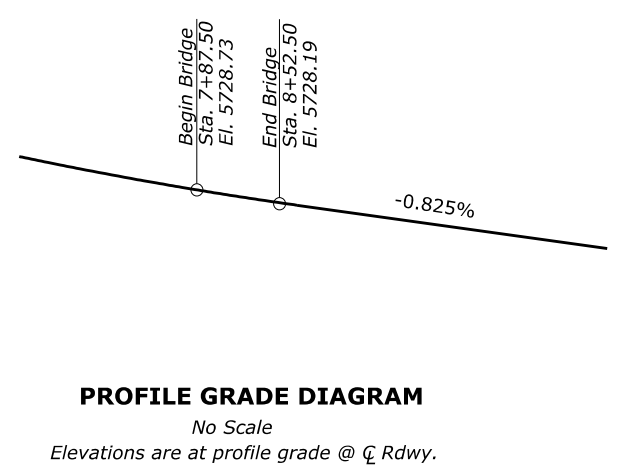
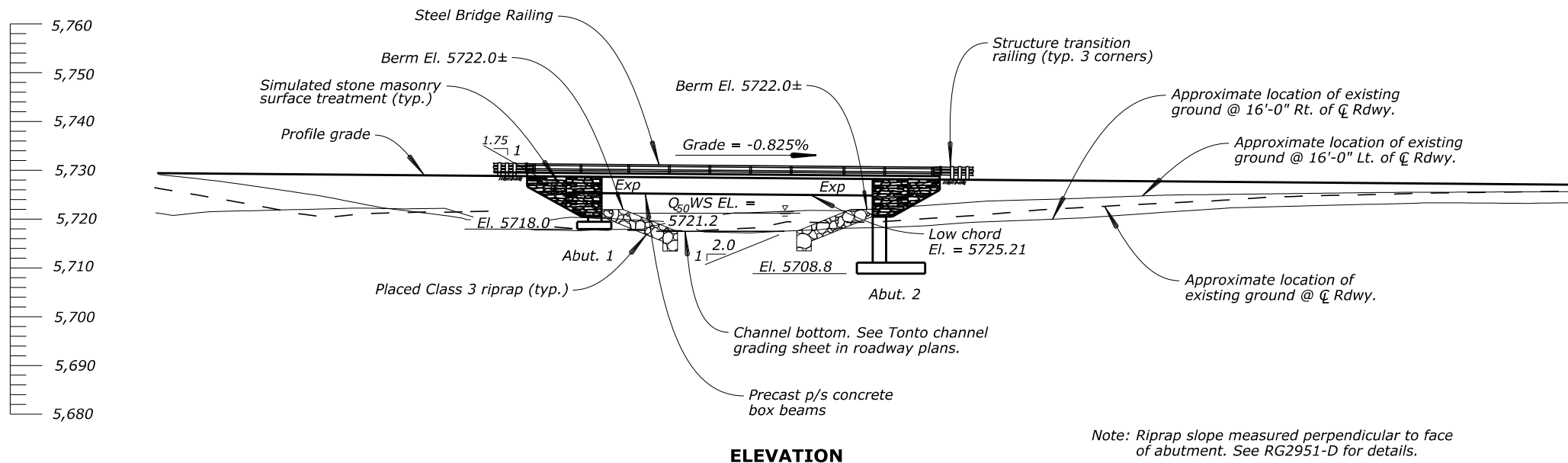
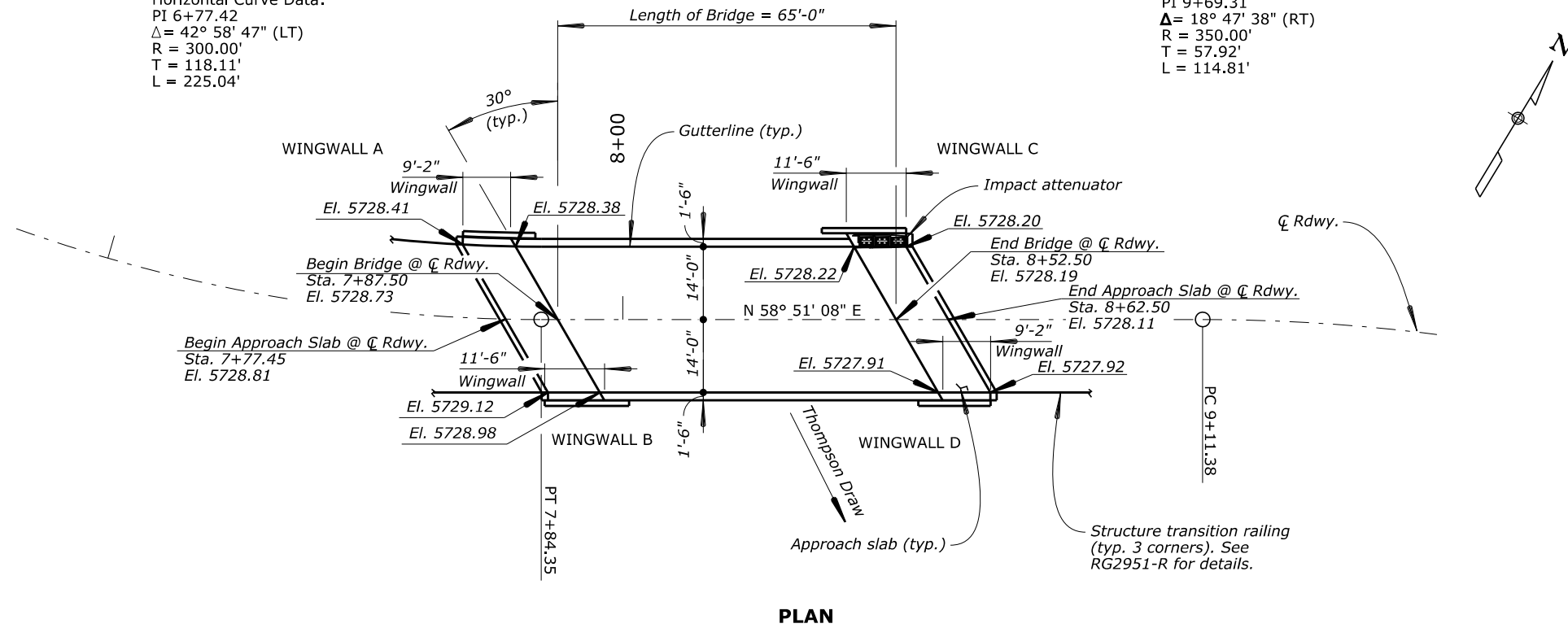


REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S1	S79

BRIDGE DRAWING INDEX	
Drawing No.	Description
RG2951-A	PLAN & ELEVATION
RG2951-B	GENERAL NOTES
RG2951-C	FOUNDATION PLAN
RG2951-D	SLOPE PROTECTION
RG2951-E	ABUTMENT 1 PLAN
RG2951-F	ABUTMENT 2 PLAN
RG2951-G	FOOTING REINFORCEMENT
RG2951-H	ABUTMENT 1 ENDWALL
RG2951-I	ABUTMENT 2 ENDWALL
RG2951-J	WINGWALLS
RG2951-K	PRECAST CONCRETE BOX BEAM
RG2951-L	PRECAST CONCRETE BOX BEAM DETAILS
RG2951-M	TYPICAL SECTION
RG2951-N	APPROACH SLAB (1 OF 2)
RG2951-O	APPROACH SLAB (2 OF 2)
RG2951-P	BRIDGE RAILING
RG2951-Q	BRIDGE RAILING DETAILS
RG2951-R	STRUCTURE TRANSITION RAILING
RG2951-S	IMPACT ATTENUATOR DETAILS
RG2951-T	REBAR LIST (1 OF 6)
RG2951-U	REBAR LIST (2 OF 6)
RG2951-V	REBAR LIST (3 OF 6)
RG2951-W	REBAR LIST (4 OF 6)
RG2951-X	REBAR LIST (5 OF 6)
RG2951-Y	REBAR LIST (6 OF 6)

Horizontal Curve Data:  
 PI 6+77.42  
 $\Delta = 42^\circ 58' 47''$  (LT)  
 R = 300.00'  
 T = 118.11'  
 L = 225.04'

Horizontal Curve Data:  
 PI 9+69.31  
 $\Delta = 18^\circ 47' 38''$  (RT)  
 R = 350.00'  
 T = 57.92'  
 L = 114.81'



HYDRAULIC DATA			
	Q	V	WS
	ft <sup>3</sup> /sec	ft/sec.	Elev.
Q <sub>2</sub>	50	2.5	5718.4
Q <sub>50</sub>	980	5.9	5721.2
Q <sub>100</sub>	1356	7.0	5722.0

Superelevation rates:  
 Sta. 7+64.35 Rate: -3.6% LT Rate: 3.6% RT  
 Sta. 9+31.38 Rate: 3.4% LT Rate: -3.4% RT

Note: Riprap slope measured perpendicular to face of abutment. See RG2951-D for details.

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**PLAN & ELEVATION**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	B. KLAMERUS L. DEPAULA	1" = 30'-0"	BONNIE KLAMERUS	1 of 25	JULY 2013	RG2951-A

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8/8/2013

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S2	S79

**GENERAL NOTES:**

**SPECIFICATIONS:**

Design:  
AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010.

Construction:  
Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects,  
FP-03 U.S. customary units.

**DESIGN LOADS:**

Dead Loads:  
Cast in place concrete: 150 pcf, precast girders: 150 pcf, soil backfill: 120 pcf, unclassified borrow: 125 pcf.  
Future wearing surface allowance 30 psf.  
Lateral Earth Pressure: equivalent fluid unit weight of soil, 0.037 kcf (active) and 0.057 kcf (at-rest).

Live Load:  
HL-93. Maximum Dynamic Load Allowance (Impact), IM=33%.

Live Load Surcharge:  
Equivalent height of soil for abutment = 4 ft.  
Equivalent height of soil for wingwall = 2 ft.

SEISMIC DESIGN:  
In accordance with AASHTO LRFD Bridge Design Specifications, 5th edition 2010.  
Peak Ground Acceleration (PGA = 0.072g), modified by the Site Coefficient ( $F_{PGA} = 1.20$ ) to give a spectrum acceleration,  $A_s = 0.086 g$ .  
Short period acceleration at 0.2 seconds ( $S_s = 0.167g$ ) modified by the Site Coefficient ( $F_a = 1.20$ ) to give the short period spectrum acceleration,  $S_{0.2} = 0.2g$ . Long period acceleration at 1.0 seconds ( $S_L = 0.051g$ ) modified by the Site Coefficient ( $F_V = 1.70$ ) to give the long period spectrum acceleration,  $S_{D1} = 0.086g$ . Site Class = C. Seismic Zone = 1.

**DESIGN CRITERIA:**

Concrete Abutments:  
For sliding, the nominal coefficient of friction between concrete footing and rock = 0.80. Resistance factor  $\phi^T = 0.80$  (Strength limit state).  
The resultant of all loads is within the middle three-fourths of footing width. The factored bearing resistance  $q_R = 72$  kips per square foot.  
Resistance factor  $\phi_b = 0.45$  (Strength limit state).

**MATERIALS:**

Concrete:  
All cast-in-place concrete shall be structural concrete Class A(AE) with a minimum 28-day compressive strength  $f'_c = 4,000$  psi., except for deck concrete with a minimum 28 day compressive strength of 4,500 psi and curb concrete which is class C(AE) with a minimum 28 day compressive strength of 4,500 psi. Type V high sulfate resistant cement shall be used for all concrete in contact with soil, otherwise Type II low alkali cement or Type V high sulfate resistant cement shall be used. Chamfer exposed edges of all concrete  $\frac{3}{4}$ ", unless noted otherwise on the plans. Preformed expansion joint filler shall meet the requirements of AASHTO M213. Preformed flexible cellular joint filler shall meet the requirements of AASHTO M153, Type I, closed cell rubber. The top surface of bridge deck and approach slabs shall receive a sawed groove finish per Section 552.14(c).

Reinforcing Steel:  
All reinforcing steel shall conform to AASHTO M31 or M322, Grade 60 deformed. The minimum concrete cover to the face of any bar shall be 2", unless shown otherwise on the plans. All reinforcing steel placed in or protruding into the deck, curbs and approach slabs shall be epoxy coated. "E" designates epoxy coated reinforcing steel in the bar callouts and lists. Minimum splice length for all bars sizes shall be as shown on the plans. Bar splices other than those shown on the plans shall not be paid for.

Prestressed Concrete Box Beams:  
Prestressed concrete box beams shall be manufactured as detailed on the plans. Concrete for prestressed beams shall be Class P or P(AE) with a minimum 28-day compressive strength  $f'_c = 6,400$  psi and release strength  $f'_{ci} = 5,000$  psi. Chamfer exposed edges  $\frac{3}{4}$ " unless shown otherwise on the plans.

Prestressing Steel:  
Unless noted otherwise, prestressing strands shall be Grade 270, 0.6", seven wire, bright, low-relaxation strands, conforming to AASHTO M203 (ASTM A416). Each strand shall be pretensioned to a total load of 43,900 lbs. at which the initial pretensioning stress  $f_{pbt} = 0.75$  (fpu) = 202,500 psi.

Miscellaneous Structural Steel:  
Structural steel tubes for bridge railing shall conform to ASTM A847 with enhanced atmospheric corrosion resistance. Structural steel posts, and base plates for bridge railing shall conform to ASTM A709 Grade 50W. All other structural steel shall conform to ASTM A709 Grade 36, unless noted otherwise. Nuts, bolts, and washers shall be galvanized.

Form Liner and Concrete Color Agent:  
All exposed faces of abutments and wingwalls extending a minimum of 2 feet below finished grade shall have a simulated stone masonry surface treatment, colonial drystack pattern. See Section 613 of the SCR's.

All exposed cast-in-place bridge concrete shall include an integral coloring agent - Golden Beige by Increte Systems. See Section 552 of the SCR's test panel requirements.

Structure Backfill:  
Backfill behind abutments shall meet the requirements for Structural Backfill as specified in Sections 208 and 704.04.

Paint:  
Paint exterior face of exterior girders. See Section 563 of the SCR's.

ESTIMATE				
Item No.	Item	Quantity:	Unit:	Notes:
15214-1000	Survey and staking, bridge	All req'd	LPSM	
20801-0000	Structure excavation	315	CUYD	(1)
20820-0000	Dewatering	All req'd	LPSM	(7)
25101-3000	Placed riprap, class 3	100	CUYD	
55201-0200	Structural concrete, class A(AE)	267	CUYD	(1)(4)
55216-0000	Concrete color agent	3850	LB	(6)
55302-1400	Precast, prestressed concrete box beams, nonstandard	254	LNFT	(2)
55401-1000	Reinforcing steel	12000	LB	(1)
55401-2000	Reinforcing steel, epoxy coated	27900	LB	(1)
55601-0900	Bridge railing, steel	168	LNFT	(1)(3)
56302-1000	Painting concrete structure	240	SQFT	
61301-0000	Simulated stone masonry surface treatment	89	SQYD	
61707-0000	Structure transition railing	62	LNFT	(1)(5)

**ESTIMATE NOTES:**

- Contract Quantity
- Includes cost of concrete, reinforcing steel, prestressing steel, inserts, elastomeric bearing pads, lifting devices, and other materials required for the manufacture or erection of the girders.
- Includes cost of all structural concrete and rebar in curbs. Est. Class C(AE) Concrete = 7.6 Cu Yds. Est. epoxy coated rebar qty. = 1093 lbs. Requires 137 lbs. of concrete coloring agent and is included in and paid for by Item No. 55216-0000, concrete color agent.
- Includes cost of furnishing and installing geocomposite sheet drain, drain grate, weepholes, and all joint fillers. Estimated quantity of geocomposite sheet drain = 65 Sq. Yds. Abutment and wingwall structural concrete quantities assume an average simulated stone masonry treatment of  $1\frac{3}{8}$ " beyond the working line.
- Includes cost of furnishing and installing posts, blocks, thrie and w-beam rail elements, anchor plates, and installation hardware. See roadway plans for impact attenuator pay item.
- Quantity based on an estimated 18 lbs. per cubic yard of concrete in all cast-in-place concrete including curbs, but excluding footings.
- Includes all costs associated with dewatering including excavation, cofferdams, seals, etc. if needed.

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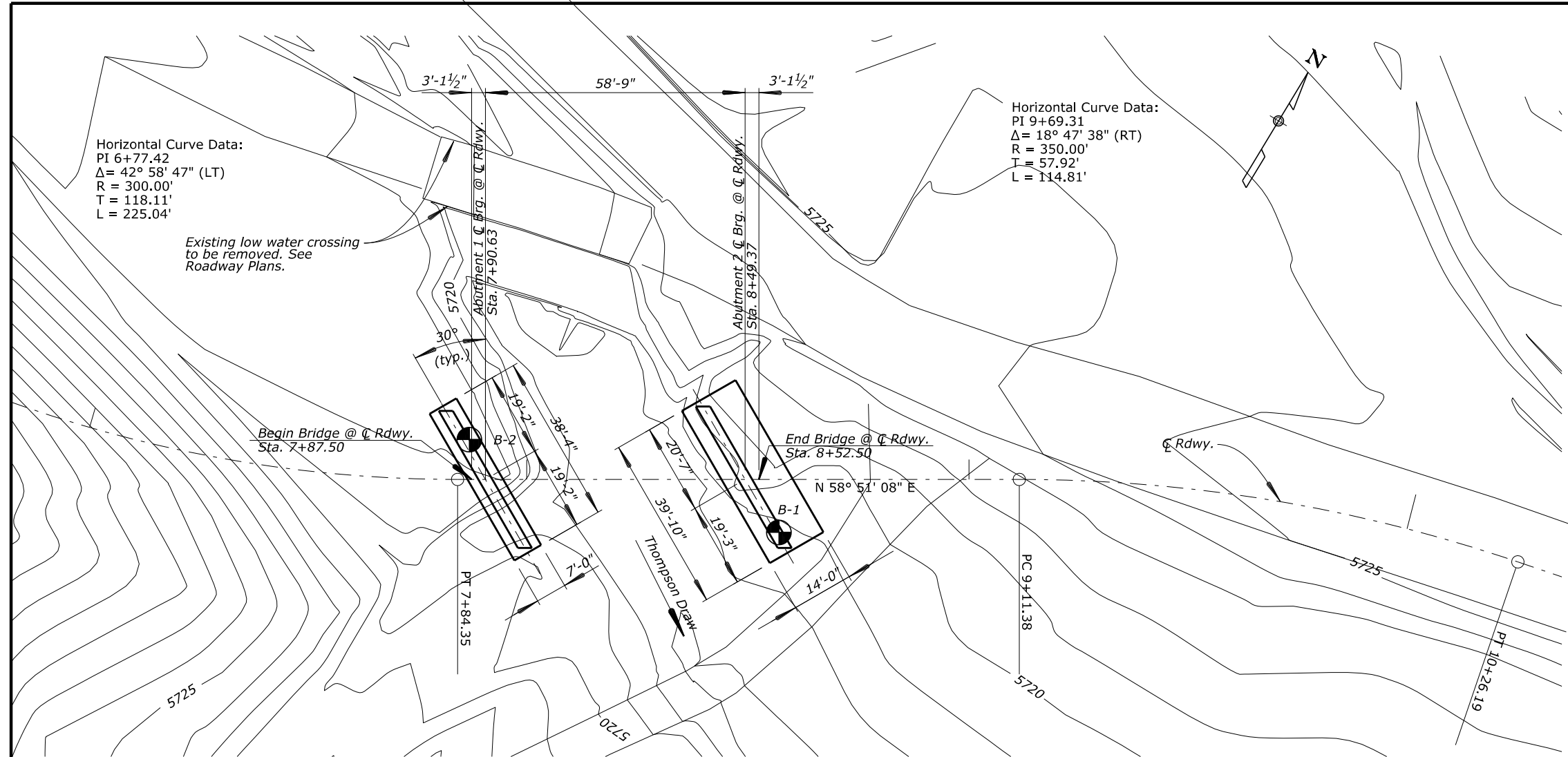
**GENERAL NOTES**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	L. DEPAULA	NONE	BONNIE KLAMERUS	2 of 25	JULY 2013	RG2951-B

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8/8/2013

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S3	S79



**LEGEND**

- Silty Sand with Gravel and Cobbles
- Purple brown and gray mottled Claystone
- Conglomerate

**TYPICAL TEST HOLE SYMBOL**  
 Plan View  
 Location of any sampled hole

**TYPICAL TEST HOLE LOG**

Boring No. Location

Elev.

Ground Water Depth at time of drilling (ATD)

Graphic material description

Blow count per foot with standard penetration test (SPT) in accordance with AASHTO T206

Unified Soil Classification

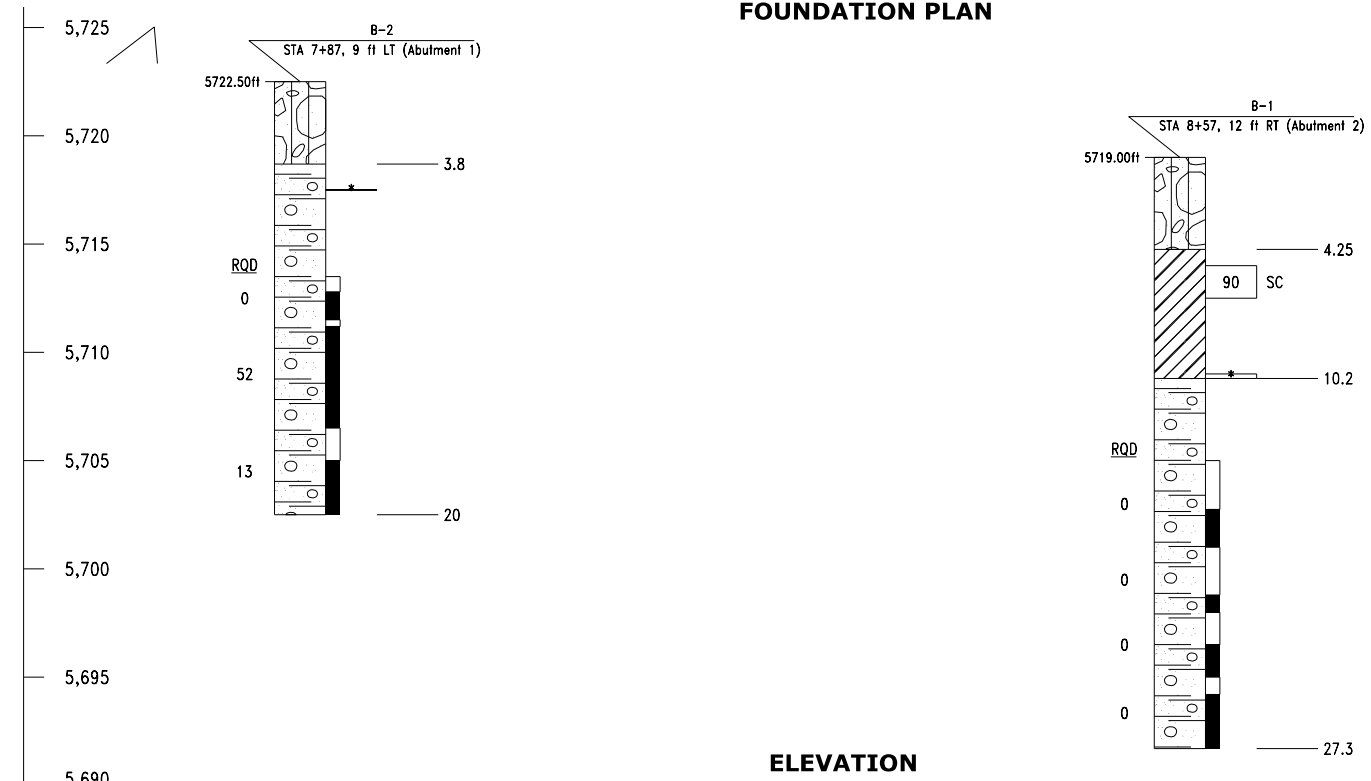
\* Practical refusal SPT

RQD  
 X  
 X  
 X

Core Run  
 % Core Recovery Shaded  
 Depth Terminated

For additional information, refer to Geotechnical Report AZ-FX-0013-01  
 July 2013 prepared by U.S. Dept. of Transportation, Federal Highway Administration, Central Federal Lands Highway Division.

**FOUNDATION PLAN**



Note: Footings to be founded and constructed on conglomerate rock at the elevations shown on RG2951-E & F.

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**FOUNDATION PLAN**

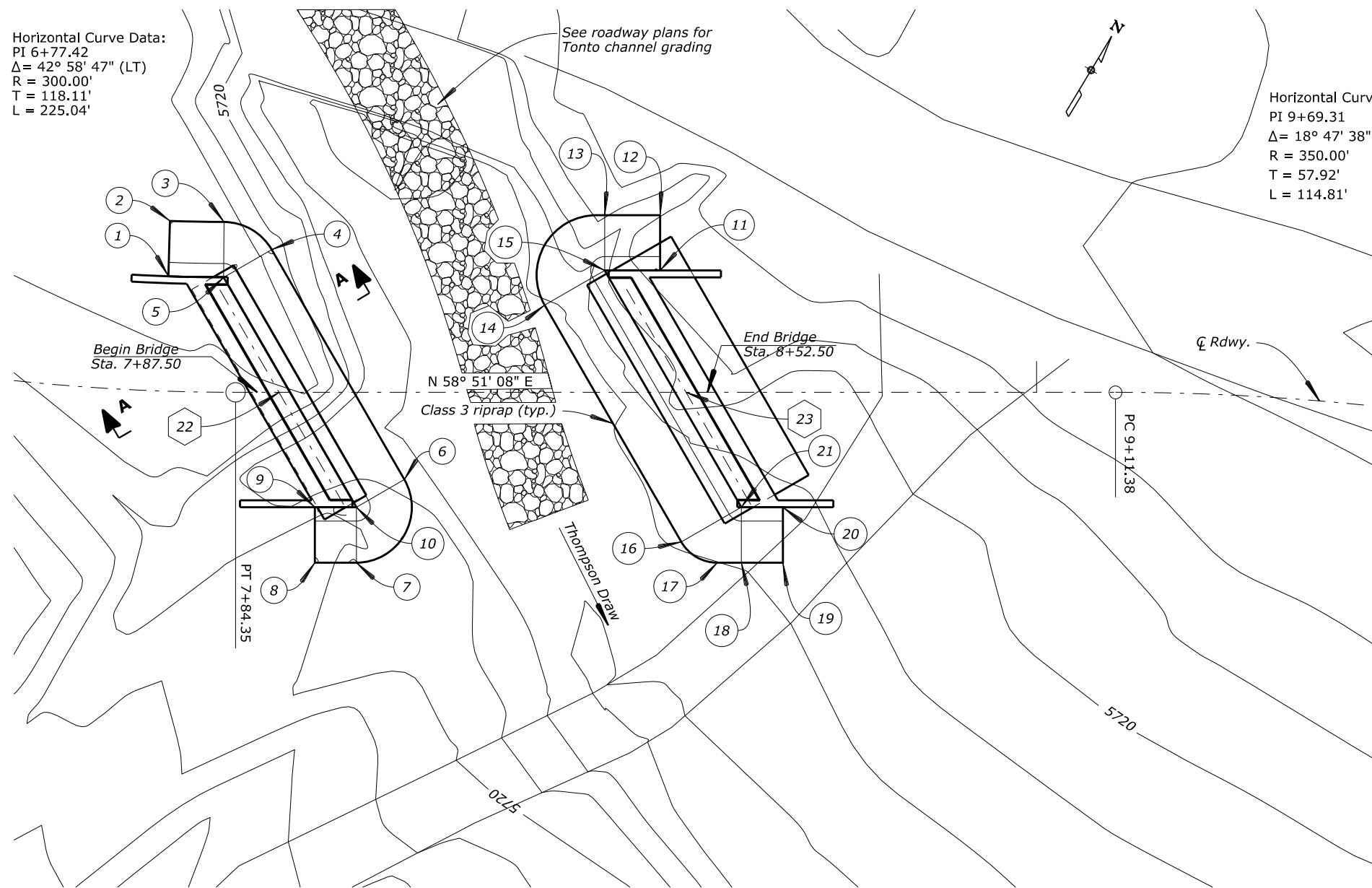
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								D. CHRISTENSEN	B. ROBINSON	S. BELCHER	1" = 30'-0"	BONNIE KLAMERUS	3 of 25	JULY 2013	RG2951-C

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S4	S79

Horizontal Curve Data:  
 PI 6+77.42  
 $\Delta = 42^\circ 58' 47''$  (LT)  
 R = 300.00'  
 T = 118.11'  
 L = 225.04'

Horizontal Curve Data:  
 PI 9+69.31  
 $\Delta = 18^\circ 47' 38''$  (RT)  
 R = 350.00'  
 T = 57.92'  
 L = 114.81'

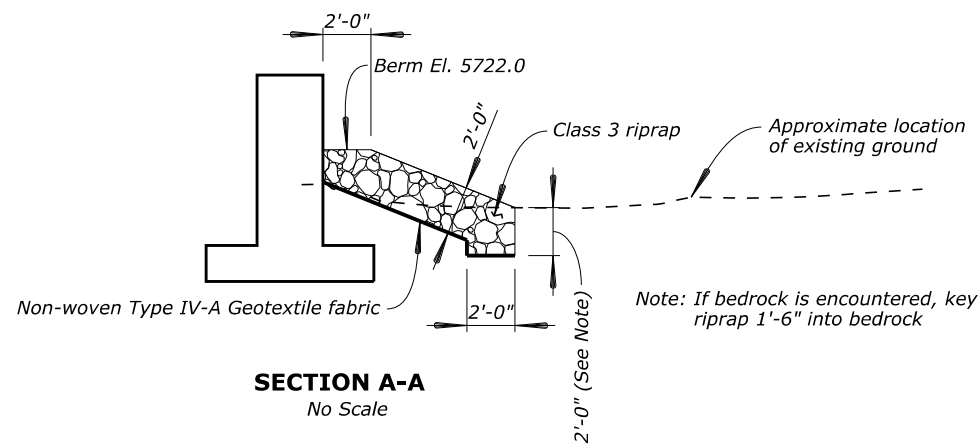


**SLOPE PROTECTION PLAN**

SLOPE PROTECTION COORDINATES				
POINT	X (Ft.)	Y (Ft.)	Z (Ft.)	Z (Existing) (Ft.)
1	408493.37	1207742.30	5724.0	5722.4
2	408489.44	1207749.27	5721.0	5722.6
3	408496.20	1207753.17	5719.0	5722.5
4	408504.16	1207753.31	5719.0	5721.5
5	408500.30	1207746.30	5722.0	5722.3
6	408537.71	1207734.82	5719.0	5718.7
7	408537.98	1207720.97	5719.0	5719.8
8	408532.85	1207717.87	5720.5	5720.2
9	408528.71	1207724.71	5723.5	5719.5
10	408533.85	1207727.82	5722.0	5719.7
11	408553.70	1207779.74	5724.0	5721.4
12	408549.56	1207786.58	5721.0	5720.9
13	408542.71	1207782.45	5719.0	5721.1
14	408542.02	1207766.84	5718.0	5718.0
15	408546.85	1207775.60	5722.0	5719.7
16	408576.58	1207747.80	5718.0	5718.1
17	408582.58	1207747.92	5718.5	5718.0
18	408585.54	1207749.71	5719.0	5718.1
19	408590.68	1207752.82	5720.5	5718.3
20	408586.54	1207759.66	5723.5	5718.8
21	408581.40	1207756.56	5722.0	5718.5
22	408515.72	1207736.24	---	---
23	408565.99	1207766.62	---	---

**NOTES:**

- Coordinate point no. 22 is the intersection of C Brg. and C Rdwy. @ Abut. 1.
- Coordinate point no. 23 is the intersection of C Brg. and C Rdwy. @ Abut. 2.
- Arc center coordinate point no. for Abut. 1 is 5, and 10, for Abut. 2 15, and 21.



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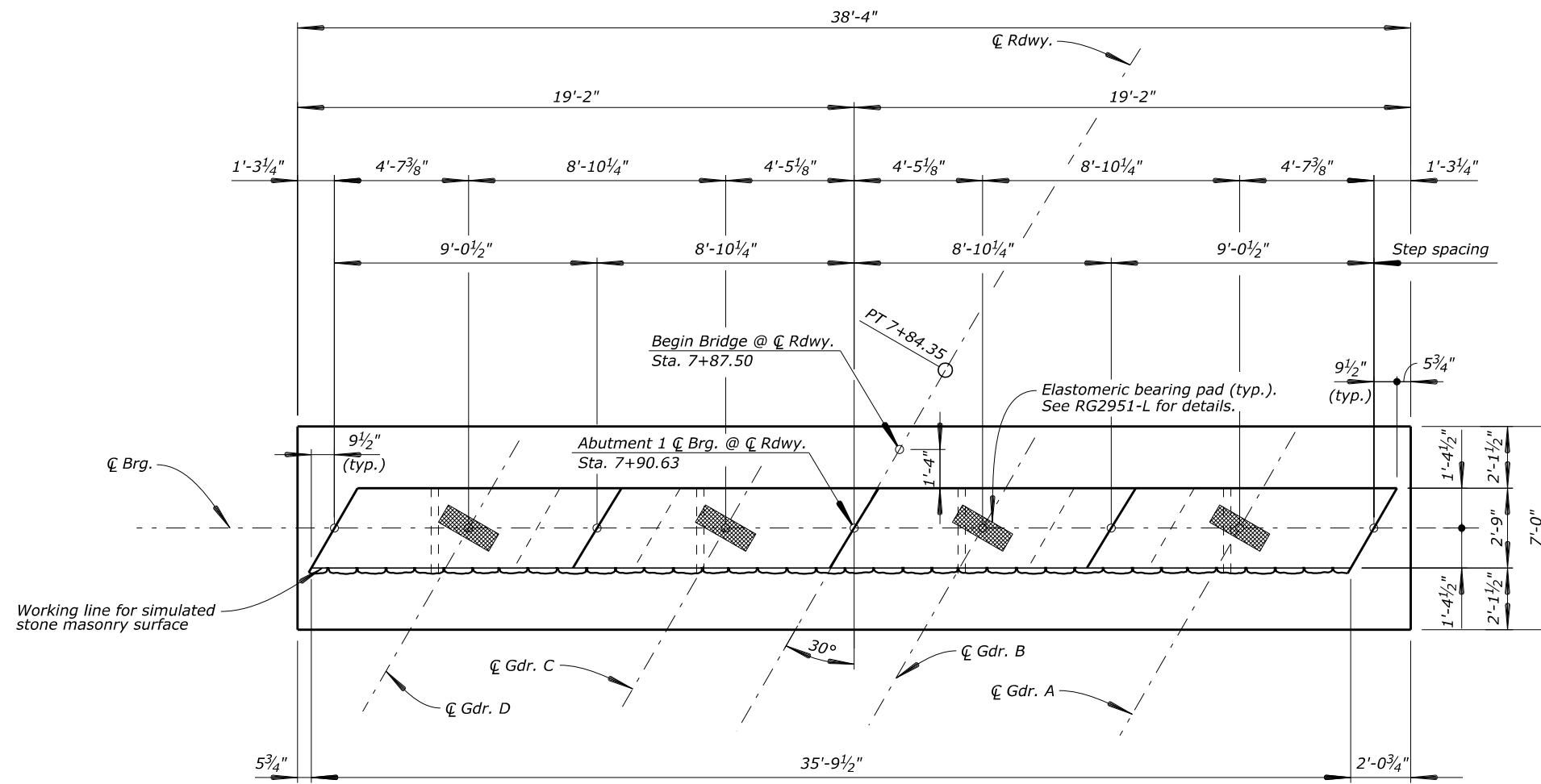
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**SLOPE PROTECTION**

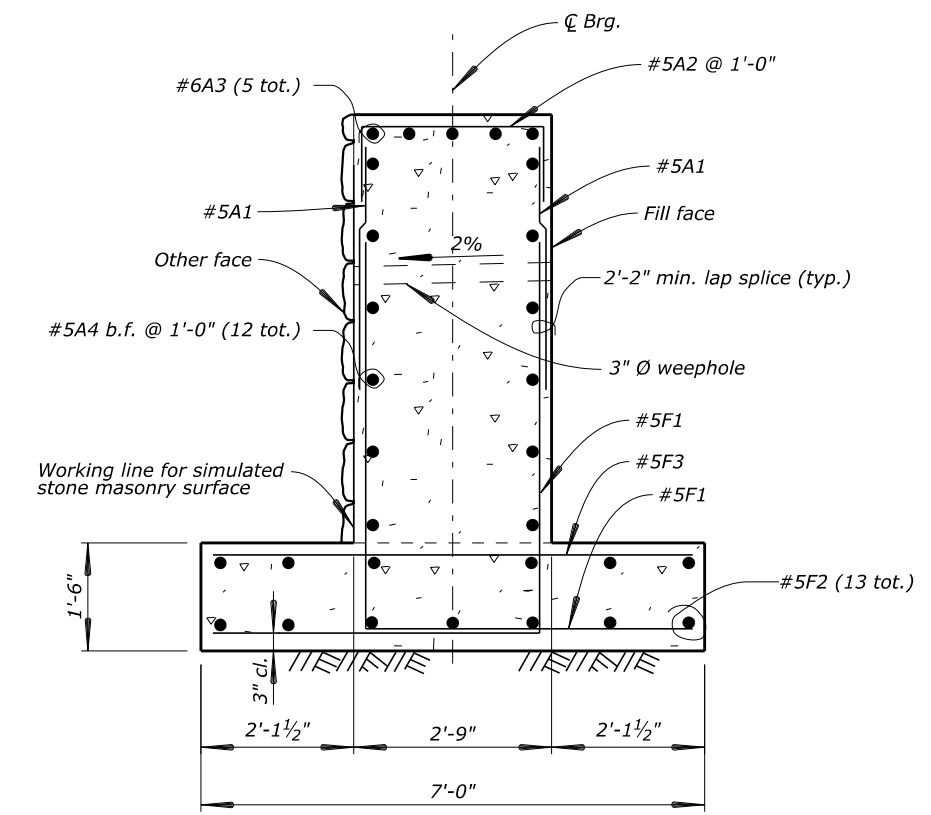
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								L. DEPAULA	B. ROBINSON	D. CHRISTENSEN	1" = 20'-0" UNLESS NOTED	BONNIE KLAMERUS	4 of 25	JULY 2013	RG2951-D

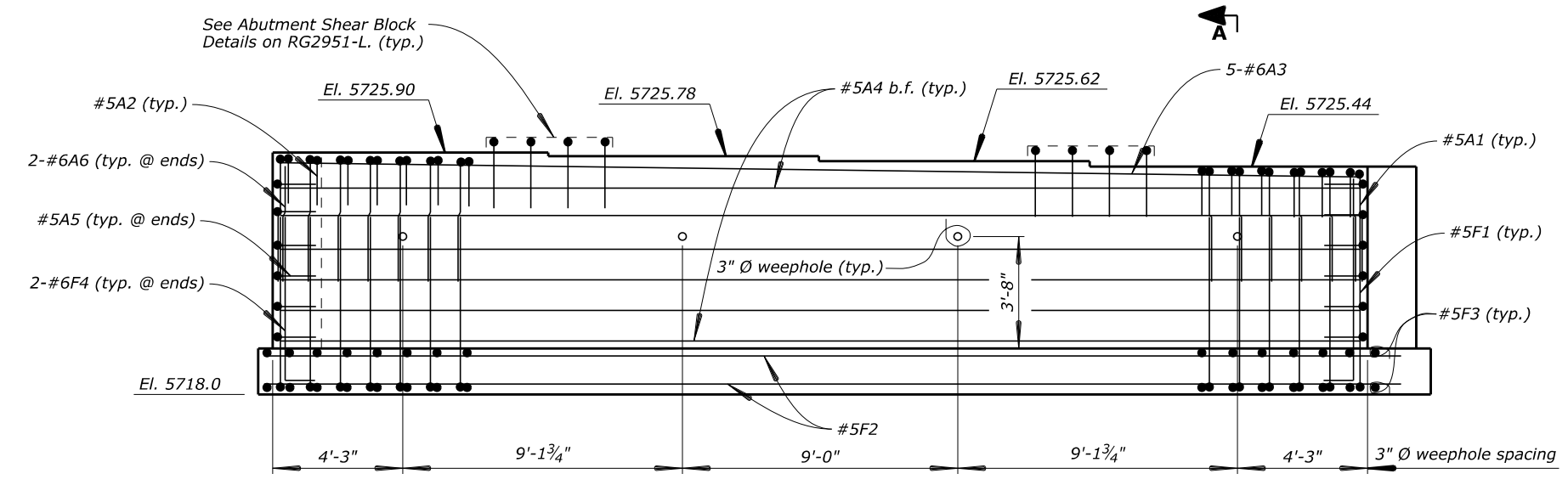
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S5	S79



**ABUTMENT PLAN**

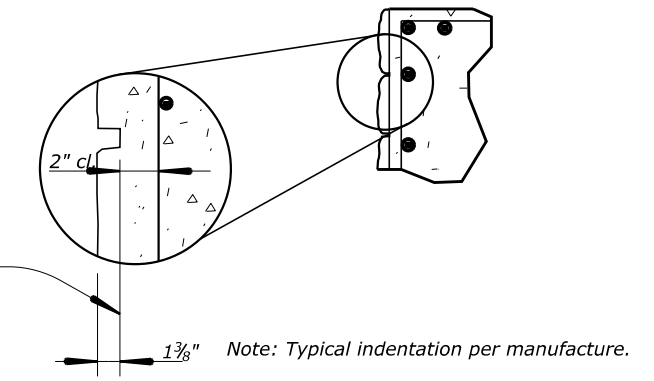


**SECTION A-A**  
Scale: 3/8" = 1'-0"



**ABUTMENT ELEVATION**

Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces



**SIMULATED STONE MASONRY SURFACE DETAIL**  
No Scale

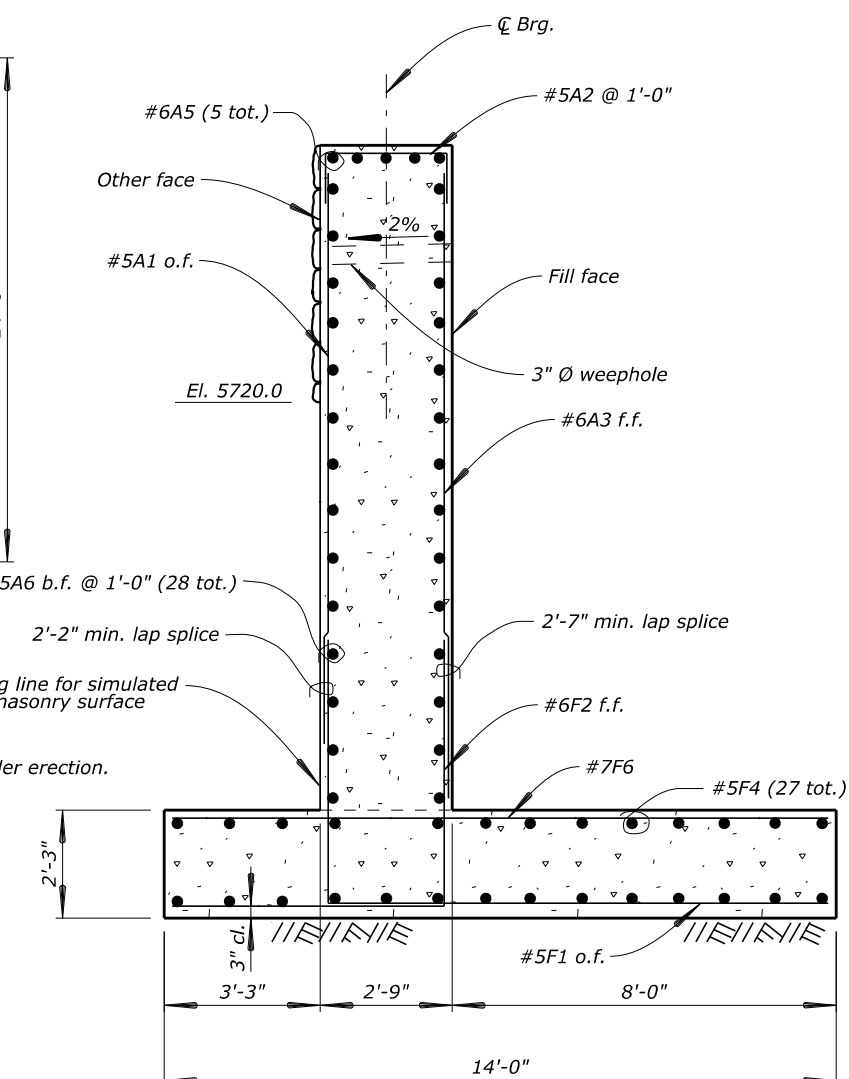
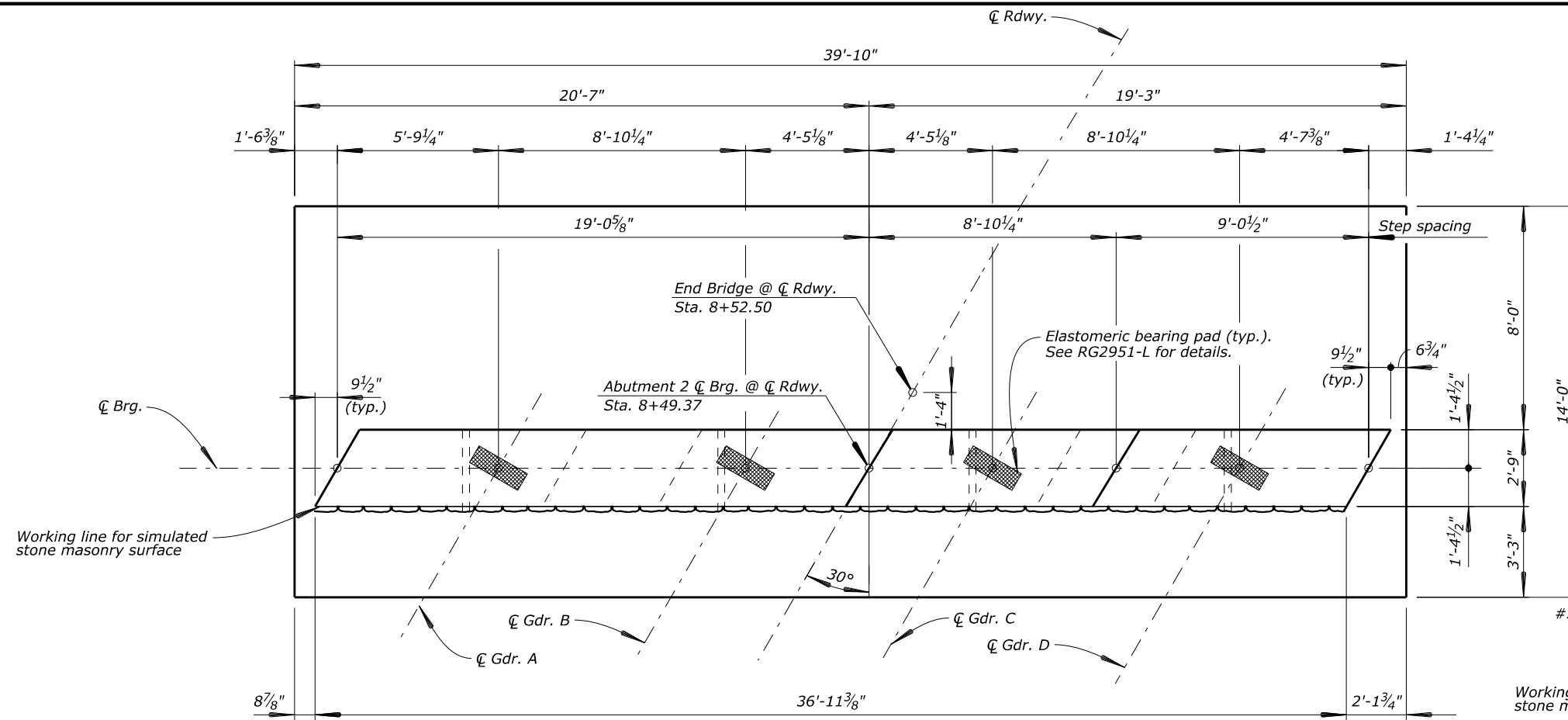
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**ABUTMENT 1 PLAN**

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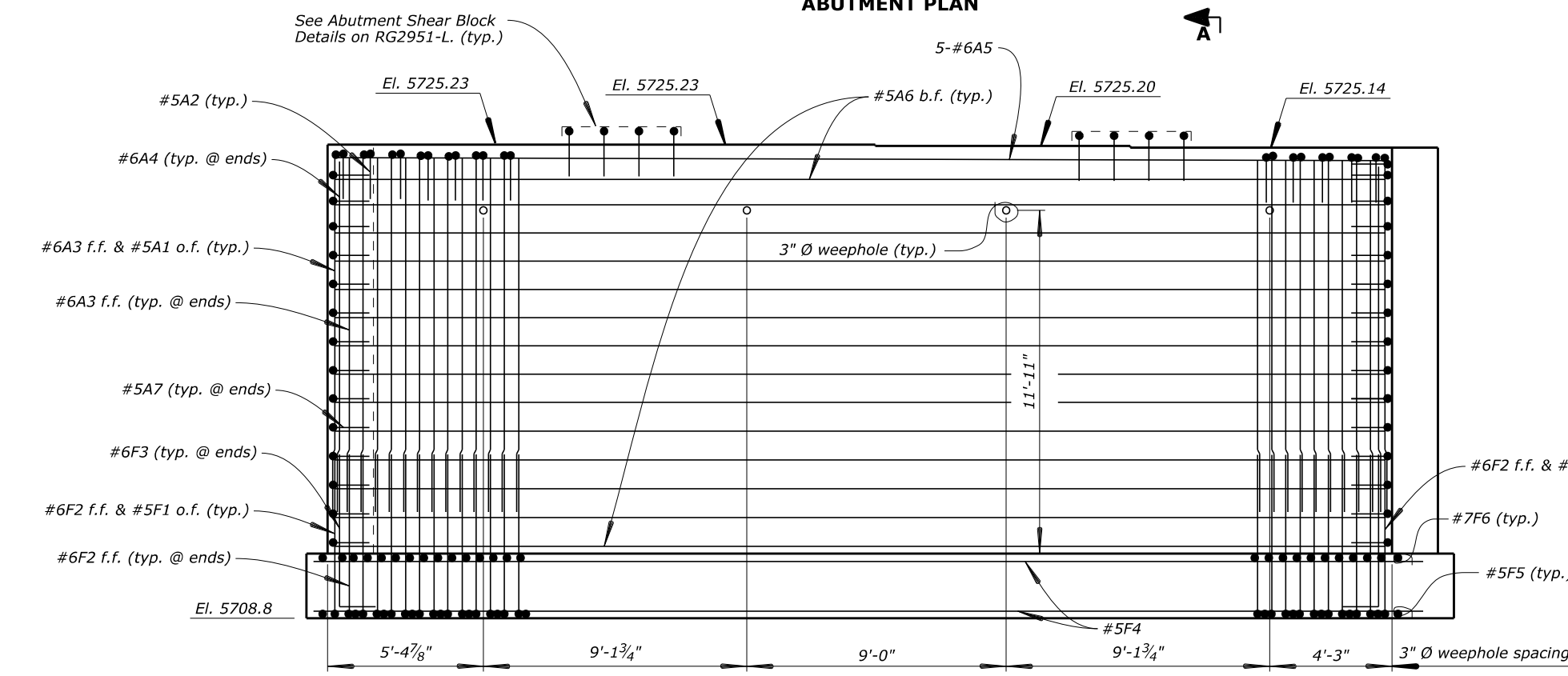
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								D. CHRISTENSEN	B. ROBINSON	S. BELCHER	3/16" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	5 of 25	JULY 2013	RG2951-E

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S6	S79



Note: Backfill Abut. 2 to El. 5720.50 prior to girder erection.

**ABUTMENT PLAN**



**ABUTMENT ELEVATION**

Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces

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

Note: See RG2951-E for Simulated Stone Masonry Surface Detail.

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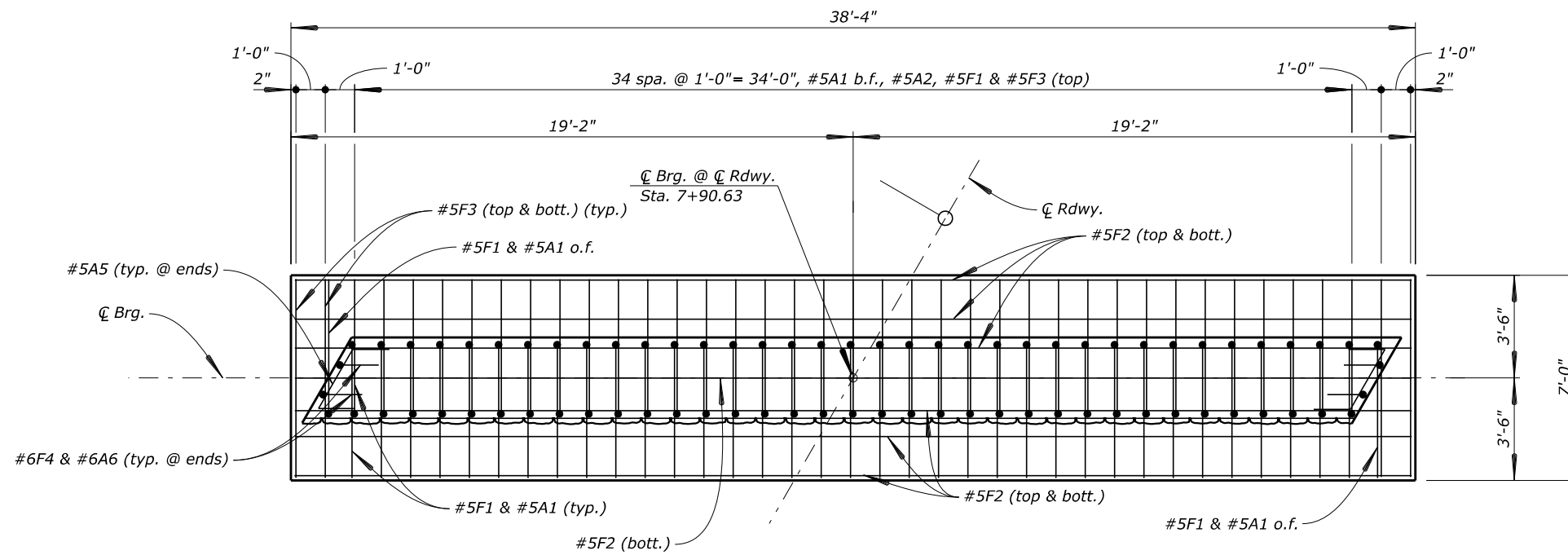
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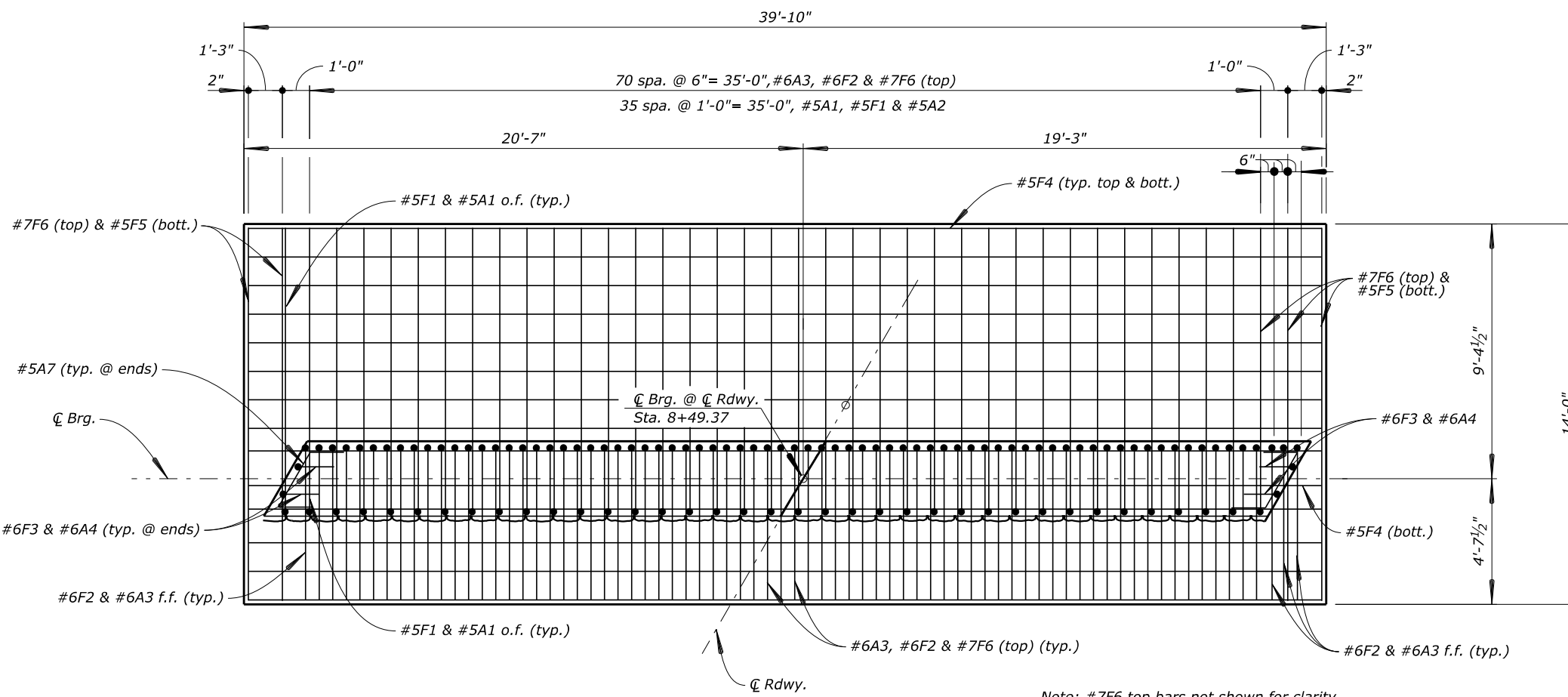
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	S. BELCHER	3/16" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	6 of 25	JULY 2013	RG2951-F

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S7	S79



**ABUTMENT 1 REINFORCEMENT PLAN**



**ABUTMENT 2 REINFORCEMENT PLAN**

Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

Note: #7F6 top bars not shown for clarity.

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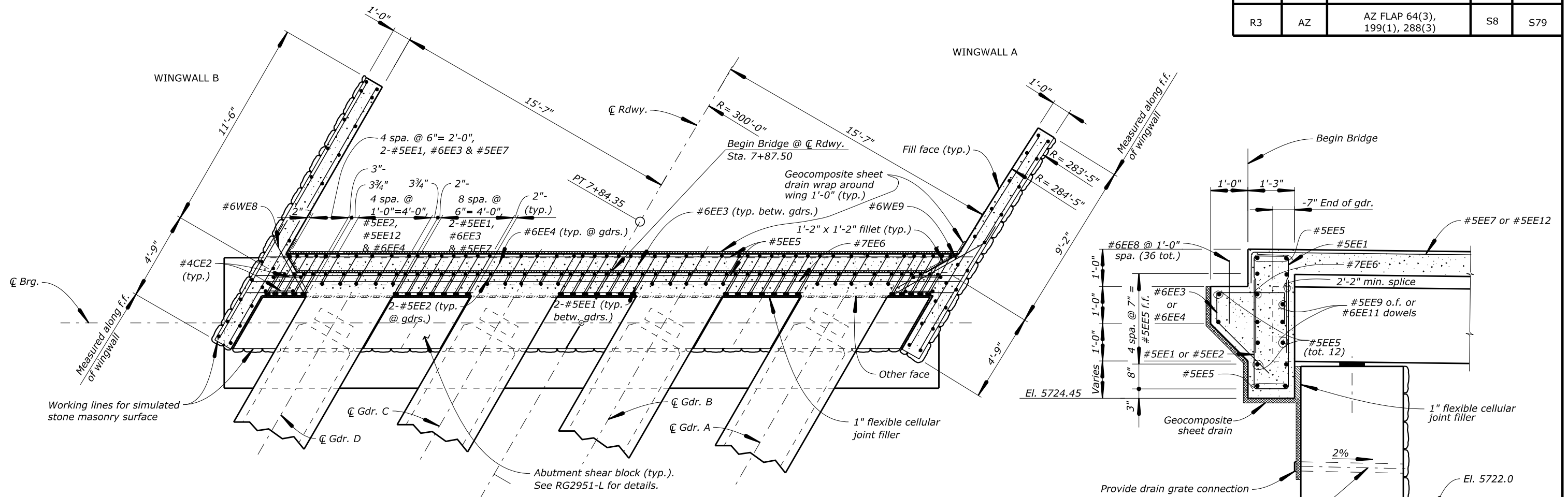
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**FOOTING REINFORCEMENT**

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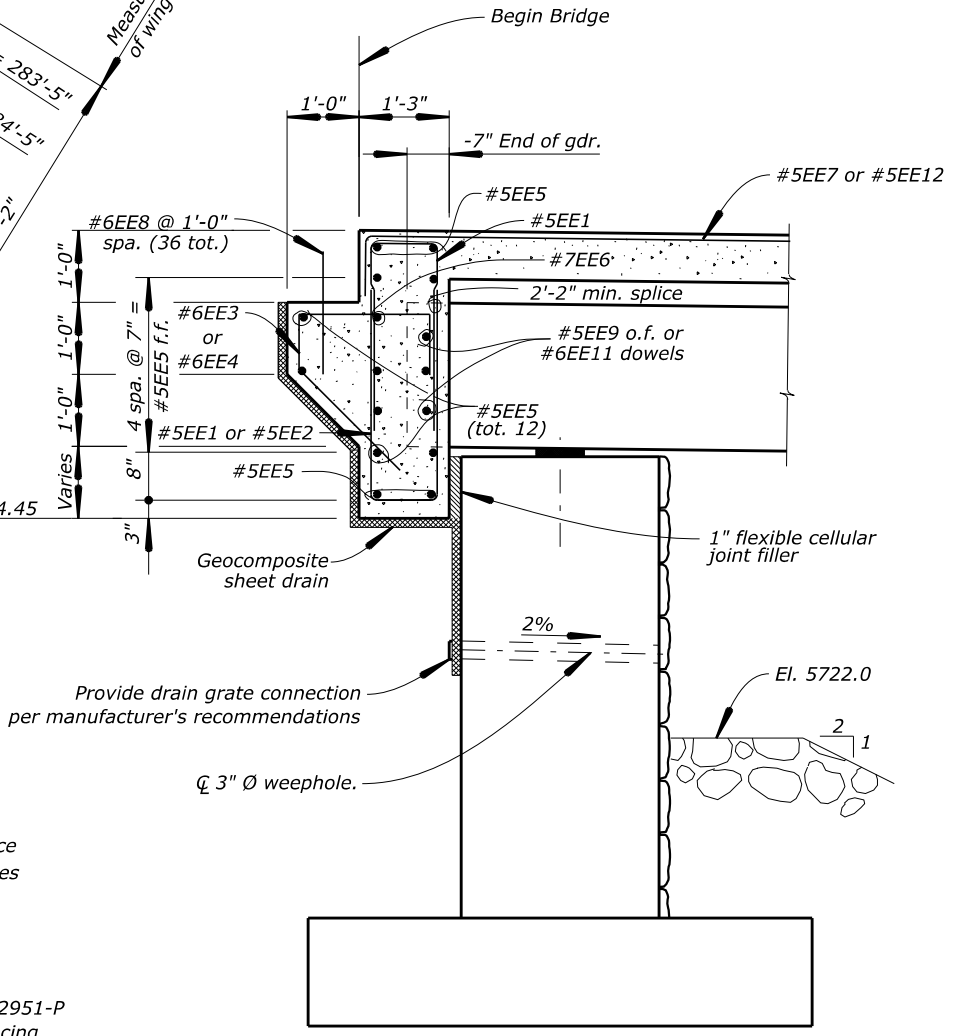
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								D. CHRISTENSEN	B. ROBINSON	S. BELCHER	3/16" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	7 of 25	JULY 2013	RG2951-G

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S8	S79

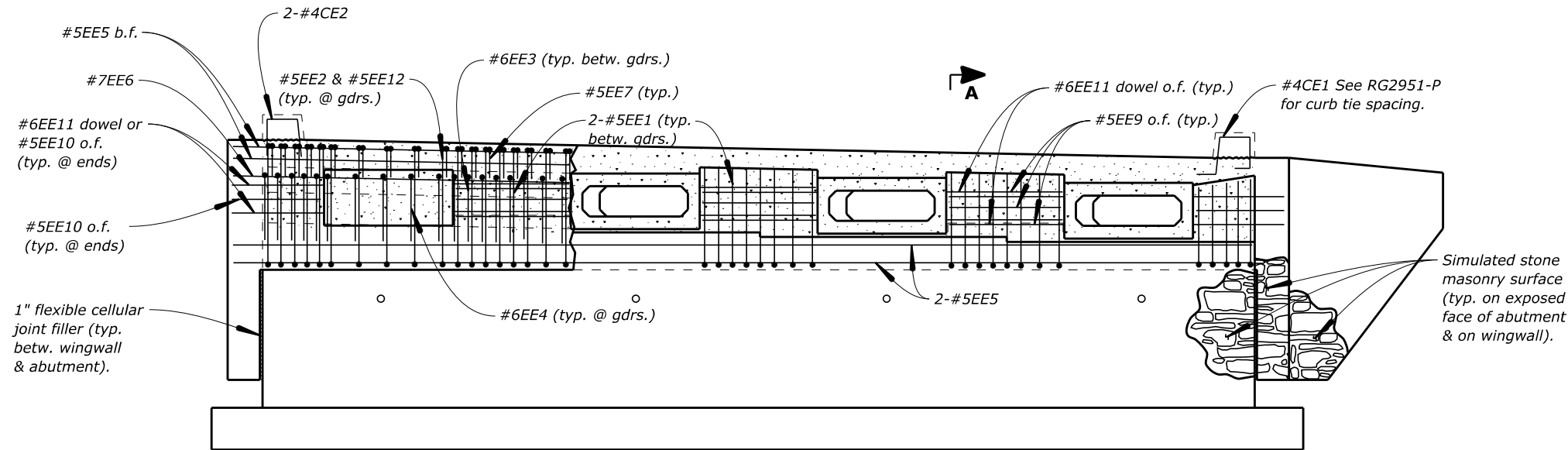


**ABUTMENT ENDWALL PLAN**

Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces



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



**ABUTMENT ENDWALL ELEVATION**  
 (LOOKING BACK ON LINE)

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**ABUTMENT 1 ENDWALL**

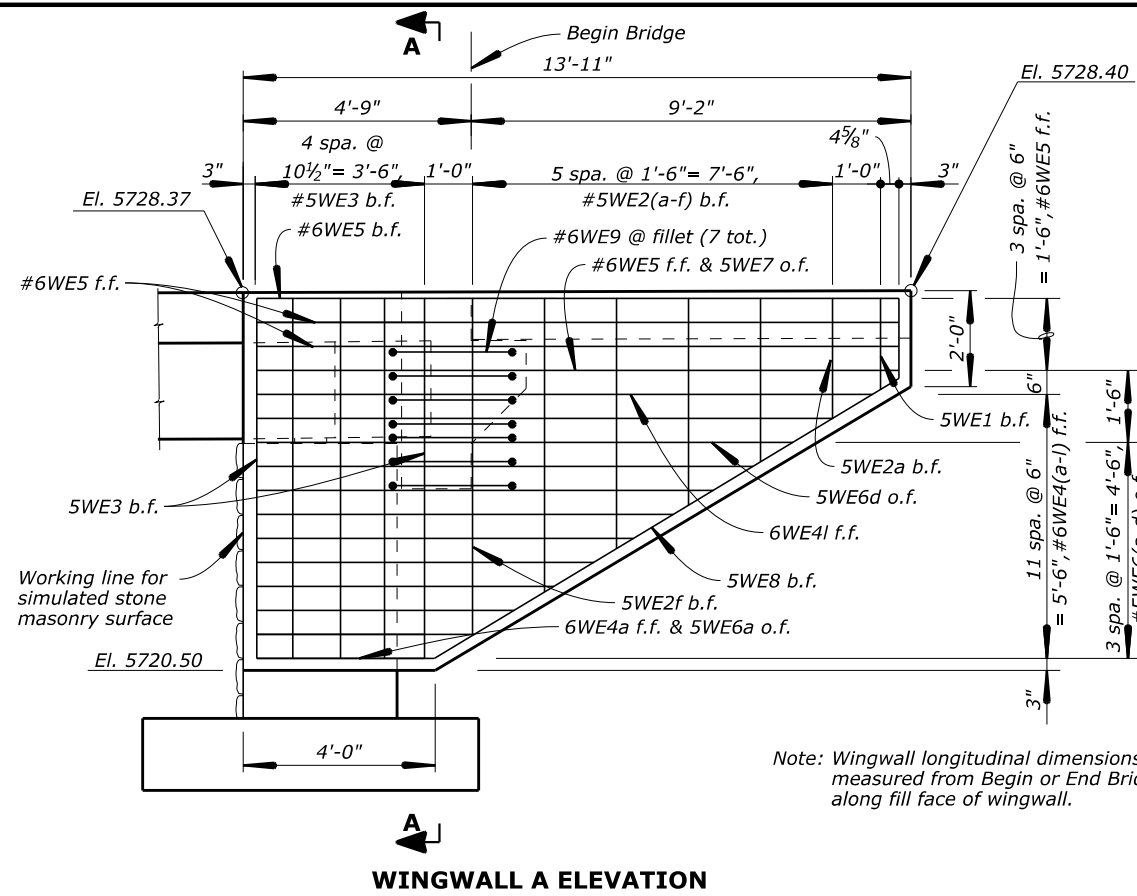
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	S. BELCHER	3/16" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	8 of 25	JULY 2013	RG2951-H



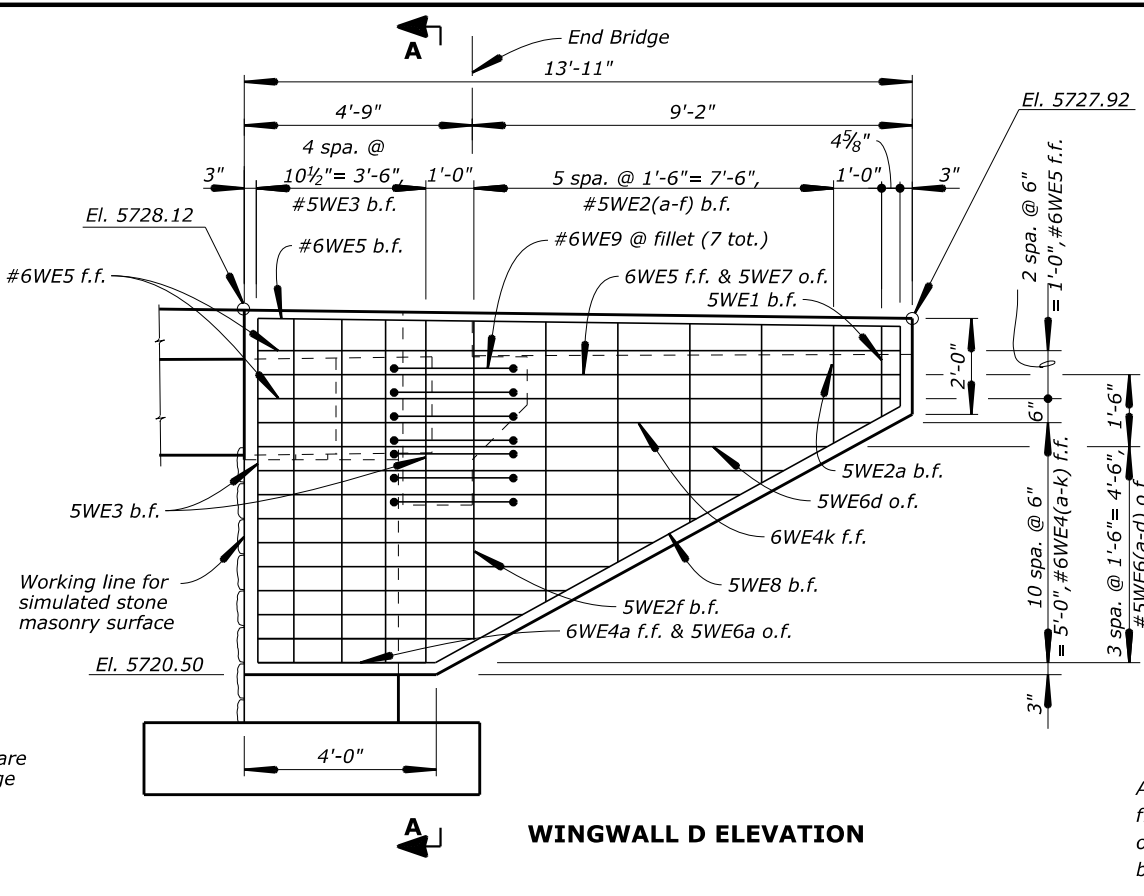


REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S10	S79

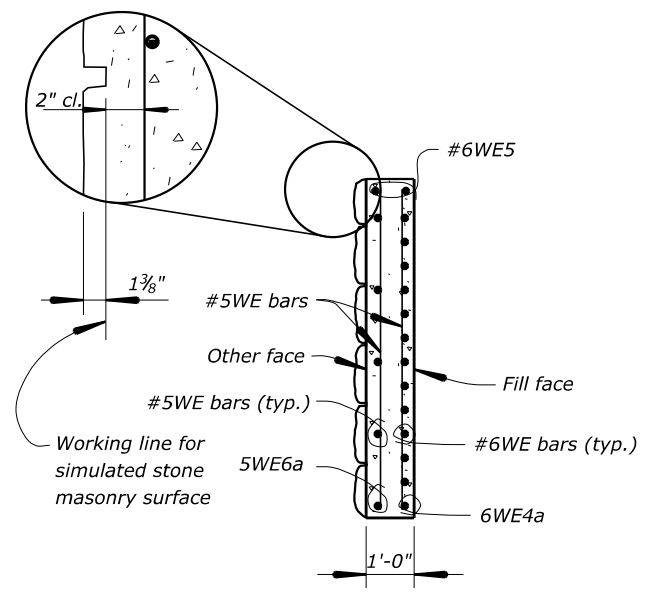


**WINGWALL A ELEVATION**

Note: Wingwall longitudinal dimensions are measured from Begin or End Bridge along fill face of wingwall.

