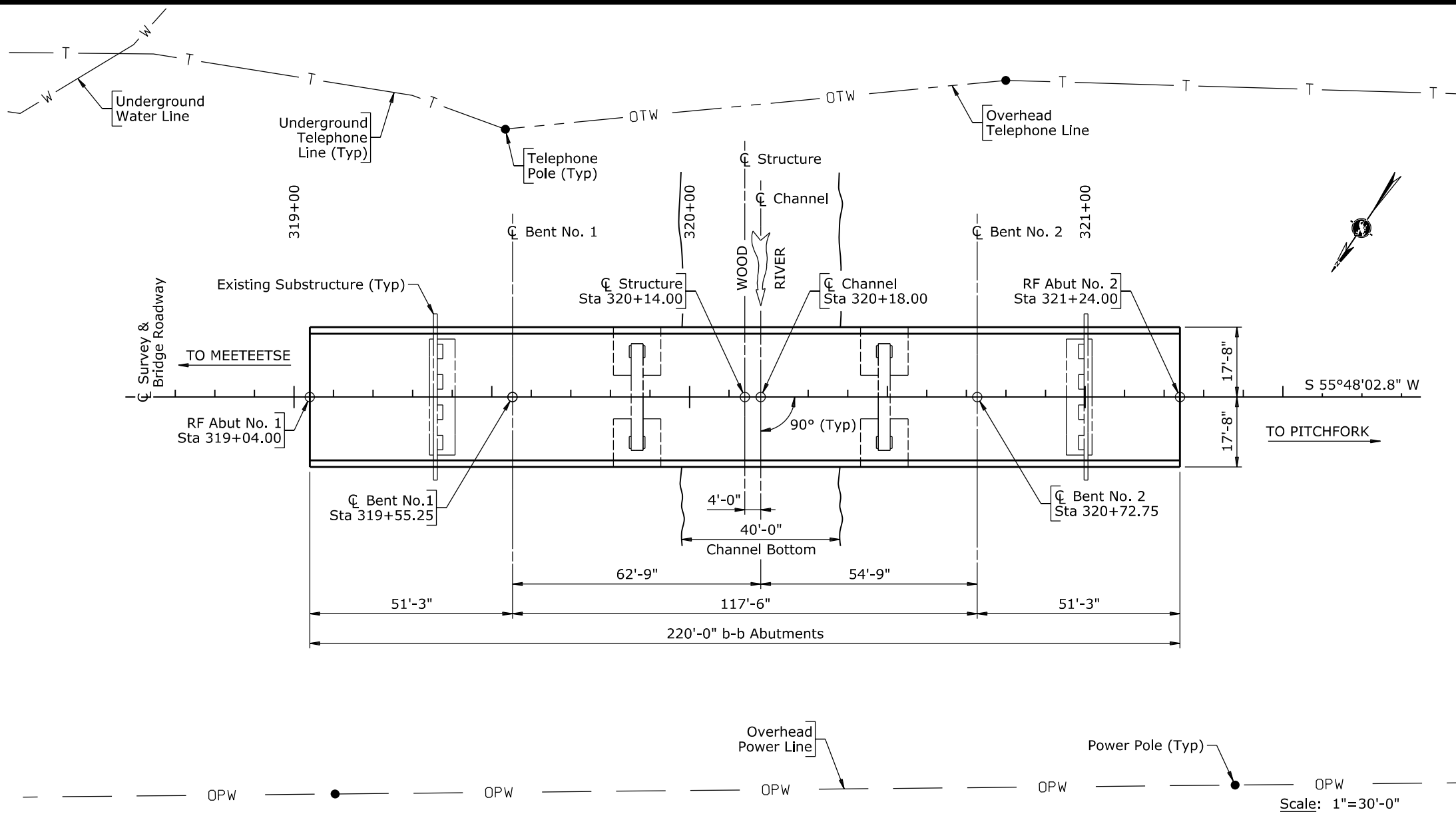


Nov 2018



GEOLOGY

Geologist: _____
 Rig: _____
 Project Geologist: _____
 Date Drilled: _____
 Driller: _____

Circulation Medium	
Air	
Water	
Auger	

Remarks: Obtain alkali sample.

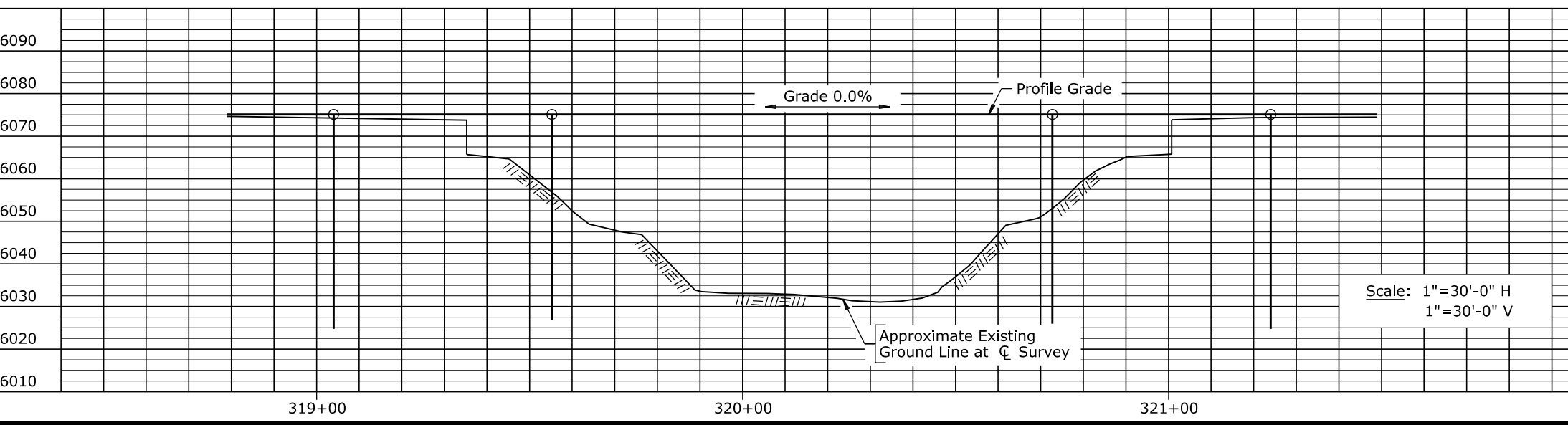
 Obtain necessary foundation information to complete LRFD design.

LAYOUT APPROVAL

State Bridge Engineer _____ Date _____

WYOMING DEPARTMENT OF TRANSPORTATION
 BRIDGE PROGRAM
PRELIMINARY GEOLOGY LAYOUT
BRIDGE OVER WOOD RIVER
STA 320+18
 Meeteetse - Pitchfork Road
 (WYO 290)
 1500006 Pa

DESIGN: _____
 DETAIL: BBB / AAA
 QTY'S: _____
 Design Section L M Nop
 Drwg No. _____ Sheet 1 of 1



4.01 - Example

Section 4.01 - Preliminary

BRIDGE OVER WOOD RIVER

Wyo. Proj. 1500006
Sheet of Sheets

STA 320+18

MEETEETSE - PITCHFORK ROAD

(WYO 290)

1500006

PRELIMINARY

PARK COUNTY

DESIGN DATA

SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 8th Edition. AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition.

ADT: 260 (Year 2020)

LOADING: HL93. Future wearing surface 25 psf. Stay-in-place forms 15 psf.

REINFORCED CONCRETE: Load and Resistance Factor Design -
Class A Concrete $f'_c = 4000$ psi
Reinforcing Steel $f_y = 60,000$ psi (Grade 60)

STRUCTURAL STEEL: Load and Resistance Factor Design -
 $F_y = 50,000$ psi (Grade 50W)

APPROACH ROADWAY WIDTH: 32'-0"

DRILLED SHAFTS: Load and Resistance Factor Design -
Bents (Per drilled shaft): Total Load = X T
Bearing = X T
Friction = X T

PILE LOADS: Load and Resistance Factor Design -
Abutments, X T per pile

ELASTOMERIC BEARING LOADS: Load and Resistance Factor Design -
Bents: Service Dead Load = x kips
Service Live Load = x kips

SEISMIC CRITERIA: Seismic Design Category X
Effective Peak Ground Acceleration Coefficient, $A_g = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 1.0 Second Period, $S_{DI} = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 0.2 Second Period, $S_{DS} = X.XXX$
Site Class X
5% Damping

ESTIMATED QUANTITIES - CODE 11-CSW				
ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	ESTIMATE
202.03210	REMOVAL OF STEEL BRIDGES	EA		
209.01000	WATER	MG		
212.02100	DRY EXCAVATION	CY		
217.01010	GEOTEXTILE, EROSION CONTROL	SY		
217.01030	GEOTEXTILE, EMB AND RETAINING WALL	SY		
301.01080	CRUSHED BASE	CY		
501.01000	STRUCTURAL STEEL	LS	LUMP SUM	LB
503.01000	BRIDGE RAILING	FT		
504.04000	PREDRILLED HOLES	FT		
504.04010	PILE SPLICES	EA		
504.11473	STEEL PILING HP 14 X 73	FT		
506.01048	DRILLED SHAFT FOUNDATIONS 48 in	FT		
507.01000	REINFORCED CONC APPROACH SLABS	SY		
511.06000	MACHINE-PLACED RIPRAP	CY		
512.01050	ELASTOMERIC COMP JOINT SEAL	FT		
513.00005	CLASS A CONCRETE	LS	LUMP SUM	CY
514.00015	REINFORCING STEEL	LS	LUMP SUM	LB
514.00025	REINFORCING STEEL (COATED)	LS	LUMP SUM	LB
605.10006	UNDERDRAIN PIPE (PERF) 6 in	FT		
605.20006	UNDERDRAIN PIPE (NON-PERF) 6 in	FT		
900.60000	CONTRACTOR QUALITY CONTROL (CONCRETE)	LS	LUMP SUM	

INDEX OF DRAWINGS

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Riprap Details	5
Log Boring Sheet	6
Abutment Details	7
Bent Details	8
Superstructure Details	9-10
Bridge Railing Details	11-12
Deck Drain Details	13
Slab Details	14-15
Approach Slab Details	16-17
Reference Sheets	BX-BX

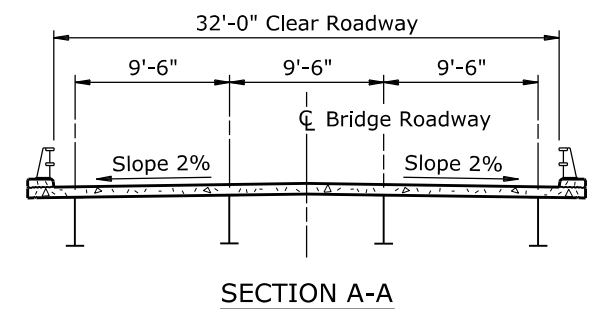
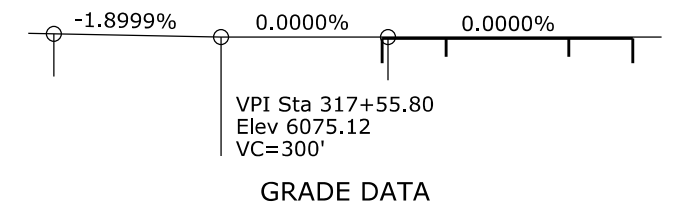
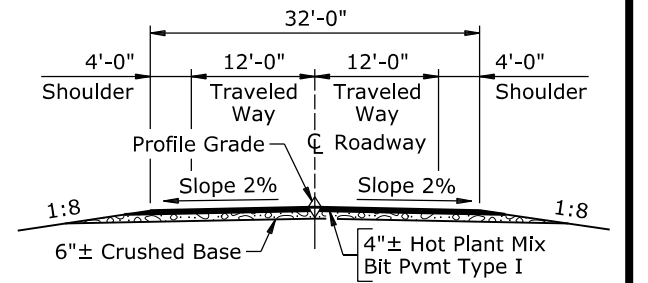
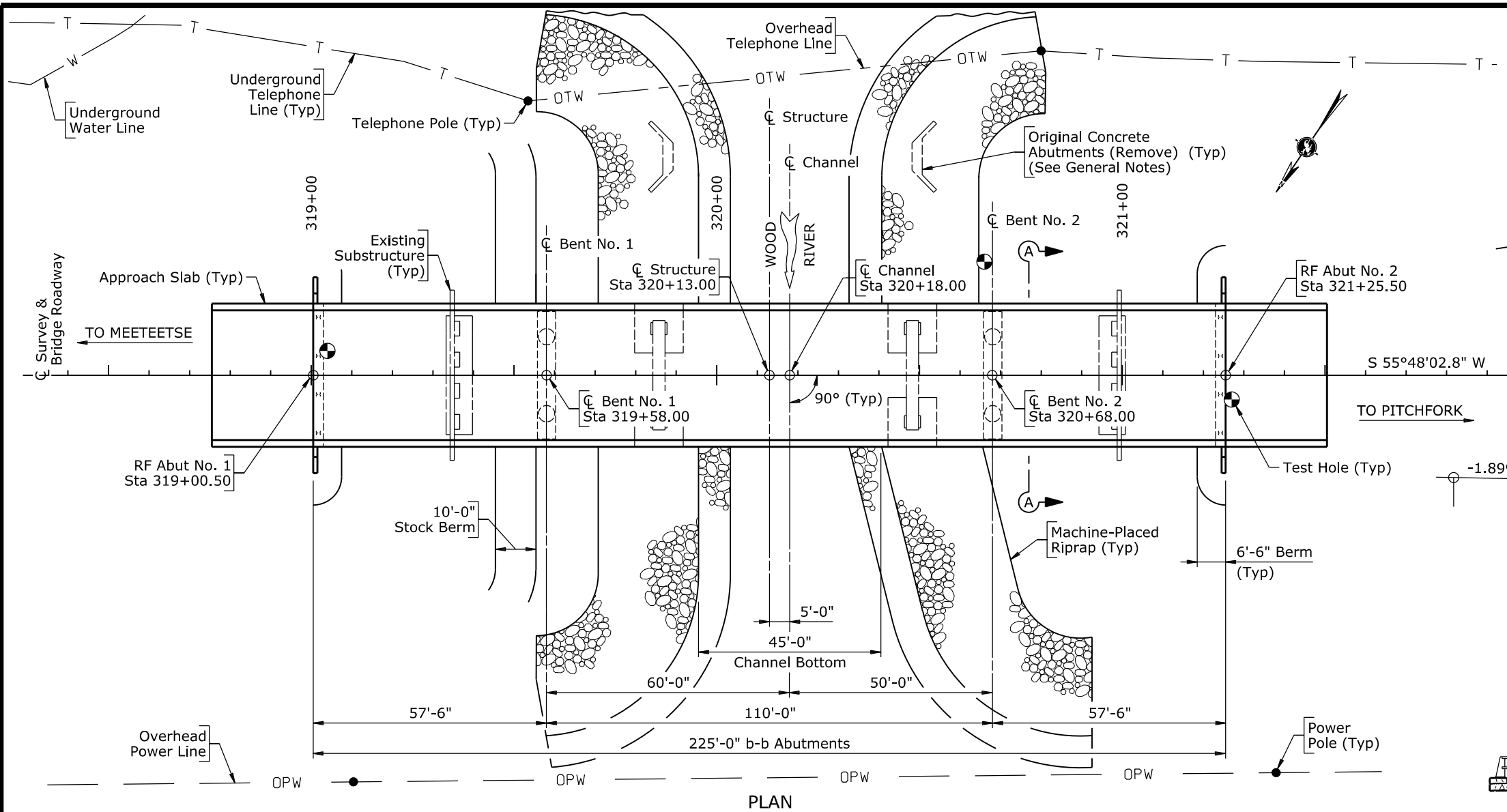
STRUCTURE NO. LIN
ML1500B, RM 6.04
SEC 22, T48N, R101W

WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
REVISIONS			
DESIGN	CCC	FFF	Design Section L M Nop
DETAIL	CCC	FFF	Drwg No. P-0001 Sheet 1 of 3
APPROVAL			

Nov 2019

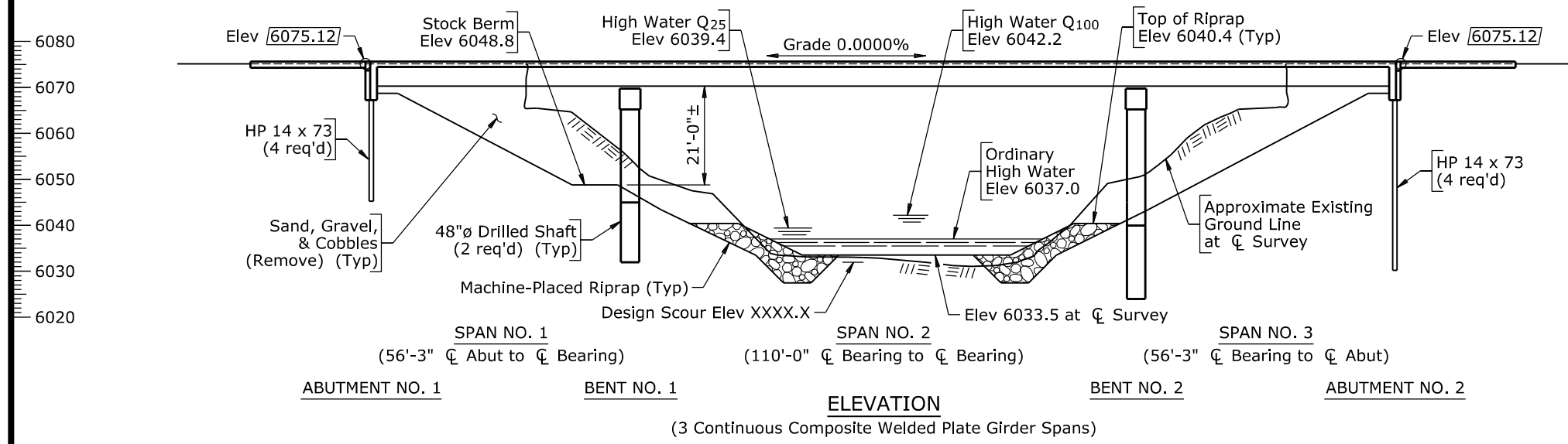
4.01 - Example

Wyo. Proj. 1500006
Sheet of Sheets



- Note: 1) Elevations shown as 6075.12 indicate finished grade at rear face abutment on \bar{C} Bridge Roadway.
 2) Berm slopes are 1:2±, measured perpendicular to \bar{C} Channel.
 3) Replace the existing bridge, Structure No. CSW, with the new bridge, Structure No. LIN.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
PRELIMINARY LAYOUT			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	BBB	Design Section	L M Nop
DETAIL	DDD	Drwg No. P-0001	Sheet 3 of 3
APPROVAL	QTY'S		



Section 4.01 - Preliminary

BRIDGE OVER WOOD RIVER

STA 320+18

MEETEETSE - PITCHFORK ROAD

(WYO 290)

1500006

PARK COUNTY

DESIGN DATA

SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 8th Edition. AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition.

ADT: 260 (Year 2020)

LOADING: HL93. Future wearing surface 25 psf. Stay-in-place forms 15 psf.

