

**GENERAL NOTES**

**DESCRIPTION:**

THIS ITEM CONSISTS OF FURNISHING AND INSTALLING VANDAL FENCING ON NEW AND EXISTING CONCRETE BRIDGE RAILINGS. CONSTRUCT IN A MANNER THAT PROVIDES A RIGID, TAUT FENCE CLOSELY CONFORMING TO THE TOP SURFACE OF THE CONCRETE PARAPET. UNLESS OTHERWISE SPECIFIED IN THE PLANS, INSTALL POSTS AND POST SLEEVES PLUMB.

**(1) FENCE LINE POSTS AND END POSTS** SHALL BE 2.880 INCH OUTSIDE DIAMETER GRADE 2 PIPE, 710.03 (TYPE 1), FY = 50,000 PSI, 4.64 LB/FT. THE PROTECTIVE COATING SHALL BE ACCORDING TO AASHTO M181 FOR GRADE 2 POSTS.

**(2) FENCE TOP RAILS, BOTTOM RAILS AND LINE RAILS** SHALL BE 1.660 INCH OUTSIDE DIAMETER GRADE 2 PIPE, 710.03 (TYPE 1), FY = 50,000 PSI, 1.84 LB/FT. THE PROTECTIVE COATING SHALL BE ACCORDING TO AASHTO M181 FOR GRADE 2 POSTS.

**(3) BASE PLATES** SHALL BE ASTM A709 GRADE 36 OR 50 STEEL GALVANIZED ACCORDING TO 711.02.

**(4) FASTENERS:** THE 3/4 INCH DIA. HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE IN ACCORDANCE WITH C&MS 711.09 (ASTM A 325) GALVANIZED.

THE 1/2 INCH DIA. THREADED ROD FOR ADHESIVE ANCHORS SHALL BE ASTM A 193, GRADE B7, WITH ASTM A 563 NUTS AND ASTM F 436 WASHERS. MECHANICALLY GALVANIZE ALL ANCHOR HARDWARE ACCORDING TO ASTM B 695, CLASS 65.

USE AN ANCHOR ADHESIVE EVALUATED ACCORDING TO ICCES REPORT AC308, "ACCEPTANCE CRITERIA FOR POST-INSTALLED ADHESIVE ANCHORS IN CONCRETE ELEMENTS", FOR CRACKED AND UNCRACKED CONCRETE APPLICATIONS. PUBLISHED ICCES REPORTS FOR ACCEPTABLE PRODUCTS ARE AVAILABLE AT:

WWW.ICC-ES.ORG/EVALUATION\_REPORTS/INDEX.SHTML

SELECT FROM ONE OF THE FOLLOWING APPROVED PRODUCTS:

POWERS PE1000+ EPOXY ADHESIVE ANCHOR SYSTEM (ICCES REPORT ESR-2583)

CHEMOFAST C-RE 385 EPOXY ADHESIVE ANCHOR SYSTEM (ICCES REPORT ESR-2538)

SIMPSON STRONG-TIE SET-XP EPOXY ADHESIVE ANCHORS (ICCES REPORT ESR-2508)

WURTH WIT-PE500 EPOXY ADHESIVE ANCHORS (ICCES REPORT ESR-3051)

HILTI-HY 200-R ADHESIVE ANCHOR SYSTEM (ICCES REPORT ESR-3187)

INSTALL ADHESIVE ANCHORS ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PUBLISHED IN SECTION 4.3 OF THE ICCES REPORTS LISTED ABOVE. THE MINIMUM EMBEDMENT DEPTH (H<sub>EF</sub>) FOR ANCHORS SHALL BE 7".

THE CONTRACTOR MAY SUBSTITUTE MECHANICAL ANCHORS IN LIEU OF INTERNALLY THREADED ADHESIVE ANCHORS FOR THE BP-3 HORIZONTAL ANCHORS. THE FACTORED LOADING ON THE TWO ANCHOR HORIZONTAL CONNECTION, AS SHOWN ON SHEET 4 OF 7, CONSISTS OF 7.1 KIPS OF TENSION & 1.4 KIPS OF SHEAR. THE MECHANICAL ANCHORS SHALL BE EVALUATED ACCORDING TO ICCES REPORT AC193, "ACCEPTANCE CRITERIA FOR MECHANICAL ANCHORS IN CONCRETE ELEMENTS", FOR CRACKED AND UNCRACKED APPLICATIONS. PUBLISHED ICCES REPORTS FOR ACCEPTABLE PRODUCTS ARE AVAILABLE AT:

WWW.ICC-ES.ORG/EVALUATION\_REPORTS/INDEX.SHTML

THE CONTRACTOR SHALL SUPPLY DOCUMENTATION SEALED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER ENSURING THAT THE SELECTED MECHANICAL ANCHORAGE PROVIDES SUFFICIENT CAPACITY FOR THIS APPLICATION IN ACCORDANCE WITH AC193. INSTALL ANCHORS ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PUBLISHED IN THE ICCES REPORT.

FOR INSTALLATIONS IN NEW CONCRETE RAILINGS, THE ANCHORS MAY BE CAST-IN-PLACE WITH A MINIMUM 7 INCH EMBEDMENT LENGTH.

**(5) TENSION BARS** SHALL BE 3/16 INCH X 1/2 INCH STEEL GALVANIZED ACCORDING TO 711.02.

**(6) TENSION BANDS AND BRACE BANDS** SHALL BE 1/8 INCH X 1 INCH GALVANIZED STEEL ASSEMBLED WITH 3/8 INCH DIAMETER X 1/4 INCH GALVANIZED BOLTS. ONE TENSION BAND SHALL BE SUPPLIED FOR EACH FOOT OF FABRIC HEIGHT. BANDS SHALL BE GALVANIZED ACCORDING TO 711.02.

**(7) LINE RAIL CLAMPS OR BOULEVARDS** SHALL BE STEEL, GALVANIZED ACCORDING TO 711.02. THE CLAMPS SHALL BE USED TO CONNECT LINE RAILS OR TOP RAILS OF CURVED FENCES TO INTERIOR POSTS. INSTALL USING 3/8 INCH DIAMETER X 2 1/2 INCH BOLTS, GALVANIZED ACCORDING TO 711.02.

**(8) MALLEABLE OR CAST IRON FITTINGS** SHALL BE USED FOR END POST DOME CAPS, HALF BALL AND LOOP LINE POST CAPS AND LINE OR TOP RAIL ENDS. ALL FITTINGS SHALL BE GALVANIZED ACCORDING TO 711.02.

**(9) TENSION WIRE** SHALL BE ALUMINIZED 0.177 INCH DIAMETER STEEL COIL SPRING WIRE CONFORMING TO AASHTO M181. PLACE TENSION WIRE AS CLOSE TO THE CONCRETE PARAPET AS PRACTICAL BUT NOT MORE THAN 3 INCHES MAXIMUM. THE MAXIMUM SAG IN THE WIRE SHALL BE 1/4" AFTER TENSIONING.

**(10) FABRIC TIES AND HOG RINGS** SHALL BE 0.148 INCH CORE DIAMETER GALVANIZED PVC COATED STEEL WIRE AND 0.120 INCH ANNEALED STAINLESS STEEL WIRE CONFORMING TO ASTM A478 RESPECTIVELY. TO CONNECT THE FABRIC TO THE LINE POSTS, SUPPLY ONE FABRIC TIE FOR EACH ONE FOOT OF FABRIC HEIGHT. CONNECT THE FABRIC TO THE TENSION WIRE USING HOG RINGS 2-3 INCHES ON EACH SIDE OF THE POSTS AND AT SPACINGS NOT TO EXCEED 12 INCHES BETWEEN POSTS. THE PVC COATING SHALL BE THE SAME AS THAT FOR THE STEEL FABRIC.

**(12) ADJUSTABLE TRUSS RODS:** IF THE FENCE FABRIC IS CONTINUOUS ACROSS A STRUCTURAL EXPANSION JOINT, INSTALL ADJUSTABLE TRUSS RODS IN THE PANEL SECTION ON EACH IMMEDIATE SIDE OF THE EXPANSION PANEL. OTHERWISE, INSTALL TRUSS RODS ONLY AS NECESSARY TO MEET THE REQUIREMENTS OF THIS DRAWING. ADJUSTABLE TRUSS RODS SHALL BE 3/8 INCH DIAMETER STEEL, GALVANIZED ACCORDING TO 711.02.

**(13) DOUBLE WRAP FABRIC TIES** SHALL BE 0.091 INCH CORE DIAMETER GALVANIZED PVC COATED STEEL WIRE, 15/16 INCHES LONG. TO CONNECT THE FABRIC TO THE LINE AND TOP RAILS, USE DOUBLE WRAP TIES 2-3 INCHES ON EACH SIDE OF THE POSTS AND AT SPACINGS NOT TO EXCEED 12 INCHES BETWEEN POSTS. THE PVC COATING SHALL BE THE SAME AS THAT FOR THE STEEL FABRIC.

**(14) FABRIC:** SHALL CONSIST OF A 1 INCH DIAMOND MESH USING 0.120 INCH DIA. (11 GAGE) WIRE CONFORMING TO ASTM F668 CLASS 2A OR 2B EXCEPT AS NOTED. THE PVC COATING SHALL BE GRAY IN COLOR CLOSELY APPROACHING FEDERAL STANDARD NO. 595B-16251 UNLESS OTHERWISE SPECIFIED IN THE PLANS. SELVAGES SHALL BE KNUCKLED AT BOTH ENDS. HANDLE ALL PVC COATED FABRIC WITH CARE. IF THE PVC COATING IS DAMAGED, REPLACE THE DAMAGED PORTION OF THE FABRIC AT NO COST TO THE DEPARTMENT.

**(15) FILLET WELDS** SHALL CONFORM TO CMS 513.

**(16) POST SLEEVES** SHALL BE 3.500 INCH OUTSIDE DIAMETER PIPE, ASTM A53, 25,000 PSI MINIMUM YIELD STRENGTH, 7.58 LB/FT, GALVANIZED ACCORDING TO 711.02. HEXAGON SOCKET SET SCREWS SHALL BE SAE 4140 ALLOY STEEL, HEAT TREATED, WITH FLAT OR OVAL POINT.

**(17) SHIM PLATES** SHALL BE MADE FROM ANY MULTI-POLYMER PLASTIC WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI. IN ORDER TO INSTALL POSTS PLUMB, ENDS OF POSTS AND SLEEVES MAY BE CUT ON A BIAS.

**(18) TRAFFIC MAINTENANCE:** MAINTAIN TRAFFIC ACCORDING TO THE PROJECT PLANS.

**(19) CAULKING COMPOUND** SHALL CONFORM TO FEDERAL SPECIFICATION TT-S-00230C TYPE II, CLASS A, ALUMINUM GRAY. WHEN APPLYING THE CAULK TO THE BASE PLATE, PROVIDE A 1 INCH OPENING THROUGH THE CAULKING ON LOW SIDE OF BASE PLATE.

**(20) EXPANSION SLEEVES:** PROVIDE EXPANSION SLEEVES AT LEAST 6 INCHES LONG IN FENCE PANELS SPANNING STRUCTURAL EXPANSION JOINTS. EXPANSION SLEEVES SHALL BE OUTSIDE TYPE WITH INTERNAL HEAVY SPRING AND GALVANIZED ACCORDING TO 711.02. THE SLEEVES SHOULD BE CAPABLE OF ACCOMMODATING THE MAXIMUM EXPANSION AND CONTRACTION MOVEMENTS OF THE STRUCTURE.