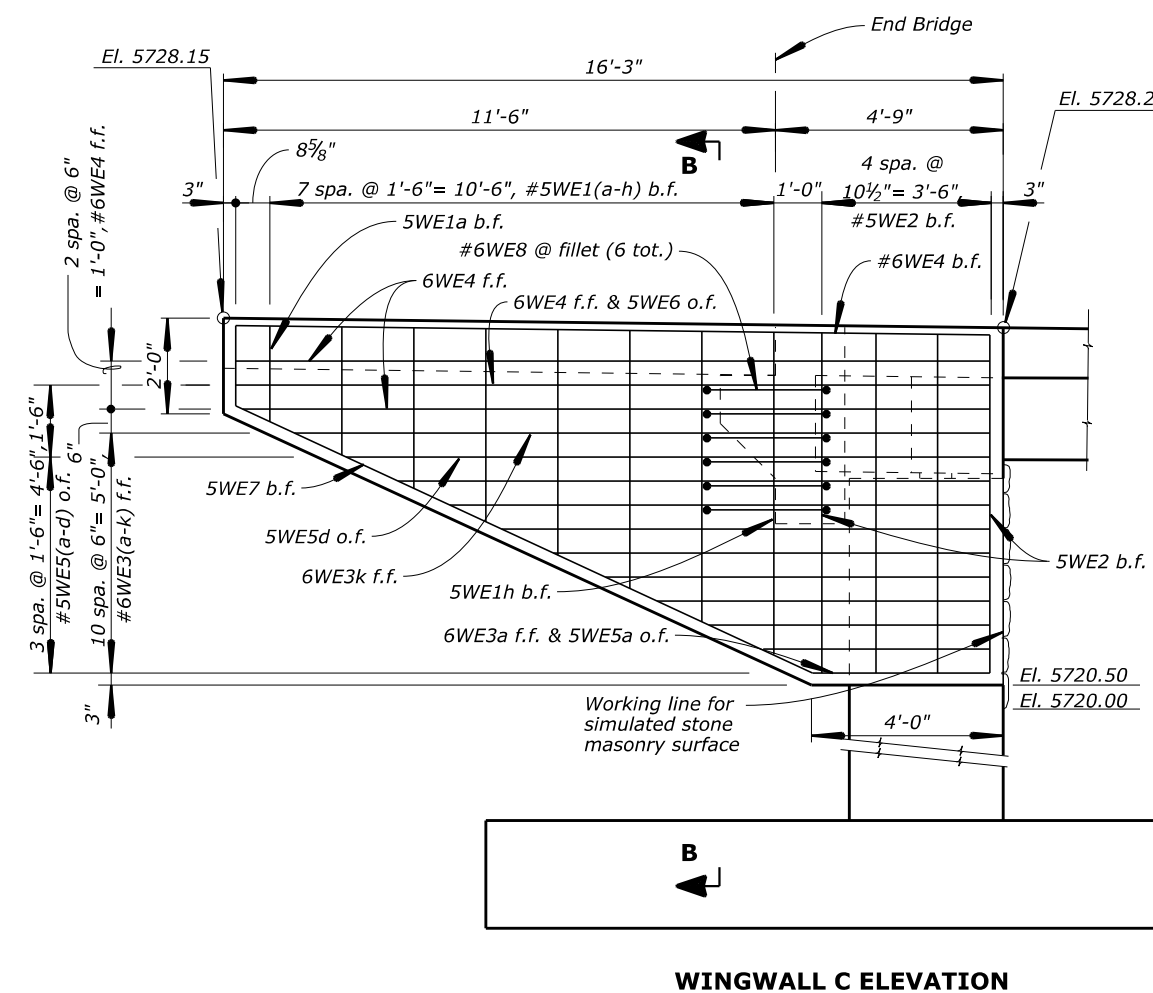


**WINGWALL D ELEVATION**

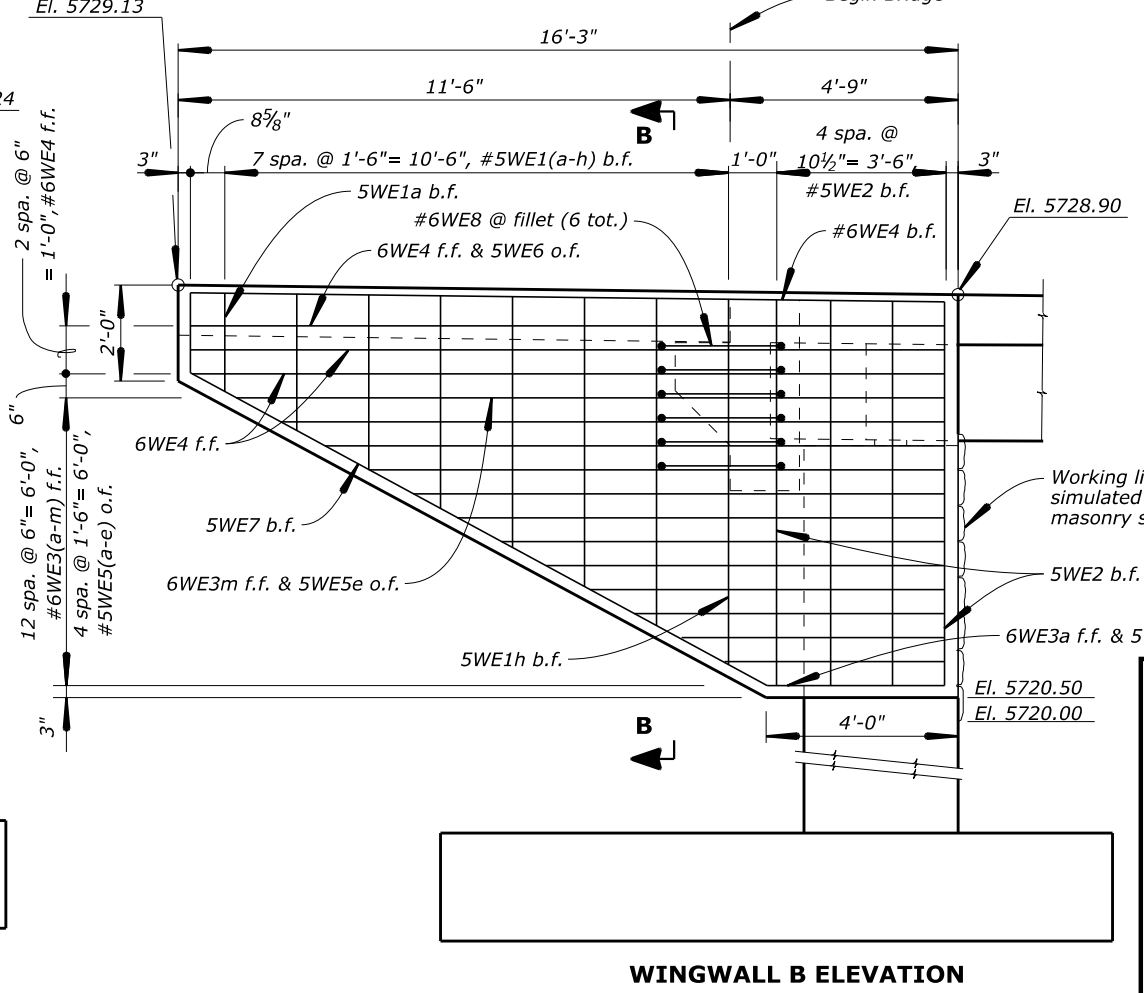


**SECTION A-A**  
(WINGWALL A, WINGWALL D SIMILAR)

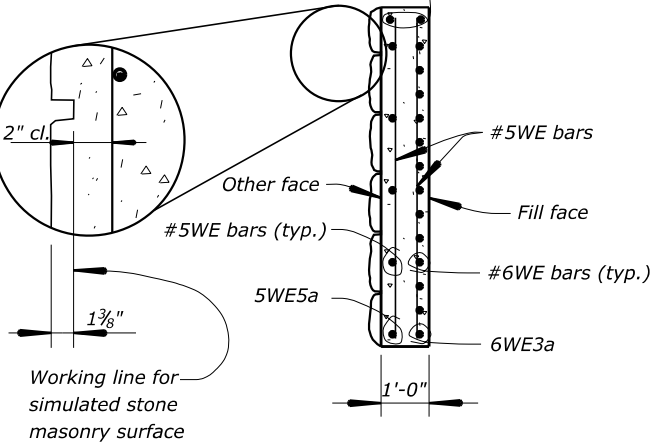
Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces



**WINGWALL C ELEVATION**



**WINGWALL B ELEVATION**



**SECTION B-B**  
(WINGWALL B, WINGWALL C SIMILAR)

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GILA COUNTY, ARIZONA

**WINGWALLS**

N:\AZ\az52-11\Bridges\RG2951\CADD Files\DWG Files\2951\wings.dgn

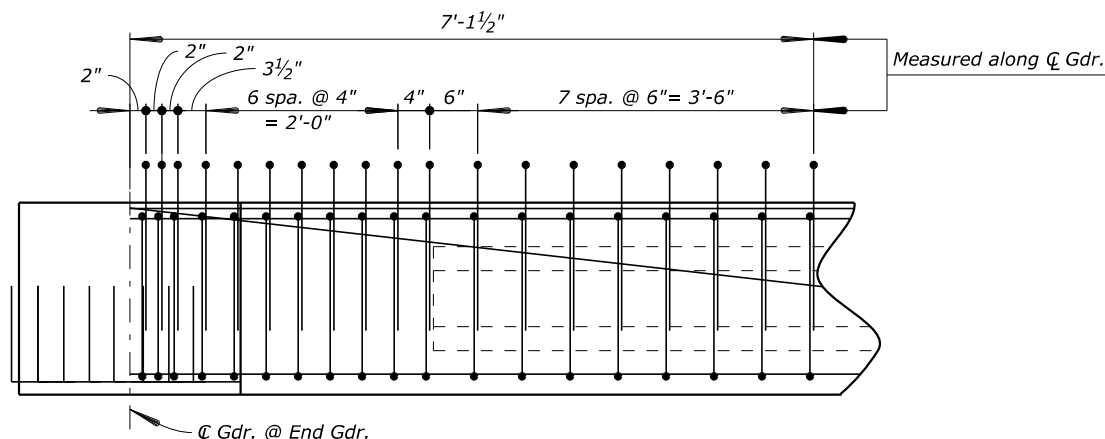
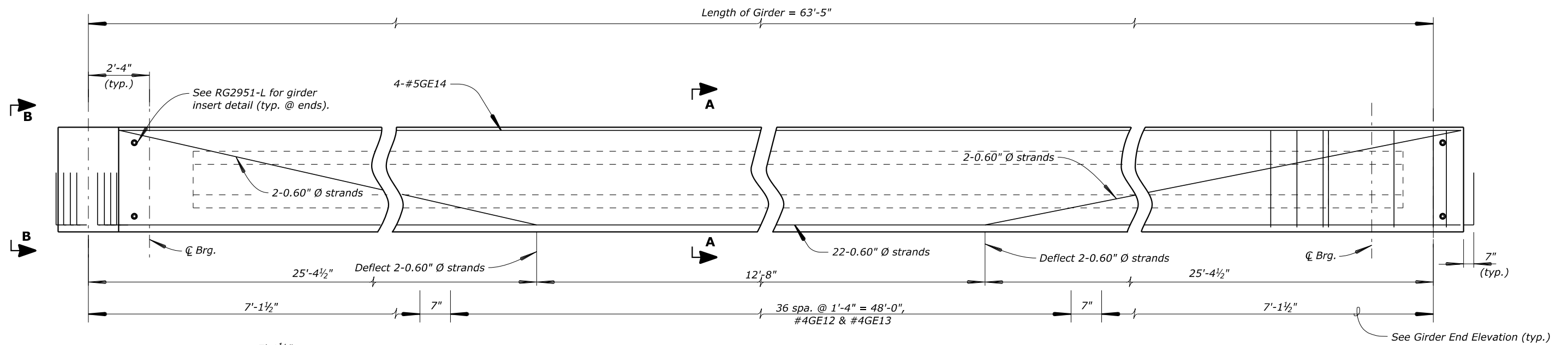
8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	S. BELCHER L. DEPAULA	1/4" = 1'-0"	BONNIE KLAMERUS	10 of 25	JULY 2013	RG2951-J

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S11	S79

**NOTE:**

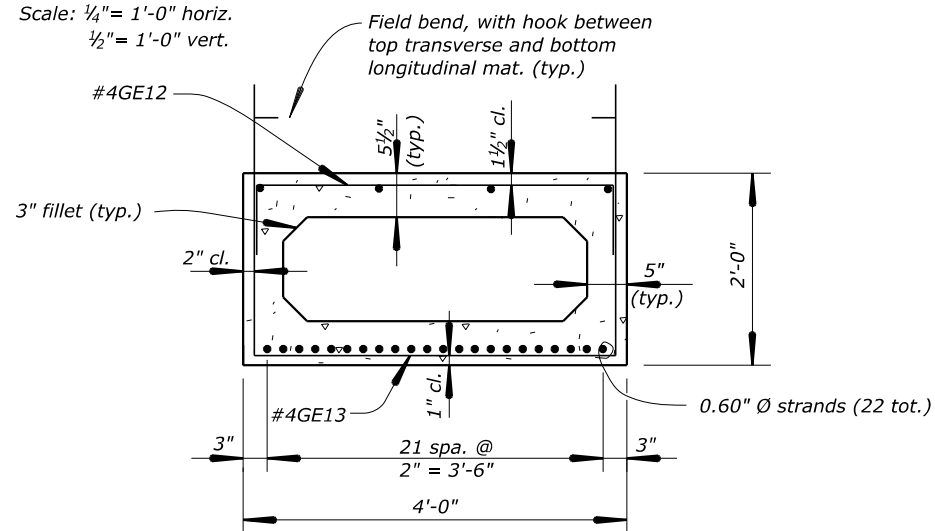
1. Cast girders  $\frac{3}{8}$ " longer than shown to allow for shortening due to prestressing.



**GIRDER END ELEVATION**

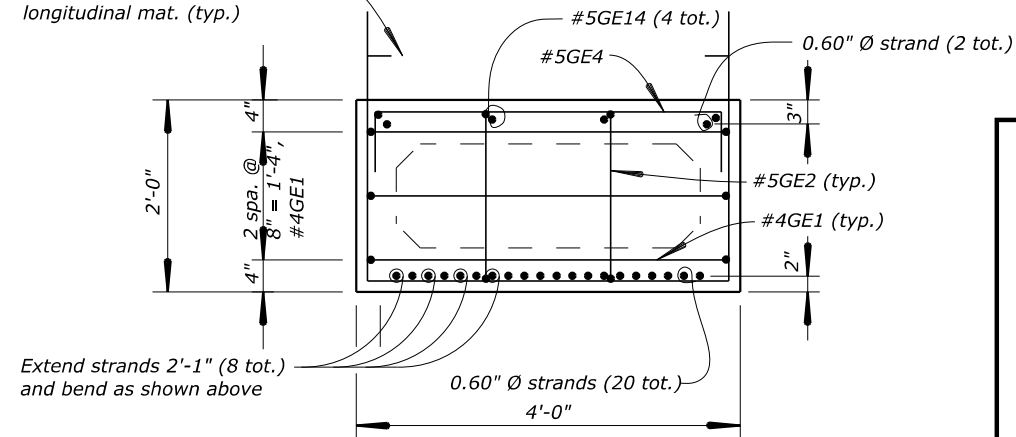
**BOX BEAM ELEVATION**

Scale:  $\frac{1}{4}$ " = 1'-0" horiz.  
 $\frac{1}{2}$ " = 1'-0" vert.



**SECTION A-A**

Field bend, with hook between top transverse and bottom longitudinal mat. (typ.)



**VIEW B-B**

Extend strands 2'-1" (8 tot.) and bend as shown above

**PRECAST CONCRETE BOX BEAM ESTIMATE**

ITEM	UNIT	QUANTITY
Concrete	Cu. Yd.	11.8
Reinforcing Steel	Lbs.	1262
0.60" Ø Strands	Ft.	1429

Note: Quantities shown are for one box girder only. See RG2951-X for Precast Concrete Box Beam bar list.

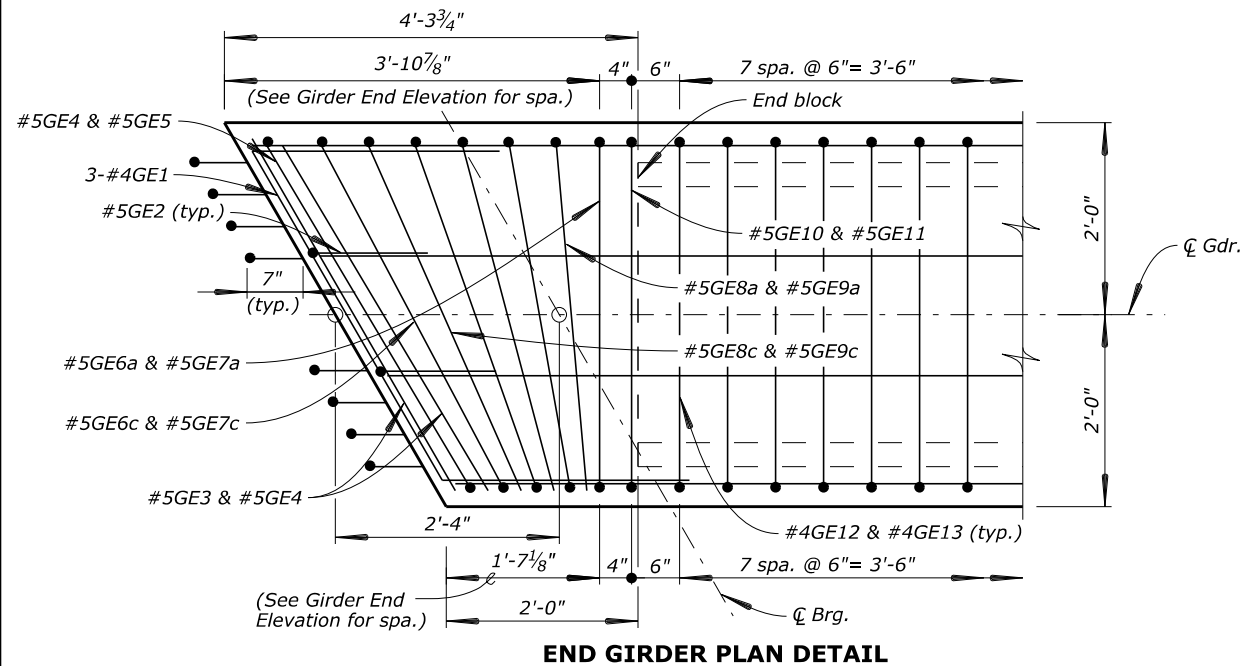
Note: Install void drain in bottom flange near each end block.

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**PRECAST CONCRETE BOX BEAM**

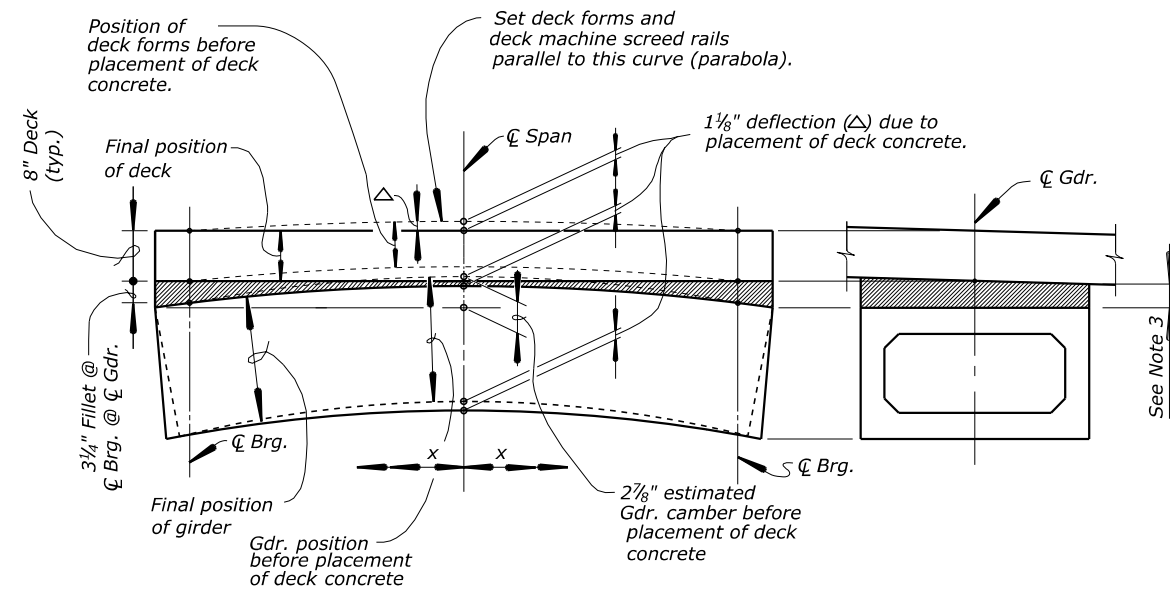


**END GIRDER PLAN DETAIL**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	L. DEPAULA	$\frac{1}{2}$ " = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	11 of 25	JULY 2013	RG2951-K

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S12	S79



Deflection Equation

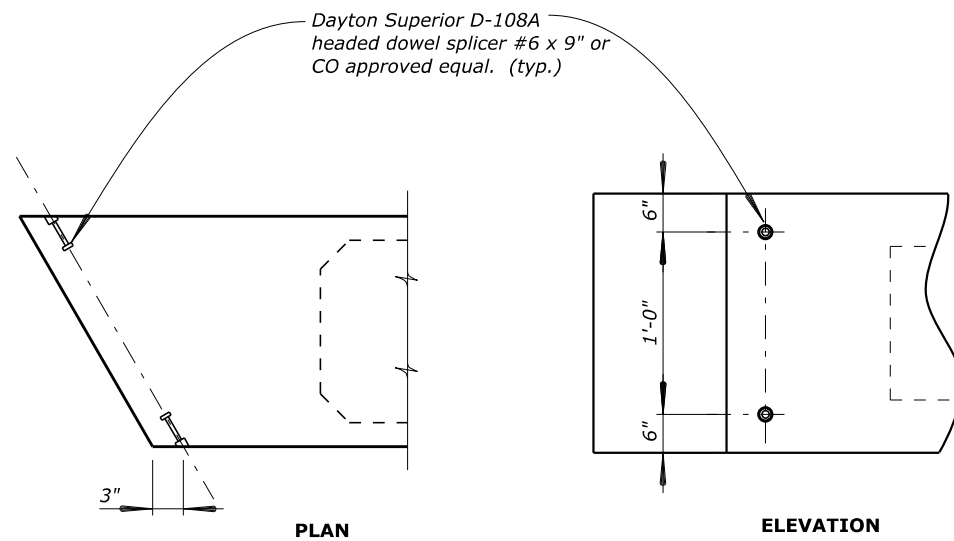
$$\Delta = 1.125 - \frac{X^2}{767}$$

where  $\Delta$  = Deflection, in inches, of girder at any point caused by the weight of deck.  
and  $X$  = distance, in feet, measured from midspan (See diagram).  
Note:  $\Delta$  max = 1 1/8" @  $x=0$  (midspan)  
 $\Delta$  min = 0 @  $x=29.37'$  (Gdr.)

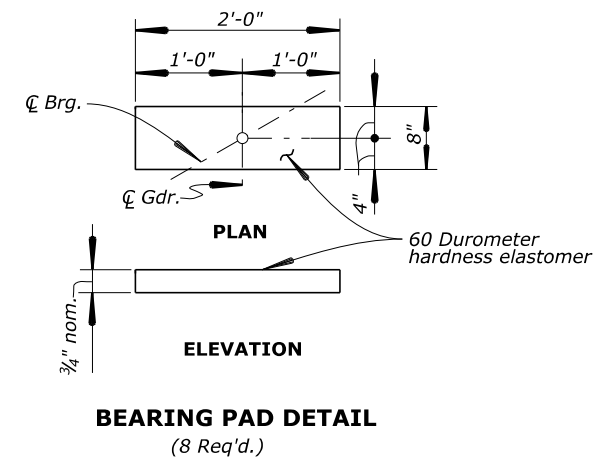
**Required Actions:**

1. Measure girder camber prior to setting deck forms. If it exceeds the estimated gdr. camber (2 7/8") by more than 1", the fillet will have to be increased by raising profile grade as directed by the CO.
2. Set the deck forms and camber the deck machine screed rails to offset the gdr. deflections due to deck (1 1/8") as shown in diagram.
3. Bridge precast box beam seat elevations were calculated using design cambers of precast box beam plus dead load deflections of deck, so that top of precast box beams will be a minimum of 1 inch below bottom of deck at any one point in the span, allowing for precast box beam depth and girder camber tolerance.

**DECK FORM SETTING DIAGRAM**

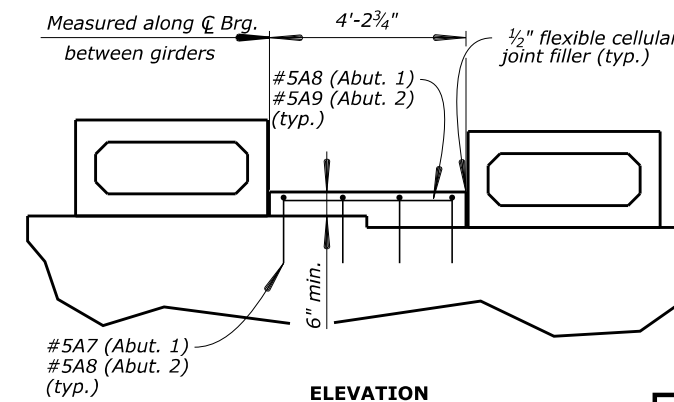
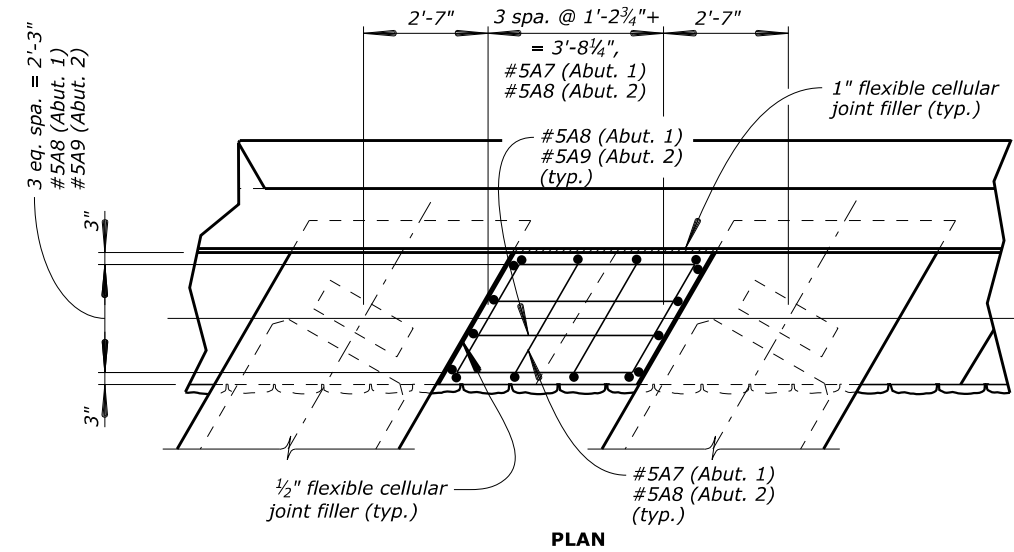


**GIRDER INSERT DETAIL**



**BEARING NOTES:**

1. Plain elastomeric bearing pad shall conform to AASHTO M251 with 60 Durometer hardness, elastomer Grade 3 or higher.
2. AASHTO LRFD Design method "A" used for elastomeric pad design.
3. For information only:  
Abut. design service loads per bearing:  
Dead load = 89 Kips  
Live load = 66 Kips (no impact)



**ABUTMENT SHEAR BLOCK DETAILS**  
(2 per abutment)

Note: Cast shear blocks after setting girders.

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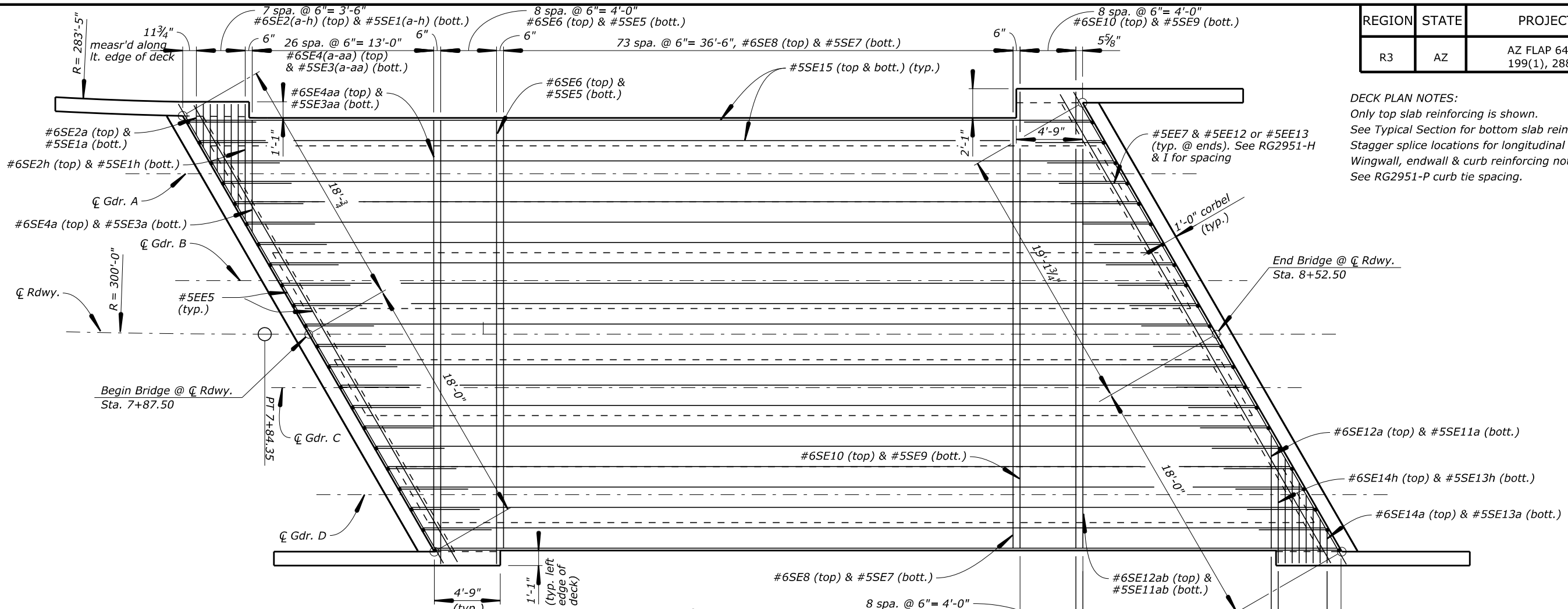
**PRECAST CONCRETE  
BOX BEAM DETAILS**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	L. DEPAULA	NONE	BONNIE KLAMERUS	12 of 25	JULY 2013	RG2951-L

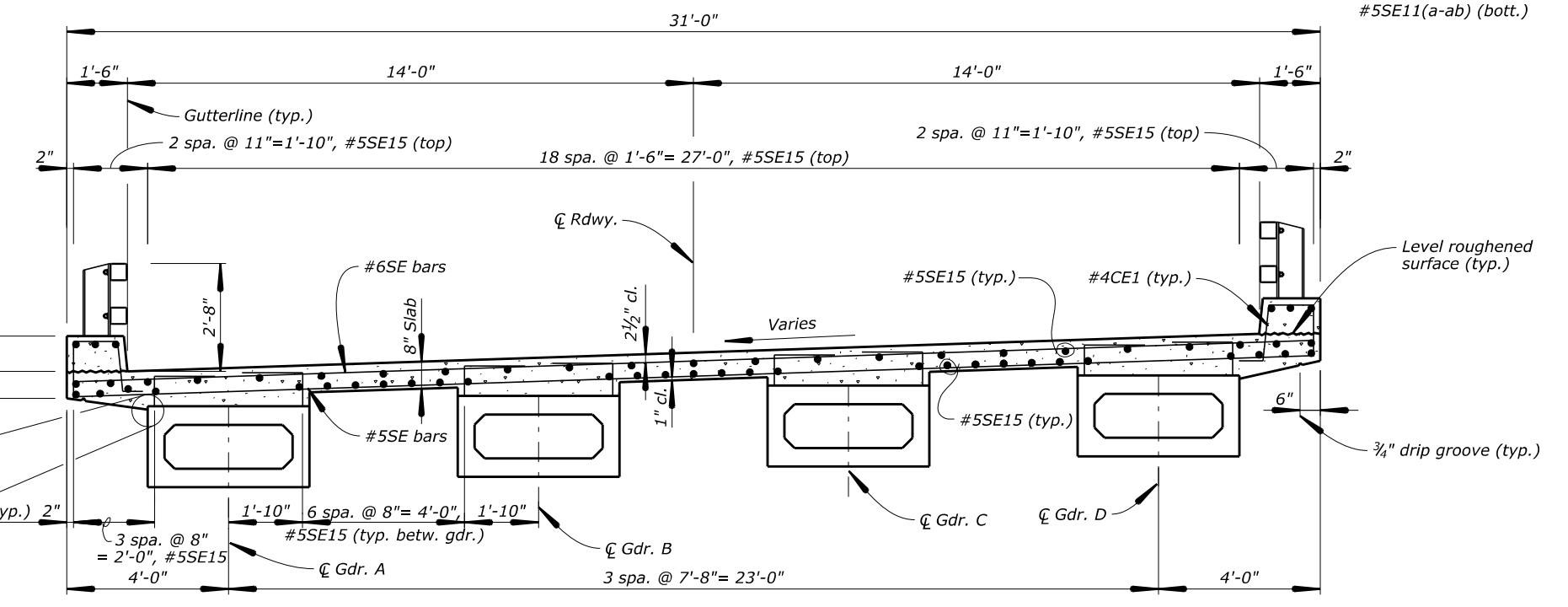
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REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S13	S79

**DECK PLAN NOTES:**  
 Only top slab reinforcing is shown.  
 See Typical Section for bottom slab reinforcing.  
 Stagger splice locations for longitudinal reinforcing.  
 Wingwall, endwall & curb reinforcing not shown for clarity.  
 See RG2951-P curb tie spacing.



**DECK PLAN**  
 Scale: 1/8" = 1'-0"



**TYPICAL BRIDGE SECTION**

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 CONTROL ROAD**

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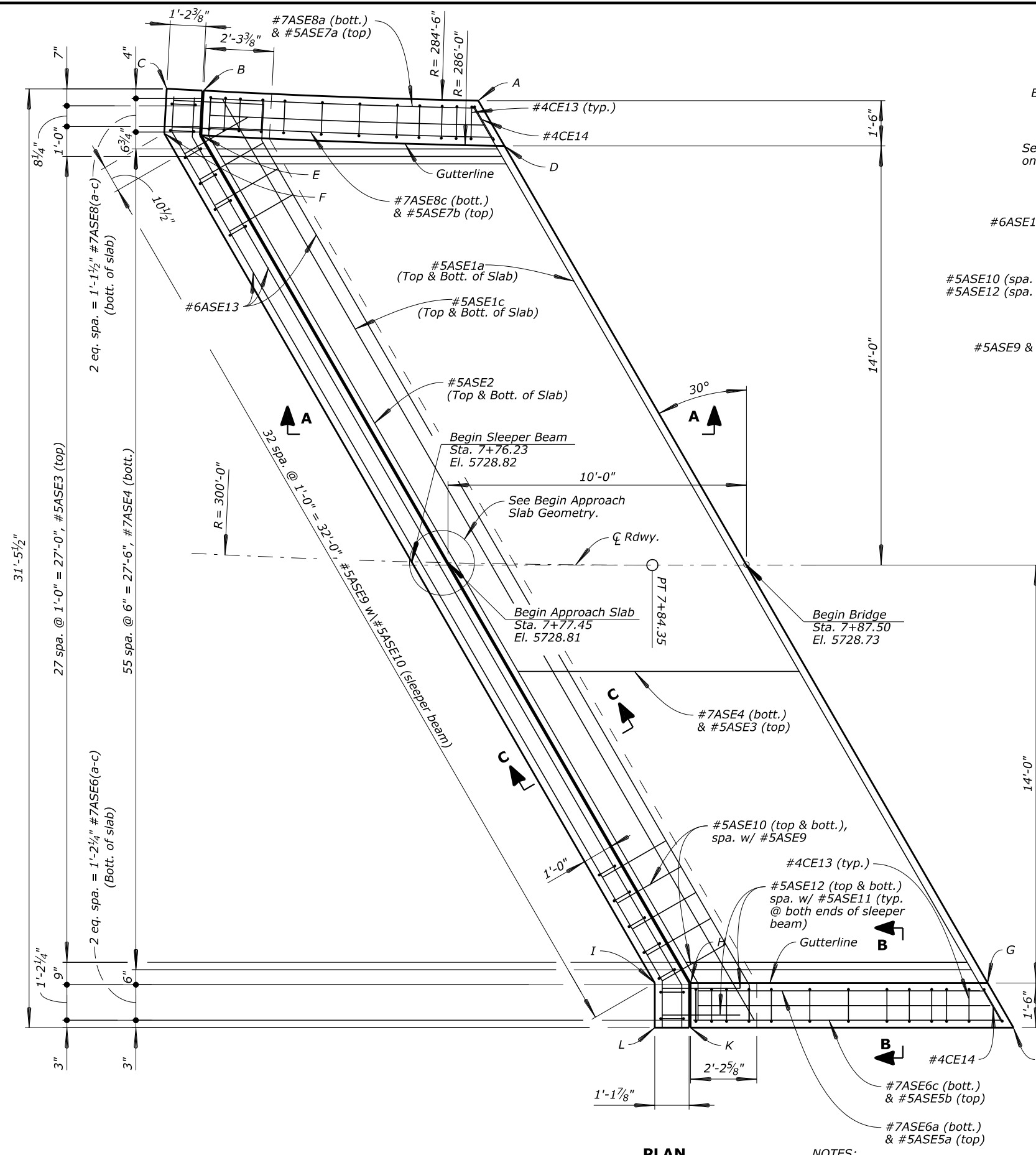
**TYPICAL SECTION**

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8/8/2013

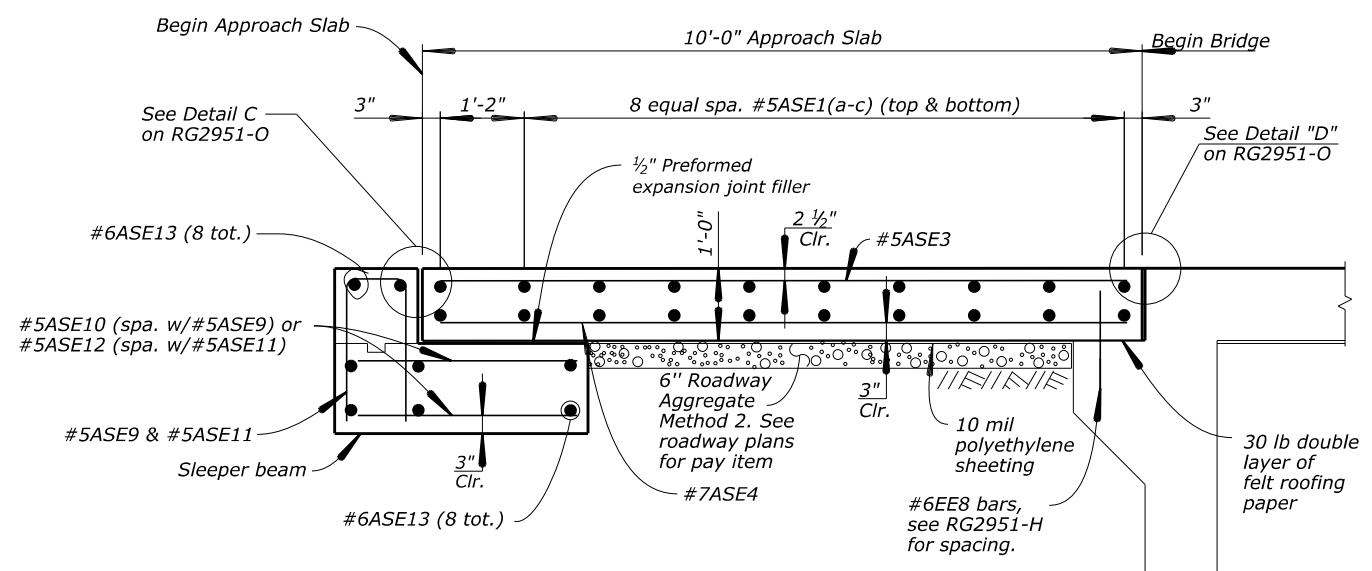
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. BELCHER	B. ROBINSON	D. CHRISTENSEN	1/4" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	13 of 25	JULY 2013	RG2951-M

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S14	S79

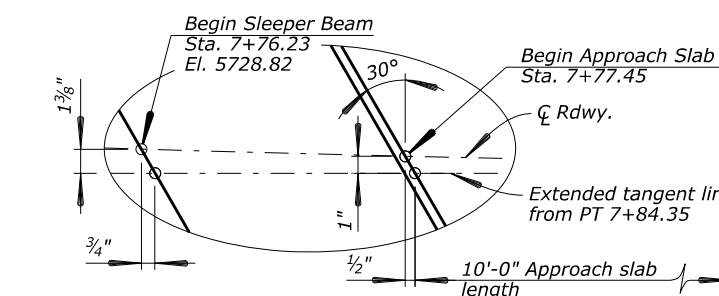


**PLAN**

**NOTES:**  
 1. See RG2951-Q for Section B-B  
 2. Cast end sleeper beam and approach slab parallel to Begin Bridge



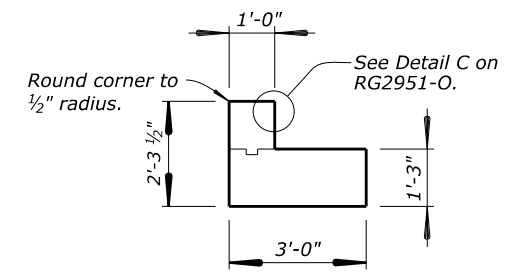
**SECTION A-A**  
Scale: 3/8" = 1'-0"



**BEGIN APPROACH SLAB GEOMETRY**  
No Scale

	Station	Elevation	Offset
A	7+78.20	5728.38	15'-6" Lt.
B	7+68.44	5728.41	15'-6" Lt.
C	7+67.13	5728.41	15'-6" Lt.
D	7+79.15	5728.38	14'-0" Lt.
E	7+68.44	5728.41	14'-0" Lt.
F	7+67.13	5728.41	14'-0" Lt.
G	7+95.58	5728.98	14'-0" Rt.
H	7+85.58	5729.12	14'-0" Rt.
I	7+84.38	5729.14	14'-0" Rt.
J	7+96.45	5728.97	15'-6" Rt.
K	7+85.58	5729.12	15'-6" Rt.
L	7+84.38	5729.14	15'-6" Rt.

Note: See RG2951-P for curb tie spacing.



**SECTION C-C**  
Sleeper Beam Detail

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**APPROACH SLAB (1 OF 2)**

N:\AZ\az52-11\Bridg\RG2951\NCADD Files\DGN Files\2951\approachdgn

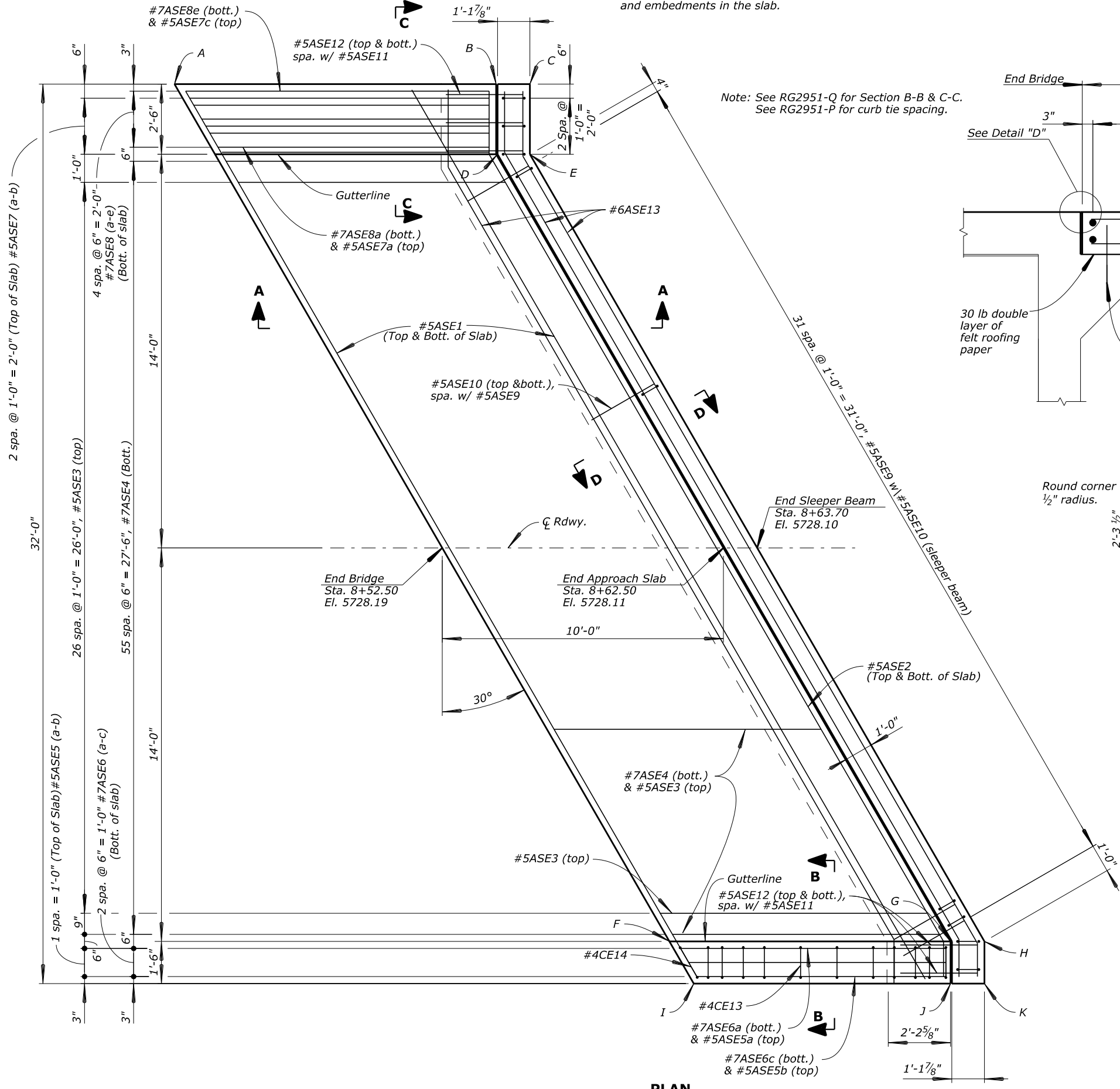
8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	R. WEHNER	L. DEPAULA	1/4" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	14 of 25	JULY 2013	RG2951-N

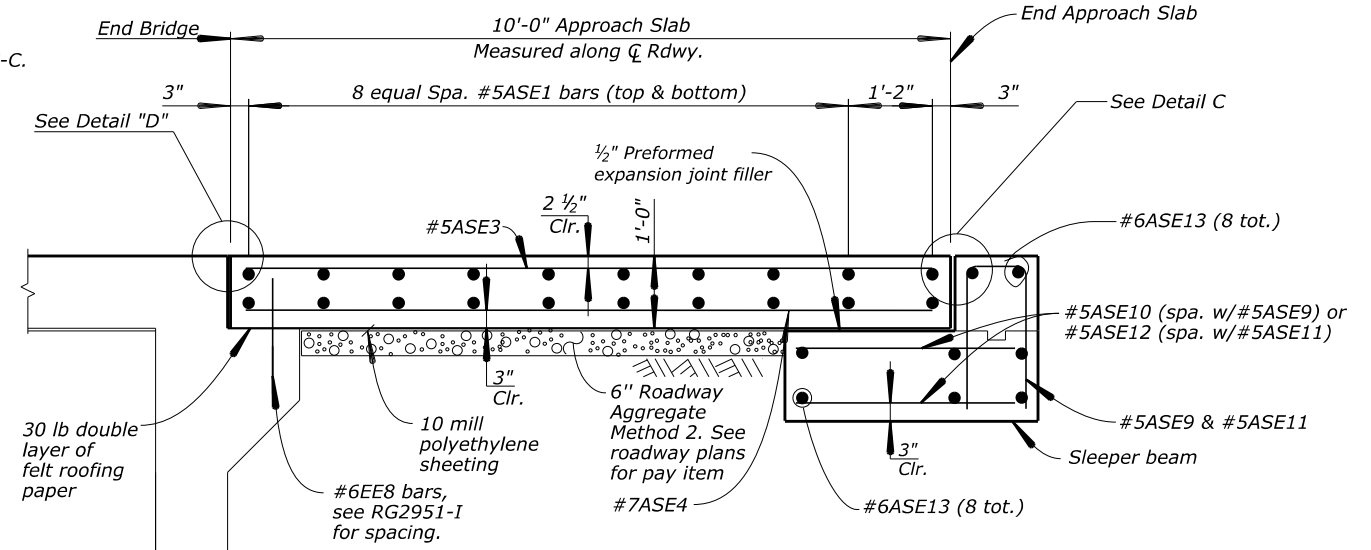
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S15	S79

Note: See RG2951-S for Impact Attenuator details and embedments in the slab.

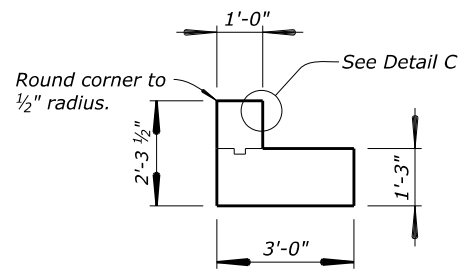
Note: See RG2951-Q for Section B-B & C-C. See RG2951-P for curb tie spacing.



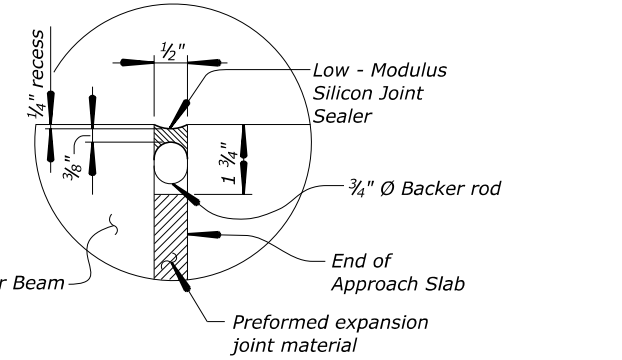
PLAN



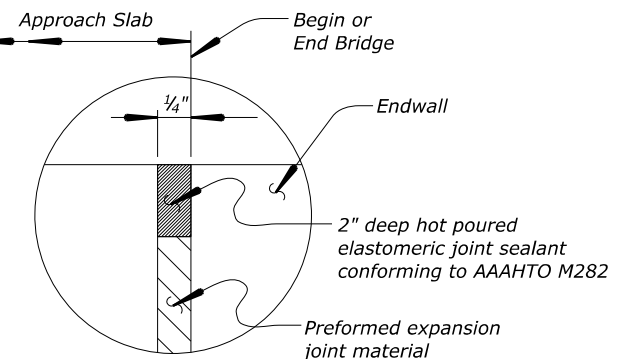
SECTION A-A  
Scale: 3/8" = 1'-0"



SECTION D-D  
Sleeper Beam Detail



DETAIL "C"



DETAIL "D"

	Station	Elevation	Offset
A	8+42.97	5728.23	16'-6" Lt.
B	8+54.42	5728.20	16'-6" Lt.
C	8+55.62	5728.20	16'-6" Lt.
D	8+54.42	5728.20	14'-0" Lt.
E	8+55.62	5728.20	14'-0" Lt.
F	8+60.58	5728.06	14'-0" Rt.
G	8+70.58	5727.92	14'-0" Rt.
H	8+71.78	5727.91	14'-0" Rt.
I	8+61.45	5728.05	15'-6" Rt.
J	8+70.58	5727.92	15'-6" Rt.
K	8+71.78	5727.91	15'-6" Rt.

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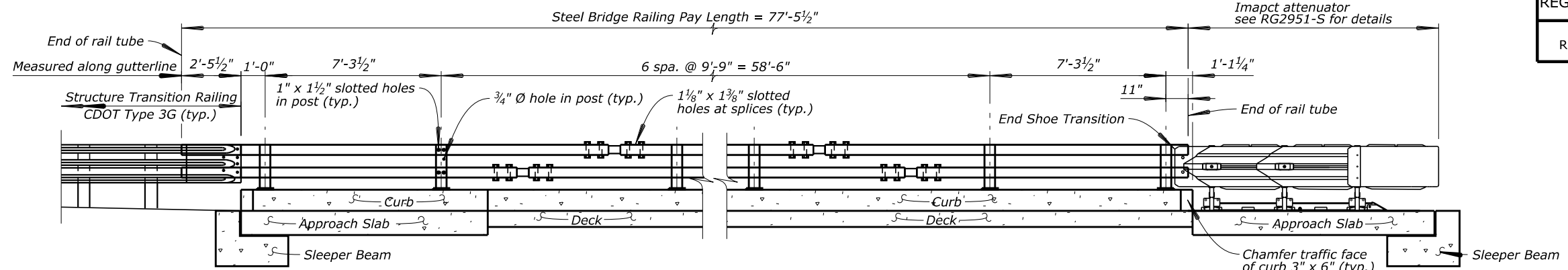
**APPROACH SLAB (2 OF 2)**

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8/8/2013

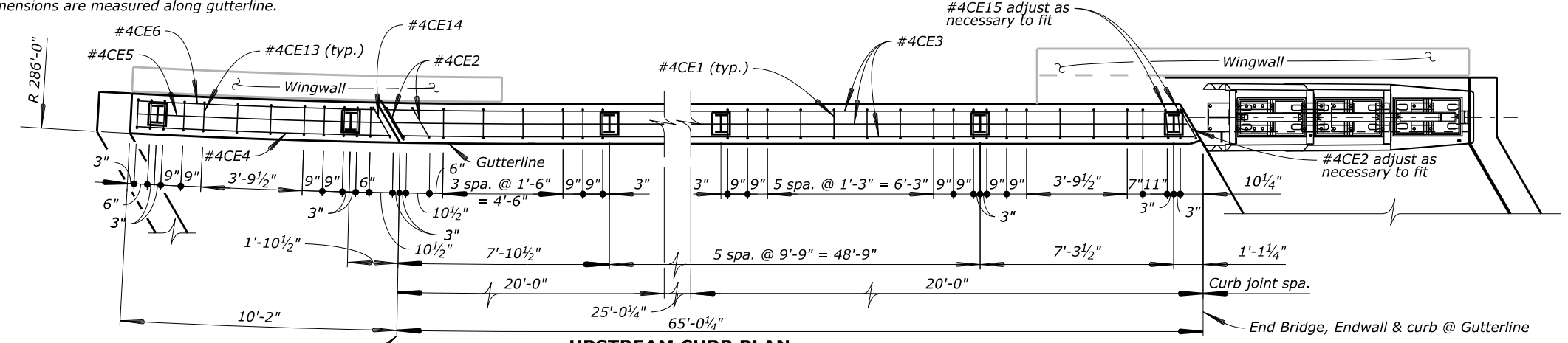
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	R. WEHNER	L. DEPAULA	1/4" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	15 of 25	JULY 2013	RG2951-O

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S16	S79

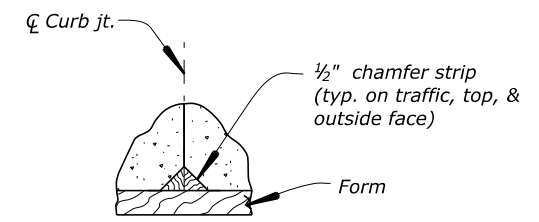


**UPSTREAM ELEVATION**  
Traffic Face Shown

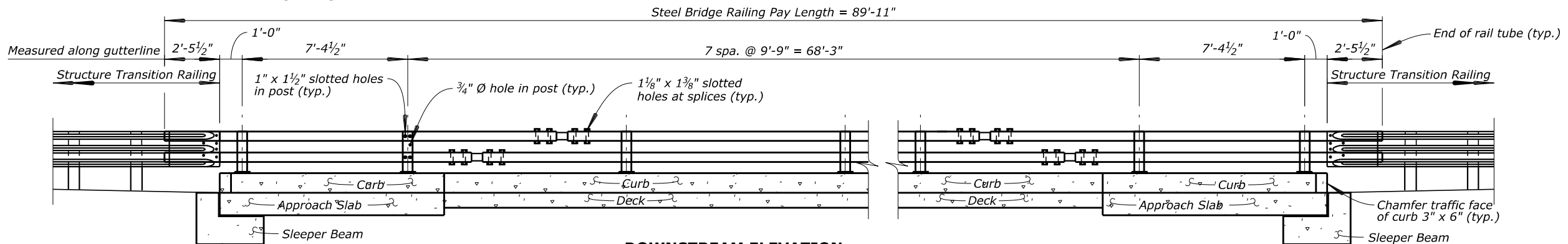
**NOTE:**  
All horizontal dimensions are measured along gutterline.



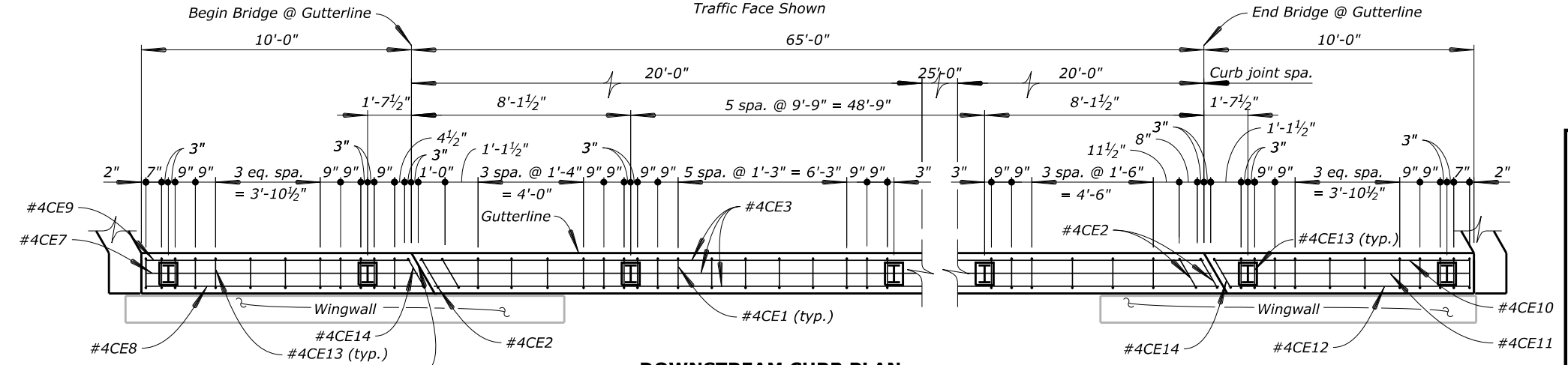
**UPSTREAM CURB PLAN**



**CURB JOINT FORMING DETAIL**  
Continue longitudinal curb bars through joint



**DOWNSTREAM ELEVATION**  
Traffic Face Shown



**DOWNSTREAM CURB PLAN**

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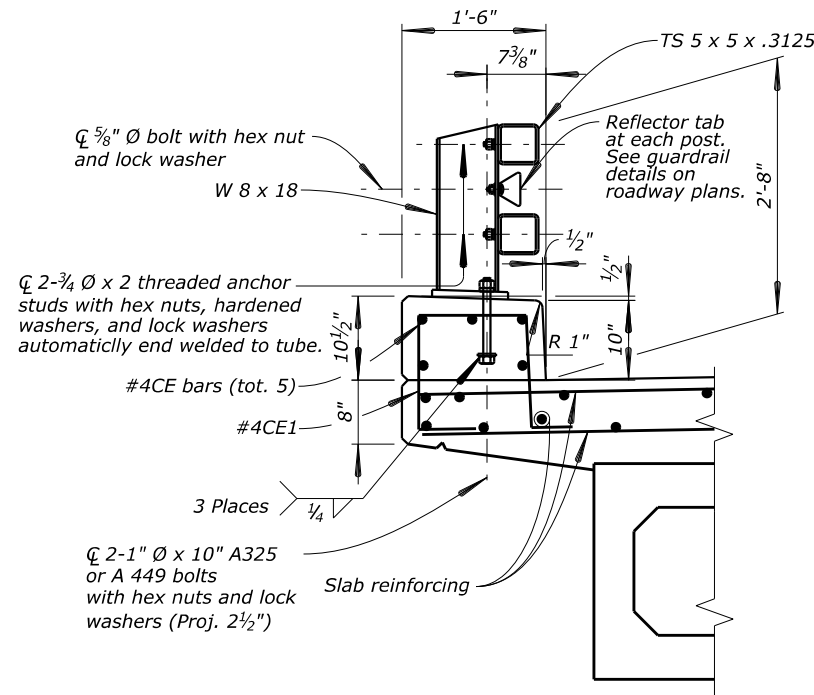
**BRIDGE RAILING**

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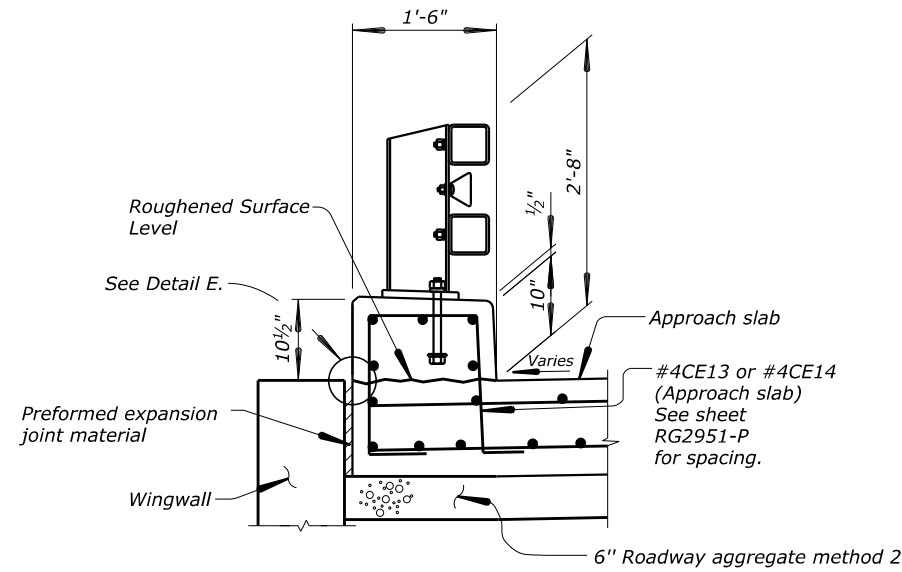
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	R. WEHNER	B. KLAMERUS	3/16" = 1'-0"	BONNIE KLAMERUS	16 of 25	JULY 2013	RG2951-P



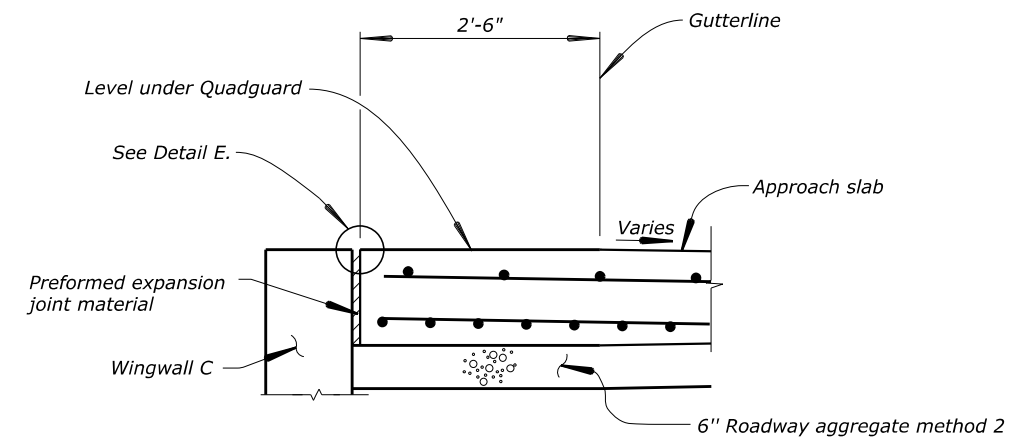
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S17	S79



**TYPICAL SECTION ON DECK**  
No Scale

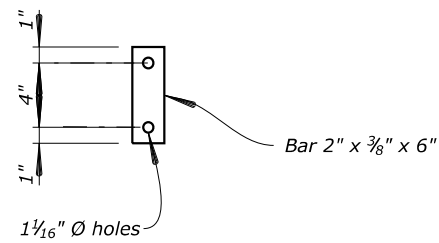


**SECTION B-B ON APPROACH SLAB  
WINGWALL A, B & D**  
No Scale

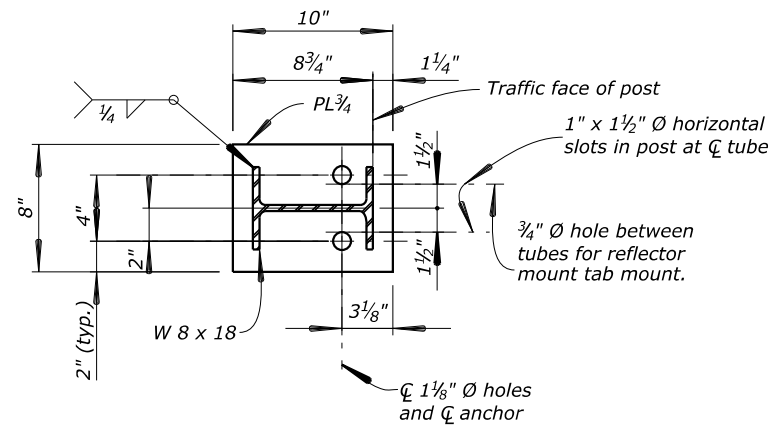


**SECTION C-C ON APPROACH SLAB  
WINGWALL C**  
No Scale

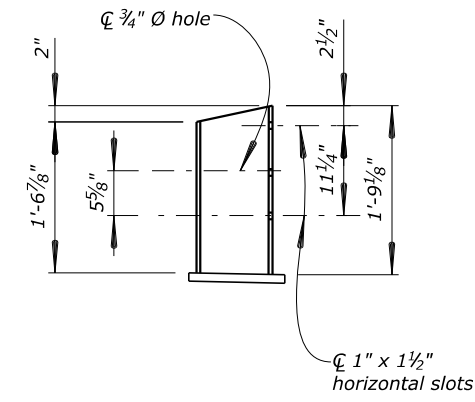
Note: See RG2951-N & O for location of Sections B-B & C-C.



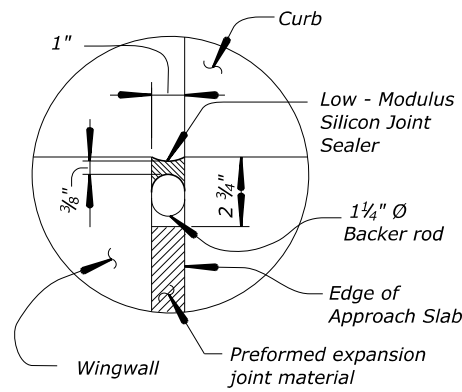
**ANCHOR DETAIL**  
No Scale



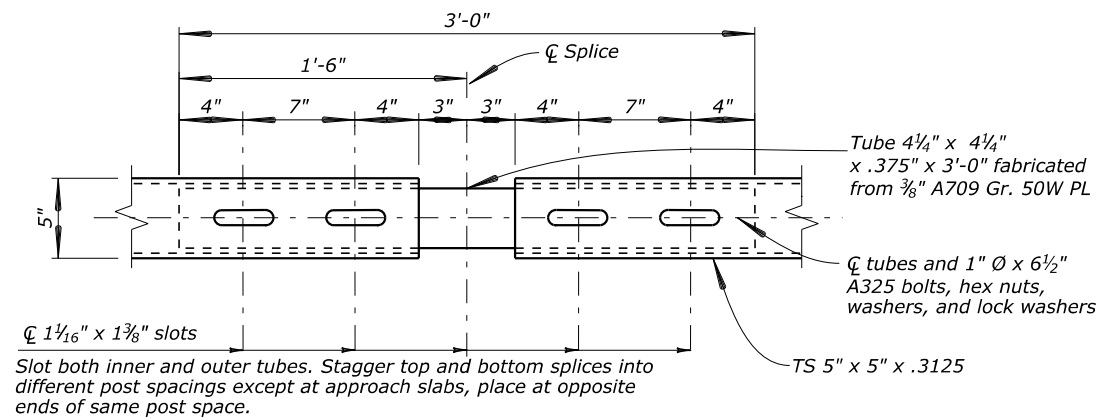
**PLAN - POST DETAIL**  
No Scale



**ELEVATION**  
No Scale



**DETAIL "E"**



**PLAN - TUBE SPLICE**  
No Scale

**NOTES:**

This rail originated from the Colorado Department of Transportation Bridge Rail Type 10M which meets NCHRP Report 350 guidelines for TL-4.

All tubes shall be ASTM A847 with enhanced atmospheric corrosion resistance. All posts and base plates shall be ASTM A709 Grade 50W. All other steel shall be ASTM A-36 unless otherwise noted.

Post anchor, encased in concrete, shall be ASTM A-36 (AASHTO M-183) steel and need not be galvanized.

The tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 1,500 feet.

Tubes shall be continuous over not less than two posts. No welded butt splices will be allowed in the tube sections.

The centerline of the tube splice shall be 1'-8" minimum and 2'-6" maximum from the centerline of the posts.

All bolts that have lock washers shall be tightened to snug only.

Posts shall be perpendicular to the longitudinal roadway grade.

Payment will be made under item 55601, Bridge Railing, Steel for all posts, post anchors, base plates, backing plates, anchor bolts, miscellaneous bolts, nuts, washers, tubes, tube expansion devices, tube splices, end plates, curb concrete, curb reinforcing steel, and reflector tabs.

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FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

THOMPSON DRAW BRIDGE  
CONTROL ROAD

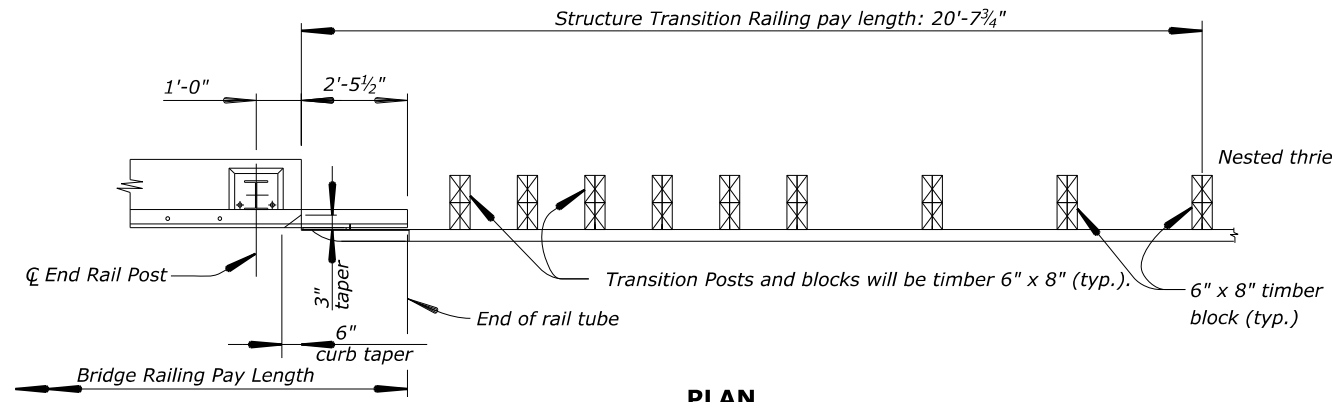
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**BRIDGE RAILING DETAILS**

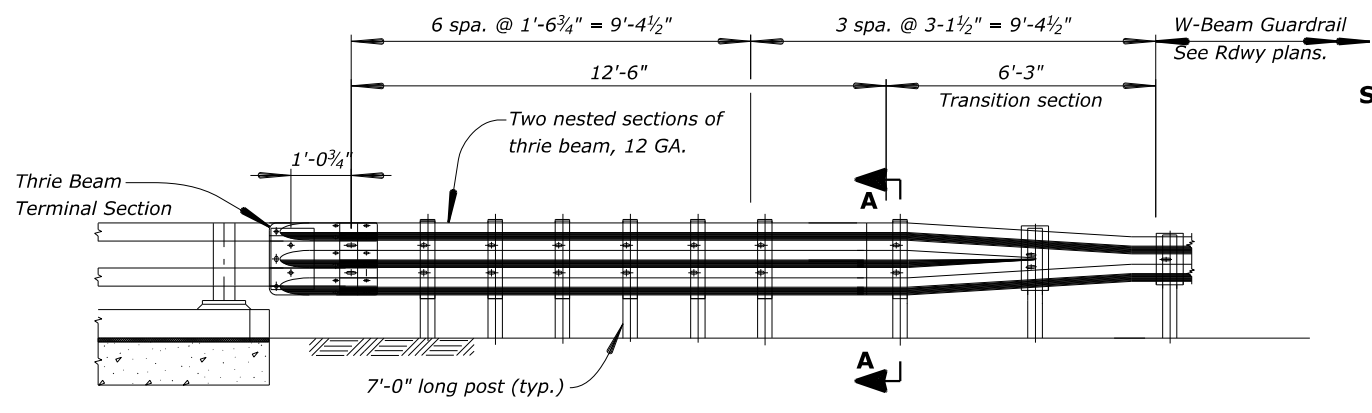
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	B. KLAMERUS	NONE	BONNIE KLAMERUS	17 of 25	JULY 2013	RG2951-Q

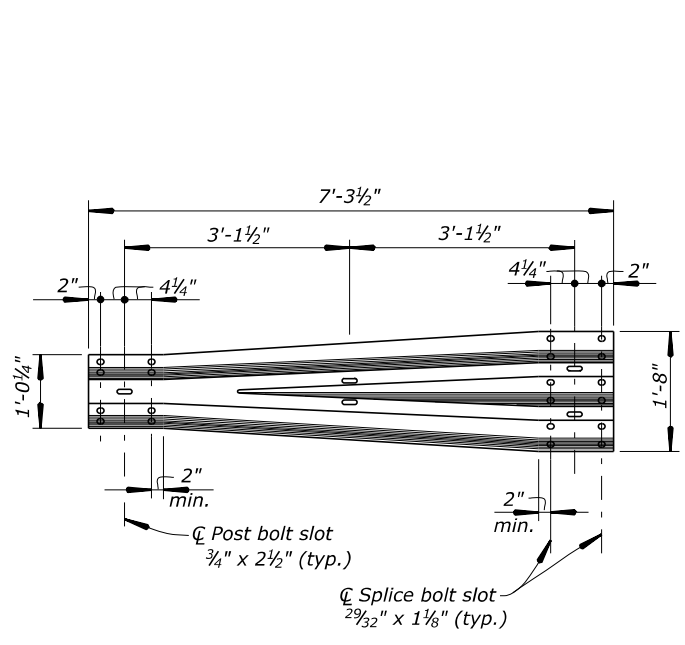
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S18	S79



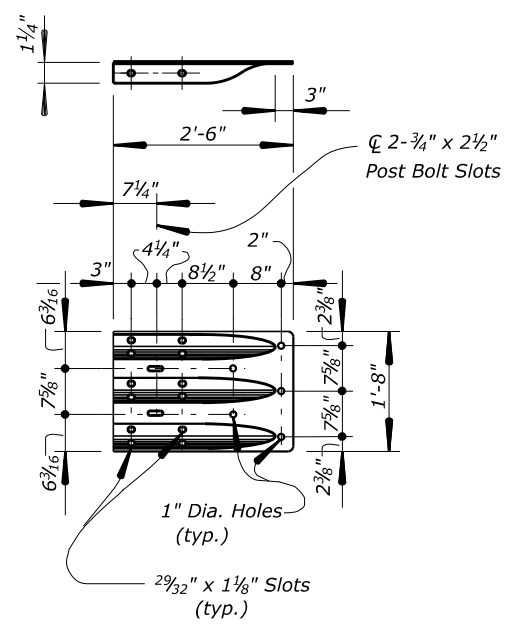
**PLAN**



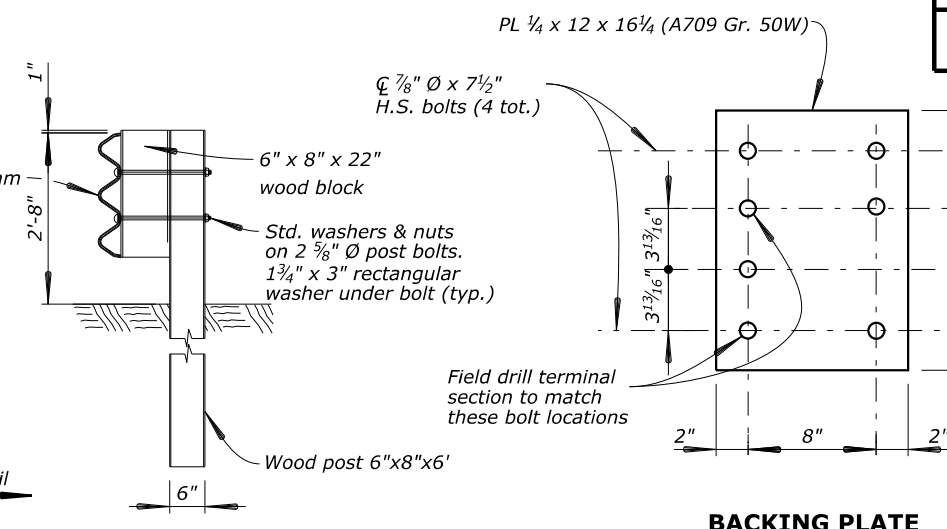
**ELEVATION**



**THRIE BEAM TRANSITION**



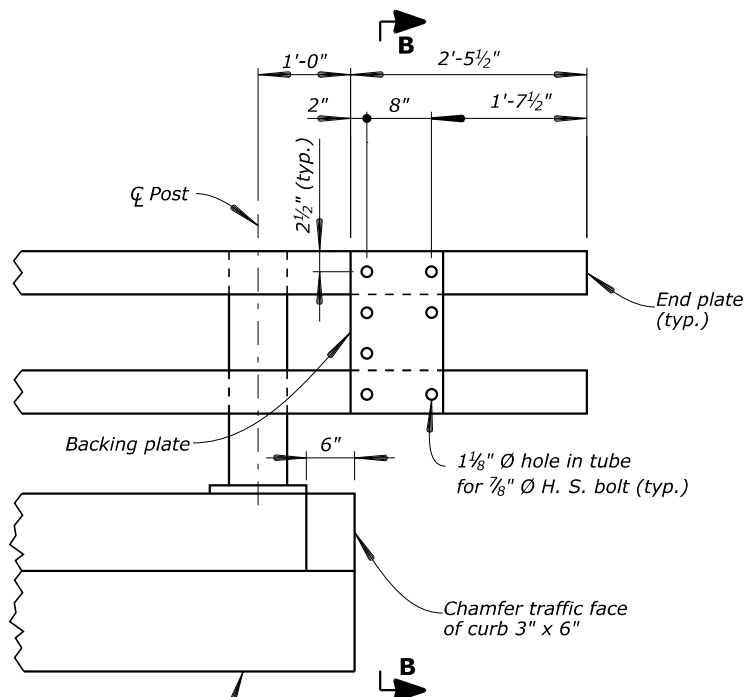
**THRIE BEAM TERMINAL SECTION DETAIL**



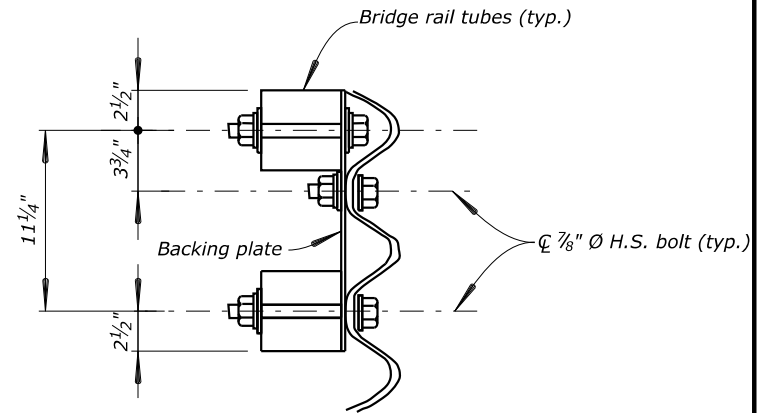
**SECTION A-A**

**BACKING PLATE**  
(3 req'd)

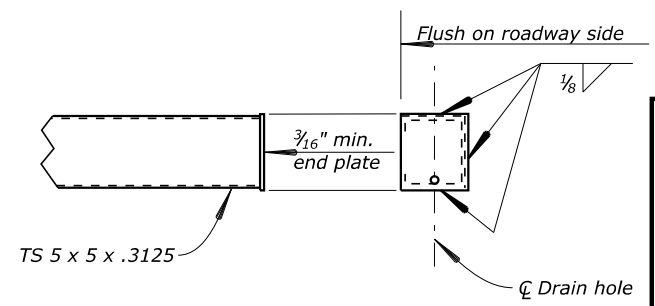
Holes are 1 1/8" Ø for 7/8" Ø H. S. bolts with hex nuts, 2 PL washers, and 1 lock washer



**RAIL TUBE DETAILS**



**SECTION B-B**



**END PLATE DETAIL**

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

THOMPSON DRAW BRIDGE  
CONTROL ROAD

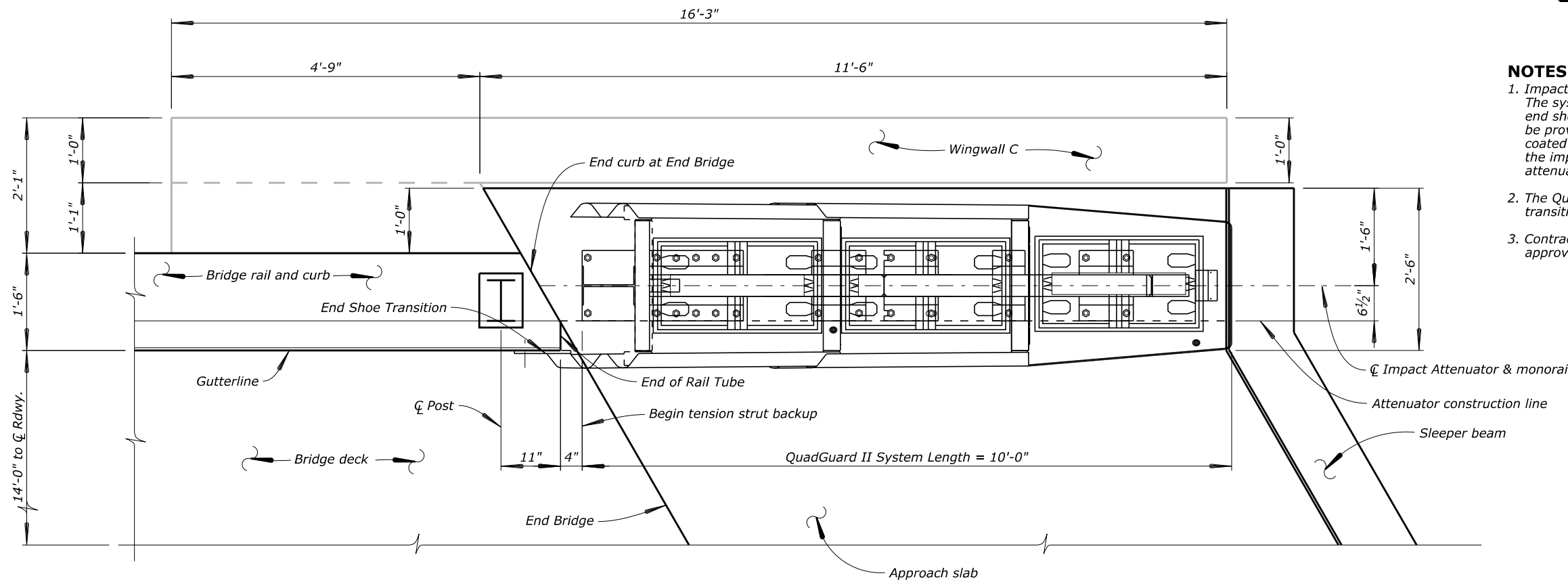
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**STRUCTURE TRANSITION RAILING**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. CHRISTENSEN	B. ROBINSON	B. KLAMERUS	NONE	BONNIE KLAMERUS	18 of 25	JULY 2013	RG2951-R

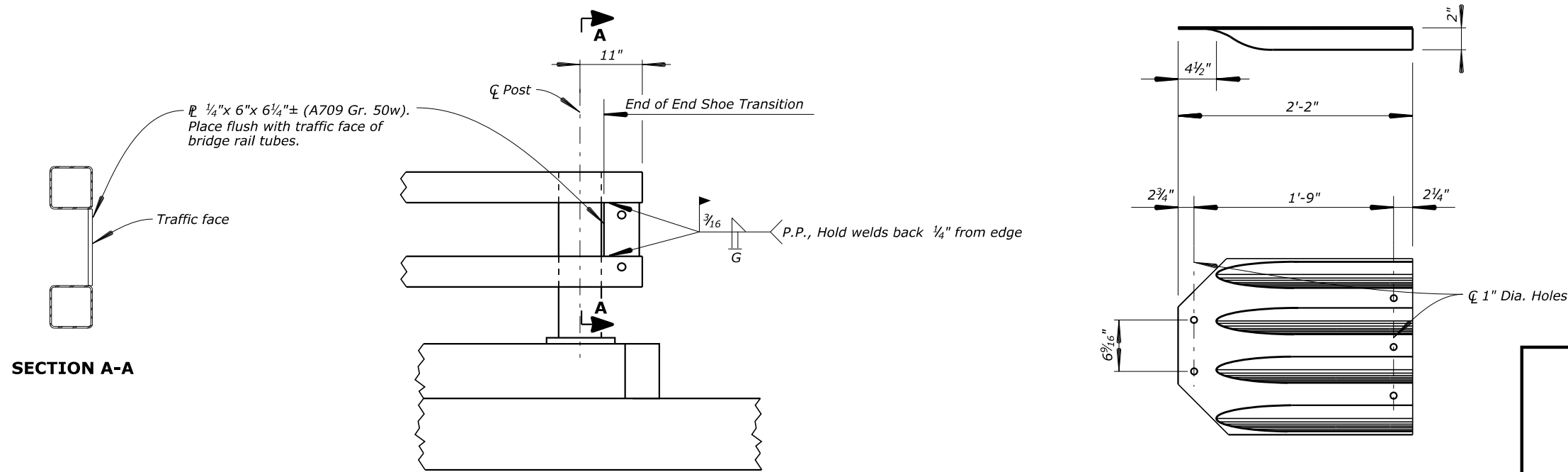
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S19	S79



**NOTES:**

1. Impact attenuator must be certified to be NCHRP 350 TL-2 compliant. The system length cannot exceed 10'-0" due to site constraints. An end shoe transition from the impact attenuator to the bridge rail must be provided. The fender panels and end shoe transition must be powder coated to match the color of weathering steel. All other components of the impact attenuator must be galvanized. The color of the impact attenuator nose must be yellow.
2. The QuadGuard II System with tension strut back up and end shoe transition, Model No. QG27024, is approved for use.
3. Contractor may propose an alternate impact attenuator system for approval that meets all requirements specified in Note 1.

