SEAT ELEVATION	TOP SEAT SLOPE	TOP SEAT ELEVATION	TOP SEAT SLOPE
G-1	740.25	0 3/16 : 12	739.50	739.28	0 3/32 : 12	738.91	738.91	0 1/32 : 12	738.96	739.21	0 1/8 : 12	739.52
G-2	740.42		739.68	739.46		739.09	739.09		739.14	739.38		739.69
G-3	740.52		739.78	739.55		739.18	739.18		739.25	739.48		739.79
G-4	740.61		739.87	739.65		739.28	739.28		739.32	739.57		739.88
G-5	740.61		739.87	739.65		739.28	739.28		739.32	739.57		739.88
G-6	740.52		739.78	739.55		739.18	739.18		739.23	739.48		739.79
G-7	740.42		739.68	739.46		739.09	739.09		739.14	739.38		739.69
G-8	740.25	0 3/16 : 12	739.50	739.28	0 3/32 : 12	738.91	738.91	0 1/32 : 12	738.96	739.21	0 1/8 : 12	739.52



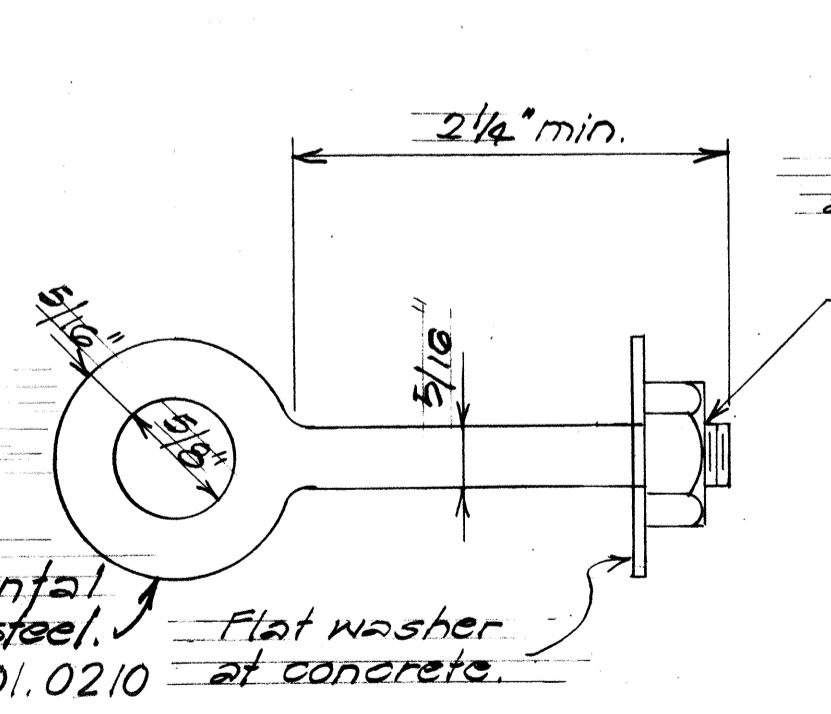
TYPICAL CATWALK SECTION scale: 1 1/2" = 1'-0"



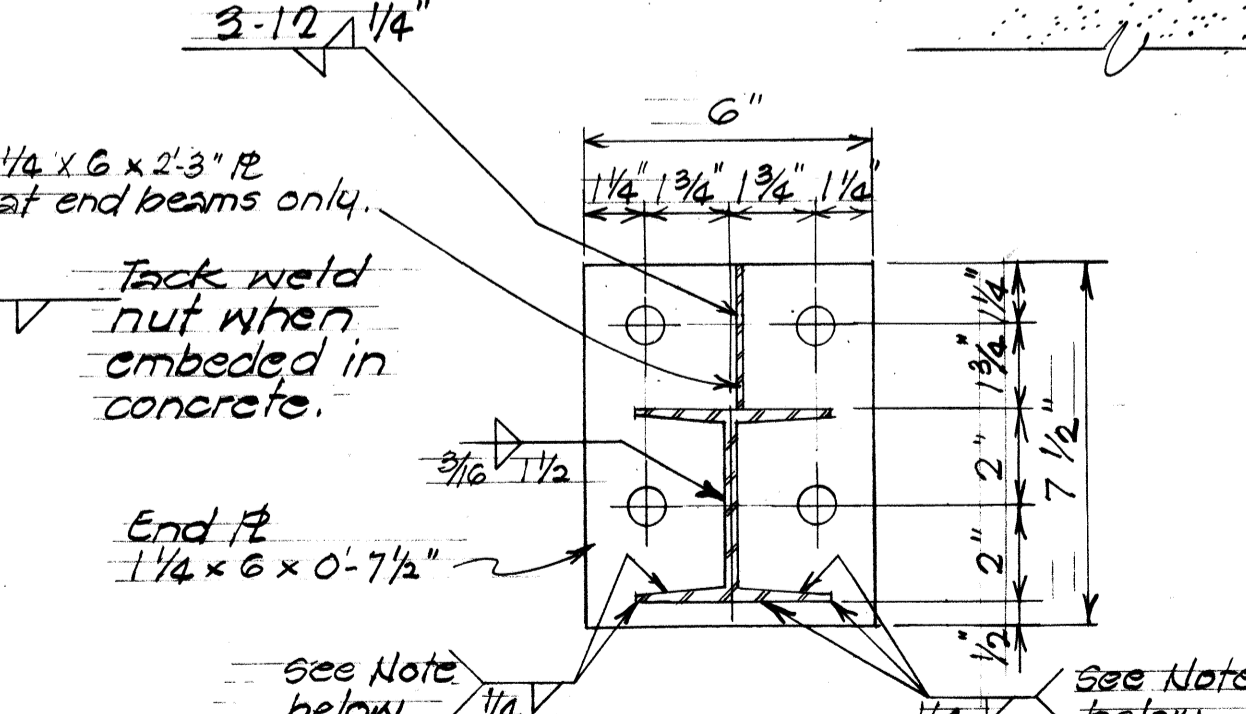
PLAN TYPICAL ~ CATWALK FOR PIERS scale: 1" = 10'-0"



ELEVATION



EYE BOLT DETAIL Full Scale



END PLATE DETAIL scale: 3" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAUULO BRIDGE

PIER CAP SECTIONS AND
CONCRETE SEAT ELEVATION SCHEDULE

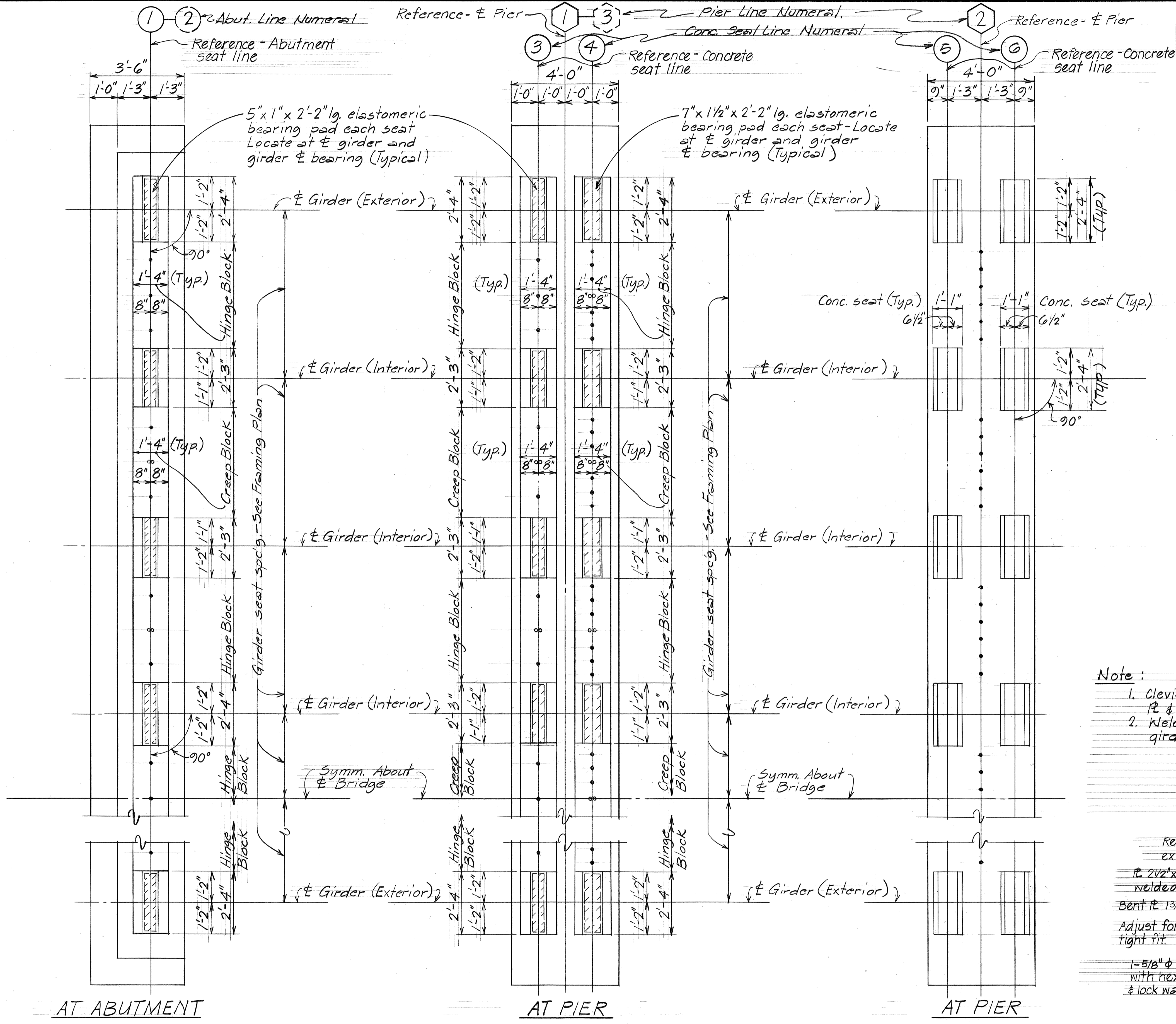
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978

SHEET No. 19 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	39	78

Note:

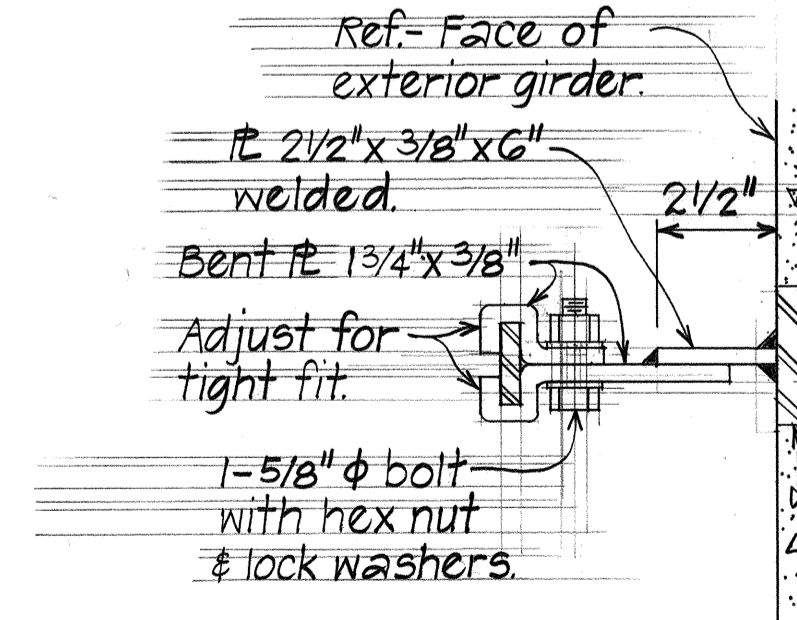
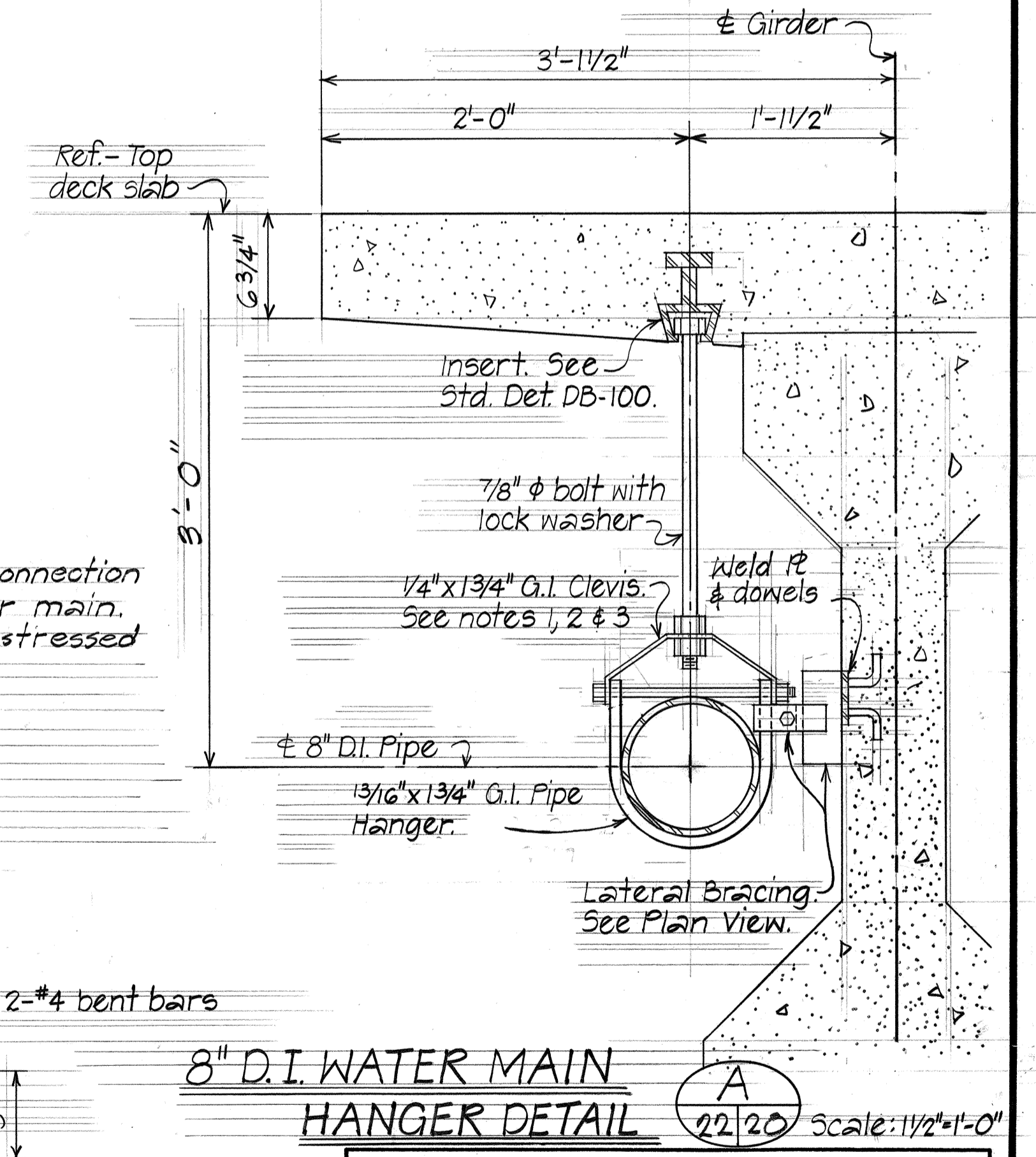
1. See Deck Framing Plan for pipe hanger insert, clevis hanger and lateral bracing spacing sht. # 21.
2. Maximum spacing of pipe hanger shall be 8'-0". Pipe hangers shall be spaced as to keep a distance approximately 4'-0" from pipe joint.
3. All exposed metal of pipe hangers and lateral supports shall have one shop coat of approved primer coat and final coat of rust preventive. (Metal gray)
4. 1" premolded filler joint shall be installed around pipe that are embedded in concrete abutments.



PART PLAN - TYPICAL GIRDER CONCRETE SEAT
Scale: 1/2" = 1'-0"

Note:

1. Clevis hanger assembly connection R & bolt incidental to water main.
2. Weld R's incidental to prestressed girder.



PLAN - PIPE HANGER LATERAL BRACING
Scale: 3" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAUILO BRIDGE

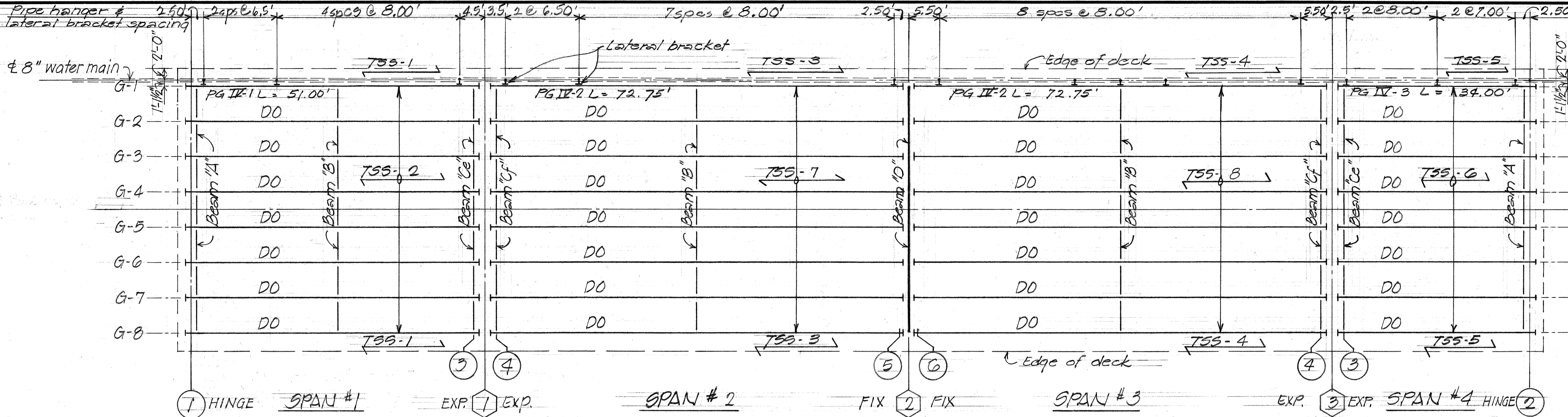
PLAN - GIRDER SEAT AND
8" D.I. WATER MAIN DETAIL

HAWAII BELT ROAD
E.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

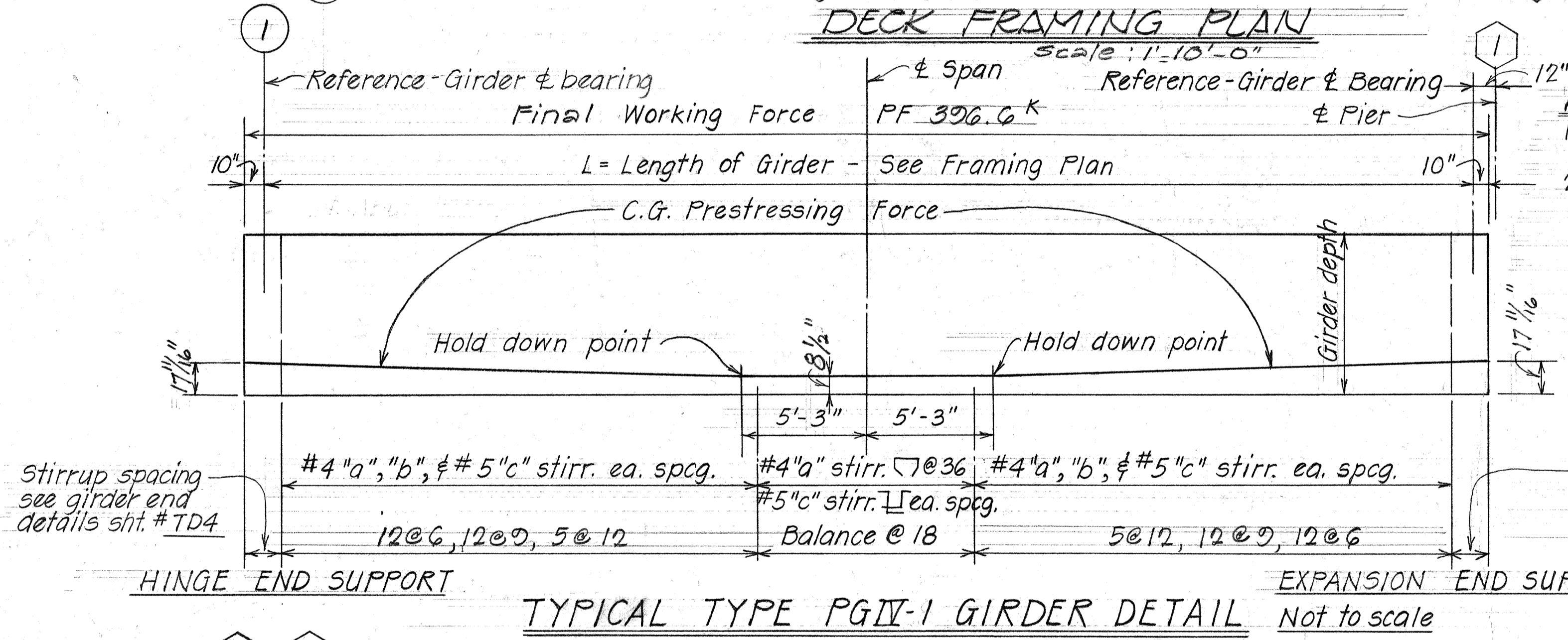
SHEET No. 20 OF 25 SHEETS

DATE	DESIGNED BY
DRAWN BY	CHECKED BY
DESIGNED BY	CHECKED BY
QUANTITIES BY	
NO.	

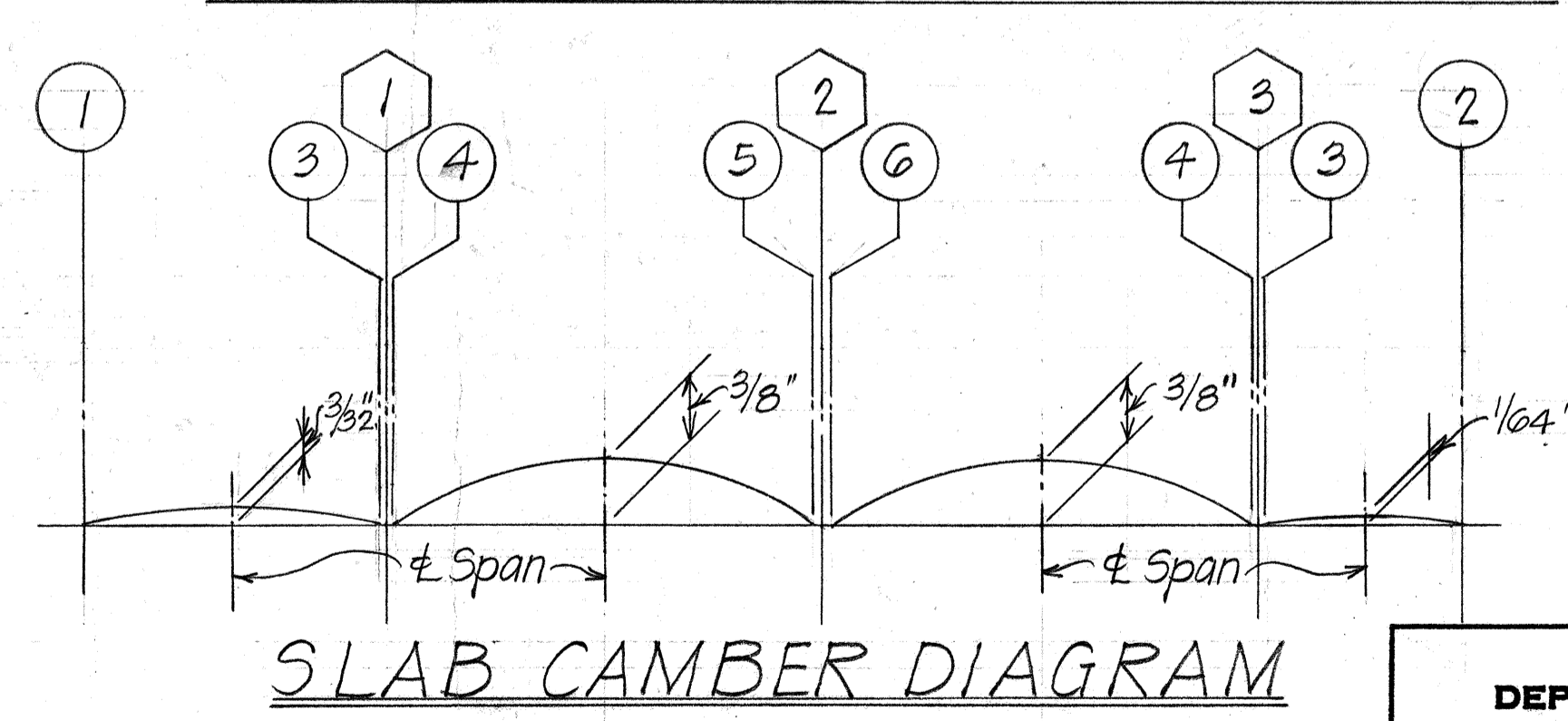
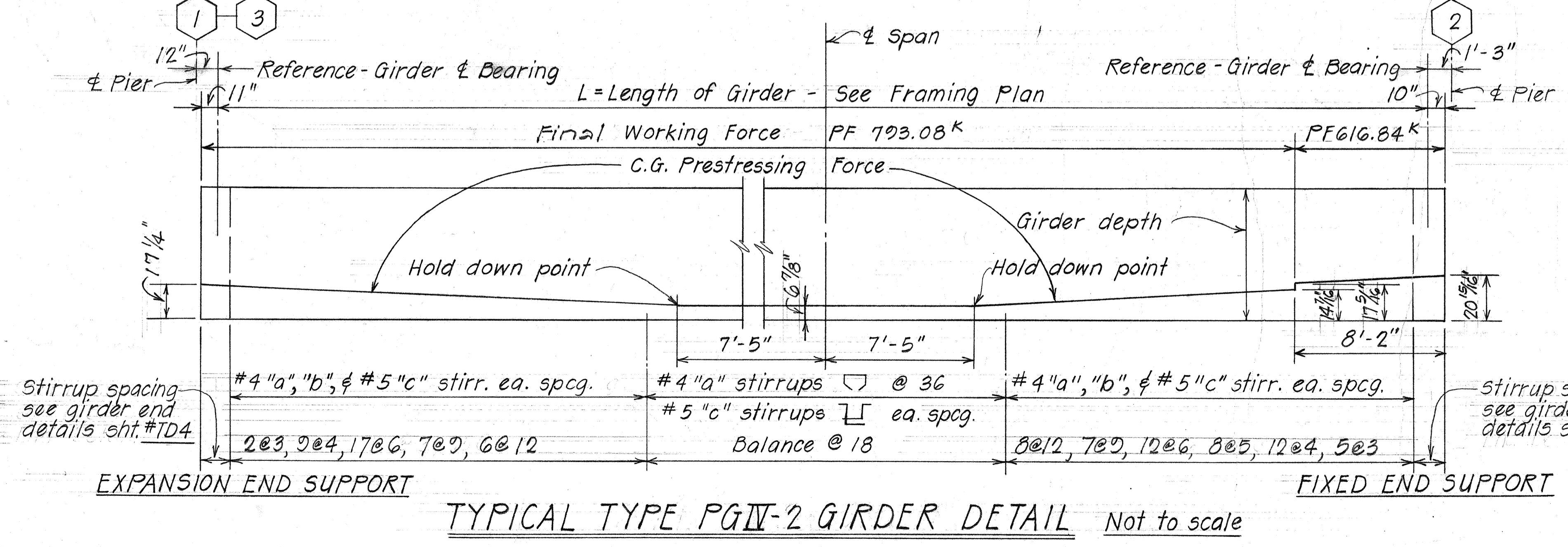
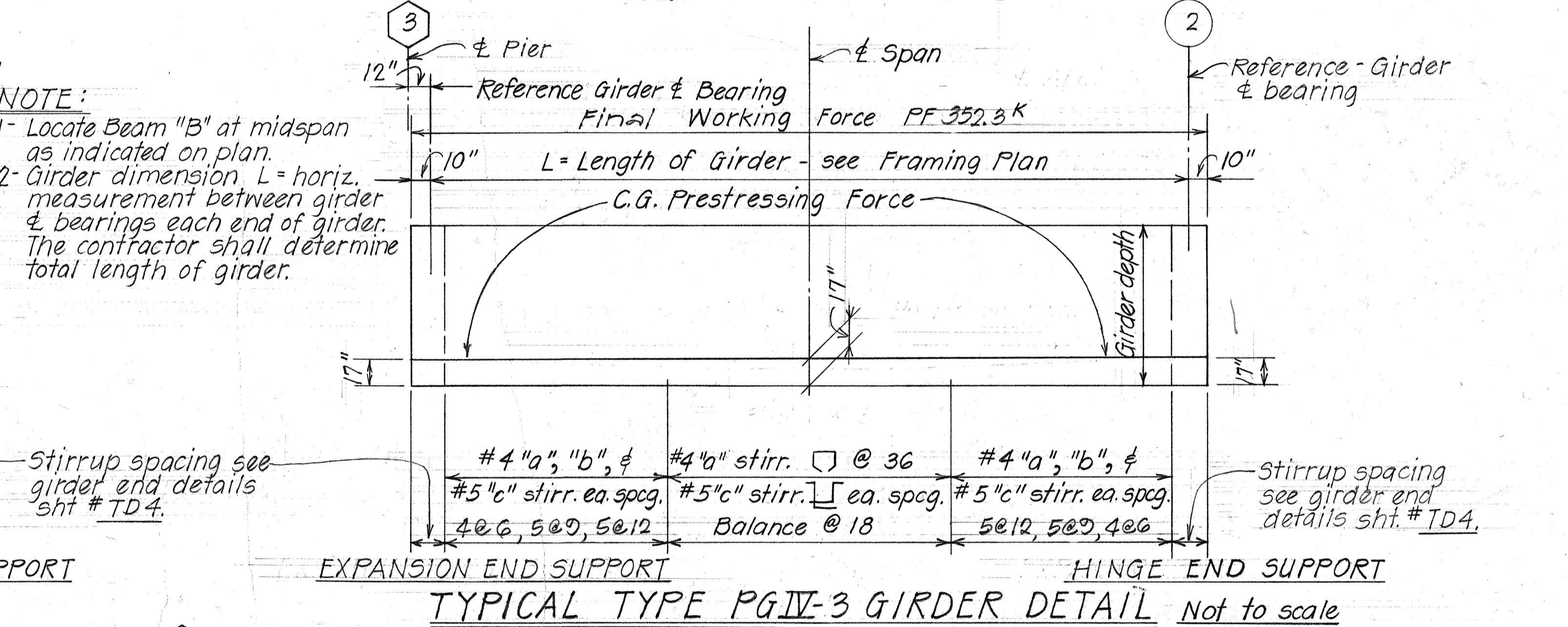
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	40	78



NOTE!
1. Denotes extent of Top Slab strip (TSS-), between girders - each bay. Refer to Typical Deck Slab Sections & corresponding Bar Placement Diagram for size & nos. sht #20
2. For additional Notes see sht. #20.



