

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

PRE-US 35-2.62

JACKSON, WASHINGTON TOWNSHIP

PREBLE COUNTY

FEDERAL PROJECT NUMBER

E150(963)

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

RESURFACING A PORTION OF US 35 IN PREBLE COUNTY BETWEEN I-70 AND THE CITY OF EATON. RETROFIT GUARDRAIL ON BRIDGE PRE-35-0860 AND REPLACE THE ASPHALT SURFACE COURSE WITH THE SAME TREATMENT AS THE APPROACH ROADWAY. REPLACE END SECTION OF 4 BOX CULVERT, RETROFIT GUARDRAIL, PATCH AND SEAL EDGES OF CONCRETE BOX AT PRE-35-0817.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: =1.78 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: =N/A ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: = N/A (NOI NOT REQUIRED)*
 *ROUTINE MAINTENANCE PROJECT

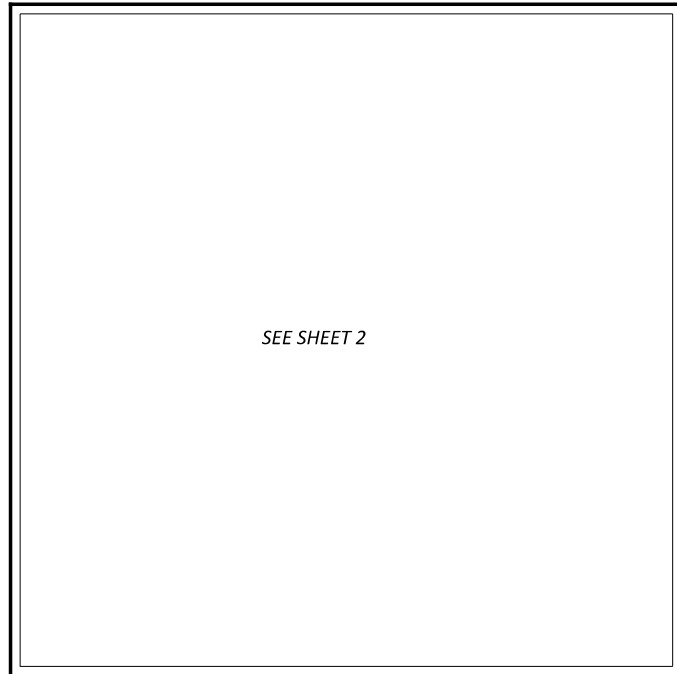
2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS, CHANGES LISTED IN THE PROPOSAL, AND THE SUPPLEMENTAL SPECIFICATION 800 VERSION INDICATED ON THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEARBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY WILL BE AS SET FORTH ON THE PLANS AND ESTIMATE.

Tammy K. Campbell
 District Deputy Director

Jack Marchbanks
 Jack Marchbanks, PhD
 Director, Department of Transportation



LOCATION MAP

LATITUDE: 39°45'36" LONGITUDE: -84°44'25"

PORTION TO BE IMPROVED	
INTERSTATE HIGHWAY	
FEDERAL ROUTES	
STATE ROUTES	
COUNTY & TOWNSHIP ROADS	
OTHER ROADS	

DESIGN DESIGNATION

CURRENT ADT (2024)	5700
DESIGN YEAR ADT (2036)	7500
DESIGN HOURLY VOLUME (2036)	1100
DIRECTIONAL DISTRIBUTION	71.6%
TRUCKS (24 HOUR B&C)	12%
DESIGN SPEED	60
LEGAL SPEED	55
DESIGN FUNCTIONAL CLASSIFICATION:	
04 MINOR ARTERIAL (RURAL), 04 MINOR ARTERIAL (URBAN)	
NHS PROJECT	NO

DESIGN EXCEPTIONS

NONE

ADA DESIGN WAIVERS

NONE

UNDERGROUND UTILITIES
 Contact Two Working Days
 Before You Dig

OHIO811.org
 Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
 (Non members must be called directly)

PLAN PREPARED BY:
 ODOT DISTRICT 8 ENGINEERING
 505 S. STATE ROUTE 741
 LEBANON, OHIO 45036

INDEX OF SHEETS:

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STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-3.1	1/21/22	MT-97.11	1/20/17	800-2023 7/21/2023	
BP-4.1	7/19/13	MT-105.10	1/17/20	832 7/15/22	
BP-7.1	1/20/23			843 10/18/19	
		TC-61.30	7/19/19	872 1/21/22	
MGS-1.1	7/16/21	TC-64.10	1/20/23	874 4/17/20	
MGS-2.1	1/19/18	TC-65.10	1/17/14	875 1/18/19	
		TC-65.11	7/15/22	878 1/21/22	
MGS-4.3	1/18/13	TC-71.10	4/26/23		
MGS-5.3	7/15/16				
RM-4.2	4/17/20				
DBR-2-73	7/19/02				
DBR-3-11	7/15/11				
PCB-91	7/17/20				

<p>ENGINEER'S SEAL</p> <p>ROADWAY SHEETS 1-10, 16-19</p>	<p>ENGINEER'S SEAL</p> <p>BRIDGE SHEETS 11-13</p>
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TITLE SHEET

DESIGN AGENCY



DESIGNER	JED
REVIEWER	JDO 6/12/23
PROJECT ID	100648
SHEET	TOTAL
P.1	19

PRE-US 35-2.62

MODEL: Sheet_SurvF1 PAPER: 17x11 (in.) DATE: 8/30/2023 TIME: 8:28:35 AM USER: jwv4s4 pwc:\ohio\dot-pw\c:\bentley.com\shihoto\pww-02\Documents\01 Active Projects\District 08\Preble\100648\400-Engineering\Roadway\Sheets\100648_G1001.dgn



PID 100648

PRE-US 35-2.62

NOT TO SCALE

BEGIN PROJECT
PRE-US 35
S.L.M. 2.62

END PROJECT
PRE-US 35
S.L.M. 10.01

PRE-35-8.61
PRE-35-8.18

PROJECT LOCATION

DESIGN AGENCY



DESIGNER
JED

REVIEWER
JDO 6/12/23

PROJECT ID
100648

SHEET	TOTAL
P.2	19

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER UNLESS AUTHORIZED BY THE ENGINEER". THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DIRECTION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THE PROJECT.

PERMANENT PAVEMENT MARKINGS

THE CONTRACTOR SHALL REFERENCE ALL PAVEMENT MARKINGS INCLUDING AUXILIARY PAVEMENT MARKINGS BEFORE THE START OF THE RESURFACING OPERATION. THIS WILL BE NECESSARY TO ASSURE THE CORRECT PLACEMENT OF MARKINGS IN ORIGINAL LOCATIONS (EXCEPT WHERE NOTED). FOR CENTER LINE MARKINGS, THE CONTRACTOR SHALL INSTALL THE PASSING/NO PASSING ZONE MARKINGS ACCORDING TO THE CURRENT CENTER LINE LOGS AVAILABLE AT

<http://www.dot.state.oh.us/Divisions/Operations/Traffic/miscellaneous/Pages/CenterlinePassingandNoPassingZoneLogs.aspx>

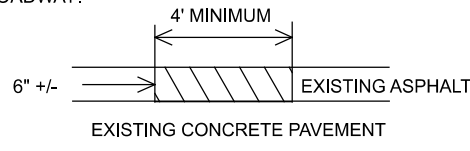
PAYMENT FOR THIS OPERATION SHALL BE INCLUDED WITH EACH RESPECTIVE PAVEMENT MARKING ITEM.

ITEM 623- CONSTRUCTION LAYOUT STAKES, AS PER PLAN

PRIOR TO THE START OF ROADWAY OPERATION, THE CONTRACTOR SHALL REFERENCE THE LENGTH OF THE PROJECT ON BOTH SIDES OF THE ROADWAY, IN A MANNER SATISFACTORY TO THE ENGINEER. THE PAVEMENT SHALL BE REFERENCED IN 500' FEET INCREMENTS, OR IN INCREMENTS ACCEPTABLE TO THE ENGINEER, IN A SEMIPERMANENT CONDITION.

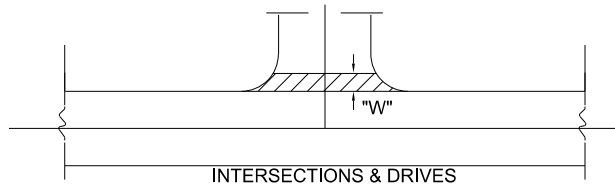
ITEM 253- PAVEMENT REPAIR (A)

AN ESTIMATED QUANTITY OF 750 CU YDS OF ITEM 253- PAVEMENT REPAIR HAS BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER. THIS OPERATION SHALL BE PERFORMED BEFORE PAVEMENT PLANING OF ROADWAY.



EXISTING DETERIORATED ASPHALT SHALL BE REMOVED TO A MAXIMUM DEPTH OF 6" INCHES OR AS DIRECTED BY THE ENGINEER AND REPLACED WITH ITEM 301, ASPHALT CONCRETE BASE. THE 301 SHALL BE COMPACTED AS PER 401.15 AND IN APPROXIMATELY EQUAL LAYERS, DO NOT DISTURB EXISTING CONCRETE PAVEMENT. THE LOCATIONS AND SIZE OF THE REPAIRS SHALL BE DETERMINED BY THE ENGINEER.

INTERSECTIONS AND DRIVES



INTERSECTION AND DRIVES QUANTITIES ARE INCLUDED IN THE ASPHALT CONCRETE QUANTITIES. INTERSECTION QUANTITIES HAVE BEEN ESTIMATED AT 15' MEASURED FROM EDGE OF PAVED SHOULDER, DRIVE QUANTITIES HAVE BEEN ESTIMATED AT 3' "W" MEASURED FROM EDGE OF PAVED SHOULDER.

PERFORM WORK PER SPECIFIED OFFSET LIMITS UNLESS THERE IS AN EXISTING JOINT LOCATED CLOSER TO THE EDGE OF PAVED SHOULDER, IN WHICH CASE END WORK AT SAID JOINT, EXCEPT WHERE NOTED BELOW.

ITEM 254- PAVEMENT PLANING, ASPHALT CONCRETE

THE PLANING SHALL BE SCHEDULED SO AS TO BE COVERED BY THE SURFACE COURSE ON US 35 PRIOR TO REOPENING THE LANE TO TRAFFIC. THE COST OF THE ABOVE ABOVE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE RESPECTIVE ITEM. A DISINCENTIVE IN THE AMOUNT OF \$3,600 SHALL BE ASSESSED FOR EACH DAY, OR PORTION THEREOF, A PLANED SURFACE IS OPEN TO TRAFFIC.

ADJUST DEPTH OF PLANING AT NECESSARY BRIDGE APPROACH SLABS. PLANE PAVEMENT TO PROVIDE SMOOTH TRANSITIONS AT BRIDGE(S).

ITEM 611 - MANHOLE ADJUSTED TO GRADE

THIS WORK SHALL CONSIST OF ADJUSTING MANHOLES TO GRADE PRIOR TO THE APPLICATION OF THE SURFACE COURSE AS DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 611 - MANHOLE ADJUSTED TO GRADE..... 2 EACH.

ITEM 611 - CATCH BASIN ADJUSTED TO GRADE

THIS WORK SHALL CONSIST OF ADJUSTING CATCH BASINS TO GRADE PRIOR TO THE APPLICATION OF THE SURFACE COURSE AS DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 611 - CATCH BASIN ADJUSTED TO GRADE..... 9 EACH

GUARDRAIL INSTALLATION

THIS PROJECT REQUIRES THE INSTALLATION OF NEW GUARDRAIL POSTS. SURVEY WORK HAS NOT BEEN PERFORMED EVERYWHERE ON THIS PROJECT, NOR HAVE THE UTILITY LOCATIONS BEEN CONFIRMED IN THE FIELD. IN ADDITION TO CMS 105.07, IF, DURING THE COURSE OF INSTALLING ANY NEW GUARDRAIL COMPONENT, IT IS DETERMINED THAT A UTILITY CONFLICT MAY RESULT, THE CONTRACTOR IS TO NOTIFY THE PROJECT ENGINEER IMMEDIATELY. UTILITIES ARE NOT TO BE RELOCATED AS A RESULT OF THIS OPERATION. ADJUSTMENTS TO THE PROPOSED GUARDRAIL WILL ACCOMMODATE THE EXISTING UTILITY. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE GUARDRAIL VIA MEANS THAT WOULD BE COMPLIANT WITH THE IMPACTED UTILITY'S SAFETY GUIDELINES AS WELL AS STILL MEETING ODOT'S DESIGN CRITERIA. ANY MINOR ADJUSTMENTS MADE TO THE PROPOSED GUARDRAIL INSTALLATIONS SHALL BE INCIDENTAL TO PAY ITEM 606.

ITEM 202 - ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN

WHERE DESIGNATED, EXISTING ANCHOR ASSEMBLIES INCLUDING ALL POST AND HARDWARE SHALL BE REMOVED. THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF THE ENTIRE CONCRETE ANCHOR AND CONCRETE ENCASMENT. ALL HOLES LEFT AFTER REMOVAL OF ASSEMBLIES AND POSTS SHALL BE FILLED WITH GRANULAR MATERIAL AS DIRECTED BY THE ENGINEER. PAYMENT SHALL INCLUDE ALL NECESSARY LABOR AND EQUIPMENT REQUIRED TO PERFORM THE INDICATED ABOVE.

CONSTRUCTION NOISE

THE PROJECT WILL COMPLY WITH ALL LOCAL NOISE ORDINANCES

ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS FOR TYPE MGS GUARDRAIL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH REBOUNDABLE RETRO REFLECTIVE SHEETING, PER CMS 730.191.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE

THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, MGS TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CULVERT PLAN DETAILS

SOME CULVERT PLAN DETAILS ARE IN METRIC UNITS

ITEM 606 BRIDGE TERMINAL ASSEMBLY, TYPE 4, AS PER PLAN

THIS PAY ITEM SHALL INCLUDE THE COST TO FURNISH AND INSTALL ALL GUARDRAIL COMPONENTS(NORMAL AND EXTRA) OF THE 25' LONG BRIDGE TERMINAL ASSEMBLY, TYPE 4 AS SEEN ON THE PLAN INSERT SHEET

ITEM 202 - BRIDGE TERMINAL ASSEMBLY REMOVED

THIS PAY ITEM IS TO INCLUDE REMOVAL OF ALL EXTRA GUARDRAIL COMPONENTS IN EXCESS OF NORMAL GUARDRAIL WITHIN THE LIMITS OF THE BRIDGE TERMINAL ASSEMBLY

DEEP BEAM BRIDGE RETROFIT RAILING, AS PER PLAN

RETROFIT THE EXISTING BRIDGE RAIL ON THE BRIDGE PER DBR-3-11. IN ADDITION TO WHAT IS REQUIRED BY STANDARD DRAWING THE EXISTING POST MAY BE RE-USED, BUT THE TUBULAR BACK-UP AND W-RAIL SHALL BE REPLACED. PAYMENT FOR THE MATERIALS AND LABOR ASSOCIATED WITH THE WORK STATED ABOVE SHALL BE INCLUDED IN ITEM 517-DEEP BEAM RAIL, APP FOR PAYMENT.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A W-BEAM, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

442 ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (446), PWL, 2024, AS PER PLAN

ALL REQUIREMENTS OF C&MS ITEM 442 APPLY EXCEPT AS SHOW.

DENISTY ACCEPTANCE - FOLLOW THE REQUIREMENTS OF 446 *DENSITY ACCEPTANCE*, EXCEPTS AS MODIFIED BELOW.

OBTAIN 6-INCH DIAMETER CORES FOR EACH LOT .

THE PWL CALCULATOR, LOCATED ON THE ODOT WEBSITE AT THE OFFICE OF CONSTRUCTION ADMINISTRATION, WILL BE USED TO DETERMINE THE LOT PWL AND THE LOT AASHTO PAY FACTORS.

THE DEPARTMENT WILL DETERMINE THE PAY FACTOR FOR EACH LOT CORED BY THE FOLLOWING TABLES.

LOWER SPECIFICATION LIMIT	SURFACE WITH 3 JOINT CORES PAY FACTOR CRITERIA	PAY FACTOR (PF)
92%	IF AVE DENSITY IS $\geq 92.4\%$ AND PWL ≥ 80	PF = 1 OR AASHTO OR WHICHEVER IS GREATER
	IF $80 > \text{PWL} > 50$	AASHTO PF
	IF PWL ≤ 50	REMOVE AND REPLACE
92.6%	IF AVE DENSITY IS $\geq 93\%$ AND PWL ≥ 80	PF = 1 OR AASHTO OR WHICHEVER IS GREATER
	IF $80 > \text{PWL} > 50$	AASHTO PF
	IF PWL ≤ 50	REMOVE AND REPLACE
91%	IF AVE DENSITY IS $\geq 91.4\%$ AND PWL ≥ 80	PF = 1 OR AASHTO OR WHICHEVER IS GREATER
	IF $80 > \text{PWL} > 50$	AASHTO PF
	IF PWL ≤ 50	REMOVE AND REPLACE
91.6%	IF AVE DENSITY IS $\geq 92\%$ AND PWL ≥ 80	PF = 1 OR AASHTO OR WHICHEVER IS GREATER
	IF $80 > \text{PWL} > 50$	AASHTO PF
	IF PWL ≤ 50	REMOVE AND REPLACE

PROFILE AND ALIGNMENT

PLACE THE PROPOSED PAVEMENT TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT.