**PLAN - IMPACT ATTENUATOR**



Note: Use End Shoe as template for field weld and drilling holes.

**RAIL TUBE DETAIL @ IMPACT ATTENUATOR**

**END SHOE DETAIL**

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

THOMPSON DRAW BRIDGE  
CONTROL ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**IMPACT ATTENUATOR DETAILS**

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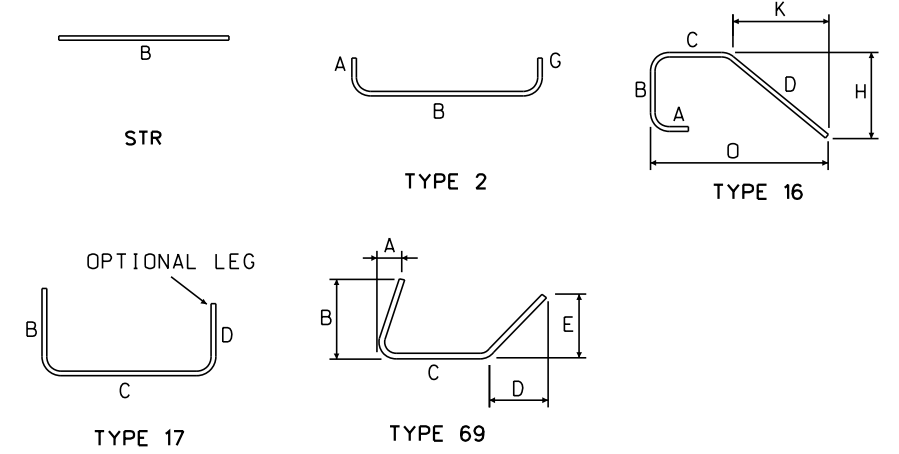
8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								L. DEPAULA	R. WEHNER	B. KLAMERUS	1" = 1'-0"	BONNIE KLAMERUS	19 of 25	JULY 2013	RG2951-S

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REINFORCING STEEL SCHEDULE					DIMENSION TABLE															
ABUTMENT 1																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5A1	5	STR		Vert.of.	74	4'-8"	360		4'-8"											
*5A2	5	2	3/4"	Stirrups	35	4'-1"	149	10"	2'-5"					10"						
*6A3	6	STR		Horiz.top	5	35'-4 1/2"	266		35'-4 1/2"											
*5A4	5	STR		Horiz.bf.	12	35'-4 1/2"	443		35'-4 1/2"											
*5A5	5	69	3/4"	Stirrups @ ends	12	4'-7 1/2"	58	5 3/4"	1'-0"	2'-7 1/2"	6"	10 3/4"								
*6A6	6	STR		Vert.@ ends	4	4'-1 1/2"	25		4'-1 1/2"											
*5A7	5	17	3/4"	Shear block	8	5'-10 1/2"	49		1'-6"	2'-10 1/4"	1'-6"									
*5A8	5	17	3/4"	Shear block	8	6'-10"	57		1'-6"	3'-9 3/4"	1'-6"									
*5F1	5	17	3/4"	Vert.of.	74	9'-6 1/2"	736		5'-0"	4'-6 1/2"										
*5F2	5	STR		Long.top & bot.	13	38'-0"	515		38'-0"											
*5F3	5	STR		Trans.top & bot.	43	6'-8"	299		6'-8"											
*6F4	6	2	4 1/2"	Vert.@ ends	4	6'-6 1/2"	39	1'-0"	5'-6 1/2"											
SUBTOTAL							2996	LBS												
ABUTMENT 2																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5A1	5	STR		Vert.of.	37	10'-2 1/2"	394		10'-2 1/2"											
*5A2	5	2	3/4"	Stirrups	36	4'-1"	153	10"	2'-5"					10"						
*6A3	6	STR		Vert.f.f.	74	10'-7 1/2"	1181		10'-7 1/2"											
*6A4	6	STR		Vert.@ ends	6	8'-1 1/2"	72		8'-1 1/2"											
*6A5	6	STR		Horiz.top	5	36'-6 1/2"	274		36'-6 1/2"											
*5A6	5	STR		Horiz.bf.	28	36'-6 1/2"	1067		36'-6 1/2"											
*5A7	5	69	3/4"	Stirrups @ ends	28	4'-7 1/2"	135	5 3/4"	1'-0"	2'-7 1/2"	6"	10 3/4"								
*5A8	5	17	3/4"	Shear block	8	5'-10 1/2"	49		1'-6"	2'-10 1/4"	1'-6"									
*5A9	5	17	3/4"	Shear block	8	6'-10"	57		1'-6"	3'-9 3/4"	1'-6"									
*5F1	5	17	3/4"	Vert.of.	37	18'-5"	711		10'-5"	8'-0"										
*6F2	6	17	4 1/2"	Vert.f.f.	74	13'-8"	1519		8'-0"	5'-8"										
*6F3	6	2	4 1/2"	Vert.@ ends	6	11'-2"	101	1'-0"	10'-2"											
*5F4	5	STR		Long.top & bot.	27	39'-6"	1112		39'-6"											
*5F5	5	STR		Trans.bot.	4	13'-8"	57		13'-8"											
*7F6	7	STR		Trans.top	75	13'-8"	2095		13'-8"											
SUBTOTAL							8978	LBS												
ENDWALL 1																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5EE1	5	17	3/4"	Stirrups	74	7'-8 1/2"	595		3'-4"	1'-1 1/2"	3'-4"									
*5EE2	5	17	3/4"	Stirrups @ end gdr.	20	5'-1 1/2"	107		3'-4"	1'-1 1/2"	9"									
*6EE3	6	16	4 1/2"	Corbel ties @ gdr.	20	6'-1 1/2"	184	1'-0"	1'-6 1/4"	9 1/2"	2'-10 1/2"				2'-2 1/4"		1'-10 1/2"	2'-8"		
*6EE4	6	16	4 1/2"	Corbel ties	37	6'-9 1/2"	377	1'-0"	2'-2 1/4"	9 1/2"	2'-10 1/2"				2'-2 1/4"		1'-10 1/2"	2'-8"		
*5EE5	5	STR		Horiz.	12	37'-9 1/2"	473		37'-9 1/2"											
*7EE6	7	STR		Horiz.	1	37'-9 1/2"	77		37'-9 1/2"											
*5EE7	5	17	3/4"	Horiz.top	37	11'-0"	425		10'-0"	1'-0"										
*6EE8	6	STR		Dowel	36	1'-9"	95		1'-9"											
*5EE9	5	STR		Horiz.of.	9	3'-11"	37		3'-11"											
*5EE10	5	STR		Horiz.of.@ ends	6	3'-4"	21		3'-4"											
*6EE11 *	6	STR		Dowels	16	2'-0"	48		2'-0"											
*5EE12	5	17	3/4"	Stirrups @ end gdr.	20	13'-4"	278		10'-0"	3'-4"										
SUBTOTAL							2716	LBS												
ENDWALL 2																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5EE1	5	17	3/4"	Stirrups	78	7'-8 1/2"	627		3'-4"	1'-1 1/2"	3'-4"									
*5EE2	5	17	3/4"	Stirrups @ end gdr.	20	5'-1 1/2"	107		3'-4"	1'-1 1/2"	9"									
*6EE3	6	16	4 1/2"	Corbel ties @ gdr.	20	6'-1 1/2"	184	1'-0"	1'-6 1/4"	9 1/2"	2'-10 1/2"				2'-2 1/4"		1'-10 1/2"	2'-8"		
*6EE4	6	16	4 1/2"	Corbel ties	39	6'-9 1/2"	398	1'-0"	2'-2 1/4"	9 1/2"	2'-10 1/2"				2'-2 1/4"		1'-10 1/2"	2'-8"		
*5EE5	5	STR		Horiz.bf.	12	39'-1 1/2"	489		39'-1 1/2"											
*7EE6	7	STR		Horiz.f.f.	1	39'-1 1/2"	80		39'-1 1/2"											
*5EE7	5	17	3/4"	Horiz.top	39	11'-0"	447		10'-0"	1'-0"										
*6EE8	6	STR		Dowel	37	1'-9"	97		1'-9"											
*5EE9	5	STR		Horiz.of.	9	3'-11"	37		3'-11"											
*5EE10	5	STR		Horiz.of.@ ends	3	3'-4"	10		3'-4"											
*5EE11	5	STR		Horiz.of.@ ends	3	4'-6"	14		4'-6"											
*6EE12 *	6	STR		Dowels	16	2'-0"	48		2'-0"											

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S20	S79



**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
- All "E" bars are epoxy coated.

\* Indicates threaded bars spliced into headed dowel splicer.

Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

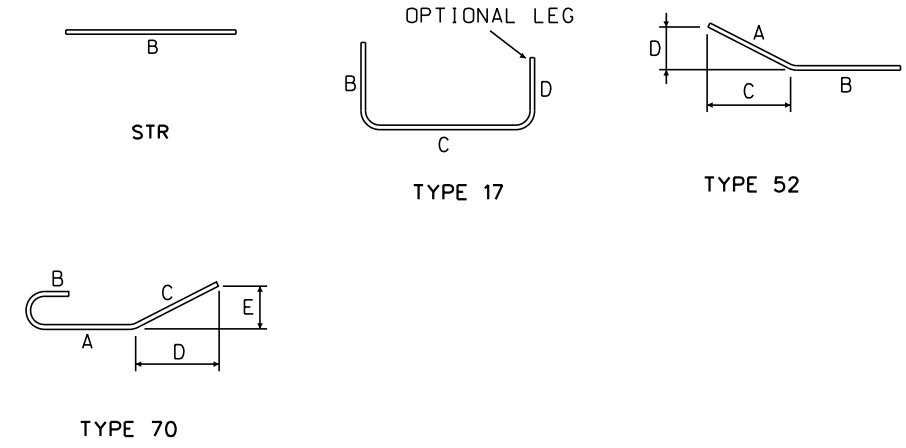
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
**THOMPSON DRAW BRIDGE  
 CONTROL ROAD**  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**REBAR LIST (1 of 6)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	D. CHRISTENSEN	NONE	BONNIE KLAMERUS	20 of 25	JULY 2013	RG2951-T

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 8/8/2013

REINFORCING STEEL SCHEDULE					DIMENSION TABLE															
ENDWALL 2 (CONTINUED)					QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	20	13'-4"	278		10'-0"	3'-4"										
*5EE13	5	17	3 3/4"	Stirrups @ end gdr	SUBTOTAL 2816 LBS															
WINGWALL A					QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5WE1	5	STR		Vert.b.f.	2	2'-0"	4		2'-0"											
*5WE2	5	STR		Vert.b.f.	sets to of 7'-1" 6 at 10 3/4" Incr.	2	2'-7"	60		2'-7"										
*5WE3	5	STR			10	7'-6"	78		7'-6"											
*6WE4	6	STR		Horiz.f.f.	sets to of 13'-1" 12 at 10" Incr.	1	3'-10 1/2"	153		3'-10 1/2"										
*6WE5	6	STR		Horiz.f.f.	4	13'-7"	82		13'-7"											
*5WE6	5	STR		Horiz.o.f.	sets to of 11'-5" 4 at 2'-6 1/4" Incr.	1	3'-10 1/2"	32		3'-10 1/2"										
*5WE7	5	STR		Horiz.o.f.	1	13'-7"	14		13'-7"											
*5WE8	5	52	3 3/4"	Diagonal b.f.	2	13'-0"	27	11'-3"	1'-8 3/4"	5'-9"	9'-8 1/4"									
*6WE9	6	70	4 1/2"	Fillet	7	6'-11"	73	4'-11 1/4"	5 3/4"	1'-0"	10 1/4"	6 3/4"								
SUBTOTAL					523 LBS															
WINGWALL B					QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5WE1	5	STR		Vert.b.f.	sets to of 7'-8" 8 at 9 1/2" Incr.	2	2'-1 1/2"	82		2'-1 1/2"										
*5WE2	5	STR		Vert.b.f.	10	8'-1 1/2"	84		8'-1 1/2"											
*6WE3	6	STR		Horiz.f.f.	sets to of 15'-1 1/2" 13 at 11 1/4" Incr.	1	3'-10 1/2"	185		3'-10 1/2"										
*6WE4	6	STR		Horiz.f.f.	4	15'-11"	96		15'-11"											
*5WE5	5	STR		Horiz.o.f.	sets to of 15'-1 1/2" 5 at 2'-9 1/2" Incr.	1	3'-11"	49		3'-11"										
*5WE6	5	STR		Horiz.o.f.	1	15'-11"	17		15'-11"											
*5WE7	5	52	3 3/4"	Diagonal b.f.	2	15'-6"	32	13'-9 1/4"	1'-8 3/4"	6'-6 1/2"	12'-1 3/4"									
*6WE8	6	70	4 1/2"	Fillet	6	5'-2 1/2"	47	3'-2 3/4"	5 3/4"	1'-0"	6"	10 3/4"								
SUBTOTAL					591 LBS															
WINGWALL C					QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5WE1	5	STR		Vert.b.f.	sets to of 6'-10" 8 at 8 1/4" Incr.	2	2'-1"	74		2'-1"										
*5WE2	5	STR		Vert.b.f.	10	7'-1 1/2"	74		7'-1 1/2"											

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S21	S79



**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
- All "E" bars are epoxy coated.

Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

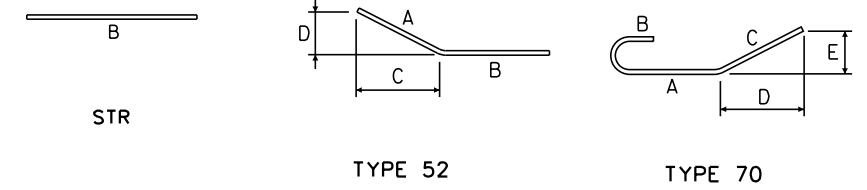
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
 THOMPSON DRAW BRIDGE  
 CONTROL ROAD  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**REBAR LIST (2 of 6)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	D. CHRISTENSEN	NONE	BONNIE KLAMERUS	21 of 25	JULY 2013	RG2951-U

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REINFORCING STEEL SCHEDULE					DIMENSION TABLE																	
WINGWALL C (CONTINUED)																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*6WE3	6	STR		Horiz.f.f.	1 sets of 11	3'-11" to 14'-9" at 1'-1" Incr.	154		3'-11" to 14'-9" at 1'-1" Incr.													
*6WE4	6	STR		Horiz.f.f.	4	15'-11"	96		15'-11"													
*5WE5	5	STR		Horiz.of.	1 sets of 4	3'-11" to 13'-8" at 3'-3" Incr.	37		3'-11" to 13'-8" at 3'-3" Incr.													
*5WE6	5	STR		Horiz.of.	1	15'-11"	17		15'-11"													
*5WE7	5	52	3 3/4"	Diagonal bf.	2	15'-11/2"	32	13'-4 1/4"	1'-9"	5'-7"	12'-1 3/4"											
*6WE8	6	70	4 1/2"	Fillet	6	5'-2 1/2"	47	3'-2 3/4"	5 3/4"	1'-0"	6"	10 3/4"										
SUBTOTAL							530	LBS														
WINGWALL D																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*5WE1	5	STR		Vert.bf.	2	2'-0"	4		2'-0"													
*5WE2	5	STR		Vert.bf.	2 sets of 6	2'-7" to 6'-9" at 10" Incr.	58		2'-7" to 6'-9" at 10" Incr.													
*5WE3	5	STR			10	7'-2"	75		7'-2"													
*6WE4	6	STR		Horiz.f.f.	1 sets of 11	3'-10 1/2" to 13'-1/2" at 11" Incr.	140		3'-10 1/2" to 13'-1/2" at 11" Incr.													
*6WE5	6	STR		Horiz.f.f.	4	13'-7"	82		13'-7"													
*5WE6	5	STR		Horiz.of.	1 sets of 4	3'-10 1/2" to 12'-11 1/2" at 2'-9" Incr.	33		3'-10 1/2" to 12'-11 1/2" at 2'-9" Incr.													
*5WE7	5	STR		Horiz.of.	1	13'-7"	14		13'-7"													
*5WE8	5	52	3 3/4"	Diagonal bf.	2	12'-8 1/2"	27	10'-11 3/4"	1'-8 3/4"	5'-3 1/4"	9'-8"											
*6WE9	6	70	4 1/2"	Fillet	7	6'-11"	73	4'-11 1/4"	5 3/4"	1'-0"	10 1/4"	6 3/4"										
SUBTOTAL							505	LBS														
SLAB																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*5SE1	5	STR		Trans.bot.	1 sets of 8	2'-2" to 8'-2 1/2" at 0'-10 1/4" Incr.	43		2'-2" to 8'-2 1/2" at 0'-10 1/4" Incr.													
*6SE2	6	STR		Trans.top	1 sets of 8	2'-2" to 8'-2 1/2" at 0'-10 1/4" Incr.	62		2'-2" to 8'-2 1/2" at 0'-10 1/4" Incr.													
*5SE3	5	STR		Trans.bot.	1 sets of 27	7'-11 1/2" to 30'-5 1/2" at 0'-10 1/2" Incr.	541		7'-11 1/2" to 30'-5 1/2" at 0'-10 1/2" Incr.													

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S22	S79



- NOTES**
- Dimensions in bending diagrams are out-to-out of bars
  - All "E" bars are epoxy coated.

Abbreviations:  
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 b.f. = both faces

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

**THOMPSON DRAW BRIDGE  
 CONTROL ROAD**

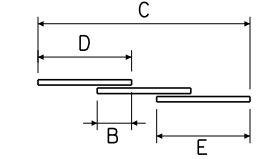
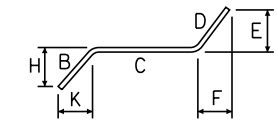
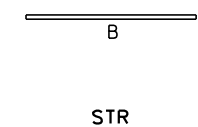
TONTON NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**REBAR LIST (3 of 6)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	D. CHRISTENSEN	NONE	BONNIE KLAMERUS	22 of 25	JULY 2013	RG2951-V

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REINFORCING STEEL SCHEDULE					DIMENSION TABLE																	
SLAB (CONTINUED)					A	B	C	D	E	F	G	H	J	K	O	R	V or N					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*6SE4	6	STR		Trans.top	1 sets of 27	7'-11" to 30'-5 1/2" at 0'-10 1/2" Incr.	778		7'-11" to 30'-5 1/2" at 0'-10 1/2" Incr.													
*5SE5	5	STR		Trans.bot.	9	31'-9"	298		31'-9"													
*6SE6	6	STR		Trans.top	9	31'-9"	429		31'-9"													
*5SE7	5	STR		Trans.bot.	74	30'-8"	2367		30'-8"													
*6SE8	6	STR		Trans.top	74	30'-8"	3409		30'-8"													
*5SE9	5	STR		Trans.bot.	9	32'-9"	307		32'-9"													
*6SE10	6	STR		Trans.top	9	32'-9"	443		32'-9"													
*5SE11	5	STR		Trans.bot.	1 sets of 28	31'-6" to 8'-1 1/2" at 0'-10 1/2" Incr.	579		31'-6" to 8'-1 1/2" at 0'-10 1/2" Incr.													
*6SE12	6	STR		Trans.top	1 sets of 28	31'-6" to 8'-1 1/2" at 0'-10 1/2" Incr.	833		31'-6" to 8'-1 1/2" at 0'-10 1/2" Incr.													
*5SE13	5	STR		Trans.bot.	1 sets of 8	8'-4" to 2'-3" at 0'-10 1/2" Incr.	44		8'-4" to 2'-3" at 0'-10 1/2" Incr.													
*6SE14	6	STR		Trans.top	1 sets of 8	8'-4" to 2'-3" at 0'-10 1/2" Incr.	64		8'-4" to 2'-3" at 0'-10 1/2" Incr.													
*5SE15	5	75		Long.top & bot.	52	67'-2"	3643		2'-7"	64'-7"	60'-0"	7'-2"									1	
SUBTOTAL							13840 LBS															
ABUTMENT 1 APPROACH SLAB																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*5ASE1a	5	STR		Long.top & bot.	6	35'-5 1/2"	222		35'-5 1/2"													
*5ASE1b	5	STR		Long.top & bot.	6	35'-7"	223		35'-7"													
*5ASE1c	5	STR		Long.top & bot.	6	35'-8 1/2"	223		35'-8 1/2"													
*5ASE2	5	66	3 3/4"	Long.top & bot.	2	35'-6 1/2"	74		1'-4 3/4"	32'-9 3/4"	1'-3 3/4"	9"	1'-1"		9"		1'-2 1/2"					
*5ASE3	5	STR		Trans.top	28	9'-6 1/2"	279		9'-6 1/2"													
*7ASE4	7	STR		Trans.bot.	56	9'-6 1/2"	1092		9'-6 1/2"													
*5ASE5	5	STR		Trans.top	1 sets of 2	9'-7" to 10'-2" at 7" Incr.	21		9'-7" to 10'-2" at 7" Incr.													
*7ASE6	7	STR		Trans.bot.	1 sets of 3	9'-8 1/2" to 10'-3 1/2" at 3 1/2" Incr.	61		9'-8 1/2" to 10'-3 1/2" at 3 1/2" Incr.													
*5ASE7	5	STR		Trans.top	1 sets of 2	9'-2 1/2" to 9'-7" at 4 1/2" Incr.	20		9'-2 1/2" to 9'-7" at 4 1/2" Incr.													



TYPE 66

N = Number of Laps  
TYPE 75

**NOTES**

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b.f. = both faces

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

**THOMPSON DRAW BRIDGE  
CONTROL ROAD**

TONTON NATIONAL FOREST  
GILA COUNTY, ARIZONA

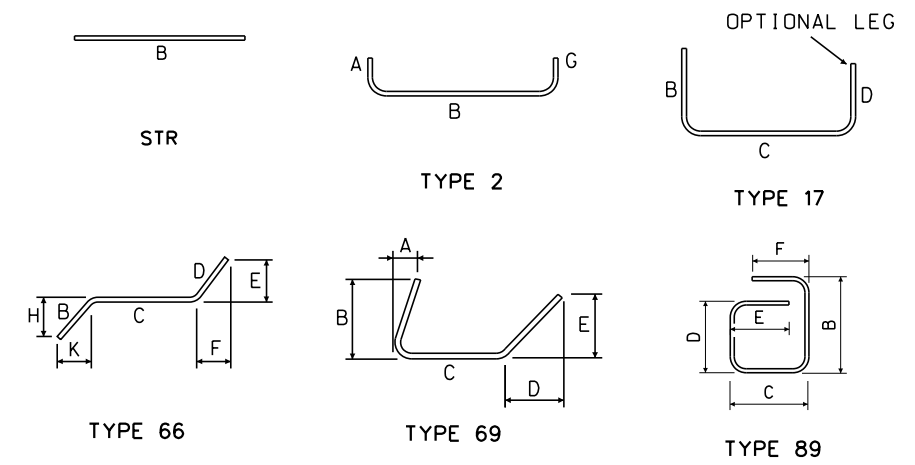
**REBAR LIST (4 of 6)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	D. CHRISTENSEN	NONE	BONNIE KLAMERUS	23 of 25	JULY 2013	RG2951-W

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REINFORCING STEEL SCHEDULE					DIMENSION TABLE																
ABUTMENT 1 APPROACH SLAB (CONTINUED)					QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*7ASE8	7	STR		Trans.bot.	1 sets of 3	8'-11 1/2" to 9'-5 1/2" at 3" Incr.	56		8'-11 1/2" to 9'-5 1/2" at 3" Incr.												
*5ASE9	5	17	3 3/4"	Sleeper beam	33	4'-5"	152		1'-10 1/2"	8"	1'-10 1/2"										
*5ASE10	5	STR		Sleeper beam	66	2'-8"	184		2'-8"												
*5ASE11	5	17	3 3/4"	Sleeper beam	4	4'-7"	19		1'-10 1/2"	10"	1'-10 1/2"										
*5ASE12	5	STR		Sleeper beam	8	3'-2"	26		3'-2"												
*6ASE13	6	66	4 1/2"	Sleeper beam	8	35'-6 1/2"	427		1'-5"	32'-9 3/4"	1'-3 1/2"	8 1/2"	1'-1 1/4"		10"						
SUBTOTAL							3079 LBS														
ABUTMENT 2 APPROACH SLAB					QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5ASE1	5	STR		Long.top & bot.	18	36'-6 1/2"	686		36'-6 1/2"												
*5ASE2	5	66	3 3/4"	Long.top & bot.	2	36'-1/2"	75		2'-4 3/4"	32'-4 1/4"	1'-3 1/2"	8 1/4"	1'-1 1/4"		1'-3"						
*5ASE3	5	STR		Trans.top	28	9'-7"	280		9'-7"												
*7ASE4	7	STR		Trans.bot.	56	9'-7"	1097		9'-7"												
*5ASE5	5	STR		Trans.top	1 sets of 2	8'-11" to 9'-7" at 8" Incr.	19		8'-11" to 9'-7" at 8" Incr.												
*7ASE6	7	STR		Trans.bot.	1 sets of 3	8'-11" to 9'-5 1/2" at 3 1/4" Incr.	56		8'-11" to 9'-5 1/2" at 3 1/4" Incr.												
*5ASE7	5	STR		Trans.top	1 sets of 3	9'-10 1/2" to 10'-11 1/2" at 6 1/2" Incr.	33		9'-10 1/2" to 10'-11 1/2" at 6 1/2" Incr.												
*7ASE8	7	STR		Trans.bot.	1 sets of 5	9'-10" to 10'-11 1/2" at 3 1/2" Incr.	106		9'-10" to 10'-11 1/2" at 3 1/2" Incr.												
*5ASE9	5	17	3 3/4"	Sleeper Beam	32	4'-5"	147		1'-10 1/2"	8"	1'-10 1/2"										
*5ASE10	5	STR		Sleeper Beam	64	2'-8"	178		2'-8"												
*5ASE11	5	17	3 3/4"	Sleeper Beam	5	4'-7"	24		1'-10 1/2"	10"	1'-10 1/2"										
*5ASE12	5	STR		Sleeper Beam	10	3'-2"	33		3'-2"												
*6ASE13	6	66	4 1/2"	Sleeper Beam	8	36'-1/2"	433		2'-3 1/2"	32'-4 1/4"	1'-4 3/4"	9"	1'-2 1/2"		1'-2 1/2"						
SUBTOTAL							3168 LBS														
GIRDER (Quantities are for one girder only) (Cost of girder reinforcing is included in the box beam girder pay item and is not included in the reinforcing estimate)																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4GE1	4	69	3 1/8"	Stirrups @ ends	6	8'-2 1/2"	33	1'-6 1/4"	2'-9 1/4"	4'-1 1/4"	6"	10 3/4"									
*5GE2	5	2	3 3/4"	Stirrups @ ends	4	3'-5"	14	10"	1'-9"					10"							
*5GE3	5	89	3 3/4"	Stirrups @ ends	4	9'-6"	40		1'-9 1/2"	4'-3"	1'-9 1/2"	10"	10"								
*5GE4	5	2	3 3/4"	Stirrups @ ends	6	5'-11 1/2"	37	10"	4'-3 1/2"					10"							
*5GE5	5	17	3 3/4"	Stirrups @ ends	2	11'-4 1/2"	24		3'-6 1/2"	4'-3 1/2"	3'-6 1/2"										
*5GE6	5	2	3 3/4"	Stirrups @ ends	2 sets of 4	5'-4" to 5'-11" at 2 1/4" Incr.	45	10"	3'-8" to 4'-2 3/4" at 2 1/4" Incr.					10"							

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S24	S79



**NOTES**

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U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
**THOMPSON DRAW BRIDGE  
 CONTROL ROAD**  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**REBAR LIST (5 of 6)**

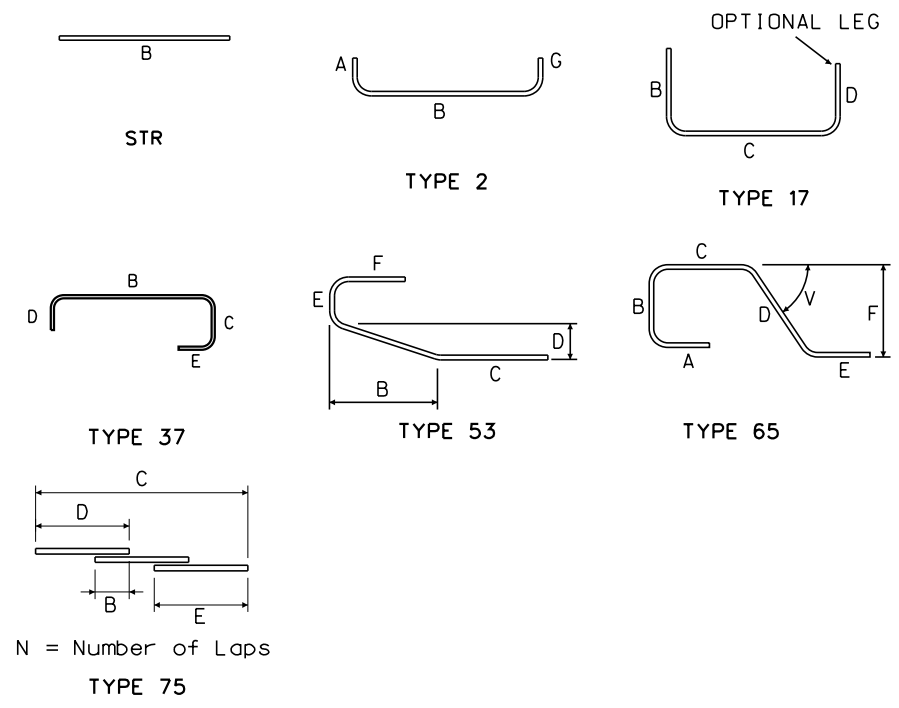
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								B. ROBINSON	B. ROBINSON	D. CHRISTENSEN	NONE	BONNIE KLAMERUS	24 of 25	JULY 2013	RG2951-X



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REINFORCING STEEL SCHEDULE					DIMENSION TABLE																
GIRDER (CONTINUED)																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5GE7	5	17	3 3/4"	Stirrups @ ends	2 sets of 4	10'-9" to 11'-4" at 2/4" Incr.	90		3'-6 1/2"	3'-8" to 4'-2 3/4" at 2/4" Incr.	3'-6 1/2"										
*5GE8a	5	2	3 3/4"	Stirrups @ ends	2	5'-4 1/2"	11	10"	3'-8 1/2"					10"							
*5GE8b	5	2	3 3/4"	Stirrups @ ends	2	5'-6"	11	10"	3'-9 3/4"					10"							
*5GE8c	5	2	3 3/4"	Stirrups @ ends	2	5'-8 1/2"	12	10"	4'-1/4"					10"							
*5GE9a	5	37	3 3/4"	Stirrups @ ends	2	11'-9 1/2"	25		3'-8 1/2"	3'-8 1/2"	3'-6 1/2"	10"									
*5GE9b	5	37	3 3/4"	Stirrups @ ends	2	12'-0"	25		3'-9 3/4"	3'-9 3/4"	3'-6 1/2"	10"									
*5GE9c	5	37	3 3/4"	Stirrups @ ends	2	12'-5"	26		4'-1/4"	4'-1/4"	3'-6 1/2"	10"									
*5GE10	5	2	3 3/4"	Stirrups	2	5'-4"	11	10"	3'-8"					10"							
*5GE11	5	17	3 3/4"	Stirrups	2	10'-9"	22		3'-6 1/2"	3'-8"	3'-6 1/2"										
*4GE12	4	2	3/8"	Stirrups	53	5'-0"	177	8"	3'-8"					8"							
*4GE13	4	17	3/8"	Stirrups	53	10'-9"	381		3'-6 1/2"	3'-8"	3'-6 1/2"										
*5GE14	5	75		Long.top	4	65'-8"	274		2'-7"	63'-1"	60'-0"	5'-8"								I	
SUBTOTAL							1262 LBS														
RAIL (Cost of curb reinforcing is included in the bridge railing steel pay item and is not included in the reinforcing estimate)																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4CE1	4	65	3/8"	Stirrups	125	4'-7 1/2"	386	6"	1'-3"	1'-1 1/2"	1'-3"	6"	1'-3"							87 33/64	
*4CE2	4	53	3/8"	Stirrups @ endwalls	7	5'-4"	25		9"	1'-3"	1/4"	1'-3 1/2"	2'-0"								
*4CE3	4	75		Long.top & bot.	10	67'-4"	450		2'-9"	64'-7"	60'-0"	7'-4"								I	
*4CE4	4	STR		Long.top & bot.	2	9'-8 1/2"	13		9'-8 1/2"												
*4CE5	4	STR		Long.top	1	9'-4"	6		9'-4"												
*4CE6	4	STR		Long.top & bot.	2	9'-0"	12		9'-0"												
*4CE7	4	STR		Long.top	1	10'-0"	7		10'-0"												
*4CE8	4	STR		Long.top & bot.	2	10'-4"	14		10'-4"												
*4CE9	4	STR		Long.top & bot.	2	9'-7 1/2"	13		9'-7 1/2"												
*4CE10	4	STR		Long.top & bot.	2	9'-6"	13		9'-6"												
*4CE11	4	STR		Long.top	1	9'-2 1/2"	6		9'-2 1/2"												
*4CE12	4	STR		Long.top & bot.	2	8'-10 1/2"	12		8'-10 1/2"												
*4CE13	4	65	3/8"	Stirrups @ approach	35	5'-1 1/2"	120	6"	1'-6"	1'-1 1/2"	1'-6"	6"	1'-6"							87 33/64	
*4CE14	4	65	3/8"	Stirrups @ approach	3	5'-3 1/2"	11	6"	1'-6"	1'-3 1/2"	1'-6"	6"	1'-6"							87 33/64	
*4CE15	4	53	3/8"	Stirrups @ endwalls	2	5'-1 1/2"	7		9"	1'-3"	1/4"	1'-3 1/4"	2'-0"								
SUBTOTAL							1093 LBS														

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S25	S79



**NOTES**

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- All "E" bars are epoxy coated.

Abbreviations:  
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U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

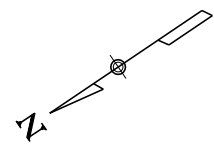
THOMPSON DRAW BRIDGE  
 CONTROL ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

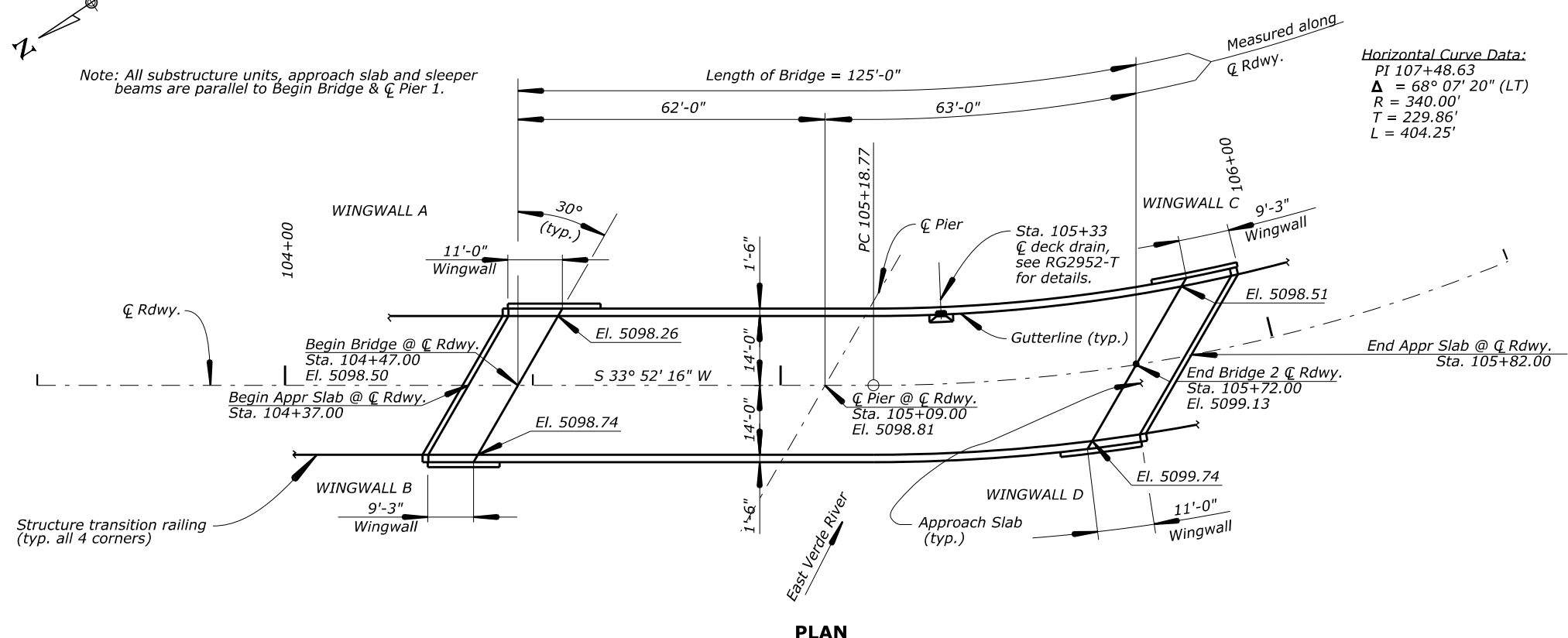
**REBAR LIST (6 of 6)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	D. CHRISTENSEN	NONE	BONNIE KLAMERUS	25 of 25	JULY 2013	RG2951-Y

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S26	S79

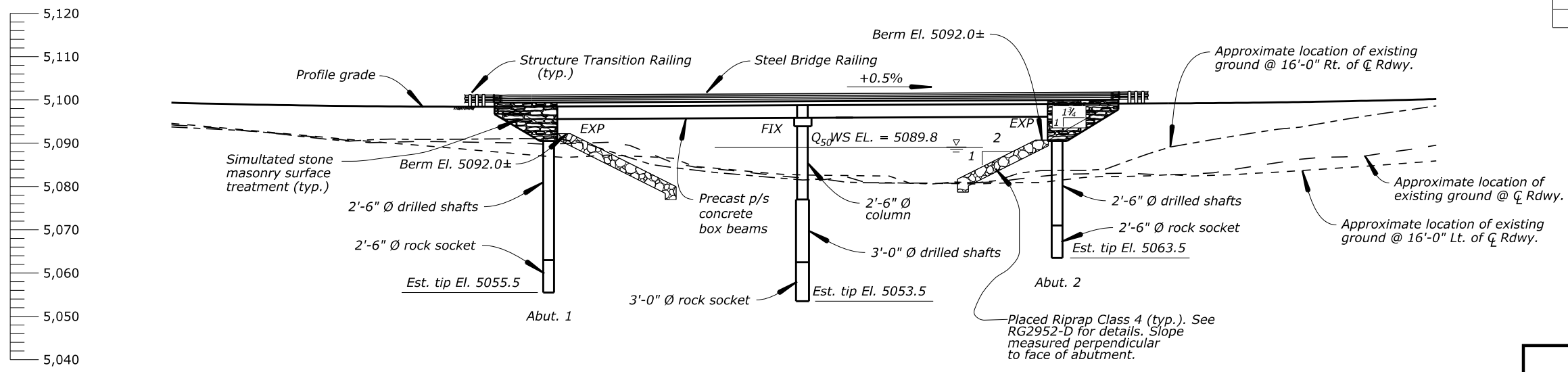


Note: All substructure units, approach slab and sleeper beams are parallel to Begin Bridge & C Rdwy.



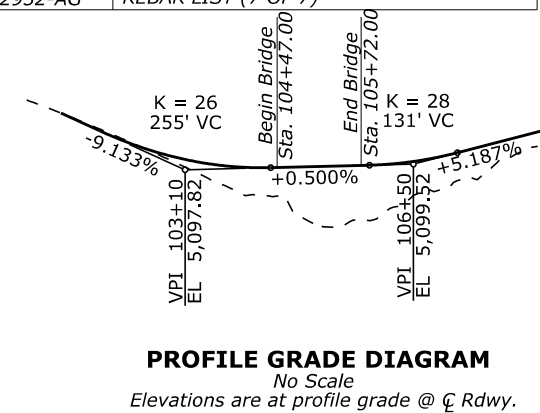
BRIDGE DRAWING INDEX	
Drawing No.	Description
RG2952-A	PLAN AND ELEVATION
RG2952-B	GENERAL NOTES
RG2952-C	FOUNDATION PLAN
RG2952-D	SLOPE PROTECTION
RG2952-E	FRAMING PLAN
RG2952-F	ABUTMENT 1 PLAN AND ELEVATION
RG2952-G	ABUTMENT 2 PLAN AND ELEVATION
RG2952-H	ABUTMENT 1 ENDWALL
RG2952-I	ABUTMENT 2 ENDWALL
RG2952-J	ENDWALL DETAILS
RG2952-K	ABUTMENT 1 WINGWALLS
RG2952-L	ABUTMENT 2 WINGWALLS
RG2952-M	PIER PLAN AND ELEVATION
RG2952-N	DRILLED SHAFT DETAILS
RG2952-O	PRECAST CONCRETE BOX BEAMS - SPAN 1
RG2952-P	PRECAST CONCRETE BOX BEAMS - SPAN 2
RG2952-Q	BEARING DETAILS
RG2952-R	TYPICAL SECTION - DECK PLAN ( 1 OF 2)
RG2952-S	TYPICAL SECTION - DECK PLAN ( 2 OF 2)
RG2952-T	DECK DRAIN DETAILS
RG2952-U	ABUTMENT 1 APPROACH SLAB
RG2952-V	ABUTMENT 2 APPROACH SLAB
RG2952-W	BRIDGE RAILING - UPSTREAM
RG2952-X	BRIDGE RAILING - DOWNSTREAM
RG2952-Y	BRIDGE RAILING DETAILS
RG2952-Z	STRUCTURE TRANSITION RAILING
RG2952-AA	REBAR LIST (1 OF 7)
RG2952-AB	REBAR LIST (2 OF 7)
RG2952-AC	REBAR LIST (3 OF 7)
RG2952-AD	REBAR LIST (4 OF 7)
RG2952-AE	REBAR LIST (5 OF 7)
RG2952-AF	REBAR LIST (6 OF 7)
RG2952-AG	REBAR LIST (7 OF 7)

**PLAN**



**ELEVATION**

Superelevation rates:  
 Sta. 103+46.30 Rate: -2.0% LT Rate: 2.0% RT  
 Sta. 104+89.44 Rate: -2.0% LT Rate: 2.0% RT  
 Sta. 105+33.44 Rate: -4.8% LT Rate: 4.8% RT



HYDRAULIC DATA			
	Q	V	WS
	ft <sup>3</sup> /sec	ft/sec.	Elev.
Q <sub>2</sub>	350	3.6	5082.9
Q <sub>50</sub>	6,900	7.8	5089.8
Q <sub>100</sub>	10,400	9.2	5092.2

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

EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**PLAN AND ELEVATION**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	1" = 30'-0"	BONNIE KLAMERUS	1 of 33	JULY 2013	RG2952- A

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REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S27	S79

**GENERAL NOTES:**

**SPECIFICATIONS:**

Design:  
AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010.

Construction:  
Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 U.S. customary units.

**DESIGN LOADS:**

Dead Loads:  
Cast in place concrete: 150 pcf, precast girders: 150 pcf, soil backfill: 120 pcf, unclassified borrow: 125 pcf.  
Future wearing surface allowance 30 psf.  
Lateral Earth Pressure: equivalent fluid unit weight of soil, 0.037 kcf (active) and 0.057 kcf (at-rest).

Live Load:  
HL-93. Maximum Dynamic Load Allowance (Impact), IM=33%.

Live Load Surcharge:  
Equivalent height of soil for abutment = 4 ft.  
Equivalent height of soil for wingwall = 2 ft.

SEISMIC DESIGN:  
In accordance with AASHTO LRFD Bridge Design Specifications, 5th edition 2010.  
Peak Ground Acceleration (PGA = 0.072g), modified by the Site Coefficient ( $F_{PGA} = 1.20$ ) to give a spectrum acceleration,  $A_s = 0.086 g$ .  
Short period acceleration at 0.2 seconds ( $S_s = 0.167g$ ) modified by the Site Coefficient ( $F_a = 1.20$ ) to give the short period spectrum acceleration,  $S_{0.2} = 0.2g$ . Long period acceleration at 1.0 seconds ( $S_l = 0.051g$ ) modified by the Site Coefficient ( $F_v = 1.70$ ) to give the long period spectrum acceleration,  $S_{D1} = 0.086g$ . Site Class = C. Seismic Zone = 1.

**DESIGN CRITERIA:**

Concrete Abutments:  
For sliding, the nominal coefficient of friction between concrete footing and rock = 0.80. Resistance factor  $\phi^T = 0.80$  (Strength limit state).  
The resultant of all loads is within the middle three-fourths of footing width. The factored bearing resistance  $q_R = 72$  kips per square foot.  
Resistance factor  $\phi_b = 0.45$  (Strength limit state).

**MATERIALS:**

Concrete:  
All cast-in-place concrete shall be structural concrete Class A(AE) with a minimum 28-day compressive strength  $f'_c = 4,000$  psi., except for deck concrete with a minimum 28 day compressive strength of 4,500 psi and curb concrete which is class C(AE) with a minimum 28 day compressive strength of 4,500 psi. Drilled shaft concrete shall be Class A with a minimum 28 day compressive strength of 4,000 psi. Type V high sulfate resistant cement shall be used for all concrete in contact with soil, otherwise Type II low alkali cement or Type V high sulfate resistant cement shall be used. Chamfer exposed edges of all concrete  $\frac{3}{4}$ ", unless noted otherwise on the plans. Preformed expansion joint filler shall meet the requirements of AASHTO M213. Preformed flexible cellular joint filler shall meet the requirements of AASHTO M153, Type I, closed cell rubber. The top surface of bridge deck and approach slabs shall receive a sawed groove finish per Section 552.14(c).

Reinforcing Steel:  
All reinforcing steel shall conform to AASHTO M31 or M322, Grade 60 deformed. The minimum concrete cover to the face of any bar shall be 2", unless shown otherwise on the plans. All reinforcing steel placed in or protruding into the deck, curbs and approach slabs shall be epoxy coated. "E" designates epoxy coated reinforcing steel in the bar callouts and lists. Minimum splice length for all bars sizes shall be as shown on the plans. Bar splices other than those shown on the plans shall not be paid for.

Prestressed Concrete Box Beams:  
Prestressed concrete box beams shall be manufactured as detailed on the plans. Concrete for prestressed beams shall be Class P or P(AE) with a minimum 28-day compressive strength  $f'_c = 6,400$  psi and release strength  $f'_{ci} = 5,000$  psi. Chamfer exposed edges  $\frac{3}{4}$ " unless shown otherwise on the plans.

Prestressing Steel:  
Unless noted otherwise, prestressing strands shall be Grade 270, 0.6", seven wire, bright, low-relaxation strands, conforming to AASHTO M203 (ASTM A416). Each strand shall be pretensioned to a total load of 43,900 lbs. at which the initial pretensioning stress  $f_{pbt} = 0.75$  (fpu) = 202,500 psi.

Miscellaneous Structural Steel:  
Structural steel tubes for bridge railing shall conform to ASTM A847 with enhanced atmospheric corrosion resistance. Structural steel posts and base plates for bridge railing shall conform to ASTM A709 Grade 50W. All other structural steel shall conform to ASTM A709 Grade 36, unless noted otherwise.

Form Liner and Concrete Color Agent:  
All exposed faces of abutments, caps and wingwalls shall have a simulated stone masonry surface treatment, colonial drystack pattern. See Section 613 of the SCR's.

All exposed cast-in-place bridge concrete shall include an integral coloring agent - Golden Beige by Increte Systems. See Section 552 of the SCR's test panel requirements.

Structure Backfill:  
Backfill behind abutments shall meet the requirements for Structural Backfill as specified in Sections 208 and 704.04.

Paint:  
Paint exterior face of exterior girders. See Section 563 of the SCR's.

ESTIMATE				
Item No.	Item	Quantity:	Unit:	Notes:
15214-1000	Survey and staking, bridge	All req'd	LPSM	
20820-0000	Dewatering	All req'd	LPSM	(9)
25101-5200	Placed riprap, class 4	350	CUYD	
55201-0200	Structural concrete, class A(AE)	262	CUYD	(1)(4)
55216-0000	Concrete color agent	4968	LB	(8)
55302-1400	Precast, prestressed concrete box beams, non-standard	488	LNFT	(2)
55401-1000	Reinforcing steel	21300	LB	(1)
55401-2000	Reinforcing steel, epoxy coated	49400	LB	(1)
55601-0900	Bridge railing, steel	300	LNFT	(1)(3)
56302-1000	Painting concrete structure	470	SQFT	
56401-1000	Bearing device, elastomeric	16	EACH	
56501-0300	Drilled shaft 30" diameter (rock socket)	45	LNFT	(7)
56501-0400	Drilled shaft 36" diameter (rock socket)	27	LNFT	(7)
56501-0300	Drilled shaft 30" diameter	141	LNFT	(6)
56501-0400	Drilled shaft 36" diameter	44	LNFT	(6)
61003-0000	Collector system (Bridge drain)	All req'd	LPSM	
61301-0000	Simulated stone masonry surface treatment	88	SQYD	
61707-0000	Structure transition railing	83	LNFT	(1)(5)

**ESTIMATE NOTES:**

- Contract Quantity
- Includes cost of concrete, reinforcing steel, prestressing steel, inserts, plates, lifting devices, and other materials required for the manufacture or erection of the girders.
- Includes cost of all structural concrete and rebar in curbs. Est. Class C(AE) Concrete = 14.5 Cu Yds. Est. epoxy coated rebar qty. = 2298 lbs.
- Abutment cap and wingwall concrete quantities assume an average simulated stone masonry treatment of 1 $\frac{3}{8}$ " beyond the working line. Includes cost of furnishing and installing geocomposite sheet drain, drain grate, weepholes and all joint fillers. Estimated quantity of geocomposite sheet drain = 53 Sq. Yds.
- Includes cost of furnishing and installing posts, blocks, thrie and w-beam rail elements, anchor plates, and installation hardware.
- Includes cost of excavation and concrete between top of drilled shaft elevation and top of rock socket elevation (Total estimated quantity of Class A concrete = 37 cuyd). Includes cost of any required temporary and permanent casings, access tubes, drilled shaft testing, and all necessary materials and work necessary to construct the shaft. Reinforcing steel quantity for drilled shafts is included in the contract item "Reinforcing steel".
- Includes cost of excavation and concrete between rock socket elevation and estimated tip elevation (Total estimated quantity of Class A concrete = 15 cuyd). Includes cost of any required temporary and permanent casings, access tubes, drilled shaft testing, and all necessary materials and work necessary to construct the rock sockets. Reinforcing steel quantity for rock sockets is included in the contract item "Reinforcing steel".
- Quantity based on an estimate of 18 lb per cubic yards of concrete for all cast-in-place concrete including curbs, except shafts and rock sockets.
- Includes all costs associated with dewatering including cofferdams and seal concrete, etc. if needed.

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FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

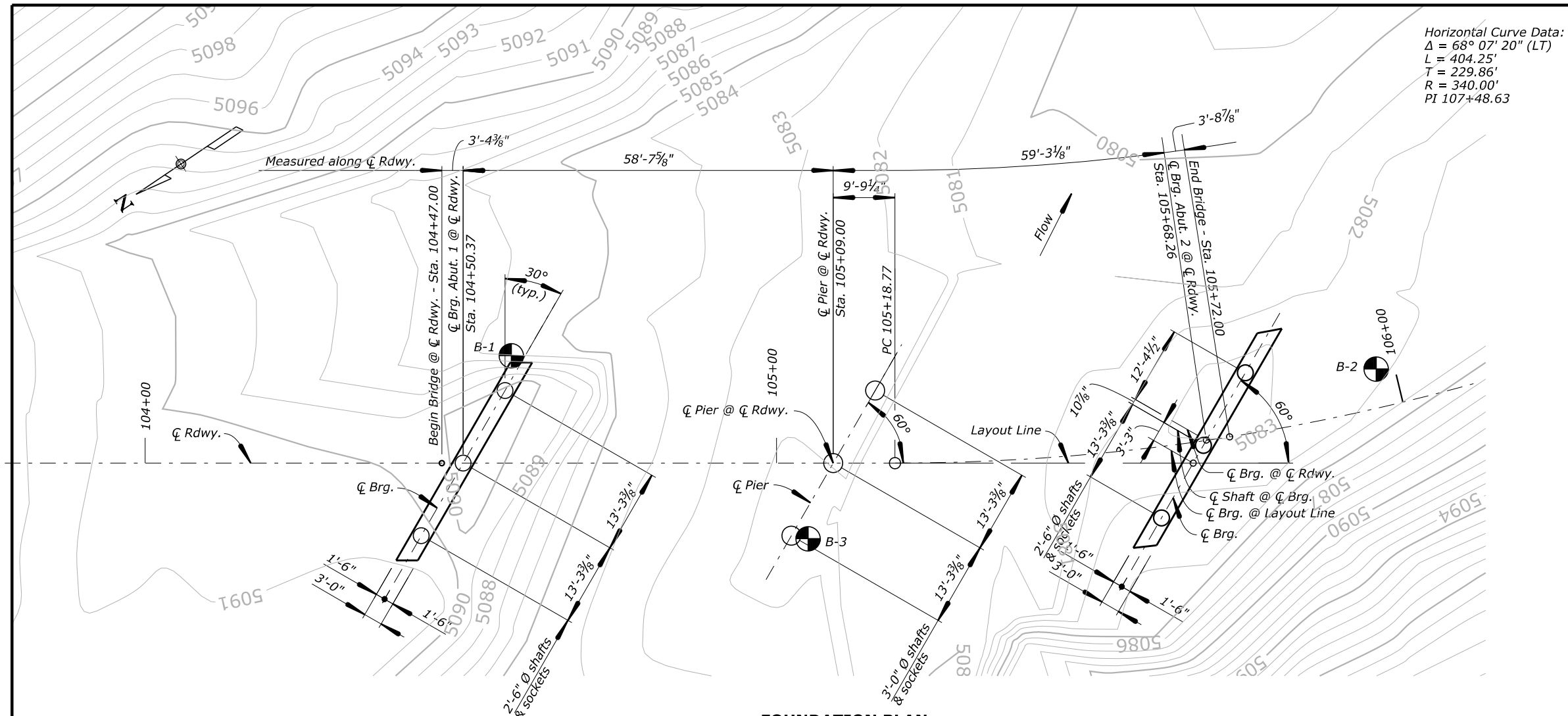
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GILA COUNTY, ARIZONA

**GENERAL NOTES**

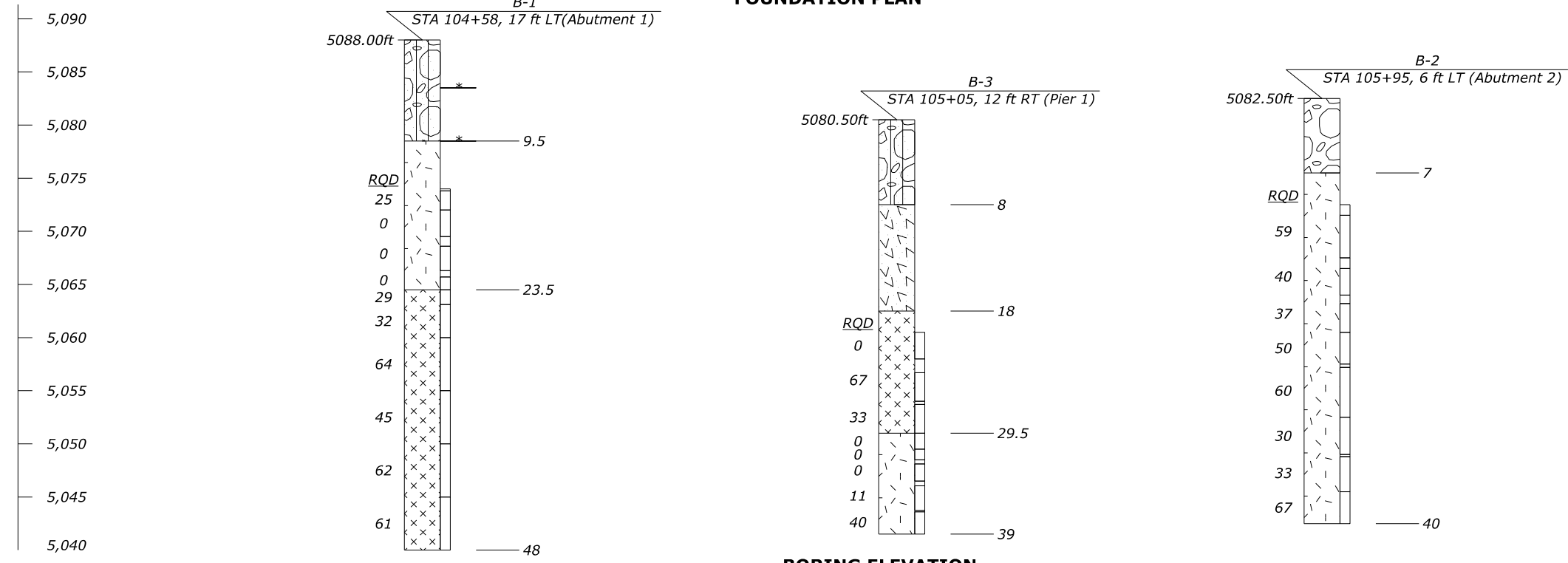
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								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	2 of 33	JULY 2013	RG2952- B

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S28	S79
<b>LEGEND</b>				
	Silty Sand with Gravel and Cobbles		Decomposed Granite	
	granite		Gravel, Cobbles, and Boulders	
	diabase			
<b>TYPICAL TEST HOLE SYMBOL</b>				
Plan View				
	Location of any sampled hole			
<b>TYPICAL TEST HOLE LOG</b>				
Boring No. Location				
Elev.	Graphic material description			
Ground Water	Blow count per foot with standard penetration test (SPT) in accordance with AASHTO T206			
Depth at time of drilling (ATD)	Unified Soil Classification			
	* Practical refusal SPT			
ROD	Core Run			
x	% Core Recovery Shaded			
x	Depth Terminated			
For additional information, refer to Geotechnical Report AZ-FX-0013-01 dated July 2013 prepared by U.S. Dept. of Transportation, Federal Highway Administration, Central Federal Lands Highway Division.				



**FOUNDATION PLAN**



**BORING ELEVATION**

- NOTES:**
- Construct abutment fills prior to drilling rock sockets and shafts.
  - All substructure units are parallel to Begin Bridge &  $\bar{C}$  Pier 1.

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

**EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD**

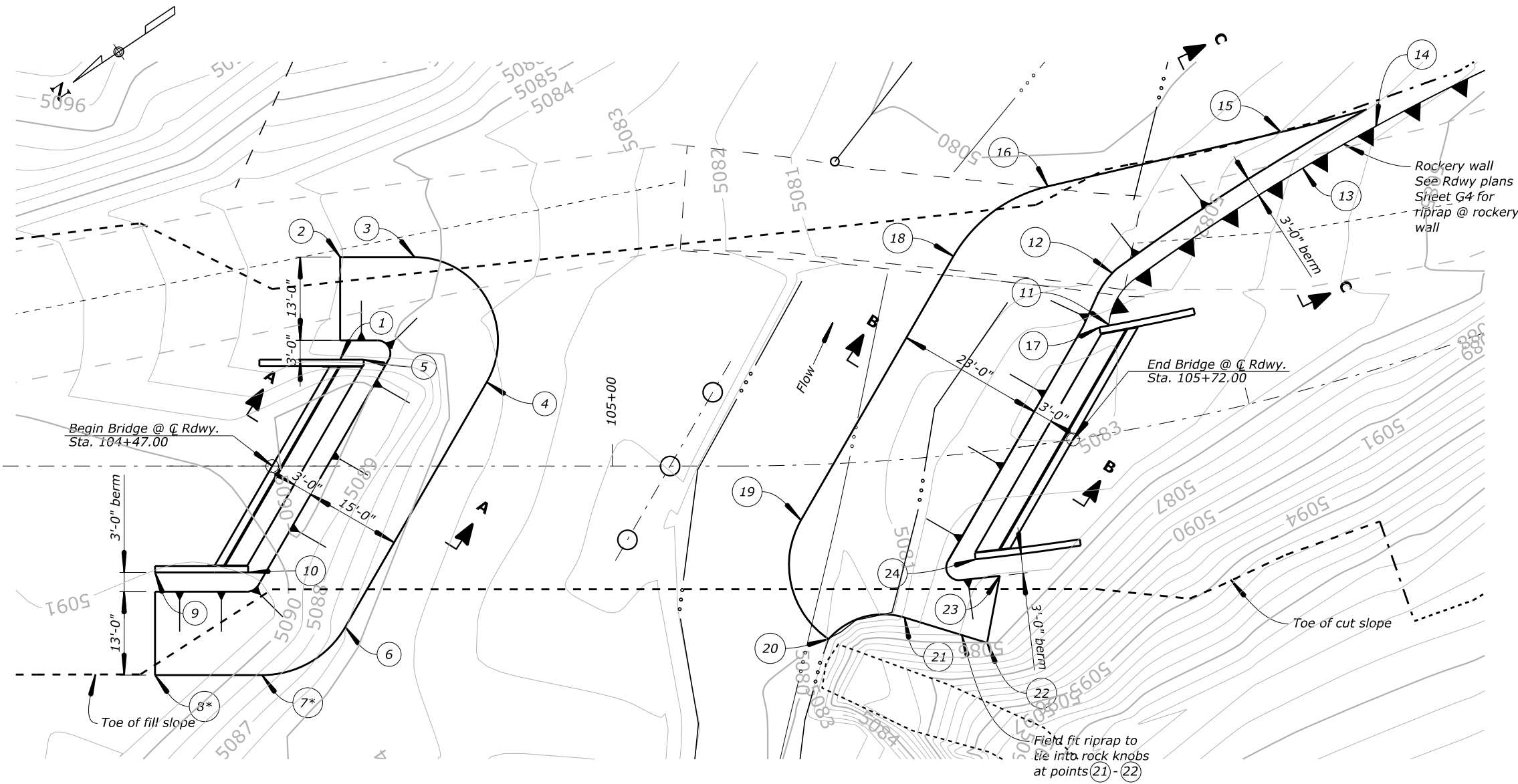
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GILA COUNTY, ARIZONA

**FOUNDATION PLAN**

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								G. MAY	R. WEHNER	D. GERMANI	1" = 20'-0"	BONNIE KLAMERUS	3 of 33	JULY 2013	RG2952- C

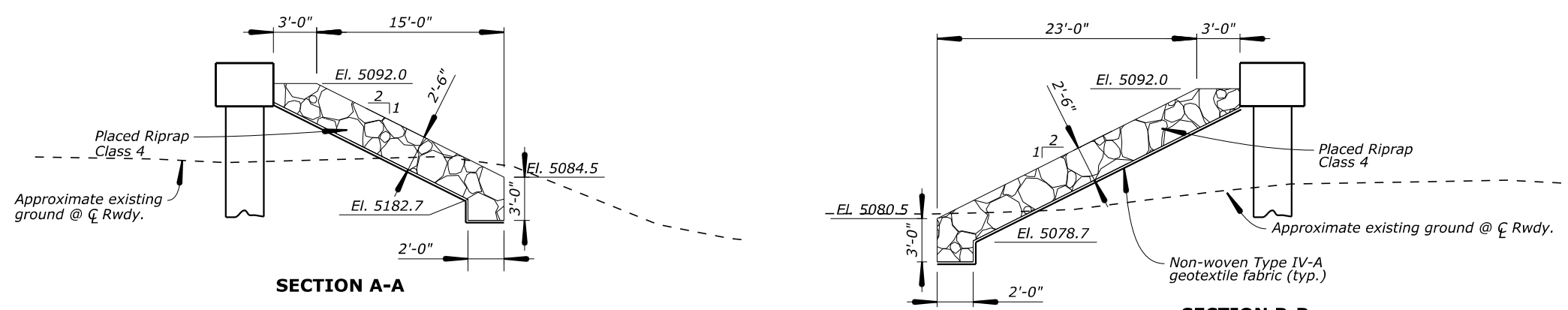
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S29	S79



**SLOPE PROTECTION PLAN**

SLOPE PROTECTION COORDINATES				
POINT	X (Ft.)	Y (Ft.)	Existing Z (Ft.)	Proposed Toe Z (Ft.)
1	363082.68	1222722.64	5086.5	5092.0
2	363095.96	1222713.73	5086.0	5085.5
3	363089.50	1222704.10	5085.3	5084.9
4	363067.03	1222705.62	5084.5	5084.5
5	363080.64	1222719.60	5086.4	5092.0
6	363074.63	1222745.19	5086.0	5084.5
7*	363048.64	1222760.15	5088.8	5088.7
8*	363057.92	1222773.98	5091.2	5091.2
9	363071.21	1222765.07	5091.0	5092.0
10	363063.13	1222753.03	5091.0	5092.0
11	363020.44	1222620.17	5082.4	5092.0
12	363026.96	1222615.27	5081.2	5089.9
13	363023.59	1222576.70	5083.5	5085.6
14	363022.96	1222568.33	5083.6	5087.6
15*	363030.45	1222581.16	5082.0	5082.0
16*	363043.66	1222616.04	5080.3	5080.3
17	363023.94	1222621.62	5082.3	5092.0
18	363042.81	1222634.32	5080.7	5080.5
19	363021.88	1222676.98	5080.8	5080.5
20	363004.11	1222683.72	5081.1	5080.9
21*	363000.29	1222672.02	5082.2	5082.2
22*	362989.85	1222663.53	5085.0	5085.0
23	362997.41	1222656.08	5084.0	5092.0
24	363001.68	1222657.79	5083.7	5092.0

\*Adjust riprap slope to match toe and berm elevations.



**SLOPE PROTECTION DETAIL**  
No Scale

- Note:
- 2:1 slope measured perpendicular to abutment face.
  - Key riprap all around except at rock knob.

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**EAST VERDE RIVER CROSSING #2**  
HOUSTON MESA ROAD

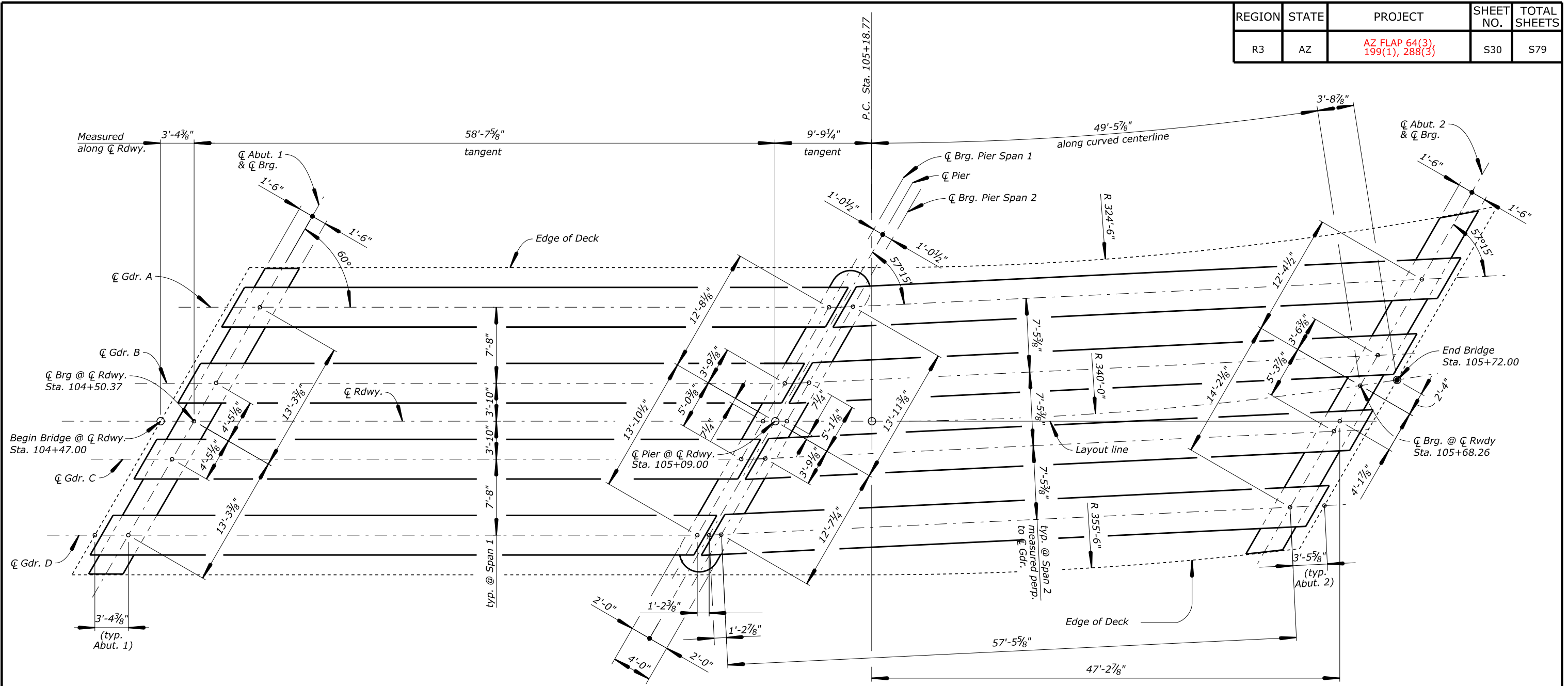
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**SLOPE PROTECTION**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	B. KLAMERUS	1" = 20'-0"	BONNIE KLAMERUS	4 of 33	JULY 2013	RG2952- D

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S30	S79



**FRAMING PLAN**

Note: All substructure units are parallel to  $\zeta$  Brg. Abut. 1 and  $\zeta$  Pier 1.

