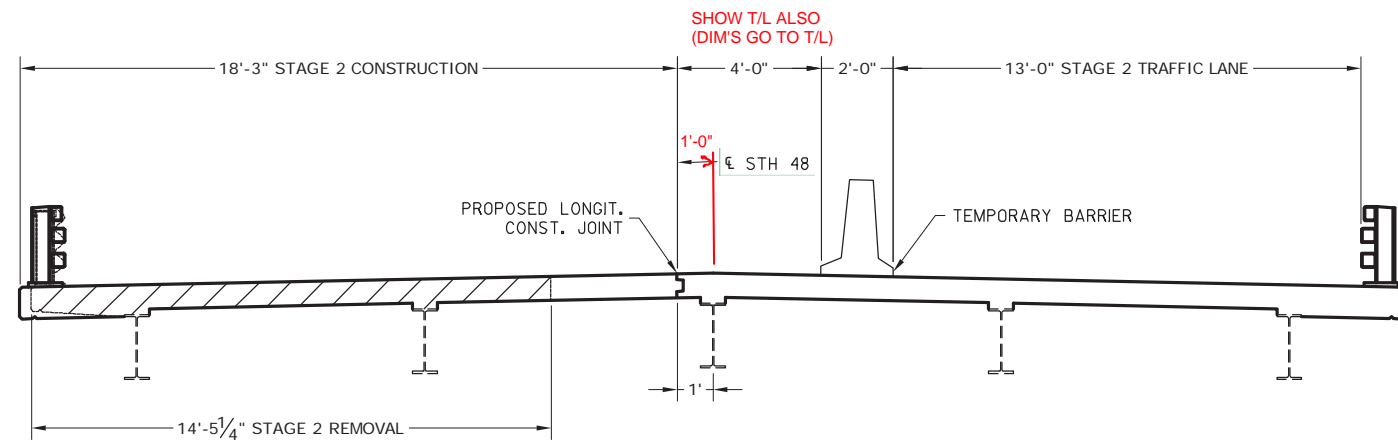


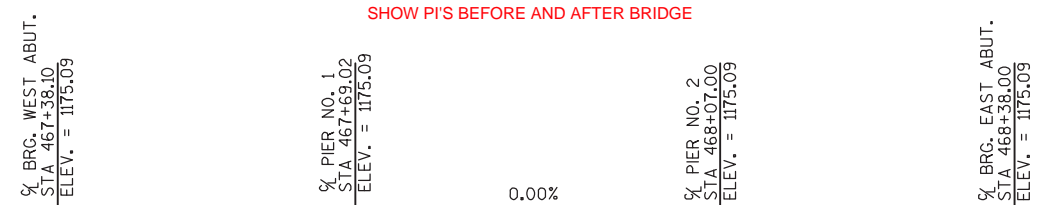
STAGE 1 CROSS SECTION THRU ROADWAY - STH 48
(LOOKING EAST)



STAGE 2 CROSS SECTION THRU ROADWAY - STH 48
(LOOKING EAST)

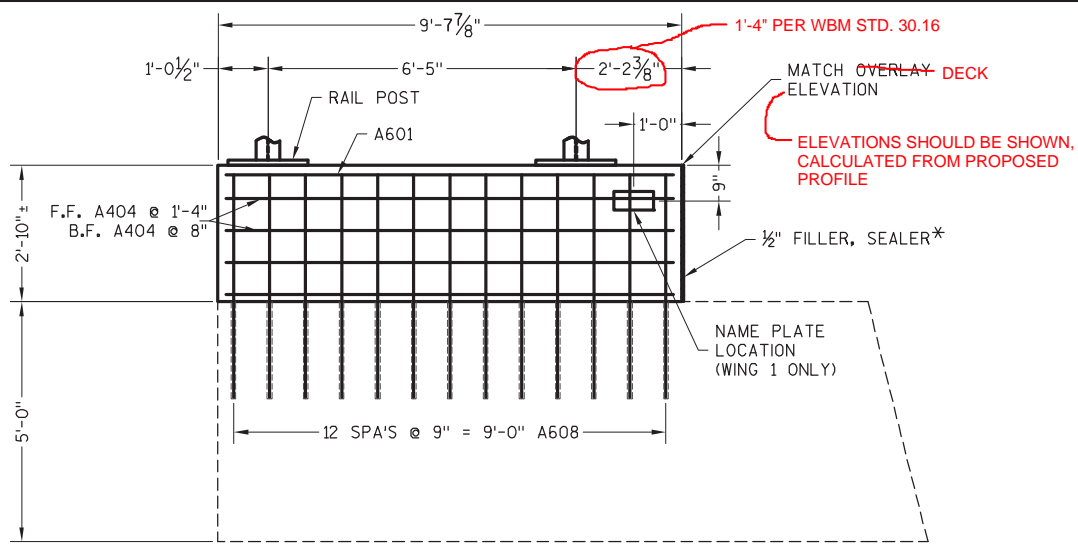
TOTAL ESTIMATED QUANTITIES

PRELIMINARY PLANS SHOULD INCLUDE A LIST OF ANTICIPATED BID ITEMS, PLEASE INCLUDE IN FUTURE SUBMITTALS.



