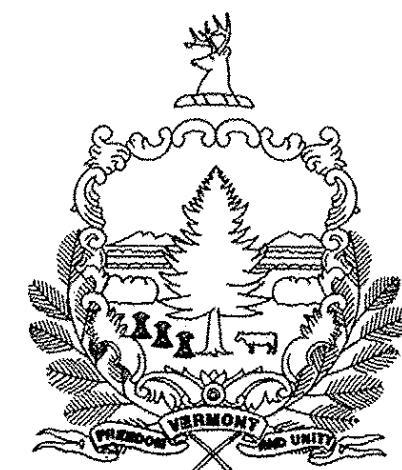


STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

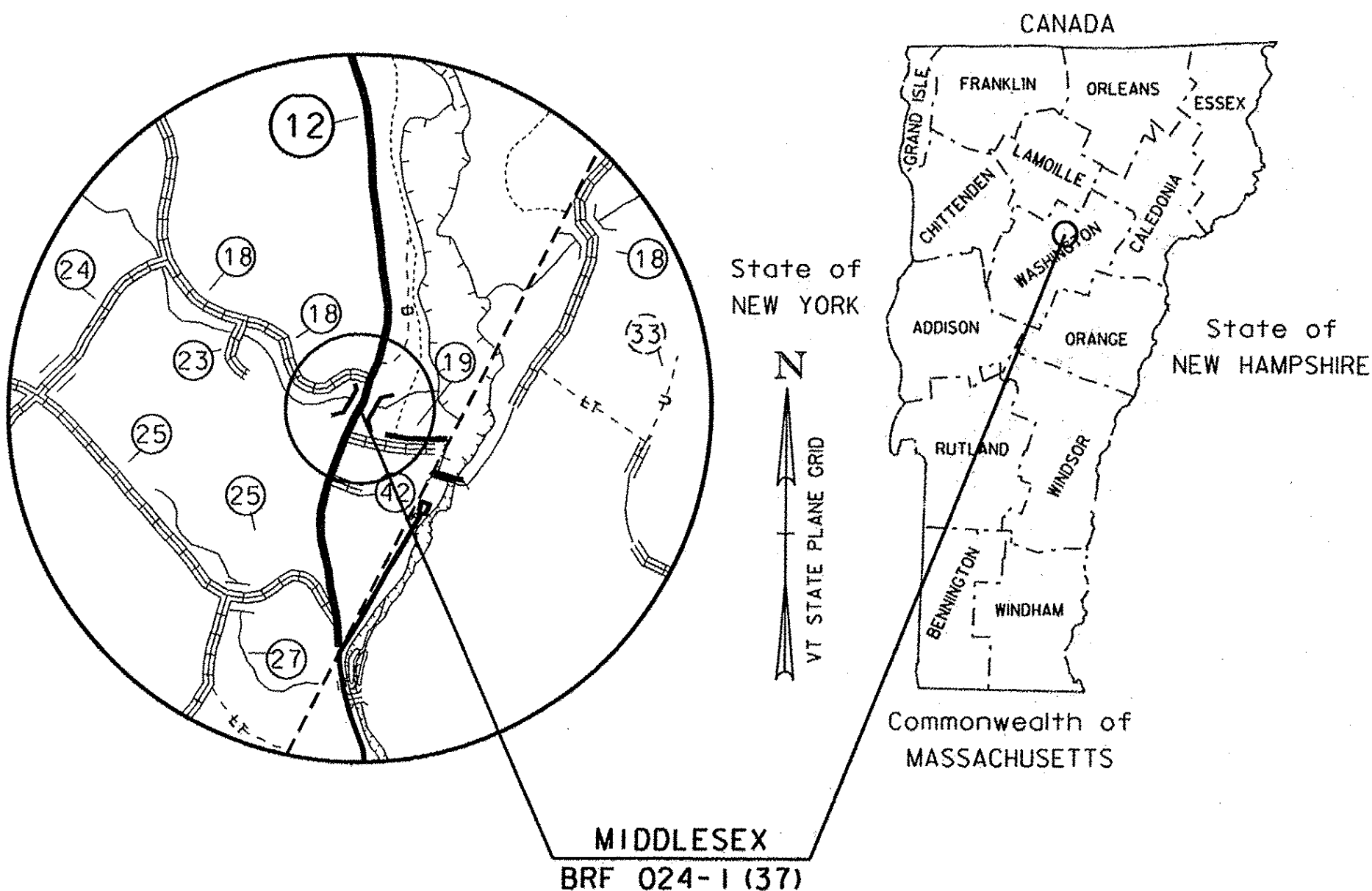
TOWN OF MIDDLESEX
COUNTY OF WASHINGTON

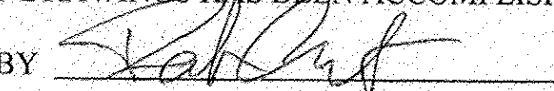
ROUTE NO : VT 12 (RURAL MAJOR COLLECTOR) BRIDGE NO : 77

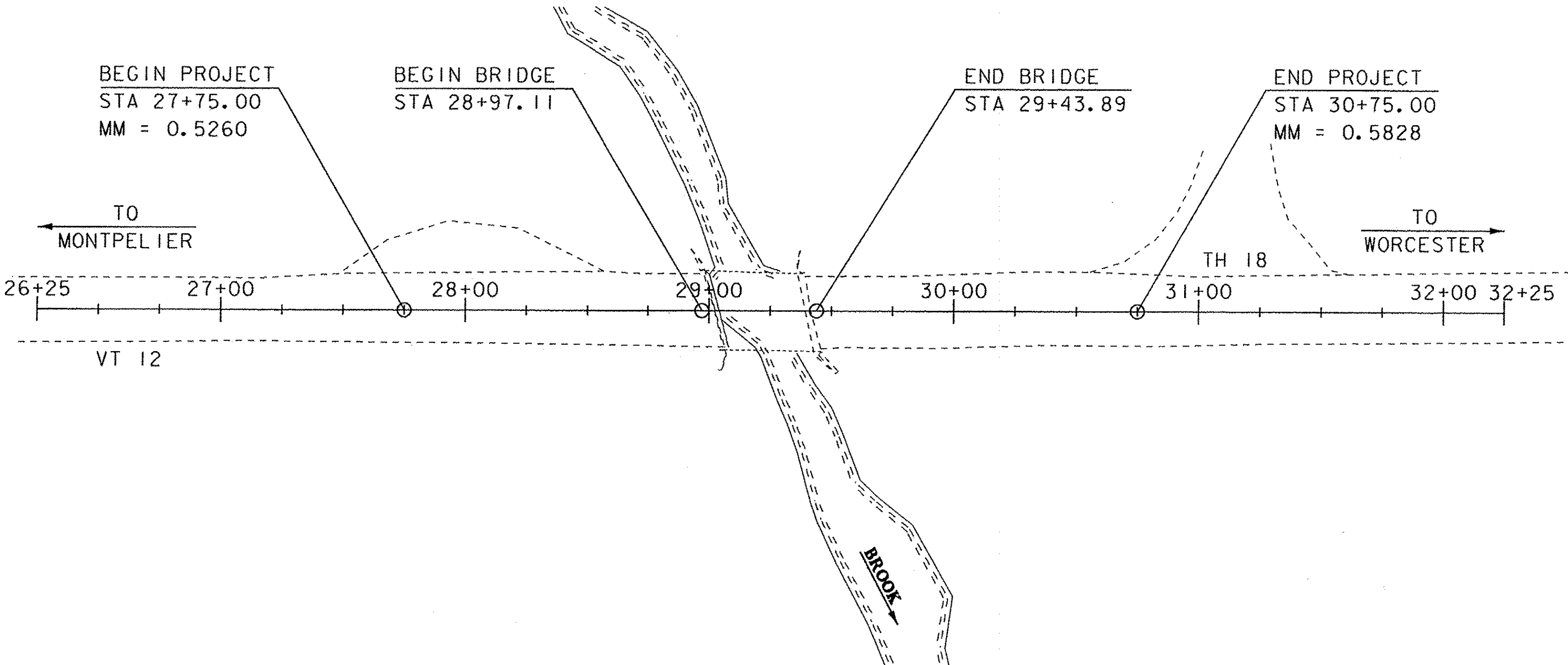
PROJECT LOCATION : ON VT 12, BEGINNING AT A POINT 0.53 MILES NORTH OF THE MONTPELIER-MIDDLESEX
TOWN LINE AND EXTENDING APPROXIMATELY 0.06 MILES IN A NORTHERLY DIRECTION

PROJECT DESCRIPTION : THE PROJECT WILL CONSIST OF THE REPLACEMENT OF THE EXISTING STRUCTURE
WITH RELATED APPROACH AND CHANNEL WORK.

LENGTH OF STRUCTURE : 46.78 FEET.
LENGTH OF ROADWAY : 253.22 FEET.
LENGTH OF PROJECT : 300.00 FEET.



RECORD PLANS	
CONTRACTOR:	A.L. ST. ONGE CONTRACTOR, INC. - MONTGOMERY, VT.
RESIDENT ENGINEER:	ROBERT SUCKERT
CONSTRUCTION BEGAN:	JUNE 26, 2015
CONSTRUCTION COMPLETE:	NOVEMBER 16, 2015
RECORD PLANS BY:	ROBERT SUCKERT & JESSE IVES
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	 RESIDENT ENGINEER
DATE	5-17-17
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.	



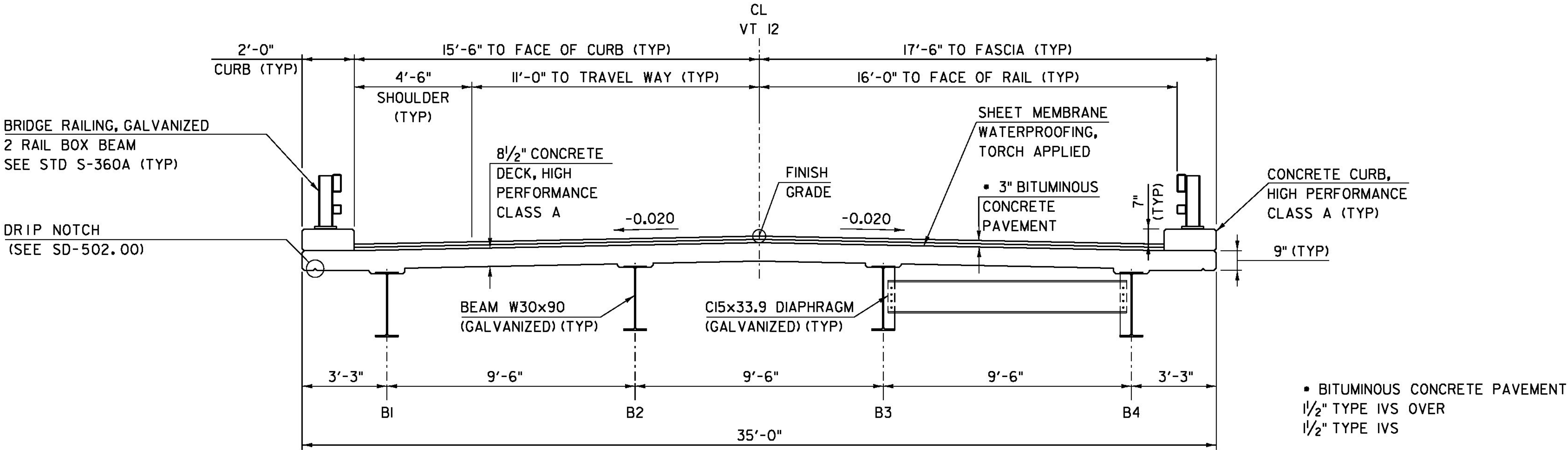
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS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

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	R. GILMAN
SURVEYED DATE :	01/10/2011
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD-83 (07)

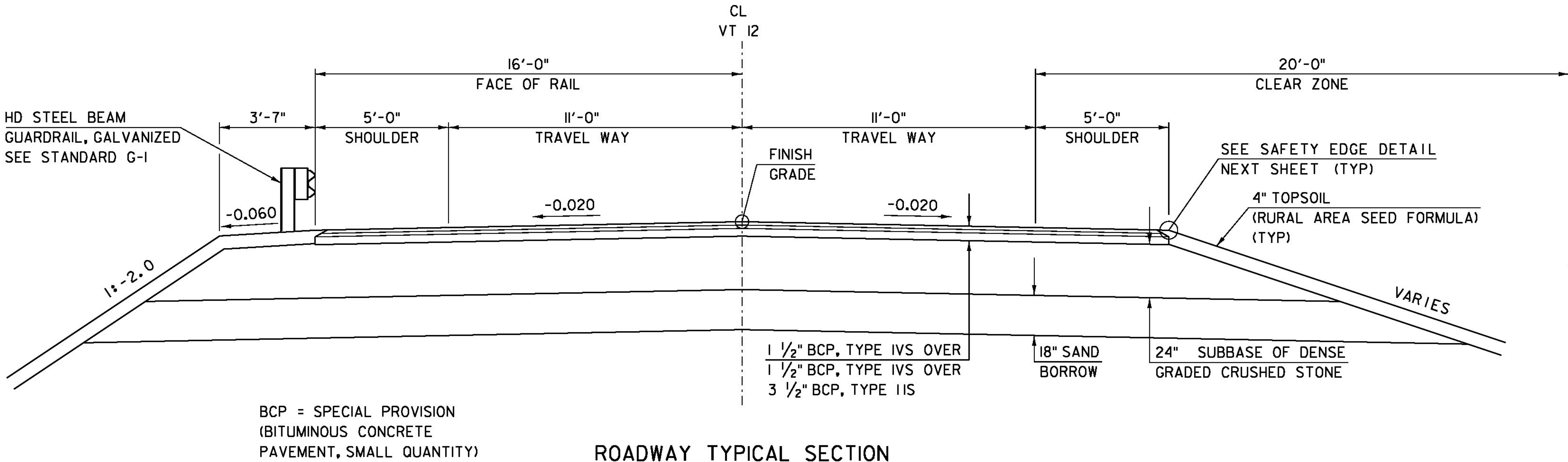
40 0 40
SCALE: 1" = 40' - 0"

DIRECTOR OF PROJECT DELIVERY	
APPROVED 	DATE 1/9/2015
PROJECT MANAGER : CAROLYN CARLSON, P.E.	
PROJECT NAME :	MIDDLESEX
PROJECT NUMBER :	BRF 024-1 (37)
SHEET 1 OF 46 SHEETS	

MATERIAL TOLERANCES (IF USED ON PROJECT)	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	
	+/- 1"
SAND BORROW	
	+/- 1"

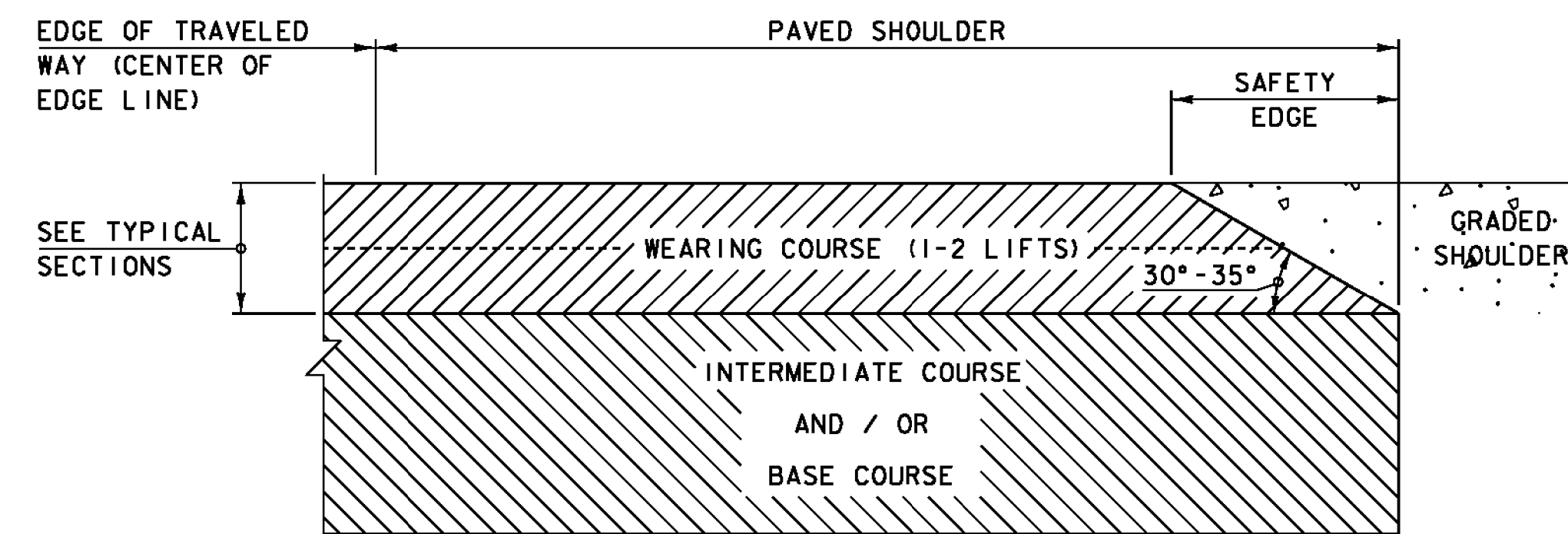


BRIDGE TYPICAL SECTION
SCALE 3/8" = 1'-0"



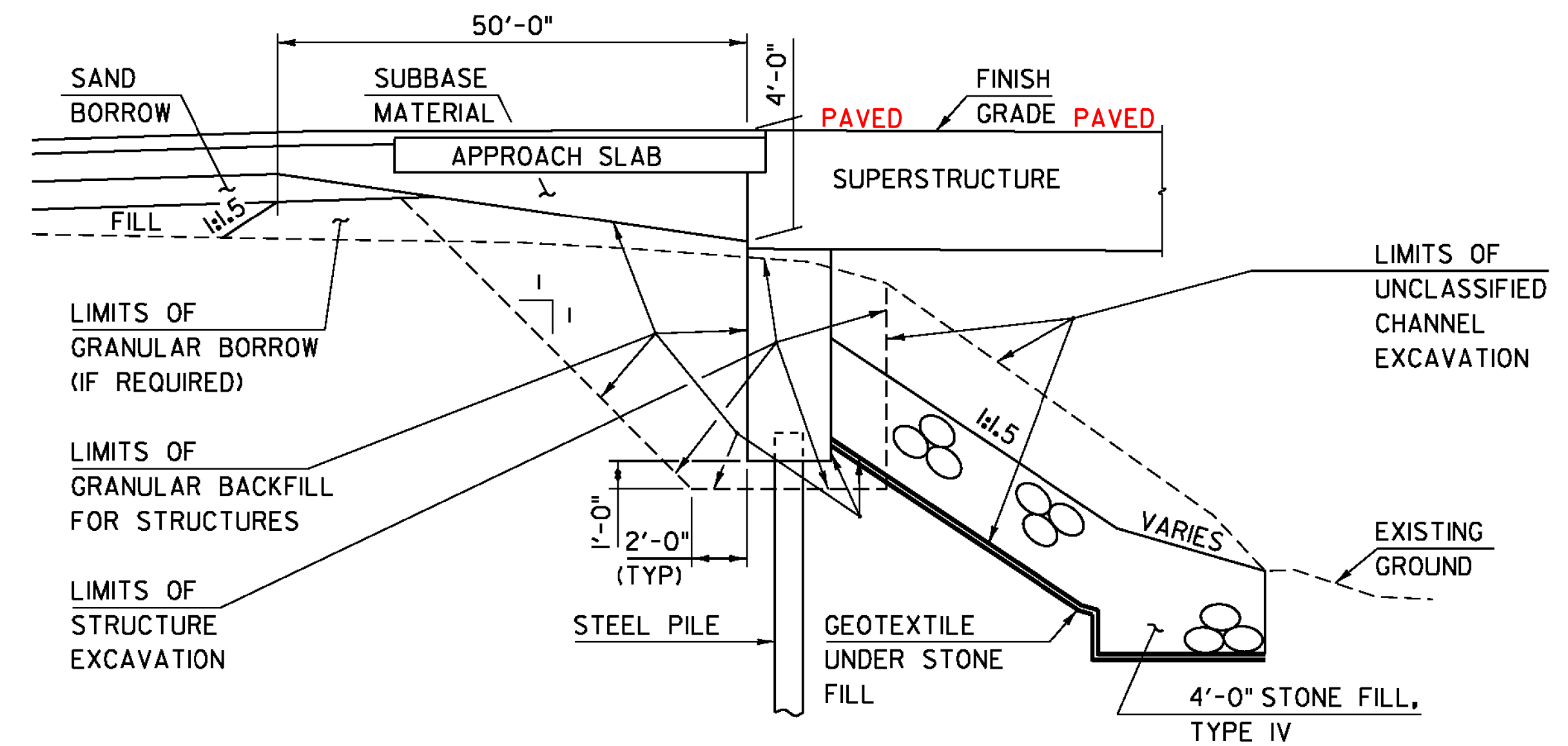
ROADWAY TYPICAL SECTION
SCALE 3/8" = 1'-0"

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: s10c220typ.dgn	PLOT DATE: 02-FEB-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
TYPICAL SECTIONS 1	SHEET 3 OF 46

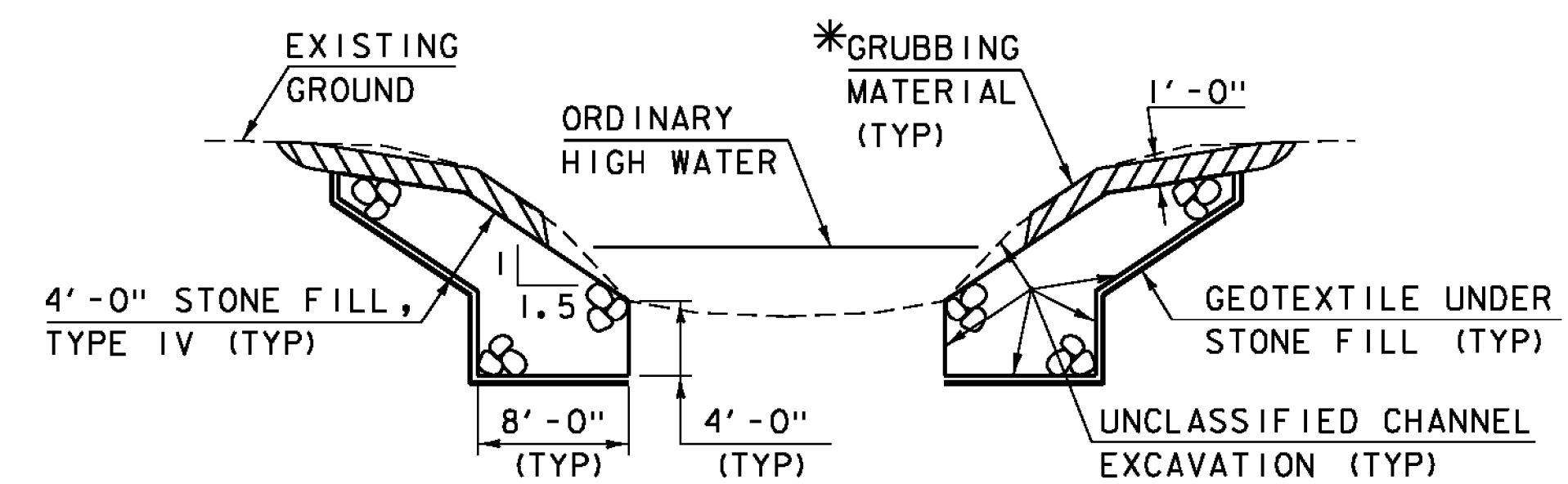


SAFETY EDGE DETAIL
NOT TO SCALE

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTION EFFORT WILL NOT BE ALLOWED.
2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".



ABUTMENT EARTHWORK TYPICAL SECTION
NOT TO SCALE



TYPICAL CHANNEL SECTION
NOT TO SCALE

*WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

PROJECT NAME: MIDDLESEX
PROJECT NUMBER: BRF 024-1(37)

FILE NAME: s10c220+typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
TYPICAL SECTIONS 2
PLOT DATE: 02-FEB-2015
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 4 OF 46

GENERAL

1.

ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
2.

THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOADING.
3.

ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
4.

ITEM 653.50 "BARRIER FENCE" SHALL BE USED TO ESTABLISH A BARRIER AROUND HISTORIC FLOOD PLAQUE AND BOULDER LOCATED AT STA 27+19.87 OFFSET 29.88 FEET RIGHT FROM THE VT12 MAINLINE.
5.

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. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.
6.

DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 WORKING DAYS PRIOR TO ERECTING THE SUPERSTRUCTURE.

EARTHWORK

7.

REMOVAL OF THE EXISTING STRUCTURE SHALL BE PAID UNDER ITEM 529.15, "REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING STRUCTURE THAT FALL OUTSIDE THE LIMITS OF ANY OF THE EXCAVATION ITEMS.
8.

EXCAVATION OF SOILS TO THE LIMITS SHOWN ON THE TYPICAL ABUTMENT SECTION SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION" AND ITEM 203.27, "UNCLASSIFIED CHANNEL EXCAVATION", ANY EXCAVATION OUTSIDE THESE LIMITS, WHICH IS NOT REMOVAL OF STRUCTURE, WILL BE AT THE CONTRACTOR'S EXPENSE.
9.

"STONE FILL, TYPE IV" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE SUPERSTRUCTURE IS SET.
10.

BACKFILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED HIGHER THAN THE BRIDGE SEATS UNTIL THE ABUTMENTS AND DECK CONSTRUCTION ARE COMPLETED. THE DIFFERENCE IN ELEVATION OF FILL BEHIND THE ABUTMENTS AT ANY TIME DURING BACKFILLING OPERATIONS SHALL NOT EXCEED 2 FEET.
11.

THE AREA DISTURBED BY THE TWO-WAY TEMPORARY BRIDGE SHALL BE SEEDED AND MULCHED AFTER ALL THE FILL IS REMOVED TO THE ORIGINAL GROUND SURFACE. THE COST OF THE SEED, FERTILIZER, ETC. WILL BE PAID FOR UNDER THEIR RESPECTIVE BID ITEMS.

CONCRETE AND REINFORCING STEEL

12.

ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH, UNLESS OTHERWISE NOTED.
13.

JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
14.

ITEM 501.33, "HIGH PERFORMANCE CONCRETE, CLASS A" SHALL BE USED FOR THE DECK, CURBS AND INTEGRAL ABUTMENT CURTAIN WALL AND WING WALLS ABOVE THE PILE CAP CONSTRUCTION JOINT.
15.

ITEM 501.34, "HIGH PERFORMANCE CONCRETE, CLASS B" SHALL BE USED FOR APPROACH SLABS AND ALL SUBSTRUCTURE BELOW THE PILE CAP CONSTRUCTION JOINT.
16.

ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE, INCLUDING THE CURBS, AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE DECK BETWEEN THE DRIP NOTCHES.
17.

THE TOP SURFACE OF THE PILE CAP SHALL BE GIVEN A FLOAT FINISH TO GRADE. THE CONCRETE WITHIN THE REINFORCING CAGE SHALL BE ROUGHENED BY RAKING PARALLEL TO THE FACE OF THE ABUTMENT TO AN AMPLITUDE OF 1/2 INCH. THE CONCRETE OUTSIDE THE REINFORCING CAGE SHALL REMAIN SMOOTH.
18.

ALL REINFORCING STEEL IN THE DECK, CURBS, AND SUBSTRUCTURE ABOVE THE PILE CAP CONSTRUCTION JOINT, INCLUDING WINGWALLS, SHALL MEET THE REQUIREMENTS FOR LEVEL II CORROSION RESISTANCE IN ACCORDANCE WITH SECTION 507. ALL OTHER REINFORCING STEEL SHALL MEET THE REQUIREMENTS FOR LEVEL I CORROSION RESISTANCE. PAYMENT WILL BE MADE UNDER THE APPROPRIATE SECTION 507 CONTRACT ITEM.
19.

REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
SPACING: +/- 1 INCH
CLEARANCE: +/- 1/4 INCH

STRUCTURAL STEEL

20.

ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M/M 270, GRADE 50 AND SHALL BE PAID FOR UNDER ITEM 506.50 "STRUCTURAL STEEL, ROLLED BEAM (GALVANIZED)".
21.

STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
22.

ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
23.

BEAM WEBS AND DIAPHRAGMS SHALL BE PLUMB IN FINAL POSITION.
24.

CONNECTIONS NOT SHOWN IN THE PLANS SHALL BE DETAILED BY THE FABRICATOR IN THE FABRICATION DRAWINGS.
25.

ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 726.08.
26.

AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF BEAMS SHALL BE TAKEN FOR USE IN DETERMINING THE FINAL GRADE AND HAUNCH DEPTHS.
27.

FLEMING BRACKETS OR SIMILAR FALSE WORK, AS REQUIRED BY DESIGN, SHALL HAVE A MAXIMUM SPACING OF 4'-0". THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB. THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
28.

FILL ANY BOLT HOLES IN THE WEBS OF THE BEAMS NOT OTHERWISE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS MEETING AASHTO M164 TYPE I. TIGHTEN THE BOLTS IN ACCORDANCE WITH SUBSECTION 506.19.

H-PILES

29.

TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).
30.

A MINIMUM OF ONE DYNAMIC PILE TEST, ITEM 505.45 "DYNAMIC PILE LOADING TEST", SHALL BE CONDUCTED PER ABUTMENT. THE NOMINAL PILE DRIVING RESISTANCE FOR EACH PILE IS 432 KIPS. A PILE RESISTANCE FACTOR OF 0.65 WAS USED BASED ON THE DYNAMIC TESTING REQUIREMENT.
31.

THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER HOW THE TOLERANCES WILL BE MET. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.
32.

FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AND ARE SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY. PILES SHALL HAVE A MINIMUM EMBEDMENT OF 30 FT MEASURED FROM THE BOTTOM OF THE PILE CAP OR BE DRIVEN TO BEDROCK.
33.

THE DAM SAFETY ENGINEER OF THE AGENCY OF NATURAL RESOURCES SHALL BE NOTIFIED AT LEAST 5 DAYS PRIOR TO ANY PILE DRIVING ACTIVITY.
STEVE BUSHMAN: SECTION CHIEF- DAM SAFETY ENGINEER
(802)-490-6229

TRAFFIC CONTROL

34.

TRAFFIC SHALL BE MAINTAINED ON A TWO-WAY TEMPORARY BRIDGE PLACED DOWNSTREAM OF THE EXISTING BRIDGE.
35.

THE TEMPORARY BRIDGE APPROACHES SHALL BE PAVED.
36.

FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10 "TRAFFIC CONTROL."
37.

ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST BETWEEN THE MUTCD AND THE PLANS, THE MUTCD SHALL GOVERN. FOR ADDITIONAL SIGNING DETAILS AND REQUIREMENTS SEE THE T SERIES OF THE CONTRACT STANDARD DRAWINGS.

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220gen.dgn	PLOT DATE: 06-FEB-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: C. BURRALL
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
PROJECT NOTES	SHEET 5 OF 46

STATE OF VERMONT AGENCY OF TRANSPORTATION														QUANTITY SHEET 1							
SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS	
								1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				EARTHWORKS SUMMARY	
								1580				1580		CY	COMMON EXCAVATION	203.15		1106 75	CY CY	FILL AVAILABLE COMMON EXCAVATION (1580 x .7) UNCLASSIFIED CHANNEL EXCAVATION (250 x 0.3)	
										250		250		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27					
								600				600		CY	SAND BORROW	203.31		174 5	CY CY	STRUCTURE EXCAVATION (580 x 0.3) ROUNDING	
								1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		1360	CY	TOTAL FILL AVAILABLE	
										580		580		CY	STRUCTURE EXCAVATION	204.25		138 2	CY CY	FILL REQUIRED FACTORED FILL (120 x 1.15) ROUNDING	
										380		380		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		140	CY	TOTAL FILL REQUIRED	
								530				530		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10		1220	CY	TOTAL WASTE	
								1070				1070		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35					
								20				20		CY	AGGREGATE SURFACE COURSE	401.10					
								9				9		CWT	EMULSIFIED ASPHALT	404.65				N.A.B.I. = NOT A BID ITEM	
								1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50					
										94		94		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33					
										119		119		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34					
										1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10					
										340		340		LF	STEEL PILING, HP 12 X 84	505.165					
										2		2		EACH	DYNAMIC PILE LOADING TEST	505.45					
										21800		21800		LB	STRUCTURAL STEEL, ROLLED BEAM (GALVANIZED)	506.50					
										12951		12951		LB	REINFORCING STEEL, LEVEL I	507.11					
										20943		20943		LB	REINFORCING STEEL, LEVEL II	507.12					
										1		1		LS	SHEAR CONNECTORS (352 - 7/8" X 7")	508.15					
										19		19		GAL	WATER REPELLENT, SILANE	514.10					
										68		68		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10					
										162		162		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20					
										68		68		LF	JOINT SEALER, HOT POURED	524.11					
										94		94		LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33					
								1				1		LS	TWO-WAY TEMPORARY BRIDGE (480 SF - EST.)	528.11					
										1		1		EACH	REMOVAL OF STRUCTURE (1408 SF - EST.)	529.15					
										8		8		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17					
								1				1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15					
										230		230		CY	STONE FILL, TYPE IV	613.13					
								160				160		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28					
								66				66		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21					
								3				3		EACH	MANUFACTURED TERMINAL SECTION, FLARED	621.50					
								1				1		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60					
								4				4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	621.72					
								245				245		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80					
								100				100		HR	UNIFORMED TRAFFIC OFFICERS	630.10					
								800				800		HR	FLAGGERS	630.15					
											1	1		LS	FIELD OFFICE, ENGINEERS	631.10					
																		PROJECT NAME: MIDDLESEX			
																		PROJECT NUMBER: BRF 024-1(37)			
																		FILE NAME: sl0c220qs.dgn			
																		PLOT DATE: 13-JAN-2015			
																		PROJECT LEADER: C. CARLSON			
																		DRAWN BY: C. BURRALL			
																		DESIGNED BY: H. SALLS			
																		CHECKED BY: H. SALLS			
																		QUANTITY SHEET 1			
																		SHEET 6 OF 46			

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

QUANTITY SHEET 2

[illegible]

PROJECT NAME: MIDDLESEX
PROJECT NUMBER: BRF 024-1(37)

FILE NAME: si0c220qs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: C. BURRALL
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
QUANTITY SHEET 2	SHEET 7 OF 46

BRIDGE QUANTITY SHEET 1

[illegible]

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY 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. SYMBOLGY 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 VALUE
⊕	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 RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

— — — 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
XXXXXXXXXXXXXX	TREE PROTECTION ZONE (TPZ)
//////////	STRIPING LINE REMOVAL
~~~~~	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

ONNOONNOONNO	FILTER CURTAIN
— — — — —	SILT FENCE
— — — — —	SILT FENCE WOVEN WIRE
— — — — —	CHECK DAM
▣	DISTURBED AREAS REQUIRING RE-VEGETATION
⊕	EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLGY

ENVIRONMENTAL RESOURCES

— — — — —	WETLAND BOUNDARY
-----	RIPARIAN BUFFER ZONE
-----	WETLAND BUFFER ZONE
-----	SOIL TYPE BOUNDARY
— T&E —	THREATENED & ENDANGERED SPECIES
HAZ — 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
(H)	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

-----	ROAD EDGE PAVEMENT
-----	ROAD EDGE GRAVEL
-----	DRIVEWAY EDGE
-----	DITCH
-----	FOUNDATION
x — x — x — x —	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:	MIDDLESEX
PROJECT NUMBER:	BRF 024-1(37)
FILE NAME:	sl0c220legend.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	H. SALLS
CONVENTIONAL SYMBOLGY LEGEND	
PLOT DATE:	13-JAN-2015
DRAWN BY:	R. PELLET
CHECKED BY:	H. SALLS
SHEET	9 OF 46



GPS CONTROL POINTS

HVCTRL #1

DAM AZ MK  
NORTH = 659959.426  
EAST = 1621056.096  
ELEV. = 714.466

GENERAL LOCATION, MIDDLESEX, VT.

TO REACH FROM THE INTERSECTION OF US ROUTE 2 (MEMORIAL DRIVE) AND VT ROUTE 12 (MAIN STREET) IN MONTPELIER, GO NORTHEAST ALONG MAIN STREET FOR 0.5 MI (0.8 KM) TO THE INTERSECTION OF SPRING STREET LEFT AT A ROTARY INTERSECTION. TURN LEFT AND GO NORTHWEST ALONG SPRING STREET FOR 0.05 MI (0.1 KM) TO ITS INTERSECTION WITH ELM STREET (VT ROUTE 12). TURN RIGHT AND GO NORTHEAST ALONG VT ROUTE 12 FOR 3.6 MI (5.8 KM) TO THE INTERSECTION OF HORN OF THE MOON ROAD RIGHT. TURN RIGHT AND GO EAST ALONG HORN OF THE MOON ROAD FOR 0.25 MI (0.4 KM) TO THE Y-INTERSECTION OF A DRIVE RIGHT CONTINUING ALONG THE HEIGHT OF THE DAM. BEAR RIGHT AND GO EAST ALONG THE DRIVE FOR ABOUT 40 M (131.2 FT) TO THE SITE OF THE MARK ON THE LEFT, ABOUT 50 M (164.0 FT) WEST OF A CHAIN-LINK FENCE LINE AT THE WEST EDGE OF THE SPILLWAY. THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A 0.7 M (2.3 FT) X 0.4 M (1.3 FT) BOULDER. IT IS 4.5 M (14.8 FT) NORTH OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CENTERLINE OF THE DRIVE, 13.4 M (44.0 FT) SOUTH OF THE CENTERLINE OF HORN OF THE MOON ROAD, 5.5 M (18.0 FT) NORTHWEST OF POLE NO L87/R1, 10.5 M (34.4 FT) NORTHEAST OF A STRAIN POLE, 18.2 M (59.7 FT) EAST OF THE WEST END OF A CABLE GUARD RAIL AND 1.2 M (3.9 FT) NORTH OF THE GUARD RAIL.

HVCTRL #2

WRIGHT  
NORTH = 664651.890  
EAST = 1620232.433  
ELEV. = 647.270

GENERAL LOCATION, MIDDLESEX, VT.

TO REACH FROM THE INTERSECTION OF US ROUTE 2 (MEMORIAL DRIVE) AND VT ROUTE 12 (MAIN STREET) IN MONTPELIER, GO NORTHEAST ALONG MAIN STREET FOR 0.5 MI (0.8 KM) TO THE INTERSECTION OF SPRING STREET LEFT AT A ROTARY INTERSECTION. TURN LEFT AND GO NORTHWEST ALONG SPRING STREET FOR 0.05 MI (0.1 KM) TO ITS INTERSECTION WITH ELM STREET (VT ROUTE 12). TURN RIGHT AND GO NORTHEAST ALONG VT ROUTE 12 FOR 4.3 MI (6.9 KM) TO THE INTERSECTION OF THE GATED ENTRANCE DRIVE TO THE WRIGHTSVILLE DAM BOAT LAUNCH RIGHT. TURN RIGHT AND FOLLOW THE DRIVE FOR ABOUT 0.2 MI (0.3 KM) TO THE BOAT LAUNCH RAMP ON THE RIGHT. CONTINUE STRAIGHT AHEAD AND GO NORTH ALONG THE DRIVE (NOW THE ROADBED FOR THE FORMER VT ROUTE 12) FOR ABOUT 75 M (246.1 FT) TO A PARKING AREA AND THE ENTRANCE TO A DIM TRAIL RIGHT. PARK VEHICLE AND WALK EASTERLY ALONG THE TRAIL FOR ABOUT 30 M (98.4 FT) AND THEN SOUTHERLY FOR ANOTHER 30 M (98.4 FT) TO THE SITE OF THE MARK. THE MARK IS SET 15 CM (6 INCHES) BELOW GROUND SURFACE IN THE TOP OF A FENO STYLE MONUMENT. IT IS 31.3 M (102.7 FT) EAST OF AND ABOUT 0.5 M (1.6 FT) LOWER THAN THE CENTERLINE OF THE DRIVE, 27.0 M (88.6 FT) SOUTH OF A 10 CM (4 INCH) WHITE BIRCH WITH TRIANGULAR BLAZE, 18.7 M (61.4 FT) SOUTH-SOUTHWEST OF A 15 CM (6 INCH) SWAMP MAPLE WITH TRIANGULAR BLAZE IN A CLUMP OF FOUR, 15.6 M (51.2 FT) NORTHWEST OF A 50 CM (20 INCH) TWIN-TRUNKED MAPLE NEAR THE WATERS EDGE, 16.2 M (53.1 FT) SOUTH-SOUTHEAST OF A 15 CM (6 INCH) TWIN-TRUNKED APPLE WITH TRIANGULAR BLAZE AND 0.2 M (0.7 FT) WEST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES

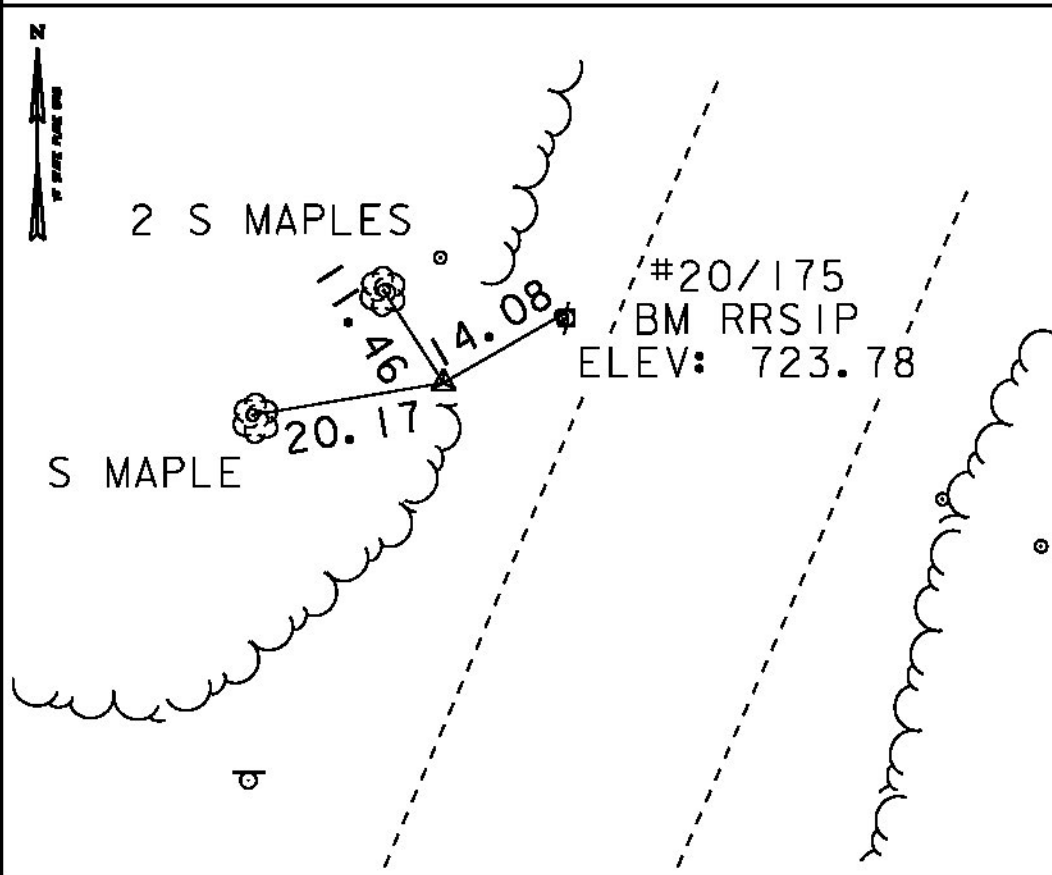
HVCTRL #3

NORTH = 660343.699  
EAST = 1619763.487  
ELEV. = 728.389

NOT TIED

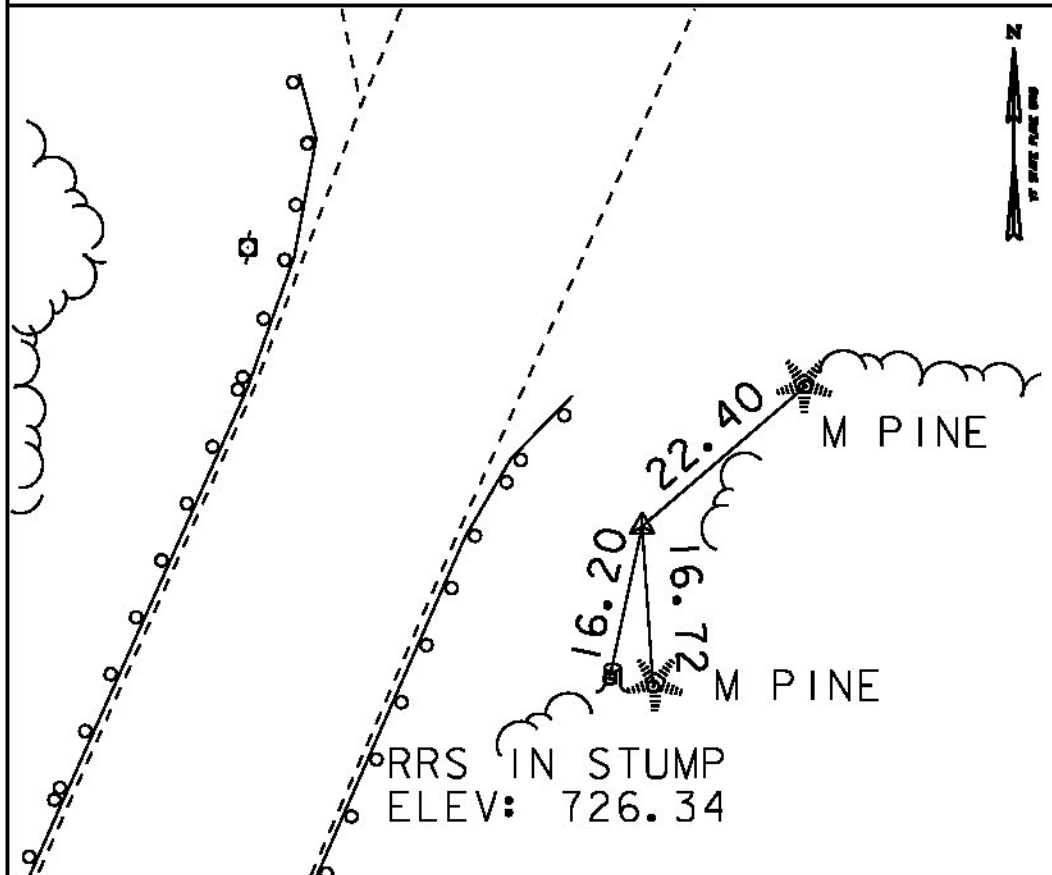
HVCTRL #4

NORTH = 661038.506  
EAST = 1620017.348  
ELEV. = 725.663



HVCTRL #5

NORTH = 660565.676  
EAST = 1619873.812  
ELEV. = 724.019



NORTH =  
EAST =  
ELEV. =

NORTH =  
EAST =  
ELEV. =

* MAIN TRAVERSE COMPLETED 1/10/2011 BY R.GILMAN P.C. & P.WINTERS

ALIGNMENT TIES

ALIGNMENT NAME: VT12PROP

POINT	STATION	NORTHING	EASTING
POB	26+25.00	660490.99	1619808.12
POE	32+25.00	661039.73	1620050.78

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (07)

ADJUSTMENT COMPASS

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRF 024-K(37)

FILE NAME: s10c2201e.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. BULLOCK
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
TIE SHEET	SHEET 10 OF 46



CAST-IN-PLACE CONCRETE CURB,  
TYPE B  
STA 28+60.00 - STA 29+00.00 LT  
STA 28+63.00 - STA 29+03.00 RT  
STA 29+38.00 - STA 29+78.00 LT  
STA 29+50.00 - STA 29+90.00 RT

REMOVAL AND DISPOSAL OF  
GUARDRAIL  
STA 28+37.79 - STA 29+05.13 RT  
STA 28+55.75 - STA 28+96.94 LT  
STA 29+41.53 - STA 30+06.03 LT  
STA 29+46.89 - STA 30+14.07 RT

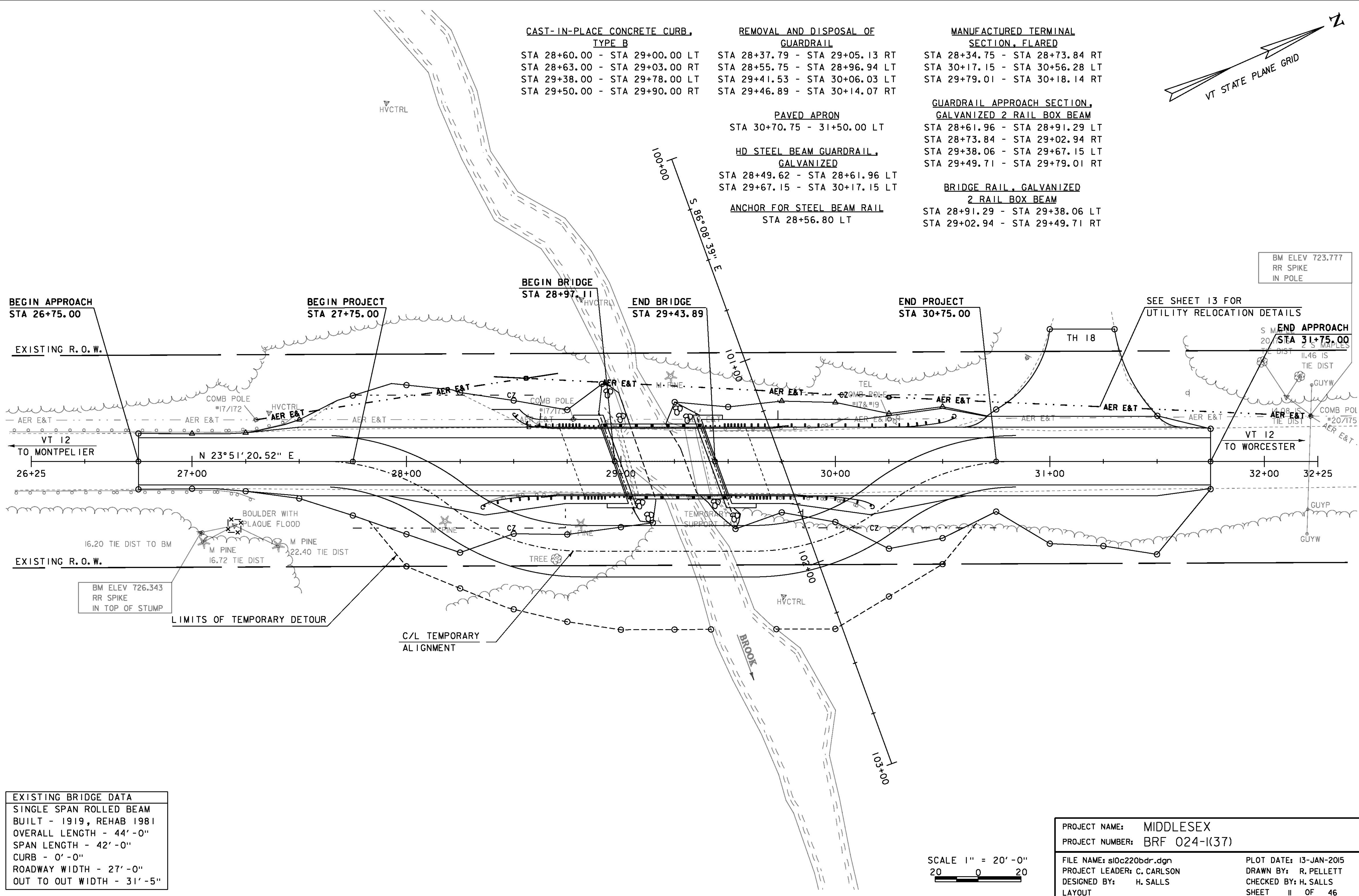
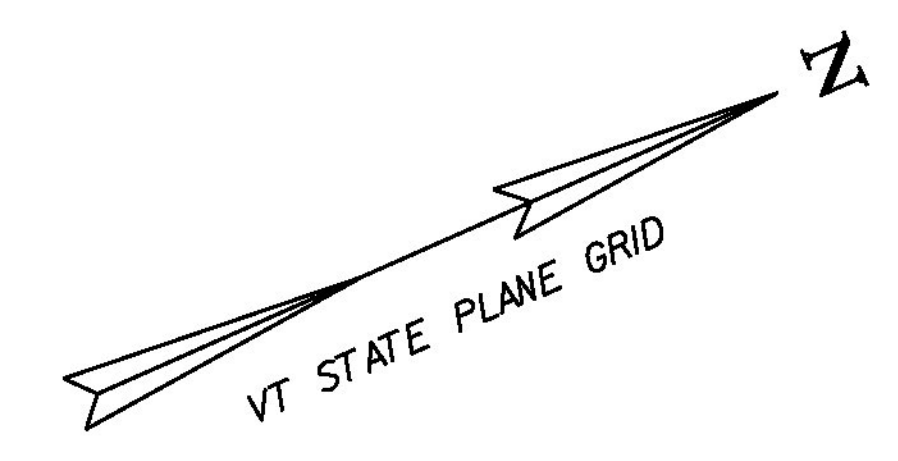
MANUFACTURED TERMINAL  
SECTION, FLARED  
STA 28+34.75 - STA 28+73.84 RT  
STA 30+17.15 - STA 30+56.28 LT  
STA 29+79.01 - STA 30+18.14 RT

PAVED APRON  
STA 30+70.75 - 31+50.00 LT  
HD STEEL BEAM GUARDRAIL,  
GALVANIZED  
STA 28+49.62 - STA 28+61.96 LT  
STA 29+67.15 - STA 30+17.15 LT

GUARDRAIL APPROACH SECTION,  
GALVANIZED 2 RAIL BOX BEAM  
STA 28+61.96 - STA 28+91.29 LT  
STA 28+73.84 - STA 29+02.94 RT  
STA 29+38.06 - STA 29+67.15 LT  
STA 29+49.71 - STA 29+79.01 RT

BRIDGE RAIL, GALVANIZED  
2 RAIL BOX BEAM  
STA 28+91.29 - STA 29+38.06 LT  
STA 29+02.94 - STA 29+49.71 RT

ANCHOR FOR STEEL BEAM RAIL  
STA 28+56.80 LT

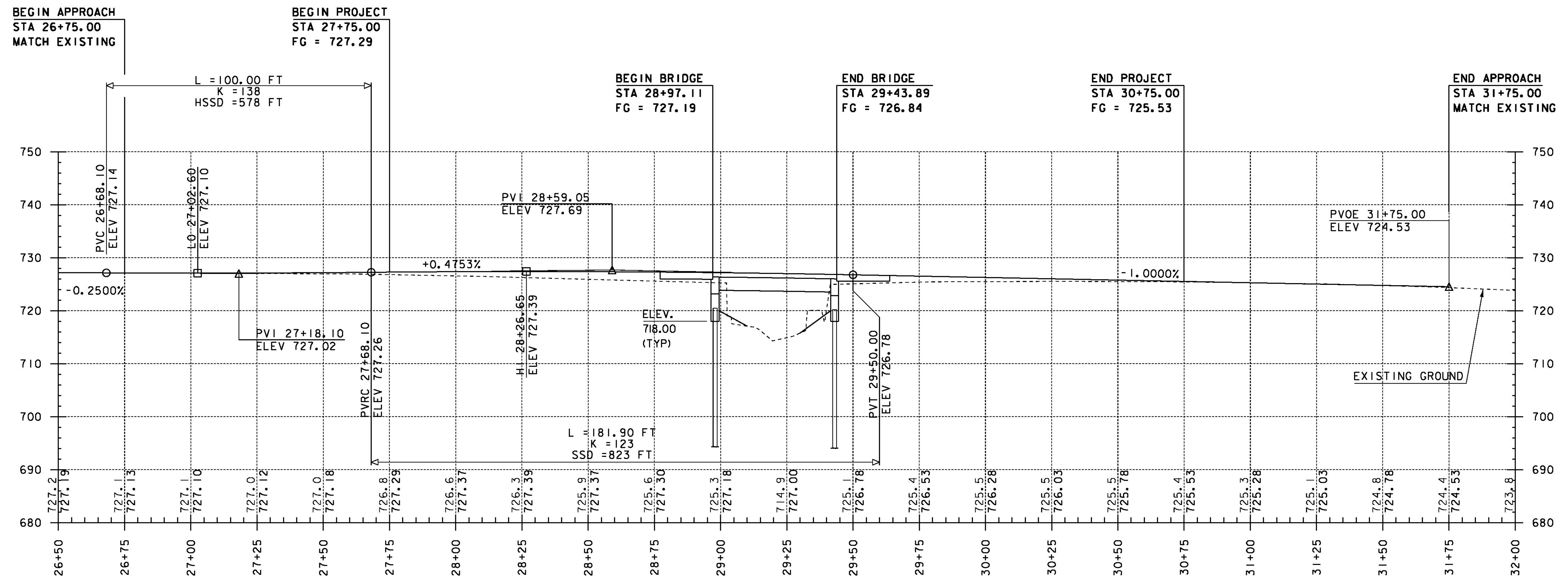


EXISTING BRIDGE DATA	
SINGLE SPAN ROLLED BEAM	
BUILT - 1919, REHAB 1981	
OVERALL LENGTH - 44'-0"	
SPAN LENGTH - 42'-0"	
CURB - 0'-0"	
ROADWAY WIDTH - 27'-0"	
OUT TO OUT WIDTH - 31'-5"	

SCALE 1" = 20'-0"  
20 0 20

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BR 024-K(37)	
FILE NAME: sl0c220bdr.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLET
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
LAYOUT	SHEET 11 OF 46





**VT 12 PROFILE**  
 HORIZONTAL SCALE 1" = 20'-0"  
 VERTICAL SCALE 1" = 10'-0"

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL  
 GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

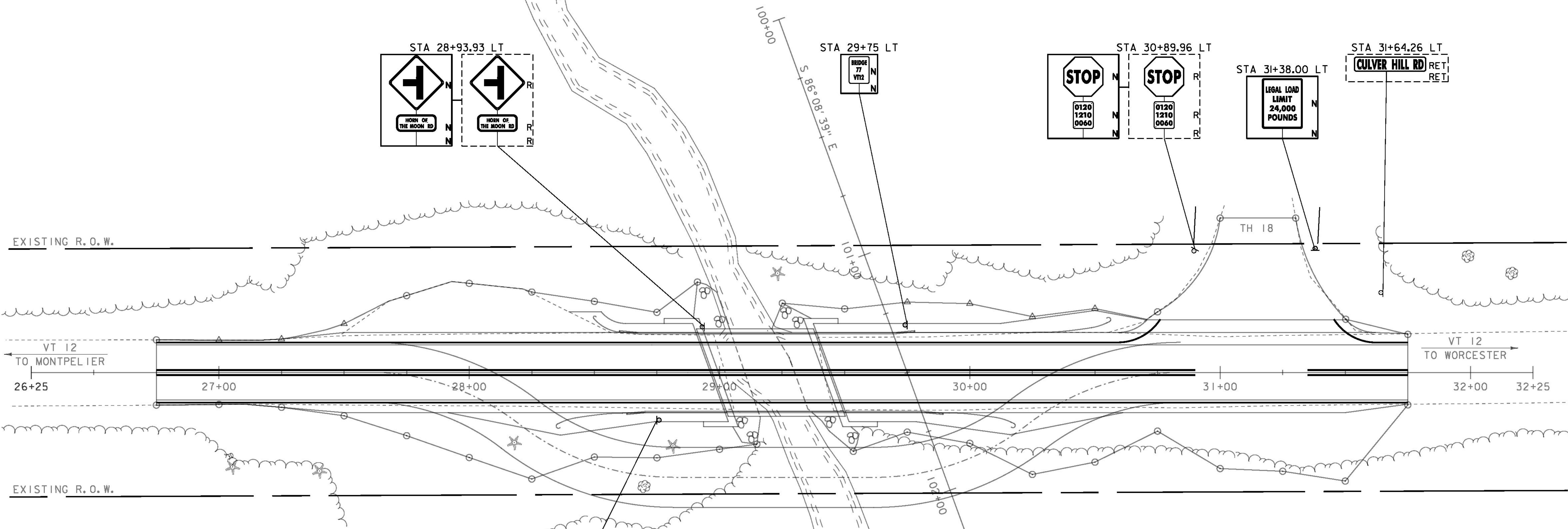
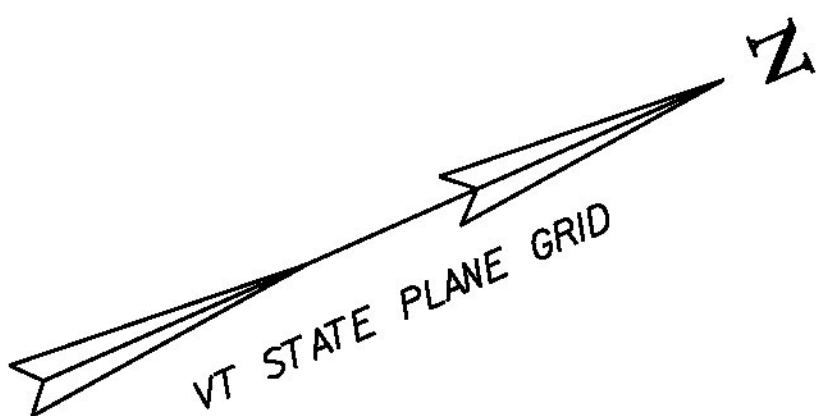
THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH  
 GRADES ALONG THE PROPOSED ALIGNMENT.

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BR 024-1(37)	
FILE NAME: sl0c220pro.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 12 PROFILE	SHEET 12 OF 46



AERIAL RELOCATION ROUTE VT ROUTE 12 MM 0.553 BRIDGE #77





- TRAFFIC SIGNS, TYPE A**  
STA 28+93.93 LT (2)  
STA 28+75.00 RT  
STA 29+75.00 LT  
STA 30+89.96 LT (2)  
STA 31+38.00 LT
- REMOVING SIGNS**  
STA 28+93.93 LT (2)  
STA 30+89.96 LT (2)

- 4" YELLOW LINE (DOUBLE)**  
STA 26+75.00 - STA 30+90.00 CL  
STA 31+35.00 - STA 31+75.00 CL
- 4" WHITE LINE**  
STA 26+75.00 - STA 30+76.00 LEFT  
STA 26+75.00 - STA 31+75.00 RIGHT  
STA 31+45.50 - STA 31+75.00 LEFT

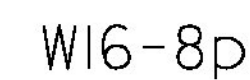
SIGN LEGEND		
EXISTING SIGNS	N = NEW	
	R = REMOVE	
	RET = RETAIN	
NEW SIGNS		

SCALE 1" = 20' - 0"  
20 0 20

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRP 024-1(37)	
FILE NAME: sl0c220signs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
TRAFFIC SIGNS & PAVEMENT MARKINGS	SHEET 14 OF 46



# TRAFFIC SIGN SUMMARY SHEET

SHS = STANDARD HIGHWAY SIGNS BOOK

DIMENSIONS WILL MATCH SISTER SIGN  
APPROACH FROM OPPOSITE DIRECTION

[illegible]



AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

<u>R.Q.D. (%)</u>	<u>ROCK DESCRIPTION</u>
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

▼	Water Elevation
⊕	Standard Penetration Boring