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**EAST VERDE RIVER CROSSING #2**  
 HOUSTON MESA ROAD

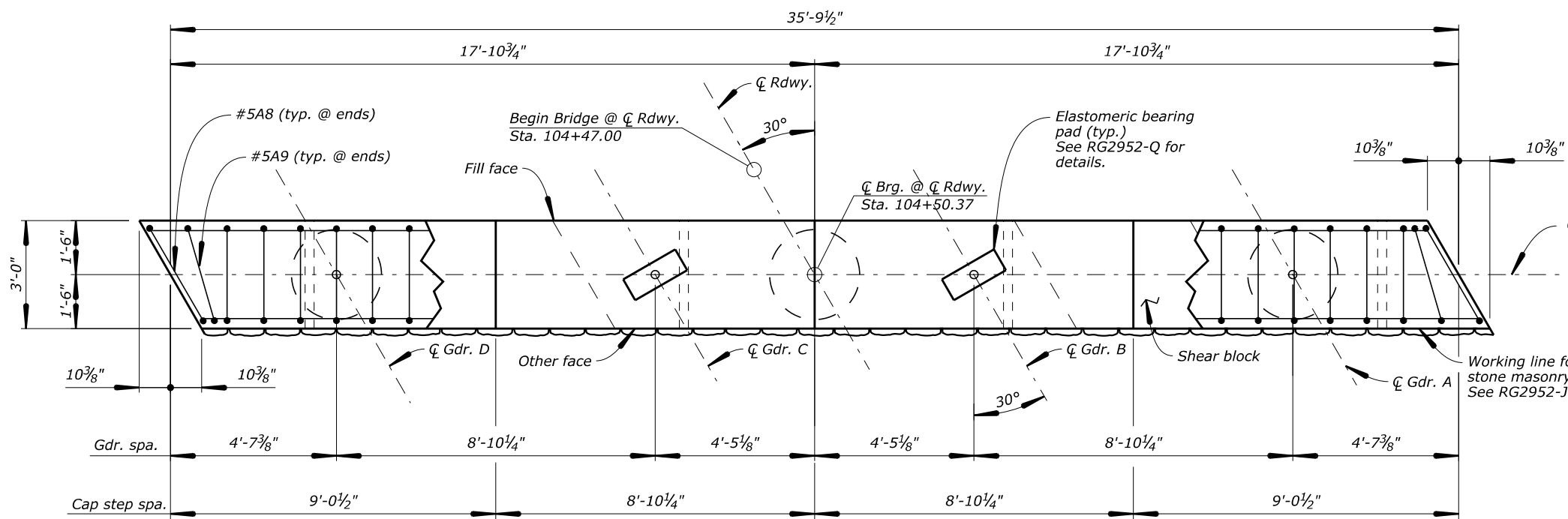
TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**FRAMING PLAN**

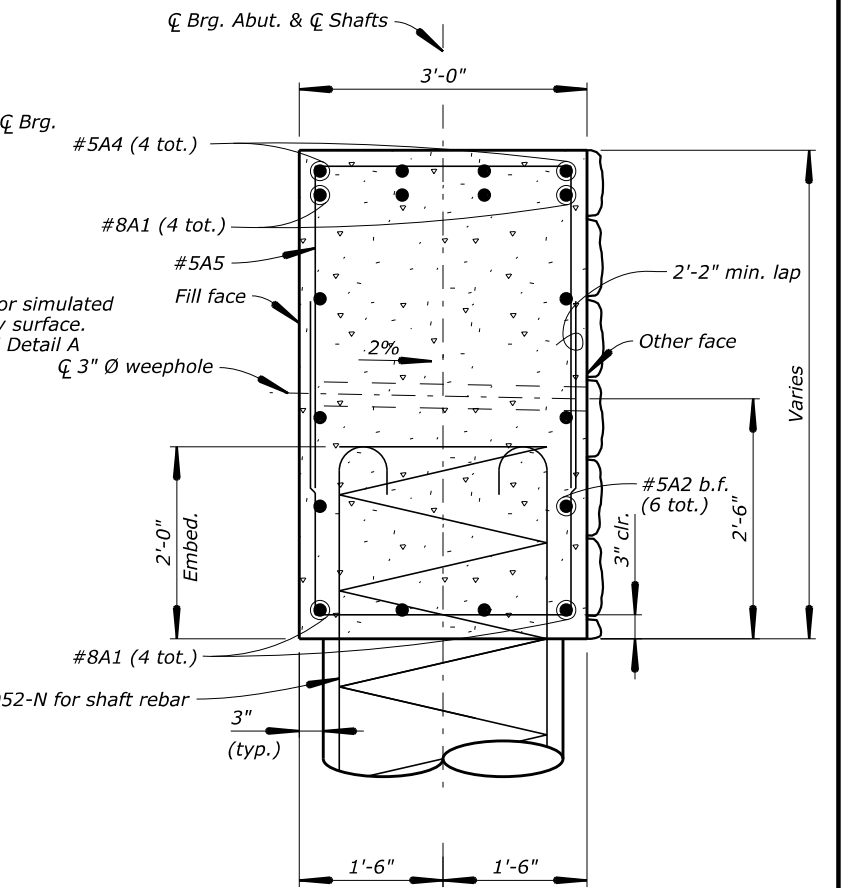
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								G. MAY	R. WEHNER	D. GERMANI	1" = 10'-0"	BONNIE KLAMERUS	5 of 33	JULY 2013	RG2952- E

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S31	S79



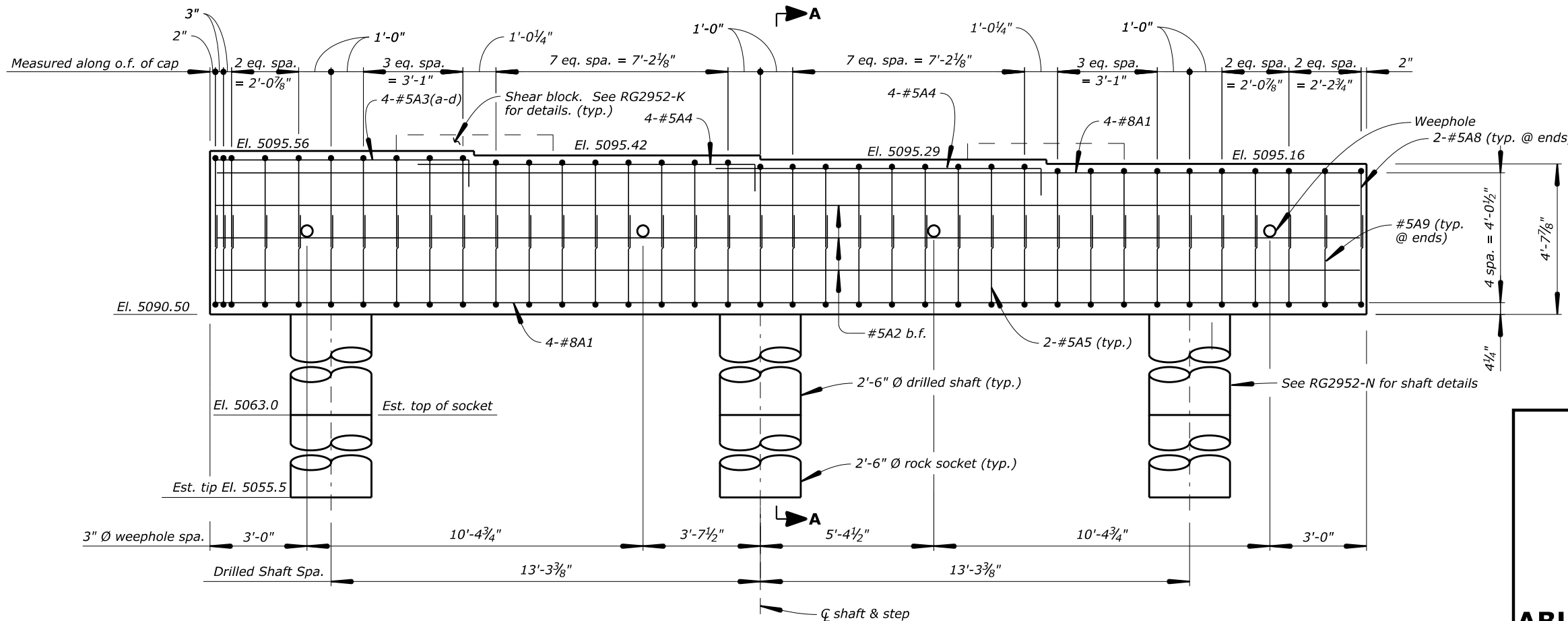
PLAN



SECTION A-A

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

Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces



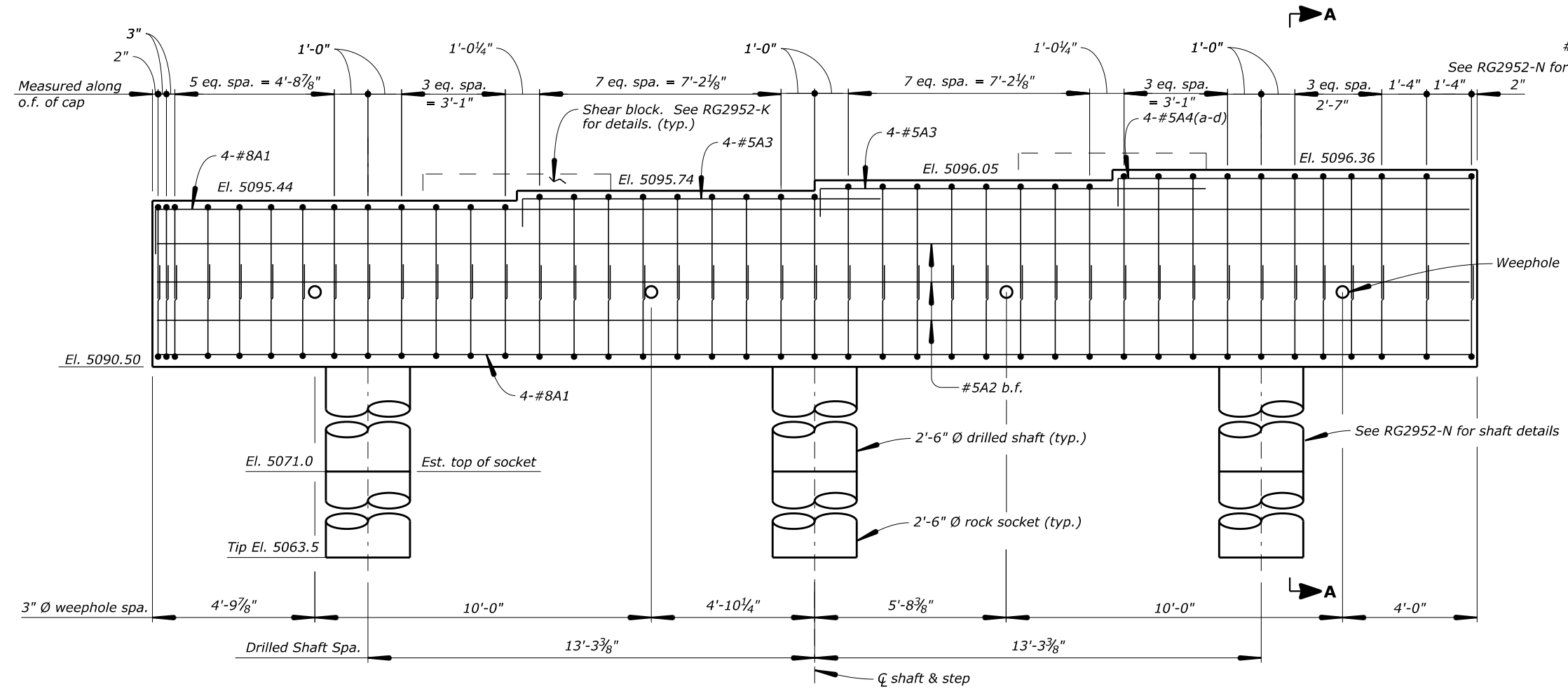
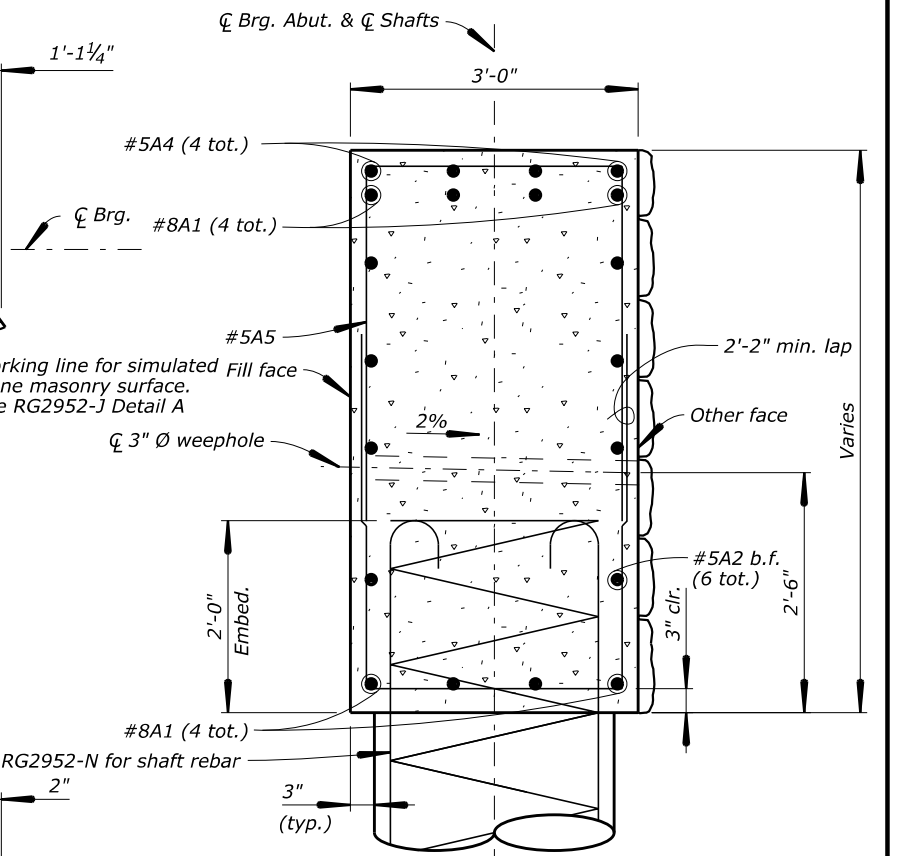
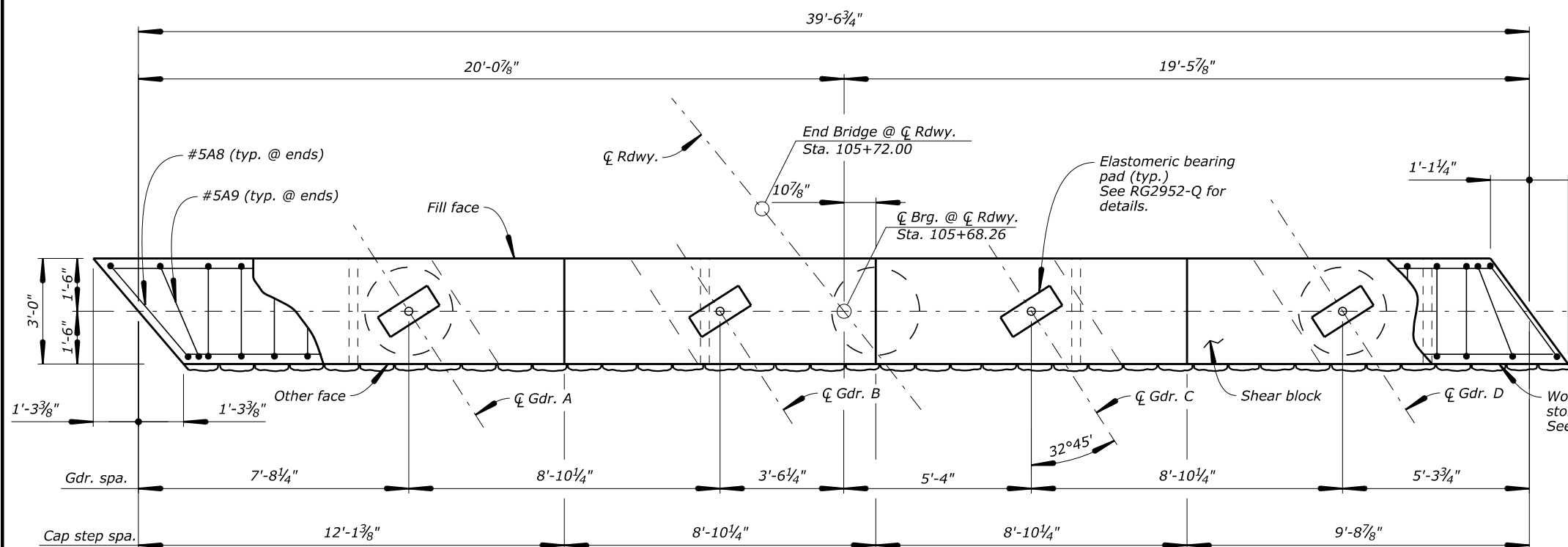
ELEVATION

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
 EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**ABUTMENT 1 PLAN & ELEVATION**

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 8/18/2013

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								G. MAY	R. WEHNER	D. GERMANI	1/4" = 1'-0"	BONNIE KLAMERUS	6 of 33	JULY 2013	RG2952- F

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S32	S79



Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

U.S. DEPARTMENT OF TRANSPORTATION  
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 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

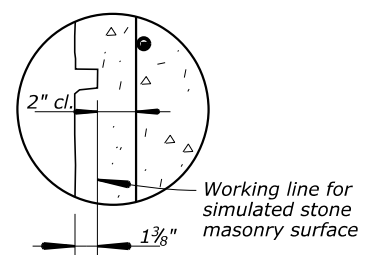
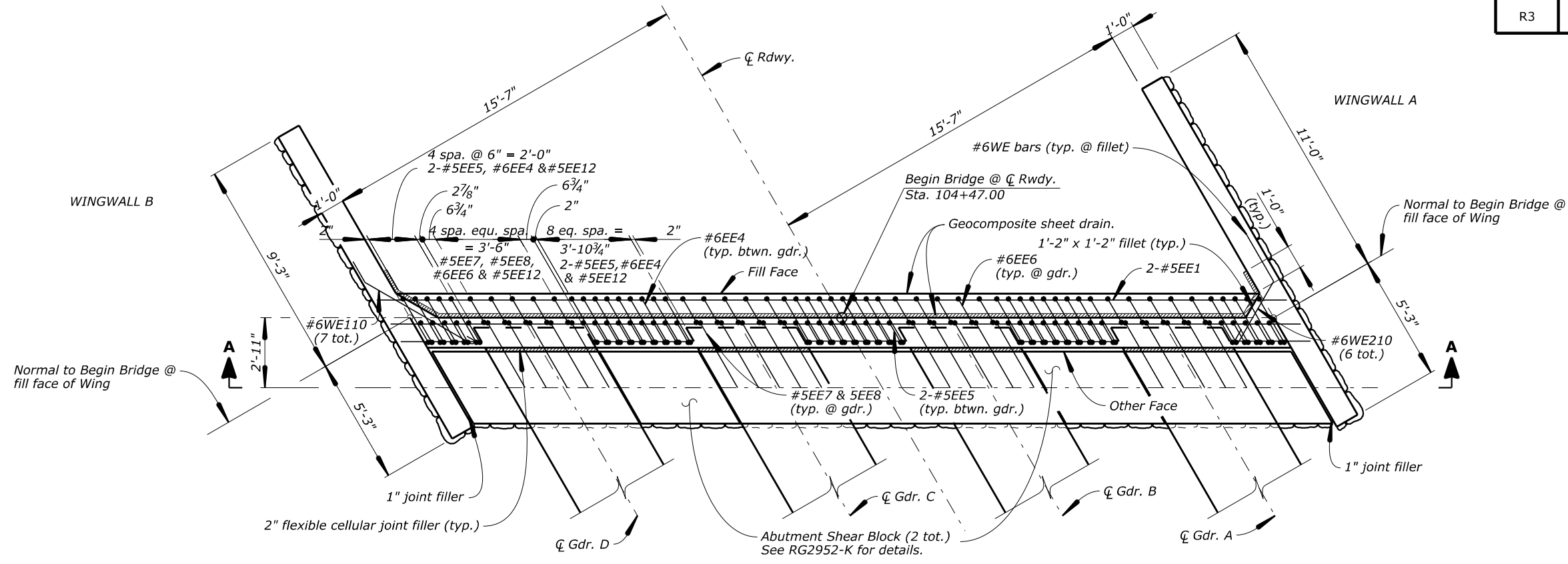
**ABUTMENT 2 PLAN & ELEVATION**

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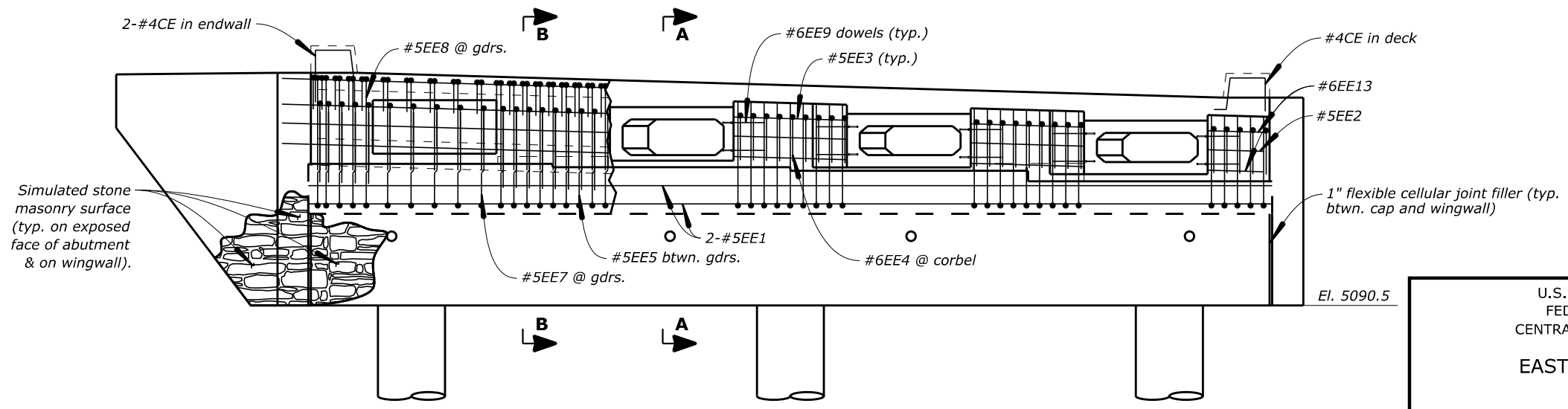
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								G. MAY	R. WEHNER	D. GERMANI	1/4" = 1'-0"	BONNIE KLAMERUS	7 of 33	JULY 2013	RG2952- G



REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S33	S79



**ABUTMENT 1 ENDWALL PLAN**



**ABUTMENT 1 ENDWALL ELEVATION  
(VIEW A-A)**

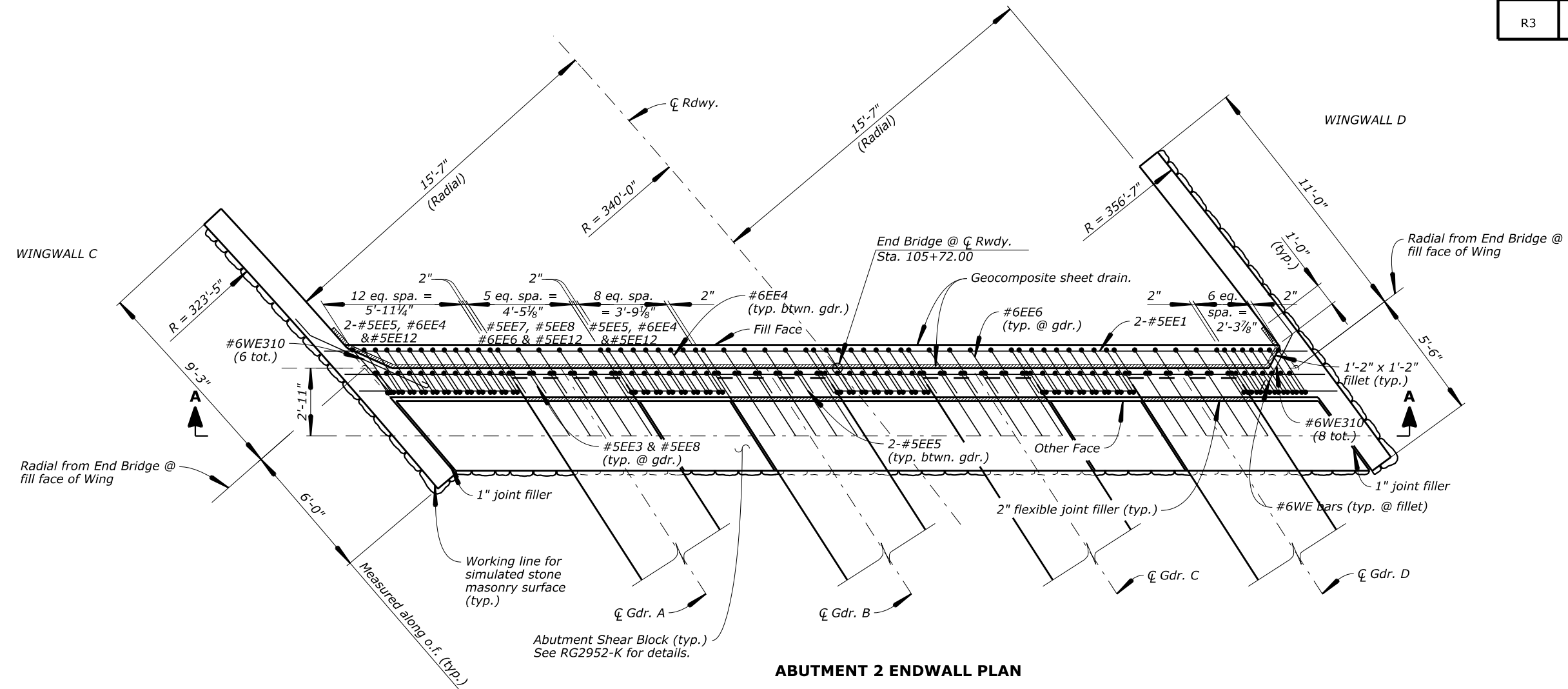
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 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
 EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**ABUTMENT 1 ENDWALL**

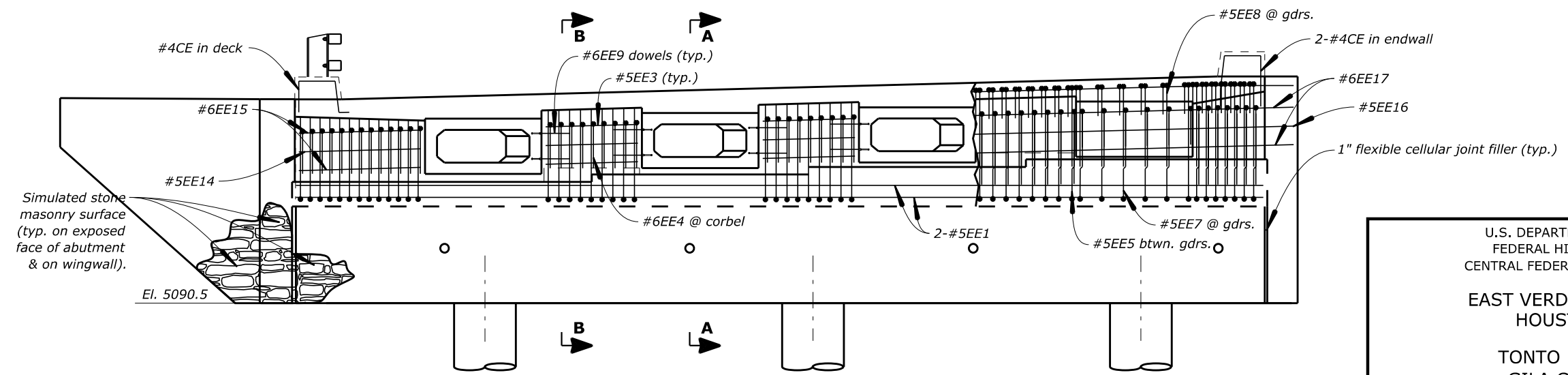
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								G. MAY	R. WEHNER	D. GERMANI	3/16" = 1'-0"	BONNIE KLAMERUS	8 of 33	JULY 2013	RG2952- H

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S34	S79



**ABUTMENT 2 ENDWALL PLAN**



**ABUTMENT 2 ENDWALL ELEVATION (VIEW A-A)**

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

EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

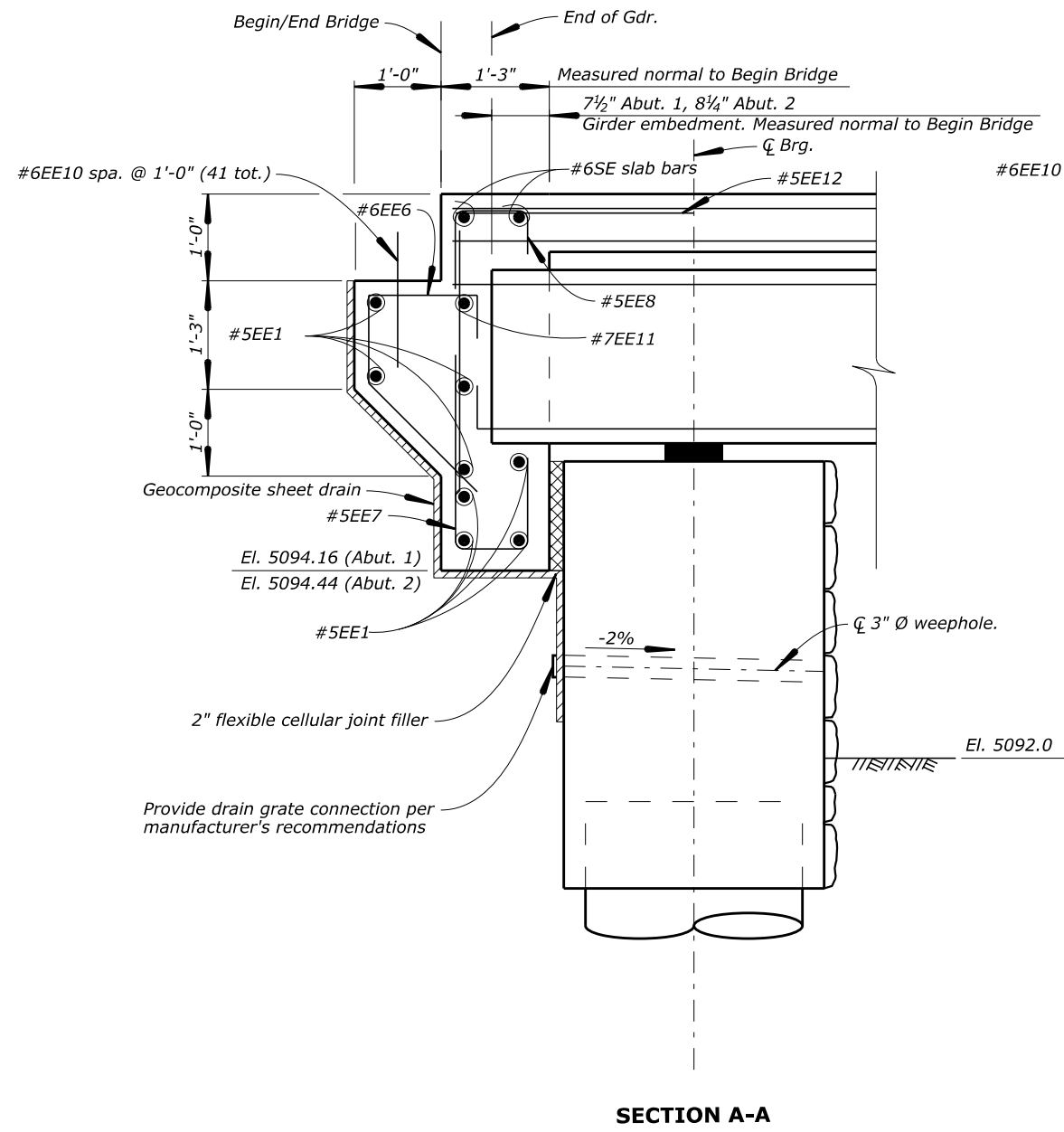
TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**ABUTMENT 2 ENDWALL**

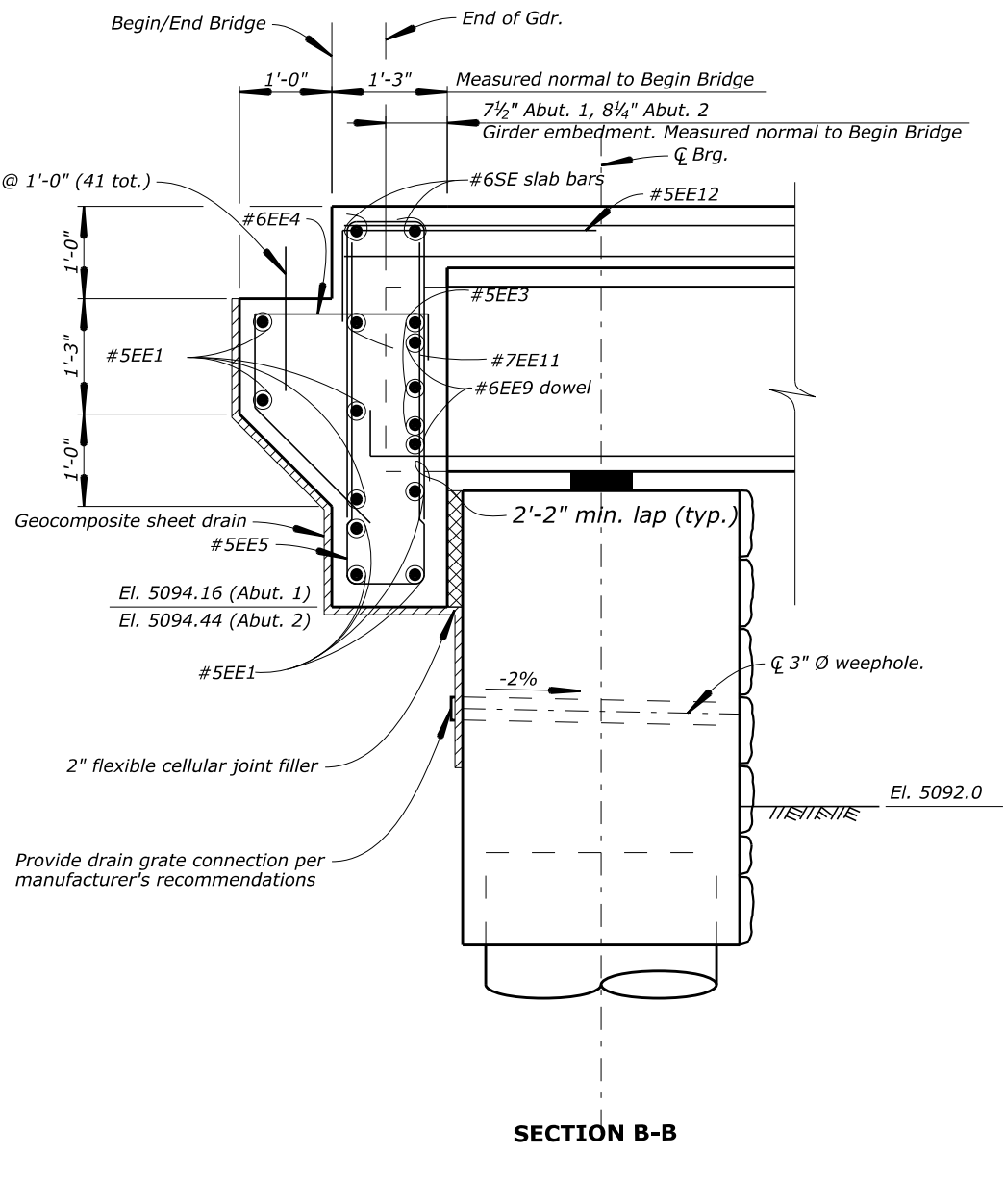
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								G. MAY	R. WEHNER	D. GERMANI	3/16" = 1'-0"	BONNIE KLAMERUS	9 of 33	JULY 2013	RG2952- I

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
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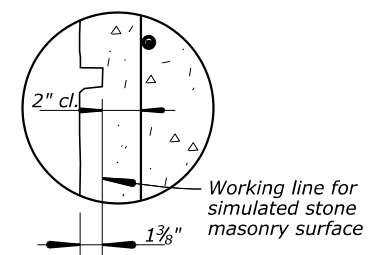


**SECTION A-A**



**SECTION B-B**

NOTE:  
See RG2952-H & I for location of section A-A & B-B.



**DETAIL A**  
No Scale

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

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

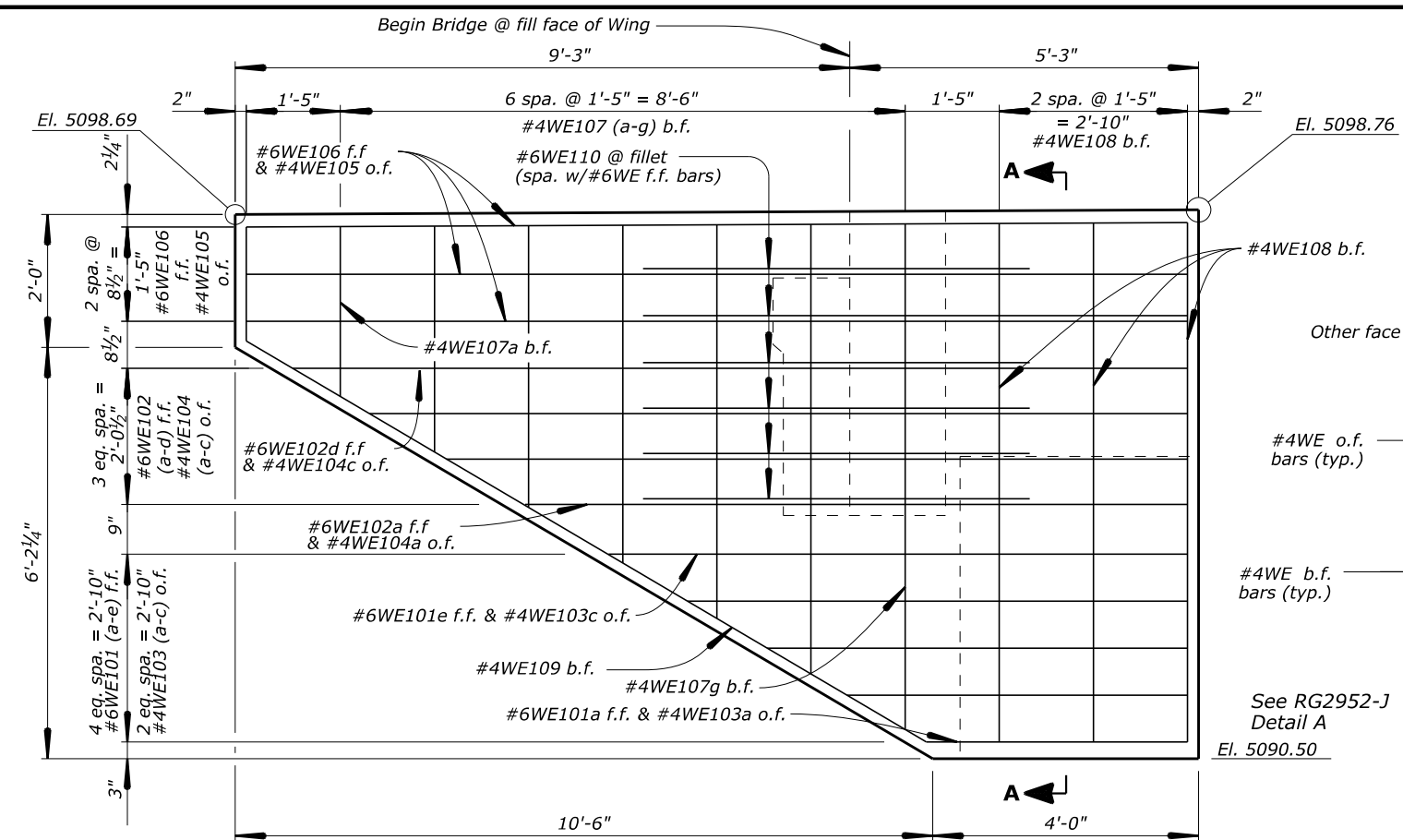
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**ENDWALL DETAILS**

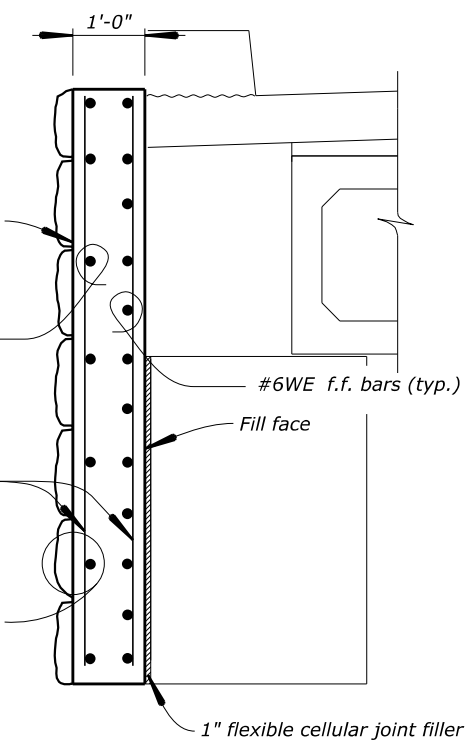
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								G. MAY	R. WEHNER	D. GERMANI	1/2" = 1'-0"	BONNIE KLAMERUS	10 of 33	JULY 2013	RG2952- J

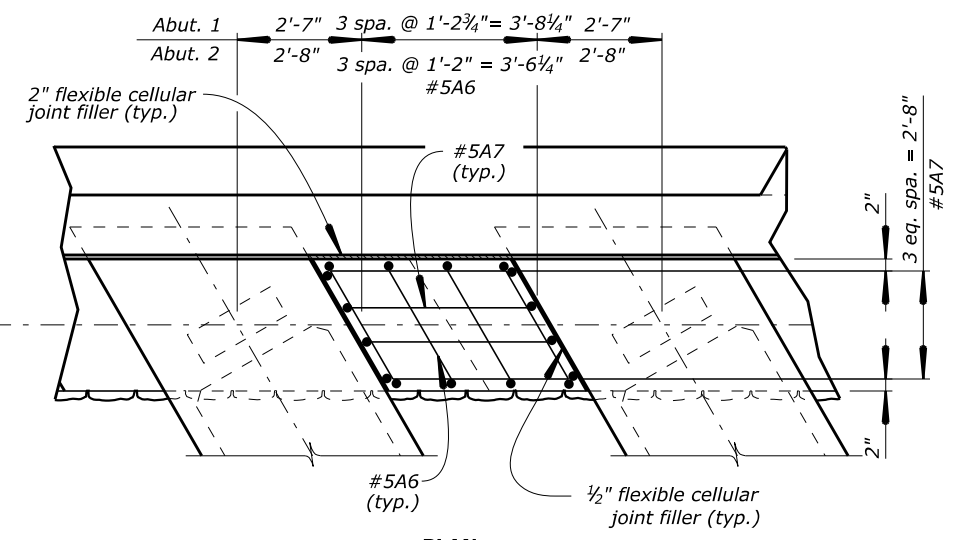
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
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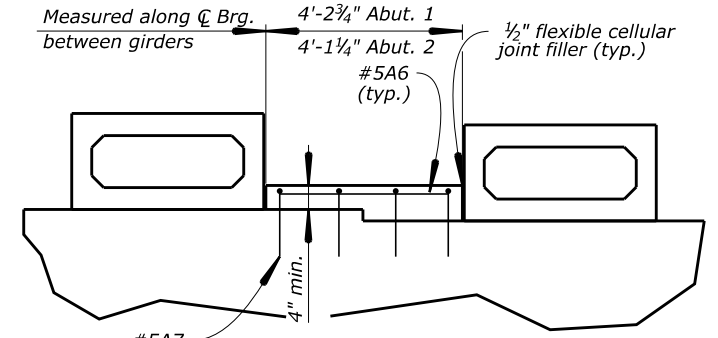
**ABUTMENT 1 WINGWALL B**



**SECTION A-A**



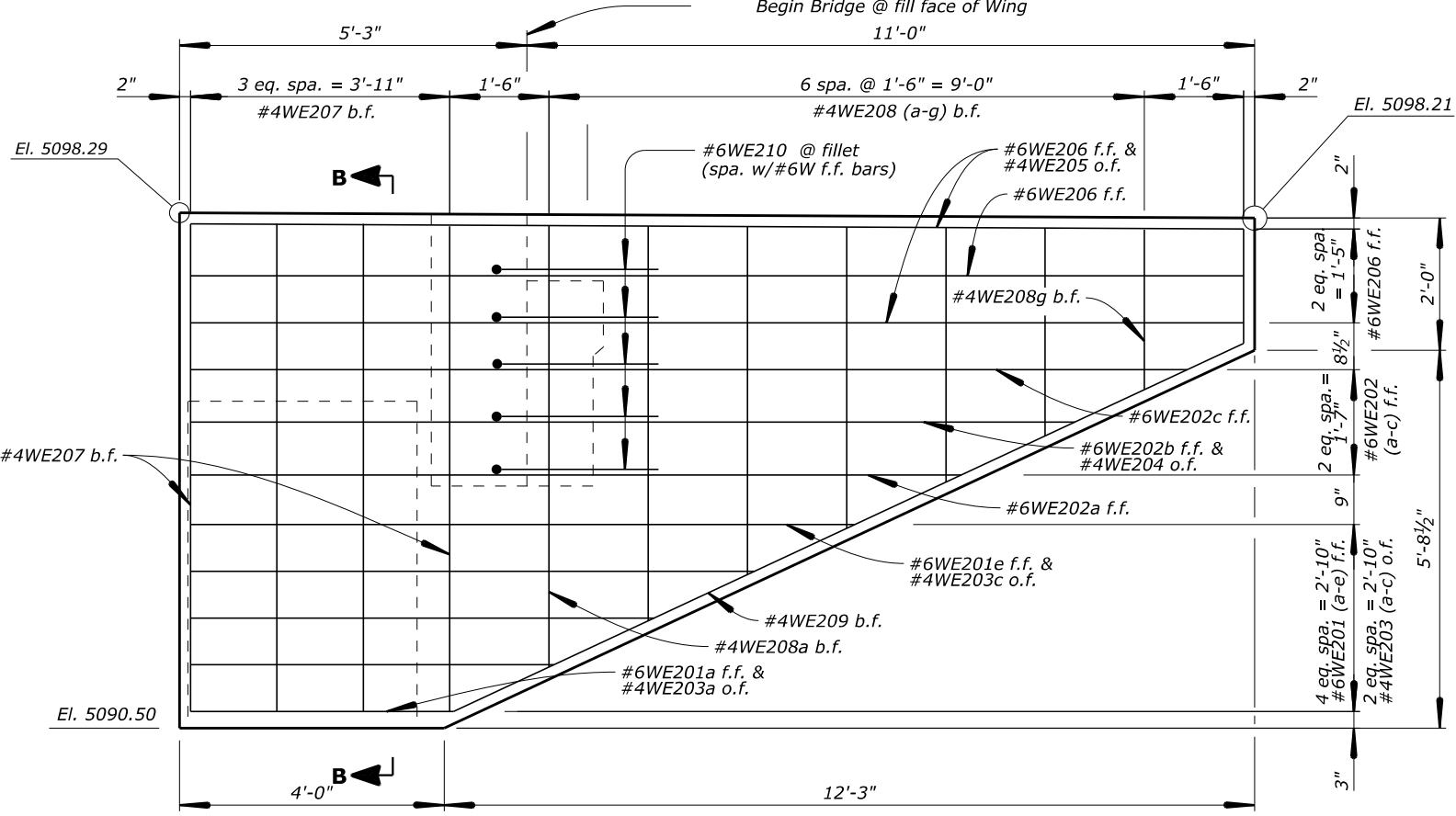
**PLAN**



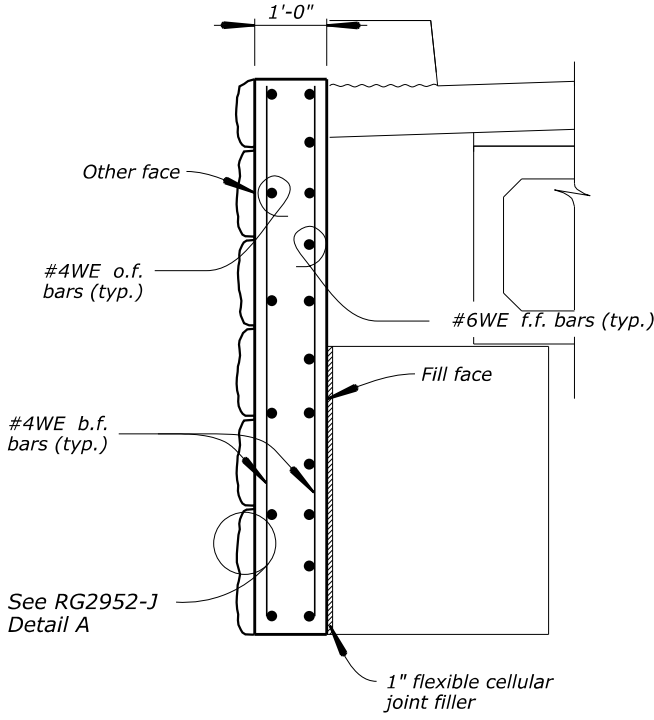
**ELEVATION**

**ABUTMENT SHEAR BLOCK DETAILS**  
(2 per abutment)  
No Scale

Note: Cast shear blocks after setting girders.



**ABUTMENT 1 WINGWALL A**



**SECTION B-B**

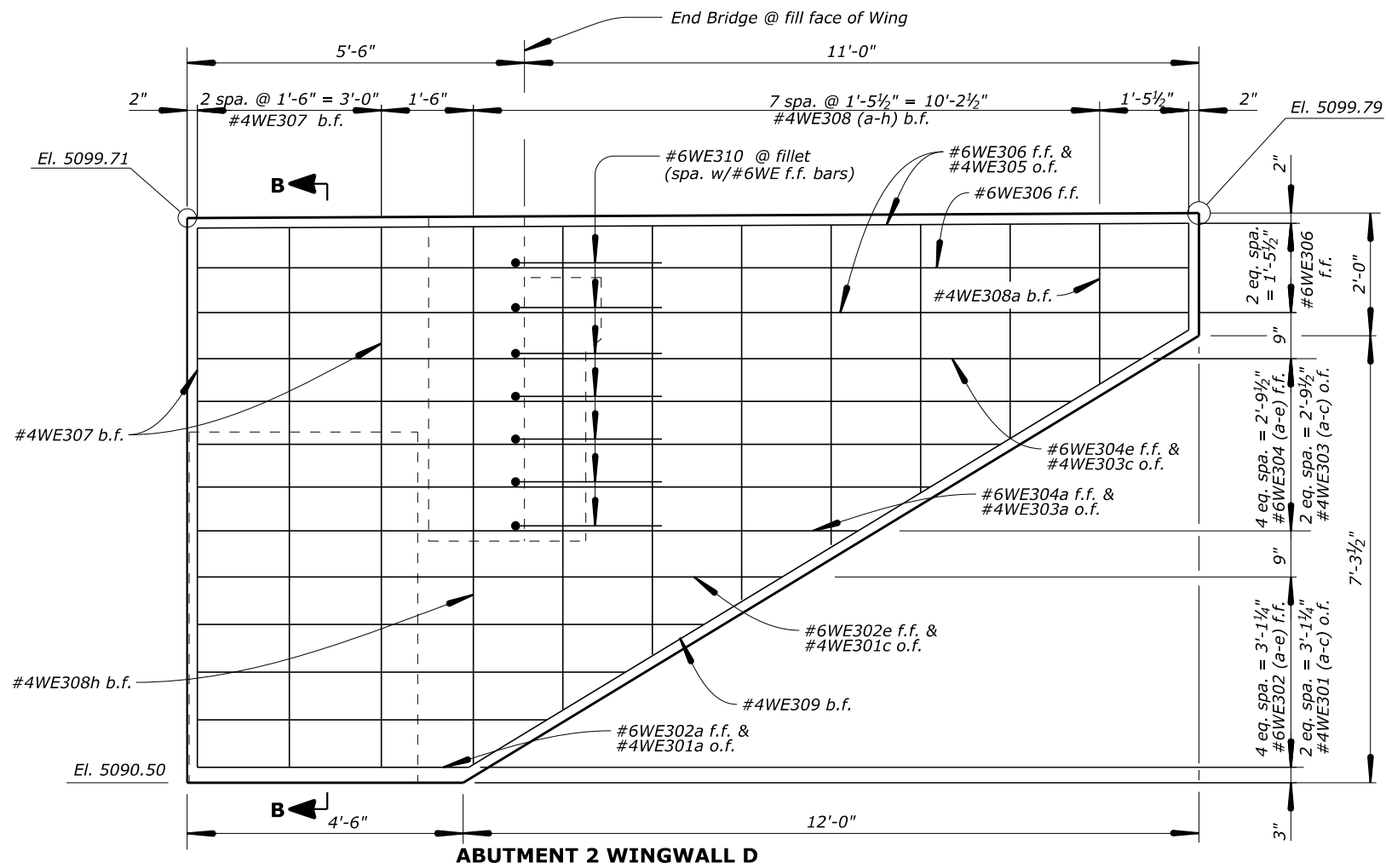
**ABUTMENT 1 WINGWALLS**

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD  
  
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

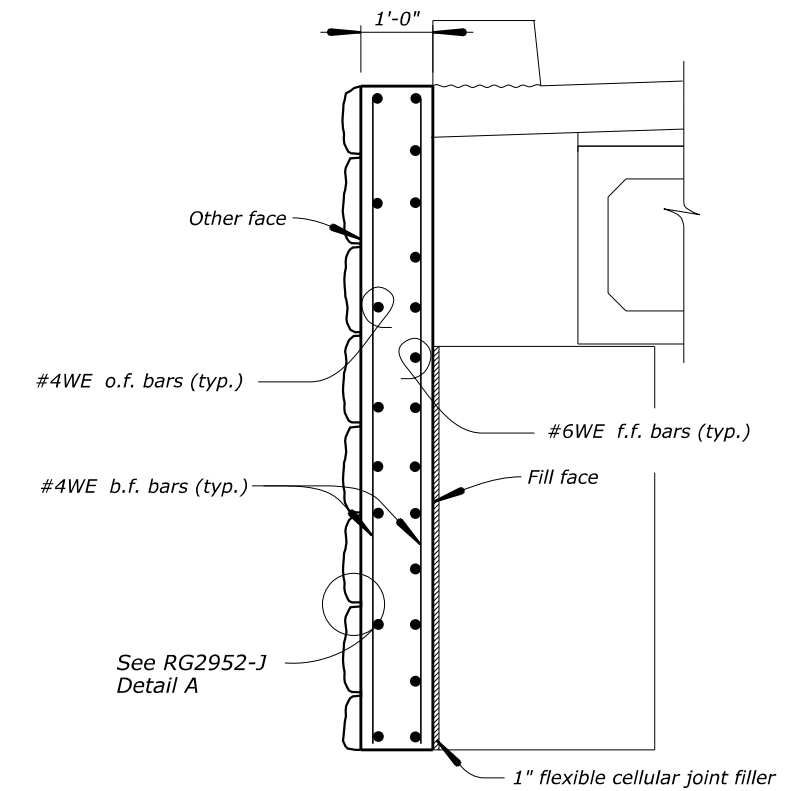
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								G. MAY	R. WEHNER	D. GERMANI	3/8" = 1'-0"	BONNIE KLAMERUS	11 of 33	JULY 2013	RG2952- K

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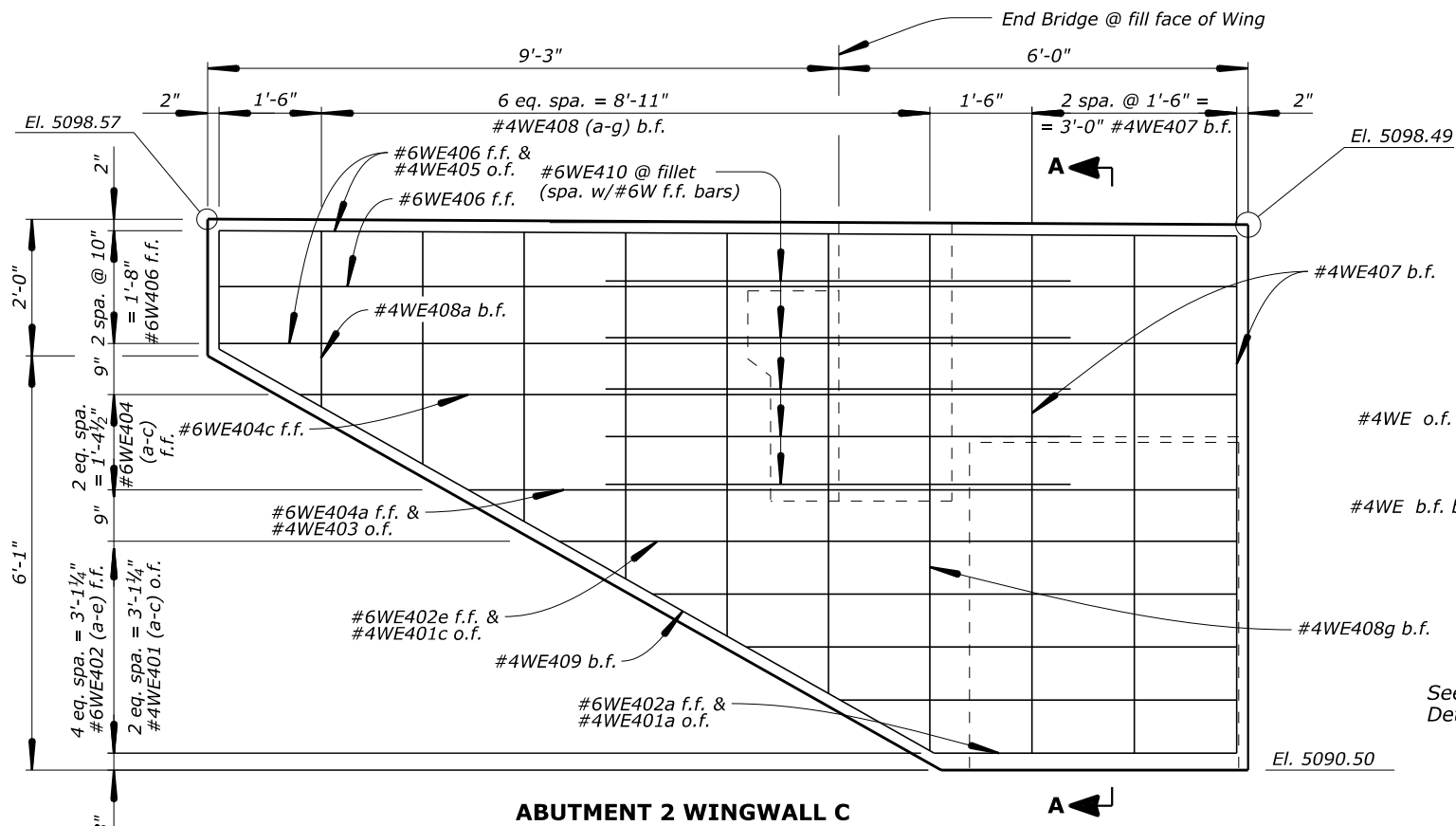
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S37	S79



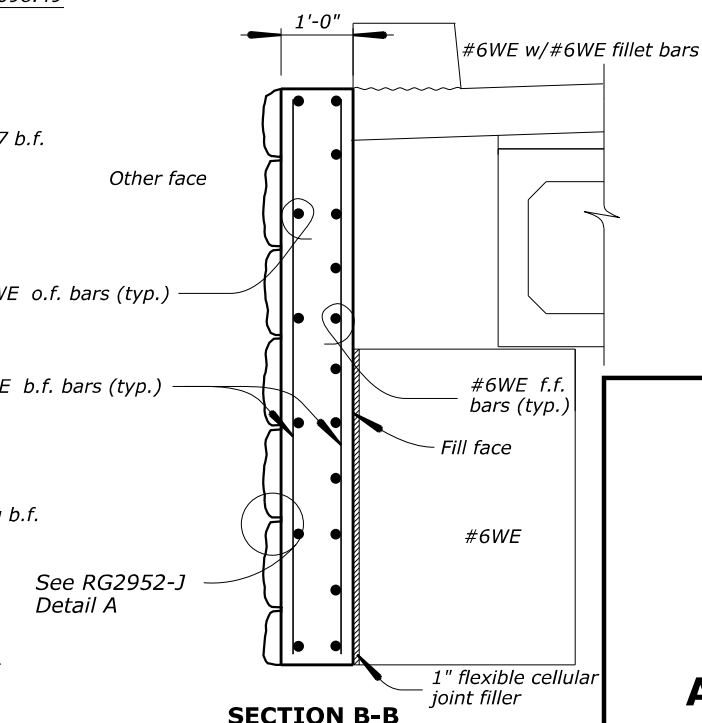
**ABUTMENT 2 WINGWALL D**



**SECTION A-A**



**ABUTMENT 2 WINGWALL C**



**SECTION B-B**

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

**EAST VERDE RIVER CROSSING #2**  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

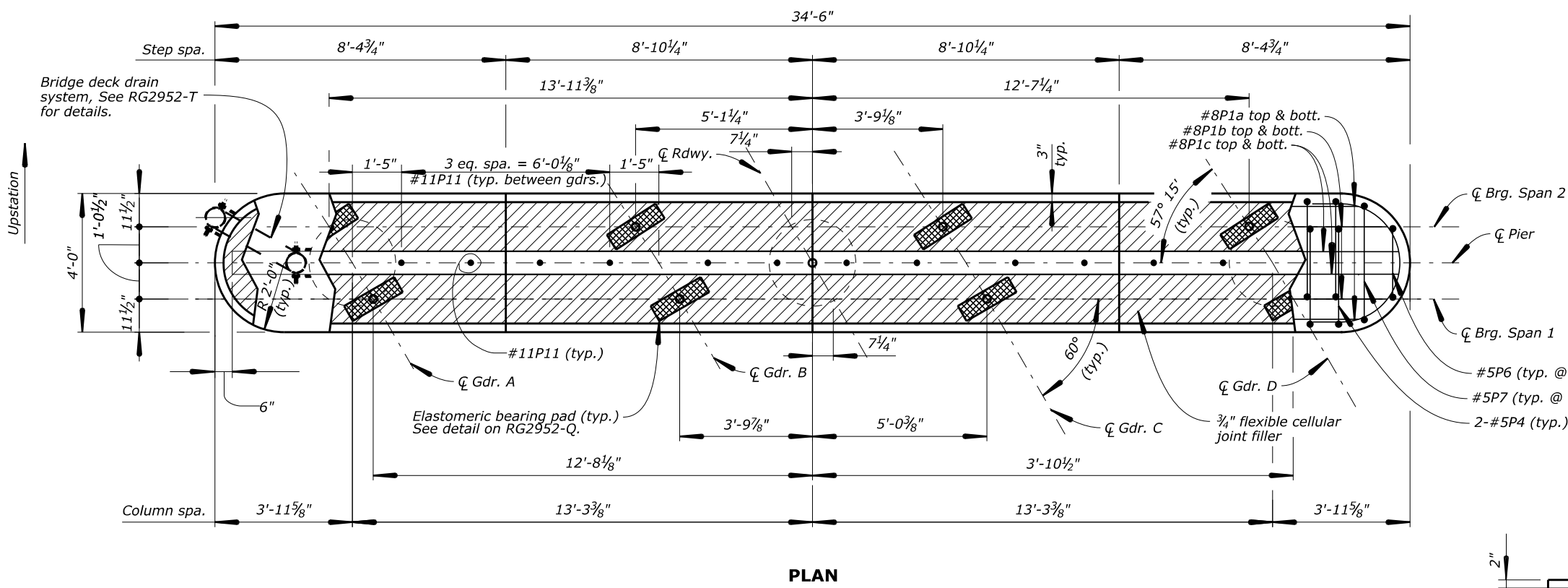
**ABUTMENT 2 WINGWALLS**

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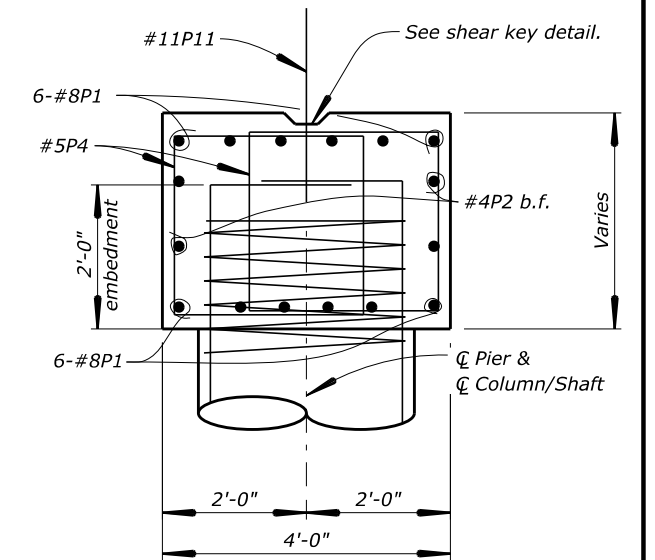
8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	3/8" = 1'-0"	BONNIE KLAMERUS	12 of 33	JULY 2013	RG2952- L

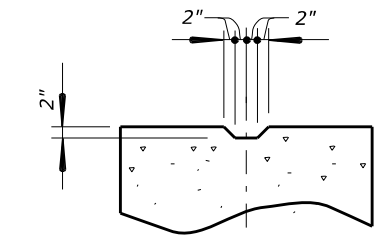
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S38	S79



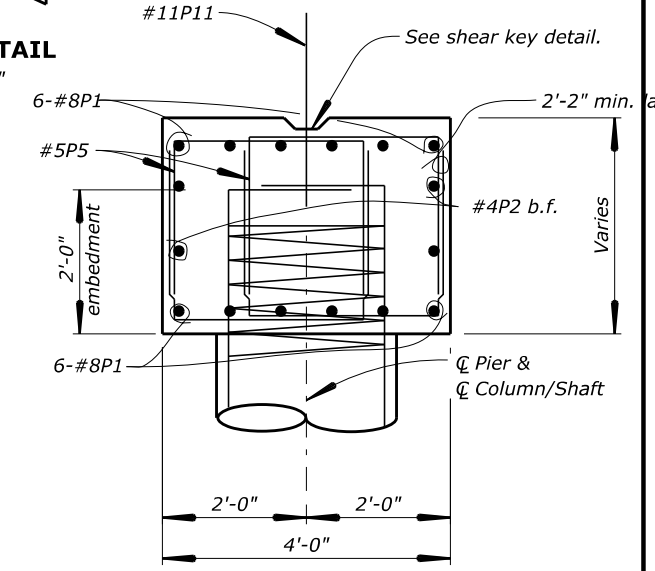
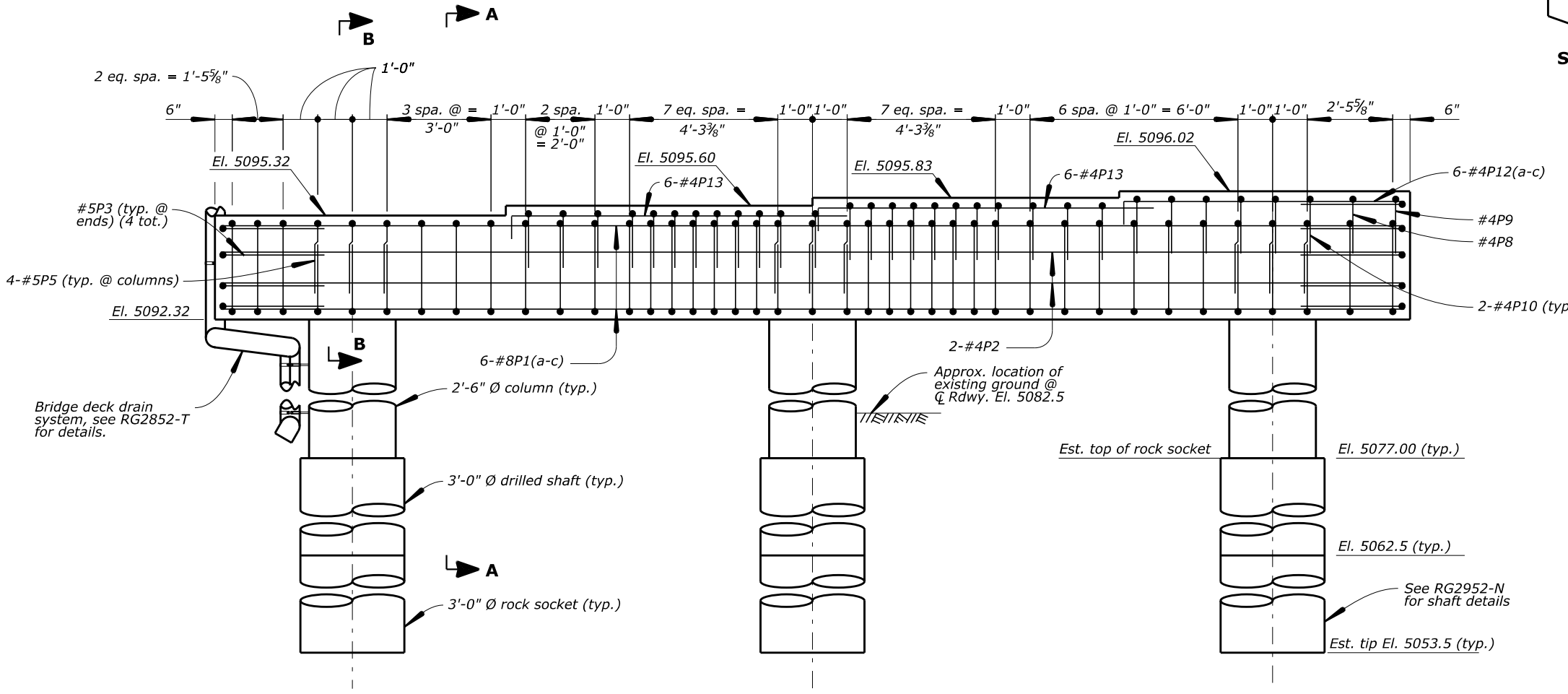
**PLAN**



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



**SHEAR KEY DETAIL**  
Scale: 3/8" = 1'-0"



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

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 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

**EAST VERDE RIVER CROSSING #2**  
**HOUSTON MESA ROAD**

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

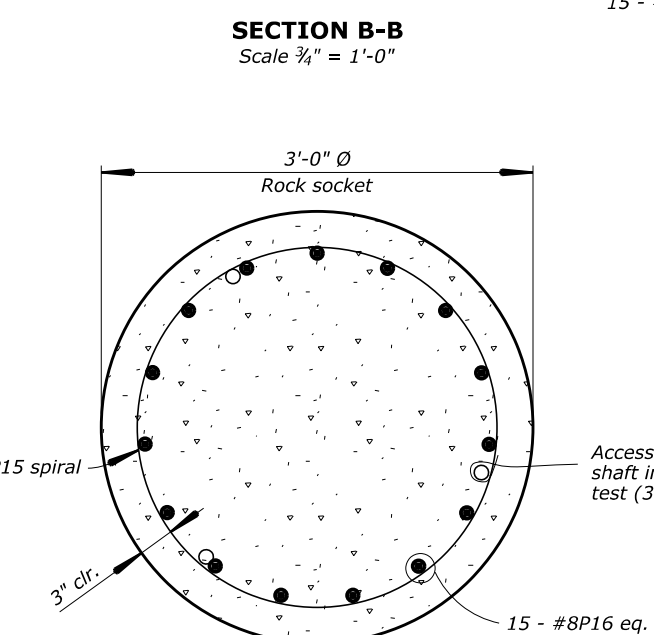
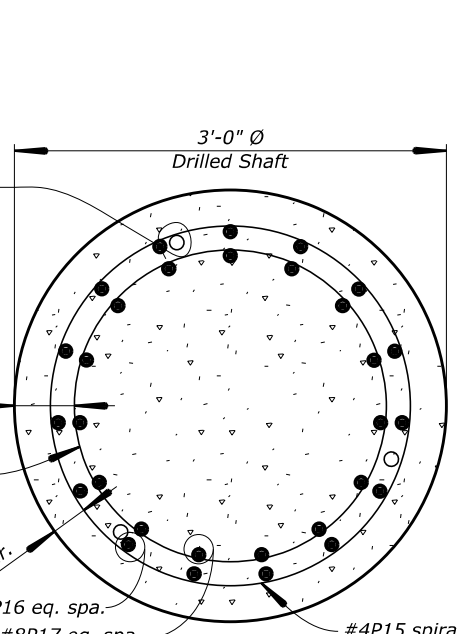
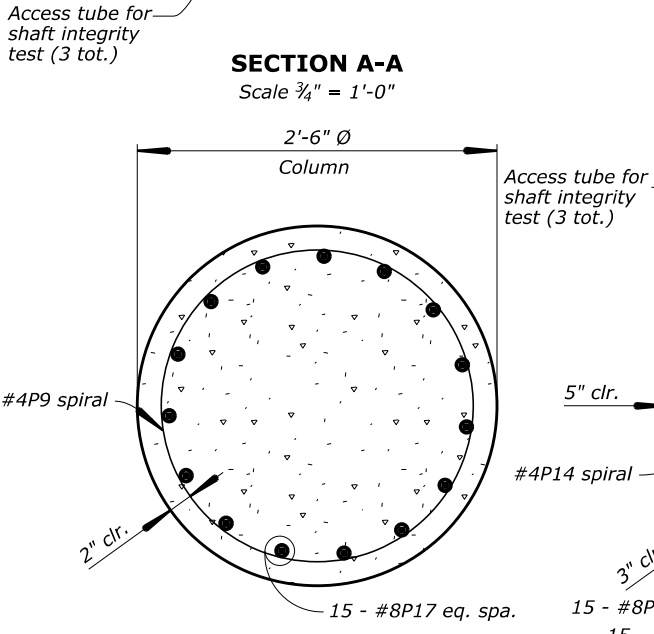
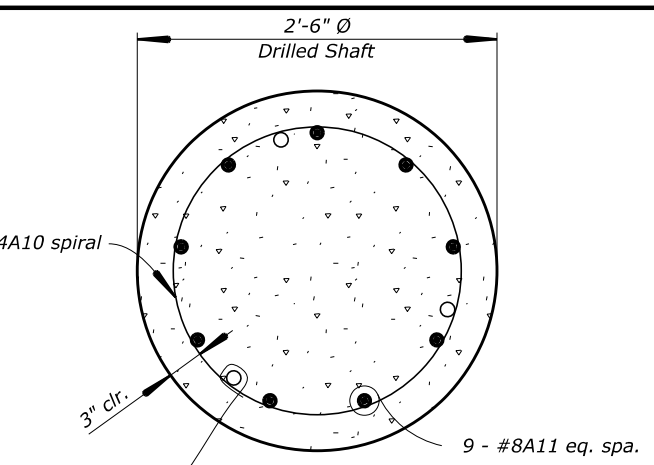
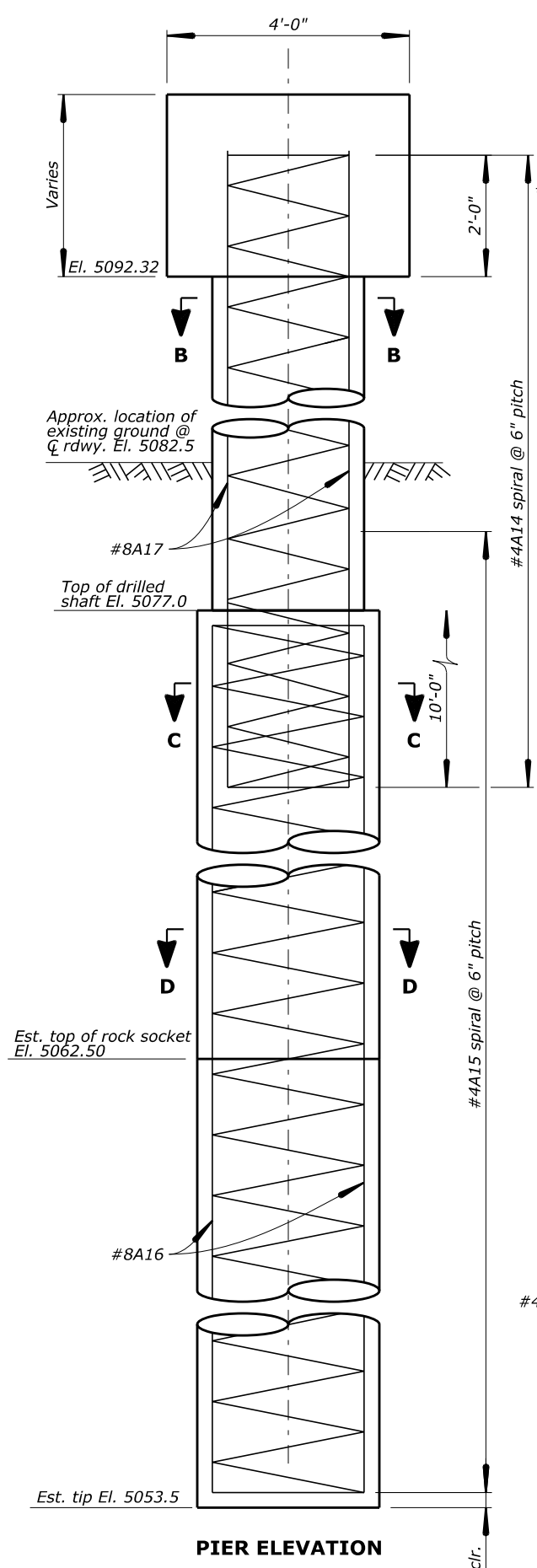
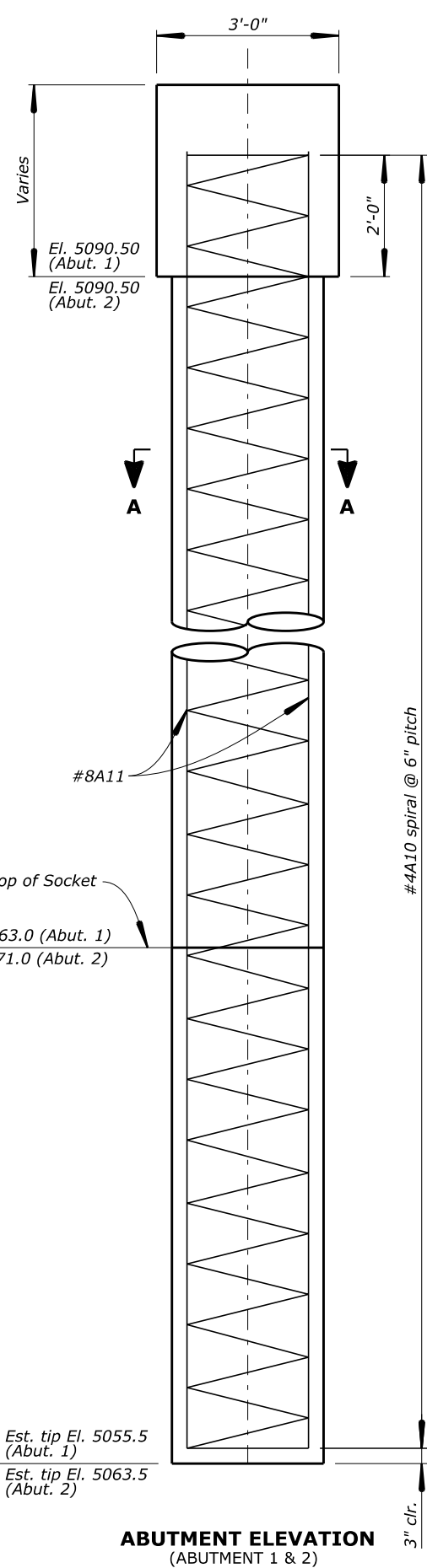
**PIER PLAN AND ELEVATION**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	1/4" = 1'-0"	BONNIE KLAMERUS	13 of 33	JULY 2013	RG2952- M

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S39	S79

- NOTES:
- Lap splices of spiral reinforcing and longitudinal drilled shaft/rock socket reinforcing shall not be permitted unless shown on the plans. For mechanical splice requirements see FP-03 and Special Contract Requirements. Splice components shall have a clear cover not less than 1½" measured from the surface of concrete to the outside face of the component. Mechanical splices of longitudinal reinforcing shall be staggered by a minimum of 2'-0" as measured along the longitudinal axis of the shaft/column.
  - Access tubes for integrity test shall be equally spaced and tied to reinforcing cage at nearest drilled shaft/ rock socket longitudinal bar. See SCR section 565 for additional requirements. Perform integrity test before pouring abutment cap and column concrete. Vertical spacing between concrete spacers shall not exceed 5 ft.
  - Contractor shall submit cage alignment details for approval.
  - Contractor shall use centralizers to maintain rebar clearance.
  - Reinforcing cage shall extend to the bottom of the rock socket as shown.
  - Drilled shaft rock socket lengths and estimated tip elevations are based on a minimum of 7.5' embedment into bedrock at the abutments and 9' embedment at the pier. Adjust tip elevation to achieve those embedment lengths if bedrock is below top of socket elevation shown.
  - Construct abutment fills prior to constructing rock socket and drilled shafts.