**(21) CONSTRUCTION PROCEDURE:**

1. FIELD VERIFY THE PLAN LOCATIONS OF ALL BASE PLATES AND MARK PARAPETS ACCORDINGLY.
2. MARK AND DRILL HOLES FOR THE 1/2 INCH HIGH STRENGTH THREADED ANCHORS OR 1/2 INCH BOLTS USING A BASE PLATE OR TEMPLATE.
3. INSTALL 1/2 INCH DIAMETER HIGH STRENGTH THREADED ANCHORS OR 1/2 INCH BOLTS.
4. INSTALL POSTS AND BASE PLATES AND SHIM WHERE REQUIRED.
5. CAULK EDGES OF BASE PLATES, SHIMS AND SLEEVES.
6. COMPLETE INSTALLATION OF FENCE.

**INSTALL FENCING FOR EACH CONSTRUCTION PHASE PRIOR TO OPENING THAT PHASE TO VEHICULAR AND/OR PEDESTRIAN TRAFFIC.**

**(22) SPECIAL DESIGNS** ARE REQUIRED FOR RAILINGS WITH 28 DAY CONCRETE STRENGTHS LESS THAN 4000 PSI. A SPECIAL DESIGN IS ALSO REQUIRED IF THE MIDPOINT OF THE EXPOSED FENCE HEIGHT IS GREATER THAN 50 FEET ABOVE THE NORMAL TERRAIN LEVEL.

**(23) PROJECT PLANS:** THE DESIGNER SHALL SPECIFY THE TYPE OF BASE PLATE AND POST SECTION TO BE USED AND PROVIDE A SCHEMATIC DECK PLAN SHOWING THE FENCE POST SPACING.

**(24) METHOD OF MEASUREMENT:** THE DEPARTMENT WILL MEASURE THE QUANTITY BY THE FOOT. THE DEPARTMENT WILL MEASURE ALONG THE BOTTOM OF THE FENCE FROM CENTER TO CENTER OF END POSTS.

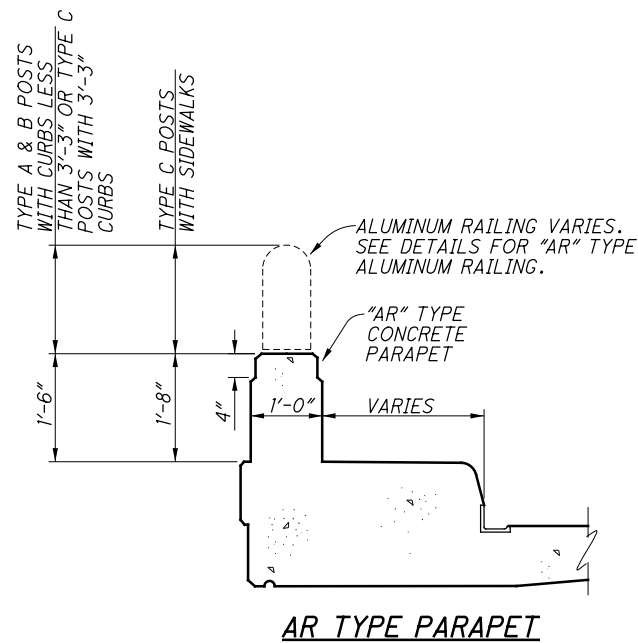
**(25) BASIS OF PAYMENT:** THE DEPARTMENT WILL MAKE PAYMENT FOR THE COMPLETED AND ACCEPTED QUANTITIES OF VANDAL FENCE AS FOLLOWS:

ITEM	UNIT	DESCRIPTION
607	FOOT	SPECIAL - VANDAL PROTECTION FENCE *
		*: 6 FT STRAIGHT, COATED FABRIC 8 FT STRAIGHT, COATED FABRIC 10 FT CURVED, COATED FABRIC 12 FT CURVED, COATED FABRIC

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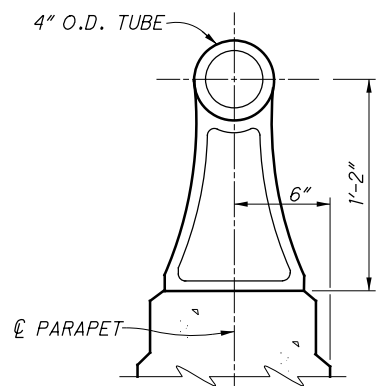
STATE OF OHIO DEPARTMENT OF TRANSPORTATION	DATE
B. J. Stambolovic ADMINISTRATOR	09-26-90
REVISIONS	
07-20-18	
01-19-18	
07-17-15	
04-15-11	
07-19-02	
03-24-93	
02-01-92	
CHECKED	WTF
DESIGNED	GFJ
JCR	GFJ
RD	GFJ
REVIEWED	GFJ
OFFICE OF STRUCTURAL ENGINEERING	VANDAL PROTECTION FENCE
SCD NUMBER	VPF-1-90
1	7

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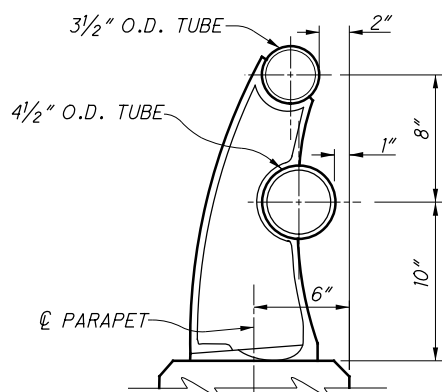


**AR TYPE PARAPET**

SEE STANDARD BRIDGE DRAWING AR-1-57 (RET.). USE CURVED FENCE OR STRAIGHT 8'-0" HIGH FENCE, AS DETERMINED BY CURB OR SIDEWALK WIDTH, AND BASE PLATES BP-1, BP-2, BP-3 OR BP-4.



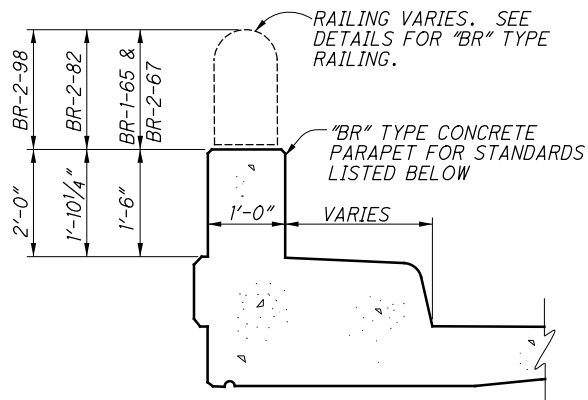
ALUMINUM RAILING FOR STANDARD BRIDGE DRAWING AR-1-57 (RET.) WITH TYPE A POSTS



ALUMINUM RAILING FOR STANDARD BRIDGE DRAWING BR-2-82 (RET.), BR-2-67 (RET.) AND BR-1-65 (RET.) WITH TYPE 2 POSTS

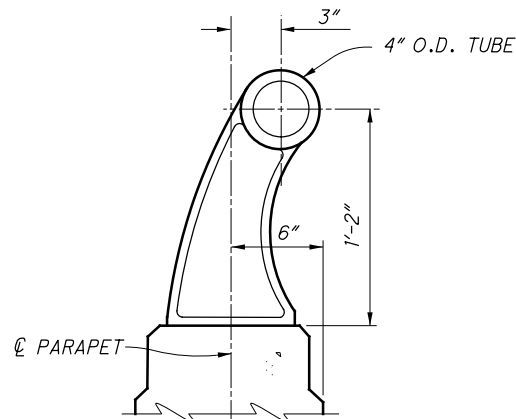
**RAILING TYPES**

NOTE: RET. = RETIRED STANDARD BRIDGE DRAWING



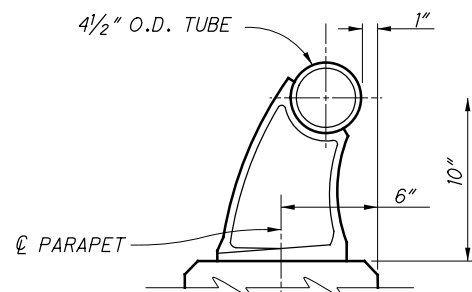
**BR TYPE PARAPET**

SEE STANDARD BRIDGE DRAWINGS BR-2-98, BR-2-82 (RET.), BR-2-67 (RET.) AND BR-1-65 (RET.). USE CURVED FENCE OR STRAIGHT 8'-0" HIGH FENCE, AS DETERMINED BY CURB OR SIDEWALK WIDTH, AND BASE PLATES BP-1 OR BP-3.



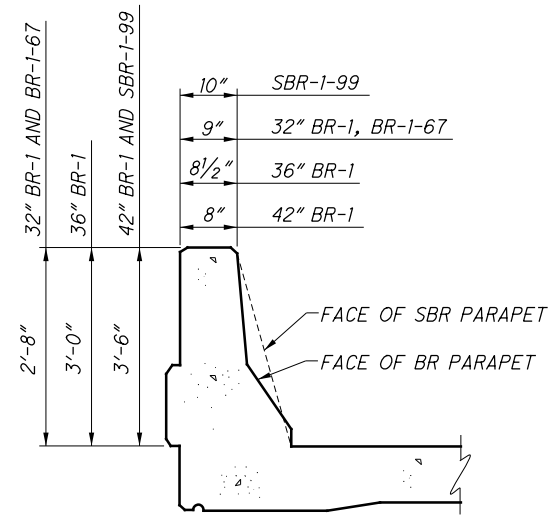
ALUMINUM RAILING FOR STANDARD BRIDGE DRAWING AR-1-57 (RET.) WITH TYPE B POSTS

**AR TYPE ALUMINUM RAILING**



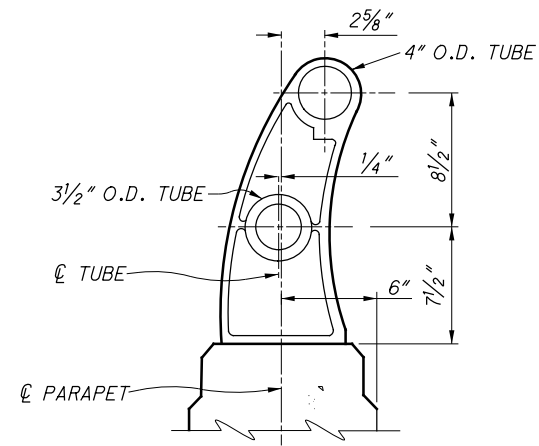
ALUMINUM RAILING FOR STANDARD BRIDGE DRAWING BR-1-65 (RET.) WITH TYPE 1 POSTS

**BR TYPE RAILING**

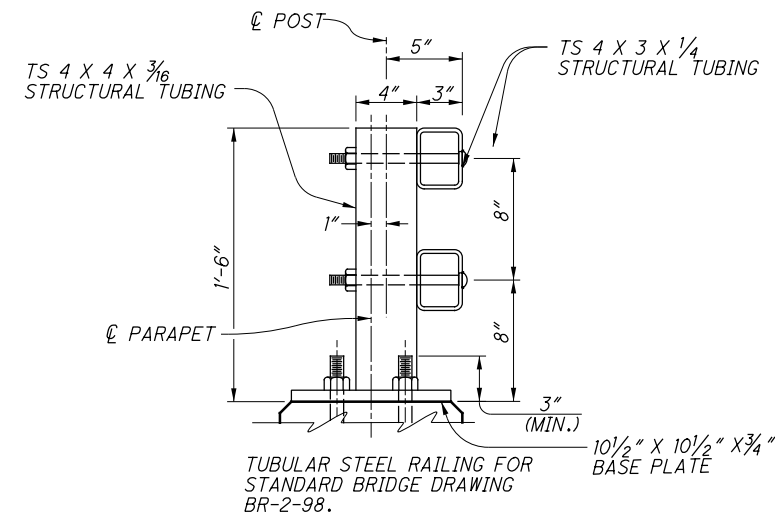


**DEFLECTOR PARAPET**

SEE STANDARD BRIDGE DRAWINGS BR-1, BR-1-67 (RET.) & SBR-1-99. USE STRAIGHT 6'-0" HIGH FENCE AND BASE PLATE BP-5.