ITEM 621- RAISED PAVEMENT MARKINGS

ITEM 621- RPM, Y/Y.....554 EA

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 621- RPM554 EA
ITEM 621- RPM REMOVED.....554 EA

DESIGN AGENCY



DESIGNER
JED

REVIEWER
JDO 6/12/23

PROJECT ID
100648

SHEET TOTAL
P.3 19

MAINTENANCE OF TRAFFIC

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
RAMP & ROAD CLOSURES	>= 2 WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 12 HOURS	4 CALENDAR DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

CONTACT THE FOLLOWING:
 DISTRICT PUBLIC INFORMATION OFFICER BY EMAIL AT DOT.D08.PIO@DOT.OHIO.GOV
 DISTRICT PERMIT SECTION BY EMAIL AT D08.PERMITS@DOT.OHIO.GOV
 CENTRAL OFFICE SPECIAL HAUL PERMITS SECTION BY EMAIL AT HAULING.PERMITS@DOT.OHIO.GOV

ITEM 614 - MAINTAINING TRAFFIC

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT ONE LANE OF TWO-WAY TRAFFIC USING FLAGGERS MAY BE MAINTAINED DURING WORKING HOURS, BY USE OF THE EXISTING PAVEMENT.

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

NEW YEAR'S (OBSERVED) GENERAL/REGULAR ELECTION DAY ((NOV)
 TOTAL SOLAR ECLIPSE (4/8/24) THANKSGIVING
 MEMORIAL DAY CHRISTMAS (OBSERVED)
 FOURTH OF JULY (OBSERVED) (OTHER HOLIDAY OR SPECIAL EVENT)
 LABOR DAY

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT TIME ALL LANES MUST BE OPEN TO TRAFFIC

SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
THURSDAY	6:00 AM WEDNESDAY THROUGH (THANKSGIVING ONLY) 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF \$35 FOR EACH MINUTE THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

ITEM 614- WORK ZONE MARKINGS

THE CONTRACTOR SHALL PLACE ALL WORK ZONE PAVEMENT MARKINGS OR PERMANENT MARKINGS UPON COMPLETION OF THE ASPHALT SURFACE COURSE PRIOR TO OPENING THE ROADWAY TO TRAFFIC.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED BY THE ENGINEER FOR WORK ZONE PAVEMENT MARKINGS PER THE REQUIREMENTS OF PER C&MS 614.11.

SURFACE COURSE

ITEM 614-WORK ZONE CENTER LINE, CLASS I, 642 PAINT -	7.34 MILES
ITEM 614-WORK ZONE EDGE LINE 6", CLASS III, 642 PAINT -	14.68 MILES
ITEM 614-WORK ZONE STOP LINE , CLASS III, 642 PAINT -	12 FEET
ITEM 614-WORK ZONE RAILROAD SYMBOL, CLASS III, 642 PAINT -	1 EACH

SURFACE COURSE (AFTER CENTER LINE RUMBLES INSTALLED)

ITEM 614-WORK ZONE CENTER LINE, CLASS III, 642 PAINT -	7.34 MILES
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DESIGN AGENCY



DESIGNER

JED

REVIEWER

JDO 6/12/23

PROJECT ID

100648


SHEET

P.4 TOTAL 19

SHEET NUM.									PART.				ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
3	4	6	7	8	9	11	13	01/STR/05	02/SSK/05	03/STR/13	04/STR/04							
ROADWAY																		
		22								22			202	23000	22	SY	PAVEMENT REMOVED	
										108			202	30000	108	SF	WALK REMOVED	
				688						88	150	400	50	202	38000	688	FT	GUARDRAIL REMOVED
				10						2	6		2	202	42001	10	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN
				4								2	2	202	47000	4	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED
				400						100	200	100		606	15100	400	FT	GUARDRAIL, TYPE MGS WITH LONG POSTS
				8						2	4	2		606	26150	8	EACH	ANCHOR ASSEMBLY, MGS TYPE E, (MASH 2016)
				6								6		606	35141	6	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4, AS PER PLAN
							108			108				608	52000	108	SF	CURB RAMP
EROSION CONTROL																		
									900	100				832	30000	1,000	EACH	EROSION CONTROL
DRAINAGE																		
9													9	98630	9	EACH	CATCH BASIN ADJUSTED TO GRADE	
2													2	99654	2	EACH	MANHOLE ADJUSTED TO GRADE	
		12												12	97600	12	CY	CONDUIT, MISC.; GRANULAR STRUCTURAL BACKFILL, 703.11
PAVEMENT																		
750								650	100				253	02000	750	CY	PAVEMENT REPAIR, (A)	
						4		4					253	02000	4	CY	PAVEMENT REPAIR, (B)	
		140,891						125,369	15,522				254	01000	140,891	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 1.50"	
		1,419						1,262	157				254	01600	1,419	SY	PATCHING PLANED SURFACE	
		5										5	301	56000	5	CY	ASPHALT CONCRETE BASE, PG64-22, (449)	
				8,458				7,523	931			4	407	20000	8,458	GAL	NON-TRACKING TACK COAT	
				4,210				3,735	475				441	00100	4,210	CY	ANTI-SEGREGATION EQUIPMENT	
				2								2	441	50000	2	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22	
				5,766				5,119	647				442	10021	5,766	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), PWL 2024, AS PER PLAN, 12.5 MM	
				359				317	42				617	10100	359	CY	COMPACTED AGGREGATE	
				8,612				7,603	1,009				617	20000	8,612	SY	SHOULDER PREPARATION	
				7				6	1				617	25000	7	MGAL	WATER	
				7.34				6.48	0.86				618	43000	7.34	MILE	RUMBLE STRIPES, CENTER LINE (ASPHALT CONCRETE)	
				7.34				6.48	0.86				874	21000	7.34	MILE	LONGITUDINAL JOINT PREPARATION	
TRAFFIC CONTROL																		
554								489	65				621	00100	554	EACH	RPM	
554								489	65				621	54000	554	EACH	RAISED PAVEMENT MARKER REMOVED	
				8				8					626	00110	8	EACH	BARRIER REFLECTOR, TYPE 2, BI-DIRECTIONAL	
				14.68				12.96	1.72				644	00104	14.68	MILE	EDGE LINE, 6"	
				7.34				6.48	0.86				644	00300	7.34	MILE	CENTER LINE	
				12					12				644	00500	12	FT	STOP LINE	
				1					1				644	01000	1	EACH	RAILROAD SYMBOL MARKING	
				600				600					644	01510	600	FT	DOTTED LINE, 6"	
STRUCTURE REPAIR (SFN 6800130) SEE SHEET 11																		
STRUCTURE OVER 20 FOOT SPAN (SFN 6800165) SEE SHEET 13																		
MAINTENANCE OF TRAFFIC																		
		7.34						6.48	0.86				614	21100	7.34	MILE	WORK ZONE CENTER LINE, CLASS I, 642 PAINT	
		7.34						6.48	0.86				614	21550	7.34	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
		14.68						12.96	1.72				614	22360	14.68	MILE	WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT	
		12							12				614	26610	12	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT	
		1							1				614	32210	1	EACH	WORK ZONE RAILROAD SYMBOL MARKING, CLASS III, 642 PAINT	
INCIDENTALS																		
								LUMP	LUMP	LUMP	LUMP		614	11000	LS		MAINTAINING TRAFFIC	
								LUMP	LUMP	LUMP	LUMP		623	10001	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	
								LUMP	LUMP	LUMP	LUMP		624	10000	LS		MOBILIZATION	

GENERAL SUMMARY

DESIGN AGENCY



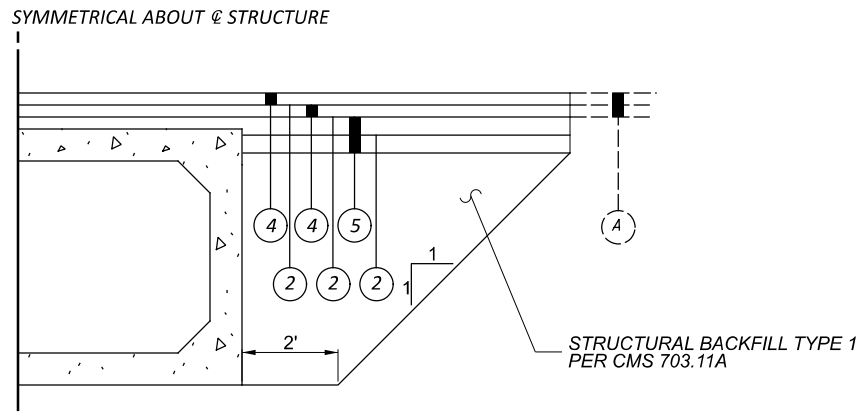
DESIGNER: JED

REVIEWER: JDO

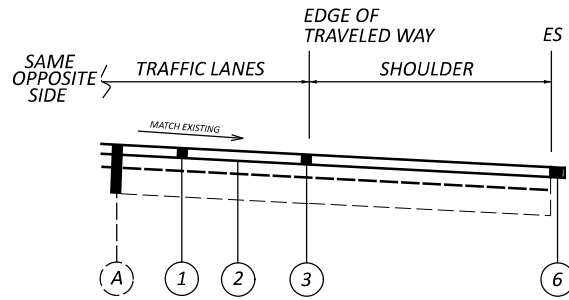
PROJECT ID: 100648

SHEET: P.5 TOTAL: 19

PAVEMENT BUILD-UP FOR PRE-35-8.18



TYPICAL FOR US 35



- (A) EXISTING ASPHALT CONCRETE PAVEMENT
- (1) ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), PWL, 2024, AS PER PLAN
- (2) ITEM 407 - NON-TRACKING TACK COAT
- (3) ITEM 254 - 1.50" PAVEMENT PLANING ASPHALT CONCRETE
- (4) ITEM 441 - 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (449), PG64-22
- (5) ITEM 301 - 8" ASPHALT CONCRETE BASE (449)
- (6) ITEM 617 - COMPACTED AGGREGATE

PAVEMENT CALCULATIONS - STRUCTURE REPAIR (PRE-35-8.18)												
PLAN SPLIT	ROUTE	LENGTH	AVERAGE WIDTH	PAVEMENT AREA	202	301	407	441		611		NOTES
					PAVEMENT REMOVED	8" ASPHALT CONCRETE BASE, PG64-22	NON TRACKING TACK COAT @ 0.06 GAL/SQ YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (449), PG64-22		CONDUIT, MISC.: GRANULAR STRUCTURAL BACKFILL, 703.11		
					SQ YD	CU YD	GAL	THICKNESS	CU YD	THICKNESS	CU YD	
		FT	FT	SQ YD	SQ YD	CU YD	GAL	INCHES	CU YD	INCHES	CU YD	
04/STR/04	PRE-35-8.18	16	6	11	11	2	1.3	3.00	1		6	PAVEMENT REPLACEMENT UPSTATION
		16	6	11	11	2	1.3	3.00	1		6	PAVEMENT REPLACEMENT DOWNSTATION
TOTALS CARRIED TO GENERAL SUMMARY					22	5	4	X	2	X	12	X

PLAN SPLIT	COUNTY-ROUTE	LOG POINT (MILE)		LENGTH		PAVEMENT AREA (Micro-Station Generated Area)	PAVEMENT AREA WITH NO SHOULDERS	PAVEMENT AREA	254		407	442		617			618	874	NOTES		
		FROM	TO	PAVEMENT PLANING ASPHALT CONCRETE	PATCHING PLANED SURFACE				NON TRACKING TACK COAT @ 0.09 GAL/SQ YD	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), PWL, 2024, AS PER PLAN	ANTI-SEGREGATION EQUIPMENT	COMPACTED AGGREGATE, 1.5" DEPTH, 12" WIDTH	SHOULDER PREPARATION	WATER @ 20 GAL/CU YD	RUMBLE STRIPES, CENTER LINE (ASPHALT CONCRETE)	LONGITUDINAL JOINT PREPARATION					
				DEPTH						THICKNESS											
				MILES	FT	SQ FT	SQ FT	SQ YD	INCHES	SQ YD	SQ YD	GAL	INCHES	CU YD	CU YD	SQ YD	MGAL	MILES	MILES		
01/STR/05	PRE-US 35	2.67	3.17	0.50	2640	102659	69530	11407	1.50	11406.6	115	1026.6	1.50	475.3	321.9	24.4	586.7	0.5	0.50	0.50	RUMBLES END 650' PRIOR TO CITY OF EATON LIMITS
01/STR/05	PRE-US 35	3.17	3.67	0.50	2640	95500	61707	10611	1.50	10611.1	107	955.0	1.50	442.1	285.7	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	3.67	4.17	0.50	2640	65365	61879	7263	1.50	7262.8	73	653.7	1.50	302.6	286.5	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	4.17	4.67	0.50	2640	84680	61293	9409	1.50	9408.9	95	846.8	1.50	392.0	283.8	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	4.67	5.17	0.50	2640	82190	60623	9132	1.50	9132.2	92	821.9	1.50	380.5	280.7	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	5.17	5.67	0.50	2640	81460	60401	9051	1.50	9051.1	91	814.6	1.50	377.1	279.6	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	5.67	6.17	0.50	2640	83215	62203	9246	1.50	9246.1	93	832.2	1.50	385.3	288.0	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	6.17	6.67	0.50	2640	99155	62820	11017	1.50	11017.2	111	991.6	1.50	459.1	290.8	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	6.67	7.17	0.50	2640	89685	63349	9965	1.50	9965.0	100	896.9	1.50	415.2	293.3	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	7.17	7.67	0.50	2640	84920	62206	9436	1.50	9435.6	95	849.2	1.50	393.1	288.0	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	7.67	8.17	0.50	2640	86235	61231	9582	1.50	9581.7	96	862.4	1.50	399.2	283.5	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	8.17	8.67	0.50	2640	86625	61880	9625	1.50	9625.0	97	866.3	1.50	401.0	286.5	24.4	586.7	0.5	0.50	0.50	
01/STR/05	PRE-US 35	8.67	9.15	0.48	2534	86630	57633	9626	1.50	9625.6	97	866.3	1.50	401.1	266.8	23.5	563.2	0.5	0.50	0.50	
02/S5K/05	PRE-US 35	9.15	9.65	0.50	2640	85665	59405	9518	1.50	9518.3	96	856.7	1.50	396.6	275.0	24.4	586.7	0.5	0.50	0.50	
02/S5K/05	PRE-US 35	9.65	10.01	0.36	1901	54032	43107	6004	1.50	6003.6	61	540.3	1.50	250.1	199.6	17.6	422.4	0.4	0.28	0.28	
TOTALS CARRIED TO GENERAL SUMMARY									X	140891	1419	8454	X	5766	4210	359	8612	7	7.28	7.28	X

PRE-US 35-2.62

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PAVEMENT QUANTITIES

DESIGN AGENCY



DESIGNER

JED

REVIEWER

JDO 6/12/23

PROJECT ID

100648

SHEET TOTAL

P.6 19

PART	COUNTY-ROUTE	LOG POINT (MILE)		TOTAL MILE	644							REMARKS							
		FROM	TO		DOTTED LINE 6" FEET	EDGE LINE 6"		CENTER LINE MILE	STOP LINE FEET	R/R CROSSING EACH									
						WHITE MILE													
01/STR/05	PRE-35	2.67	9.15	6.48		600	12.96		6.48										
02/SSK/05	PRE-35	9.15	10.01	0.86			1.72		0.86	12	1								
TOTALS CARRIED TO GENERAL SUMMARY					600		14.68		7.34	12	1								

PAVEMENT MARKINGS

DESIGN AGENCY



DESIGNER

JED

REVIEWER

JDO 6/122/23

PROJECT ID

100648

SHEET TOTAL

P.7 19

PART	COUNTY	ROUTE	LOG POINT		SIDE	ITEM 202			ITEM 606			ITEM 626	NOTES
			FROM	TO		GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN	BRIDGE TERMINAL ASSEMBLY REMOVED	GUARDRAIL, TYPE MGS WITH LONG POSTS	BRIDGE TERMINAL TYPE 4, AS PER PLAN	ANCHOR ASSEMBLY, MGS TYPE E	BARRIER REFLECTOR, TYPE 2 (BIDIRECTIONAL)	
01/STR/05	PRE	35	3.45	3.46	RIGHT	13.0	1		50.0		1	2	REMOVE THE TYPE A ANCHOR AND 12.5' EXISTING GUARDRAIL ON THE RADIUS. REPLACE WITH 50' MGS LONG POST GUARDRAIL (12.5' ON THE RADIUS) AND A MGS TYPE E ANCHOR EXTENDING ALONG MURRAY ROAD. FOOTPRINT WILL INCREASE ROUGHLY 62.5'.
04/STR/04	PRE	35	8.18		LEFT	25.0	1			1			REMOVE AND REPLACE THE BRIDGE TERMINAL ASSEMBLY DUE TO THE CULVERT OUTLET RECONSTRUCTION.
04/STR/04	PRE	35	8.18		LEFT	25.0	1			1			
01/STR/05	PRE	35	6.20	6.20	RIGHT	75.0	1		50.0		1	2	MATCH EXISTING FOOTPRINT
03/STR/13	PRE	35	8.61		LEFT	100.0	1	1	50.0	1	1	2	STRUCTURE NO: PRE-35-0860, MATCH EXISTING FOOTPRINT
03/STR/13	PRE	35	8.61		LEFT	100.0	1	1	50.0	1	1	2	STRUCTURE NO: PRE-35-0860, MATCH EXISTING FOOTPRINT
03/STR/13	PRE	35	8.61		RIGHT	100.0	1	1	50.0	1	1	2	STRUCTURE NO: PRE-35-0860, MATCH EXISTING FOOTPRINT
03/STR/13	PRE	35	8.61		RIGHT	100.0	1	1	50.0	1	1	2	STRUCTURE NO: PRE-35-0860, MATCH EXISTING FOOTPRINT
02/S5K/05	PRE	35	9.59	9.59	LEFT	75.0	1		50.0		1	2	MATCH EXISTING FOOTPRINT
02/S5K/05	PRE	35	9.59	9.59	RIGHT	75.0	1		50.0		1	2	MATCH EXISTING FOOTPRINT
TOTALS CARRIED TO GENERAL SUMMARY						688	10	4	400		8	16	

GUARDRAIL QUANTITIES

DESIGN AGENCY



DESIGNER

JED

REVIEWER

JDO 6/12/23

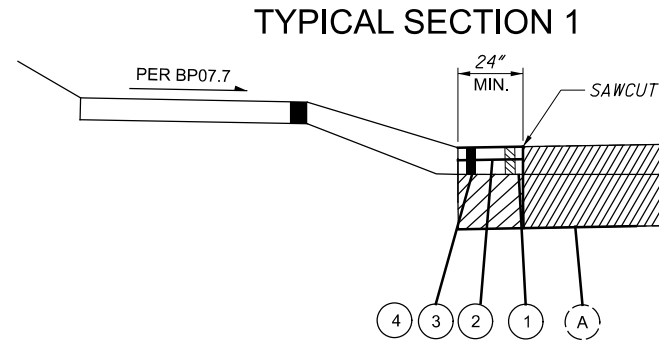
PROJECT ID

100648

SHEET TOTAL

P.8 19

- ① ITEM 253 - PAVEMENT REPAIR (B)
- ② ITEM 407 - NON-TRACKING TACK COAT
- ③ ITEM 301 - 6" ASPHALT CONCRETE BASE, PG 64-22, (449) 2 - 3" LIFTS
- ④ ITEM 608 - CURB RAMP
- Ⓐ EXISTING ASPHALT SECTION



NOTE: PAVEMENT REPAIR (B) WORK SHALL TAKE PLACE PRIOR TO RESURFACING.