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 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

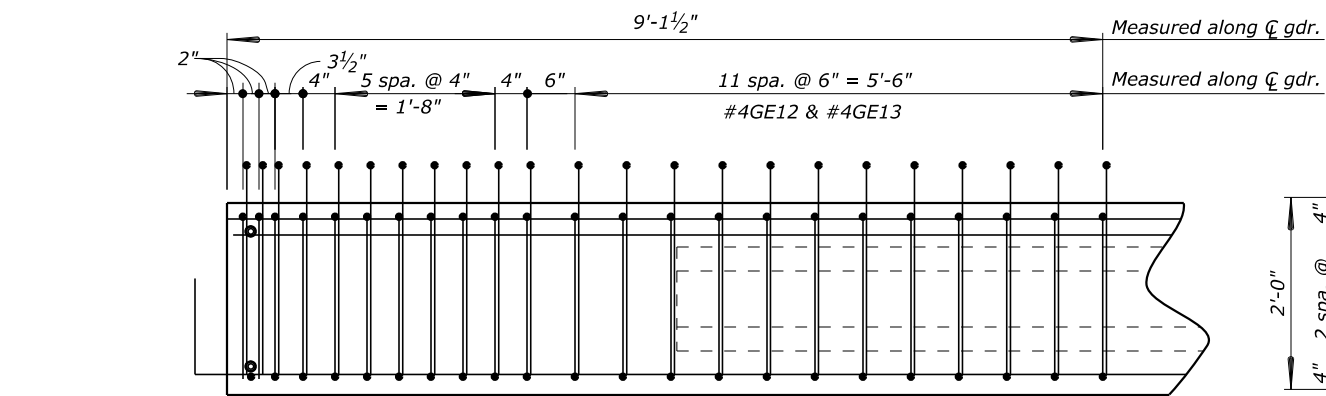
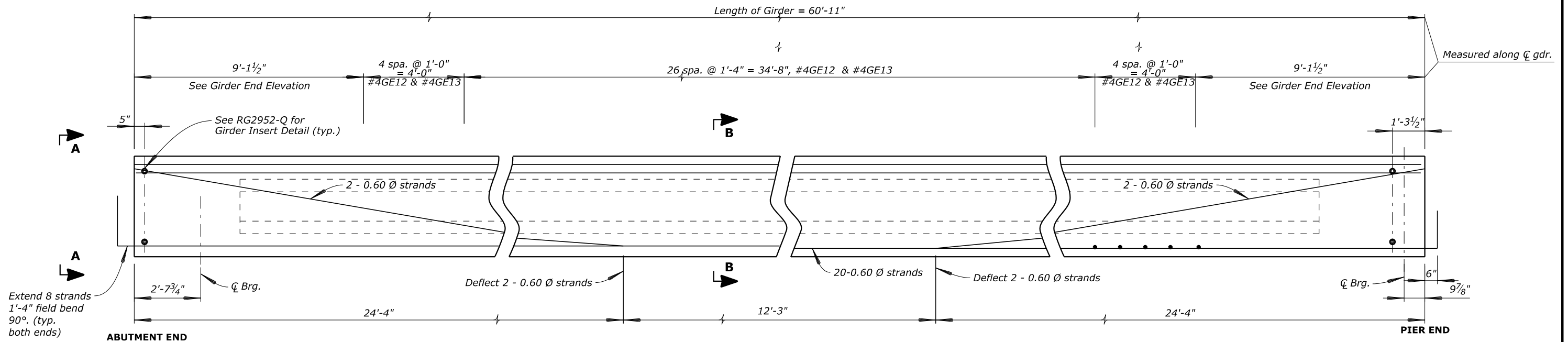
TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**DRILLED SHAFT DETAILS**

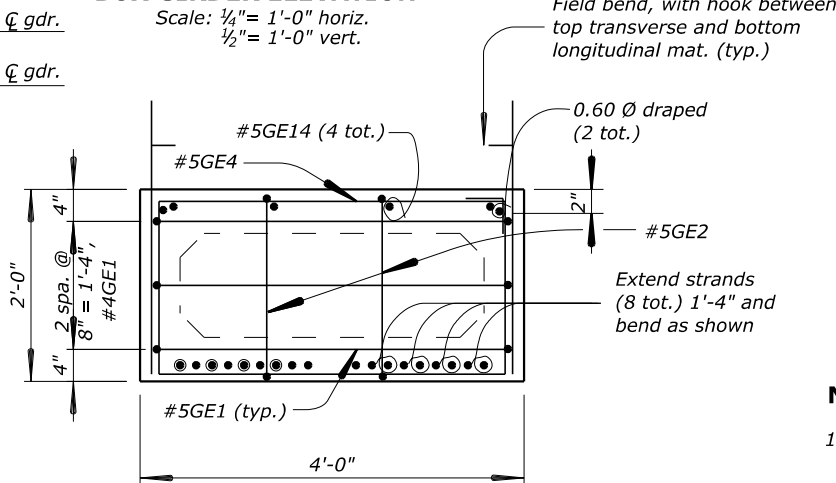
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	3/8" = 1'-0"	BONNIE KLAMERUS	14 of 33	JULY 2013	RG2952- N

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S40	S79



**BOX GIRDER ELEVATION**



**PRECAST CONCRETE BOX BEAM ESTIMATE**

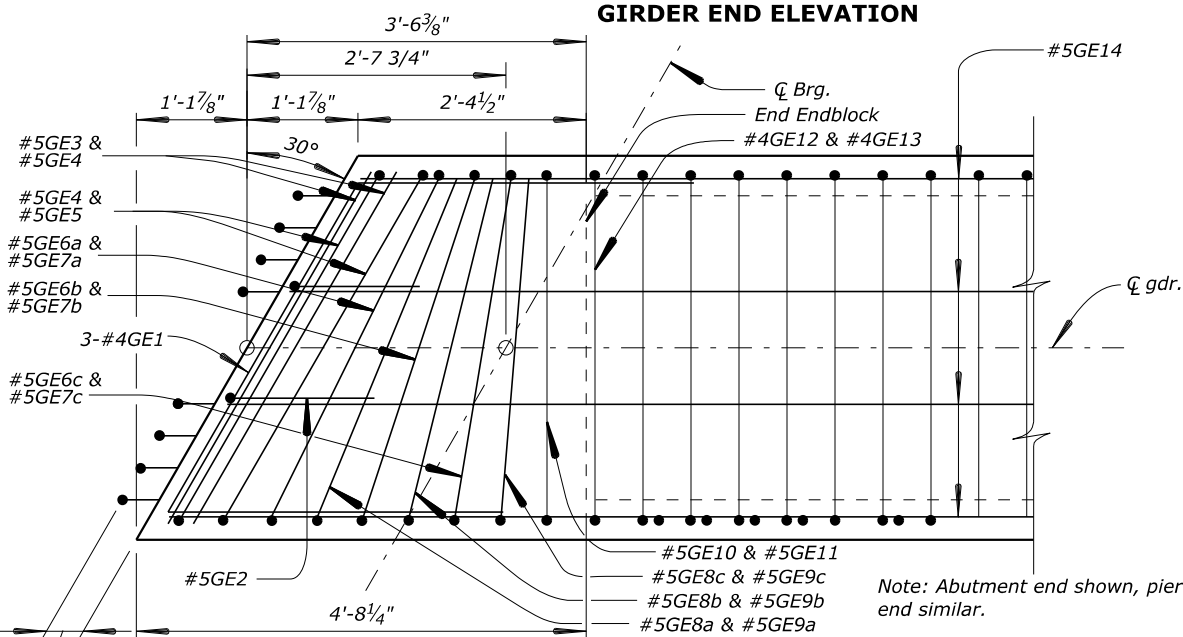
ITEM	UNIT	QUANTITY
Concrete	Cu. Yd.	11.5
Reinforcing Steel	Lbs.	1295
0.6" $\bar{\emptyset}$ Strands	Ft.	1240

Note: Quantities shown are for one box girder only. See RG2952-AD for Prestressed Box Girder bar list.

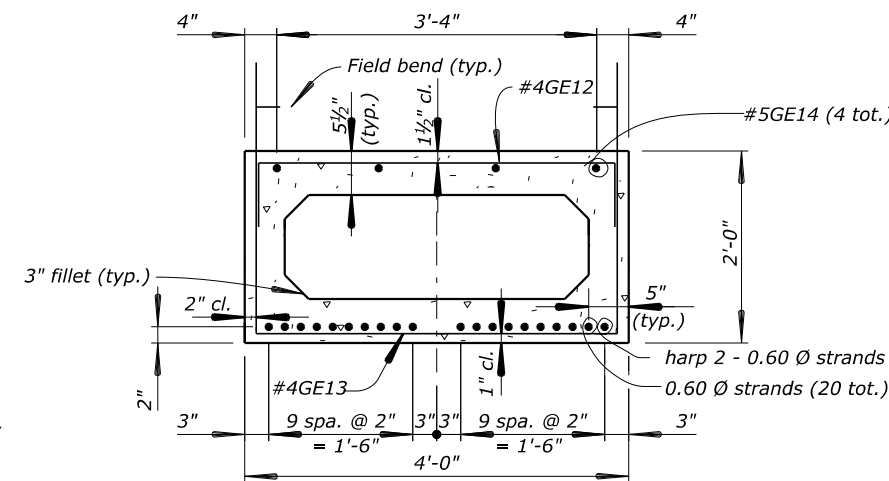
**NOTE:**

1. Cast girders 1/4" longer than shown to allow for shortening due to prestressing.
2. Field bend such that hook is between the top transverse and both longitudinal bars.
3. Install vertical void drain in bottom flange near each end block.

**GIRDER END ELEVATION**



**END GIRDER PLAN DETAIL**



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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

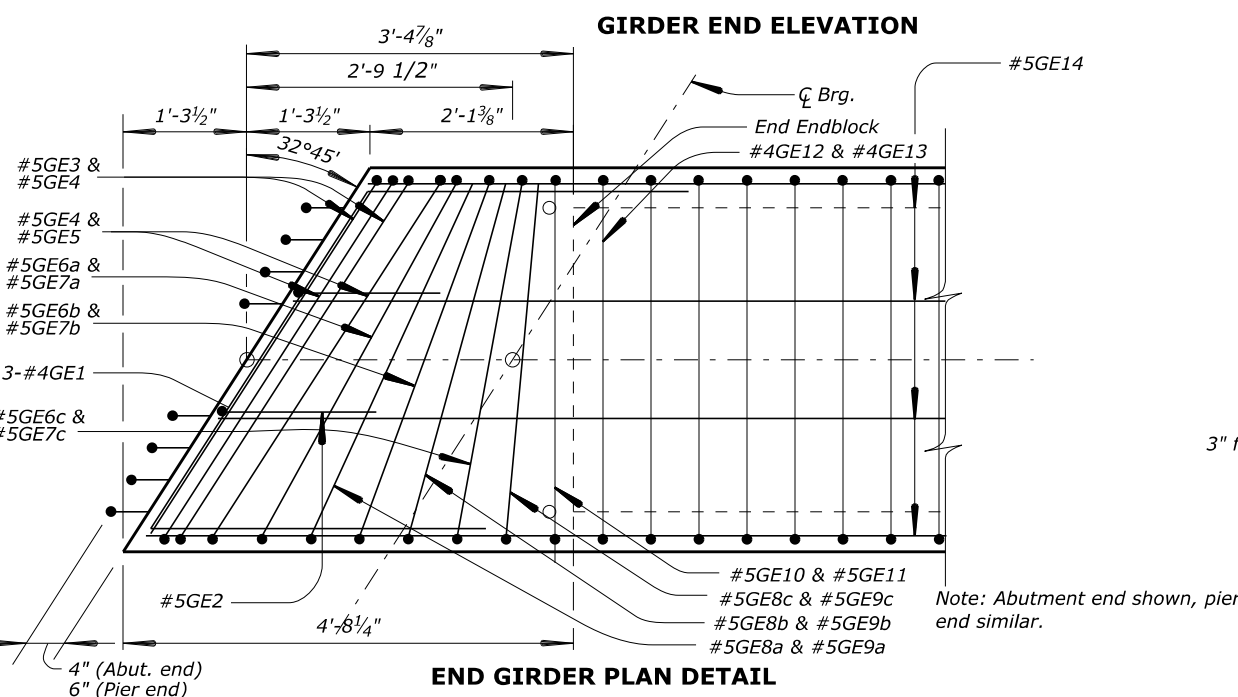
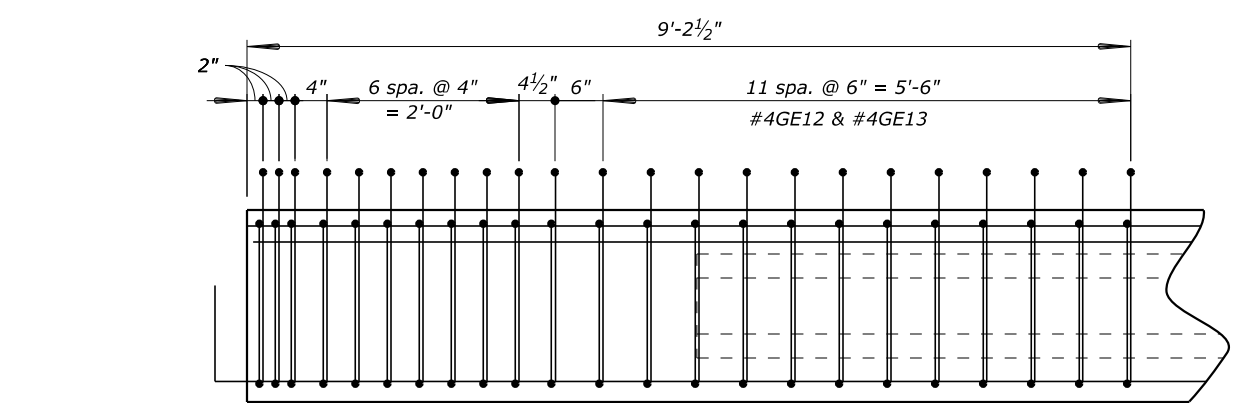
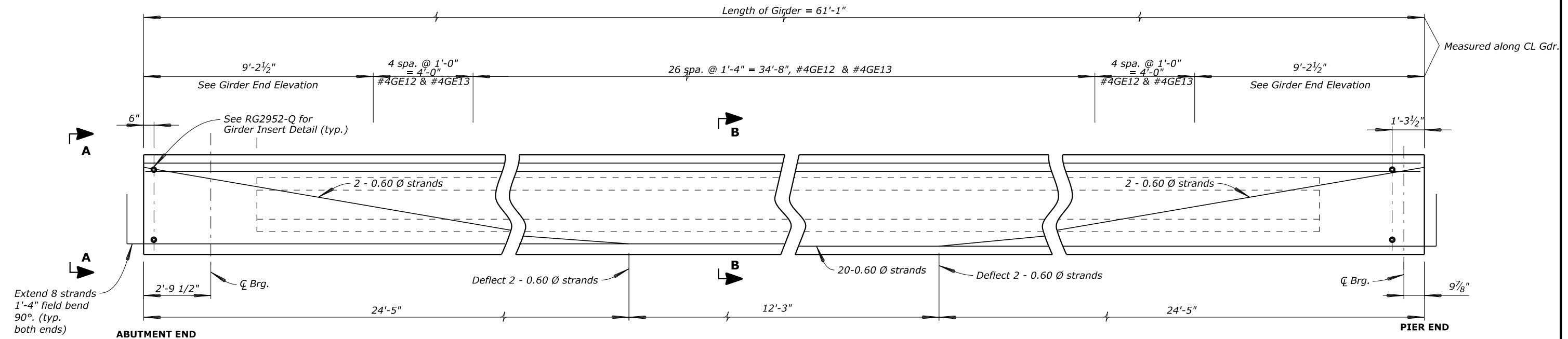
**PRECAST CONCRETE  
BOX BEAMS - SPAN 1**

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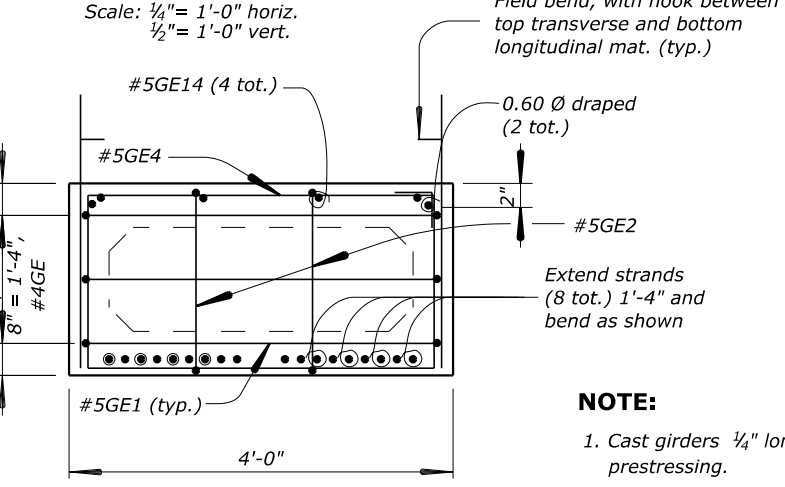
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	1/2" = 1'-0"	BONNIE KLAMERUS	15 of 33	JULY 2013	RG2952- O



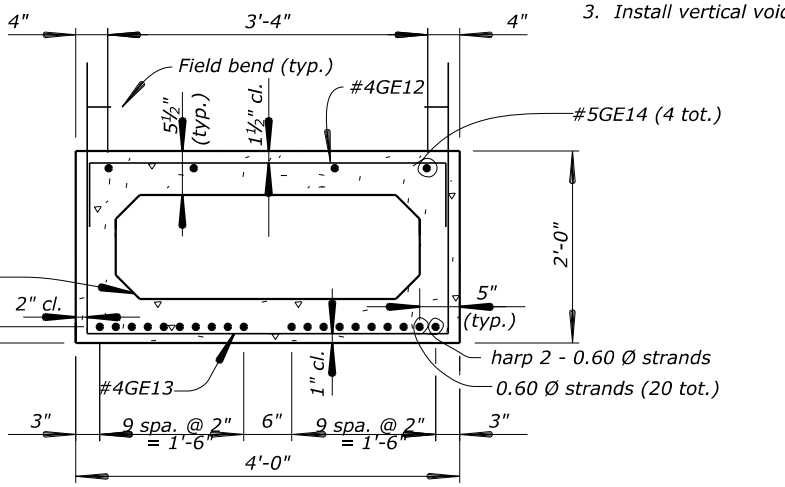
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S41	S79



**BOX GIRDER ELEVATION**



**VIEW A-A**



**SECTION B-B**

**PRECAST CONCRETE BOX BEAM ESTIMATE**

ITEM	UNIT	QUANTITY
Concrete	Cu. Yd.	11.5
Reinforcing Steel	Lbs.	1323
0.6" Ø Strands	Ft.	1243

Note: Quantities shown are for one box girder only. See RG2952-AD for Prestressed Box Girder bar list.

**NOTE:**

1. Cast girders 1/4" longer than shown to allow for shortening due to prestressing.
2. Field bend such that hook is between the top transverse and both longitudinal bars.
3. Install vertical void drain in bottom flange near each end block.

U.S. DEPARTMENT OF TRANSPORTATION  
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**PRECAST CONCRETE  
BOX BEAMS - SPAN 2**

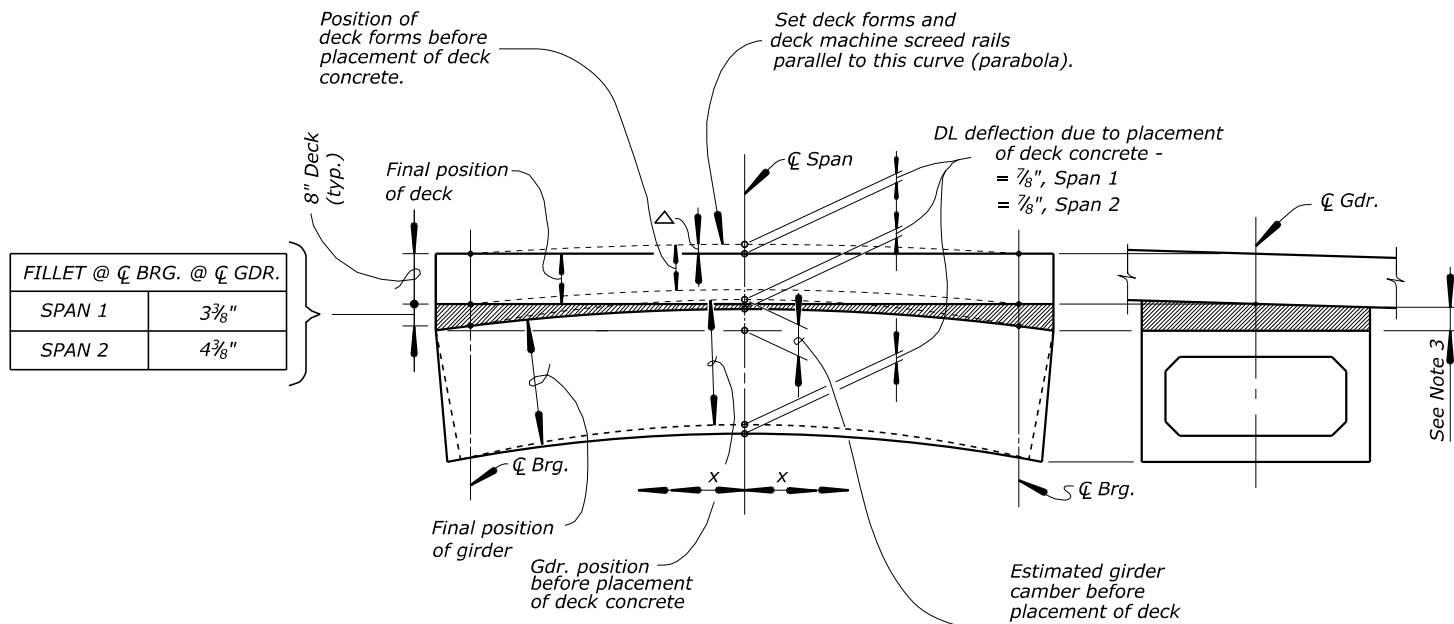
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	1/2" = 1'-0"	BONNIE KLAMERUS	16 of 33	JULY 2013	RG2952- P

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S42	S79

- NOTES:**
- Steel reinforced and plain elastomeric bearing pad shall conform to AASHTO M251 with 60 Durometer hardness, elastomer Grade 3 or higher.
  - AASHTO LRFD Design method A used for elastomeric pad design.
  - For information only

BEARING DESIGN LOADS (KIPS)		
	DL	LL
ABUT 1	73	65
PIER 1	59	0
ABUT 2	73	65



**Deflection Equation**

$$\text{Span 1} - \Delta = 0.875 - \frac{X^2}{135698} \quad \text{Span 2} - \Delta = 0.875 - \frac{X^2}{135887}$$

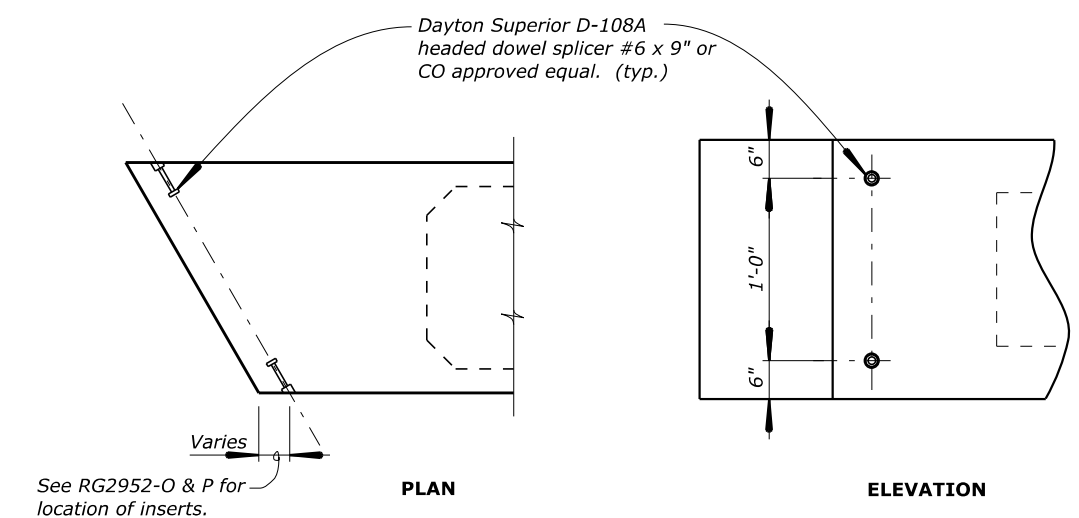
where  $\Delta$  = Deflection, in inches, of girder at any point caused by the weight of deck.  
and  $X$  = distance, in feet, measured from midspan (See diagram).

Note: Span 1 -  $\Delta$  max =  $\frac{7}{8}"$  @  $x=0$  (midspan)  
 $\Delta$  min = 0 @  $x=28'-8\frac{1}{2}"$  (CL Brg.)  
Span 2 -  $\Delta$  max =  $\frac{7}{8}"$  @  $x=0$  (midspan)  
 $\Delta$  min = 0 @  $x=28'-8\frac{7}{8}"$  (CL Brg.)

**Required Actions:**

- Measure girder camber prior to setting deck forms. If it exceeds the estimated gdr. camber ( $2\frac{3}{8}"$ ) by more than 1", the fillet will have to be increased by raising profile grade as directed by the CO.
- Set the deck forms and camber the deck machine screed rails to offset the gdr. deflections due to deck placement ( $\frac{7}{8}"$ )
- Bridge precast box beam seat elevations were calculated using design cambers of precast box beams plus dead load deflections of deck, so that top of precast box beams will be a minimum of 1 inch below bottom of deck at any one point in the span, allowing for precast box beam depth and girder camber tolerance.

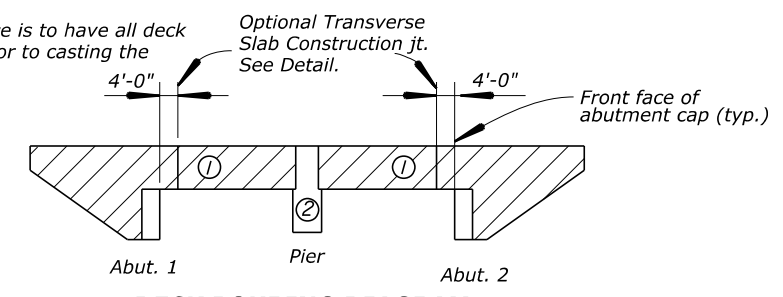
**DECK FORM SETTING DIAGRAM**



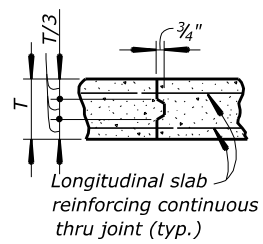
**GIRDER INSERT DETAIL**

**DECK POURING NOTES:**

- Place deck concrete ① beginning at either Abut. 1 or Abut. 2 and proceeding to the other abutment.
- Place pier diaphragm concrete ② a minimum of 3 days after deck concrete ①.
- Place wingwall and abutment endwall concrete concurrent with or 24 hrs. after completion of deck concrete.
- The purpose of the placement sequence is to have all deck concrete ① cast at adjacent spans prior to casting the pier diaphragms ②.



**DECK POURING DIAGRAM**  
No Scale



**TRANSVERSE SLAB CONSTRUCTION JOINT**  
NO SCALE

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

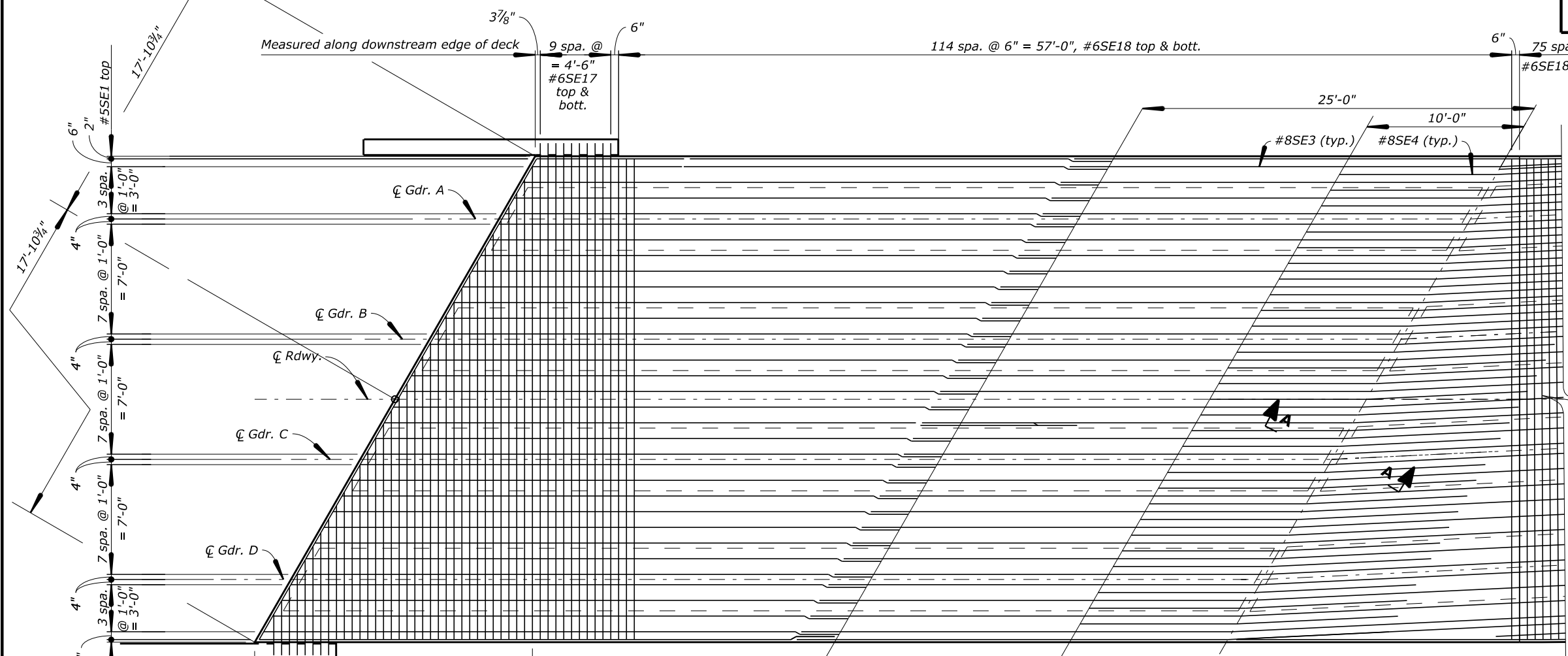
TONTO NATIONAL FOREST  
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**BEARING DETAILS**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	17 of 33	JULY 2013	RG2952- Q

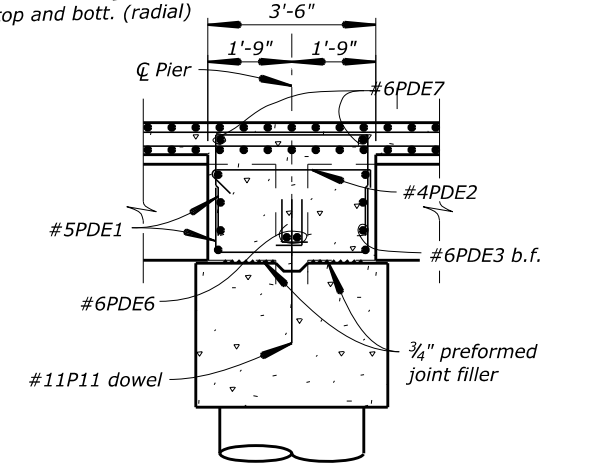
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REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S43	S79

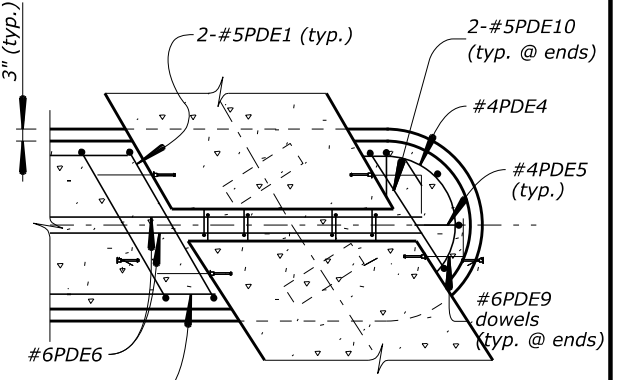


**HALF DECK PLAN**  
Scale: 1/8" = 1'-0"

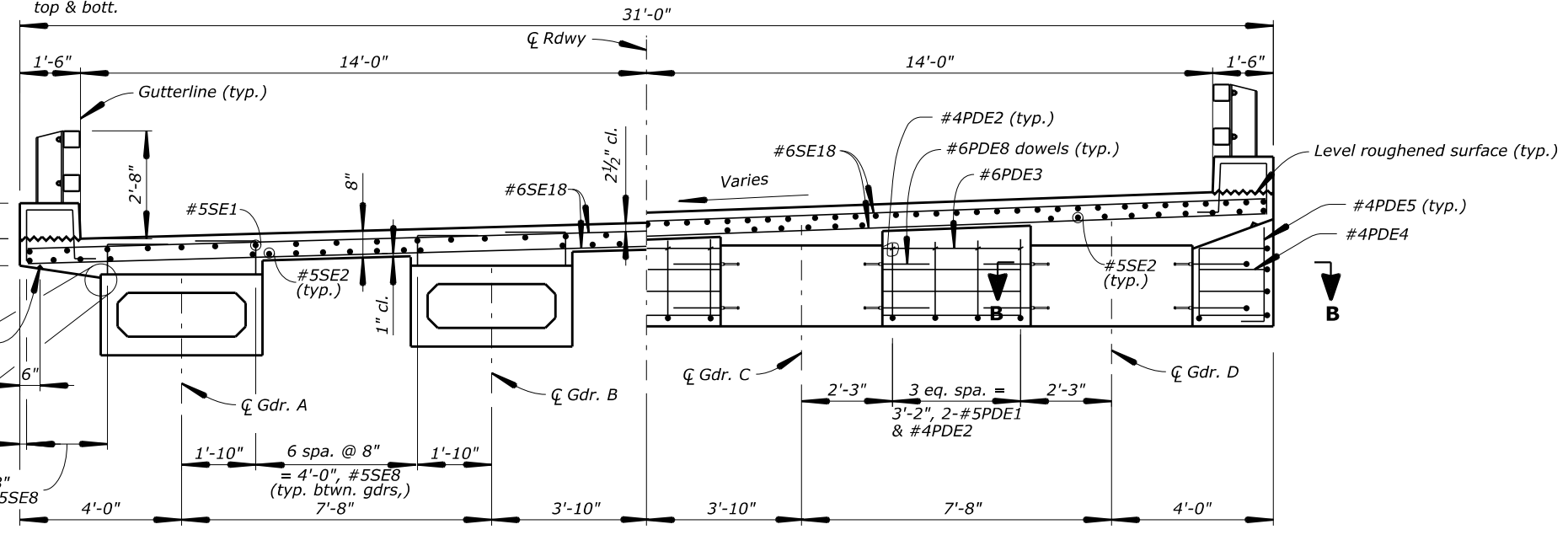
**NOTE:**  
Only top longitudinal steel is shown, unless noted.  
For bott. longitudinal steel see, Typical Section.



**SECTION A-A**



**SECTION B-B**



**TYPICAL BRIDGE SECTION**

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

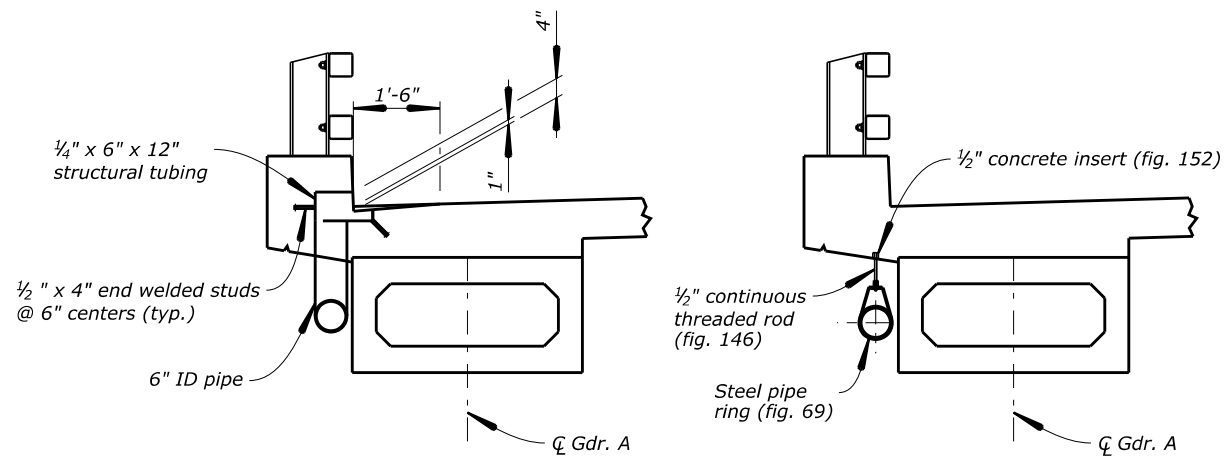
**TYPICAL SECTION  
(DECK PLAN 1 OF 2)**

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8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	1/4" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	18 of 33	JULY 2013	RG2952- R

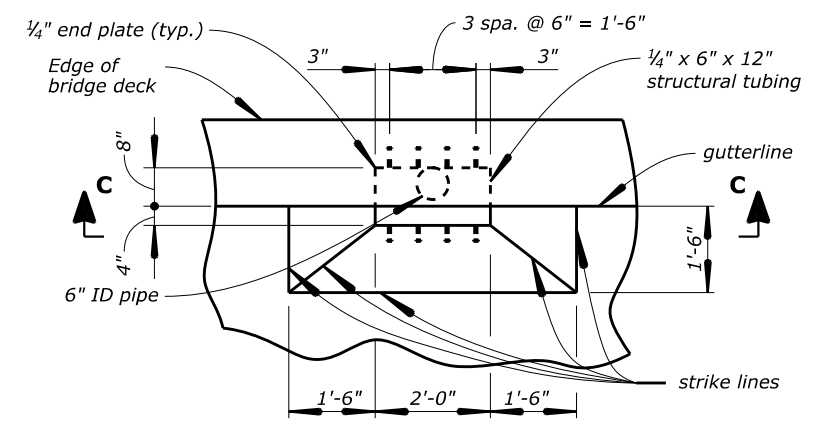


REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
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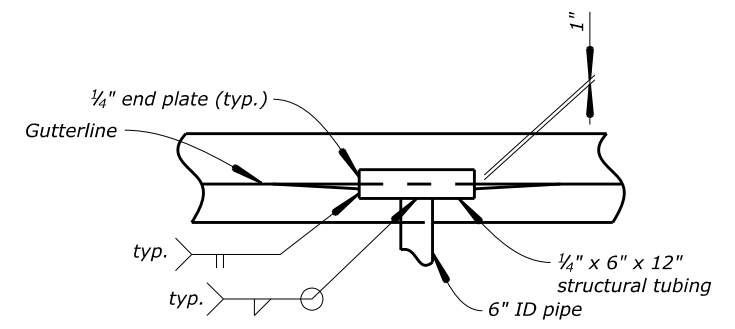


**SECTION A-A**

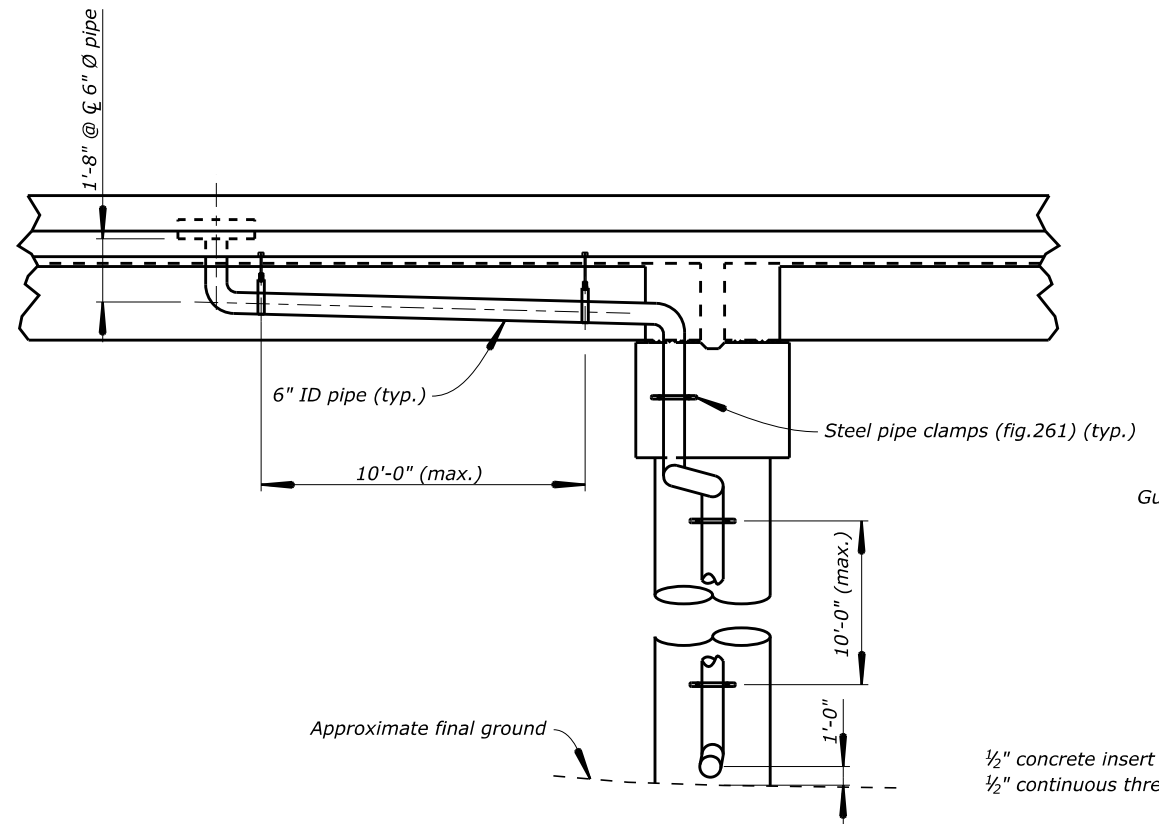
**SECTION B-B**



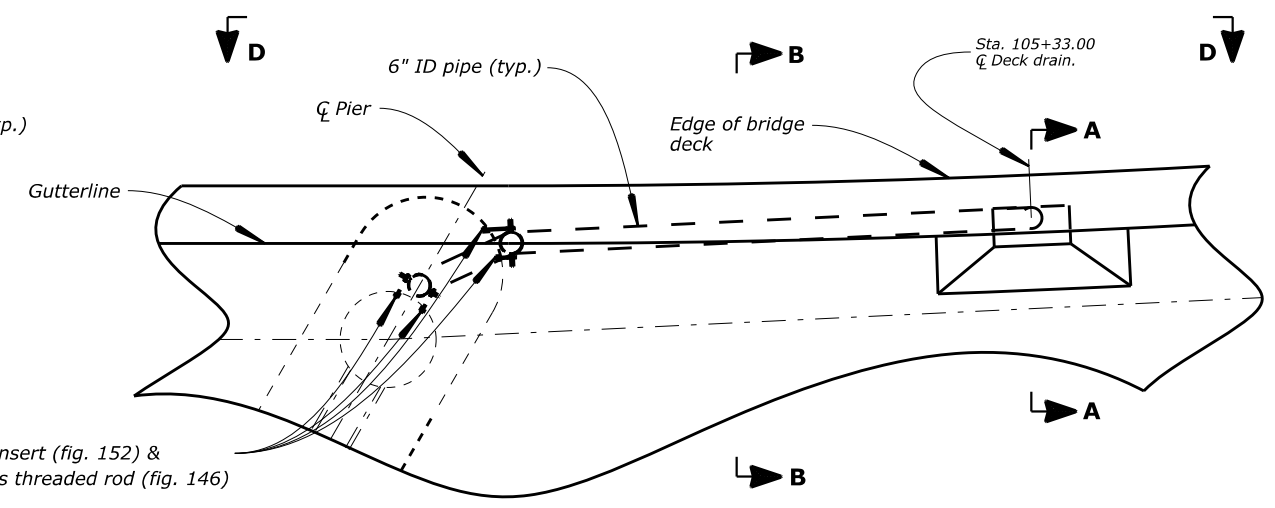
**DRAIN DETAIL**



**SECTION C-C**



**VIEW D-D**



**PLAN VIEW**

**BRIDGE DRAIN SYSTEM NOTES:**

- Strike lines may vary to fit conditions.
- Set floor drains level.
- Field bend or cut reinforcing steel to clear floor drain a minimum of 1".
- Structural tubing shall meet the requirements of ASTM A500, Grade B. Drain pipes, lateral pipes, fittings and bends to be ASTM A501 with  $F_y = 36$  ksi, ASTM A53, Type E or S, Grade B with  $F_y = 35$  ksi. Minimum wall thickness of drain pipes, lateral pipes, fittings and bends to be 1/4".
- Pipe joints or connectors to be butt welded or connected by a steel pipe sleeve and to be smooth throughout pipe. Welding shall conform to ANSI/AASHTO/AWS D1.5, and shall be performed by a certified welder.
- Drain pipe to maintain a minimum 1 percent slope.
- All bridge deck drain system components to be painted to match the color of the Type IV (corrosion resistant) steel bridge railing.
- All drain system support components and hardware used shall be manufactured by Anvil International Inc. (see fig. #) or approved equal.
- The cost of furnishing and installing the drain system including all tubing, pipe, fittings, bends, studs, and support components and hardware shall be included in the contract item 61003-000, Collector system (Bridge drain).
- Contractor to submit shop drawings showing complete details of the bridge drainage system including hanger locations and manufacturer's product data to the CO for approval prior to proceeding with the work.

U.S. DEPARTMENT OF TRANSPORTATION  
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 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

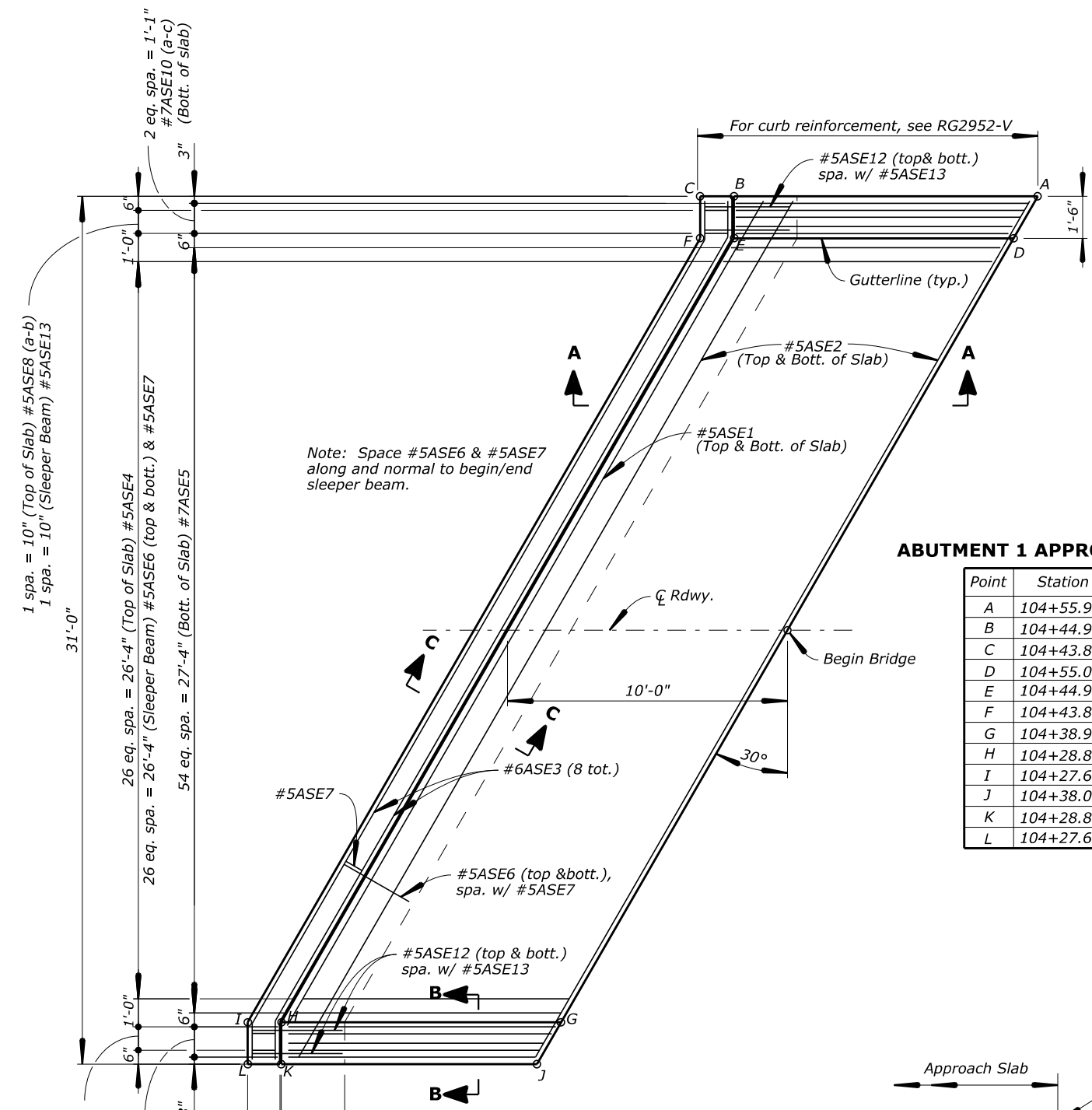
TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**BRIDGE DRAIN SYSTEM  
 DETAILS**

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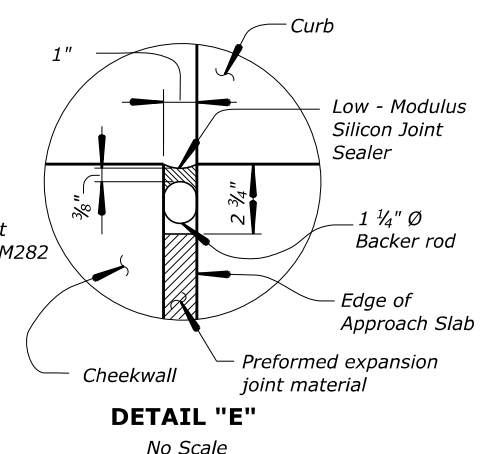
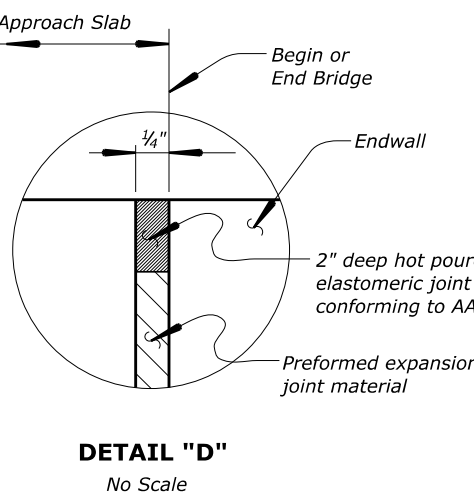
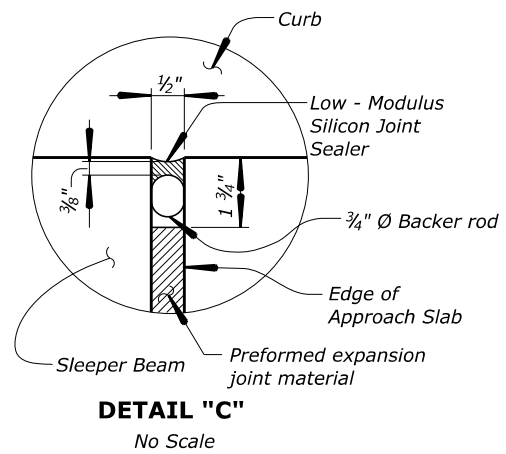
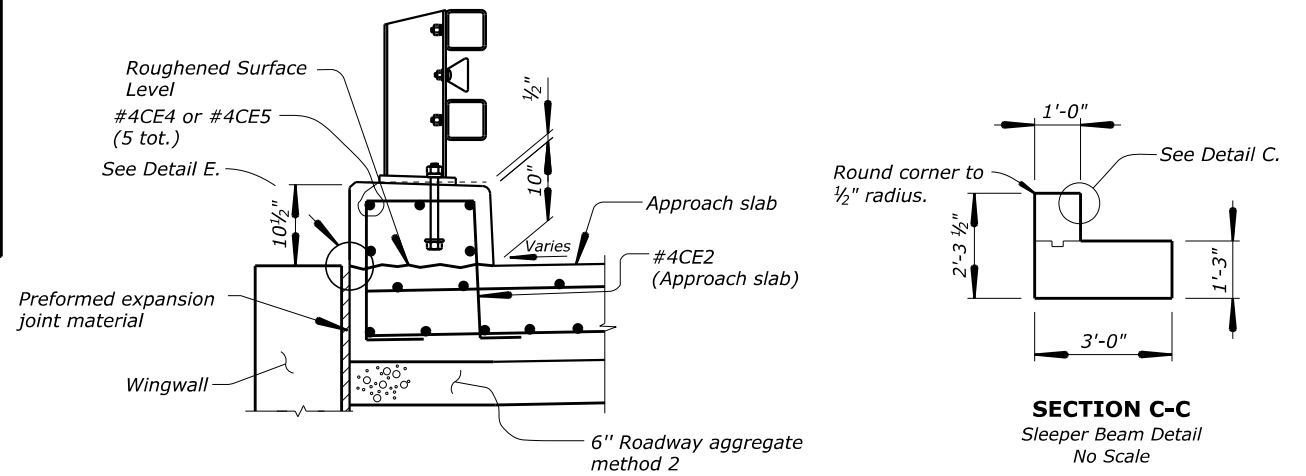
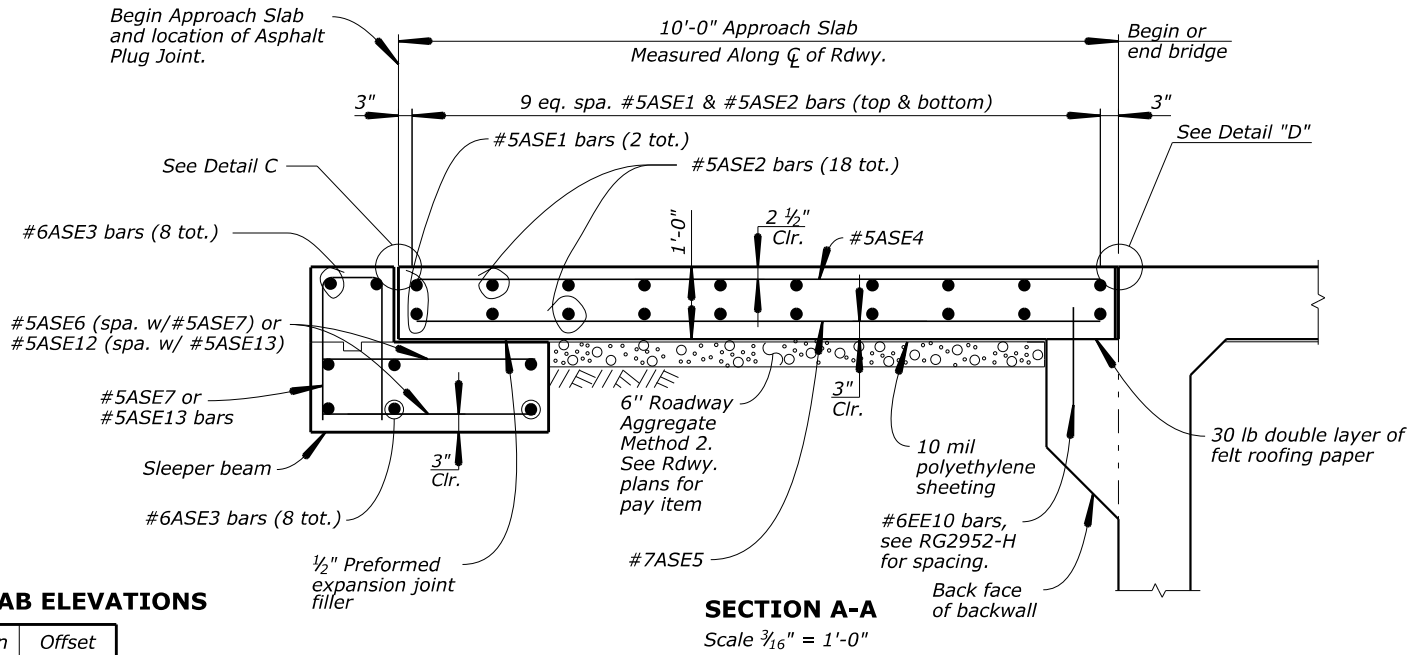
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								S. BELCHER	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	20 of 33	JULY 2013	RG2952- T

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S46	S79



**ABUTMENT 1 APPROACH SLAB ELEVATIONS**

Point	Station	Elevation	Offset
A	104+55.95	5098.26	15'-6"
B	104+44.99	5098.21	15'-6"
C	104+43.83	5098.20	15'-6"
D	104+55.08	5098.26	14'-0"
E	104+44.99	5098.21	14'-0"
F	104+43.83	5098.20	14'-0"
G	104+38.92	5098.74	14'-0"
H	104+28.82	5098.71	14'-0"
I	104+27.67	5098.71	14'-0"
J	104+38.05	5098.74	15'-6"
K	104+28.82	5098.71	15'-6"
L	104+27.67	5098.71	15'-6"



**NOTE:**  
Chamfer exposed edges of all concrete 3/4"

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

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

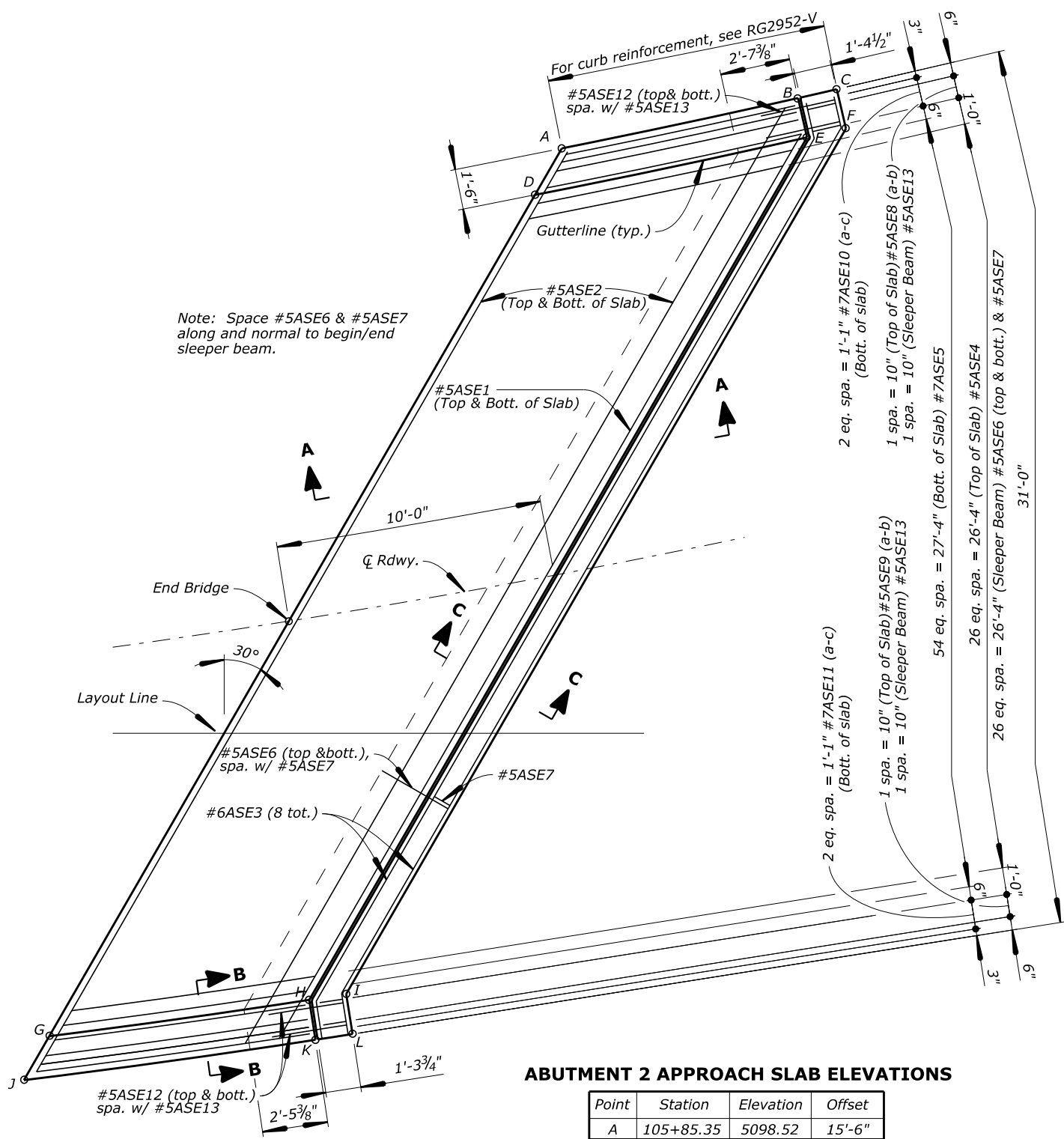
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**ABUTMENT 1 APPROACH SLAB**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	AS NOTED	BONNIE KLAMERUS	21 of 33	JULY 2013	RG2952- U

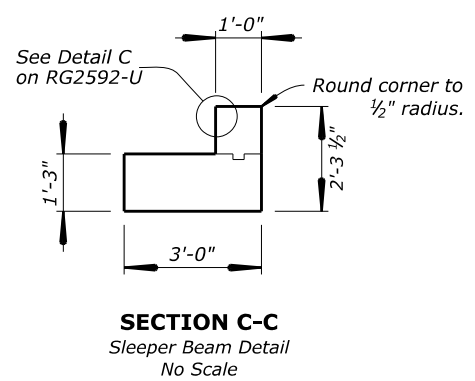
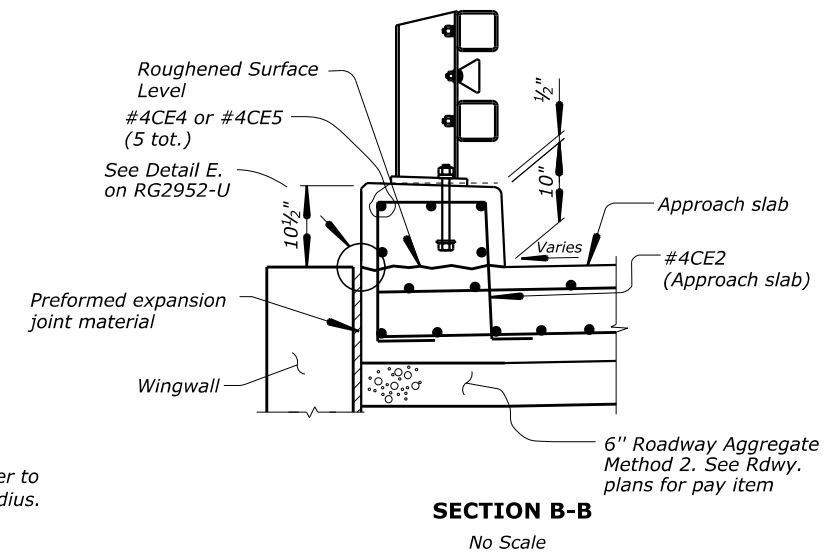
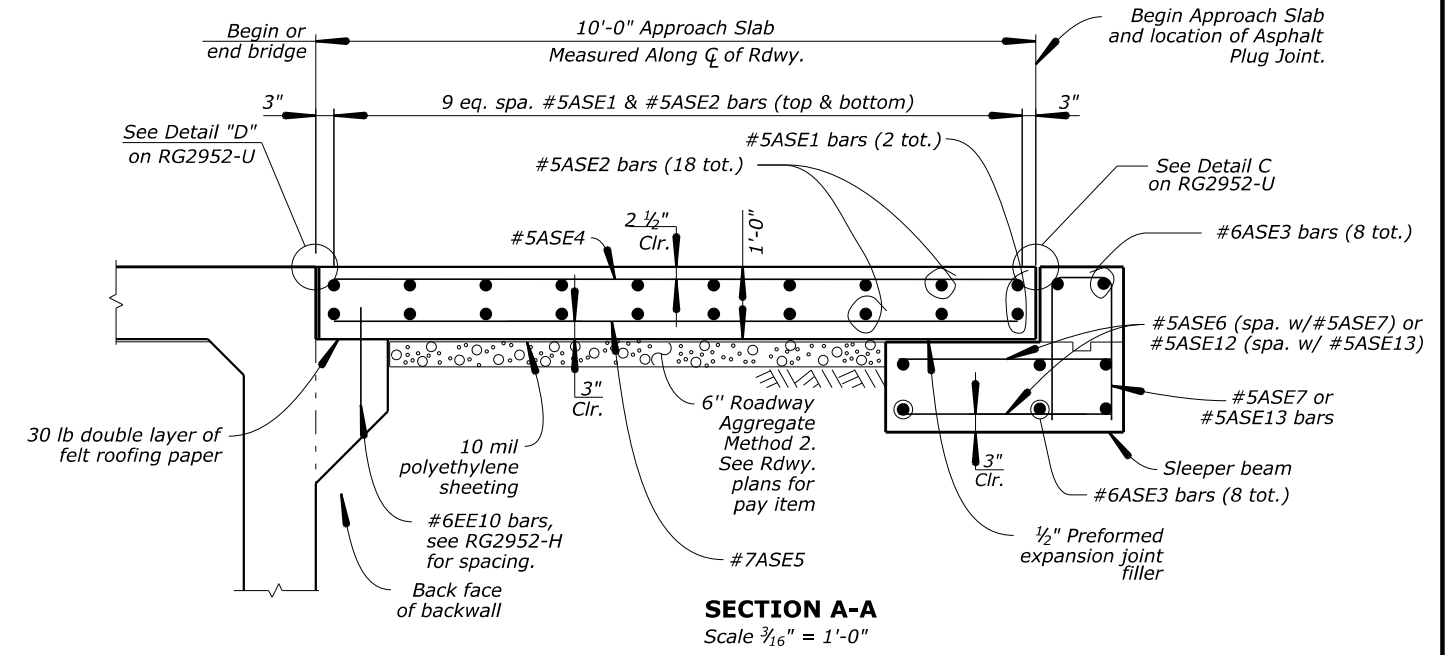
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S47	S79



**ABUTMENT 2 APPROACH SLAB ELEVATIONS**

Point	Station	Elevation	Offset
A	105+85.35	5098.52	15'-6"
B	105+94.75	5098.59	15'-6"
C	105+96.29	5098.60	15'-6"
D	105+83.98	5098.51	14'-0"
E	105+94.75	5098.59	14'-0"
F	105+96.29	5098.60	14'-0"
G	105+61.26	5099.74	14'-0"
H	105+70.61	5099.79	14'-0"
I	105+71.95	5099.80	14'-0"
J	105+60.17	5099.74	15'-6"
K	105+70.61	5099.79	15'-6"
L	105+71.95	5099.80	15'-6"

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



- NOTE:**
1. Chamfer exposed edges of all concrete 3/4"
  2. Cast sleeper beam and approach slab parallel to End Bridge

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

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

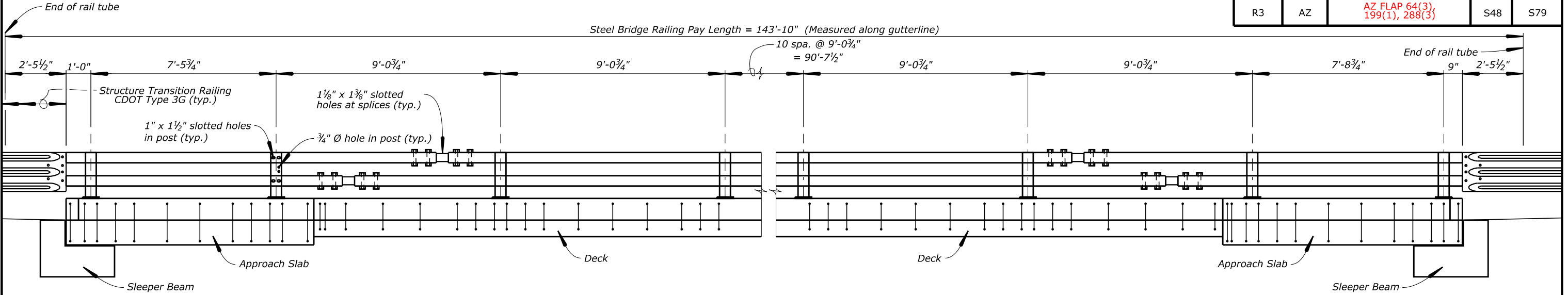
**ABUTMENT 2 APPROACH SLAB**

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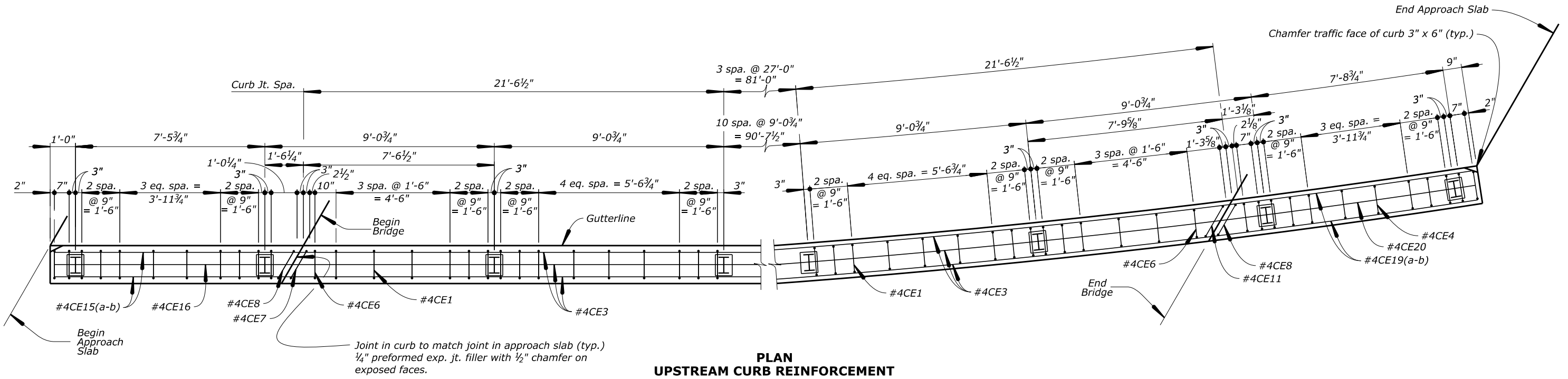
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								G. MAY	R. WEHNER	D. GERMANI	AS NOTED	BONNIE KLAMERUS	22 of 33	JULY 2013	RG2952- V

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S48	S79

**NOTE:**  
All horizontal dimensions are measured along gutterline.



**ELEVATION  
UPSTREAM CURB REINFORCEMENT**



**PLAN  
UPSTREAM CURB REINFORCEMENT**

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

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**BRIDGE RAILING UPSTREAM**

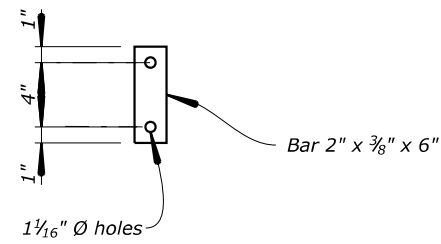
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	1/4" = 1'-0"	BONNIE KLAMERUS	23 of 33	JULY 2013	RG2952-W

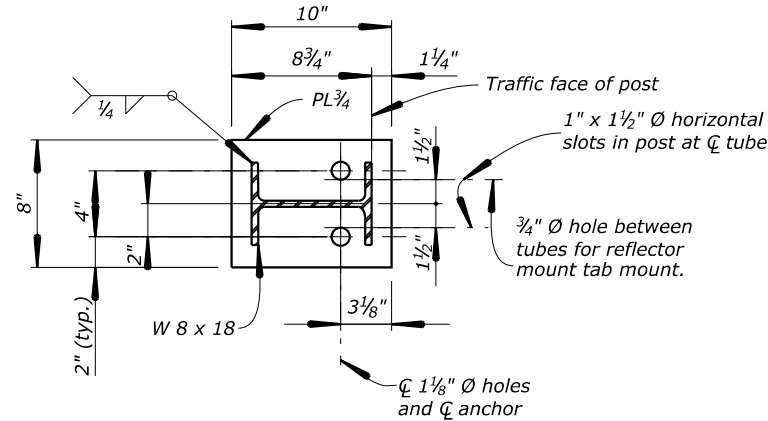




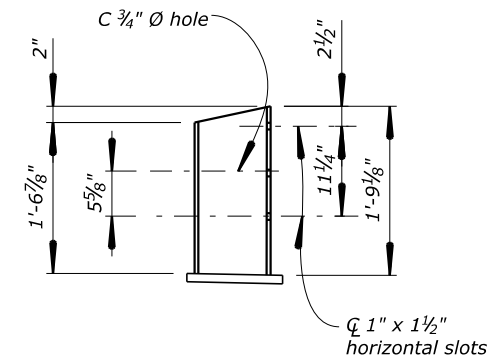
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S50	S79



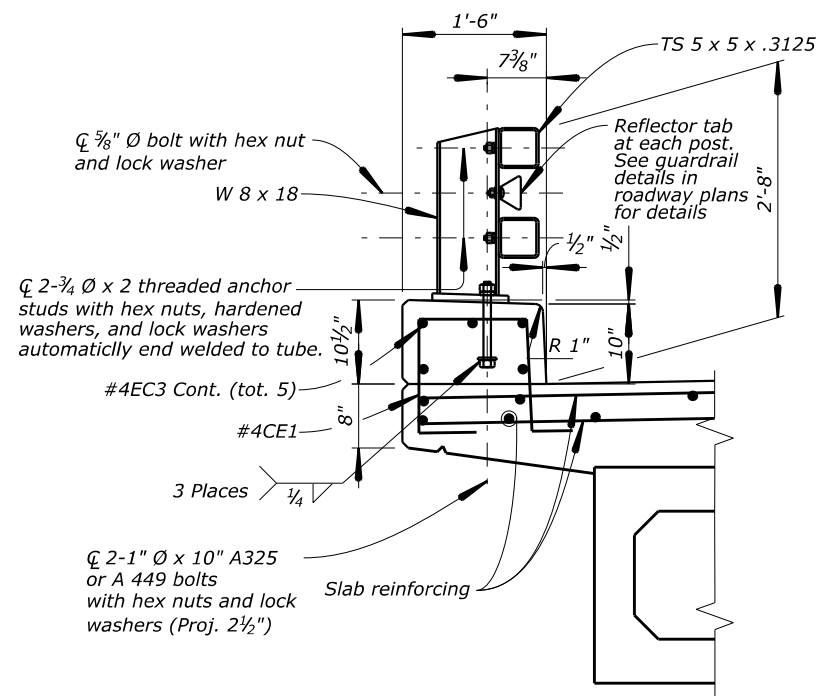
**ANCHOR DETAIL**  
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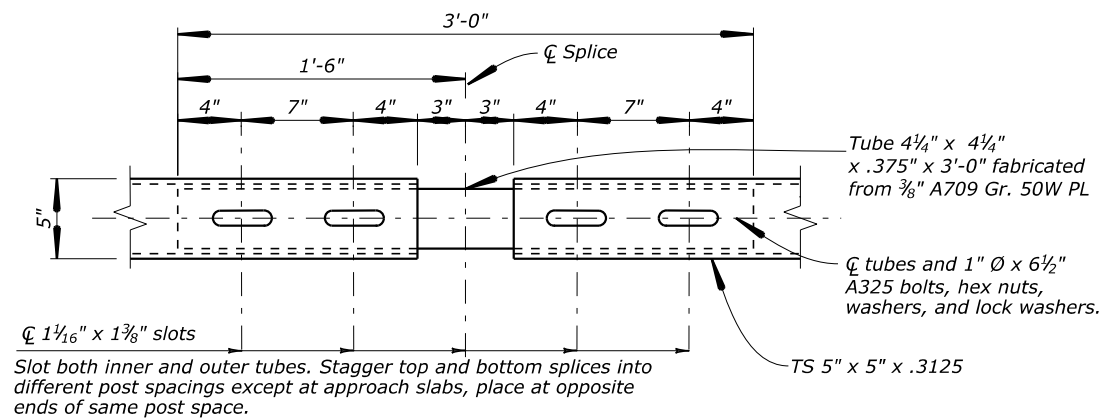
**PLAN - POST DETAIL**  
No Scale



**ELEVATION**  
No Scale



**TYPICAL SECTION ON DECK**  
No Scale



**PLAN - TUBE SPLICE**  
No Scale

**NOTES:**

This rail originated from the Colorado Department of Transportation Bridge Rail Type 10M which meets NCHRP Report 350 guidelines for TL-4.