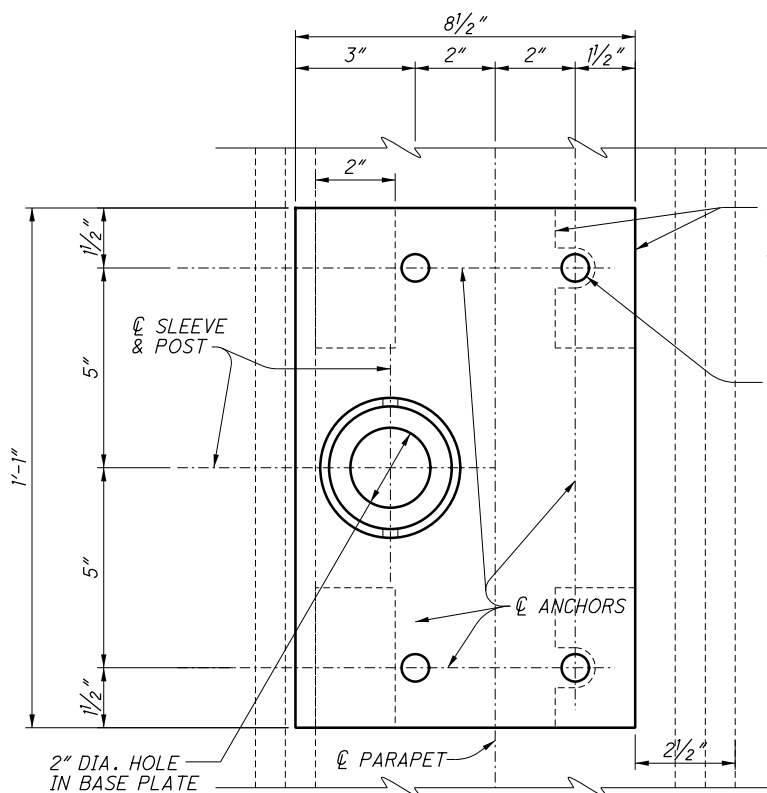


ALUMINUM RAILING FOR STANDARD BRIDGE DRAWING AR-1-57 (RET.) WITH TYPE C POSTS



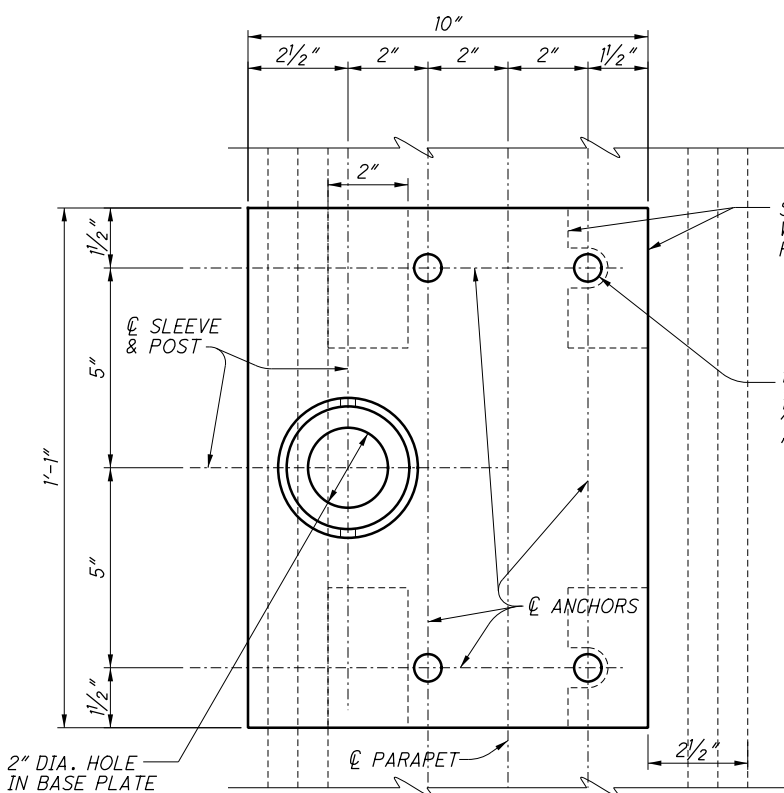
TUBULAR STEEL RAILING FOR STANDARD BRIDGE DRAWING BR-2-98.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION	09-26-90	DATE
B. D. HANDELARI		ADMINISTRATOR
REVISIONS	07-20-18	
	01-19-18	
	07-17-15	
	04-15-11	
	07-19-02	
	03-24-93	
	02-01-92	
DESIGNED	CHECKED	
JCR	RLD	
DRAWN	REVIEWED	
GFJ	WTF	
<b>OFFICE OF STRUCTURAL ENGINEERING</b>		
<b>VANDAL PROTECTION FENCE</b>		
SCD NUMBER	VPF-1-90	
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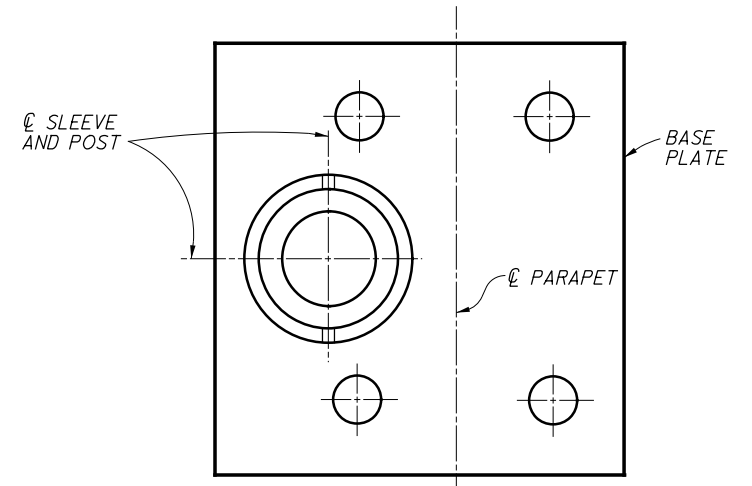
**PLAN BP-1**

SHIM POSITIONS ARE SHOWN, POST AND SET SCREWS ARE NOT SHOWN



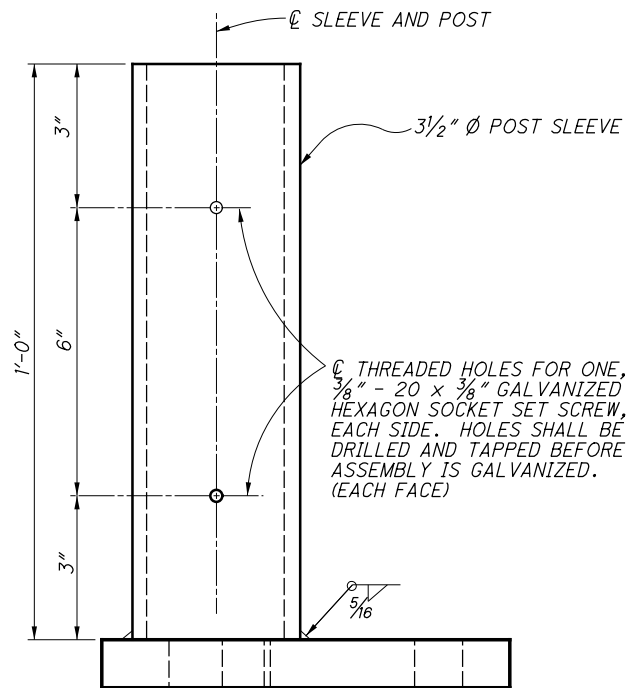
**PLAN BP-2**

SHIM POSITIONS ARE SHOWN, POST AND SET SCREWS ARE NOT SHOWN



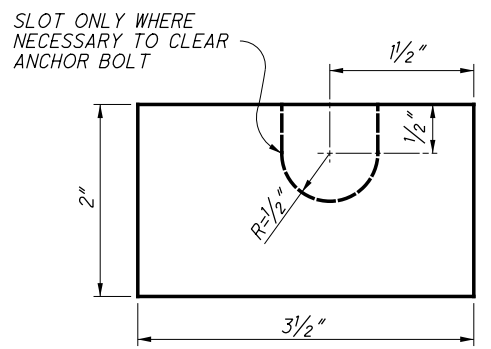
**POST SLEEVE PLAN**

POST AND SET SCREWS NOT SHOWN



**POST SLEEVE ELEVATION**

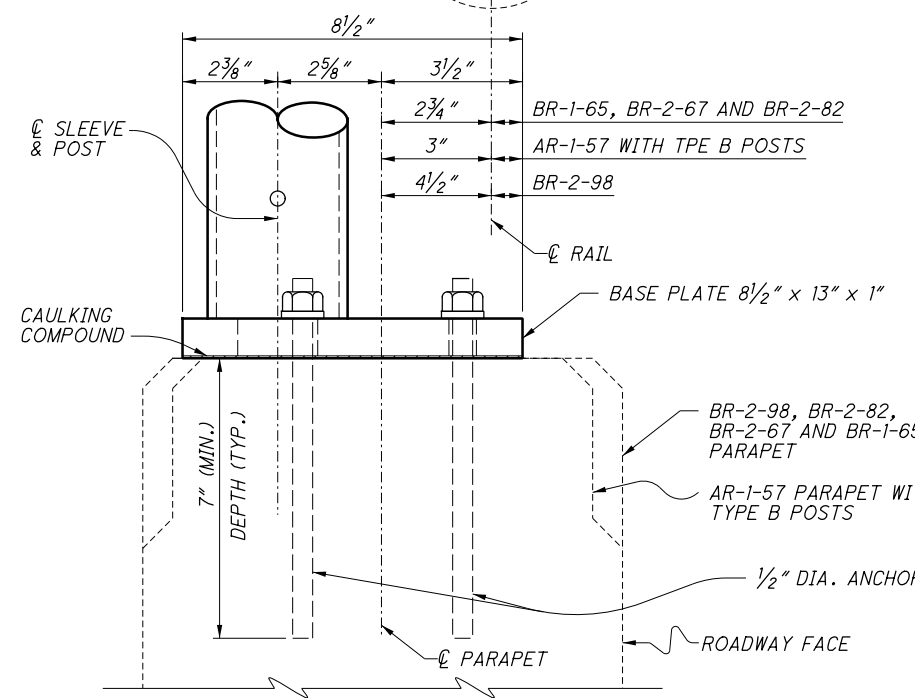
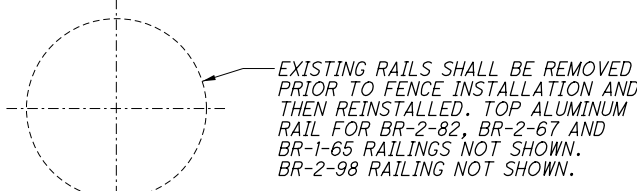
POST AND SET SCREWS NOT SHOWN