⊗	Auger Boring
○	Rod Sounding
S	Sample
N	Standard Penetration Test
	Blow Count Per Foot For:
	2" O.D. Sampler
	1 3/8" I.D. Sampler
	Hammer Weight Of 140 Lbs.
	Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 3/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt.Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
SI	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top Of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
ROD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mitc	Multicolored
or	Orange		

**BEDROCK (LEDGE)** - Rock In Its native location of Indefinite thickness.

**BOULDER** - A rock fragment with an average dimension > 12 inches.

**COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.

**GRAVEL** - Rounded particles of rock < 3" and > 0.075" (*10 sieve).

**SAND** - Particles of rock < 0.075" (*10 sieve) and > 0.0029" (*200 sieve).

**SILT** - Soil < 0.0029" (*200 sieve), non or slightly plastic and exhibits no strength when air-dried.

**CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material).

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

l. The subsurface explorations shown herein were made between 01/18/12 and 01/31/12 by the Agency.

2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.

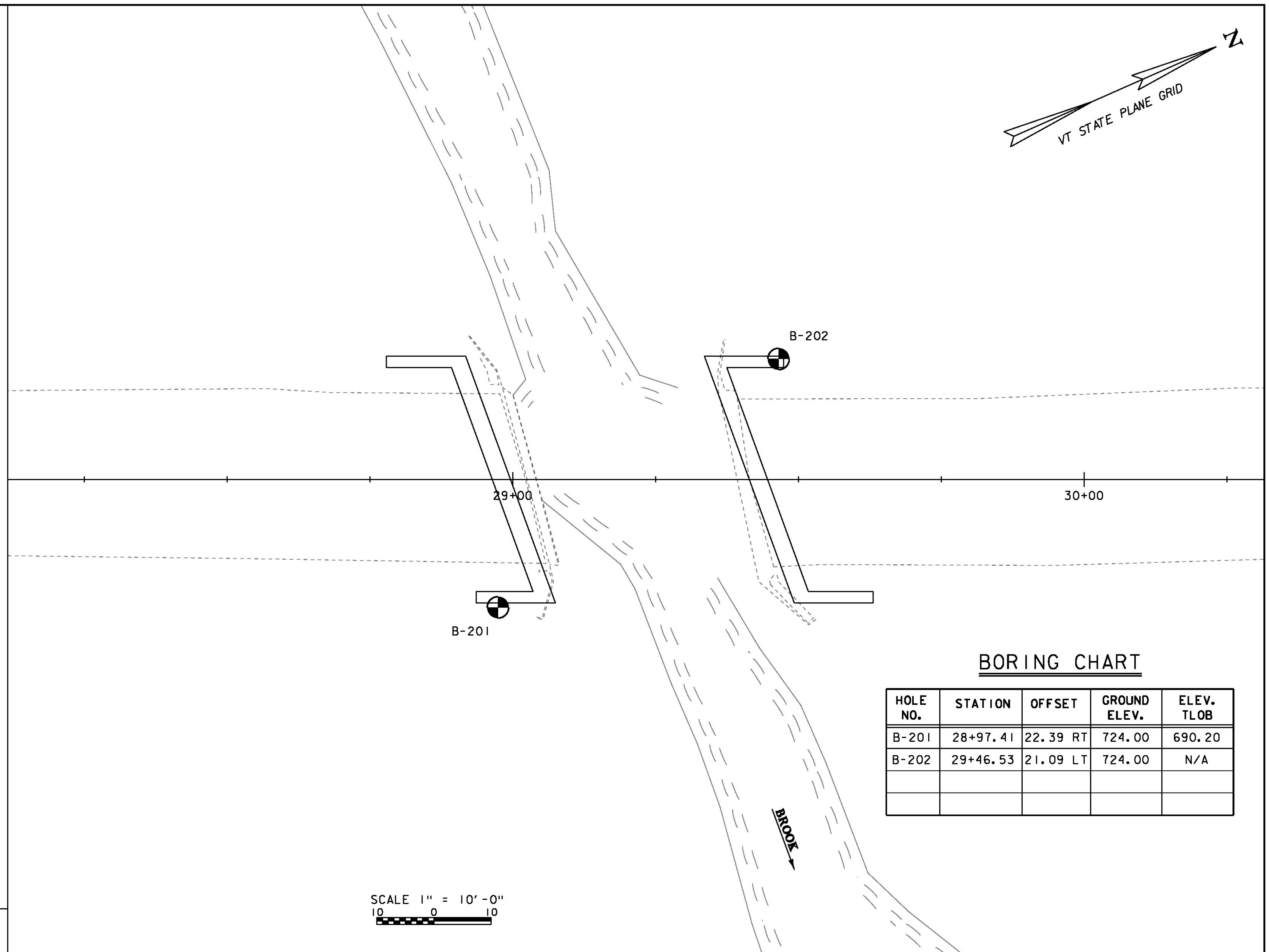
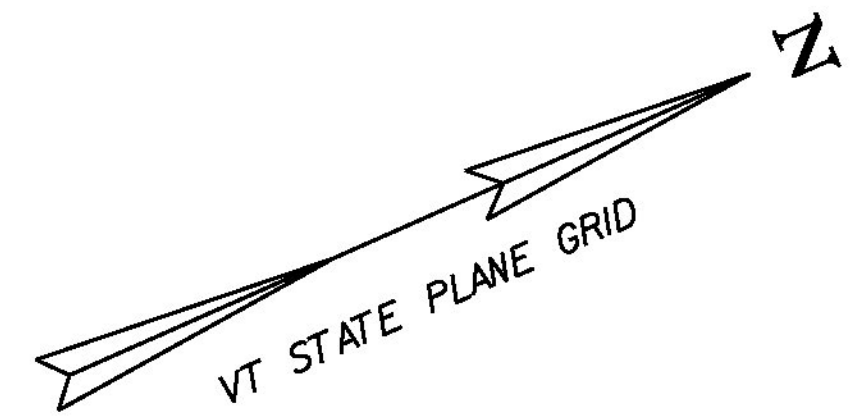
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.

4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.

5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.

6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.



HOLE NO.	STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-201	28+97.41	22.39 RT	724.00	690.20
B-202	29+46.53	21.09 LT	724.00	N/A

PROJECT NAME:	MIDDLESEX
PROJECT NUMBER:	BRF 024-1(37)

FILE NAME: s10c220bor.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
BORING INFORMATION

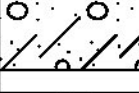
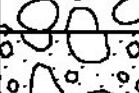
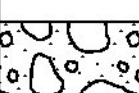
PLOT DATE: 13-JAN-2015  
DRAWN BY: R. PELLETT  
CHECKED BY: H. SALLS  
SHEET 16 OF 46



BOTTOM OF PILE CAP  
 ELEV. 718.00

ESTIMATED PILE  
 TIP ELEV. 690.00

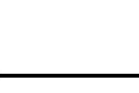
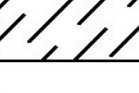
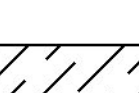
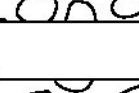
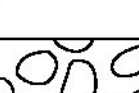
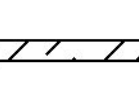
BORING LOG 2 MIDDLESEX BR# 024-1(37).GPJ VERMONT AOT.GDT 10/28/14

 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG <b>MIDDLESEX</b> <b>BRF 024-1(37)</b> <b>VT-12 BR-77</b>		Boring No.: <b>B-201</b> Page No.: 1 of 1 Pin No.: 10C220 Checked By: NSM							
Boring Crew: GARROW, SALISBURY, PORTER Date Started: 1/18/12 Date Finished: 1/25/12 VTSPG NAD83: N 660731.08 ft E 1619938.77 ft Station: 28+97.41 Offset: 22.39 Ground Elevation: 724.0 ft		Casing: WB Sampler: SS Type: I.D.: 4 in 1.5 in Hammer Wt: N.A. 140 lb. Hammer Fall: N.A. 30 in. Hammer/Rod Type: Auto/AWJ Rig: CME 45C TRACK C _u = 1.34		Groundwater Observations Date: 01/24/12 Depth (ft): 33.2 Notes: AM							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate (minutes/ft)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	
5		A-2-4, GrSa, brn, Moist, Rec. = 0.8 ft				WH-2-3-P (5)	16.6	26.8	55.1	18.1	
		Field Note:, NXDC, Cobbles				8-5-2-2 (7)					
		Field Note:, No Recovery. Stone in sampler									
10		Field Note:, NXDC, Cobbles				9-16-19-22 (35)	13.9	27.8	38.7	33.5	
		A-2-4, GrSiSa, brn, Moist, Rec. = 1.5 ft									
15		Field Note:, NXDC, Cobbles				10-27-52-41 (79)	8.0	53.5	26.3	20.2	
		A-1-b, SiSaGr, brn, Moist, Rec. = 0.6 ft									
20		Field Note:, NXDC, Boulder									
		A-1-b, SiGrSa, brn, MTW, Rec. = 1.1 ft				4-10-18-17 (28)	10.8	38.5	38.9	22.6	
25		Visual Classification, SiGrSa, brn, MTW, Rec. = 0.5 ft, Similar material as 19-21 ft.				R@6.0"	11.0				
		Field Note:, NXDC, Boulder									
30		A-1-b, SiGrSa, brn, MTW, Rec. = 1.2 ft				13-23-25-22 (48)	10.8	35.9	39.5	24.6	
35		A-1-b, GrSa, brn, MTW, Rec. = 0.3 ft				8-R@3.5"	11.3	36.5	48.5	15.0	
		33.8 ft - 35.2 ft, Grayish green, Chlorite-plagioclase-quartz-muscovite Schist, Moderately hard, Unweathered, Good rock, NXMDC, RMR = 79	1 (75)	100 (100)	6						
40		35.2 ft - 38.8 ft, Grayish green, Chlorite-plagioclase-quartz-muscovite Schist, Moderately hard, Unweathered, Good rock, NXMDC, RMR = 79	2 (75)	94 (94)	12						
		38.8 ft - 43.8 ft, Grayish green, Chlorite-plagioclase-quartz-muscovite Schist, Moderately hard, Unweathered, Good rock, NXMDC, RMR = 76	3 (75)	92 (74)	6						
45											
		Hole stopped @ 43.8 ft									
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.											

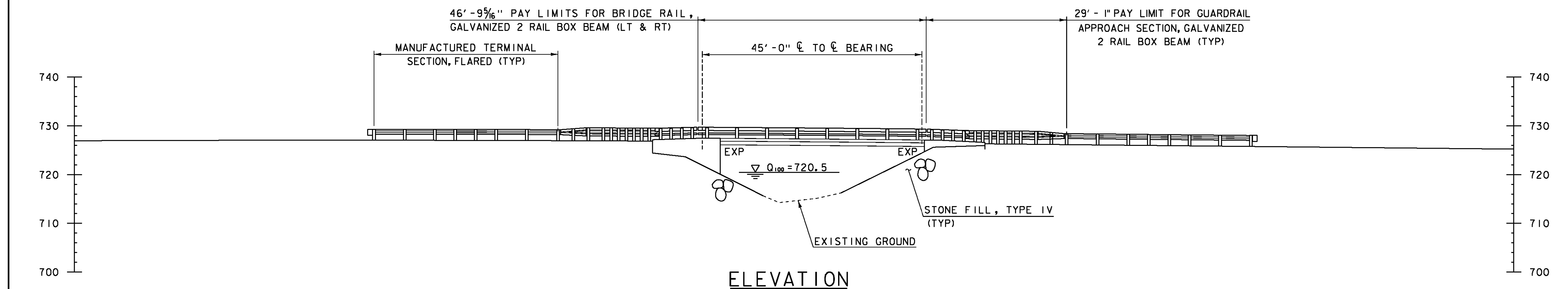
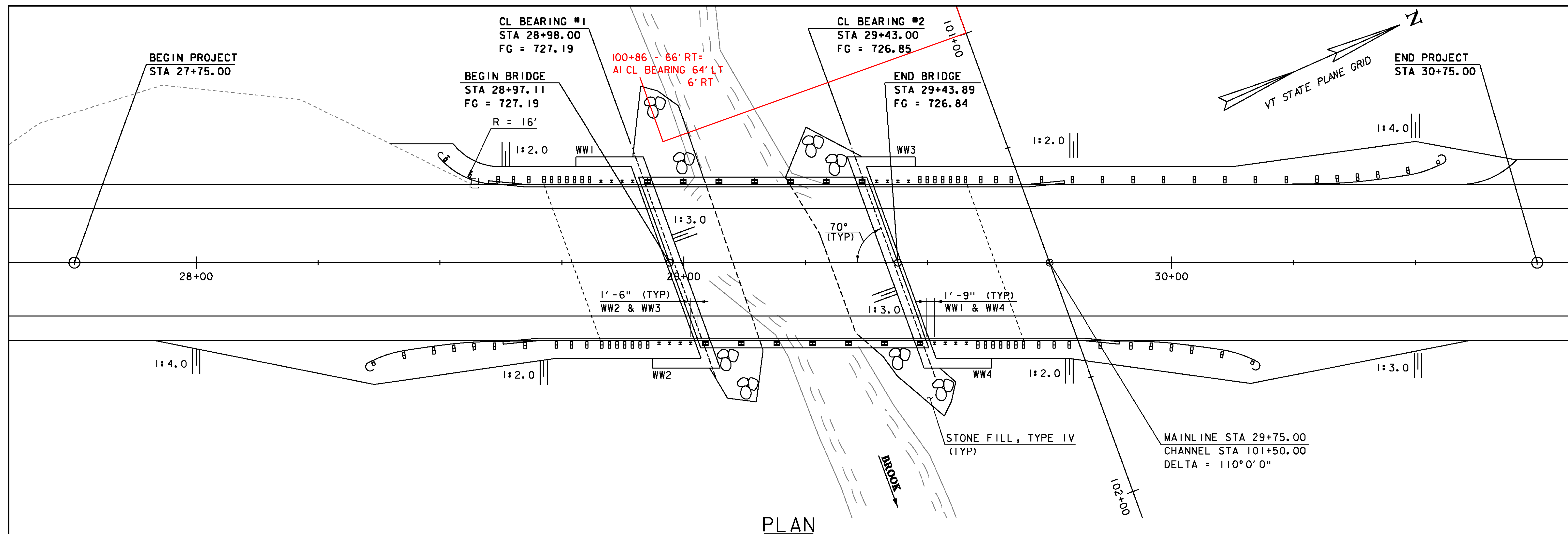
BOTTOM OF PILE CAP  
 ELEV. 718.00

ESTIMATED PILE  
 TIP ELEV. 665.00

BORING LOG 2 MIDDLESEX BR# 024-1(37).GPJ VERMONT AOT.GDT 10/28/14

 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG <b>MIDDLESEX</b> <b>BRF 024-1(37)</b> <b>VT-12 BR-77</b>		Boring No.: <b>B-202</b> Page No.: 1 of 1 Pin No.: 10C220 Checked By: NSM					
Boring Crew: GARROW, SALISBURY, PORTER Date Started: 1/26/12 Date Finished: 1/31/12 VTSPG NAD83: N 660793.58 ft E 1619918.87 ft Station: 29+46.53 Offset: -21.09 Ground Elevation: 724.0 ft		Casing: WB Sampler: SS Type: I.D.: 4 in 1.5 in Hammer Wt: N.A. 140 lb. Hammer Fall: N.A. 30 in. Hammer/Rod Type: Auto/AWJ Rig: CME 45C TRACK C _u = 1.34		Groundwater Observations Date: 01/30/12 Depth (ft): 29.4 Notes: AM					
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Field Note:, NXDC, Sand, No Recovery.	1-3-5-4 (8)	15.4	41.4	39.7	18.9		
		A-1-b, SaGr, brn, Moist, Rec. = 1.2 ft							
10		Field Note:, NXDC, Gravel, No Recovery.	12-20-19-17 (39)	16.0	36.9	45.4	17.7		
		A-1-b, GrSa, brn, Moist, Rec. = 1.5 ft							
		Field Note:, NXDC, Cobbles	3-3-2-3 (5)	40.4	0.3	2.2	97.5	38	6
		A-4, Si, gry, Moist, Rec. = 1.5 ft							
20		A-4, GrSaSi, brn, Moist, Rec. = 1.5 ft	10-11-14-16 (25)	13.3	23.8	35.5	40.7		
		Field Note:, NXDC, Gravel, No Recovery.							
		Field Note:, NXDC, Cobbles	8-16-22-R@2.5"	7.5	38.7	39.9	21.4		
		A-1-b, SiGrSa, gry, Moist, Rec. = 1.0 ft, Broken rock was within sample.							
30		Field Note:, NXDC, Cobbles	5-5-6-8 (11)	13.1	20.1	46.0	33.9		
		A-2-4, GrSiSa, brn, Moist, Rec. = 0.9 ft							
		Field Note:, NXDC, Cobbles	32-40-30-R@0.0"	8.5	36.9	27.8	35.3		
		A-2-4, SaSiGr (HP), gry, MTD, Rec. = 1.2 ft							
		Field Note:, NXDC, Gravel, No Recovery.	R@6.0"	9.1	20.0	38.7	41.3		
		A-4, GrSaSi (HP), gry, MTD, Rec. = 0.5 ft							
50		Hole stopped @ 48.5 ft No Ledge to Depth.							
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.									

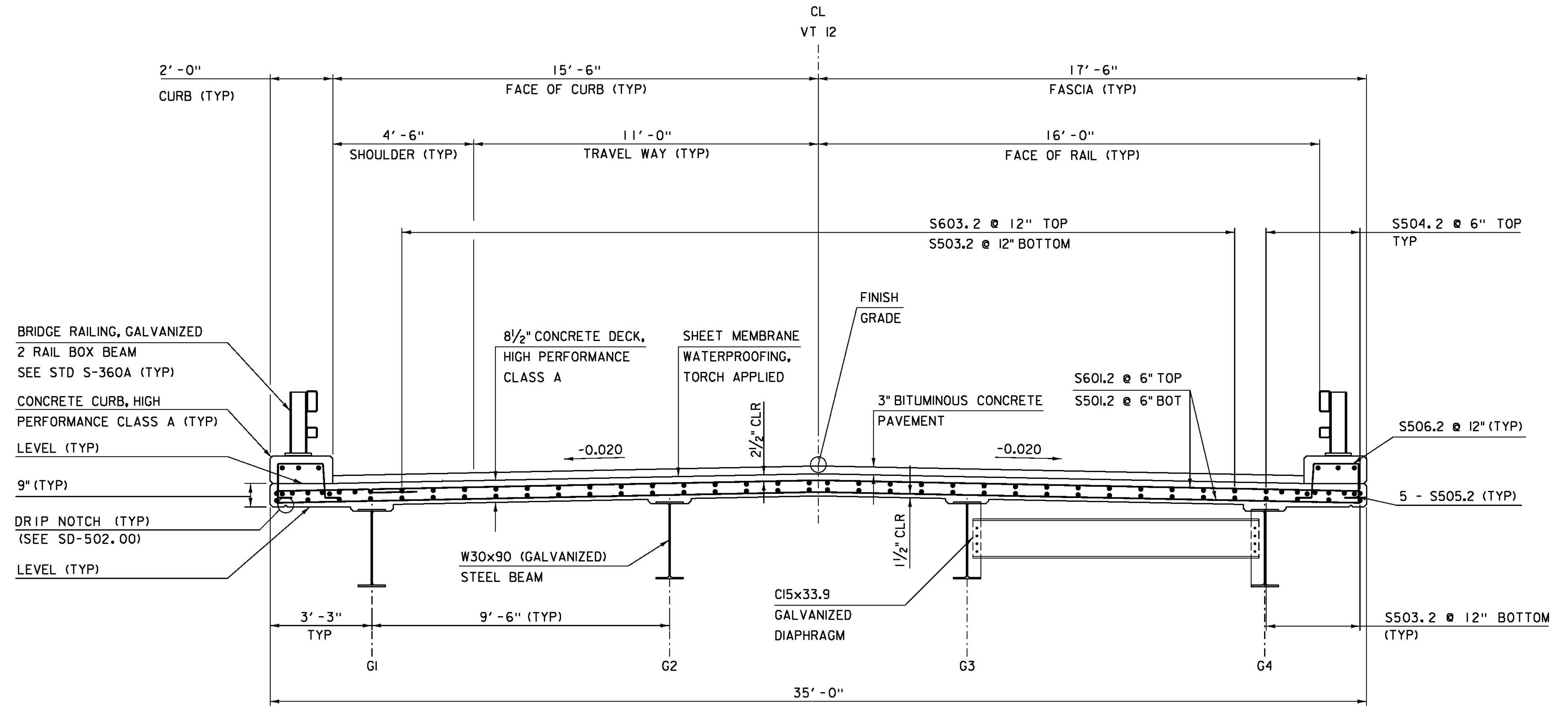




SCALE 1" = 10' - 0"

PROJECT NAME: MIDDLESEX	PLOT DATE: 13-JAN-2015
PROJECT NUMBER: BRF 024-1(37)	DRAWN BY: R. PELLETT
FILE NAME: sl0c220pe.dgn	CHECKED BY: H. SALLS
PROJECT LEADER: C. CARLSON	SHEET 18 OF 46
DESIGNED BY: H. SALLS	
PLAN & ELEVATION	

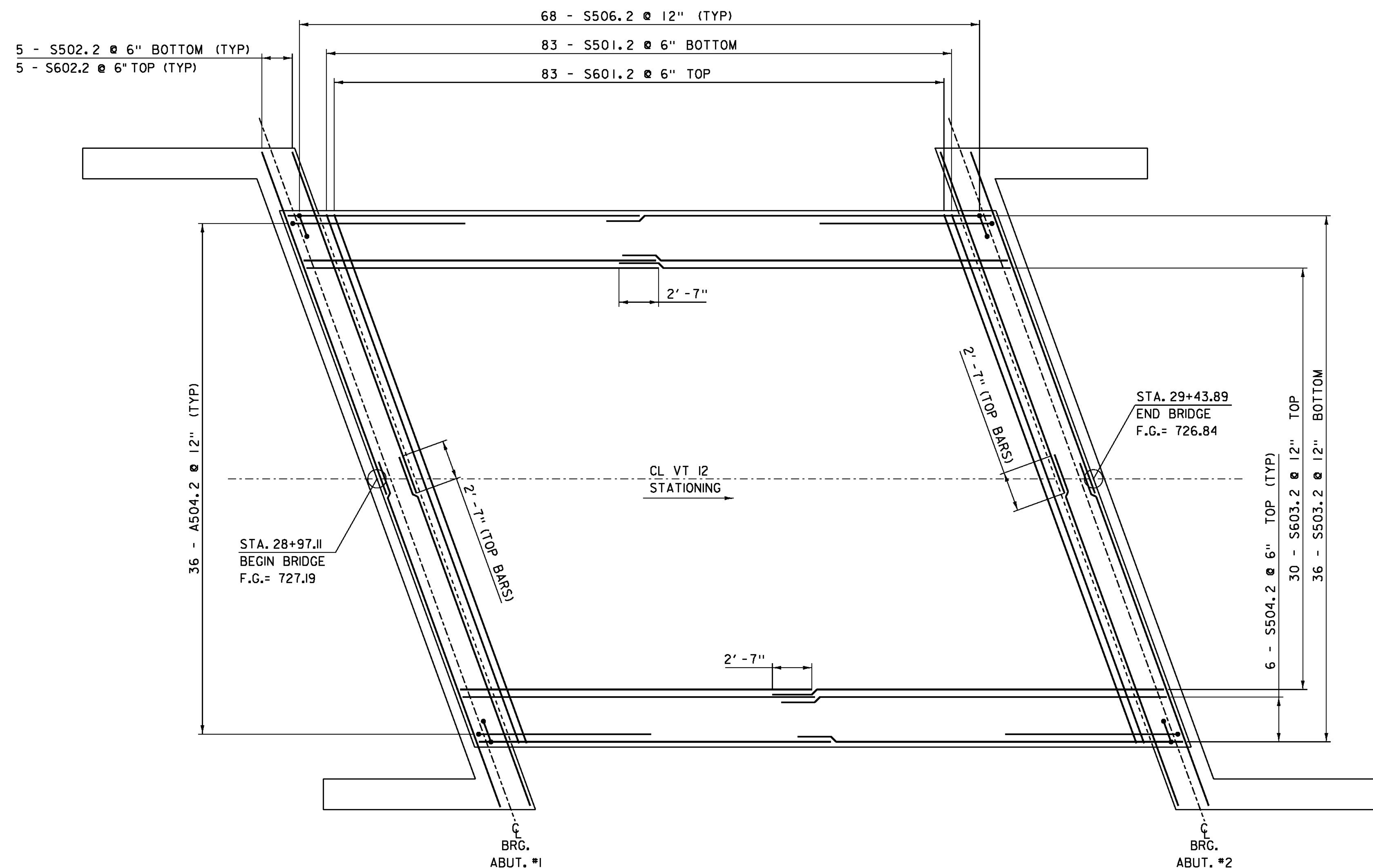




DECK REINFORCING SECTION  
SCALE 1/2" = 1'-0"

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220sup.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: C. BURRALL
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
DECK REINFORCING SECTION	SHEET 19 OF 46





# DECK REINFORCING PLAN

SCALE 1/4" = 1' - 0"

## NOTES:

NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.  
2'-2" BAR LAP UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.

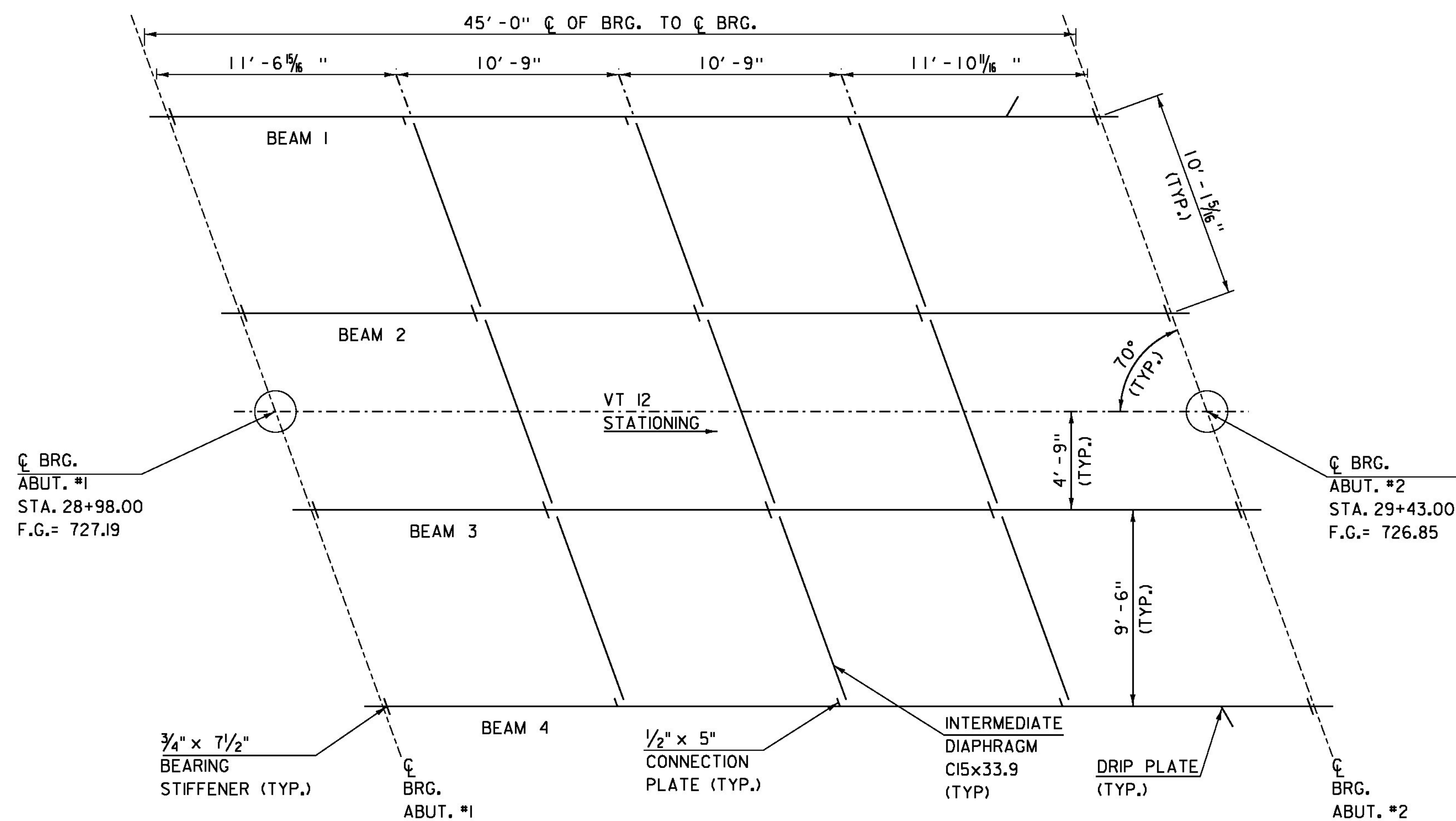
ALL REINFORCEMENT FOR BRIDGE  
RAIL NOT SHOWN FOR CLARITY  
SEE STD S-360A.

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRF 024-1(37)

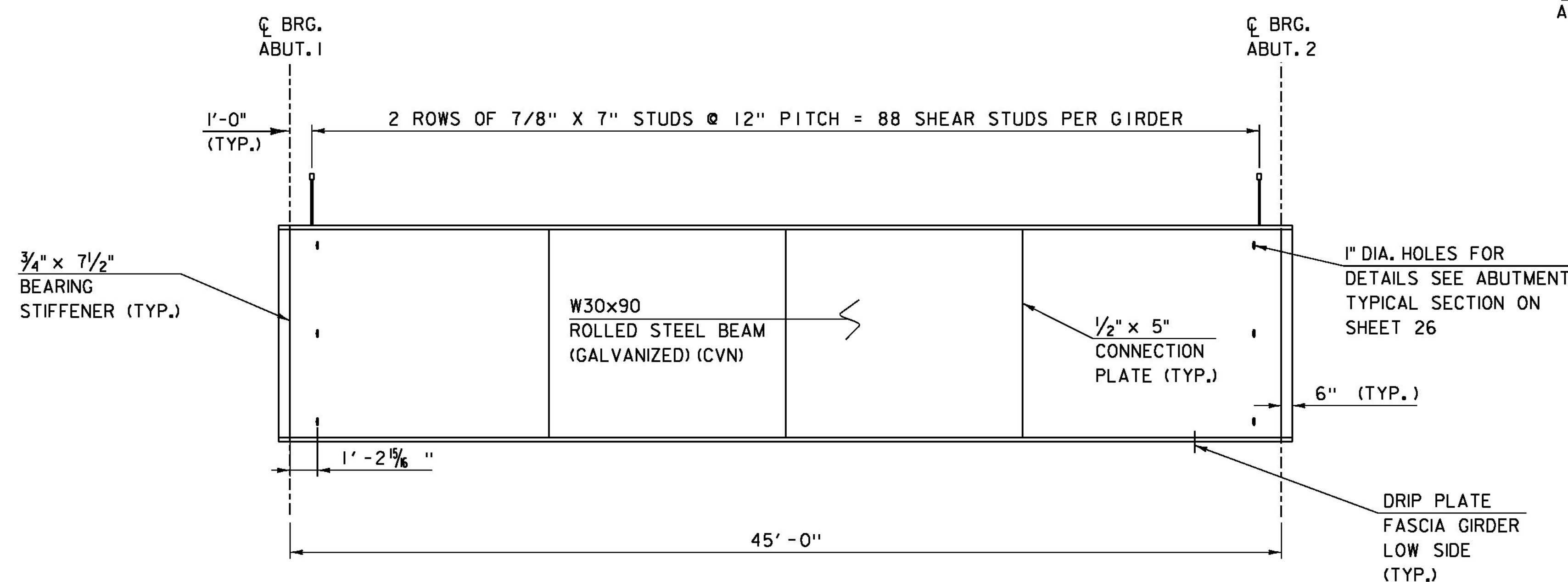
FILE NAME: s10c220sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
DECK REINFORCING PLAN

PLOT DATE: 13-JAN-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 20 OF 46

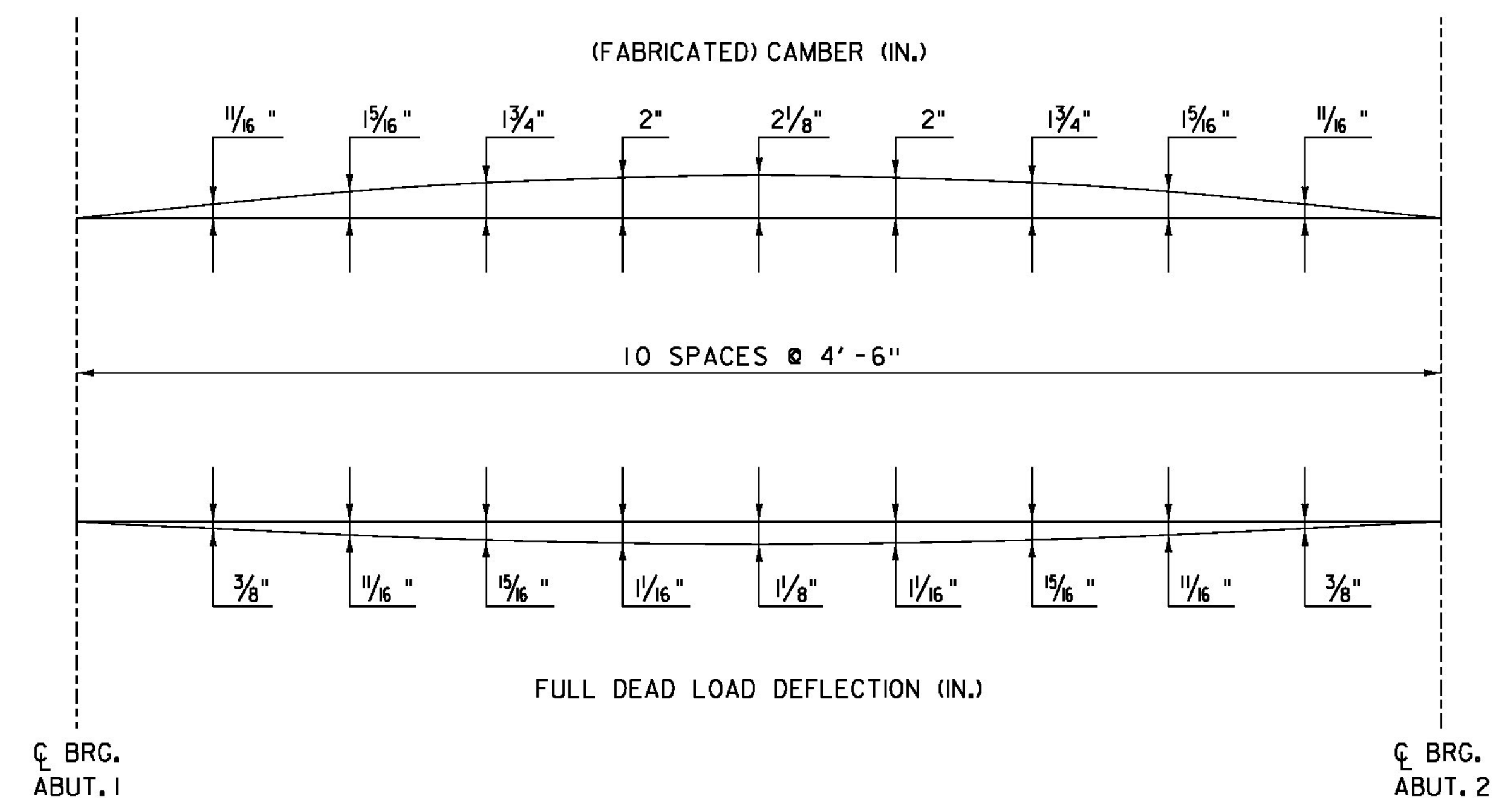




FRAMING PLAN  
SCALE 1/4" = 1' - 0"



GIRDER ELEVATION  
HORIZONTAL SCALE 1/4" = 1' - 0"  
VERTICAL SCALE 1" = 1' - 0"



CAMBER AND DEAD LOAD DEFLECTION  
HORIZONTAL SCALE 1/4" = 1' - 0"  
VERTICAL SCALE 2" = 1' - 0"

NOTES:

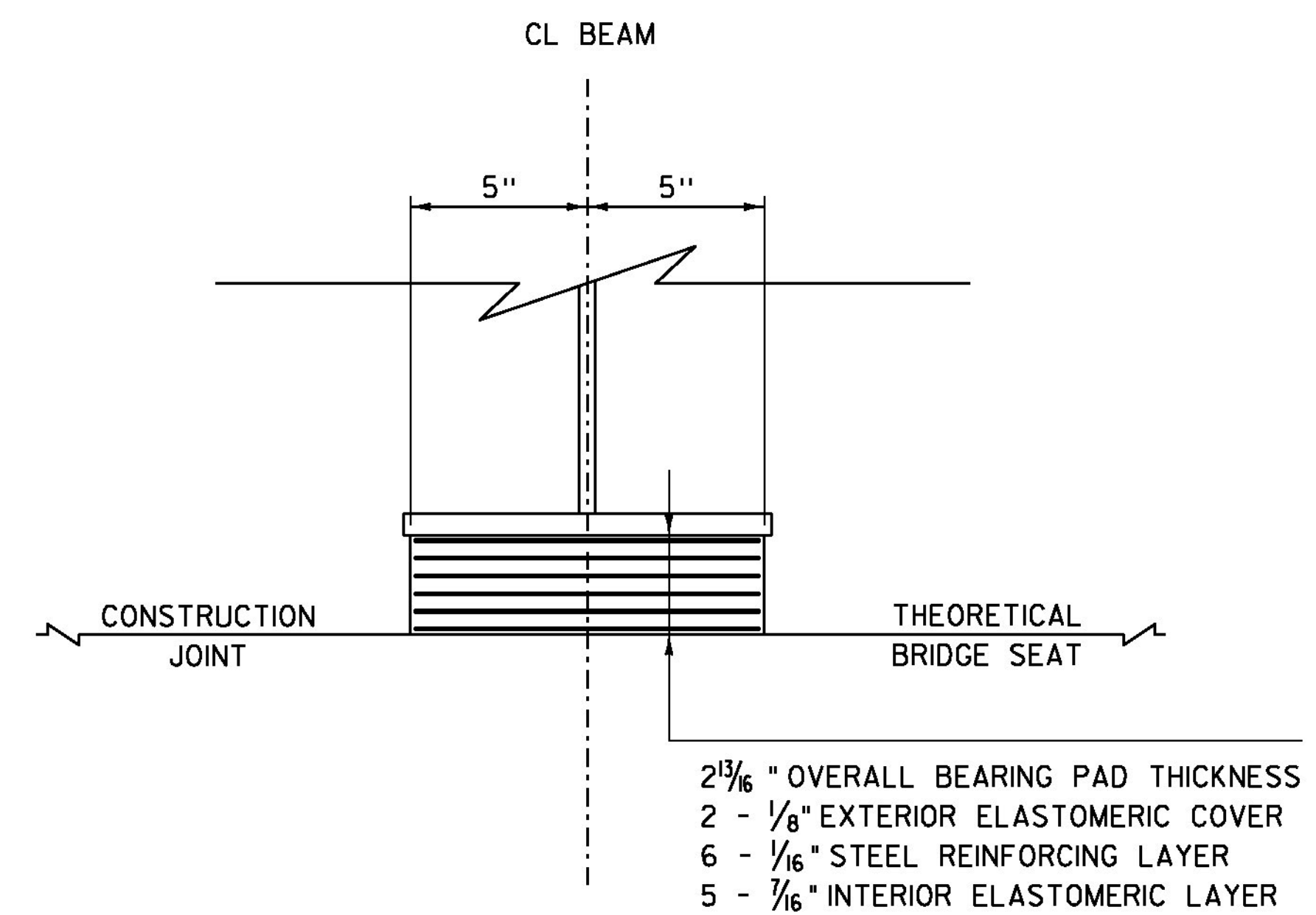
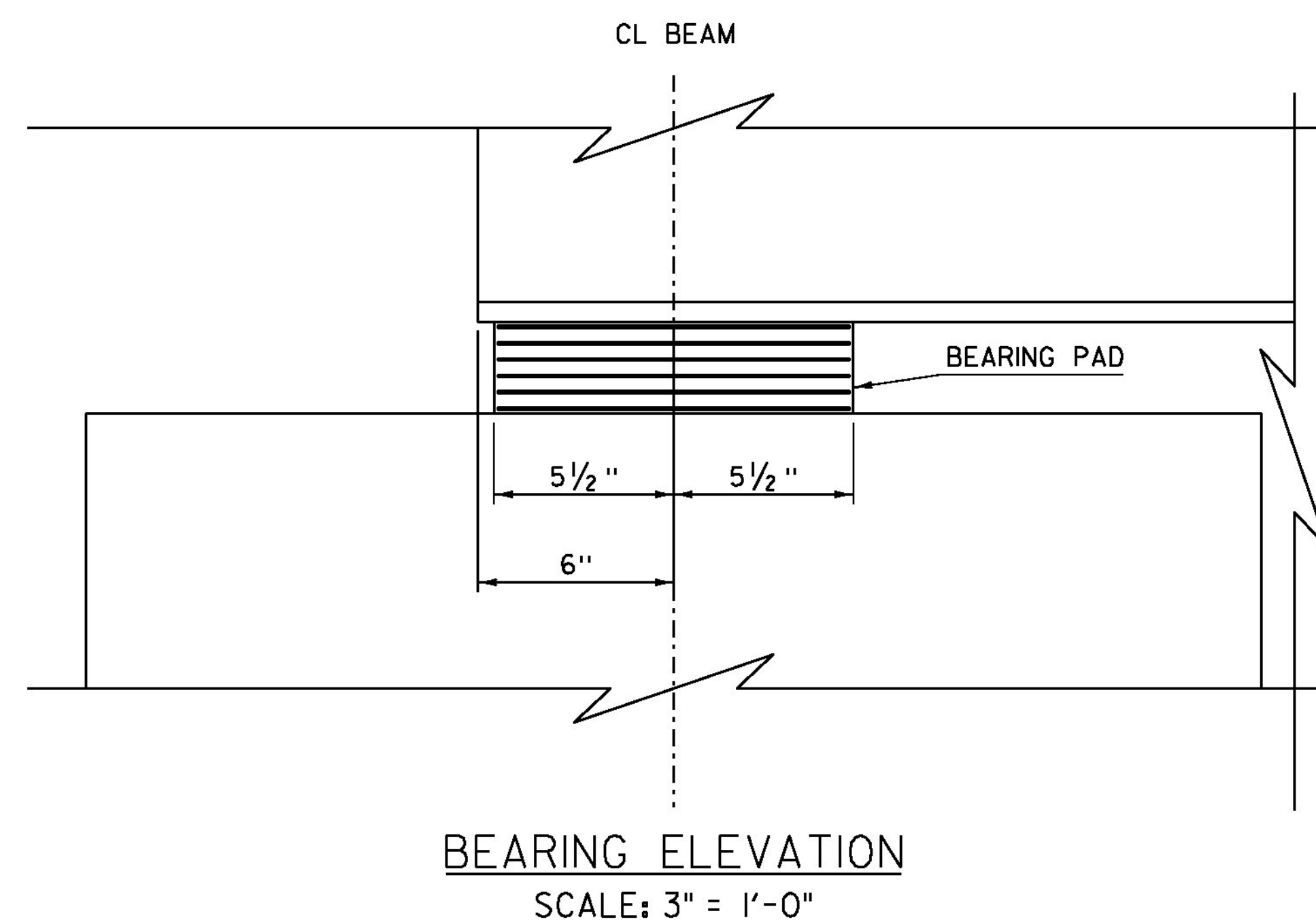
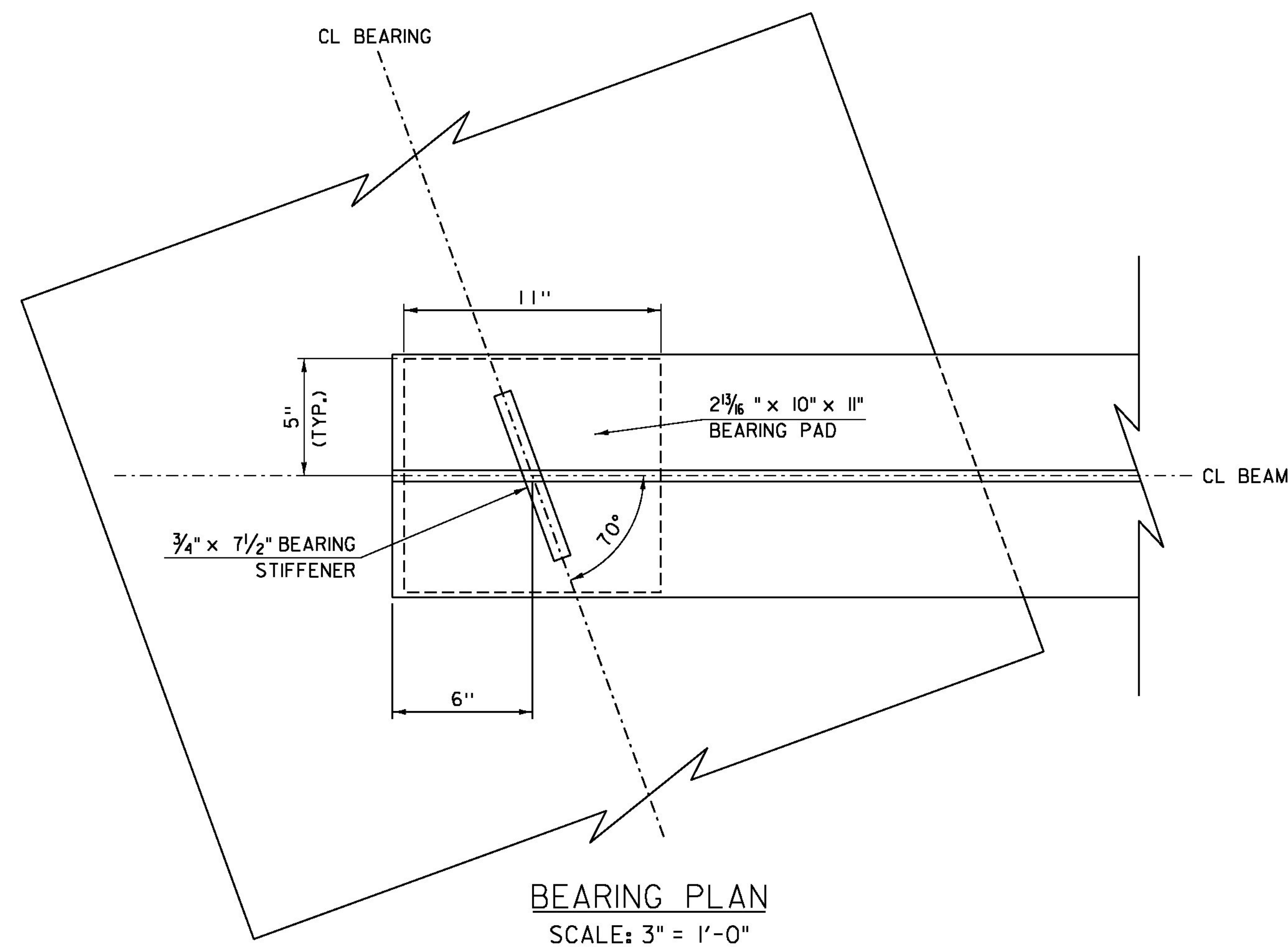
- SEE STRUCTURES DETAIL SHEET SD-601 FOR DRIP PLATE DETAILS.
- SEE STRUCTURES DETAIL SHEET SD-602 FOR DIAPHRAGM, CONNECTION PLATE, AND STIFFENER DETAILS.
- DEAD LOAD DEFLECTION INCLUDES: BEAM, DIAPHRAGMS, DECK & BRIDGE RAIL.
- CVN - SHALL MEET CHARPY V-NOTCH REQUIREMENTS FOR MAIN MEMBERS AS SPECIFIED IN SECTION 714.

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRF 024-1(37)

FILE NAME: sl0c220sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
FRAMING PLAN

PLOT DATE: 13-JAN-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 21 OF 46





**BEARING SECTION**  
SCALE: 3" = 1'-0"

**BEARING DEVICE NOTES**

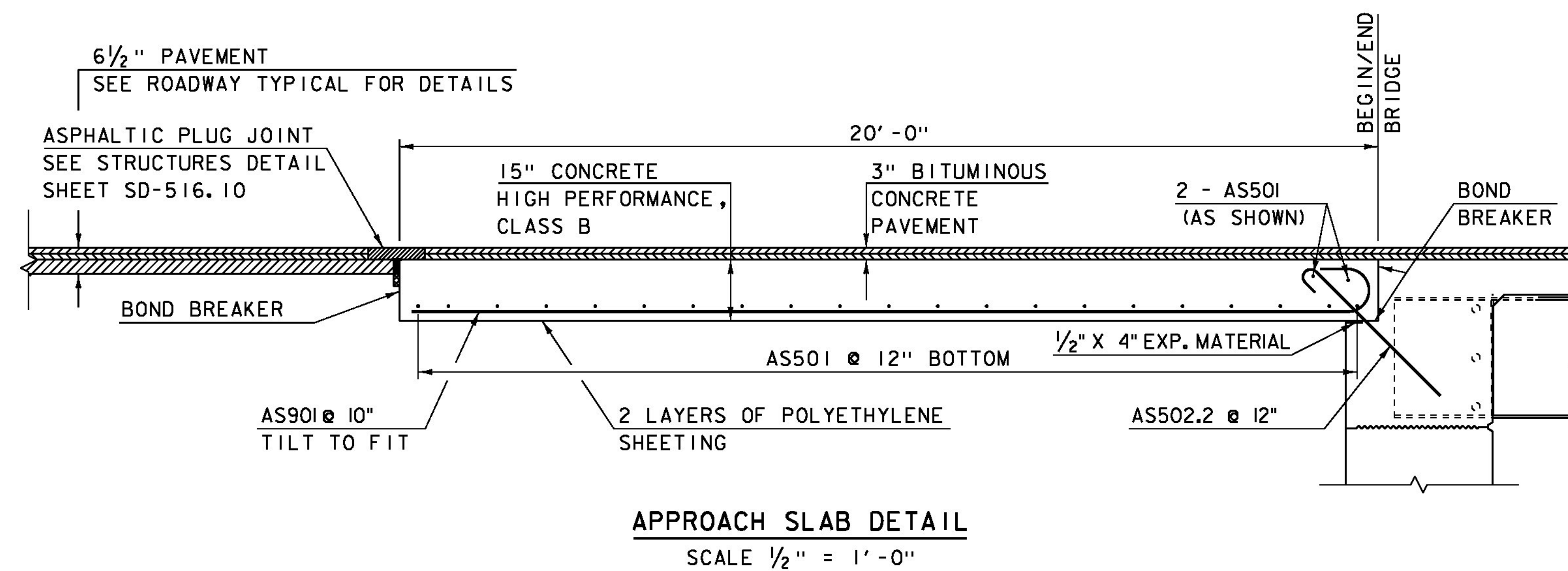
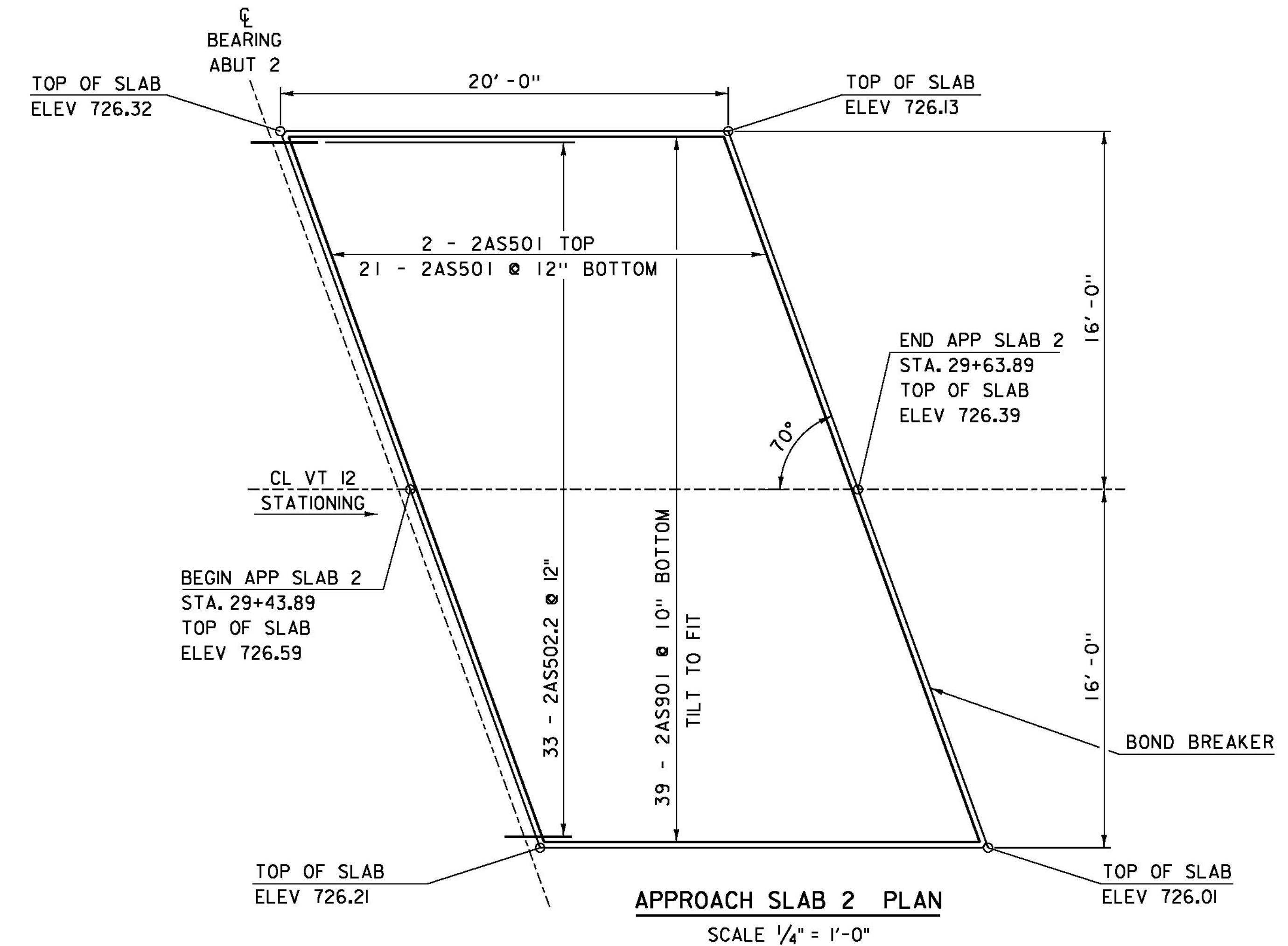
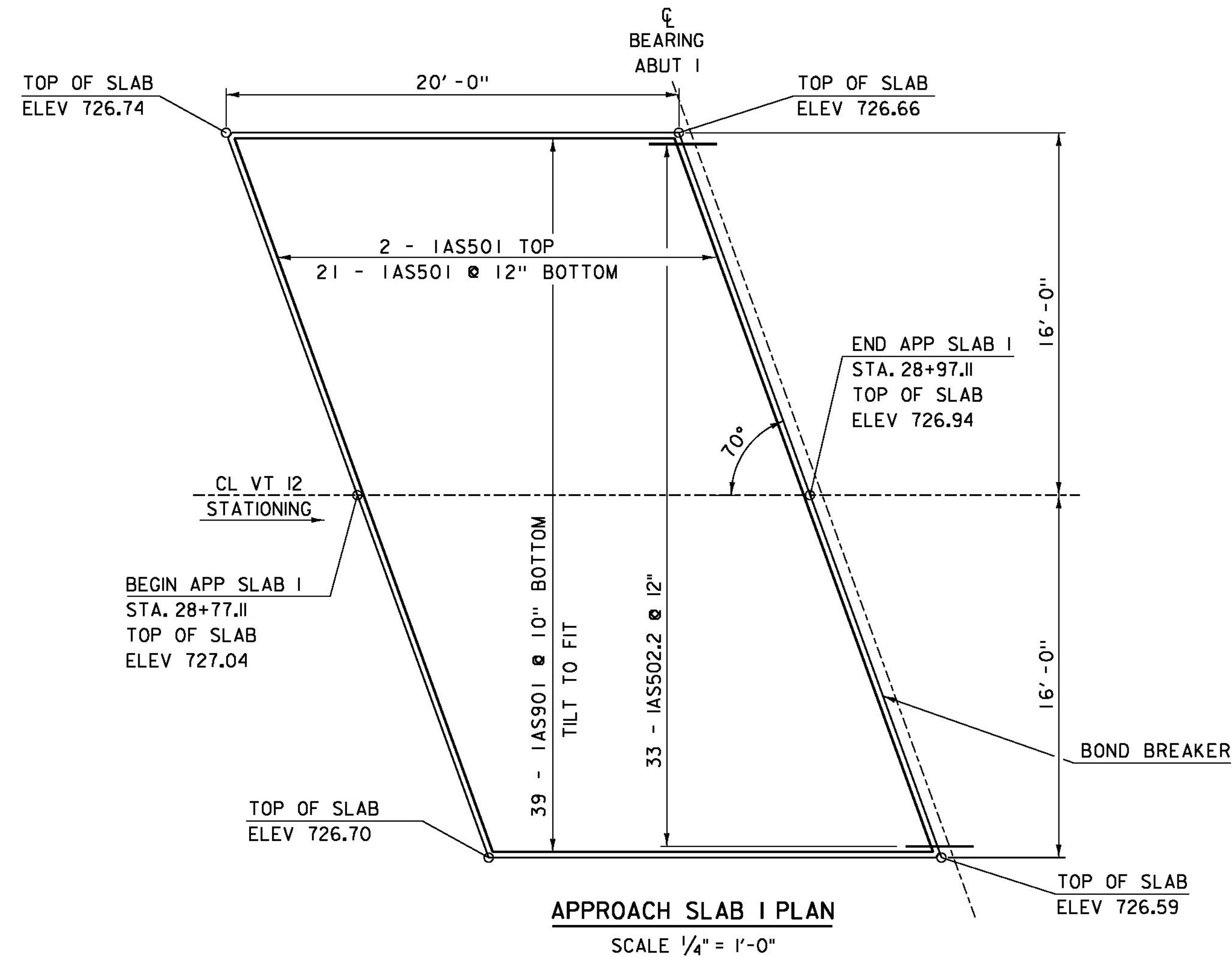
1. BEARINGS SHALL BE PAID FOR UNDER ITEM 531.17 "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL MEETING ASTM A36. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. STEEL REINFORCED ELASTOMERIC PAD BEARINGS SHALL HAVE A MINIMUM OF 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH THE BEARING OVER ALL INTERNAL PLATES.

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRF 024-1(37)

FILE NAME: sl0c220sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
BEARING DETAILS

PLOT DATE: 13-JAN-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 22 OF 46





NOTES:

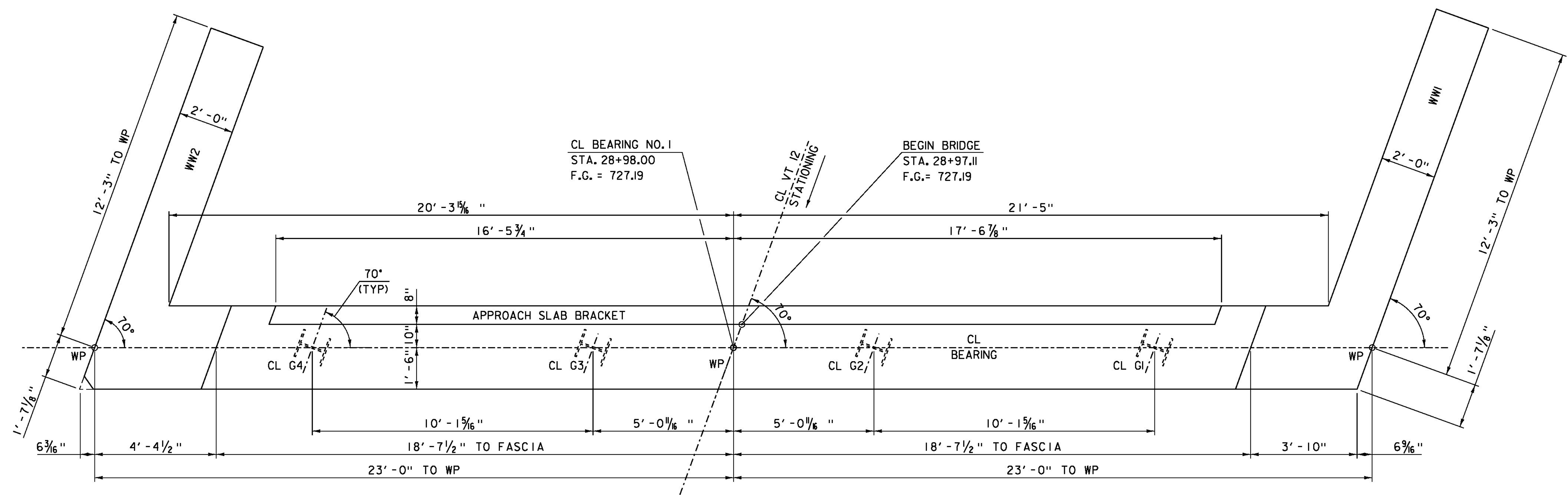
1. COMPACT THE SUBBASE IN THE AREA UNDER THE APPROACH SLAB TO A SMOOTH SURFACE.
2. MATERIAL FOR POLYETHYLENE SHEETING SHALL MEET THE REQUIREMENTS OF SUBSECTION 725.01(c) OF THE STANDARD SPECIFICATIONS. PLACE THE SHEETING ON TOP OF THE FINISHED SUBBASE FOR THE FULL LENGTH AND WIDTH OF THE APPROACH SLAB, AS SHOWN IN THE APPROACH SLAB DETAIL. LAP SHEETING AT LEAST 24 INCHES. PAYMENT INCIDENTAL TO ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B".
3. POUR APPROACH SLAB CONCRETE IN THE EARLY MORNING BEFORE THE SUPERSTRUCTURE EXPANDS.
4. APPLY 2 COATS TAR EMULSION. PAYMENT INCIDENTAL TO ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B".

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BR 024-1(37)

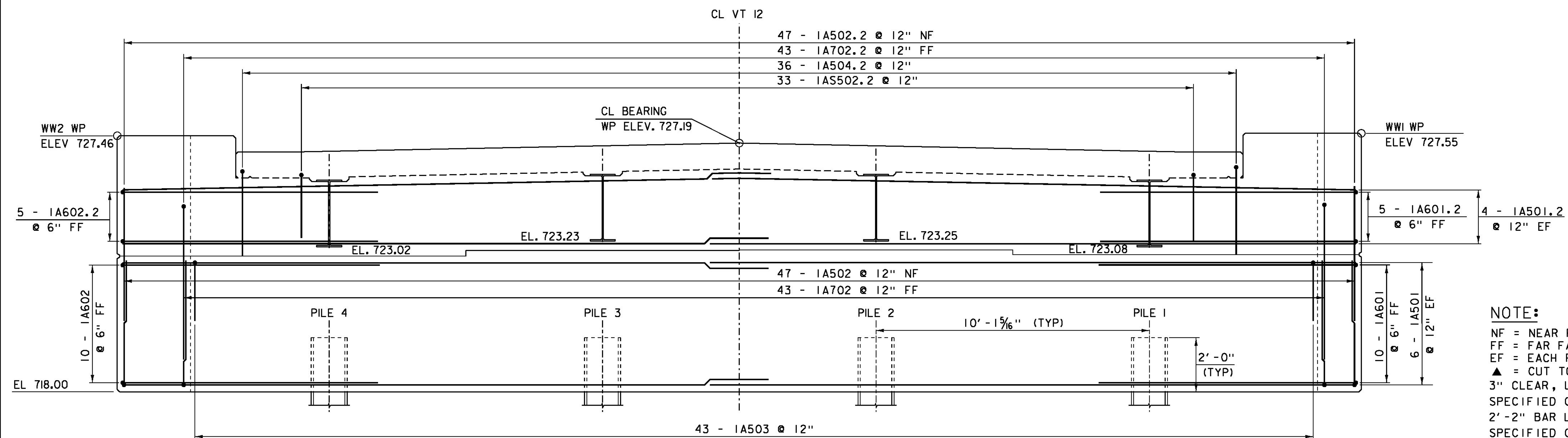
FILE NAME: s10c220sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
APPROACH SLAB DETAILS

PLOT DATE: 13-JAN-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 23 OF 46





ABUTMENT NO. 1 PLAN  
SCALE 1/2"=1'-0"



ABUTMENT NO. 1 ELEVATION  
SCALE 1/2"=1'-0"

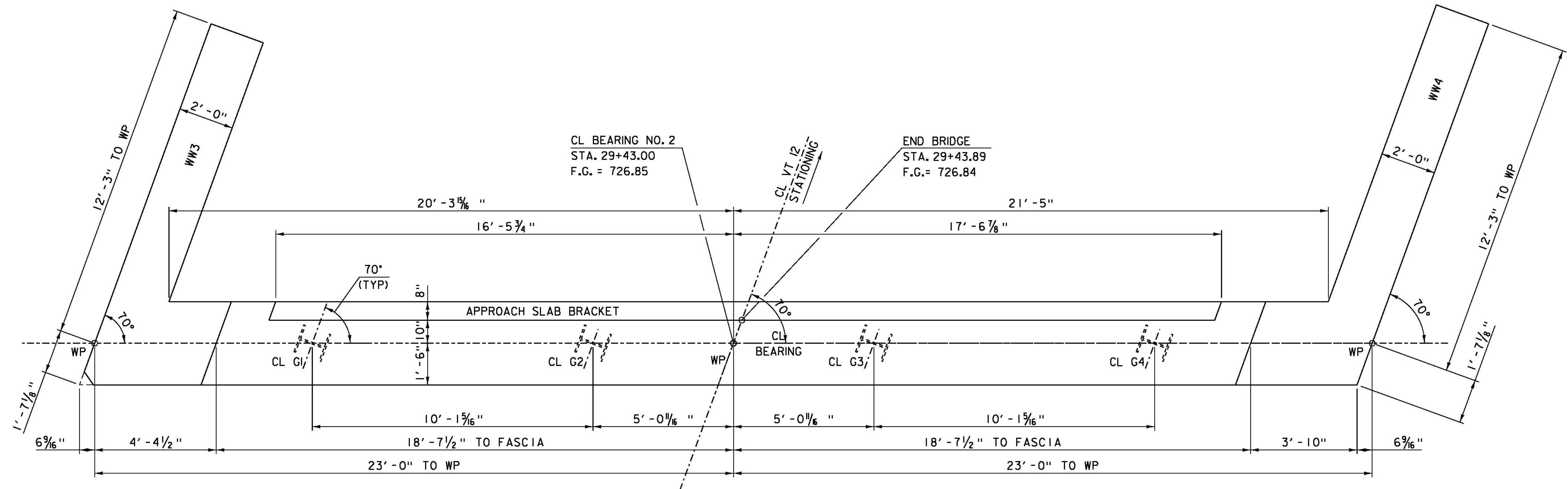
**NOTE:**  
NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.  
2'-2" BAR LAP UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRP 024-1(37)

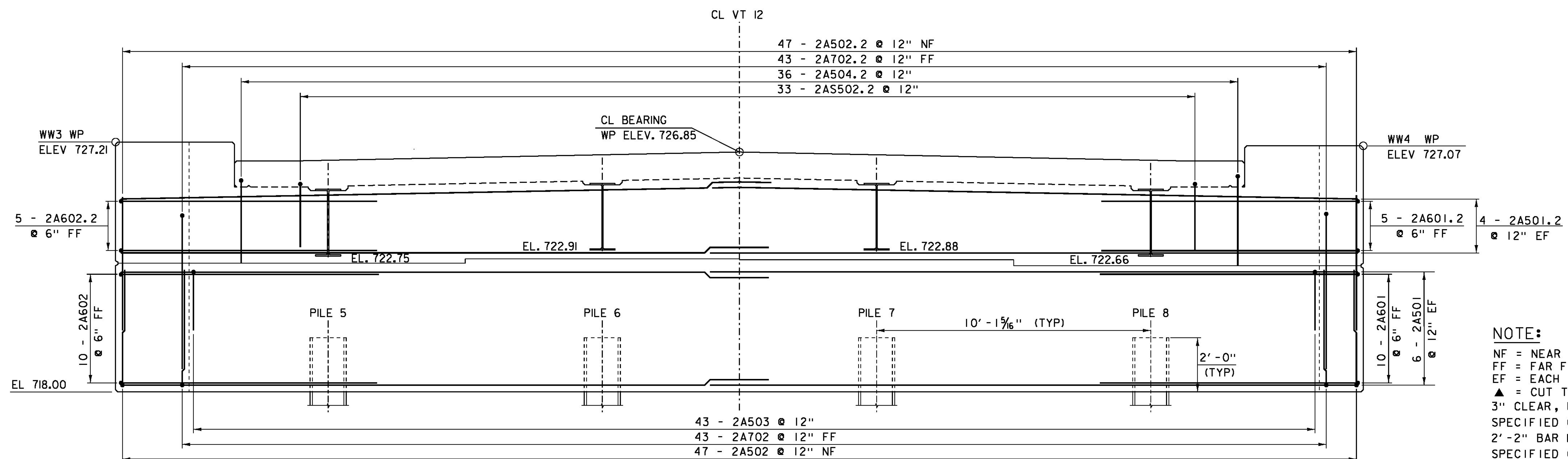
FILE NAME: s10c220sub.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
ABUTMENT #1 PLAN AND ELEVATION

PLOT DATE: 06-FEB-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 24 OF 46





ABUTMENT NO. 2 PLAN  
SCALE 1/2"=1'-0"



ABUTMENT NO. 2 ELEVATION  
SCALE 1/2"=1'-0"

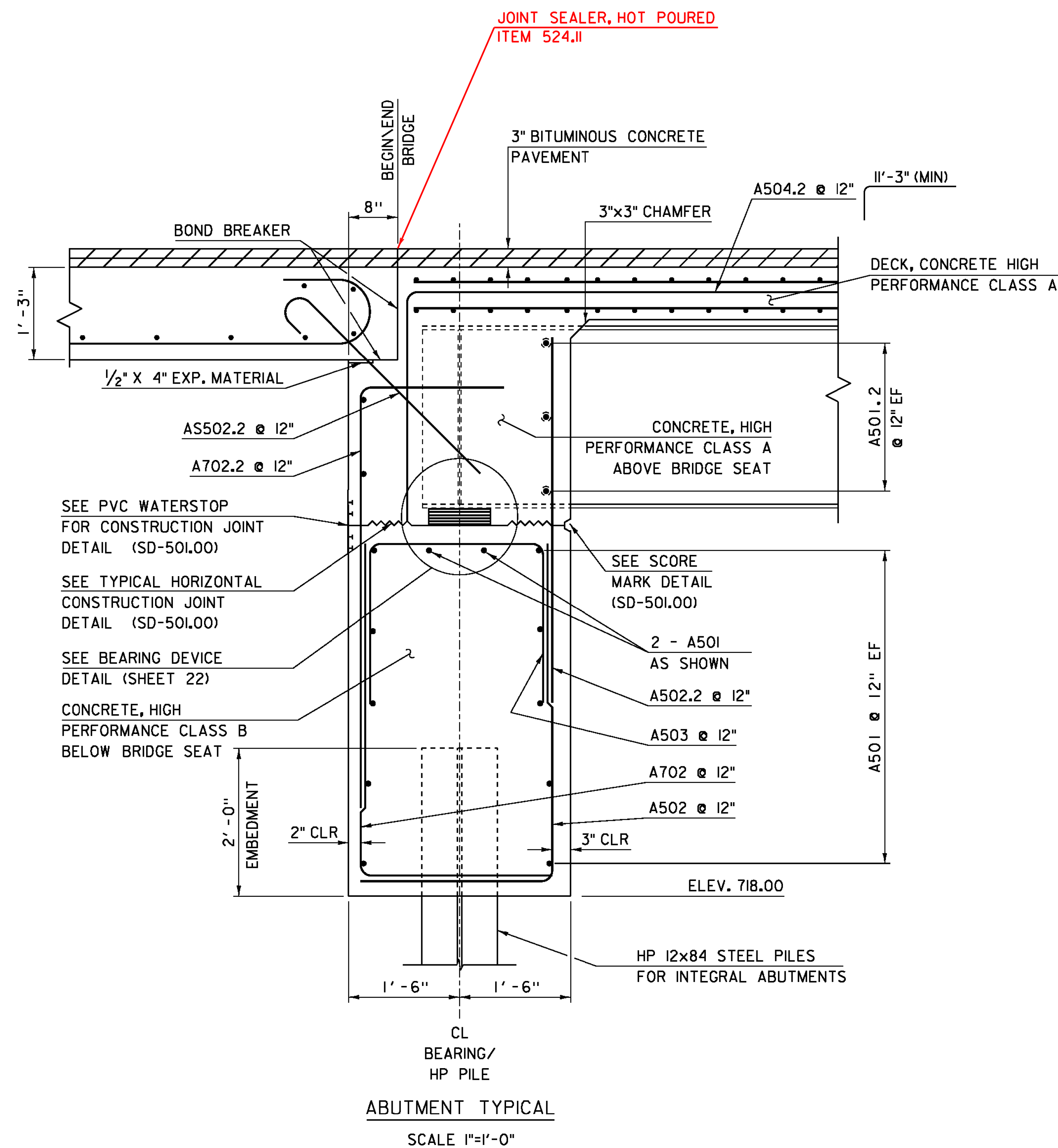
NOTE:  
NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.  
2'-2" BAR LAP UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRP 024-1(37)

FILE NAME: s10c220sub.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
ABUTMENT #2 PLAN AND ELEVATION

PLOT DATE: 06-FEB-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 25 OF 46





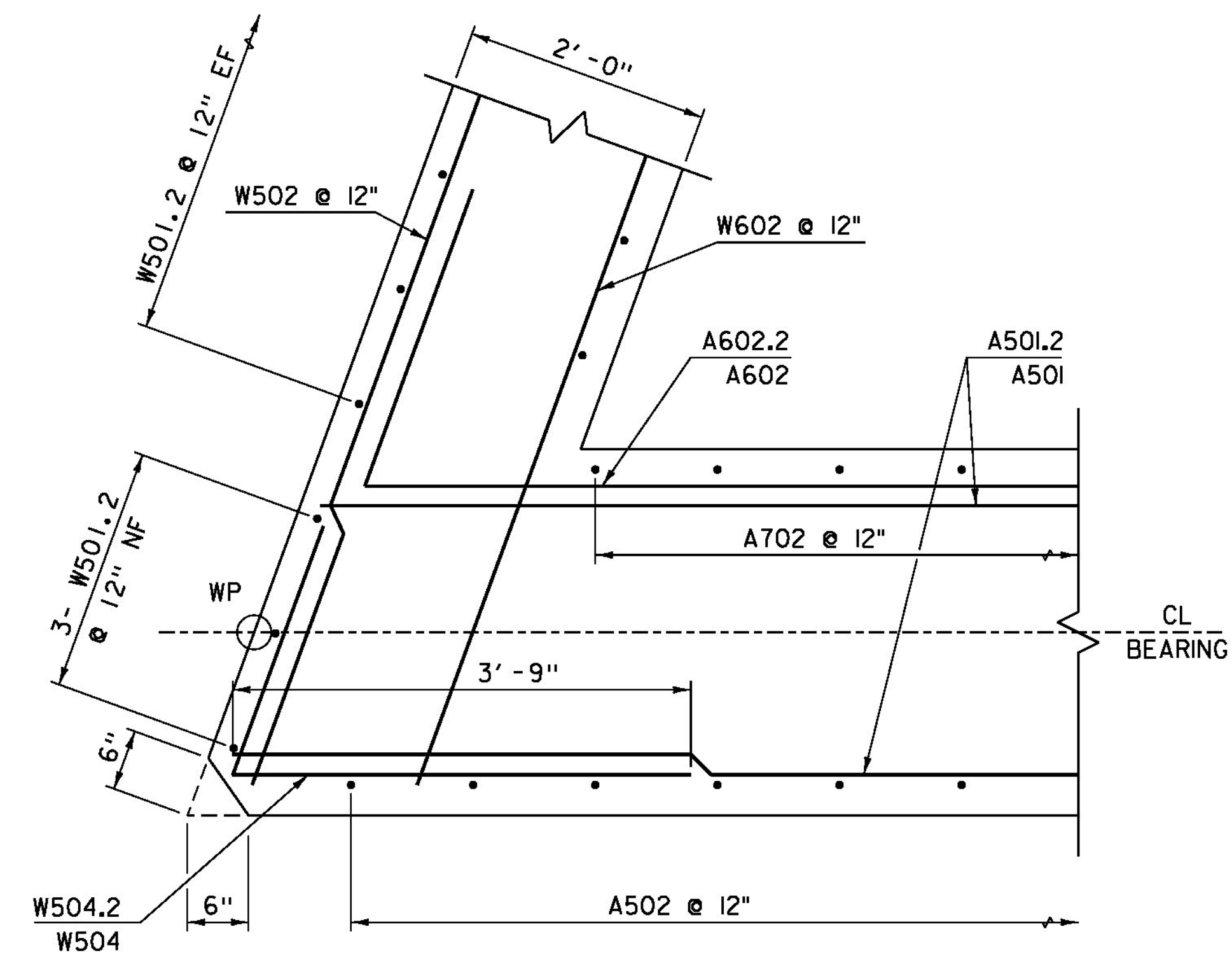
**NOTE:**

NF = NEAR FACE  
 FF = FAR FACE  
 EF = EACH FACE  
 ▲ = CUT TO FIT IN FIELD  
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

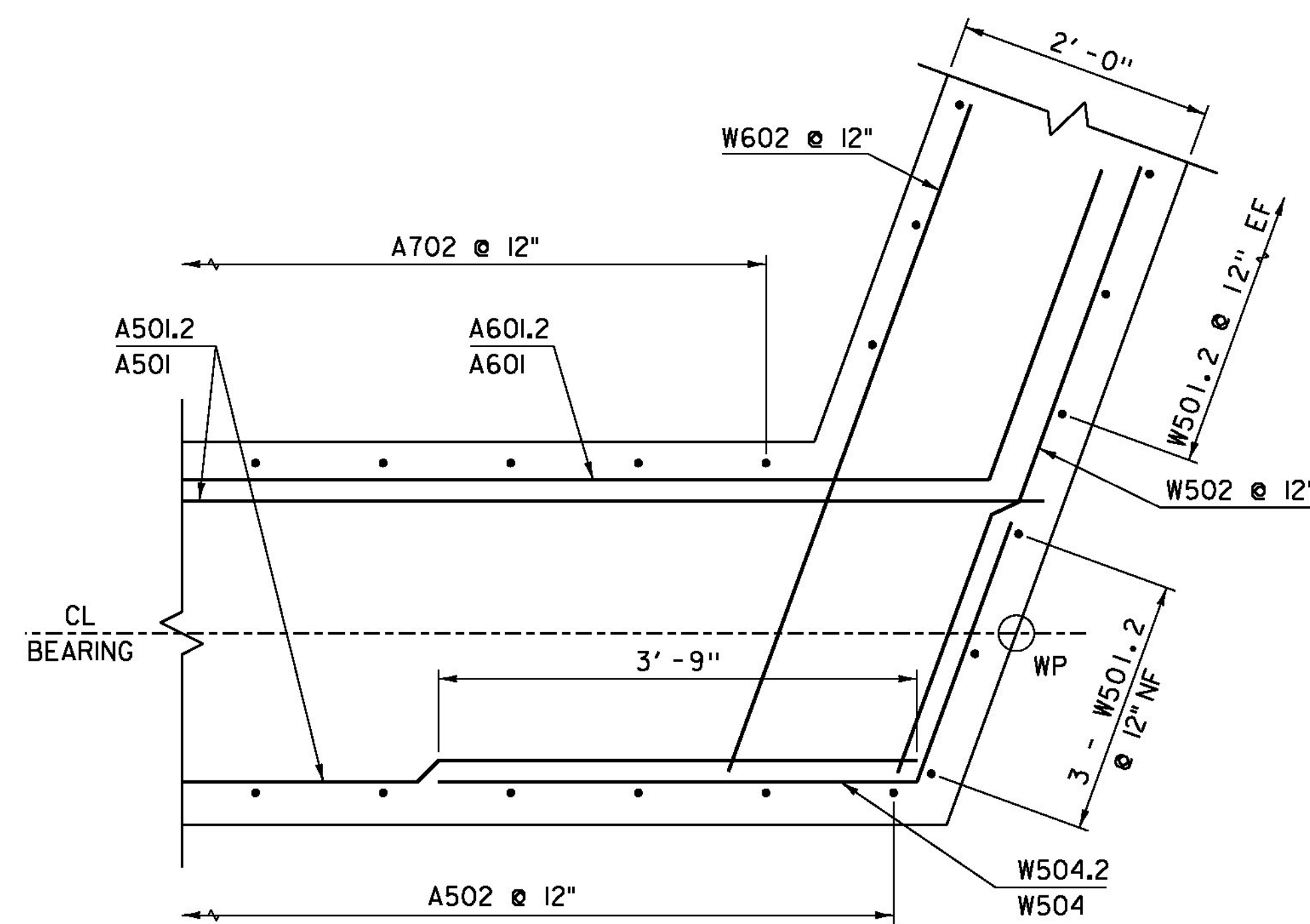
PROJECT NAME: MIDDLESEX  
 PROJECT NUMBER: BRF 024-1(37)

FILE NAME: sl0c220sub.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: H. SALLS  
 ABUTMENT TYPICAL  
 PLOT DATE: 06-FEB-2015  
 DRAWN BY: C. BURRALL  
 CHECKED BY: H. SALLS  
 SHEET 26 OF 46

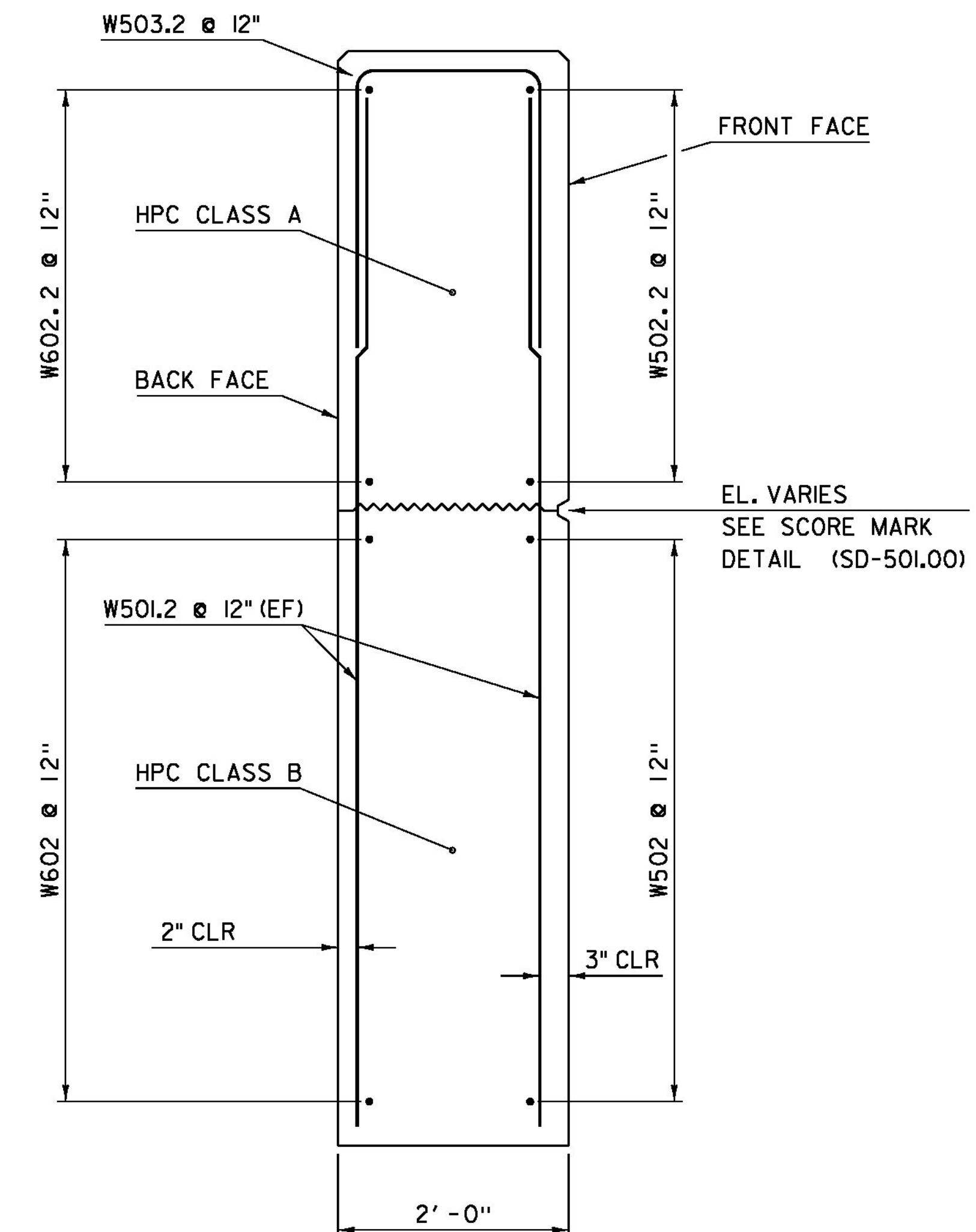




WINGWALLS 2 AND 3 CORNER DETAIL  
SCALE 1"=1'-0"



WINGWALLS 1 AND 4 CORNER DETAIL  
SCALE 1"=1'-0"



WINGWALL TYPICAL SECTION  
SCALE 1"=1'-0"

**NOTE:**

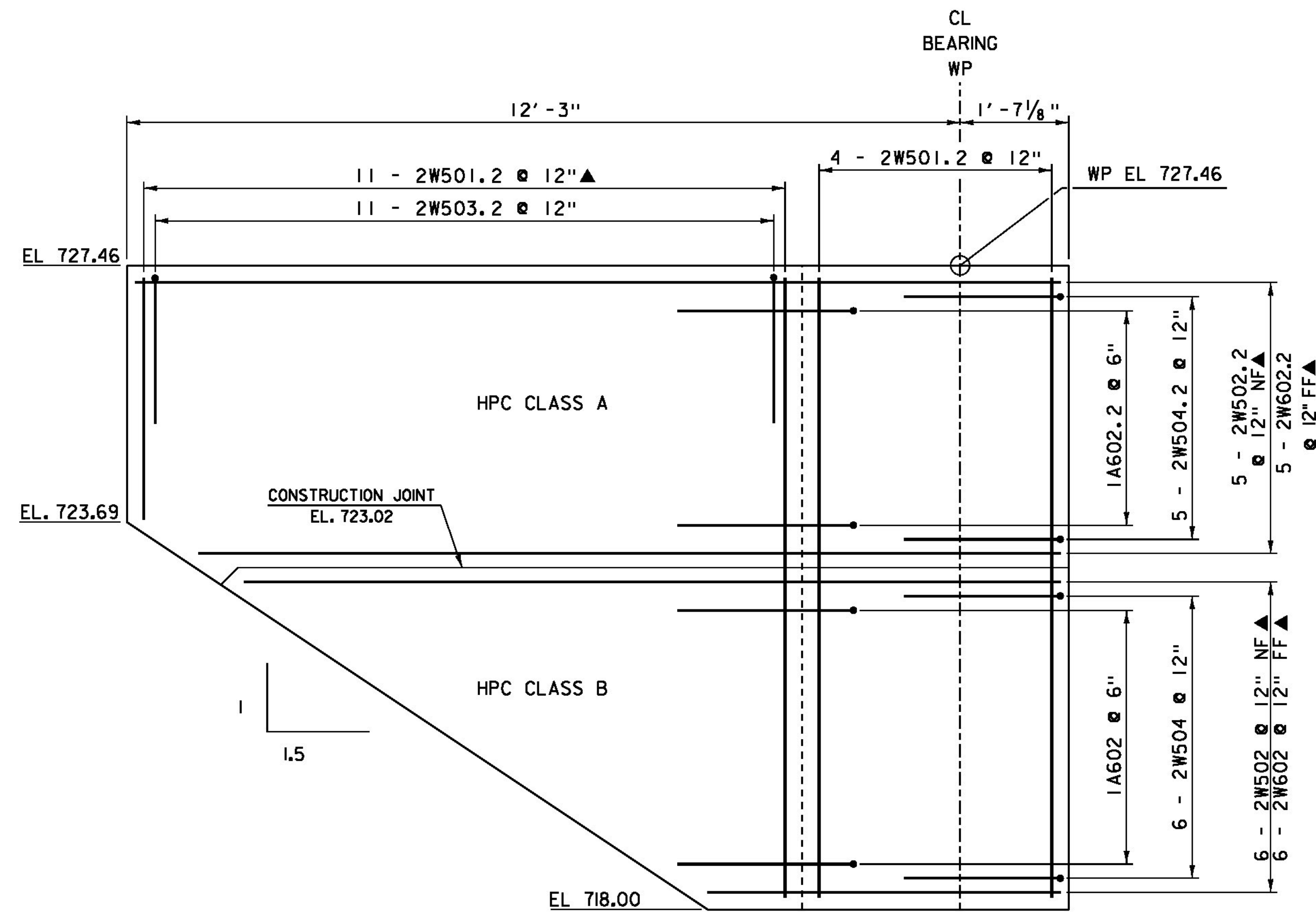
NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.  
2'-2" BAR LAP UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRP 024-1(37)

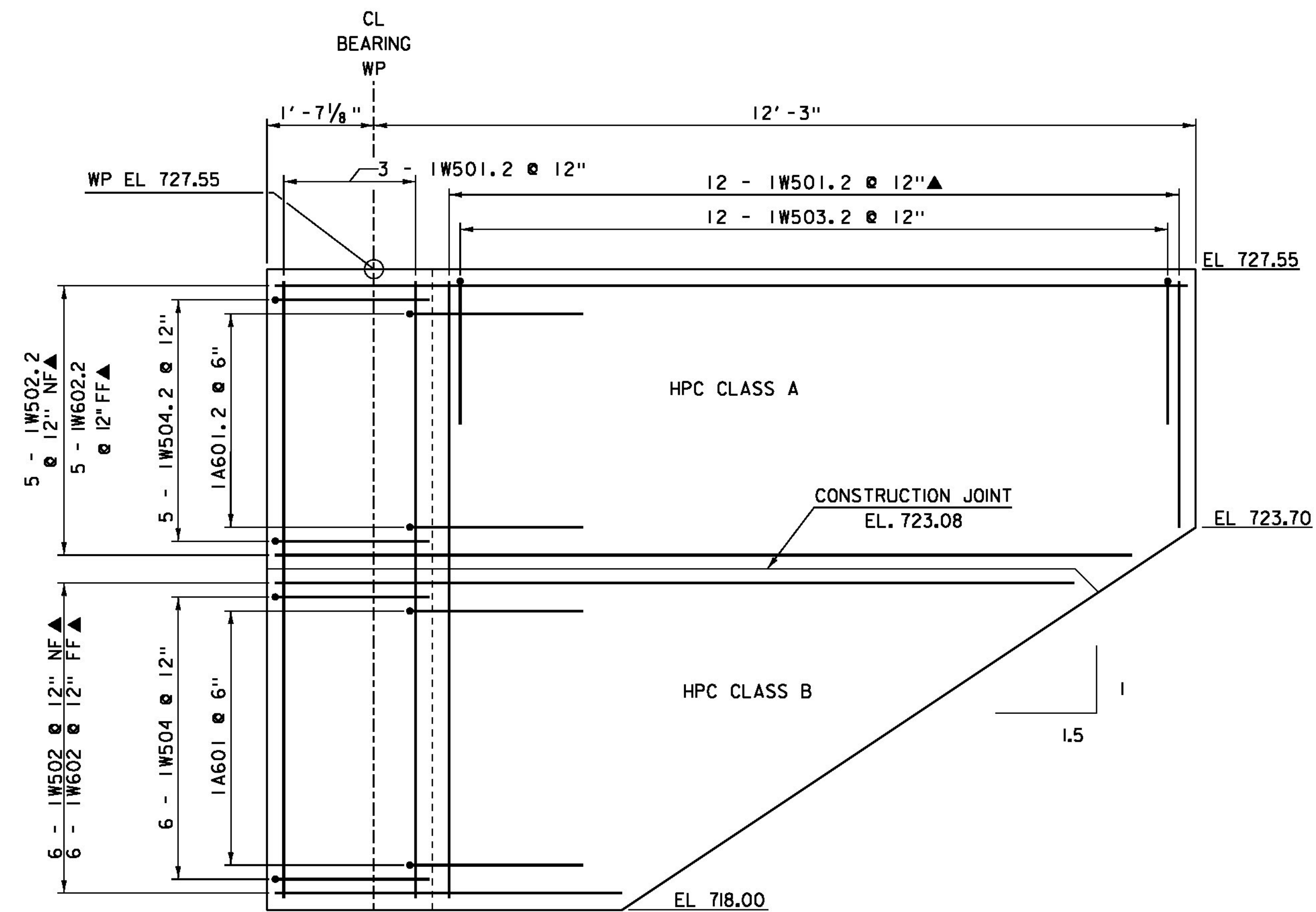
FILE NAME: sl0c220sub.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
WINGWALL DETAILS

PLOT DATE: 06-FEB-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 27 OF 46

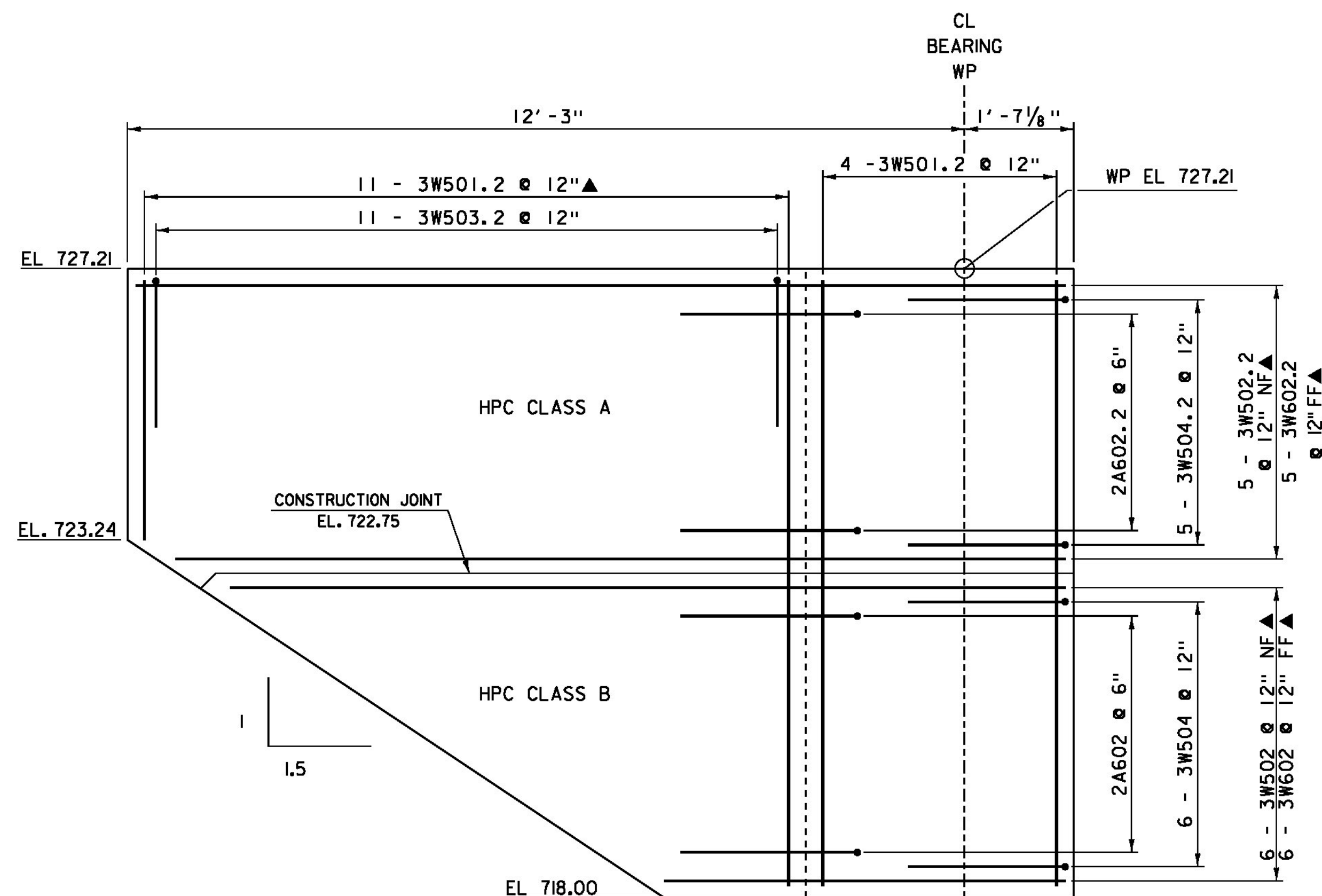




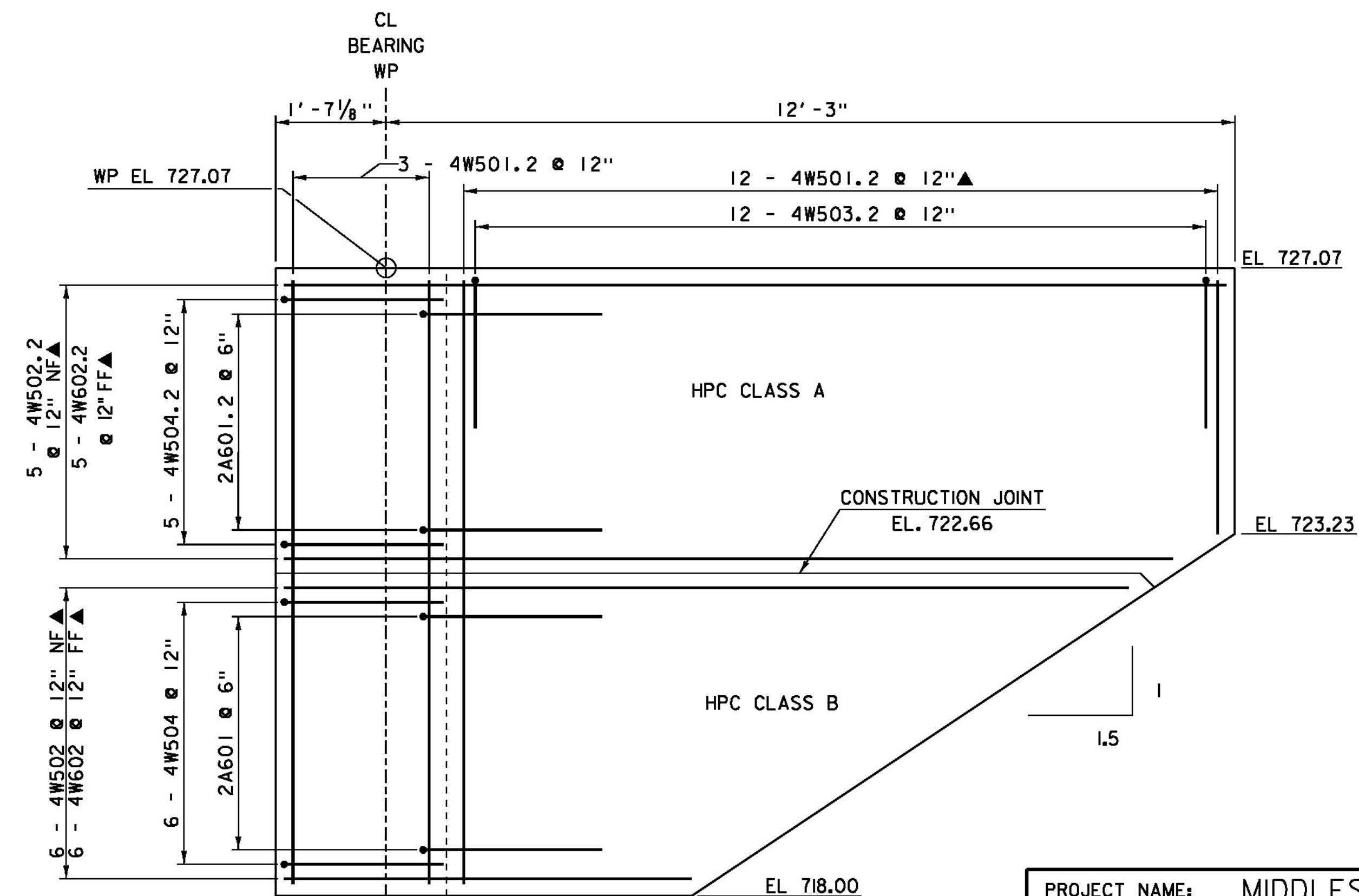
WINGWALL 2 ELEVATION  
SCALE 3/4" = 1'-0"



WINGWALL 1 ELEVATION  
SCALE 3/4" = 1'-0"



WINGWALL 3 ELEVATION  
SCALE 3/4" = 1'-0"



WINGWALL 4 ELEVATION  
SCALE 3/4" = 1'-0"

NOTE:  
NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.  
2'-2" BAR LAP UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRF 024-1(37)

FILE NAME: sl0c220sub.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
WINGWALL ELEVATIONS

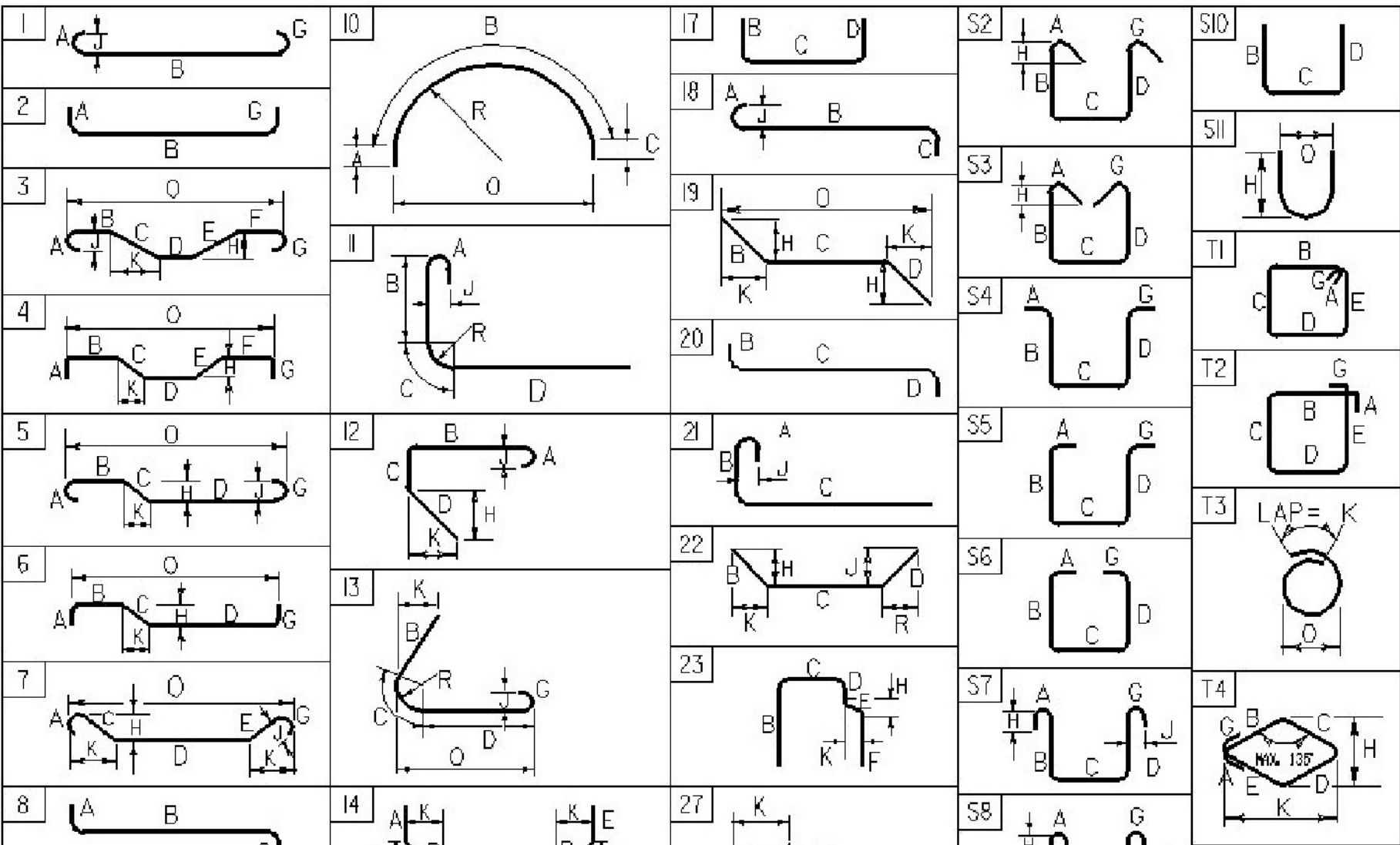
PLOT DATE: 06-FEB-2015  
DRAWN BY: C. BURRALL  
CHECKED BY: H. SALLS  
SHEET 28 OF 46



## REINFORCING STEEL SCHEDULE

ABUTMENT 2									
▲	28	5	23'- 10"	2A501	STR 17	23'- 10"			
	47	5	7'- 0"	2A502		2'- 7"	4'- 5"	---	
	43	5	6'- 11"	2A503	S10	2'- 2"	2'- 7"	2'- 2"	
	10	6	12'- 1"	2A601	19	2'- 7"	9'- 6"	---	
	10	6	12'- 1"	2A602	27	2'- 7"	9'- 6"		2'- 5"
									0'- 11"
									0'- 11"
▲	43	7	7'- 0"	2A702	17	2'- 7"	4'- 5"	---	
	16	5	23'- 10"	2A501.2	STR 17	23'- 10"			
	47	5	4'- 11"	2A502.2	STR 2	4'- 11"			
	36	5	14'- 5"	2A504.2	2	11'- 3"	3'- 2"	---	
*	6	6	12'- 1"	2A601.2	19	2'- 7"	9'- 6"	---	
	5	6	12'- 1"	2A602.2	27	2'- 7"	9'- 6"		2'- 5"
									0'- 11"
									0'- 11"
*	44	7	7'- 11"	2A702.2	17	2'- 2"	5'- 9"	---	
WINGWALL 3									
*	▲	7	5	13'- 4"	3W502	STR 13'- 4"			
		6		5'- 11"	3W504	27	2'- 2"	3'- 9"	
									2'- 0"
									0'- 9"
*	▲	7	6	13'- 4"	3W602	STR 13'- 4"			
*	▲	16	5	8'- 9"	3W501.2	STR 8'- 9"			
▲	5	5	13'- 4"	3W502.2	STR 13'- 4"				
	11	5	5'- 11"	3W503.2	S10	2'- 2"	1'- 7"	2'- 2"	
	5	5	5'- 11"	3W504.2	27	2'- 2"	3'- 9"		2'- 0"
									0'- 9"
▲	5	6	13'- 4"	3W602.2	STR 13'- 4"				
WINGWALL 4									
▲	6	5	13'- 4"	4W502	STR 13'- 4"				
	6	5	5'- 11"	4W504	19	2'- 2"	3'- 9"	---	
									2'- 0"
									0'- 9"
▲	6	6	13'- 4"	4W602	STR 13'- 4"				
▲	15	5	8'- 7"	4W501.2	STR 8'- 7"				
▲	5	5	13'- 4"	4W502.2	STR 13'- 4"				
	11	5	5'- 11"	4W503.2	S10	2'- 2"	1'- 7"	2'- 2"	
	5	5	5'- 11"	4W504.2	19	2'- 2"	3'- 9"	---	
									2'- 0"
									0'- 9"
▲	5	6	13'- 4"	4W602.2	STR 13'- 4"				

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



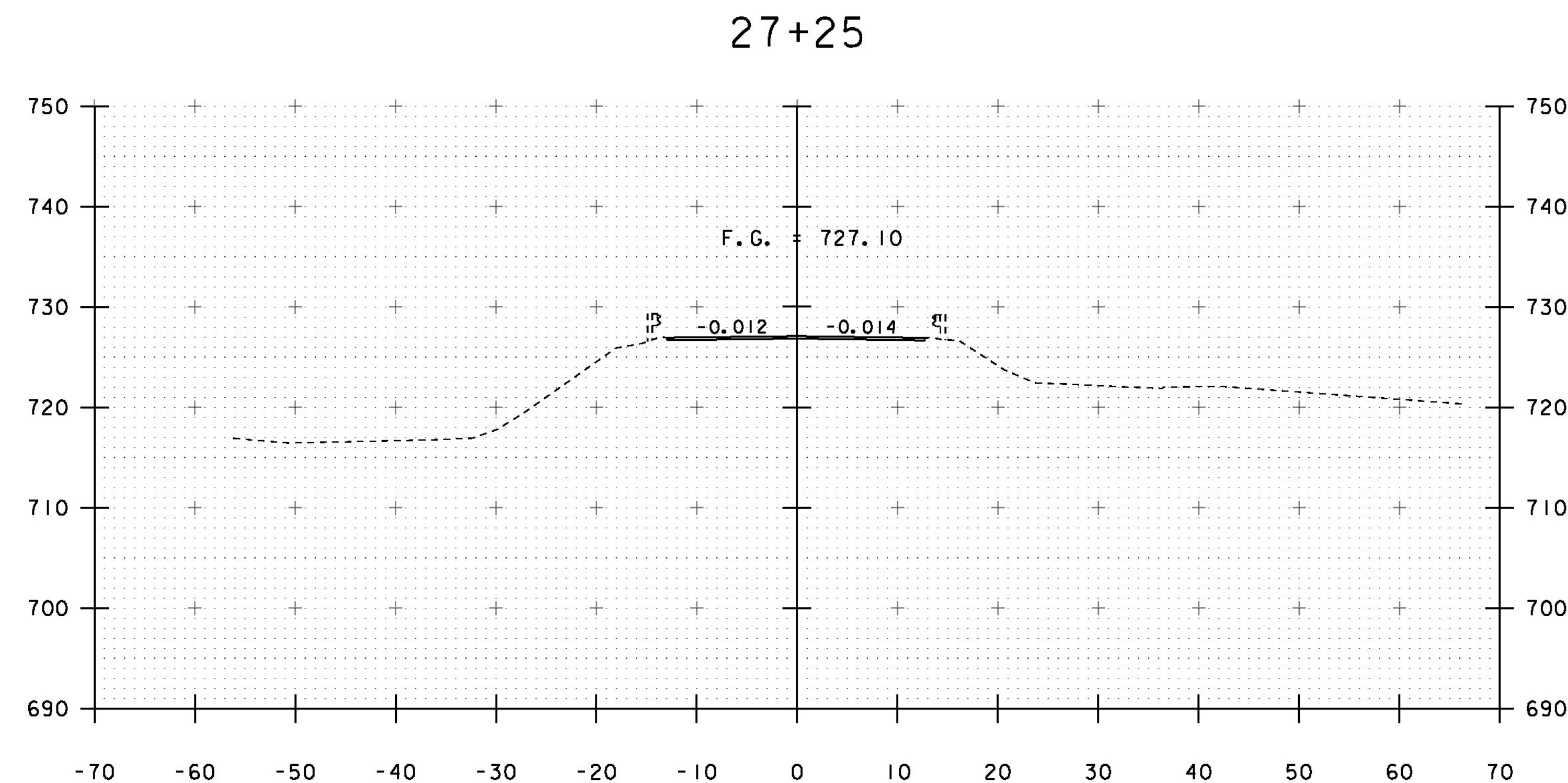
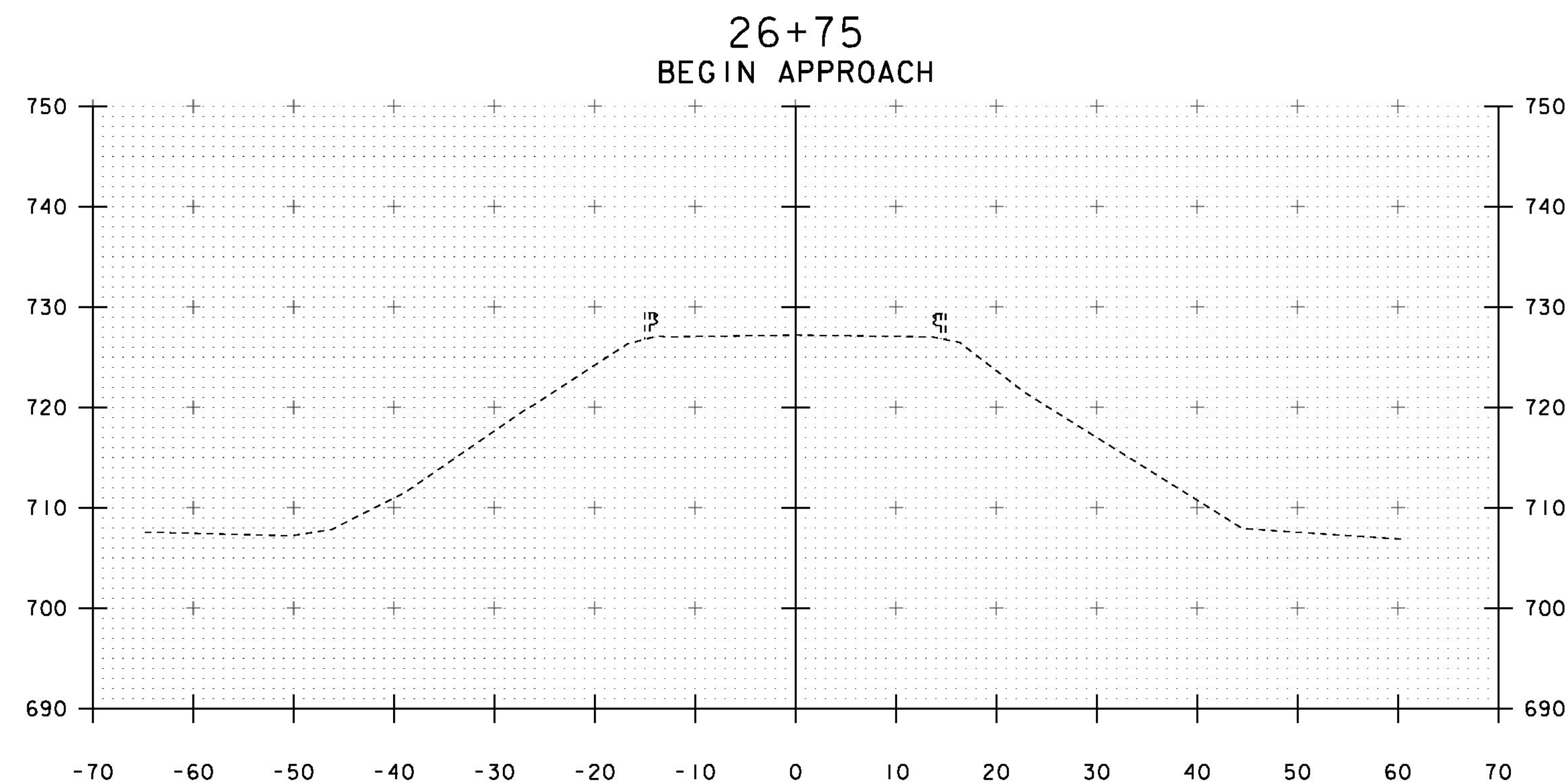
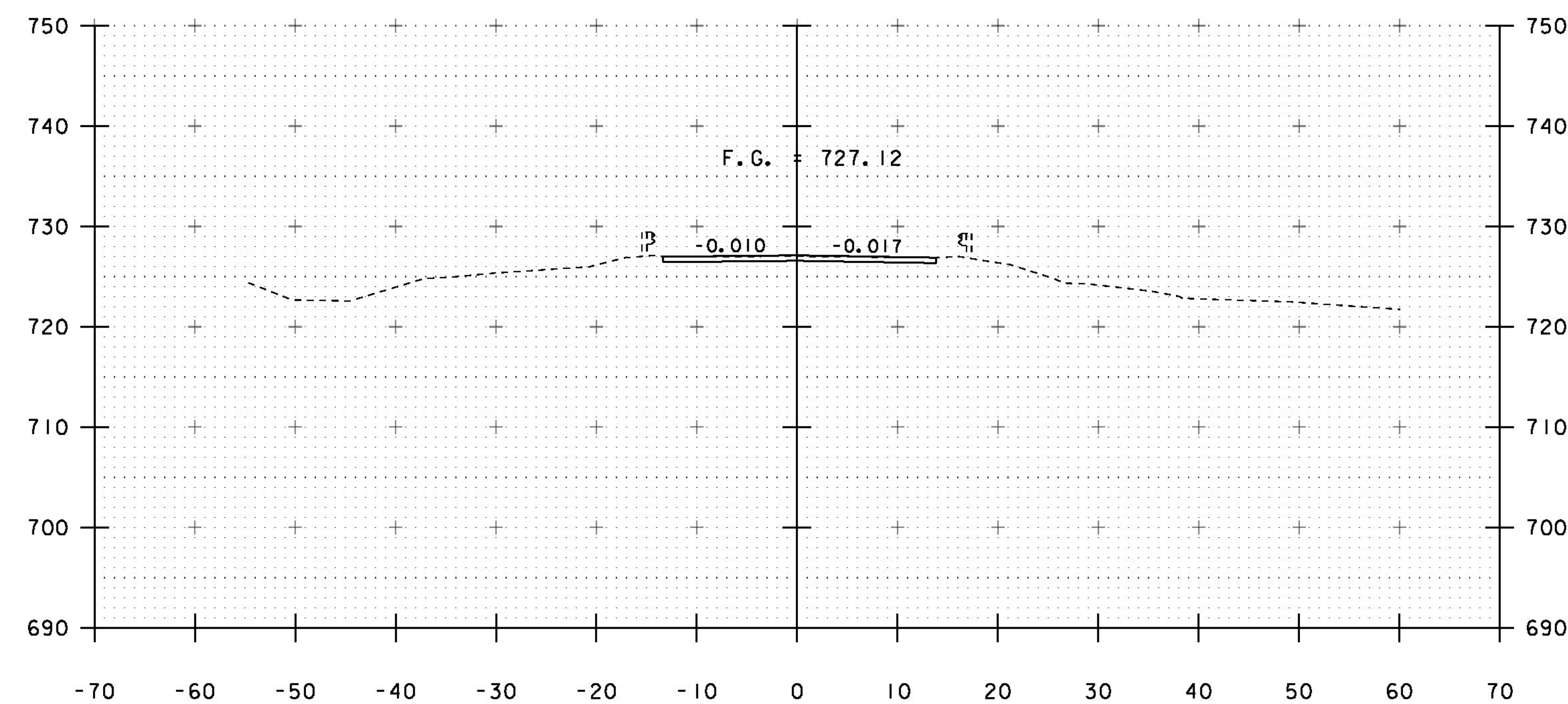
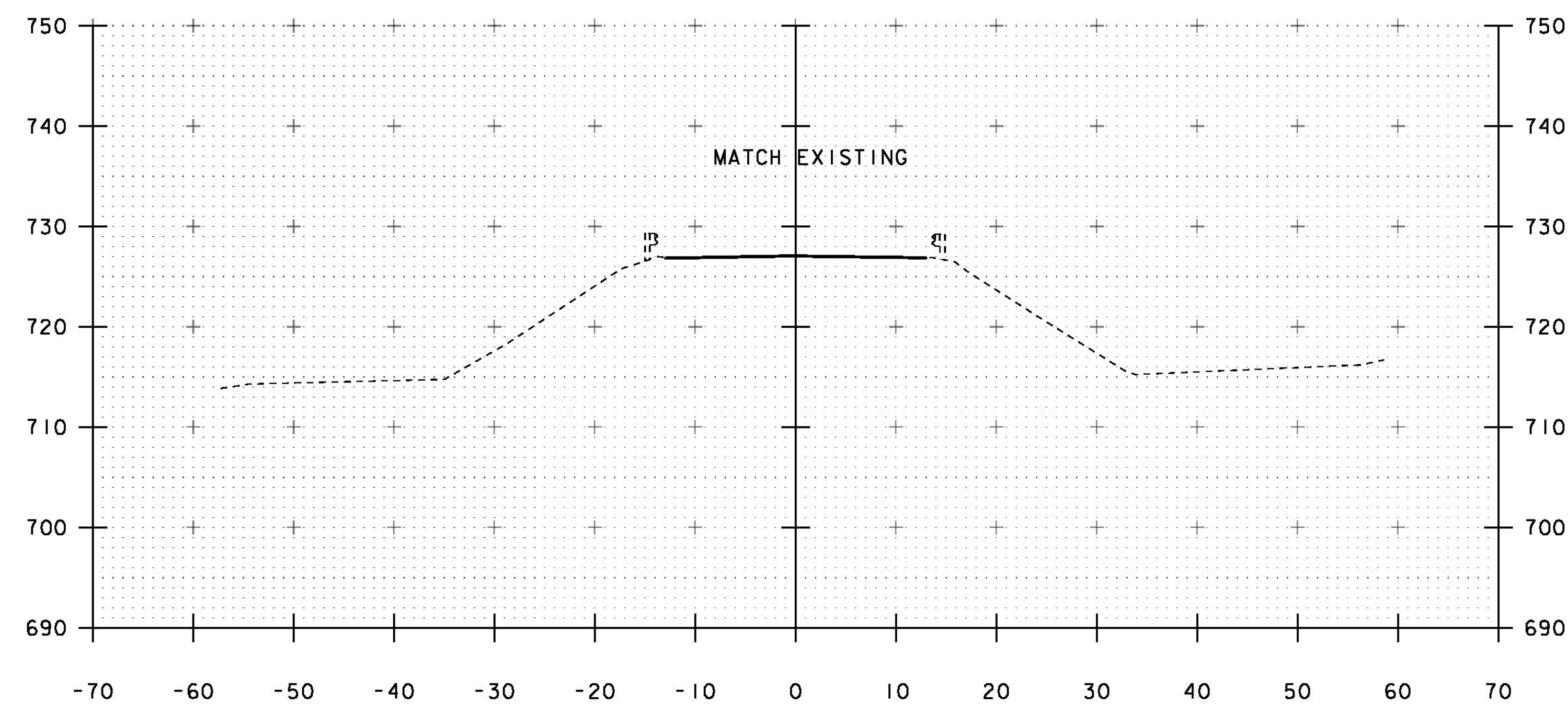
ASTM STANDARD REINFORCING BARS				
ASTM TYPE	YIELD STRENGTH	TENSILE STRENGTH		
		MINIMUM TENSILE	MINIMUM ELONGATION	MINIMUM REDUCTION OF AREA
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX. .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION LEVEL WILL BE RECORDED ON THE PLAN SET PER SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX. .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION LEVEL WILL BE RECORDED ON THE PLAN SET PER SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

PROJECT NAME: <b>MIDDLESEX</b>	
PROJECT NUMBER: <b>BRF 024-1(37)</b>	
FILE NAME: <b>s10c220rss.xls</b>	PLOT DATE: <b>1/13/2015</b>
PROJECT MANAGER: <b>C. CARLSON</b>	DRAWN BY: <b>C. BURRAL</b>
DESIGNED BY: <b>H. SALLS</b>	CHECKED BY: <b>H. SALLS</b>
<b>REINFORCING STEEL SCHEDULE</b>	SHEET <b>29</b> OF <b>46</b>





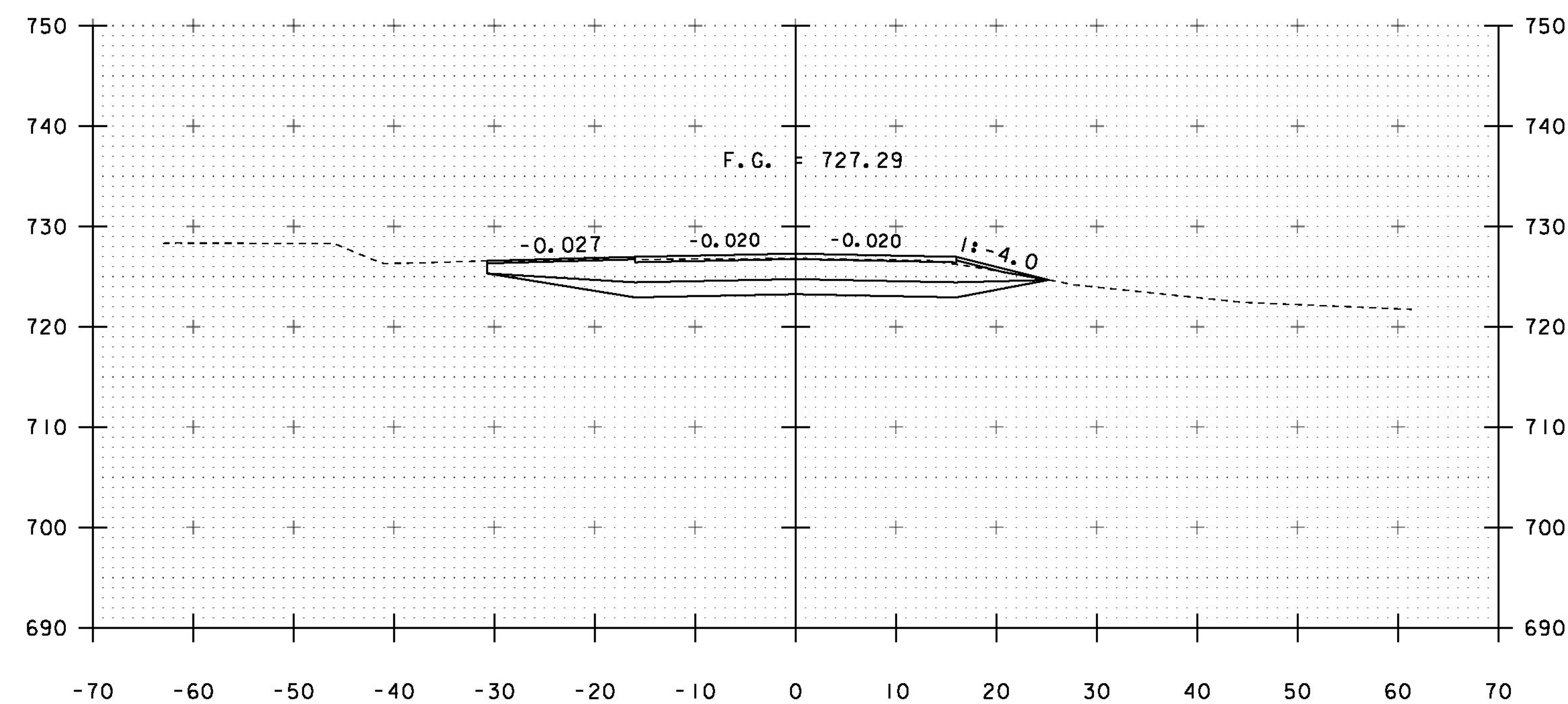
26+50

27+00

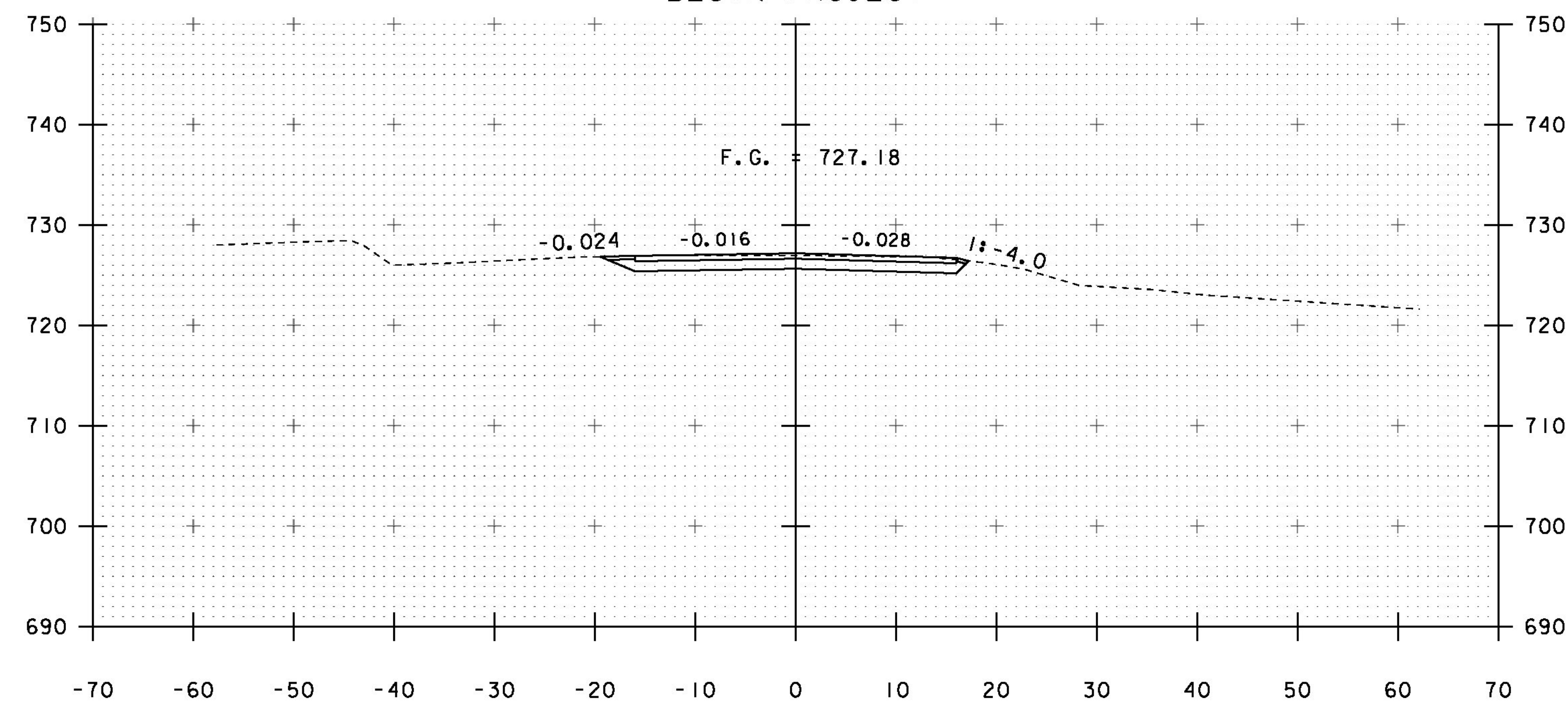
STA. 26+50 TO STA. 27+25

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 12 CROSS SECTIONS 1	SHEET 30 OF 46

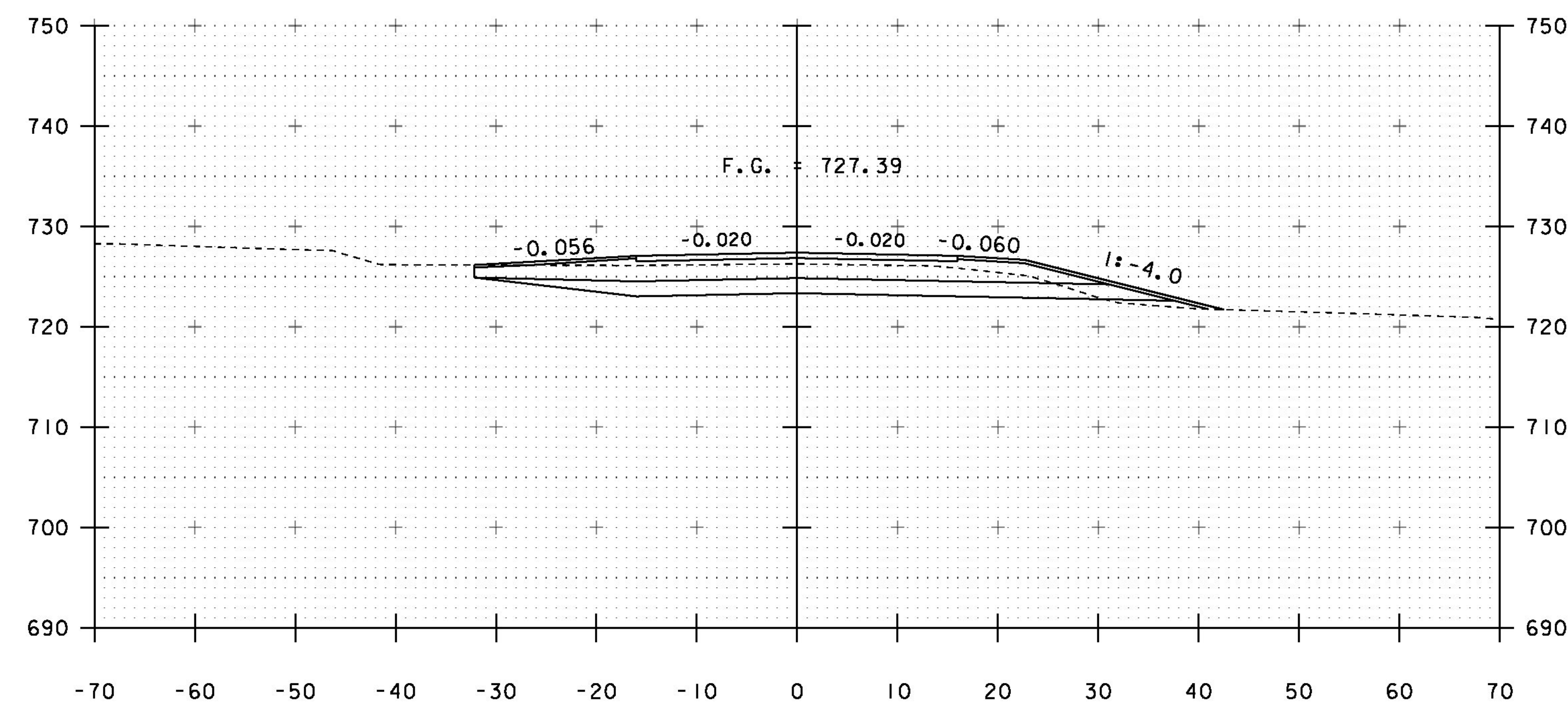




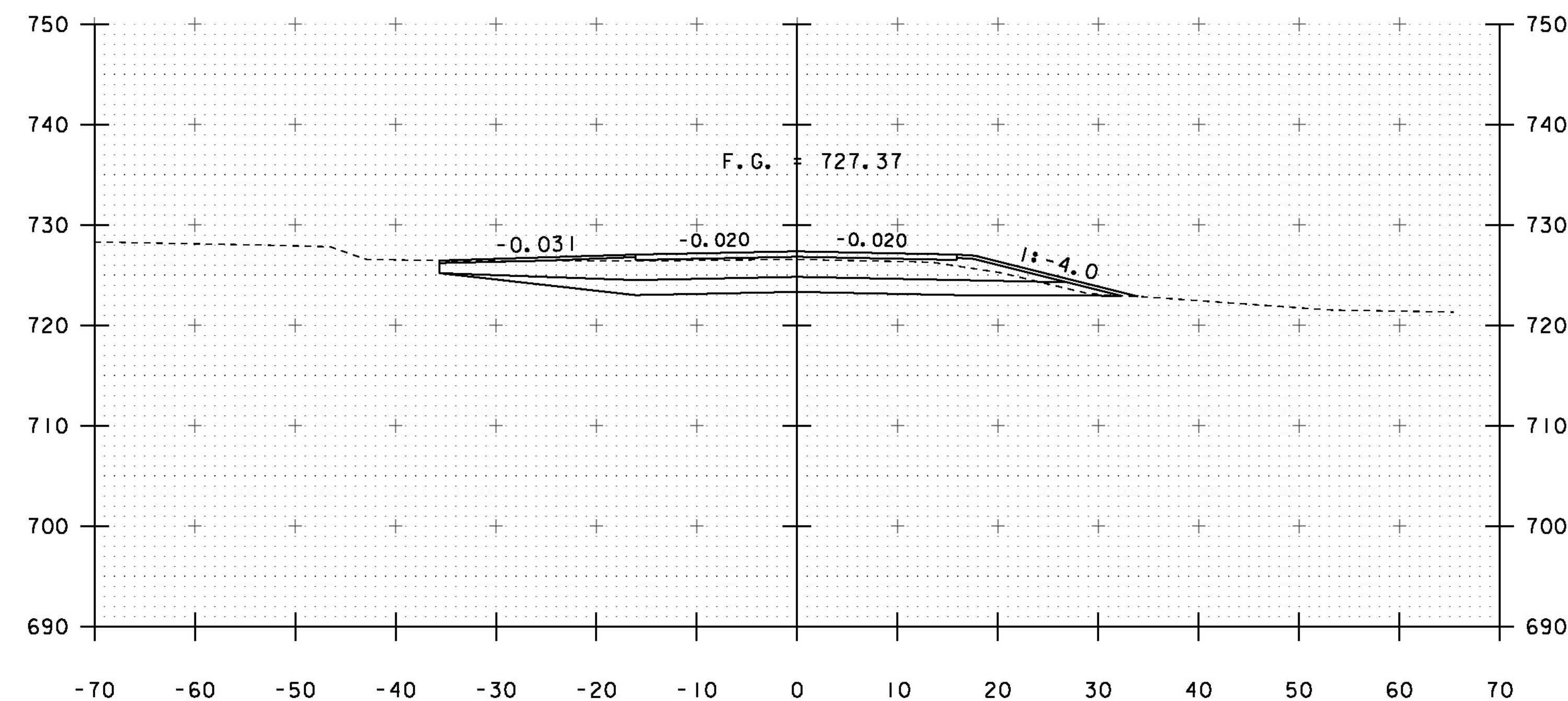
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BEGIN PROJECT



27+50



28+25

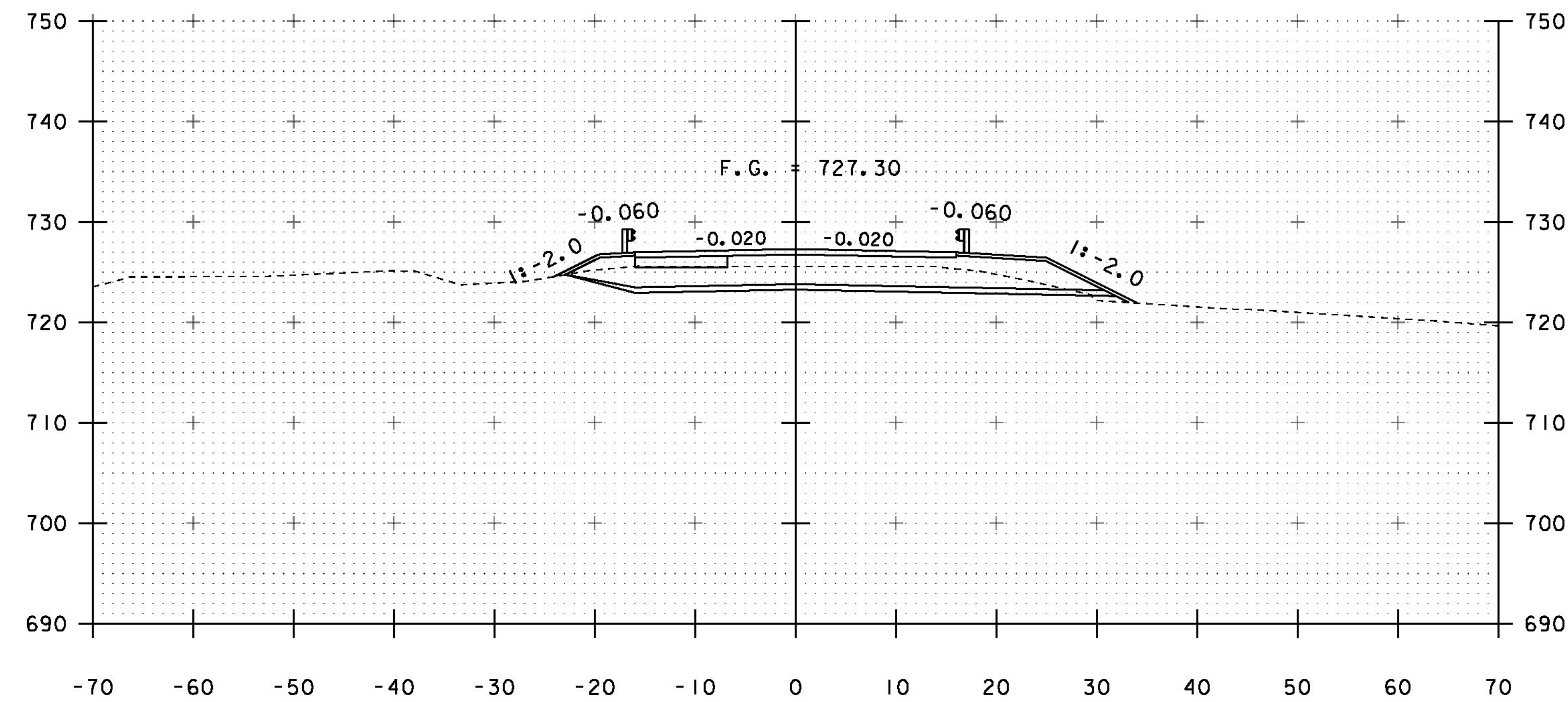


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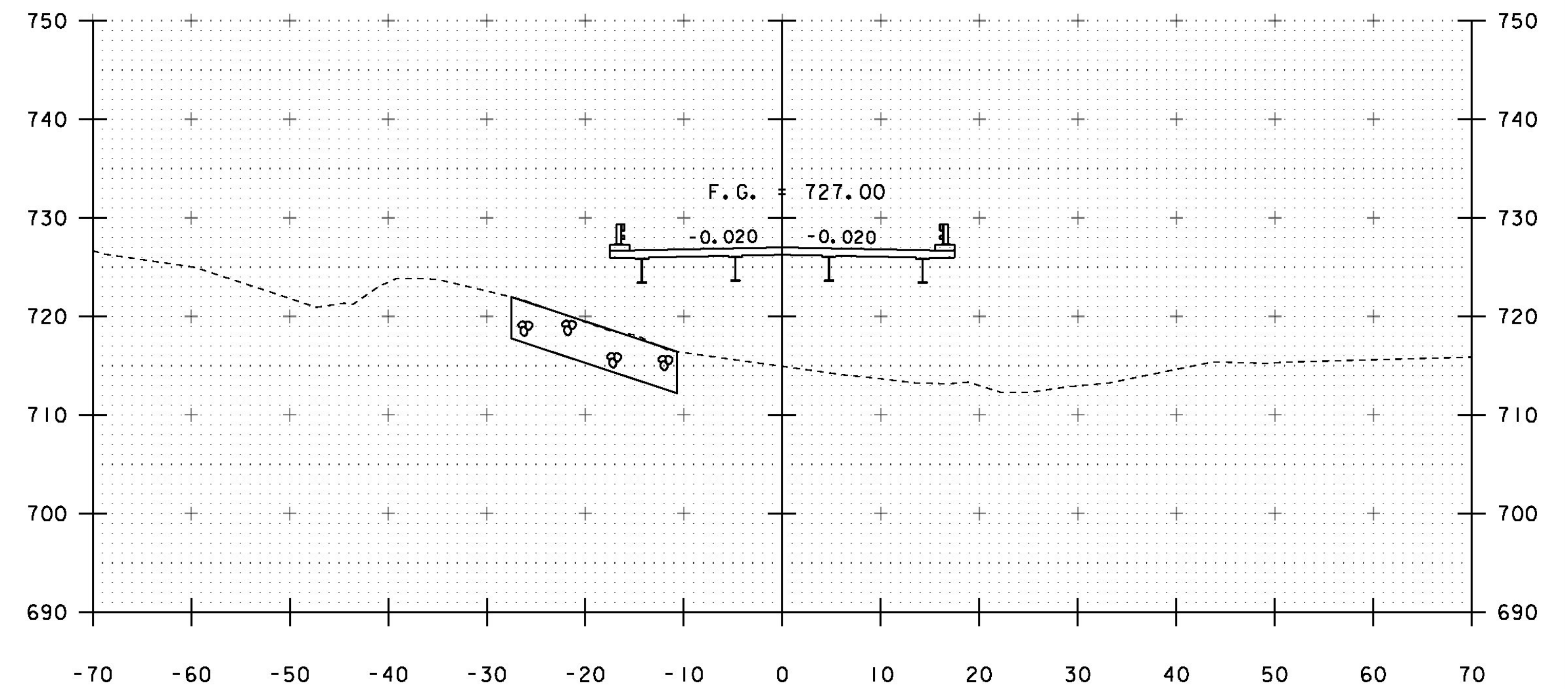
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PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 12 CROSS SECTIONS 2	SHEET 31 OF 46

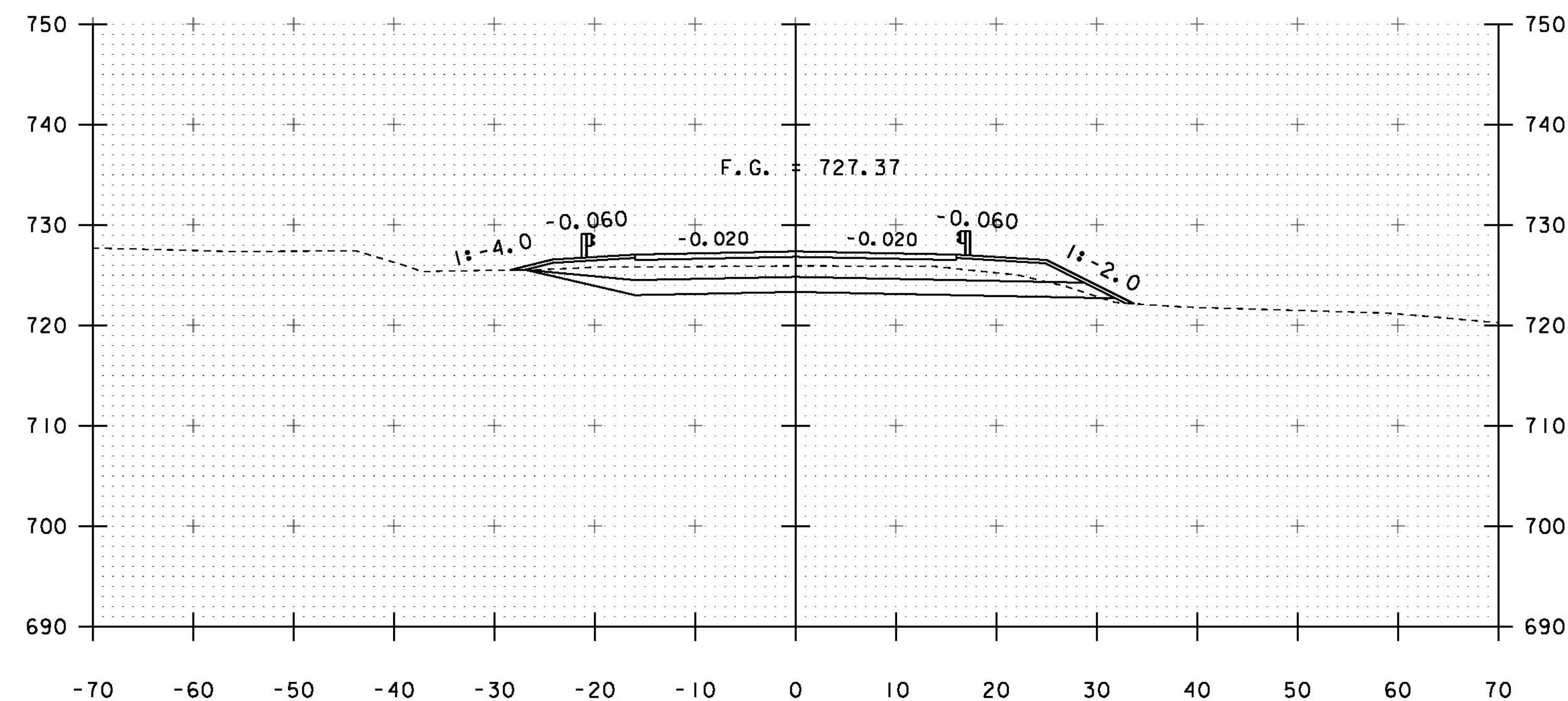




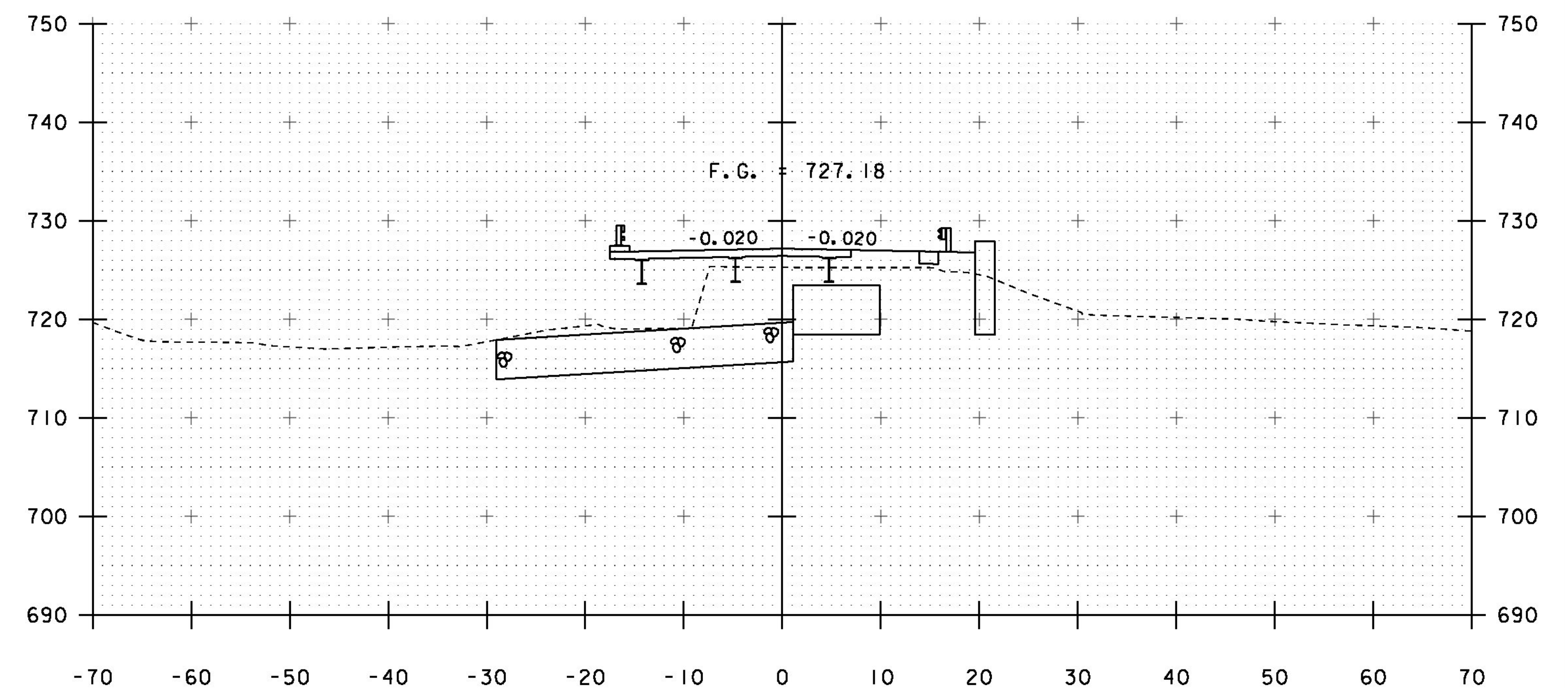
28+75



29+25



28+50



29+00  
BEGIN BRIDGE STA 28+97.11

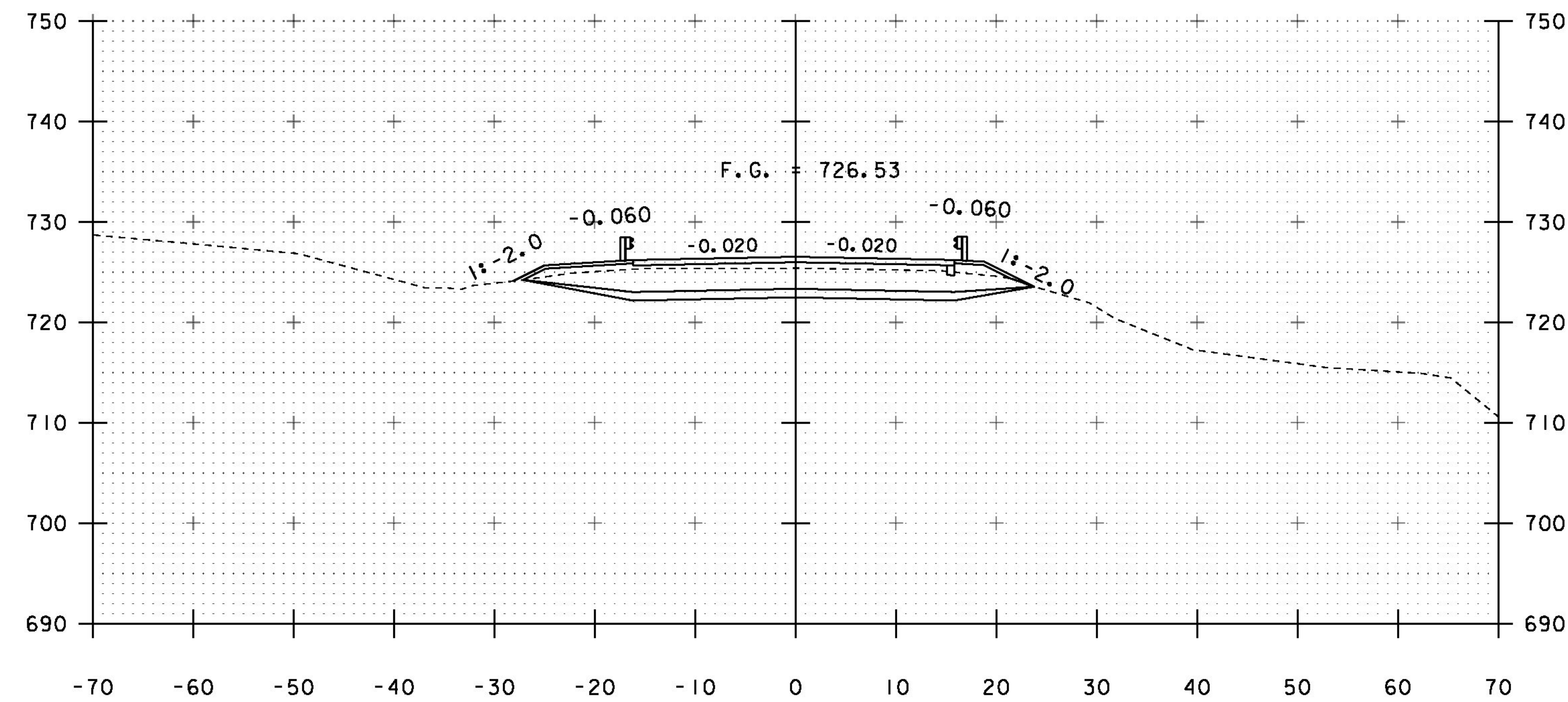
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PROJECT NUMBER: BRP 024-1(37)

FILE NAME: sl0c220xs.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
VT 12 CROSS SECTIONS 3

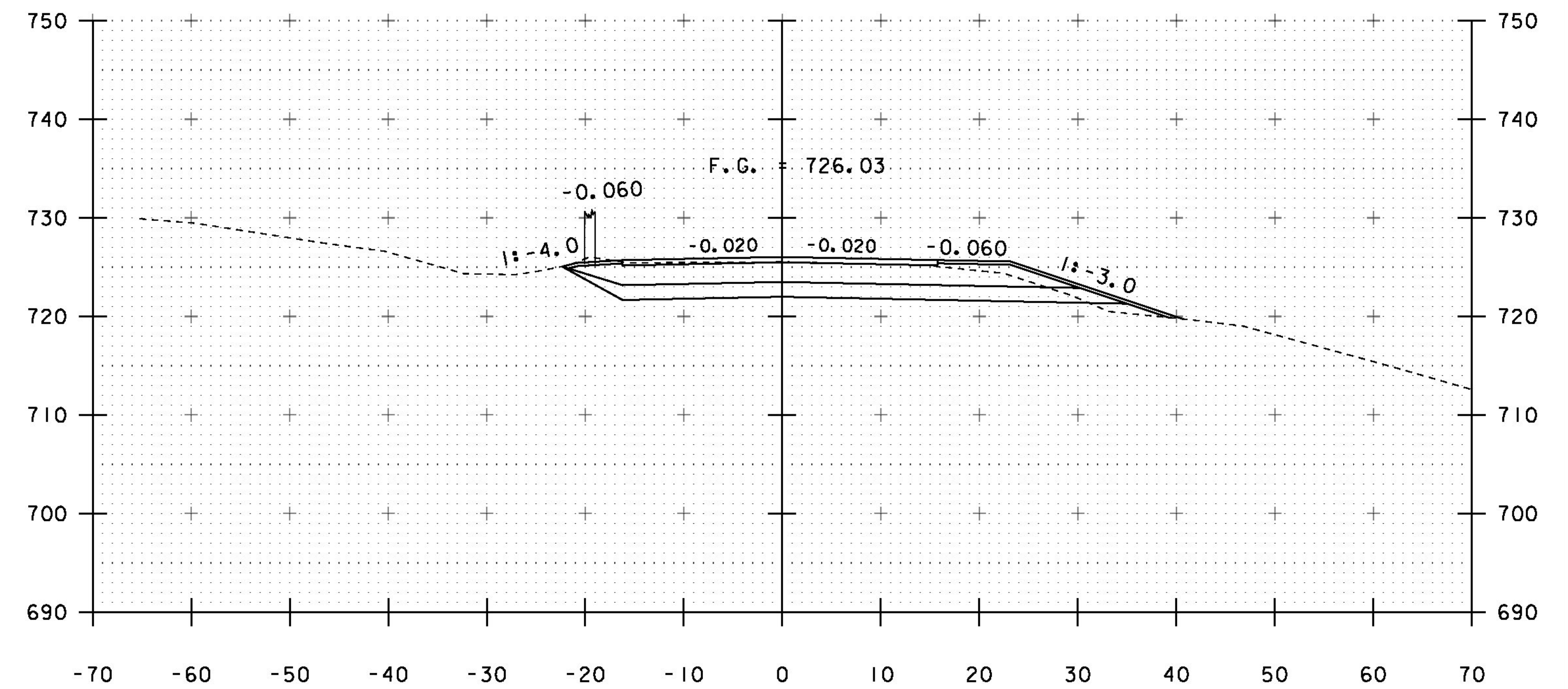
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DRAWN BY: R. PELLETT  
CHECKED BY: H. SALLS  
SHEET 32 OF 46

STA. 28+50 TO STA. 29+25

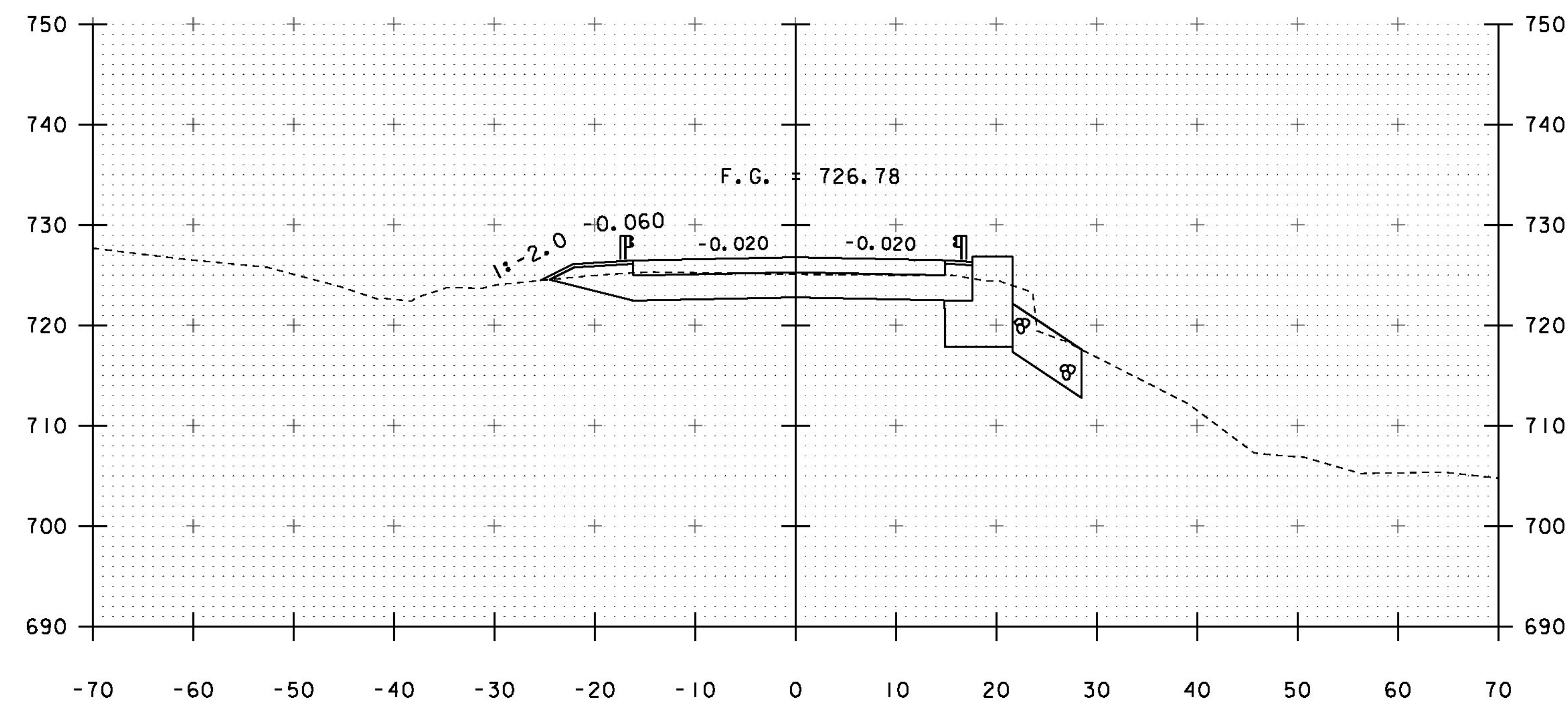




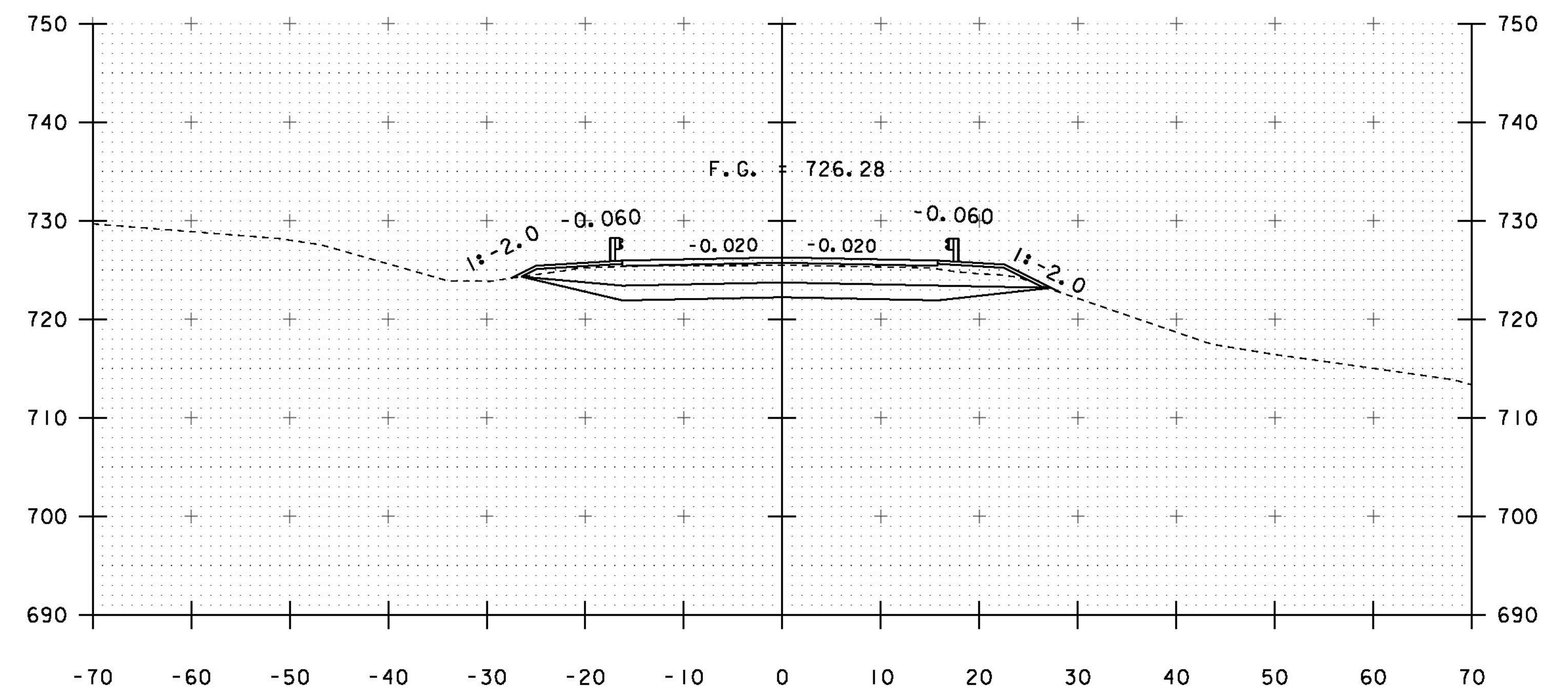
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30+25



29+50  
END BRIDGE STA 29+43.89

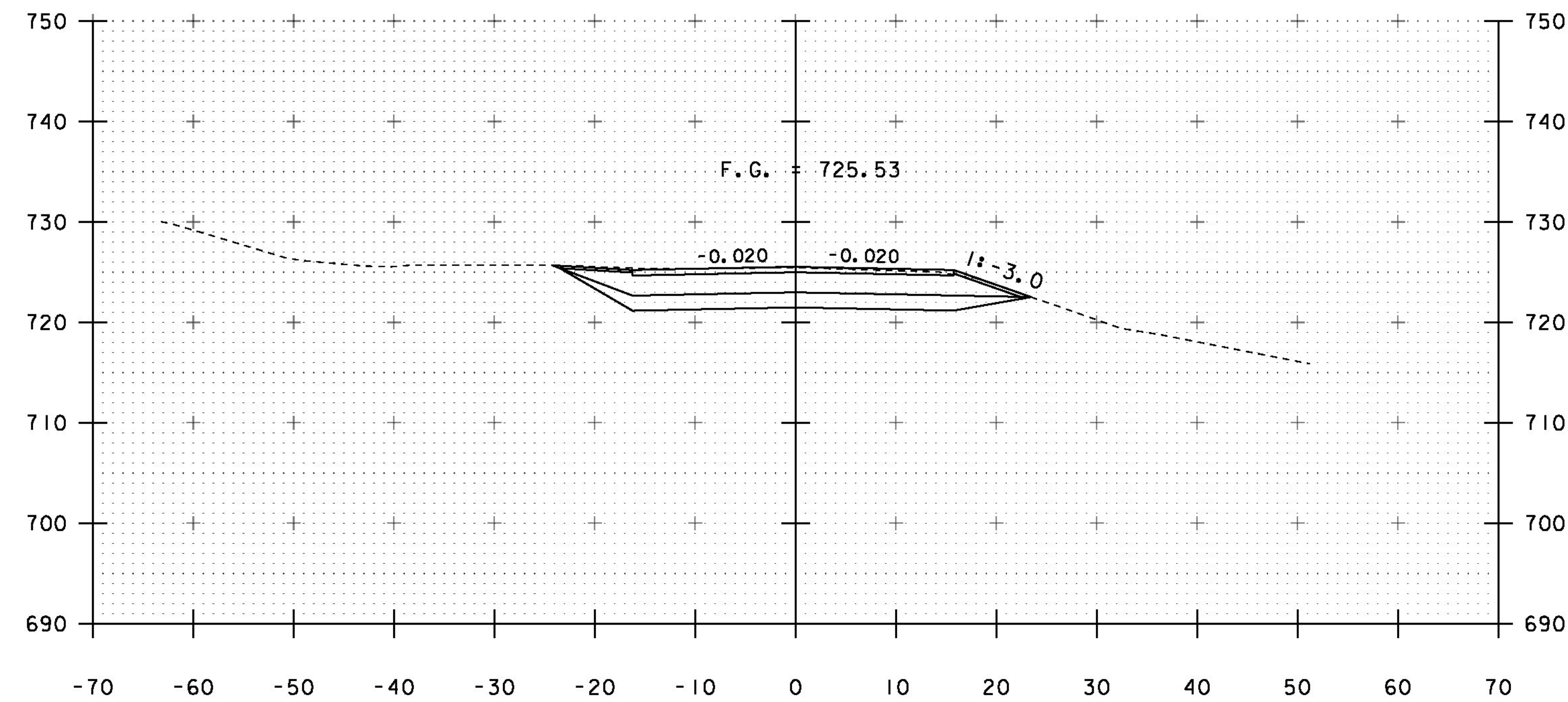


30+00

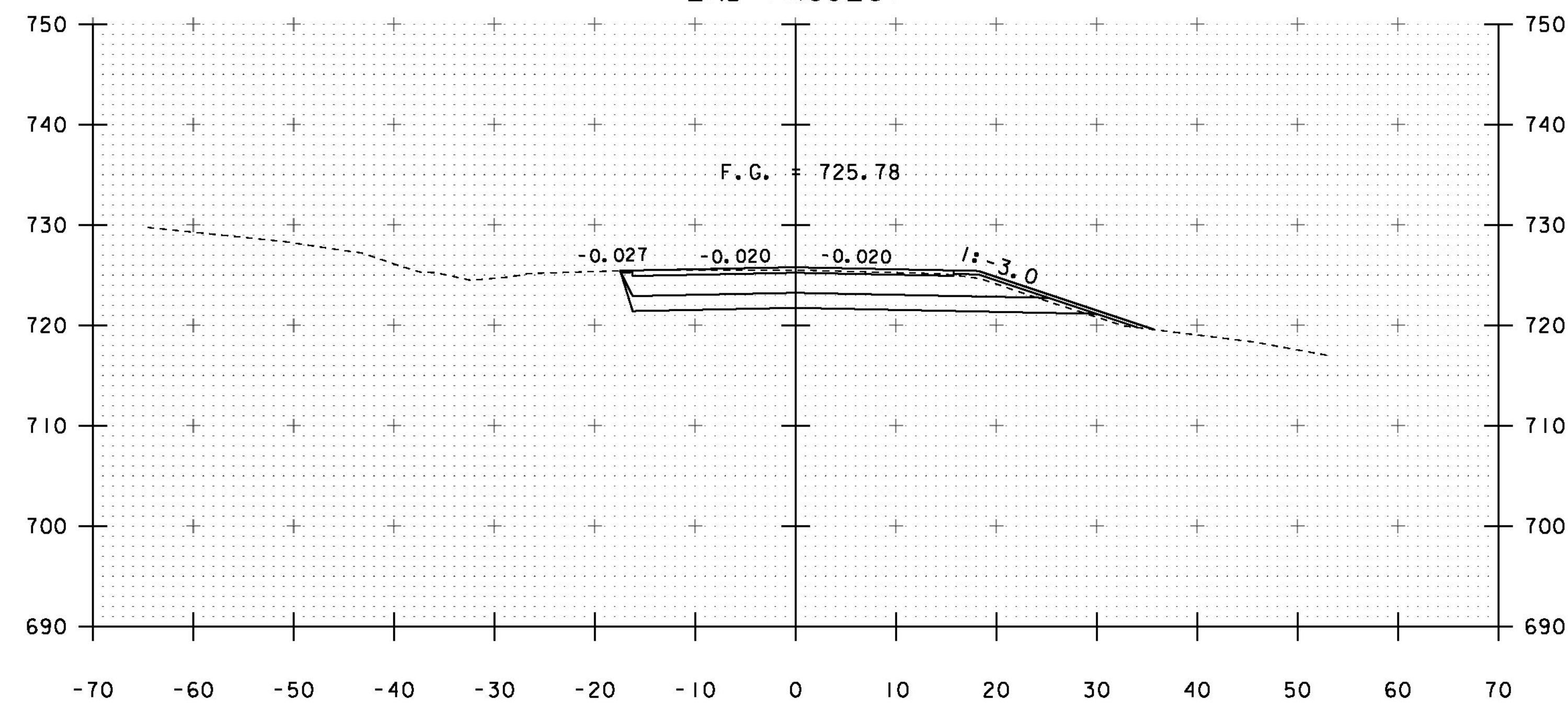
STA. 29+50 TO STA. 30+25

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 12 CROSS SECTIONS 4	SHEET 33 OF 46

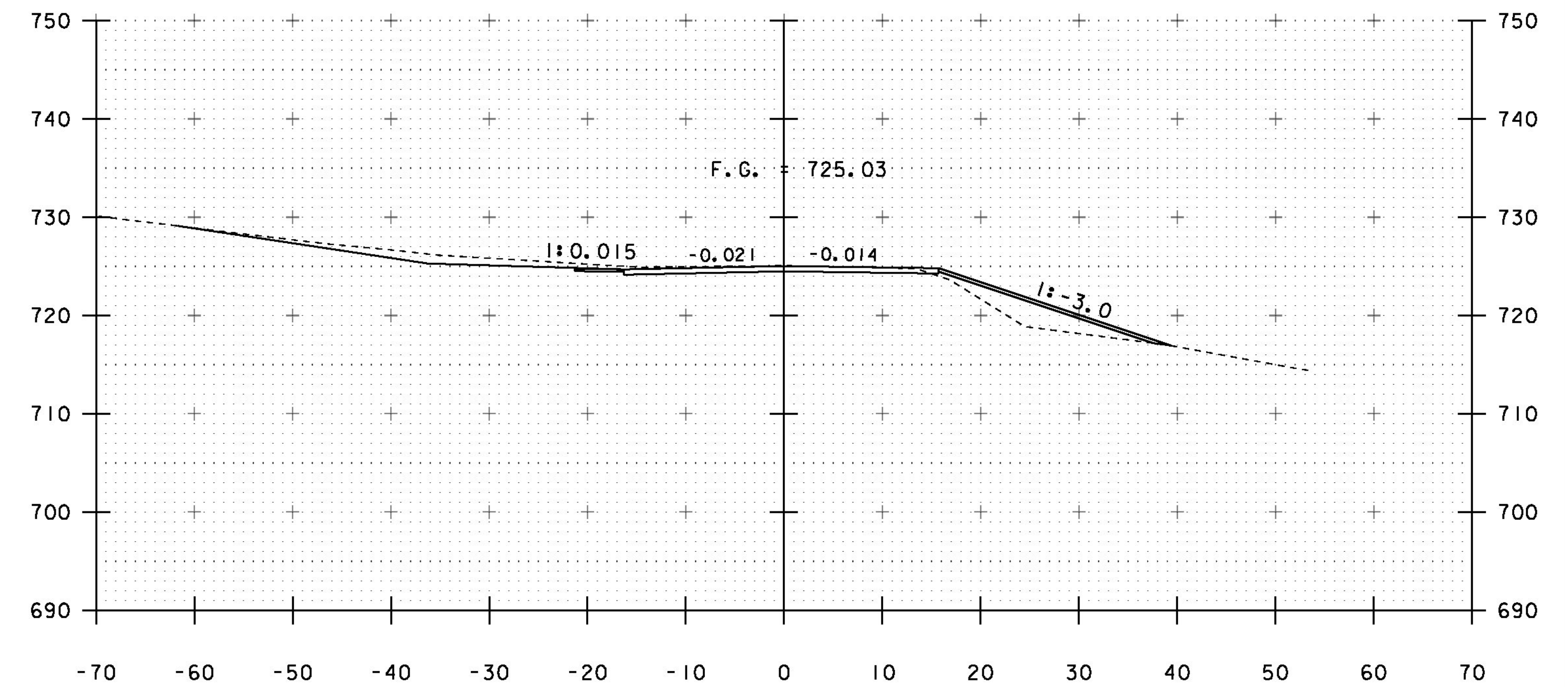




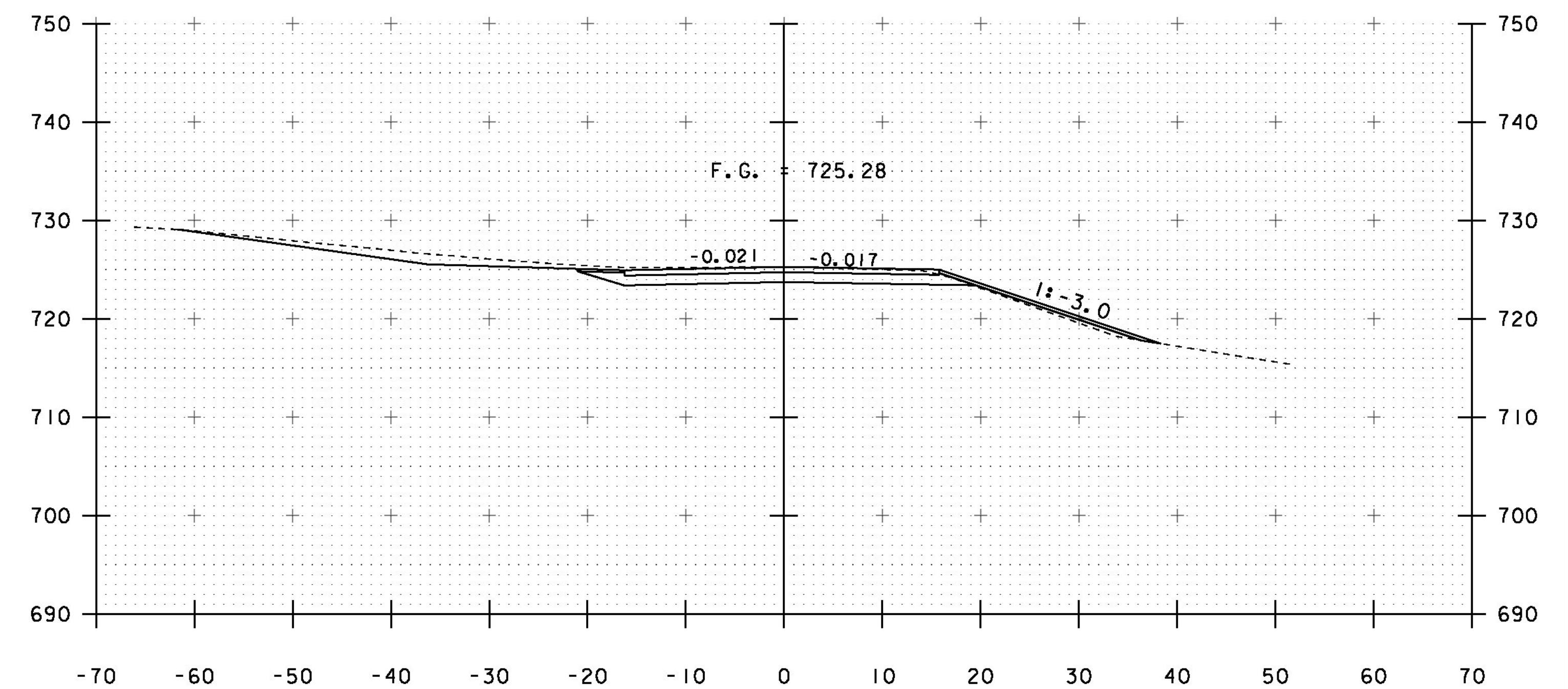
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30+50



31+25



31+00

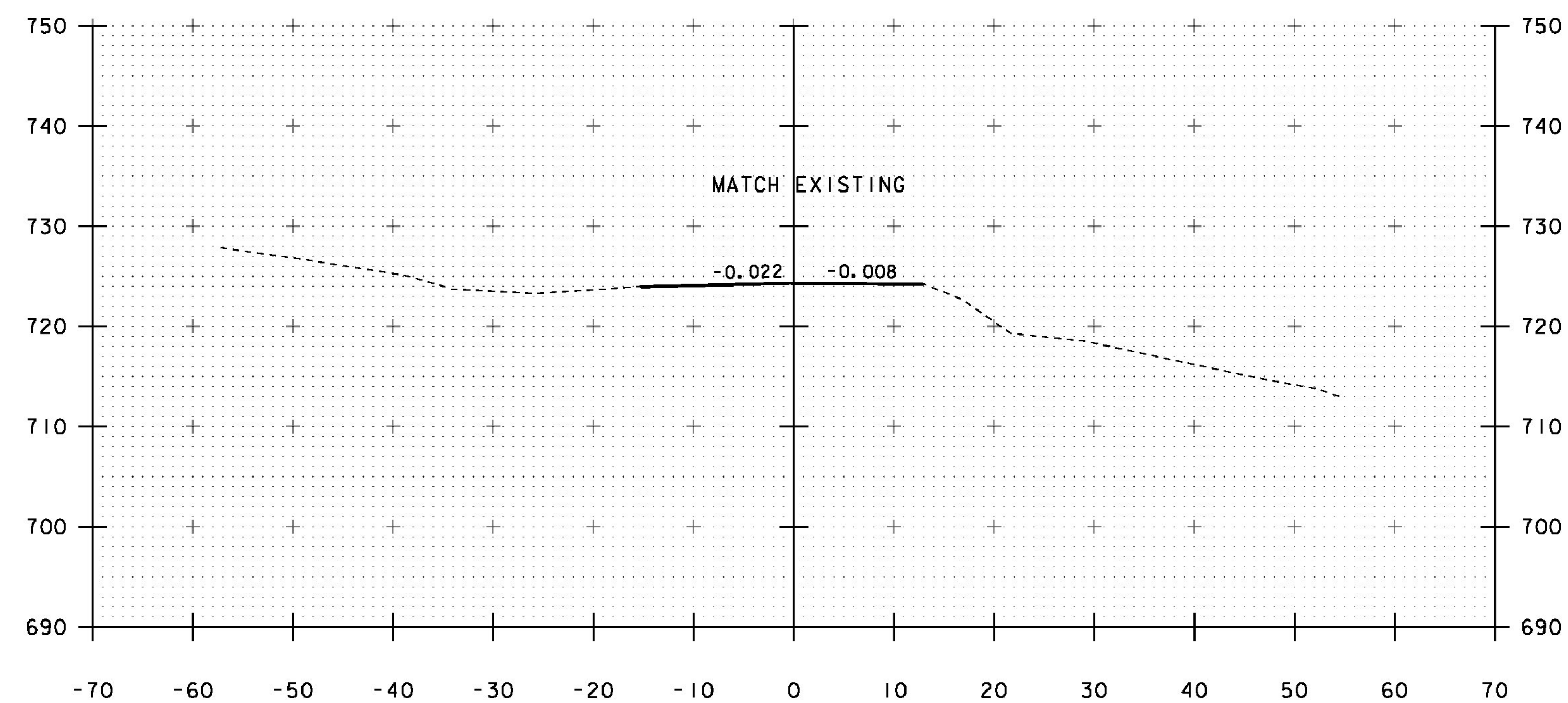
STA. 30+50 TO STA. 31+25

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PROJECT NUMBER: BR 024-1(37)

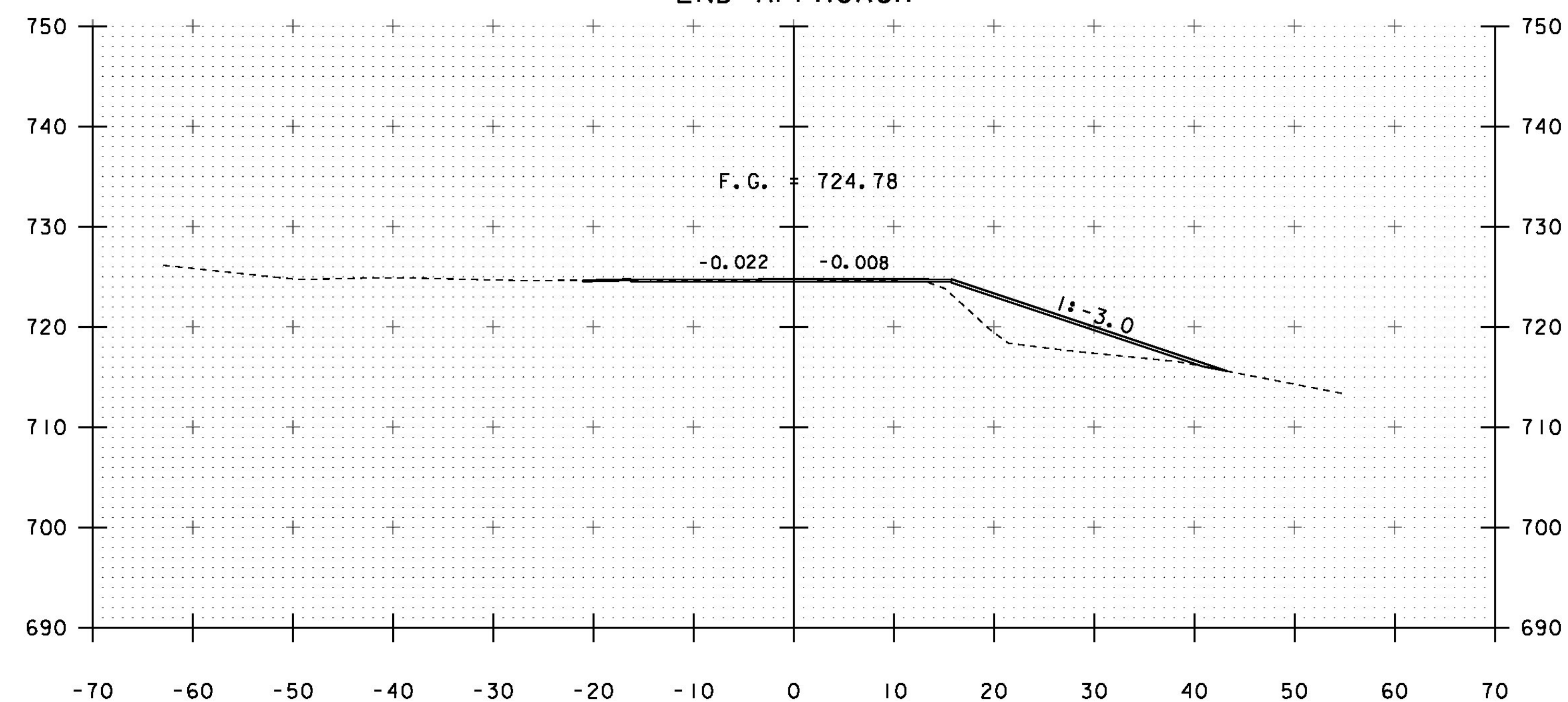
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PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
VT 12 CROSS SECTIONS 5

PLOT DATE: 13-JAN-2015  
DRAWN BY: R. PELLET  
CHECKED BY: H. SALLS  
SHEET 34 OF 46

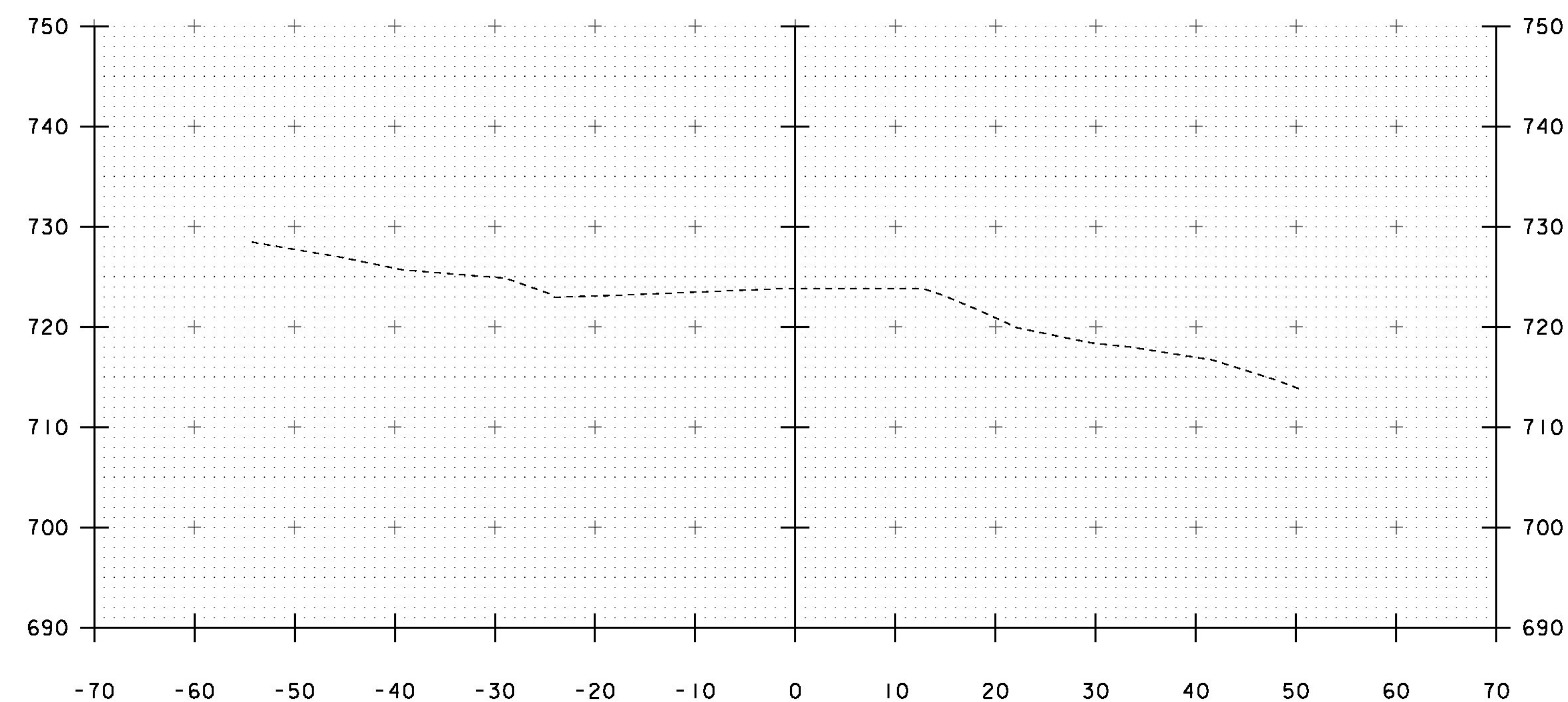




31+75  
END APPROACH



31+50

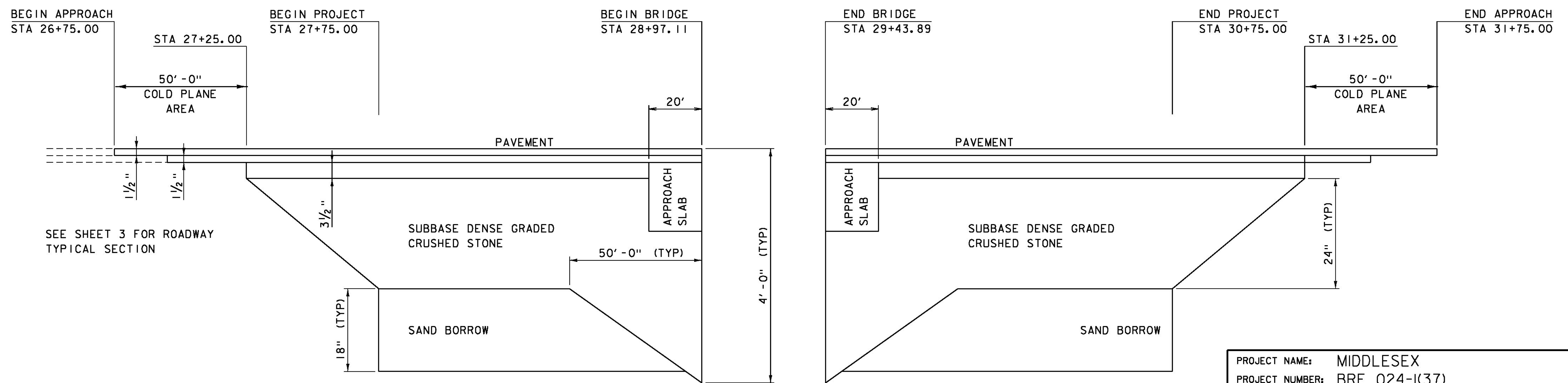
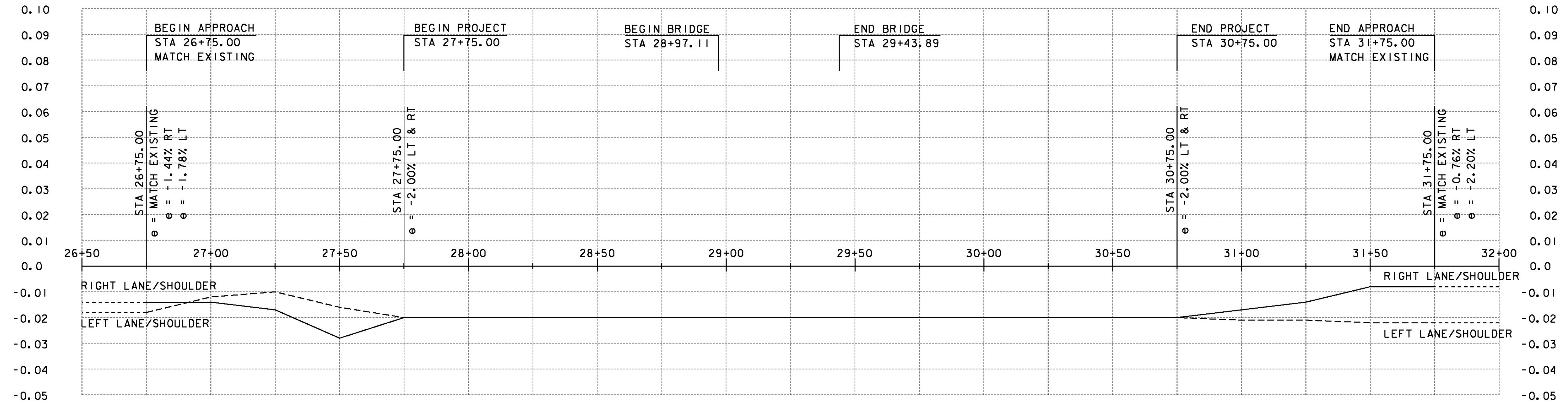


32+00

STA. 31+50 TO STA. 32+00

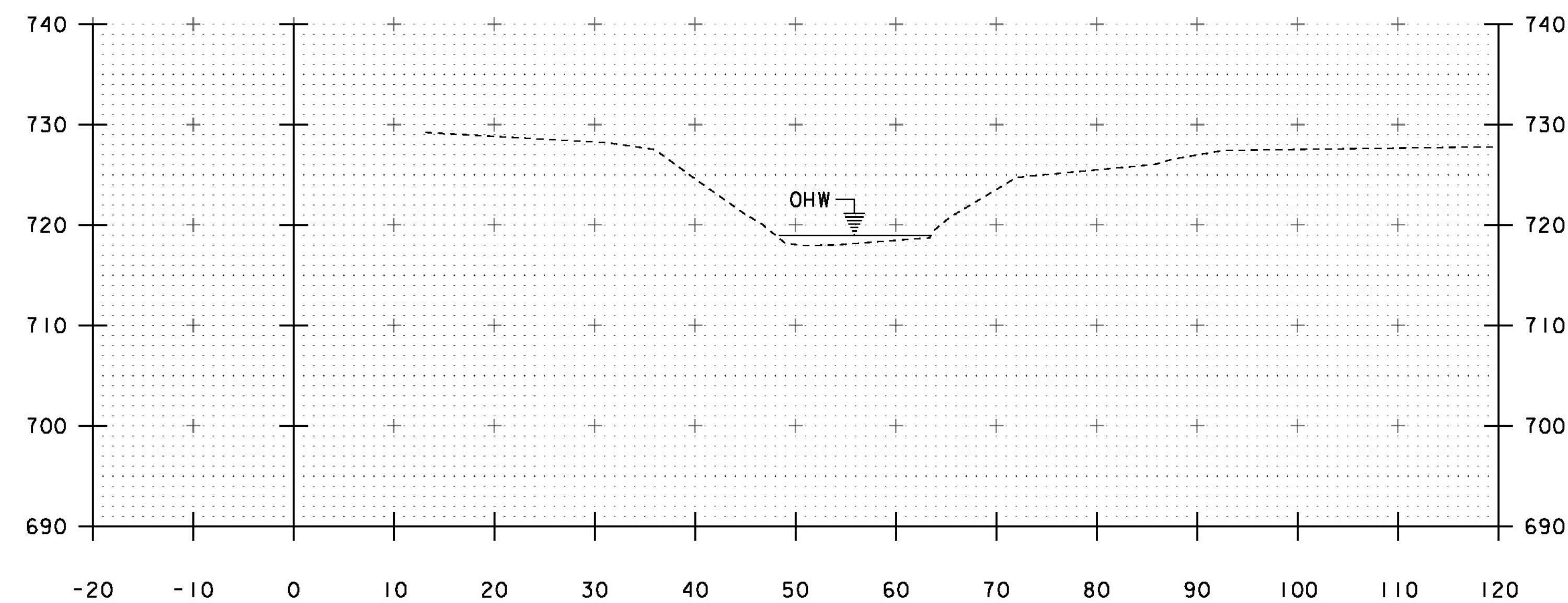
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PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 12 CROSS SECTIONS 6	SHEET 35 OF 46



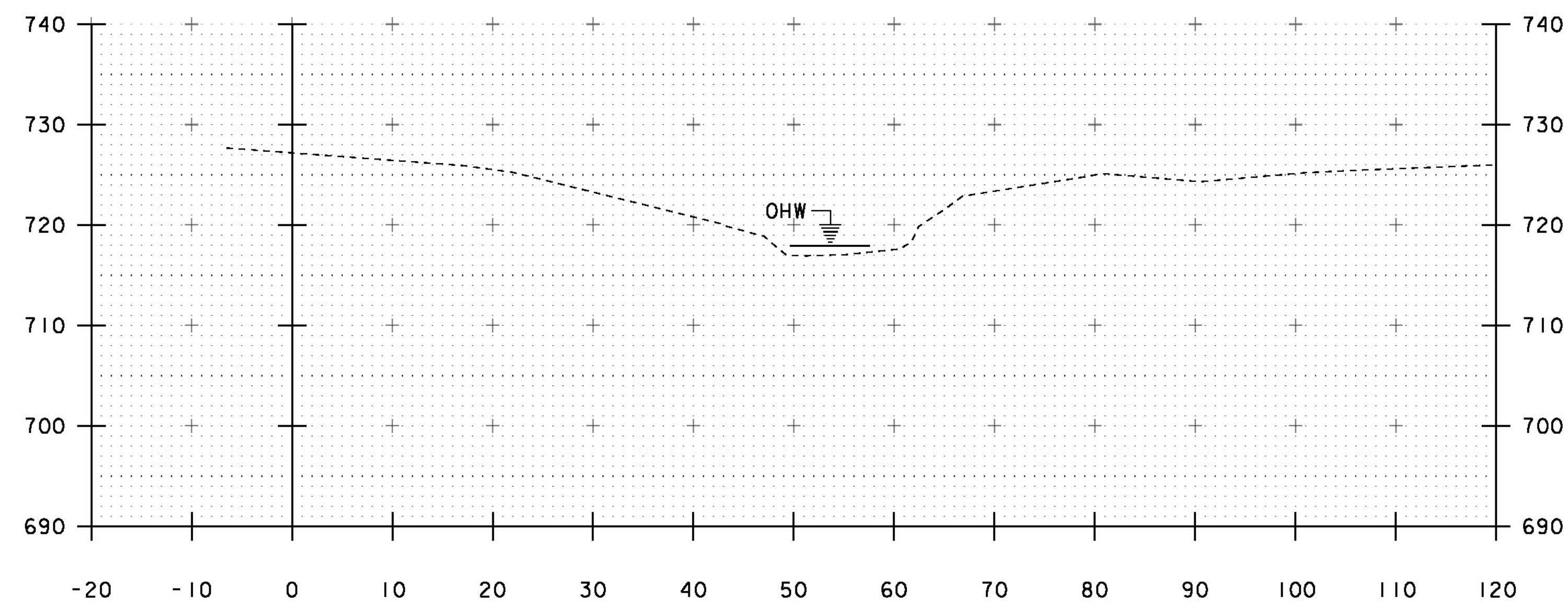


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PROJECT NUMBER: BRF 024-I(37)	
FILE NAME: sl0c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
BANKING & MATERIAL TRANSITION	SHEET 36 OF 46

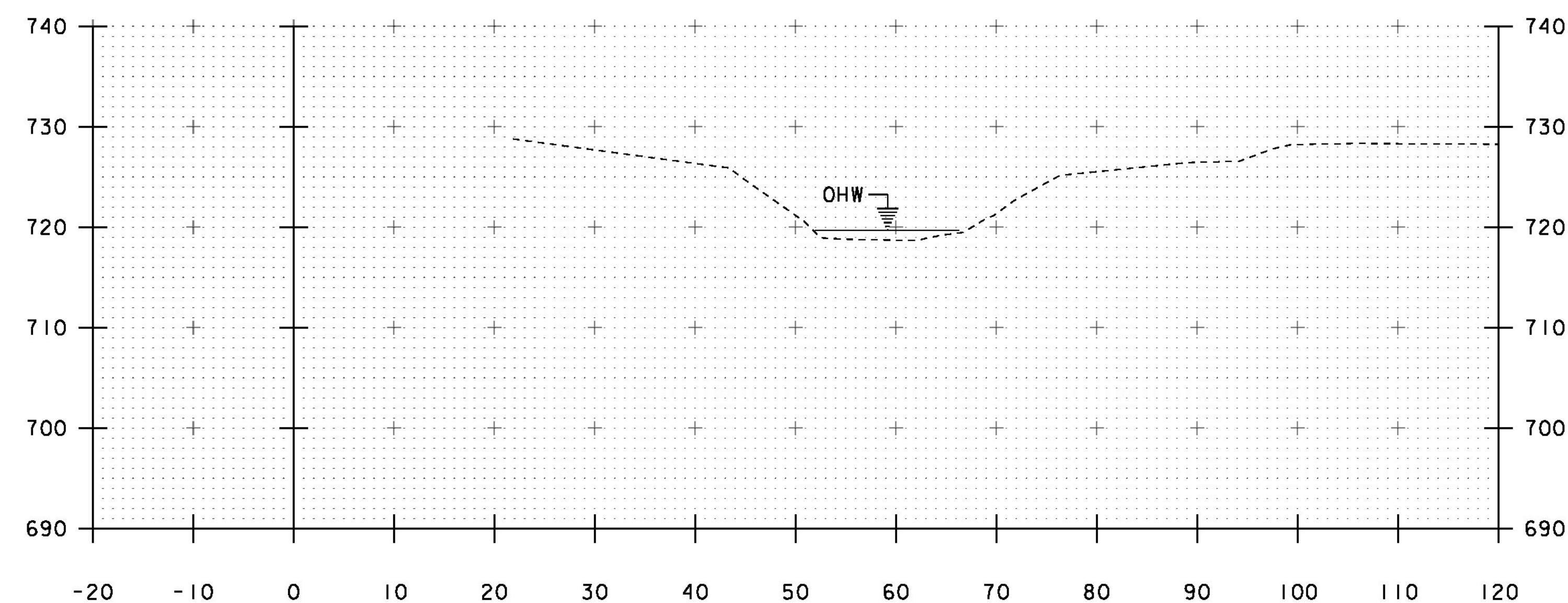




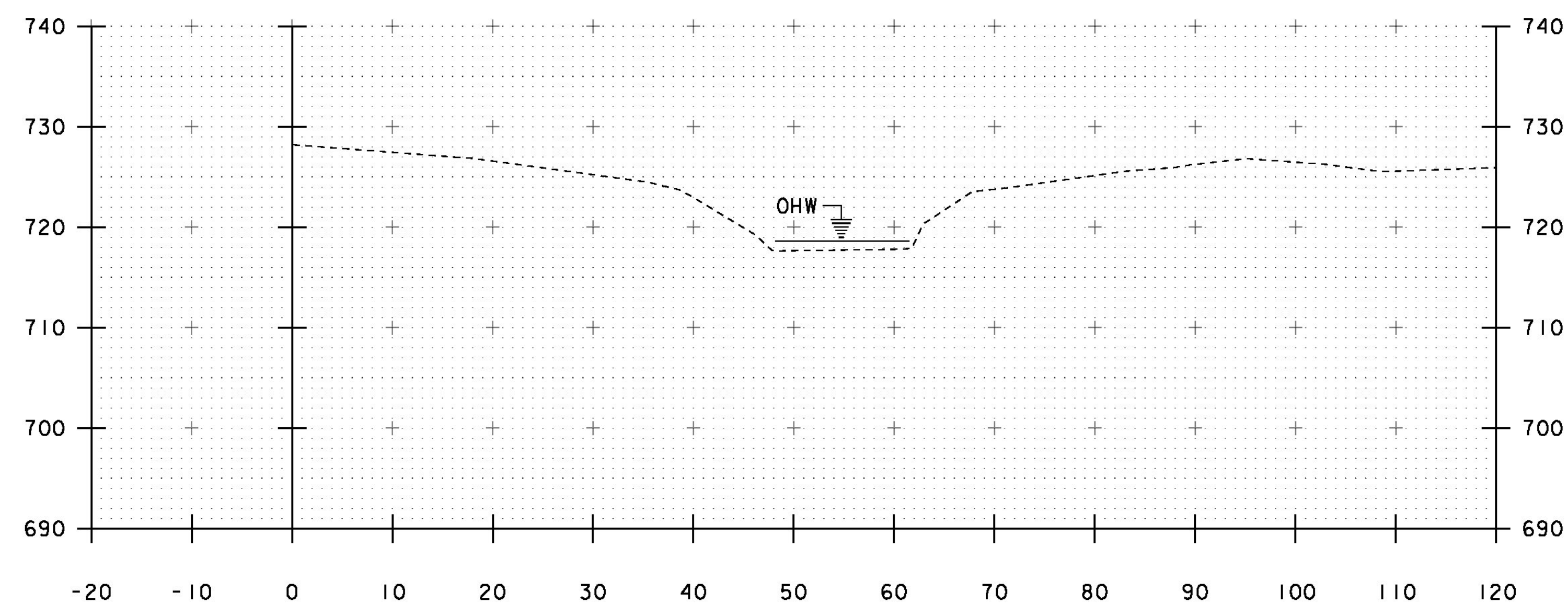
100+50



100+80



100+25

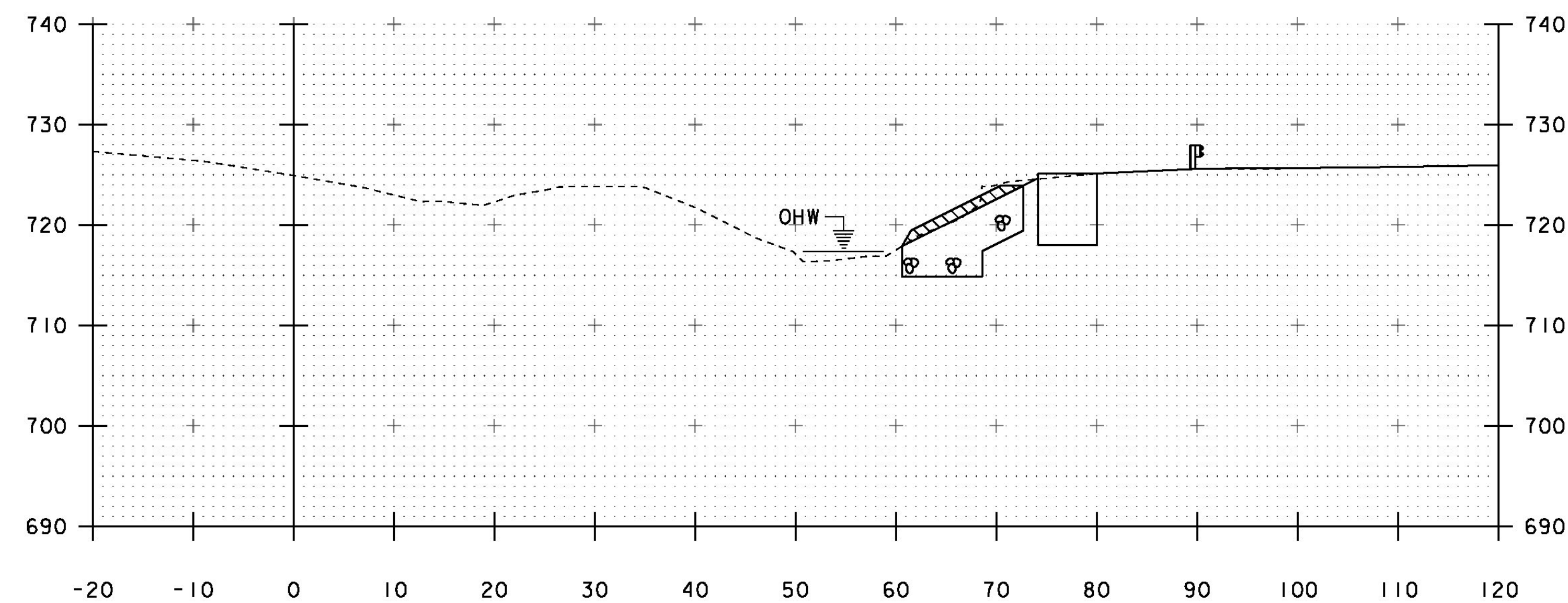


100+70

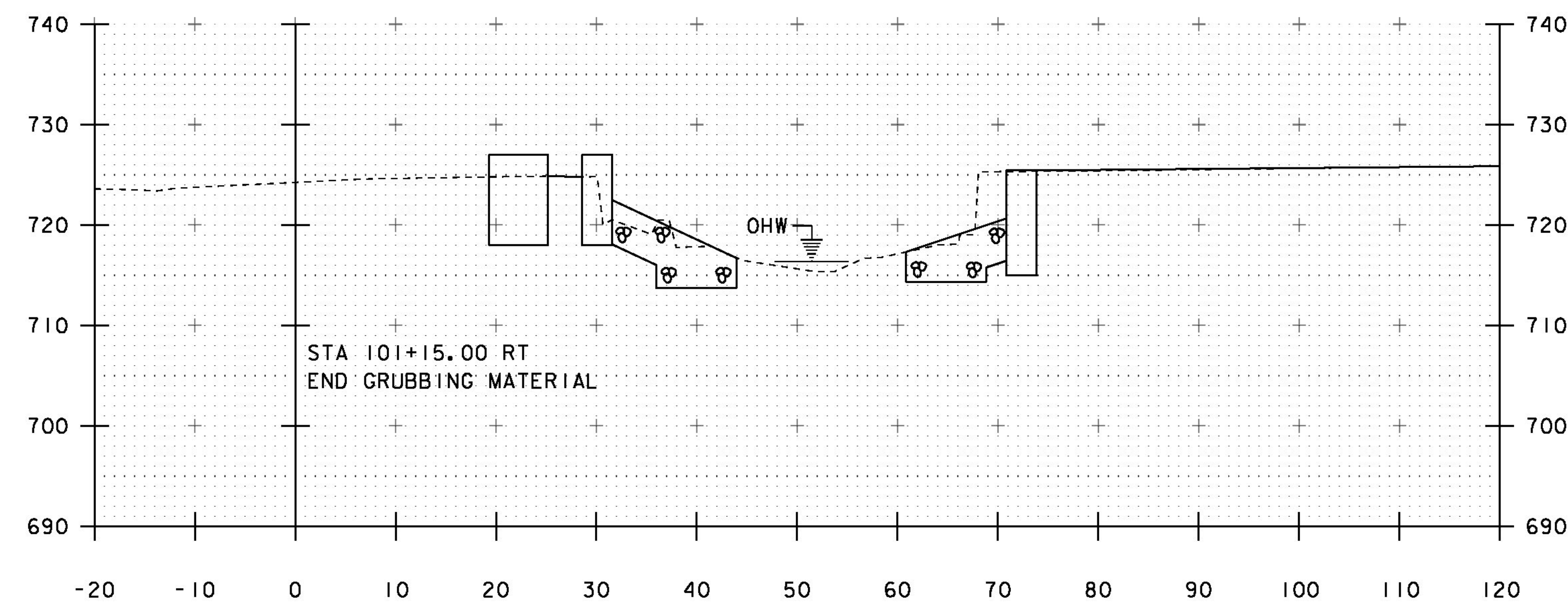
STA. 100+25 TO STA. 100+80

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PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
CHANNEL CROSS SECTIONS 1	SHEET 37 OF 46

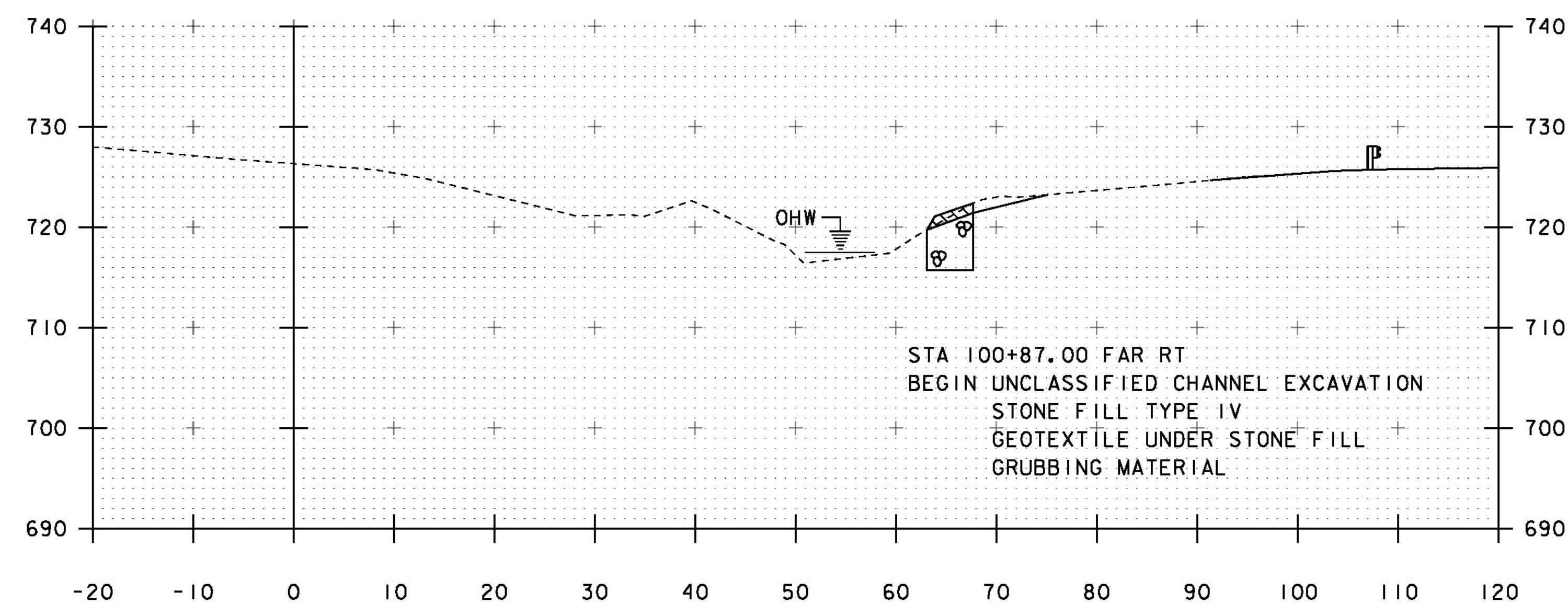




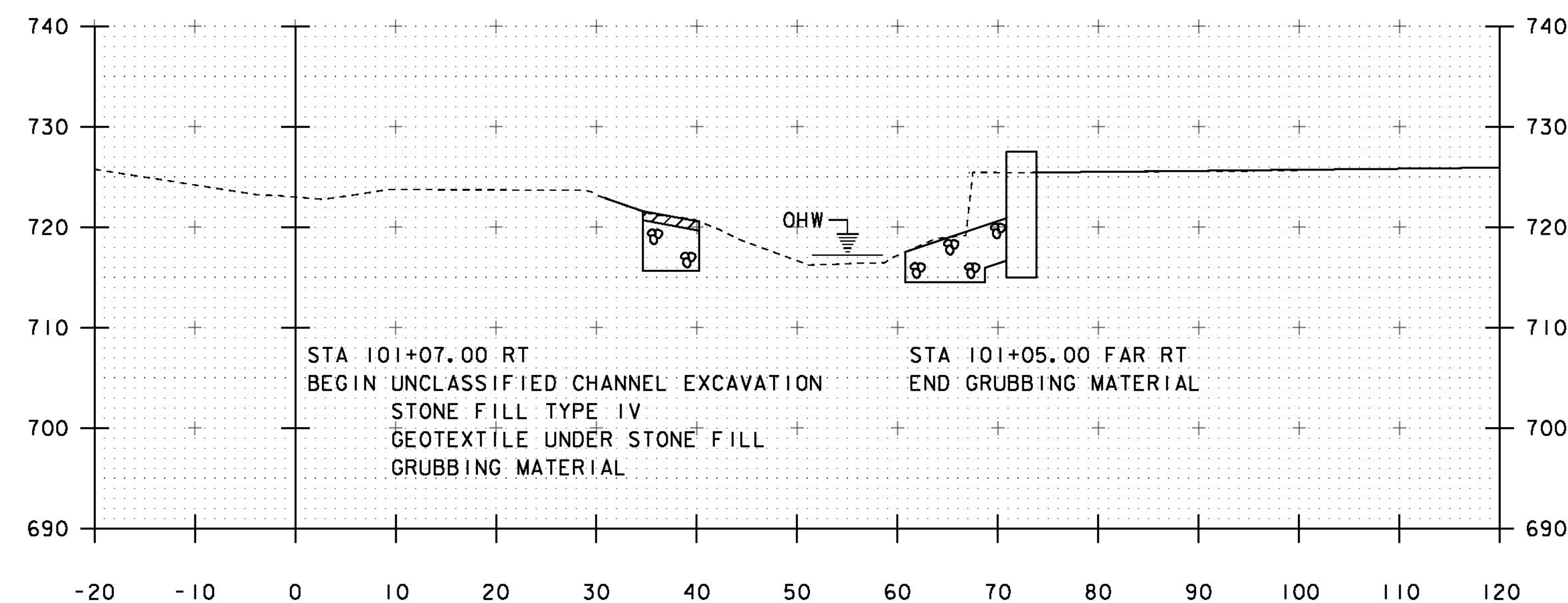
101+00



101+20



100+90

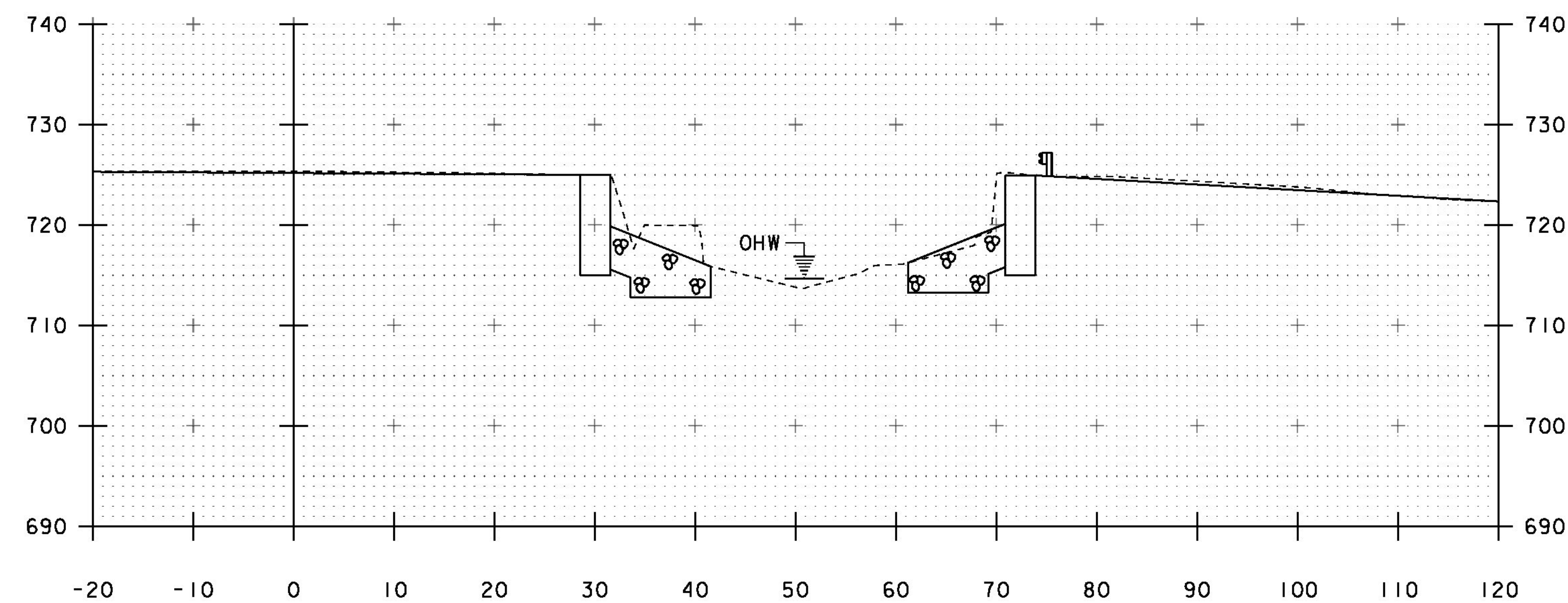


101+10

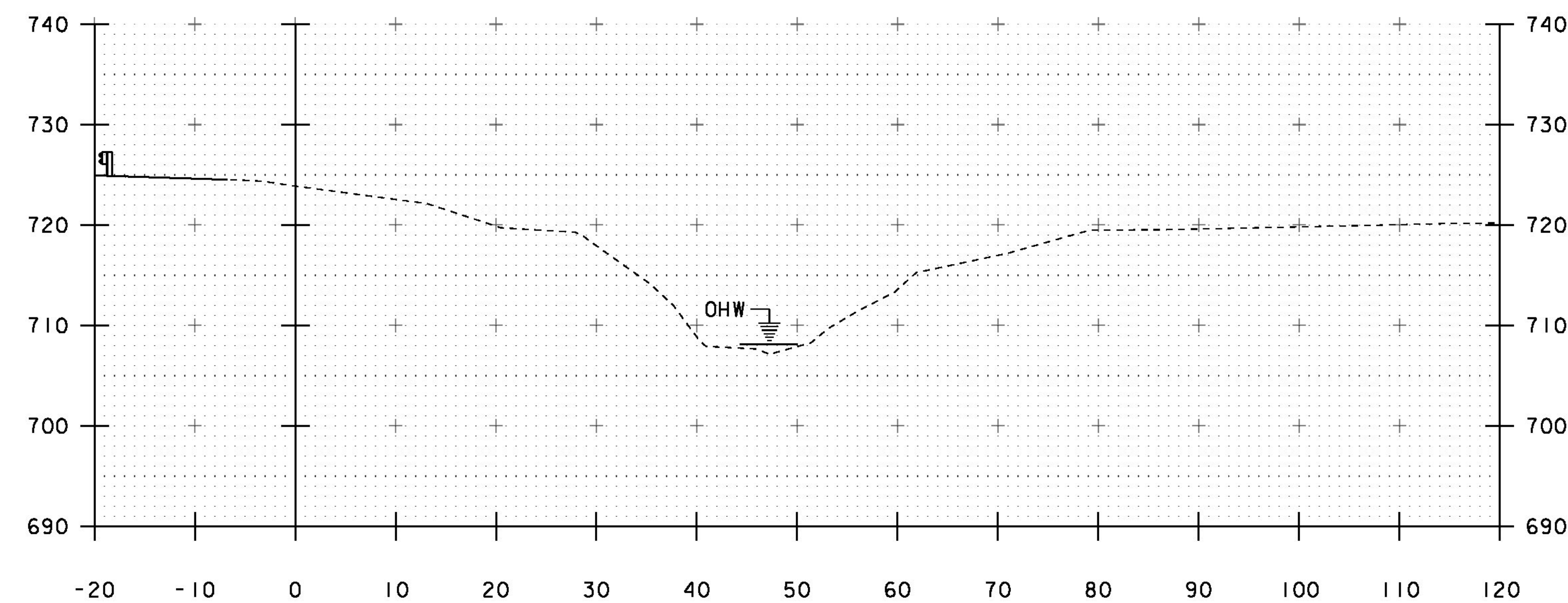
STA. 100+90 TO STA. 101+20

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PROJECT NUMBER: BRP 024-1(37)	
FILE NAME: s10c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLET
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
CHANNEL CROSS SECTIONS 2	SHEET 38 OF 46

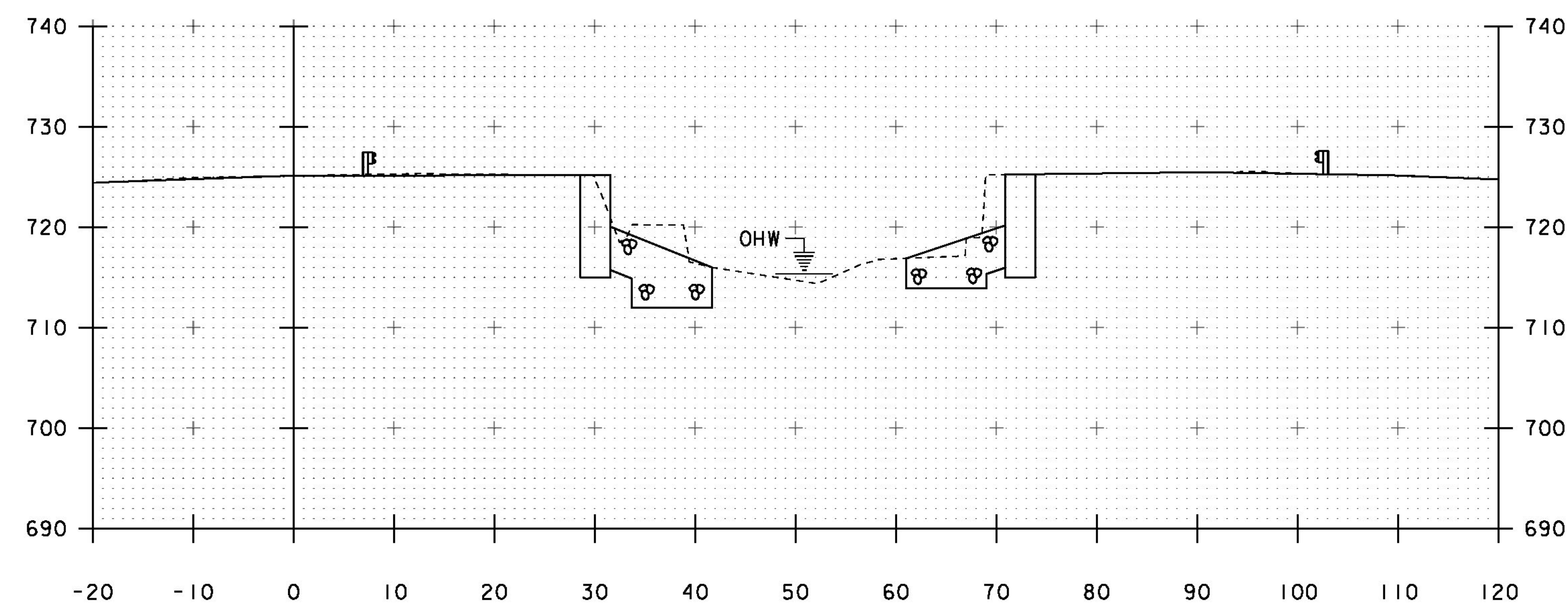




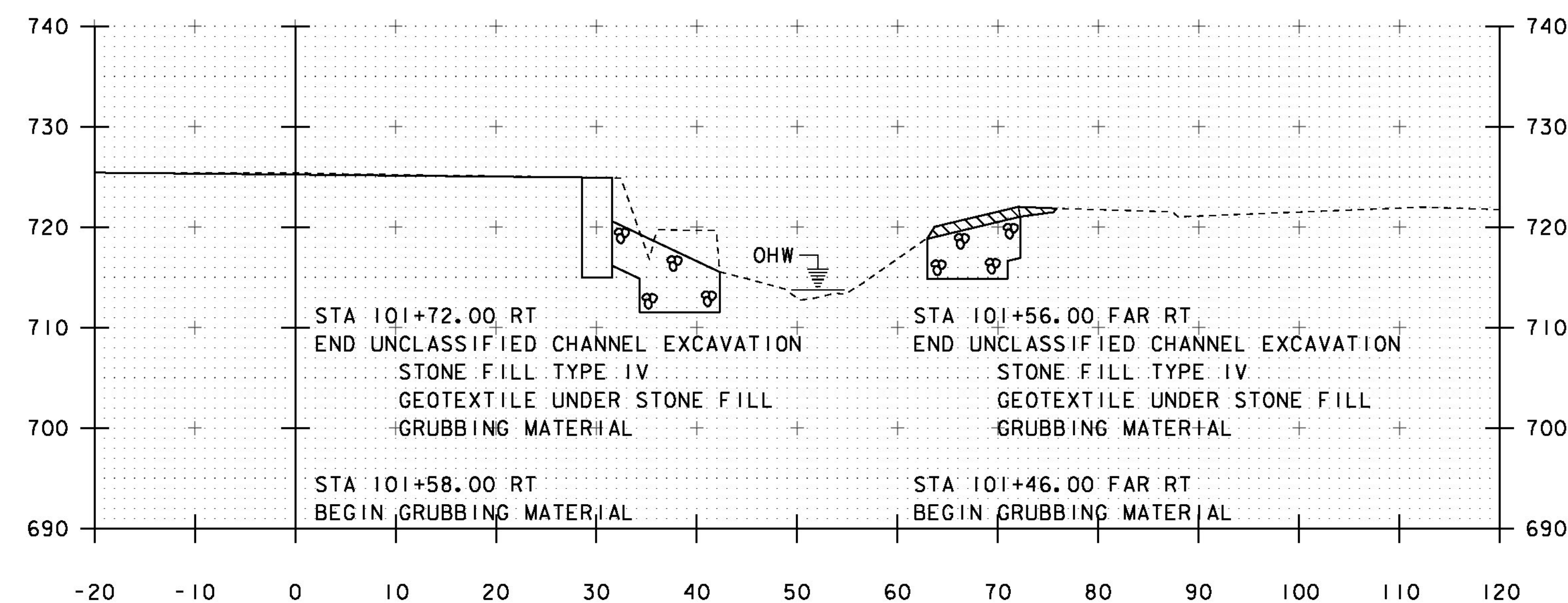
101+40



101+75



101+30



101+50

STA. 101+30 TO STA. 101+75

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRP 024-1(37)	
FILE NAME: sl0c220xs.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLET
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
CHANNEL CROSS SECTIONS 3	SHEET 39 OF 46



EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF EXISTING BRIDGE 77, WHICH WILL BE REPLACED WITH A CONCRETE DECK & STEEL BEAM SUPERSTRUCTURE SPANNING 46.78 FEET OVER UNNAMED BROOK, ON NEW ABUTMENTS ALONG THE SAME ALIGNMENT, INCLUDING RELATED APPROACH AND CHANNEL WORK. BRIDGE 77 IS LOCATED IN THE TOWN OF MIDDLESEX, ON VT ROUTE 12, APPROXIMATELY AT THE INTERSECTIONS OF VT ROUTE 12 AND TOWN HIGHWAY 18.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.63 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY WELL ESTABLISHED FOREST. VT ROUTE 12, AN UNNAMED BROOK, AND ROAD (TH 18) ARE WITHIN THE PROJECT SITE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, ALLUVIAL WITH COARSE GRAVEL, COBBLES AND BOULDERS. THE TRIBUTARY AREA AT THE BRIDGE IS 1.0 MILE². DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WINDSOR, VERMONT. SOILS ON THE PROJECT SITE ARE BUXON SILT LOAM, 25% TO 45% SLOPES, “K FACTOR” = 0.32 AND COLONEL FINE SANDY LOAM, 8% TO 15% SLOPES, “K FACTOR” = 0.20. THE SOILS ARE CONSIDERED MODERATELY ERODIBLE DUE TO SIGNIFICANT SLOPES.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:  
0.0-0.23 = LOW EROSION POTENTIAL  
0.24-0.36 = MODERATE EROSION POTENTIAL  
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO  
HISTORICAL OR ARCHEOLOGICAL AREAS: NO  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: BROOK  
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR’S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDE SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

(NOT ANTICIPATED FOR THIS PROJECT)

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

(NOT ANTICIPATED FOR THIS PROJECT)

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

(NOT ANTICIPATED FOR THIS PROJECT)

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

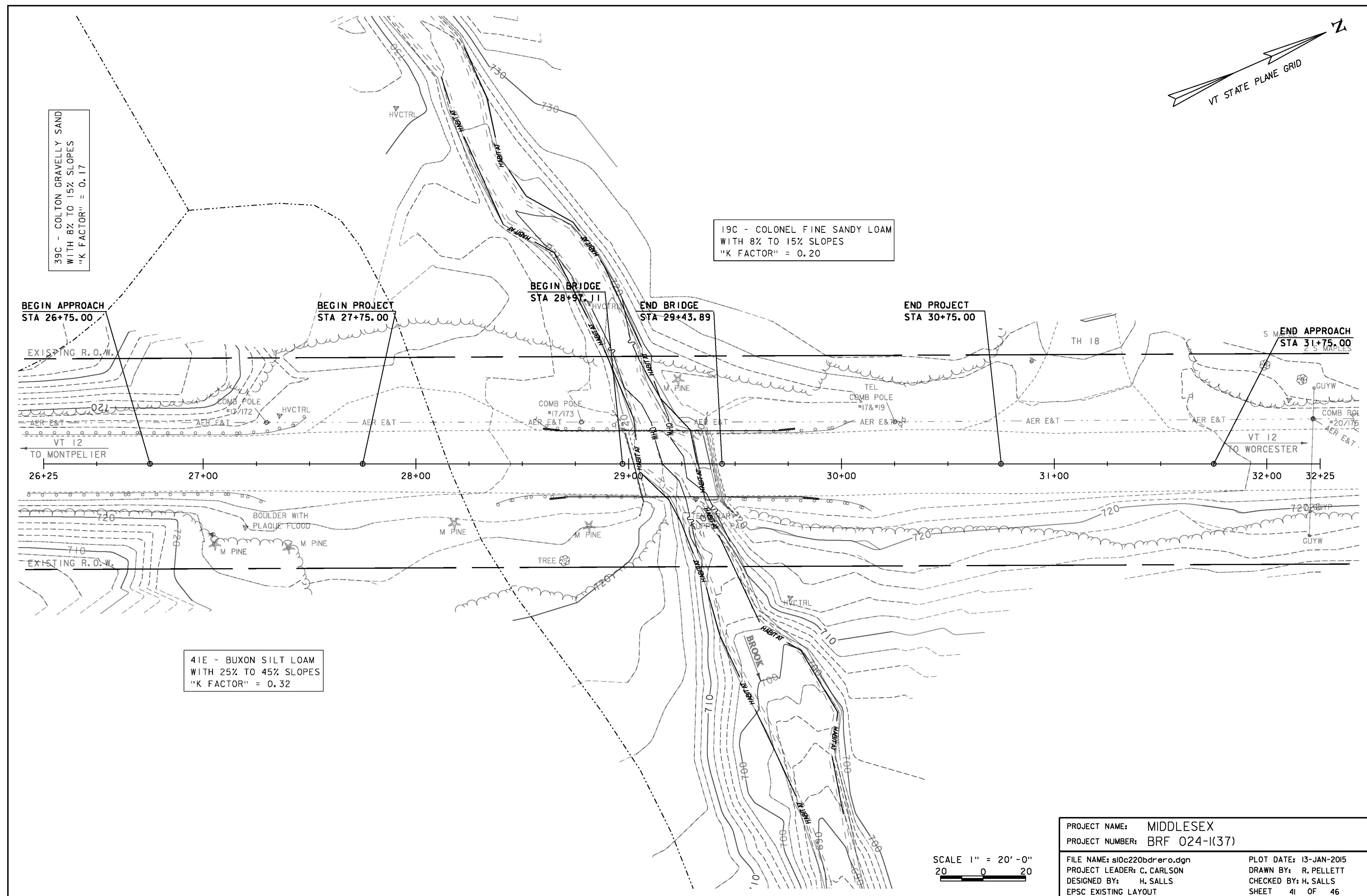
THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.2 OFF-SITE ACTIVITIES

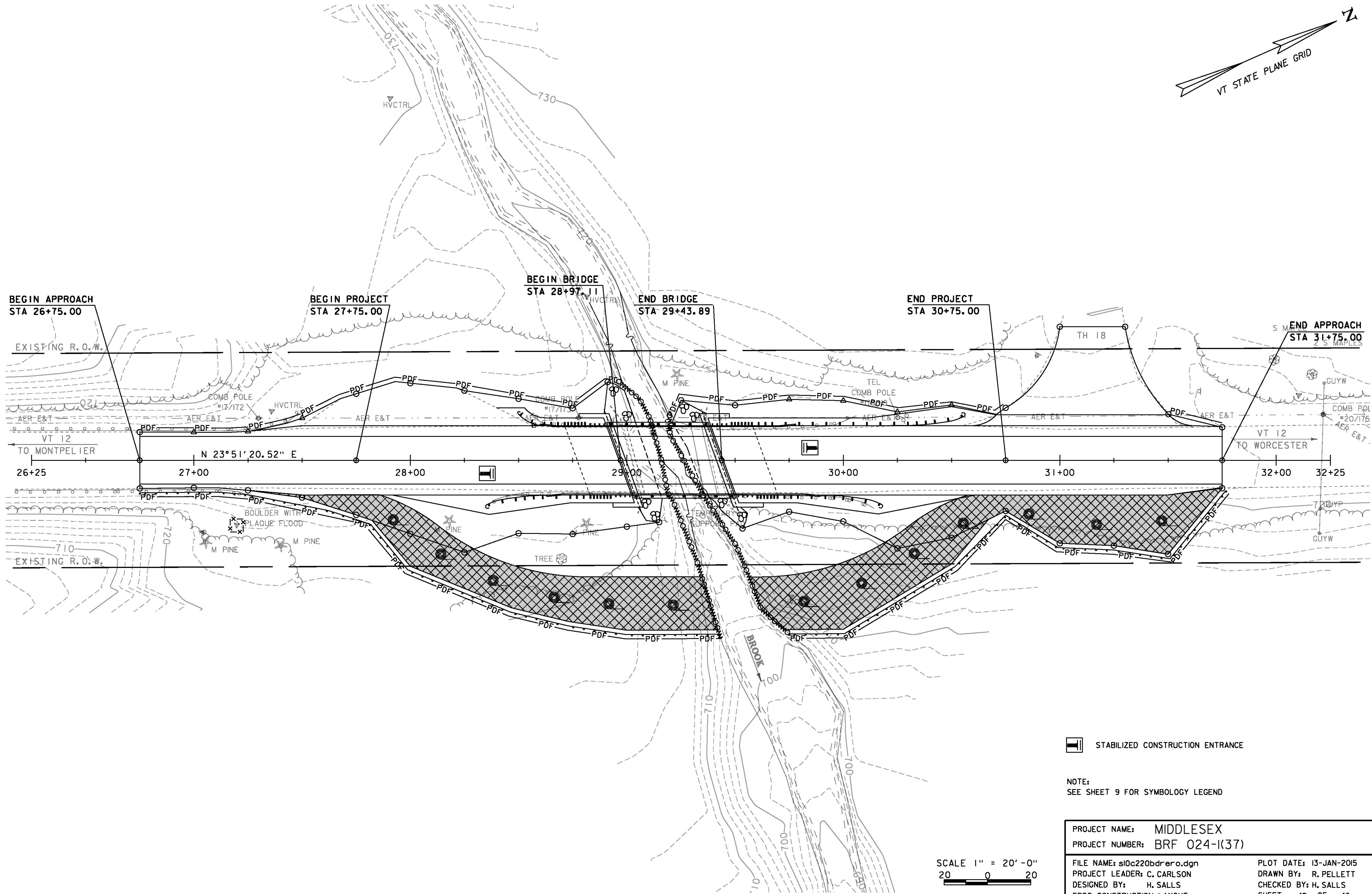
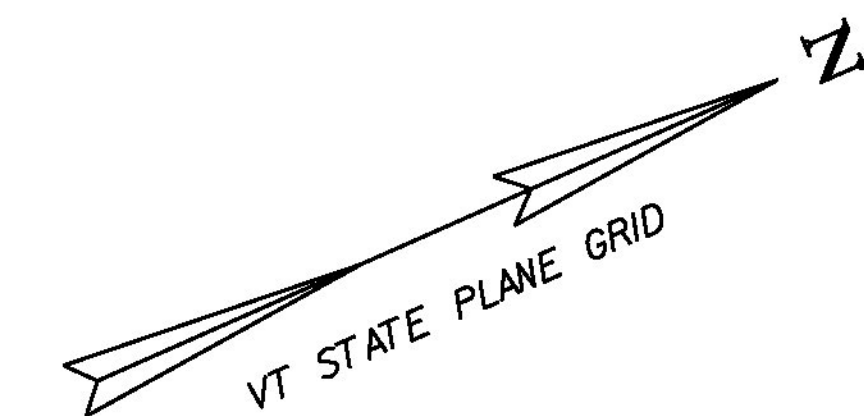
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRF 024-1(37)	
FILE NAME: sl0c220erodt1s.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC NARRATIVE	SHEET 40 OF 46









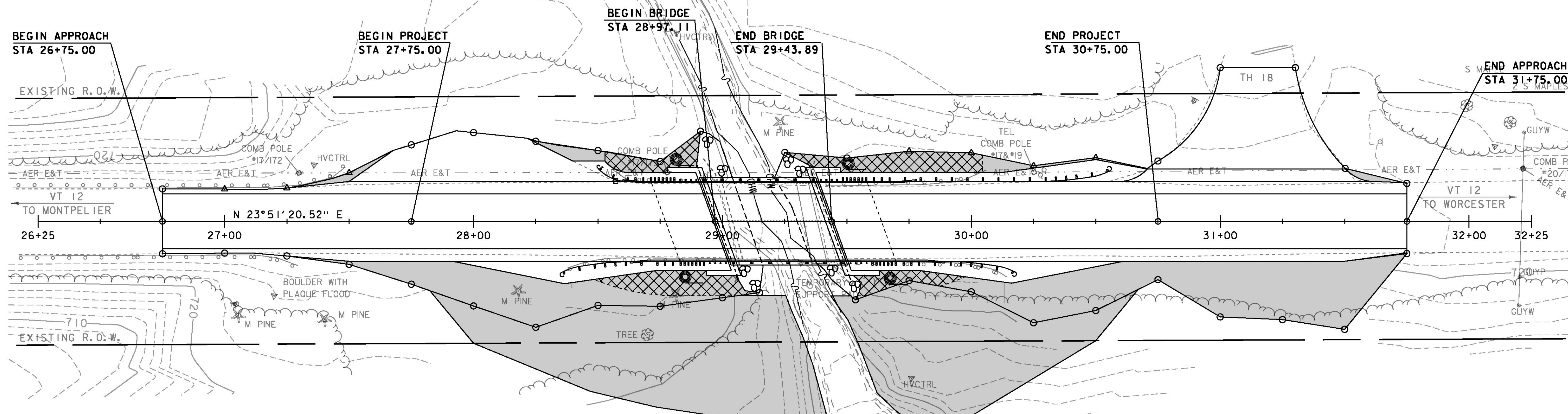
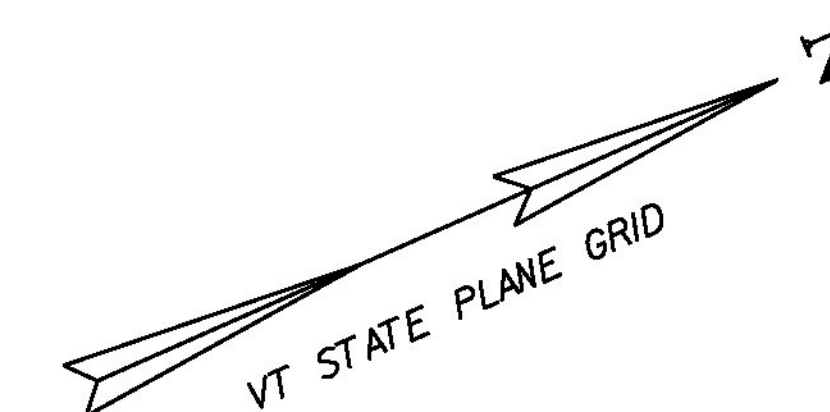
 STABILIZED CONSTRUCTION ENTRANCE

NOTE:  
SEE SHEET 9 FOR SYMBOLOGY LEGEND

PROJECT NAME: MIDDLESEX	
PROJECT NUMBER: BRP 024-1(37)	
FILE NAME: sl0c220bdrero.dgn	PLOT DATE: 13-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLET
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC CONSTRUCTION LAYOUT	SHEET 42 OF 46

SCALE 1" = 20'-0"  
20 0 20





NOTE:  
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS.  
SEE SHEET 9 FOR SYMBOLY LEGEND

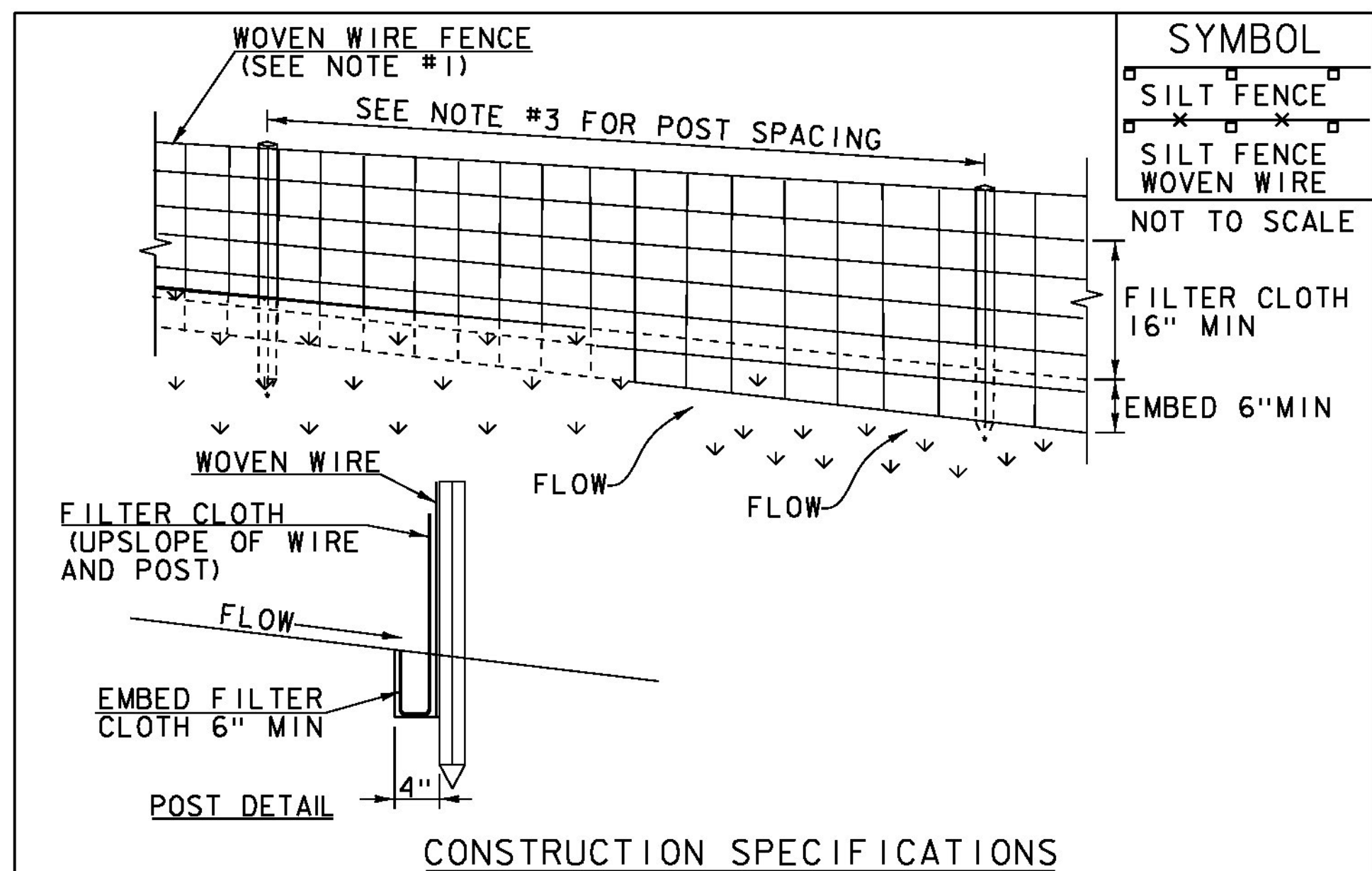
PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BR 024-K(37)

FILE NAME: sl0c220bdrero.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
EPSC FINAL LAYOUT

PLOT DATE: 13-JAN-2015  
DRAWN BY: R. PELLET  
CHECKED BY: H. SALLS  
SHEET 43 OF 46

SCALE 1" = 20'-0"  
20 0 20





1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

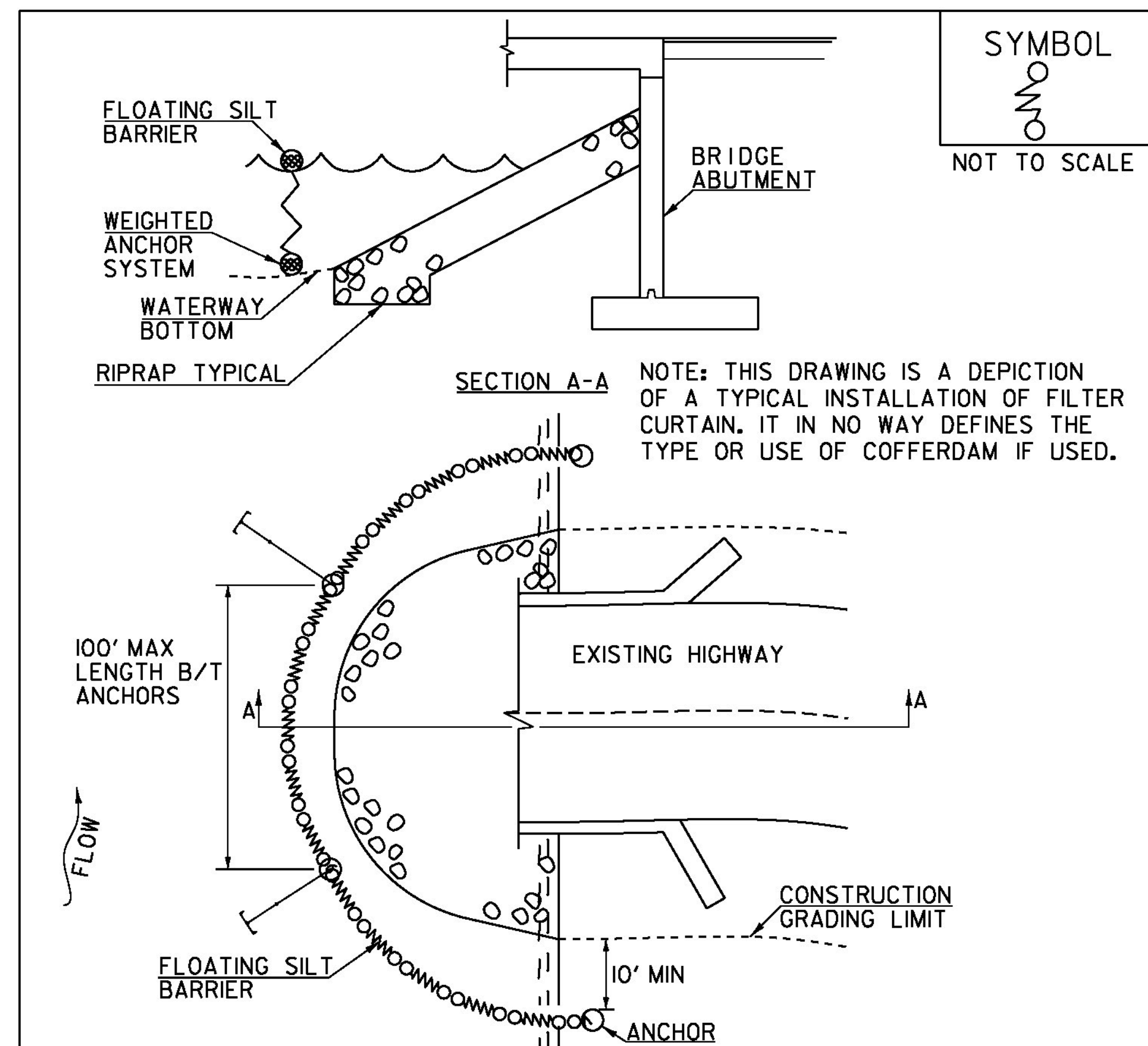
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SILT FENCE

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS		
MARCH 21, 2008	WHF	
DECEMBER 11, 2008	WHF	
JANUARY 13, 2009	WHF	

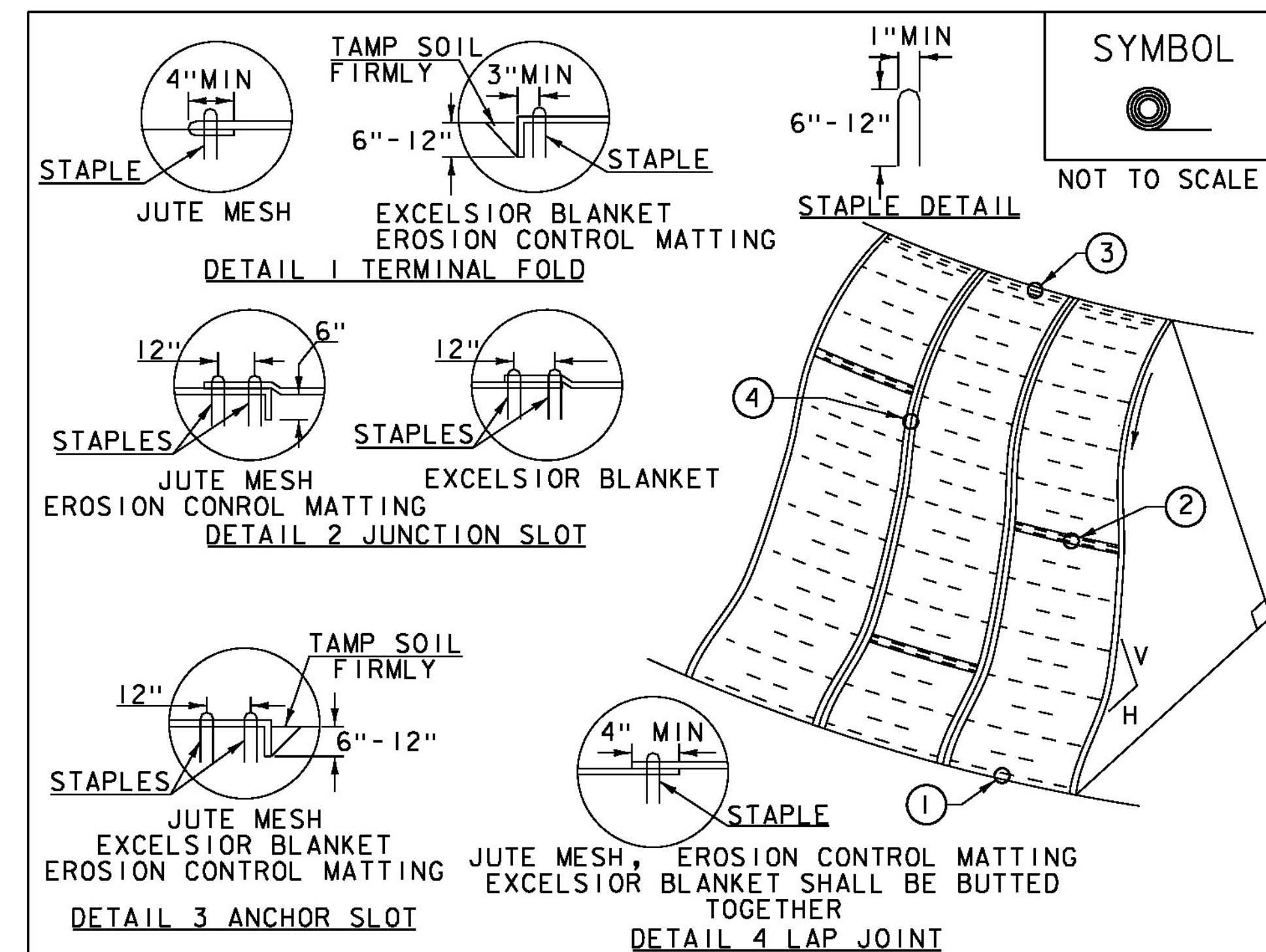


1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

## FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

REVISIONS		
APRIL 1, 2008	WHF	
JANUARY 13, 2009	WHF	
SEPTEMBER 4, 2009	WHF	



1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

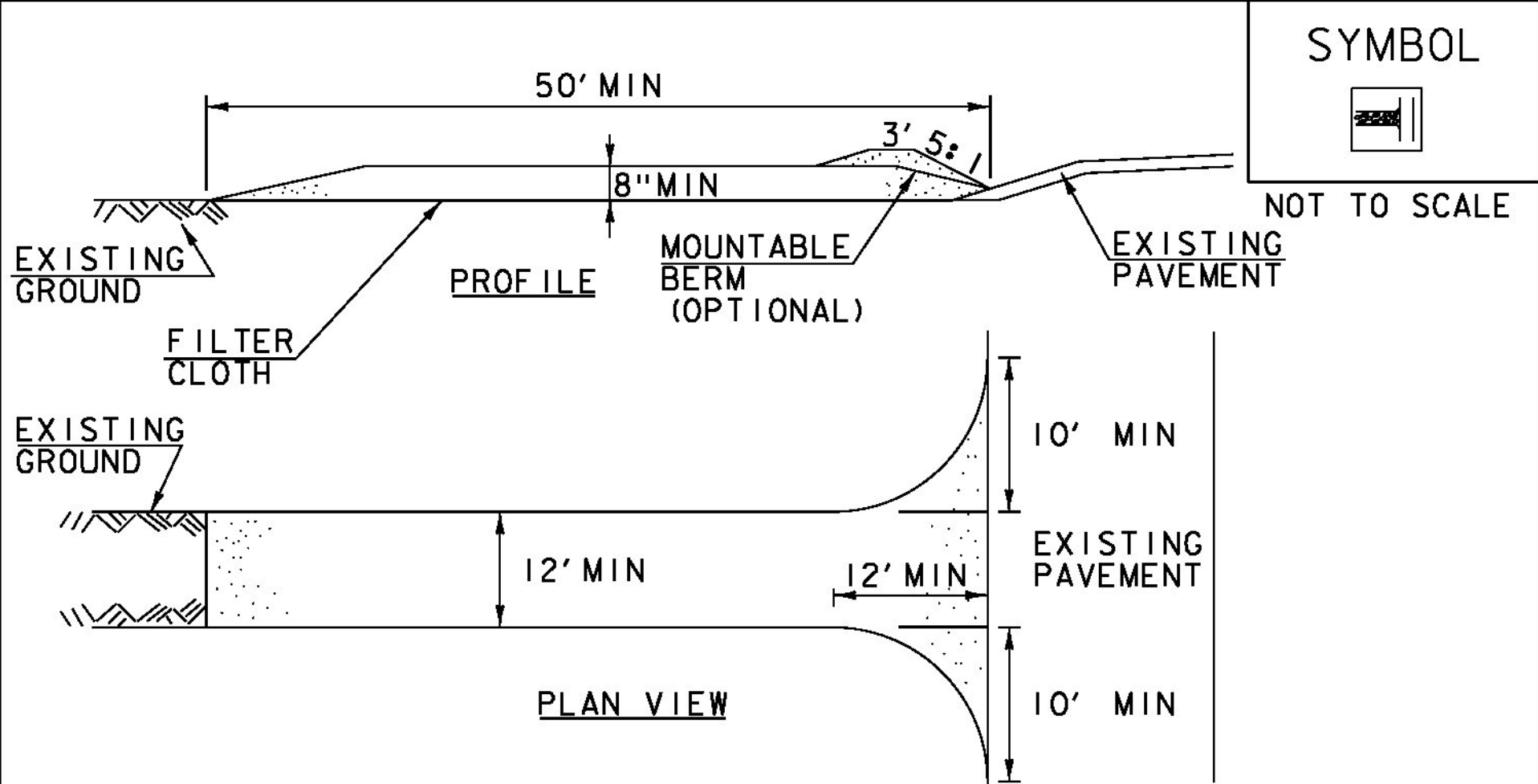
REVISIONS		
APRIL 16, 2007	JMF	
JANUARY 13, 2009	WHF	

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BR 024-1(37)

FILE NAME: sl0c220erodtl.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
EPSC DETAILS (1)

PLOT DATE: 13-JAN-2015  
DRAWN BY: R. PELLET  
CHECKED BY: H. SALLS  
SHEET 44 OF 46





CONSTRUCTION SPECIFICATIONS

- 1.STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- 2.LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
- 3.THICKNESS- NOT LESS THAN 8".
- 4.WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
- 5.GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- 6.SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- 7.MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- 8.WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- 9.PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

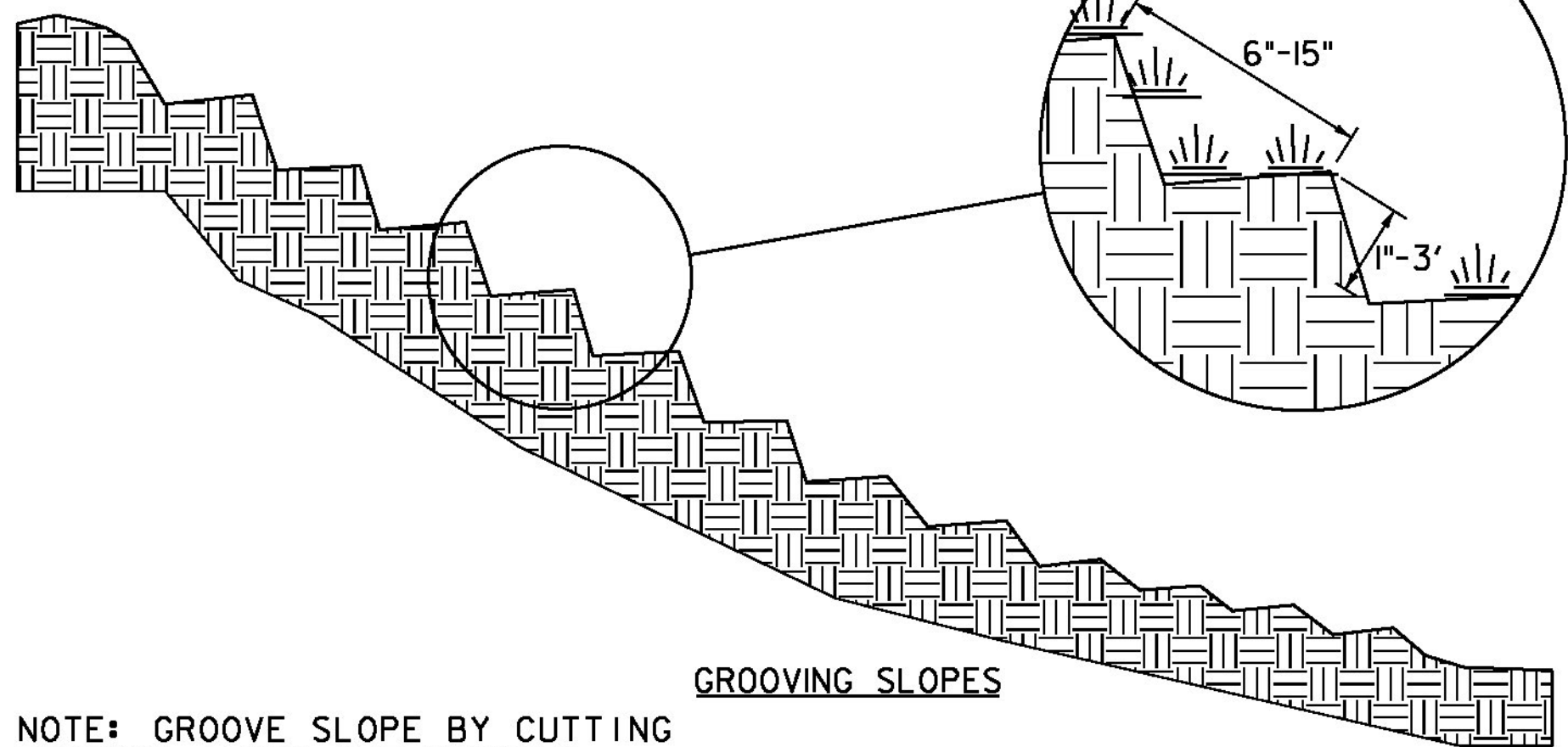
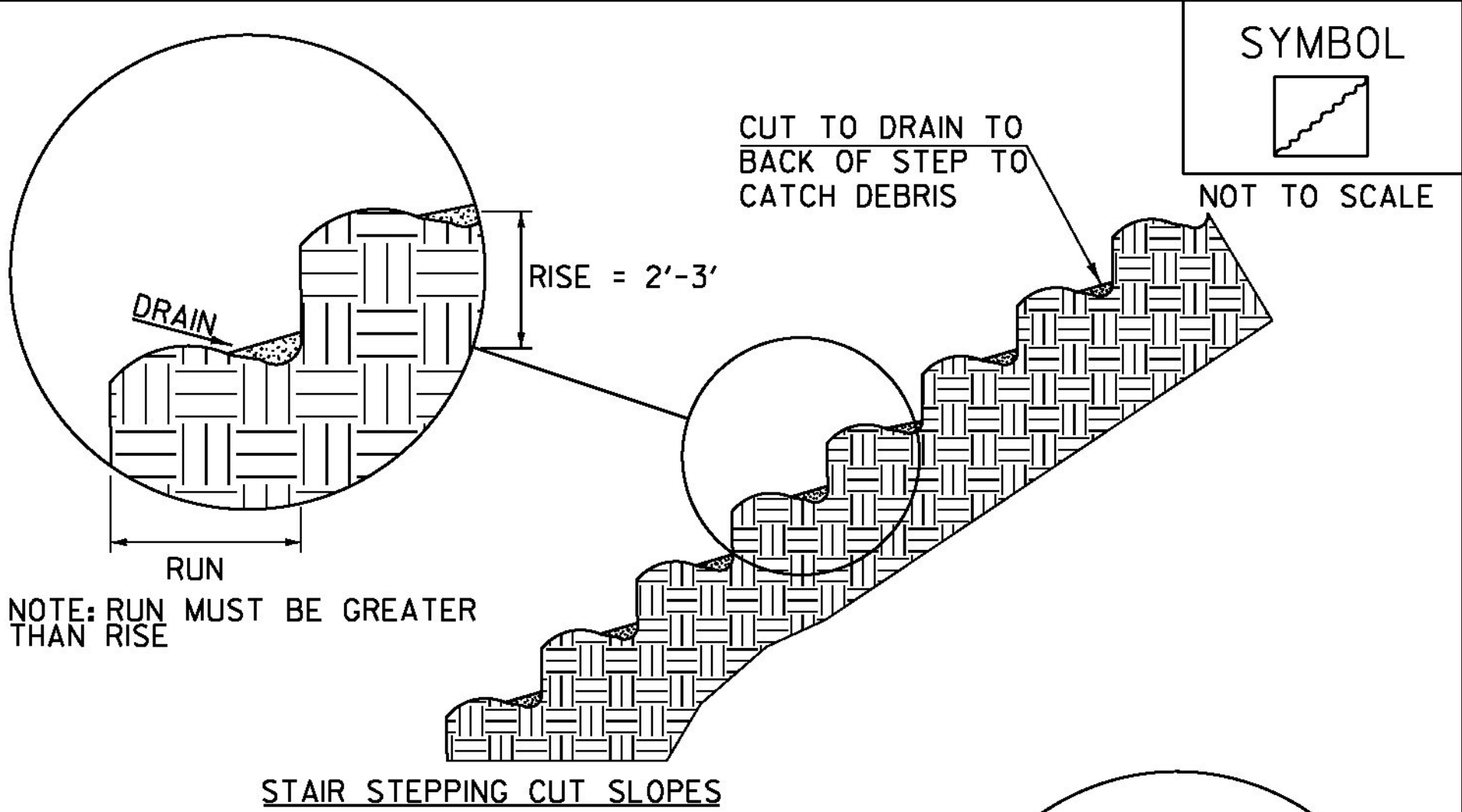
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED  
CONSTRUCTION  
ENTRANCE

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR  
EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM  
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL  
GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH  
SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35)  
OR AS SPECIFIED IN THE CONTRACT.

REVISIONS		
MARCH 24, 2008	WHF	
JANUARY 13, 2009	WHF	



NOTE: GROOVE SLOPE BY CUTTING  
FURROWS ALONG THE CONTOUR.  
IRREGULARITIES IN THE SOIL SURFACE  
CATCH RAINWATER AND RETAIN LIME,  
FERTILIZER AND SEED.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR  
EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM  
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL  
GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE  
CONTRACT

REVISIONS		
APRIL 1, 2008	WHF	
JANUARY 13, 2009	WHF	

VAOT RURAL AREA MIX					
		LBS/AC			
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREeping RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
		LBS/AC			
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREeping RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE			
FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	FOLLOW	PELLETIZED	FOLLOW
500 LBS/AC	MANUFACTURER	2 TONS/AC	MANUFACTURER

CONSTRUCTION GUIDANCE

- 1.RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- 2.URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- 3.ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- 4.FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
- 5.HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
- 6.TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- 7.HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
- 8.TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR  
ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

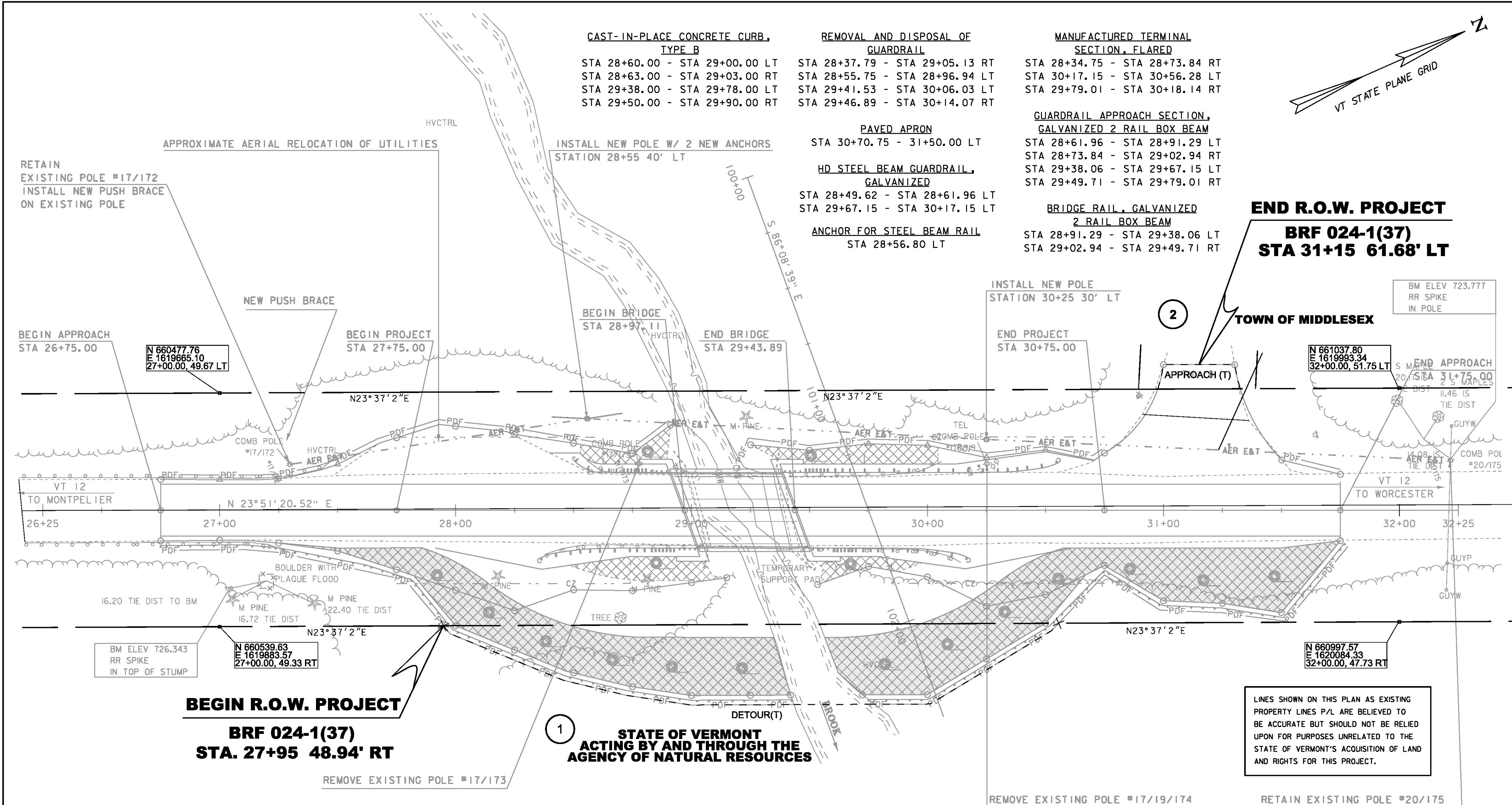
THIS WORK SHALL BE PERFORMED IN ACCORDANCE  
WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

REVISIONS		
JUNE 23, 2009	WHF	
JANUARY 15, 2010	WHF	
FEBRUARY 16, 2011	WHF	

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRf 024-1(37)

FILE NAME: sl0c220e.rdtls.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
EPSC DETAILS ( 2 )  
PLOT DATE: 13-JAN-2015  
DRAWN BY: R. PELLET  
CHECKED BY: H. SALLS  
SHEET 45 OF 46





STATE OF VERMONT  
AGENCY OF TRANSPORTATION

# RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE AREA±	REMAINDER AREA±	RIGHT				RECORDING DATA				REMARKS
							TYPE	(T)/P	AREA±	TITLE	DATE	TOWN/CITY	BOOK	PAGE	
1	STATE OF VERMONT ACTING BY AND THROUGH THE AGENCY OF NATURAL RESOURCES	1	27+95 RT	30+56 LT			DETOUR	T	0.15A						6.833 SF±; INCL. PDF & EC
2	TOWN OF MIDDLESEX	1	31+15 LT				APPROACH	T	332 SF						

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE

NOTE: UTILITY WORK TO BE DONE BY OTHERS

PROJECT NAME: MIDDLESEX  
PROJECT NUMBER: BRF 024-(K37)

FILE NAME: NAME#DGN  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: H. SALLS  
R.O.W. INFORMATION SHEET

PLOT DATE: 13-JAN-2015  
DRAWN BY: J. BLANCHARD  
CHECKED BY: R. CLOUTIER  
SHEET 46 OF 46

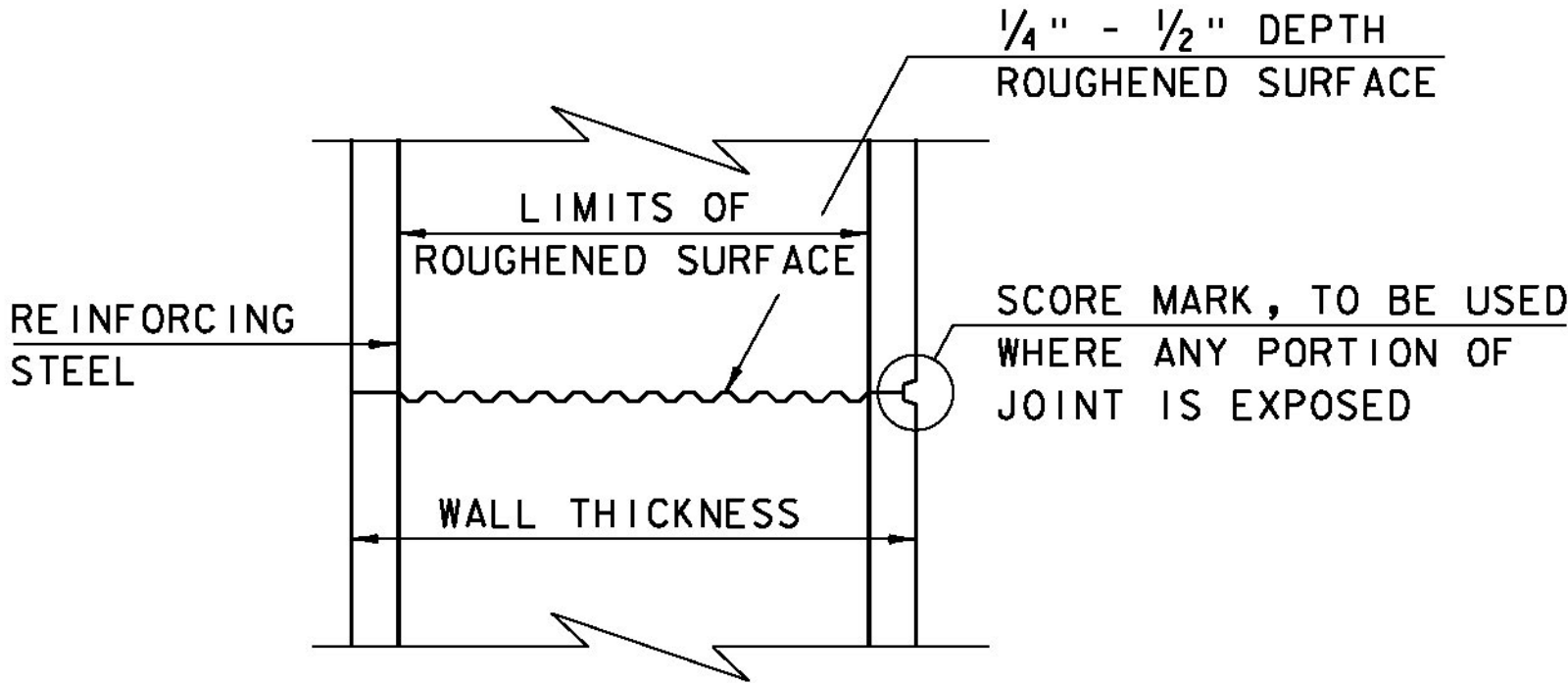
FOR R.O.W.  
USE ONLY

SCALE 1" = 20'-0"  
20 0 20



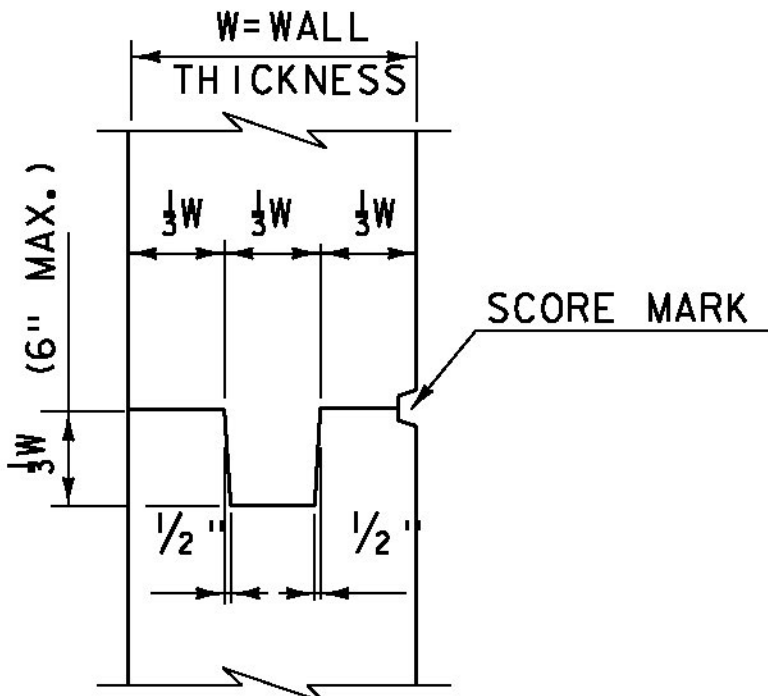
CONCRETE GENERAL NOTES

- 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.

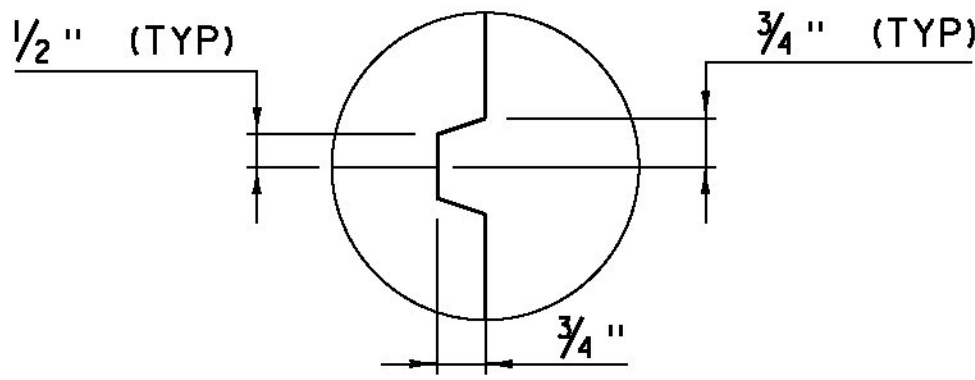


TYPICAL HORIZONTAL CONSTRUCTION JOINT  
(NOT TO SCALE)

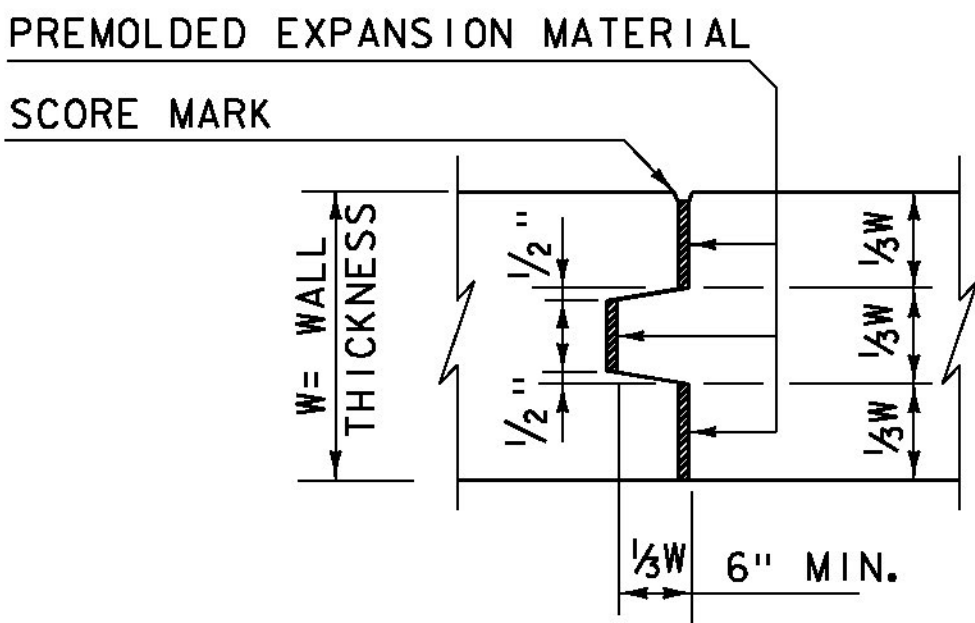
- 1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
- 2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



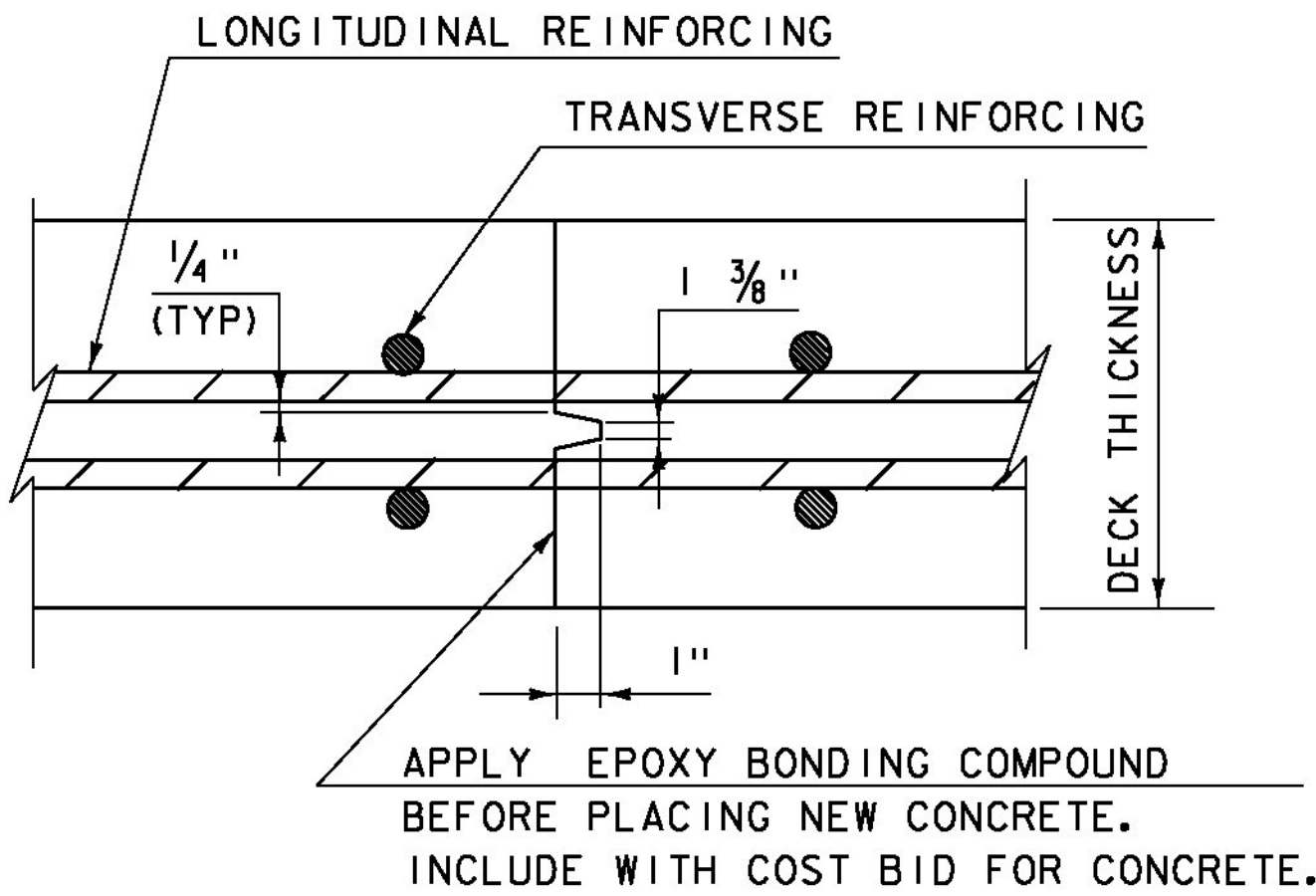
TYPICAL CONCRETE CONSTRUCTION JOINT  
(NOT TO SCALE)



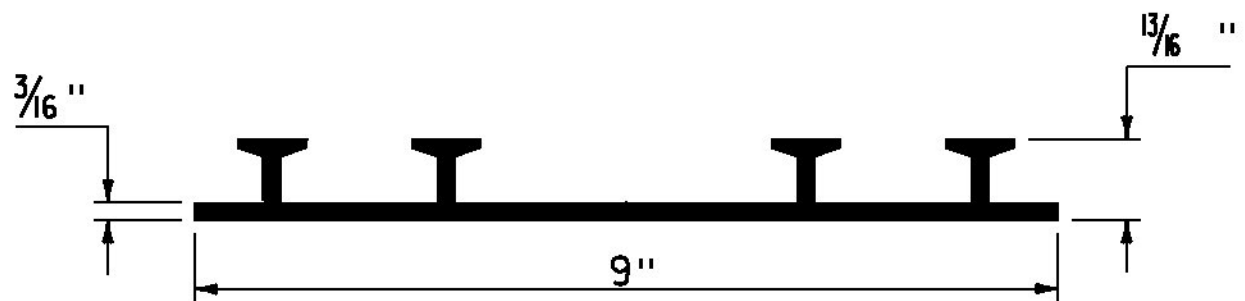
SCORE MARK DETAIL  
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT  
(NOT TO SCALE)



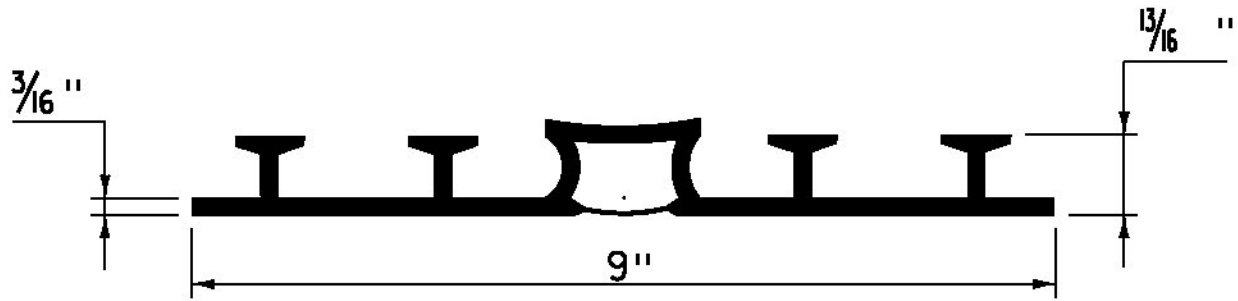
TRANSVERSE BRIDGE SLAB  
CONSTRUCTION JOINT DETAILS  
(NOT TO SCALE)



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.

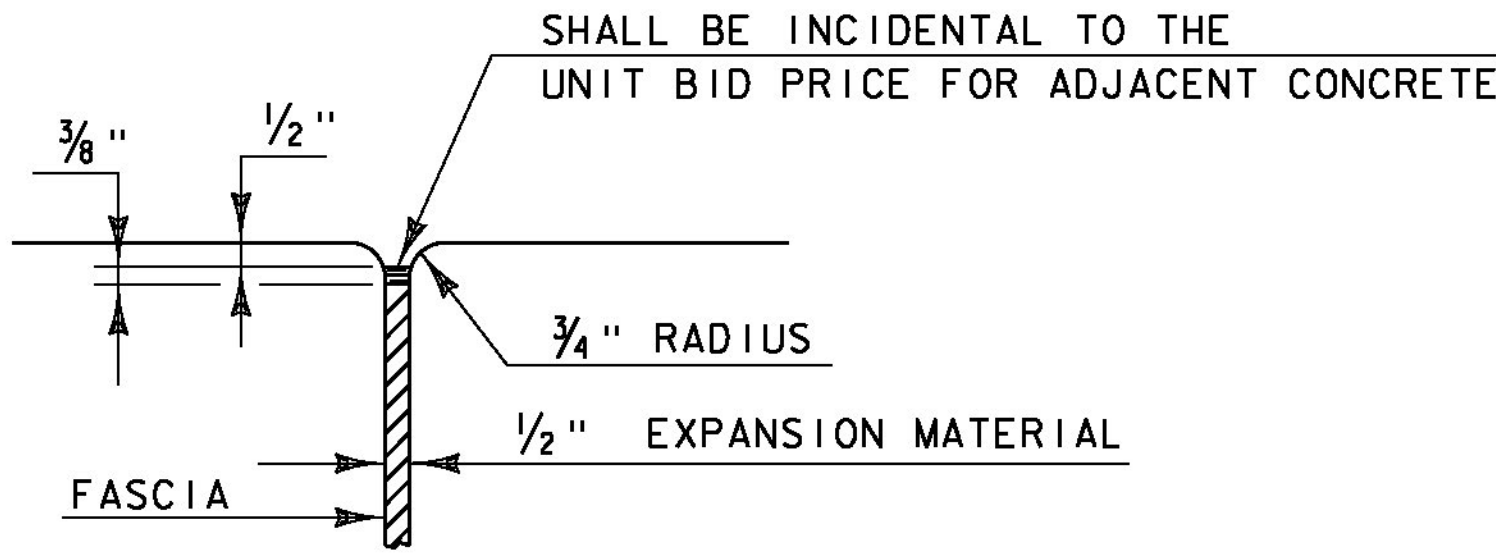
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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

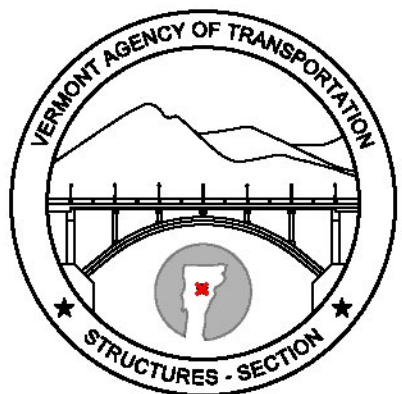
PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

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



JOINT BETWEEN FASCIA  
AND WINGWALL  
(NOT TO SCALE)

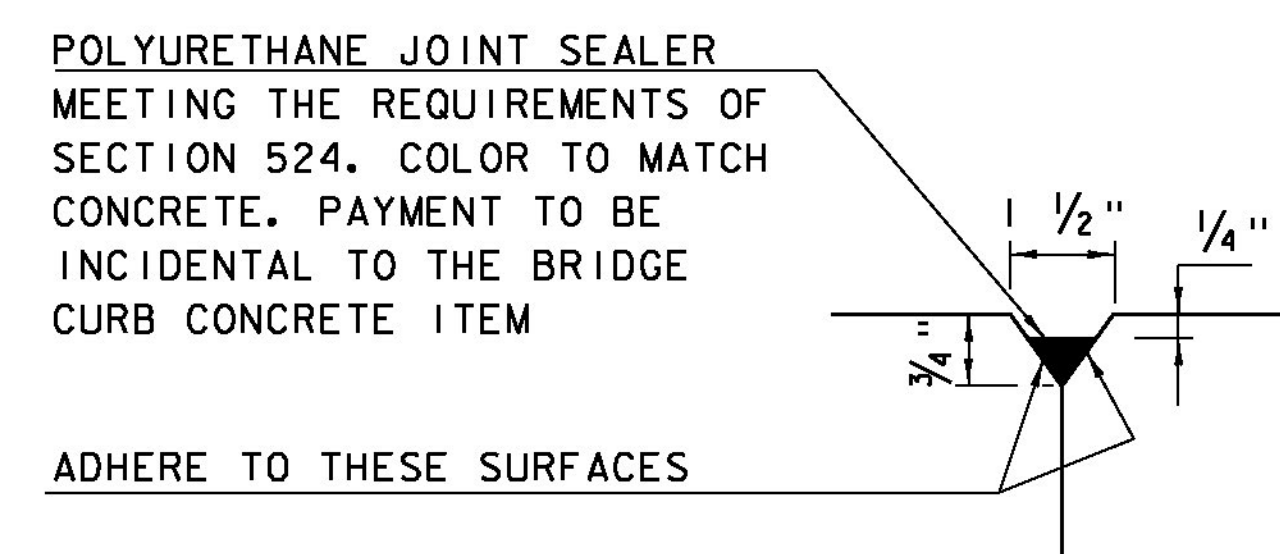
CONCRETE  
DETAILS AND NOTES



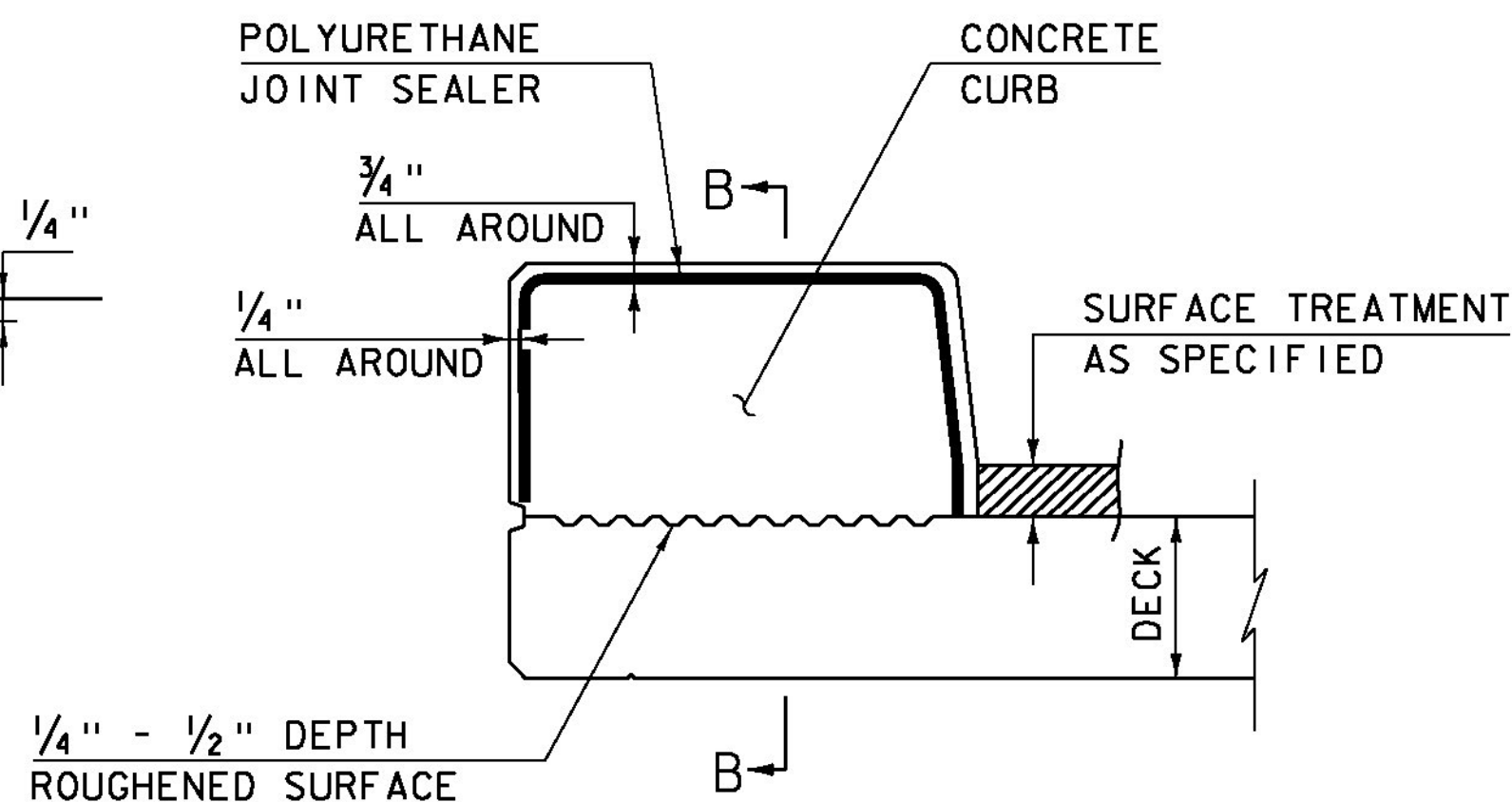
STRUCTURES  
DETAIL  
SD-501.00

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



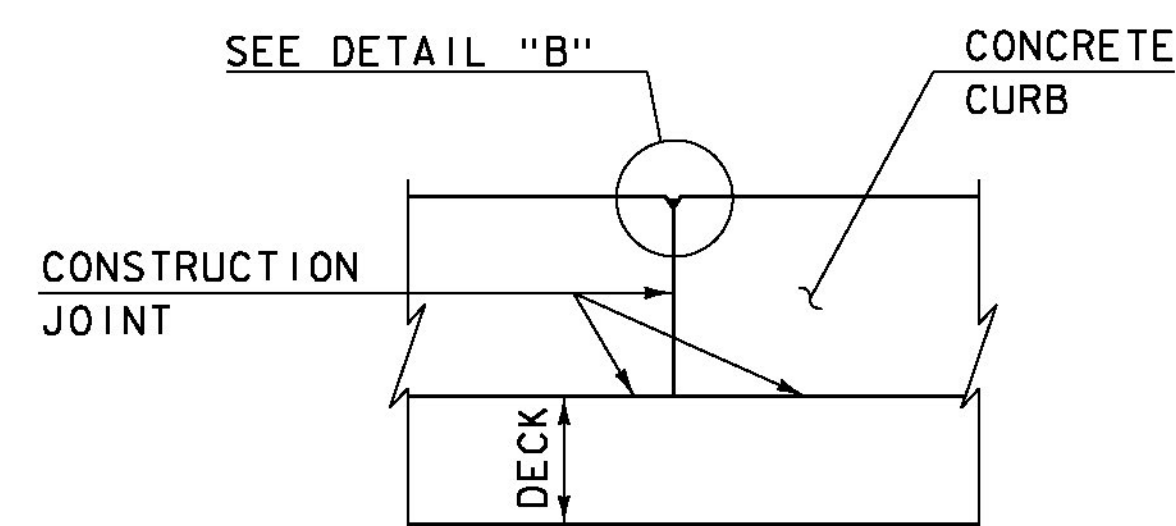


DETAIL "B"  
(NOT TO SCALE)

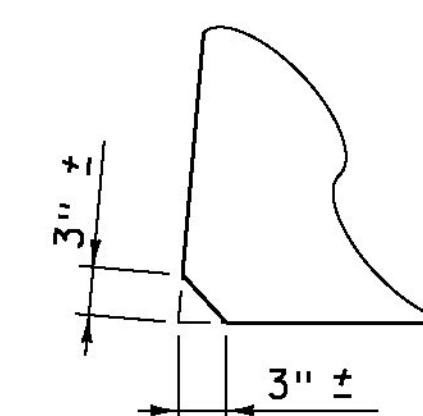


CONCRETE CURB JOINT SECTION  
(NOT TO SCALE)

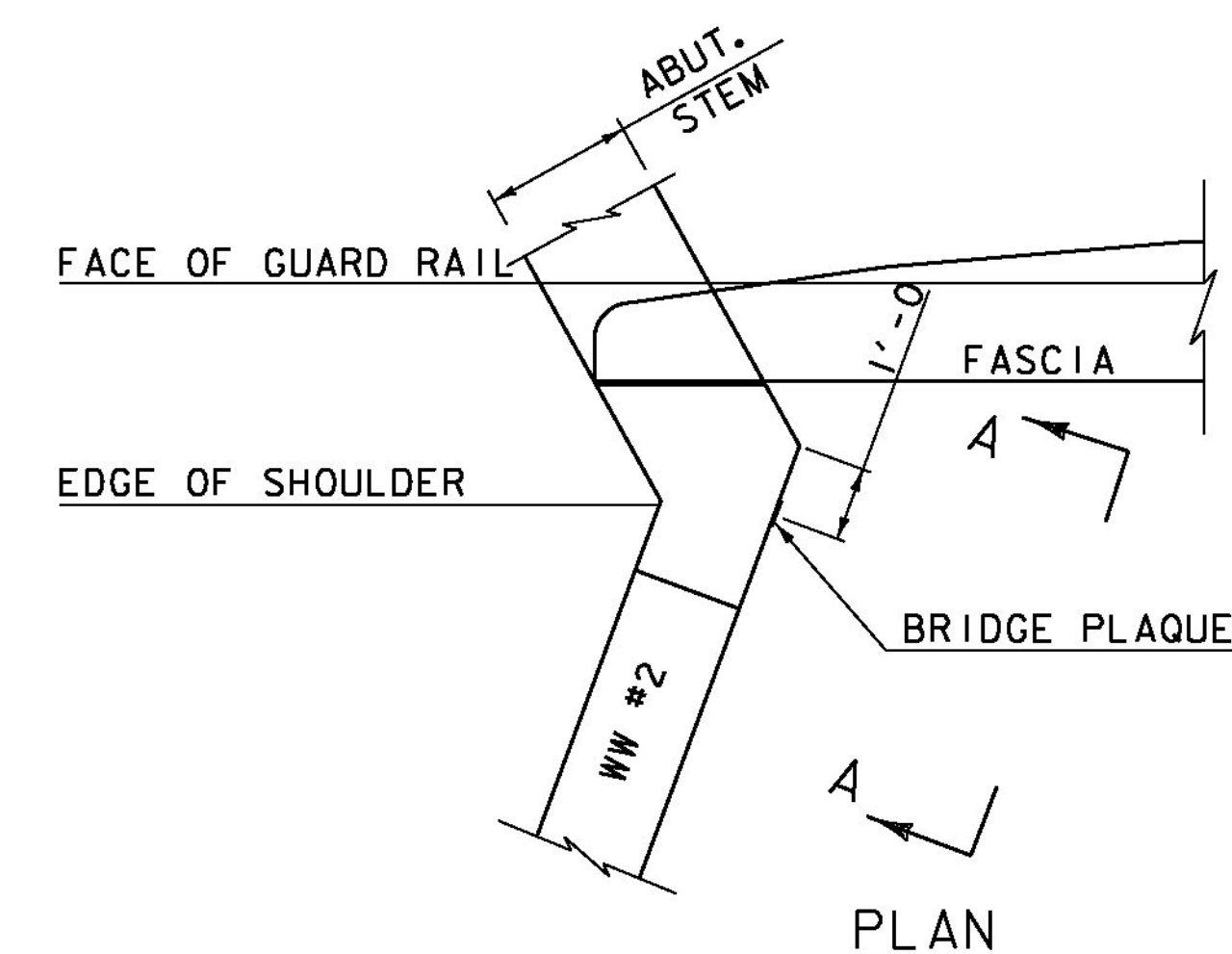
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



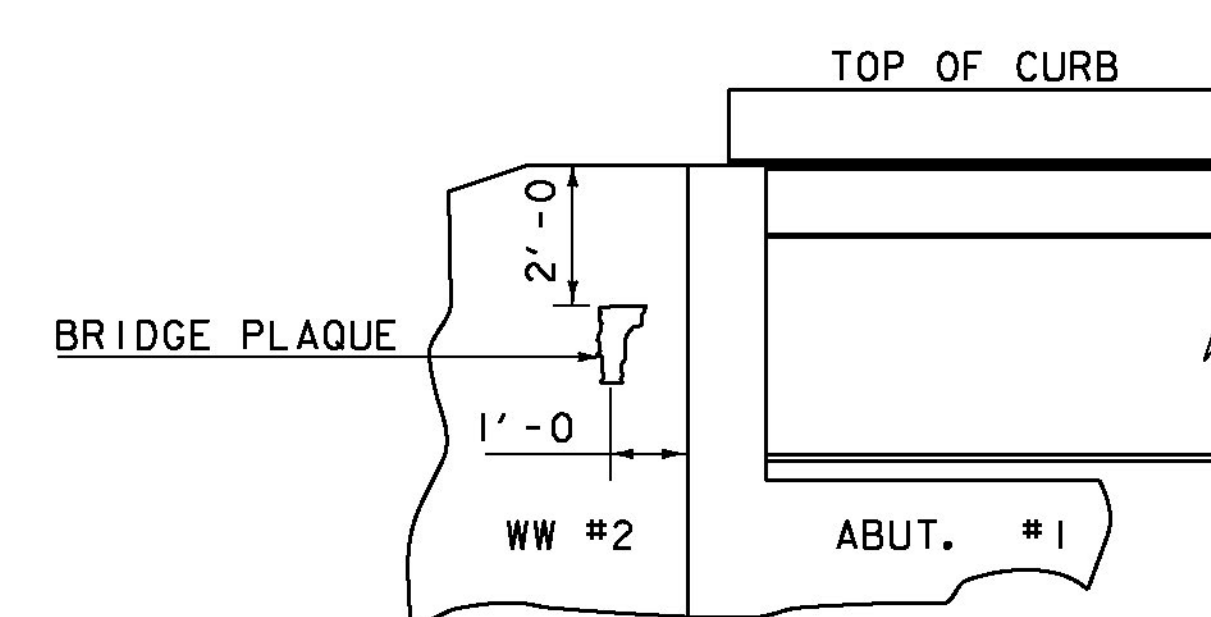
SECTION B - B  
(NOT TO SCALE)



ACUTE ANGLE  
CLIP DETAIL  
(NOT TO SCALE)



PLAN



VIEW "A - A"

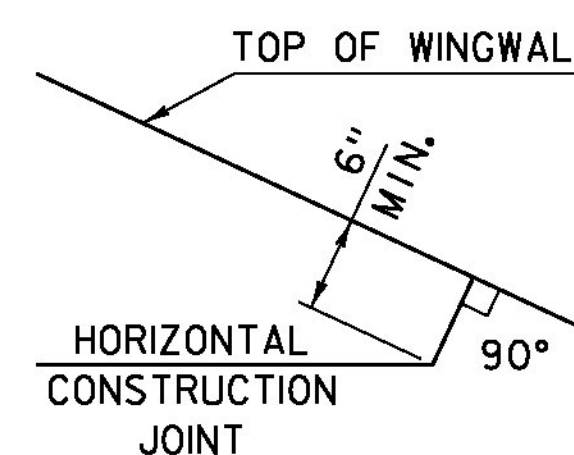
BRIDGE PLAQUE  
(NOT TO SCALE)

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.

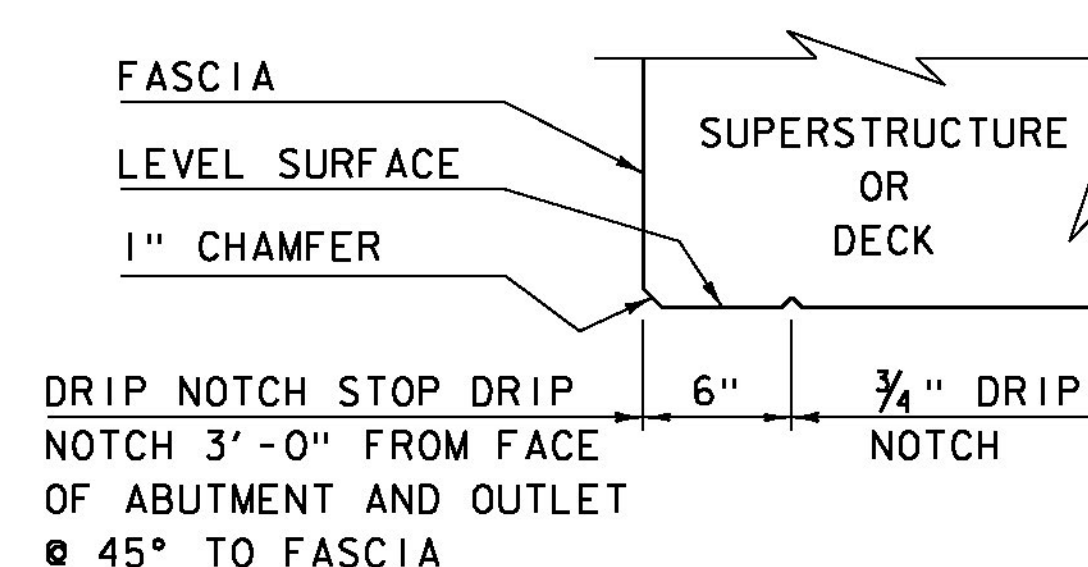
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

## 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.

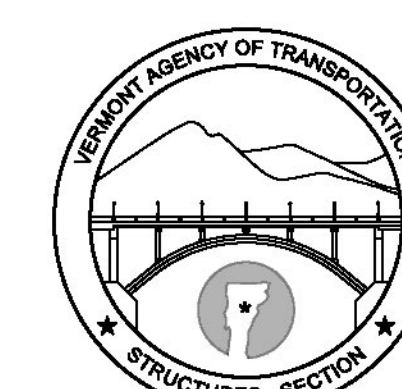


HORIZONTAL WINGWALL  
CONSTRUCTION JOINT  
(NOT TO SCALE)



DRIP NOTCH DETAIL  
(NOT TO SCALE)

# CONCRETE DETAILS AND NOTES

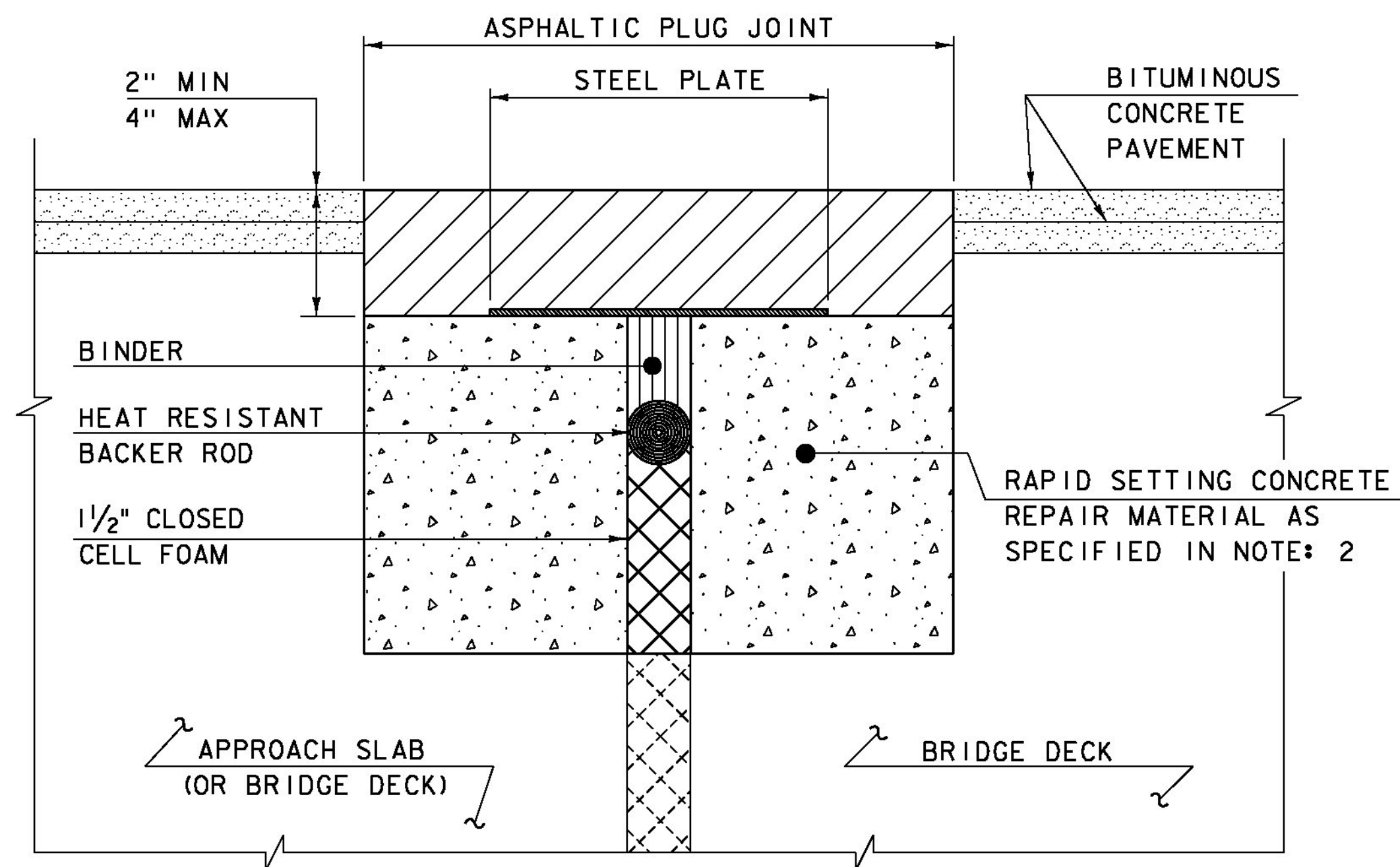


STRUCTURES  
DETAIL  
SD-502.00

## 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

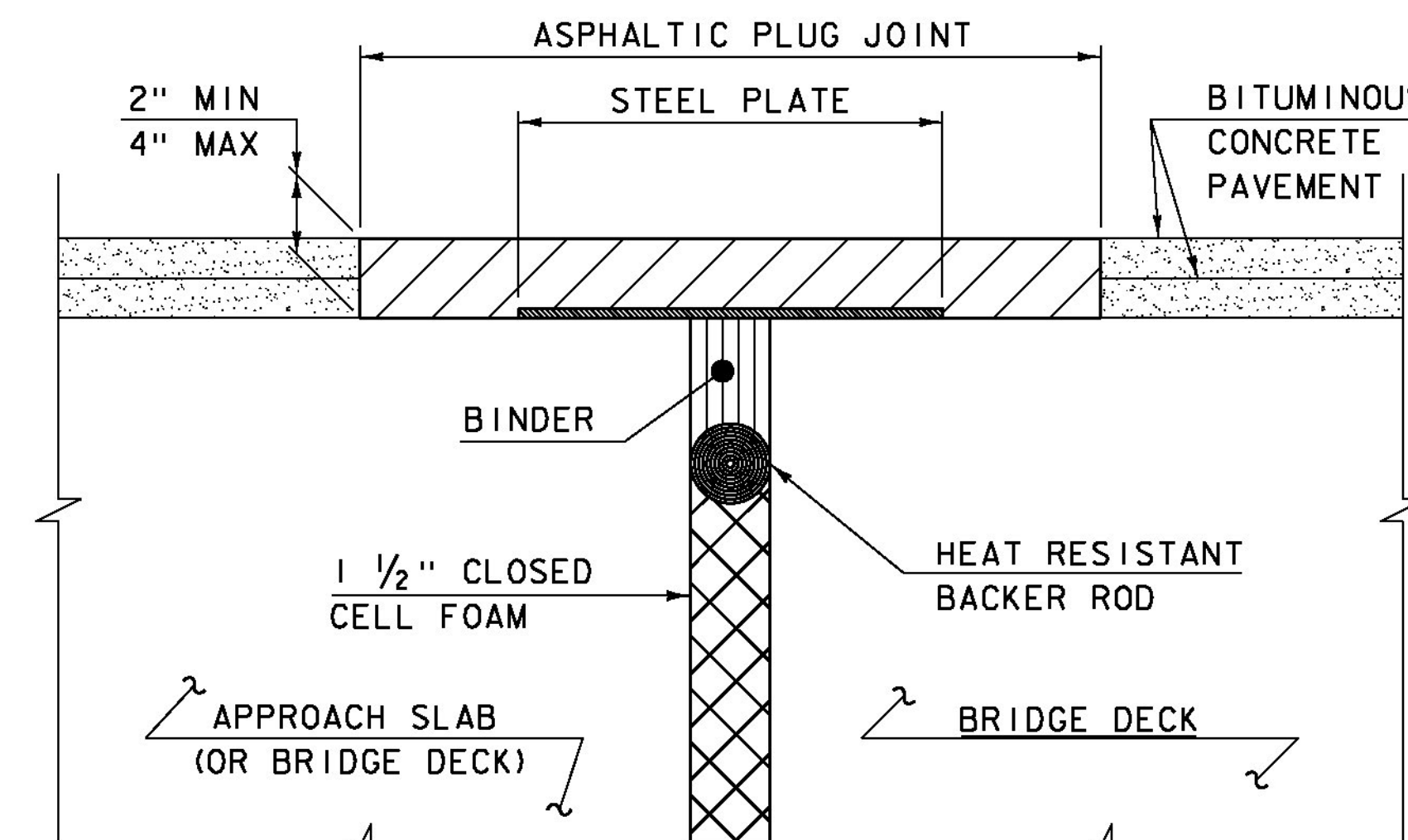




ASPHALTIC PLUG JOINT DETAIL - REHAB

NOTES:

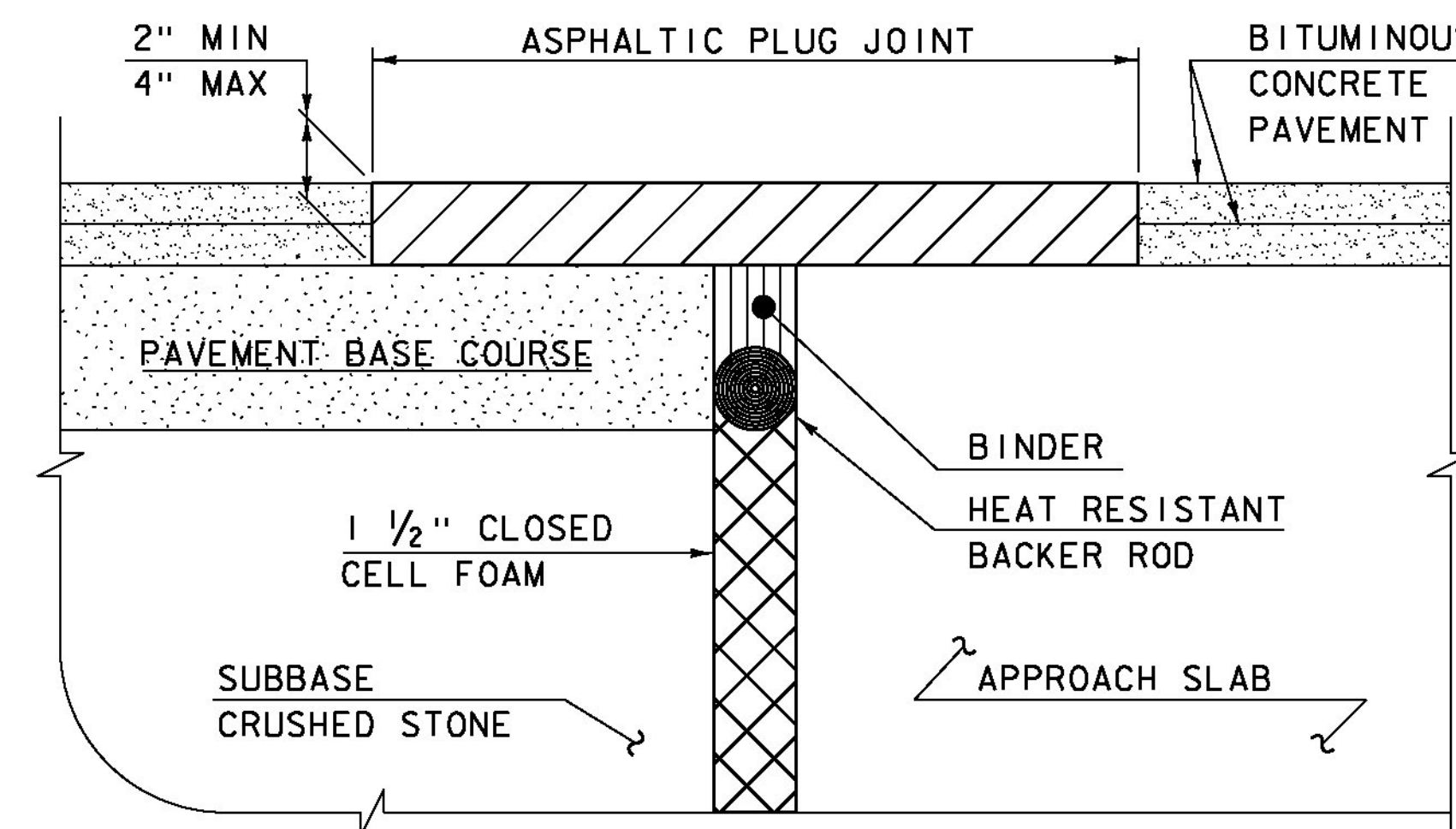
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL 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

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

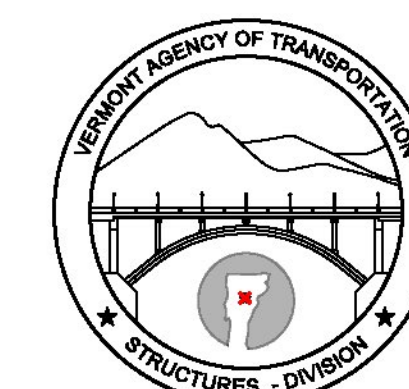
APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

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.

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

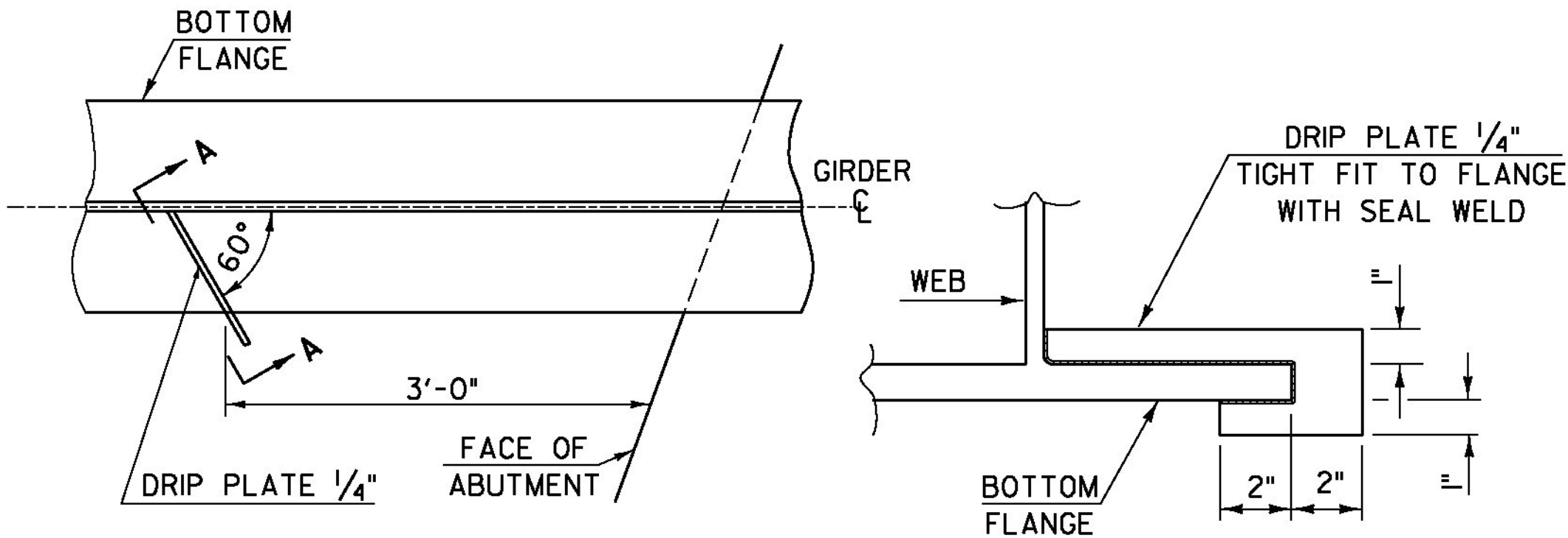


STRUCTURES  
DETAIL  
SD-516.10



STRUCTURAL STEEL GENERAL NOTES:

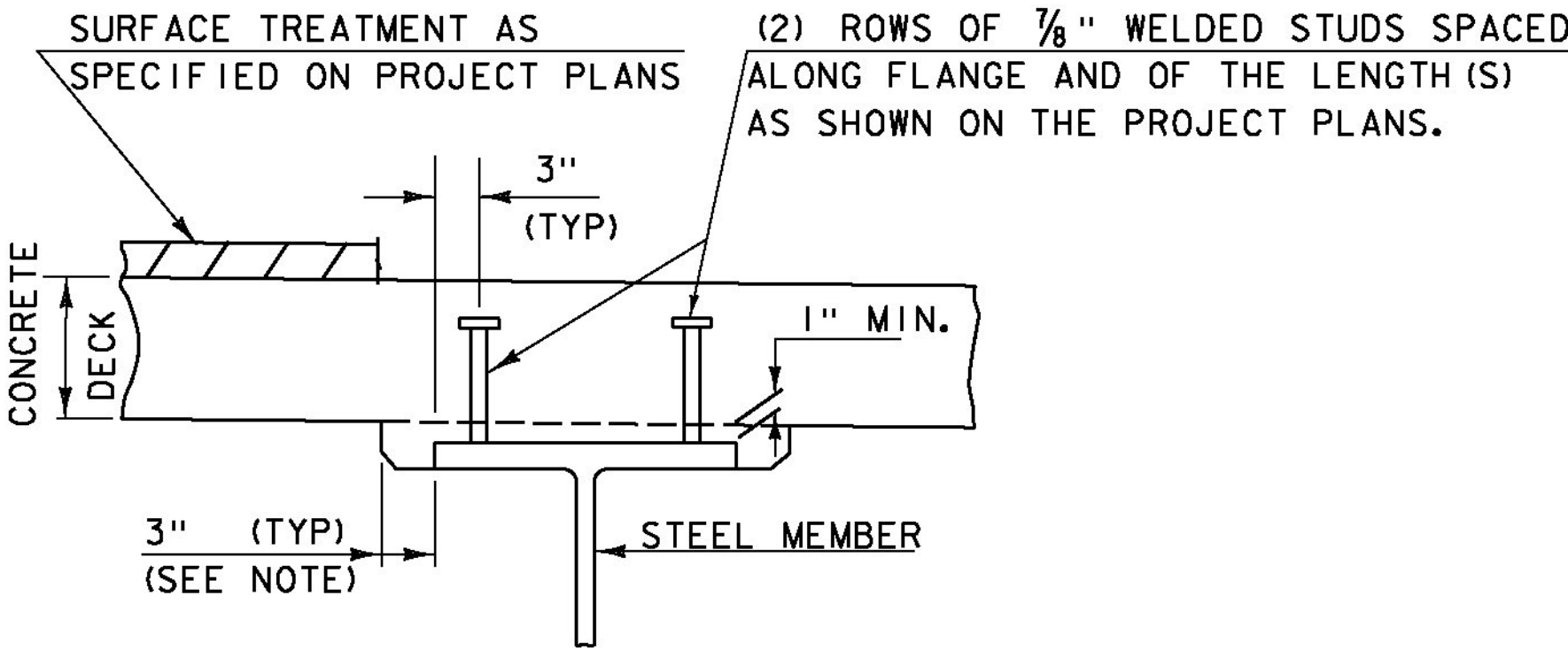
- 1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.I9, UNLESS OTHERWISE SPECIFIED.
- 2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE 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

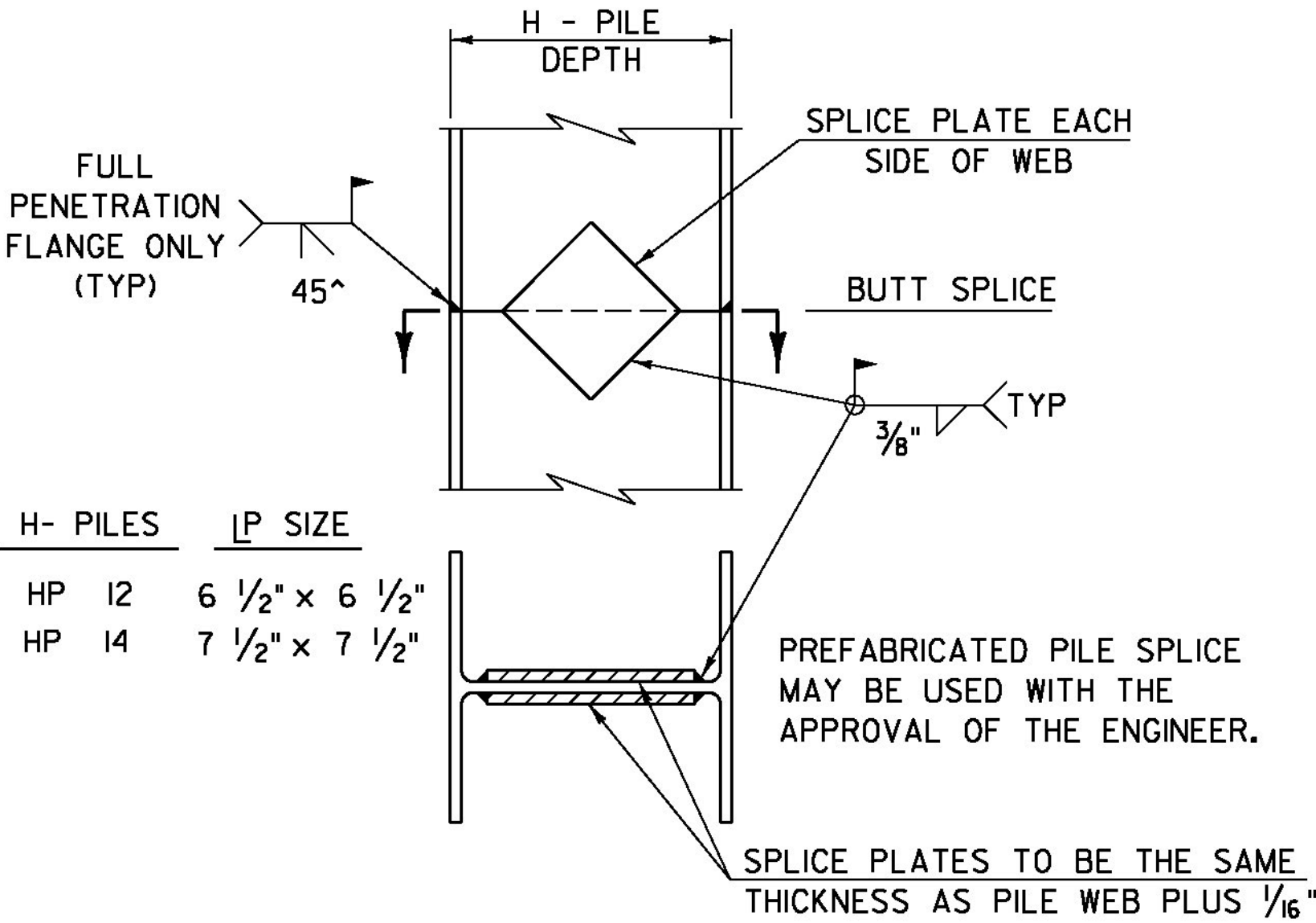
SECTION A - A

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

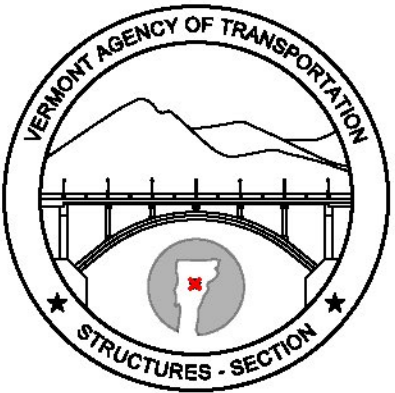


DETAIL OF PILE SPLICE

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

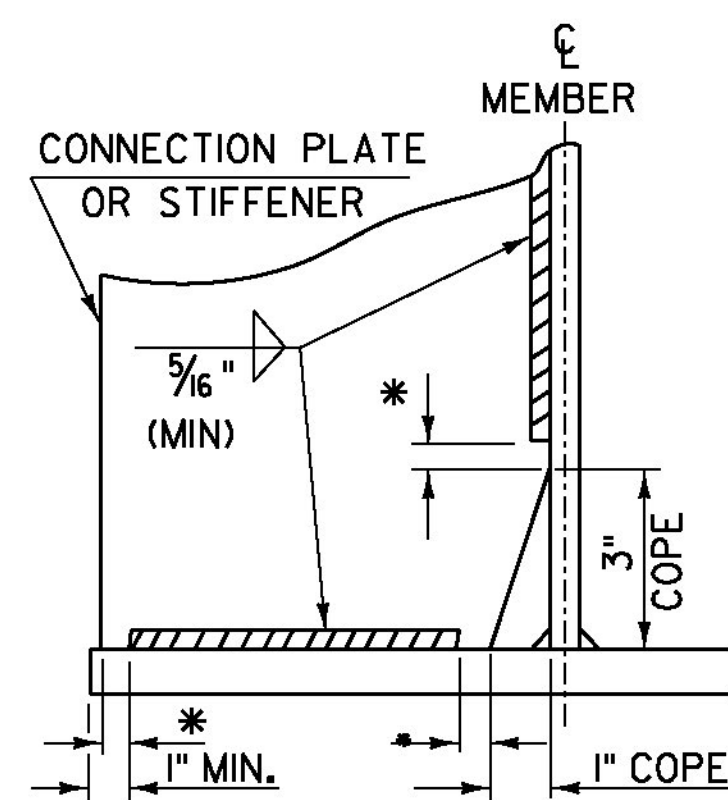
REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

STRUCTURAL STEEL  
DETAILS & NOTES



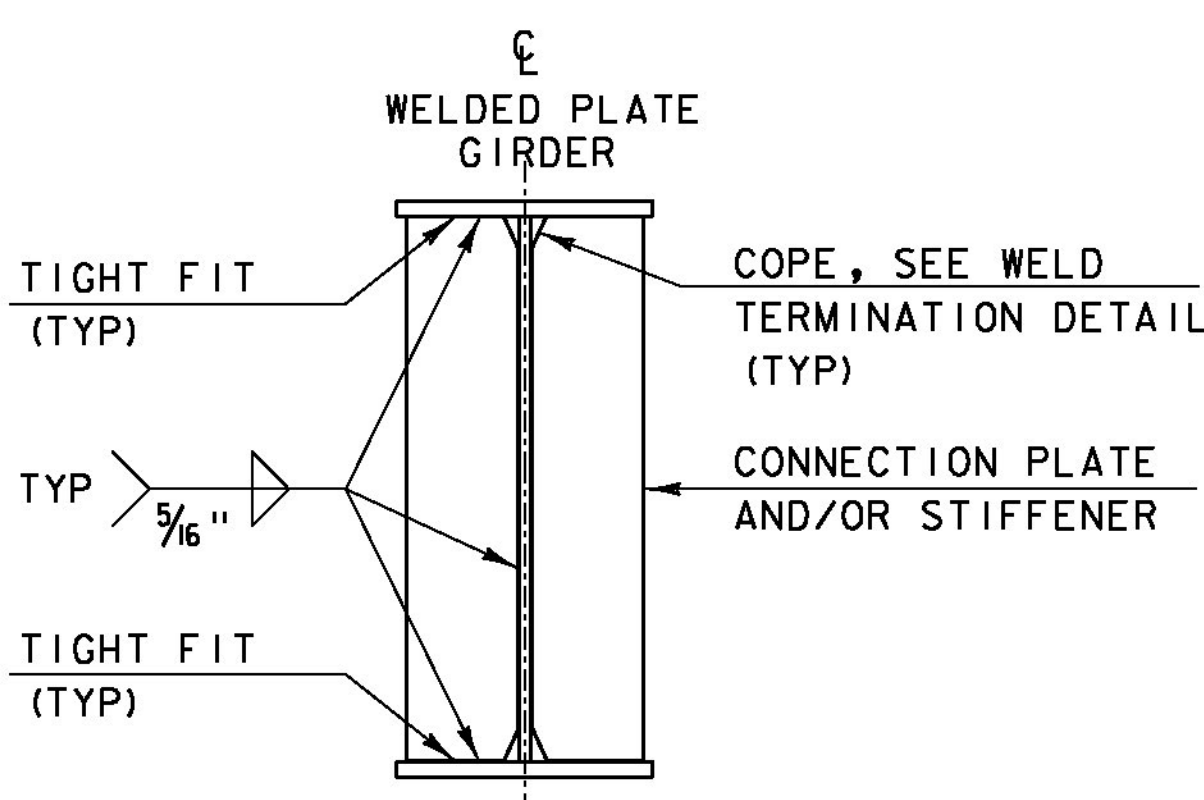
STRUCTURES  
DETAIL  
SD-601.00





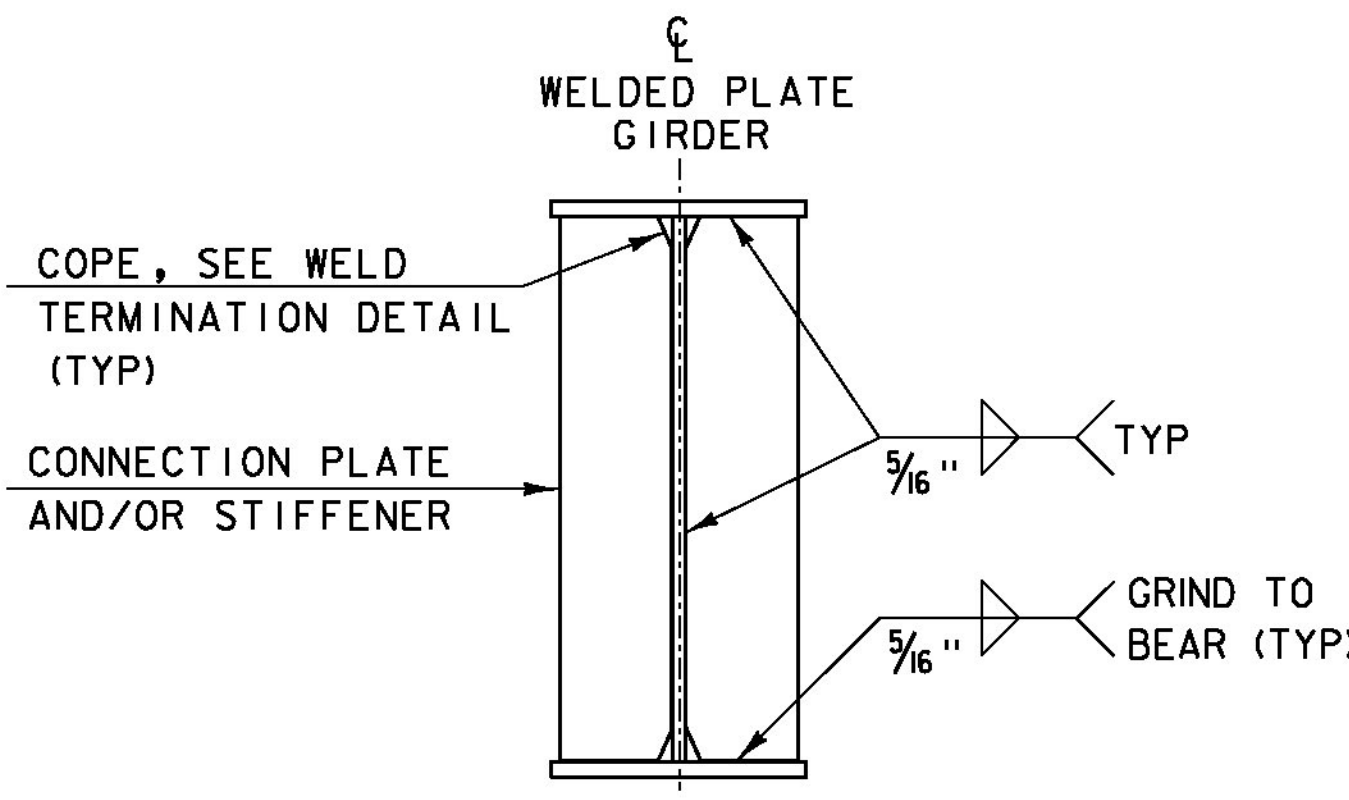
**WELD TERMINATION AND COPING  
DETAILS FOR STEEL MEMBERS**

*NO WELD FOR 3/8" MIN. 7/8" MAX. (EXCEPT MUST  
MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

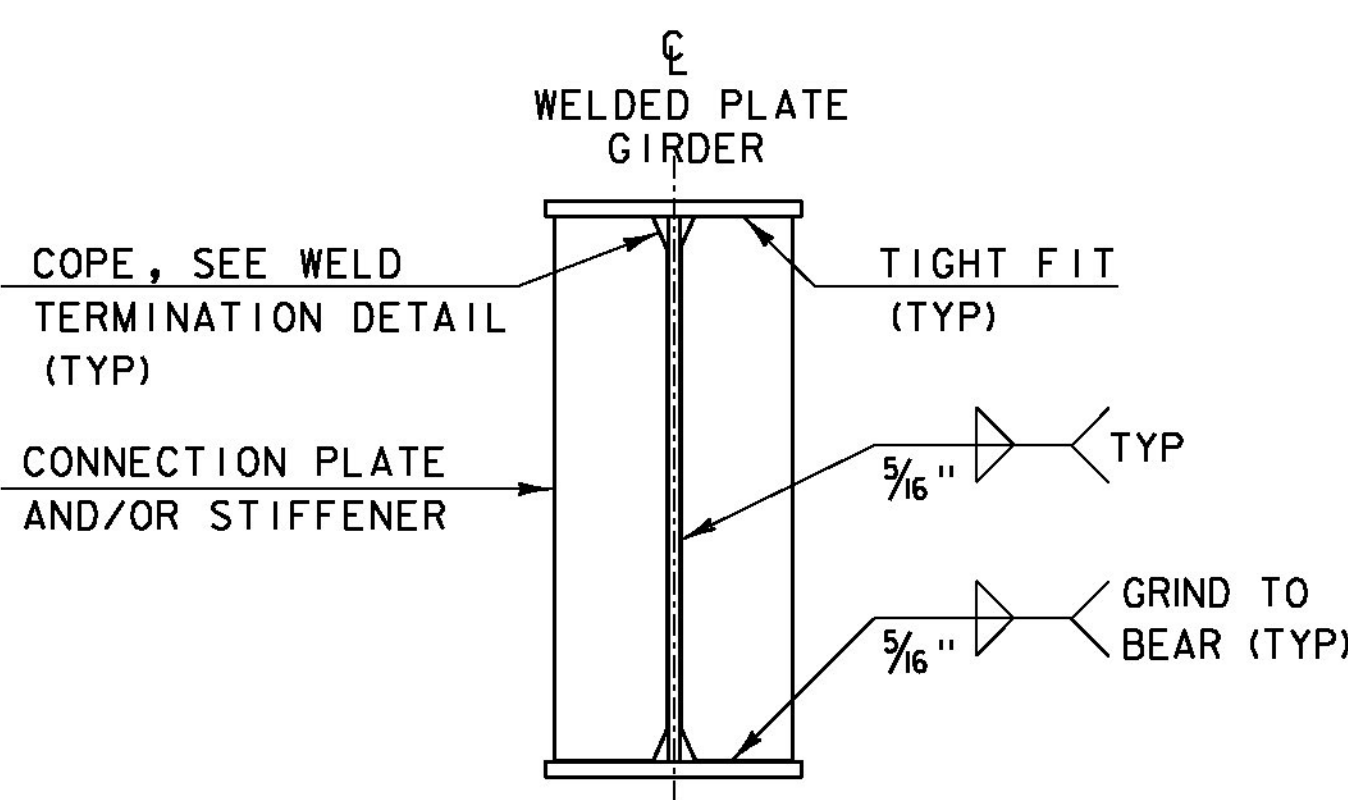


**INTERMEDIATE CONNECTION PLATES  
AND/OR STIFFENERS FOR WELDED  
PLATE GIRDERS**

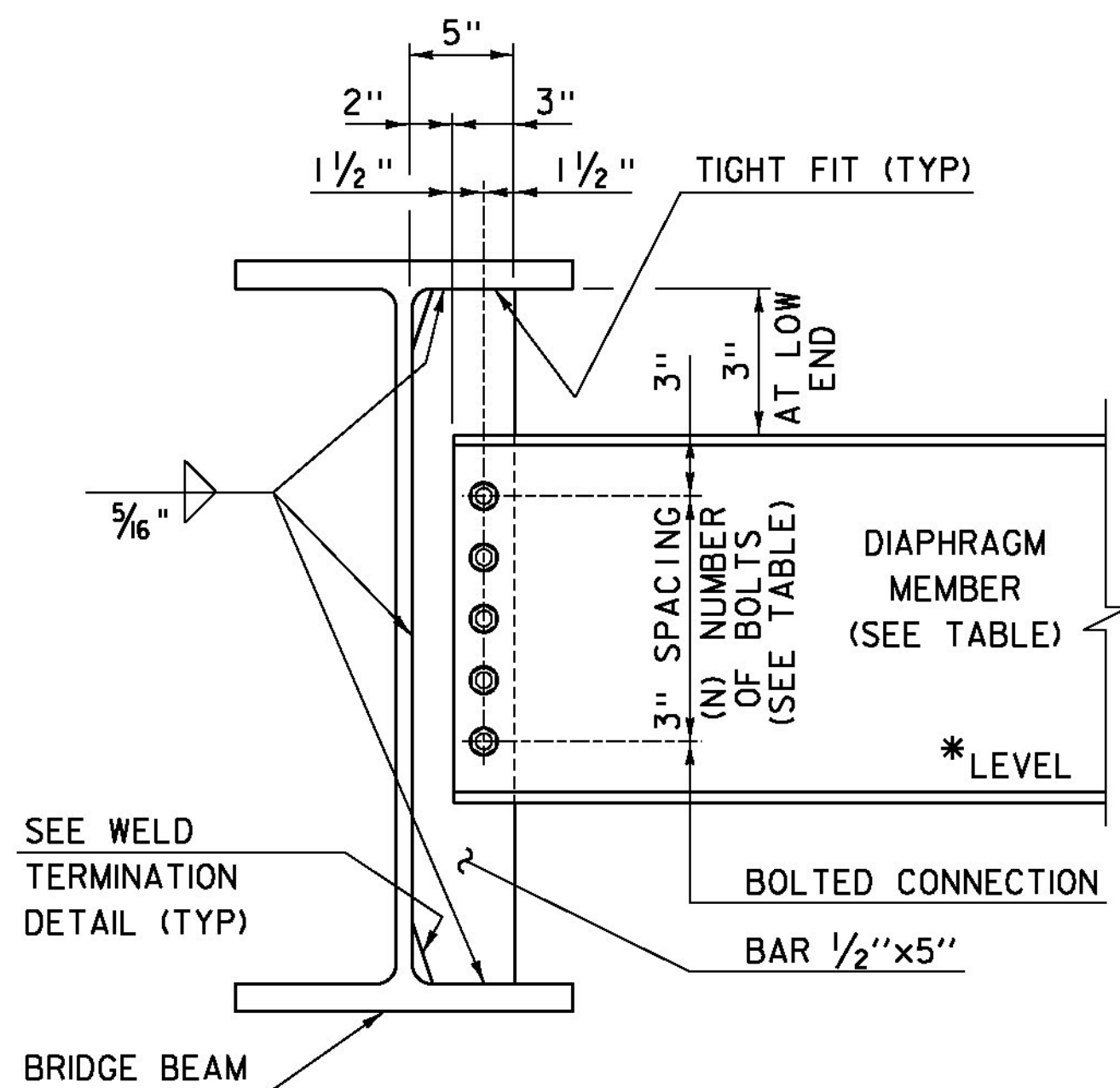
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES  
NOT OCCUR AT AN ABUTMENT OR PIER.



**ABUTMENT BEARING STIFFENERS  
AND/OR CONNECTION PLATES  
FOR WELDED PLATE GIRDERS**



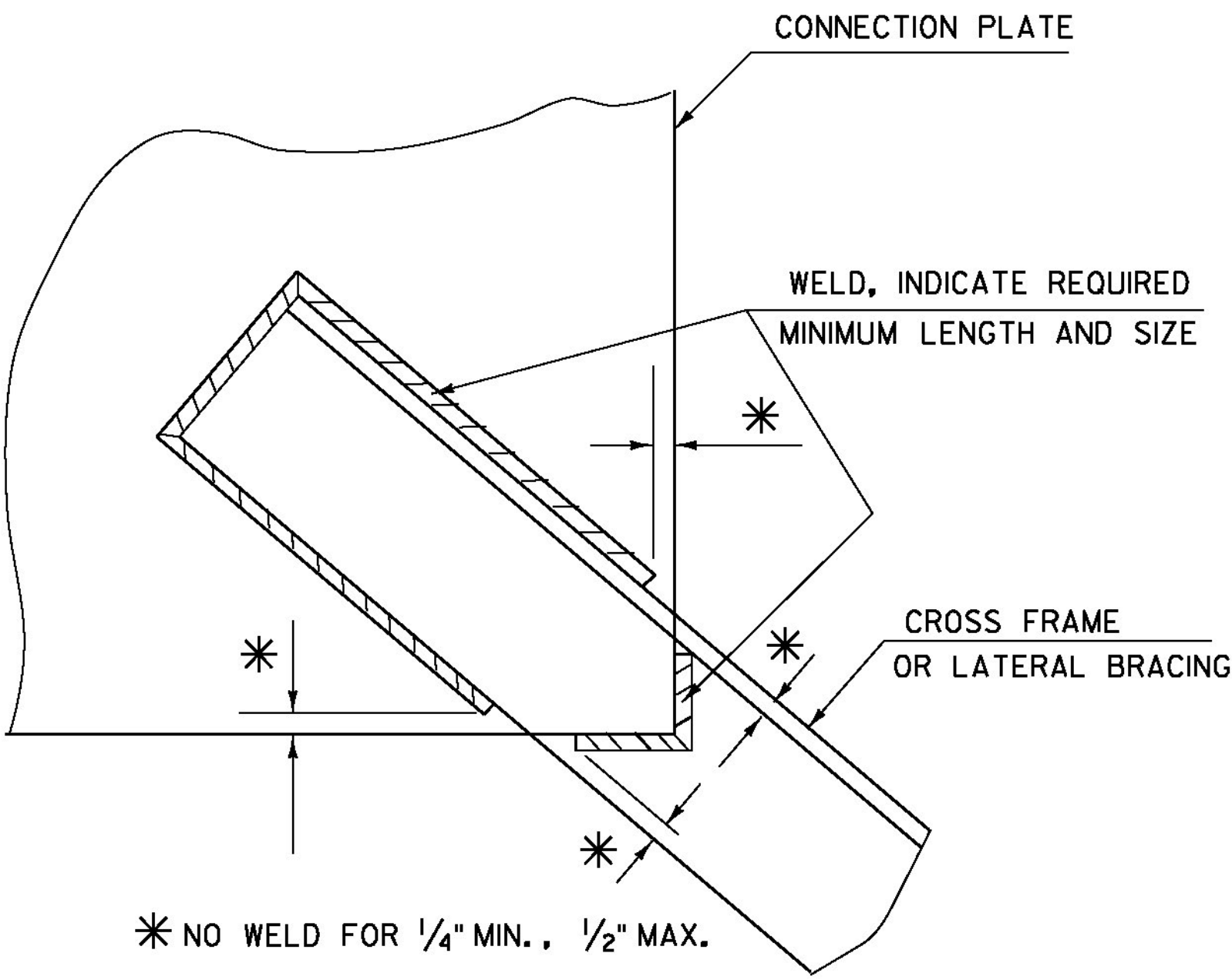
**PIER BEARING STIFFENERS  
AND/OR CONNECTION PLATES  
FOR WELDED PLATE GIRDERS**



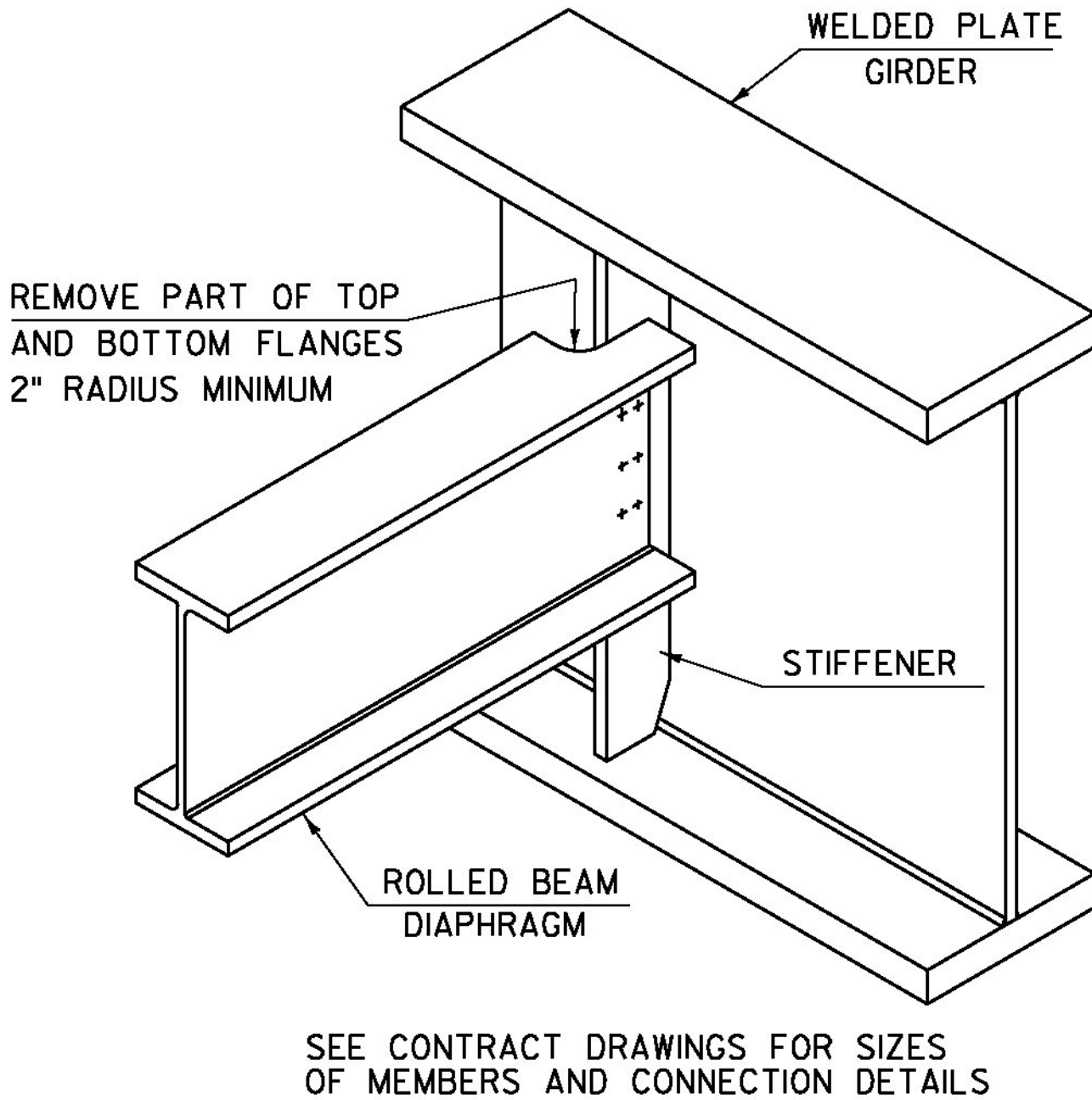
**INTERMEDIATE DIAPHRAGMS  
FOR 24\"/>**

* IF CLEARANCE CANNOT BE MET, DIAPHRAGM MAY BE SLOPED.

	DEPTH	DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24"	C15x33.9	4
	30"		
	31"	MC18x42.7	5
	36"		
PLATE GIRDER WEB	37"	W21x44	6
	42"		
	31"	W27x84	7
	36"		
	37"	W33x118	9
	42"		
	43"	W36x135	10
	48"		



**WELD LOCATION DETAIL AT CROSS  
FRAMES AND LATERAL BRACING**

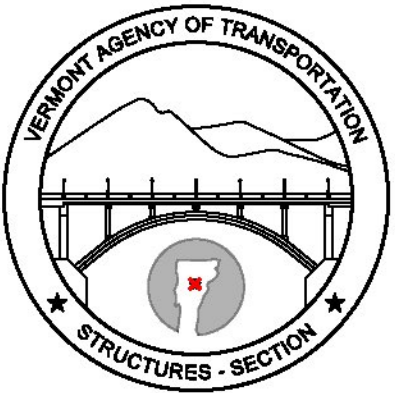


**ROLLED BEAM USED AS DIAPHRAGM**

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

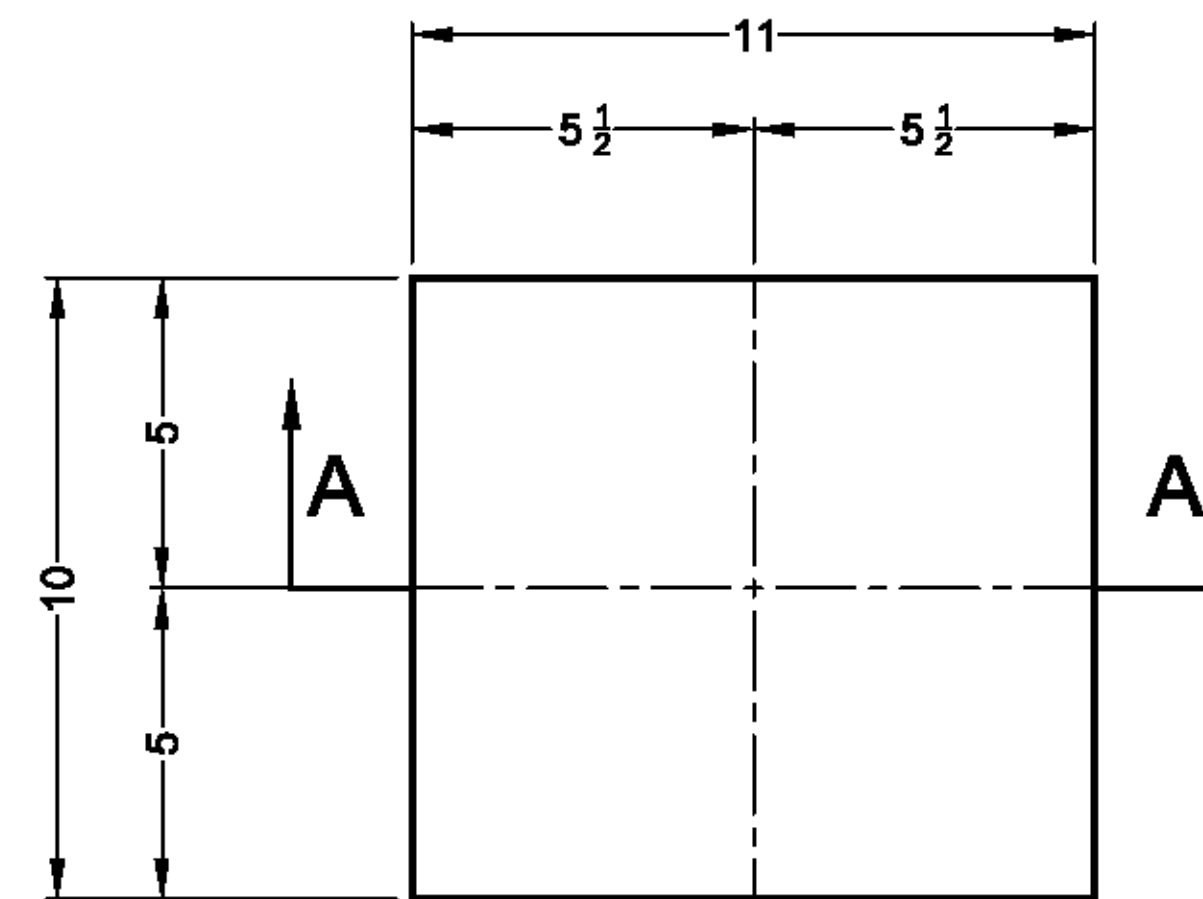
REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
MAY 2, 2011	ADD INTERMEDIATE DIAPHRAGMS DETAIL & ADD NOT TO SCALE NOTE

**STRUCTURAL STEEL PLATE  
GIRDER DETAILS AND NOTES**



**STRUCTURES  
DETAIL  
SD-602.00**

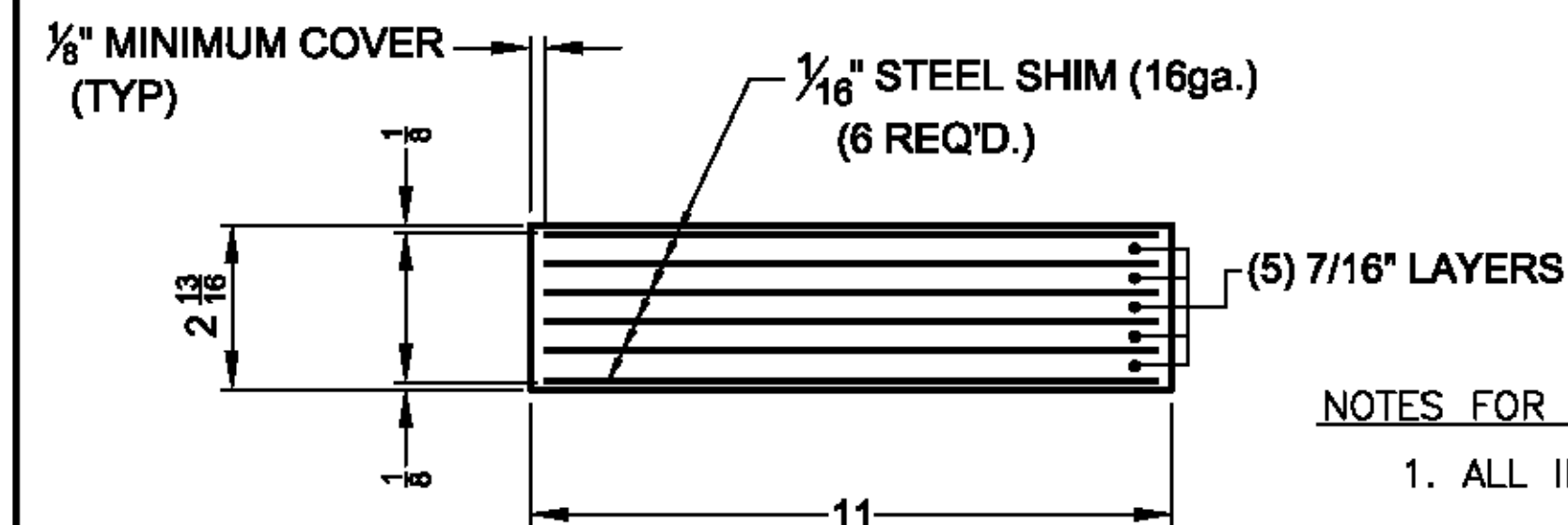




**PLAN VIEW**



**SIDE VIEW**

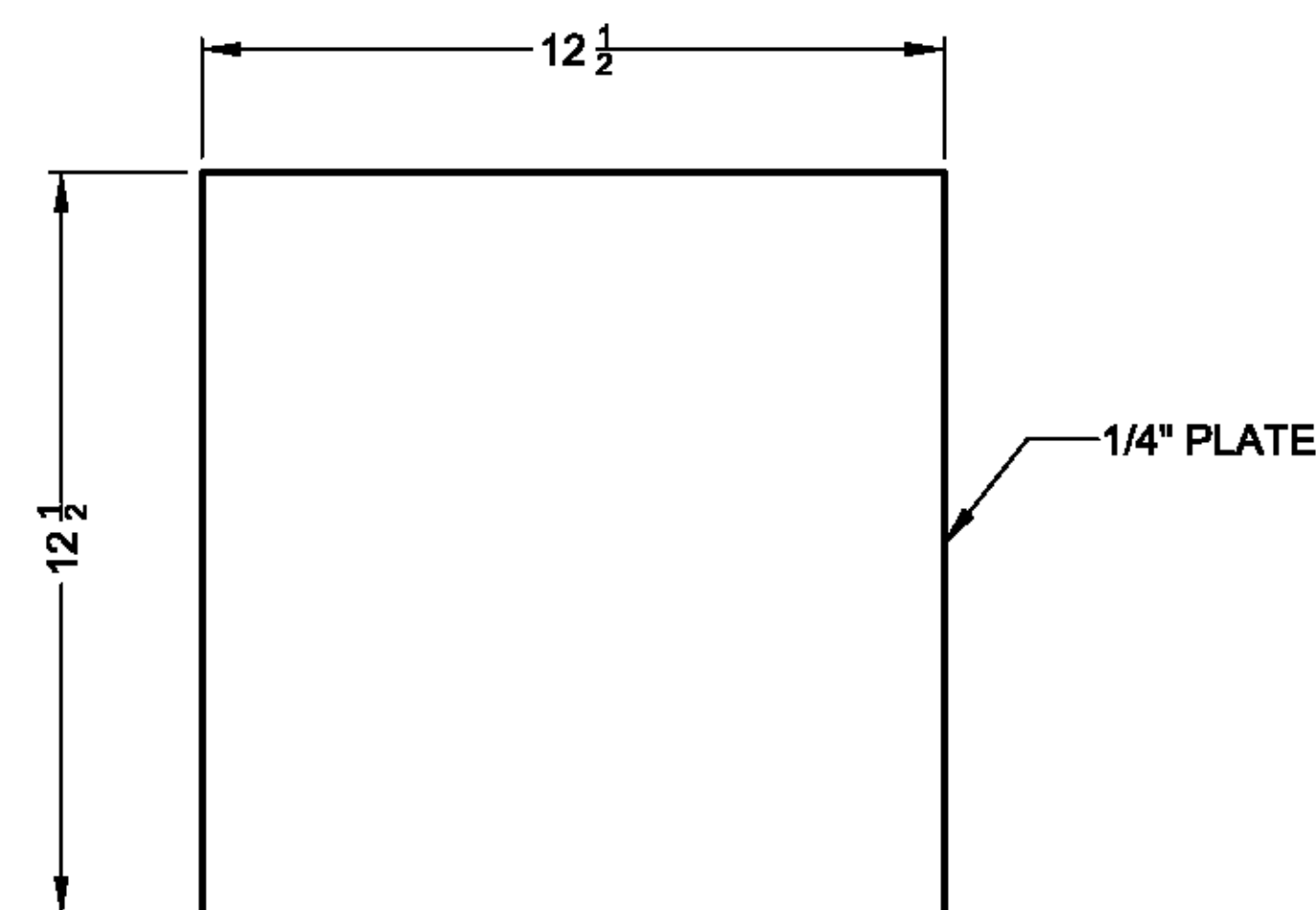


**SECTION A-A**

QTY. REQ'D. = 8

**NOTES FOR LAMINATED ELASTOMERIC BEARING PADS (ITEM NO. 531.17):**

1. ALL INTERNAL STEEL SHIMS SHALL BE ASTM A1011 GRADE 36
2. BEARINGS TO BE MANUFACTURED ACCORDING TO AASHTO LRFD STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 14 & 18, 17th. EDITION, 2002 AND 2010 INTERIMS. BEARINGS SHALL ALSO CONFORM TO VT AOT APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
3. ELASTOMERIC NATURAL RUBBER MATERIAL TO BE 50+/-5 DUROMETER HARDNESS, GR. 4
4. ALL STEEL PRODUCED IN THE U.S.A.
5. THE BEARINGS ARE DESIGNED SO THAT THE SUPERSTRUCTURE MAY BE ERECTED WHEN THE AMBIENT AIR TEMPERATURE IS WITHIN THE RANGE OF 40 DEG. F. TO 90 DEG. F.
6. ALL LOOSE STEEL SHIMS SHALL BE ASTM GRADE 36 AND SHALL BE GALVANIZED.



**SHIM PLATE**

QTY. REQ'D. = 8  
GALVANIZED

Vermont Agency of Transportation

**RECEIVED**

CK'D BY FDB OK'D BY HIS

May 19, 2015

RESUBMIT NO Approved

BY Carolyn Carlson DATE 05/21/2015

VERMONT AOT  
TOWN OF MIDDLESEX  
WASHINGTON COUNTY, VERMONT

PROJECT NO. : BRF-024-1 (37)

ROUTE NO. : VT 12

BRIDGE NO. : 77

STEEL REINFORCED ELASTOMERIC BEARING  
PAD & LOOSE SHIM DETAILS

**AMSCOT**

STRUCTURAL PRODUCTS CORP.

SCALE: N.T.S.

APPR'D:

DRAWN BY: E.J.G.

DATE: 4/21/15

BF

REVISION: 0

FOR: A.L. St. ONGE

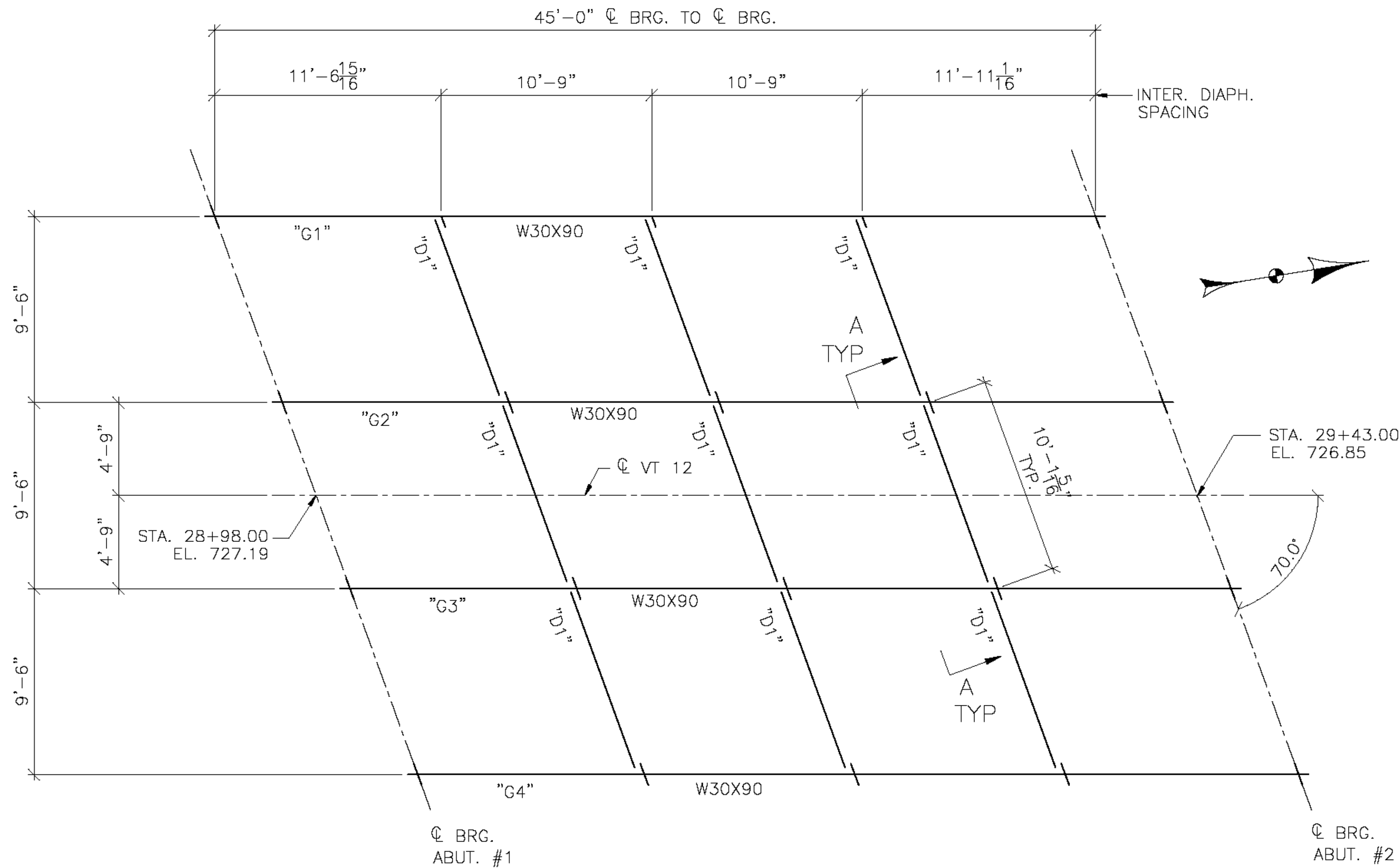
DWG NO: AS015C1R0

SHEET 1 OF 1

REVISIONS					
ZONE	REV	DESCRIPTION	REVISED BY	DATE	APPROVED



J.A.C. DRAFTING/555B15/1



FRAMING PLAN

GENERAL NOTES:

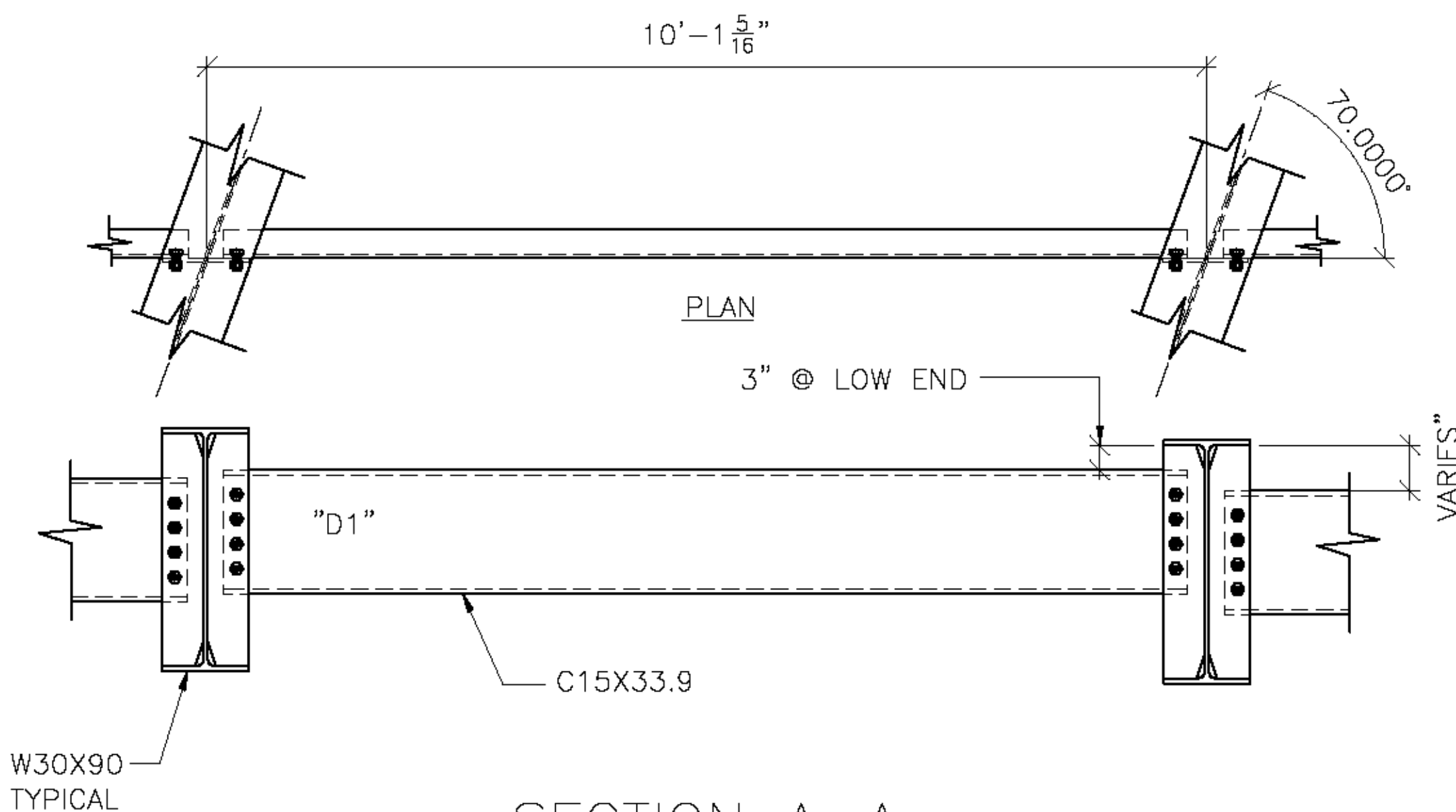
ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND IT'S LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION AND IT'S LATEST REVISIONS.

ALL MATERIAL SHALL CONFORM TO AASHTO M270 (ASTM A709) GRADE 50. ALL MATERIAL NOTED "CVN" SHALL MEET THE CHARPY V-NOTCH TESTING REQUIREMENTS OF ZONE 2, H FREQUENCY: 15 FT.-LB AT 40° F. NDT MUST BE ACCORDING TO ANSI/AASHTO/AWS D1.5, SECTION 6

ALL BOLTS SHALL BE  $\frac{7}{8}$ " $\phi$  IN  $\frac{15}{16}$ " $\phi$  HOLES AND CONFORMING TO ASTM A325, TYPE 1 WITH RO-CAP TESTING AND MECHANICALLY GALVANIZED.

INCLUDING ADDITIONAL BOLT TESTING PER VTRANS SUBSECTION 714.05

ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH VTRANS SUBSECTION 726.08 AFTER FABRICATION.



SECTION A-A

FIELD BOLT LIST

MARK	QTY.	DESCRIPTION	LOCATION
FB3	72	$\frac{7}{8}$ " $\phi$ X2 $\frac{1}{4}$	INTER. DIAPH. TO CONN. PL
	72	DIRECT TENSION INDICATORS + THREE (3) TEST ASSEMBLIES	

Vermont Agency of Transportation

RECEIVED

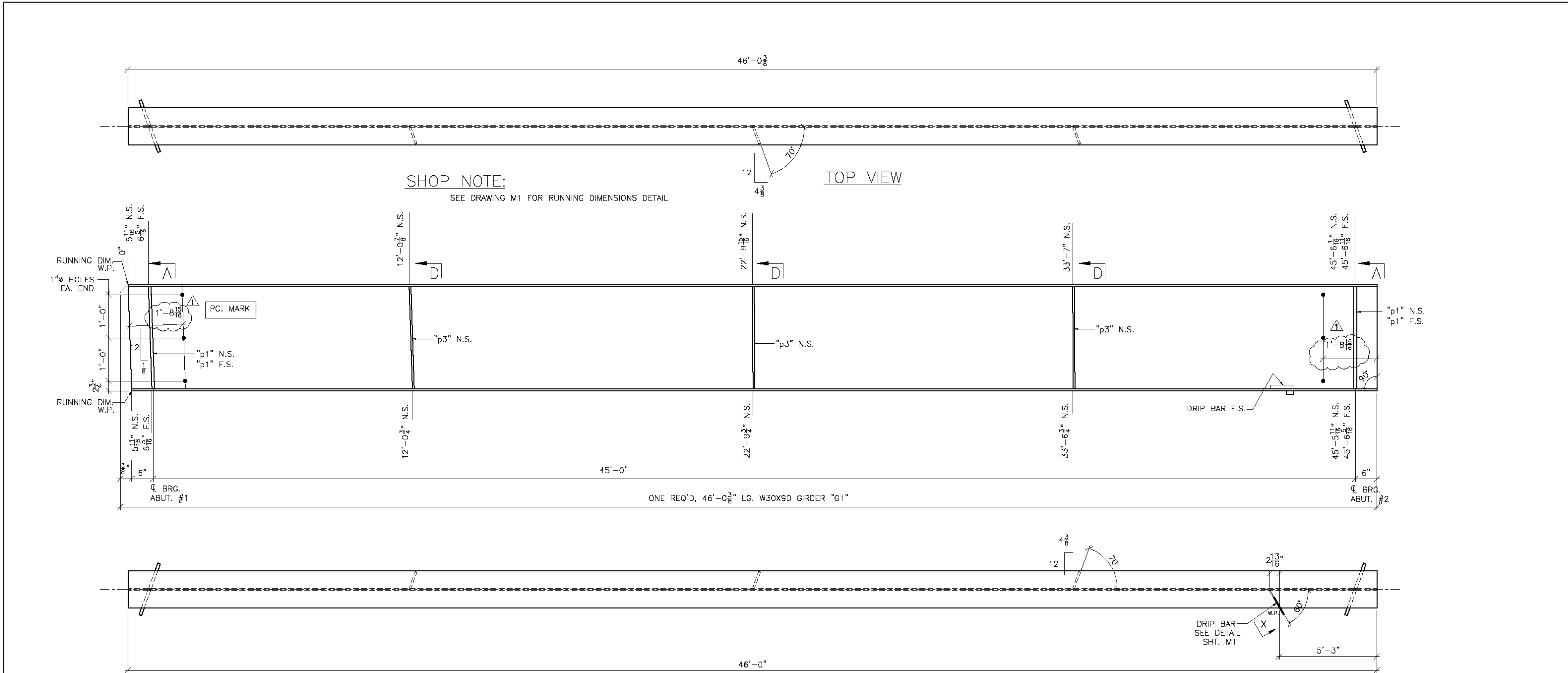
CK'D BY FDB OK'D BY CLB

May 29, 2015

RESUBMIT No Approved AsNoted  
BY Carolyn Carlson DATE 06/02/15

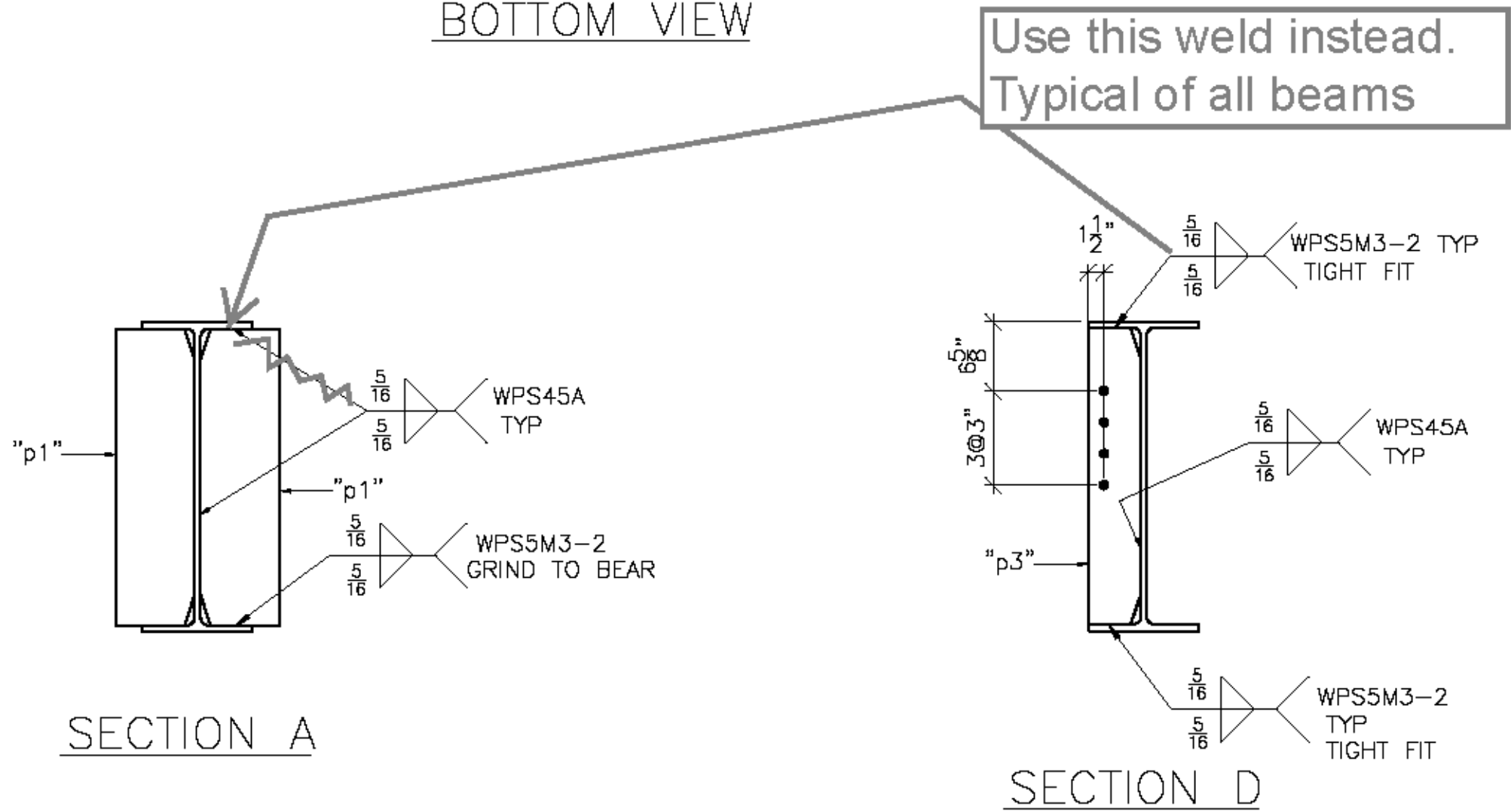
FINISH				
MATERIAL	SEE DETAIL SHEETS			
HOLES				
ELECTRODES				
WELDS	PER WPS			
SURFACE PREP		5/27/15	PER APPROVAL	JAC
	NO	DATE	DESCRIPTION	BY
REVISIONS				
ARC ENTERPRISES, INC.		ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED P.O. BOX 120 KINGFIELD, ME. 04947 PHONE: (207) 285-2648 - FAX: (207) 285-4054		
DRAFTER	JAC	FRAMING PLAN		PROJECT NO.
DATE	5/11/15	TOWN OF MIDDLESEX, VT 12 (RURAL MAJOR COLLECTOR)		15-114
CHECKED	JS	PROJECT NUMBER BR 024-1(37)		DWG. NO.
DATE	5/14/15	AL ST. ONGE CONTRACTOR, INC.		1





BILL OF MATERIAL							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	G1	1		GIRDER W30X90	46'-0 3/8"	CVN	4377
		4	p1	SEE SHT. M1			4140
		3	p3	SEE SHT. M1			
		1	dp1	1/4" THK. DRIP BAR SEE SHT. M1			

Vermont Agency of Transportation  
**RECEIVED**  
CK'D BY FDB OK'D BY CLB  
May 29, 2015  
RESUBMIT No Approved AsNoted  
BY Carolyn Carlson DATE 06/02/15



SEE SHEET M1 FOR CAMBER AND SECTIONS & DETAILS NOT SHOWN

SHOP NOTE:  
ENTIRE TOP FLANGE IS IN COMPRESSION  
ENTIRE BOTT FLANGE IS IN TENSION

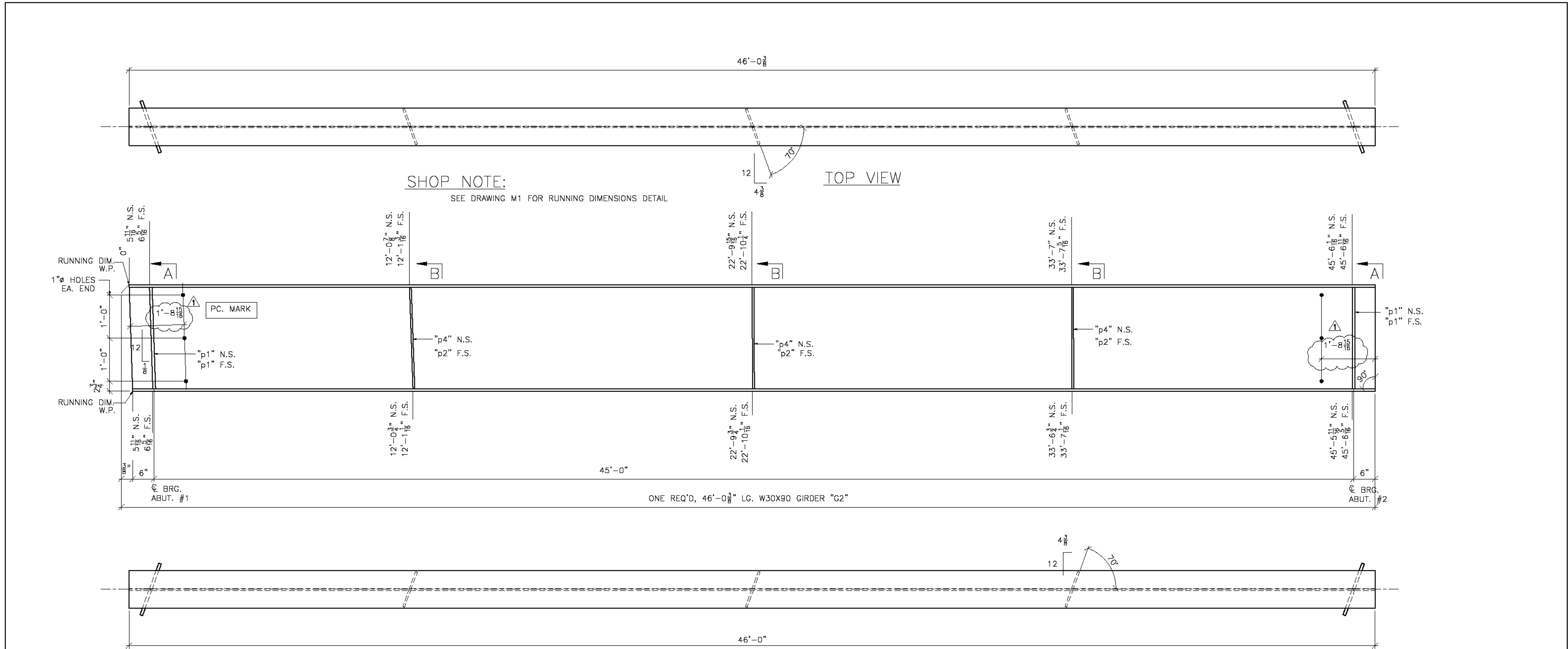
FINISH	GALVANIZED				
MATERIAL	AASHTO M270 (ASTM A709) GR. 50 U.O.N.				
HOLES	15/16" U.O.N.				
ELECTRODES					
WELDS	PER WPS				
SURFACE PREP	SSPC SP6				
		5/27/15	PER APPROVAL	JAC	
		NO	DATE	DESCRIPTION	BY

REVISIONS

ARC	ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED	PROJECT NO. 15-114
	P.O. BOX 120 KINGFIELD, ME. 04947	DWG. NO. 2
	PHONE: (207) 265-2646 - FAX: (207) 265-4054	

DRAFTER	JAC	STRINGER DETAILS, G1	
DATE	5/11/15	TOWN OF MIDDLESEX, VT 12 (RURAL MAJOR COLLECTOR)	
CHECKED	JS	PROJECT NUMBER BR# 024-1(37)	
DATE	5/14/15	G.C. AL ST. ONCE CONTRACTOR INC.	





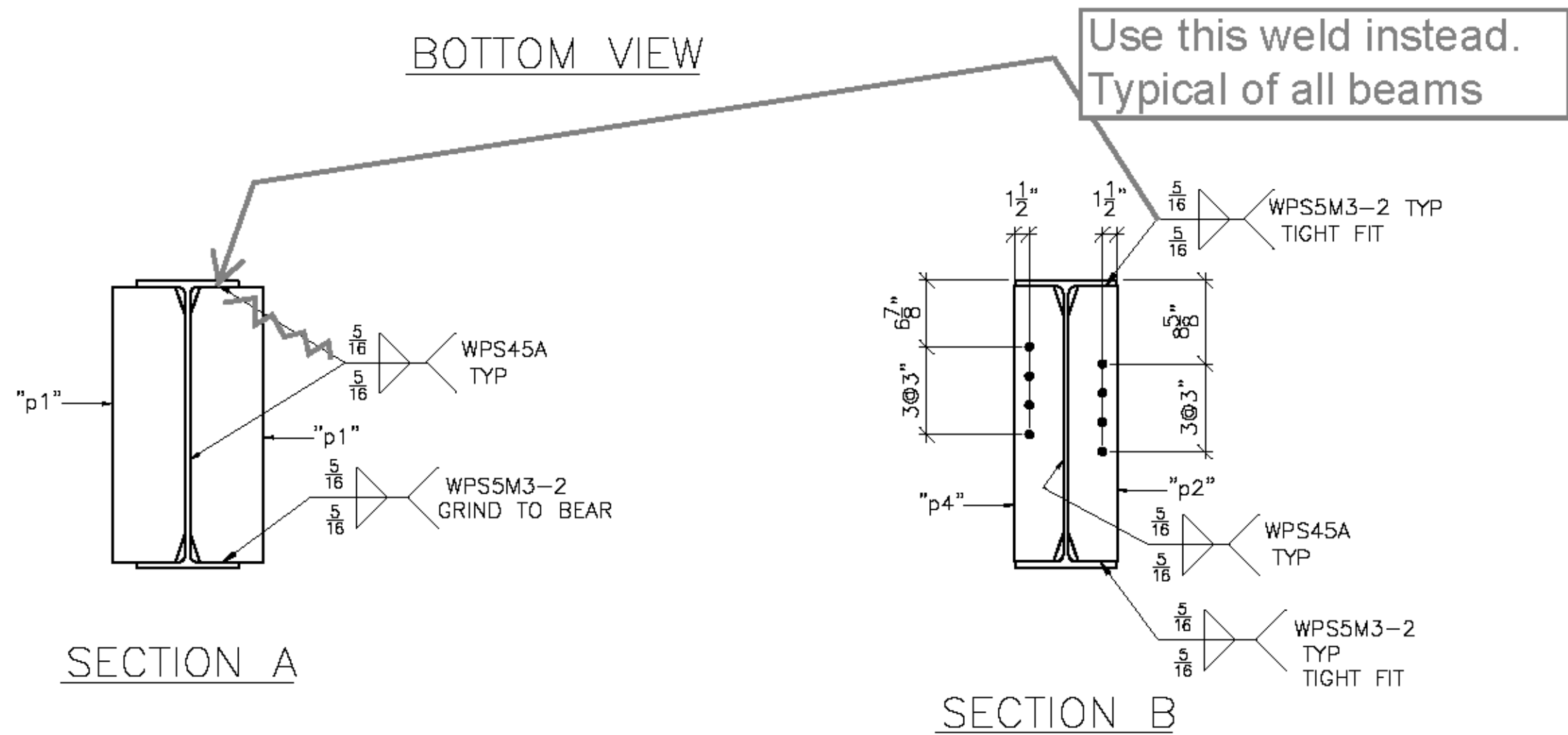
BILL OF MATERIAL							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	G2			GIRDER	46'-0 3/8"		4438
		1		W30X90		CVN	4140
		4	p1	SEE SHT. M1			
		3	p2	SEE SHT. M1			
		3	p4	SEE SHT. M1			

Vermont Agency of Transportation  
**RECEIVED**

CK'D BY FDB OK'D BY CLB

May 29, 2015

RESUBMIT No Approved AsNoted  
BY Carolyn Carlson DATE 06/02/15

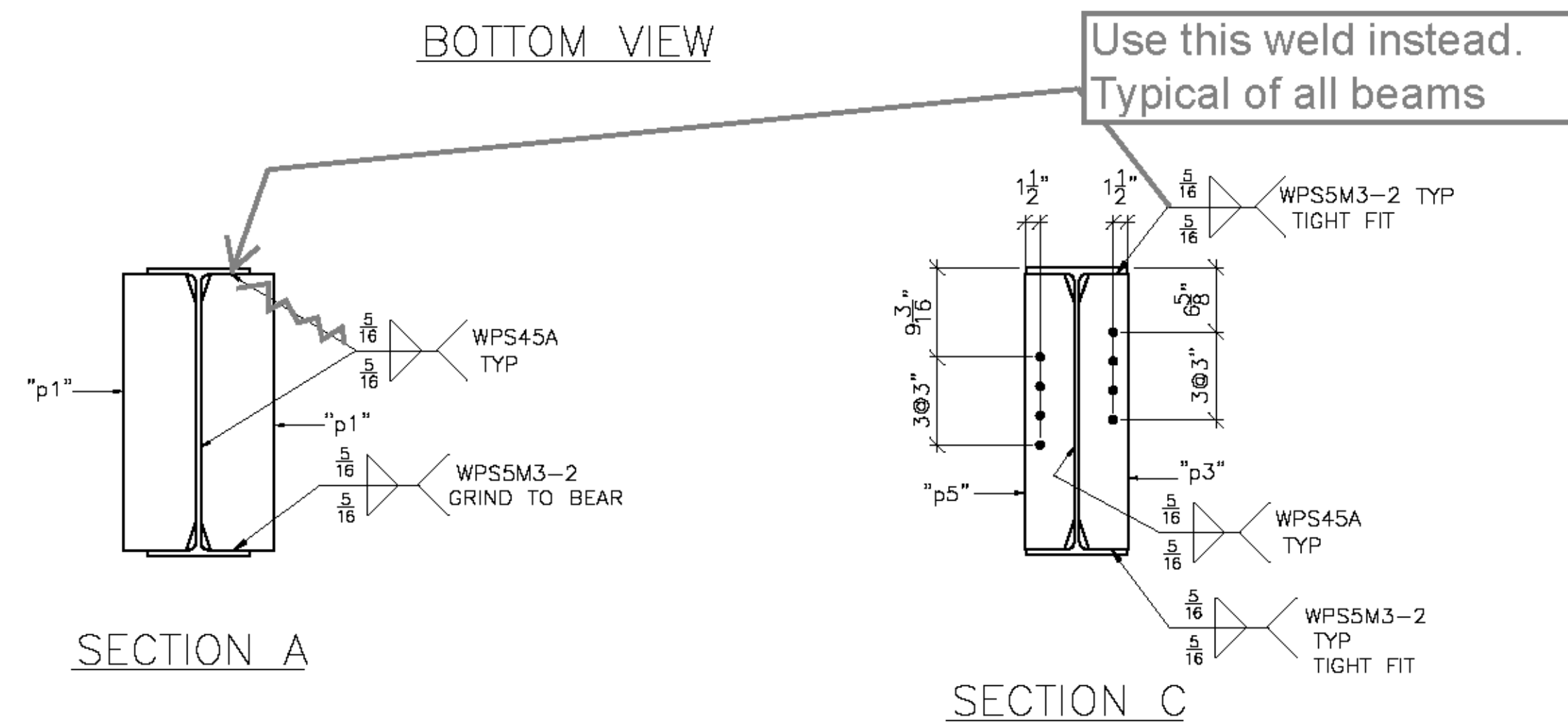
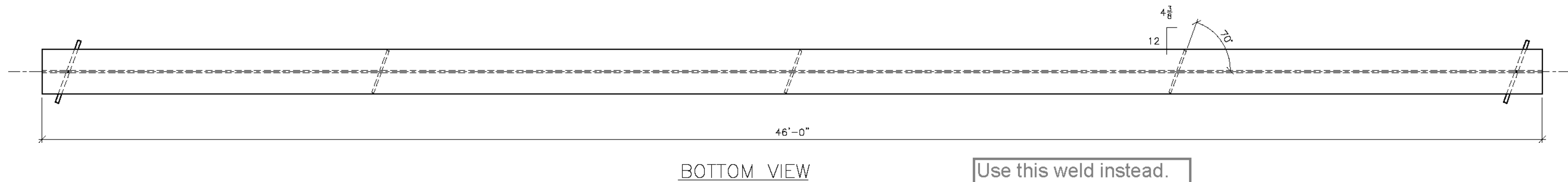
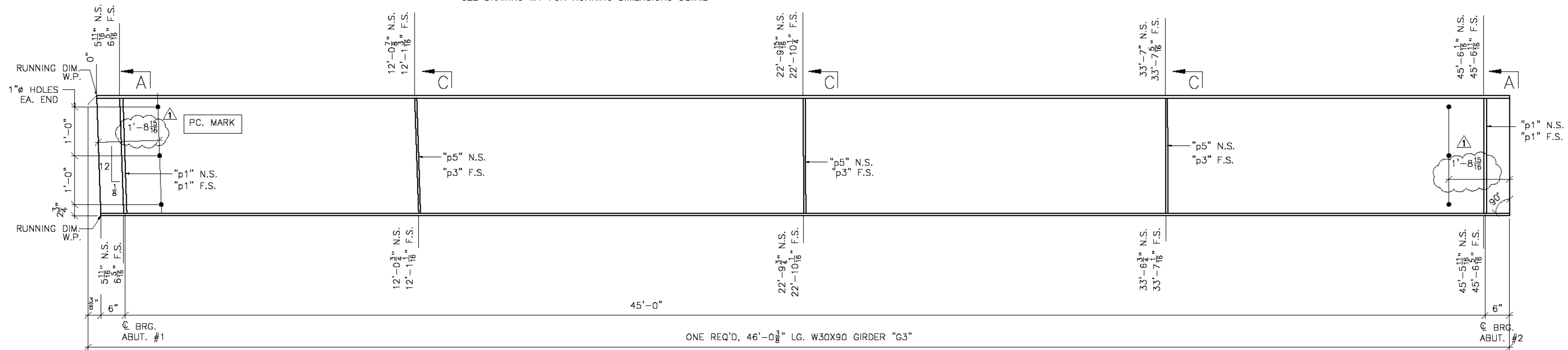
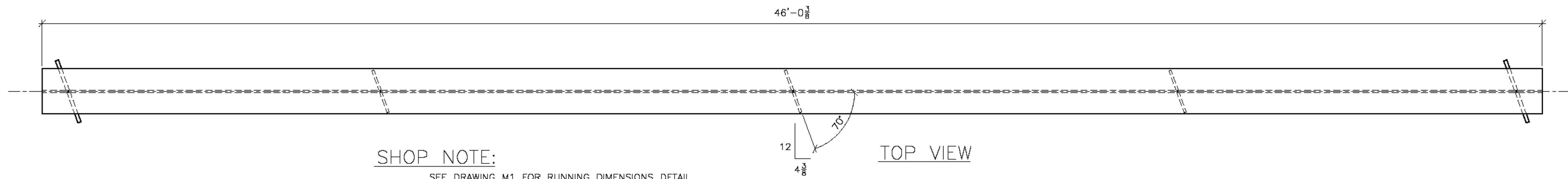


SHOP NOTE:  
ENTIRE TOP FLANGE IS IN COMPRESSION  
ENTIRE BOTT FLANGE IS IN TENSION

FINISH	GALVANIZED				
MATERIAL	AASHTO M270 (ASTM A709) GR. 50 U.O.N.				
HOLES	15/16" U.O.N.				
ELECTRODES					
WELDS	PER WPS				
SURFACE PREP	SSPC SP6				
NO	5/27/15	PER APPROVAL	JAC	BY	
REVISIONS					
ARC					
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED					
P.O. BOX 120 KINGSFIELD, ME. 04847					
PHONE: (207) 265-2646 - FAX: (207) 265-4054					
DRAFTER	JAC	STRINGER DETAILS, G2	PROJECT NO.	15-114	
DATE	5/11/15	TOWN OF MIDDLESEX, VT 12 (RURAL MAJOR COLLECTOR)	DWG. NO.	3	
CHECKED	JS	PROJECT NUMBER BR/ 024-1(37)			
DATE	5/14/15	G.C. AL ST. ONCE CONTRACTOR INC.			

SEE SHEET M1 FOR CAMBER AND SECTIONS & DETAILS NOT SHOWN





SHOP NOTE:  
ENTIRE TOP FLANGE IS IN COMPRESSION  
ENTIRE BOTT FLANGE IS IN TENSION

FINISH	GALVANIZED				
MATERIAL	ASHTO M270 (ASTM A709) GR. 50 U.O.N.				
HOLES	15/16" U.O.N.				
ELECTRODES					
WELDS	PER WPS				
SURFACE PREP	SSPC SP6				
		5/27/15	PER APPROVAL	JAC	
		NO	DATE	DESCRIPTION	BY
REVISIONS					
ARC ENTERPRISES, INC.		ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED			
P.O. BOX 120 KINGFIELD, ME. 04847		PHONE: (207) 285-2646 - FAX: (207) 285-4054			
DRAFTER	JAC	STRINGER DETAILS, G3		PROJECT NO. 15-114	
DATE	5/11/15	TOWN OF MIDDLESEX, VT 12 (RURAL MAJOR COLLECTOR)		DWG. NO. 4	
CHECKED	JS	PROJECT NUMBER BRP 024-1(37)			
DATE	5/14/15	G.C. AL ST. ONCE CONTRACTOR INC.			

BILL OF MATERIAL							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	G3			GIRDER	46'-0 $\frac{3}{8}$	CVN	4436
		1		W30X90			4140
		4	p1	SEE SHT. M1			
		3	p5	SEE SHT. M1			
		3	p3	SEE SHT. M1			

Vermont Agency of Transportation

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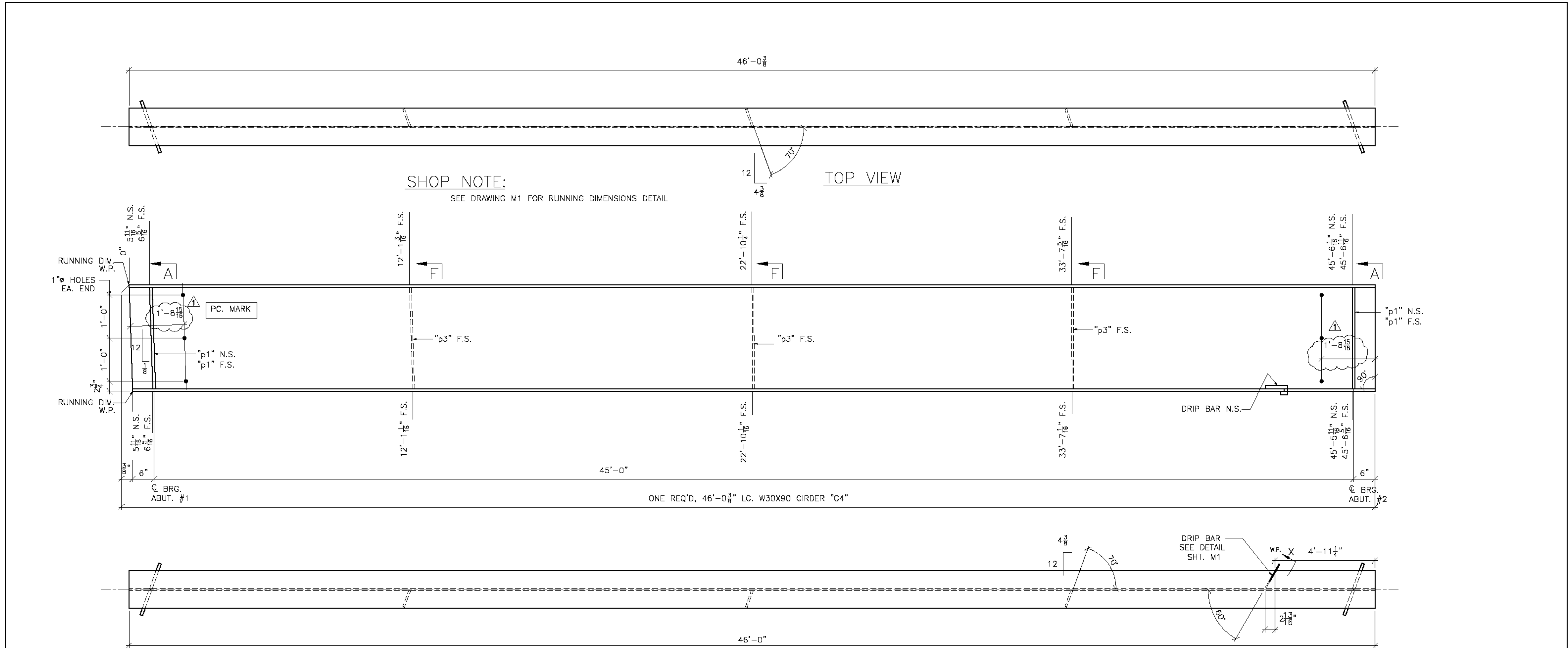
May 29, 2015

RESUBMIT No Approved AsNoted

BY Carolyn Carlson DATE 06/02/15

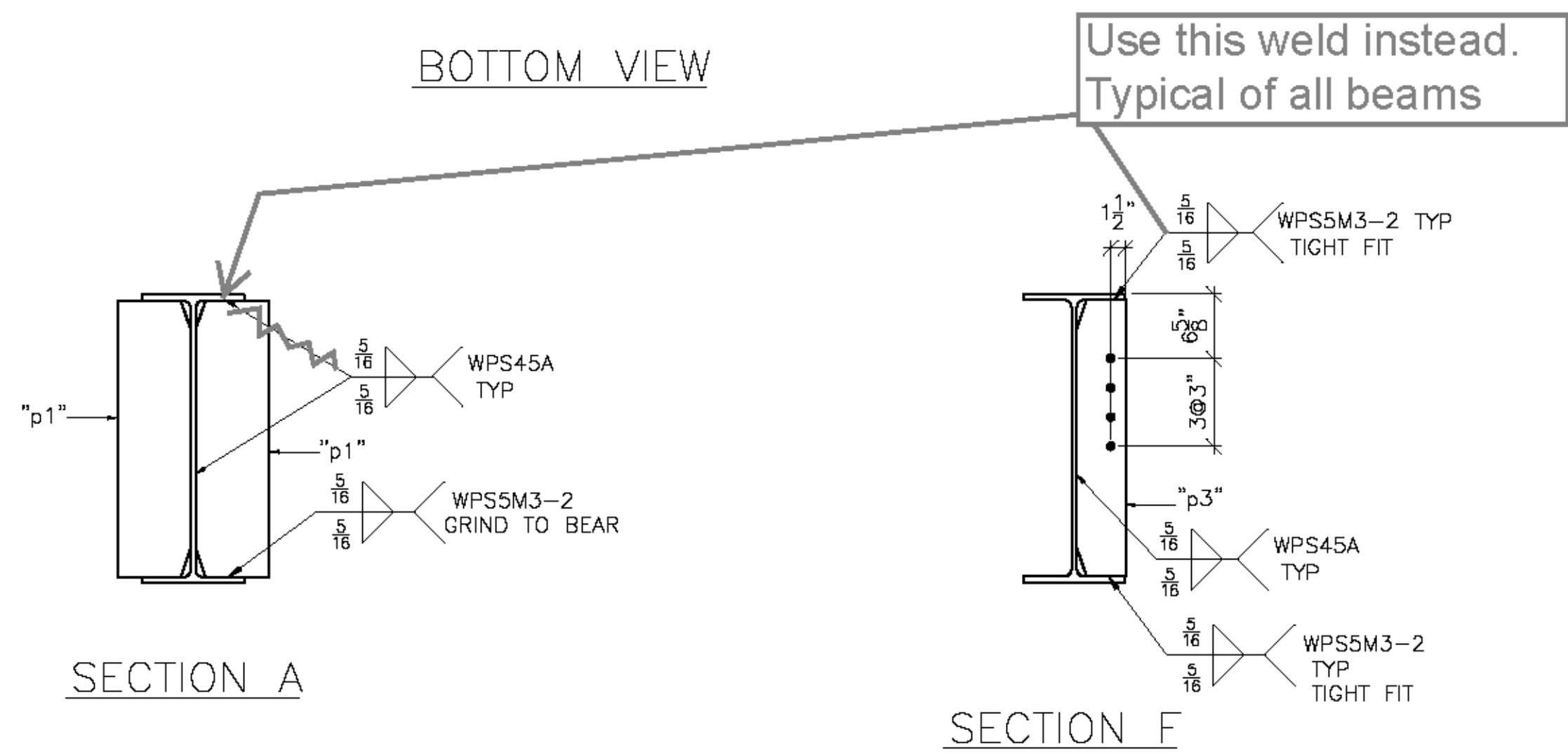
SEE SHEET M1 FOR CAMBER AND SECTIONS & DETAILS NOT SHOWN





BILL OF MATERIAL							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	G4			GIRDER	46'-0 3/8"	CVN	4377
		4	p1	SEE SHT. M1			4140
		3	p3	SEE SHT. M1			
		1	dp1	1/4" THK. DRIP BAR SEE SHT. M1			

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BY Carolyn Carlson DATE 06/02/15



SHOP NOTE:  
ENTIRE TOP FLANGE IS IN COMPRESSION  
ENTIRE BOTT FLANGE IS IN TENSION

FINISH	GALVANIZED				
MATERIAL	AASHTO M270 (ASTM A709) GR. 50 U.O.N.				
HOLES	15/16" U.O.N.				
ELECTRODES					
WELDS	PER WPS				
SURFACE PREP	SSPC SP8				
NO	5/27/15	PER APPROVAL	JAC	BY	
REVISIONS					
ARC ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED					
P.O. BOX 120 KINGFIELD, ME. 04847 PHONE: (207) 265-2646 - FAX: (207) 265-4054					
DRAFTER	JAC	STRINGER DETAILS, G4			PROJECT NO.
DATE	5/11/15	TOWN OF MIDDLESEX, VT 12 (RURAL MAJOR COLLECTOR)			15-114
CHECKED	JS	PROJECT NUMBER BR# 024-1(37)			DWG. NO.
DATE	5/14/15	G.C. AL ST. ONCE CONTRACTOR INC.			5

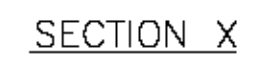
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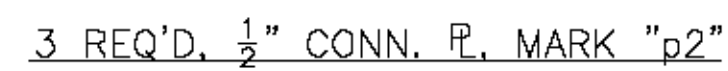
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15-11-2011 approved: 20.11.2011

May 29, 2015

**RESUBMIT** No **Approved** AsNoted  
**BY** Carolyn Carlson **DATE** 06/02/15



* NO WELD FOR  $\frac{3}{8}$ " MIN.  $\frac{7}{8}$ " MAX.



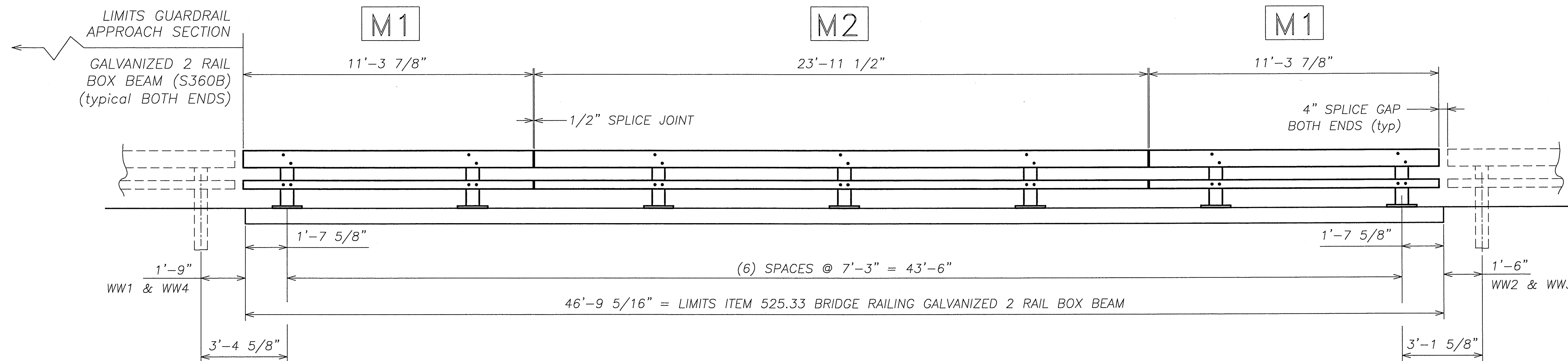
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ARC  
ENTERPRISES, INC.

**ADVANCED RESOURCES & CONST.  
ENTERPRISES, INCORPORATED**  
P.O. BOX 120 KINGFIELD, ME. 04847  
PHONE: (207) 265-2648 - FAX: (207) 265-4054





TYPICAL RAILING ELEVATION  
LOOKING AT FACE OF RAILING FROM CENTERLINE OF ROAD  
BOTH SIDES TYPICAL

BILL OF MATERIAL

Qty	mk	Description	Spec.
94 LF		ITEM 525.33 BRIDGE RAILING, GALVANIZED, 2 RAIL BOX BEAM	
14		BRIDGE RAILING POST W6 x 25 x 2'-2.375" OAH WITH 1 x 10 x 14 BASE PLATE (GLV)	A709 gr 50
4		SPLICE TUBE (FOR 8X4 RAIL) HSS 7 x 3 x 3/8 x 1'-8.000" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV)	A500 gr B
4		SPLICE TUBE (FOR 4X4 RAIL) HSS 3 x 3 x 5/16 x 1'-8.000" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV)	A500 gr B
4	M1	RAIL TUBE HSS 8 x 4 x 5/16 x 11 ft - 3.875 in OAL - FIX splice 1 end, EXP splice 1 end (GLV)	A500 gr B
2	M2	RAIL TUBE HSS 8 x 4 x 5/16 x 23 ft - 11.5 in OAL - FIX splice both ends (GLV)	A500 gr B
4	M1	RAIL TUBE HSS 4 x 4 x 1/4 x 11 ft - 3.875 in OAL - FIX splice 1 end, EXP splice 1 end (GLV)	A500 gr B
2	M2	RAIL TUBE HSS 4 x 4 x 1/4 x 23 ft - 11.5 in OAL - FIX splice both ends (GLV)	A500 gr B
14		ANCHOR SPACER PLATE PL 0.375 x 13.000 x 9.375	A709 gr 36
56		ANCHOR STUD DBL END PART THREAD - 1" DIA x 12.000 w/ 2.250" THD EACH END (GLV)	A449
112		HEAVY HEX NUT 1" (GLV)	A563 DH
56		ROUND WASHER (SAE) - 1" DIA SMALL (GLV)	F436
56		JAM NUT 1" (GALV)	A563 DH
56		ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 6" LG. FULL BODY (GLV)	A449 / A325
56		LOCK NUT 3/4" (GLV)	A563 DH
56		ROUND WASHER (SAE) 3/4" (GLV)	F436
32		HEX HEAD BOLT 5/8" DIA x 1.75" LG. (GLV)	A325
32		ROUND WASHER (SAE) 5/8" (GLV)	F436
14		BEARING PAD 0.125" THICK x 10.000 x 14.000 (NEOPRENE 80 duro +/-10)	aashto M251

A	review corrections	6/2/15
0	initial submittal	05-07-15
No.	Remarks	Date
	REVISIONS	

Vermont Agency of Transportation

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2048 shopping rev A, approved.pdf

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May 29, 2015

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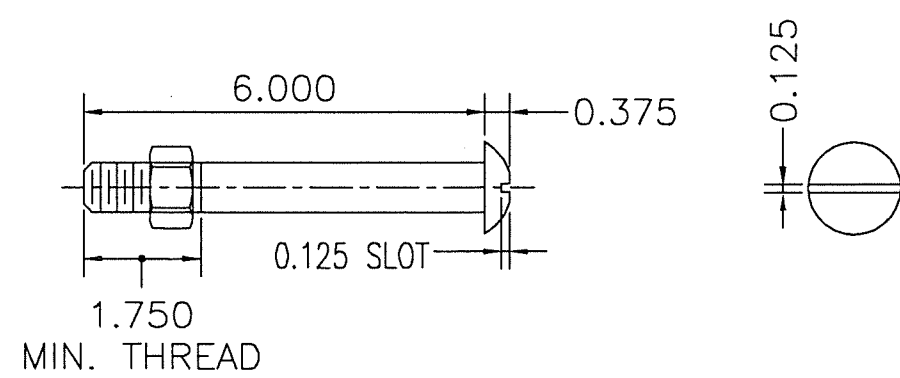
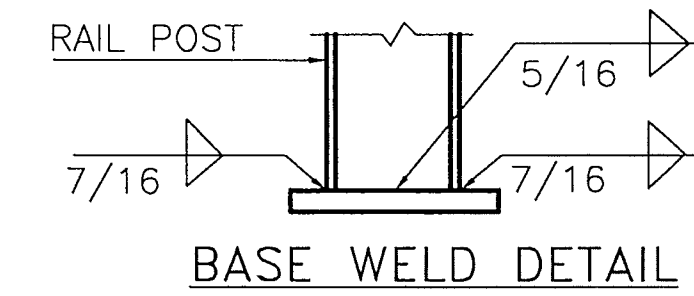
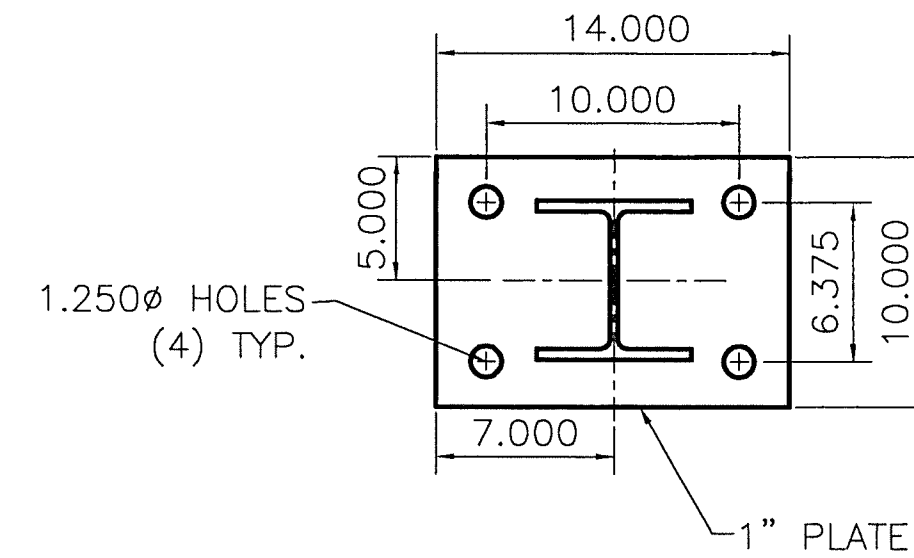
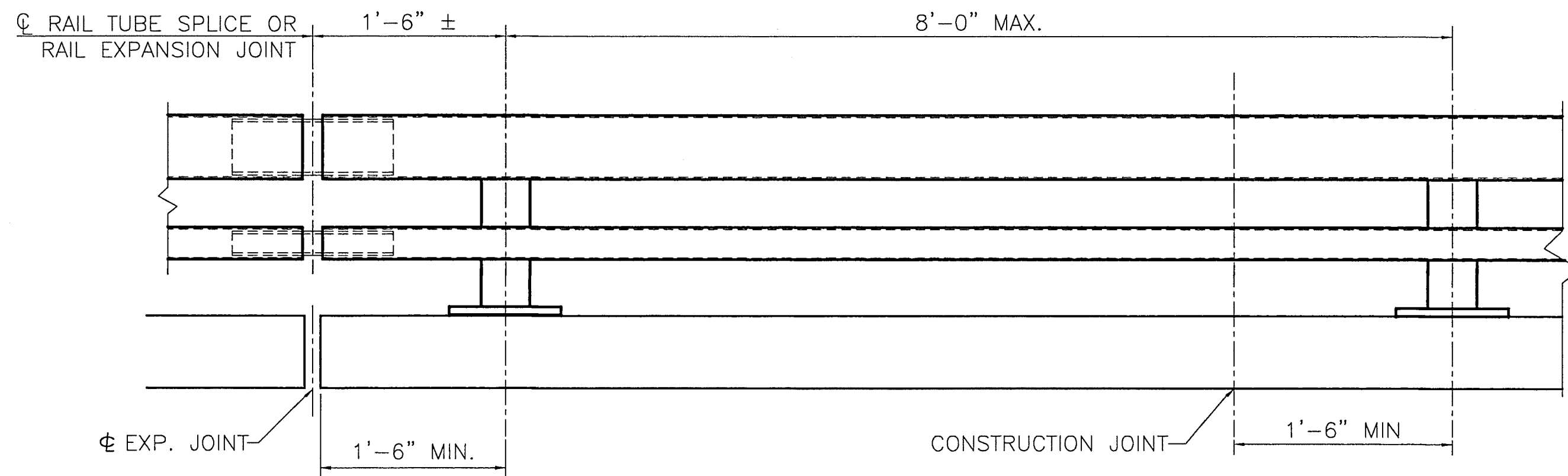
Approved

BY Carolyn Carlson

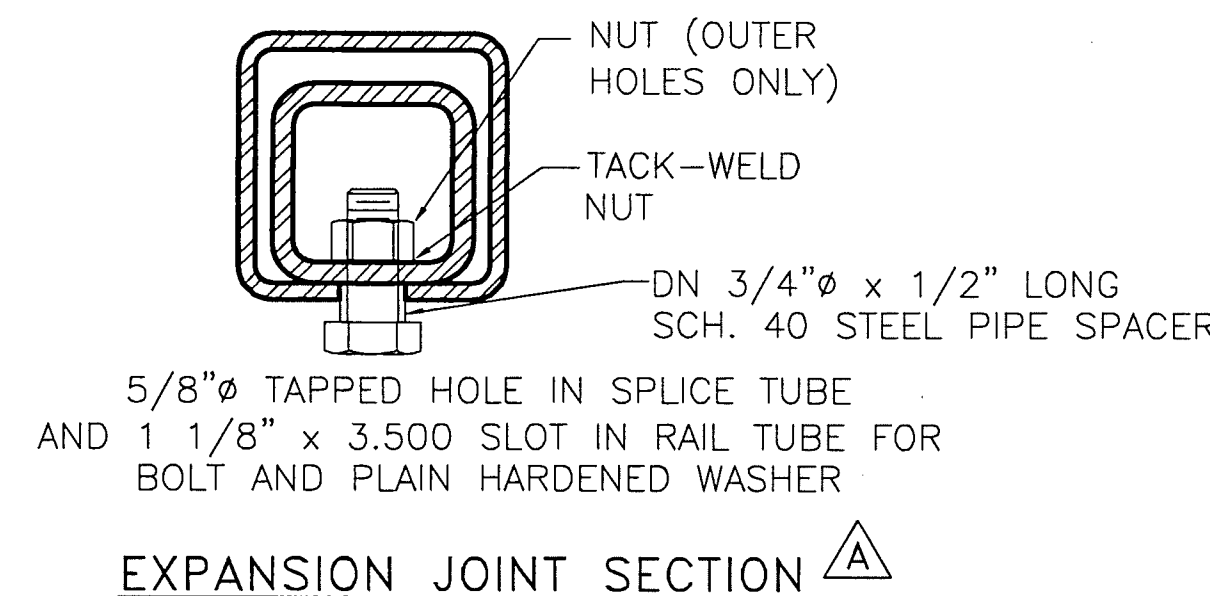
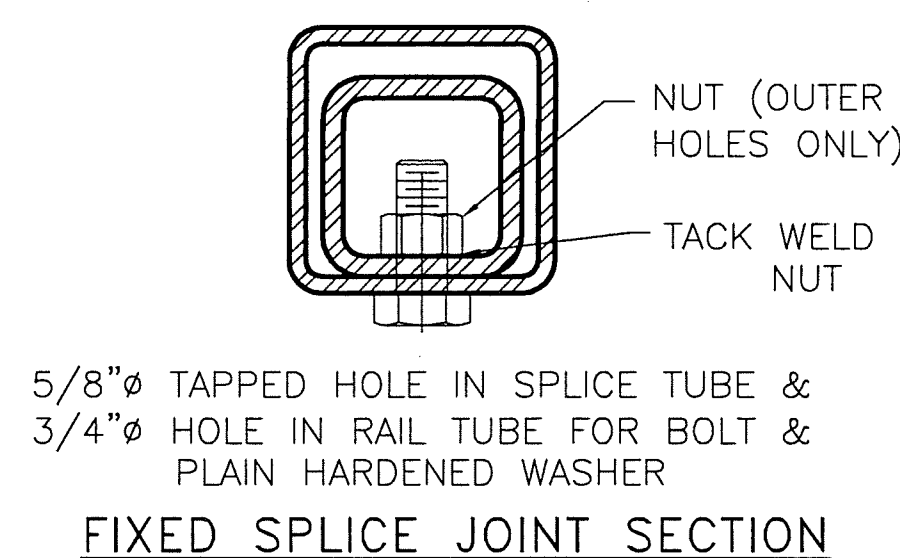
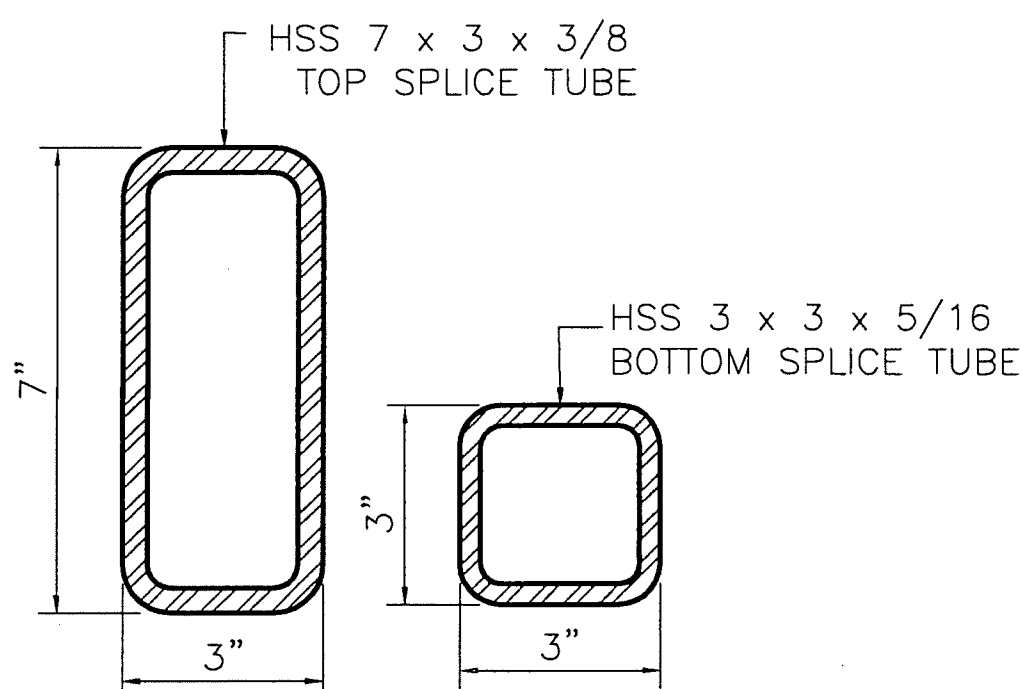
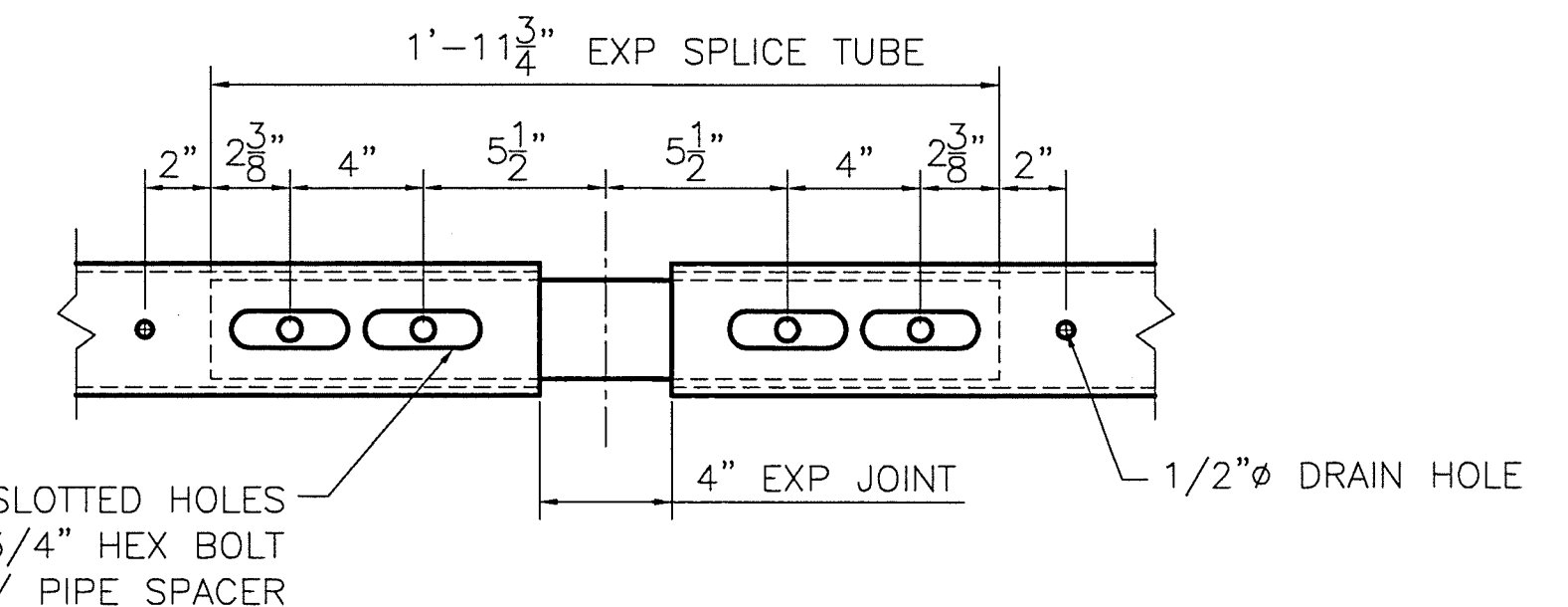
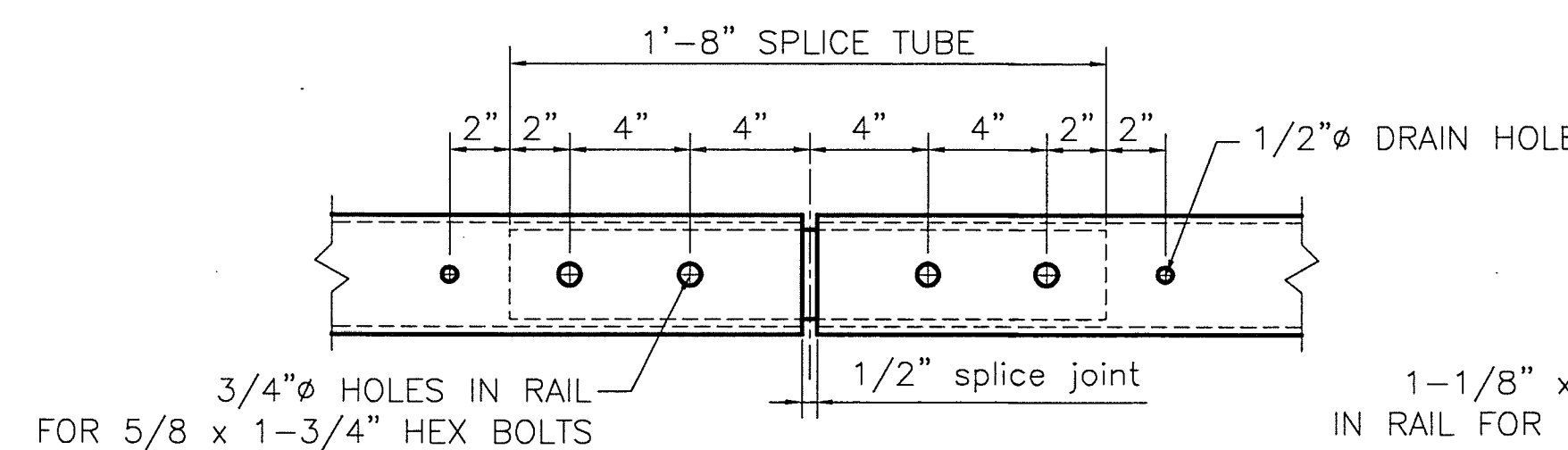
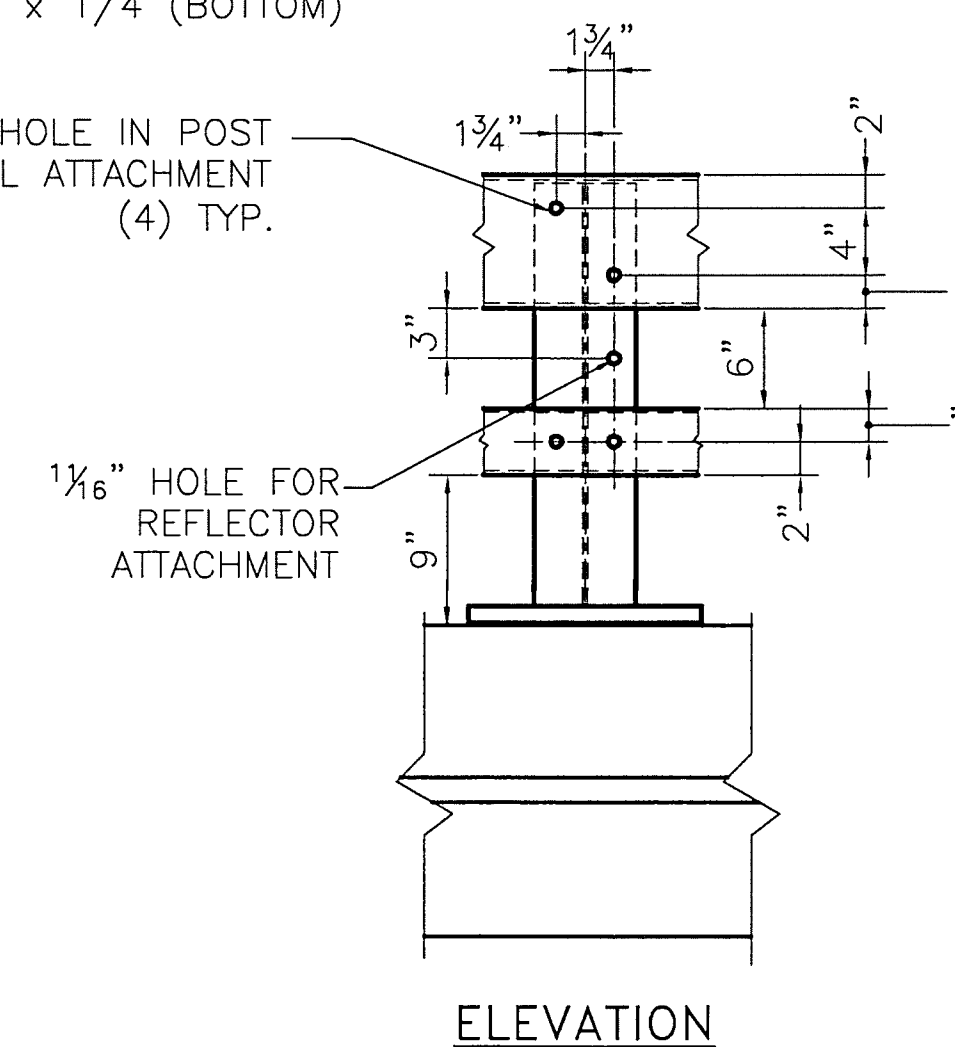
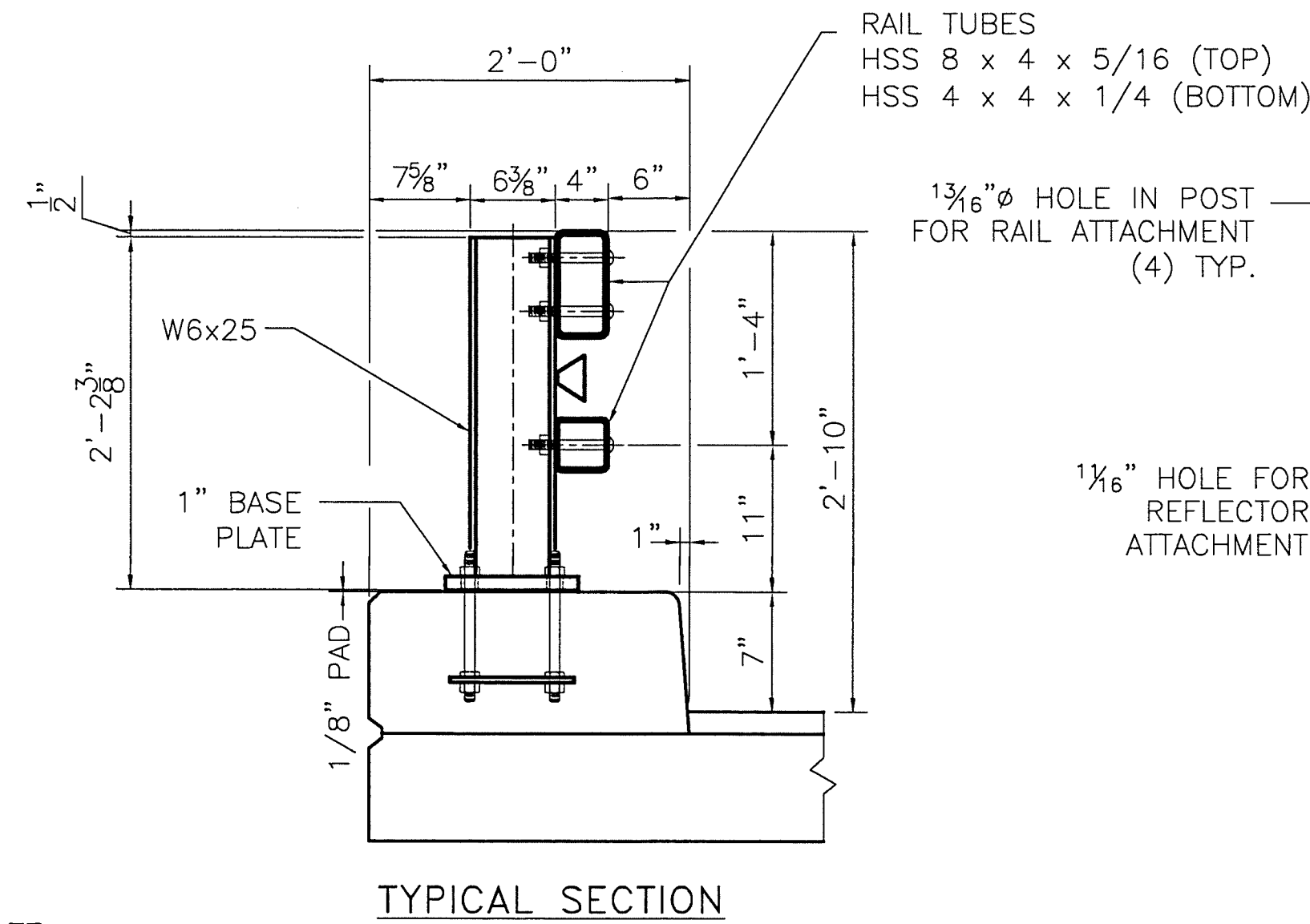
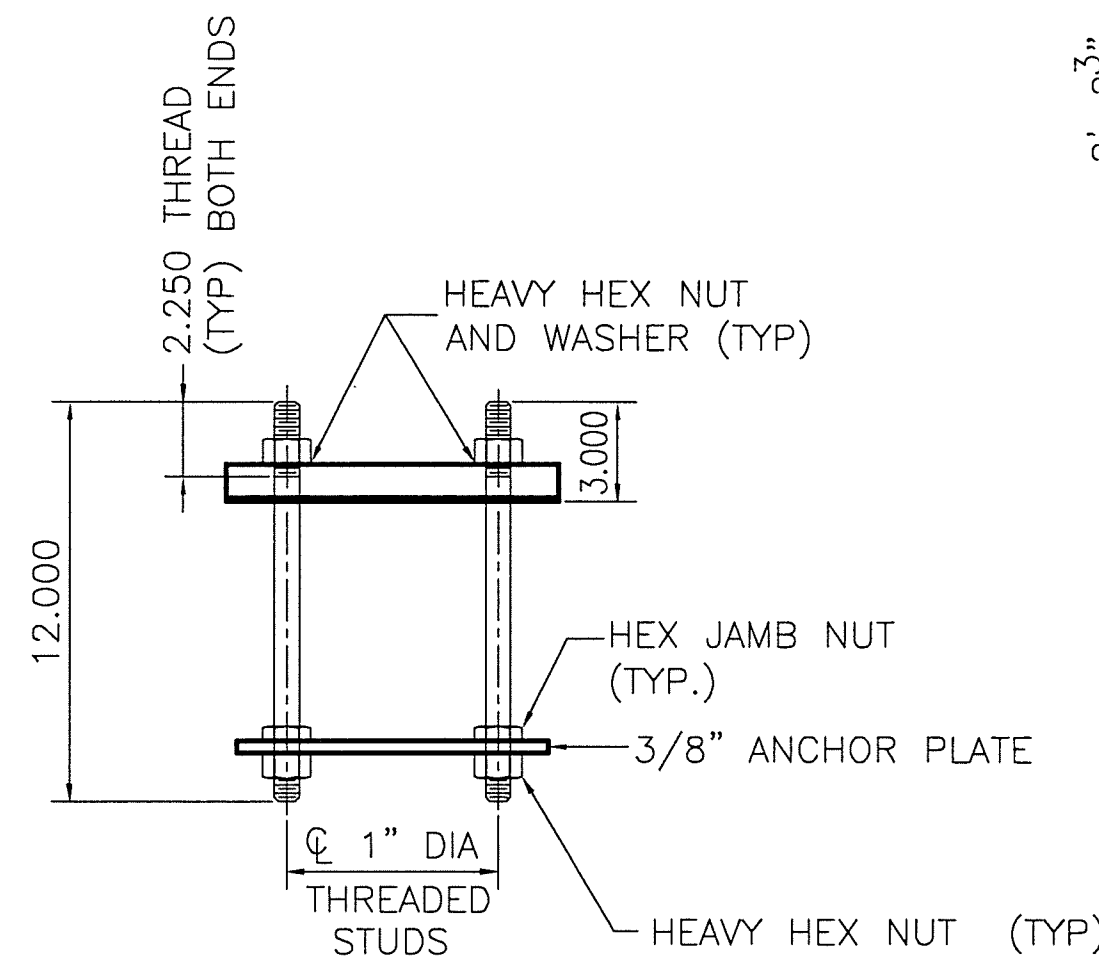
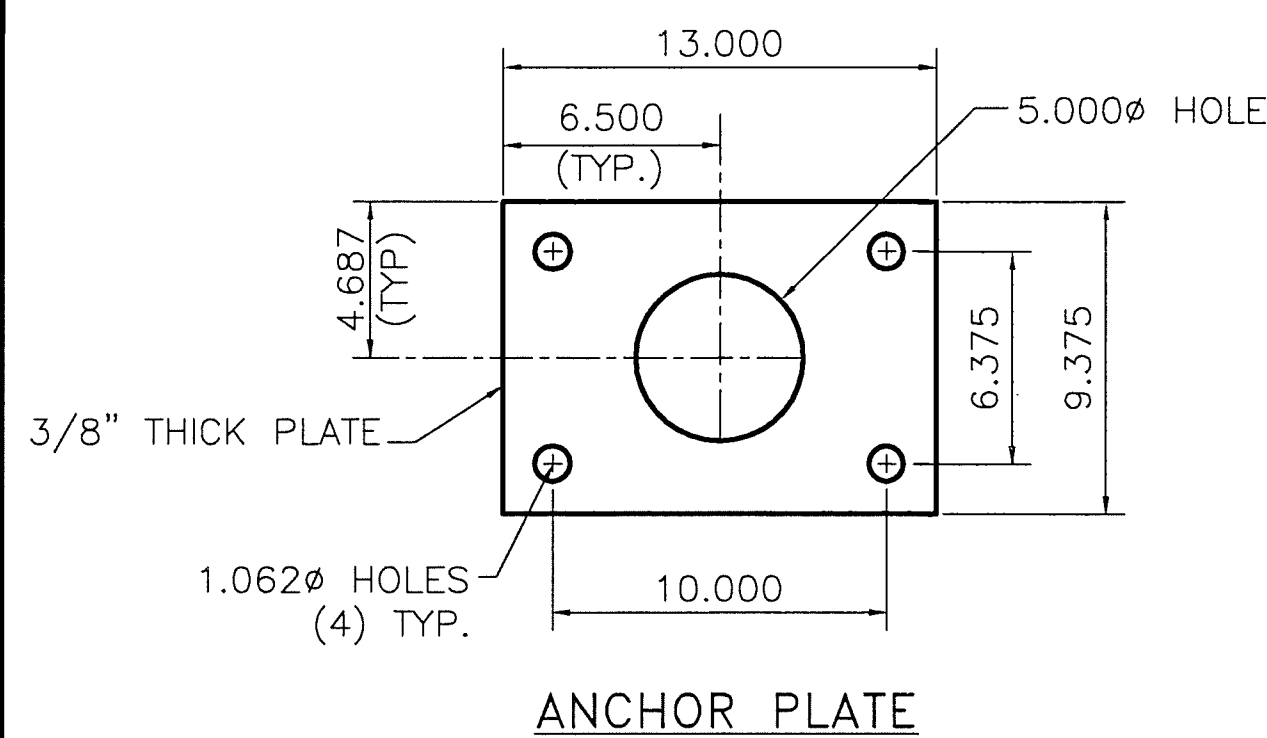
DATE 6/2/2015

 HIGHWAY SAFETY CORP	
GLASTONBURY, CT 860-633-9445	
ITEM 525.33 BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM (S-360A) ITEM 621.72 GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM (S-360B) BRF 024-1(37) VT ROUTE 12 - BRIDGE 77 TOWN OF MIDDLESEX, WASHINGTON COUNTY VT	
GENERAL CONTRACTOR	CERTIFIED FABRICATOR
SUB CONTRACTOR	HSC JOB NO. 2048
DRAWN PAR	SHEET NO. 1 of 3
CHECKED 	DATE 05-07-15
SCALE NONE	SIZE D





(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)  
(SEE NOTE #8)  
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



#### NOTES:

- ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
- PRIOR TO GALVANIZING, ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
- ALL POSTS SHALL BE SET NORMAL TO GRADE.
- SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
- RAIL TUBE EXPANSION JOINT 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" AT 45°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
- HOLES IN RAILS FOR RAIL TUBE ATTACHMENT SHALL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AND APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
- RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
- RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A449 ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
- ANY BENDING OR CURVING OF RAIL SHALL BE DONE IN A FABRICATION PLANT IN ACCORDANCE WITH SUBMITTED PROCEDURES.
- THE MINIMUM DISTANCE FROM A POST TO AN EXPANSION JOINT SHALL BE SUCH TO MAINTAIN 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.
- A DELINEATOR (SEE VAOT STANDARD DRAWING G-1 FOR DETAILS) SHALL BE INSTALLED AT NEAREST POST TO 30 FT SPACING. 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.
- THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

#### MATERIALS

RAIL TUBES.....ASTM A500 GRADE B OR ASTM A501  
RAIL POSTS AND BASE PLATES.....ASTM A709/A709M, GRADE 50  
ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 36  
ANCHOR STUDS.....ASTM A449  
ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164, TYPE 1

NUTS FOR AASHTO M164 BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291 (ASTM A563).

WASHERS SHALL COMPLY WITH AASHTO M293 (ASTM F436) SPECIFICATIONS.

1/8" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.

RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN.

Vermont Agency of Transportation

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CK'D BY FDB OK'D BY HIS

May 29, 2015

RESUBMIT No Approved  
BY Carolyn Carlson DATE 6/2/2015

HIGHWAY SAFETY CORP  
GLASTONBURY, CT  
860-633-9445

ITEM 525.33 BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM (S-360A)

BRF 024-1(37)  
VT ROUTE 12 - BRIDGE 77  
TOWN OF MIDDLESEX, WASHINGTON COUNTY VT

GENERAL CONTRACTOR

SUB CONTRACTOR

LAFAYETTE

DRAWN PAR CHECKED DATE 05-07-15 SCALE NONE SIZE D

CERTIFIED FABRICATOR

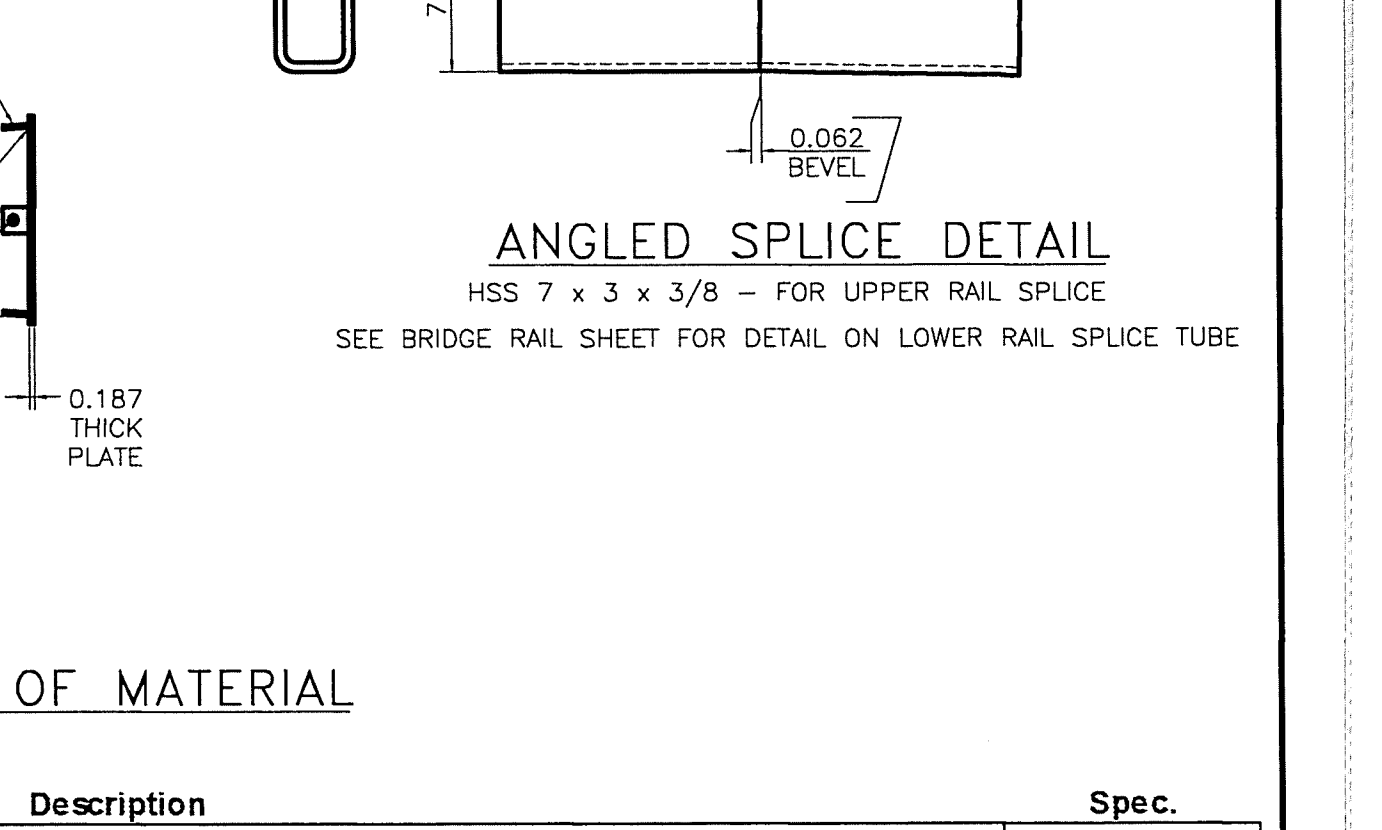
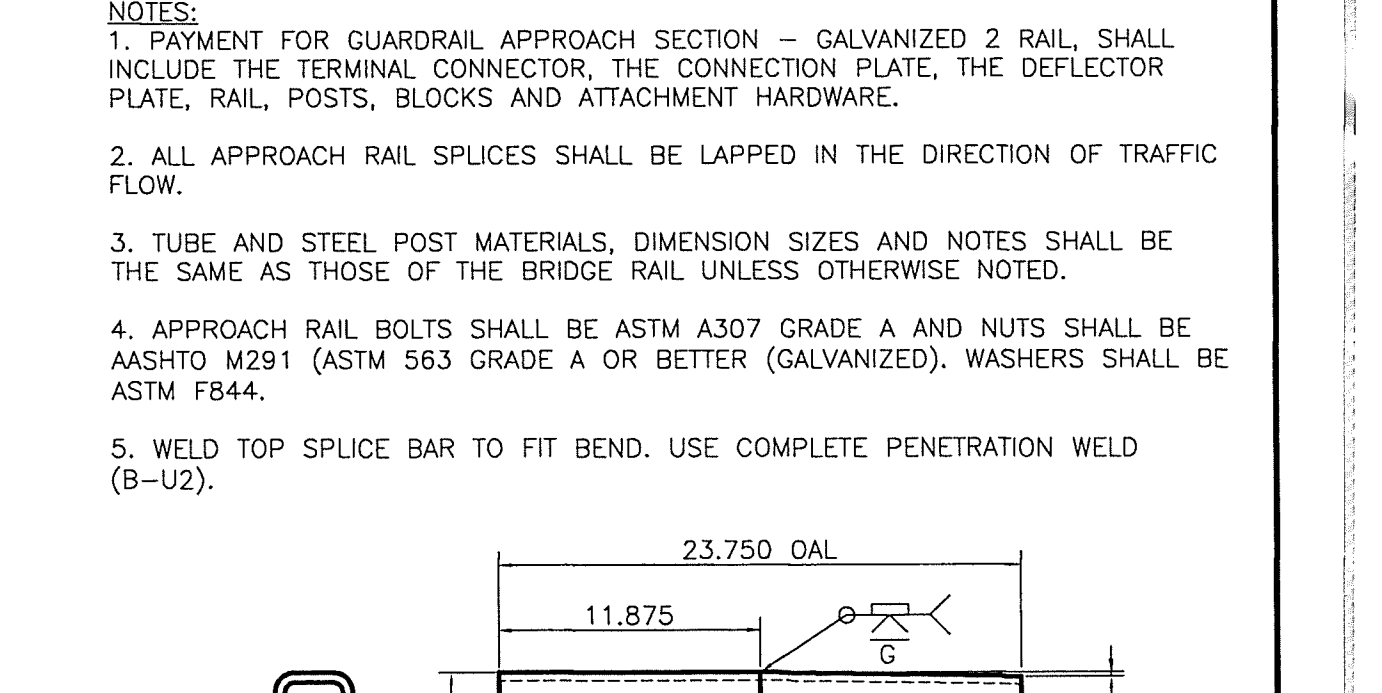
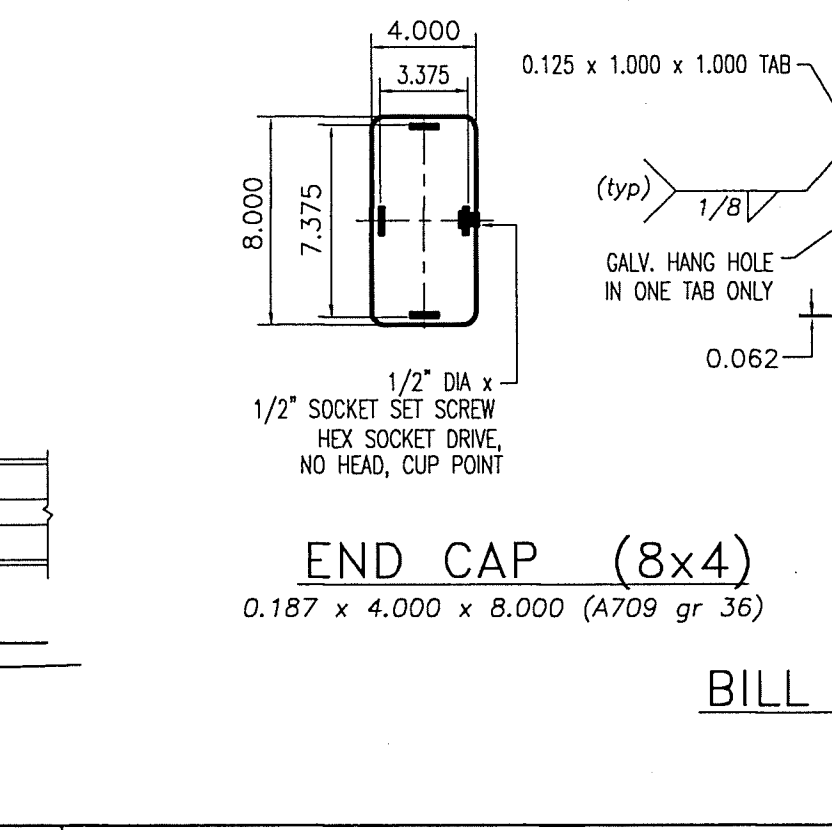
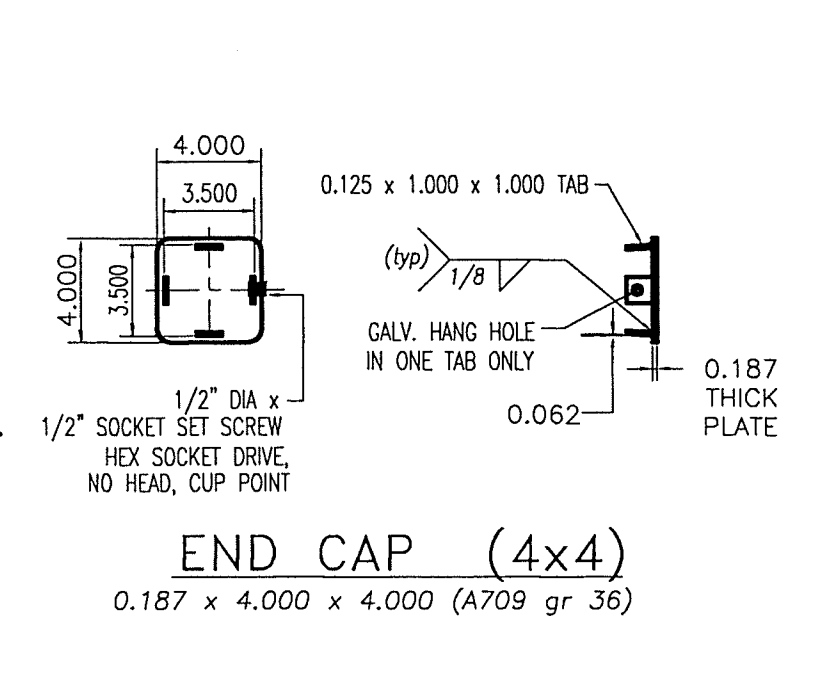
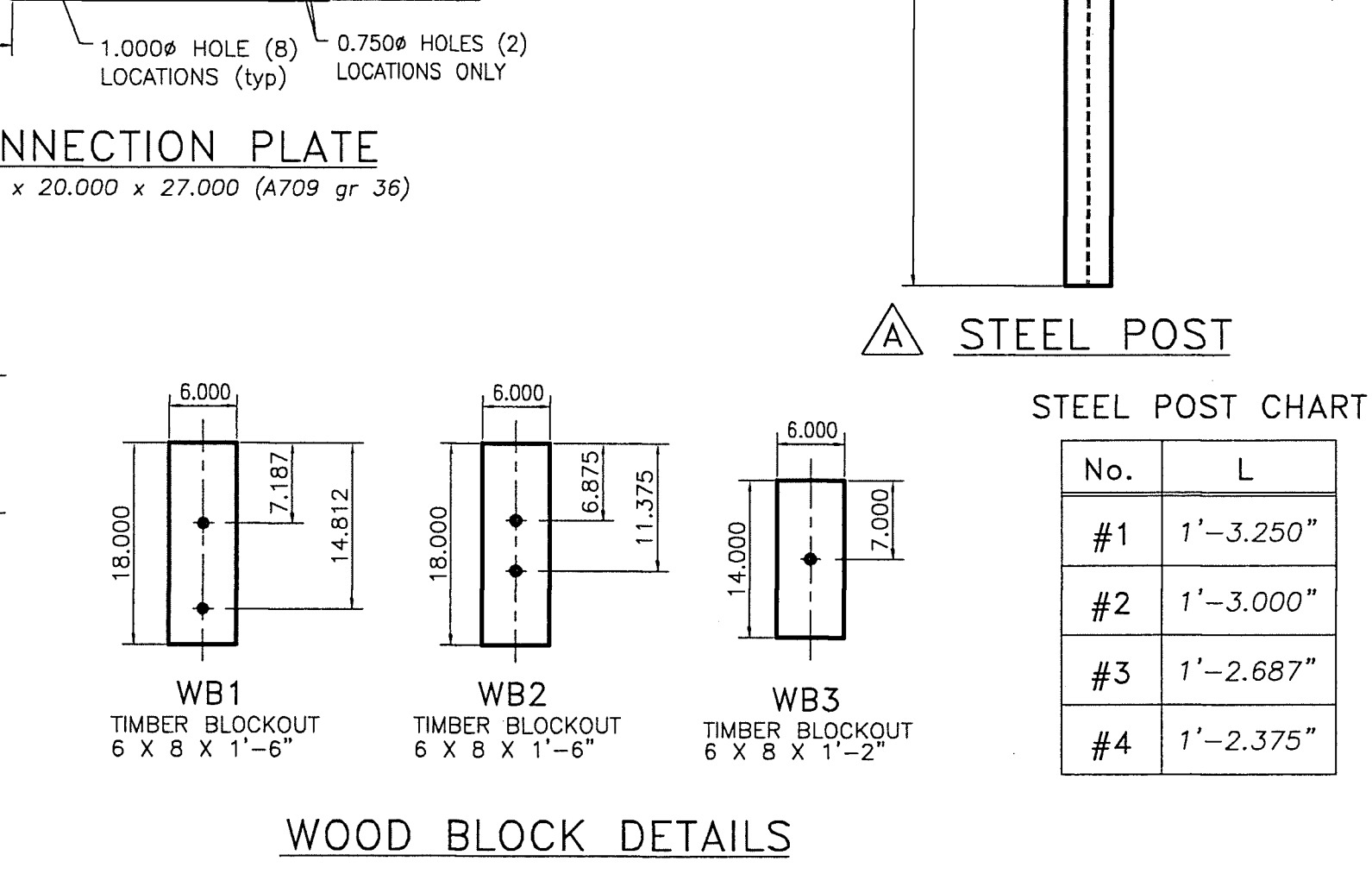
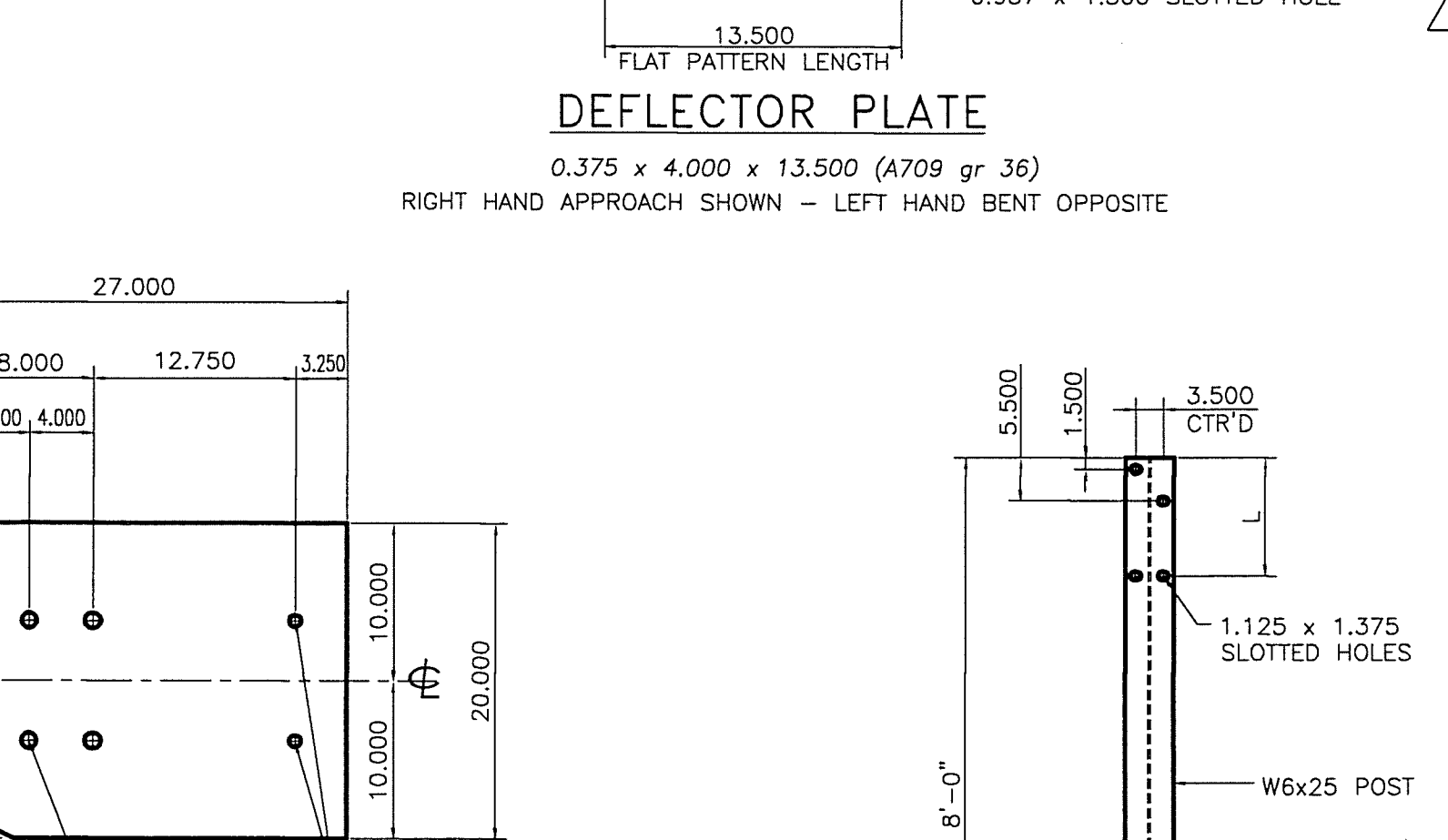
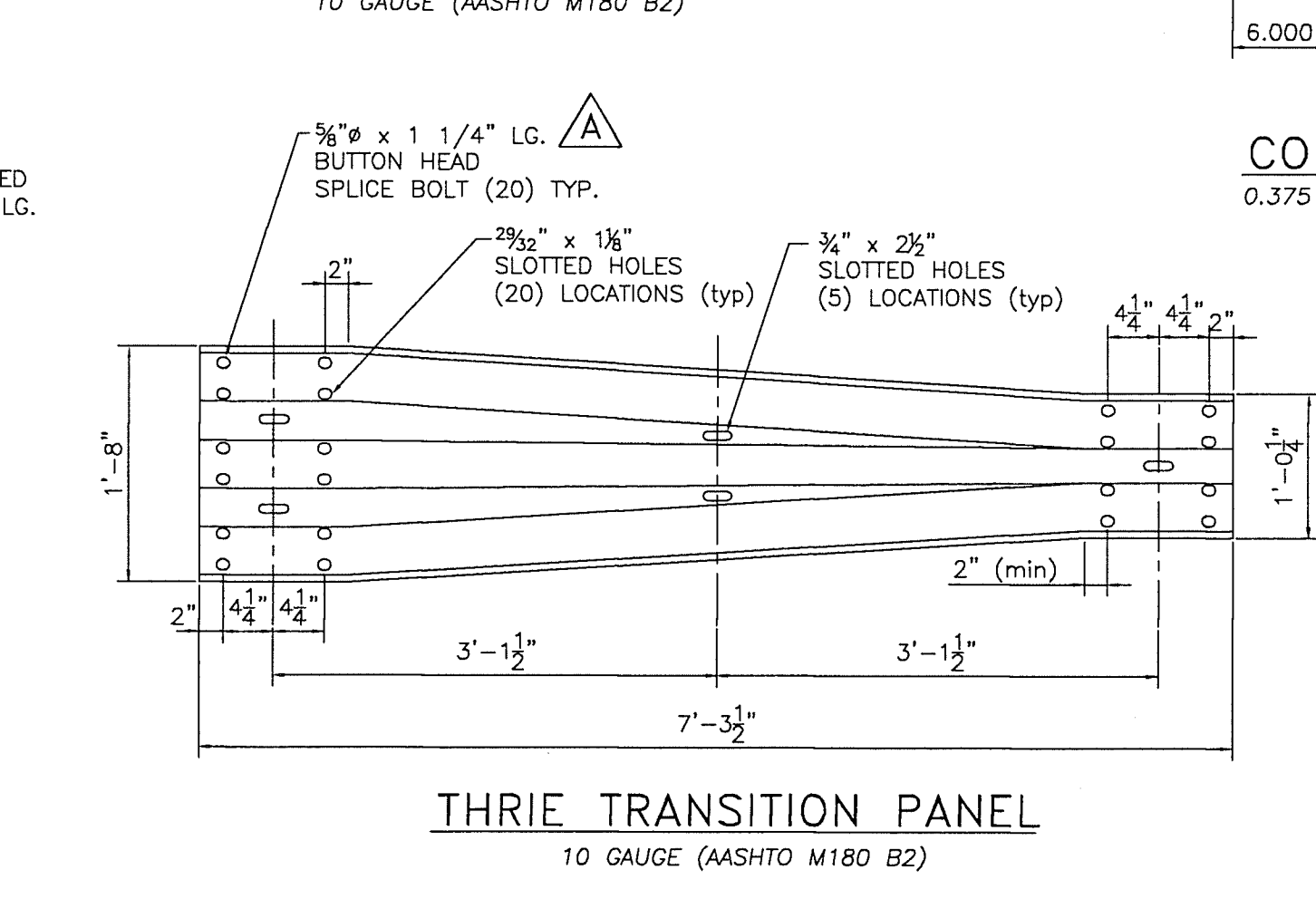
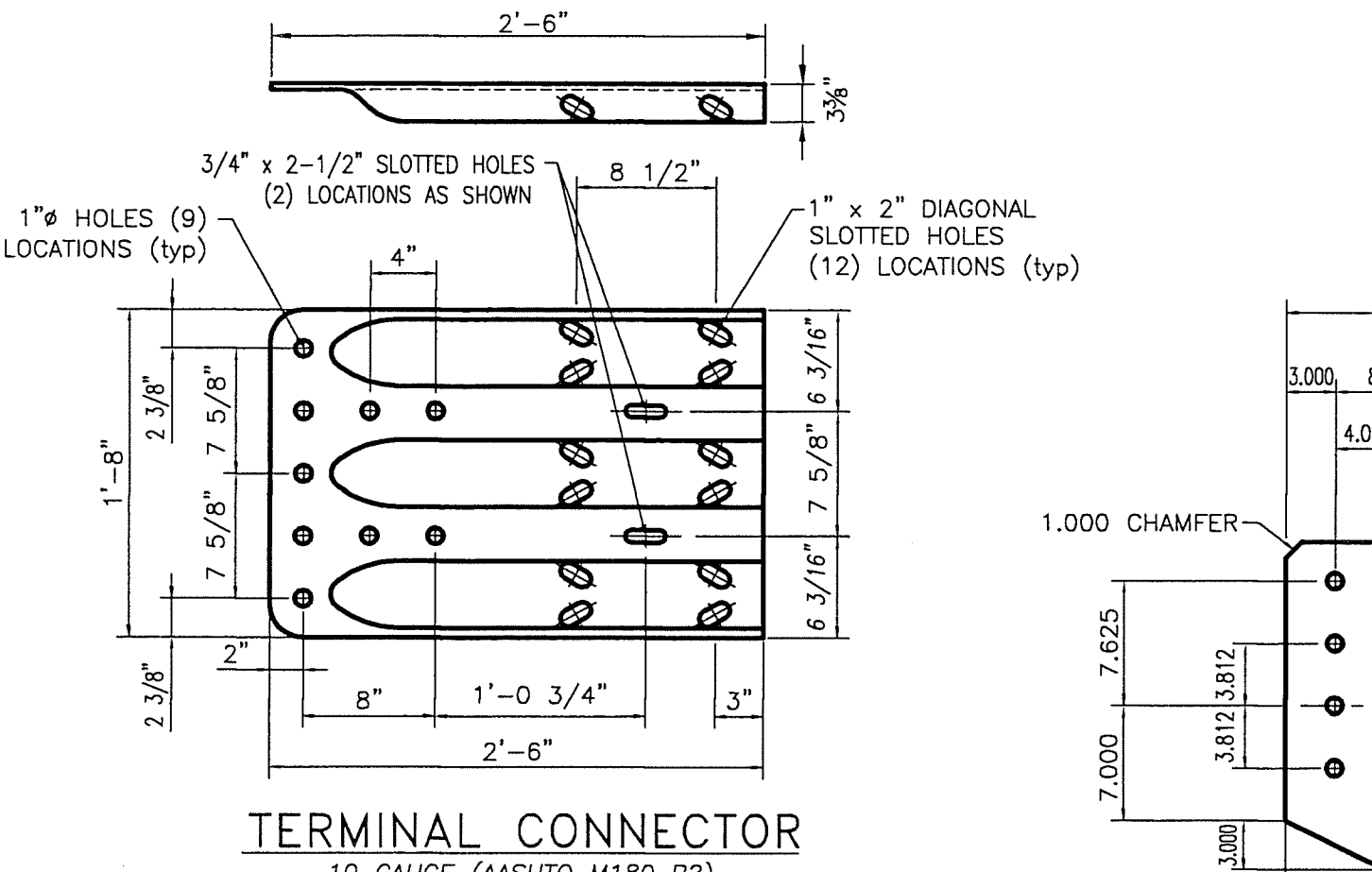
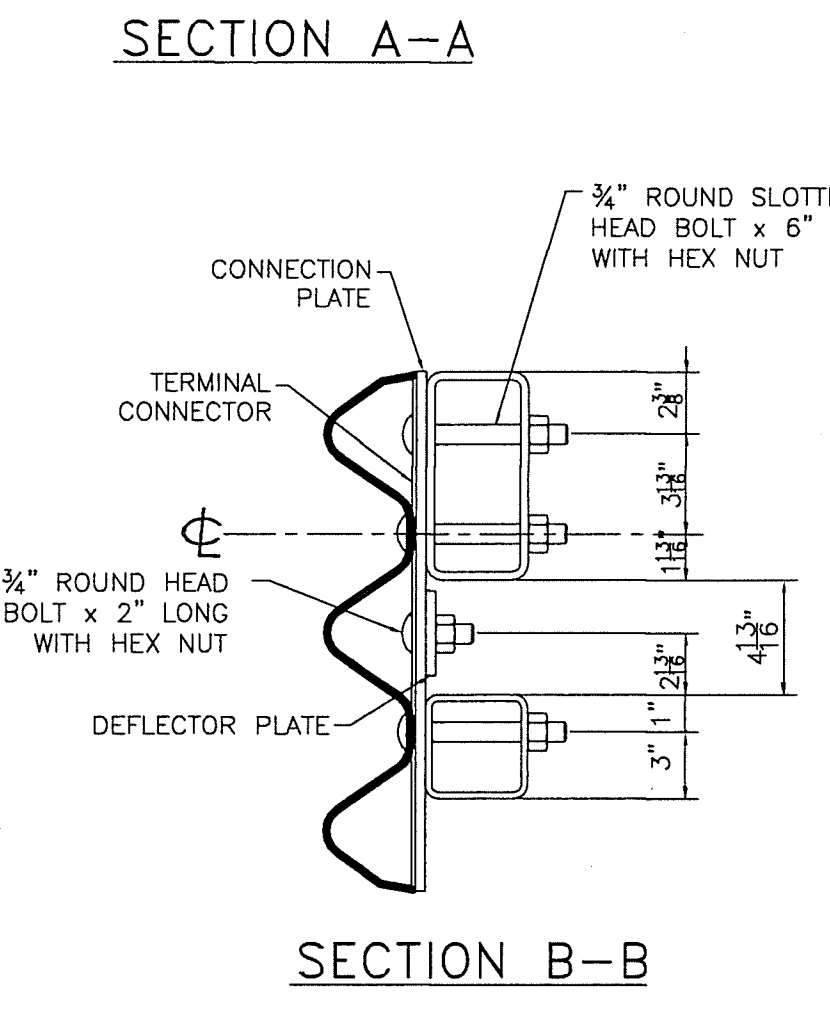
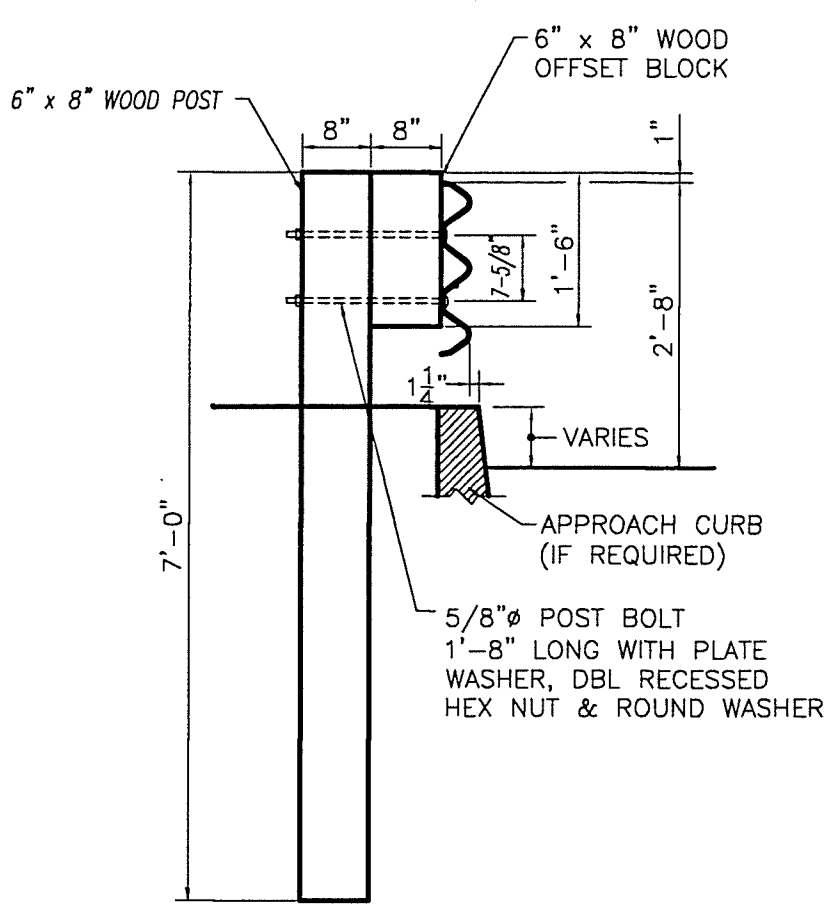
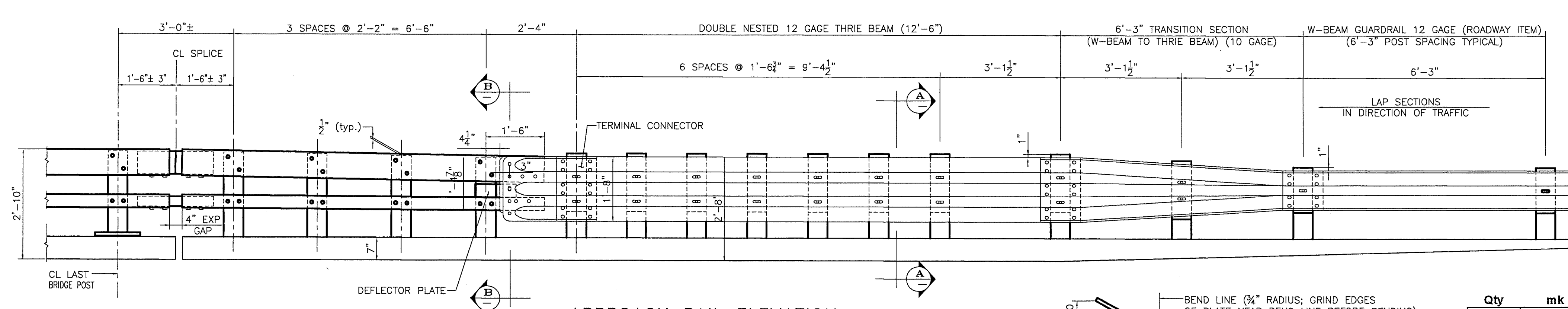
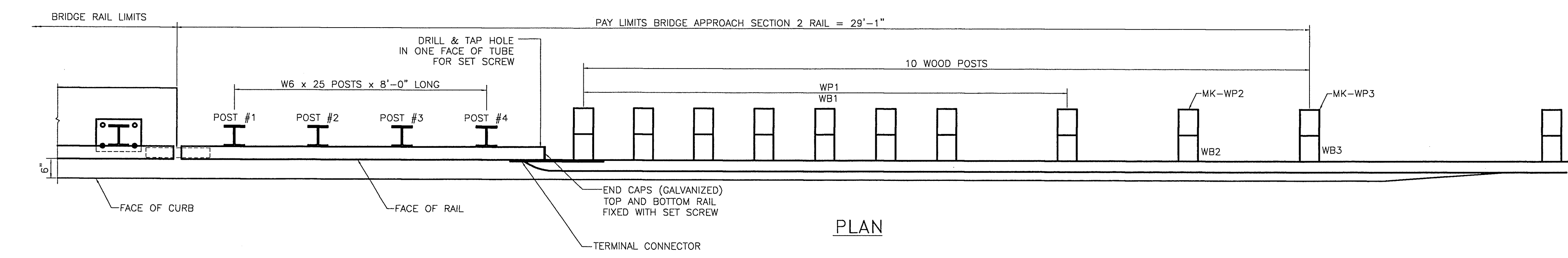
HSC JOB NO.

2048

SHEET NO.

2 of 3





Qty	mk	Description	Spec.
4 EA		ITEM 621.72 GUARDRAIL APPROACH SECTION, GALVANIZED, 2 RAIL BOX BEAM	
4	01	W6x25 APPROACH POST - #1 x 8'-0" OAL (GALV)	A709 gr 50
4	02	W6x25 APPROACH POST - #2 x 8'-0" OAL (GALV)	A709 gr 50
4	03	W6x25 APPROACH POST - #3 x 8'-0" OAL (GALV)	A709 gr 50
4	04	W6x25 APPROACH POST - #4 x 8'-0" OAL (GALV)	A709 gr 50
4		UPPER RAIL APPROACH TUBE HSS 8 x 4 x 5/16 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV)	A500 gr B
4		LOWER RAIL APPROACH TUBE HSS 4 x 4 x 1/4 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV)	A500 gr B
4		CONNECTION PLATE PL 0.375" x 20.000" x 27.000" (GALV)	A709 gr 36
2		DEFLECTOR PLATE (RIGHT) PL 0.375 x 4.000 x 13.375 (GALV)	A709 gr 36
2		DEFLECTOR PLATE (LEFT) PL 0.375 x 4.000 x 13.375 (GALV)	A709 gr 36
4		END CAP FOR 8x4 TUBE 0.187 THICK PLATE 8.000 x 4.000 w/ WELDED TABS (GALV)	A709 gr 36
4		END CAP FOR 4x4 TUBE 0.187 THICK PLATE 4.000 x 4.000 w/ WELDED TABS (GALV)	A709 gr 36
4		(ANGLED) SPICE TUBE (EXPANSION) FOR 8x4 UPPER RAIL HSS 7 x 3 x 3/8 x 1'-11.750" OAL (GALV)	A500 gr B
4		SPICE TUBE (EXPANSION) FOR 4x4 LOWER RAIL HSS 3 x 3 x 5/16 x 1'-11.750" OAL (GALV)	A500 gr B
32		WOOD POST (WP1) 6 x 8 x 7'-0"	TIMBER
32		WOOD BLOCKOUT (WB1) 6 x 8 x 1'-6"	TIMBER
4		WOOD POST (WP2) 6 x 8 x 7'-0"	TIMBER
4		WOOD BLOCKOUT (WB2) 6 x 8 x 1'-6"	TIMBER
4		WOOD POST (WP3) 6 x 8 x 7'-0"	TIMBER
4		WOOD BLOCKOUT (WB3) 6 x 8 x 1'-2"	TIMBER
4		THREE FLAT LIP BRIDGE SHOE (MODIFIED) 10 GA. GALV	aashto M180 B2
4		THREE TRANSITION PANEL 6'-3" / 3'-1 1/2" 10 GA. GALV.	aashto M180 B2
8		THREE PANEL 12'-6" / 1'-6 3/4" 12 GA. GALV.	aashto M180 A2
92		ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 6" LG. (GLV) w/ LOCK NUT & FLAT WASHER	A449
4		ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 2" LG. (GLV) w/ HEX NUT	A449
8		ROUND HEAD POST BOLT - oval shoulder 5/8" DIA x 1'-8" LG. (GALV) w/ DBL RECESS NUT, FLAT WASHER	A307
68		ROUND HEAD POST BOLT - oval shoulder 5/8" DIA x 1'-6" LG. (GALV) w/ DBL RECESS NUT, FLAT WASHER	A307
32		HEX HEAD BOLT 5/8 x 1-3/4" (GALV) w/ FLAT WASHER	A325
128		PANEL SPICE BOLT 5/8 x 1-1/4" (GALV) w/ DOUBLE RECESSED NUT	A307
76		RECTANGULAR PLATE WASHER 0.187 x 1.750 x 3.000 (GALV)	A709 gr 36
32		SPACER PIPE - GALVANIZED 3/4" SCH. 40 x 1/2" LONG (GLV)	A53 gr B

CK'D BY FDB OK'D BY HIS

May 29, 2015

RESUBMIT No Approved

BY Carolyn Carlson DATE 6/2/2015

GLASTONBURY, CT 860-633-9445

ITEM 621.72 GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM (S-3608)

BRF 024-1(37)

VT ROUTE 12 - BRIDGE 77

TOWN OF MIDDLESEX, WASHINGTON COUNTY VT

GENERAL CONTRACTOR

SUB CONTRACTOR

DRAWN PAR CHECKED DATE 05-07-15 SCALE NONE SIZE D

CERTIFIED FABRICATOR

HSC JOB NO. 2048

SHEET NO. 3 of 3