All tubes shall be ASTM A847 with enhanced atmospheric corrosion resistance. All posts and base plates shall be ASTM A709 Grade 50W. All other steel shall be ASTM A-36 unless otherwise noted.

Post anchor, encased in concrete, shall be ASTM A-36 (AASHTO M-183) steel and need not be galvanized.

The tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 1,500 feet.

Tubes shall be continuous over not less than two posts. No welded butt splices will be allowed in the tube sections.

The centerline of the tube splice shall be 1'-8" minimum and 2'-6" maximum from the centerline of the posts.

All bolts that have lock washers shall be tightened to snug only.

Posts shall be perpendicular to the longitudinal roadway grade.

Payment will be made under item 55601, Bridge Railing, Steel for all posts, post anchors, base plates, backing plates, anchor bolts, miscellaneous bolts, nuts, washers, tubes, tube expansion devices, tube splices, end plates, curb concrete, curb reinforcing steel, and reflector tabs.

U.S. DEPARTMENT OF TRANSPORTATION  
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

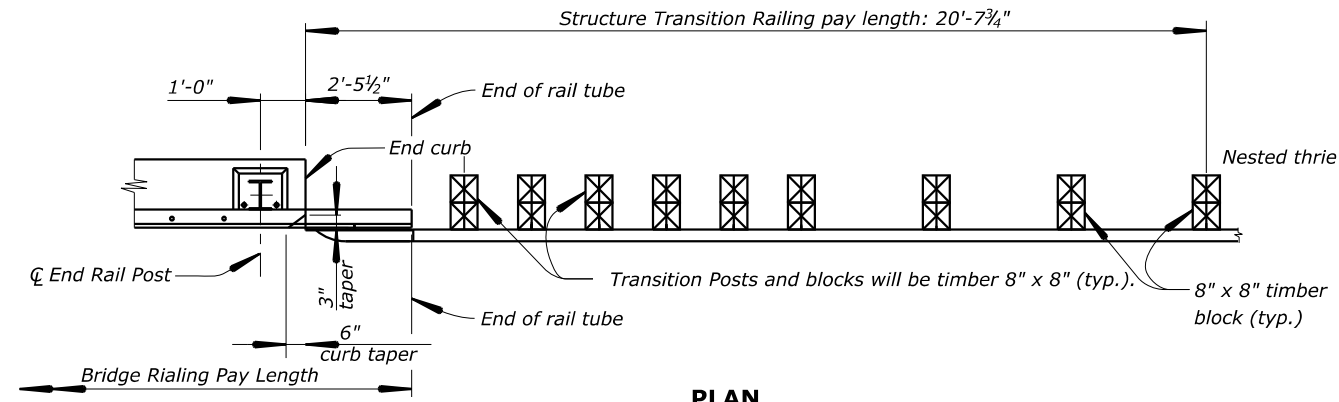
**BRIDGE RAILING DETAILS**

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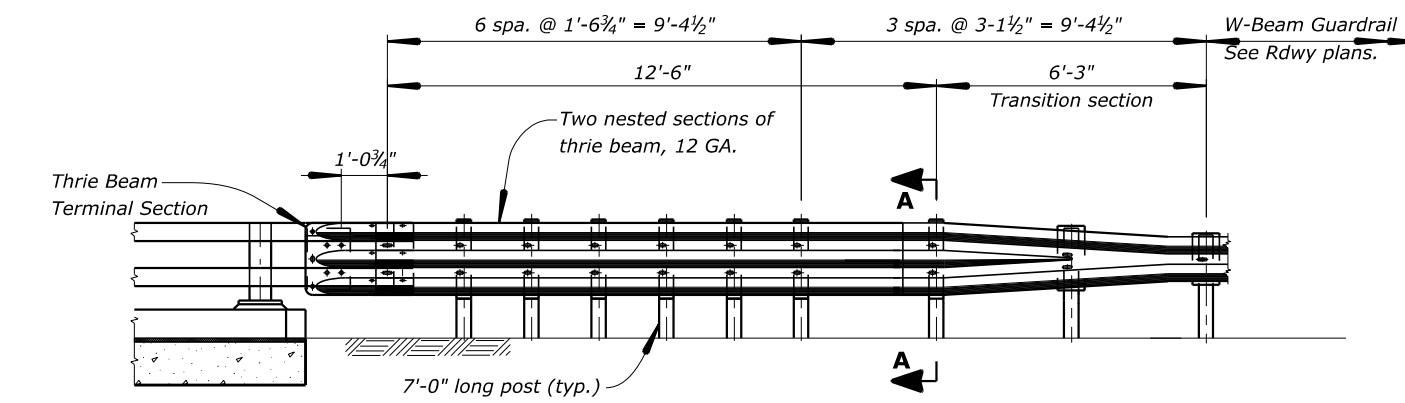
8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	25 of 33	JULY 2013	RG2952- Y

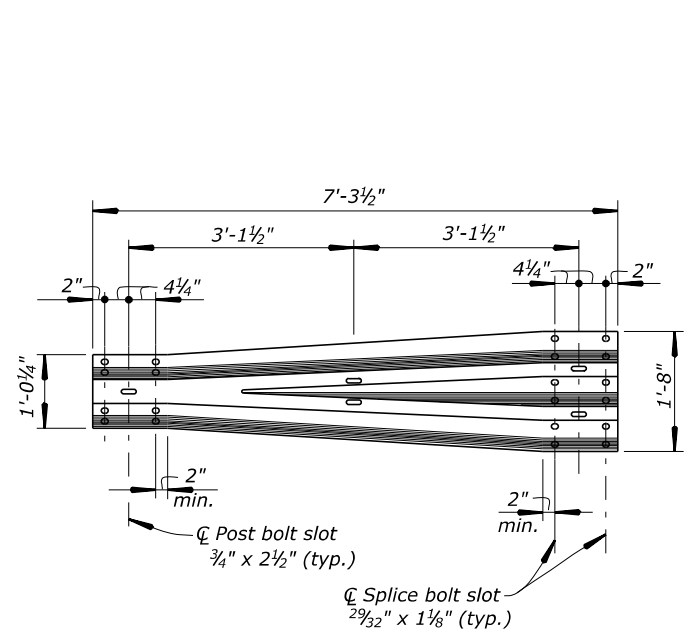
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S51	S79



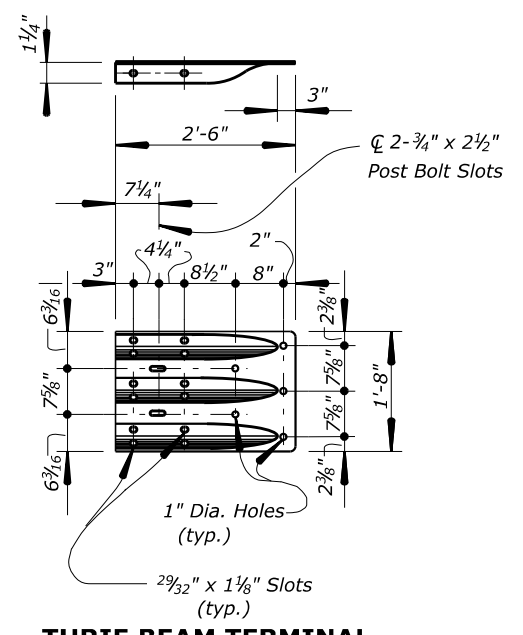
**PLAN**



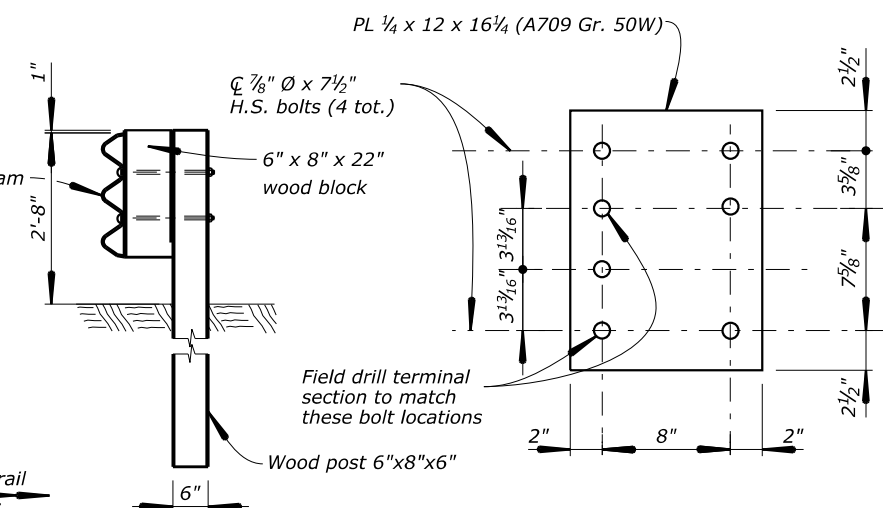
**ELEVATION**



**THRIE BEAM TRANSITION**



**THRIE BEAM TERMINAL SECTION DETAIL**

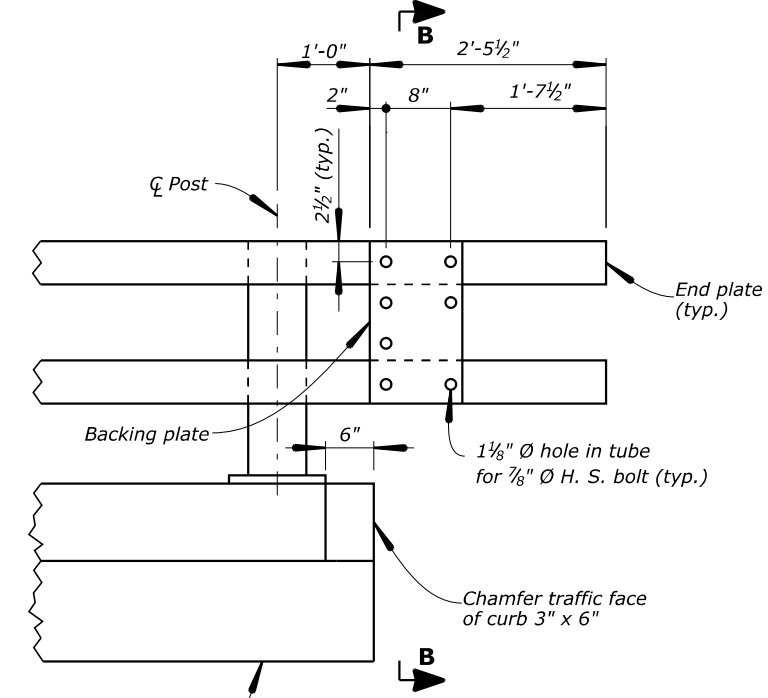


**SECTION A-A**

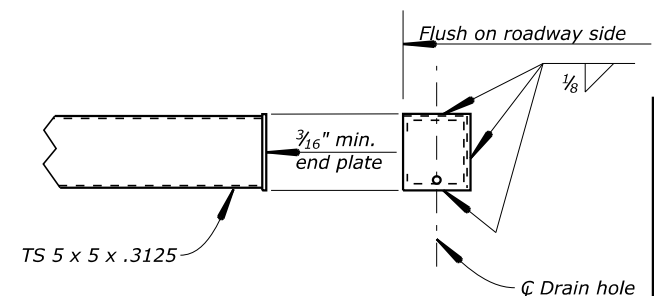
**BACKING PLATE**

(3 req'd)

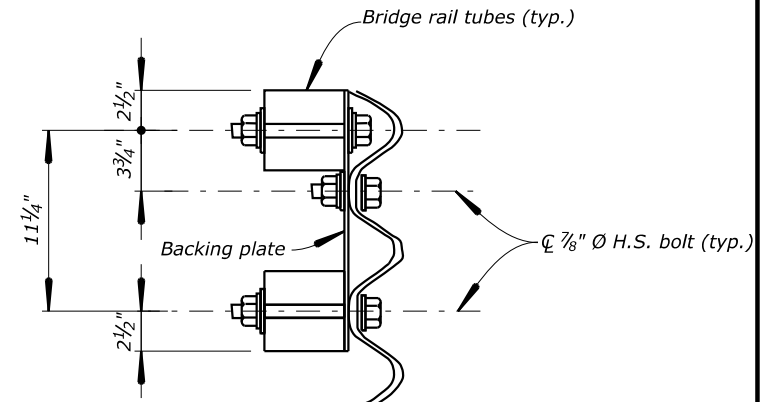
Holes are 1 1/8" Ø for 7/8" Ø H. S. bolts with hex nuts, 2 PL washers, and 1 lock washer



**RAIL TUBE DETAILS**



**END PLATE DETAIL**



**SECTION B-B**

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

EAST VERDE RIVER CROSSING #2  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**STRUCTURE TRANSITION RAILING**

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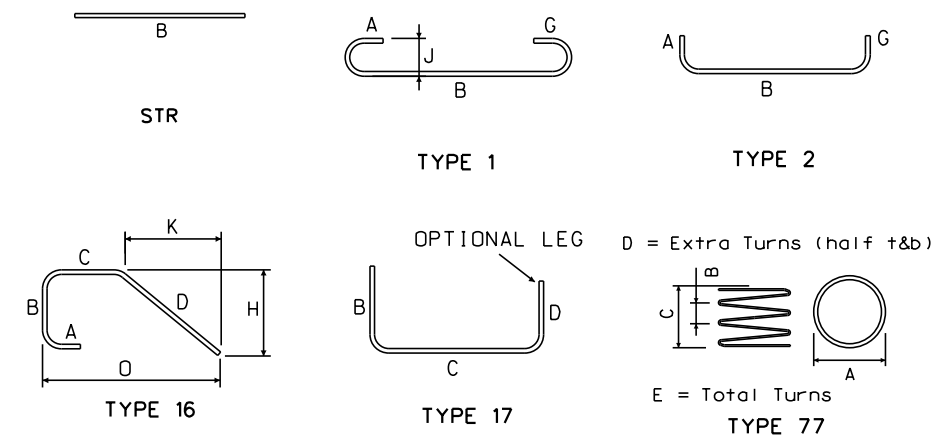
8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	26 of 33	JULY 2013	RG2952- Z

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REINFORCING STEEL SCHEDULE					DIMENSION TABLE															
ABUTMENT 1 CAP																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*8A1	8	STR		Horz.top & bott.	8	35'-4 1/2"	756		35'-4 1/2"											
*5A2	5	STR		Horz.on sides	6	35'-4 1/2"	221		35'-4 1/2"											
*5A3	5	2	3 3/4"	Horiz.top @ end	1	8'-8 1/2"	39	10"	7'-10 1/2"											
					sets to of 4	10'-2 1/2"			9'-4 1/2"											
						at 6"			at 6"											
						Incr.			Incr.											
*5A4	5	2	3 3/4"	Horiz.top	8	10'-6 1/2"	88	10"	9'-8 1/4"											
*5A5	5	17	3 3/4"	Stirrups	66	9'-8"	665		3'-6"	2'-8"	3'-6"									
*5A6	5	17	3 3/4"	Shear block long.	8	6'-7"	55		1'-9"	3'-1"	1'-9"									
*5A7	5	17	3 3/4"	Shear block trans.	8	9'-0"	75		2'-8"	3'-8"	2'-8"									
*5A8	5	17	3 3/4"	Stirrups @ ends	4	10'-1 1/2"	42		3'-6"	3'-1 1/2"	3'-6"									
*5A9	5	17	3 3/4"	Stirrups @ ends	4	9'-9 1/2"	41		3'-6"	2'-9 1/2"	3'-6"									
*4A10	4	77		Shaft Spiral Abut.1	3	47'-7 1/2"	945	2'-0"	6"	36'-9"	3	77								
*8A11	8	1	6 1/8"	Shaft Long. Abut.1	27	37'-8"	2715	11"	36'-9"							8"				
SUBTOTAL							5643 LBS													
ABUTMENT 2 CAP																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*8A1	8	STR		Horz.top & bott.	8	39'-1/2"	834		39'-1/2"											
*5A2	5	STR		Horz.on sides	6	39'-1/2"	244		39'-1/2"											
*5A3	5	2	3 3/4"	Horiz.top	8	10'-10"	90	10"	10'-0"											
*5A4	5	2	3 3/4"	Horiz.top @ ends	1	9'-2 1/2"	42	10"	8'-4 1/2"											
					sets to of 4	11'-2"			10'-3 3/4"											
						at 7 3/4"			at 7 3/4"											
						Incr.			Incr.											
*5A5	5	17	3 3/4"	Stirrups	74	9'-8"	746		3'-6"	2'-8"	3'-6"									
*5A6	5	17	3 3/4"	Shear block long.	8	6'-8"	56		1'-9"	3'-2"	1'-9"									
*5A7	5	17	3 3/4"	Shear block trans.	8	8'-10"	74		2'-8"	3'-6"	2'-8"									
*5A8	5	17	3 3/4"	Stirrups @ ends	4	10'-7 1/2"	44		3'-6"	3'-7 1/2"	3'-6"									
*5A9	5	17	3 3/4"	Stirrups @ ends	4	9'-10 1/2"	41		3'-6"	2'-10 1/4"	3'-6"									
*4A10	4	77		Shaft Spiral Abut.2	3	37'-10 1/2"	747	2'-0"	6"	28'-9"	3	61								
*8A11	8	1	6 1/8"	Shaft Long. Abut.2	27	29'-8"	2139	11"	28'-9"							8"				
SUBTOTAL							5058 LBS													
ABUTMENT ENDWALLS																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5EE1	5	STR		Horiz.	16	37'-10 1/2"	632		37'-10 1/2"											
*5EE2	5	STR		Horiz.@ ends	2	2'-1 1/2"	4		2'-1 1/2"											
*5EE3	5	STR		Horiz.btw.gdrs.	12	3'-10 1/2"	48		3'-10 1/2"											
*6EE4	6	16	4 1/2"	Corbel ties	84	6'-3"	789	1'-0"	2'-2 3/4"	1'-0"	2'-1 1/4"				1'-7 1/2"		1'-4 1/2"	2'-4 1/2"		
*5EE5	5	17	3 3/4"	Stirrups	168	7'-3"	1270		3'-1"	1'-1"	3'-1"									
*6EE6	6	16	4 1/2"	Corbel ties @ gdrs.	44	5'-1 1/2"	339	1'-0"	1'-4 3/4"	1'-0"	1'-9 3/4"				1'-4 1/2"		1'-2 1/4"	2'-2 1/4"		
*5EE7	5	17	3 3/4"	Stirrups @ Gdrs.	44	6'-2"	283		4'-4"	1'-1 1/4"	9"									
*5EE8	5	2	3 3/4"	Stirrups @ gdrs.	44	4'-0"	184	10"	3'-2"											
*6EE9	6	STR		Dowels *	24	2'-0"	72		2'-0"											
*6EE10	6	STR		Approach slab dowels	82	1'-8"	205		1'-8"											
*7EE11	7	STR		Horiz.	2	37'-10 1/2"	155		37'-10 1/2"											
*5EE12	5	2	3 3/4"	Horiz.top	44	10'-10"	497	10"	10'-0"											
*6EE13	6	STR		Dowels *	4	2'-3 1/2"	14		2'-3 1/2"											
*5EE14	5	STR		Horiz.@ends (abut.2)	1	6'-11"	7		6'-11"											
*6EE15	6	STR		Dowels (abut.2) *	2	7'-1"	21		7'-1"											
*5EE16	5	STR		Horiz.@ends (abut.2)	1	8'-6"	9		3'-8"											
*6EE17	6	STR		Dowels (abut.2) *	2	2'-9"	8		2'-9"											

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S52	S79



**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
- All "E" bars are epoxy coated.

\* Indicates threaded bars spliced into headed dowel splicer.

Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

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

EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

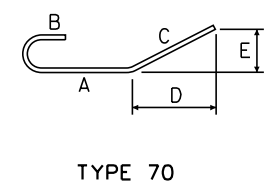
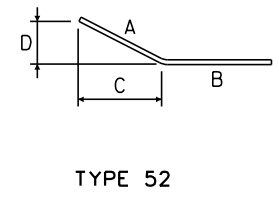
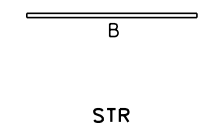
**REBAR LIST (1 OF 7)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	27 of 33	JULY 2013	RG2952-AA

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REINFORCING STEEL SCHEDULE							DIMENSION TABLE													
WINGWALL A (CONTINUED)							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
SUBTOTAL							4538 LBS													
WINGWALL A							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
*6WE201	6	STR		Horiz.f.f.	1 sets of 5	3'-11 1/2" to 10'-1/2" at 1'-6 1/4" Incr.	53		3'-11 1/2" to 10'-1/2" at 1'-6 1/4" Incr.											
*6WE202	6	STR		Horiz.f.f.	1 sets of 3	11'-8" to 15'-1/2" at 1'-8 1/4" Incr.	60		11'-8" to 15'-1/2" at 1'-8 1/4" Incr.											
*4WE203	4	STR		Horiz.of.	1 sets of 3	3'-11" to 10'-0" at 3'-1/2" Incr.	14		3'-11" to 10'-0" at 3'-1/2" Incr.											
*4WE204	4	STR		Horiz.of.	1	13'-2"	9		13'-2"											
*4WE205	4	STR		Horiz.of.	2	15'-10"	21		15'-10"											
*6WE206	6	STR		Horiz.f.f.	3	15'-10"	71		15'-10"											
*4WE207	4	STR		Vert.bf.	8	7'-4"	39		7'-4"											
*4WE208	4	STR		Vert.bf.	2 sets of 7	2'-5" to 6'-8" at 8 1/2" Incr.	42		2'-5" to 6'-8" at 8 1/2" Incr.											
*4WE209	4	52	3/8"	Diagonal bf.	2	14'-10 1/2"	20	13'-1"	1'-9 1/4"	5'-6 1/4"	11'-10 1/2"									
*6WE210	6	70	4 1/2"		5	5'-1 1/2"	38	3'-1 1/2"	5 3/4"	1'-0"	6"	10 3/4"								
SUBTOTAL							368 LBS													
WINGWALL B							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
*6WE101	6	STR		Horiz.f.f.	1 sets of 5	3'-10 1/2" to 8'-8 1/2" at 1'-2 1/2" Incr.	47		3'-10 1/2" to 8'-8 1/2" at 1'-2 1/2" Incr.											
*6WE102	6	STR		Horiz.f.f.	1 sets of 4	10'-0" to 13'-5 1/2" at 1'-1 3/4" Incr.	71		10'-0" to 13'-5 1/2" at 1'-1 3/4" Incr.											
*4WE103	4	STR		Horiz.f.f.	1 sets of 3	3'-10 1/2" to 8'-8 1/2" at 2'-5" Incr.	13		3'-10 1/2" to 8'-8 1/2" at 2'-5" Incr.											
*4WE104	4	STR		Horiz.f.f.	1 sets of 3	10'-0" to 13'-5 1/2" at 1'-8 3/4" Incr.	24		10'-0" to 13'-5 1/2" at 1'-8 3/4" Incr.											
*4WE105	4	STR		Horiz.f.f.	3	14'-2"	28		14'-2"											
*6WE106	6	STR		Horiz.of.	2	14'-2"	43		14'-2"											
*4WE107	4	STR		Vert.bf.	2 sets of 7	2'-7" to 7'-7 1/2" at 10" Incr.	48		2'-7" to 7'-7 1/2" at 10" Incr.											

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S53	S79



**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
- All "E" bars are epoxy coated.

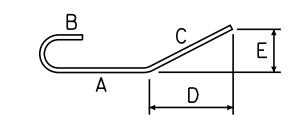
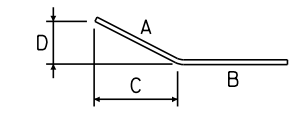
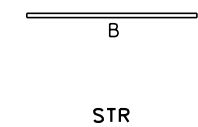
Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
 EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**REBAR LIST (2 OF 7)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	28 of 33	JULY 2013	RG2952-AB

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REINFORCING STEEL SCHEDULE					DIMENSION TABLE																	
WINGWALL B (CONTINUED)					A	B	C	D	E	F	G	H	J	K	O	R	V or N					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*4WE108	4	STR		Vert.bf.	6	7'-10"	31		7'-10"													
*4WE109	4	52	3/8"	Diagonal bf.	2	13'-7 1/2"	18	11'-10 1/2"	1'-8 3/4"	6'-1 1/2"	10'-3"											
*6WE110	6	70	4 1/2"	Fillet	6	7'-1"	64	5'-1"	5 3/4"	1'-0"	10 1/4"	6 3/4"										
SUBTOTAL							386	LBS														
WINGWALL C					A	B	C	D	E	F	G	H	J	K	O	R	V or N					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*4WE401	4	STR		Horiz.of.	1 sets of 3	4'-5" to 9'-11" at 2'-9" Incr.	14	4'-5" to 9'-11" at 2'-9" Incr.														
*6WE402	6	STR		Horiz.f.f.	1 sets of 5	4'-5" to 9'-11" at 1'-4 1/2" Incr.	54	4'-5" to 9'-11" at 1'-4 1/2" Incr.														
*4WE403	4	STR		Horiz.of.	1	12'-5 1/2"	8	12'-5 1/2"														
*6WE404	6	STR		Horiz.f.f.	1 sets of 3	11'-3" to 13'-8 1/2" at 1'-2 3/4" Incr.	56	11'-3" to 13'-8 1/2" at 1'-2 3/4" Incr.														
*4WE405	4	STR		Horiz.of.	2	14'-11"	20	14'-11"														
*6WE406	6	STR		Horiz.f.f.	3	14'-10"	67	14'-10"														
*4WE407	4	STR		Vert.bf.	6	7'-8"	31	7'-8"														
*4WE408	4	STR		Vert.bf.	2 sets of 7	2'-5 1/2" to 7'-5 1/2" at 10" Incr.	46	2'-5 1/2" to 7'-5 1/2" at 10" Incr.														
*4WE409	4	52	3/8"	Diagonal bf.	2	13'-9 1/2"	18	12'-1 1/2"	1'-8 1/4"	5'-11 1/2"	10'-7"											
*6WE410	6	70	4 1/2"	Fillet	5	8'-1"	61	6'-1"	5 3/4"	1'-0"	10 3/4"	5 3/4"										
SUBTOTAL							376	LBS														
WINGWALL D					A	B	C	D	E	F	G	H	J	K	O	R	V or N					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*4WE301	4	STR		Horiz.of.	1 sets of 3	4'-5" to 9'-6 1/2" at 2'-6 3/4" Incr.	14	4'-5" to 9'-6 1/2" at 2'-6 3/4" Incr.														
*6WE302	6	STR		Horiz.f.f.	1 sets of 5	4'-5" to 9'-6 1/2" at 1'-3 1/2" Incr.	52	4'-5" to 9'-6 1/2" at 1'-3 1/2" Incr.														
*4WE303	4	STR		Horiz.of.	1 sets of 3	10'-9" to 15'-4 1/2" at 2'-3 3/4" Incr.	26	10'-9" to 15'-4 1/2" at 2'-3 3/4" Incr.														
*6WE304	6	STR		Horiz.f.f.	1 sets of 5	10'-9" to 15'-4 1/2" at 1'-2" Incr.	98	10'-9" to 15'-4 1/2" at 1'-2" Incr.														
*4WE305	4	STR		Horiz.of.	2	16'-1"	21	16'-1"														
*6WE306	6	STR		Horiz.f.f.	3	16'-1"	72	16'-1"														
*4WE307	4	STR		Vert.bf.	6	8'-9 1/2"	35	8'-9 1/2"														



REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S54	S79

**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
  - All "E" bars are epoxy coated.
- \* Indicates threaded bars spliced into headed dowel splicer.

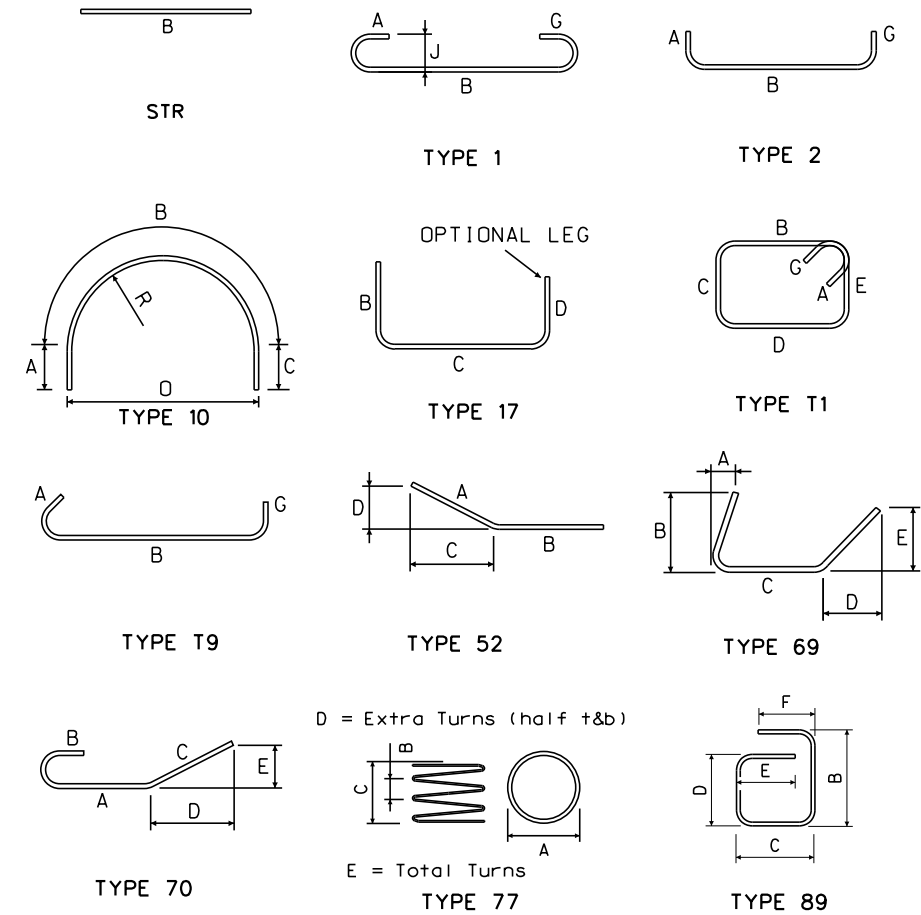
Abbreviations:  
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 o.f. = other face  
 b.f. = both faces

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
 EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**REBAR LIST (3 OF 7)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	29 of 33	JULY 2013	RG2952-AC

REINFORCING STEEL SCHEDULE					DIMENSION TABLE																
WINGWALL D (CONTINUED)					A	B	C	D	E	F	G	H	J	K	O	R	V or N				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4WE308	4	STR		Vert. bf.	2 sets of 8 at 10 1/2" Incr.	2'-7 1/2"	61		2'-7 1/2" to 8'-9" at 10 1/2" Incr.												
*4WE309	4	52	3/8"	Diagonal bf.	2	15'-5 1/2"	21	13'-9"	1'-8 3/4"	7'-1 1/2"	11'-9 1/4"										
*6WE310	6	70	4 1/2"	Fillet	7	4'-10 1/2"	51	2'-10 3/4"	5 3/4"	1'-0"	5 1/4"	11"									
SUBTOTAL							453	LBS													
PIERS																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*8P1a	8	STR		Horiz. top & bot.	4	31'-7"	337		31'-7"												
*8P1b	8	STR		Horiz. top & bot.	4	33'-6"	358		33'-6"												
*8P1c	8	STR		Horiz. top & bot.	4	34'-1 1/2"	364		34'-1 1/2"												
*4P2	4	STR		Horiz. bf.	4	31'-7"	84		31'-7"												
*5P3	5	10		Stirrups @ ends	8	7'-11"	66	1'-1"	5'-9"	1'-1"								3'-8"	1'-10"		
*5P4	5	T1	2 1/2"	Stirrups	54	11'-7 1/2"	655	5 1/2"	2'-10 1/4"	2'-6"	2'-10 1/4"	2'-6"		5 1/2"							
*5P5	5	17	3 3/4"	Stirrups @ shafts	36	7'-4"	275		2'-4"	2'-8"	2'-4"										
*5P6	5	T1	2 1/2"	Stirrups @ ends	2	10'-5"	22	5 1/2"	2'-6"	2'-3"	2'-6"	2'-3"		5 1/2"							
*5P7	5	T1	2 1/2"	Stirrups @ ends	2	12'-7"	26	5 1/2"	3'-4"	2'-6"	3'-4"	2'-6"		5 1/2"							
*4P8	4	17	3/8"	Stirrups @ ends	1	8'-2 1/2"	5		2'-5"	3'-4 1/4"	2'-5"										
*4P9	4	17	3/8"	Stirrups @ ends	1	7'-6 1/2"	5		2'-5"	2'-8 1/2"	2'-5"										
*4P10	4	17	3/8"	Stirrups	58	7'-2 1/2"	279		2'-2"	2'-10 1/4"	2'-2"										
*11P11	11	STR		Dowels	12	4'-0"	255		4'-0"												
*4P12a	4	2	3/8"	Horiz. top	2	9'-7 1/2"	13	8"	8'-11 1/4"												
*4P12b	4	2	3/8"	Horiz. top	2	10'-7"	14	8"	9'-11"												
*4P12c	4	2	3/8"	Horiz. top	2	10'-10 1/2"	15	8"	10'-2 1/4"												
*4P13	4	2	3/8"	Horiz. top	12	10'-8"	86	8"	10'-0"												
*4P14	4	77		Spiral	3	385'-3"	772	2'-2"	6"	27'-3 3/4"	3	58									
*4P15	4	77		Spiral	3	379'-10"	761	2'-6"	6"	23'-1"	3	50									
*8P16	8	STR		Vert. shaft	45	23'-1"	2773		23'-1"												
*8P17	8	1	6/8"	Vert. column	45	28'-3"	3394	11"	27'-3 3/4"										8"		
SUBTOTAL							10561	LBS													
PIER DIAPHRAGM																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5PDE1	5	17	3 3/4"	Stirrups	24	6'-4"	159		1'-4"	3'-8"	1'-4"										
*4PDE2	4	T9	2"	Stirrups ties	12	4'-5"	35	4 1/2"	3'-8"					4 1/2"							
*6PDE3	6	STR		Horiz. bf.	30	3'-9"	169		3'-9"												
*4PDE4	4	10		Stirrups @ ends	10	5'-1 1/2"	34	1"	4'-11 3/4"	1"								3'-2"	1'-7"		
*4PDE5	4	2	3/8"	Stirrups @ ends	6	3'-9"	15	8"	2'-5"					8"							
*6PDE6	6	STR		Trans. bot.	2	33'-8"	101		33'-8"												
*6PDE7	6	STR		Trans. top	2	30'-6"	92		30'-6"												
*6PDE8	6	STR		Dowels *	24	1'-6"	54		1'-6"												
*6PDE9	6	17	4 1/2"	Dowels @ end *	8	1'-8"	20		1'-0"	8"											
*5PDE10	5	17	3 3/4"	Stirrups @ ends	4	5'-6"	23		1'-4"	2'-10"	1'-4"										
SUBTOTAL							702	LBS													
SPAN 1 OR SPAN 2 (Quantities are for one girder only) (Cost of girder reinforcing is included in the box beam girder pay item and is not included in the reinforcing estimate)																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4GE1	4	69	3/8"	Stirrups @ ends	6	8'-2 1/2"	33	1'-6 1/4"	2'-9 1/4"	4'-1 1/4"	6"	10 3/4"									
*5GE2	5	2	3 3/4"	Stirrups @ ends	4	3'-5"	14	10"	1'-9"					10"							
*5GE3	5	89	3 3/4"	Stirrups @ ends	4	9'-6"	40		1'-9 1/2"	4'-3"	1'-9 1/2"	10"	10"								
*5GE4	5	2	3 3/4"	Stirrups @ ends	8	5'-11 1/2"	50	10"	4'-3 1/2"					10"							
*5GE5	5	17	3 3/4"	Stirrups @ ends	4	11'-4 1/2"	47		3'-6 1/2"	4'-3 1/2"	3'-6 1/2"										
*5GE6	5	2	3 3/4"	Stirrups @ ends	2 sets of 3 at 2" Incr.	2 to 5'-9" at 2" Incr.	33	10"	3'-8 3/4" to 4'-1" at 2 1/4" Incr.					10"							

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S55	S79



SPAN 2 (ONLY LIMITED REVISIONS BELOW)							
BAR MK	LENGTH	WEIGHT	B	C	A	D	E
*4GE1	8'-5"	34	2'-8"	4'-2"	1'-8 1/2"	7"	11"
*5GE3	9'-7 1/2"	40		4'-4 1/4"			
*5GE4	6'-1 1/2"	50	4'-4 1/4"				
*5GE5	11'-5 1/2"	49		4'-4 1/4"			
*5GE6	5'-6 1/2" to 5'-10 1/2"	36	3'-10 1/4" to 4'-2 1/2" at 2 1/4" Incr.				
*5GE7	10'-11 1/2" to 11'-3 1/2"	70	3'-6 1/2"	3'-10 1/4" to 4'-2 1/2" at 2 1/4" Incr.			
*5GE8	5'-5" to 5'-9 1/2"	35	3'-8 3/4" to 4'-1 1/4" at 1 1/2" Incr.				
*5GE9a	11'-10"	25	3'-8 3/4"				
*5GE9b	12'-1"	25	3'-10 3/4"				
*5GE9c	12'-6"	26	4'-1 1/4"				

**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
  - All "E" bars are epoxy coated.
- \* Indicates threaded bars spliced into headed dowel splicer.
- Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
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EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

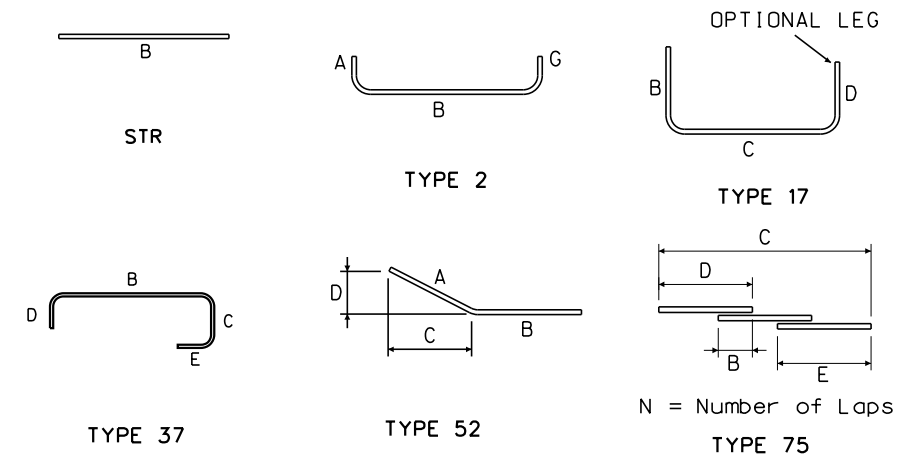
**REBAR LIST (4 OF 7)**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	30 of 33	JULY 2013	RG2952-AD

REINFORCING STEEL SCHEDULE					DIMENSION TABLE																
SPAN 1 OR SPAN 2 (CONTINUED)					A	B	C	D	E	F	G	H	J	K	O	R	V or N				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5GE7	5	17	3 3/4"	Stirrups @ ends	2 sets of 3	10'-10" to 11'-2" at 2" Incr.	67		3'-6 1/2"	3'-8 3/4" to 4'-1" at 2 1/4" Incr.	3'-6 1/2"										
*5GE8	5	2	3 3/4"	Stirrups @ ends	2 sets of 6	5'-3 1/2" to 5'-8" at 2 1/4" Incr.	16	10"	3'-7 1/4" to 3'-11 3/4" at 2 1/4" Incr.					10"							
*5GE9a	5	37	3 3/4"	Stirrups @ ends	2	11'-8 1/2"	24		3'-7 1/4"	3'-8 1/2"	3'-6 1/2"	10"									
*5GE9b	5	37	3 3/4"	Stirrups @ ends	2	12'-0"	25		3'-9 1/2"	3'-9 3/4"	3'-6 1/2"	10"									
*5GE9c	5	37	3 3/4"	Stirrups @ ends	2	12'-4 1/2"	26		3'-11 3/4"	4'-1 1/4"	3'-6 1/2"	10"									
*5GE10	5	2	3 3/4"	Stirrups	2	5'-4"	11	10"	3'-8"					10"							
*5GE11	5	17	3 3/4"	Stirrups	2	10'-9"	22		3'-6 1/2"	3'-8"	3'-6 1/2"										
*4GE12	4	2	3 1/8"	Stirrups	57	5'-0"	190	8"	3'-8"					8"							
*4GE13	4	17	3 1/8"	Stirrups	57	10'-9"	409		3'-6 1/2"	3'-8"	3'-6 1/2"										
*5GE14	5	75		Long.top	4	63'-4 1/2"	264		2'-7"	60'-9"	60'-0"	3'-4"									1
SUBTOTAL							1295 LBS														
DECK																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5SE1	5	STR		Long.top span 1	34	39'-6"	1401		39'-6"												
*5SE2	5	75		Long.bot.	29	128'-9 1/2"	3896		3'-5"	121'-11 1/2"	60'-0"	8'-9 1/2"									2
*8SE3	8	52	0'-6 1/8"	Long.top @ pier	33	50'-8 1/2"	4468	25'-8 1/2"	24'-11 3/4"	25'-8 1/4"	1'-3 3/4"										
*8SE4	8	52	0'-6 1/8"	Long.top @ pier	26	20'-3"	1406	10'-3 1/4"	9'-11 3/4"	10'-3"	0'-7"										
*5SE5	5	75		Long.top edge of deck	1	64'-8 1/2"	67		3'-5"	61'-3 1/2"	60'-0"	4'-8 1/2"									1
*5SE6	5	STR		Long.top	2	38'-11 1/2"	81		38'-11 1/2"												
*5SE7	5	STR		Long.bot.	1	3'-0 1/2"	3		3'-0 1/2"												
*5SE8	5	STR		Long.top & bot.	2	7'-10"	16		7'-10"												
*5SE9	5	STR		Long.bot.	1	13'-0"	14		13'-0"												
*5SE10	5	STR		Long.top	1	16'-3"	17		16'-3"												
*5SE11	5	STR		Long.bot.	1	19'-7 1/2"	20		19'-7 1/2"												
*5SE12	5	STR		Long.top & bot.	2	29'-0"	60		29'-0"												
*5SE13	5	75		Long.bot.	1	65'-4"	68		3'-5"	61'-11 1/2"	60'-0"	5'-4 1/2"									1
*5SE14	5	STR		Long.top	34	40'-5"	1433		40'-5"												
*6SE15	6	STR		Trans.top & bot.	2 sets of 8	2'-6 1/2" to 8'-7 1/2" at 0'-10 1/2" Incr.	134		2'-6 1/2" to 8'-7 1/2" at 0'-10 1/2" Incr.												
*6SE16	6	STR		Trans.top & bot.	2 sets of 26	8'-5" to 30'-0 1/2" at 0'-10 1/2" Incr.	1502		8'-5" to 30'-0 1/2" at 0'-10 1/2" Incr.												
*6SE17	6	STR		Trans.top & bot.	42	31'-9"	2003		31'-9"												
*6SE18	6	STR		Trans.top & bot.	382	30'-8"	17595		30'-8"												
*6SE19	6	STR		Trans.top & bot.	2 sets of 36	7'-5" to 30'-2 1/2" at 0'-7 3/4" Incr.	2025		7'-5" to 30'-2 1/2" at 0'-7 3/4" Incr.												
*6SE20	6	STR		Trans.top & bot.	2 sets of 11	1'-6 1/2" to 7'-10 1/2" at 0'-7 1/2" Incr.	155		1'-6 1/2" to 7'-10 1/2" at 0'-7 1/2" Incr.												
*5SE21	5	75		Long.bot.	1	68'-10"	72		3'-5"	65'-5"	60'-0"	8'-10"									1

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S56	S79



**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
- All "E" bars are epoxy coated.

\* Indicates threaded bars spliced into headed dowel splicer.

Abbreviations:  
 f.f. = fill face  
 o.f. = other face  
 b.f. = both faces

U.S. DEPARTMENT OF TRANSPORTATION  
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 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**REBAR LIST (5 OF 7)**

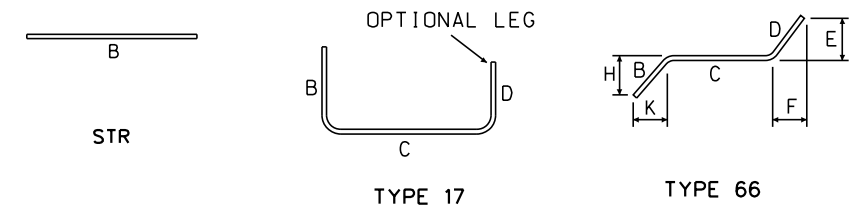
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	31 of 33	JULY 2013	RG2952-AE



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REINFORCING STEEL SCHEDULE					DIMENSION TABLE																
ABUTMENT 1 APPROACH SLAB (CONTINUED)																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
SUBTOTAL							36437 LBS														
ABUTMENT 1 APPROACH SLAB																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5ASE1	5	STR		Trans.top & bot.	2	34'-1/2"	71		34'-1/2"												
*5ASE2	5	STR		Trans.top & bot.	18	35'-4/2"	664		35'-4/2"												
*6ASE3	6	66	0'-4/2"	Trans.sleeper beam	8	35'-0/2"	421		1'-4 3/4"	32'-4/4"	1'-3/2"	0'-8/2"	1'-1/4"		0'-9"		1'-2/2"				
*5ASE4	5	STR		Long.top	27	9'-7"	270		9'-7"												
*7ASE5	7	STR		Long.bot.	55	9'-7"	1077		9'-7"												
*5ASE6	5	STR		Sleeper beam top & bot.	54	2'-8"	150		2'-8"												
*5ASE7	5	17	0'-3 3/4"	Stirrups sleeper beam	27	4'-5"	124		1'-10/2"	0'-8"	1'-10/2"										
*5ASE8	5	STR		Long.top @ rail	1 sets of 2	9'-8/2" to 10'-2/2" at 0'-6" Incr.	21		9'-8/2" to 10'-2/2" at 0'-6" Incr.												
*5ASE9	5	STR		Long.top @ rail	1 sets of 2	9'-1" to 9'-6/2" at 0'-5/2" Incr.	19		9'-1" to 9'-6/2" at 0'-5/2" Incr.												
*7ASE10	7	STR		Long.bot.@ rail	1 sets of 3	9'-8/2" to 10'-4" at 0'-3 3/4" Incr.	61		9'-8/2" to 10'-4" at 0'-3 3/4" Incr.												
*7ASE11	7	STR		Long.bot.@ rail	1 sets of 3	8'-11" to 9'-6/2" at 0'-3 3/4" Incr.	57		8'-11" to 9'-6/2" at 0'-3 3/4" Incr.												
*5ASE12	5	STR		Sleeper bm.top&bot.	8	3'-1/2"	26		3'-1/2"												
*5ASE13	5	17	0'-3 3/4"	Stirrups sleeper beam	4	4'-7"	19		1'-10/2"	0'-10"	1'-10/2"										
SUBTOTAL							2982 LBS														
ABUTMENT 2 APPROACH SLAB																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5ASE1	5	STR		Trans.top & bot.	2	38'-10/2"	81		38'-10/2"												
*5ASE2	5	STR		Trans.top & bot.	18	39'-5/2"	741		39'-5/2"												
*6ASE3	6	66	0'-4/2"	Trans.sleeper beam	8	39'-9/2"	478		1'-5"	37'-1/4"	1'-3/4"	0'-11"	0'-11"		0'-11/4"		1'-1"				
*5ASE4	5	STR		Long.top	27	9'-3/2"	262		9'-3/2"												
*7ASE5	7	STR		Long.bot.	55	9'-3/2"	1045		9'-3/2"												
*5ASE6	5	STR		Sleeper beam top & bot.	54	2'-8"	150		2'-8"												
*5ASE7	5	17	0'-3 3/4"	Stirrups sleeper beam	27	4'-5"	124		1'-10/2"	0'-8"	1'-10/2"										
*5ASE8	5	STR		Long.top @ rail	1 sets of 2	9'-0/2" to 9'-9/2" at 0'-9" Incr.	20		9'-0/2" to 9'-9/2" at 0'-9" Incr.												
*5ASE9	5	STR		Long.top @ rail	1 sets of 2	10'-1" to 9'-5/2" at 0'-7/2" Incr.	20		10'-1" to 9'-5/2" at 0'-7/2" Incr.												



REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S57	S79

**NOTES**

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\* Indicates threaded bars spliced into headed dowel splicer.

Abbreviations:  
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 o.f. = other face  
 b.f. = both faces

U.S. DEPARTMENT OF TRANSPORTATION  
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EAST VERDE RIVER CROSSING #2  
 HOUSTON MESA ROAD

TONTON NATIONAL FOREST  
 GILA COUNTY, ARIZONA

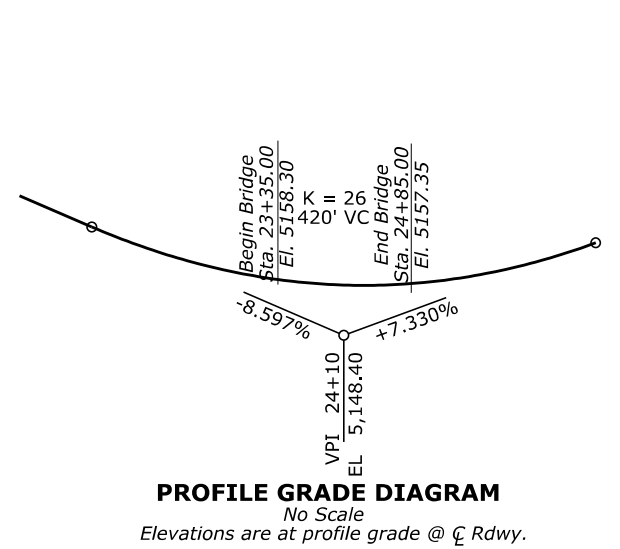
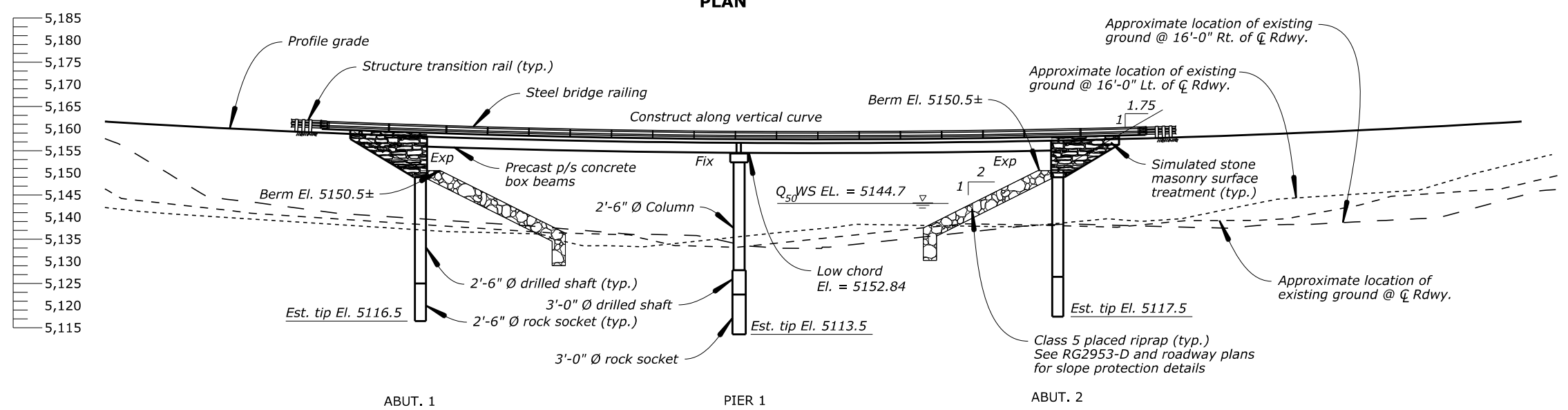
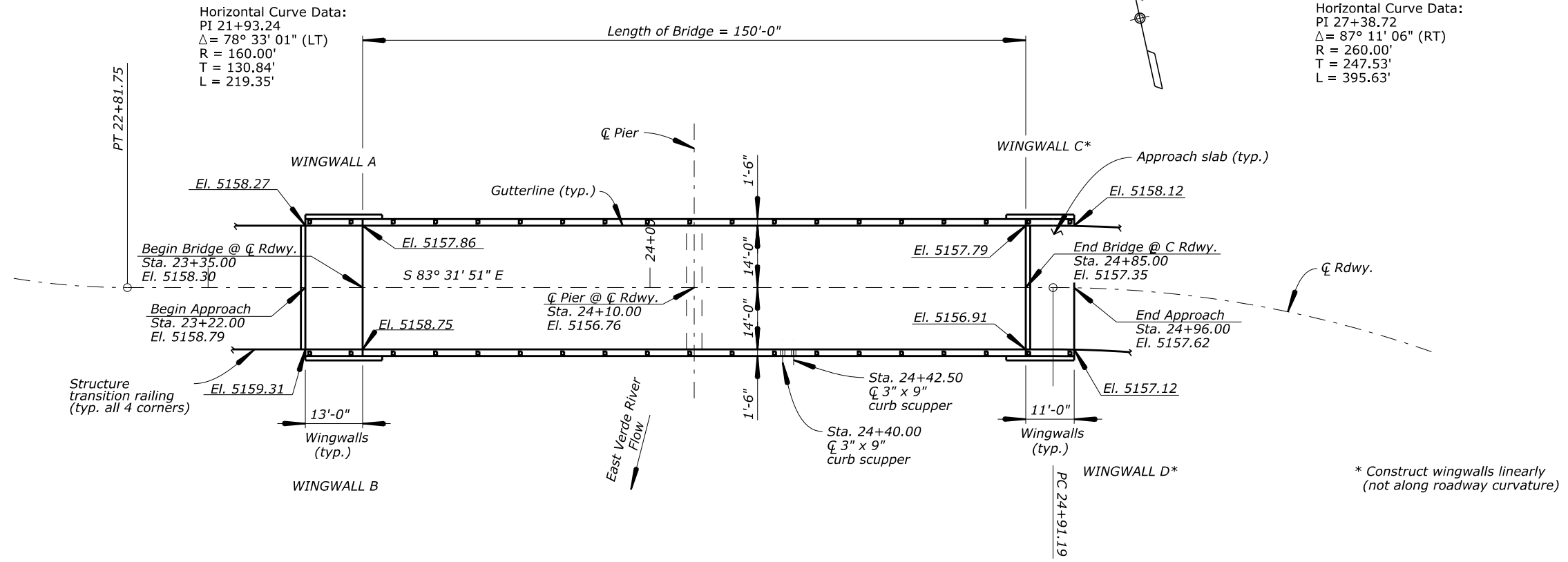
**REBAR LIST (6 OF 7)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								G. MAY	R. WEHNER	D. GERMANI	NONE	BONNIE KLAMERUS	32 of 33	JULY 2013	RG2952-AF



REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S59	S79

BRIDGE DRAWING INDEX	
Drawing No.	Description
RG2953-A	PLAN & ELEVATION
RG2953-B	GENERAL NOTES
RG2953-C	FOUNDATION PLAN
RG2953-D	SLOPE PROTECTION
RG2953-E	ABUTMENT 1 PLAN & ELEVATION
RG2953-F	ABUTMENT 2 PLAN & ELEVATION
RG2953-G	ABUTMENT ENDWALLS
RG2953-H	ABUTMENT 1 WINGWALLS
RG2953-I	ABUTMENT 2 WINGWALLS
RG2953-J	PIER PLAN AND ELEVATION
RG2953-K	DRILLED SHAFT DETAILS
RG2953-L	PRECAST CONCRETE BOX BEAMS
RG2953-M	BEARING DETAILS
RG2953-N	TYPICAL SECTION
RG2953-O	APPROACH SLABS
RG2953-P	BRIDGE RAILING
RG2953-Q	STRUCTURE TRANSITION RAILING
RG2953-R	REBAR LIST (1 OF 4)
RG2953-S	REBAR LIST (2 OF 4)
RG2953-T	REBAR LIST (3 OF 4)
RG2953-U	REBAR LIST (4 OF 4)



HYDRAULIC DATA			
	Q	V	WS
	ft <sup>3</sup> /sec	ft/sec.	Elev.
Q <sub>2</sub>	1240	2.7	5137.6
Q <sub>50</sub>	6,670	8.1	5144.7
Q <sub>100</sub>	10,000	9.3	5146.4

Superelevation rates:  
 Sta. 22+67.50 Rate: -6.0% LT Rate: 6.0% RT  
 Sta. 24+10.00 Rate: 0.0% LT Rate: 0.0% RT  
 Sta. 25+38.88 Rate: 5.4% LT Rate: -5.4% RT

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EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**PLAN AND ELEVATION**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY S. BELCHER	1" = 30'-0"	BONNIE KLAMERUS	1 of 21	JULY 2013	RG2953- A

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S60	S79

**GENERAL NOTES:**

**SPECIFICATIONS:**

Design:  
AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010.

Construction:  
Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 U.S. customary units.

**DESIGN LOADS:**

Dead Loads:  
Cast in place concrete: 150 pcf, precast girders: 155 pcf, soil backfill: 120 pcf, unclassified borrow: 125 pcf.  
Future wearing surface allowance 30 psf.  
Lateral Earth Pressure: equivalent fluid unit weight of soil, 0.037 kcf (active) and 0.057 kcf (at-rest).

Live Load:  
HL-93. Maximum Dynamic Load Allowance (Impact), IM=33%.

SEISMIC DESIGN:  
In accordance with AASHTO LRFD Bridge Design Specifications, 5th edition 2010.  
Peak Ground Acceleration (PGA = 0.072g), modified by the Site Coefficient ( $F_{PGA} = 1.20$ ) to give a spectrum acceleration,  $A_s = 0.086 g$ .  
Short period acceleration at 0.2 seconds ( $S_s = 0.167g$ ) modified by the Site Coefficient ( $F_a = 1.20$ ) to give the short period spectrum acceleration,  $S_{DS} = 0.2g$ . Long period acceleration at 1.0 seconds ( $S_l = 0.051g$ ) modified by the Site Coefficient ( $F_v = 1.70$ ) to give the long period spectrum acceleration,  $S_{D1} = 0.086g$ . Site Class = C. Seismic Zone = 1.

**MATERIALS:**

Concrete:  
All cast-in-place concrete shall be structural concrete Class A(AE) with a minimum 28-day compressive strength  $f'c = 4,000$  psi., except for deck concrete with a minimum 28 day compressive strength of 4,500 psi and curb concrete which is class C(AE) with a minimum 28 day compressive strength of 4,500 psi. Drilled shaft concrete shall be Class A with a minimum 28 day compressive strength of 4,000 psi. Type V high sulfate resistant cement shall be used for all concrete in contact with soil, otherwise Type II low alkali cement or Type V high sulfate resistant cement shall be used. Chamfer exposed edges of all concrete  $\frac{3}{4}$ ", unless noted otherwise on the plans. Preformed expansion joint filler shall meet the requirements of AASHTO M213. Preformed flexible cellular joint filler shall meet the requirements of AASHTO M153, Type I, closed cell rubber. The top surface of bridge deck and approach slabs shall receive a sawed groove finish per Section 552.14(c).

Reinforcing Steel:  
All reinforcing steel shall conform to AASHTO M31 or M322, Grade 60 deformed. The minimum concrete cover to the face of any bar shall be 2", unless shown otherwise on the plans. All reinforcing steel placed in or protruding into the deck, curbs and approach slabs shall be epoxy coated. "E" designates epoxy coated reinforcing steel in the bar callouts and lists. Minimum splice length for all bars sizes shall be as shown on the plans. Bar splices other than those shown on the plans shall not be paid for.

Prestressed Concrete Box Beams:  
Prestressed concrete box beams shall be manufactured as detailed on the plans. Concrete for prestressed beams shall be Class P or P(AE) with a minimum 28-day compressive strength  $f'c = 7,000$  psi and release strength  $f'ci = 5,500$  psi. Chamfer exposed edges  $\frac{3}{4}$ " unless shown otherwise on the plans. Structural steel for bearing plates shall conform to ASTM A709, Grade 36.

Prestressing Steel:  
Unless noted otherwise, prestressing strands shall be Grade 270, 0.6", seven wire, bright, low-relaxation strands, conforming to AASHTO M203 (ASTM A416). Each strand shall be pretensioned to a total load of 43,900 lbs. at which the initial pretensioning stress  $f_{pbt} = 0.75$  (fpu) = 202,500 psi.

Miscellaneous Structural Steel:  
Structural steel tubes for bridge railing shall conform to ASTM A847 with enhanced atmospheric corrosion resistance. Structural steel posts and base plates for bridge railing shall conform to ASTM A709 Grade 50W. All other structural steel shall conform to ASTM A709 Grade 36, unless noted otherwise.

Form Liner and Concrete Color Agent:  
All exposed faces of abutment caps and wingwalls shall have a simulated stone masonry surface treatment, colonial drystack pattern. See Section 613 of the SCR's.

All exposed cast-in-place bridge concrete shall include an integral coloring agent - Golden Beige by Increte Systems. See Section 552 of the SCR's test panel requirements.

Structure Backfill:  
Backfill behind abutments shall meet the requirements for Structural Backfill as specified in Sections 208 and 704.04.

Paint:  
Paint exterior face of exterior girders. See Section 563 of the SCR's.

Dewatering:  
Temporary diversion of the stream may be necessary to construct the pier foundations and meet the water quality requirements of Section 157. See Geotechnical Report additional information on foundation characteristics.

ESTIMATE				
Item No.	Item	Quantity:	Unit:	Notes:
15214-1000	Survey and staking, bridge	All req'd	LPSM	
20820-0000	Dewatering	All req'd	LPSM	(9)
25101-5200	Placed riprap, class 5	821	CUYD	
55201-0200	Structural concrete, class A(AE)	278	CUYD	(1)(4)
55216-0000	Concrete color agent	5305	LB	(8)
55302-1400	Precast, prestressed concrete box beams, non-standard	593	LNFT	(2)
55401-1000	Reinforcing steel	19100	LB	(1)
55401-2000	Reinforcing steel, epoxy coated	53000	LB	(1)
55601-0900	Bridge railing, steel	358	LNFT	(1)(3)
56302-1000	Painting concrete structure	795	SQFT	
56401-1000	Bearing device, elastomeric	16	EACH	
56501-0300	Drilled shaft 30" diameter (rock socket)	45	LNFT	(7)
56501-0400	Drilled shaft 36" diameter (rock socket)	27	LNFT	(7)
56501-0300	Drilled shaft 30" diameter	147	LNFT	(6)
56501-0400	Drilled shaft 36" diameter	17	LNFT	(6)
61301-0000	Simulated stone masonry surface treatment	81	SQYD	
61707-0000	Structure transition railing	83	LNFT	(1)(5)

**ESTIMATE NOTES:**

- Contract Quantity
- Includes cost of concrete, reinforcing steel, prestressing steel, inserts, plates, lifting devices, and other materials required for the manufacture or erection of the girders.
- Includes cost of all structural concrete and rebar in curbs. Est. Class C(AE) Concrete = 16.7 Cu Yds. Est. epoxy coated rebar qty. = 2468 lbs.
- Abutment cap and wingwall concrete quantities assume an average simulated stone masonry treatment of  $1\frac{3}{8}$ " beyond the working line. Includes cost of furnishing and installing geocomposite sheet drain, drain grate, weepholes and all joint fillers. Estimated quantity of geocomposite sheet drain = 56 Sq. Yds.
- Includes cost of furnishing and installing posts, blocks, thrie and w-beam rail elements, anchor plates, and installation hardware.
- Includes cost of excavation and concrete between top of drilled shaft elevation and top of rock socket elevation (Total estimated quantity of Class A concrete = 31 cuyd). Includes cost of any required temporary and permanent casings, access tubes, drilled shaft testing, and all necessary materials and work necessary to construct the shaft. Reinforcing steel quantity for drilled shafts is included in the contract item "Reinforcing steel".
- Includes cost of excavation and concrete between rock socket elevation and estimated tip elevation (Total estimated quantity of Class A concrete = 15 cuyd). Includes cost of any required temporary and permanent casings, access tubes, drilled shaft testing, and all necessary materials and work necessary to construct the rock sockets. Reinforcing steel quantity for rock sockets is included in the contract item "Reinforcing steel".
- Quantity based on an estimate of 18 lb per cubic yards of concrete for all cast-in-place concrete including curbs, except shafts and rock sockets.
- Includes all costs associated with dewatering including cofferdams and seal concrete, etc. if needed.

U.S. DEPARTMENT OF TRANSPORTATION  
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #3  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

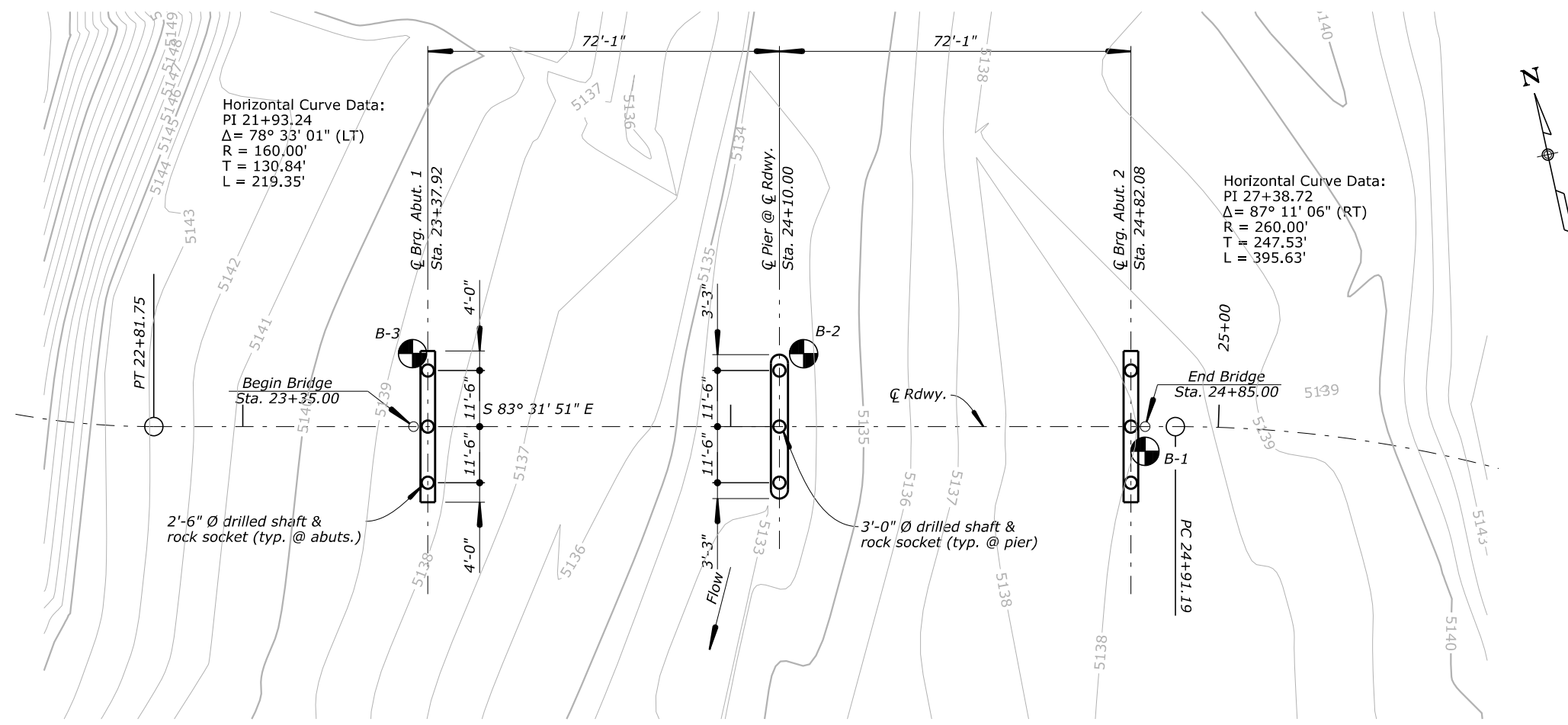
**GENERAL NOTES**

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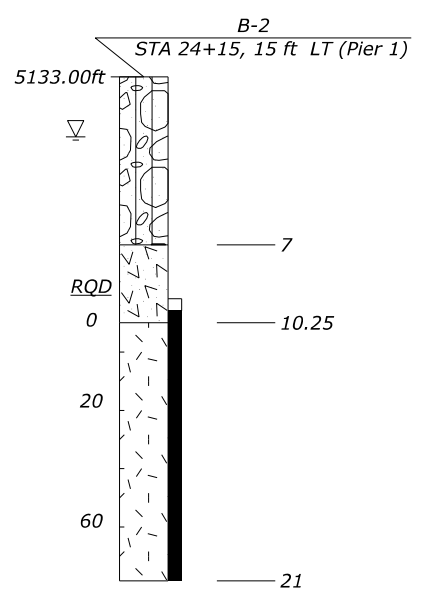
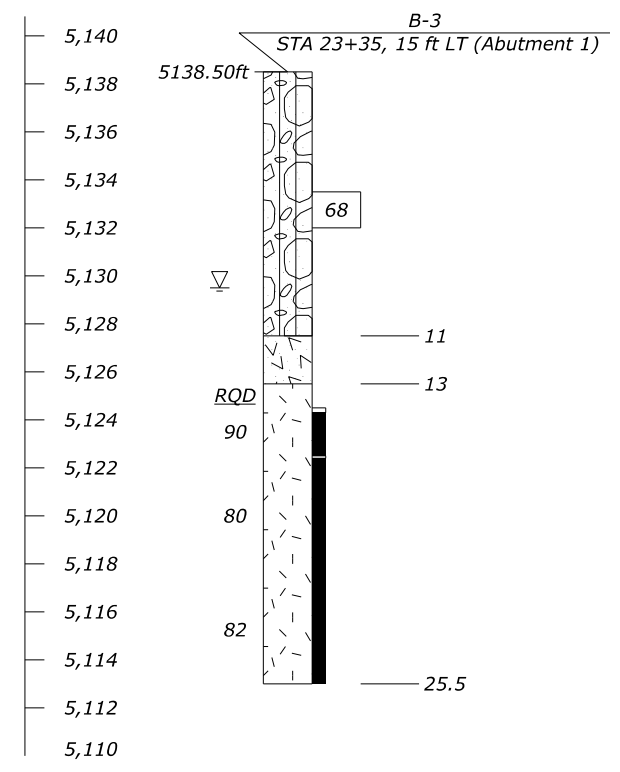
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY		BONNIE KLAMERUS	2 of 21	JULY 2013	RG2953- B

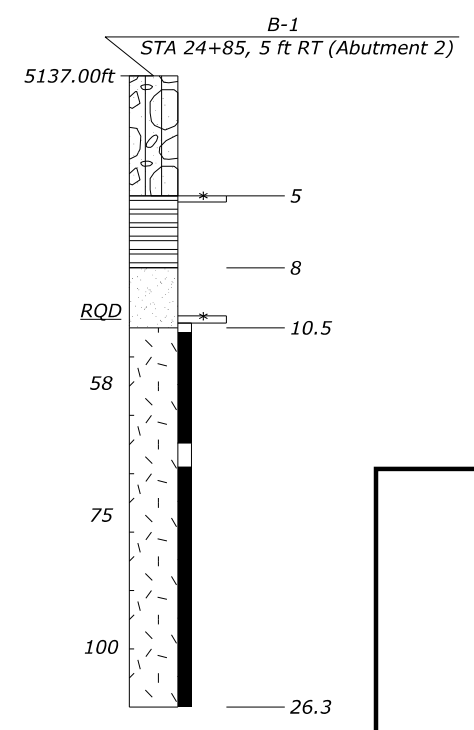
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S61	S79
<b>TYPICAL TEST HOLE SYMBOL</b> Plan View 				
<b>TYPICAL TEST HOLE LOG</b> 				
For additional information, refer to Geotechnical Report, AZ-FX-0013-01 dated July, 2013 prepared by U.S. Dept. of Transportation, Federal Highway Administration, Central Federal Lands Highway Division.				



**FOUNDATION PLAN**



**ELEVATION**



Note: Construct abutment fills prior to constructing drilled shafts & rock sockets.

