CONTRACT PLANS BUREAU
MONTANA DEPARTMENT OF TRANSPORTATION

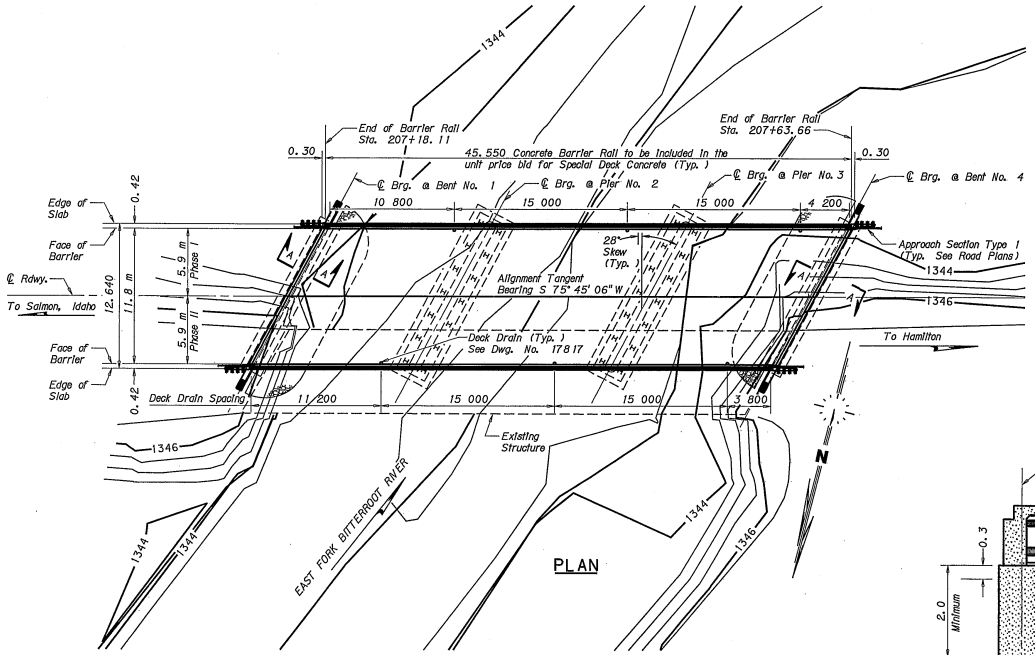
As-Built Drawings

The following are as-built drawings for the structures. MDT provides them for informational purposes only. They do not include drawings for modifications to the structures, such as joint replacements and guardrail revisions and may not completely represent current conditions. Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project. The contractor should not rely solely on the as-built drawings provided for bidding purposes nor does any data in these files supersede the data in the contract documents.

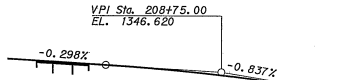
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(58)9 F	B3

SULA - NORTH & SOUTH

BRIDGE BUREAU

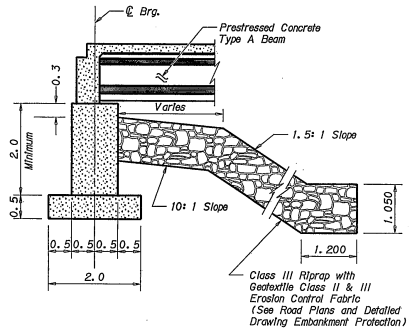


PLAN



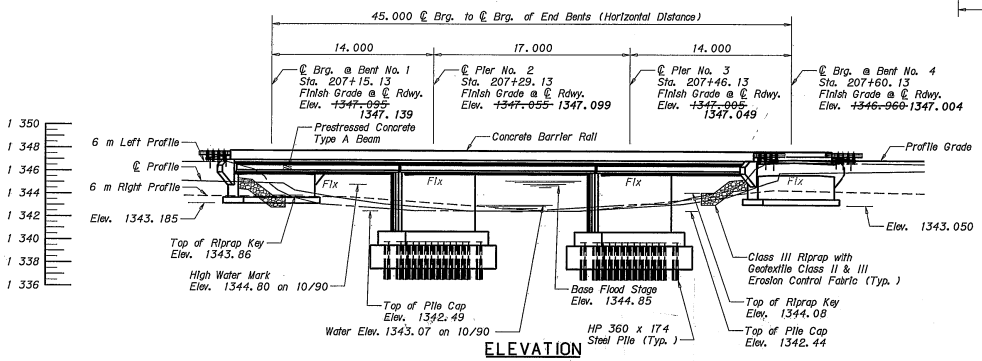
PROFILE GRADE

No Scale



SECTION A-A

Scale ~ 1:50



ELEVATION

STREAM DATA

Drift:	Moderate
Scour:	Moderate
Ice:	Moderate
Drainage Area:	767 sq. km
Base Flood Flow (Q100 yr.):	115.7 m³/sec
* Base Flood Stage:	1344.85
Base Flood Velocity:	3.86 mps
Low Beam Elevation:	1345.61
Q2 Flood Flow:	43.6 m³/sec
Q2 Flood Stage:	1344.23

Also see Hydraulic Data Summary sheet.

* Base Flood Stage elevation includes backwater

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270M Grade 250. Estimated amount = 1 758 kg.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of ASTM Specification A 615/A 615M-96a Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Except as noted on Dwg. No. 17782 and 17783 use Class DD for all substructure concrete and Class Special Deck for all superstructure and barrier concrete unless otherwise approved.

EPOXY RESIN BONDING AGENT: Thoroughly coat all Phase I concrete in contact with Phase II concrete with an epoxy bonding agent (AASHTO M 235-91 Type V) immediately prior to placing Phase II concrete. Include all costs associated with providing and applying the epoxy bonding agent in the unit price bid for Concrete - Class DD and Concrete - Class Special Deck.

CONCRETE STRENGTH: For structural design purposes only, f'c for Class DD concrete = 21 MPa ; f'c for Class Special Deck concrete = 31 MPa. For Special Deck mix design requirements see Special Provisions.

STRUCTURE EXCAVATION: Include Structure Excavation Type I in the unit price bid for Class DD Concrete.

SEAL DEPTH: Seal depth has been sized to resist hydrostatic uplift forces produced by a water surface elevation of 1344.23 if higher elevations are encountered, consult the Engineer for any modifications required to the seal.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: For location of utilities, see the appropriate Road Plans sheet.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

FORSGREN ASSOCIATES / INC.

MONTANA — BRENT H. SCHILLER — No. 13573 PE — LICENSED PROFESSIONAL ENGINEER

DESIGNED	B. H. S.	11/99
DRAWN	G. T.	11/99
CHECKED	J. W.	02/00
APPROVED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE #1

OVER EAST FORK BITTERROOT RIVER

STA. 207+37.63

F. A. P. NO. NH 7-1(58)9F

RAVALLI COUNTY

GENERAL LAYOUT

Scale ~ 1:200 except as noted

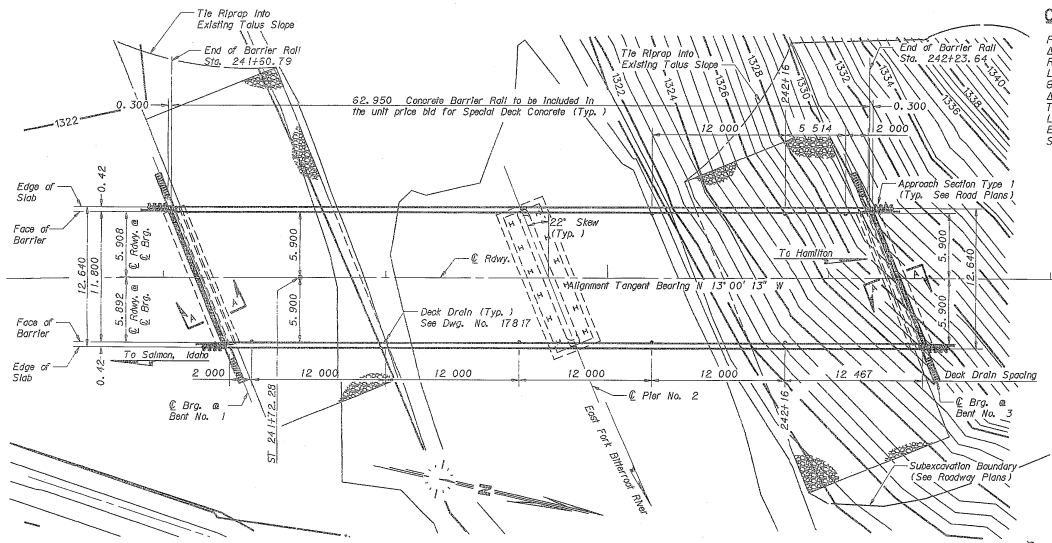
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STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(58)9F	B13

SULA - NORTH & SOUTH

BRIDGE BUREAU



CURVE A DATA

PI = 240+17.31
Δ = 72° 53' 41" (RT)
Rc = 235 m
Ls = 60.00 m
θs = 7° 18' 52"
Δc = 58° 15' 57" (RT)
Ts = 204.01 m
Lc = 238.98
Es = 57.94 m
S = 8%

CURVE B DATA

PI = 243+31.98
Δ = 15° 56' 09" (LT)
Rc = 375 m
Ls = 55.00 m
θs = 4° 12' 06"
Δc = 7° 31' 57" (LT)
Ts = 80.03 m
Lc = 49.30
Es = 3.99 m
S = 7%

Profile Grade = Finish Grade @ ℄ Rdwy.
Sta. 241+12.28
8% Superelevation RT
(ahead on line)

Profile Grade = Finish Grade @ ℄ Rdwy.
Sta. 243+06.95
7% Superelevation LT
(ahead on line)

Transition from Curve A to Curve B is a continuous rotating plane from 8% RT to 7% LT at the above noted stations.

SUPERELEVATION TRANSITION

No Scale

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270M Grade 250. Estimated amount = 1 554 kg.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of ASTM Specification A 615/A 615M-96a Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Except as noted on Dwg. No. 17791 use Class DD for all substructure concrete and Class Special Deck for all superstructure and barrier concrete unless otherwise approved.

CONCRETE STRENGTH: For structural design purposes only, f'c for Class DD concrete = 27.1 MPa; f'c for Class Special Deck concrete = 31 MPa. For Special Deck mix design requirements see Special Provisions.

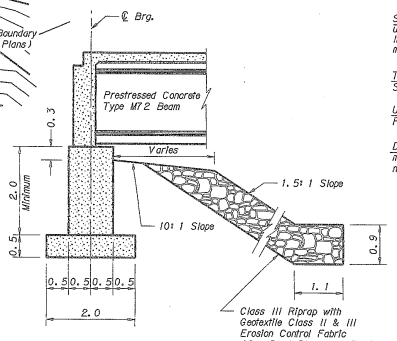
STRUCTURE EXCAVATION: Include Structure Excavation Type I in the unit price bid for Class DD Concrete.

SEAL DEPTH: Seal depth has been sized to resist hydrostatic uplift forces produced by a water surface elevation of 1 322.28 If higher elevations are encountered, consult the Engineer for any modifications required to the seal.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

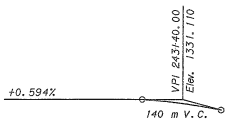
UTILITIES: For location of utilities, see the appropriate Road Plans sheet.

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.



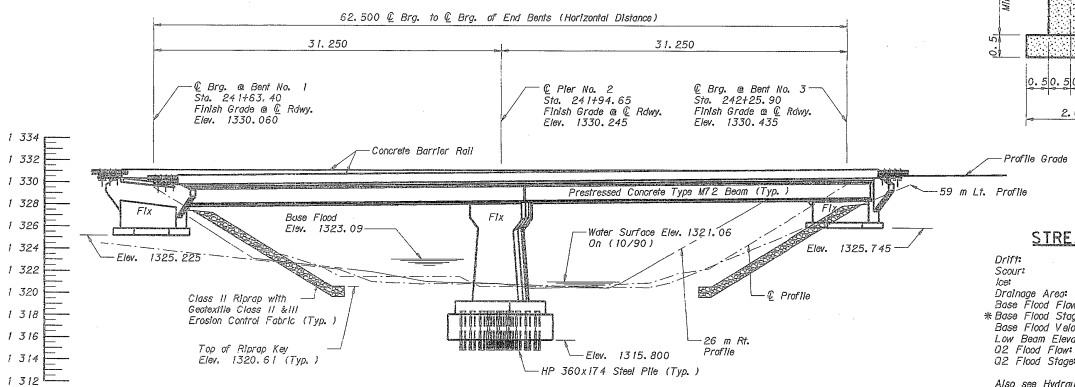
SECTION A-A

Scale ~ 1:50



PROFILE GRADE

No Scale



ELEVATION

STREAM DATA

Drift:	Moderate
Scour:	Moderate
Ice:	Moderate
Drainage Area:	793 sq. km
Base Flood Flow (Q100 yr.):	118.8 m³/sec
* Base Flood Stage:	1323.09 m
Base Flood Velocity:	3.17 mps
Low Beam Elevation:	1327.80 m
02 Flood Flow:	45.0 m³/sec
02 Flood Stage:	1322.28

Also see Hydraulic Data Summary sheet.
*Base Flood Stage elevation includes backwater

FORSGREN ASSOCIATES / INC.

MONTANA DEPARTMENT OF TRANSPORTATION

BRENT H. SCHILLER No. 13673 PE LICENSED PROFESSIONAL ENGINEER

DESIGNED	B. H. S.	11/99
DRAWN	J. C. C.	11/99
CHECKED	J. W.	02/00
APPROVED		
REVISED		
REVISED		

BRIDGE #2
OVER EAST FORK BITTERROOT RIVER
STA. 241+94.65
F. A. P. NO. NH 7-1(58)9F
RAVALLI COUNTY
GENERAL LAYOUT

Scale ~ 1:200 except as noted

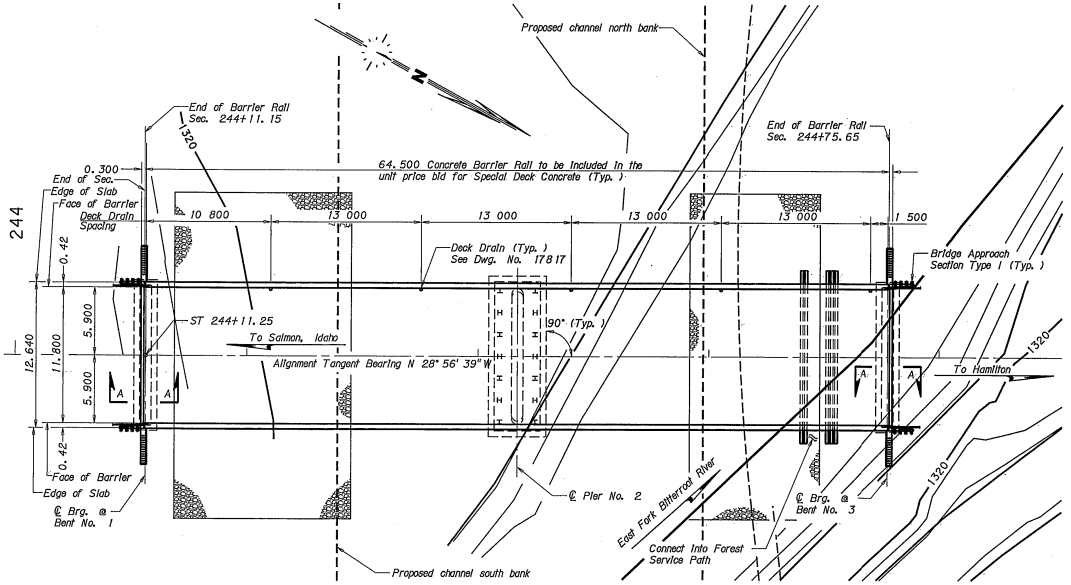
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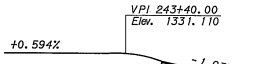
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(58)9 F	B23

SULA ~ NORTH & SOUTH

BRIDGE BUREAU



PLAN



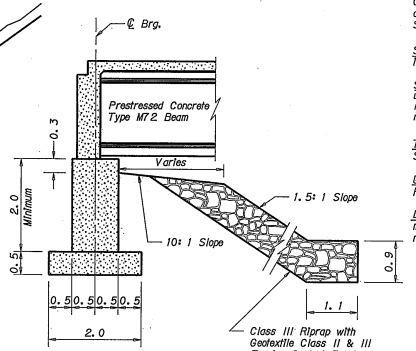
PROFILE GRADE

No Scale



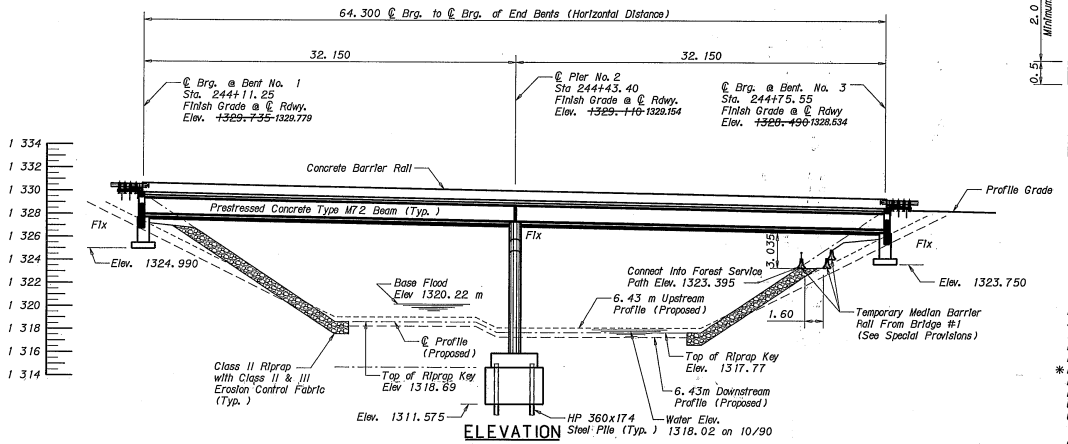
SUPERELEVATION

No Scale



SECTION A-A

Scale ~ 1:50



ELEVATION

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270M Grade 250. Estimated amount = 1 917 kg.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of ASTM Specification A 615/A 615M-96a Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Except as noted on Dwg. No. 17801 use Class DD for all substructure concrete and Class Special Deck for all superstructure and barrier concrete unless otherwise approved.

CONCRETE STRENGTH: For structural design purposes only, f'c for Class "DD" concrete = 21 MPa ; f'c for Class "Special Deck" concrete = 31 MPa. For "Special Deck" mix design requirements see Special Provisions.

STRUCTURE EXCAVATION: Include Structure Excavation Type I in the unit price bid for Class DD Concrete.

SEAL DEPTH: Seal depth has been sized to resist hydrostatic uplift forces produced by a water surface elevation of 1 319.57 if higher elevations are encountered, consult the Engineer for any modifications required to the seal.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: For location of utilities, see the appropriate Road Plans sheet.

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

STREAM DATA

Drift:	Moderate
Scour:	Moderate
Ice:	Moderate
Drainage Area:	793 sq. km
Base Flood Flow (Q100 yr.):	118.8 m³/sec
*Base Flood Stage:	1320.22 m
Base Flood Velocity:	3.38 m/s
Low Beam Elevation:	1326.32 m
Q2 Flood Flow:	45.0 m³/sec
Q2 Flood Stage:	1319.57

Also see Hydraulic Data Summary sheet.
*Base Flood Stage elevation includes backwater

FORSGREN ASSOCIATES / INC.

MONTANA BRENT H. SCHILLER No. 13573 PE LICENSED PROFESSIONAL ENGINEER

DESIGNED	B. H. S.	10/99
DRAWN	J. C. C.	11/99
CHECKED	J. W.	02/00
APPROVED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE #3

OVER EAST FORK BITTERROOT RIVER

STA. 244+43.40

F. A. P. NO. NH 7-1(58)9 F

RAVALLI COUNTY

GENERAL LAYOUT

Scale ~ 1:200 except as noted

FILENAME: ~~120501.5.DNG~~ 12SBRGEN003AB.DGN

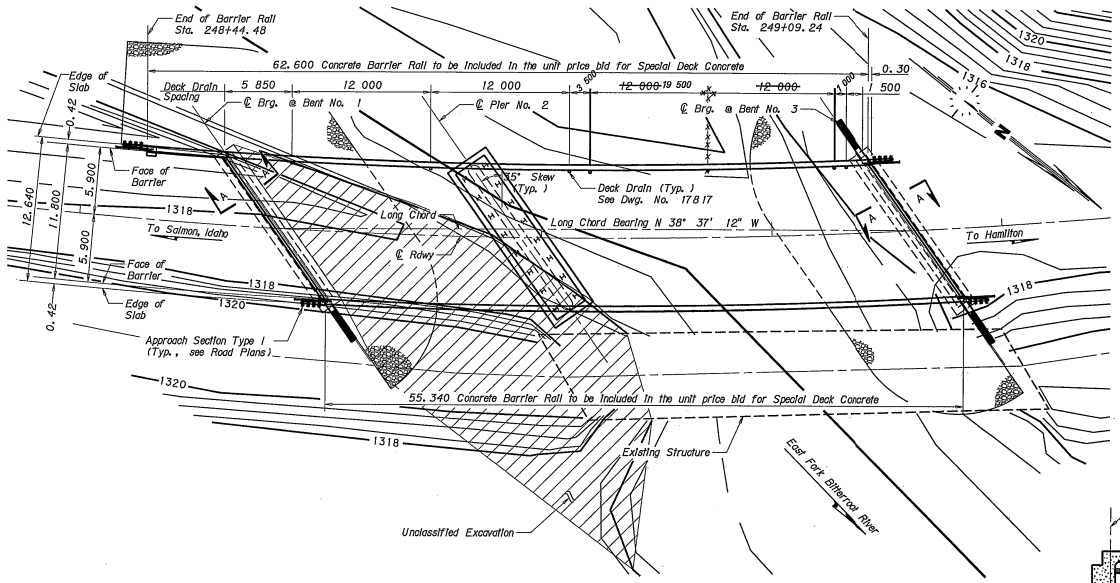
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STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(58)9F	B31

SULA - NORTH & SOUTH

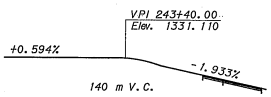
BRIDGE BUREAU



PLAN

CURVE DATA

PI = 249+24.63
Δ = 28° 00' 09" (LT)
Rc = 495 m
Ls = 70.00 m
θs = 4° 03' 04"
Δc = 19° 54' 01" (LT)
Ts = 158.53 m
Lc = 171.92 m
Es = 15.58 m
S = 8%



PROFILE GRADE
No Scale

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is 0.216 meters above the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270M Grade 250. Estimated amount = 1 343 kg.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of ASTM Specification A 615/A 615M-96a Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Except as noted on Dwg. No. 17810 use Class DD for all substructure concrete and Class Special Deck for all superstructure and barrier concrete unless otherwise approved.

CONCRETE STRENGTH: For structural design purposes only, f'c for Class DD concrete = 21 MPa ; f'c for Class Special Deck concrete = 31 MPa. For Special Deck mix design requirements see Special Provisions.

STRUCTURE EXCAVATION: Include Structure Excavation Type I in the unit price bid for Class DD Concrete.

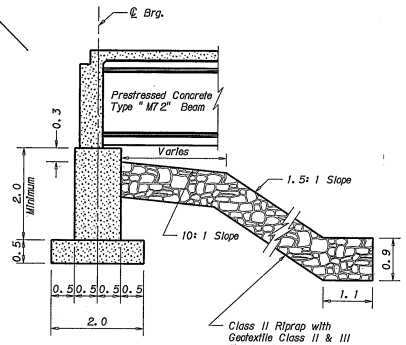
SEAL DEPTH: Seal depth has been sized to resist hydrostatic uplift forces produced by a water surface elevation of 1316.190 If higher elevations are encountered, consult the Engineer for any modifications required to the seal.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

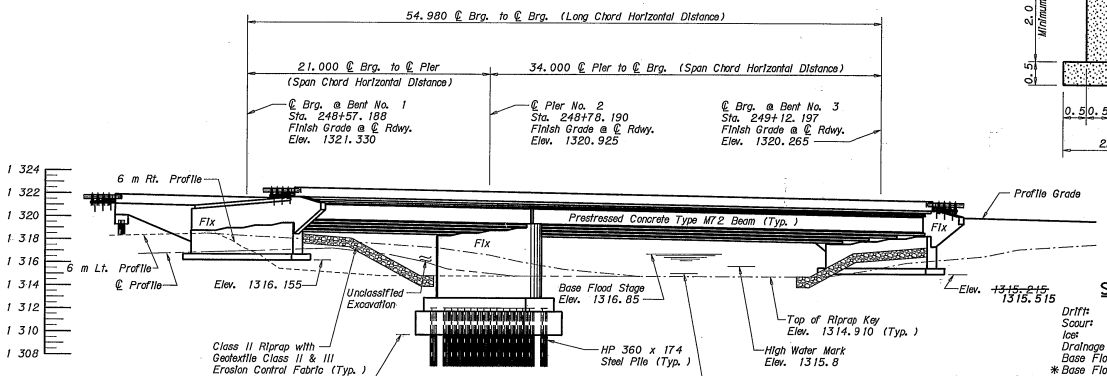
UTILITIES: For location of utilities, see the appropriate Road Plans sheet.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.



SECTION A-A
Scale ~ 1:50



ELEVATION

STREAM DATA

Drift:	Moderate
Scour:	Moderate
Ice:	Moderate
Drainage Area:	793 sq. km
Base Flood Flow (Q100 yr.):	118.9 m³/sec
* Base Flood Stage:	1316.85 m
Base Flood Velocity:	2.44 mps
Low Beam Elevation:	1317.82 m
Q2 Flood Flow:	45.0 m³/sec
Q2 Flood Stage:	1316.19

Also see Hydraulic Data Summary sheet.
* Base Flood Stage elevation includes backwater.

FORSGREN ASSOCIATES / INC.

MONTANA — BRENT H. SCHILLER No. 13573 PE — LICENSED PROFESSIONAL ENGINEER

DESIGNED	B. H. S.	11/99
DRAWN	J. C. C.	11/99
CHECKED	J. W.	02/00
APPROVED		
REVISED		
REVISED		

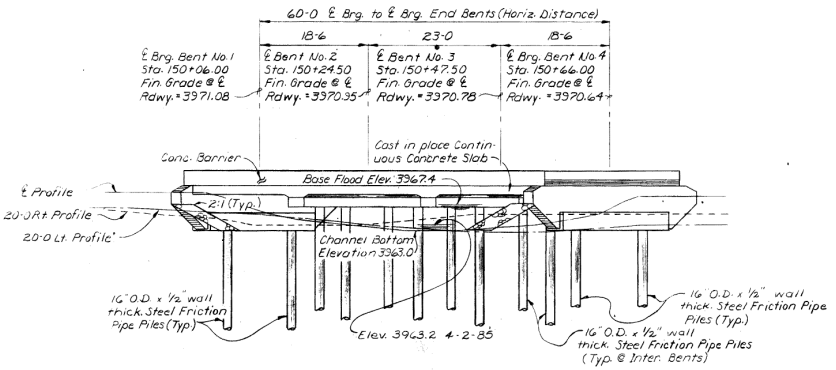
MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE #4
OVER EAST FORK BITTERROOT RIVER
STA. 248+84.69
F. A. P. NO. NH 7-1(58)9F
RAVALLI COUNTY
GENERAL LAYOUT
Scale ~ 1:200 except as noted

FILENAME: ~~1285GLY.DAS~~ 1285BRGEN004AB.DGN
DRAWING NO. 17805

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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	RTF-BRF 7-1(36)23	B2	



ELEVATION

STREAM DATA

Drift: Medium
Scour: Light
Ice: Severe
Drainage Area: 61.3 Sq. Miles
Base Flood Stage: 3967.4
Base Flood Flow (100 yr.): 636 C.F.S.
Base Flood Velocity: 4.8 F.P.S.
Also See Hydraulic Data Summary Sheet

NOTES

Specifications: Montana Department of Highways and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1987 Edition and any amendments thereto and Special Provisions ~~shall~~ govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. specifications, 1983 Edition and any amendments thereto.

Live Load: Standard HS 20-44 loading.

Structural Steel: All structural steel ~~shall be~~ measured and paid for on the Lump Sum Basis as set forth in the Standard Specifications.
Estimated Weight: 681

Reinforcing Steel: All reinforcing steel ~~shall be~~ of the deformed type and ~~shall~~ meets the requirements of A.S.T.M. Specification A615 Grade 60 (A.A.S.H.T.O. M-31).

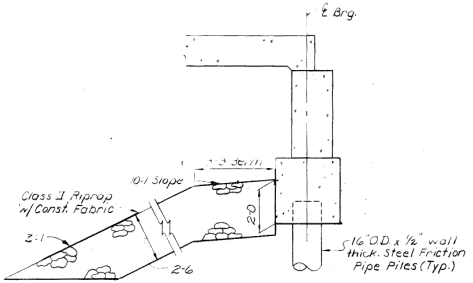
Cast in Place Concrete: Unless otherwise approved all concrete in the slab and barrier ~~shall be~~ Class "BD" modified and all other concrete ~~shall be~~ Class "AD".

Finished Grade: Finished grade @ ℄ bridge is same as profile grade shown on Road Plans.

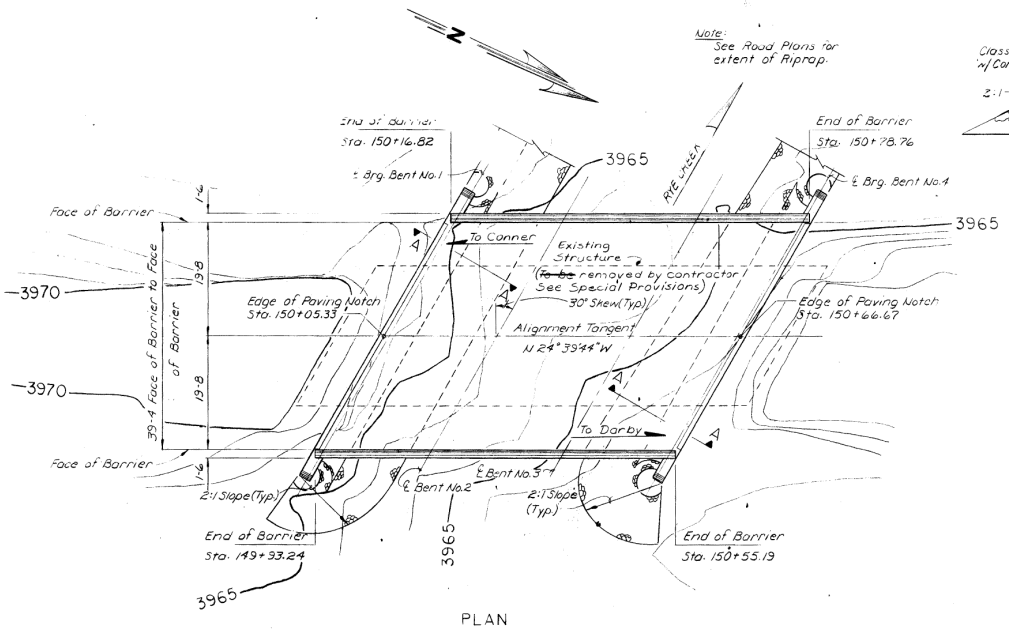
Structure Excavation: Structure excavation at the end bents ~~shall be~~ calculated from the berm elevation.

Traffic Control Plan & Sequence of Operations: See "Special Provisions"

Utilities: For location of utilities see appropriate Road Plans sheet.

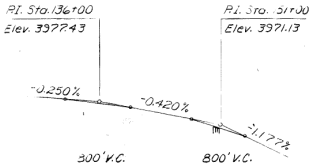


SECTION A-A
Scale: 3/8" = 1'-0



PLAN

Note: Deck treatment was dictated based silane deck treatment.



