

Oversight / NHS

FHWA REGION VIII OVERSIGHT? NO YES

NATIONAL HIGHWAY SYSTEM? NO YES

DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED
FEDERAL AID PROJECT NO. BR-0961-008
STATE HIGHWAY NO. 96A
PUEBLO COUNTY
CONSTRUCTION PROJECT CODE NO. 13141

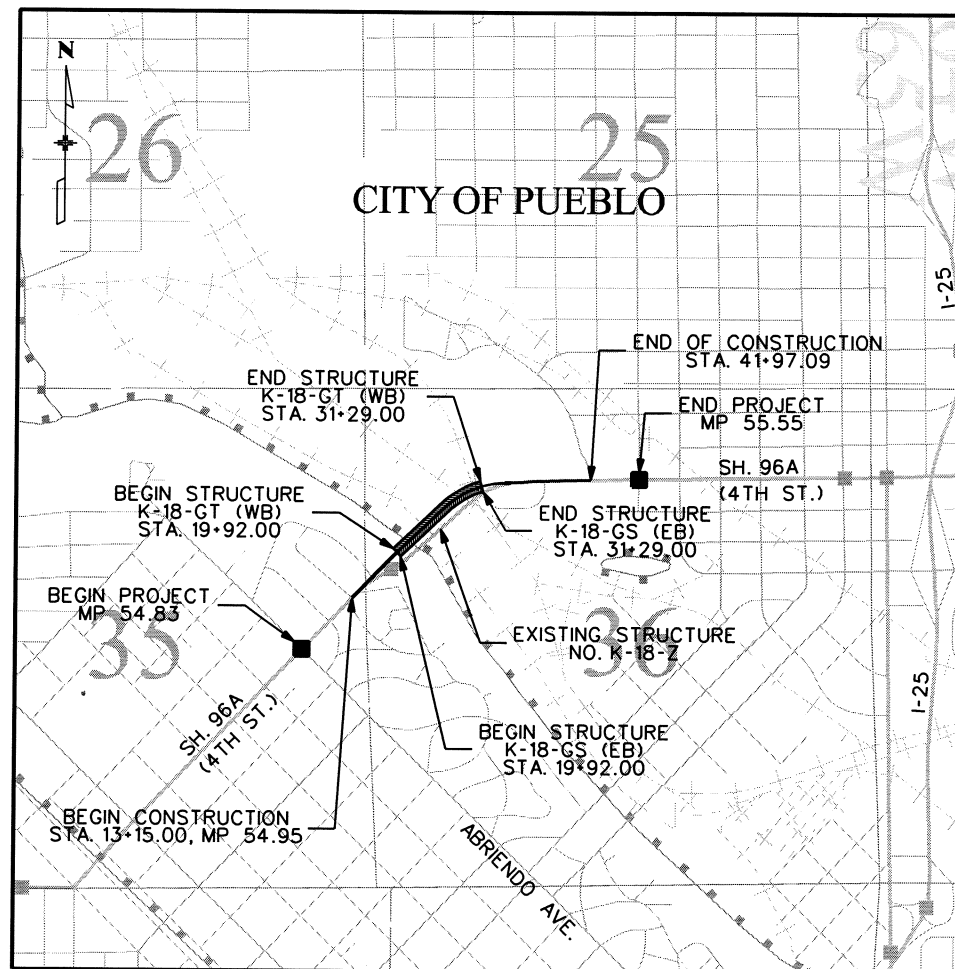
Related Projects:
P. E. UNDER PROJECT:
Project Number: BR-0961-008
Project Code: 13141

R.O.W. Projects:
R.O.W. Project Description
BR-0961-008

100% PLANS

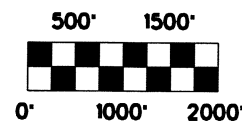
TABULATION OF LENGTH & DESIGN DATA

STATION	FEET		MAJOR STR.
	ROADWAY		
	SH 96A		
BEGIN BR-0961-008 - STA. 13+15.00 STA. 19+92.00 BEGIN STRUCTURE NO. K-18-GS (EB) STA. 31+29.00 END STRUCTURE NO. K-18-GS (EB) STA. 19+92.00 BEGIN STRUCTURE NO. K-18-GT (WB) STA. 31+29.00 END STRUCTURE NO. K-18-GT (WB)	677.00		1137.00
END BR-0961-008 - STA. 41+97.09	1068.09		1137.00
TOTAL	1745.09		2274.00
SUMMARY OF PROJECT LENGTH			
	FEET		MILES
ROADWAY (NET LENGTH)	1745.090		0.3305
MAJOR STRUCTURE	1137.000		0.2153
PROJECT GROSS LENGTH	2882.090		0.5459
DESIGN DATA			
	S.H. 96A		
MAXIMUM RADIUS OF CURVE	950.00 ft		
MAXIMUM GRADE	4.00%		
MINIMUM S.S.D. HORIZONTAL	360 ft		
MINIMUM S.S.D. VERTICAL	360 ft		
MAXIMUM DESIGN SPEED	45 MPH		
2025 DESIGN TRAFFIC	DHV - 3920 ADT - 39,600		
DHV TRUCKS %	2%		



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PROJECT LOCATION MAP



Print Date: 3/14/2007

Drawing File Name: 13141_Title_Sheet.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

FIGG Figg Bridge Engineers, Inc.
1873 South Bellaire St., Suite 1500
Denver, Colorado 80222
(303)757-7400

(R-X)
0000

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation



902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

Region 2

KSR

As Constructed

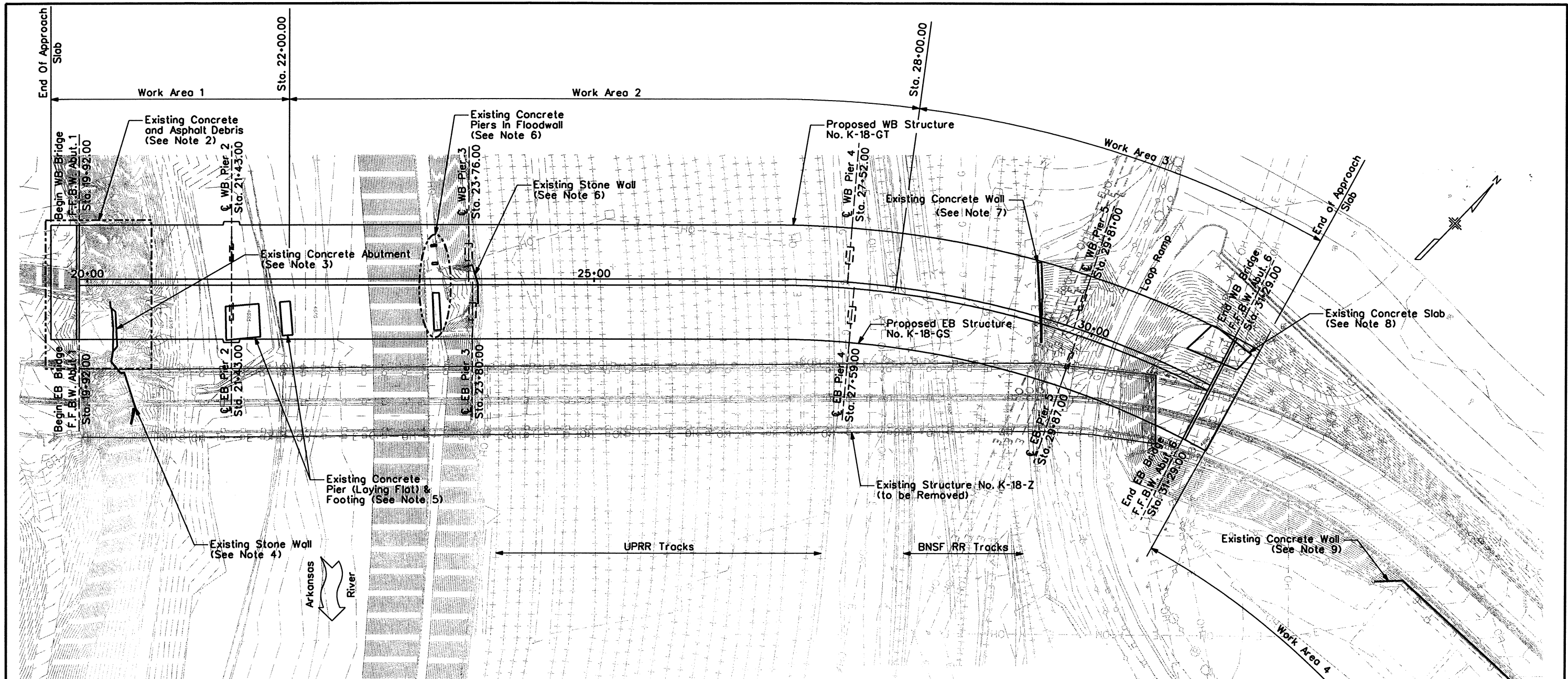
No Revisions:
Revised:
Void:

Contract Information

Contractor:
Resident Engineer:
Project Engineer:
PROJECT STARTED: / / ACCEPTED: / /
Comments:

Project No./Code

BR 0961-008
13141
Sheet Number **1**



PLAN

NOTES:

1. This drawing illustrates the locations of existing walls, piers, slabs, and other miscellaneous items requiring removal. All items, other than those described in Note 2, are paid for under Item 202-00003, Removal of Structure (Special).
2. Debris within Work Area 1 consisting of concrete, asphalt, drainage pipes, and other debris, as designated by the Engineer, requires removal to the level to construct Abutment 1 and to the extent required to facilitate the Contractor's means and methods of construction. No debris shall remain visible prior to placing riprap at Abutment 1 without the Engineer's approval and shall be disposed of in accordance with the Specifications. Payment for debris removal will be made under Item 201-00000, Clearing and Grubbing.
3. The existing concrete abutment within Work Area 1 shall be removed to a minimum elevation of 5'-0" below final grade.
4. The existing stone wall within Work Area 1 shall be removed a minimum of 2'-0" below final grade. Removal shall not occur until traffic has been switched to the proposed westbound bridge. (See Note 14)
5. The existing concrete pier, laying flat within Work Area 1 shall be completely removed and properly disposed of by the Contractor. The existing footing adjacent to the pier may remain in place.
6. The existing piers within Work Area 2 shall be removed to a minimum elevation of 1'-0" below with the top of the floodwall without causing damage to the floodwall. The existing stone wall shall be removed to a minimum elevation of 2'-0" below final grade. Backfill using a material similar to that existing in the floodwall shall be used to achieve final grades. (See Note 14)
7. The existing concrete wall within Work Area 3 shall be removed to a minimum elevation of 2'-0" below final grade.
8. The existing concrete slab within Work Area 3 shall be removed completely in areas where exposed and as necessary to facilitate construction of Abutment 6. Additional debris may be present in the vicinity and shall be included in the removal work, as necessary.
9. The existing concrete wall within Work Area 4 shall be removed to a minimum elevation of 2'-0" below final grade.
10. See Grading Sheets for existing and proposed final grades.
11. The Contractor is responsible for meeting Railroad requirements. In addition, the Contractor shall comply/meet any safety, health or other requirements from other governing agencies, such as, but not limited to: OSHA, EPA, Colorado Department of Health, and City of Pueblo.
12. A flagger shall be present any time construction personnel or equipment is scheduled to be within 25 feet of the track centerlines. Under no circumstances shall any work be done within 25 feet of the track without a flagger present. The flagger shall be from the Railroad on which work is being performed.
13. The Contractor is encouraged to contact the Resident Engineer for a site visit prior to preparing his bid.
14. Existing stone blocks forming walls near proposed Abutment 1 and Pier 3 shall be removed and temporarily stockpiled at an Engineer approved location. The City will take ownership of the blocks, and will haul them from the site.

PAYMENT SCHEDULE ITEM 202-00003	
Location	Lump Sum Portion
Work Area 1	0.50
Work Area 2	0.20
Work Area 3	0.25
Work Area 4	0.05
Total	1.00

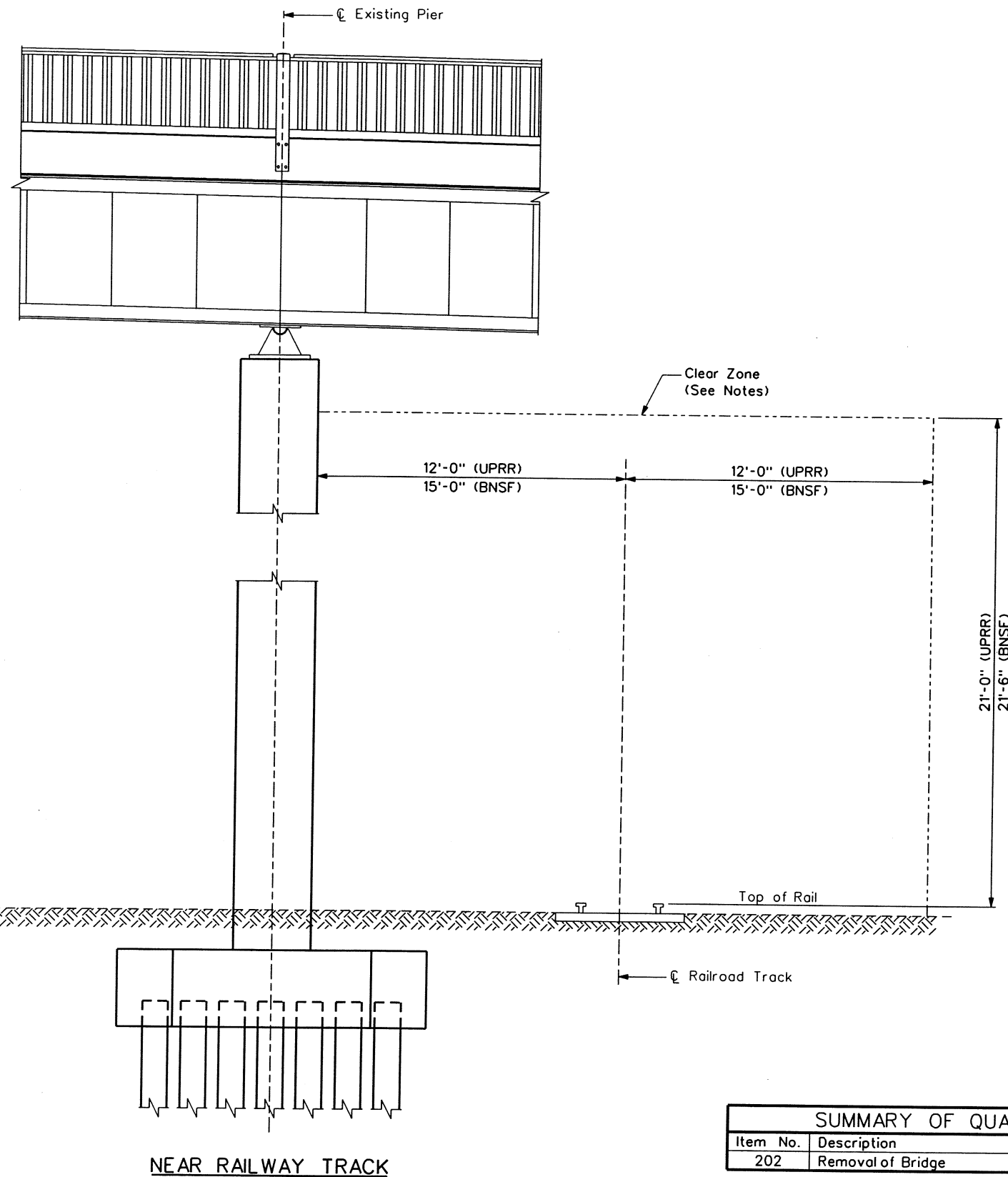
Print Date: 03/14/2007
 Drawing File Name: 13141_Key_Plan.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
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 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	MISCELLANEOUS REMOVALS	
No Revisions:	Designer: J. Dvorak	Structure: K-18-GS (EB)
Revised:	Detailer: R. Adams	Numbers: K-18-GT (WB)
Void:	Sheet Subset: MR	Subset Sheets: MR1 of MR1

Project No./Code
 BR 0961-008
 13141
 Sheet Number **44**






EXISTING BRIDGE HORIZONTAL CLEARANCES*	
Pier xx	Horizontal Clearance Face of Pier to ϕ Track
1	27'-6"
2	11'-0"
3	10'-6"
4	11'-9"
5	8'-3"
6	N/A (River Pier)

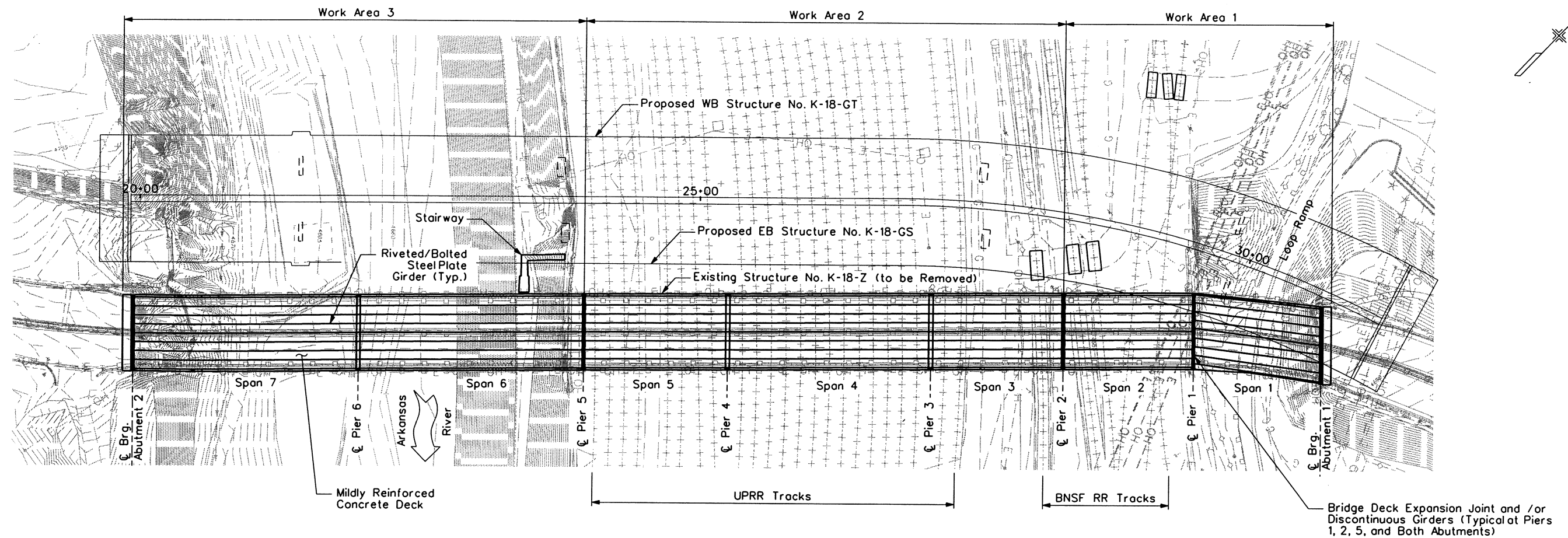
*As surveyed 08/2001, Contractor to verify.
 **For pier designation, See Bridge Removal III sheets.

NOTES:

- All work shall be in accordance with the Project Specifications, including Section 202, Removal of Bridge and Section 250, Environmental, Health and Safety Management.
- Requirements as shown or noted on these drawings or as specified in the Project Specifications for bridge removal/demolition depict some of the requirements of the Railroads for work within their property. The Contractor is responsible for meeting Railroad requirements. In addition, the Contractor shall comply/meet any safety, health or other requirements from other governing agencies, such as, but not limited to: OSHA, EPA, Colorado Department of Health, and City of Pueblo.
- Bridge removal/demolition near the Railroads will affect construction operations. The Contractor shall plan the work in such a manner to meet all bridge removal/schedule requirements. All costs associated with demolition near tracks shall be considered incidental to Item 202, Removal of Bridge.
- All work within the Railroad property shall be in accordance with UPRR and BNSF railroad requirements.
- The Clear Zone shown on this drawing shall be maintained at all times during demolition. Removal operations will be necessary within the Clear Zone, per the table above, and will require temporary track closure. The Contractor shall coordinate with the affected railroad for any necessary track closures, and shall protect the tracks and railroad operations from falling debris, in accordance with railroad requirements.
- A flagger shall be present any time construction personnel or equipment is scheduled to be within 25 feet of the track centerlines. Under no circumstances shall any work be done within 25 feet of the track without a flagger present. The flagger shall be from the Railroad on which work is being performed.
- The Contractor is responsible for stability of the existing structure during demolition and removal operations. See project specifications.
- Shoring may be required adjacent to the railroad tracks to remove existing pier foundations and shall be considered incidental to Item 202, Removal of Bridge. Shoring shall be in accordance with railroad requirements.
- Bridge removal/demolition shall be coordinated with other project requirements and operations.
- Bridge removal operations shall conform to City of Pueblo Ordinances.
- For pedestrian access, see Superstructure Construction Schematic IV Sheet.
- All demolition within Railroad right-of-way and/or demolition that impacts the Railroad tracks or operations shall comply with the Railroad's demolition requirements and must be submitted to the Railroad for review and approval.
- The Contractor shall submit to the railroads a demolition plan in accordance with railroad requirements. The demolition plan shall indicate the type, size, and location of equipment in reference to the centerline of track to be used during the demolition. The demolition plan shall also include track protection details, including the use of shields and/or frames. Shield and/or frame details shall include typical sections and plan view limits. The frame and/or shield shall be designed for the maximum probable load and this load shall be indicated on the demolition plans. A minimum of 2-inches clearance shall be provided from the bottom of shield to the top of rail.
- Railroad local operating review and approval is required for construction windows to take tracks out of service during demolition.
- The Contractor shall verify existing top of rail profile (elevations) prior to construction. Any discrepancies shall be brought to the attention of the railroad.

SUMMARY OF QUANTITIES			
Item No.	Description	Unit	Total
202	Removal of Bridge	LS	1

Print Date: 12/8/2006		<table border="1"> <thead> <tr> <th colspan="3">Sheet Revisions</th> </tr> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Sheet Revisions			Date:	Comments	Init.							Colorado Department of Transportation  902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2		As Constructed No Revisions: Revised: Void:		BRIDGE REMOVAL I		Project No./Code BR 0961-008	
Sheet Revisions																							
Date:	Comments	Init.																					
Drawing File Name: 13141_Bridge_Removal_I.dgn		Designer: J. Dvorak Detailer: R. Adams Sheet Subset: BR		Structure Numbers: K-18-GS (EB) K-18-GT (WB) Subset Sheets: BR1 of BR3																			
Horiz. Scale: Vert. Scale: Unit Information Unit Leader Initials		 Figg Bridge Engineers, Inc. 1873 South Belloire St., Suite 1500 Denver, Colorado 80222 (303)757-7400		 Region 2		KSR		BRIDGE REMOVAL I		Sheet Number 45													



EXISTING BRIDGE FRAMING PLAN

PAYMENT SCHEDULE ITEM 202-00400	
Location	Lump Sum Portion
Work Area 1	0.22
Work Area 2	0.40
Work Area 3	0.38
Total	1.00

NOTES:

1. Stairway may be required to be removed to construct proposed EB Pier 3. The Contractor shall provide temporary safety railing at the stairway location until bridge demolition is complete.
2. Existing girders contain lead paint. See Project Specifications, Section 250 for removal requirements.
3. Existing bridge plans are available from CDOT.
4. See project specifications for work area descriptions and additional bridge removal requirements.

Print Date: 1/8/2007	Sheet Revisions			Colorado Department of Transportation		As Constructed		BRIDGE REMOVAL II		Project No./Code	
Drawing File Name: 13141_Bridge_Removal_II.dgn	Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2 KSR		No Revisions:		Designer: J. Dvorak Detailer: R. Adams Sheet Subset: BR		BR 0961-008	
Horiz. Scale: Vert. Scale:						Revised:				Structure Numbers K-18-GS (EB) K-18-GT (WB)	
Unit Information Unit Leader Initials						Void:		Subset Sheets: BR2 of BR3		Sheet Number	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400											

GENERAL NOTES:

A. Design Specifications:

- American Association of State Highway and Transportation Officials "AASHTO LRFD Bridge Design Specifications," Third Edition, 2004, with Interims through 2006.
- American Association of State Highway and Transportation Officials "AASHTO Guide Specifications for Design and Construction of Segmental Concrete Bridges," Second Edition, 1999, except Section 28 of Division I is waived for this contract. The level of detail and submittal requirements are as shown in the plans and specifications.
- American Association of State Highway and Transportation Officials "AASHTO LRFD Bridge Construction Specifications," 2004, with Interims through 2005.
- American Association of State Highway and Transportation Officials "AASHTO Guide Design Specifications for Bridge Temporary Works," 1995.
- Colorado Department of Transportation (CDOT) "Bridge Design Manual," 1992, with revisions through 2002 and Technical Memorandums through 2002.
- Colorado Department of Transportation (CDOT) "Bridge Rating Manual," 1995, with revisions through 2003.
- Colorado Department of Transportation (CDOT) "Standard Specifications for Road and Bridge Construction," 2005.
- Colorado Department of Transportation (CDOT) "Standard Special Provisions and Project Special Provisions" as contained in the Contract Documents.
- CEB-FIP "Model Code," 1990.

B. Design Loading:

- Permanent Loads (DC, DW, EH, EV, ES, EL):
 - Unit Weight of Post-Tensioned and Reinforced Concrete: 150 pcf
 - CDOT Type 7 (Special) (45") Barrier without Fence: 590 plf
 - CDOT Type 7 (Special) (45") Barrier with Fence: 600 plf
 - Pedestrian Railing (Including Base): 500 plf
 - CIP Sidewalk: 725 plf
 - Utility Allowance: 100 plf
 - Initial Wearing Surface: 36 psf
 - Unit Weight of Soil: 120 pcf
 - Horizontal Earth Pressure: 40 pcf/ft
- Live loads (LL, IM, PL, CE, BR, LS):
 - HL-93 with Impact (Design Truck or Tandem and Design Lane Load)
 - Simultaneous Colorado Permit Vehicles in each lane, or Colorado Permit Vehicle simultaneously with adjacent HL-93 Trucks or Lane Loads (Strength II Load Group)
 - Pedestrian Load: 75 psf
- Wind Loads (WS, WL):

As per "AASHTO LRFD Bridge Design Specifications," with "Open Country" surface conditions used for design.
- Thermal Forces (TU, TG, FR):
 - Mean Temperature: 50°F
 - Thermal Coefficient: 0.000006/°F
 - Seasonal Variation:
 - Temperature Rise: 30°F
 - Temperature Fall: 50°F
 - Temperature Gradient: As per "AASHTO LRFD Bridge Design Specifications", Zone 1.
- Creep and Shrinkage (CR, SH, FR):

Strains are calculated in accordance with CEB-FIP "Model Code," 1990 with a relative humidity of 55%.
- Extreme Events (EQ, CT)
 - Earthquake Effects in accordance with "AASHTO LRFD Bridge Design Specifications," Seismic Performance Zone 1.
 - Vehicular Collision Forces in Accordance with "AASHTO LRFD Bridge Design Specifications."

7. Load Combinations

As per "AASHTO LRFD Bridge Design Specifications." $\gamma_D=1.0, \gamma_R=1.0, \gamma_I=1.0$

C. Materials:

- Concrete (28-Day Cylinder Strength as Noted):
 - Superstructure: Class S40, f'c = 5800 psi
 - Superstructure (Barriers & Appr. Slabs): Class D, f'c = 4500 psi
 - Substructure (Abutment, Piers, & Footings): Class D, f'c = 4500 psi
 - Drilled Shafts: Class BZ, f'c = 4000 psi
 - Bridge Sidewalks (Secondary Pour): Class HT, f'c = 4500 psi
 - Concrete in contact with soils or rock, or within 15' of the groundline, shall provide sulfate resistance in accordance with Section 601.04 of the Project Specifications, Class 2 exposure.

2. Reinforcing Steel:

- All deformed reinforcing bars shall be ASTM A615, Grade 60. Superstructure, Abutment, and Approach Slab Reinforcing is Epoxy Coated. Pier, Footing, and Shaft Reinforcing is Non-Epoxy Coated.

b. Concrete Cover (Unless Shown Otherwise in the Plans):

Superstructure:	
Top of Deck:	2 in.
All Other Surfaces:	1 1/2 in.
Substructure:	
Surfaces Cast Against Forms:	2 in.
Surfaces Cast Against Earth:	3 in.

c. Minimum Lap Splice Length for Reinforcing Bars:

- Unless otherwise noted in the plans, the following table gives the minimum lap splice length (Class C) for black reinforcing bars.

Bar Size	#4	#5	#6	#7	#8	#9	#10	#11
Class D Concrete	1'-9"	2'-2"	2'-7"	3'-1"	4'-0"	5'-1"	6'-5"	7'-11"
Class S40 Concrete	1'-9"	2'-2"	2'-7"	3'-1"	3'-7"	4'-6"	6'-8"	7'-0"

The above splice lengths shall be increased by 20 percent for 3 bar bundles and 33 percent for 4 bar bundles.

- Unless otherwise noted in the plans, the following table gives the minimum lap splice length (Class C) for epoxy coated reinforcing bars.

Bar Size	#4	#5	#6	#7	#8	#9	#10	#11
Class D Concrete	2'-7"	3'-3"	3'-10"	4'-6"	6'-0"	7'-7"	9'-8"	11'-10"
Class S40 Concrete	2'-7"	3'-3"	3'-10"	4'-6"	5'-3"	6'-10"	8'-6"	10'-5"

The above splice lengths shall be increased by 20 percent for 3 bar bundles and 33 percent for 4 bar bundles.

- If the contractor elects to substitute epoxy reinforcement for black reinforcement bars, the minimum splice length shall be as described as above for epoxy coated reinforcing bars.
- The stock length assumed for all reinforcing is 60 feet.

3. Post-Tensioning Steel:

- Strand:
 - ASTM A-416, Seven Wire Grade 270, Low Relaxation
 - Strand Size: 0.6" Diameter
 - Apparent Modulus: 28,000 ksi
 - Maximum Jacking Stress: 203 ksi (75% of Ultimate)
 - Maximum Anchoring Stress: 189 ksi (70% of Ultimate)
 - Anchor Set: 3/8"
 - Friction Coefficient: 0.25
 - Wobble Coefficient: 0.0 (External Tendons)
 - 0.0002 (Internal Tendons)
- Bars:
 - ASTM A722, Grade 150
 - Maximum Jacking Stress: 120 ksi (80% of Ultimate)
 - Maximum Anchoring Stress: 105 ksi (70% of Ultimate)

D. Allowable Stresses/Loads:

- Design Method:

The superstructure is designed for applicable service and strength limit states as defined by the load groups in the LRFD Specifications.

The substructure is designed for the applicable strength and extreme event limit states as defined by the load groups in the LRFD Specifications and checked for the crack control provisions in Section 5.7.3.4 of the Specifications.

- Superstructure Concrete Stresses (Service Criteria):
 - 3f'c psi (Tension)
 - 0.45f'c psi (Compression Due to Post-Tensioning and Permanent Loads)
 - φw0.6f'c psi (Compression All Other Load Cases) φw as per Section 5.7.4.7 of the LRFD Specifications.
- Superstructure Concrete Stresses (Temporary Stress Criteria):
 - 3f'c psi (Tension)
 - 0.55f'c psi not to exceed φw0.6f'c psi (Compression)
- Superstructure Concrete Stresses (Construction Criteria):
 - Tension: As per "AASHTO LRFD Bridge Design Specifications."
 - 0.50f'c psi not to exceed φw0.6f'c psi (Compression)
- Segment Construction and Casting:
 - Minimum concrete strength before stressing transverse and longitudinal post-tensioning, releasing formwork, and advancing travelers: 4000 psi
 - For purposes of design, average age of segments for advancement of form travelers assumed to be: 1 day
 - For purposes of design, average casting cycle for a pair of segments assumed to be: 1 week
 - Construction load combinations per "AASHTO LRFD Bridge Design Specifications."

E. Foundations:

- Total Factored (Ultimate) Drilled Shaft Resistance for the portion of the shaft in the very hard shale bedrock:

Location	Ultimate Side Shear Resistance
Abut. 1, Pier 5, Abut. 6	21 ksf
Pier 2	12 ksf
Pier 3, Pier 4	17 ksf

Ultimate side shear resistance calculated in accordance with AASHTO LRFD 2006 Interims, Chapter 10. A resistance factor of 0.55 was used for design.

F. Construction Clearances:

- Union Pacific Railroad Tracks:
 - 12'-0" horizontal from centerline of track
 - 21'-0" vertical from top of rail
- Burlington Northern Santa Fe Railway Co. Tracks:
 - 15'-0" horizontal from centerline of track
 - 21'-6" vertical from top of rail
- Vehicular Roads:
 - 14'-6" vertical (Unless Otherwise Noted)

G. Miscellaneous:

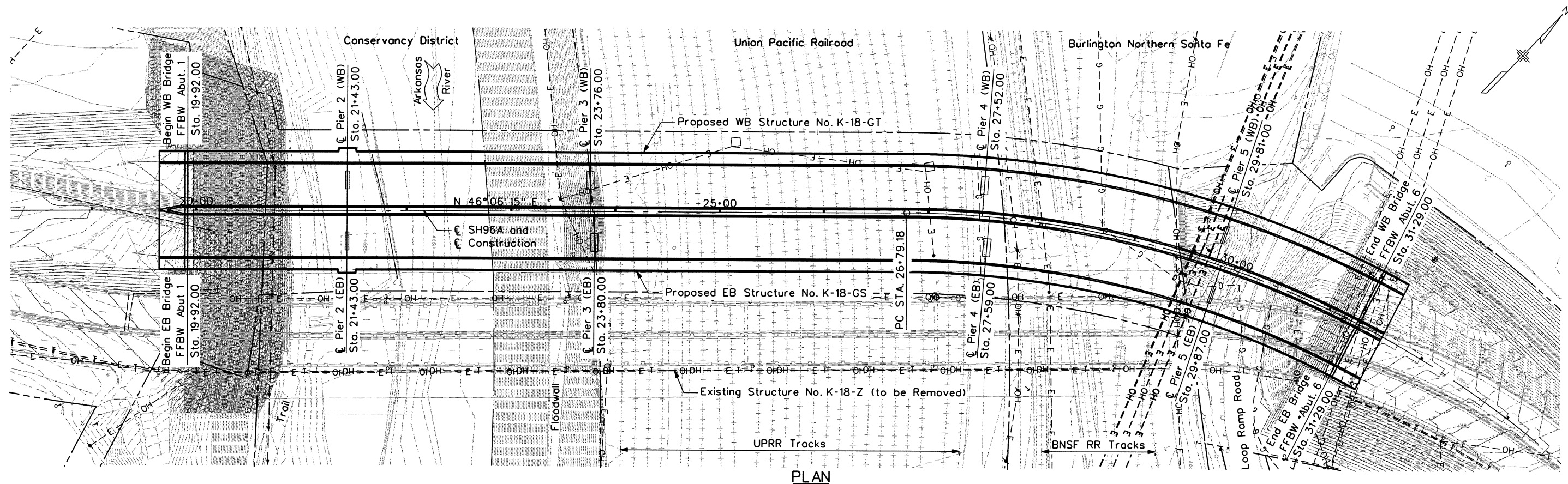
- Provisions have been made for jacking of the superstructure for replacement of the bearings.
- The Contractor shall be responsible for the stability of the structure during construction.
- Permanent steel deck forms are not allowed.
- Permanent concrete deck forms are not allowed.
- For structure number installation, see standard S-614-12.
- The information shown on these plans concerning the type and location of underground utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determination as to the type and location of underground utilities and may be necessary to avoid damage thereto. The Contractor shall contact the Utility Notification Center of Colorado at 1-800-922-1987 at least 2 days (not including day of notification) prior to any excavation or other earthwork.

BRIDGE DESCRIPTION

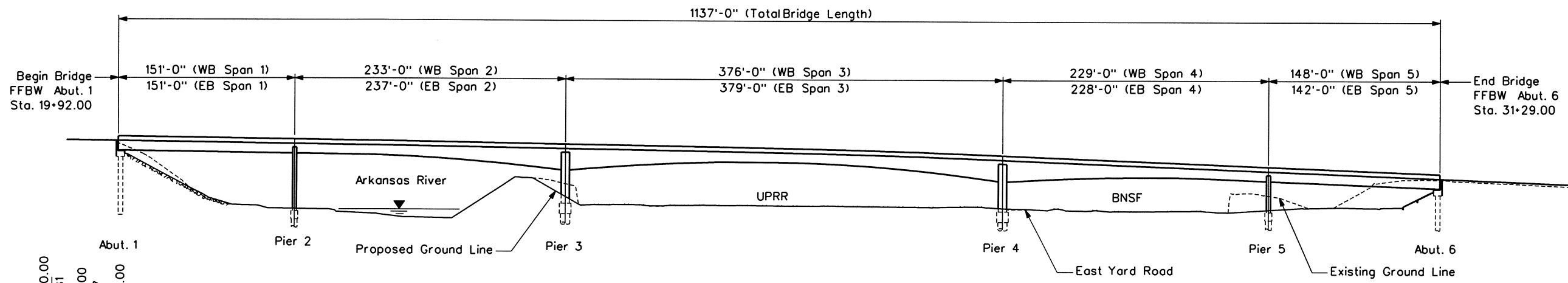
- EB SH96A - 5 Span (151'-0", 237'-0", 379'-0", 228'-0", 142'-0"). Bridge, Continuous Cast-in-Place Post-Tensioned Concrete Box Girder. SH96A Over Arkansas River, UPRR, BNSF RR and Loop Ramp Road. 40'-0" Roadway and 10'-0" Sidewalk. 90° Skew. Bridge Rail Type 7 (Special).
- WB SH96A - 5 Span (151'-0", 233'-0", 376'-0", 229'-0", 148'-0"). Bridge, Continuous Cast-in-Place Post-Tensioned Concrete Box Girder. SH96A Over Arkansas River, UPRR, BNSF RR and Loop Ramp Road. 40'-0" Roadway and 10'-0" Sidewalk. 90° Skew. Bridge Rail Type 7 (Special).