BLENDED TRANSITION CURB RAMP

BLENDED TRANSITION CURB RAMPS ARE ANOTHER TYPE OF ADA COMPLIANT RAMP. IF THE RUNNING SLOPE OF THE BLENDED TRANSITION IS 5% OR LESS THEN NO LANDING IS REQUIRED. THE BLENDED TRANSITION CROSS SLOPE IS REQUIRED TO ALWAYS MEET THE STANDARD 1.56 % (64:1).

COUNTY	ROUTE	LOGPOINT OR INTERSECTING STREETNAME	FOR INFORMATION ONLY				202		253		608		ADDITIONAL NOTES
			CURB RAMP TYPE				WALK REMOVED	PAVEMENT REPAIR (B)	CURB RAMP				
			BLENDED TRANSITION									SQ FT	
PRE	35	US-35/ UPSHUR NORTHER RD NE CORNER (C-1)	1				36	1	36				
PRE	35	US-35/ UPSHUR NORTHER RD NW CORNER (C-2)	1				24	1	24				
PRE	35	US-35/ UPSHUR NORTHER RD SE CORNER (C-3)	1				24	1	24				
PRE	35	US-35/ UPSHUR NORTHER RD SW CORNER (C-4)	1				24	1	24				
TOTALS CARRIED TO GENERAL SUMMARY							108	4	108				

DESIGN AGENCY



DESIGNER

JED

REVIEWER

JDO 6/12/23

PROJECT ID

100648

SHEET TOTAL

P.9 | 19

PRE-35 6.3 MM

Upshur Northern Rd NE Corner



NOT TO SCALE

PID 100648

PRE-US 35-S.L.M. 6.3
NW CURB RAMP



NOT TO SCALE

PRE-35 6.3 MM

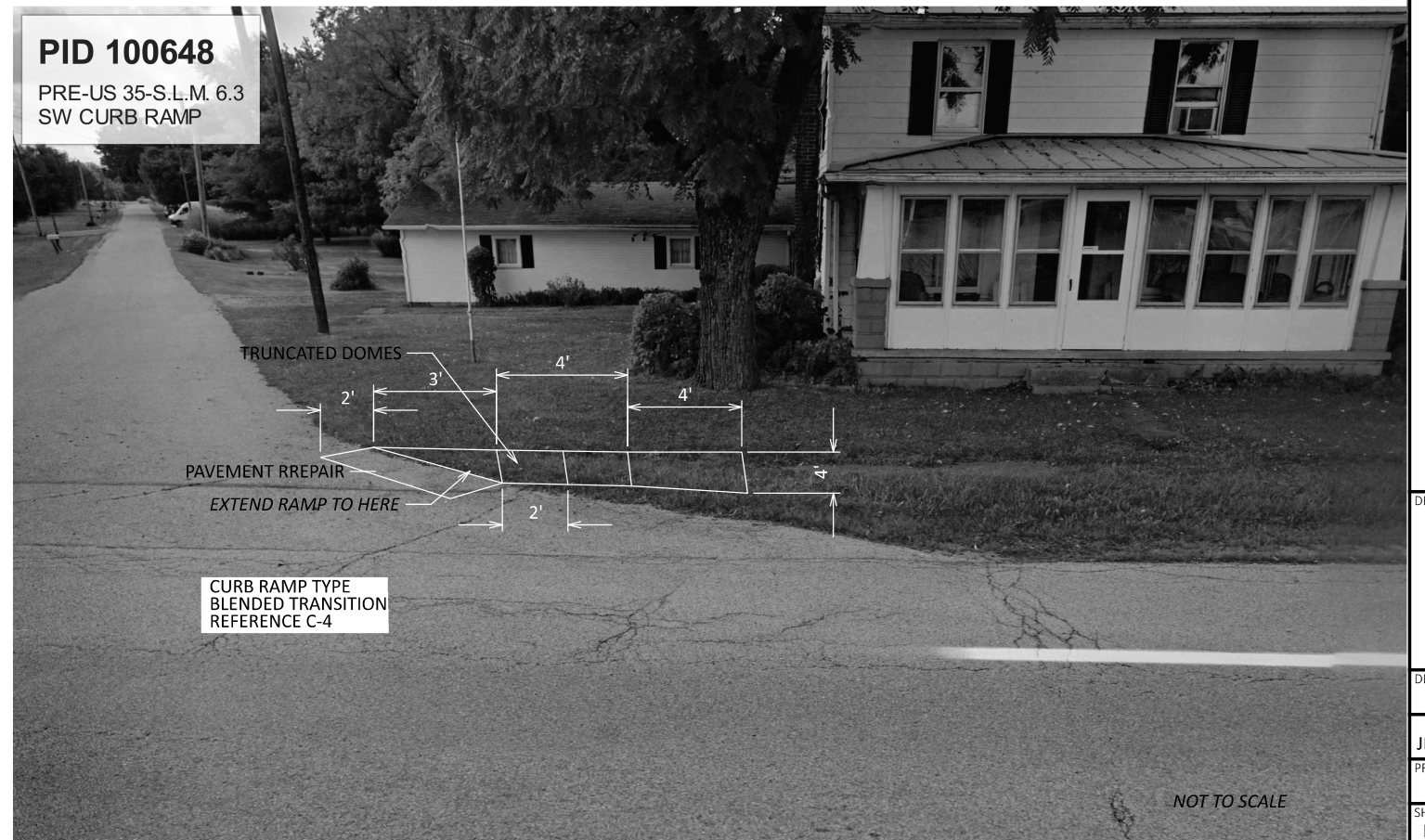
Upshur Northern Rd SE Corner



NOT TO SCALE

PID 100648

PRE-US 35-S.L.M. 6.3
SW CURB RAMP



NOT TO SCALE

CURB RAMP DETAILS

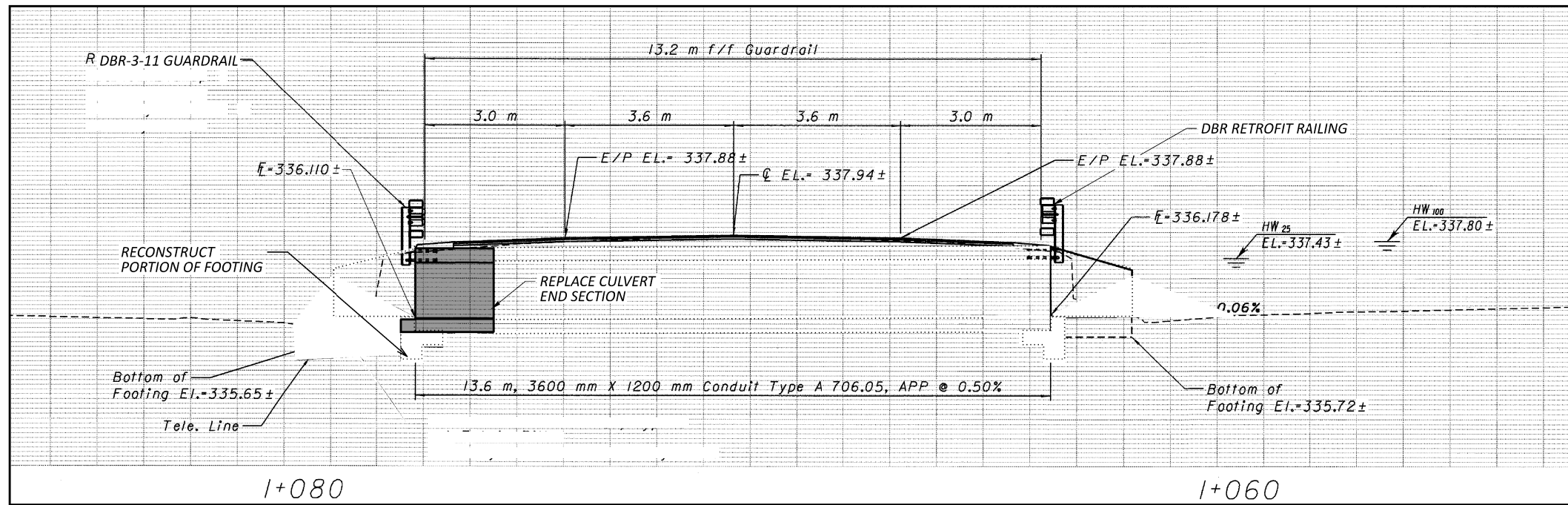
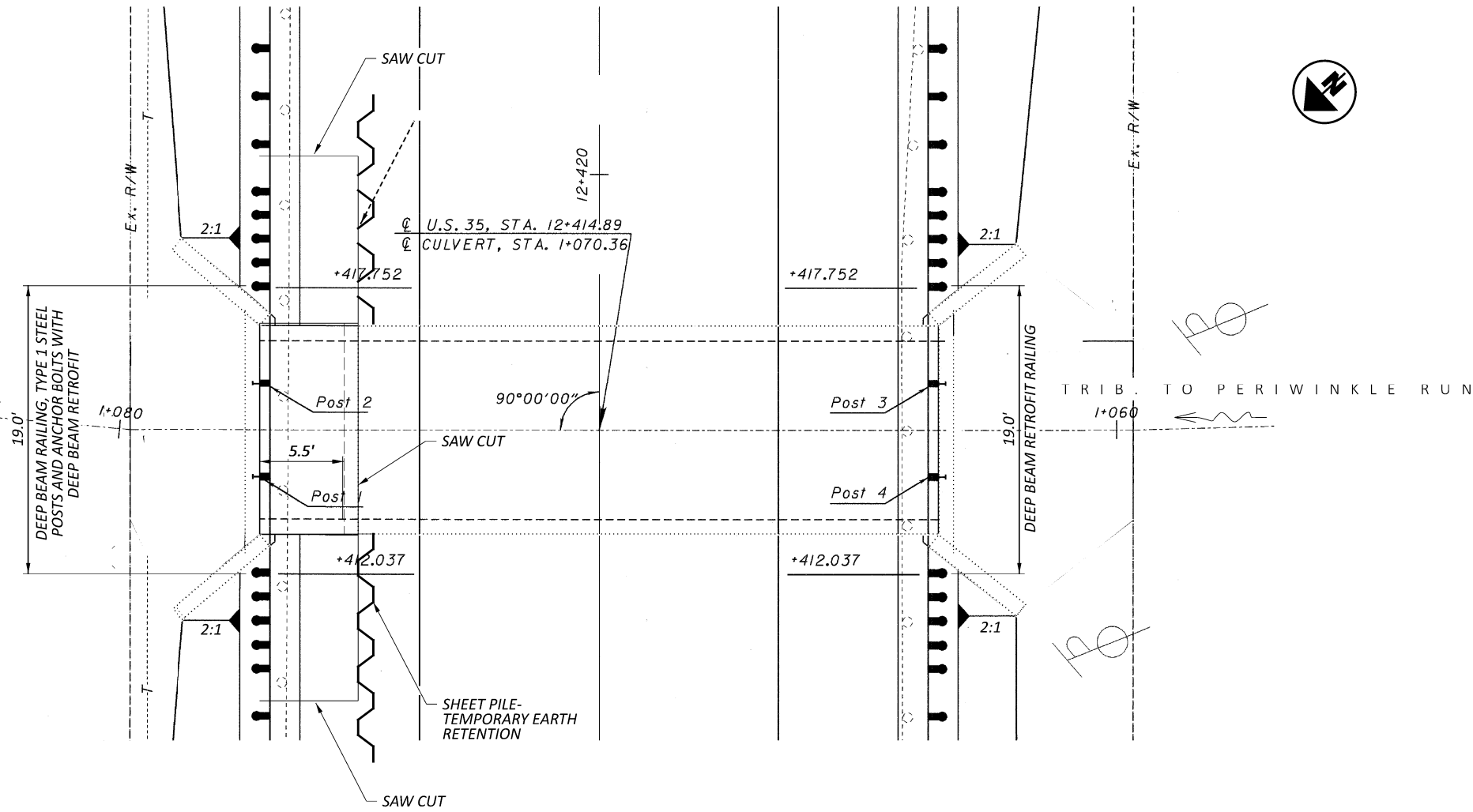
PRE-US 35-2.62

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DESIGN AGENCY



DESIGNER	JED
REVIEWER	JDO
PROJECT ID	100648
SHEET TOTAL	P.10 19



CULVERT PROFILE

HYDRAULIC DATA

DRAINAGE AREA = 132 Hectares
 Q (25) = 8.4 M³/S V (25) = 3.8 M/S
 Q (100) = 11.2 M³/S V (100) = 4.0 M/S



EXISTING STRUCTURE

TYPE: 12' X 4' PRECAST REINFORCED CONCRETE BOX
 SPANS: 11.8 FT F/F CULVERT
 ROADWAY: 43.3 FT F/F GUARDRAIL
 LOADING: HS 20-44 AND THE ALTERNATE MILITARY LOADING
 SKEW: TANGENT
 WEARING SURFACE: BITUMINOUS CONCRETE
 ALIGNMENT: TANGENT
 CROWN: 0.016
 STRUCTURE FILE NUMBER: 6800130
 DATE BUILT: 1996
 DISPOSITION: OUTLET END BOX CULVERT SECTION TO BE REPLACED

PROPOSED WORK

1. REPLACE THE EAST SECTION OF PRECAST BOX CULVERT WITH A NEW PRECAST BOX CULVERT SECTION.
2. REPAIR REMAINING PORTIONS OF CULVERT INTERIOR WHERE SPALLING HAS OCCURRED WITH TROWELABLE MORTAR PER SS 843.
3. SEAL CULVERT ENDS AND WINGWALLS CONCRETE SURFACES WITH EPOXY URETHANE SEALER PER CMS 512.
4. RETROFIT THE RAILING ON THE WEST SIDE PER DBR-3-11. RAILING ON THE EAST SIDE SHALL BE NEW. UPGRADE APPROACH GUARDRAIL AS NECESSARY TO MEET MGS SPECIFICATIONS.
5. MILL AND FILL THE SURFACE COURSE ONLY ON THE STRUCTURE.

NOTES

1. VARIOUS INFORMATION ON THE CULVERT PLAN, CULVERT PROFILE AND HYDRAULIC DATA TABLE ON THIS SHEET WERE TAKEN FROM EXISTING PLANS AND SHOULD BE USED FOR INFORMATION PURPOSES ONLY. SOME CULVERT PLAN DIMENSIONS ARE SHOWN IN METRIC UNITS.