REINFORCED CONCRETE: Load and Resistance Factor Design -
Class A Concrete $f'_c = 4000$ psi
Reinforcing Steel $f_y = 60,000$ psi (Grade 60)

STRUCTURAL STEEL: Load and Resistance Factor Design -
 $F_y = 50,000$ psi (Grade 50W)

APPROACH ROADWAY WIDTH: 32'-0"

DRILLED SHAFTS: Load and Resistance Factor Design -
Bents (Per drilled shaft): Total Load = 24.57 T
Bearing = 24 T
Friction = 0.57 T

PILE LOADS: Load and Resistance Factor Design -
Abutments, 63 T per pile

ELASTOMERIC BEARING LOADS: Load and Resistance Factor Design -
Bents: Service Dead Load = x kips
Service Live Load = x kips

SEISMIC CRITERIA: Seismic Design Category X
Effective Peak Ground Acceleration Coefficient, $A_s = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 1.0 Second Period, $S_{DI} = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 0.2 Second Period, $S_{DS} = X.XXX$
Site Class X
5% Damping

ESTIMATED QUANTITIES - CODE 11-CSW				
ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	ESTIMATE
202.03210	REMOVAL OF STEEL BRIDGES	EA	1	
209.01000	WATER	MG	18	
212.02100	DRY EXCAVATION	CY	630	
217.01010	GEOTEXTILE, EROSION CONTROL	SY	2030	
217.01030	GEOTEXTILE, EMB AND RETAINING WALL	SY	1590	
301.01080	CRUSHED BASE	CY	450	
501.01000	STRUCTURAL STEEL	LS	LUMP SUM	182,200 LB
503.01000	BRIDGE RAILING	FT	550	
504.04000	PREDRILLED HOLES	FT	216	
504.04010	PILE SPLICES	EA	1	
504.11473	STEEL PILING HP 14 X 73	FT	244	
506.01048	DRILLED SHAFT FOUNDATIONS 48 in	FT	58	
507.01000	REINFORCED CONC APPROACH SLABS	SY	197	
511.06000	MACHINE-PLACED RIPRAP	CY	2330	
512.01050	ELASTOMERIC COMP JOINT SEAL	FT	73	
513.00005	CLASS A CONCRETE	LS	LUMP SUM	358.1 CY
514.00015	REINFORCING STEEL	LS	LUMP SUM	23,360 LB
514.00025	REINFORCING STEEL (COATED)	LS	LUMP SUM	59,610 LB
605.10006	UNDERDRAIN PIPE (PERF) 6 in	FT	70	
605.20006	UNDERDRAIN PIPE (NON-PERF) 6 in	FT	48	
900.60000	CONTRACTOR QUALITY CONTROL (CONCRETE)	LS	LUMP SUM	

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Abutment Details -----	7
Bent Details -----	8
Superstructure Details -----	9-11
Bridge Railing Details -----	12-13
Deck Drain Details -----	14
Slab Details -----	15-16
Approach Slab Details -----	17-18
Reference Sheets -----	B19-B25

STRUCTURE NO. LIN
ML1500B, RM 6.04
SEC 22, T48N, R101W

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS			
DESIGN	_____	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 1 of 18
APPROVAL	_____	QTY'S	_____

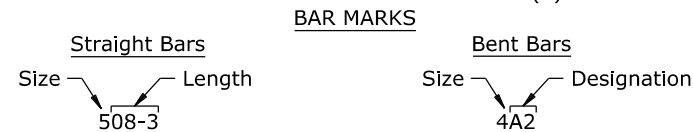
GENERAL NOTES

SPECIFICATIONS: WYDOT Standard Specifications for Road and Bridge Construction, 2010 Edition.

DIMENSIONS: Longitudinal dimensions for the substructure are horizontal and include no correction for grade. Longitudinal dimensions for the superstructure are along grade unless noted. Slopes are vertical : horizontal.

CONCRETE: Use class S concrete made with type II Wyoming modified cement in the drilled shaft foundations. Use class A concrete made with type II Wyoming modified cement at all other locations.

REINFORCING STEEL: Ensure reinforcing steel conforms to ASTM A 615 (Grade 60) for all bars, including ties and stirrups. Concrete cover to face of reinforcing steel is 2" unless noted. Dimensions for bent bars are out to out. Ensure bars marked with an asterisk (*) are coated.



STRUCTURAL STEEL: Ensure structural steel conforms to ASTM A 709 (Grade 50W) unless noted. Ensure steel fabricators supplying structural components are certified under the AISC Quality Certification Program for Steel Bridge Fabricators - 2011, Category Intermediate Bridges (IBR).

Ensure steel components of the deck drain system conform to ASTM A 709 (Grade 50W) minimum and ASTM A 53 (Grade A or B). After fabrication operations are complete, ensure components are prepared in accordance with Steel Structures Painting Council Surface Preparation Specification No. 6 Commercial Blast Cleaning (SSPC-SP 6).

BRIDGE BEARING ANCHOR BOLTS: Anchor bolts may be swedge bolts or threaded rods. Ensure swedge bolts conform to ASTM A 709 (Grade 36) and swedges are produced by deforming the steel through application of pressure and not by any method that removes material, such as grinding or cutting. Ensure threaded rods conform to ASTM F 1554 (Grade 36) minimum. Ensure anchor bolts, or threaded rods, and nuts are galvanized in accordance with Subsection 815.14, Galvanized Coating. Use anchor bolts compatible with the adhesive anchorage system.

Use one of the following adhesive anchorage systems to set anchor bolts in drilled holes:

- CIA-GEL 6000-GP as manufactured by MiTek USA, Inc.
- Red Head C6+ as manufactured by ITW Commercial Construction
- Sure Anchor I J-51 as manufactured by Dayton Superior
- HIT-RE 500 V3 as manufactured by Hilti, Inc.

Drill and prepare holes and install the anchor bolts in accordance with the adhesive system manufacturer's recommendations. Work necessary for the adhesive anchorage system is incidental to the contract pay item Structural Steel.

STEEL PILING: Use steel piles conforming to ASTM A 709 (Grade 50).

ELASTOMERIC COMP JOINT SEAL: Provide one of the following products:
WJ-400 as manufactured by Watson Bowman Acme Corp.
CV-4000 as manufactured by D.S. Brown.

EYEBOLTS: Use galvanized bar conforming to ASTM A 709 (Grade 36). Work necessary for the eyebolts is incidental to the contract pay item Class A Concrete.

REMOVAL OF STEEL BRIDGES: Remove the existing three span 156'-6" x 27'-0" steel girder bridge, Structure No. CSW.

HAZARDOUS MATERIALS: The paint system on the steel components of the existing structure may contain materials including lead and chromium which are hazardous if ingested, inhaled, or otherwise absorbed.

MISCELLANEOUS REMOVAL: Work necessary to remove and dispose of the car bodies along the river bank adjacent to the existing bents is incidental to the contract pay item Machine-Placed Riprap.

DRY EXCAVATION: The estimated quantity of dry excavation is calculated below finished grade to the limits shown at approach slabs and below existing ground line at abutments.

FOUNDATIONS: Abutments are on steel piles driven to refusal in bedrock.

Bents are on drilled shafts founded in bedrock. Casing will be necessary to prevent caving of the granular materials and to control ground water. An adequate seal between the casing and bedrock may not be possible and pouring concrete under water should be anticipated. The presence of very dense gravel and cobble lenses may result in difficult drilling.

MACHINE-PLACED RIPRAP: Use stones conforming to class X gradation requirements from a contractor furnished source.

PREDRILLED HOLES: If any pile fails to achieve the bottom of pile elevations shown, predrill the remaining piles to bedrock contact and drive to refusal. The estimated quantity of predrilled holes is calculated from the bottom of abutment cap to bedrock contact at each pile.

STAY-IN-PLACE FORMS: Stay-in-place slab forms may be used for construction of the deck. Do not exceed 15 psf for the weight of the forms and additional concrete, including form deflection. Do not extend the vertical legs of support angles past the bottom of the bottom reinforcing steel mat or use these legs to support the reinforcing steel.

CRUSHED BASE: Use crushed base conforming to grading L from a contractor furnished source. Compact the crushed base in accordance with Subsection 301.4.2.3, Placing.

WATER: The estimated quantity of water for compaction of crushed base is 0.040 MG per cubic yard.

BRIDGE OFFICE NOTIFICATION: The engineer will notify the State Bridge Engineer in writing within 14 calendar days after the existing structure has been removed and again within 14 calendar days after the new structure has been opened to traffic.

REFERENCES

WYDOT Plans: _____ Sheet No. _____
Bridge Drwg No. 2727 ----- 1-5 of 5
Bridge Drwg No. 5286 ----- 1 & 7 of 7

Supplementary Specifications:
SS-100K Adjustment for Structural Steel
SS-500B Welder Qualification
SS-500E Bridge Bearing Correction
SS-500F Automatically End-Welded Studs
SS-500G Structural Concrete with Quality Control and Quality Acceptance

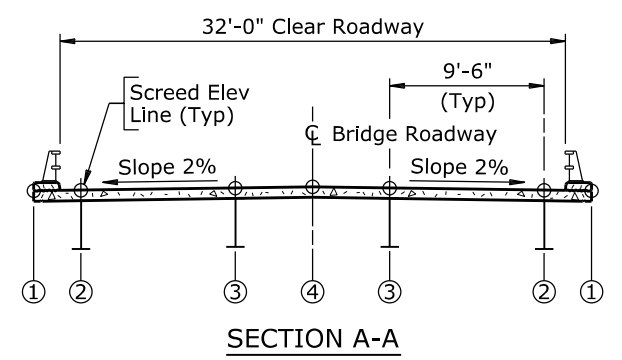
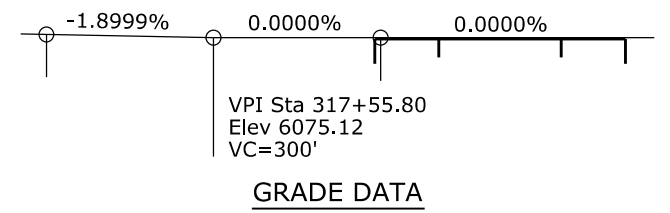
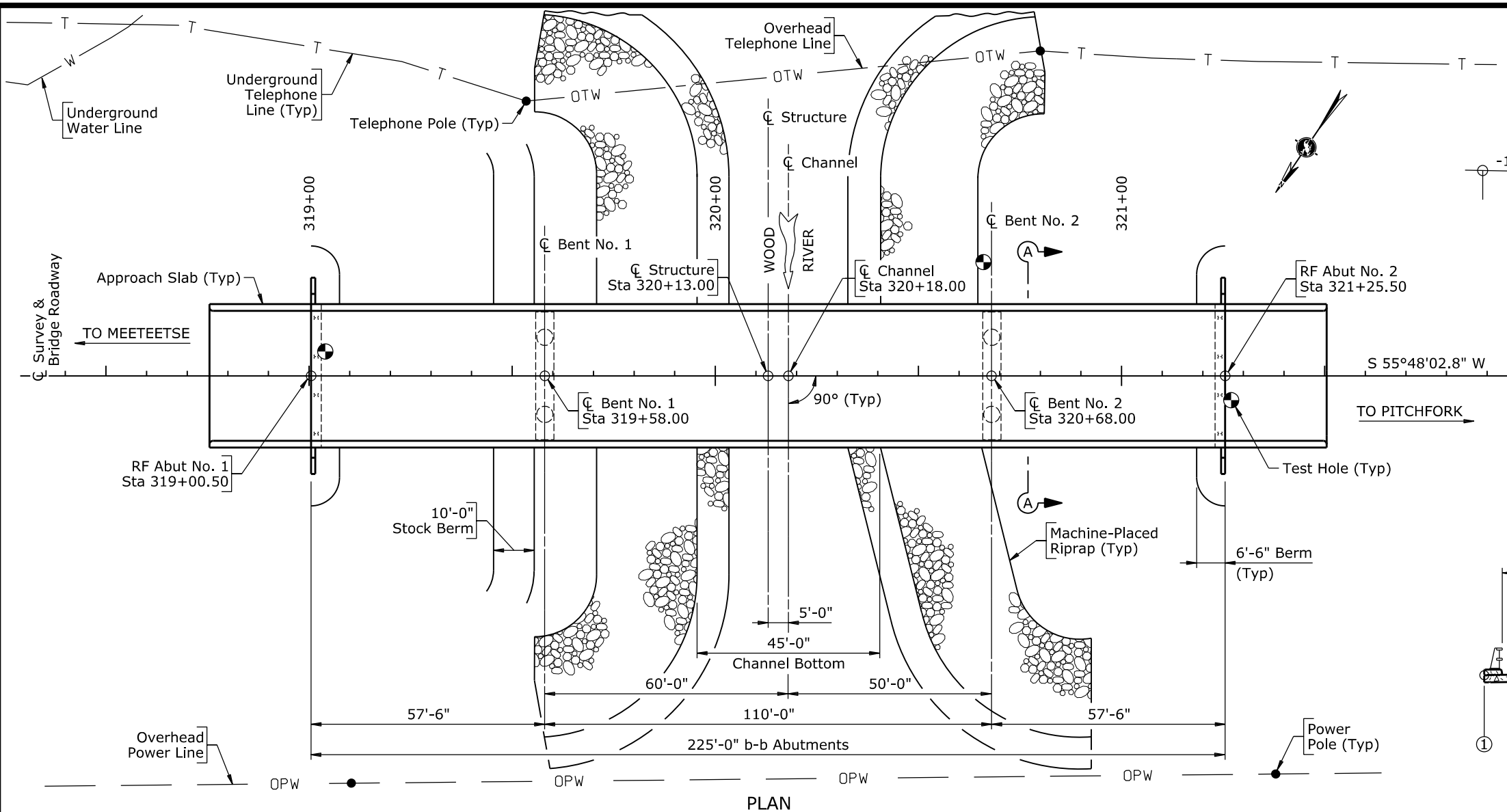
STREAM DATA

Drainage Area	-----	198.0 Sq Mi
Channel Slope	-----	1.41%
Description of Channel Material	-----	Sand, gravel, and cobbles
Drift Potential	-----	Trees and logs
Ordinary High Water Elevation	-----	6037.0 ft
Headwater Elevation	Q ₂₅ -----	6041.4 ft
	Q ₁₀₀ -----	6043.6 ft
High Water Elevation	Q ₂₅ -----	6039.4 ft
	Q ₁₀₀ -----	6042.2 ft
Design Scour Elevation	-----	XXXX.X ft
Constricted Velocity	Q ₂₅ -----	12.2 fps
	Q ₁₀₀ -----	13.4 fps
Design Frequency	-----	25 Year
Design Discharge	Q ₂₅ -----	3056 cfs
Review Discharge	Q ₁₀₀ -----	4290 cfs
Source of Discharge	-----	Log Pearson Type III
Method of Analysis	-----	HEC-RAS and WSP
Flood of Record	-----	5080 cfs (Year 1963)

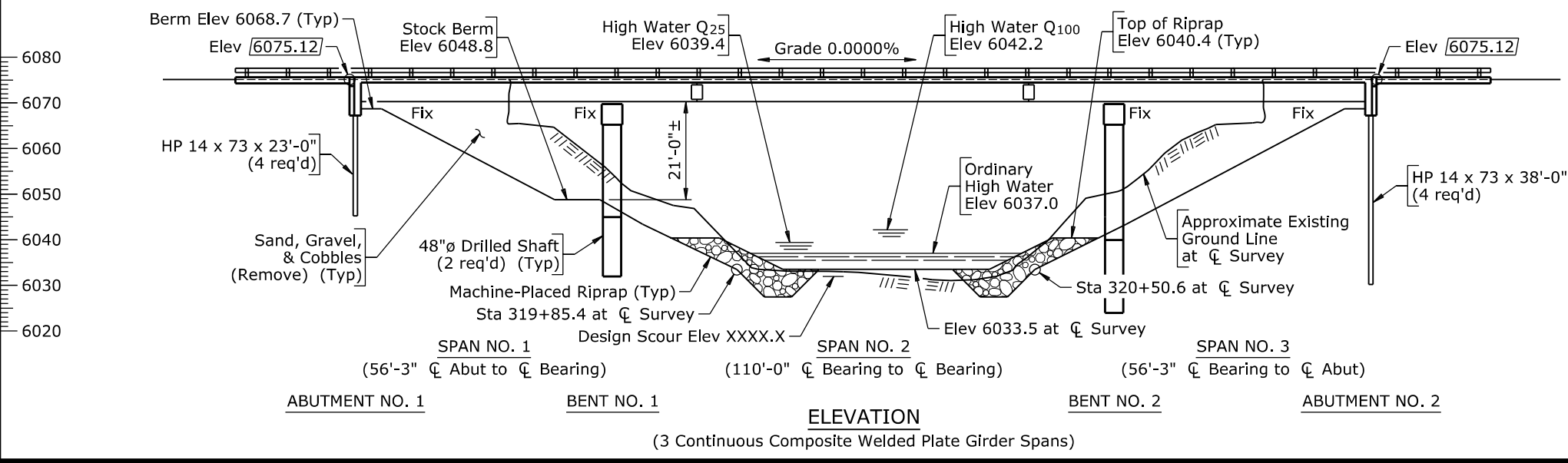
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS	GENERAL NOTES		
	BRIDGE OVER WOOD RIVER		
	STA 320+18		
	Meeteetse - Pitchfork Road		
	(WYO 290)		
	1500006		Pa
REVIEW _____	DESIGN _____ DETAIL <u>BBB</u> <u>DDD</u> QTY'S _____	Design Section	L M Nop
APPROVAL _____		Drwg No. 0001	Sheet 2 of 18

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Wyo. Proj. 1500006
 Sheet B3 of B25 Sheets



PLAN



ELEVATION

(3 Continuous Composite Welded Plate Girder Spans)

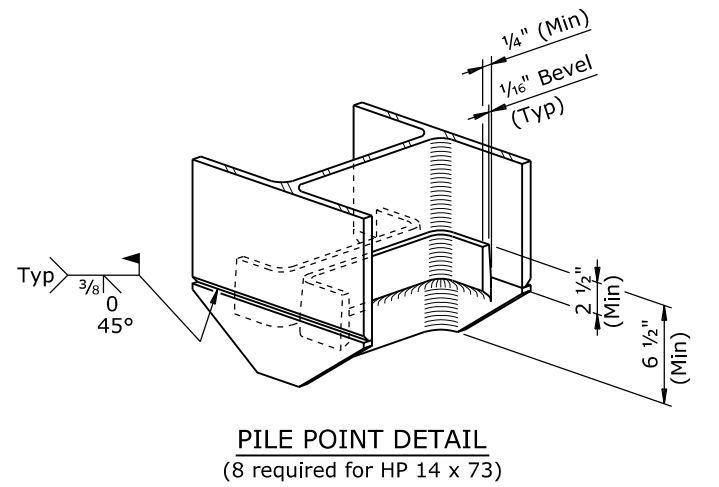
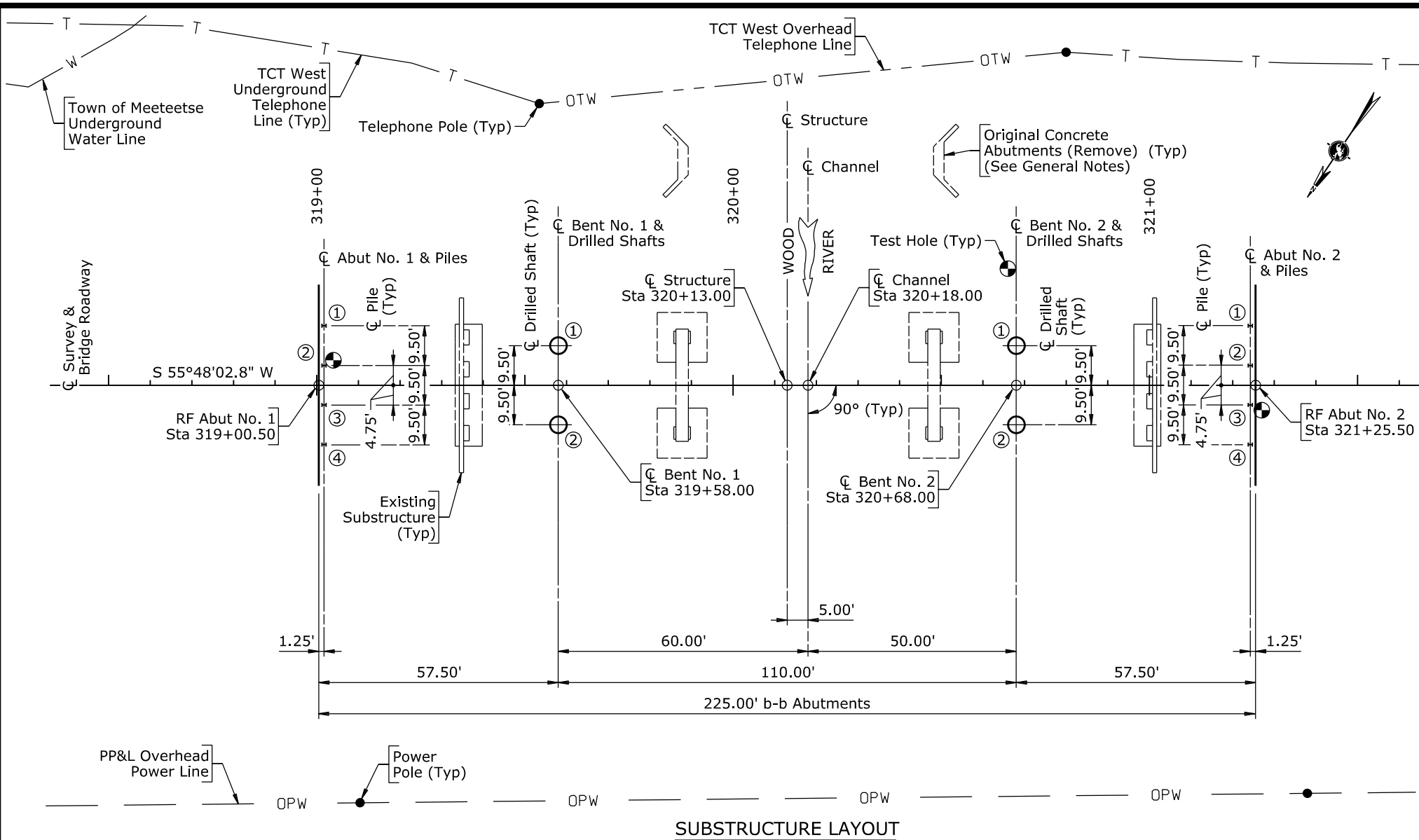
Note: 1) Elevations shown as 6075.12 indicate finished grade at rear face abutment on Bridge Roadway.
 2) Berm slopes are 1:2±, measured perpendicular to Channel.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
GENERAL PLAN AND ELEVATION			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	BBB	Design Section	L M Nop
DETAIL	DDD	Drwg No. 0001	Sheet 3 of 18
APPROVAL	QTY'S		

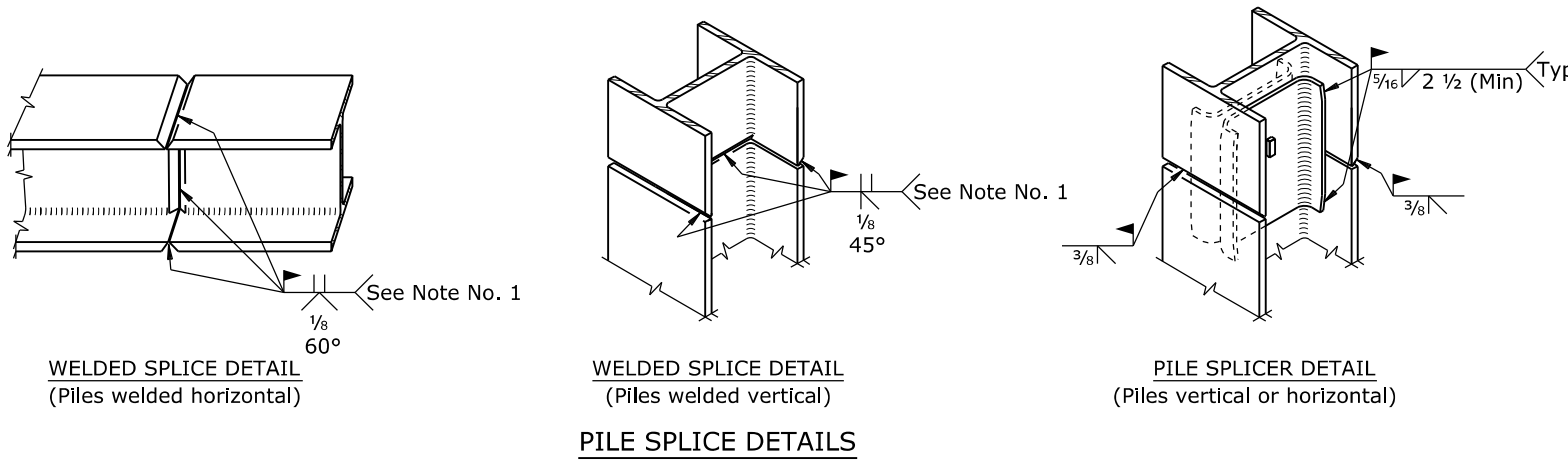
4.03 - Example

Section 4.03 - General Plan and Elevation

Nov 2018



SUBSTRUCTURE DATA				
Location	Pile Elevations		Drilled Shaft Elevations	
	Piles No. ① - ④		Drilled Shafts No. ① & ②	
	Top	Bottom	Top	Bottom
Abut No. 1	6068.21	6045.21	—	—
Bent No. 1	—	—	6044.94	6031.94
Bent No. 2	—	—	6039.94	6023.94
Abut No. 2	6068.21	6030.21	—	—

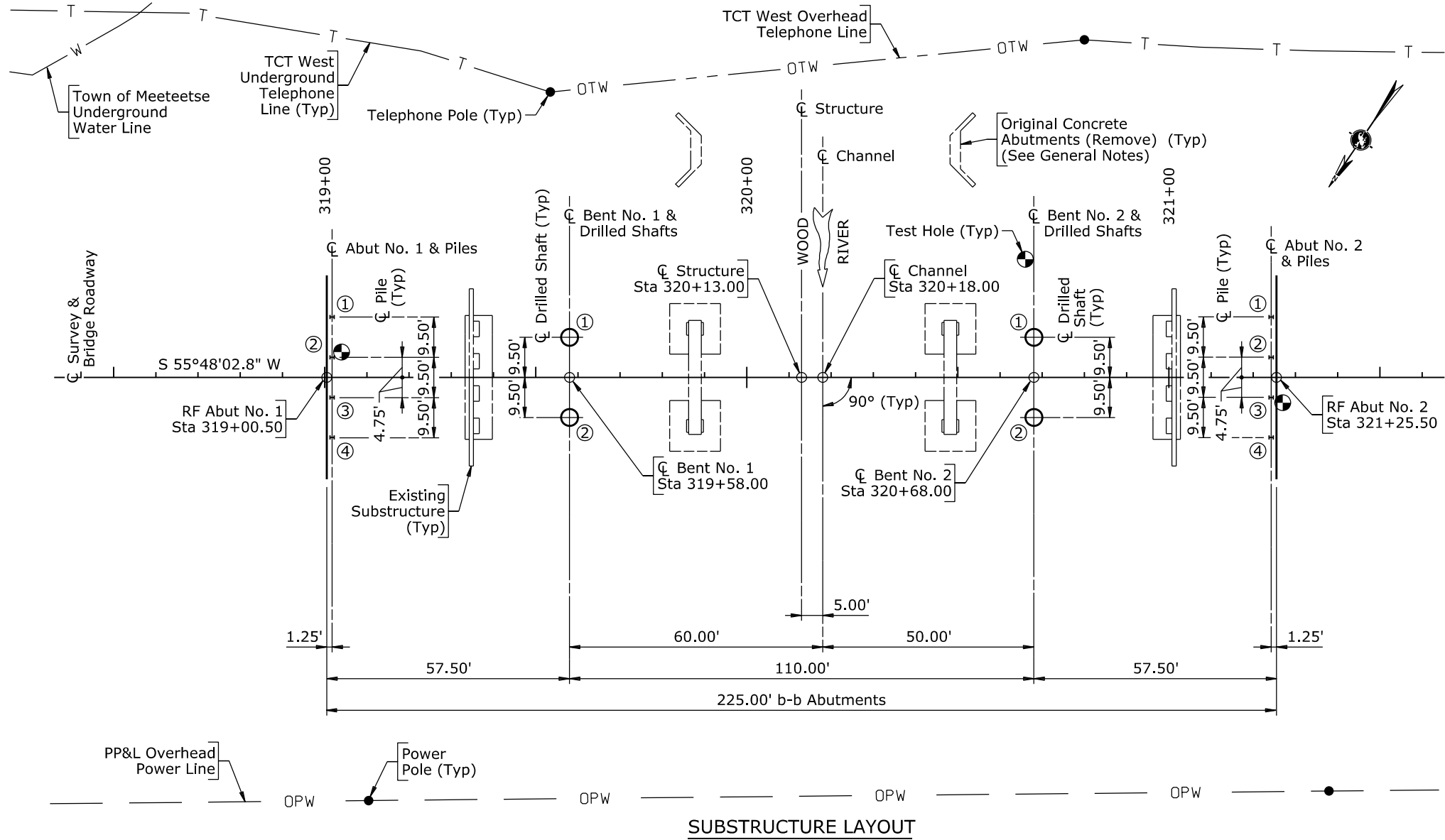


- Note: 1) Gouge root to sound metal before welding second side.
 2) Piles are HP 14 x 73.
 3) Drilled shafts are 48" diameter.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		SUBSTRUCTURE LAYOUT	
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	—	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 4 of 18
APPROVAL	—	QTY'S	—

4.04 - Example

Section 4.04 - Substructure Layout



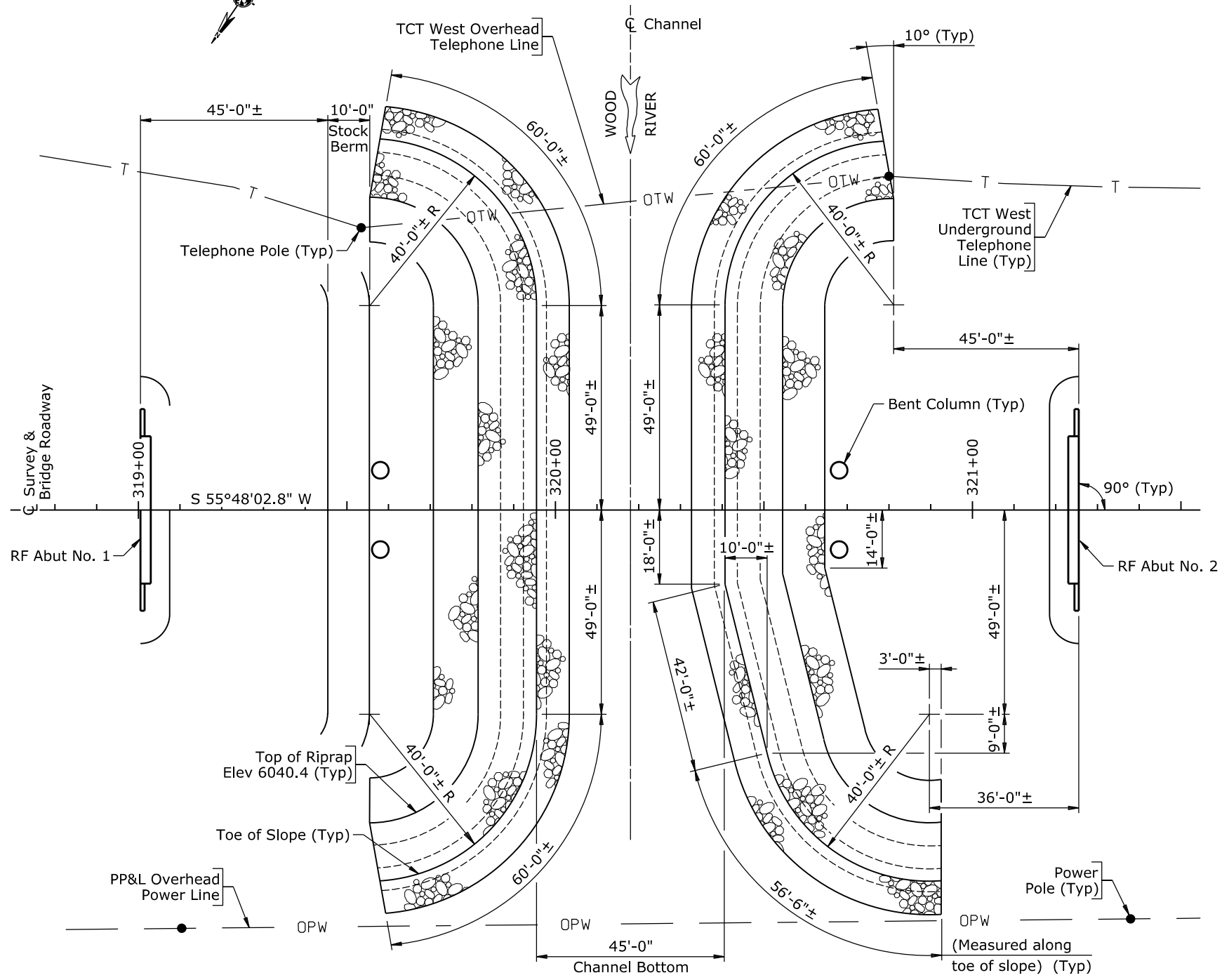
SUBSTRUCTURE LAYOUT

SUBSTRUCTURE DATA				
Location	Pile Elevations		Drilled Shaft Elevations	
	Piles No. ① - ④		Drilled Shafts No. ① & ②	
	Top	Bottom	Top	Bottom
Abut No. 1	6068.21	6045.21	—	—
Bent No. 1	—	—	6044.94	6031.94
Bent No. 2	—	—	6039.94	6023.94
Abut No. 2	6068.21	6030.21	—	—

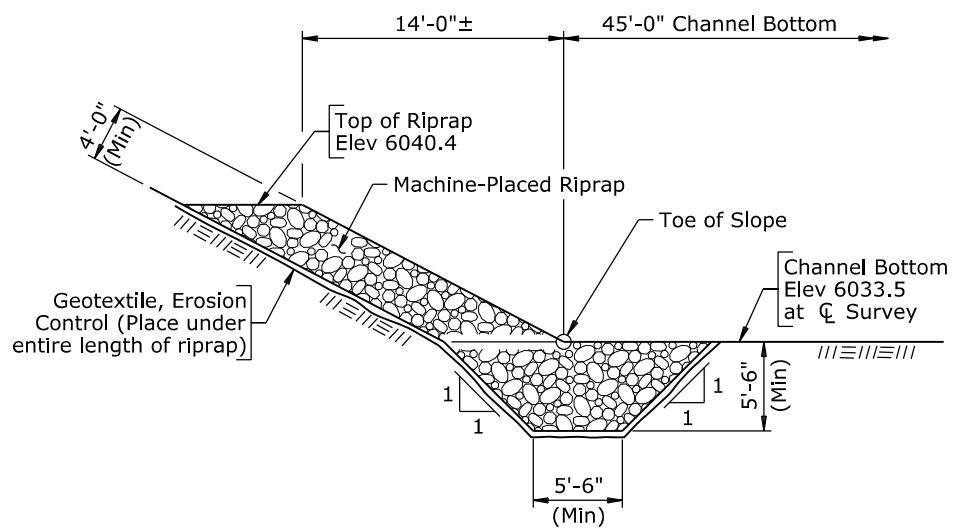
Note: 1) Piles are HP 14 x 73 (Grade 50).
2) Drilled shafts are 48" diameter.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS	FINAL GEOLOGY LAYOUT		
	BRIDGE OVER WOOD RIVER		
	STA 320+18 Meeteetse - Pitchfork Road (WYO 290)		
1500006		Pa	
DESIGN	CCC	AAA	Design Section L M Nop
DETAIL	CCC	AAA	Drwg No. 0001 Sheet 1 of 1
APPROVAL	QTY'S		

Nov 2018



PLAN



TYPICAL SECTION

4.05 - Example

Section 4.05 - Riprap and Gabions

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		RIPRAP DETAILS	
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	BBB ✓ DDD	Design Section	L M Nop
DETAIL	BBB ✓ AAA	Drwg No.	0001
APPROVAL		Sheet	5 of 18

SUMMARY OF LABORATORY TEST DATA

TEST NO.	LOCATION (station)	ELEVATION	BLOWS Per Ft.	SIEVE ANALYSIS - % PASSING			LIQUID LIMIT	PLASTIC INDEX	DENSITY WEI PCF	MOIST. % DRY WT.	SPECIFIC GRAVITY	SHEAR STRENGTH - PEAK - lb./ft. ²	UNIFIED & AASHTO CLASSIFICATION	UNIT COHESION lb./ft. ²	φ MAXIMUM	% SATURATION	REMARKS
				#10	#40	#200											
1	319+04, 6' Lt. Q	6061.4 - 6060.4	13	92	90	51.9	20	4					ML,A-4(0)				
2	319+04, 6' Lt. Q	6056.4 - 6055.4	20	98	97	67.0			133.4	11.9			CL-ML,A-4(1)				
3	319+04, 6' Lt. Q	6046.9 - 6046.7	100/2.5*														No Recovery
4	319+04, 6' Lt. Q	6042.9 - 6042.1	100/2*							137.2	7.4						Shale
5	321+27, 6' Rt. Q	6061.4 - 6060.4	12	75	71	38.1	NV	NP		11.6			SM,A-4(0)				
6	321+27, 6' Rt. Q	6051.4 - 6050.4	20	83	82	56.3	22	7		11.5			CL,A-4(1)				
7	321+27, 6' Rt. Q	6041.4 - 6040.4	15	97	94	57.8	22	5		8.3			CL-ML,A-4(0)				
8	321+27, 6' Rt. Q	6031.4 - 6030.6	100/3.5*							10.3							Sandstone
9	321+27, 6' Rt. Q	6027.9 - 6027.8	100/1*														No Recovery
10	320+66, 28' Lt. Q	6023.9 - 6023.6	100/3.5*							12.1							Sandy Shale
11	320+66, 28' Lt. Q	6015.9 - 6015.8	100/1.5*							11.6							Sandy Shale

UNIFIED SOIL CLASSIFICATION
 GW - Well graded gravel
 GP - Poorly graded gravel
 GM - Silty sandy gravel
 GC - Clayey gravel
 SW - Well graded sand
 SP - Poorly graded sand
 SM - Silty sand
 SC - Clayey sand
 ML - Inorganic silt, slight plasticity
 CL - Inorganic clay, medium plasticity
 OL - Organic silt and silty clay, low plasticity
 MH - Inorganic elastic silt
 CH - Inorganic clay, high plasticity
 OH - Organic clay, medium to high plasticity
 PT - Peat and other highly organic soils
 highly Organic soils

STRENGTH CLASS DEFINITION - BASED ON BLOWS/FT. - STANDARD PENETRATION

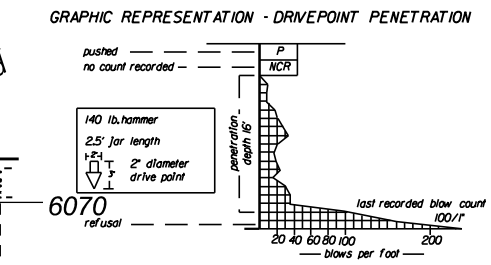
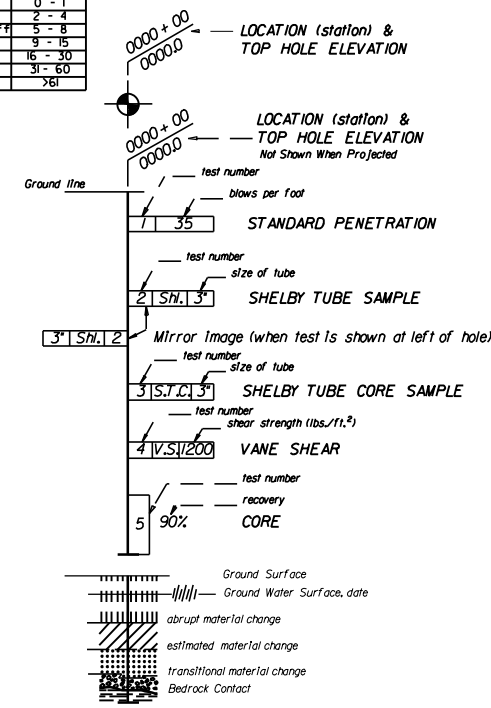
CONSISTENCY	BLOWS PER FT.	CONSISTENCY	BLOWS PER FT.
Very Loose	0 - 4	Very Soft	0 - 1
Loose	5 - 10	Soft	2 - 4
Medium Dense	11 - 24	Medium Stiff	5 - 8
Dense	25 - 50	Stiff	9 - 15
Very Dense	>51	Very Stiff	16 - 30
		Hard	31 - 60
		Very Hard	>61

GROUND WATER SURFACE
 Not Encountered
 As Shown, measured - Date (s) _____

Borings shown made with: Auger Rig H-823 Air
 Rotary Rig circulation medium Water Mud

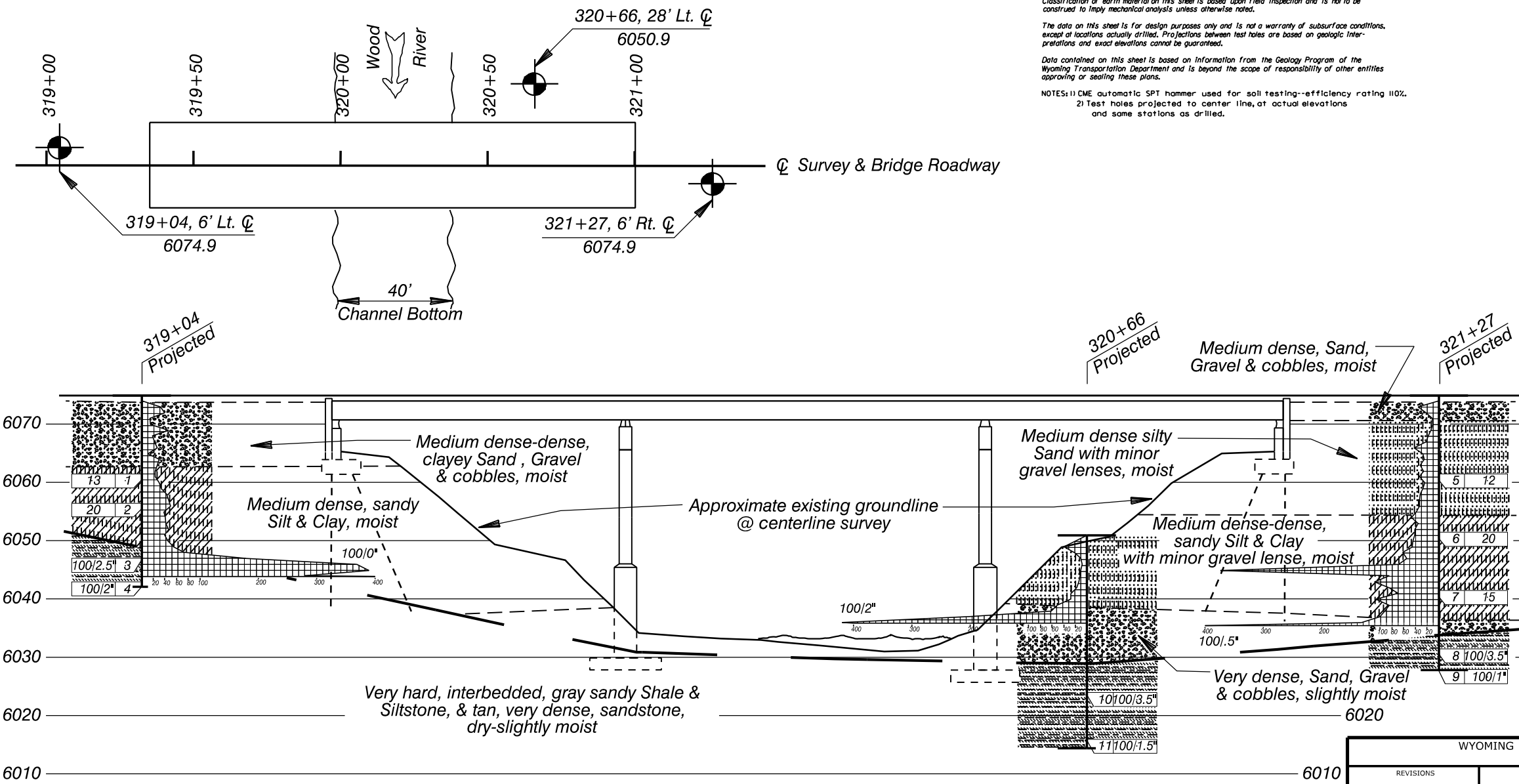
Classification of earth material on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis unless otherwise noted.
 The data on this sheet is for design purposes only and is not a warranty of subsurface conditions, except at locations actually drilled. Projections between test holes are based on geologic interpretations and exact elevations cannot be guaranteed.
 Data contained on this sheet is based on information from the Geology Program of the Wyoming Transportation Department and is beyond the scope of responsibility of other entities approving or sealing these plans.
 NOTES: 1) CME automatic SPT hammer used for soil testing--efficiency rating 110%.
 2) Test holes projected to center line, at actual elevations and same stations as drilled.

Wyo. Proj. 1500006
 Sheet B6 of B25 Sheets



LEGEND OF EARTH MATERIALS

soils	bedrock
LOESS	LIMESTONE
CLAY	SHALE
SILT	CLAYSTONE
SAND	SILTSTONE
GRAVEL	COAL & LIGNITE
fill	SANDSTONE
	CONGLOMERATE
	all igneous and Metamorphic rocks



WYOMING DEPARTMENT OF TRANSPORTATION
 BRIDGE PROGRAM

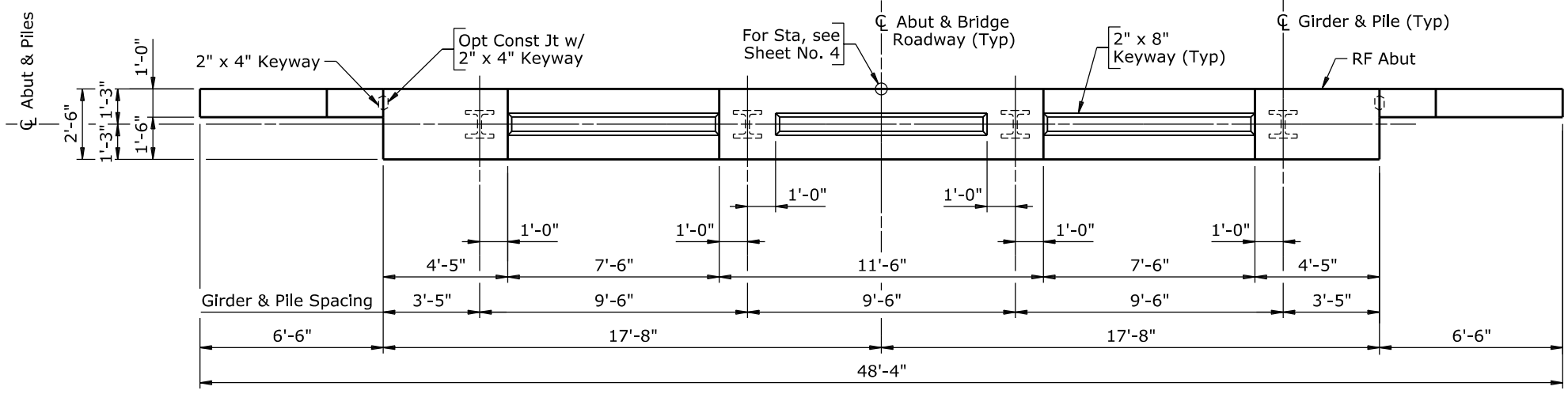
LOG BORING SHEET

BRIDGE OVER WOOD RIVER
 STA 320+18
 Meeteetse - Pitchfork Road
 (WYO 290)

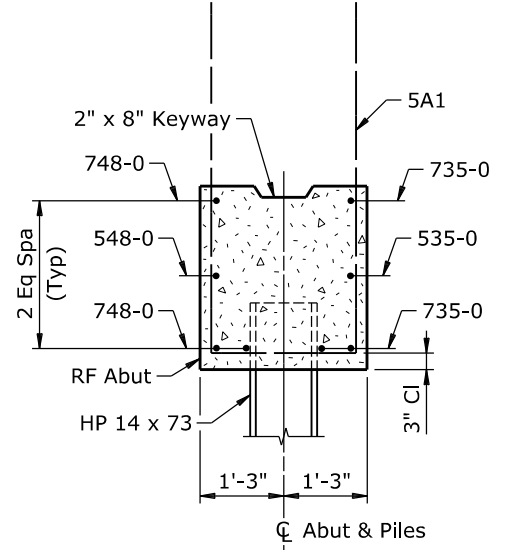
1500006 Pa

DESIGNER: G. MILLER, Z6ES, RDK
 Design Section L M Nop

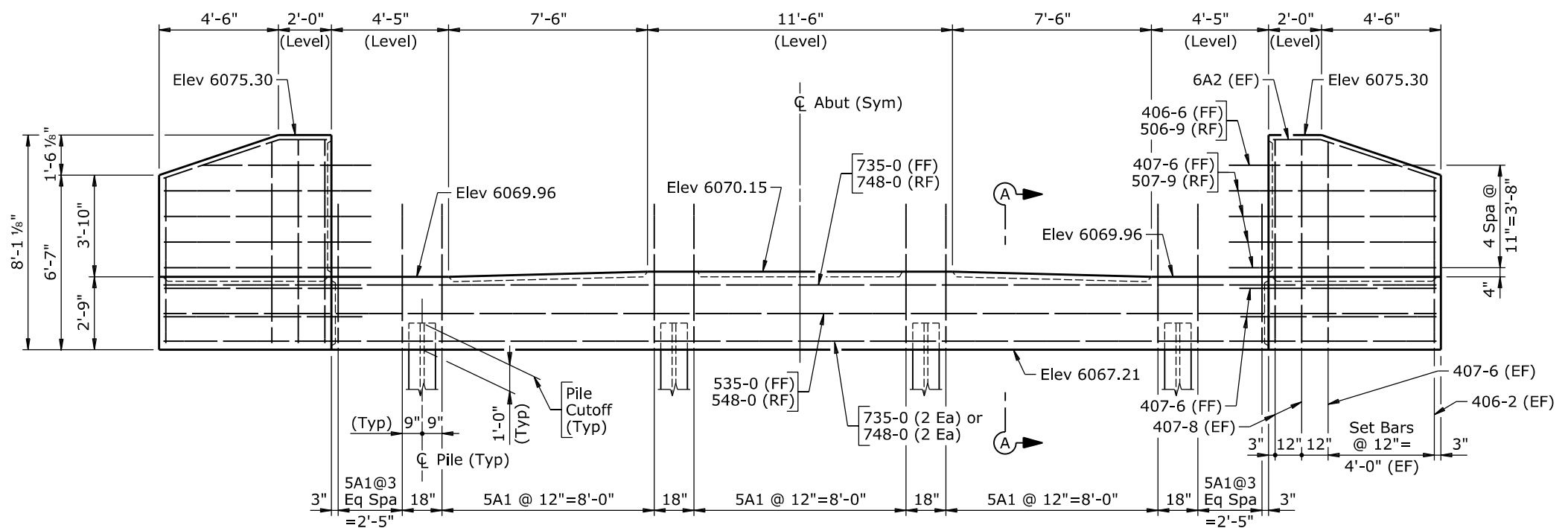
Drwg No. 0001 Sheet 6 of 18



PLAN

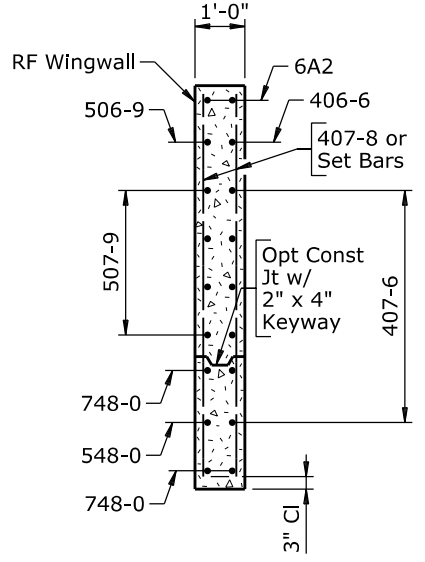


SECTION A-A



ELEVATION

(Looking back station at Abutment No. 1, looking ahead station at Abutment No. 2)

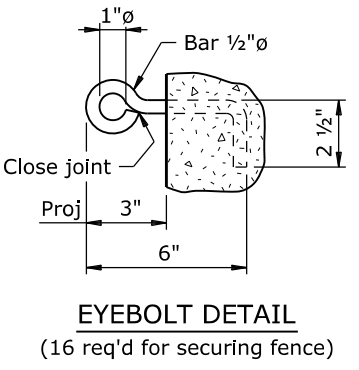


TYPICAL WINGWALL SECTION

- Note: 1) Ensure the reinforcing steel fabricator prefixes bar marks this sheet with numeral 1 at Abutment No. 1 and numeral 2 at Abutment No. 2.
2) The estimated quantity of class A concrete is 13.0 CY per abutment.
3) For pile cutoff elevations, see Sheet No. 4.

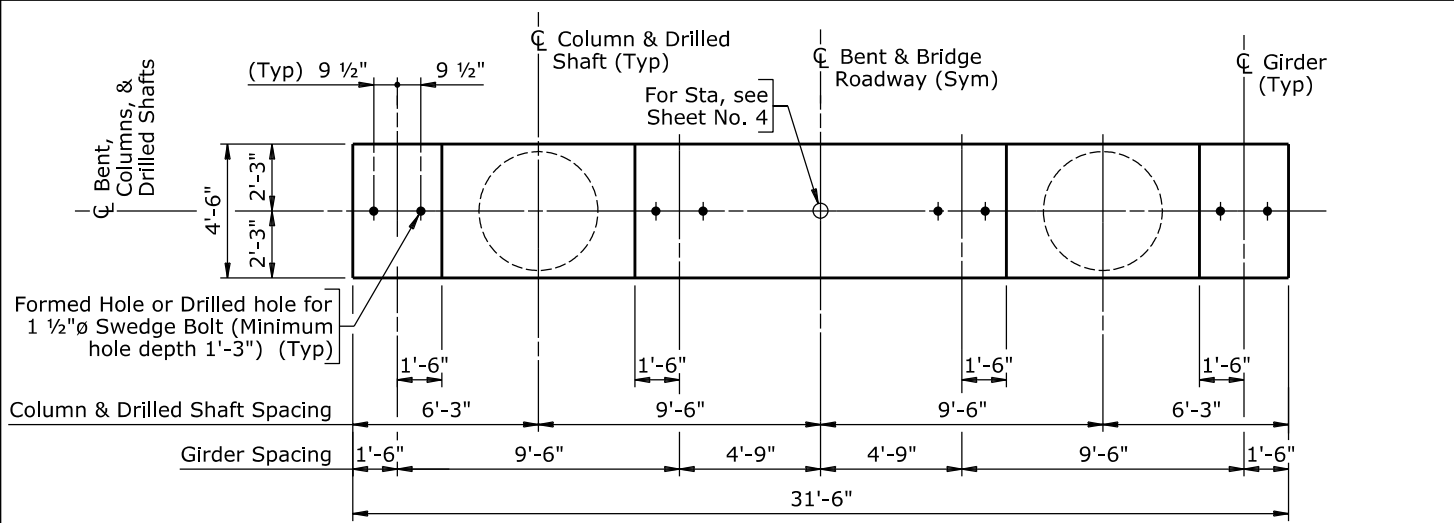
BILL OF REINFORCEMENT					
Location	Mark	Number Required Per Abut	Location	Mark	Number Required Per Abut
Cap	407-6	4	Wingwalls	406-6	2
	5A1	35		407-6	8
	535-0	1		407-8	8
	548-0	1		Set Bars	4
	735-0	3		506-9	2
	748-0	3		507-9	8
Weight	1078 LB		6A2	4	
			Weight	298 LB	

Bending Diagrams		Set Diagrams	
5A1 (Stirrup) (12'-8")	6A2 (6'-3")	Set Bars (No. 4 Bars) (Avg length=6'-10")	

