



FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

All sections must be addressed, or the application will be considered invalid



I. APPLICANT INFORMATION

A. Applicant Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-mail: _____

B. Contact Person (if different than applicant): _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-mail: _____

C. Landowner and/or Lessee Name
(if different than applicant): _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-mail: _____

II. PROJECT INFORMATION

A. Project Name: _____

River, stream, or lake: _____

Location: Township: _____ Range: _____ Section: _____

Latitude: _____ Longitude: _____ *within project (decimal degrees)*

County: _____

B. Purpose of Project:

C. Brief Project Description (attach additional information to end of application):

A large, empty rectangular box with a thin black border, intended for the project description. It occupies most of the page area below the section header.

D. Length of stream or size of lake that will be treated (project extent): _____
 Length/size of impact, if larger than project extent (e.g. stream miles opened): _____

E. Project Budget:

Grant Request (Dollars): \$ _____

Matching Dollars: \$ _____

Matching In-Kind Services:* \$ _____

**salaries of government employees are not considered matching contributions*

Other Contributions (not part of this application) \$ _____

Total Project Cost: \$ _____

F. **Attach** itemized (line item) budget – see *budget template*

G. **Insert** or **attach** a project location map showing the project area in relation to a major landmark or town. Please indicate if the project location is on public or private property.

H. **Attach** specific project plans (e.g. detailed sketches, plan views [showing location and type of channel modifications], example photographs), current condition photographs, and maps. **If project involves water leasing or water salvage complete and attach a supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).*

I. **Attach** letters or statements of support. This includes landowner consent, community or public support, and fish biologist support.

J. The project agreement includes a 20-year maintenance commitment. Please indicate (yes or no) that you will ensure project protection for 20 years. Discuss your ability to meet this commitment.

Yes No

K. **Describe** or **attach** land management & maintenance plans, including changing to grazing regimes, that will ensure protection of the restored area.

III. PROJECT BENEFITS (attach additional information to end of application):

A. What species of fish will benefit from this project?

B. How will the project protect or enhance wild fish habitat?

C. Will the project improve fish populations and/or fishing? To what extent?

D. Will the project increase public fishing opportunity for wild fish and, if so, how?

E. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?

F. What public benefits will be realized from this project?

[Empty text box for public benefits]

G. Will the project interfere with water or property rights of adjacent landowners? (explain):

[Empty text box for interference explanation]

H. Will the project result in the development of commercial recreational use on the site? (explain):

[Empty text box for recreational use explanation]

I. Is this project associated with the reclamation of past mining activity?

[Empty text box for mining activity]

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: _____ *Ryan Neudecker* _____ Date: _____

Sponsor (if applicable): _____

Submittal: Applications must be signed and received before December 1 and June 1 of each year to be considered for the subsequent funding period. Late or incomplete applications will be rejected.

Mail to: FWP Future Fisheries Fish Management Bureau PO Box 200701 Helena, MT 59620-0701	Email: Future Fisheries Coordinator FFIPFWP@mt.gov (electronic submissions must be signed) For files over 10MB, use https://transfer.mt.gov
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Applications may be rejected if this form is modified.

Poorman Creek culvert replacement
 BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

006-2021

Both tables must be completed or the application will be returned

PROJECT COSTS					CONTRIBUTIONS			
WORK ITEMS (Itemize by Category)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	FUTURE FISHERIES REQUEST	MATCH (Cash or Services)**	OTHER (Not part of this application)	TOTAL
Personnel***								
Survey	40	hours	\$100.00	\$ 4,000.00		4,000.00		\$ 4,000.00
Design	115	hours	\$120.00	\$ 13,800.00		13,800.00		\$ 13,800.00
Engineering	50	hours	\$120.00	\$ 6,000.00		6,000.00		\$ 6,000.00
Permitting	40	hours	\$55.00	\$ 2,200.00		2,200.00		\$ 2,200.00
Oversight	80	hours	\$120.00	\$ 9,600.00		9,600.00		\$ 9,600.00
Staking	1	Lump sum	\$5,000.00	\$ 5,000.00		5,000.00		\$ 5,000.00
			Sub-Total	\$ 40,600.00	\$ -	\$ 40,600.00	\$ -	\$ 40,600.00
Travel								
Mileage	1100	miles	\$0.58	\$ 638.00		638.00		\$ 638.00
Per diem				\$ -				\$ -
			Sub-Total	\$ 638.00	\$ -	\$ 638.00	\$ -	\$ 638.00
Construction Materials****								
Detour Bridge	1	each	\$15,000.00	\$ 15,000.00		15,000.00		\$ 15,000.00
Gravel Base Course	126	Lump sum	\$35.00	\$ 4,410.00		4,410.00		\$ 4,410.00
Gravel Surface Course	136	Lump sum	\$38.00	\$ 5,168.00		5,168.00		\$ 5,168.00
Imported structural backfill	76	cubic yards	\$50.00	\$ 3,800.00		3,800.00		\$ 3,800.00
Precast, Prestressed Concrete Trideck Beams	1	Lump sum	\$96,000.00	\$ 96,000.00	25,000.00	71,000.00		\$ 96,000.00
Precast Grade Beams w/wingwalls	1	Lump sum	\$31,500.00	\$ 31,500.00	3,000.00	28,500.00		\$ 31,500.00
Riprap, Class 3	112	cubic yards	\$95.00	\$ 10,640.00		10,640.00		\$ 10,640.00
Steel rail system	96	linear foot	\$125.00	\$ 12,000.00		12,000.00		\$ 12,000.00
Guardrail system; terminal section	1	lump sum	\$30,000.00	\$ 30,000.00		30,000.00		\$ 30,000.00
Bridge End Object Markers & Posts	1	Lump sum	\$1,100.00	\$ 1,100.00		1,100.00		\$ 1,100.00

Poorman Creek culvert replacement
BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

006-2021

				Sub-Total	\$ 209,618.00	\$ 28,000.00	\$ 181,618.00	\$ -	\$ 209,618.00
Equipment, Labor, and Mobilization									
Detour Roadway Installation & Removal	1	Lump sum	\$10,000.00	\$ 10,000.00		10,000.00		\$ 10,000.00	
Soil Erosion & Pollution Control	1	Lump sum	\$8,000.00	\$ 8,000.00		8,000.00		\$ 8,000.00	
Removal of Existing Culvert	1	Lump sum	\$3,000.00	\$ 3,000.00	3,000.00	-		\$ 3,000.00	
Structure Excavation	430	cubic yards	\$18.00	\$ 7,740.00		7,740.00		\$ 7,740.00	
Geocell Abutment stabilization	47	square yards	\$70.00	\$ 3,290.00		3,290.00		\$ 3,290.00	
Hydraulic Excavator	15	hours	\$150.00	\$ 2,250.00		2,250.00		\$ 2,250.00	
Dump Truck	10	hours	\$135.00	\$ 1,350.00		1,350.00		\$ 1,350.00	
Seeding	1	Lump sum	\$400.00	\$ 400.00		400.00		\$ 400.00	
Mobilization	1	Lump sum	\$18,000.00	\$ 18,000.00		18,000.00		\$ 18,000.00	
				\$ -				\$ -	
			Sub-Total	\$ 54,030.00	\$ 3,000.00	\$ 51,030.00	\$ -	\$ 54,030.00	
TOTALS				\$ 304,886.00	\$ 31,000.00	\$ 273,886.00	\$ -	\$ 304,886.00	

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used). Do not use government salaries as match. Describe here or in text.

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a justification or minimum of two competitive bids for the cost of undertaking the project.

****The Review Panel recommends a maximum fencing cost of \$1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

Additional details:

APPLICATION MATCHING CONTRIBUTIONS				
(do not include requested funds or contributions not associated with the application)				
CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
USFS	\$ -	\$ 227,800.00	\$ 227,800.00	Yes
Lewis & Clark County	\$ 15,000.00	\$ -	\$ 15,000.00	Yes

Poorman Creek culvert replacement
 BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

006-2021

USFWS	\$ -	\$ 29,448.00	\$ 29,448.00	Yes
BBCTU	\$ 1,638.00	\$ -	\$ 1,638.00	Yes
	\$ -	\$ -	\$ -	
TOTALS	\$ 16,638.00	\$ 257,248.00	\$ 273,886.00	

OTHER CONTRIBUTIONS				
(contributions not associated with the application)				
CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
TOTALS	\$ -	\$ -	\$ -	

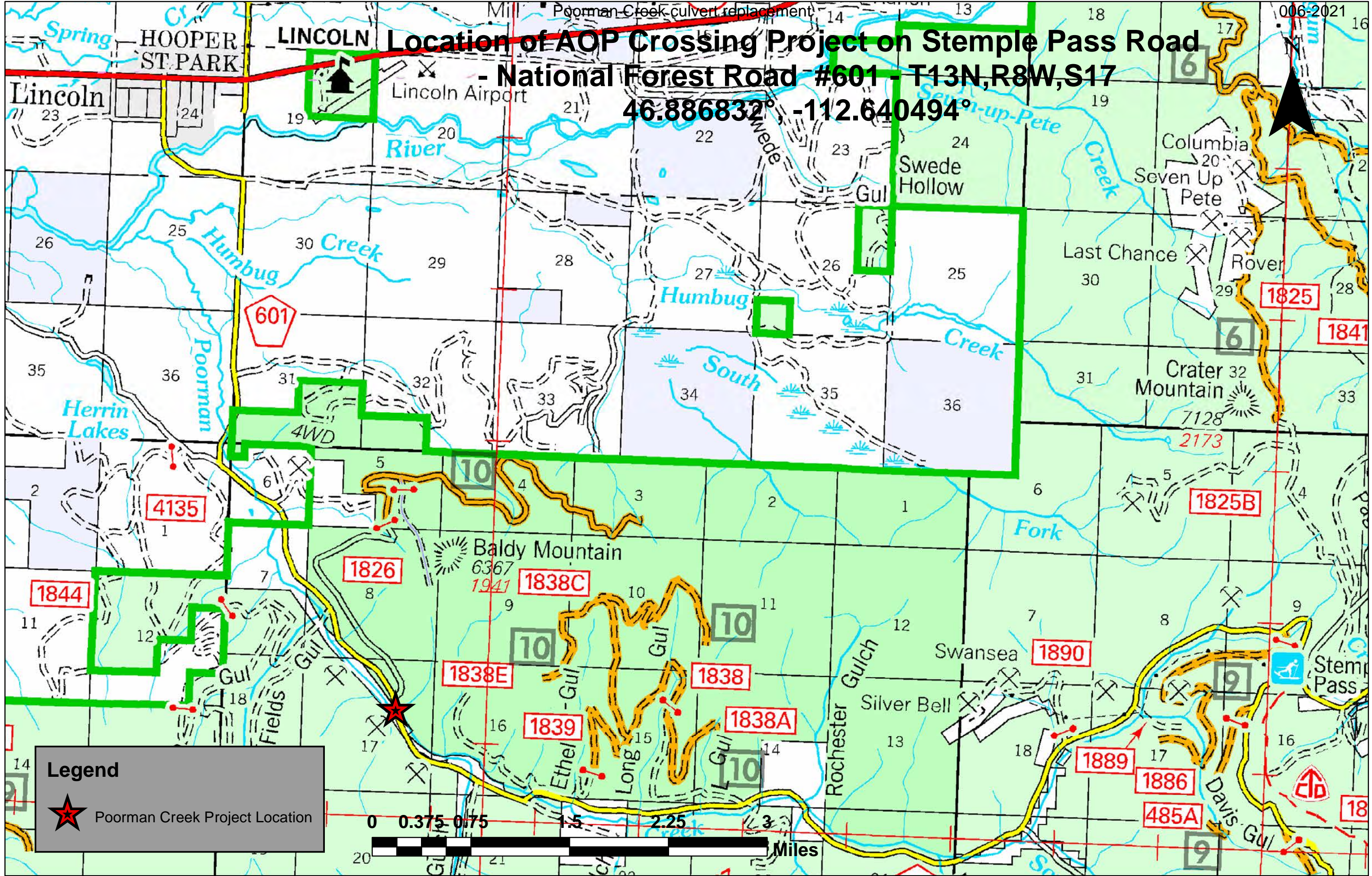
Existing Culvert on Poorman Creek Stemple Pass Rd Mile 5.8





Location of AOP Crossing Project on Stemple Pass Road - National Forest Road #601 - T13N,R8W,S17

46.886832° -112.640494°



Legend



Poorman Creek Project Location

Date: November 23, 2020

To: Future Fisheries Improvement Program Committee

I am writing this letter of support for the Poorman Creek Culvert Replacement application that was submitted to you by the Big Blackfoot Trout Unlimited Chapter (BBCTU).

The existing culvert on Stemple Pass Road is undersized, and a partial fish passage barrier to both resident and migratory bull trout in Poorman Creek. This project was identified as a passage improvement project under the Columbia Headwaters Recovery Implementation Plan for Bull Trout (USFWS, 2015) and is part of extensive ongoing restoration efforts within the Poorman Creek Watershed. This is one of the few remaining culvert barriers on Poorman Creek and will connect over three miles of spawning and rearing habitat for native fish. The proposed bridge structure will eliminate sedimentation concerns associated with culvert failure, ensure aquatic organism passage for all life stages and restore natural flow patterns.

The Helena-Lewis and Clark National Forest has provided partial funding in the amount of \$204,000 through collaborative National Forest Service funds. These funds can be used for road improvements to reduce sediment concerns for general watershed benefit, and habitat and passage improvement for native fish species and other wildlife benefits.

Great West Engineering has completed final designs and will oversee general project management. Lewis and Clark County along with BBCTU will serve as project inspectors with Forest Service personnel available for technical support. The Forest Service has completed SHPO clearance and ESA consultation pending FWS concurrence. Given collaborative commitment to this project and other ongoing restoration efforts in Poorman Creek as a core bull trout population in the upper Blackfoot, the ability to secure additional funding is critical. Therefore, we strongly urge you to approve funding through the Future Fisheries Improvement Program.

Should you have questions, please feel free to contact me.

With regards,



Allison Russell

Fish Biologist
Helena-Lewis and Clark NF
O 406-495-3923
allison.russell@usda.gov



FWP.MT.GOV

THE **OUTSIDE** IS IN US ALL.

Patrick Uthe
3201 Spurgin Road
Missoula, MT 59804
406-542-5532
patrick.uthe@mt.gov

November 24, 2020

Montana Fish, Wildlife and Parks
Attn: Michelle McGree
1420 East 6th Ave.
Helena, MT 59620

Dear Future Fisheries Panel:

I am writing to express support for the Poorman Creek bridge project submitted by the Big Blackfoot Chapter of Trout Unlimited. Poorman Creek has significant native species and sport fishery values. It is the highest-ranking restoration candidate tributary in the upper Blackfoot River watershed and supports viable populations of native Bull Trout and Westslope Cutthroat Trout. The proposed crossing upgrade is in the lower portion of Poorman Creek with a large expanse of high-quality habitat upstream, including the Future Fisheries-funded restoration project section from 2019.

Addressing problematic crossings in this section of Poorman Creek is important given the completed restoration work upstream, as well as the planned restoration work downstream. This will protect the investments in these other restoration projects by ensuring that the benefits are not compromised by preventing or delaying migration to and from these sections. The initial biological response in the Phase 1 project section is very encouraging and indicated habitat capacity improved because Westslope Cutthroat Trout abundance increased from 399 trout (95% Confidence Interval = 223 trout) to 987 trout (95% Confidence Interval = 197). Moreover, the project significantly improved habitat quality as evidenced by a dramatic increase in trout density of 33 trout/100 ft (95% Confidence Interval = 19 trout/100 ft) pre-restoration to 66 trout/100 ft (95% Confidence Interval = 13 trout/100 ft) post-restoration. With the Phase 2 project slated for the lower two miles of Poorman Creek, upgrading this problematic crossing to an appropriate structure is a worthwhile endeavor.

Although I do not consider this undersized culvert to be a complete fish passage barrier, it is likely a seasonal barrier to certain life stages and species of fish, and probably deters some individuals that can physically migrate through it. We observed migratory-sized bull trout (>20 inches) in the pool below the culvert in September 2019 and 2020. It is unclear whether these fish spawned upstream and were holding in the pool on their outmigration, or if they were deterred from moving further upstream due to the perched condition and minimal flow depth in the culvert during baseflow conditions. Nonetheless, the previous investments in Poorman Creek

and the management goal of creating complete connectivity, requires upgrading undersized crossing structures. The multitude of partners contributing to this project, including Lewis and Clark County and the U.S. Forest Service, provides a great opportunity for Future Fisheries to contribute a low proportion of the total cost while advancing a meaningful project in an extremely important tributary that is undergoing positive changes from recent restoration work. Thank you very much for consideration of this funding request. Please do not hesitate to contact me if you have any questions or would like additional fisheries information from the project area.

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrick Uthe", with a stylized flourish at the end.

Patrick Uthe
Fisheries Biologist

SHEET INDEX

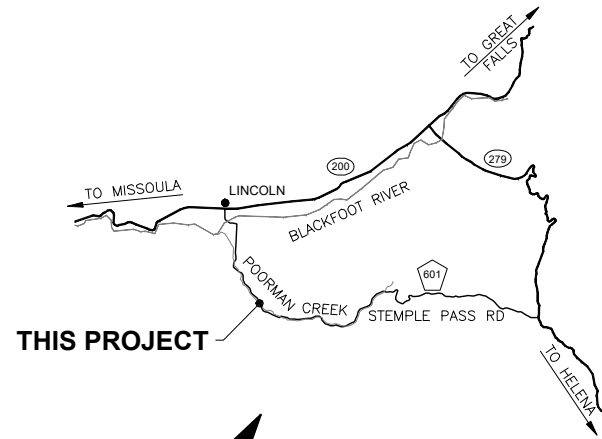
PROJECT: 1-17131
DATE: MAY 23, 2019

SHEET 1	COVER
SHEET 2	TYPICAL ROADWAY SECTION AND QUANTITIES
SHEET 3	ROADWAY PLAN & PROFILE
SHEET 4	STREAM PLAN & PROFILE
SHEET 5	STREAM DIVERSION PLAN
SHEET 6	BRIDGE PLAN AND ELEVATION
SHEET 7	ABUTMENT PLAN AND ELEVATION
SHEET 8-9	MISCELLANEOUS DETAILS
SHEET 10-11	ROADWAY CROSS-SECTIONS
SHEET 12-13	CHANNEL GRADING CROSS-SECTIONS
SHEET 14-16	MDT STANDARD DETAILS
SHEET 17	USDOT STANDARD DETAILS

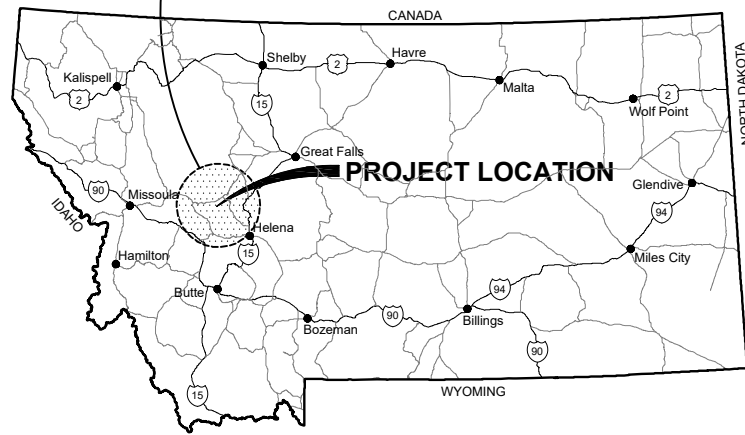
CONSTRUCTION PLANS FOR POORMAN CREEK CULVERT REPLACEMENT ROAD NO. 601 - M.P. 5.8

LEWIS & CLARK COUNTY, MONTANA

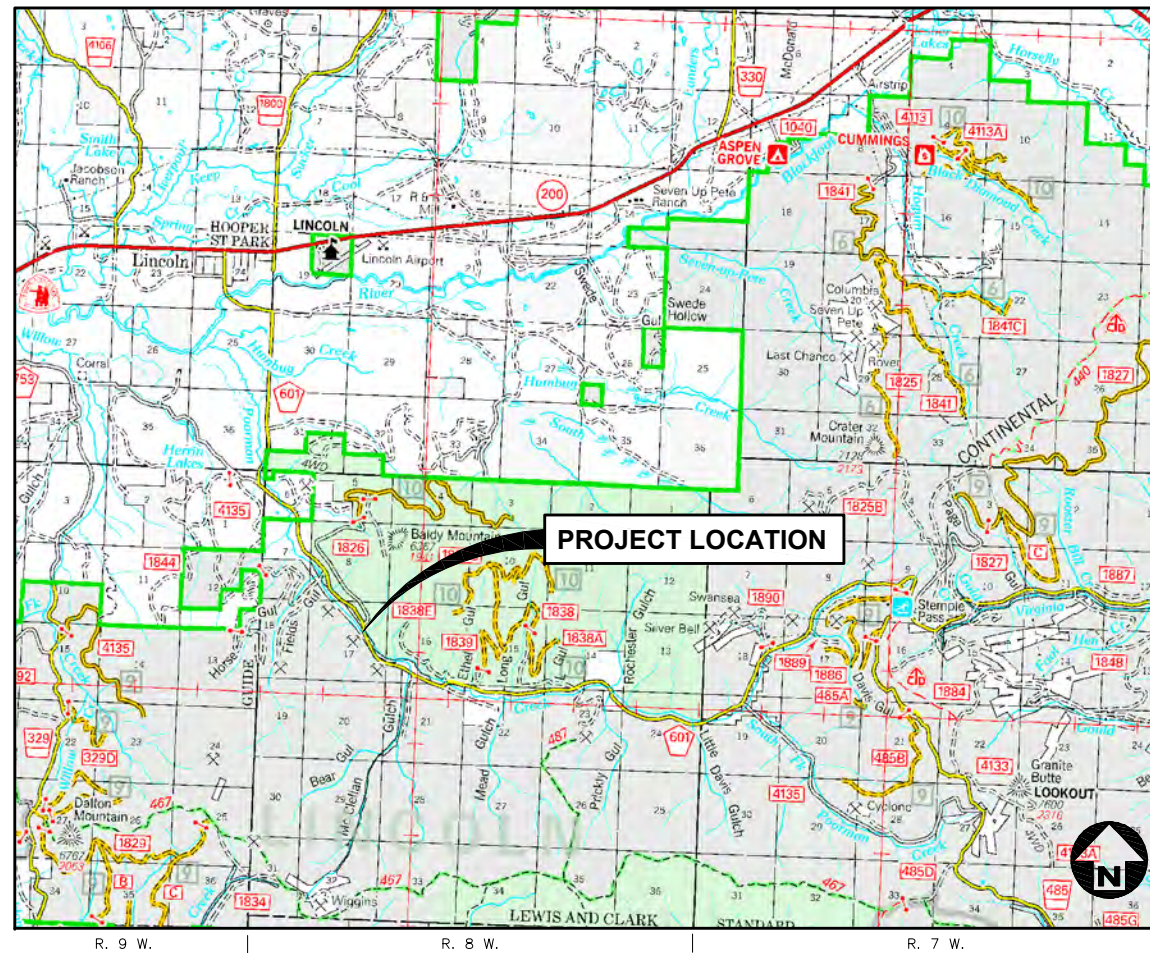
SECTION 17, TOWNSHIP 13 NORTH, AND RANGE 8 WEST



THIS PROJECT



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

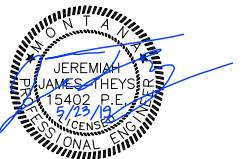
NOTE:
DRAWING SCALE IS ONLY ACCURATE
WHEN PLANS ARE PLOTTED ON 11" X 17"
(TABLOID)-SIZED PAPER.

PLANS PREPARED BY:

RYAN HOLM, P.E.
KATURAH SPADY, EI

QA/QC BY:

JEREMIAH THEYS, P.E.



NO.	REVISION DESCRIPTION	BY	DATE	SET NO.

SHEET NO.
1

F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131\Sheets\1-17131-01-Cover.dwg

GENERAL NOTES:

SPECIFICATIONS:

MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14 (U.S. CUSTOMARY UNITS). REFER TO PROJECT SUPPLEMENTAL SPECIFICATIONS FOR MODIFICATIONS TO THE FP-14.

DESIGN:

DESIGNS SHALL CONFORM TO HL-93 LIVE LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8th EDITION, WITH CURRENT INTERIMS.

DESIGN DATA AS FOLLOWS:

- HL-93 LIVE LOAD
- TRUCK IMPACT = 33%
- SUPERIMPOSED DEAD LOAD = 30 PSF. SUPERIMPOSED DEAD LOAD MAY BE ASSUMED TO BE EQUALLY DISTRIBUTED TO ALL FOUR BEAMS.

HYDROLOGY & HYDRAULICS:

THIS STRUCTURE WAS DESIGNED TO PASS THE 100-YEAR FLOOD EVENT OF 435 CFS WITH A MINIMUM OF TWO FEET OF FREEBOARD. THE 2-YEAR AND THE 10-YEAR EVENTS WERE ESTIMATED AT 105 CFS AND 238 CFS, RESPECTIVELY.

EROSION CONTROL PLAN:

CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN TO THE C.O. FOR REVIEW PRIOR TO BEGINNING ANY WORK. PROVIDE METHODS TO MINIMIZE DISTURBANCE IN THE STREAM BED AND TO PREVENT RUNOFF FROM THE CONSTRUCTION SITE FROM ENTERING DIRECTLY INTO THE STREAM.

STREAM DIVERSION & DE-WATERING:

CONSTRUCT TEMPORARY MEANS TO DIVERT THE FLOW OF THE LIVE STREAM AS NECESSARY TO PERFORM THE WORK. THE CONTRACTOR SHALL SUBMIT A DE-WATERING PLAN TO THE C.O. FOR REVIEW PRIOR TO BEGINNING ANY WORK. THE PLAN SHALL DETAIL PUMPS, DAMS, BYPASS PIPES, OPEN CHANNELS, ETC. TO BE UTILIZED TO CONSTRUCT THE PROJECT. EROSION AND SEDIMENT CONTROL ELEMENTS SPECIFIC TO THE DE-WATERING PLAN SHALL BE INCLUDED WITH THE DE-WATERING PLAN SUBMITTAL. REFER TO THE EXAMPLE STREAM DIVERSION PLAN ON SHEET 5.

CLEARING & GRUBBING:

CLEARING AND GRUBBING SHALL BE INCIDENTAL TO THE PROJECT AND WILL NOT BE PAID FOR AS A SEPARATE BID ITEM. CONTRACTOR SHALL DISPOSE OF CLEARING AND GRUBBING MATERIAL PER FSSS 203.

AGGREGATE SURFACE COURSE:

CONTRACTOR SHALL SALVAGE APPROXIMATELY HALF OF REQUIRED AGGREGATE SURFACE COURSE MATERIAL FROM EXISTING ROADWAY WITHIN CONSTRUCTION LIMITS. SEE FSSS 105 FOR ADDITIONAL INFORMATION.

CONCRETE FOR GRADE BEAMS, WINGWALLS & END DIAPHRAGMS :

USE CLASS A(AE) OR CLASS C(AE) CONCRETE, F'C = 4,000 PSI AT 28 DAYS WITH AN ENTRAINED AIR CONTENT OF 5% ± 1%. FINISH CONCRETE WITH A CLASS 1, ORDINARY SURFACE FINISH. ALL CONCRETE SHALL BE BATCHED IN ACCORDANCE WITH AN APPROVED MIX DESIGN. CHAMFER ALL EXPOSED EDGES OF CONCRETE AND FILLET ALL RE-ENTRANT ANGLES 3/4" UNLESS NOTED OTHERWISE. WINGWALLS SHALL BE PLANT CAST. REFER TO SHEET 9 FOR WINGWALL DETAILS.

REINFORCING STEEL:

ALL NON-PRESTRESSED REINFORCING SHALL BE OF THE DEFORMED BAR TYPE CONFORMING TO AASHTO M31 (ASTM A615), GRADE 60. CONCRETE CLEAR COVER SHALL BE A MINIMUM OF 2" UNLESS SHOWN OTHERWISE ON THE PLANS. BENDING AND SPLICING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 315.

PRESTRESSED CONCRETE:

PRIOR TO CASTING ANY PRESTRESSED BEAM MEMBERS, CALCULATIONS AND SHOP DRAWINGS AND COMPLETE DETAILS OF THE METHOD, MATERIALS AND EQUIPMENT PROPOSED FOR USE IN THE PRESTRESSING OPERATIONS SHALL BE SUBMITTED A MINIMUM OF 21 DAYS IN ADVANCE OF PLANNED CONSTRUCTION AND SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MONTANA.

FINISHING CONCRETE BEAMS:

THE EXTERIOR FACE OF EXTERIOR BEAMS SHALL BE GIVEN A RUBBED FINISH. A CONCRETE CLASS A(E) GRAY EPOXY MORTAR USING AASHTO M235 CLASS II EPOXY RESIN ADHESIVE MAY BE USED IN LIEU OF THE SPECIFIED SAND CEMENT MORTAR TO REDUCE CURING TIME. THE EPOXY MORTAR SHALL BE RUBBED WITH CEMENT PRIOR TO HARDENING. THE ENDS OF THE BEAMS SHALL HAVE ALL HOLES OR ACCEPTABLE ROCK POCKETS PATCHED AND STRANDS CUT OFF FLUSH OR BURNED BACK.

PRESTRESSING STEEL:

USE PRESTRESSING STEEL CONSISTING OF LOW RELAXATION PRESTRESSING STRAND CONFORMING TO AASHTO M203, GRADE 270.

FABRICATION, TRANSPORT & INSTALLATION OF PRESTRESSED CONCRETE BEAMS:

BEAMS SHALL BE ERECTED WITH A VERTICAL VARIATION OF NO MORE THAN 3/8" AT CENTERLINE OF BEARING AND NO MORE THAN 5/8" BETWEEN ADJACENT DECK SURFACES ALONG THE LENGTH OF THE BEAMS. AFTER BEAM ERECTION, PRIOR TO GROUTING KEYWAYS, CONTRACTOR SHALL PROVIDE MEASUREMENTS ALONG THE BEAM FLANGE JOINTS AT 10' O.C. INDICATING THE VERTICAL DIFFERENCE BETWEEN ADJACENT BEAMS AND SUPPLY THIS INFORMATION TO THE C.O. CONTRACTOR SHALL NOT PROCEED WITH GROUTING KEYWAYS OR ANY LEVELING PROCEDURES UNTIL THE C.O. HAS REVIEWED AND EVALUATED THE MEASUREMENTS FOR TOLERANCES OR OTHER CAMBER/ERECTION INCONSISTENCIES. IF CAMBER ADJUSTMENT/LEVELING IS DETERMINED BY THE C.O. TO BE NEEDED, CONTRACTOR SHALL SUBMIT CAMBER ADJUSTMENT/LEVELING PROCEDURE FROM THE MANUFACTURER. ANY CAMBER ADJUSTMENT/LEVELING WORK AUTHORIZED BY THE C.O. MUST BE DIRECTED BY A REPRESENTATIVE OF THE MANUFACTURER. ANY DAMAGE TO THE BEAMS DURING ERECTION MUST BE IMMEDIATELY IDENTIFIED TO THE C.O. NO REPAIRS SHALL BE IMPLEMENTED UNTIL AUTHORIZED BY THE C.O.

PAINTING OF WELD TIE CONNECTIONS :

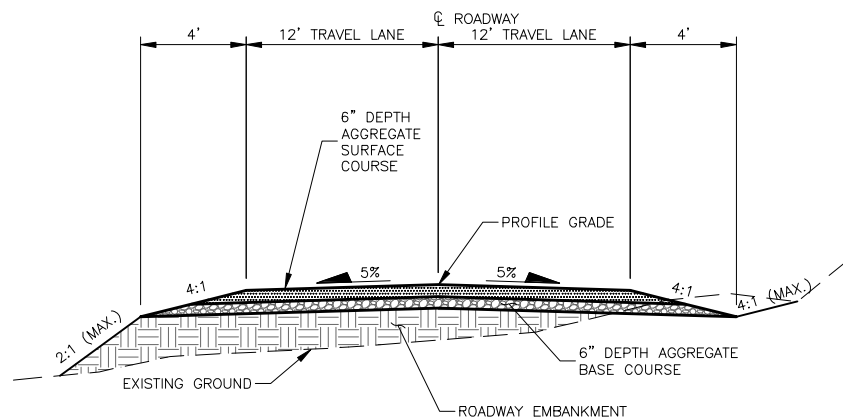
IN LIEU OF GALVANIZING, ALL WELD TIES MAY BE FIELD PAINTED WITH ONE PRIMER COAT AND TWO FIELD COATS. THE FIELD COATS SHALL BE ALUMINUM PAINT CONFORMING TO AASHTO M69, TYPE II.

HARDWARE AND STRUCTURAL STEEL:

ALL STRUCTURAL STEEL AND HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M183 GRADE 36, WITH NUTS AND BOLTS CONFORMING TO ASTM A307, EXCEPT AS NOTED. ALL STEEL HARDWARE SHALL BE GALVANIZED ACCORDING TO AASHTO M232 UNLESS NOTED OTHERWISE. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.5, BRIDGE WELDING CODE. ALL ELECTRODES SHALL BE E70XX.

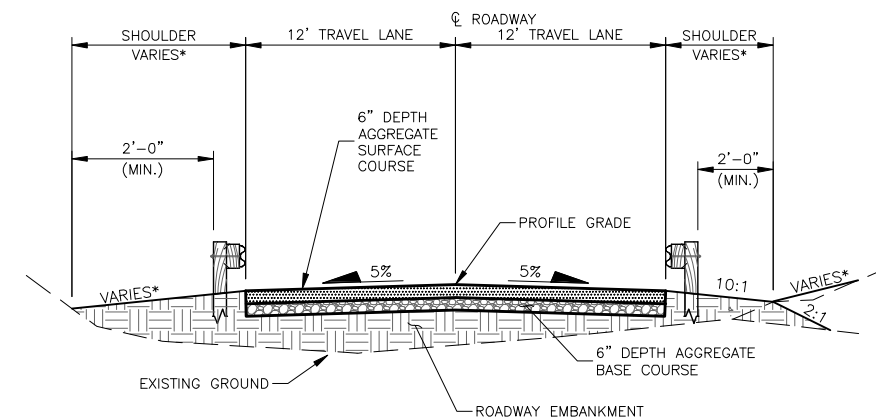
ELASTOMERIC BEARING PADS:

BEARING PADS SHALL BE PLAIN NEOPRENE WITH A 1" PAD THICKNESS 60 DUROMETER, LOW TEMPERATURE ZONE D.



TYPICAL ROADWAY SECTION

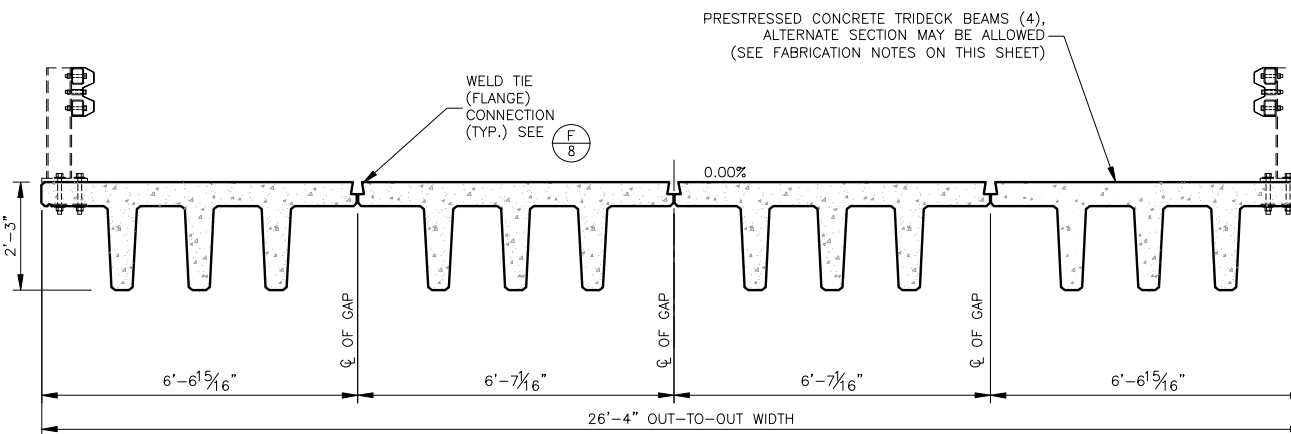
NOT TO SCALE



TYPICAL ROADWAY SECTION WITH GUARDRAIL

NOT TO SCALE

* VARIES SEE CROSS-SECTIONS



TYPICAL BRIDGE SECTION

SCALE: 1"=4'

ESTIMATED QUANTITIES*

ITEM NO.	DESCRIPTION	METHOD OF MEASUREMENT	UNIT	QUANTITY
15101	MOBILIZATION	LSQ	LS	1
15201	CONSTRUCTION SURVEY AND STAKING, METHOD II, TOLERANCE A	LSQ	LS	1
15713	SOIL EROSION AND POLLUTION CONTROL	LSQ	LS	1
20301	REMOVAL OF EXISTING METAL CULVERT AND ROCK HEADWALLS, DISPOSAL METHOD A	LSQ	LS	1
20401	ROADWAY EXCAVATION AND EMBANKMENT, COMPACTION PLACEMENT METHOD I, TOLERANCE CLASS A	CQ	CY	111
20801	STRUCTURE EXCAVATION	CQ	CY	430
20803	STRUCTURAL BACKFILL	CQ	CY	76
25101	PLACED RIPRAP, CLASS 3	CQ	CY	112
27250	GEOCELL ABUTMENT STABILIZATION, 6 INCH DEPTH	CQ	SY	47
30201	AGGREGATE BASE, COMPACTION METHOD I	CQ	CY	126
30207	AGGREGATE SURFACE COURSE, COMPACTION METHOD I	CQ	CY	136
553A01	PRECAST CONCRETE MEMBER, GRADE BEAMS	LSQ	LS	1
55308	PRECAST, PRESTRESSED CONCRETE MEMBER, TRIDECK BEAMS	LSQ	LS	1
55601	BRIDGE RAILING, TYPE T101	CQ	LF	96
61702a	TERMINAL SECTION, ET-PLUS OPTIONAL	CQ	EA	3
61702b	TERMINAL SECTION, USDOT G4-TYPE FLARED	CQ	EA	1
61706	STRUCTURE TRANSITION RAILING, MDT TYPE 3 BRIDGE APPROACH SECTION	CQ	LF	100
62201	HYDRAULIC EXCAVATOR WITH THUMB	AQ	HR	8
62504	SEEDING AND MULCHING, DRY METHOD	CQ	ACRE	0.2
63306	POSTS, WOOD	CQ	LF	4
63307	OBJECT MARKERS	CQ	EA	4
64806	CHANNEL REGRADING	LSQ	LS	1

* INFORMATION ONLY- NOT FOR BIDDING PURPOSES-REFER TO BID SCHEDULE

PREPARED BY:



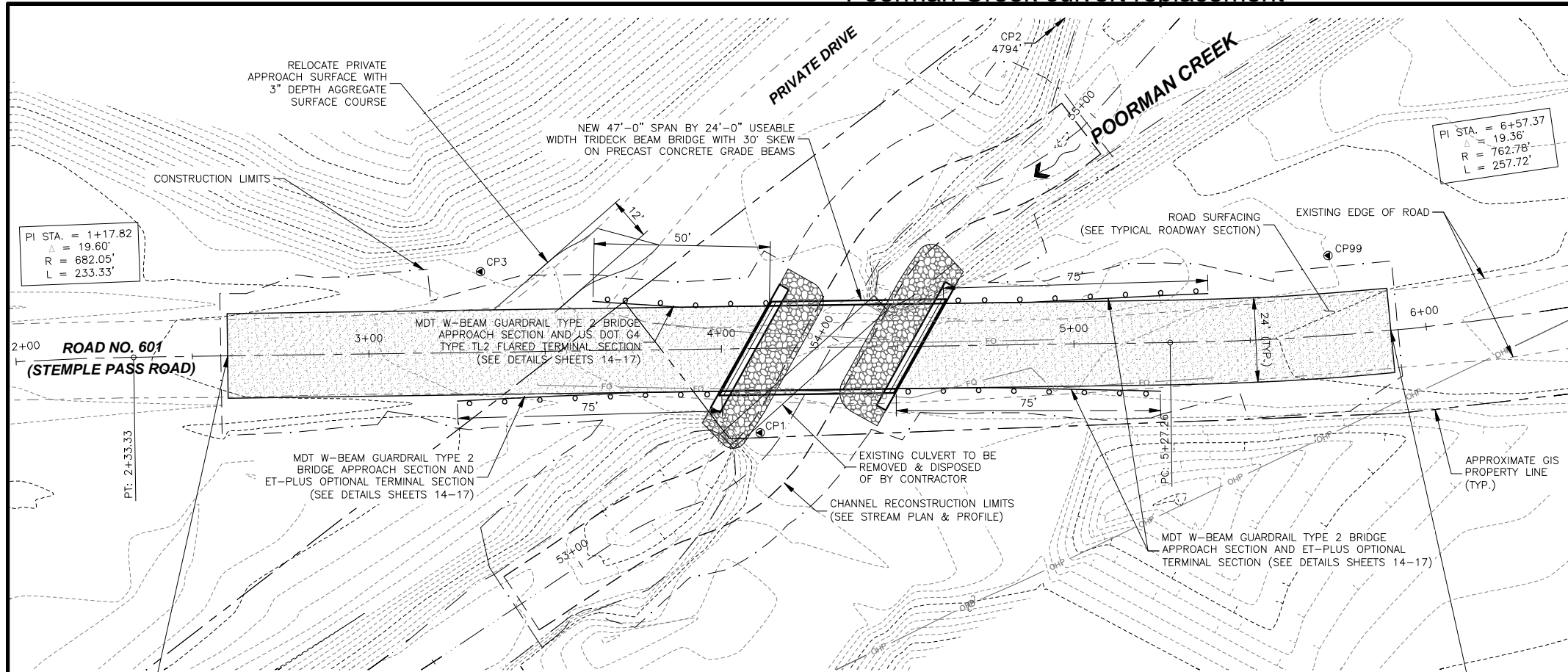
POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

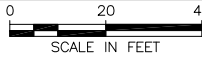
TYPICAL ROADWAY SECTION AND QUANTITIES

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 2 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				

F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131\Sheets\1-17131-02-Typical Roadway Sections and Quantities.dwg