SITE PLAN
BRIDGE No.: PRE-35-8.18
US 35 OVER TRIBUTARY TO PERIWINKLE RUN

SFN
 6800130
 DESIGN AGENCY



DESIGNER	CHECKER
GTF	JED
REVIEWER	
JDO 6/12/23	
PROJECT ID	
100648	
SUBSET	TOTAL
1	3
SHEET	
TOTAL	
P.11A	19

GENERAL NOTES

DESIGN SPECIFICATIONS: THIS STANDARD DRAWING CONFORMS TO "LRFD BRIDGE DESIGN SPECIFICATION" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND THE 2020 OHIO BRIDGE DESIGN MANUAL.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

CONCRETE - COMPRESSIVE STRENGTH 4000 PSI - FOOTING
COMPRESSIVE STRENGTH 4500 PSI - CULVERT

REINFORCING STEEL - GRADE 60 MINIMUM YIELD STRENGTH
60,000 PSI (ALL REINFORCING SHALL BE EPOXY COATED)

DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN
INSTALL GALVANIZED DOWEL BARS ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR BLACK REBAR PUBLISHED IN THE ICC-ES REPORTS LISTED BELOW. THE HOLES FOR THE ADHESIVE ANCHORS SHALL BE DRILLED WITH A HAMMER DRILL AND CARBIDE BIT. PRIOR TO THE INSTALLATION OF THE ANCHORS, THE HOLES SHALL BE CLEANED AND DRIED IN A MANNER CONSISTENT WITH THE MANUFACTURER'S REQUIREMENTS FOR DRY CONCRETE.

SELECT FROM ONE OF THE FOLLOWING APPROVED PRODUCTS:

HILTI HIT-HY 200 ADHESIVE ANCHORS
(ICC-ES REPORT ESR-3187)

DEWALT PURE110+ EPOXY ADHESIVE ANCHOR SYSTEM
(ICC-ES REPORT ESR-3298)

SIMPSON STRONG-TIE SET-3G EPOXY ADHESIVE ANCHORS
(ICC-ES REPORT ESR-4057)

ATC ULTRABOND HS-1CC ADHESIVE ANCHOR SYSTEM
(ICC-ES REPORT ESR-4094)

THE MANUFACTURER'S INSTALLATION INSTRUCTION PUBLISHED IN THE ICC-ES REPORTS FOR ACCEPTABLE PRODUCTS ARE AVAILABLE AT:

<https://icc-es.org/evaluation-report-program/>

ITEM 611 - CONDUIT, MISC.: GRANULAR STRUCTURAL BACKFILL, 703.11

STRUCTURAL BACKFILL TYPE 1 CONSISTING OF CRUSHED CARBONATE STONE, THAT MEETS THE GRADATIONS OF ITEM 304 SHALL BE PLACED AS SHOWN IN THE DETAIL BELOW. QUANTITY SHALL BE BASED ON A TRENCH LENGTH OF 92 FEET MEASURED ALONG THE CENTERLINE OF THE CULVERT. PAYMENT FOR STRUCTURAL BACKFILL TYPE 1 AND THE EXCAVATION REQUIRED FOR THE PLACEMENT OF THE STRUCTURAL BACKFILL SHALL BE INCLUDED IN ITEM 611 FOR PAYMENT.

NEW CULVERT BOX SECTION:

POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE.

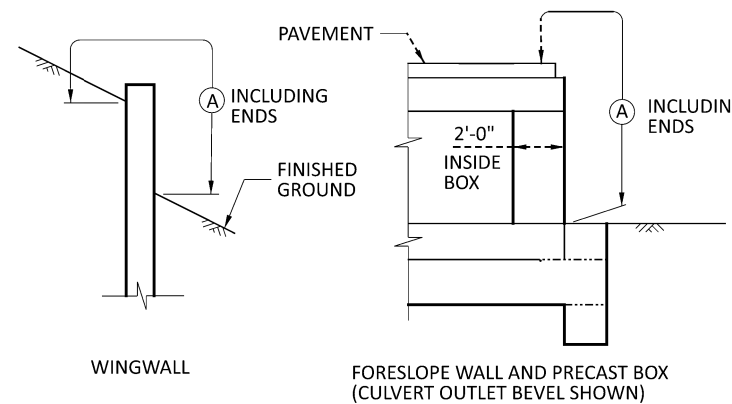
SEALING OF CULVERT BOX FACES AND WINGWALLS: ALL EXPOSED CULVERT BOX FACES AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.

PREFORMED EXPANSION JOINT FILLER: PREFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALL. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER.

WATERPROOFING: TYPE 2 WATERPROOFING, PER CMS 512.09 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

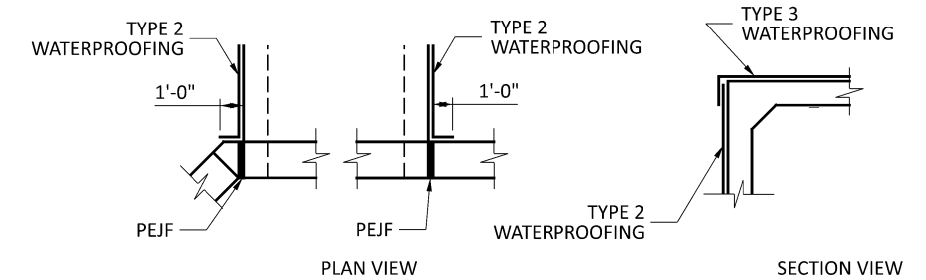
SINCE PAVEMENT WILL BE PLACED DIRECTLY ON TOP OF THE NEW CULVERT SECTION, TYPE 3 WATERPROOFING, PER CMS 512.10 AND 711.29 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CULVERT SECTION AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.

EXTEND TYPE 2 AND 3 WATERPROOFING 1 FOOT BEYOND THE SECTION JOINT OF NEW AND EXISTING SECTIONS.



LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

(A) - SEAL ENTIRE CONCRETE SURFACE AREA

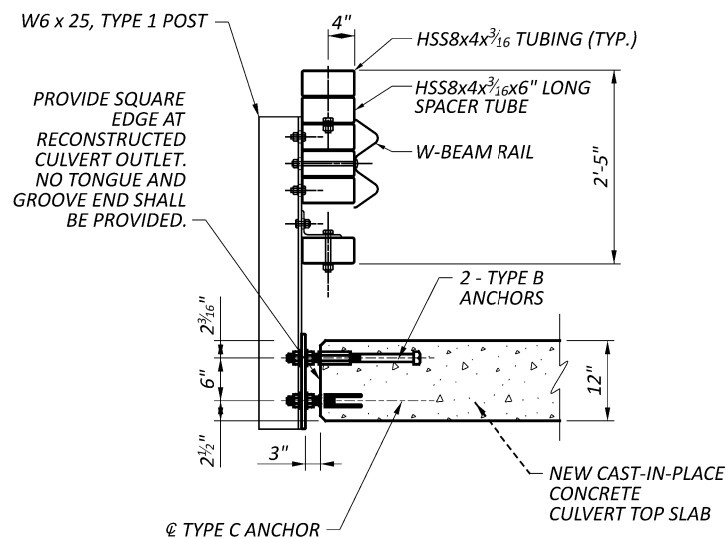


WATERPROOFING DETAILS

BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING, CUTOFF WALL, WINGWALLS AND FORESLOPE WALL SHALL BE INCLUDED WITH ITEM 511 - CLASS QC1 CONCRETE, RETAINING/WINGWALL - INCLUDING FOOTING). PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

ESTIMATED QUANTITIES (PLAN SPLIT 04/STR/04)

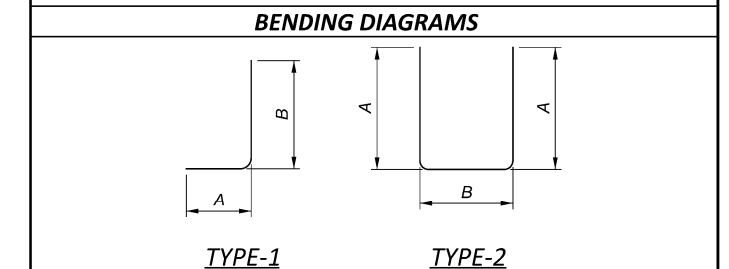
ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED
202	23000	11	SQ. YD.	PAVEMENT REMOVED
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING
503	21300	LUMP		UNCLASSIFIED EXCAVATION
509	10001	1646	LB.	EPOXY COATED STEEL REINFORCEMENT
510	10001	13	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN
511	46510	0.5	CU. YD.	CLASS QC1 CONCRETE, FOOTING
511	33412	0.5	CU. YD.	CLASS QC2 CONCRETE, SUPERSTRUCTURE
512	74001	18	SQ. YD.	REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES
512	10101	36	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	33001	9	SQ. YD.	TYPE 2 WATERPROOFING, AS PER PLAN
512	33011	32	SQ. YD.	TYPE 3 WATERPROOFING, AS PER PLAN
516	13600	13	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	72300	18.75	LIN. FT.	RAILING (DEEP BEAM RAILING WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS AND ANCHOR BOLTS)
517	75600	18.75	LIN. FT.	DEEP BEAM BRIDGE RETROFIT RAILING
518	21201	3.24	CU. YD.	POROUS BACKFILL WITH GEOTEXTILE FABRIC
843	50000	3.24	SQ. YD.	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR
878	25000	LUMP		INSPECTION AND COMPACTION TESTING OF UNBOUNDED MATERIALS



CULVERT TOP - PARTIAL TRANSVERSE SECTION

SEE DBR-3-11 AND DBR-2-73 FOR ADDITIONAL DETAILS

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS	
	TOTAL				A	B
REINFORCING STEEL LIST						
X501	14	10'-0"	146	STR		
X502	22	5'-2"	119	STR		
X602	28	12'-9"	536	STR		
Y501	14	4'-6"	66	STR		
Y601	28	17'-0"	715	2	5'-10"	5'-8"
F501	15	2'-4"	37	1	0'-8"	1'-10"
F502	2	12'-9"	27	STR		
SUB-TOTAL			1,646			



PRE-US 35-2.62

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STRUCTURE NOTES
BRIDGE No.: PRE-35-8.18
US 35 OVER TRIBUTARY TO PERIWINKLE RUN

SFN
6800130

DESIGN AGENCY



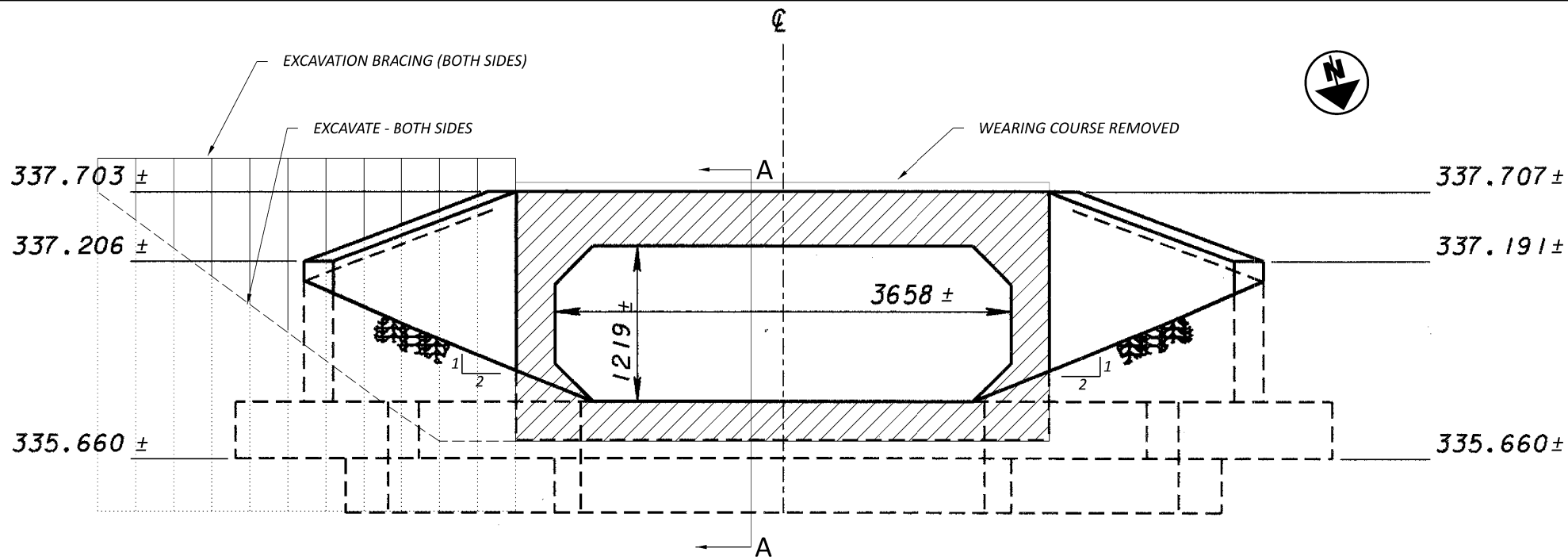
DESIGNER
GTF

REVIEWER
CAH 6/12/23

PROJECT ID
100648

SUBSET TOTAL
2 3

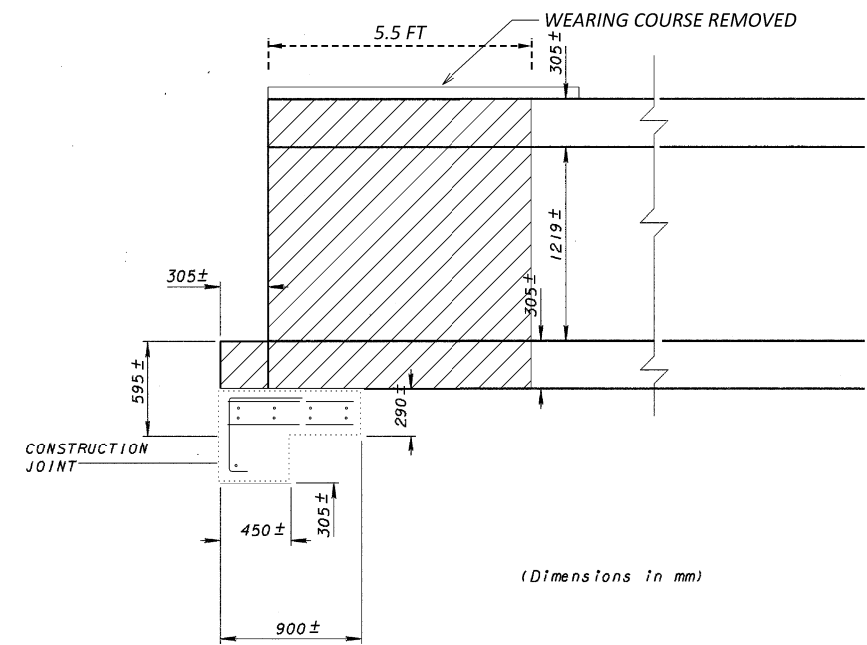
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P.11B 20



