

STATE OF VERMONT AGENCY OF TRANSPORTATION



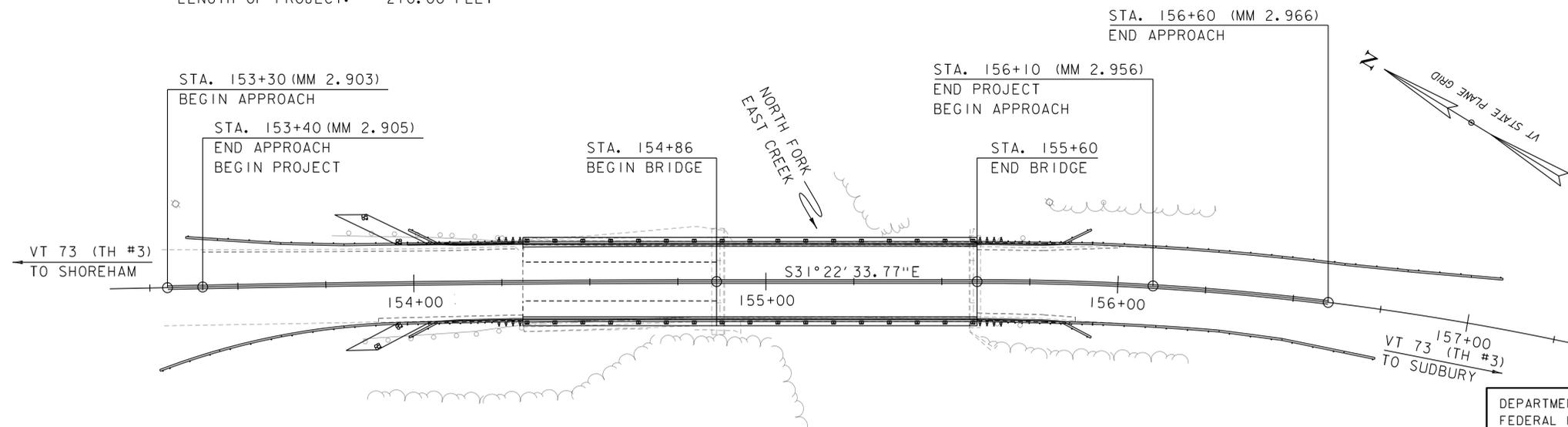
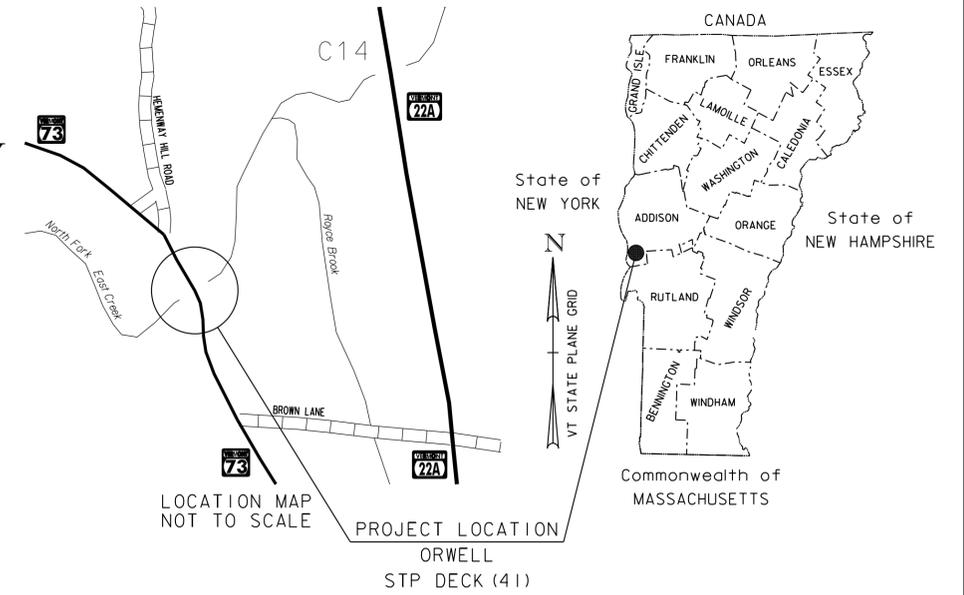
PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF ORWELL COUNTY OF ADDISON

VT ROUTE 73 (TH #3) (MAJOR COLLECTOR) BRIDGE NO. 4

PROJECT LOCATION: LOCATED IN THE TOWN OF ORWELL, ON VT 73 (TH #3), APPROXIMATELY 2.940 MILES EASTERLY OF THE SHOREHAM/ORWELL TOWN LINE.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE REPLACEMENT OF THE EXISTING BRIDGE DECK INCLUDING RELATED APPROACH WORK.

LENGTH OF STRUCTURE: 74.00 FEET
LENGTH OF ROADWAY: 196.00 FEET
LENGTH OF PROJECT: 270.00 FEET



**ORWELL
STP DECK(41)
FINAL PLANS
DECEMBER 4, 2015**

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2
SURVEYED BY : CLD
SURVEYED DATE : 09/21/2015
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

SCALE 1" = 20' - 0"

540 Commercial Street
 Manchester, NH 03101
 (603) 668-8223
 www.cldengineers.com

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATOR
APPROVED _____ DATE _____
DIRECTOR OF PROJECT DELIVERY
APPROVED _____ DATE _____
PROJECT MANAGER : JENNIFER FITCH, P.E.
PROJECT NAME : ORWELL
PROJECT NUMBER : STP DECK (41)
SHEET 1 OF 27 SHEETS

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STRUCTURE DETAIL SHEETS

- SD-501.00 02/09/2012 CONCRETE DETAILS AND NOTES
 SD-502.00 10/10/2012 CONCRETE DETAILS AND NOTES
 SD-516.10 08/29/2011 BRIDGE JOINT ASPHALTIC PLUG
 SD-601.00 06/04/2010 STRUCTURAL STEEL DETAILS & NOTES

VAOT STANDARD SHEETS

- G-16M 06/13/1997 BOX BEAM GUARD RAIL
 T-1 08/06/2012 TRAFFIC CONTROL GENERAL NOTES
 T-11 08/06/2012 CONSTRUCTION APPROACH SIGNING DIVIDED HIGHWAY ONE LANE CLOSED
 T-31 08/06/2012 CONSTRUCTION SIGN DETAILS
 T-42 04/09/2014 BRIDGE NUMBER PLAQUE
 T-44 04/09/2014 MILEMARKER DETAILS STATE AND TOWN HIGHWAYS

LRFR LOAD RATING FACTORS							
LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	1.65	0.99					
POSTING							
OPERATING	2.31	1.29	2.53	1.69	2.18	1.96	2.14
COMMENTS:	H-20 RATING CONTROLLED BY DECK, OTHER TRUCKS BY EXTERIOR BEAMS SERVICE II						

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2014, AND ITS LATEST REVISIONS.
2. ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS.
3. THE CONTRACTOR IS MADE AWARE THAT EXISTING UTILITIES ARE WITHIN THE CONSTRUCTION LIMITS OF BRIDGE NO. 4. THE LOCATION OF ANY UTILITY INFORMATION ON THE PLANS IS APPROXIMATE. NO CLAIMS ARE MADE TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING AND PROTECTING FROM DAMAGE ALL UTILITIES ON SITE DURING ALL STAGES OF CONSTRUCTION. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
4. FOLLOWING THE COMPLETION OF ALL OTHER CONSTRUCTION ACTIVITIES, ALL BEAM SEATS SHALL BE CLEANED OFF. THE COST FOR CLEANING BEAM SEATS WILL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.
5. ALL PG BINDER USED IN BITUMINOUS CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH SUBSECTION 490.03B.
6. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL COLD PLANED SURFACES AT THE RATE OF 0.080 GAL/SY AND BETWEEN ALL COURSE OF PAVEMENT AT THE RATE OF 0.040 GAL/SY OR AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".
7. PRIOR TO PAVING, ANY EXISTING SHOULDER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER SHALL BE EXCAVATED TO A DEPTH OF THREE INCHES OR AS DIRECTED BY THE ENGINEER. MATERIAL REMOVED SHALL BE REPLACED WITH ITEM 301.28, "SUBBASE OF CRUSHED GRAVEL, FINE GRADED". EXCAVATED MATERIAL SHALL BE SPREAD ON THE ADJACENT SLOPES OR REMOVED FROM THE PROJECT AS DIRECTED BY THE ENGINEER.
8. ALL EDGES OF PAVEMENT SHALL BE BACKED UP TO FULL HEIGHT WITH AGGREGATE SHOULDER MATERIAL AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID UNDER ITEM 402.12, "AGGREGATE SHOULDERS".
9. ANY REQUIRED SAWCUT OF EXISTING PAVEMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTY CAUSED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.

ENVIRONMENTAL

11. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND ALL APPLICABLE ENVIRONMENTAL PERMITS AND ENSURE THAT ALL CONSTRUCTION CONDITIONS ARE MET.
12. EROSION CONTROL MEASURES SHALL BE UTILIZED AS REQUIRED AND SHALL BE PER SECTION 105 OF THE STANDARD SPECIFICATIONS AND THE LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL FROM THE AGENCY OF NATURAL RESOURCES. SEE SUBSECTION 105.23 FOR EROSION CONTROL PLAN REQUIREMENTS.
13. THE CONTRACTOR SHALL PREVENT ANY MATERIAL FROM ENTERING THE WATERWAY DURING EXCAVATION, PARTIAL REMOVAL OF STRUCTURE, OR CONSTRUCTING THE NEW DECK.
14. THE DESIGN INTENT IS TO ALLOW THE CONTRACTOR TO STAGE IN THE TRAVELED ROADWAY OF THE APPROACHES TO THE BRIDGE DURING THE CLOSURE PERIOD. ANY STAGING AREAS OUTSIDE OF THIS SHALL BE CLEARED FOR RESOURCES THROUGH THE VTRANS ENVIRONMENTAL UNIT.

TRAFFIC CONTROL

15. AS PART OF ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)", THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR APPROVAL IN ACCORDANCE WITH SUBSECTION 105.03 AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN AN APPROPRIATE DISCIPLINE IN THE STATE OF VERMONT. THE PLAN SHALL INCLUDE A LAYOUT SHOWING ALL ON- AND OFF-PROJECT SIGNS AND BARRICADES AND ANY OTHER DETAILS ASSOCIATED WITH THE TRAFFIC CONTROL.
16. ALL ITEMS REQUIRED TO PREPARE, SUBMIT, AND IMPLEMENT THE CONTRACTOR'S PLAN, INCLUDING ANY NECESSARY REVISIONS TO THE PLAN, WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
 - TRAFFIC CONTROL PLAN
 - TEMPORARY TRAFFIC BARRIER (IF REQUIRED)
 - UNIFORMED TRAFFIC OFFICERS/FLAGGERS
 - BARRICADES
 - DRUMS/CONES
 - ON PROJECT CONSTRUCTION SIGNING
 - TEMPORARY PAVEMENT MARKINGS (IF REQUIRED)
 - PORTABLE CHANGEABLE MESSAGE BOARDS

THE CONTRACTOR SHALL ALLOW TWO WEEKS FOR APPROVAL OF THE TRAFFIC CONTROL PLAN. NO WORK SHALL COMMENCE UNTIL THE CONTRACTOR HAS AN APPROVED TRAFFIC CONTROL PLAN.
17. DURING CONSTRUCTION OF THE BRIDGE, TRAFFIC SHALL BE MAINTAINED BY AN OFF-SITE DETOUR. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING THE CLOSURE PERIOD. DETOUR ROUTES WILL BE DETERMINED, SIGNED, AND PAID FOR BY THE TOWN. THE CONTRACTOR SHALL COORDINATE WITH THE TOWN AND THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CLOSURE SIGNAGE AS SHOWN ON SHEET 11 AND IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD AND VTRANS STANDARDS. PAYMENT FOR BRIDGE CLOSURE SIGNAGE WILL BE PAID UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

PROJECT NAME: ORWELL
 PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108notes-4.dgn PLOT DATE: 12/4/2015
 PROJECT LEADER: J. BYATT DRAWN BY: M. SMITH
 DESIGNED BY: S. BEAUMONT CHECKED BY: J. FRENCH
 INDEX OF SHEETS & GENERAL NOTES SHEET 1 SHEET 2 OF 27



DECK REMOVAL AND RELATED ITEMS

18. PAVEMENT REMOVAL SHOULD BE LIMITED AS SHOWN ON THE PLANS. THIS WORK SHALL BE IN ACCORDANCE WITH SECTION 529 OF THE STANDARD SPECIFICATIONS.
19. ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING STRUCTURE AS SHOWN ON THE PLANS, INCLUDING THE EXISTING BRIDGE DECK, CURTAIN WALLS, TOPS OF WINGWALLS, AND BRIDGE RAILING. THE EXISTING CONCRETE CURTAIN WALLS AND TOPS OF WINGWALLS SHALL BE REMOVED BY HAND MECHANICAL MEANS AND THE REMAINING CONCRETE SHALL HAVE NEAT LINES AND BE SMOOTH. LARGE EQUIPMENT WILL NOT BE ALLOWED FOR REMOVAL TO ENSURE NO DAMAGE OCCURS TO THE EXISTING ABUTMENTS AND WINGWALLS. PROTECT ALL ELEMENTS INTENDED TO REMAIN.
20. A MINIMUM OF 4 EXISTING BRIDGE RAIL POSTS SHALL BE SAWCUT AND REMOVED WITH EXTREME CARE TO PRESERVE THE INTEGRITY OF THE POSTS. THESE POSTS SHALL BE PROVIDED TO THE TOWN. PAYMENT FOR THIS WORK WILL BE INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE".
21. AFTER REMOVAL OF THE EXISTING BRIDGE DECK AND CURTAIN WALL, ANY AREAS ON THE CONCRETE BEAM SEAT THAT ARE FOUND TO BE UNSOUND SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE METHOD FOR DETERMINING AREAS OF UNSOUND CONCRETE SHALL BE APPROVED BY THE ENGINEER. THE ENGINEER SHALL MAKE A DETERMINATION AS TO HOW TO REPAIR THE DETERIORATED PORTION OF THE CONCRETE BEAM SEAT AND THE LIMITS OF THE REPAIR. THE REPAIRS SHALL BE PAID FOR UNDER ITEM 580.13, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I" OR ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTRE SURFACE, CLASS II. QUANTITIES FOR ITEMS 580.13 AND 580.14 AS SHOWN ON THE QUANTITY SUMMARY SHEETS ARE ESTIMATED.

STEEL

22. AFTER THE EXISTING CONCRETE DECK HAS BEEN REMOVED, THE CONTRACTOR SHALL TAKE ELEVATIONS ALONG THE TOP OF EACH BEAM AT TENTH POINTS FROM CENTERLINE TO CENTERLINE OF BEARING. THE TOP OF BEAM ELEVATIONS SHALL THEN BE SENT TO THE ENGINEER FOR USE IN DETERMINING THE FINAL PROFILE AND HAUNCH DEPTHS. THE CONTRACTOR SHOULD EXPECT 3 WORKING DAYS FOR VTRANS TO PREPARE THE REVISED PROFILE AND HAUNCH DEPTH CALCULATIONS.
23. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. ANY REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE AND ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.
24. UPON REMOVING THE DECK, THE TOPS OF THE BEAMS IN THE AREA OF THE SHEAR STUDS SHALL BE CLEANED IN ACCORDANCE WITH SECTION 105 AND ALL APPLICABLE PROVISIONS PRIOR TO THE WELDING OF THE SHEAR STUDS. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH ALL NECESSARY LEAD ABATEMENT PERMITS.
25. THE SHEAR STUDS SHALL BE SPACED AS SHOWN ON THE PLANS.
26. SUPPORT BRACKETS FOR DECK OVERHANG FORMS SHALL BE SPACED AS REQUIRED BY DESIGN WITH A MAXIMUM SPACING OF 4 FEET AND SHALL EXTEND TO THE BOTTOM QUARTER OF THE WEB. THE DESIGN OF THE BRACKETS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DESIGN DRAWINGS AND WORKING DRAWINGS CONFORMING THE SECTION 105 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION SHALL BE SUBMITTED. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".

REINFORCED CONCRETE

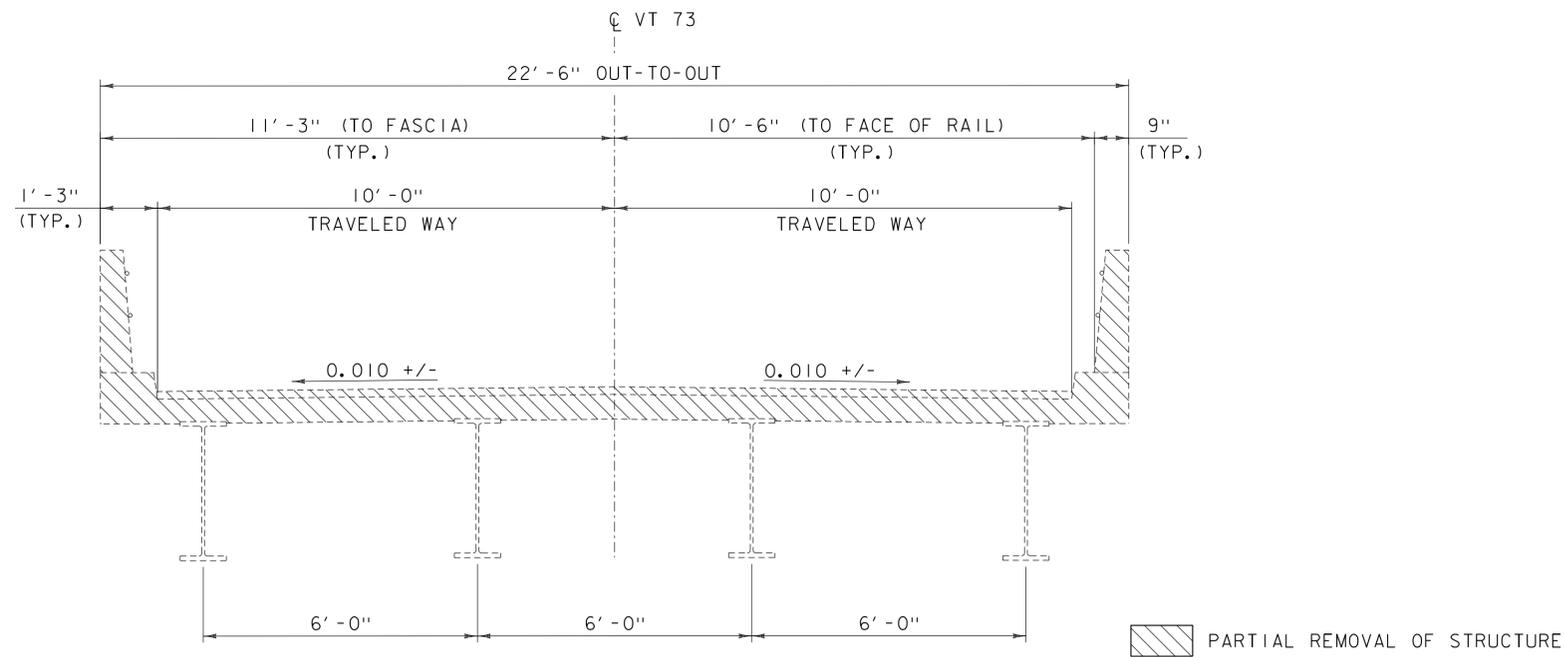
27. ALL CONCRETE SHALL CONFORM TO THE SPECIFICATIONS FOR CONCRETE, HIGH PERFORMANCE CLASS A. THE CONTRACTOR SHALL PROVIDE TESTING EQUIPMENT FOR CONCRETE IN ACCORDANCE WITH 631.05 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.
28. ALL REINFORCING STEEL SHALL BE LEVEL 1 - EPOXY COATED AND MEET THE REQUIREMENTS OF SECTION 507 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. A REINFORCING STEEL SCHEDULE AND SHOP DRAWINGS MEETING THE REQUIREMENTS OF SECTION 105.03 OF THE SPECIFICATIONS FOR CONSTRUCTION FOR WORKING DRAWINGS SHALL BE SUBMITTED. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 507.11, "REINFORCING STEEL, LEVEL 1".
29. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE RAIL SUPPORT SLAB AND BRIDGE DECK SURFACES, INCLUDING THE CONCRETE CURBS, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP NOTCHES. THIS WORK WILL BE PAID FOR UNDER ITEM 514.10, "WATER REPELLENT, SILANE".
30. THE CORK JOINT BETWEEN THE EXISTING CHEEKWALLS AND CAST-IN-PLACE CONCRETE CURTAIN WALL SHALL BE INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".
31. THE PREFORMED JOINT SEALER, CLOSED CELL FOAM BETWEEN THE CAST-IN-PLACE CONCRETE CURTAIN WALL AND THE EXISTING BRIDGE SEAT SHALL MEET THE REQUIREMENTS OF SECTION 707.09 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SHALL BE INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".
32. ALL REINFORCING SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING INSTITUTE".
33. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

ALONG BACKFACES OF WALL AGAINST EARTH:	2.0 INCH
ALONG TOP SURFACE OF DECK SLAB:	3.0 INCH
ALONG BOTTOM SURFACE OF DECK SLAB:	1.5 INCH
ELSEWHERE UNLESS OTHERWISE INDICATED:	3.0 INCH



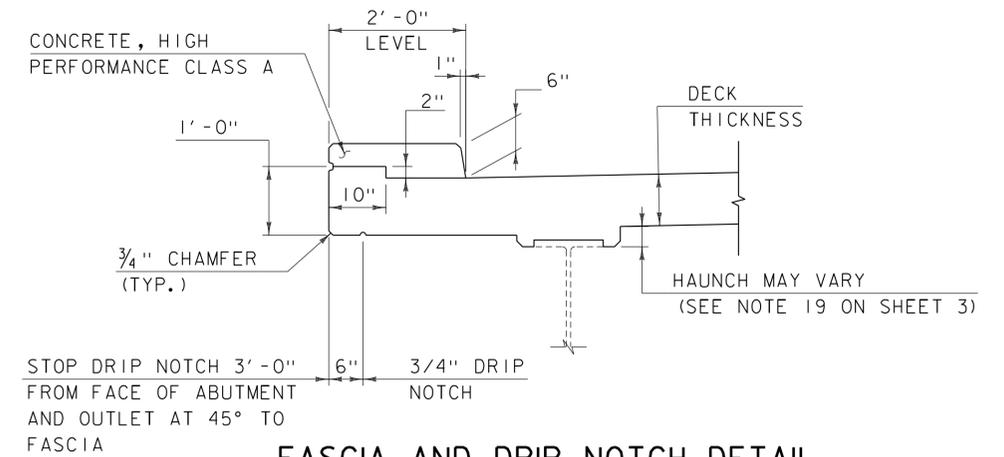
PROJECT NAME: ORWELL
PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108notes-4.dgn PLOT DATE: 12/4/2015
PROJECT LEADER: J. BYATT DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT CHECKED BY: J. FRENCH
INDEX OF SHEETS & GENERAL NOTES SHEET 2 SHEET 3 OF 27



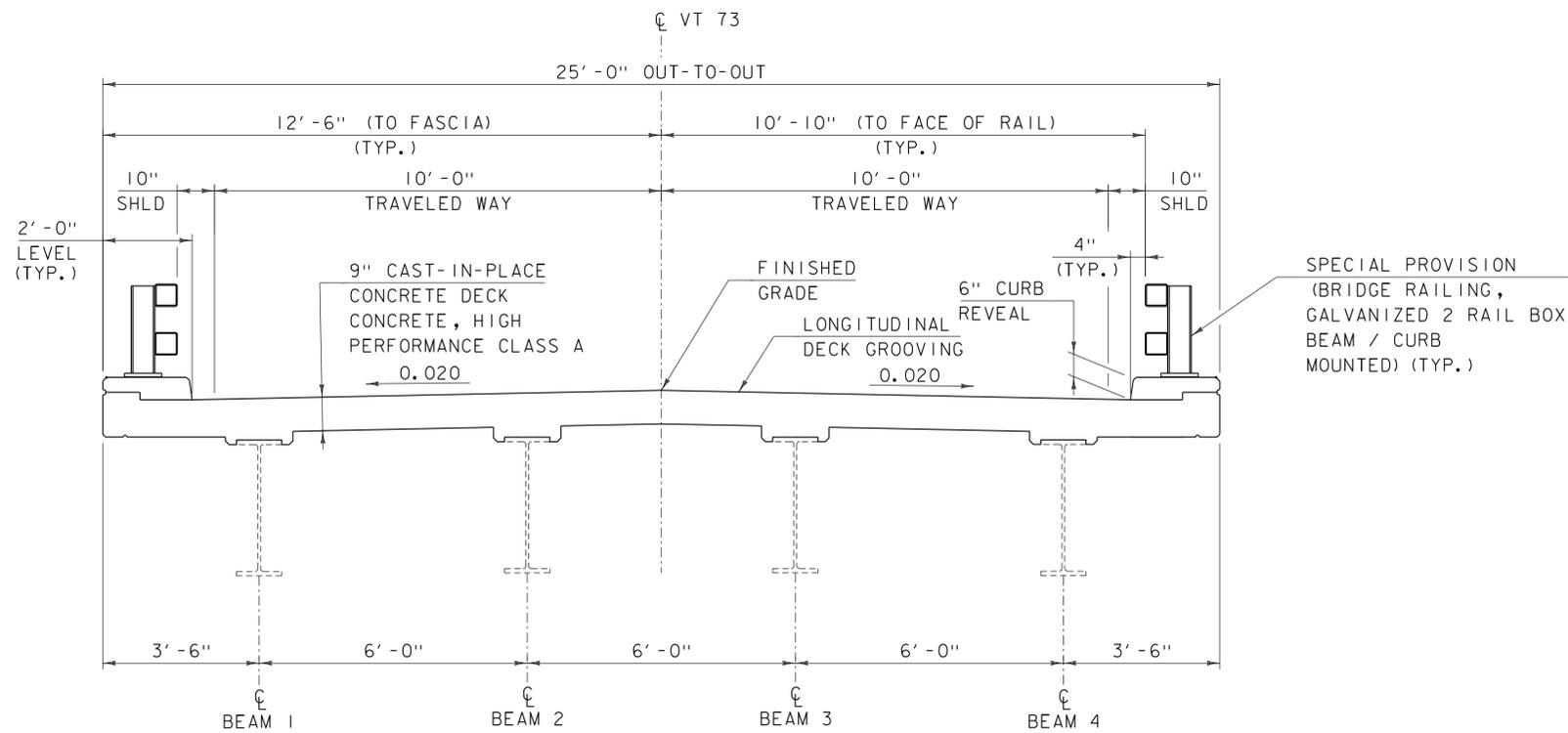
EXISTING TYPICAL BRIDGE SECTION

SCALE: 1/2" = 1'-0"



FASCIA AND DRIP NOTCH DETAIL

SCALE: 3/4" = 1'-0"



TYPICAL BRIDGE SECTION

SCALE: 1/2" = 1'-0"

CLD_15-0223 MODEL: TYP01

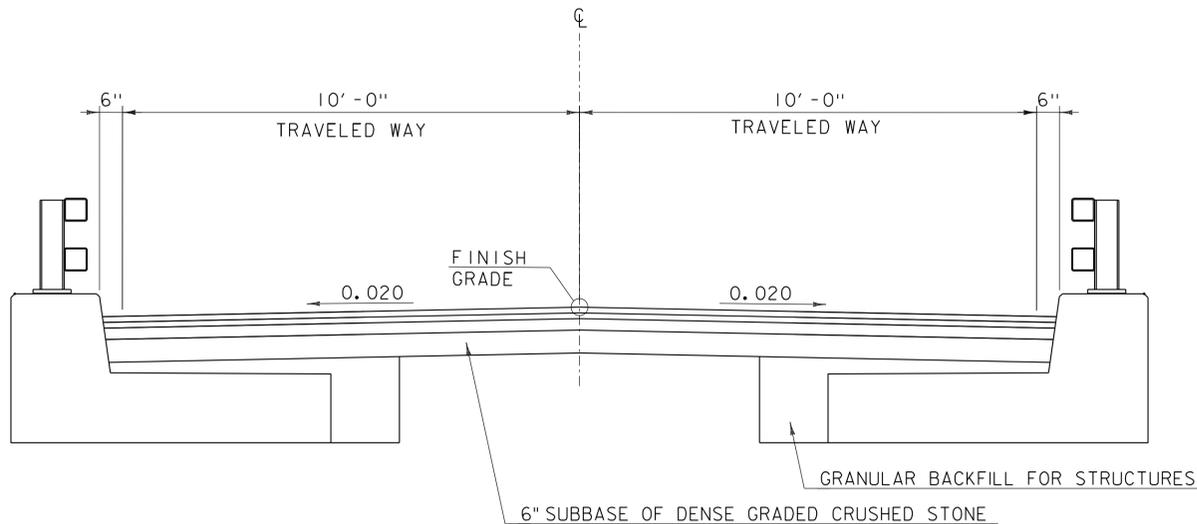


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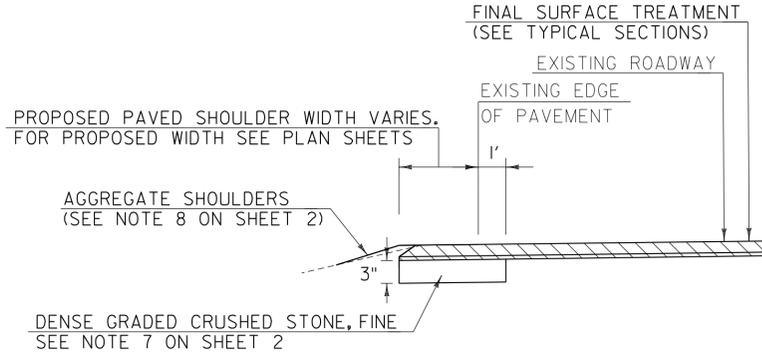
FILE NAME: z15j108typ-4.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: N. CARON
TYPICAL BRIDGE SECTIONS SHEET

PLOT DATE: 12/4/2015
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 4 OF 27

3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (2-1 1/2" LIFTS) (TYPE IV)
 3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (2-1 1/2" LIFTS) (TYPE II)

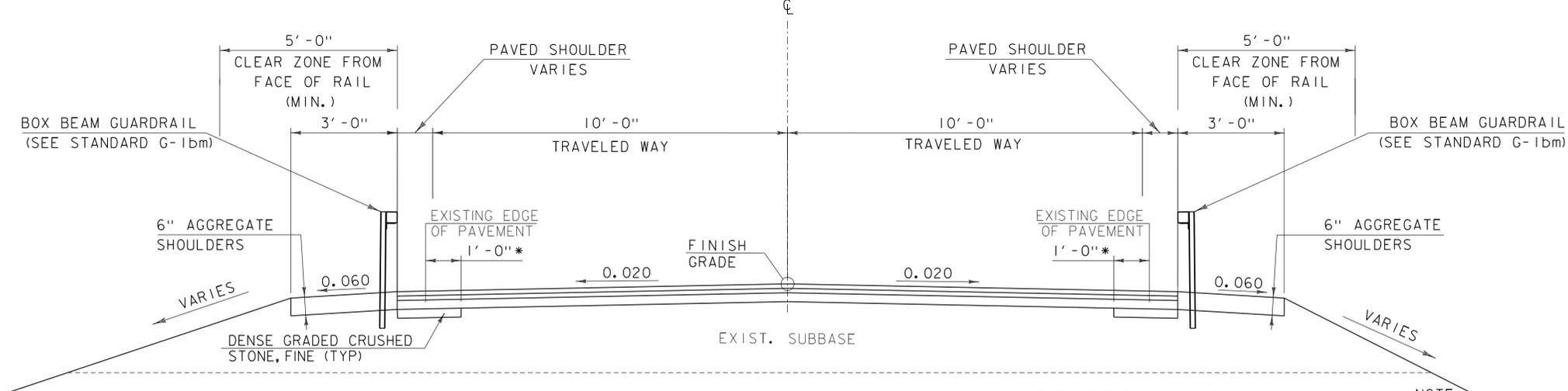


VT 73
NORMAL SECTION W/SUPPORT SLAB
 SCALE: 1/2" = 1'-0"



TYPICAL SHOULDER WIDENING

3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (2-1 1/2" LIFTS) (TYPE IV)
 3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (2-1 1/2" LIFTS) (TYPE II)
 3" DENSE GRADED CRUSHED STONE, FINE



VT 73
NORMAL SECTION
 SCALE: 1/2" = 1'-0"

* SAWCUT PAVEMENT 1'-0" INSIDE EXISTING EDGE OF PAVEMENT IN AREAS OF SHOULDER WIDENING.

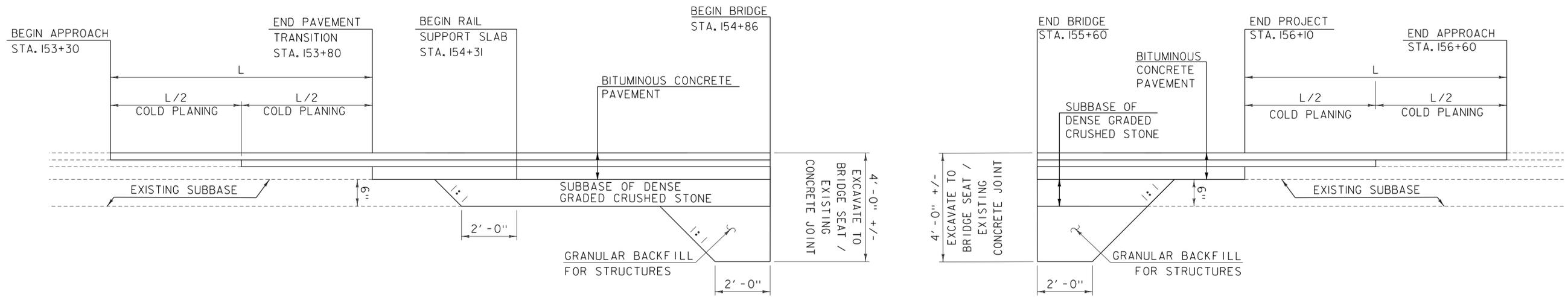
NOTE
 1. EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED SURFACES AT A RATE OF 0.080 GAL/SY AND BETWEEN EACH LIFT OF PAVEMENT AT A RATE OF 0.040 GAL/SY OR AS DIRECTED BY THE ENGINEER.

MATERIAL TOLERANCES	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"

PROJECT NAME: ORWELL	PLOT DATE: 12/4/2015
PROJECT NUMBER: STP DECK(4I)	DRAWN BY: J. FOWLER
FILE NAME: z15j108typ-4.dgn	DESIGNED BY: L. GREER
PROJECT LEADER: J. BYATT	CHECKED BY: J. FRYER
TYPICAL ROADWAY SECTIONS SHEET	SHEET 5 OF 27

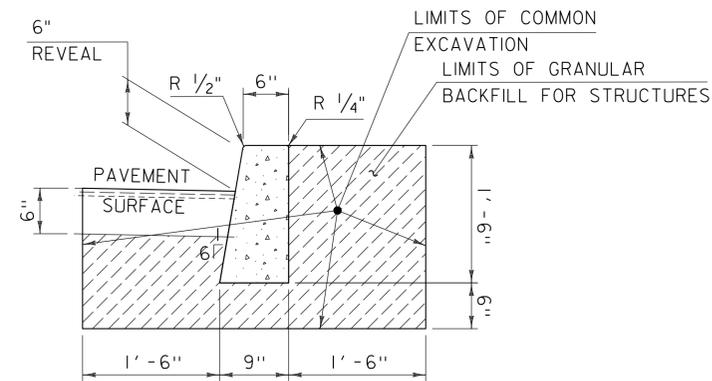


CLD 15-0223 MODEL: TYP02

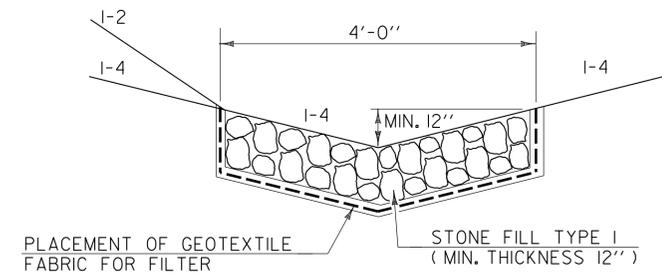


MATERIAL TRANSITION DIAGRAM

NOT TO SCALE



TYPICAL CAST-IN-PLACE CONCRETE CURB, TYPE B EARTHWORKS DETAIL



TYPICAL STONE FILL DITCH

CLD 15-0223 MODEL: TYPO3

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DESIGNED BY: L. GREER	CHECKED BY: J. FRYER
MATERIAL TRANSITION DIAGRAM	SHEET 6 OF 27



QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE NO. 4	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							60				60		CY	COMMON EXCAVATION	203.15	1			
									112		112		CY	STRUCTURE EXCAVATION	204.25	0.18			
							20		29		49		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	1.31			
							475				475		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	4			
							5				5		TON	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	301.28	3.8			
							25				25		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	1.9			
							50				50		TON	AGGREGATE SHOULDERS	402.12	5			
									70		70		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	-			
									59		59		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	0.77			
									26169		26169		LB	REINFORCING STEEL, LEVEL I	507.11	0.1			
									1		1		LS	SHEAR CONNECTORS (456 - 8" X 7/8")	508.15	-			
									173		173		SY	LONGITUDINAL DECK GROOVING	509.10	0.33			
									24		24		GAL	WATER REPELLENT, SILANE	514.10	0.81			
									21		21		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	-			
									21		21		LF	JOINT SEALER, HOT POURED	524.11	-			
									1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	-			
									10		10		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13	EST.			
									10		10		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14	EST.			
							6				6		CY	STONE FILL, TYPE I	613.10	0.08			
							110				110		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	5			
							333				333		LF	BOX BEAM GUARDRAIL	621.30	-			
							130				130		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	-			
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10	-			
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-			
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-			
										3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-			
							1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-			
							190				190		LF	DURABLE 4 INCH WHITE LINE, THERMOPLASTIC	646.402	7			
							330				330		LF	DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC	646.412	-			
							30				30		EACH	LINE STRIPING TARGETS	646.76	-			
							35				35		SY	GEOTEXTILE UNDER STONE FILL	649.31	4			
							4				4		EACH	DELINEATOR WITH STEEL POST	676.10	-			
							1				1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	-			
							6				6		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620	-			
									4		4		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM)	900.620	-			
									261.33		261.33		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM/CURB MOUNTED)	900.640	-			
							1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)	900.645	-			
							1				1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE) (N.A.B.I.)	900.650	-			
							1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650	-			

PROJECT NAME: ORWELL
PROJECT NUMBER: STP DECK(4I)
FILE NAME: z15j108qss-4.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: J. FRENCH
QUANTITY SHEET 1
PLOT DATE: 12/4/2015
DRAWN BY: M. SMITH
CHECKED BY: A. GIRALDI
SHEET 7 OF 27

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES

TOTALS

DESCRIPTIONS

DETAILED SUMMARY OF QUANTITIES

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE NO. 4	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650	-			SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
							190				190		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	8	67 TON	TYPE II	
																	115 TON	TYPE IV	
																	182 TON	SUBTOTAL	
																	8 TON	ROUNDING	
																	190 TON	TOTAL	

PROJECT NAME: ORWELL
 PROJECT NUMBER: STP DECK(4I)
 FILE NAME: z15j108qss-4.dgn
 PROJECT LEADER: J. BYATT
 DESIGNED BY: J. FRENCH
 QUANTITY SHEET 2
 PLOT DATE: 12/4/2015
 DRAWN BY: M. SMITH
 CHECKED BY: A. GIRALDI
 SHEET 8 OF 27

GENERAL INFORMATION

SYMBOLOLOGY LEGEND NOTE

THE SYMBOLOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOLOGY. THE SYMBOLOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT CODE	DESCRIPTION
CH	CHANNEL EASEMENT
CONST	CONSTRUCTION EASEMENT
CUL	CULVERT EASEMENT
D&C	DISCONNECT & CONNECT
DIT	DITCH EASEMENT
DR	DRAINAGE EASEMENT
DRIVE	DRIVEWAY EASEMENT
EC	EROSION CONTROL
HWY	HIGHWAY EASEMENT
I&M	INSTALL & MAINTAIN EASEMENT
LAND	LANDSCAPE EASEMENT
R&RES	REMOVE & RESET
R&REP	REMOVE & REPLACE
SR	SLOPE RIGHT
UE	UTILITY EASEMENT
(P)	PERMANENT EASEMENT
(T)	TEMPORARY EASEMENT
■	BNDNS BOUND SET
▣	BNDNS BOUND TO BE SET
●	IPNS IRON PIN SET
◎	IPNS IRON PIN TO BE SET
⊗	CALC EXISTING ROW POINT
○	PROW PROPOSED ROW POINT
[LENGTH]	LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT CODE	DESCRIPTION
⊕	APL BOUND APPARENT LOCATION
○	BM BENCHMARK
□	BND BOUND
▣	CB CATCH BASIN
⊕	COMB COMBINATION POLE
⊕	DITHR DROP INLET THROATED DNC
⊕	EL ELECTRIC POWER POLE
○	FPOLE FLAGPOLE
○	GASFIL GAS FILLER
○	GP GUIDE POST
×	GSO GAS SHUT OFF
○	GUY GUY POLE
○	GUYW GUY WIRE
×	GV GATE VALVE
⊗	H TREE HARDWOOD
△	HCTRL CONTROL HORIZONTAL
▲	HVCTRL CONTROL HORIZ. & VERTICAL
◇	HYD HYDRANT
⊕	IP IRON PIN
⊕	IPIPE IRON PIPE
⊕	LI LIGHT - STREET OR YARD
⊕	MB MAILBOX
○	MH MANHOLE (MH)
□	MM MILE MARKER
⊕	PM PARKING METER
⊕	PMK PROJECT MARKER
○	POST POST STONE/WOOD
⊕	RRSIG RAILROAD SIGNAL
⊕	RRSL RAILROAD SWITCH LEVER
⊕	S TREE SOFTWOOD
⊕	SAT SATELLITE DISH
⊕	SHRUB SHRUB
⊕	SIGN SIGN
⊕	STUMP STUMP
⊕	TEL TELEPHONE POLE
○	TIE TIE
⊕	TSIGN SIGN W/DOUBLE POST
⊕	VCTRL CONTROL VERTICAL
○	WELL WELL
×	WSO WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLOLOGY

UNDERGROUND UTILITIES	
— UT —	UTILITY (GENERIC-UNKNOWN)
— UE —	TELEPHONE
— UC —	ELECTRIC
— UEC —	CABLE (TV)
— UET —	ELECTRIC+CABLE
— UCT —	ELECTRIC+TELEPHONE
— UECT —	CABLE+TELEPHONE
— G —	ELECTRIC+CABLE+TELEP.
— W —	GAS LINE
— S —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)	
— T —	UTILITY (GENERIC-UNKNOWN)
— E —	TELEPHONE
— C —	ELECTRIC
— EC —	CABLE (TV)
— ET —	ELECTRIC+CABLE
— AER E&T —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEP.
— —	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOLOGY	
— — — CZ — — —	CLEAR ZONE
— — — — —	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

▲ — — — — —	TOP OF CUT SLOPE
○ — — — — —	TOE OF FILL SLOPE
⊗ ⊗ ⊗ ⊗ ⊗	STONE FILL
— — — — —	BOTTOM OF DITCH
— — — — —	CULVERT PROPOSED
— — — — —	STRUCTURE SUBSURFACE
PDF — — — — — PDF	PROJECT DEMARCATION FENCE
BF — — — — — BF	BARRIER FENCE
XXXXXXXXXXXXXXXXXXXX	TREE PROTECTION ZONE (TPZ)
//// //// ////	STRIPING LINE REMOVAL
~~~~ ~~~~ ~~~~	SHEET PILES

**CONVENTIONAL BOUNDARY SYMBOLOLOGY**

BOUNDARY LINES	
— — — — —	TOWN BOUNDARY LINE
— — — — —	COUNTY BOUNDARY LINE
— — — — —	STATE BOUNDARY LINE
— — — — —	PROPOSED STATE R.O.W. (LIMITED ACCESS)
— — — — —	PROPOSED STATE R.O.W.
— — — — —	STATE ROW (LIMITED ACCESS)
— — — — —	STATE ROW
— — — — —	TOWN ROW
— — — — —	PERMANENT EASEMENT LINE (P)
— — — — —	TEMPORARY EASEMENT LINE (T)
— — — — —	SURVEY LINE
— — — — —	PROPERTY LINE (P/L)
▲ — — — — — SR	SLOPE RIGHTS
6f — — — — — 6f	6F PROPERTY BOUNDARY
4f — — — — — 4f	4F PROPERTY BOUNDARY
HAZ — — — — — HAZ	HAZARDOUS WASTE

**EPSC LAYOUT PLAN SYMBOLOLOGY**

EPSC MEASURES	
○ — — — — — ○	FILTER CURTAIN
— — — — —	SILT FENCE
— — — — —	SILT FENCE WOVEN WIRE
— — — — —	CHECK DAM
▣	DISTURBED AREAS REQUIRING RE-VEGETATION
⊗	EROSION MATTING

**ENVIRONMENTAL RESOURCES**

— — — — —	WETLAND BOUNDARY
— — — — —	RIPARIAN BUFFER ZONE
— — — — —	WETLAND BUFFER ZONE
— — — — —	SOIL TYPE BOUNDARY
— — — — — T&E	THREATENED & ENDANGERED SPECIES
— — — — — HAZ	HAZARDOUS WASTE AREA
— — — — — AG	AGRICULTURAL LAND
— — — — — HABITAT	FISH & WILDLIFE HABITAT
— — — — — FLOOD PLAIN	FLOOD PLAIN
— — — — — OHW	ORDINARY HIGH WATER (OHW)
— — — — —	STORM WATER
— — — — —	USDA FOREST SERVICE LANDS
— — — — —	WILDLIFE HABITAT SUIT/CONN

**ARCHEOLOGICAL & HISTORIC**

— — — — — ARCH	ARCHEOLOGICAL BOUNDARY
— — — — — HISTORIC DIST	HISTORIC DISTRICT BOUNDARY
— — — — — HISTORIC	HISTORIC AREA
⊕	HISTORIC STRUCTURE

**CONVENTIONAL TOPOGRAPHIC SYMBOLOLOGY**

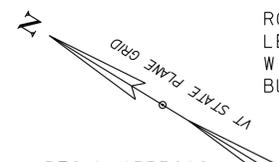
EXISTING FEATURES	
— — — — —	ROAD EDGE PAVEMENT
— — — — —	ROAD EDGE GRAVEL
— — — — —	DRIVEWAY EDGE
— — — — —	DITCH
— — — — —	FOUNDATION
— — — — —	FENCE (EXISTING)
— — — — —	FENCE WOOD POST
— — — — —	FENCE STEEL POST
— — — — —	GARDEN
— — — — —	ROAD GUARDRAIL
— — — — —	RAILROAD TRACKS
— — — — —	CULVERT (EXISTING)
— — — — —	STONE WALL
— — — — —	WALL
— — — — —	WOOD LINE
— — — — —	BRUSH LINE
— — — — —	HEDGE
— — — — —	BODY OF WATER EDGE
— — — — —	LEDGE EXPOSED

PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108legend-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: L. GREER  
CONVENTIONAL SYMBOLOLOGY LEGEND SHEET

PLOT DATE: 12/4/2015  
DRAWN BY: P. McKECHNE  
CHECKED BY: K. RUTTER  
SHEET 9 OF 27





EXISTING BRIDGE DATA:  
 ROLLED BEAMS, CONCRETE DECK  
 LENGTH = 72'-0"  
 WIDTH = 22'-6" RAIL TO RAIL  
 BUILT IN 1947

CURVE (1)  
 DELTA = 1°08'36" RT  
 D = 0°49'07"  
 R = 7000.00'  
 T = 69.85'  
 L = 139.69'  
 E = 0.35'

CURVE (2)  
 DELTA = 16°44'30" RT  
 D = 7°09'43"  
 R = 800.00'  
 T = 117.72'  
 L = 233.76'  
 E = 8.61'  
 PI = STA 156+80.45

END PROJECT  
 (MATCH EXISTING)  
 STA 156+10

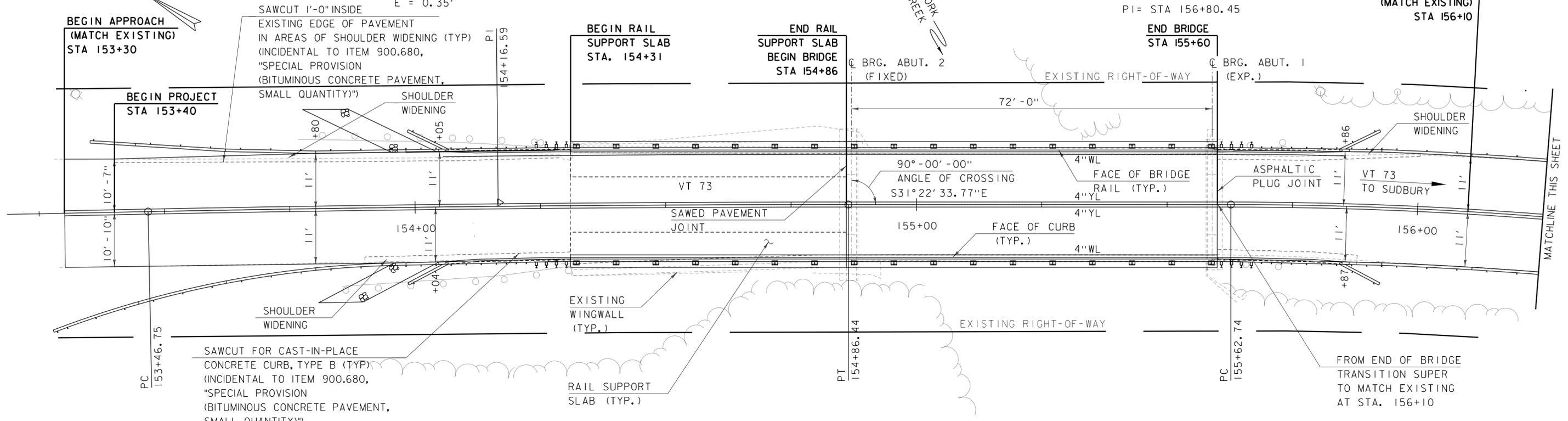
BEGIN APPROACH  
 (MATCH EXISTING)  
 STA 153+30

BEGIN PROJECT  
 STA 153+40

BEGIN RAIL  
 SUPPORT SLAB  
 STA. 154+31

END RAIL  
 SUPPORT SLAB  
 BEGIN BRIDGE  
 STA 154+86

END BRIDGE  
 STA 155+60



SAWCUT FOR CAST-IN-PLACE  
 CONCRETE CURB, TYPE B (TYP.)  
 (INCIDENTAL TO ITEM 900.680,  
 "SPECIAL PROVISION  
 (BITUMINOUS CONCRETE PAVEMENT,  
 SMALL QUANTITY)")

DURABLE 4 INCH WHITE LINE, THERMOPLASTIC  
 154+04 TO 155+87 LT & RT (SOLID)

DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC  
 153+30 TO 156+60 LT & RT (SOLID)

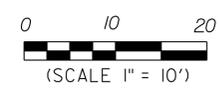
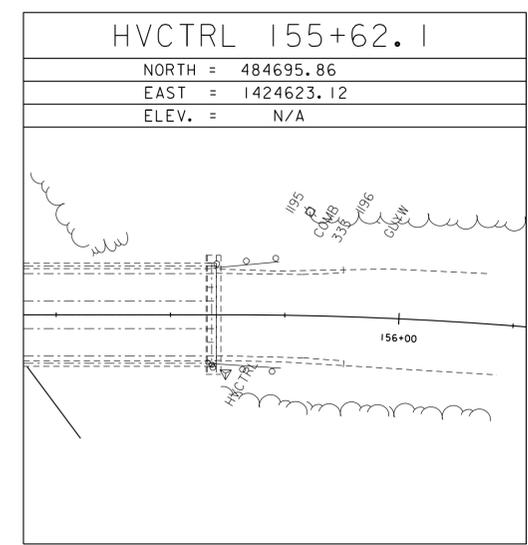
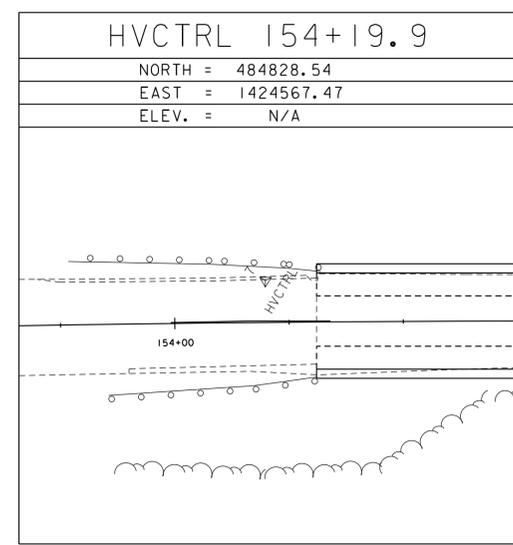
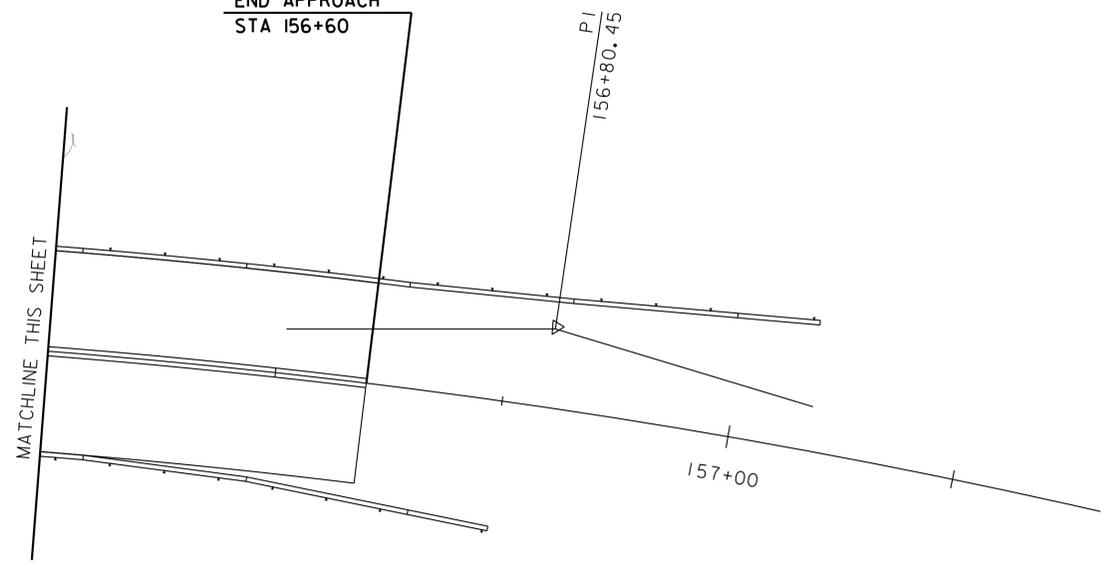
BOX BEAM GUARDRAIL  
 153+27 TO 153+98 RT  
 153+35 TO 153+98 LT  
 155+92 TO 157+08 LT  
 155+93 TO 156+75 RT

STONE FILL, TYPE I  
 GOETEXTILE, UNDER STONE FILL  
 154+00 LT  
 154+00 RT

CAST IN PLACE CONCRETE CURB, TYPE B  
 154+05 TO 154+31 LT  
 155+61 TO 155+86 LT  
 154+04 TO 154+31 RT  
 155+60 TO 155+87 RT

REMOVAL AND DISPOSAL OF GUARDRAIL  
 153+77 TO 154+31 LT  
 153+85 TO 154+31 RT  
 155+60 TO 155+75 LT/RT

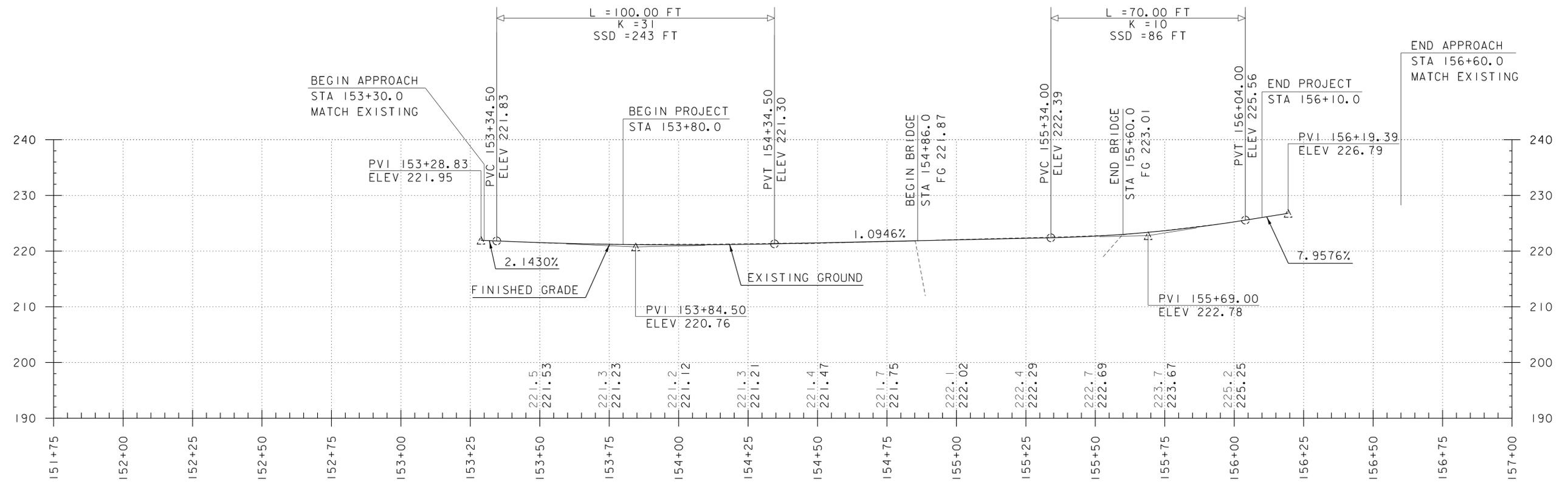
END APPROACH  
 STA 156+60



PROJECT NAME: ORWELL  
 PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108bdr-4.dgn  
 PROJECT LEADER: J. BYATT  
 DESIGNED BY: L. GREER  
 LAYOUT SHEET

PLOT DATE: 12/4/2015  
 DRAWN BY: P. McKECHNIE  
 CHECKED BY: K. RUTTER  
 SHEET 10 OF 27



**NOTES**

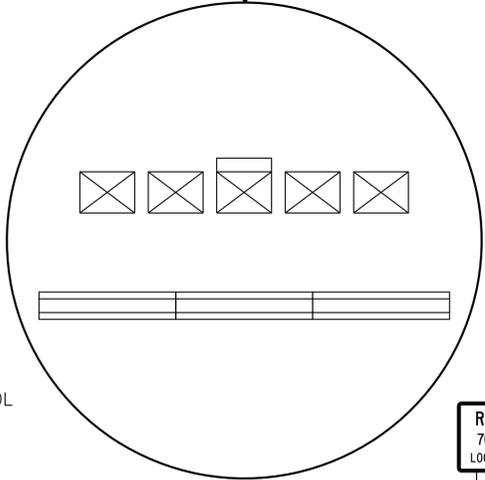
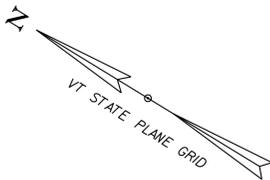
1. STATIONS AND ELEVATIONS ARE IN FEET.
2. THE ELEVATIONS SHOWN TO THE NEAREST TENTH ARE THE EXISTING GROUND ALONG THE CENTERLINE.
3. THE ELEVATIONS SHOWN TO THE NEAREST HUNDRETH ARE THE FINISHED GRADE ALONG THE CENTERLINE.

**VT ROUTE 73 PROFILE**

HOR. SCALE 1" = 40' -0"  
 VER. SCALE 1" = 20' -0"



PROJECT NAME: ORWELL	
PROJECT NUMBER: STP DECK (4I)	
FILE NAME: z15j108pro-4.dgn	PLOT DATE: 12/4/2015
PROJECT LEADER: J. BYATT	DRAWN BY: J. FOWLER
DESIGNED BY: L. GREER	CHECKED BY: K. RUTTER
PROFILE SHEET	SHEET 11 OF 27



**NOTES**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE SITE SPECIFIC TRAFFIC CONTROL PACKAGE IDENTIFYING CONSTRUCTION ACTIVITIES BEFORE, DURING AND AFTER THE BRIDGE CLOSURE PERIOD. THE CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION TO THE PROJECT MANAGER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS ASSOCIATED WITH THE PREPARATION OF THE TRAFFIC CONTROL PLAN AS WELL AS ANY REQUIRED REVISIONS SHALL PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SIGNS AND BARRICADES SHOWN ON THIS SHEET. THEY SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
3. ANY TEMPORARY TRAFFIC BARRIER REQUIRED SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)" AND FURNISHED IN ACCORDANCE WITH SECTION 621.
4. THE CONTRACTOR SHALL PLACE ONE PORTABLE CHANGABLE MESSAGE SIGN ON EACH END OF PROJECT A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE OF VT 73. THE MESSAGE SIGNS SHALL INDICATE THE ANTICIPATED BRIDGE CLOSURE PERIOD.
5. SEE STANDARD T-10 FOR TYPICAL APPROACH SIGNING.



A  
R11-3A



B  
R11-3A



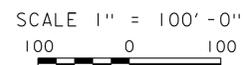
R11-2 B/W SIGN MOUNTED ON TYPE III BARRICADE (MODIFIED)



W20-3 B/O

**LEGEND**

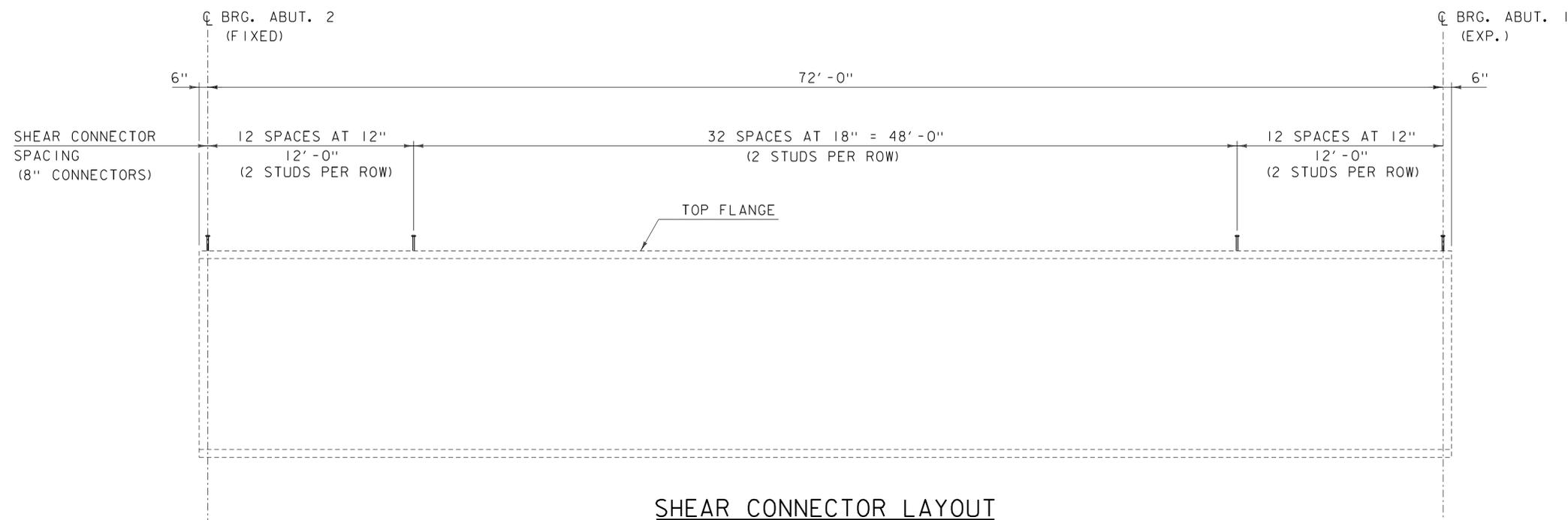
- N/C NEW SIGN/CONSTRUCTION ONLY
- B/O BLACK/ORANGE
- B/W BLACK/WHITE
- ☒ TYPE III BARRICADE
- ☒ TYPE III BARRICADE (MOD.)
- TEMPORARY TRAFFIC BARRIER



PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK (4I)

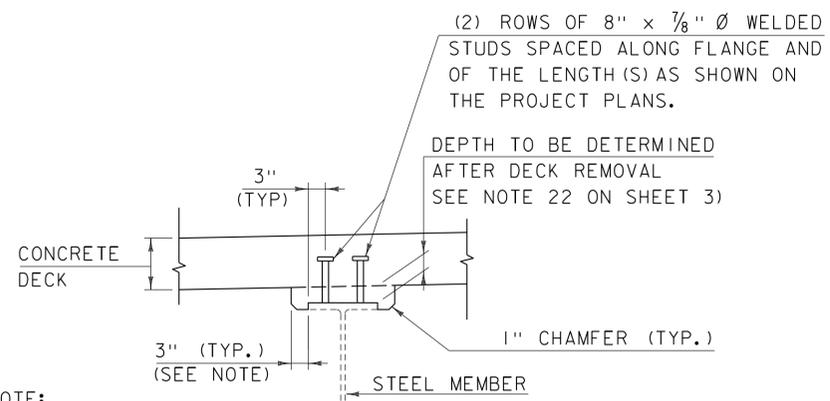
FILE NAME: z15j108bdr+cp.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: L. GREER  
BRIDGE CLOSURE SIGNAGE SHEET

PLOT DATE: 12/4/2015  
DRAWN BY: J. FOWLER  
CHECKED BY: K. RUTTER  
SHEET 12 OF 27



**SHEAR CONNECTOR LAYOUT**

HORIZONTAL SCALE: 1/4" = 1'-0"  
 VERTICAL SCALE: 1" = 1'-0"



**NOTE:**

THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

**HAUNCH AND SHEAR CONNECTOR DETAIL**

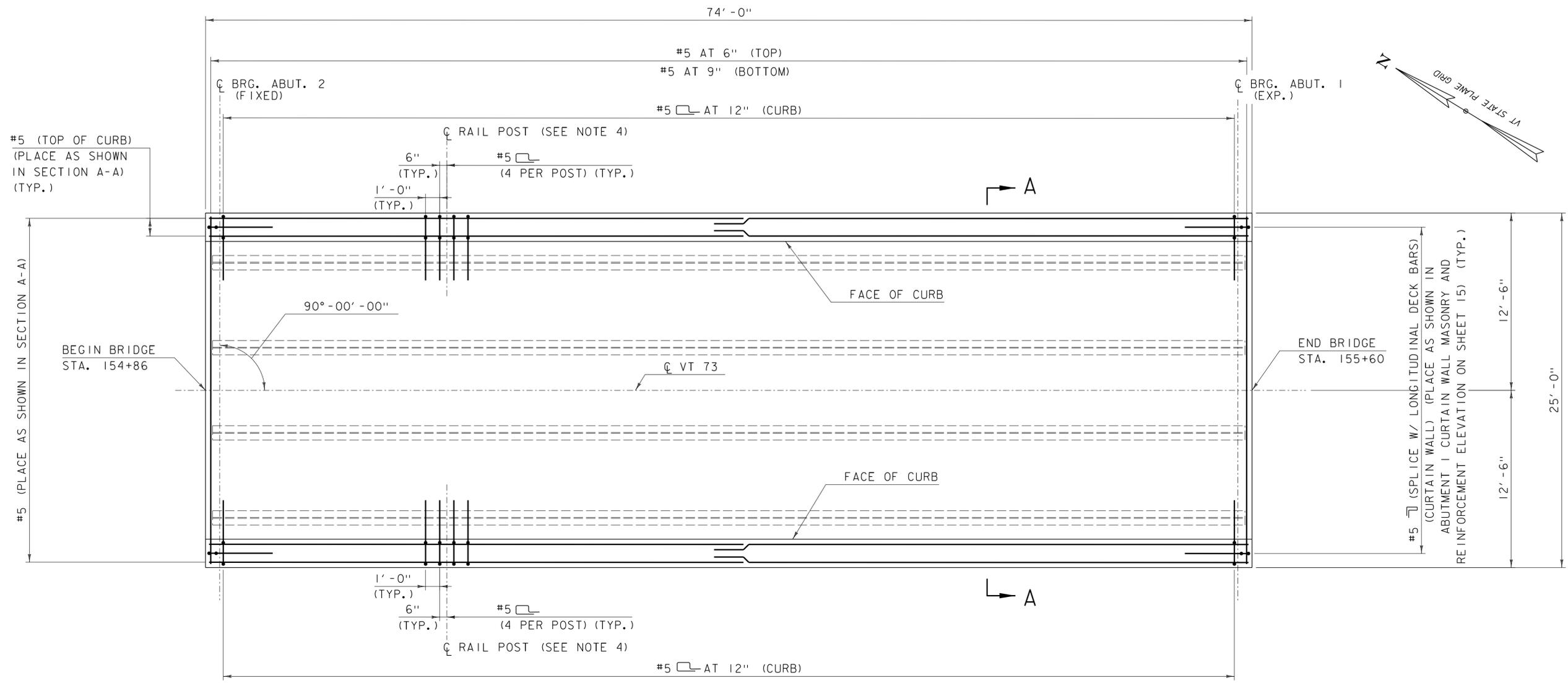
SCALE: 3/4" = 1'-0"

PROJECT NAME: ORWELL  
 PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108typ-4.dgn  
 PROJECT LEADER: J. BYATT  
 DESIGNED BY: N. CARON  
 SHEAR CONNECTOR DETAILS SHEET

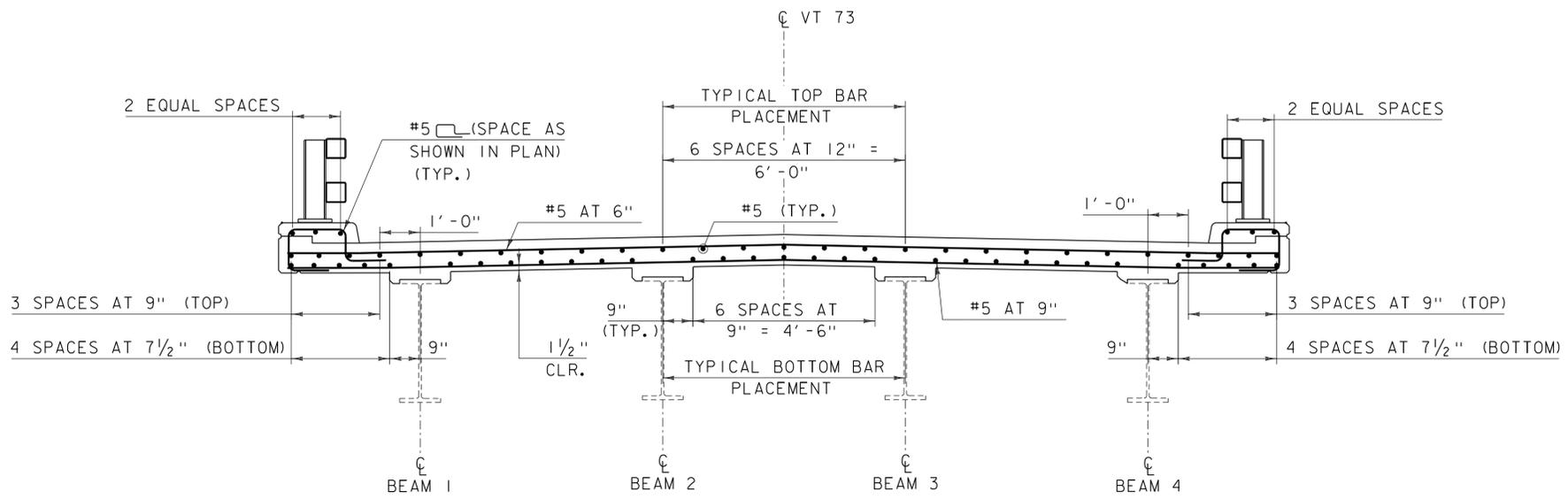
PLOT DATE: 12/4/2015  
 DRAWN BY: M. SMITH  
 CHECKED BY: S. BEAUMONT  
 SHEET 13 OF 27





**DECK REINFORCEMENT PLAN**

SCALE: 1/4" = 1'-0"



**SECTION A-A**

SCALE: 1/2" = 1'-0"

**NOTES:**

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 1'-0" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. SEE SHEET 20 FOR RAIL LAYOUT SHEET.

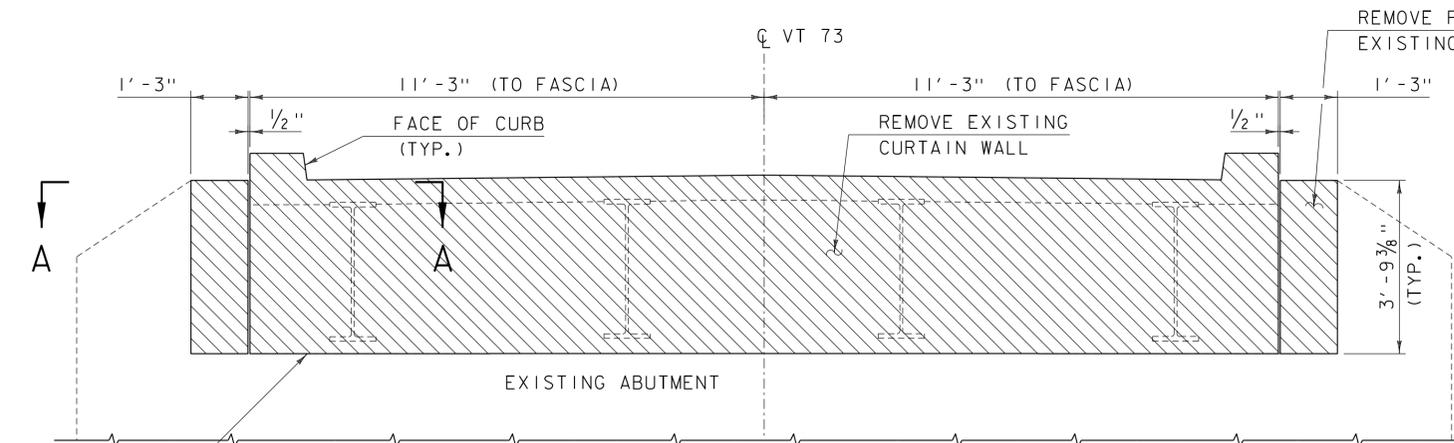
PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108typ-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: S. BEAUMONT  
DECK DETAILS SHEET

PLOT DATE: 12/4/2015  
DRAWN BY: M. SMITH  
CHECKED BY: J. FRENCH  
SHEET 14 OF 27



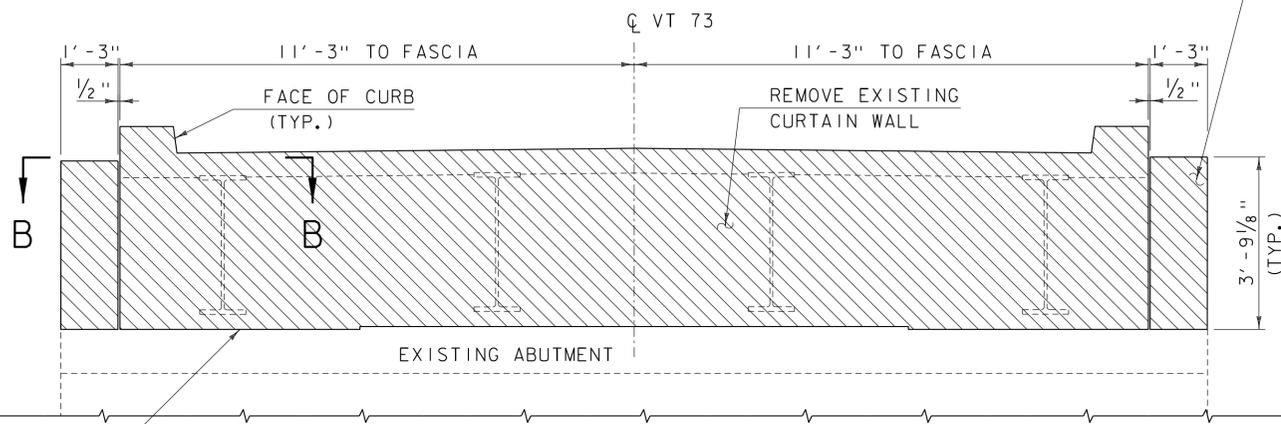
CLD 15-0223 MODEL: TYP05



**REMOVAL LIMITS - ABUTMENT 1**

SCALE: 1/2" = 1'-0"

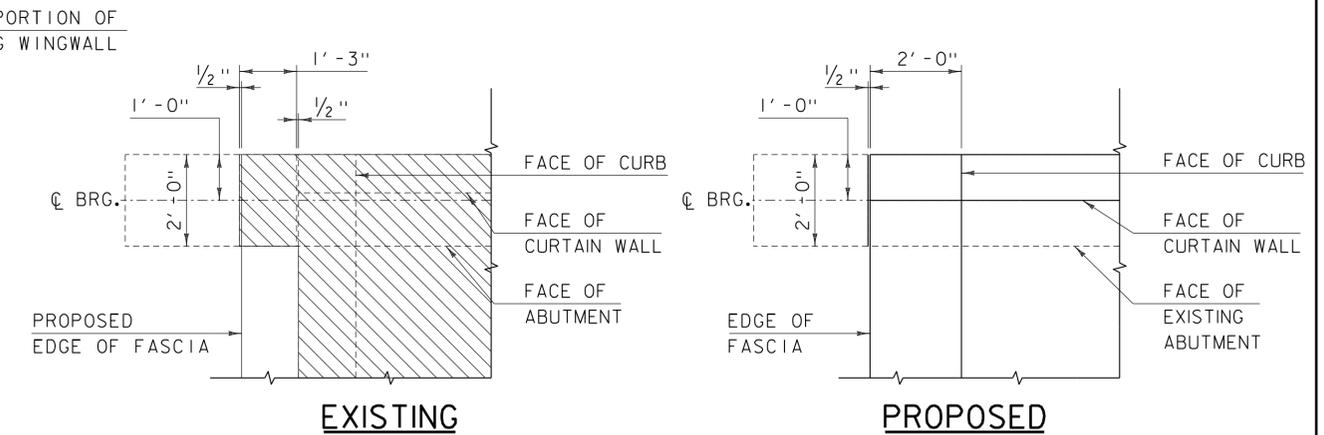
EXISTING BEAM SEAT



**REMOVAL LIMITS - ABUTMENT 2**

SCALE: 1/2" = 1'-0"

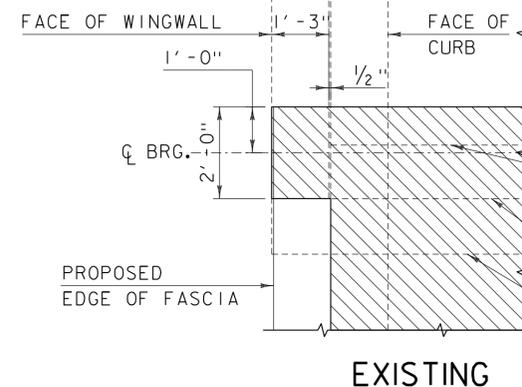
EXISTING BEAM SEAT



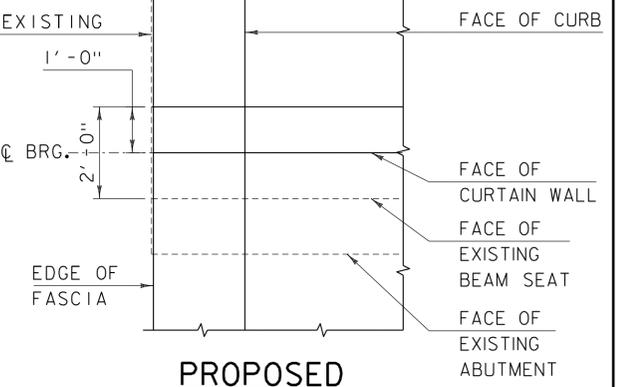
**SECTION A-A**

SCALE: 1/2" = 1'-0"

REMOVE PORTION OF EXISTING WINGWALL



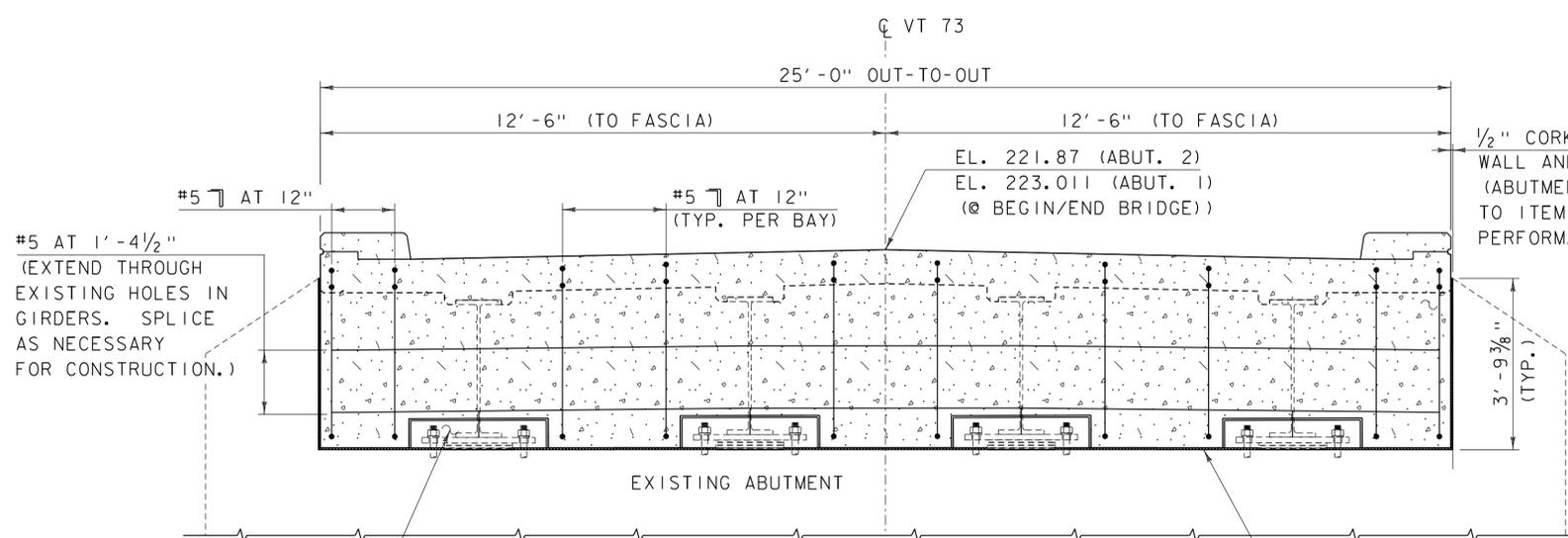
**EXISTING**



**PROPOSED**

**SECTION B-B**

SCALE: 1/2" = 1'-0"



**ABUTMENT 1 CURTAIN WALL MASONRY AND REINFORCEMENT ELEVATION**

(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)  
SCALE: 1/2" = 1'-0"

#5 AT 1'-4 1/2" (EXTEND THROUGH EXISTING HOLES IN GIRDERS. SPLICE AS NECESSARY FOR CONSTRUCTION.)

CUTAIN WALL BLOCKOUT AROUND BEARING (TYP.) (SEE NOTE 4)

1/2" CORK JOINT BETWEEN CURTAIN WALL AND ABUTMENT CHEEKWALL (ABUTMENT 1 ONLY) (INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A") (TYP.)

1/2" PREFORMED JOINT FILLER, CLOSED CELL FOAM (INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A")

- PARTIAL REMOVAL OF EXISTING STRUCTURE (SEE NOTE 19 ON SHEET 3)
- CONCRETE, HIGH PERFORMANCE CLASS A

**NOTES:**

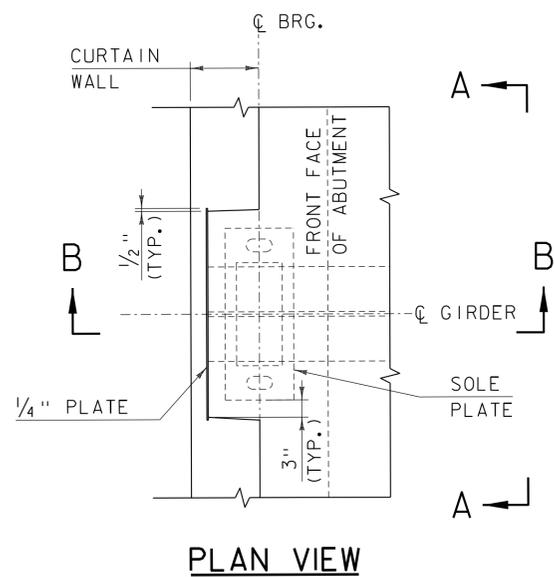
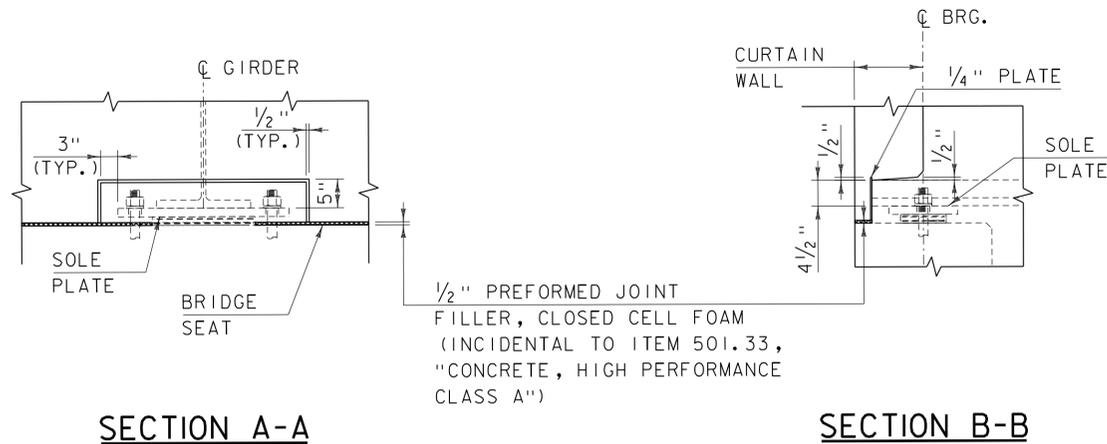
1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. EF = EACH FACE
4. SEE SHEET 16 FOR TYPICAL CURTAIN WALL SECTION AND CURTAIN WALL BLOCKOUT AROUND BEARINGS DETAILS.

PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108typ-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: S. BEAUMONT  
REMOVAL & CURTAIN WALL DETAILS SHEET 1

PLOT DATE: 12/4/2015  
DRAWN BY: M. SMITH  
CHECKED BY: J. FRENCH  
SHEET 15 OF 27

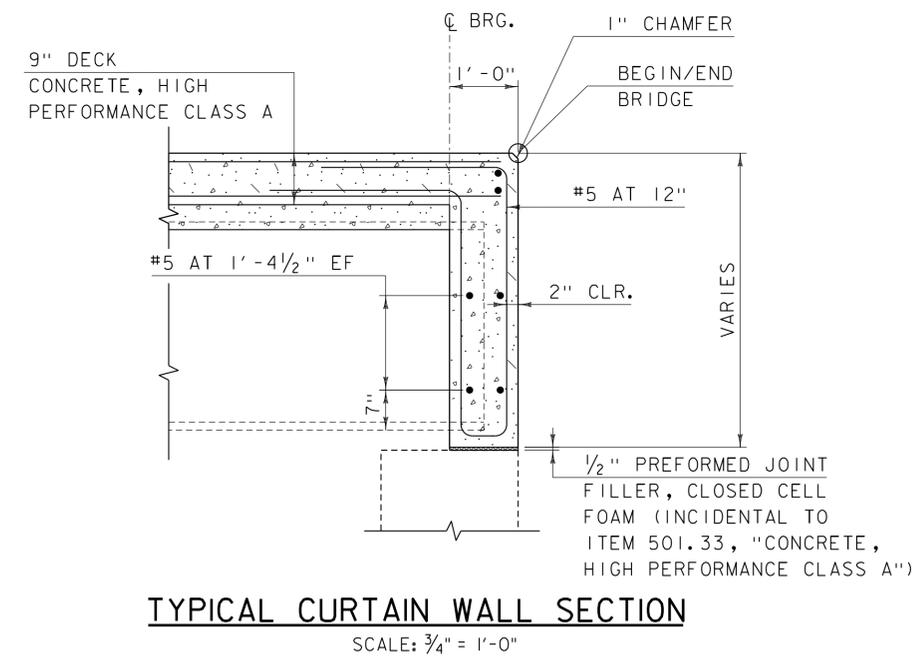




**CONCRETE CURTAIN WALL  
BLOCKOUTS AROUND BEARINGS**  
SCALE: 3/4" = 1'-0"

**NOTES:**

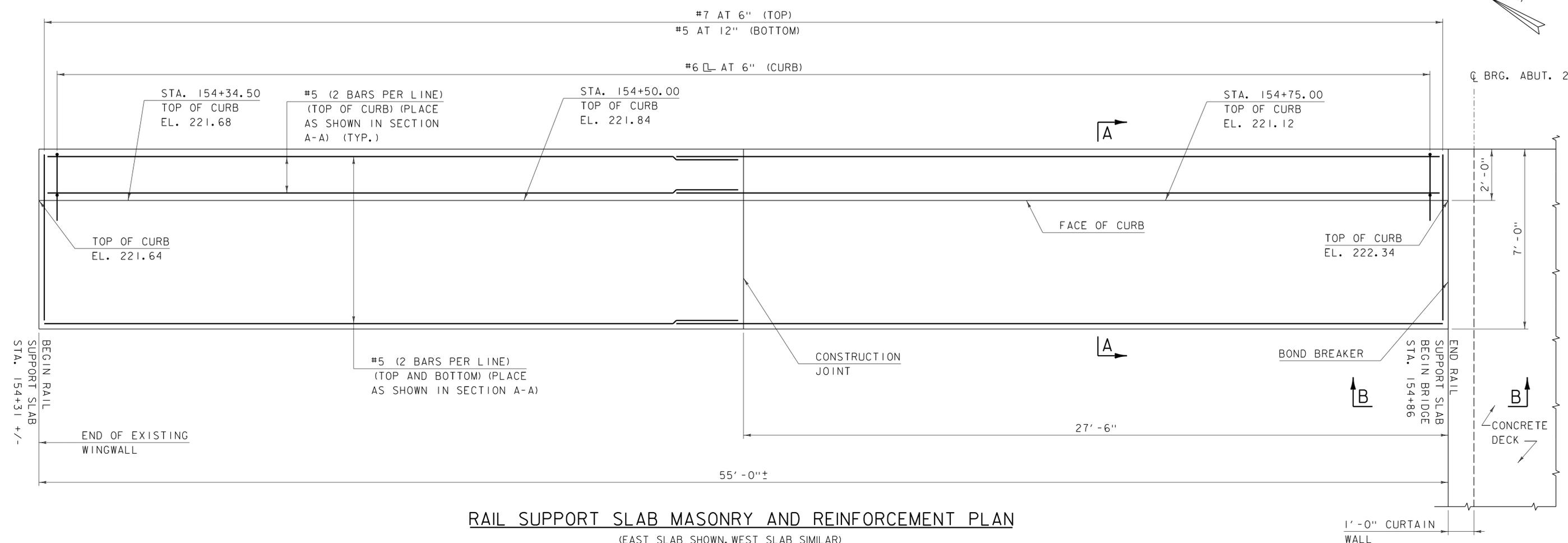
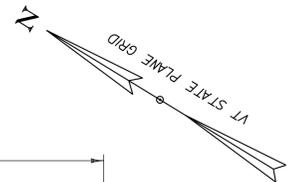
1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. EF = EACH FACE
4. SEE SHEET 15 FOR CURTAIN WALL MASONRY AND REINFORCEMENT ELEVATION.



PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108typ-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: N. CARON  
REMOVAL & CURTAIN WALL DETAILS SHEET 2

PLOT DATE: 12/4/2015  
DRAWN BY: M. SMITH  
CHECKED BY: S. BEAUMONT  
SHEET 16 OF 27



**RAIL SUPPORT SLAB MASONRY AND REINFORCEMENT PLAN**  
 (EAST SLAB SHOWN, WEST SLAB SIMILAR)  
 SCALE: 1/2" = 1'-0"

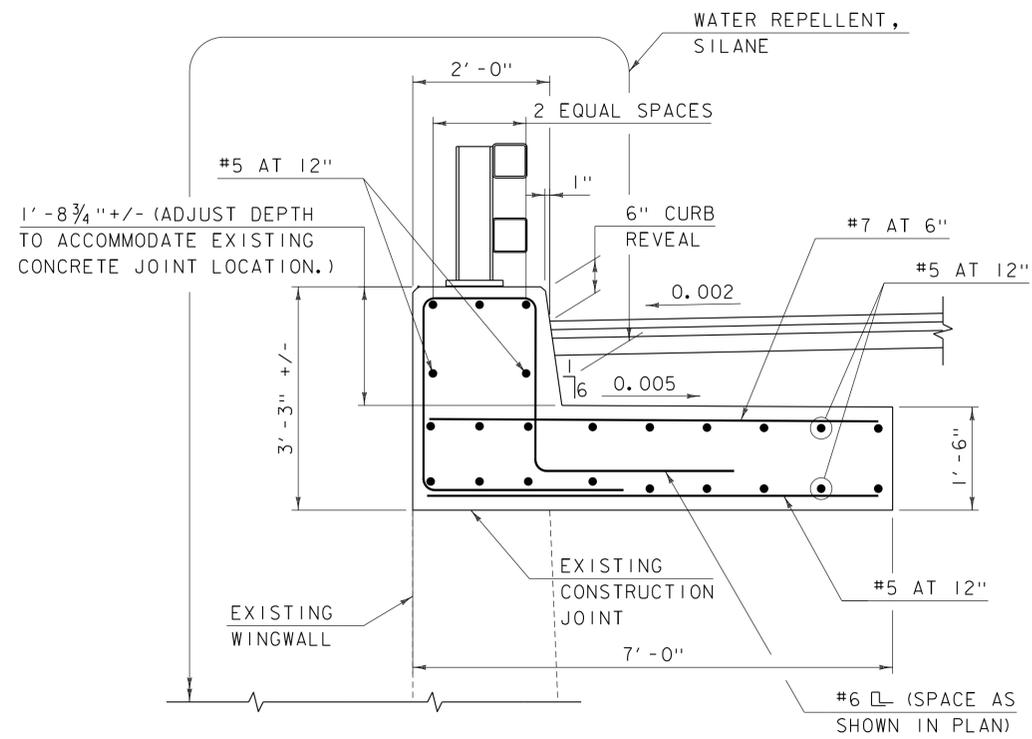
**NOTES:**

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 1'-0" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. SEE SHEET 18 FOR SECTIONS A-A AND B-B.
5. ALL DIMENSIONS ARE BASED ON FIELD MEASUREMENTS AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS.

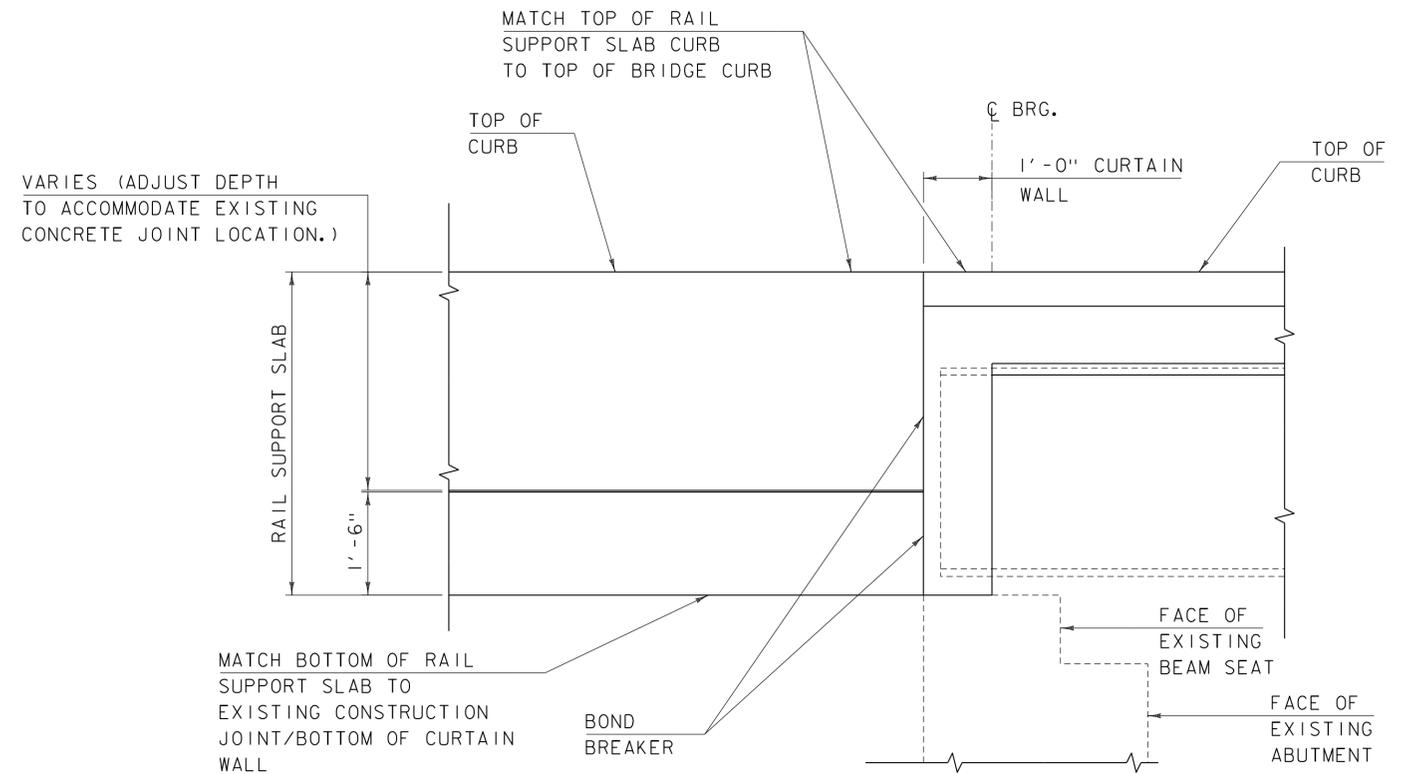
PROJECT NAME: ORWELL	
PROJECT NUMBER: STP DECK(4I)	
FILE NAME: z15j108typ-4.dgn	PLOT DATE: 12/4/2015
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: A. GIRALDI	CHECKED BY: S. BEAUMONT
RAIL SUPPORT SLAB DETAILS SHEET	SHEET 17 OF 27



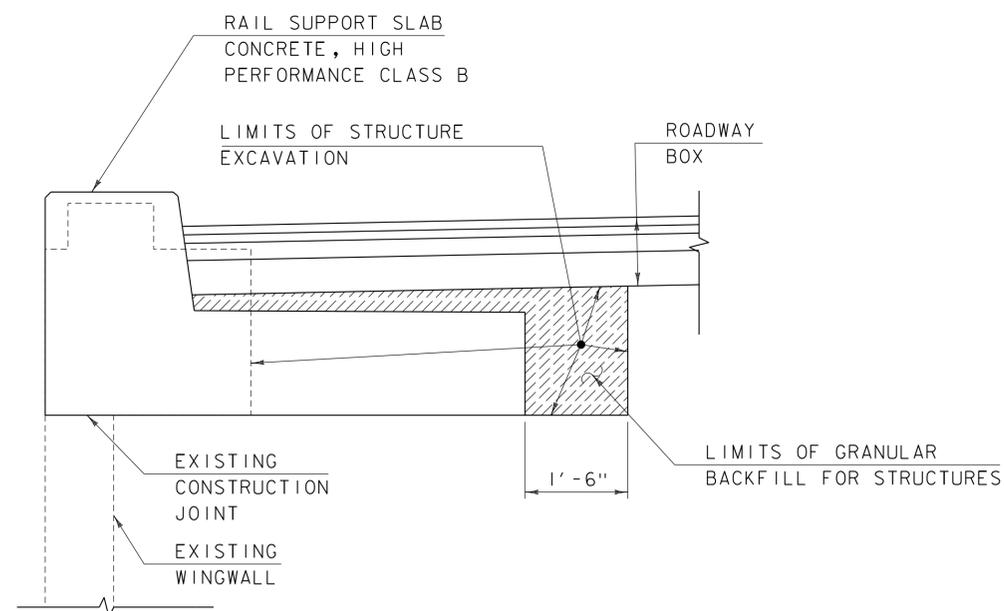
CLD 15-0223 MODEL: TYP08



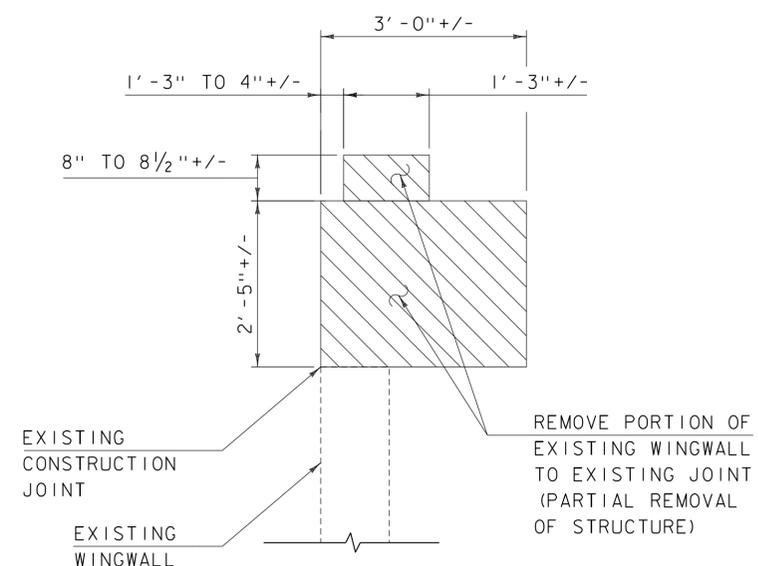
**SECTION A-A**  
SCALE: 3/4" = 1'-0"



**SECTION B-B**  
SCALE: 3/4" = 1'-0"



**TYPICAL RAIL SUPPORT SLAB EARTHWORKS**  
SCALE: 3/4" = 1'-0"



**TYPICAL WINGWALL REMOVAL SECTION**  
SCALE: 3/4" = 1'-0"

**NOTES:**

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 1'-0" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS
4. SEE SHEET 17 FOR RAIL SUPPORT SLAB MASONRY AND REINFORCEMENT PLAN.
5. ALL DIMENSIONS ARE BASED ON FIELD MEASUREMENTS AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS.
6. COMPACT EXISTING MATERIAL BELOW RAIL SUPPORT SLAB. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B".
7. THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO THE BACK FACE OF THE RAIL SUPPORT SLAB AT THE SOUTHEAST CORNER NEAREST THE ABUTMENT.

PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

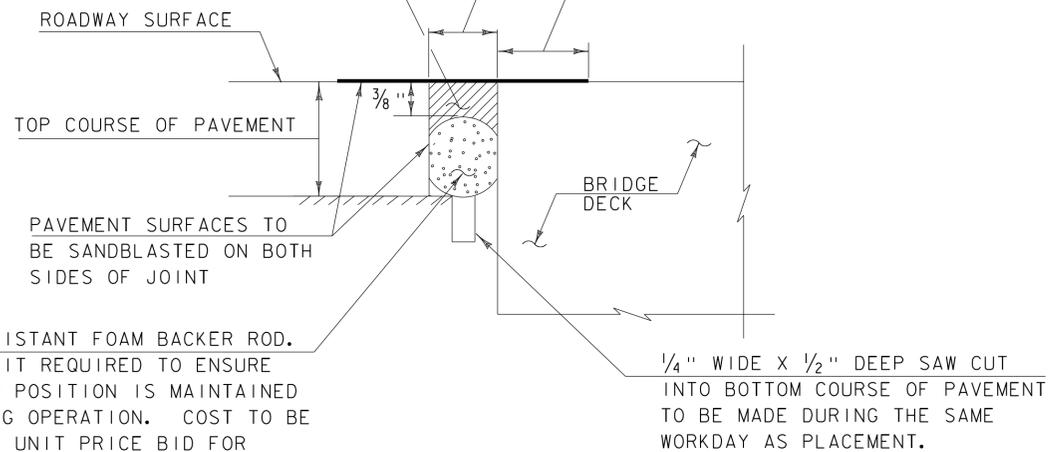
FILE NAME: z15j108typ-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: A. GIRALDI  
RAIL SUPPORT SLAB DETAILS SHEET 2

PLOT DATE: 12/4/2015  
DRAWN BY: M. SMITH  
CHECKED BY: S. BEAUMONT  
SHEET 18 OF 27

JOINT SEALER, HOT Poured. SHALL BE SLIGHTLY OVER FILLED THEN WIPEd FLUSH WITH A "V" OR "U" SHAPED SQUEEGEE TO PROVIDE A 1 1/4" WIPE ZONE EACH SIDE OF JOINT.

3/4" SAW CUT * COST TO BE INCLUDED WITH UNIT BID PRICE FOR JOINT SEALER.

1 1/4" MIN. WIPE ZONE (TYP.)

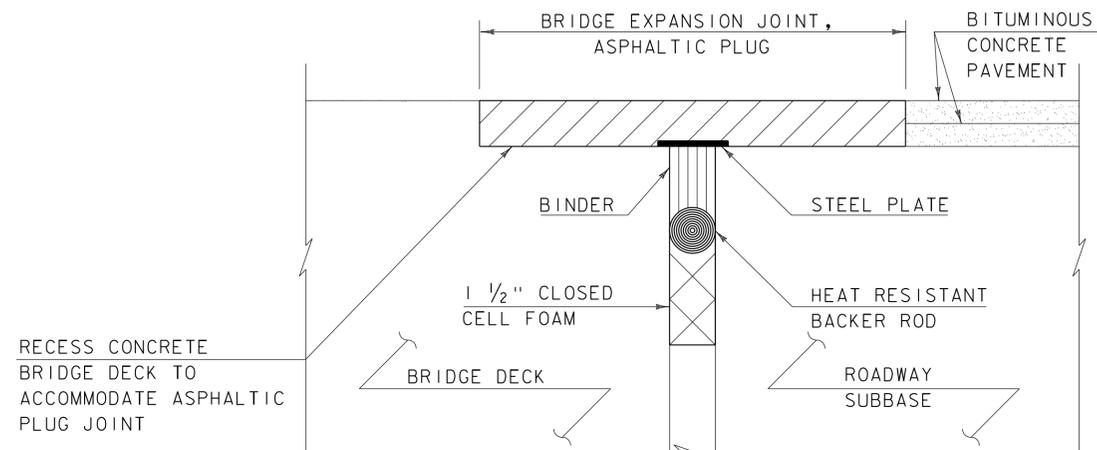


7/8" Ø HEAT RESISTANT FOAM BACKER ROD. COMPRESSION FIT REQUIRED TO ENSURE THAT THE ROD POSITION IS MAINTAINED DURING FILLING OPERATION. COST TO BE INCLUDED WITH UNIT PRICE BID FOR JOINT SEALER.

### SAWED PAVEMENT JOINT DETAIL

(NOT TO SCALE)

* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUT WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER. ALL WORK SHALL BE PAID UNDER ITEM 524.11, "JOINT SEALER, HOT Poured".



### ASPHALTIC PLUG-TYPE JOINT DETAIL

(NOT TO SCALE)

NOTE: SEE STANDARD SD-516.10 FOR ADDITIONAL INFORMATION.

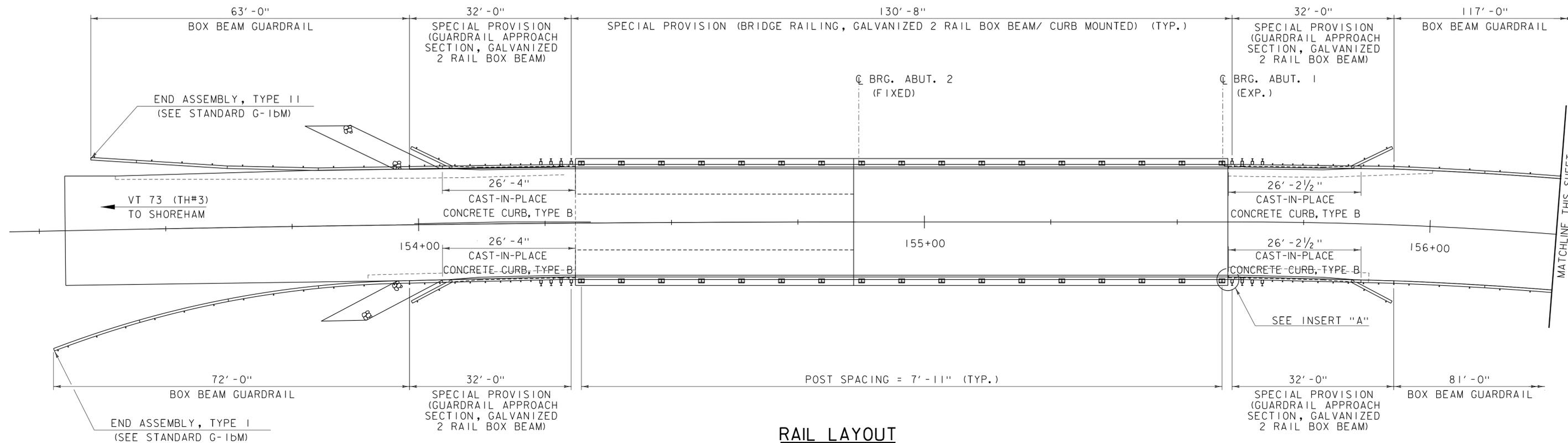
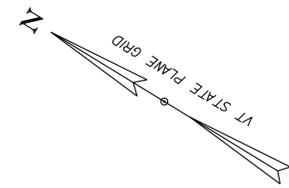
CLD 15-0223 MODEL: TYP10



PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

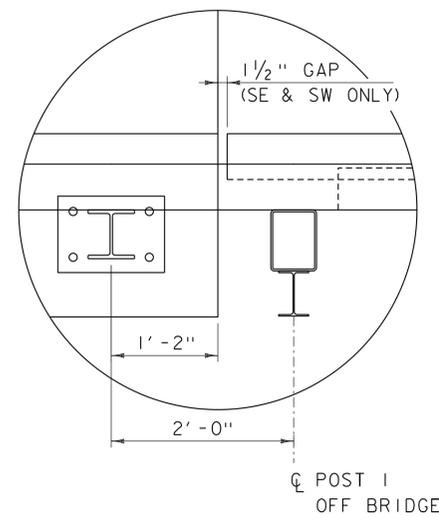
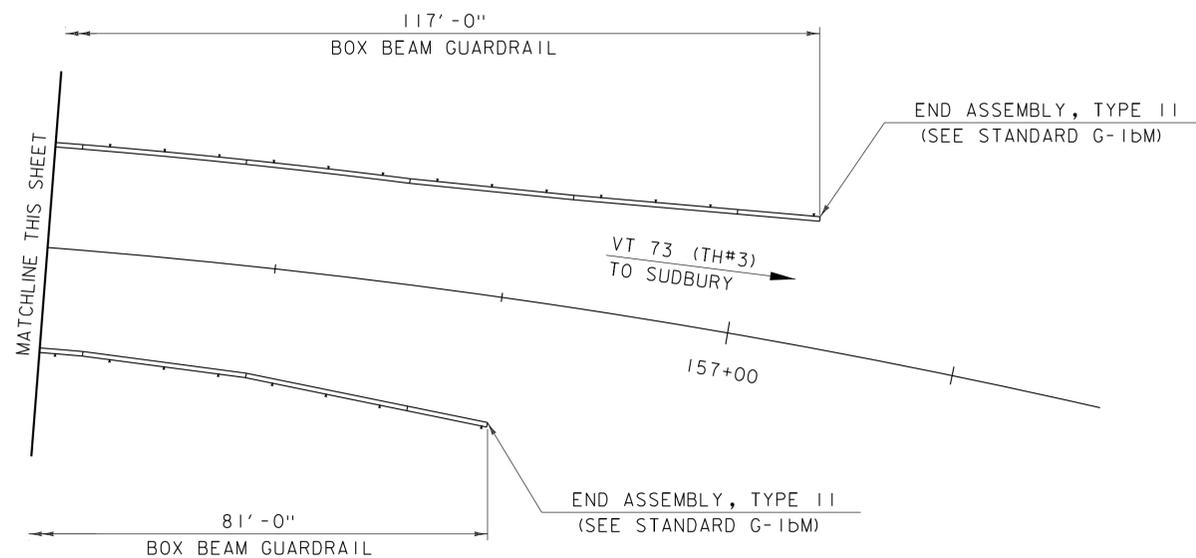
FILE NAME: z15j108typ-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: N. CARON  
JOINT DETAILS SHEET

PLOT DATE: 12/4/2015  
DRAWN BY: M. SMITH  
CHECKED BY: S. BEAUMONT  
SHEET 19 OF 27



**RAIL LAYOUT**

SCALE 1" = 10'-0"



**INSERT "A"**

(SOUTHWEST CORNER SHWN, OTHER CORNERS SIMILAR)  
SCALE 1" = 1'-0"

**NOTES:**

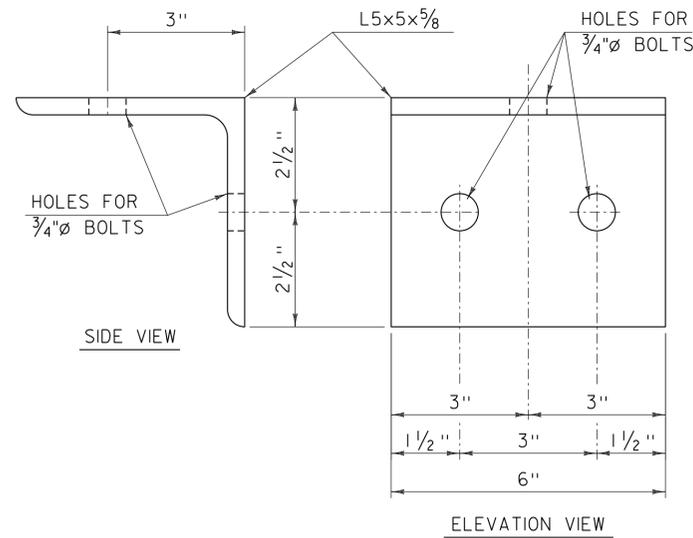
1. SEE STANDARDS G-1bM, S-360A, AND S-360B.
2. SEE BRIDGE AND APPROACH RAIL DETAILS ON SHEETS 20 AND 21.
3. SEE SHEET 6 FOR TYPICAL CAST-IN-PLACE CONCRETE CURB, TYPE B EARTHWORKS DETAIL.

PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

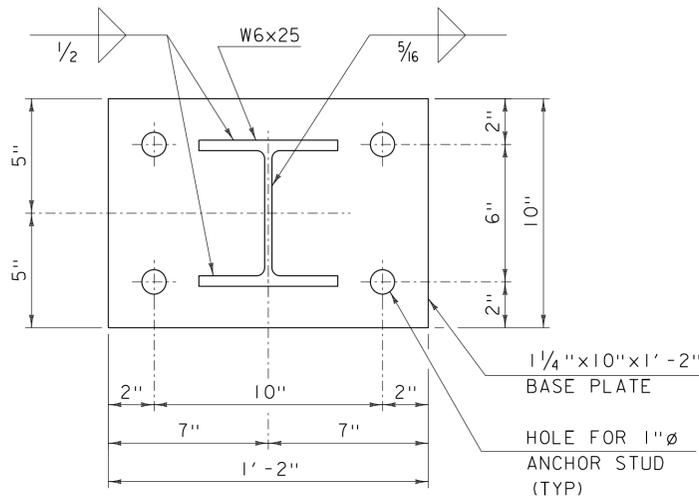
FILE NAME: z15j108rail.bdr-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: N. CARON  
RAIL LAYOUT SHEET

PLOT DATE: 12/4/2015  
DRAWN BY: M. SMITH  
CHECKED BY: A. GIRALDI  
SHEET 20 OF 27

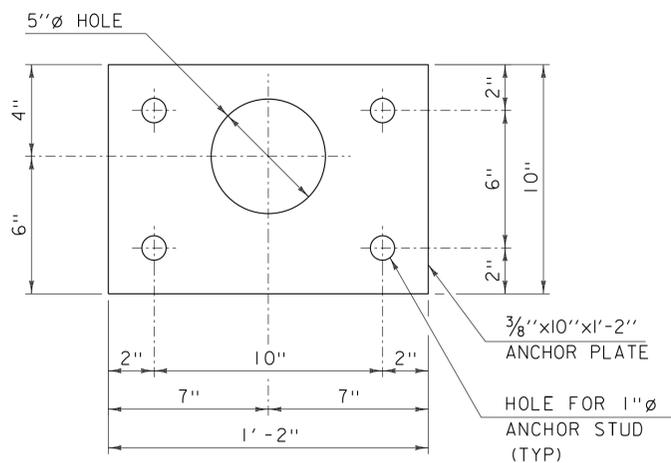




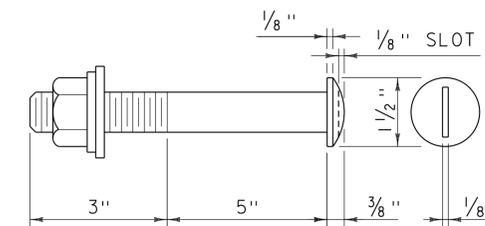
**RAILING ANGLE DETAILS**



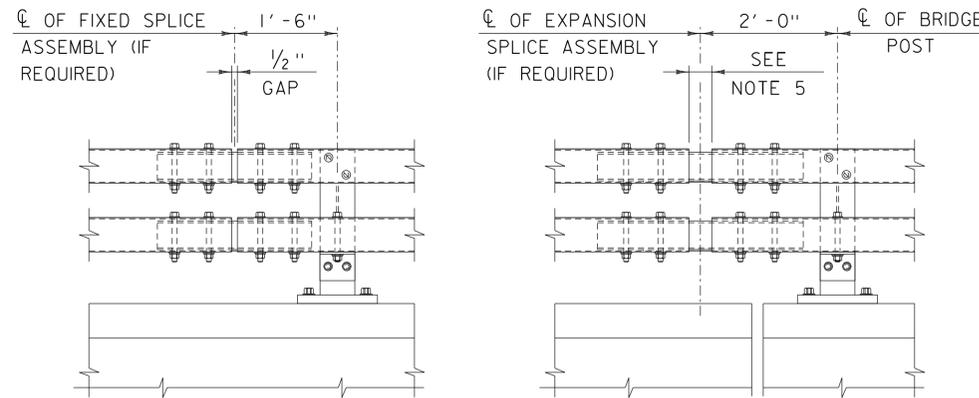
**BASE PLATE DETAIL**



**ANCHOR PLATE DETAIL**

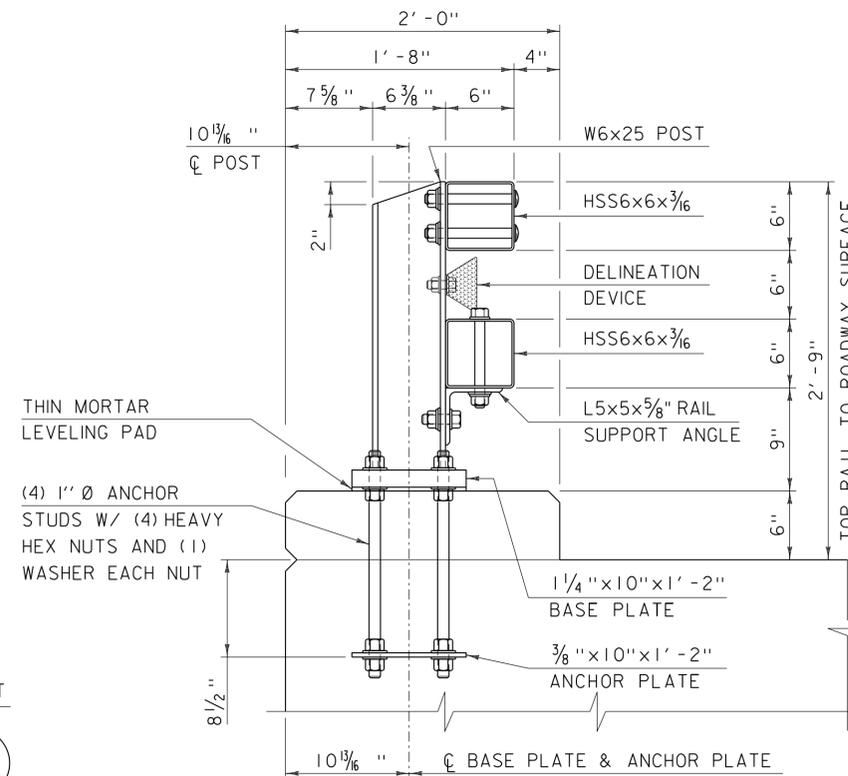


**7/8" Ø ROUND HEAD BOLT DETAIL**  
A449 (TYPE 1)

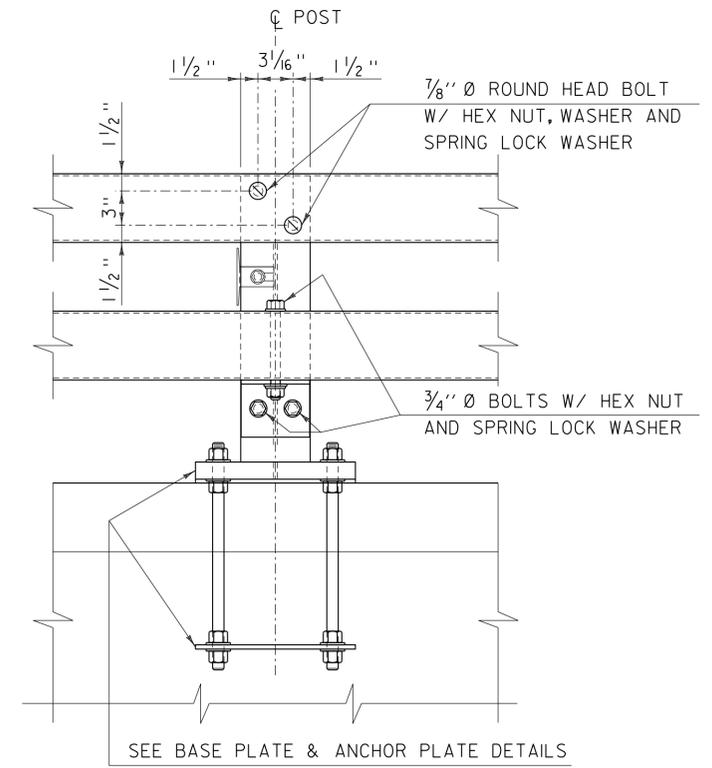


**RAILING SPLICE DETAIL ELEVATION**

A RAILING EXPANSION SPLICE IS REQUIRED IN ANY POST SPACING THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT



**RAILING SECTION**



**RAILING ELEVATION**

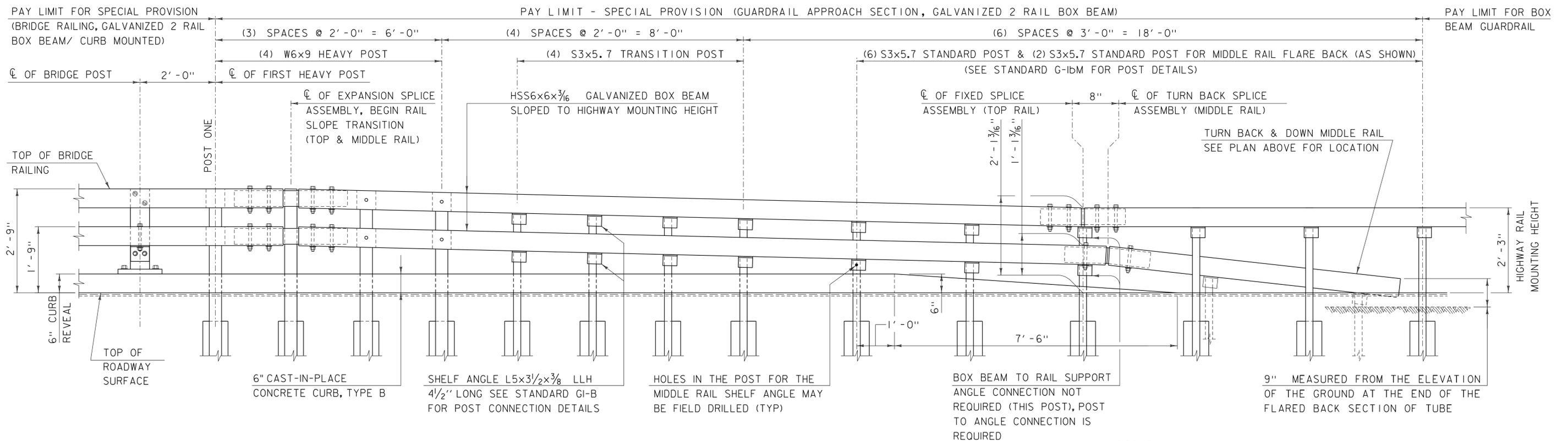
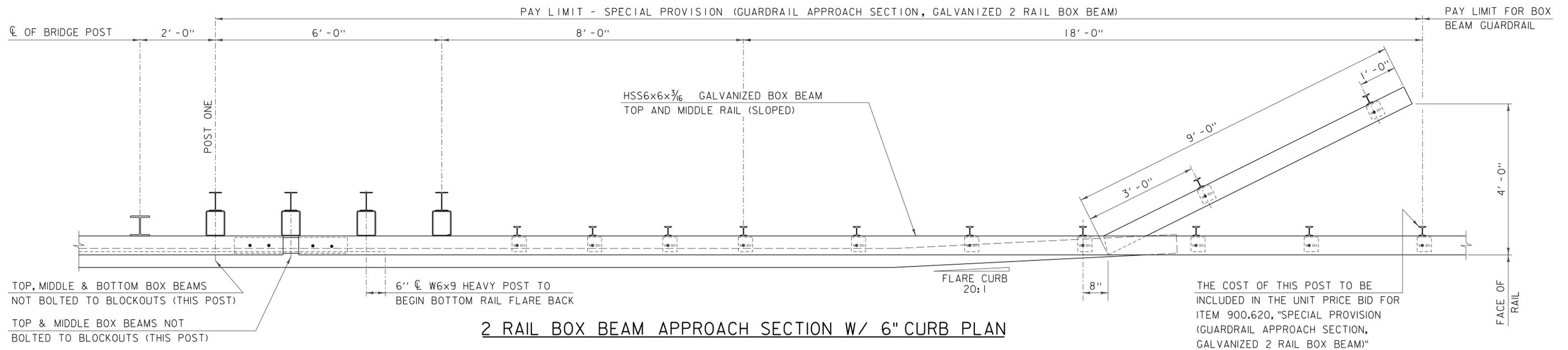
- NOTES:**
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
  2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
  3. ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
  4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
  5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
  6. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
  7. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
  8. SEE STANDARD DRAWING G-1bM FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
  9. ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
  10. THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
  11. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

SEE STD S-364C FOR SPLICE DETAILS  
SEE STD G-1bM FOR DELINEATORS

PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

FILE NAME: z15j108rail.bdr-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: N. CARON  
BRIDGE RAIL DETAILS SHEET

PLOT DATE: 12/4/2015  
DRAWN BY: M. SMITH  
CHECKED BY: A. GIRALDI  
SHEET 21 OF 27



**2 RAIL BOX BEAM APPROACH SECTION W/ 6" CURB ELEVATION**

NOTES:

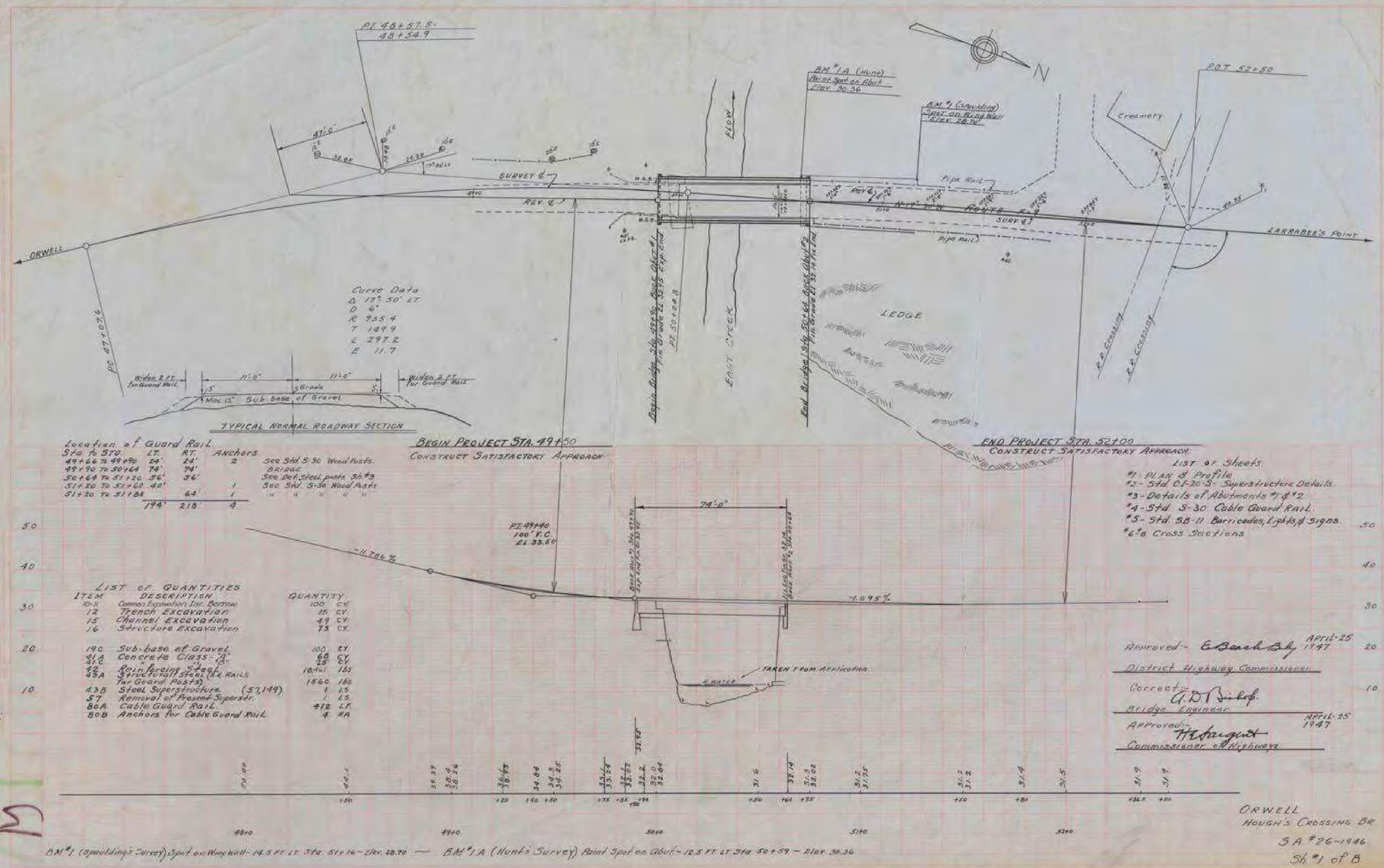
1. BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
2. SEE SHEET 6 FOR TYPICAL CAST-IN-PLACE CONCRETE CURB, TYPE B EARTHWORKS DETAIL.

SEE STD S-364C FOR SPLICE DETAILS  
SEE STD S-364D FOR TRANSITION POST  
SEE STD G-IBM FOR POST DETAILS

PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)

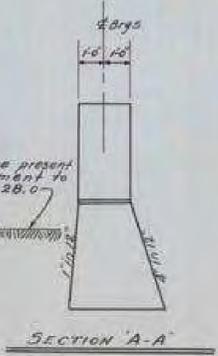
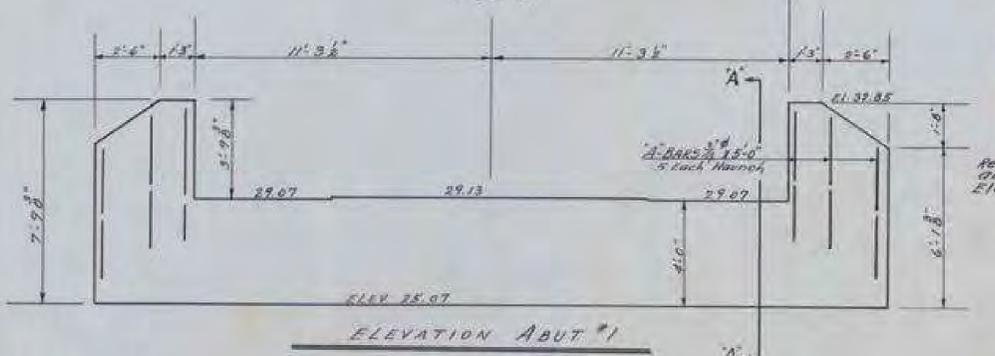
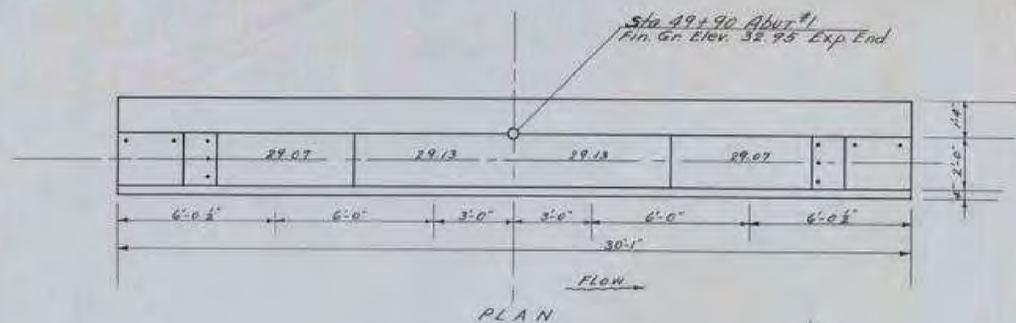
FILE NAME: z15j108rail_bdr-4.dgn    PLOT DATE: 12/4/2015  
PROJECT LEADER: J. BYATT    DRAWN BY: M. SMITH  
DESIGNED BY: N. CARON    CHECKED BY: S. BEAUMONT  
APPROACH RAIL DETAILS SHEET    SHEET 22 OF 27

Orwell 46



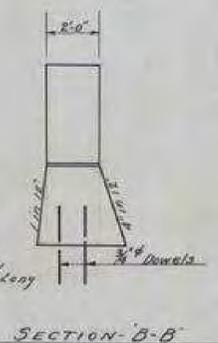
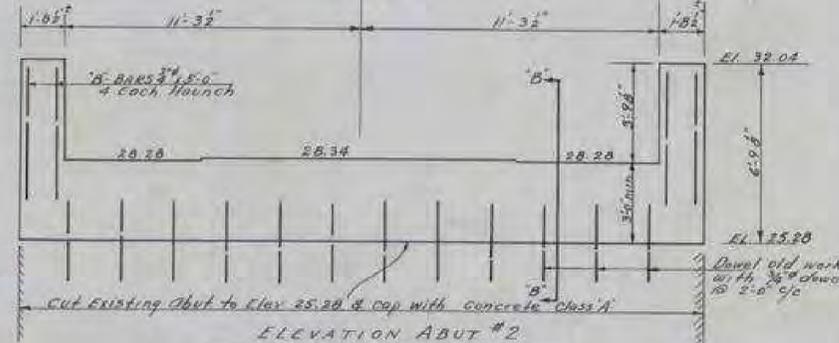
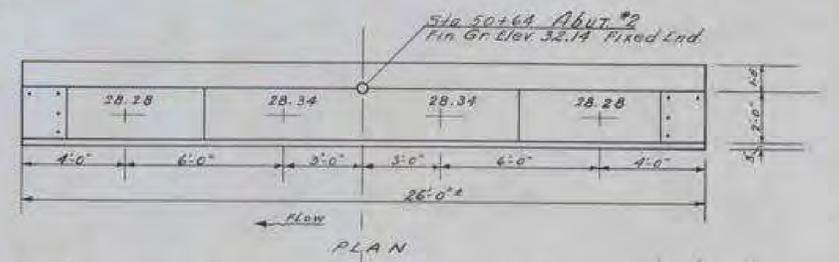
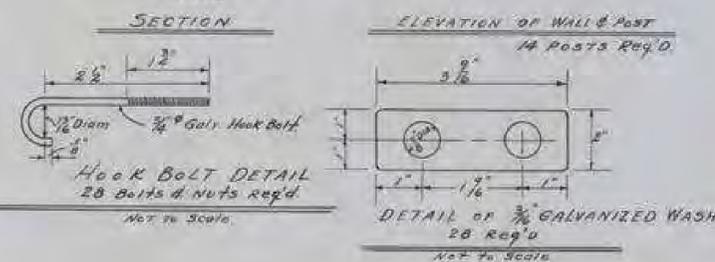
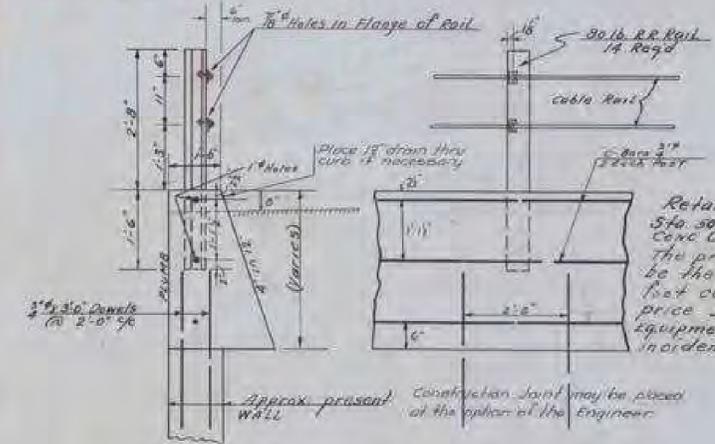
ORWELL  
 STP DECK(41)  
 BRIDGE NO. 4  
 SHEET 23 OF 27  
 FOR REFERENCE ONLY





REINFORCING STEEL

BAR	SIZE	NO. REQ'D	LENGTH	DETAIL
A	3/4"	10	5'-0"	Straight
B	3/4"	8	5'-0"	Do
Abut's Dowels	3/4"	24	3'-0"	Do
Wall Dowels	3/4"	112	5'-0"	Do
C	3/4"	12	29'-0"	Do

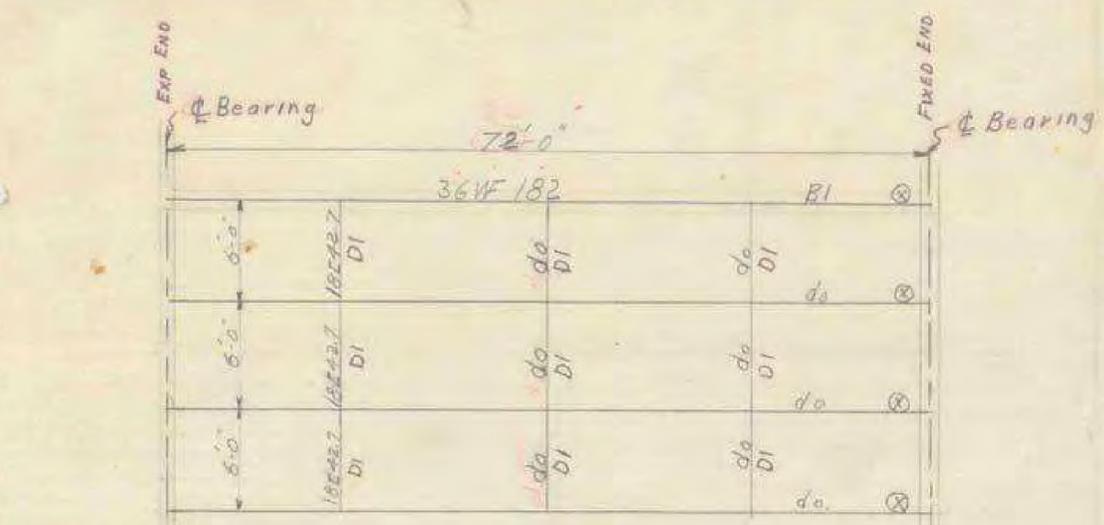


ESTIMATED QUANTITIES

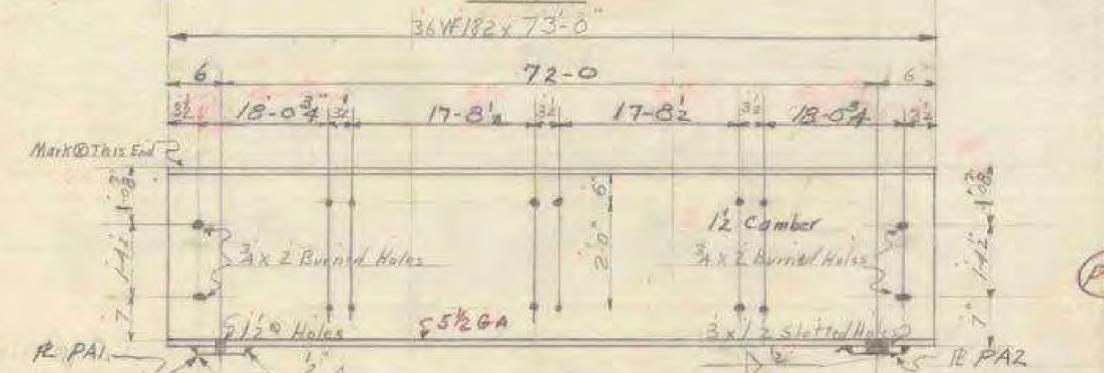
Channel Excav.	49 CY	Abut #1 - Abut #2
Trench Excav.	15 CY	Concrete Class "A" 142.5 CY
		Reinf. Steel "A" 8.7 CY
		" " WALL - 1025 lbs
		Structural Steel (R.R. Rails) - 1540 lbs
		Structure Excav. 4100 - 24 CY
		Concrete in Walls CL-B - 25 CY

ORWELL  
 Houghs' Crossing Br.  
 DETAILS OF ABUTMENTS #1 & #2  
 Scales 3/8" = 1'-0"

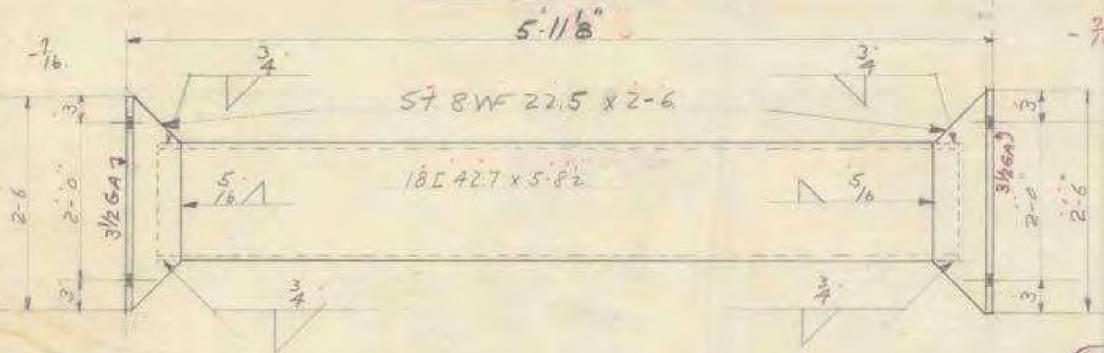
Reviewed by: A. HUNT  
 Designed by: J.S.P.  
 Drawn by: H.R.C. 3-47  
 Traced by: H.R.C.  
 Checked by: J.L.H.  
 Series 5.A No. 26-1147  
 Sheet 3 of 8 Sheets



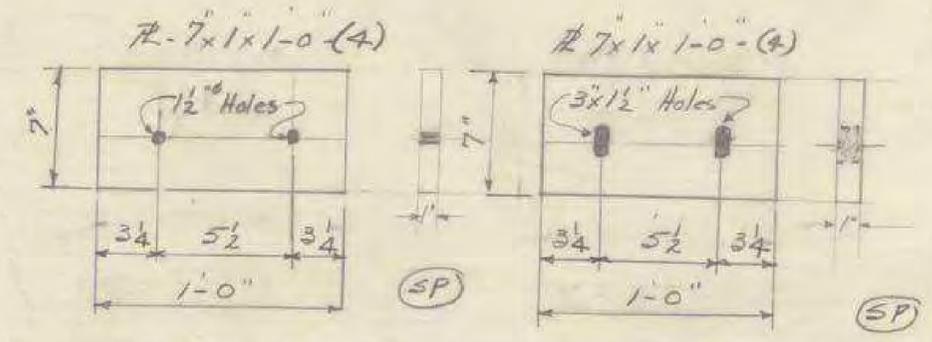
Plan



Make 4 Beams B1

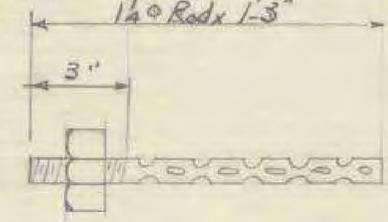


Make 9 Diaphragms D1

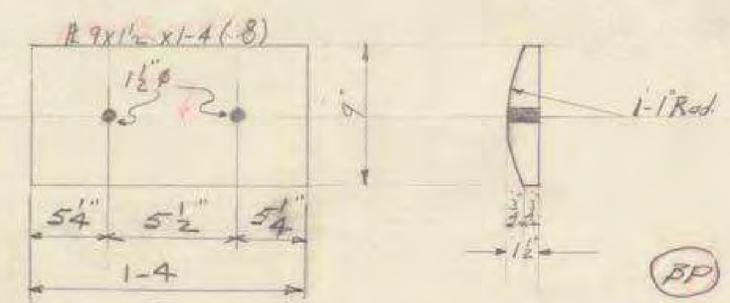


Make 4 Plates - PA1

Make 4 Plates - PA2



Make 16 Swedge Bolts



Make 8 Bearing Plates BPI

VERMONT STRUCTURAL STEEL CORPORATION BURLINGTON, VT.	
REVISIONS	
	BLDG. <u>Hayden Escarpment Bridge</u>
	<u>Orwell, Vermont</u> SA 26-1946
	CONTR. <u>Town of Orwell, VT</u>
	HOLES <u>7/16</u> MADE BY <u>F.B.H.</u>
	RIVETS <u>7/16</u> CHECKED BY <u>PT</u>
	PAINT <u>R. Lead - Vt Spec.</u> DATE <u>6-5-47</u>
	JOB No. <u>626</u> SHEET No. <u>1</u>

20' Roadway

REINFORCING STEEL

BAR No 1 - 5/8" TOTAL LENGTH 21'-0" STRAIGHT

BAR No 3 - 3/4" STRAIGHT

BAR No 4 - 1/2" STRAIGHT

BAR No 5 - 3/8" (AT ABUTMENT ENDS)

BAR No 5P - 7/8" (AT PIER ENDS)

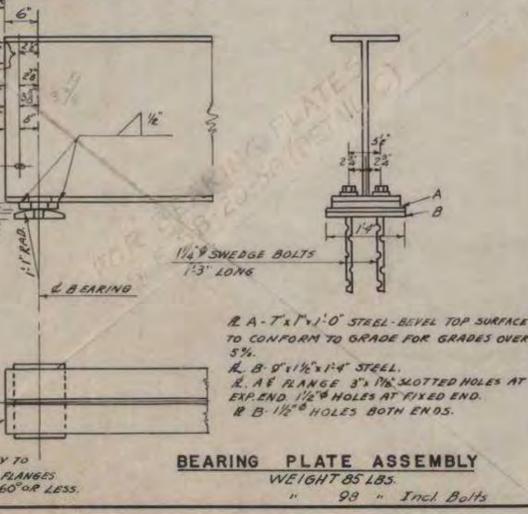
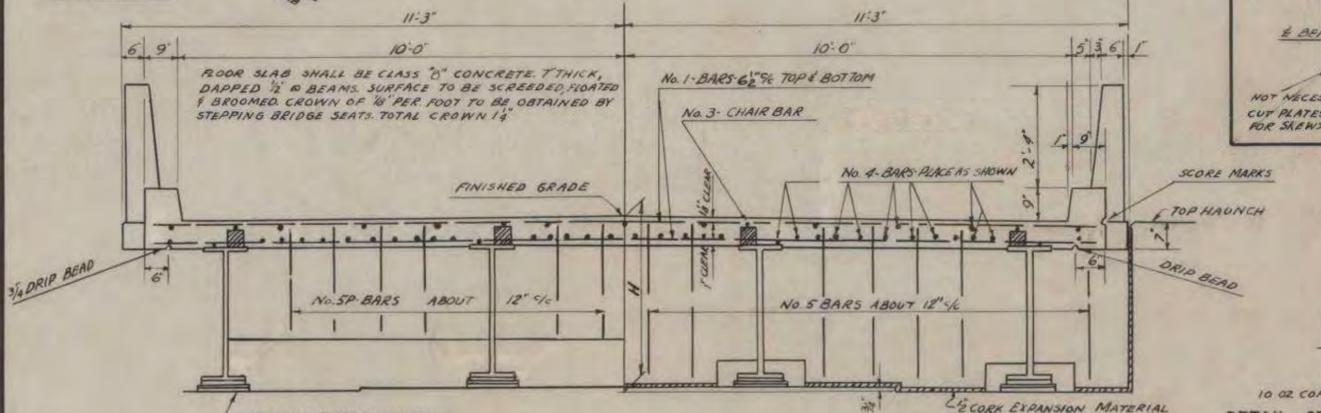
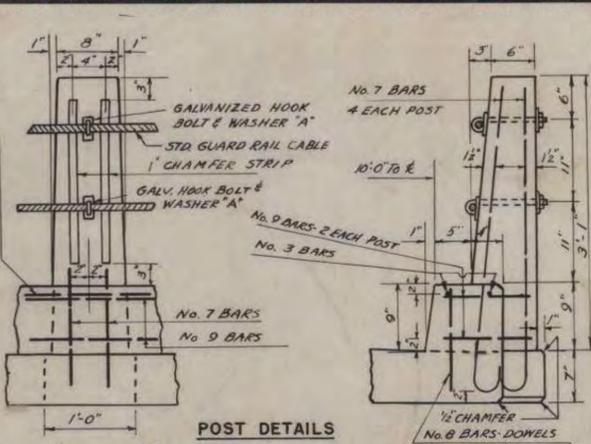
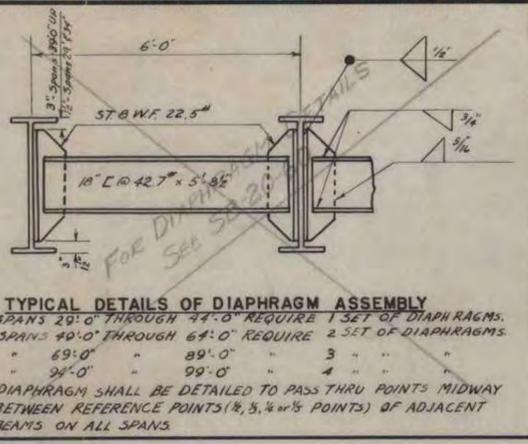
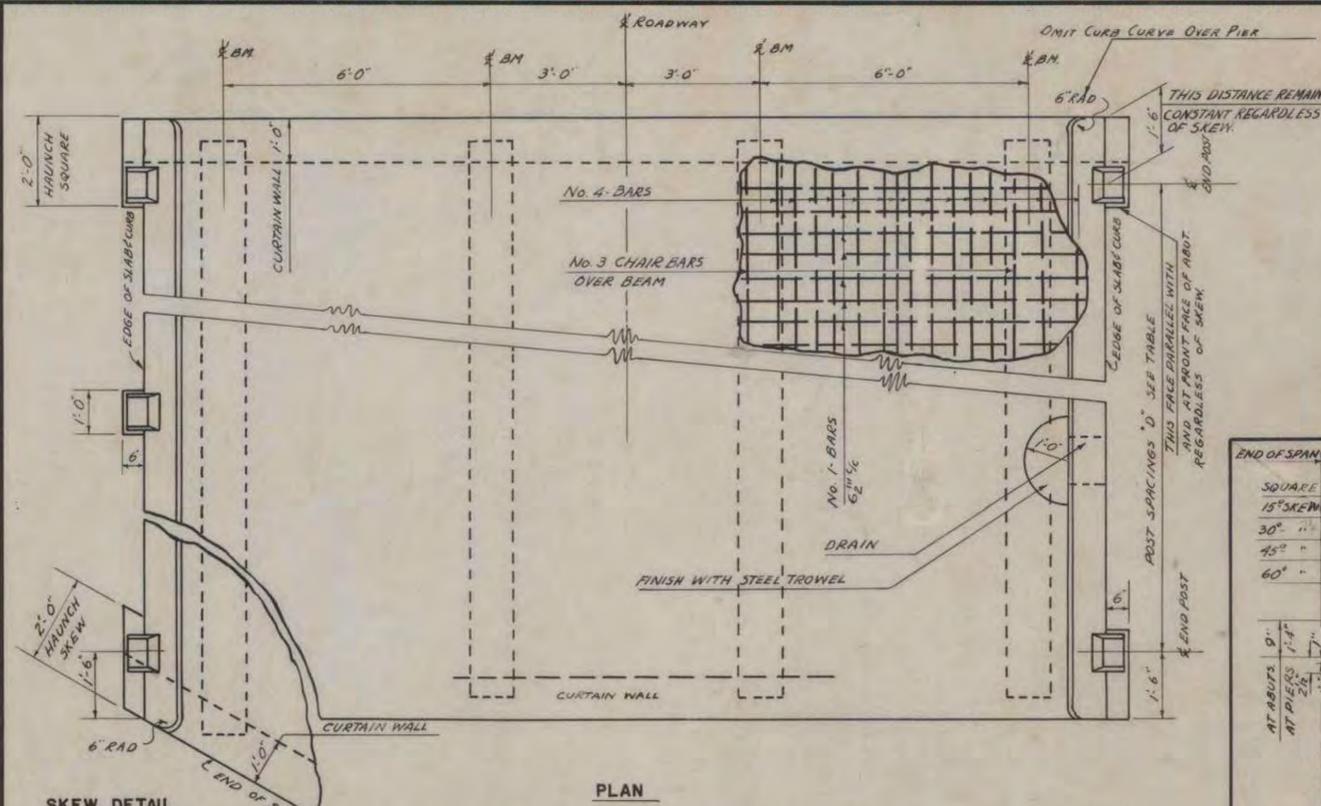
SPAN	BAR LENGTH	SPAN	A	TOT. LTH
29'	28'-6"	29'	1'-0"	4'-8"
34'	33'-6"	34'	2'-0"	5'-2"
39'	38'-6"	39'	2'-0"	5'-2"
44'	43'-6"	44'	2'-3"	5'-8"
49'	48'-6"	49'	2'-3"	5'-8"
54'	53'-6"	54'	2'-6"	6'-2"
59'	58'-6"	59'	2'-6"	6'-2"
64'	63'-6"	64'	2'-9"	6'-8"
69'	68'-6"	69'	3'-0"	7'-2"
74'	73'-6"	74'	3'-0"	7'-2"
79'	78'-6"	79'	3'-3"	7'-8"
84'	83'-6"	84'	3'-3"	7'-8"
89'	88'-6"	89'	3'-6"	8'-2"
94'	93'-6"	94'	3'-6"	8'-2"
99'	98'-6"	99'	3'-9"	8'-8"

BAR No 6 - 5/8" STRAIGHT-LENGTH 22'-0" FOR SQUARE BRIDGE INCREASE LENGTH FOR SKEW BRIDGE

BAR No 7 - 3/4" TOTAL LENGTH 4'-2"

BAR No 8 - 3/8" DOWELS - STRAIGHT-LENGTH 1'-0"

BAR No 9 - 1/2" TOTAL LENGTH 3'-0"



RAIL DATA

SPAN	CABLE RATE	POST SIZE	No. POSTS REQD.
29'	58'-0"	6'-6"	10
34'	63'-0"	7'-0"	10
39'	68'-0"	7'-2 1/2"	12
44'	73'-0"	7'-6"	14
49'	78'-0"	7'-8"	14
54'	83'-0"	7'-10"	16
59'	88'-0"	8'-0"	16
64'	93'-0"	8'-2"	18
69'	98'-0"	8'-4"	20
74'	103'-0"	8'-6"	20
79'	108'-0"	8'-8"	22
84'	113'-0"	8'-10"	22
89'	118'-0"	9'-0"	24
94'	123'-0"	9'-2"	26
99'	128'-0"	9'-4"	26
76'	152'-0"	7'-3 1/2"	22

DETAILS OF WASHER "A" showing a cross-section of a washer with a hook bolt.

HOOK BOLT DETAIL showing a hook bolt with a diameter of 3/8" and a length of 8".

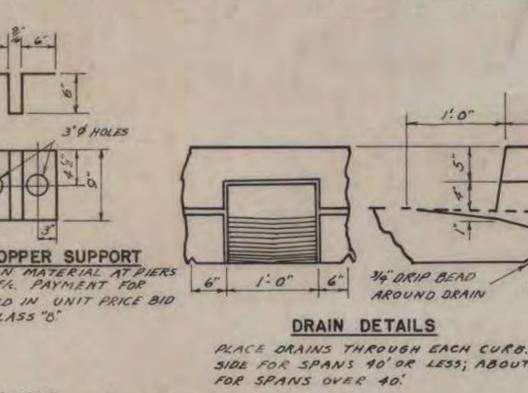
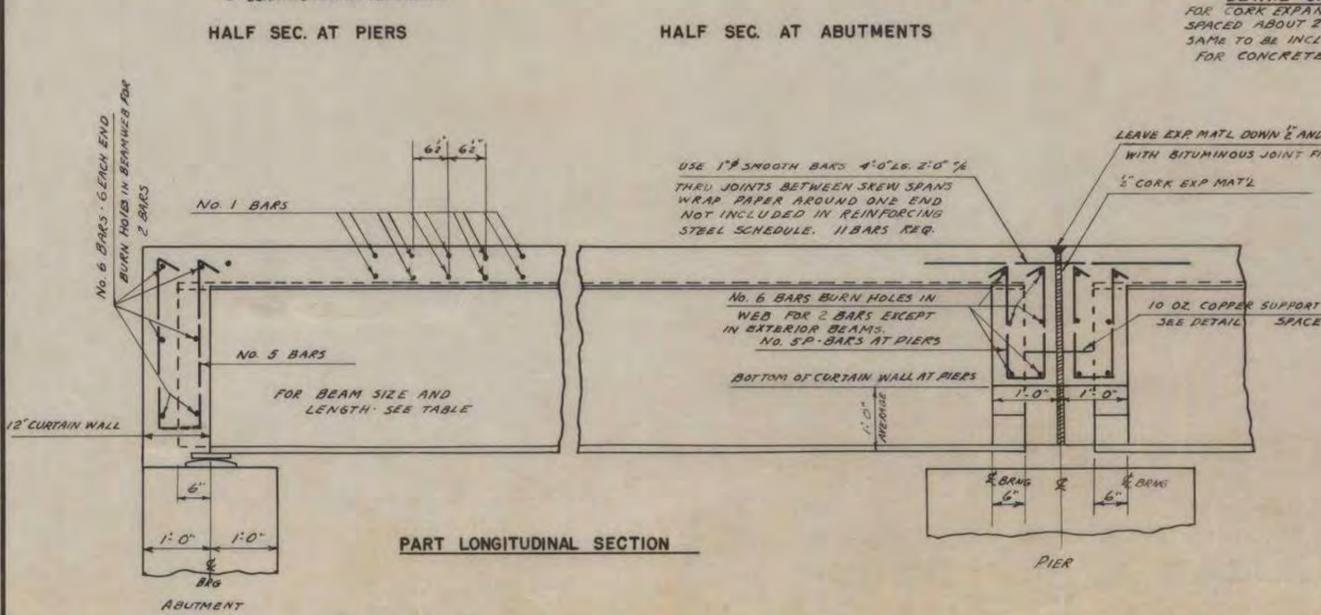


TABLE OF QUANTITIES FOR SINGLE SPAN (SQUARE)

SPAN	STRUCTURAL STEEL DATA				REINFORCING STEEL SCHEDULE										CONC. TOTAL WEIGHT	C.L.	
	Size	W.F. BEAM	BEAM LENGTH	COMPUTED SEC. MOM. REQD.	3	4	5	6	7	8	9	10	11	12			13
29'-0"	21"	62#	28'-0"	116	2.59	8,664	128	8	47	28	12	40	30	20	24	4248	18.6
34'-0"	21 1/2"	79#	33'-0"	151	2.62	11,358	128	8	47	28	12	40	34	20	28	4911	21.6
39'-0"	24 1/8"	84#	38'-0"	189	2.85	14,488	144	8	47	28	12	48	40	24	32	5547	24.3
44'-0"	26 7/8"	94#	43'-0"	229	3.08	17,920	164	8	47	28	12	56	50	28	40	7018	29.6
49'-0"	27 7/8"	102#	48'-0"	274	3.10	22,308	184	16	94	28	12	64	60	32	44	8322	33.6
54'-0"	30"	116#	53'-0"	322	3.34	27,381	200	16	94	28	12	64	60	32	44	8322	33.6
59'-0"	33 1/2"	130#	58'-0"	376	3.59	33,016	220	16	94	28	12	64	60	32	48	8322	35.5
64'-0"	33 1/2"	141#	63'-0"	443	3.61	38,394	236	16	94	28	12	72	64	36	52	8949	38.1
69'-0"	36"	160#	68'-0"	517	3.84	47,512	256	16	94	28	12	80	70	40	56	9672	41.7
74'-0"	36 3/8"	182#	73'-0"	597	3.87	57,149	276	16	94	28	12	80	74	40	60	10335	44.3
79'-0"	33 1/2"	220#	78'-0"	688	3.61	72,539	292	16	94	28	12	88	80	44	64	10961	46.4
84'-0"	35 7/8"	230#	83'-0"	781	3.83	80,348	312	16	94	28	12	88	84	44	68	11624	49.2
89'-0"	36 1/2"	260#	88'-0"	883	3.86	95,521	332	24	141	28	12	96	90	48	72	12431	52.1
94'-0"	36 1/2"	280#	93'-0"	1,002	3.88	109,243	348	24	141	28	12	104	94	52	76	13063	54.9
99'-0"	36 3/4"	300#	98'-0"	1,120	3.91	122,693	368	24	141	28	12	104	100	52	80	13726	57.5
76'-0"	33 1/4"	220#	75'-0"	688	3.61	69,900	284	16	94	28	12	88	80	44	64	10657	48.1

**GENERAL NOTES:**

**STEEL SUPERSTRUCTURE:** TO INCLUDE INDICATED W.F. BEAMS, BEARING DEVICES AND DIAPHRAGMS.

**CAMBER:** ALL STEEL BEAMS SHALL BE ROLLED TO A TRUE CIRCULAR CAMBER FOR THE FULL LENGTH OF THE BEAM. THE MIDDLE ORDINATE TO BE MINIMUM PERMANENT CAMBER, UNLESS OTHERWISE NOTED ON PLAN & PROFILE SHEET.

**PAINT:** ALL STRUCTURAL STEEL SHALL BE PAINTED AS SPECIFIED UNDER ITEM 4046B OF STD. SPECS. FOR HIGHWAY & BRIDGE CONSTRUCTION, STATE OF VERMONT, JAN. 1956. THE FINAL COAT OF FIELD PAINT SHALL BE BLACK UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

**QUANTITIES:** THIS SHEET INCLUDES QUANTITIES FOR RAILING, CURBS, AND POSTS.

**REINFORCING:** WHEN BRIDGE IS BUILT ON SKEW, TRANSVERSE BARS SHALL BE FURNISHED AS FOR SQUARE SPAN. BARS SHALL BE CUT IN FIELD TO FIT ONE SKEW END AND CUT OFF ENDS SHALL BE USED IN OPPOSITE SKEW END. IN SKEW SPANS THE NO. 6 BARS SHALL BE LENGTHENED AND THE NUMBER OF NO. 5 SERIES BARS SHALL BE INCREASED.

**DESIGN:** ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STANDARD SPECS. FOR HIGHWAY & BRIDGE CONSTRUCTION, STATE OF VERMONT 1956. DESIGNED FOR H-15 LIVE LOADING, 25% PAVING ALLOWANCE. DEAD LOAD INCLUDES WEIGHT OF BEAMS, SLAB AND RAIL. DEAD & LIVE LOAD DISTRIBUTED EQUALLY TO ALL BEAMS. FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE PLAN & PROFILE SHEET.

STANDARD W F BEAM BRIDGE  
REINFORCED CONCRETE DECK  
FOR  
STATE AID & TOWN HIGHWAYS  
20 FT. ROADWAY  
2-HIS

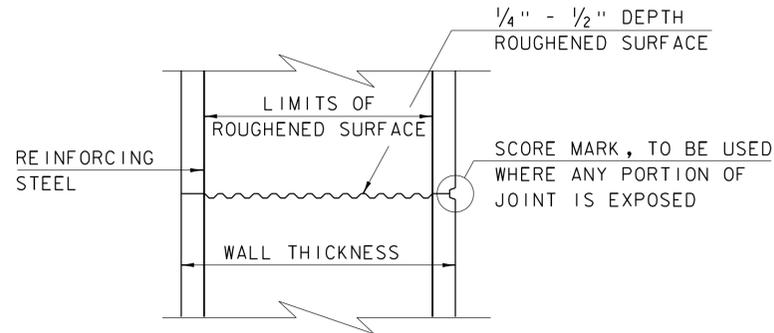
REVISIONS

Revised	Oct. 9, 1940	Add Diaphragms Inc. ST. STEEL 63, 94, 95 SPANS - WIND
Revised	12-2-41	BEAM SIZES & WEIGHT FOR SPANS 70'-0" & 89'-0" WIND LMB. 447
Revised	For New Beam Std. Sizes	LMB. 447
Revised	For 76' Span	LMB. 447
Revised	May 22, 1958	M. GARRISO

Surveyed by  
Designed by W. H. DAY  
Drawn by W. H. DAY  
Checked by ORWELL  
Series BRIDGE NO. 4  
SHEET 27 OF 27  
Files  
Sheets

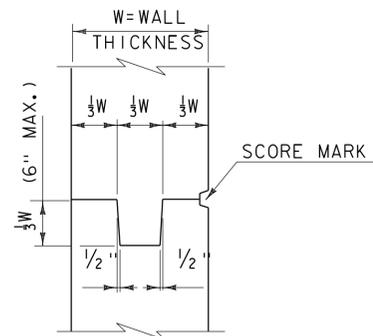
**CONCRETE GENERAL NOTES**

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

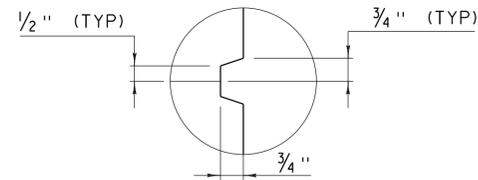


**TYPICAL HORIZONTAL CONSTRUCTION JOINT**  
(NOT TO SCALE)

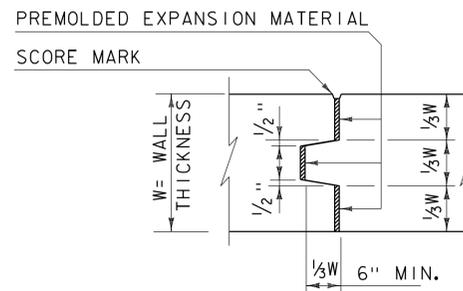
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



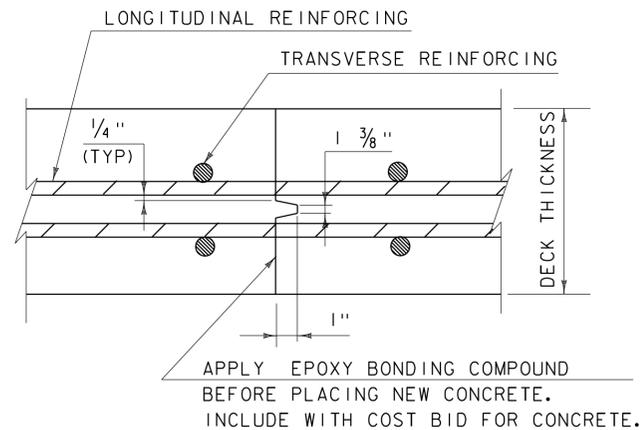
**TYPICAL CONCRETE CONSTRUCTION JOINT**  
(NOT TO SCALE)



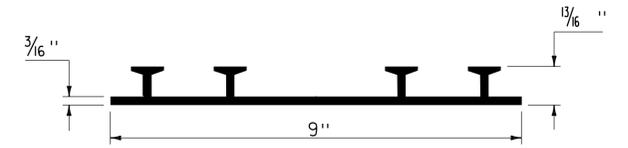
**SCORE MARK DETAIL**  
(NOT TO SCALE)



**TYPICAL CONCRETE EXPANSION JOINT**  
(NOT TO SCALE)



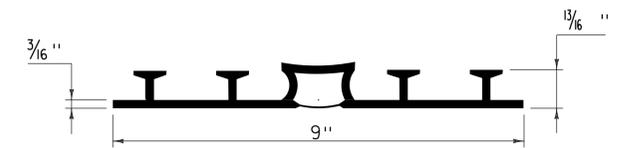
**TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS**  
(NOT TO SCALE)



**P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS**  
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

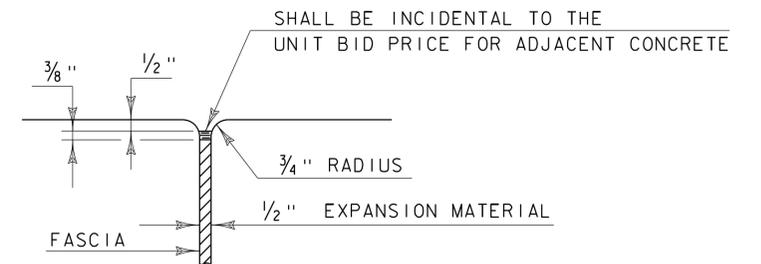
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



**P.V.C. WATERSTOP FOR EXPANSION JOINTS**  
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



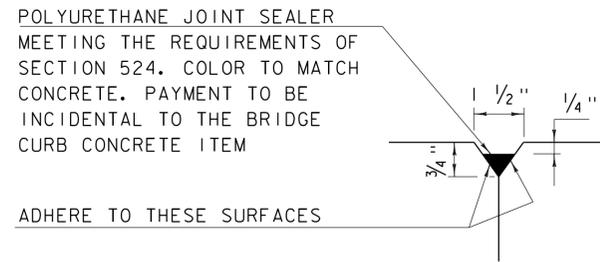
**JOINT BETWEEN FASCIA AND WINGWALL**  
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

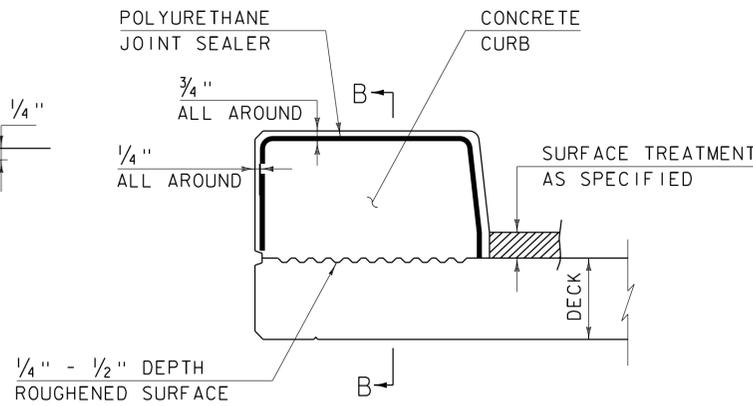
**CONCRETE  
DETAILS AND NOTES**



**STRUCTURES  
DETAIL  
SD-501.00**

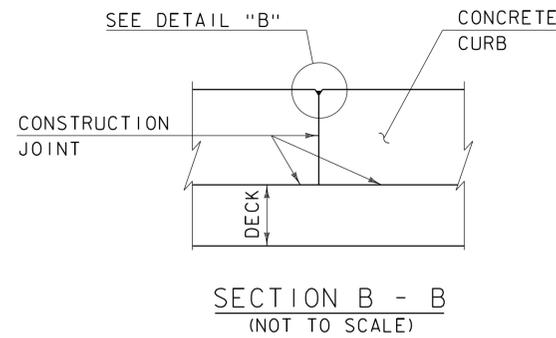


DETAIL "B"  
(NOT TO SCALE)

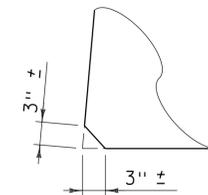


CONCRETE CURB JOINT SECTION  
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



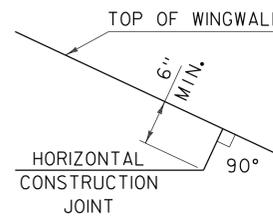
SECTION B - B  
(NOT TO SCALE)



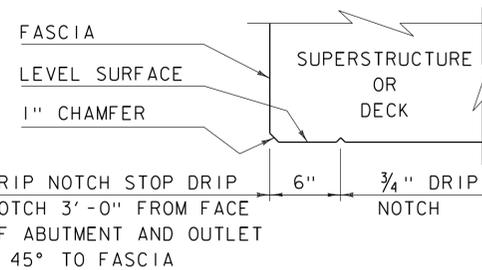
ACUTE ANGLE  
CLIP DETAIL  
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

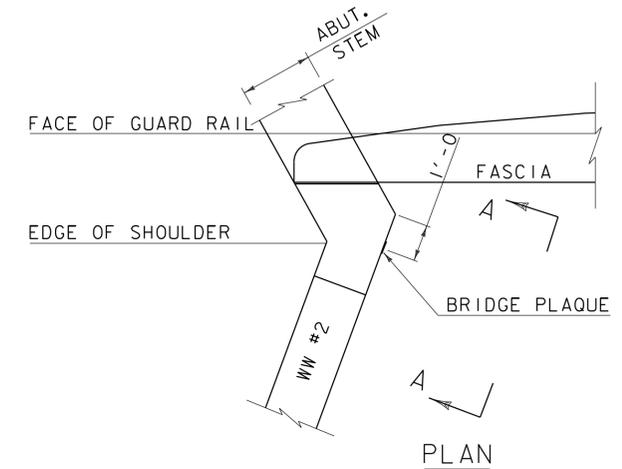
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



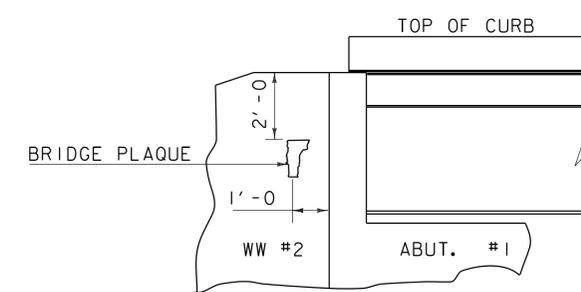
HORIZONTAL WINGWALL  
CONSTRUCTION JOINT  
(NOT TO SCALE)



DRIP NOTCH DETAIL  
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE  
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS

MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE  
DETAILS AND NOTES



STRUCTURES  
DETAIL  
SD-502.00

ASPHALTIC PLUG JOINT NOTES

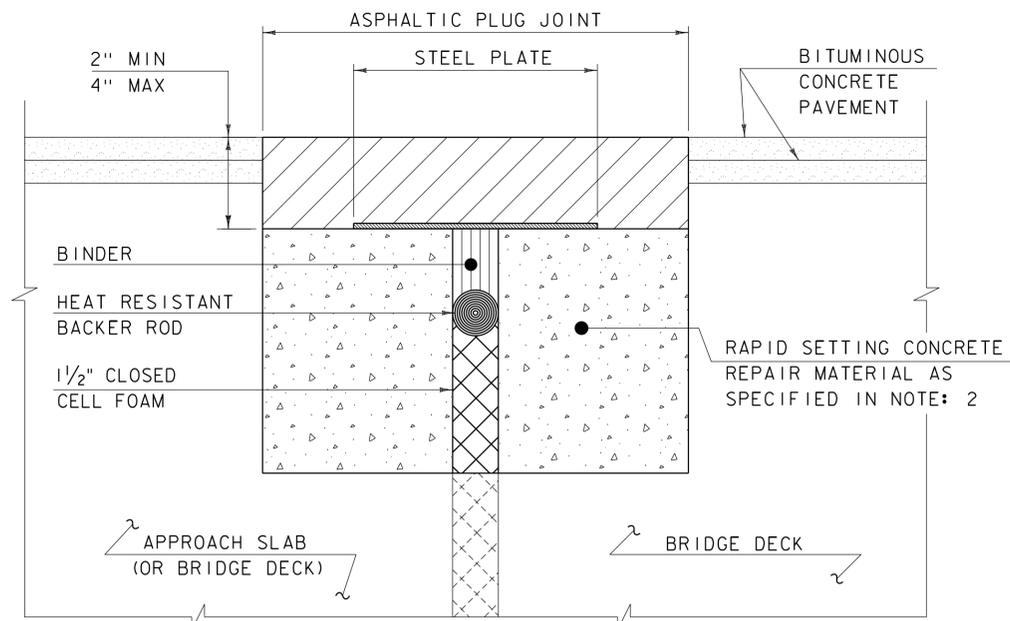
INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

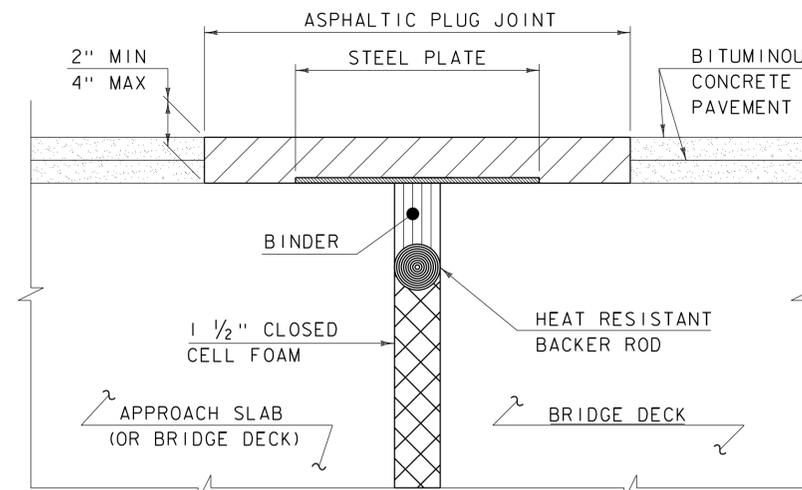
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG JOINT DETAIL - REHAB

NOTES:

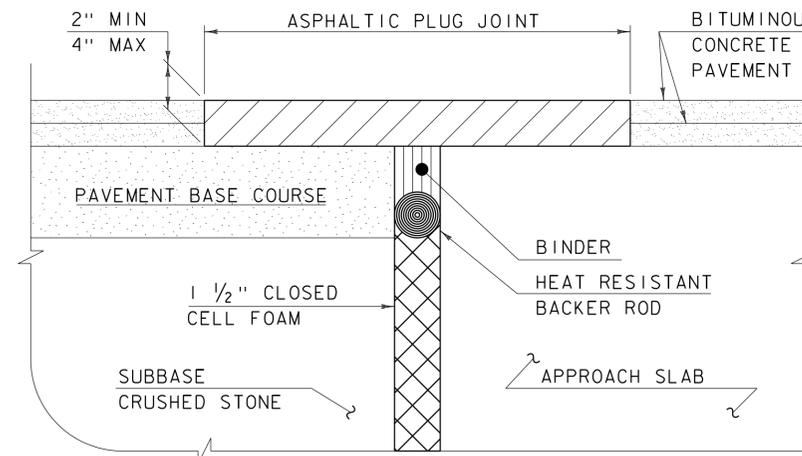
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.
4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:

PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

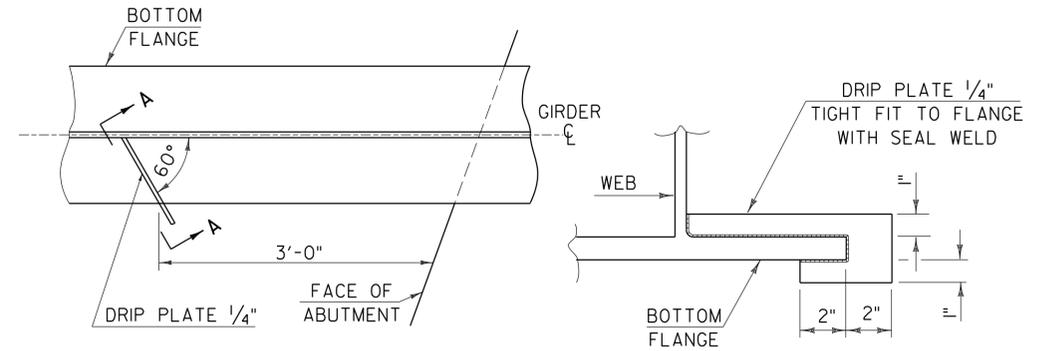
BRIDGE JOINT  
ASPHALTIC PLUG



STRUCTURES  
DETAIL  
SD-516.10

STRUCTURAL STEEL GENERAL NOTES:

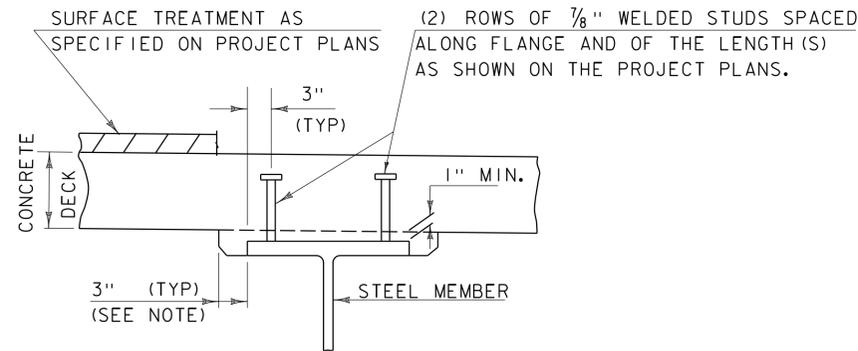
1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.I9, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.I9.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.I0.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.



PLAN DRIP PLATE

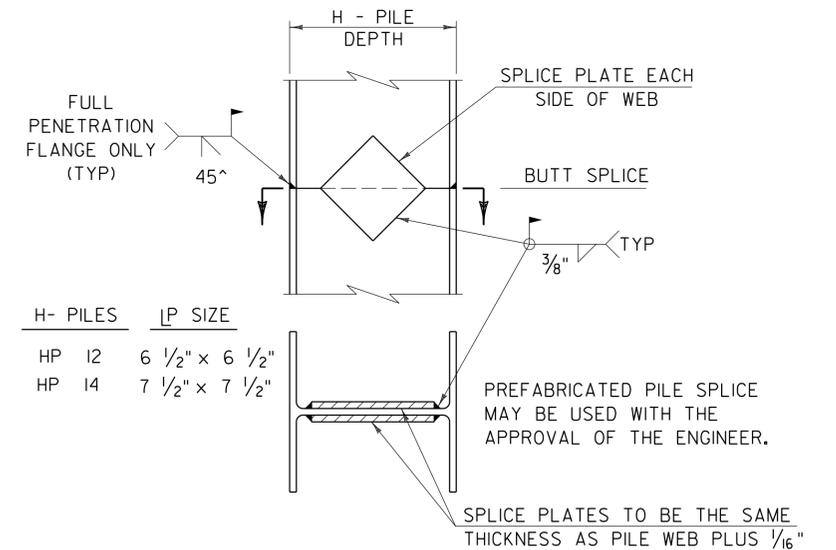
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:  
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL

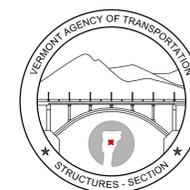


DETAIL OF PILE SPLICE

DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

# STRUCTURAL STEEL DETAILS & NOTES



# STRUCTURES DETAIL SD-601.00