PLAN VIEW OF ROAD NO. 601 - STA. 2+20 TO STA. 6+20



CONTROL POINT COORDINATE TABLE

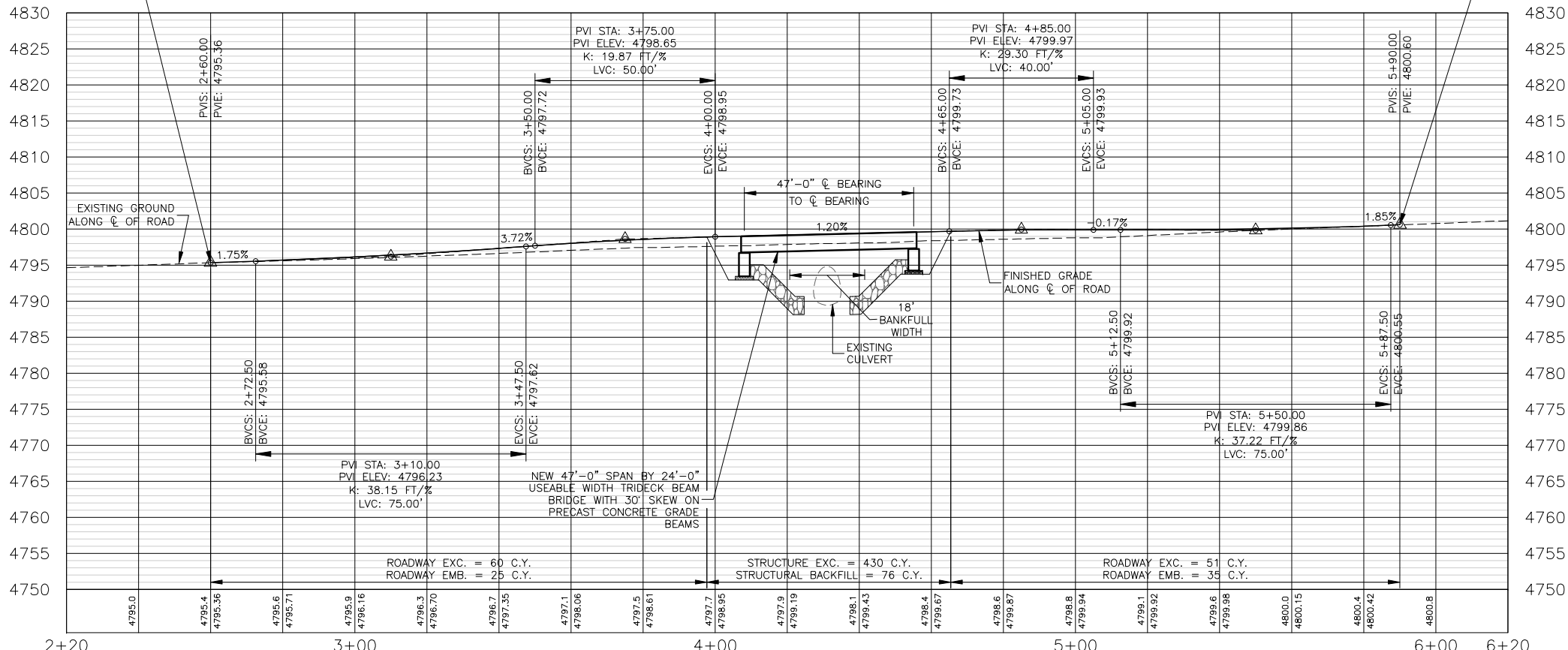
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP1	977,053.36	1,183,852.11	4,793.76	REBAR W/ RPC
CP2	976,931.09	1,184,014.80	4,794.88	REBAR W/ RPC
CP3	977,132.61	1,183,897.89	4,793.01	REBAR W/ RPC
CP99	976,892.48	1,183,902.45	4,795.09	REBAR W/ RPC

SURVEY NOTES:
 1. RPC = RED PLASTIC CAP
 2. LOCAL COORDINATE SYSTEM UTILIZED.

- NOTES:**
- CONTRACTOR SHALL USE SUITABLE ONSITE MATERIAL FROM ROADWAY AND STRUCTURE EXCAVATION FOR ROADWAY EMBANKMENT CONSTRUCTION. COMPACT ROADWAY EMBANKMENT PER FSSS 204. ROADWAY EMBANKMENT PAID UNDER 20401. ALL STRUCTURAL BACKFILL SHALL BE COMMERCIALY SOURCED.
 - ESTIMATED QUANTITIES ARE PROVIDED FOR INFORMATION ONLY. CONTRACTOR TO VERIFY ACTUAL QUANTITIES.
 - CONTRACTOR TO DISPOSE OF EXCESS AND/OR UNSUITABLE MATERIAL IN A COUNTY FURNISHED WASTE SITE LOCATED _ MILES FROM THE PROJECT SITE.
 - REFER TO SHEETS 10-11 FOR ROADWAY CROSS-SECTIONS.
 - ALL GRADING, EXCAVATION AND EMBANKMENT ASSOCIATED WITH PRIVATE DRIVE RELOCATION AT STA. 3+50 LT IS INCIDENTAL TO ITEM 20401. PRIVATE DRIVE SURFACING IS PAID UNDER ITEM 30207.

ROADWAY CENTERLINE COORDINATE STAKING TABLE

DESCRIPTION	NORTHING	EASTING	ELEVATION
STA. 2+60.00 BEGIN ROADWORK	977,204.49	1,183,873.99	4,795.36
STA. 4+06.35 N. BRIDGE ABUT.	977,058.15	1,183,876.05	4,797.71
STA. 4+56.82 S. BRIDGE ABUT.	977,007.69	1,183,876.76	4,798.37
STA. 5+27.26 PC	976,937.25	1,183,877.75	4,799.31
STA. 5+90.00 END ROADWORK	976,874.63	1,183,881.21	4,800.60



PROFILE VIEW OF ROAD NO. 601 - STA. 2+20 TO STA. 6+20

HORIZONTAL SCALE: 1" = 40'
 VERTICAL SCALE: 1" = 20'



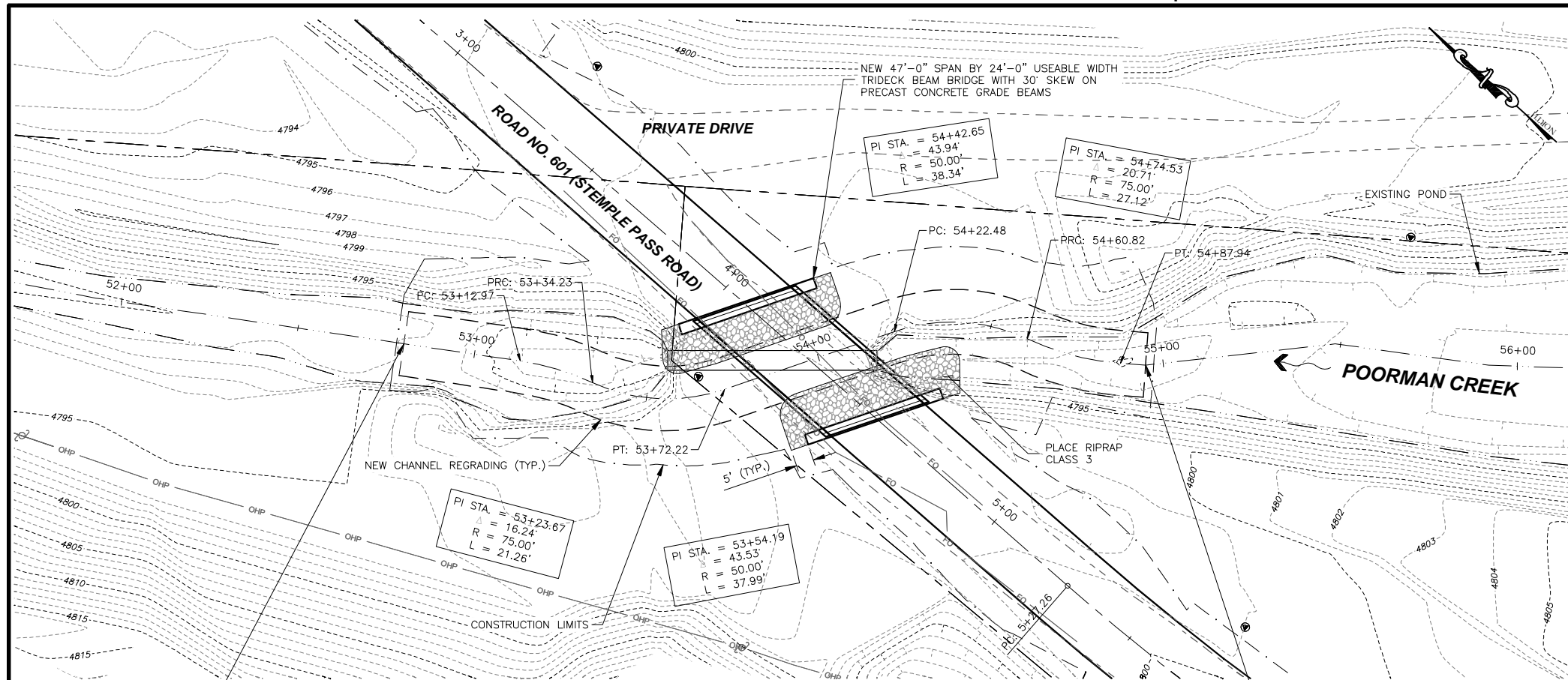
POORMAN CREEK CULVERT REPLACEMENT
ROAD NO. 601 - M.P. 5.8

ROADWAY PLAN & PROFILE

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: RLH	DESIGN CHECKED: JTT	△			
DRAWN: KSS	DRAWING CHECKED: JTT	△			

SHEET NO. 3 OF 17

F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131\Sheets\1-17131-03-Road P&P-Bridge.dwg

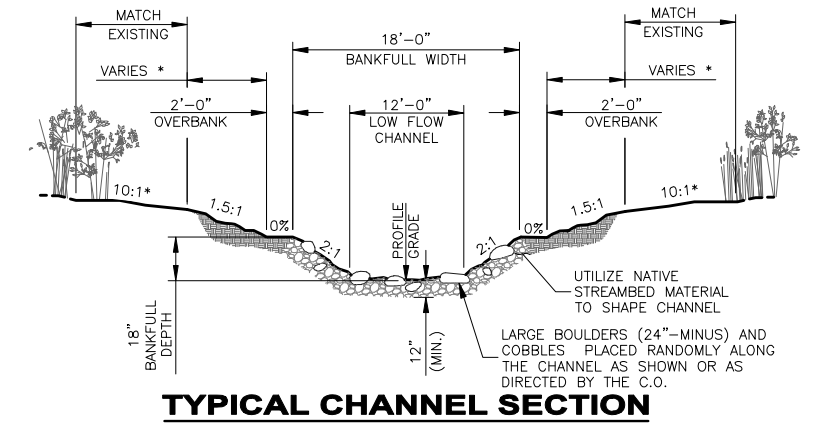


PLAN VIEW OF POORMAN CREEK - STA. 52+00 TO STA. 56+00

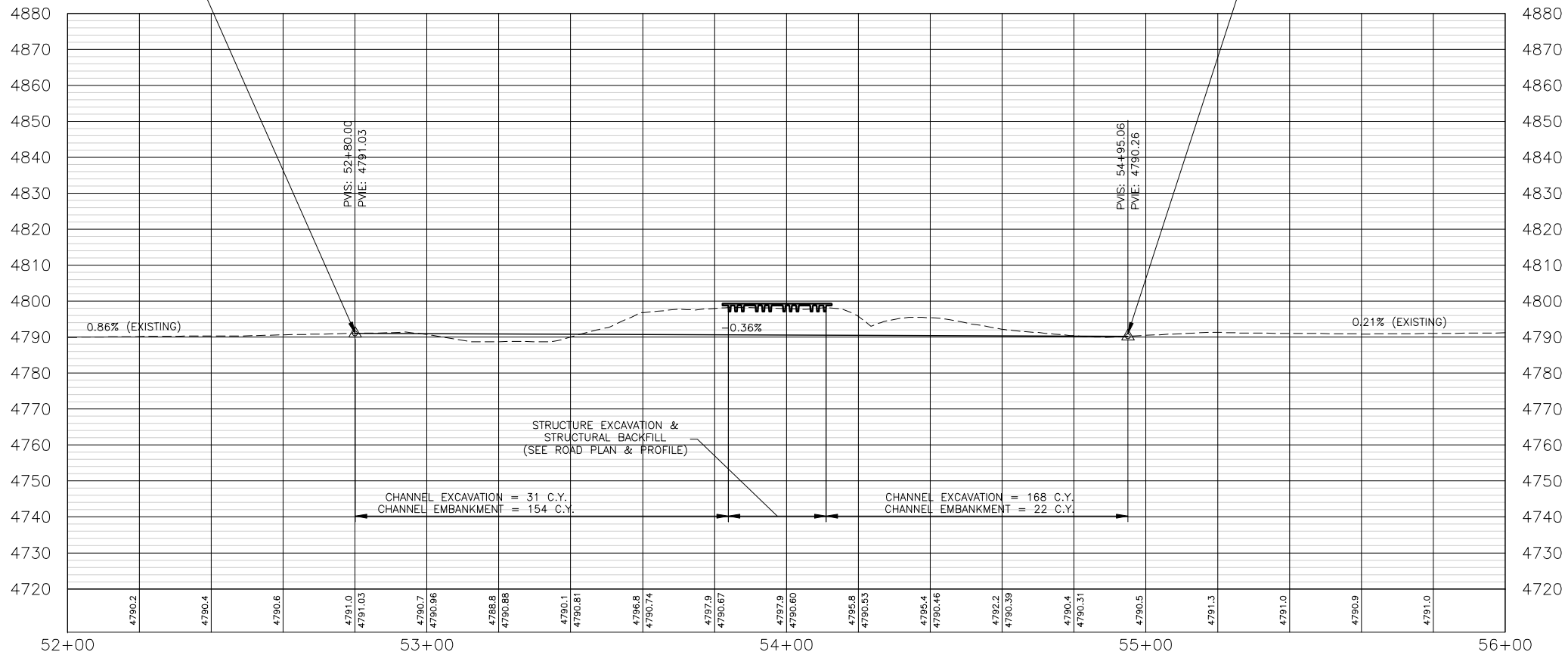
NOTES:

1. UTILIZE NATIVE STREAMBED MATERIAL TO REGRADE AND SHAPE THE CHANNEL. THIS WORK SHALL BE PAID UNDER ITEM 64806.
2. CONTRACTOR SHALL USE SUITABLE ON-SITE MATERIAL FROM STRUCTURE EXCAVATION FOR STREAMBED SIMULATION MATERIAL. SORTING WILL BE REQUIRED TO MEET THE REQUIREMENTS OF FSSS 705.
3. STREAM CHANNEL BED TO BE INSTALLED NON-UNIFORMLY.
4. LARGER BOULDERS (24"-MINUS) AND COBBLES THAT ARE ENCOUNTERED IN THE CHANNEL EXCAVATION AREAS SHALL BE USED TO CONSTRUCT BANK MARGINS OF NEW CHANNEL AND SHALL BE RANDOMLY PLACED WITHIN THE CHANNEL AS DIRECTED BY THE C.O. IF ADDITIONAL MATERIAL IS NEEDED THE CONTRACTOR SHALL IMPORT ADDITIONAL ROCK FROM THE CONTRACTORS RIPRAP SOURCE. THIS WORK IS PAID UNDER ITEM 64806.
5. BOULDERS SHOWN BELOW ON CHANNEL TYPICAL SECTION ARE NOT TO SCALE. THEY ARE SHOWN TO GIVE A CONCEPTUAL REPRESENTATION OF THE RECONSTRUCTED CHANNEL.
6. CONTRACTOR SHALL SALVAGE VEGETATED SOILS MATS, OTHER RIPARIAN VEGETATION, AND TOP SOIL PRIOR TO CLEARING AND GRUBBING AS DIRECTED BY THE C.O. VEGETATION WILL BE PLACED ON THE STREAM BANKS ABOVE BANKFULL AS DIRECTED BY THE C.O. PLACING SOIL MATS AND RIPARIAN VEGETATION SHALL BE PAID UNDER ITEM 62201.
7. TO OPTIMIZE TRANSPLANT SUCCESS, OVER-EXCAVATE A DIVOT FOR SOIL MAT OR OTHER RIPARIAN VEGETATION. PLACE FILL MATERIAL IN DIVOT HOLE SURROUNDING PLANT TO NATURAL CONTOUR. COMPACT THOROUGHLY. WATER IMMEDIATELY WITH EXCAVATOR BUCKET.
8. QUANTITIES SHOWN ARE FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY ALL QUANTITIES.
9. REFER TO SHEETS 12-13 FOR CHANNEL CROSS-SECTIONS.

STREAM CENTERLINE COORDINATE STAKING TABLE			
DESCRIPTION	NORTHING	EASTING	ELEVATION
STA. 52+80.00 BEGIN STREAMWORK	977,121.09	1,183,803.76	EXISTING
STA. 53+00.00	977,104.42	1,183,814.80	4,790.96
STA. 53+12.97 PC	977,093.60	1,183,821.97	4,790.91
STA. 53+34.23 PRC	977,074.46	1,183,831.05	4,790.83
STA. 53+72.22 PT	977,045.66	1,183,854.41	4,790.70
STA. 54+22.48 PC	977,021.15	1,183,898.29	4,790.52
STA. 54+60.82 PRC	976,992.01	1,183,921.75	4,790.38
STA. 54+87.94 PT	976,968.02	1,183,934.09	4,790.29
STA. 54+95.06 END STREAMWORK	976,962.38	1,183,938.43	EXISTING



TYPICAL CHANNEL SECTION



PROFILE VIEW OF POORMAN CREEK - STA. 52+00 TO STA. 56+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 40'

POORMAN CREEK CULVERT REPLACEMENT

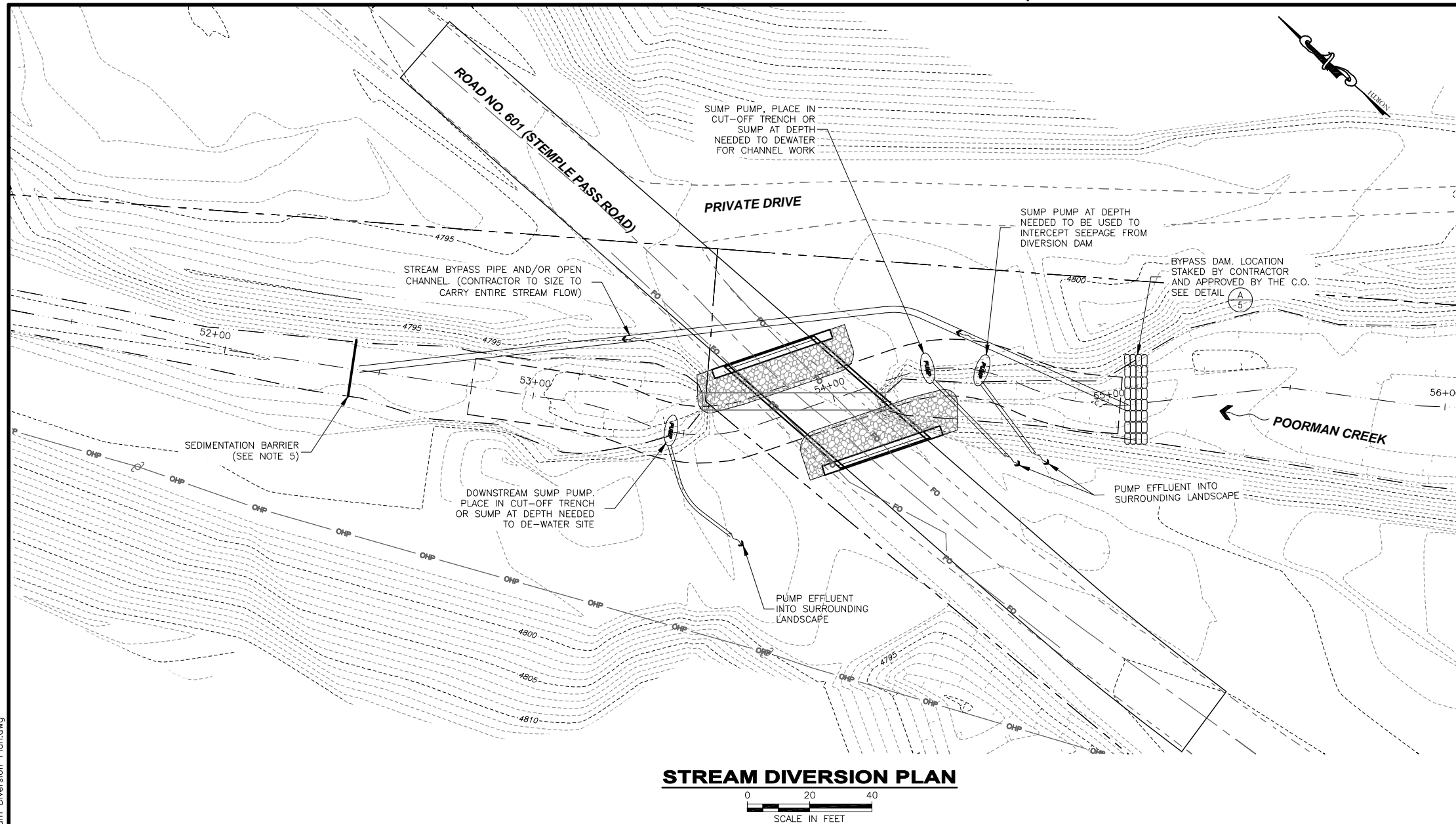
ROAD NO. 601 - M.P. 5.8

STREAM PLAN & PROFILE

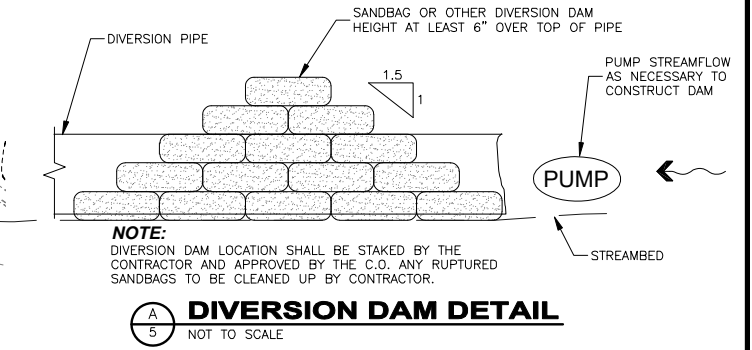
PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 4 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				



F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131-Sheets\1-17131-04-Stream P&P.dwg



- NOTES:**
1. DEWATER THE EXCAVATION IN ACCORDANCE WITH FP-14 SECTIONS 208, 209 AND 157 AND THE REQUIREMENTS ON THIS SHEET.
 2. DEWATERING IS THE RESPONSIBILITY OF THE CONTRACTOR AND CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE C.O. FOR APPROVAL ALONG WITH THE EXCAVATION PLAN. THIS SHEET ILLUSTRATES GENERIC DEWATERING REQUIREMENTS AND POSSIBLE METHODS AND EQUIPMENT AND IS NOT CONSIDERED ADEQUATE FOR THIS PROJECT. CONTRACTOR SHALL DEVELOP THEIR OWN PROJECT SPECIFIC DEWATERING PLANS AND SHALL INCLUDE DRAWINGS AND A WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED LAYOUT, METHODS, EQUIPMENT, AND ANTICIPATED STREAM FLOW VOLUMES. APPROVAL OF THE DEWATERING PLAN BY THE C.O. DOES NOT RELIEVE THE CONTRACTOR FROM COMPLETING THE WORK AS SPECIFIED. IF CONTRACTOR'S IDENTIFIED DEWATERING METHODS ARE NOT PRODUCING DESIRED RESULTS, CONTRACTOR SHALL RE-EVALUATE AND SUBMIT ANOTHER PLAN TO THE C.O. FOR APPROVAL. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK. ALL WORK RELATING TO THE STREAM DIVERSION IS PAID UNDER ITEM 15713.
 3. CONTRACTOR IS RESPONSIBLE FOR SIZING ALL PUMPS, DAMS, BYPASS PIPES, OPEN CHANNELS, ETC. AND WILL NEED TO MAINTAIN PUMPING CAPACITY OF THE INFLOW DURING THE DURATION OF THE PROJECT. PUMPS TO BE PLACED IN LOCATION OR WITHIN SECONDARY CONTAINMENT TO PREVENT FUEL/OIL FROM SPILLING INTO THE STREAM. CONTRACTOR TO BE RESPONSIBLE FOR CLEANUP OF ANY FUEL/OIL SPILL.
 4. SOIL EROSION AND SEDIMENT CONTROL MEASURES SPECIFIC TO THE DE-WATERING PLAN SHALL BE INCLUDED AND SHALL BE IN CONFORMANCE WITH PROJECT PERMITS.
 5. INSTALL SEDIMENTATION BARRIER DOWNSTREAM OF WORK. THE BARRIER MAY CONSIST OF EITHER ONE OR A COMBINATION OF THE FOLLOWING: STRAW BALES OR SILT FENCE. INSTALL BARRIER PRIOR TO COMMENCEMENT OF WORK. THE LOCATION OF THE BARRIER WILL BE LOCATED BY THE CONTRACTOR AND APPROVED BY THE C.O. THIS WORK IS PAID UNDER ITEM 15713.
 6. CLEARING LIMITS WILL VARY DEPENDING ON THE DIVERSION PLAN SUBMITTED BY THE CONTRACTOR. CONTRACTOR TO SUBMIT PROPOSED CLEARING LIMITS WITH DIVERSION PLAN.



STREAM DIVERSION PLAN
0 20 40
SCALE IN FEET

F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131\Sheets\1-17131-05-Stream Diversion Plan.dwg

PREPARED BY:
GreatWest
engineering®
2501 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8627

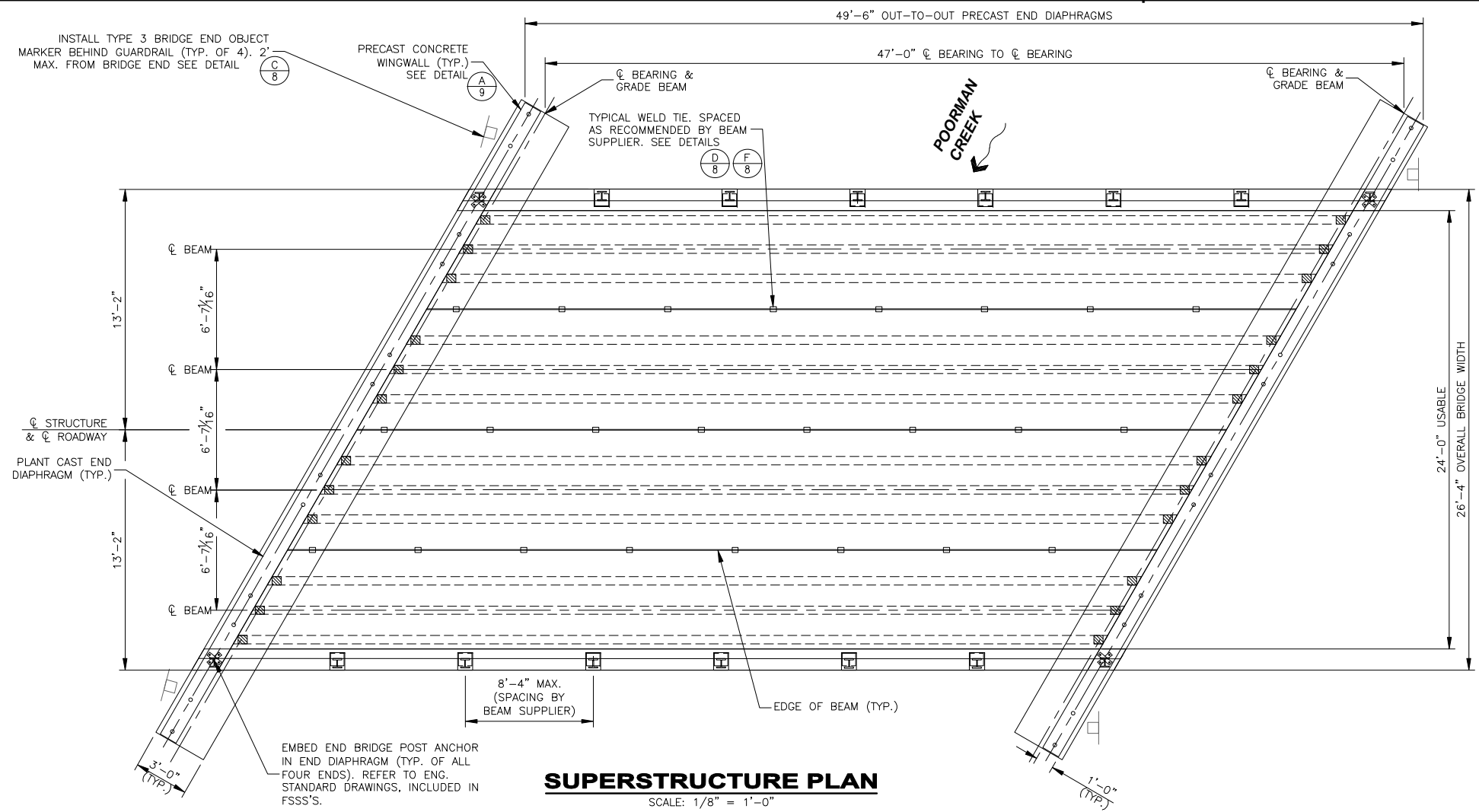


POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

STREAM DIVERSION PLAN

PROJECT:	DATE:	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 5 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				



STRUCTURAL BACKFILL (COMMERCIAL SOURCE):

1. STRUCTURAL BACKFILL MATERIAL BEHIND THE STRUCTURE SHALL BE PLACED IN ACCORDANCE WITH FP-14, SECTION 208. THE PROCTOR DENSITY FOR BACKFILL MATERIAL SHALL BE OBTAINED IN ACCORDANCE WITH AASHTO 199, METHOD C. SAMPLING AND TESTING IS REQUIRED PER FP-14 TABLE 208-1.
2. BACKFILL LIMITS SHOWN ARE MINIMUM REQUIREMENTS. ANY BACKFILL OUTSIDE THE LIMITS SHOWN SHALL BE CONSIDERED ROADWAY EMBANKMENT AND MUST MEET THE REQUIREMENTS FOR ROADWAY EMBANKMENT.

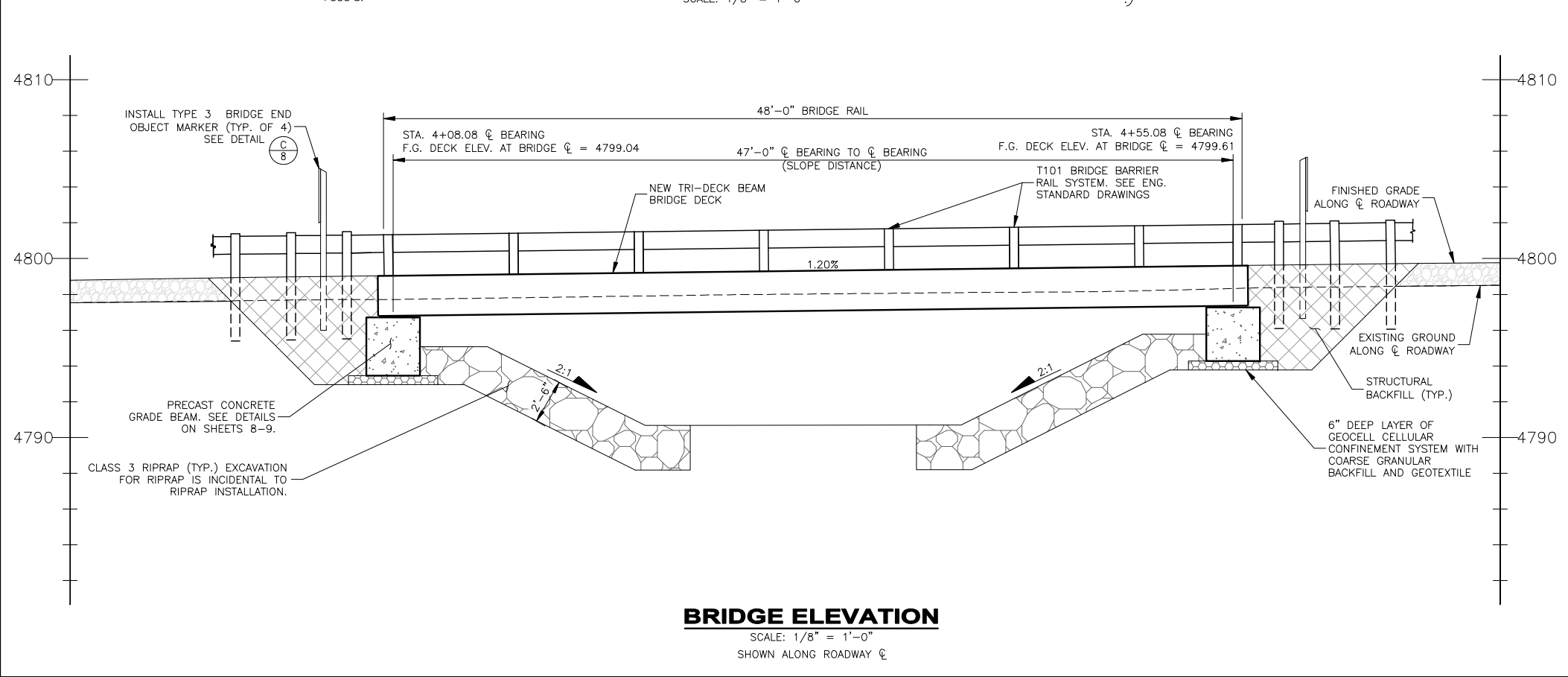
GEOCELL:

1. INSTALL GEOCELL PER FSSS 272.06. PLACE GEOCELL ON LEVEL COMPACTED SUBGRADE. CONTRACTOR SHALL HOLD GEOCELL IN PLACE TO THE LINES AND GRADES SHOWN ON THE DRAWING WITH SUITABLE SIDE FORMS (STRETCHER FRAMES).
2. BACKFILL GEOCELL WITH COURSE GRANULAR BACKFILL PER FSSS 272 AND 703.
3. PLACE TYPE II-A GEOTEXTILE UNDER GEOCELL. WRAP GEOTEXTILE OVER TOP OF GEOCELL AFTER IT IS BACKFILLED (INCIDENTAL TO ITEM 27250).

STRUCTURE EXCAVATION NOTES:

1. STRUCTURE EXCAVATION SHALL BE COMPLETED IN ACCORDANCE WITH FP-14, SECTION 208.
2. LIMITS SHOWN ARE MINIMUM EXCAVATION REQUIREMENTS BASED ON ASSUMED OSHA SOIL TYPE C AND THE RELATED OSHA EXCAVATION REQUIREMENTS. DETERMINATION IS BASED ON LIMITED DATA. ACTUAL SITE CONDITIONS AND EXCAVATION SOILS MAY VARY.
3. APPROXIMATELY 80 PERCENT OF THE STRUCTURE EXCAVATION MATERIAL IS ANTICIPATED TO BE SUITABLE FOR USE AS ROADWAY EMBANKMENT MATERIAL.
 - A. SOME MIXING AND SORTING MAY BE REQUIRED.
 - B. MUST HAVE APPROVAL FROM C.O. PRIOR TO REUSE.
4. STRUCTURE EXCAVATION QUANTITY SHOWN IS FOR INFORMATION ONLY AND HAS BEEN APPROXIMATED BASED ON THE LIMITS SHOWN. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES BASED ON THEIR OWN EXCAVATION PLAN.
5. CONTRACTOR SHALL SUBMIT EXCAVATION PLAN TO C.O. FOR APPROVAL. PLAN SHALL INCLUDE DRAWINGS AND WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED EXCAVATION LIMITS, METHODS, EQUIPMENT, LOCATION OF STOCKPILES, AND ESTIMATED QUANTITIES AND COMPLY WITH OSHA EXCAVATION SOIL TYPING AND REQUIREMENTS. CHANGES TO THE EXCAVATION LIMITS SHOWN FOR CONTRACTOR'S CONVENIENCE MUST BE SHOWN ON THE CONTRACTOR'S PLAN AND ARE THE RESPONSIBILITY OF THE CONTRACTOR. THIS WORK IS INCIDENTAL TO THE CONTRACT.

ESTIMATED QUANTITIES*	
STRUCTURAL EXCAVATION	430 CY
STRUCTURAL BACKFILL	76 CY



POORMAN CREEK CULVERT REPLACEMENT

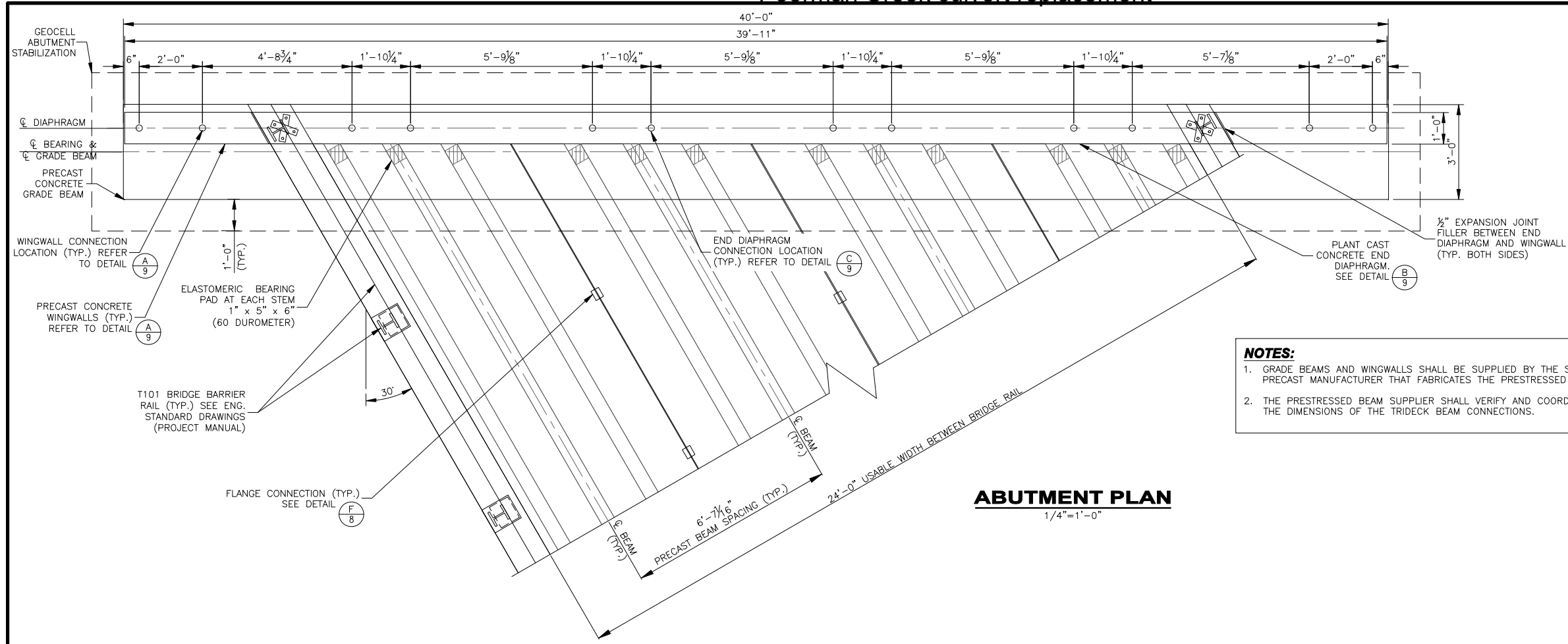
ROAD NO. 601 - M.P. 5.8

BRIDGE PLAN AND ELEVATION

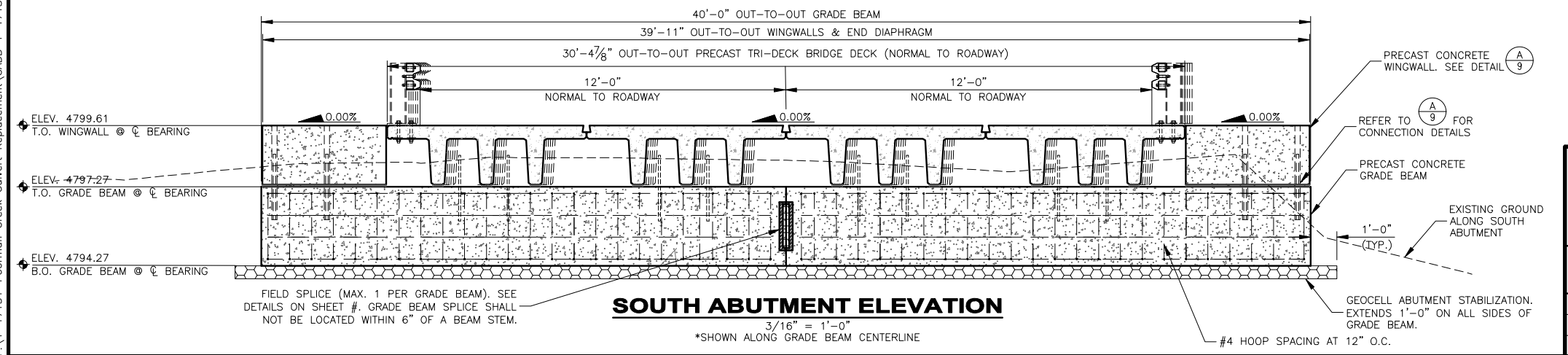
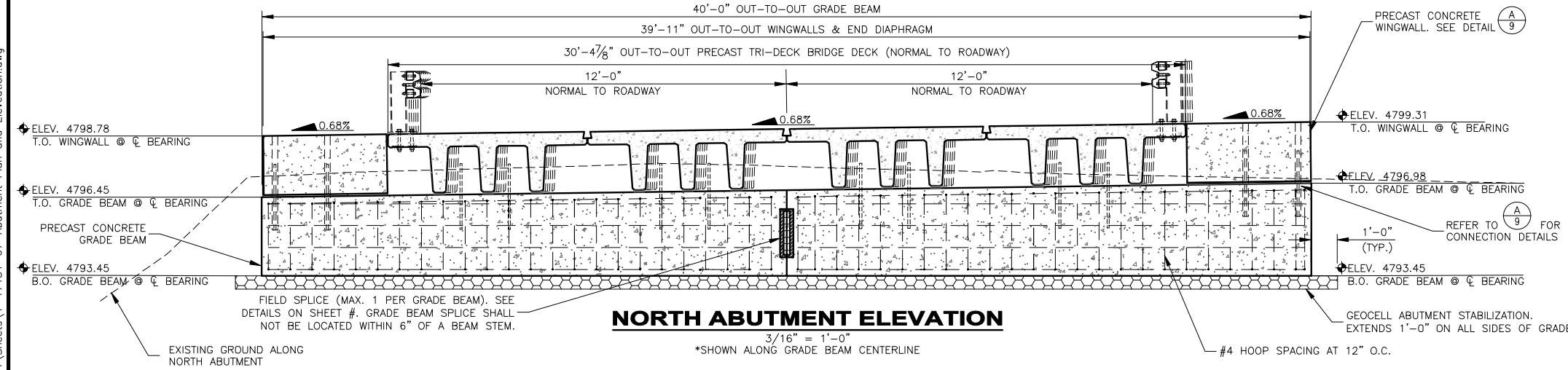
PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: RLH	DESIGN CHECKED: JJT	△			
DRAWN: KSS	DRAWING CHECKED: JJT	△			

SHEET NO. 6 OF 17

F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131-06-Bridge Plan and Elevation.dwg



NOTES:
 1. GRADE BEAMS AND WINGWALLS SHALL BE SUPPLIED BY THE SAME PRECAST MANUFACTURER THAT FABRICATES THE PRESTRESSED BEAMS.
 2. THE PRESTRESSED BEAM SUPPLIER SHALL VERIFY AND COORDINATE THE DIMENSIONS OF THE TRIDECK BEAM CONNECTIONS.



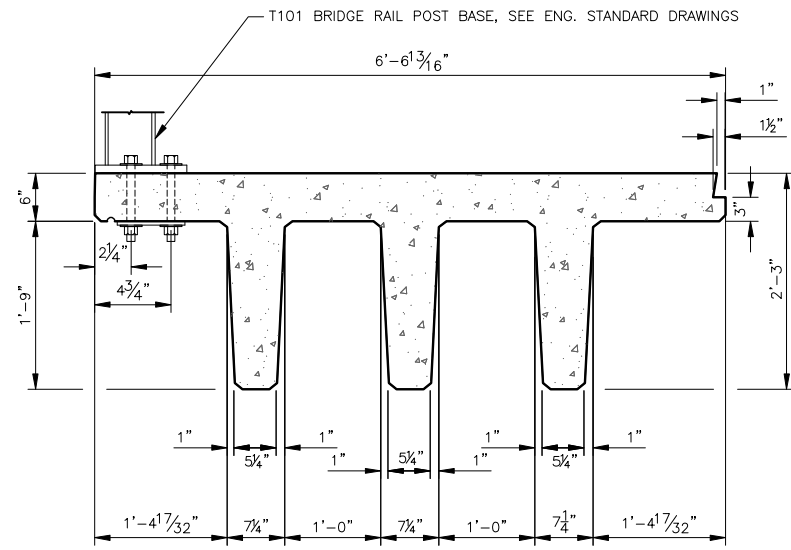
POORMAN CREEK CULVERT REPLACEMENT
ROAD NO. 601 - M.P. 5.8

ABUTMENT PLAN AND ELEVATION

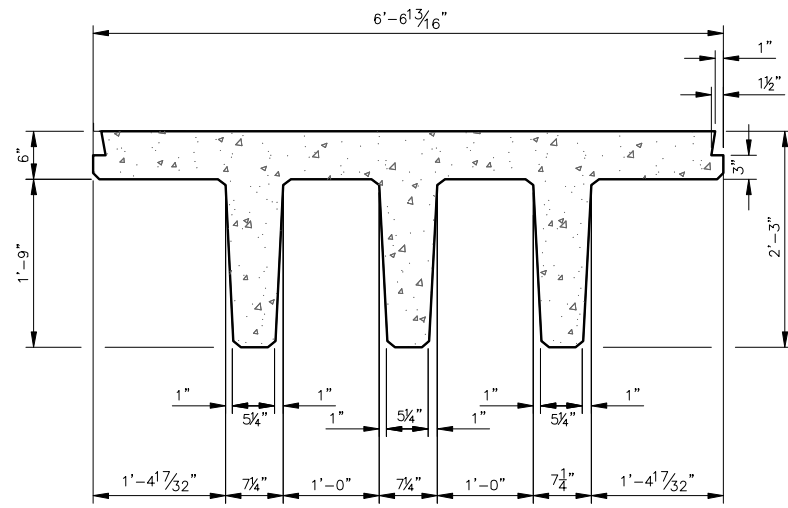
PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: RLH	DESIGN CHECKED: JJT	△			
DRAWN: KSS	DRAWING CHECKED: JJT	△			

SHEET NO. 7 OF 17

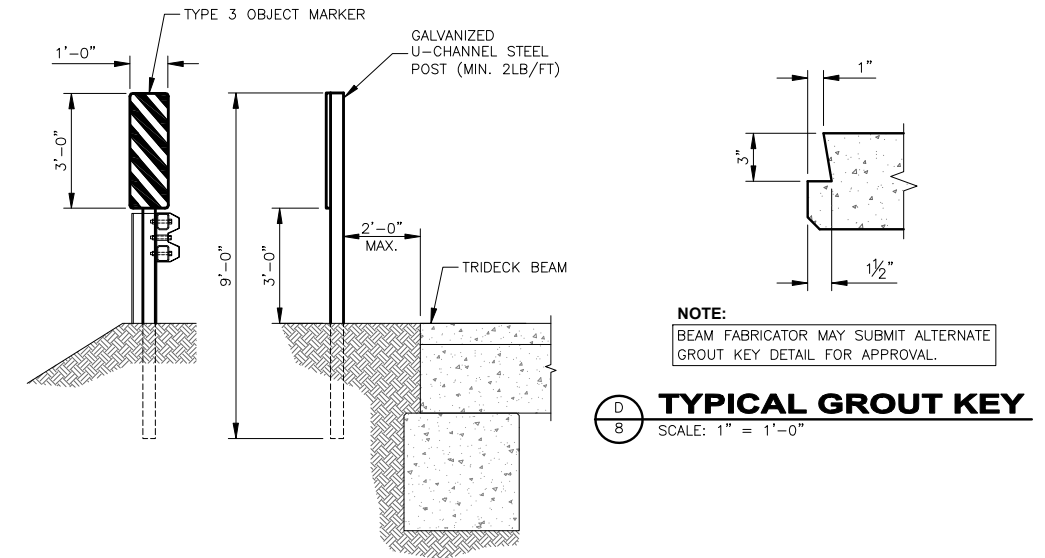
F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131-Sheets\1-17131-07-Abutment Plan and Elevation.dwg



A **TRIDECK BEAM EXTERIOR SECTION**
SCALE: 1/2" = 1'-0"

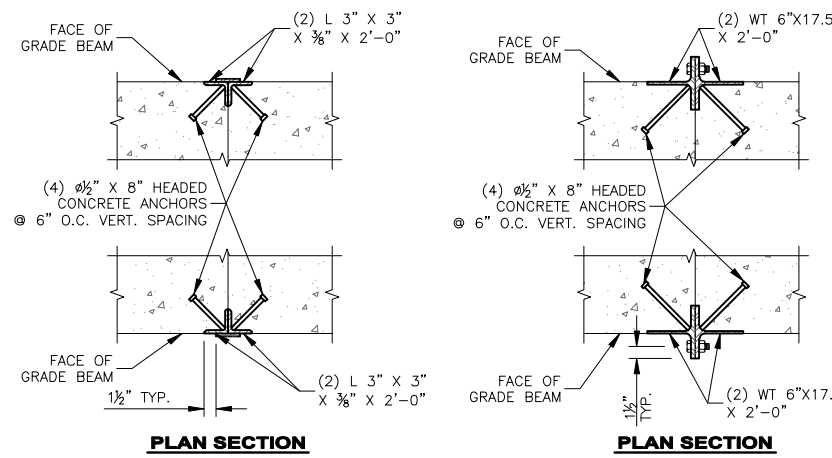


B **TRIDECK BEAM INTERIOR SECTION**
SCALE: 1/2" = 1'-0"

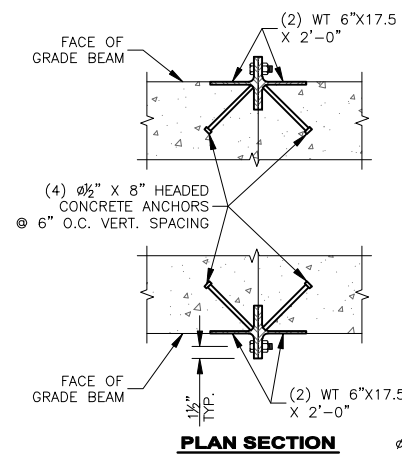


NOTE:
TYPE 3 OBJECT MARKERS SHALL BE 12" x 36" AND COLORED YELLOW AND BLACK. MATERIAL SHALL MEET MUTCD OM-3L OR OM-3R SPECIFICATIONS. FASTEN TO POST W/ (2) 5/16" MACHINE BOLTS W/ WASHERS. INSTALL POSTS SUCH THAT THE INSIDE EDGE OF THE REFLECTORIZED PANEL IS IN LINE WITH THE INSIDE EDGE OF THE RAIL.

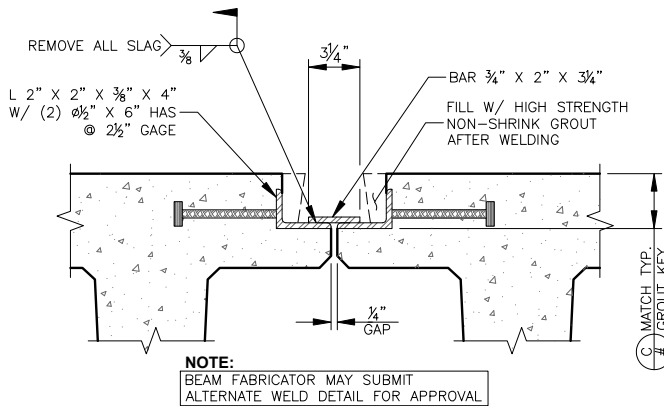
C **TYPE 3 OBJECT MARKER DETAIL**
NOT TO SCALE



PLAN SECTION

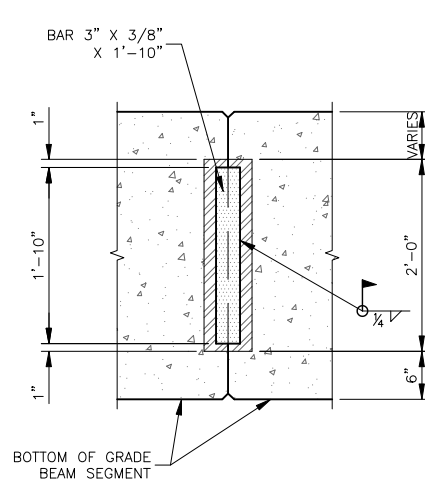


PLAN SECTION

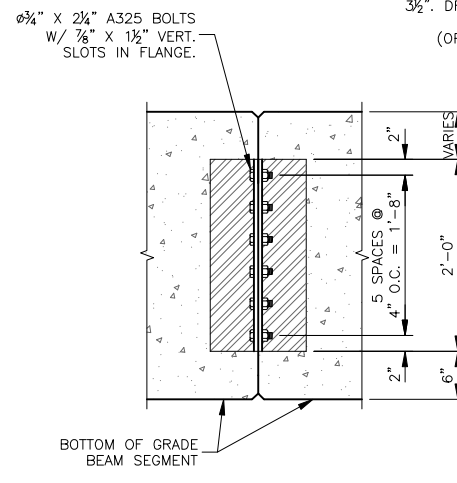


NOTE:
BEAM FABRICATOR MAY SUBMIT ALTERNATE WELD DETAIL FOR APPROVAL

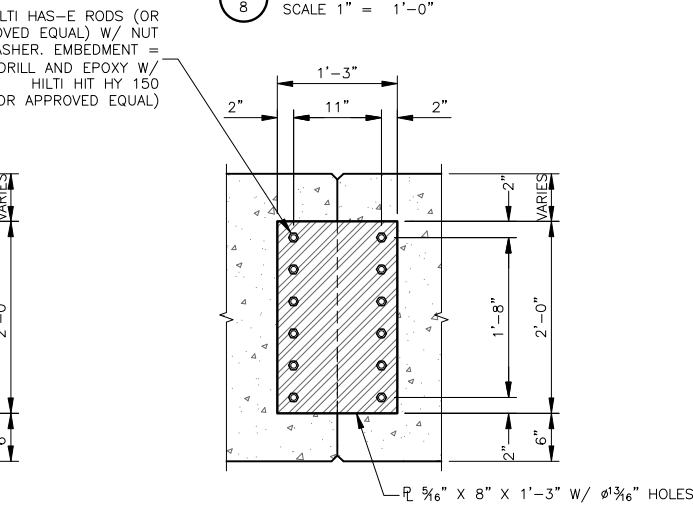
F **WELD TIE DETAIL**
SCALE 1" = 1'-0"



ELEVATION
FIELD WELD ALTERNATIVE

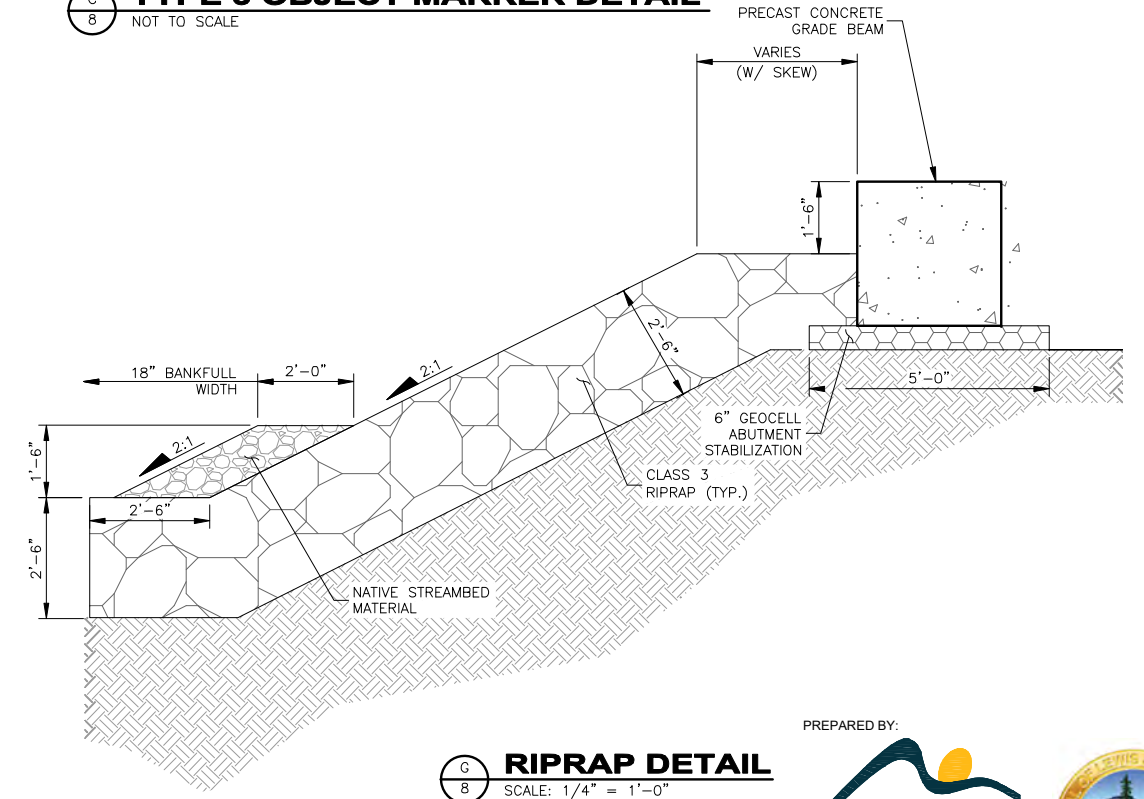


ELEVATION
FIELD BOLT ALTERNATIVE



ELEVATION
POST-INSTALLED ANCHOR PLATE ALTERNATIVE

E **OPTIONAL GRADE BEAM FIELD SPLICE DETAILS**
SCALE: 1/2" = 1'-0"



G **RIPRAP DETAIL**
SCALE: 1/4" = 1'-0"

PREPARED BY:



2501 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8627

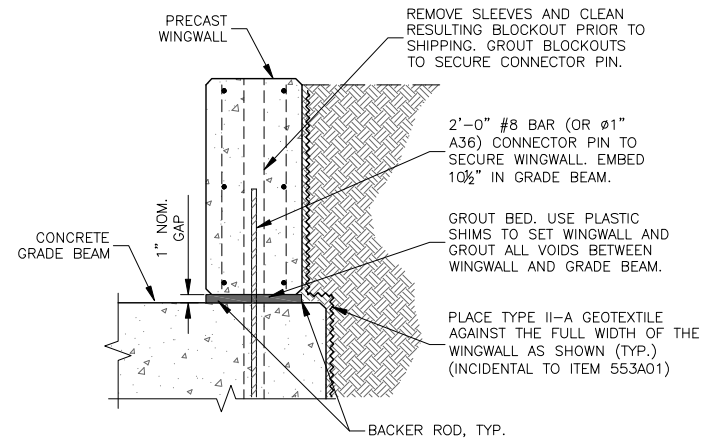


POORMAN CREEK CULVERT REPLACEMENT
ROAD NO. 601 - M.P. 5.8

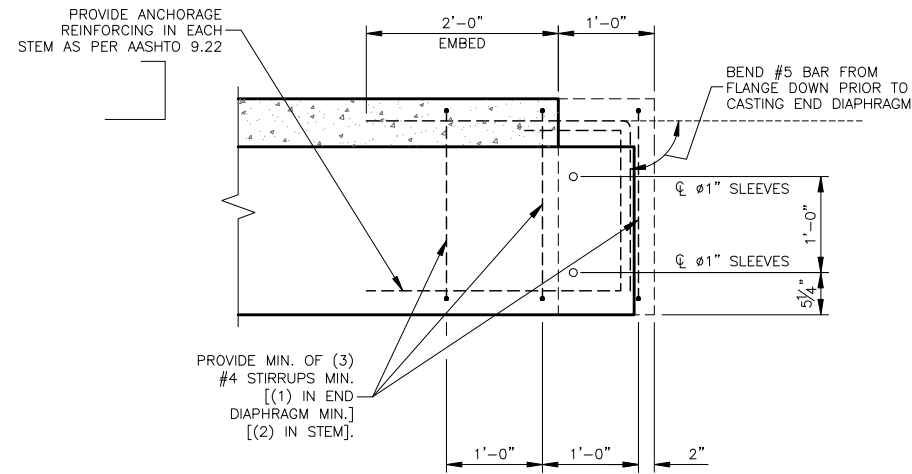
MISCELLANEOUS DETAILS

PROJECT:	DATE:	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO.
1-17131	MAY 23, 2019					8 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT					
DRAWN: KSS	DRAWING CHECKED: JJT					

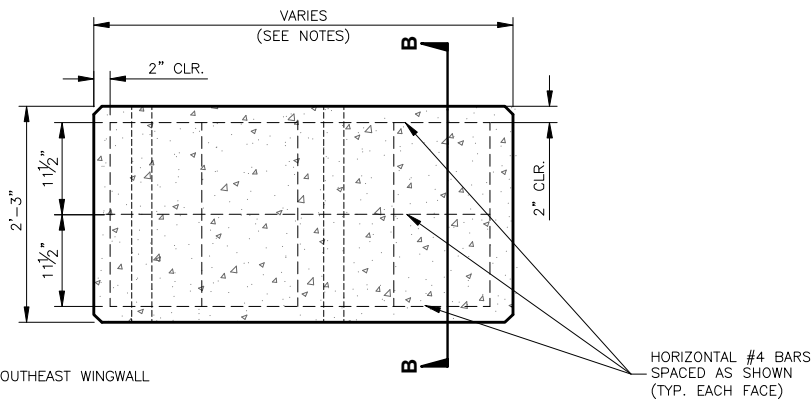
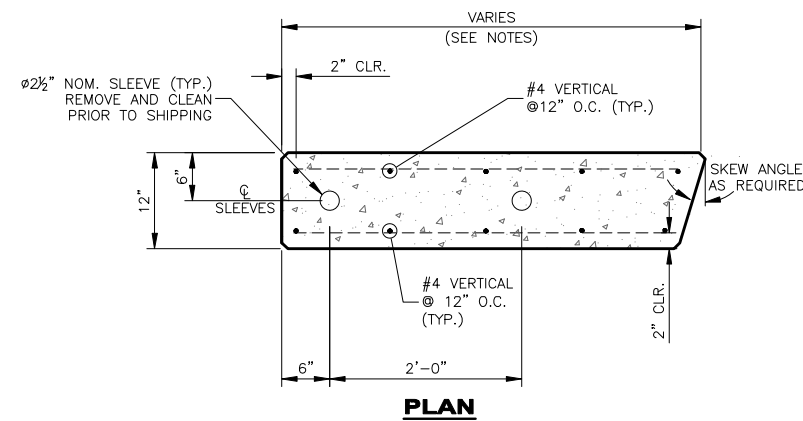
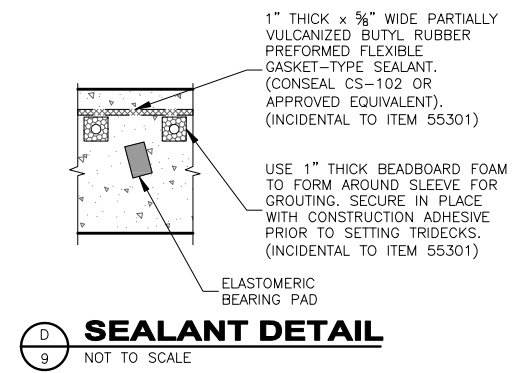
F:\1-17131-Poorman Creek Culvert Replacement\CADD 1-17131\Sheets\1-17131-08-Miscellaneous Details.dwg



