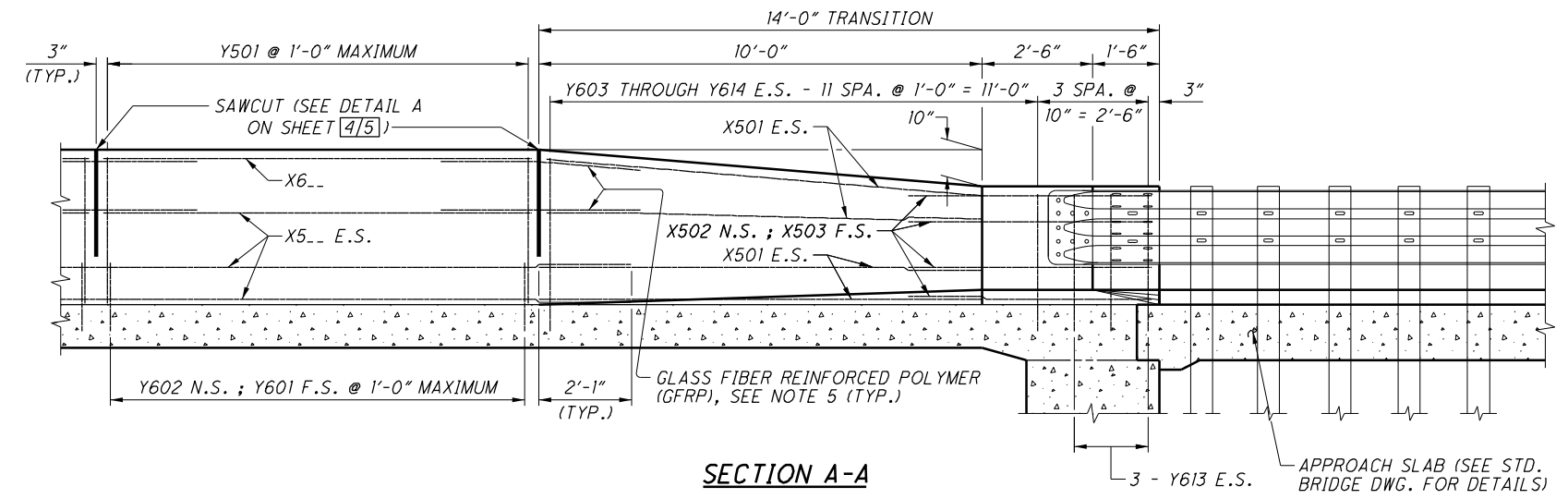
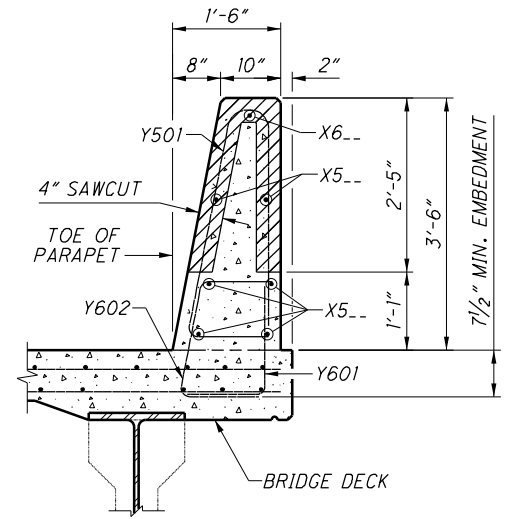


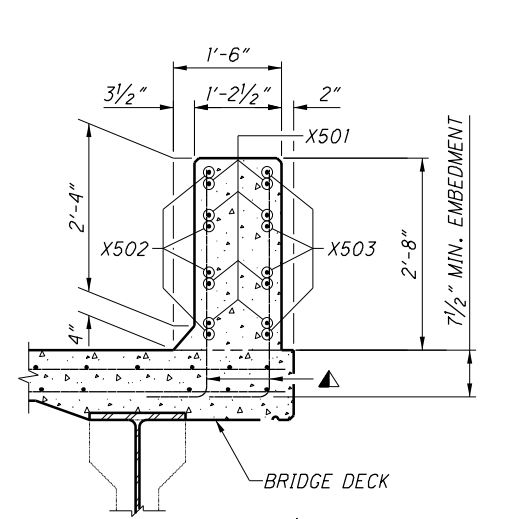
PLAN VIEW
42" SBR-1 TRANSITION MOUNTED ON BRIDGE WITH SEMI-INTEGRAL ABUTMENT SHOWN (INTEGRAL ABUTMENT AND CAPPED PILE ABUTMENT SIMILAR)



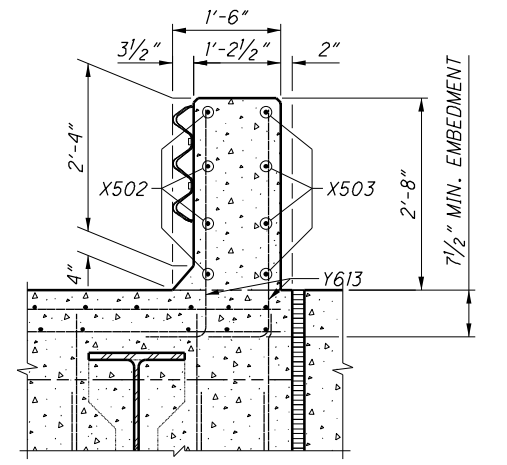
SECTION A-A



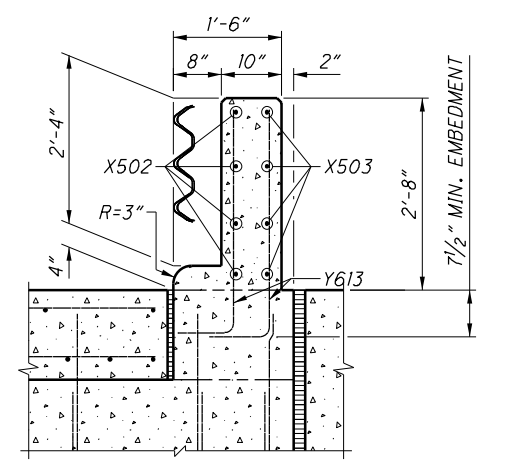
SECTION C-C
(GFRP NOT SHOWN)



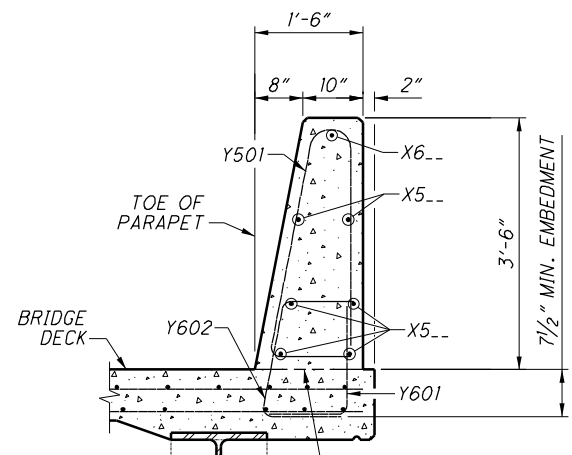
SECTION D-D



SECTION E-E

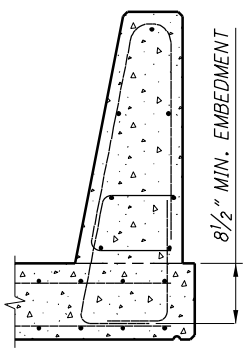


SECTION F-F



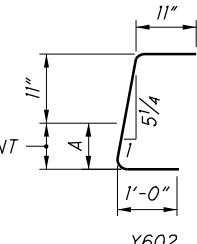
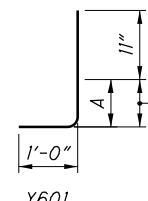
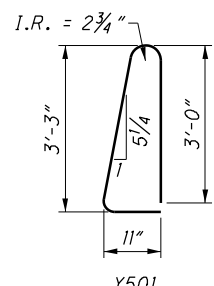
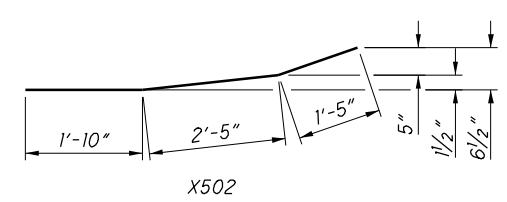
SECTION B-B

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS



CONTINUOUS OR SINGLE SPAN REINFORCED CONCRETE SLAB BRIDGE

REINFORCING STEEL FOR 42" SBR-1 TRANSITION MOUNTED ON BRIDGE OR APPROACH SLAB			BENDING DIAGRAMS	
MARK	LENGTH	TYPE		
X501	10'-0"	STR		
X502	5'-8"	BENT		
X503	5'-8"	STR		
X5..	⊕	STR		
X6.. *	⊕	STR		
Y501	7'-4"	BENT		
Y601	A + 1'-9"	BENT		
Y602	A + 2'-6"	BENT		
Y603 THROUGH Y614	A + B + 10"	BENT		

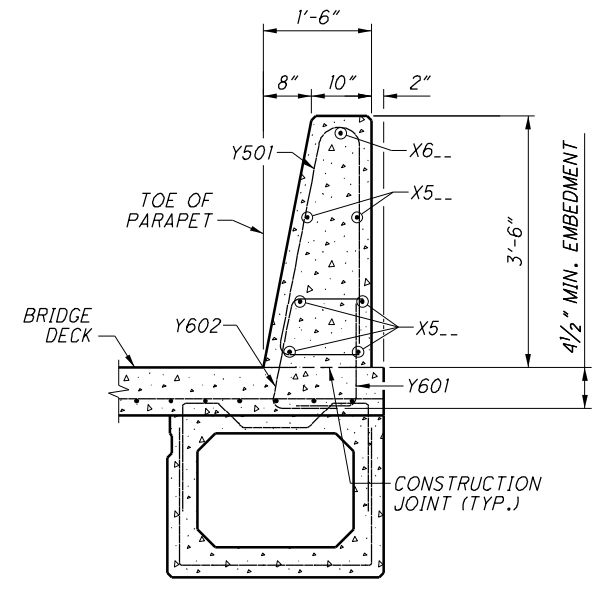
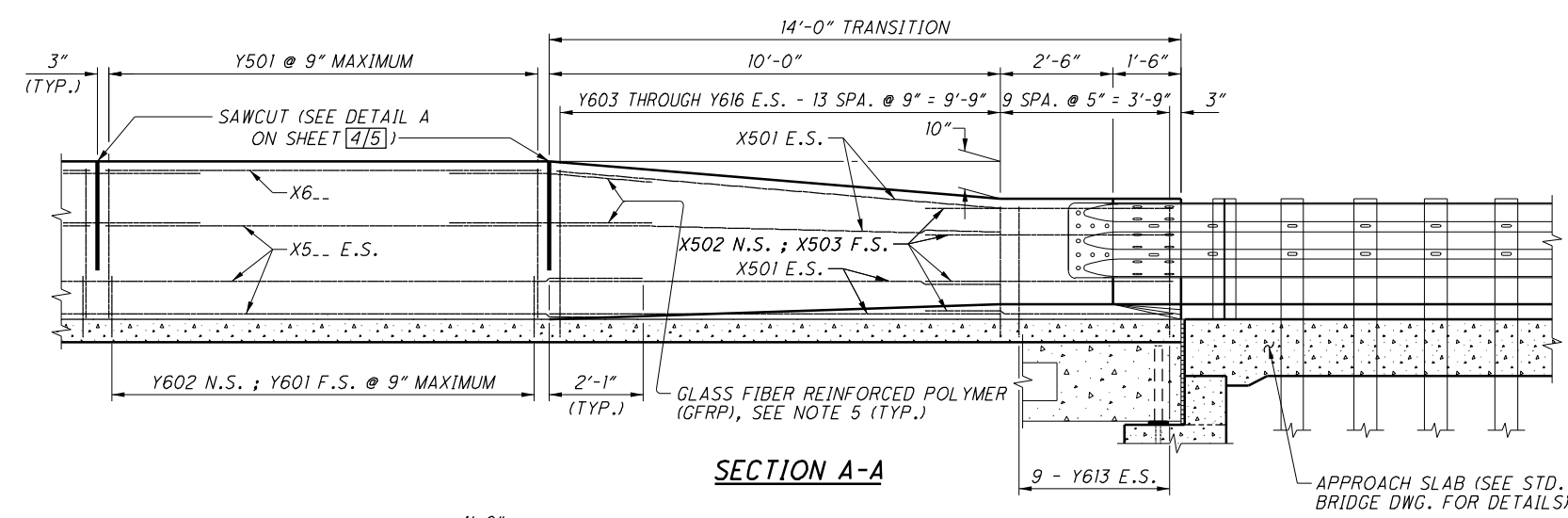
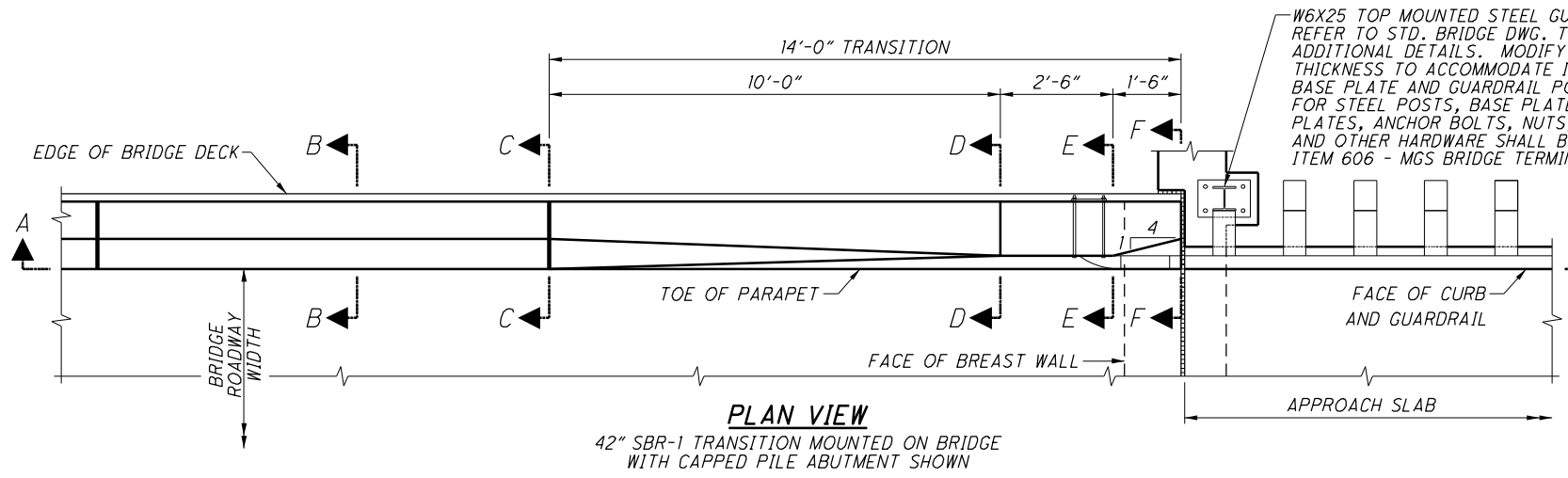


EMBEDMENT	MARK	LENGTH
Y603 THROUGH Y614	Y603	3'-4"
	Y604	3'-3"
	Y605	3'-2"
	Y606	3'-1"
	Y607	3'-0"
	Y608	2'-11"
	Y609	2'-10"
	Y610	2'-9"
	Y611	2'-8"
	Y612	2'-7"
	Y613	2'-6"
	Y614	2'-5"

- NOTES:**
- FOR ALL SINGLE SLOPE CONCRETE BRIDGE RAILINGS INCLUDING THE 14'-0" TRANSITIONS, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
 - SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
 - FOR BRIDGE TERMINAL ASSEMBLY, SEE STD. CONSTR. DWGS. MGS-3.1 AND MGS-3.2.
 - FOR SAWCUT PERIMETER LENGTH, SEE DETAIL A ON SHEET [4/5].
 - FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET [5/5].

LEGEND:
E.S. = EACH SIDE
F.S. = FAR SIDE
N.S. = NEAR SIDE

⊕ SEE PROJECT PLANS.
* FIELD BEND BARS WHERE NECESSARY.

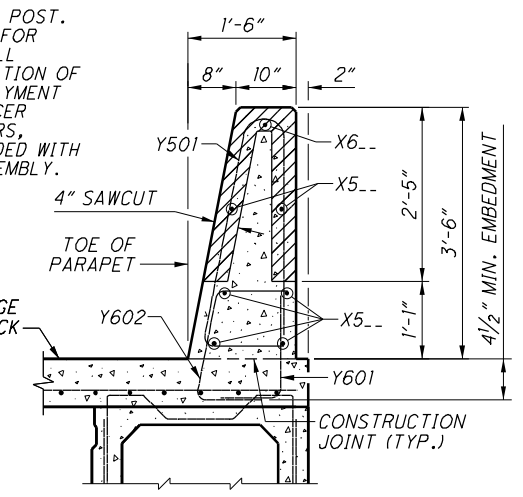


SECTION B-B
COMPOSITE PRESTRESSED
CONCRETE BOX BEAMS

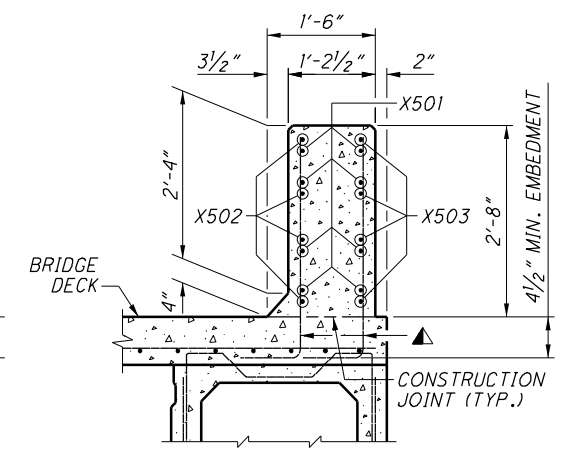
- NOTES:**
- FOR ALL SINGLE SLOPE CONCRETE BRIDGE RAILINGS INCLUDING THE 14'-0" TRANSITIONS, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
 - SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
 - FOR BRIDGE TERMINAL ASSEMBLY, SEE STD. CONSTR. DWGS. MGS-3.1 AND MGS-3.2.
 - FOR SAWCUT PERIMETER LENGTH, SEE DETAIL A ON SHEET [4/5].
 - FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET [5/5].

LEGEND:
E.S. = EACH SIDE
F.S. = FAR SIDE
N.S. = NEAR SIDE

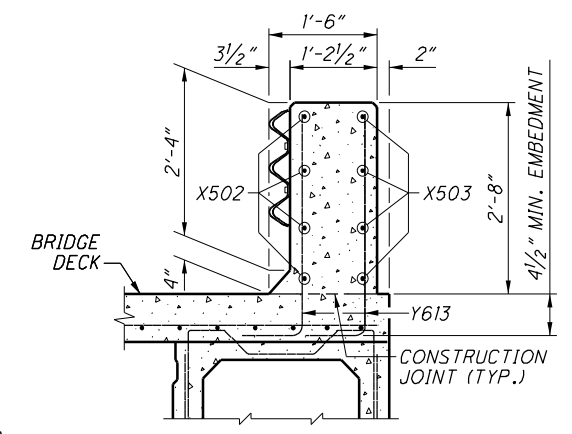
W6X25 TOP MOUNTED STEEL GUARDRAIL POST. REFER TO STD. BRIDGE DWG. TST-1-99 FOR ADDITIONAL DETAILS. MODIFY WINGWALL THICKNESS TO ACCOMMODATE INSTALLATION OF BASE PLATE AND GUARDRAIL POST. PAYMENT FOR STEEL POSTS, BASE PLATES, SPACER PLATES, ANCHOR BOLTS, NUTS, WASHERS, AND OTHER HARDWARE SHALL BE INCLUDED WITH ITEM 606 - MGS BRIDGE TERMINAL ASSEMBLY.



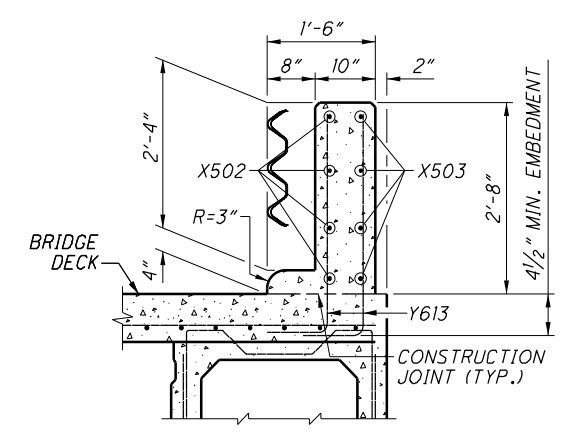
SECTION C-C
(GFRP NOT SHOWN)



SECTION D-D ▲: Y603 THROUGH Y616



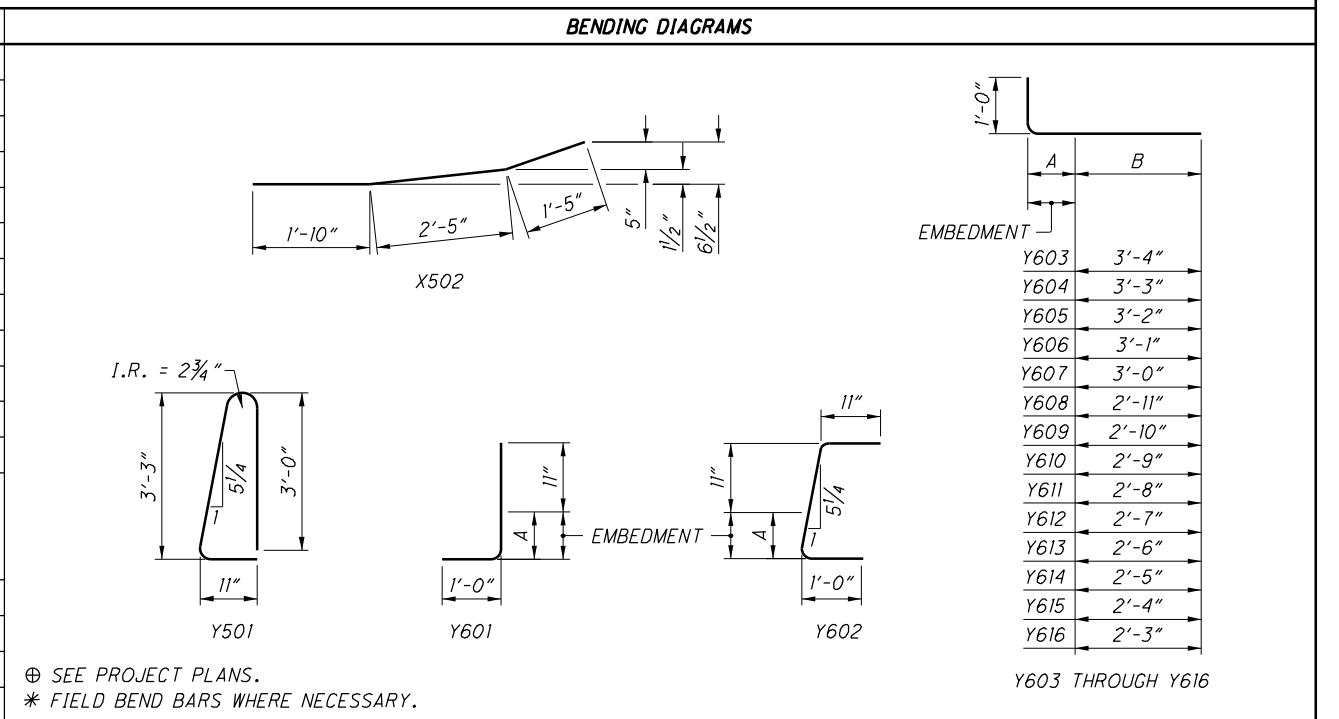
SECTION E-E



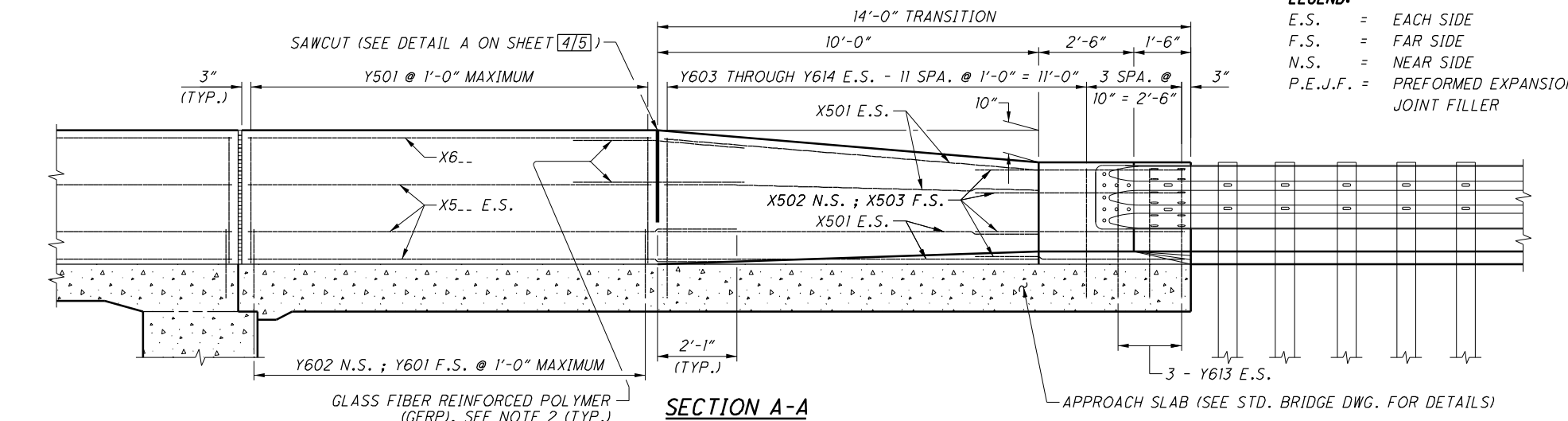
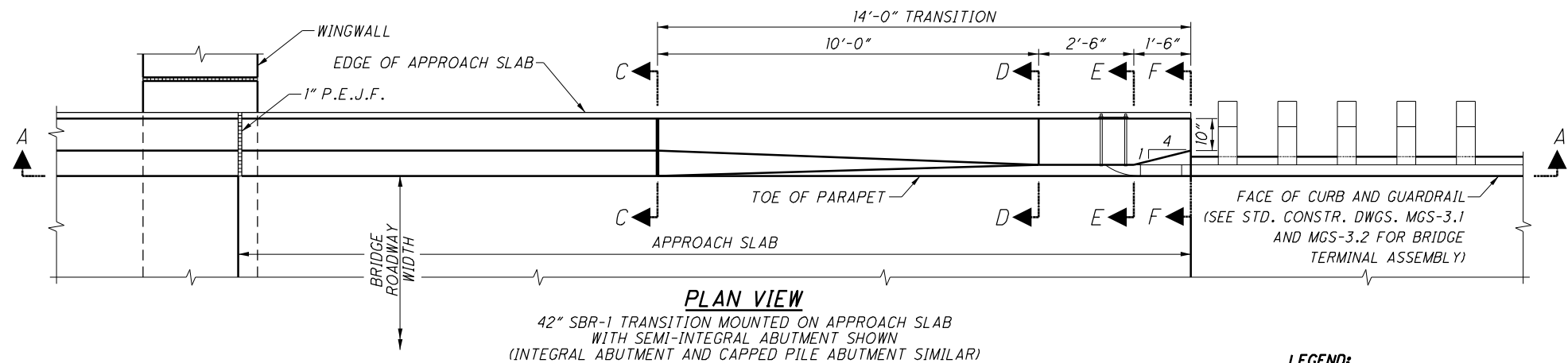
SECTION F-F

REINFORCING STEEL FOR 42" SBR-1 TRANSITION MOUNTED ON BRIDGE

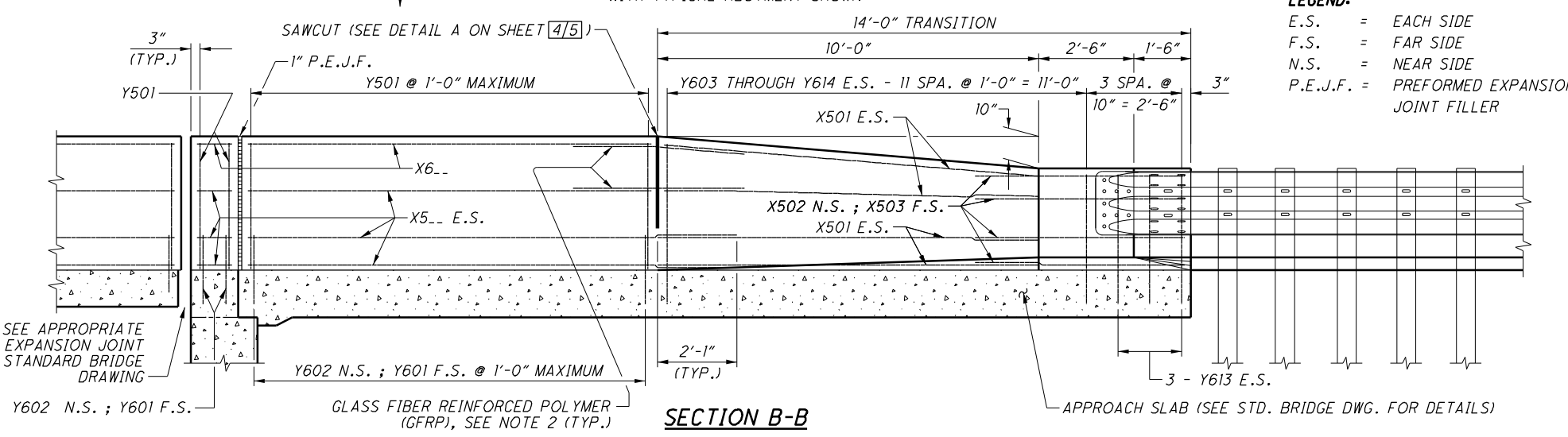
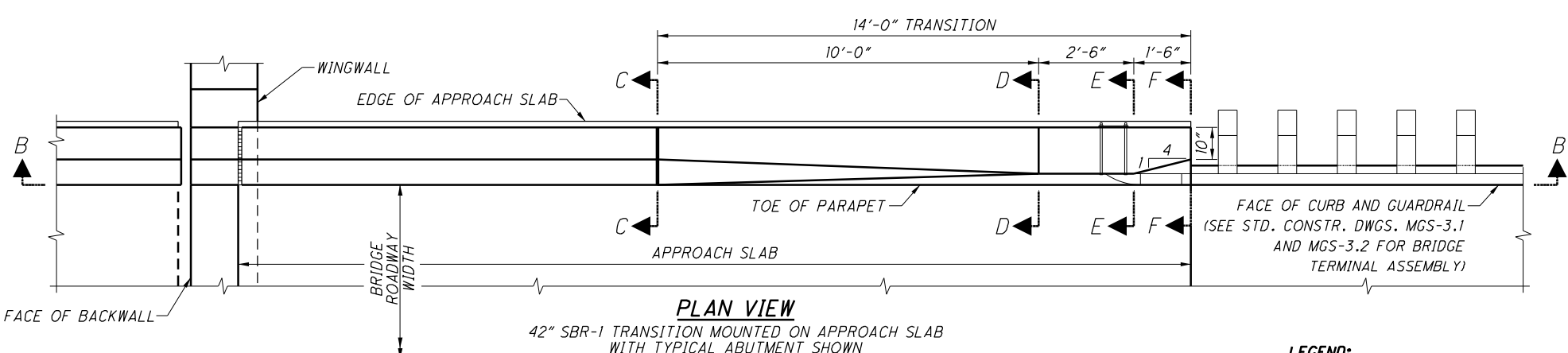
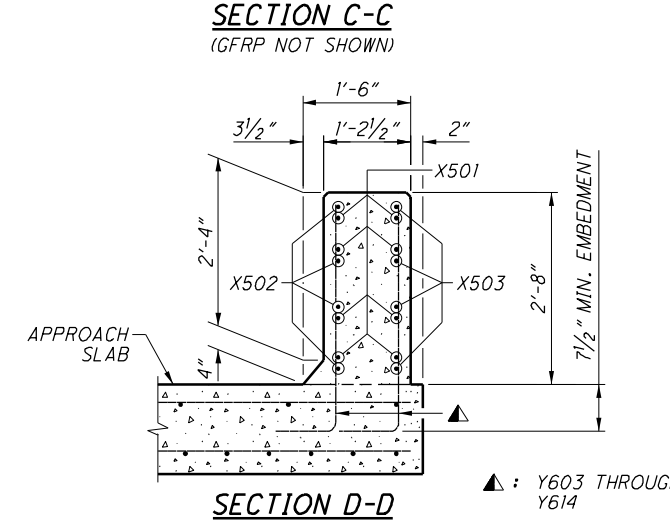
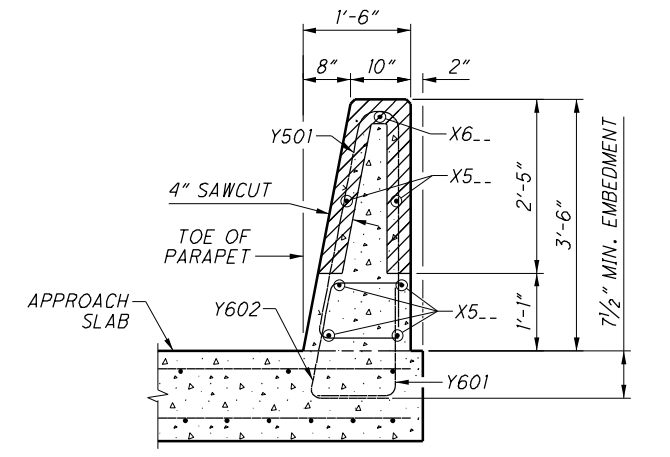
MARK	LENGTH	TYPE
X501	10'-0"	STR
X502	5'-8"	BENT
X503	5'-8"	STR
X5..	⊕	STR
X6.. *	⊕	STR
Y501	7'-4"	BENT
Y601	A + 1'-9"	BENT
Y602	A + 2'-6"	BENT
Y603	A + B + 10"	BENT
THROUGH Y614		



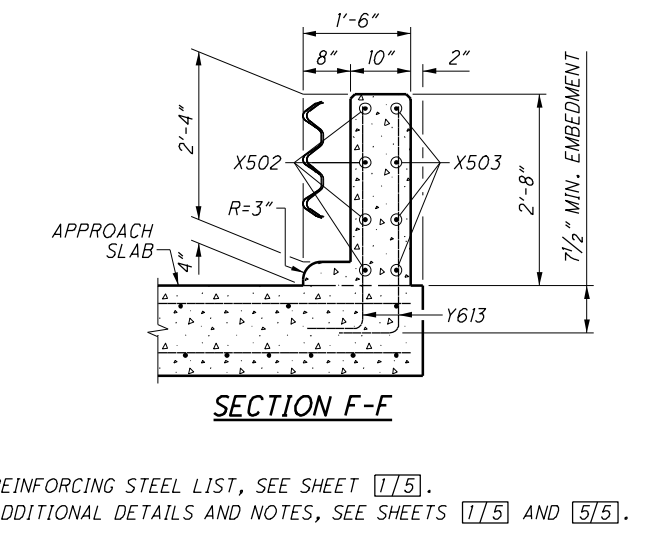
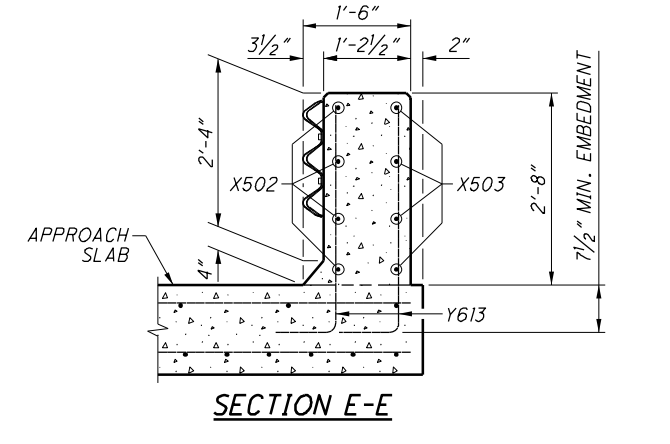
⊕ SEE PROJECT PLANS.
* FIELD BEND BARS WHERE NECESSARY.



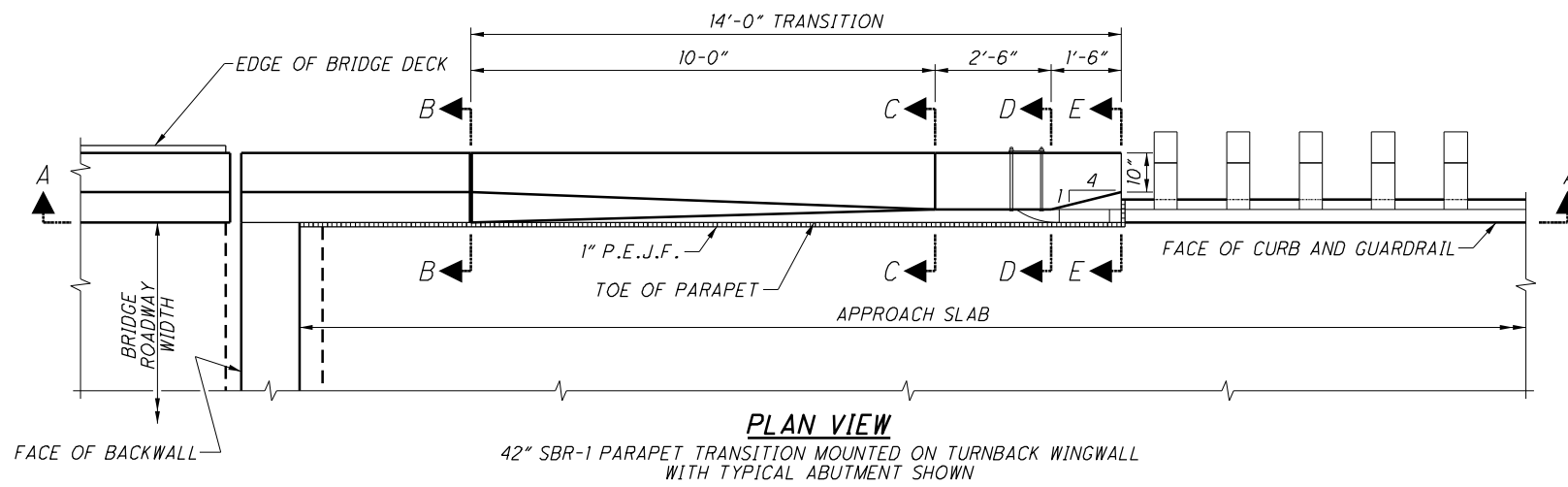
LEGEND:
E.S. = EACH SIDE
F.S. = FAR SIDE
N.S. = NEAR SIDE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER



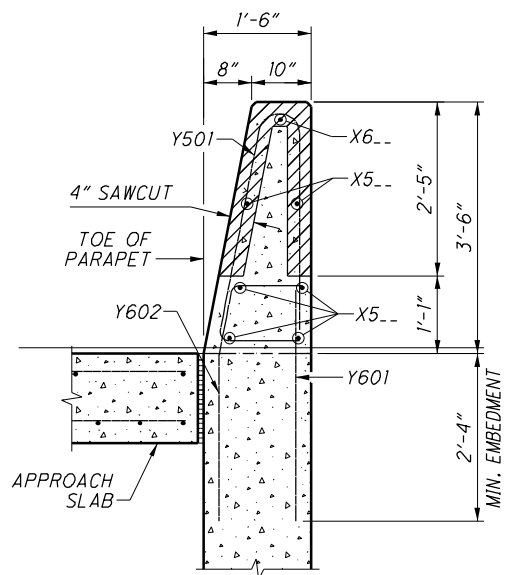
LEGEND:
E.S. = EACH SIDE
F.S. = FAR SIDE
N.S. = NEAR SIDE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER



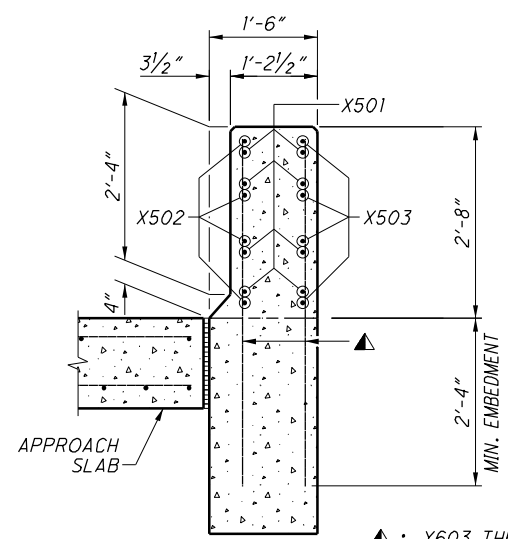
NOTES:
1. FOR REINFORCING STEEL LIST, SEE SHEET [1/5].
2. FOR ADDITIONAL DETAILS AND NOTES, SEE SHEETS [1/5] AND [5/5].



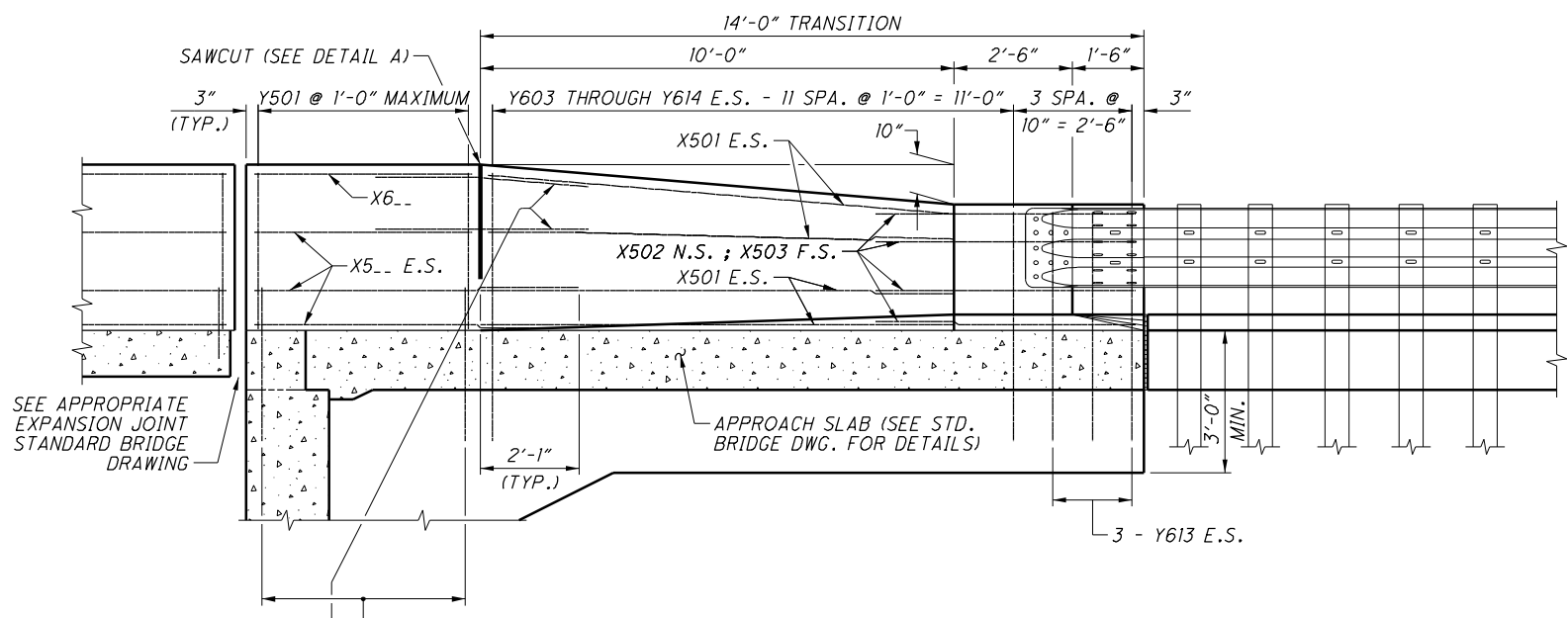
PLAN VIEW
42" SBR-1 PARAPET TRANSITION MOUNTED ON TURNBACK WINGWALL WITH TYPICAL ABUTMENT SHOWN



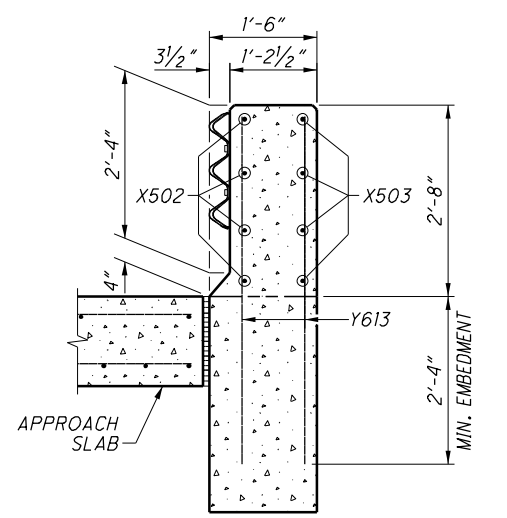
SECTION B-B
(GFRP NOT SHOWN)



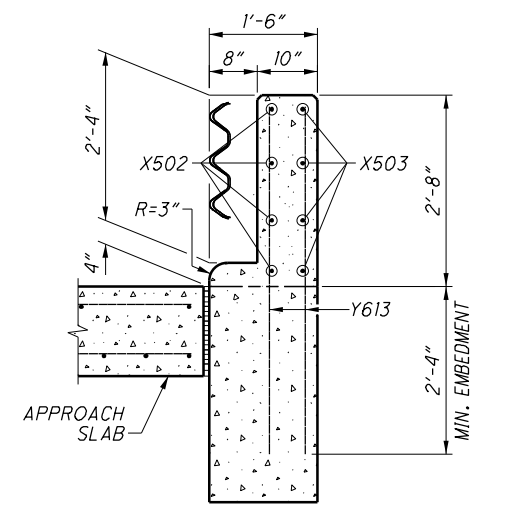
SECTION C-C



SECTION A-A

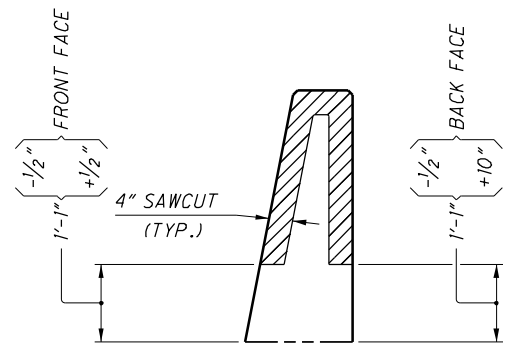


SECTION D-D



SECTION E-E

GLASS FIBER REINFORCED POLYMER (GFRP), SEE NOTE 4 (TYP.)



DETAIL A
SECTION THROUGH SAWCUT
SAWCUT PERIMETER = 5'-9"

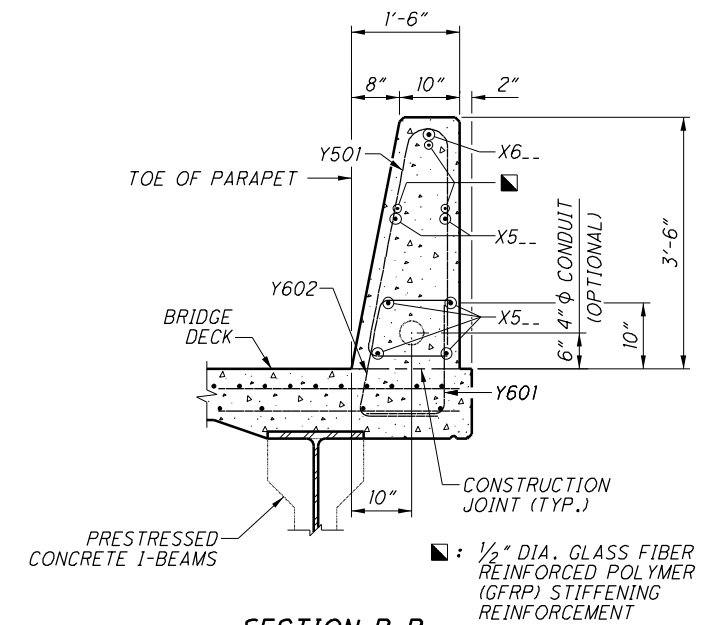
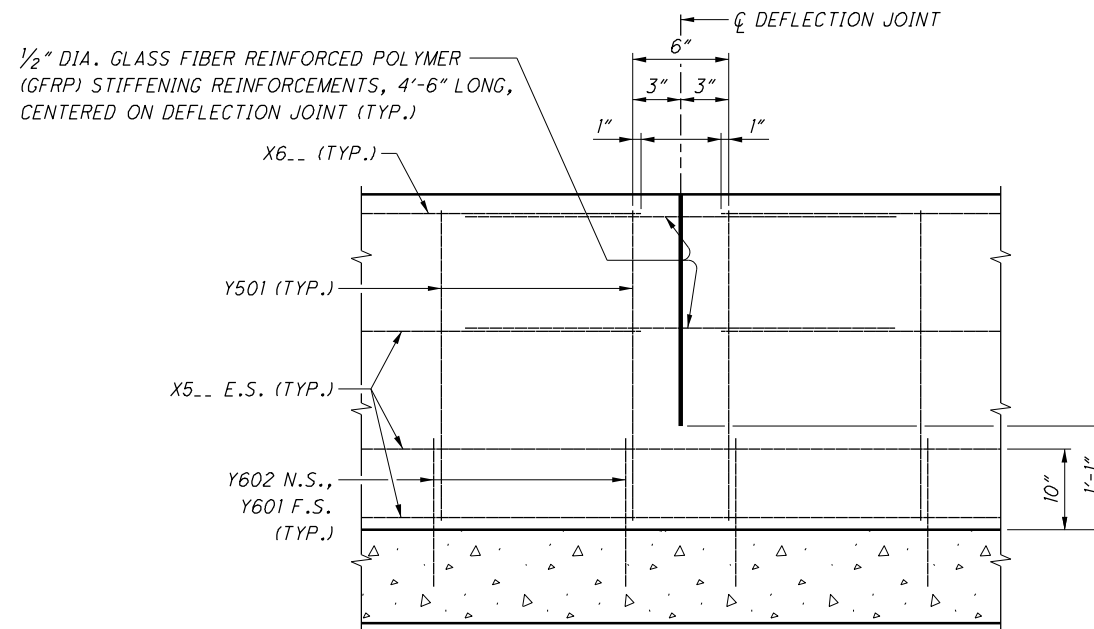
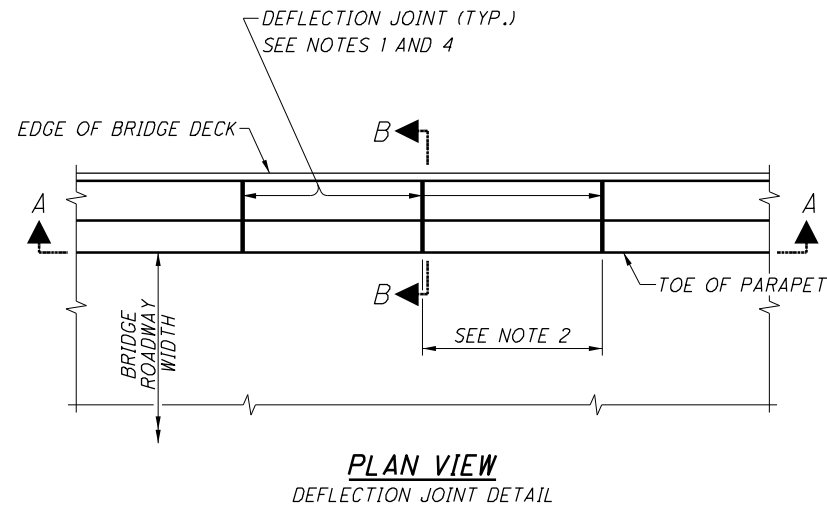
LEGEND:
E.S. = EACH SIDE
F.S. = FAR SIDE
N.S. = NEAR SIDE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER

- NOTES:**
- FOR ALL SINGLE SLOPE CONCRETE BRIDGE RAILINGS INCLUDING THE 14'-0" TRANSITIONS, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
 - SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
 - FOR BRIDGE TERMINAL ASSEMBLY, SEE STD. CONSTR. DWGS. MGS-3.1 AND MGS-3.2.
 - FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET [5]5.

REINFORCING STEEL FOR 42" SBR-1 TRANSITION MOUNTED ON WINGWALL

MARK	LENGTH	TYPE	BENDING DIAGRAMS
X501	10'-0"	STR	
X502	5'-8"	BENT	
X503	5'-8"	STR	
X5..	⊕	STR	
X6.. *	⊕	STR	
Y501	7'-4"	BENT	
Y601	A + 11"	STR	
Y602	A + 1'-8"	BENT	
Y603	A + B	STR	
Y604	3'-4"	STR	
Y605	3'-3"	STR	
Y606	3'-2"	STR	
Y607	3'-1"	STR	
Y608	3'-0"	STR	
Y609	2'-11"	STR	
Y610	2'-10"	STR	
Y611	2'-9"	STR	
Y612	2'-8"	STR	
Y613	2'-7"	STR	
Y614	2'-6"	STR	
Y615	2'-5"	STR	

⊕ SEE PROJECT PLANS.
* FIELD BEND BARS WHERE NECESSARY.



NOTES:

- FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATIONS OF DEFLECTION JOINTS.
- DEFLECTION JOINT SPACING SHALL NOT EXCEED 15'-0" ON CENTERS. FOR CONTINUOUS STRUCTURES, THE DEFLECTION JOINTS WITHIN THE DEAD LOAD CONTRAFLEXURE (NEGATIVE MOMENT REGIONS OVER PIER LOCATIONS) SHALL BE SPACED NOT LESS THAN 5'-0" NOR MORE THAN 7'-6" ON CENTERS.
- PAYMENT FOR 1/2" DIA. GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENT SHALL BE INCLUDED WITH CONTRACT PRICE FOR ITEM 509 - EPOXY COATED REINFORCING STEEL.
- LIMITS OF SAWCUT IS SHOWN IN DETAIL A, SHEET [4/5]. THE 4" SAWCUT DEPTH SHOWN IN DETAIL A IS THE MINIMUM REQUIRED. HOWEVER, THE CONTRACTOR HAS AN OPTION TO PERFORM FULL DEPTH SAWCUT.

DESIGN CRITERIA:

42" SINGLE SLOPE CONCRETE BRIDGE RAILINGS MEET THE REQUIREMENTS OF NCHRP 350 TEST LEVEL 5 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 2012.

DESIGN DATA:

CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI
 REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI

AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
 VOLUME OF 42" SBR-1 14'-0" TRANSITION SECTION = 1.82 CU. YD.

DEFLECTION JOINTS FOR CONCRETE PARAPETS:

SAWCUT 1/4 INCH DEEP DEFLECTION JOINTS ALONG THE PERIMETER OF THE PARAPET WHEN THE CONCRETE IS STILL GREEN OR AS SOON AS THE SAW CAN BE OPERATED WITHOUT DAMAGING THE CONCRETE.

AFTER THE CONCRETE CURING PERIOD SPECIFIED IN CMS 511.14 HAS BEEN REACHED, PERFORM 4" SAWCUT THROUGH THE GFRP AS SHOWN IN DETAIL A, SHEET [4/5].

THE CONTRACTOR HAS AN OPTION TO PERFORM FULL DEPTH SAWCUT. HOWEVER, THE SAWCUT SHALL NOT BE LESS THAN 1'-0 1/2" FROM THE TOP OF THE CONCRETE DECK SLAB.

USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH.

SEAL THE PERIMETER OF THE DEFLECTION JOINTS TO A MINIMUM DEPTH OF ONE INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF BOTH THE INSIDE AND OUTSIDE FACES OF THE PARAPET UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

AT EACH DEFLECTION JOINT LOCATION, USE GLASS FIBER REINFORCED POLYMER (GFRP) REINFORCEMENT TO MAINTAIN THE RIGIDITY OF THE CAGE ACROSS THE PROPOSED JOINTS AT THOSE LONGITUDINAL BARS AS SHOWN IN SECTIONS A-A & B-B ABOVE. OTHER NON-FERROUS REINFORCEMENT MAY BE PROPOSED FOR USE, SUBJECT TO APPROVAL BY THE ENGINEER.

FOR TRANSITION SECTION, PLACE A DEFLECTION JOINT AT THE BEGINNING OF THE 14'-0" TRANSITION. DEFLECTION JOINTS ARE NOT REQUIRED WITHIN THE 14'-0" TRANSITION SECTION.

MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR STANDARD 42" SBR-1 CONCRETE PARAPETS:

THE MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR THE STANDARD 42" SBR-1 CONCRETE PARAPET SHALL BE 1'-0", UNLESS NOTED OTHERWISE.

MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR 42" SBR-1 TRANSITIONS:

THE MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR THE 42" SBR-1 TRANSITION SECTION SHALL BE AS SHOWN ON SHEETS [1/5], [2/5], [3/5], OR [4/5].

MINIMUM EMBEDMENT OF VERTICAL REINFORCING BARS:

IF THE MINIMUM EMBEDMENT SHOWN FOR THE VERTICAL REINFORCING BARS INTO THE BRIDGE DECK, APPROACH SLAB, OR WINGWALL IS NOT MET, THEN THE DESIGNER SHALL CALCULATE THE REQUIRED REINFORCEMENT ACCORDING TO SECTION 13 OF THE "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS.