

# **BACKSLOPE DRAIN**

**601-1**

**GENERAL**

CLASS SI CONCRETE SHALL BE USED THROUGHOUT.

THIS SPECIFICATION COVERS SLOTTED DRAIN USED FOR THE REMOVAL OF WATER AS SHOWN ON THE PLANS.

THE SLOTTED DRAIN SHALL BE CORRUGATED PIPE CULVERT WITH INTEGRAL SLOTTED DRAINS.

BEFORE PLACING THE CONCRETE ADJACENT TO THE PIPE, THE SLOT SHALL BE COVERED BY EITHER THIN, FLAT METAL SHEETING OR BY A BOARD NOTCHED TO FIT OVER THE GRATE BARS. THIS COVERING MUST FIT CLOSELY IN THE SLOT TO PREVENT ENTRY OF CONCRETE INTO THE PIPE. PAVING OVER THE SLOTTED DRAIN WILL THEN BE ONE CONTINUOUS OPERATION OVER THE PROTECTED DRAIN. THE PROTECTION FOR THE DRAIN SLOT SHALL THEN BE REMOVED. THE PIPE SHALL DRAIN INTO THE SIDE OF THE INLET. THE OPENING WHERE THE SLOT IS REMOVED SHALL BE COVERED TO PREVENT CONCRETE FROM ENTERING THE PIPE.

THE CORRUGATED STEEL PIPE USED IN THE SLOTTED DRAIN SHALL MEET THE REQUIREMENTS OF AASHTO M36/ ASTM A7860.

THE CMP SHALL BE ALUMINIZED STEEL TYPE 2.

THE DIAMETER AND GAGE SHALL BE AS SHOWN ON THE PLAN.

STEEL GRATING SHALL MEET THE GALVANIZING REQUIREMENTS OF AASHTO M111.

THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT FOR SLOTTED DRAIN 15" WITH 1 3/4" SLOT, AND SHALL INCLUDE ELBOWS, DRILLING HOLES IN GRATING, SUPPLYING AND PLACING A1 BARS, AND CONCRETE AND GRATING FOR DEPTH SPECIFIED ON PLANS.

USE APPROVED END CAP TO PREVENT CONCRETE ENTRY INTO THE PIPE DURING GUTTER CONSTRUCTION ON THE UPSTREAM END OF THE PIPE.

**CONNECTIONS**

THE CORRUGATED STEEL PIPE SHALL HAVE A MINIMUM OF TWO REROLLED ANNULAR ENDS.

THE SLOTTED DRAIN BANDS SHALL BE MODIFIED HUGGER BANDS TO SECURE THE PIPE AND PREVENT INFILTRATION OF THE BACKFILL.

WHEN THE SLOTTED DRAIN IS Banded TOGETHER, THE ADJACENT GRATES SHALL HAVE A MAXIMUM 3" GAP.

**GRATES**

THE GRATES SHALL BE MANUFACTURED FROM ASTM A670, GRADE 36 STEEL. THE SPACERS AND BEARING BARS (SIDES) SHALL BE 3/16" MATERIAL ±0.008".

THE SPACERS SHALL BE ON 6" CENTERS AND WELDED ON BOTH SIDES TO EACH BEARING BAR (SIDES) WITH FOUR (4) 1/4" LONG 3/16" FILLET WELDS ON EACH SIDE OF THE BEARING BAR.

THE PLATE EXTENDER SHALL BE 7 GAGE STEEL MEETING ASTM A761.

THE ENGINEER MAY CALL FOR TENSILE STRENGTH TESTS ON THE GRATE IF THE GRATE IS NOT IN COMPLIANCE WITH THE ABOVE SPACER SPECIFICATIONS. IF TENSILE STRENGTH TESTS ARE CALLED FOR, MINIMUM RESULTS FOR AN IN-PLACE SPACER PULLED PERPENDICULAR TO THE BEARING BAR SHALL BE:  
 T = 12,000 POUNDS FOR 2 1/2" GRATE  
 T = 15,000 POUNDS FOR 6" GRATE

**GALVANIZING**

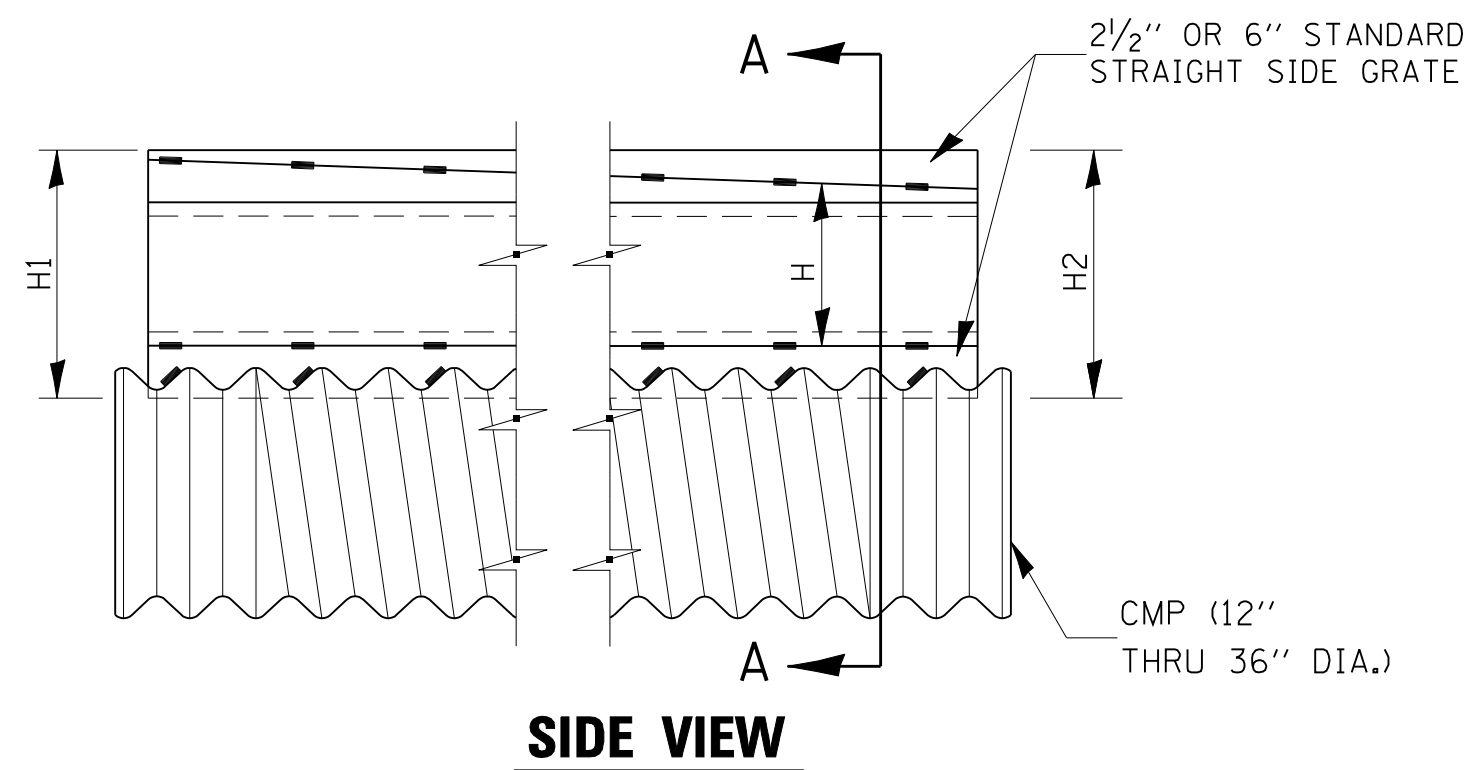
THE GRATE AND PLATE EXTENDERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 EXCEPT WITH A 2 OZ. GALVANIZED COATING.

**GRATE ATTACHED TO CSP**

THE GRATE SHALL BE FILLET WELDED WITH A MINIMUM WELD 1" LONG TO THE CSP ON EACH SIDE OF THE GRATE AT EVERY OTHER CORRUGATION.

**TOLERANCES - FINISHED SLOTTED DRAIN - 20' LENGTH**

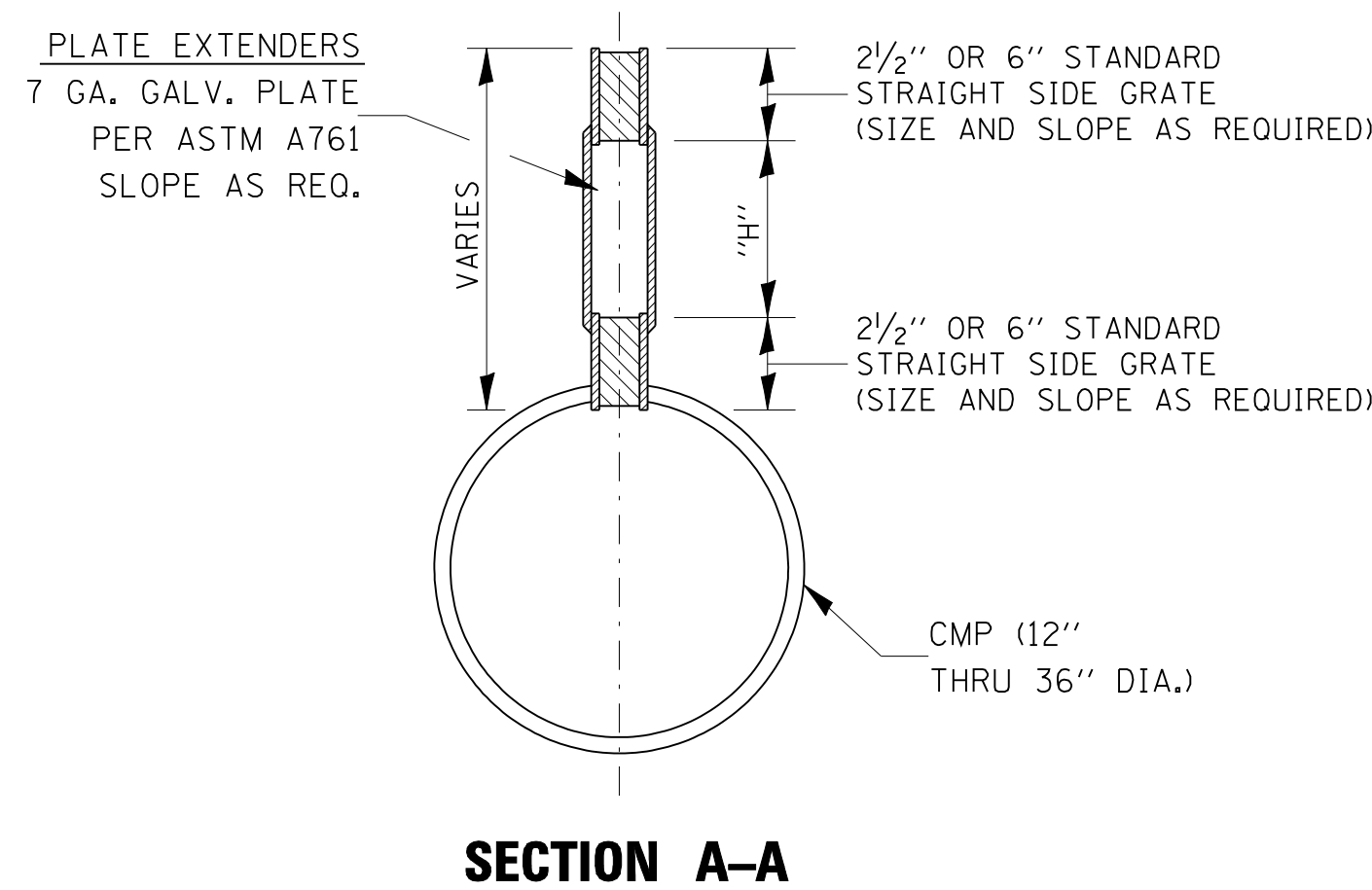
VERTICAL BOW = ±3/8"  
 HORIZONTAL BOW = ±5/8"  
 TWIST = ±1/2"



**DETAIL WITH VARIABLE HEIGHT GRATE**

LOADING CONDITION	MAX. EXTENDER HEIGHT - "H"
H20/H25 • 750 PSI CONCRETE	19"

• 125 PSI TIRE PRESSURE



**SECTION A-A**

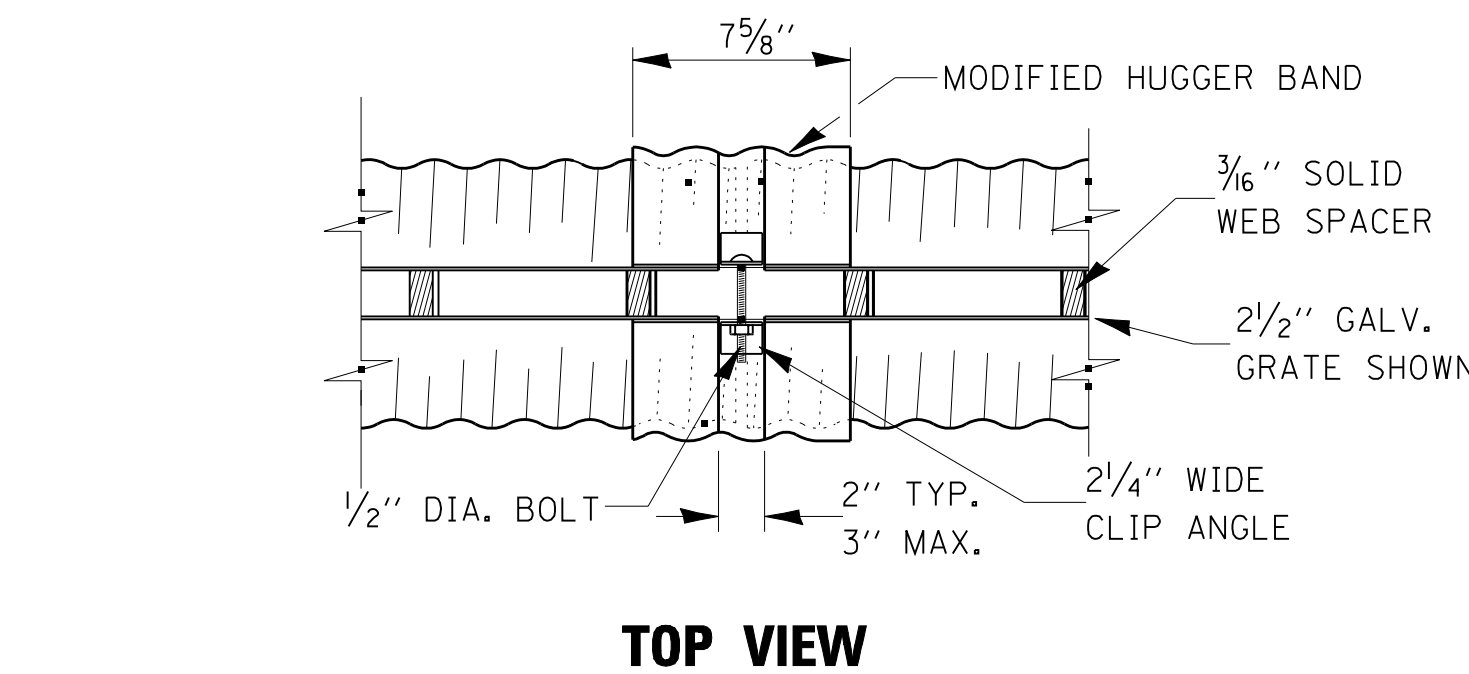
GAGE OF PIPE	DIAMETER OF PIPE					
	12"	15"	18"	24"	30"	36"
16	X	X	X	X	X	X
14	X	X	X	X	X	X
12	N.A.	N.A.	N.A.	N.A.	X	X

GRATE TYPE	"A"
VERT	2 1/2"
TRAP	6"

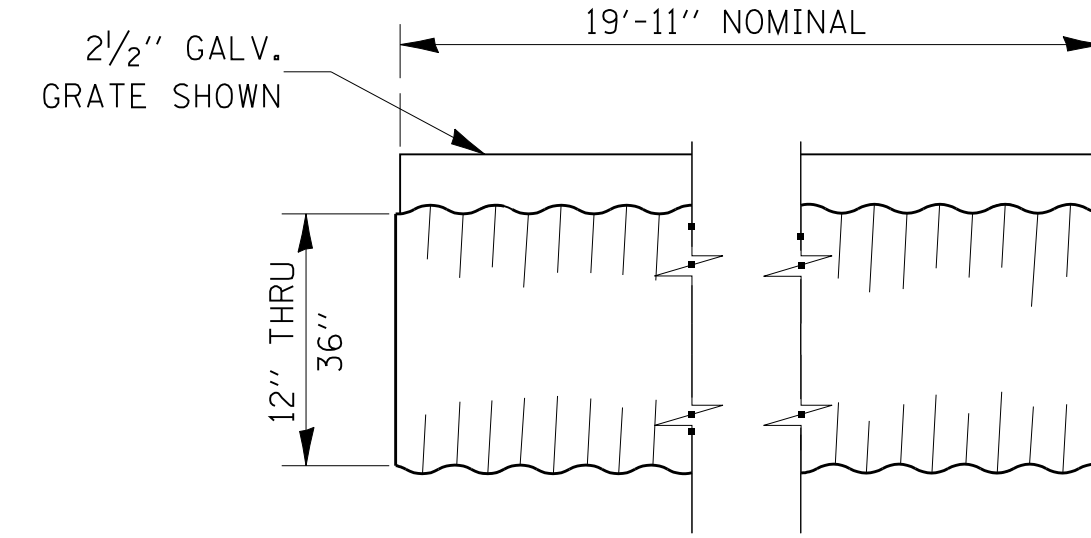
VERT = VERTICAL  
TRAP = TRAPIZOIDAL

**SLOTTED DRAIN NOTES**

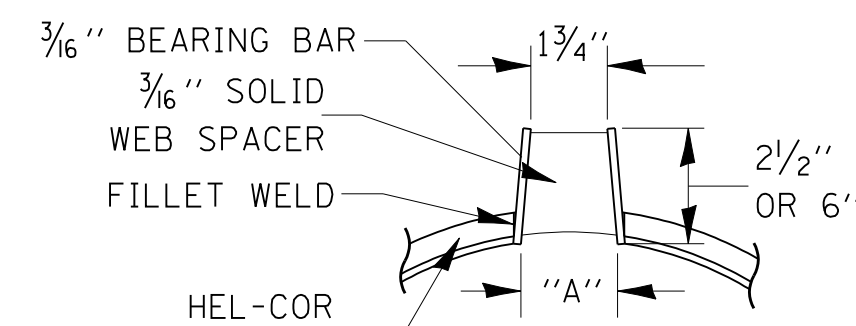
- GRATING IS AVAILABLE IN DEPTHS OF 2 1/2" AND 6".
- VERTICAL GRATING (STRAIGHT SIDES) WITH VERTICAL SPACERS IS ALSO AVAILABLE.
- FOR 6" VERTICAL & TRAPEZOIDAL REQUIREMENTS, THE SLOTTED DRAIN BAND MAY BE FURNISHED WITH THE 4: TECHCO BAND ANGLE.
- DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
- REFERENCE CONTECH BAND MANUAL DWG. NO. 1002697 FOR BAND DETAILS.
- REFERENCE CONTECH SLOTTED DRAIN DWG. NO. 1002697.
- DIMENSIONS FOR H1 AND H2 AS REQUIRED.
- H1 AND H2 MEASURED FROM TOP OF GRATE TO BOTTOM OF GRATE.



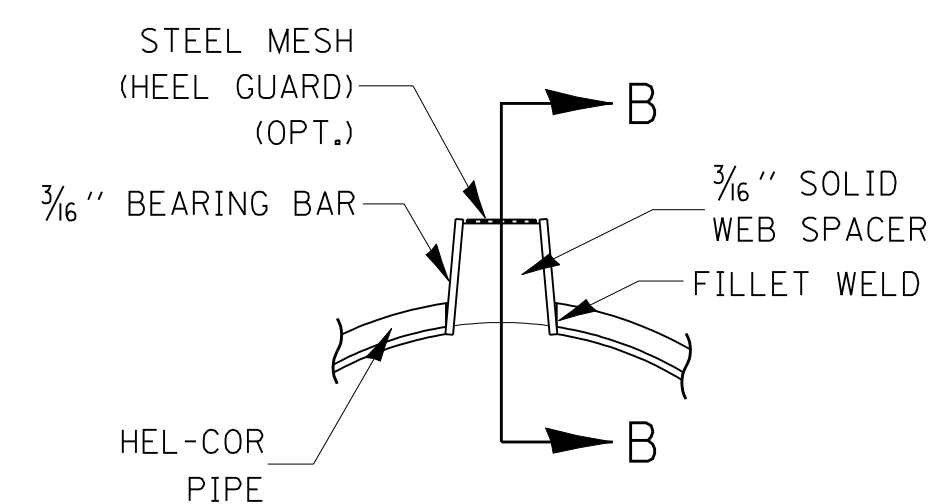
**TOP VIEW**



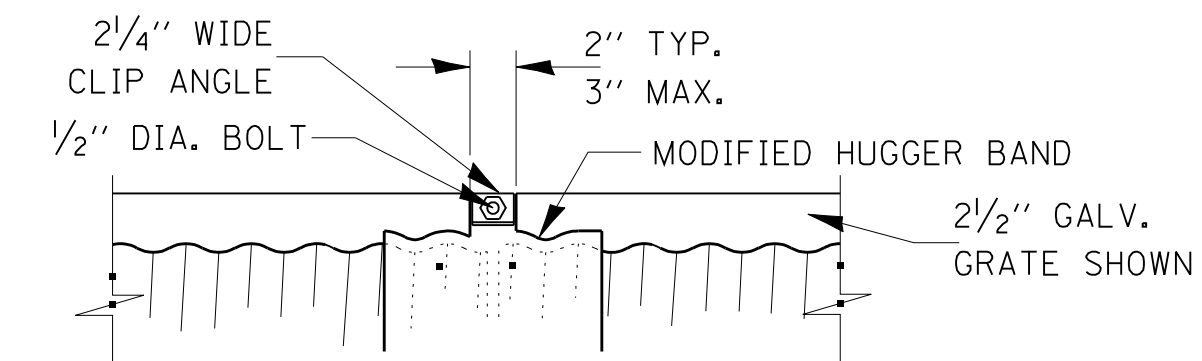
**TYPICAL PIPE SECTION**



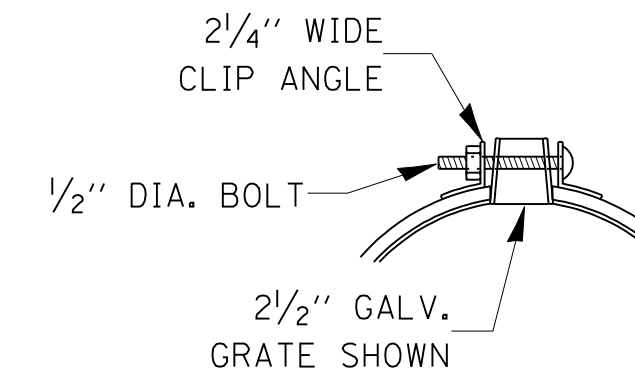
**SECTION A-A STANDARD DETAIL**



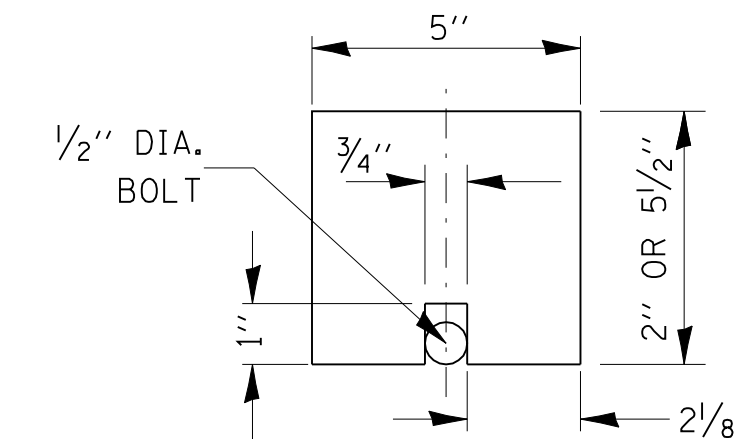
**SECTION B-B DETAIL WITH MESH**  
(TRAPEZOIDAL GALVANIZED GRATE SHOWN)



**SIDE VIEW**

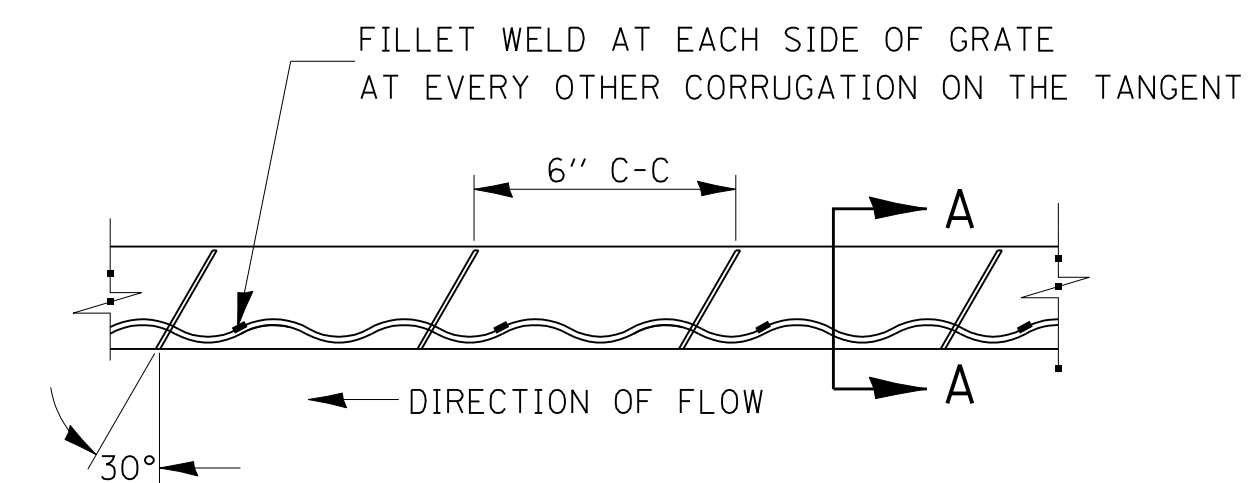


**END VIEW**

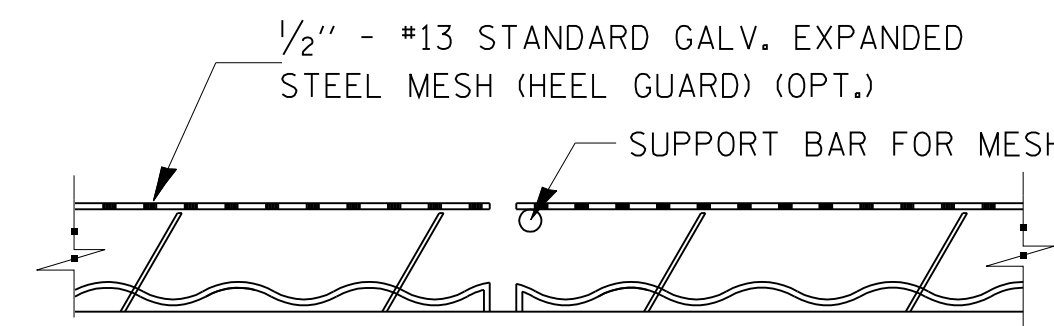


**GAP PLATE (OPTIONAL)**

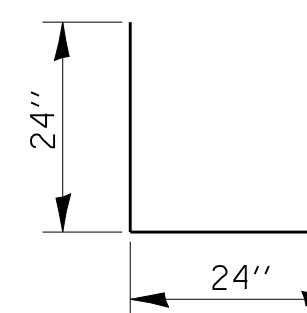
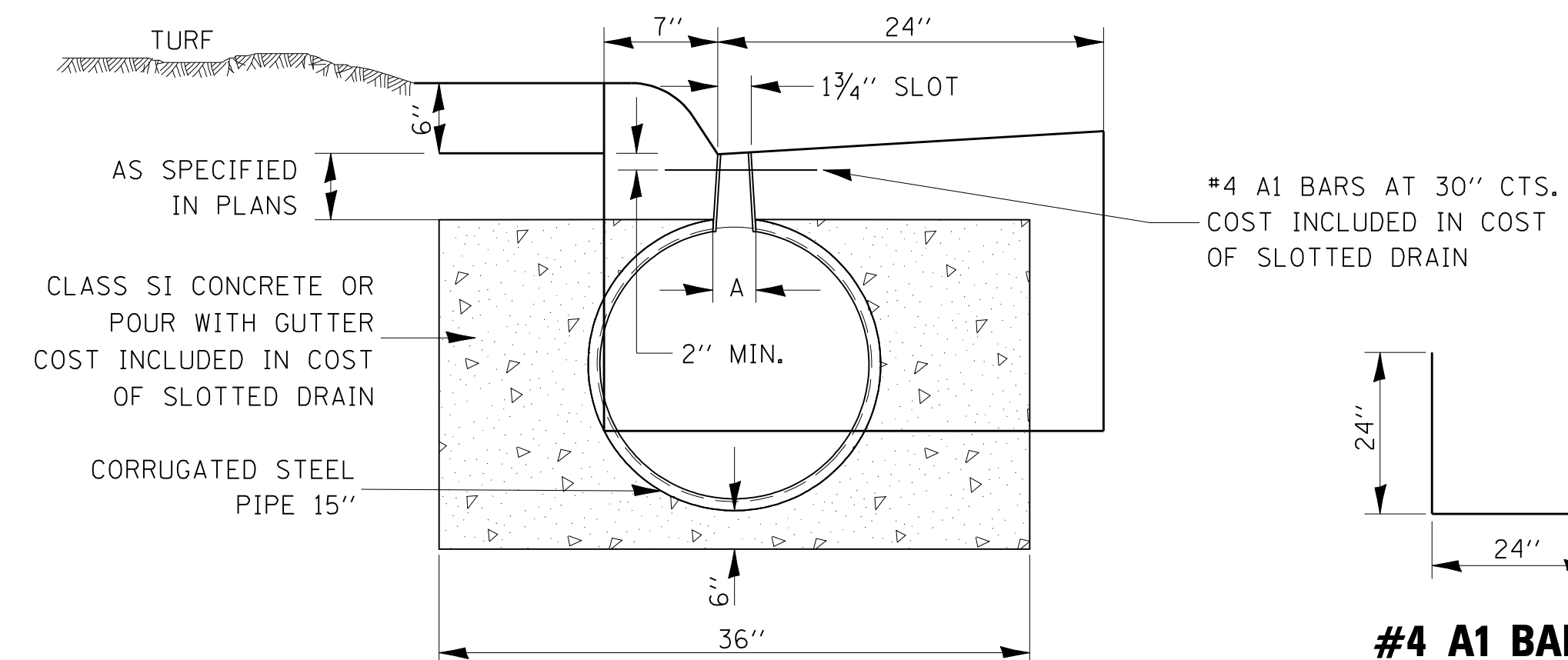
MAY BE PLACED DIRECTLY OVER BAND BOLT TO PROVIDE CONTINUOUS FORM FOR GROUTING



**GRATE WELDING DETAIL**



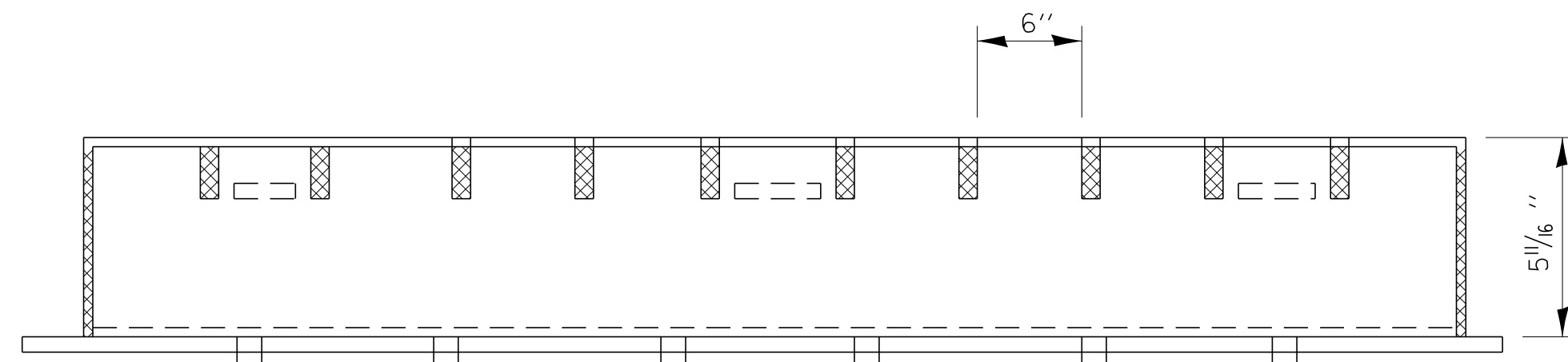
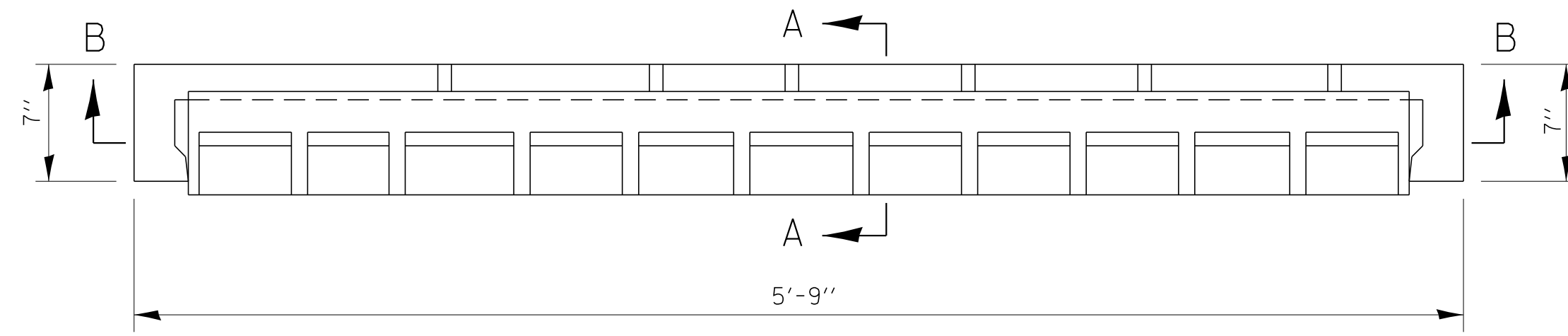
**SECTION B-B**



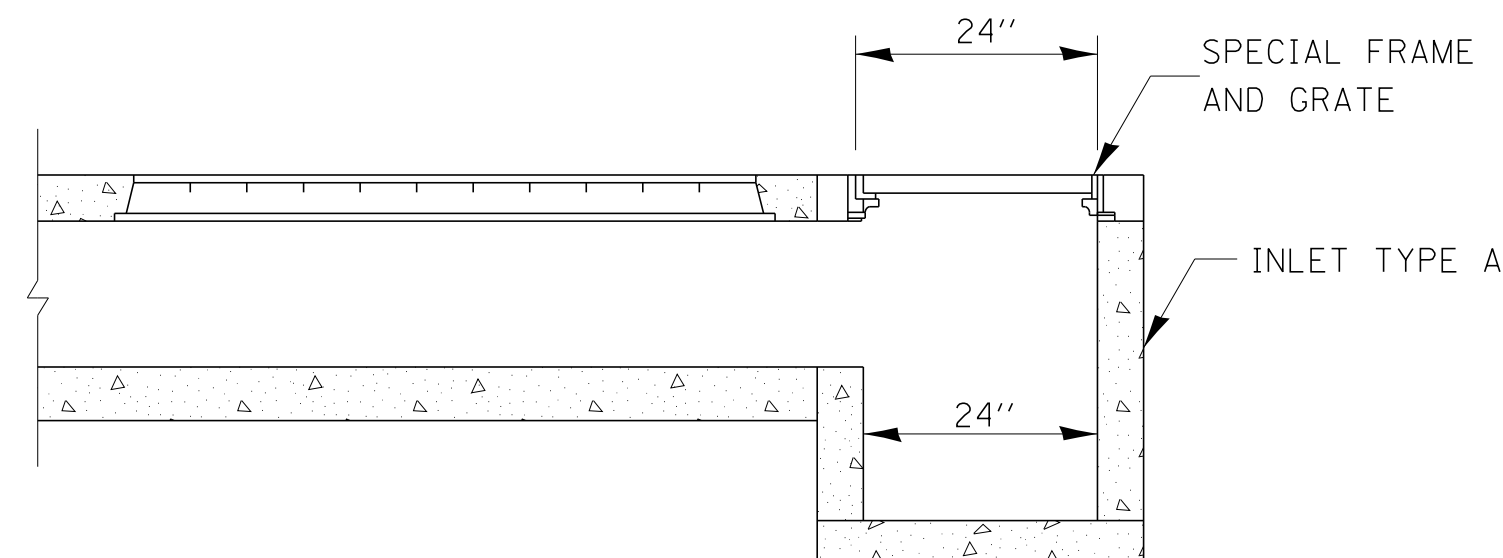
**#4 A1 BARS**

**601-2**

FILE NAME =	USER NAME = wasilewskim	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SLOTTED DRAIN PIPE</b>				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT DATE = May 12, 2010 - 01:42:28 PM	CHECKED -	REVISED -						FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
		DATE -	REVISED -										

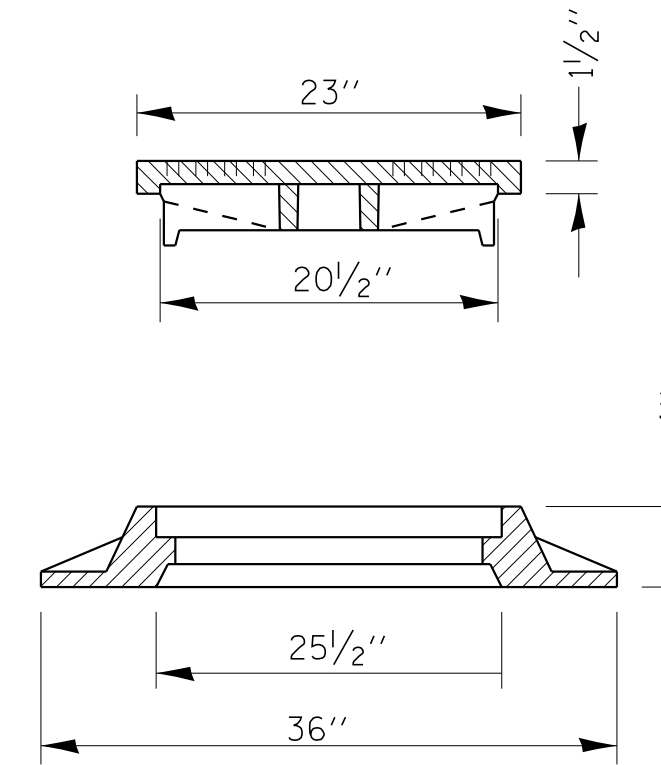
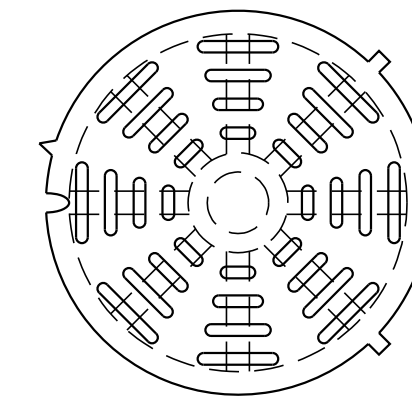


**SECTION B-B**

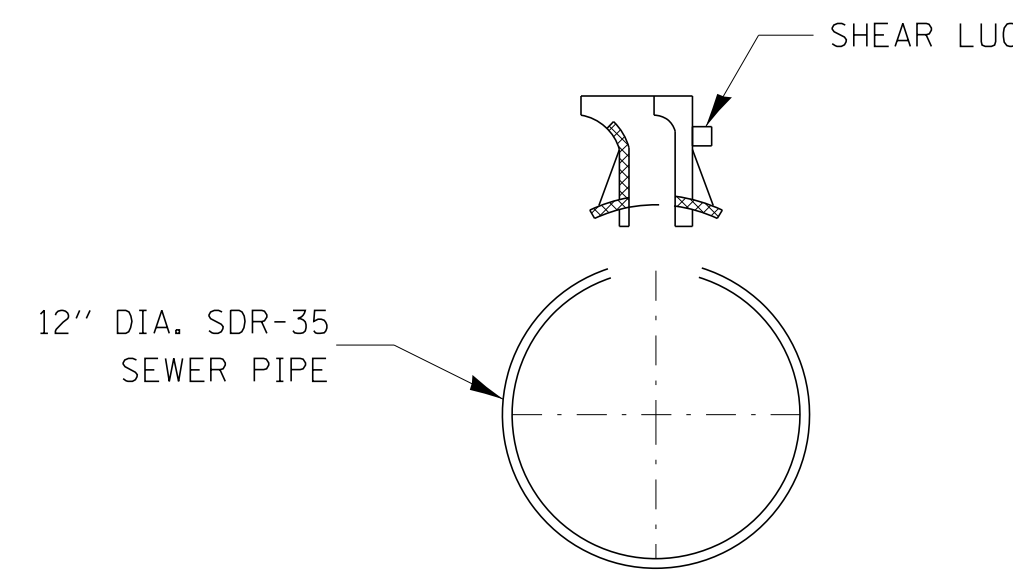


**SIDE VIEW**

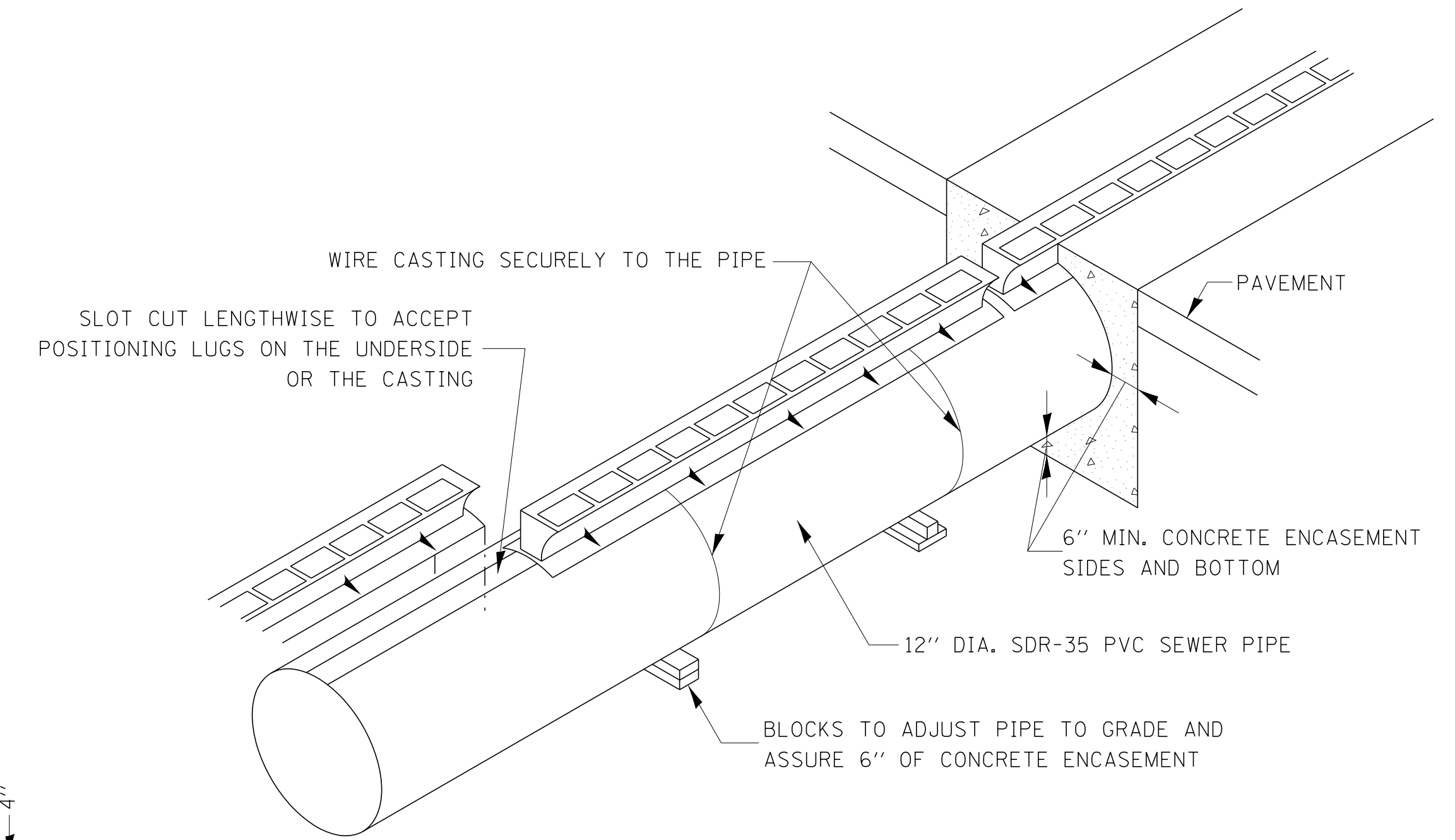
**SPECIAL FRAME AND GRATE**



TOTAL WEIGHT 285 LBS.



**SECTION A-A**



**GENERAL NOTES:**

CLASS SI CONCRETE SHALL BE USED THROUGHOUT.

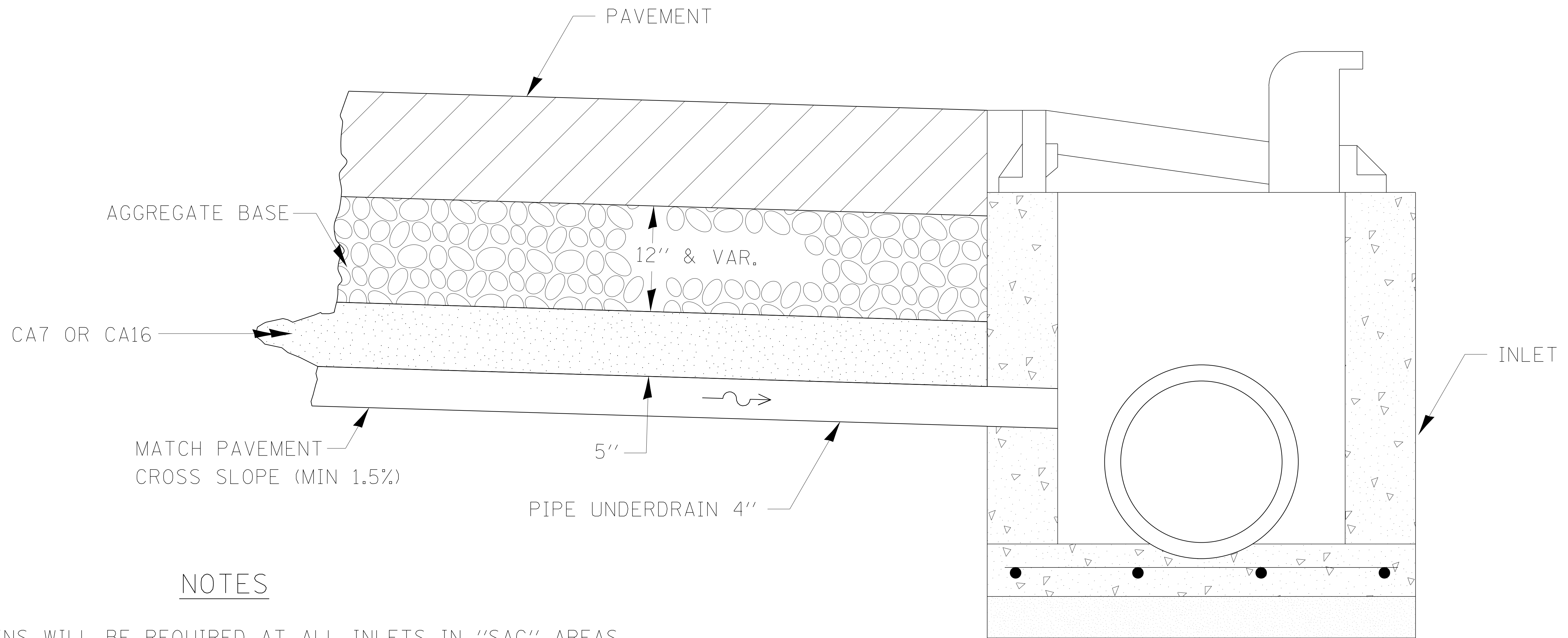
THE CONTRACT UNIT PRICE PER FOOT FOR SLOTTED DRAIN 12" WITH 6" SLOT SHALL INCLUDE THE GRATE, CLASS SI CONCRETE, SDR-35 PVC 12" SEWER PIPE, BLOCKS, WIRE AND EXCAVATION.

THE INLET TYPE A TO BE IN ACCORDANCE WITH STANDARD 602301.

THE CONTRACT UNIT PRICE EACH FOR INLETS, TYPE A, WITH SPECIAL FRAME, OPEN LID SHALL INCLUDE A TYPE A INLET AND THE SPECIAL FRAME AND GRATE DETAILED ABOVE.

**601-3**

FILE NAME = \$FILEL\$	USER NAME = \$USER\$	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>DETAIL OF SLOTTED VANE DRAIN 12" WITH 6" SLOT</b>				F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = \$DATE\$	DATE -	REVISED -	REVISED -						FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



NOTES

DRAINS WILL BE REQUIRED AT ALL INLETS IN "SAG" AREAS AND AS INDICATED IN THE PLANS.

THIS WORK SHALL BE COMPLETED ACCORDING TO SECTION 601 OF THE STANDARD SPECIFICATIONS.

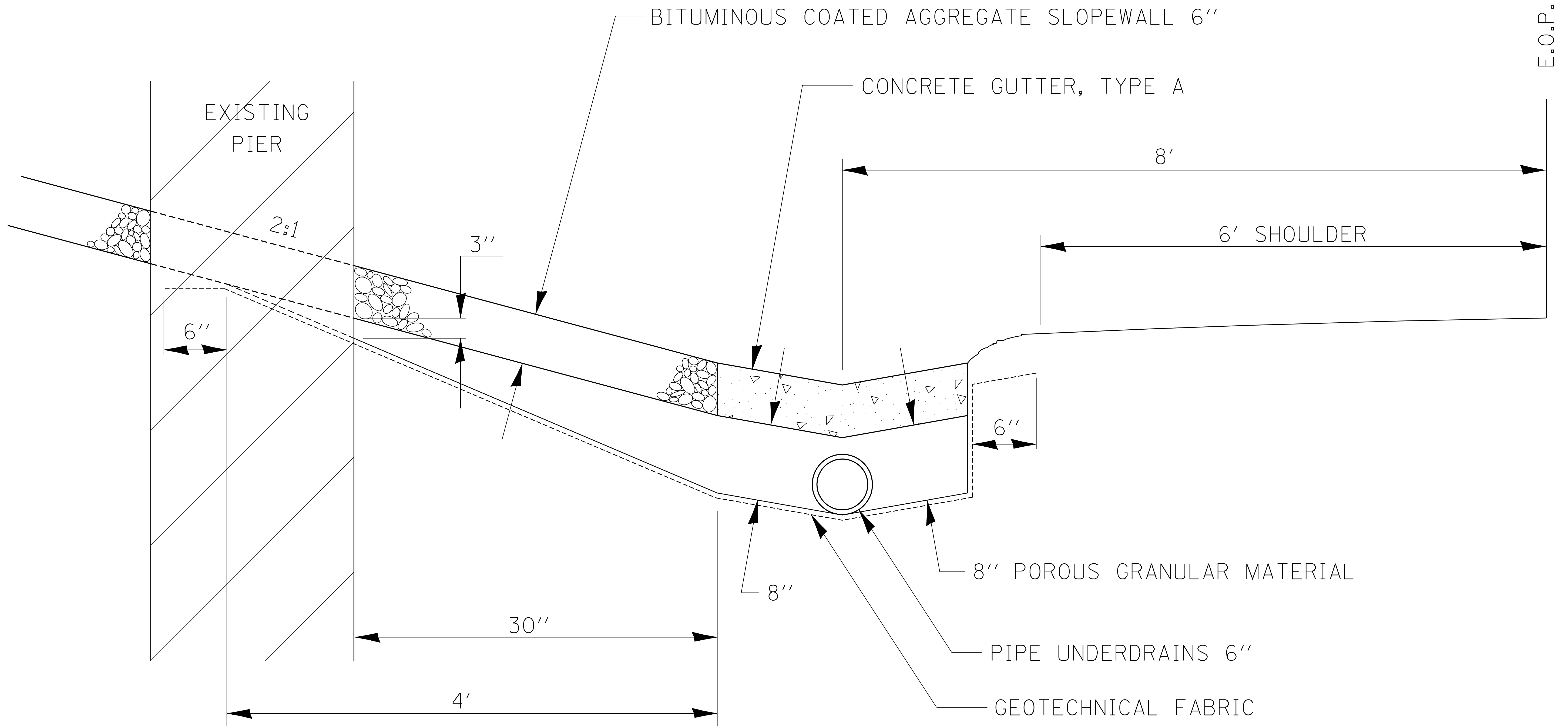
THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT FOR PIPE UNDERDRAINS OF THE DIAMETER SPECIFIED WHICH PRICE SHALL INCLUDE THE CA7 OR CA16 AND THE CONNECTION TO THE INLET.

DESIGNER NOTE:

ONLY TO BE USED AT RECOMMENDATION OF MATERIALS

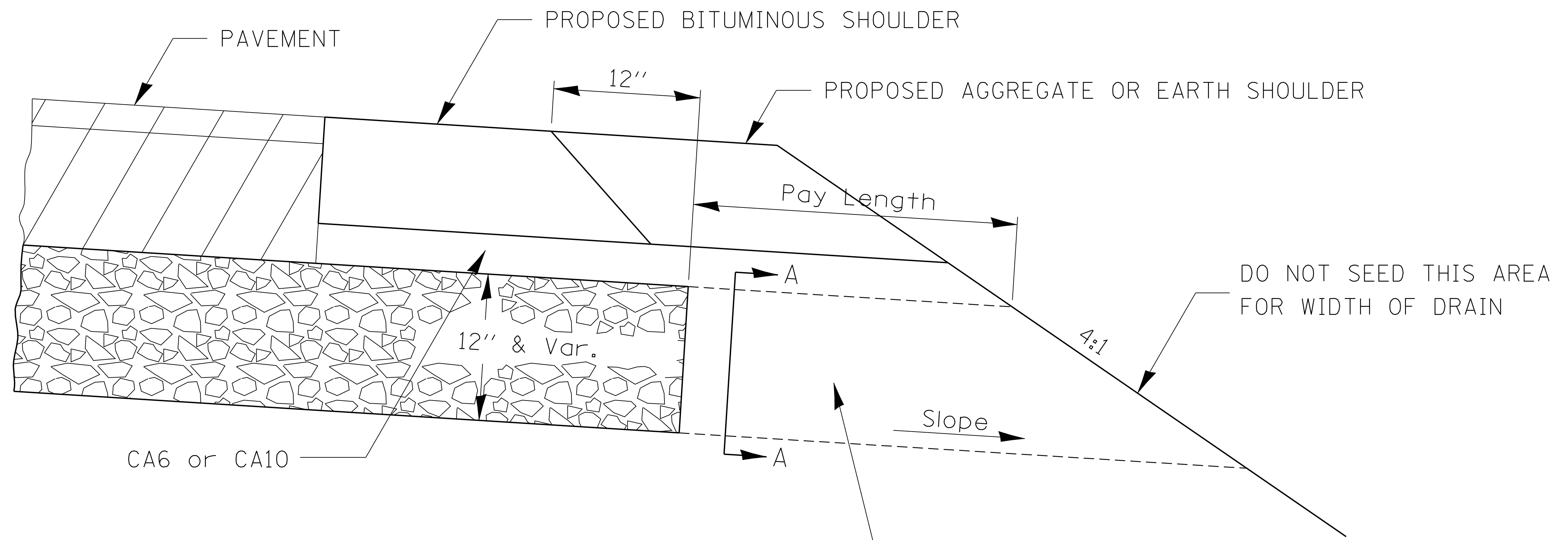
**601-4**

**DRAIN FOR AGGREGATE  
BASES IN URBAN AREAS**



# AGGREGATE SLOPEWALL DRAIN

**601-5**



**NOTES:**

THE ROCK OUTLETS SHALL BE CONSTRUCTED USING CA7 AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQ. YD. FOR DRAIN FOR AGGREGATE BASE COURSE.

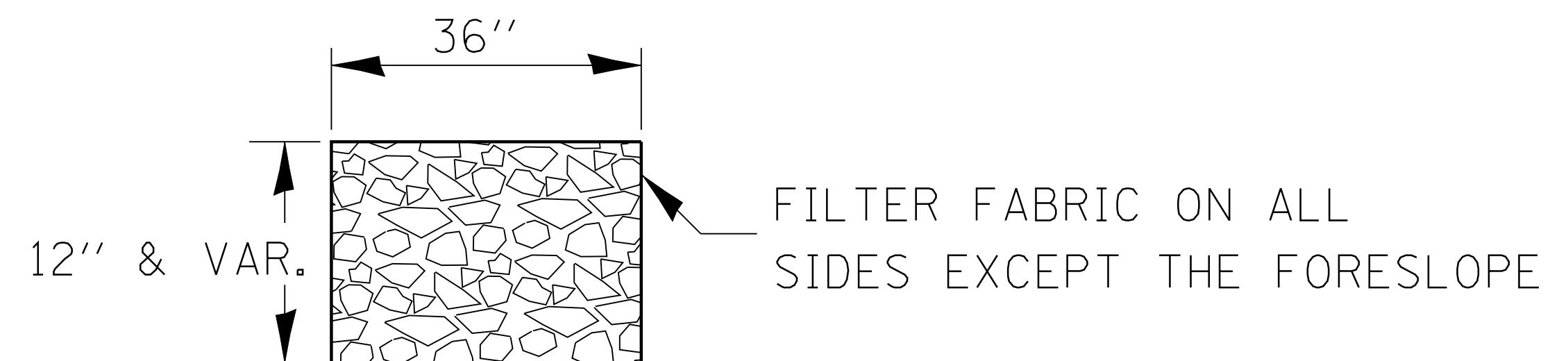
THE THICKNESS SHALL BE THE SAME AS THE ADJACENT SUB-BASE MATERIAL AS NOTED ON THE PLANS AND SHALL INCLUDE THE COST OF THE FILTER FABRIC.

THE ROCK OUTLETS WILL BE MEASURED IN SQ. YD., THE WIDTH BEING 3' BY THE LENGTH SHOWN ABOVE

THE COST OF THE CA6 OR CA10 UNDER THE SHOULDER SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER SQ. YD. FOR SUB-BASE GRANULAR MATERIAL, TYPE A OF THE THICKNESS SPECIFIED.

THE FILTER FABRIC TO BE USED SHALL CONFORM TO THE FILTER FABRIC USED FOR RIPRAP.

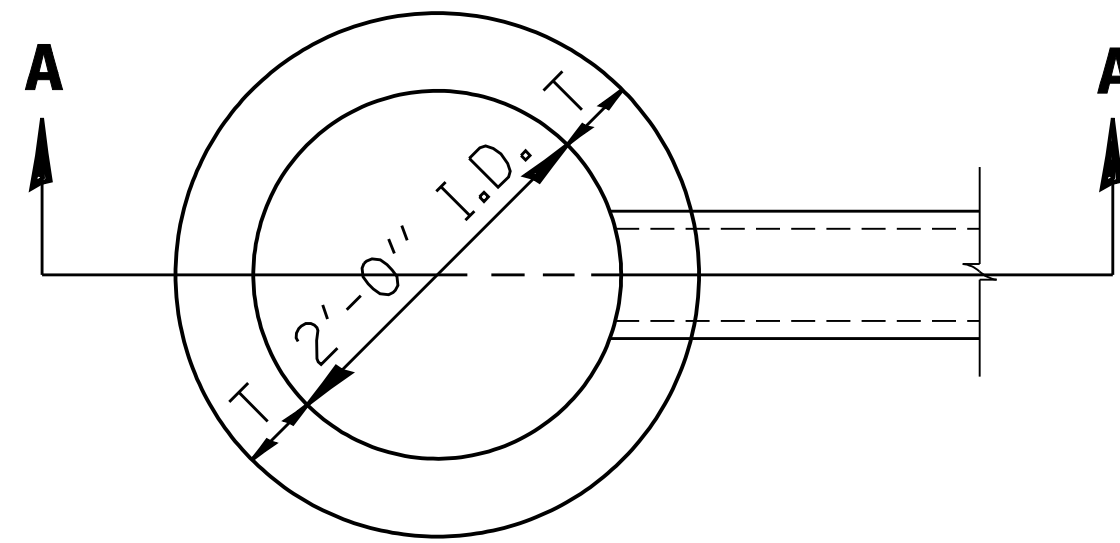
ROCK OUTLET AT ALL LOW POINTS TO BE 36" WIDE AND EXTEND TO FORESLOPE



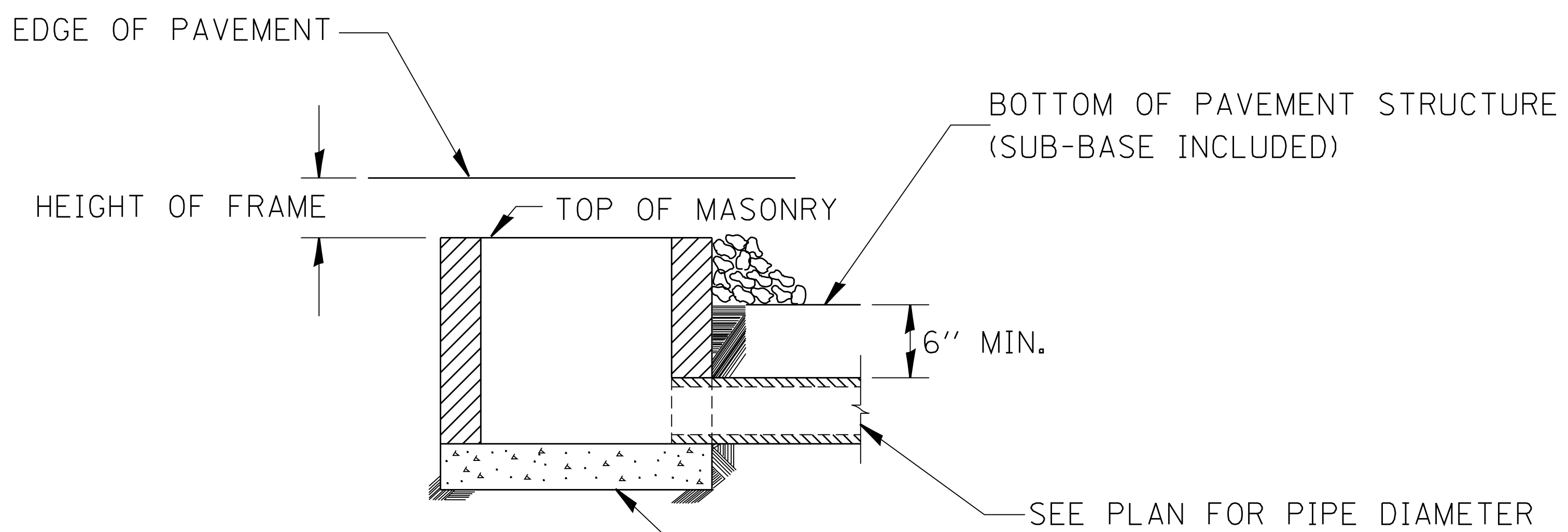
**SECTION A-A**

NOTE: SLOPE SAME AS SHOULDER WITH 2% MIN.

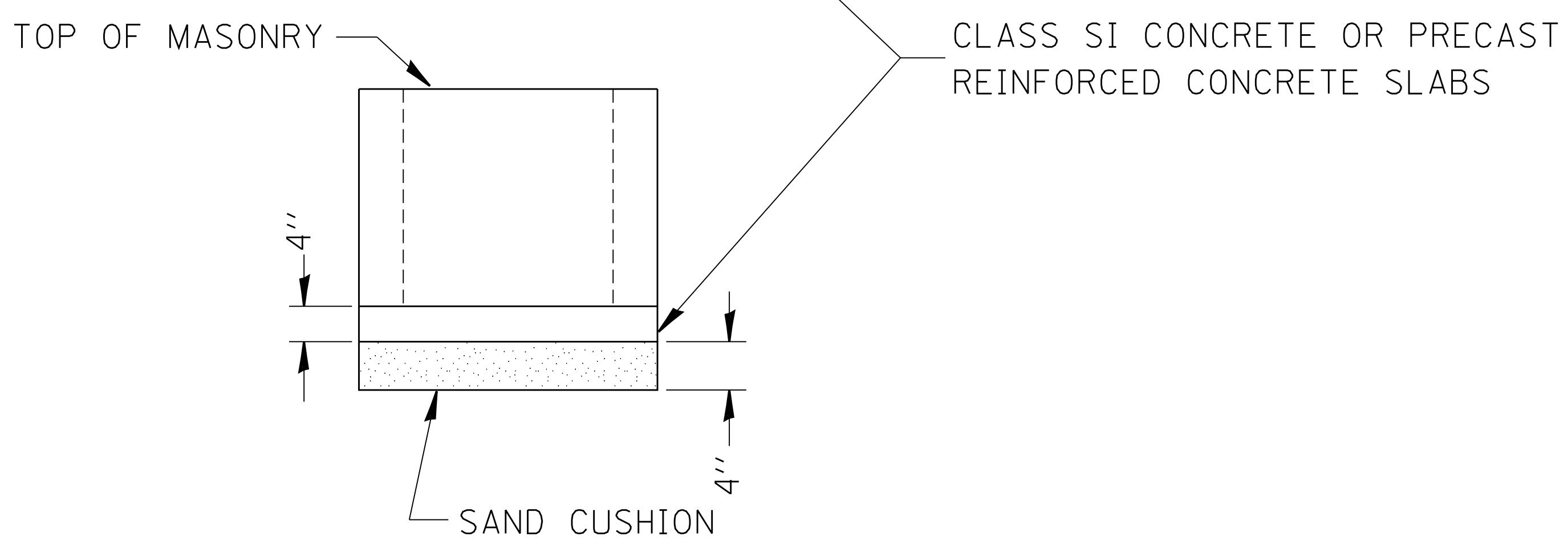
ALTERNATE MATERIALS FOR WALLS	
PRECAST REINFORCED CONCRETE RISERS	3''
CONCRETE MASONRY UNITS	5''
CAST-IN-PLACE CONCRETE	6''
BUILDING BRICK, GRADE SW, FROM CLAY OR SHALE	8''



PLAN



SEC. A-A

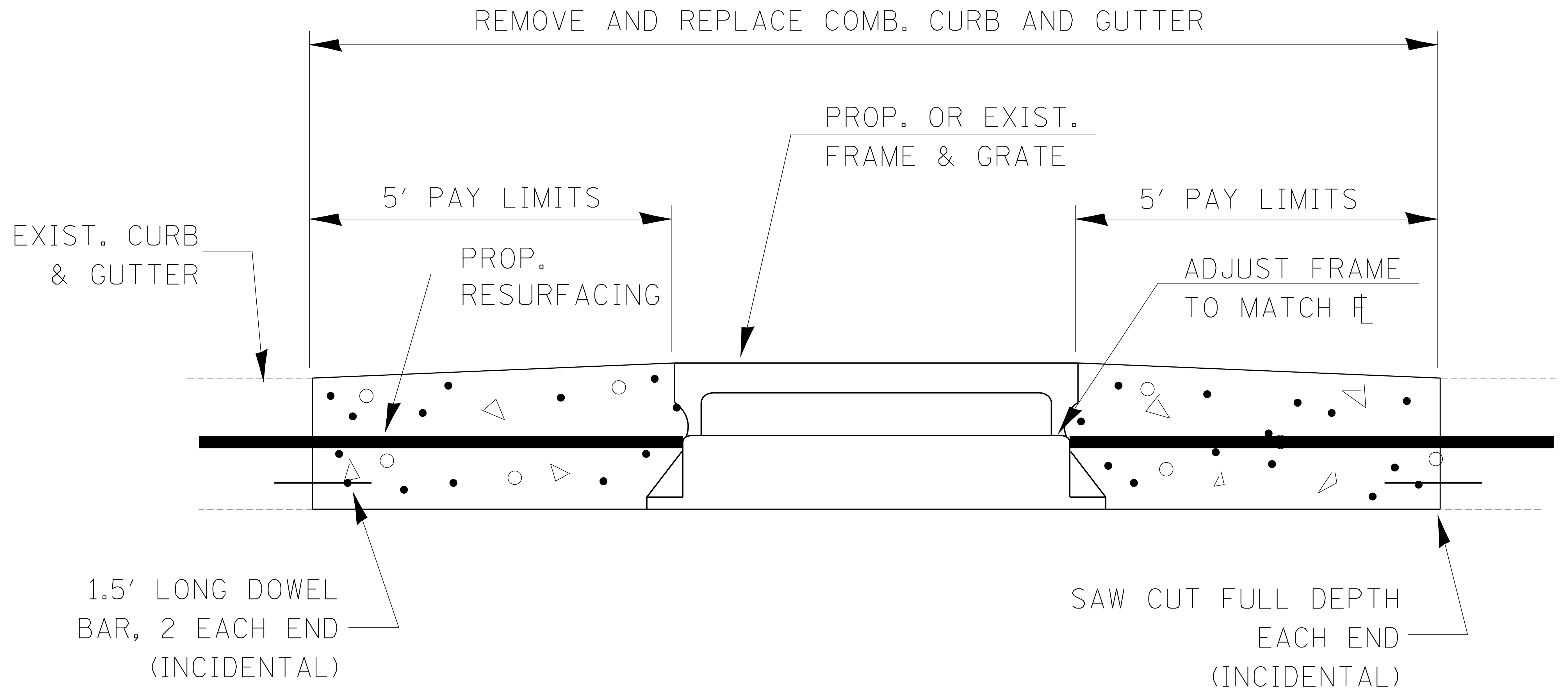


NOTE:

1. THE CONTRACT UNIT PRICE FOR INLETS TYPE A (SPECIAL) SHALL NOT INCLUDE THE FRAME AND LID OR GRATE.
2. FURNISHING AND INSTALLING SAND CUSHION IS TO BE INCLUDED IN THE CONTRACT UNIT PRICE FOR TYPE A (SPECIAL) INLETS.
3. THE TYPE A (SPECIAL) INLET SHOULD NOT BE USED AS A RECEIVER OF STORM WATER FROM ANOTHER INLET.

**FOR INLET TYPE A (SPECIAL)**

(TO BE USED AT PAVED SECTION WITH CURB & GUTTER)  
NO SCALE

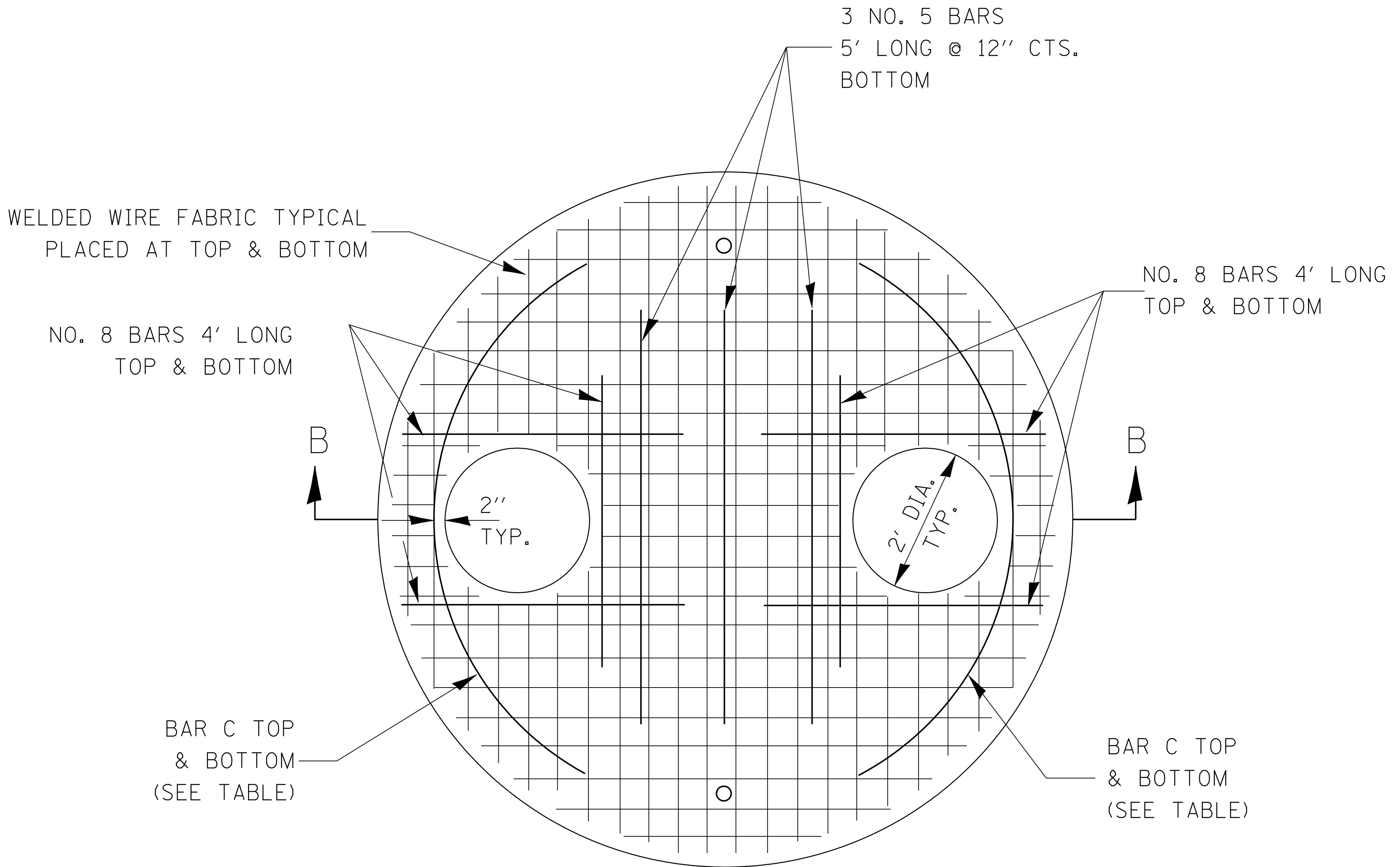


# INLET ADJUST

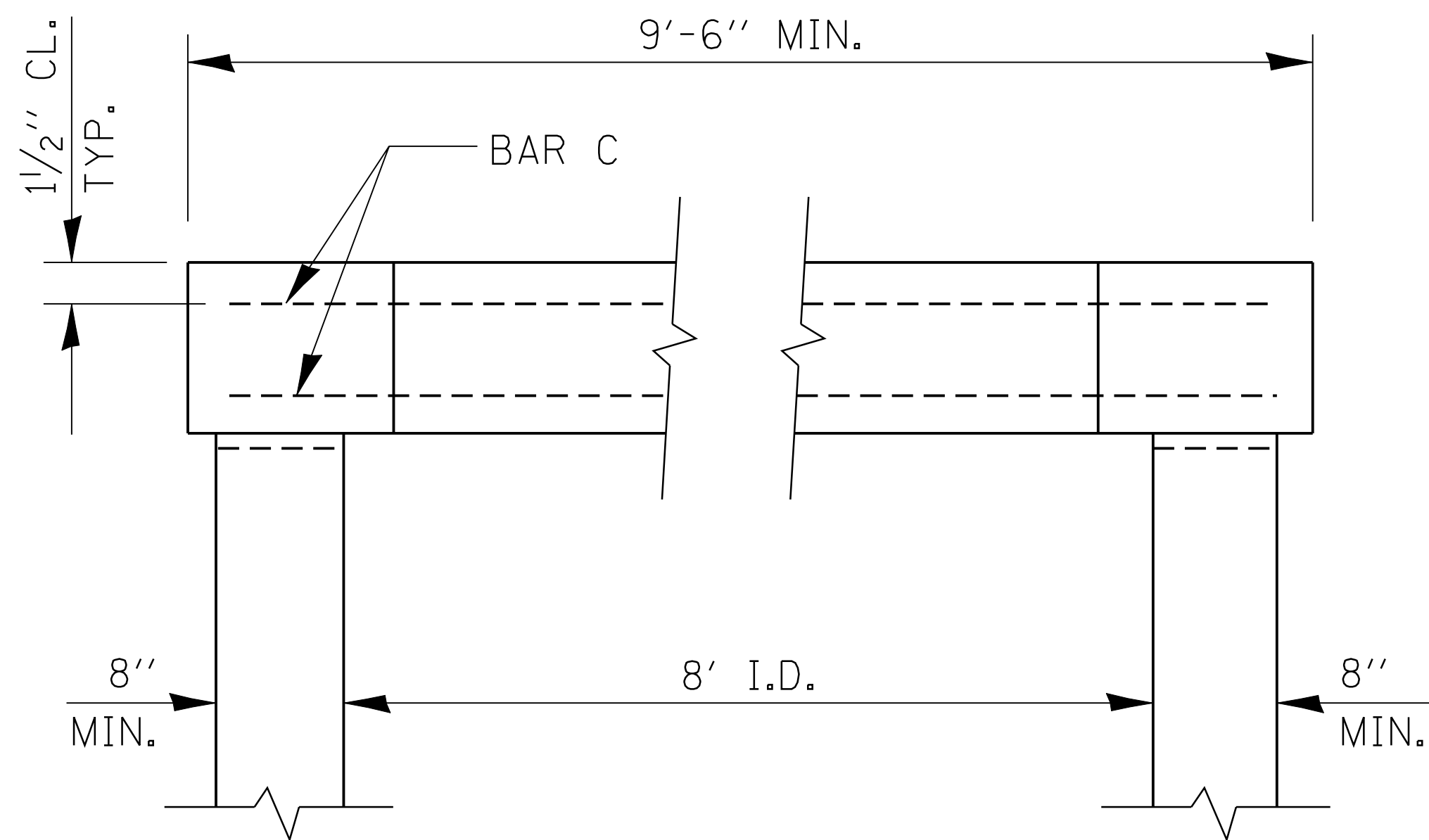
# 602-2



# MANHOLE TYPE A 8' DIAMETER 2 – 24" OPENINGS



**PLAN**



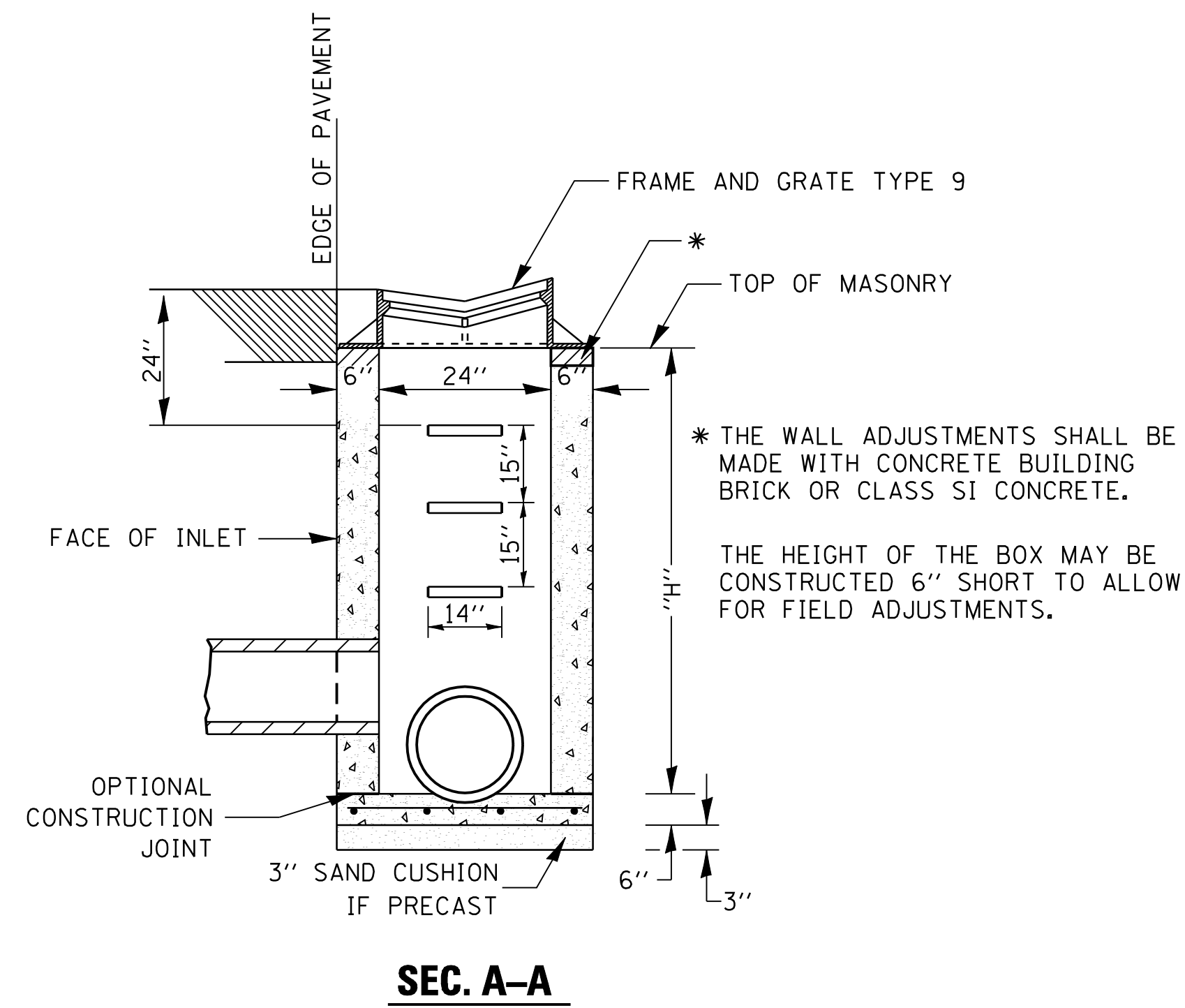
**SECTION B-B**

DIAMETER OF OPENING	REINFORCEMENT BAR SIZE	REINFORCEMENT "AS" WWF EACH DIRECTION	NO. 4 BAR C	
			LENGTH	RADIUS
24"	BOTTOM MAT NO. 8	BOTTOM MAT *** 1.57 SQ. IN./FT.	8'-6"	4'-0"
	TOP MAT NO. 4	TOP MAT *** 0.22 SQ. IN./FT.		

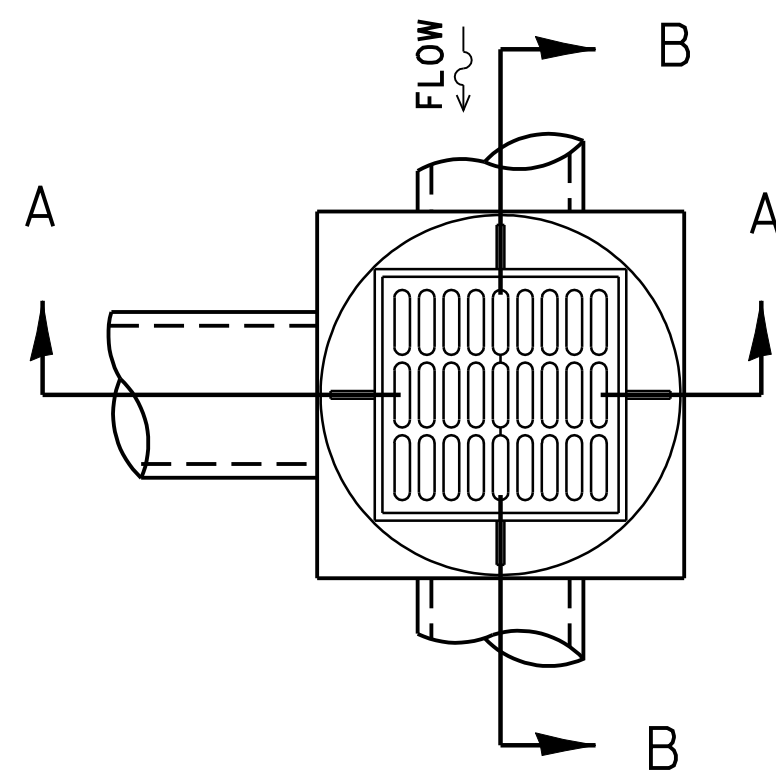
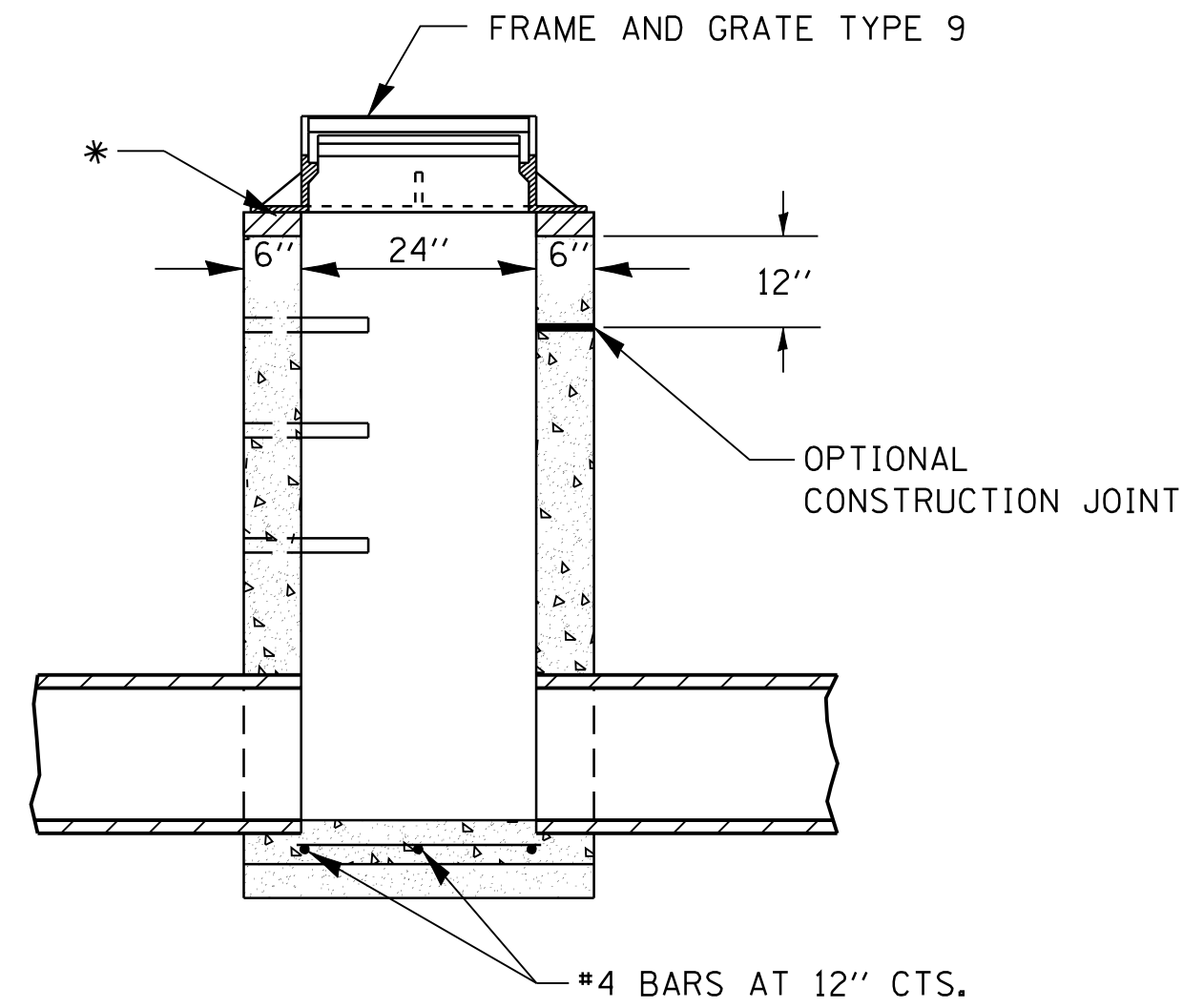
\*\*\* A MAXIMUM OF TWO LAYERS OF WELDED WIRE FABRIC MAY BE USED TO SATISFY THE REQUIRED "AS" FOR EACH MAT

**SEE STD/602416 FOR SINGLE OPENING REINFORCEMENT**





**SEC. A-A**



**NOTES**

SEE STANDARD 602701 FOR DETAILS OF STEPS. STEPS SHALL BE OMITTED WHEN "H" IS LESS THAN 5'

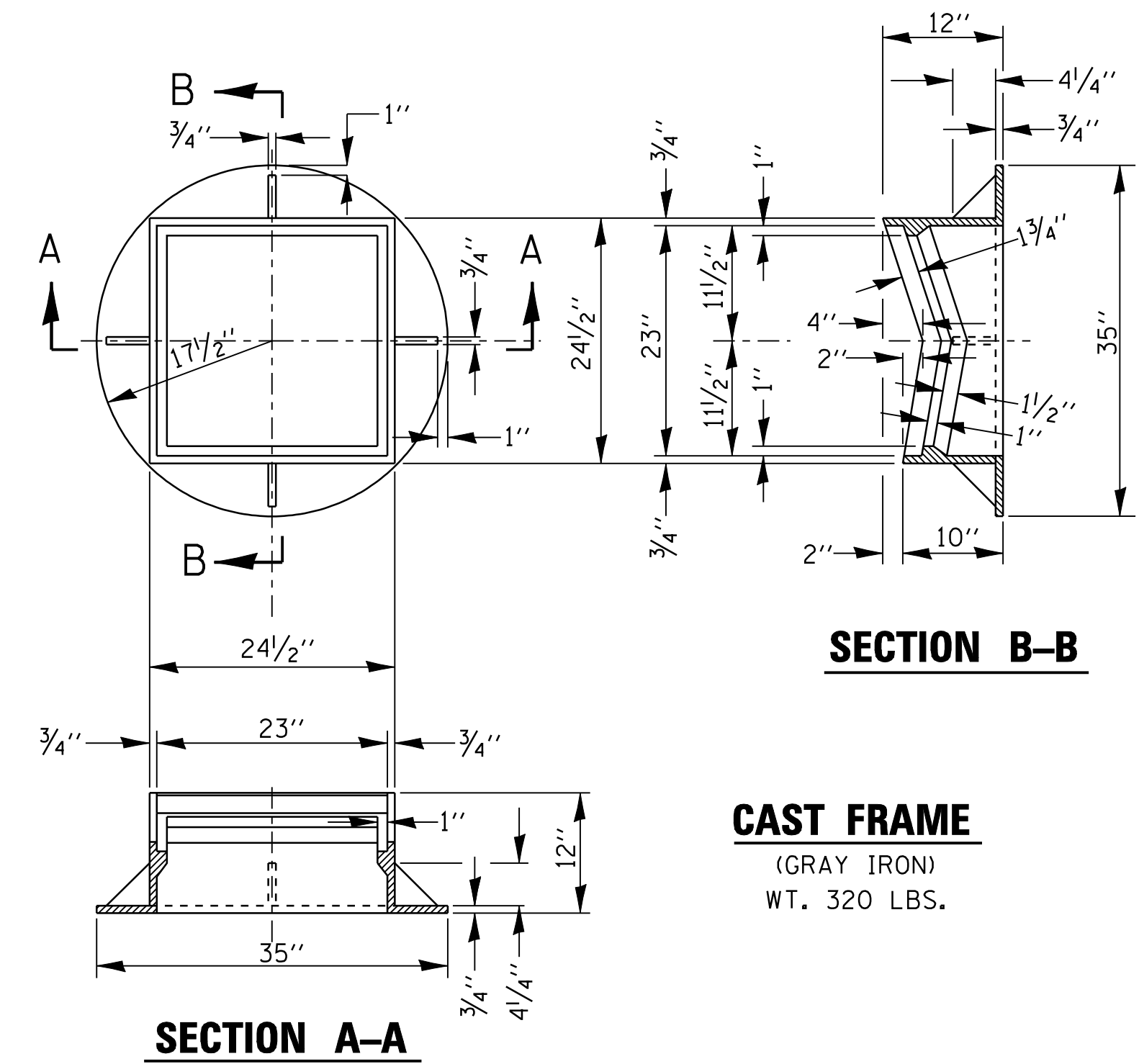
EXCEPT AS NOTED HEREIN INLET SPECIAL SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 602 OF THE STANDARD SPECIFICATIONS.

THE SIDE WALLS MAY BE BUILT AS PRECAST SEGMENTED SECTIONS.

ALL VOIDS AROUND PIPE ENTRANCE, BOTH INSIDE AND OUTSIDE, SHALL BE SEALED WITH MORTAR.

WEIGHT OF CAST IRON FRAME & GRATE = 440 LBS.

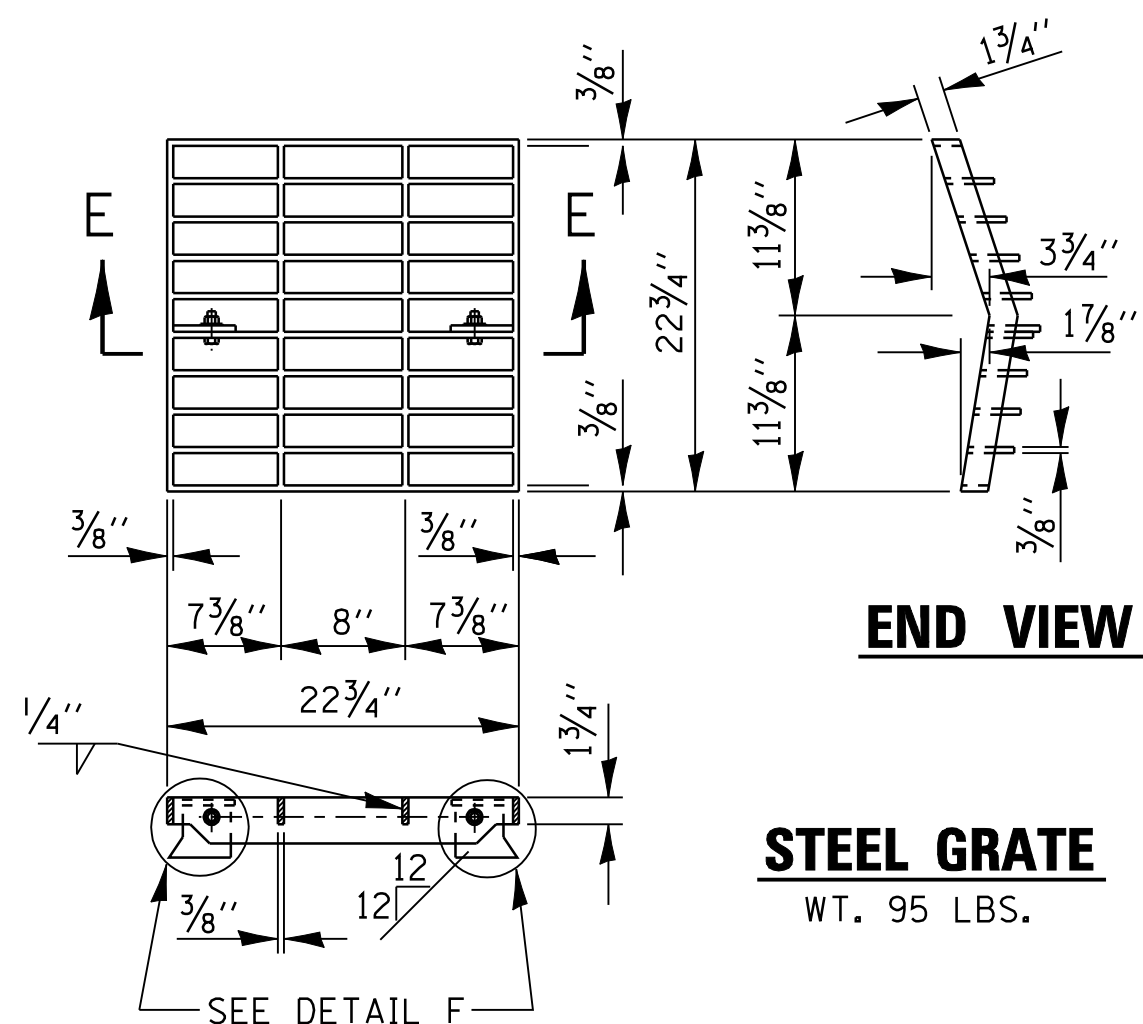
**FRAME AND GRATES TYPE 9**



**SECTION B-B**

**CAST FRAME**  
(GRAY IRON)  
WT. 320 LBS.

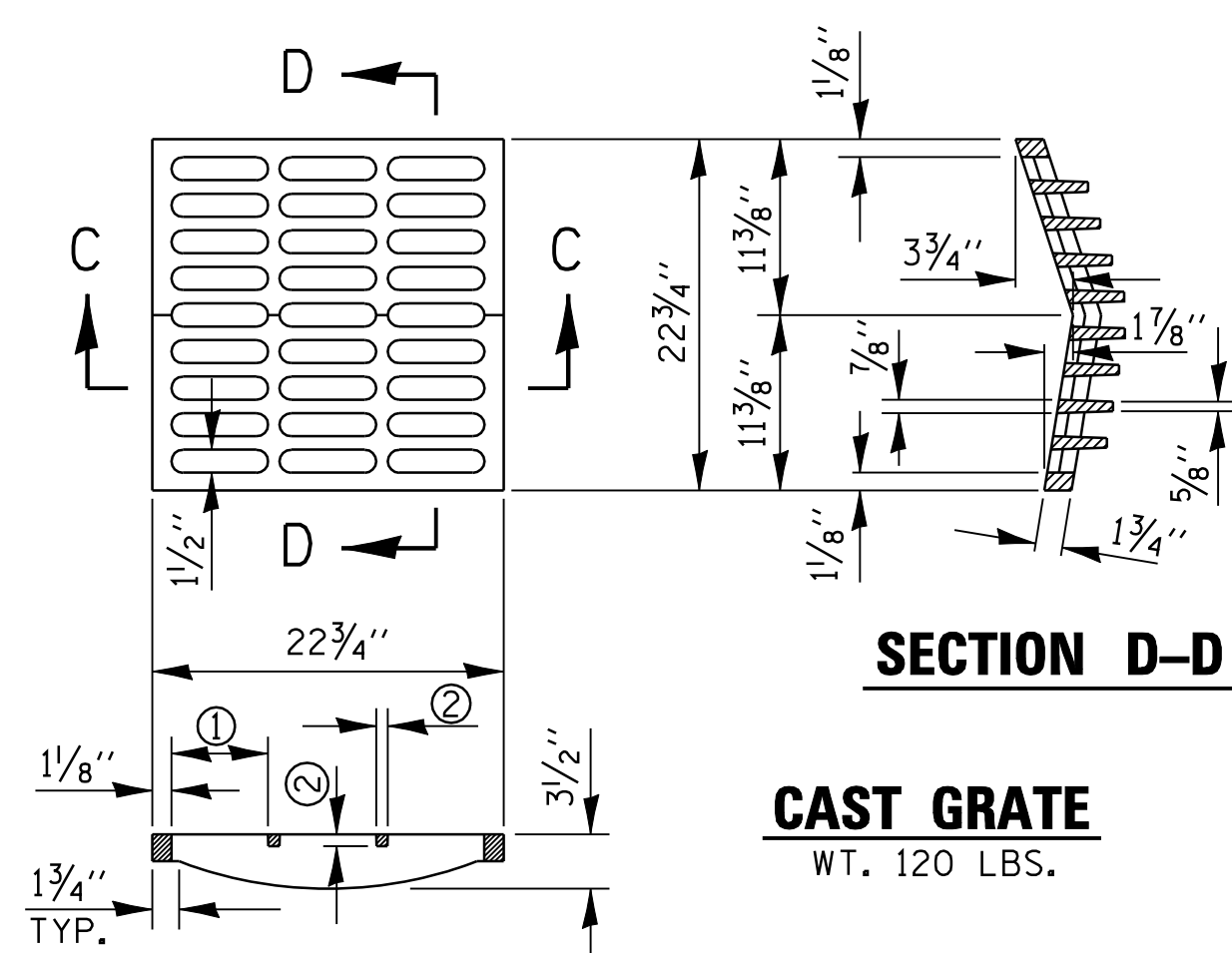
**DETAIL OF FRAME & GRATE**



**STEEL GRATE**  
WT. 95 LBS.

**SECTION E-E**

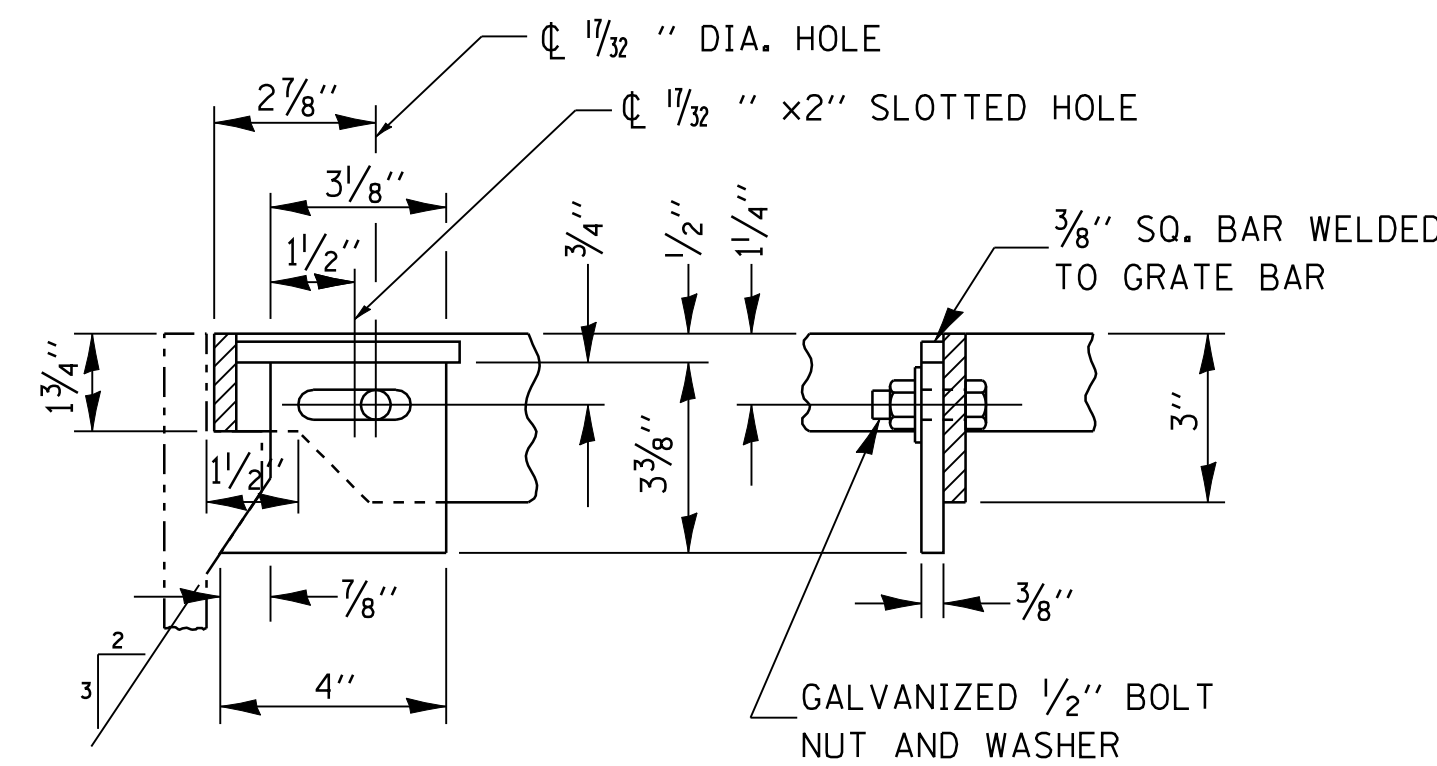
**FINISH**  
STEEL GRATE SHALL BE GIVEN ONE SHOP COAT OF BLACK BITUMINOUS PAINT.



**CAST GRATE**  
WT. 120 LBS.

**SECTION C-C**

- ① = 6 1/4" MAX. (TYP.)
- ② = 3/4" MIN. (TYP.)



**LOCKING DEVICE**  
**DETAIL F**

**GENERAL NOTES**

THE MATERIAL FOR STEEL GRATE SHALL CONFORM TO ARTICLE 1006.04 OF THE STANDARD SPECIFICATIONS.

THE USE OF EITHER A CAST GRATE OR A STEEL GRATE WITH THE CAST FRAME SHALL BE THE OPTION OF THE CONTRACTOR.

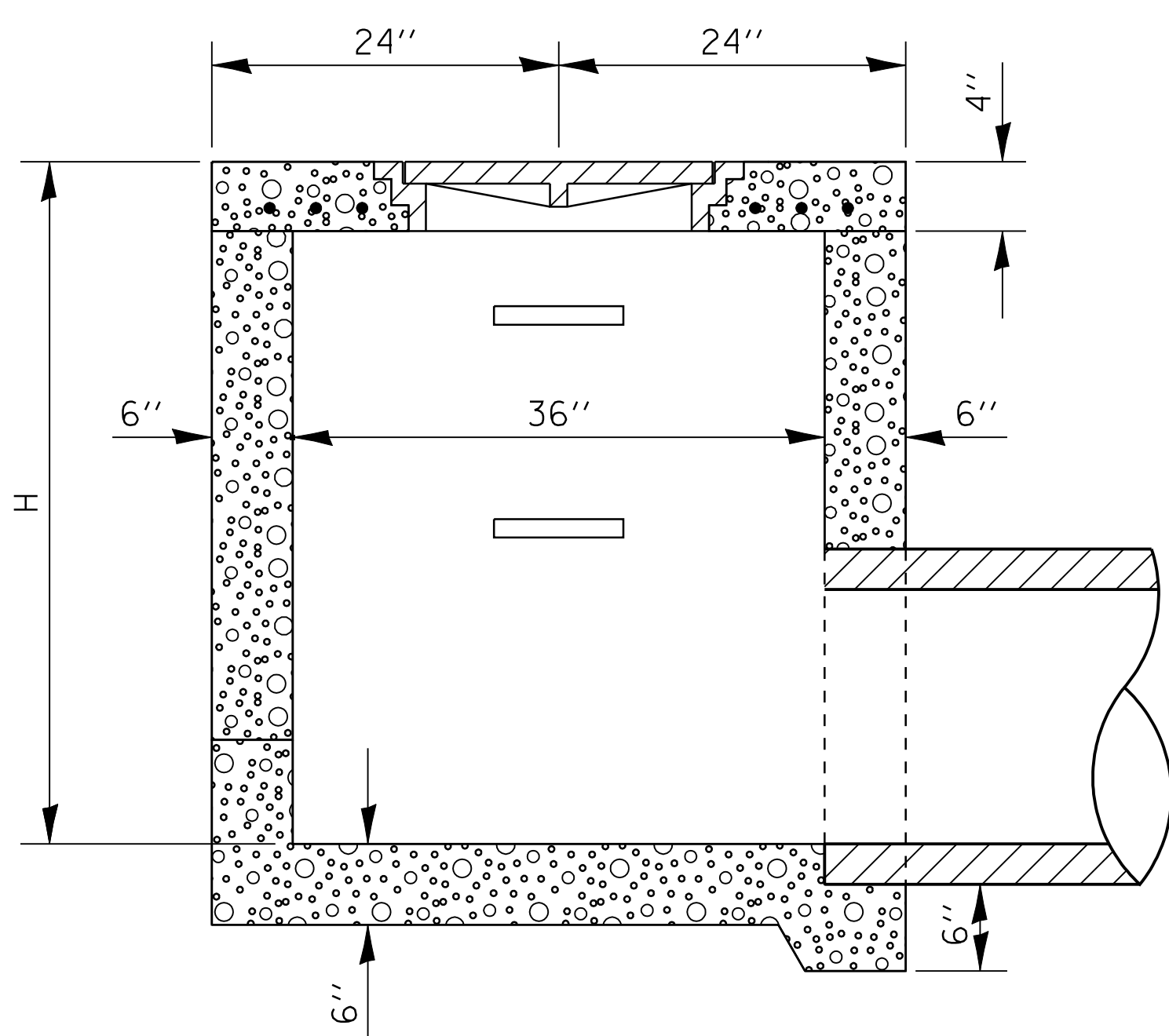
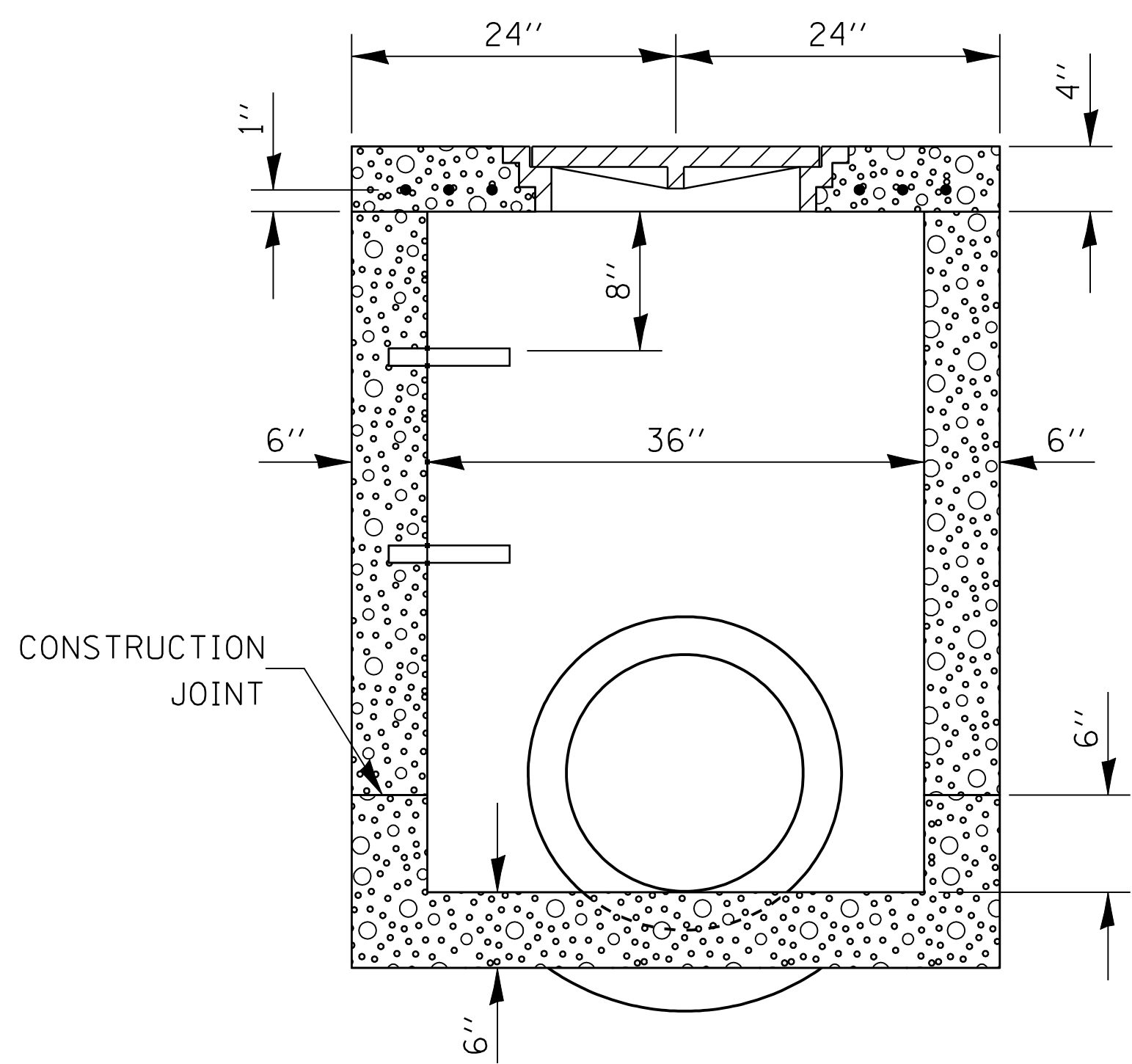
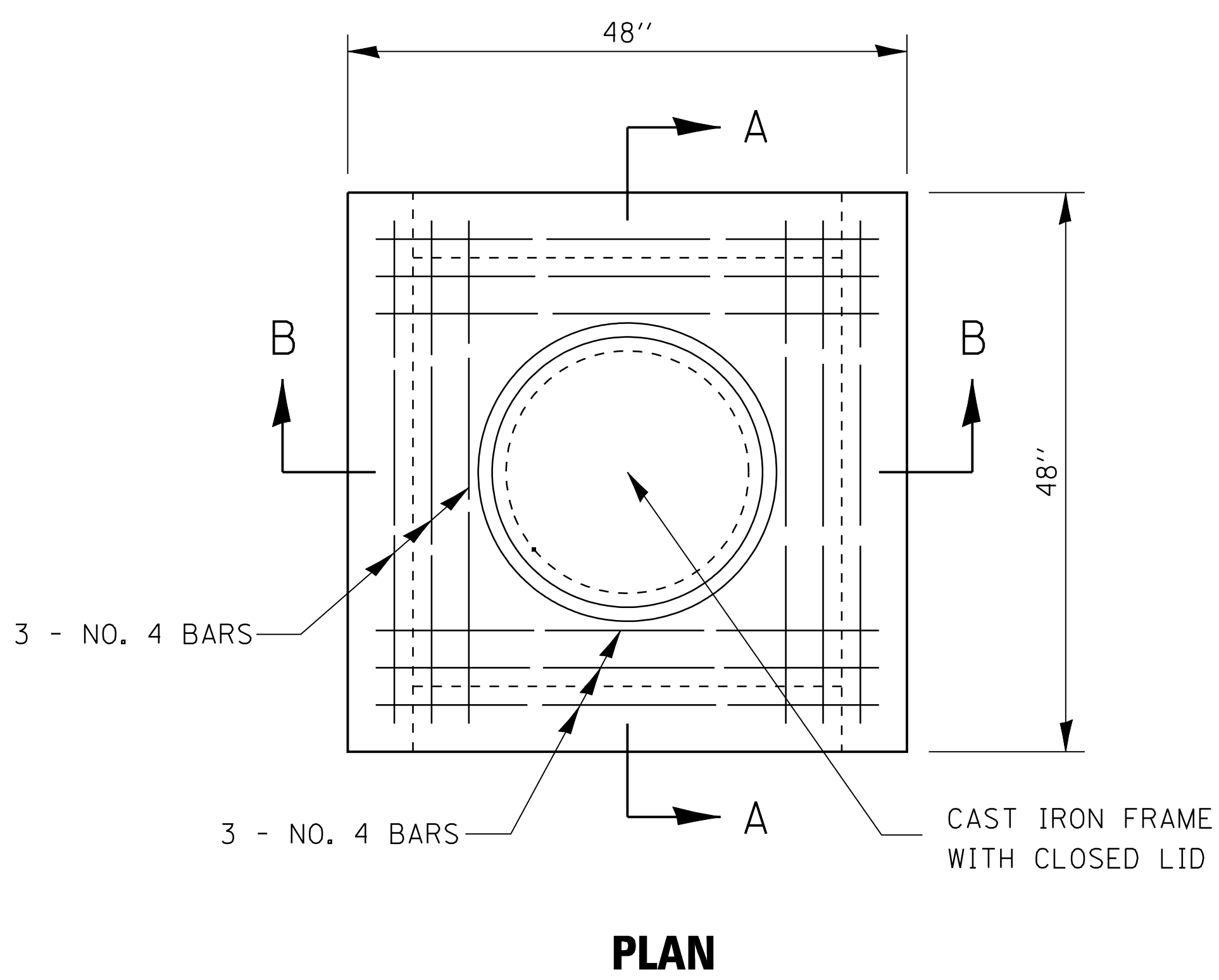
THE CAST GRATE MAY BE MADE OF EITHER GRAY IRON OR DUCTILE IRON CONFORMING TO THE STANDARD SPECIFICATIONS. DUCTILE IRON CASTING SHALL BE GRADE 65-45-12.

**NOTES**

CLASS SI CONCRETE OR PRECAST CONCRETE SHALL BE USED THROUGHOUT. PRECAST CONCRETE SHALL BE IN ACCORDANCE WITH ARTICLES 504.01 THROUGH 504.05 OF THE STANDARD SPECIFICATIONS EXCEPT THAT CONCRETE STRENGTH SHALL BE 4,000 PSI AFTER 28 DAYS.

THE CONTRACT UNIT PRICE EACH FOR INLET SPECIAL SHALL INCLUDE THE COST OF CONSTRUCTING THE INLET BOX, FURNISHING AND INSTALLING THE FRAME AND GRATE. THE CAST IRON STEPS, THE PRECAST FLOOR SLAB, SAND CUSHION AND REINFORCEMENT BARS.

FILE NAME = c:\pwork\pwidot\CORCORANLM\dms41560\800699.dgn	USER NAME = corcoranlm	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>INLET SPECIAL (TYPE A GUTTER)</b>				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
PLOT SCALE = 47.727' / IN.	PLOT DATE = Jul 28, 2009 - 08:39:36 AM	DRAWN -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.				
		CHECKED -	REVISED -		FED. ROAD DIST. NO.									ILLINOIS FED. AID PROJECT
		DATE -	REVISED -											



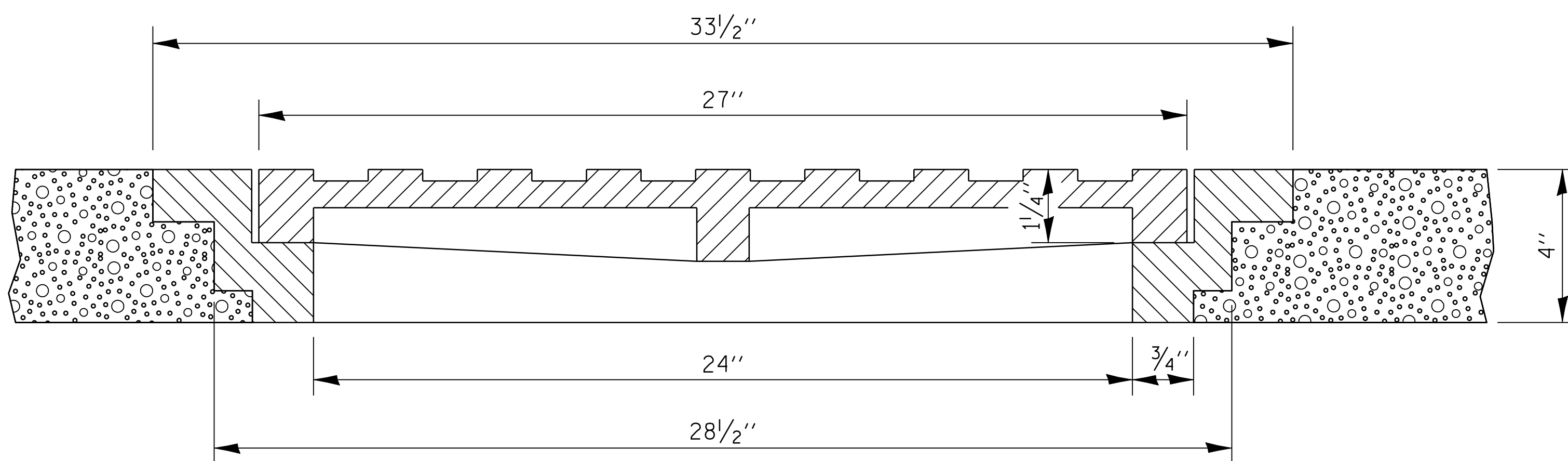
**NOTES:**

CLASS SI CONCRETE SHALL BE USED THROUGHOUT.

THE MANHOLE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR MANHOLES, SPECIAL, WHICH PRICE SHALL INCLUDE THE CAST IRON FRAME WITH CLOSED LID, THE STEPS AND THE REINFORCEMENT BARS.

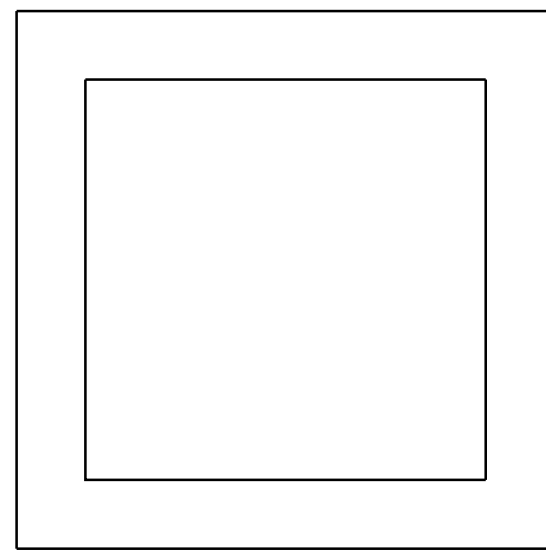
CONSTRUCT NUMBER OF PIPE CONNECTIONS AS DIRECTED BY THE ENGINEER.

STEPS AT 12" TO 16" CENTERS SEE STANDARD 602701 FOR DETAILS OF STEPS.



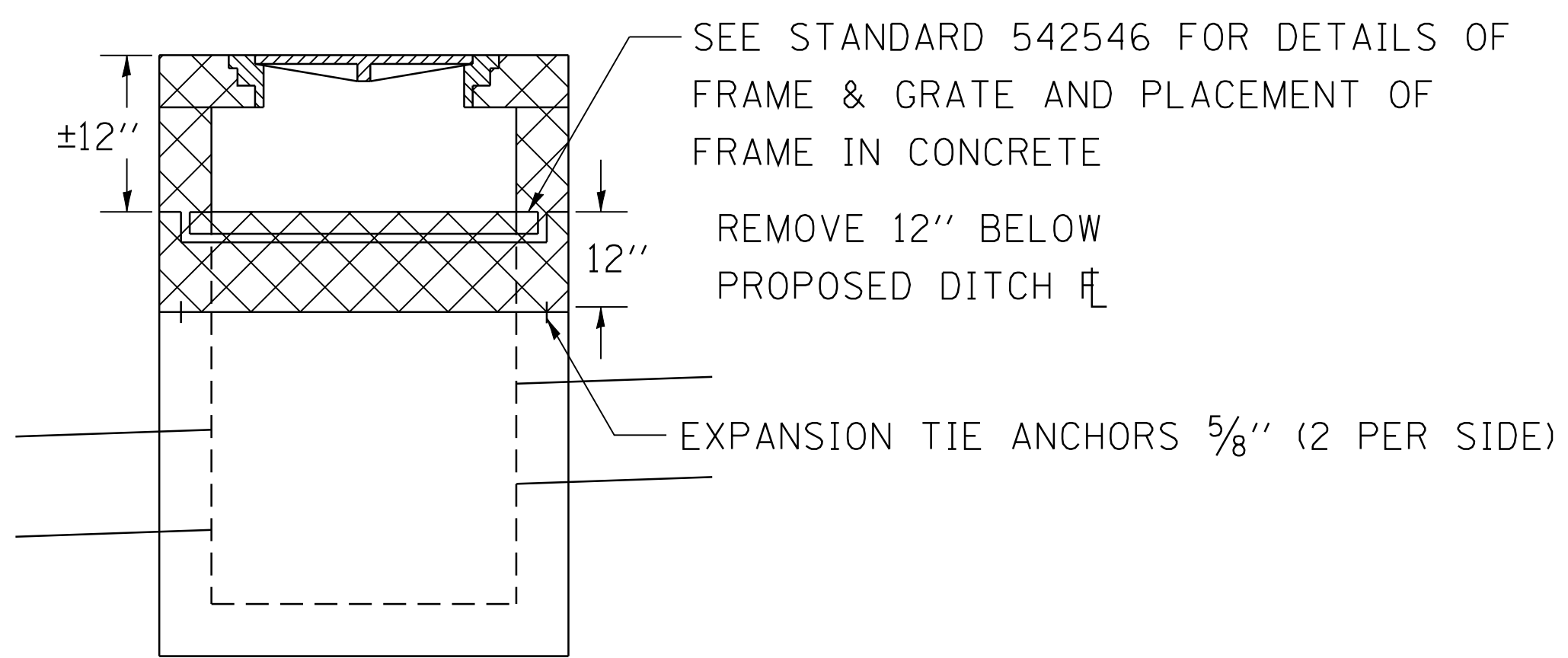
**SECTION THRU FRAME & LID**  
WEIGHT OF FRAME & LID, 300 LBS.

**MANHOLES, SPECIAL**



SEE STANDARD 542546 FOR  
FRAME PLACEMENT DETAILS

**PLAN VIEW**



SEE STANDARD 542546 FOR DETAILS OF  
FRAME & GRATE AND PLACEMENT OF  
FRAME IN CONCRETE

REMOVE 12" BELOW  
PROPOSED DITCH  $\mathcal{F}$

EXPANSION TIE ANCHORS  $\frac{5}{8}$ " (2 PER SIDE)

**NOTES:**

THIS WORK SHALL BE DONE IN ACCORDANCE WITH SECTION 602 OF THE STANDARD SPECIFICATIONS, STANDARD 542546 AND THIS DETAIL.

THE PROPOSED TOP SHALL BE CAST-IN-PLACE OR PRECAST.

THE CONCRETE SHALL BE REMOVED ACCORDING TO ARTICLE 501.05 OF THE STANDARD SPECIFICATIONS.

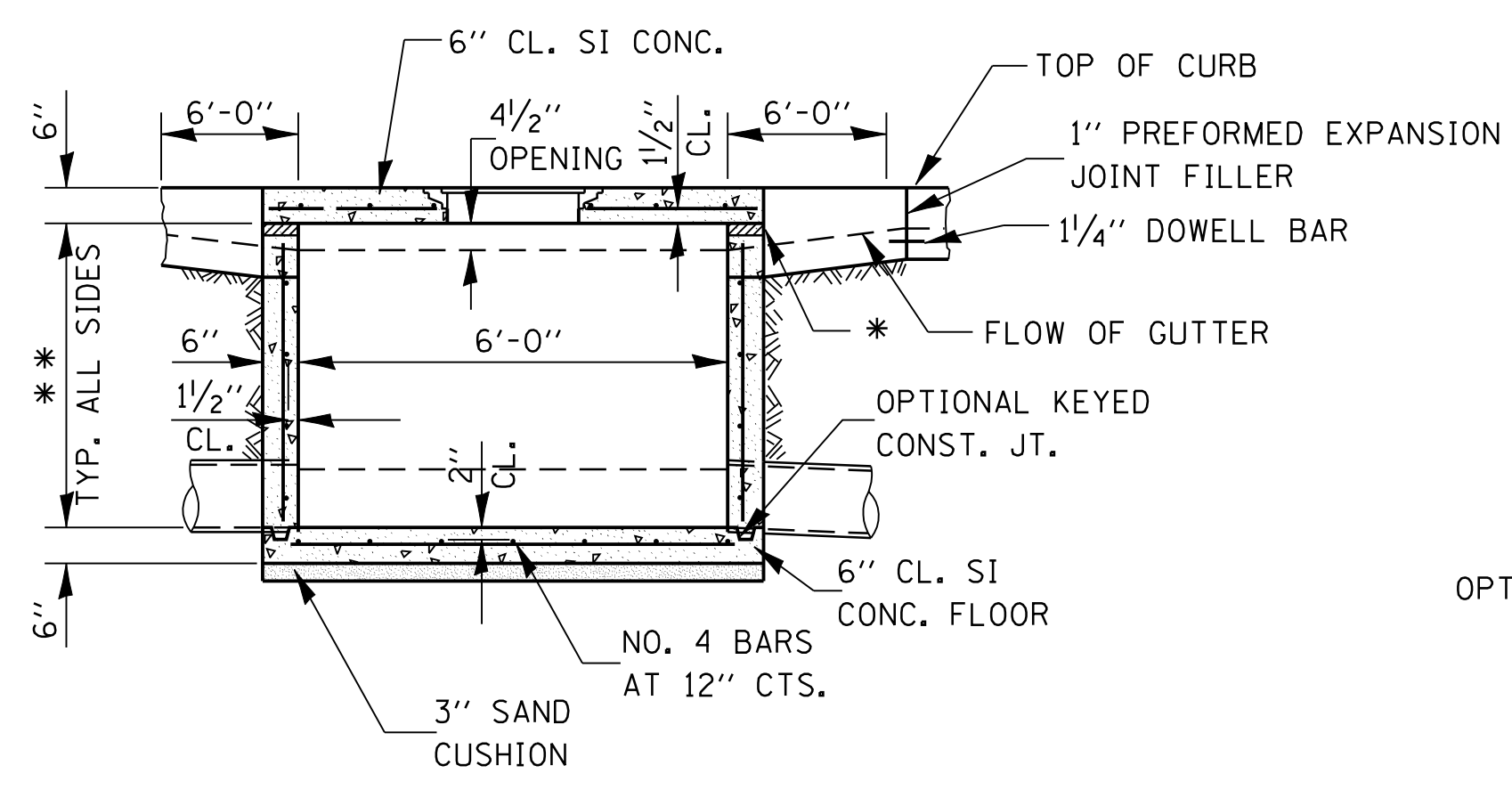
THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR INLETS TO BE RECONSTRUCTED WITH NEW STANDARD 542546 FRAME AND GRATE WHICH PRICE SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING FRAME AND GRATE & CONCRETE, FURNISHING & INSTALLING EXPANSION TIE ANCHORS, CLASS SI CONCRETE, AND FURNISHING & INSTALLING FRAME & GRATE.

**FLUSH INLET BOX TO BE RECONSTRUCTED**

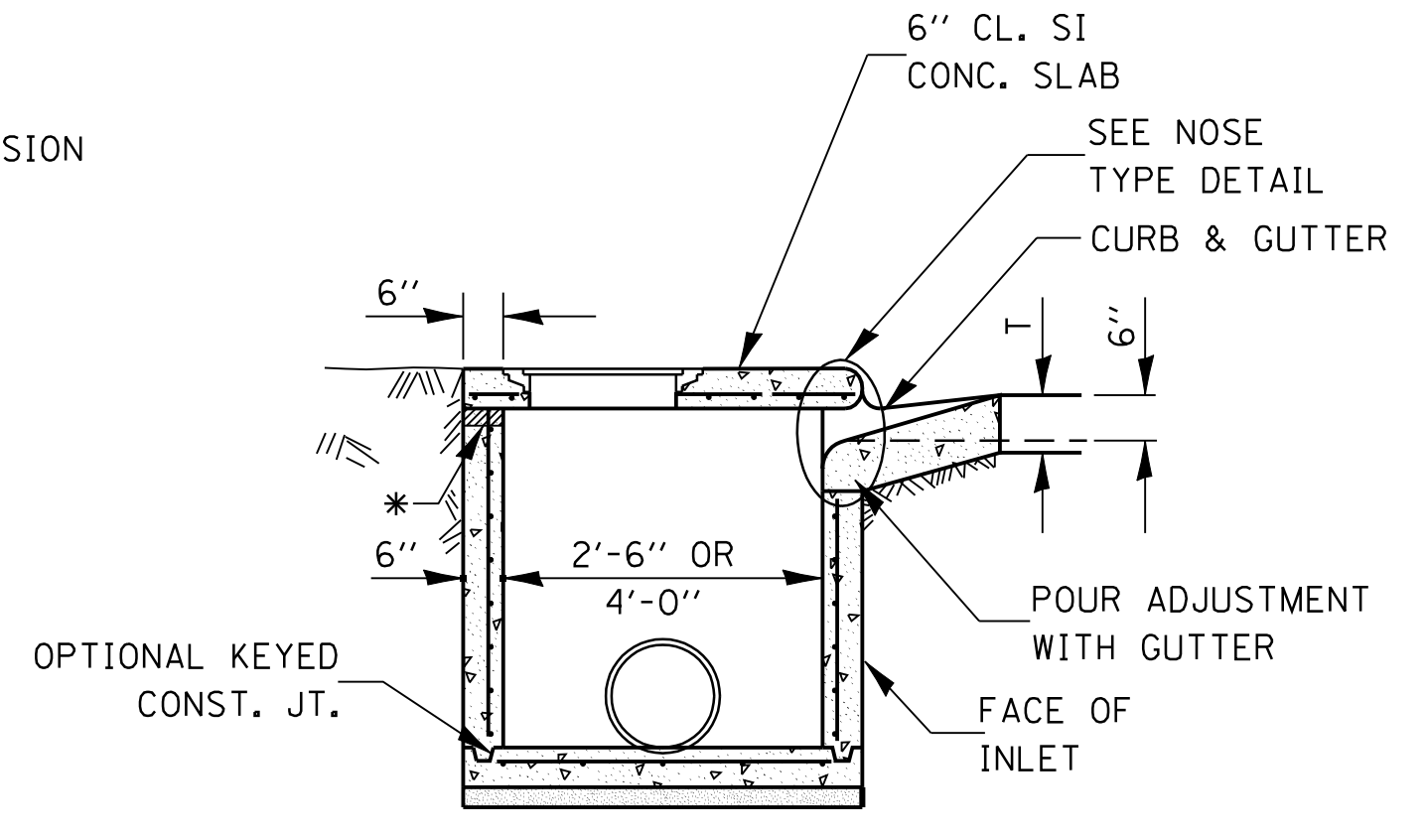
WITH NEW STANDARD 542546 FRAME AND GRATE

**DESIGNER NOTE:**

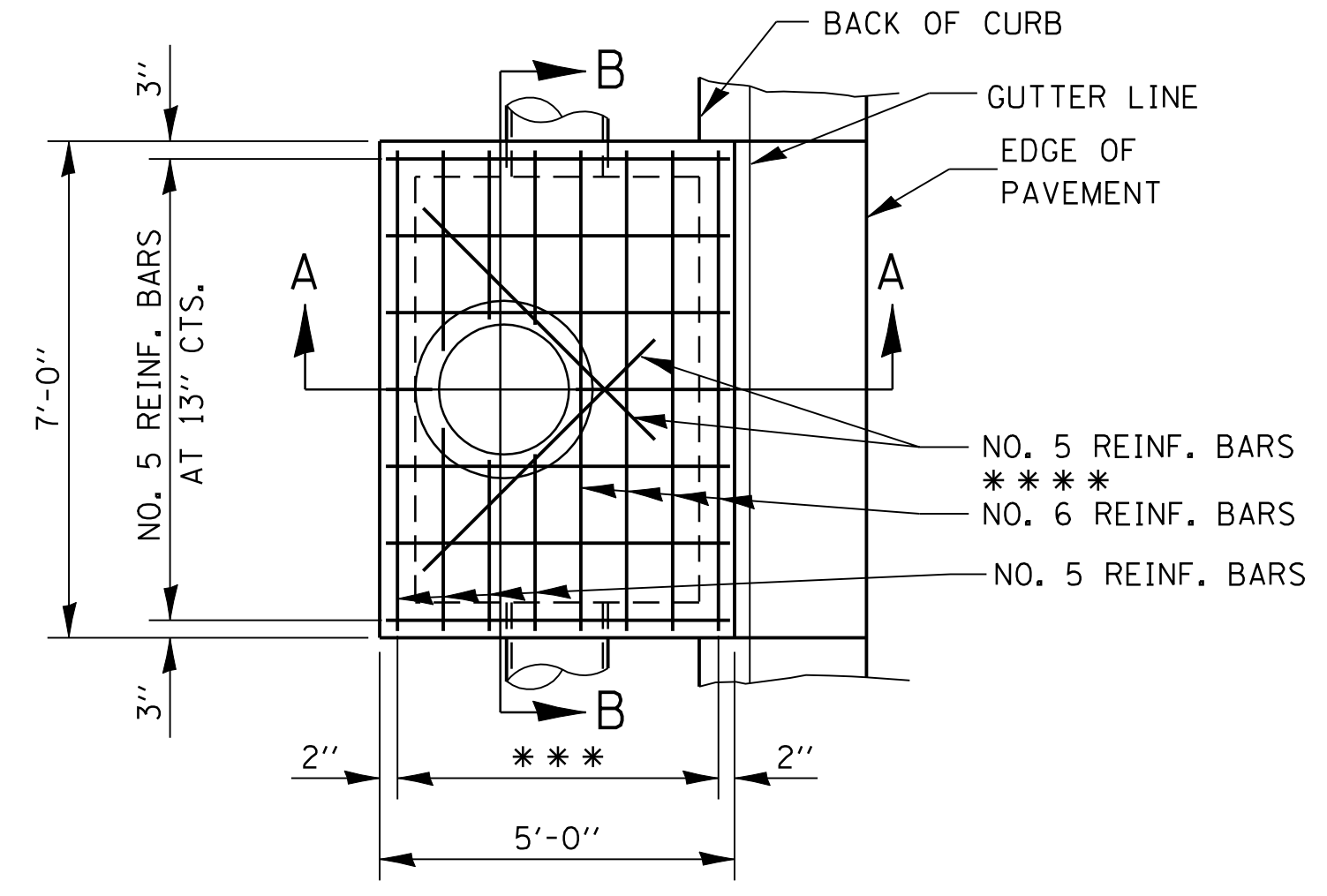
CHECK THE DIMENSIONS  
ON THIS DETAIL, CHANGE  
TO FIT YOUR CONDITIONS.



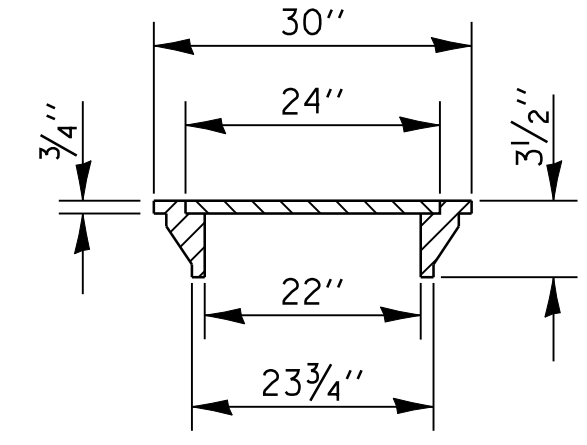
**SECTION B-B**



**SECTION A-A**



**TOP VIEW**



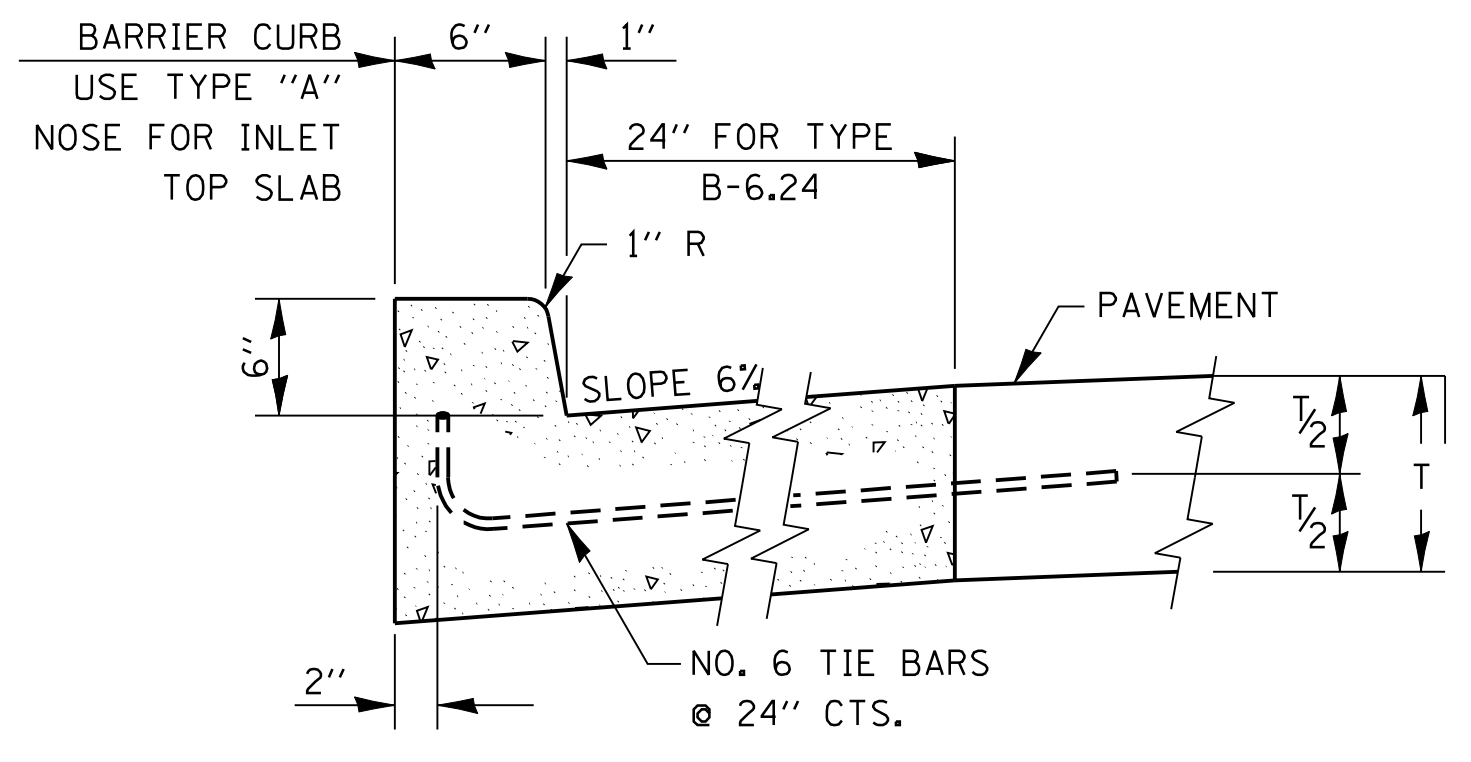
**LIGHT WEIGHT MANHOLE CASTING**

**INLET SPECIAL NO. 3, 4, 5,6**

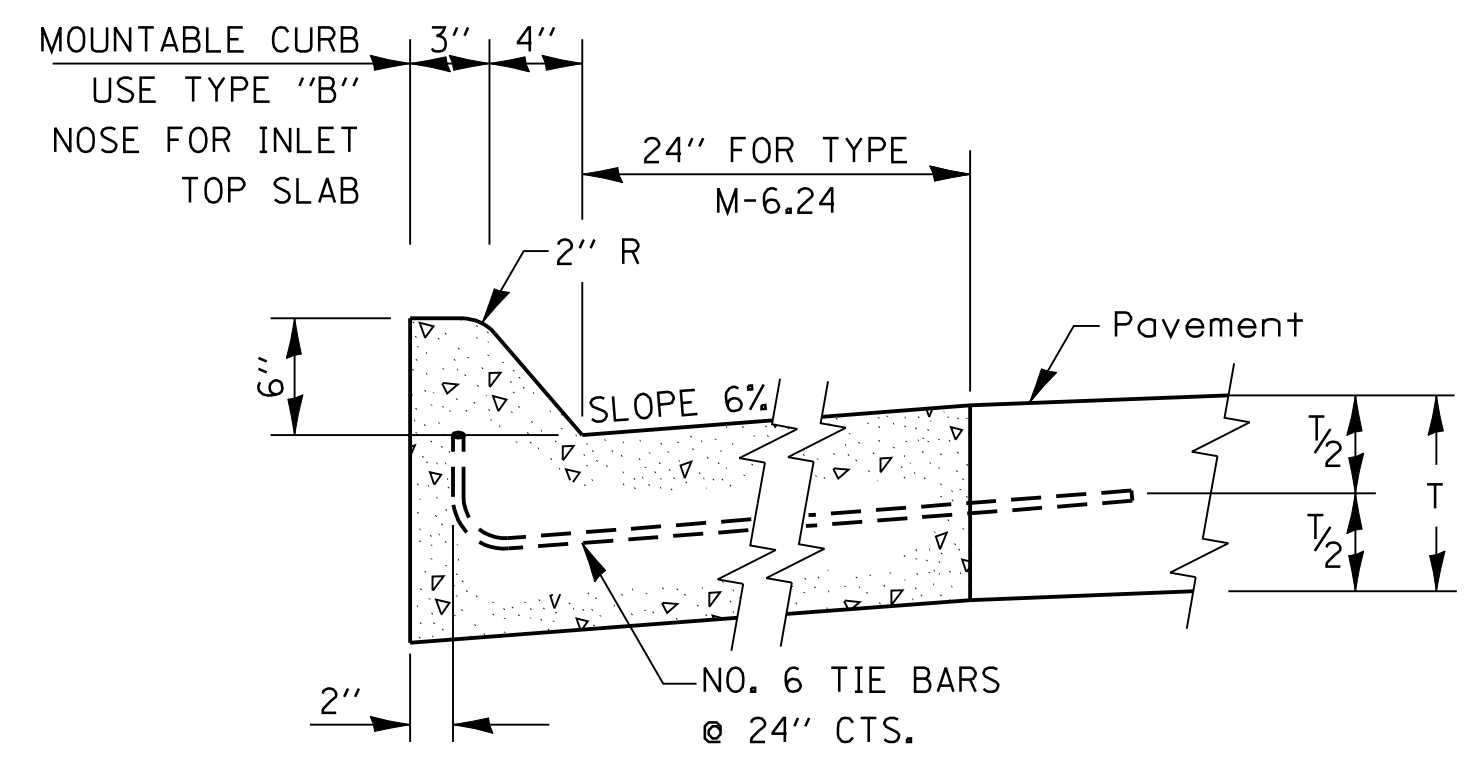
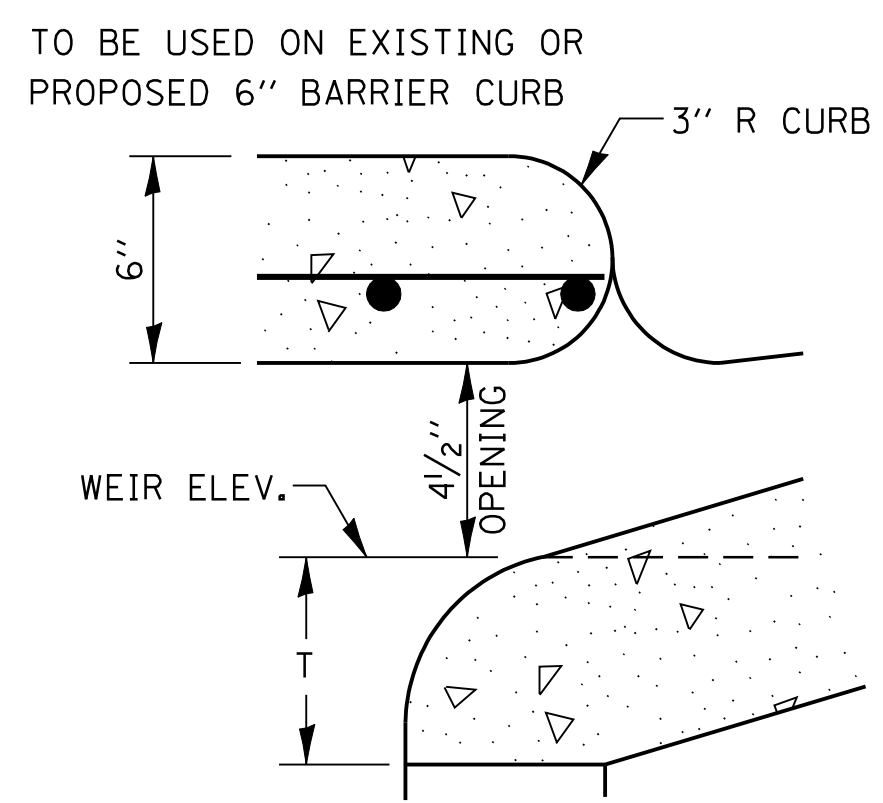
- TOP SLAB REINFORCEMENT TO BE EPOXY COATED BARS.
- \* THE WALL ADJUSTMENTS SHALL BE MADE WITH CONCRETE BUILDING BRICKS OR CLASS SI CONCRETE.
- THE HEIGHT OF THE BOX MAY BE CONSTRUCTED 6" SHORT TO ALLOW FOR FIELD ADJUSTMENTS.
- \*\* 4'-0" TO 8'-0" - NO. 5 REINFORCEMENT BARS AT 12" CENTERS E.W.
- 8'-0" TO 13'-0" - NO. 5 REINFORCEMENT BARS AT 10" CENTERS E.W.
- 13'-0" TO 15'-0" NO. 5 REINFORCEMENT BARS AT 8" CENTERS E.W.
- \*\*\* 7 SPAN AT 8" INLET SPECIAL 3 & 4
- 5 SPAN AT 7 5/8" INLET SPECIAL 5 & 6
- \*\*\*\* 2 REBARS FOR INLET SPECIAL 3 & 4
- 4 REBARS FOR INLET SPECIAL 5 & 6

**NOTES:**

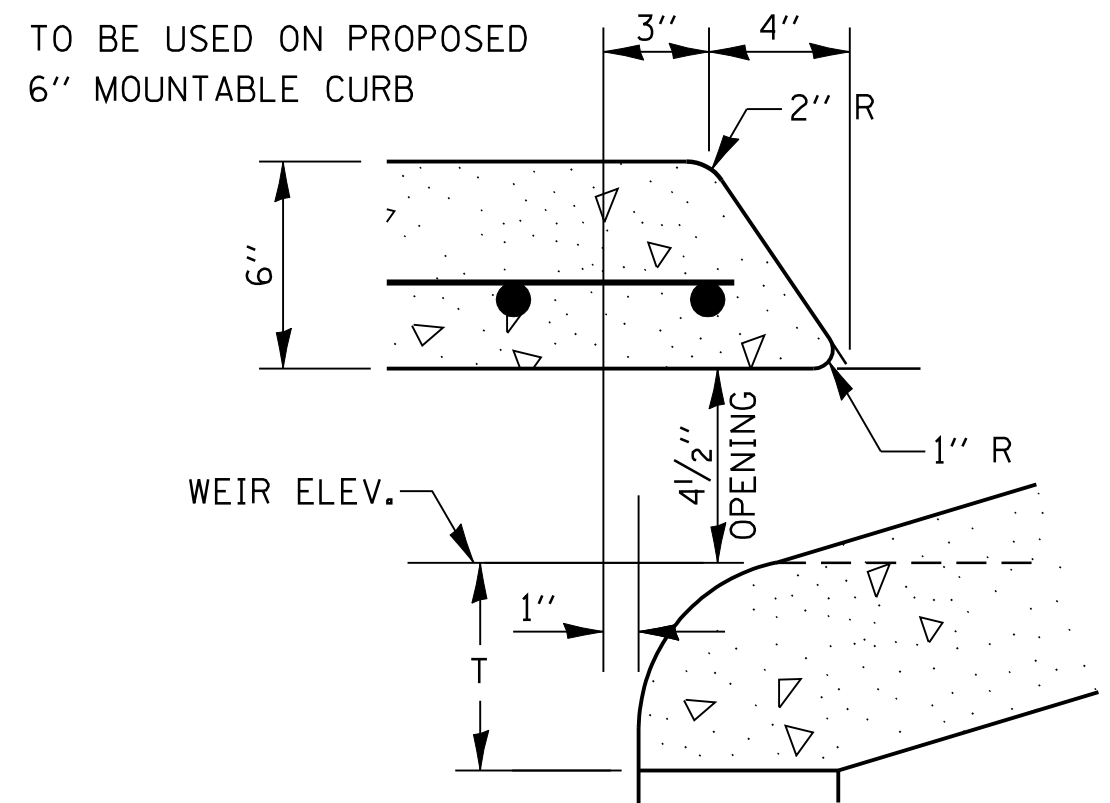
- SEE STANDARD 602701 FOR DETAILS OF STEPS.
- STEPS AT 12" TO 16" CENTERS.
- STEPS SHALL BE OMITTED WHEN DEPTH OF INLET IS LESS THAN 5'
- 1" PREFORMED EXPANSION JOINTS AS SHOWN SHALL BE PROVIDED ON EACH SIDE OF INLET.
- CLASS SI CONCRETE OR PRECAST CONCRETE SHALL BE USED THROUGHOUT.
- THE SIDE WALLS MAY BE BUILT AS PRECAST SEGMENTAL SECTIONS.
- THE INLET SHALL BE CAST-IN-PLACE OR PRECAST.
- EXCEPT AS NOTED HEREIN INLET SPECIAL SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 602 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACT UNIT PRICE EACH FOR INLET SPECIAL SHALL INCLUDE THE COST OF FURNISHING AND INSTALLING THE FRAME, LID, REINFORCEMENT BARS, FLOOR AND TOP SLABS, CAST IRON STEPS (IF USED).
- THE CURB AND GUTTER WILL BE PAID FOR SEPARATELY AND WILL BE MEASURED THROUGH THE INLET.
- THE CURB AND GUTTER ADJACENT TO AND 6' ON EITHER SIDE OF THE INLET SHALL BE CONSTRUCTED AS SHOWN WITH NO ADDITIONAL COMPENSATION FOR THE TRANSITION.



**TYPE "A"**



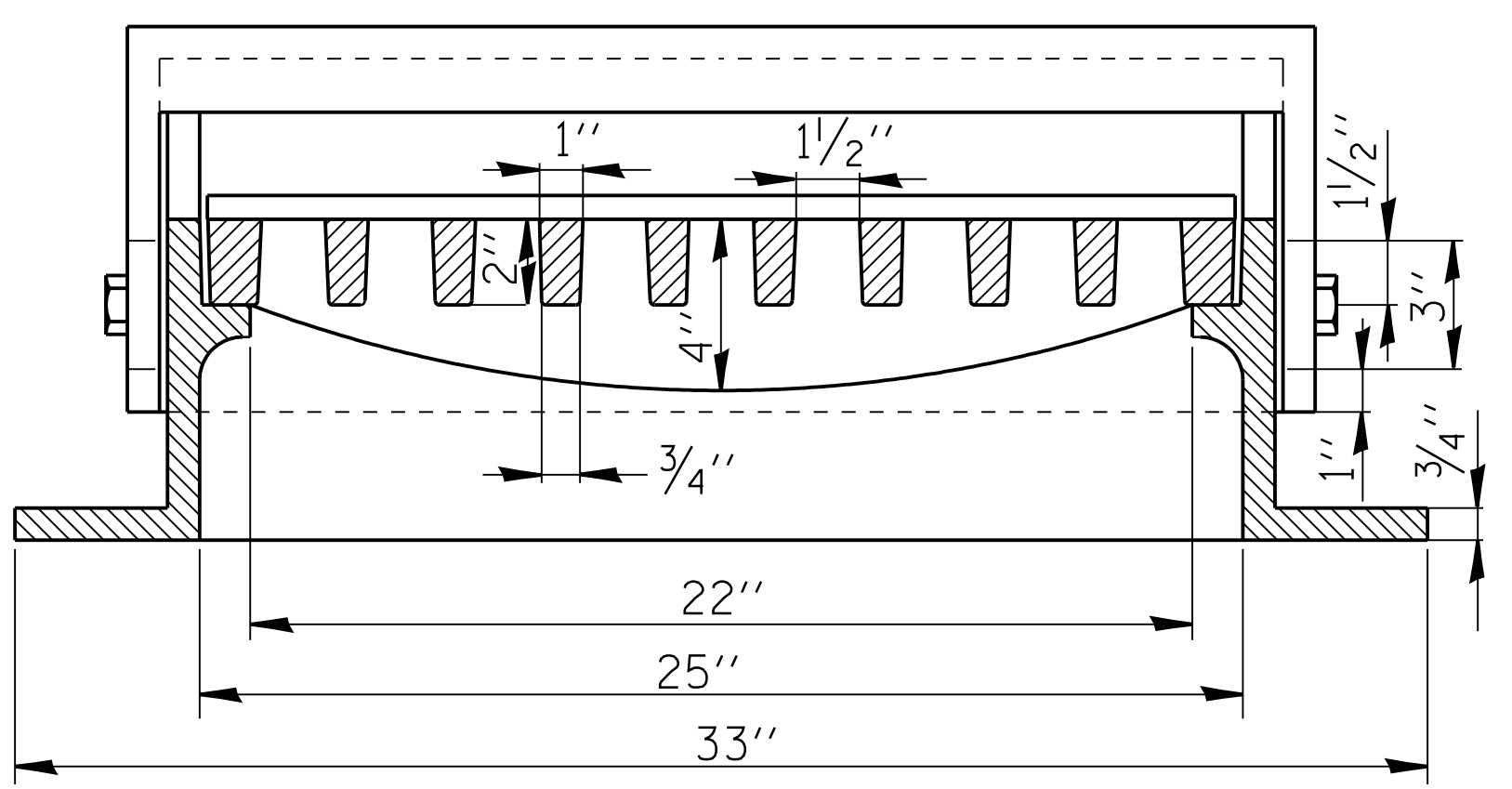
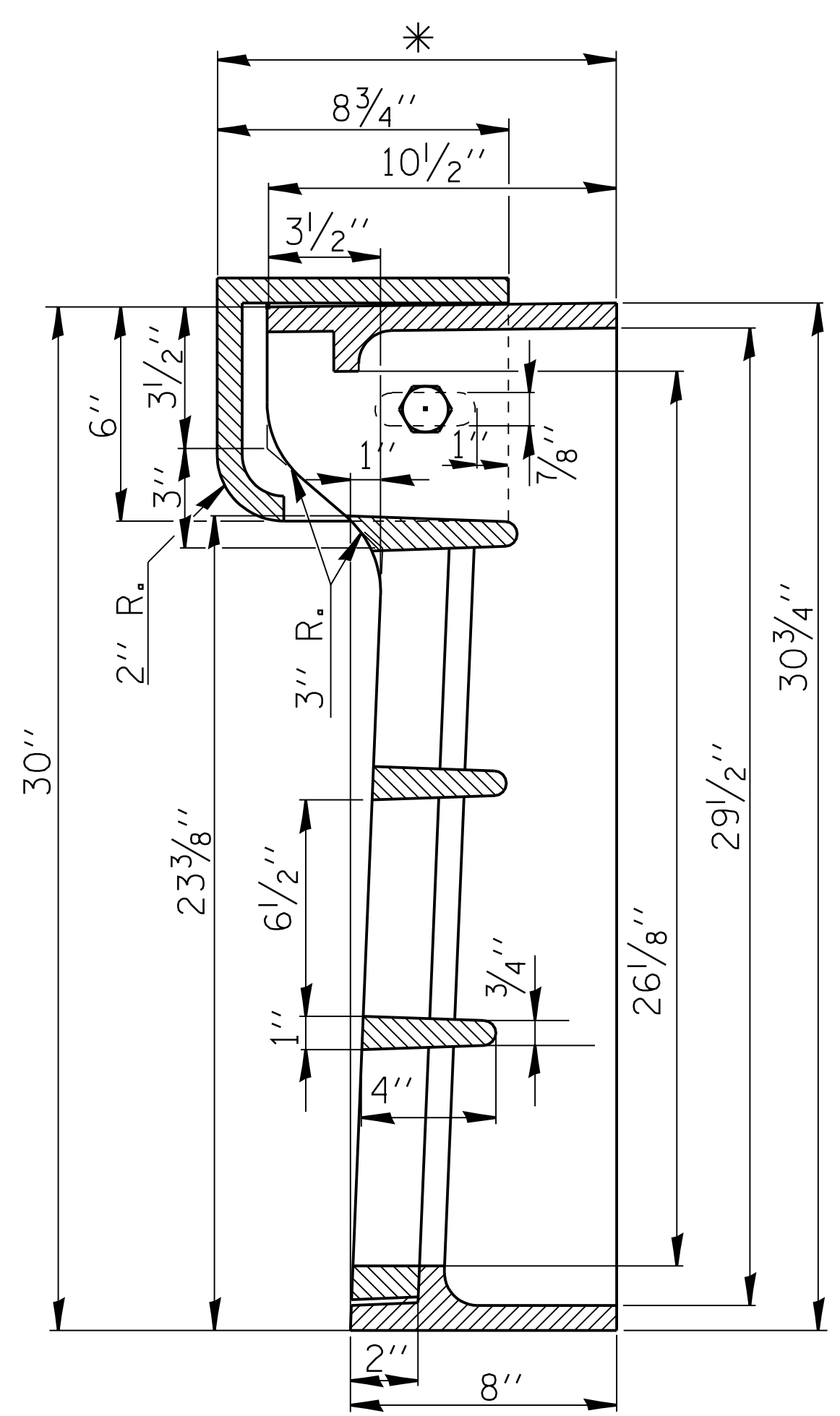
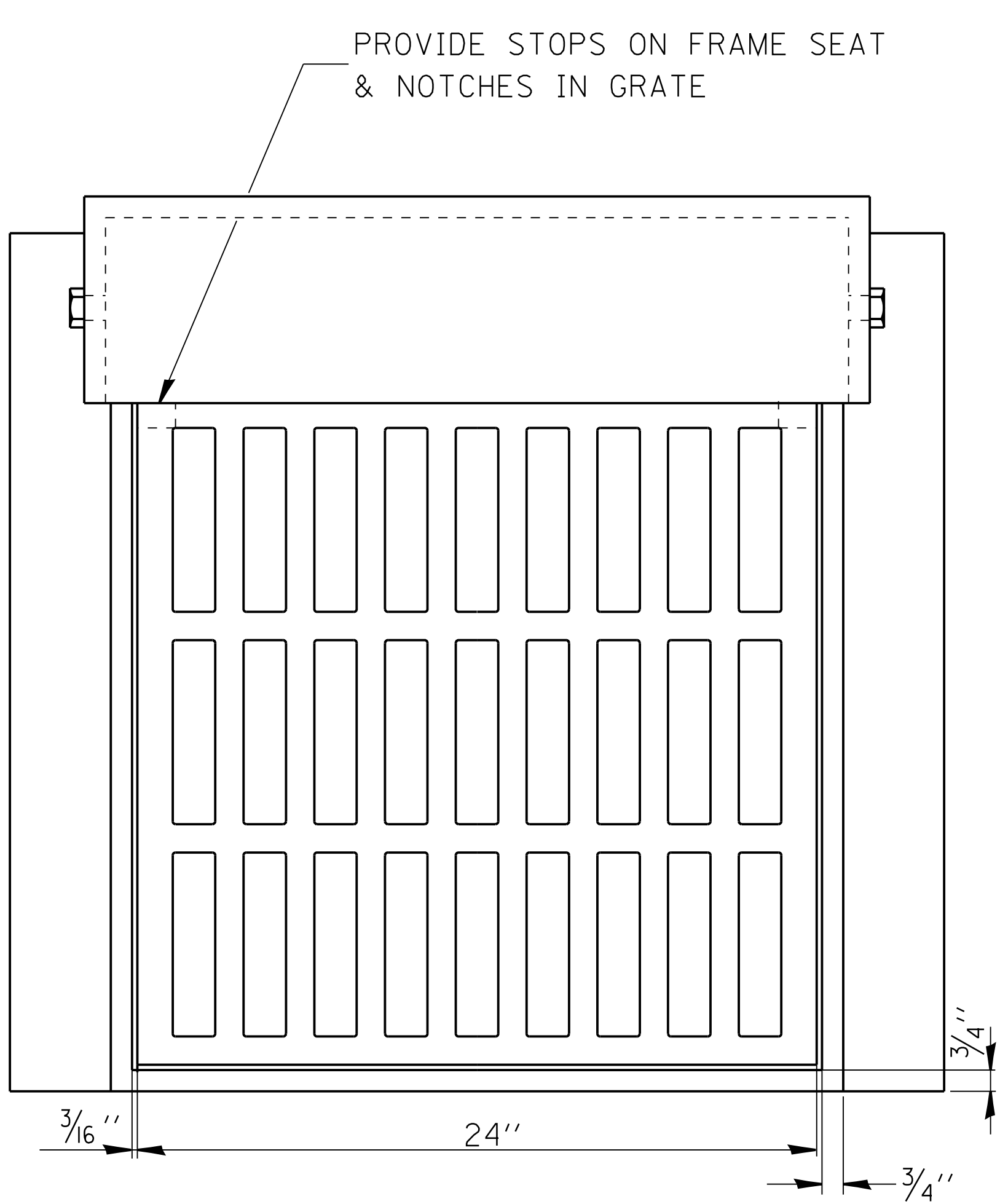
**TYPE "B"**



**NOSE TYPE FOR INLET TOP SLAB**

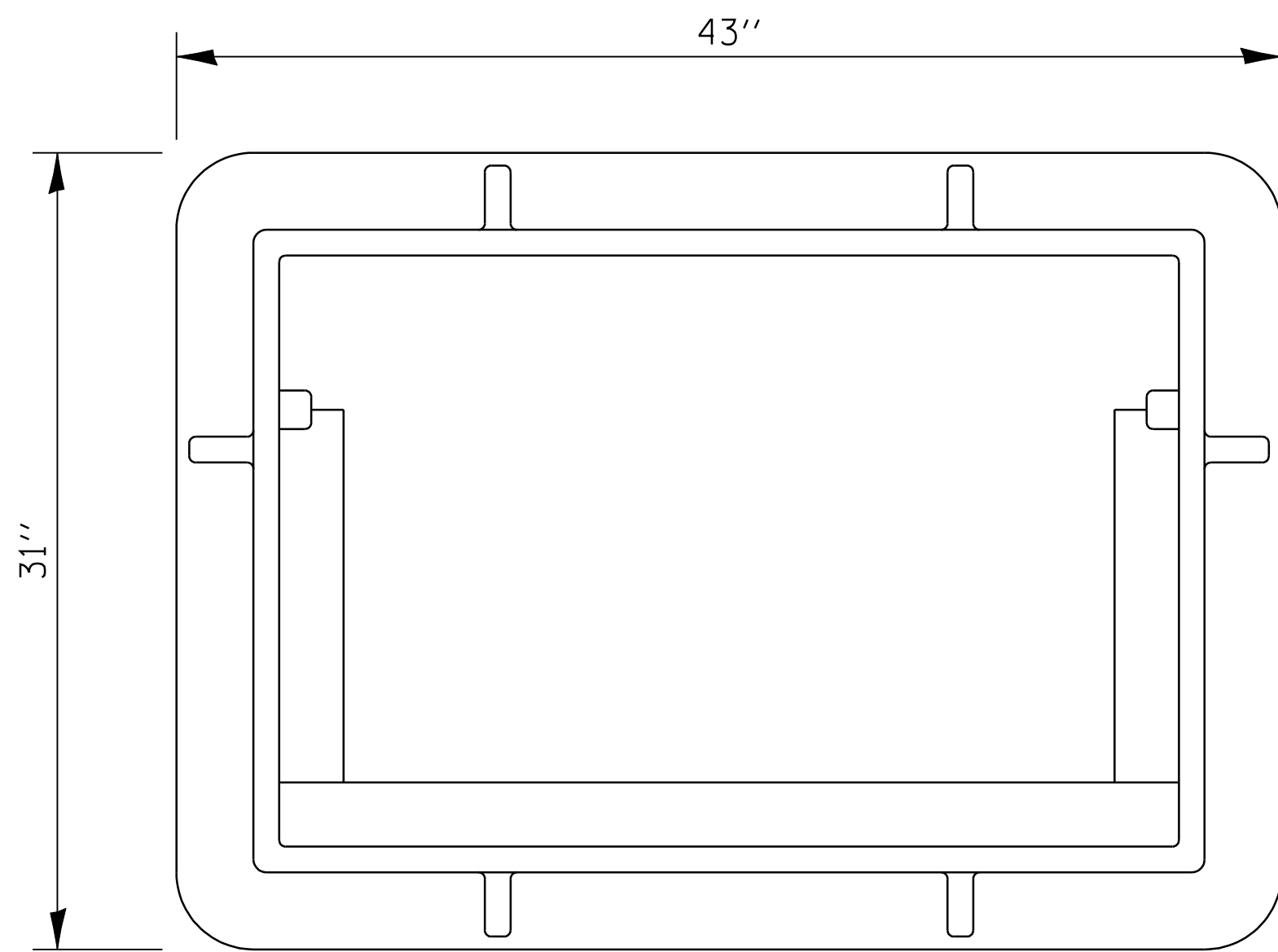
FILE NAME =	USER NAME = corcoranlm	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>INLET SPECIAL NO. 3, 4, 5, 6</b>				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
ct:\pw_work\p\WIDOT\CORCORANLM\dms41560\800699.dgn	PLOT SCALE = 47.727' / IN.	DRAWN -	REVISED -						SCALE:	SHEET NO.	OF	SHEETS	STA.
	PLOT DATE = Jul 28, 2009 - 09:02:27 AM	CHECKED -	REVISED -		CONTRACT NO.								
		DATE -	REVISED -		CONTRACT NO.								

\* CURB ADJUSTABLE 11<sup>1</sup>/<sub>4</sub>" TO 13<sup>1</sup>/<sub>4</sub>"

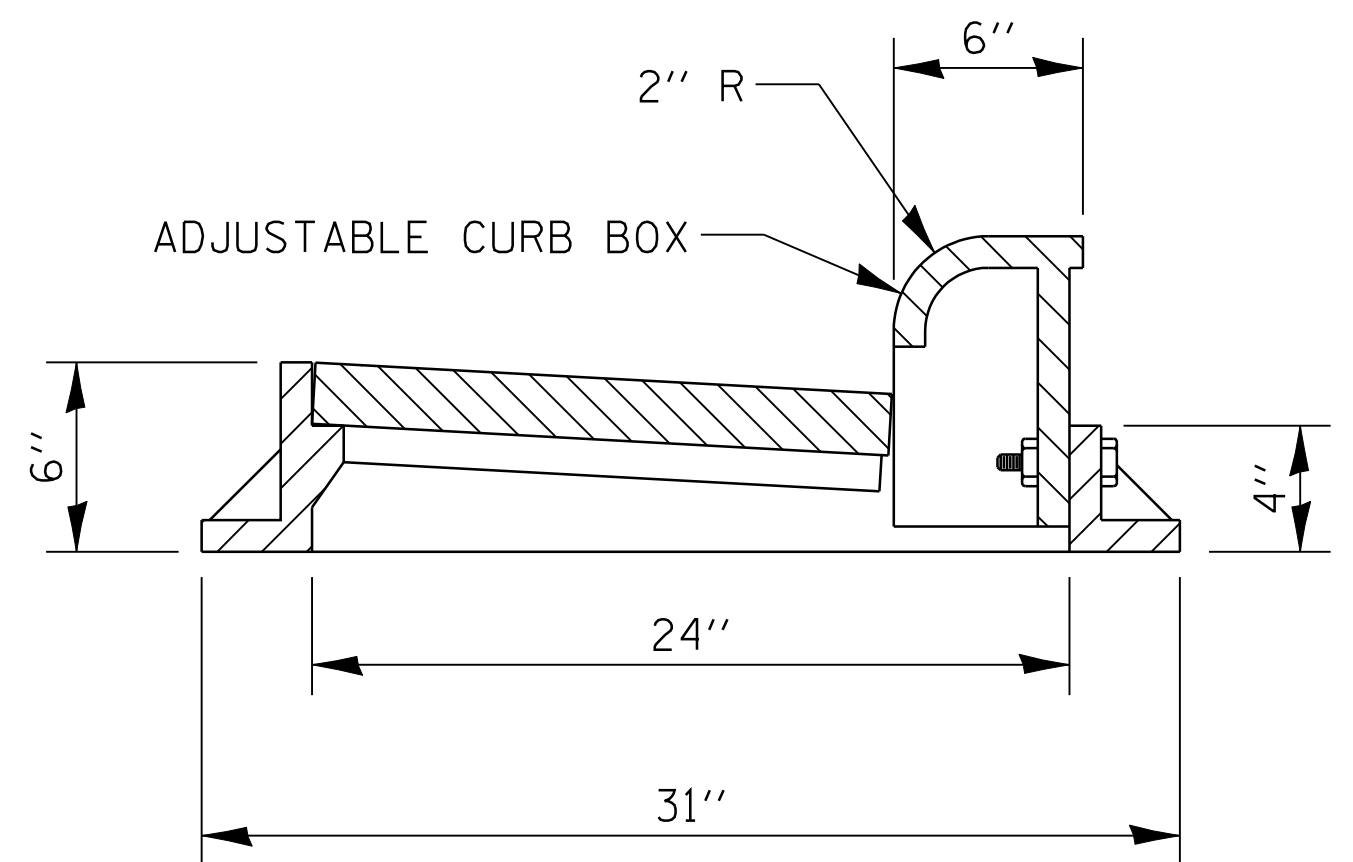


**604-1**

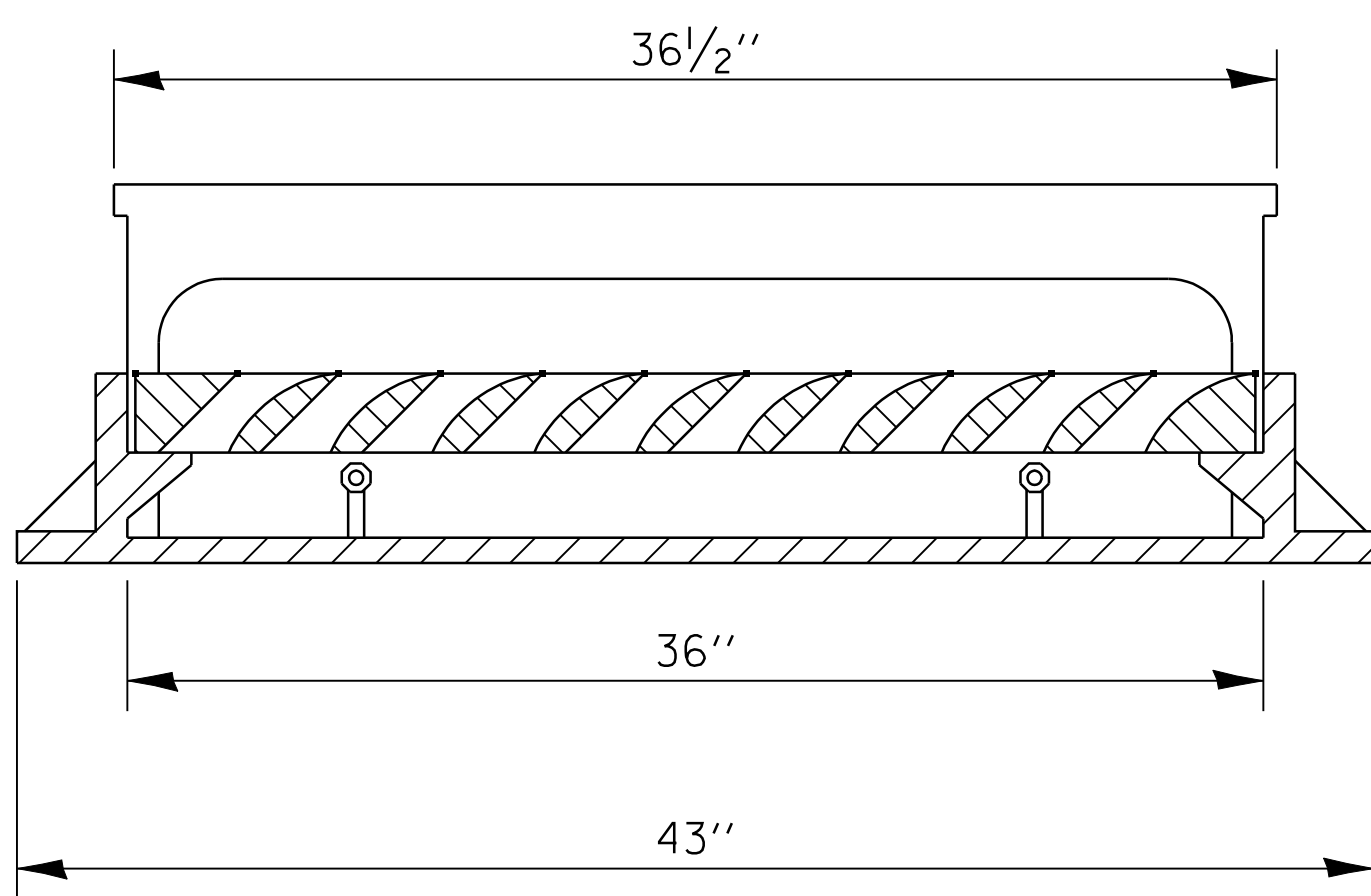
**FRAME AND GRATE SPECIAL**



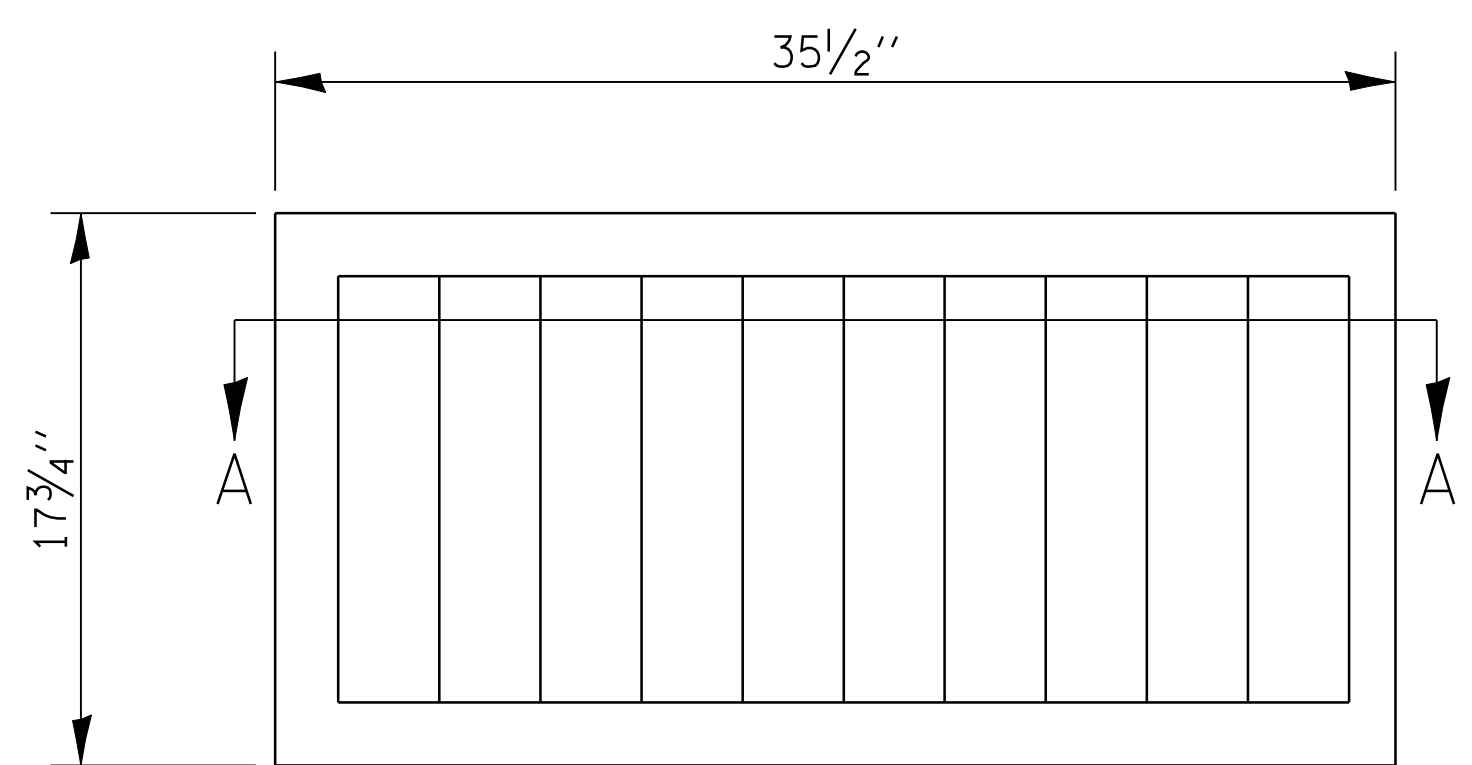
**PLAN OF FRAME**  
WITHOUT GRATE AND CURB BOX



**TRANSVERSE SECTION**

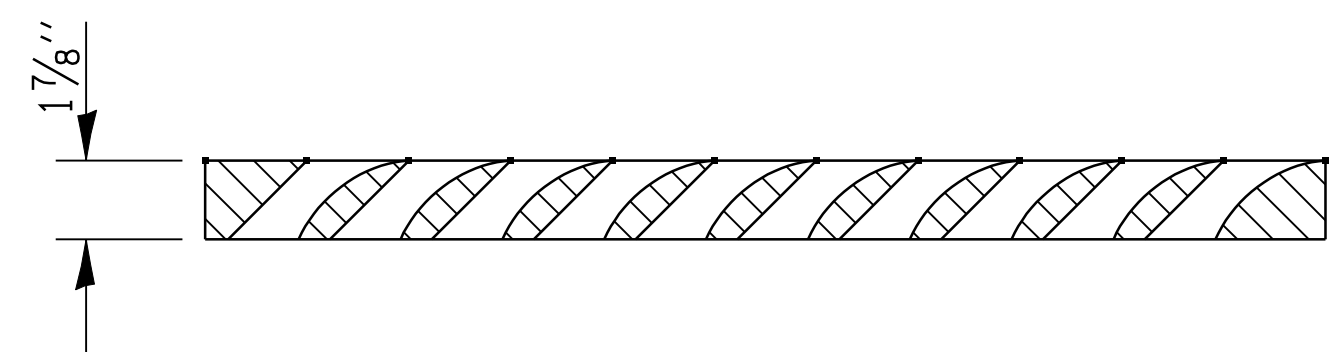


**LONGITUDINAL SECTION**



**PLAN OF GRATE**

R 3067  
APPROXIMATE WEIGHT - 530 LBS.

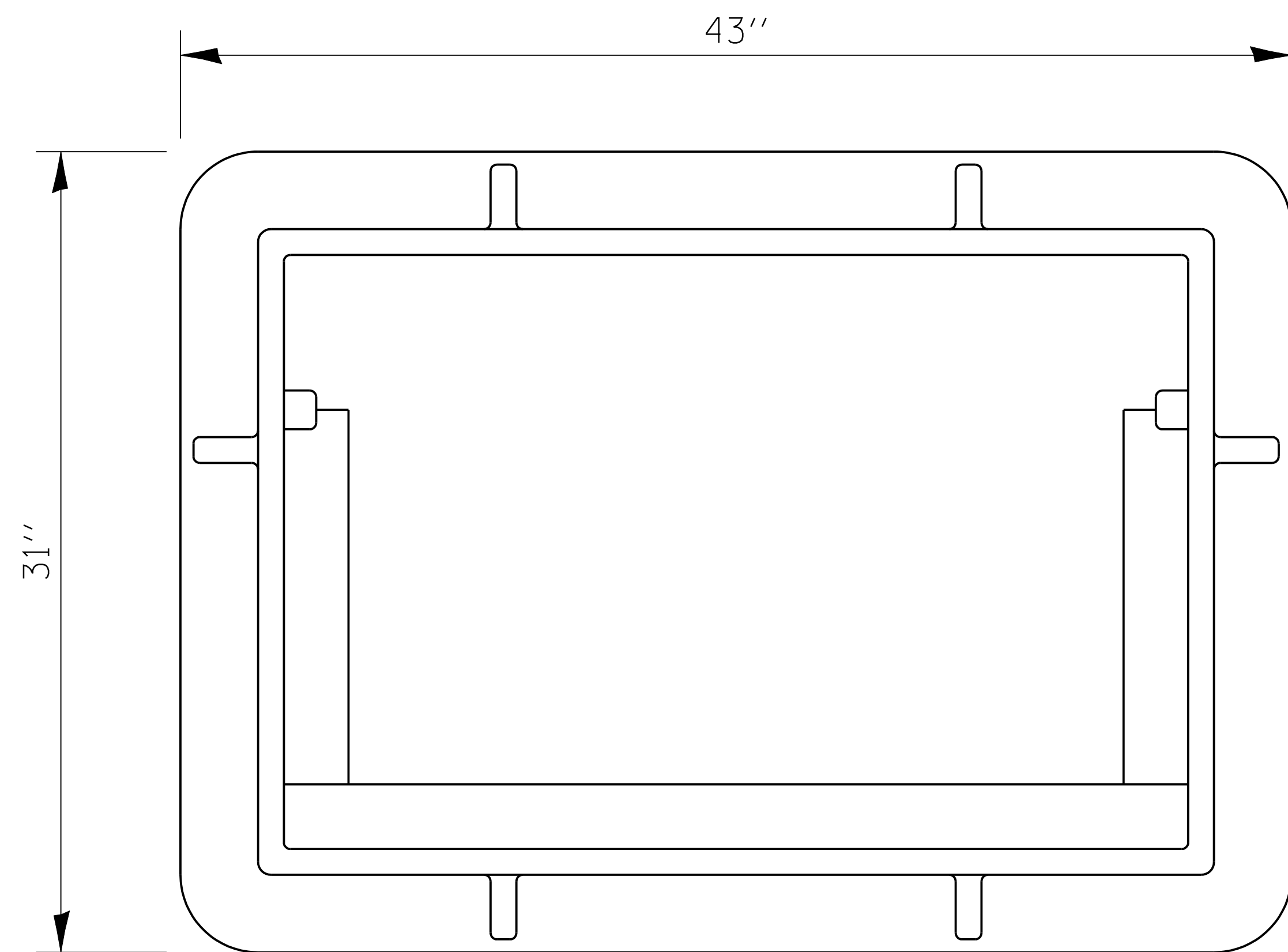


**SECTION A-A**

**604-2**

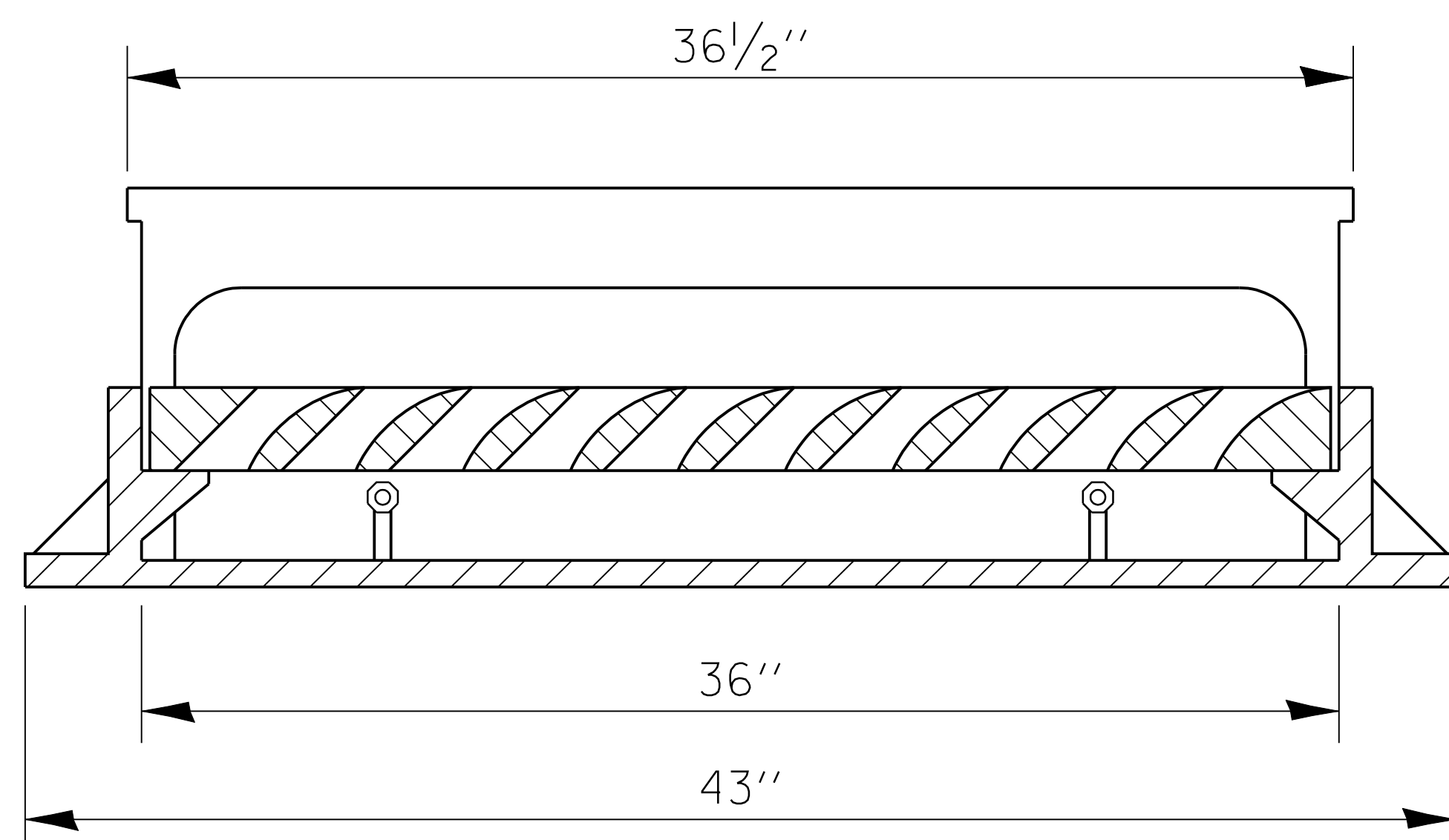
**FRAME AND GRATE FOR INLET SPECIAL**



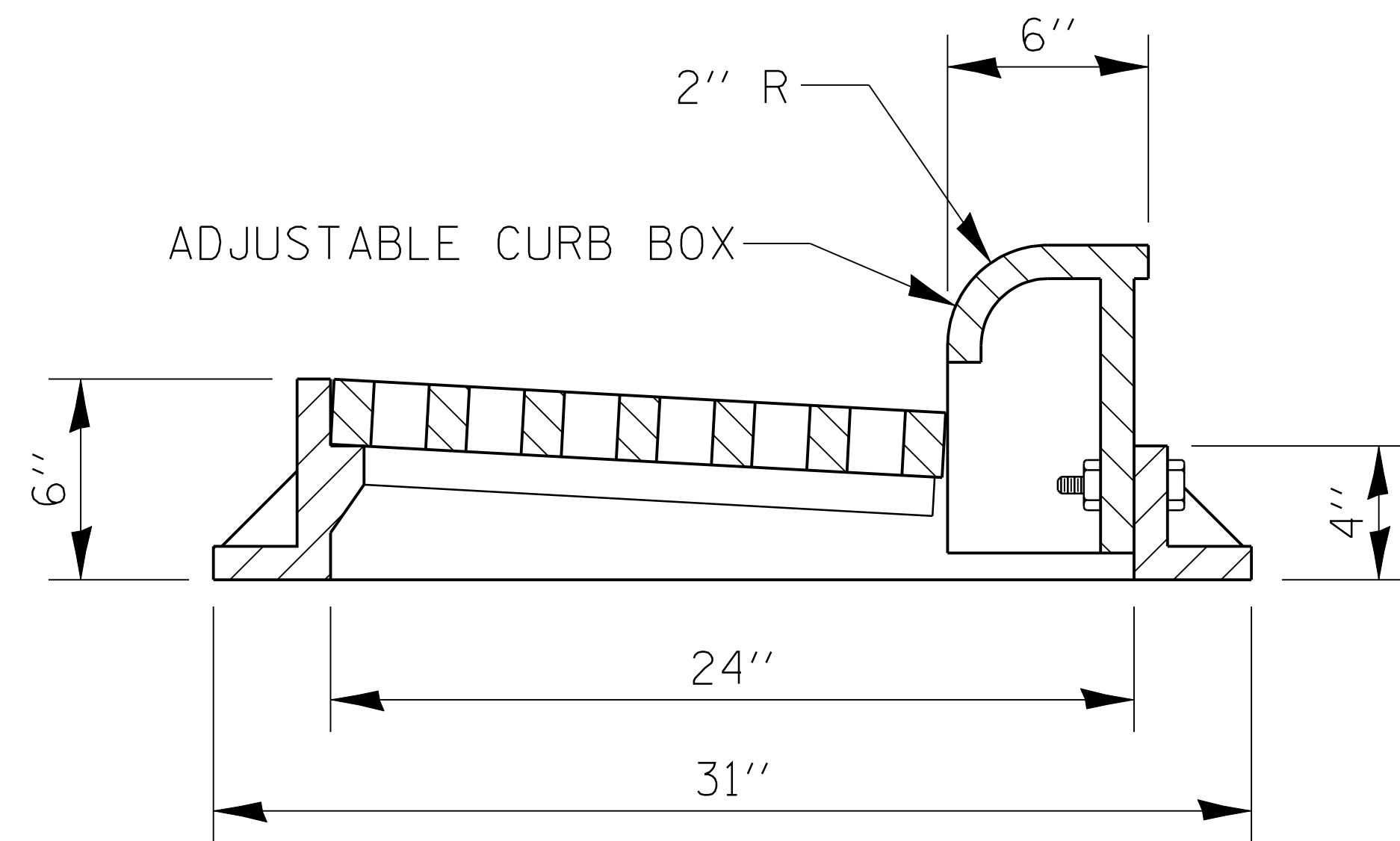


**PLAN OF FRAME**

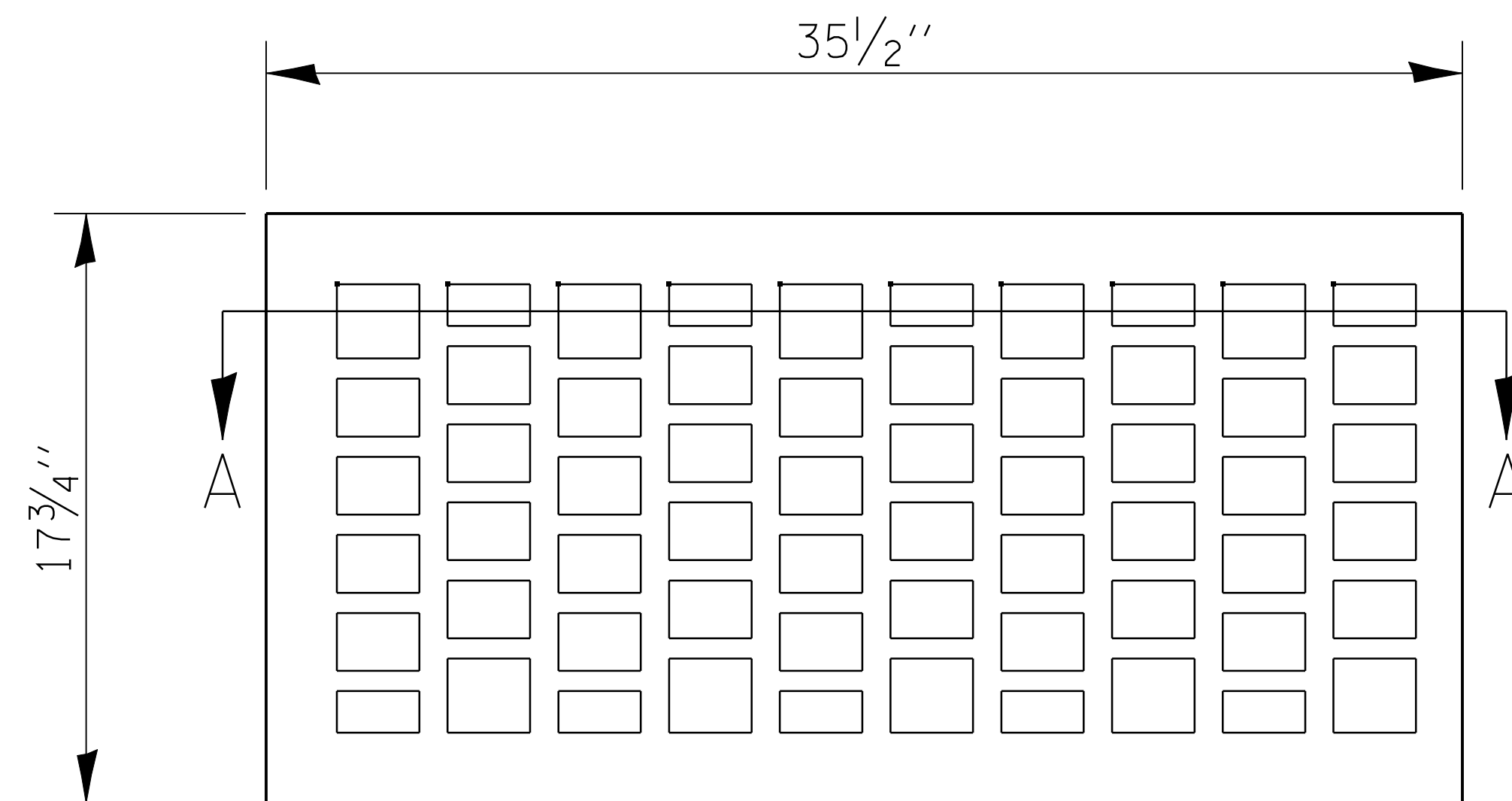
WITHOUT GRATE AND CURB BOX



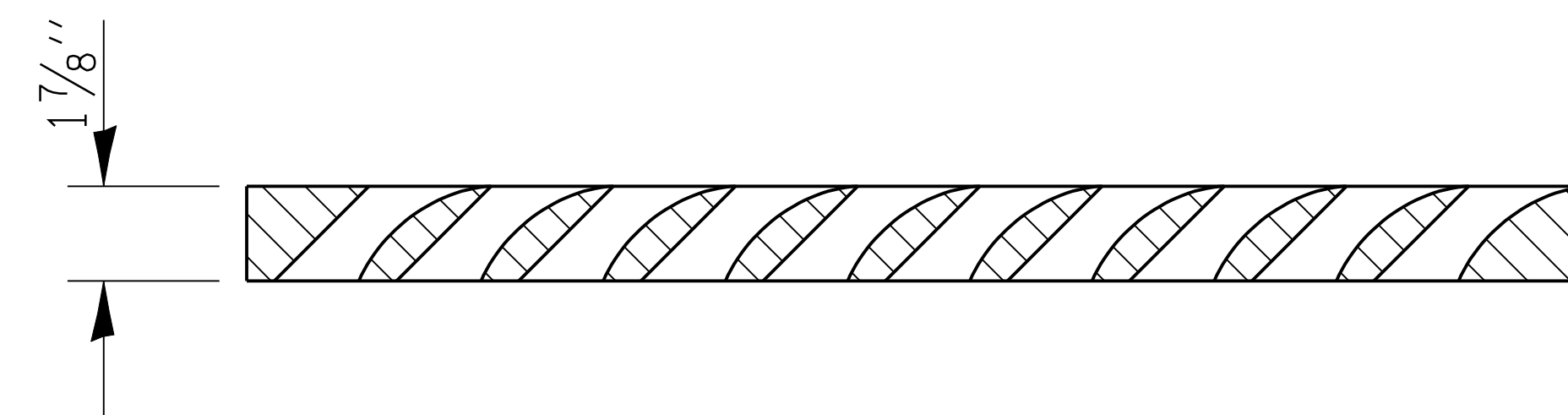
**LONGITUDINAL SECTION**



**TRANSVERSE SECTION**



**PLAN OF GRATE**



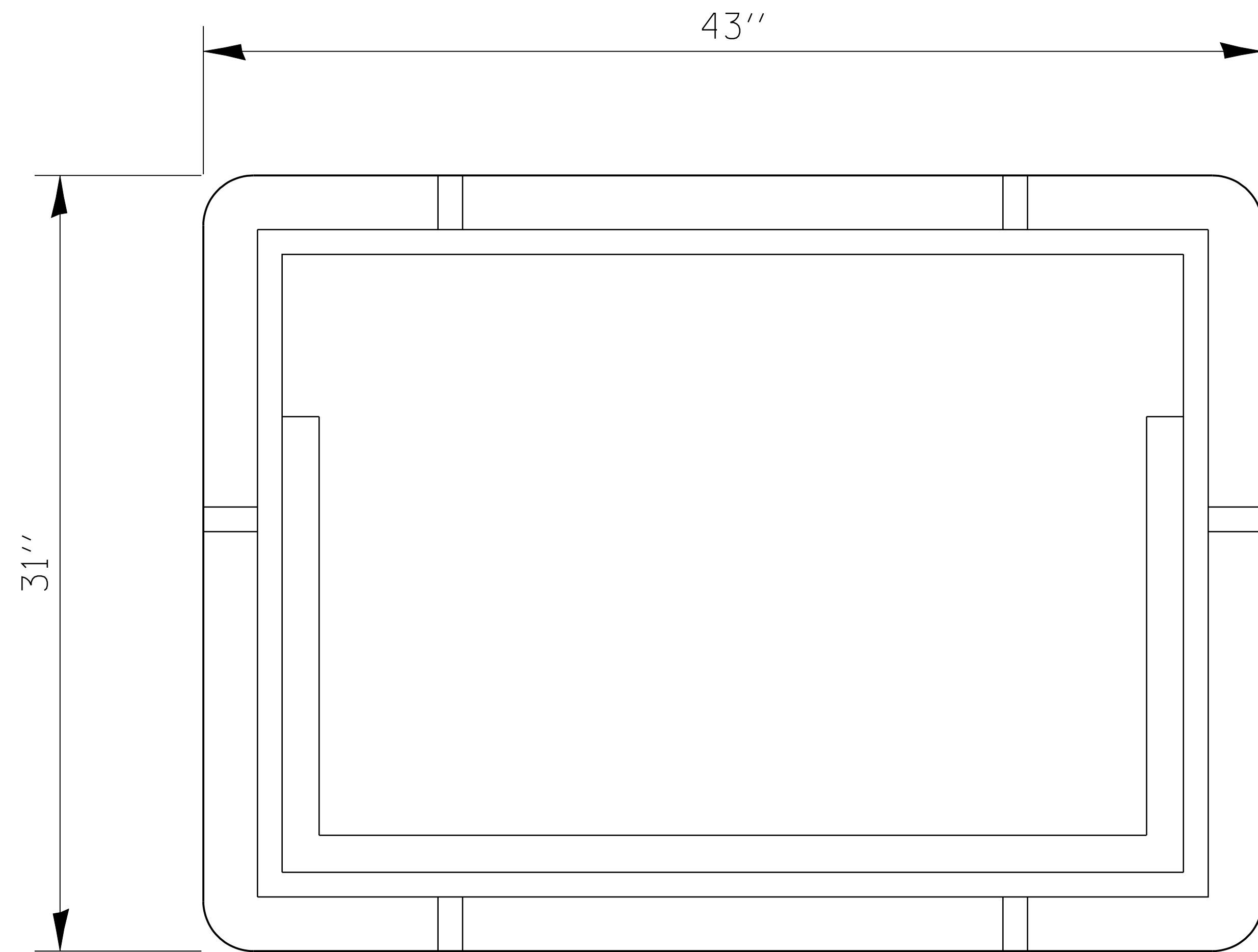
**SECTION A-A**

R 3067

APPROXIMATE WEIGHT - 530 LBS.

**FRAME AND GRATE FOR INLET SPECIAL**

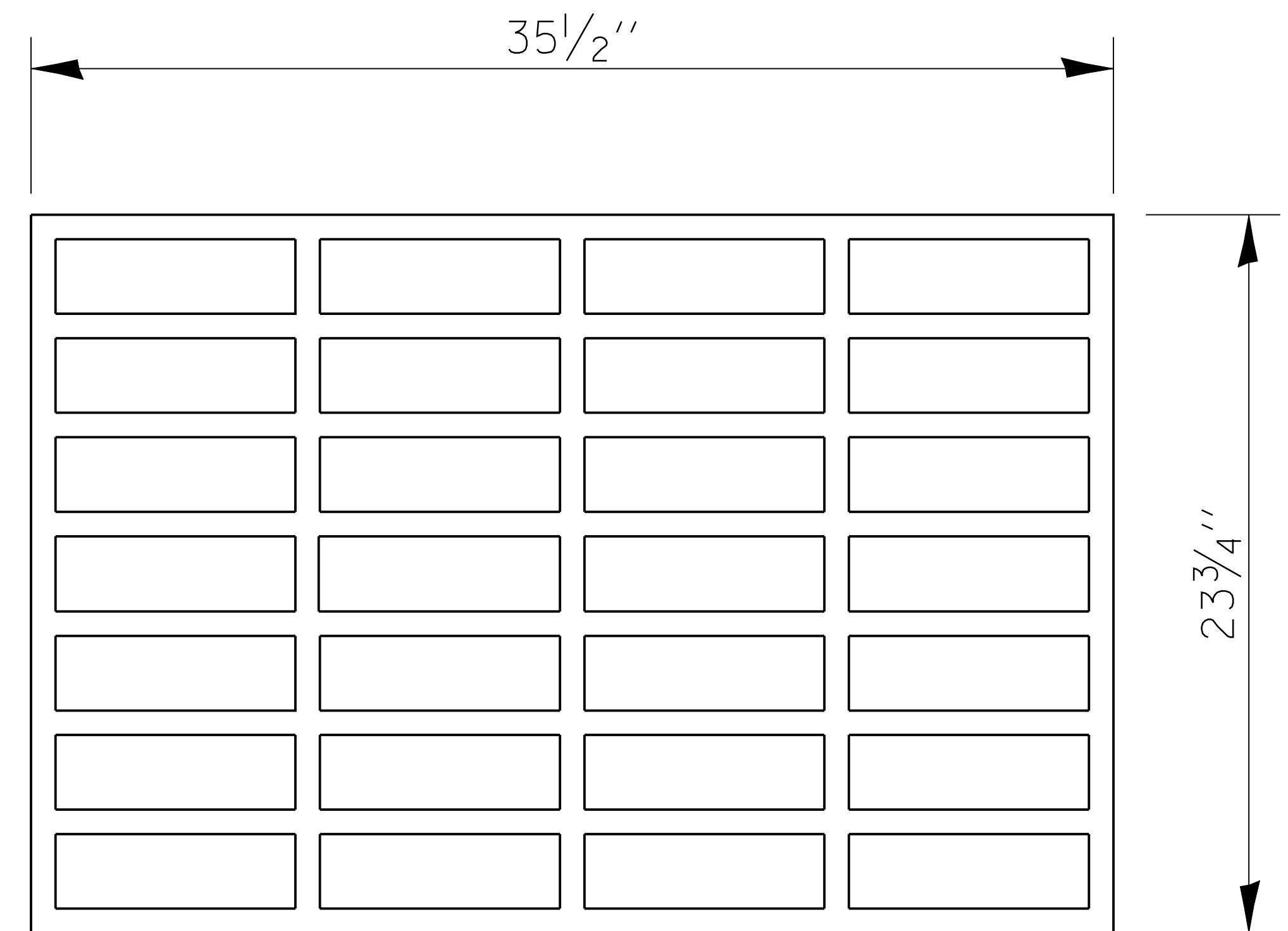
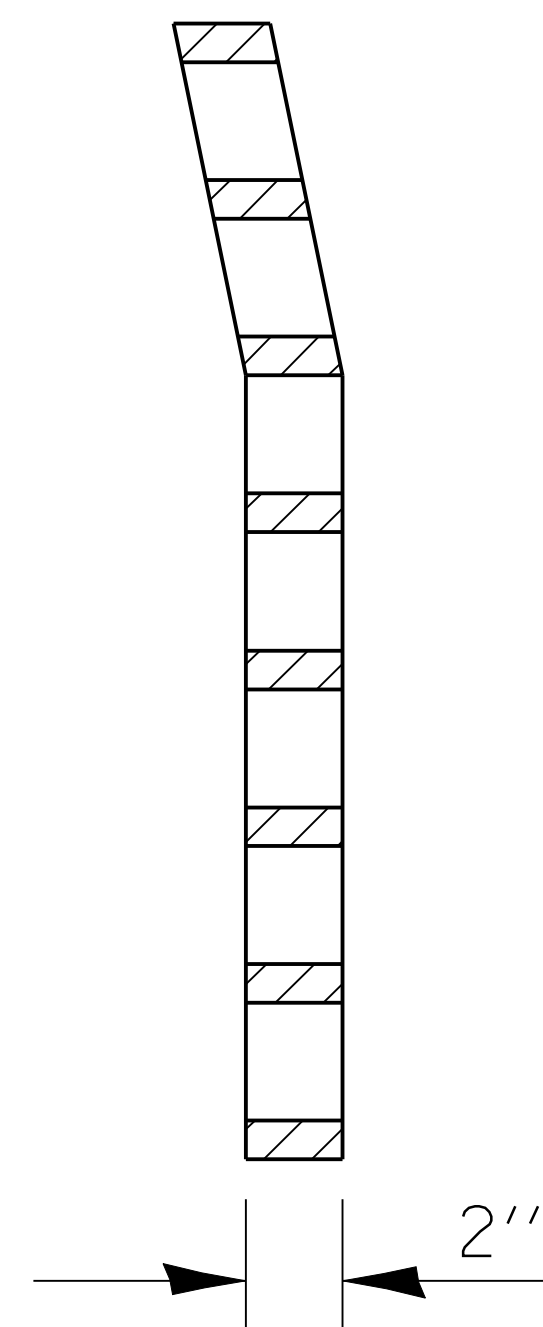
**604-3**



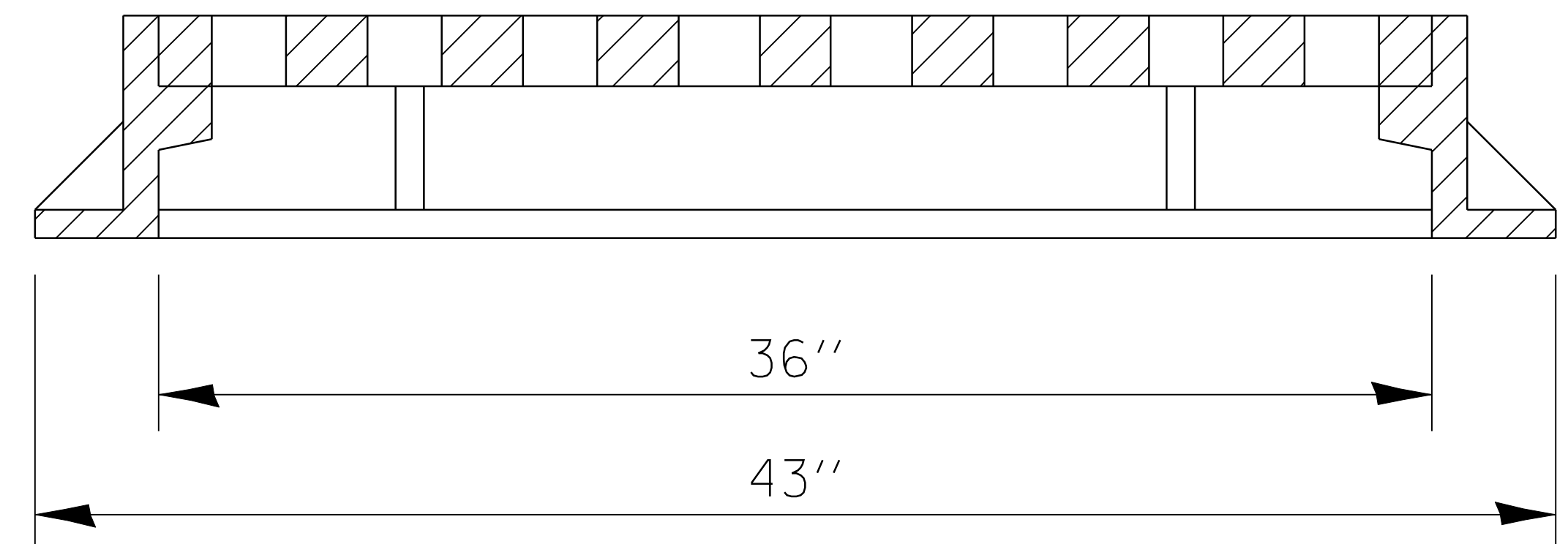
**PLAN OF FRAME**

\* THIS GRATE TO BE USED WIATHOUT CURB BOX WHEN INLET IS IN DRIVEWAY.

APPROXIMATE WEIGHT OF CAST IRON FRAME & FRATE - 530 LBS.



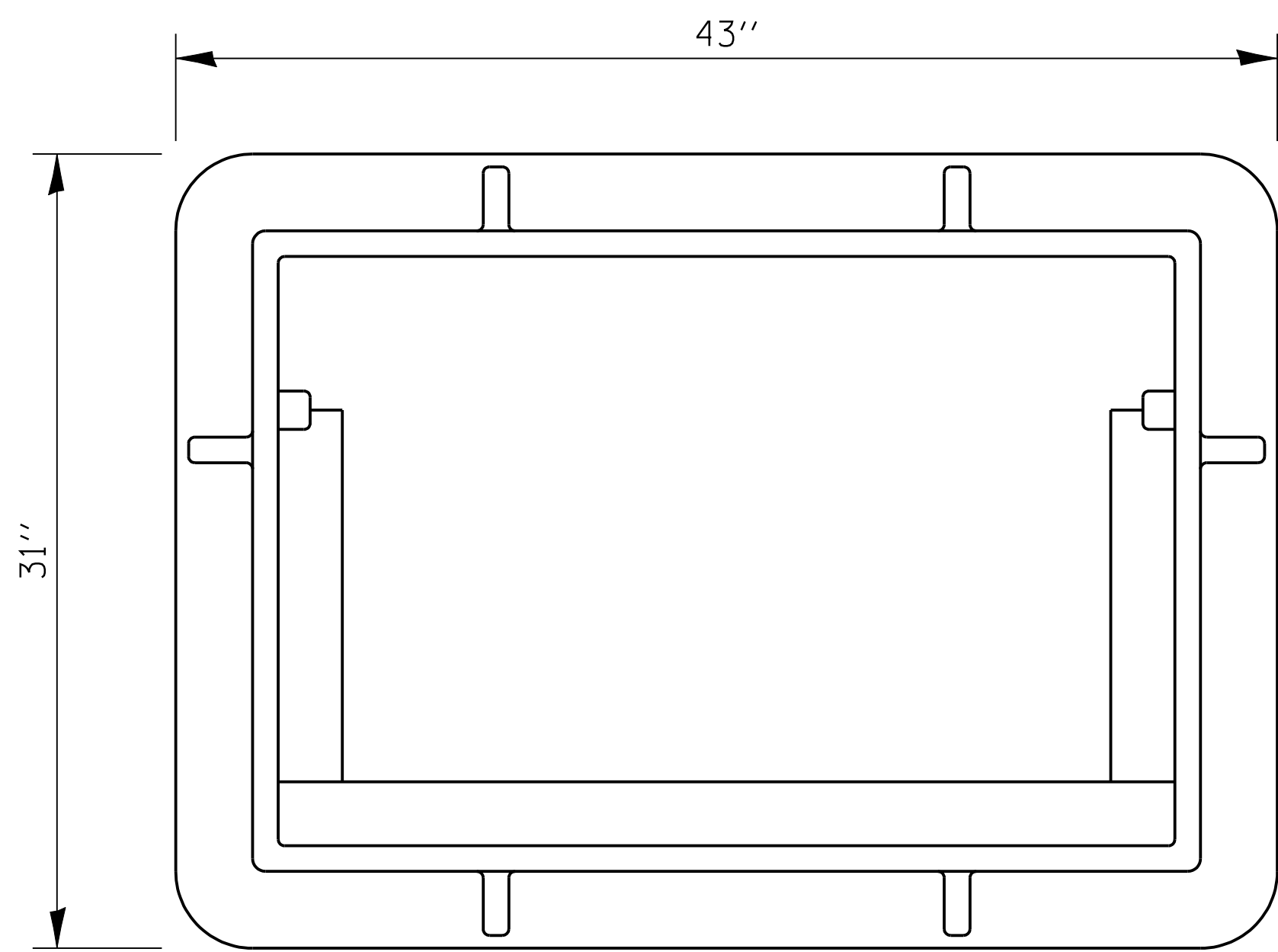
**PLAN OF GRATE**



**LONGITUDINAL SECTION**

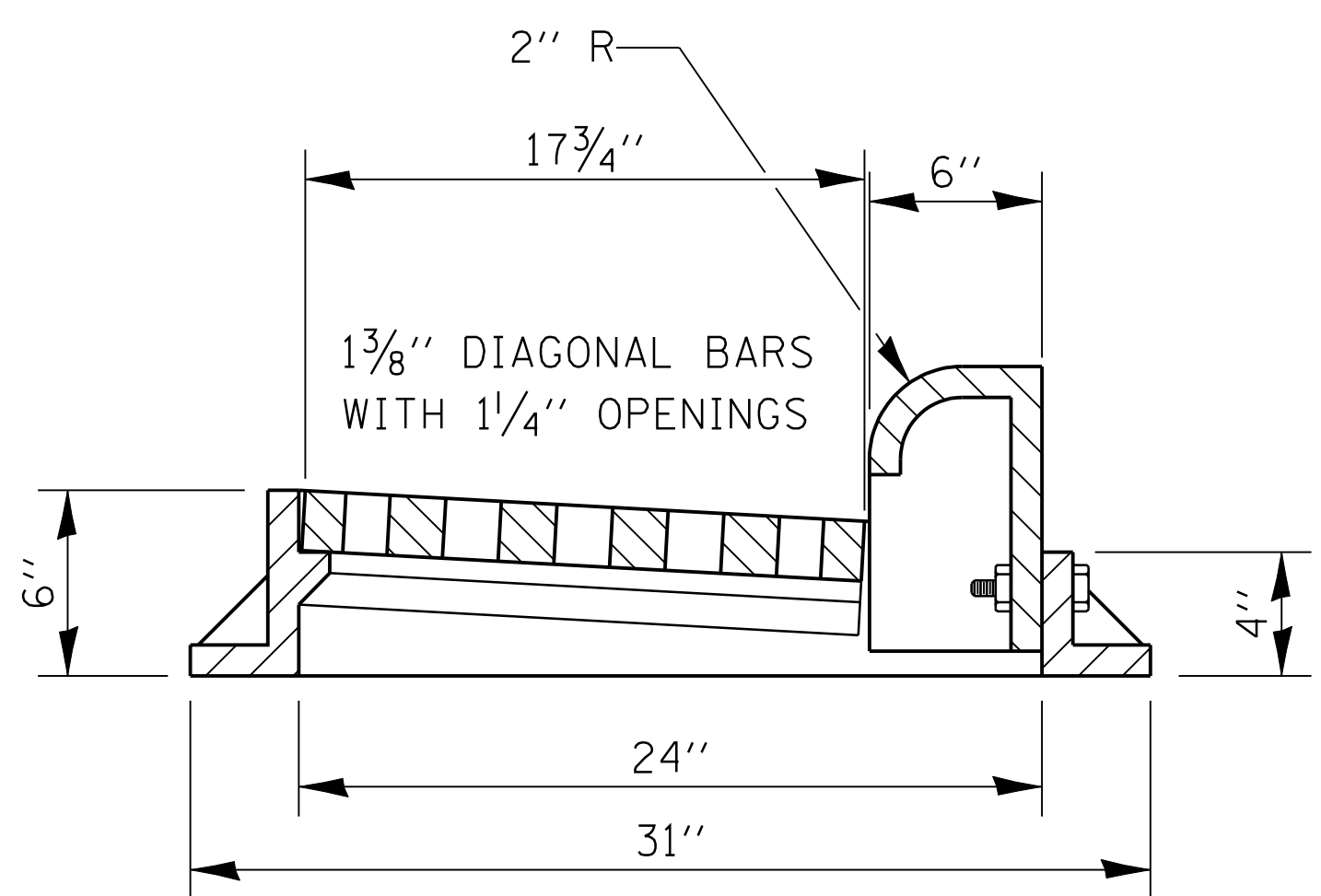
**FRAME AND GRATE FOR INLET SPECIAL**

**604-4**

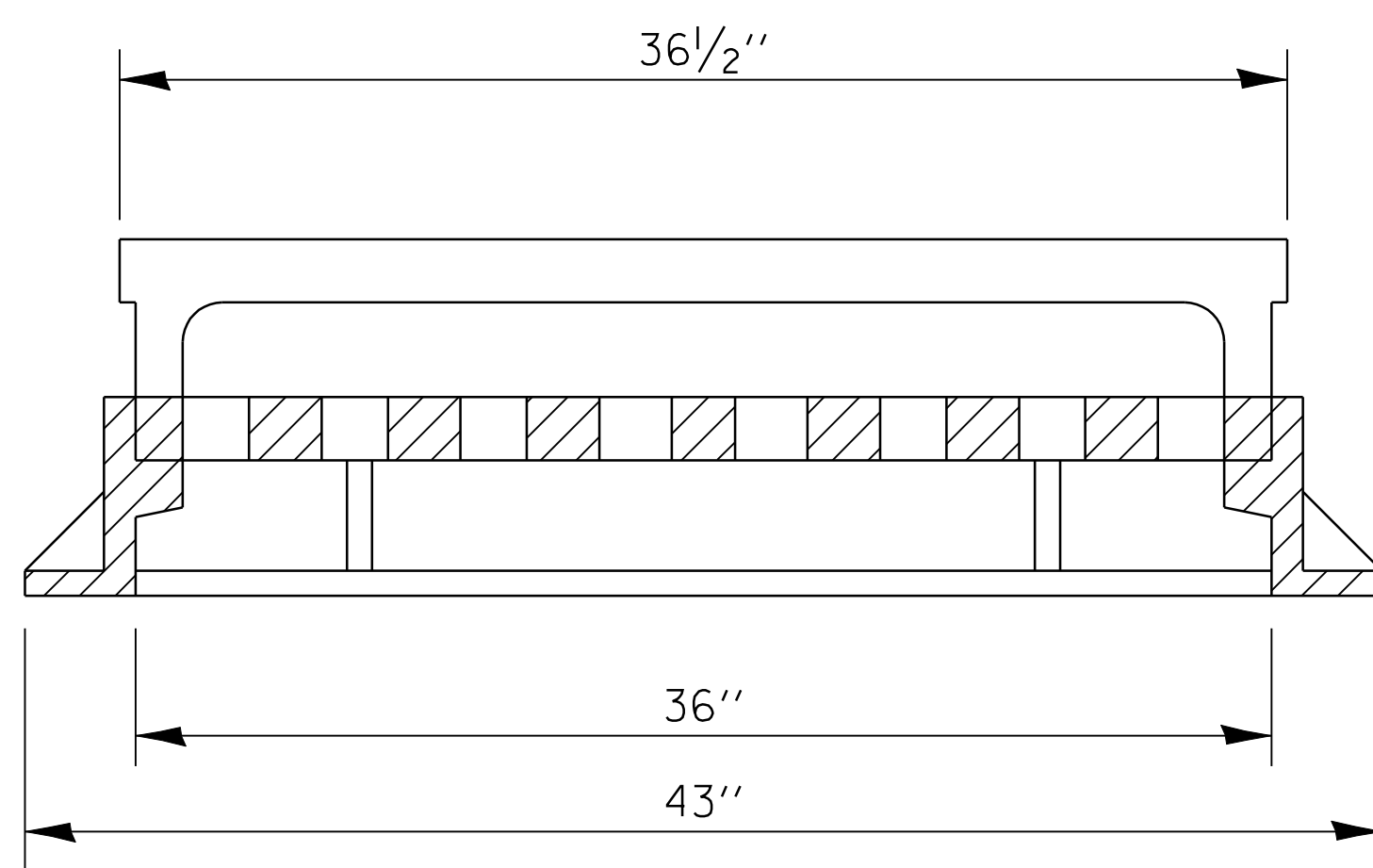


**PLAN OF FRAME**

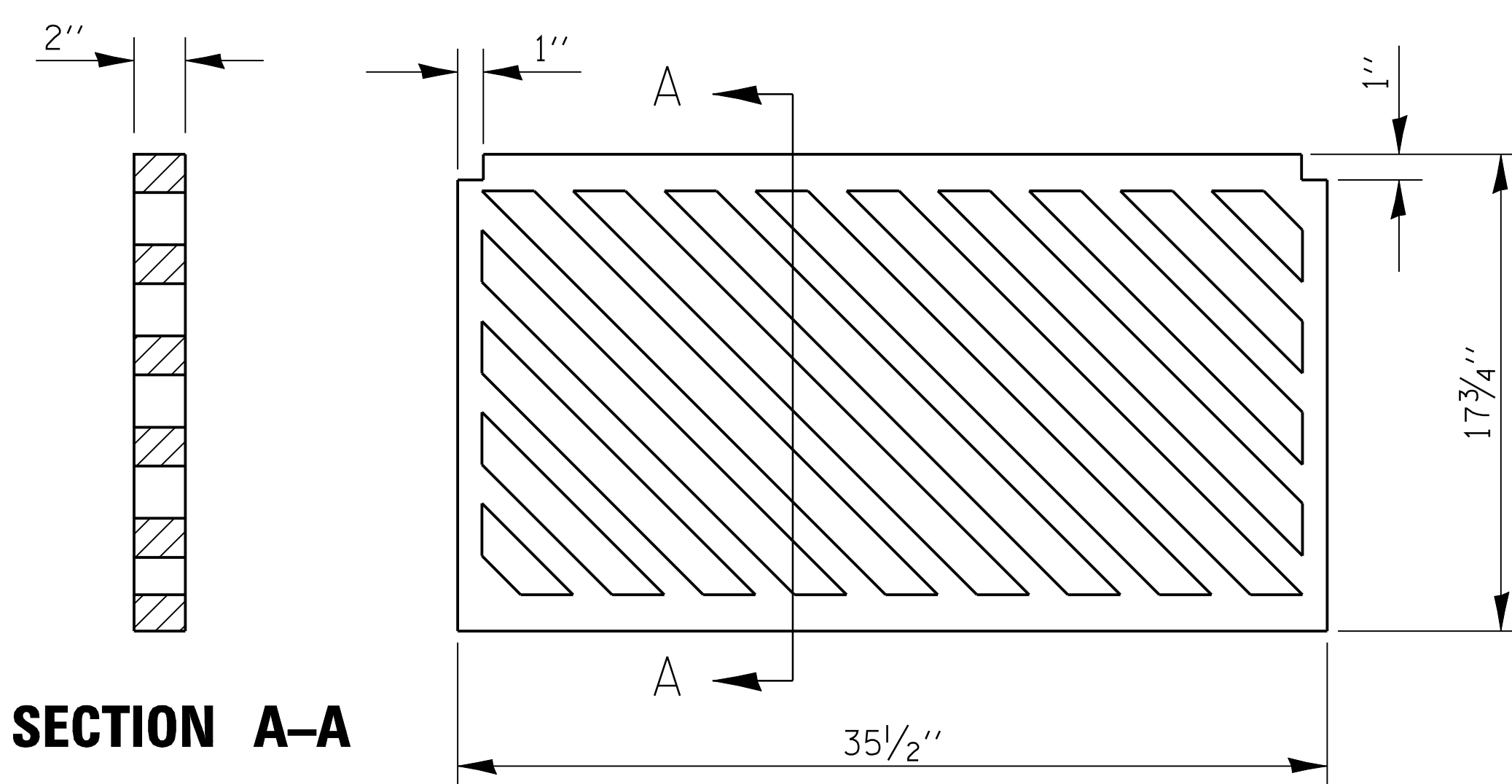
WITHOUT GRATE AND CURB BOX



**TRANSVERSE SECTION**



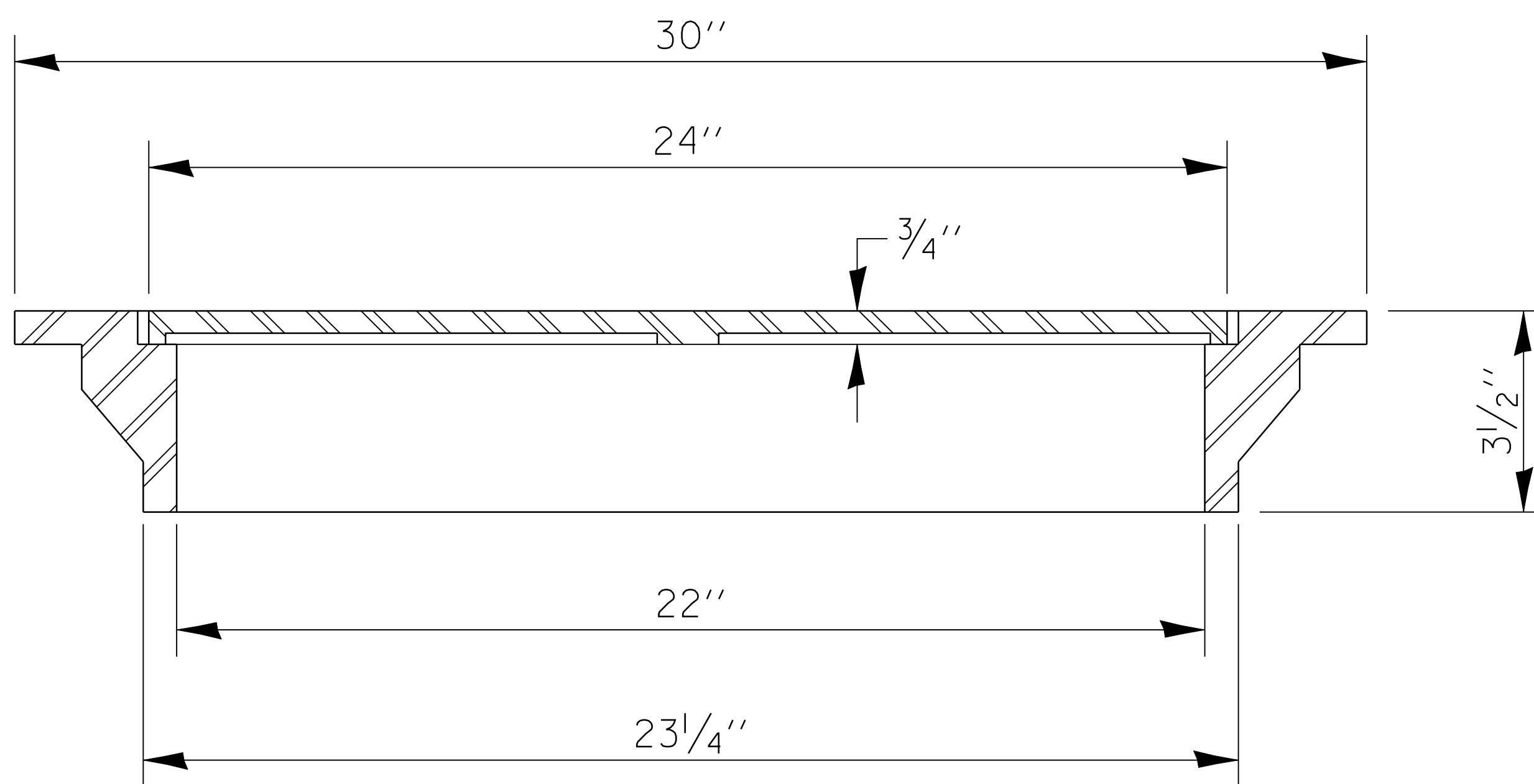
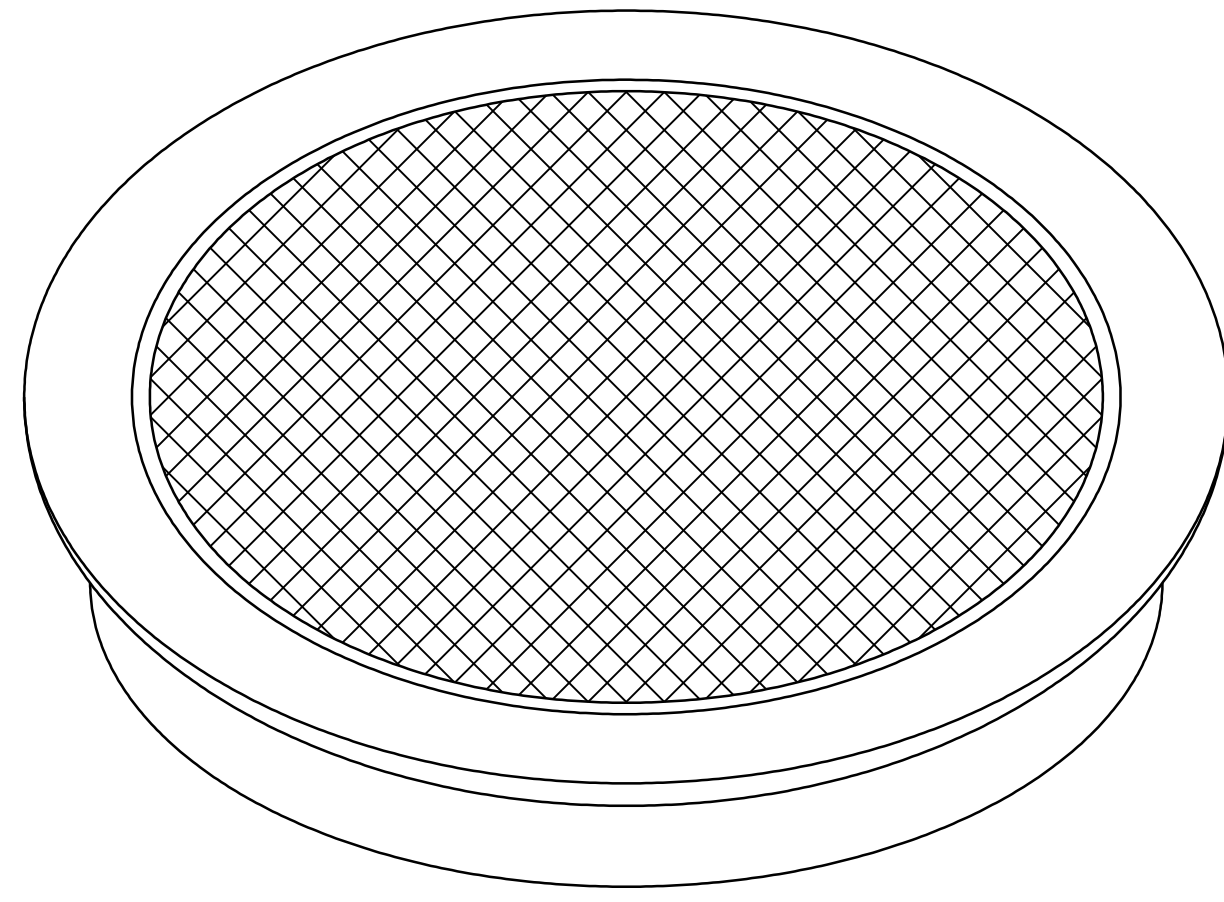
**LONGITUDINAL SECTION**



**SECTION A-A**

**PLAN OF GRATE**

**FRAME AND GRATE FOR INLET SPECIAL**



TOTAL WEIGHT: 160 LBS

**NOTE:**

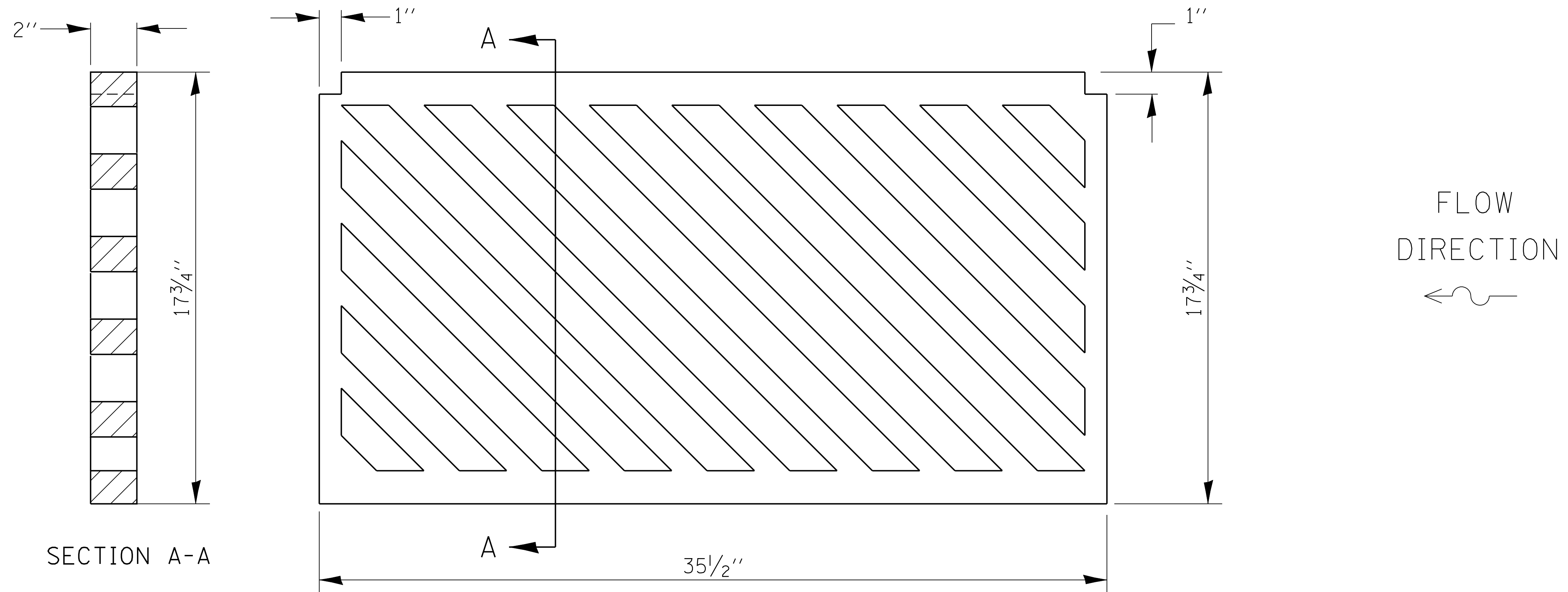
THE CLOSED LID MAY BE MADE OF EITHER GRAY IRON OR DUCTILE IRON. CONFORMING TO THE STANDARD SPECIFICATIONS.

DUCTILE IRON CASTING SHALL BE GRADE 60-40-18 AND SHALL BE PROOF LOADED IN ACCORDANCE WITH FEDERAL SPECIFICATIONS RR-F-621b, SECTION 3.8.

THE PROOF LOAD SHALL BE 25,000 LBS ON A 9" x 9" CAST BLOCK.

**SPECIAL FRAME CLOSED LID**

**604-6**



### **PLAN VIEW OF CAST IRON GRATE**

1 3/8" DIAGONAL BARS WITH 1 1/4" OPENINGS

#### **NOTES**

THE CONTRACTOR SHALL FIELD CHECK THE SIZE OF THE EXISTING GRATE BEFORE ORDERING THE NEW GRATE TO INSURE THE CORRECT SIZE.

THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH FOR GRATE SPECIAL.

THE EXISTING GRATES ARE TO BE SALVAGED AND TO BECOME THE PROPERTY OF THE .

**GRATE SPECIAL**

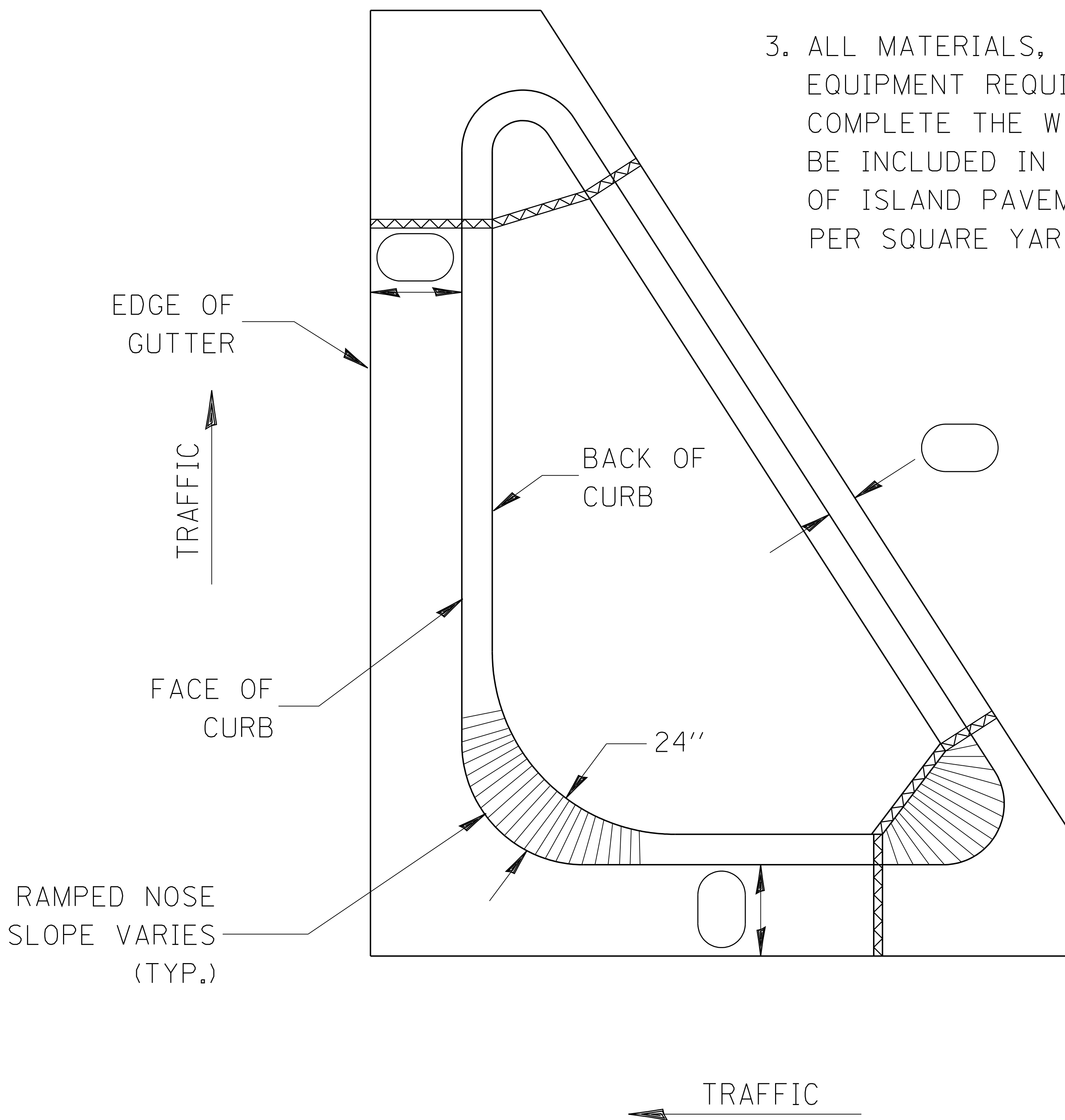
**604-7**

DESIGNER NOTES:

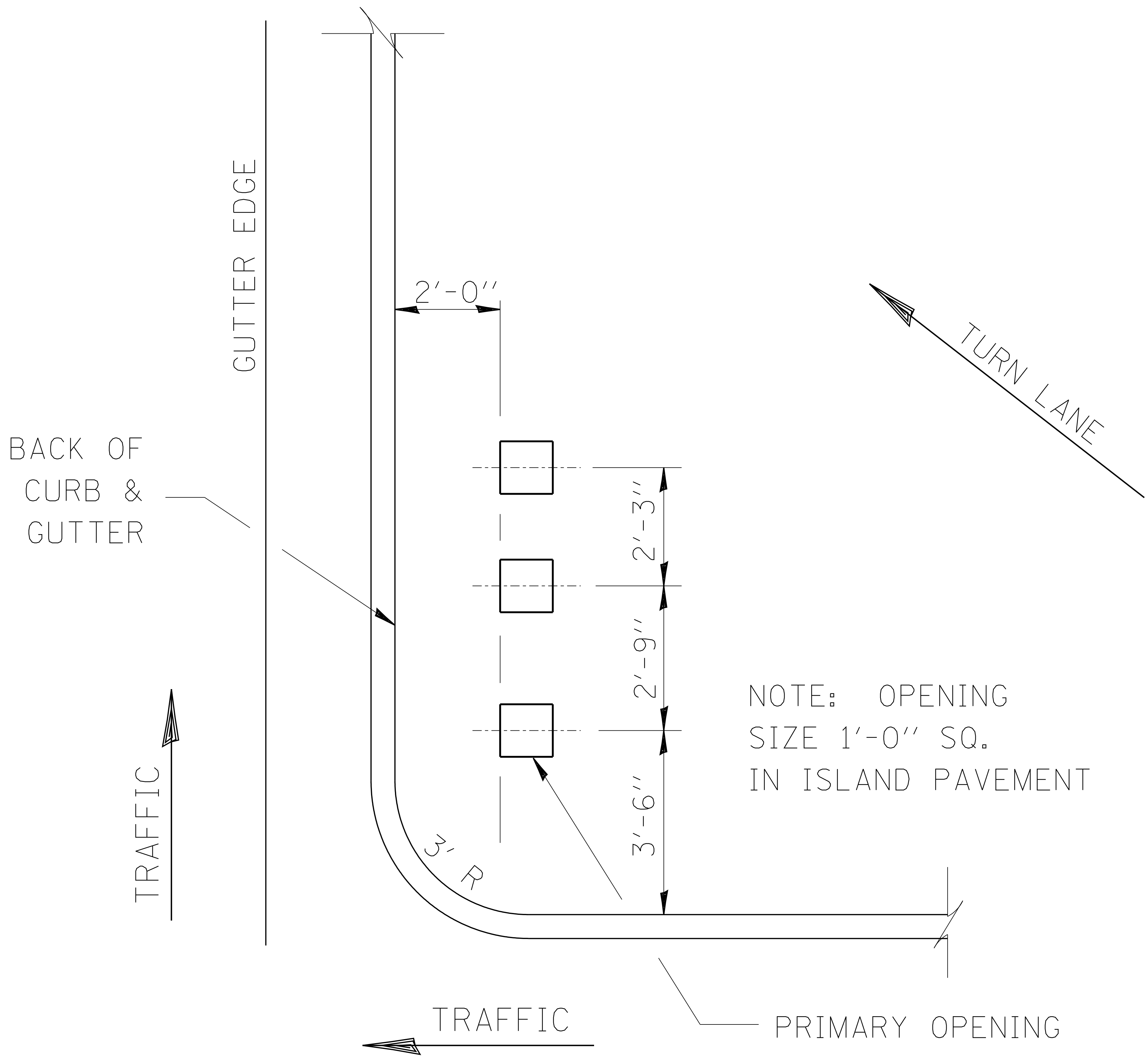
1. INCLUDE STD. 606001 AND 606301.
2. ALL CURB SHALL BE "M" - TYPE MOUNTABLE CURB. SPECIFY GUTTER WIDTHS.

GENERAL NOTES:

1. THE CURB AND GUTTER CONFIGURATION SHALL BE M-.....
2. SEE STD. 606001 & AND 606301 FOR ADDITIONAL DETAILS.
3. ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK SHALL BE INCLUDED IN THE COST OF ISLAND PAVEMENT (SPECIAL) PER SQUARE YARD.

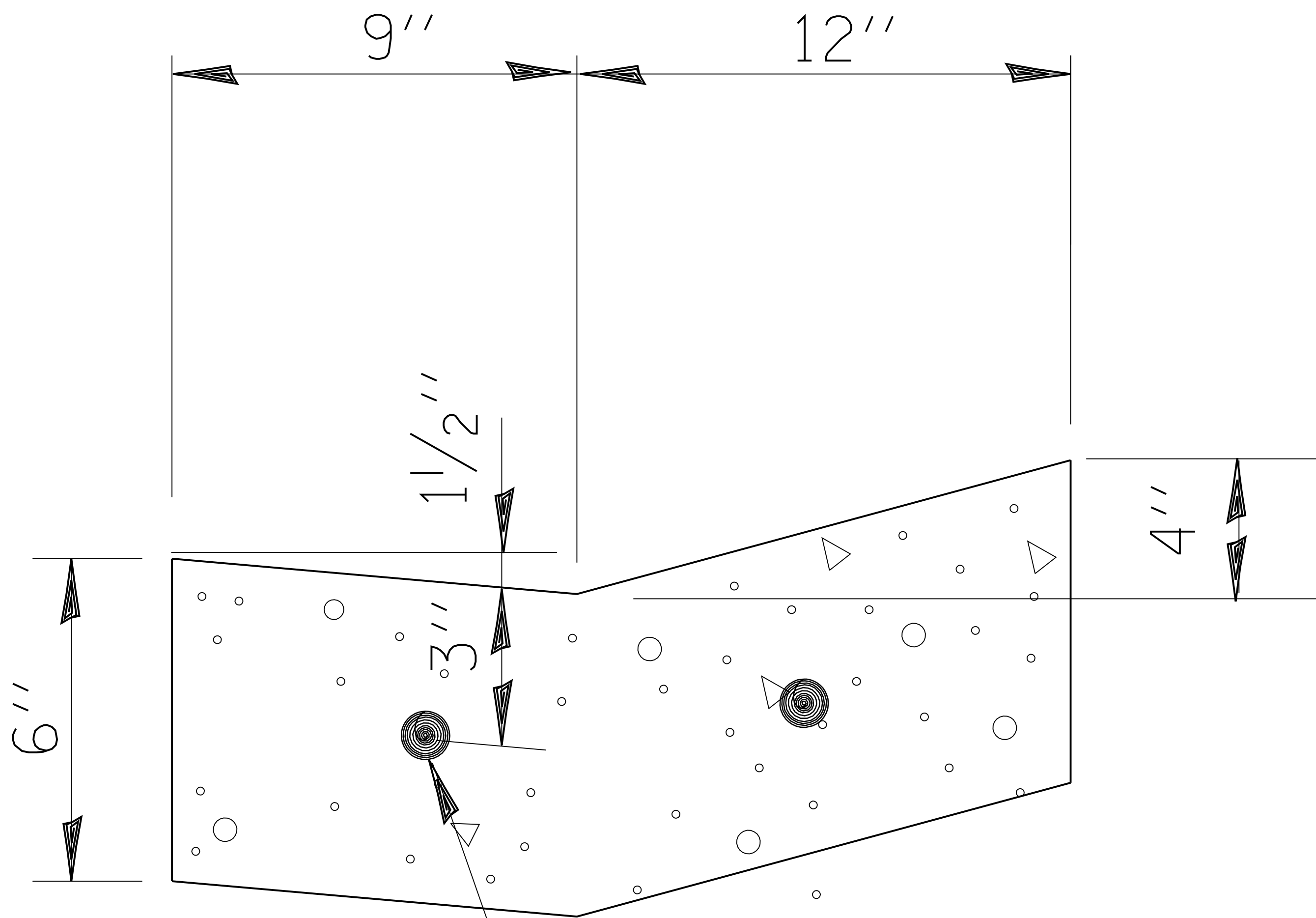


**606-1**



## ISLAND SIGN POST SPACING DETAIL

NOTE: THE ENGINEER SHALL DETERMINE THE NUMBER OF OPENINGS REQUIRED.



CONTINUOUSLY REINFORCED  
WITH 2 - #4 BARS  
EVENLY SPACED

REINFORCEMENT SHALL NOT BE PAID FOR  
SEPARATELY BUT WILL BE INCLUDED IN THE  
CONTRACT UNIT PRICE FOR GUTTER.

## **REINFORCEMENT DETAIL**

---

### **FOR**

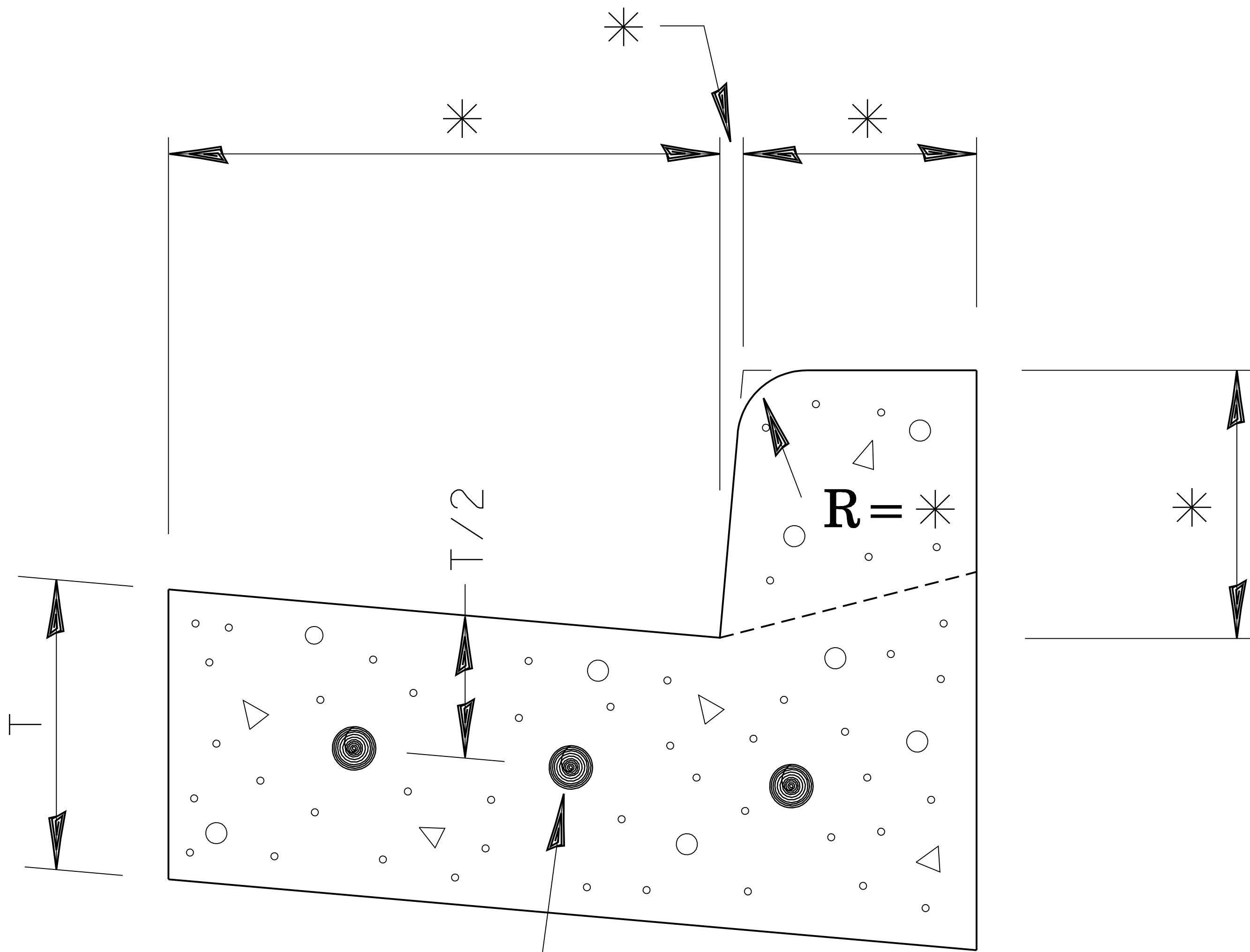
## **TYPE V GUTTER**

---

**606-3**



\* VARIES - SEE STANDARD 606001

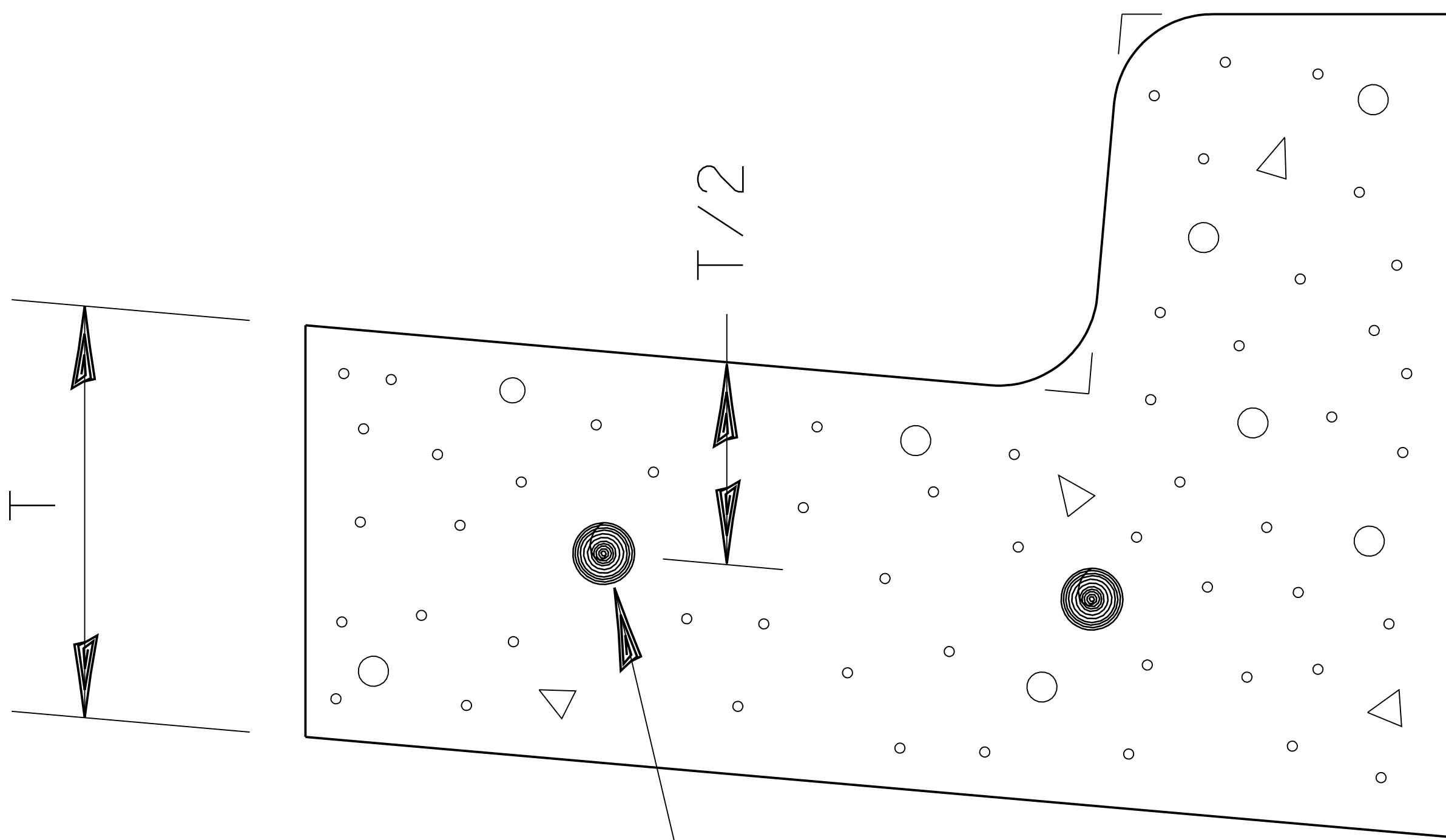


CONTINUOUSLY REINFORCED  
WITH 3 - #4 BARS  
EVENLY SPACED

REINFORCEMENT SHALL NOT BE PAID FOR  
SEPARATELY BUT WILL BE INCLUDED IN THE  
CONTRACT UNIT PRICE FOR CC&G.

**REINFORCEMENT DETAIL**  
**FOR**  
**COMBINATION CONCRETE**  
**CURB AND GUTTER**

**606-4**

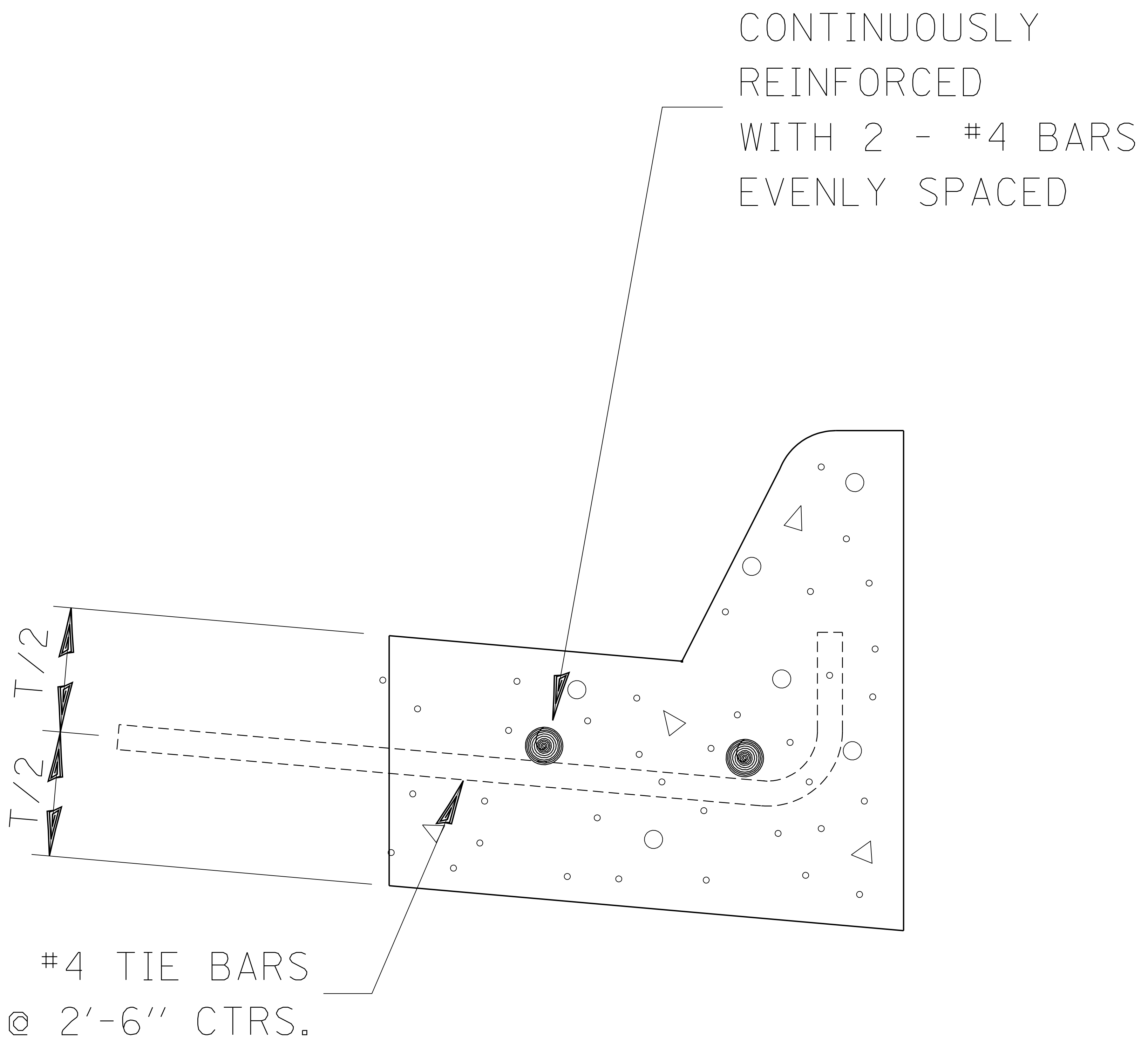


CONTINUOUSLY REINFORCED  
WITH 2 - #4 BARS  
EVENLY SPACED

REINFORCEMENT SHALL NOT BE PAID FOR  
SEPARATELY BUT WILL BE INCLUDED IN THE  
CONTRACT UNIT PRICE FOR CC&G.

**REINFORCEMENT DETAIL**  
**FOR**  
**COMBINATION CONCRETE**  
**CURB AND GUTTER**  
**TYPE B-6.18**

**606-5**



REINFORCEMENT SHALL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR CC&G.

**COMBINATION CONCRETE**

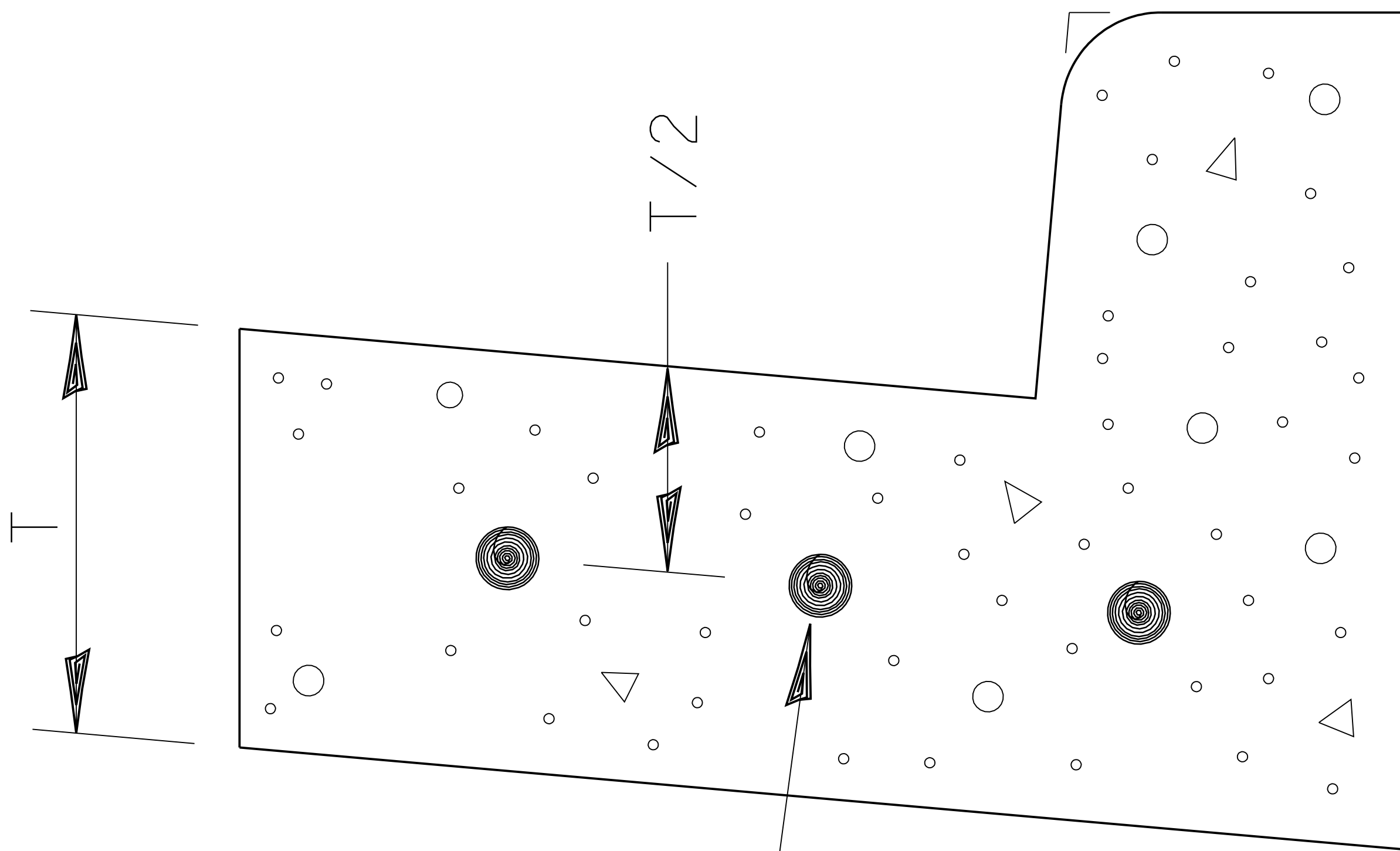
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**CURB AND GUTTER**

---

**TYPE M-4.06**

**606-6**

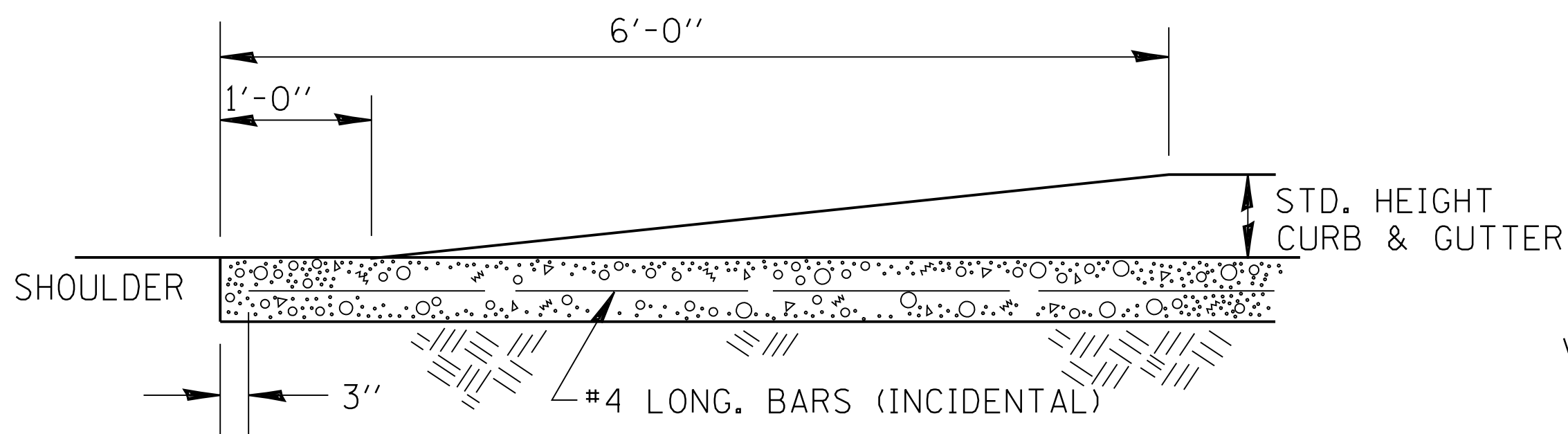


CONTINUOUSLY REINFORCED  
WITH 3 - #4 BARS  
EVENLY SPACED

REINFORCEMENT SHALL NOT BE PAID FOR  
SEPARATELY BUT WILL BE INCLUDED IN THE  
CONTRACT UNIT PRICE FOR CC&G.

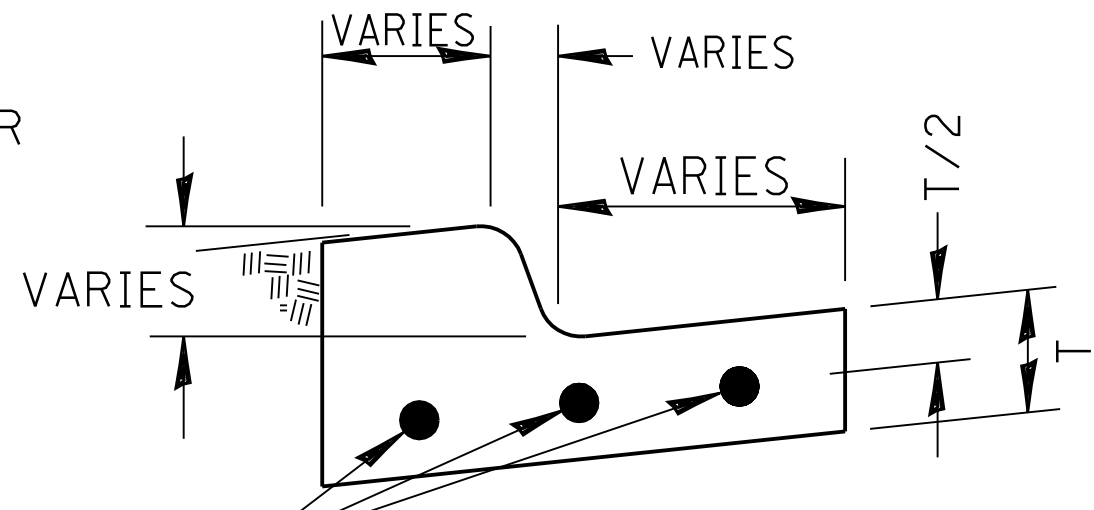
**REINFORCEMENT DETAIL**  
**FOR**  
**COMBINATION CONCRETE**  
**CURB AND GUTTER**  
**TYPE B-6.24**

**606-7**

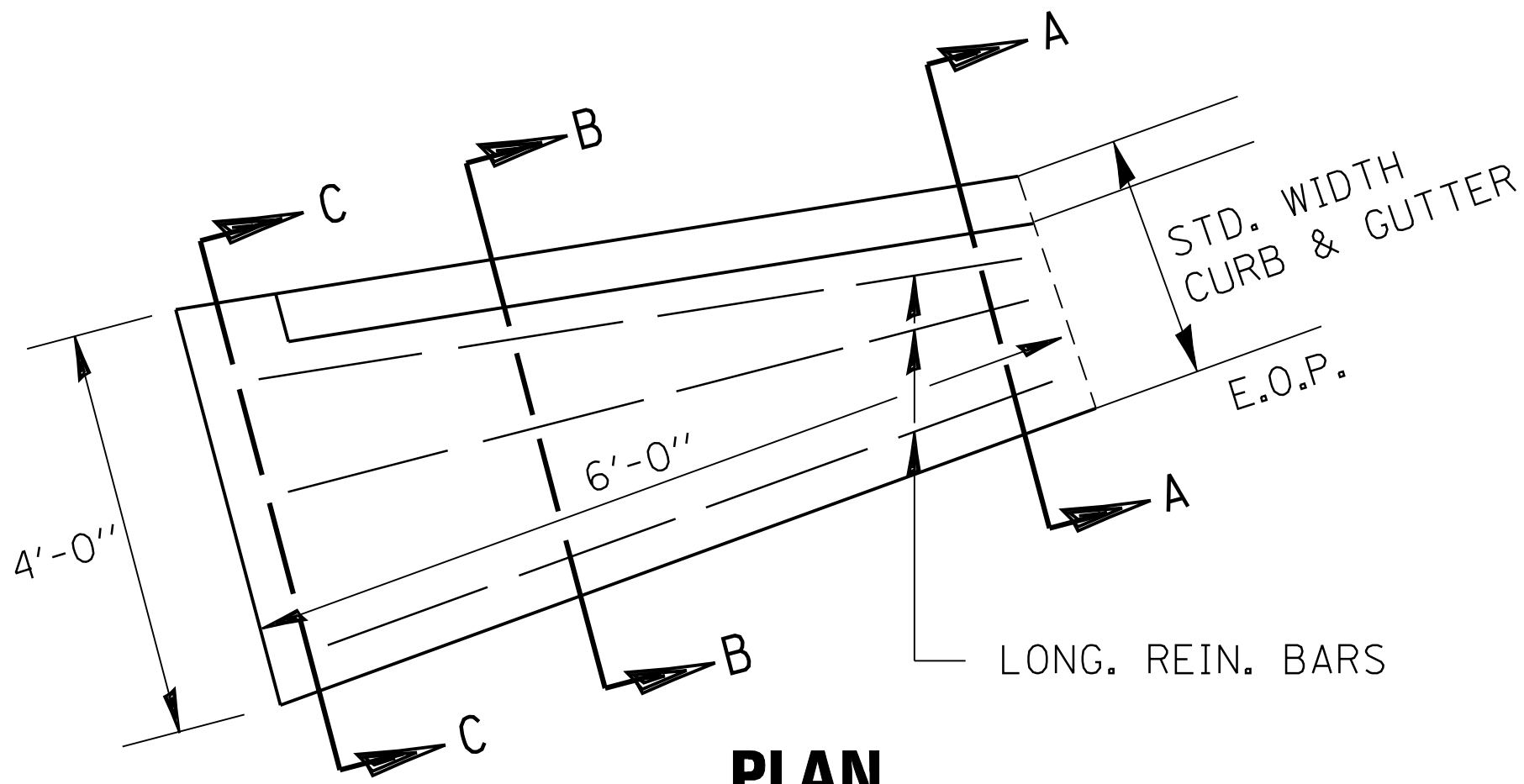


**CURB DETAIL**

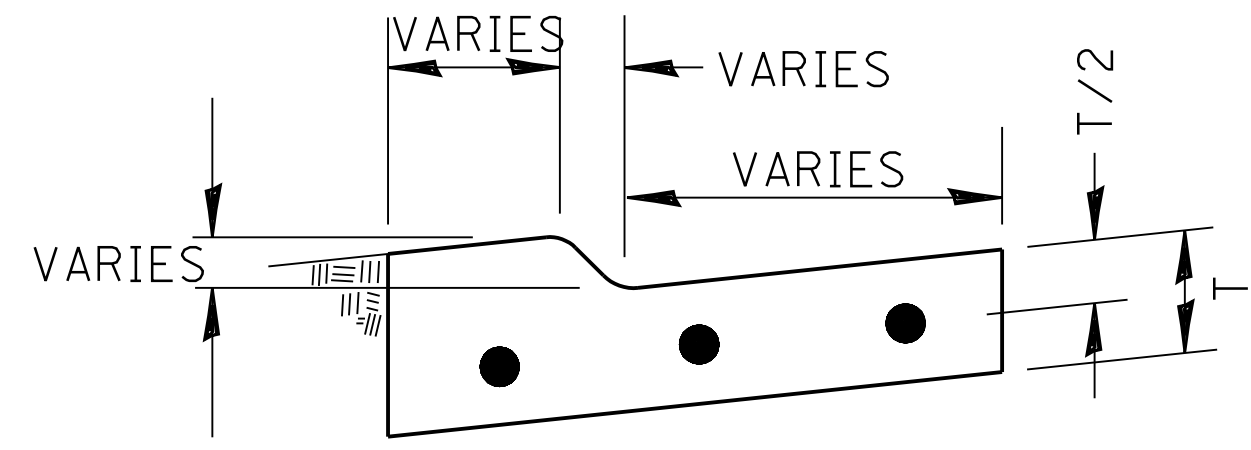
3-#4 LONG. BARS (INCIDENTAL)



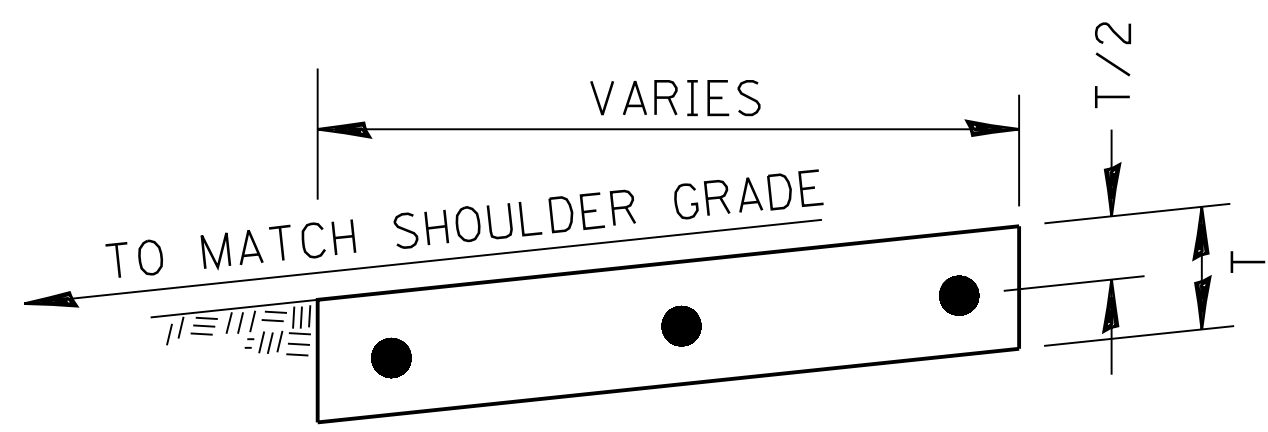
**SECTION A-A**



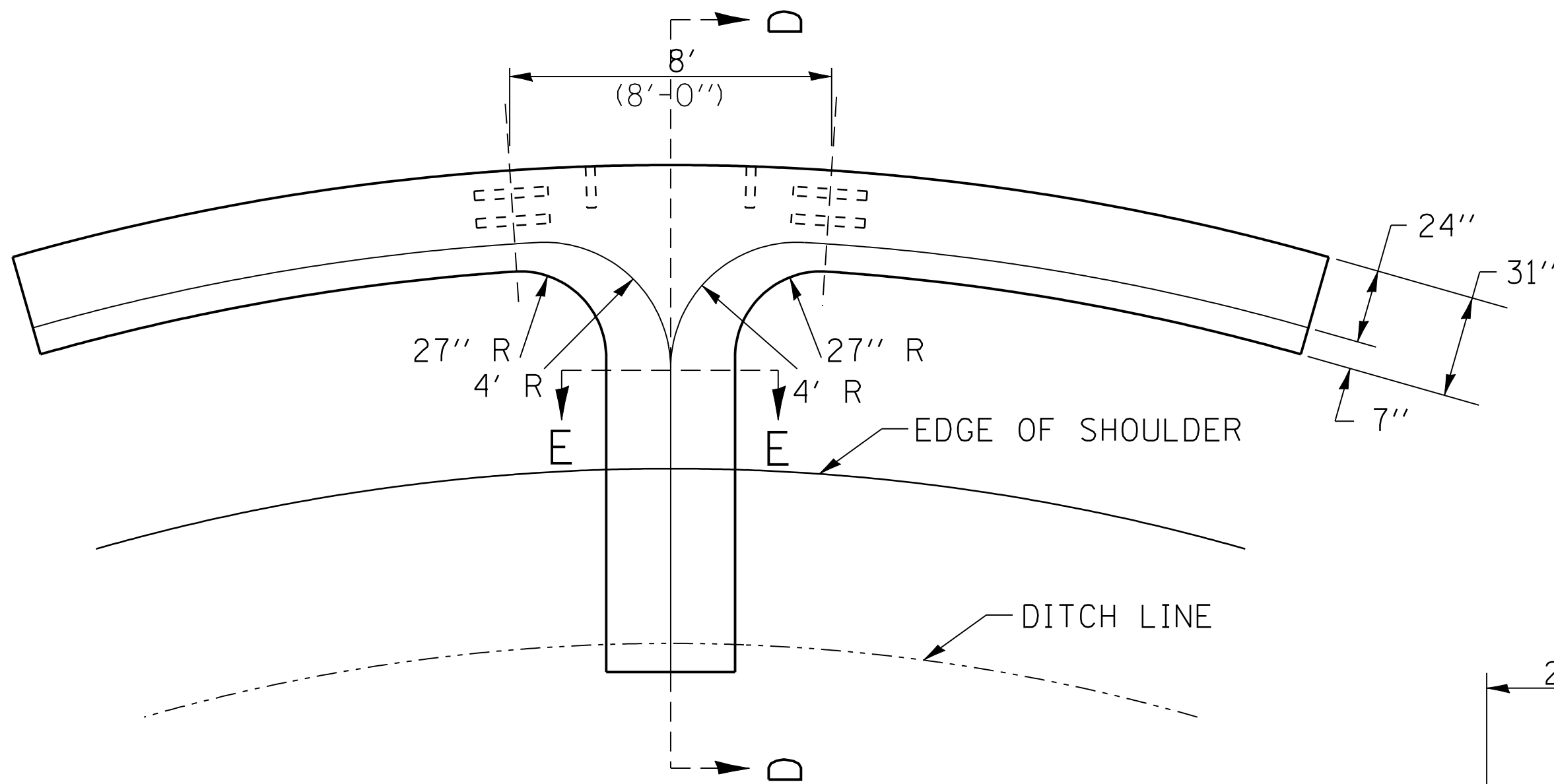
**PLAN**



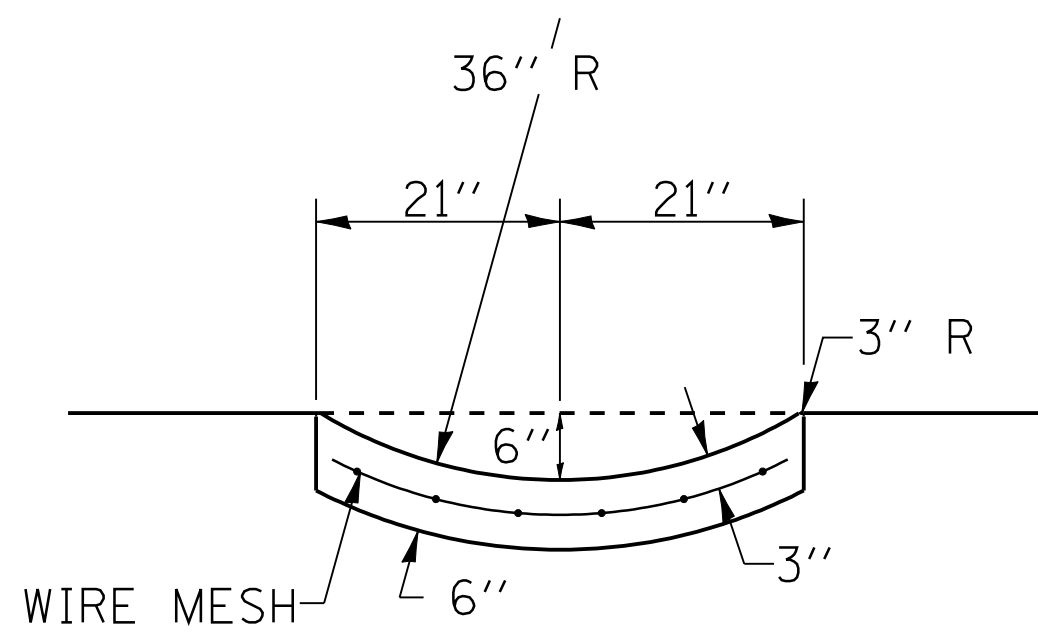
**SECTION B-B**



**SECTION C-C**



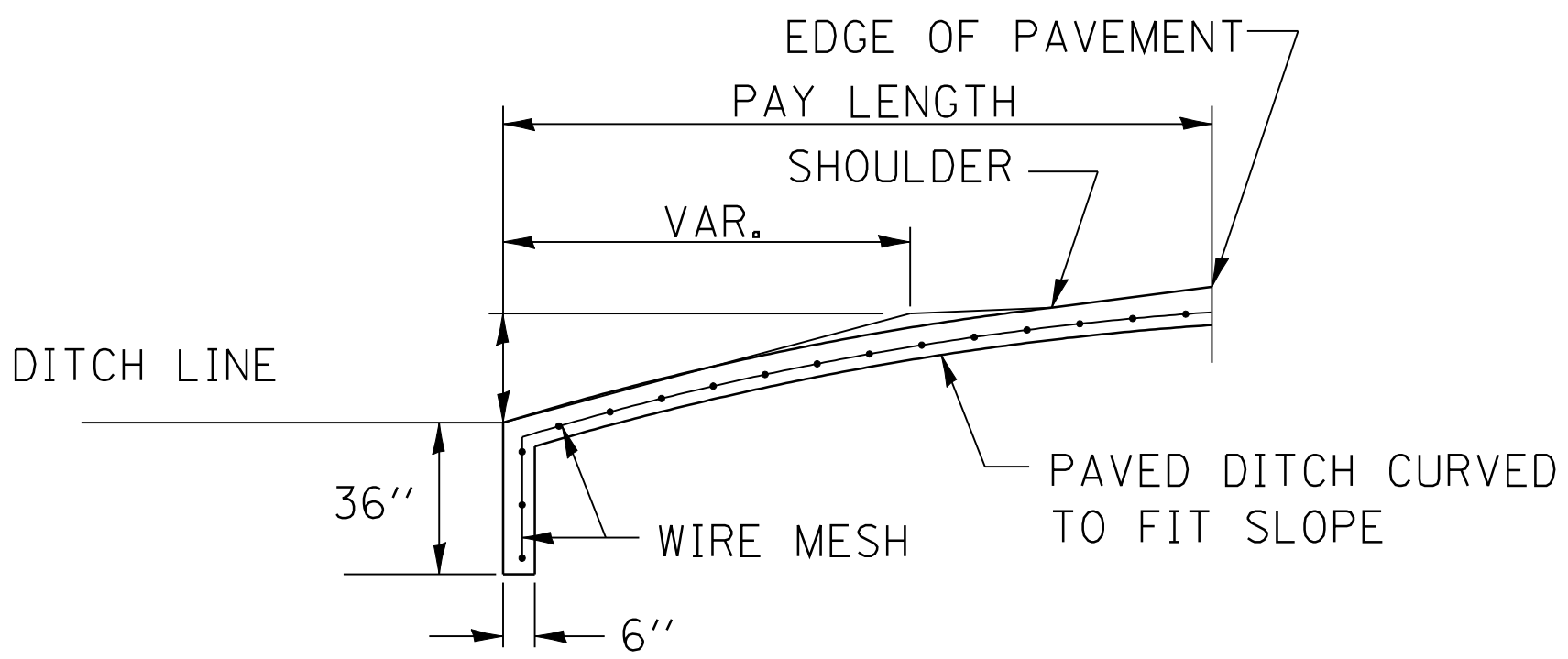
**SECTION D-D**



QUANTITY OF CONCRETE

SECTION A-A = 0.07 CU. YD./FT.  
8' SECTION OF CURB & GUTTER UP TO SECTION A-A = 0.75 CU.YD.

**SECTION E-E**



NOTE:

CLASS SI CONCRETE SHALL BE USED THROUGHOUT. CURB AND GUTTER OUTLET SHALL BE TIED TO PAVEMENT SLAB WITH 2 TIE BARS, 30" LONG - 30" CENTERS. OUTLET SHALL BE TIED TO CURB AND GUTTER AT CONTRACTION JOINTS AS SHOWN. GUTTER OUTLET AND PAVED DITCH SHALL BE REINFORCED WITH WIRE MESH HAVING A WEIGHT OF AT LEAST 58 LBS/SQ. FT. COST TO BE INCLUDED IN THE UNIT PRICE PER CU. YD. FOR CLASS SI CONCRETE (OUTLET).

CONCRETE CURB AND GUTTER SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 606 OF THE STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, STANDARD 606001 AND THIS DRAWING.

CLASS SI CONCRETE SHALL BE USED THROUGHOUT. A HOLE 1½" IN DIA. AND 9" DEEP SHALL BE DRILLED IN THE EXISTING CONCRETE CURB AS SHOWN. A 1¼" x 18" SMOOTH DOWEL BAR SHALL BE GROUTED IN THE HOLE LONGITUDINALLY.

JOINTS OF A TYPE SIMILAR TO THAT IN THE UNDERLYING PAVEMENT (EXPANSION OR CONTRACTION) SHALL BE INSTALLED IN THE CONCRETE CURB IN ALIGNMENT WITH THE JOINTS IN THE PAVEMENT.

INLETS ARE NOT TO BE INCLUDED IN THE MEASUREMENT FOR CURB AND GUTTER REPLACEMENT.

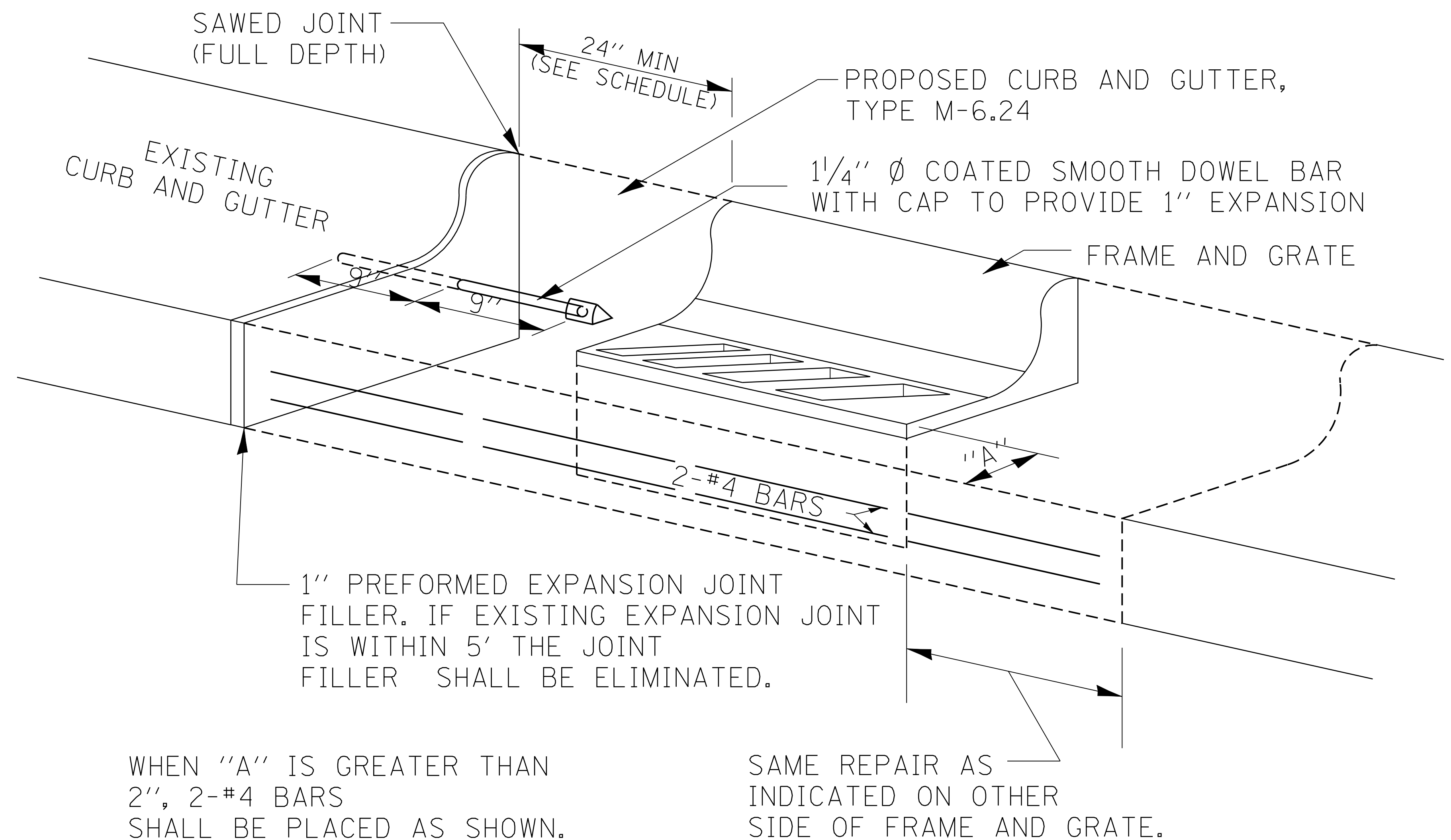
THE PROPOSED CONFIGURATION OF THE CURB AND GUTTER SHALL MATCH THAT REMOVED.

THE CONCRETE REQUIRED BETWEEN THE EDGE OF PAVEMENT AND FRAME AND GRATE SHALL BE CONSIDERED INCIDENTAL TO THE CURB AND GUTTER.

THE LOCATION OF THE DOWEL BAR SHALL BE DETERMINED BY THE ENGINEER.

THE COST OF ALL MATERIALS AND LABOR REQUIRED TO INSTALL THE JOINTS AND BARS IN THE CURBS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR COMBINATION CURB AND GUTTER.

ALL EXISTING TIE BARS IN EDGE OF PAVEMENT SLAB THRU REPLACEMENT AREA SHALL BE CUT OFF.



## DETAILS FOR CURB & GUTTER REPLACEMENT AT INLET

**606-9**

CONCRETE CURB AND GUTTER SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 606 OF THE STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, STANDARD 606001 AND THIS DRAWING.

CLASS SI CONCRETE SHALL BE USED THROUGHOUT. A HOLE 1½" IN DIA. AND 9" DEEP SHALL BE DRILLED IN THE EXISTING CONCRETE CURB AS SHOWN. A 1¼"x18" SMOOTH DOWEL BAR SHALL BE GROUTED IN THE HOLE LONGITUDINALLY.

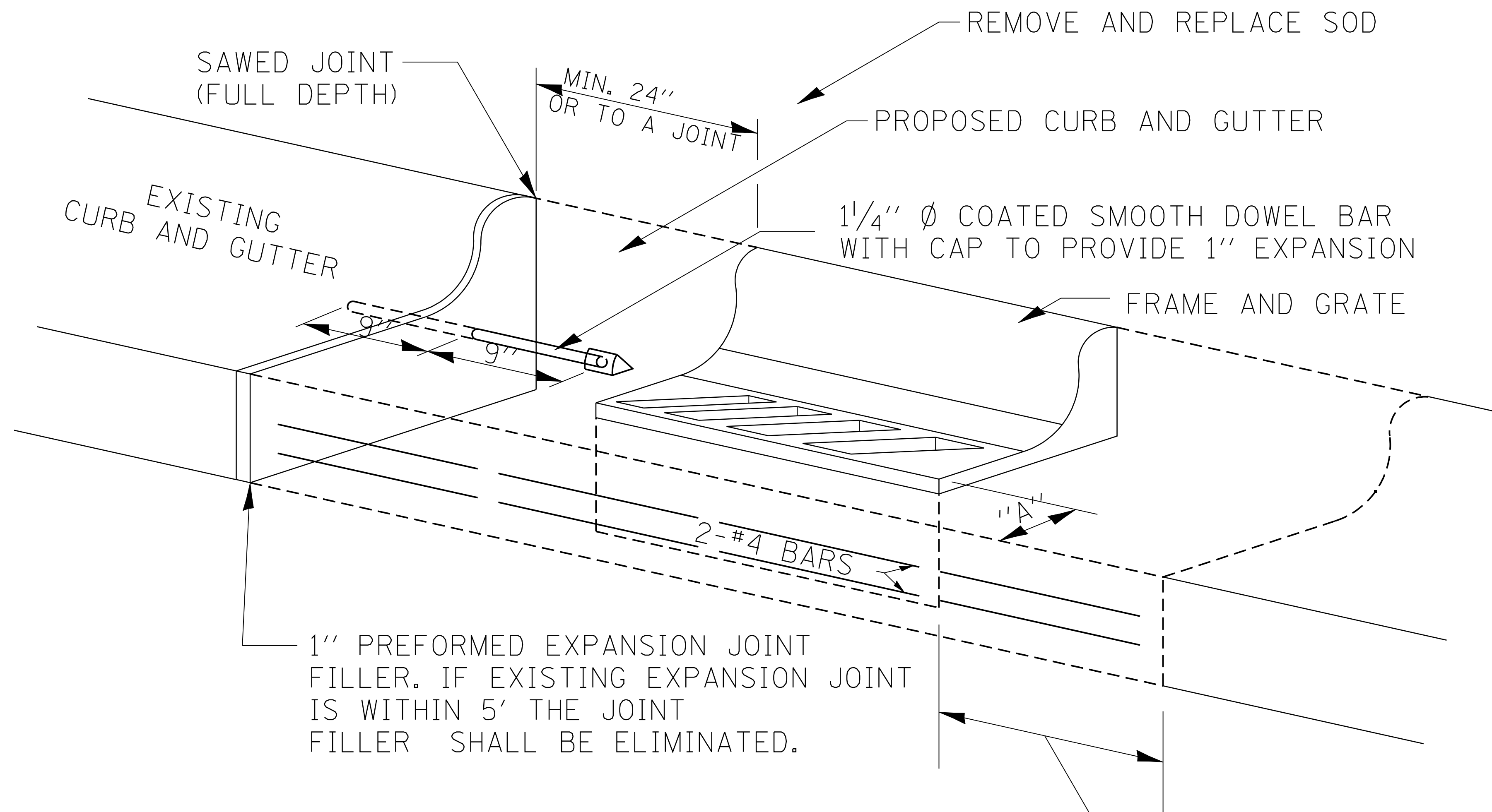
JOINTS OF A TYPE SIMILAR TO THAT IN THE UNDERLYING PAVEMENT (EXPANSION OR CONTRACTION) SHALL BE INSTALLED IN THE CONCRETE CURB IN ALIGNMENT WITH THE JOINTS IN THE PAVEMENT.

THE PROPOSED CONFIGURATION OF THE CURB AND GUTTER SHALL MATCH THE REMOVED.

THE LOCATION OF THE DOWEL BAR SHALL BE DETERMINED BY THE ENGINEER.

ALL EXISTING TIE BARS IN EDGE OF PAVEMENT SLAB THRU REPLACEMENT AREA SHALL BE CUT OFF.

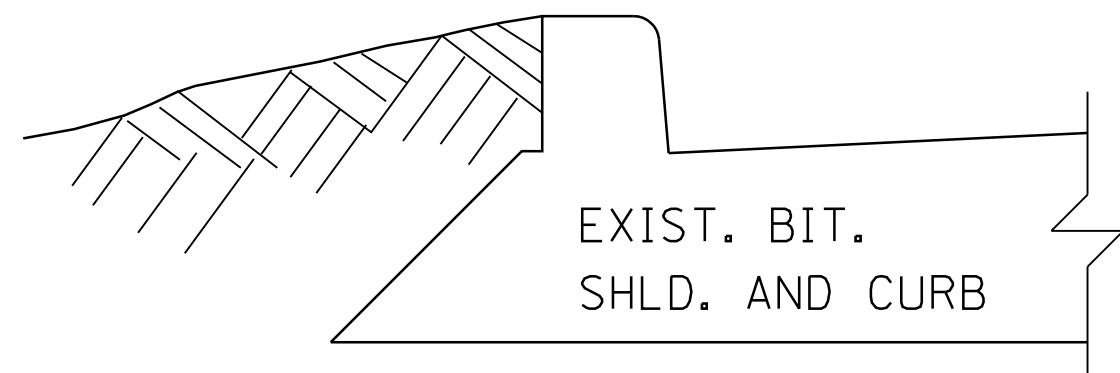
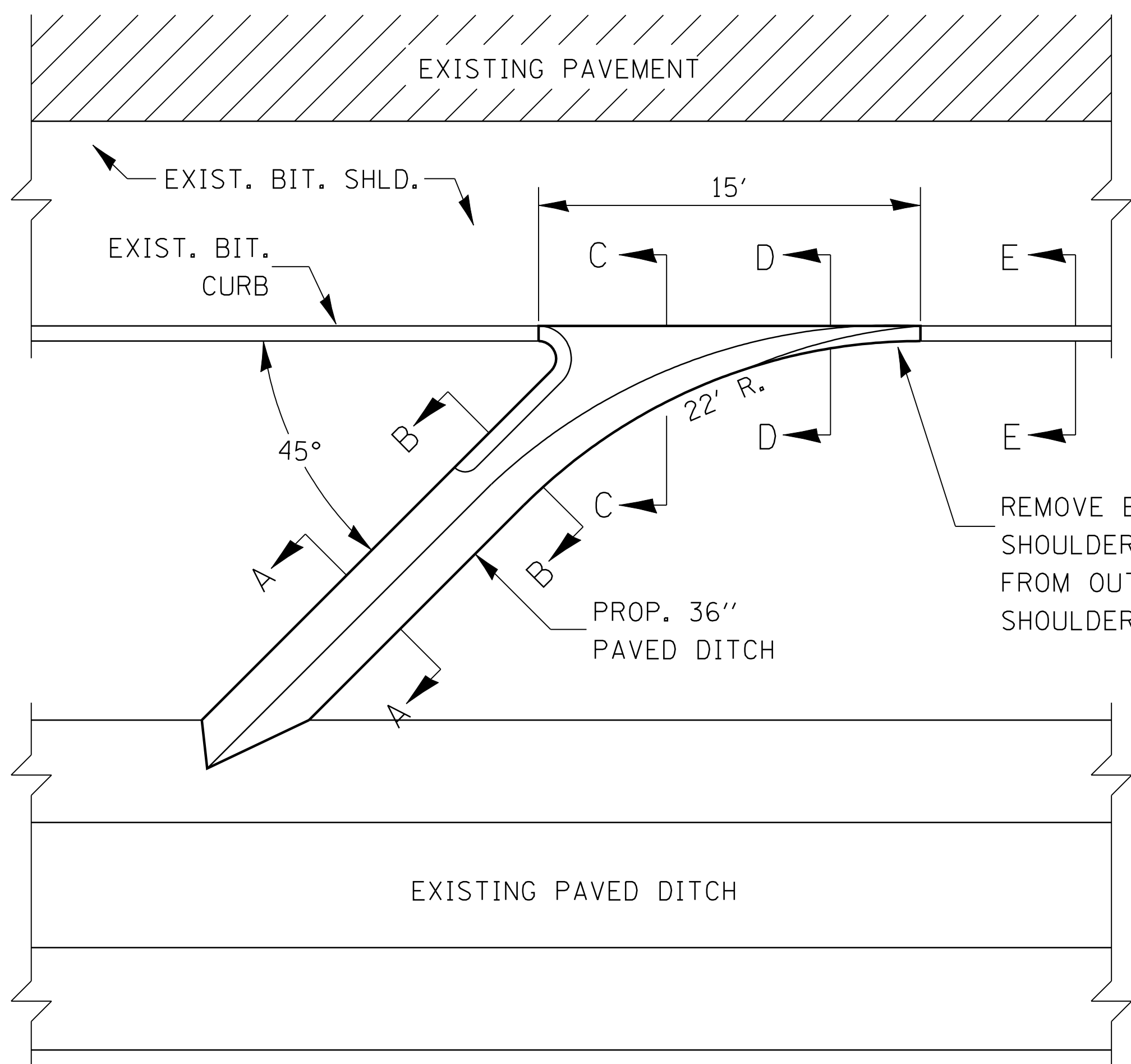
THE WORK SHALL BE DONE IN ACCORDANCE WITH SECTION 602 OF THE STANDARD SPECIFICATIONS AND INCLUDES THE REMOVAL AND REPLACEMENT OF SOD, CONCRETE PAVEMENT AND/OR CURB AND GUTTER ADJACENT TO CATCH BASINS OR INLETS TO BE ADJUSTED OR RECONSTRUCTED AND SHALL BE INCLUDED IN THE PAY ITEM OF CATCH BASINS OR INLETS TO BE ADJUSTED OR RECONSTRUCTED AS SPECIFIED.



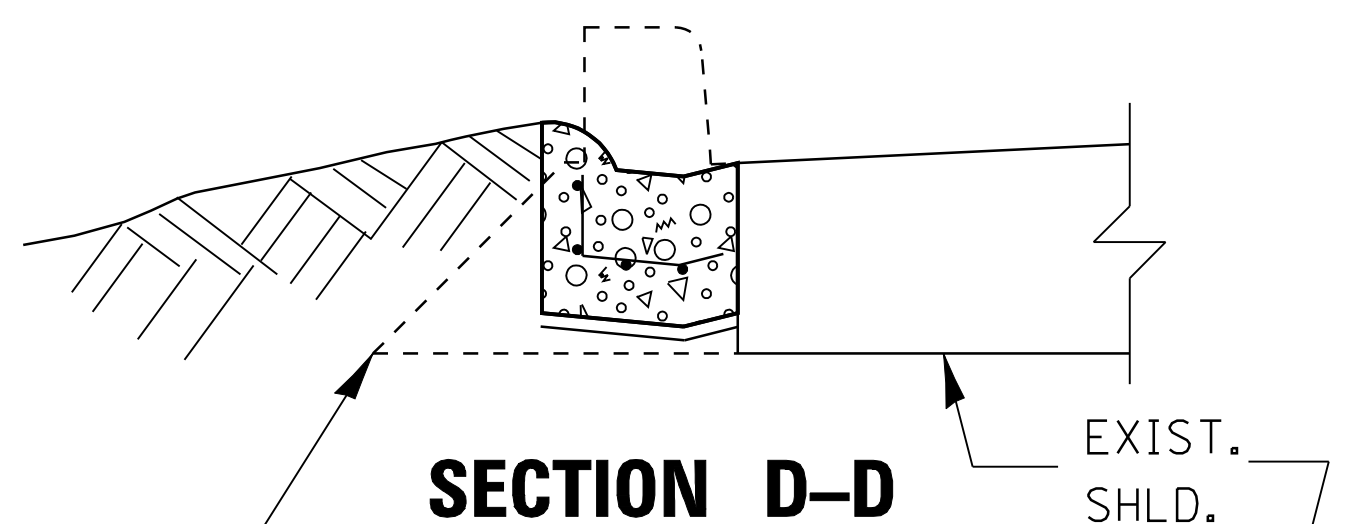
WHEN "A" IS GREATER THAN 2", 2-#4 BARS SHALL BE PLACED AS SHOWN.

SAME REPAIR AS INDICATED ON OTHER SIDE OF FRAME AND GRATE.

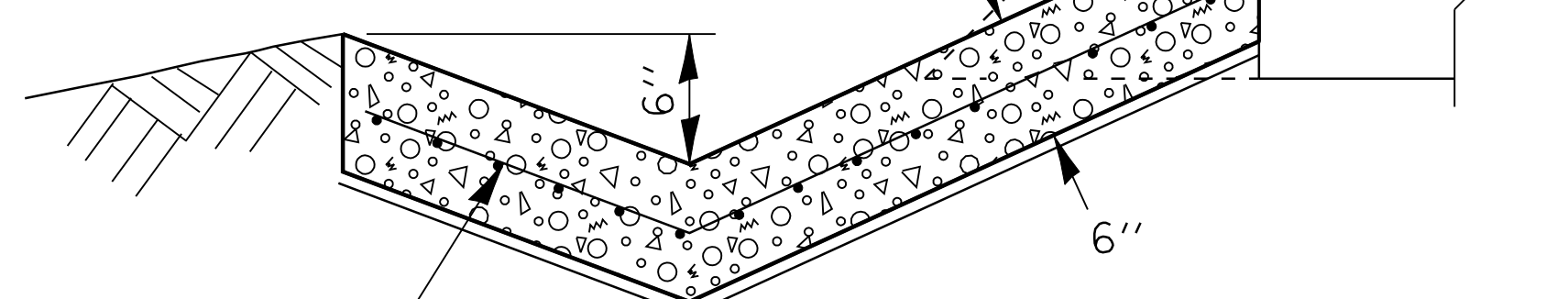
**DETAILS FOR CURB & GUTTER REPLACEMENT  
CATCH BASIN OR INLETS TO BE  
ADJUSTED OR RECONSTRUCTED**



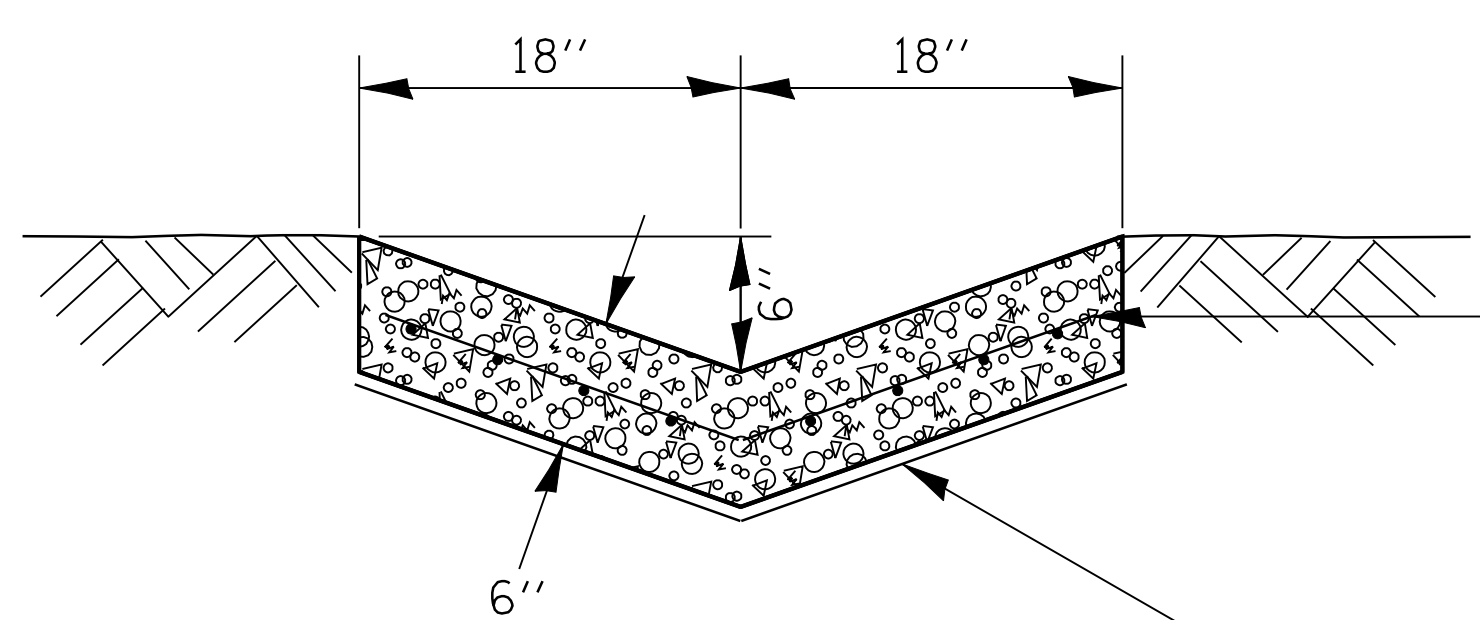
**SECTION E-E**



**SECTION D-D**

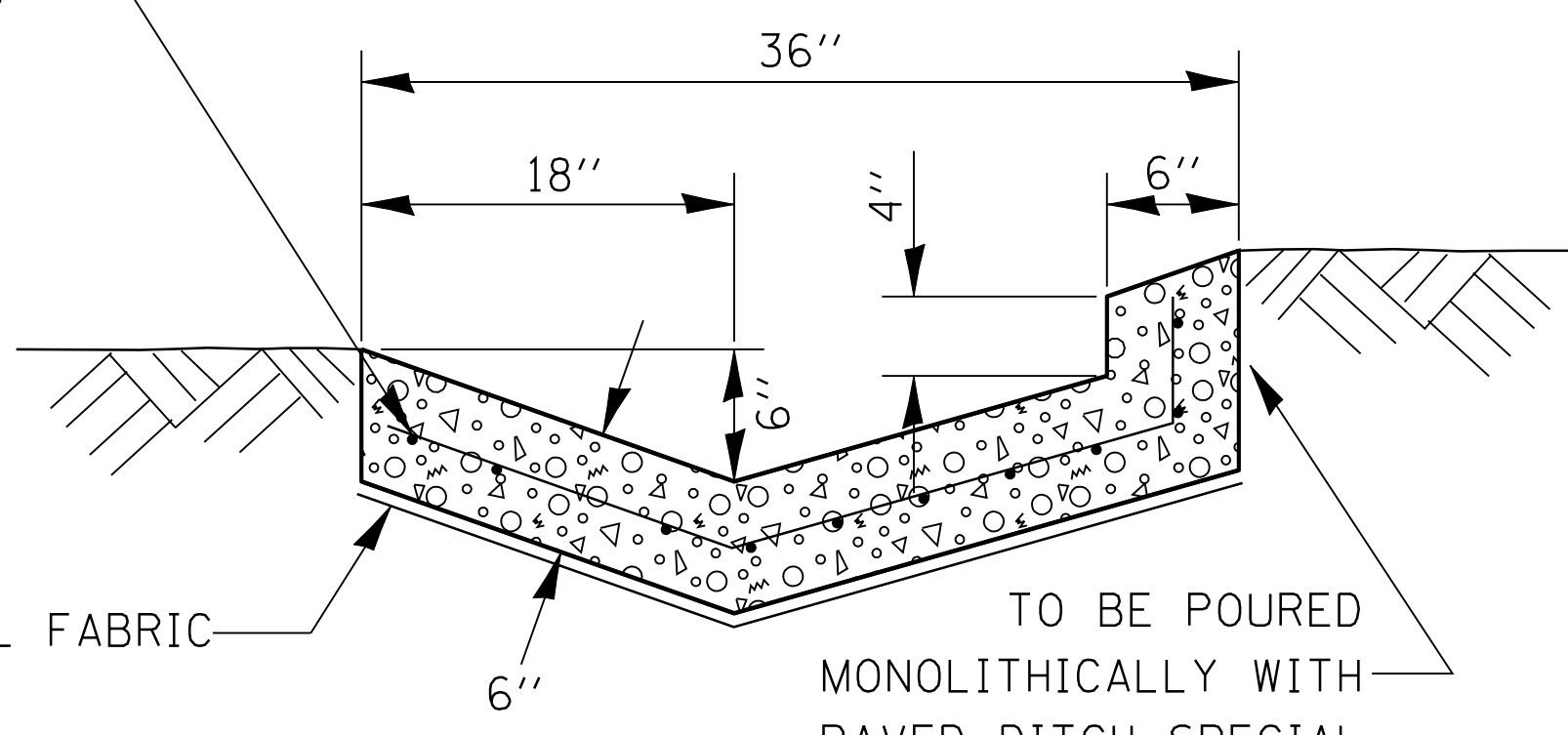


**SECTION C-C**



**SECTION A-A**

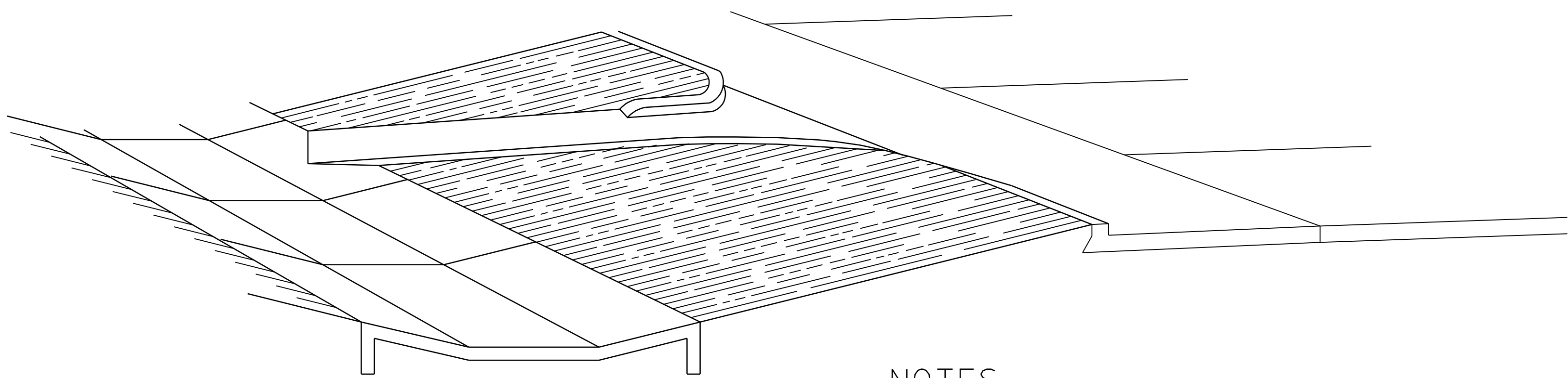
6" x 6" WELDED WIRE FABRIC WEIGHING NOT LESS THAN 58 LBS./100 SQ. FT.



**SECTION B-B**

\*\* GEOTECHNICAL FABRIC

TO BE POURED MONOLITHICALLY WITH PAVED DITCH SPECIAL



**NOTES:**

WELDED WIRE FABRIC SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AND INCLUDED IN THE UNIT PRICE FOR PAVED DITCH, SPECIAL.

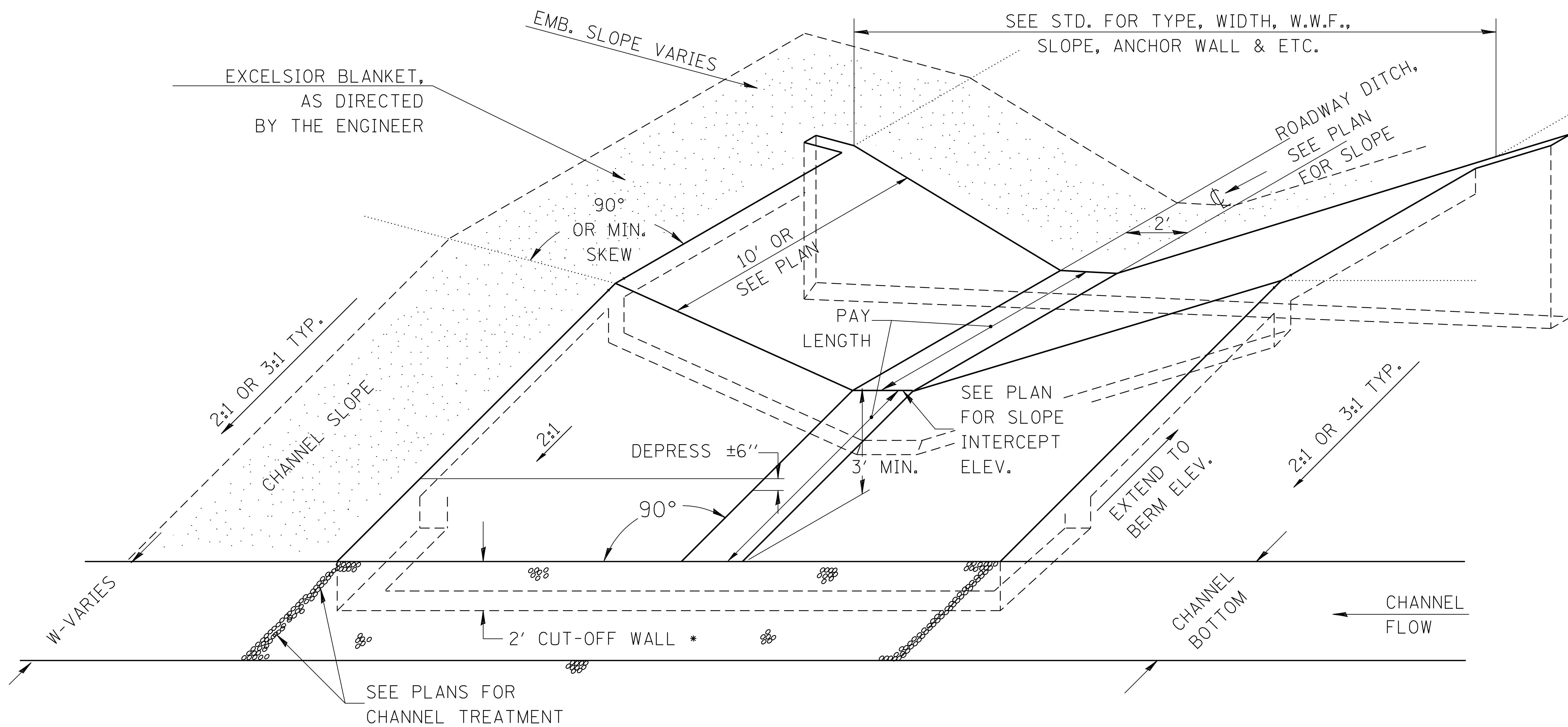
CLASS SI CONCRETE SHALL BE USED THROUGHOUT.

THIS ITEM OF WORK SHALL BE PAID FOR IN ACCORDANCE WITH ARTICLE 606.14 OF THE STANDARD SPECIFICATIONS. AT THE CONTRACT UNIT PRICE PER FOOT FOR PAVED DITCH, SPECIAL.

\*\* THE GEOTECHNICAL FABRIC IS INCIDENTAL TO THE PAVED DITCH.

**PAVED DITCH, SPECIAL**



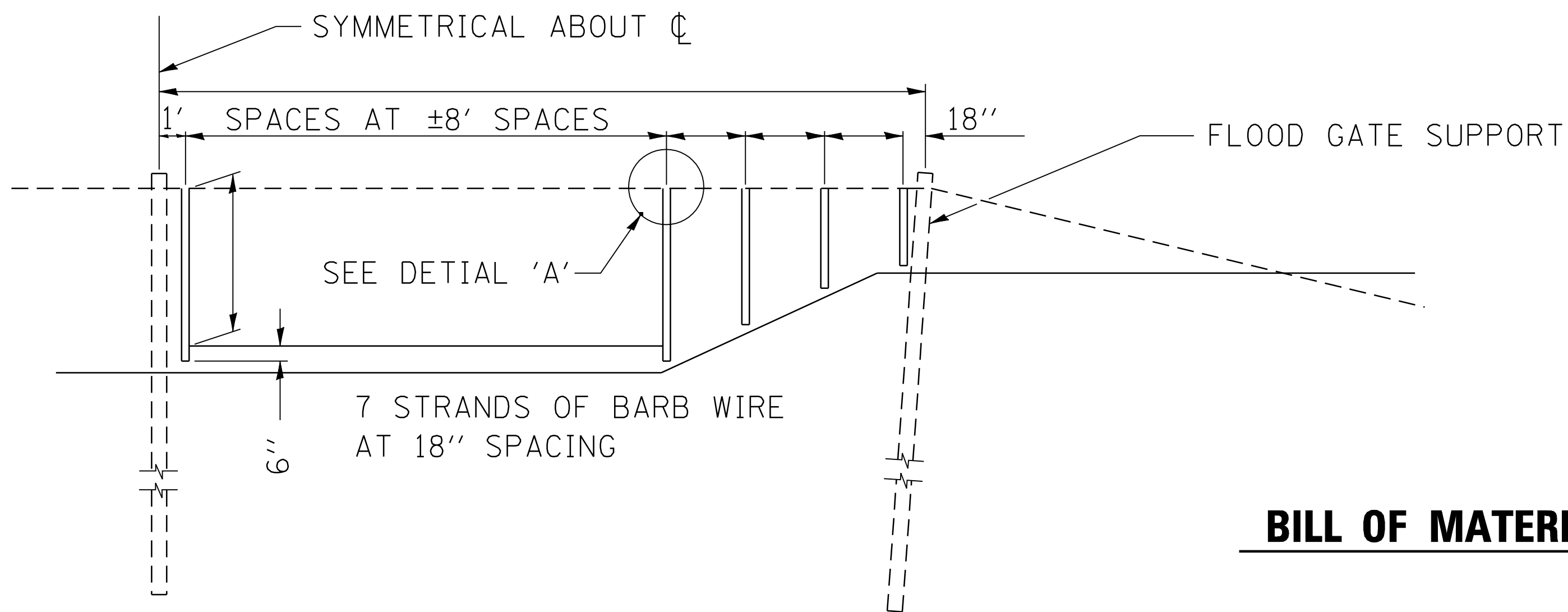


NOTE:  
SEE STD. 606401 AND SPECIAL PROVISIONS  
FOR OTHER DIMENSIONS AND INFORMATION.

\*NOTE:  
STD. 606401, SECTION C-C 4' ROUNDED END AND  
FLARED WIDTH NOT REQUIRED.

**DETAIL OF  
PAVED DITCH, TYPE B-30 SPECIAL  
ENTRY TO CHANNEL SLOPE**

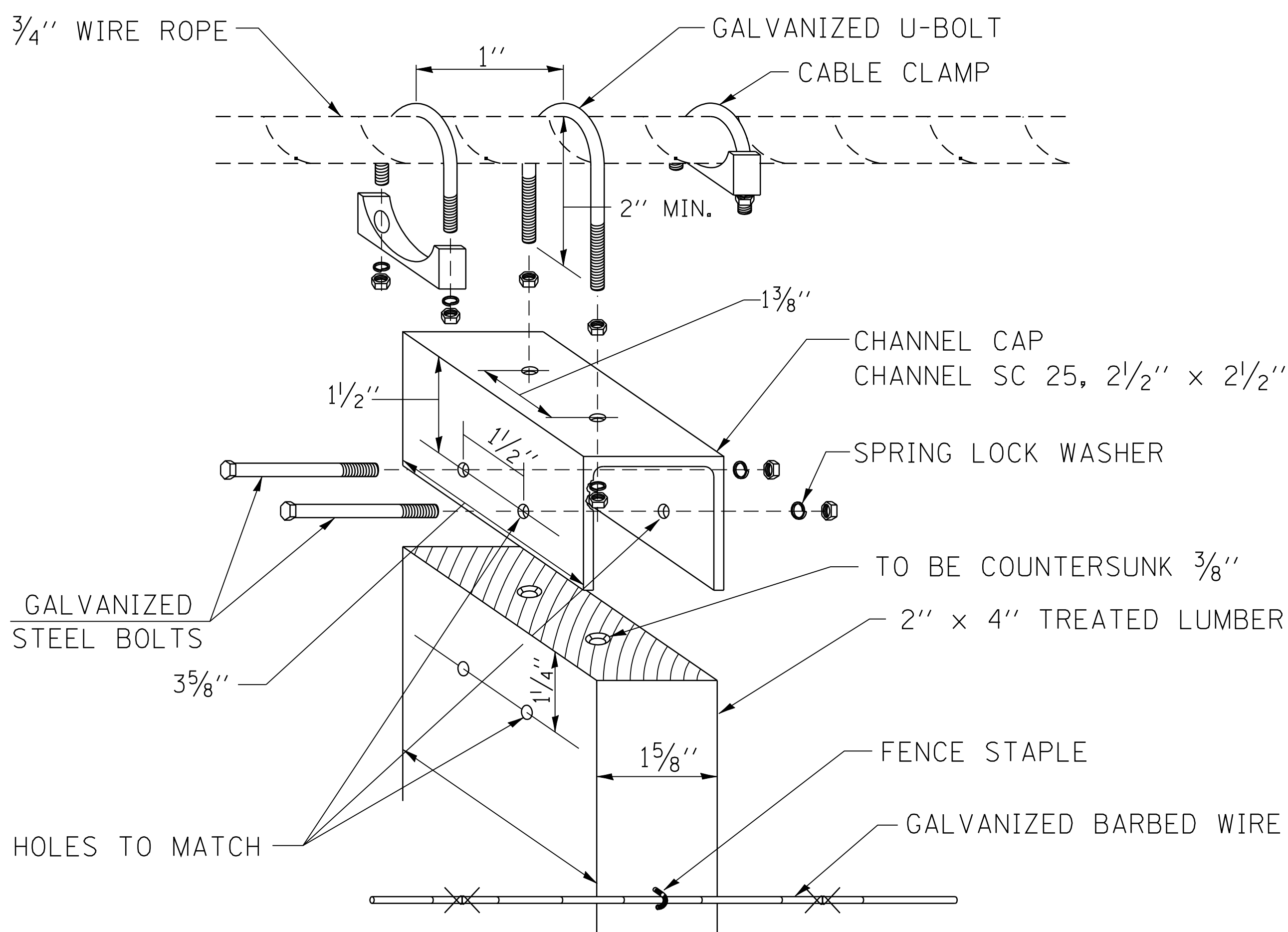
**606-12**



**NOTE:**  
THE ITEMS LISTED IN THE BILL OF MATERIALS SHALL BE INCIDENTAL TO THE COST OF THE FLOOD GATE COMPLETE.

### **BILL OF MATERIALS**

<u>QUANTITY</u>	<u>UNIT</u>	<u>ITEM</u>
	FT	2"x4" TREATED LUMBER
	FT	GALVANIZED BARBED WIRE
	FT	SPECIAL STEEL CHANNEL SC 25, 2 1/2"x2 1/2"
EACH		3/8"x3" GALVANIZED STEEL BOLTS AND WASHERS
EACH		3/8"x2" GALVANIZED STEEL U-BOLTS
EACH		GALVANIZED CABLE CLAMPS
LBS		GALVANIZED FENCE STAPLES

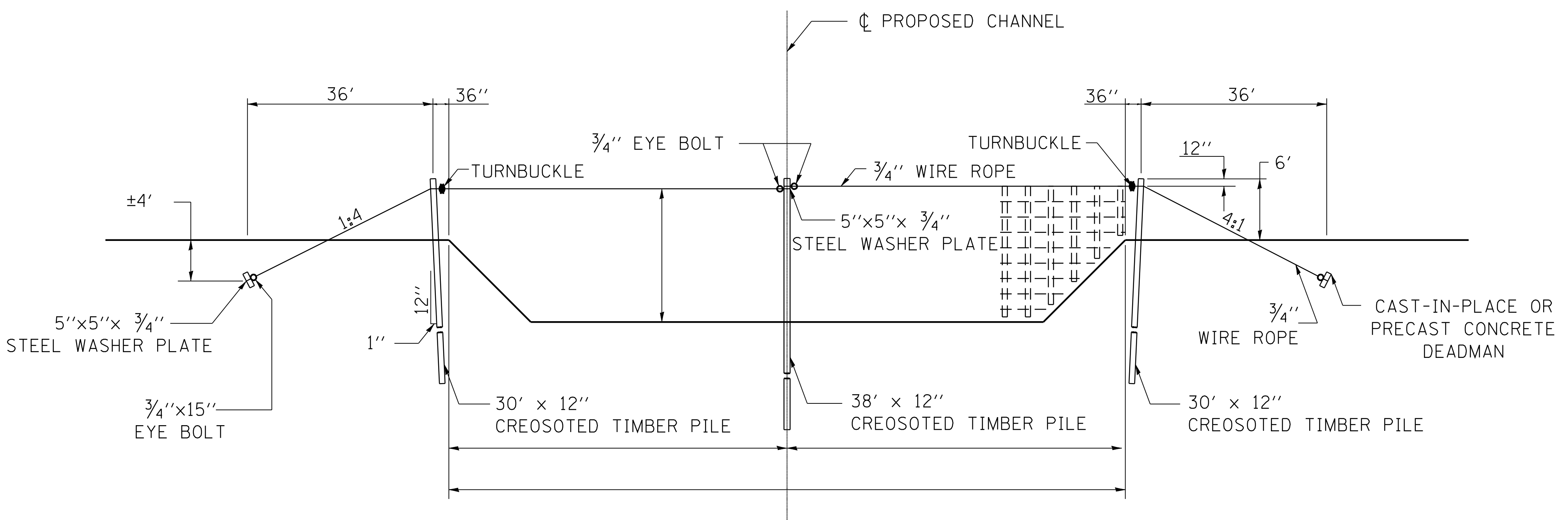


### **DETAIL 'A'**

EXPLODED VIEW OF FLOOD GATE TO CABLE

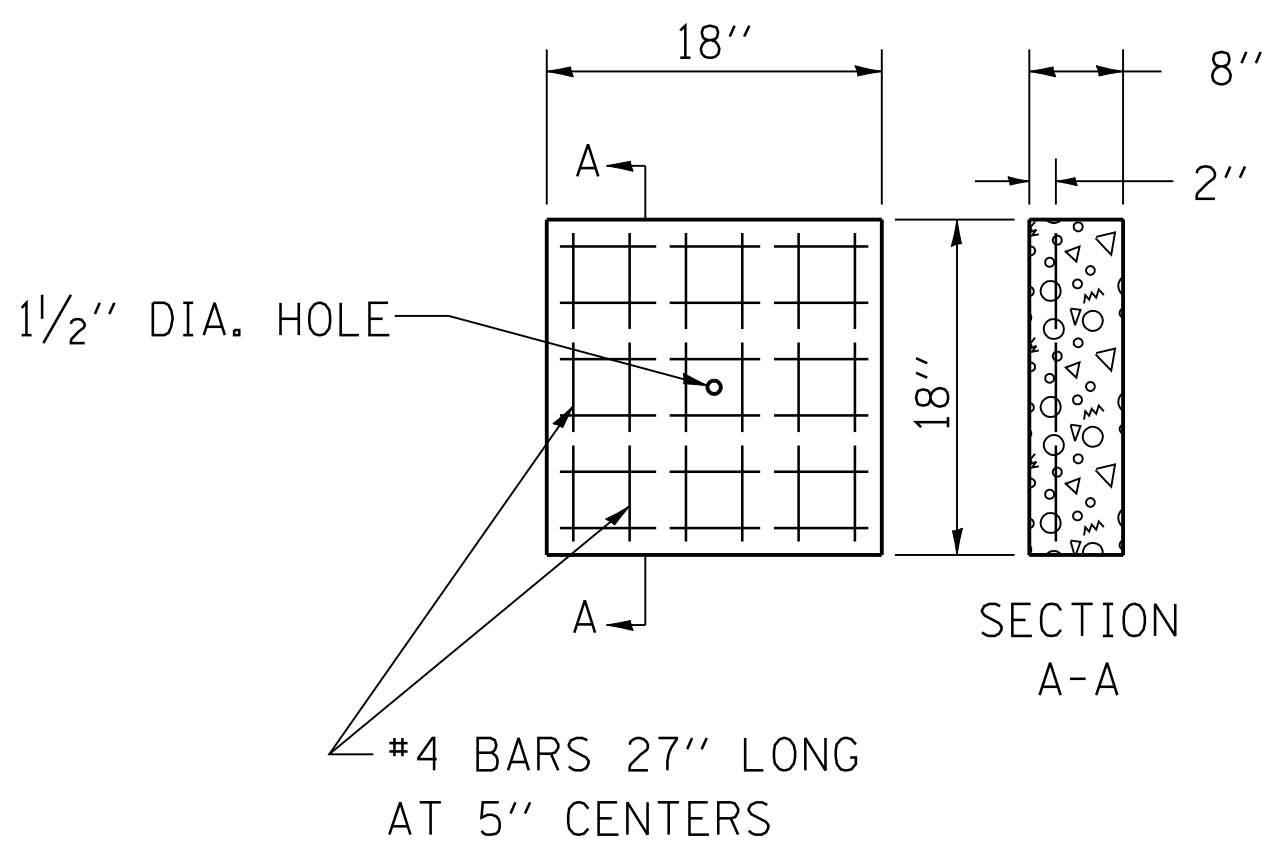
## **DETAIL OF FLOOD GATE**

**607-1**



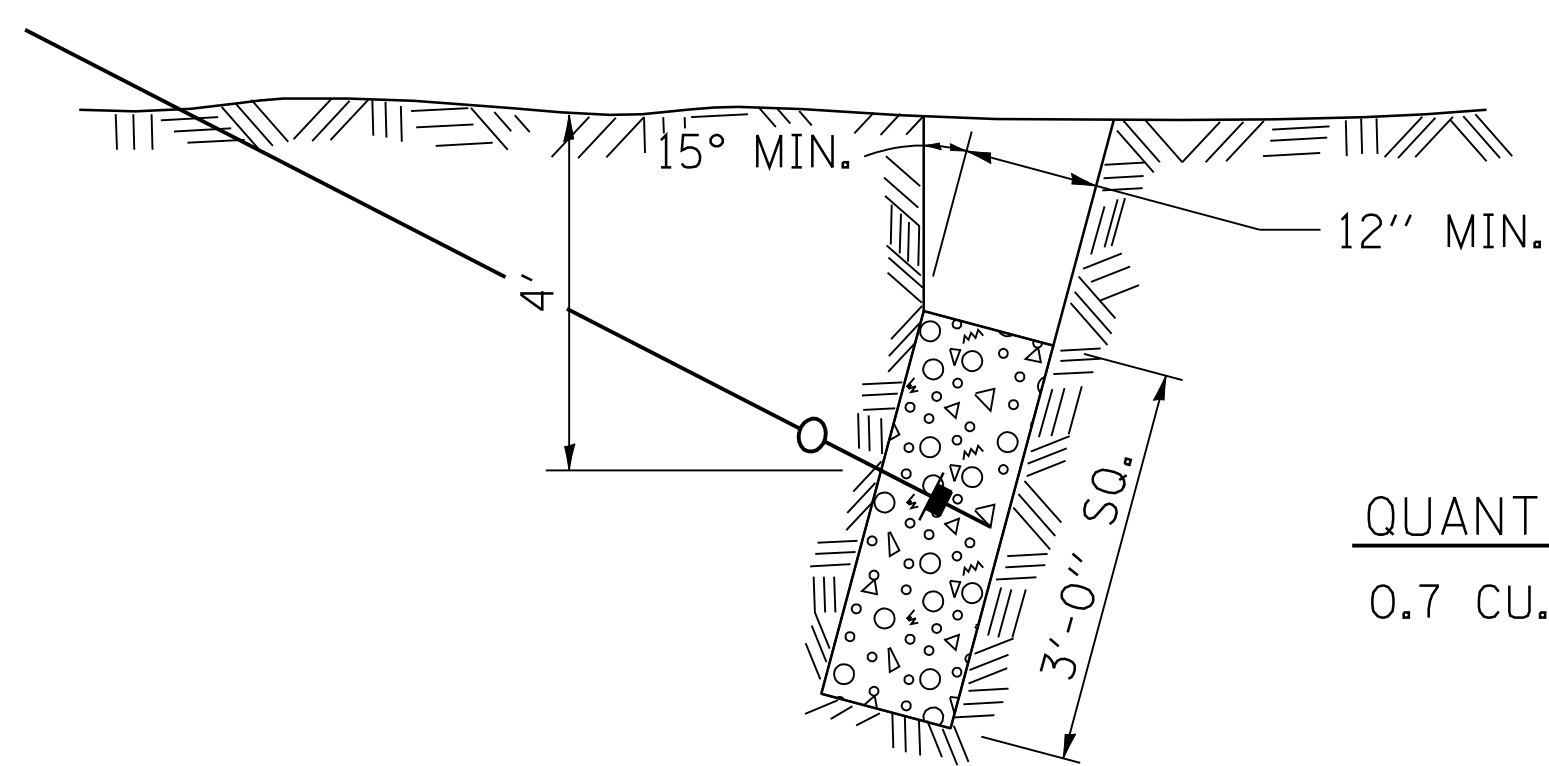
**NOTE:**

THE ITEMS LISTED IN THE BILL OF MATERIALS SHALL BE INCIDENTAL TO THE COST OF THE FLOOD GATE SUPPORT COMPLETE.



**DETAIL OF PRECAST CONCRETE DEADMAN**

QUANTITIES FOR 2 DEADMEN  
 0.3 CU. YD. CLASS SI CONCRETE  
 36 LBS. REINFORCEMENT BARS



QUANTITIES FOR 2 DEADMEN  
 0.7 CU. YD. CLASS SI CONCRETE

**DETAIL OF CAST-IN-PLACE CONCRETE DEADMAN**

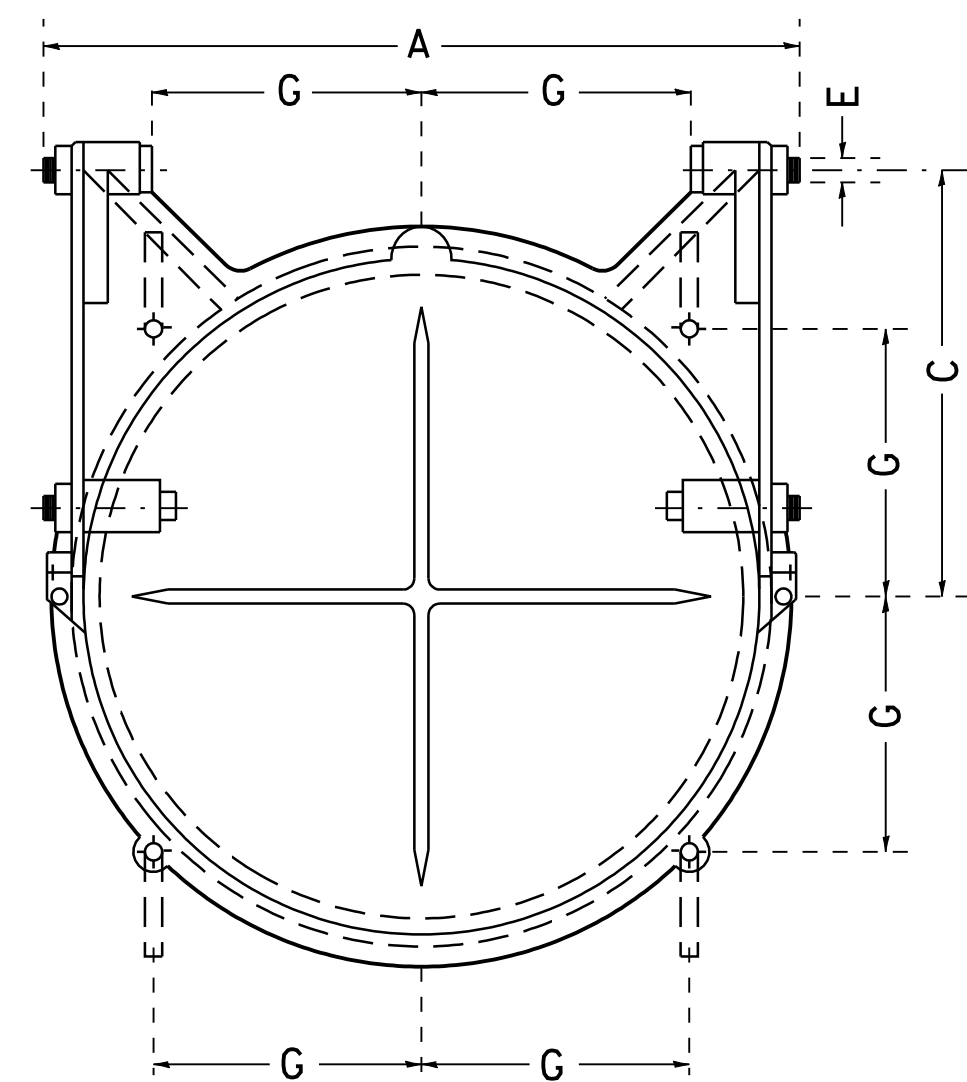
**NOTE:**

PRECAST CONCRETE DEADMEN AND CAST-IN-PLACE CONCRETE DEADMEN SHALL BE CONSTRUCTED OF CLASS SI CONCRETE

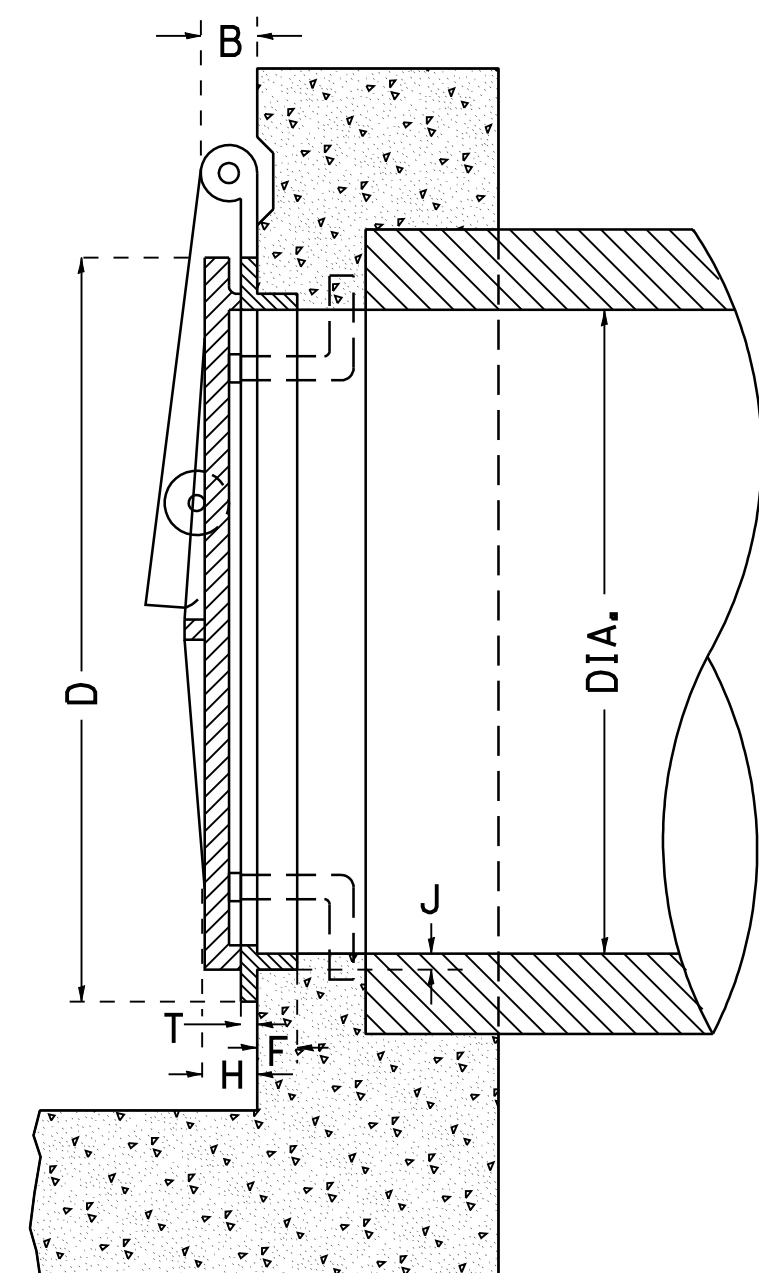
**BILL OF MATERIALS**

QUANTITY	UNIT	ITEM
240	FT	3/4" DIA. GALVANIZED WIRE ROPE
4	EACH	3/4" DIA. x 15" GALVANIZED EYE BOLTS WITH NUTS AND WASHERS
2	EACH	3/4" DIA. GALVANIZED TURNBUCKLES
20	EACH	3/4" DIA. GALVANIZED CABLE CLAMPS
4	EACH	5" x 5" x 3/4" STEEL WASHER PLATES
2	EACH	PRECAST CONCRETE DEADMAN OR CAST-IN-PLACE CONCRETE DEADMAN
98	FT	12" CREOSOTED TIMBER PILE (INCLUDES FURNISHING AND DRIVING TIMBER PILES)

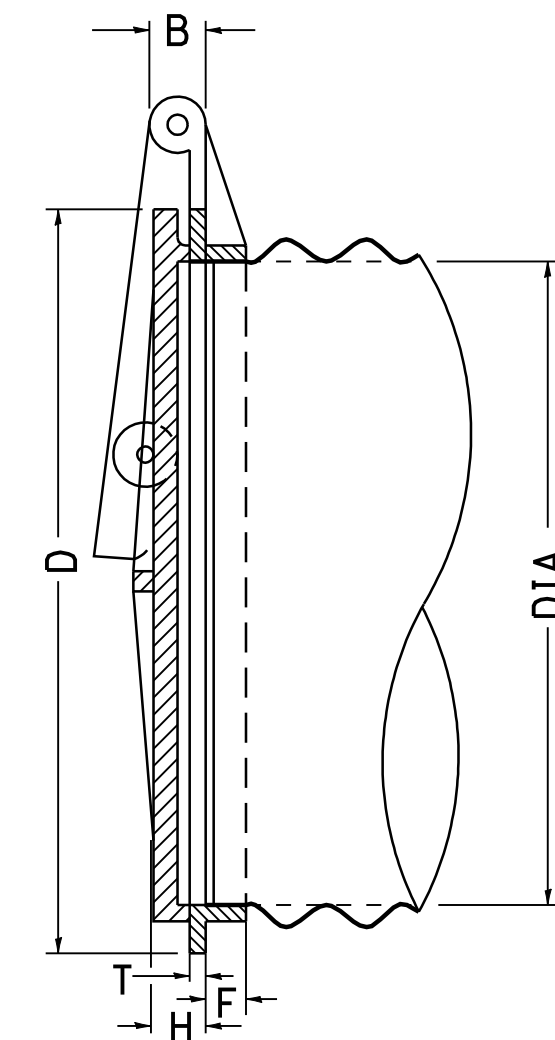
**DETAIL OF FLOOD GATE SUPPORT**



**FRONT ELEVATION**



**SECTION**



**SECTION SHOWING METHOD OF APPLICATION TO CORRUGATED METAL PIPE**

IT IS INTENDED THAT THE AUTOMATIC FLAP GATES SHALL BE A COMMERCIAL PRODUCT PRODUCED BY A RELIABLE MANUFACTURER. THE GATE MAY BE MADE OF CAST IRON, CAST STEEL OR OTHER SUITABLE MATERIALS. THE DESIGN MAY DIFFER FROM THE DRAWING IF IT WILL WORK IN A SATISFACTORY, TROUBLE FREE MANNER AND WILL WITHSTAND THE WATER PRESSURE AT THE INSTALLATION LOCATION. THE GATE SHALL BE APPROVED BY THE ENGINEER.

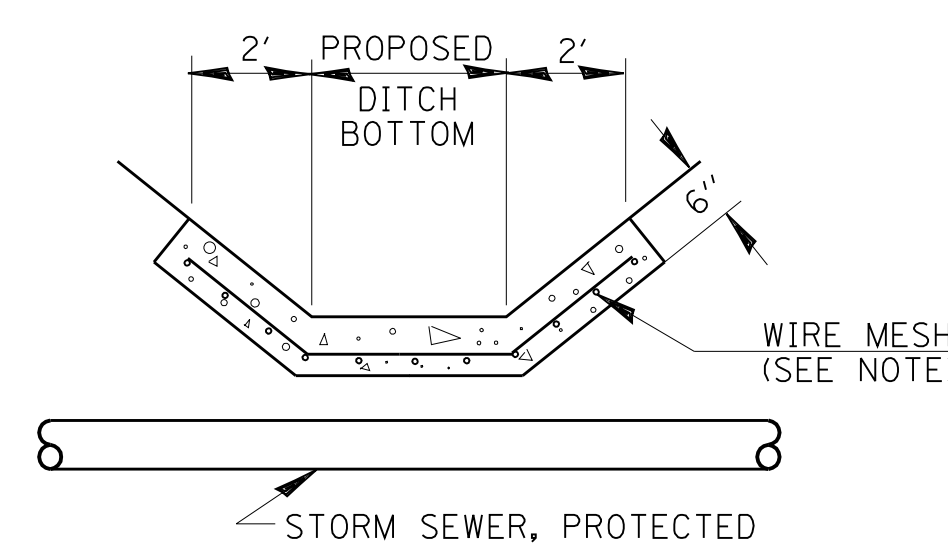
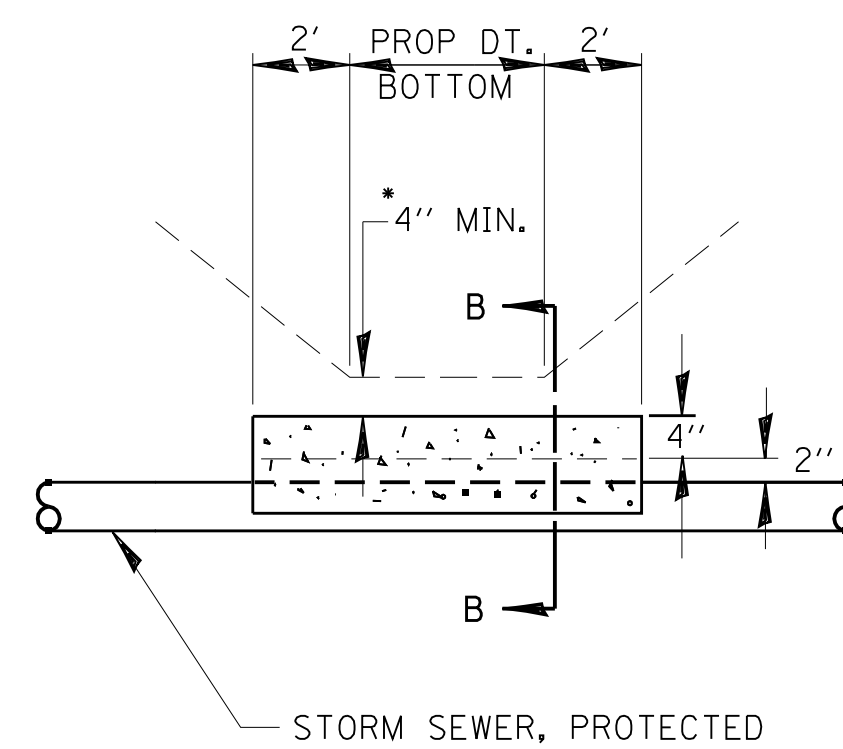
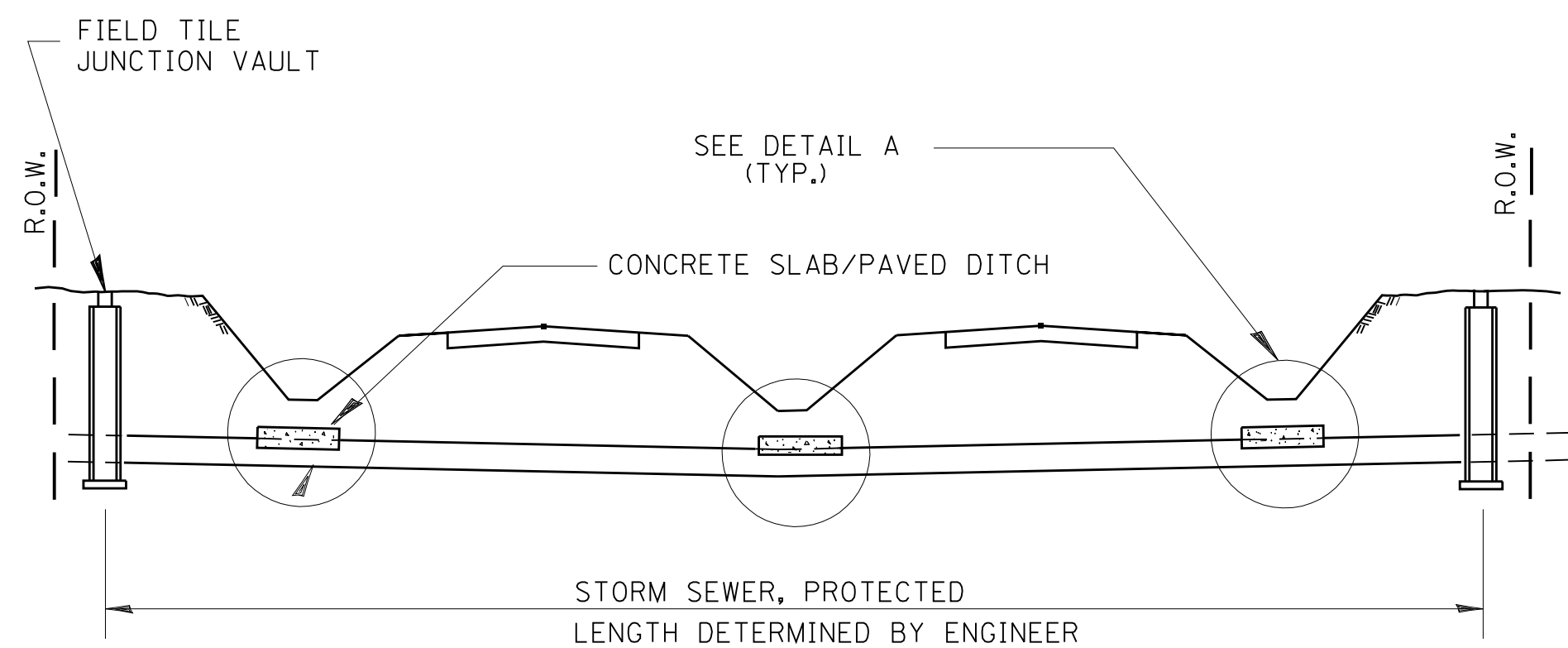
THE SIZE OF AUTOMATIC FLAP GATES SHALL REFER TO THE DIAMETER OF THE OUTLET PIPE OR OPENING.

THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR FLAP GATES OF THE SIZE SPECIFIED AND SHALL INCLUDE ALL MATERIALS AND COMPLETE INSTALLATION.

**TABLE OF DIMENSIONS**

DIAM	A	B	C	D	E	F	G	H	J	T
8"	10 3/4"	1 3/8"	5 11/16"	10"	1/2"	1 1/8"	3 9/16"	1 1/4"	3/8"	3/8"
10"	12 3/4"	1 3/8"	7 1/8"	12 1/4"	1/2"	1 1/8"	4 3/8"	1 1/2"	1/2"	7/16"
12"	14 3/4"	1 3/8"	8 1/2"	14 1/2"	1/2"	1 1/8"	5 1/8"	1 1/2"	1/2"	1/2"
14"	17 1/4"	1 3/8"	9 7/8"	16 3/4"	1/2"	1 1/4"	5 15/16"	1 1/2"	1/2"	9/16"
15"	17 3/4"	1 3/8"	10 5/8"	17 3/4"	1/2"	1 1/4"	6 1/4"	1 1/2"	1/2"	9/16"
16"	19 1/4"	1 3/8"	11 1/4"	18 3/4"	1/2"	1 1/4"	6 5/8"	1 1/2"	1/2"	9/16"
18"	22 1/4"	2"	12 5/8"	21"	3/4"	1 9/16"	7 7/16"	1 3/4"	9/16"	9/16"
20"	24 3/4"	2"	14 1/8"	23 3/4"	3/4"	1 3/8"	8 1/4"	1 3/4"	5/8"	5/8"
21"	25 1/4"	2"	14 7/8"	24 1/4"	3/4"	1 3/8"	8 9/16"	1 3/4"	5/8"	5/8"
24"	28 1/4"	2"	17"	27 1/2"	3/4"	1 1/2"	9 3/4"	1 3/4"	5/8"	5/8"
30"	35 1/4"	2 1/2"	20 1/2"	34"	1"	1 9/16"	12"	2"	1 1/16"	5/8"
36"	41 1/2"	2 1/2"	25"	40 7/8"	1"	2 1/16"	14 7/16"	2 1/4"	1 1/8"	11/16"
42"	47 1/2"	2 1/2"	29 3/4"	47"	1"	2 5/16"	16 5/8"	2 1/4"	1 1/8"	3/4"
48"	53 1/2"	2 1/2"	34"	54"	1"	2 3/4"	19 1/16"	2 1/4"	1 3/8"	3/4"
54"	60 3/4"	2 1/2"	38"	62 1/4"	1 1/4"	2 3/4"	22"	3"	1 1/2"	7/8"
60"	67"	2 1/2"	42"	68 1/2"	1 1/4"	2 3/4"	24 1/4"	3"	1 1/2"	15/16"
66"	73 3/8"	2 1/2"	47"	75"	1 1/4"	2 7/8"	26 1/2"	3"	1 1/2"	1"
72"	79"	2 1/2"	51"	82"	1 1/4"	3"	29"	3"	1 1/2"	1"
78"	86"	2 1/2"	55 1/4"	88 3/4"	1 1/4"	3 1/2"	31 3/8"	3"	1 5/8"	1 1/8"
84"	92 1/2"	3 1/2"	59 1/2"	95 1/2"	1 1/2"	3 1/2"	33 3/4"	3"	1 3/4"	1 1/4"

FILE NAME =	USER NAME = corcoranlm	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>AUTOMATIC FLAP GATES</b>	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = Jul 28, 2009 - 09:37:25 AM	DATE -	REVISED -								
SCALE:						SHEET NO. OF SHEETS		STA. TO STA.		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT
								CONTRACT NO.		

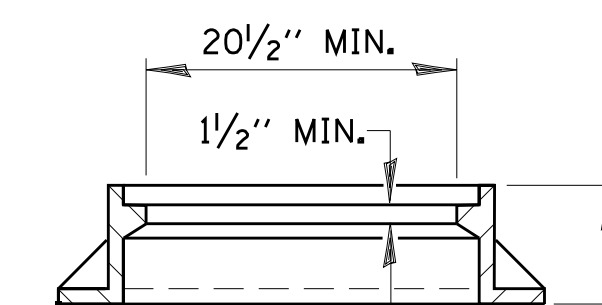
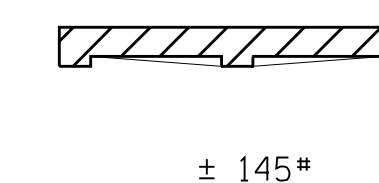
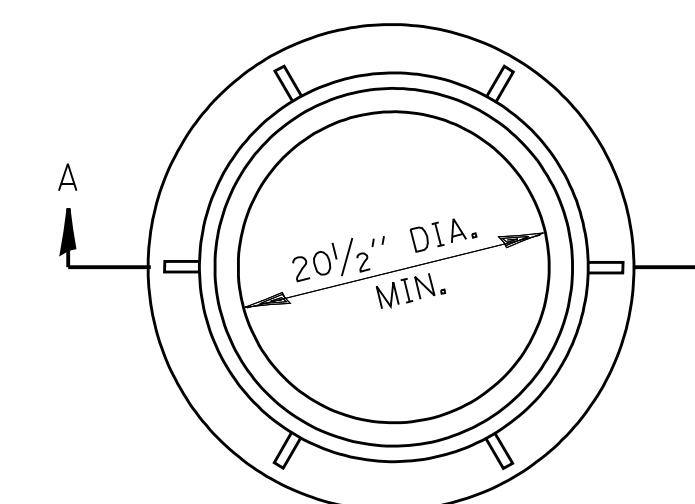


**DETAIL C**  
NO SCALE

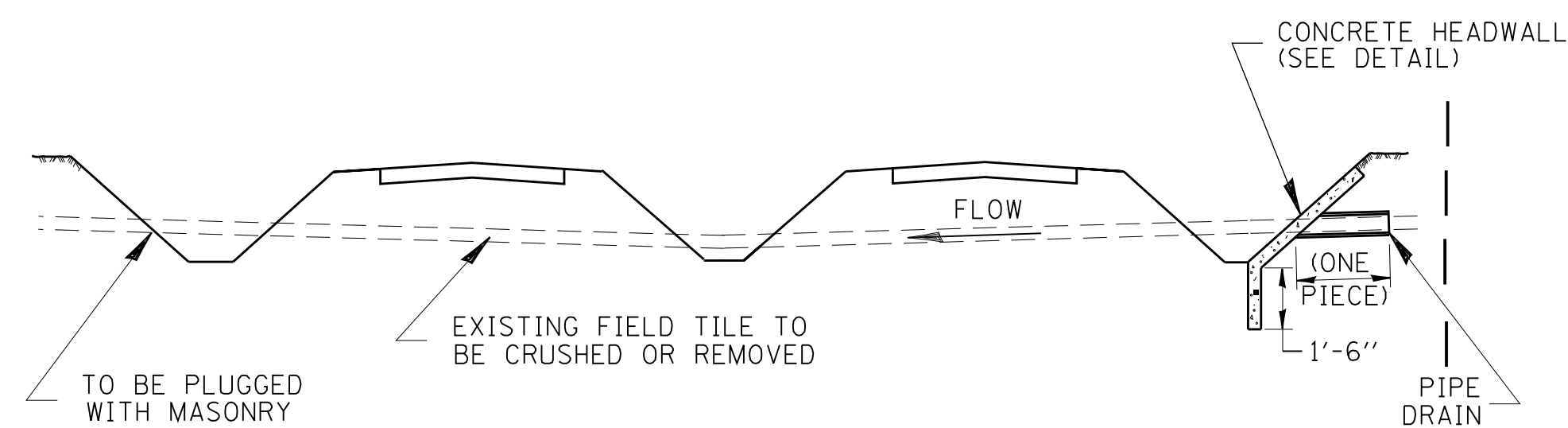
ALTERNATE MATERIALS FOR WALLS	T
PRECAST REINFORCED CONCRETE RISERS	4"
CONCRETE MASONRY UNIT	5"
MONOLITHIC CONCRETE	6"
BUILDING BRICK, GRADE SW FROM CLAY OR SHALE	8"
CONCRETE BUILDING BRICK, GRADE A	8"

**NOTES**

1. THE CONTRACT UNIT PRICE FOR FIELD TILE JUNCTION VAULT SHALL INCLUDE THE COST OF FURNISHING AND PLACING THE FRAME AND GRATE OR PRECAST CONCRETE LID AND WHEN REQUIRED, THE SAND CUSHION.
2. ALL FIELD TILE JUNCTION VAULTS SHALL BE 2'-0" IN DIAMETER UNLESS OTHERWISE NOTED ON THE PLANS.



**SECTION A-A**



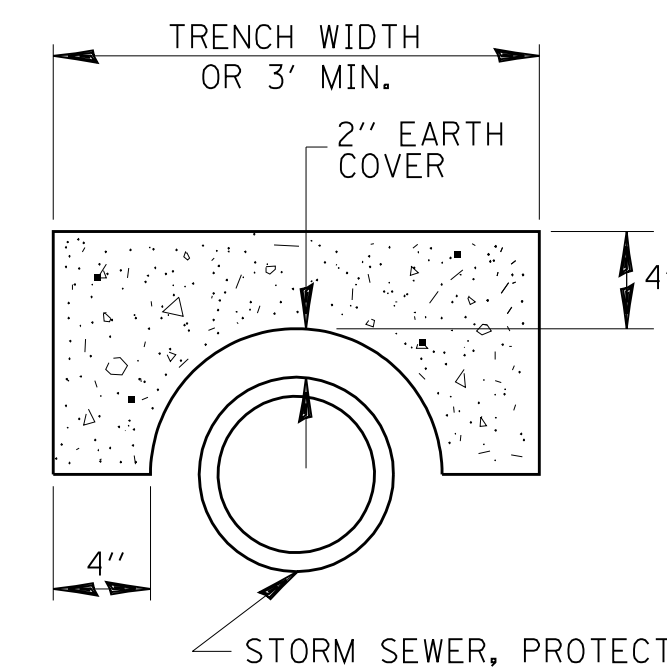
**DETAIL A**

NO SCALE

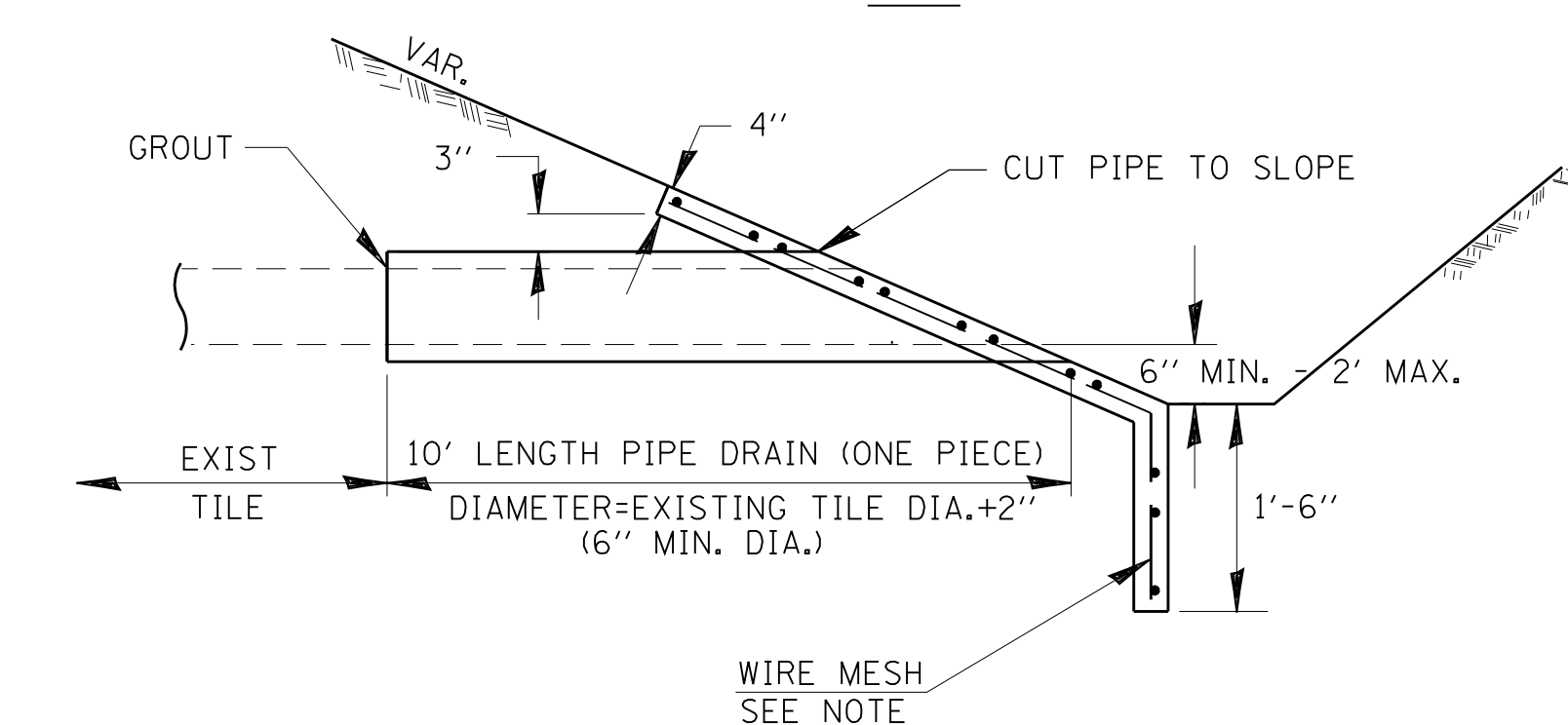
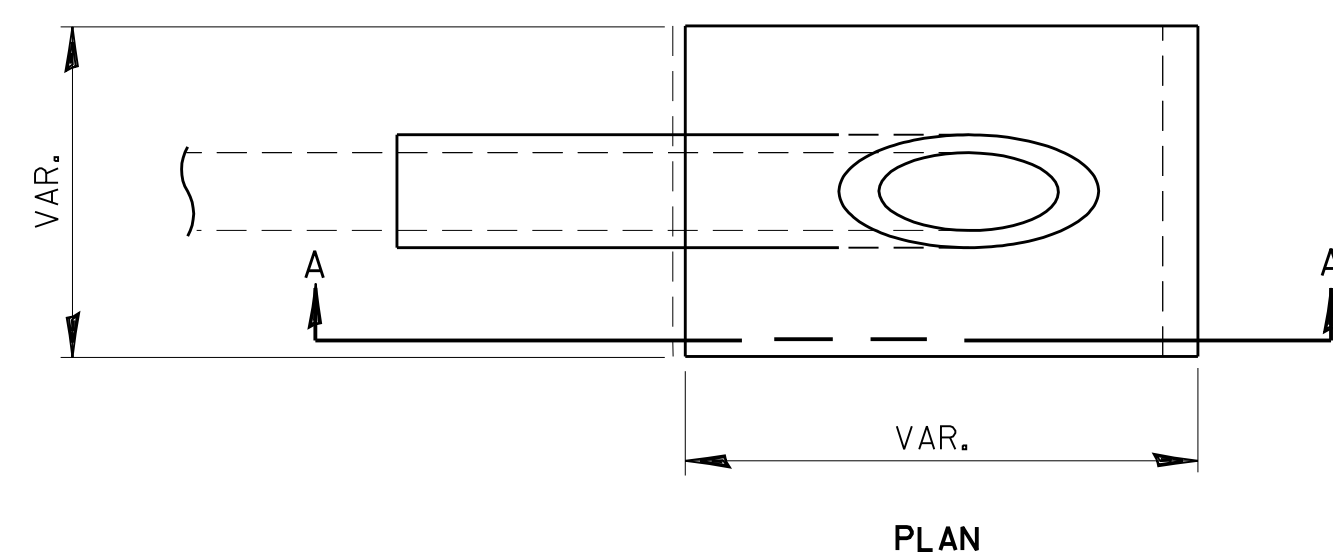
\* IF A 4" COVER CAN NOT BE PROVIDED A PAVED DITCH SHALL BE CONSTRUCTED AS SHOWN IN DETAIL C.

**NOTES**

1. WIDTH OF CONCRETE SLAB SHALL BE THE SAME AS THE TRENCH WIDTH IN ACCORDANCE WITH SECTION 550 OF THE STD. SPECIFICATIONS, OR 3' MIN.
2. CONCRETE FOR SLAB, HEADWALL AND PAVED DITCH SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR "MISCELLANEOUS CONCRETE."
3. COST OF FURNISHING AND INSTALLING WIRE MESH SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER CUBIC YARD FOR MISCELLANEOUS CONCRETE. WIRE MESH TO WEIGH NOT LESS THAN 58# PER 100 SQ. FT.



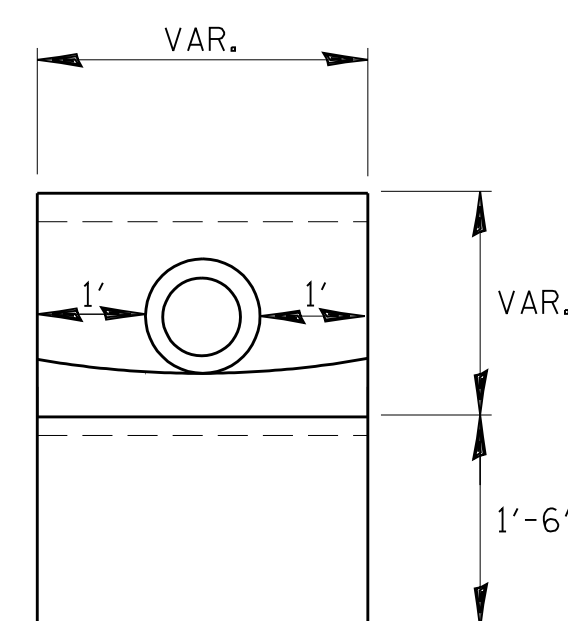
**FIELD TILE REPLACEMENT**



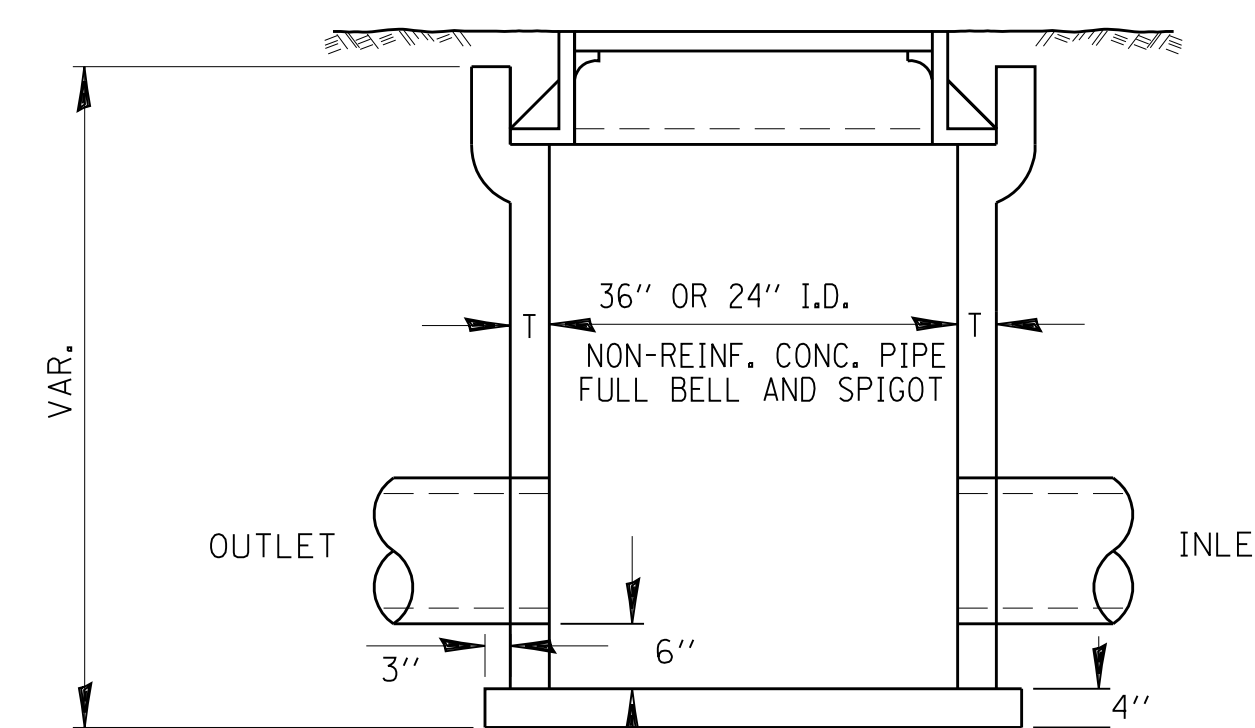
**SECTION A-A**

**NOTES**

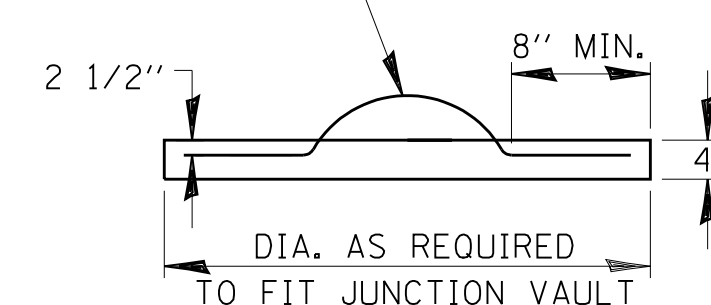
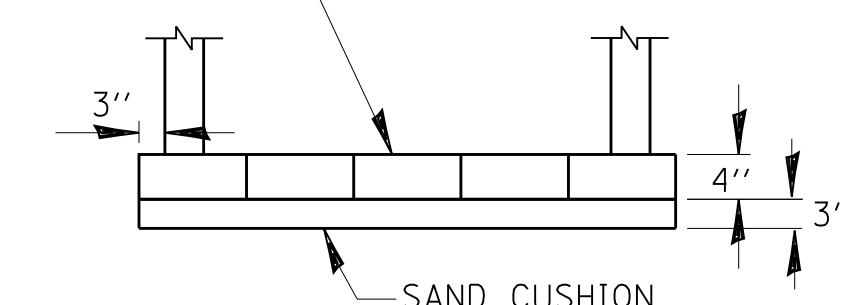
1. ANY STORM SEWER SPECIAL OR BACKSLOPE DRAIN OUTLET INTO A DITCH SHALL HAVE A HEADWALL BUILT IN ACCORDANCE WITH THIS DETAIL.
2. COST OF FURNISHING AND INSTALLING WIRE MESH SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER CUBIC YARD FOR MISCELLANEOUS CONCRETE. WIRE MESH TO WEIGH NOT LESS THAN 58# PER 100 SQ. FT.



**END VIEW**



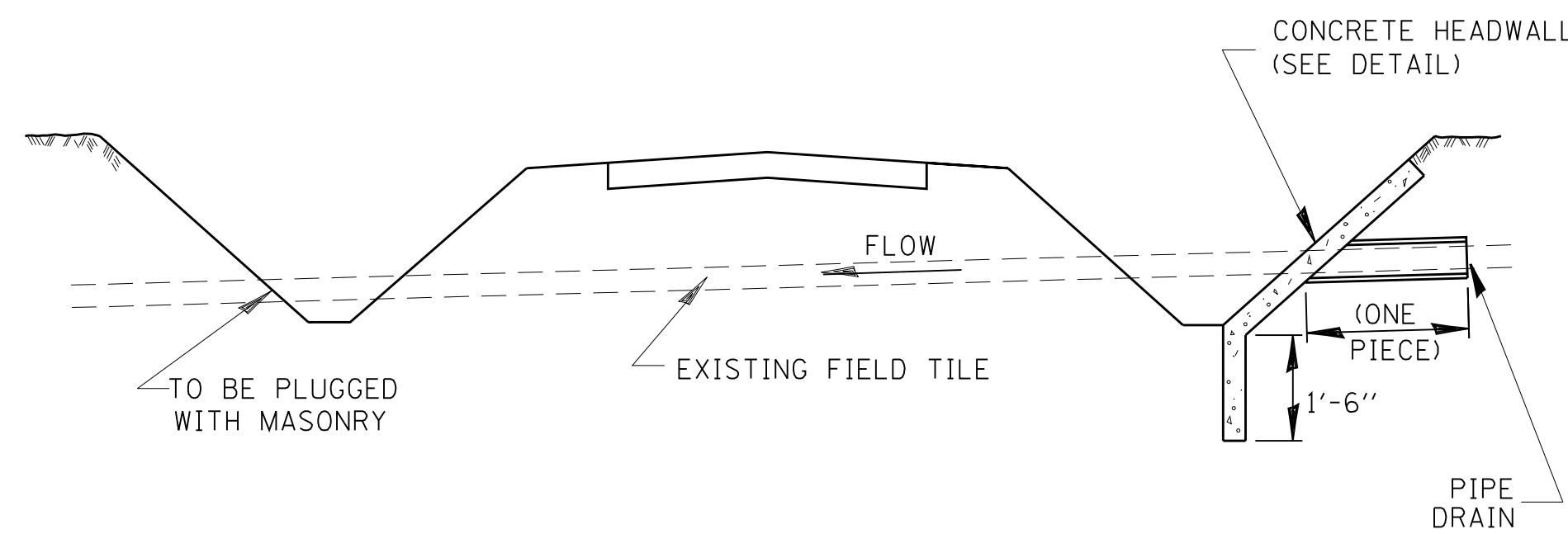
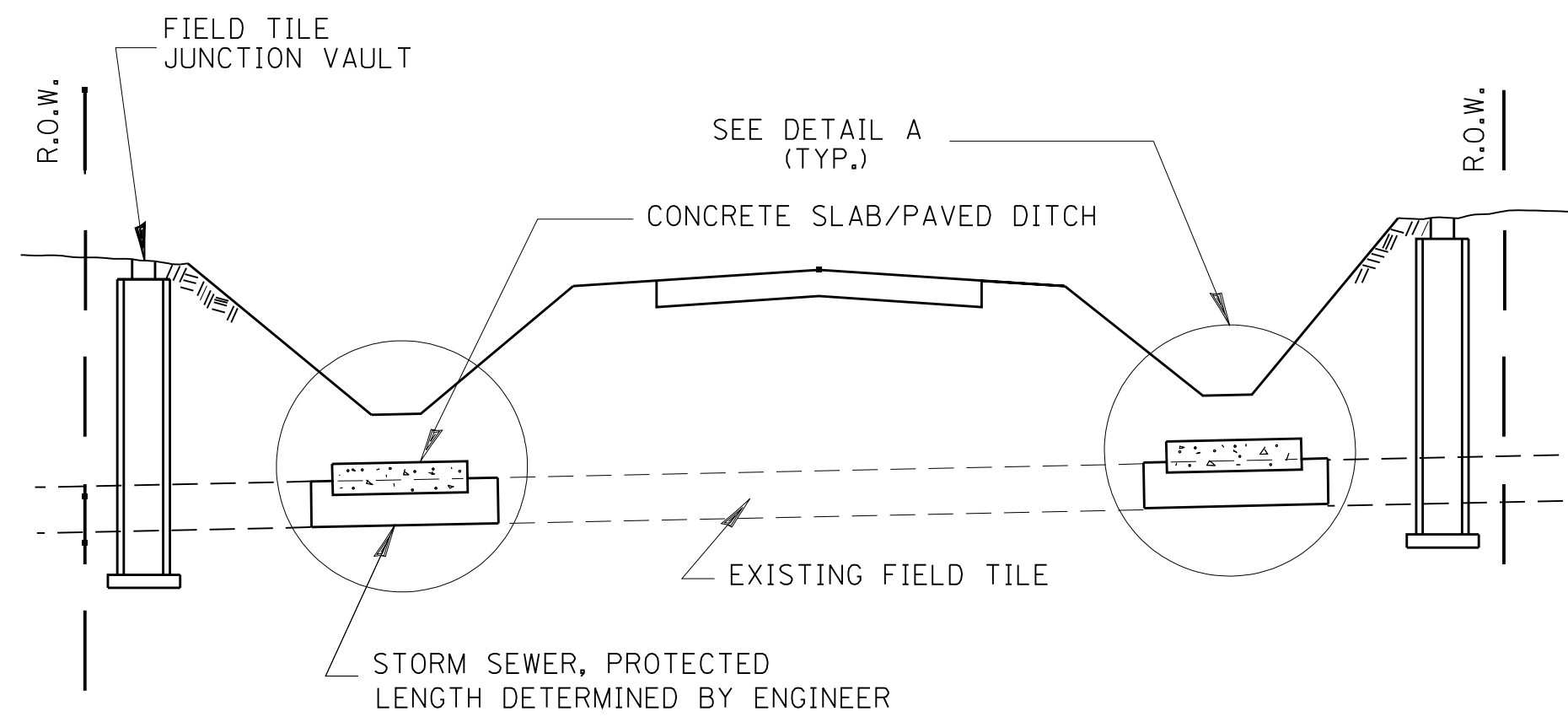
CLASS SI CONCRETE OR PRECAST REINFORCED CONCRETE SLABS NOT LESS THAN 12" WIDE



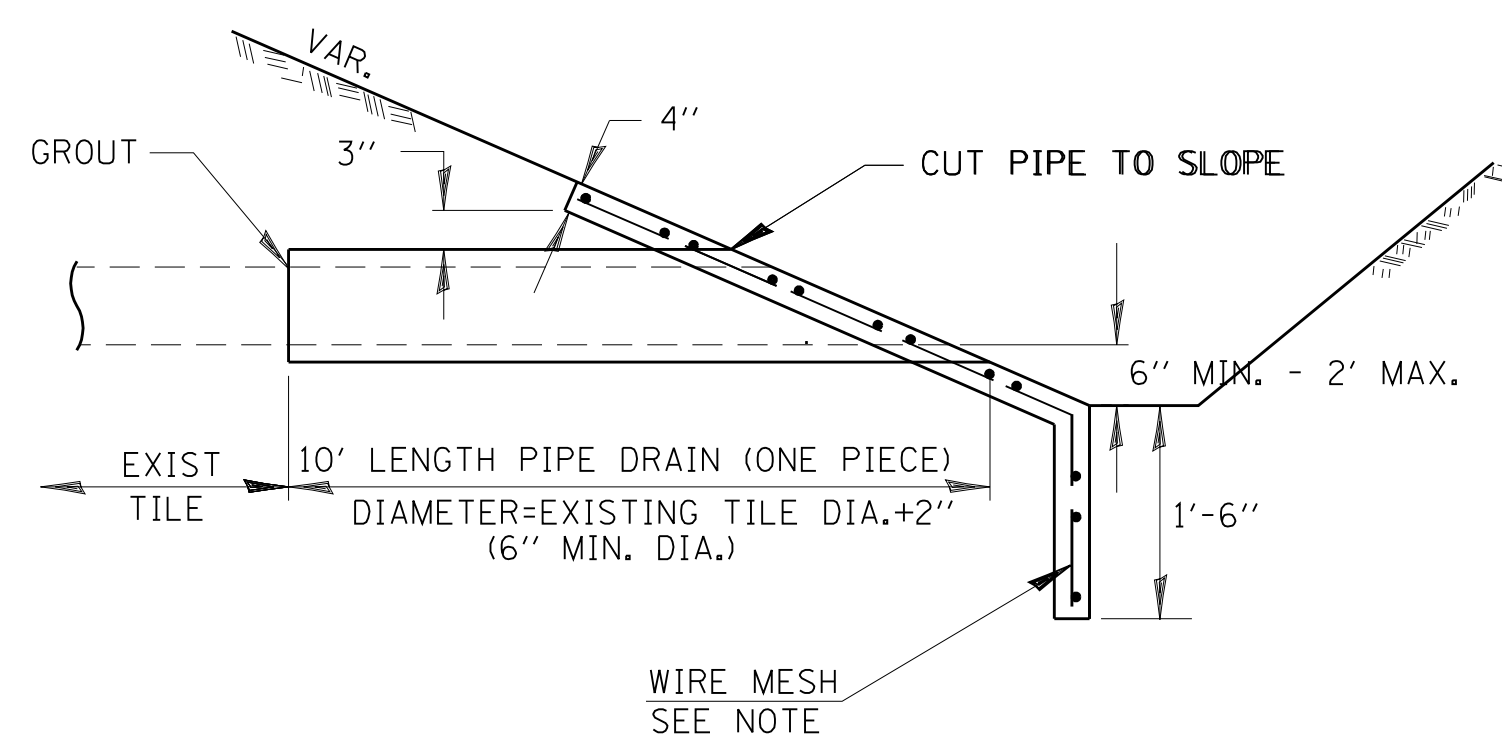
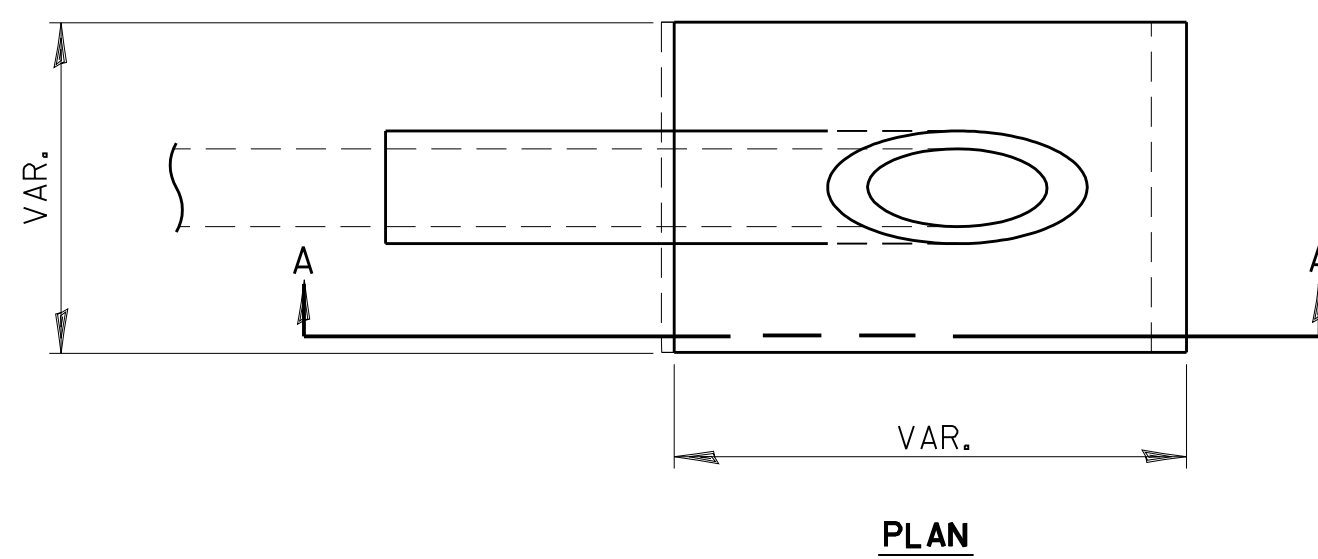
**FIELD TILE JUNCTION VAULT**

**CLASS SI CONCRETE HEADWALLS**

FILE NAME =	USER NAME = wasilewskim	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT SCALE = 50.000' / IN.	CHECKED -	REVISED -								FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
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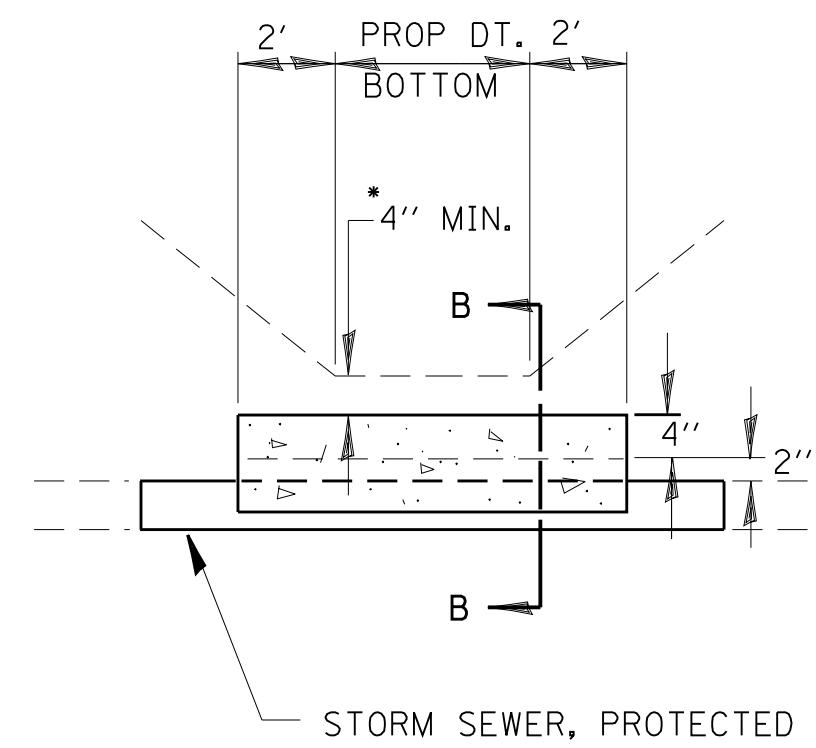


**FIELD TILE REPLACEMENT**



**SECTION A-A**

**CLASS SI CONCRETE HEADWALLS**



**DETAIL A**

NO SCALE

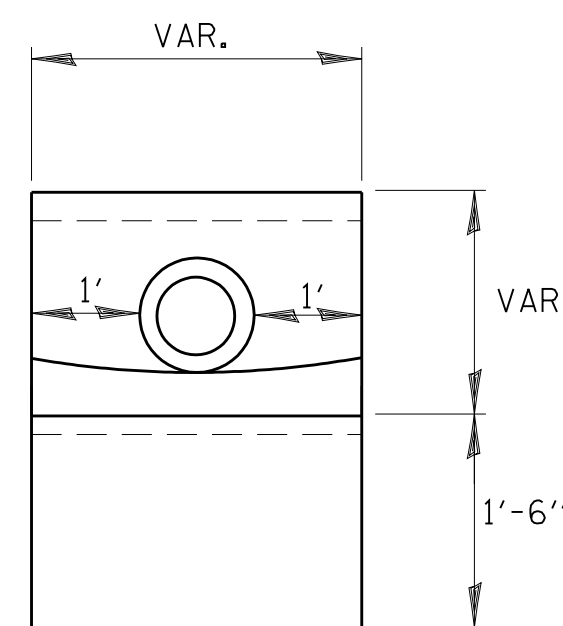
\* IF A 4" COVER CAN NOT BE PROVIDED A PAVED DITCH SHALL BE CONSTRUCTED AS SHOWN IN DETAIL C.

**NOTES**

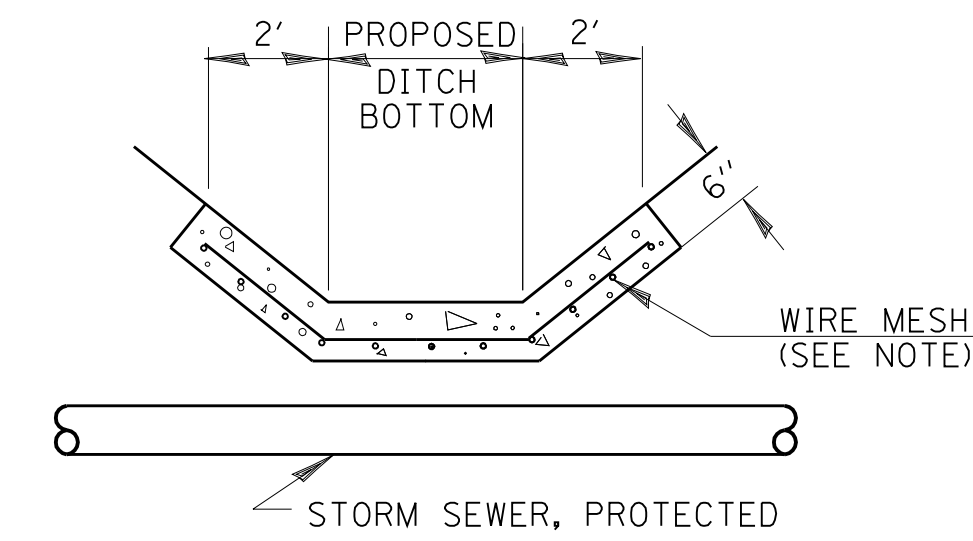
1. WIDTH OF CONCRETE SLAB SHALL BE THE SAME AS THE TRENCH WIDTH IN ACCORDANCE WITH SECTION 550 OF THE STD. SPECIFICATIONS, OR 3' MIN.
2. CONCRETE FOR SLAB, HEADWALL AND PAVED DITCH SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR "MISCELLANEOUS CONCRETE."
3. COST OF FURNISHING AND INSTALLING WIRE MESH SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER CUBIC YARD FOR MISCELLANEOUS CONCRETE. WIRE MESH TO WEIGH NOT LESS THAN 58# PER 100 SQ. FT.

**NOTES**

1. ANY STORM SEWER OR FIELD TILE OUTLET INTO A DITCH SHALL HAVE A HEADWALL BUILT IN ACCORDANCE WITH THIS DETAIL.
2. COST OF FURNISHING AND INSTALLING WIRE MESH SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER CUBIC YARD FOR MISCELLANEOUS CONCRETE. WIRE MESH TO WEIGH NOT LESS THAN 58# PER 100 SQ. FT.

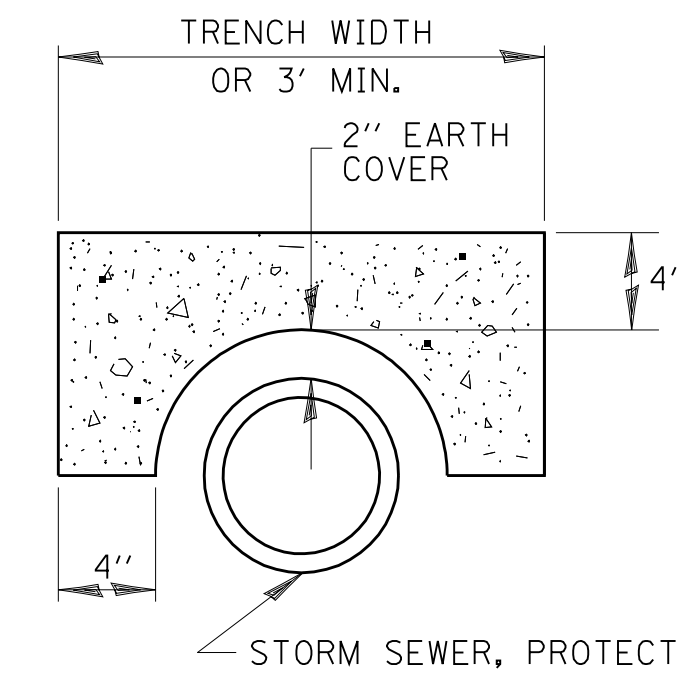


**END VIEW**

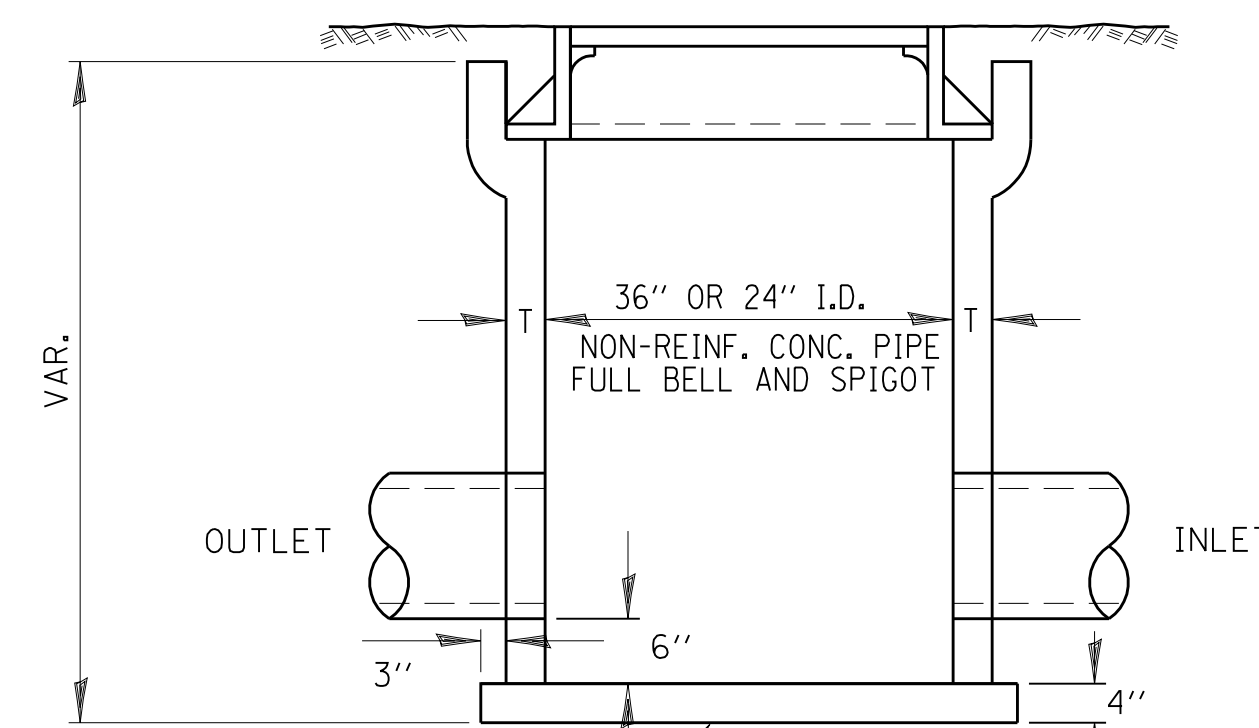


**DETAIL C**

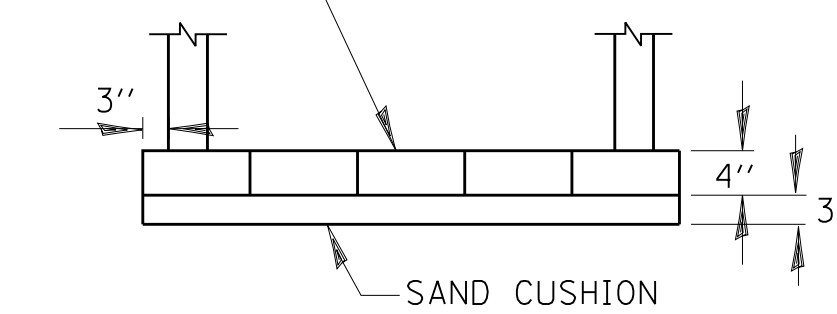
NO SCALE



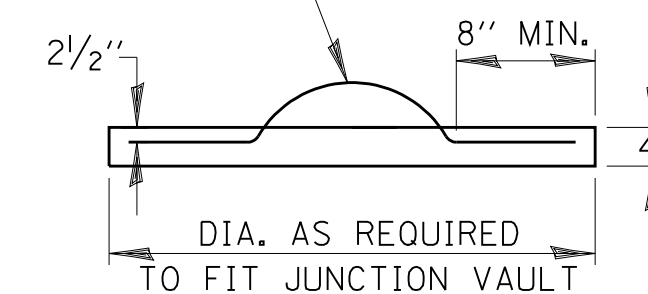
**SECTION B-B**



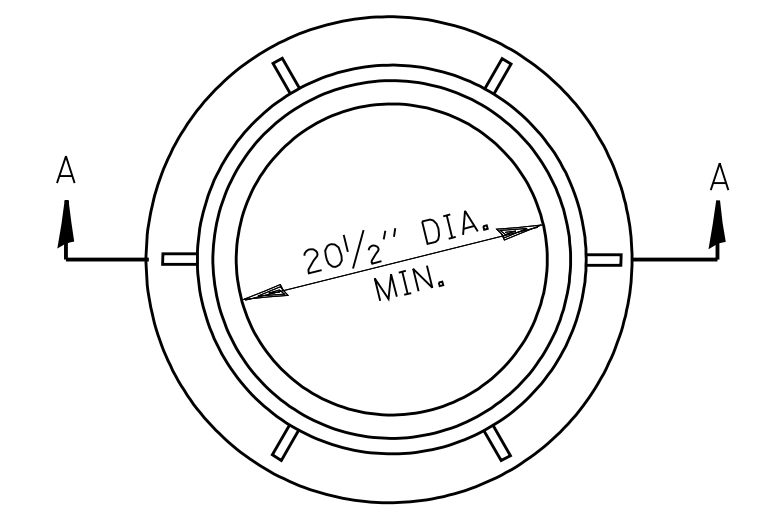
CLASS SI CONCRETE OR PRECAST REINFORCED CONCRETE SLABS NOT LESS THAN 12" WIDE



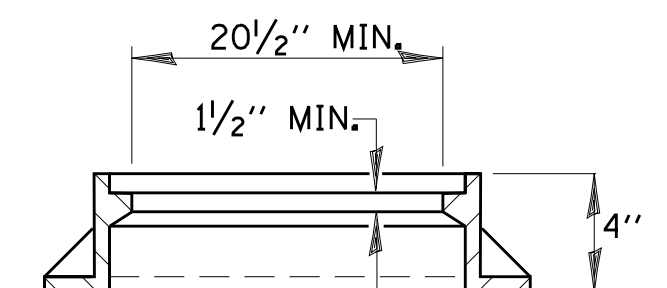
1 NO. 4 BAR LIFT LOOP



**FIELD TILE JUNCTION VAULT**



± 145#



**SECTION A-A**

ALTERNATE MATERIALS FOR WALLS	T
PRECAST REINFORCED CONCRETE RISERS	4"
CONCRETE MASONRY UNIT	5"
MONOLITHIC CONCRETE	6"
BUILDING BRICK, GRADE SW FROM CLAY OR SHALE	8"
CONCRETE BUILDING BRICK, GRADE A	8"

**NOTES**

1. THE CONTRACT UNIT PRICE FOR FIELD TILE JUNCTION VAULT SHALL INCLUDE THE COST OF FURNISHING AND PLACING THE FRAME AND GRATE OR PRECAST CONCRETE LID AND WHEN REQUIRED, THE SAND CUSHION.
2. ALL FIELD TILE JUNCTION VAULTS SHALL BE 2'-0" IN DIAMETER UNLESS OTHERWISE NOTED ON THE PLANS.

FILE NAME =	USER NAME = corcoran1m	DESIGNED -	REVISED -
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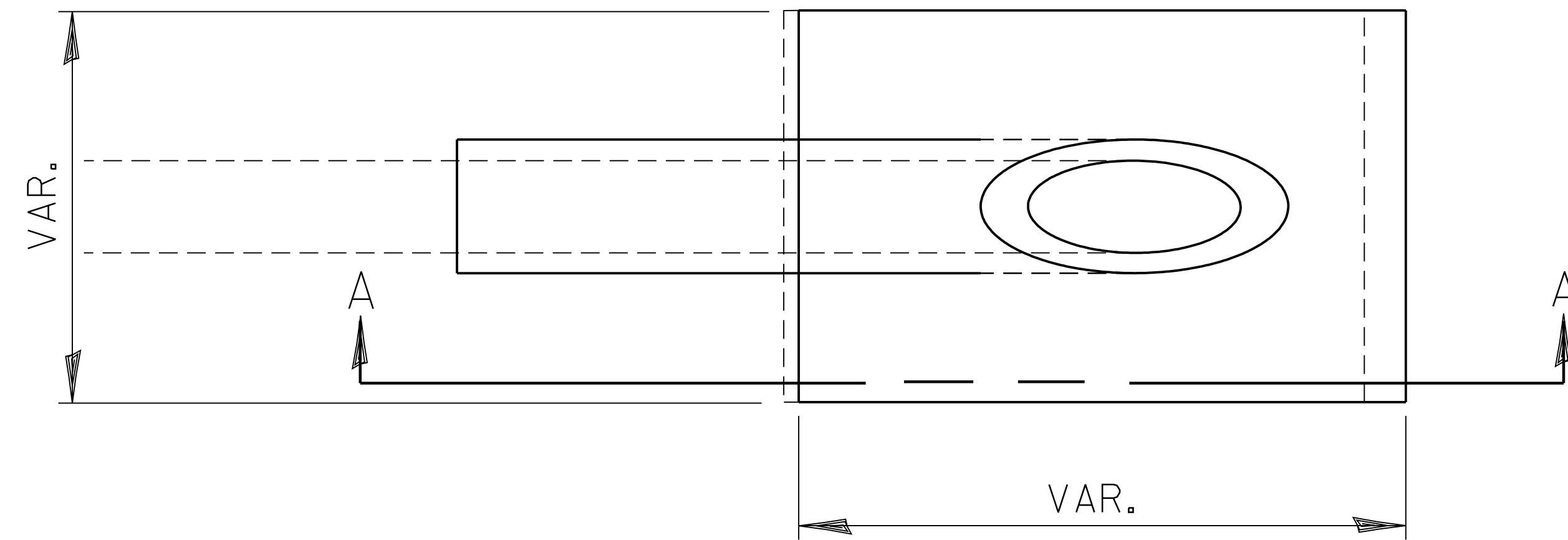
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.
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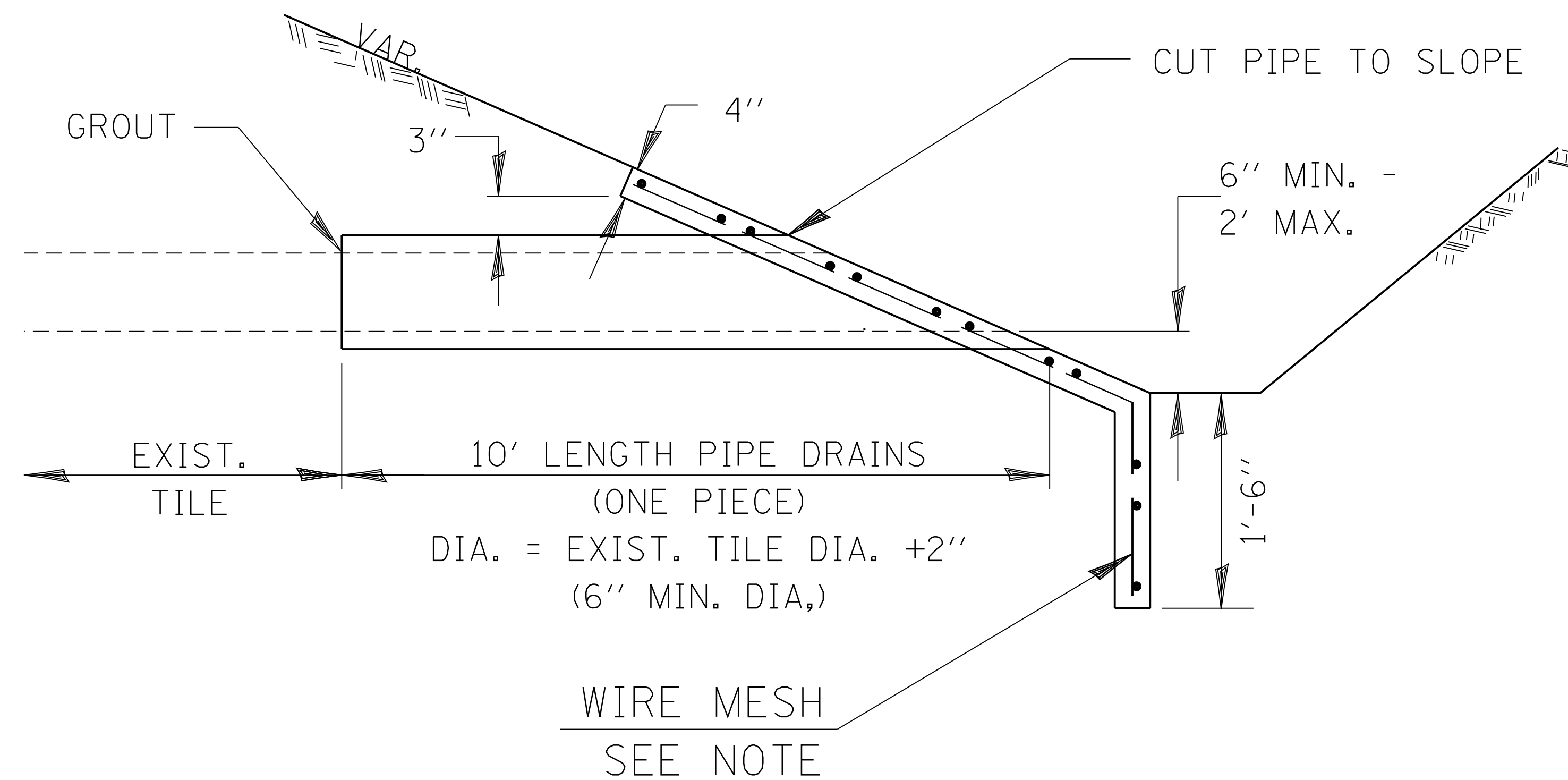
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CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

NOTES

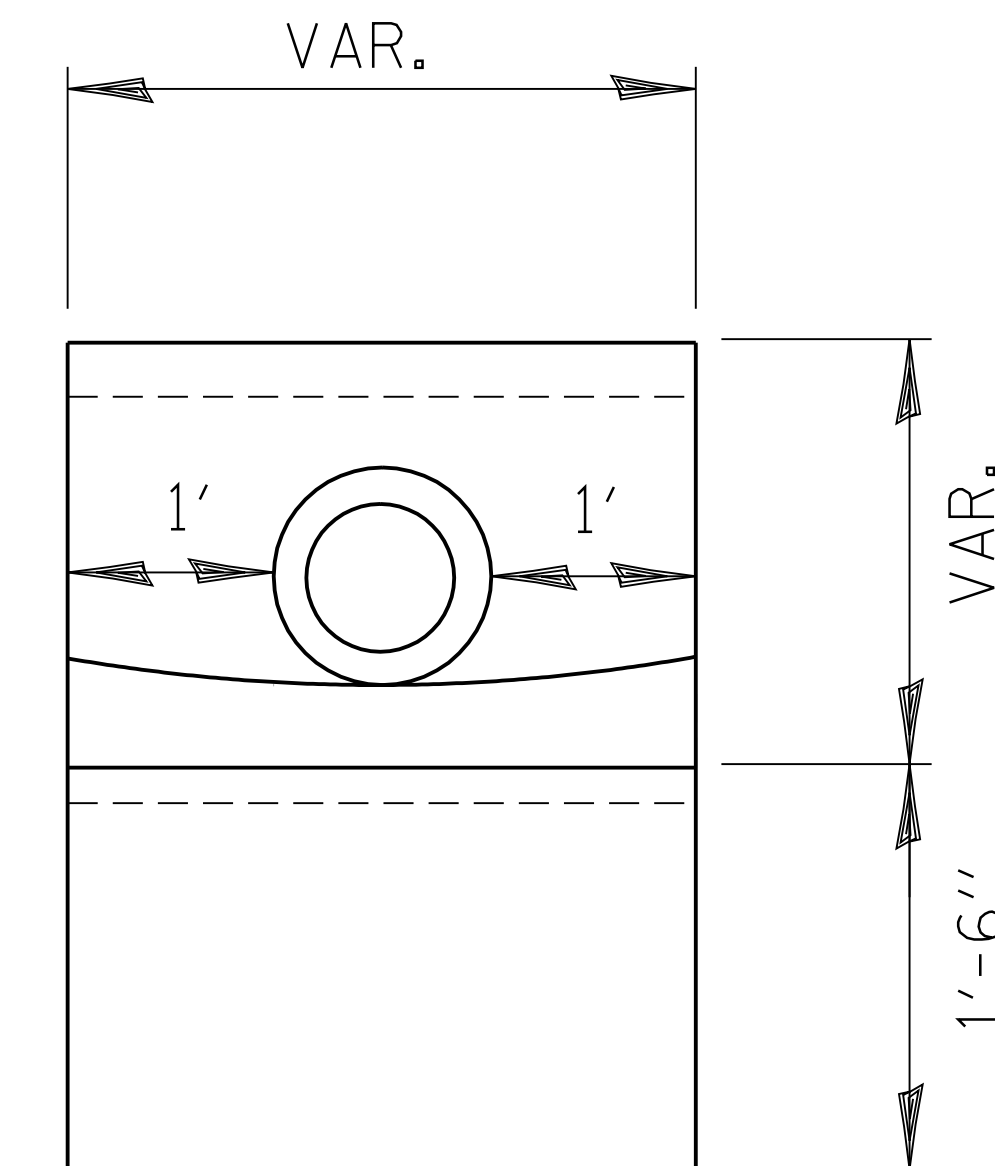
1. ANY FIELD TILE OUTLET INTO A DITCH SHALL HAVE A HEADWALL BUILT IN ACCORDANCE WITH THIS DETAIL.
2. COST OF FURNISHING AND INSTALLING WIRE MESH SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER CUBIC YARD FOR MISCELLANEOUS CONCRETE. WIRE MESH TO WEIGH NOT LESS THAN 58# PER 100 SQ. FT.



**PLAN**



**SECTION A-A**



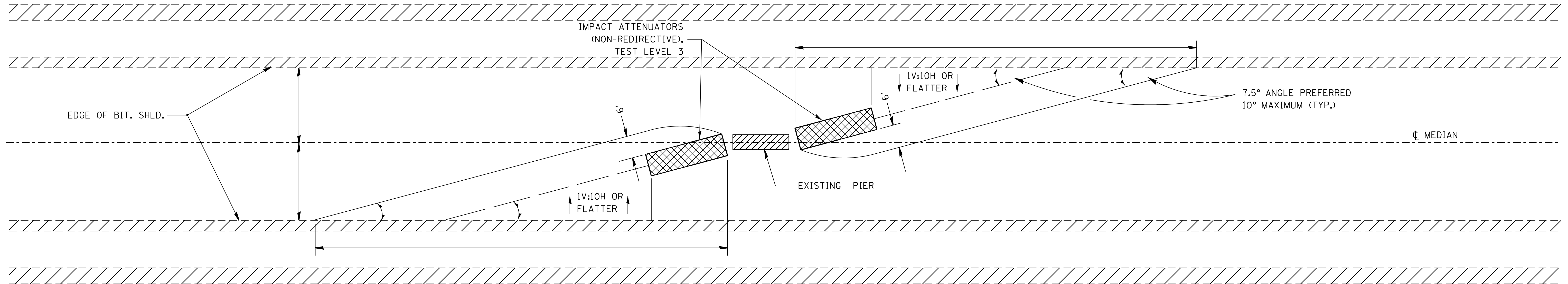
**END VIEW**

**PIPE DRAINS & CONCRETE HEADWALLS**

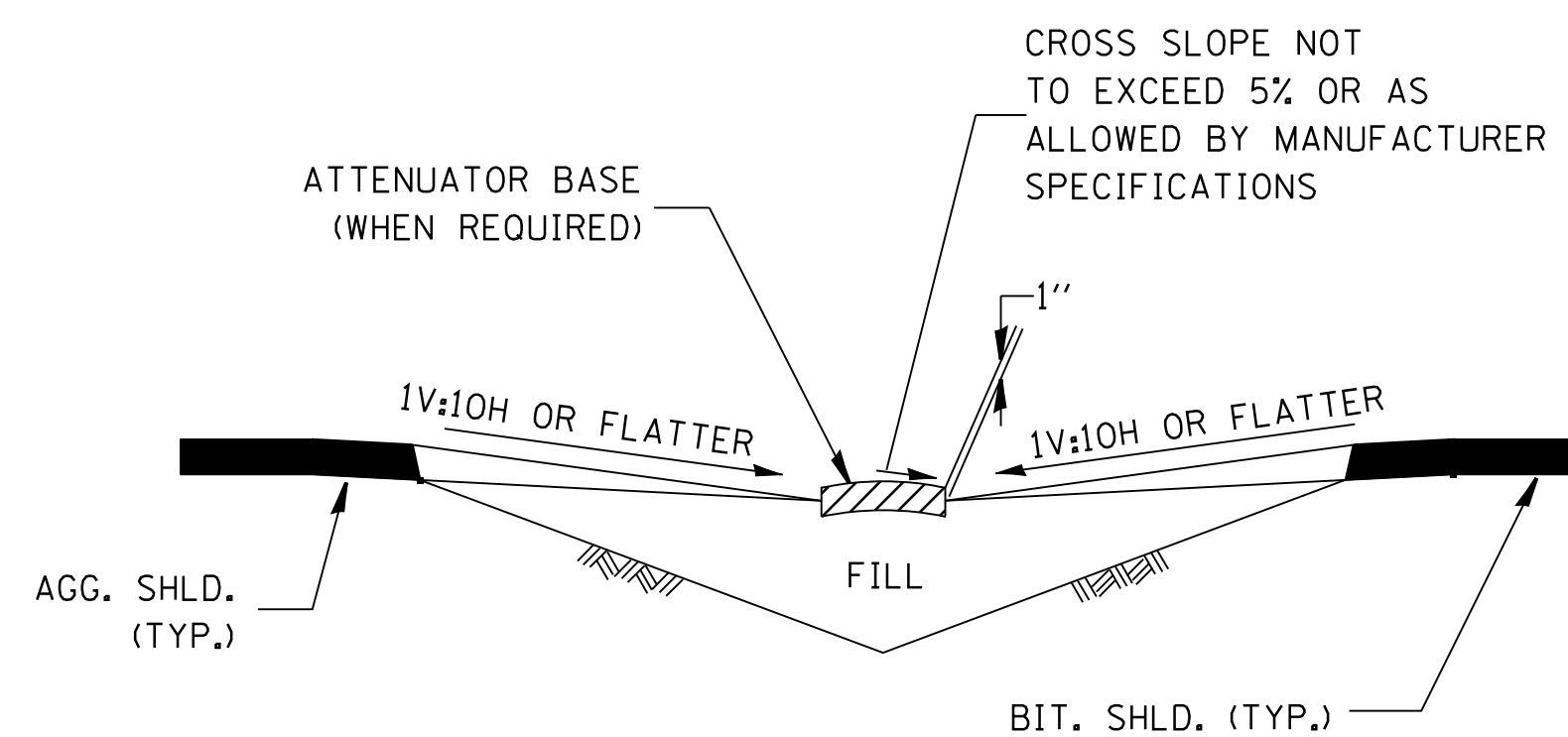
**611-3**

## GENERAL NOTES

1. THE 10:1 SLOPE CONTROLS NOSE OF ATTENUATOR BASE ELEVATION.
2. ATTENUATOR BASE GRADE PARALLELS EDGE OF PAVEMENT GRADE.
3. SLOPE ADJACENT TO ATTENUATOR BASE SHALL BE 10:1 OR FLATTER.



## IMPACT ATTENUATOR LAYOUT AND GRADING PLAN

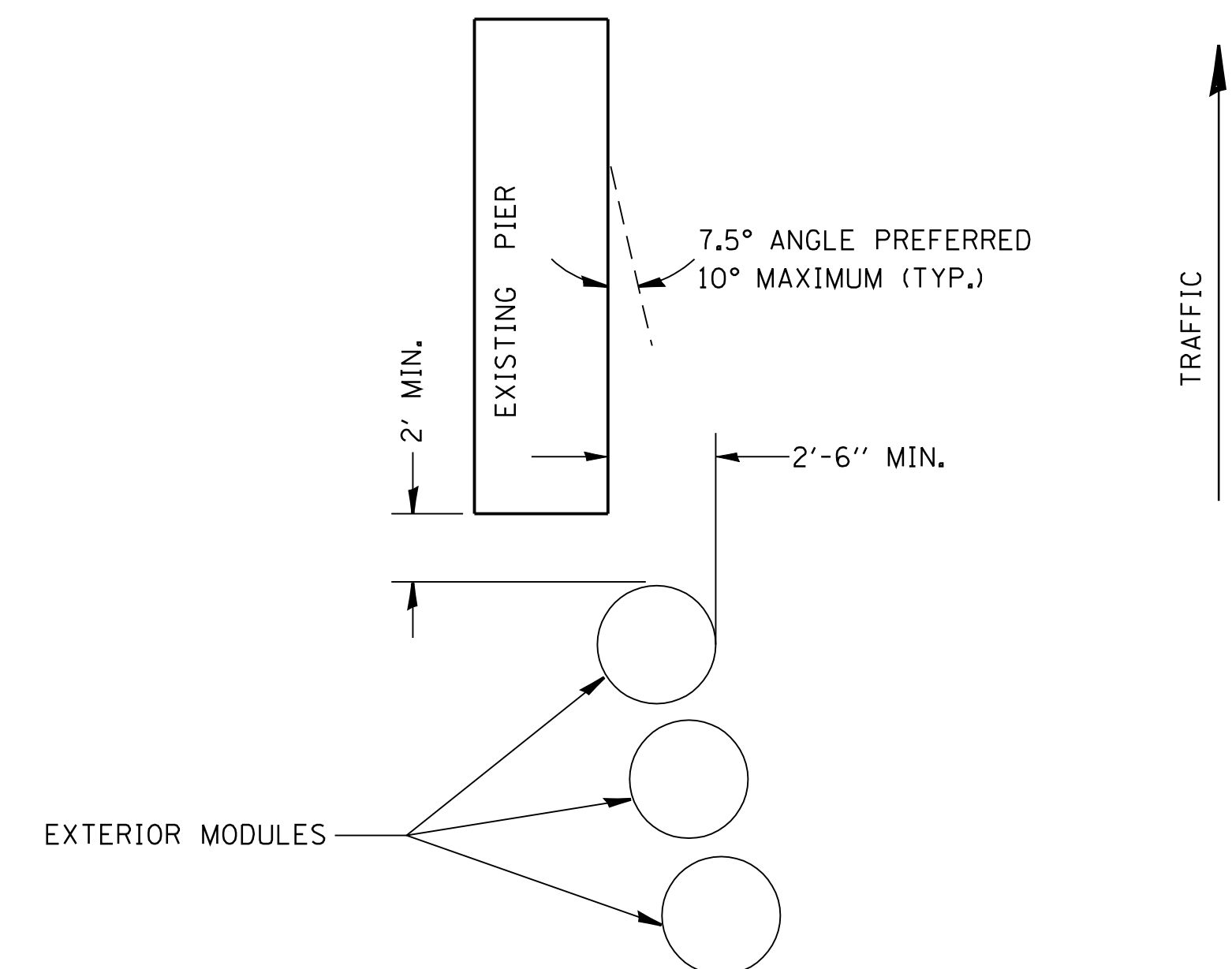


**SECTION A - A**

**NOTE:**

ATTENUATOR BASE SHALL BE PER MANUFACTURER SPECIFICATIONS EXCEPT SAND MODULE SYSTEMS SHALL HAVE THE FOLLOWING ADDITIONAL REQUIREMENTS:

1. ATTENUATOR BASE SHALL PROVIDE A 1' BUFFER ALONG THE SIDES AND FRONT OF THE ARRAY.
2. SAND MODULE SYSTEMS SHALL BE PLACED ON A HMA OR CONCRETE BASE.

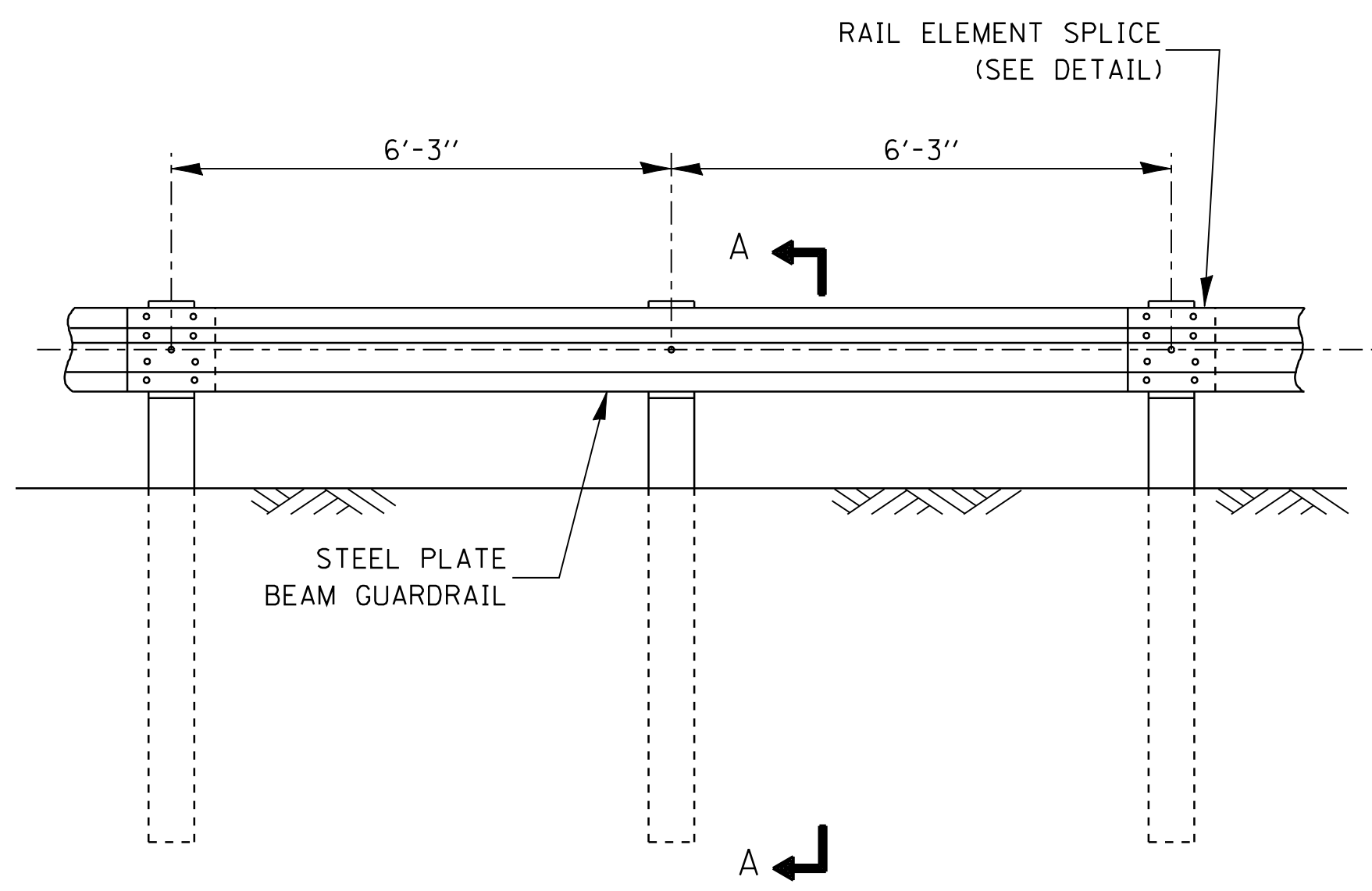


**TYPICAL EXTERIOR MODULE LAYOUT**

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		CHECKED -	REVISED -
		DATE -	REVISED -

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO.	

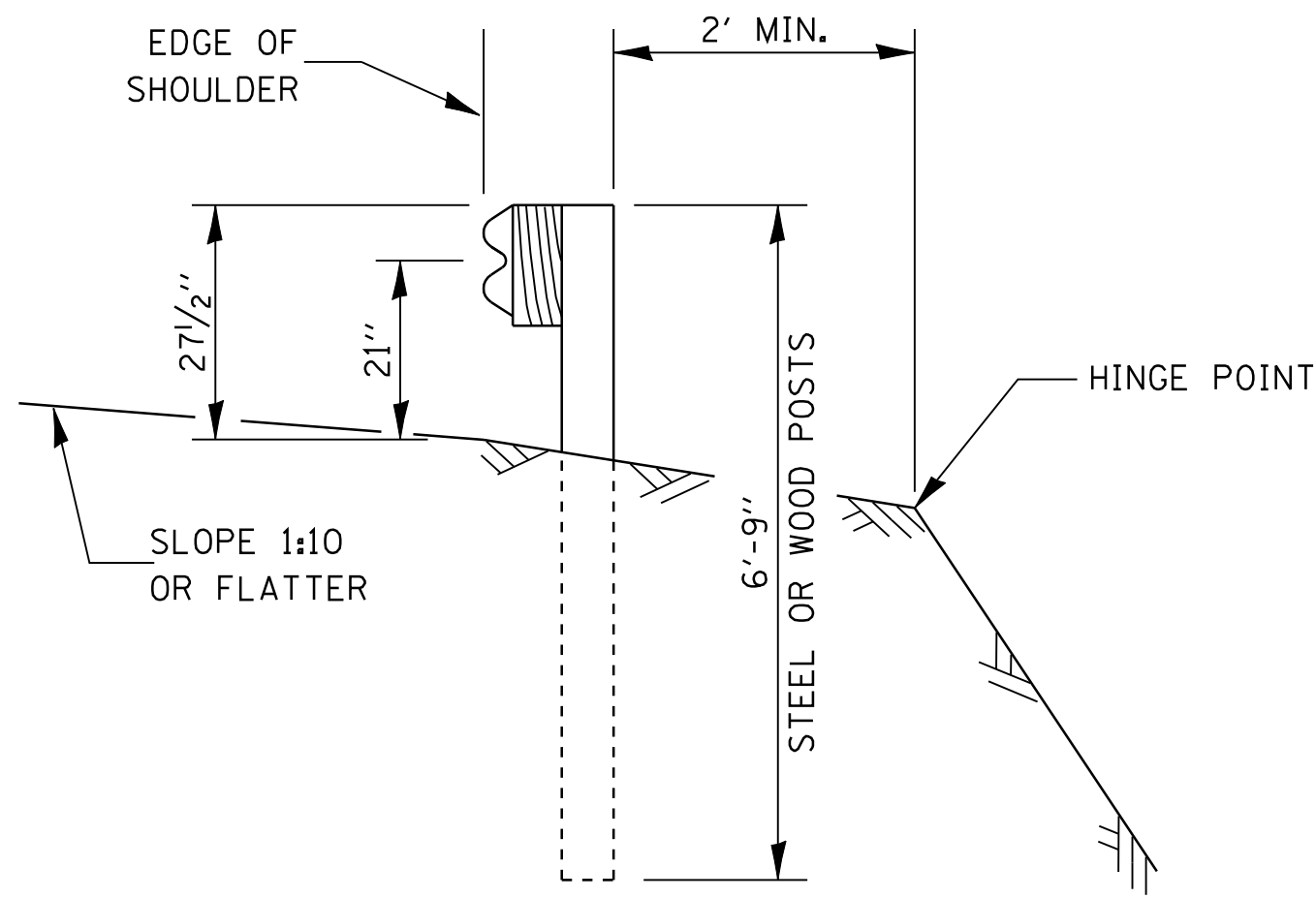




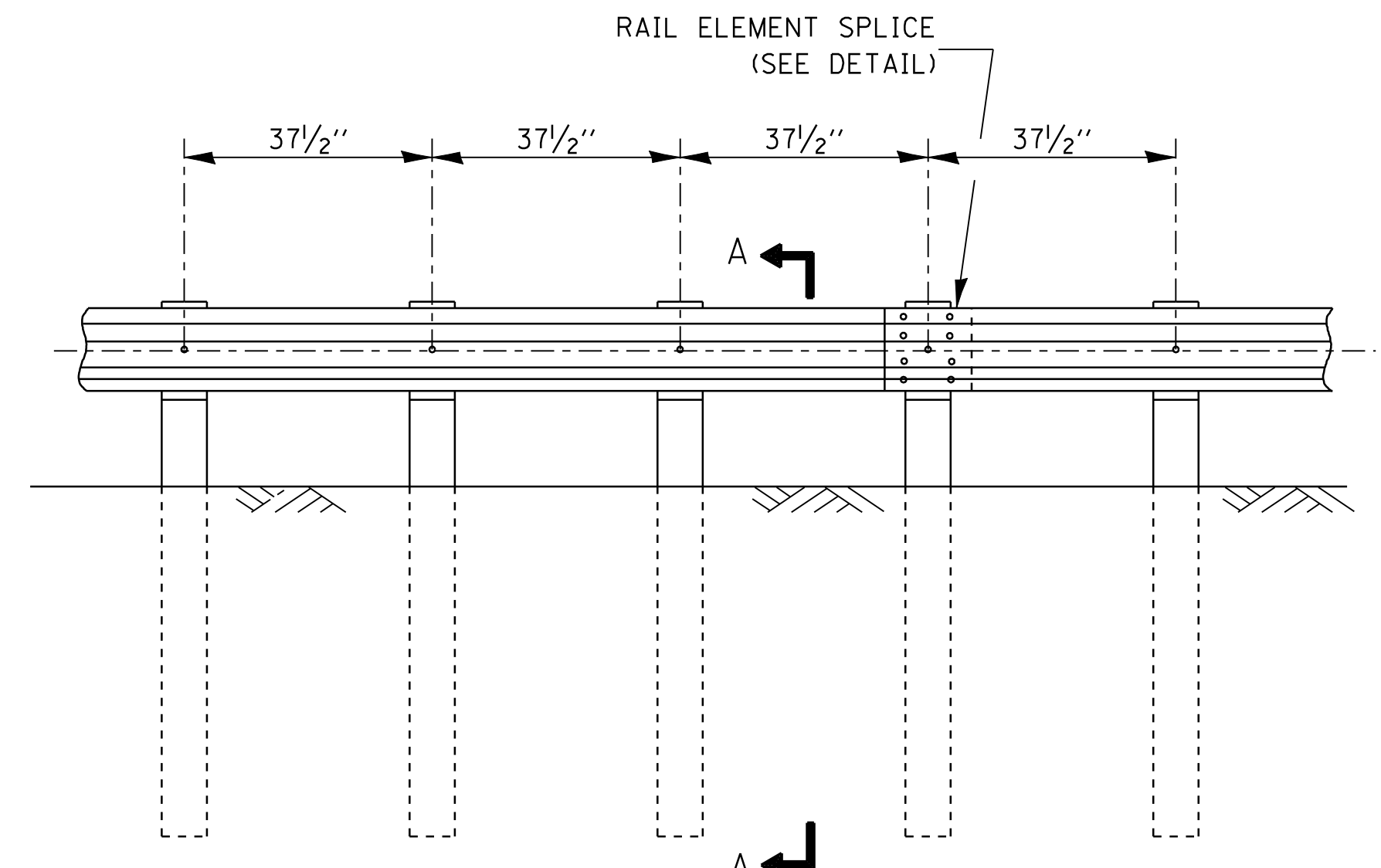
**ELEVATION**

**TYPE A**

6'-3" TYPICAL POST SPACING



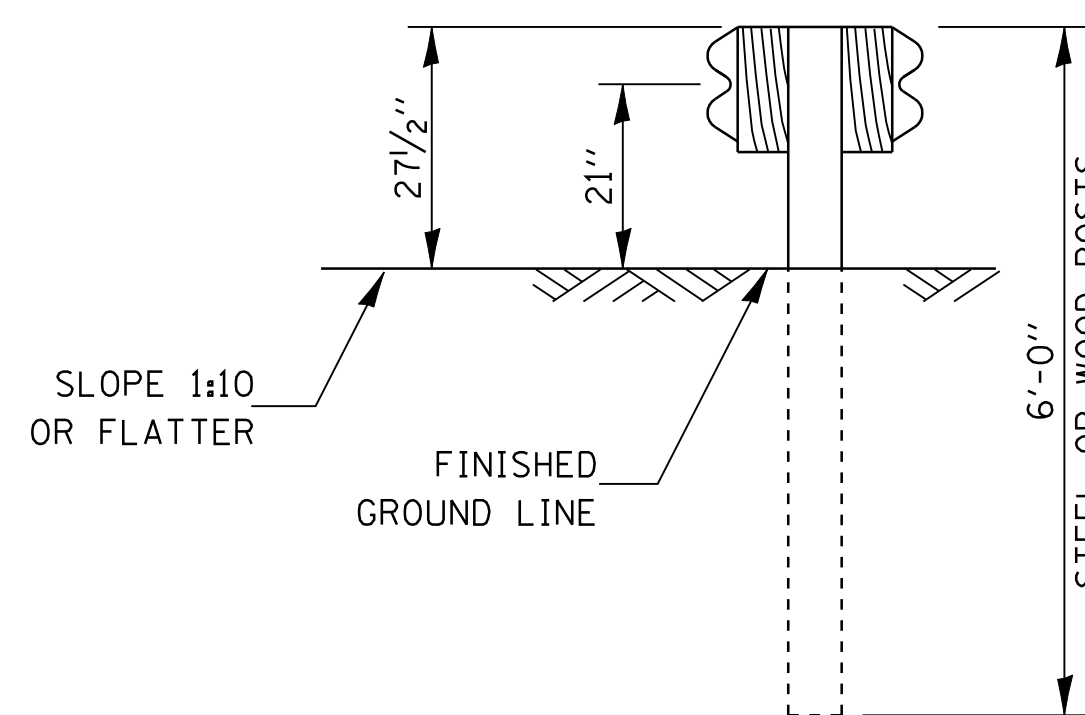
**SECTION A-A**



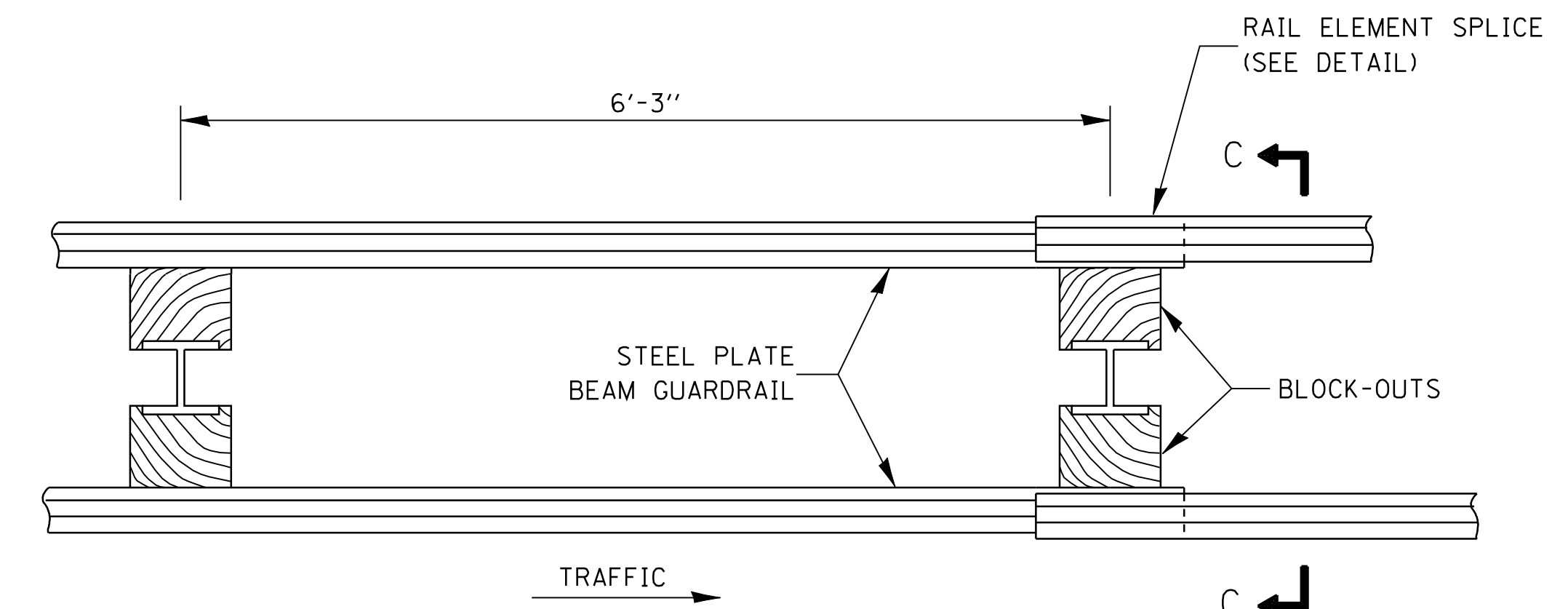
**ELEVATION**

**TYPE B**

37 1/2" CLOSED POST SPACING



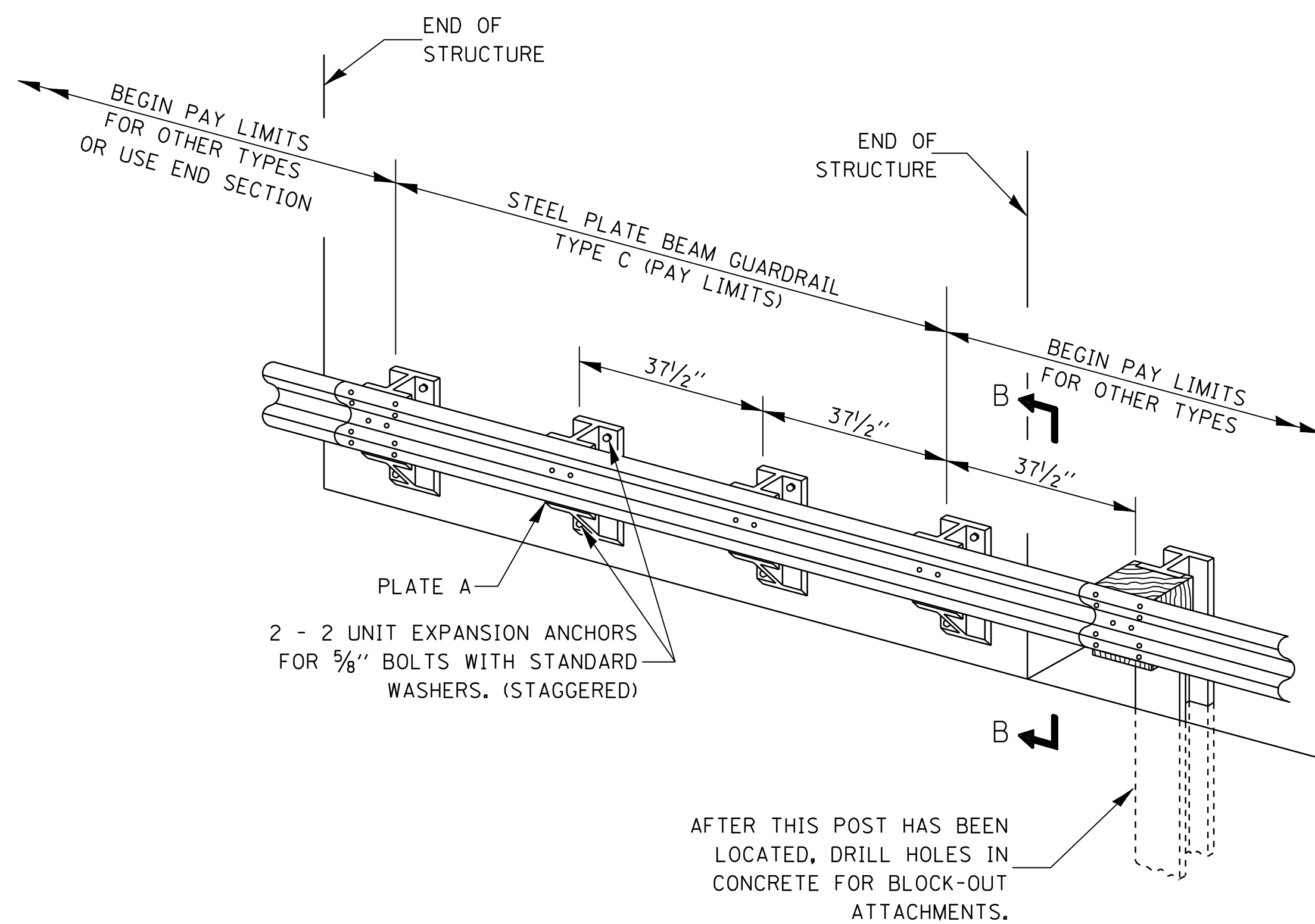
**SECTION C-C**



**PLAN**

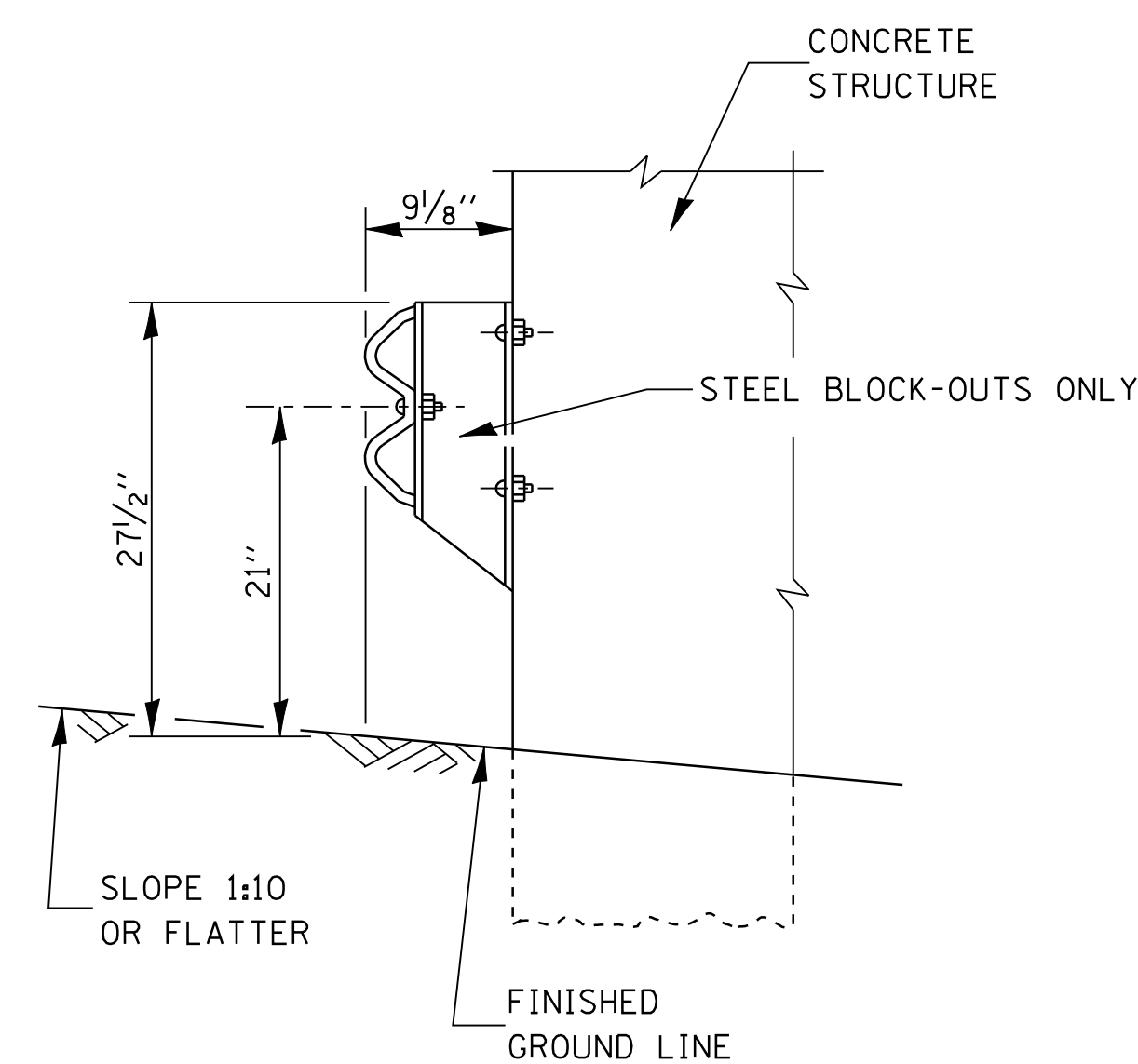
**TYPE D**

DOUBLE STEEL PLARE BEAM GUARDRAIL  
6'-3" TYPICAL POST SPACING



**TYPE C**

37 1/2" BLOCK-OUT SPACING



**SECTION B-B**

**GENERAL NOTES**

ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

THE EXISTING STEEL POSTS MAY BE DRILLED TO MATCH THE BOLT PATTERN SHOWN HEREIN FOR THE WOOD BLOCK-OUTS, OR A NEW STEEL POST SHALL BE PROVIDED.

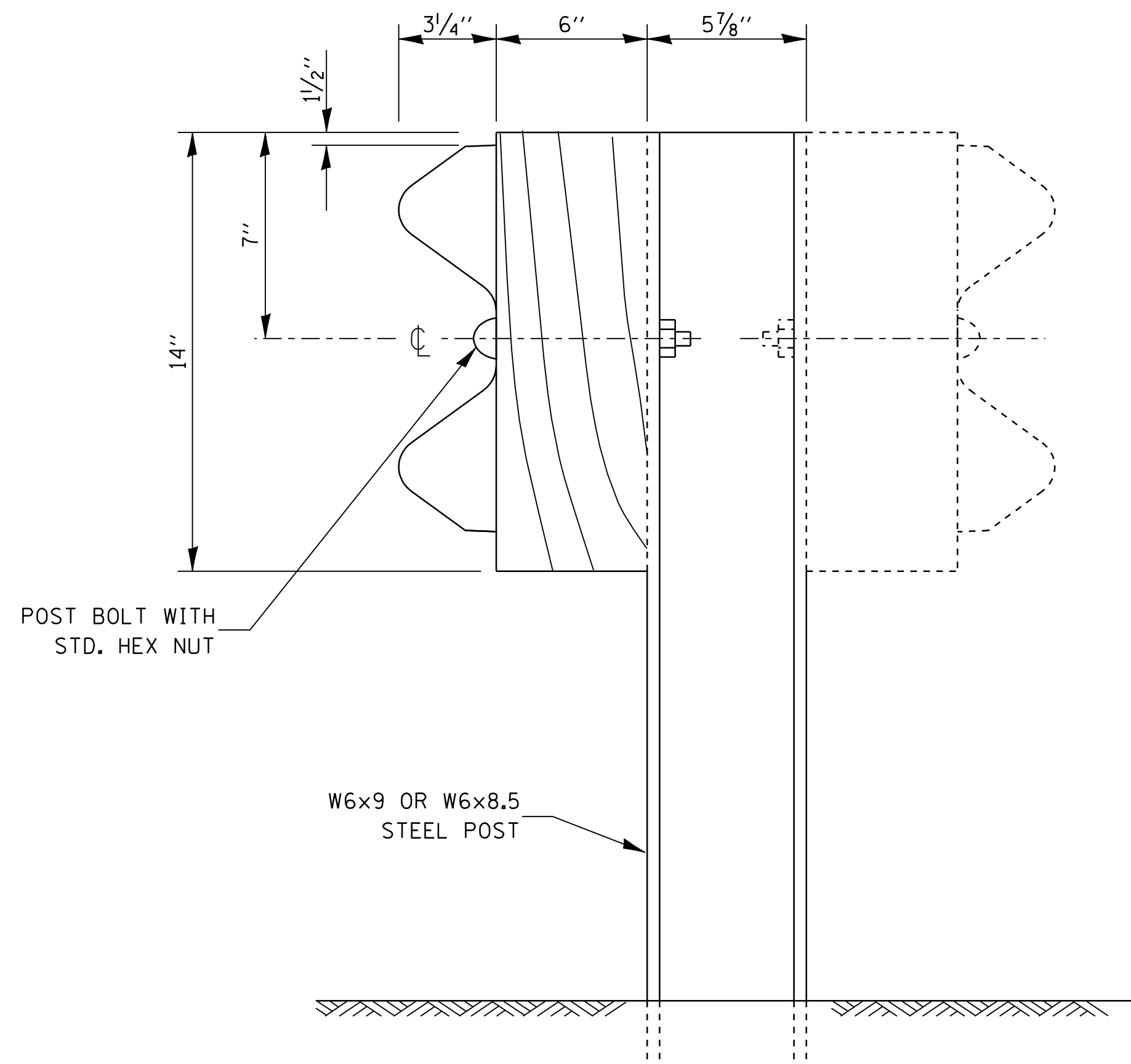
THIS DETAIL IS APPLICABLE TO THE GUARDRAIL SYSTEM USED PRIOR TO JANUARY 1, 2007. FOR DETAILS ON THE MIDWEST GUARDRAIL SYSTEM SEE STANDARD 630001.

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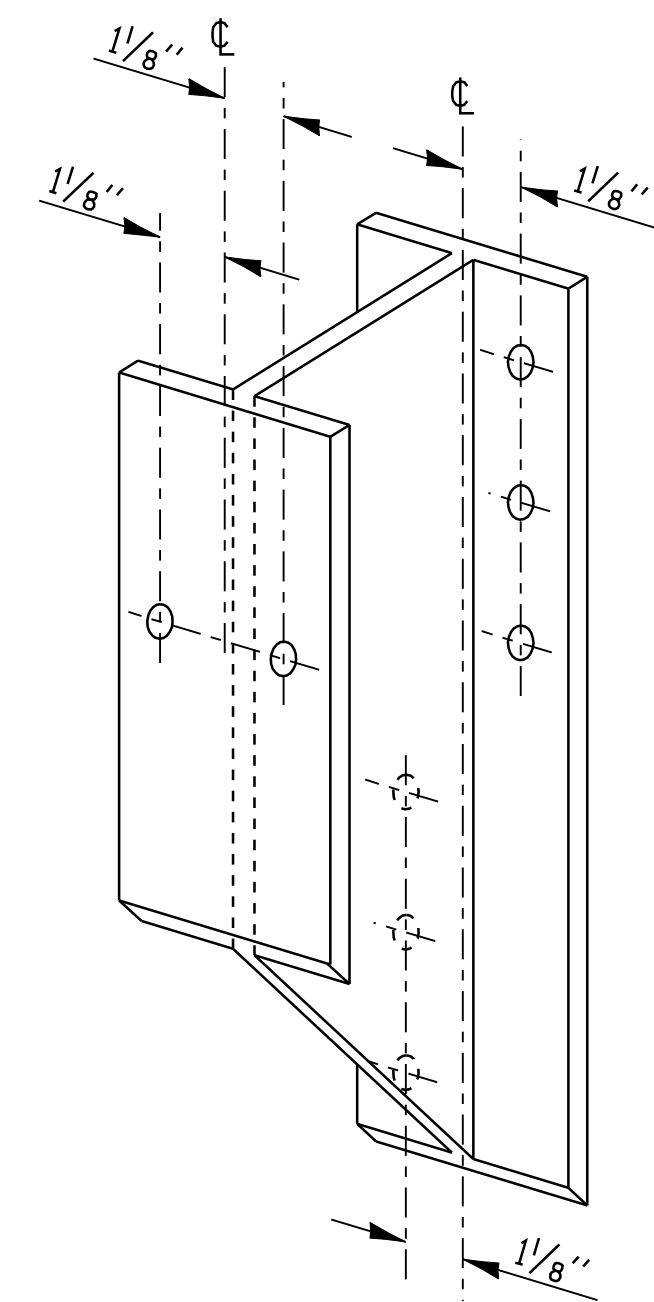
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**REMOVE AND REERECT STEEL PLATE BEAM GUARDRAIL**

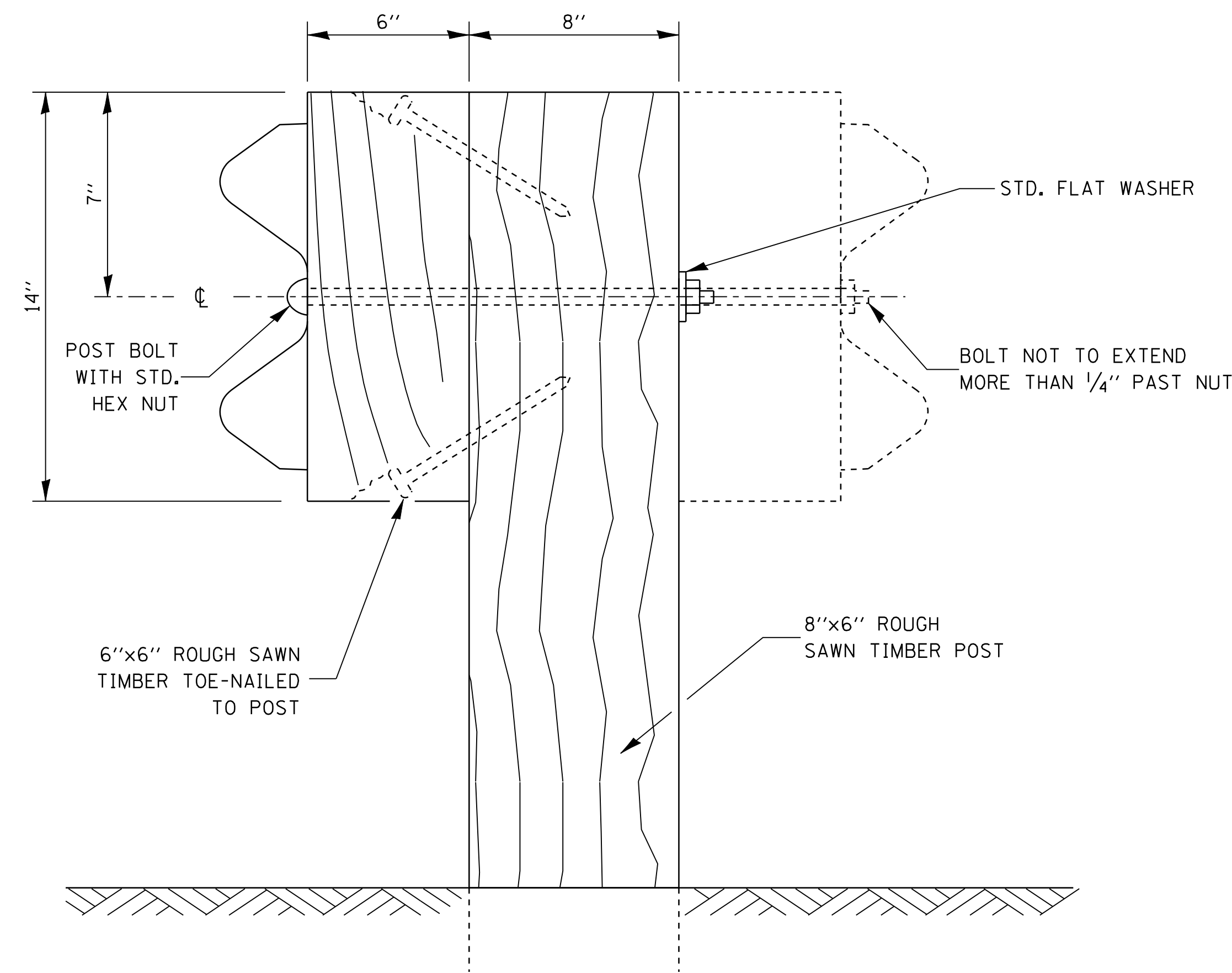
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				CONTRACT NO.				
				FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



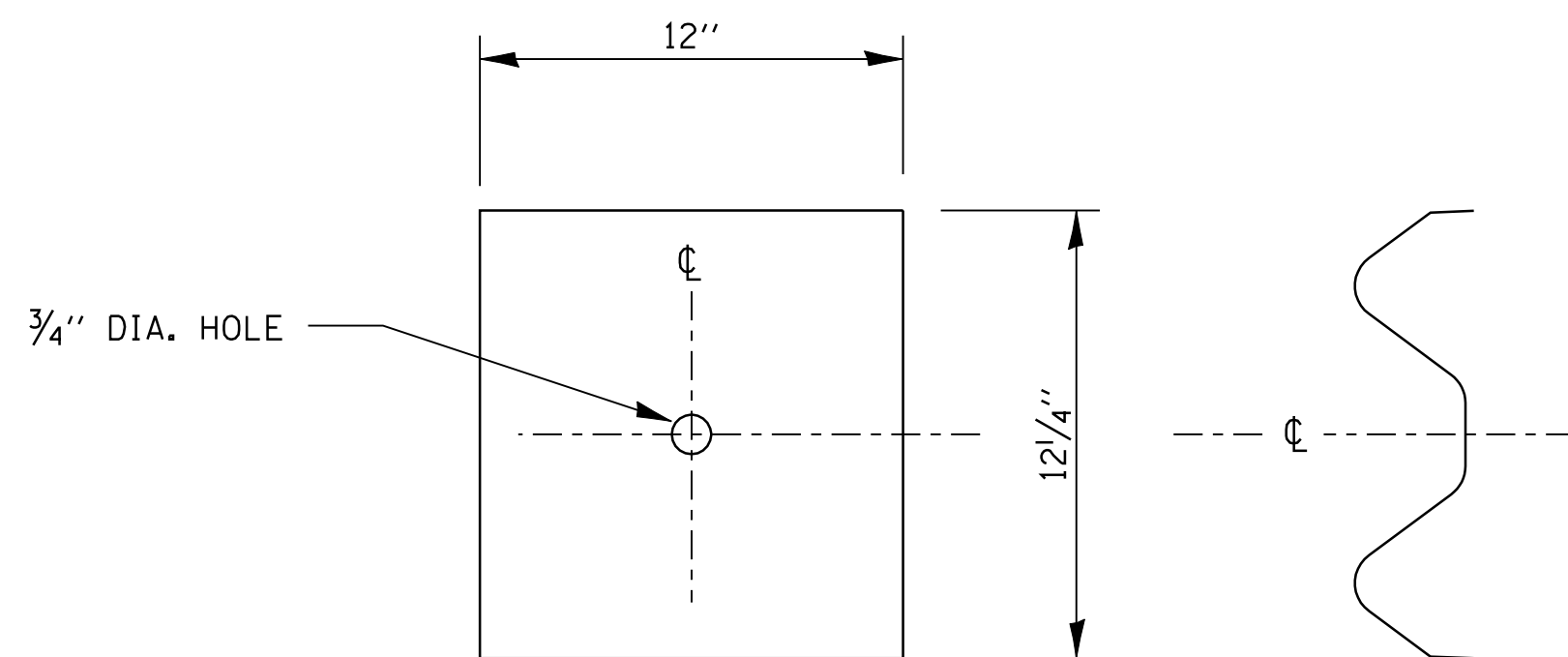
**STEEL POST CONSTRUCTION**



**STEEL BLOCK-OUT DETAIL**

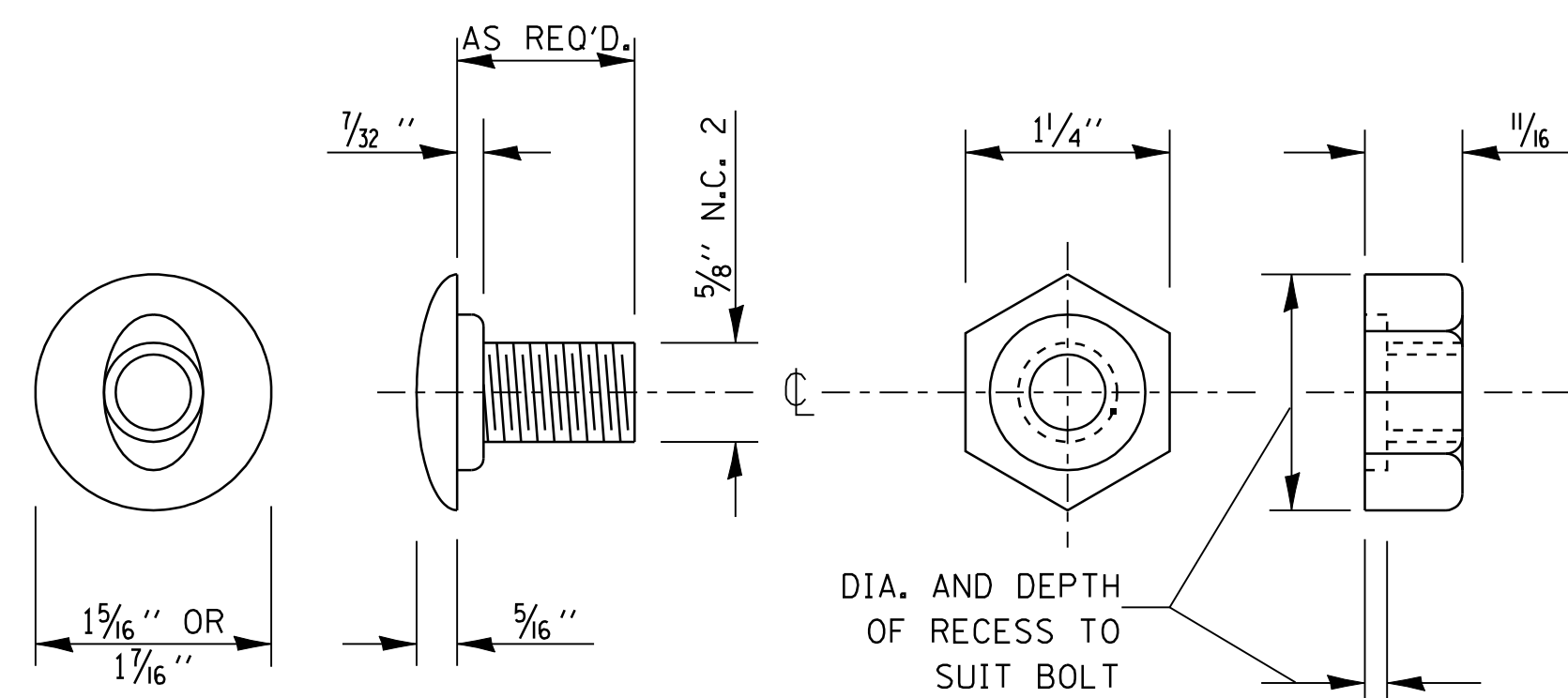


**WOOD POST CONSTRUCTION**



NOTE:  
 PLATE A SHALL BE PLACED BETWEEN RAIL  
 ELEMENT AND BLOCK-OUT AT NON-SPLICE  
 MOUNTING POINTS ONLY WHEN STEEL  
 BLOCK-OUTS ARE USED.

**PLATE A**

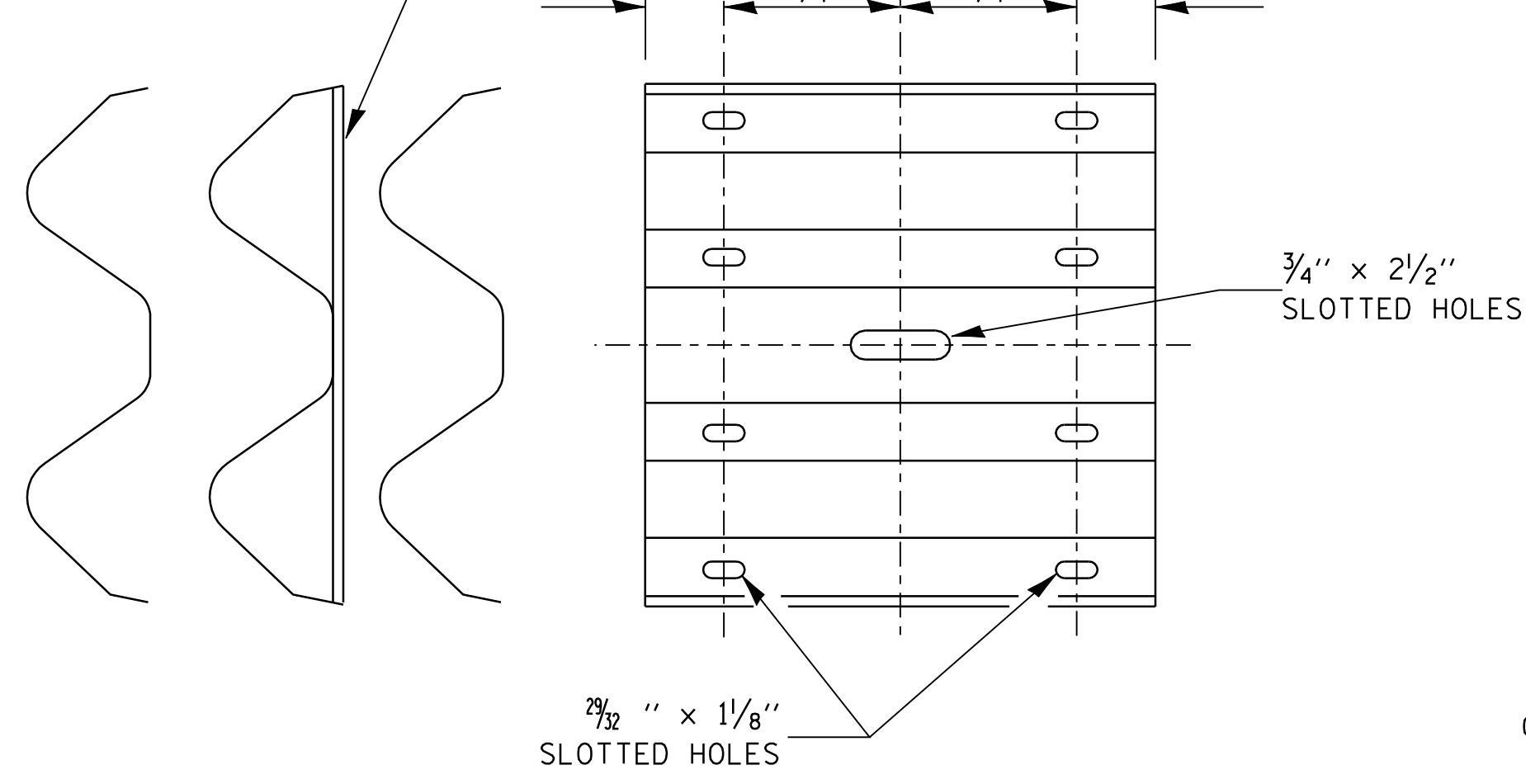


**POST OR SPLICE BOLT & NUT**

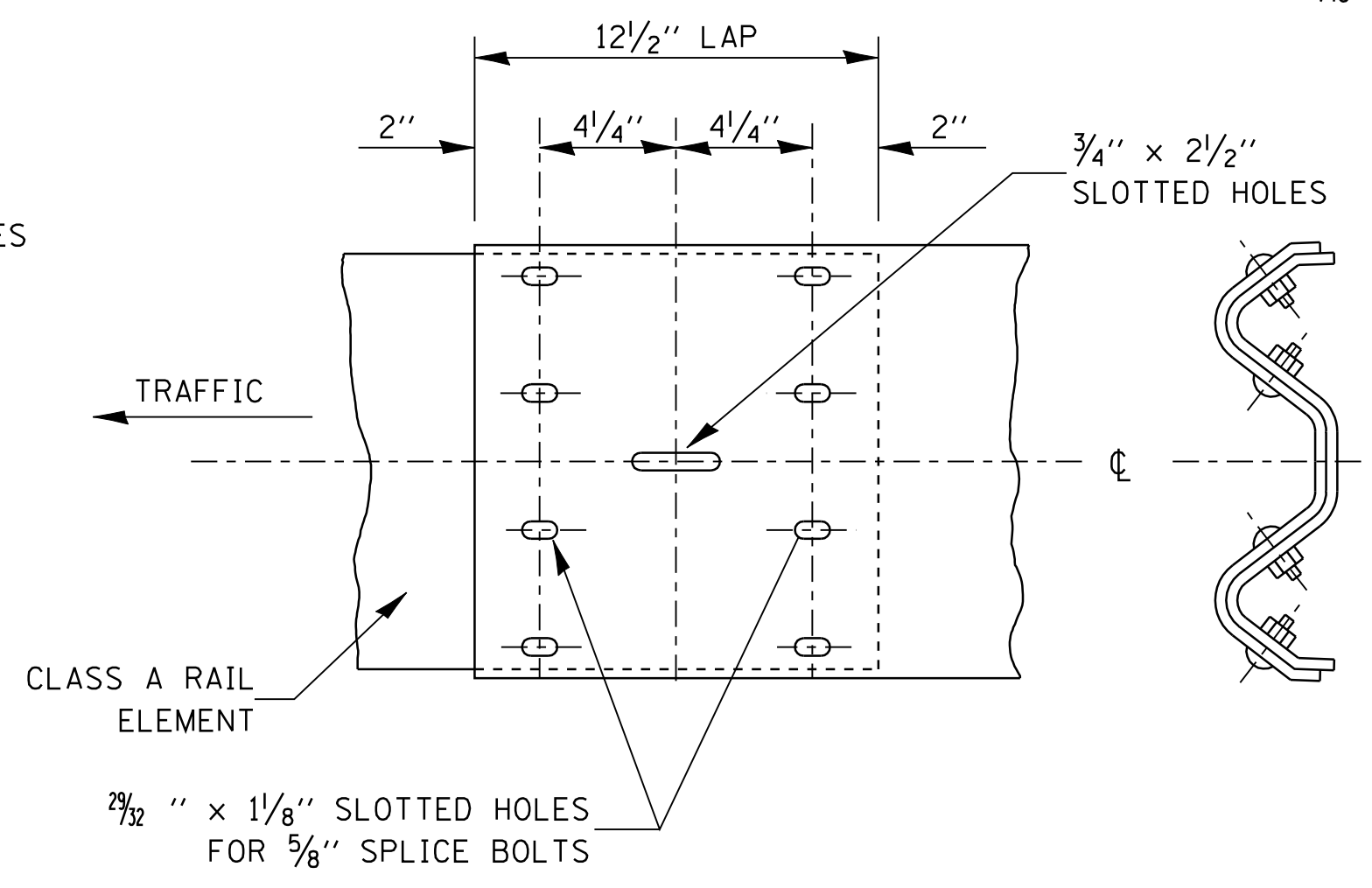
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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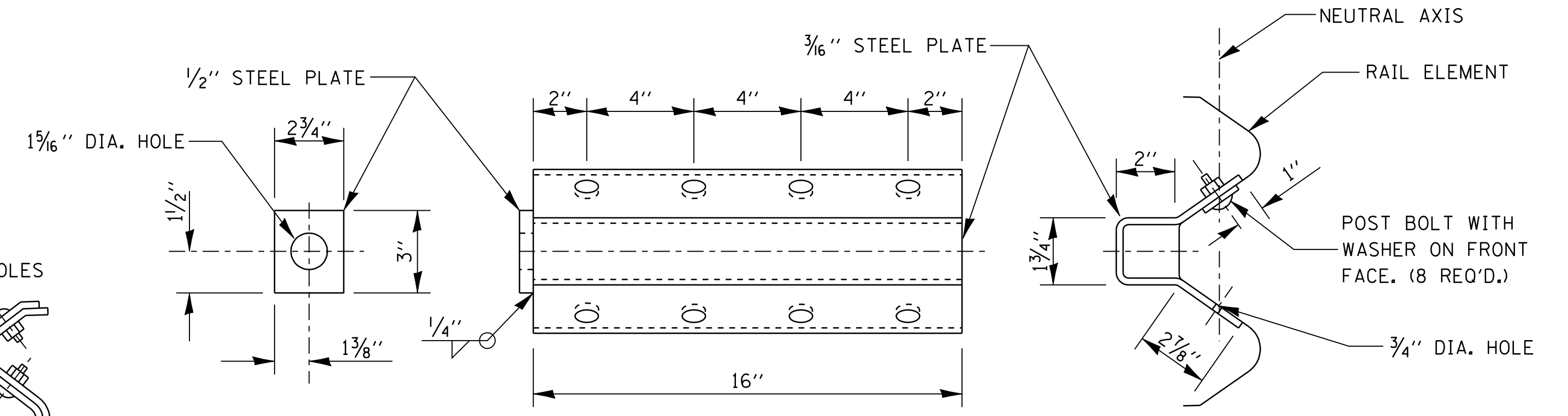
PLACE STANDARD END SHOE BETWEEN SPLICE PLATE AND RAIL ELEMENT



**SPLICE PLATE**

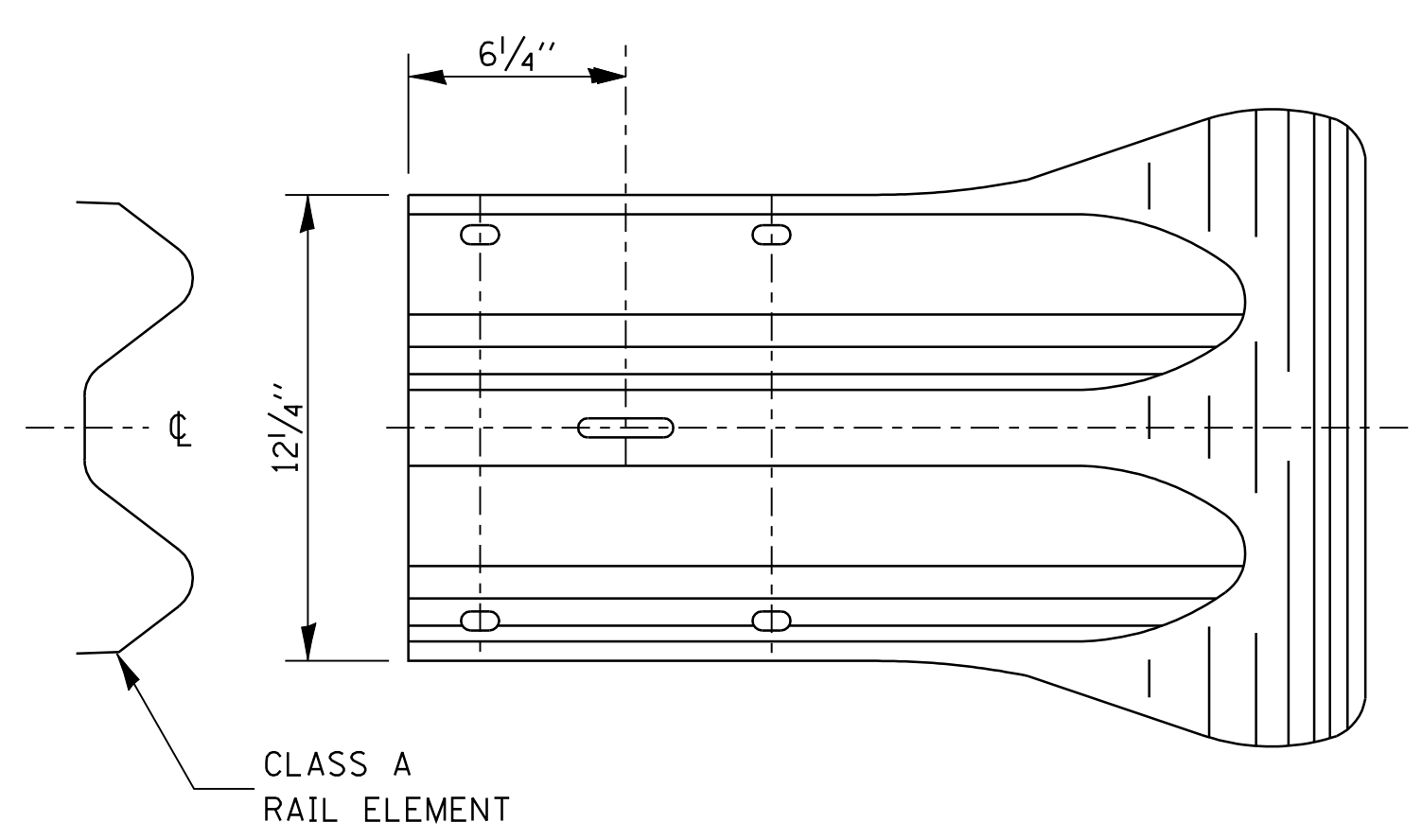
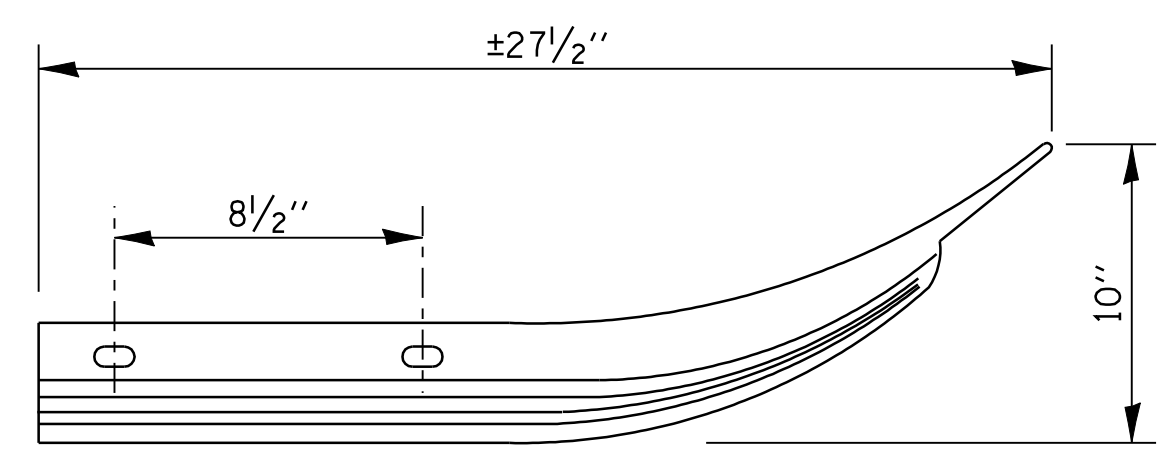


**RAIL ELEMENT SPLICE**

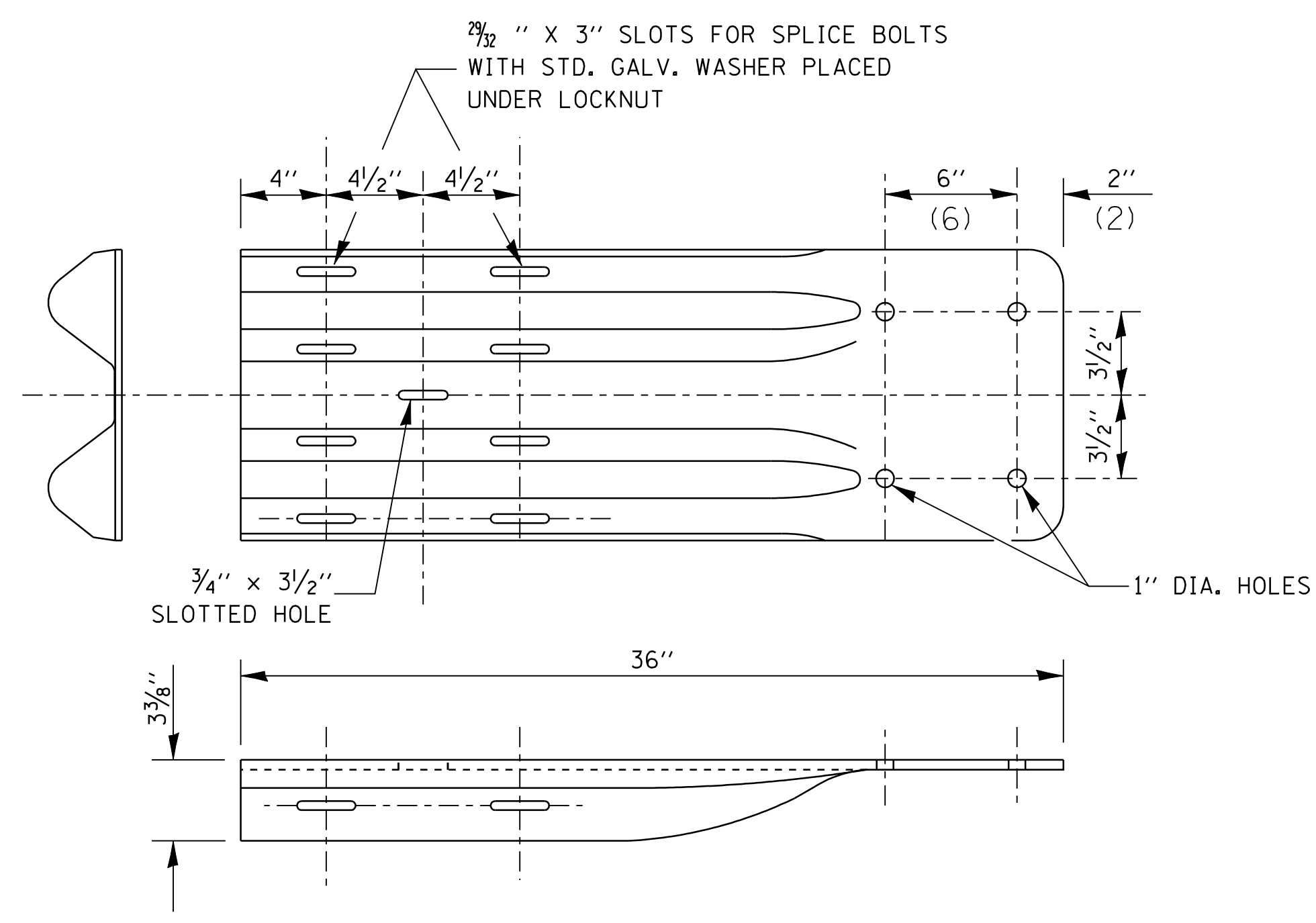


NOTE:  
ANCHOR PLATE T SHALL BE USED TO ATTACH CABLE ASSEMBLY TO GUARDRAIL WHEN REQUIRED ON TRAFFIC BARRIER TERMINALS.

**ANCHOR PLATE T DETAILS**



**END SECTION**

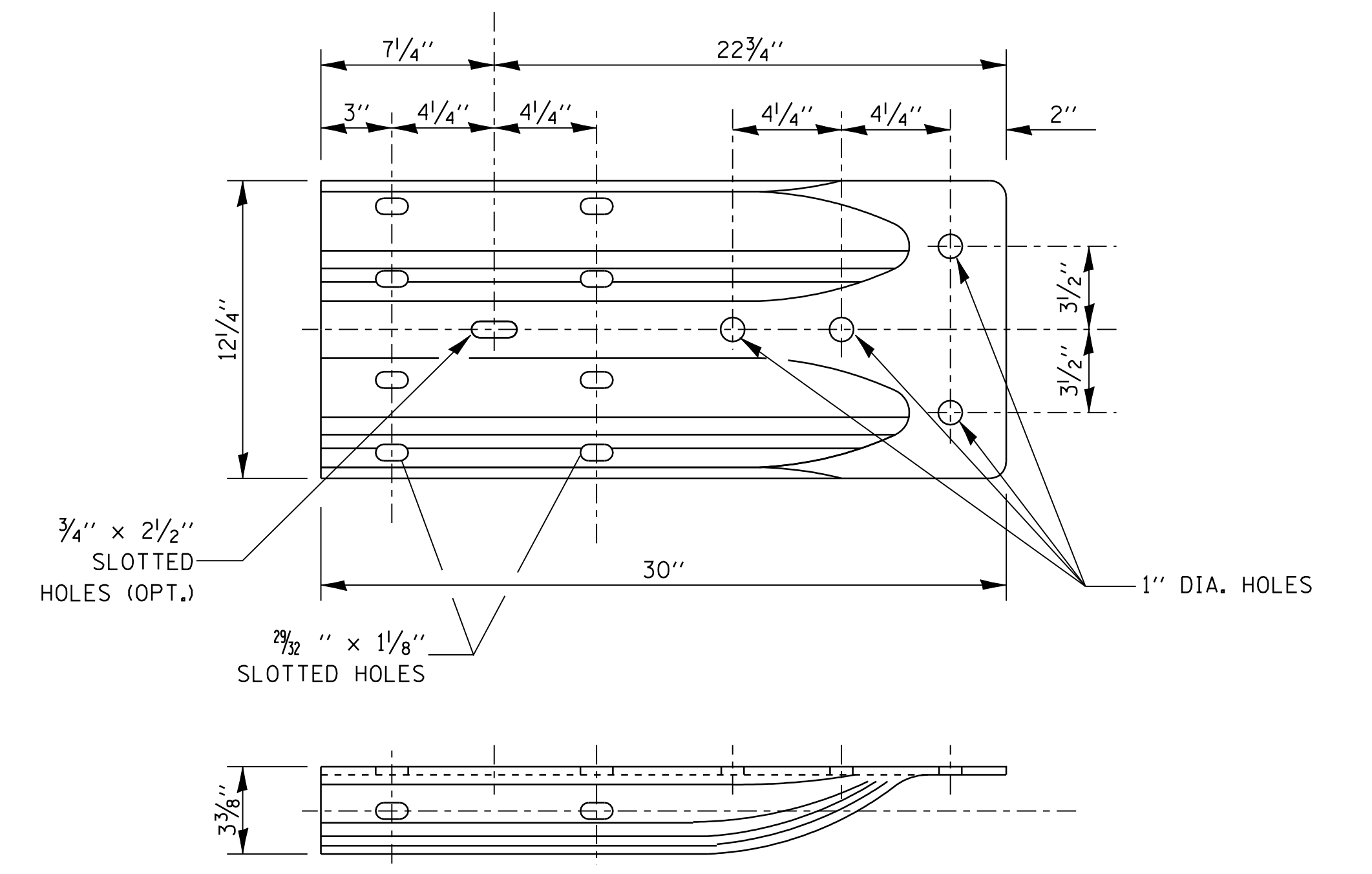


NOTE:  
WHEN END SHOE IS ATTACHED TO A BRIDGE PARAPET WHICH HAS AN EXPANSION JOINT, THE BOLTS SHALL BE PROVIDED WITH A LOCKNUT OR DOUBLE NUT AND SHALL BE TIGHTENED ONLY TO A POINT THAT WILL ALLOW GUARDRAIL MOVEMENT.

THE STANDARD END SHOE SHALL BE ATTACHED TO THE CONCRETE WITH PRE-DRILLED OR SELF-DRILLING ANCHOR BOLTS. THE ANCHOR CONE SHALL BE SET FLUSH WITH THE SURFACE OF THE CONCRETE.

EXTERNALLY THREADED STUDS PROTRUDING FROM THE SURFACE OF THE CONCRETE WILL NOT BE PERMITTED.

**END SHOE**



**ALTERNATE END SHOE**

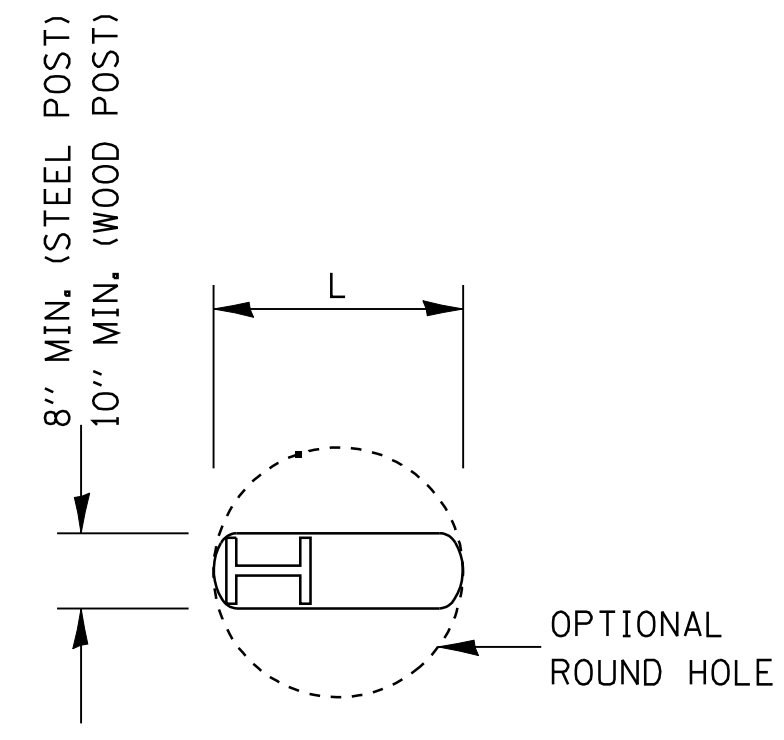
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

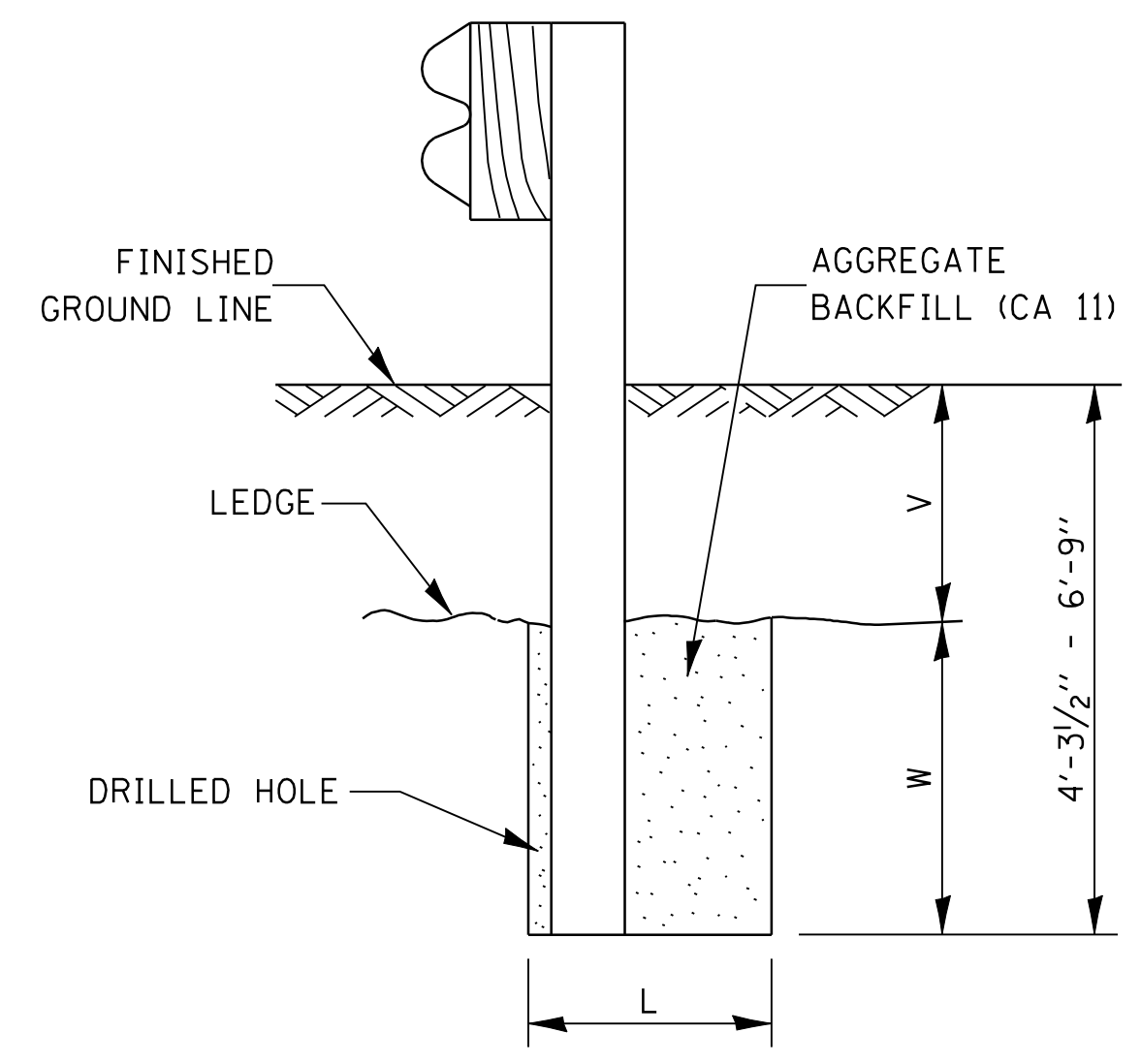
REMOVE AND REERECT STEEL PLATE BEAM GUARDRAIL

SCALE:	SHEET NO. 3 OF 4 SHEETS	STA.	TO STA.
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
CONTRACT NO.				



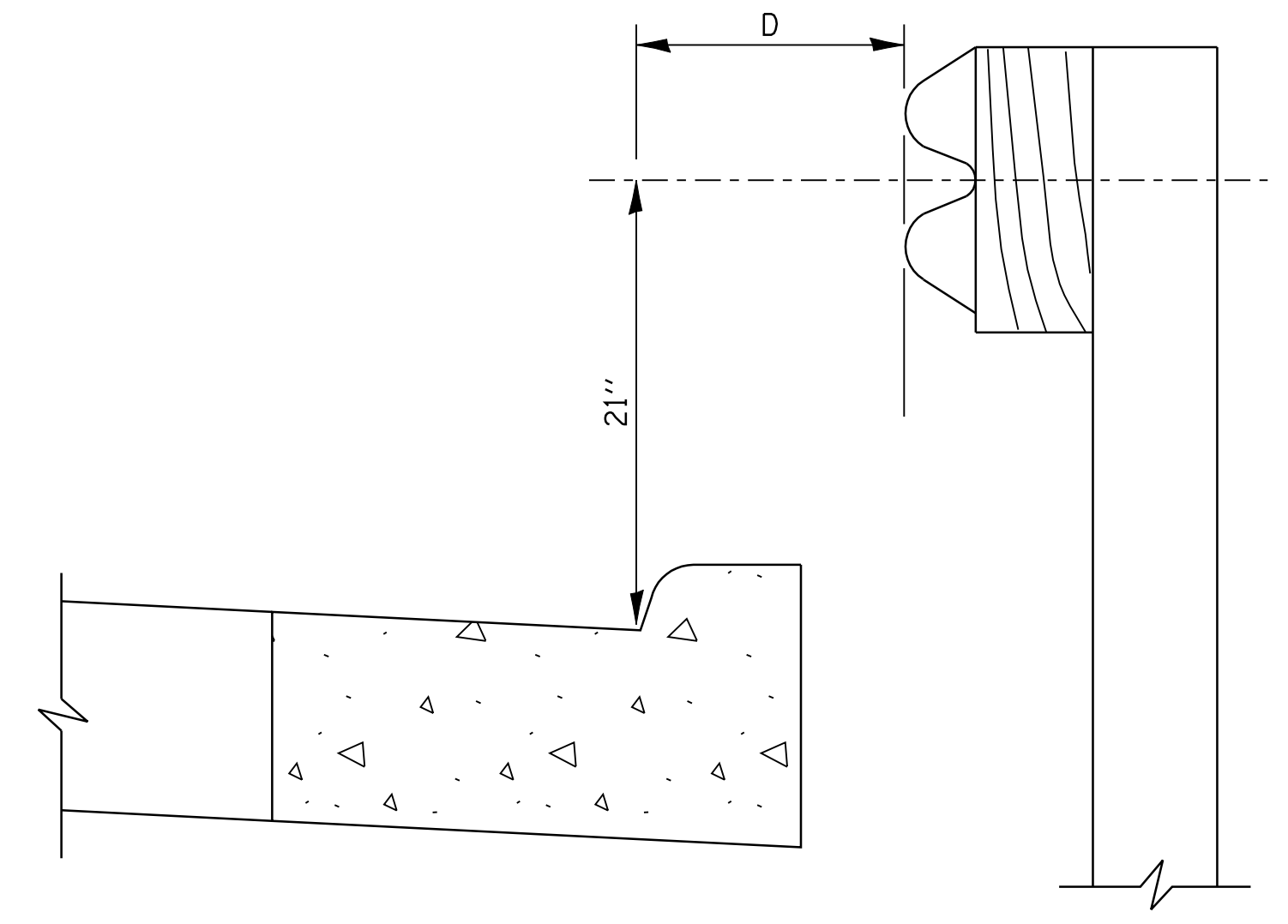
**PLAN**



**ELEVATION**

NOTE:  
LEDGE LINE IS TOP OF ROCK LEDGE OR HARD SLAG FILL.

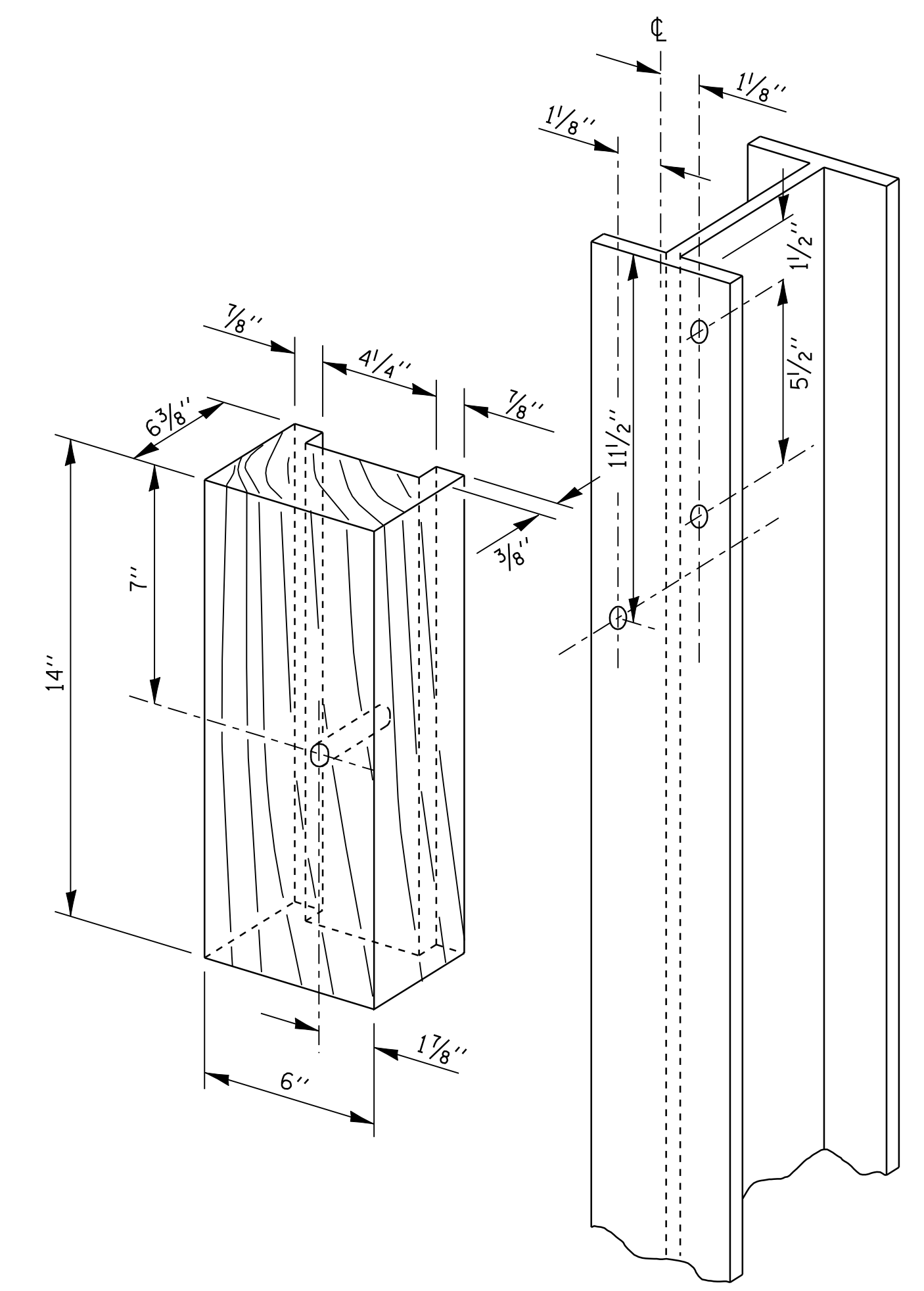
**FOOTING FOR POST WHEN IMPERVIOUS MATERIAL IS ENCOUNTERED**



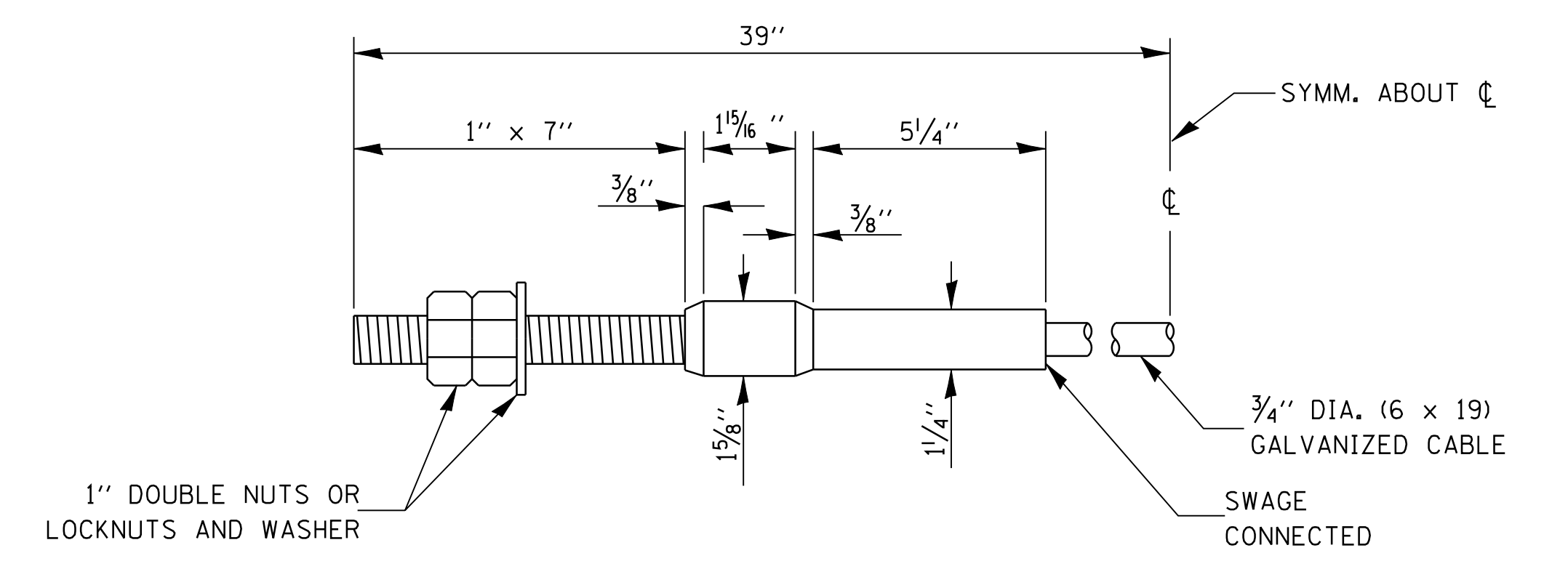
NOTE:  
IF IT IS NECESSARY FOR D TO BE MORE THAN 12" AND LESS THAN 10'-0" TYPE M-2 CURB AND GUTTER (STD. 606001) SHALL BE USED IN FRONT OF AND IN ADVANCE OF THE GUARDRAIL.

**GUARDRAIL PLACED BEHIND CURB**

(D = 0 DESIRABLE TO 12" MAXIMUM)



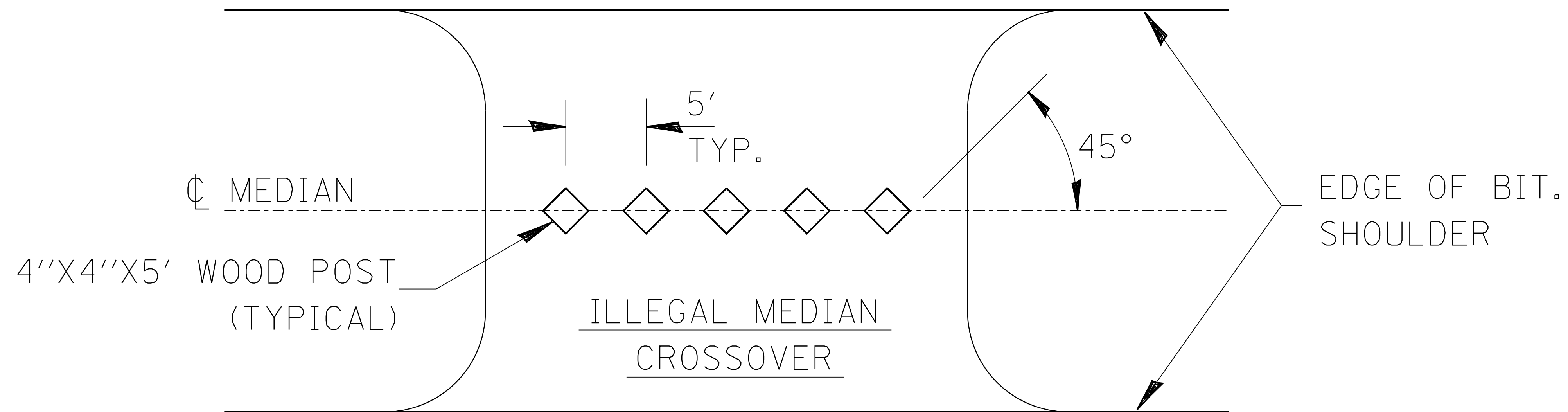
**WOOD BLOCK-OUT AND STEEL POST DETAILS**



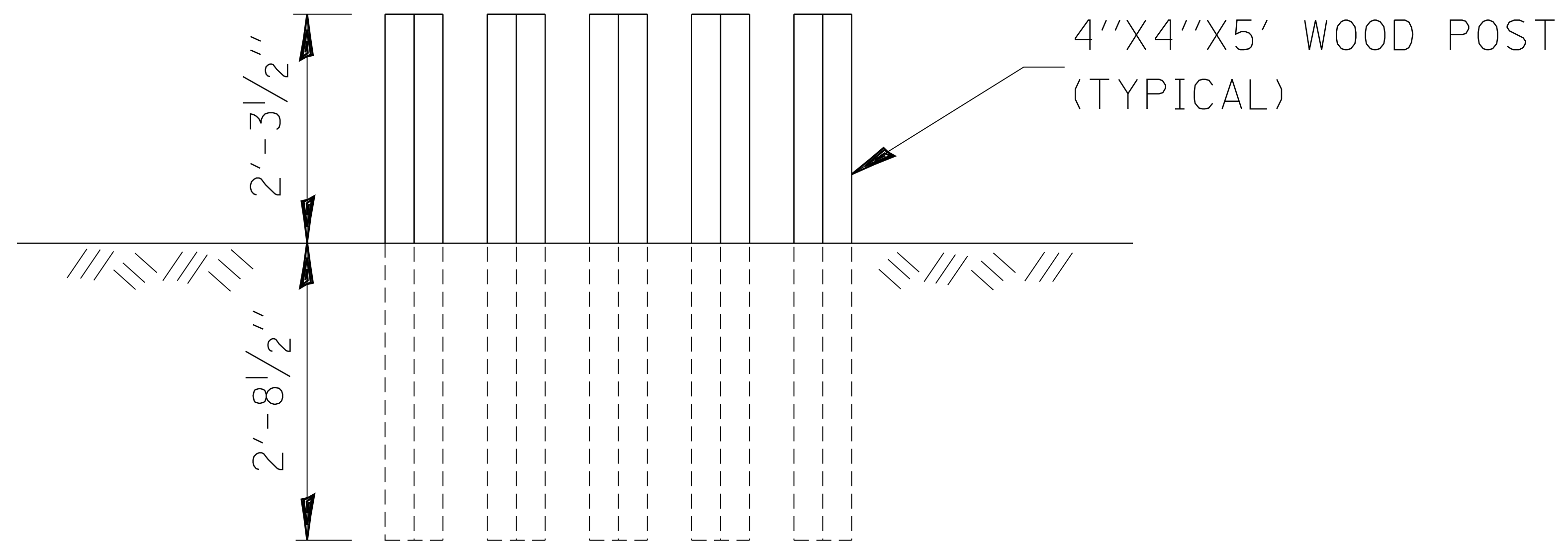
**CABLE ASSEMBLY**

40,000 LBS. MIN. BREAKING STRENGTH  
TIGHTEN TO TAUT TENSION.

V	W	L	
		STEEL POST	WOOD POST
0" - 18"	24"	21"	23"
>18" - 41 1/2"	12"	8"	10"
>41 1/2" - 53 1/2"	12" - 0"	8"	10"

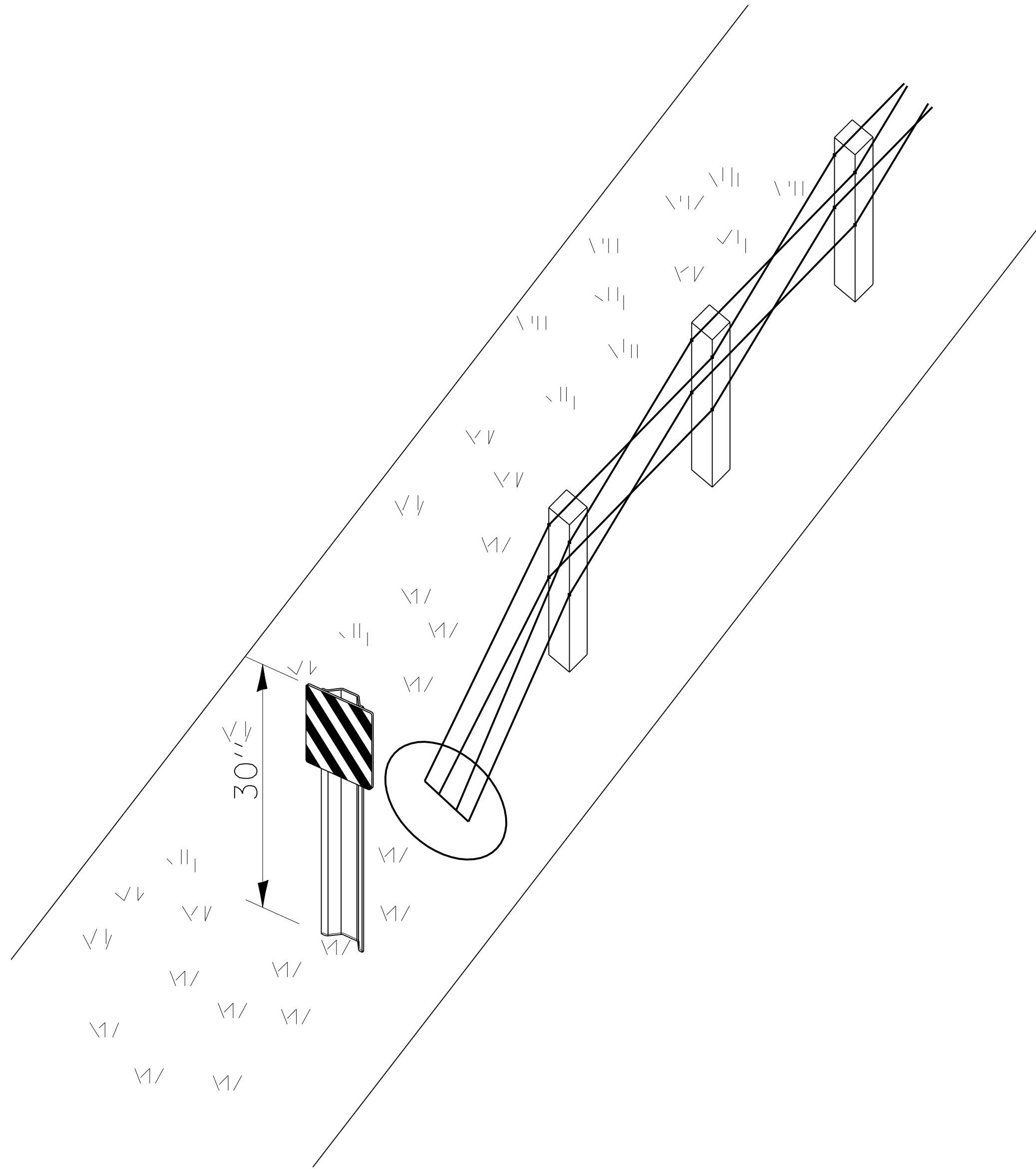


**PLAN**

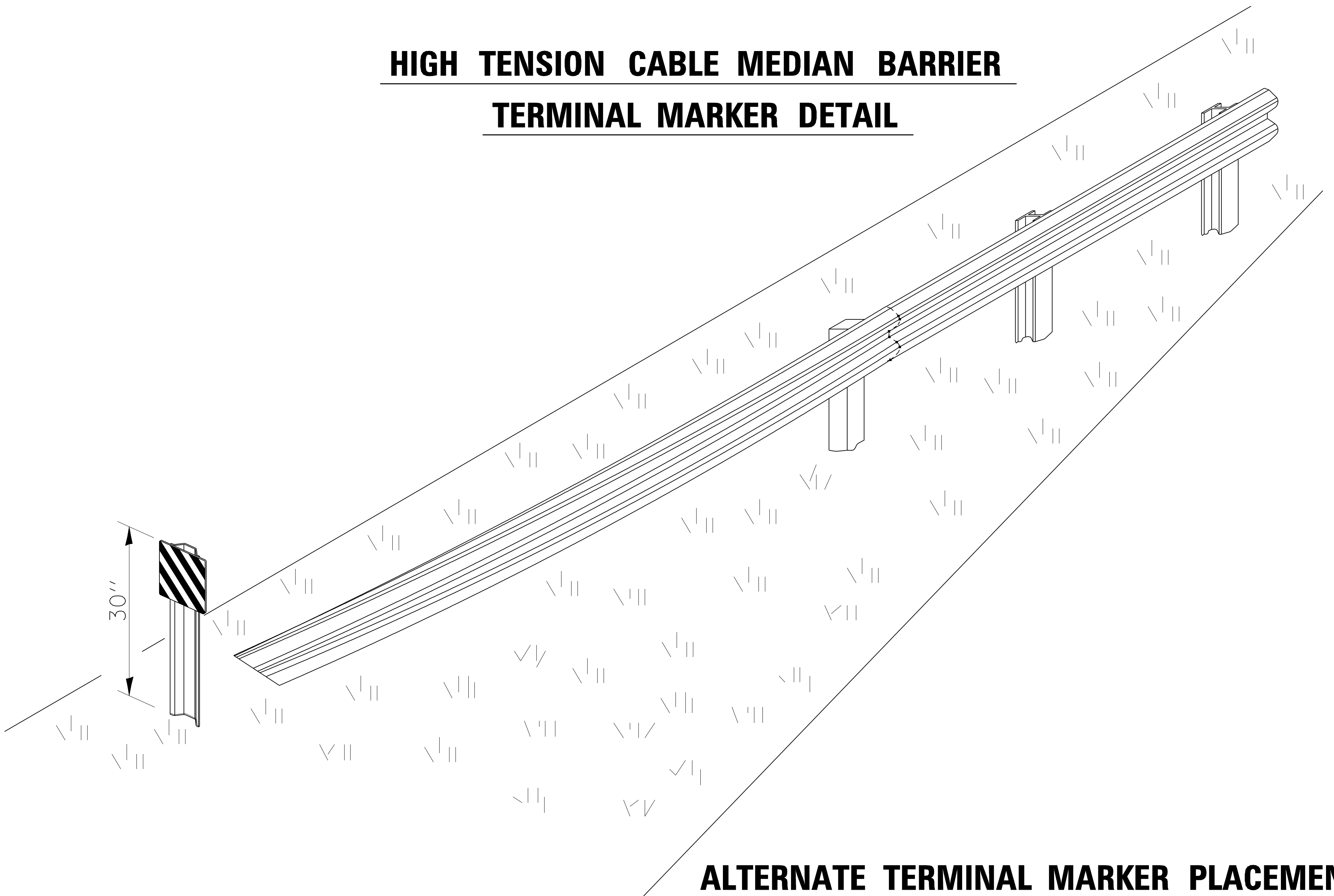


**ELEVATION**

**WOOD POST DETAIL**

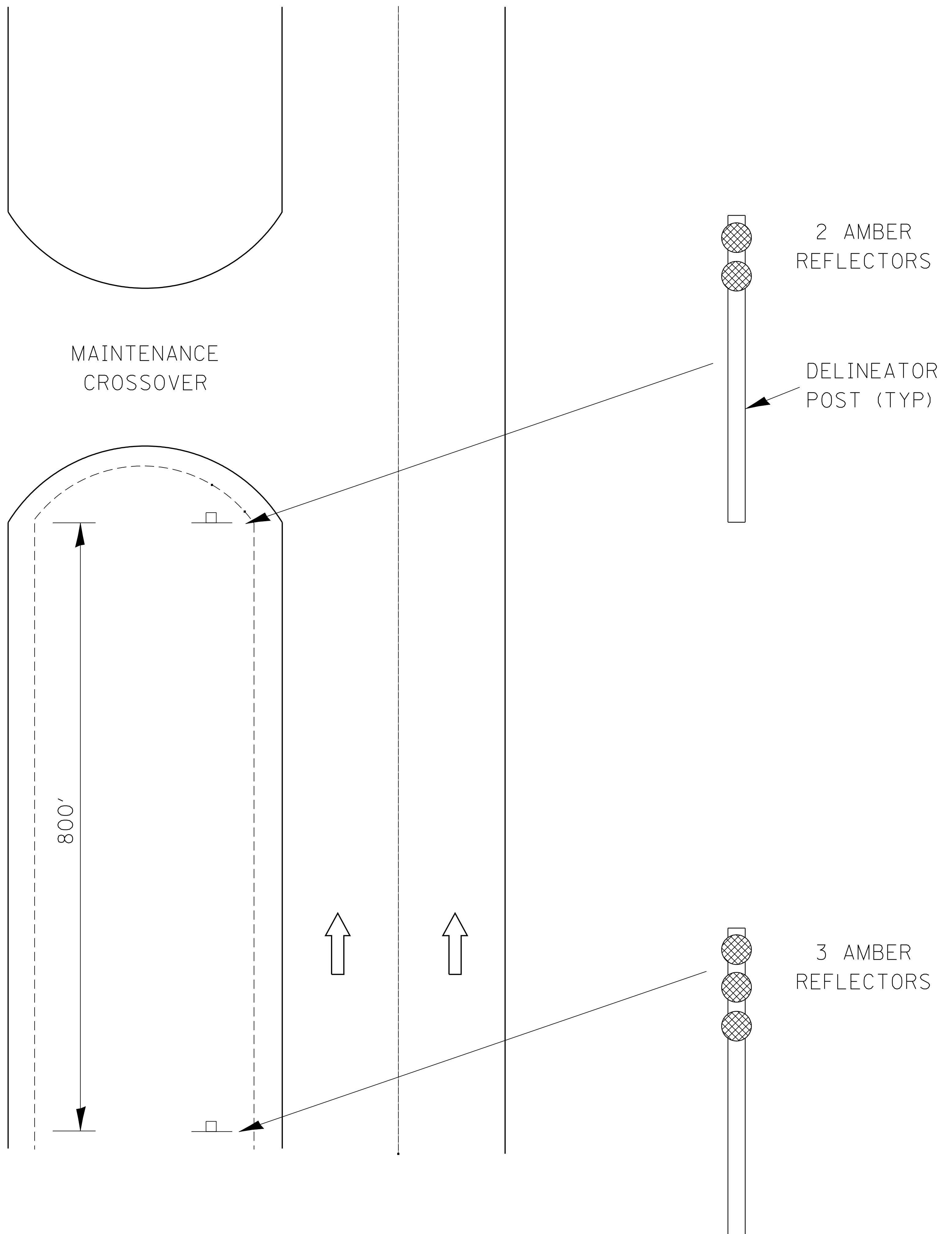


**HIGH TENSION CABLE MEDIAN BARRIER  
TERMINAL MARKER DETAIL**

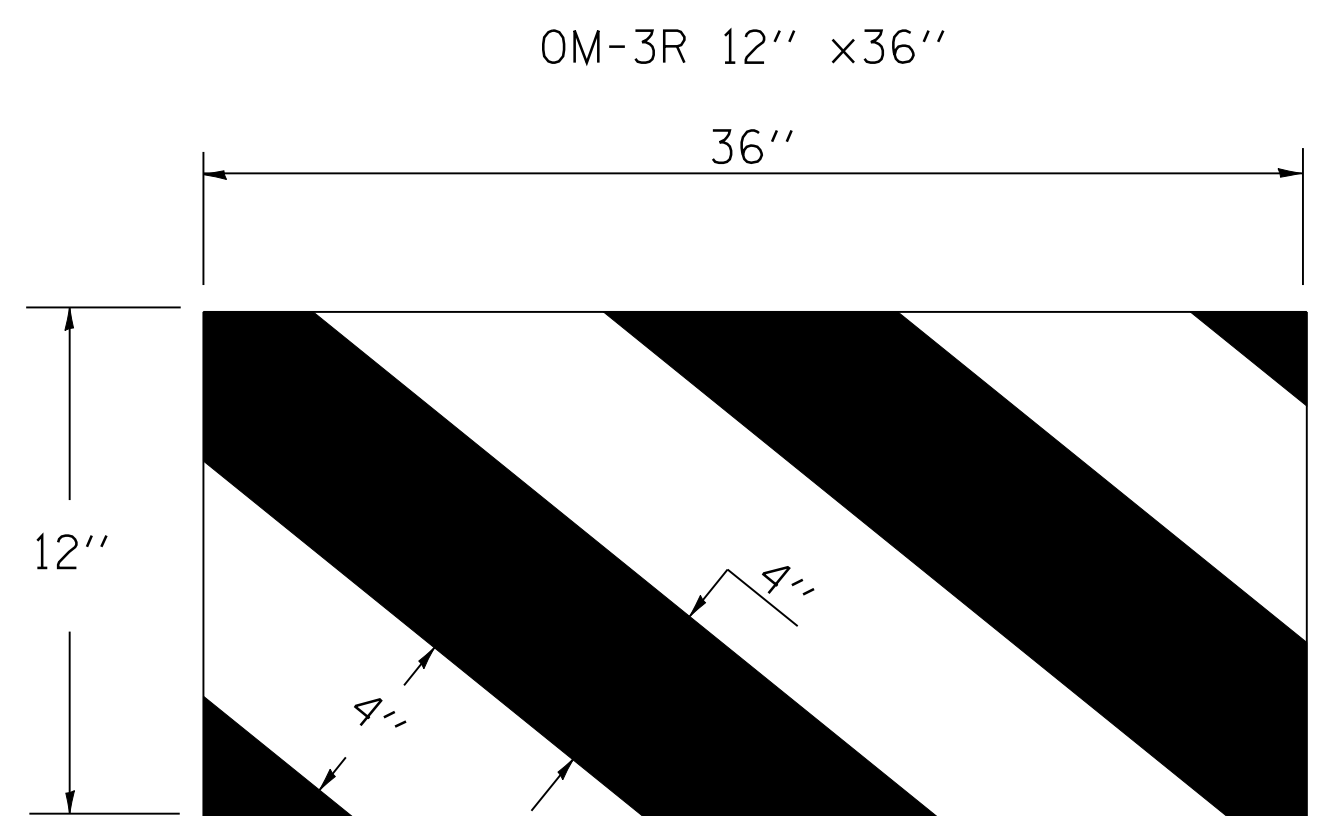
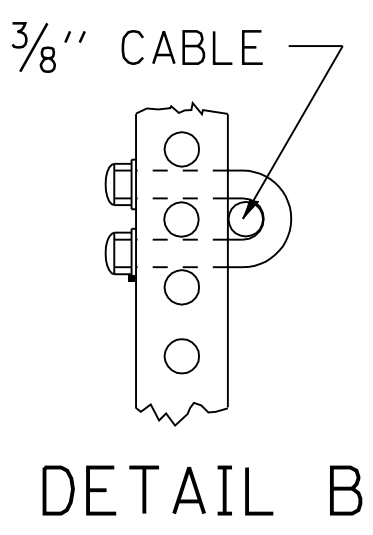
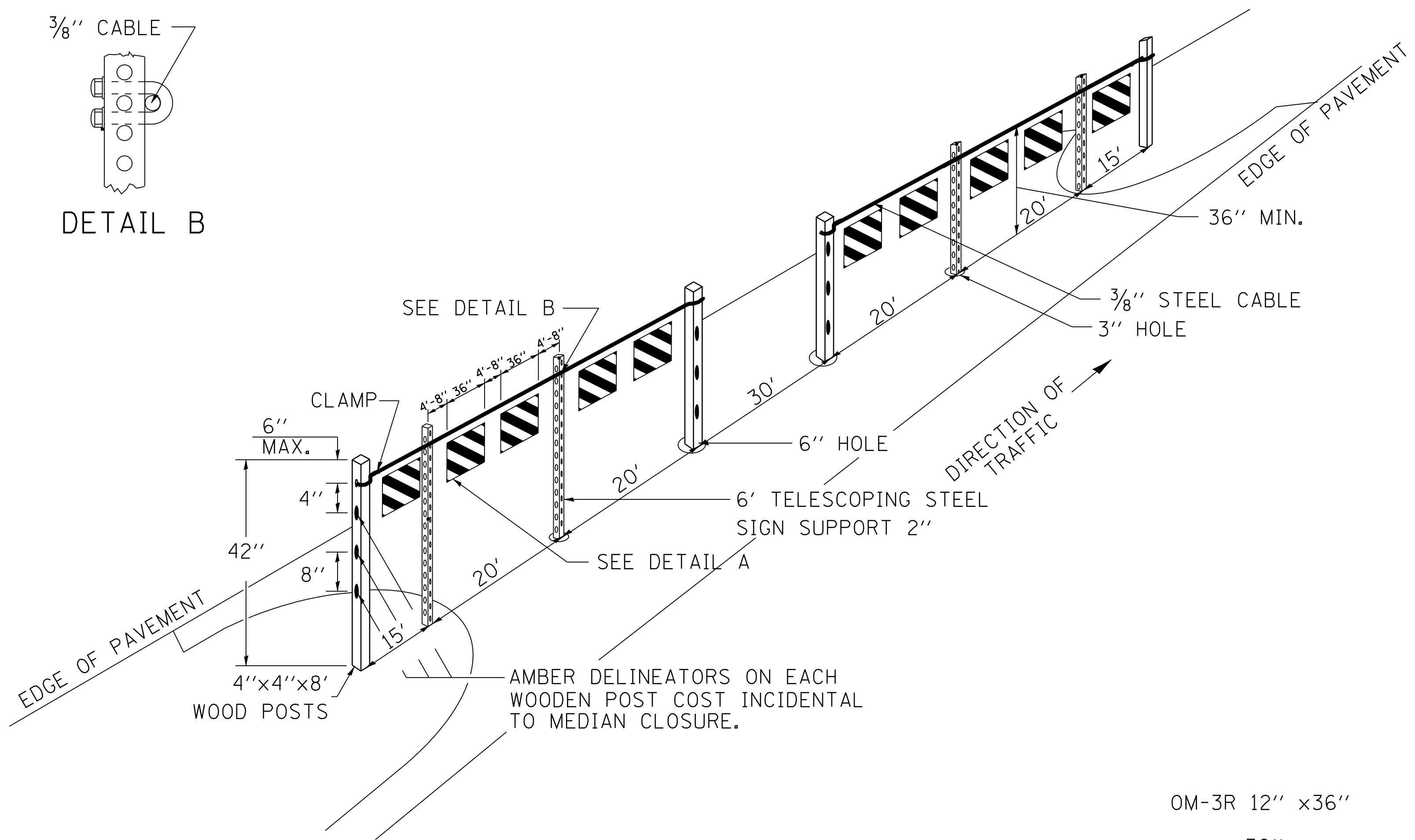


**ALTERNATE TERMINAL MARKER PLACEMENT**

POST MOUNT ONLY WITH TWISTED OR SLOPING TERMINAL  
WHERE SHEETING CANNOT BE APPLIED DIRECTLY TO TERMINAL



**DELINEATION  
FOR MAINTENANCE  
CROSSOVER  
(TYPICAL FOR BOTH DIRECTIONS)**



**DETAIL A**

GENERAL NOTES

WOOD POSTS, CABLE, AND SIGN SUPPORTS SHALL BE IN ACCORDANCE WITH SECTION 634 & 636 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE PANELS SHALL BE ANCHORED TO THE 3/8" CABLE IN SUCH A MANNER SO THEY CANNOT SLIDE ALONG THE CABLE.

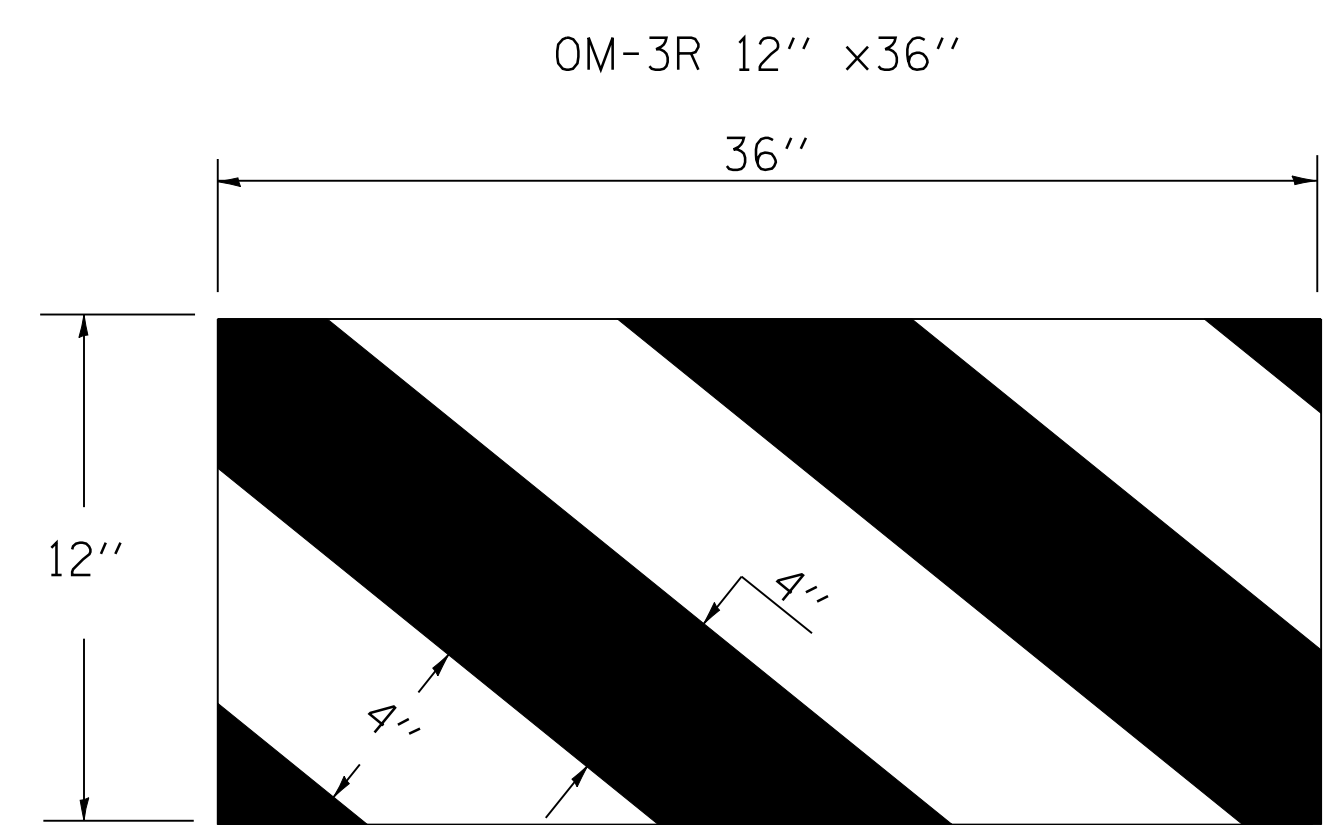
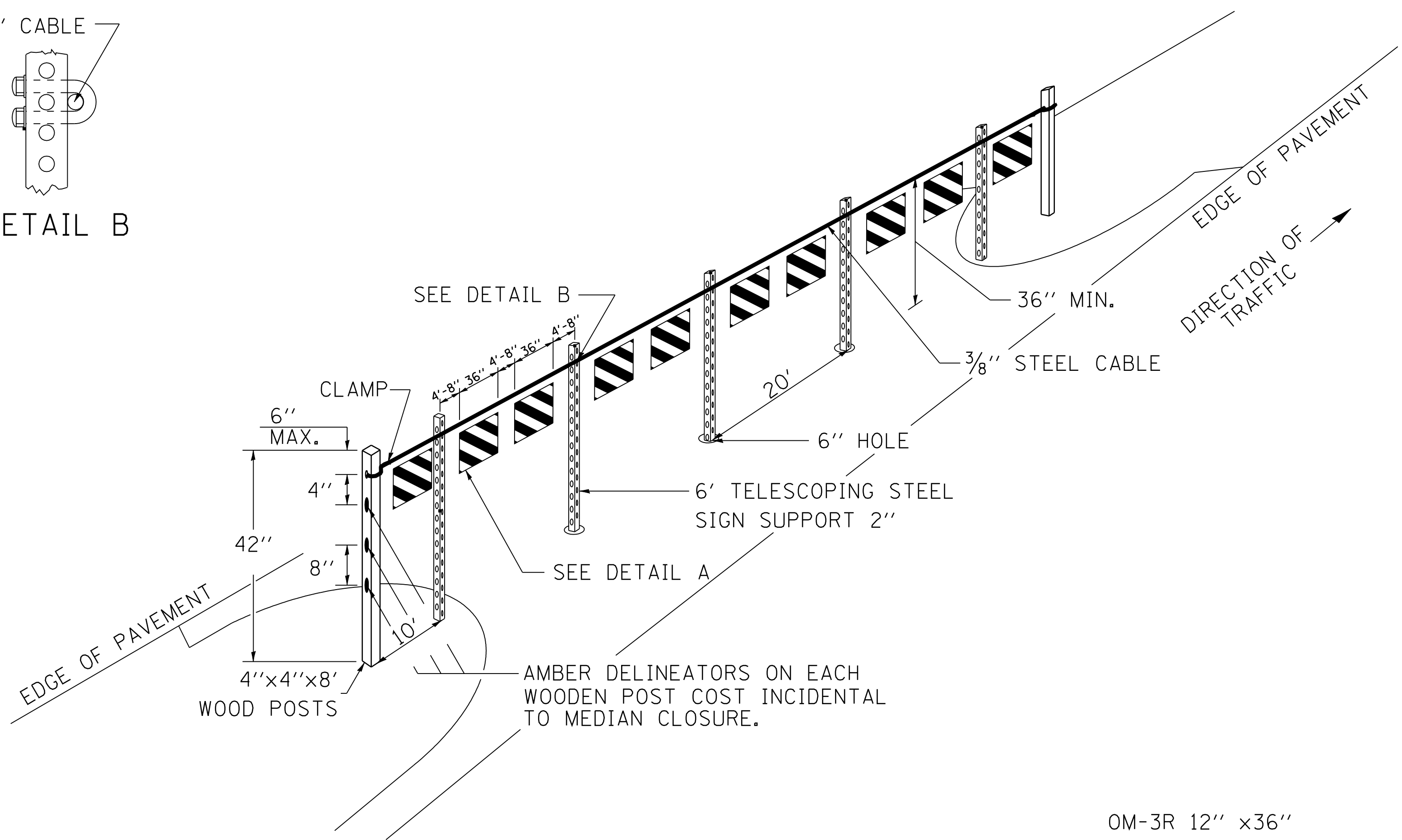
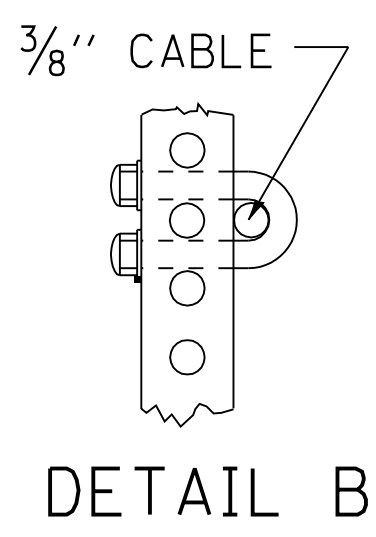
THE REFLECTIVE SHEETING USED FOR THE PANELS SHALL MEET THE REQUIREMENTS OF ARTICLE 1084.02 OF THE STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION AND SHALL BE ON BOTH SIDES.

ALL PANELS SHALL HAVE ALTERNATING REFLECTORIZED WHITE & RED STRIPES SLOPING DOWNWARD AT 45° TOWARD THE SIDE ON WHICH TRAFFIC WILL PASS AND ON BOTH SIDES OF PANEL. THE DRILLING OF 3" AND 4" HOLES SHALL BE INCIDENTAL TO THE MEDIAN CLOSURE.

THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR MEDIAN CLOSURE.

**TYPICAL MEDIAN CROSSOVER CLOSURE  
(WITH EMERGENCY OPENING)**





**DETAIL A**

GENERAL NOTES

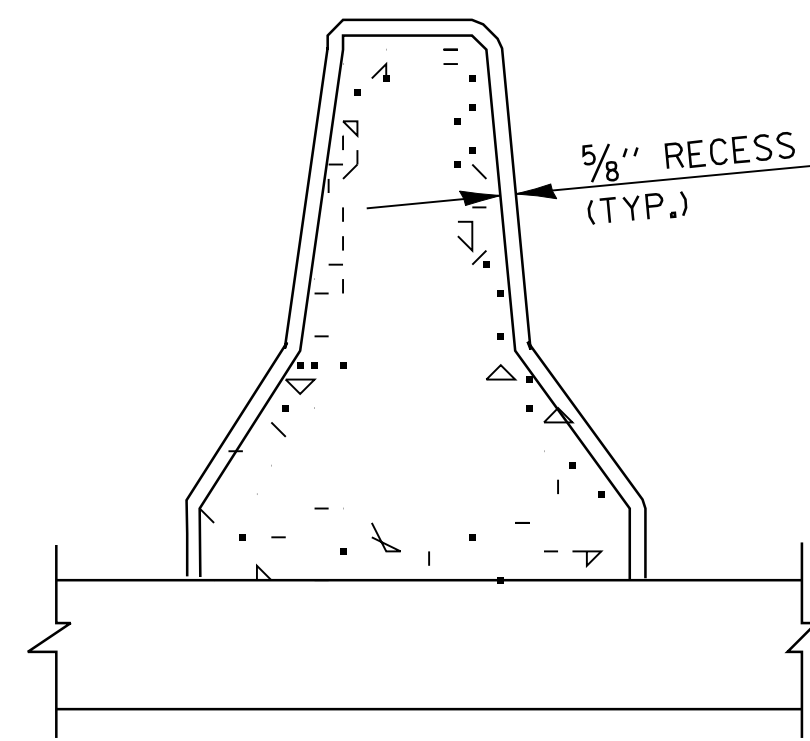
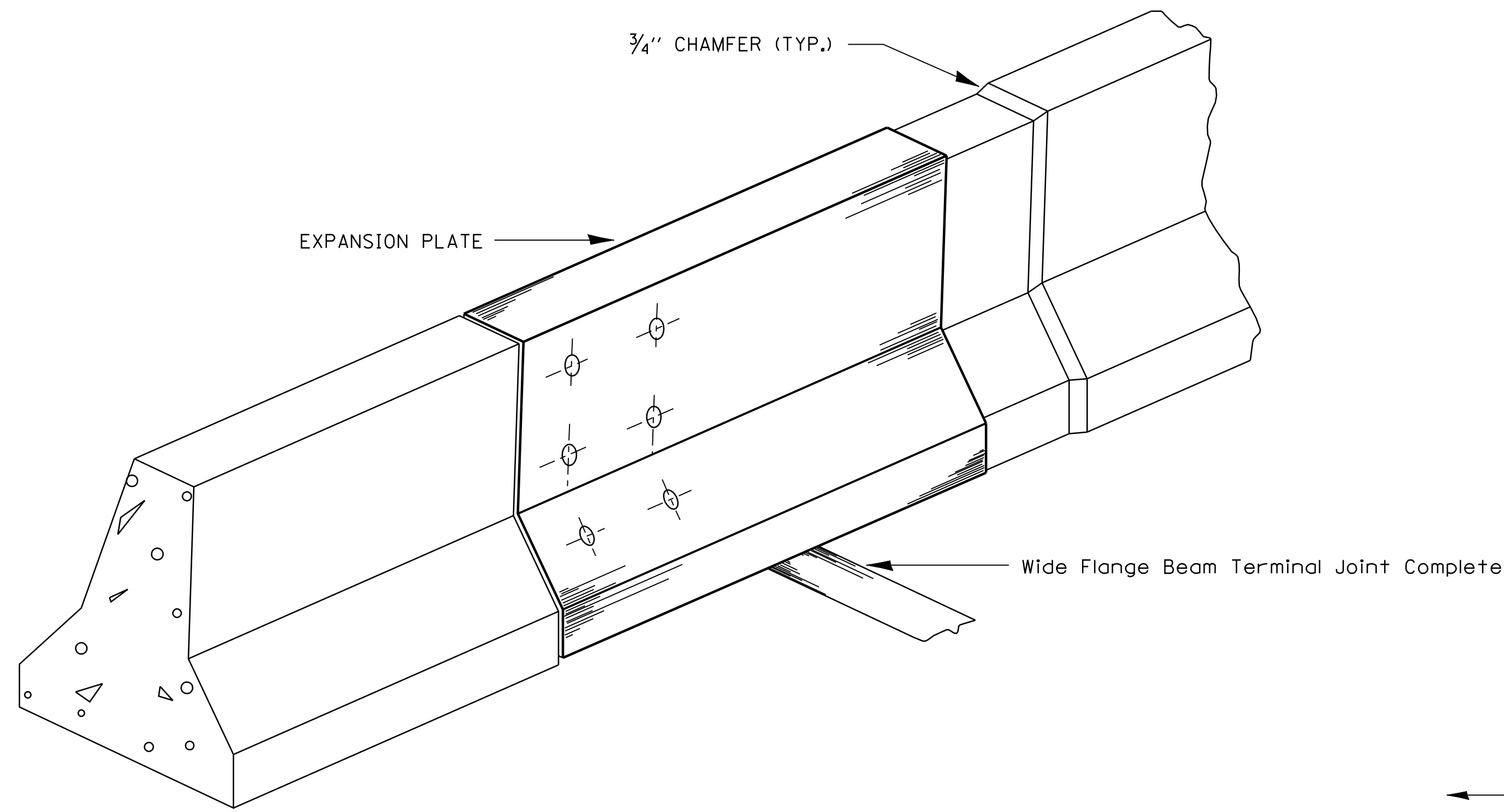
WOOD POSTS, CABLE, AND SIGN SUPPORTS SHALL BE IN ACCORDANCE WITH SECTION 634 & 636 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE PANELS SHALL BE ANCHORED TO THE 3/8" CABLE IN SUCH A MANNER SO THEY CANNOT SLIDE ALONG THE CABLE.

THE REFLECTIVE SHEETING USED FOR THE PANELS SHALL MEET THE REQUIREMENTS OF ARTICLE 1084.02 OF THE STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION AND SHALL BE ON BOTH SIDES.

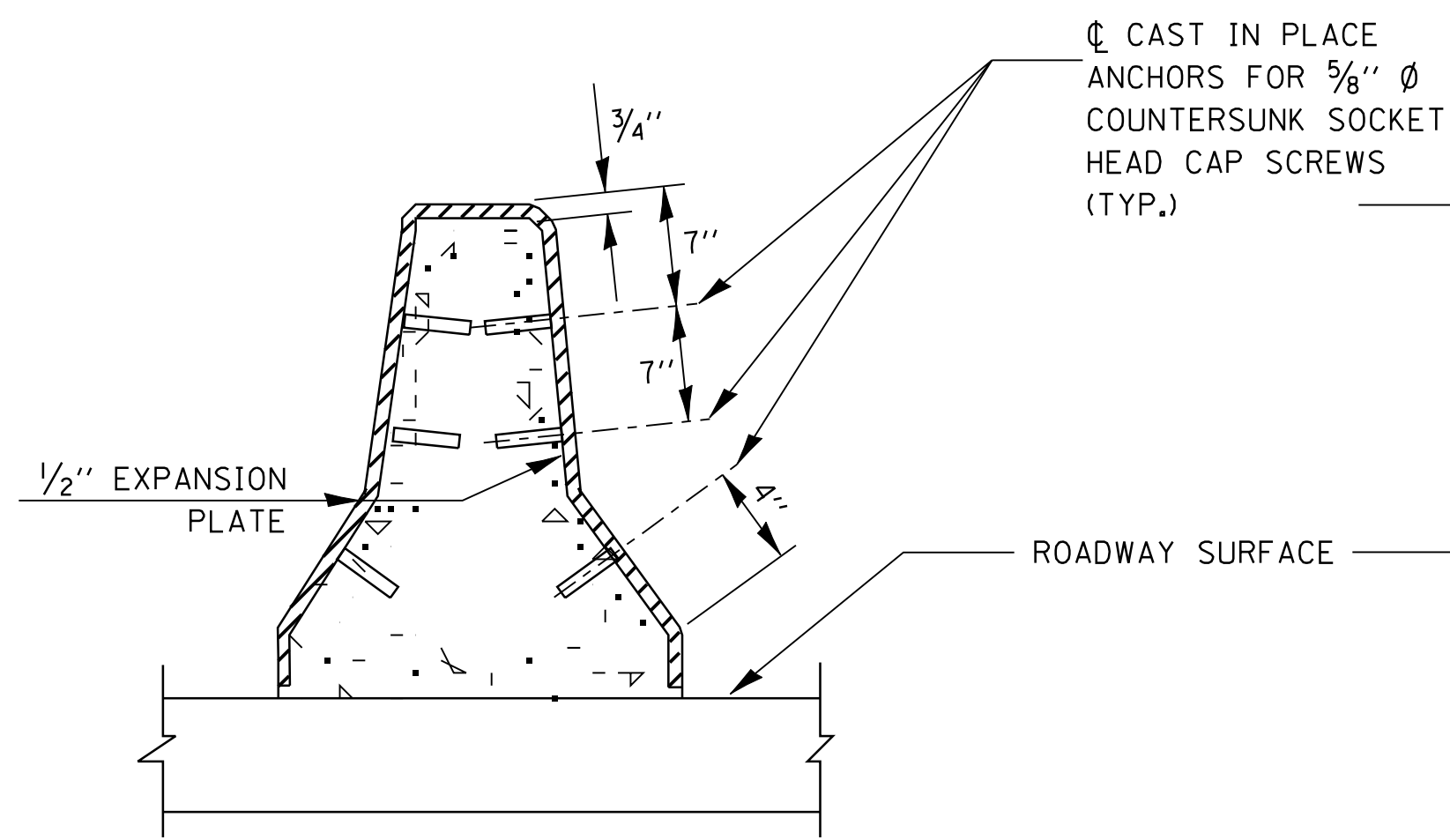
ALL PANELS SHALL HAVE ALTERNATING REFLECTORIZED WHITE & RED STRIPES SLOPING DOWNWARD AT 45° TOWARD THE SIDE ON WHICH TRAFFIC WILL PASS AND ON BOTH SIDES OF PANEL. THE DRILLING OF 3" HOLES SHALL BE INCIDENTAL TO THE MEDIAN CLOSURE.

THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR MEDIAN CLOSURE.

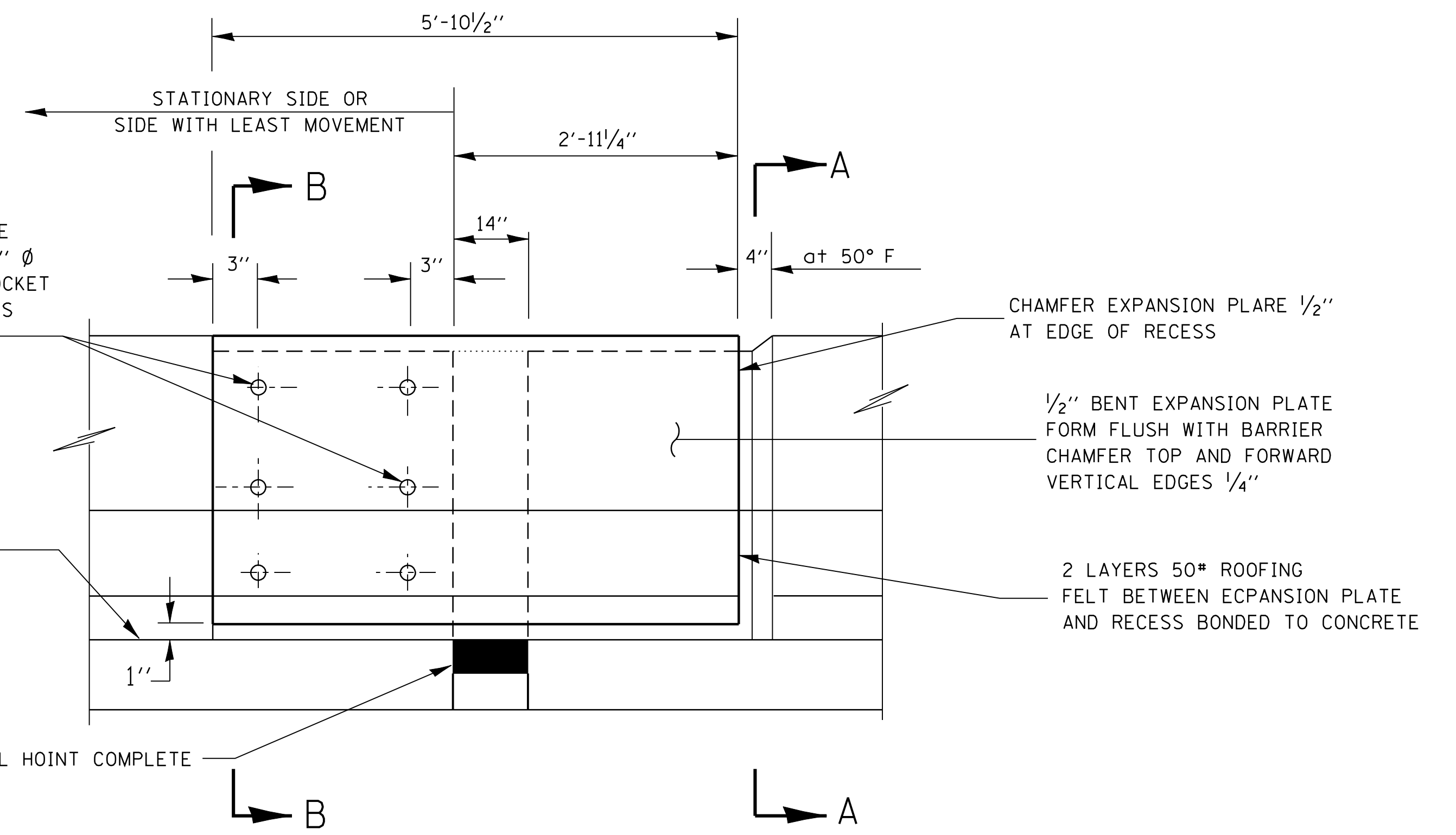
**TYPICAL MEDIAN CROSSOVER CLOSURE**



**SECTION A - A**



**SECTION B - B**



**ELEVATION**

**NOTES**

IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO COORDINATE THE APPROVED WIDE FLANGE BEAM TERMINAL JOINT WITH THE END EXPANSION PLATE DETAIL SHOWN.

ALL EXPANSION PLATES SHALL BE AASHTO M183 AND SHOP PAINTED WITH ZINC SILICATE AND VINYL PAINT SYSTEM.

COST OF EXPANSION PLATES TO BE INCLUDED IN THE COST OF THE WIDE FLANGE BEAM TERMINAL JOINT COMPLETE.

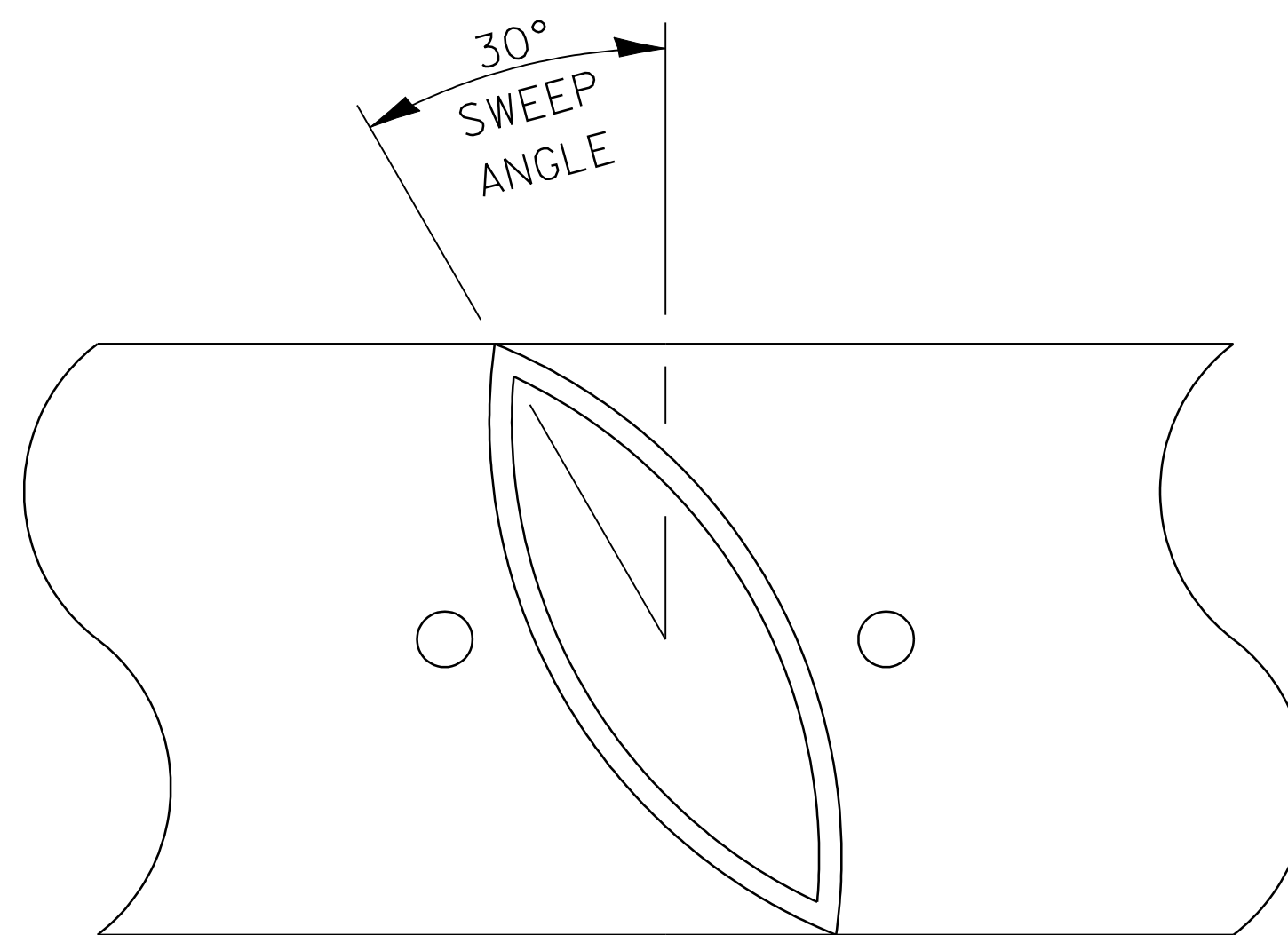
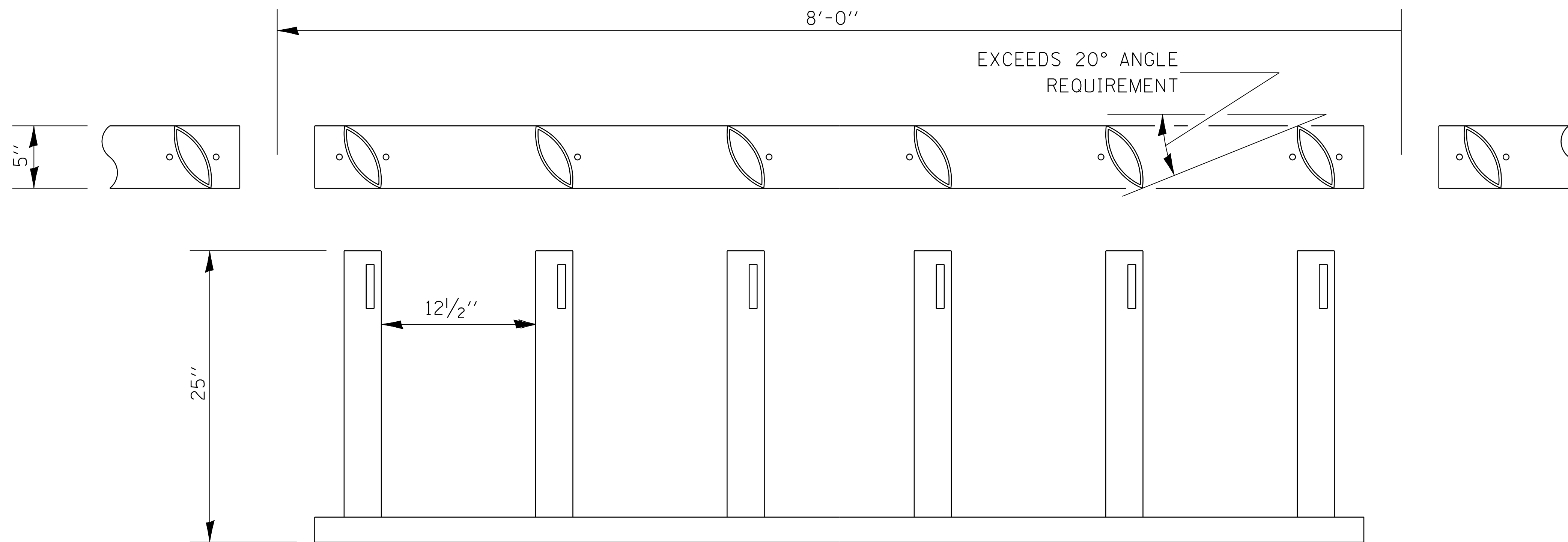
SEE STANDARD 637001 AND PLANS FOR ADDITIONAL CONCRETE BARRIER DETAILS.

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ct:\pw_work\PWIDOT\CORCORANLM\dms41560\800699.dgn		DRAWN -	REVISED -
		CHECKED -	REVISED -
		DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

CONCRETE BARRIER EXPANSION PLATE DETAIL			
SCALE:	SHEET NO. OF SHEETS	STA.	TO STA.

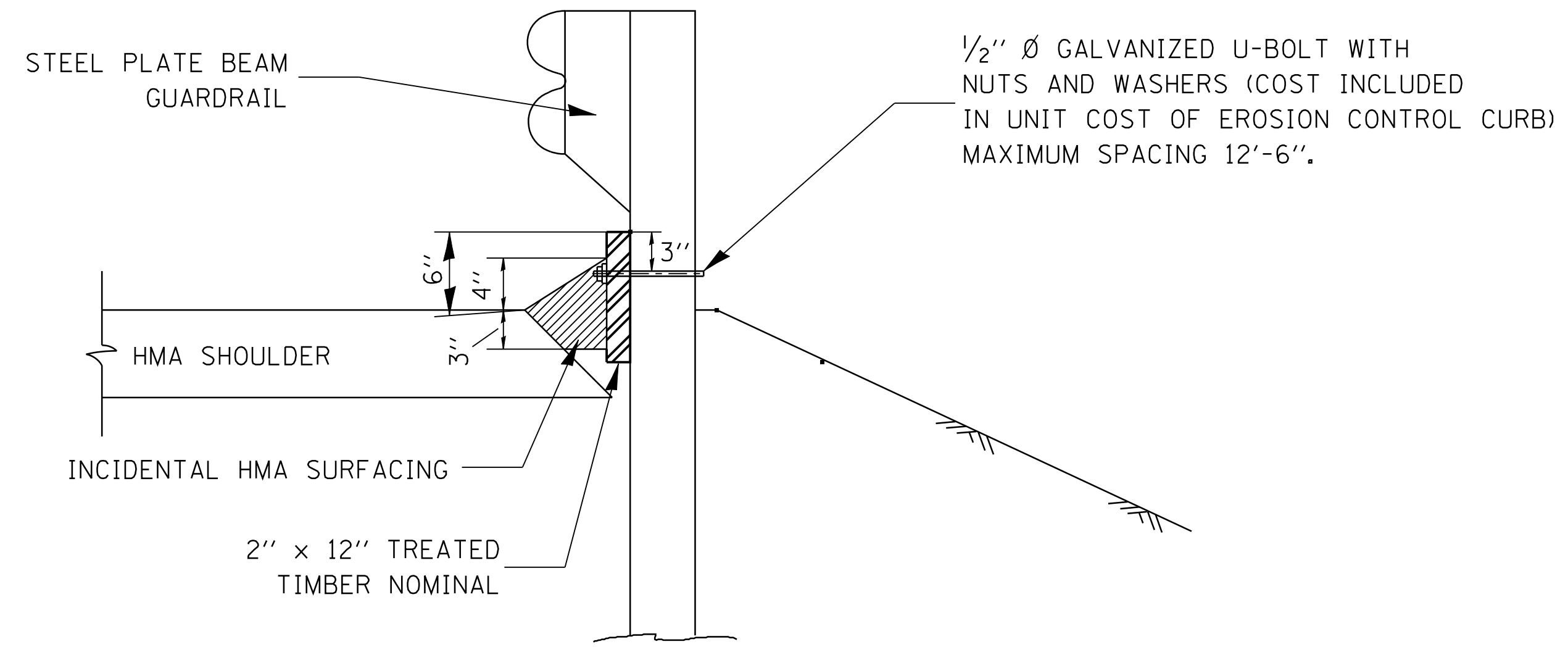
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FED. ROAD DIST. NO.				ILLINOIS FED. AID PROJECT
CONTRACT NO.				



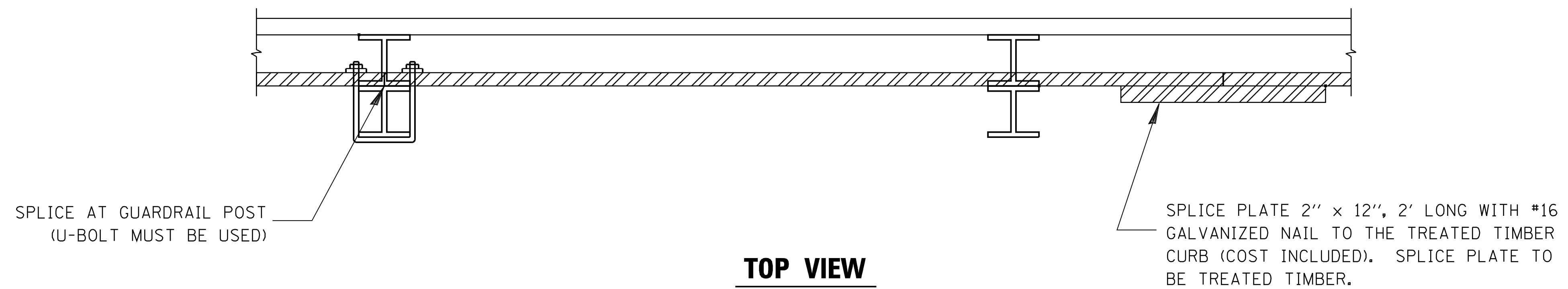
**DETAIL DRAWING**

DESIGNER NOTES

- I. TO BE USED WITH INSERTED SPECIAL PROVISION GLARE SCREEN BLADES.



**SIDE VIEW**



**TOP VIEW**

**NOTE:**  
 THE TREATED TIMBER SHALL BUTT TOGETHER AT THE GUARDRAIL POST OR SPLICED AS SHOWN ON THE DETAIL.

THE TREATED TIMBER SHALL BE TREATED IN ACCORDANCE TO ARTICLE 1007.12 AND ALL PRESERVATIVES SPECIFIED IN THE ARTICLE WILL BE ALLOWED.

THE PRICE FOR EROSION CONTROL CURB SHALL INCLUDE THE U-BOLTS ATTACHING THE TREATED TIMBER TO THE GUARDRAIL POSTS, TREATED TIMBER, AND THE NECESSARY GRADING TO COMPLETE THIS WORK.

INCIDENTAL HMA SURFACING SHALL BE MEASURED AND PAID FOR AT CONTRACT UNIT PRICE PER TON FOR INCIDENTAL HMA SURFACING.

THE EROSION CONTROL CURB SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT FOR EROSION CONTROL CURB.

# LAND SECTION MARKERS

## NOTES

THE REFERENCE MARKERS SHALL BE CONSTRUCTED BY POURING CLASS SI CONCRETE INTO HOLES PREPARED BY A POST HOLE DIGGER OR OTHER APPROVED METHODS. FORMS WILL NOT BE REQUIRED. PRECAST MARKERS OF THE SAME SIZE AND CONSTRUCTION MAY BE USED.

IN CULTIVATED FIELDS REFERENCE MARKERS SHALL BE PLACED TWO FEET BELOW THE GROUND SURFACE. IN FENCE LINES OR PROTECTED AREAS THE TOP SHALL BE PLACED AT GROUND LEVEL.

THE FOLLOWING WORK SHALL BE DONE UNDER THE DIRECTION OF A REGISTERED LAND SURVEYOR OF THE STATE OF ILLINOIS:

VERIFY AND TIE OFF ALL U.S. PUBLIC LAND SURVEY MONUMENTS, SHOWN IN THE PLANS, PRIOR TO CONSTRUCTION OPERATIONS. TIE POINTS SHALL BE SUFFICIENT IN NUMBER AND IN LOCATIONS AS NOT TO BE DISTURBED DURING CONSTRUCTION OPERATIONS.

AFTER CONSTRUCTION OPERATIONS ARE COMPLETE, INSTALL A PERMANENT SURVEY MARKER OF THE TYPE SPECIFIED TO REPLACE THE U.S. PUBLIC LAND SURVEY MONUMENT THAT WAS DISPLACED OR COVERED DURING CONSTRUCTION. THE LETTERING REFERRING TO THE STATE OF ILLINOIS AND DIVISION OF HIGHWAYS SHALL BE OMITTED FROM THE PERMANENT SURVEY MARKER AND THE MARKER SHALL BE MARKED AS DIRECTED BY THE ENGINEER.

SET FOUR CONCRETE REFERENCE MARKERS FOR EACH U.S. PUBLIC LAND SURVEY MONUMENT.

PREPARE MONUMENT RECORDS, FILE THE RECORDS AT THE COUNTY RECORDER'S OFFICE, AND PROVIDE A COPY TO THE DISTRICT OFFICE.

### PERMANENT SURVEY MARKERS, OF THE TYPE SPECIFIED

SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE, EACH, WHICH WILL BE PAYMENT IN FULL FOR FURNISHING, INSTALLING AND MARKING SAID MARKERS.

### LAND SECTION MARKERS

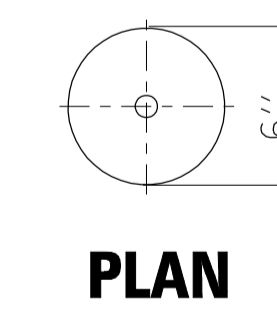
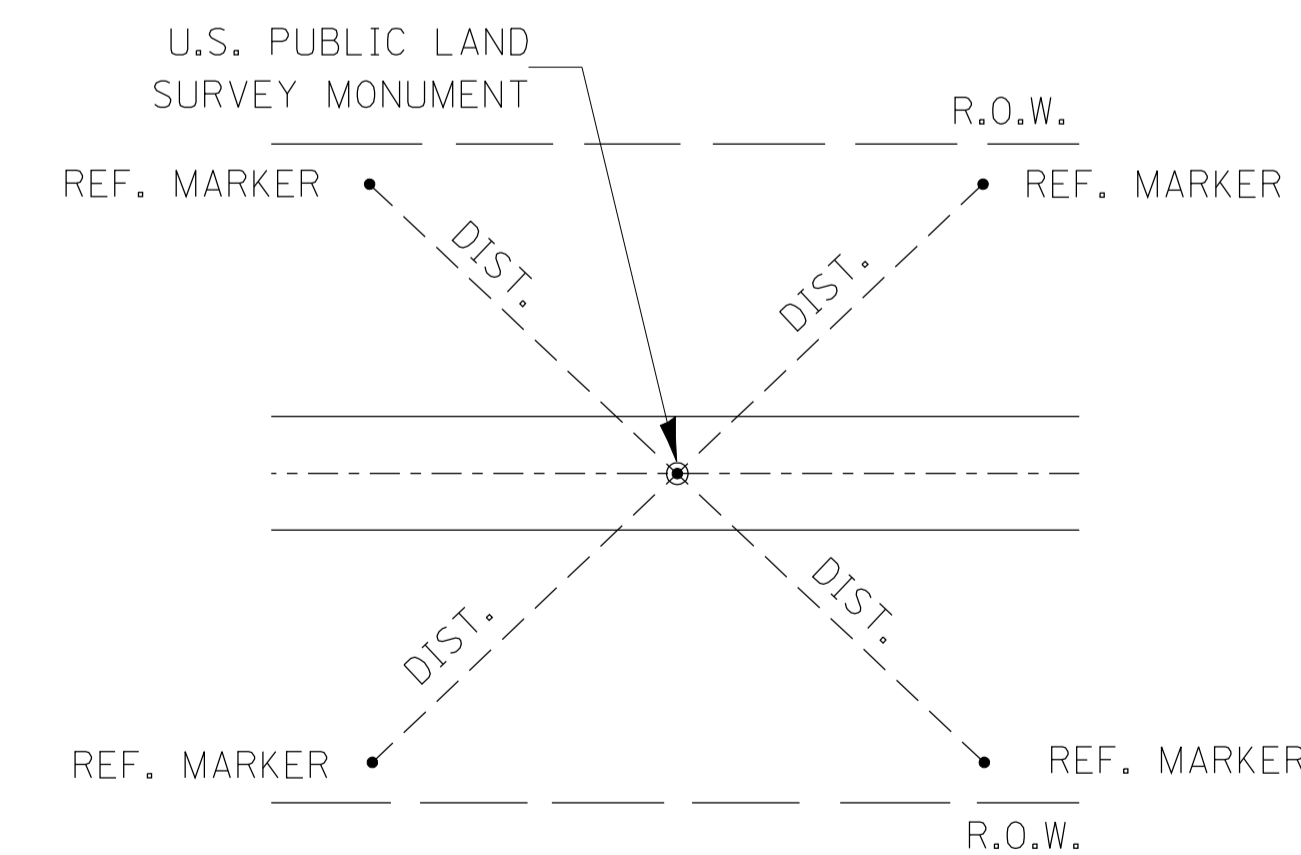
SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE, EACH, WHICH WILL BE PAYMENT IN FULL FOR SETTING TIE POINTS, SETTING FOUR CONCRETE REFERENCE MARKERS, PREPARING MONUMENT RECORDS, RECORDING AT COUNTY RECORDER'S OFFICE AND PROVIDING A COPY TO THE DISTRICT OFFICE.

### DESIGNER NOTE:

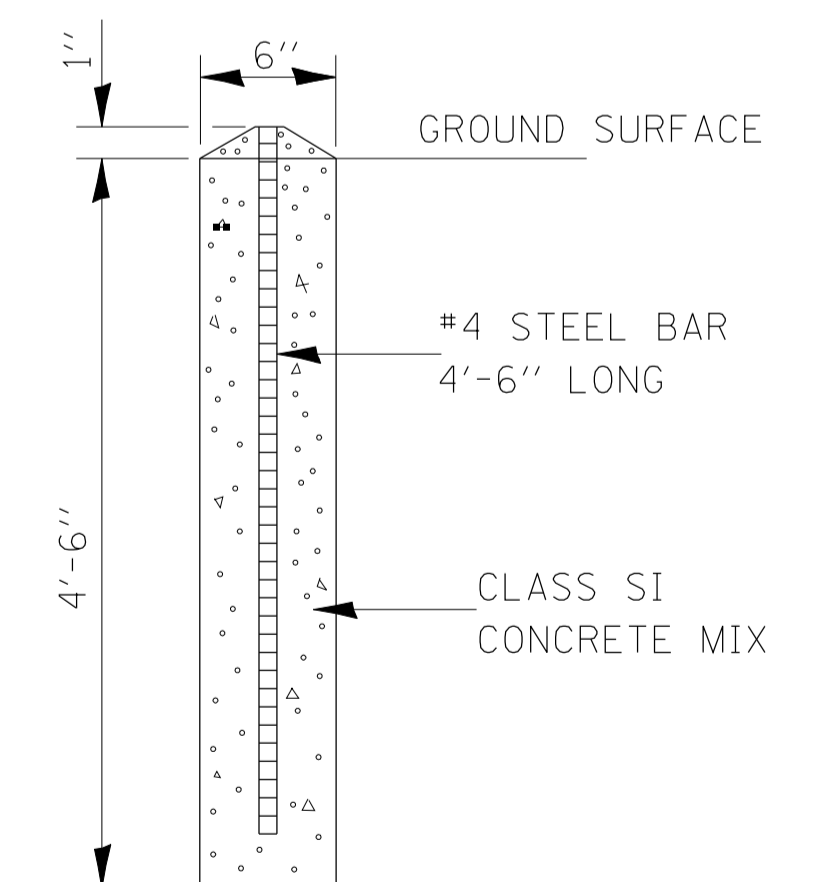
REQUIRES STANDARD 667101.

THE CODE NUMBER FOR LAND SECTION MARKERS IS Z0032900.

NOT TO BE USED IN URBAN AREAS.  
ONLY TO BE USED ON PROJECTS WITH CONTINUOUS LAND ACQUISITION THROUGHOUT.



**PLAN**



**SECTION**

CONCRETE REFERENCE MARKER