SECTION B-B

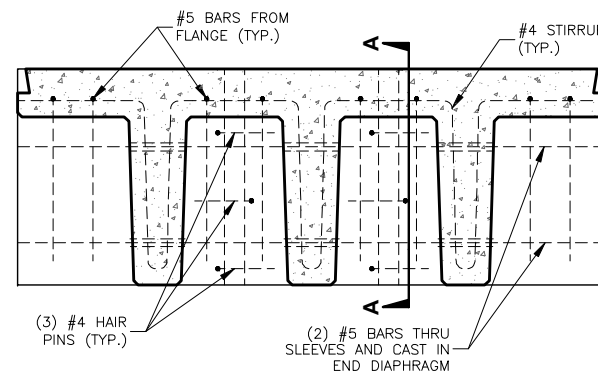
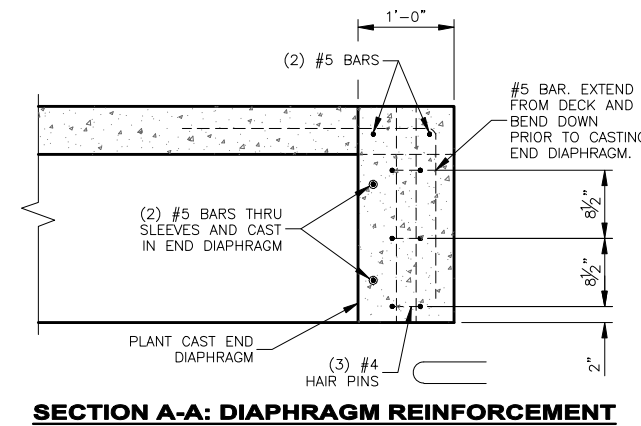


SECTION A-A: END REINFORCEMENT



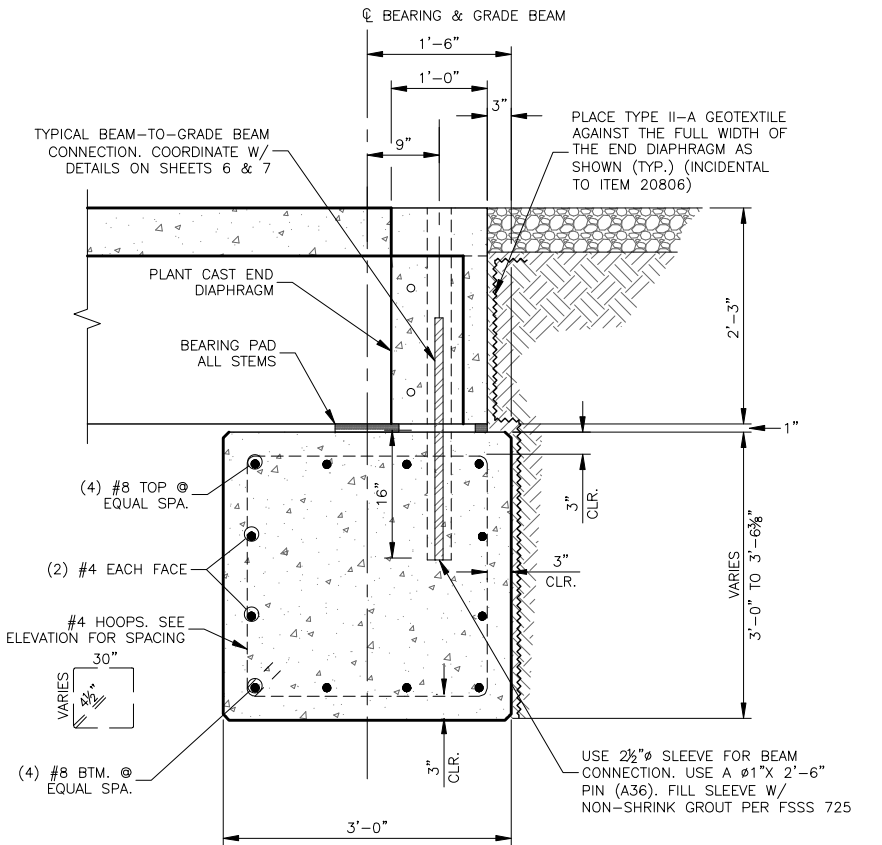
WINGWALL DETAIL

NOT TO SCALE



TYPICAL TRIDECK END REINFORCEMENT

NOT TO SCALE



PRECAST CONCRETE GRADE BEAM & CONNECTION

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

F:\1-17131-Poorman Creek Culvert Replacement\CADD\1-17131-Sheets\1-17131-09-Miscellaneous Details.dwg

- NOTES:**
- FOR NORTHWEST AND SOUTHEAST WINGWALL DIMENSIONS.
4'-4 3/4" LONG X 2'-3" TALL X 12" THICK
 - FOR NORTHEAST AND SOUTHWEST WINGWALL DIMENSIONS.
5'-2 1/4" LONG X 2'-3" TALL X 12" THICK

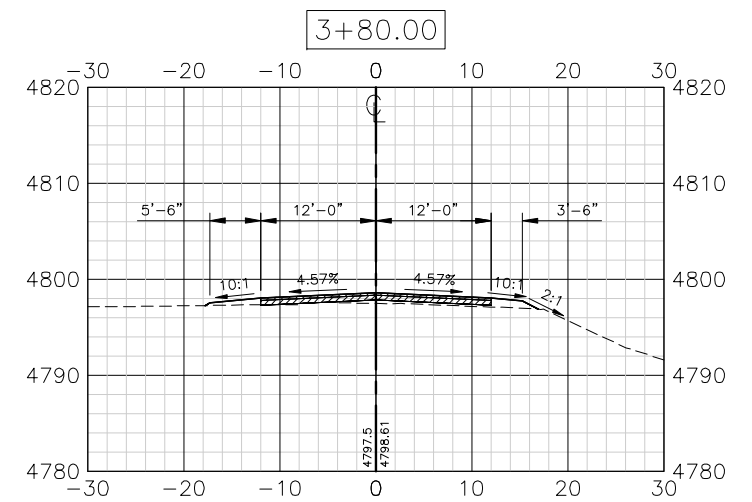
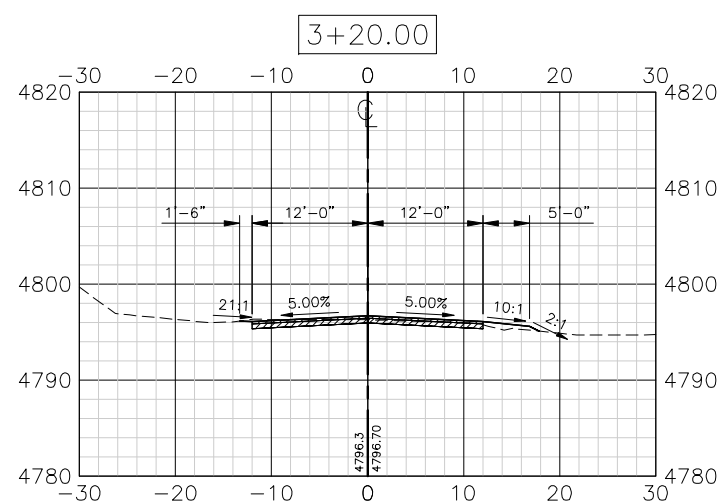
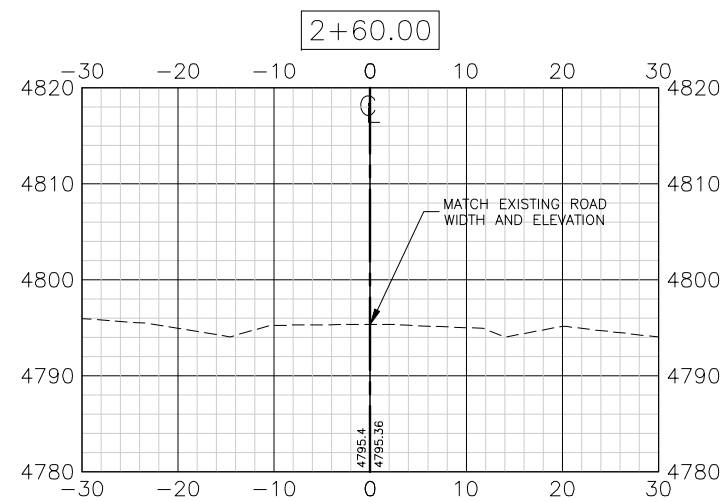
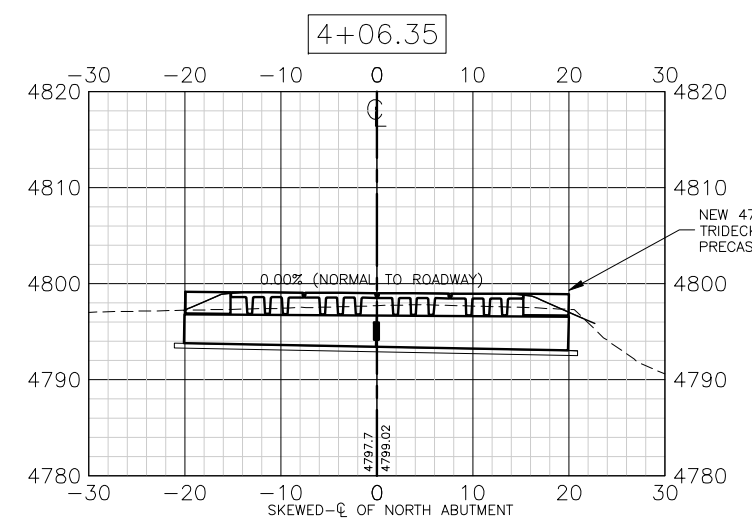
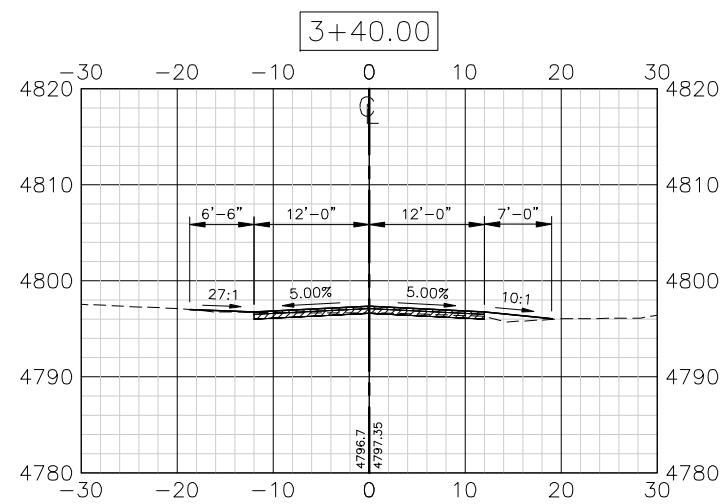
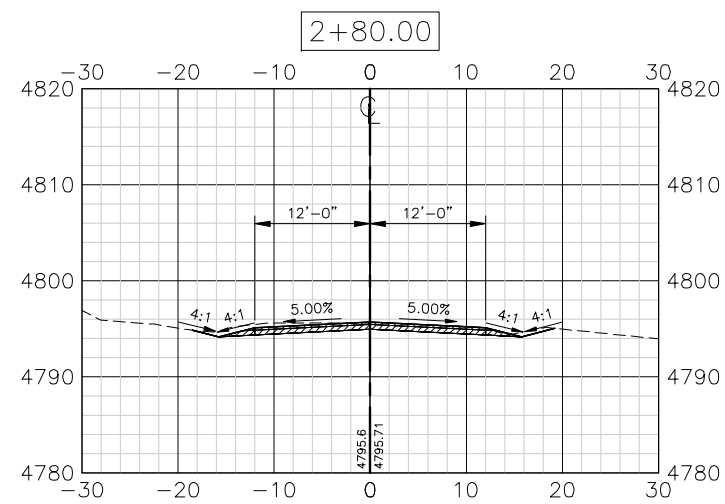
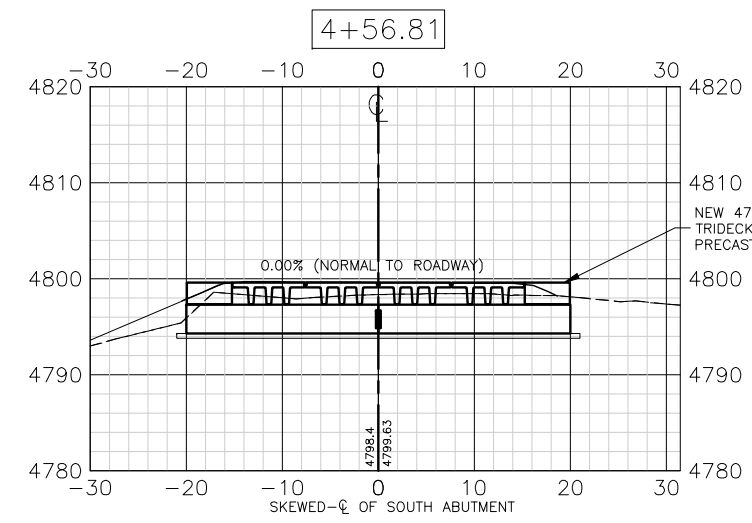
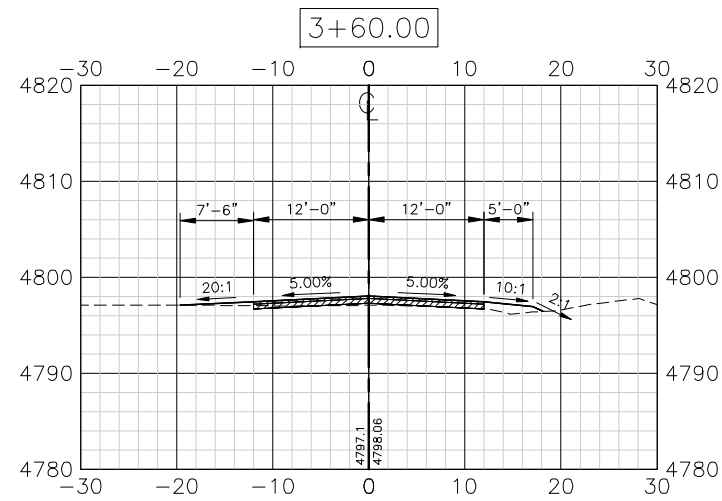
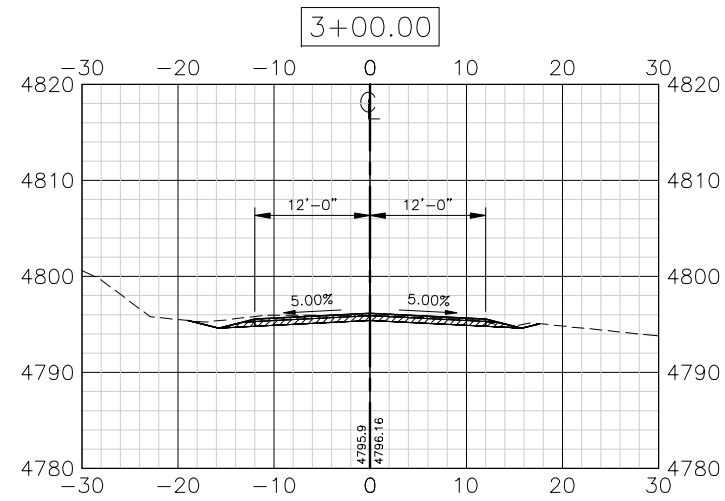


POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

MISCELLANEOUS DETAILS

PROJECT:	DATE:	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO.
1-17131	MAY 23, 2019					9 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				



NEW 47'-0" SPAN BY 24'-0" USABLE WIDTH TRI-DECK BEAM BRIDGE WITH 30' SKEW ON PRECAST CONCRETE GRADE BEAMS

NEW 47'-0" SPAN BY 24'-0" USABLE WIDTH TRI-DECK BEAM BRIDGE WITH 30' SKEW ON PRECAST CONCRETE GRADE BEAMS

ROADWAY CROSS-SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'



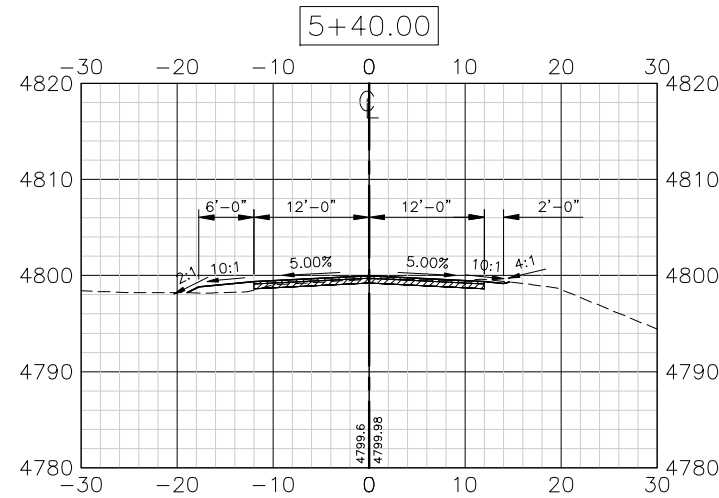
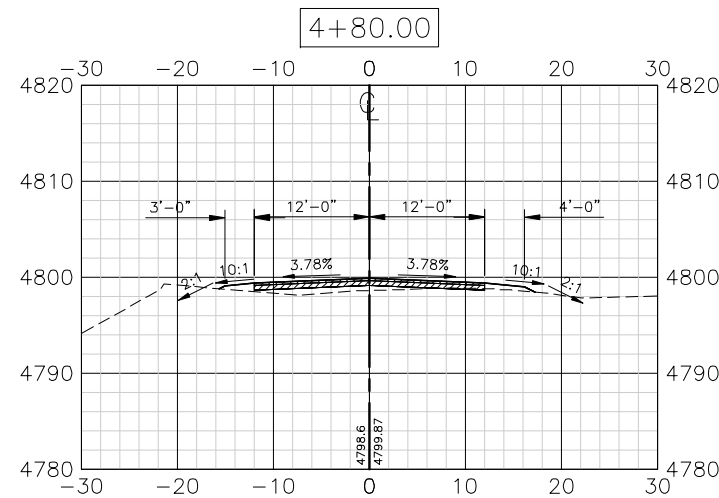
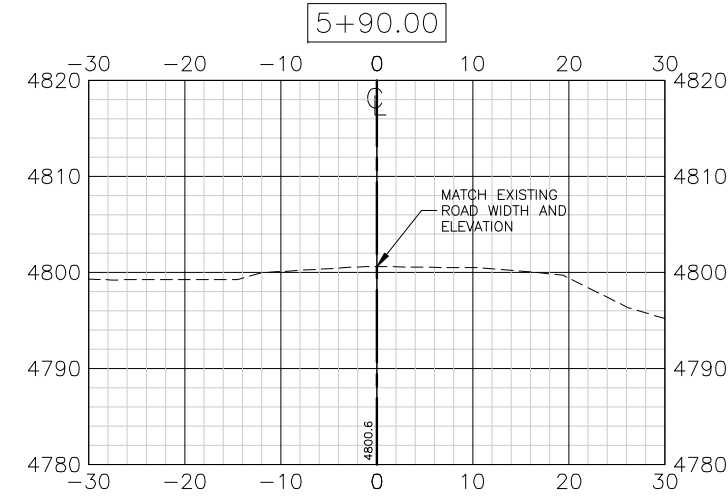
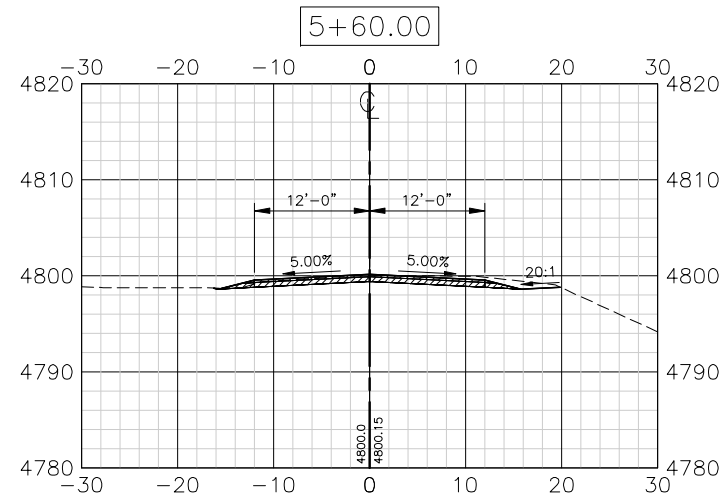
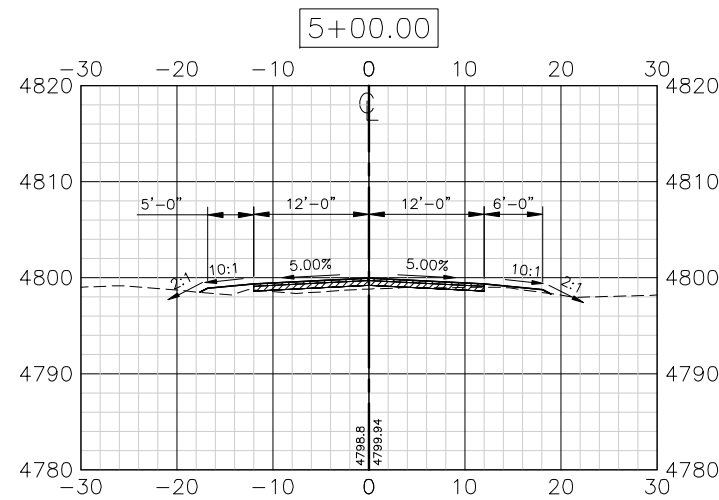
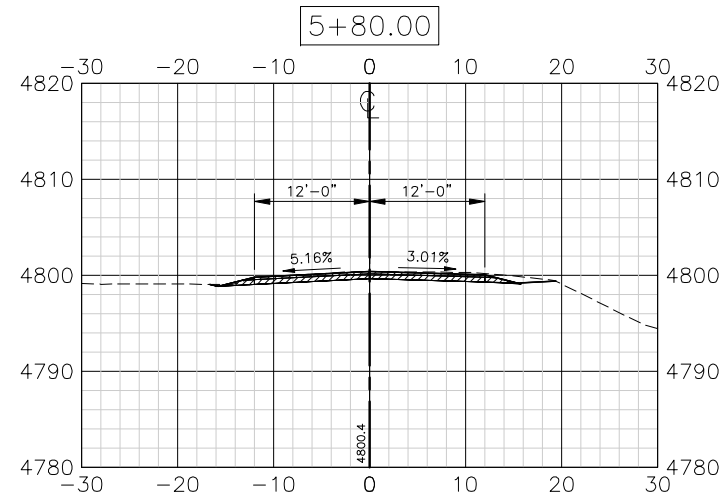
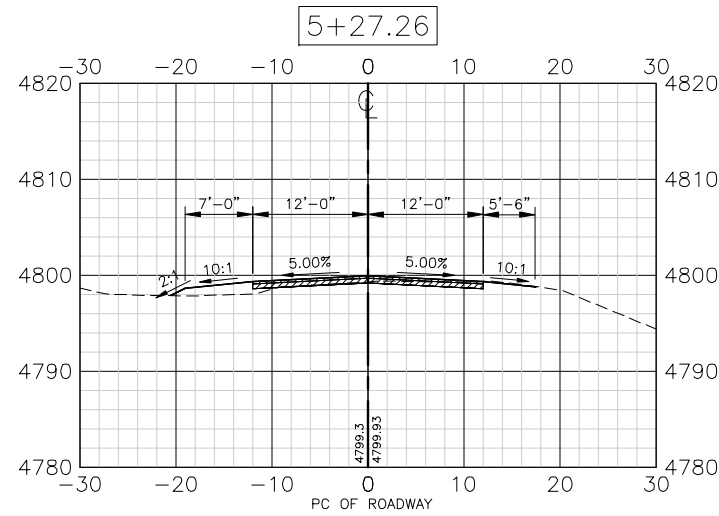
POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

ROADWAY CROSS-SECTIONS

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 10 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				

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ROADWAY CROSS-SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'



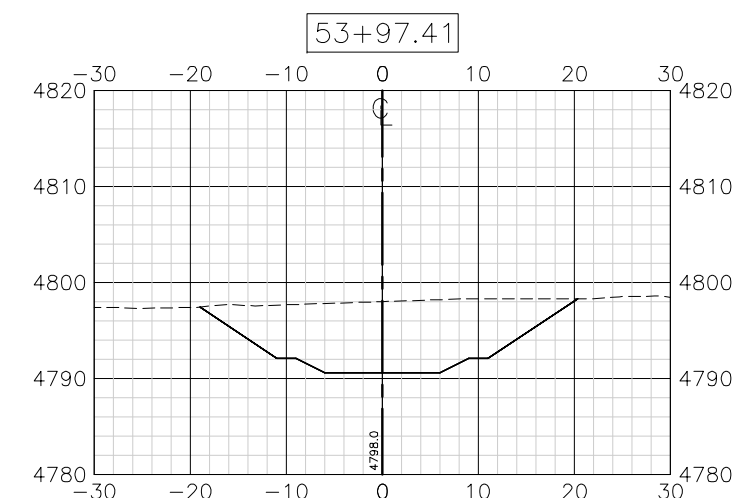
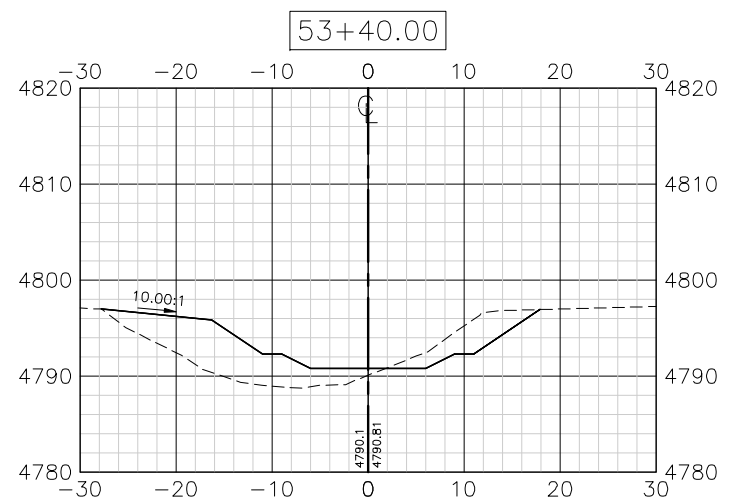
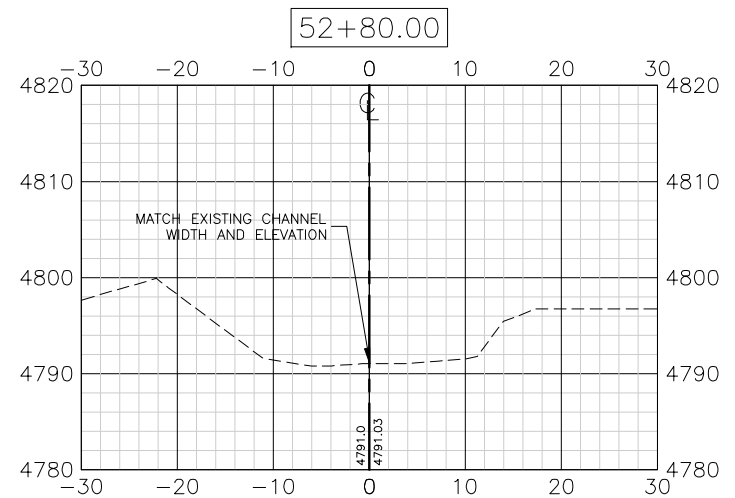
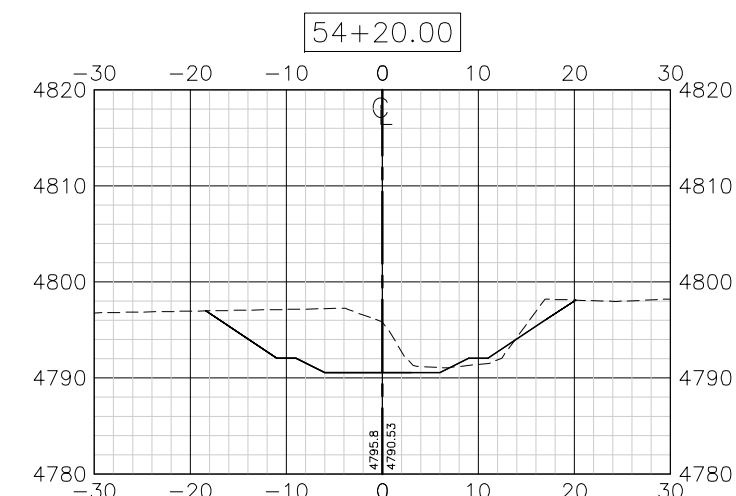
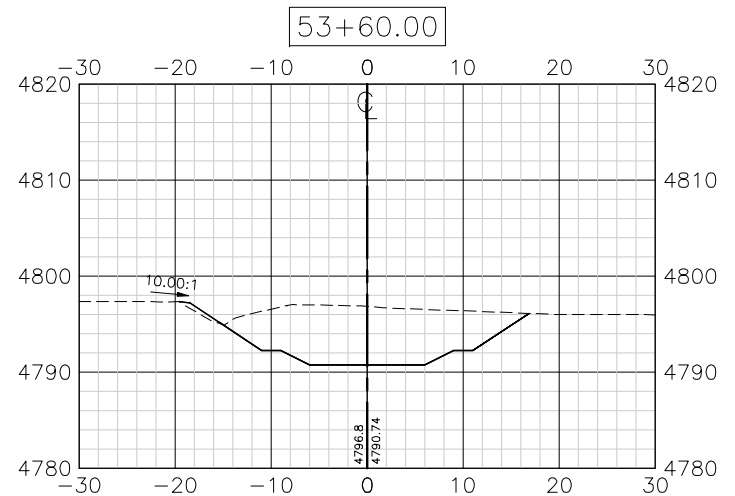
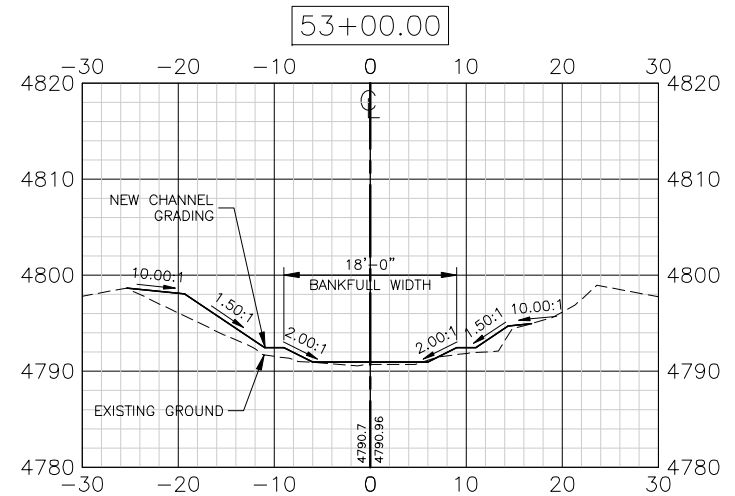
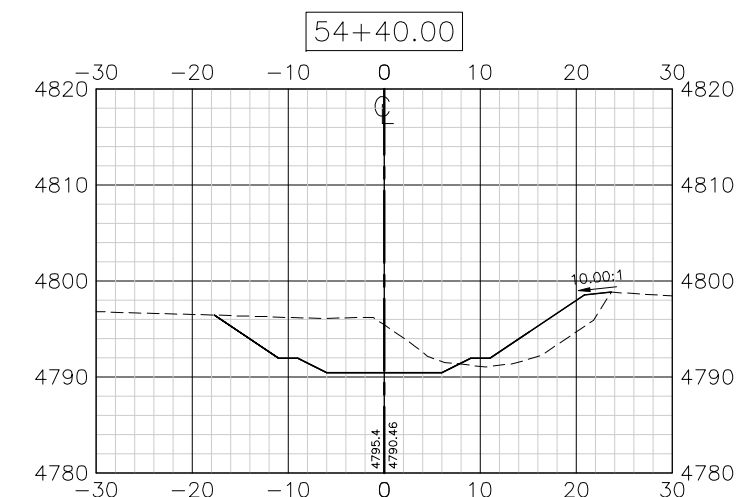
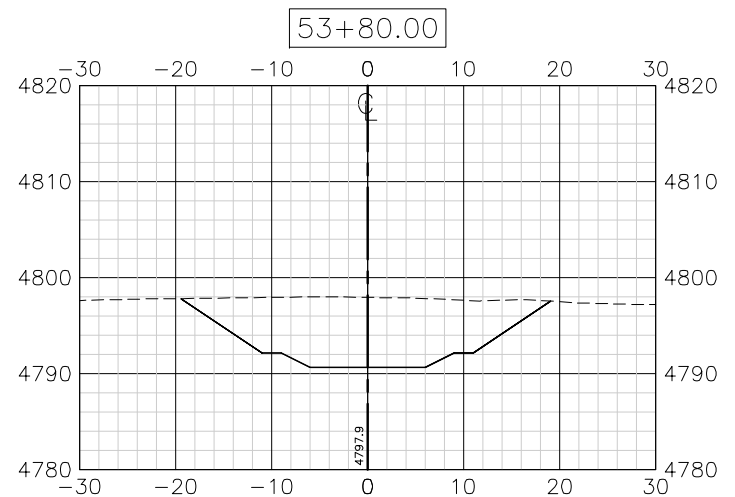
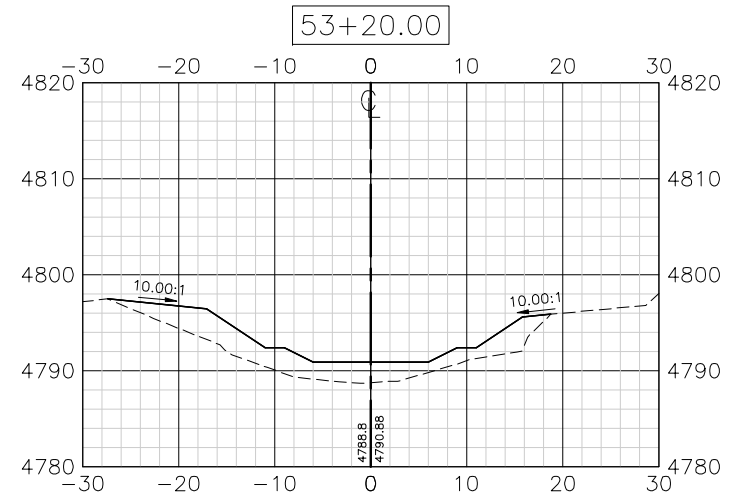
POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

ROADWAY CROSS- SECTIONS

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 11 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				

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CHANNEL GRADING CROSS-SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'



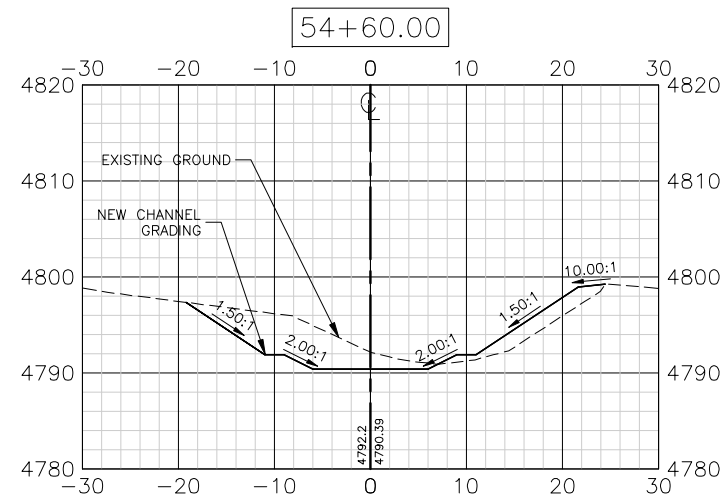
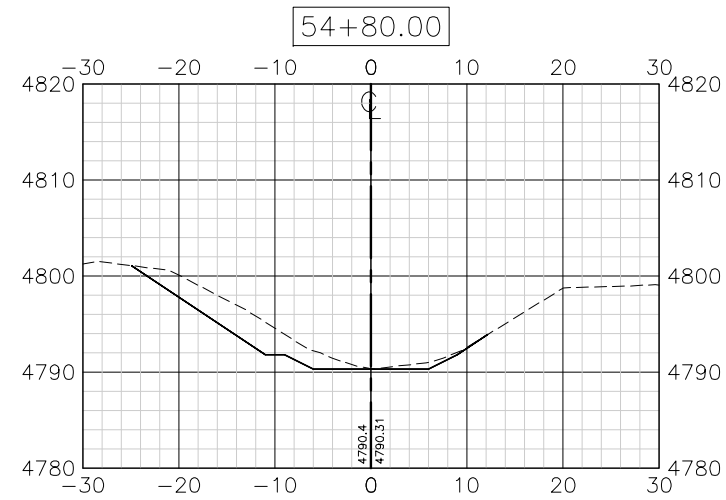
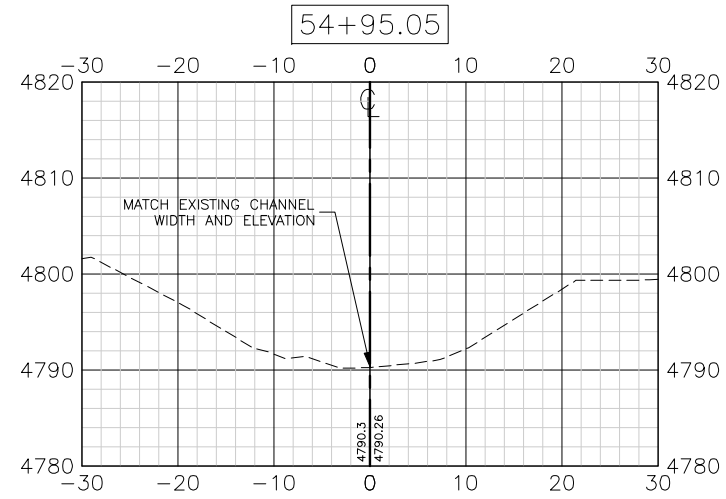
POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

CHANNEL GRADING CROSS-SECTIONS

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 12 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				

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CHANNEL GRADING CROSS-SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'



POORMAN CREEK CULVERT REPLACEMENT

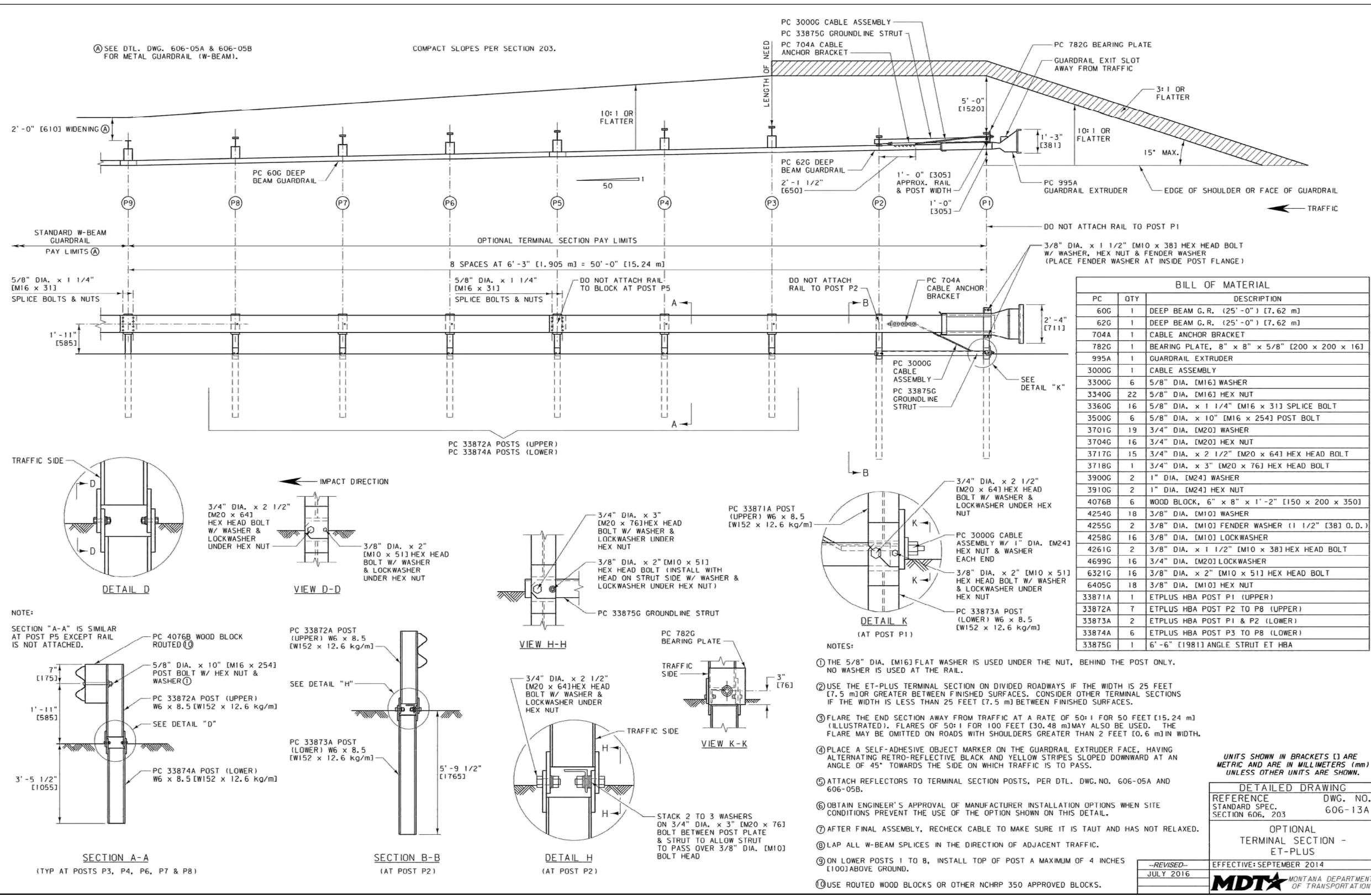
ROAD NO. 601 - M.P. 5.8

CHANNEL GRADING CROSS-SECTIONS

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: RLH	DESIGN CHECKED: JJT	△			
DRAWN: KSS	DRAWING CHECKED: JJT	△			

SHEET NO.
13 OF 17

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PC	QTY	DESCRIPTION
60G	1	DEEP BEAM G.R. (25'-0") [7.62 m]
62G	1	DEEP BEAM G.R. (25'-0") [7.62 m]
704A	1	CABLE ANCHOR BRACKET
782G	1	BEARING PLATE, 8" x 8" x 5/8" [200 x 200 x 16]
995A	1	GUARDRAIL EXTRUDER
3000G	1	CABLE ASSEMBLY
3300G	6	5/8" DIA. [M16] WASHER
3340G	22	5/8" DIA. [M16] HEX NUT
3360G	16	5/8" DIA. x 1 1/4" [M16 x 31] SPLICE BOLT
3500G	6	5/8" DIA. x 10" [M16 x 254] POST BOLT
3701G	19	3/4" DIA. [M20] WASHER
3704G	16	3/4" DIA. [M20] HEX NUT
3717G	15	3/4" DIA. x 2 1/2" [M20 x 64] HEX HEAD BOLT
3718G	1	3/4" DIA. x 3" [M20 x 76] HEX HEAD BOLT
3900G	2	1" DIA. [M24] WASHER
3910G	2	1" DIA. [M24] HEX NUT
4076B	6	WOOD BLOCK, 6" x 8" x 1'-2" [150 x 200 x 350]
4254G	18	3/8" DIA. [M10] WASHER
4255G	2	3/8" DIA. [M10] FENDER WASHER (1 1/2" [38] O.D.)
4258G	16	3/8" DIA. [M10] LOCKWASHER
4261G	2	3/8" DIA. x 1 1/2" [M10 x 38] HEX HEAD BOLT
4699G	16	3/4" DIA. [M20] LOCKWASHER
6321G	16	3/8" DIA. x 2" [M10 x 51] HEX HEAD BOLT
6405G	18	3/8" DIA. [M10] HEX NUT
33871A	1	ETPLUS HBA POST P1 (UPPER)
33872A	7	ETPLUS HBA POST P2 TO P8 (UPPER)
33873A	2	ETPLUS HBA POST P1 & P2 (LOWER)
33874A	6	ETPLUS HBA POST P3 TO P8 (LOWER)
33875G	1	6'-6" [1981] ANGLE STRUT ET HBA

