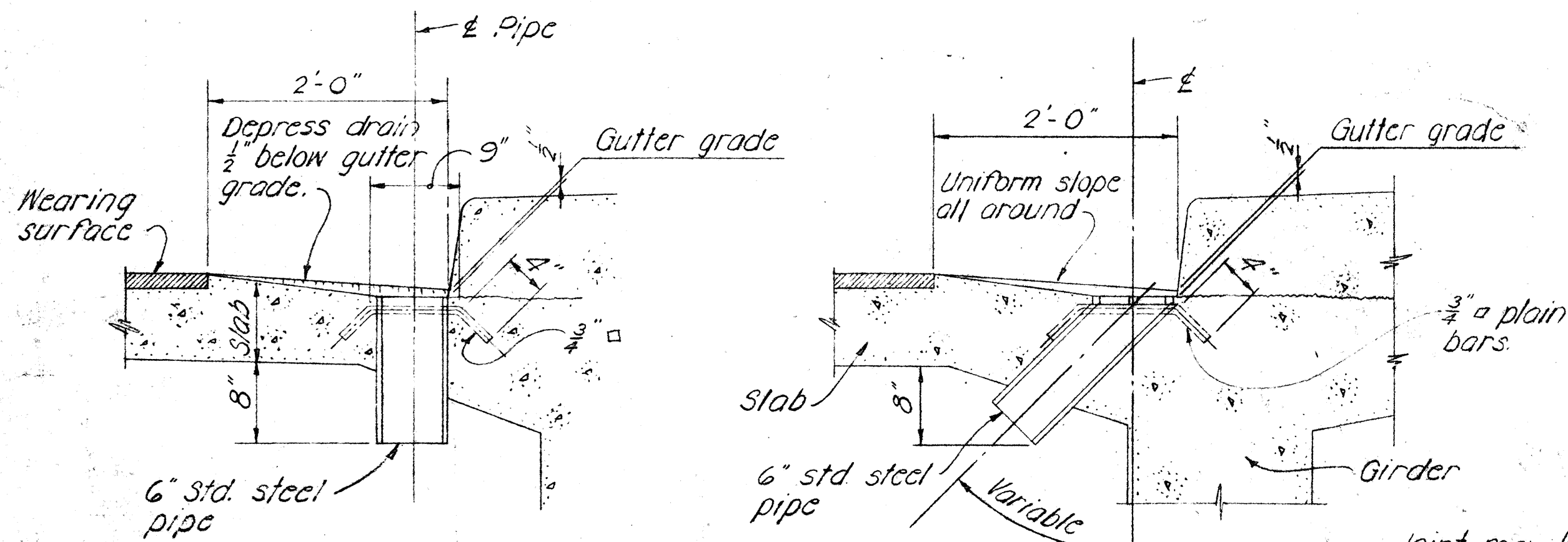
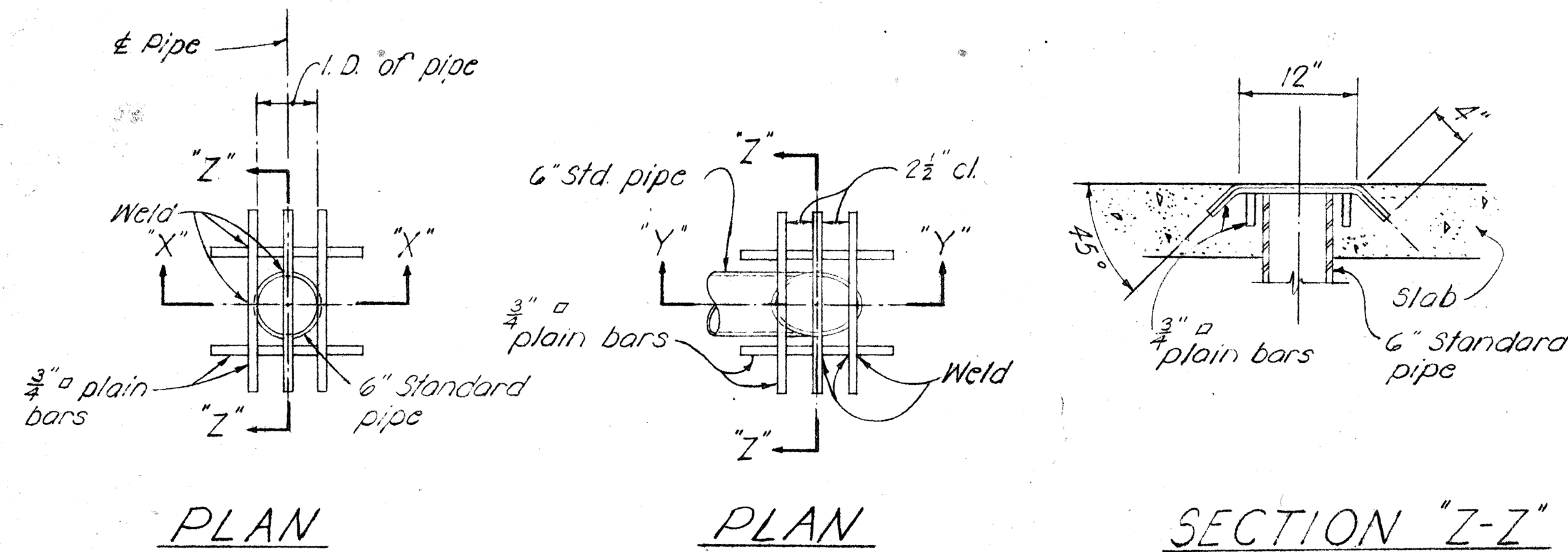


GENERAL NOTES

- All concrete shall be Class A unless otherwise noted.
- Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
- Clearance for reinforcing bars shall be as follows, unless otherwise noted:
 - 1/2" For stirrups of beams & pier caps.
 - 2" For ties of columns.
 - 2" For formed walls.
 - 3" For footings.
- Minimum spacing between parallel bars shall be 2 1/2 times the diameter of bars, but in no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
- Reinforcing bars shall be securely tied at all intersections & lap splices & shall be held in place during pouring to maintain their proper locations as shown on plans.
- Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
- Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered 3/4" x 3/4".
- Concrete seats receiving steel plates, lead plates or neoprene pads shall be poured monolithically with supporting structures & top of concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
- Elastomeric Pads: Bottom of bridge bearing pads shall be secured against displacement with adhesives approved by the Engineer. Pads shall be incidental to concrete and will not be paid for separately.
- Forms for all exposed surfaces of separation structures and surfaces of retaining walls visible from a traveled way or from a populated area shall be plywood except that metal forms may be permitted provided a surface finish satisfactory to the Engineer can be obtained and the use of such forms is approved in writing by the Engineer. Forms for round columns shall be made of materials that will give a smooth finish and true dimensions as given in the plans. Forms for prestressed concrete members shall be either metal or plywood.
- Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
- The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work of excavation or driving of piles.
- Standard Detail Drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

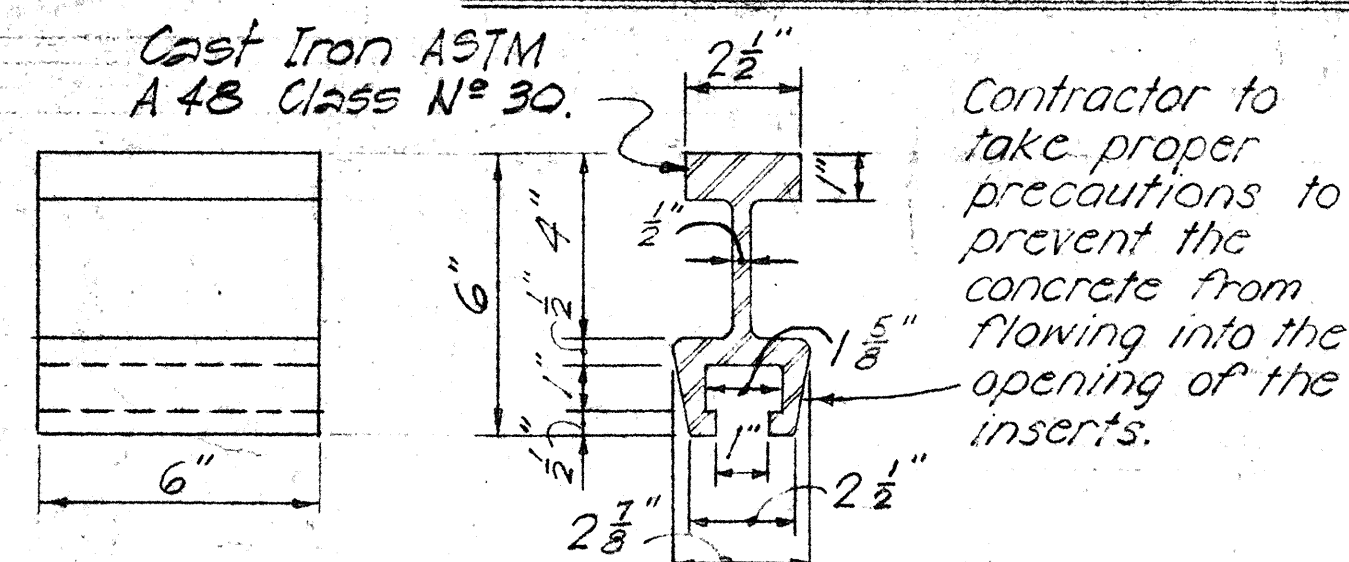
TYPICAL CONCRETE GROOVE DETAIL

DRIP DETAIL

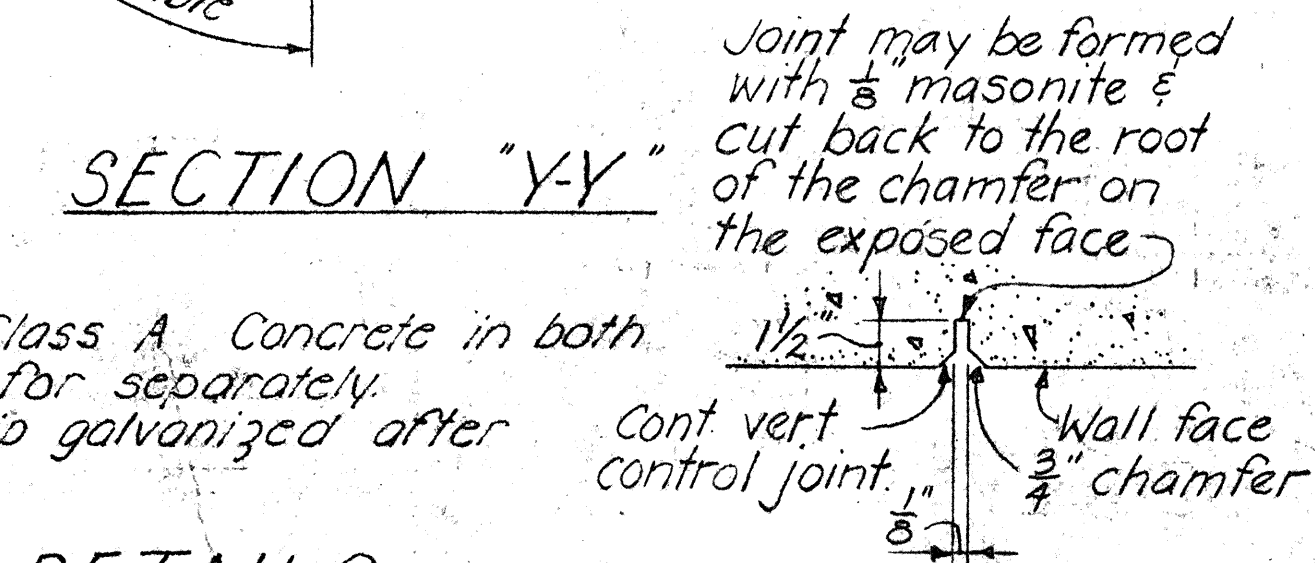


NOTE: Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately. Assembly of grillage and pipe shall be hot-dip galvanized after all welding is completed.

