

PART PLAN SHOWING LAYOUT OF 40I BARS  
(HOLES FOR 40I BARS SHALL BE DRILLED ON C RAIL)

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS  
FOR HIGHWAY GUARD RAIL (MASH).

ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR  
AND APPROVED BY THE PROJECT ENGINEER.

- ⊗ FOR CURB & TRANSITION INFORMATION, SEE SHEET 3 OF 11, STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).
- ⊗ 2'-3" & 5" DIMENSION MAY VARY.

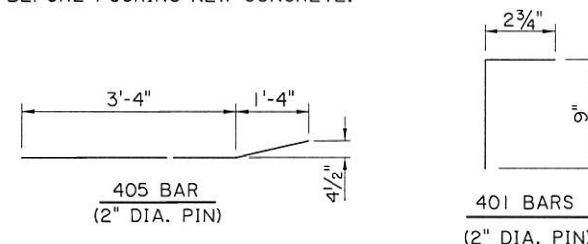
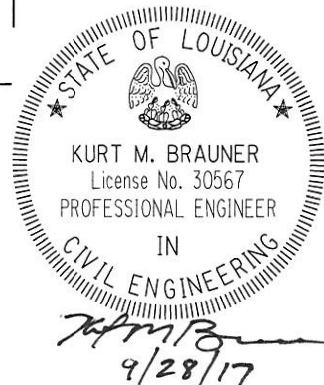
ALL WORK AND MATERIALS REQUIRED TO RAISE THE EXISTING BARRIER  
RAIL TO THE REQUIRED HEIGHT OF 2'-8" SHALL BE PAID FOR UNDER:  
BARRIER RAIL REHABILITATION, PER LIN. FT.

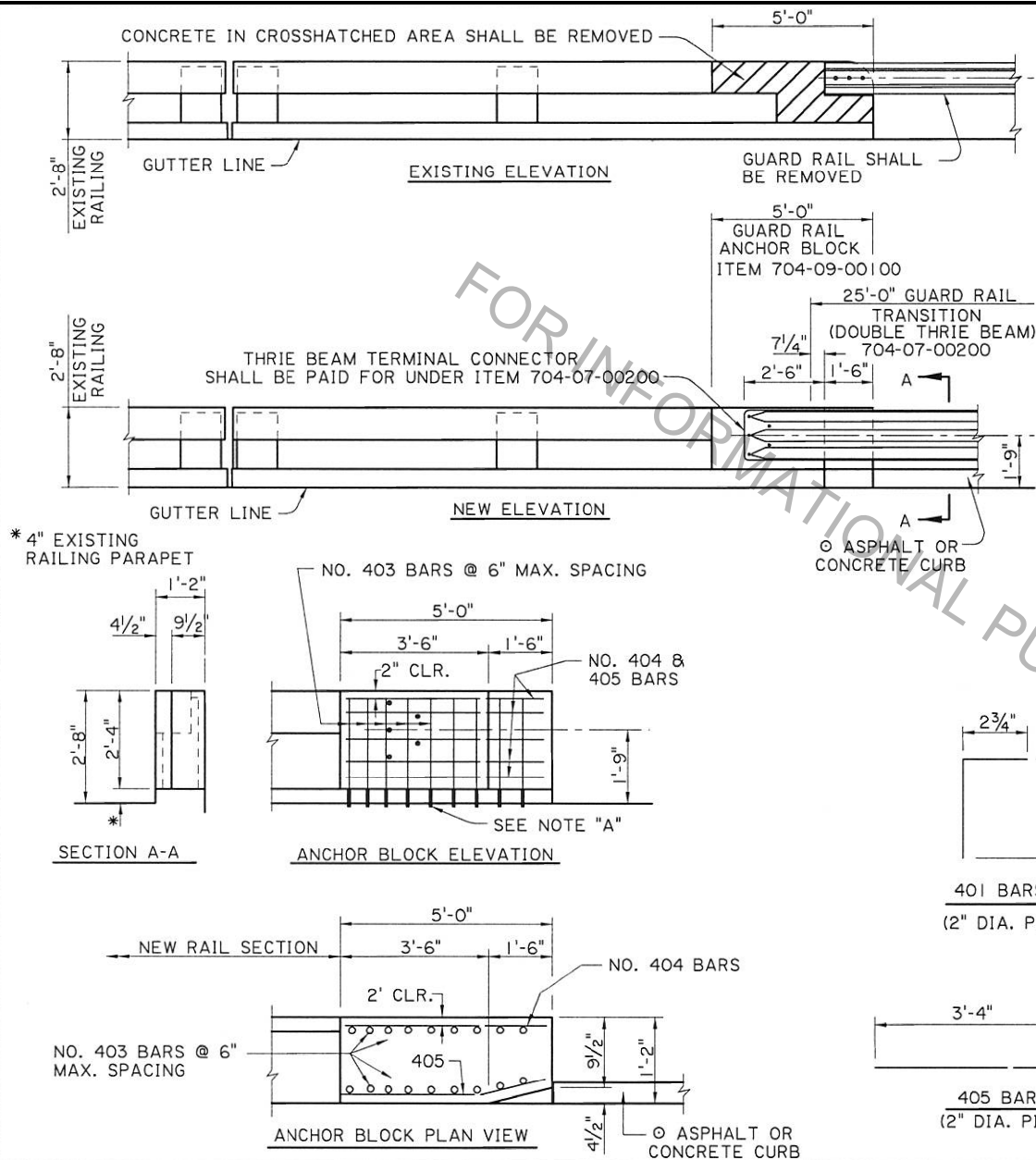
ALL WORK AND MATERIALS REQUIRED TO REMOVE EXISTING RAILING AND  
CONSTRUCT THE ANCHOR BLOCK SHALL BE PAID FOR UNDER: GUARD RAIL  
ANCHOR BLOCK, PER EACH, ITEM 704-09-00100.

CONCRETE IN CROSS HATCHED AREA SHALL BE REMOVED. THE EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE AND SHALL BE CLEANED AND STRAIGHTENED TO THE SATISFACTION OF THE PROJECT ENGINEER BEFORE POURING NEW CONCRETE.

NEW CONCRETE SHALL BE CLASS "A1"

NO. 401 & 403 BARS SET IN 3/4" Ø DRILLED HOLES. CLEAN HOLES WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. FILL HOLES WITH TYPE V, GRADE 2 OR 3 EPOXY LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS FOR CONCRETE." PLACE BARS IN HOLES AND WAIT THE MANUFACTURERS CURE TIME BEFORE POURING NEW CONCRETE.



**GENERAL NOTES**

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER.

⊗ FOR CURB & TRANSITION INFORMATION, SEE SHEET 3 OF 11, STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

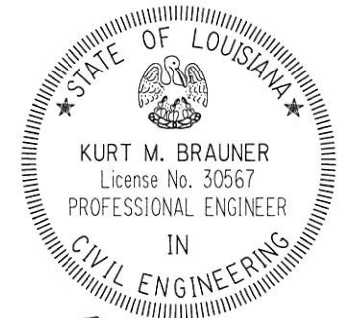
**GUARD RAIL ANCHOR BLOCKS**

ALL WORK AND MATERIALS REQUIRED TO REMOVE EXISTING RAILING AND CONSTRUCT THE ANCHOR BLOCK SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100

CONCRETE IN CROSS HATCHED AREA SHALL BE REMOVED. THE EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE AND SHALL BE CLEANED AND STRAIGHTENED TO THE SATISFACTION OF THE PROJECT ENGINEER BEFORE POURING NEW CONCRETE.

**NOTE "A"**

NO. 401 & 403 BARS SET IN 3/4" Ø DRILLED HOLES. CLEAN HOLES WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. FILL HOLES WITH A TYPE V, GRADE 2 OR 3 EPOXY LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS FOR CONCRETE." PLACE BARS IN HOLES AND WAIT THE MANUFACTURERS CURE TIME BEFORE POURING NEW CONCRETE.



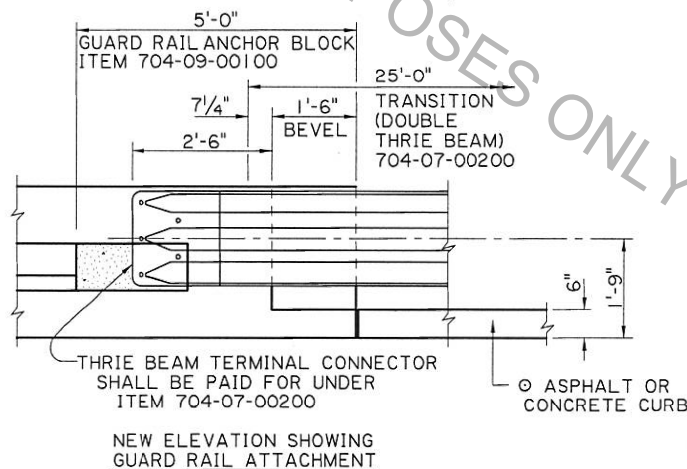
*Kurt M. Brauner*  
9/28/17

BRIDGE AND STRUCTURAL DESIGN		<b>GUARD RAIL ANCHOR BLOCK REHABILITATION FOR CONCRETE POST &amp; RAIL (ALTERNATE 1) FOR USE WITH HIGHWAY GUARD RAIL (MASH)</b>		DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
				CHECKED	C. GAUDRY			
				DETAILED	J. DOUCET	CONTROL		
				CHECKED	P. FOSSIER	SECTION		
				REVIEWED	K. BRAUNER	STATE		
				SERIES #		PROJECT		

STANDARD  
DETAIL

BD.2.6.5.1.04

NO. DATE REVISION OR CHANGE ORDER DESCRIPTION BY



FOR ADDITIONAL INFORMATION ON GUARD RAILS, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

- \* THESE DIMENSIONS MAY VARY. THE NON-SHRINK GROUT QUANTITY AND 403 BAR LENGTH SHALL BE ADJUSTED ACCORDINGLY.

ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER.

- ⊗ FOR CURB & TRANSITION, SEE SHEET 3 OF 11, STANDARD PLANS FOR HIGHWAY  
GUARD RAIL (MASH).

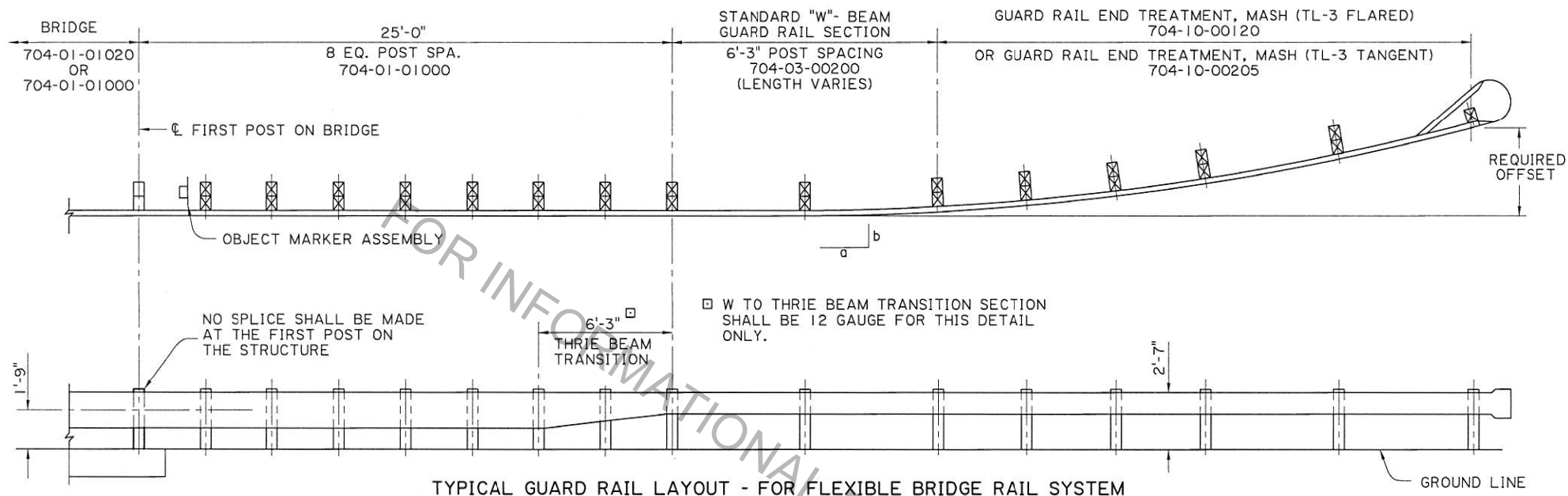
ALL WORK AND MATERIALS REQUIRED TO MODIFY EXISTING RAILING SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100.

DRILL  $\frac{3}{4}$ " Ø HOLES THRU THE RAILING AND INTO THE RAILING PARAPET AS SHOWN. CLEAN HOLES WITH COMPRESSED AIR TO REMOVE ALL OIL AND RESIDUE. FILL HOLES WITH TYPE I, GRADE "C" EPOXY LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS." PLACE 403 BARS (2'-2" LONG) IN HOLES AND WAIT THE MANUFACTURERS CURE TIME BEFORE POURING NEW CONCRETE.

DRILL A 2" Ø HOLE THRU THE DEPTH OF RAILING. FILL VOID BETWEEN RAILING AND RAILING PARAPET THRU THE 2" Ø HOLE WITH AN APPROVED FLOWABLE NON-SHRINK GROUT LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "NON-SHRINK GROUT."

AFTER REMOVING THE EXISTING CONCRETE TO CONSTRUCT THE 1'-6" BEVEL FULL HEIGHT, PREPARE THE VERTICAL SURFACE OF THE EXISTING VOID FOR AN EPOXY RESIN JOINT ACCORDING TO SUBSECTION 805.05.8.2 AND PLACE CONCRETE IN VOID. REDRESS AND FORM THE ENTIRE SURFACE OF THE BEVEL TO GIVE A SMOOTH APPEARANCE BY USING A FLOWABLE NON-SHRINK GROUT LISTED ON APPROVED MATERIALS LIST. PRODUCT CATEGORY "NON-SHRINK GROUT."



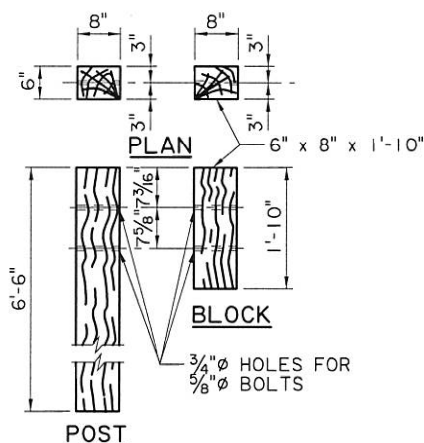
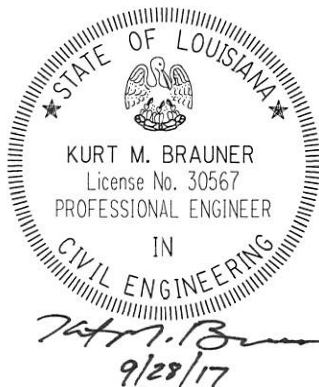


TYPICAL GUARD RAIL LAYOUT - FOR FLEXIBLE BRIDGE RAIL SYSTEM

## NOTES

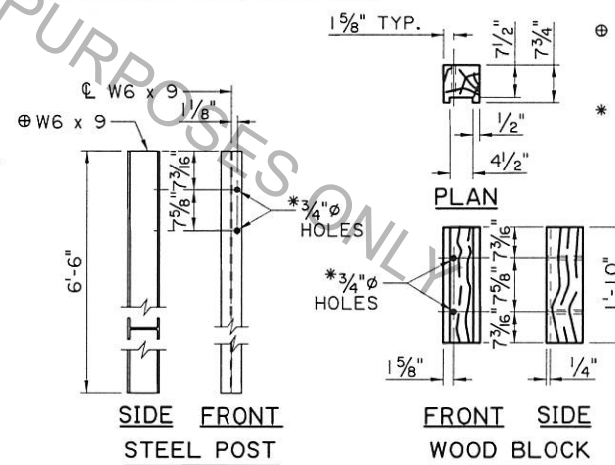
LAYOUTS SHOWN ARE FOR BRIDGE STRUCTURES WHICH HAVE FLEXIBLE BRIDGE RAILING.

FOR ADDITIONAL INFORMATION ON GUARD RAILS, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).



WOOD POST AND WOOD BLOCK FOR STANDARD THRIE BEAM GUARD RAIL

N.T.S.



STEEL POST AND ROUTED WOOD BLOCK FOR STANDARD THRIE BEAM GUARD RAIL

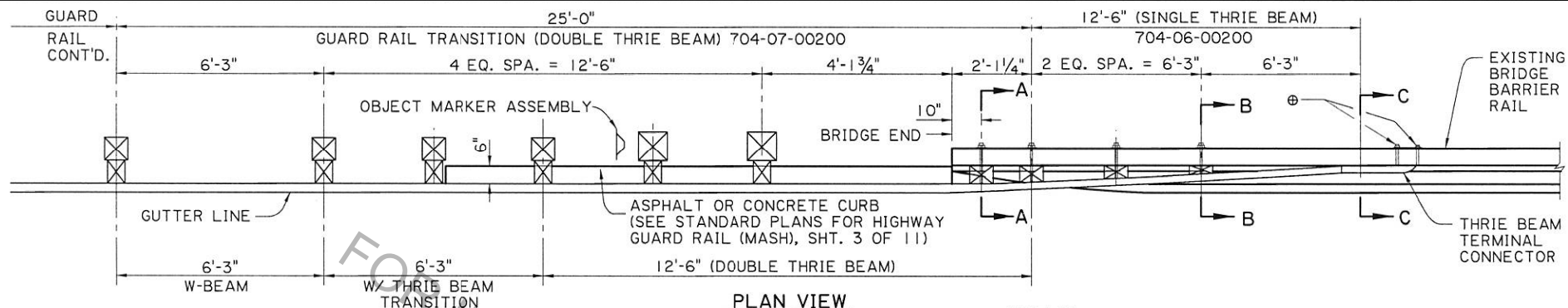
N.T.S.

⊕ A W6 x 8.5 STEEL POST MAY BE USED AS AN ALTERNATE FOR A W6 x 9 POST.

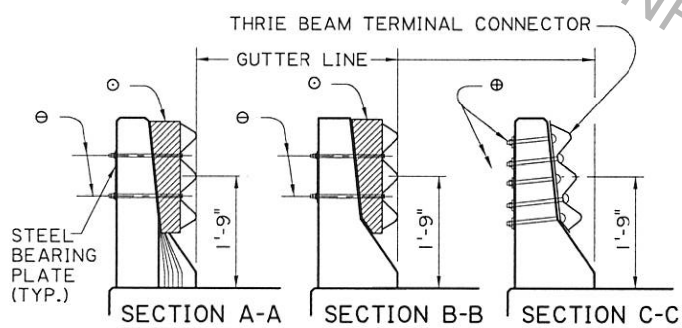
\* POST AND BLOCK HOLES SHALL BE DRILLED ADJACENT TO THE DIRECTION OF THE TRAFFIC.

BRIDGE AND STRUCTURAL DESIGN		APPROACH GUARD RAIL FOR STRUCTURES WITH FLEXIBLE RAILS FOR USE WITH HIGHWAY GUARD RAIL (MASH)			DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
		CHECKED	C. GAUDRY		CONTROL SECTION				
		DETAILED	J. DOUCET		STATE PROJECT				
		CHECKED	P. FOSSIER						
STANDARD DETAILS	BD.2.6.5.1.06	NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	REVIEWED	K. BRAUNER		
						SERIES #			





PLAN VIEW



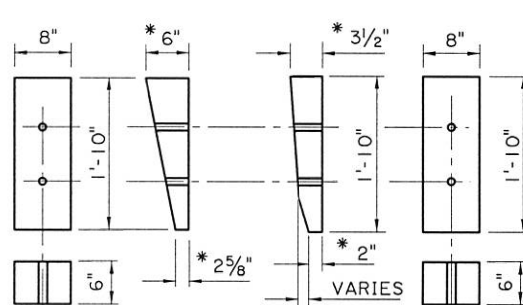
⊕ 5-7/8" Ø H.S. ASTM A449 HEX THROUGH BOLTS WITH 5/8" BEARING PLATE (SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHT. 9 OF 11).

⊕ 2-5/8" Ø BUTTON HEAD BOLTS WITH 5/8" BEARING PLATE, NUTS, & WASHERS

⊕ 6" x 8" x 1'-10" TREATED TIMBER BLOCK (CUT & SHAPE IN THE FIELD TO FIT).

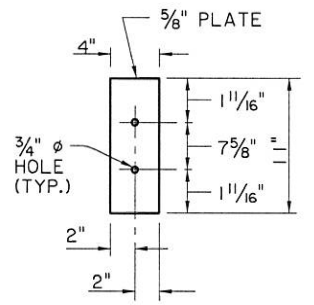
## NOTES:

1. FOR ADDITIONAL INFORMATION ON GUARD RAIL TRANSITION, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHEET 3 OF 11.
2. ALL HARDWARE AND TIMBER USED FOR CONNECTING THE SINGLE THRIE BEAM TO THE EXISTING BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-06-00200, GUARD RAIL BRIDGE ATTACHMENTS (SINGLE THRIE BEAM), PER LIN. FT.
3. ANY DAMAGE DONE TO THE EXISTING STRUCTURE DURING INSTALLATION OF THE GUARD RAIL SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.
4. GALV. STEEL OGEE WASHER MAY BE USED IN LIEU OF THE STEEL BEARING PLATE.
5. ALL H.S. BOLTS SHALL BE ASTM A449. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.
6. A 25'-0" SECTION OF THRIE BEAM RAIL (WITH NO SPLICE) SHALL BE INSTALLED SYMMETRICALLY WITH RESPECT TO THE SECOND TIMBER BLOCK USED AT THE END OF THE STRUCTURE.
7. THE WOOD SHIM BLOCKS SHALL BE CUT & SHAPED IN THE FIELD TO FIT THE LOCATION WITH A SNUG FIT.
8. THE BOLT HOLES SHALL BE FIELD DRILLED THRU THE GUARD RAIL, SHIM BLOCKS AND THE BARRIER RAIL AT THE SAME TIME.
9. THE GUARD RAIL SHALL NOT PROTRUDE BEYOND THE GUTTER LINE.

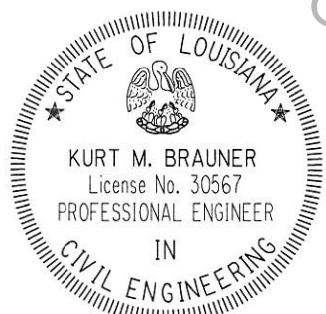


SHIM BLOCK FOR SECTION A-A

SHIM BLOCK FOR SECTION B-B

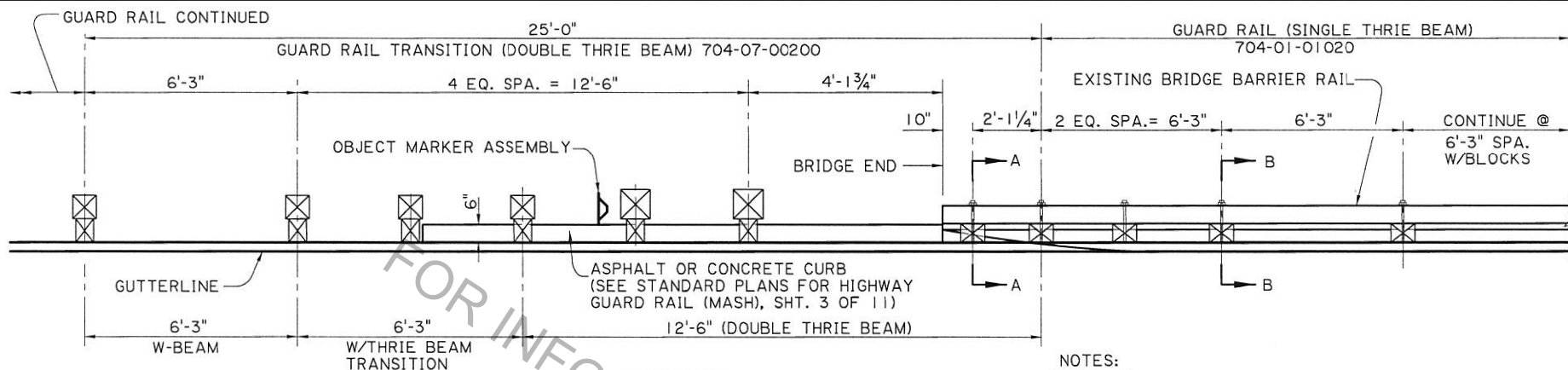


STEEL BEARING PLATE

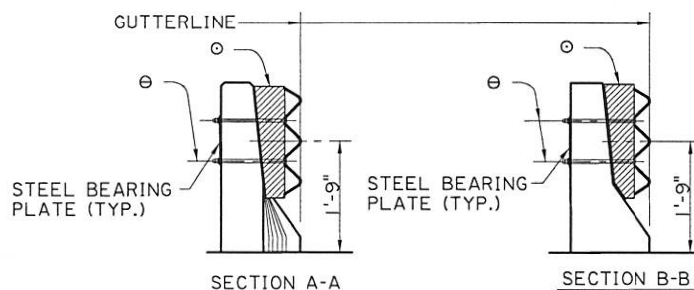


\* DIMENSIONS ARE ASSUMED. ADJUST IN THE FIELD AS REQUIRED. HOLES SHALL BE DRILLED IN THE FIELD. SEE NOTE NO. 8.

BRIDGE AND STRUCTURAL DESIGN		<b>NEW JERSEY BARRIER RAIL RETROFIT</b> FOR STRUCTURES GREATER THAN 60 FT. FOR USE WITH HIGHWAY GUARD RAIL (MASH) B.D.2.6.5.1.07		DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
				CHECKED	K. BRAUNER			
				DETAILED	J. DOUCET	CONTROL		
				CHECKED	P. FOSSIER	SECTION		
				REVIEWED	C. GUIDRY	STATE		
				SERIES #		PROJECT		

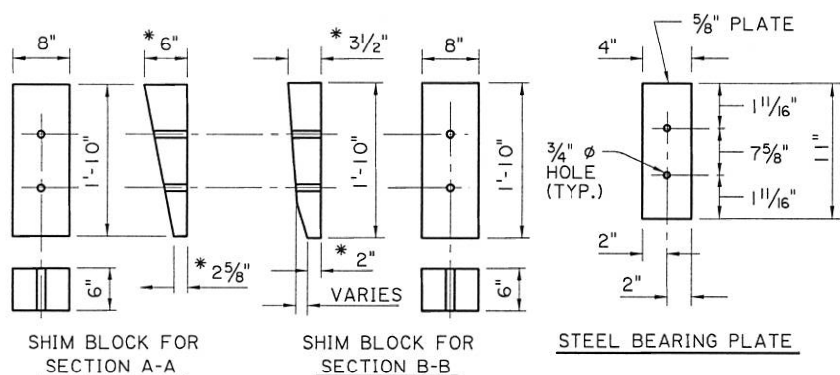


PLAN VIEW



Ø 2 - 5/8" Ø BUTTON HEAD BOLTS WITH 5/8" BEARING PLATE, NUTS, & WASHERS. (TYP.)

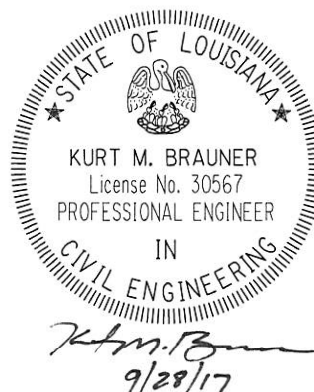
Ø 6" X 8" X 1'-10" TREATED TIMBER BLOCK (CUT & SHAPE IN THE FIELD TO FIT).



\* DIMENSIONS ARE ASSUMED. ADJUST IN THE FIELD AS REQUIRED. HOLES SHALL BE DRILLED IN THE FIELD. SEE NOTE NO. 8.

## NOTES:

1. FOR ADDITIONAL INFORMATION ON GUARD RAIL TRANSITION, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHEET 3 OF 11.
2. ALL HARDWARE AND TIMBER USED FOR CONNECTING THE SINGLE THRIE BEAM TO THE EXISTING BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020, GUARD RAIL (SINGLE THRIE BEAM), (6'-3" POST SPACING) PER LIN. FT.
3. ANY DAMAGE DONE TO THE EXISTING STRUCTURE DURING INSTALLATION OF THE GUARD RAIL SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.
4. GALV. STEEL OGEE WASHER MAY BE USED IN LIEU OF THE STEEL BEARING PLATE.
5. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.
6. A 25'-0" SECTION OF GUARD RAIL (WITH NO SPLICE) SHALL BE INSTALLED SYMMETRICALLY WITH RESPECT TO THE SECOND POST ON EACH END OF THE STRUCTURE.
7. THE WOOD SHIM BLOCKS SHALL BE CUT & SHAPED IN THE FIELD TO FIT THE LOCATION WITH A SNUG FIT.
8. THE BOLT HOLES SHALL BE FIELD DRILLED THRU THE GUARD RAIL, SHIM BLOCKS AND THE BARRIER RAIL AT THE SAME TIME.
9. THE GUARD RAIL SHALL NOT PROTRUDE BEYOND THE GUTTER LINE.



BRIDGE AND STRUCTURAL DESIGN		<b>NEW JERSEY BARRIER RAIL RETROFIT</b> FOR STRUCTURES LESS THAN 60 FT. FOR USE WITH HIGHWAY GUARD RAIL (MASH) B.D.2.6.5.1.08		DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
				CHECKED	K. BRAUNER			
				DETAILED	J. DOUCET	CONTROL		
				CHECKED	P. FOSSIER	SECTION		
				REVIEWED	C. GUIDRY	STATE		
				SERIES #		PROJECT		
				NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	

**NOTES**

ALL HARDWARE INVOLVED SHALL BE REPLACED BY NEW HARDWARE.

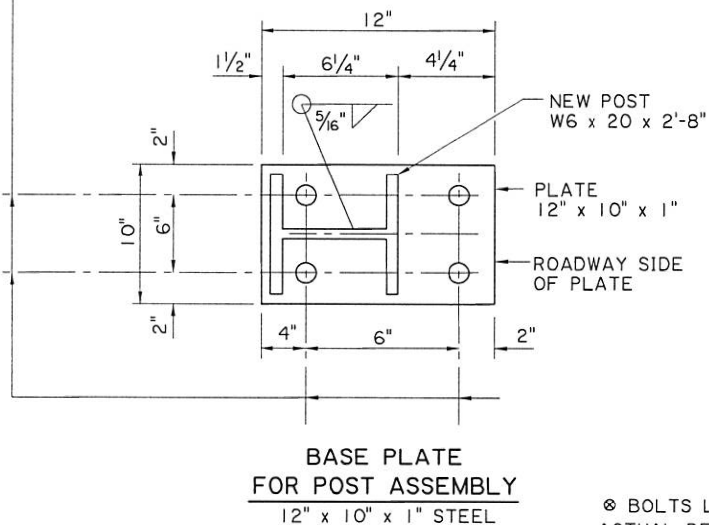
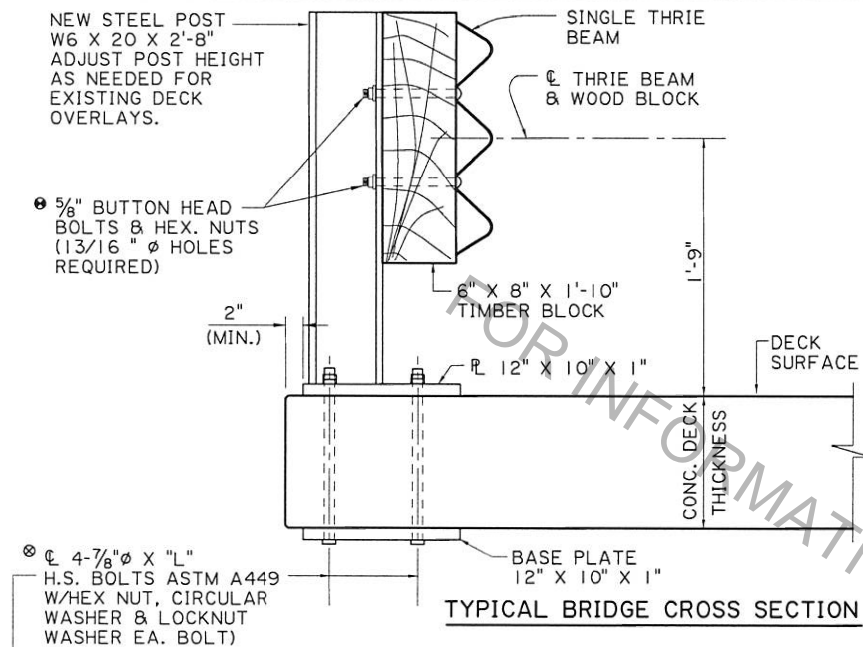
FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR GUARD RAIL (MASH).