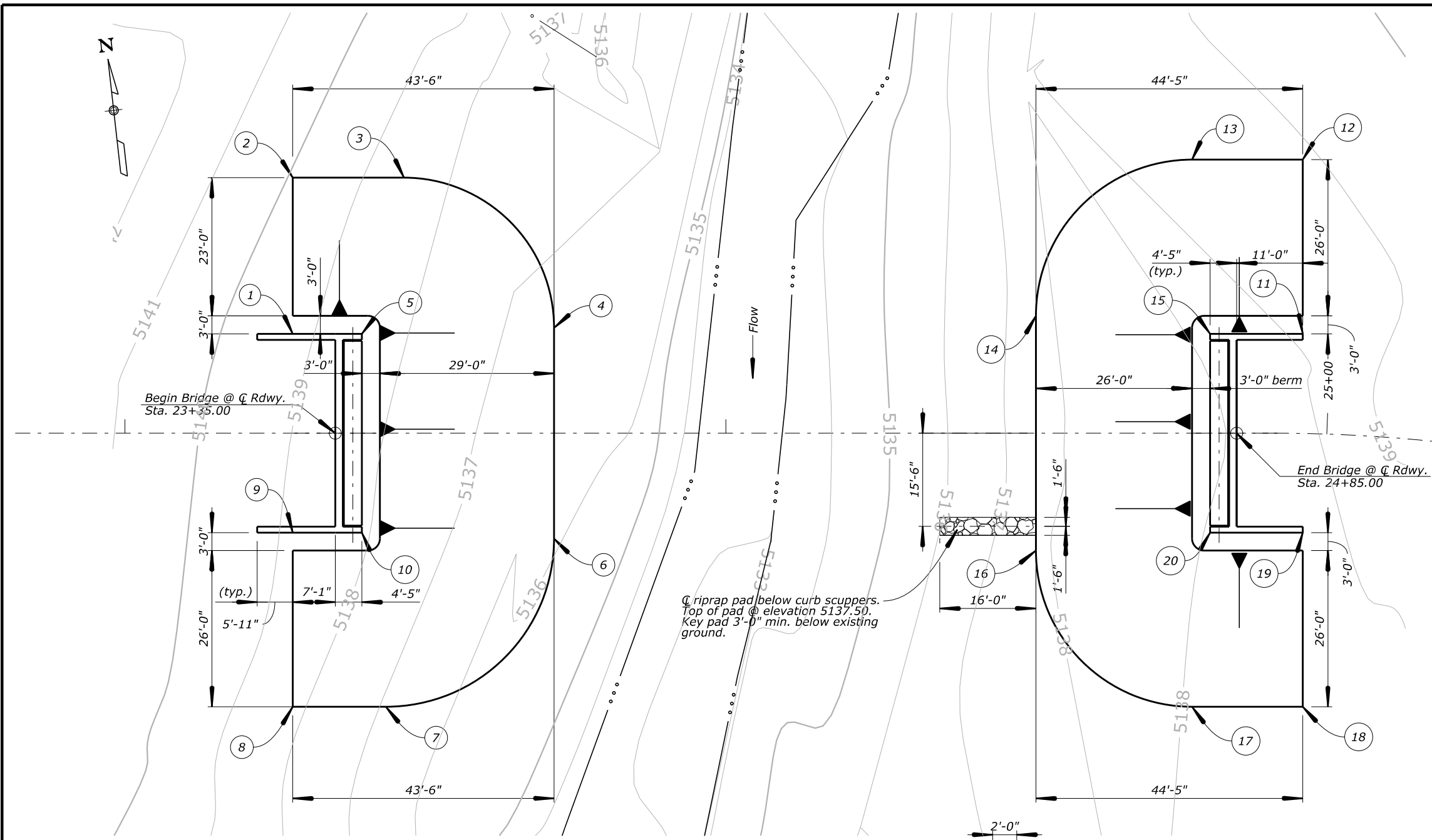
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 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
**EAST VERDE RIVER CROSSING #3**  
**HOUSTON MESA ROAD**  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**FOUNDATION PLAN**

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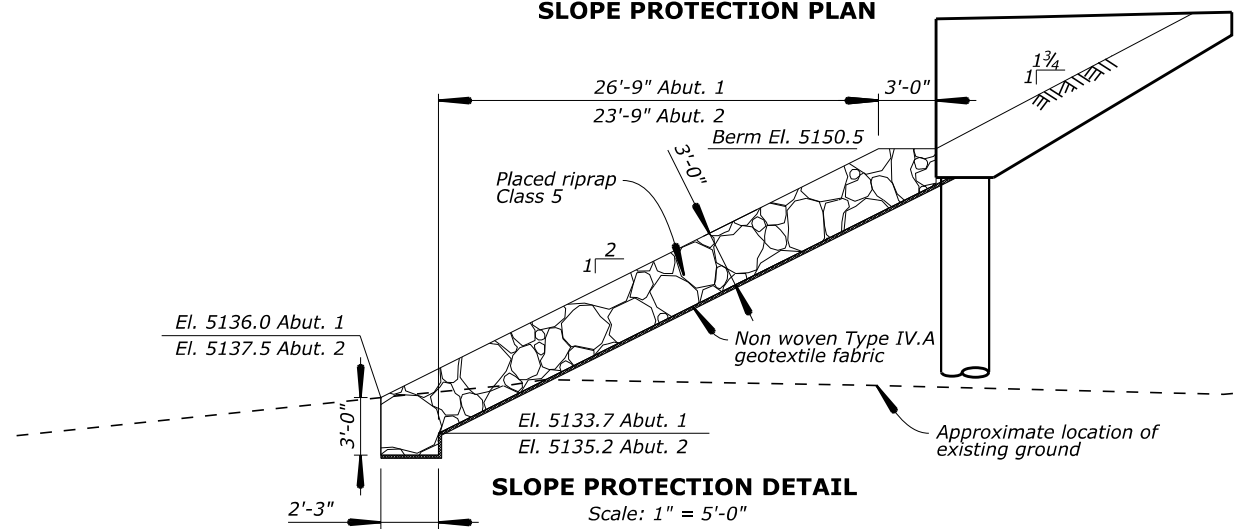
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								D. GERMANI	R. WEHNER	G. MAY	1" = 30'-0"	BONNIE KLAMERUS	3 of 21	JULY 2013	RG2953- C

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S62	S79

SLOPE PROTECTION COORDINATES				
POINT	X (Ft.)	Y (Ft.)	Existing Z (Ft.)	Proposed Toe Z (Ft.)
1	363556.41	1225863.16	5139.2	5150.5
2	363559.34	1225888.99	5139.9	5139.0
3	363577.72	1225886.91	5138.5	5138.6
4	363599.75	1225859.25	5136.7	5136.0
5	363567.84	1225861.86	5138.5	5150.5
6	363595.79	1225824.39	5136.0	5136.0
7	363564.82	1225799.72	5136.9	5136.9
8	363549.42	1225801.47	5138.2	5137.5
9	363552.68	1225830.28	5138.9	5150.5
10	363564.11	1225828.99	5138.1	5150.5
11	363723.42	1225844.22	5138.1	5150.5
12	363726.69	1225873.03	5138.9	5137.5
13	363708.39	1225875.11	5138.4	5137.5
14	363679.63	1225852.20	5137.5	5137.5
15	363708.10	1225845.96	5137.9	5150.5
16	363675.22	1225813.37	5137.8	5137.5
17	363698.13	1225784.61	5137.9	5138.4
18	363716.43	1225782.53	5137.4	5137.5
19	363719.70	1225811.35	5137.6	5150.5
20	363704.38	1225813.08	5138.0	5150.5



**SLOPE PROTECTION PLAN**



**SLOPE PROTECTION DETAIL**  
Scale: 1" = 5'-0"

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

**EAST VERDE RIVER CROSSING #3**  
**HOUSTON MESA ROAD**

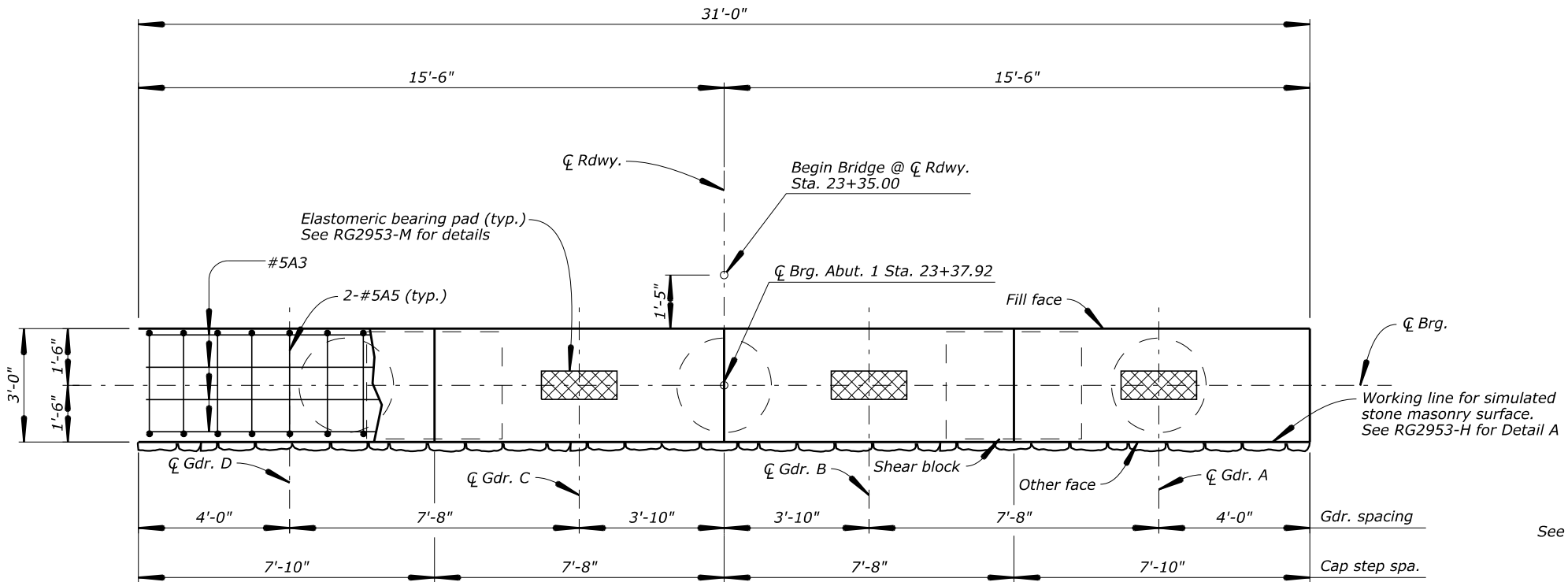
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**SLOPE PROTECTION**

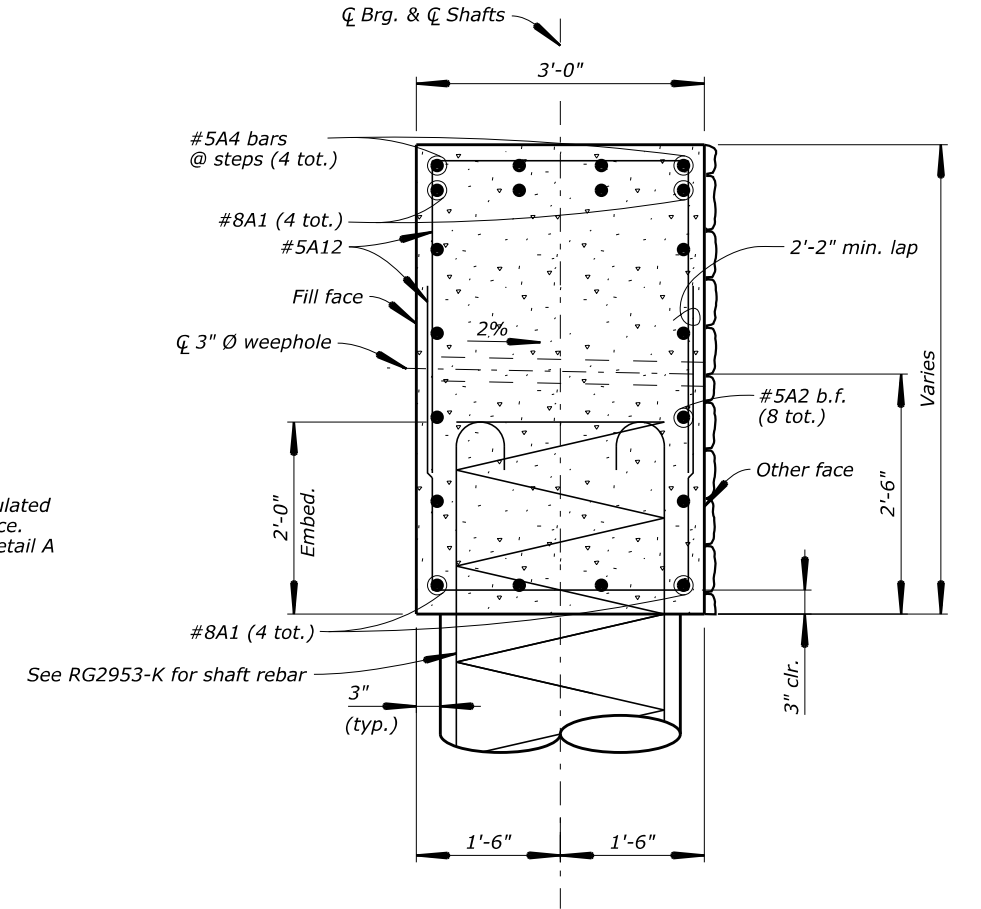
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	1" = 20'-0"	BONNIE KLAMERUS	4 of 21	JULY 2013	RG2953- D

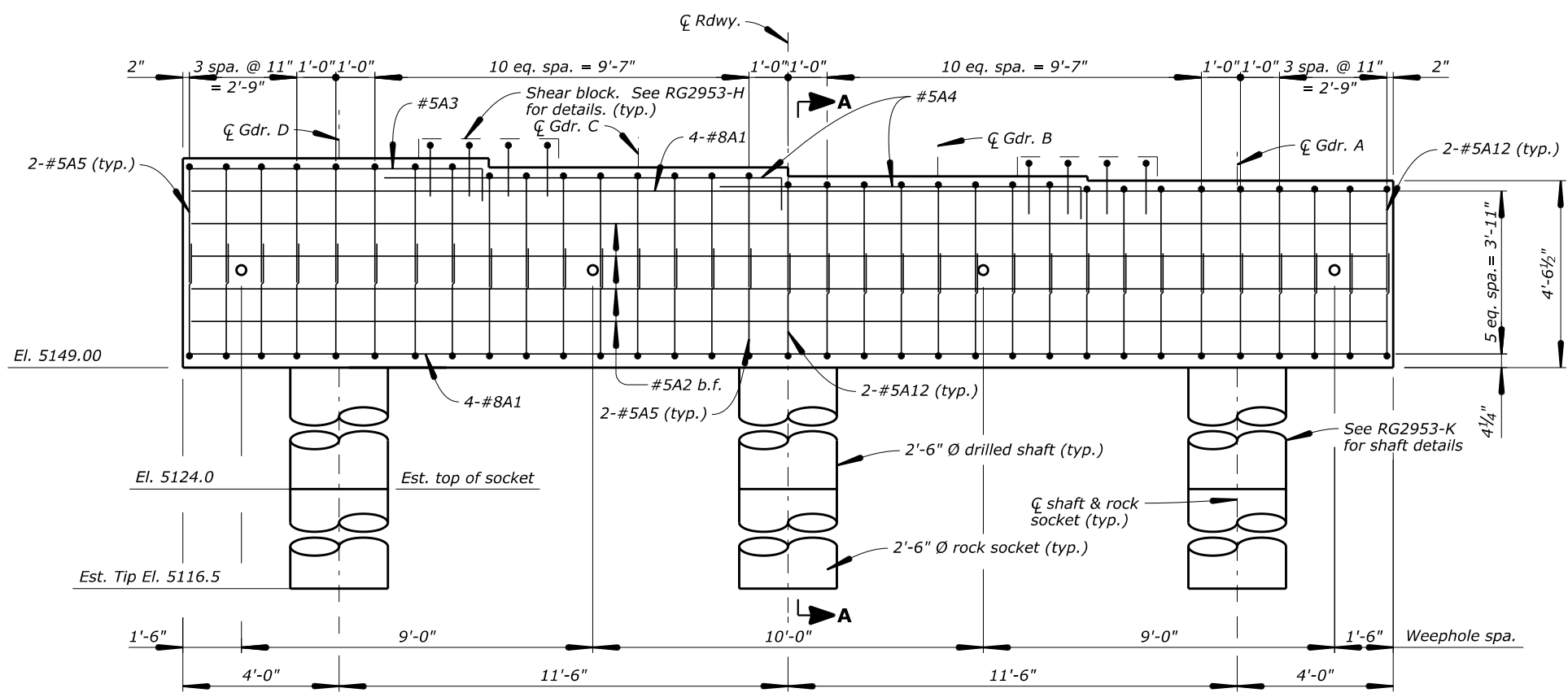
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S63	S79



**ABUTMENT CAP PLAN**



**SECTION A-A**  
Scale: 1/2" = 1'-0"



**ABUTMENT ELEVATION**  
(LOOKING BACK ON LINE)

Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces

ABUTMENT BEARING SEAT ELEVATIONS	
	ABUT. 1
GIRDER A	5153.55
GIRDER B	5153.78
GIRDER C	5154.01
GIRDER D	5154.24

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

**EAST VERDE RIVER CROSSING #3**  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

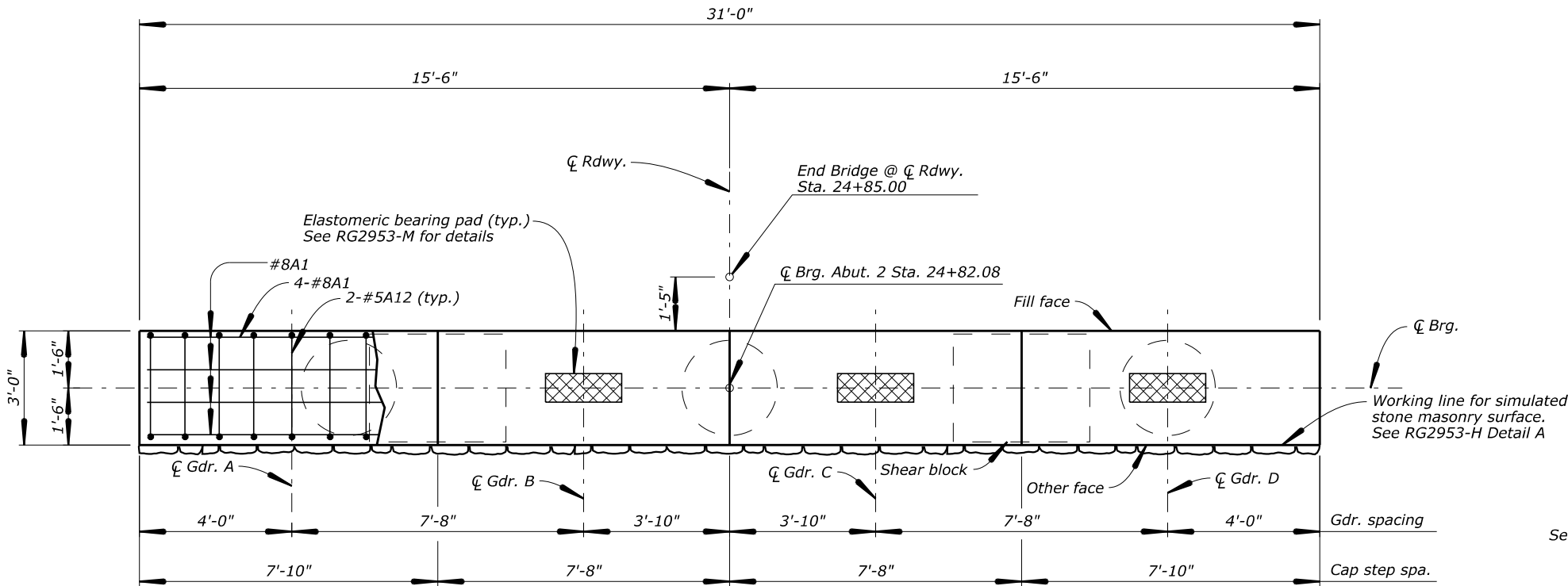
**ABUTMENT 1 PLAN & ELEVATION**

Note: Adjust 3" Ø weepholes to avoid reinforcing.

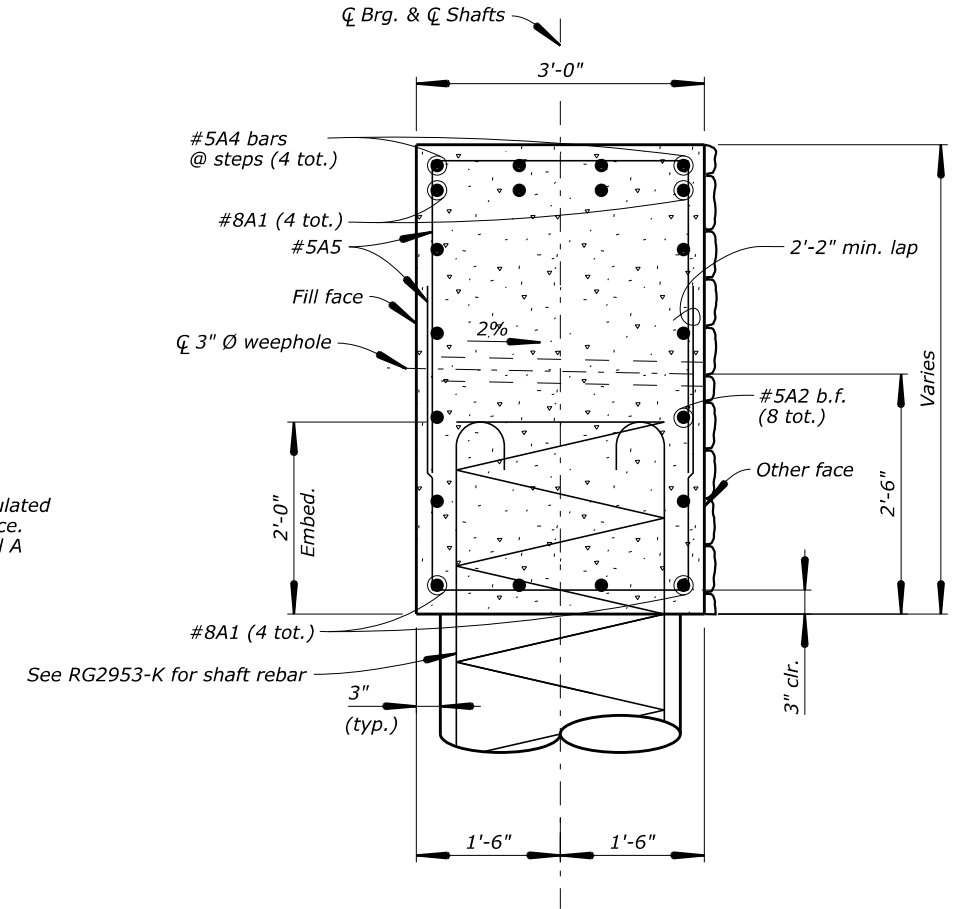
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	1/4" = 1'-0"	BONNIE KLAMERUS	5 of 21	JULY 2013	RG2953- E

N:\AZ\az52-11\N\Bridges\RG2953\CADD Files\DGN Files\2953abut.dgn 8/18/2013

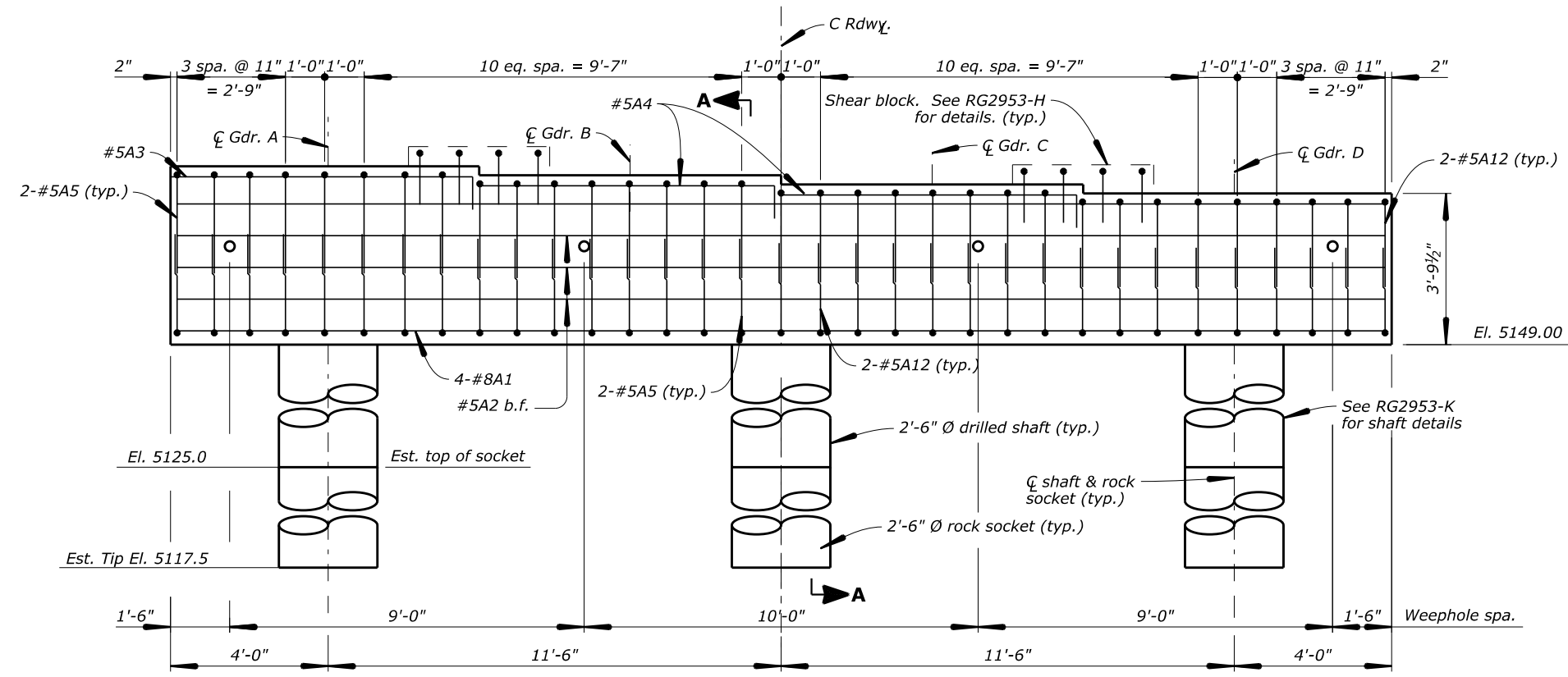
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S64	S79



**ABUTMENT CAP PLAN**



**SECTION A-A**  
Scale: 1/2" = 1'-0"



**ABUTMENT ELEVATION**  
(LOOKING AHEAD ON LINE)

ABUTMENT BEARING SEAT ELEVATIONS	
	ABUT. 2
GIRDER A	5153.47
GIRDER B	5153.24
GIRDER C	5153.01
GIRDER D	5152.78

Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces

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EAST VERDE RIVER CROSSING #3  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

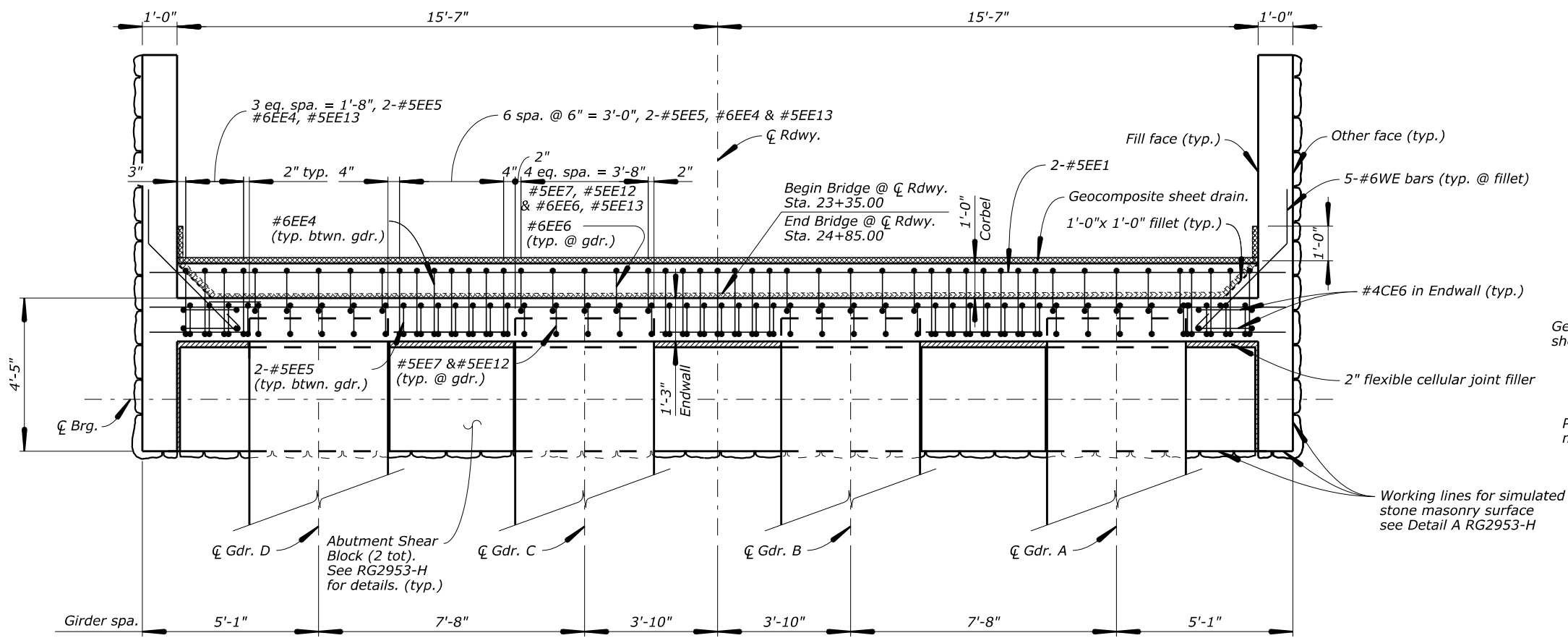
**ABUTMENT 2 PLAN & ELEVATION**

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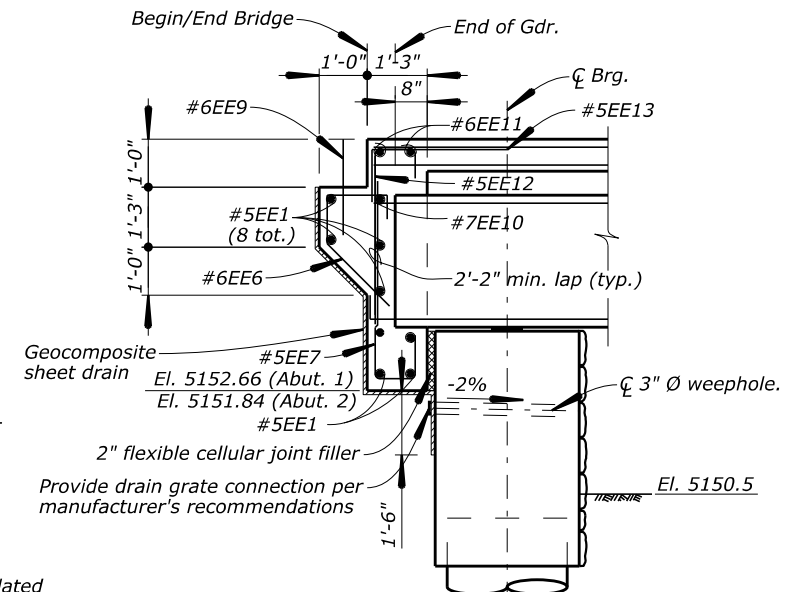
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								D. GERMANI	R. WEHNER	G. MAY	1/4" = 1'-0"	BONNIE KLAMERUS	6 of 21	JULY 2013	RG2953- F



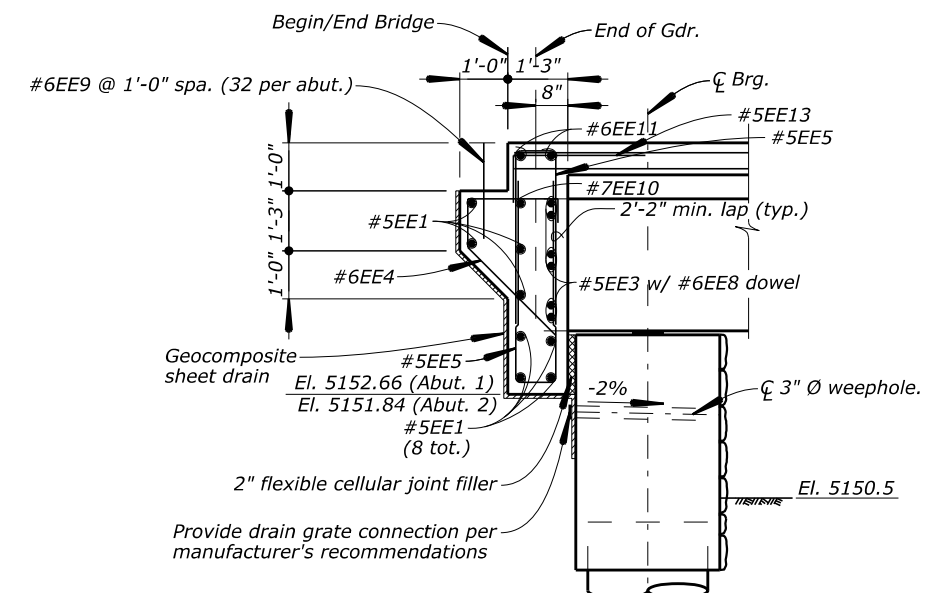
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S65	S79



**ABUTMENT ENDWALL PLAN**  
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)

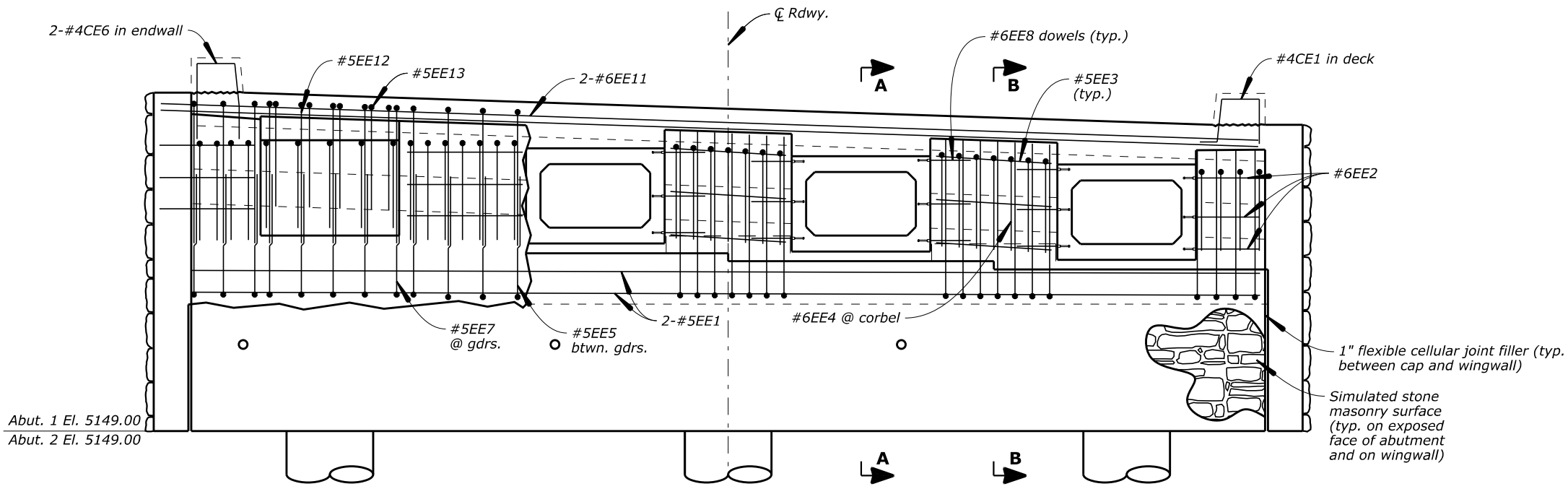


**SECTION A-A**



**SECTION B-B**

Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces



**ABUTMENT ENDWALL ELEVATION**  
(ABUTMENT 1 SHOWN LOOKING BACK ON LINE,  
ABUTMENT 2 SIMILAR)

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

EAST VERDE RIVER CROSSING #3  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

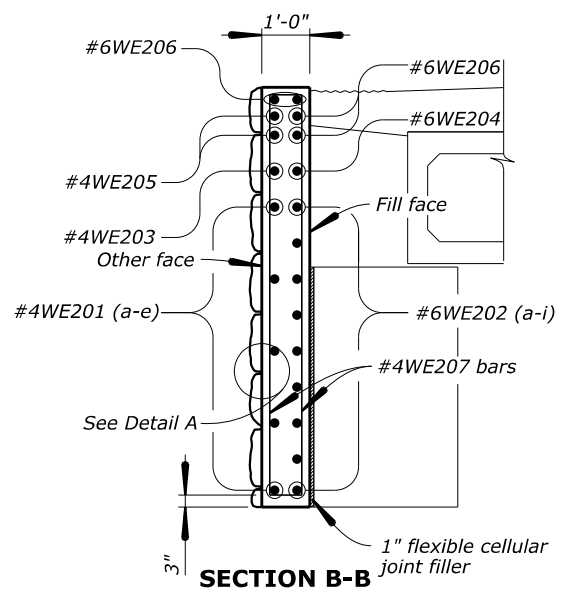
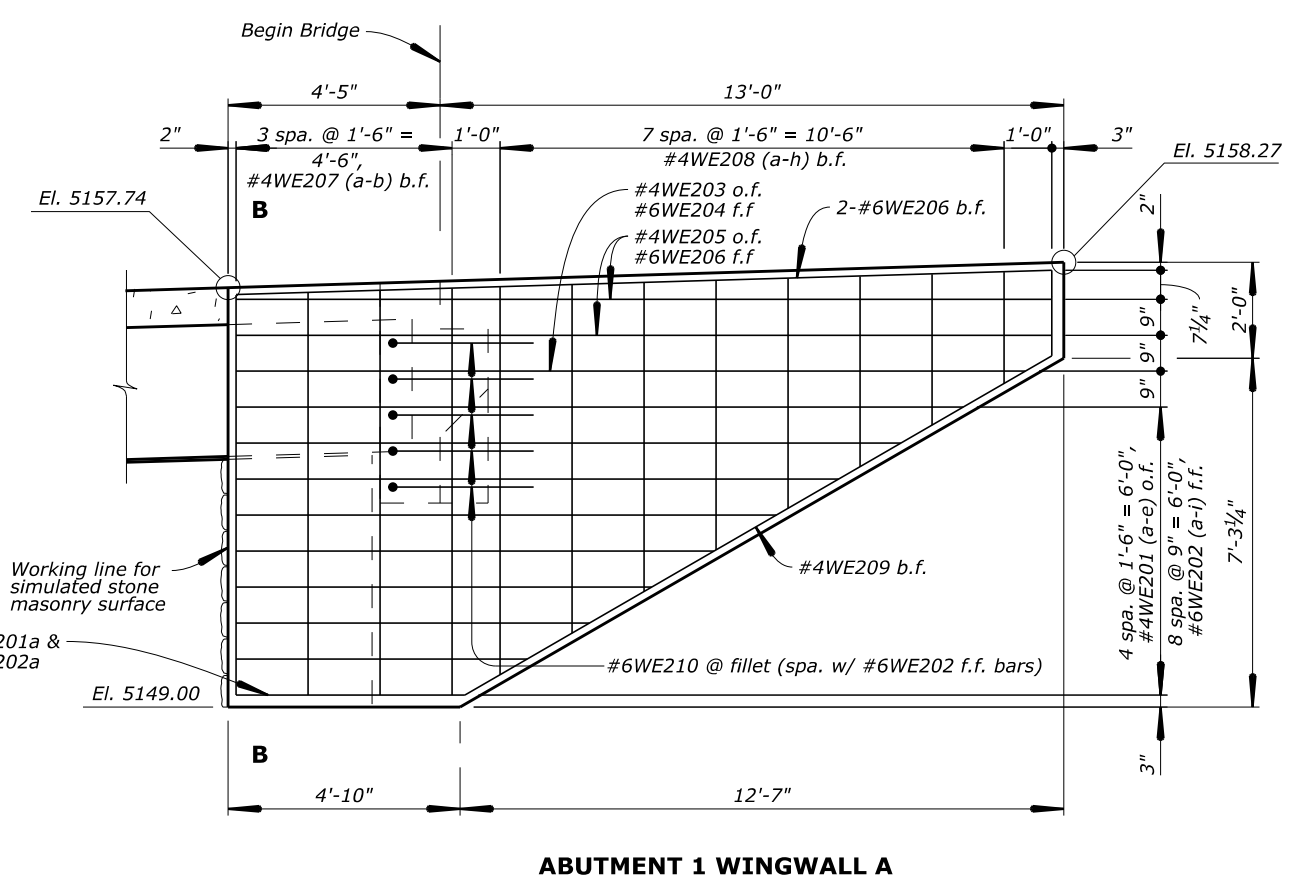
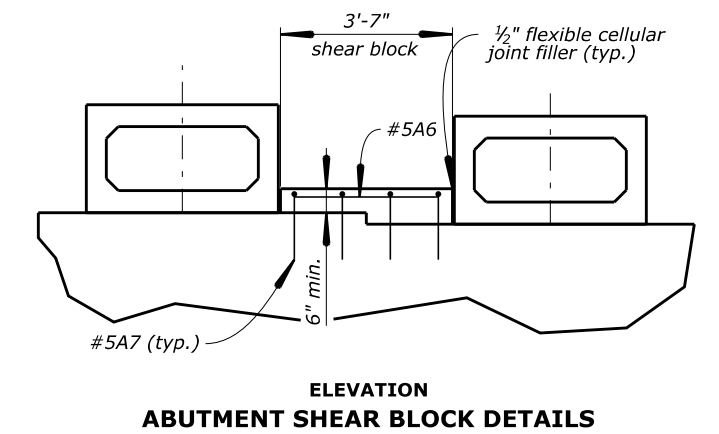
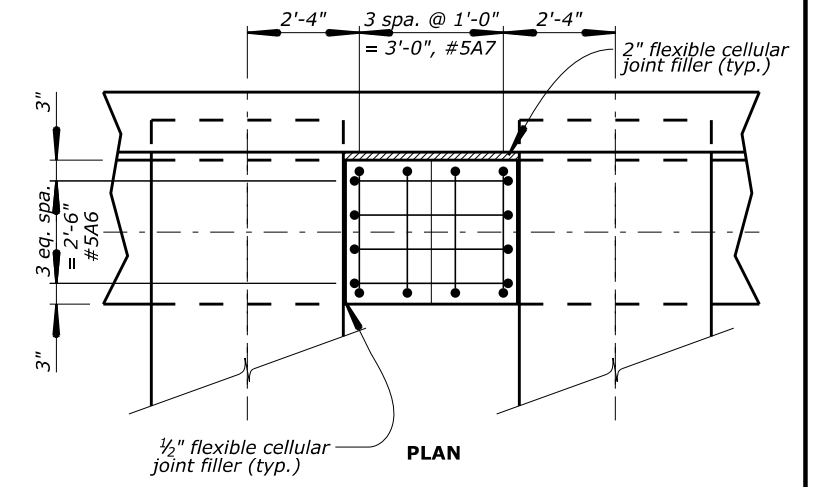
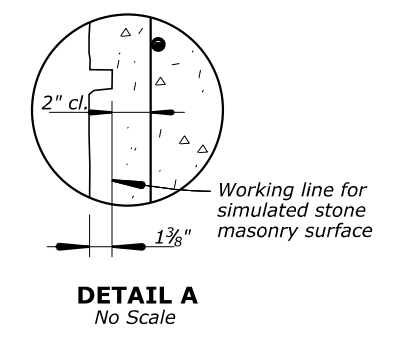
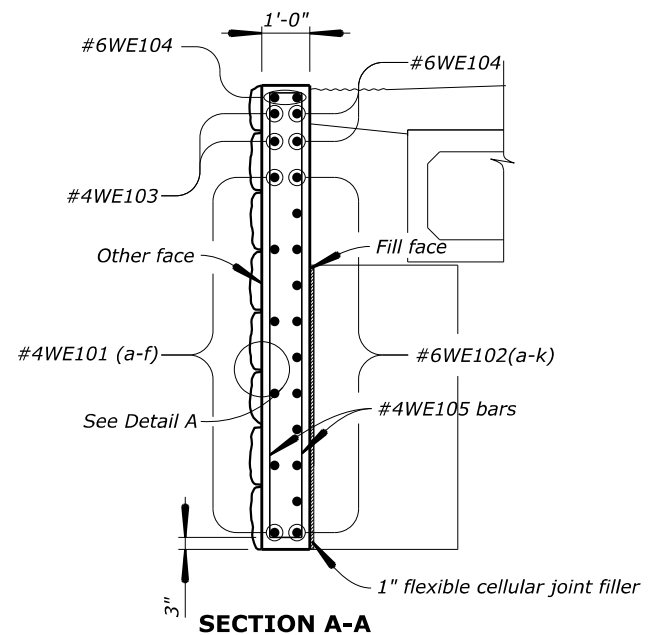
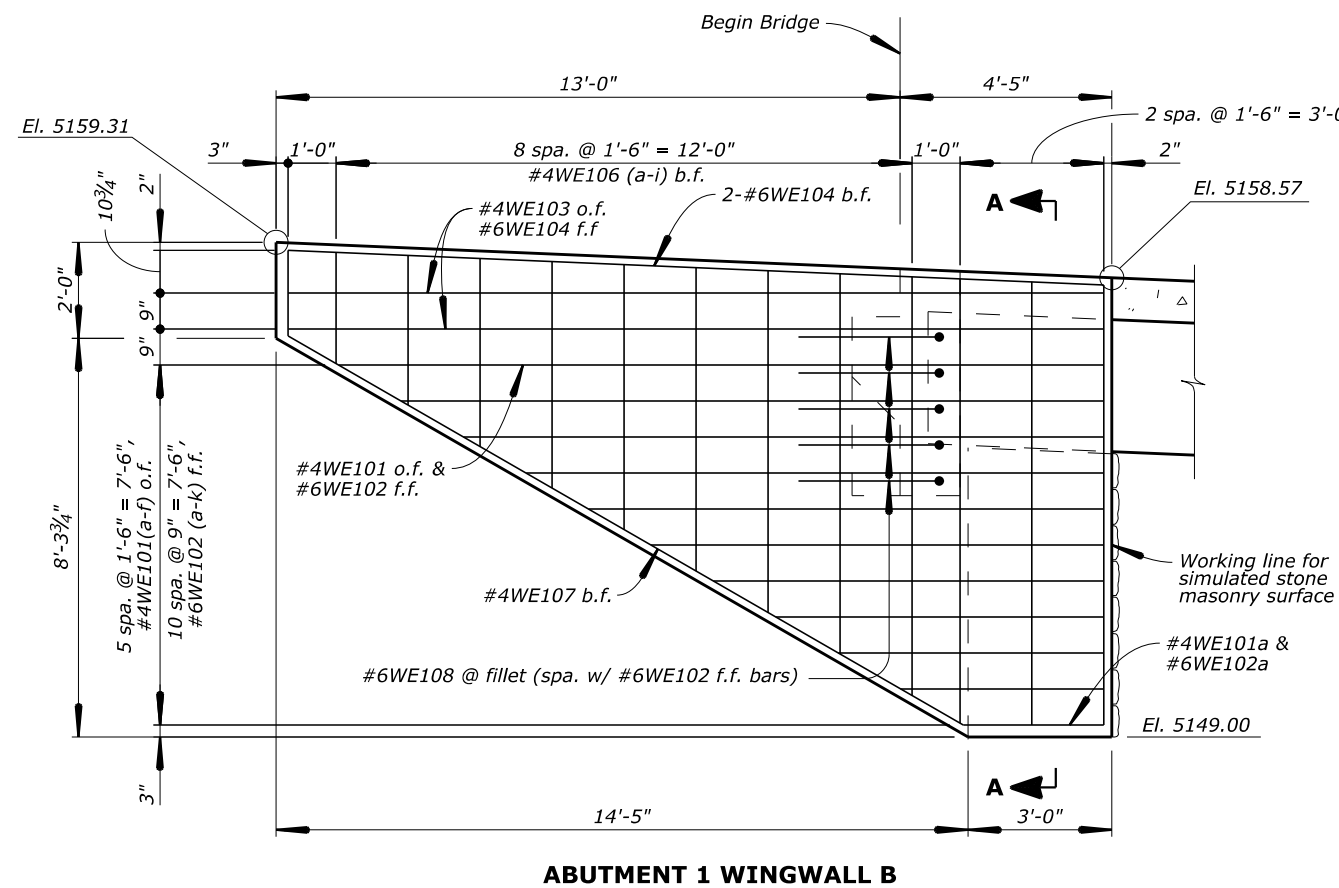
**ABUTMENT ENDWALL**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	¼" = 1'-0"	BONNIE KLAMERUS	7 of 21	JULY 2013	RG2953- G

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8/18/2013

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S66	S79



U.S. DEPARTMENT OF TRANSPORTATION  
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**EAST VERDE RIVER CROSSING #3**  
HOUSTON MESA ROAD

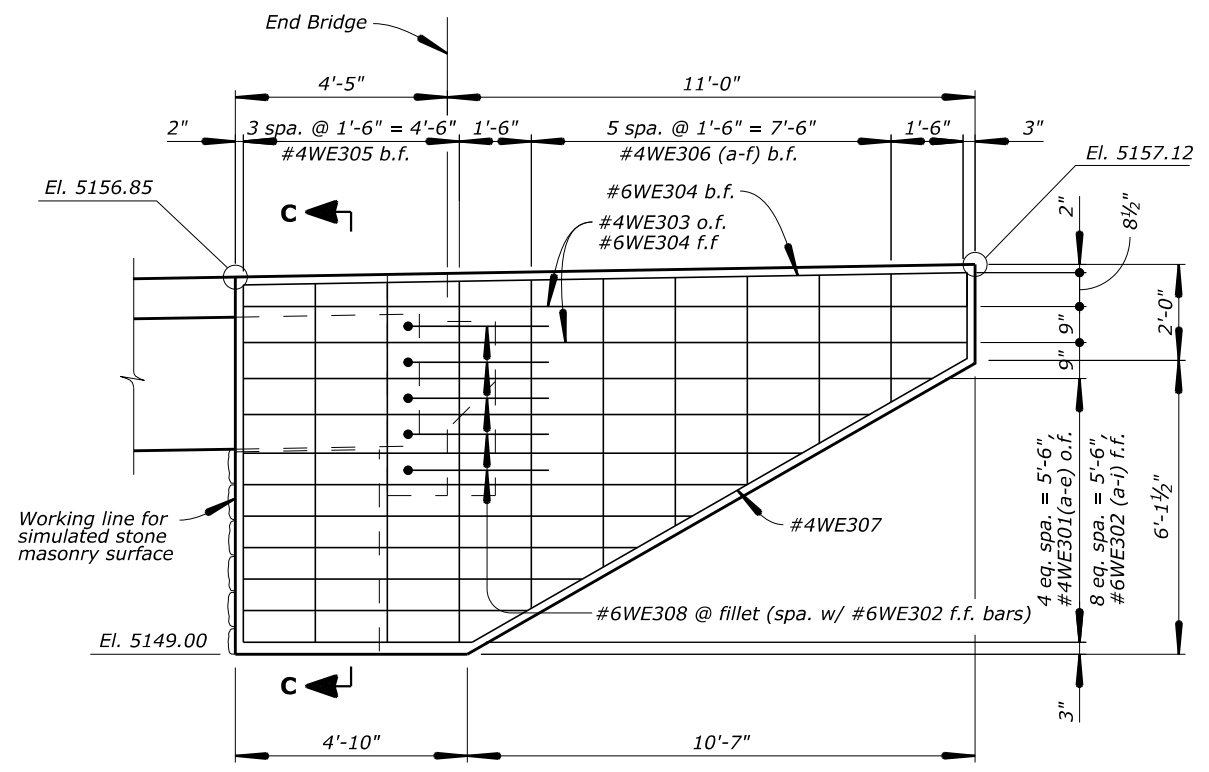
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**ABUTMENT 1 WINGWALLS**

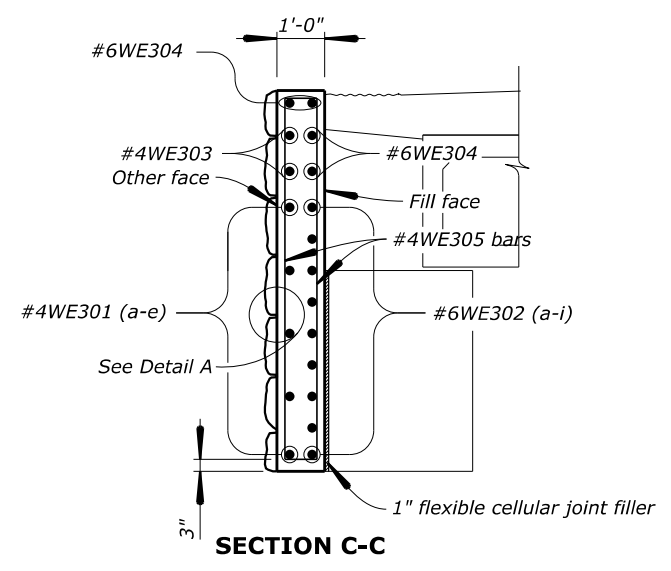
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	1/4" = 1'-0"	BONNIE KLAMERUS	8 of 21	JULY 2013	RG2953- H

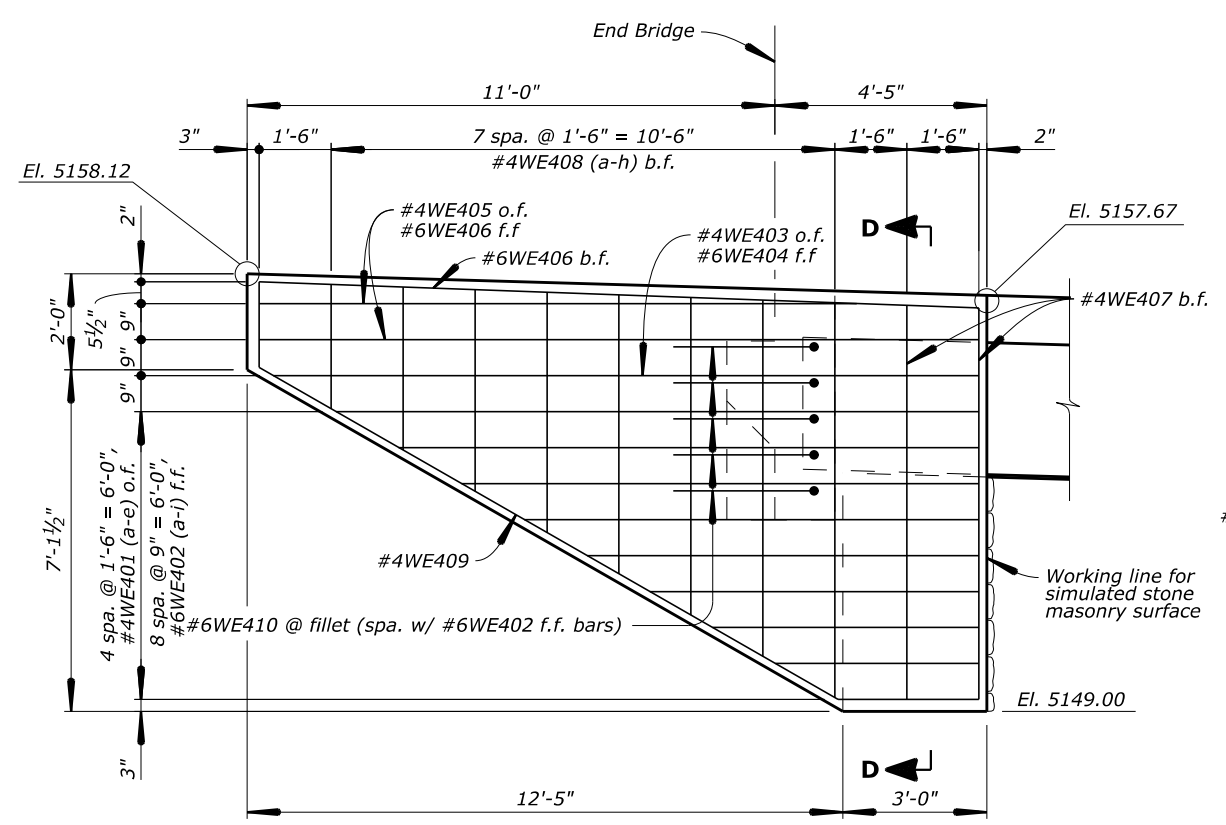
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S67	S79



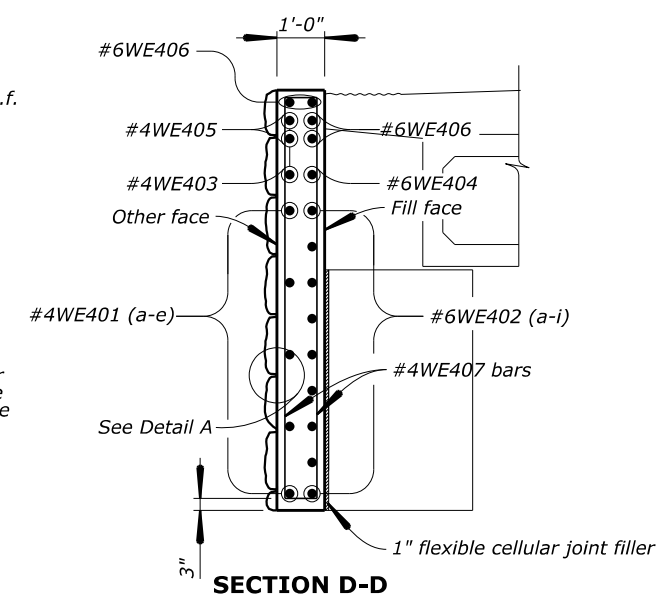
**ABUTMENT 2 WINGWALL D**



**SECTION C-C**



**ABUTMENT 2 WINGWALL C**



**SECTION D-D**

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
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 EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

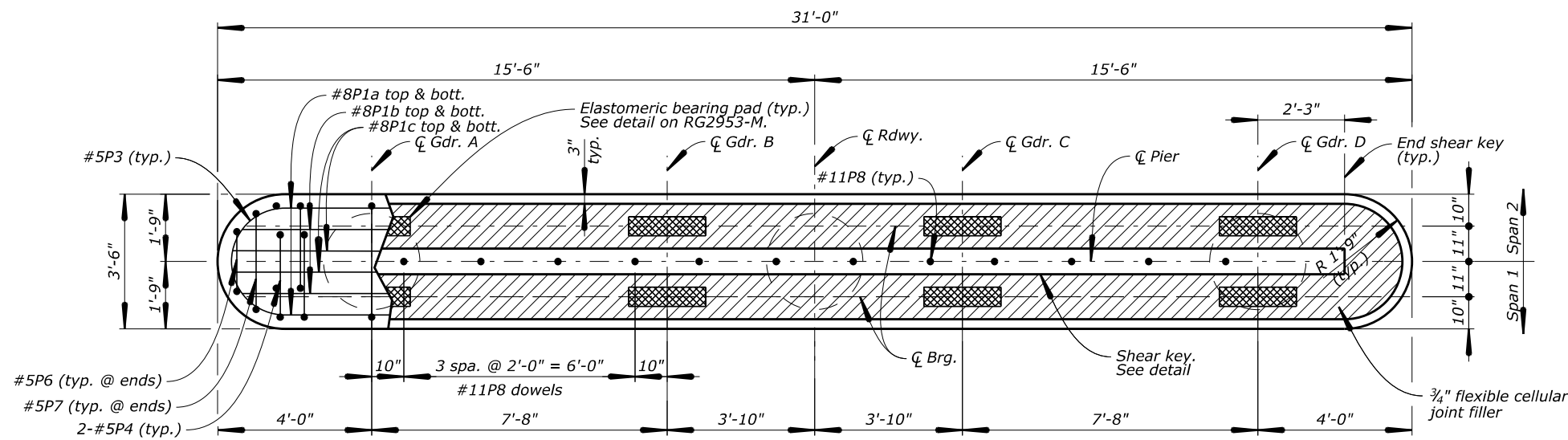
**ABUTMENT 2 WINGWALLS**

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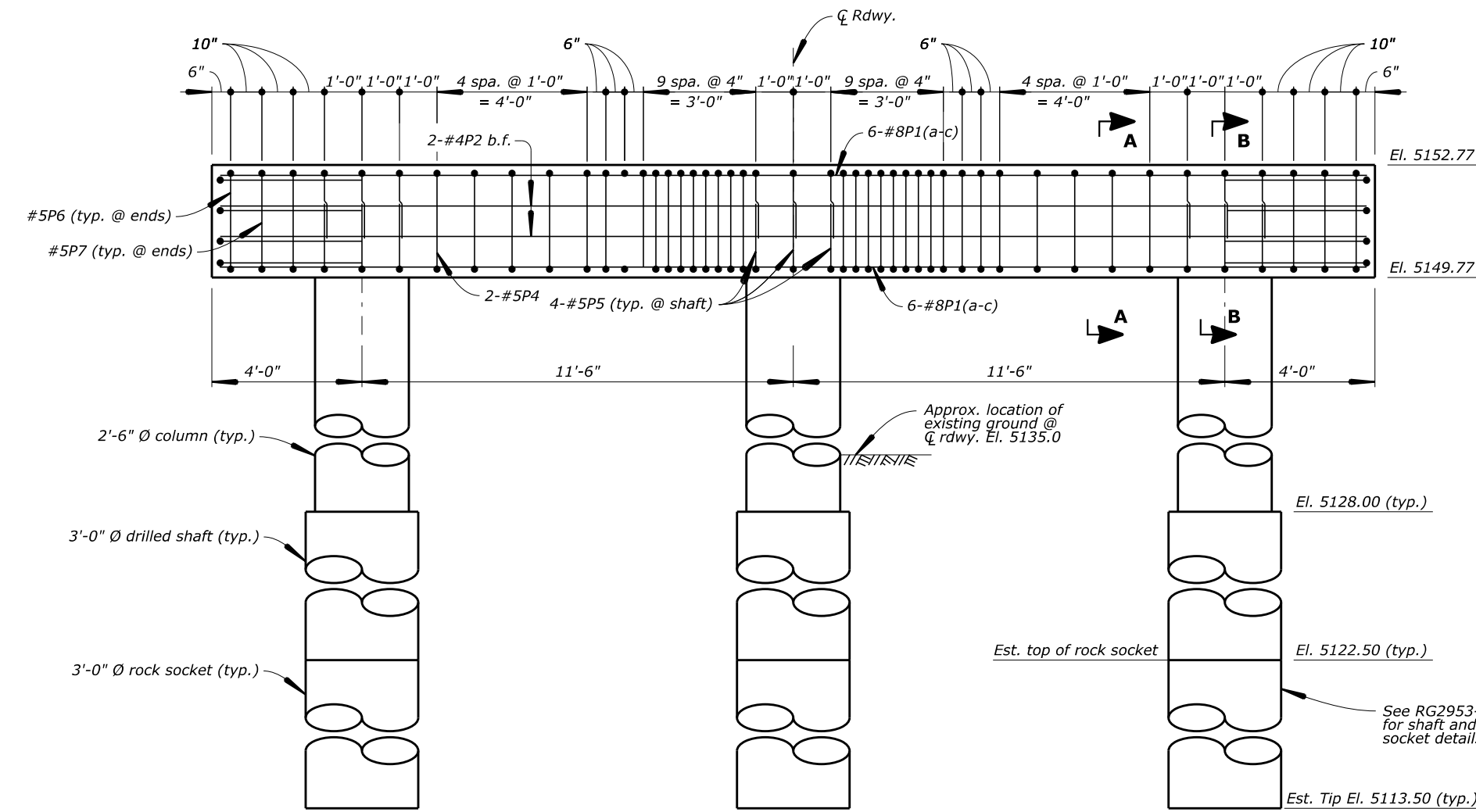
8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	1/4" = 1'-0"	BONNIE KLAMERUS	9 of 21	JULY 2013	RG2953- I

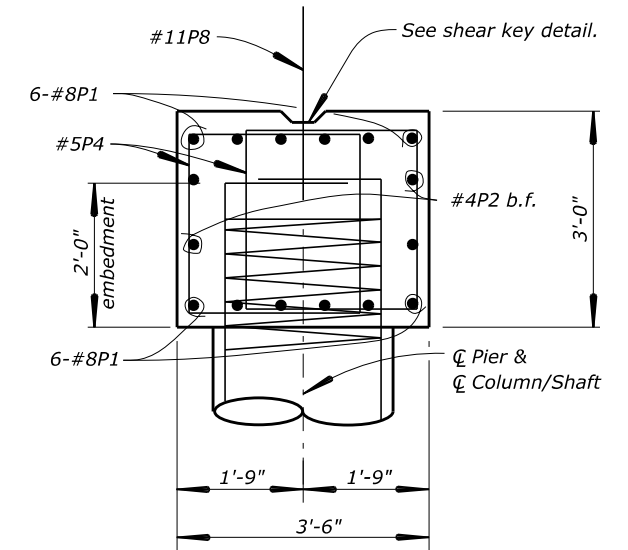
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S68	S79



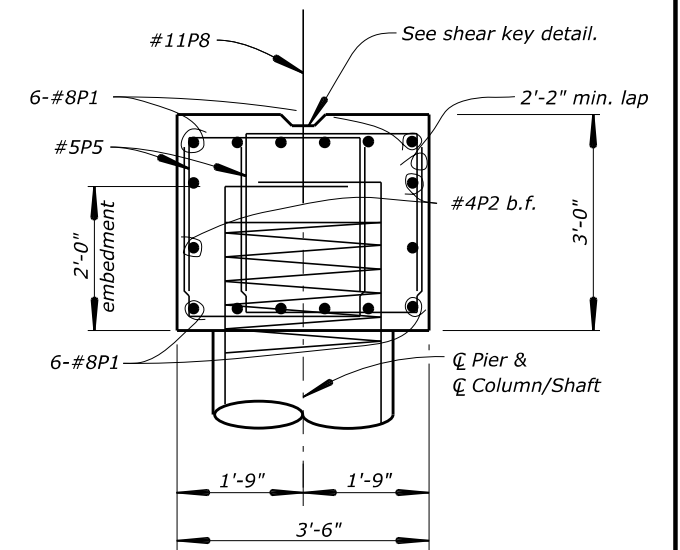
**PLAN**



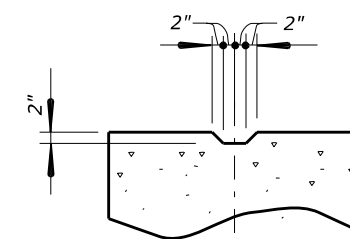
**ELEVATION**



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



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



**SHEAR KEY DETAIL**  
Scale: 3/8" = 1'-0"

U.S. DEPARTMENT OF TRANSPORTATION  
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
**EAST VERDE RIVER CROSSING #3**  
HOUSTON MESA ROAD  
TONTON NATIONAL FOREST  
GILA COUNTY, ARIZONA

**PIER PLAN & ELEVATION**

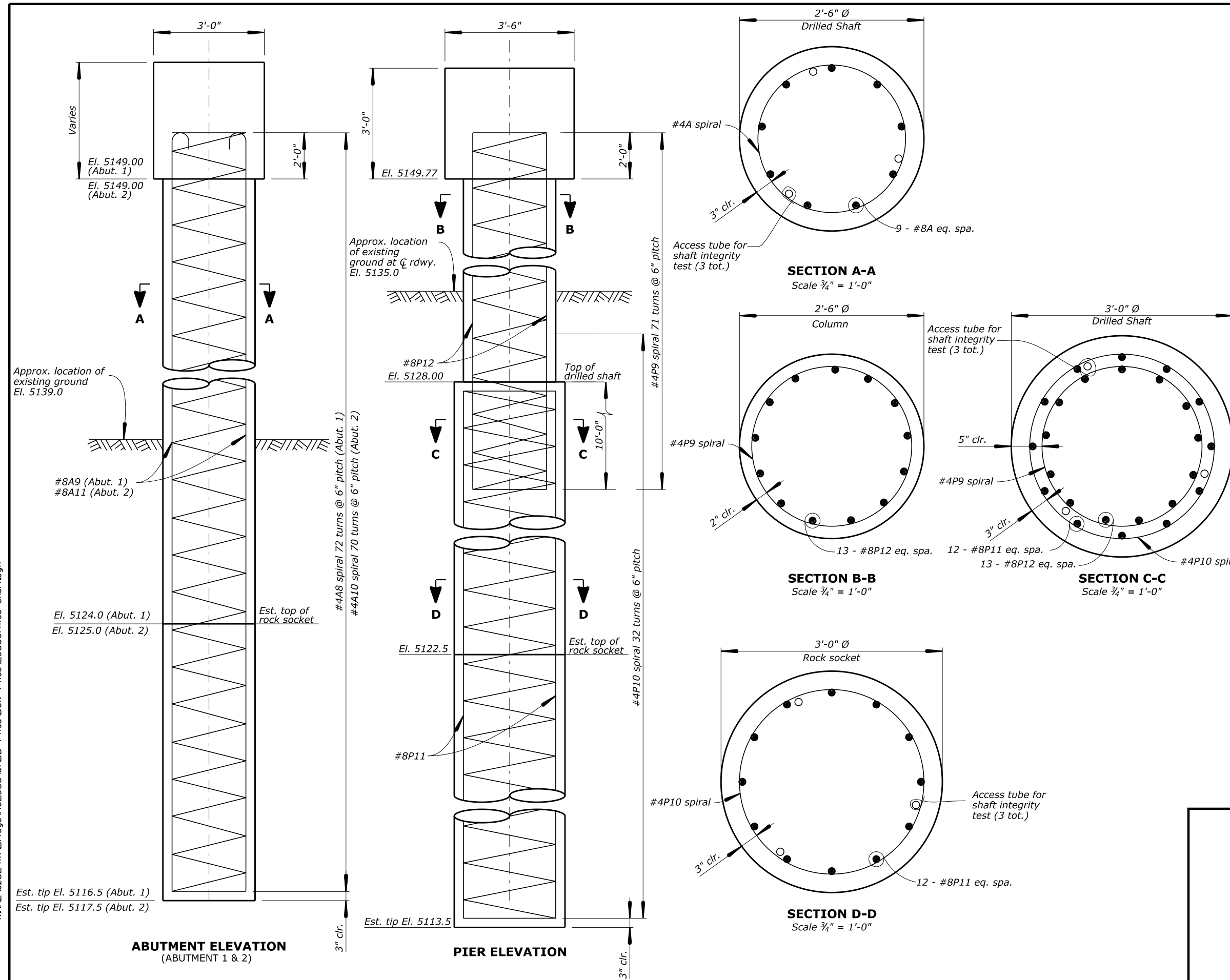
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8/18/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	1/4" = 1'-0"	BONNIE KLAMERUS	10 of 21	JULY 2013	RG2953- J

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S69	S79

- NOTES:
- Lap splices of spiral reinforcing and longitudinal drilled shaft/rock socket reinforcing shall not be permitted unless shown on the plans. For mechanical splice requirements see FP-03 and Special Contract Requirements. Splice components shall have a clear cover not less than 1½" measured from the surface of concrete to the outside face of the component. Mechanical splices of longitudinal reinforcing shall be staggered by a minimum of 2'-0" as measured along the longitudinal axis of the shaft/column.
  - Access tubes for integrity test shall be equally spaced and tied to reinforcing cage at nearest drilled shaft/ rock socket longitudinal bar. See SCR section 565 for additional requirements. Perform integrity test before pouring abutment cap and column concrete. Vertical spacing between concrete spacers shall not exceed 5 ft.
  - Contractor shall submit cage alignment details for approval.
  - Contractor shall use centralizers to maintain rebar clearance.
  - Reinforcing cage shall extend to the bottom of the rock socket as shown.
  - Drilled shaft rock socket lengths and estimated tip elevations are based on a minimum of 7.5' embedment into bedrock at the abutments and 9' embedment at the pier. Adjust tip elevation to achieve those embedment lengths if bedrock is below top of socket elevation shown.
  - Construct abutment fills prior to constructing rock socket and drilled shafts.



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EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD

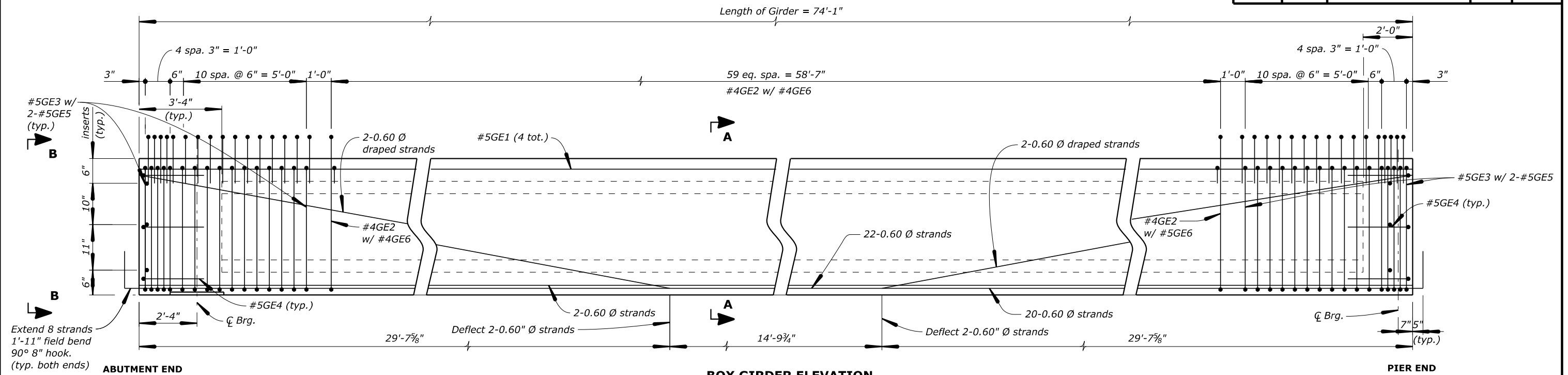
TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**DRILLED SHAFT DETAILS**

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 8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	¾" = 1'-0"	BONNIE KLAMERUS	11 of 21	JULY 2013	RG2953- K

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S70	S79

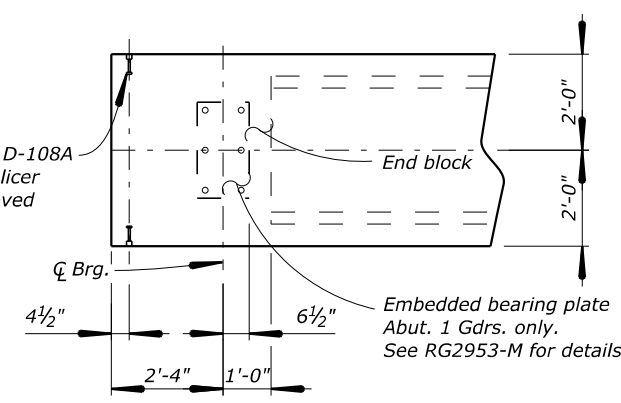


**BOX GIRDER ELEVATION**  
Scale: 1/4" = 1'-0" horiz.  
1/2" = 1'-0" vert.

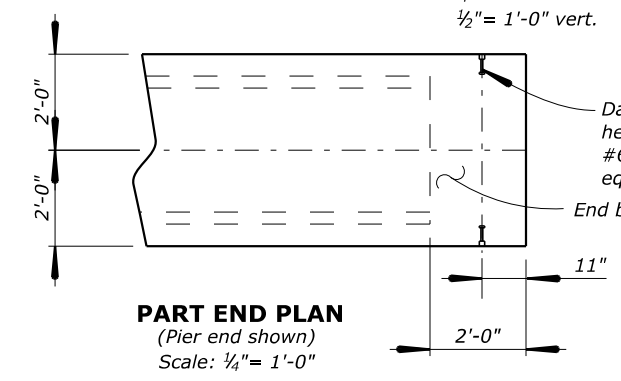
**PRESTRESSED CONCRETE BOX BEAM ESTIMATE**

ITEM	UNIT	QUANTITY
Concrete	Cu. Yd.	16
Reinforcing Steel	Lbs.	1844
0.6" Ø Strands	Ft.	1809

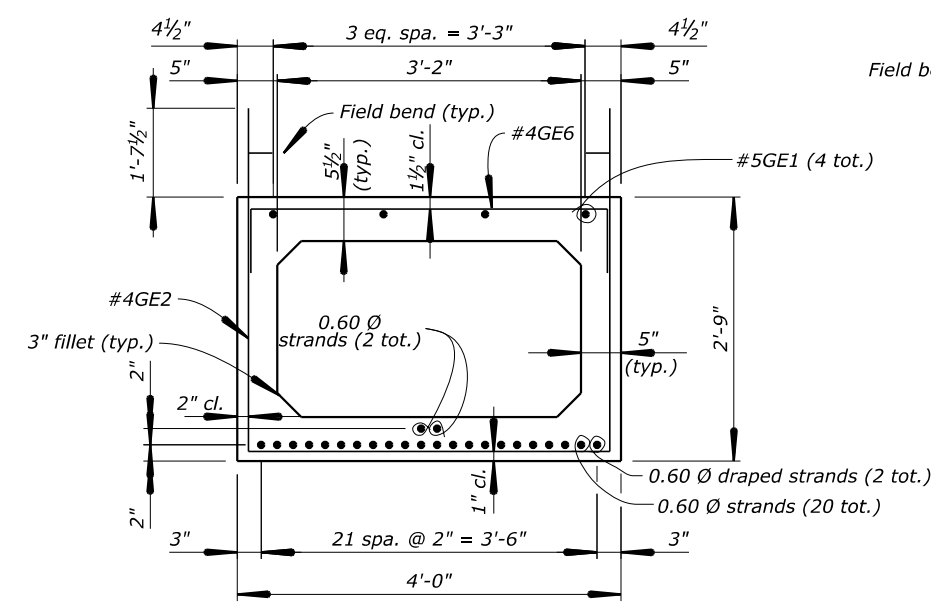
Note: Quantities shown are for one box girder only.  
See RG2953-T for Prestressed Concrete Box Beam bar list.



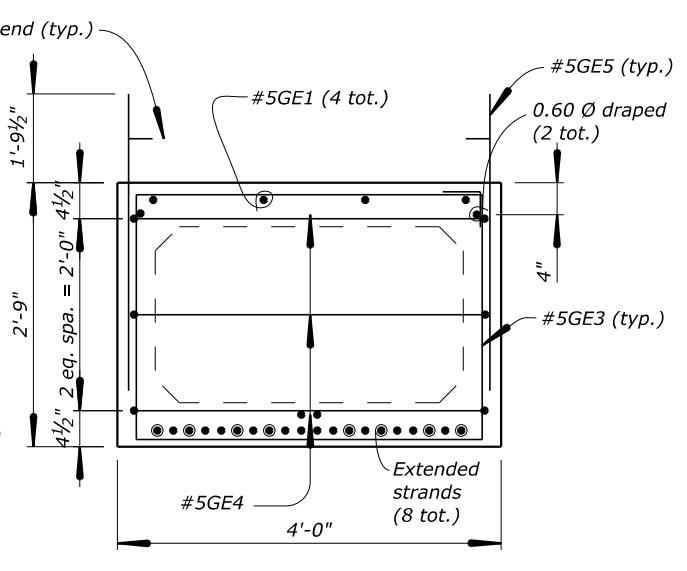
**PART END PLAN**  
(Abutment end shown)  
Scale: 1/4" = 1'-0"



**PART END PLAN**  
(Pier end shown)  
Scale: 1/4" = 1'-0"



**SECTION A-A**



**VIEW B-B**

- NOTE:**
1. Cast girders 1/4" longer than shown to allow for shortening due to prestressing.
  2. Field bend such that hook is between the top transverse and both longitudinal bars.
  3. Install vertical void drain in bottom flange near each end block.

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**EAST VERDE RIVER CROSSING #3**  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**PRECAST CONCRETE BOX BEAM**

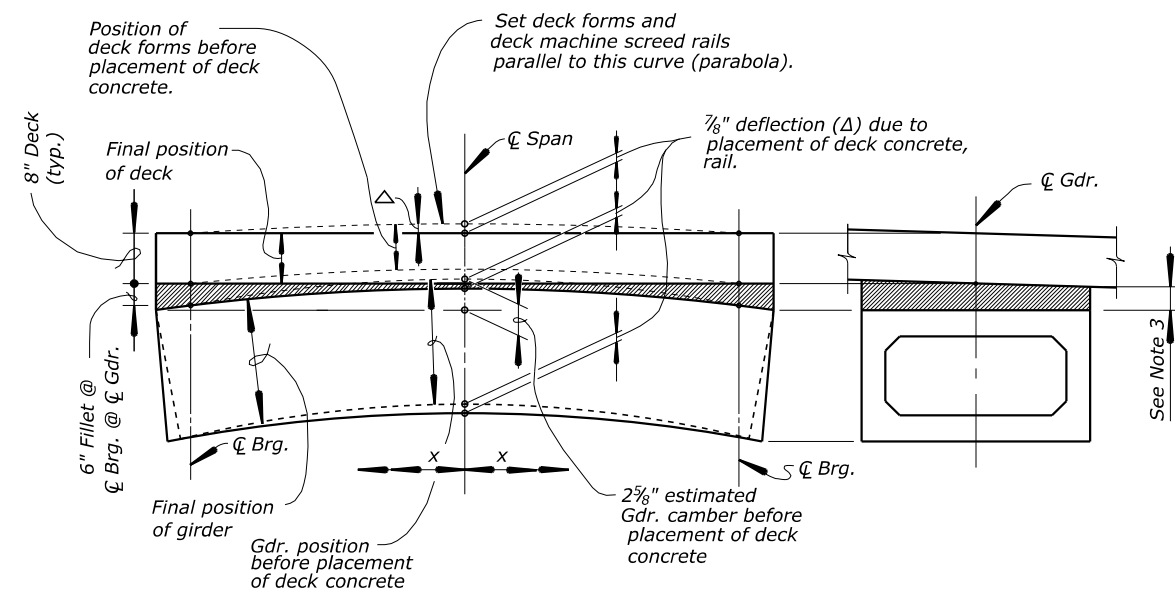
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	1/2" = 1'-0"	BONNIE KLAMERUS	12 of 21	JULY 2013	RG2953- L

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S71	S79

**NOTES:**

- All structural steel plates shall be AASHTO M270, Grade 36.
- Steel reinforced and plain elastomeric bearing pad shall conform to AASHTO M251 with 60 Durometer hardness, elastomer Grade 3 or higher.
- Vulcanize the elastomeric bearing pad to bottom surface of sole plate.
- Sole plate shall be galvanized.
- All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, and a direction arrow that points ahead station. All marks shall be permanent and be visible after the bearing is installed.
- AASHTO LRFD Design method A used for elastomeric pad design.
- For information only  
Abutment design service loads per bearing:  
Dead load = 95 Kips  
Live load = 61 Kips.  
Pier design service loads per bearing:  
Dead load = 77 Kips



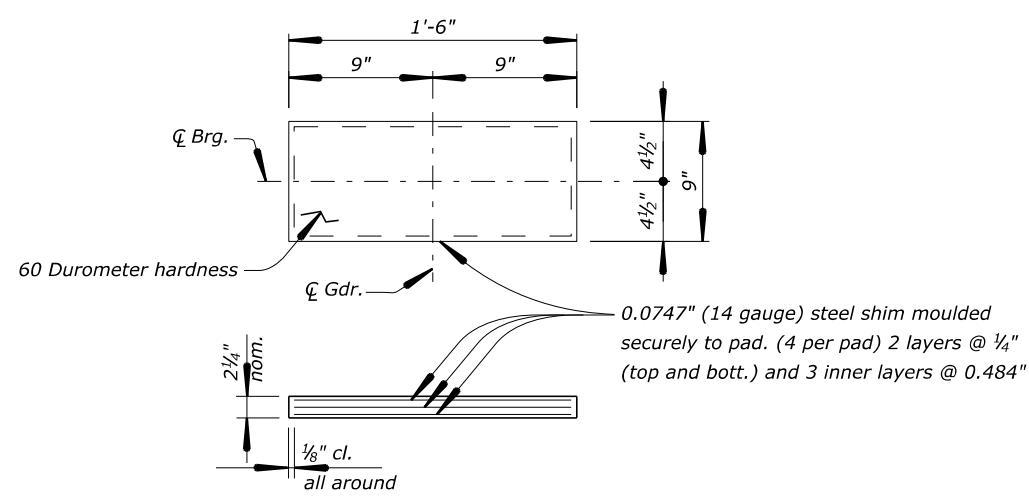
**Deflection Equation**

$$\Delta = 0.875 - \frac{X^2}{208396}$$

where  $\Delta$  = Deflection, in inches, of girder at any point caused by the weight of deck.  
and  $X$  = distance, in feet, measured from midspan (See diagram).  
Note:  $\Delta$  max =  $7/8$ " @  $x=0$  (midspan)  
 $\Delta$  min = 0 @  $x=35'-7"$  ( $\phi$  Brg.)