STH 48 PROFILE GRADE LINE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-57-52			
DRAWN BY J.A.F.		PLANS CK'D. SKP	
CONSTRUCTION STAGING		SHEET 2 OF 7	

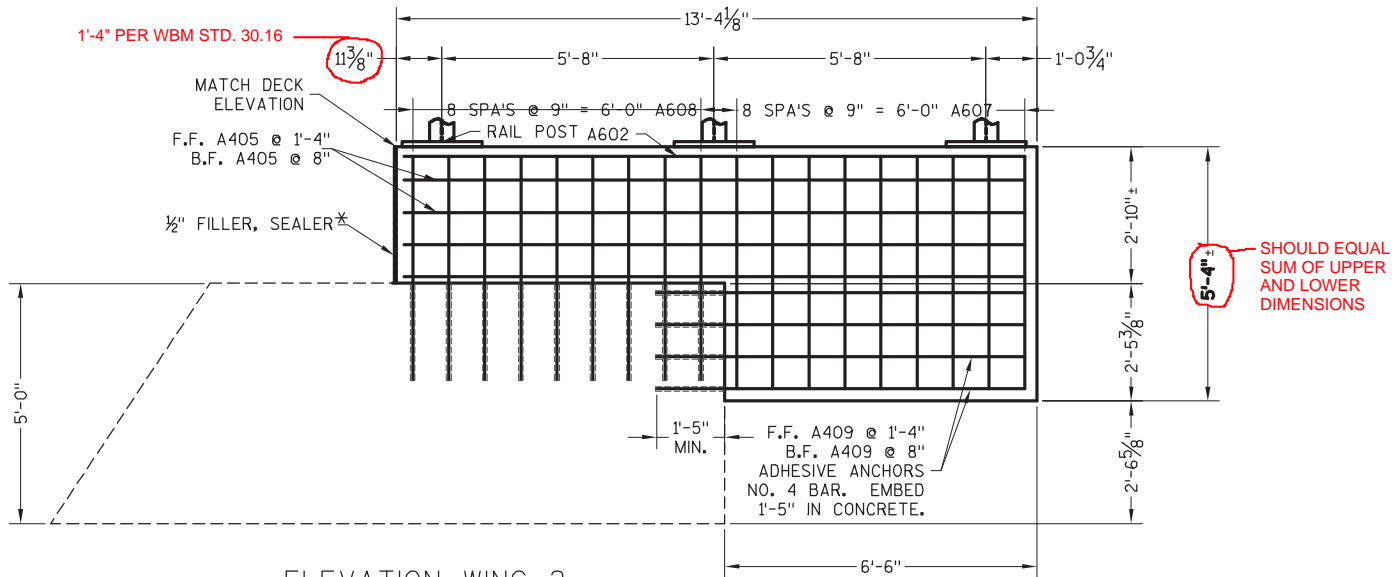


ELEVATION WING 1 & 3

*SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.) EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

NOTE: REBAR QUANTITIES AND LENGTHS NOT CHECKED AS PART OF THIS REVIEW.