**BASE PLATE SHIMS**

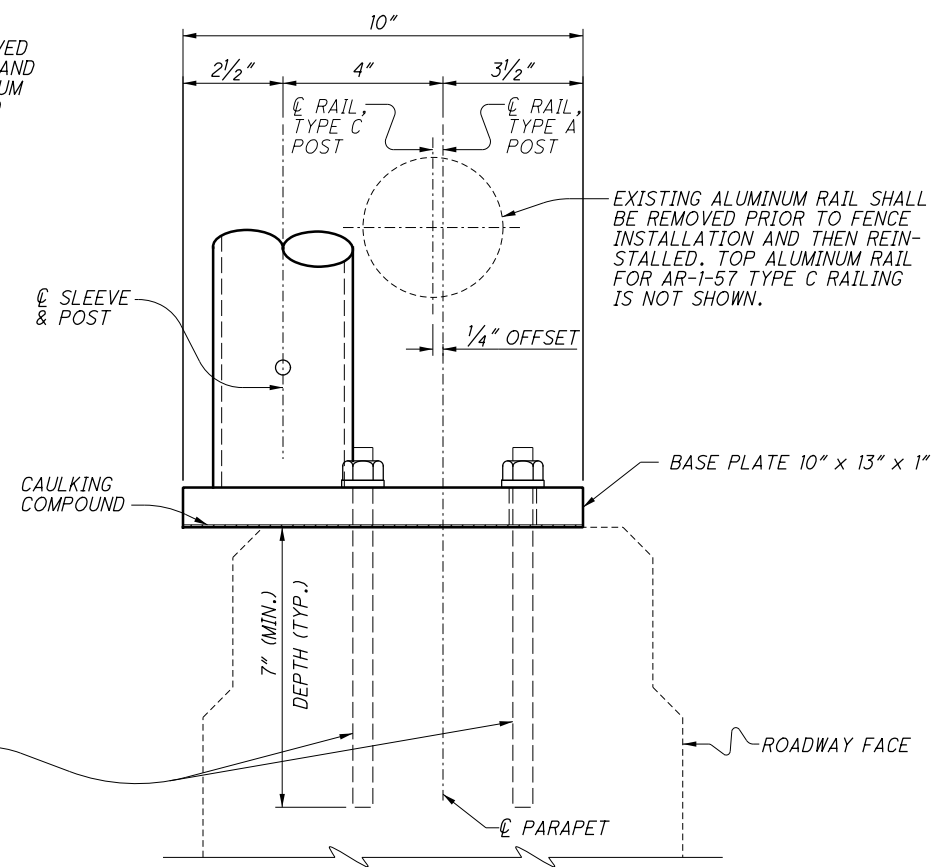
1/16", 1/8" AND 1/4" THICK

SEE GENERAL NOTES FOR OPTIONAL ANCHORAGE IN NEW CONCRETE



**END VIEW BP-1**

BP-1 SHALL BE USED WITH PS-3 OR PS-4 POST SECTIONS ON CONCRETE PARAPETS WITH HORIZONTAL RAIL ELEMENTS AS SHOWN ON STANDARD BRIDGE DRAWING BR-2-98, BR-2-82, BR-2-67, BR-1-65 AND AR-1-57 WITH TYPE B POSTS. DO NOT USE WITH PS-1 AND PS-2 POST SECTIONS. INSTALL FENCE BY REMOVING AND REINSTALLING THE HORIZONTAL RAIL ELEMENTS BP-1 REQUIRES A SLEEVE. SEE POST SLEEVE DETAILS ON THIS SHEET.



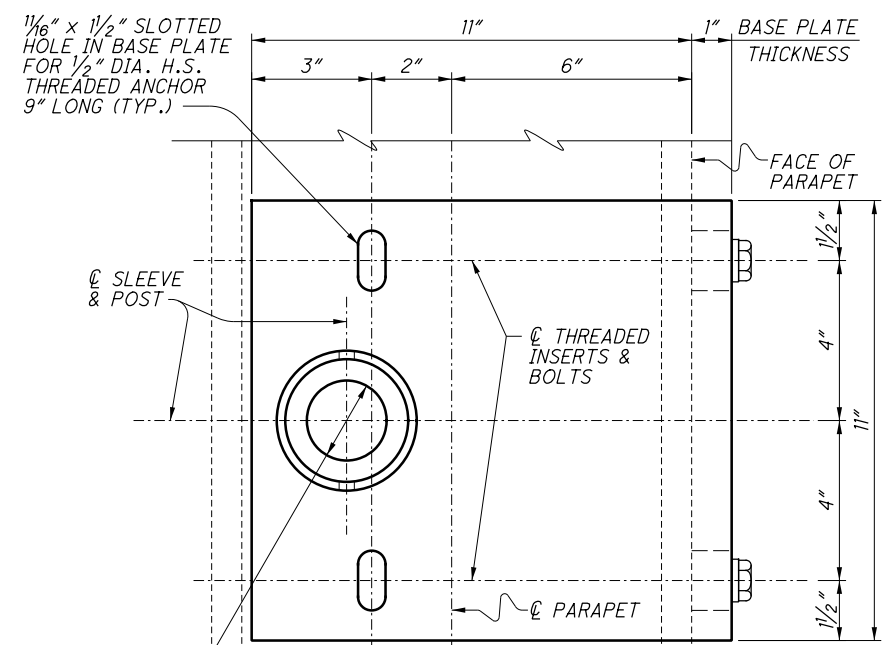
**END VIEW BP-2**

BP-2 SHALL BE USED WITH PS-3 OR PS-4 POST SECTIONS ON CONCRETE PARAPETS WITH HORIZONTAL RAIL ELEMENTS AS SHOWN ON STANDARD BRIDGE DRAWING AR-1-57 WITH TYPE A AND TYPE C POSTS. DO NOT USE WITH PS-1 AND PS-2 POST SECTIONS. INSTALL FENCE BY REMOVING AND REINSTALLING THE HORIZONTAL RAIL ELEMENTS BP-1 REQUIRES A SLEEVE. SEE POST SLEEVE DETAILS ON THIS SHEET.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION	DATE
B. D. Hanlon	09-26-90
ADMINISTRATOR	
REVISIONS	
07-20-18	
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07-19-02	
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02-01-92	
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JCR	GFJ
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VANDAL PROTECTION FENCE	
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VPF-1-90	
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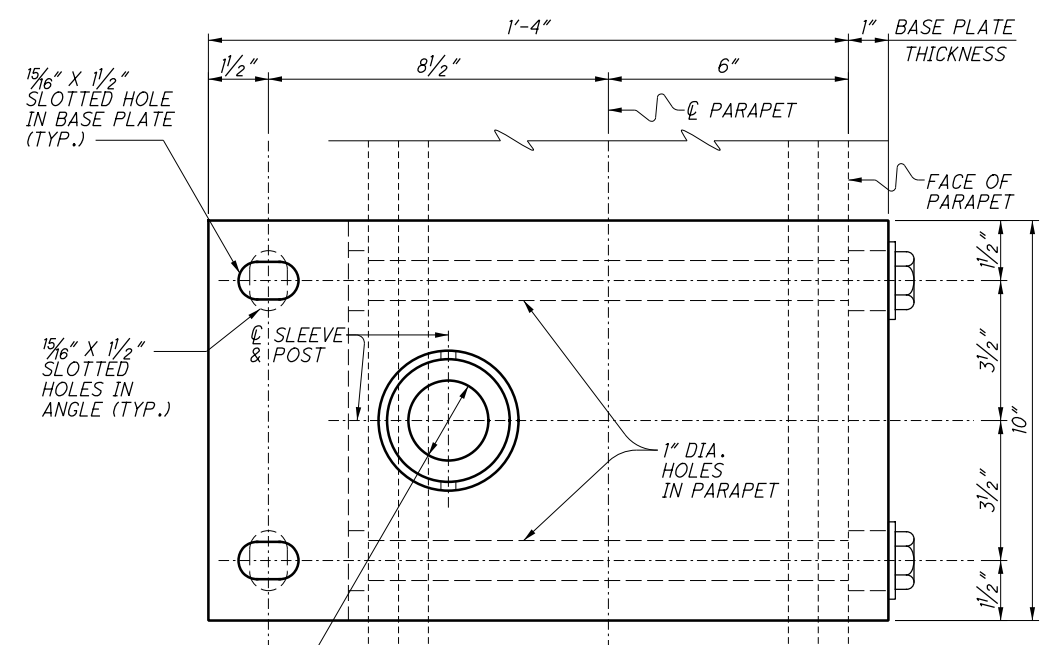
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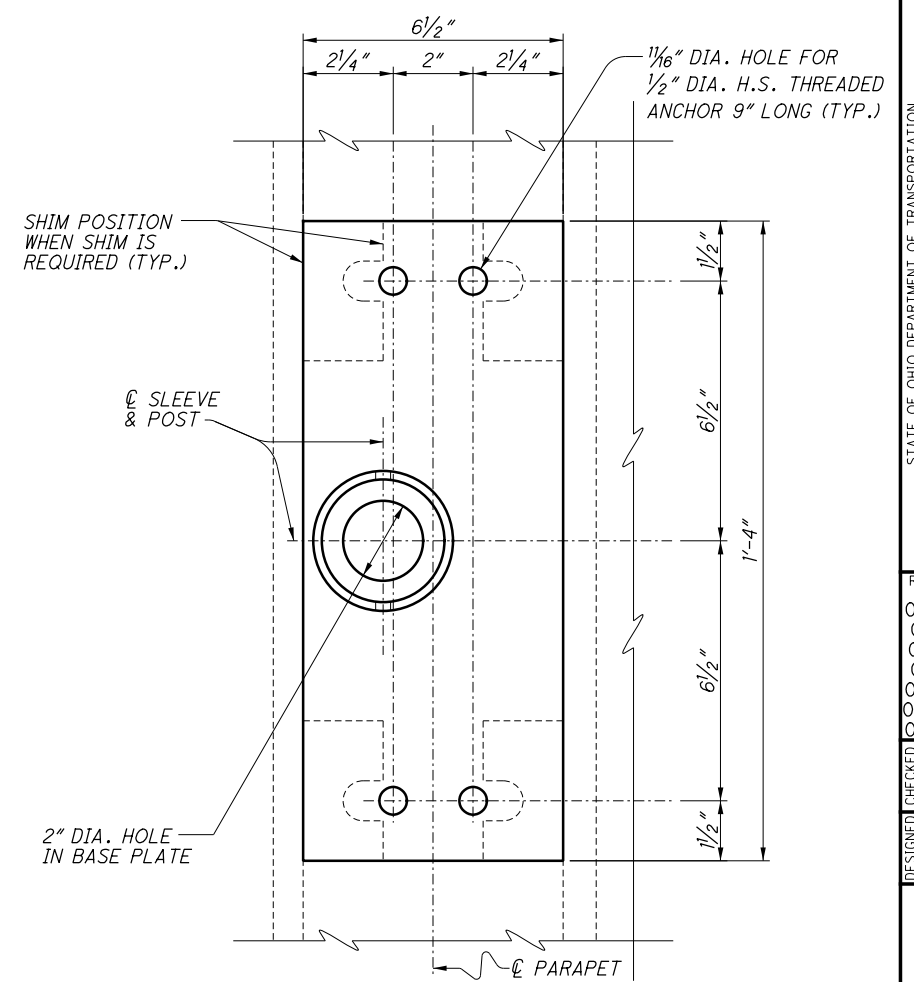
**PLAN BP-3**

SHIM POSITIONS, POST AND SET SCREWS NOT SHOWN



**PLAN BP-4**

SHIM POSITIONS, POST AND SET SCREWS NOT SHOWN

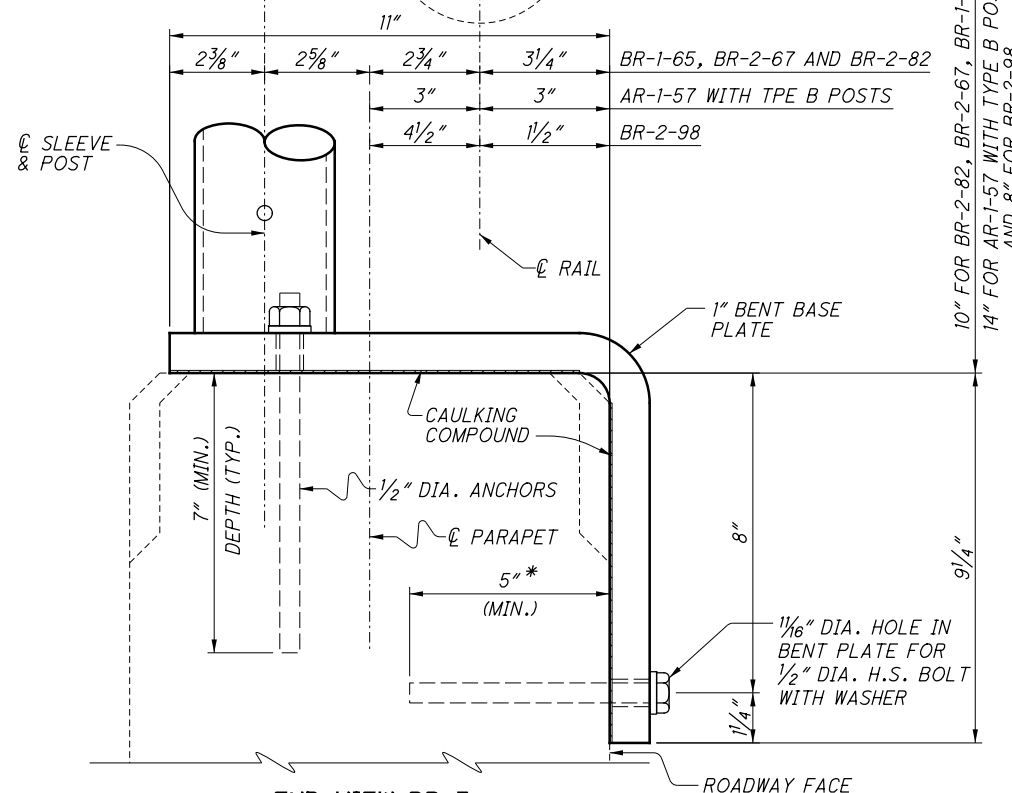
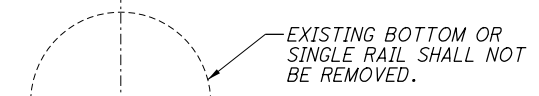


**PLAN BP-5**

SHIM POSITIONS SHOWN, POST AND SET SCREWS NOT SHOWN

SEE GENERAL NOTES FOR OPTIONAL ANCHORAGE IN NEW CONCRETE

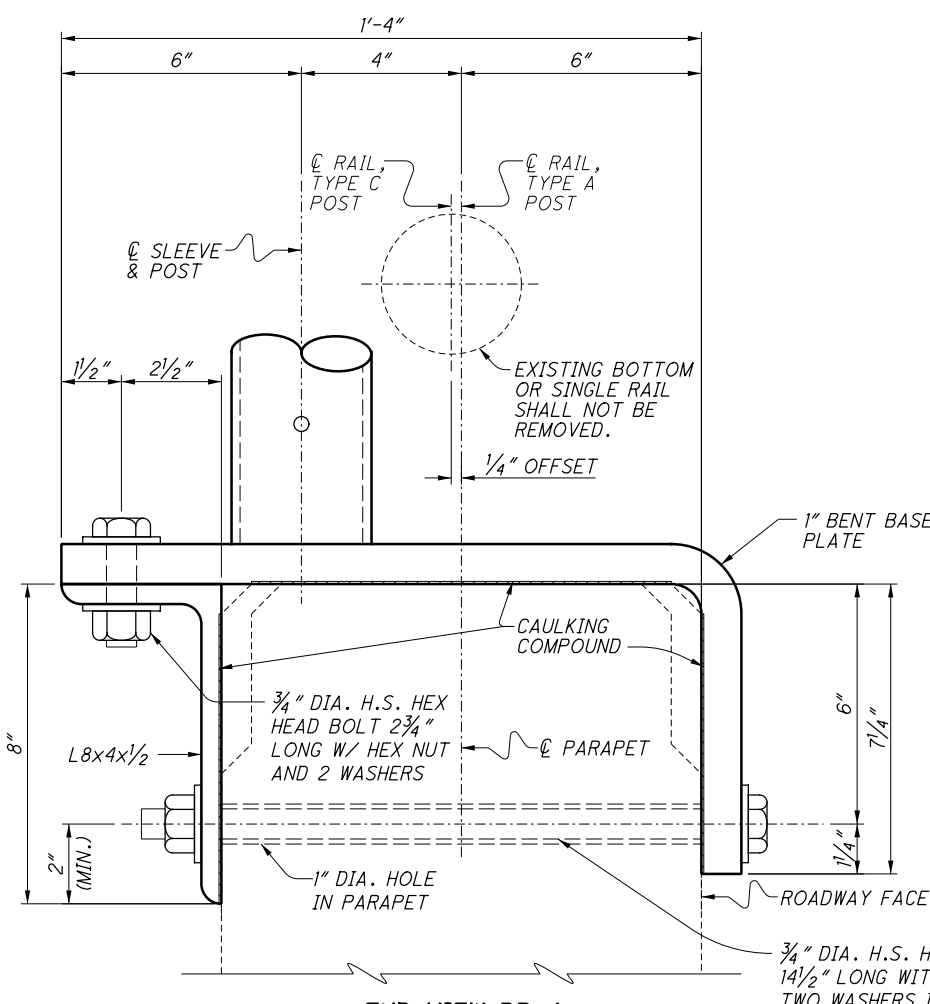
NOTE: TOP RAIL FOR BR-1-65 RAILING WITH 2 POSTS AND BOTH FOR BR-2-98 RAILING NOT SHOWN.



**END VIEW BP-3**

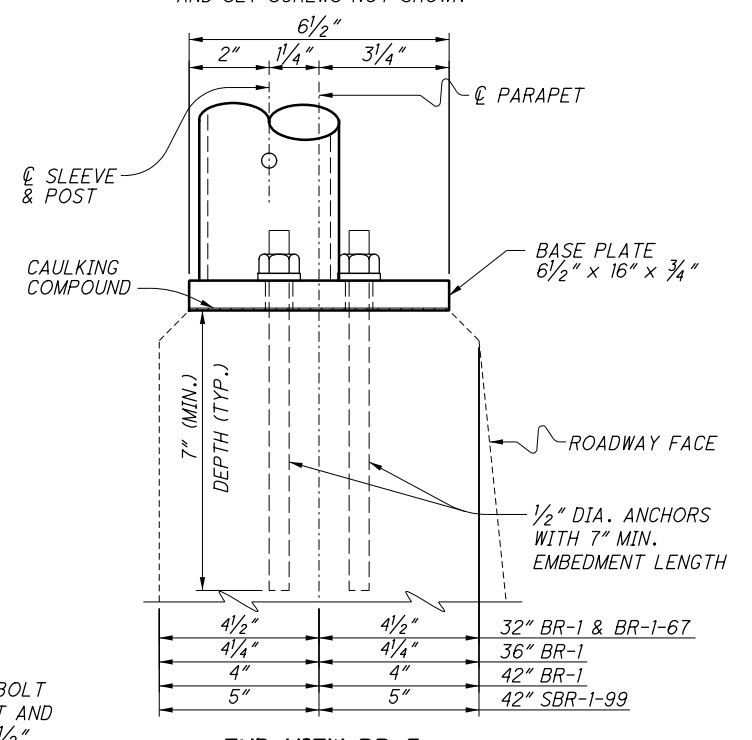
BP-3 SHALL BE USED WITH PS-1, PS-2, PS-3 OR PS-4 POST SECTIONS ON CONCRETE PARAPETS WITH HORIZONTAL RAIL ELEMENTS AS SHOWN ON STANDARD BRIDGE DRAWING BR-2-98, BR-2-82, BR-2-67, BR-1-65 AND AR-1-57 WITH TYPE B POSTS. DO NOT REMOVE RAIL ELEMENTS. BP-3 REQUIRES A SLEEVE. SEE POST SLEEVE DETAILS ON SHEET 3 OF 7.

\* - INTERNALLY THREADED ADHESIVE ANCHOR INSERTS REQUIRED FOR THIS LOCATION. SEE GENERAL NOTES FOR SUBSTITUTING MECHANICAL ANCHORS.



**END VIEW BP-4**

BP-4 SHALL BE USED WITH PS-1, PS-2, PS-3 OR PS-4 POST SECTIONS ON CONCRETE PARAPETS WITH HORIZONTAL RAIL ELEMENTS AS SHOWN ON STANDARD BRIDGE DRAWING AR-1-57 WITH TYPE A AND C POSTS. DO NOT REMOVE RAIL ELEMENTS. BP-4 REQUIRES A SLEEVE. SEE POST SLEEVE DETAILS ON SHEET 3 OF 7.



**END VIEW BP-5**

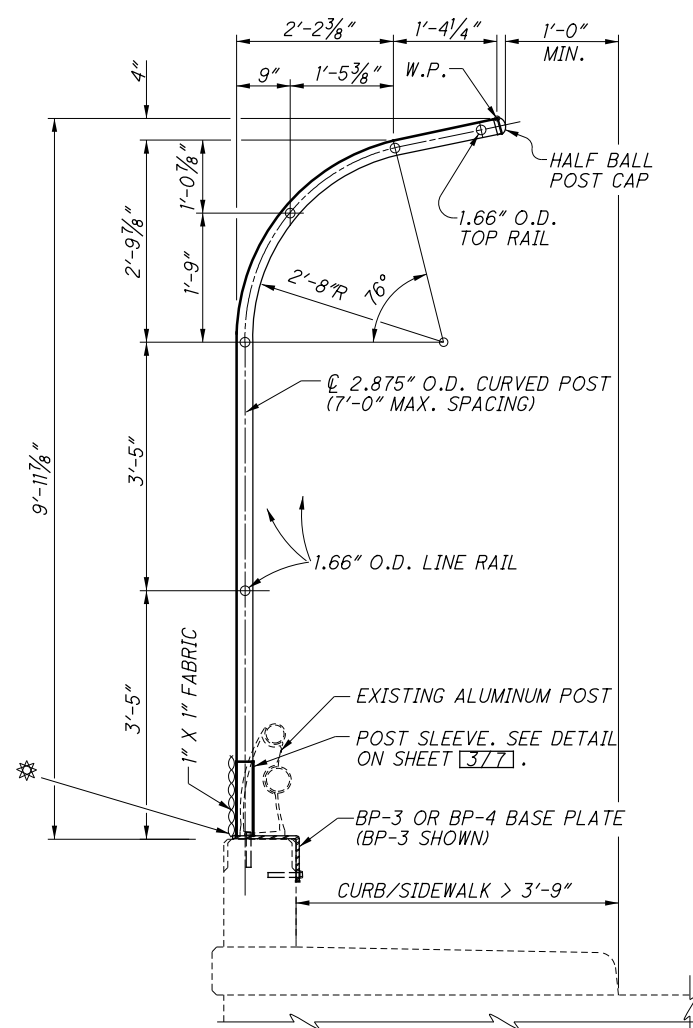
BP-5 SHALL BE USED TO CONNECT PS-4 POST SECTIONS TO EXISTING BR-1-67 PARAPETS AND EXISTING OR NEW BR-1 & SBR-1-99 DEFLECTOR PARAPETS. DO NOT USE WITH PS-1, PS-2 AND PS-3 POST SECTIONS. BP-5 REQUIRES A SLEEVE. SEE POST SLEEVE DETAILS ON SHEET 3 OF 7.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION		DATE 09-26-90	
ADMINISTRATOR		ADMINISTRATOR	
REVISIONS	07-20-18	01-19-18	07-17-15
04-15-11	07-19-02	03-24-93	02-01-92
CHECKED	FLD	REVIEWED	WTF
DESIGNED	JCR	DRAWN	GFJ
OFFICE OF STRUCTURAL ENGINEERING		STANDARD BRIDGE DRAWING	
VANDAL PROTECTION FENCE			
SCD NUMBER	VPF-1-90		4 / 7

SEE SHEET 7/7 FOR LOCATION OF TENSION WIRE.

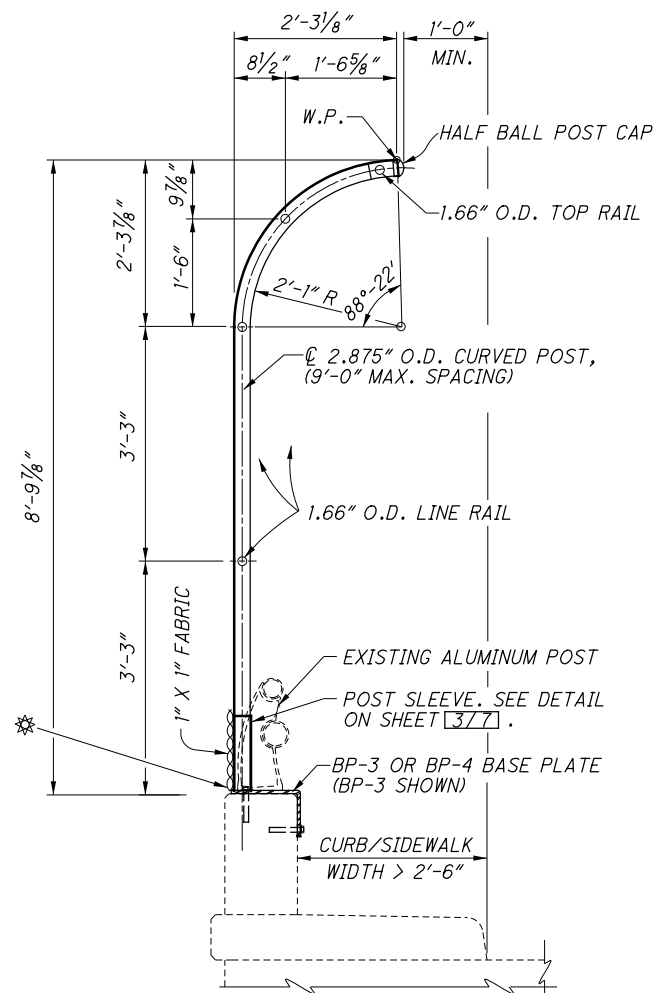
NOTE: FOR BASE PLATE DETAILS, SEE SHEETS 3/7 & 4/7.

NOTE: SEE GENERAL NOTES FOR OPTIONAL ANCHORAGE IN NEW CONCRETE.

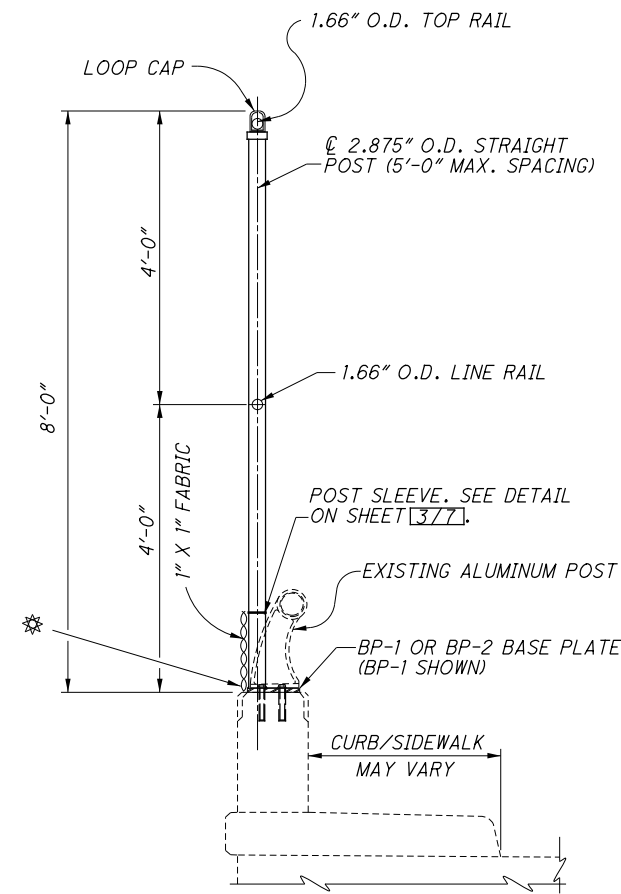


**POST SECTION PS-1**  
(12'-0" CURVED FENCE)

NOTE: BEGIN FABRIC AT BASE PLATE. (MAXIMUM GAP BETWEEN FABRIC AND CONCRETE PARAPET = 1")

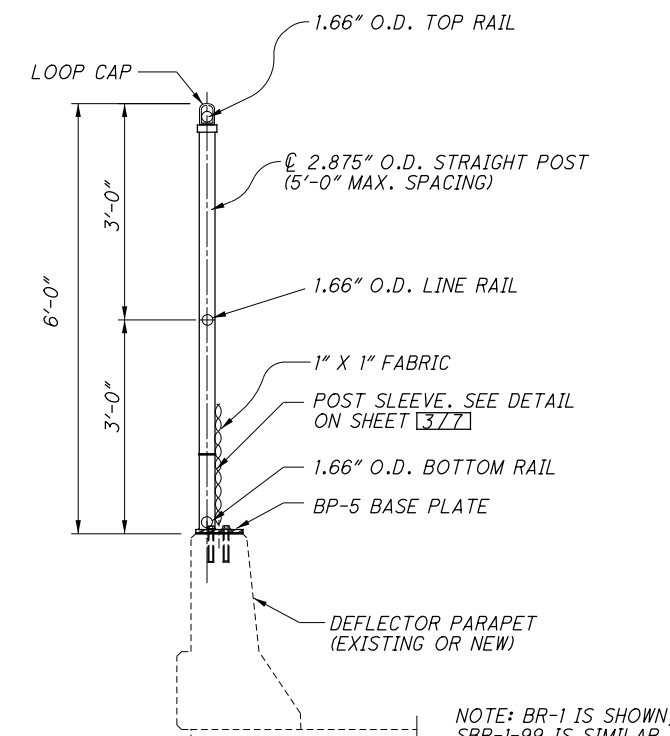


**POST SECTION PS-2**  
(10'-0" CURVED FENCE)



**POST SECTION PS-3**  
(8'-0" STRAIGHT FENCE)

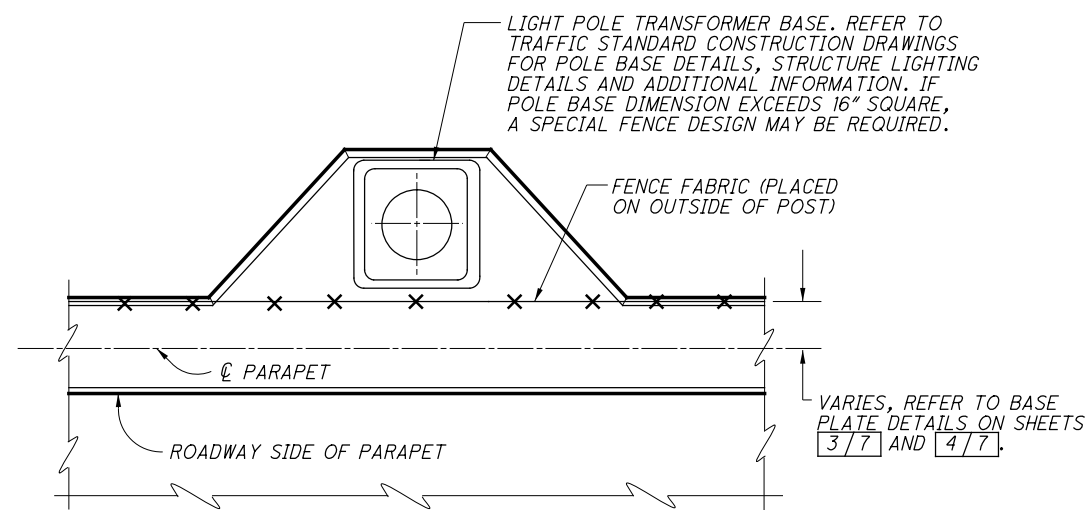
NOTE: INSTALL 1.66" O.D. BOTTOM RAIL FOR POST SECTIONS PS-1, PS-2 AND PS-3 WHERE INTERFERENCE WITH TRAFFIC RAILING POSTS DOES NOT OCCUR.



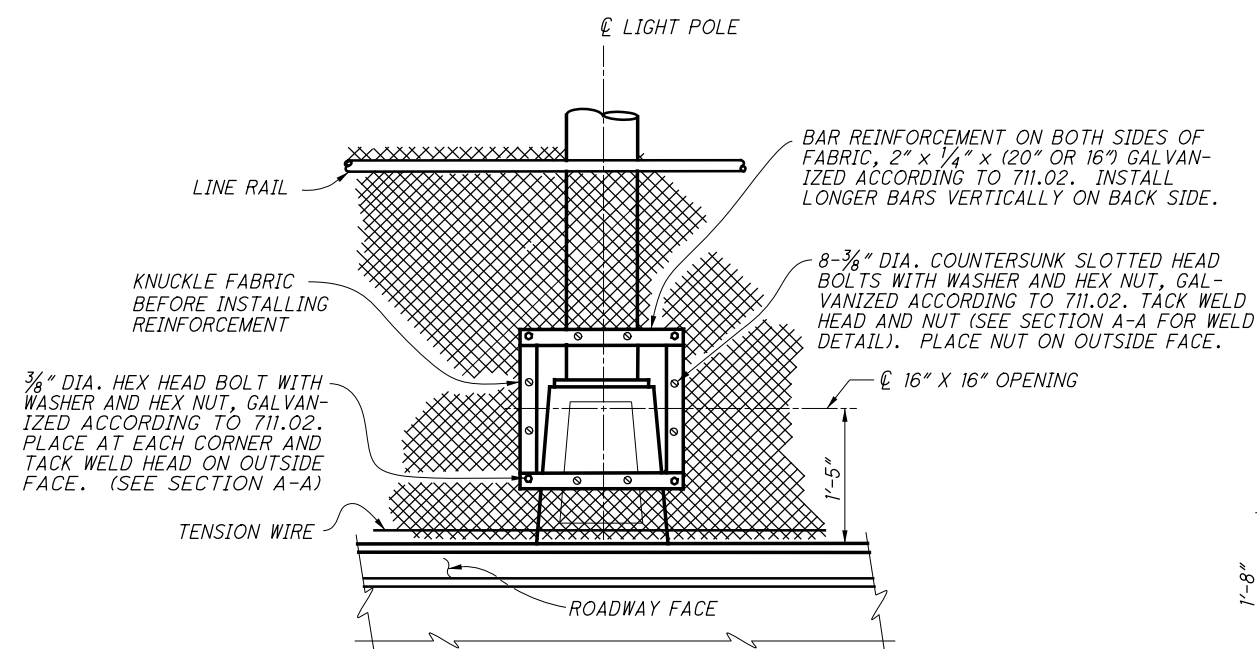
**POST SECTION PS-4**  
(6'-0" STRAIGHT FENCE)

NOTE: BR-1 IS SHOWN, SBR-1-99 IS SIMILAR.

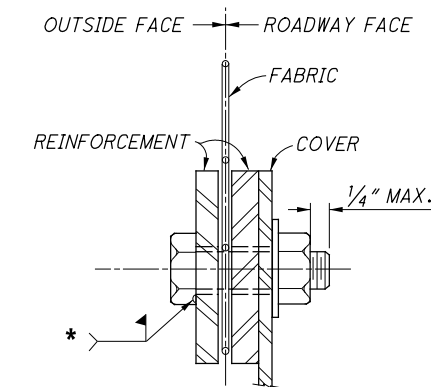
I:\br\Bdm2007\Quarterly Revisions\Vandal Fencing\VPF\_1\_90\_01-19-18.dgn 5/8/2018 1:27:39 PM smeddies



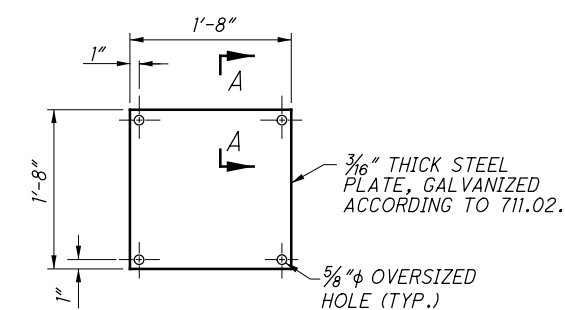
**FENCE DETAILS AT TYPICAL LIGHT POLE PILASTER**  
(RAIL(S) NOT SHOWN)



**ACCESS OPENING AT LIGHT POLE**  
(COVER NOT SHOWN)



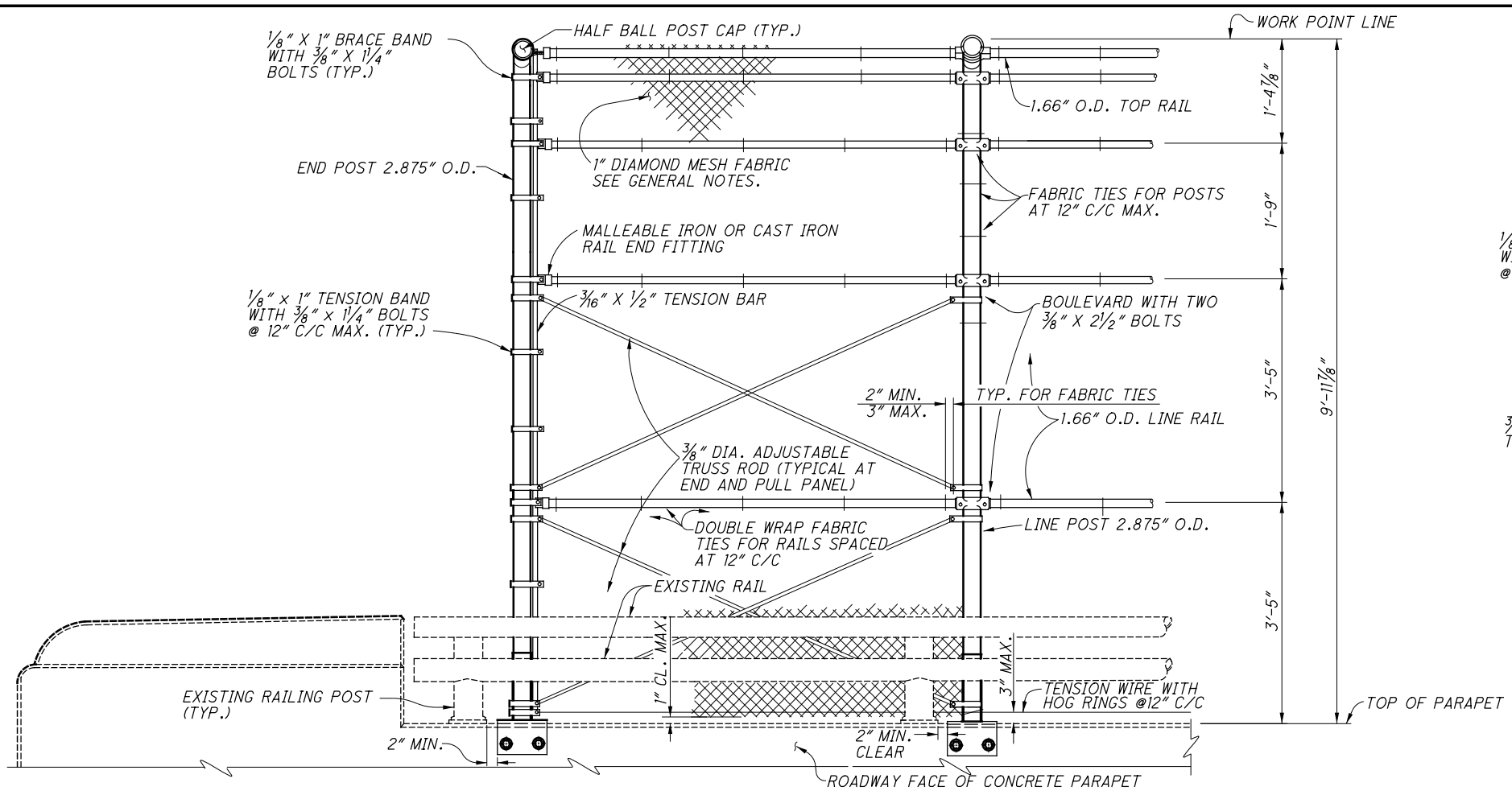
**SECTION A-A**  
(SHOWING CORNER BOLT)



**ACCESS COVER**

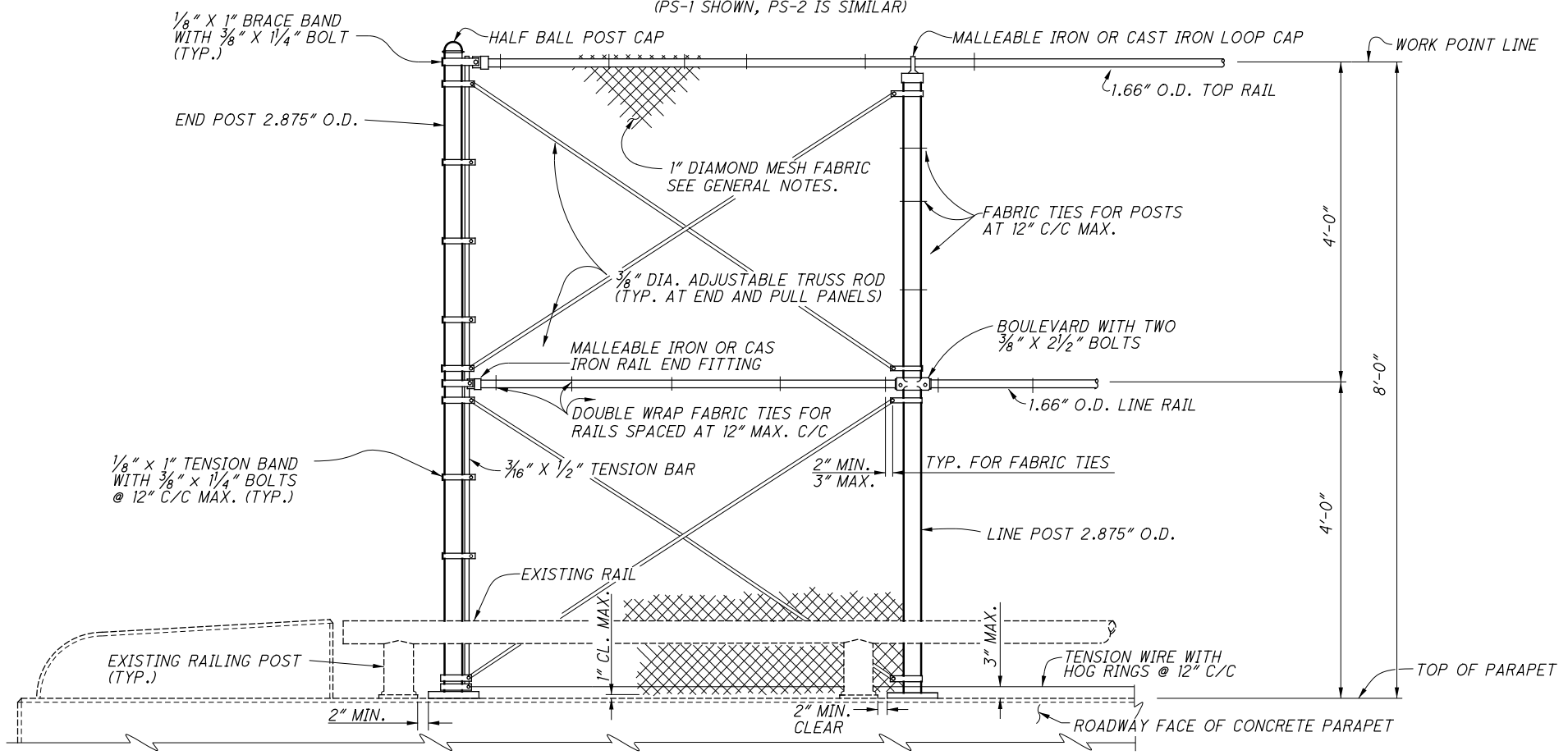
STATE OF OHIO DEPARTMENT OF TRANSPORTATION	DATE
ADMINISTRATOR	09-26-90
REVISIONS	
07-20-18	
01-19-18	
07-17-15	
04-15-11	
07-19-02	
03-24-93	
02-01-92	
DESIGNED	WTF
CHECKED	GFJ
JCR	GFJ
RD	
LD	
REVIEWED	
DRAWN	
OFFICE OF STRUCTURAL ENGINEERING	
STANDARD BRIDGE DRAWING	
VANDAL PROTECTION FENCE	
SCD NUMBER	
VPF-1-90	
5	7

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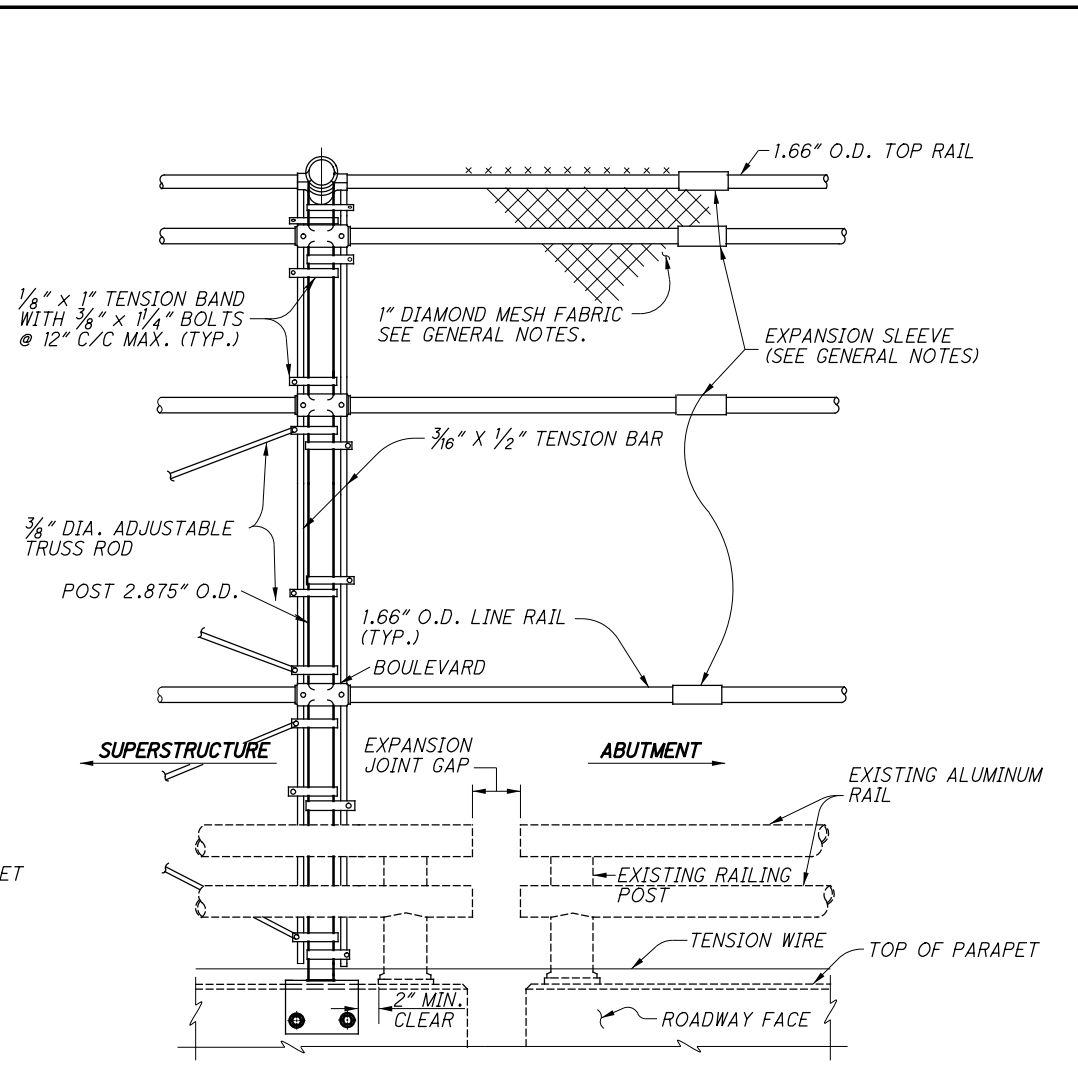
**INSIDE ELEVATION OF CURVED VANDAL PROTECTION FENCE**

(PS-1 SHOWN, PS-2 IS SIMILAR)



**INSIDE ELEVATION OF STRAIGHT VANDAL PROTECTION FENCE**

(PS-3 SHOWN, PS-4 IS SIMILAR)



**INSIDE ELEVATION OF FENCE AT EXPANSION JOINT**

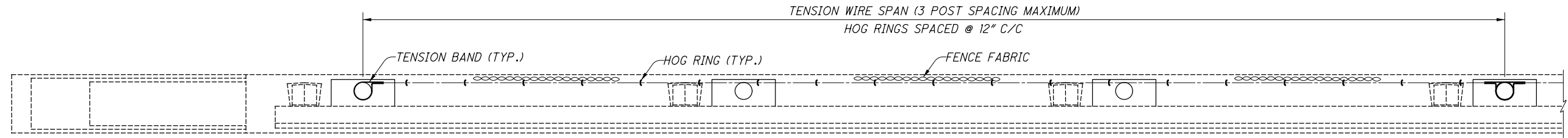
(PS-2 IS SHOWN, ALL OTHER TYPES ARE SIMILAR)

**NOTES**

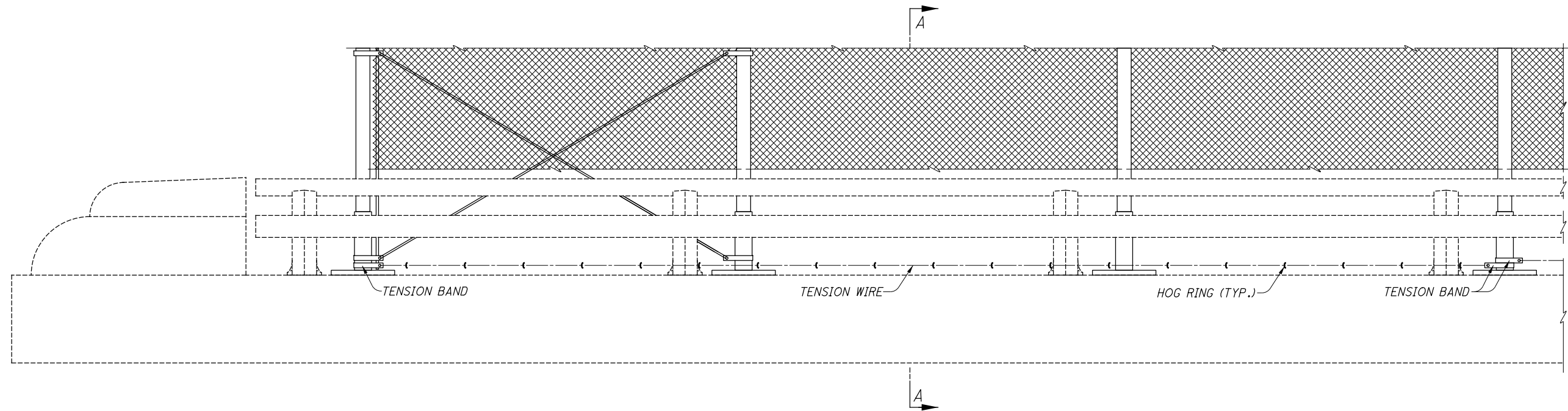
- THE CENTERLINE OF THE NEAREST BASE PLATE ANCHOR SHALL NOT BE PLACED CLOSER THAN 8" TO A PARAPET DEFLECTION CONTROL JOINT NOR SHALL BASE PLATES SPAN ACROSS A PARAPET DEFLECTION CONTROL JOINT.
- TOP RAILS SHALL BE CONTINUOUS OVER TWO OR MORE LINE POSTS.
- DETAILS FOR OTHER RAILING TYPES ARE SIMILAR.

SCD NUMBER	<b>VPF-1-90</b>	DATE	09-26-90
STANDARD BRIDGE DRAWING	<b>VANDAL PROTECTION FENCE</b>	ADMINISTRATOR	DATE
OFFICE OF STRUCTURAL ENGINEERING	DESIGNED BY JCR	DRAWN BY GFJ	REVIEWED BY WTF
REVISIONS	07-20-18	01-19-18	07-17-15
04-15-11	07-19-02	03-24-93	02-01-92

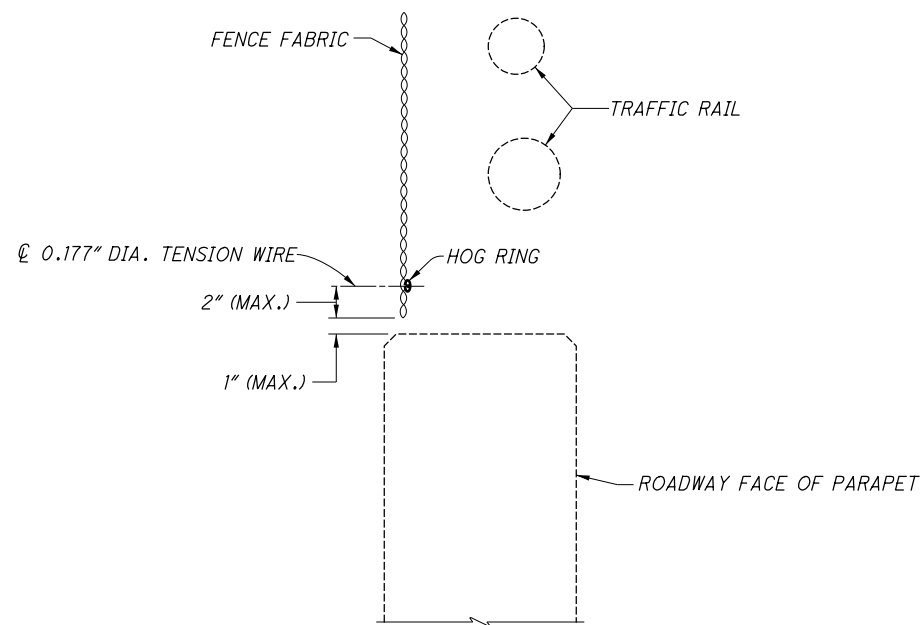
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**RAILING PLAN**



**INSIDE RAILING ELEVATION**



**SECTION A-A**

**NOTE:**  
 FOR TRAFFIC RAILINGS THAT WILL NOT PERMIT THE INSTALLATION OF A BOTTOM LINE RAIL, INSTALL TENSION WIRE. CONNECT TENSION WIRE TO FENCE FABRIC USING HOG RINGS AT 12" MAXIMUM SPACING. TENSION WIRE SHALL SPAN A MAXIMUM OF THREE POST SPACINGS. THE MAXIMUM SAG AT THE MIDPOINT OF THE WIRE SHALL BE 1/4" AFTER TENSIONING.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION  
*B. D. Hanlon*  
 ADMINISTRATOR  
 09-26-90  
 DATE

REVISIONS
07-20-18
01-19-18
07-17-15
04-15-11
07-19-02
03-24-93
02-01-92

DESIGNED	CHECKED	RLD	WTF
JCR	JCR		
DRAWN	REVIEWED		
GFJ			

**OFFICE OF STRUCTURAL ENGINEERING**

STANDARD BRIDGE DRAWING

**VANDAL PROTECTION FENCE**

SCD NUMBER  
**VPF-1-90**