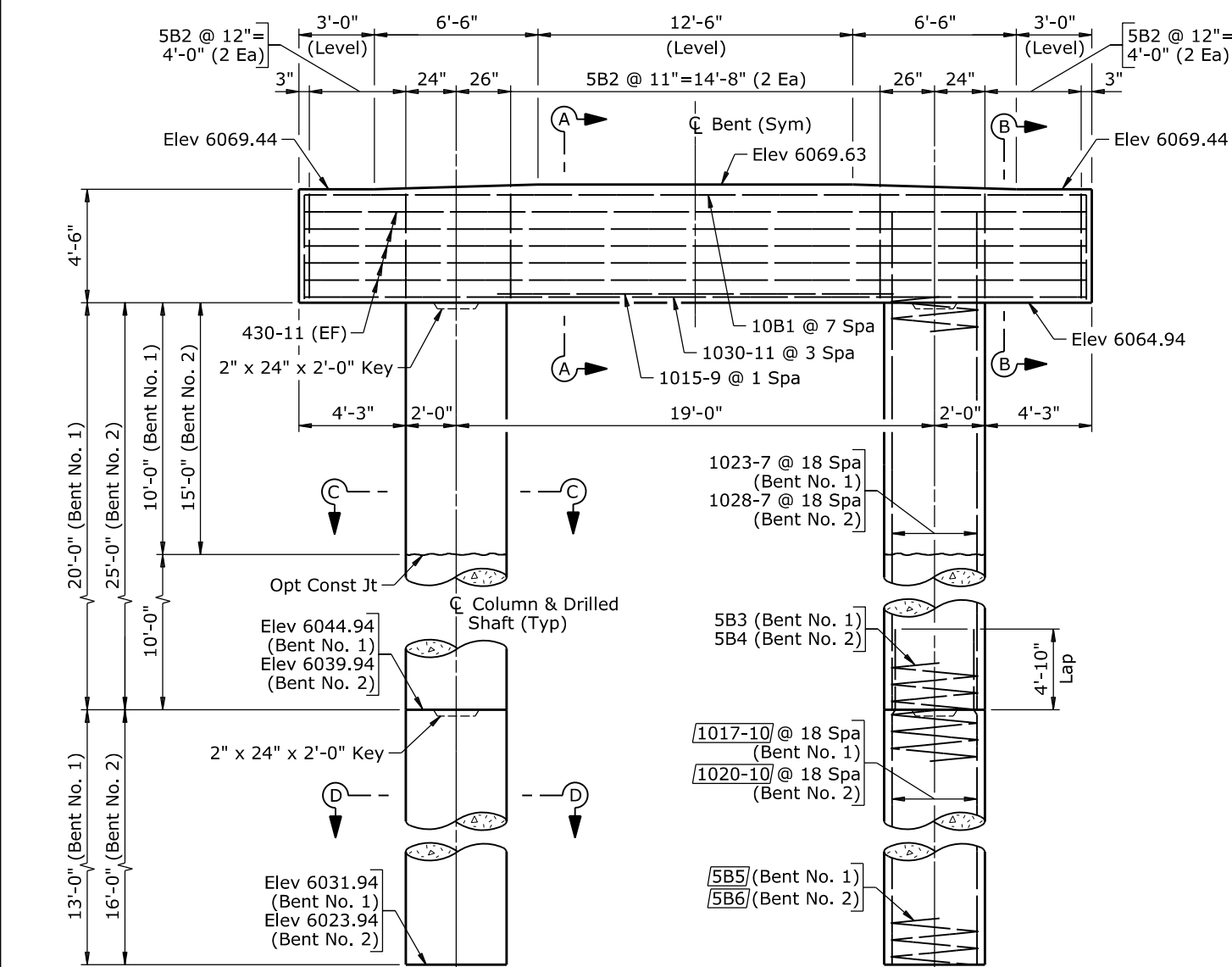


EYEBOLT DETAIL
(16 req'd for securing fence)

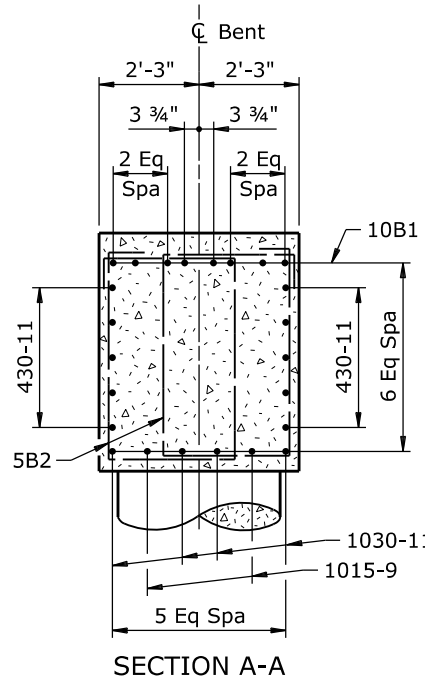
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
ABUTMENT DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No.	0001
APPROVAL	BBB ✓ AAA	Sheet	7 of 18



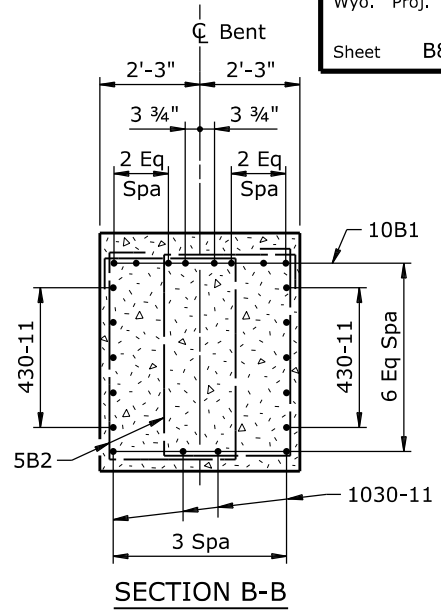
PLAN



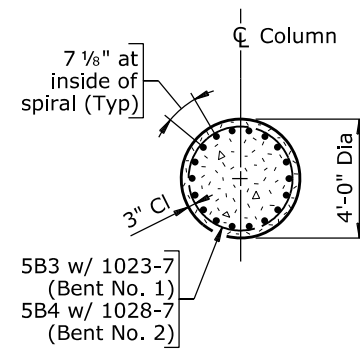
ELEVATION
(Looking ahead station)



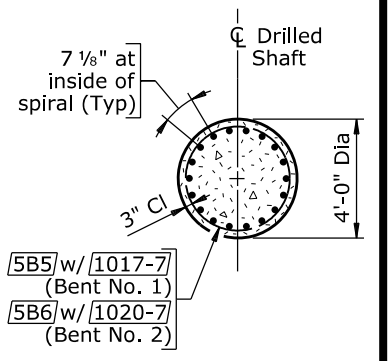
SECTION A-A



SECTION B-B

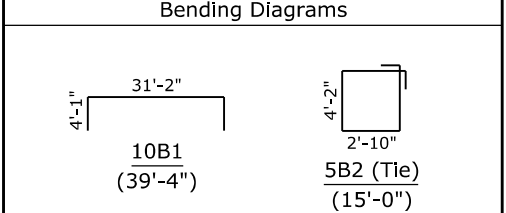


SECTION C-C



SECTION D-D

BILL OF REINFORCEMENT			
Location	Mark	Number Required	
		Bent No. 1	Bent No. 2
Cap	430-11	10	10
	5B2	54	54
	10B1	8	8
	1015-9	2	2
	1030-11	4	4
	Weight	3074 LB	3074 LB
Columns	5B3	2	—
	5B4	—	2
	1023-7	36	—
	Weight	5580 LB	6814 LB
Drilled Shafts	5B5	2	—
	5B6	—	2
	1017-10	36	—
	1020-10	—	36
	Weight	4160 LB	4961 LB



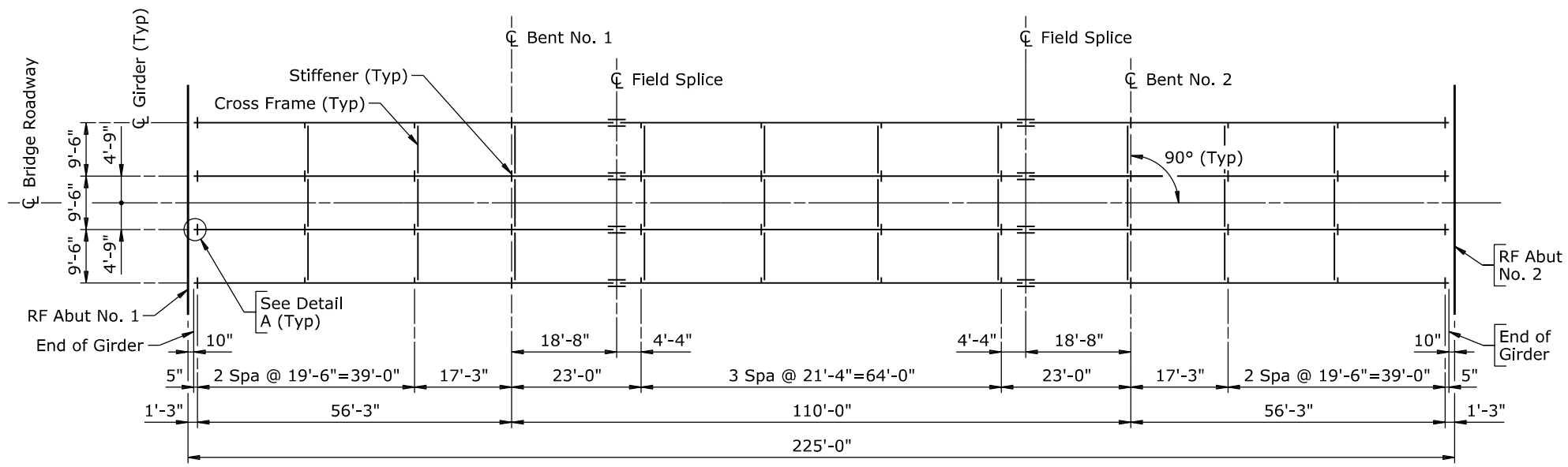
Spirals			
Mark	Pitch	Core	Turns
5B3	3"	42"	#84
5B4	3"	42"	#104
5B5	3"	42"	#54
5B6	3"	42"	#66

- Note:
- Place 1015-9 bars symmetrical between columns.
 - Extend spiral reinforcing steel 3" into bent cap.
 - The number of turns for 5B5 and 5B6 bars includes 1 1/2 turns at the top. The number of turns for 5B3 and 5B4 bars includes 1 1/2 turns at the top and bottom.
 - Ensure the reinforcing steel fabricator prefixes bar marks this sheet with numeral 3 at Bent No. 1 and numeral 4 at Bent No. 2.
 - Reinforcing steel shown as 1020-10 is not included in the quantity of reinforcing steel.
 - The estimated quantity of class A concrete is 42.8 CY for Bent No. 1 and 47.4 CY for Bent No. 2.

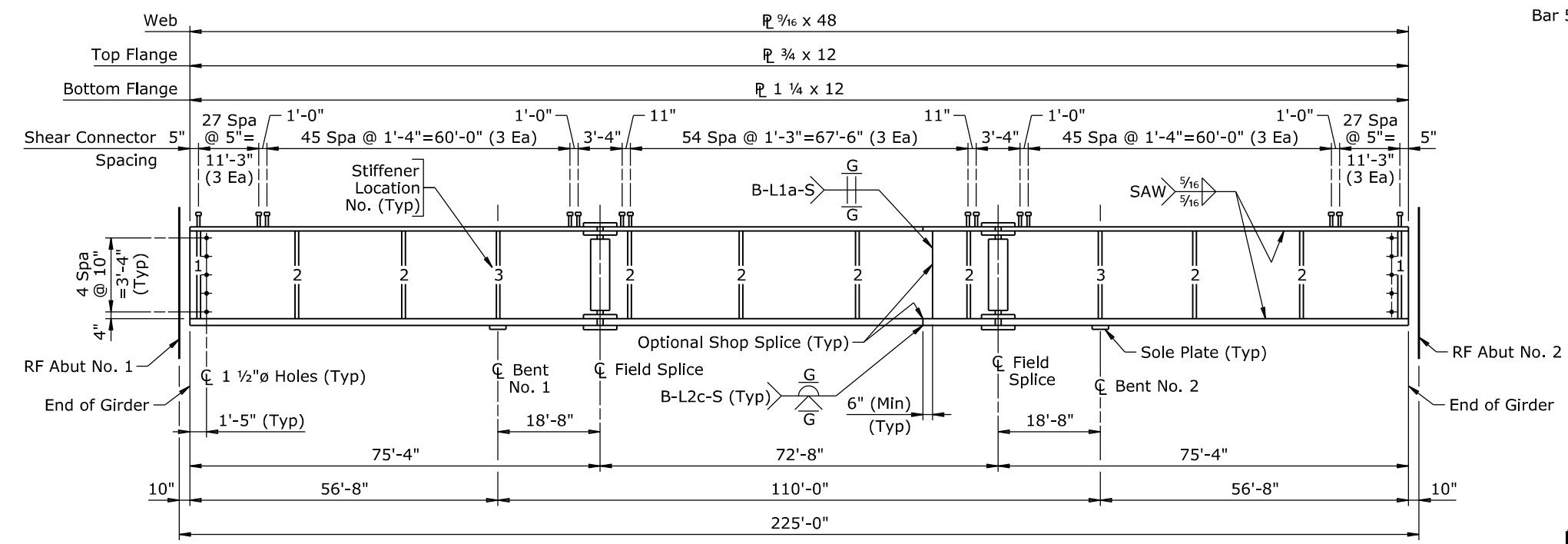
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
BENT DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 8 of 18
APPROVAL	BBB ✓ AAA	QTY'S	

Nov 2018

4.09 - Example

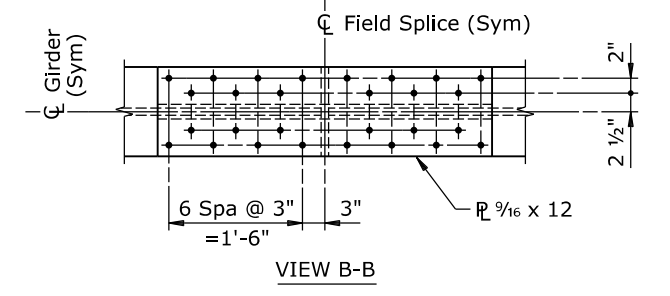
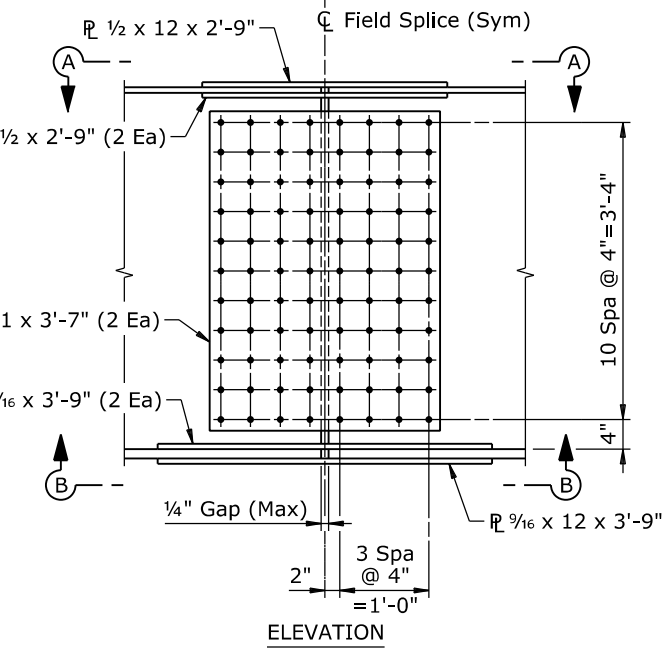
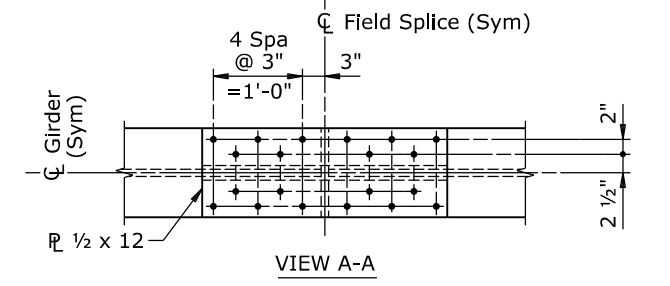


FRAMING PLAN
 (Longitudinal dimensions are along bottom of bottom flange and are typical for each girder)



GIRDER ELEVATION
 (Longitudinal dimensions are parallel with finished grade)

- Note:
- 1) If optional shop splice is used, ensure flange and web splice welds are inspected by ultrasonic testing after being ground flush.
 - 2) The distance from center of bolt holes to edges is 1 1/2" unless noted.
 - 3) For Detail A, see Sheet No. 11.