CONFIRM ADHESIVE ANCHOR EMBEDMENTS DETERMINED PER GUIDANCE IN WBM 40.16

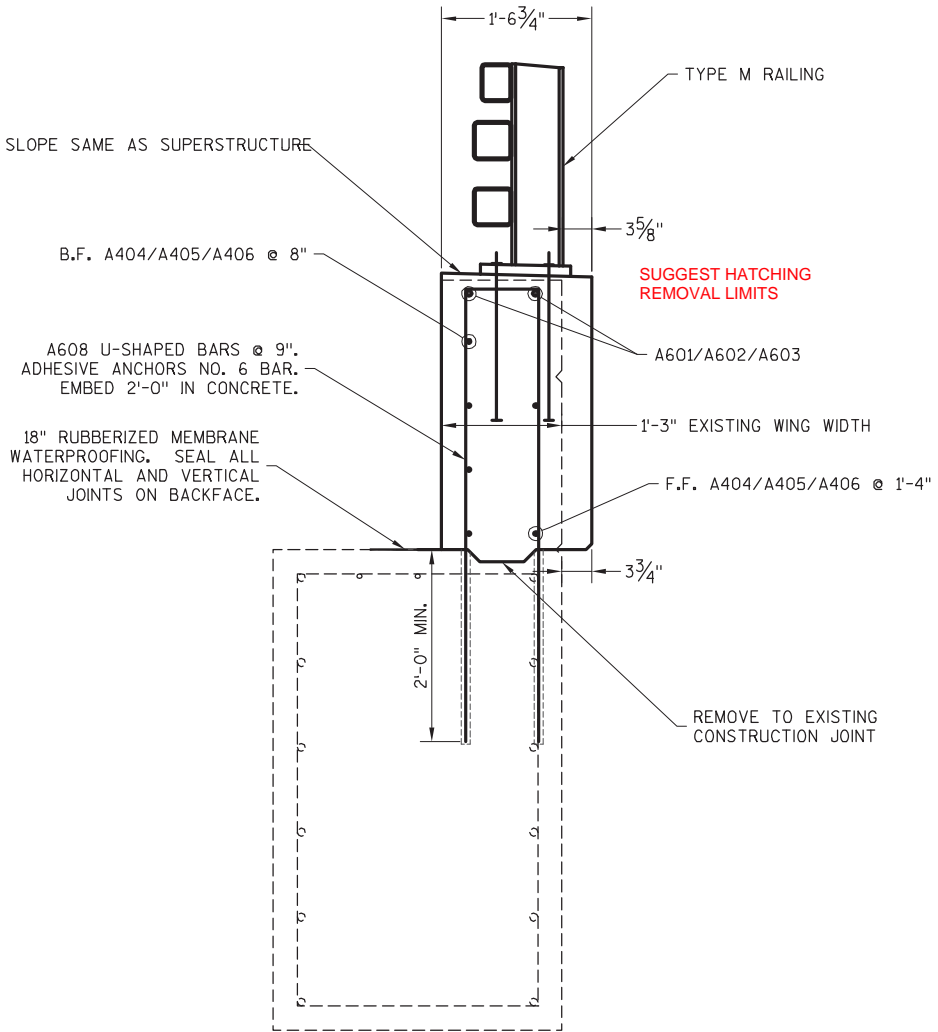


ELEVATION WING 2

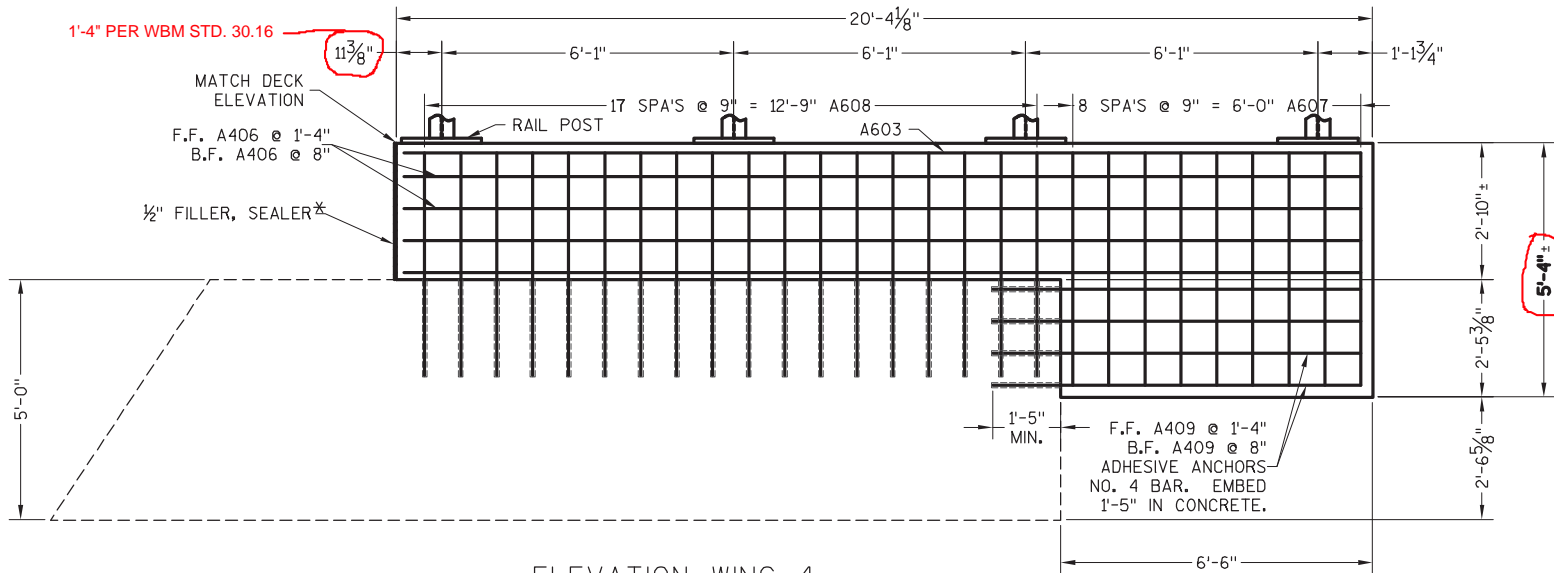
5'-4" ±

SHOULD EQUAL SUM OF UPPER AND LOWER DIMENSIONS

MARK	A	B
A607	4'-11"	0'-11"
A608	4'-8"	0'-11"



TYPICAL WING SECTION

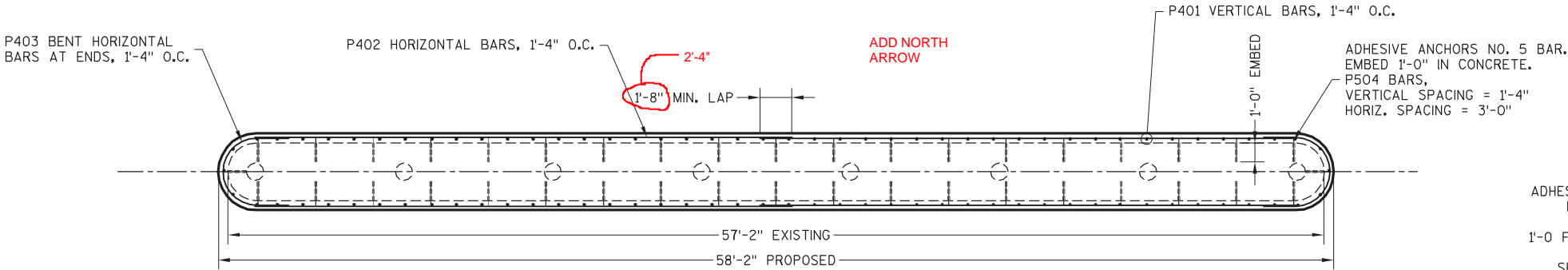


ELEVATION WING 4

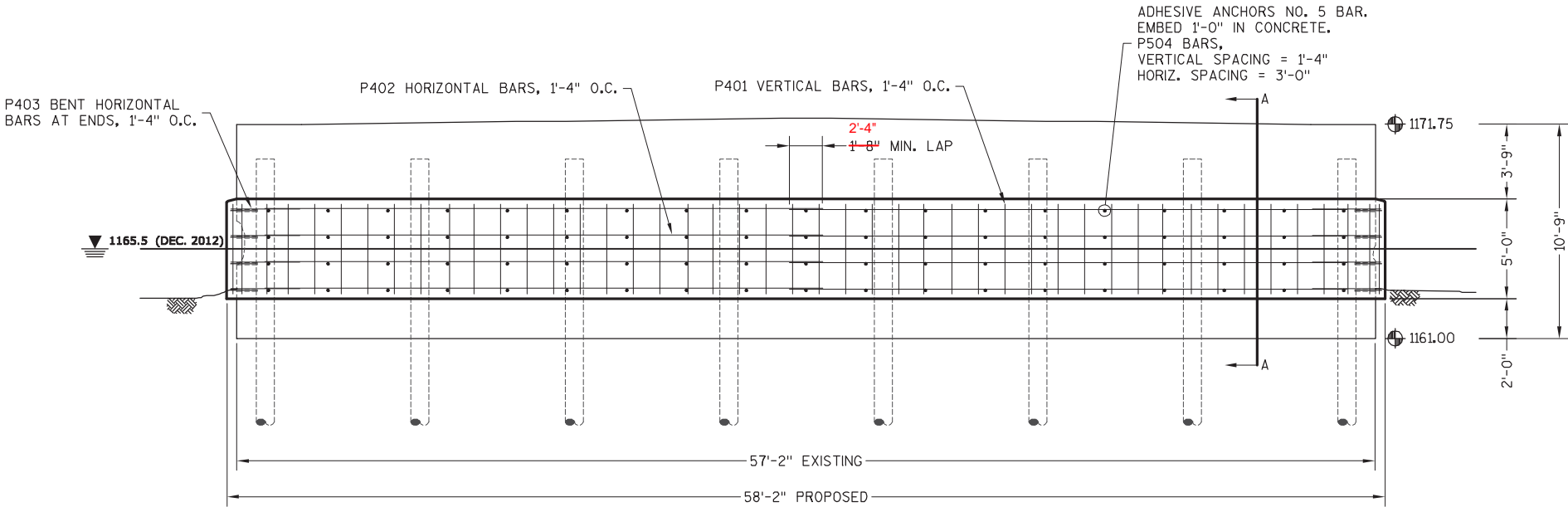
BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
A601	X	4	9 - 4			WING 1 & 3 TOP HORIZONTAL
A602	X	2	13 - 0			WING 2 TOP HORIZONTAL
A603	X	2	20 - 0			WING 4 TOP HORIZONTAL
A404	X	12	9 - 4			WING 1 & 3 HORIZONTAL
A405	X	6	13 - 0			WING 2 HORIZONTAL
A406	X	6	20 - 0			WING 4 HORIZONTAL
A607	X	18	10 - 5	X		WING 2 & 4 VERTICAL
A608	X	53	9 - 9	X		WING U-SHAPED VERTICAL
A409	X	12	4-9			WING 2 & 4 HORIZONTAL