ALL STRUCTURAL STEEL, POST AND PLATES, SHALL BE ASTM A-36 AND GALVANIZED. ALL  $\frac{5}{8}$ "  $\phi$  BOLTS SHALL BE ASTM A307.

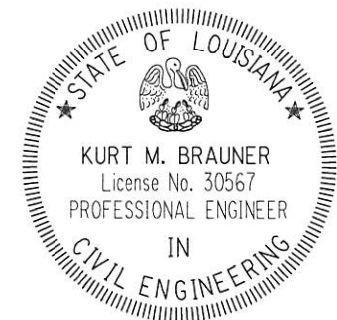
- THE BOLTS IN THE GUARD RAIL SHALL BE LOCATED ON THE ONCOMING FLANGE TRAFFIC SIDE.

ALTHOUGH ITEM 704-01-01020 CALLS FOR 6'-3" MAX. POST SPACING, THE NEW POST FOR EXISTING PRECAST BRIDGES SHALL BE INSTALLED AT THE SAME LOCATION AS THE OLD ONES. ALL GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

ALL WORK AND MATERIALS REQUIRED TO INSTALL THE NEW GUARD RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

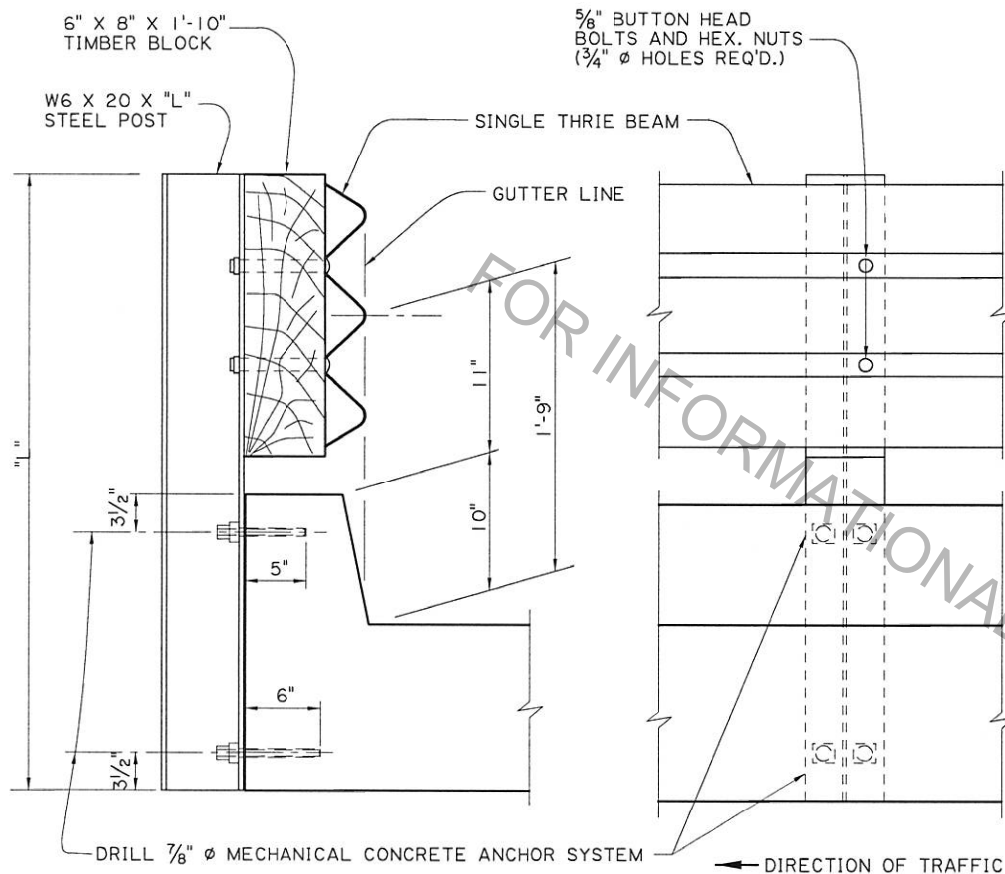


• BOLTS LENGTH TO BE FIELD MEASURED AND ADJUSTED BASED ON ACTUAL DECK THICKNESS. SUBMIT TO DOTD BRIDGE DESIGN ENGINEER FOR REVIEW BEFORE INSTALLATION



*Kurt M. Brauner*  
9/28/17

BRIDGE AND STRUCTURAL DESIGN		<b>GUARD RAIL REHABILITATION</b> (FLAT DECK PRECAST BRIDGES) FOR USE WITH HIGHWAY GUARD RAIL (MASH)		DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
				CHECKED	C. GAUDRY			
				DETAILED	J. DOUCET	CONTROL		
				CHECKED	P. FOSSIER	SECTION		
				REVIEWED	K. BRAUNER	STATE		
				SERIES #		PROJECT		
STANDARD DETAIL				BD.2.6.5.1.09				
NO.		DATE		REVISION OR CHANGE ORDER DESCRIPTION		BY		



SECTION THRU RAIL

VIEW FROM ROADWAY

**NOTES**

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

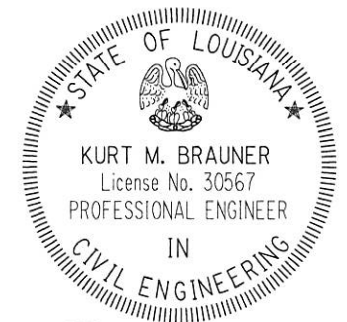
ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON THIS TYPE STRUCTURE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM).

ALTHOUGH ITEM 704-01-01020 CALLS FOR 6'-3" POST SPACING, THE NEW POST ON THIS TYPE STRUCTURE SHALL BE PLACED IN THE SAME LOCATION AS THE EXISTING ONES.

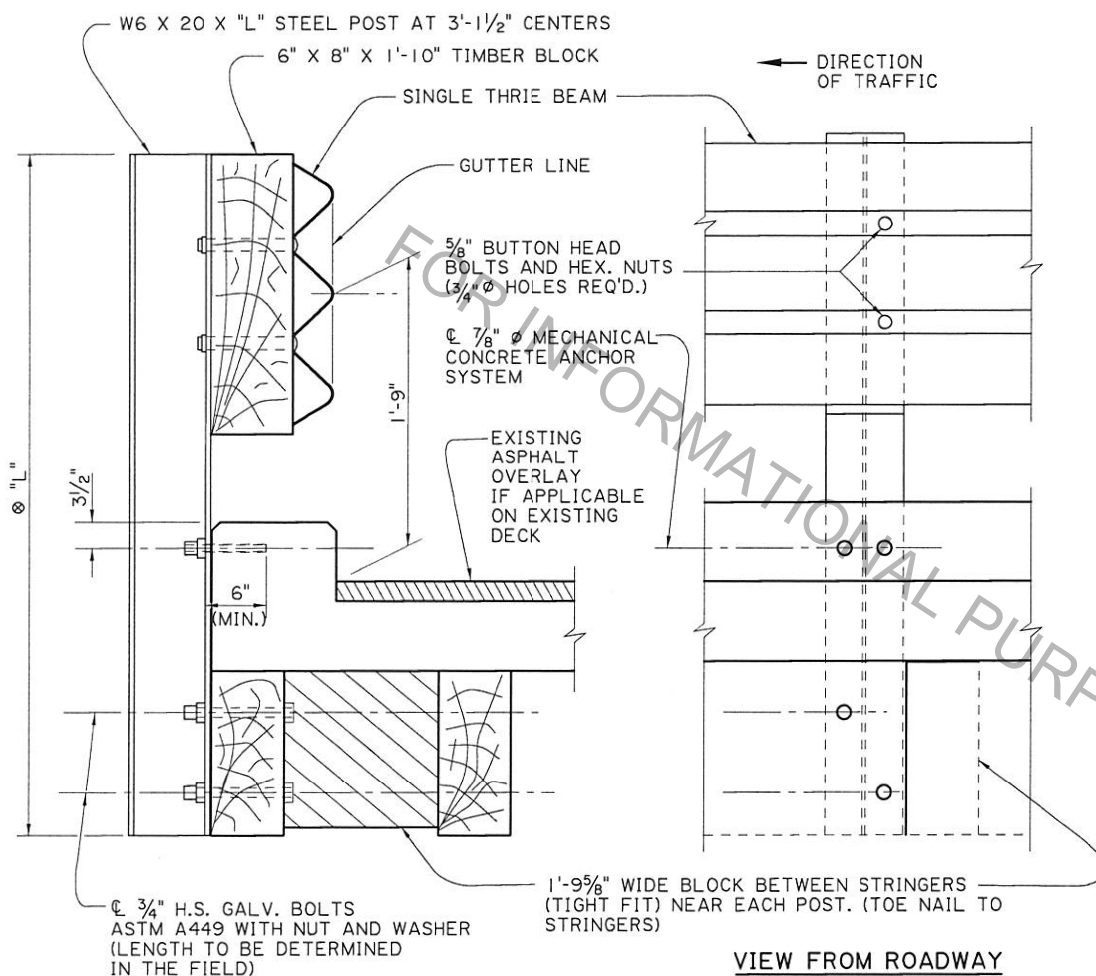
GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

USE  $\frac{7}{8}$ " MECHANICAL SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS."

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL  $\frac{5}{8}$ " BOLTS SHALL BE ASTM A307.



	<b>SIDE MOUNTED GUARD RAIL</b> (FOR BRIDGES) FOR USE WITH HIGHWAY GUARD RAIL (MASH)			DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
				CHECKED	C. GAUDRY			
				DETAILED	J. DOUCET	CONTROL		
				CHECKED	P. FOSSIER	SECTION		
STANDARD DETAILS	BD.2.6.5.1.10			REVIEWED	K. BRAUNER	STATE		
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	SERIES #		PROJECT		



SECTION THRU RAIL

## NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SP.).

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

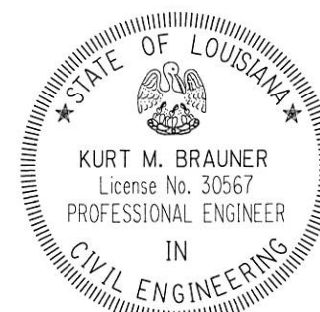
DRILL 1" Ø HOLES, 5" DEEP AT THE TOP OF CURB FOR 3/4" Ø GALVANIZED BOLT.