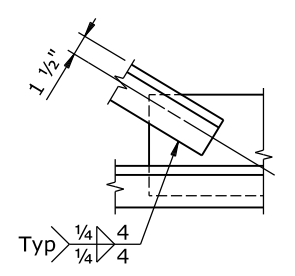
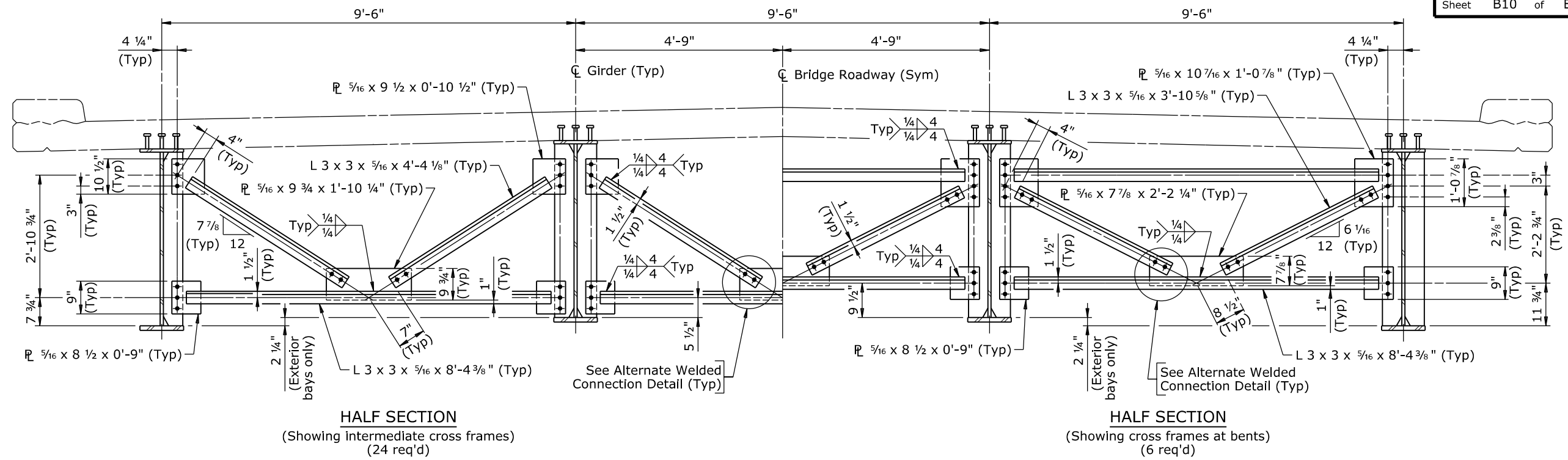


FIELD SPlice DETAILS
 (8 req'd)

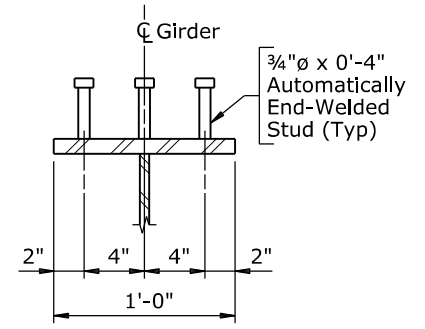
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SUPERSTRUCTURE DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 9 of 18
APPROVAL	BBB ✓ AAA	QTY'S	

Section 4.09 - Superstructure

Nov 2018

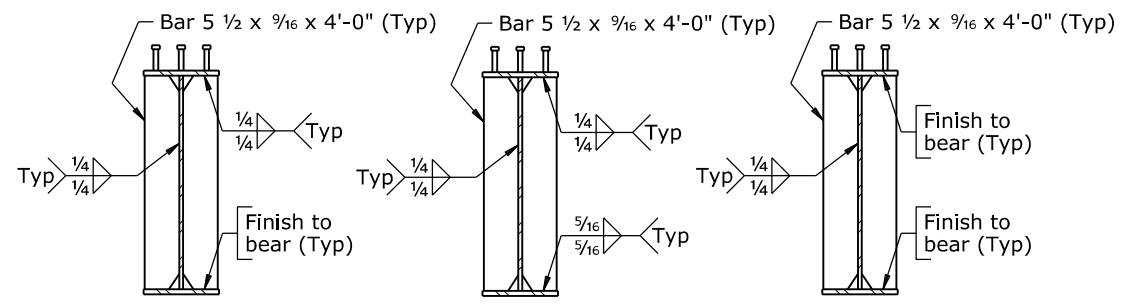


ALTERNATE WELDED CONNECTION DETAIL
 (Bottom connection shown, top connection similar)

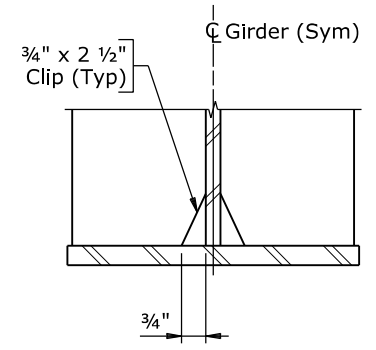


SHEAR CONNECTOR DETAIL
 (2484 studs req'd)

- Note:**
- 1) Terminate stiffener and cross frame welds 1/4" from edge of members.
 - 2) Bolt pitch is 3" unless noted. The distance from center of bolt holes to edges is 1 1/2" unless noted.
 - 3) Alternate shop welding of bolted cross frame connections and the use of oversized holes in cross frame to stiffener connections will be permitted, at no additional cost to the department. Gusset plates have been sized to accommodate the use of both welded and bolted connections. Ensure oversized holes are in either stiffeners or gusset plates. Ensure the fabricator details the proposed connection on the shop drawings.
 - 4) Shear connectors are intended to be field installed in accordance with Supplementary Specification SS-500F, Automatically End-Welded Studs. If shear connectors are shop applied, ensure compliance with OSHA regulations.
 - 5) For stiffener locations, see Sheet No. 9.



STIFFENER DETAILS

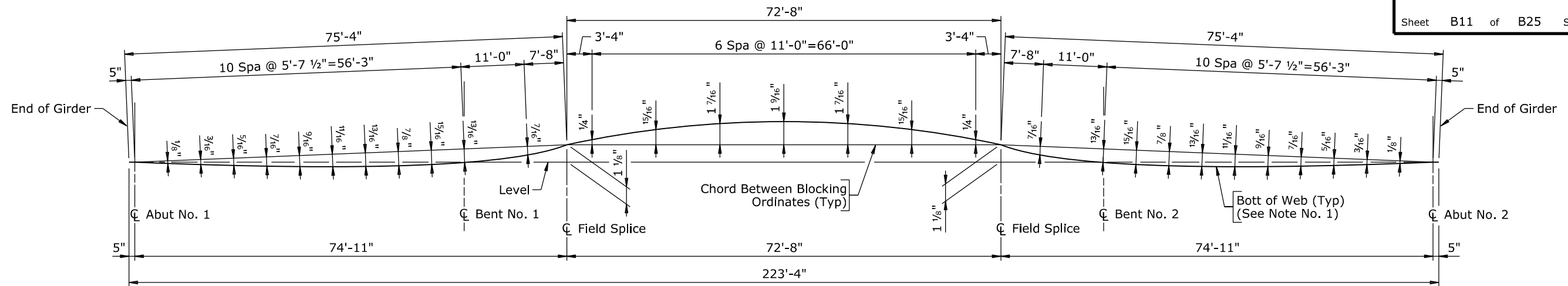


STIFFENER CLIP DETAIL
 (Typ top & bott)

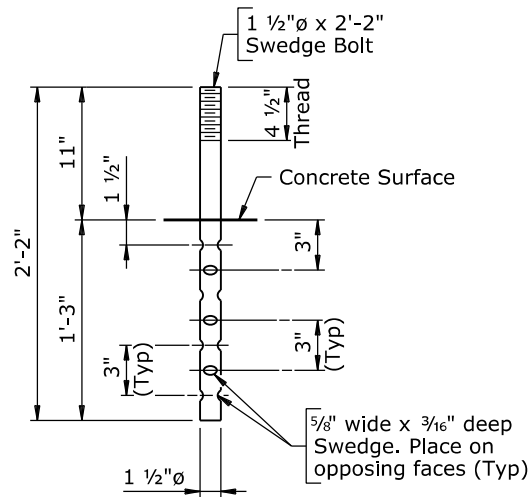
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SUPERSTRUCTURE DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 10 of 18
APPROVAL	BBB ✓ AAA		

4.09 - Example

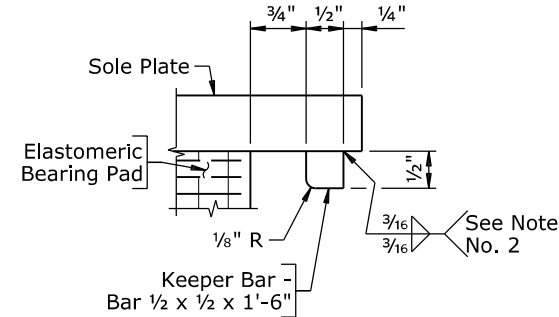
Section 4.09 - Superstructure



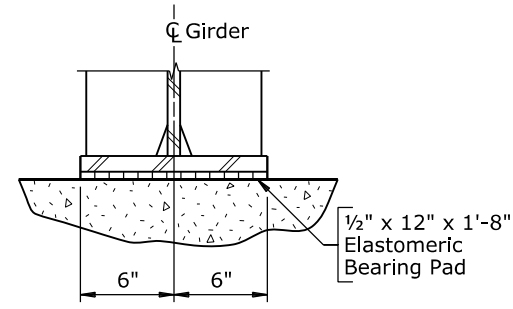
WEB CUTTING DIAGRAM
(Includes dead load deflection and grade)



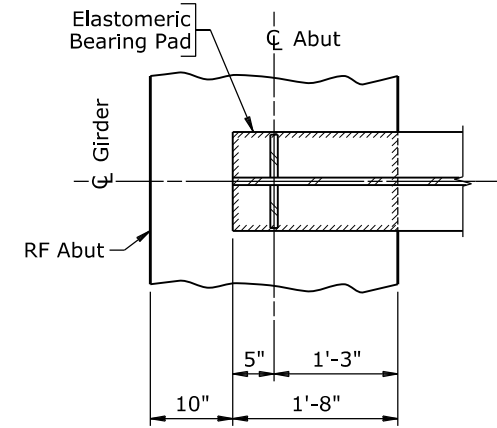
SWEDGE BOLT DETAIL



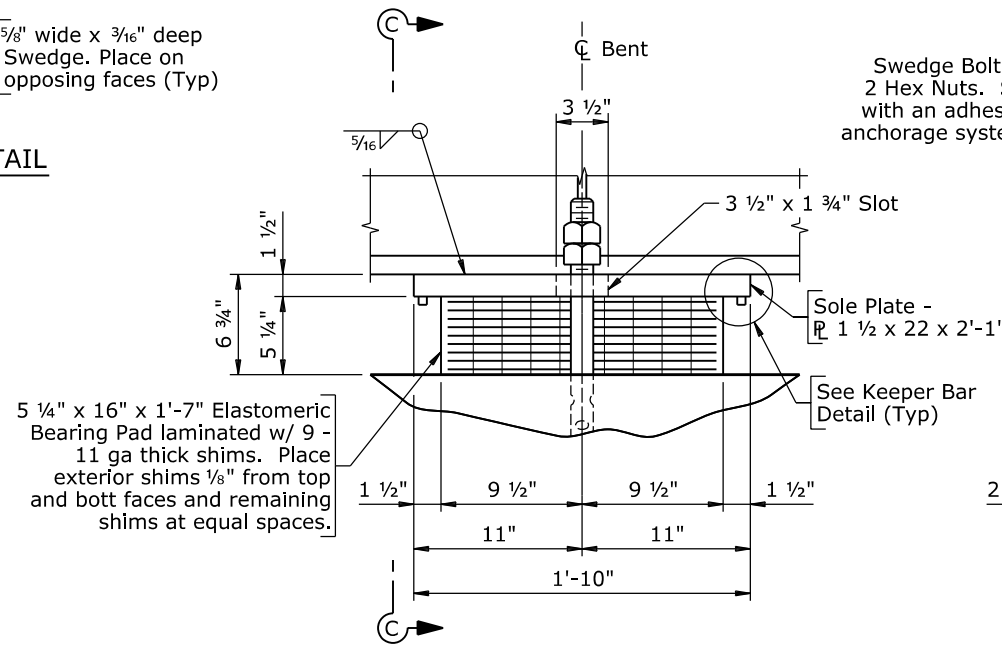
KEEPER BAR DETAIL



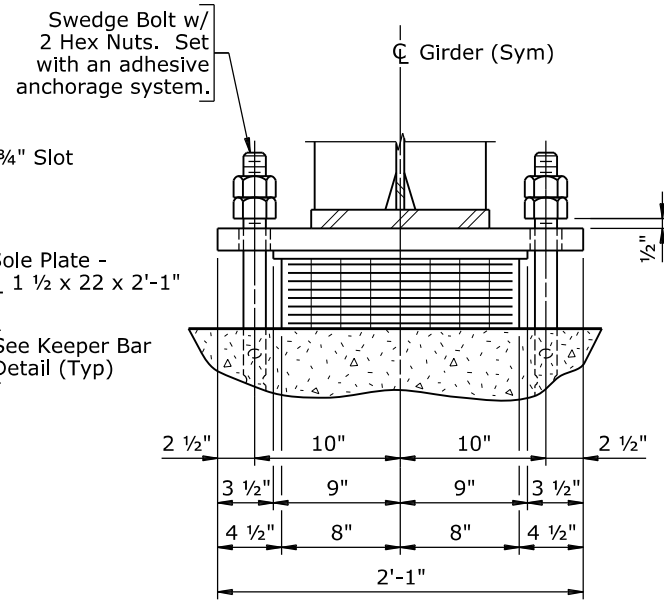
BEARING AT ABUTMENT DETAIL
(8 req'd)



DETAIL A



ELEVATION

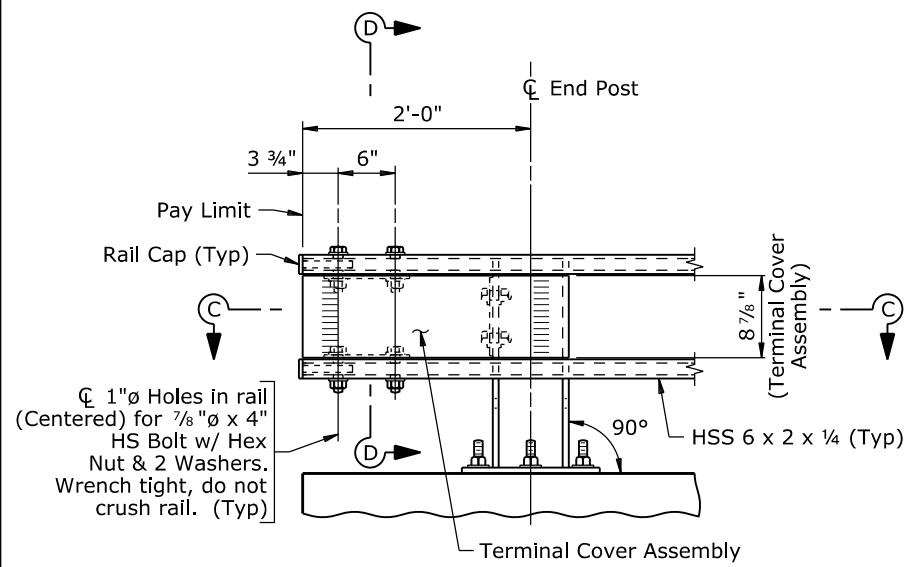


SECTION C-C

BEARING AT BENT DETAILS
(8 req'd)

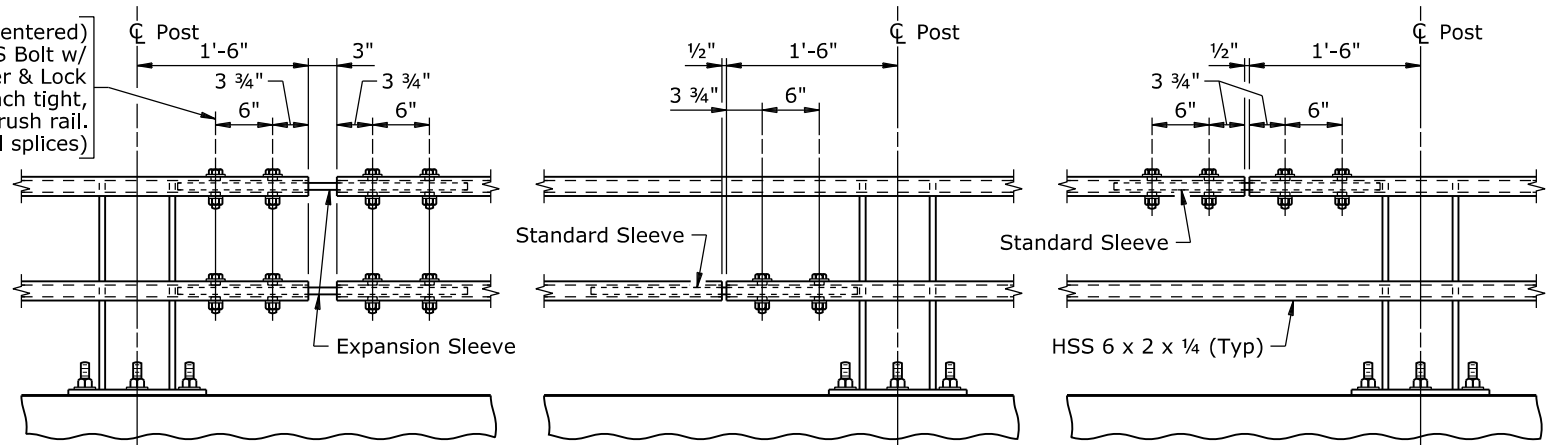
- Note:**
- 1) Top and bottom of web plates are parallel.
 - 2) Indicated weld is not required to be completed by an AWS certified fabricator. Ensure weld inspection is performed by an AWS Certified Welding Inspector (CWI) qualified and certified in conformance with the provisions of AWS QC1, Specification for AWS Certification of Welding Inspectors. Provide inspection documentation to the engineer.
 - 3) For location of Detail A, see Sheet No. 9.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SUPERSTRUCTURE DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 11 of 18
APPROVAL	BBB ✓ AAA		



ELEVATION AT TERMINAL

1" ϕ Holes in rail (Centered) for 3/4" ϕ x 3 1/2" HS Bolt w/ Hex Nut, Washer & Lock Washer. Wrench tight, do not crush rail. (Typ) (All splices)



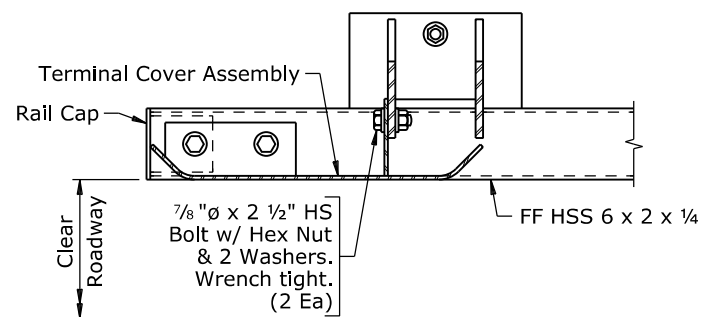
EXPANSION SPLICE
(Top and bottom rail)

STANDARD SPLICE
(Top or bottom rail)

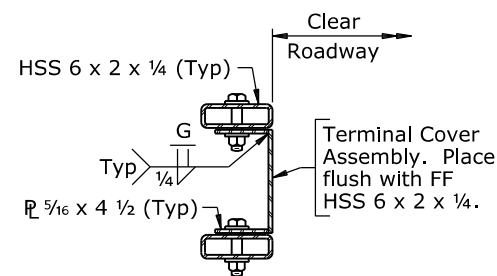
DOUBLE-BOLTED SPLICE
(Top or bottom rail)

SPLICE DETAILS

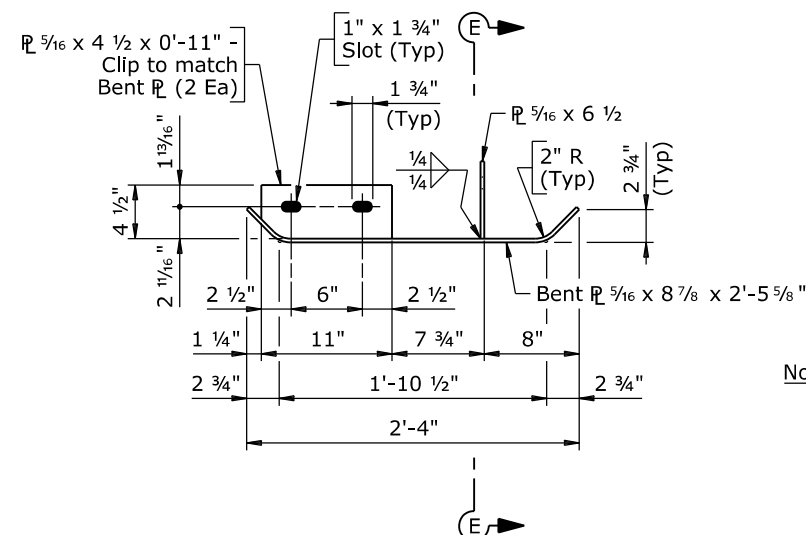
TERMINAL COMPONENT REQUIREMENTS		
Approach Guardrail Connection	Rail Caps Required	Terminal Cover Assembly Required
MGS Approach Guardrail	Yes (Without bolts)	± No
Box Beam w/ Rubrail Approach Guardrail	No	No
No Approach Guardrail	Yes (With bolts)	Yes



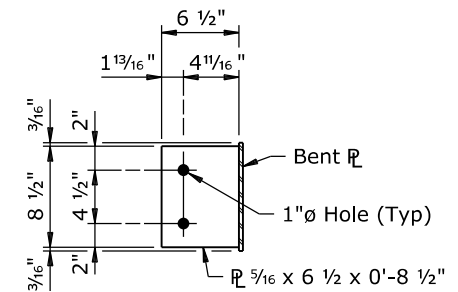
SECTION C-C



SECTION D-D

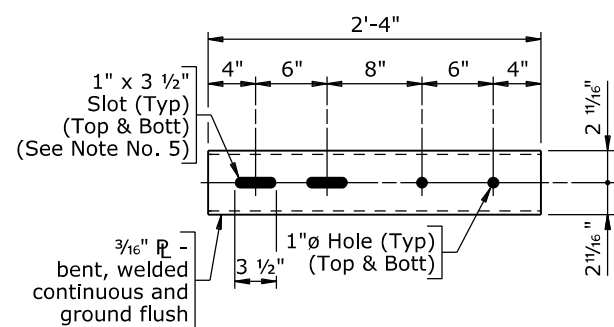


TERMINAL COVER ASSEMBLY DETAIL

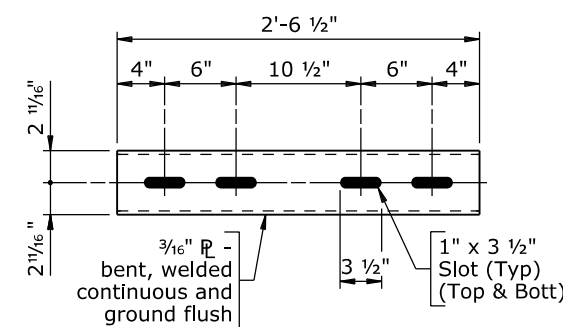


SECTION E-E

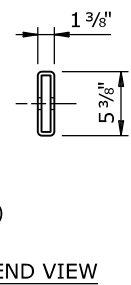
- Note:
- 1) Ensure each rail length is continuous over a minimum of two posts.
 - 2) In rehabilitation work, ensure railing that cannot feasibly be made continuous over a minimum of two posts has a double-bolted splice.
 - 3) Splices may be located on either side of post.
 - 4) Not more than one splice is permitted per side of post, except at expansion splices.
 - 5) Slots may be omitted in standard sleeves where bolts are required on one side of splice only.
 - 6) Do not shop splice rails.
 - 7) Terminal components removed during rehabilitation work will remain the property of the department.
 - ±8) Installation of MGS approach guardrail will require other fabricated assemblies to be connected to end post. See road plans for details and pay item.



STANDARD SLEEVE

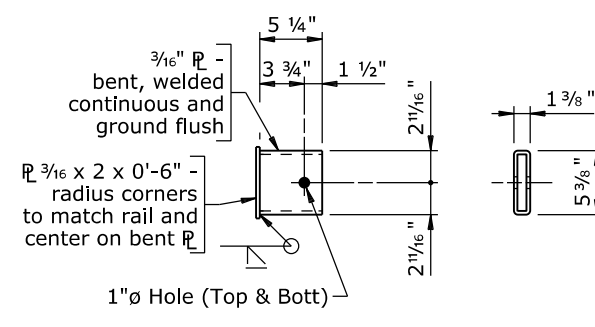


EXPANSION SLEEVE



END VIEW

SLEEVE DETAILS

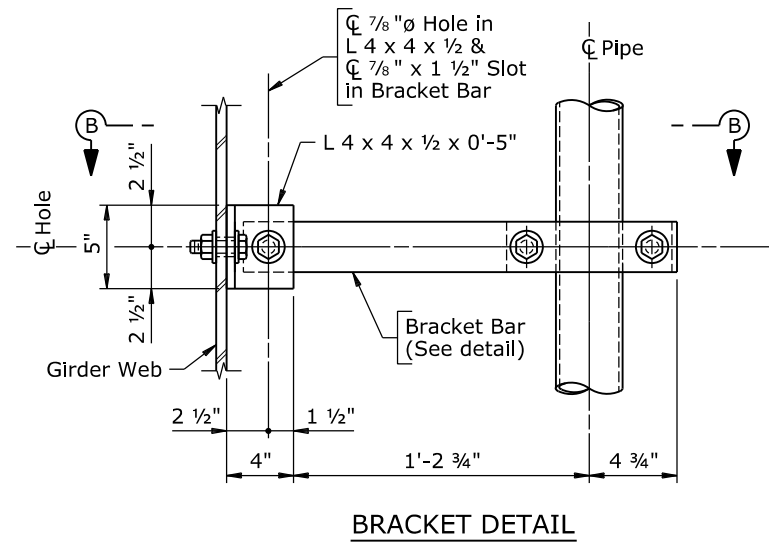


PLAN

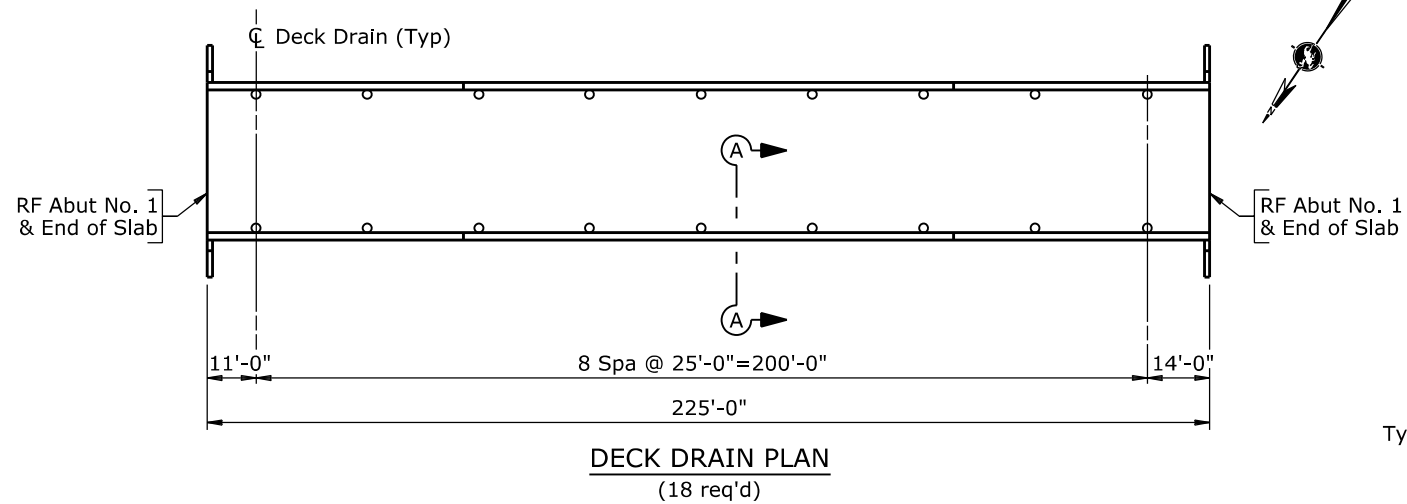
END VIEW
(ϕ 3/16 x 2 not shown)

RAIL CAP DETAILS

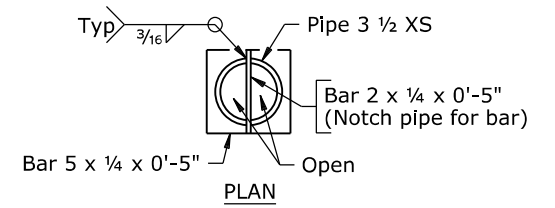
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
BRIDGE RAILING DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	BBB ✓ DDD	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No.	0001
APPROVAL	BBB ✓ AAA	Sheet	13 of 18



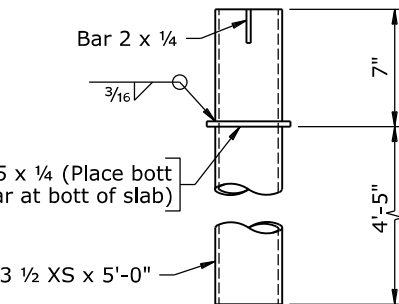
BRACKET DETAIL



DECK DRAIN PLAN
(18 req'd)

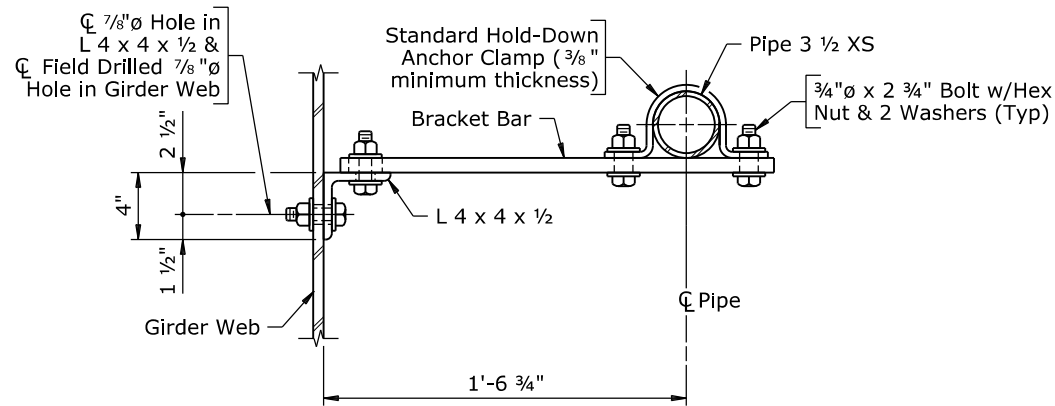


PLAN

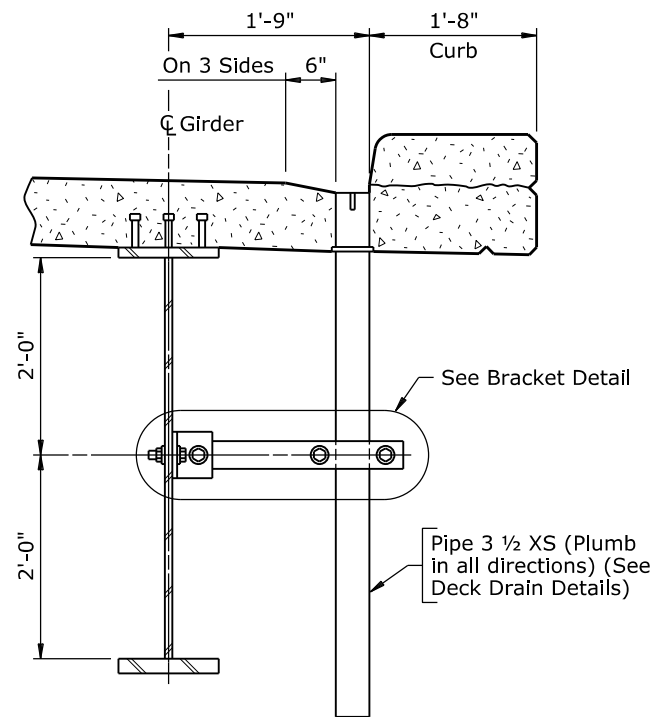


ELEVATION

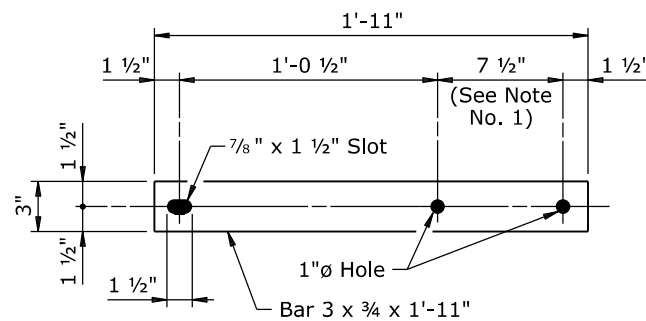
DECK DRAIN DETAILS



SECTION B-B



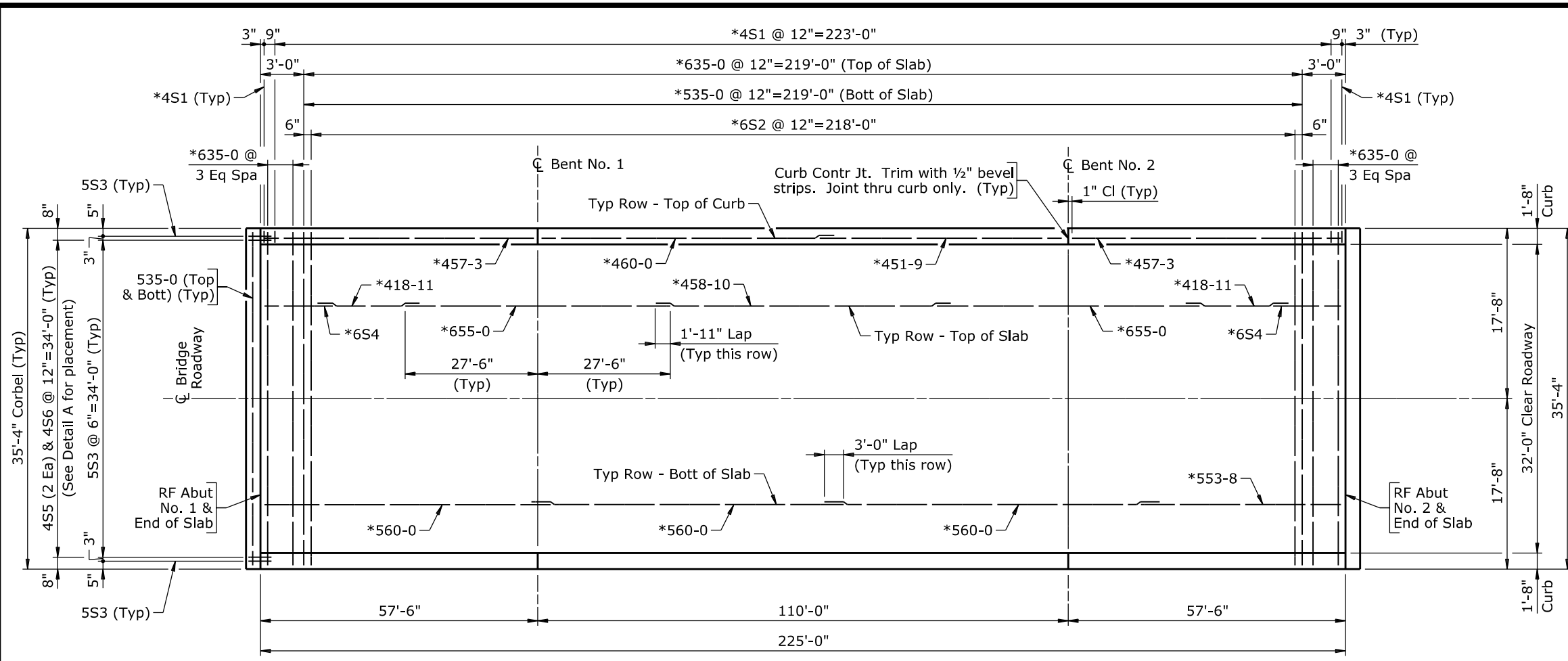
SECTION A-A



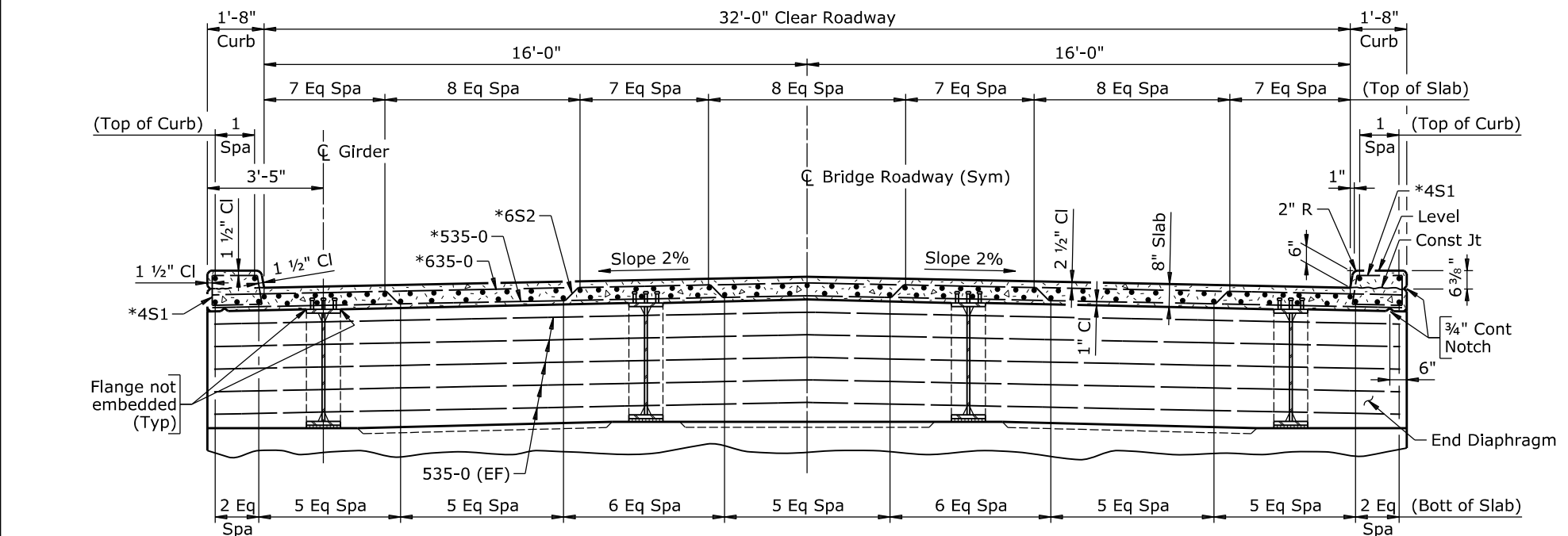
BRACKET BAR DETAIL

- Note: 1) Spacing of 1" holes in bracket bar may vary to match actual standard hold-down anchor clamp hole spacing.
2) Shift locations of deck drains as necessary to avoid interference with bridge railing anchorages.
3) Before placing slab, install and properly align deck drains, including brackets.