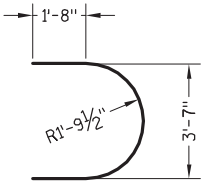
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-57-52			
DRAWN BY J.A.F.		PLANS CK'D. SKP	
WING DETAILS		SHEET 3 OF 7	



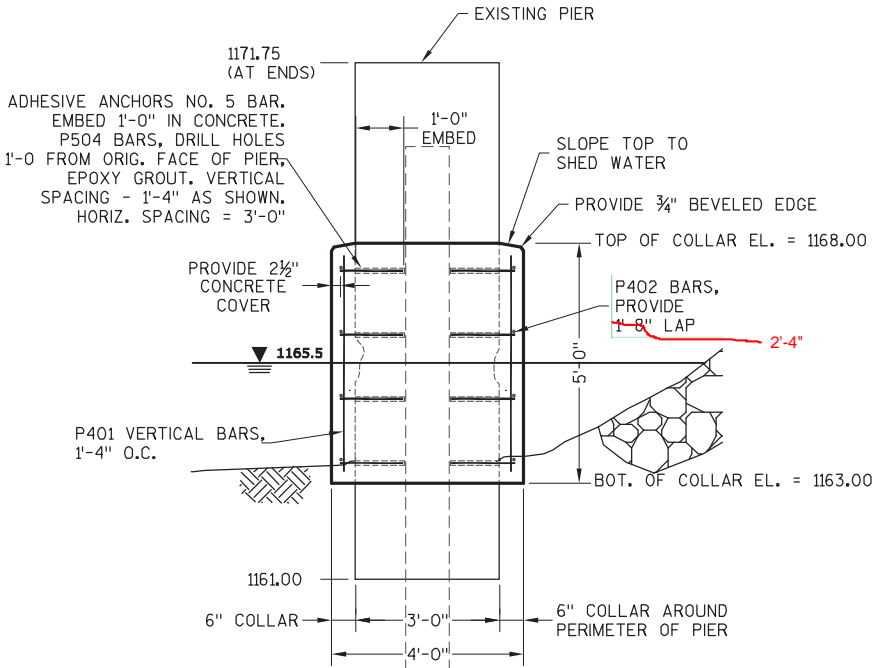
EAST PIER PLAN
(PIER 2)



EAST PIER ELEVATION
(LOOKING WEST)



P403



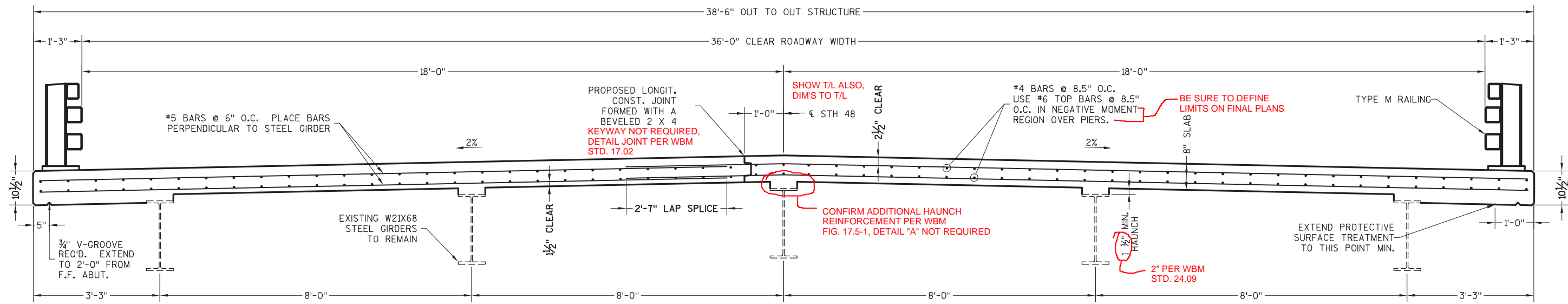
SECTION A-A

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
P401	X	90	4 - 6			PIER REPAIR VERTICAL
P402	X	16	28 - 0			PIER REPAIR HORIZONTAL
P403	X	8	8 - 11	X		PIER REPAIR HORIZ. ENDS
P504	X	160	1 - 3			PIER REPAIR HORIZ. DOWELS