USE 3/4" GALV. NUT WITH GALV. CUT WASHER.

USE 7/8" Ø MECHANICAL CONCRETE ANCHOR SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS."

ALL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.

⊗ W6x20 POST TO BE FIELD MEASURED TO DETERMINE LENGTH "L" BY CONTRACTOR.



*Kurt M. Brauner*

9/28/17

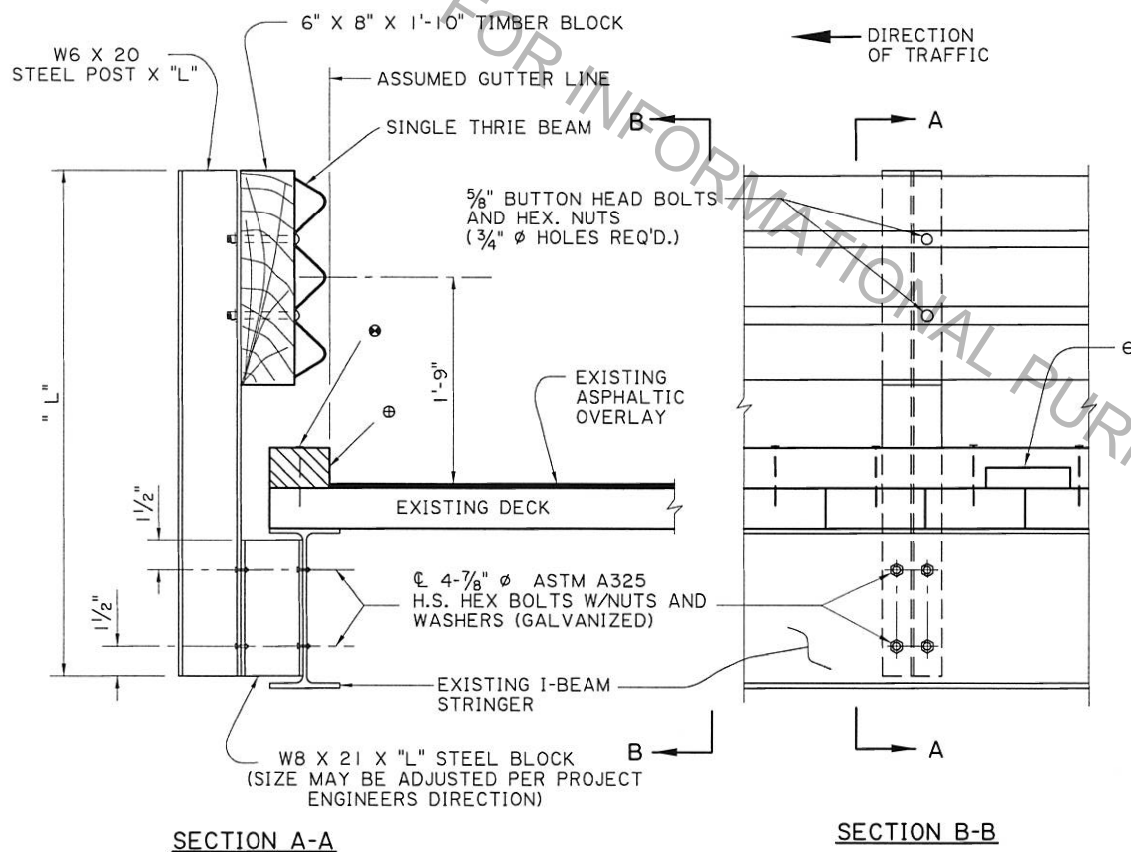
 BRIDGE AND STRUCTURAL DESIGN	<b>SIDE MOUNTED GUARD RAIL</b> (CONCRETE DECK-TIMBER STRINGERS) FOR USE WITH HIGHWAY GUARD RAIL (MASH)				DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
					CHECKED	C. GAUDRY			
					DETAILED	J. DOUCET	CONTROL		
					CHECKED	P. FOSSIER	SECTION		
STANDARD DETAILS		BD.2.6.5.1.1		NO.		DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	
				REVIEWED		K. BRAUNER	STATE PROJECT		
				SERIES #					



⊖ 2" X 1'-0" NOTCH FOR DRAINAGE

⊖ 6 $\frac{7}{8}$ " SPIKE AT EACH FLOOR PLANK

⊕ 4" X 6" X LGTH. OF BRIDGE FELLOE GUARD (NEW) (NOTCH FOR DRAINAGE)



## NOTES

ALL WORK AND MATERIAL (INCLUDING THE NEW FELLOE GUARD) REQUIRED TO INSTALL THE NEW BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SPA.)

EXISTING ASPHALT SHALL BE CLEARED FROM AREA WHERE FELLOE GUARD IS TO BE PLACED SO THAT THE FELLOE GUARD WILL BE ON THE TIMBER DECK.

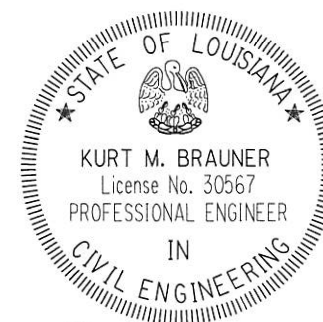
POST SHALL BE LOCATED AT EACH BENT AND AT INTERMEDIATE POINTS NOT TO EXCEED 6'-3" (EQUALLY SPACED)

IF DIRECTED BY THE PROJECT ENGINEER, A DIAPHRAGM SHALL BE PLACED AT EACH INTERMEDIATE POST BETWEEN THE FIRST AND SECOND STRINGER. (TO BE INCLUDED IN 704-01-01020.

"L" (POST HEIGHT & STEEL BLOCK) SHALL BE DETERMINED IN THE FIELD.

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL STRUCTURAL STEEL SHALL BE ASTM A36 AND GALVANIZED. ALL  $\frac{5}{8}$ " BOLTS SHALL BE ASTM A307.



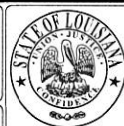
*Kurt M. Brauner*  
9/28/17

## SIDE MOUNTED BRIDGE RAIL

FOR USE WITH HIGHWAY GUARD RAIL (MASH)

STANDARD  
DETAIL

BD.2.6.5.1.12



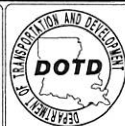
DESIGNED	P. FOSSIER	PARISH	
CHECKED	C. GAUDRY	CONTROL SECTION	
DETAILED	J. DOUCET	STATE PROJECT	
CHECKED	P. FOSSIER		
REVIEWED	K. BRAUNER		
SERIES #			

NO. DATE

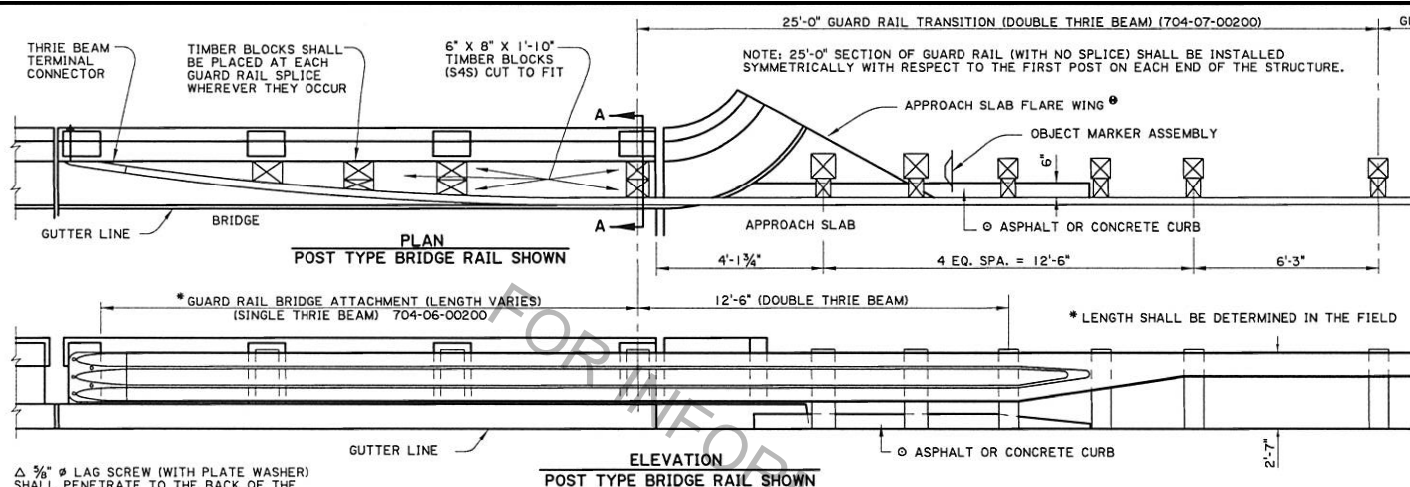
REVISION OR CHANGE ORDER DESCRIPTION

BY

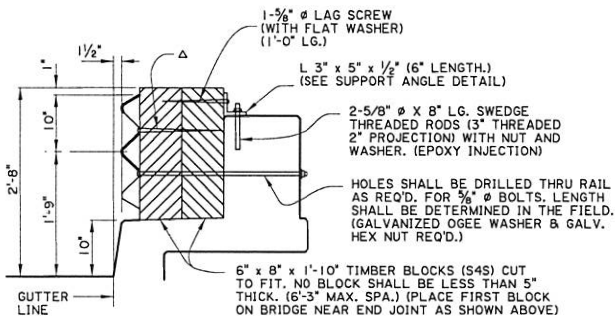
BRIDGE AND  
STRUCTURAL  
DESIGN



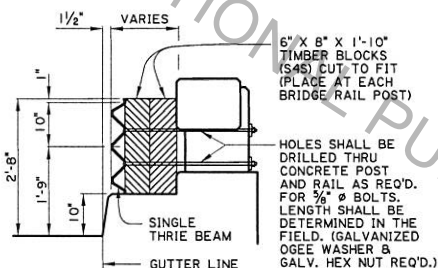
SHEET  
NUMBER



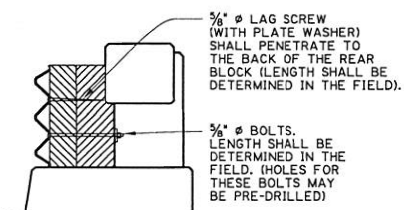
Δ 3/4" Ø LAG SCREW (WITH PLATE WASHER) SHALL PENETRATE TO THE BACK OF THE REAR BLOCK (LENGTH TO BE DETERMINED IN THE FIELD)



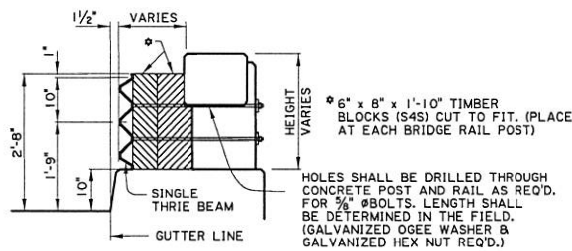
SECTION A-A  
SOLID WALL RAILING



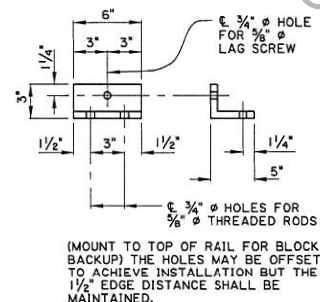
SECTION A-A  
POST AND RAIL BRIDGE RAIL



VIEW AT GUARD RAIL SPLICES



SECTION A-A  
POST AND RAIL BRIDGE RAIL



SUPPORT ANGLE

#### NOTES:

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

FOR CURB & TRANSITION INFORMATION, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHEET 3 OF 11.