NOTE:
1- Locate Beam "B" at midspan as indicated on plan.
2- Girder dimension L = horiz. measurement between girder & bearings each end of girder. The contractor shall determine total length of girder.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

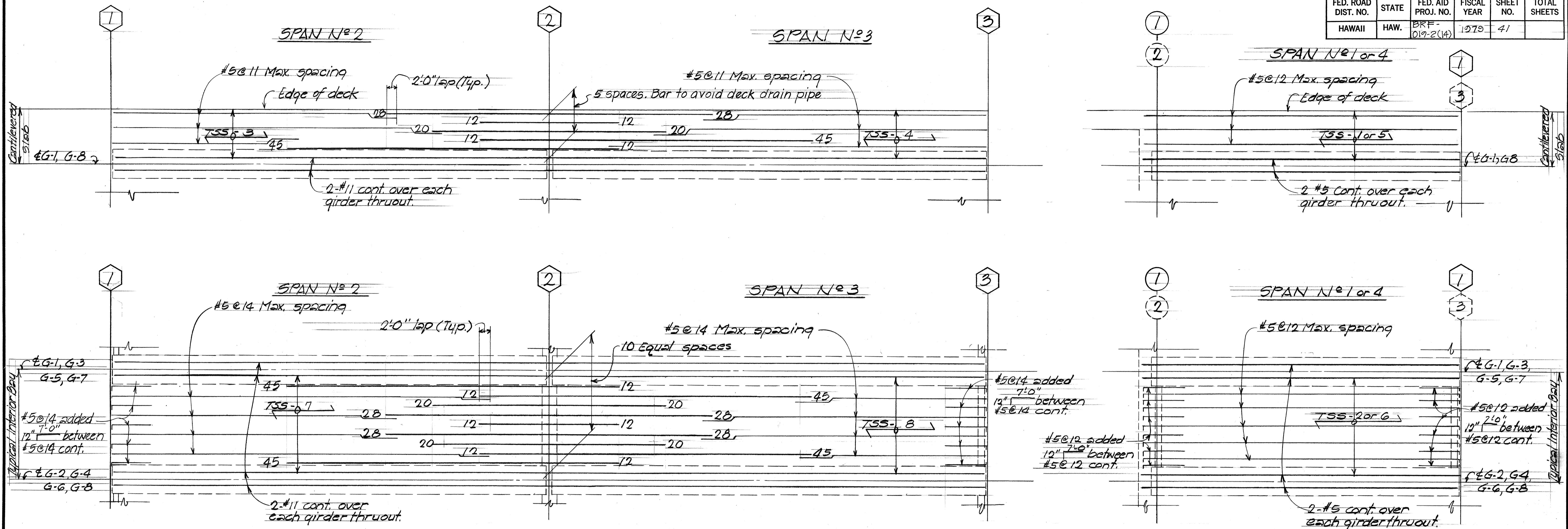
EAST PAAULO BRIDGE
DECK FRAMING PLAN
PRESTRESSED GIRDER DETAILS

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 21 OF 25 SHEETS

DATE: _____
DRAWN BY: G.D. & L.M.A.
DESIGNED BY: S.K.
QUANTITIES BY: _____
CHECKED BY: J.O. & P.T.

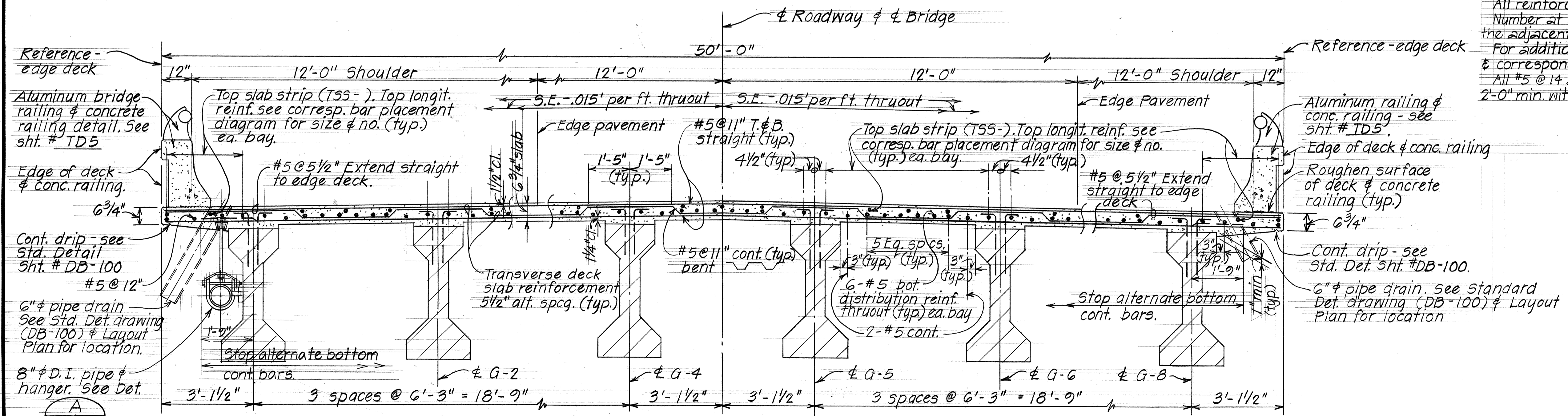
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	41	



TYPICAL ARRANGEMENT OF REINFORCEMENT ~ TOP SLAB STRIPS TSS-1 THRU TSS-6 INCLUSIVE

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

- NOTES:**
- All reinforcement #11 except as otherwise noted.
 - Number at end of bars denotes dimension in feet from the adjacent pier line numeral.
 - For additional slab reinforcement see Normal Section & corresponding details.
 - All #5 @ 14 and #5 @ 11 bars shall be extended & lapped 2'-0" min. with the adjacent #11 bars as shown.



TYPICAL NORMAL DECK SECTION Scale: 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAUULO BRIDGE

TYPICAL BAR PLACEMENT
DIAGRAM TSS-1 THRU TSS-6
AND TYPICAL NORMAL DECK SECTION

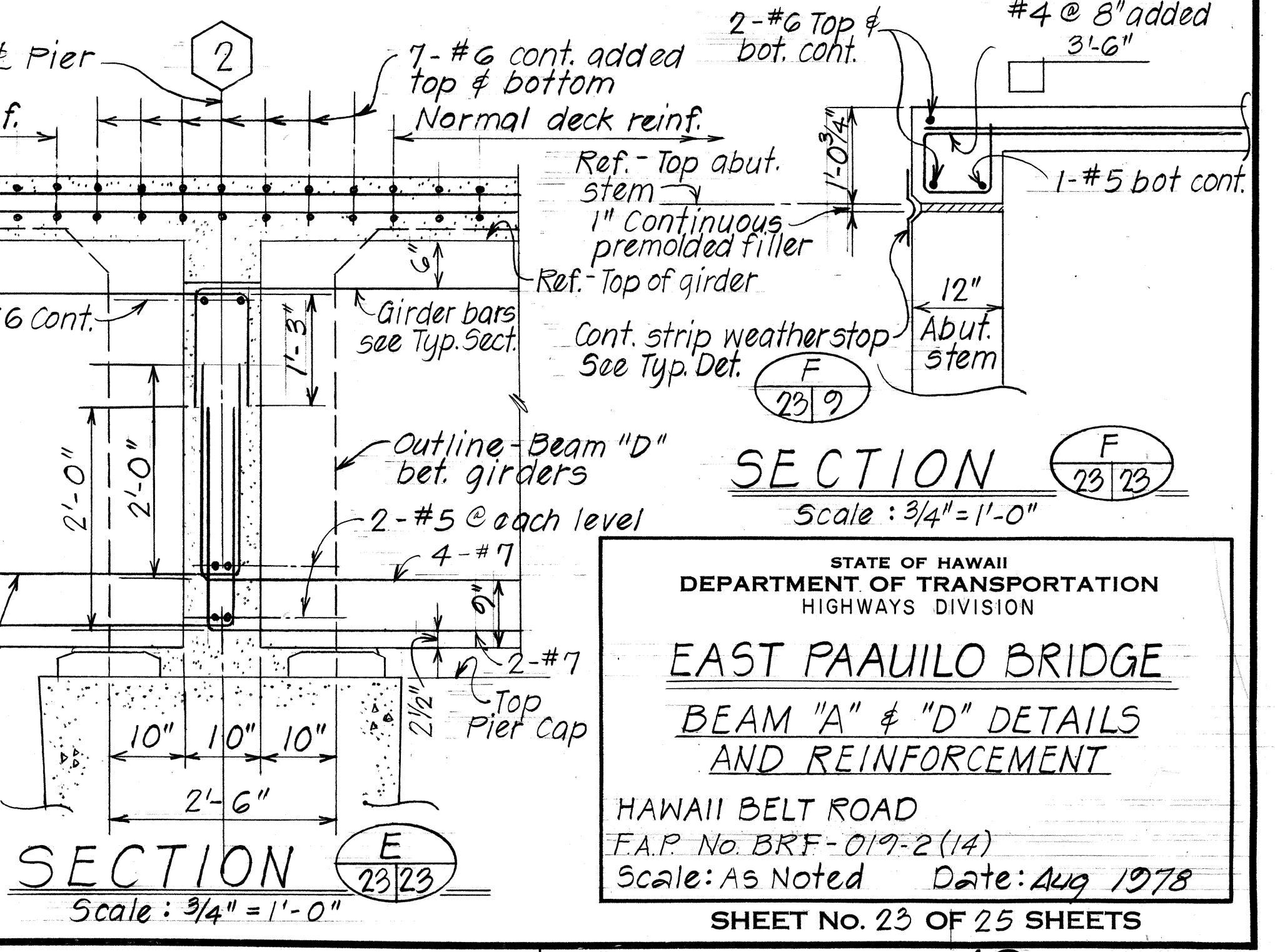
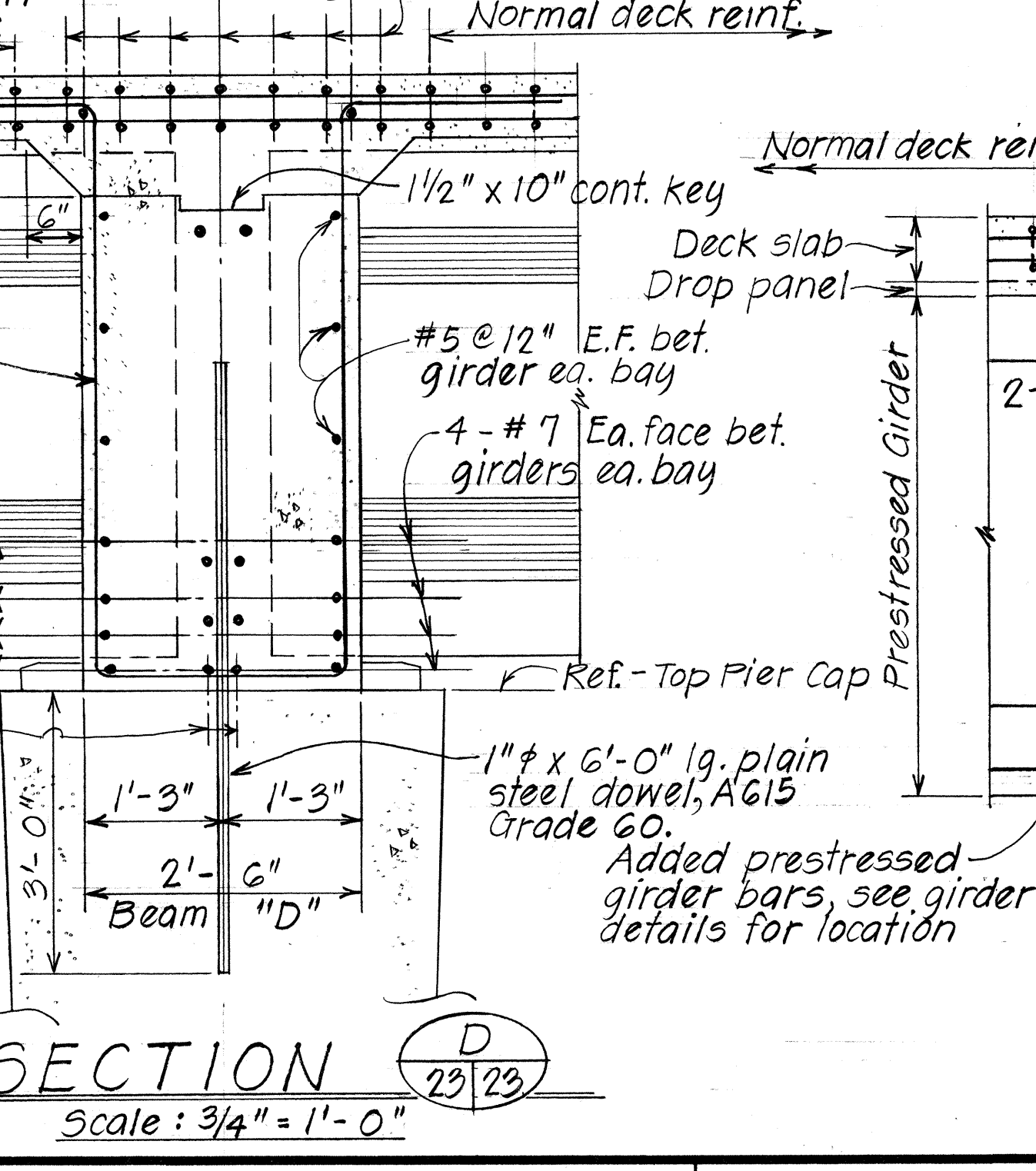
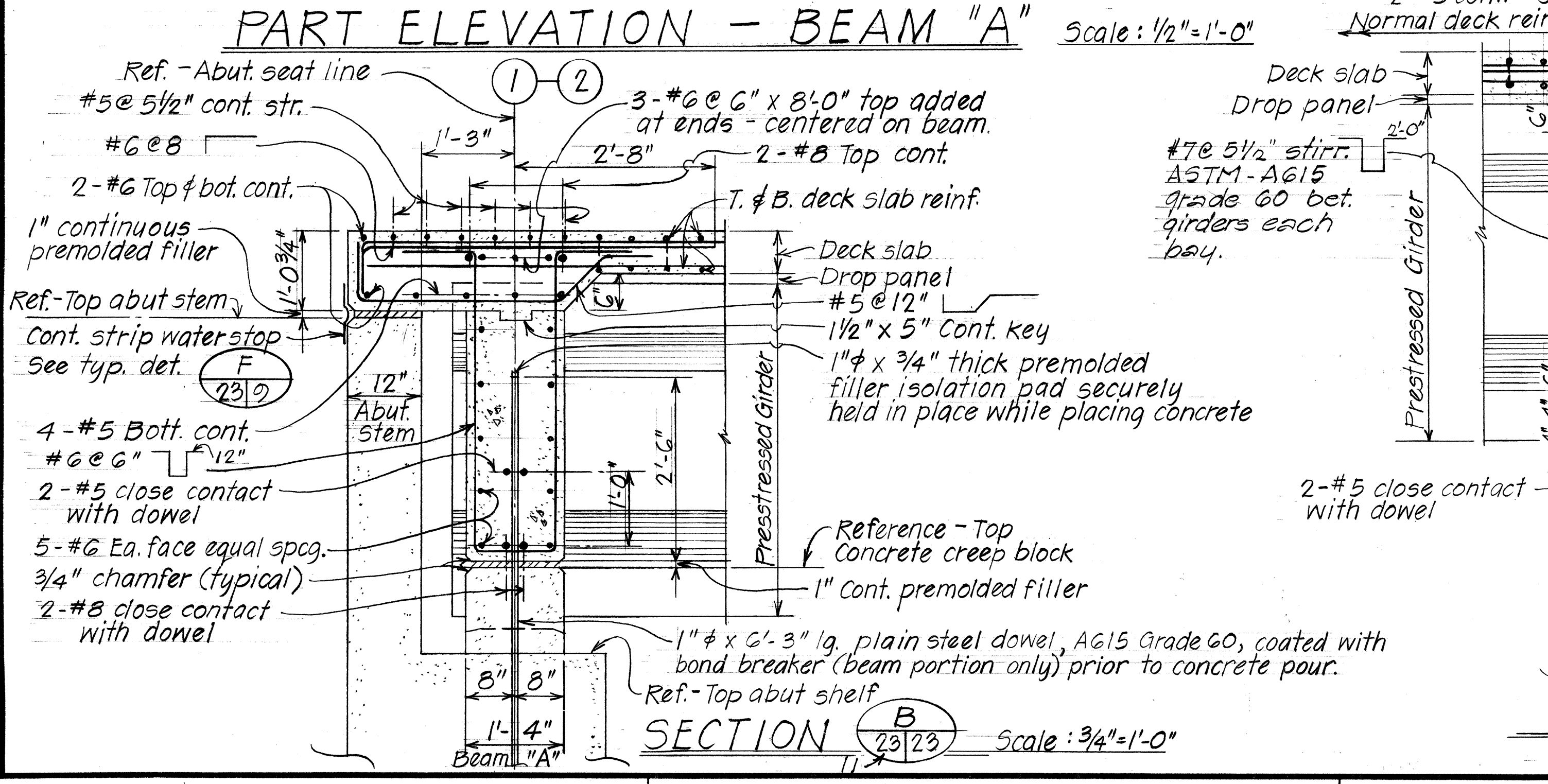
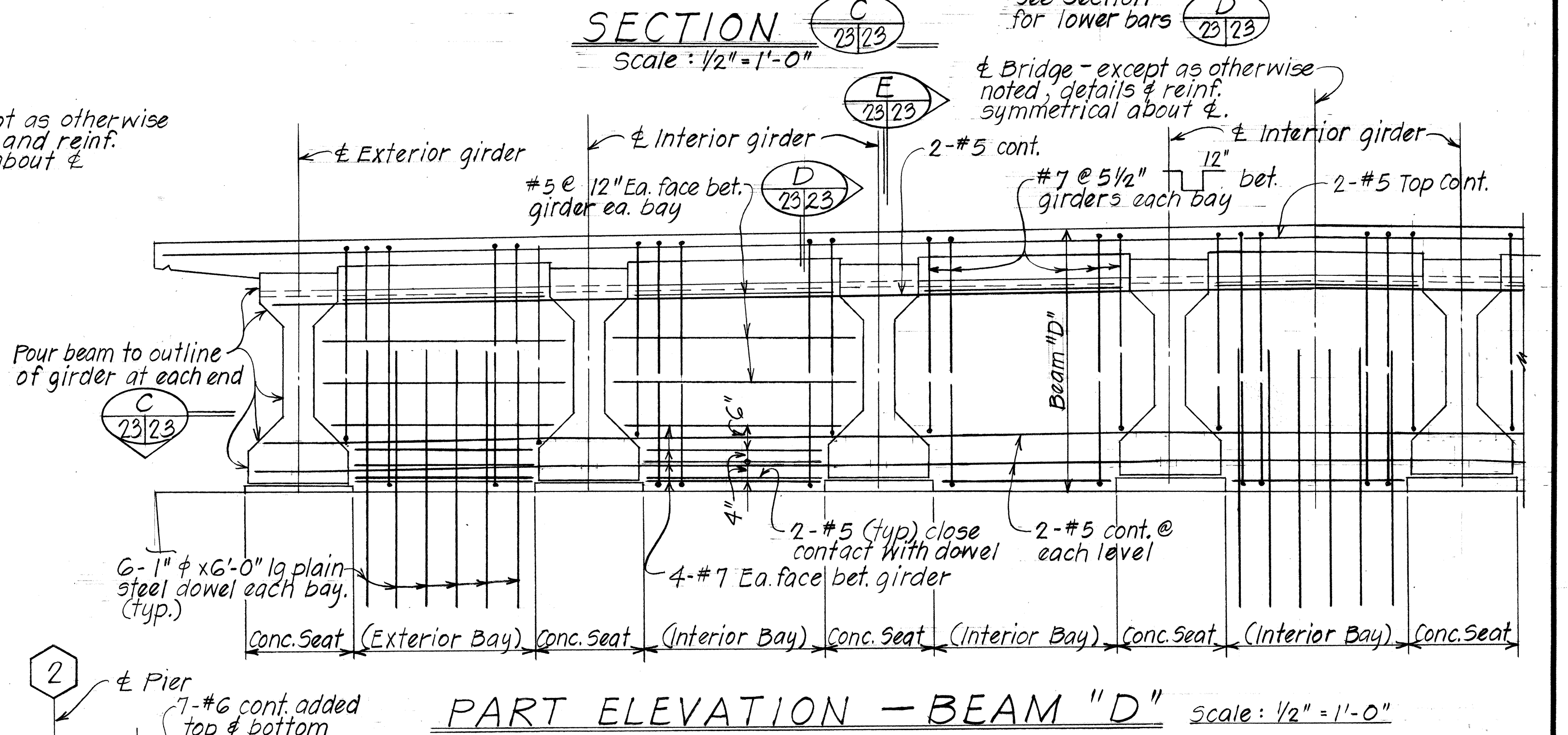
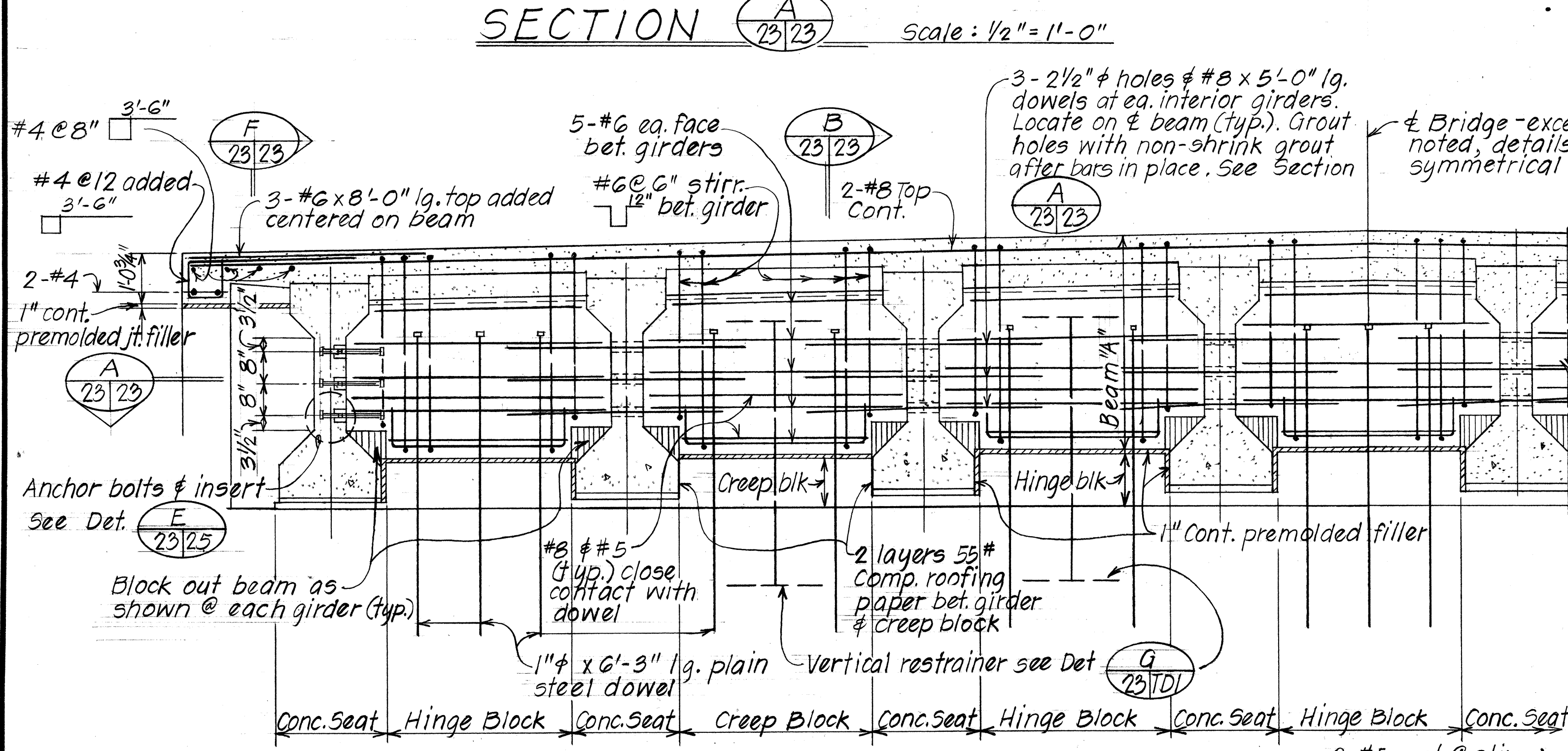
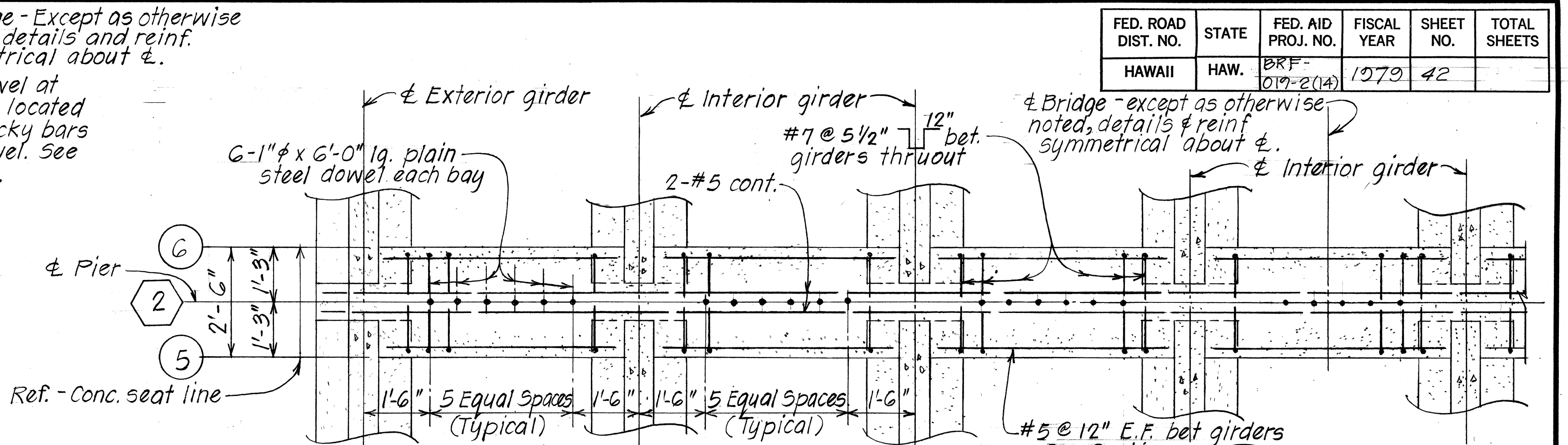
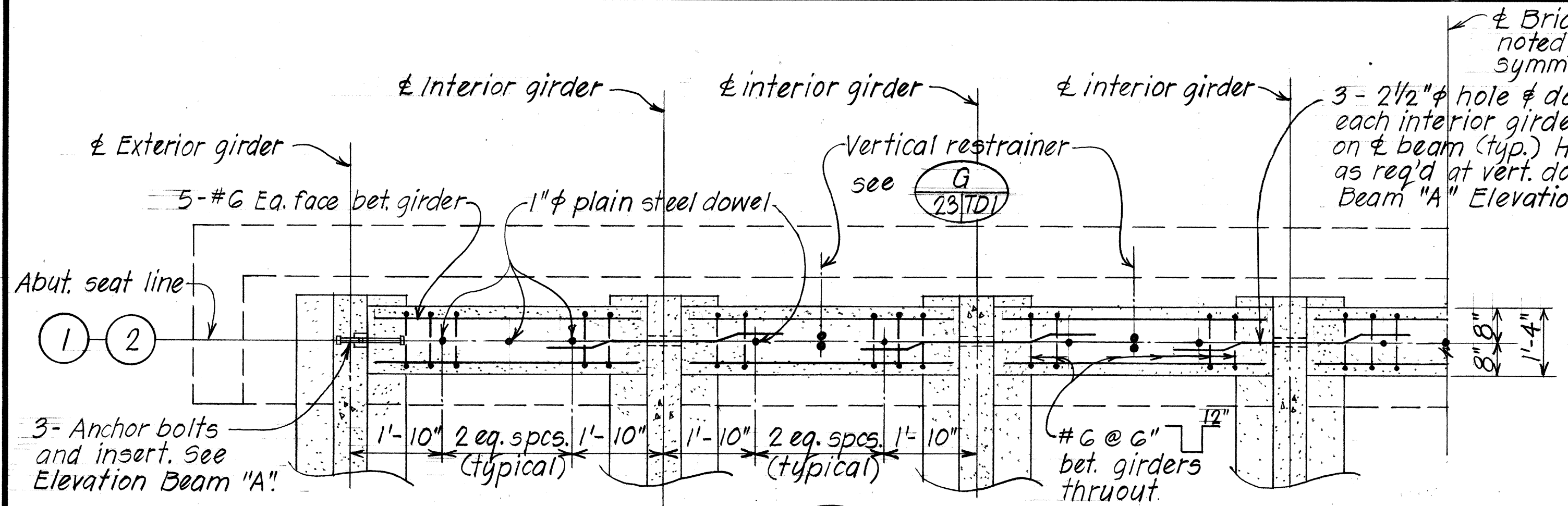
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET No. 22 OF 25 SHEETS

SURVEY PLOTTED BY	DATE
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

A
2220

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	42	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

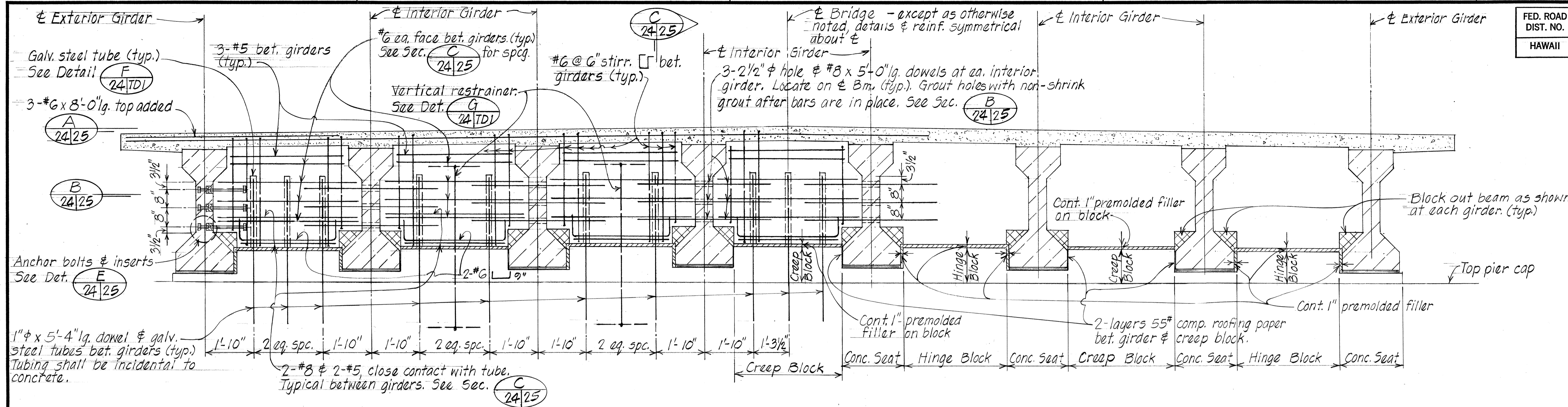
EAST PAAULO BRIDGE
BEAM "A" & "D" DETAILS
AND REINFORCEMENT

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

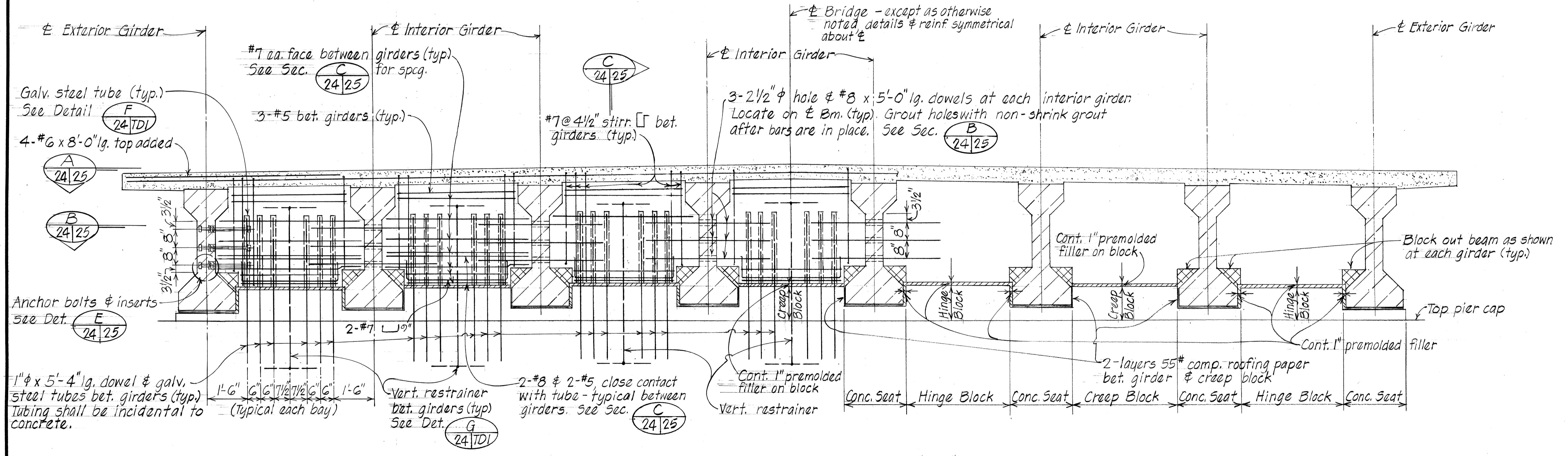
SHEET No. 23 OF 25 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
DESIGNED BY: _____
CHECKED BY: _____
QUANTITIES BY: _____
NO. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	43	78