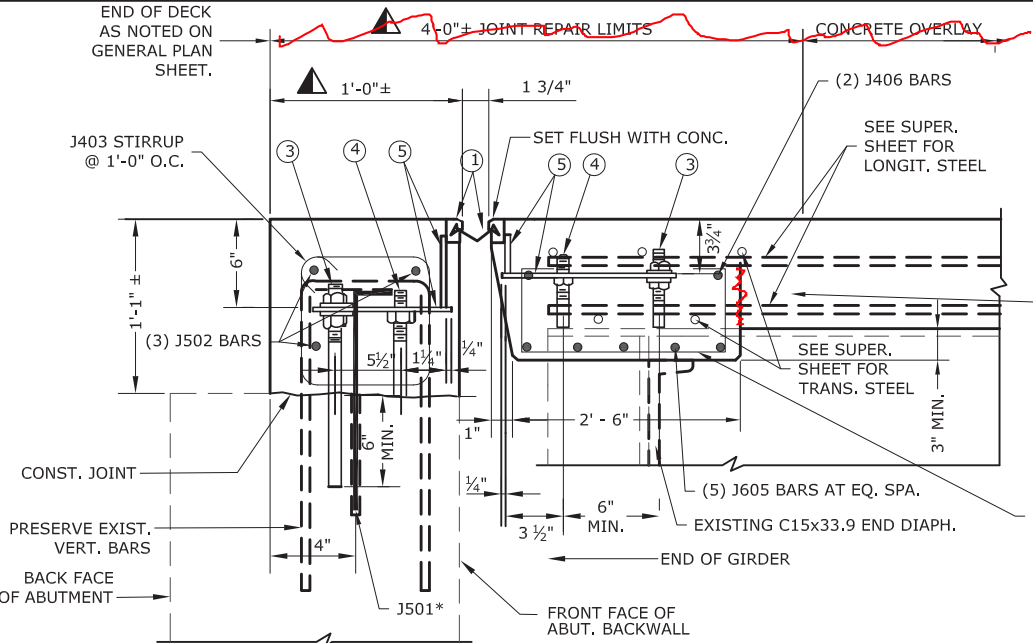
SUGGEST ADDING A HOOK TO THE P504 BARS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-57-52			
DRAWN BY J.A.F.		PLANS CK'D. SKP	
PIER REPAIR		SHEET 4 OF 7	



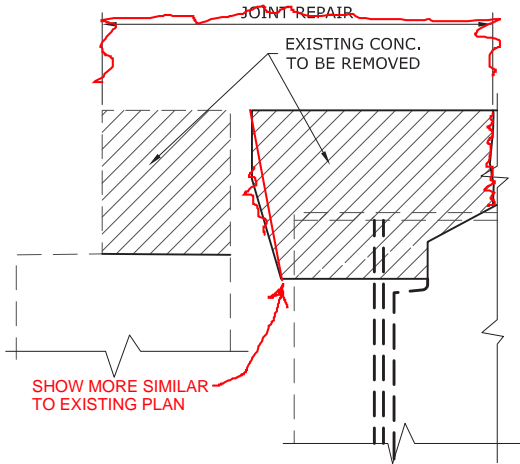
CROSS SECTION THRU ROADWAY - STH 48
(LOOKING EAST)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-57-52			
DRAWN BY J.A.F.		PLANS CK'D. SKP	
SUPERSTRUCTURE		SHEET 5 OF 7	



SECTION THRU PROPOSED JOINT
STEEL GIRDER WITH END DIAPHRAGM
CONCRETE OVERLAY

* ADHESIVE ANCHORS NO. 5 BAR MIN.
EMBED 1'-6" IN CONCRETE. ~~PULLOUT~~
~~CAPACITY OF 19 KIPS~~, SPACE AT 1'-0".
TURN 10" LEG AS NECESSARY TO FIT.



JOINT REPAIR-REMOVAL
STEEL GIRDER

LEGEND

- NEOPRENE STRIP SEAL (4-INCH) & STEEL EXTRUSIONS.
- STUDS $\frac{5}{8}$ " \varnothing x $6\frac{5}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
- ~~2A~~. $\frac{1}{2}$ " THICK ANCHOR PLATE WITH $\frac{5}{8}$ " \varnothing ROD. WELD ROD TO ANCHOR PLATE. WELD ANCHOR PLATE TO No. 1 AT 1'-6" CTRS. BETWEEN GIRDERS.
- $\frac{3}{4}$ " \varnothing THREADED ROD WITH 2 NUTS AND WASHERS. WELD THREADED ROD TO TOP FLANGE OF GIRDER. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACK WALL AS SHOWN.
- $\frac{3}{4}$ " \varnothing THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- FABRICATE SUPPORT FROM 3"x $\frac{1}{2}$ " BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. FIELD OR SHOP WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL PROVIDE. $1\frac{1}{2}$ " \varnothing HOLE FOR NO. 3 & 1" \varnothing HOLE FOR NO. 4.

CHECK NOTES VS. WBM STD. 28.01,
SOME VARIATIONS IN THE NOTES
SHOULD BE ADDRESSED.

NOTES

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS & HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE (~~STRUCTURE B-57-52~~)".

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. IF USED. DETAILS SHALL BE SUBMITTED. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL. SEE CENTERLINE OFFSET NOTE ON GENERAL PLAN.

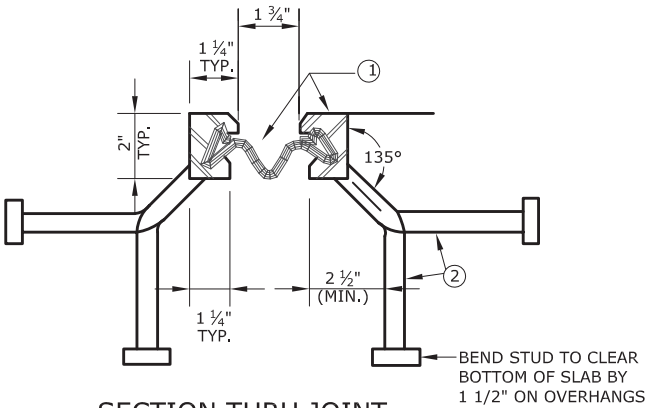
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST & SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SAND BLAST PLATES AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 BEFORE HOT DIP GALVANIZING.