ALL MATERIALS AND LABOR REQ'D. TO PLACE THE GUARD RAIL THRU THE BRIDGE SHALL BE PAID FOR UNDER ITEM 704-06-00200.

IF THE EXISTING CONCRETE IS DAMAGED DUE TO DRILLING HOLES FOR BOLTS AND RODS, THE CONTRACTOR SHALL REPAIR THE DAMAGE WITH THE APPROPRIATE MATERIALS AT HIS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.

EXISTING HANDRAIL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AS DIRECTED BY THE PROJECT ENGINEER.

ALL HOLES (VERTICAL OR HORIZONTAL) DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE 3/4" IN DIA. THEY SHALL BE CLEANED WITH COMPRESSED AIR AND MADE FREE OF ANY OIL OR RESIDUE. HOLES SHALL BE FILLED WITH EPOXY INJECTION SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE ROD IN HOLE IMMEDIATELY AND WAIT FOR THE MANUFACTURERS CURE TIME.

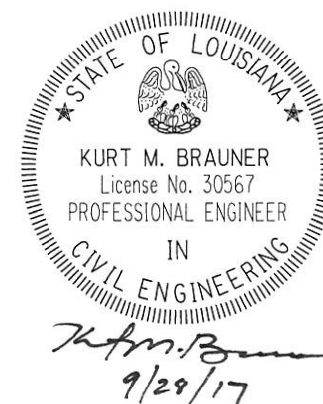
THE LOWER BOLTS IN THE GUARD RAIL AT EACH POST SHALL BE ON THE ONCOMING TRAFFIC SIDE.



IF TIMBER BLOCKS ARE LESS THAN 3" ABOVE THE CONCRETE RAIL IN THE SOLID RAIL ALTERNATE, THE METHOD SHOWN IN THE POST AND RAIL BRIDGE RAIL ALTERNATE SHALL BE UTILIZED.

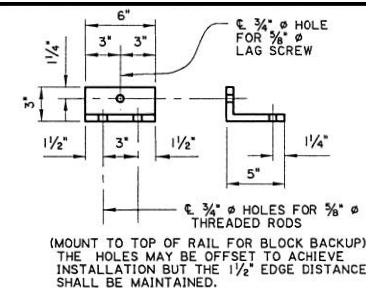
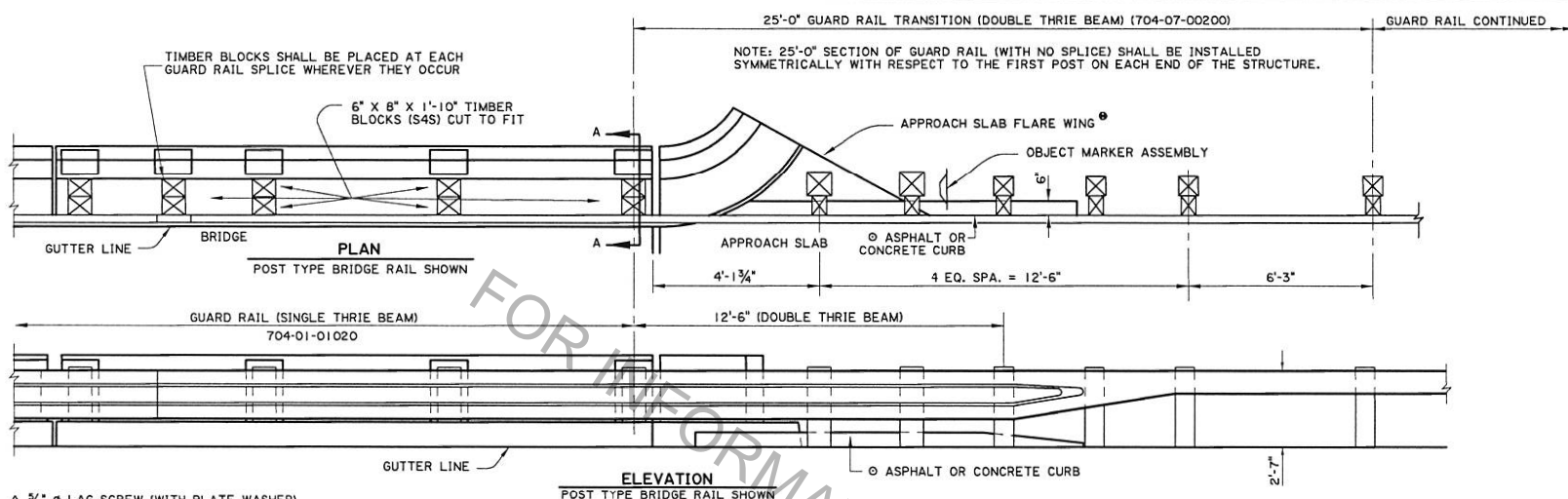
THE LENGTHS OF THE LAG SCREWS SHALL BE VERIFIED BY THE PROJECT ENGINEER BEFORE INSTALLATION TO ACHIEVE THE PENETRATION CALLED FOR IN THE SOLID WALL ALTERNATE.

IF APPROACH SLAB FLARES EXIST, A 1'-0" x 1'-0" HOLE SHALL BE CUT THRU THE CONCRETE IN THE PROPER LOCATION TO INSTALL POST. AFTER POST IS IN PLACE, COMPACT SOIL AROUND POST AND REDRESS THE SLAB WITH CONCRETE TO THE FINISHED ELEVATION. (NO DIRECT PAY).

ALL 3/4" Ø BOLTS SHALL BE ASTM A307.

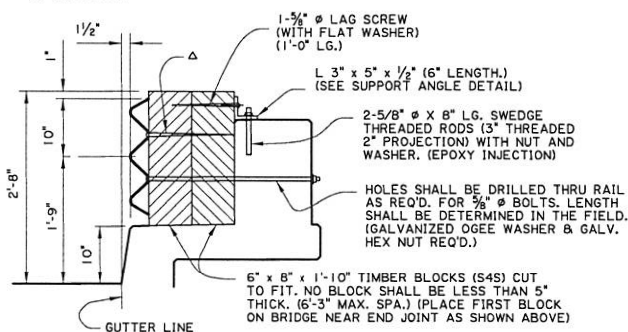
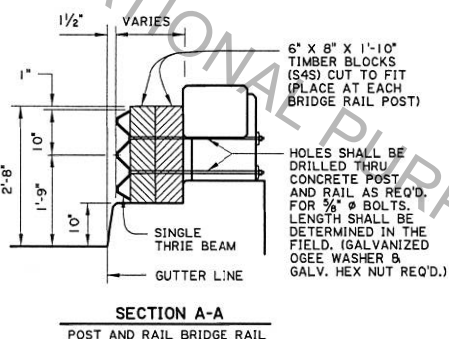
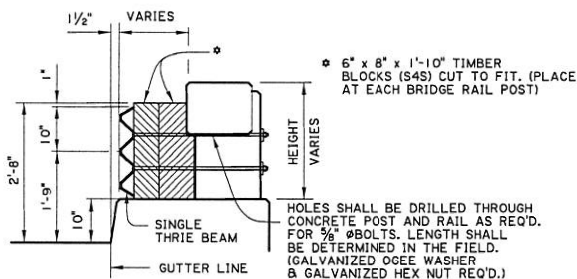


BRIDGE AND STRUCTURAL DESIGN		GUARD RAIL TERMINATING ON BRUSH CURB BRIDGE RAIL  (TIMBER POST OPTION)  FOR USE WITH HIGHWAY GUARD RAIL (MASH)							DESIGNED CHECKED	P. FOSSIER C. GAUDRY	PARISH	SHEET NUMBER	
										DETAILED CHECKED	J. DOUCET P. FOSSIER		CONTROL SECTION
										REVIEWED	K. BRAUNER		STATE PROJECT
										SERIES #			
				NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION			BY				



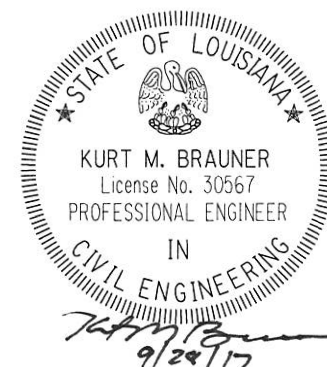
SUPPORT ANGLE

Δ 3/8" Ø LAG SCREW (WITH PLATE WASHER) SHALL PENETRATE TO THE BACK OF THE REAR BLOCK (LENGTH TO BE DETERMINED IN THE FIELD)

SECTION A-A  
SOLID WALL RAILINGSECTION A-A  
POST AND RAIL BRIDGE RAILSECTION A-A  
POST AND RAIL BRIDGE RAIL

## NOTES

- FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).
- ALL MATERIALS AND LABOR REQ'D. TO PLACE THE GUARD RAIL THRU THE BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020
- FOR CURB & TRANSITION INFORMATION, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHEET 3 OF 11.
- IF THE EXISTING CONCRETE IS DAMAGED DUE TO DRILLING HOLES FOR BOLTS AND RODS, THE CONTRACTOR SHALL REPAIR THE DAMAGE WITH THE APPROPRIATE MATERIALS AT HIS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.
- EXISTING HANDRAIL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AS DIRECTED BY THE PROJECT ENGINEER.
- ALL HOLES (VERTICAL OR HORIZONTAL) DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE 3/4" IN DIA. THEY SHALL BE CLEANED WITH COMPRESSED AIR AND MADE FREE OF ANY OIL OR RESIDUE. HOLES SHALL BE FILLED WITH EPOXY INJECTION SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE ROD IN HOLE IMMEDIATELY AND WAIT FOR THE MANUFACTURERS CURE TIME.
- THE LOWER BOLTS IN THE GUARD RAIL AT EACH POST SHALL BE ON THE ONCOMING TRAFFIC SIDE.
- IF TIMBER BLOCKS ARE LESS THAN 3" ABOVE THE CONCRETE RAIL IN THE SOLID RAIL ALTERNATE, THE METHOD SHOWN IN THE POST AND RAIL BRIDGE RAIL ALTERNATE SHALL BE UTILIZED.
- THE LENGTHS OF THE LAG SCREWS SHALL BE VERIFIED BY THE PROJECT ENGINEER BEFORE INSTALLATION TO ACHIEVE THE PENETRATION CALLED FOR IN THE SOLID WALL ALTERNATE.
- IF APPROACH SLAB FLARES EXIST, A 1'-0" X 1'-0" HOLE SHALL BE CUT THRU THE CONCRETE IN THE PROPER LOCATION TO INSTALL POST. AFTER POST IS IN PLACE, COMPACT SOIL AROUND POST AND REDRESS THE SLAB WITH CONCRETE TO THE FINISHED ELEVATION. (NO DIRECT PAY).
- ALL 3/8" Ø BOLTS SHALL BE ASTM A307.



BRIDGE AND STRUCTURAL DESIGN		GUARD RAIL CONTINUOUS ACROSS BRUSH CURB BRIDGE RAIL (TIMBER POST OPTION)			DESIGNED	P. FOSSIER	PARISH	SHEET NUMBER
		FOR USE WITH HIGHWAY GUARD RAIL (MASH)			CHECKED	C. GAUDRY		
		STANDARD DETAIL			DETAILED	J. DOUCET		
		BD.2.6.5.1.14			CHECKED	P. FOSSIER		
					REVIEWED	K. BRAUNER	STATE PROJECT	
					SERIES #			
					NO. DATE REVISION OR CHANGE ORDER DESCRIPTION BY			

## NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL TIMBER SHALL BE TREATED SOUTHERN  
YELLOW PINE OR DOUGLAS FIR. (CUT TO FIT).  
ALL HARDWARE & NAILS INVOLVED SHALL BE  
REPLACED WITH NEW MATERIALS AND SHALL  
BE GALVANIZED.

POST SPACING VARIES FROM STRUCTURE TO STRUCTURE. ORIGINAL POST SPACING SHALL BE VERIFIED BY THE PROJECT ENGINEER AND NEW POSTS SHALL BE PLACED AT THESE LOCATIONS. ANY POST AT OTHER THAN THE ORIGINAL POST SPACING SHALL BE REMOVED.

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

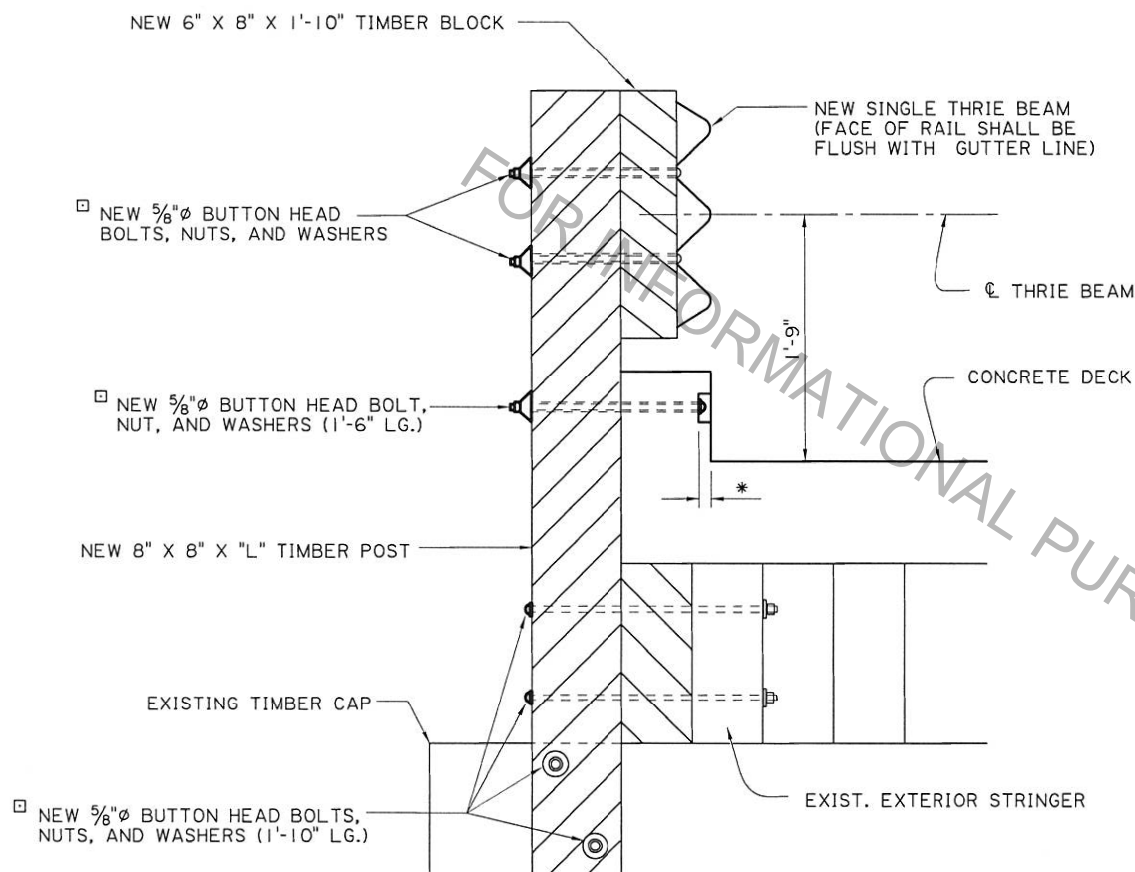
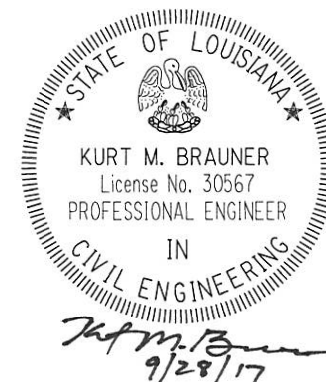
\* HOLES IN CONCRETE CURB SHALL BE COUNTER-SUNK SO THE BOLT HEAD WILL NOT PROTRUDE OUTSIDE THE FACE OF CURB. GROUT HOLES WITH APPROPRIATE MATERIAL AFTER BOLT HAS BEEN TIGHTENED.

ALL WORK AND MATERIALS REQ'D. TO COMPLETE  
GUARD RAIL ON BRIDGE SHALL BE PAID FOR  
UNDER ITEM 704-01-01020 GUARD RAIL, (SINGLE  
THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.



WHEN EXTERIOR STRINGER IS REQ'D. TO BE REPLACED IT SHALL BE DONE AS DIRECTED BY THE PROJECT ENGINEER AND PAID FOR UNDER FORCE ACCOUNT.

□ ALL  $\frac{5}{8}$ " $\phi$  BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED  
BY FIELD MEASUREMENTS.



**CROSS SECTION**  
TIMBER BRIDGE RAIL  
(NOT TO SCALE)

BRIDGE AND STRUCTURAL DESIGN		BRIDGE RAIL REHABILITATION (CONCRETE DECK)							DESIGNED CHECKED	P. FOSSIER C. GAUDRY	PARISH	SHEET NUMBER
		FOR USE WITH HIGHWAY GUARD RAIL (MASH)							DETAILED CHECKED	J. DOUCET P. FOSSIER	CONTROL SECTION	
		STANDARD DETAIL	BD.2.6.5.1.15		NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	REVIEWED SERIES #	K. BRAUNER	STATE PROJECT	

**NOTES**

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL TIMBER SHALL BE TREATED SOUTHERN YELLOW PINE OR DOUGLAS FIR. (CUT TO FIT) ALL HARDWARE & NAILS INVOLVED SHALL BE REPLACED WITH NEW MATERIALS AND SHALL BE GALVANIZED.

POST SPACING VARIES FROM STRUCTURE TO STRUCTURE. ORIGINAL POST SPACING SHALL BE VERIFIED BY THE PROJECT ENGINEER AND NEW POST SHALL BE PLACED AT THESE LOCATIONS. ANY POST OTHER THAN THE ORIGINAL POST SPACING SHALL BE REMOVED.

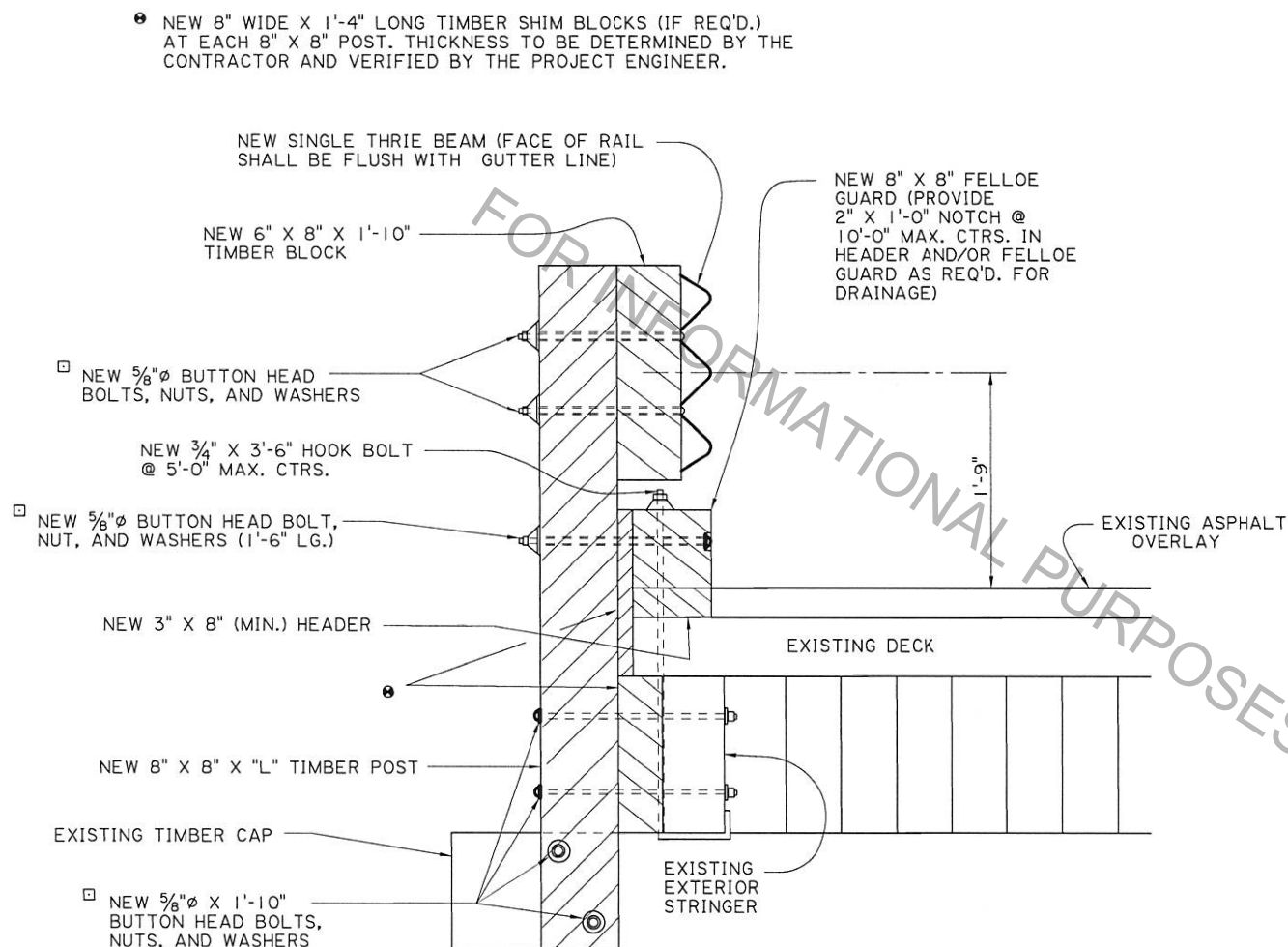
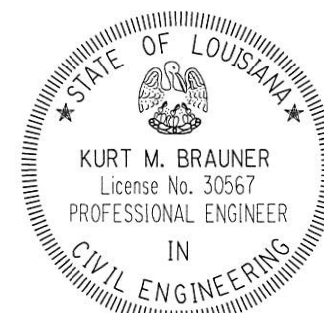
GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

ALL WORK AND MATERIALS REQ'D. TO COMPLETE GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL, (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

WHEN EXTERIOR STRINGER IS REQ'D. TO BE REPLACED IT SHALL BE DONE AS DIRECTED BY THE PROJECT ENGINEER AND PAID FOR UNDER FORCE ACCOUNT.

□ ALL  $\frac{5}{8}$ " Ø BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED BY FIELD MEASUREMENTS.

**TYPICAL SECTION**

*Kurt M. Brauner*  
9/29/17

**GUARD RAIL REHABILITATION  
(TIMBER DECK)**

FOR USE WITH HIGHWAY GUARD RAIL (MASH)

STANDARD  
DETAIL

BD.2.6.5.1.16



NO.

DATE

REVISION OR CHANGE ORDER DESCRIPTION

BY

DESIGNED	P. FOSSIER
CHECKED	C. GAUDRY
DETAILED	J. DOUCET
CHECKED	P. FOSSIER
REVIEWED	K. BRAUNER
SERIES #	

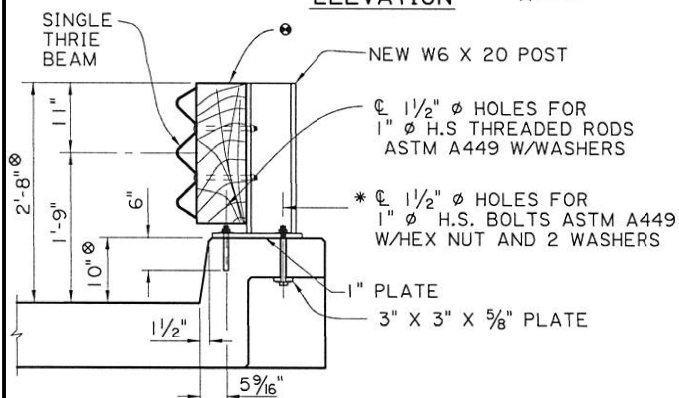
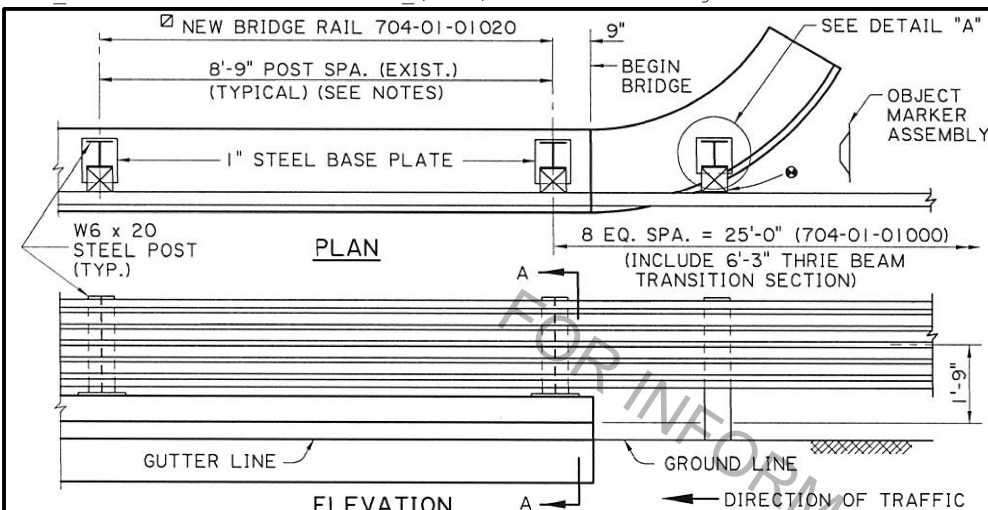
PARISH

CONTROL  
SECTION

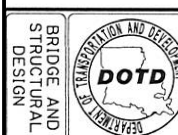
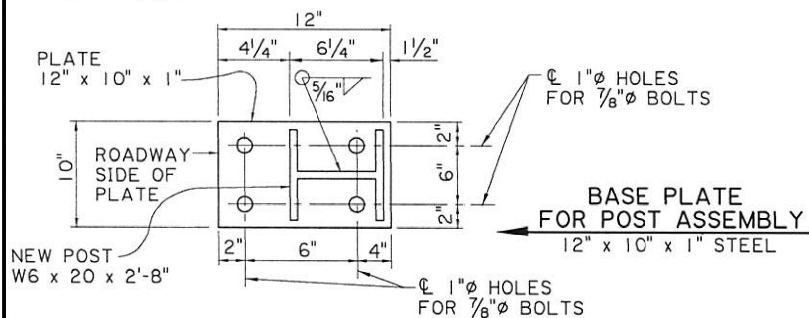
STATE  
PROJECT

SHEET  
NUMBER





SECTION A-A



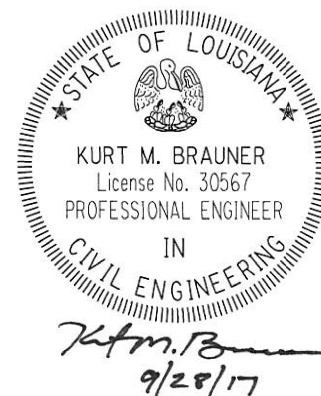
**BRIDGE RAIL REHABILITATION**  
(WASKEY BRIDGES)  
FOR USE WITH HIGHWAY GUARD RAIL (MASH)

STANDARD  
DETAIL

BD.2.6.5.1.17



NO. DATE REVISION OR CHANGE ORDER DESCRIPTION BY

**NOTES:**

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH). ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON THE STRUCTURE SHALL BE PAID FOR UNDER ITEM 704-01-01020

ANY DAMAGE DONE TO THE STRUCTURE DURING CONSTRUCTION NOT RELATED TO THE WORK REQUIRED SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.

ALL HOLES (VERTICAL OR HORIZONTAL) DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE CLEANED WITH COMPRESSED AIR AND MADE FREE OF ANY OIL OR RESIDUE. HOLES SHALL BE FILLED WITH INJECTION SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE ROD IN HOLE IMMEDIATELY AND WAIT FOR THE MANUFACTURERS CURE TIME.

NOMINAL POST SPACING ON THIS SPAN IS 8'-9" (ORIGINAL DESIGN). NEW POST ARE REQUIRED AND SHALL BE INSTALLED AS SHOWN. GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. THE POST LOCATED ON THE FLARED BRIDGE END SHALL BE INSTALLED AS SHOWN. IF A FLARED END DOES NOT EXIST A NORMAL 6" X 8" TIMBER POST OR A APPROVED ALTERNATE SHALL BE USED.

\* NOTE: (AT END SPAN POST LOCATION ONLY) THE INTERIOR BOLT SHALL BE AS SHOWN. THE OUTER BOLT NEARER TO END JOINT) SHALL BE DRILLED IN THE SAME MANNER AS THE FRONT ANCHOR BOLTS.

ALL STRUCTURAL STEEL SHALL BE ASTM A36 AND GALVANIZED.

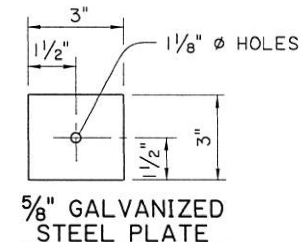
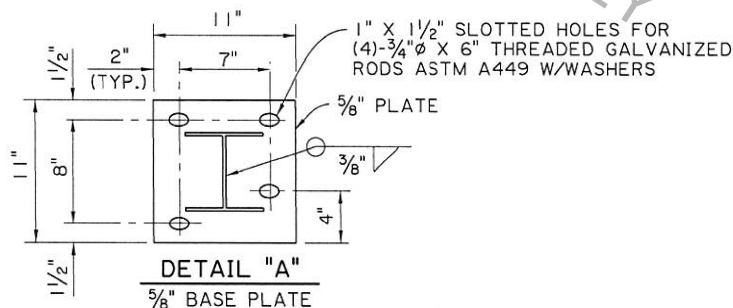
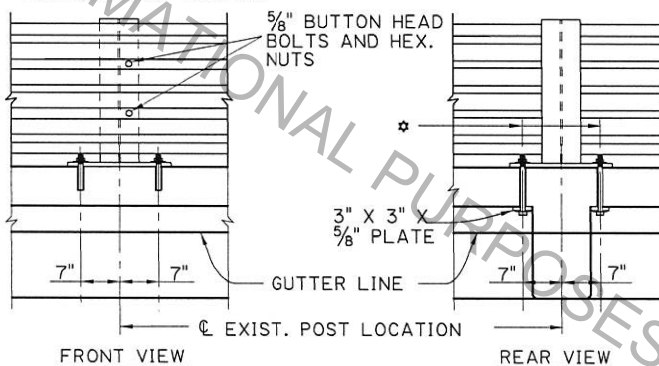
Ø THE EXISTING POST SHALL BE REMOVED AND NEW POST BE MOUNTED ON THE TOP OF THE STRUCTURE AS SHOWN AND AT THE SAME SPACING.

Ø 6" X 8" X 1'-10" TIMBER BLOCK

\* Ø 1 1/2" Ø HOLES FOR 1" Ø H.S. BOLTS ASTM A449 W/HEX NUT AND 2 WASHERS

ALL 5/8" Ø BOLTS SHALL BE ASTM A307.

Ø CURB HEIGHT MAY VARY, ADJUST W6x20 POST LENGTH AS NEEDED TO MEET 2'-8" DIMENSION.



DESIGNED	P. FOSSIER	PARISH	
CHECKED	C. GAUDRY	CONTROL	
DETAILED	J. DOUCET	SECTION	
CHECKED	P. FOSSIER	STATE	
REVIEWED	K. BRAUNER	PROJECT	
SERIES #			

SHEET  
NUMBER