ELEVATION - TYPICAL BEAM "Ce"
Scale: 1/2" = 1'-0"

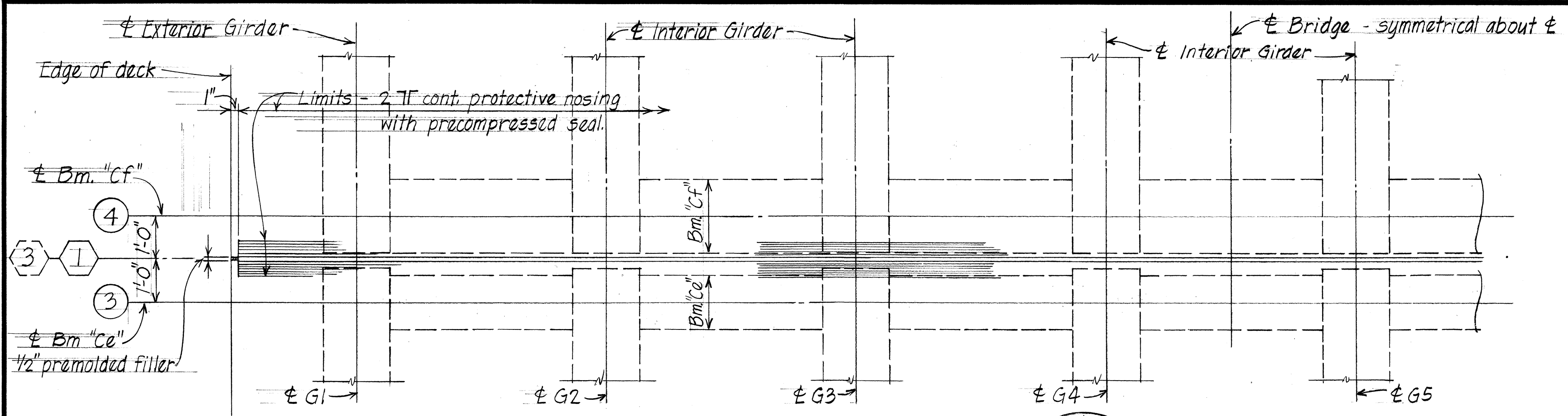


ELEVATION - TYPICAL BEAM "Cf"
Scale: 1/2" = 1'-0"

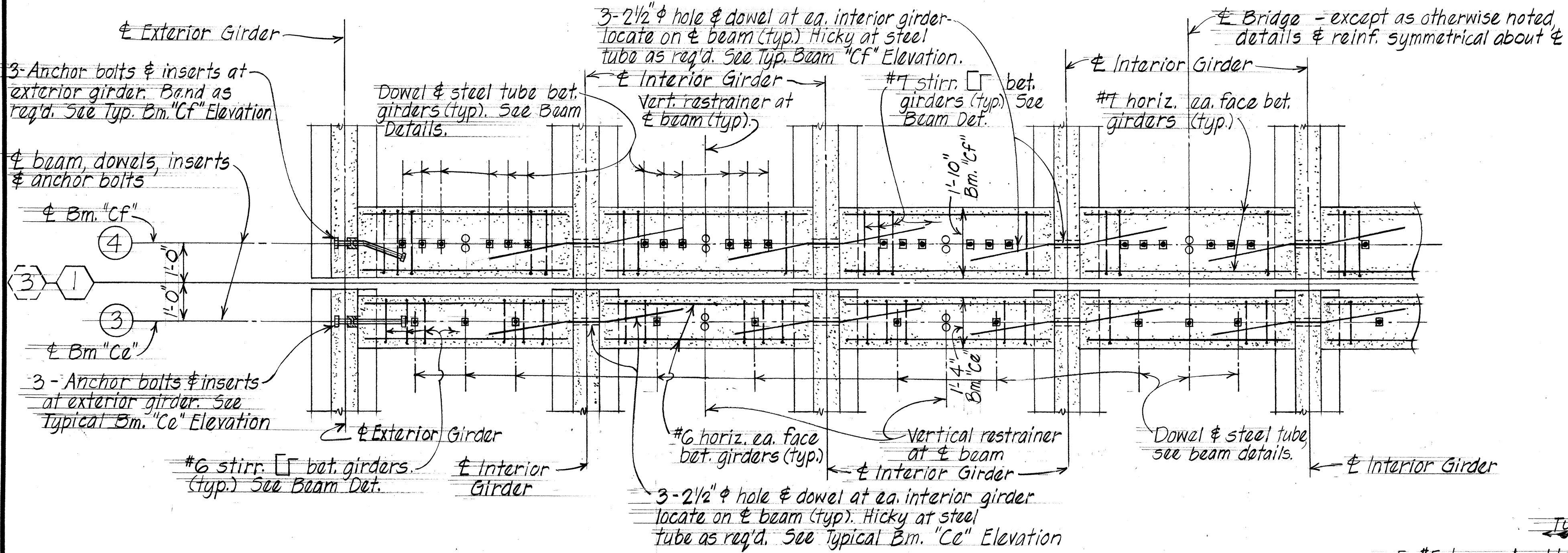
SURVEY PLOTTED BY
 DATE
 DRAWN BY
 TRACED BY
 DESIGNED BY
 CHECKED BY
 ORIGINAL PLAN
 NOTE BOOK
 No.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
EAST PAAUILO BRIDGE
 BEAMS "Ce" & "Cf"
 DETAILS & REINFORCEMENT
 HAWAII BELT RD.
 F.A.P. No. BRF-019-2(14)
 Scale: As Noted Date: Aug 1978
 SHEET No. 24 OF 25 SHEETS

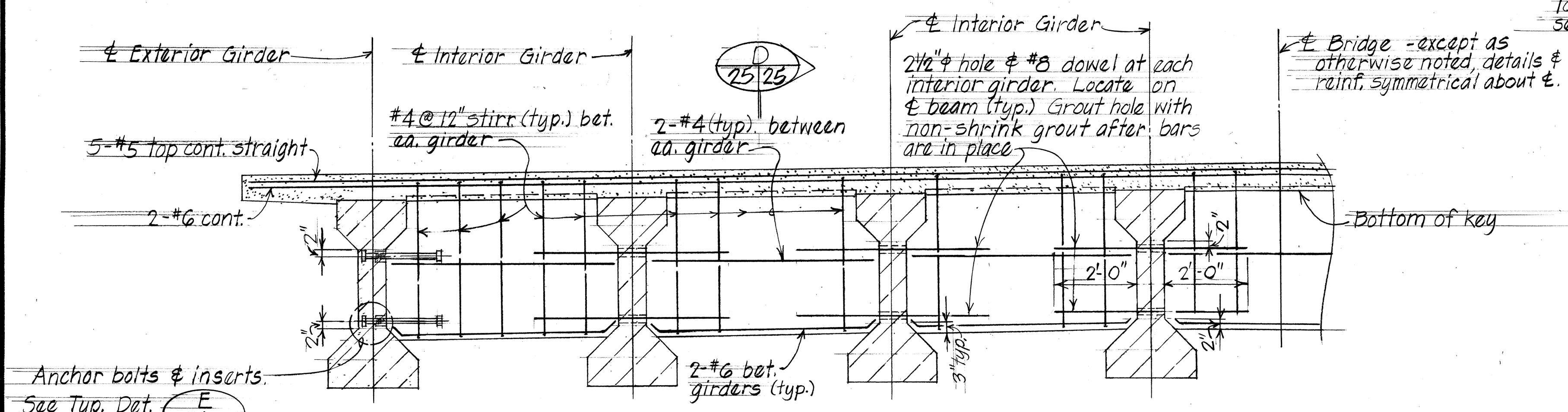
FED. ROAD DIST. NO.	STATE	FED.-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	44	78



PART TOP DECK PLAN (A) 24/25 Scale: 1/2" = 1'-0"

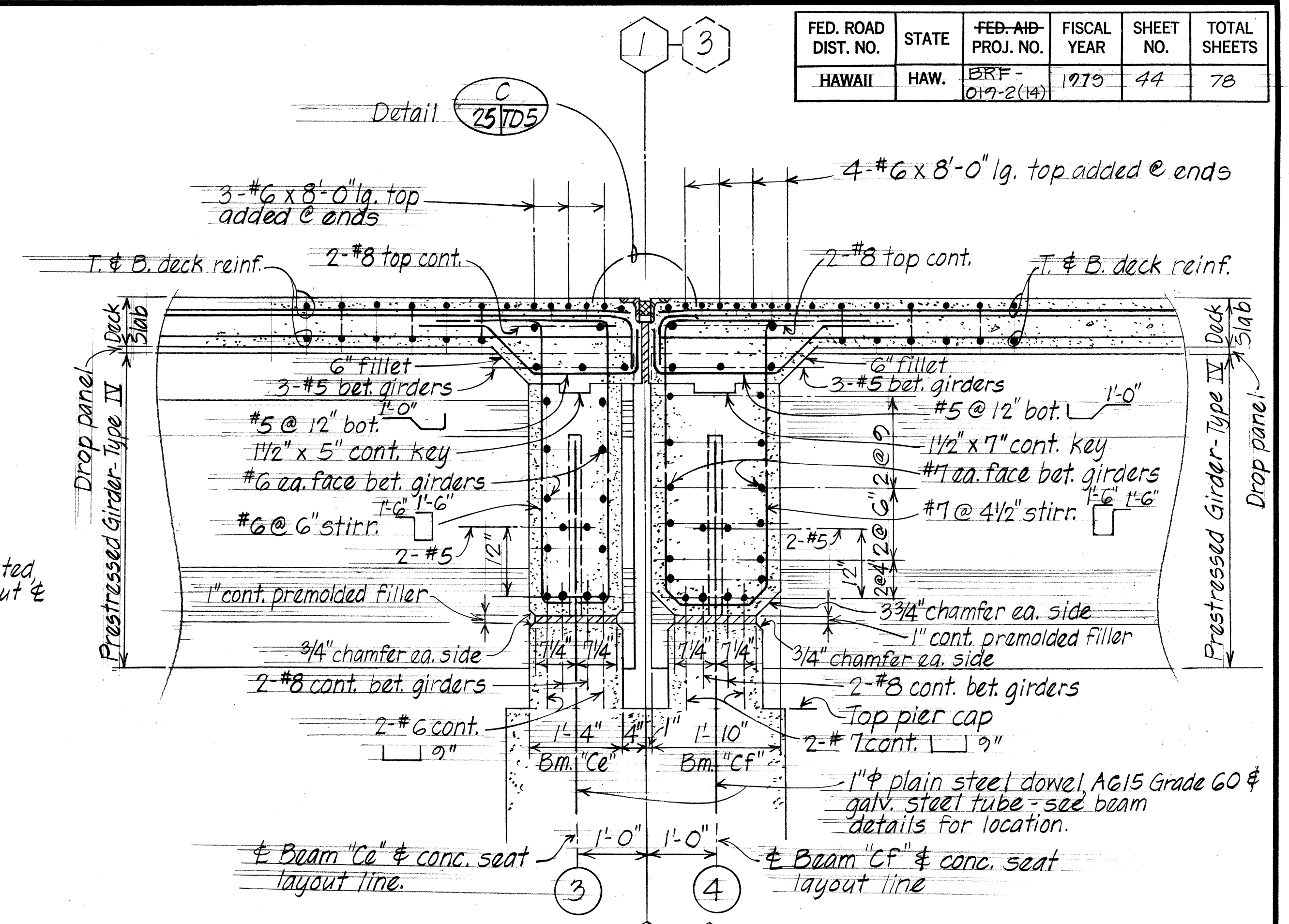


SECTION (B) 24/25 Scale: 1/2" = 1'-0"

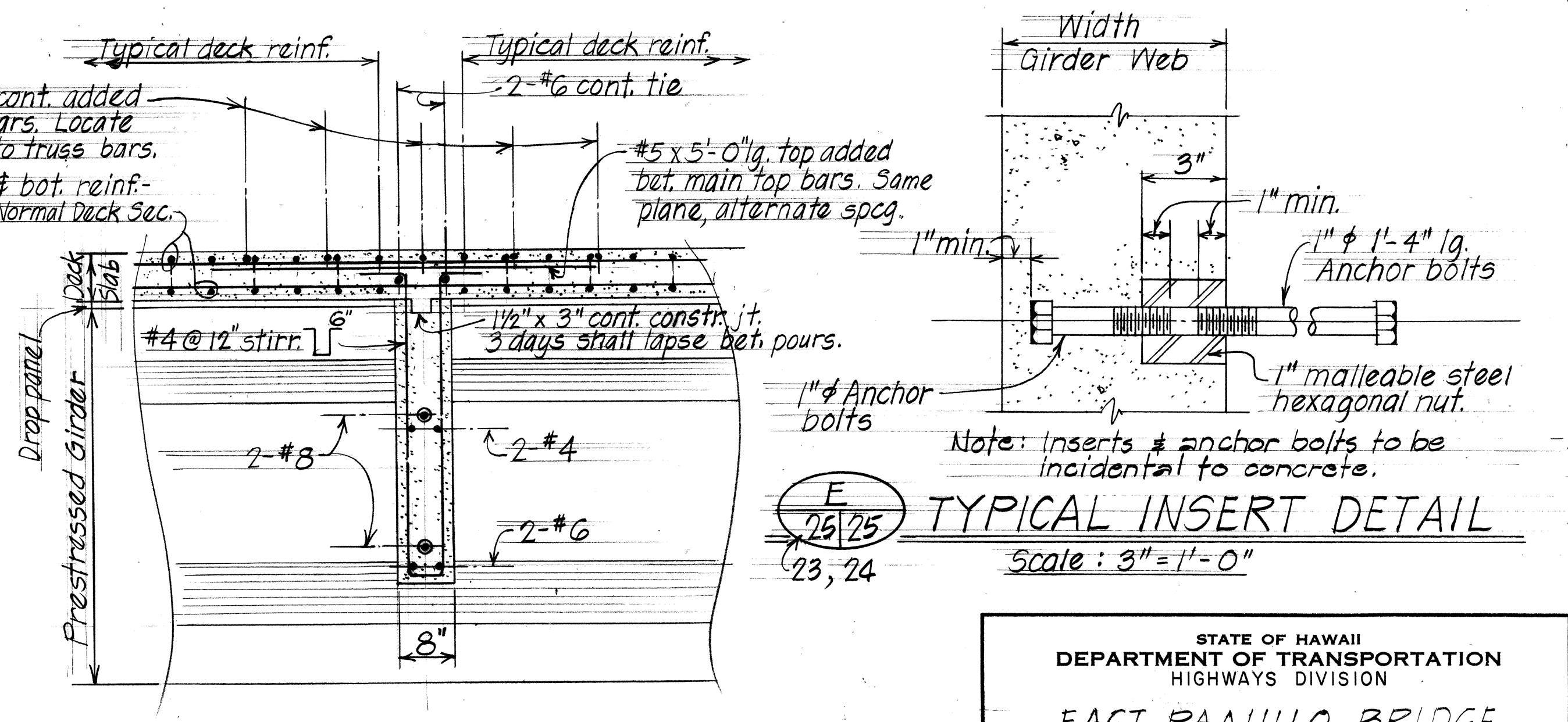


PART ELEVATION - BEAM "B"

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



TYPICAL SECTION (C) 24/25 Scale: 3/4" = 1'-0"



TYPICAL INSERT DETAIL (E) 25/25 Scale: 3" = 1'-0"

SECTION (D) 25/25

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAUULO BRIDGE

BEAMS "B", "Ce", "Cf"
SECTIONS & DETAILS

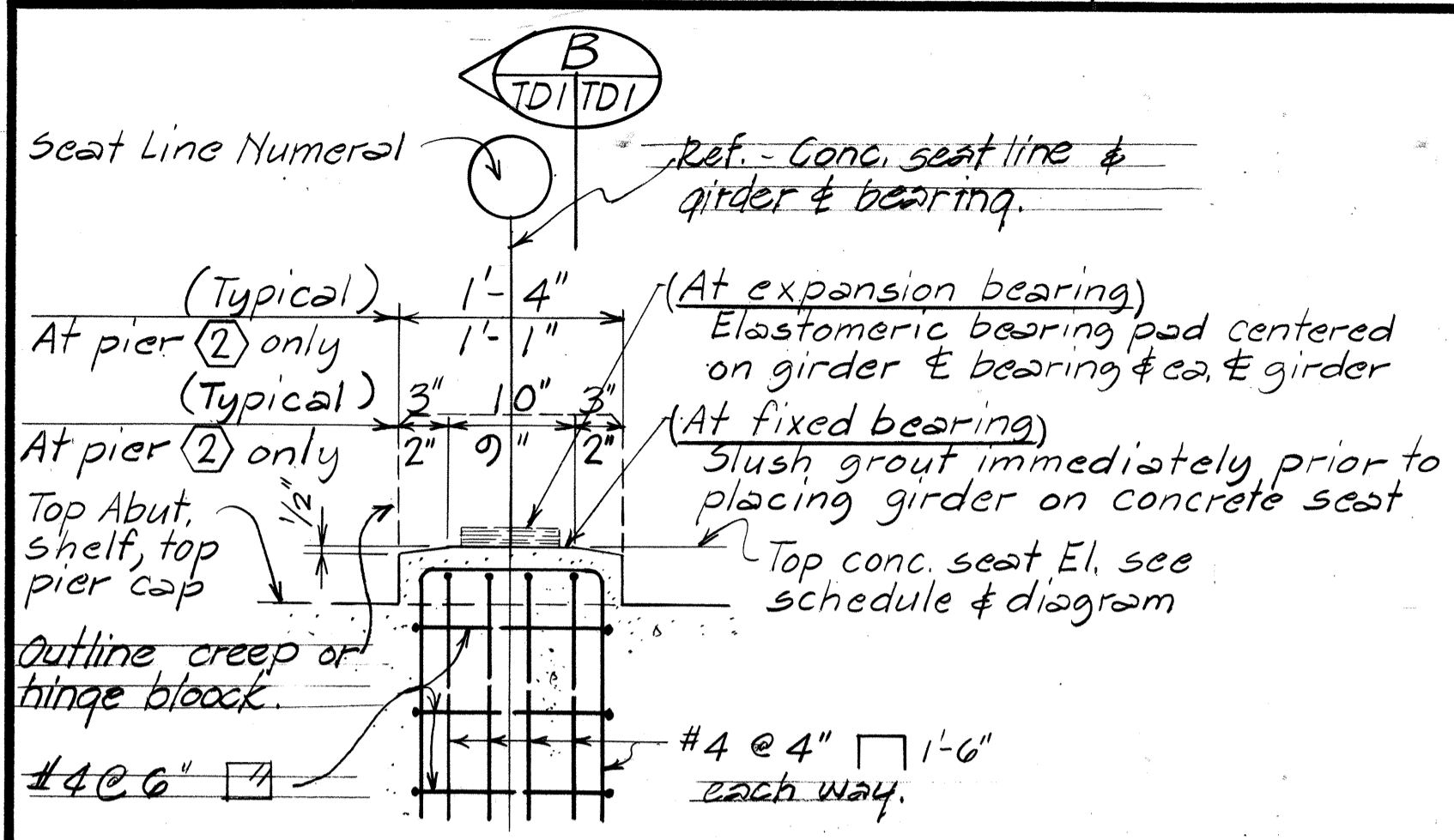
HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As Noted Date: Aug 1978

SHEET NO. 25 OF 25 SHEETS

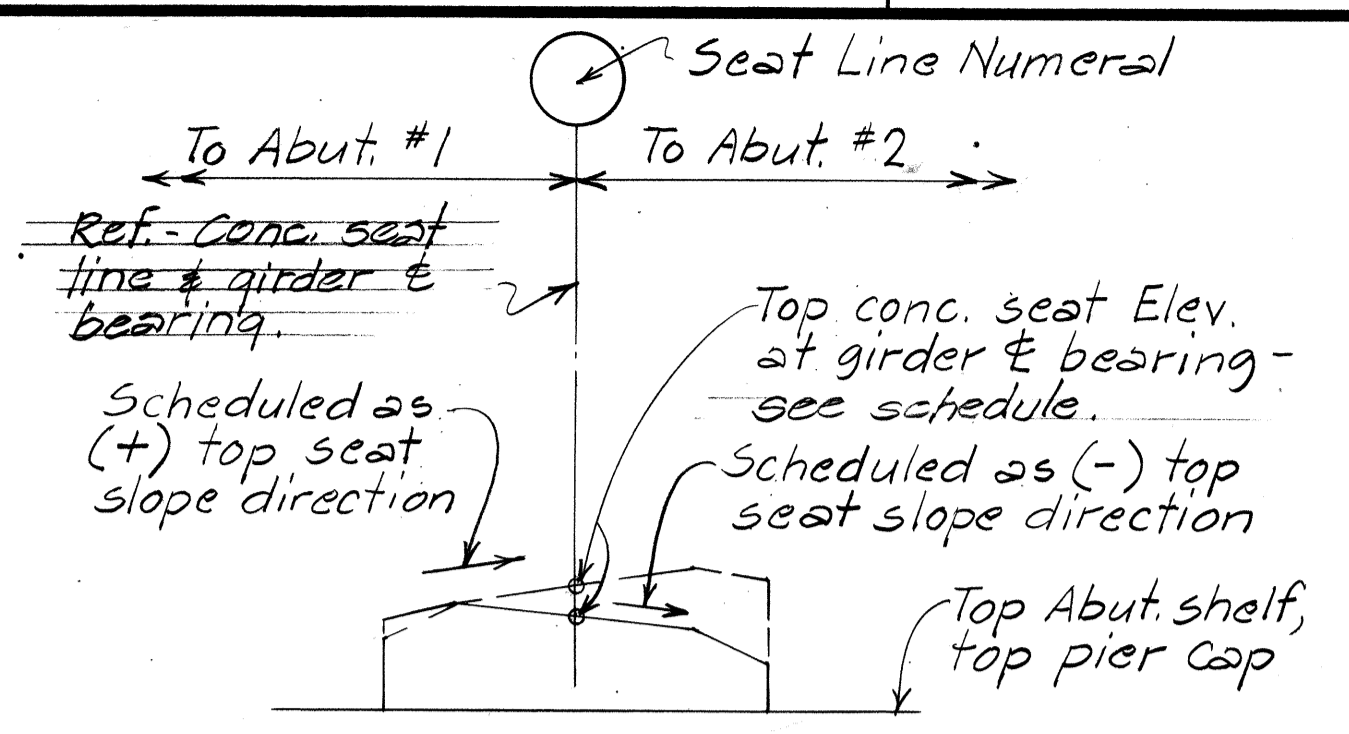
DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
CHECKED BY: _____
NO. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	45	78

NOTE:
 1. Restrainer assemblage incidental to concrete & will not be paid for separately.
 2. Restrainer assemblage shall be securely held in place while placing concrete.

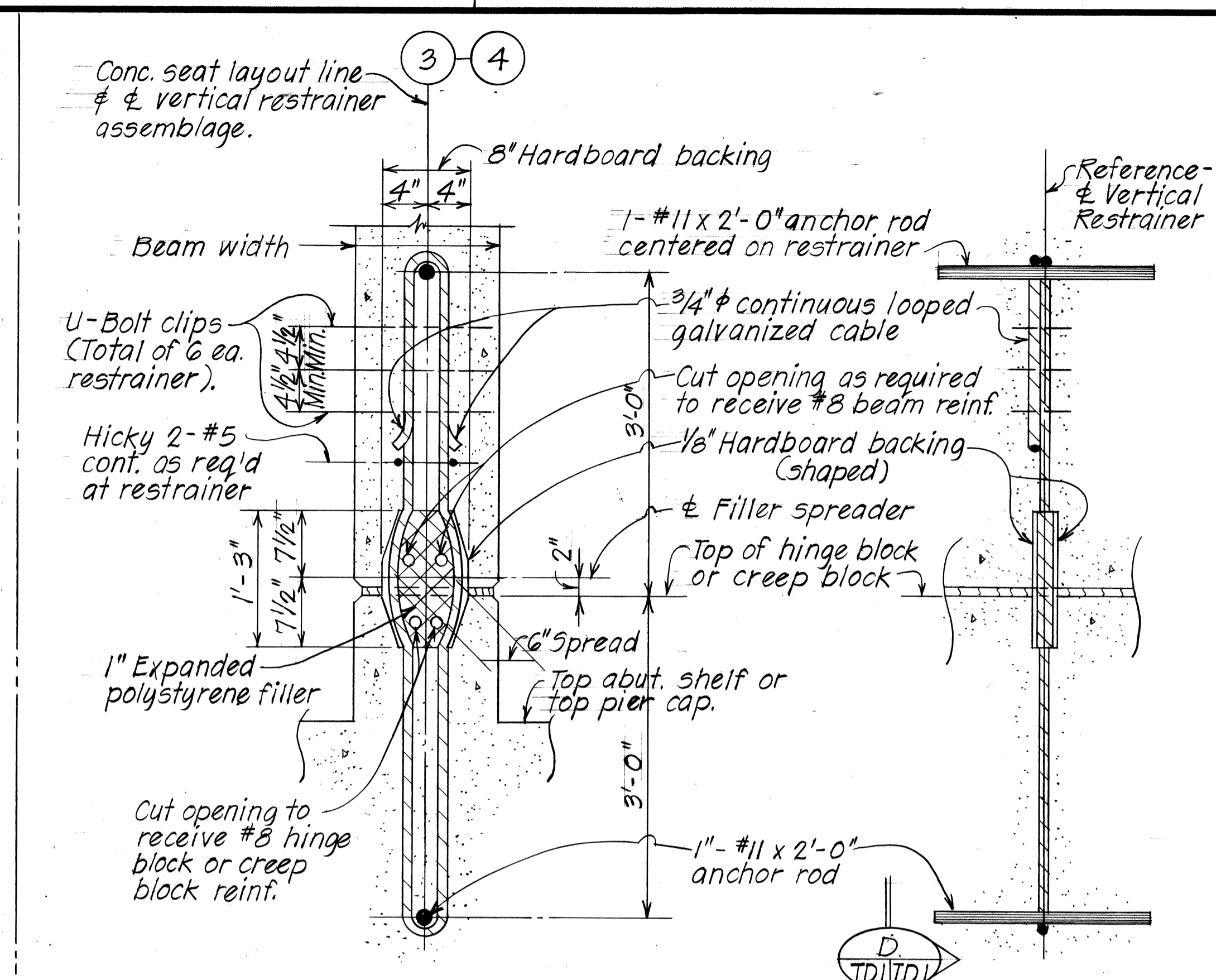


SHOWING REINFORCEMENT AND DIMENSIONS

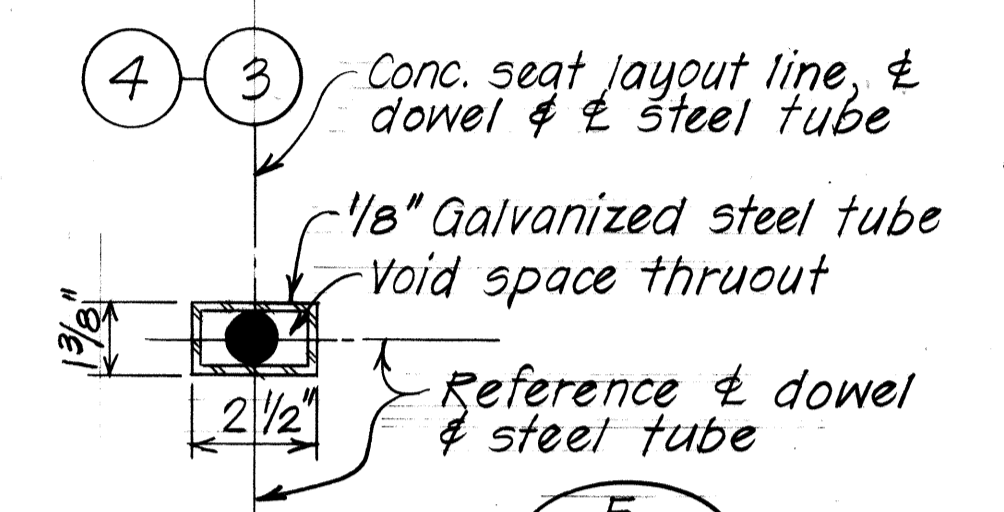


Note: Top seat slope direction normal to conc. seat line.