- NOTES:
- THE 5/8" DIA. [M16] FLAT WASHER IS USED UNDER THE NUT, BEHIND THE POST ONLY. NO WASHER IS USED AT THE RAIL.
 - USE THE ET-PLUS TERMINAL SECTION ON DIVIDED ROADWAYS IF THE WIDTH IS 25 FEET [7.5 m] OR GREATER BETWEEN FINISHED SURFACES. CONSIDER OTHER TERMINAL SECTIONS IF THE WIDTH IS LESS THAN 25 FEET [7.5 m] BETWEEN FINISHED SURFACES.
 - FLARE THE END SECTION AWAY FROM TRAFFIC AT A RATE OF 50:1 FOR 50 FEET [15.24 m] (ILLUSTRATED). FLARES OF 50:1 FOR 100 FEET [30.48 m] MAY ALSO BE USED. THE FLARE MAY BE OMITTED ON ROADS WITH SHOULDERS GREATER THAN 2 FEET [0.6 m] IN WIDTH.
 - PLACE A SELF-ADHESIVE OBJECT MARKER ON THE GUARDRAIL EXTRUDER FACE, HAVING ALTERNATING RETRO-REFLECTIVE BLACK AND YELLOW STRIPES SLOPED DOWNWARD AT AN ANGLE OF 45° TOWARDS THE SIDE ON WHICH TRAFFIC IS TO PASS.
 - ATTACH REFLECTORS TO TERMINAL SECTION POSTS, PER DTL. DWG. NO. 606-05A AND 606-05B.
 - OBTAIN ENGINEER'S APPROVAL OF MANUFACTURER INSTALLATION OPTIONS WHEN SITE CONDITIONS PREVENT THE USE OF THE OPTION SHOWN ON THIS DETAIL.
 - AFTER FINAL ASSEMBLY, RECHECK CABLE TO MAKE SURE IT IS TAUT AND HAS NOT RELAXED.
 - LAP ALL W-BEAM SPLICES IN THE DIRECTION OF ADJACENT TRAFFIC.
 - ON LOWER POSTS 1 TO 8, INSTALL TOP OF POST A MAXIMUM OF 4 INCHES [100] ABOVE GROUND.
 - USE ROUTED WOOD BLOCKS OR OTHER NCHRP 350 APPROVED BLOCKS.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING	
REFERENCE DWG. NO.	606-13A
STANDARD SPEC.	SECTION 606, 203
OPTIONAL TERMINAL SECTION - ET-PLUS	
EFFECTIVE:	SEPTEMBER 2014

PREPARED BY:

2501 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8627

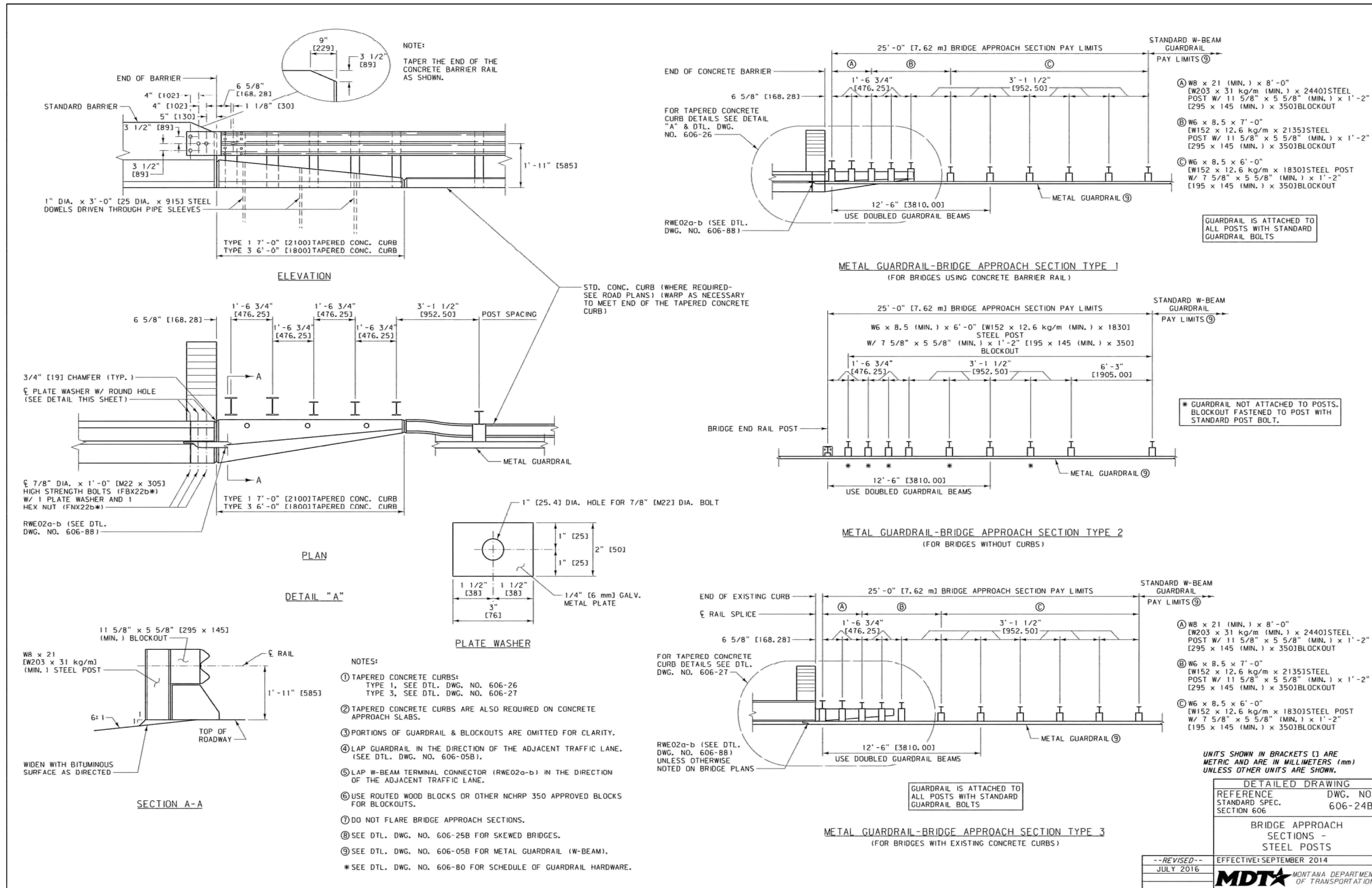
POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

MDT STANDARD DETAILS

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 14 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				

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DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 606	DWG. NO. 606-24B
BRIDGE APPROACH SECTIONS - STEEL POSTS	
EFFECTIVE: SEPTEMBER 2014	

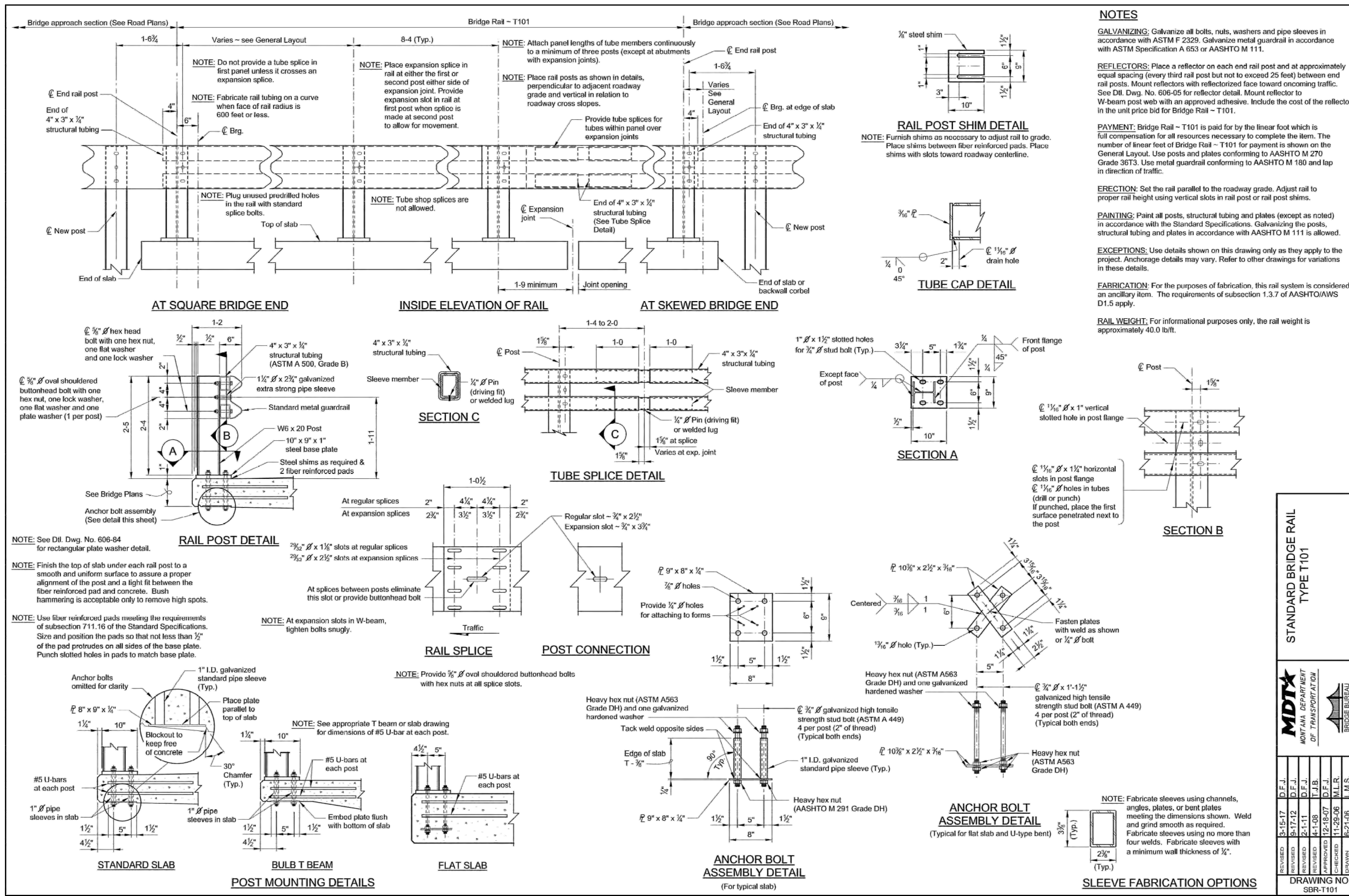


POORMAN CREEK CULVERT REPLACEMENT
ROAD NO. 601 - M.P. 5.8

MDT STANDARD DETAILS

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 15 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				

F:\1-17131-Poorman Creek Culvert Replacement\CADD\1-17131-Sheets\1-17131-MDT Details.dwg



STANDARD BRIDGE RAIL TYPE T101
 No Scale

MDTA
 MONTANA DEPARTMENT OF TRANSPORTATION
 BRIDGE BUREAU

REVISED	DATE	BY	REVISION
3-15-17	D.F.J.		
3-17-12	D.F.J.		
2-1-11	D.F.J.		
4-1-08	T.J.B.		
12-12-07	D.F.J.		
11-28-06	M.L.R.		
6-21-06	L.M.S.		

STATES 3 TIMES

DRAWING NO. SBR-T101

PREPARED BY:

GreatWest engineering®
 2501 BELT VIEW DRIVE
 HELENA, MT 59601
 (406)449-8627

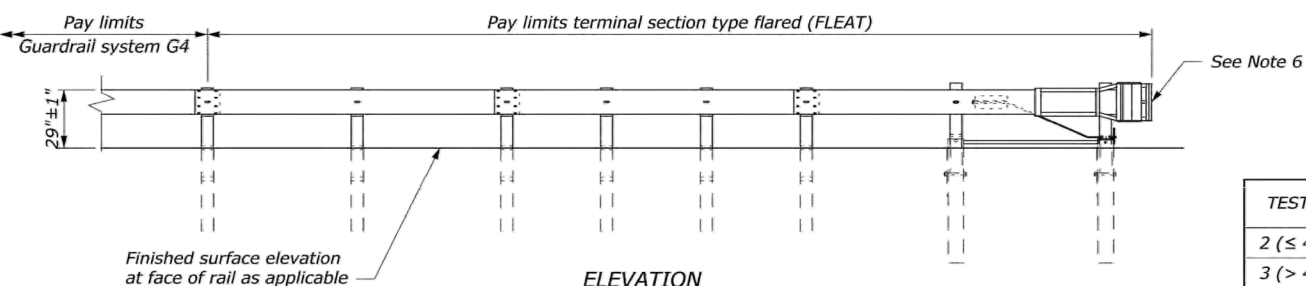
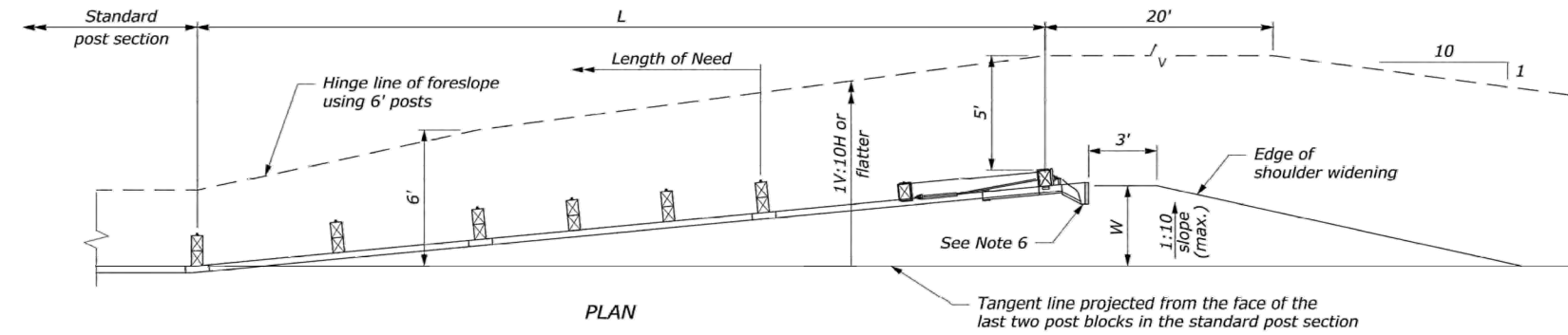
POORMAN CREEK CULVERT REPLACEMENT
ROAD NO. 601 - M.P. 5.8

MDT STANDARD DETAILS

PROJECT:	DATE:	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO.
1-17131	MAY 23, 2019					16 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT					
DRAWN: KSS	DRAWING CHECKED: JJT					

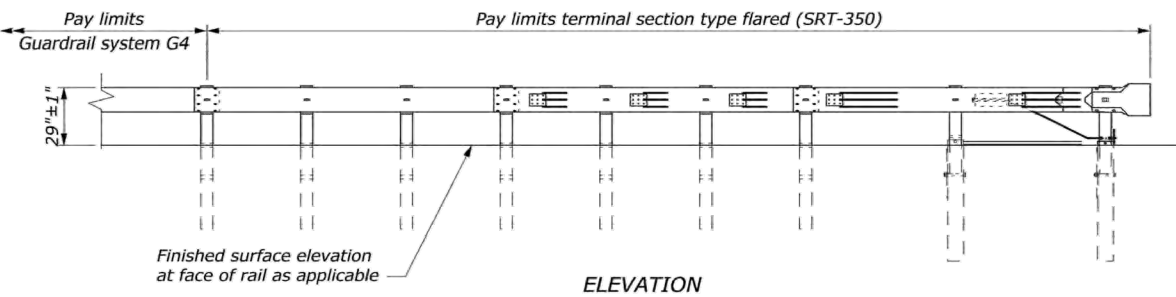
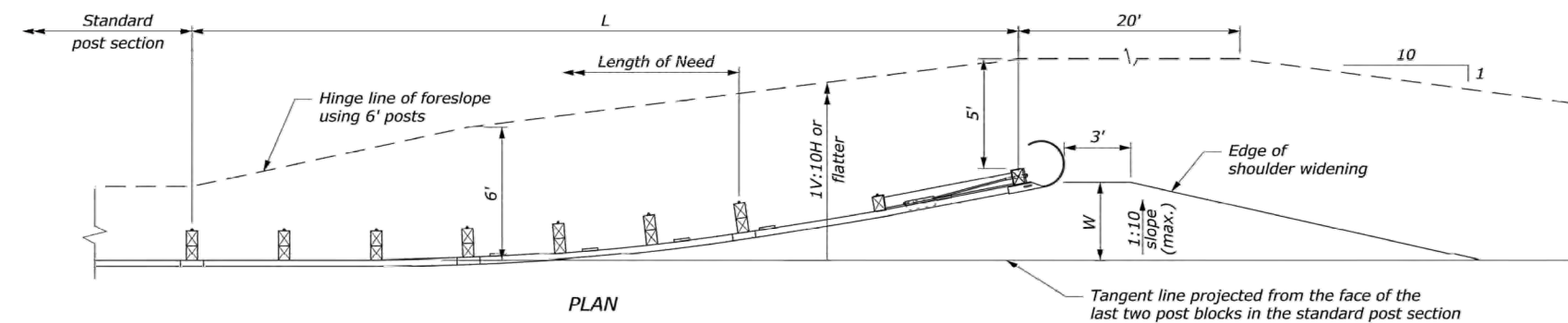
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STATE	PROJECT	SHEET NUMBER



TEST LEVEL	L (ft)	W (ft)
2 (≤ 45 mph)	25.0	1.67-2.67
3 (> 45 mph)	37.5	2.5-4.0

STRAIGHT FLARED OPTION



TEST LEVEL	L (ft)	W (ft)
3 (> 45 mph)	37.5	3.0 or 4.0

PARABOLIC FLARED OPTION

- NOTE:**
1. Use details shown as a general guide since manufacturer's details vary. Install a flared G4 W-beam guardrail terminal that meets NCHRP-350 or MASH requirements per manufacturer's recommendations. Ensure that terminal meets appropriate test level for the project.
 2. When placing terminal on a curve and post offsets would result in the rail encroaching onto the shoulder (e.g., the inside of a curve), install the posts so that the face of the rail is at the edge of the shoulder.
 3. Pave widened shoulder on both ends of guardrail runs when indicated on the plans.
 4. See manufacturer's drawings for other details.
 5. Construction of widening for terminal installation is incidental to the terminal.
 6. A flat attenuator terminal head is shown. A rounded W-beam rail end section may be used.
 7. Install a reflectorized object marker according to the manufacturer's recommendations.

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

**G4 W-BEAM GUARDRAIL
 TYPE FLARED TERMINAL**

STANDARD APPROVED FOR USE 6/2005

REVISOR: DRAFT: 3/2016

STANDARD 617-19

NO SCALE

PREPARED BY:




2501 BELT VIEW DRIVE
 HELENA, MT 59601
 (406)449-8627

POORMAN CREEK CULVERT REPLACEMENT

ROAD NO. 601 - M.P. 5.8

USDOT STANDARD DETAILS

PROJECT: 1-17131	DATE: MAY 23, 2019	NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO. 17 OF 17
DESIGNED: RLH	DESIGN CHECKED: JJT	△				
DRAWN: KSS	DRAWING CHECKED: JJT	△				

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