TYPICAL DRAINAGE DETAILS

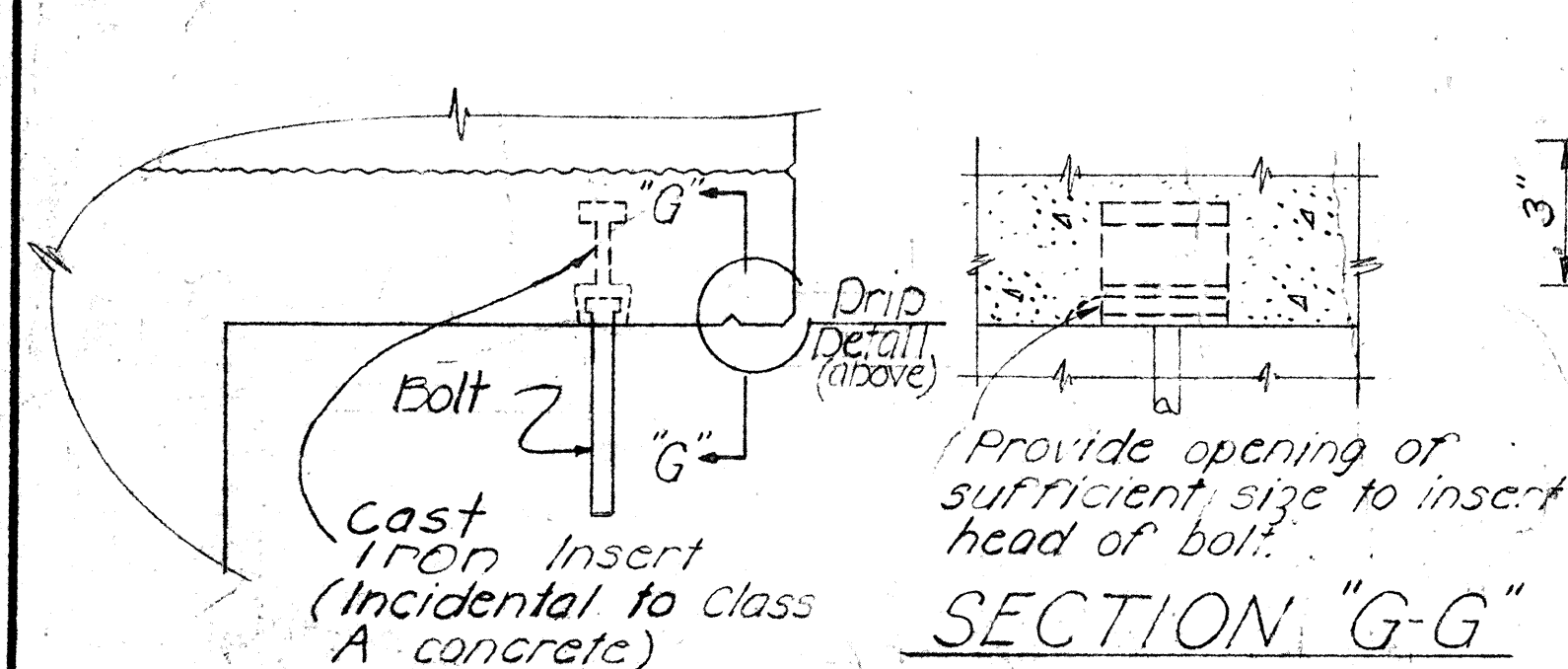
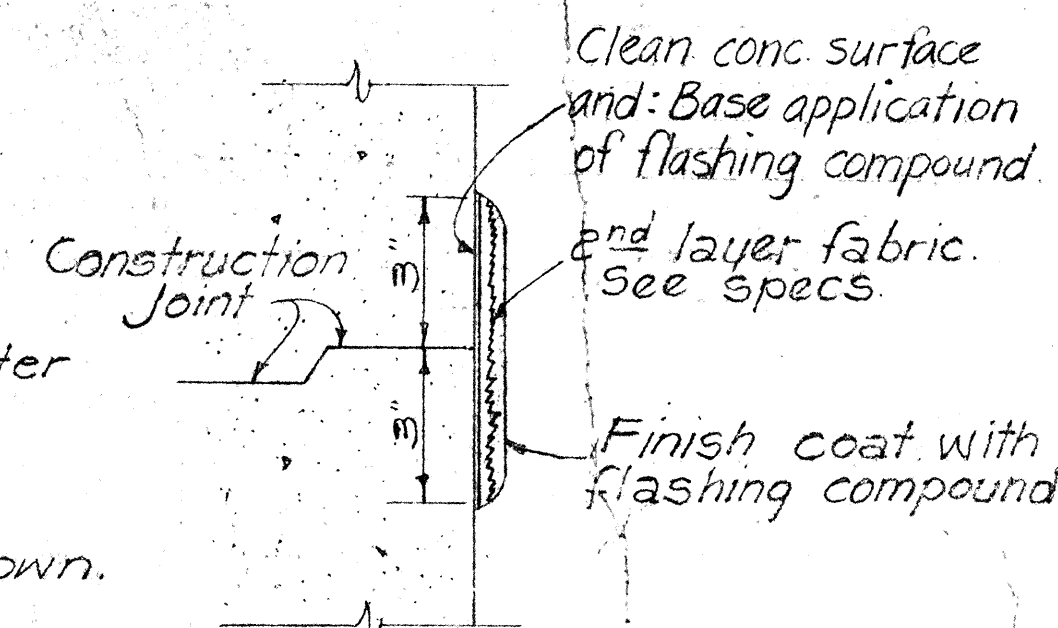


INSERT DETAIL

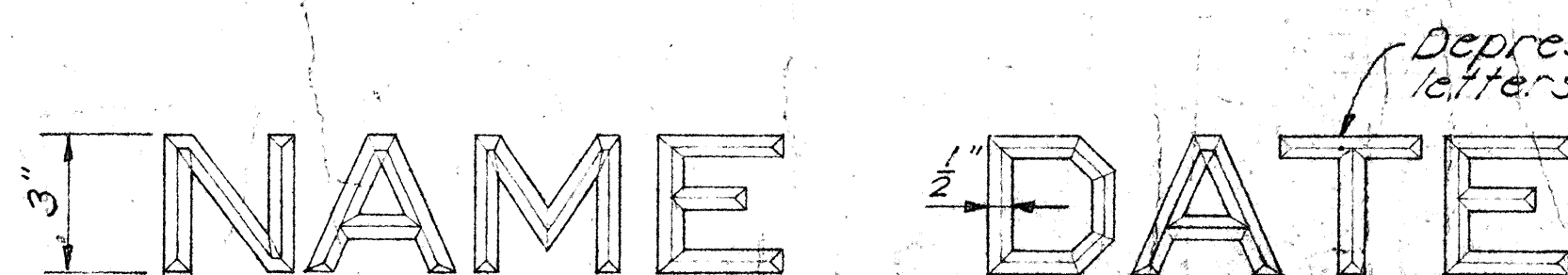


CONTROL JOINT DETAILS

TYP. FLASHING COMPOUND WATERPROOFING DETAIL

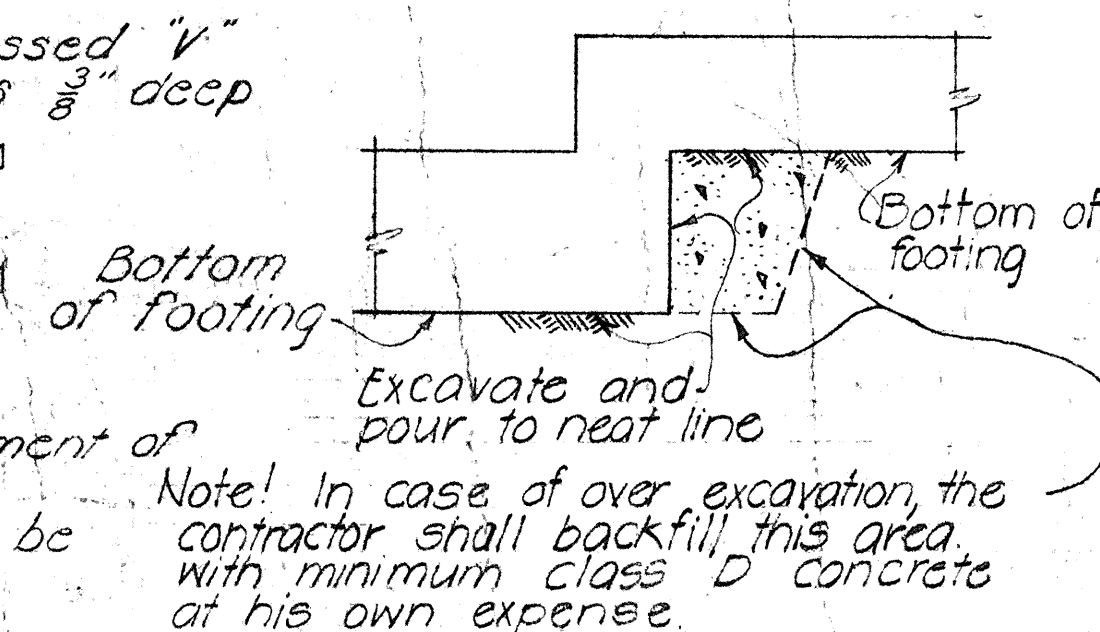


DETAIL of PIPE HANGERS & INSERTS



Use correct name of bridge Date of Year built
NOTE: Refer to corresponding detail drawings for placement of such names & dates at end post.
 Exact details & spacing of letters & figures shall be as directed by the Engineer. See Note #12

TYPICAL DETAIL OF LETTERS & FIGURES AT CONCRETE END POST



TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

APPROVAL RECOMMENDED:
 Paul T. Yamashita
 BRIDGE DESIGN ENGINEER 1-23-70
 DATE

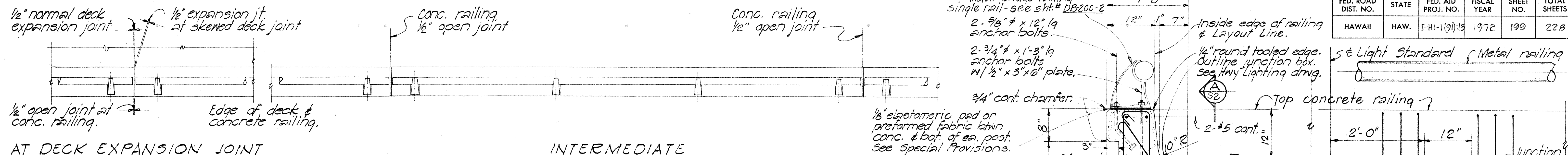
APPROVED
 Paul T. Yamashita
 ASSISTANT CHIEF, ENGINEERING 1-28-70
 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
STANDARD DETAILS
 NOTES AND MISCELLANEOUS
 DETAILS

Date: October 1969
 SHEET No. 51 OF 6 SHEETS DB-100

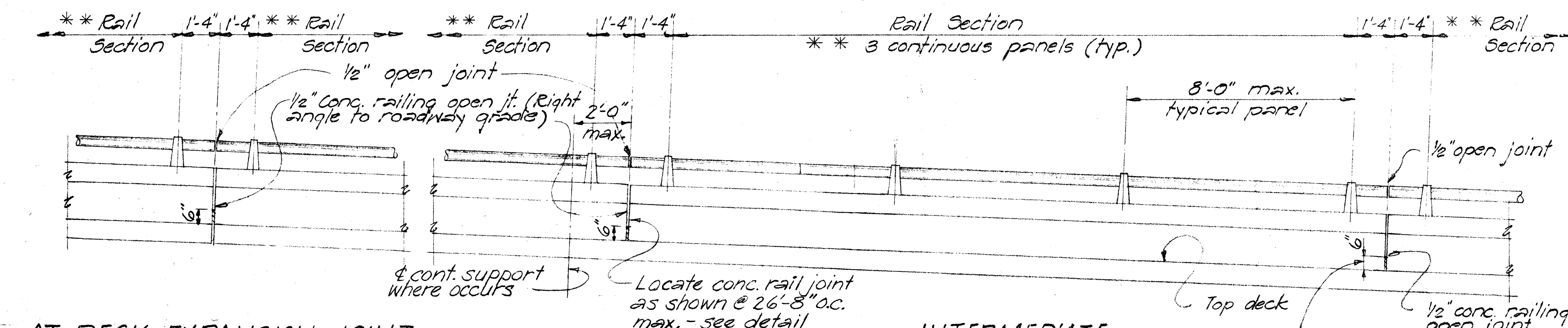
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7 HAWAII	HAW.	I-HI-1(91):13	1972	100	228



* * Note //

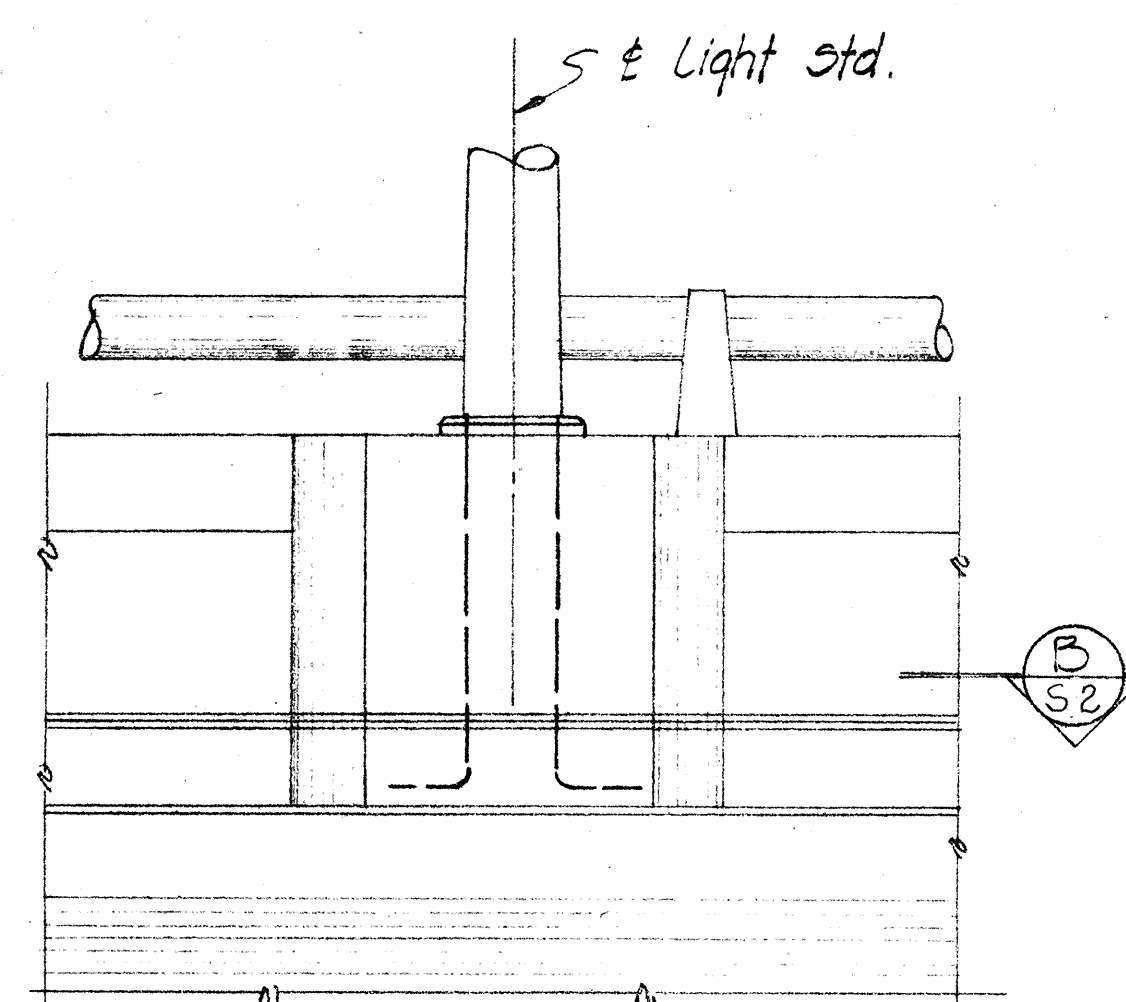
1. The contractor shall layout the railing to provide 3 cont. panels whenever possible. 2 or 4 cont. panels will be permitted to complete the layout when 3 cont. panels cannot be made. Single panels will not be permitted.