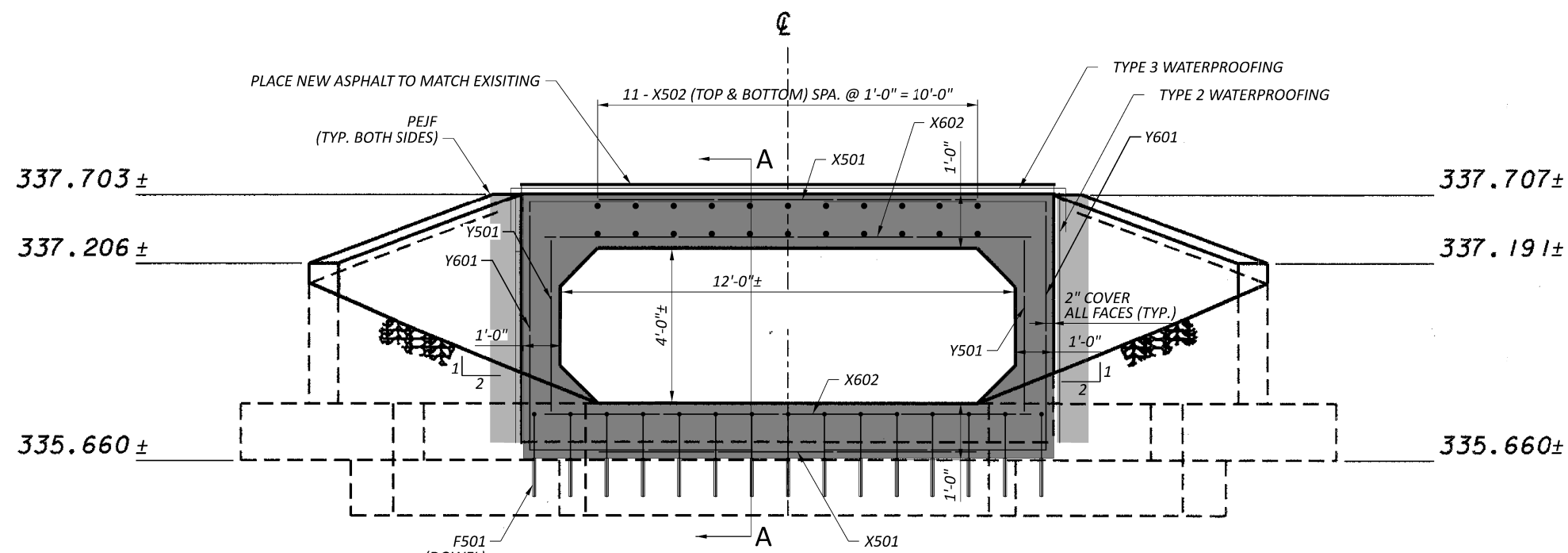
LEGEND

☐ REMOVE

■ NEW BOX AND CONCRETE

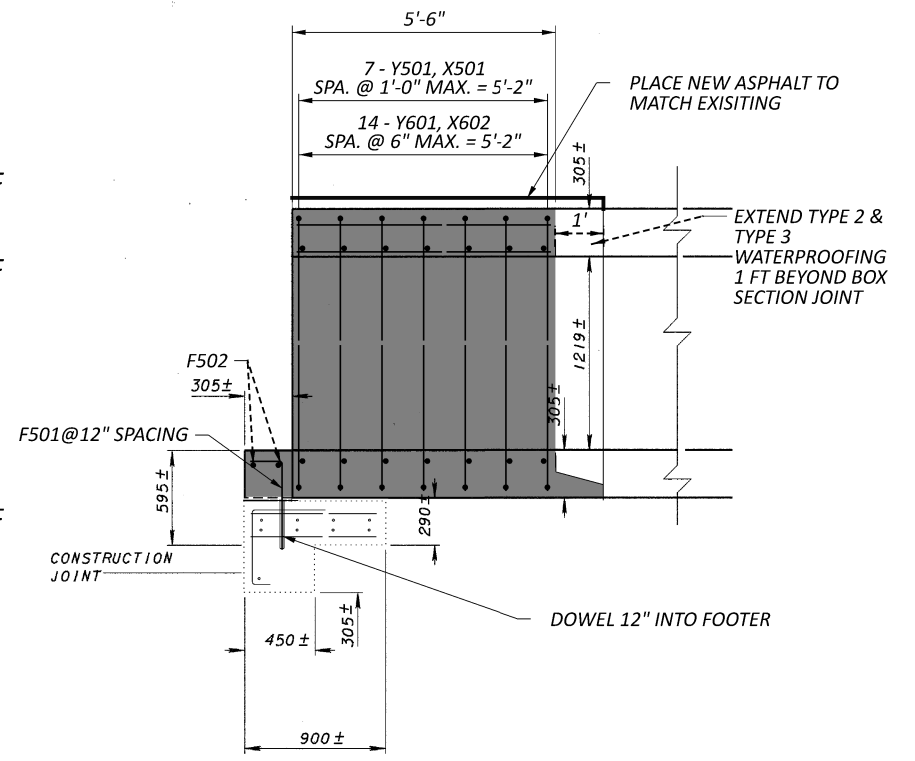


OUTLET SECTION A-A REMOVAL



OUTLET ELEVATION CONSTRUCTION

FLOWLINE ELEVATION: 336.110 ±

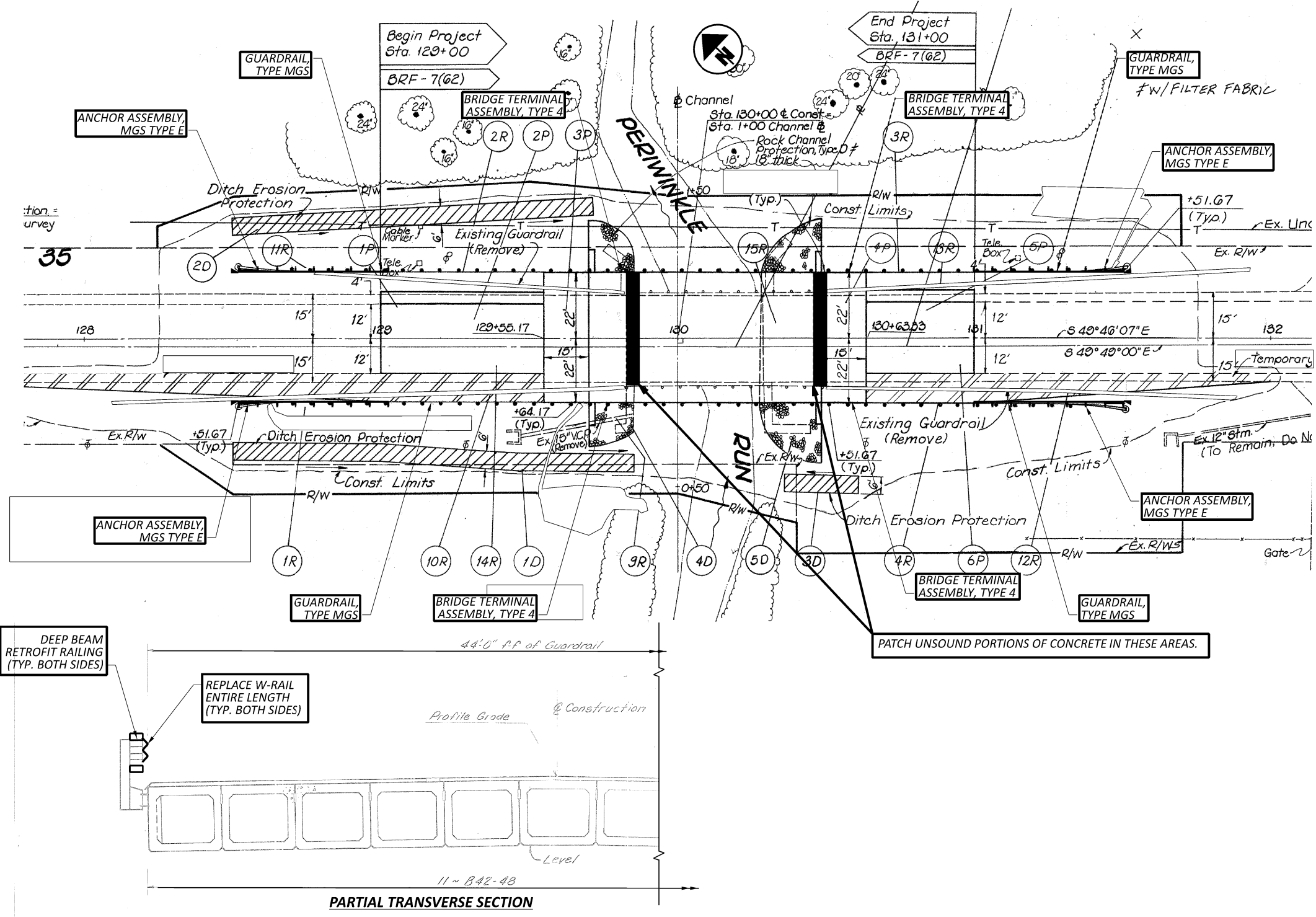


OUTLET SECTION A-A CONSTRUCTION

- NOTES**
- EXISTING DIMENSION SHOWN ON THIS SHEET ARE IN METRIC UNITS. PROPOSED DETAILS AND DIMENSIONING ARE IN STANDARD UNITS.
 - ANY DAMAGE CAUSED BY THE CONTRACTOR TO THE PORTION OF EXISTING CULVERT TO REMAIN IN SERVICE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

STRUCTURE DETAILS
BRIDGE No.: PRE-35-8.18
US 35 OVER TRIBUTARY TO PERIWINKLE RUN

SFN	6800130
DESIGN AGENCY	
DESIGNER	GTF
CHECKER	JED
REVIEWER	
CAH	6/12/23
PROJECT ID	100648
SUBSET	3
TOTAL	3
SHEET	P.12
TOTAL	19



PARTIAL TRANSVERSE SECTION

ESTIMATED QUANTITIES - STRUCTURE No.: PRE-35-0850 (03/STR/13) CARRIED TO GENSUM

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
843	50000	10	SF	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR
517	75600	175	FT	DEEP BEAM BRIDGE RETROFIT RAILING
519	12300	22	SY	PATCHING CONCRETE BRIDGE DECK, TYPE B

HYDRAULIC DATA

DRAINAGE AREA = 4.5 SQ. MI.
 Q (25) = 1063 C.F.S. V (25) = 5.9 F.P.S
 Q (100) = 1494 C.F.S. V (100) = 6.9 F.P.S
 STRUCTURE CLEARS THE 100 YR FLOOD BY 4.2'

EXISTING STRUCTURE

TYPE: SINGLE SPAN PRESTRESSED PRECAST CONCRETE BOX BEAMS WITH CAPPED PILE ABUTMENTS
 SPANS: 75' C/C BEARINGS
 ROADWAY: 44'0" F-F OF DEEP BEAM RAILING
 LOADING: HS 20-44 & THE ALTERNATE MILITARY LOADING
 SKEW: 0 DEGREES
 WEARING SURFACE: 2 1/2" MIN. ASPHALT CONCRETE
 APPROACH SLABS: 15' AS-1-81
 ALIGNMENT: TANGENT
 CROWN: 3/16" PER FT.
 STRUCTURE FILE NUMBER: 6800165
 DATE BUILT: 1991
 DISPOSITION:

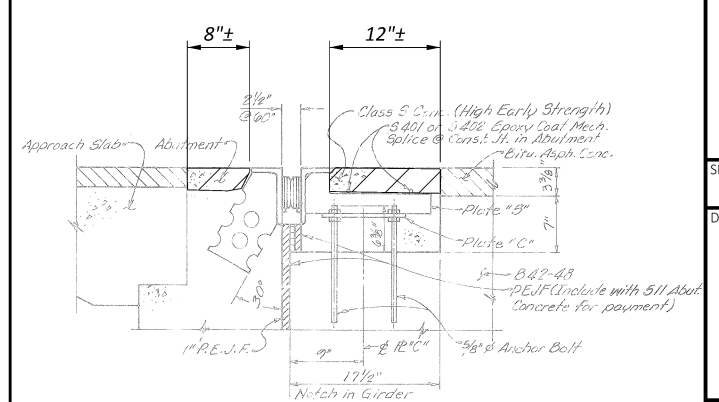
PROPOSED WORK

1. PATCH UNSOUND PORTIONS OF CONCRETE HEADER ALONG EXPANSION JOINT PER PROPOSAL NOTE 512, TYPE B.
2. RETROFIT RAILING PER DBR-3-11. INCLUDE REPLACEMENT OF THE W-RAIL. PATCH SELECTED POST ANCHORS WITH TROWELABLE MORTAR PER SS 843.
3. UPGRADE APPROACH GUARDRAIL.

NOTES

1. DETAILS ON THIS SHEET ARE TAKEN FROM EXISTING PLANS AND SHOULD BE USED FOR INFORMATION PURPOSES ONLY.
2. PERFORM ONLY THE WORK AS INDICATED IN THE FRAMED TEXT AND/OR DESCRIBED IN THE GENERAL NOTES.

EXPANSION JOINT SECTION DETAIL



LEGEND

- PATCH CONCRETE PER PROPOSAL NOTE 512, TYPE B

GENERAL PLAN
 BRIDGE No.: PRE-35-8.61
 US 35 OVER PERIWINKLE RUN

SFN	6800165
DESIGN AGENCY	
DESIGNER	CHECKER
GTF	JED
REVIEWER	
CAH	6/12/23
PROJECT ID	100648
SUBSET	TOTAL
1	1
SHEET	TOTAL
P.13	19

NOTES

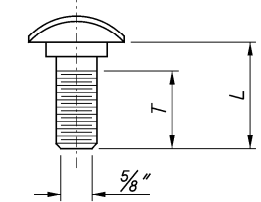
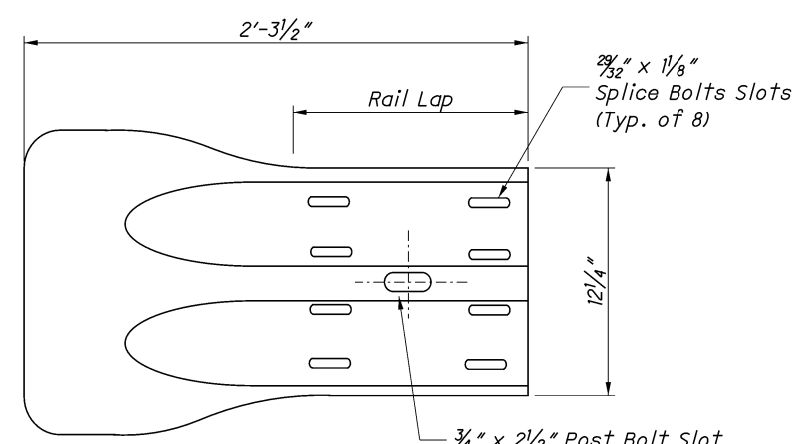
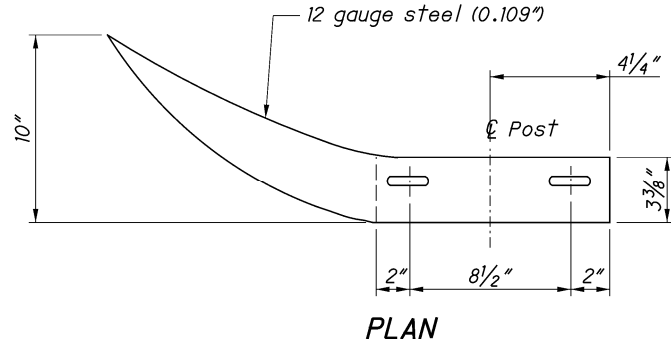
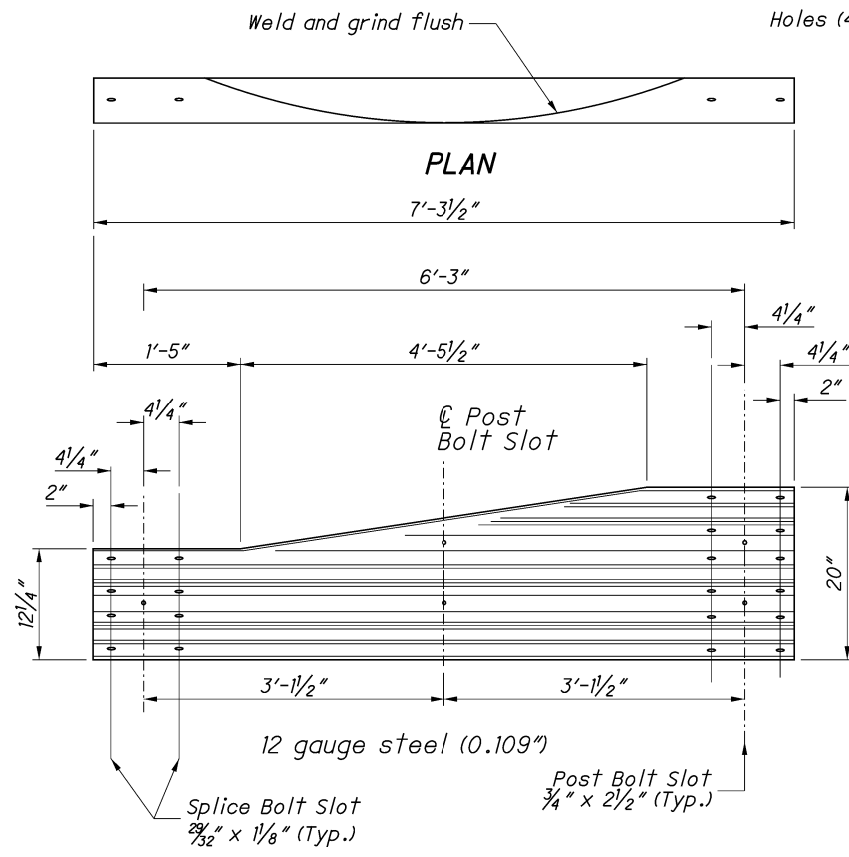
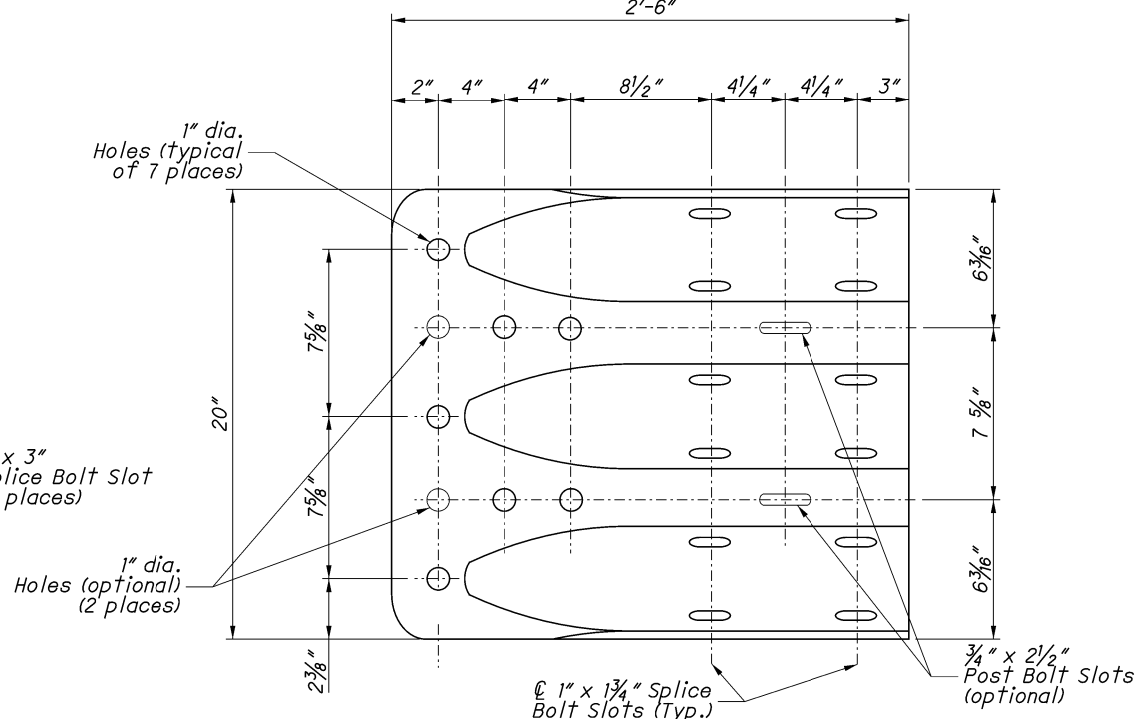
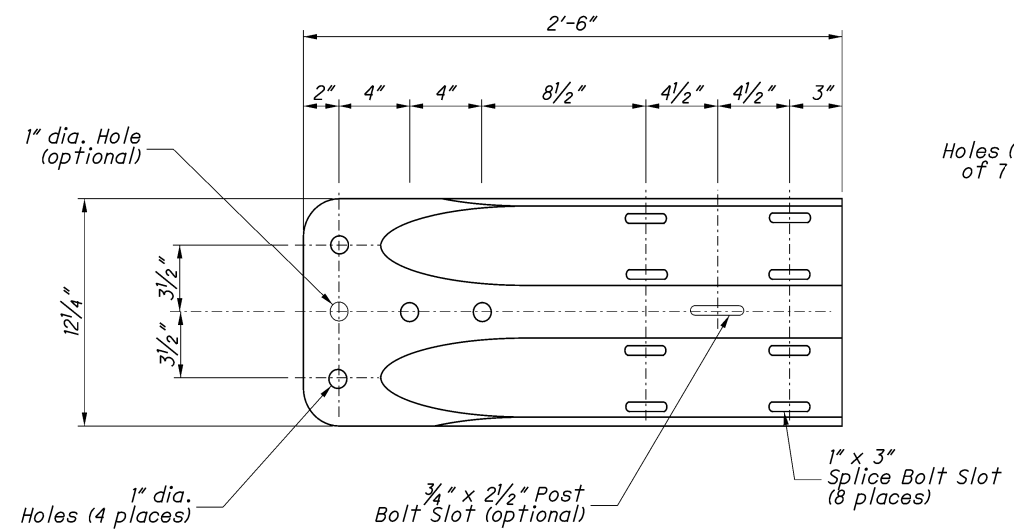
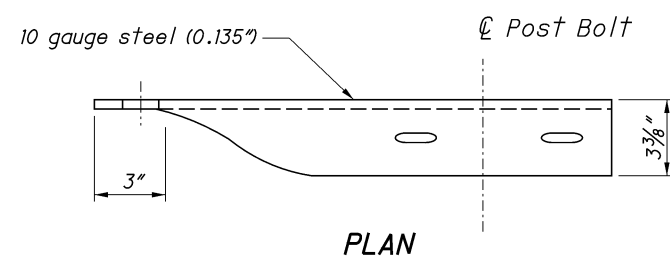
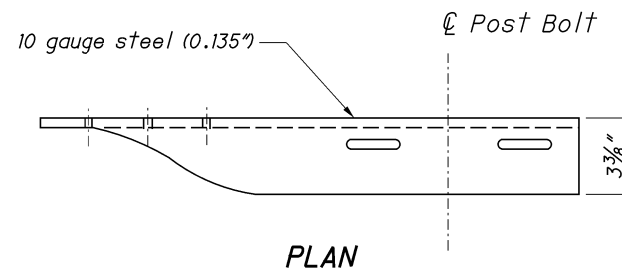
GENERAL: Components shown on this drawing are used in a variety of guardrail systems. See individual guardrail drawing for specific applications.

See CMS 606 for guardrail specifications not covered on these drawings.

Refer to AASHTO M 180 for dimensional details of W-Beam rail elements, related buffer and end sections, beam splices, post and splice bolts, nuts, and Type 1 W-Beam to Thrie-Beam Transition sections.

RAIL ELEMENTS: W-Beam Rail has an effective length of 12'-6" unless otherwise specified, with 3/4" x 2 1/2" post bolt slots on 6'-3" centers regardless of post spacing. Field punch or drill bolt holes or slots for irregularly spaced posts as specified in CMS 606.04.

RAIL SPLICES: Lap splices between two rail elements or between a rail and terminal connector in the direction of traffic. Lap the buffer or flared end sections in the direction of traffic.



GUARDRAIL BOLT (For Post and Splice Bolts)		
L	T min.	Bolt Use
18" (Standard Rail)	4"	Type 5: WP/WB, PB
26" (Barrier Rail)		
10"	4"	Type 5: SP/WB, PB
1 1/4"	1 1/8"	Splice Bolt

WP = Wood Post WB = Wood Blockout
 SP = Steel Post PB = Plastic Blockout

Longer Bolt may be needed for round Wood Post larger than 8" dia.

**ELEVATION
 TYPE 2 TRANSITION SECTION
 (Asymmetric W to Thrie-Beam)**

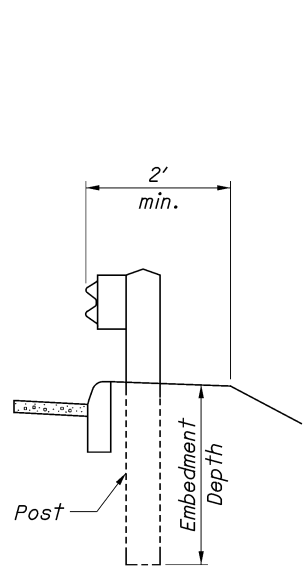
For details of Type 1 Transition Section (Symmetric), refer to AASHTO M 180, Figure 4.

**ELEVATION
 W-BEAM TERMINAL CONNECTOR**

**ELEVATION
 THRIE-BEAM TERMINAL CONNECTOR**

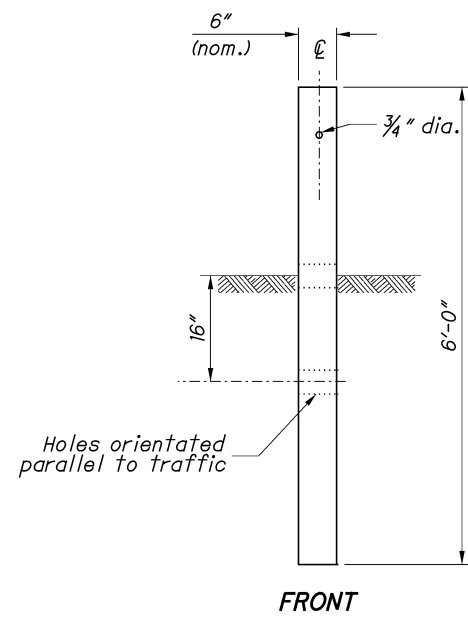
**ELEVATION
 W-BEAM FLARED END SECTION**





DETAIL A

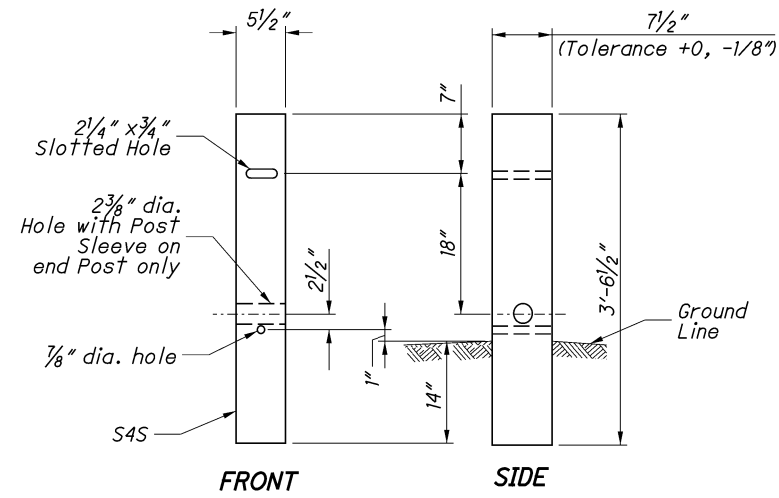
See POST EMBEDMENT DEPTH Note



FRONT

SIDE

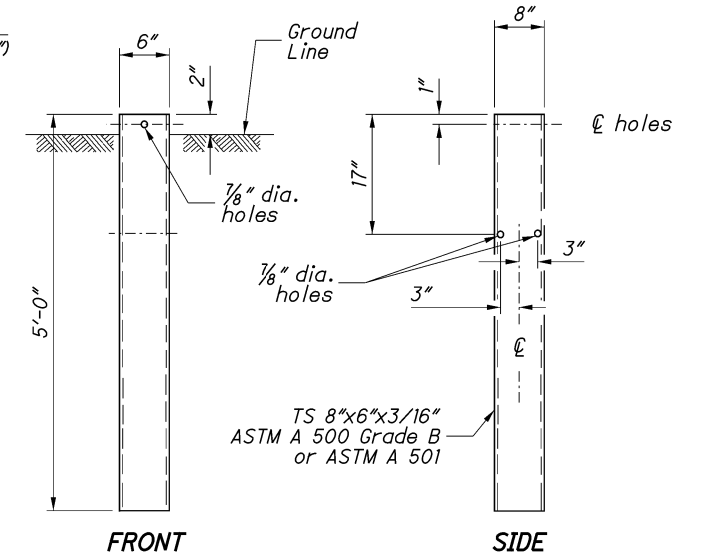
TYPE 1 BREAKAWAY CRT POST



FRONT

SIDE

TYPE 2 BREAKAWAY CRT POST



FRONT

SIDE

STEEL GROUND TUBE

NOTES

GUARDRAIL HEIGHT: For initial installation, construct the guardrail within $\pm 1"$ of the standard height, h , or **29"** to the top of W-Beam rail. (See MEASURING GUARDRAIL HEIGHT Detail.)
 When subsequent projects, such as resurfacings, affect the height of existing guardrail, the finished height is to be within $\pm 2.5"$ of the standard height.

POST EMBEDMENT DEPTH: Standard embedment is 3'-5" min. Where less than 2' of graded shoulder width (10:1 or flatter) exists, measured from the face of the guardrail (see DETAIL "A"), use longer posts so that a minimum of 5'-5" embedment depth is provided. Payment for the longer posts will be made at the unit price bid for **ITEM 606 - GUARDRAIL POST, 9', Each.**

SPECIAL POST MOUNTINGS: Install posts located over a drainage inlet or structure as shown in the FOOTING ANCHOR Detail, or anchor per the details shown on **SCD GR-2.2.**

Install posts located over a footing with a cover of less than 2'-6" with a footing anchor as detailed here. (A plate, as detailed on SECTION B-B of **SCD GR-2.2**, may be used as an alternative attachment method.) Where the cover is between 2'-6" and 3'-5", the footing anchor may be omitted and the post encased instead with 4" (min.) of concrete.

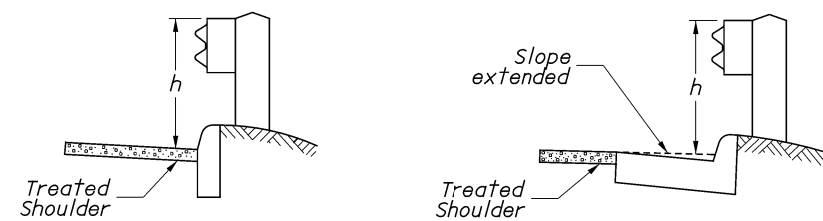
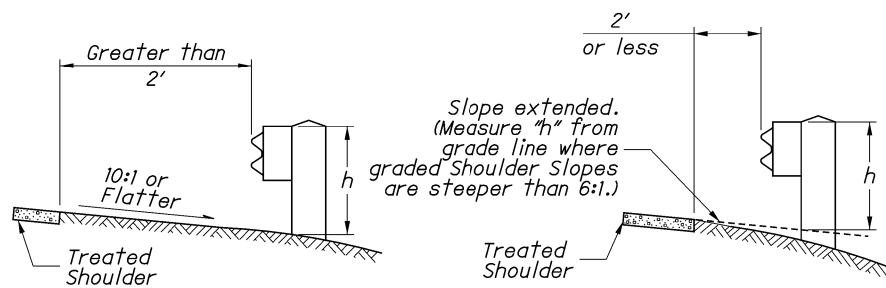
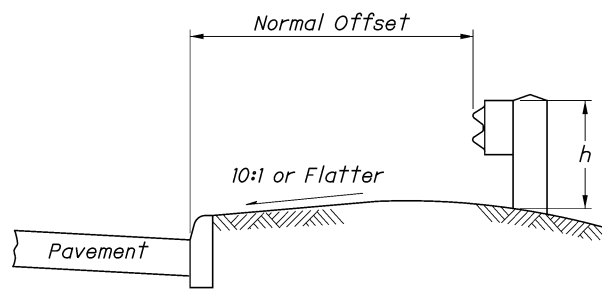
Do not drive posts located over a culvert with less than 4'-3" of cover; instead set in drilled or dug holes. Where the available post embedment depth is less than 3'-5", encase the post with a minimum of 4" concrete.

All costs associated with special post mountings are included in the unit price bid of Item 606 Guardrail of the type specified in the plans.

ANCHORS: Holes and grouting shall comply with CMS 510. Use either cement or non-shrink, nonmetallic grout.

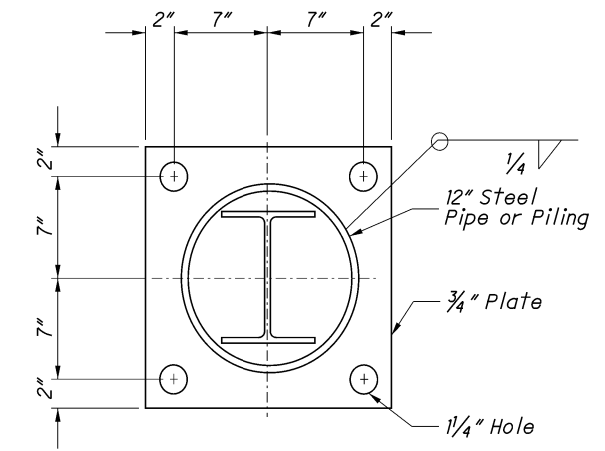
Expansion shield anchors as specified in CMS 710.01 may be substituted except where concrete deterioration has occurred, as determined by the Engineer. Where self-drilling anchors are used, drill the holes with the expansion shield (not by a drill bit) and install the shield flush with the concrete surface.

PROTECTIVE COATING: In lieu of the complying with CMS 710.06, coat expansion shields, anchors and concrete insert anchor assemblies embedded in concrete in accordance with ASTM A 153 or be of stainless steel. Any bolts screwed into these devices shall meet CMS 710.06. (See sheet 3 for Concrete Insert Anchor Assembly Detail.)



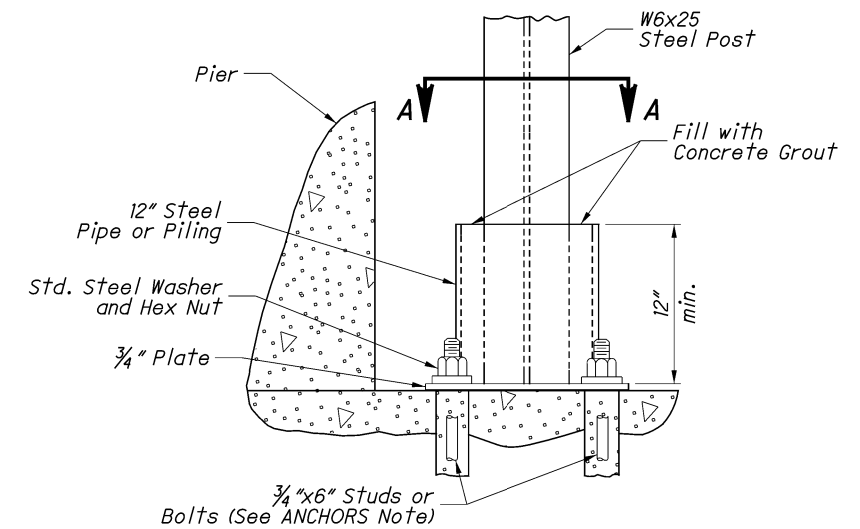
h = Standard Height (See GUARDRAIL HEIGHT Note)

MEASURING GUARDRAIL HEIGHT



Footing Anchor and hardware need not be galvanized

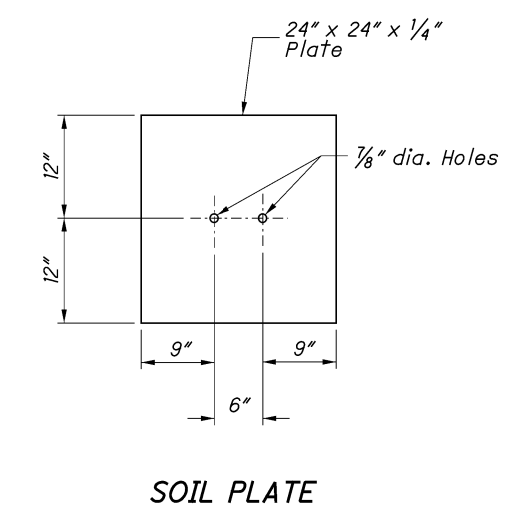
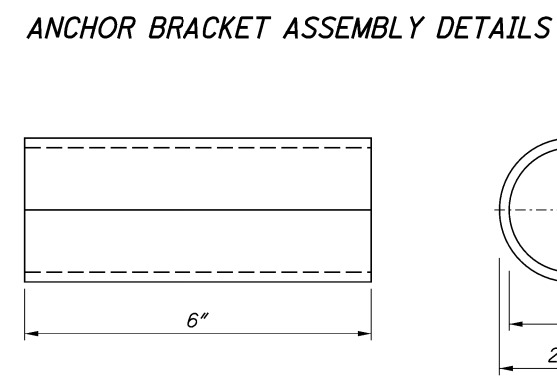
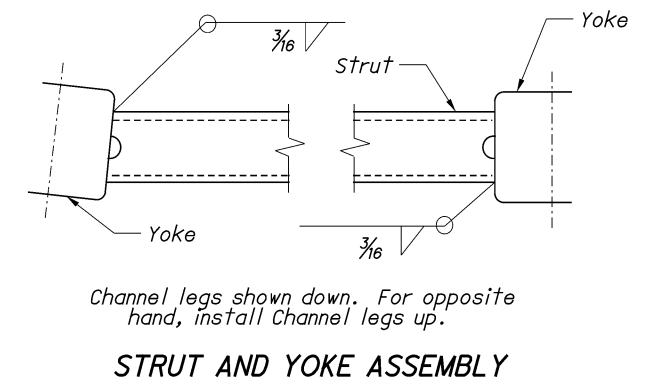
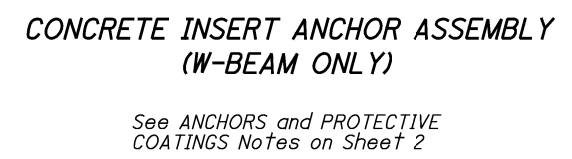
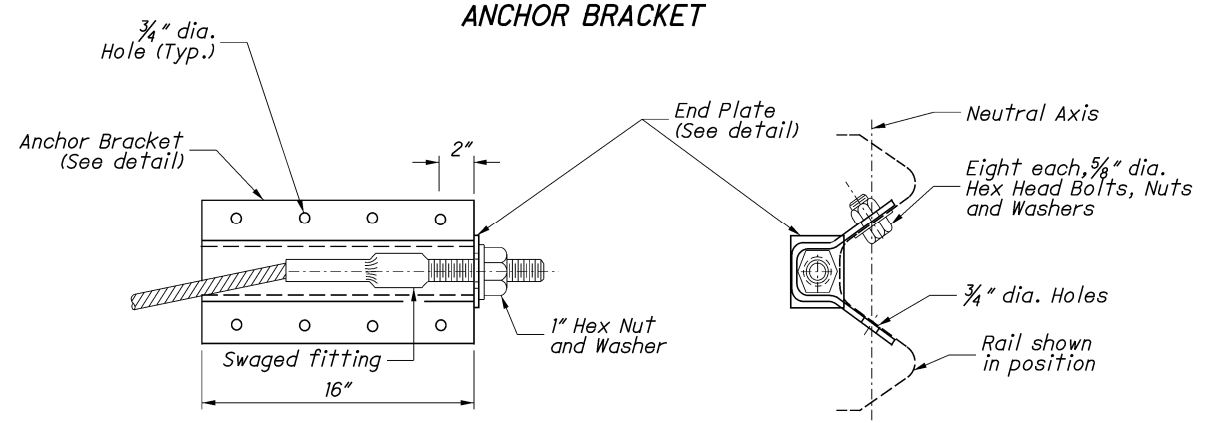
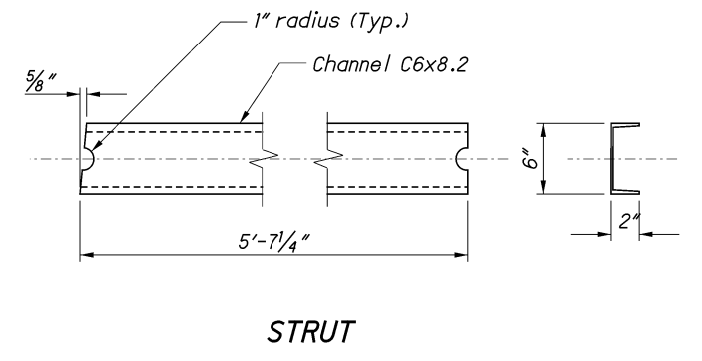
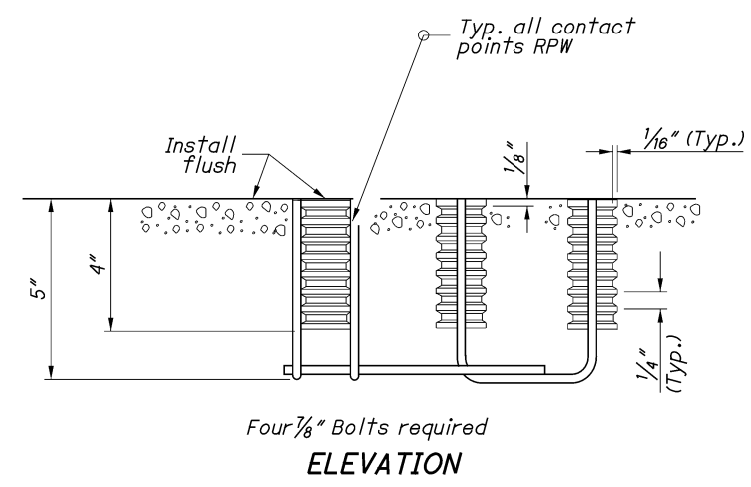
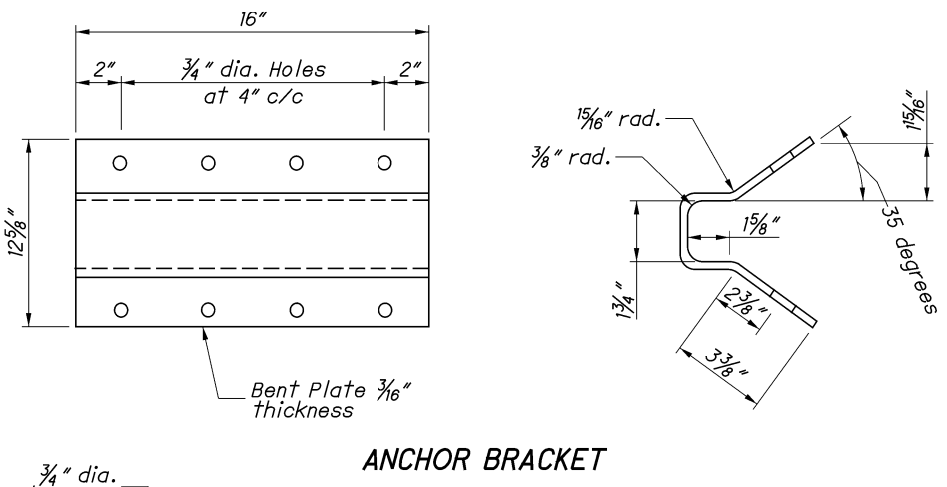
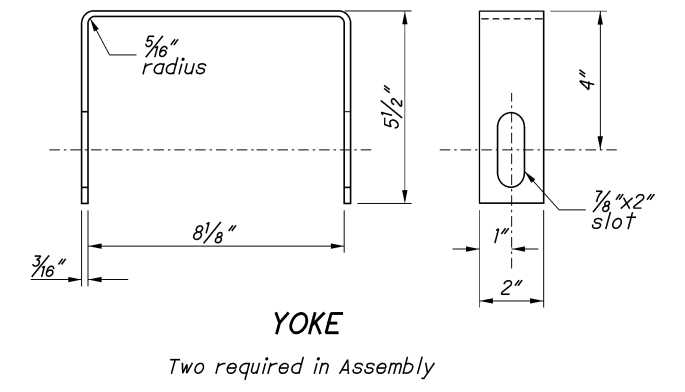
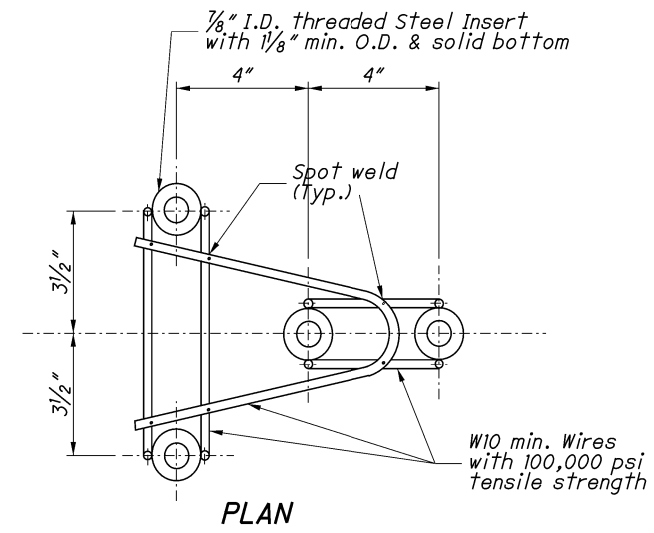
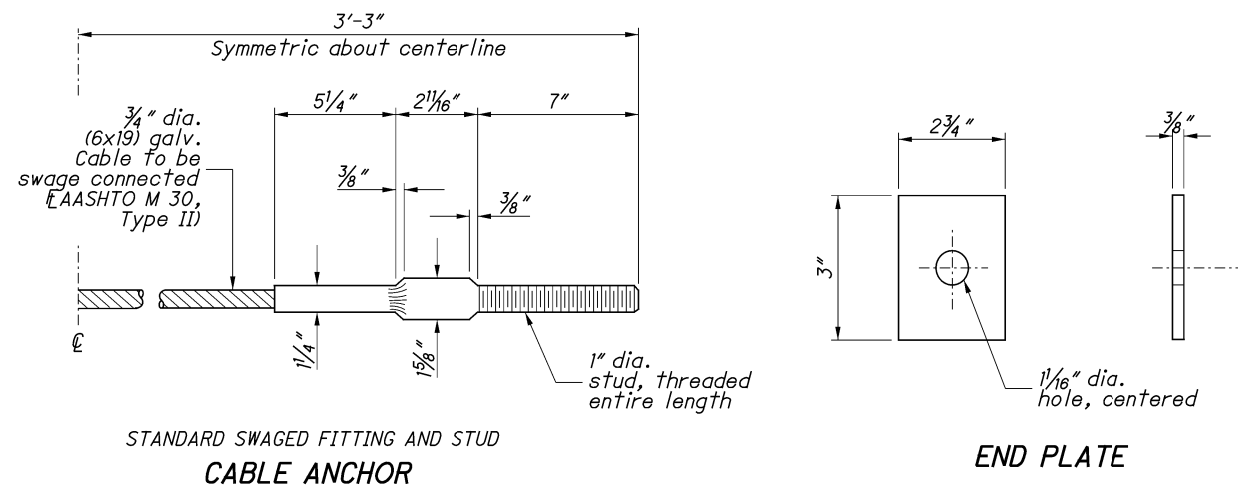
SECTION A-A

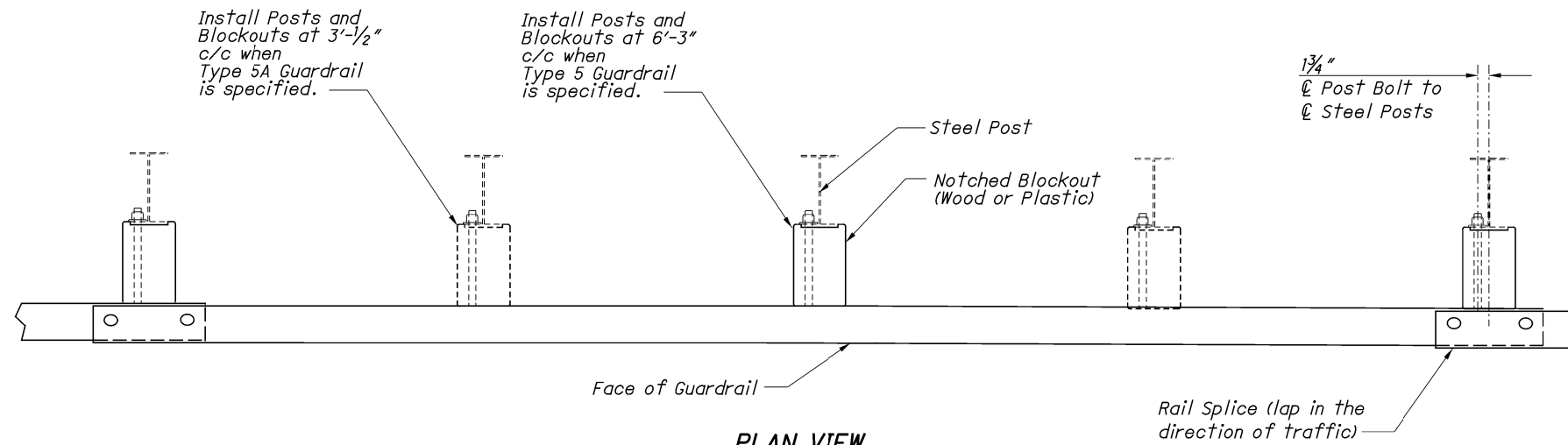


ELEVATION FOOTING ANCHOR

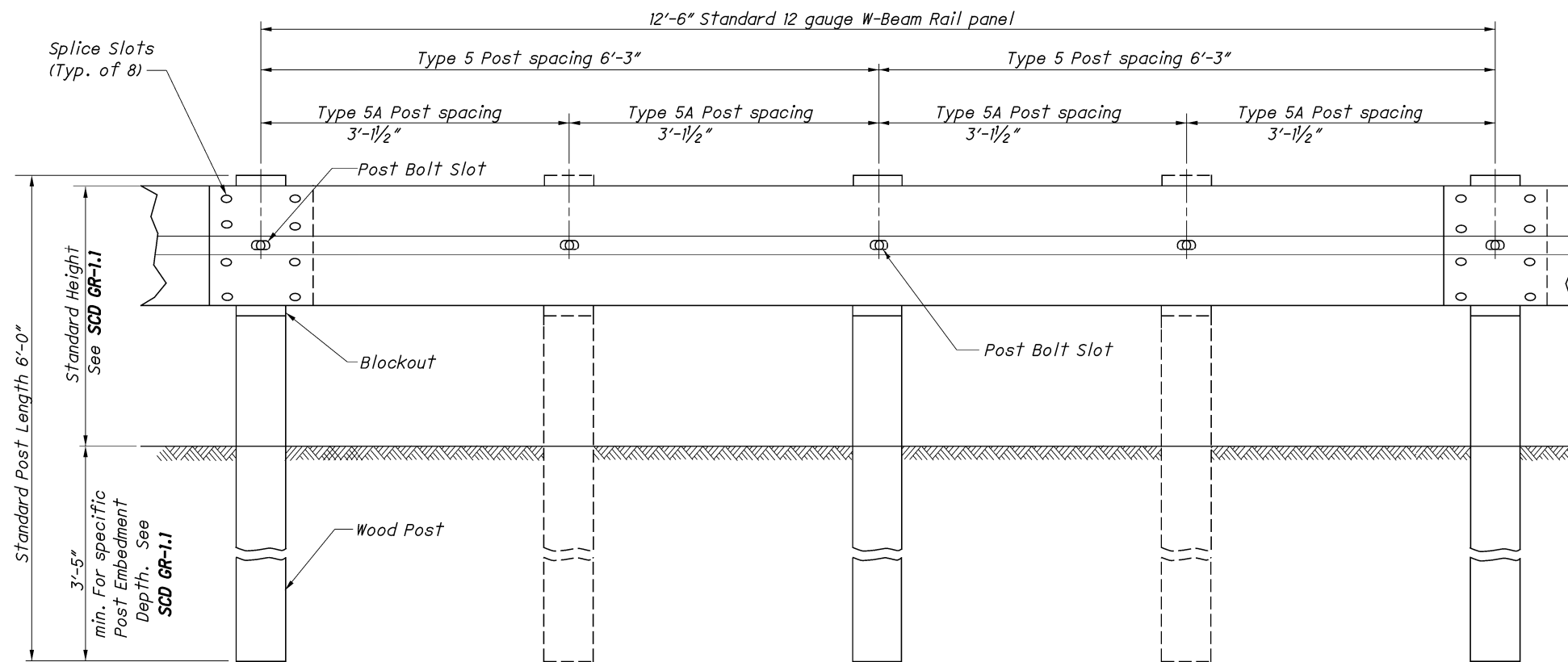
See SPECIAL POST MOUNTINGS Note.







PLAN VIEW
(Steel Posts shown)



ELEVATION
(Wood Posts shown)

NOTES

RAIL: Use W-Beam rail meeting AASHTO M 180 Type II Class A, as specified in CMS 606.

POSTS: Posts may be constructed of wood or steel. Wood posts may be round or 6"x8" square-sawed.

Use round wood posts on runs of single-sided rail. The round posts shall be 8"±1 in diameter at the top and not more than 3" larger at the butt with a uniform taper.

Fabricated wood posts with square ends. Posts shall be pressure-treated as per CMS 710.14. Bore bolt holes and, if required, trim the tops of posts after the posts are set.

Steel posts are to be W6x9 or W6x8.5 galvanized steel. Use the same type of post throughout the length of the project unless otherwise specified in the plans or permitted by the Engineer.

All posts are 6'-0" long unless specified otherwise in the Contract Document. Posts may be set in drilled holes or may be driven to grade.

WELDED BEAM POSTS: Welded beam guardrail posts may be used for Item 606, Guardrail, provided the web and flange sizes are as shown here. Welding of the web to the flanges must comply with ASTM A 769, Class 1, using Grade 36 steel [250 MPa yield point] with the following exceptions:

- Sec. 7.2 Test reports of tensile properties for each lot shall accompany each shipment.
- Sec. 12 Beams that have imperfections repaired by welding shall not be accepted for use in Item 606.
- Sec. 13 Random samples shall be tested by the Department from materials delivered to the project site, or other locations designated by the Laboratory.

ALTERNATE POSTS: Engineered guardrail posts having met NCHRP 350 criteria, and listed on the **Office of Materials Management's** Approved List are permitted as an equal alternate when installed according to the Manufacturer's instructions and within the limitations shown on the Approved List.

BLOCKOUTS: Blockout dimensions are dependent on post used. Wood Blockouts are to be pressure treated as specified in CMS 710.14. Bore bolt holes. Approved alternate blockouts may be used in lieu of the wood blockouts shown. The approved list is maintained by the **Office of Roadway Engineering**.

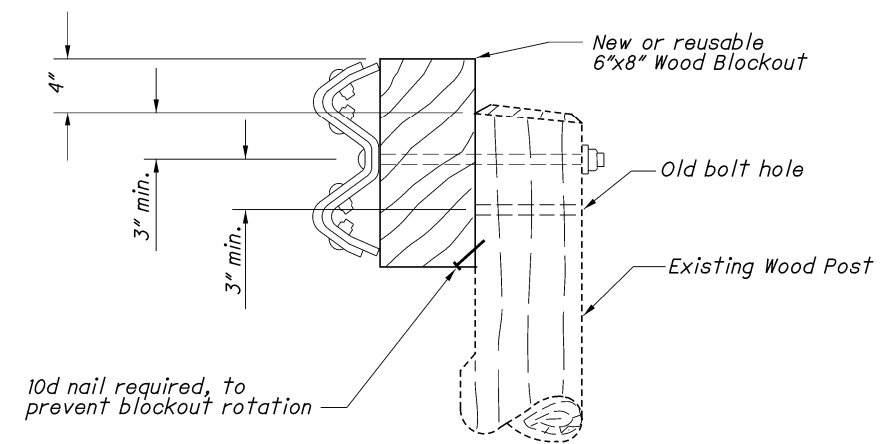
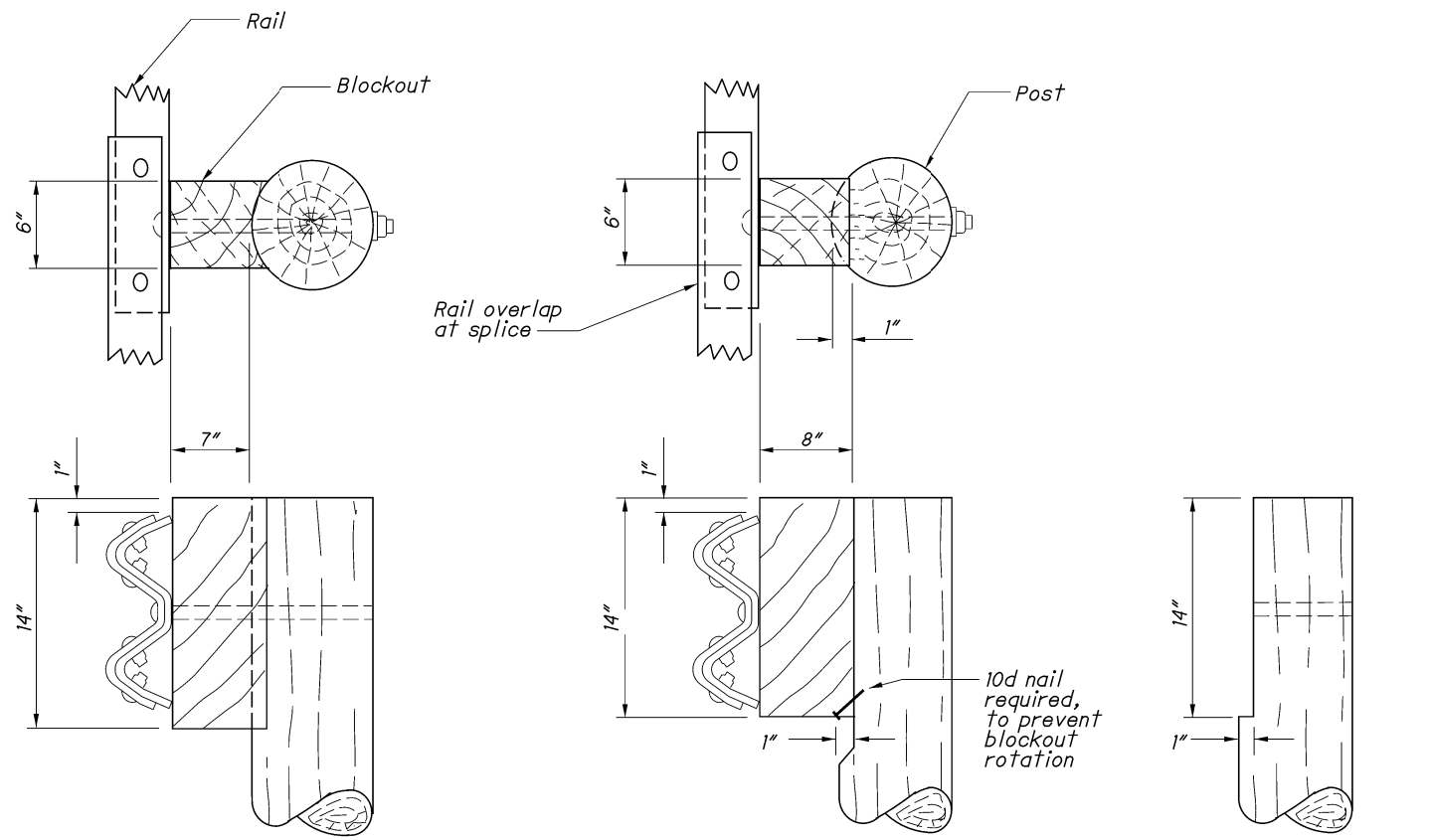
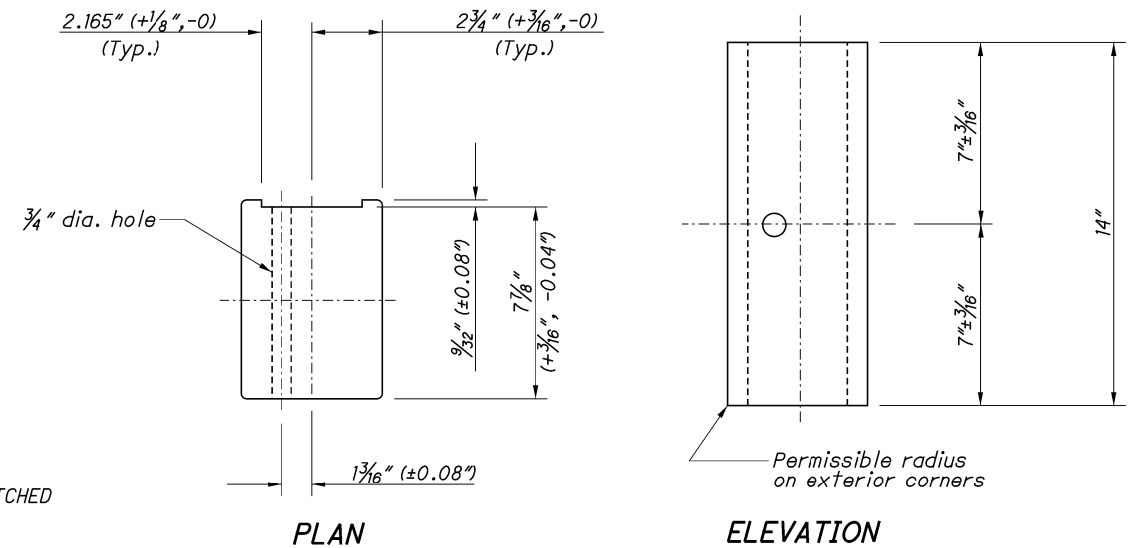
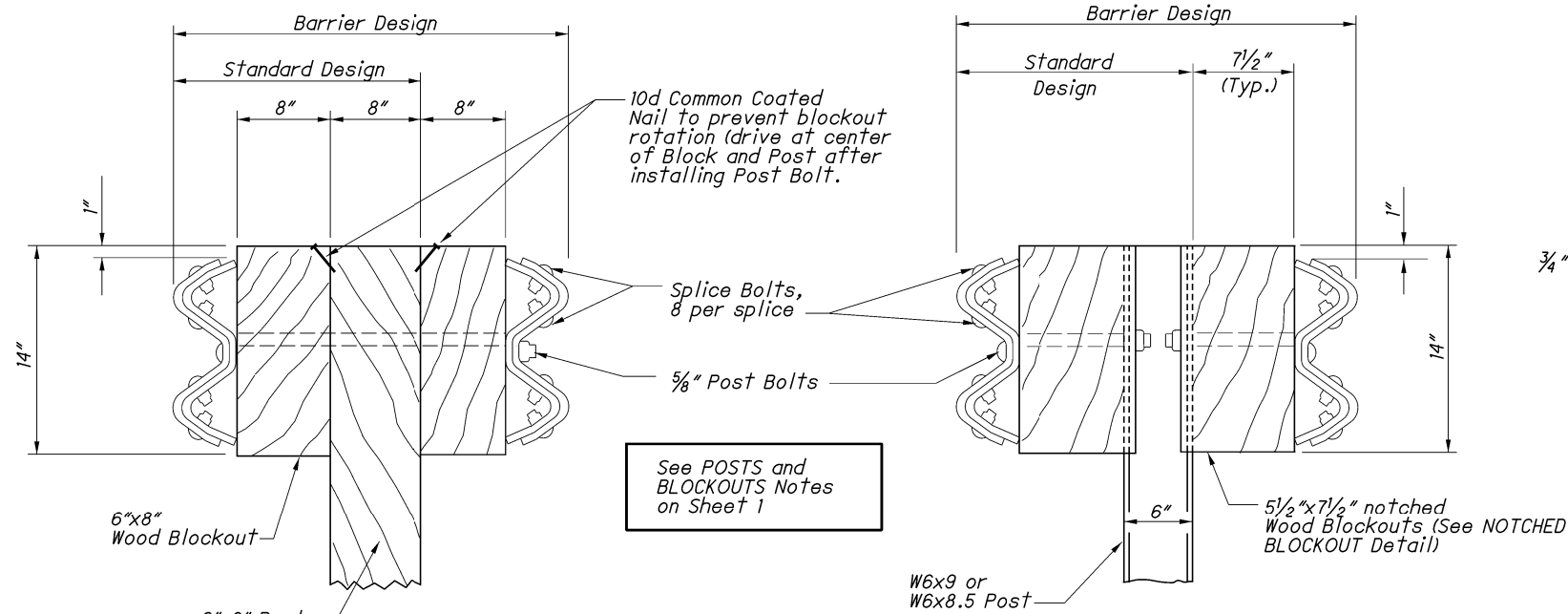
WASHERS: Install appropriate sized standard galvanized steel washers on the nut side of bolts installed on wood posts.

DELINEATION: For barrier reflectors, see CMS 626.

MISCELLANEOUS: For other guardrail details, see **SCD GR-1.1**.

STEEL BEAM POSTS (English)				
Size	Beam depth	Flange width	Flange thickness	Web thickness
Rolled W6x8.5	5.8"	3.94"	0.193"	0.170"
Rolled W6x9	5.9"	3.94"	0.215"	0.170"
Welded 6x8.5	6.0"	3.94"	0.193"	0.170"
Welded 6x9	6.0"	3.94"	0.215"	0.170"





Alternate methods of placing the Blockouts on round Posts may be submitted for consideration and approved by the Engineer.

ROUND WOOD POSTS
 Single Sided runs only (Standard Design)

REVISION DATE
 1/18/2013

PIS GR-2.1
 DESIGN AGENCY



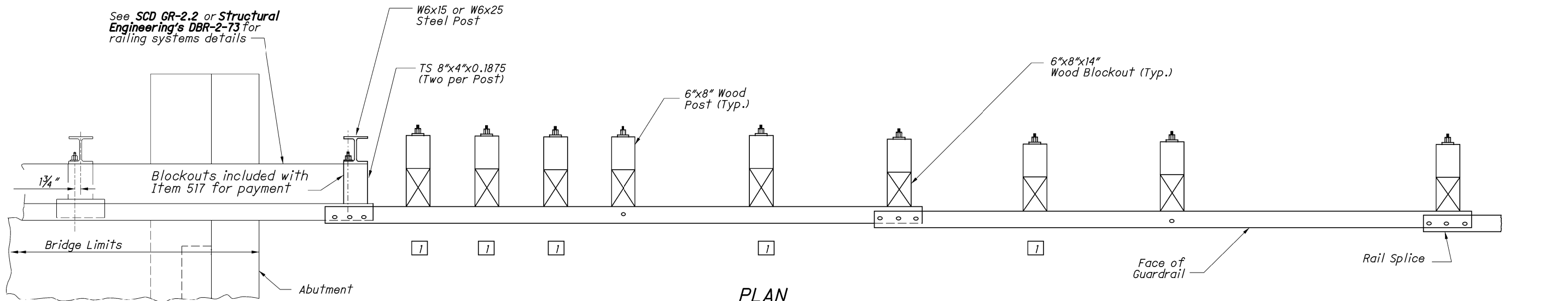
DESIGNER: JED
 CHECKER: JDO

REVIEWER: JDO

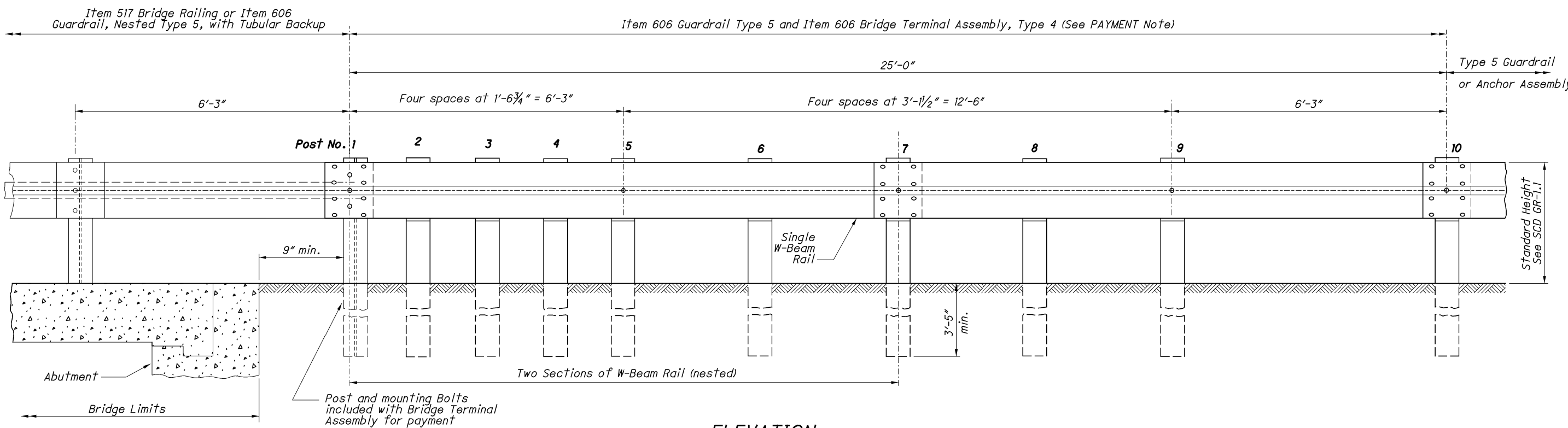
PROJECT ID
 100648

SUBSET	TOTAL
2	2

SHEET	TOTAL
P.18	19



PLAN



ELEVATION

NOTES

GENERAL: For additional details, see **SCD GR-1.1**.

APPLICATION: The Type 4 Bridge Terminal Assembly shall connect Type 5 Guardrail runs to Type 5 Guardrail with Tubular Backup or to Deep Beam Bridge Guardrail (as shown on **Structural Engineering SCD DBR-2-73**).

DETAIL INFORMATION: The first post off the bridge shall be steel (W6x15 or W6x25). All holes in the off-structure end of the approach panel rail section spanning the abutment are slotted 3/4"x2 1/2". Tighten the bolts as specified for expansion joints in Item 606.05.

POSTS: Posts may be set in drilled holes or driven to grade. See **SCD GR-1.1** for additional Post embedment details. Guardrail is not attached to certain posts (see **LEGEND**).

WOOD POSTS - Use square sawed pressure treated wood as specified in CMS 710.14 and fabricated with square ends. Bore bolt holes and trim the tops of posts, if required after the posts are set.

STEEL POSTS - are allowed as an alternate. Use W6x9 or W6x8.5 in lieu of the 6"x8" wood post. Use same post material through-out assembly.

BLOCKOUTS: Approved alternate blockouts can be found on the Office of Roadway Engineering website. Steel blockouts are not permitted.

FLARED GUARDRAIL: Start Standard Guardrail Flares as shown on **SCD GR-5.1** at or beyond Post No. 10; however, the flare may begin at Post No. 7.

PAYMENT: **Item 606 - Bridge Terminal Assembly, Type 4, Each**, includes the cost of extra components in excess of normal guardrail, such as additional posts and other hardware. The TS 8"x4" spacers and tubular backup rail extending to the first post off the bridge is included with **Item 517 - Railing**, or **Item 606 - Guardrail, Nested Type 5 with Tubular Backup**, for payment.

LEGEND

1 Guardrail is not attached to posts at Posts 2, 3, 4, 6, and 8. Blockout is fastened to post with standard Post Bolt.