Design	INITIAL	DATE	Checked By	DATE
	RJM	12/06		
Detail	INITIAL	DATE	Checked By	DATE
	RJM	12/06		
Quantities	INITIAL	DATE	Checked By	DATE
	RJM	12/06		

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Drawing File Name: 13141_General_Information.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		Designer: K. Montgomery		BR 0961-008
Horiz. Scale: Vert. Scale:		Unit Information		Region 2		Revised:		Structure: K-18-GS (EB)		13141	
Unit Leader Initials		Unit Leader Initials		KSR		Void:		Detailer: R. Adams		Sheet Number	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400		DOT DEPARTMENT OF TRANSPORTATION						Sheet Subset: BRIDGE		Subset Sheets: B2 of B169	
								Sheet Number		99	



PLAN



ELEVATION

BRIDGE DESCRIPTION

EB SH96A - 5 Span (151'-0", 237'-0", 379'-0", 228'-0", 142'-0").
 Bridge, Continuous Cast-in-Place Post-Tensioned Concrete Box Girder. SH96A Over Arkansas River, UPRR, BNSF RR and Loop Ramp Road 40'-0" Roadway and 10'-0" Sidewalk. 90° Skew. Bridge Rail Type 7 (Special).

WB SH96A - 5 Span (151'-0", 233'-0", 376'-0", 229'-0", 148'-0").
 Bridge, Continuous Cast-in-Place Post-Tensioned Concrete Box Girder. SH96A Over Arkansas River, UPRR, BNSF RR and Loop Ramp Road. 40'-0" Roadway and 10'-0" Sidewalk. 90° Skew. Bridge Rail Type 7 (Special).

NOTES:

1. EB denotes eastbound. WB denotes westbound.
2. Span lengths measured along \bar{C} SH96A and \bar{C} Construction.
3. See Right-of-Way Plans for ownership map.

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
SEF	12/06	SJF	12/06	SEF	12/06
Checked By		Checked By		Checked By	
RKM	12/08	SEF	12/06	DAT	12/06

Print Date: 3/15/2007

Drawing File Name: 13141_Key_Plan.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

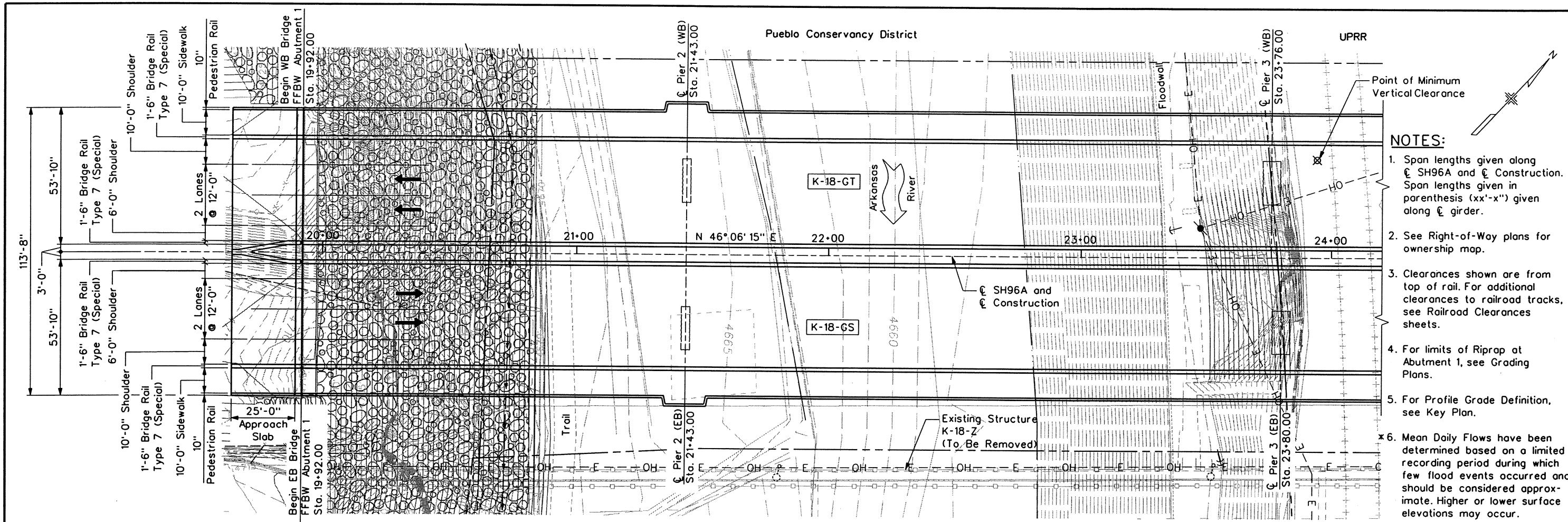
902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702

Region 2 KSR

As Constructed
No Revisions:
Revised:
Void:

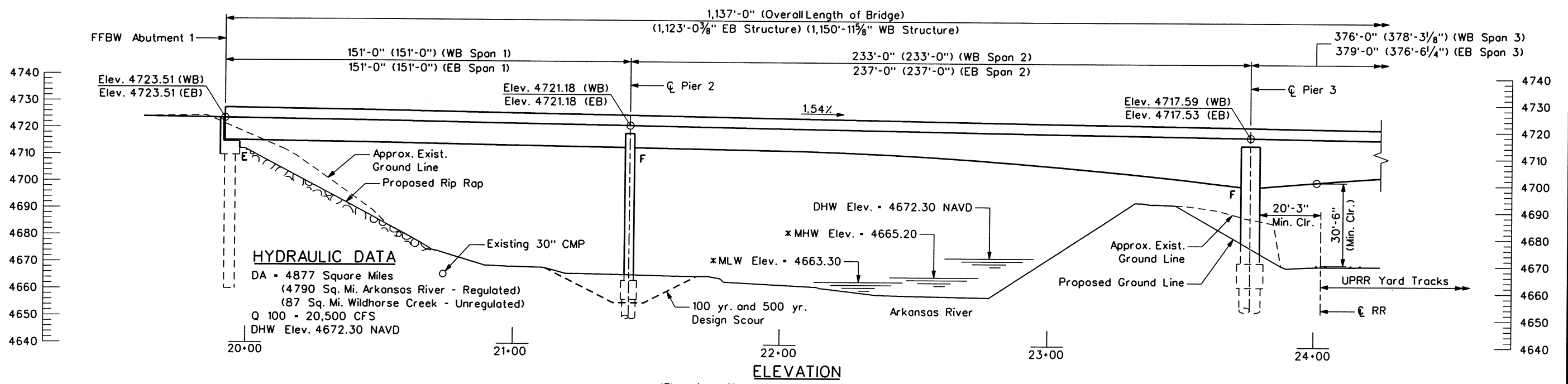
KEY PLAN			
Designer:	S. Fultz	Structure Numbers	K-18-GS (EB)
Detailer:	S. Fall	Structure Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B3 of B169

Project No./Code	BR 0961-008
	13141
Sheet Number	100



- NOTES:**
- Span lengths given along \bar{C} SH96A and \bar{C} Construction. Span lengths given in parenthesis (xx'-x") given along \bar{C} girder.
 - See Right-of-Way plans for ownership map.
 - Clearances shown are from top of rail. For additional clearances to railroad tracks, see Railroad Clearances sheets.
 - For limits of Riprap at Abutment 1, see Grading Plans.
 - For Profile Grade Definition, see Key Plan.
 - * Mean Daily Flows have been determined based on a limited recording period during which few flood events occurred and should be considered approximate. Higher or lower surface elevations may occur.

PLAN



ELEVATION

(Elevations Given at Finished Grade Along \bar{C} Girder)

Design		Detail		Quantities	
Designed By	Checked By	INITIAL	DATE	INITIAL	DATE
RKM	JRD	RKM	12/06	JRD	12/06
Checked By	Checked By				
JRD	JRD		12/06	JRD	12/06

Print Date: 12/11/2006

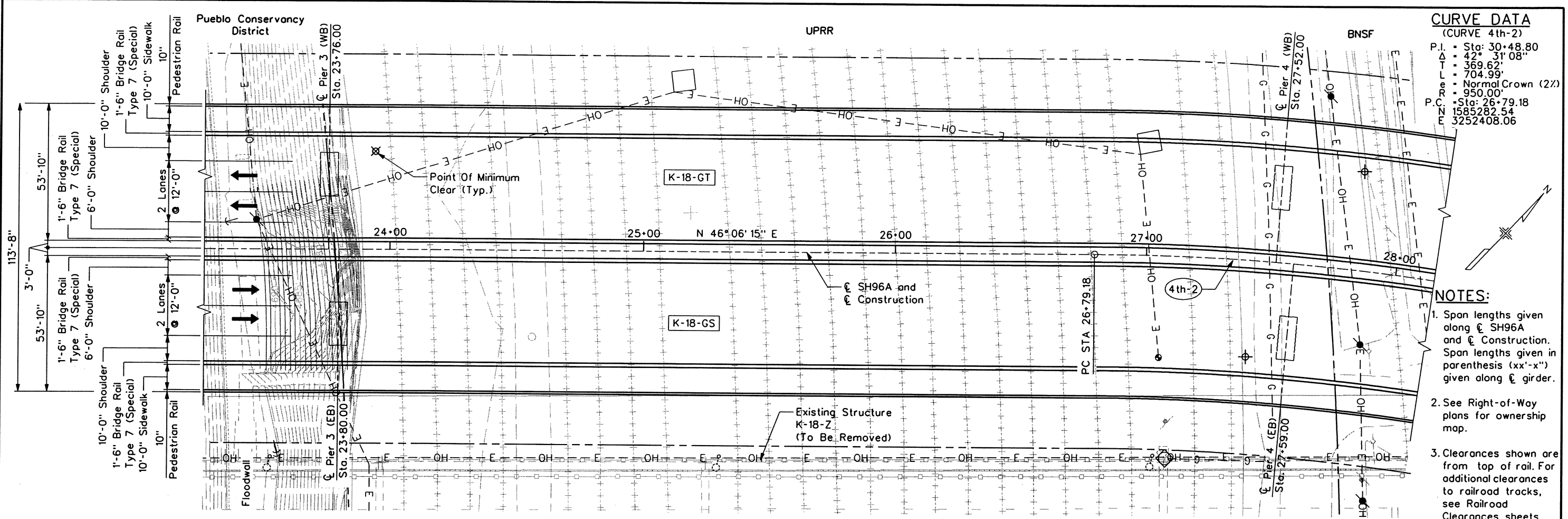
Drawing File Name: 13141_General_Layout_1.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Belpaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed		GENERAL LAYOUT I	
No Revisions:		Designer: K. Montgomery	Structure Numbers
Revised:		Detailer: D. Anderson	K-18-GS (EB) K-18-GT (WB)
Void:		Sheet Subset: BRIDGE	Subset Sheets: B4 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number 101



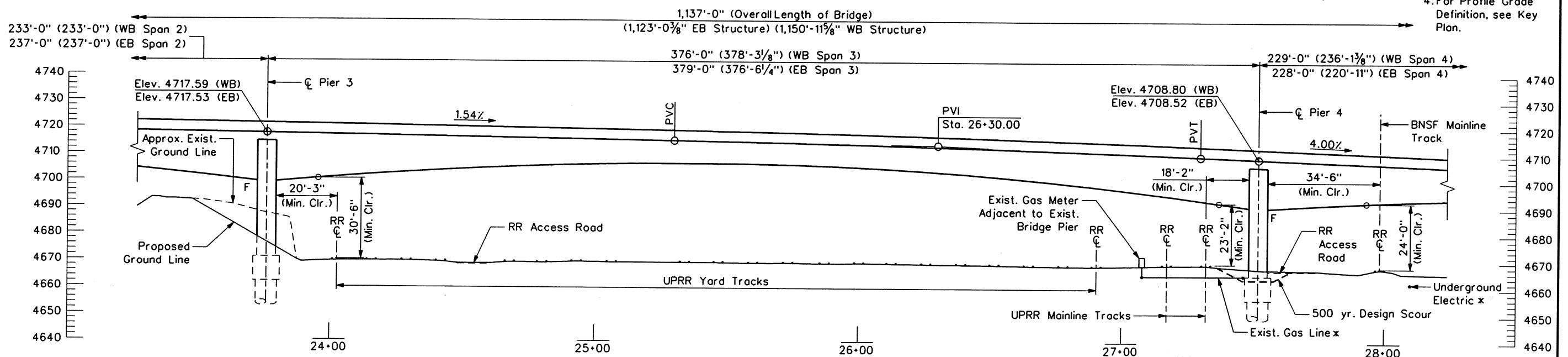
CURVE DATA
(CURVE 4th-2)

P.I.	Sta: 30+48.80
Δ	42° 31' 08"
L	369.62'
T	704.99'
Normal Crown (2%)	950.00'
P.C.	Sta: 26+79.18
E	1585282.54
F	3252408.06

- NOTES:**
- Span lengths given along \bar{C} SH96A and \bar{C} Construction. Span lengths given in parenthesis (xx'-x") given along \bar{C} girder.
 - See Right-of-Way plans for ownership map.
 - Clearances shown are from top of rail. For additional clearances to railroad tracks, see Railroad Clearances sheets.
 - For Profile Grade Definition, see Key Plan.

PLAN

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By
JRD	12/06	RKM	12/06	RKM	12/06



ELEVATION

(Elevations Given at Finished Grade Along \bar{C} Girder)

*Utilities Shown Schematically Only. Contractor to Verify Depth and Location of Utilities. See Utility Plans.

Print Date: 12/12/2006

Drawing File Name: 13141_General_Layout_II.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

FIGG Figg Bridge Engineers, Inc.
1873 South Belloire St., Suite 1500
Denver, Colorado 80222
(303)757-7400

Sheet Revisions		
Date:	Comments	Init.