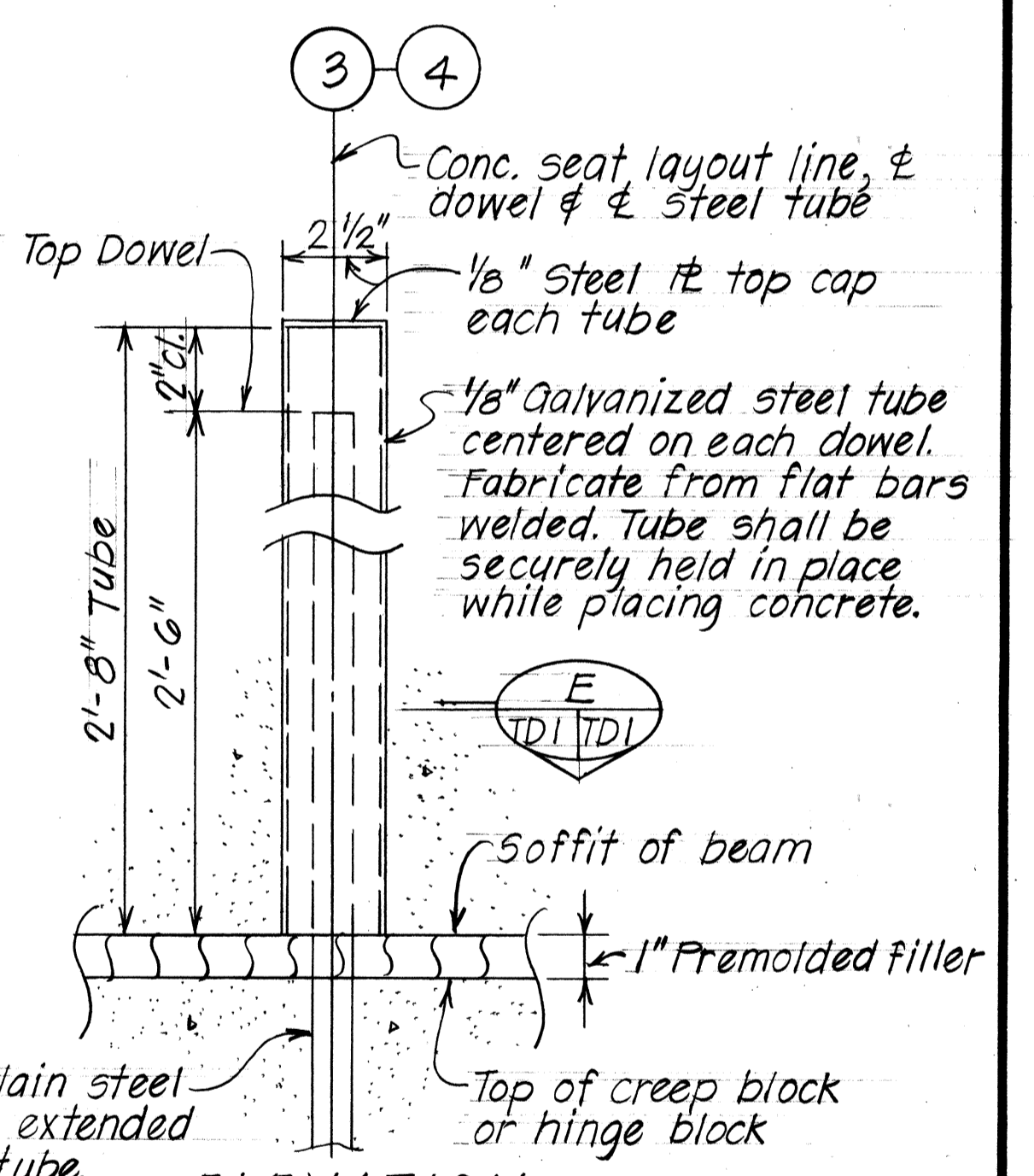
DIAGRAM - VARIOUS CONDITIONS OF TOP SEAT SLOPE



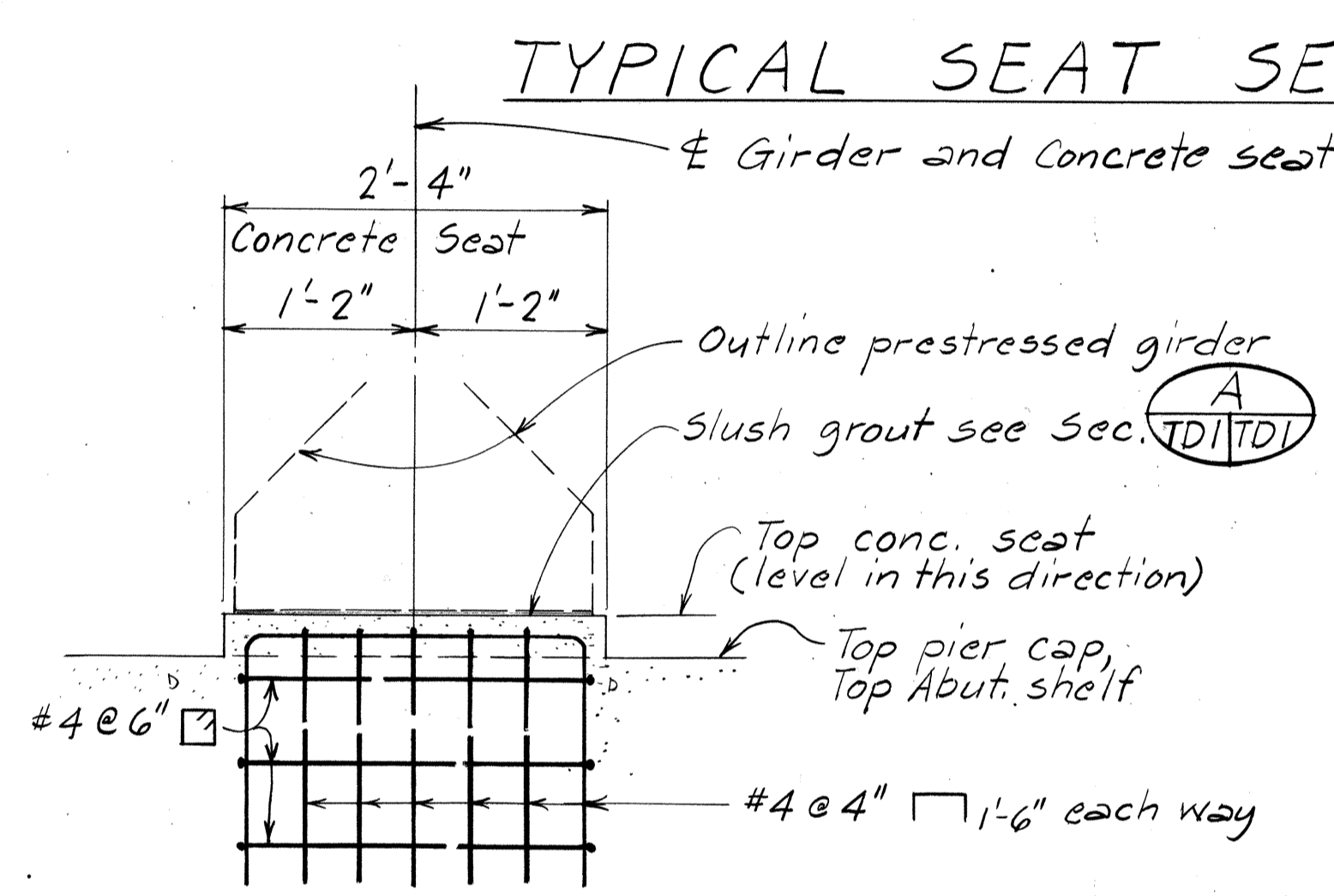
SECTION D TYPICAL VERTICAL RESTRAINER DETAILS Scale: 1"=1'-0"



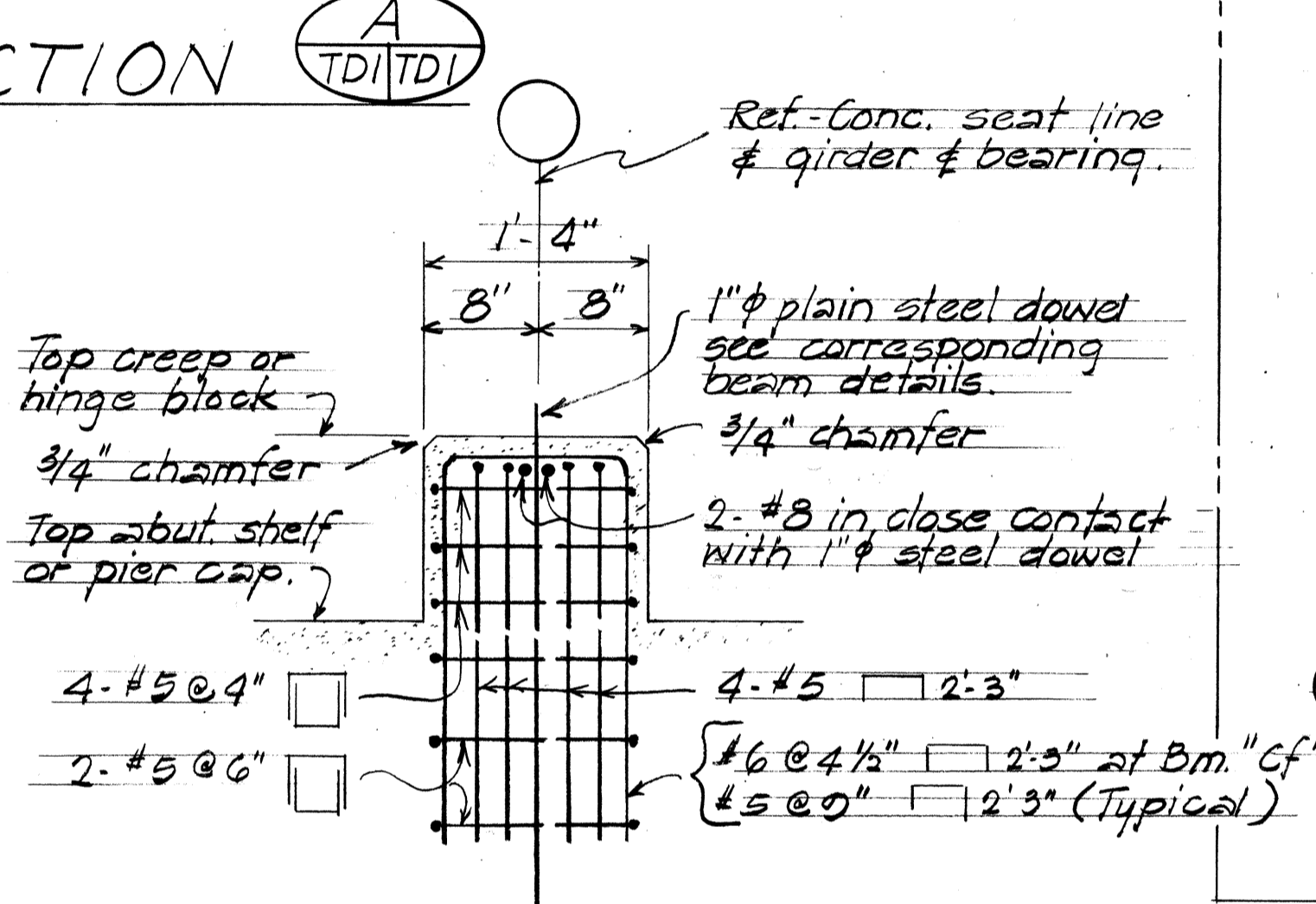
SECTION E Scale: 3"=1'-0"



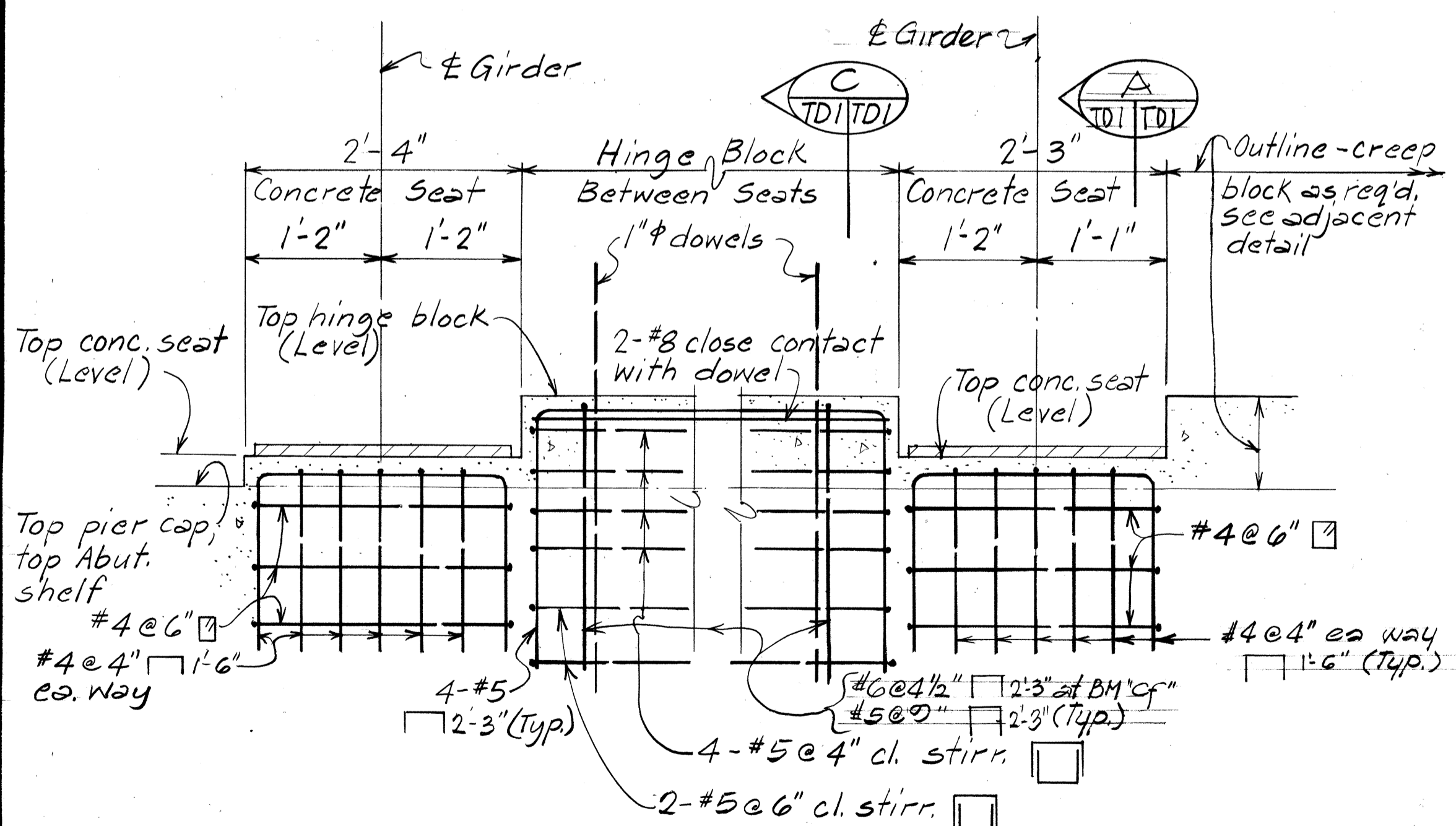
SECTION F TYPICAL DETAIL EXPANSION END HINGE DOWEL AND METAL TUBE Scale: 3"=1'-0"



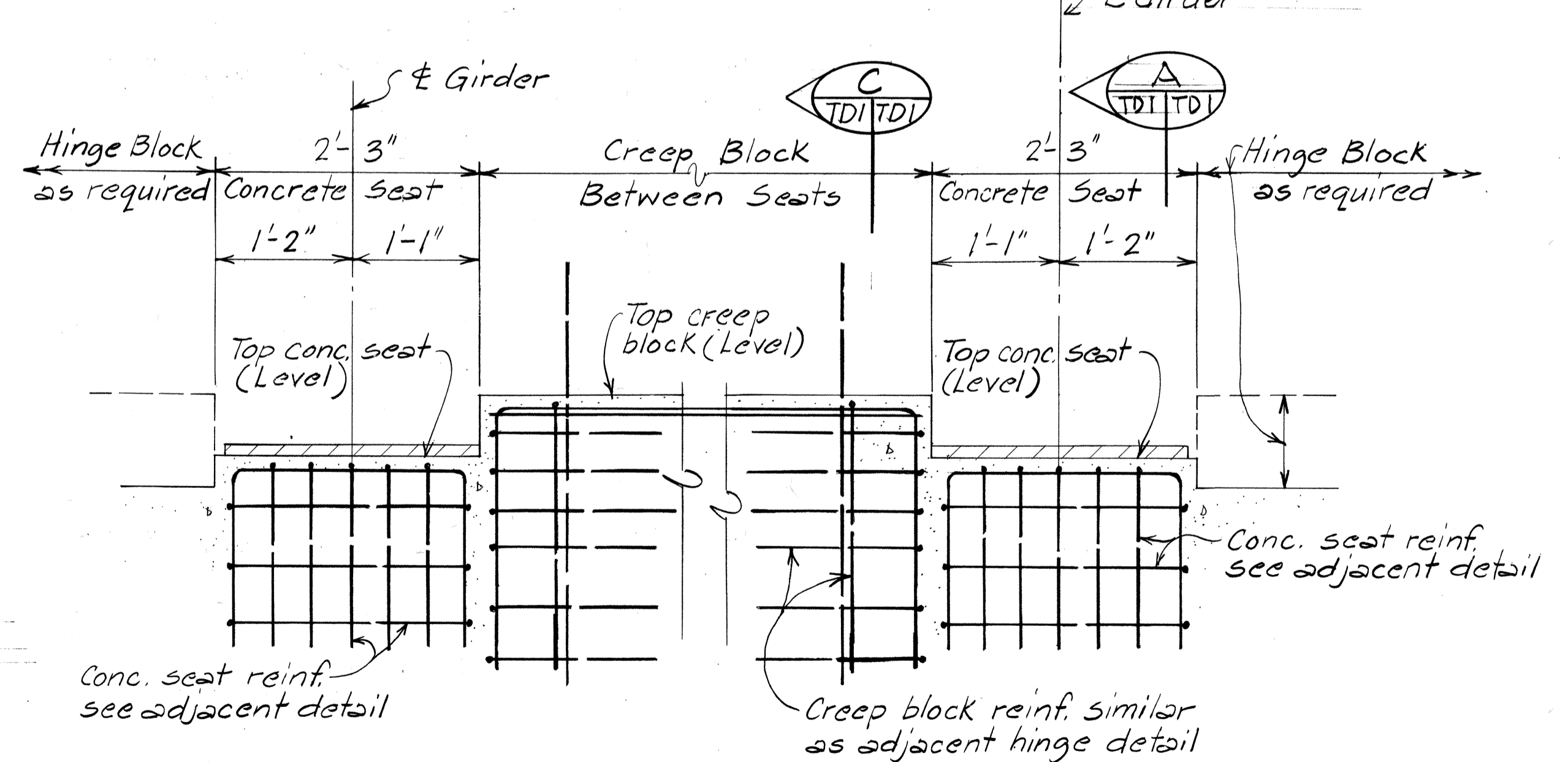
AT FIXED BEARING



SECTION C TYPICAL SECTION Scale: 1"=1'-0"



BETWEEN HINGE BLOCK

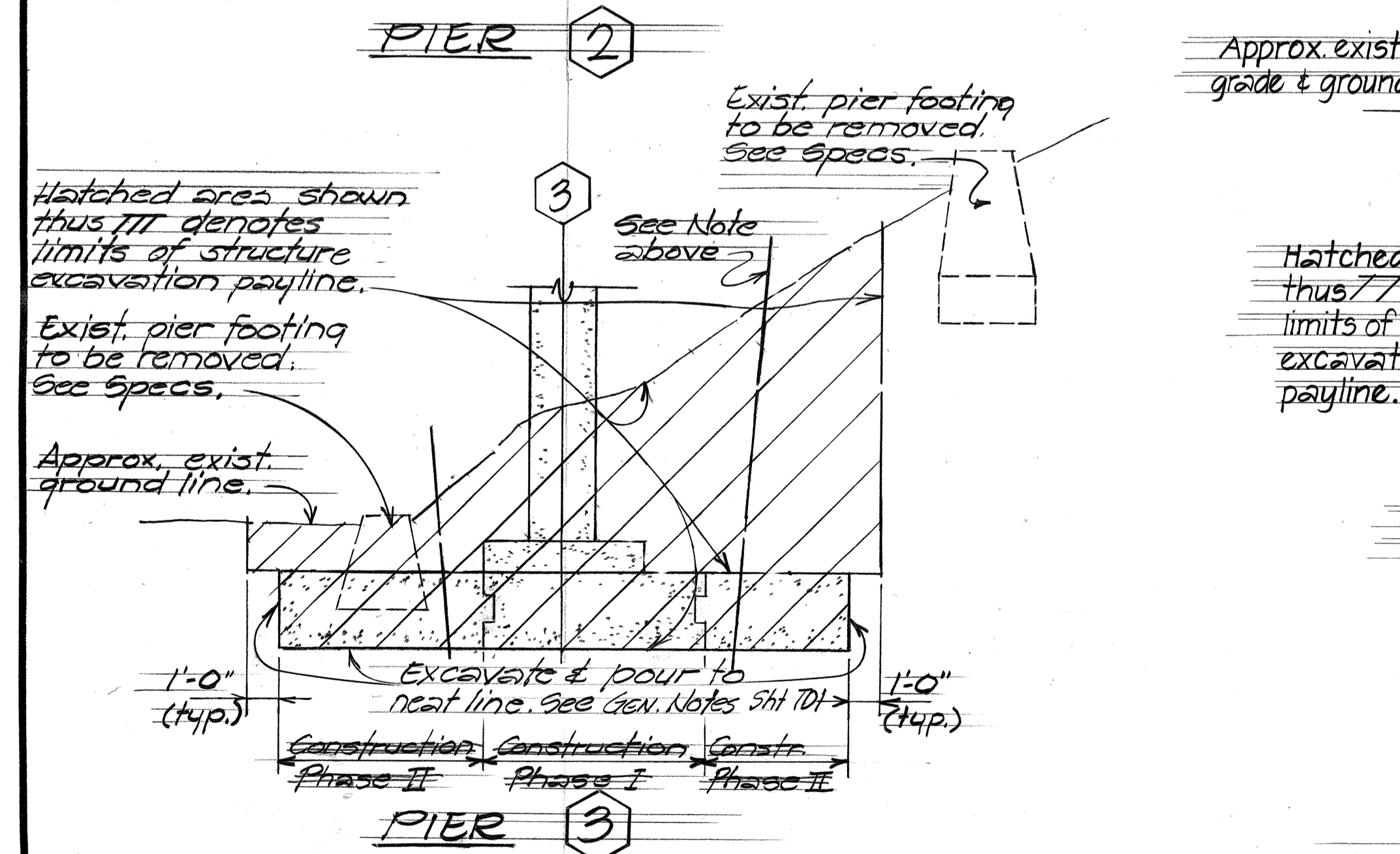
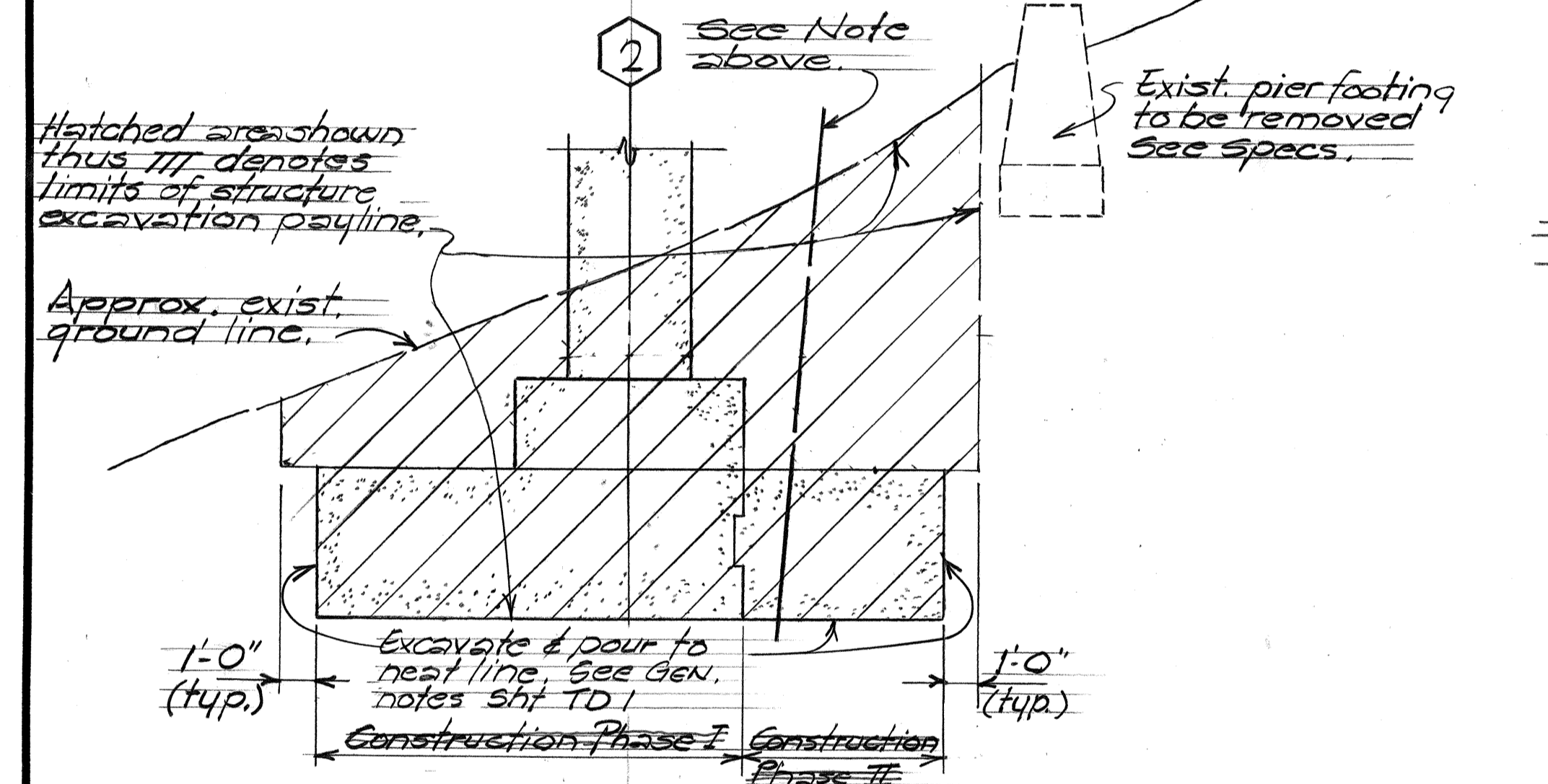
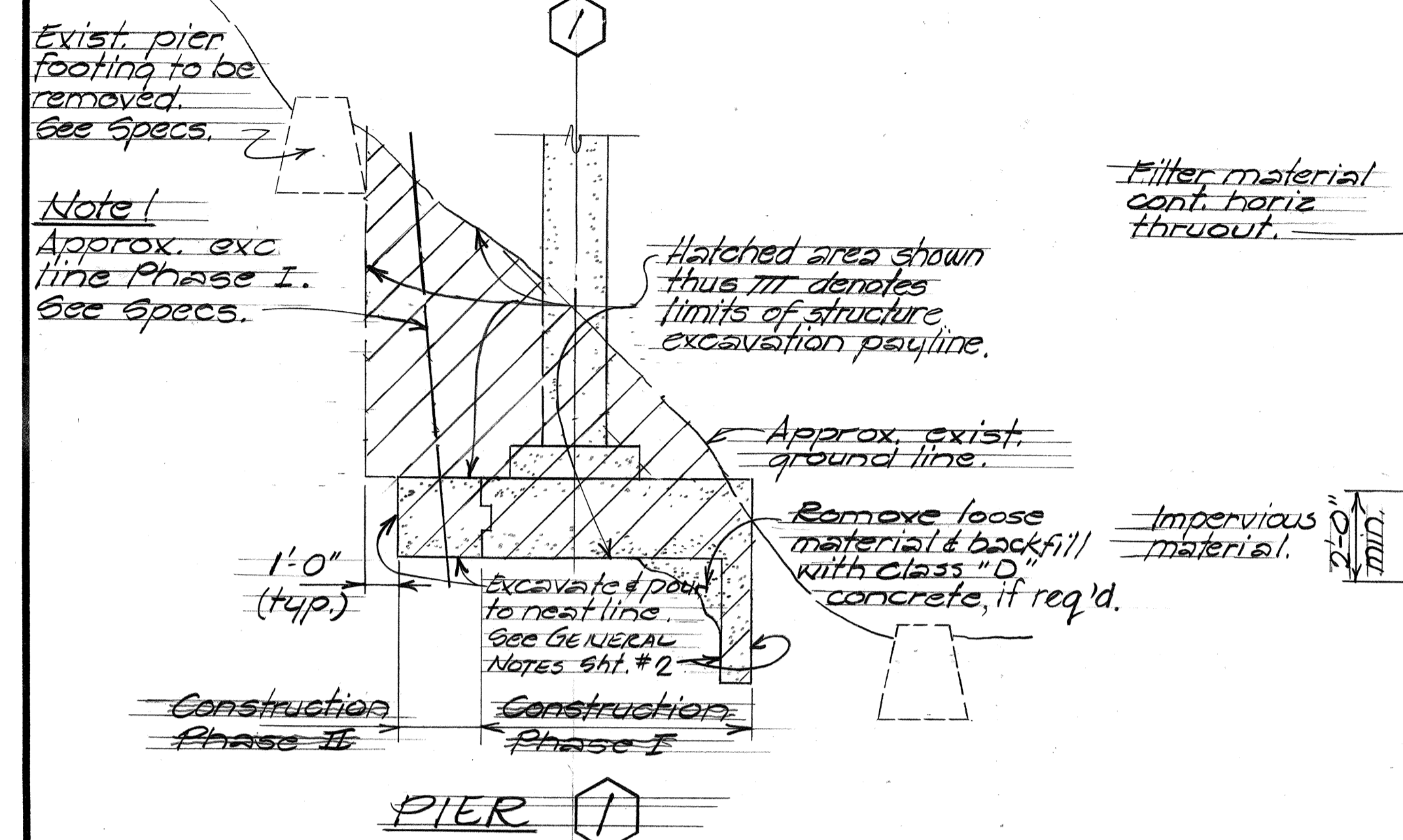


BETWEEN CREEP BLOCK

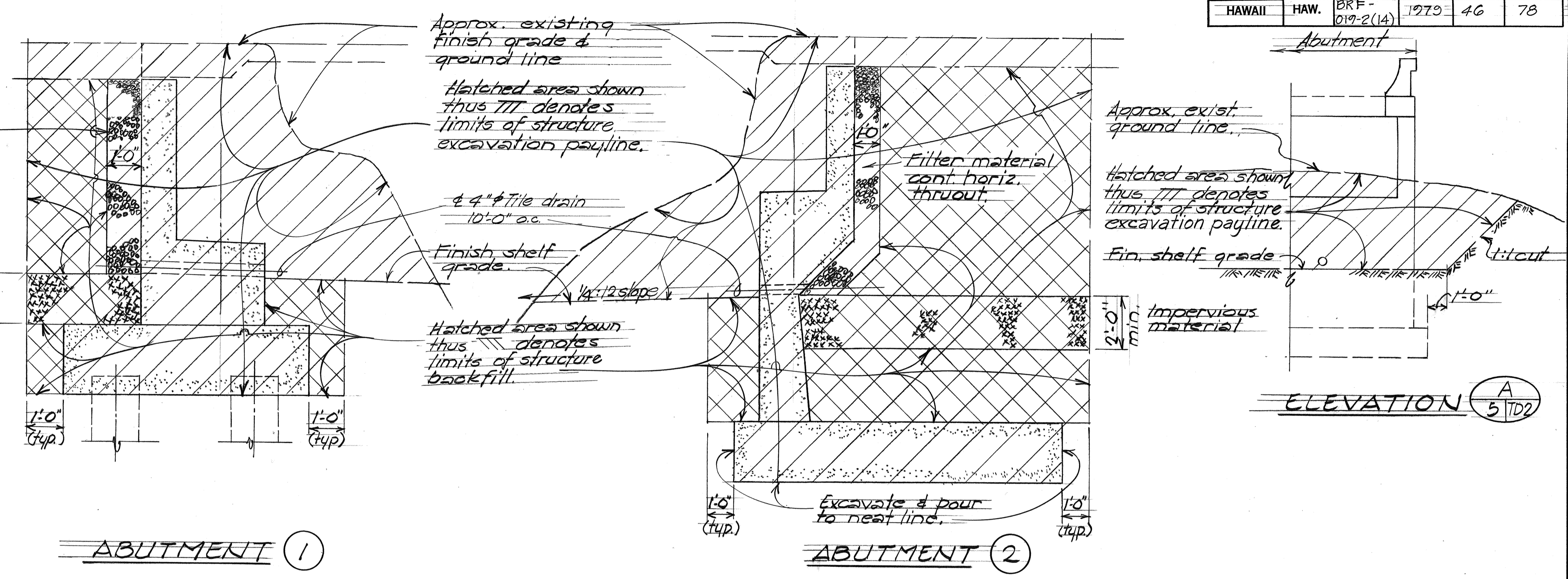
SECTION B TYPICAL SECTION Scale: 1"=1'-0"