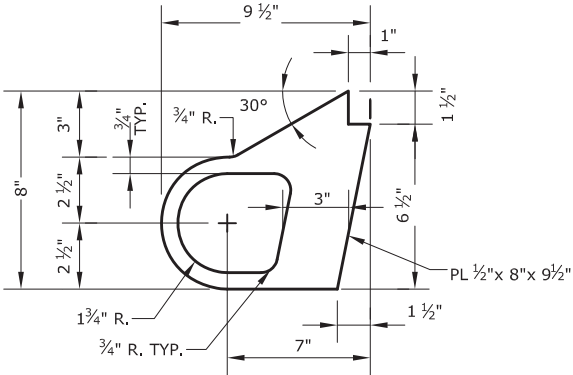
BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
J501	x	128	3 - 0	x		ABUTMENT VERTICAL DOWEL
J502	x	12	33 - 4			ABUTMENT HORIZONTAL
J403	x	128	3 - 2	x		ABUTMENT STIRRUPS
J404	x	80	4 - 8	x		DIAPHRAGM STIRRUP
J605	x	40	12 - 0			DIAPHRAGM BOT. TRANS.
J406	x	24	12 - 0			DIAPHRAGM TOP TRANS.
J507	x	24	8 - 0			PAVING BLOCK HORIZ.

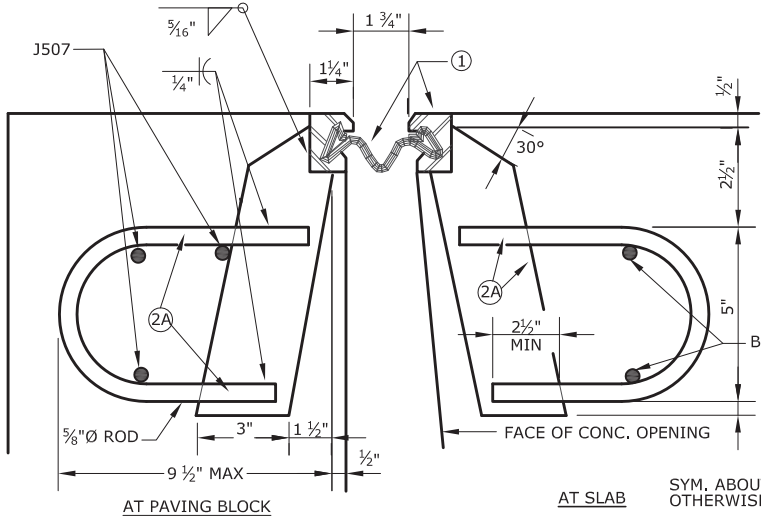


SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF SLAB & AT PARAPETS, MEDIANS & SIDEWALKS

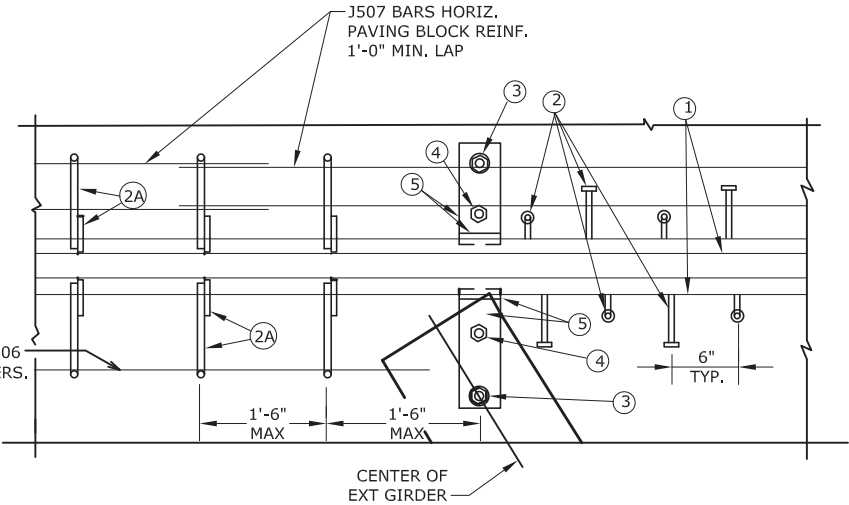


ALTERNATE STRIP SEAL ANCHOR

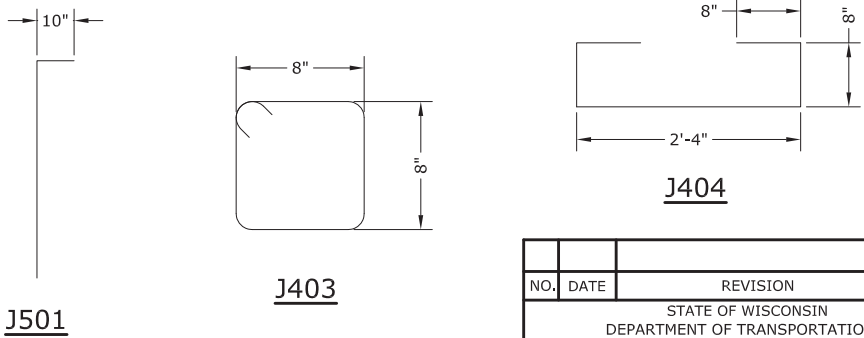


SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



PART PLAN



J501

J403

J404

▲ DIMENSIONS GIVEN ARE NORMAL
TO C/L OF SUBSTRUCTURE UNIT.