2. Rail Posts shall be normal to grade.
3. Provide double posts at each expansion jt., fixed bridge jt., continuous support, and as shown on detailed drawing.

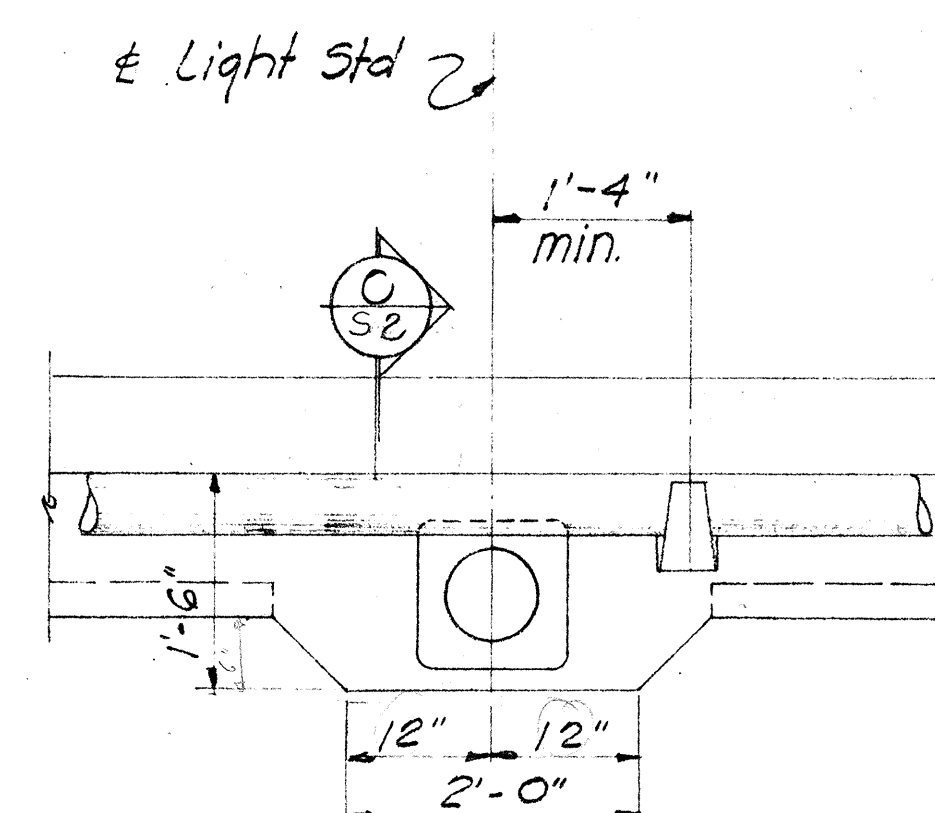


AT DECK EXPANSION JOINT

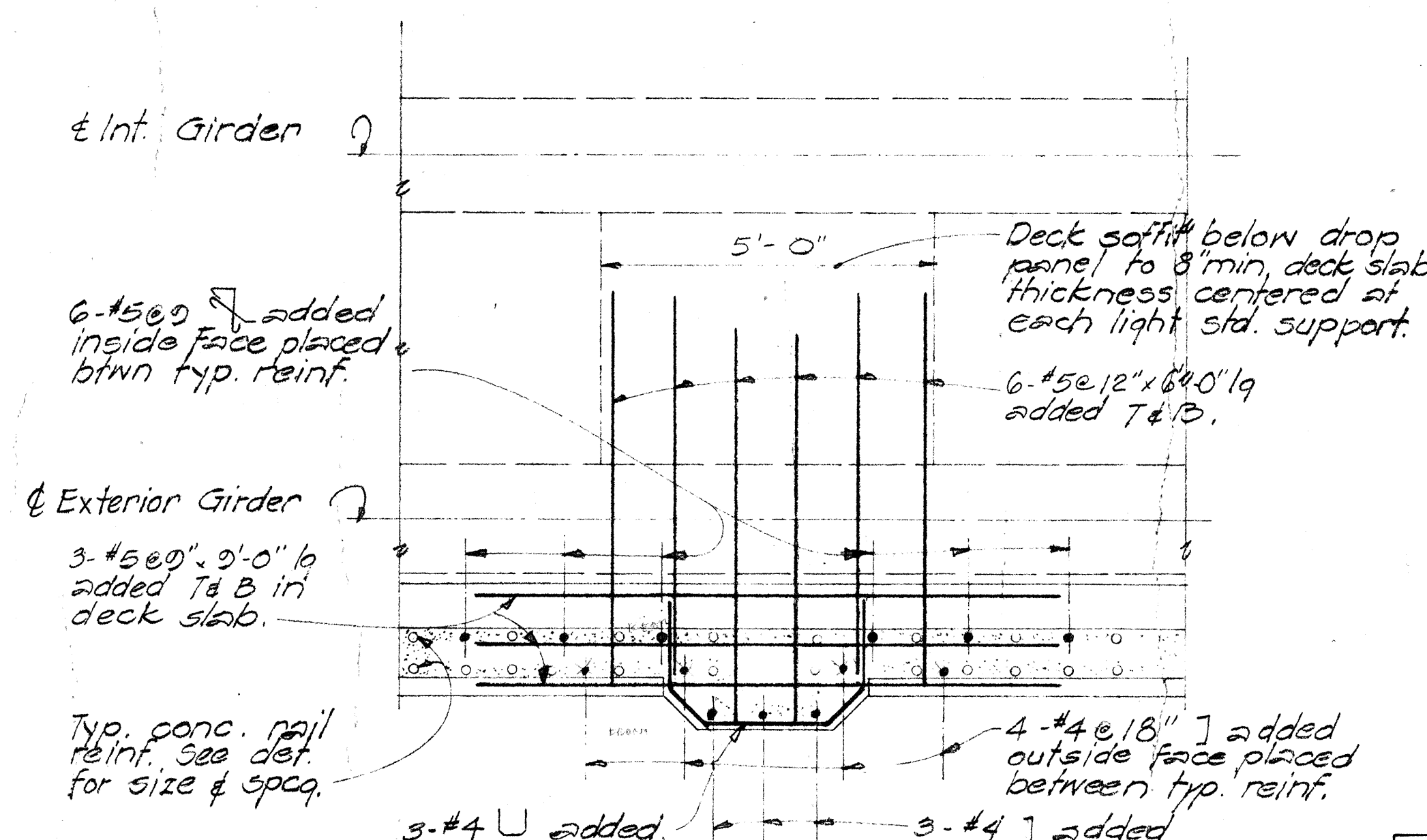
max. - see detail
INTERMEDIATE
EXTERIOR RAILING ELEVATION SCALE: $\frac{3}{8}" = 1'-0"$



PART ELEVATION
SCALE: $\frac{3}{4}" = 1'-0"$



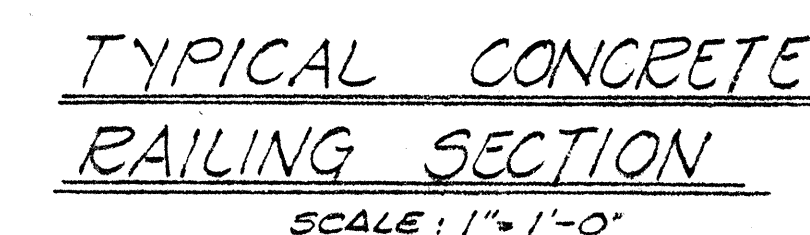
PART PLAN
SCALE: $\frac{3}{4}" = 1'-0"$



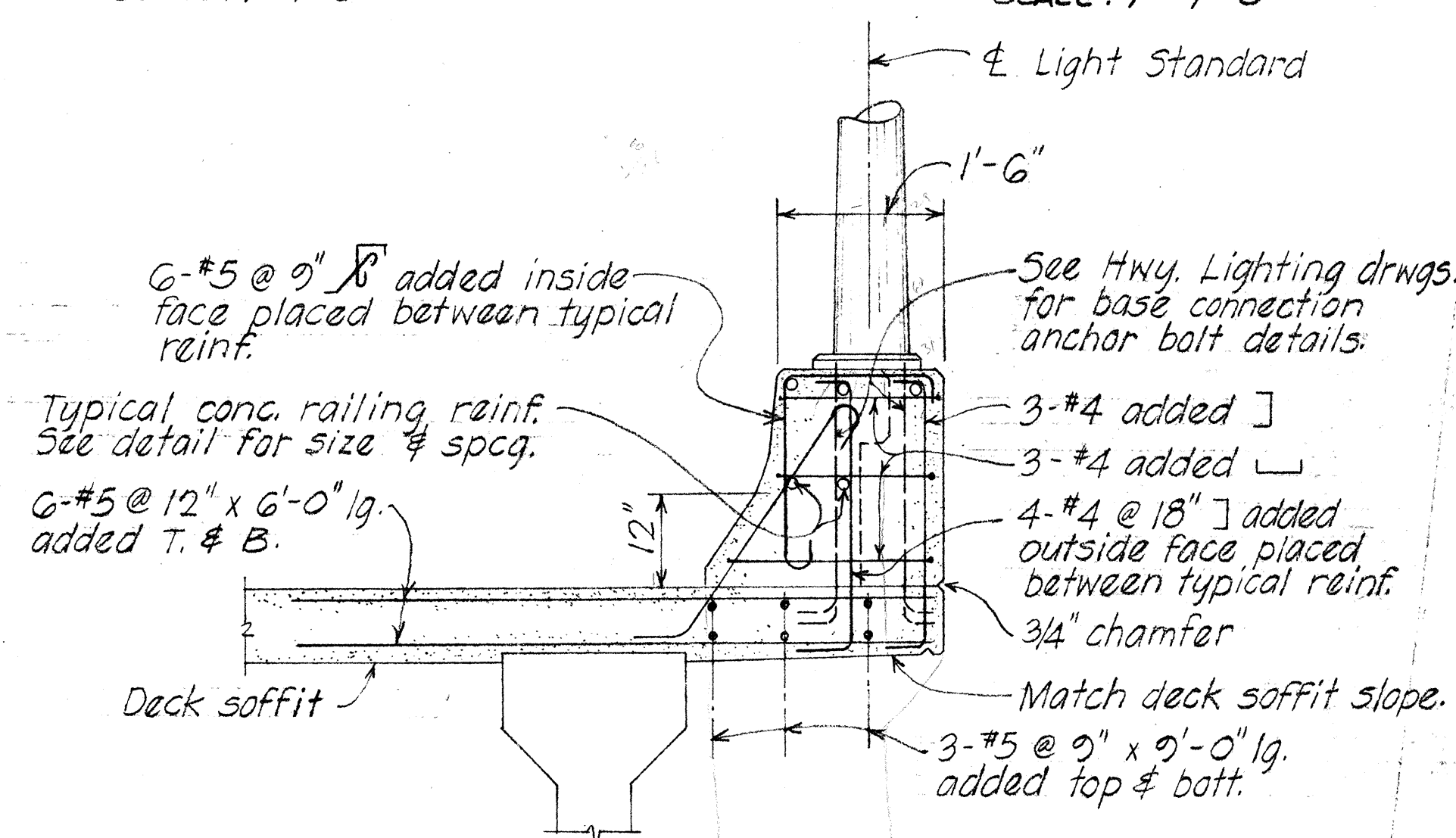
SECTION 
SCALE: $\frac{1}{2}" = 1'-0"$

DETAILS OF RAILING AT LIGHT STANDARD
SCALE AS NOTED

SCALE AS NOTED



ELEVATION (A) SHOWING SPECIAL
REINFORCEMENT AT JUNCTION BOX
SCALE: 1" = 1'-0"



SECTION C
52

Scale: $\frac{3}{4}" = 1' - 0"$

APPROVAL RECOMMENDED:

Paul T. Yamashita
BRIDGE DESIGN ENGINEER

1-23-70
DATE

APPROVED

Paul T. Yamashita
 ASSISTANT CHIEF, ENGINEERING

1-28-70
DATE

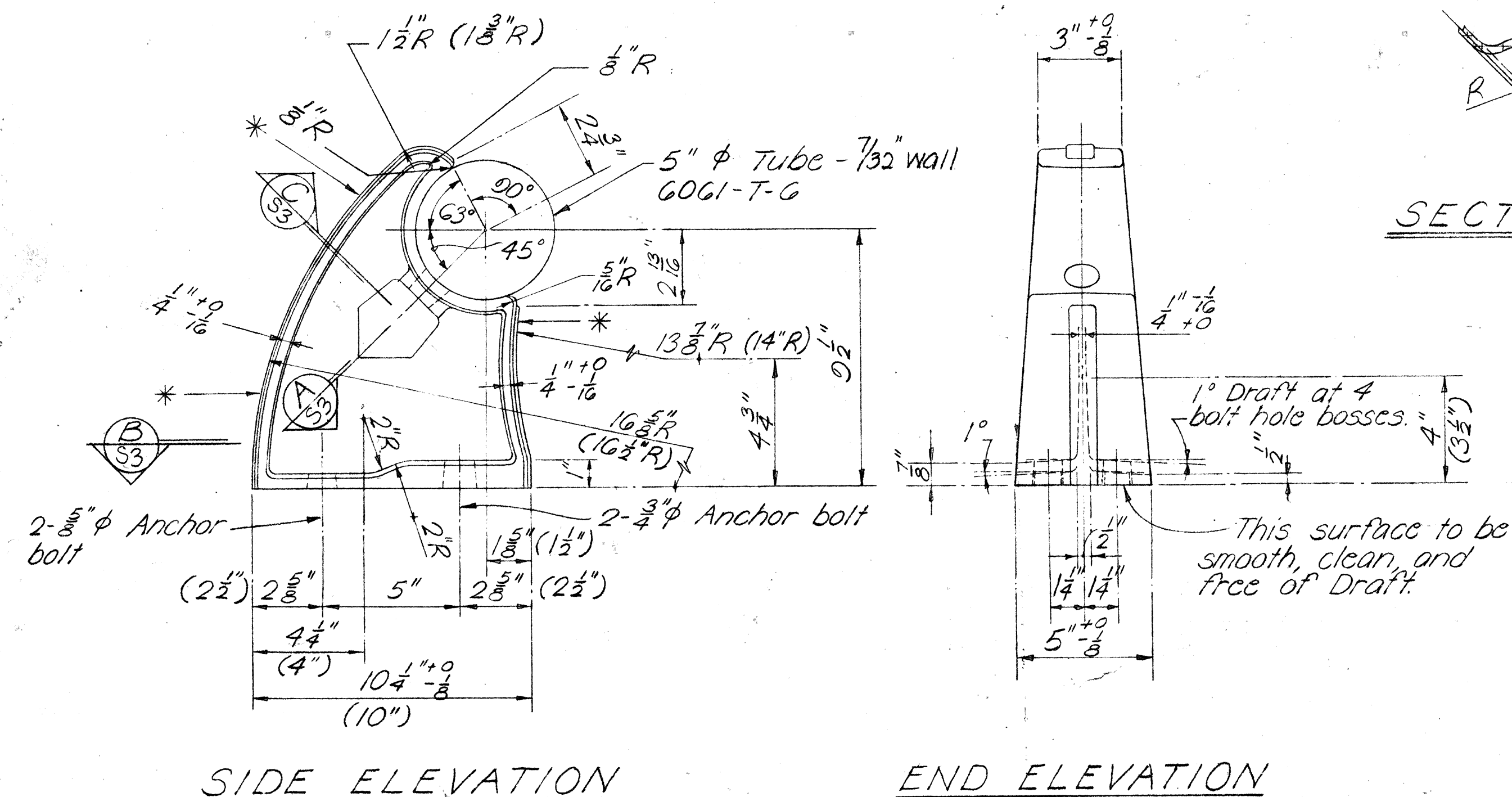
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL BRIDGE RAILING
ONE RAIL COMBINATION TYPE
ON PARAPET

Date: October 1969

SHEET No. 52 OF 6 SHEETS DB-200-1



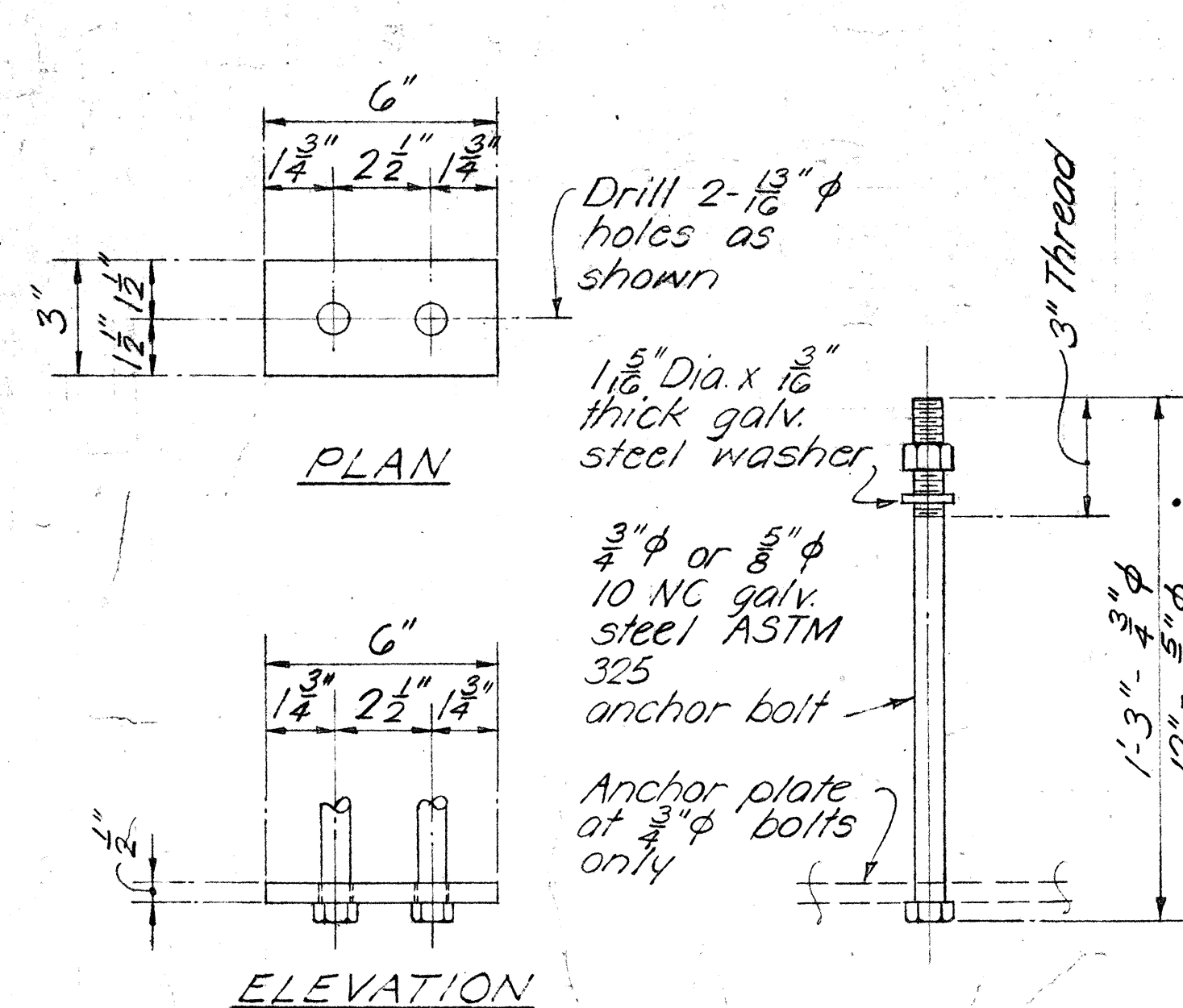
NOTE:

* 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 nearly trimmed and any protruding flash to be broken off. Unless otherwise specified, draft angles to be 3° , corner radii to be $\frac{3}{32}"$, fillet radii to be $\frac{3}{32}"$, casting tol. to be $\pm \frac{1}{16}"$, wall thickness to be $\pm \frac{1}{32}"$. Dimensions may be as shown or as shown in parenthesis ().

TYPICAL RAIL POST DETAILS

Scale: 3" = 1'-0"



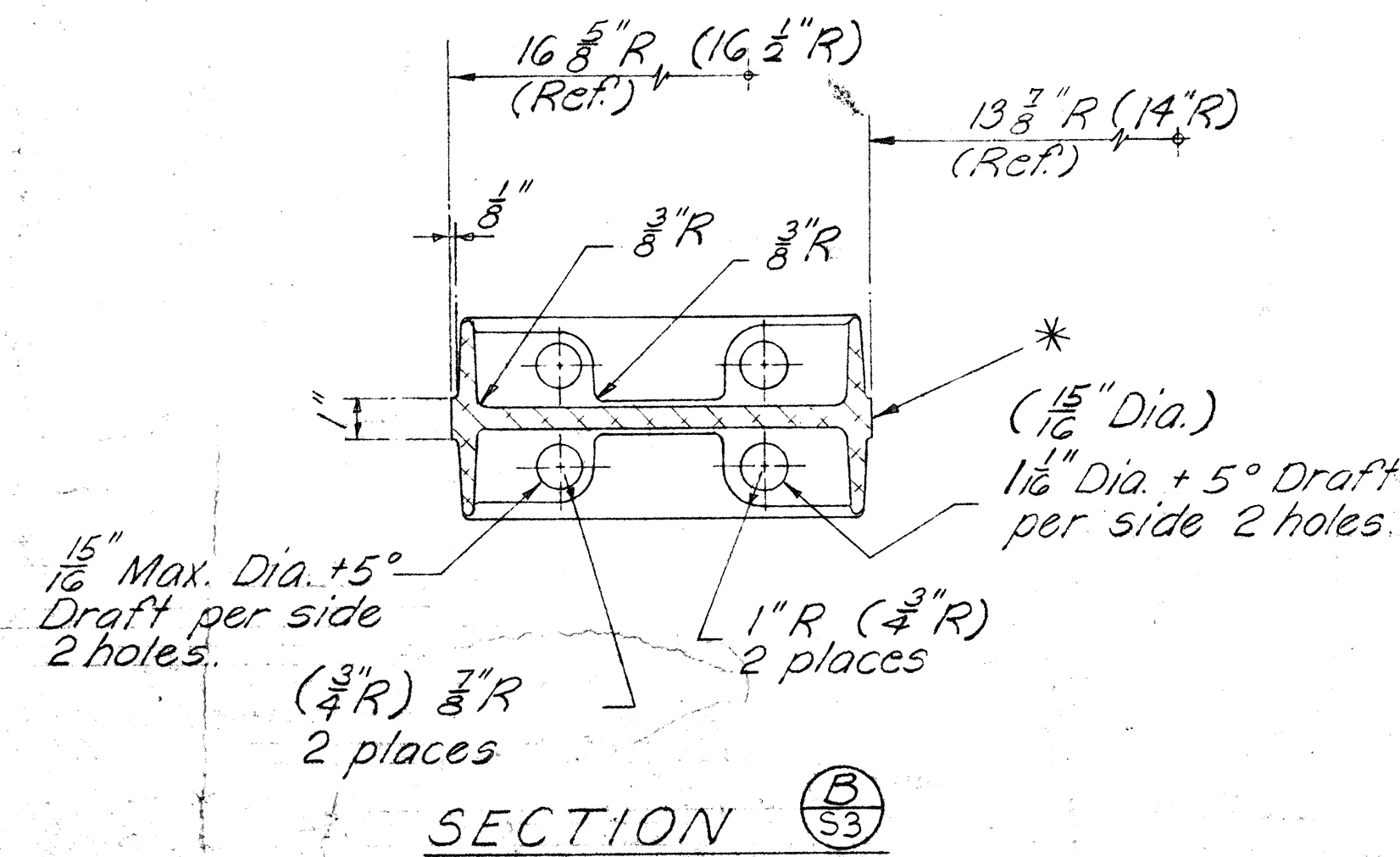
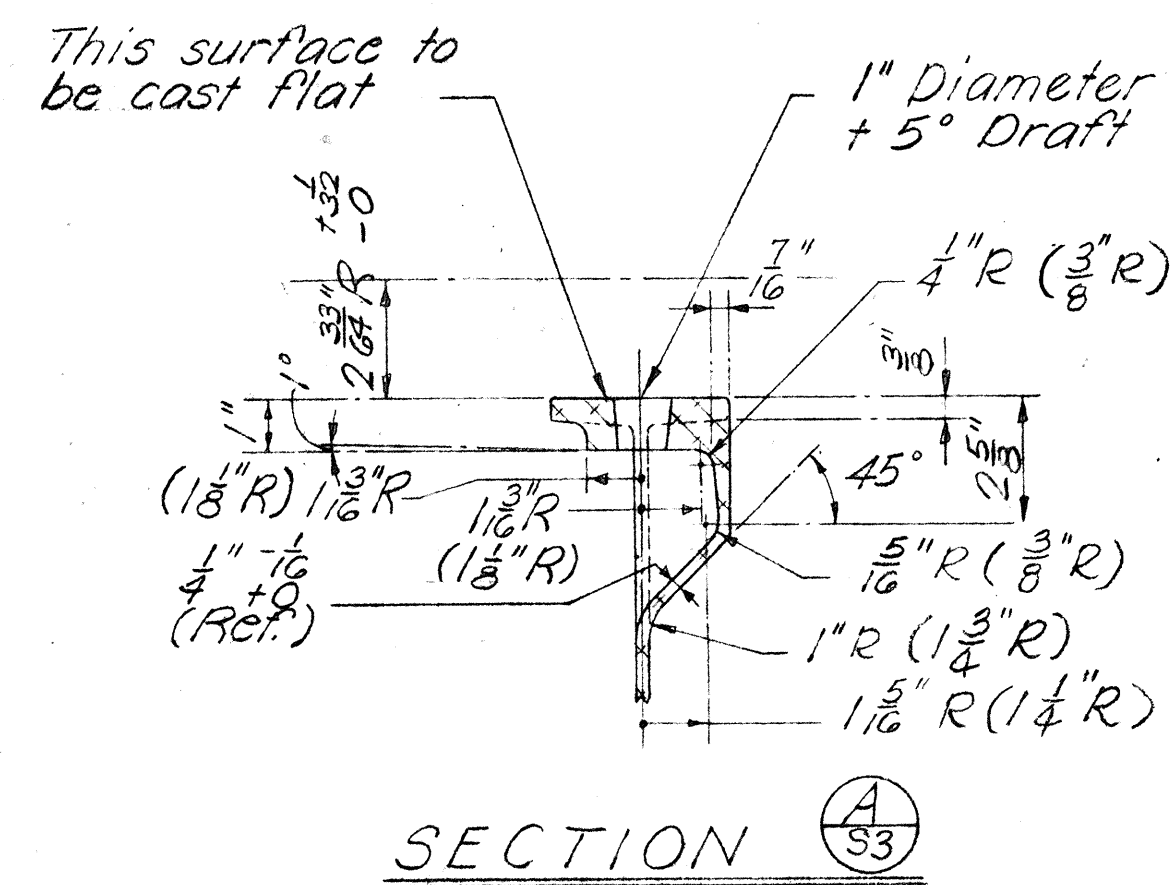
All draft angles = 3°

RAIL CAP DETAIL

Scale: $3'' = 1'-0''$

GENERAL NOTES:

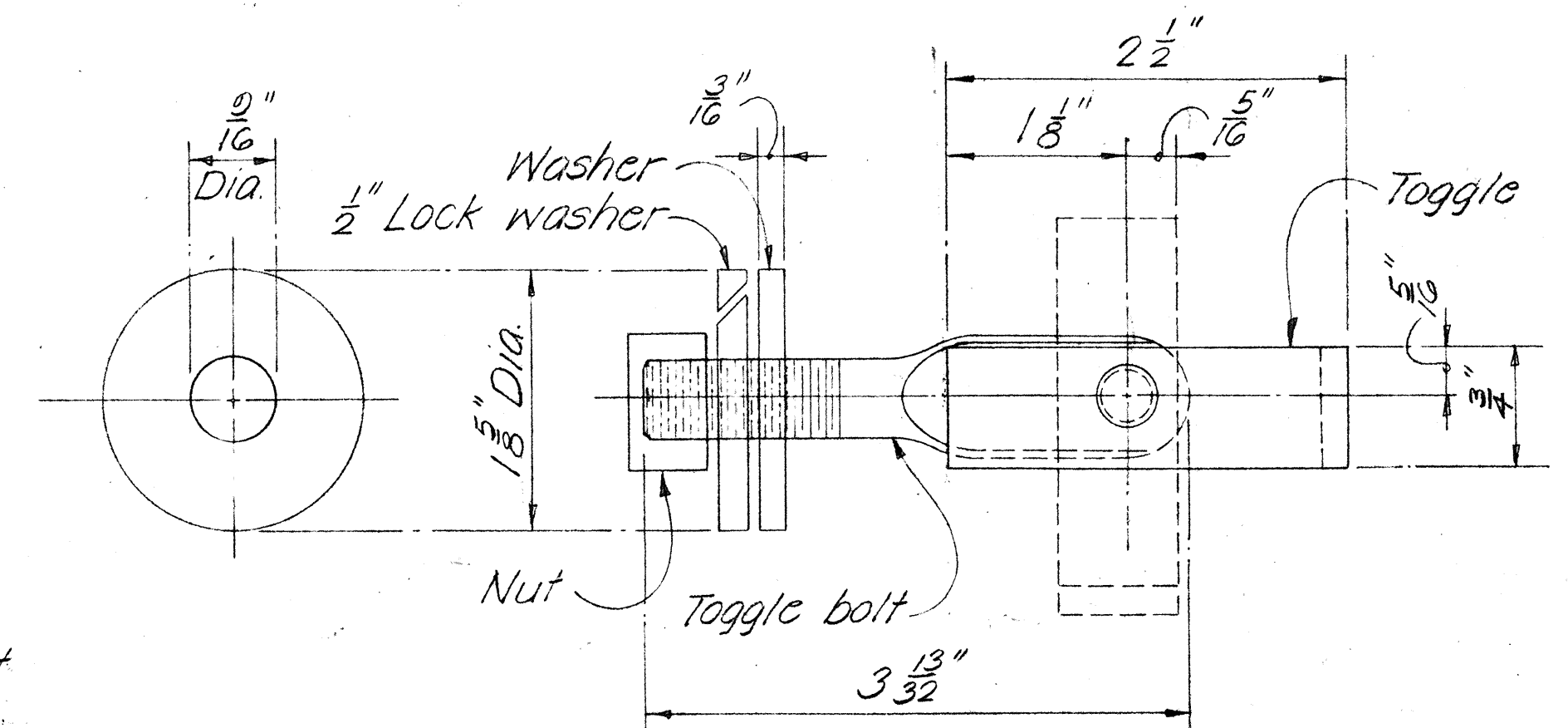
Metal bridge railing shown is for Aluminum bridge railing. See Specifications for alternate railing in steel.



NOTE:

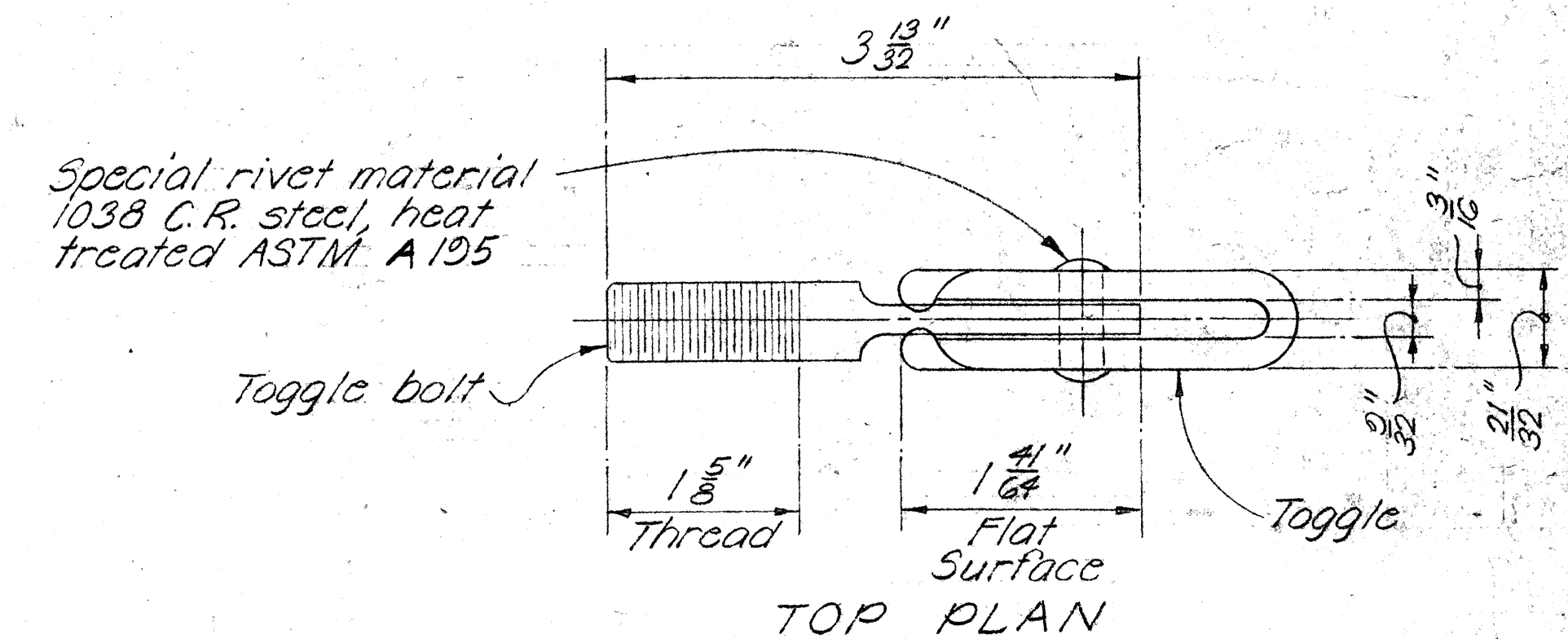
TOGGLE BOLT

Cadmium plating on steel - Type NS 0.0005" thick ASTM- A 165.
(all parts).



WASHER

SIDE ELEVATION ASSEMBLAGE



1/2" ϕ STEEL TOGGLE BOLT DETAILS

Full Scale.

APPROVAL RECOMMENDED:

Paul T. Yamashita
BRIDGE DESIGN ENGINEER

1-23-70
DATE

APPROVED

APPROVED *Paul T. Yamashita*
For ASSISTANT CHIEF, ENGINEERING

1-28-70
DATE

NO.	REVISION	APPROVED BY	DATE

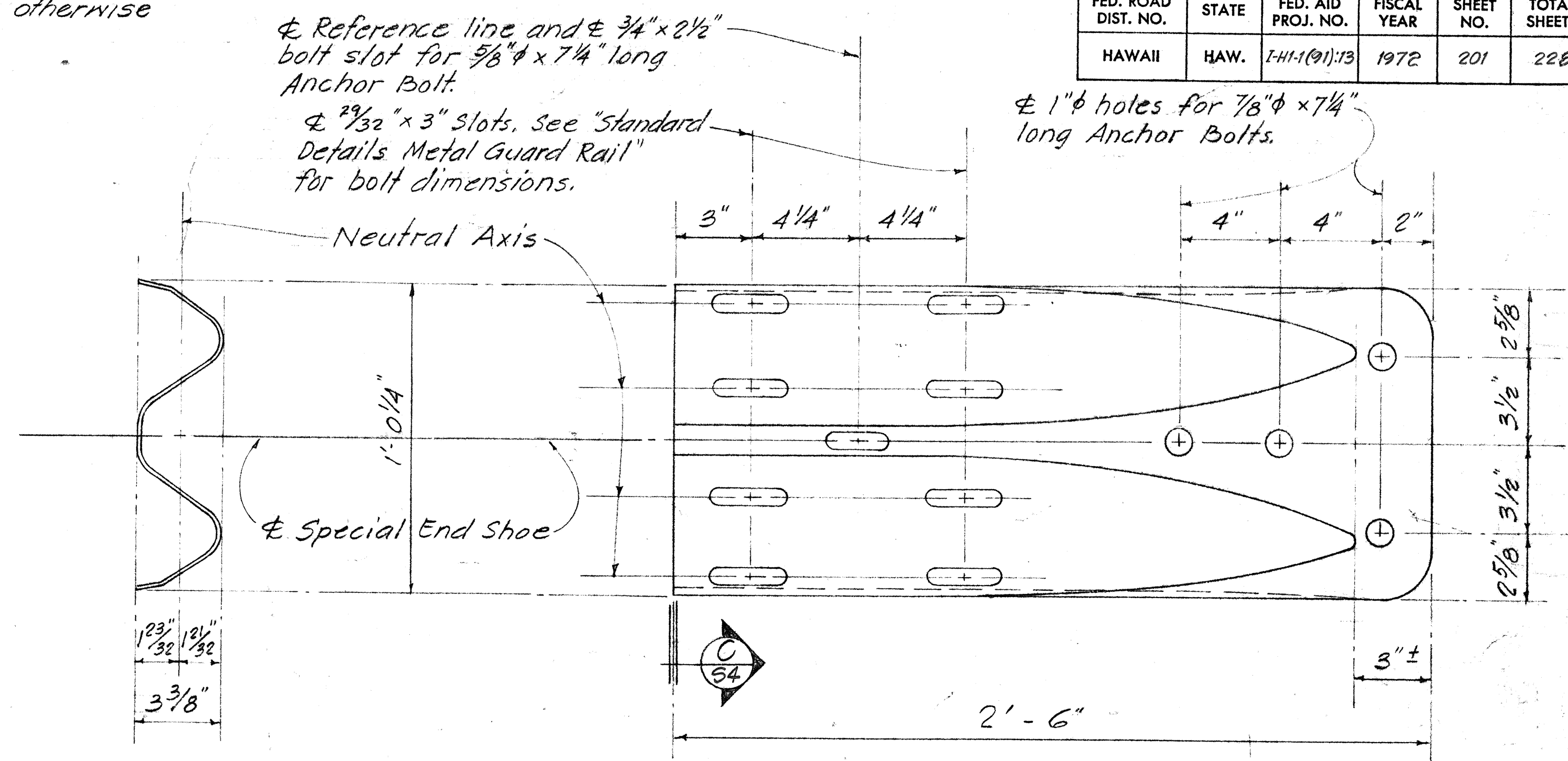
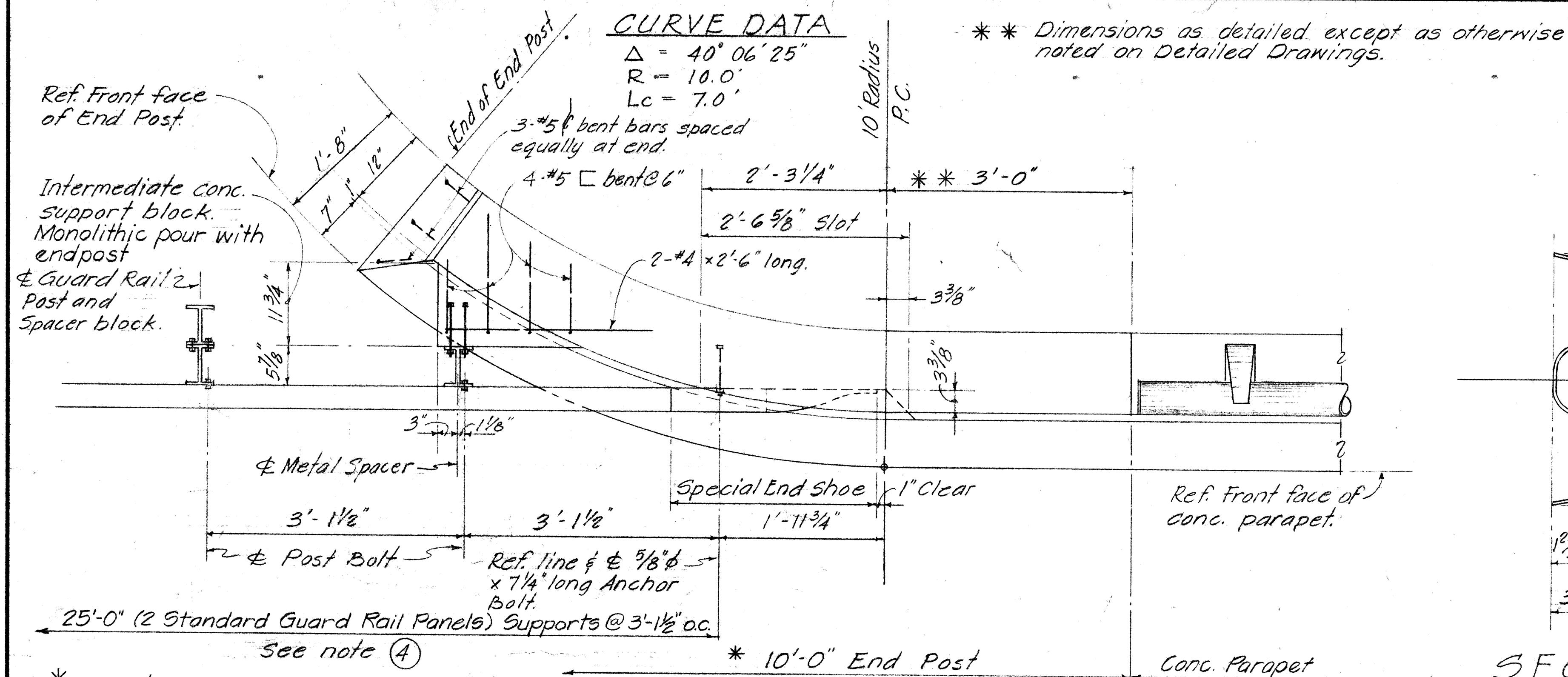
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL BRIDGE RAILINGS
ONE RAIL COMBINATION TYPE
ON PARAPET

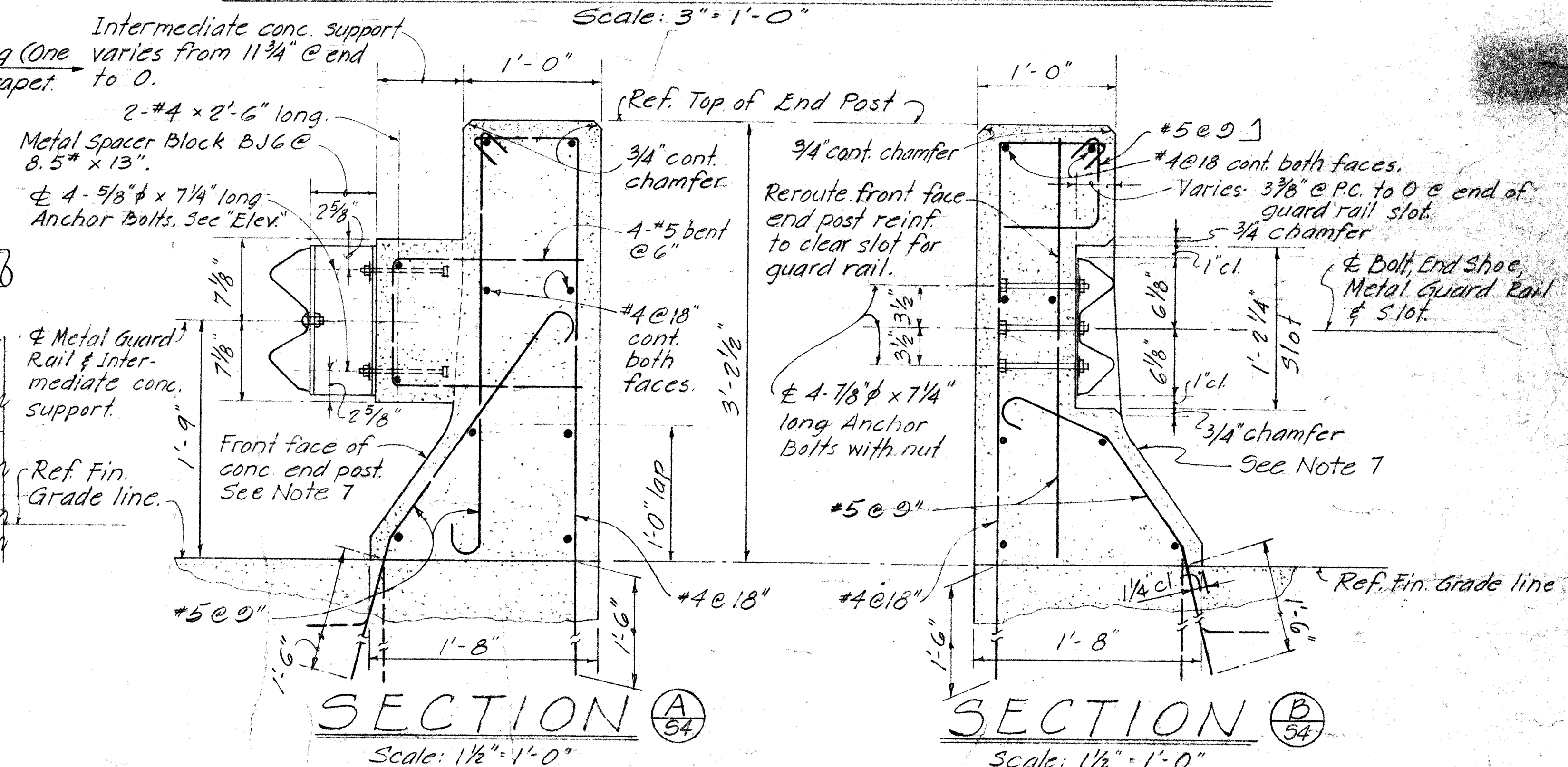
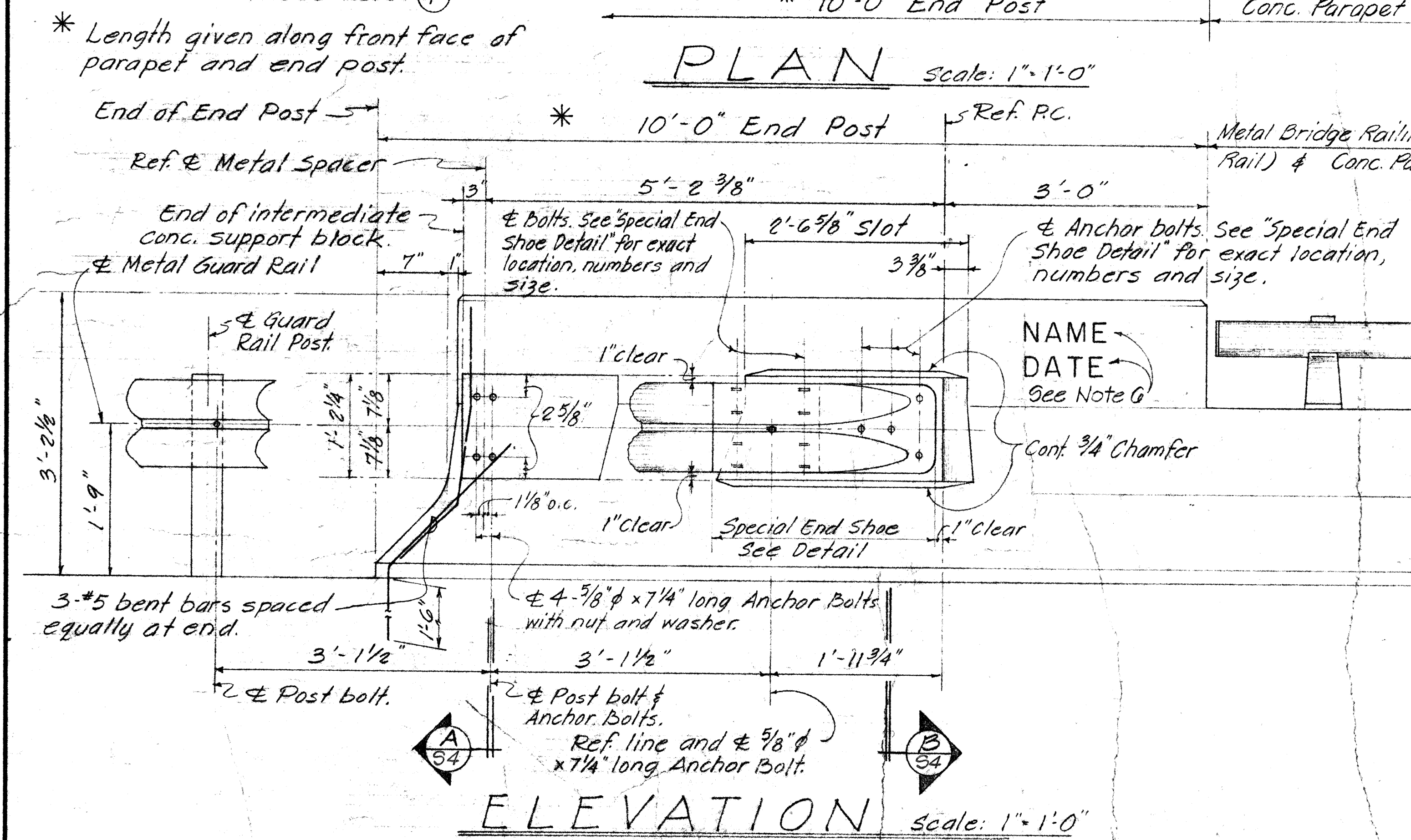
Scale as noted Date:

SHEET No. 53 OF 6 SHEETS DB-200-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(91):13	1972	201	228



SECTION (C) ELEVATION
54
SPECIAL END SHOE DETAILS



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.

NO.	REVISION	APPROVED BY	DATE
1	Note 4 revised; 3'-1 1/2" post spacing extended to 25'-0". Note G, 7 added.	H.P.	2-27-7

APPROVAL RECOMMENDED:
Paul T. Yamashita
BRIDGE DESIGN ENGINEER

APPROVED *Paul T. Vamaschitz*
FOR ASSISTANT CHIEF, ENGINEERING

1-23-70
DATE

1-28-70
DATE

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS
METAL GUARD RAIL CONNECTION
ONE RAIL COMBINATION TYPE END POST

Scale: As shown Date

SHEET No. 54 OF 6 SHEETS DB-205

Grind strands flush with pile head & pile tip.

Remove concrete after driving, leaving strands exposed. See General Notes, shi. # S6

Pile cut-off line. Pile shall be cut-off normal to axis of pile.

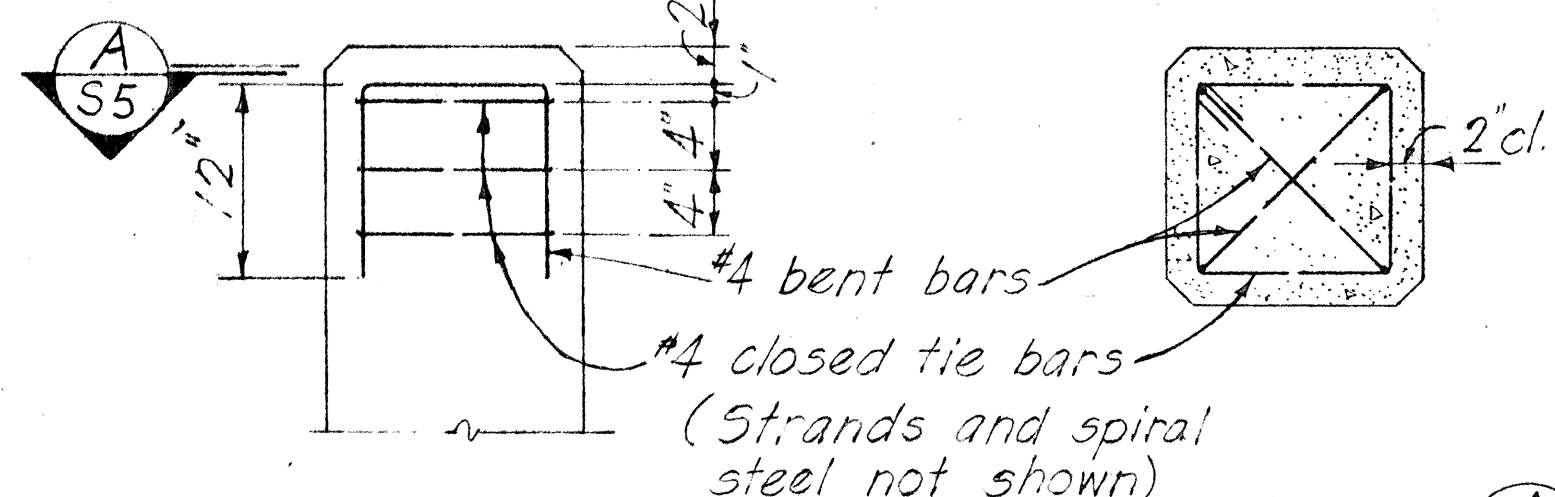
#3 gage wire spiral ties

2" clear cover

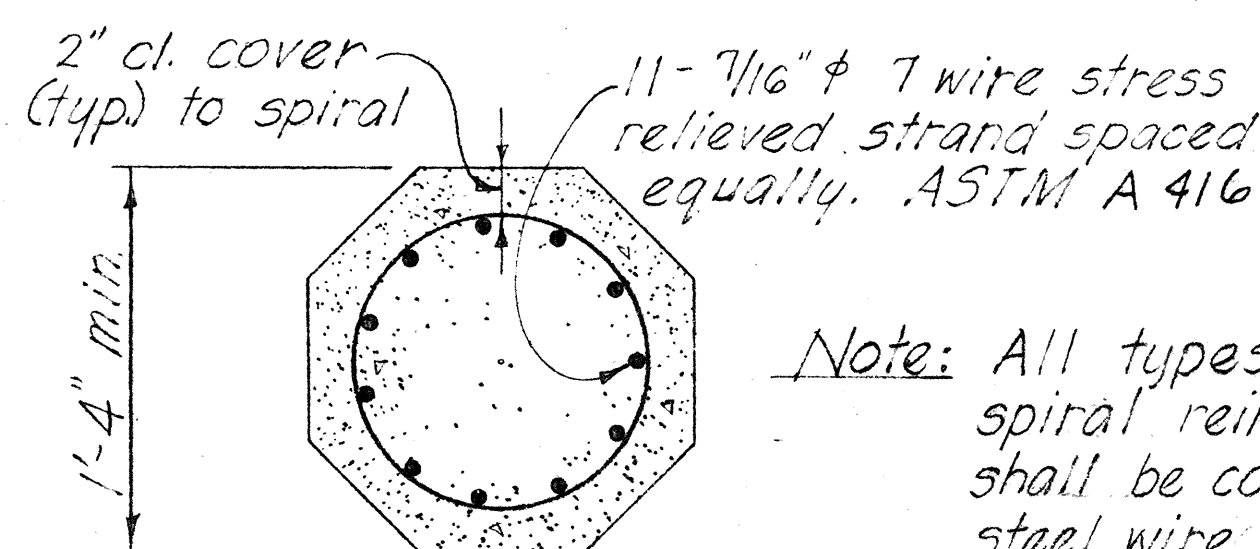
Continuous stress relieved strands. See pile sections for arrangement and numbers

For additional pile ends reinforcement in Type II & Type III piles, see Details.

Chamfer shall be: 1/2" for Type I piles & 3/4" for pile Types II & III.

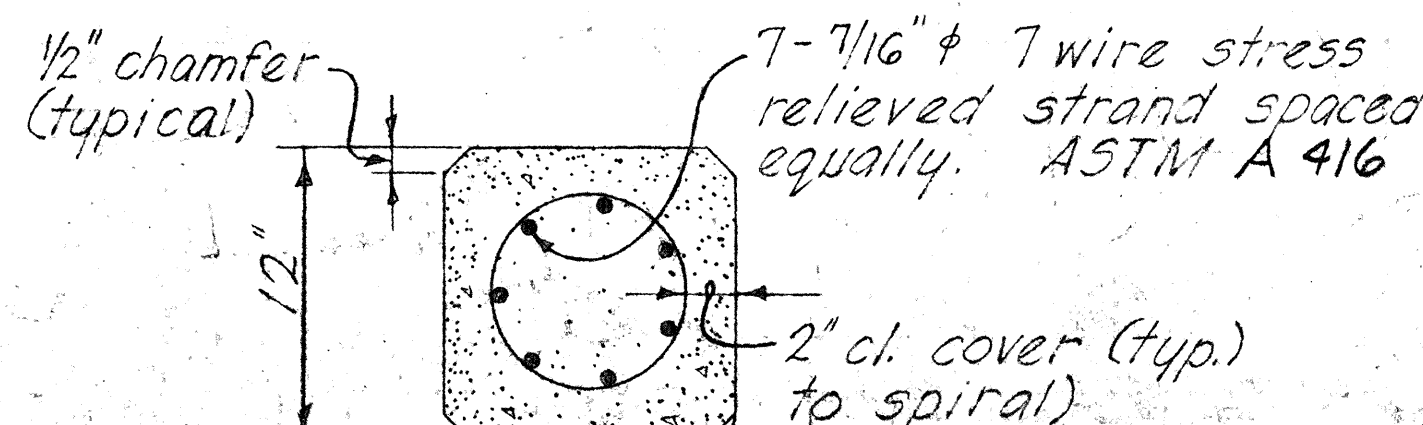


TYPICAL ADDED REINFORCEMENT PILE ENDS - TYPE II & III ONLY

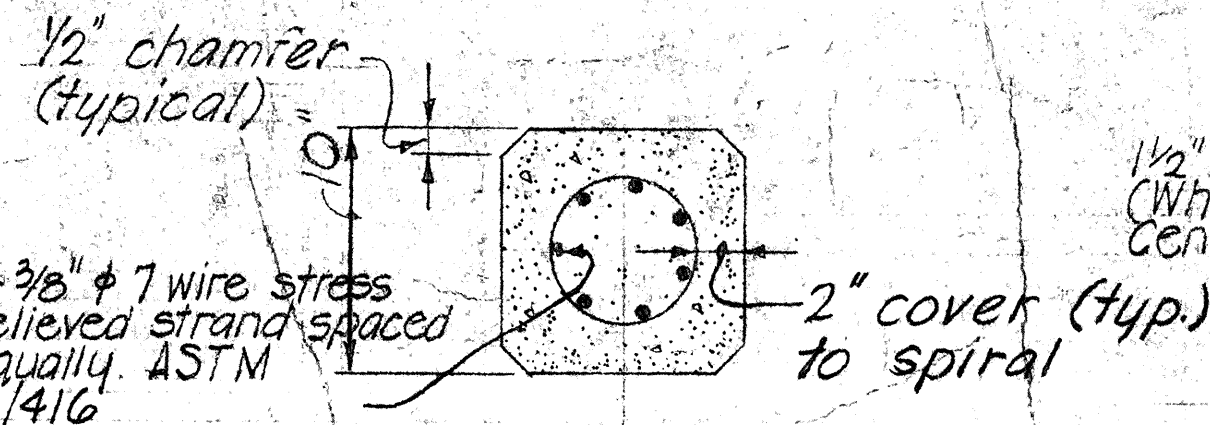


Note: All types of pile spiral reinforcement shall be cold drawn steel wire ASTM A 82

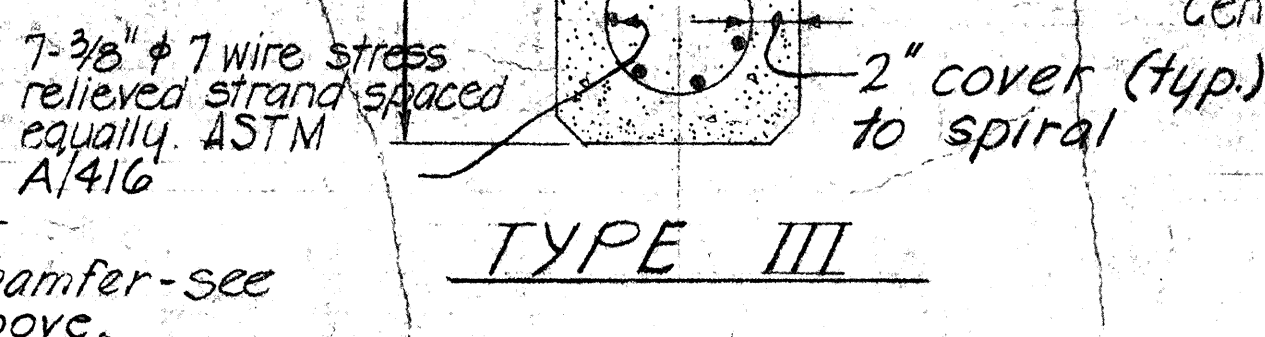
TYPE I



TYPE II

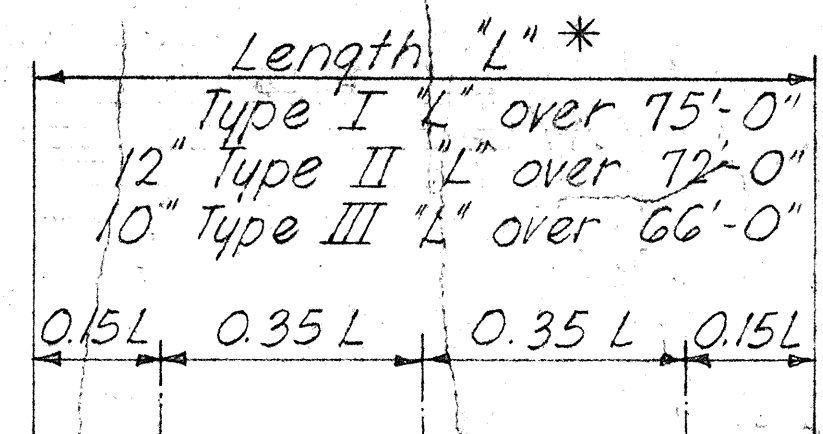
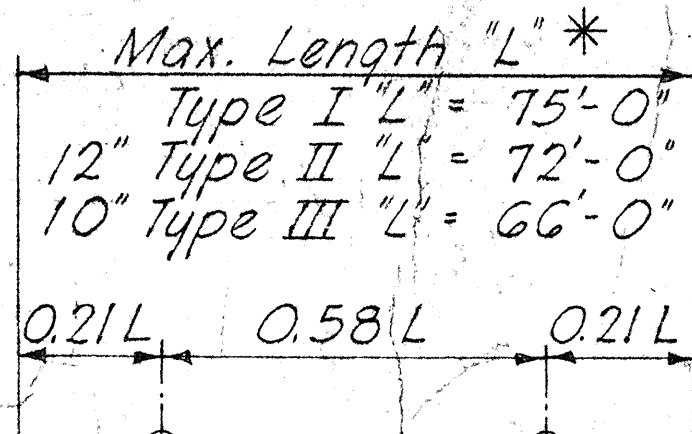
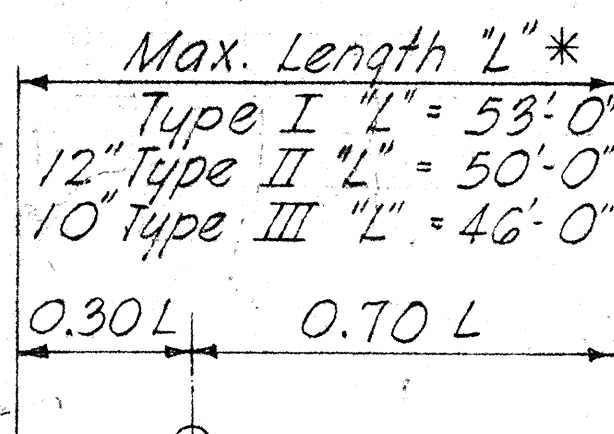


TYPE III



TYPICAL SECTIONS THRU PILES

TYPICAL PILE DETAIL



*The length "L" is the distance end to end of pile.

1 POINT PICK-UP

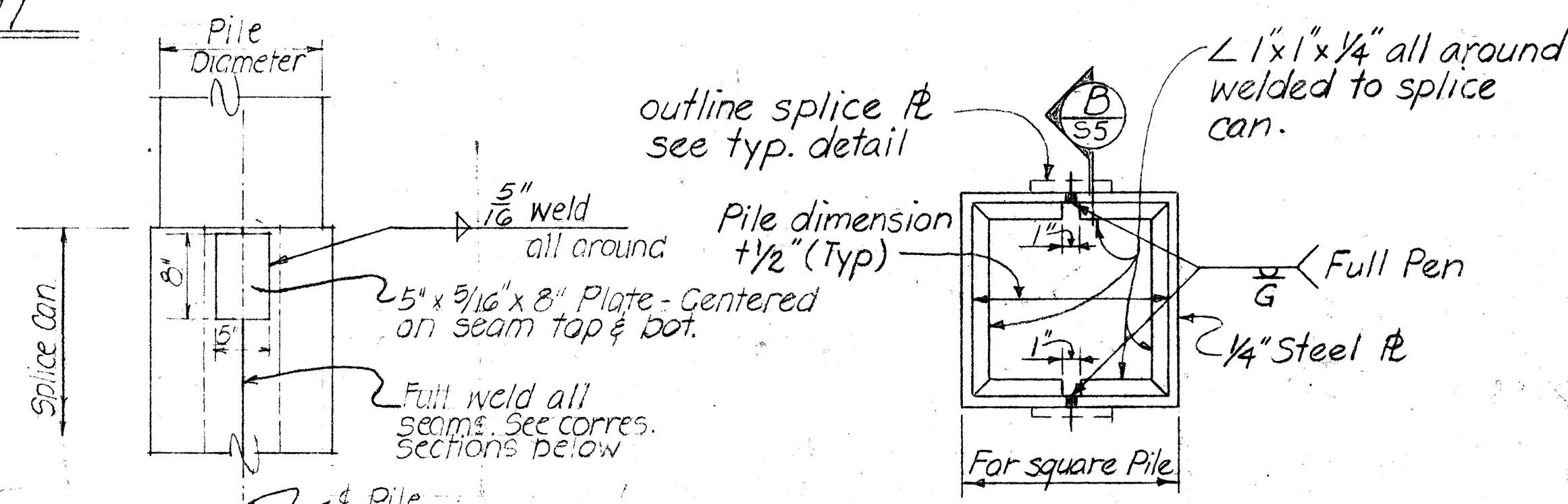
2 POINT PICK-UP

3 POINT PICK-UP

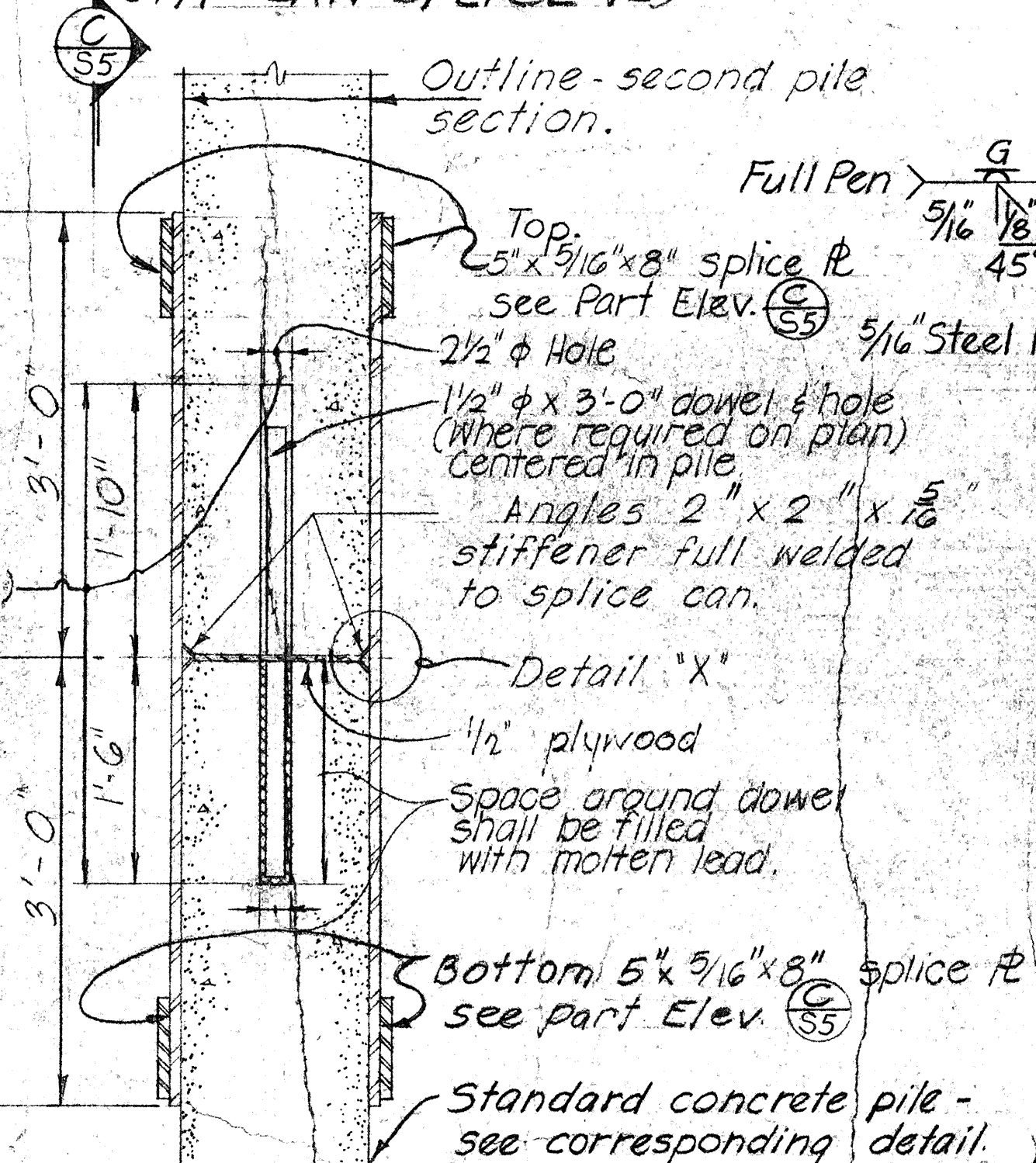
NOTE: Unless special lifting devices are attached for pick-up points, pick-up points shall be plainly marked on all piles after removal of the forms and all lifting shall be done at these points. The use of special embedded or attached lifting devices, the employment of other pick-up points or any other method of pick-up shall be subject to approval by the Engineer.

NOTE:

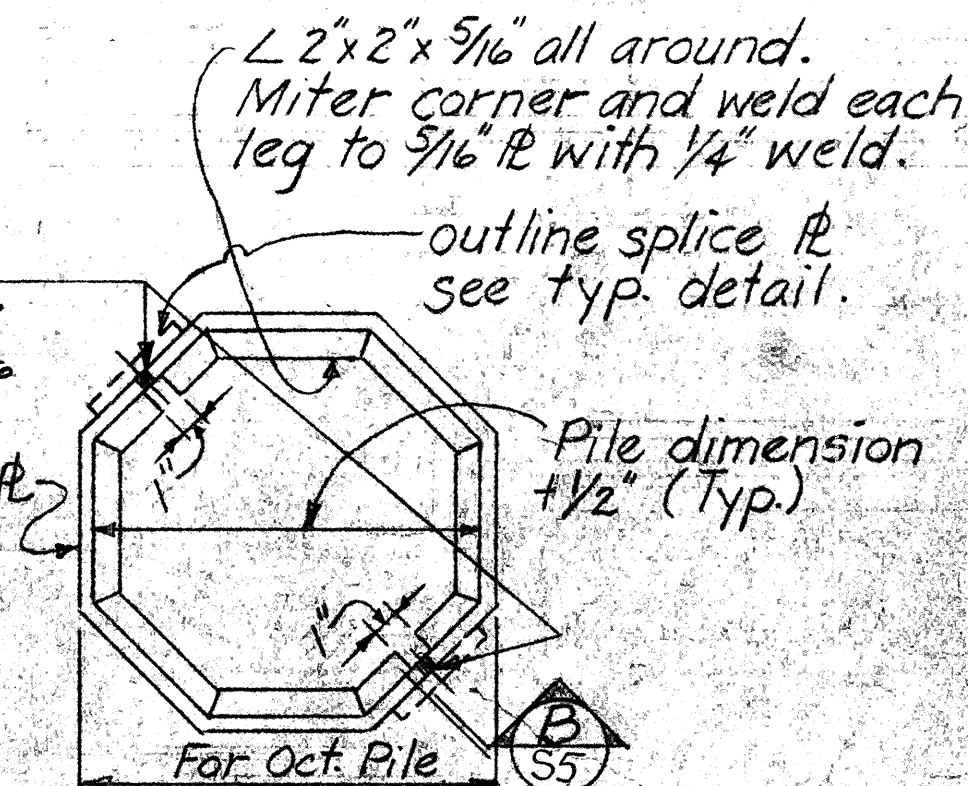
Concrete in pile build-ups without driving shall be Class A Concrete. Concrete in pile build-ups with driving shall have a minimum compressive cylinder strength f'_c of 5000 p.s.i. at 28 days. Build-ups may be driven if the specimen of concrete from which the piles were poured develops a strength of at least 3500 p.s.i. but not earlier than 7 days.



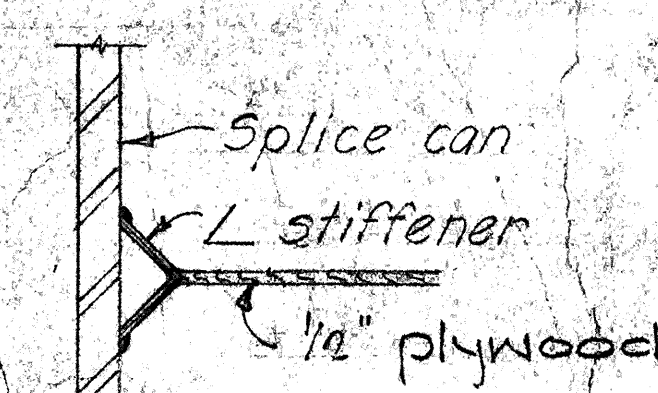
PART ELEV. (TYP. CAN SPICE RE)



TYPE II & III



TYPE I



DETAIL 'X'

SECTION B S5

TYPICAL PILE SPLICE DETAILS (FOR PRESTRESSED CONCRETE PILES WHEN CAST IN TWO OR MORE SECTIONS)

NOTE: All welding shall conform to the Specifications for "Welded Highway and Railway Bridges" of the American Welding Society.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED: *Paul T. Yamashita* 1-23-70
BRIDGE DESIGN ENGINEER DATE

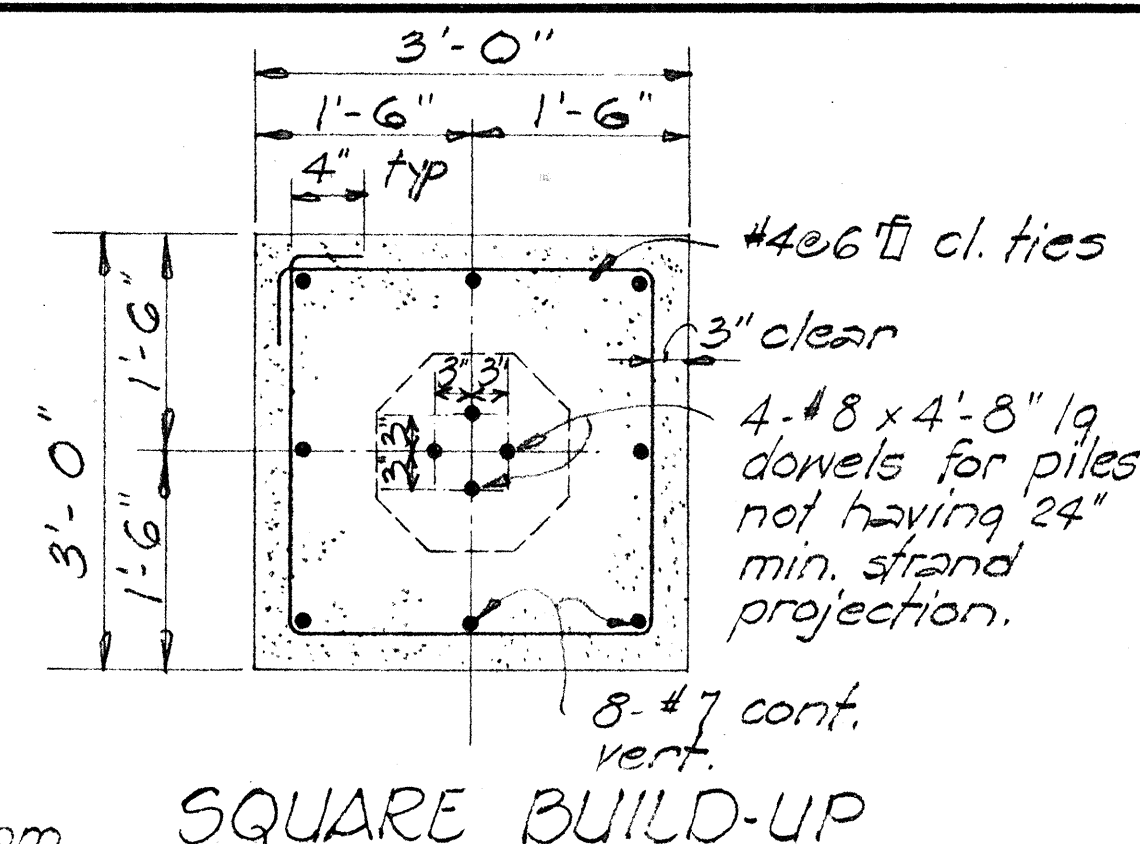
APPROVED: *Paul T. Yamashita* 1-28-70
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PRESTRESSED CONCRETE PILES
Date
SHEET No. 55 OF 6 SHEETS DB-300-1

2'-6" min. unless otherwise directed by the Engineer. Remove concrete after driving, leaving reinf. exposed

HAWAII	HAW.	I-HI-1(2):13	1972	203	1

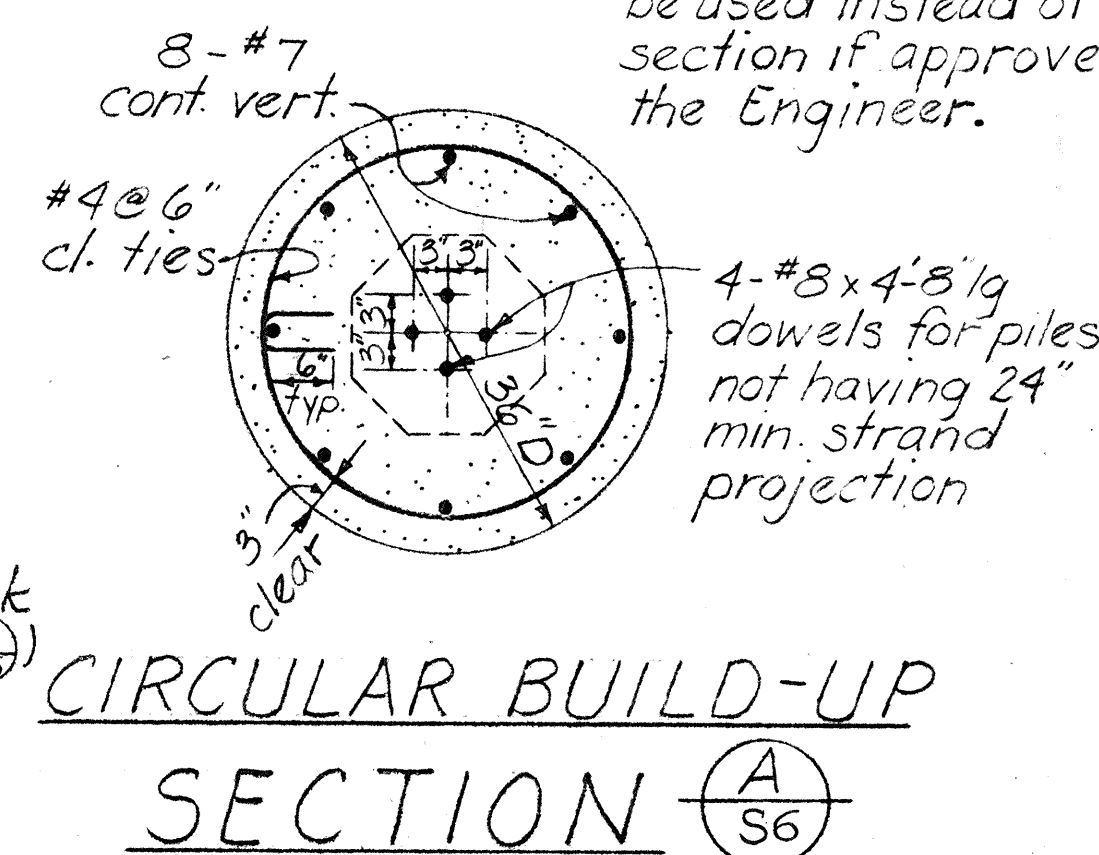
Chamfer - See Typical Pile Detail.



SQUARE BUILD-UP

Note:

Circular section may be used instead of square section if approved by the Engineer.



CIRCULAR BUILD-UP
SECTION $\left(\frac{A}{S6} \right)$

TYPE A

Notes:

Selection of pile build-up type without driving to be determined by the Engineer. When height of depressed portion of footing (H) exceeds 4', the depressed section shall be poured separately from the main body of the footing.

Depressed portion of footing may be omitted for pile heads embedded at least 4" into footing provided at least 90% of the piles in each footing have the minimum embedment into footing as shown in contract plans.

WITHOUT DRIVING

TYPICAL PILE BUILD-UP DETAILS

GENERAL NOTES

1. Work of cutting off prestressed conc. piles or concrete build-ups shall be performed in such a manner as to avoid spalling or damaging the pile below cut-off. In case of such damage, the pile shall be replaced or repaired by the Contractor at his expense as directed by the Engineer.

2. Portion of pile embedded into footing shall be of sound concrete. Damaged portions shall be removed and pile cut-off elevation lowered as required by the Engineer.

WITH DRIVING

TYPICAL PILE BUILD-UP DETAIL

APPROVAL RECOMMENDED:

Paul T. Yamashita
BRIDGE DESIGN ENGINEER

1-23-74
DATE

APPROVED

Paul T. Yamashita
For ASSISTANT CHIEF, ENGINEERING

1-28-7
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

PRESTRESSED CONCRETE PILES

Date: Oct. 1968

Date: Oct. 1968

SHEET No. 56 OF 6 SHEETS DB-300-2

26