**Required Actions:**

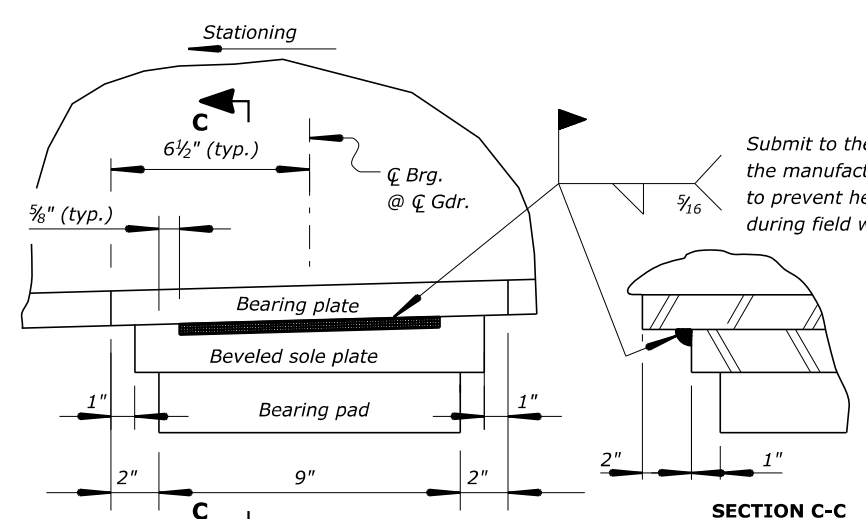
- Measure girder camber prior to setting deck forms. If it exceeds the estimated gdr. camber ( $2\frac{5}{8}$ " ) by more than 1", the fillet will have to be increased by raising profile grade as directed by the CO.
- Set the deck forms and camber the deck machine screed rails to offset the gdr. deflections due to deck placement ( $7/8$ " )
- Bridge precast box beam seat elevations were calculated using dead load deflections of deck and adjustments for vertical curve of deck, if any, so that top of precast box beams will be a minimum of 1 inch below bottom of deck at any one point in the span, allowing for precast box beam depth and girder camber tolerance.



**REINFORCED ELASTOMERIC BEARING PAD DETAIL**

Abutments (8 Req'd)

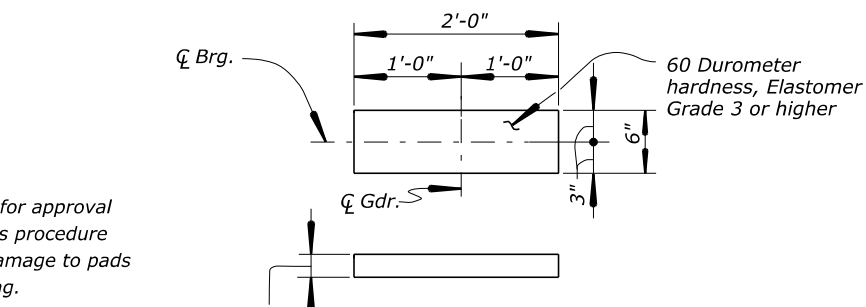
**DECK FORM SETTING DIAGRAM**



Note: Repair areas damaged by field welding by cleaning and re-coating with 2 brush coats of zinc dust-zinc oxide paint meeting Federal Specification TT-P-641 or Military Specification MIL-P-21035.

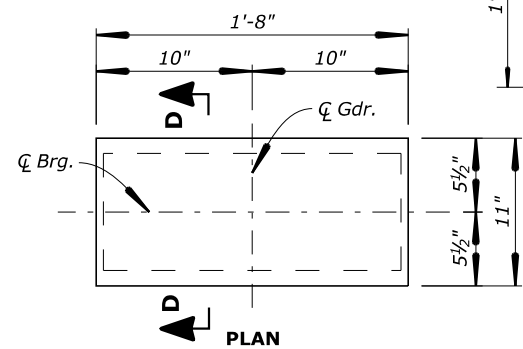
**FIELD CONNECTION DETAIL**

Abut. 1



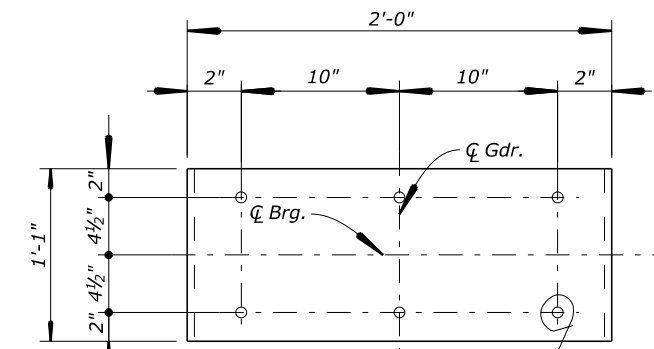
**PLAIN ELASTOMERIC BEARING PAD DETAIL**

(8 Req'd. @ Pier)



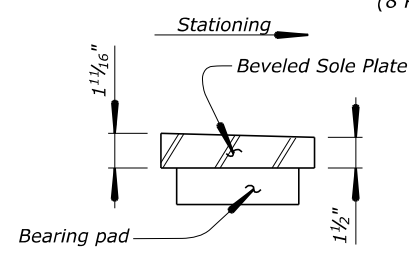
**BEVELED SOLE PLATE DETAIL**

Abutment 1 (4 Req'd.)



**BEARING PLATE DETAIL**

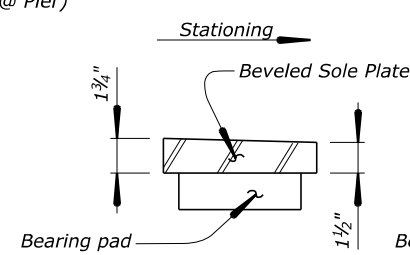
Abutment 1 Gdrs. (4 Req'd)



**SECTION D-D**

(Abut. 1, Gdr. A)

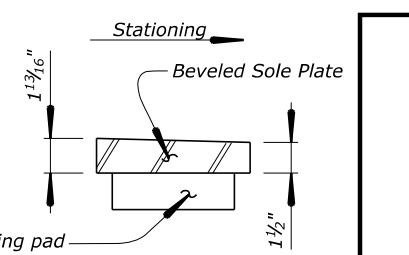
(1 Req'd.)



**SECTION D-D**

(Abut. 1, Gdr. B,C)

(2 Req'd.)



**SECTION D-D**

(Abut. 1, Gdr. D)

(1 Req'd.)

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EAST VERDE RIVER CROSSING #3  
HOUSTON MESA ROAD

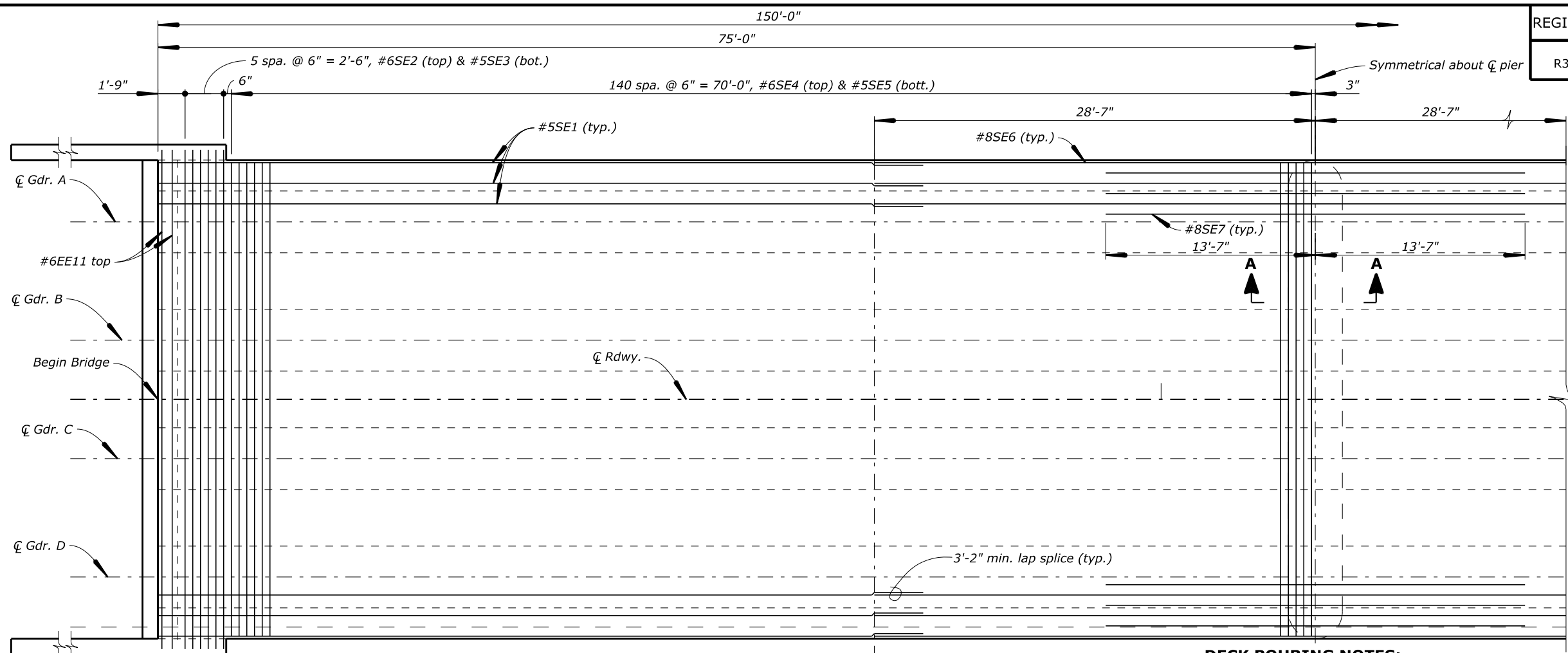
TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**BEARING DETAILS**

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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	None	BONNIE KLAMERUS	13 of 21	JULY 2013	RG2953- M

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S72	S79

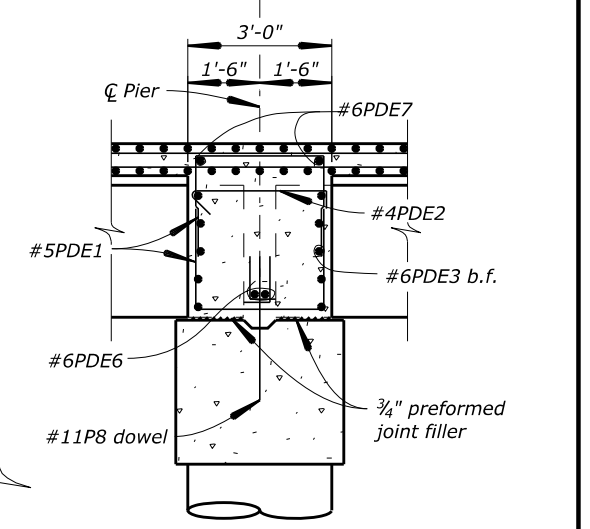


**NOTE:**  
Only top reinforcement shown. See typical section for bottom reinforcement. Wingwall, Endwall and Curb reinforcement not shown for clarity. Stagger splice locations for longitudinal reinforcement.

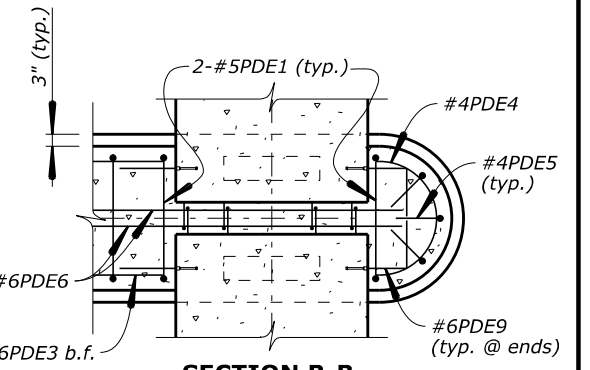
**HALF DECK PLAN**  
Scale: 1/8" = 1'-0"

**DECK POURING NOTES:**

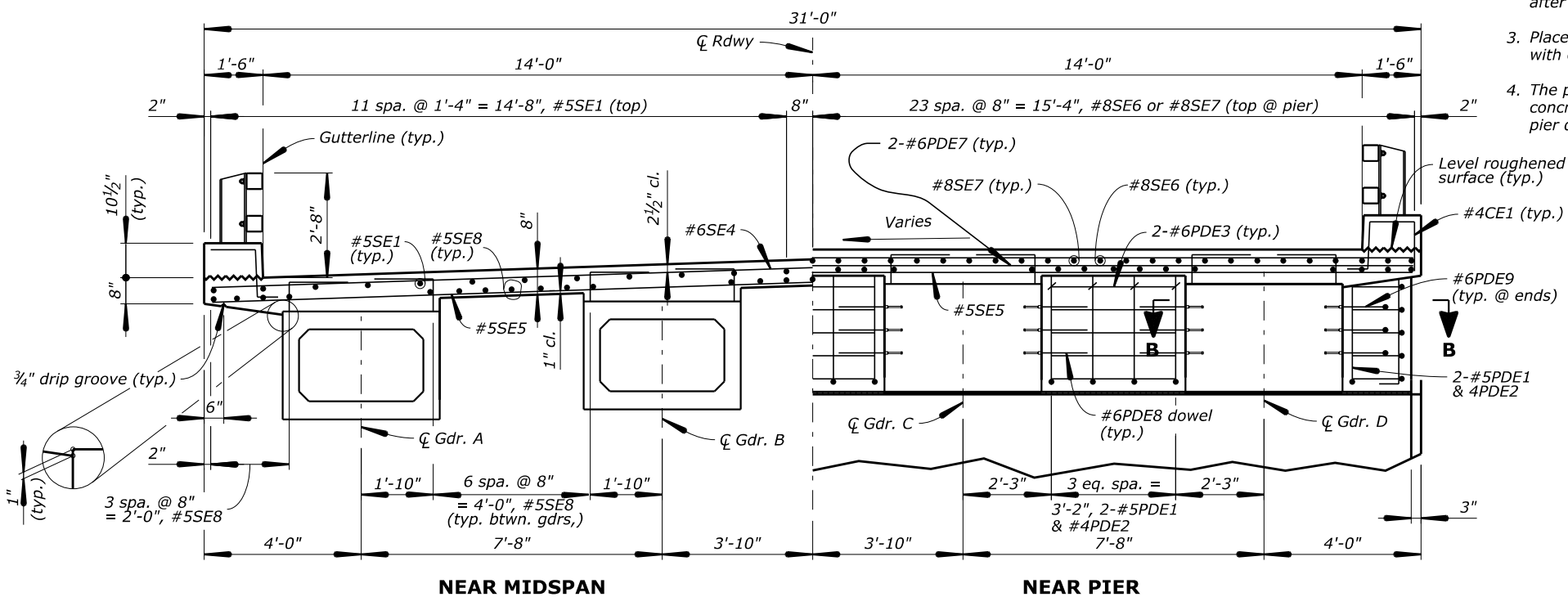
- Place deck concrete ① beginning at either Abut. 1 or Abut. 2 and proceeding to the other abutment.
- Place pier diaphragm concrete ② a minimum of 3 days after deck concrete ①.
- Place wingwall and abutment endwall concrete concurrent with or 24 hrs. after completion of deck concrete.
- The purpose of the placement sequence is to have all deck concrete ① cast at adjacent spans prior to casting the pier diaphragms ②.



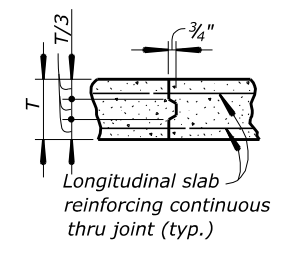
**SECTION A-A**



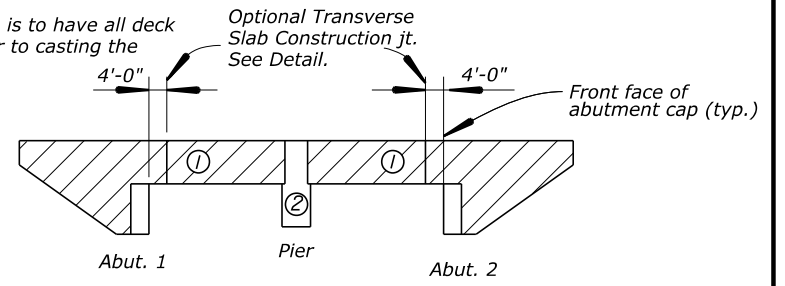
**SECTION B-B**



**TYPICAL SECTION**  
NEAR MIDSPAN NEAR PIER



**TRANSVERSE SLAB CONSTRUCTION JOINT**  
NO SCALE



**DECK POURING DIAGRAM**  
No Scale

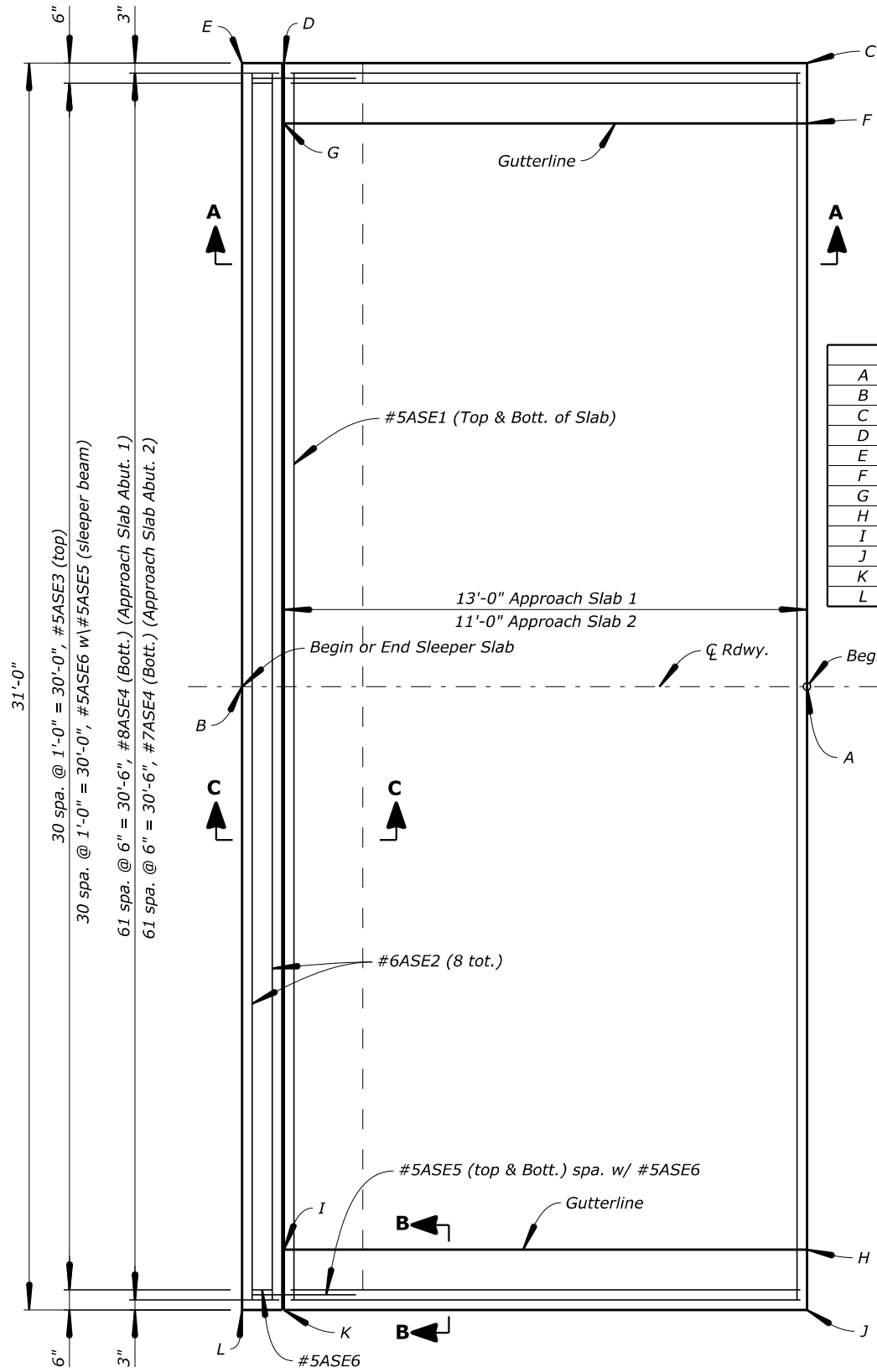
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
EAST VERDE RIVER CROSSING #3  
HOUSTON MESA ROAD  
TONGO NATIONAL FOREST  
GILA COUNTY, ARIZONA  
**TYPICAL SECTION**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	1/4" = 1'-0" UNLESS NOTED	BONNIE KLAMERUS	14 of 21	JULY 2013	RG2953- N

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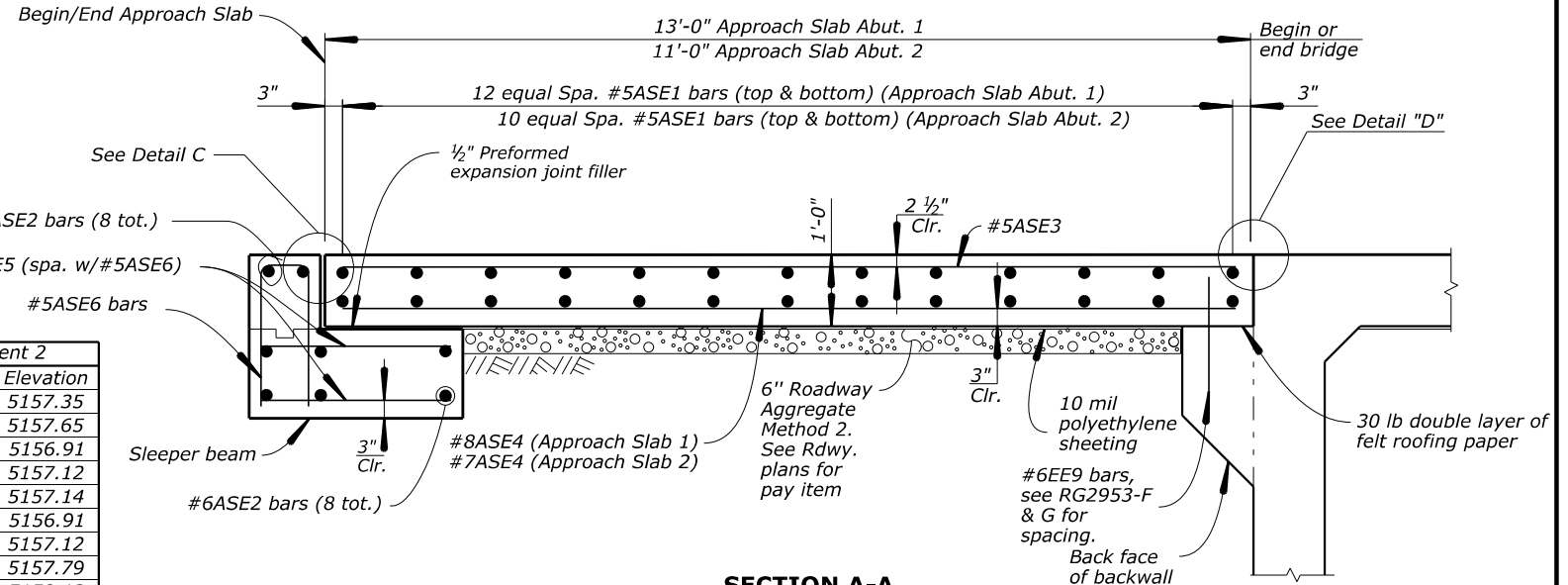


REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S73	S79

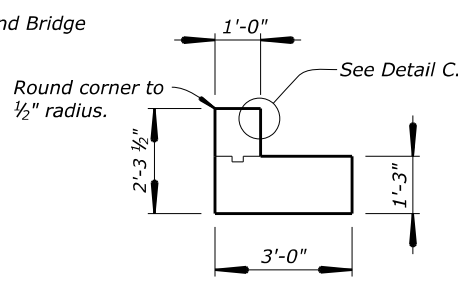


**PLAN**  
(Abutment 1 shown, Abutment 2 similar)

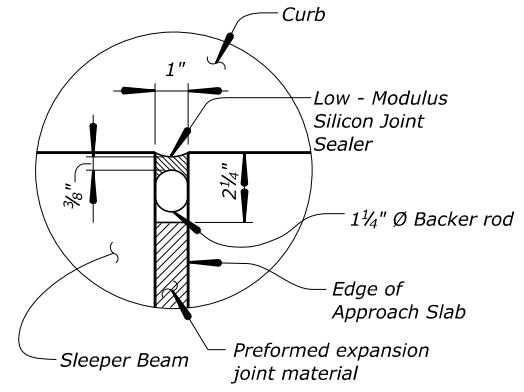
	Abutment 1		Abutment 2	
	Station	Elevation	Station	Elevation
A	23+35.00	5158.30	24+85.00	5157.35
B	23+20.92	5158.83	24+97.08	5157.65
C	23+35.00	5157.86	24+85.00	5156.91
D	23+22.00	5158.27	24+96.00	5157.12
E	23+20.92	5158.16	24+97.08	5157.14
F	23+35.00	5157.86	24+85.00	5156.91
G	23+22.00	5158.27	24+96.00	5157.12
H	23+35.00	5158.75	24+85.00	5157.79
I	23+22.00	5159.31	24+96.00	5158.12
J	23+35.00	5158.75	24+85.00	5157.79
K	23+22.00	5159.31	24+96.00	5158.12
L	23+20.92	5157.14	24+97.08	5158.16



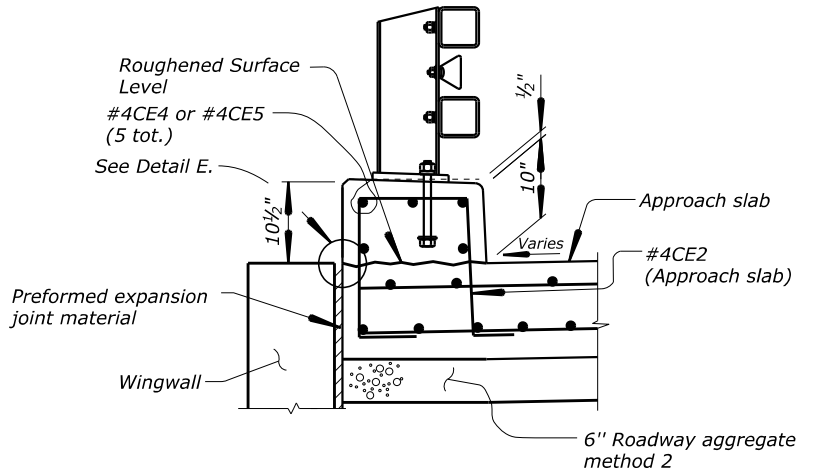
**SECTION A-A**  
Scale 3/4" = 1'-0"



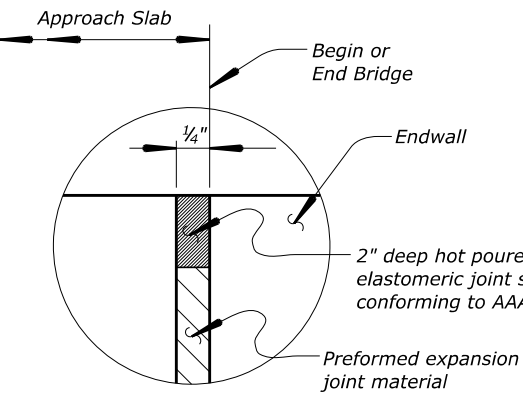
**SECTION C-C**  
Sleeper Beam Detail  
No Scale



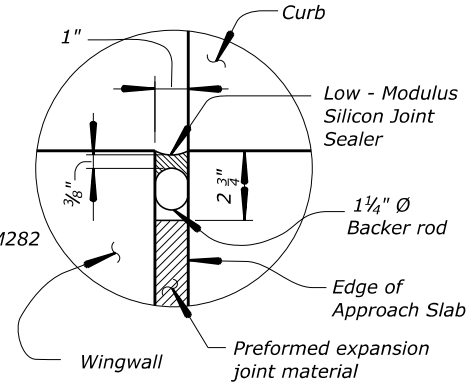
**DETAIL "C"**  
No Scale



**SECTION B-B**  
No Scale



**DETAIL "D"**  
No Scale



**DETAIL "E"**  
No Scale

- NOTES:**
- Construct approach slab edges linearly at Abut. 2 and not along roadway horizontal curve.
  - See RG2953-P for curb tie spacing.

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

**EAST VERDE RIVER CROSSING #3**  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**APPROACH SLAB**

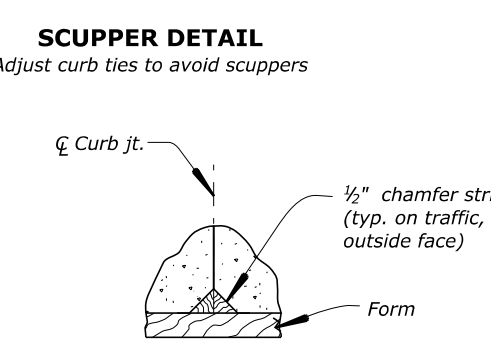
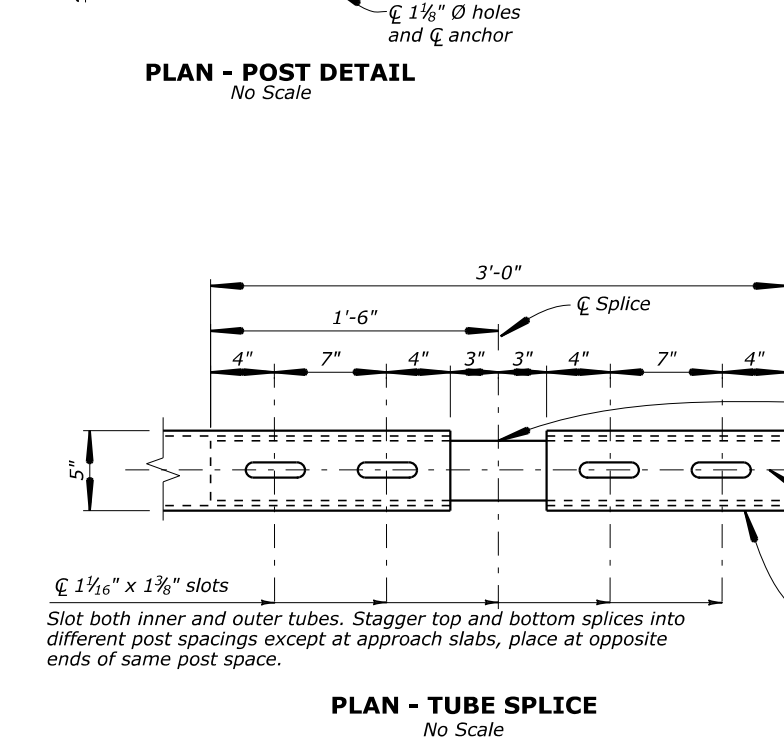
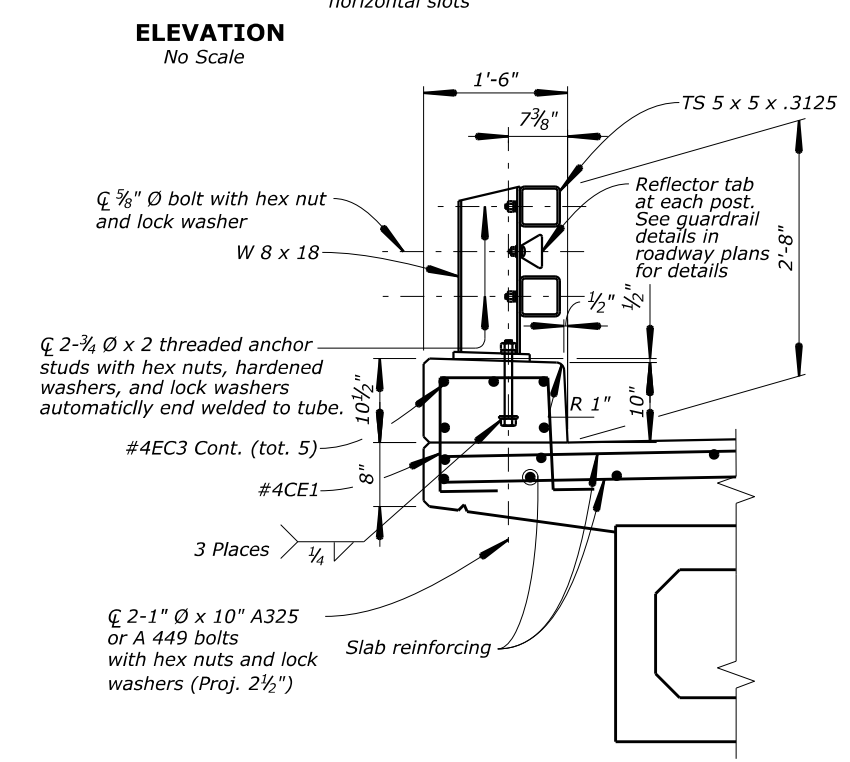
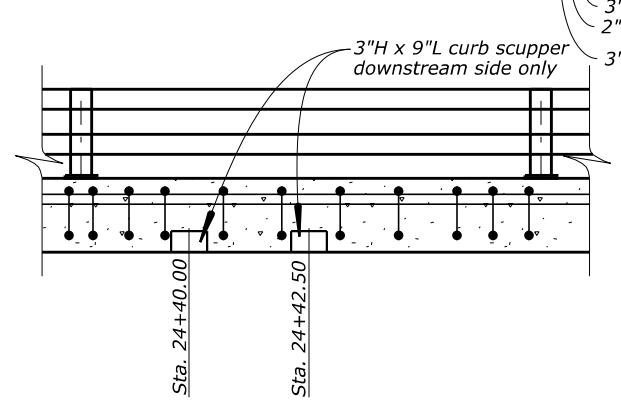
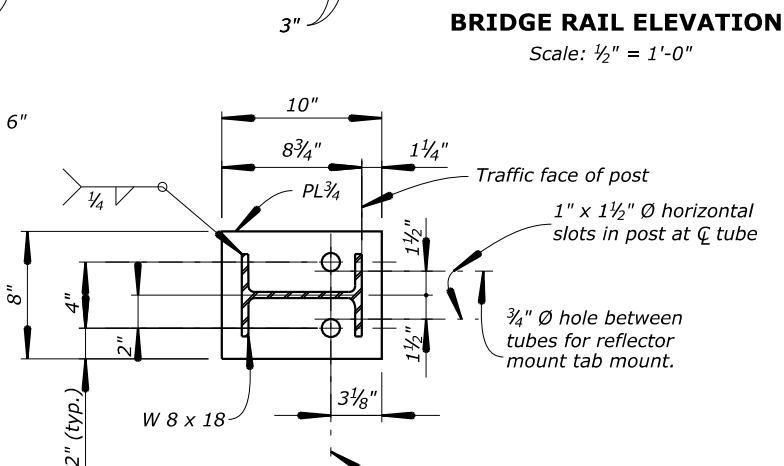
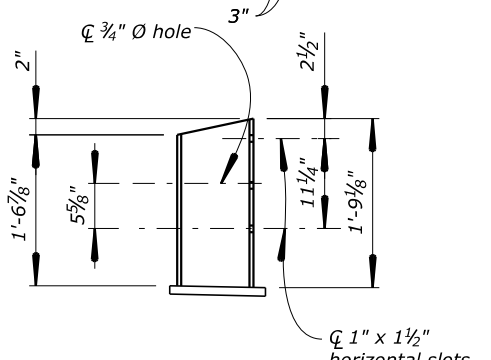
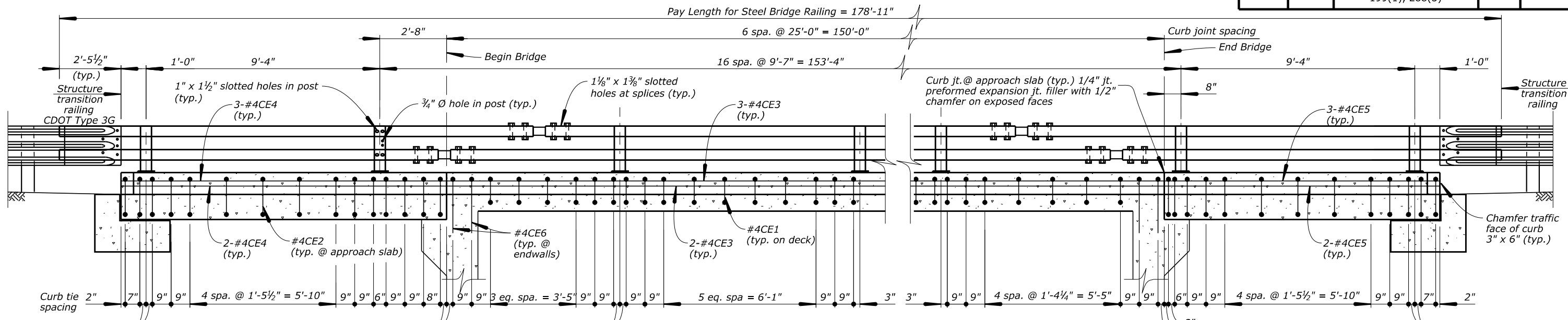
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	3/4" = 1'-0"	BONNIE KLAMERUS	15 of 21	JULY 2013	RG2953- O

Note: All horizontal dimensions are measured along gutterline.

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S74	S79

Pay Length for Steel Bridge Railing = 178'-11"



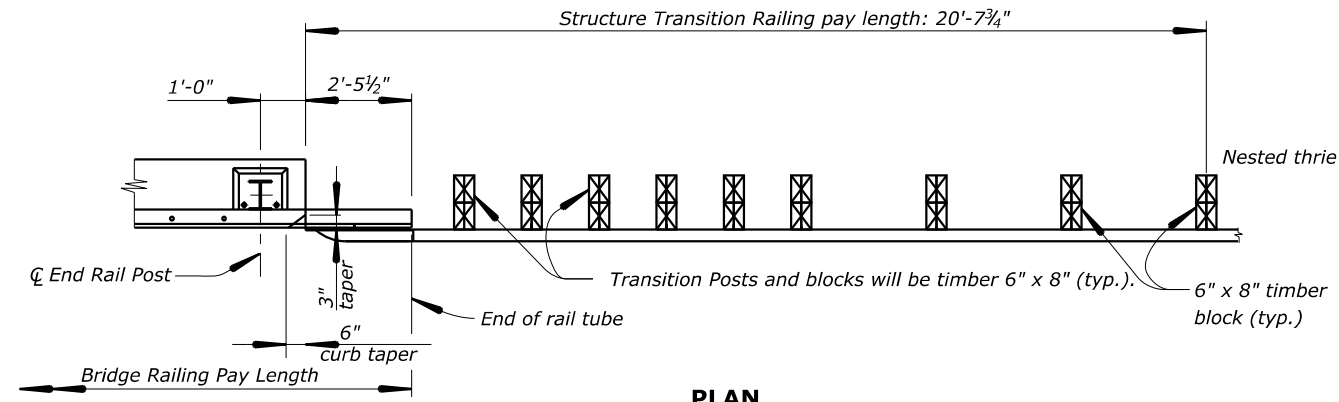
**NOTES:**  
 This rail originated from the Colorado Department of Transportation Bridge Rail Type 10M which meets NCHRP Report 350 guidelines for TL-4.  
 All tubes shall be ASTM A847 with enhanced atmospheric corrosion resistance. All posts and base plates shall be ASTM A709 Grade 50W. All other steel shall be ASTM A-36 unless otherwise noted.  
 Post anchor, encased in concrete, shall be ASTM A-36 (AASHTO M-183) steel and need not be galvanized.  
 The tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 1,500 feet.  
 Tubes shall be continuous over not less than two posts. No welded butt splices will be allowed in the tube sections.  
 The centerline of the tube splice shall be 1'-8" minimum and 2'-6" maximum from the centerline of the posts.  
 All bolts that have lock washers shall be tightened to snug only.  
 Posts shall be perpendicular to the longitudinal roadway grade.  
 Payment will be made under item 55601, Bridge Railing, Steel for all posts, post anchors, base plates, backing plates, anchor bolts, miscellaneous bolts, nuts, washers, tubes, tube expansion devices, tube splices, end plates, curb concrete, curb reinforcing steel, and reflector tabs.

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
 EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
**BRIDGE RAILING**

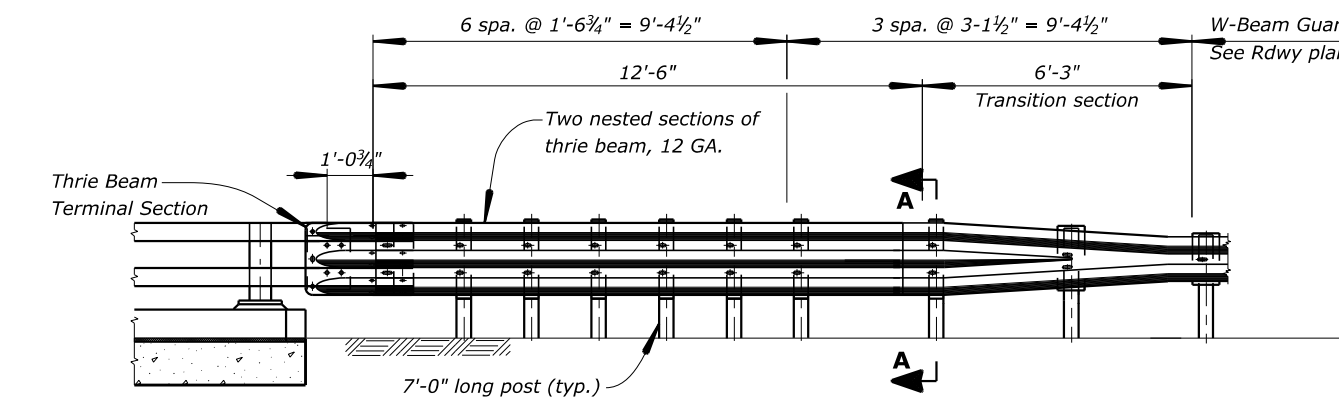
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	AS NOTED	BONNIE KLAMERUS	16 of 21	JULY 2013	RG2953- P

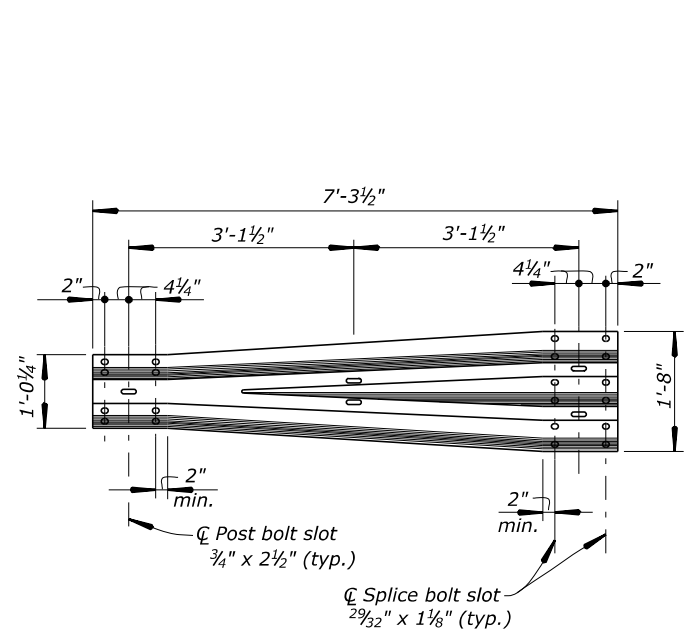
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S75	S79



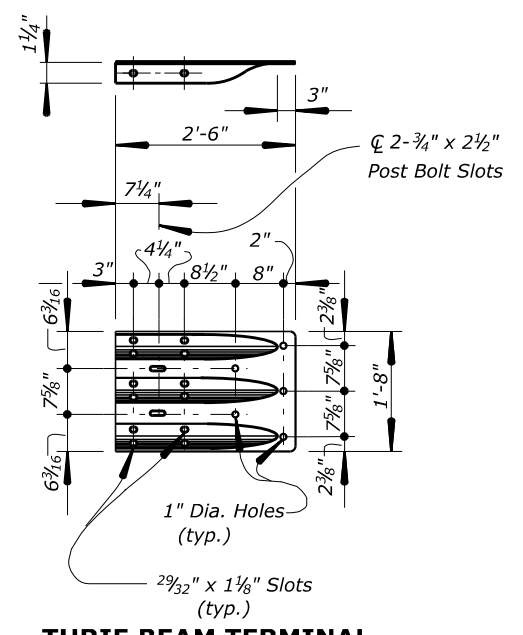
**PLAN**



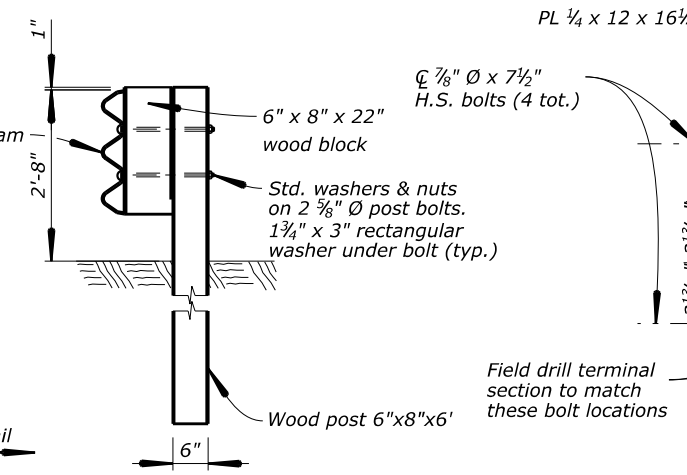
**ELEVATION**



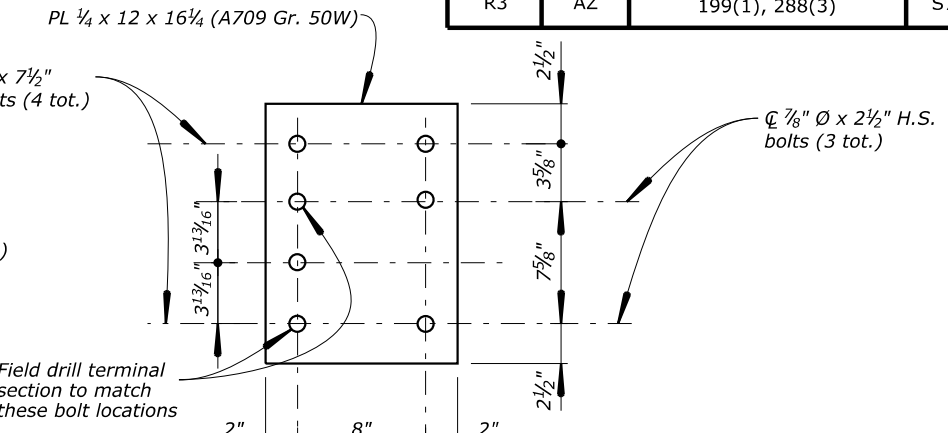
**THRIE BEAM TRANSITION**



**THRIE BEAM TERMINAL SECTION DETAIL**

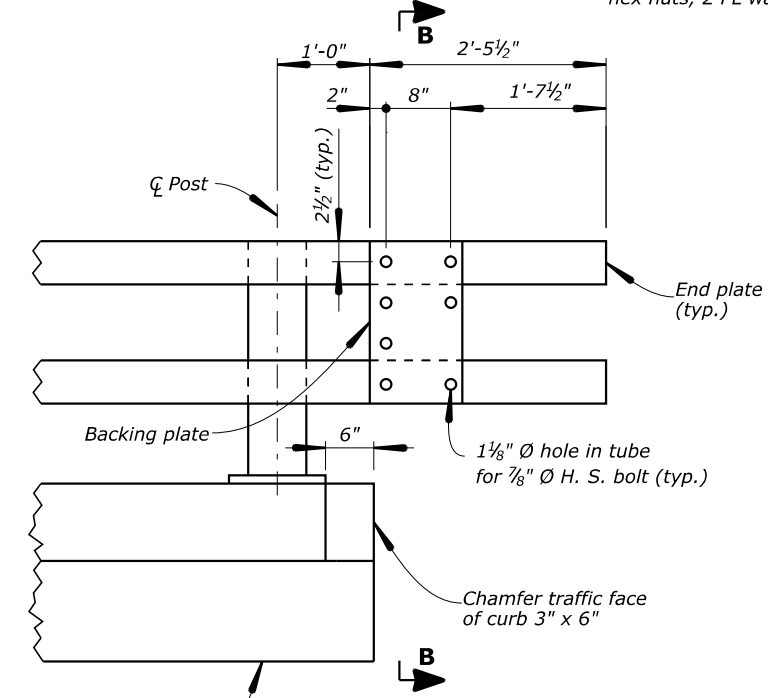


**SECTION A-A**

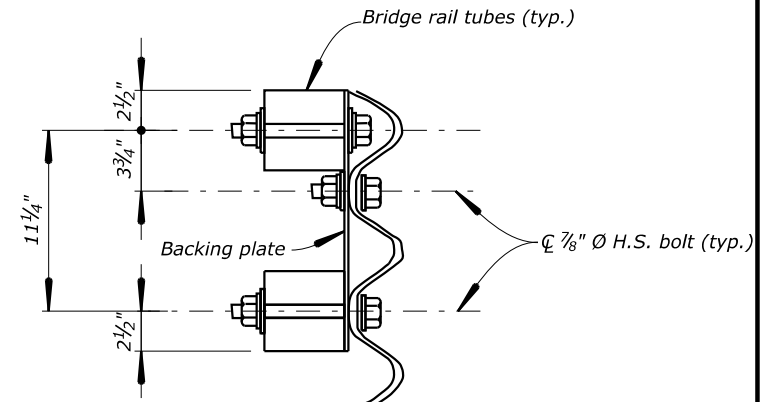


**BACKING PLATE**

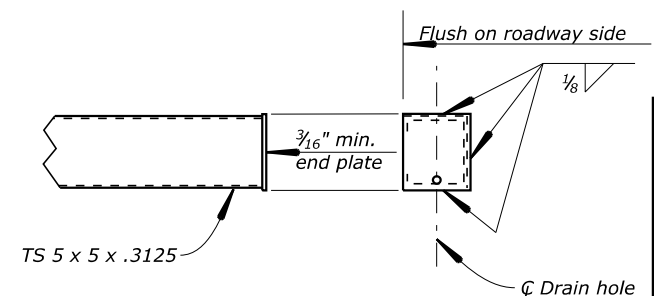
**NOTE:**  
Steel guardrail and transition components shall be fabricated from corrosion resistant steel in accordance with section 710.06(b).



**RAIL TUBE DETAILS**



**SECTION B-B**



**END PLATE DETAIL**

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

EAST VERDE RIVER CROSSING #3  
HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
GILA COUNTY, ARIZONA

**STRUCTURE TRANSITION RAILING**

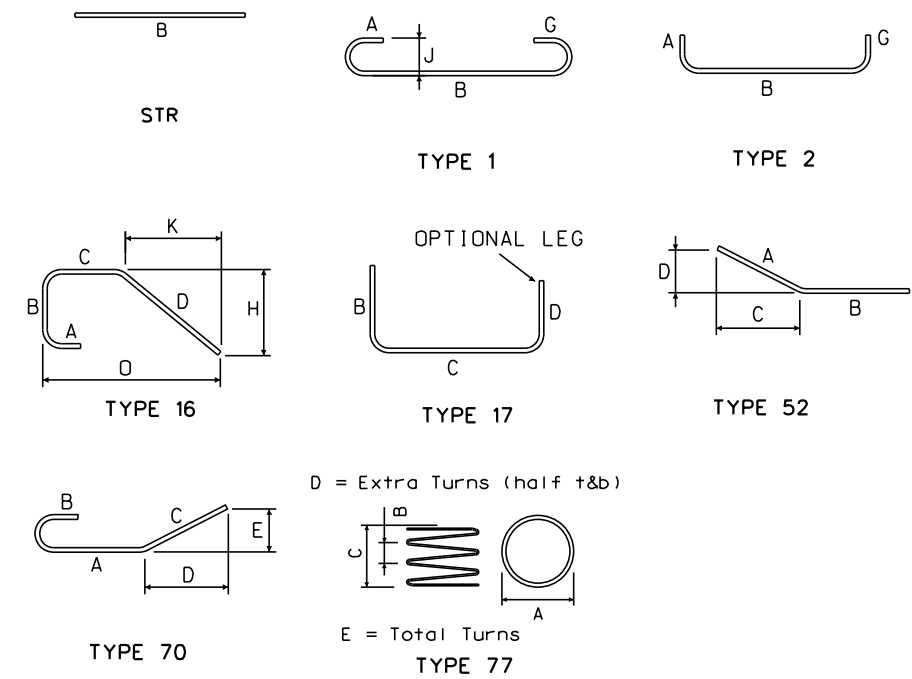
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NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY		BONNIE KLAMERUS	17 of 21	JULY 2013	RG2953- Q

8/8/2013 N:\AZ\az52-111\Bridges\RG2953\CADD Files\DWG Files\2953rebar.dgn

REINFORCING STEEL SCHEDULE							DIMENSION TABLE													
ABUTMENT CAP																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*8A1	8	STR		Horz.top & bott.	16	30'-7"	1307		30'-7"											
*5A2	5	STR		Horz.on sides	16	30'-7"	510		30'-7"											
*5A3	5	2	3 3/4"	Horiz.top @ end	8	8'-4"	70	10'	7'-6"											
*5A4	5	2	3 3/4"	Horiz.top	16	8'-2"	136	10'	7'-4"											
*5A5	5	17	3 3/4"	Stirrups	64	9'-8"	645		3'-6"	2'-8"	3'-6"									
*5A6	5	17	3 3/4"	Shear block long.	16	6'-6"	108		1'-9"	3'-1/4"	1'-9"									
*5A7	5	17	3 3/4"	Shear block trans.	16	7'-3"	121		2'-8"	1'-11"	2'-8"									
*4A8	4	77		Shaft Spiral Abut.1	3	440'-9"	883	2'-0"	6"	34'-3"	3	72								
*8A9	8	1	6/8"	Shaft Long. Abut.1	27	35'-2"	2535	11"	34'-3"							8"				
*4A10	4	77		Shaft Spiral Abut.2	3	428'-5"	859	2'-0"	6"	33'-3"	3	70								
*8A11	8	1	6/8"	Shaft Long. Abut.2	27	34'-2"	2463	11"	33'-3"							8"				
*5A12	5	17	3 3/4"	Stirrups	68	9'-2"	650		3'-3"	2'-8"	3'-3"									
SUBTOTAL							10288	LBS												
ABUTMENT ENDWALLS																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5EE1	5	STR		Horiz.	16	32'-9"	547		32'-9"											
*6EE2	6	STR		Dowels @ ends *	12	2'-9"	50		2'-9"											
*5EE3	5	STR		Horiz. btwn. gdrs.	18	3'-4"	63		3'-4"											
*6EE4	6	16	4 1/2"	Corbel stirrups btwn.gdrs & ends	58	5'-10 1/2"	512	1'-0"	1'-10 1/2"	1'-1/4"	2'-1/2"				1'-5/2"		1'-5/4"	2'-5/2"		
*5EE5	5	17	3 3/4"	Stirrups	108	9'-11"	1117		4'-6"	10 3/4"	4'-6"									
*6EE6	6	16	4 1/2"	Corbel stirrups @ gdrs.	40	4'-10 1/2"	293	1'-0"	1'-2 3/4"	1'-1/4"	1'-8 1/2"				1'-2 3/4"		1'-2 1/2"	2'-2 3/4"		
*5EE7	5	17	3 3/4"	Stirrups @ Gdrs.	40	6'-0"	250		4'-4"	11"	9'									
*6EE8	6	STR		Dowels *	36	2'-0"	108		2'-0"											
*6EE9	6	STR		Approach slab dowels	64	1'-8"	160		1'-8"											
*7EE10	7	STR		Horiz.	2	32'-9"	134		32'-9"											
*6EE11	6	STR		Horiz.top into wingwall	4	32'-9"	197		32'-9"											
*5EE12	5	2	3 3/4"	Stirrups @ Gdrs.	40	5'-2"	216	10'	4'-4"											
*5EE13	5	2	3 3/4"	Horiz.top	40	10'-10"	452	10'	10'-0"											
SUBTOTAL							4097	LBS												
ABUTMENT 1 UPSTREAM WINGWALL																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4WE201	4	STR		Horiz.o.f.	1 sets to of 15'-1 1/2" 5 at 2'-7 1/4" Incr.	4'-9"	33		4'-9" to 15'-1 1/2" at 2'-7 1/4" Incr.											
*6WE202	6	STR		Horiz.f.f.	1 sets of 4'-9" 9 at 1'-3 3/4" Incr.	15'-2"	135		15'-2" to 4'-9" at 1'-3 3/4" Incr.											
*4WE203	4	STR		Horiz.o.f.	1	16'-5 1/2"	11		16'-5 1/2"											
*6WE204	6	STR		Horiz.f.f.	1	16'-5 1/2"	25		16'-5 1/2"											
*4WE205	4	STR		Horiz.o.f.	2	17'-0"	23		17'-0"											
*6WE206	6	STR		Horiz.	4	17'-0"	102		17'-0"											
*4WE207a	4	STR		Vert.b.f.	4	8'-5"	22		8'-5"											
*4WE207b	4	STR		Vert.b.f.	4	8'-4"	22		8'-4"											
*4WE208	4	STR		Vert.b.f.	2 sets to of 8'-1/2" 8 at 9 3/4" Incr.	2'-3 1/2"	55		2'-3 1/2" to 8'-1/2" at 9 3/4" Incr.											
*4WE209	4	52	3/8"	Diagonal b.f.	2	15'-10 1/2"	21	14'-1 1/2"	1'-9 1/4"	7'-3 1/4"	12'-3"									
*6WE210	6	70	4 1/2"	fillet bars	5	6'-3"	47	3'-9 3/4"	5 3/4"	1'-5 1/4"	1'-0"	1'-3/4"								

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S76	S79



**NOTES**

- Dimensions in bending diagrams are out-to-out of bars
  - All "E" bars are epoxy coated.
- \* Indicates threaded bars spliced into headed dowel splicer.

Abbreviations:  
f.f. = fill face  
o.f. = other face  
b.f. = both faces

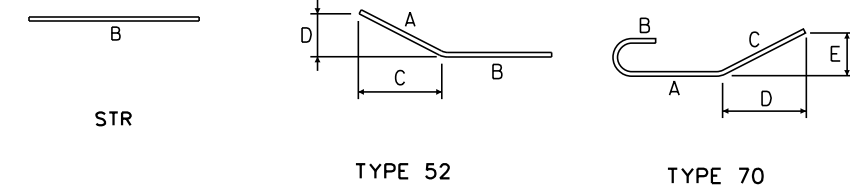
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
 EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD  
  
 TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA  
  
**REBAR LIST (1 OF 4)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	NONE	BONNIE KLAMERUS	18 of 21	JULY 2013	RG2953- R

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REINFORCING STEEL SCHEDULE								DIMENSION TABLE													
ABUTMENT 1 DOWNSTREAM WINGWALLS (CONTINUED)																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
SUBTOTAL								497 LBS													
ABUTMENT 1 DOWNSTREAM WINGWALLS																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4WE101	4	STR		Horiz.o.f.	1 sets of 6	2'-11" to 15'-11" at 2'-7 1/4" Incr.	38		2'-11" to 15'-11" at 2'-7 1/4" Incr.												
*6WE102	6	STR		Horiz.f.f.	1 sets of 11	2'-11" to 15'-11" at 1'-3 1/2" Incr.	155		2'-11" to 15'-11" at 1'-3 1/2" Incr.												
*4WE103	4	STR		Horiz.o.f.	2	17'-0"	23		17'-0"												
*6WE104	6	STR		Horiz.	4	17'-0"	102		17'-0"												
*4WE105	4	STR		Vert.b.f.	6	9'-3"	37		9'-3"												
*4WE106	4	STR		Vert.b.f.	2 sets of 9	2'-3 1/2" to 8'-8 1/2" at 9 3/4" Incr.	66		2'-3 1/2" to 8'-8 1/2" at 9 3/4" Incr.												
*4WE107	4	52	3/8"	Diagonal b.f.	2	18'-1/2"	24	16'-4"	1'-8 3/4"	8'-2"	14'-2"										
*6WE108	6	70	4/2"	fillet bars	5	6'-3"	47	3'-9 3/4"	5 3/4"	1'-5 1/4"	1'-0"	1'-3 1/4"									
SUBTOTAL								492 LBS													
ABUTMENT 2 UPSTREAM WINGWALL																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4WE401	4	STR		Horiz.o.f.	1 sets of 5	2'-11" to 13'-4 1/2" at 2'-7 1/2" Incr.	27		2'-11" to 13'-4 1/2" at 2'-7 1/2" Incr.												
*6WE402	6	STR		Horiz.f.f.	1 sets of 9	2'-11" to 13'-4 1/2" at 1'-3 3/4" Incr.	110		2'-11" to 13'-4 1/2" at 1'-3 3/4" Incr.												
*4WE403	4	STR		Horiz.o.f.	1	14'-8 1/2"	10		14'-8 1/2"												
*6WE404	6	STR		Horiz.f.f.	1	14'-8 1/2"	22		14'-8 1/2"												
*4WE405	4	STR		Horiz.o.f.	2	15'-0"	20		15'-0"												
*6WE406	6	STR		Horiz.	4	15'-0"	90		15'-0"												
*4WE407	4	STR		Vert.b.f.	4	8'-4"	22		8'-4"												
*4WE408	4	STR		Vert.b.f.	2 sets of 8	2'-6" to 8'-2 1/2" at 9 3/4" Incr.	57		2'-6" to 8'-2 1/2" at 9 3/4" Incr.												
*4WE409	4	52	3/8"	Diagonal b.f.	2	15'-9 1/2"	21	14'-1 1/4"	1'-8 1/4"	7'-1 1/4"	12'-3"										
*6WE410	6	70	4/2"	fillet bars	5	6'-3"	47	3'-9 3/4"	5 3/4"	1'-5 1/4"	1'-0"	1'-3 1/4"									
SUBTOTAL								427 LBS													
ABUTMENT 2 DOWNSTREAM WINGWALL																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4WE301	4	STR		Horiz.o.f.	1 sets of 5	4'-9" to 14'-3" at 2'-4 1/2" Incr.	32		4'-9" to 14'-3" at 2'-4 1/2" Incr.												

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S77	S79



**NOTES**

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- All "E" bars are epoxy coated.

Abbreviations:  
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U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

**EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD**

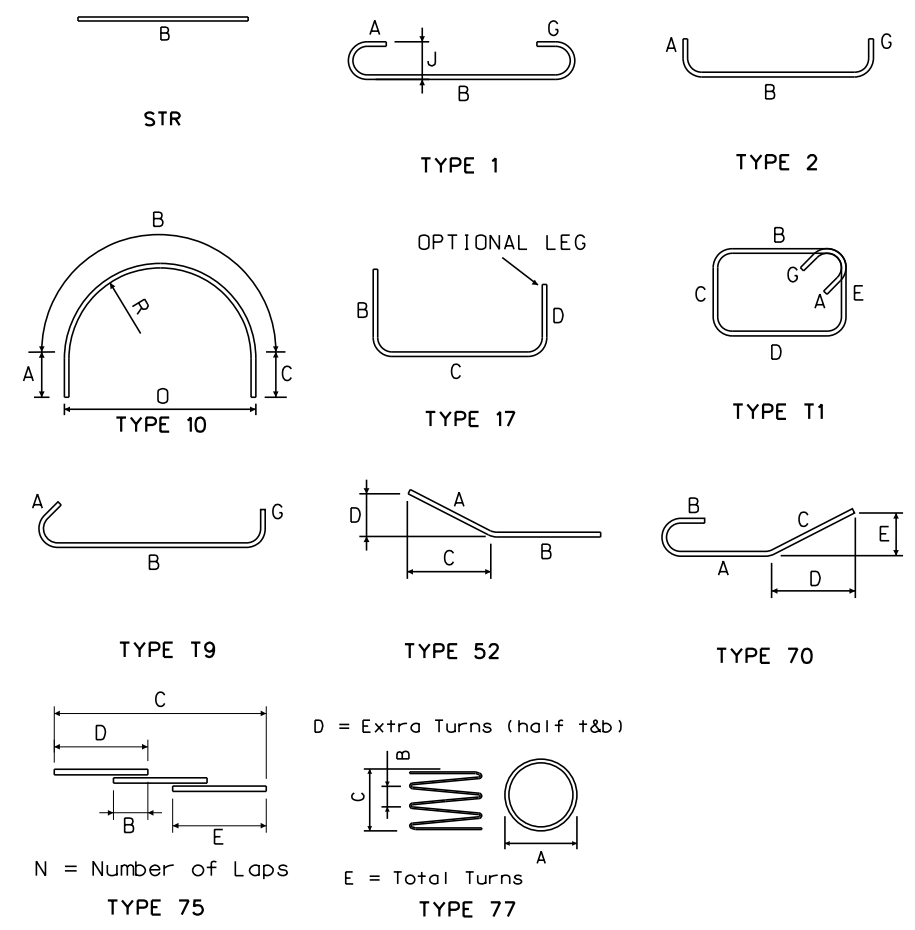
TONTON NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**REBAR LIST (2 OF 4)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	NONE	BONNIE KLAMERUS	19 of 21	JULY 2013	RG2953- S

REINFORCING STEEL SCHEDULE							DIMENSION TABLE													
ABUTMENT 2 DOWNSTREAM WINGWALL (CONTINUED)							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
*6WE302	6	STR		Horiz.f.f.	1 sets of 9	4'-9" to 14'-3 1/2" at 1'-2 1/4" Incr.	129		4'-9" to 14'-3 1/2" at 1'-2 1/4" Incr.											
*4WE303	4	STR		Horiz.o.f.	2	15'-0"	20		15'-0"											
*6WE304	6	STR		Horiz.	4	15'-0"	90		15'-0"											
*4WE305	4	STR		Vert.bf.	8	7'-6"	40		7'-6"											
*4WE306	4	STR		Vert.bf.	2 sets of 6	2'-7" to 6'-9 1/2" at 10" Incr.	38		2'-7" to 6'-9 1/2" at 10" Incr.											
*4WE307	4	52	3/8"	Diagonal bf.	2	13'-7"	18	11'-9 3/4"	1'-9 1/4"	5'-11"	10'-3"									
*6WE308	6	70	4/2"	fillet bars	5	6'-3"	47	3'-9 3/4"	5 3/4"	1'-5 1/4"	1'-0"	1'-3 1/4"								
SUBTOTAL							413	LBS												
PIERS							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
*8P1a	8	STR		Horiz.top & bot.	4	28'-6"	304		28'-6"											
*8P1b	8	STR		Horiz.top & bot.	4	30'-1"	321		30'-1"											
*8P1c	8	STR		Horiz.top & bot.	4	30'-7"	327		30'-7"											
*4P2	4	STR		Horiz.bf.	4	27'-6"	73		27'-6"											
*5P3	5	10		Stirrups @ ends	8	7'-1 1/2"	59	1'-1"	4'-11 3/4"	1'-1"						3'-2"	1'-7"			
*5P4	5	T1	2 1/2"	Stirrups	68	9'-11 1/2"	706	5 1/2"	2'-5"	2'-1 1/4"	2'-5"	2'-1 1/4"				5 1/2"				
*5P5	5	I7	3 3/4"	Stirrups @ shafts	36	8'-0"	300		2'-5"	3'-2"	2'-5"									
*5P6	5	T1	2 1/2"	Stirrups @ ends	2	10'-0"	21	5 1/2"	2'-5"	2'-1 1/2"	2'-5"	2'-1 1/2"				5 1/2"				
*5P7	5	T1	2 1/2"	Stirrups @ ends	2	11'-5"	24	5 1/2"	2'-10"	2'-5"	2'-10"	2'-5"				5 1/2"				
*11P8	11	STR		Dowels	12	4'-0"	255		4'-0"											
*4P9	4	77		Spiral column	3	47'-7 1/2"	945	2'-2"	6"	33'-9 1/4"	3	71								
*4P10	4	77		Spiral shaft	3	240'-6"	482	2'-6"	6"	14'-1"	3	32								
*8P11	8	STR		Vert.shaft	36	14'-1"	1354		14'-1"											
*8P12	8	1	6/8"	Vert.column	39	34'-8 1/2"	3614	11"	33'-9 1/4"							8"				
SUBTOTAL							8787	LBS												
PIER DIAPHRAGM							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
*5PDE1	5	I7	3 3/4"	Stirrups	28	9'-10"	287		3'-7"	2'-8"	3'-7"									
*4PDE2	4	T9	2"	Stirrups	14	3'-5"	32	4 1/2"	2'-8"						4 1/2"					
*6PDE3	6	STR		Horiz.bf.	30	3'-2"	143		3'-2"											
*4PDE4	4	10		Stirrups @ ends	10	4'-7"	31	2 1/4"	4'-2 1/4"	2 1/4"						2'-8"	1'-4"			
*4PDE5	4	2	3/8"	Stirrups @ ends	6	3'-9"	15	8"	2'-5"						8"					
*6PDE6	6	STR		Trans.bot.	2	28'-7 1/2"	86		28'-7 1/2"											
*6PDE7	6	STR		Trans.top	2	30'-0"	90		30'-0"											
*6PDE8	6	STR		Dowels *	36	1'-6"	81		1'-6"											
*6PDE9	6	2	4 1/2"	Dowels @ ends *	12	2'-10"	51	1'-0"	1'-9 3/4"											
SUBTOTAL							816	LBS												
GIRDER (Quantities are for one girder only) (Cost of girder reinforcing is included in the box beam girder pay item and is not included in the reinforcing estimate)							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
*5GE1	5	75		Long.top	4	77'-4"	323		3'-5"	73'-11"	60'-0"	17'-4"							1	
*4GE2	4	I7	0'-3 1/8"	Stirrups	60	12'-1"	484		4'-2 1/2"	3'-8"	4'-2 1/2"									
*5GE3	5	T1	0'-2 1/2"	Stirrups @ ends	32	13'-3"	442	0'-5 1/2"	3'-8"	2'-6"	3'-8"	2'-6"			0'-5 1/2"					
*5GE4	5	I7	0'-3 3/4"	Stirrups @ ends	6	7'-8"	48		2'-0"	3'-8"	2'-0"									
*5GE5	5	2	0'-3 3/4"	Vert.	64	4'-9 1/2"	320	0'-10"	3'-11 1/2"											
*4GE6	4	I7	0'-3 1/8"	Stirrups top	60	5'-8"	227		1'-0"	3'-8"	1'-0"									
SUBTOTAL							1844	LBS												
DECK							A	B	C	D	E	F	G	H	J	K	O	R	V or N	
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT													
*5SE1	5	STR		Long.top	50	49'-5"	2577		49'-5"											
*6SE2	6	STR		Trans.top @ wings	18	32'-10"	888		32'-10"											
*5SE3	5	STR		Trans.bot. @ wings	18	32'-10"	616		32'-10"											

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S78	S79



**NOTES**

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\* Indicates threaded bars spliced into headed dowel splicer.

Abbreviations:  
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EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

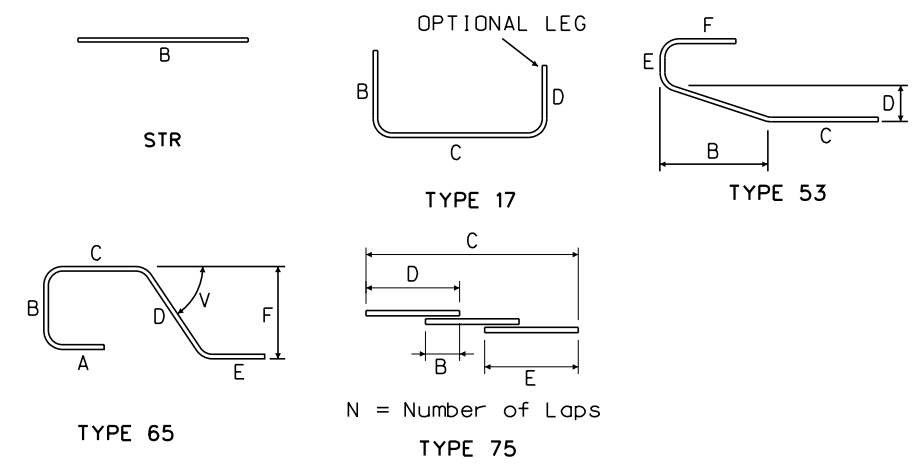
**REBAR LIST (3 OF 4)**

N:\AZ\az52-111\Bridges\RG2953\CADD Files\DGN Files\2953rebar.dgn  
 8/8/2013

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	NONE	BONNIE KLAMERUS	20 of 21	JULY 2013	RG2953- T

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
R3	AZ	AZ FLAP 64(3), 199(1), 288(3)	S79	S79

REINFORCING STEEL SCHEDULE								DIMENSION TABLE														
DECK (CONTINUED)																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*6SE4	6	STR		Trans.top	282	30'-8"	12989		30'-8"													
*5SE5	5	STR		Trans.bot.	282	30'-8"	9020		30'-8"													
*8SE6	8	STR		Long.top @ pier	24	57'-2"	3663		57'-2"													
*8SE7	8	STR		Long.top @ pier	24	27'-2"	1741		27'-2"													
*5SE8	5	75		Long.bot.	47	156'-6"	7672		3'-5"	149'-8"	60'-0"	36'-6"									2	
SUBTOTAL							39166	LBS														
ABUTMENT 1 APPROACH SLAB																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*5ASE1	5	STR		Trans.top & bot.	26	30'-6"	827		30'-6"													
*6ASE2	6	STR		Trans.top & bot. sleeper beam	8	30'-6"	366		30'-6"													
*5ASE3	5	STR		Long.top	31	12'-6"	404		12'-6"													
*8ASE4	8	STR		Long.bot.	62	12'-6"	2069		12'-6"													
*5ASE5	5	STR		Sleeper beam Long.top & bot.	62	2'-8"	172		2'-8"													
*5ASE6	5	17	0'-3 3/4"	Sleeper beam stirrups	31	4'-7"	148		1'-11/2"	0'-8"	1'-11/2"											
SUBTOTAL							3988	LBS														
ABUTMENT 2 APPROACH SLAB																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*5ASE1	5	STR		Trans.top & bot.	22	30'-6"	700		30'-6"													
*6ASE2	6	STR		Trans.top & bot. sleeper beam	8	30'-6"	366		30'-6"													
*5ASE3	5	STR		Long.top	31	10'-6"	339		10'-6"													
*7ASE4	7	STR		Long.bot.	62	10'-6"	1331		10'-6"													
*5ASE5	5	STR		Sleeper beam Long.top & bot.	62	2'-8"	172		2'-8"													
*5ASE6	5	17	0'-3 3/4"	Sleeper beam stirrups	31	4'-7"	148		1'-11/2"	0'-8"	1'-11/2"											
SUBTOTAL							3057	LBS														
RAIL (Cost of curb reinforcing is included in the bridge railing steel pay item and is not included in the reinforcing estimate)																						
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N		
*4CE1	4	65	3/8"	Stirrups deck	344	4'-7 1/2"	1063	6"	1'-3"	1'-1/2"	1'-3"	6"	1'-3"								87 33/64	
*4CE2	4	65	3/8"	Stirrups appr.slab	56	4'-11 1/2"	185	6"	1'-5"	1'-1/2"	1'-5"	6"	1'-5"								87 33/64	
*4CE3	4	75		Long.top & bot. deck	10	155'-2"	1037		2'-9"	149'-8"	60'-0"	35'-2"									2	
*4CE4	4	STR		Long.top & bot. approch slab abut.1	10	12'-8"	85		12'-8"													
*4CE5	4	STR		Long.top & bot. approch slab abut.2	10	10'-8"	71		10'-8"													
*4CE6	4	53	3/8"	Stirrups @ endwall	8	5'-2"	28		8/2"	1'-3 1/2"	3/4"	1'-1/4"	2'-0"									
SUBTOTAL							2468	LBS														



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EAST VERDE RIVER CROSSING #3  
 HOUSTON MESA ROAD

TONTO NATIONAL FOREST  
 GILA COUNTY, ARIZONA

**REBAR LIST (4 OF 4)**

M:\AZ\az52-111\NBridge\RG2953\CADD Files\2953rebar.dgn

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. GERMANI	R. WEHNER	G. MAY	NONE	BONNIE KLAMERUS	21 of 21	JULY 2013	RG2953- U