NO.	DATE	REVISION	BY
		STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	
		STRUCTURE B-57-52	
		DRAWN BY D.N. PLANS CK'D. SKP	
		STRIP SEAL EXPAN. JOINT DETAILS	SHEET 6 OF 7

LEGEND

- ① W6 x 25 with 1/8" x 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 5/8" x 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)
- ④ 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" x 1 5/8" x 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 7/8" φ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 5/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- ⑫ 7/8" DIA. x 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- ⑬ 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- ⑭ 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- ⑮ 1" φ HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

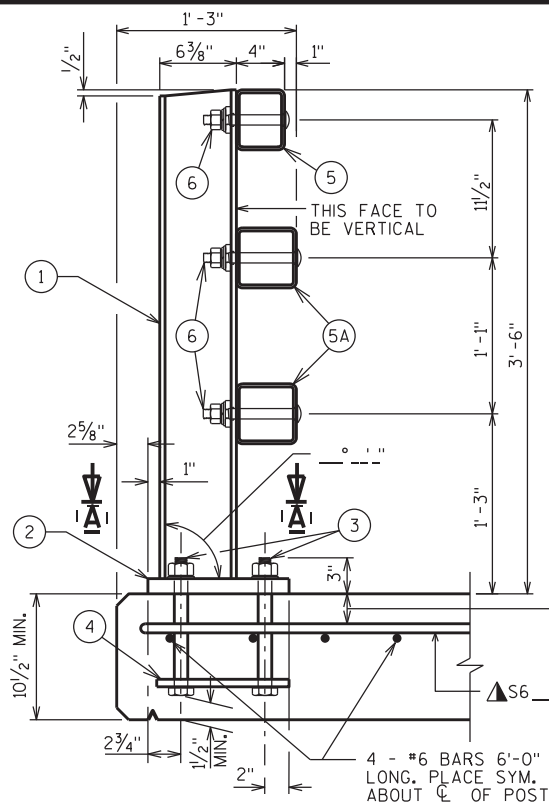
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-57-52" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. , (FILL IN COLOR NAME).
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

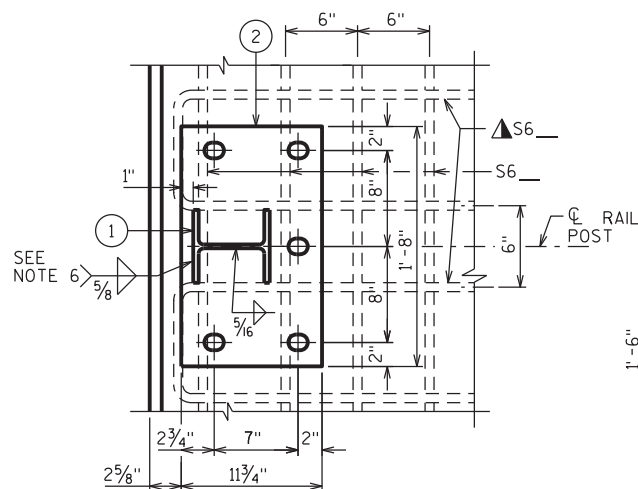
▲ TIE TO TOP MAT OF STEEL.

* FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.

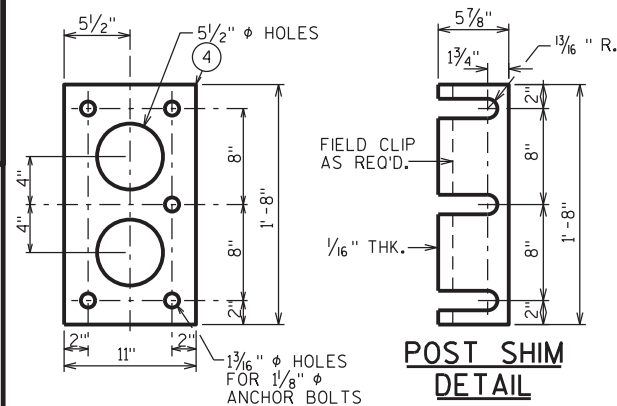
▣ RDWY. OPENING OR 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT & 1/2" OPENING FOR AT ABUTMENT.



SECTION THRU RAILING ON DECK

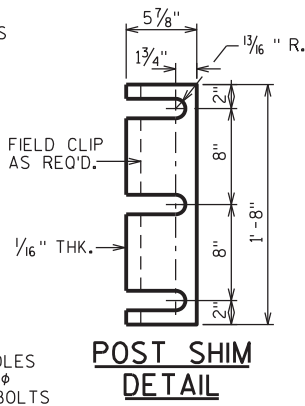
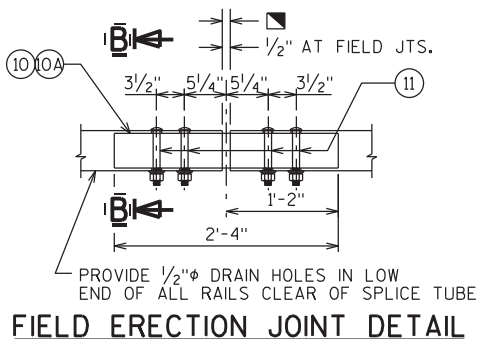


SECTION A-A

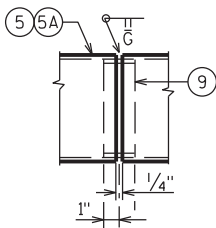


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

POST SHIM
DETAIL

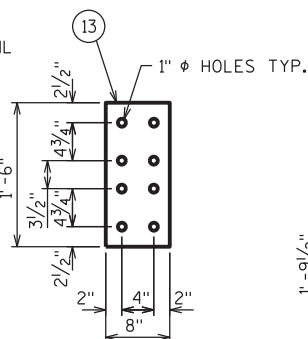
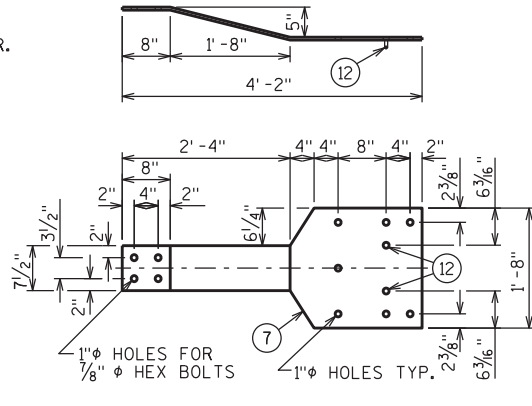
FIELD ERECTION JOINT DETAIL