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
EAST PAAUILO BRIDGE
 TYPICAL DETAILS CONCRETE SEATS,
 HINGE BLOCK, CREEP BLOCK,
 VERTICAL RESTRAINER
 HAWAII BELT ROAD
 F.A.P. No. BRF-019-2(14)
 Scale: As Noted Date: Aug 1978
 SHEET NO. TD1 OF TD1 SHEETS

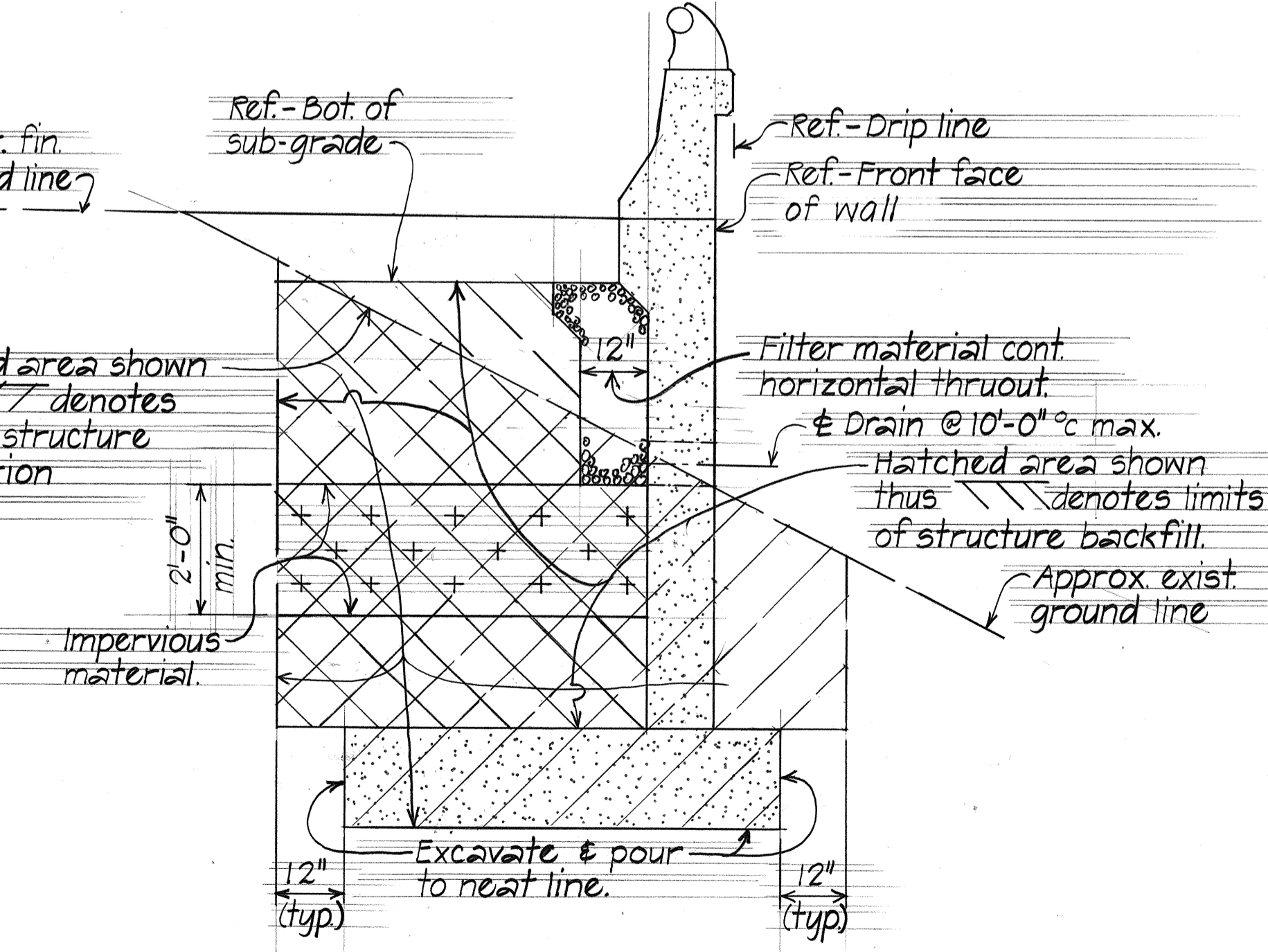
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	46	78



TYPICAL PIER STRUCTURE EXCAVATION PAYLIMITS No Scale



TYPICAL ABUTMENT STRUCTURE EXCAVATION & BACKFILL ~ PAYLIMITS
NO SCALE



TYPICAL WING WALL STRUCTURE EXCAVATION & BACKFILL ~ PAYLIMITS No Scale

DATE
SURVEY PLOTTED BY
DRAWN BY	JAM, J, EK
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY
NO.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAULO BRIDGE
TYPICAL ABUTMENT AND WING WALL
STRUCTURE EXCAVATION & BACKFILL
PAYLIMITS

HAWAII BELT ROAD
F.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978

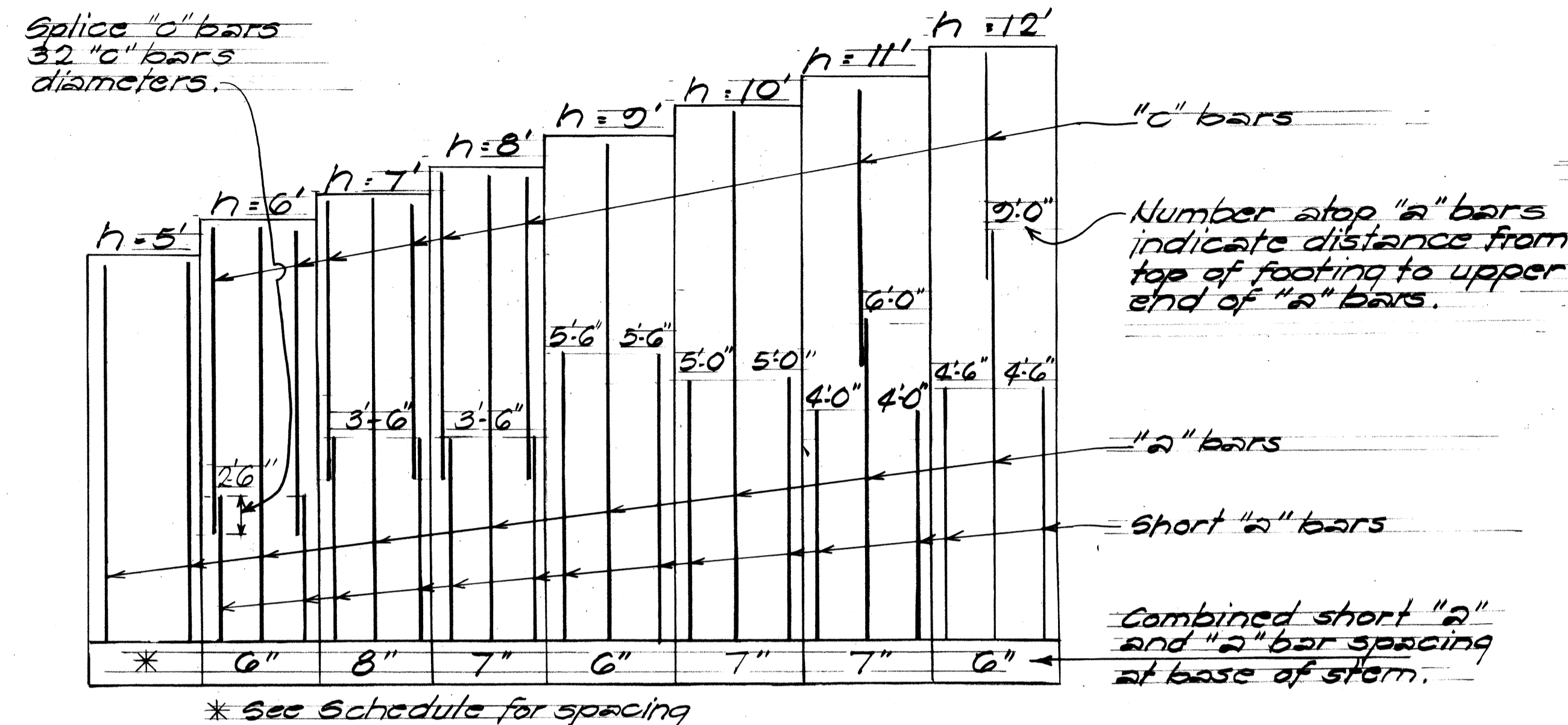
SHEET NO. TD20 OF TD7 SHEETS

SCHEDULE OF DIMENSIONS AND REINFORCING STEEL FOR RET WALL WITH CONCRETE PARAPET

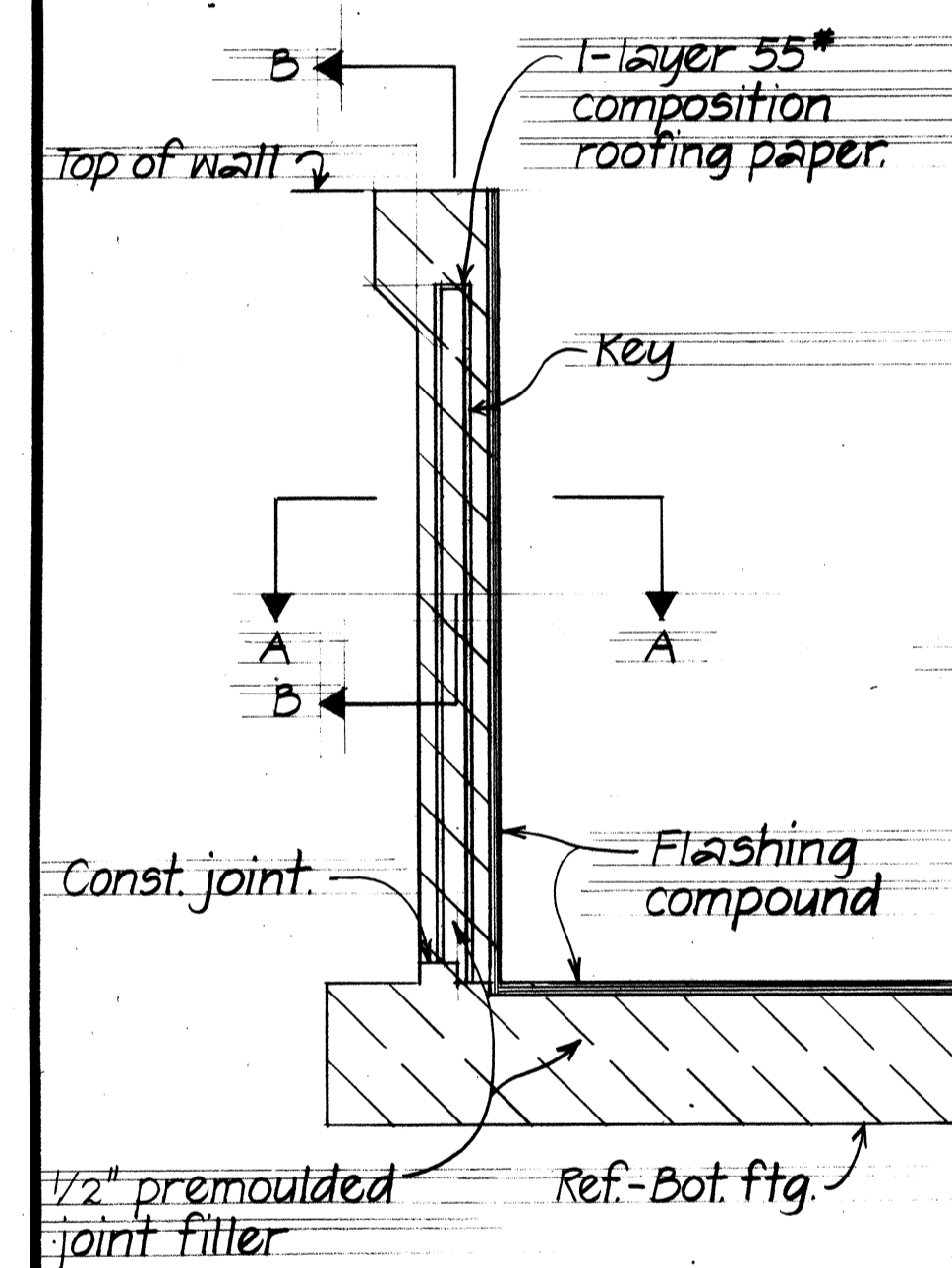
Maximum "H"	5'	6'	7'	8'	9'	10'	11'	12'
a	6"	6"	6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
t	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"
L	5'-0"	5'-6"	6'-0"	6'-9"	7'-3"	7'-9"	8'-6"	9'-0"
E		1'-3"	1'-6"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"
"a" bars	*5@11	*4@6	*5@8	*5@7	*5@6	*6@7	*7@7	*7@6
"c" bars		*3@12	*3@16	*3@14			*6@14	*5@12
"b" bars	*4@11	*4@8	*4@6	*5@9	*5@7	*6@7 1/2	*6@6	*7@6

WITH END POST

Maximum "H"	5'EP	6'EP	7'EP	8'EP	9'EP	10'EP
a	6"	6"	6"	9"	9"	9"
t	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"
L	5'-3"	5'-9"	6'-3"	6'-9"	7'-3"	7'-9"
E		1'-3"	1'-6"	1'-6"	1'-9"	2'-0"
"a" bars	*5@10	*4@6	*5@8	*5@7	*5@6	*6@7
"c" bars		*3@12	*3@16	*3@14		
"b" bars	*4@10	*4@7 1/2	*4@6	*5@6	*5@6 1/2	*6@7 1/2

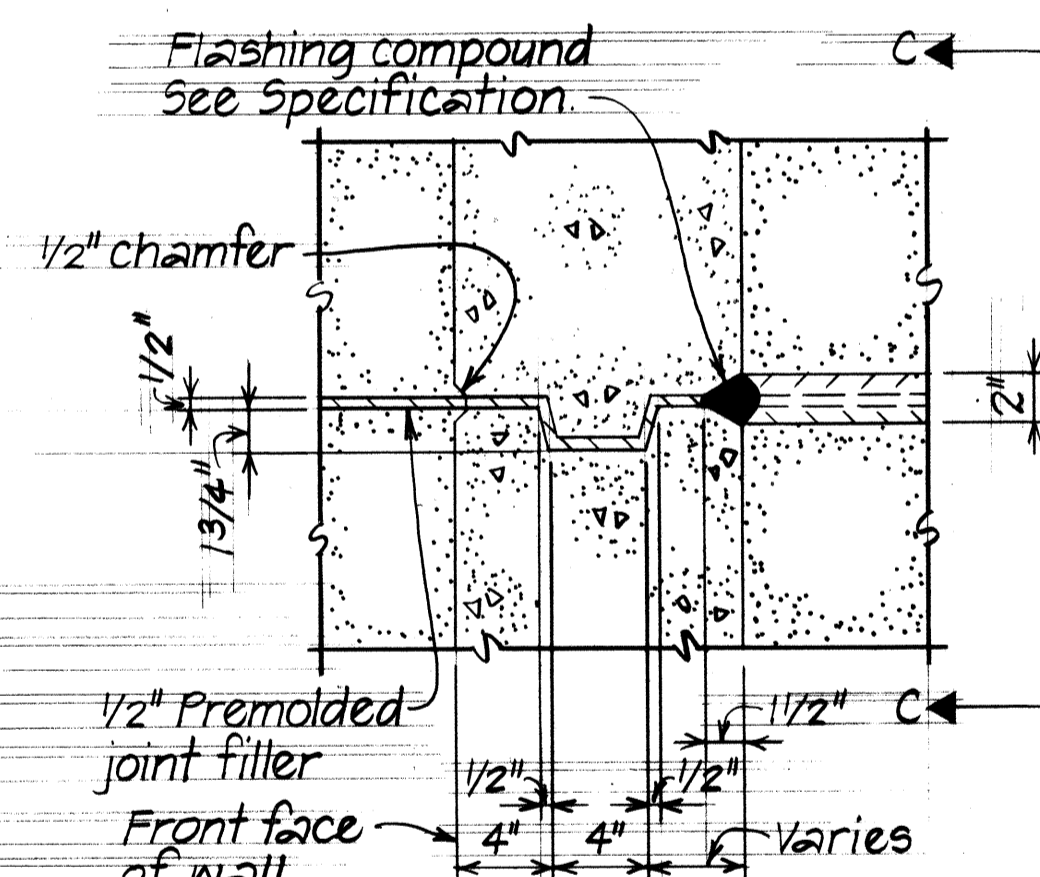


VERTICAL REINFORCING STEEL ARRANGEMENT

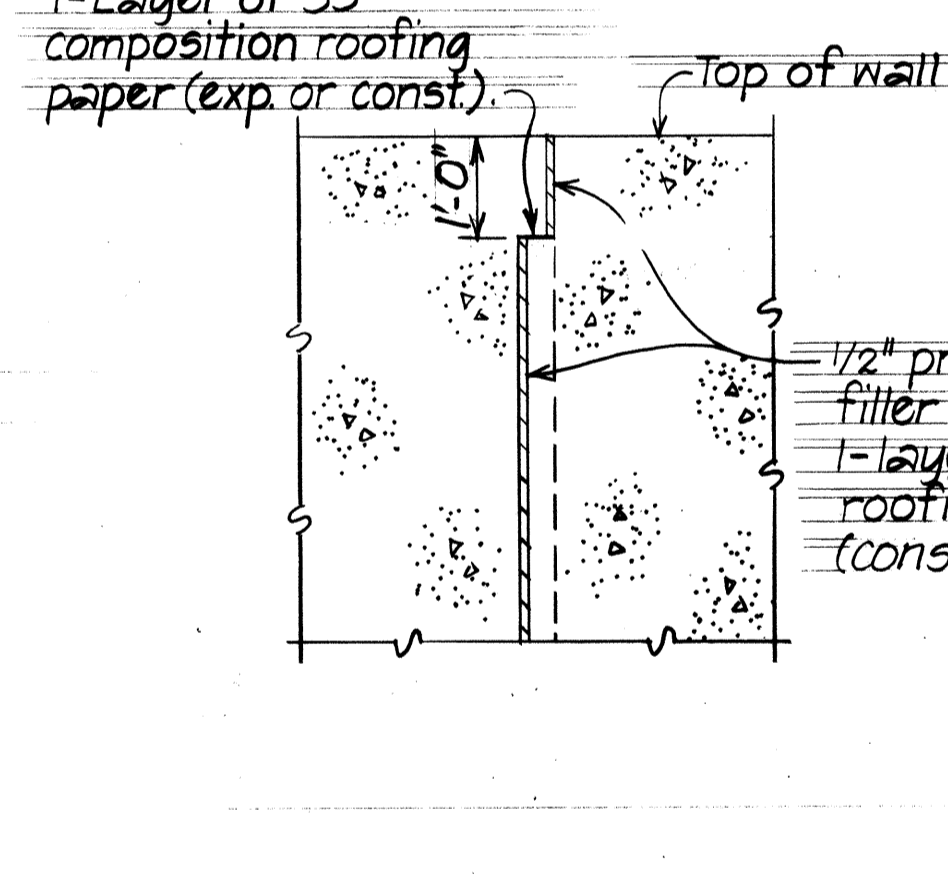


JOINT ELEVATION

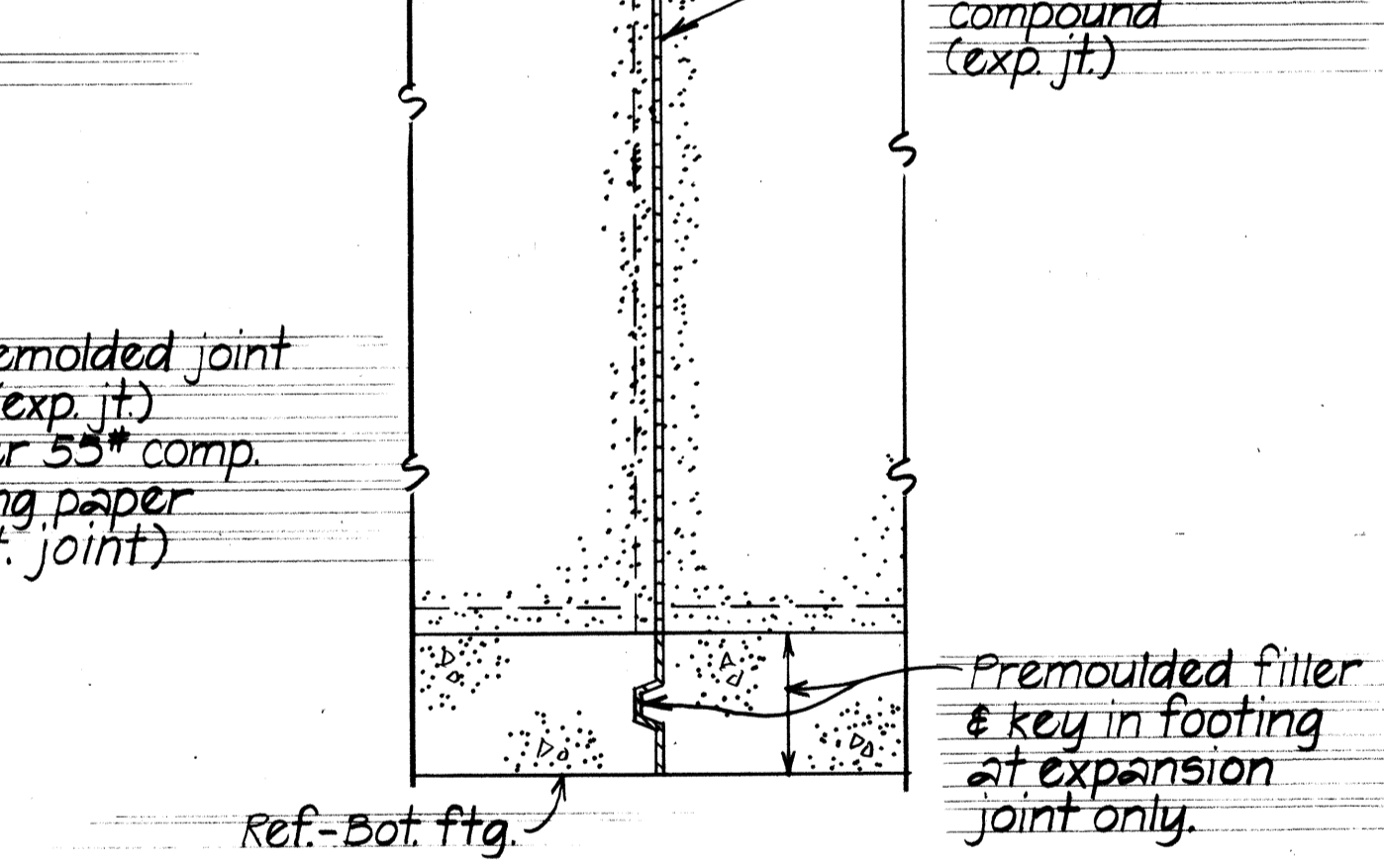
NOTE:
 Spacing of joints:
 Expansion - 30'-0" max.
 Contraction - 30'-0" max. except where conc. railing or curb occurs, match with railing joint above.
 For alternate contraction joint and control joint details - See Standard Bridge Details.



SECTION A-A

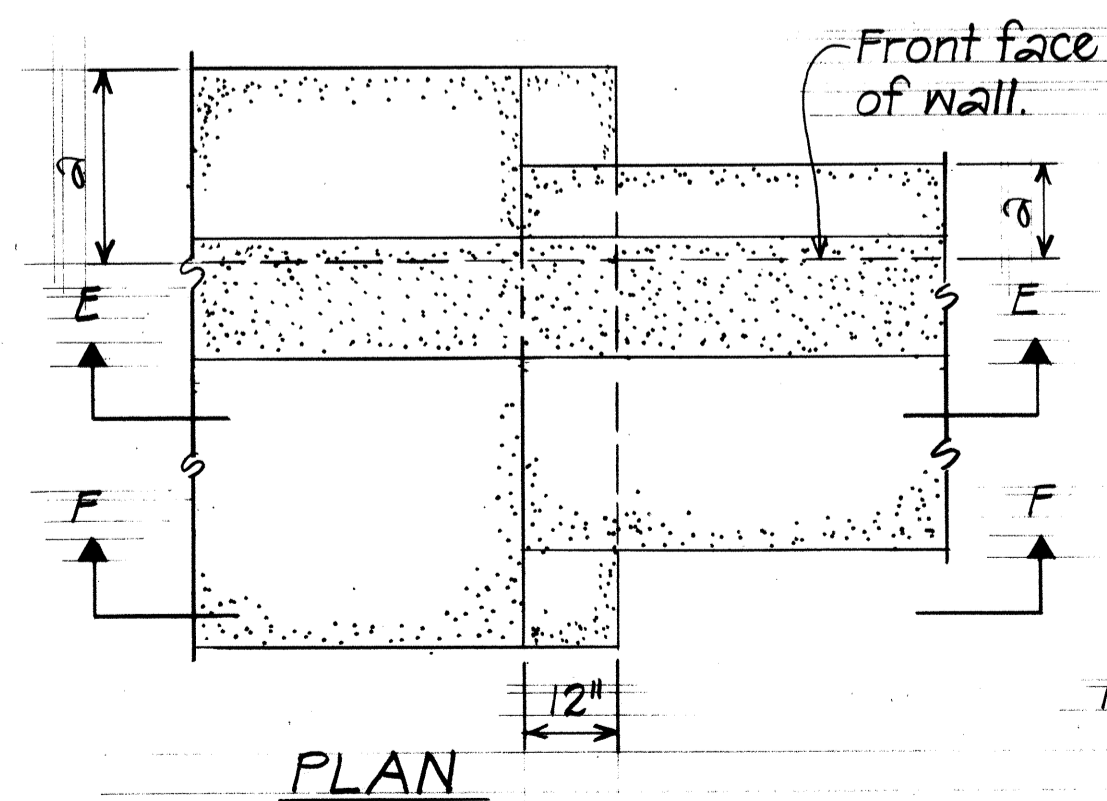


SECTION B-B

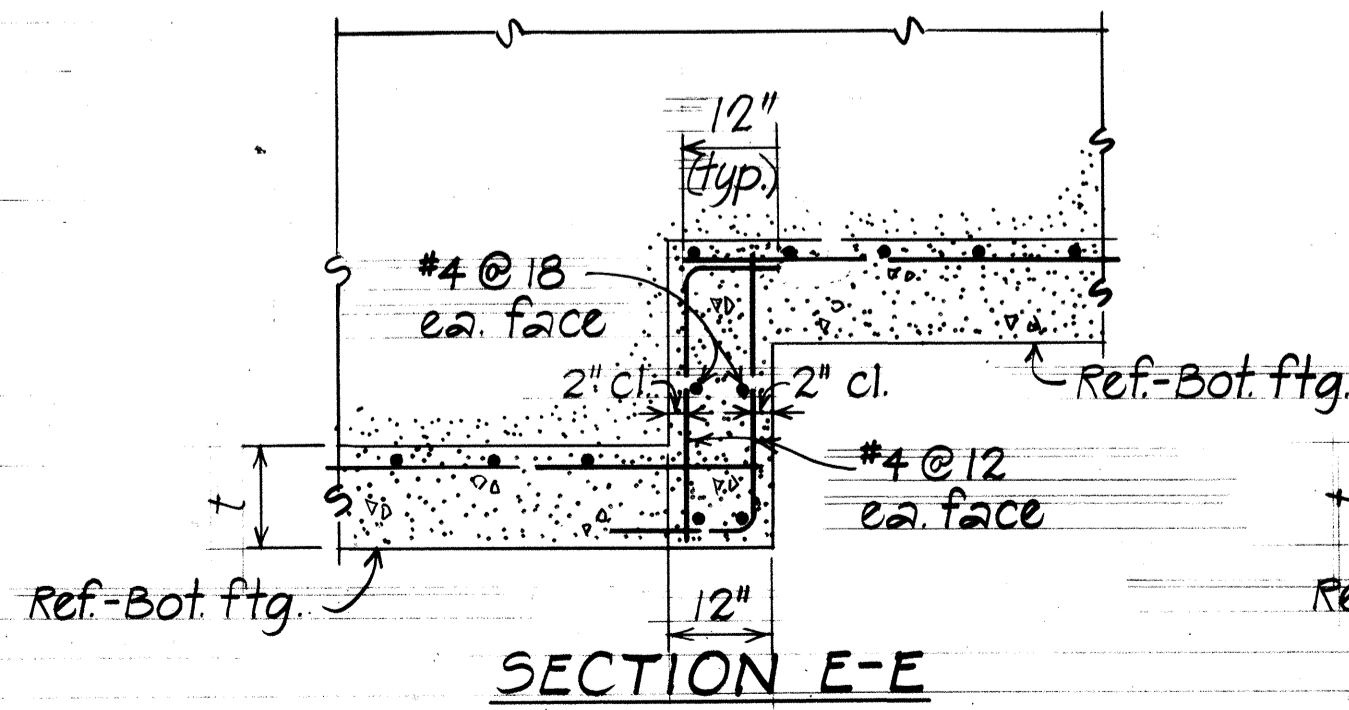


SECTION C-C

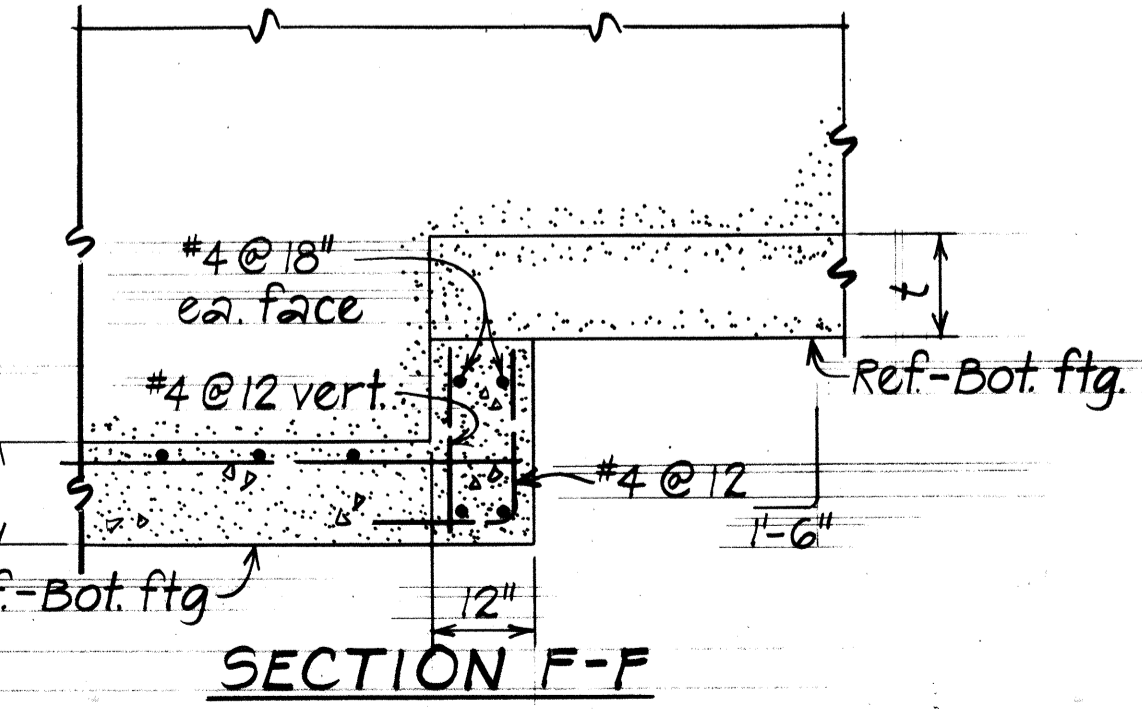
TYPICAL EXPANSION JOINT DETAILS No Scale



PLAN

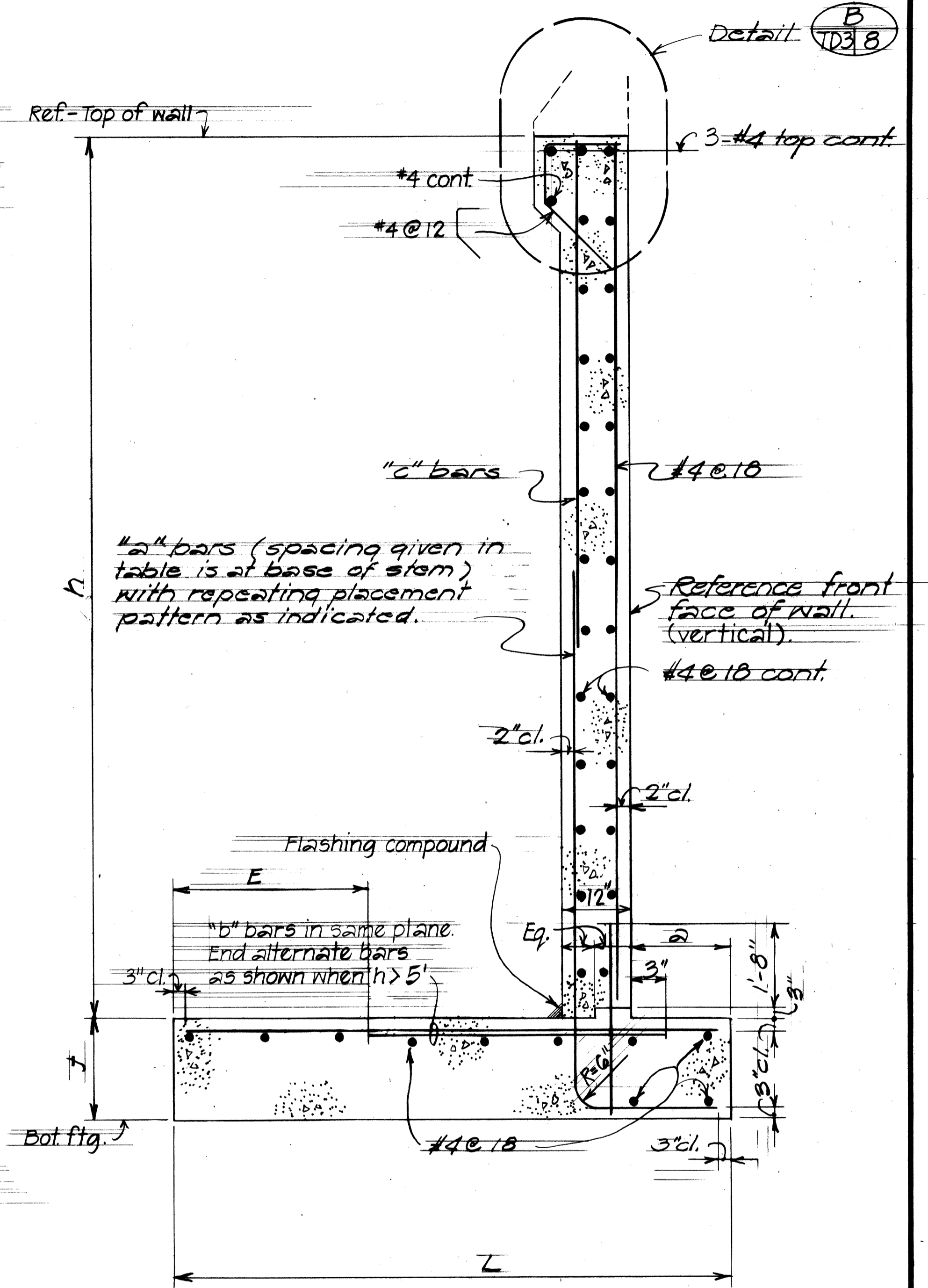


SECTION E-E



SECTION F-F

TYPICAL FOOTING STEP-UP DETAILS No Scale



WALL SECTION No Scale

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(4)	1979	47	78

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

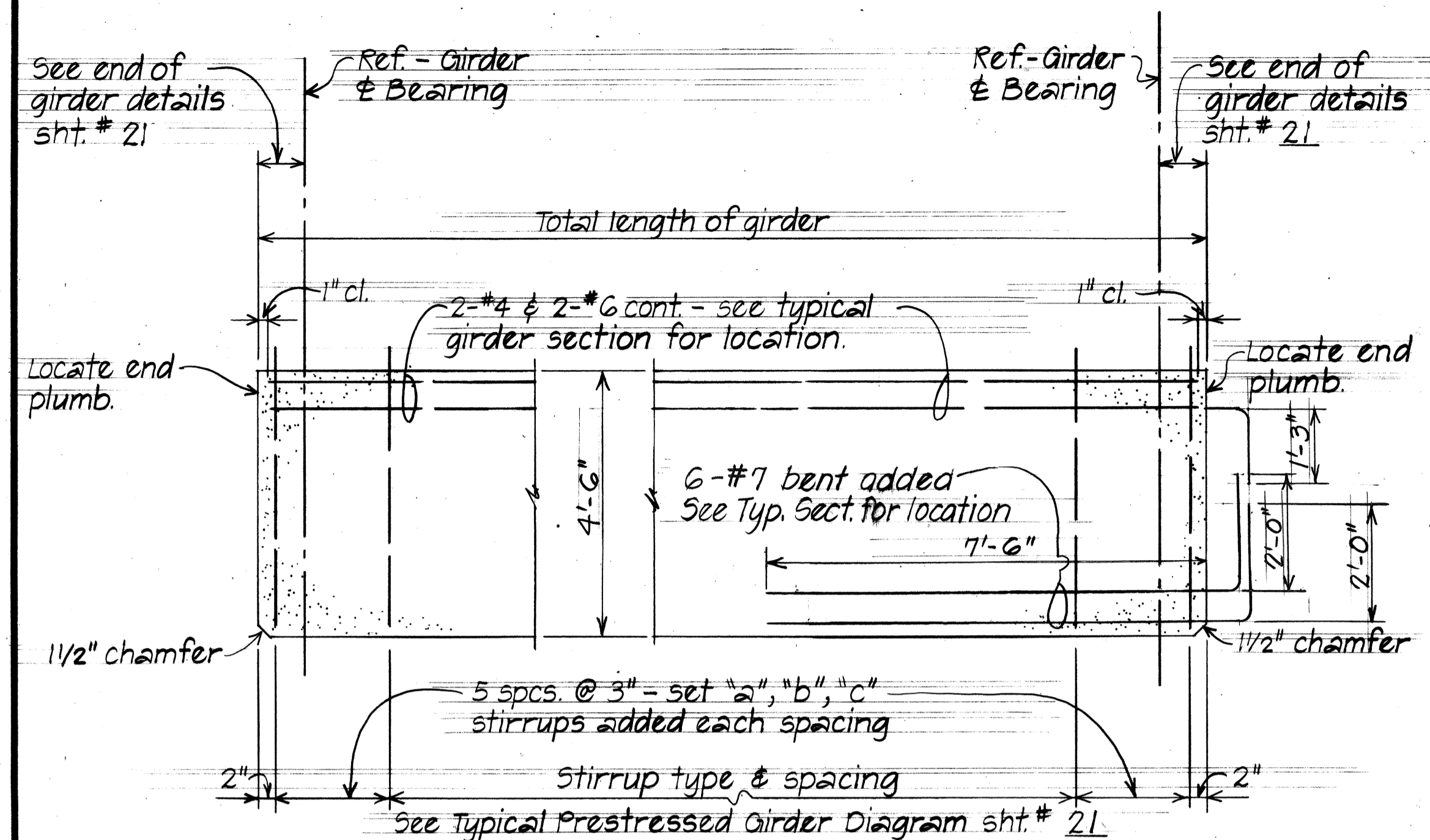
EAST PAAULO BRIDGE

**TYPICAL DETAILS
 RETAINING WALL**

HAWAII BELT ROAD
 F.A.P. No. BRF-019-2(4)
 Scale: As noted Date: Aug 1978

SHEET NO. TD3 OF TD7 SHEETS

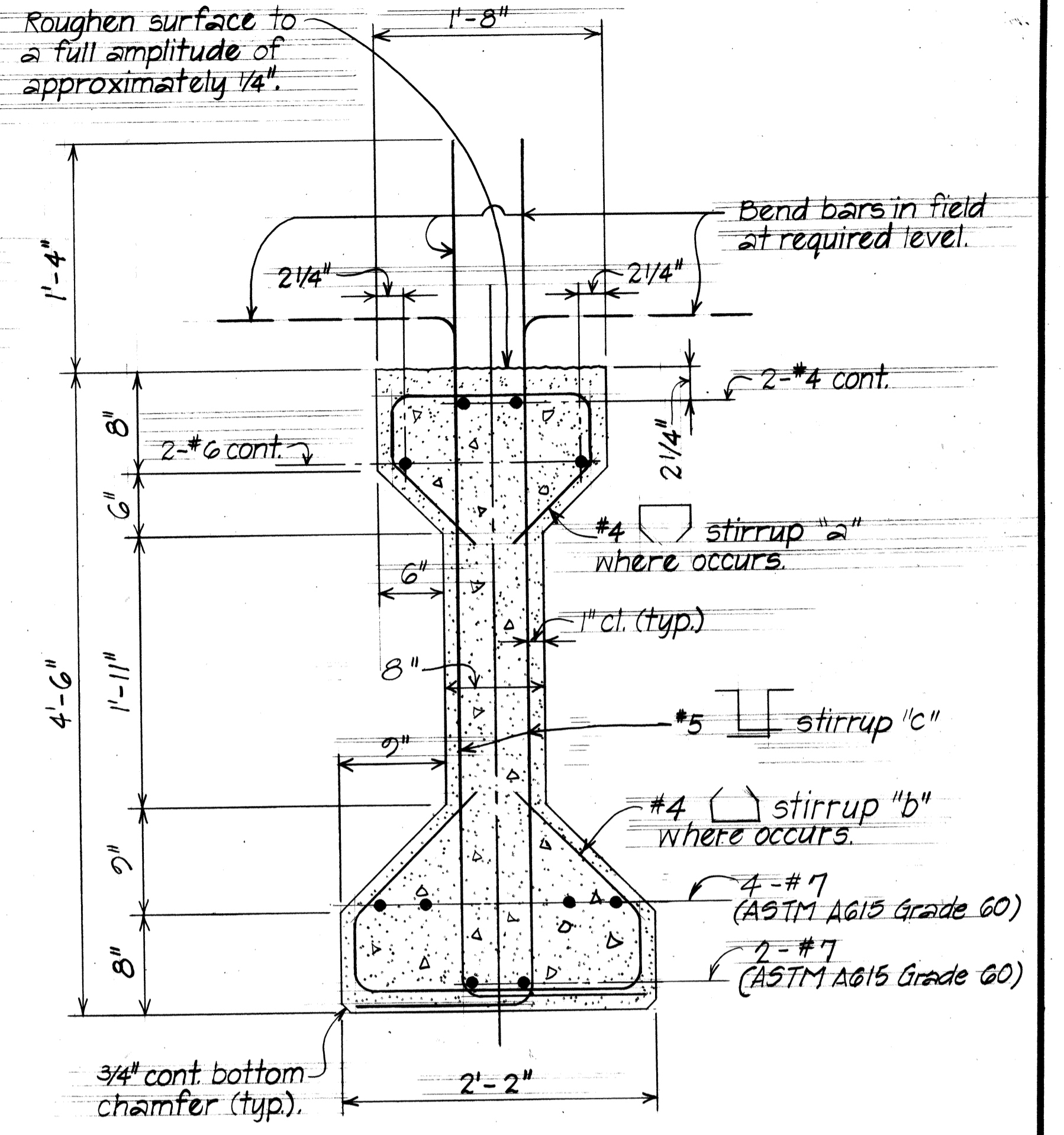
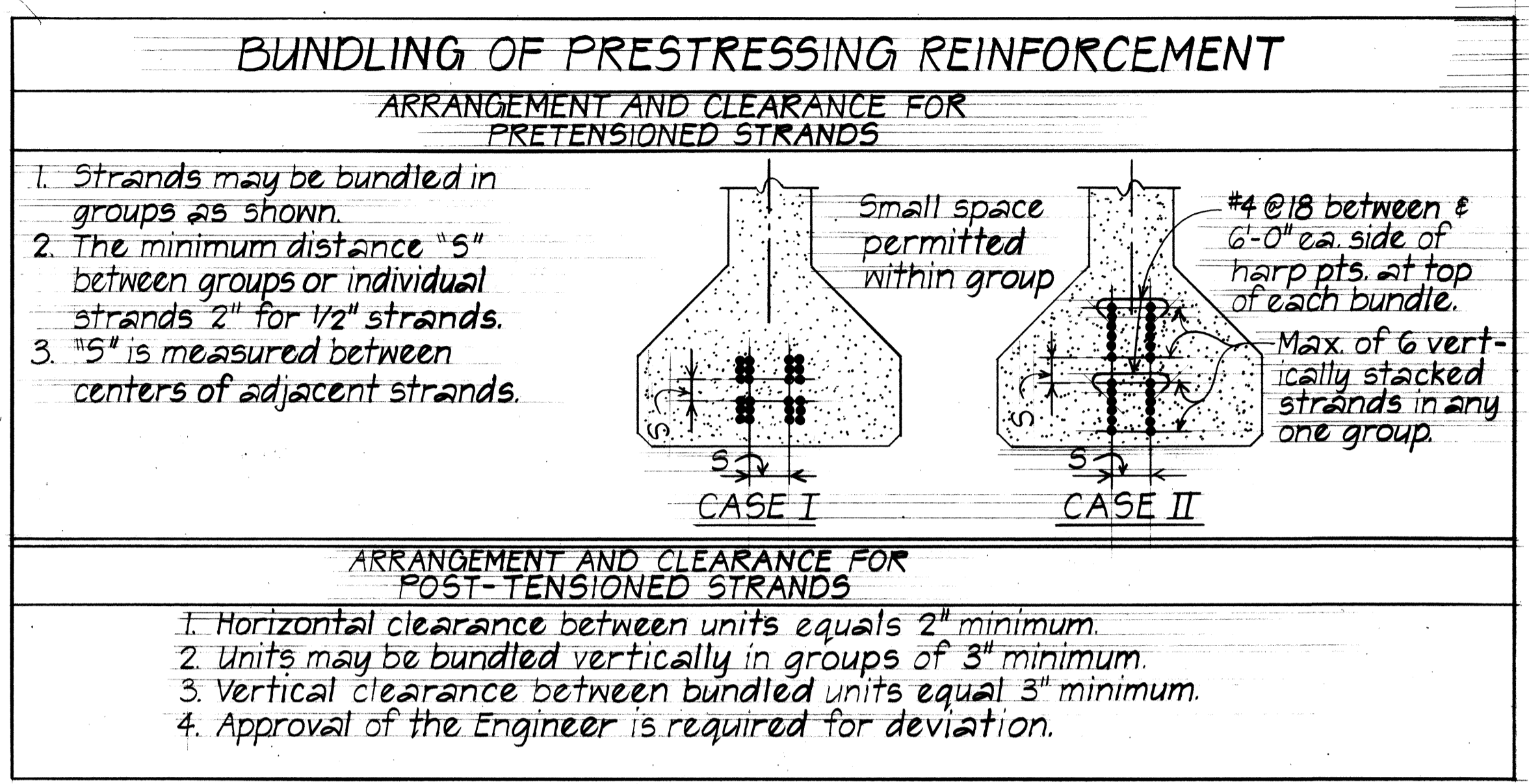
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	48	78



HINGED OR EXPANSION END FIXED END

ELEVATION ~ TYPE PG-IV GIRDER END DETAILS

No Scale



TYPICAL PRESTRESSED CONCRETE GIRDER

TYPE PG-IV No Scale

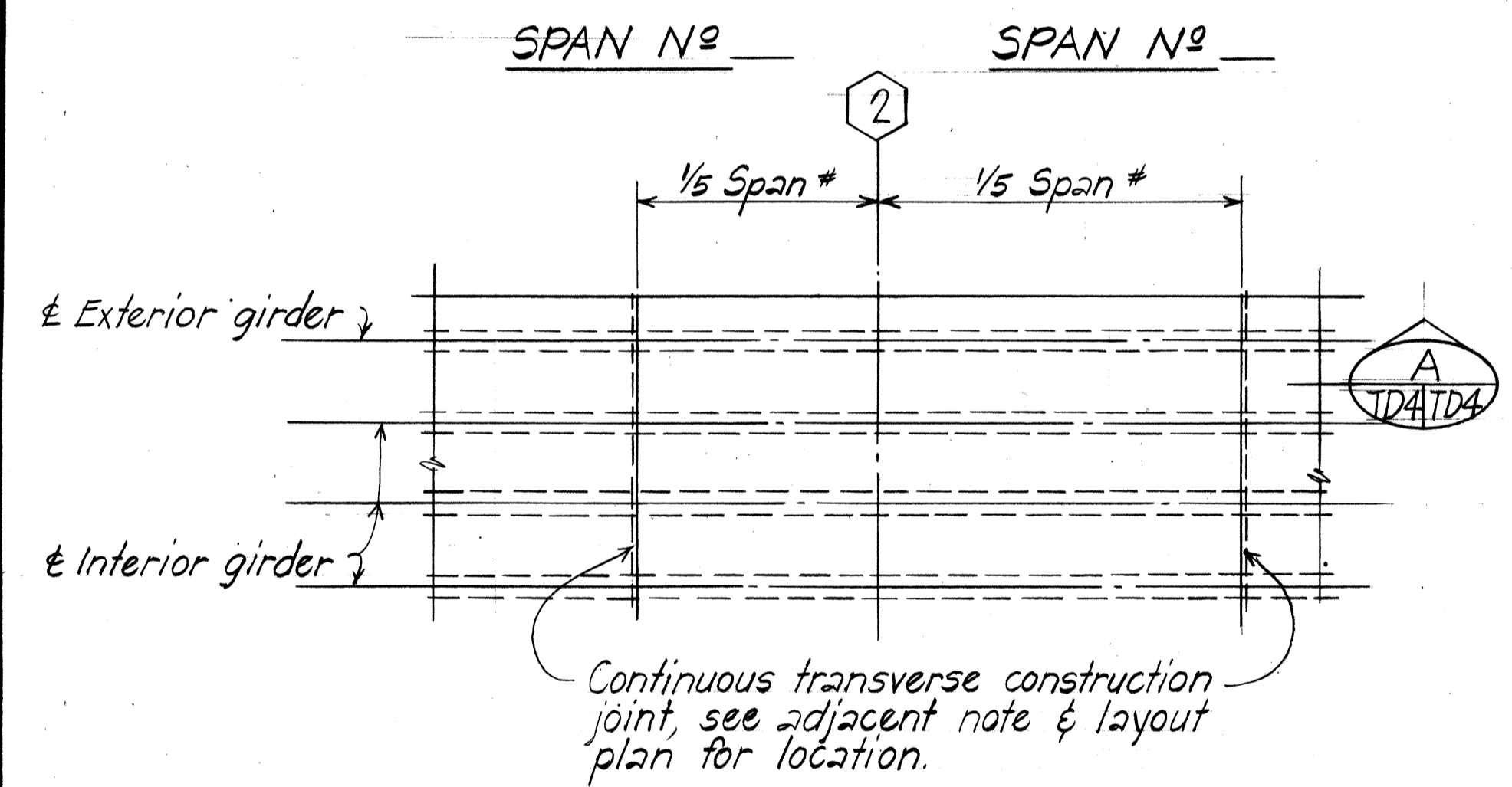
GENERAL NOTES

1. For design stresses refer to sht. #2 and corresponding girder detail drawings.
2. Forms must be removed and the beams inspected before strands are cut.
3. For additional holes and inserts in prestressed girders for beam connections refer to corresponding beam details.
4. For additional prestressed girder details not covered by these drawings refer to corresponding detail plans.
5. All strand patterns shall be approved by the Engineer.

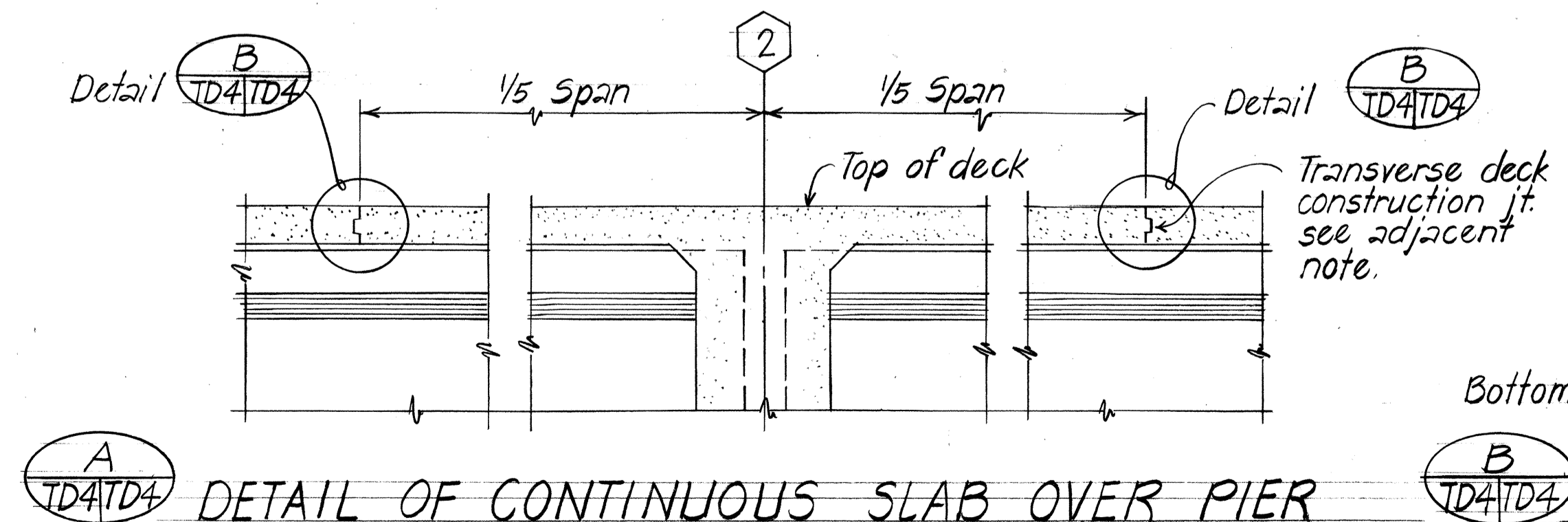
NOTE:

Transverse deck construction joint shall be used at these locations. The portion of the pour indicated between construction joints over the pier shall not be poured until the pours for the adjacent positive moment areas have been completed.

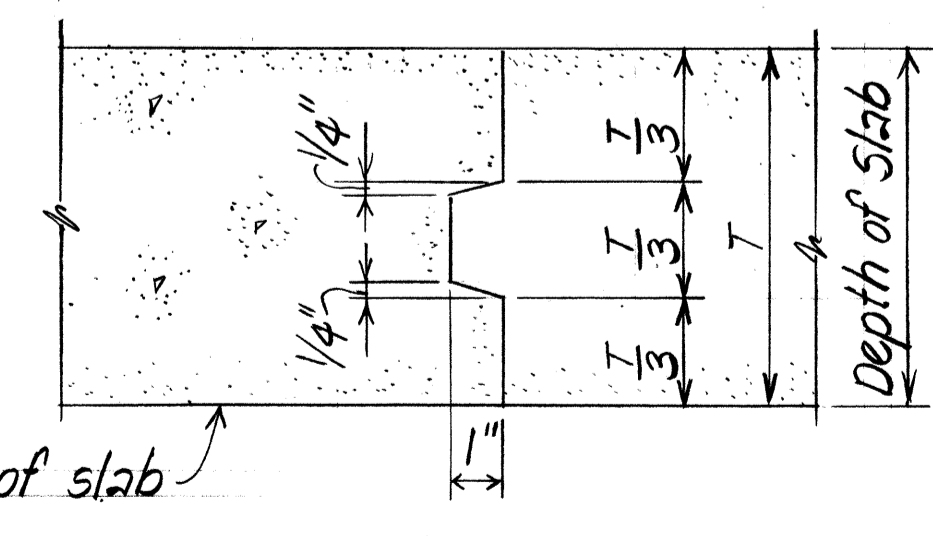
Transverse deck construction joints may be eliminated if permitted by the Engineer in writing. If the construction joints are eliminated, water reducing and retarding admixture conforming to AASHTO Designation: M194, Type D, shall be added to the deck concrete over the pier within the indicated lines. The type of the admixture shall be such that the amount of dosage used will produce the retardation required. The type and dosage of the admixture, and the method of pour shall be approved by the Engineer.



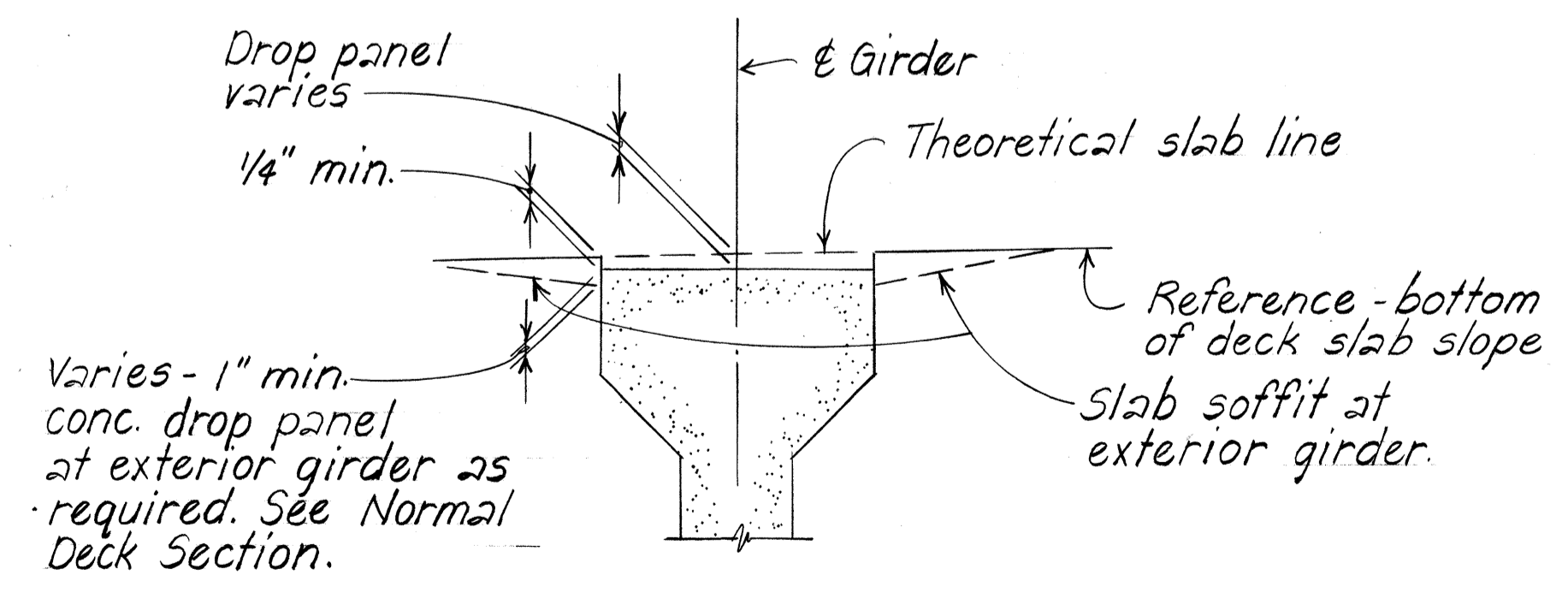
PLAN-TYPICAL TRANSVERSE DECK CONSTRUCTION JOINT LOCATION



DETAIL OF CONTINUOUS SLAB OVER PIER



TYPICAL SLAB CONSTRUCTION JOINT DETAIL



TYPICAL SLAB DROP PANEL DETAIL AT PRESTRESSED GIRDER

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAULO BRIDGE

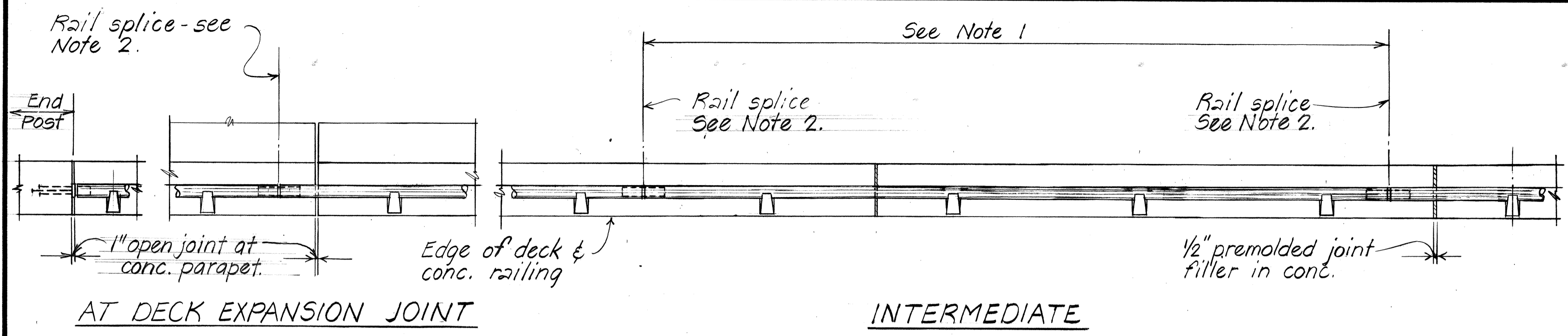
TYPICAL PRESTRESSED GIRDER
TYPE PG-IV DETAILS

F.A.P. No. BRF-019-2(14)
Scale: As noted Date: Aug 1978

SHEET No. TD4OFTD7SHEETS

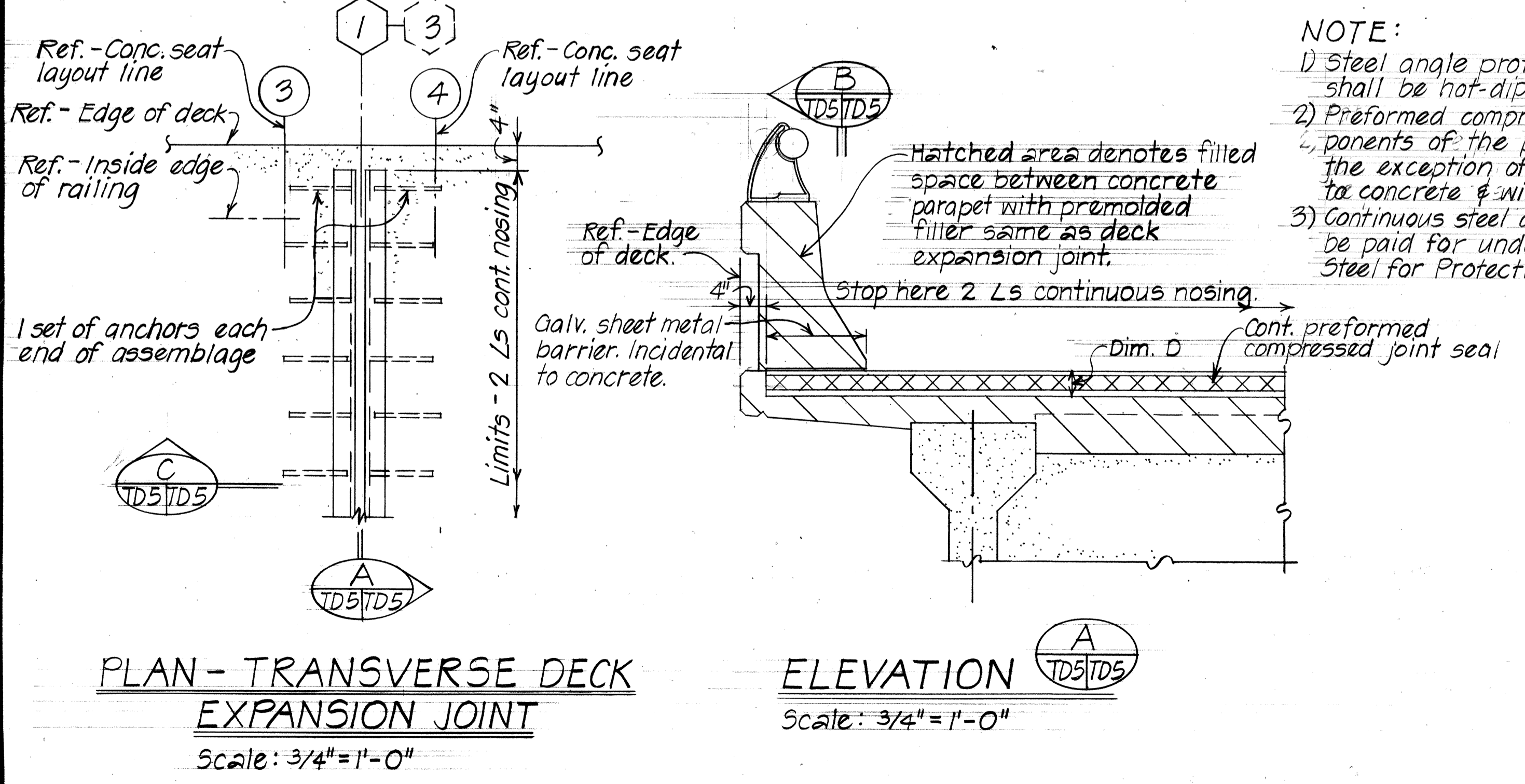
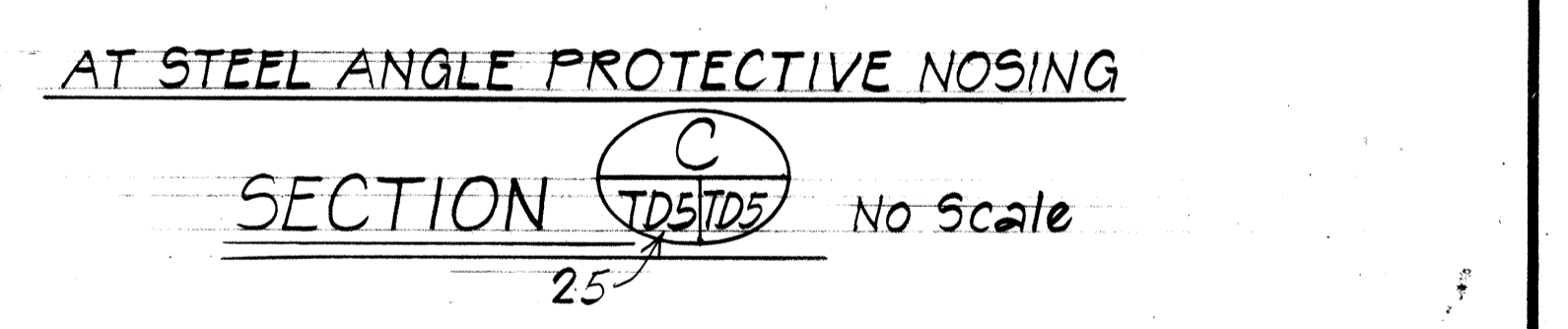
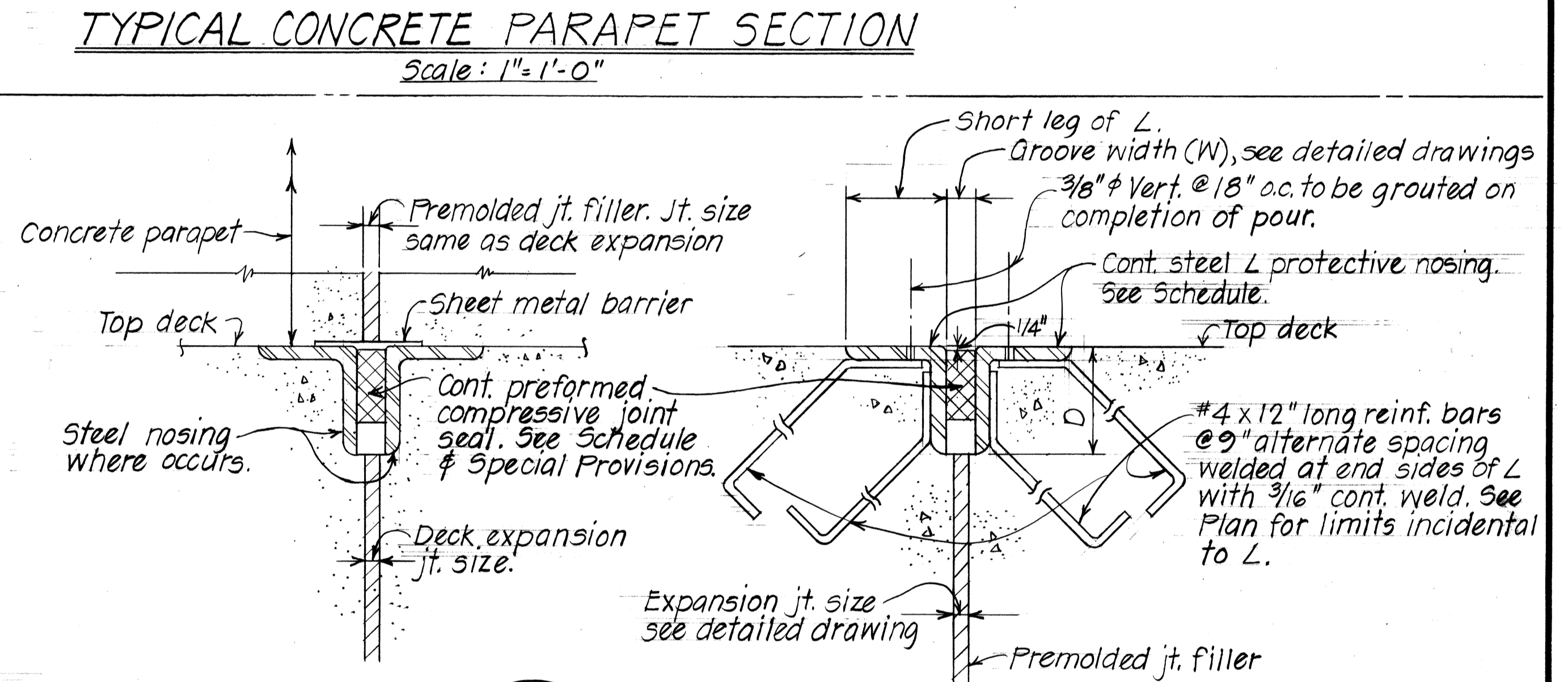
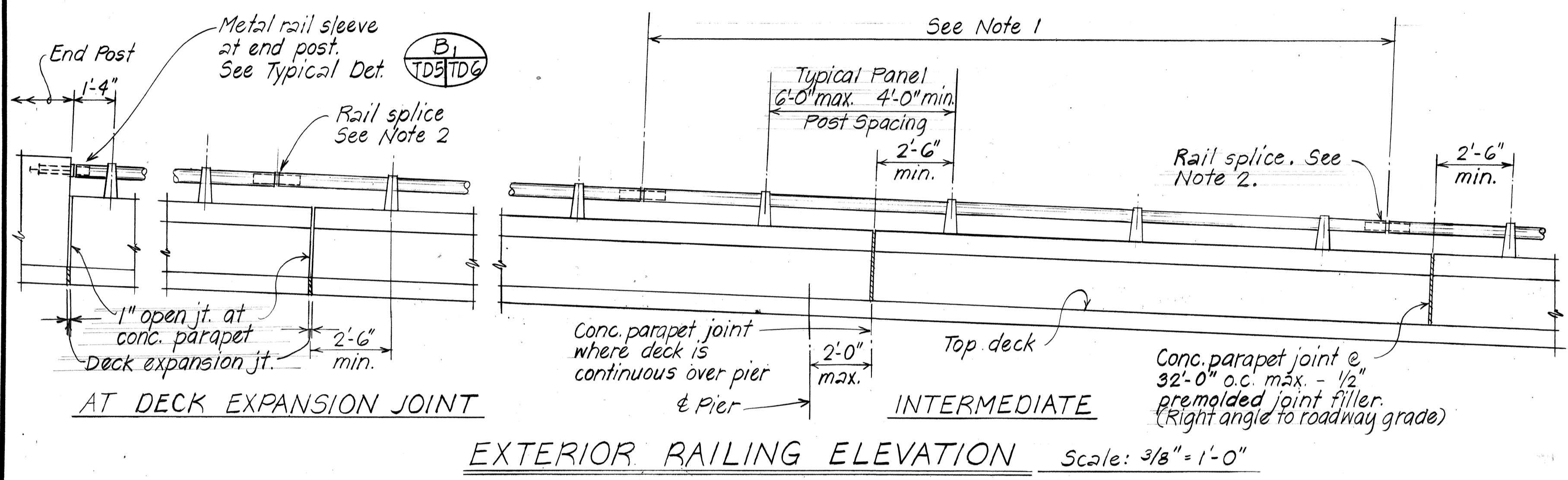
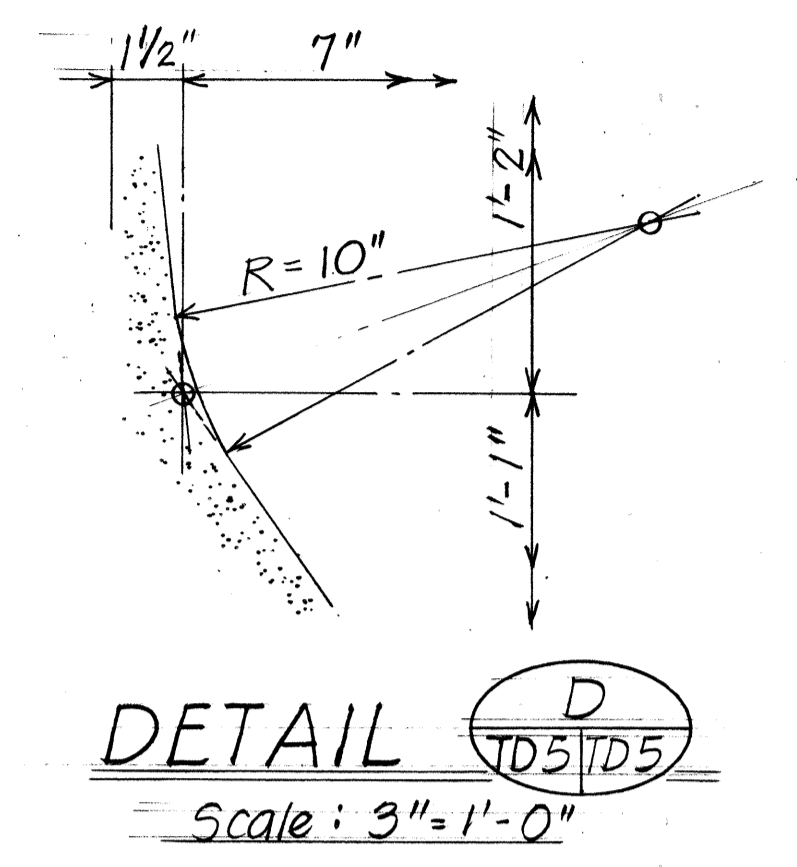
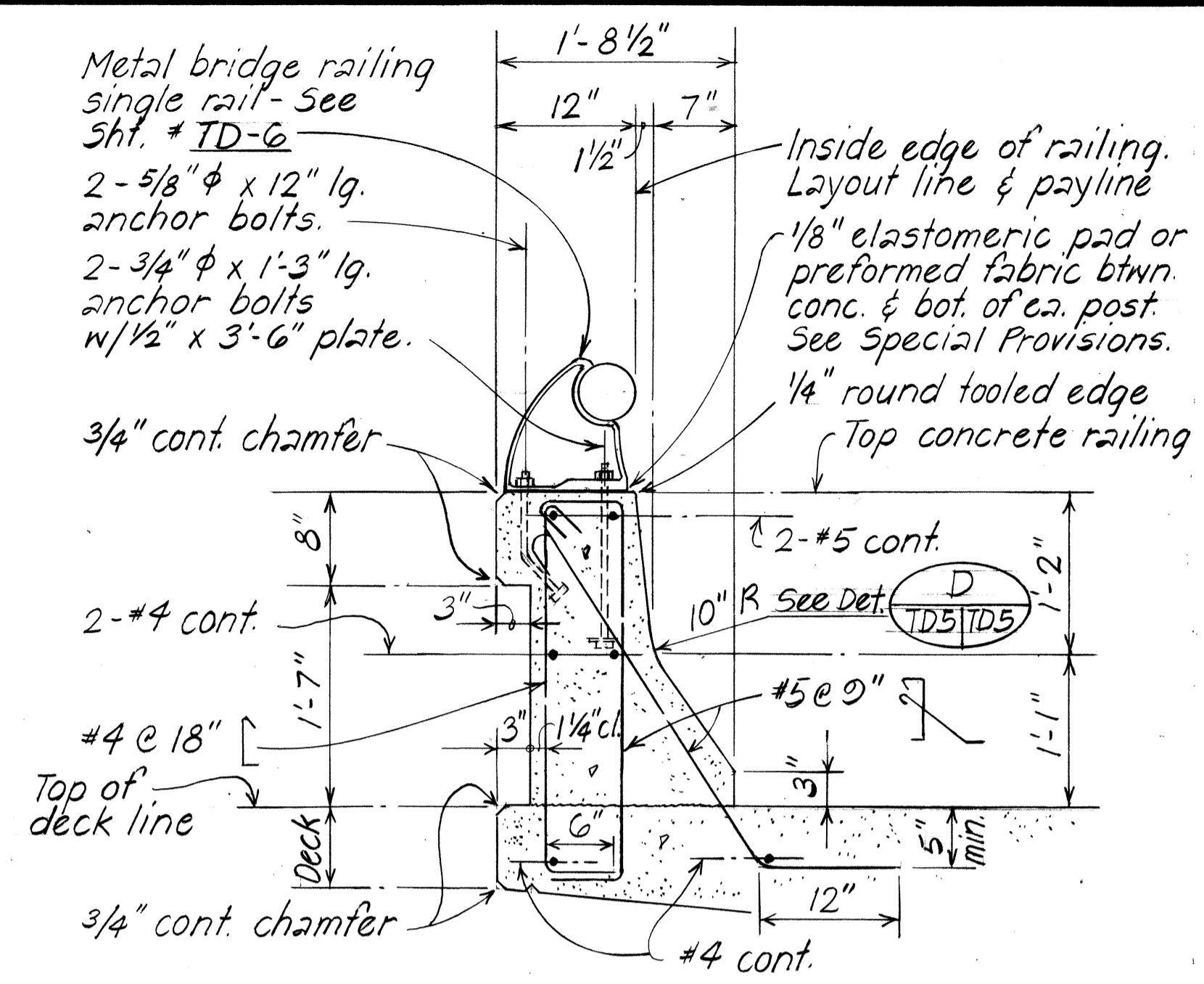
SURVEY PLOTTED BY: _____
 PLAN TRACKED BY: _____
 DESIGNED BY: D.C.O.
 QUANTITIES BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN NO. _____
 DATE: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-017-2(14)	1979	49	78



NOTE

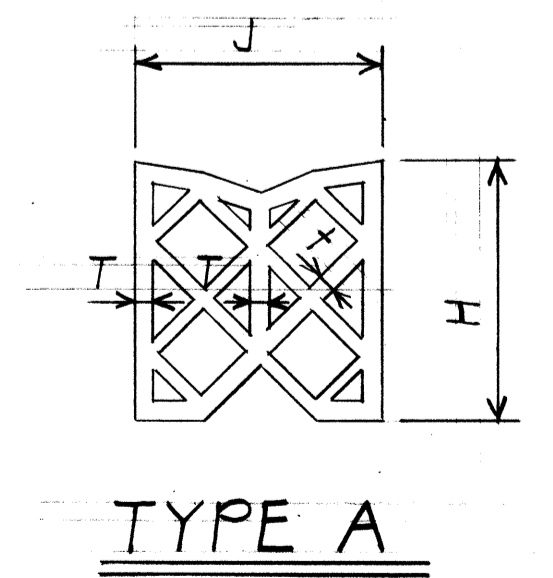
1. Tubing shall be continuous over not less than 4 post unless noted otherwise.
2. All rails shall be spliced in the panel spanning deck exp. joints. Increase joint width between tube to 1 1/2" and increase sleeve length by 1". (See tube splice detail, sht. #TD6.)
3. Rail post shall be normal to grade.
4. No more than one tube splice per panel shall be permitted except as noted.



NOTE:

- 1) Steel angle protective nosing assemblage shall be hot-dipped galvanized after fabrication.
- 2) Preformed compressive joint seal and all other components of the protective nosing assemblage with the exception of the steel angles shall be incidental to concrete & will not be paid for separately.
- 3) Continuous steel angles of the protective nosing shall be paid for under pay item #501.0215, "Structural Steel for Protective Nosing of Deck Expansion Joints".

Joint Seal Size	TYPE A - JOINT SEALER (Dimensions and Tolerances)				Steel Angle Protective Nosing	Groove Dim. D
	Thickness		Thickness			
	J	H	T	t		
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"



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST PAAULO BRIDGE

TYPICAL DETAILS-CONCRETE BRIDGE
RAIL, DECK EXPANSION JOINT

HAWAII BELT ROAD
F.A.P. No. BRF-017-2(14)
Scale: As Noted Date: Aug 1978

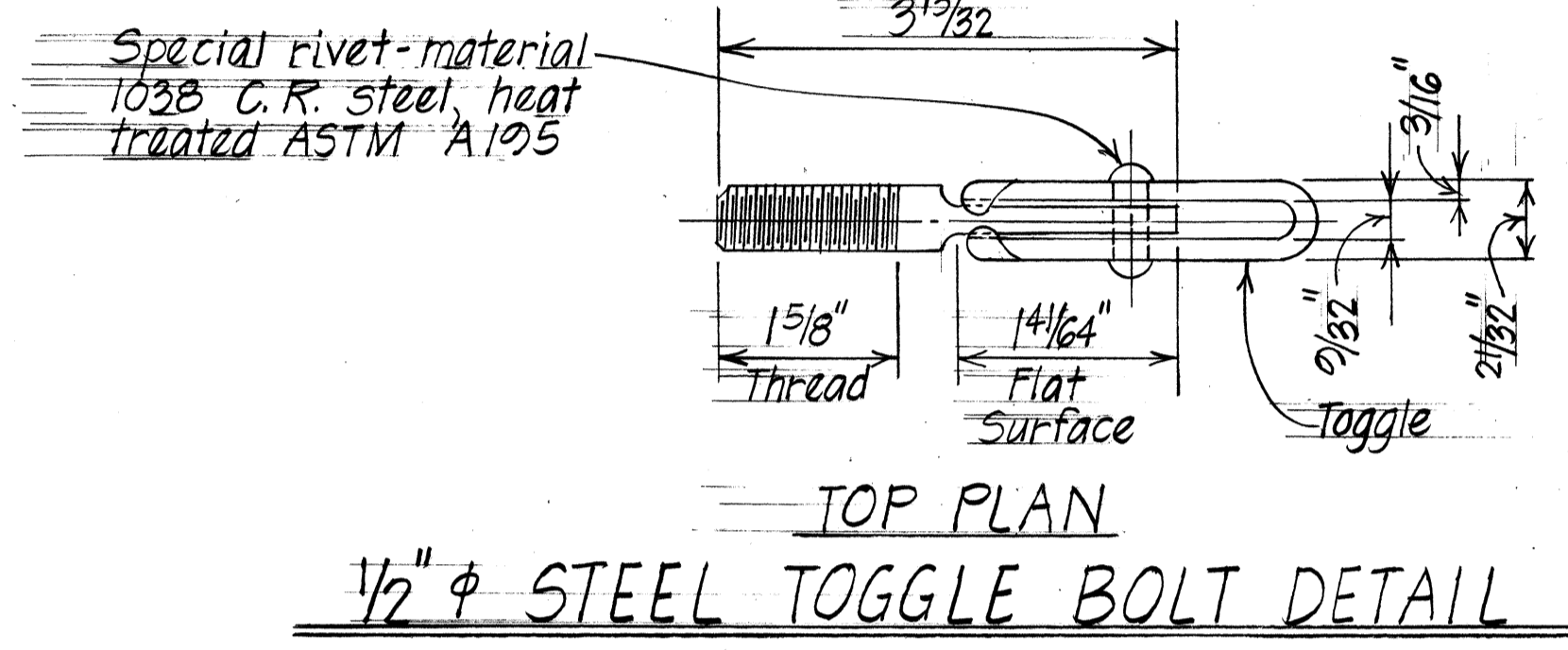
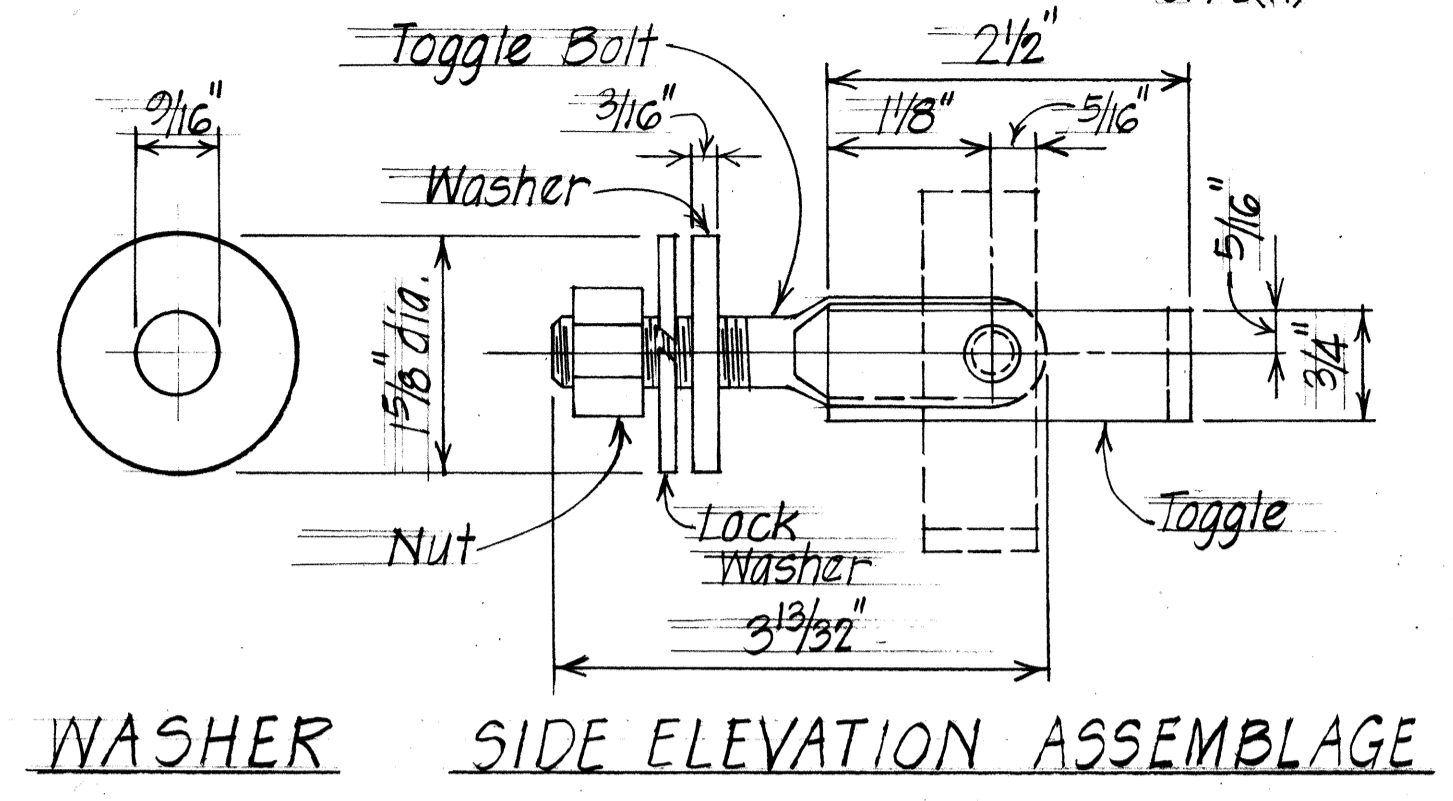
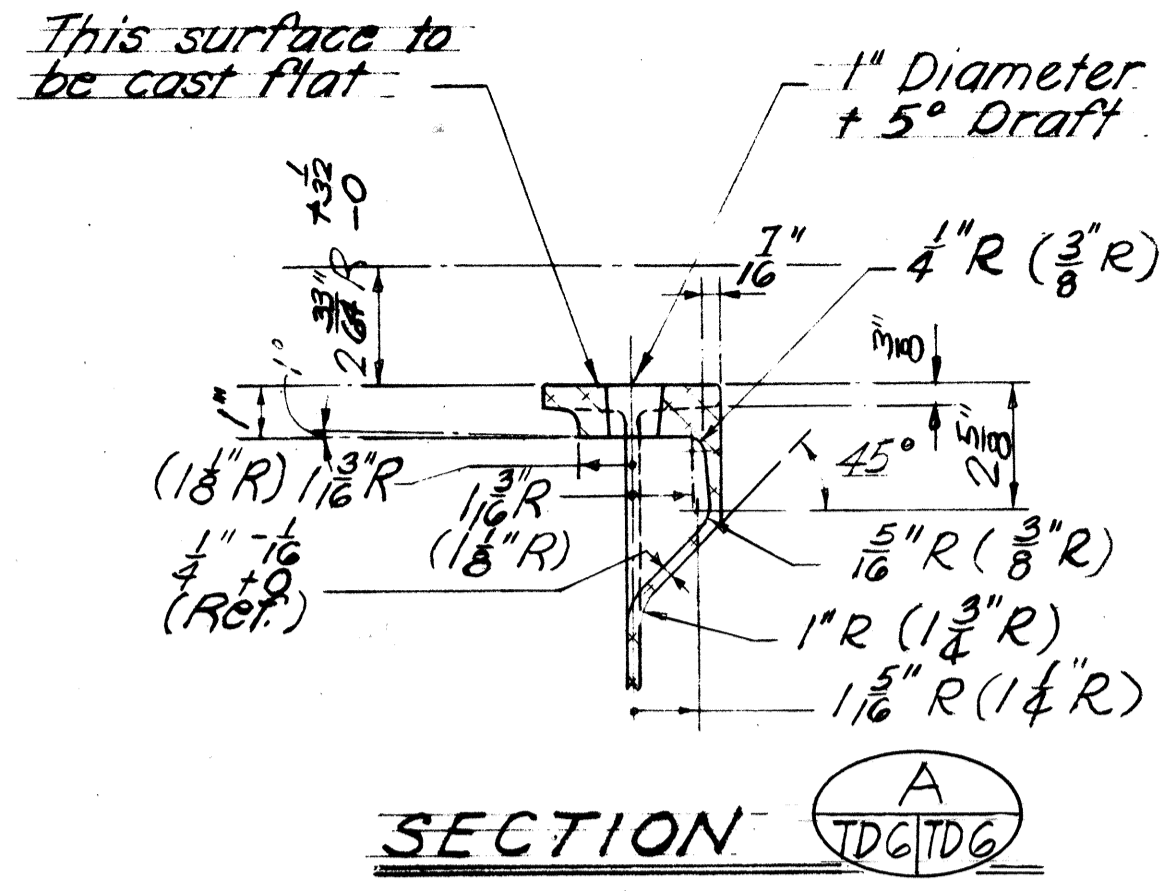
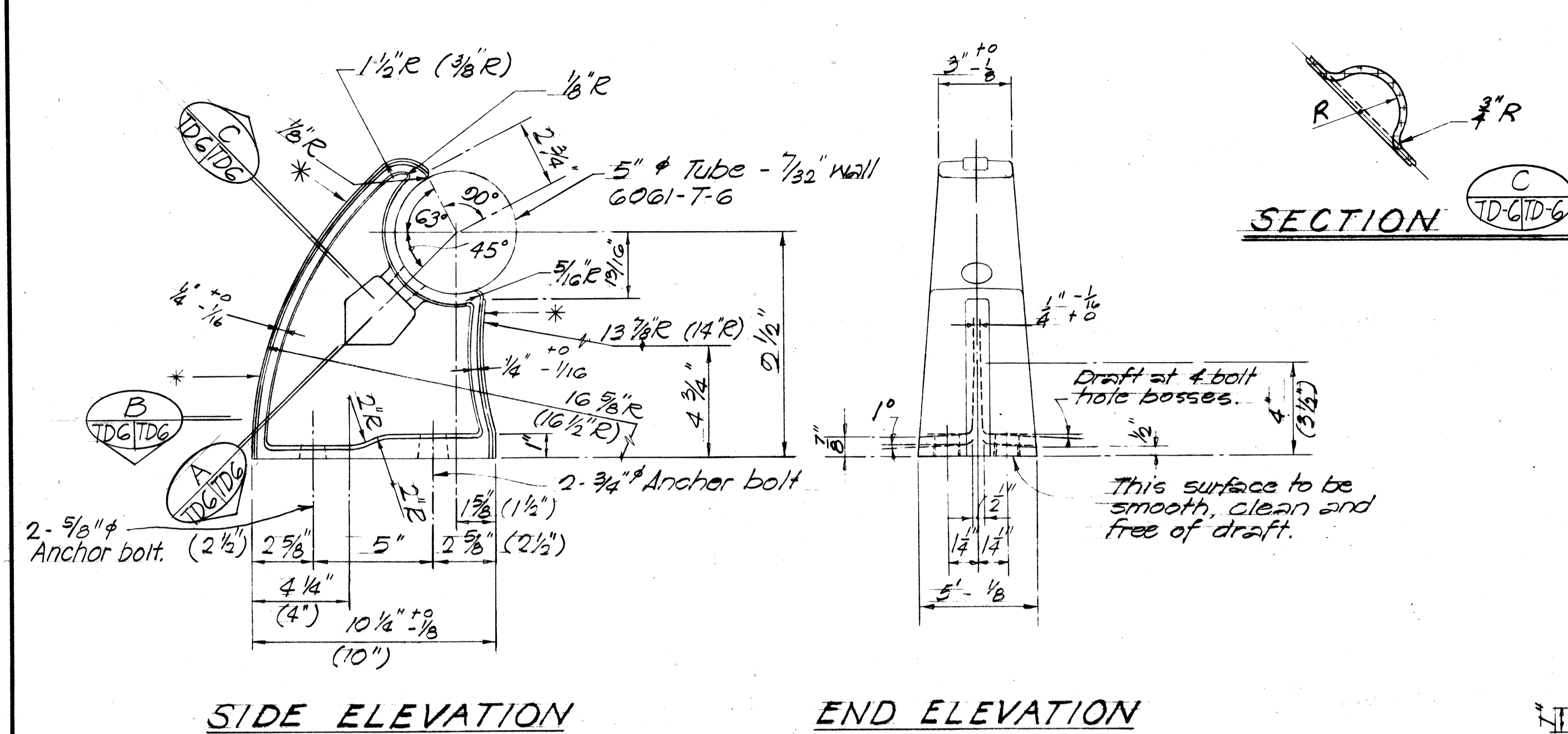
SHEET No. TD5 OF TD5 SHEETS

DATE: _____
DRAWN BY: S.S. L.K.
DESIGNED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____

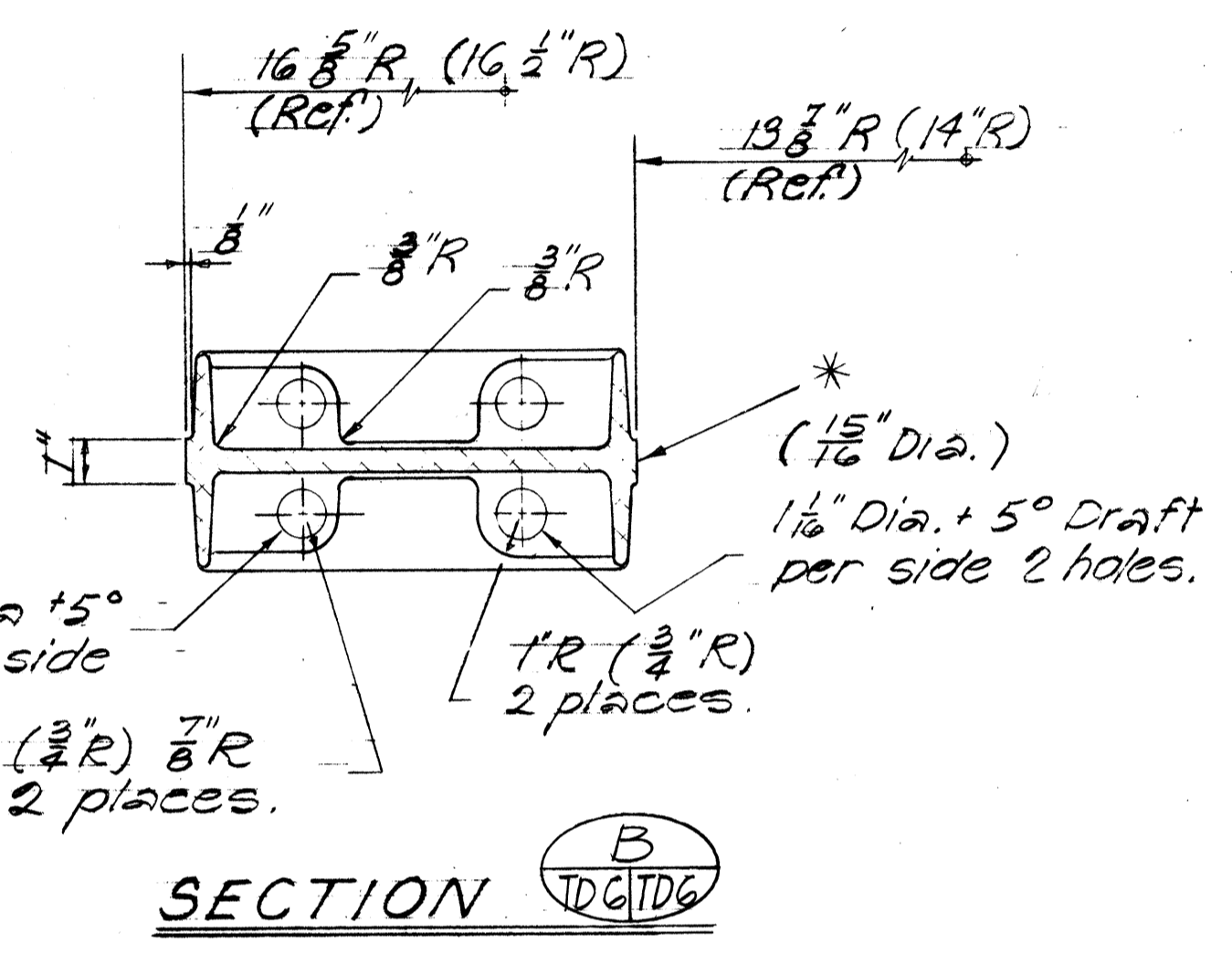
ORIGINAL PLAN
NOTE BOOK
No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-	1979	50	78

NOTE:
Toggle Bolt - Cadmium plating on steel -
Type NS 0.0005" thick ASTM - A165 (all parts).

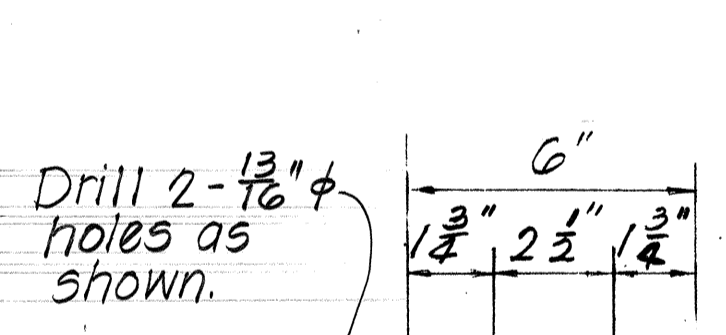


NOTE:
* Casting to be supplied with a standard scratch brush finish on entire gating rib surface and as indicated by an asterisk (*). Finish shall be approved by the Engineer.
Casting to be neatly trimmed and any protruding flash to be broken off. Unless otherwise specified, draft angles to be 3° corner radii to be 3/32" R, fillet radii to be 3/8" R, casting tol. to be ± 1/16", wall thickness to be ± 1/32". Dimensions may be as shown or as shown in parenthesis ().

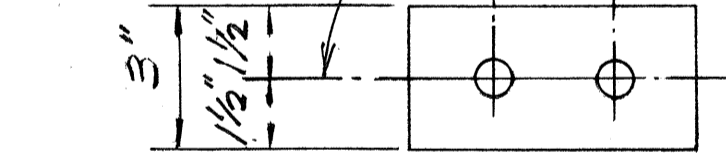
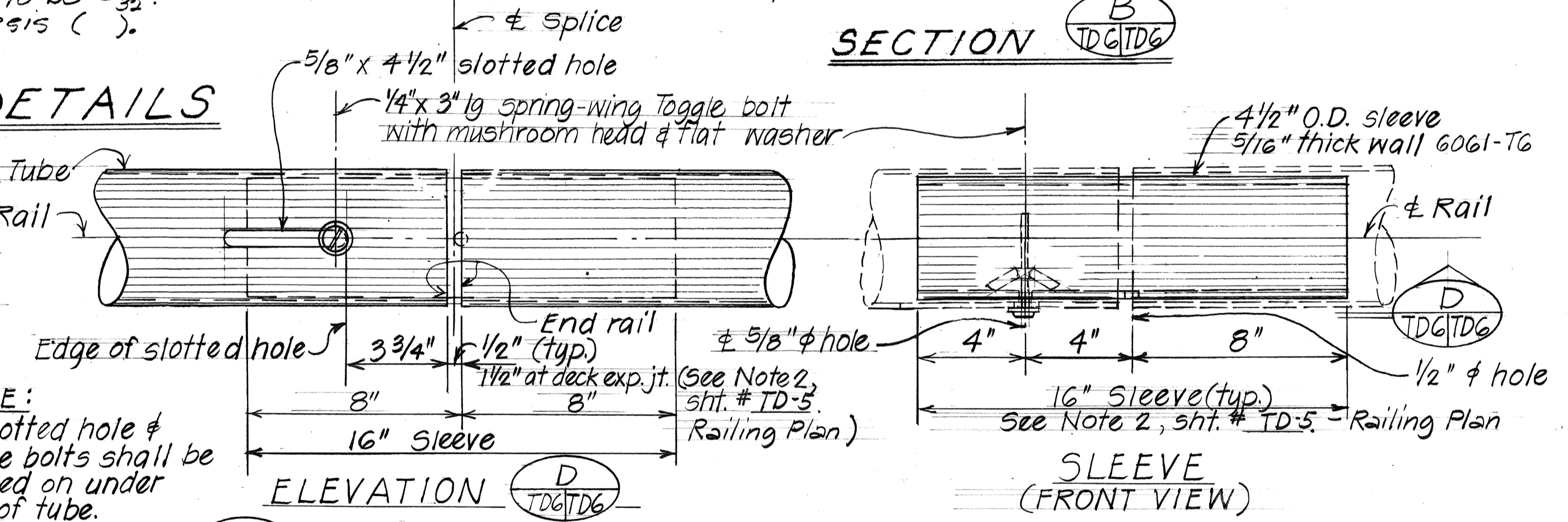


TYPICAL RAIL POST DETAILS

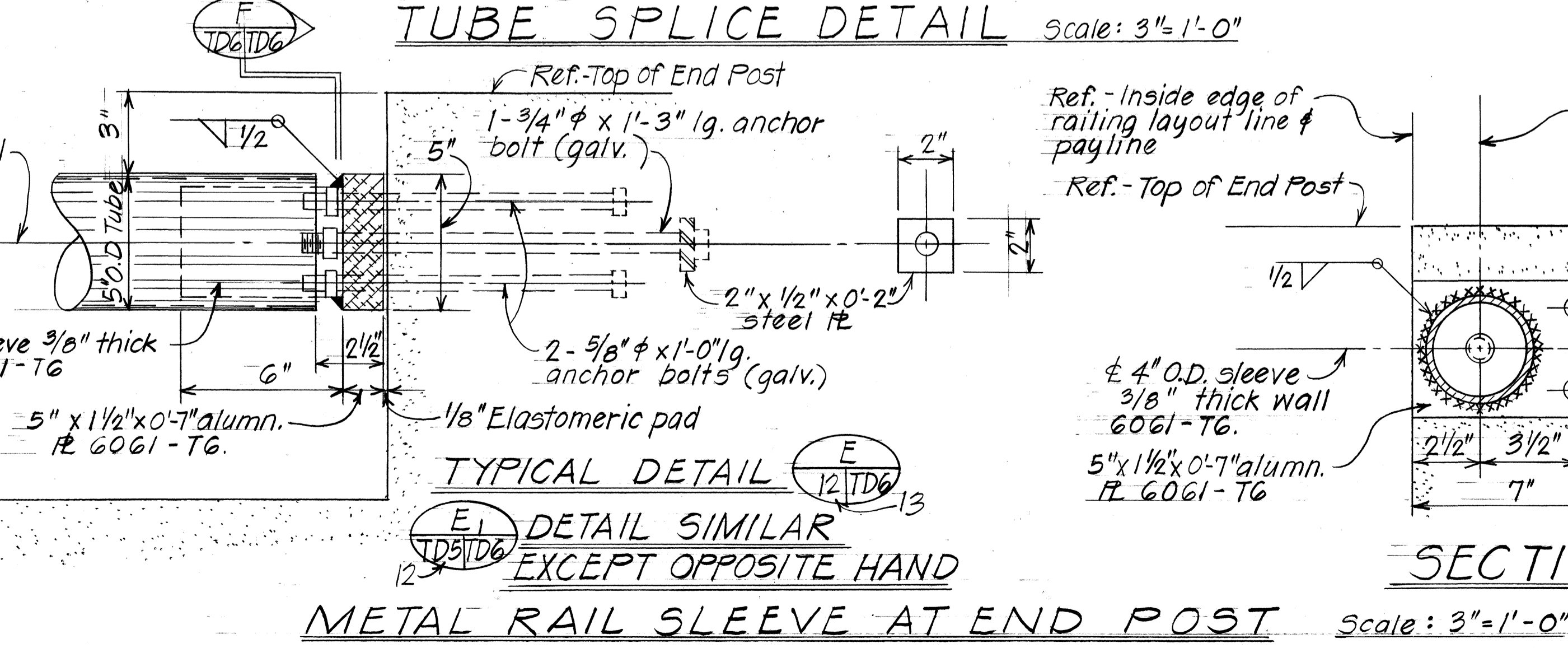
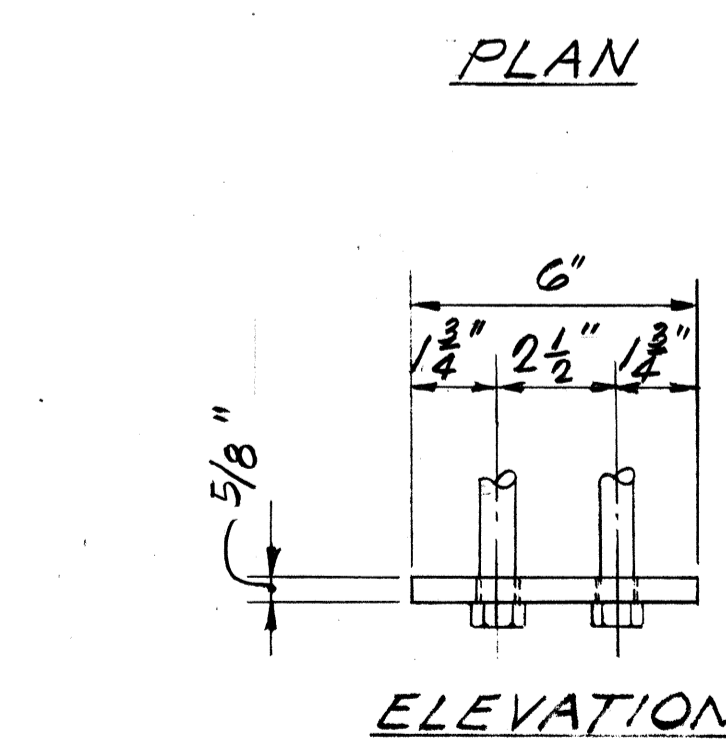
Scale: 3" = 1'-0"



NOTE:
Anchor bolts shall be embedded such that the threads are excluded from the shear plane & approximately 2 threads are exposed above the nut.



NOTE:
Slotted hole & toggle bolts shall be located on under side of tube.



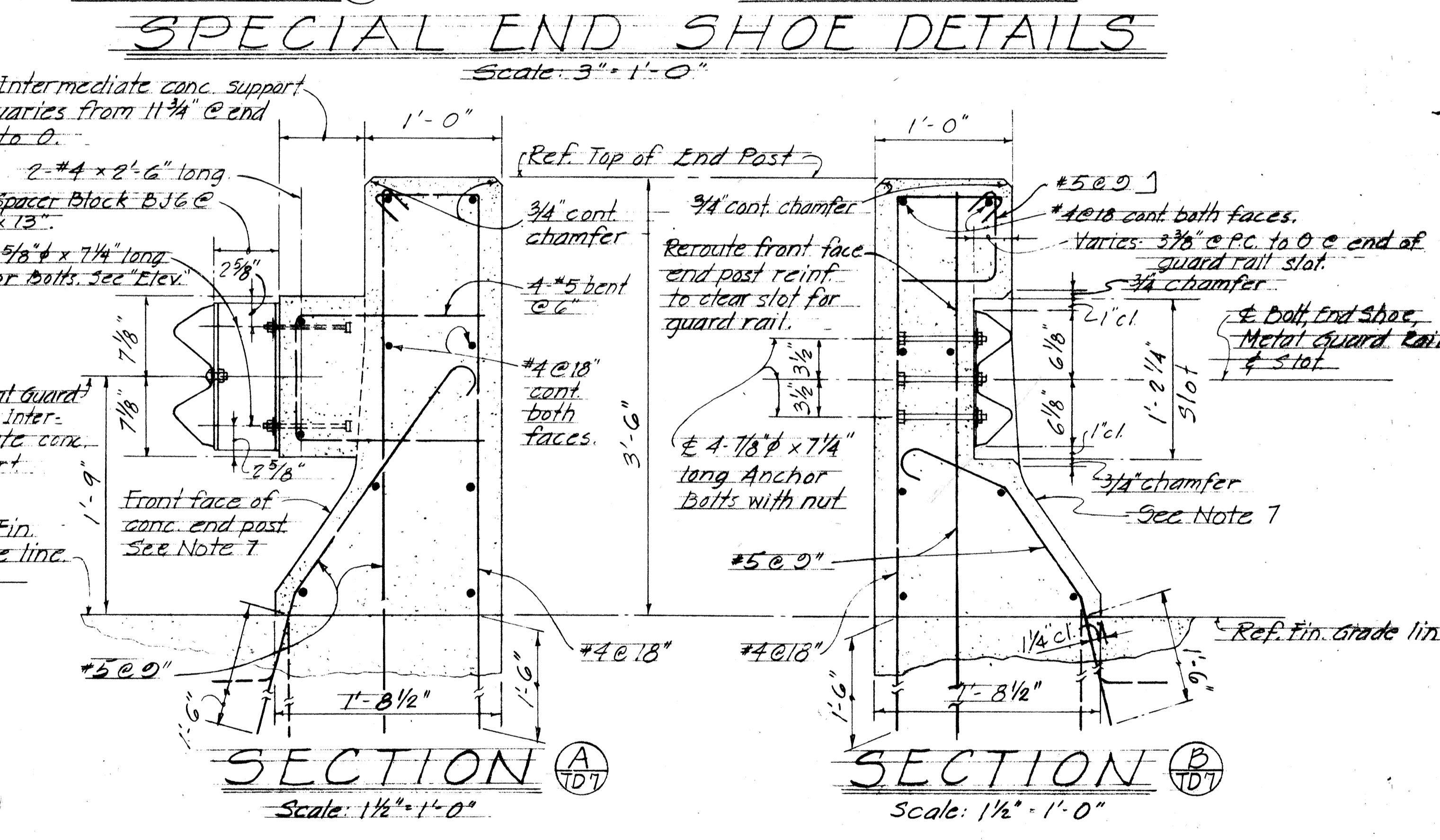
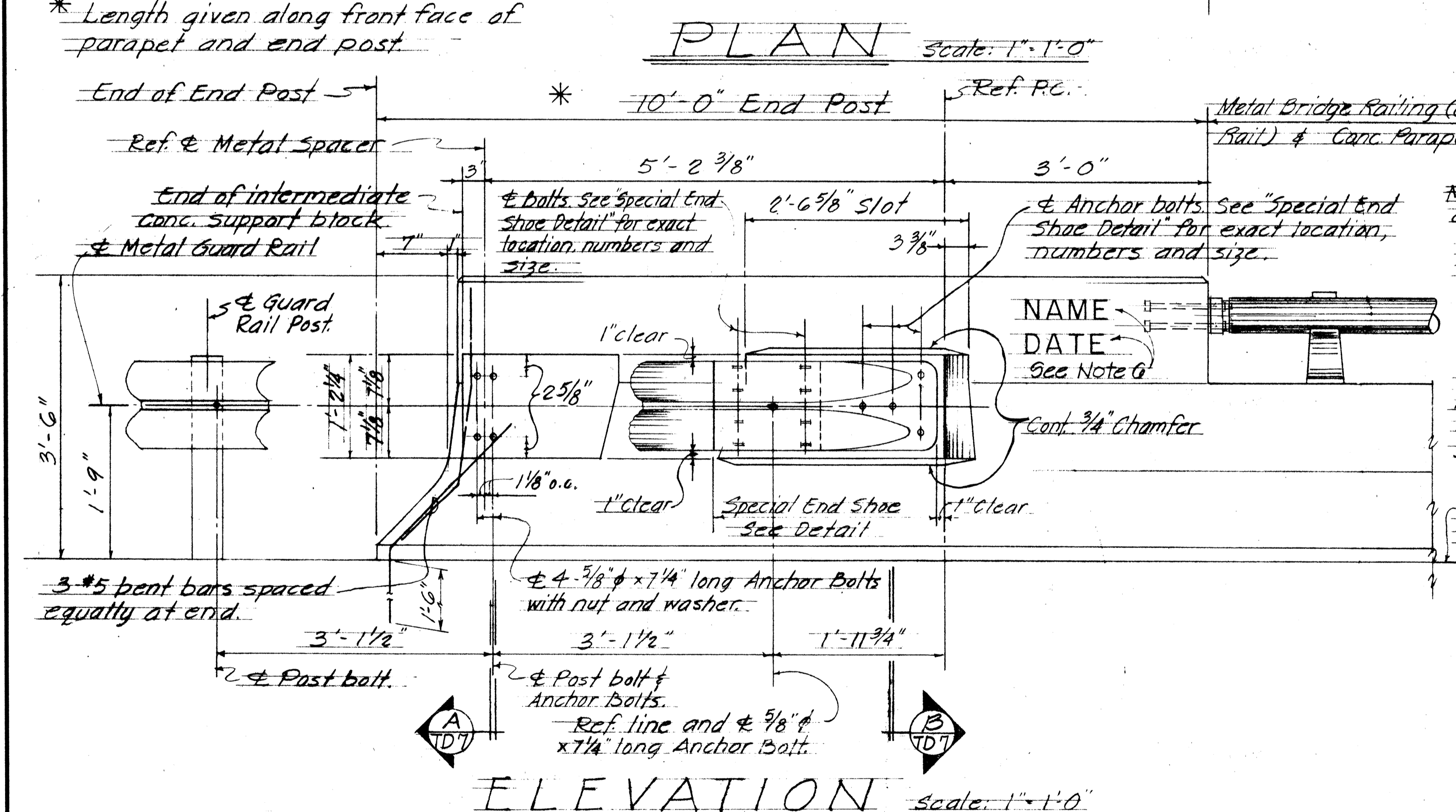
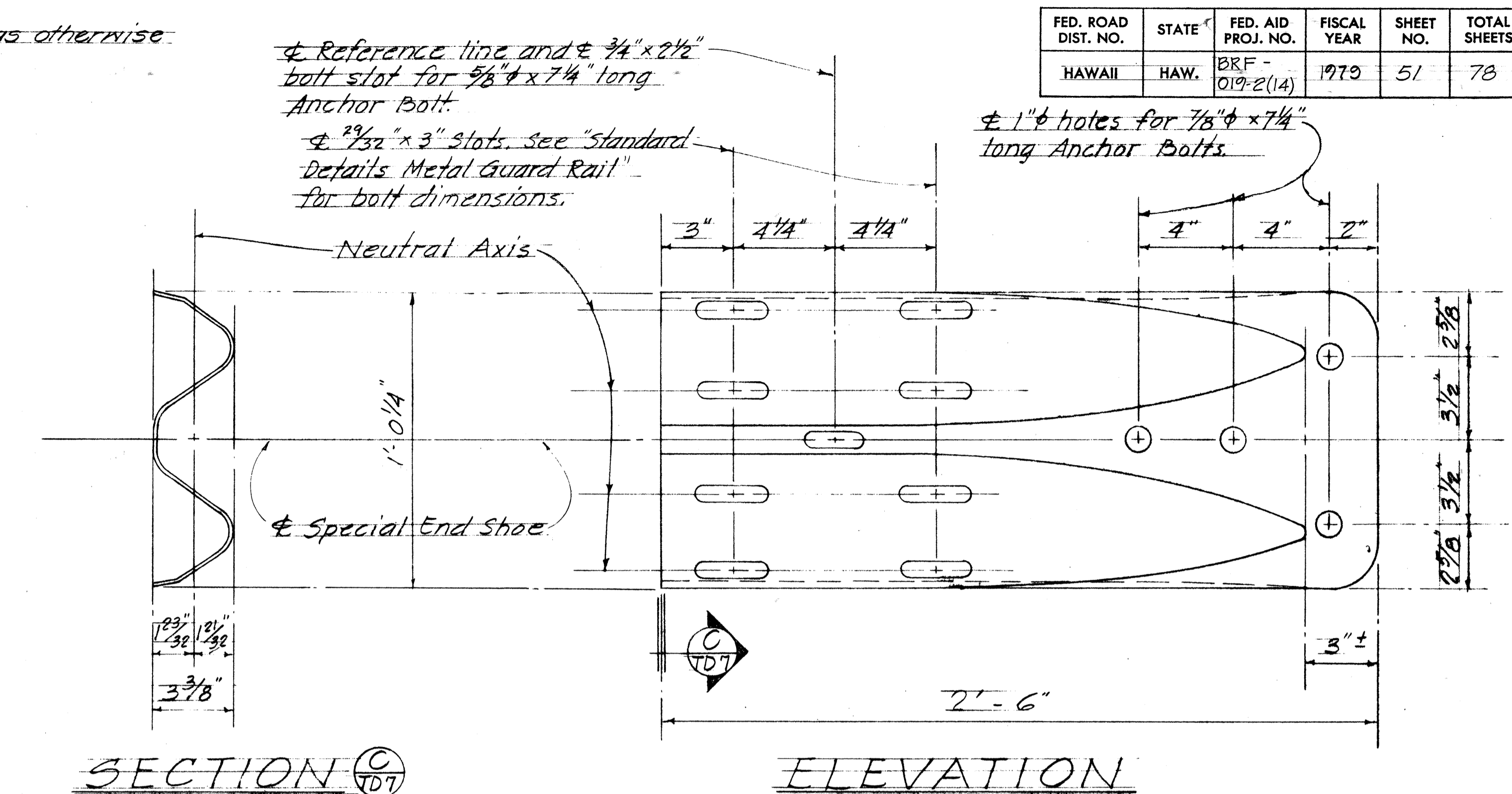
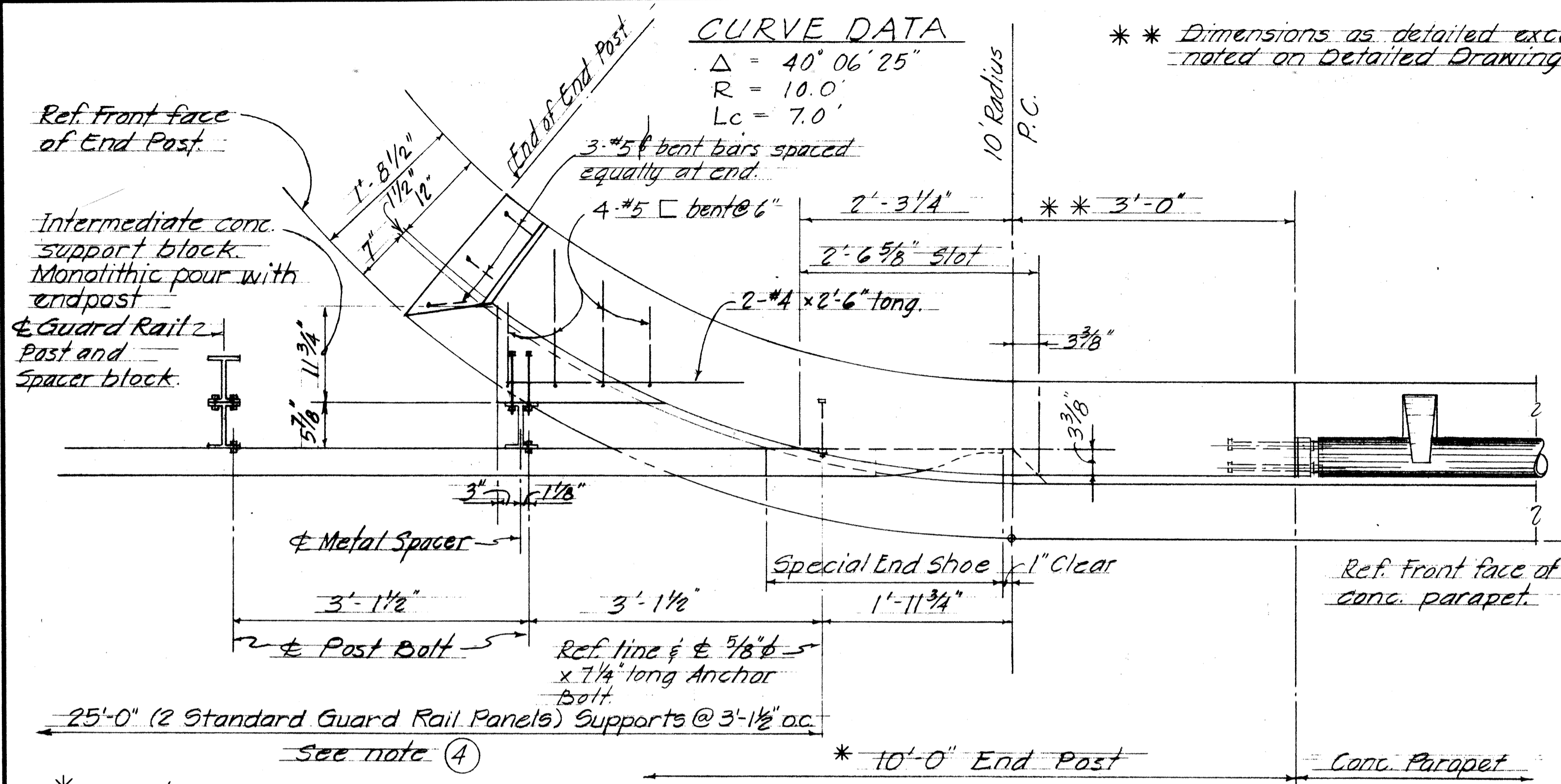
ANCHOR BOLT DETAIL ANCHOR BOLT
TYPICAL RAIL POST
STEEL ANCHOR BOLT ASSEMBLY
Scale: 3" = 1'-0"

METAL RAIL SLEEVE AT END POST Scale: 3" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
ALUMINUM BRIDGE RAILING
ONE RAIL COMBINATION TYPE
ON PARAPET
SHEET No. TD6 OF TD7 SHEETS

F.A.P. No. BRF-019-2(14)
Scale as noted Date: Aug 1978

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(14)	1979	51	78



- NOTES:**
- 1 All Anchor Bolts shall be High Strength bolts conforming to the requirements of ASTM A325.
 - 2 All Shoe assembly, including anchor bolts, nuts and washers, shall be galvanized.
 - 3 Special End Shoe shall be fabricated from 10 gage steel conforming to the requirements of AASHTO 180.
 - 4 First 25'-0" of guard rail adjoining "Special End Shoe" shall be galvanized steel.
 - 5 Anchor Bolt length given from under bolt head.
 - 6 Place name of structure as shown. For location, see "Plan" on Contract Drawing. Date shown will be year structure is completed. Letter size and detail see standard Drawing DB-100.
 - 7 Front face of End Post to match front face of typical conc. parapet.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
METAL GUARD RAIL CONNECTION
ONE RAIL COMBINATION TYPE END POST

F.A.P. No. BRF-019-2(14)
Scale: As shown Date Aug 1978
SHEET No. TD107D7. SHEETS

DATE
SURVEY PLOTTED BY
FRACED BY
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY