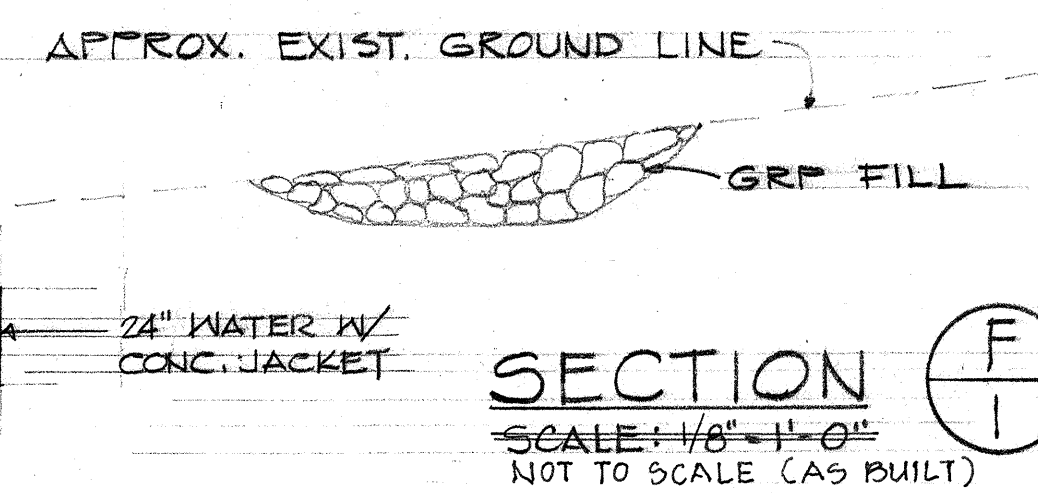
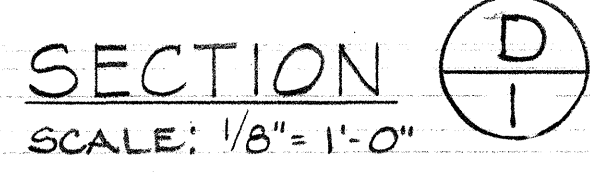
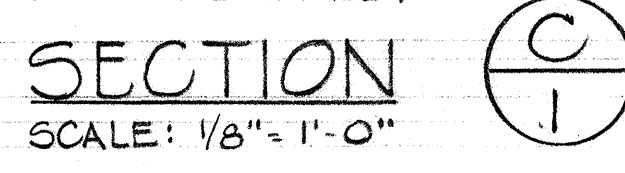
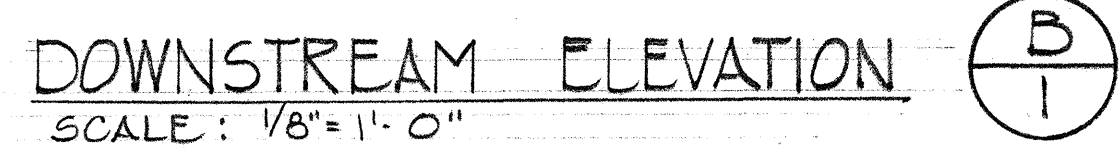
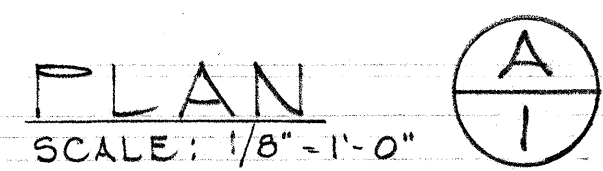
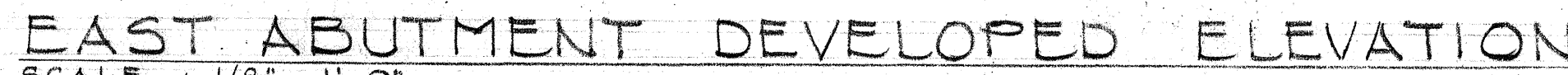
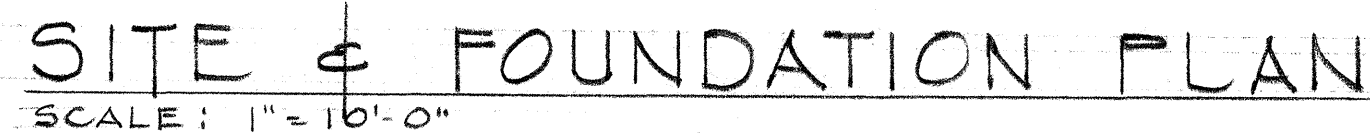


PROJECT NO. B-900-01-64 UNIT I



**SHEET No. 1 OF 7 SHEETS**

PROJECT NO. B-900-01-64 UNIT I



**SHEET No. 2 OF 7 SHEETS**



## GENERAL NOTES

### DESIGN SPECIFICATIONS: AASHTO

STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (8TH EDITION)  
WITH SUBSEQUENT ADDITIONS AND MODIFICATIONS.

### DESIGN LOADS: HS-20-44

### DESIGN STRESSES:

1. R.C. BEAMS & SLABS  
SEE AASHTO SPECIFICATIONS EXCEPT AS OTHERWISE NOTED AND  
SEE SPECIAL PROVISIONS.

$f'_c = 3,000$  psi  
 $f_c = 1,200$  psi  
 $n = 10$   
 $f_s = 20,000$  psi TENSION

### 2. PRESTRESSED MEMBERS

a.  $f_t = 6,000$  psi  
b.  $f_{ci} = 4,000$  psi  
c. 7 WIRE STRANDS

| DIAMETER       | TENSIONING LOAD<br>PER STRAND | DESIGN LOAD<br>PER STRAND |
|----------------|-------------------------------|---------------------------|
| $1/2"$ $\phi$  | 25,200 LBS                    | 20,160 LBS                |
| $7/16"$ $\phi$ | 18,900 LBS                    | 15,100 LBS                |

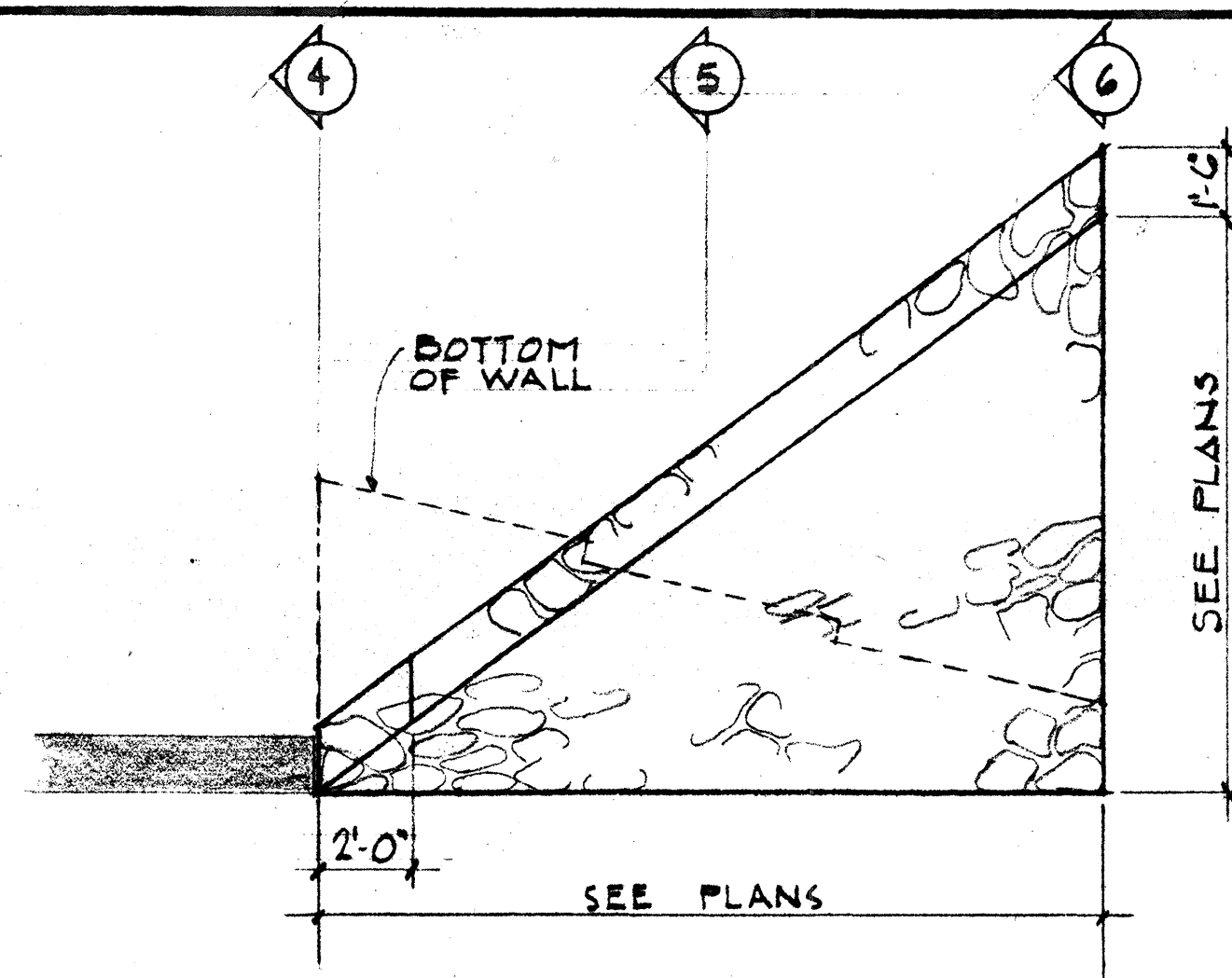
d. FORMS MUST BE REMOVED AND THE BEAM INSPECTED  
BEFORE THE STRANDS ARE CUT.

### MATERIALS:

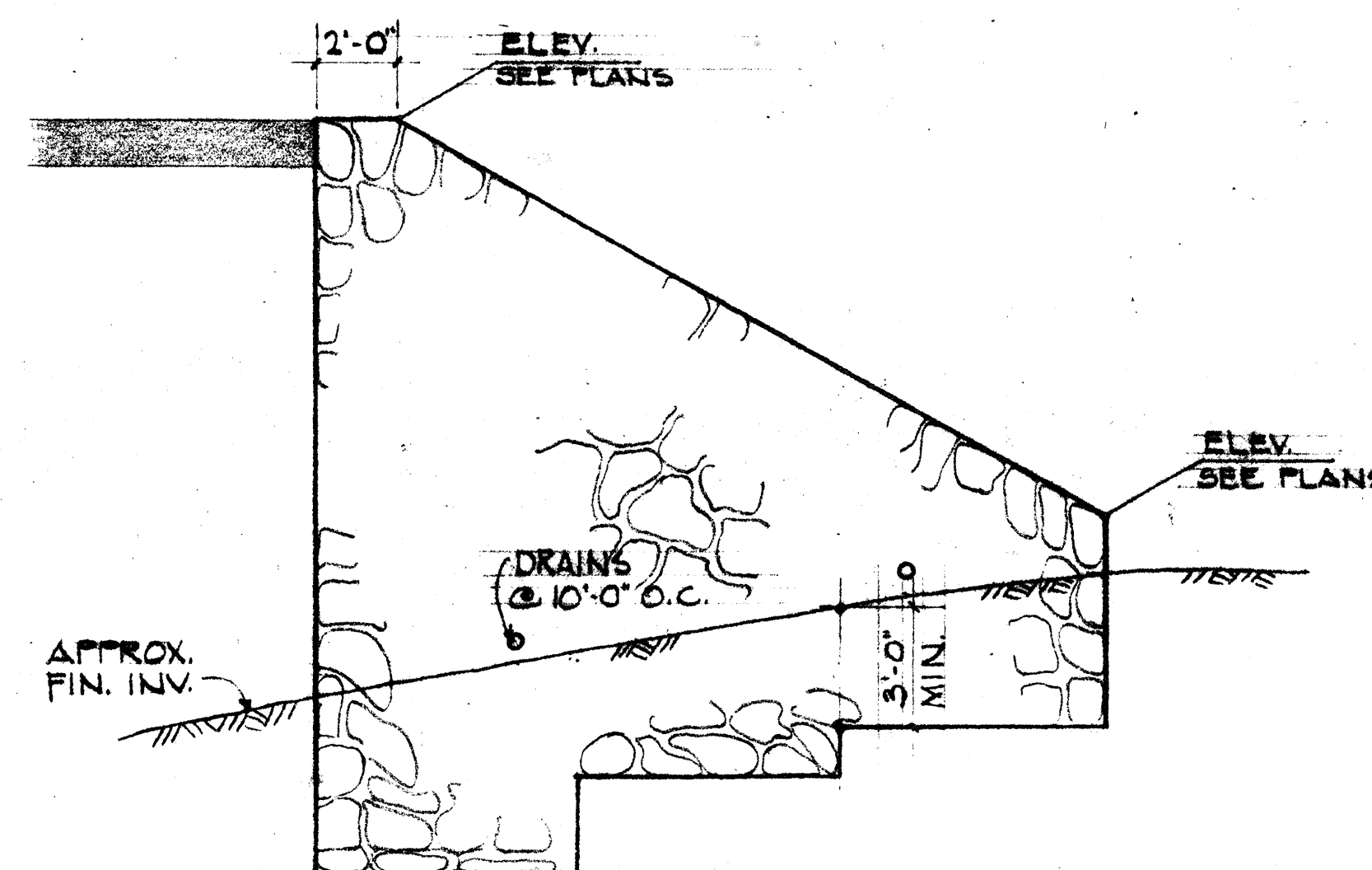
- ALL CONCRETE SHALL BE CLASS A-1 EXCEPT AS OTHERWISE NOTED  
ON PLANS. CONCRETE FOR PRESTRESSED CONCRETE  
MEMBERS SEE SPECIAL PROVISIONS AND AS NOTED  
ABOVE. ALL CEMENT SHALL BE TYPE I.
- PREFORMED FABRIC BRIDGE BEARING PADS ARE INCIDENTAL TO  
CONCRETE AND WILL NOT BE PAID FOR SEPARATELY.
- NEOPRENE PADS ARE INCIDENTAL TO PRESTRESSED CONCRETE  
MEMBERS AND WILL NOT BE PAID FOR SEPARATELY.
- ALL REINFORCING STEEL TO BE ASTM DESIGNATION A15  
BILLET STEEL, INTERMEDIATE GRADE EXCEPT AS  
OTHERWISE NOTED.

### CONSTRUCTION METHODS:

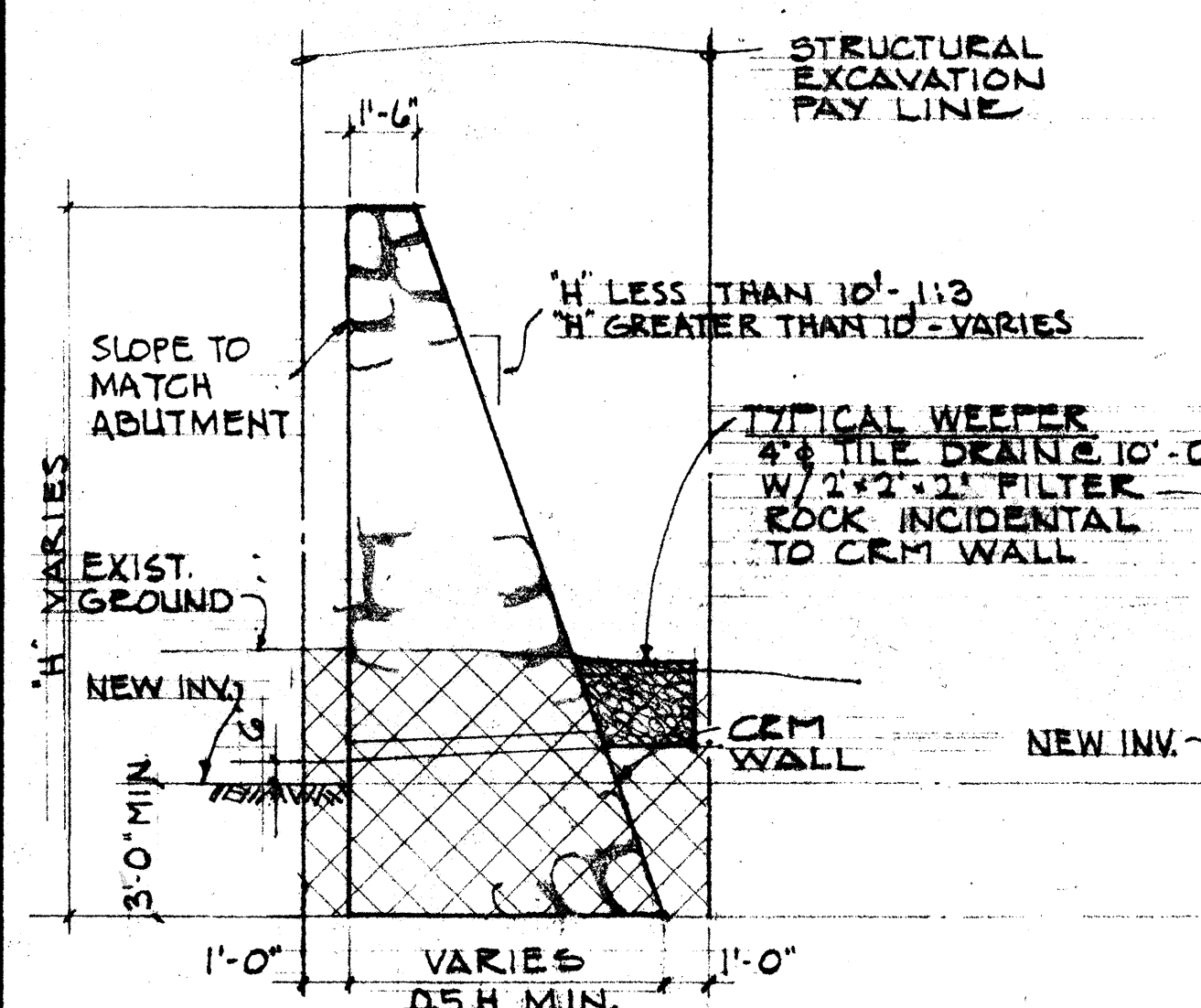
- SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
- ALL FOOTINGS SHALL BE EXCAVATED AND POURED TO  
NEAT LINES. IN CASE OF OVER EXCAVATION, SPACE  
BETWEEN FOOTING AND GROUND SHALL BE FILLED WITH  
CONCRETE AT THE CONTRACTOR'S EXPENSE. THE FILL  
CONCRETE SHALL HAVE A MINIMUM QUALITY OF CLASS D-1.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL  
EXISTING UTILITY LINES AND NOTIFY THE RESPECTIVE  
OWNERS BEFORE COMMENCING WORK OF EXCAVATION.
- EXCEPT AT FRAME ABUTMENT, ALL FILL BEHIND  
ABUTMENTS AND WINGWALLS SHALL BE COMPLETE  
IN PLACE BEFORE PLACING SUPERSTRUCTURE AND  
PRESTRESSED CONCRETE MEMBERS. BACKFILL BEHIND  
FRAME ABUTMENT SHALL BE PLACED ONLY AFTER  
THE DECK FRAME FALSEWORK HAVE BEEN REMOVED.
- IN GENERAL, TOP OF CONCRETE DECK OF STRUCTURE  
SHALL BE CONSTRUCTED TO FOLLOW THE FINISH  
ROADWAY VERTICAL AND HORIZONTAL CURVES  
AND GRADES.
- FOR CONCRETE FINISH SEE SPECIAL PROVISIONS.  
CONCRETE SEATS AND CREEP BLOCKS TO BE  
POURED MONOLITHICALLY WITH PIER OR  
ABUTMENT SECTIONS. SEATS SHALL RECEIVE  
A HARD TROWEL FINISH, LEVEL & TRUE  
ELEVATIONS.
- NEOPRENE PADS SHALL BE SECURED AGAINST  
DISPLACEMENT BY ADHESIVES, WHICH SHALL BE  
APPROVED BY THE ENGINEER.
- PROVIDE  $1/2" \times 1/2"$  CHAMFER AT ALL EXPOSED CONCRETE  
EDGES.



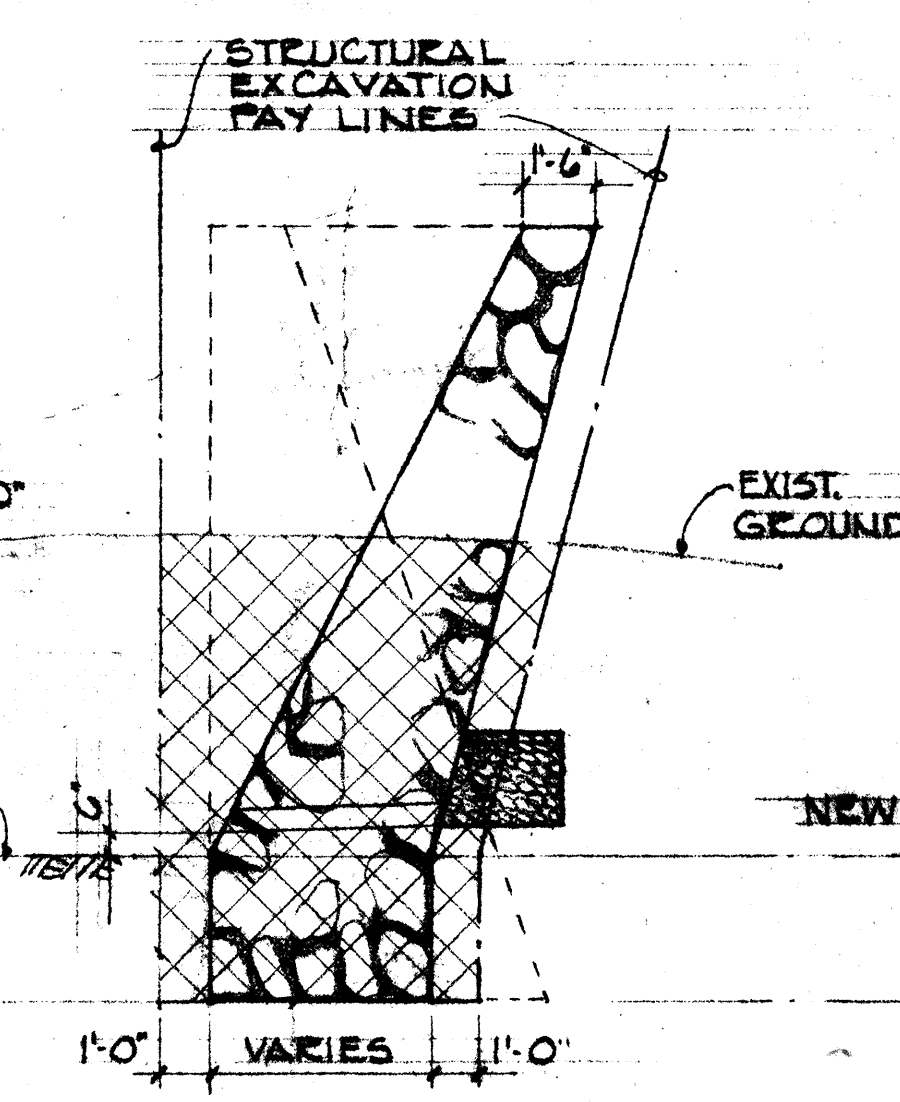
PLAN



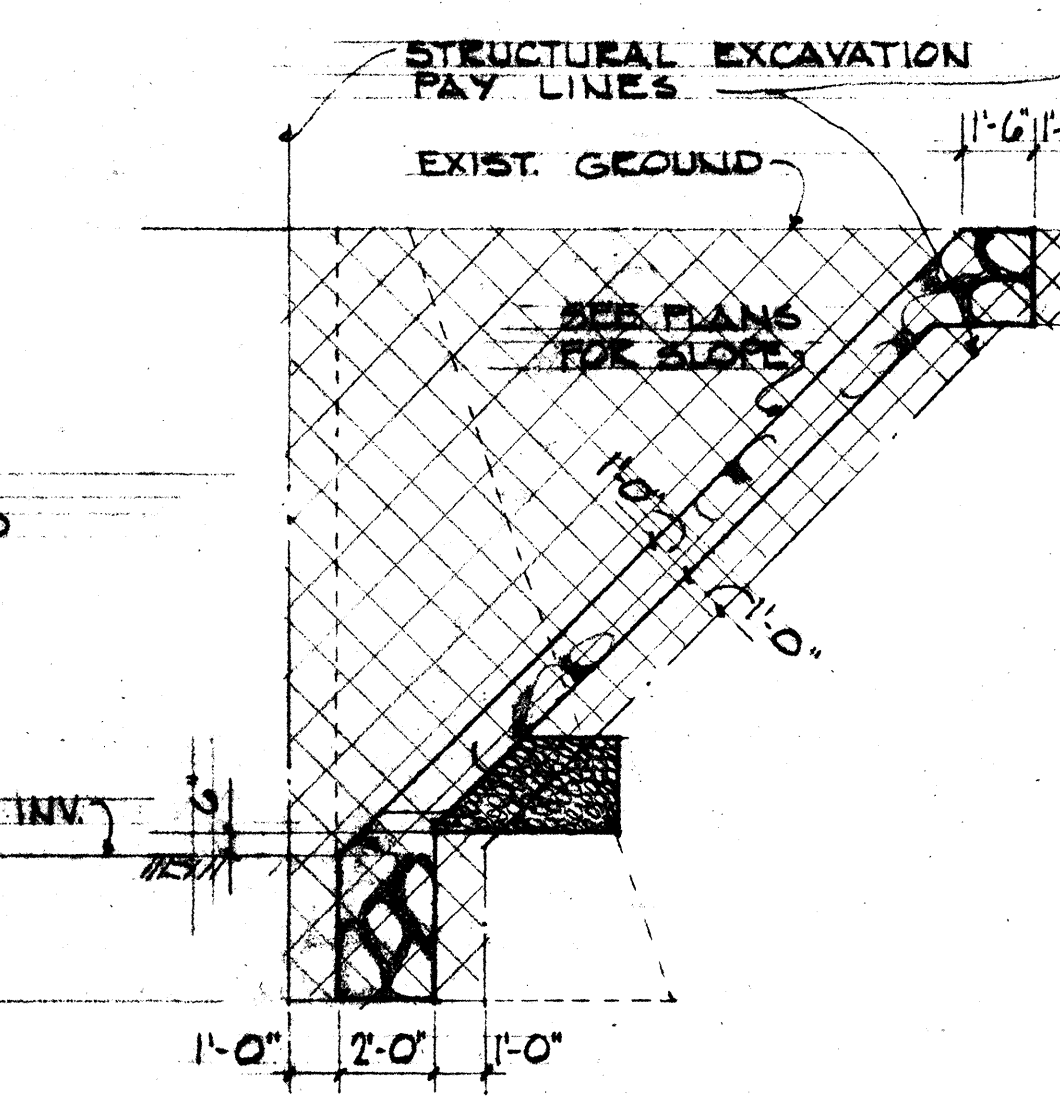
ELEVATION



SECTION 4



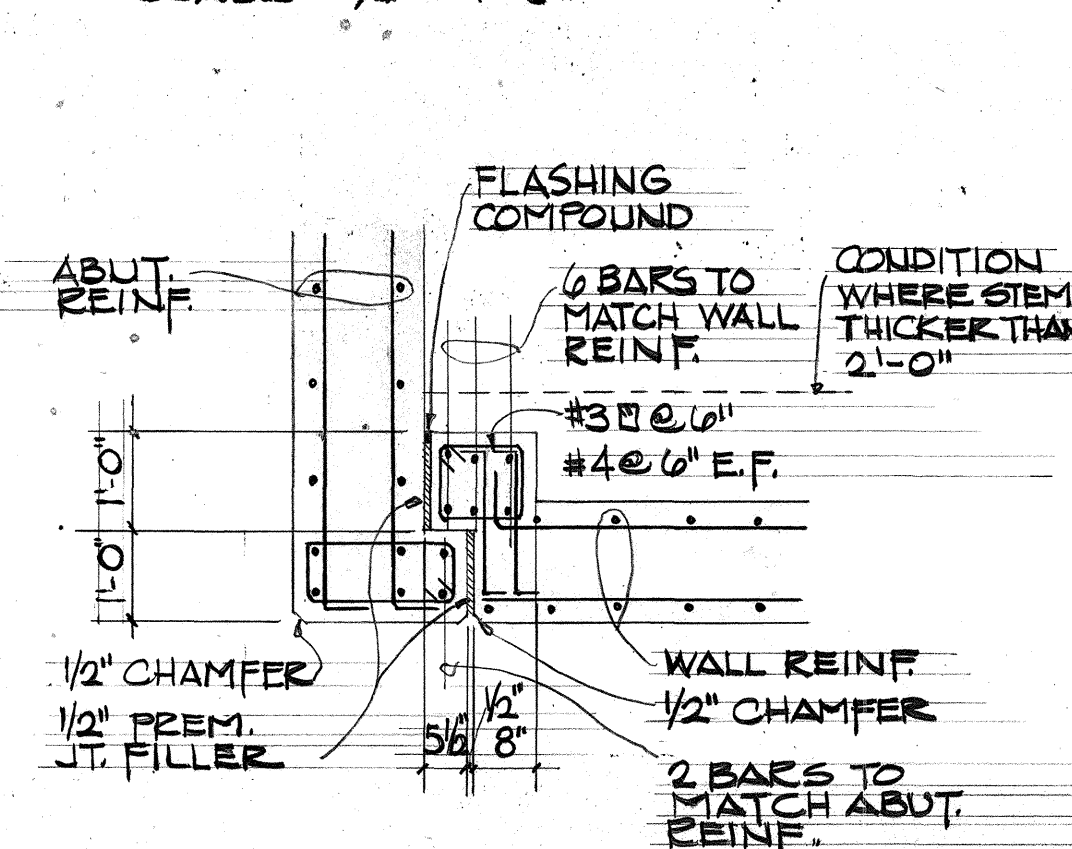
SECTION 5



SECTION 6

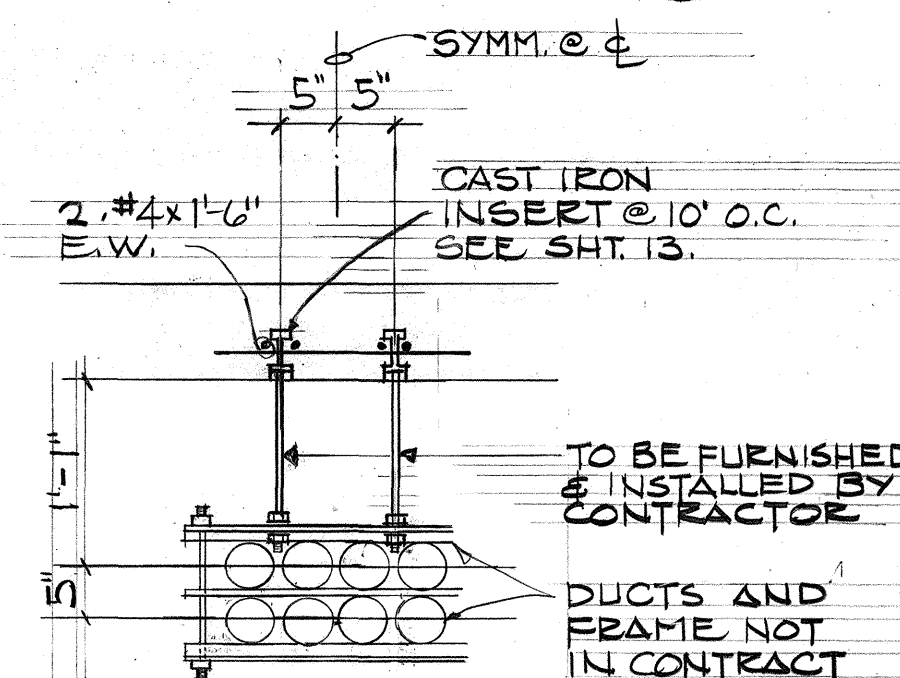
## C R M TRANSITION DETAILS

SCALE: 1/4" = 1'-0"

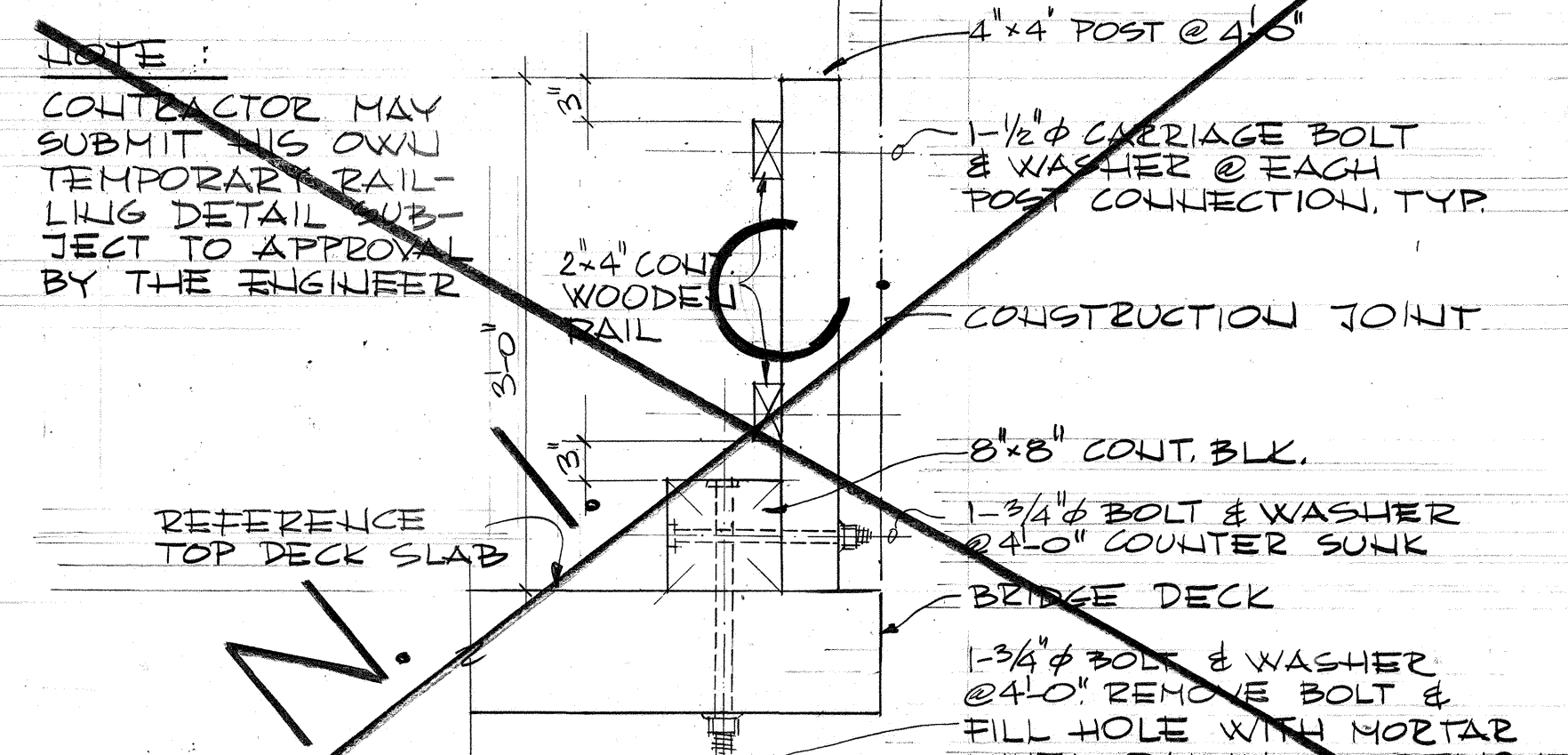


DETAIL

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



TELEPHONE  
DUCT HANGER



TEMPORARY  
RAILING DETAILS

SCALE: 1" = 1'-0"

APPROVED BY:

Hawaiian Telephone Co.

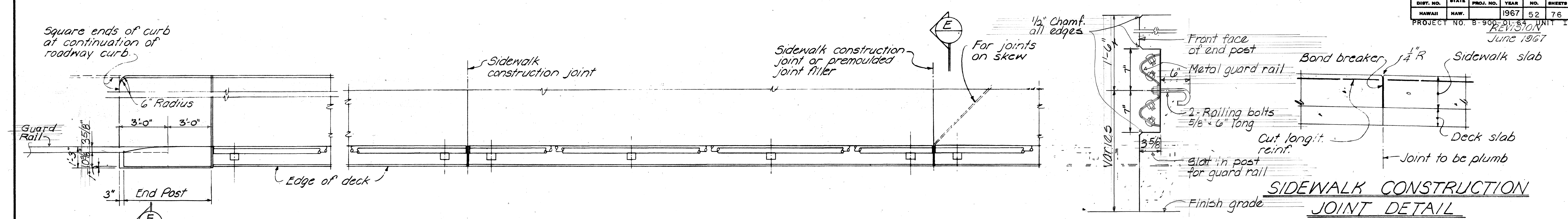
9-28-67  
Date

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

MISCELLANEOUS BRIDGE DETAILS

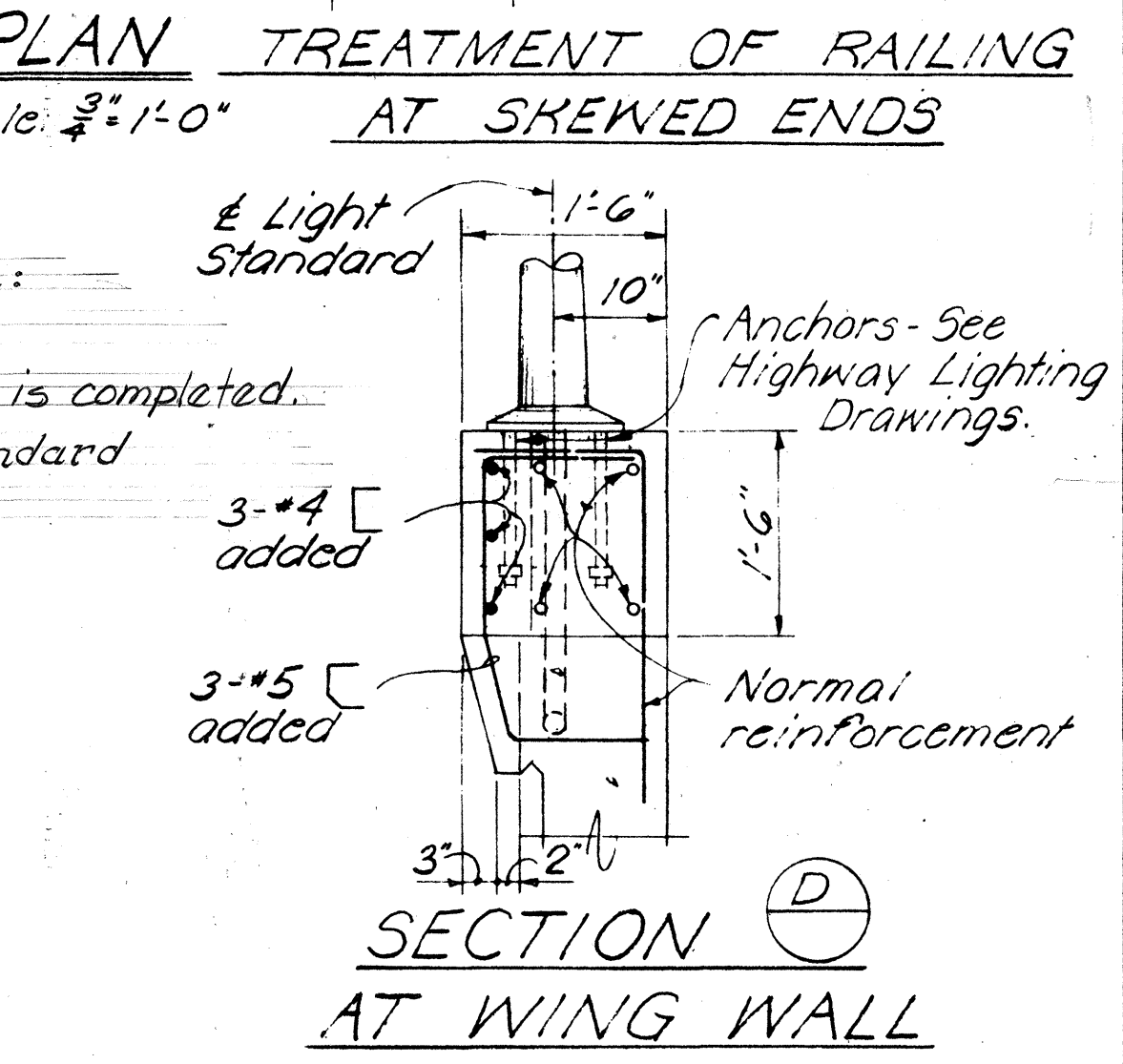
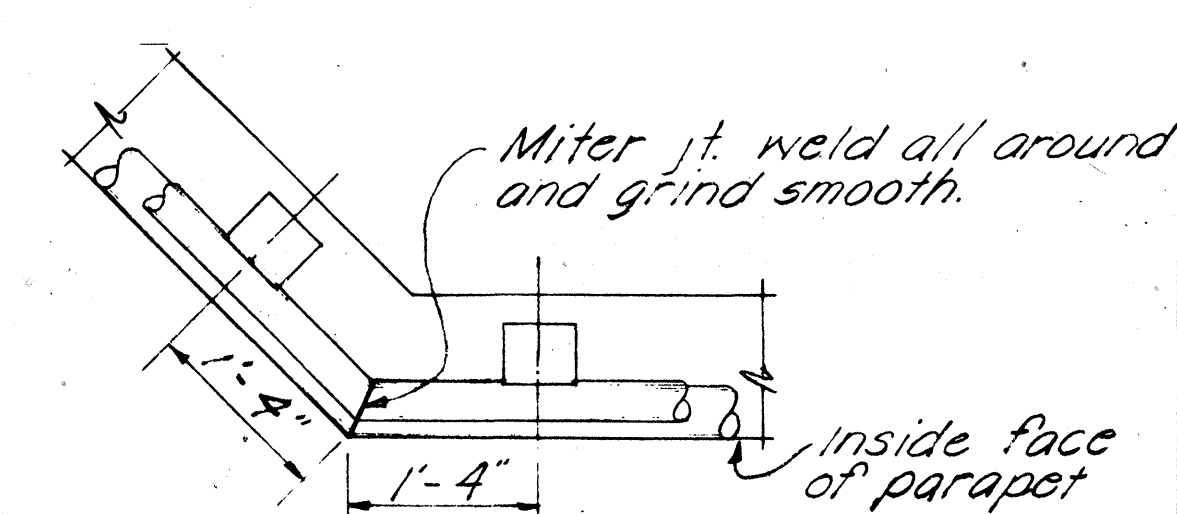
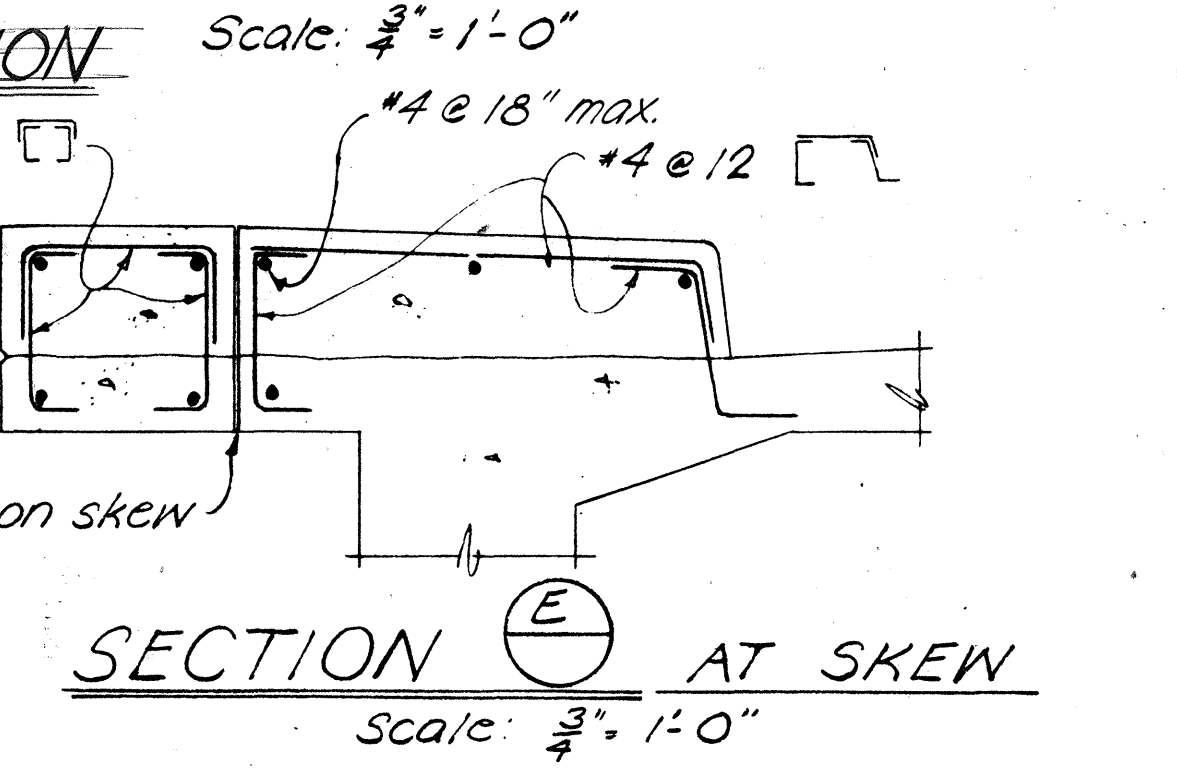
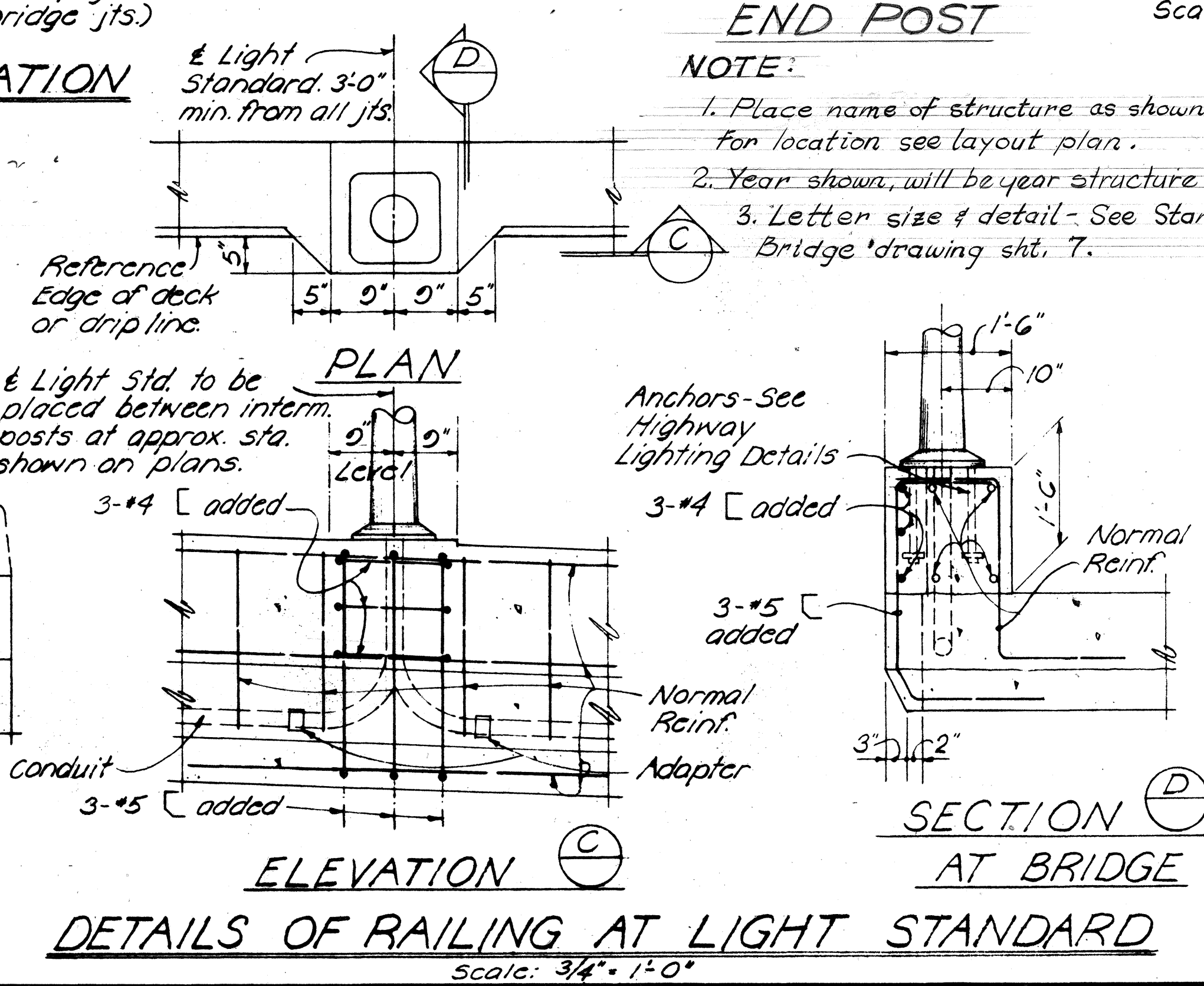
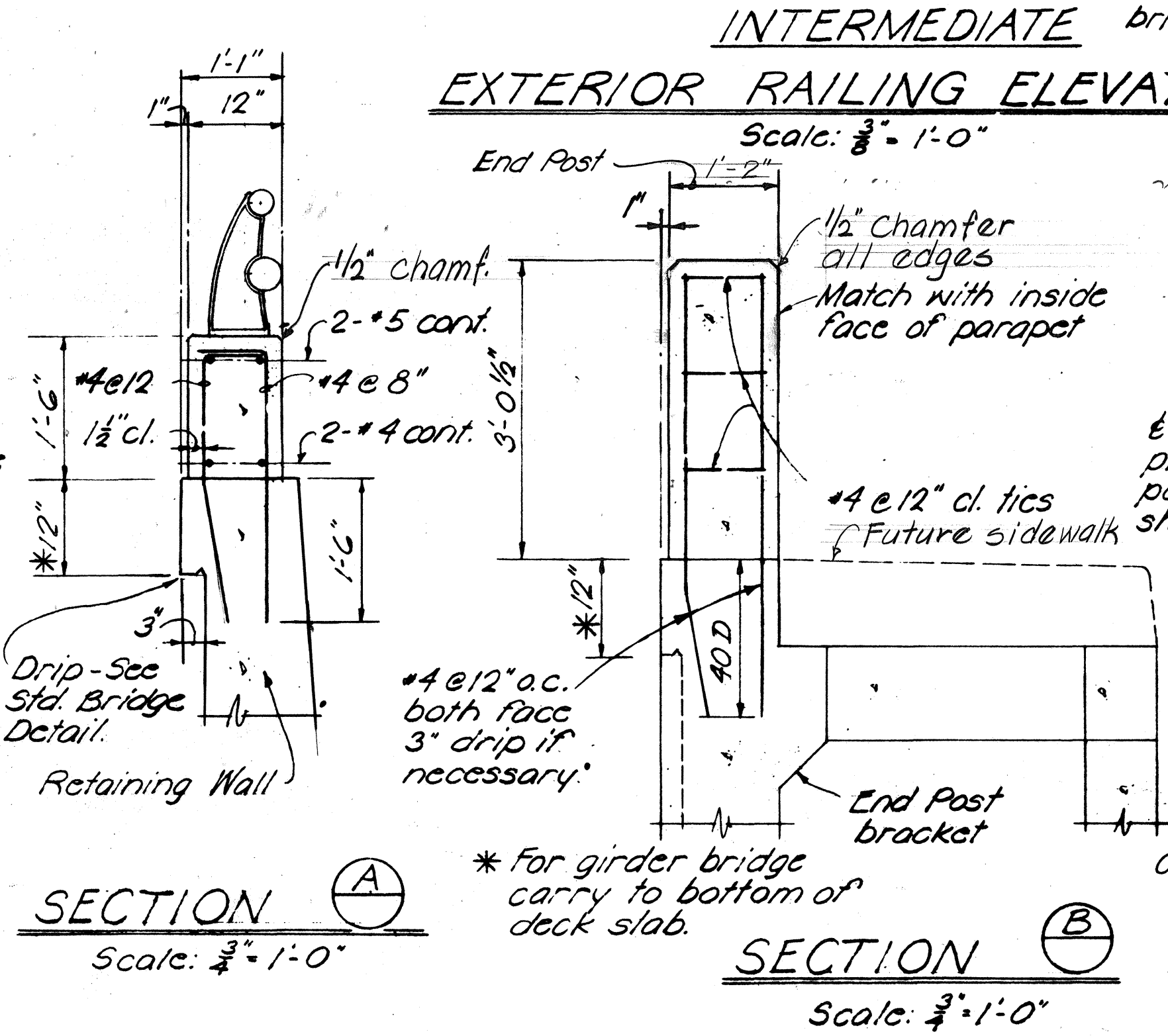
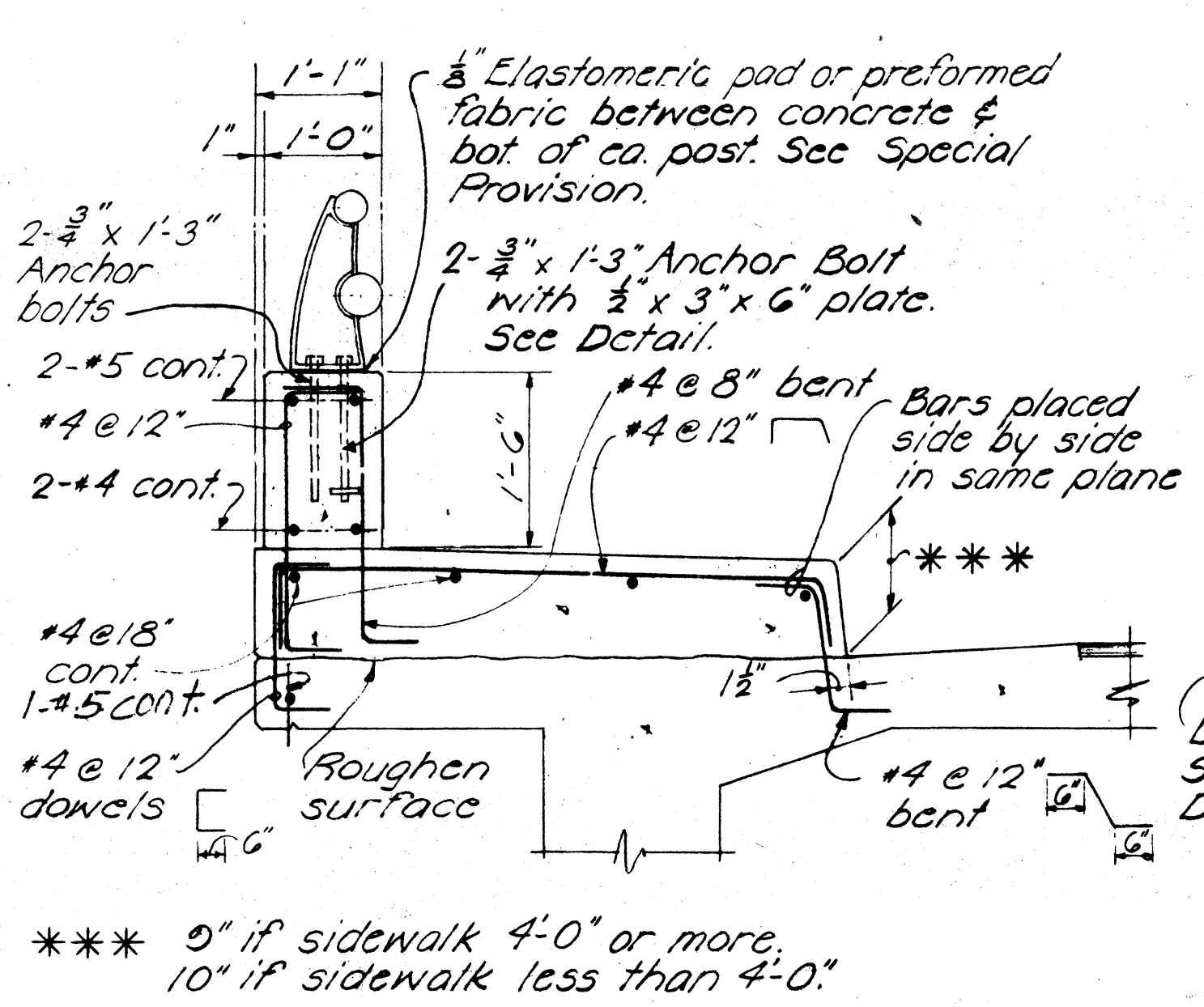
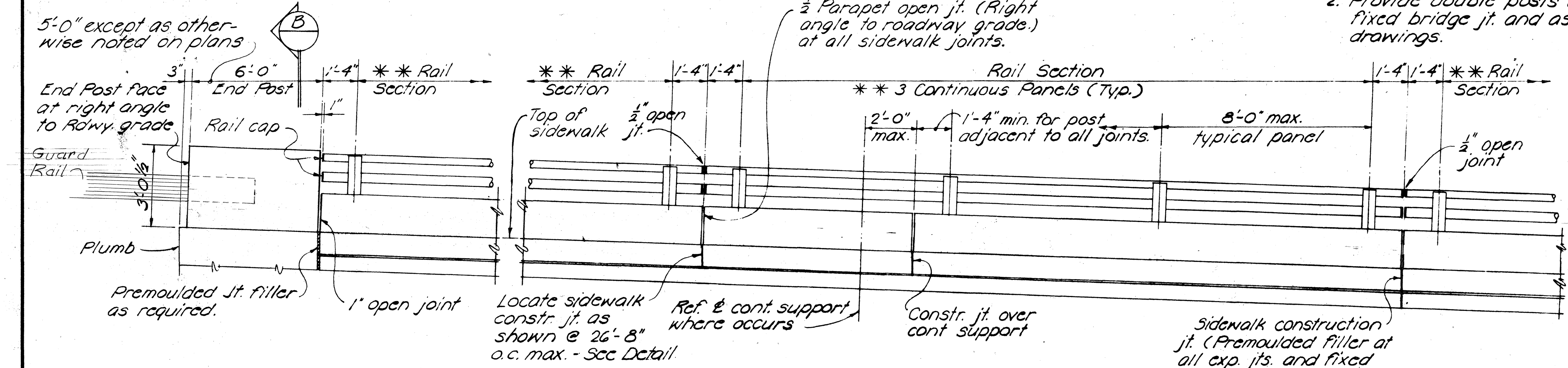
FARRINGTON HIGHWAY WIDENING  
PROJECT B-900-01-64  
UNIT I

SHEET No. 4 OF 7 SHEETS

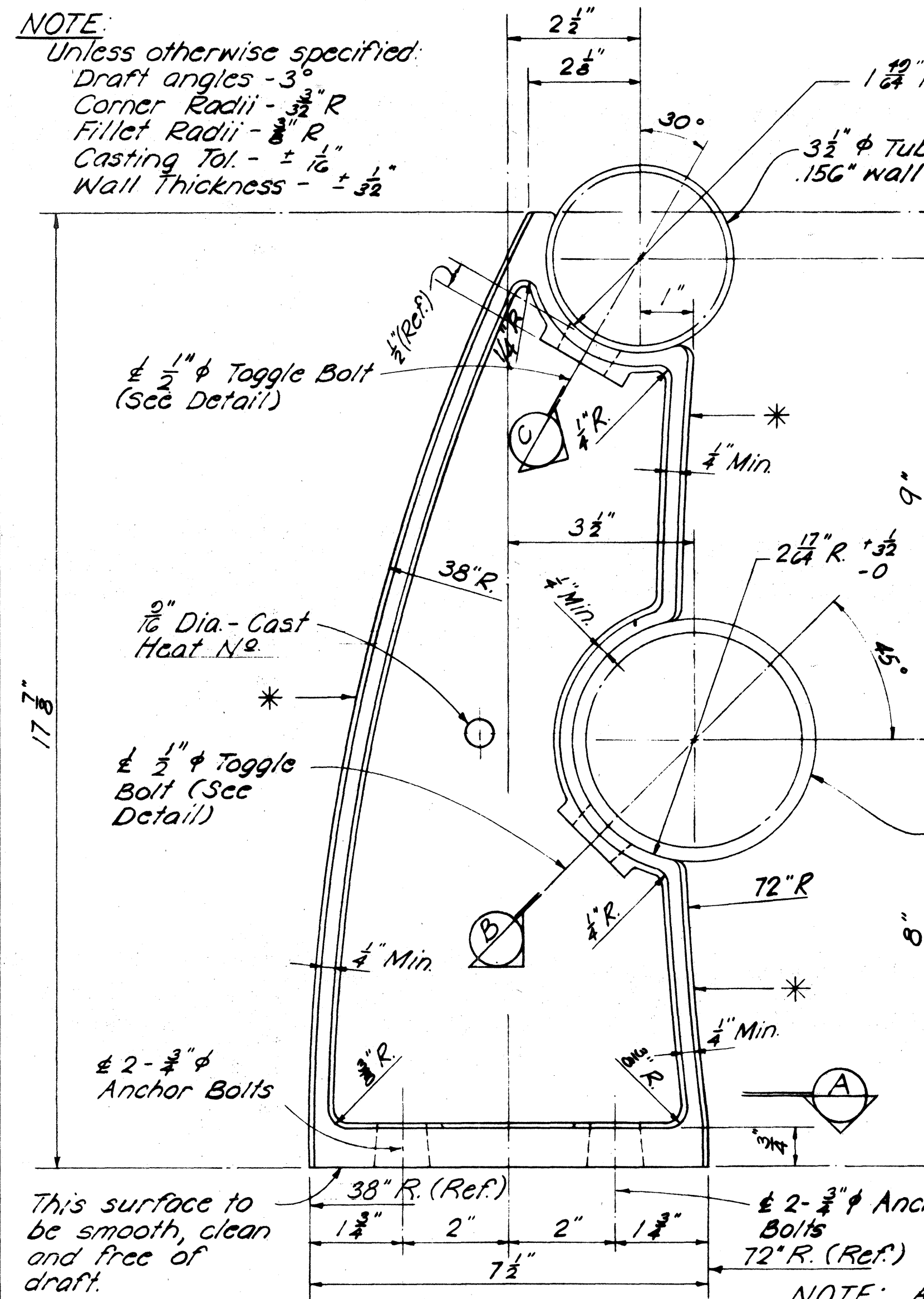


**\*\* NOTE !!**  
The contractor shall layout the railing to provide 3 cont. panels whenever possible. 2 or 4 cont. panels will be permitted to complete the layout when 3 cont. panels cannot be made. Single panels will not be permitted.

- NOTES !!**
1. Rail Posts shall be normal to grade.
  2. Provide double posts at each expansion jt., fixed bridge jt. and as shown on detailed drawings.

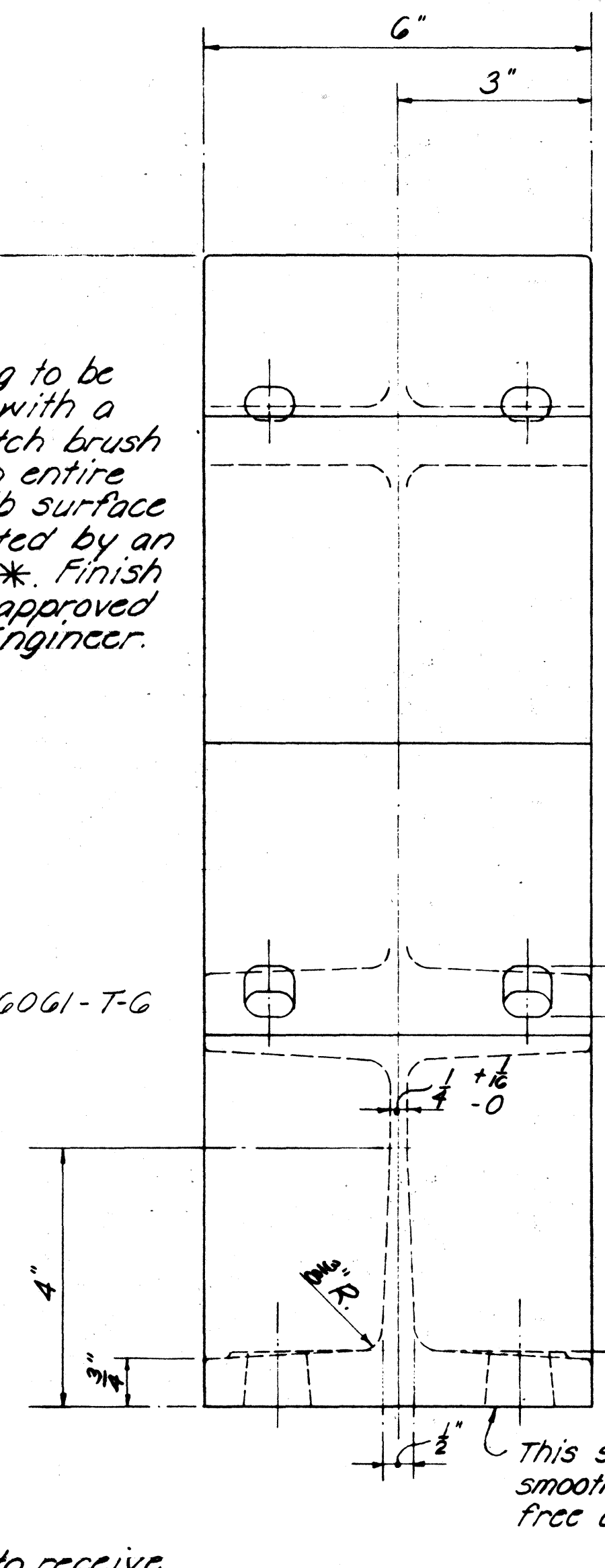


NOTE:  
 Unless otherwise specified:  
 Draft angles -  $3^\circ$   
 Corner Radii -  $\frac{3}{8}" R$   
 Fillet Radii -  $\frac{3}{8}" R$   
 Casting Tol. -  $\pm \frac{1}{16}"$   
 Wall Thickness -  $\pm \frac{1}{32}"$



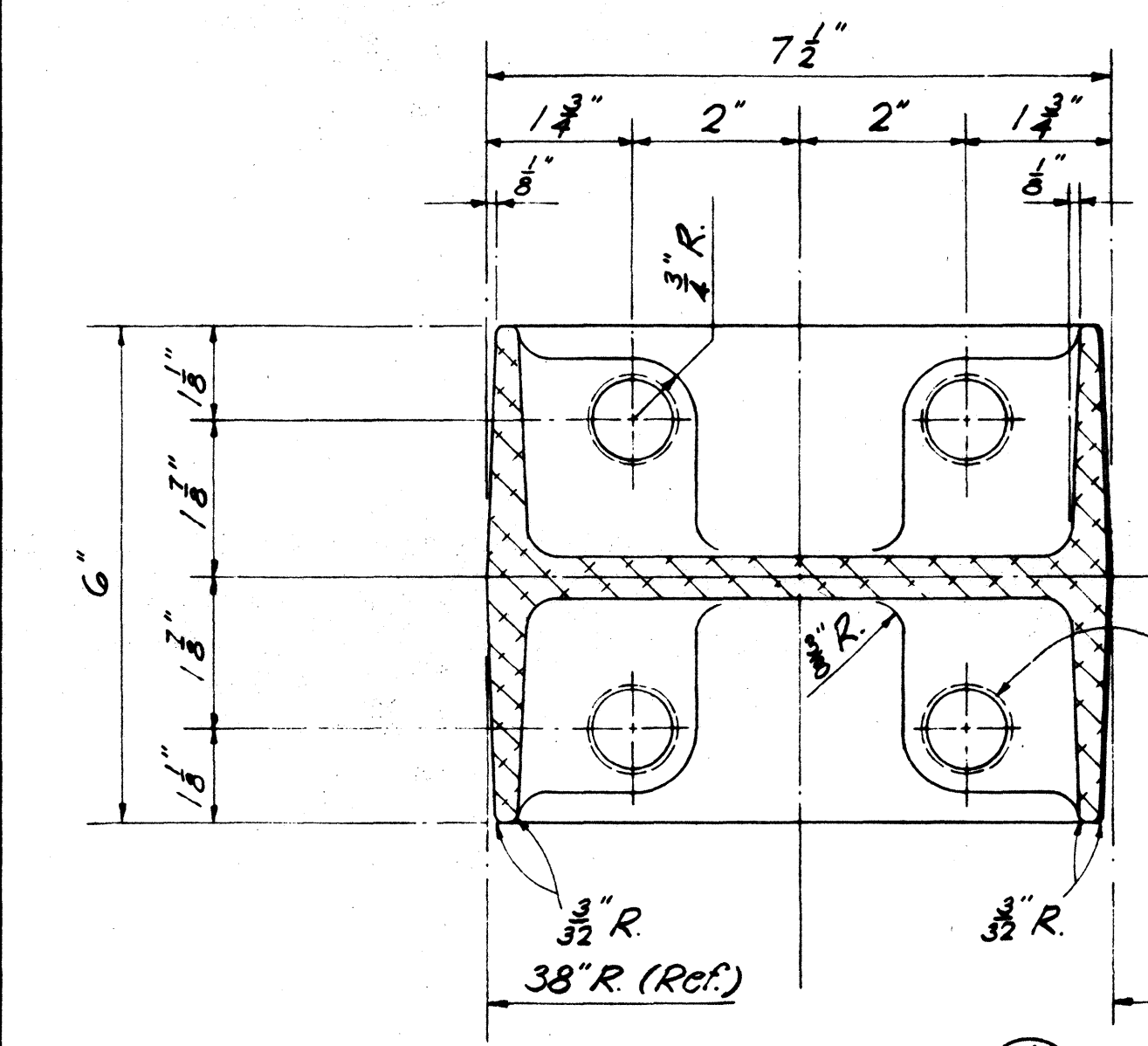
**SIDE ELEVATION**

\* Casting to be supplied with a std. scratch brush finish on entire gating rib surface as indicated by an asterisk \*. Finish shall be approved by the Engineer.

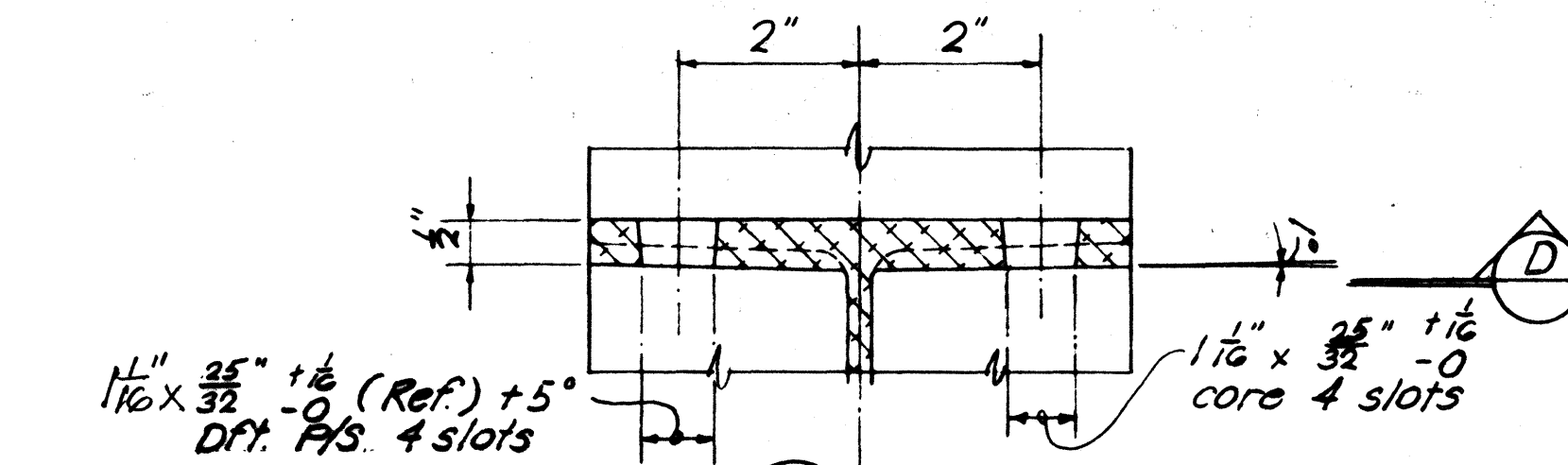


**END ELEVATION**

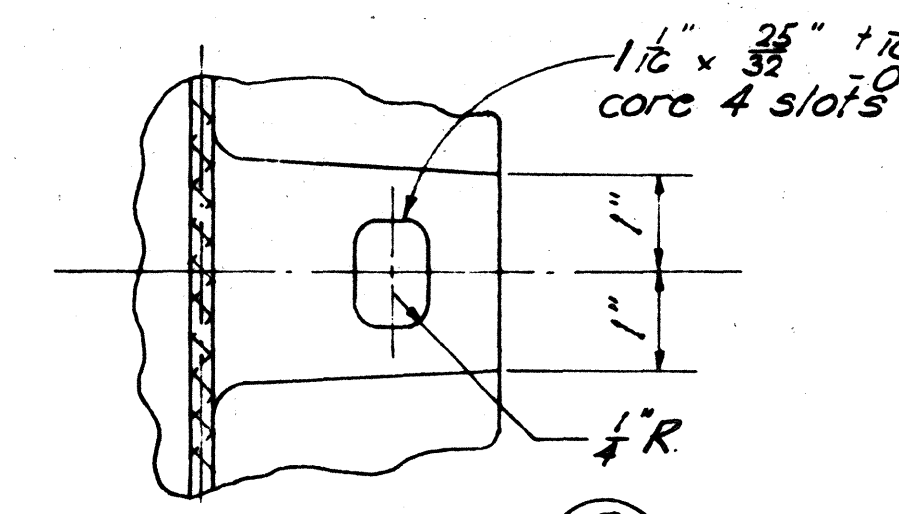
**TYPICAL RAIL POST DETAILS**  
 Scale: 6" = 1'-0"



**SECTION A-A**  
 Scale: 6" = 1'-0"

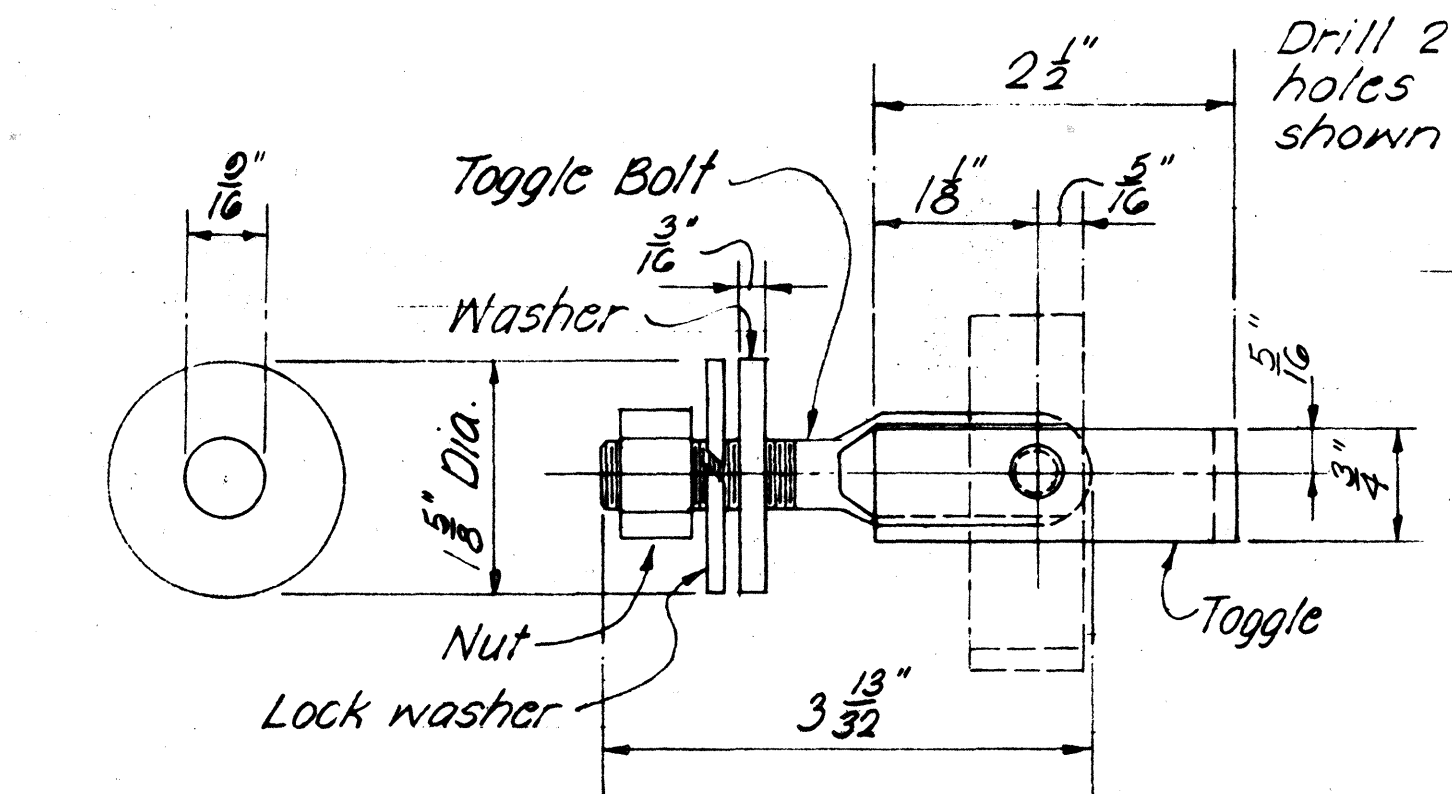


**SECTION C-C (SECTION B-B SIMILAR)**  
 Scale: 6" = 1'-0"



**SECTION D-D**  
 Scale: 6" = 1'-0"

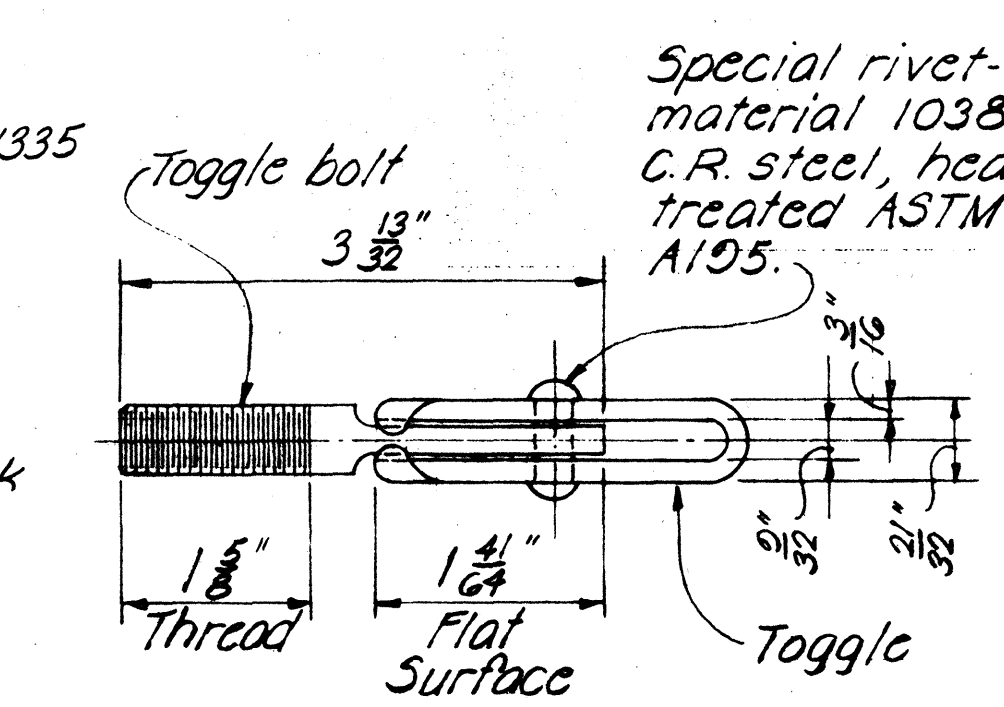
**WASHER**



**SIDE ELEVATION ASSEMBLY**

NOTE:

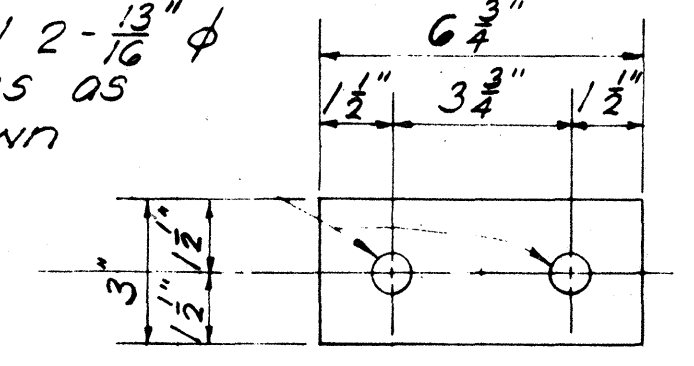
Toggle Bolt Material -  $\frac{1}{2}" - 13$  N.C. 1335  
 C.R. - Steel heat treated  
 R.C. 32-38 ASTM-A354  
 Toggle Material - 1015 H.R. steel  
 pickled and oiled. Round  
 edges ASTM-A303-58T  
 Washer Material - SAE 1020 H.R.  
 steel plates. A.S.T.M. - A-7 Break  
 sharp edges.  
 Nut -  $\frac{1}{2}" - 13$  Amer. hex. nut - Heavy  
 Mat'l. 1035 C.R. Stl. - Heat  
 treated ASTM A325  
 Cadmium plating on steel - Type  
 N.S. 0005 thick ASTM-A165-55  
 (All parts)  
 For cast post specifications, see  
 special provisions.



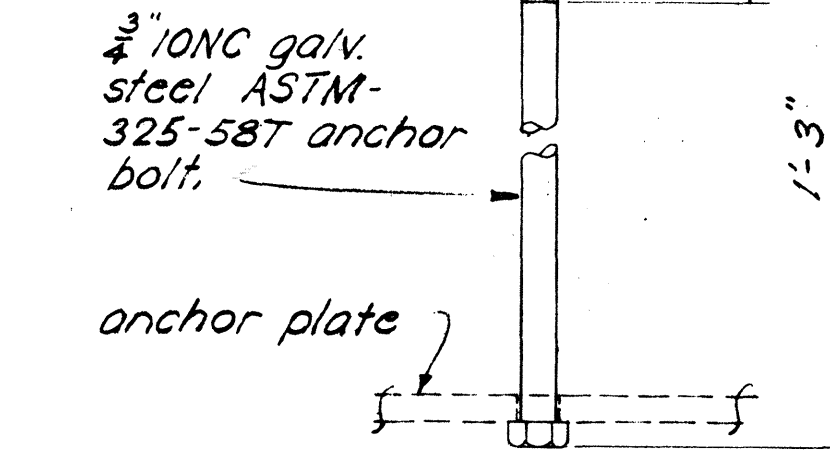
**TOP PLAN**

**$\frac{1}{2}" \phi$  TOGGLE BOLT DETAIL**  
 Scale: 3" = 1'-0"

**PLAN**

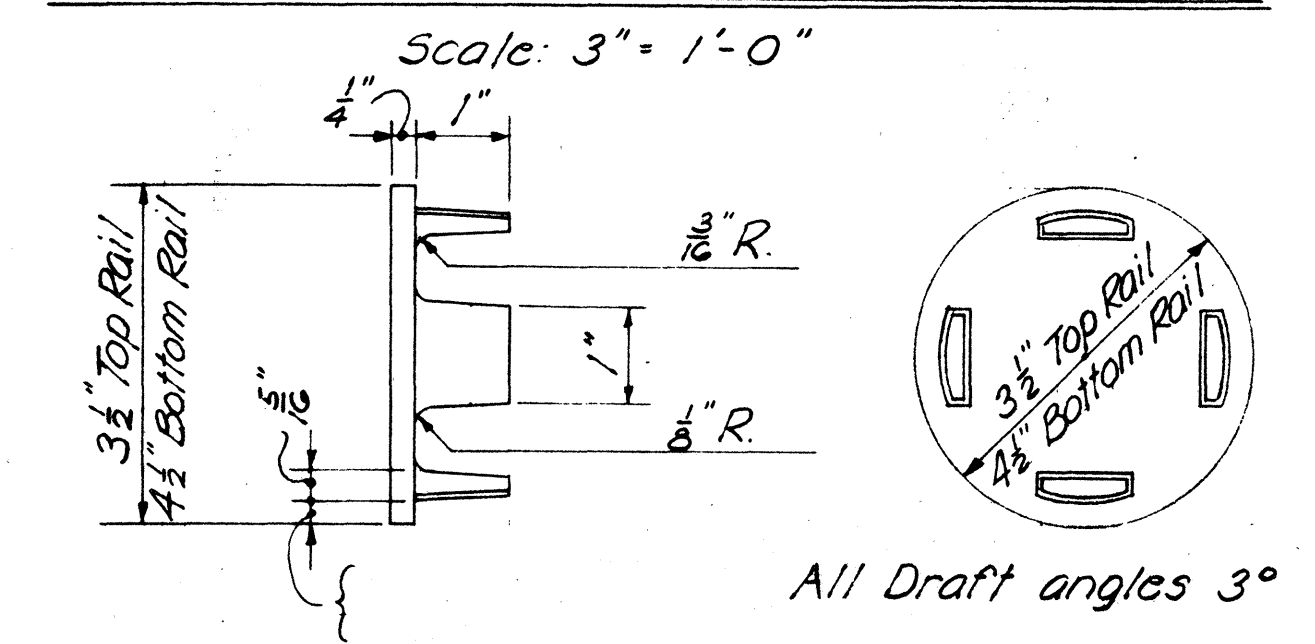


**ELEVATION**



**ANCHOR BOLT**

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



**RAIL CAP DETAIL**  
 Scale: 6" = 1'-0"

NOTE:  
 Metal Bridge Railing shown is  
 for Aluminum Bridge Railing. See  
 Special Provisions for alternate in  
 steel.

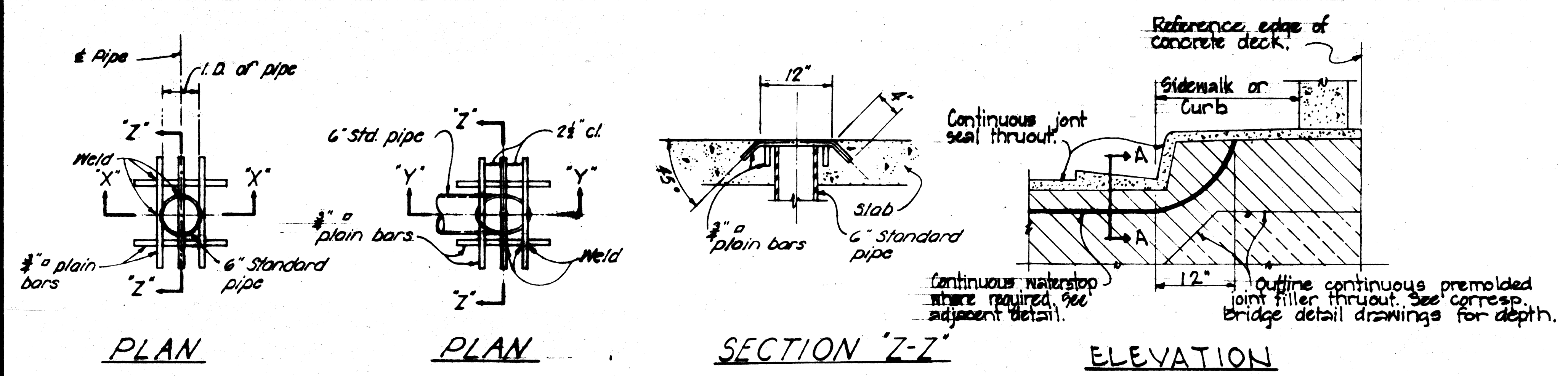
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS**  
**METAL BRIDGE RAILING**  
**DOUBLE RAIL COMBINATION TYPE**  
**ON PARAPET**

SHEET No. 6 OF 7 SHEETS

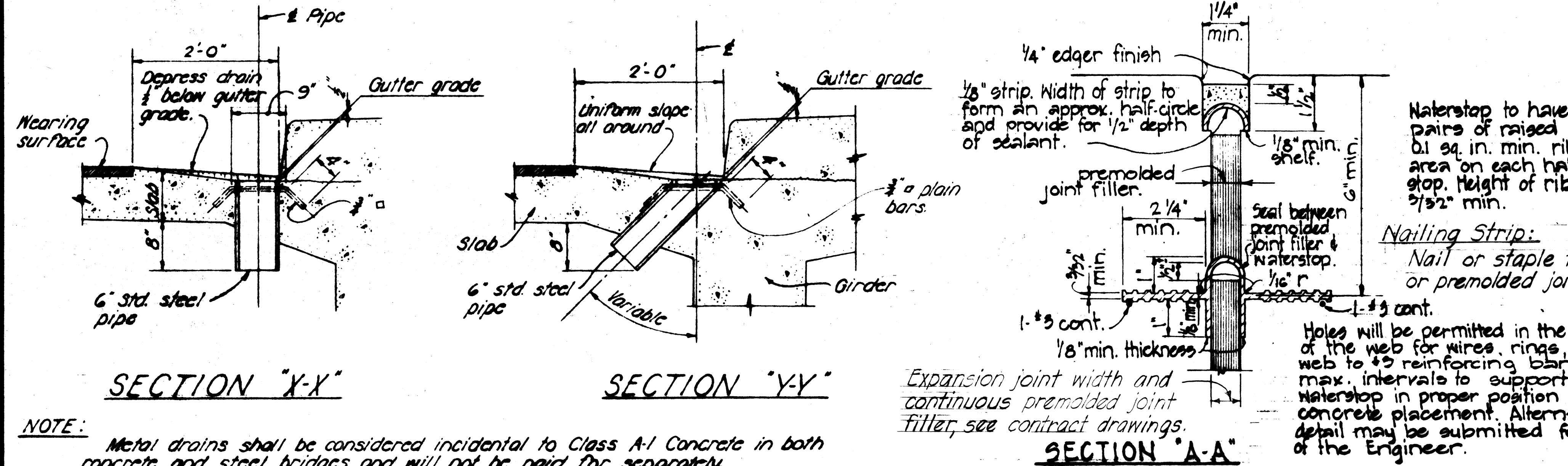
|                   |  |
|-------------------|--|
| DATE              |  |
| SURVEY PLOTTED BY |  |
| DRAWN BY          |  |
| DESIGNED BY       |  |
| QUANTITIES BY     |  |
| CHECKED BY        |  |
| ORIGINAL PLAN     |  |
| NOTE BOOK         |  |
| NO.               |  |

PROJECT NO. B-900-01-64 UNIT I  
**REVISION**  
 Jan. '67  
 Feb. '67  
 Apr. 67



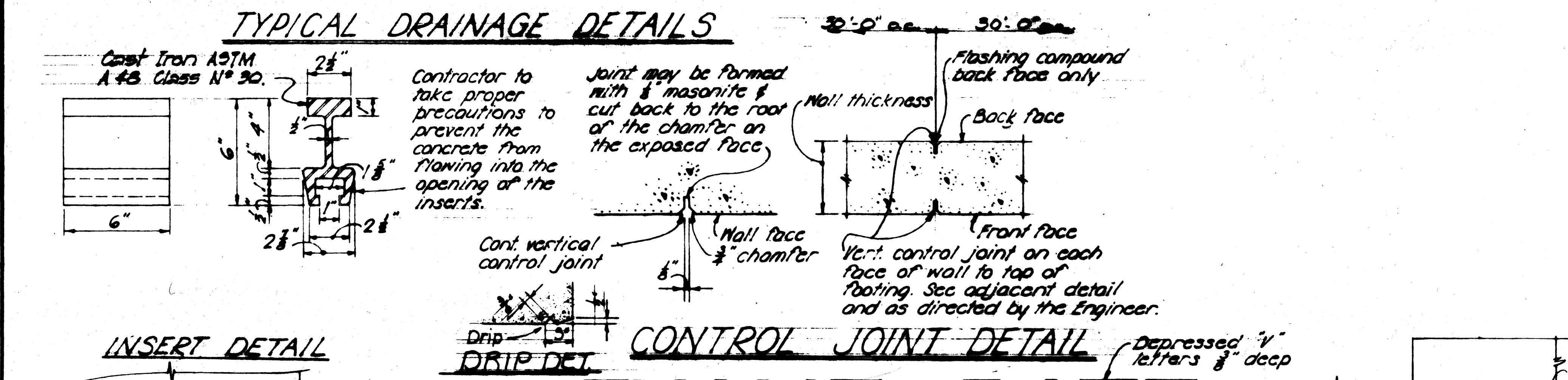
## GENERAL NOTES

- Elastometric Pads: Top & 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.
- The Contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work of excavation.
  - All concrete shall be Class A-1 unless otherwise noted.
  - Clearance for reinforcing bars shall be as follows, unless otherwise noted:
    - 1 1/2" For stirrups of beams & pier caps.
    - 2" For ties of columns.
    - 2" For formed walls.
    - 3" For footings.
  - Concrete seats receiving steel plates, lead plates or neoprene pads shall be poured monolithically with supporting structures & top surfaces of the concrete seats shall be finished with a steel trowel to a smooth level at the elevation shown on the plans.
  - Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures 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.
  - Splices of reinforcing - See Special Provisions.
- Waterstop to have 5 or more pairs of raised ribs to provide at least 94 in. min. rib cross-section area on each half of the waterstop. Height of ribs to be 7/32" min.
- Nailing Strip:**  
 Nail or staple to form or premolded joint filler.
- Holes will be permitted in the outer 1/2" of the web for wires, rings, etc. Tie web to #3 reinforcing bars at 12" max. intervals to support the waterstop in proper position during concrete placement. Alternative detail may be submitted for approval of the Engineer.

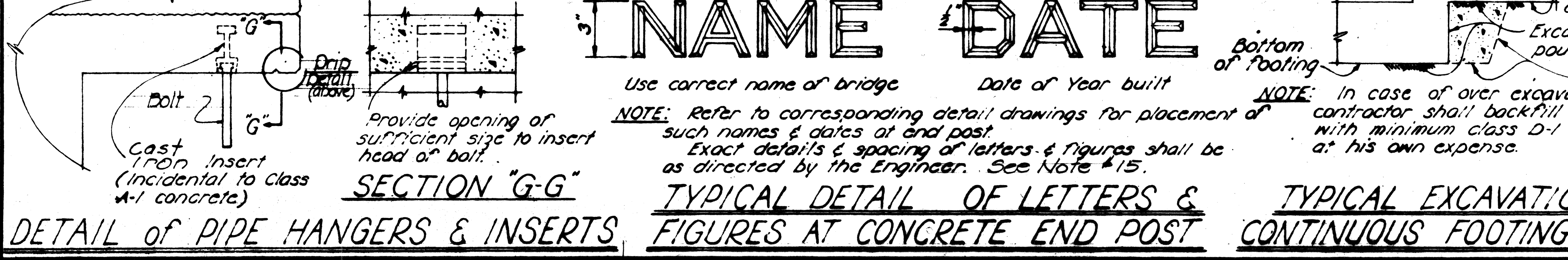


**NOTE:**  
 Metal drains shall be considered incidental to Class A-1 Concrete in both concrete and steel bridges and will not be paid for separately. Assembly of grille and pipe shall be hot-dip galvanized after all welding is completed.

## TYPICAL EXPANSION JOINT DETAIL



- 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 1 1/2 times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
- 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.
- 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". See Standard Specifications.
- Concrete Finish - See Special Provisions.
- All welders and welding procedures shall be qualified according to the requirements of the Special Provisions.
- Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**STANDARD BRIDGE DETAILS**

Scale as Noted Date: \_\_\_\_\_

SHEET No. 7 OF 7 SHEETS

DATE \_\_\_\_\_  
 SURVEY PLOTTED BY \_\_\_\_\_  
 DRAWN BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 NOTE BOOK \_\_\_\_\_