SHOP RAIL SPLICE DETAIL

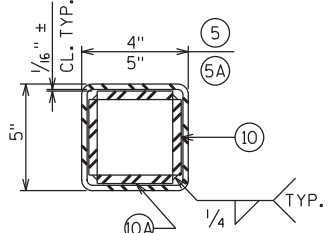
LOCATION MUST BE SHOWN ON SHOP DRAWINGS

2 1/2" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BELOW TOP MAT SLAB REINFORCEMENT.

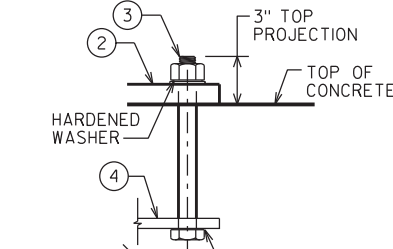
ANCHOR PLATE
AT BEAM GUARD ATTACHMENT

BACK-UP PLATE DETAIL

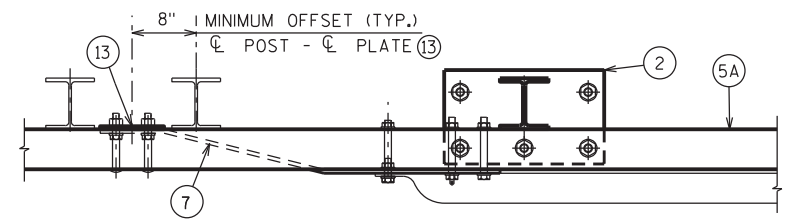
AT BEAM GUARD ATTACHMENT



SECTION B-B

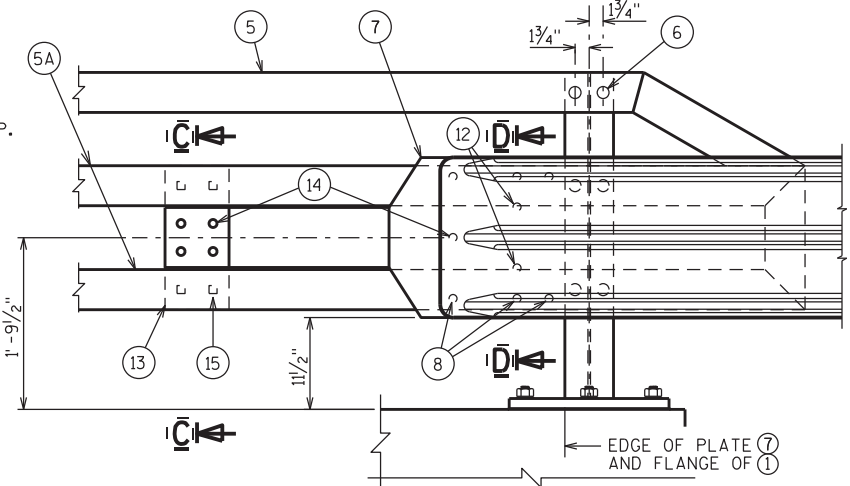


ANCHOR BOLTS



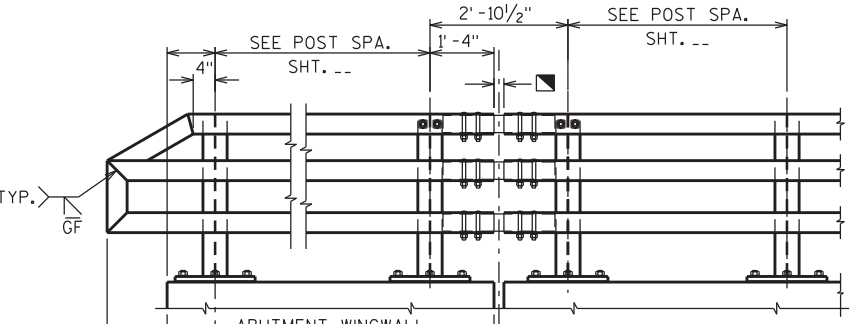
TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT

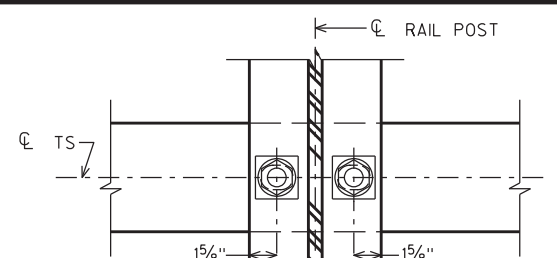


DETAIL AT END POST

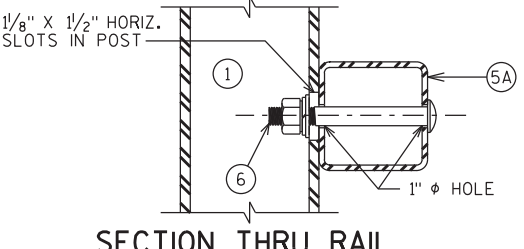
THRIE BEAM RAIL ATTACHMENT



PART ELEVATION OF RAILING



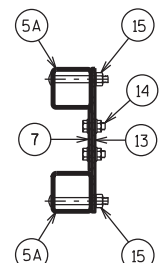
SECTION THRU POST WEB



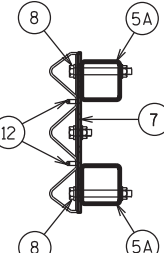
SECTION THRU RAIL

NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



SECTION C-C



SECTION D-D