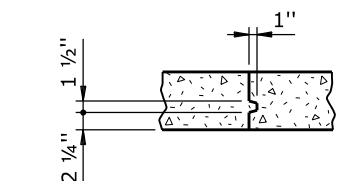
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
DECK DRAIN DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No.	0001
APPROVAL	BBB ✓ AAA	Sheet	14 of 18



PLAN
 (Longitudinal dimensions are along finished grade)



TYPICAL SECTION

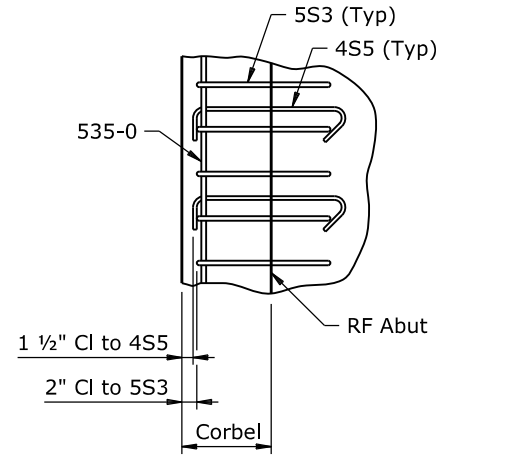
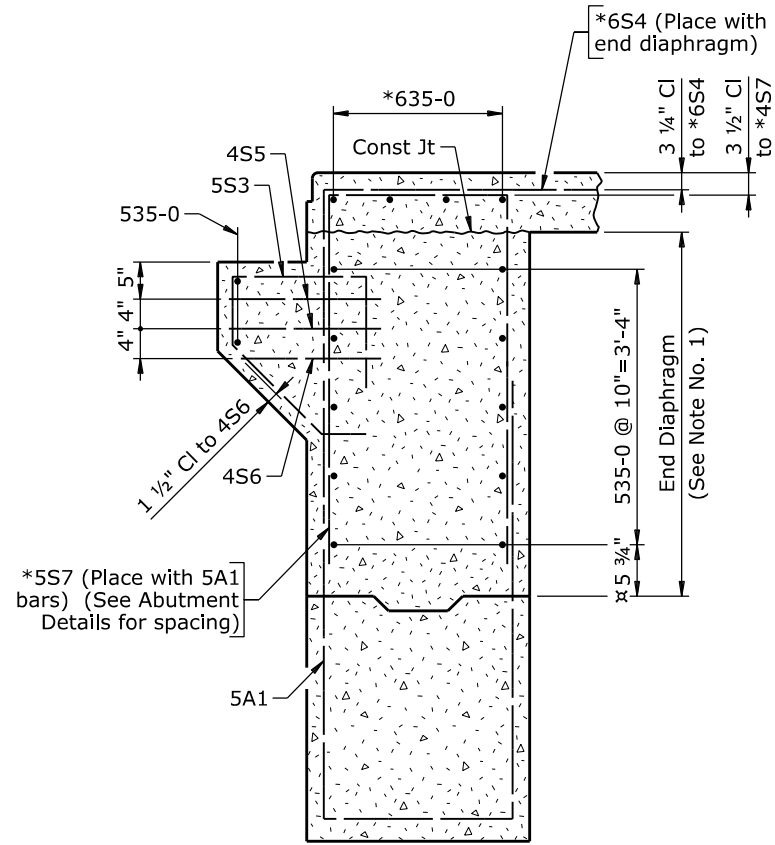
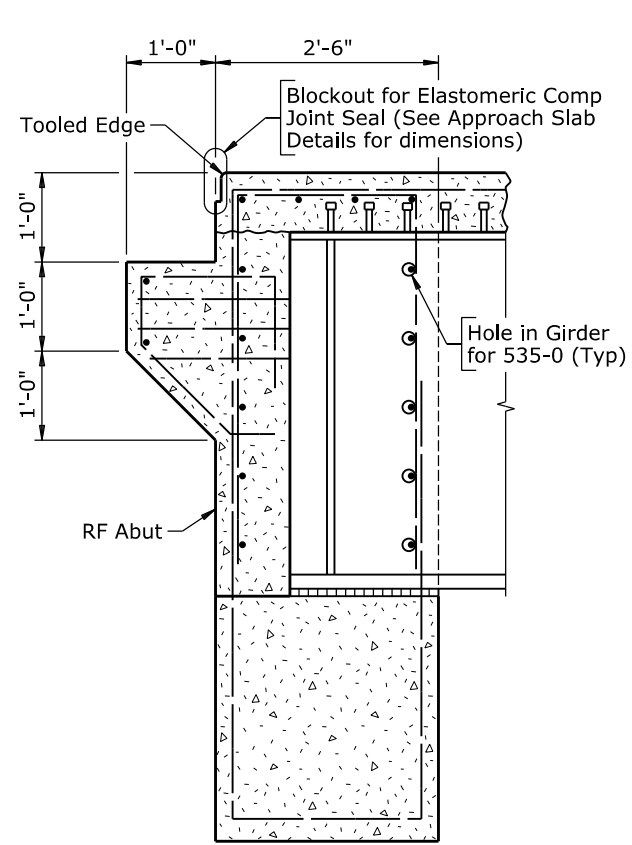
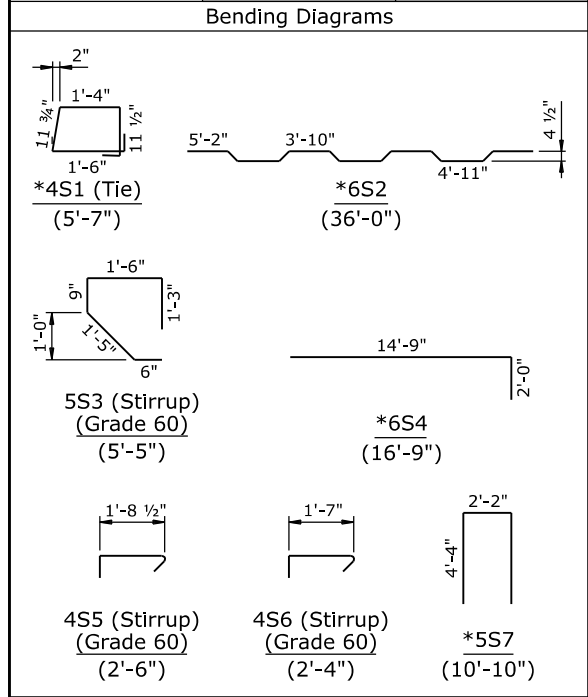


SLAB CONSTRUCTION JOINT DETAIL
 (Place parallel with transverse reinforcing steel)
 (For emergency use only)

- Note:** 1) Place concrete in slab in one continuous operation at the minimum rate of 29 feet per hour.
 2) For Bridge Railing Details, see Sheets No. 12 and 13.
 3) For Deck Drain Details, see Sheet No. 14.
 4) For Detail A, see Sheet No. 16.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SLAB DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 15 of 18
APPROVAL	QTY'S BBB ✓ AAA		

BILL OF REINFORCEMENT		
Location	Mark	Number Required
End Diaphragms	4S5	140
	4S6	70
	5S3	142
	*5S7	70
	535-0	24
	*6S4	106
	*Weight	*3458 LB
	Weight	2058 LB
Slab and Curbs	*4S1	452
	*418-11	106
	*451-9	4
	*457-3	8
	*458-10	53
	*460-0	4
	*535-0	220
	*553-8	42
	*560-0	126
	*6S2	219
	*635-0	228
	*655-0	106
	*Weight	*56,565 LB



TYPICAL SECTIONS THRU END DIAPHRAGM

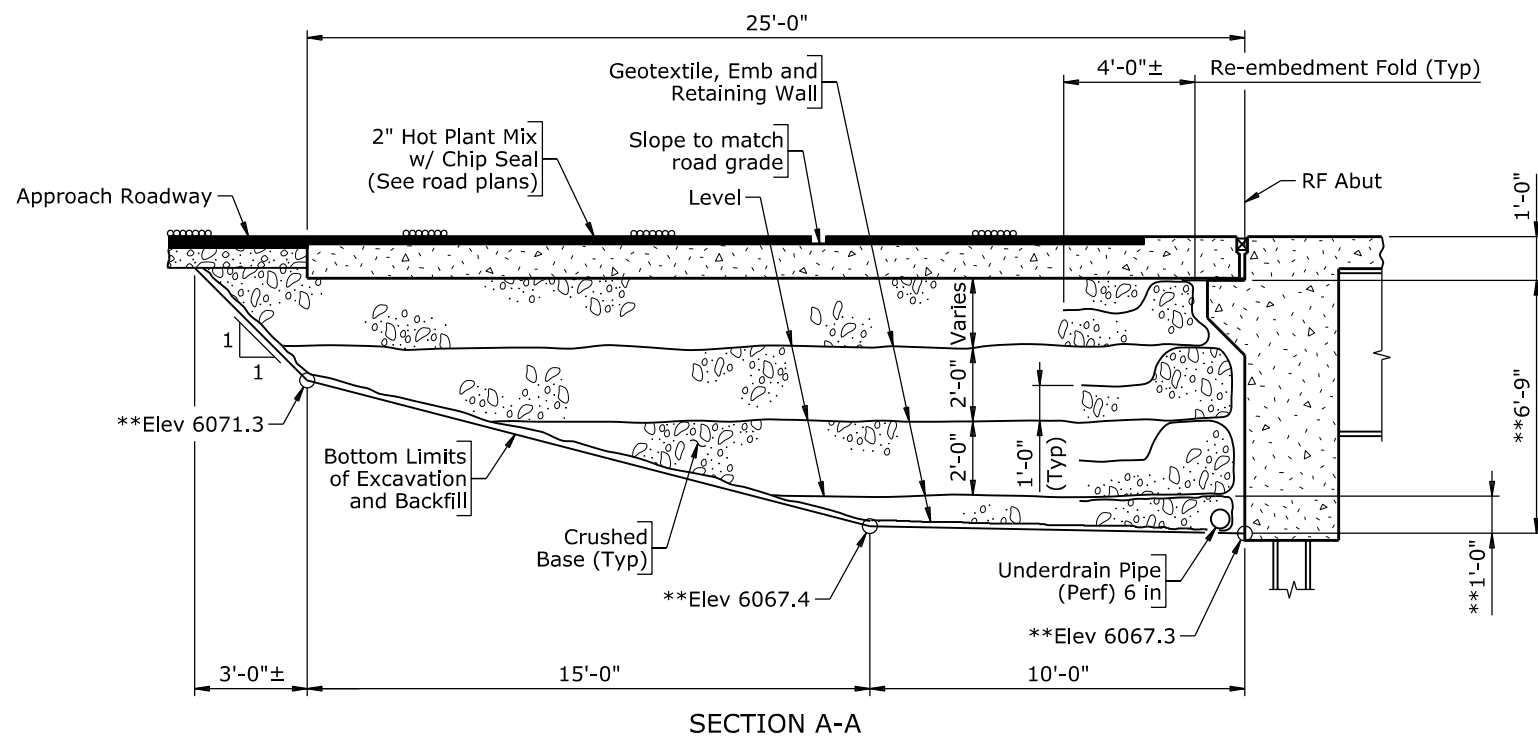
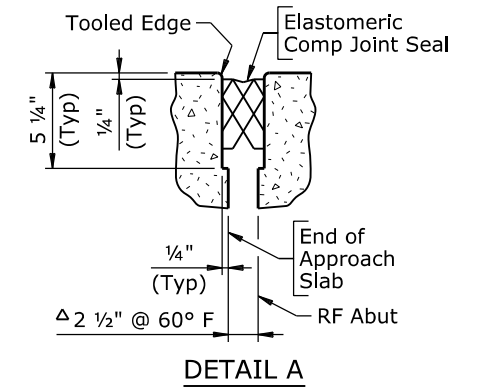
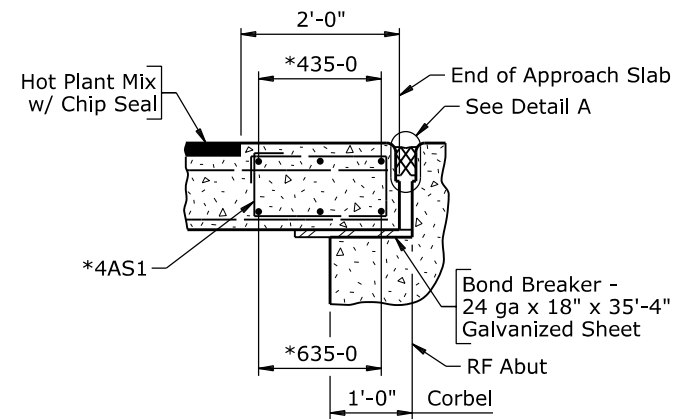
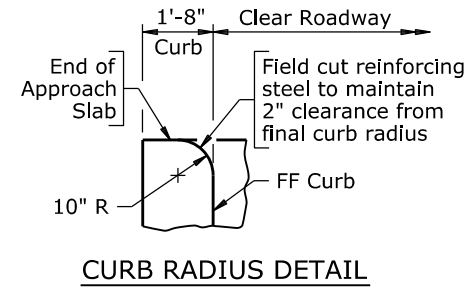
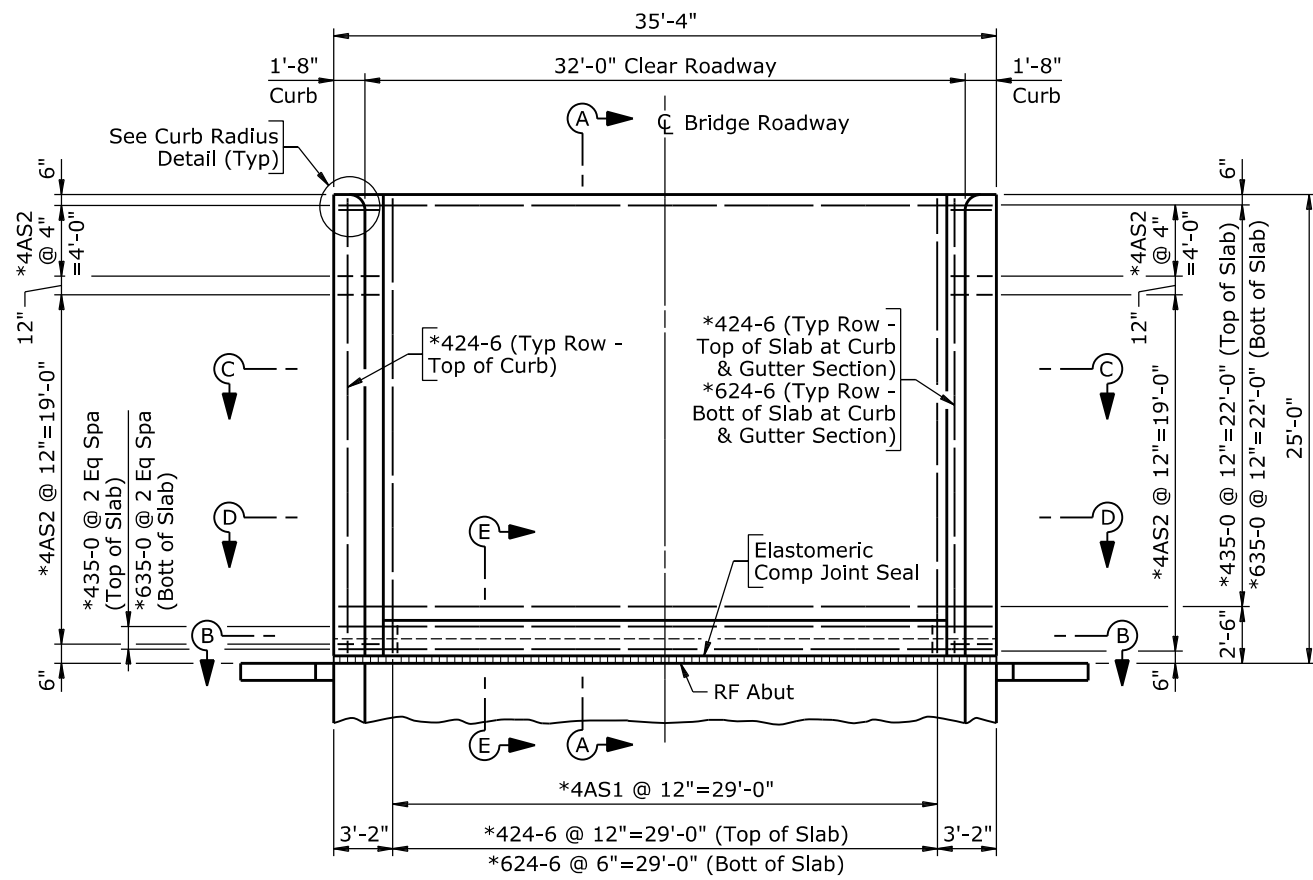
- Note:**
- 1) Ensure end diaphragms attain 80% of ultimate design strength (f'c) by cylinder tests before placing slab.
 - 2) Ensure the reinforcing steel fabricator prefixes bar marks this sheet with numeral 5.
 - 3) Dimension is at ϕ Girder.
 - 4) The estimated quantity of class A concrete for end diaphragms is 31.6 CY, 196.3 CY for the slab, and 14.0 CY for the curbs.
 - 5) For location of Detail A, see Sheet No. 15.
 - 6) For Abutment Details, see Sheet No. 7.
 - 7) For Approach Slab Details, see Sheets No. 17 and 18.

TABLE OF SCREED ELEVATIONS

Add base elevation 6070.00 to elevations listed in table. Elevations include grade, slope, and correction for dead load deflection. For screed line locations, see Sheet No. 3.

Screed Line No.	Tenth Point of Spans																														
	1.0 ϕ Abut No. 1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0 ϕ Bent No. 1	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0 ϕ Bent No. 2	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0 ϕ Abut No. 2
①	4.77	4.77	4.76	4.76	4.76	4.75	4.75	4.75	4.75	4.76	4.77	4.81	4.87	4.92	4.95	4.96	4.95	4.92	4.87	4.81	4.77	4.76	4.75	4.75	4.75	4.75	4.76	4.76	4.76	4.77	4.77
②	4.84	4.83	4.83	4.83	4.83	4.82	4.82	4.82	4.82	4.82	4.84	4.88	4.93	4.99	5.02	5.03	5.02	4.99	4.93	4.88	4.84	4.82	4.82	4.82	4.82	4.82	4.83	4.83	4.83	4.83	4.84
③	5.03	5.02	5.02	5.02	5.02	5.01	5.01	5.01	5.01	5.01	5.03	5.07	5.12	5.18	5.21	5.22	5.21	5.18	5.12	5.07	5.03	5.01	5.01	5.01	5.01	5.01	5.02	5.02	5.02	5.02	5.03
④	5.12	5.12	5.12	5.11	5.11	5.11	5.10	5.10	5.10	5.11	5.12	5.16	5.22	5.27	5.31	5.32	5.31	5.27	5.22	5.16	5.12	5.11	5.10	5.10	5.10	5.11	5.11	5.11	5.12	5.12	5.12

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SLAB DETAILS			
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	DDD ✓ FFF	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 16 of 18
QTY'S	BBB ✓ AAA		



- Note:**
- 1) Dimensions and elevations preceded by a double asterisk (**) are measured at \bar{C} Bridge Roadway.
 - 2) Increase the opening between rear face abutment and end of approach slab $\frac{1}{16}$ " for each 10° F below 60° F and decrease the opening $\frac{1}{16}$ " for each 10° F above 60° F. Account for variance in the opening in approach slab forming.
 - 3) Extend compression joint seal up front face and across top of curbs.
 - 4) For Bridge Railing Details, see Sheets No. 12 and 13.
 - 5) For Sections B-B, C-C, and D-D, see Sheet No. 18.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		APPROACH SLAB DETAILS	
BRIDGE OVER WOOD RIVER			
STA 320+18			
Meeteetse - Pitchfork Road			
(WYO 290)			
1500006		Pa	
DESIGN	✓	Design Section	L M Nop
DETAIL	BBB ✓ DDD	Drwg No. 0001	Sheet 17 of 18
APPROVAL	BBB ✓ AAA		