PROFILE GRADE
No Scale

Class of Concrete	Minimum Reqd. Cylinder Strength to Achieve a 1.0 Pay Factor	Strength For Design Purposes
"AD"	3400 p.s.i.	3000 p.s.i.
"BD Modified"	3900 p.s.i.,	3500 p.s.i.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER RYE CREEK
AT STA. 150+36.00
FEDERAL AID PROJECT NO. RTF-BRF 7-1(36)23
RAVALLI COUNTY
GENERAL LAYOUT

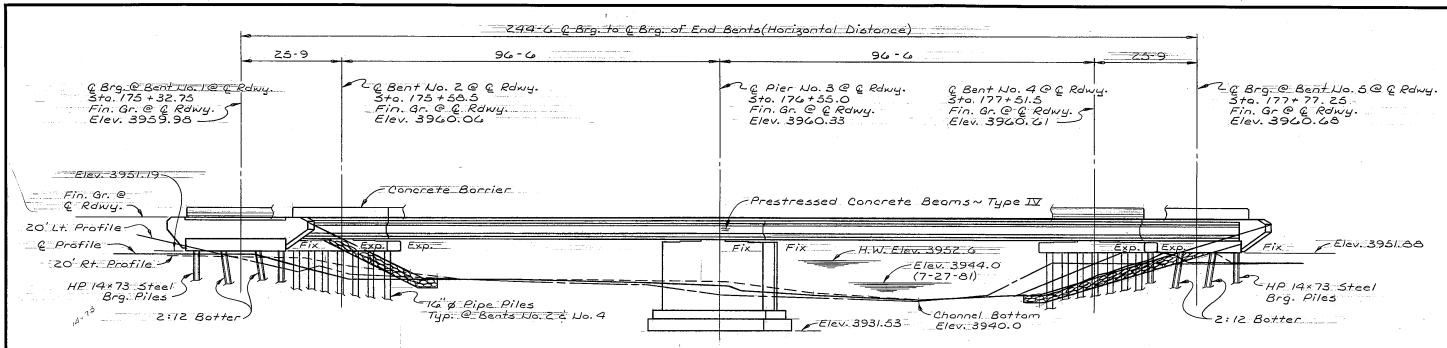
DESIGNED	11-17-84	M.L.R.
DRAWN	12-18-86	T.G.S.
CHECKED	11-4-88	C.O.F.
APPROVED	6-1-89	J.C.H.
REVISED		
REVISED		

Scale: 1" = 10'-0 Except as noted DRAWING NO. 14369

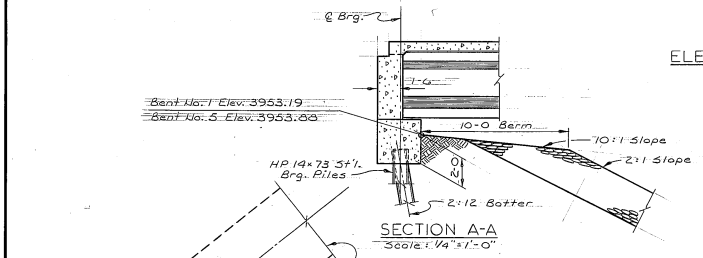
1-5-91 12-3-91

K+E HERCULENE

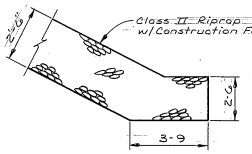
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	BRF 7-1(26)26	82



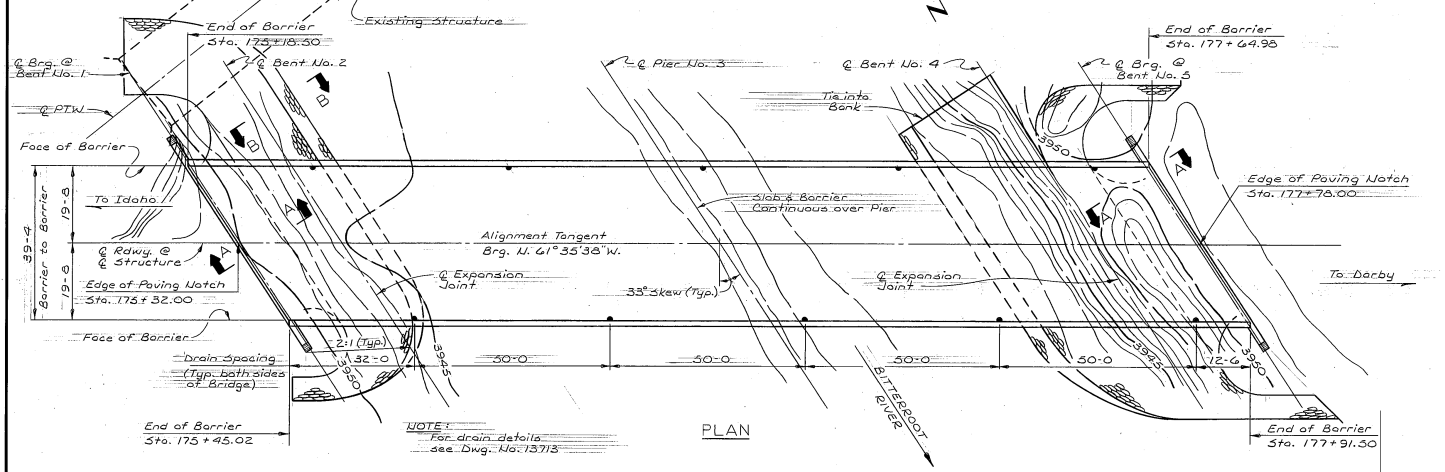
ELEVATION



SECTION A-A
Scale: 1/4"=1'-0"



SECTION B-B
Scale: 3/8"=1'-0"



NOTE: For drain details see Dwg. No. 13713

PLAN

Class of Concrete	*Minimum Req'd. Cylinder Strength to Achieve a 1.0 Pay Factor	Strength For Design Purposes
AD	3400 p.s.i.	3000 p.s.i.
BD Modified	3900 p.s.i.	3500 p.s.i.

*See Supplemental Specifications Article 90.06(c)



PROFILE GRADE
No Scale

NOTES

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Highways & the Montana Highway Commission Standard Specifications for Road & Bridge Construction, 1981 Edition & any amendments thereto, & "Special Provisions" shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1983 Edition, & any amendments thereto.

STRUCTURAL STEEL: All Structural Steel shall be measured & paid for on the Lump Sum basis as set forth in the Standard Specifications. Estimated Weight = 2333 lbs.

REINFORCING STEEL: All Reinforcing Steel shall be of the deformed type & shall meet the requirements of A.S.T.M. Specification A615 Grade 60 (A.A.S.H.T.O. M-31) except the Reinforcing Steel in the prestressed beams which may be Grade 40.

EPOXY COATED REINFORCING STEEL: For the requirements of Epoxy Coated Reinforcing Steel, see "Special Provisions".

CAST IN PLACE CONCRETE: Unless otherwise noted all Concrete in the Slab & Concrete Barriers shall be Class "BD" Modified, & all other Concrete shall be Class "AD".

STRUCTURE EXCAVATION: Structure Excavation for Bents No. 1 & No. 5 shall be calculated from berm elevations. Structure Excavation for Pier No. 3 shall be calculated from natural ground lines as they exist before construction commences in the vicinity of the structure.

FINISHED GRADE: Finished Grade of Bridge @ ℄ Rdwy. is the same as the Profile Grade shown on the Road Plans.

UTILITIES: For location of Utilities, see the appropriate Road Plans Sheets.

TRAFFIC CONTROL PLAN & SEQUENCE OF OPERATIONS: See "Special Provisions".

STREAM DATA

(Also see Hydraulic Data Summary Sheet)

DRIFT: Medium
SCOUR: Moderate
ICE: Moderate
DRAINAGE AREA: 1049 Sq. Mi.
BASE FLOOD FLOW: 19100 c.f.s.
BASE FLOOD STAGE: 3952.6 ft.
BASE FLOOD VELOCITY: 9.4 ft/sec.

NOTE: The Contractor shall remove the existing Structure. (See "Special Provisions".)

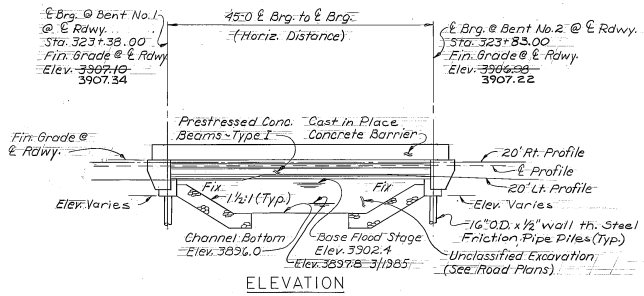
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER BITTERROOT RIVER
AT STA 176+55.00
FEDERAL AID PROJECT NO. BRF 7-1(26)26
RAVALLI COUNTY
GENERAL LAYOUT

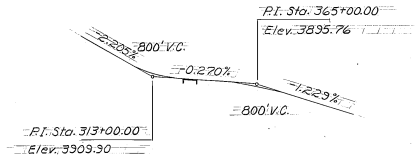
Scale: 1"=15'-0" (Except as Noted)
DRAWING NO. 73707

DESIGNED	8-6-84	RWM
DRAWN	12-21-84	ROH
CHECKED	8-8-85	CRH
APPROVED	3-24-86	NHR
REVISED		
REVISED		

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	RTF-BRF 7-1(36)23	87



ELEVATION



PROFILE GRADE

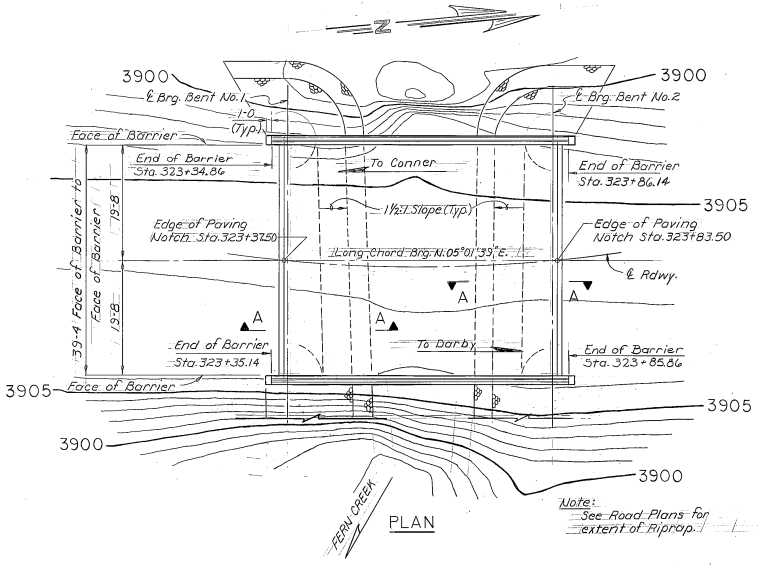
No Scale

STREAM DATA

DRIFT: Heavy
SCOUR: Medium
ICE: Medium
DRAINAGE AREA: 1.1 sq. mi.
BASE FLOOD FLOW: (100 yr.) 685 c.f.s.
BASE FLOOD STAGE: 3902.4 ft.
BASE FLOOD VELOCITY: 7.8 f.p.s.
(Also see Hydraulic Data Summary sheet)

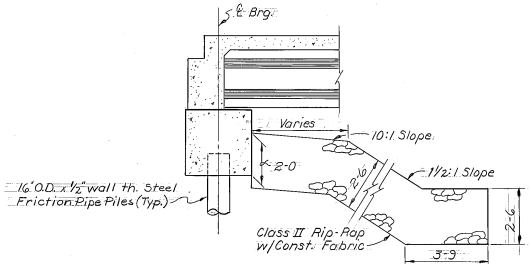
CURVE DATA

P.I. Sta. 334+44.4
Δ = 71° 07' 19" Lt.
Δ_c = 67° 57' 19"
D_c = 1° 35'
R = 3618.7'
L_s = 200.0'
T_s = 2687.3
L_c = 4291.9
E_s = 830.2'
θ = 1° 35'
S = 0.04 1/1



PLAN

Note: See Road Plans for extent of Riprap.



SECTION A-A

Scale: 3/8" = 1'-0"

NOTE: TREAT DECK WITH A WATER BASED SILANE DECK TREATMENT

NOTES

Live Load: Standard HS 20-44 loading.

Specifications: Montana Department of Highways and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1987 Edition and any amendments thereto and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1983 Edition and any amendments thereto.

Structural Steel: All Structural Steel shall be measured and paid for on the Lump Sum Basis as set forth in the Standard Specifications. Estimated Weight = 595 lbs.

Reinforcing Steel: All Reinforcing Steel shall be of the deformed type and shall meet the requirements of A.S.T.M. Specifications A615, Grade 60 (A.A.S.H.T.O. M-31).

Cast in Place Concrete: Unless otherwise approved, all concrete in the slab and barrier shall be Class "BD Modified" and all other concrete shall be Class "AD".

Finished Grade: Finished Grade @ ℄ Bridge is 0.24' higher than profile grade shown on Road Plans.

Utilities: For location of Utilities, see the appropriate Road Plans sheet.

Traffic Control Plan & Sequence of Operation: See Special Provisions.

Structure Excavation: Structure Excavation for Bents No. 1 & No. 2 shall be computed from berm elevation.

Class of Concrete	Minimum Req'd. Cylinder Strength to Achieve a 1.0 Pay Factor	Strength For Design Purposes
"AD"	3400 p.s.i.	3000 p.s.i.
"BD Modified"	3900 p.s.i.	3500 p.s.i.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

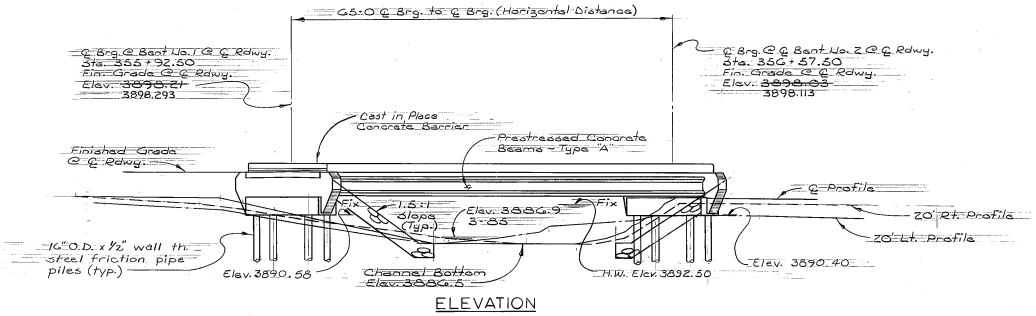
BRIDGE OVER FERN CREEK
AT STA. 323+60.50
FEDERAL AID PROJECT NO. RTF-BRF 7-1(36)23
RAVALLI COUNTY
GENERAL LAYOUT

DESIGNED	1-31-86	M.L.R.
DRAWN	1-2-87	T.G.S.
CHECKED	11-16-88	K.F.M.
APPROVED	6-1-89	J.C.H.
REVISED		
REVISED		

Scale: 1" = 10'-0" Except as noted DRAWING NO. 14374

AS BUILT 5/19/92

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	RTF-BRF-7-1(36)23	8/1	

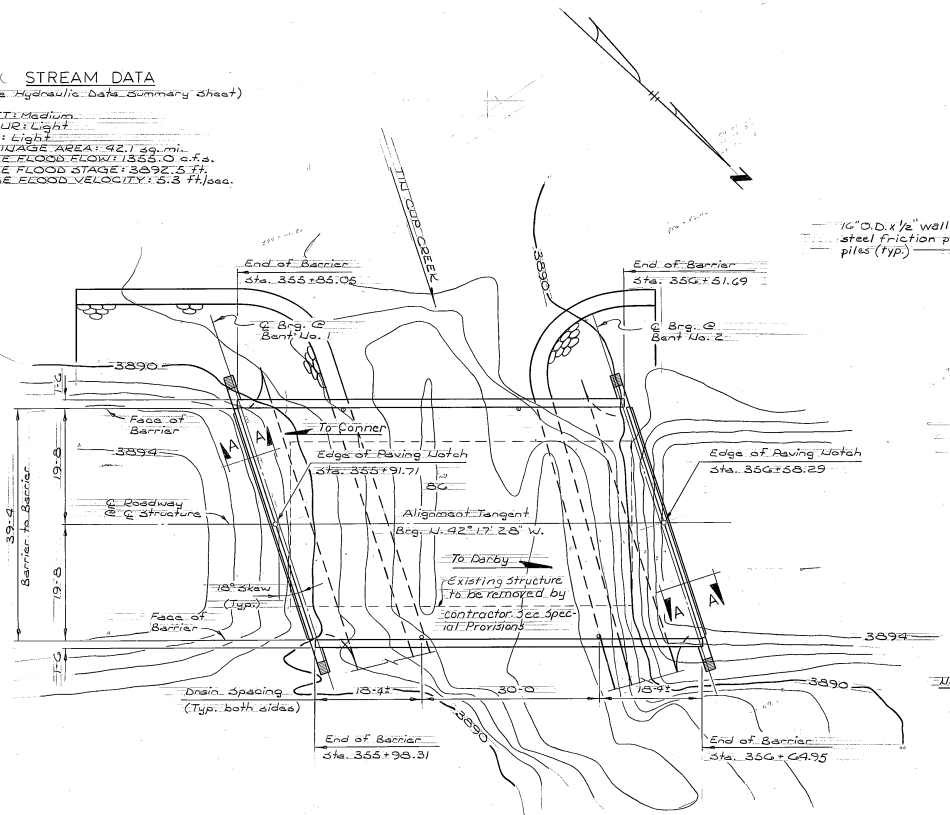


ELEVATION

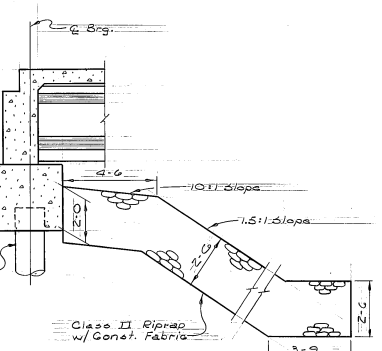
STREAM DATA

(Also see Hydraulic Data Summary Sheet)

DRIFT: Medium
SCOUR: Light
ICE: Light
DRAINAGE AREA: 92.1 sq. mi.
BASE FLOOD FLOW: 1355.0 c.f.s.
BASE FLOOD STAGE: 3892.5 ft.
BASE FLOOD VELOCITY: 5.8 ft./sec.



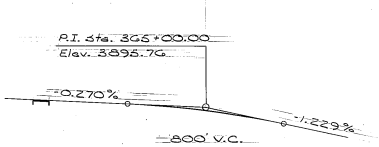
PLAN



SECTION A-A

Scale - 3/8"=1'-0"

NOTE: NO BRIDGE DECK SILANE TREATMENT APPLIED TO THIS DECK



PROFILE GRADE

No Scale

Note: For drain details see Dwg. No. 14379.

NOTES

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Highways & the Montana Highway Commission Standard Specifications for Road & Bridge Construction, 1987 Edition & any amendments thereto & "Special Provisions" shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1983 Edition & any amendments thereto.

STRUCTURAL STEEL: All structural steel shall be measured & paid for on the lump sum basis as set forth in the Standard Specifications. Estimated Weight = 622 lbs.

REINFORCING STEEL: All reinforcing steel shall be of the deformed type & shall meet the requirements of A.S.T.M. Specifications A615 Grade 60 (A.A.S.H.T.O. M-31).

CAST-IN-PLACE CONCRETE: Unless otherwise noted all concrete in the slab & concrete barriers shall be Class "BD Modified" & all other concrete shall be Class "AD".

STRUCTURE EXCAVATION: Structure Excavation at the end bents shall be calculated from berm elevations.

FINISHED GRADE: Finished Grade of Bridge at ℄ Roadway is ~~the same as the profile grade shown on the Road Plans~~ .083' HIGHER THAN PROFILE GRADE SHOWN ON ROAD PLANS

UTILITIES: For location of Utilities see the appropriate Road Plans sheet.

TRAFFIC CONTROL PLAN & SEQUENCE OF OPERATIONS: See "Special Provisions".

Class of Concrete	Minimum Regd. Cylinder Strength to Achieve a 1.0 Rey Factor	Strength for Design Purposes
"AD"	3400 p.s.i.	3000 p.s.i.
BD Modified	3900 p.s.i.	3500 p.s.i.

DESIGNED	10-31-86	MLR
DRAWN	12-16-86	PDH
CHECKED	12-6-88	KEM
APPROVED	6-1-89	JCH
REVISED		
REVISED		

AS BUILT 5/19/92

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER TIN CUP CREEK

AT STA. 356+25.00

FEDERAL AID PROJECT NO. RTF-BRF 7-1(36)23

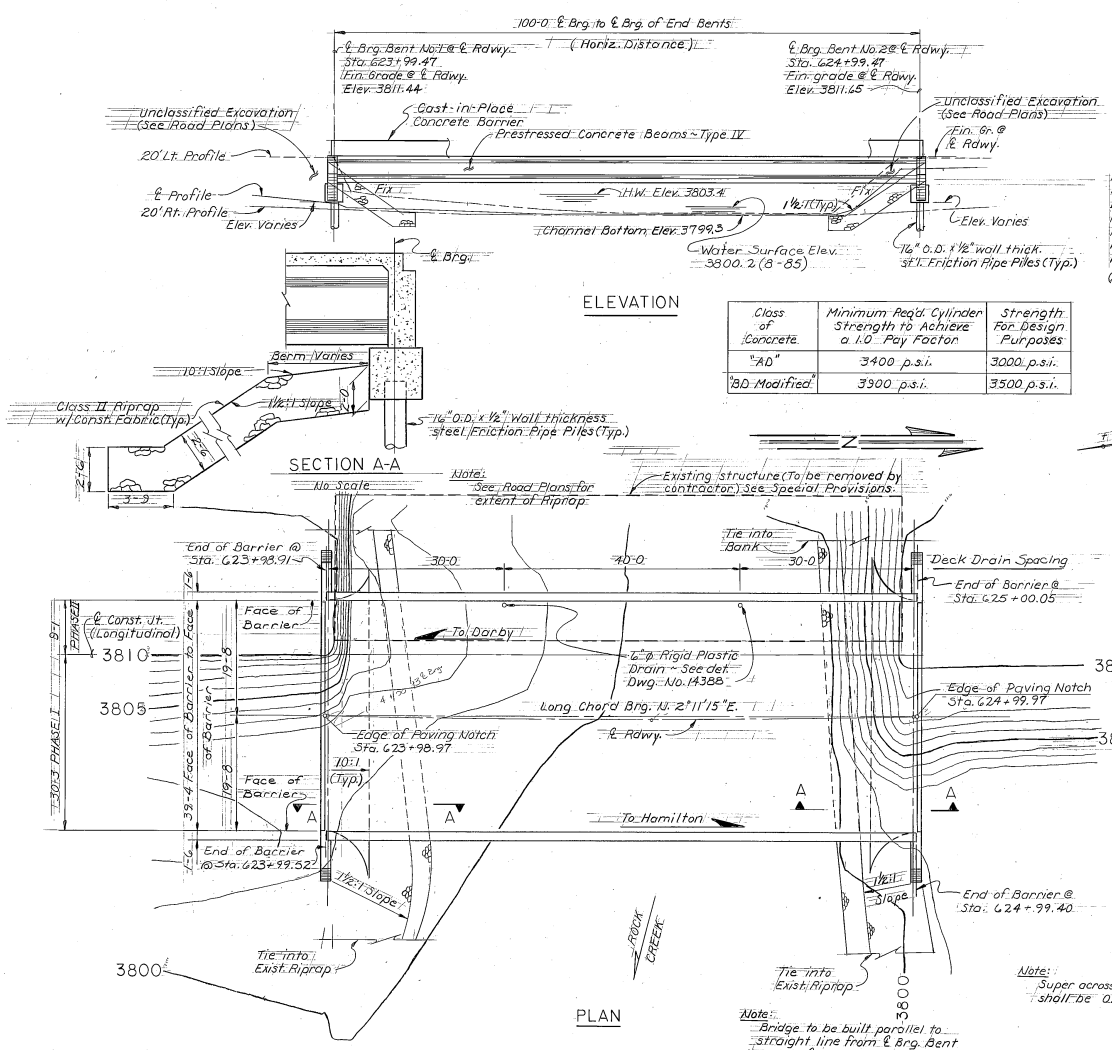
RAVALLI COUNTY

GENERAL LAYOUT

Scale - 1"=10'-0" (Except as noted)

DRAWING NO. 14378

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	RTF-BRF7-1(37)31	B-2



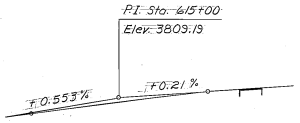
Class of Concrete	Minimum Req'd. Cylinder Strength to Achieve a 1.0 Pay Factor	Strength For Design Purposes
"AD"	3400 p.s.i.	3000 p.s.i.
"BD Modified"	3900 p.s.i.	3500 p.s.i.

CURVE DATA

$\Delta = 57°56'21"$ Lt
$\Delta_c = 54°05'11"$
$D_c = 1°55'35"$
$R = 2974.3'$
$L_c = 2807.7'$
$\Theta_s = 1°55'35"$
$L_s = 200'$
$S = .05'/'$

STREAM DATA

DRIFT: Medium
SCOUR: Medium
ICE: Medium
DRAINAGE AREA: 56.2 sq. mi.
BASE FLOOD FLOW: 17712 c.f.s.
BASE FLOOD STAGE: 3803.4 Ft.
BASE FLOOD VELOCITY: 5.9 f.p.s.
(Also see Hydraulic Data Summary sheet.)



PROFILE GRADE
No Scale

NOTES

Specifications: Montana Department of Highways and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1987 edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1983 edition and any amendments thereto.

Structural Steel: All Structural Steel shall be measured and paid for on the lump sum basis as set forth in the Standard Specifications.
Estimated Weight = 482 lbs. Phase I
113 lbs. Phase II

Reinforcing Steel: All Reinforcing Steel shall be of the deformed type and shall meet the requirements of the A.S.T.M. Specifications A615, Grade 60 (A.A.S.H.T.O. M-31).

Live Load: Standard HS20-44 loading.

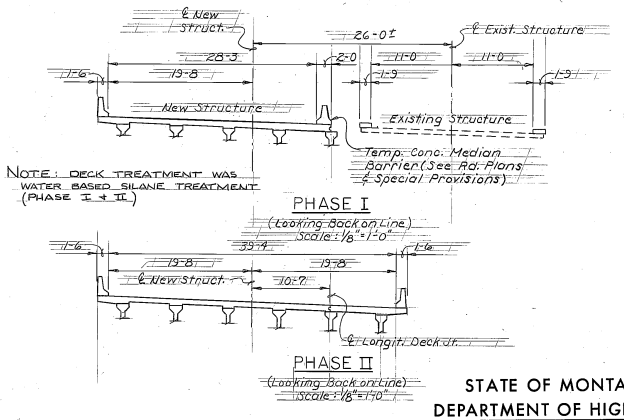
Structure Excavation: Structure Excavation for Bents No.1 and No.2 shall be calculated from berm elevation.

Cast in Place Concrete: Unless otherwise approved, all concrete in the slab and concrete barriers shall be Class "BD Modified," and all other concrete shall be Class "AD".

Finished Grade: Finished grade of bridge at ℄ roadway is 0.36' higher than profile grade shown on Road Plans.

Traffic Control Plan & Sequence of Operation: See "Special Provisions".

Utilities: For location of Utilities, see the appropriate Road Plans sheet.



STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

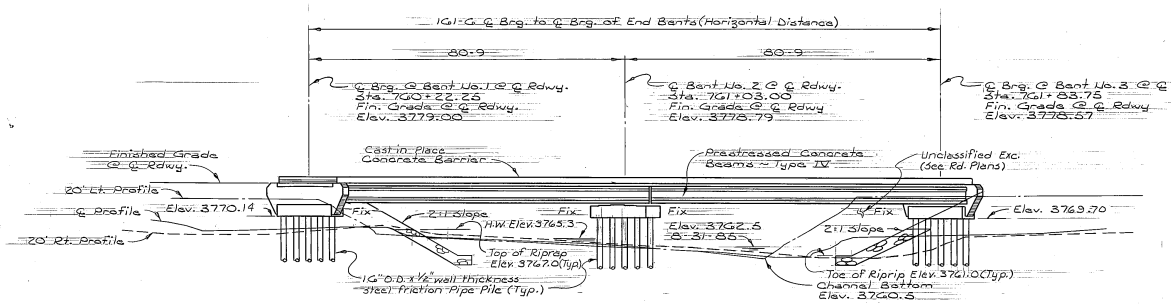
BRIDGE OVER ROCK CREEK
AT STA. 624+49.47
FEDERAL AID PROJECT NO. RTF-BRF 7-1(37)31
RAVALLI COUNTY
GENERAL LAYOUT

DESIGNED	10-24-86	M.L.R.
DRAWN	12-2-86	T.G.S.
CHECKED	3-1-89	K.F.M.
APPROVED	6-1-89	J.C.H.
REVISED		
REVISED		

Scale: 1"=10'-0" Except as noted DRAWING NO. 14383

AS BUILT 5/19/92

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	RTF-BRF 7-1(37)31	88	

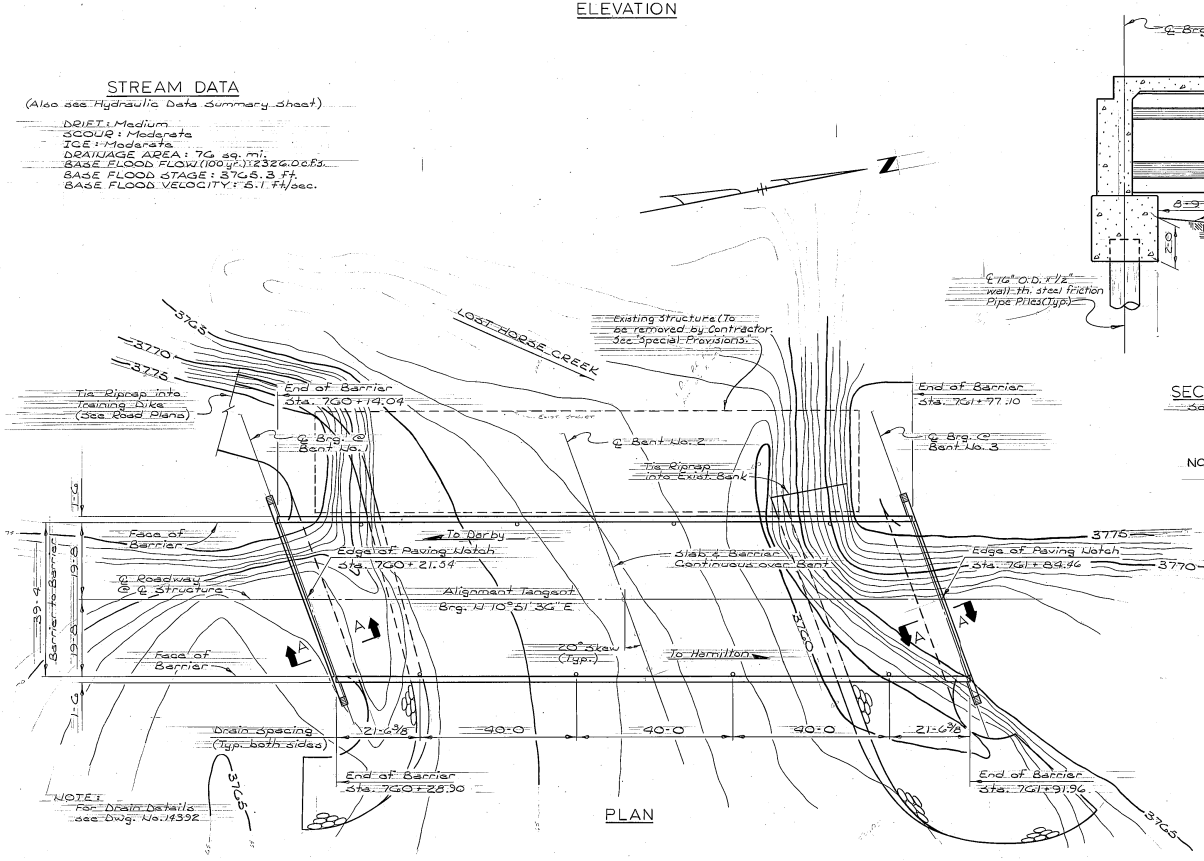


ELEVATION

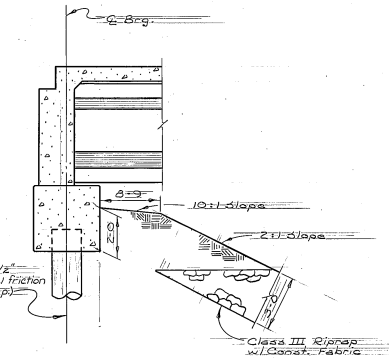
STREAM DATA

(Also see Hydraulic Data Summary Sheet)

DRIFT: Medium
SCOUR: Moderate
ICE: Moderate
DRAINAGE AREA: 70 sq. mi.
BASE FLOOD FLOW (100 yr.): 12326.0 c.f.s.
BASE FLOOD STAGE: 3765.3 ft.
BASE FLOOD VELOCITY: 5.1 ft/sec.



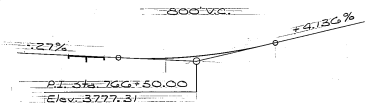
PLAN



SECTION A-A

Scale: 3/8"=1'-0"

NOTE: DECK TREATMENT WAS ALCOHOL BASED SILANE TREATMENT



PROFILE GRADE

No Scale

NOTES

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Highways & the Montana Highway Commission Standard Specifications for Road & Bridge Construction, 1987 Edition & any amendments thereto & Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1983 Edition & any amendments thereto.

STRUCTURAL STEEL: All Structural Steel shall be measured & paid for on the lump sum basis as set forth in the standard specifications. Estimated Weight = 6281 lbs.

REINFORCING STEEL: All Reinforcing Steel shall be of the deformed type & shall meet the requirements of A.S.T.M. Specifications A615 Grade 60 (A.A.S.H.T.O. M-31).

CAST-IN-PLACE CONCRETE: Unless otherwise noted all concrete in the slab & concrete barriers shall be Class "BD Modified" & all other concrete shall be Class "AD".

STRUCTURE EXCAVATION: Structure Excavation for Bents No. 1 & No. 3 shall be calculated from berm elevations.

FINISHED GRADE: Finished Grade of Bridge at ℄ Roadway is the same as the profile grade shown on the Road Plans.

UTILITIES: For location of Utilities see the appropriate Road Plans sheet.

TRAFFIC CONTROL PLAN & SEQUENCE OF OPERATIONS: See "Special Provisions".

Class of Concrete	Minimum Rapid Cylinder Strength to Achieve a 1.10 Ray Factor	Strength for Design Purposes
AD	3400 p.s.i.	3000 p.s.i.
BD Modified	3900 p.s.i.	3500 p.s.i.

DESIGNED	10-20-86	POH
DRAWN	12-3-86	POH
CHECKED	3-14-89	C.F.H.
APPROVED	6-1-89	J.C.H.
REVISED		
REVISED		

AS BUILT 5/19/92

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

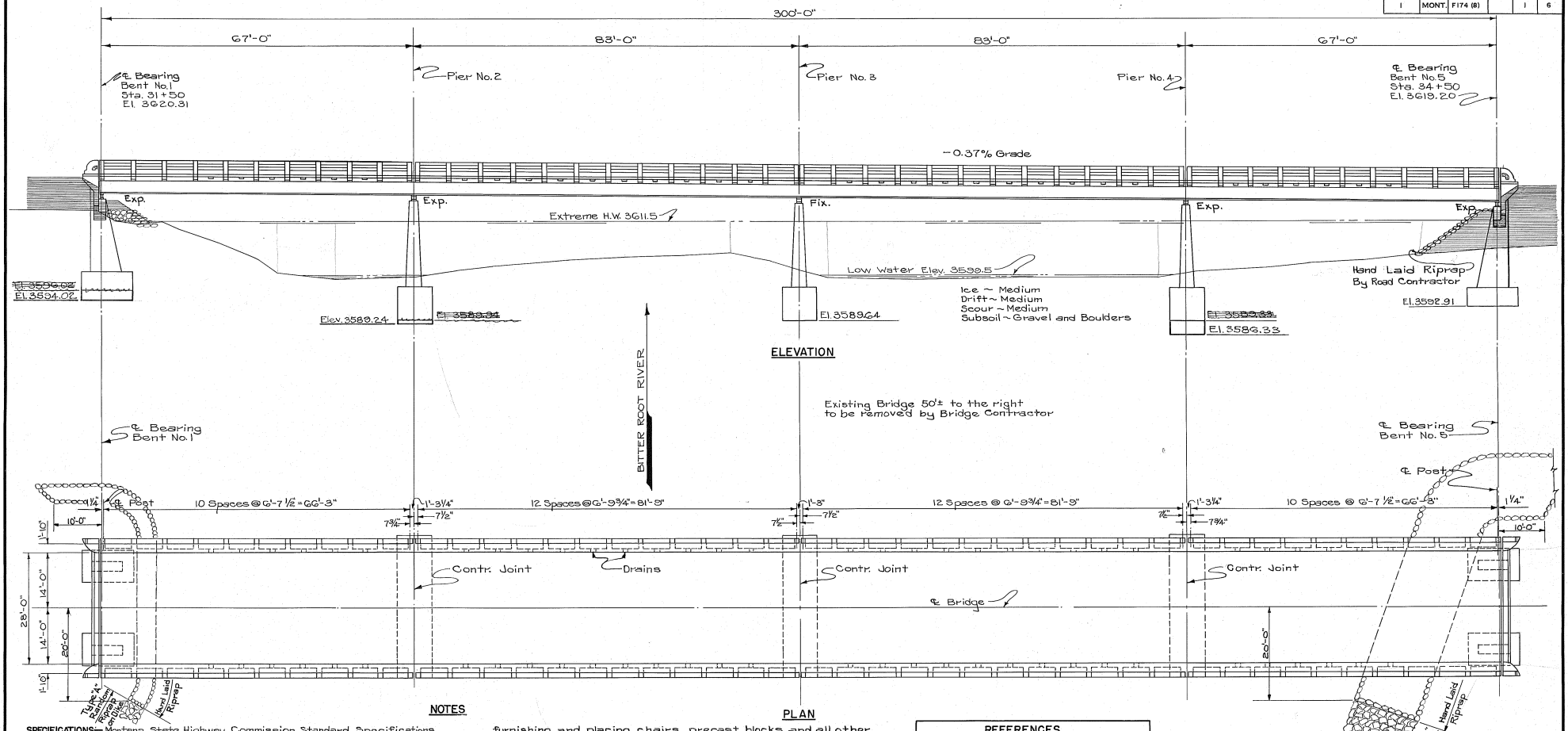
BRIDGE OVER LOST HORSE CREEK
AT STA. 761+03.00
FEDERAL AID PROJECT NO. RTF-BRF 7-1(37)31
RAVALLI COUNTY

GENERAL LAYOUT

Scale ~ 1"=15'-0" (Except as noted)

DRAWING NO. 14389

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	F174 (8)		1	6



NOTES

SPECIFICATIONS:- Montana State Highway Commission Standard Specifications for Road and Bridge Construction, adopted January 1, 1946; Design Specifications for Highway Structures, Revised Mar. 1946; and Special Provisions shall govern unless otherwise noted.

LIVE LOAD:- Standard H-15 ~ S-12 Loading.

FINISHED GRADE:- Finished plan grade of bridge is same as profile grade shown on road plans.

CONCRETE:- All concrete of superstructure shall be Class "AD". All concrete in Bents and Piers shall be Class "A".

Chamfer all exposed edges of concrete 1/2" and fillet entrant angles 1/2" unless otherwise noted.

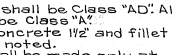
CONSTRUCTION JOINTS:- Construction joints shall be made only at locations shown on the plans or as approved by the Engineer. Adequate keys shall be provided at all construction joints as noted on the plans or determined by the Engineer.

REINFORCING STEEL:- All reinforcing bars shall be of intermediate grade billet steel. They shall be of approved deformed section except as noted.

Slab bars shall be supported on steel chairs placed sufficiently close together to maintain bars in proper position. All other bars shall be supported on either steel chairs or precast concrete blocks. The unit price bid for reinforcing steel shall include the cost of furnishing and placing chairs, precast blocks, and all other materials used to fasten reinforcing steel in place.

Splicing of main reinforcing bars shall not be permitted except as shown on the plans.

Bends in reinforcing bars shall be made to a radius of not less than four diameters of the bar. Hooks shall conform to the dimensions shown in the following sketches.



STRUCTURAL STEEL:- For requirements governing structural steels see the Standard Specifications. PAINT:- One shop coat of red lead and two field coats consisting of first field or primer coat and one coat Aluminum paint as specified in the Standard Specifications, on all surfaces not in contact with concrete and as noted under "Painting for Steel Bridges".

REINFORCING COVERING:- Minimum covering from surface of concrete to face of any reinforcing bar shall be 2 inches except in slabs, where the minimum covering shall be 1 inch. In footings of bents and piers the minimum covering shall be 3 inches.

REFERENCES	
DWG. NO.	DESCRIPTION
2706	BENTS NO. 1 & NO. 5
2707	PIERS NO. 2, NO. 3 & NO. 4
2708	GIRDER DETAILS
2709	FLOOR JOINTS
2710	CROSS SECTION AND RAIL

* Scour Protection added See Dwg. No. 18543 ~ 18545B

* Revised	T. J. B.	11-24-03
DESIGNED	J.R.B.	5-47
DRAWN	C.A.M.	4-47
TRACED	T.H.J	6-6-47
CHECKED	H.W.K.	7-1-47
REVIEWED		
REVIEWED		

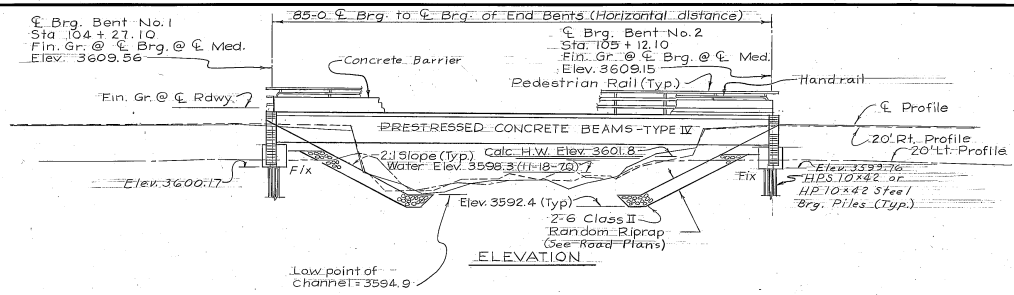
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER BITTERROOT RIVER
NEAR GRANTSDALE
FED. AID PROJ. NO. F174(8)
RAVALLI COUNTY
GENERAL LAYOUT
Scale ~ 1" = 10'-0"

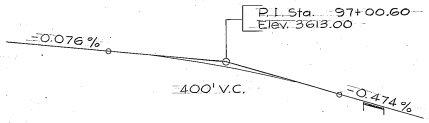
APPROVED BY _____ BRIDGE PLANS ENGINEER

STATE NO. (PRECONST. 1801-63 R/W CONST.) DRAWING NO. 2705

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	F 7-1(6)43	1	8



ELEVATION



PROFILE GRADE
No Scale

Note: Finished plan grade of bridge at centerline median is the same as profile grade shown on road plans.

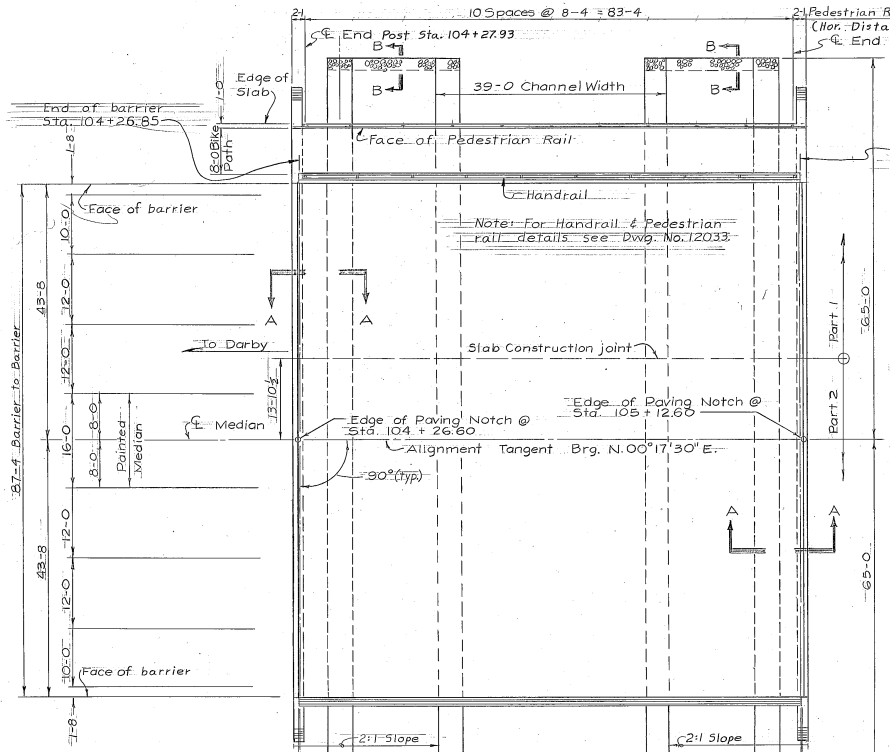
Note: Protective coating shall be applied to the slab, roadway side and top of right barrier, all of left barrier, and side walk.

Note: For treatment of construction joints in the slab, backwalls and cap beams see Special Provisions.

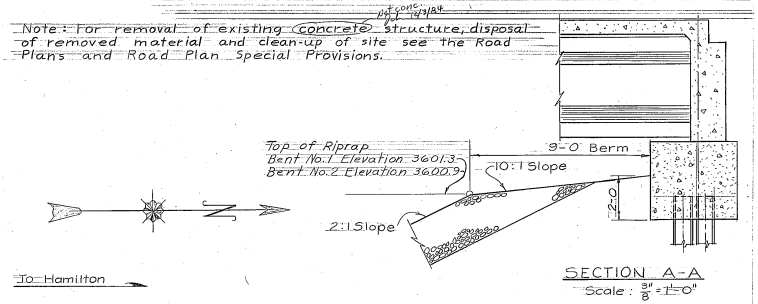
Note: For "Sequence of Operations" and "Traffic Control Plan" see Special Provisions.

Note: Structure Excavation shall be computed from ground lines as they exist before any work commences in the area except in that area where the existing bridge is to be removed. Structure Excavation for this area shall be computed from below the ground lines remaining after the existing structure has been removed.

Note: For removal of existing concrete structure, disposal of removed material and clean-up of site see the Road Plans and Road Plan Special Provisions.



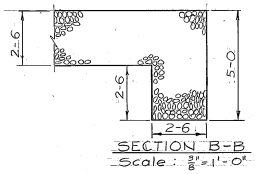
PLAN



SECTION A-A
Scale: 3/8" = 1'-0"

STREAM DATA

Ice - Moderate
Drift - Light
Scour - Moderate
Subsoil - See Log of Borings Dwg. No. 12029
Design Flood Frequency - 50 yrs.
Design Flow - 1700 C.F.S.
Design Velocity - 8.9 feet/sec.
Drainage Area - 116 sq. miles
Calculated Design High Water Elev. - 3601.8
Basic Flood (100 yrs. Flow) - 1900 cfs
Basic Flood Highwater Elev. - 3602.1



SECTION B-B
Scale: 3/8" = 1'-0"

NOTES

SPECIFICATIONS: MONTANA DEPARTMENT OF HIGHWAYS AND THE MONTANA HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1961 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL GOVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.T.O. SPECIFICATIONS, 1977 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE IN THE SLAB AND CONCRETE BARRIERS SHALL BE CLASS "BD" AND ALL OTHER CONCRETE SHALL BE CLASS "AD".

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS. ESTIMATED WEIGHT = 1,325 POUNDS.

UTILITIES: FOR LOCATION OF UTILITIES, SEE APPROPRIATE ROAD PLANS SHEET.

REINFORCING STEEL: ALL REINFORCEMENT STEEL SHALL BE OF THE DEFORMED TYPE AND SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATIONS A615, GRADE 60 (AASHTO M-31) EXCEPT FOR THE REBAR IN THE PRESTRESSED CONCRETE BEAMS WHICH MAY BE GRADE 40.

LIVE LOAD: STANDARD HS20-44 LOADING.

DESIGNED	L.K.L.	10-16-72
DRAWN	D.C.B.	10-13-72
CHECKED	N.H.R.	12-12-77
APPROVED	NHR	3-17-82
REVISED		
REVISED		

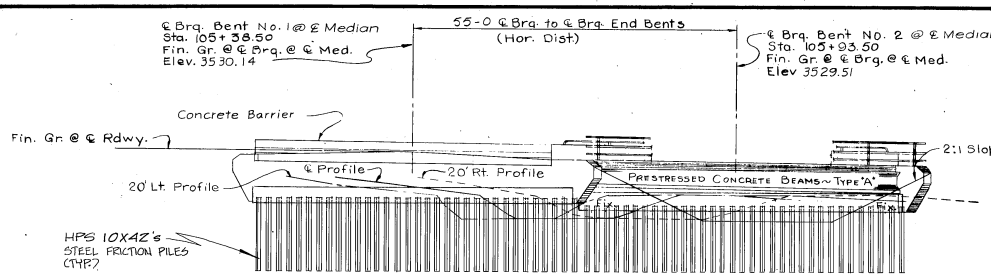
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER SKALKAHO CREEK
AT STA. 104 + 69.60
FEDERAL AID PROJECT NO. F 7-1(6)43
RAVALLI COUNTY
GENERAL LAYOUT

Scale: 1" = 10'-0" Except as noted

DRAWING NO. 12028

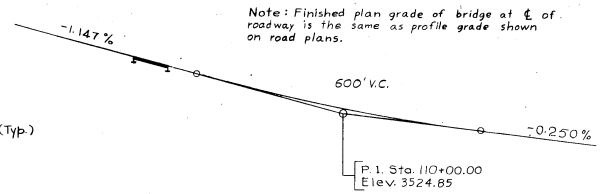
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	FF 7-1(2)46	1	12



ELEVATION

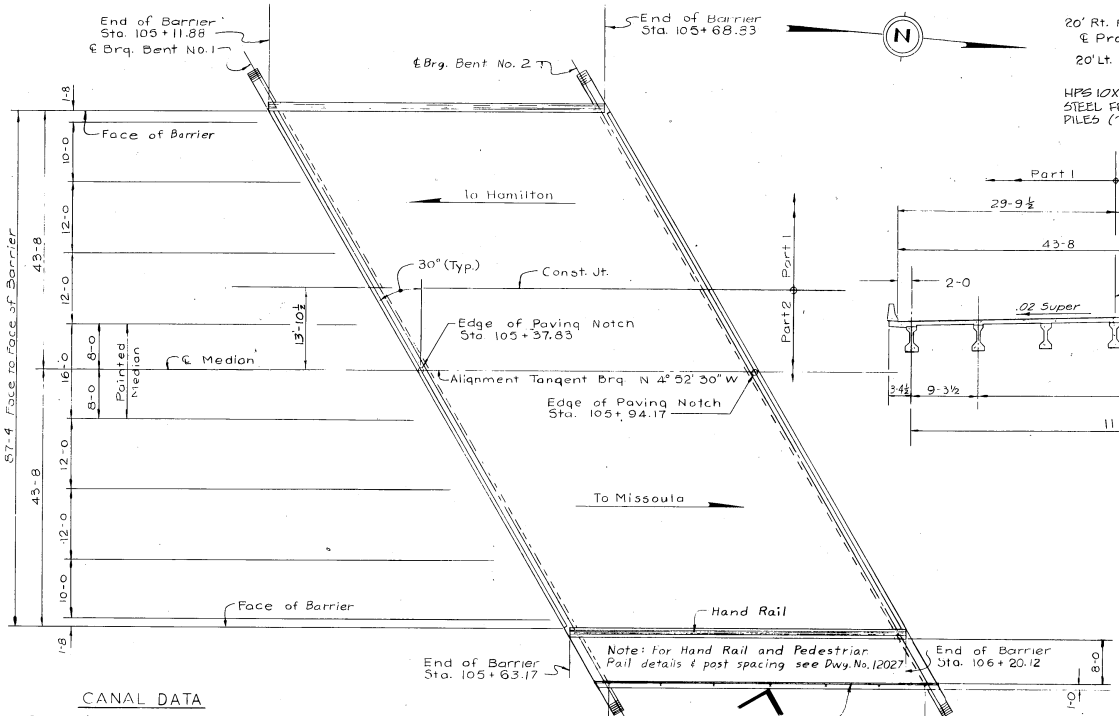
Note: For location of Utilities, if any, see appropriate road plans.

Note: Finished plan grade of bridge at ℄ of roadway is the same as profile grade shown on road plans.

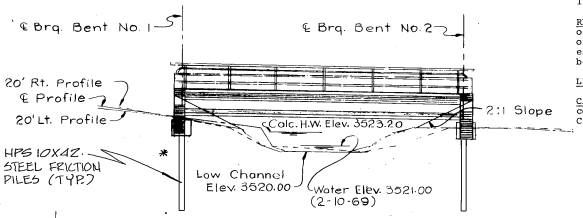


PROFILE GRADE

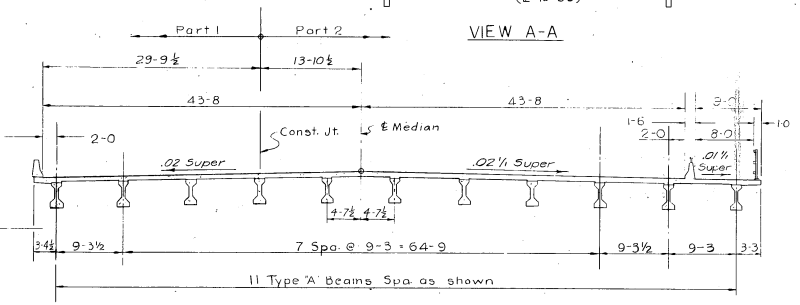
No Scale



PLAN



VIEW A-A



TYPICAL TRANSVERSE SECTION

(Ahead on line)
Scale: ⅜" = 1'-0"

CANAL DATA

Ice ~ None
Drift ~ None
Scour ~ Light
Subsoil ~ See Log of Borings Dwg. No. 12018
Design Flow ~ 125 c.f.s.
Design Velocity ~ 1.9 feet/sec.

NOTES

SPECIFICATIONS: Montana Department of Highways, and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1976 Edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1973 Edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel shall be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimate Weight = 1,517 pounds.

REINFORCING STEEL: All reinforcement steel shall be of the deformed type and shall meet the requirements of ASTM specifications A615, Grade 60 (AASHTO M-31) except for the rebar in the prestressed concrete beams which may be Grade 40.

LIVE LOAD: Standard HS20-44 loading.

CAST IN PLACE CONCRETE: Unless otherwise approved, all concrete in the slab and concrete barriers shall be Class "BD" and all other concrete shall be Class "AD".

GENERAL NOTES

1. Protective coating shall be applied to the slab, roadway side and top of left barrier, all of right barrier, and sidewalk.
2. For treatment of construction joints in the slab, backwalls and cap beams, see Special Provisions.
3. For "Sequence of Work" and "Maintenance of Traffic" see the Road Plans & Road Plan Special Provisions.
4. Structure Excavation shall be computed from ground lines as they exist before any work commences in the area except in that area where the existing bridge is to be removed. Structure excavation for this area shall be computed from below the ground lines remaining after the existing structure has been removed.
5. For removal of existing concrete structure, disposal of removed material and cleanup of site, see the Road Plans and Road Plan Special Provisions.

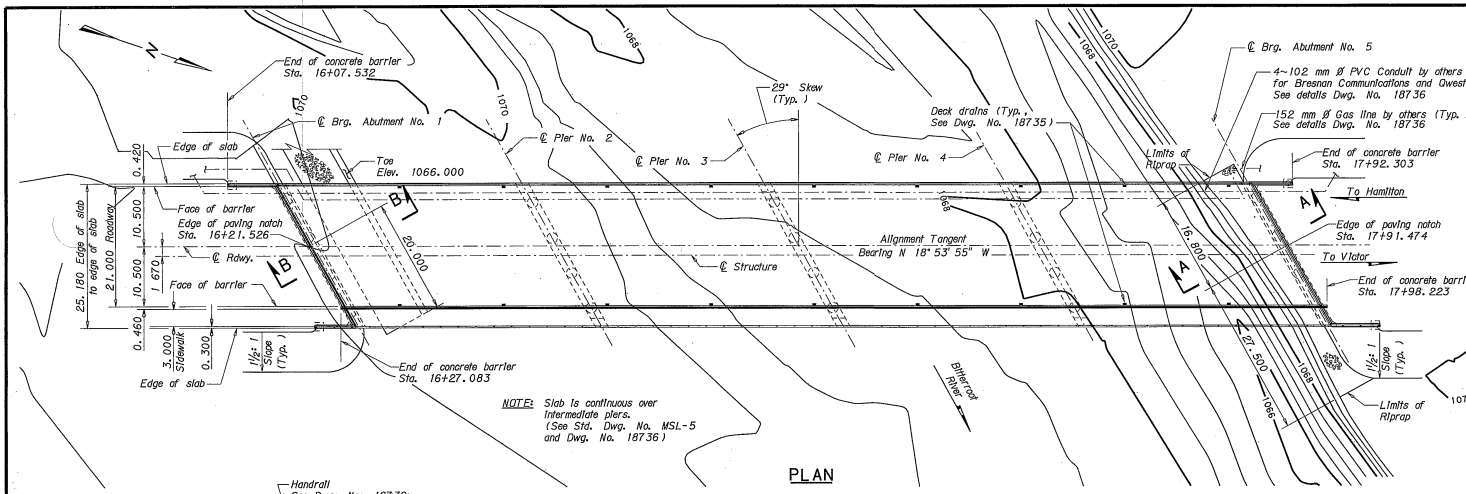
DESIGNED		
DRAWN	SAN	4-1-77
CHECKED	NHR	12-2-77
APPROVED	"	1-26-78
* REVISED	FRM/MAS	3/23/79
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER CORVALLIS CANAL
AT STA. 105+66.00
FEDERAL AID PROJECT NO. FF 7-1(2) 46
RAVALLI COUNTY
GENERAL LAYOUT
Scale: 1" = 10'-0" (Except as noted)

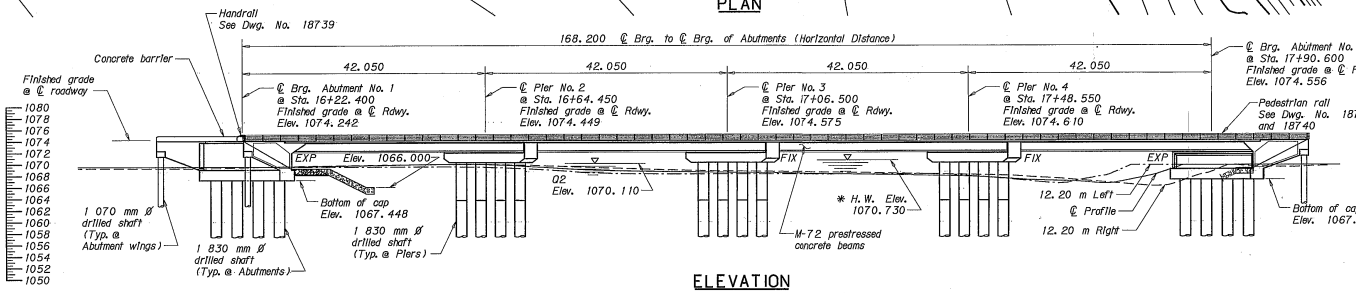
DRAWING NO. 12018

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(98)49 F	B2

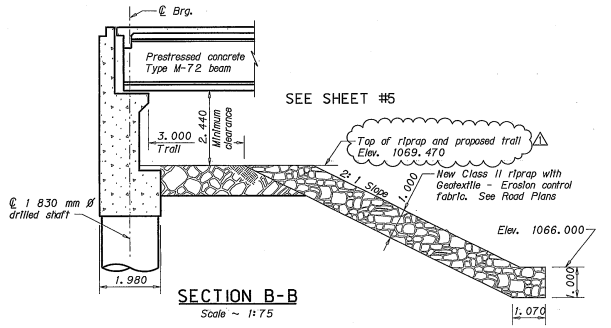


NOTE: Slab is continuous over intermediate piers. (See Std. Dwg. No. MSL-5 and Dwg. No. 18736)

PLAN

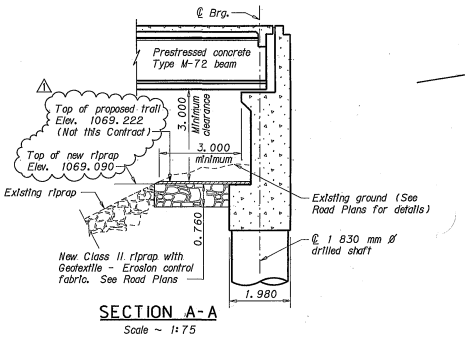


ELEVATION



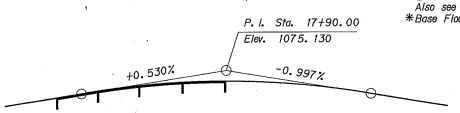
SECTION B-B

Scale ~ 1:75



SECTION A-A

Scale ~ 1:75



PROFILE GRADE

No Scale

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel will be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270M Grade 250. Estimated amount = 844 kg

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Structure Excavation will be calculated from the natural ground line as it exists before construction begins. See Special Provisions.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

STATIONING: All stationing is in Local coordinates. CSF = 1.00000000.

STREAM DATA

Drift	Moderate
Pier Scour (Q100):	3.60 m
Construction Scour (Q100):	0.50 m
Ice	Moderate
Drainage Area:	4403 sq. km
2-year Stage (Q2):	1070.110
Base Flood Flow (Q100):	566 m³/sec
*Base Flood Stage:	1070.730
Base Flood Velocity:	2.12 m/sec
Low Beam Elevation:	1071.929

Also see Hydraulic Data Summary sheet.
*Base Flood Stage elevation includes backwater

PREPARED BY:
HDR Engineering, Inc.
FOR
MDT MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER BITTERROOT RIVER
AT STA. 17+06.500
FEDERAL AID PROJECT NO. NH 7-1(98)49 F
RAVALLI COUNTY
GENERAL LAYOUT

MONTANA
BRADLEY D. MILLER
No. 4963PE
REGISTERED PROFESSIONAL ENGINEER

DESIGNED	12-18-01	J. D. H.
DRAWN	12-19-01	S. L. W.
CHECKED	6-12-02	J. D. H.
APPROVED		
REVISED	4-26-05	J. D. H.
REVISED		

Scale ~ 1:400 Except as Noted
C015BRGENZ01AB.DGN
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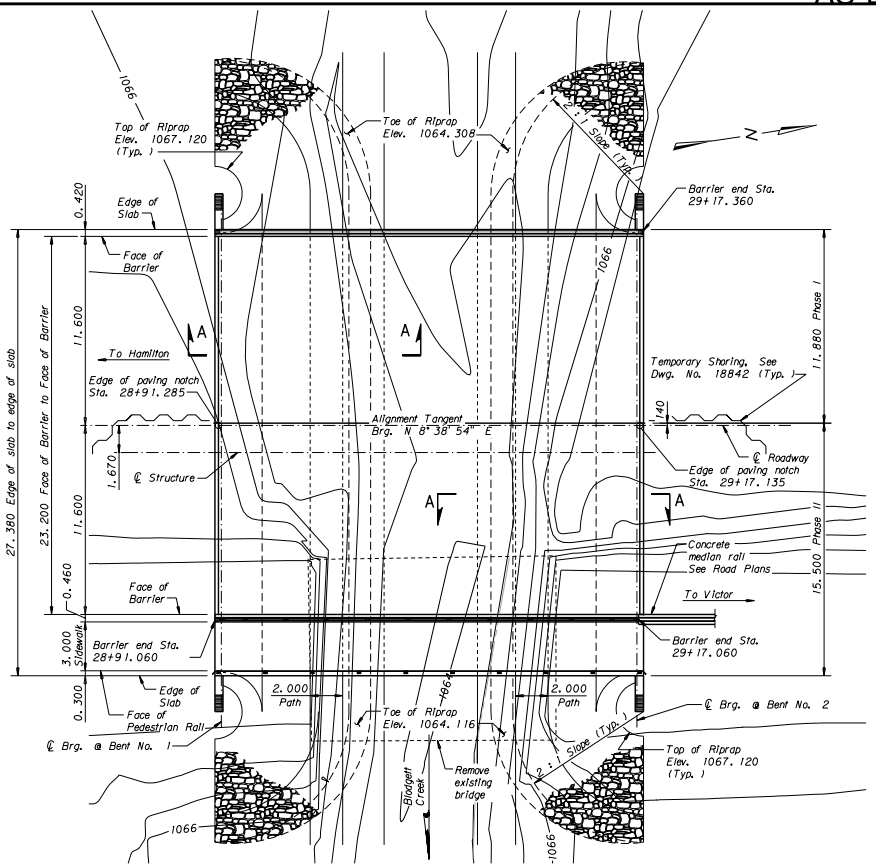
BRIDGE BUREAU
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY 03/31/2011

Highways & Engineering Division

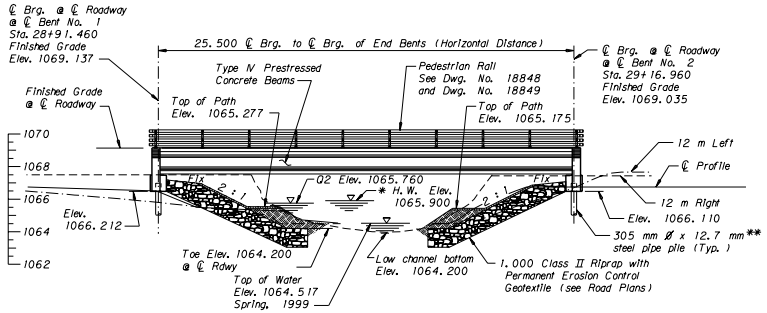
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NHTSA-MT-NH 7-1(86)49 F	B2

BRIDGE BUREAU

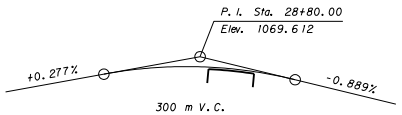


PLAN

NOTE: Top of riprap elevation is 1067.12. Section A-A shows the top of riprap under the bridge.



ELEVATION



PROFILE GRADE

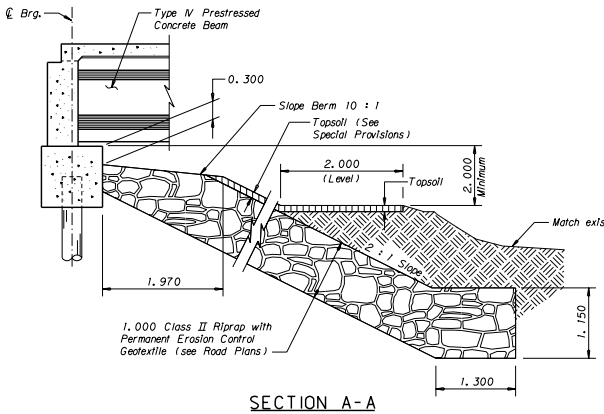
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STREAM DATA

Drift:	Light
Abutment Scour (Q100):	0.2 m
Contraction Scour (Q100):	0.7 m
Ice:	Light
Drainage Area:	73 sq. km
2-year Stage (Q2):	1065.760
Base Flood Flow (Q100):	32 m³/sec
* Base Flood Stage:	1065.900
Base Flood Velocity:	2.63 m/sec
Low Beam Elevation:	1067.175

Also see Hydraulic Data Summary sheet.

*Base Flood Stage elevation includes backwater



SECTION A-A

Scale ~ 1: 40

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 420. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

** PILING: Furnish all piling in 324 mm outside diameter x 12.7 mm wall thickness.

MONTANA
J. DUSTIN HIROSE
No. 10870PE
REGISTERED PROFESSIONAL ENGINEER

PREPARED BY:

HDR Engineering, Inc.

FOR

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER BLODGETT CREEK

AT STA. 29+04.210

FEDERAL AID PROJECT NO. NHTSA-MT-NH 7-1(86)49 F

RAVALLI COUNTY

GENERAL LAYOUT

DESIGNED	12-18-01	J.D.H.
DRAWN	12-21-01	S.L.W.
CHECKED	2-10-03	J.D.H.
APPROVED		
REVISED		
REVISED		

Scale ~ 1: 150 Except as Noted

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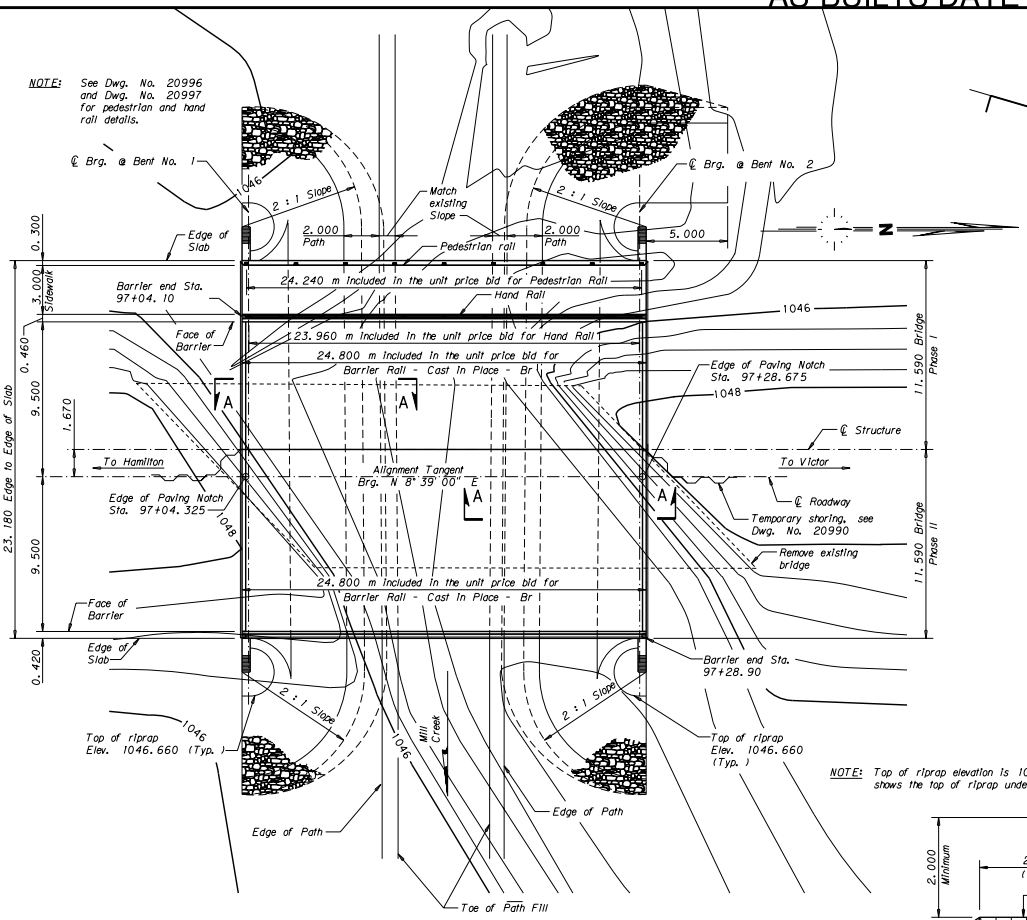
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY 02/14/2013

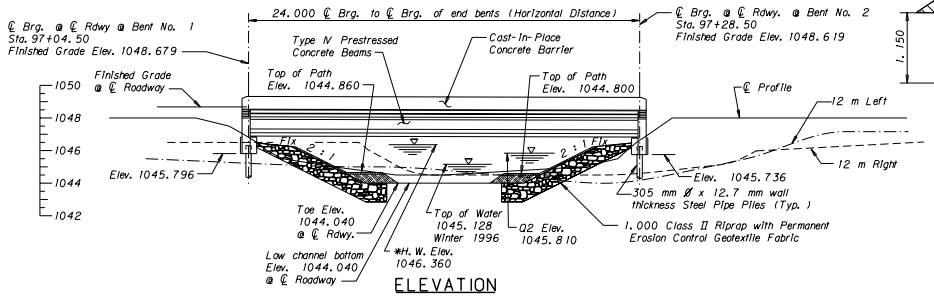
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(94)54	B2

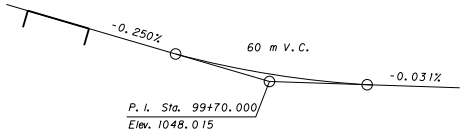
BRIDGE BUREAU



PLAN



ELEVATION



PROFILE GRADE

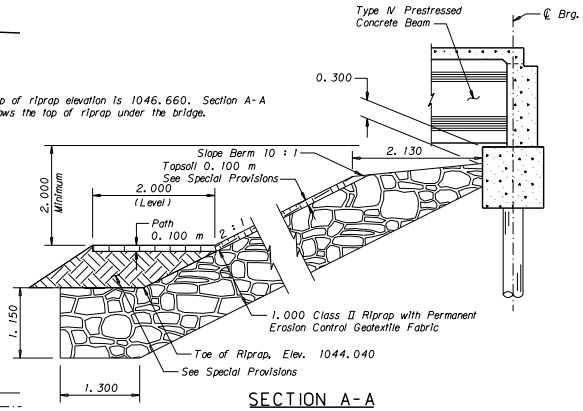
No Scale

STREAM DATA

Drift:	Light
Abutment Scour (Q100):	5.0 m
Contraction Scour (Q100):	0.1 m
Ice:	Light
Drainage Area:	157 sq. km
2-year Stage (Q2):	1045.810
Base Flood Flow (Q100):	55 m³/sec
*Base Flood Stage:	1046.360
Base Flood Velocity:	1.84 m/sec
Low Beam Elevation:	1046.801

Also see Hydraulic Data Summary sheet.
*Base Flood Stage elevation includes backwater

NOTE: Top of riprap elevation is 1046.660. Section A-A shows the top of riprap under the bridge.



SECTION A-A

Scale ~ 1: 40

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 420. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bld for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 28 MPa for Class DD-Bridge concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bld for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

PREPARED BY:

HDR Engineering, Inc.

FOR

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER MILL CREEK

AT STA. 97+16.500

FEDERAL AID PROJECT NO. NH 7-1(94)54

RAVALLI COUNTY

GENERAL LAYOUT

DESIGNED	12-18-01	J. D. H.
DRAWN	12-27-01	W. A. N.
CHECKED	5-17-04	J. D. H.
APPROVED		
REVISED		
REVISED		

Scale ~ 1: 150 Except as Noted

A015BRGENZ03AB.DGN

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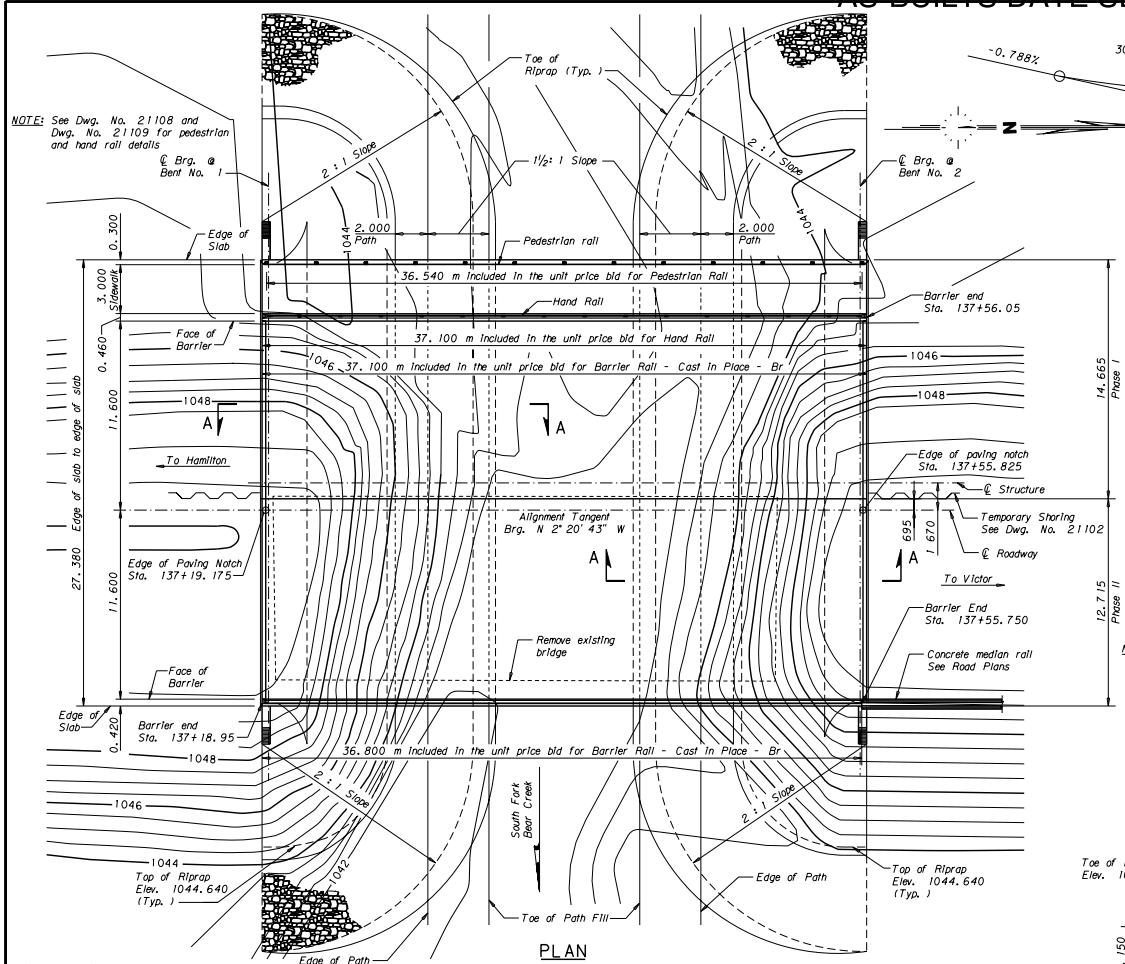
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

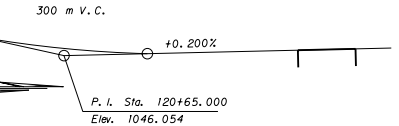
02/20/2014
Highways & Engineering
Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-NHTSA 7-1(114)56	B2

BRIDGE BUREAU



PLAN



PROFILE GRADE
No Scale

STREAM DATA

Drift:	Light
Abutment Scour (Q100):	1.9 m
Contraction Scour (Q100):	0 m
Ice:	Light
Drainage Area:	78 sq. km
2-year Stage (Q2):	1043.690
Base Flood Flow (Q100):	42.8 m³/sec
✱Base Flood Stage:	1044.340
Base Flood Velocity:	3.03 m/sec
Low Beam Elevation:	1047.512

Also see Hydraulic Data Summary sheet.
✱Base Flood Stage elevation includes backwater

NOTE: Top of riprap elevation is 1044.640. Section A-A shows the top of riprap under the bridge.

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD-Bridge Concrete for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 28 MPa for Class DD-Bridge Concrete. Use f'c = 31 MPa for Class SD concrete for structural design purposes only. See Special Provisions for Special Deck mix design requirements.

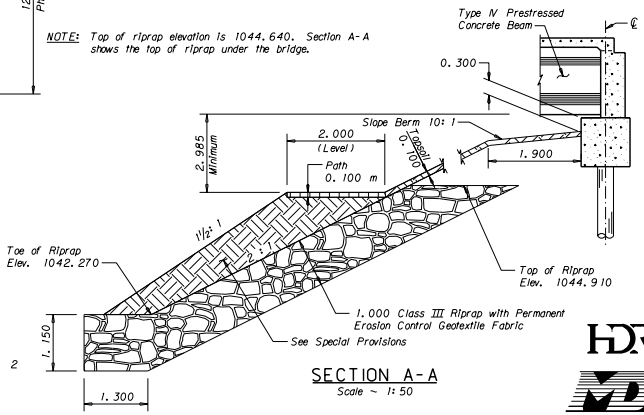
STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD-Bridge Concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

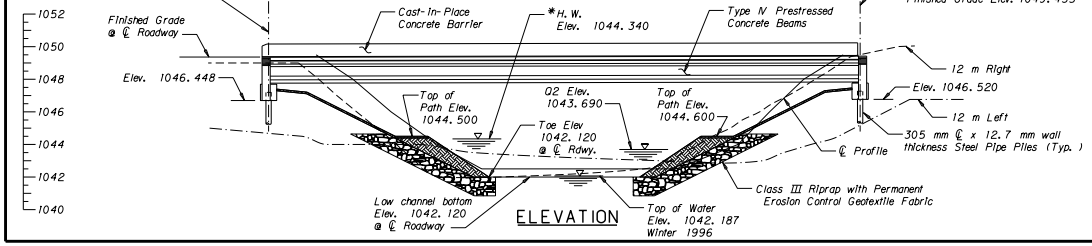
UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.



SECTION A-A
Scale ~ 1:50



ELEVATION

PREPARED BY:
HDR Engineering, Inc.
FOR
MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER SOUTH FORK BEAR CREEK
AT STA. 137+37.500
FEDERAL AID PROJECT NO. NH-NHTSA 7-1(114)56
RAVALLI COUNTY
GENERAL LAYOUT

DESIGNED	12-18-01	J.D.H.
DRAWN	12-27-01	W.A.N.
CHECKED	4-28-03	J.D.H.
APPROVED		
REVISED		
REVISED		

Scale ~ 1:150 Except as Noted
FILENAME: 20150038RGENZ04AB.DGN ~~20-1500-3rgenz04.dgn~~ DRAWING NO. 21100

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2/20/2014
10:56:14 AMCPS - U4853

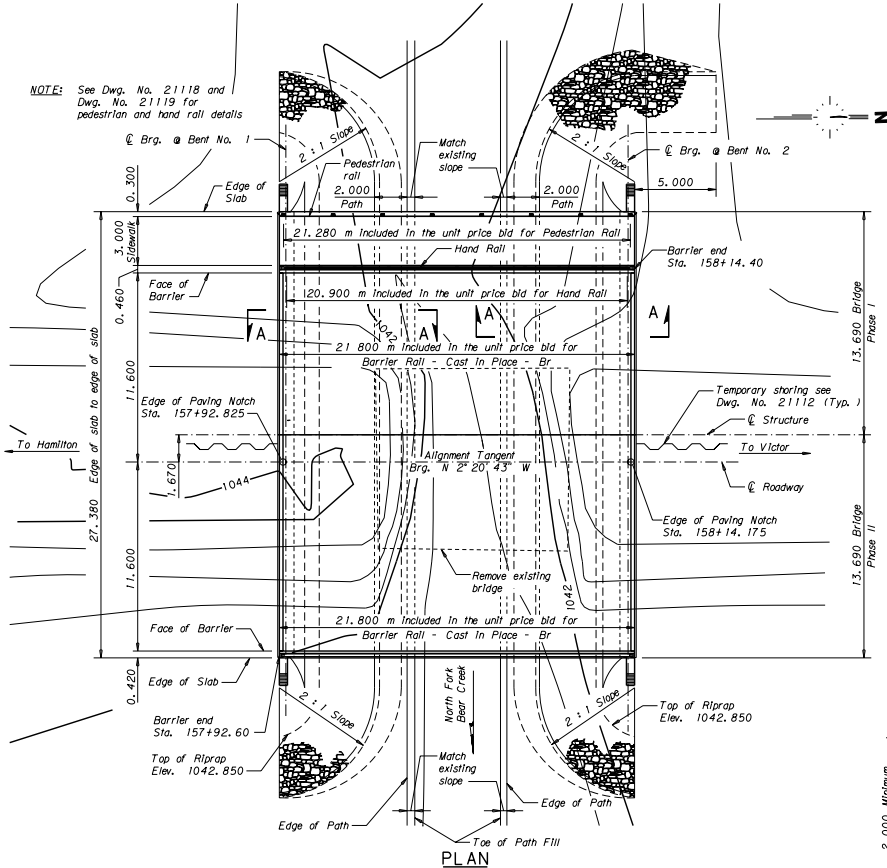
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02/20/2014
Highways & Engineering
Division

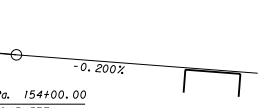
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-NHTSA 7-1(114)56	B12

BRIDGE BUREAU

NOTE: See Dwg. No. 21118 and Dwg. No. 21119 for pedestrian and hand rail details



PLAN

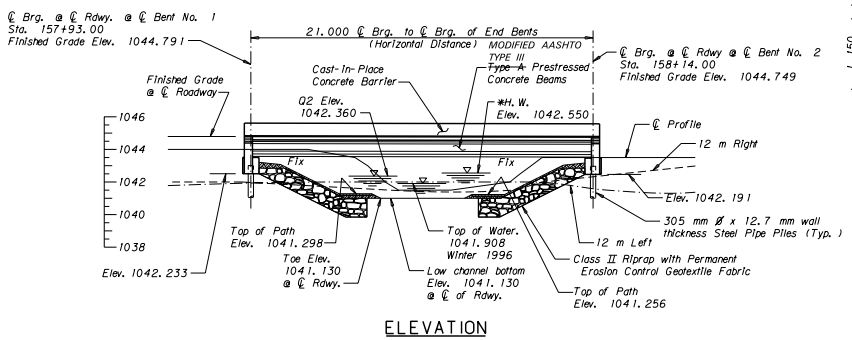


PROFILE GRADE
No Scale

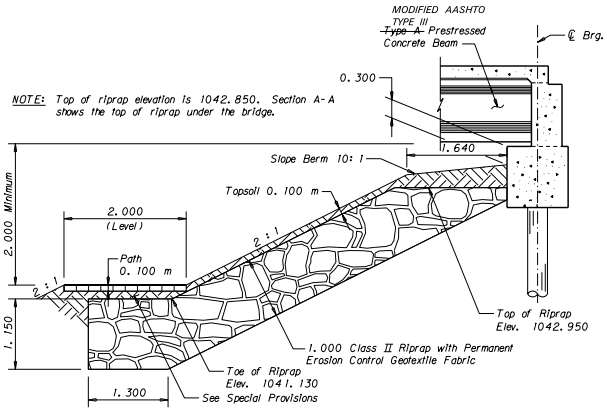
STREAM DATA

Drift:	Light
Abutment Scour (Q100):	1.3 m
Contraction Scour (Q100):	0.1 m
Ice:	Light
Drainage Area:	78 sq. km
2-year Stage (Q2):	1042.360
Base Flood Flow (Q100):	12.8 m³/sec
*Base Flood Stage:	1042.550
Base Flood Velocity:	1.98 m/sec
Low Beam Elevation:	1043.256

Also see Hydraulic Data Summary sheet.
*Base Flood Stage elevation Includes backwater



ELEVATION



SECTION A-A
Scale ~ 1:40

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 420. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD-Bridge Concrete for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 28 MPa for Class DD-Bridge Concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD-Bridge Concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

PREPARED BY:
HDR Engineering, Inc.
FOR
MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER NORTH FORK
BEAR CREEK
AT STA. 158+03.500
FEDERAL AID PROJECT NO. NH-NHTSA 7-1(114)56
RAVALLI COUNTY
GENERAL LAYOUT
Scale ~ 1:150 Except as Noted

DESIGNED	12-18-01	J. D. H.
DRAWN	12-20-01	W. A. N.
CHECKED	4-16-04	J. D. H.
APPROVED		
REVISED		
REVISED		

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FILENAME: ~~20150003brgenz05.dgn~~ DRAWING NO. 21110

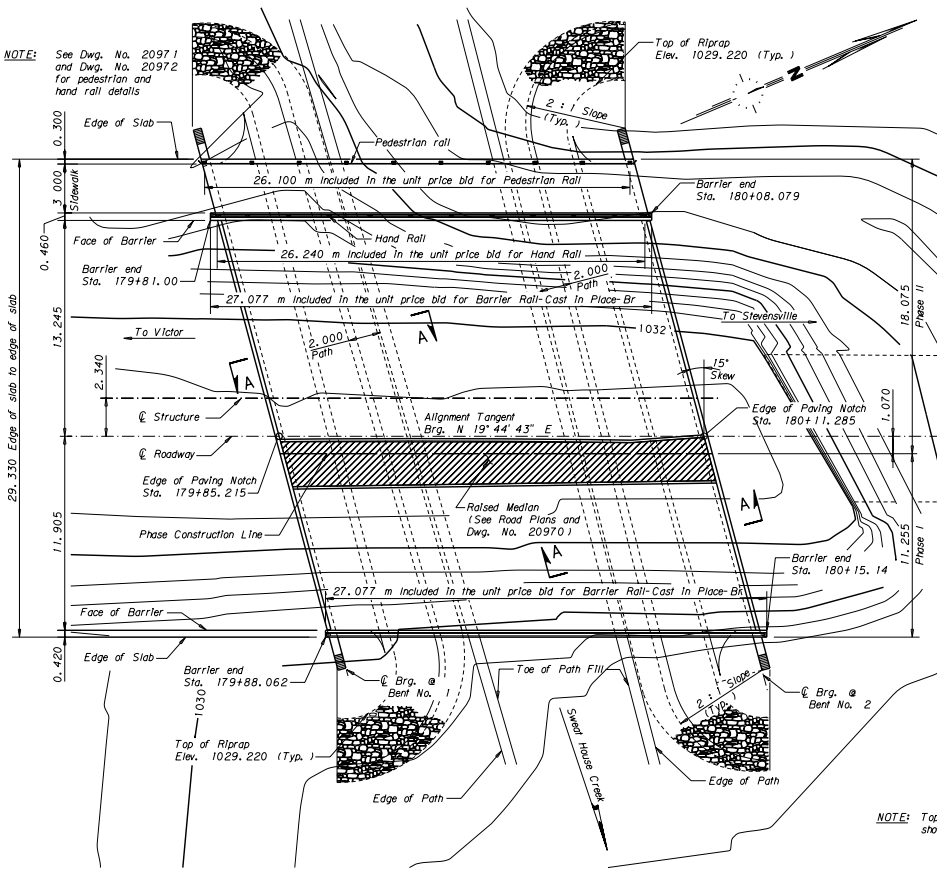
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2/20/2014
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

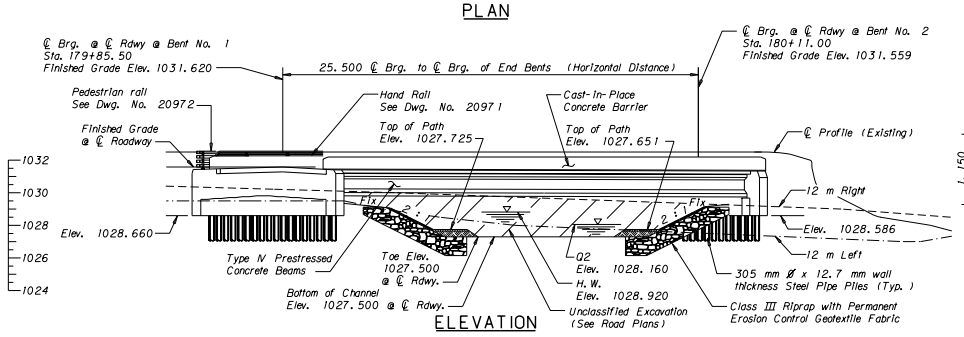
07/15/2013
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(115)59	B2

BRIDGE BUREAU

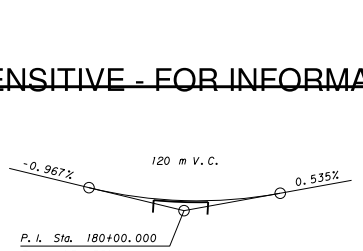


PLAN

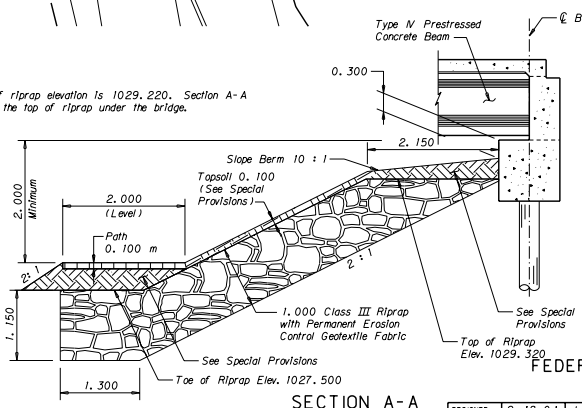


ELEVATION

NOTE: Top of riprap elevation is 1029.220. Section A-A shows the top of riprap under the bridge.



PROFILE GRADE
No Scale



SECTION A-A
Scale ~ 1:40

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 420. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

STREAM DATA

Drift:	Light
Abutment Scour (Q100):	0.9 m
Contraction Scour (Q100):	0.2 m
Ice:	Light
Drainage Area:	69 sq. km
2-year Stage (Q2):	1028.160
Base Flood Flow (Q100):	22.1 m³/sec
* Base Flood Stage:	1028.920
Base Flood Velocity:	2.81 m/sec
Low Beam Elevation:	1029.651

Also see Hydraulic Data Summary sheet.
*Base Flood Stage elevation includes backwater

PREPARED BY:
HDR Engineering, Inc.
FOR
MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER SWEAT HOUSE CREEK
AT STA. 179+98.250
FEDERAL AID PROJECT NO. NH 7-1(115)59
RAVALLI COUNTY
GENERAL LAYOUT

DESIGNED	9-18-01	J.D.H.
DRAWN	9-26-01	S.L.W.
CHECKED	5-24-04	J.D.H.
APPROVED		
REVISED		
REVISED		

Scale ~ 1:150 Except as Noted
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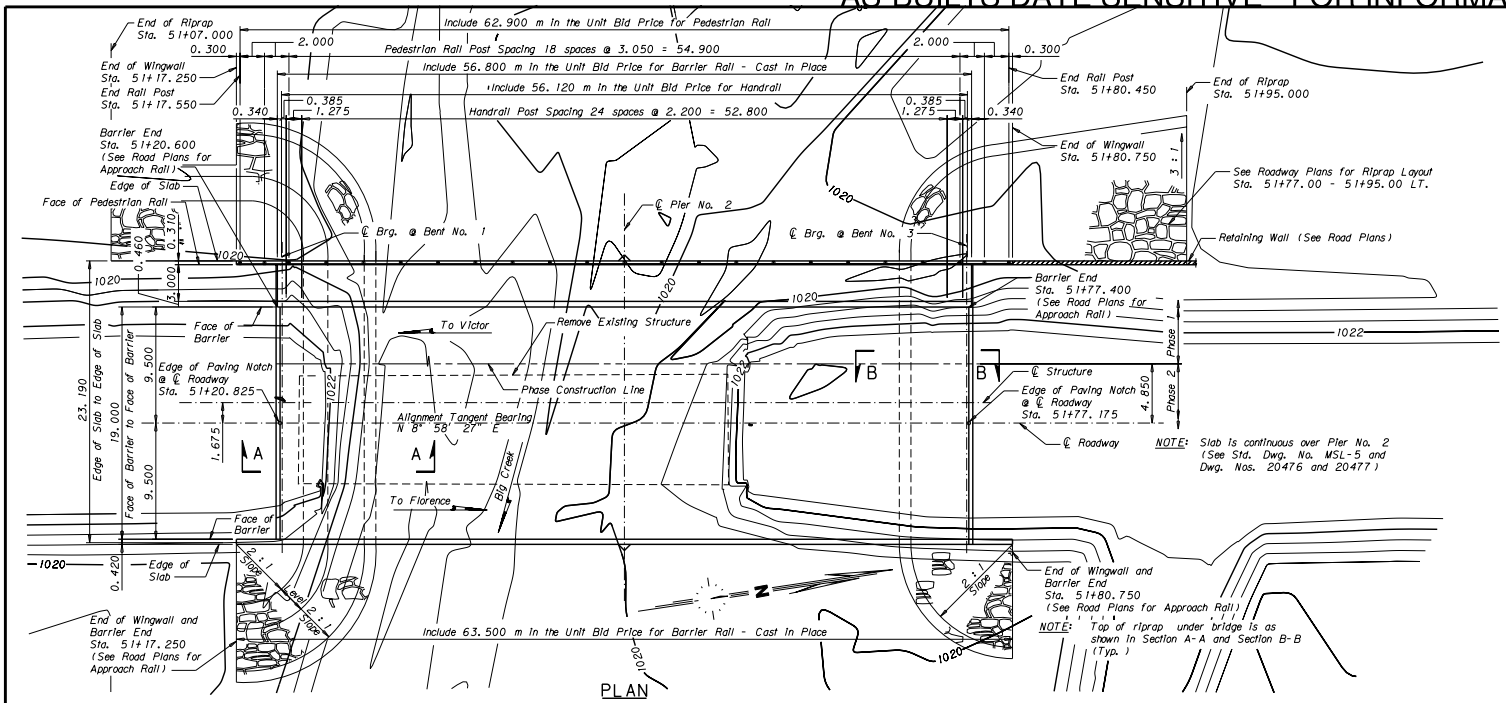
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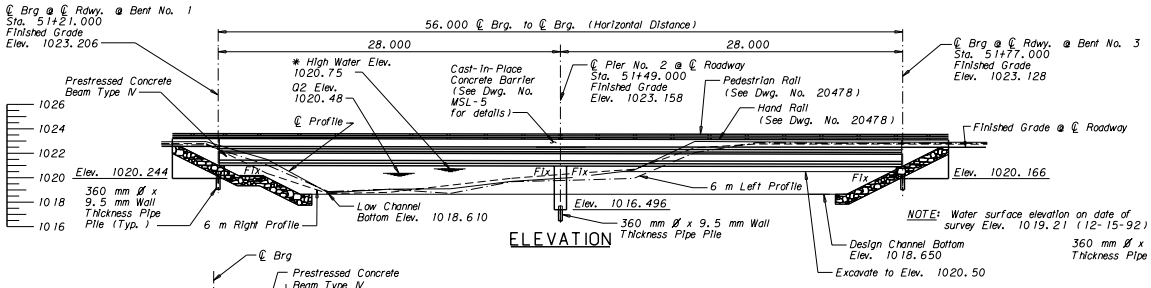
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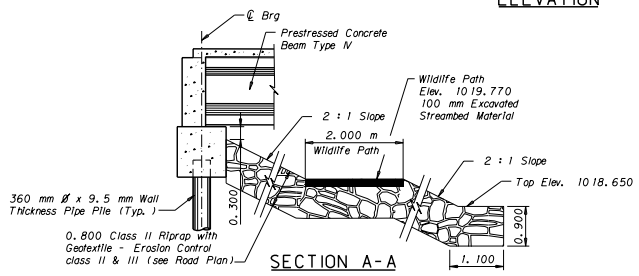
05/25/2012
Highways & Engineering Division

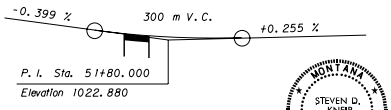
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(102)61 F	B2

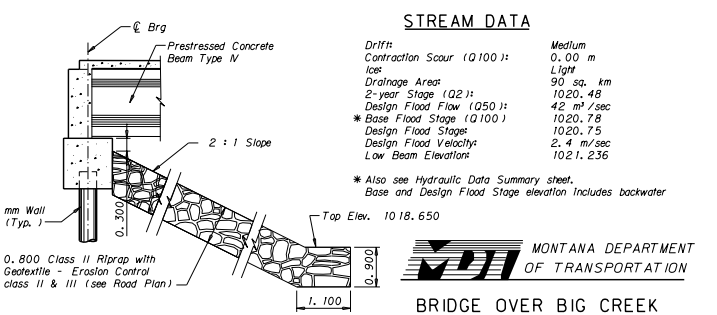
BRIDGE BUREAU











NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HL-93 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. The design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, Third edition - 2004 with 2006 interim revisions.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 420. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURAL STEEL: All structural steel will be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270M Grade 250. Estimated amount = 165 kg

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

Stations shown on the bridge plans are state plane grid stations based on state plane coordinates (NAD83-1992). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this location is 1.0.

Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake

STREAM DATA

Drift:	Medium
Contraction Scour (Q100):	0.00 m
Ice:	Light
Drainage Area:	90 sq. km
2-year Stage (Q2):	1020.48
Design Flood Flow (Q50):	42 m³/sec
* Base Flood Stage (Q100)	1020.78
Design Flood Stage:	1020.75
Design Flood Velocity:	2.4 m/sec
Low Beam Elevation:	1021.236

* Also see Hydraulic Data Summary sheet. Base and Design Flood Stage elevation includes backwater

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER BIG CREEK
AT STA. 51+49.000
FEDERAL AID PROJECT NO. NH 7-1(102)61 F
RAVALLI COUNTY
GENERAL LAYOUT

STEVEN D. KNEIP 8637E REGISTERED PROFESSIONAL ENGINEER

KIRKHAM MICHAEL

DESIGNED	7-24-09	NAS
DRAWN	7-24-09	BAR
CHECKED	7-24-09	JBR
APPROVED		
REVISED		
REVISED		

Scale: 1:200 (Except as noted)
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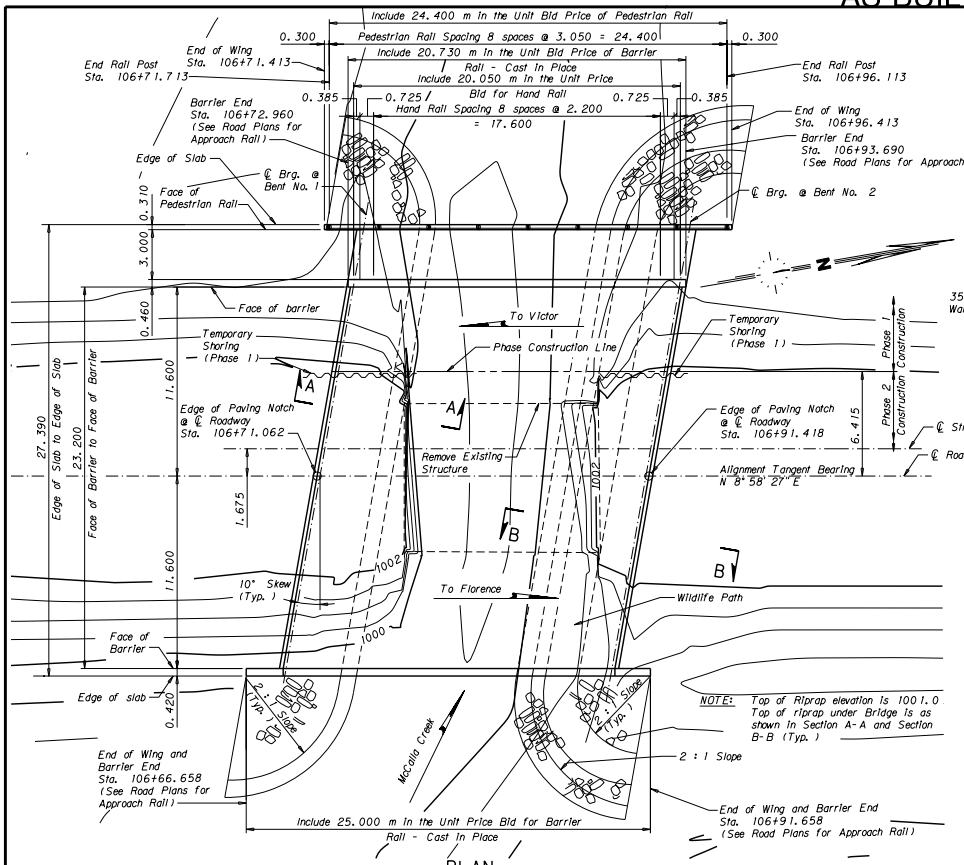
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY 08/05/2011

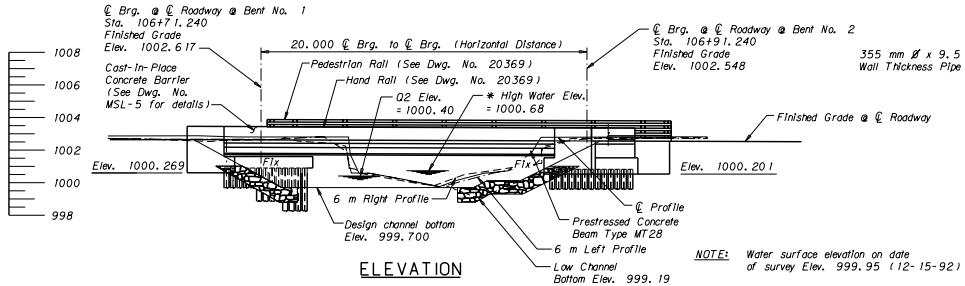
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	ARRA 7-1(118)64	B2

BRIDGE BUREAU

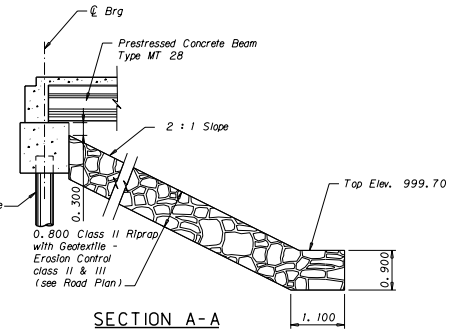


PLAN



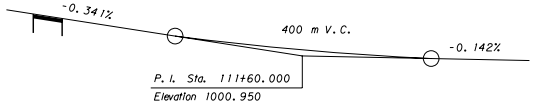
ELEVATION

NOTE: Water surface elevation on date of survey Elev. 999.95 (12-15-92)



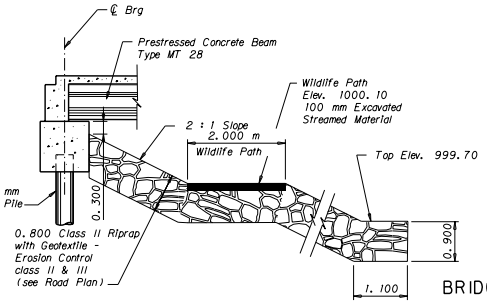
SECTION A-A

Scale: 1:50



PROFILE GRADE

No Scale



SECTION B-B

Scale: 1:50

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HL-93 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. The design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, Third edition - 2004 with 2006 interim revisions.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 420. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

Stations shown on the bridge plans are state plane grid stations based on state plane coordinates (NAD83-1992). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this location is 1.0.

Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake

STREAM DATA

Drift:	Medium
Contraction Scour (Q100):	0.08 m
Ice:	Light
Drainage Area:	16 sq. km
2-year Stage (Q2):	1000.40
Design Flood Flow (Q50):	11 m^3 / sec
* Base Flood Stage (Q100)	1000.72
Design Flood Stage:	1000.68
Design Flood Velocity:	1.4 m/sec
Low Beam Elevation:	1001.316

*Also see Hydraulic Data Summary sheet. Base and Design Flood Stage elevation includes backwater

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER McCALLA CREEK (SOUTH CROSSING)

AT STA. 106+81.240

FEDERAL AID PROJECT NO. ARRA 7-1(118)64

RAVALLI COUNTY

GENERAL LAYOUT

STEVEN D. KNEP 8637E REGISTERED PROFESSIONAL ENGINEER MONTANA

KIRKHAM MICHAEL

DESIGNED	9-15-08	JBR
DRAWN	9-15-08	BAR
CHECKED	9-15-08	SDK
APPROVED		
REVISED		
REVISED		

SCALE: 1:150 (Except as noted)

2016004BRGENZ01AB.DGN

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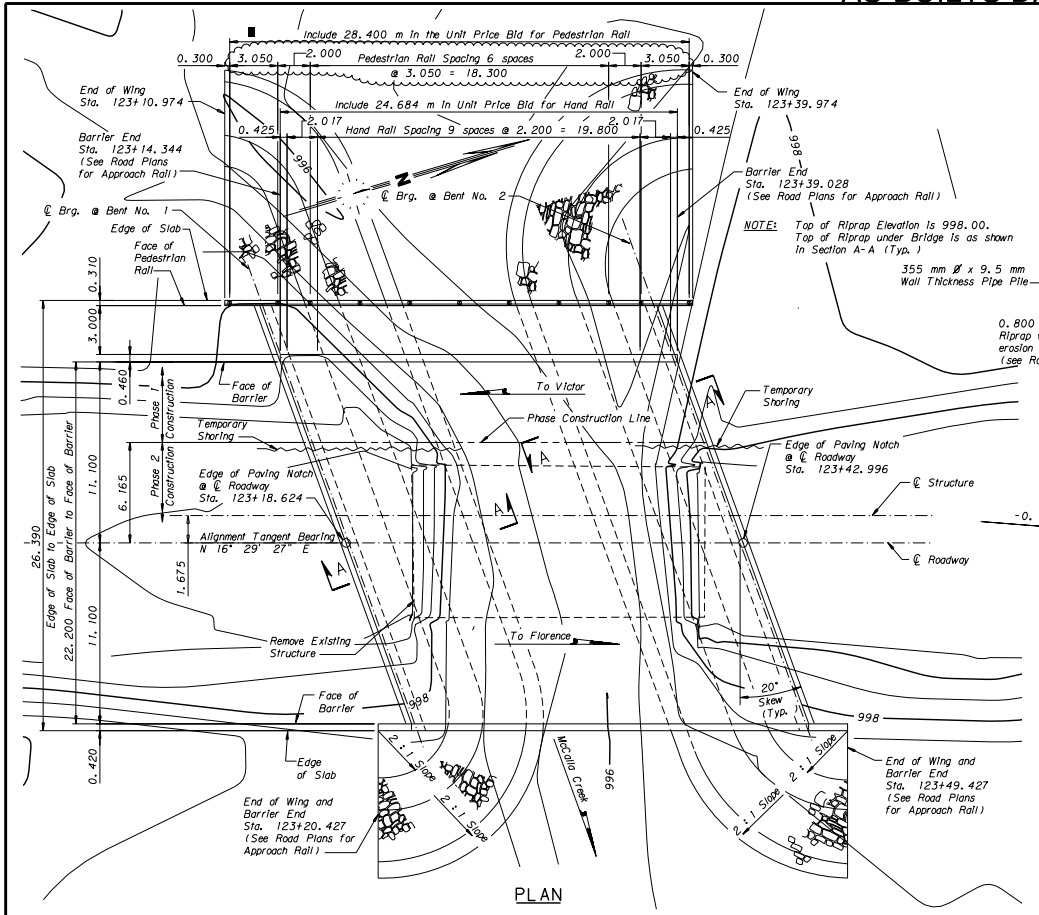
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

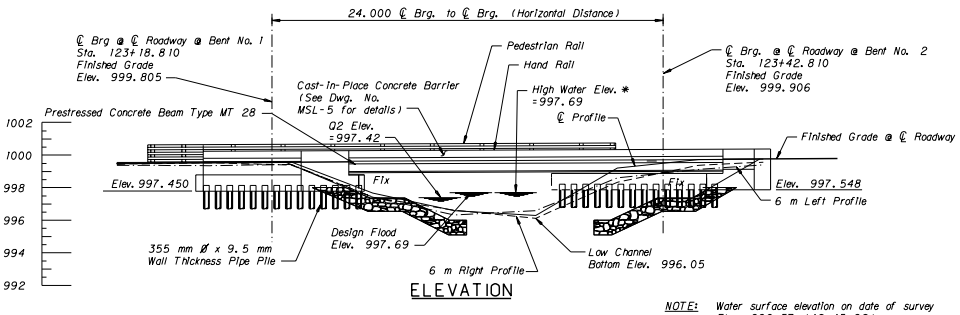
02/04/2011
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-MT 7-1(88)66 F	B2

BRIDGE BUREAU

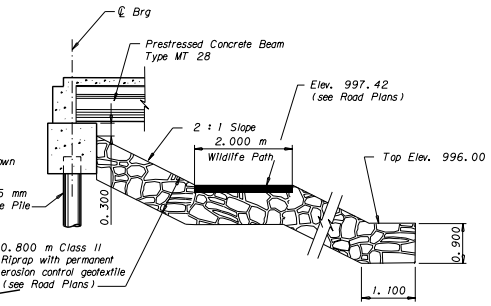


PLAN

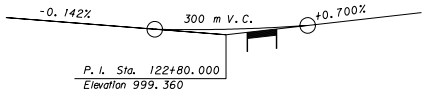


ELEVATION

NOTE: Top of Riprap Elevation is 998.00. Top of Riprap under Bridge is as shown in Section A-A (Typ.)



SECTION A-A
Scale 1:50



PROFILE GRADE
No Scale

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HL-93 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. The design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, Third edition - 2004 with 2006 interim revisions.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 420. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

Stations shown on the bridge plans are state plane grid stations based on state plane coordinates (NAD83-1992). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this location is 1.0.

Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake

STREAM DATA

Drift:	Medium
Pier Scour (Q100):	N/A
Contraction Scour (Q100):	0.13 m
Ice:	Light
Drainage Area:	42 sq. km
2-year Stage (Q2):	997.42
Design Flood Flow (Q50):	24 m³/sec
* Base Flood Stage (Q100)	997.72
* Design Flood Stage:	997.69
Design Flood Velocity:	1.8 m/sec
Low Beam Elevation:	998.561

* Also see Hydraulic Data Summary sheet. Base and Design Flood Stage elevation includes backwater

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER McCALLA CREEK (NORTH CROSSING)
AT STA. 123+30.81
FEDERAL AID PROJECT NO. NH-MT 7-1(88)66 F
RAVALLI COUNTY
GENERAL LAYOUT

Scale 1:150 (Except as noted)

STEVEN D. KNEIP 8637E REGISTERED PROFESSIONAL ENGINEER MONTANA

KIRKHAM MICHAEL

DESIGNED	5-30-07	JBR
DRAWN	5-30-07	BAR
CHECKED	8-01-07	SDK
APPROVED		
REVISED	6-16-08	JBR
REVISED		

2016001BRGENZ01AB.DGN
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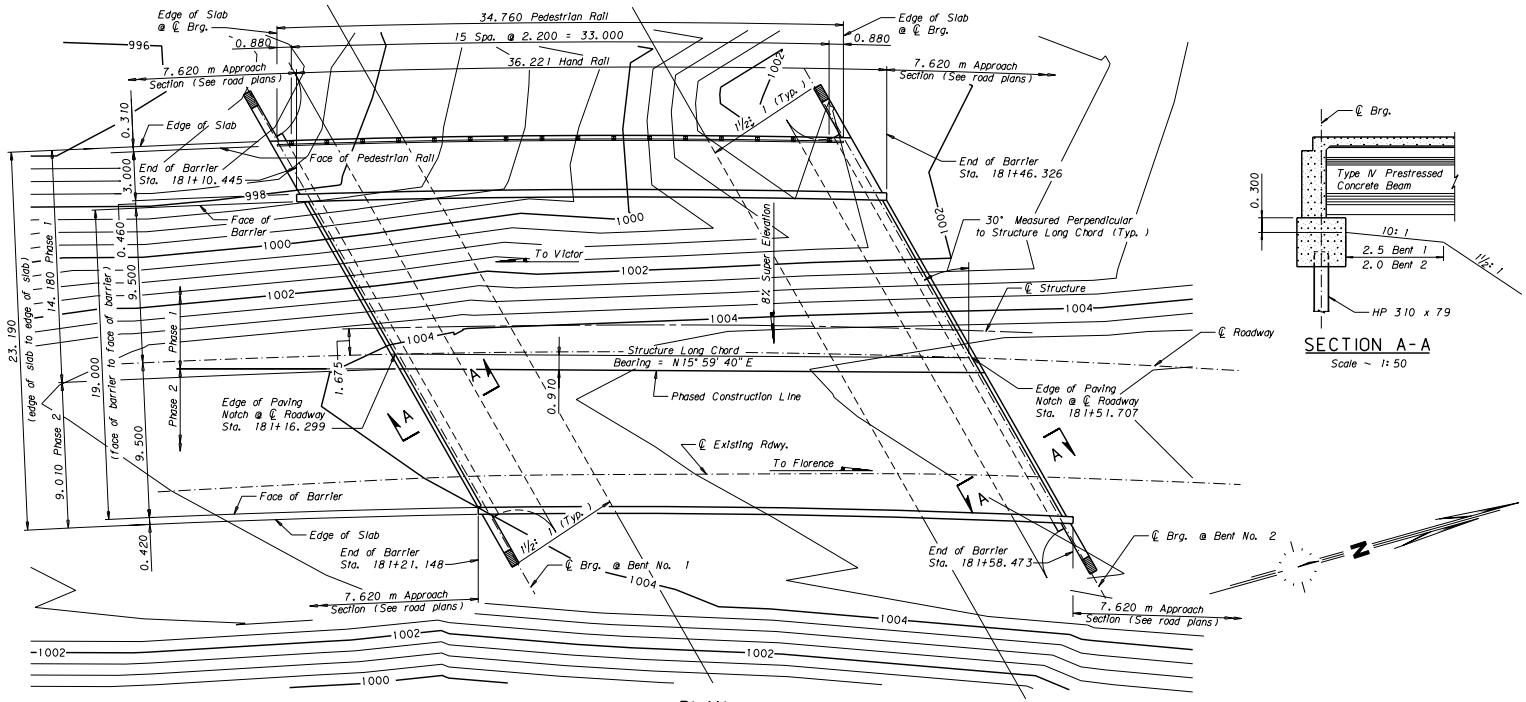
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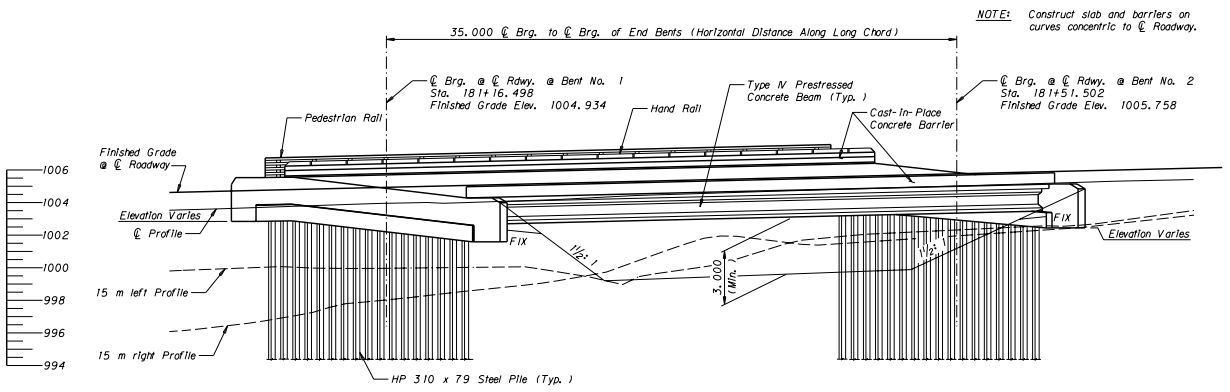
06/30/2016
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(93)68 F	B3

BRIDGE BUREAU



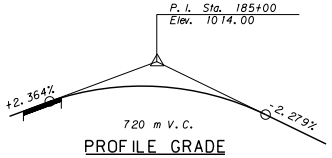
PLAN



ELEVATION

NOTE: Construct slab and barriers on curves concentric to ℄ Roadway.

SECTION A-A
Scale ~ 1:50



PROFILE GRADE
No Scale

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 22.5 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition - 2002, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

CURVE DATA

PI = 180+83.94
Δ = 58° 54' 21" (RT)
R_c = 625 m
L_s = 110.00 m
θ_s = 5° 02' 31"
Δ_c = 48° 49' 18" (RT)
T_s = 408.37 m
L_c = 532.56 m
E_s = 93.69 m
S = 8 %

MONTANA DEPARTMENT OF TRANSPORTATION

WILDLIFE CROSSING
AT STA. 181+34
FEDERAL AID PROJECT NO. NH 7-1(93)68 F
RAVALLI COUNTY
GENERAL LAYOUT

Scale ~ 1:150 (Except as noted)
A016BRGENZ10AB.DGN
FILENAME: ~~A016BRgenz10.dgn~~ DRAWING NO. 18684

MONTANA STEVEN D. KNEP 8637E REGISTERED PROFESSIONAL ENGINEER

WELLS ENGINEERS, INC.

DESIGNED	04-30-03	SDK
DRAWN	04-30-03	BAR
CHECKED	04-30-03	SRO
APPROVED		
REVISED		
REVISED		

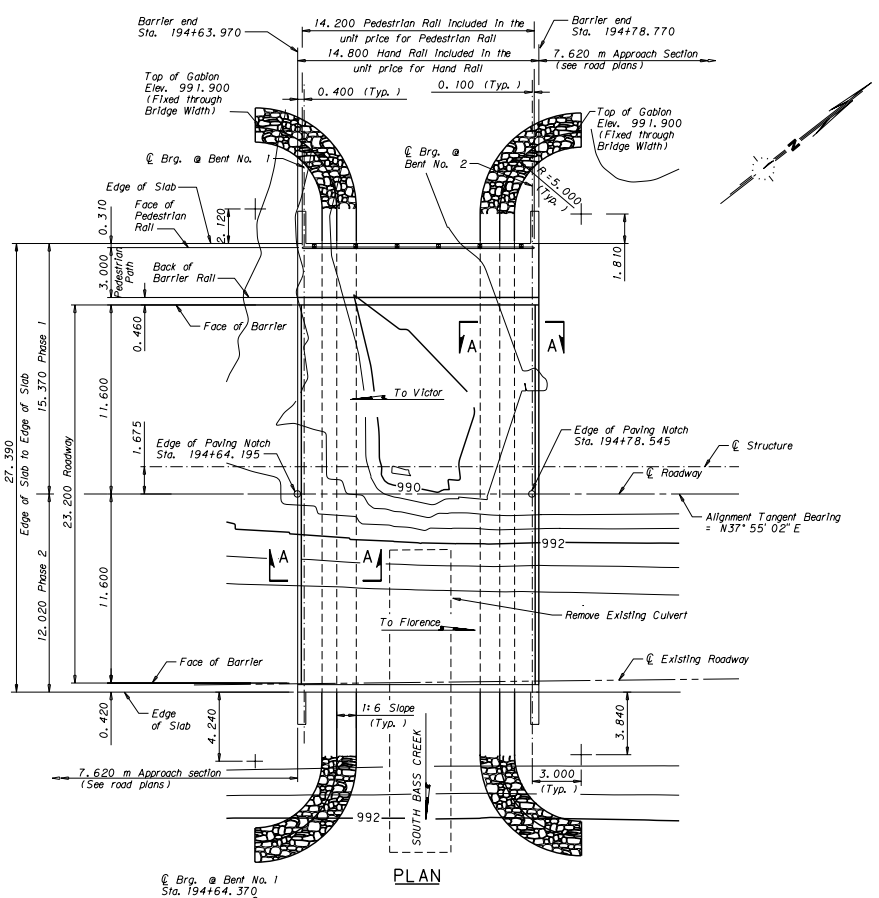
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6/30/2016
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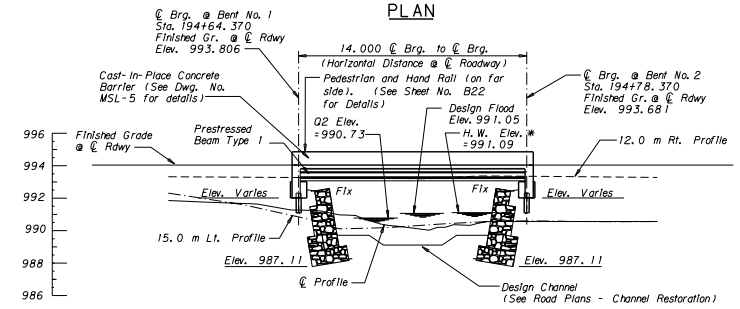
06/30/2016
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(93)68 F	B12

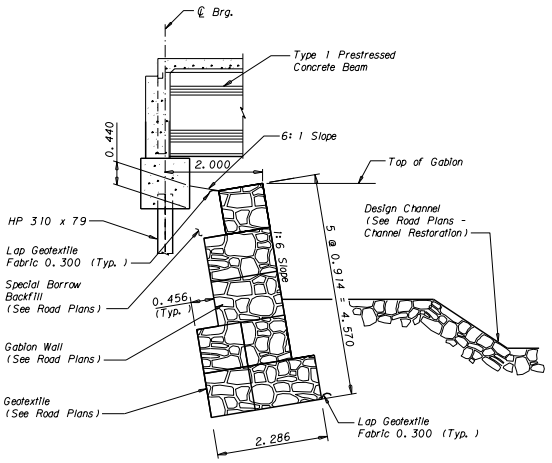
BRIDGE BUREAU



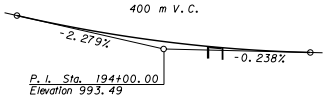
PLAN



ELEVATION



SECTION A-A
No Scale



PROFILE GRADE
No Scale

STREAM DATA

Drift:	Medium
Pier Scour (Q100):	N/A
Contraction Scour (Q100):	0.24 m
Ice:	Light
Drainage Area:	38 sq. km
2-year Stage (Q2):	990.73
Design Flood Flow (Q50):	13 m³/sec
* Base Flood Stage (Q100)	991.09
* Design Flood Stage:	991.05
Design Flood Velocity:	3 m/sec
Low Beam Elevation:	992.46

* Also see Hydraulic Data Summary sheet. Base and Design Flood Stage elevation includes backwater. Base Flood backwater is negligible (0.53 m for existing structure). Design Flood backwater is negligible (0.46 m for existing structure).

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HL-93 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, 1998 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER SOUTH BASS CREEK

AT STA. 194+71.37

FEDERAL AID PROJECT NO. NH 7-1(93)68 F

RAVALLI COUNTY

GENERAL LAYOUT

MONTANA PROFESSIONAL ENGINEER MARK W. VINSON LICENSED 15606PE

INCA ENGINEERS INC.

DESIGNED	11/15/02	MWV
DRAWN	11/15/02	GFM
CHECKED	5/7/03	AA
APPROVED		
REVISED		
REVISED		

Scale ~ 1:150 (Except as noted)

A016BRGENZ20AB.DGN

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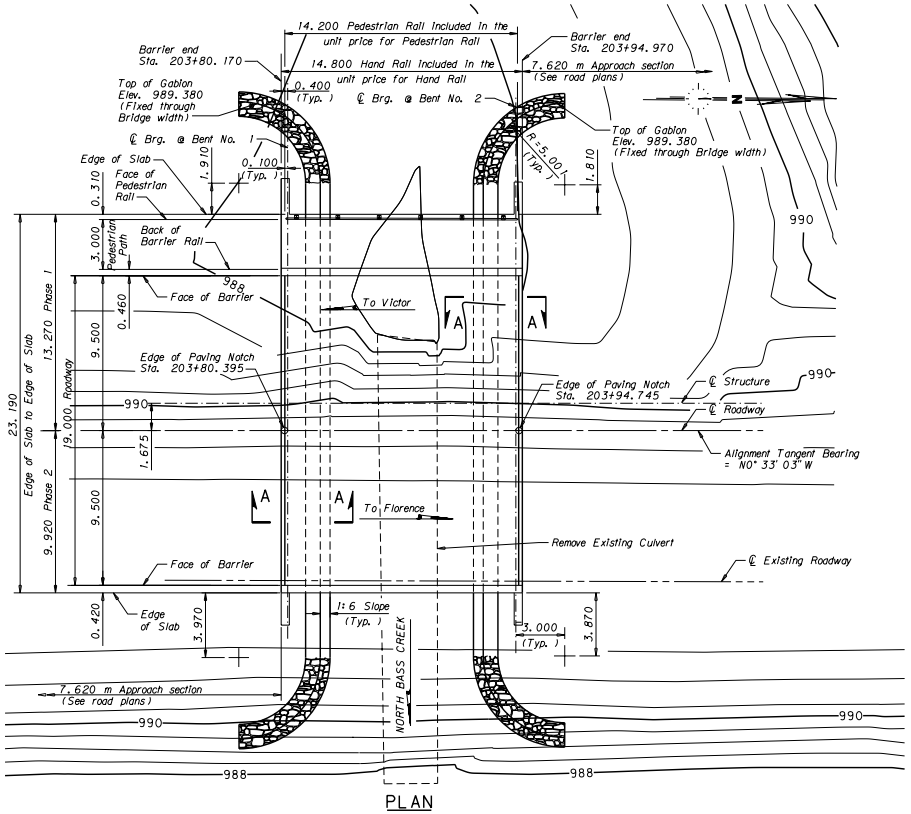
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

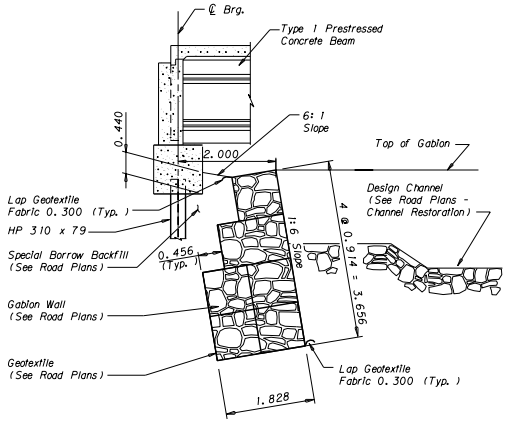
06/30/2016
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(93)68 F	B21

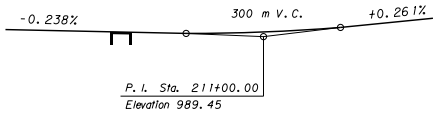
BRIDGE BUREAU



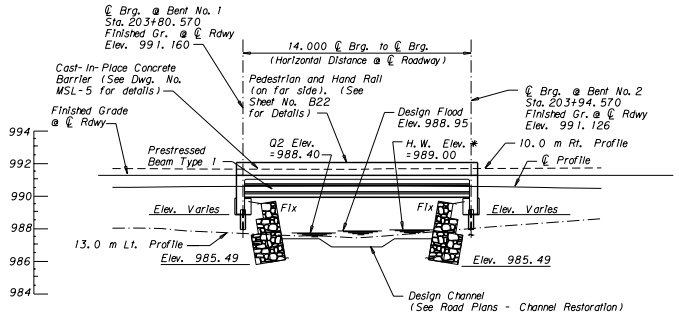
PLAN



SECTION A-A
No Scale



PROFILE GRADE
No Scale



ELEVATION

STREAM DATA

Drift:	Medium
Pier Scour (Q100):	N/A
Contraction Scour (Q100):	0.00 m
Ice:	Light
Drainage Area:	38 sq. km
2-year Stage (Q2):	988.40
Design Flood Flow (Q50):	13 m³/sec
* Base Flood Stage (Q100)	989.00
* Design Flood Stage:	988.95
Design Flood Velocity:	3 m/sec
Low Beam Elevation:	989.92

* Also see Hydraulic Data Summary sheet. Base and Design Flood Stage elevation includes backwater. Base Flood backwater is 0.20 m (0.56 m for existing structure). Design Flood backwater is 0.19 m (0.51 m for existing structure).

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HL-93 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, 1998 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER NORTH BASS CREEK

AT STA. 203+87.57

FEDERAL AID PROJECT NO. NH 7-1(93)68-1

RAVALLI COUNTY

GENERAL LAYOUT

MONTANA PROFESSIONAL ENGINEER LICENSED MARK W. VINSON 15606PE

INCA ENGINEERS INC.

DESIGNED	11/15/02	MWV
DRAWN	11/15/02	GM
CHECKED	5/7/03	AA
APPROVED		
REVISED		
REVISED		

Scale ~ 1:150 (Except as noted)

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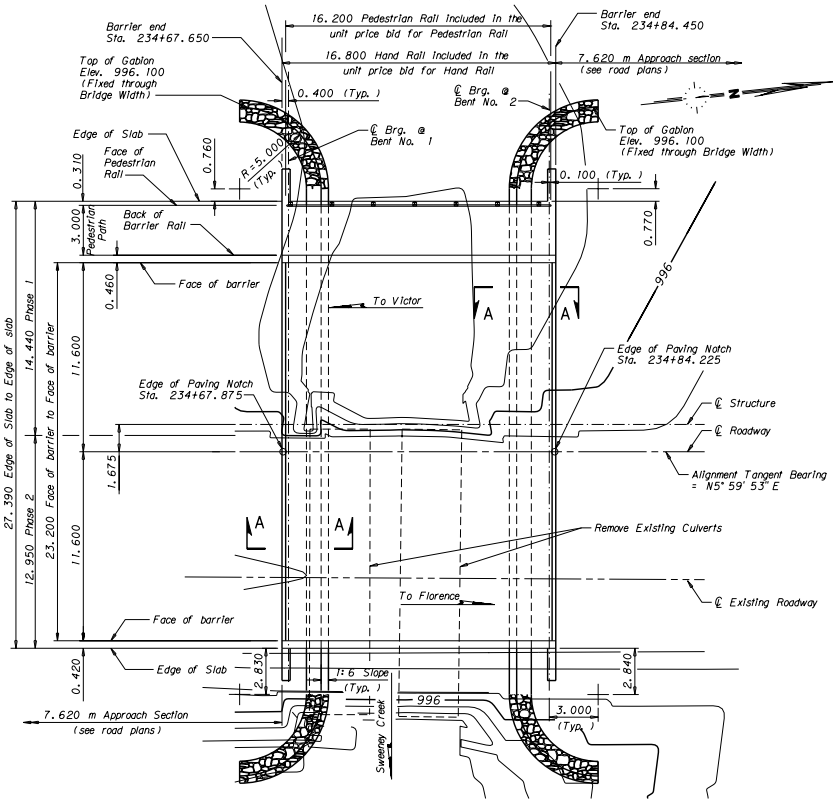
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY 06/30/2016

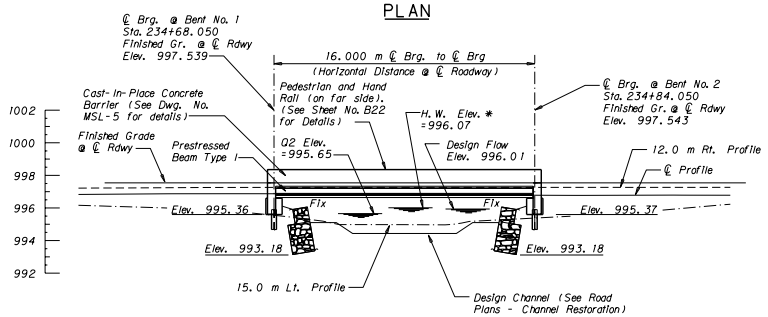
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-1(93)68 F	B30

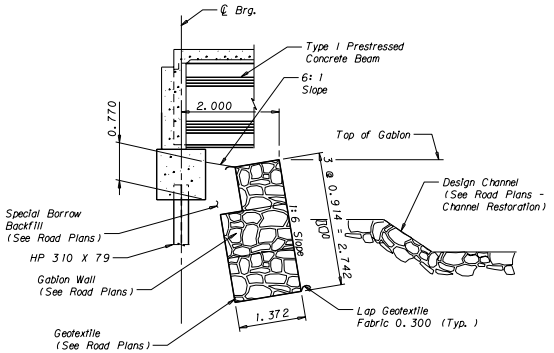
BRIDGE BUREAU



PLAN

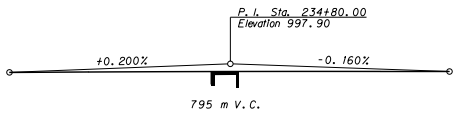


ELEVATION



SECTION A-A

No Scale



PROFILE GRADE

No Scale

STREAM DATA

Drift:	Medium
Pier Scour (Q100):	N/A
Contraction Scour (Q100):	0.02 m
Ice:	Light
Drainage Area:	48 sq. km
2-year Stage (Q2):	995.65
Design Flood Flow (Q50):	26 m³/sec
* Base Flood Stage (Q100)	996.07 (995.79 at upstream bridge face)
* Design Flood Stage:	996.01
Design Flood Velocity:	2 m/sec
Low Beam Elevation:	996.34

*Also see Hydraulic Data Summary sheet. Base and Design Flood Stage elevation includes backwater. Base Flood backwater is 0.09 m (0.50 m for existing structure). Design Flood backwater is 0.08 m (0.42 m for existing structure).

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HL-93 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, 1998 edition, and any amendments thereto.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31M Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Class DD for all substructure concrete and Class SD for all superstructure and barrier concrete.

CONCRETE STRENGTH: Use f'c = 21 MPa for Class DD concrete. Use f'c = 31 MPa for Class SD concrete.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Class DD concrete.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER SWEENEY CREEK

AT STA. 234+76.05

FEDERAL AID PROJECT NO. NH 7-1(93)68 F

RAVALLI COUNTY

GENERAL LAYOUT

MONTANA PROFESSIONAL ENGINEER MARK W. VINSON 15606PE LICENSED

INCA ENGINEERS INC.

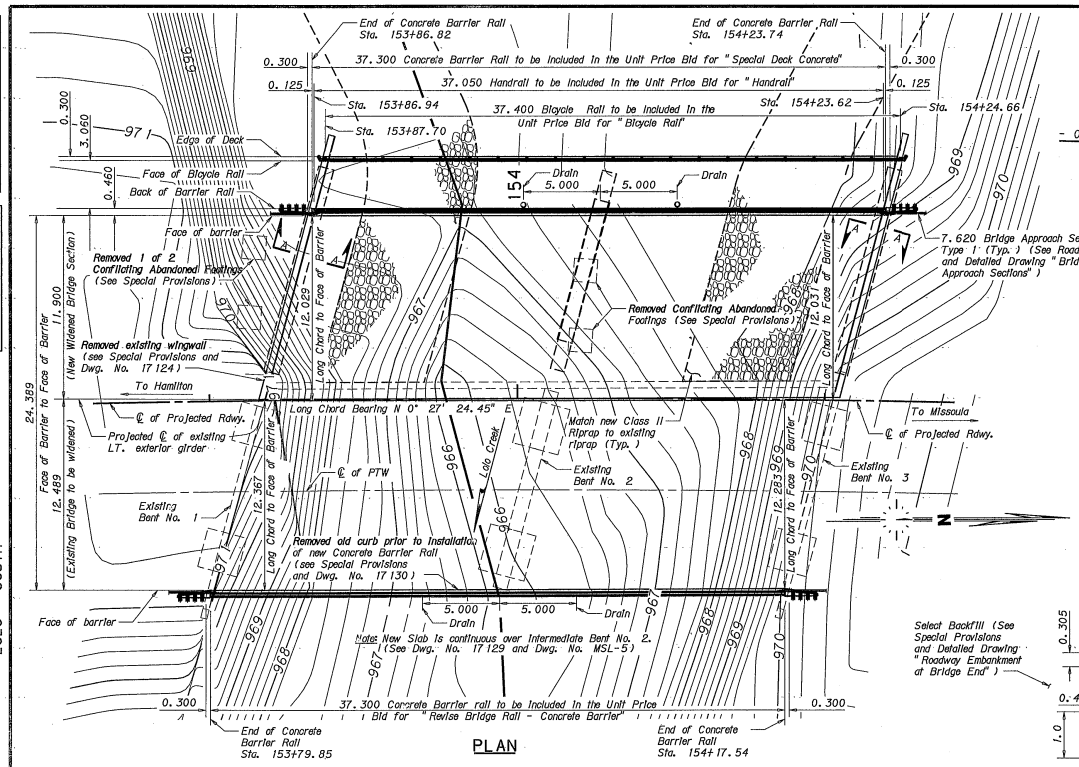
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DRAWN	11/15/02	GFM
CHECKED	5/7/03	AA
APPROVED		
REVISED		
REVISED		

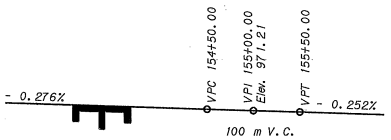
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6/30/2016
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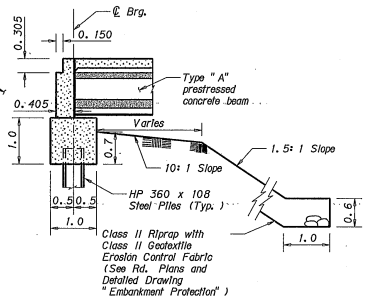


PROFILE GRADE

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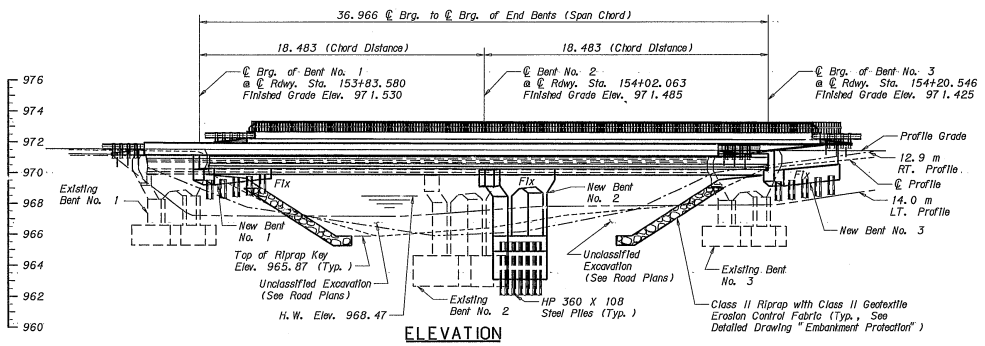
CURVE DATA

PI = 153+34.05
Δ = 14° 01' 54" (RT)
R = 1 315 m
T = 161.83 m
L = 322.04 m
E = 9.92 m
S = 3 %



SECTION A-A

Scale ~ 1:50



ELEVATION

STREAM DATA

Drift:	Light
Scour:	Light
Ice:	Moderate
Drainage Area:	647.5 sq. km
Base Flood Flow (Q100 yr.):	80.6 m³/sec
* Base Flood Stage:	968.61
Base Flood Velocity:	2.33 mps
Low Beam Elevation:	969.770
Q2 Stage:	968.29

Also see Hydraulic Data Summary sheet.
* Base Flood Stage elevation includes backwater

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-2(25)78 F	B2

LOLO - SOUTH

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 183M. Estimated amount = 486 kg.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of ASTM Specification A 615/A 615M-96a Grade 60 (420). Payment for all costs associated with furnishing and placing new reinforcing steel is at the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Except as noted on Dwg. No. 17126 use Class "DD" for all substructure concrete and Class "Special Deck" for all superstructure and barrier concrete unless otherwise approved.

CONCRETE STRENGTH: For structural design purposes only, f'c for Class "DD" concrete = 28 MPa for Bent No. 2 and 21 MPa for all other applications (See Special Provisions); f'c for Class "Special Deck" concrete = 31 MPa. For "Special Deck" mix design requirements see Special Provisions.

STRUCTURE EXCAVATION: "Structure Excavation" is calculated from berm elevations at end bents and natural ground lines at piers as they exist prior to construction.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: For location of utilities, see the appropriate Road Plans sheet.

EXISTING STRUCTURE: Do not disturb the existing structure except as shown in these plans and as described in the Special Provisions

ABANDONED FOOTINGS: Remove only the abandoned footings which conflict with the construction of the new widened bridge. (See Special Provisions)

SEAL DEPTH: Seal depth has been sized to resist hydrostatic uplift forces produced by a water surface elevation of 968.192 If higher elevations are encountered, consult the Engineer for any modifications required to the seal.

DRAINS: See Dwg. No. 17130 for drain details.

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

FORSGREN ASSOCIATES / INC.

WINSTON R. DYER 9352 E REGISTERED PROFESSIONAL ENGINEER

DESIGNED	BHS	3/97
DRAWN	BHS	3/97
CHECKED	DJM	4/98
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER LOLO CREEK

AT STA. 154+02.06

F. A. P. NO. NH 7-2(25)78 F

MISSOULA COUNTY

GENERAL LAYOUT

Scale ~ 1:150 Except as noted

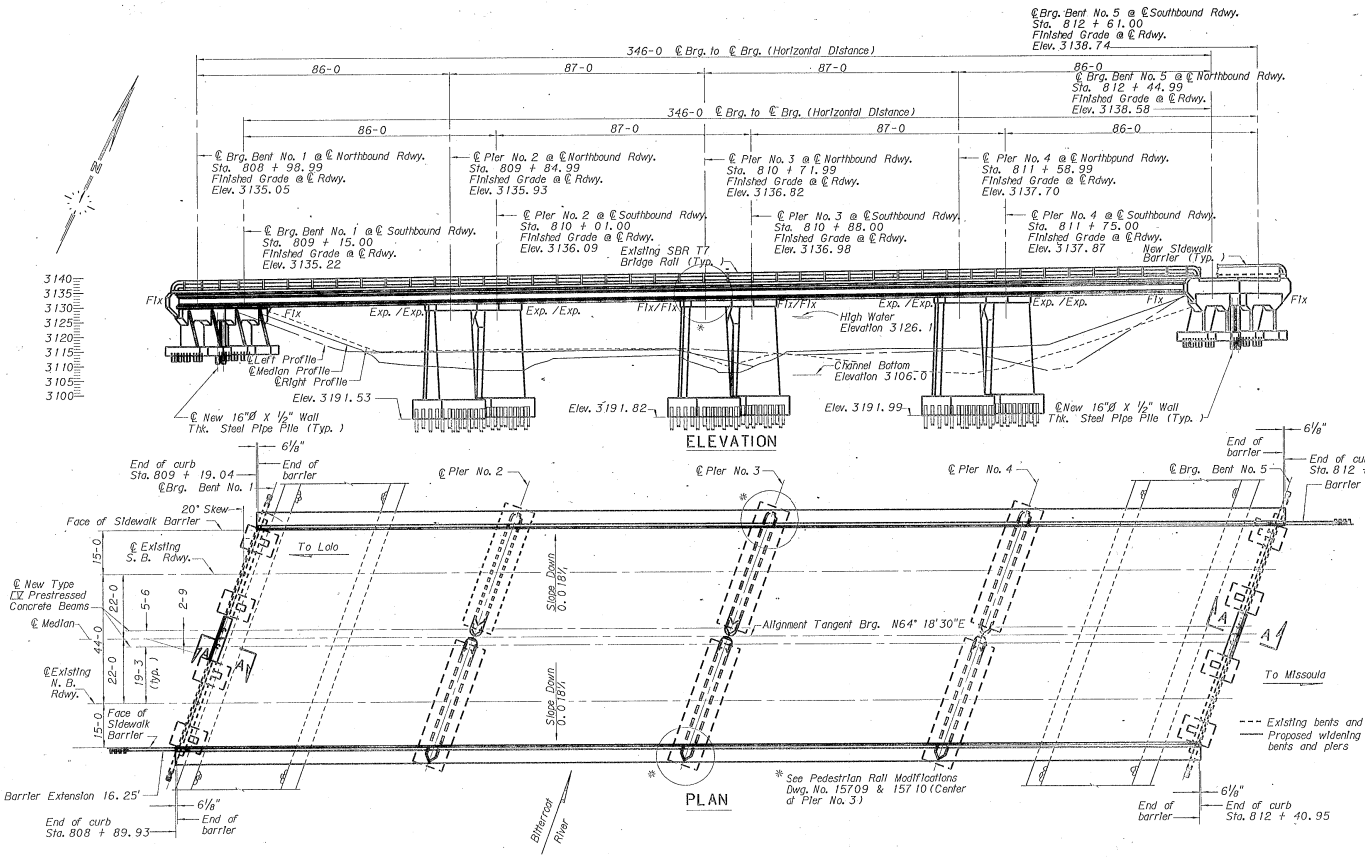
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LOLO - SOUTH

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BRIDGE BUREAU

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 7-2(22)90	B2



NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is 0.40 feet lower than profile grade.

LIVE LOAD: Standard HS 20-44 loading.

SPECIFICATIONS: Montana Department of Highways and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1987 edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with AASHTO Specifications, 1992 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel shall be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimated weight: A36 = 4887 lbs.

REINFORCING STEEL: All reinforcing steel shall be of the deformed type and shall meet the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31).

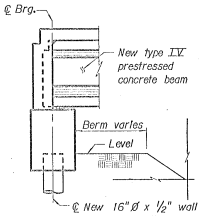
CAST IN PLACE CONCRETE: Unless otherwise approved, all substructure concrete shall be Class "AD" and "DD" and all superstructure concrete shall be Class "BD Modified".

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

STRUCTURE EXCAVATION: Structure excavation shall be measured from EXISTING GROUND LINE before construction.

DIMENSIONS: The dimensions on these plans of the existing structure came from the original drawings. Any changes from the plans shall be approved by the engineer. The contractor shall verify pertinent dimensions of the existing structure in the field before starting work. With the engineer's approval, the contractor may modify the work in the plans to match existing conditions where they differ from the plans.

LOCATION OF UTILITY CONDUITS : the Contractor is to be aware of the conduits attached to the bridge. Special care should be taken so as not to disturb said facilities.



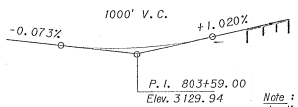
SECTION A-A
Scale : ¼"= 1-0

Class of Concrete	Minimum Required Cylinder Strength to Achieve a 1.0 Pay Factor	Strength for Design Purposes
AD & DD	3400 p.s.i.	3000 p.s.i.
"BD Modified"	3900 p.s.i.	3500 p.s.i.

STREAM DATA

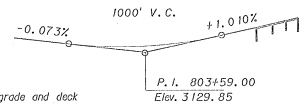
DRIFT : Light
ICE : Light
SCOUR : Severe

* Stream Data was taken from original General Layout Dwg. No. 6527



PROPOSED PROFILE GRADE (ACROSS BRIDGE ONLY)
No Scale

Note : All profile grade and deck elevations are for latex-modified overlay. Add ½ inch to deck elevations for a high-density concrete overlay.



EXISTING PROFILE GRADE
No Scale

DESIGNED	10/13/93	N. N. M.
DRAWN	11/4/93	J. H.
CHECKED	3/21/94	D. J. R.
REVISED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER BITTERROOT RIVER

AT STA. 810 + 80.00

F. A. P. NO. NH 7-2(22)90

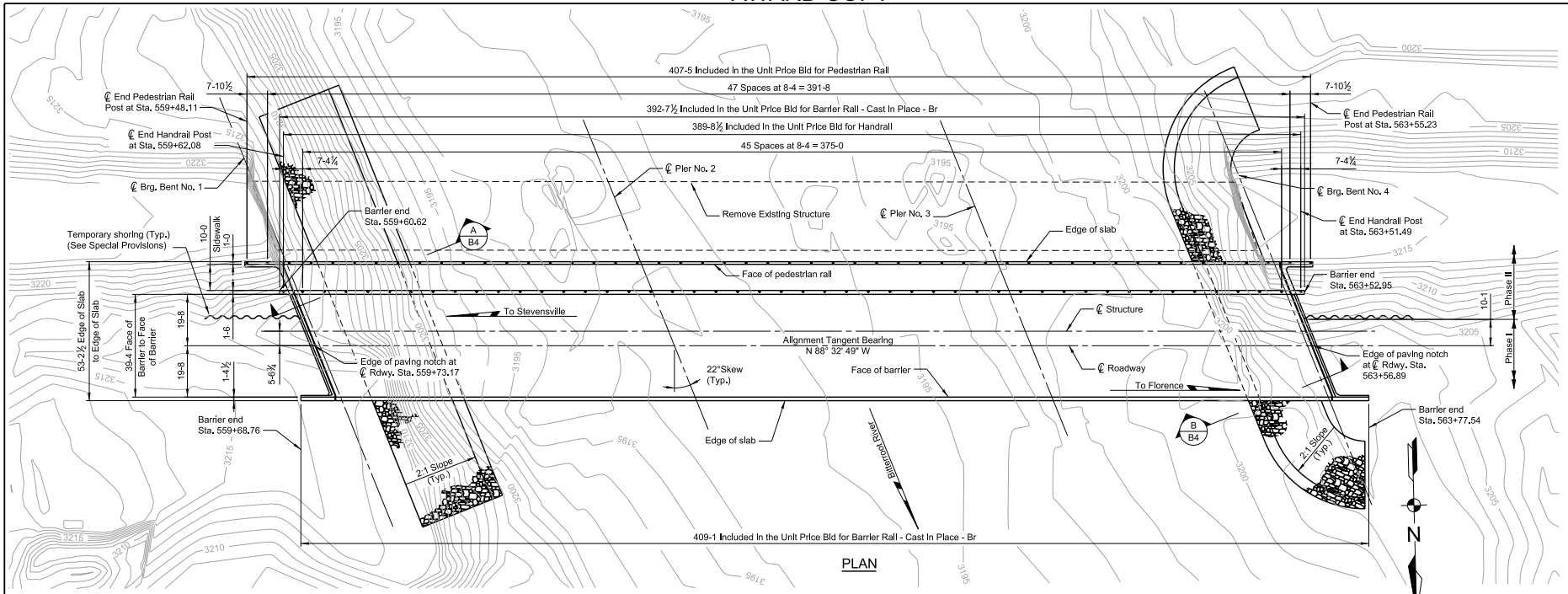
MISSOULA COUNTY

GENERAL LAYOUT

Scale : 1"=20-0 Except as noted

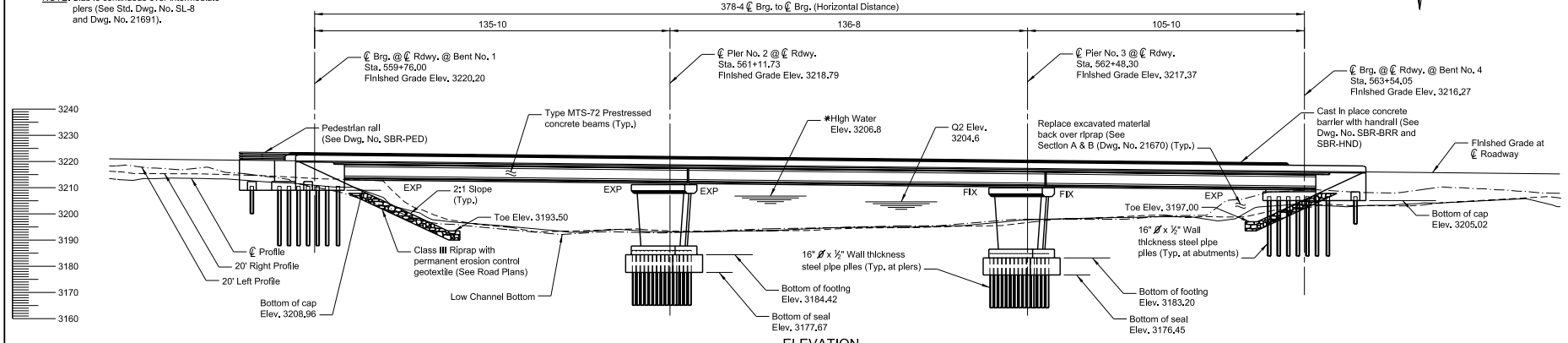
FILE NAME: 1788gl.brg DRAWING NO. 15702

AWARD COPY



PLAN

NOTE: Slab is continuous over intermediate piers (See Std. Dwg. No. SL-8 and Dwg. No. 21691).



ELEVATION

NOTE: Top of riprap Elev. 3207.80 except as shown in Section B Dwg. No. 21670.

NOTE: Water surface on date of survey Elev. 3197.8 (3-3-04)

NOTE: Low Channel Bottom Elev. 3191.3

NOTE: See Dwg. No. 21670 for Hydraulic Data, Profile Grade, & Notes.

SHEET NO. B3

GENERAL LAYOUT - SHEET 1

Scale - 1" = 20'-0"

BRIDGE OVER BITTERROOT RIVER

AT STA. 561+65.03

FEDERAL AID PROJECT NO. STPS-BR 203-1(12)10

RAVALLI COUNTY

MDT MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

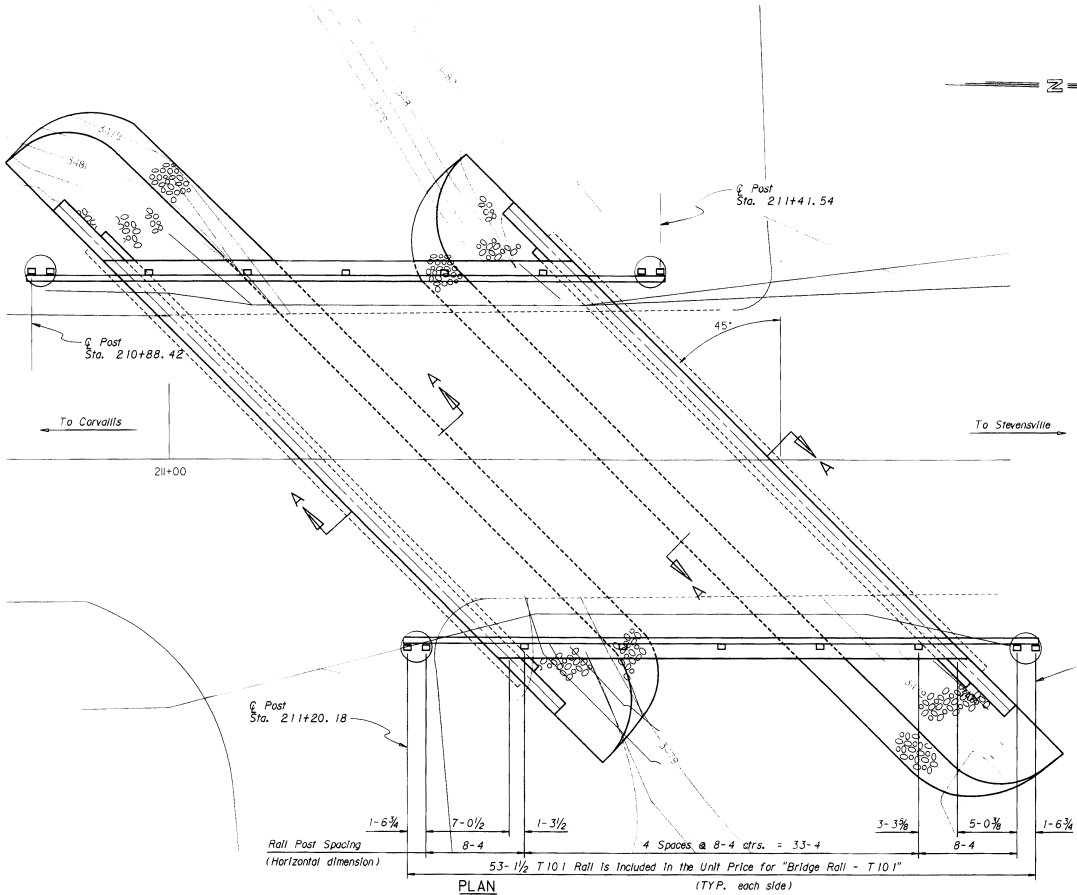
REVISED			
REVISED			
REVISED			
REVISED		C.W.H.	
CHECKED	1-22-13	T.J.B.	
DRAWN	10-20-09	J.E.F.	
DESIGNED	10-14-09	c:\dgn\sbrgen003.dgn	
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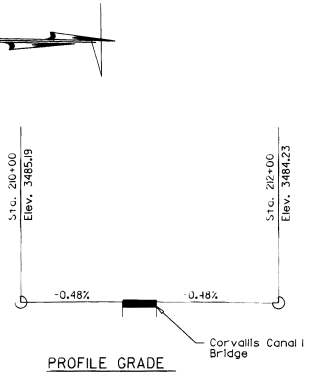
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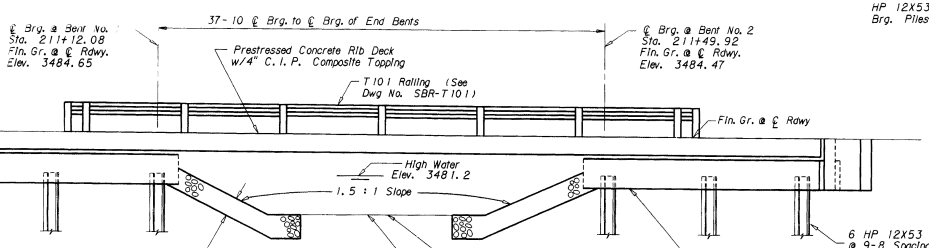
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
MONTANA	STPS 269-1(111)5	B3	B24

CORVALLIS NO. & SO.

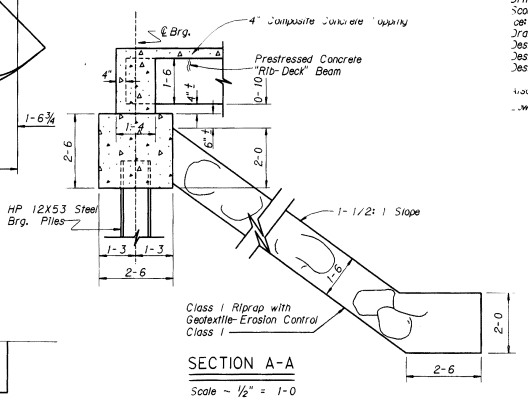




PROFILE GRADE
No Scale



ELEVATION



SECTION A-A
Scale ~ ½" = 1-0

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1995 Edition, and any amendments, thereto, and Special Provisions govern unless otherwise noted. Design prepared in accordance with 1992 AASHTO Specifications, and any amendments thereto.

REINFORCING STEEL: Use deformed type reinforcing steel of the deformed type and meeting the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31).

CAST IN PLACE CONCRETE: Use Class "AD" for all substructure concrete and Class "BD Modified" for all superstructure concrete unless otherwise approved.

STRUCTURE EXCAVATION: The measurement and payment of Structure Excavation is included in other items. Calculated structure excavation from berm elevation. Estimated quantity is 40 CY.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Traffic Control Sheet in Road Plans and "Special Provisions".

UTILITIES: For location of utilities, see the appropriate Road Plan sheet.

STRUCTURAL STEEL: All Structural Steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimated weight = 756 lbs. A 36.

Class of Concrete	Minimum Reqd Cylinder Strength to achieve a 1.0 Pay Factor (p.s.i.)	Strength for Design Purposes (p.s.i.)
"AD"	3400	3000
"BD Modified"	3900	3500

STREAM DATA

Drift:	Light
Scour:	None
Ice:	Light
Drainage Area:	7.47 Sq. Mi.
Design Flow:	225 cfs
Design Flow Elev:	3481.2
Design Velocity:	3.9 fps

Also see Hydraulic Data Summary sheet.
Low Beam Elev. 3482.33

DESIGNED	5/11/95	B. H. S.
DRAWN	5/11/95	M. S. L.
CHECKED	5/11/95	W. R. D.
APPROVED		
REVISED		
REVISED		

PREPARED BY
FORSGREN ASSOCIATES / P.A.
WEST YELLOWSTONE, MT
FOR

STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION

BRIDGE OVER CORVALLIS CANAL I
AT STA. 211+31
FEDERAL AID PROJECT NO. STPS 269-1(111)5
RAVALLI COUNTY

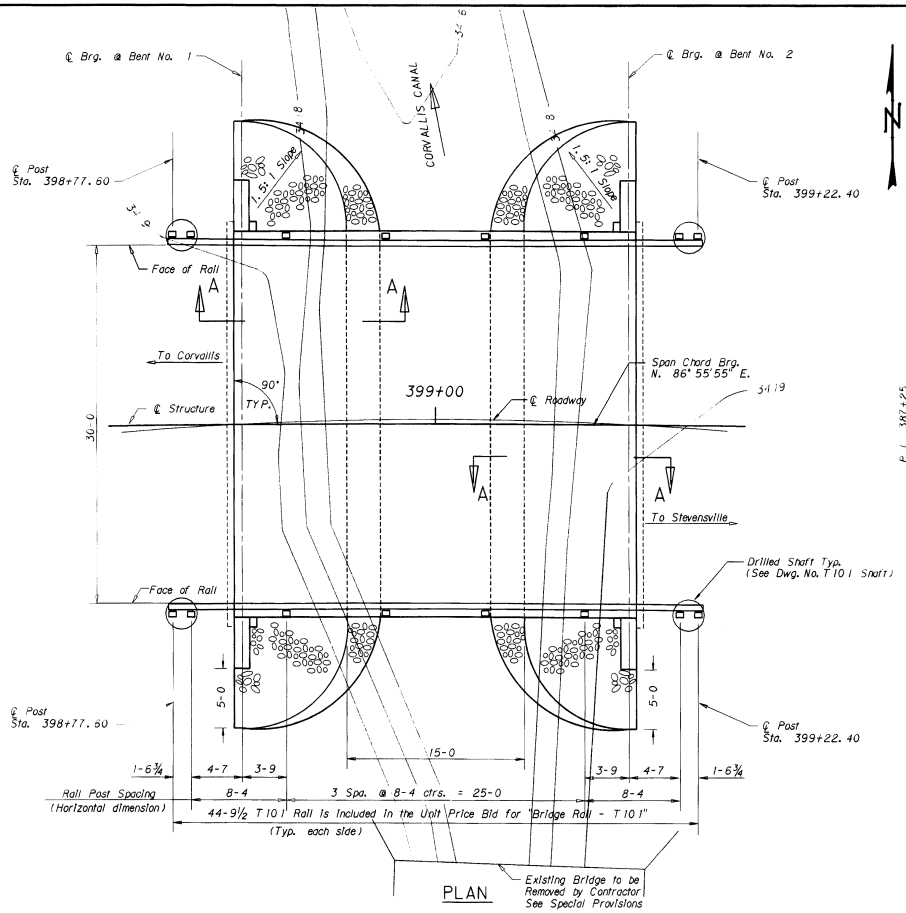
GENERAL LAYOUT

Scale ~ 1" = 5'-0" (except as noted)
DRAWING NO. 16121

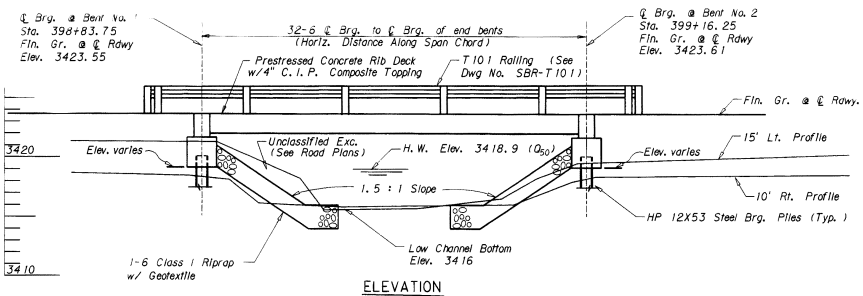
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USER: MSL

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
MONTANA	STPS 269-1(111)5	B7	B24

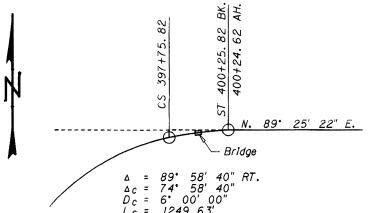
CORVALLIS NO. & SO.



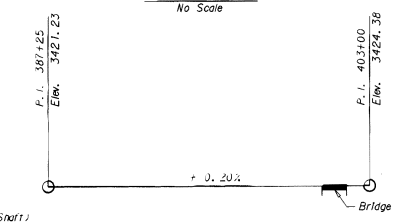
PLAN



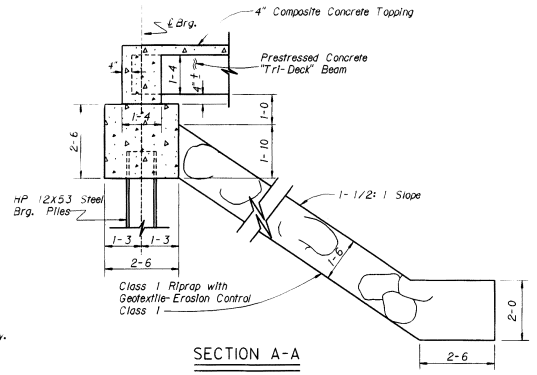
ELEVATION



HORIZ. ALIGN.
No Scale



PROFILE GRADE
No Scale



SECTION A-A
Scale ~ ½" = 1-0

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1995 Edition, and any amendments, thereto, and Special Provisions govern unless otherwise noted. Design prepared in accordance with 1992 AASHTO Specifications, and any amendments thereto.

REINFORCING STEEL: Use reinforcing steel of the deformed type and meeting the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31).

CAST IN PLACE CONCRETE: Use Class "AD" for all substructure concrete and Class "BD Modified" for all superstructure concrete unless otherwise approved.

STRUCTURE EXCAVATION: The measurement and payment of Structure Excavation is included in other items. Calculate structure excavation from berm elevation. Estimated quantity is 15 CY.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Traffic Control Sheet in Road Plans and "Special Provisions".

UTILITIES: For location of utilities, see the appropriate Road Plan sheet.

STRUCTURAL STEEL: All Structural Steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimated weight = 530 lbs. A 36.

Class of Concrete	Minimum Reqd Cylinder Strength to achieve a 1.0 Pay Factor (p.s.i.)	Strength for Design Purposes (p.s.i.)
"AD"	3400	3000
"BD Modified"	3900	3500

STREAM DATA

Drift:	Light
Scour:	None
Debris:	Light
Drainage Area:	12.7 Sq. Mi.
Base Flood Flow (100 yr.):	256 cfs
Base Flood Stage:	3419.0
Base Flood Velocity:	3.7 fps
Also see Hydraulic Data Summary sheet.	
Low Beam Elev.	3421.32

DESIGNED	1/31/92	W. R. D.
DRAWN	2/10/92	M. J. J.
CHECKED	1/28/94	W. R. D.
APPROVED		
REVISED		
REVISED		

PREPARED BY
FORSGREN ASSOCIATES / P.A.
WEST YELLOWSTONE, MT
FOR

STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION

BRIDGE OVER CORVALLIS CANAL II

AT STA. 399+00

FEDERAL AID PROJECT NO. STPS 269-1(111)5

RAVALLI COUNTY

GENERAL LAYOUT

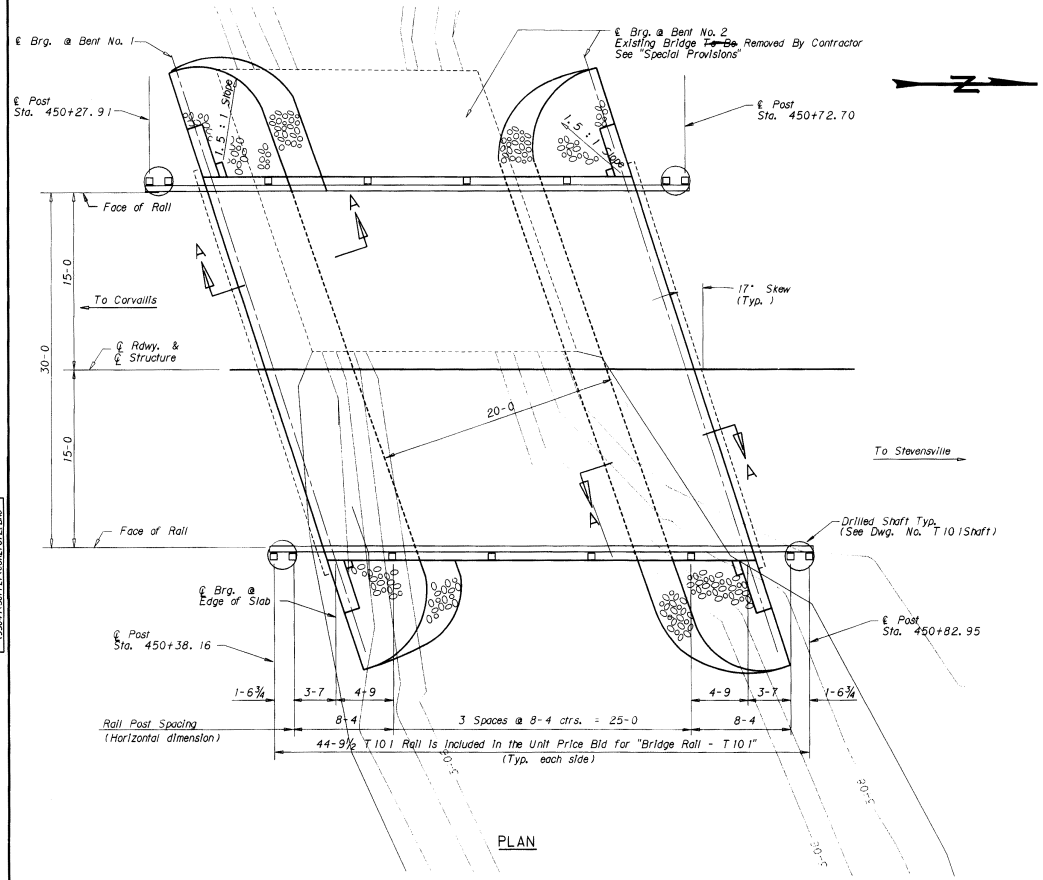
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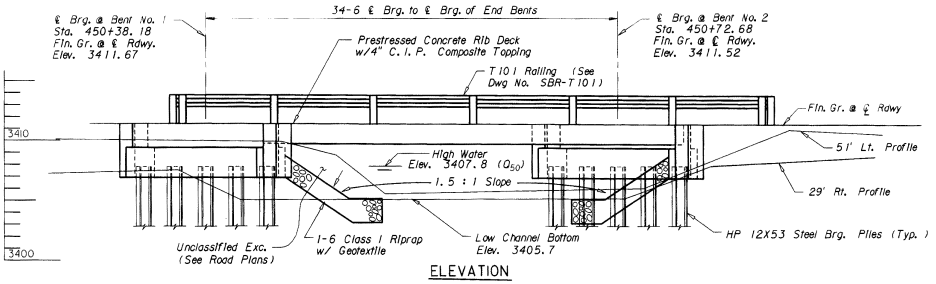
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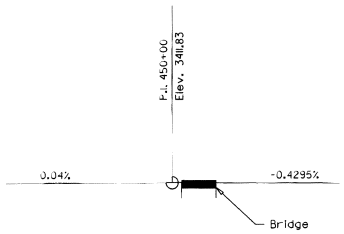
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DATE: 18-Jul-96 14:10
PLOT SCALE: 1.00
USER: CJR
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STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
MONTANA	STPS 269-1(11)5	B11	B24

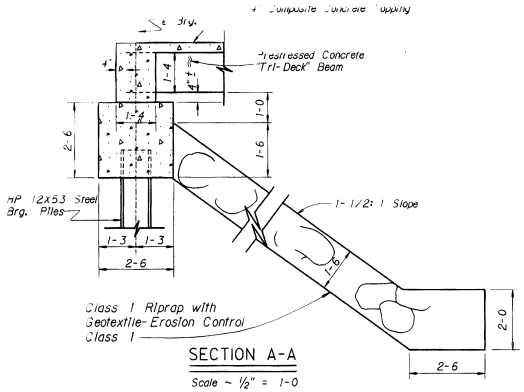
CORVALLIS NO. & SO.







PROFILE GRADE
No Scale



SECTION A-A
Scale ~ ½" = 1-0

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1995 Edition, and any amendments, thereto, and Special Provisions govern unless otherwise noted. Design prepared in accordance with 1992 AASHTO Specifications, and any amendments thereto.

REINFORCING STEEL: Use deformed reinforcing steel of the deformed type and meeting the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31).

CAST IN PLACE CONCRETE: Use Class "AD" for all substructure concrete and Class "BD Modified" for all superstructure concrete unless otherwise approved.

STRUCTURE EXCAVATION: The measurement and payment of Structure Excavation is included in other items. Calculate structure excavation from berm elevation. Estimated quantity is 15 CY.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Traffic Control Sheet in Road Plans and "Special Provisions".

UTILITIES: For location of utilities, see the appropriate Road Plan sheet.

STRUCTURAL STEEL: All Structural Steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimated weight = 553 lbs. A 36.

Class of Concrete	Minimum Reqd Cylinder Strength to achieve a 1.0 Pay Factor (p.s.i.)	Strength for Design Purposes (p.s.i.)
"AD"	3400	3000
"BD Modified"	3900	3500

STREAM DATA

Drift:	Light
Scour:	None
Ice:	Light
Drainage Area:	14.6 Sq. Mi.
Base Flood Flow (100 yr.):	272 cfs
Base Flood Stage:	3407.9
Base Flood Velocity:	4.3 fps

Also see Hydraulic Data Summary sheet.

Low Beam Elev. 3409.54

DESIGNED	1/31/92	W. R. D.
DRAWN	5/11/95	M. S. L.
CHECKED	5/11/95	W. R. D.
APPROVED		
REVISED		
REVISED		

PREPARED BY
FORSGREN ASSOCIATES / P.A.
WEST YELLOWSTONE, MT
FOR

STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION

BRIDGE OVER SUPPLY DITCH

AT STA. 450+55.43

FEDERAL AID PROJECT NO. STPS 269-1(11)5

RAVALLI COUNTY

GENERAL LAYOUT

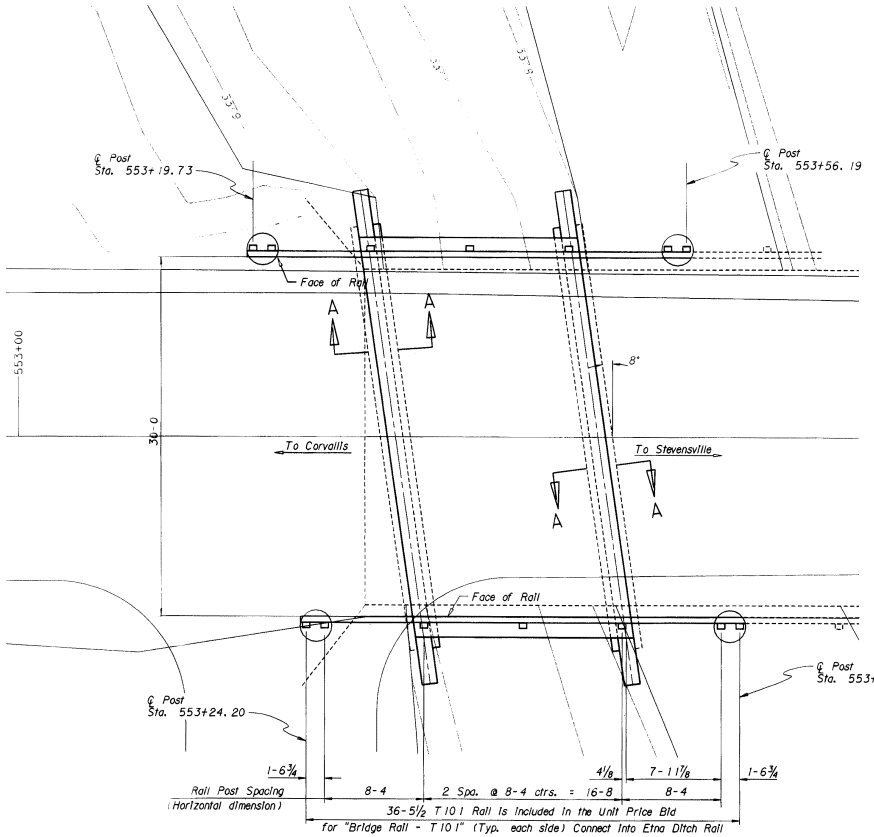
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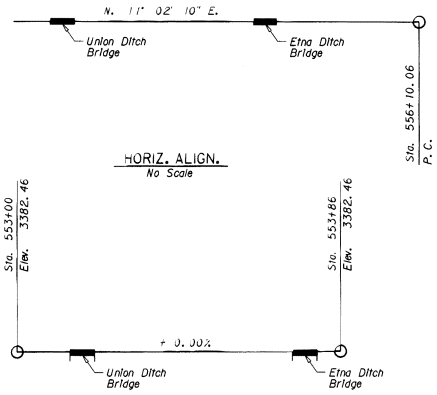
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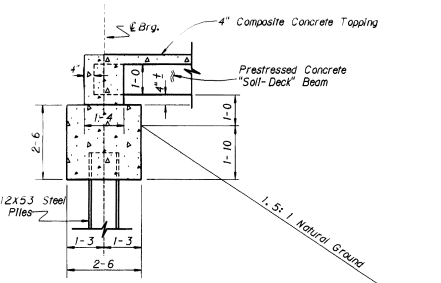
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
MONTANA	STPS 269-1(11)5	B15	B24

CORVALLIS NO. & SO.



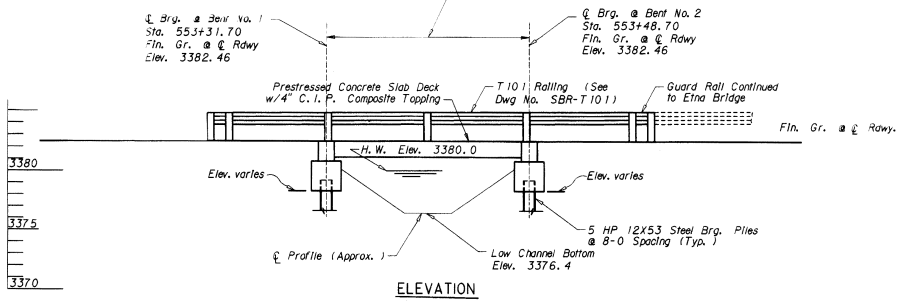


Class of Concrete	Minimum Reqd Cylinder Strength to achieve a 1.0 Pay Factor (p.s.i.)	Strength for Design Purposes (p.s.i.)
"AD"	3400	3000
"BD Modified"	3900	3500



SECTION A-A

Scale ~ ½" = 1'-0"



ELEVATION

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1995 Edition, and any amendments, thereto, and Special Provisions govern unless otherwise noted. Design prepared in accordance with 1992 AASHTO Specifications, and any amendments thereto.

REINFORCING STEEL: Use deformed reinforcing steel of the type and meeting the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31).

CAST IN PLACE CONCRETE: Use Class "AD" for all substructure concrete and Class "BD Modified" for all superstructure concrete unless otherwise approved.

STRUCTURE EXCAVATION: The measurement and payment of Structure Excavation is included in other items. Calculate structure excavation from berm elevation. Estimated quantity is 15 CY.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Traffic Control Sheet in Road Plans and "Special Provisions".

UTILITIES: For location of utilities, see the appropriate Road Plan sheet.

STRUCTURAL STEEL: All Structural Steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimated weight = 540 lbs. A 36.

STREAM DATA

Drift:	Light
Scour:	None
Ice:	Light
Drainage Area:	0 Sq. Mi. (Irr. Flow Only)
Design Flow:	60 cfs
Design Flow Elev.:	3380.0
Velocity:	1.8 fps

Also see Hydraulic Data Summary sheet.

Low Beam Elev. 3380.80

DESIGNED	5/11/95	B. H. S.
DRAWN	5/11/95	M. S. L.
CHECKED	5/11/95	W. R. D.
APPROVED		
REVISED		
REVISED		

PREPARED BY

FORSGREN ASSOCIATES / P.A.

WEST YELLOWSTONE, MT

FOR

STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION

BRIDGE OVER UNION DITCH

AT STA. 553+40.20

FEDERAL AID PROJECT NO. STPS 269-1(11)5

RAVALLI COUNTY

GENERAL LAYOUT

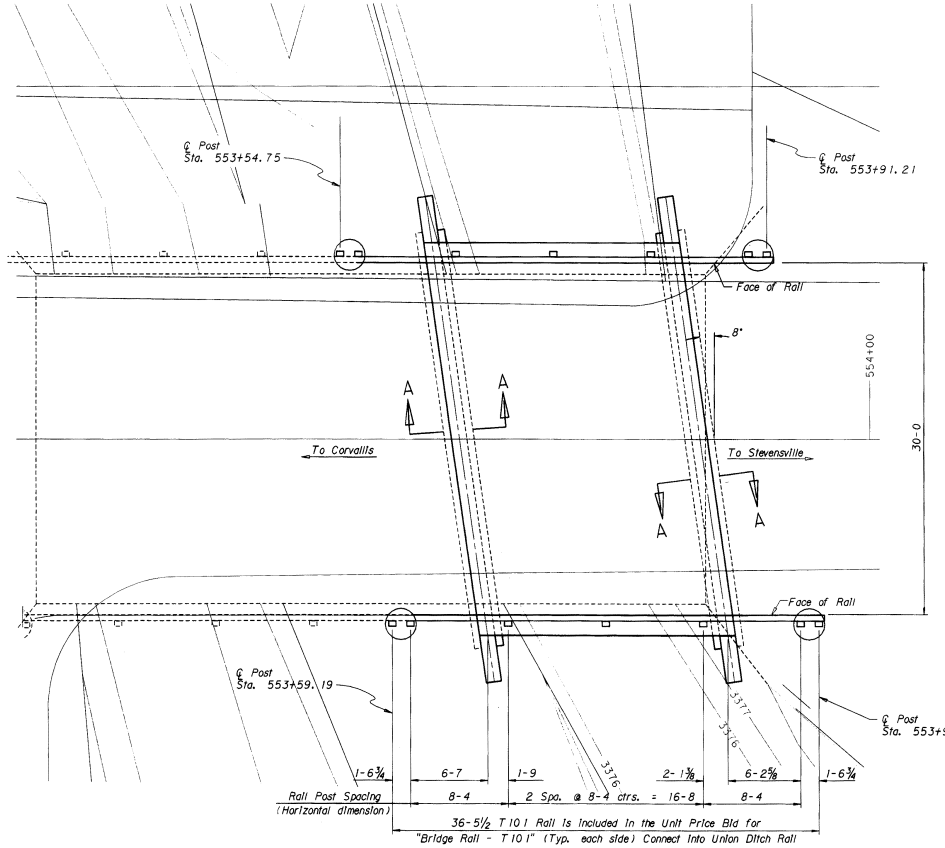
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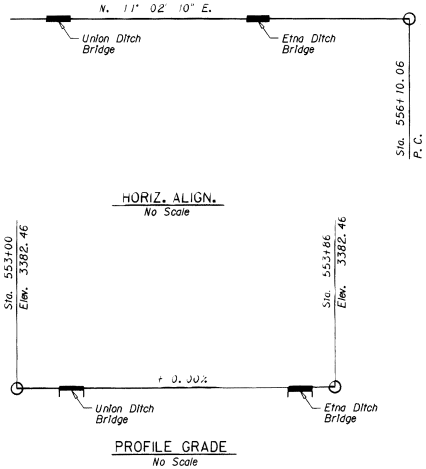
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STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
MONTANA	STPS 269-1(11)5	B19	B24

CORVALLIS NO. & SO.





NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1995 Edition, and any amendments, thereto, and Special Provisions govern unless otherwise noted. Design prepared in accordance with 1992 AASHTO Specifications, and any amendments thereto.

REINFORCING STEEL: Use reinforcing steel of the deformed type and meeting the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31).

CAST IN PLACE CONCRETE: Use Class "AD" for all substructure concrete and Class "BD Modified" for all superstructure concrete unless otherwise approved.

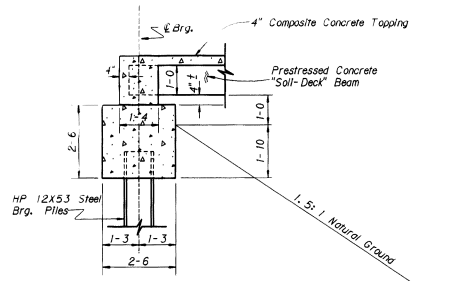
STRUCTURE EXCAVATION: The measurement and payment of Structure Excavation is included in other items. Calculate structure excavation from berm elevation. Estimated quantity is 15 CY.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Traffic Control Sheet in Road Plans and "Special Provisions".

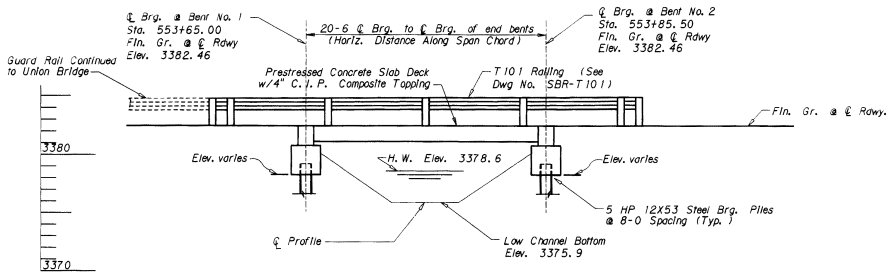
UTILITIES: For location of utilities, see the appropriate Road Plan sheet.

STRUCTURAL STEEL: All Structural Steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimated weight = 540 lbs. A 36.

Class of Concrete	Minimum Reqd Cylinder Strength to achieve a 1.0 Pay Factor (p.s.i.)	Strength for Design Purposes (p.s.i.)
"AD"	3400	3000
"BD Modified"	3900	3500



SECTION A-A
Scale ~ ½" = 1-0



ELEVATION

STREAM DATA

Drift:	Light
Scour:	None
Ice:	Light
Drainage Area:	0 Sq. Mi. (Irr. Flow Only)
Design Flow:	50 cfs
Design Flow Elev.:	3378.6
Velocity:	2.2 fps

Also see Hydraulic Data Summary sheet.

Low Beam Elev. 3380.47

DESIGNED	5/11/95	B.H.S.
DRAWN	5/11/95	M.S.L.
CHECKED	5/11/95	W.R.D.
APPROVED		
REVISED		
REVISED		

PREPARED BY
FORSGREN ASSOCIATES / P.A.
WEST YELLOWSTONE, MT
FOR

STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION

BRIDGE OVER ETNA DITCH

AT STA. 553+75.25

FEDERAL AID PROJECT NO. STPS 269-1(11)5

RAVALLI COUNTY

GENERAL LAYOUT

Scale ~ 1" = 5'-0" (except as noted)

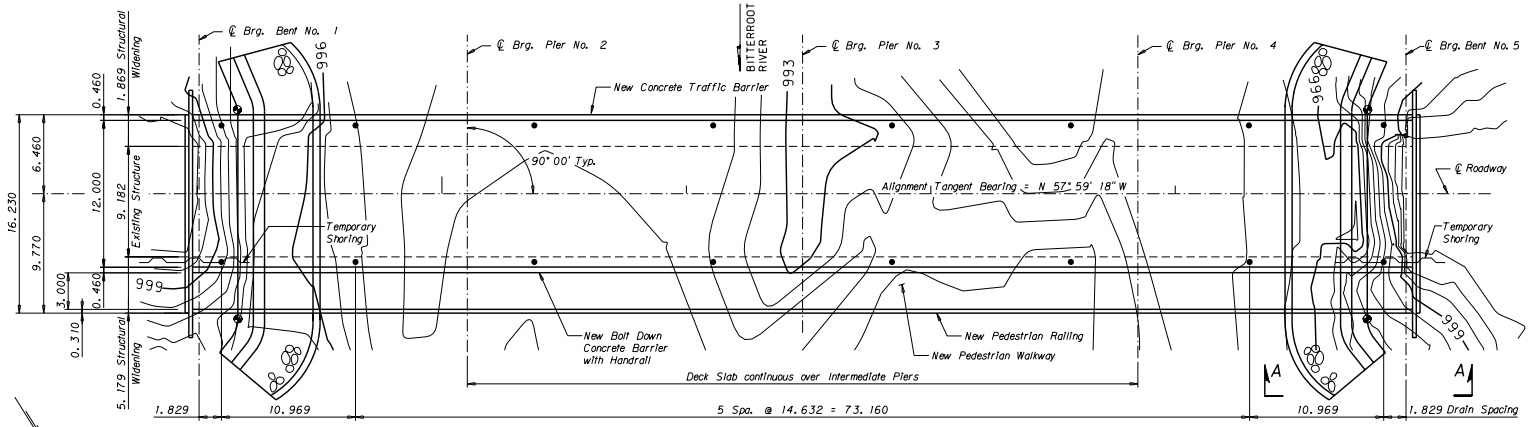
DRAWING NO. 16137

MONTANA
DATE: 18-JUL-96 15:30
PLOT SCALE 1=5.00
USER: MSL
CADD
DWG\53941\ETNAGEN.DWG

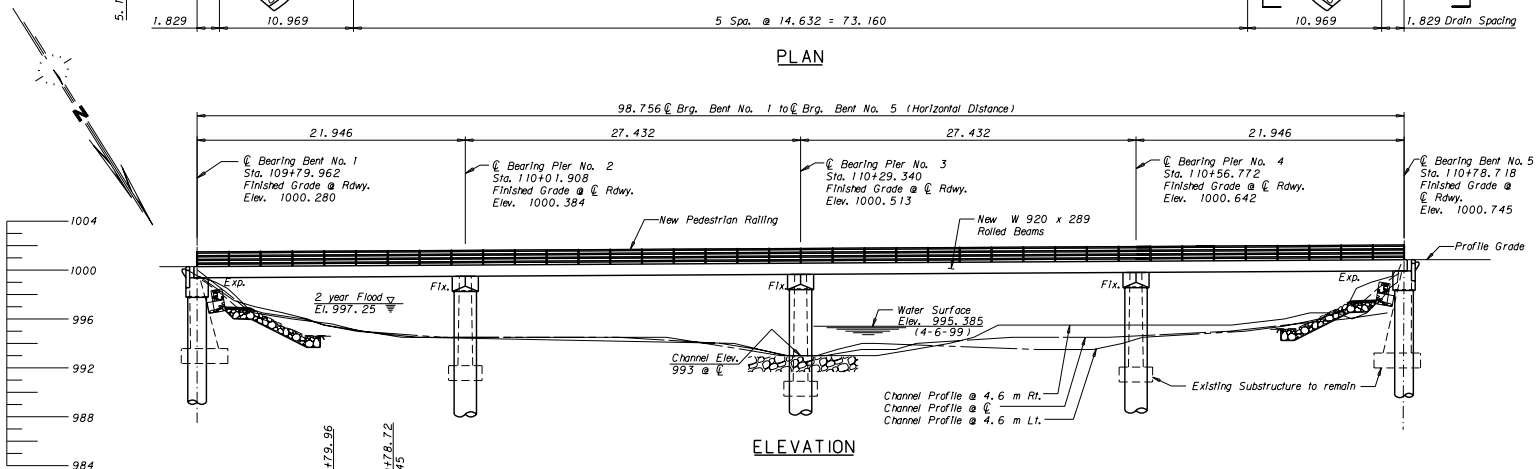
AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY 02/18/2015 Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	BH 269-1(22)21	B2

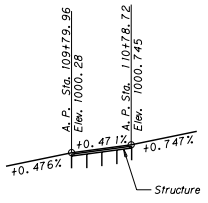
BRIDGE BUREAU



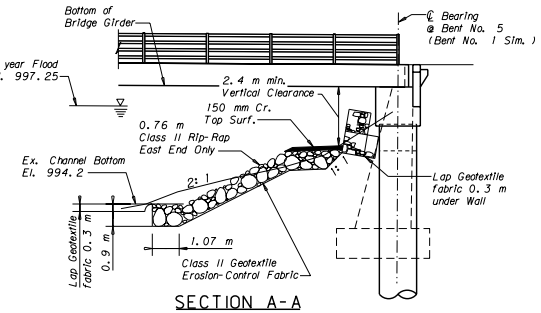
PLAN



ELEVATION



PROFILE GRADE
No Scale



SECTION A-A
Scale - 1:100

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard MS 18 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition, and any amendments thereto.

STRUCTURAL STEEL: All structural steel is measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M270M, Grade 345WT3. Estimated amount = 108,800kg.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of ASTM Specification A 615/A 615M-96a Grade 60 (420). Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

CAST IN PLACE CONCRETE: Use Class "DD" for all substructure concrete and Class "Special Deck" for all superstructure concrete unless otherwise approved.

CONCRETE STRENGTH: For structural design purposes only, f'c for Class "DD" concrete = 21 MPa ; f'c for Class "Special Deck" concrete = 28 MPa. For "Special Deck" mix design requirements see Special Provisions.

STRUCTURE EXCAVATION: "Structure Excavation" is calculated from berm elevations.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: For location of utilities, see the appropriate Road Plans sheet.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

DIMENSIONS: All dimensions shown on the General Layout are in meters. All other drawings are dimensioned in millimeters except as noted. Stations and elevations are expressed in meters.

STREAM DATA:

Drift:	Slight
Scour:	Slight
Ice:	Medium
Drainage Area:	5737 sq. km
Base Flood Flow (q 100yr.):	762.7 m³/sec
* Base Flood Stage:	997.88 m
Base Flood Velocity:	3.26 m/s
Low Beam Elevation:	998.93 m

* The Base Flood Flow includes backwater.

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER BITTERROOT RIVER

NORTHWEST OF STEVENSVILLE

FED. AID PROJECT NO. BH 269-1(22)21

RAVALLI COUNTY

GENERAL LAYOUT

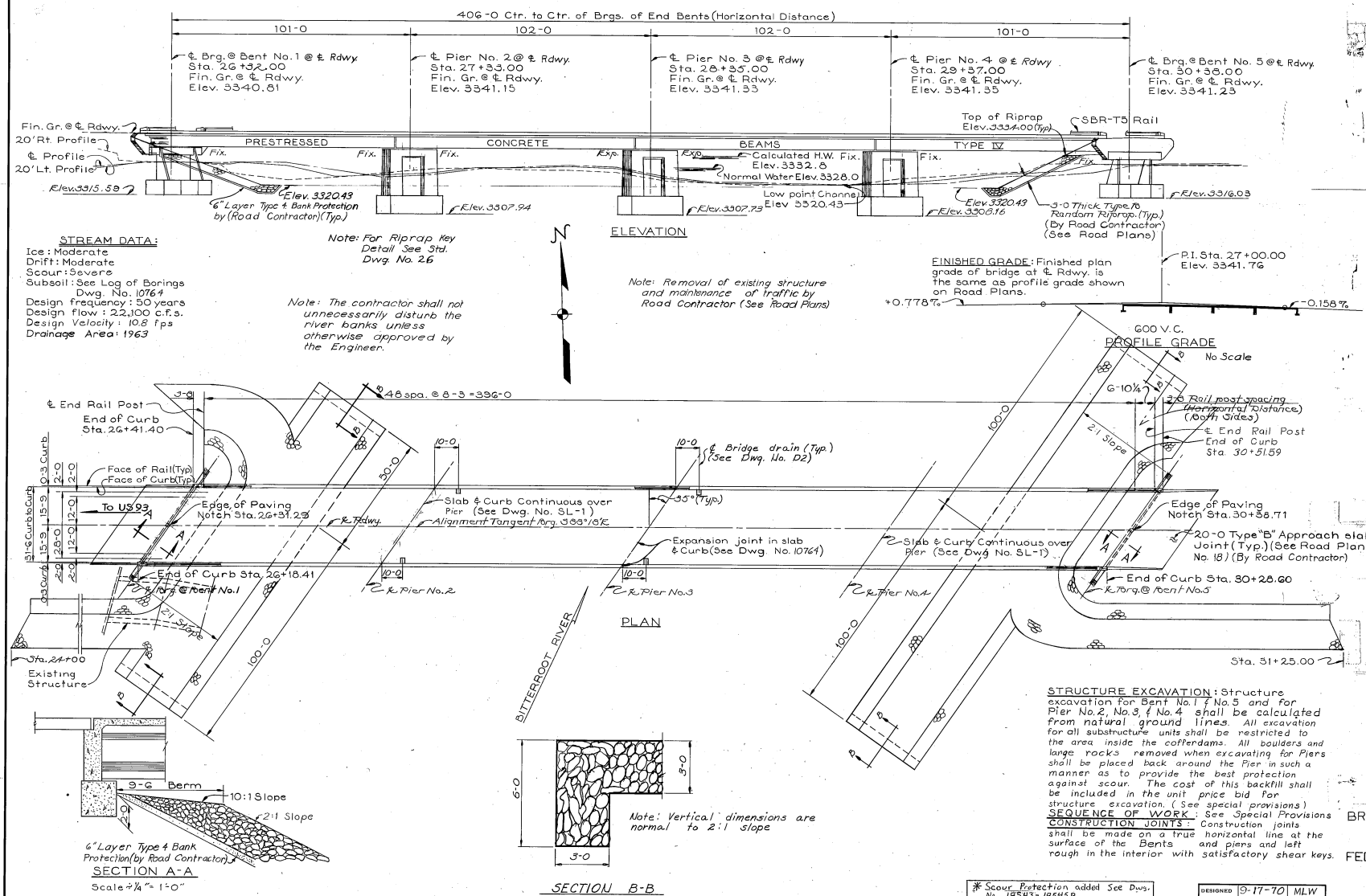
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DESIGNED		DWK
DRAWN		GWS
CHECKED		ATL
APPROVED		
REVISED	01.18.00	ATL
REVISED		

Sverdrup CIVIL, INC.

FILENAME: 3078BRGEN001AB.DGN DRAWING NO. 17552

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S-RS-447(3)	1	26



NOTES

LIVE LOAD: Standard HS20-44 loading

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1970 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL COVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1969 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD". AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS. ESTIMATED WEIGHT = 2772 POUNDS.

FOR REQUIREMENTS COVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SNABBED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN. BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LAITANCE. LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS, AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/8". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS "AD" CONCRETE.

BACKFILL: THE BACKFILL AT END BENTS MAY BE COMPLETE UP TO THE BOTTOMS OF THE BACKWALLS BEFORE SUPERSTRUCTURE IS IN PLACE. THE BACKFILL AGAINST THE BACKWALLS SHALL NOT BE PLACED UNTIL AFTER THE CONCRETE ROADWAY SLAB HAS BEEN PLACED.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL. "SEE STANDARD SPECIFICATIONS".

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED:

BOTTOM OF SLAB	1 INCH
STIRRUPS AND TIES	1½ INCHES

IN ALL FOOTINGS AND PIER SHAFTS, THE MINIMUM COVERING SHALL BE 3 INCHES.

UTILITIES: FOR LOCATION OF UTILITIES, SEE APPROPRIATE ROAD PLANS SHEET.

STRUCTURE EXCAVATION: Structure excavation for Bent No. 1 & No. 5 and for Pier No. 2, No. 3, & No. 4 shall be calculated from natural ground lines. All excavation for all substructure units shall be restricted to the area inside the cofferdams. All boulders and large rocks removed when excavating for Piers shall be placed back around the Pier in such a manner as to provide the best protection against scour. The cost of this backfill shall be included in the unit price bid for structure excavation. (See special provisions.)

SEQUENCE OF WORK: See Special Provisions

CONSTRUCTION JOINTS: Construction joints shall be made on a true horizontal line at the surface of the Bents and piers and left rough in the interior with satisfactory shear keys.

* Scour Protection added See Dwgs. No. 18543-18545B

DESIGNED	9-17-70	MLW
DRAWN	5-18-70	PAK
CHECKED	8-17-72	LKL
APPROVED	9-13-72	Hes.
* REVISED	11-24-03	TJB
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER BITTERROOT RIVER

AT STA. 28+35.00

FEDERAL AID PROJECT NO. S-RS-447(3)

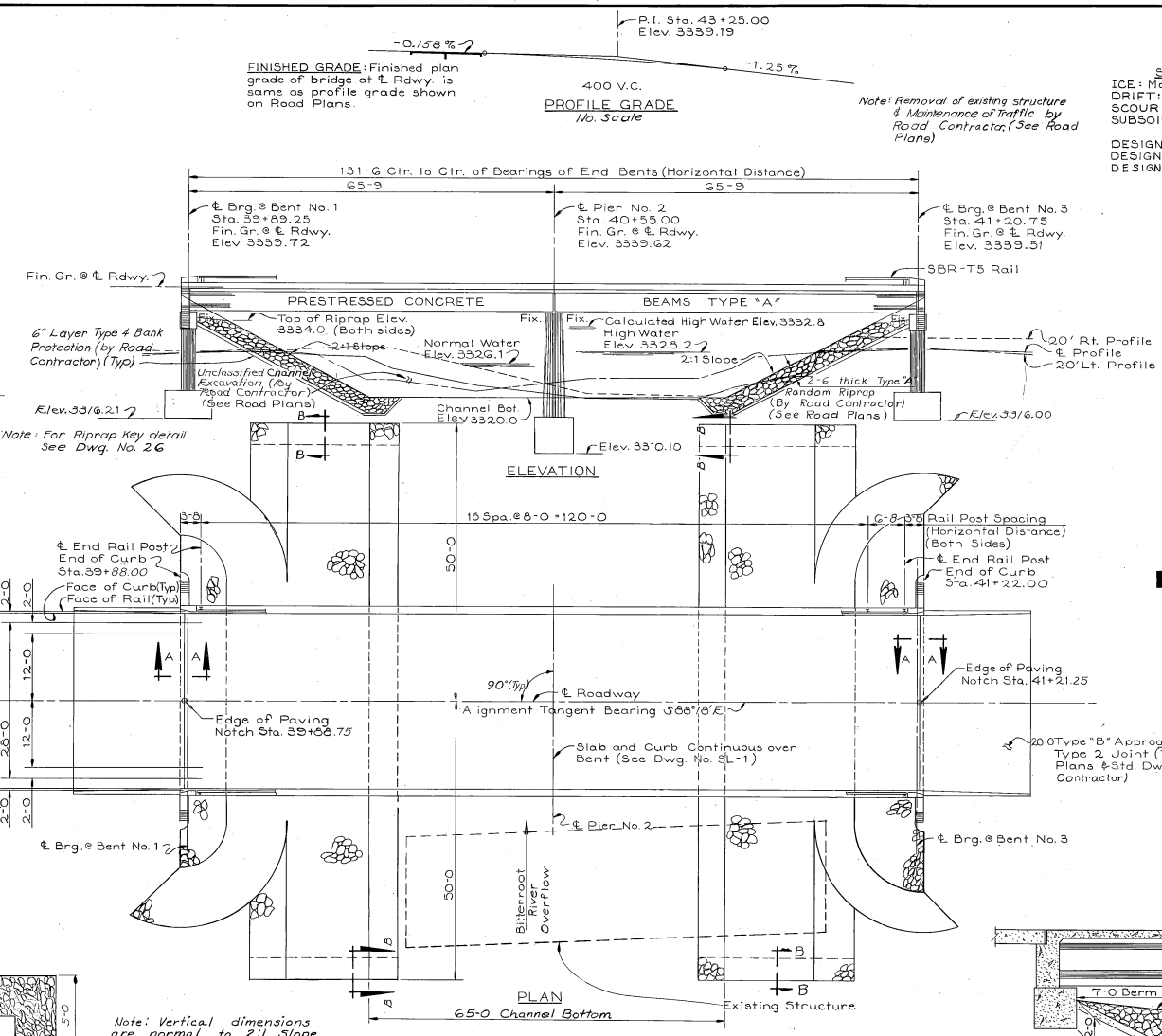
RAVALLI COUNTY

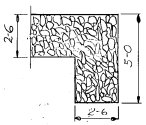
GENERAL LAYOUT

Scale = 1" = 20'-0" (Except as noted)

DRAWING NO. 10763

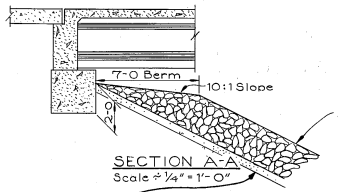
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S-RS 447(3)	8	26





SECTION B-B
No. Scale

Note: Vertical dimensions are normal to 2:1 Slope



SECTION A-A
Scale: 1/4" = 1'-0"
6" Layer Type 4 Bank Protection (By Road Contractor)

STREAM DATA:
ICE: Moderate
DRIFT: Light
SCOUR: Light
SUBSOIL: See Log of Borings Dwg. No. 10771
DESIGN FREQUENCY: 50 years
DESIGN FLOW: 1500 c.f.s.
DESIGN VELOCITY: 4.0 c.f.s.

Note: The contractor shall not unnecessarily disturb the river bank unless otherwise approved by the Engineer.

SEQUENCE OF WORK: See Special Provisions.

STRUCTURE EXCAVATION: Structure Excavation for Pier No. 2 shall be calculated from below the limits of the unclassified excavation. Structure excavation for Bents No. 1 & No. 3 shall be calculated from natural ground lines. All excavation for Substructure Units shall be restricted to the area inside the cofferdams. All boulders and large rocks removed when excavating for the Pier shall be placed back around the Pier in such a manner as to provide the best protection against scour. The cost of this backfill shall be included in the unit price bid for structure excavation (See special provisions)

CONSTRUCTION JOINTS: Construction joints shall be made on a true horizontal line at the surface of the Bents and Pier and left rough in the interior with satisfactory shear keys.

NOTES:

LIVE LOAD: Standard H S20-44 loading.

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1970 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL GOVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1969 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD". AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS.
ESTIMATED WEIGHT = 149.3 POUNDS.

FOR REQUIREMENTS GOVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SOAKED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN. BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LAITANCE, LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS, AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/8". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS "AD" CONCRETE.

BACKFILL: THE BACKFILL AT END BENTS MAY BE COMPLETE UP TO THE BOTTOMS OF THE BACKWALLS BEFORE SUPERSTRUCTURE IS IN PLACE. THE BACKFILL AGAINST THE BACKWALLS SHALL NOT BE PLACED UNTIL AFTER THE CONCRETE ROADWAY SLAB HAS BEEN PLACED.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL, "SEE STANDARD SPECIFICATIONS".

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED:

BOTTOM OF SLAB	1 INCH
STIRRUPS AND TIES	1½ INCHES

IN ALL FOOTINGS AND PIER SHAFTS, THE MINIMUM COVERING SHALL BE 3 INCHES.

UTILITIES: FOR LOCATION OF UTILITIES, SEE APPROPRIATE ROAD PLANS SHEET.

DESIGNED		
DRAWN	5-13-70	RNK
CHECKED	8-17-72	L.K.L.
APPROVED	9-13-72	H.E.S.
REVISED		
REVISED		

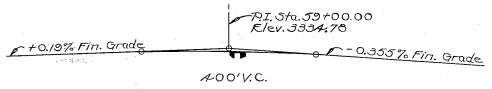
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BITTERROOT RIVER OVERFLOW BRIDGE
AT STA. 40+55.00
FEDERAL AID PROJECT NO. S-RS-447(3)
RAVALLI COUNTY
GENERAL LAYOUT
Scale: 1" = 10'-0" (Except as noted)

DRAWING NO. 10770

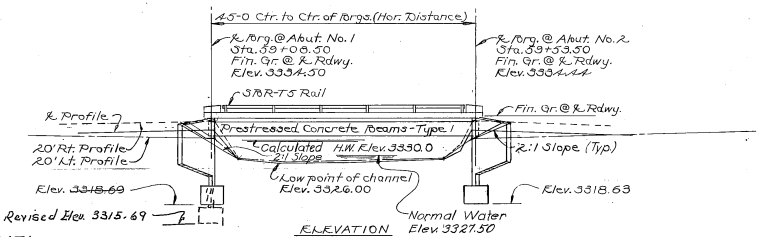
H.E.S.
KSE 19 1193 3-69

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S-RS447(3)	13	26



PROFILE GRADE
No Scale

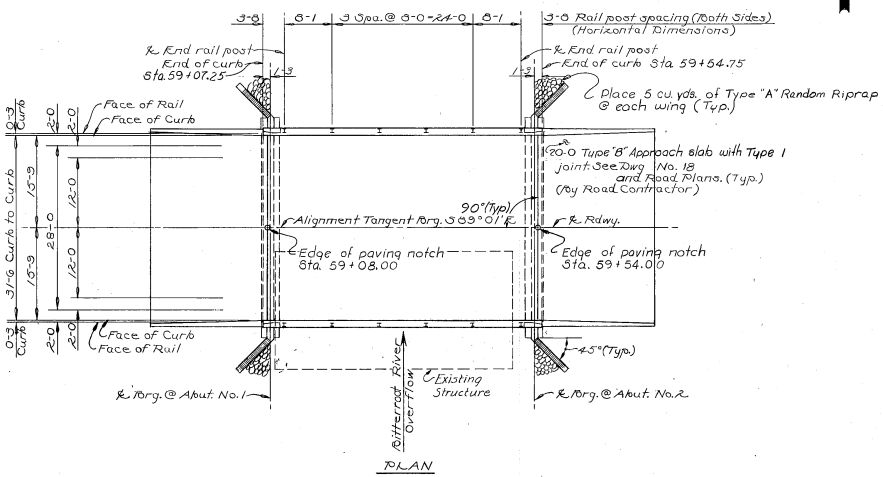
Note: For location of utilities see appropriate road plan sheet.



ELEVATION

STREAM DATA

Ice = Moderate
Drift = Moderate
Scour = Light
Design Flow - Q = 500 c.f.s. (50 year frequency)
Design Velocity - V = 4.1 f.p.s.
Sub-soil: See Log of Borings
Dwg. No. 10776



PLAN

Note: The contractor shall not unnecessarily disturb the river banks unless otherwise approved by the Engineer.

Note: Removal of existing structure & Maintenance of Traffic by Road Contractor (See Road Plans)

FOOTINGS: The contractor will be permitted to deposit Class "AS" Concrete seal course for the entire abutment footings in which case he shall place it in accordance with the requirements For "Depositing Concrete Underwater," as called For in the Standard Specifications.

STRUCTURE EXCAVATION: Structure excavation for both Abutments shall be calculated from natural ground lines. All excavation for abutments shall be restricted to the area inside the coffer dams. All boulders & large rocks removed when excavating for abutments shall be placed back around the abutment in such a manner as to provide the best protection against scour. The cost of this backfill shall be included in the unit price bid for structure excavation. (See Special Provisions)

SEQUENCE OF WORK See Special Provisions.

NOTES

LIVE LOAD: Standard H S 20-44 loading.

FINISHED GRADE: Finished plan grade of bridge at ℄ Roadway is the same as profile grade shown on Road Plans.

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1970 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL COVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1969 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD", AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS.
ESTIMATED WEIGHT - 477 POUNDS.

FOR REQUIREMENTS COVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SHARBED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN, BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LAITANCE. LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS, AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/8". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS "AD" CONCRETE.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL. "SEE STANDARD SPECIFICATIONS".

BACKFILL: Superstructure shall be in place before any backfill is placed against the abutments. Fills at the ends of the structure & on both sides of the abutment walls & wing-walls shall be kept at about the same elevation during the process of backfilling. See Article 11-04(B) of the Standard Specifications.

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED:

BOTTOM OF SLAB	1 INCH
STIRRUPS AND TIES	1½ INCHES

IN ALL FOOTINGS AND PIER SHAFTS, THE MINIMUM COVERING SHALL BE 3 INCHES.

DESIGNED		
DRAWN	6-19-70	B.C.A.
TRACED		
CHECKED	8-17-72	L.K.L.
APPROVED	9-13-72	Hes.
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BITTERROOT RIVER OVERFLOW BRIDGE
AT STA. 59+31.00
FEDERAL AID PROJECT NO. S-RS447(3)
RAVALLI COUNTY
GENERAL LAYOUT

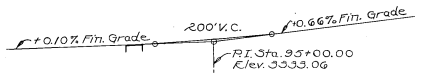
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DRAWING NO. 10775

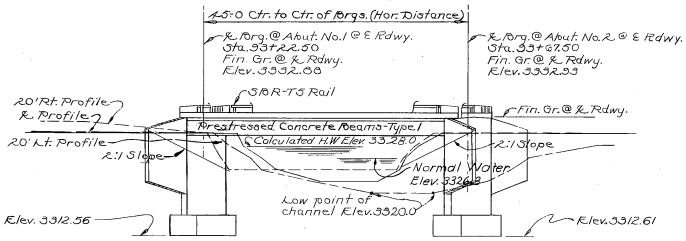
Hes.
K&K 19 1133 3-69

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S-RS447(3)	16	26

Note: For location of utilities see appropriate road plan sheet.



PROFILE GRADE
No. Scale



ELEVATION

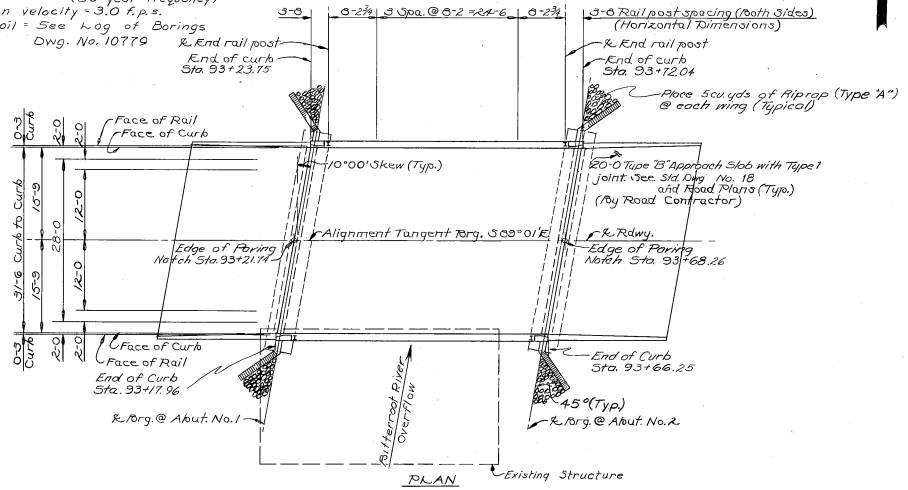
Note: The contractor shall not unnecessarily disturb the river banks unless otherwise approved by the Engineer.

Note: Removal of existing structure & Maintenance of Traffic by Road Contractor. (See Road Plans)

N

STREAM DATA

Ice = Moderate
Drift = Light
Scour = Light
Design flow (Q) = 400 c.f.s.
(50 year frequency)
Design velocity = 3.0 f.p.s.
Subsoil = See Log of Borings
Dwg. No. 10779



PLAN

STRUCTURE EXCAVATION: Structure excavation for both abutments shall be calculated from natural ground lines. All excavation for abutments shall be restricted to the area inside the coffer dams. All boulders & large rocks removed when excavating for abutments shall be placed back around the abutment in such a manner as to provide the best protection against scour. The cost of this backfill shall be included in the unit price bid for structure excavation (See Special Provisions)

SEQUENCE OF WORK: See Special Provisions

NOTES

LIVE LOAD: Standard HS 20-44 loading.

FINISHED GRADE: Finished plan grade of bridge at ℄ Roadway is the same as profile grade shown on Road Plans.

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1970 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL COVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1969 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD". AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS.
ESTIMATED WEIGHT = 4.8.5 POUNDS.

FOR REQUIREMENTS COVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE(1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SHABBED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN. BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LAITANCE, LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS, AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/8". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS "AD" CONCRETE.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL, "SEE STANDARD SPECIFICATIONS".

BACKFILL: SUPERSTRUCTURE SHALL BE IN PLACE BEFORE ANY BACKFILL IS PLACED AGAINST THE ABUTMENTS. FILLS AT THE ENDS OF THE STRUCTURE AND ON BOTH SIDES OF THE ABUTMENT WALLS AND WING WALLS SHALL BE KEPT AT ABOUT THE SAME ELEVATION DURING THE PROCESS OF BACKFILLING. SEE ARTICLE 11-04 (B) OF THE STANDARD SPECIFICATIONS.

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED:

BOTTOM OF SLAB 1 INCH
STIRRUPS AND TIES 1½ INCHES

IN ALL FOOTINGS AND PIER SHAFTS, THE MINIMUM COVERING SHALL BE 3 INCHES.

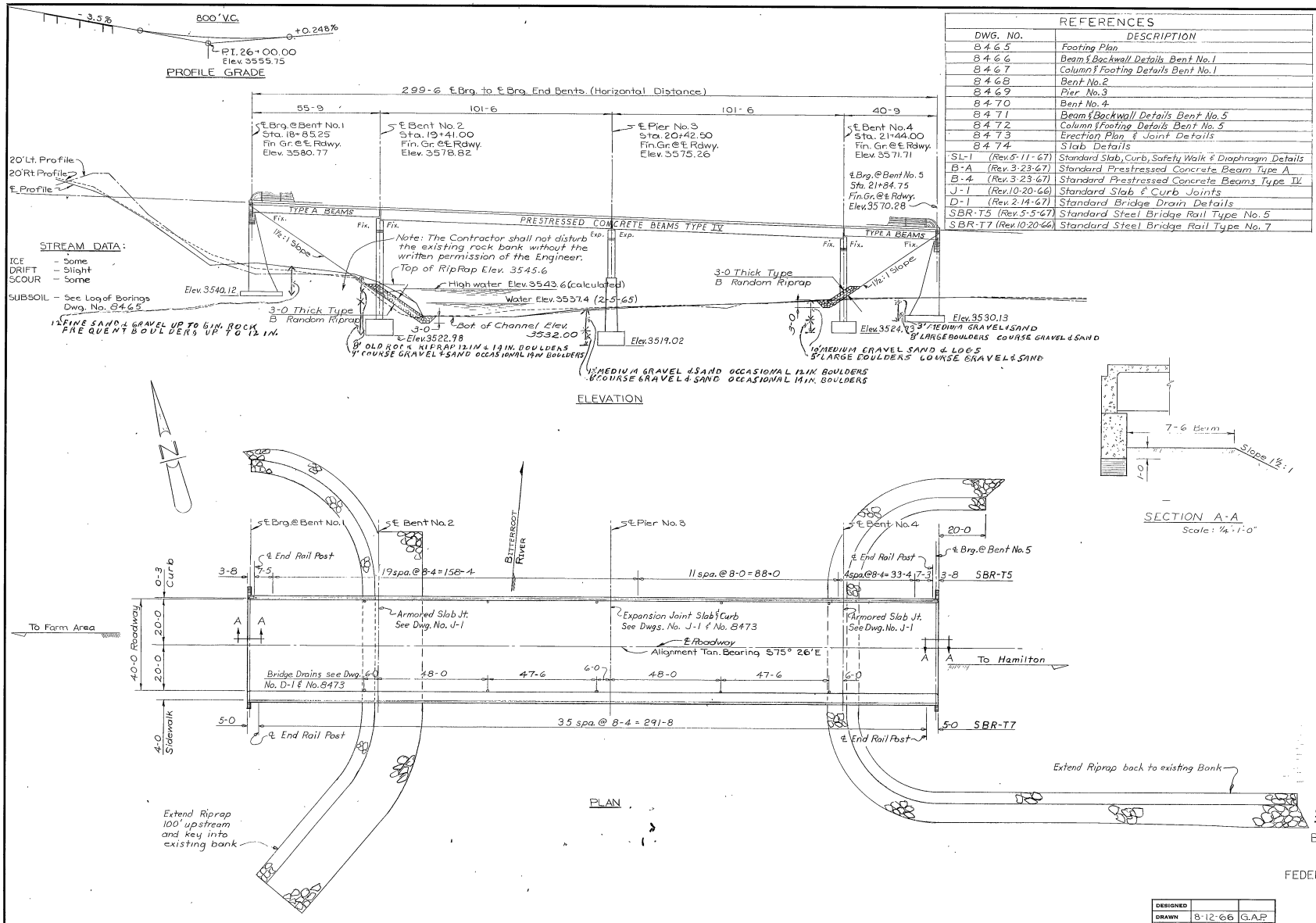
DESIGNED		
DRAWN	6-25-70	B.C.G.
CHECKED	8-17-72	L.K.L.
APPROVED	9-13-72	H.E.S.
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BITTERROOT RIVER OVERFLOW BRIDGE
AT STA. 93+45.00
FEDERAL AID PROJECT NO. S-RS447(3)
RAVALLI COUNTY
GENERAL LAYOUT
Scale = 1" = 10'-0"
Except as Noted

DRAWING NO. 10778

Hea-
K&E 19 1152 2-69



REFERENCES

DWG. NO.	DESCRIPTION
8465	Footing Plan
8466	Beam & Backwall Details Bent No. 1
8467	Column & Footing Details Bent No. 1
8468	Bent No. 2
8469	Pier No. 3
8470	Bent No. 4
8471	Beam & Backwall Details Bent No. 5
8472	Column & Footing Details Bent No. 5
8473	Erection Plan & Joint Details
8474	Slab Details
SL-1 (Rev. 5-11-67)	Standard Slab, Curb, Safety Walk & Diaphragm Details
B-A (Rev. 3-23-67)	Standard Prestressed Concrete Beam Type A
B-4 (Rev. 3-23-67)	Standard Prestressed Concrete Beams Type IV
J-1 (Rev. 10-20-66)	Standard Slab & Curb Joints
D-1 (Rev. 2-14-67)	Standard Bridge Drain Details
SBR-T5 (Rev. 5-5-67)	Standard Steel Bridge Rail Type No. 5
SBR-T7 (Rev. 10-20-66)	Standard Steel Bridge Rail Type No. 7

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S 431(3)	1	18

NOTES:

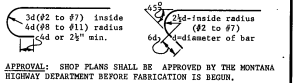
FINISHED GRADE: Finished plan grade of bridge is same as profile grade as shown on road plans sheet.

LIVE LOAD: Standard HS15-44 loading

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1966 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL GOVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1965 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE NOTED, ALL CONCRETE IN SUPERSTRUCTURE SHALL BE CLASS "AD" AND ALL CONCRETE IN SUBSTRUCTURE SHALL BE CLASS "AD". AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED.

REINFORCING STEEL: BENDS IN REINFORCING STEEL SHALL BE MADE TO A RADIUS OF NOT LESS THAN FOUR (4) DIAMETERS OF THE BAR EXCEPT FOR STIRRUPS AND TIE BARS, WHICH SHALL BE BENT AROUND A PIN HAVING A DIAMETER OF NOT LESS THAN TWO (2) BAR DIAMETERS. HOOKS SHALL CONFORM TO THE DIMENSIONS SHOWN IN THE FOLLOWING SKETCHES, EXCEPT AS OTHERWISE NOTED.



APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE MONTANA HIGHWAY DEPARTMENT BEFORE FABRICATION IS BEGUN.

BACKFILL: THE BACKFILL AT END BENTS MAY BE COMPLETE UP TO THE BOTTOMS OF THE BACKWALLS BEFORE SUPERSTRUCTURE IS IN PLACE. THE BACKFILL AGAINST THE BACKWALLS SHALL NOT BE PLACED UNTIL AFTER THE CONCRETE ROADWAY SLAB HAS BEEN PLACED.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS.
ESTIMATED WEIGHT = 5051 POUNDS.

FOR REQUIREMENTS GOVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR ZINC CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS.

MASONRY PLATES SHALL BE PLACED ON THREE (3) LAYERS OF CANVAS THOROUGHLY SWABBED WITH RED LEAD, AS CALLED FOR IN THE STANDARD SPECIFICATIONS.

ENTIRE SURFACE AREA OF GROUT PADS SHALL RECEIVE TWO (2) COATS OF RED LEAD PAINT.

GROUT PADS: GROUT FOR GROUT PADS SHALL BE EMBECO PREMIXED, NON-SHRINK GROUT AS MANUFACTURED BY THE MASTER BUILDERS CO., CLEVELAND, OHIO, OR FERROLITH G.D.S. NON-SHRINK GROUT AS MANUFACTURED BY THE SONNEBORN BUILDING PRODUCTS INC., CHICAGO, ILLINOIS, OR OTHER APPROVED EQUAL. See Dwg. No 8468

STRUCTURE EXCAVATION-All excavation below elevation 3532.0 at Bent No. 2, Pier No. 3, & Bent No. 4 shall be restricted to the area inside the cofferdam. All boulders and large rocks taken out of holes in excavating for Bents and Pier shall be placed back around the Bent or Pier from which they were taken in such a manner as to provide the best protection against scour. The cost of this backfilling shall be included in the unit price bid for structure excavation.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER BITTERROOT RIVER
AT STA 20+35.00
FEDERAL AID PROJECT NO. S 431 (3)
RAVALLI COUNTY
GENERAL LAYOUT
Scale 1"-20'-0"

DESIGNED		
DRAWN	8-12-66	G.A.P.
TRACED		
CHECKED	5-23-67	M.H. Larson
REVISED		
REVISED		

APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. 8464