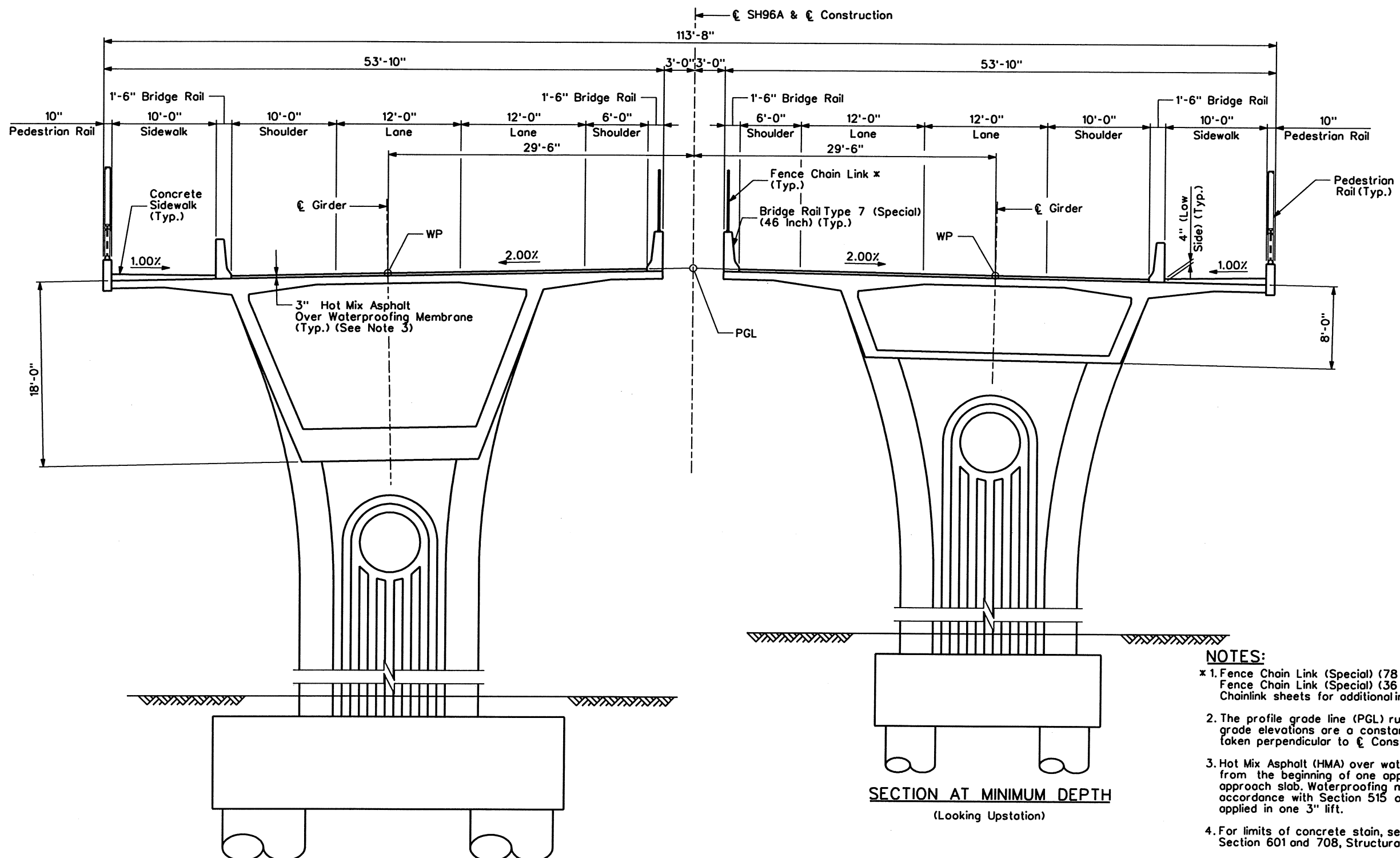
Colorado Department of Transportation

902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

Region 2 **KSR**

As Constructed	
No Revisions:	
Revised:	
Void:	
GENERAL LAYOUT II	
Designer: K. Montgomery	Structure Numbers
Detailer: D. Anderson	K-18-GS (EB)
Sheet Subset: BRIDGE	K-18-GT (WB)
Subset Sheets: B5 of B169	

Project No./Code	
BR 0961-008	
13141	
Sheet Number 102	



- NOTES:**
- * 1. Fence Chain Link (Special) (78 Inch) used over railroad tracks. Fence Chain Link (Special) (36 Inch) used elsewhere. See Fence Chainlink sheets for additional information
 - 2. The profile grade line (PGL) runs along ϵ Construction. Finished grade elevations are a constant 2% superelevation from the PGL, taken perpendicular to ϵ Construction.
 - 3. Hot Mix Asphalt (HMA) over water proofing membrane extends from the beginning of one approach slab to the end of the other approach slab. Waterproofing membrane shall be applied in accordance with Section 515 of the Specifications. HMA shall be applied in one 3" lift.
 - 4. For limits of concrete stain, see Special Provision Revision of Section 601 and 708, Structural Concrete Stain.
 - 5. Final configuration shown. See Bridge Rail Type 7 (Special) Details and Traffic Control Plans for traffic phasing during construction.

ESTIMATED QUANTITIES - EB			
Item No.	Item Description	Unit	Quantity
403-34871	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28)	TON	850
515-00120	WATERPROOFING (MEMBRANE)	SY	5,246
601-40401	STRUCTURAL CONCRETE STAIN	SF	108,429

ESTIMATED QUANTITIES - WB			
Item No.	Item Description	Unit	Quantity
403-34871	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28)	TON	867
515-00120	WATERPROOFING (MEMBRANE)	SY	5,349
601-40401	STRUCTURAL CONCRETE STAIN	SF	110,926

SECTION AT MAXIMUM DEPTH
(Looking Upstation)

SECTION AT MINIMUM DEPTH
(Looking Upstation)

Design	Detail		Quantities	
	INITIAL	DATE	INITIAL	DATE
Designed By	RKM	12/06	Quantities By	RKM
Checked By	JRD	12/06	Checked By	DAI

Print Date: 03/14/2007
 Drawing File Name: 13141_Typical_Section.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

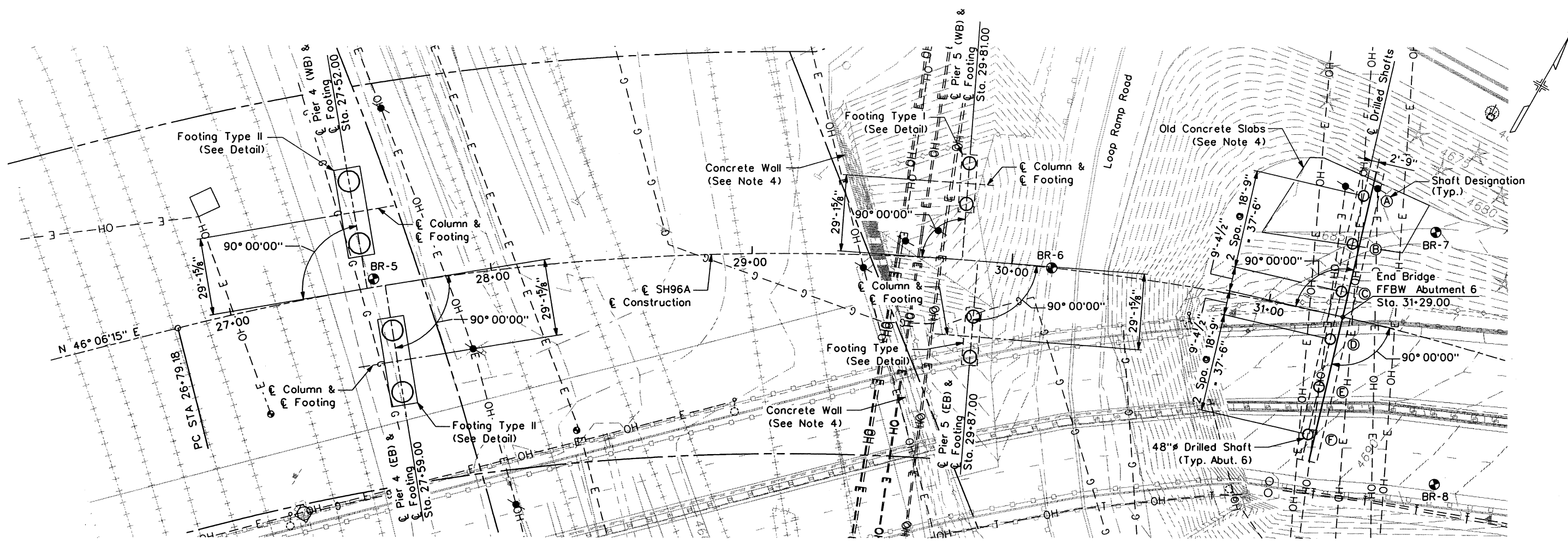
Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed		TYPICAL CROSS-SECTION	
No Revisions:		Designer: K. Montgomery	Structure K-18-GS (EB)
Revised:		Detailer: S. Fall	Numbers K-18-GT (WB)
Void:		Sheet Subset: BRIDGE	Subset Sheets: B7 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number **104**



Design	DATE	INITIAL	DATE	INITIAL	DATE	INITIAL
Designed By	12/06	JRD	12/06	12/06	12/06	12/06
Checked By						
Detail	DATE	INITIAL	DATE	INITIAL	DATE	INITIAL
Detailed By	12/06	DRM	12/06	12/06	12/06	12/06
Checked By		RKM				
Quantities	DATE	INITIAL	DATE	INITIAL	DATE	INITIAL
Quantities By						
Checked By						



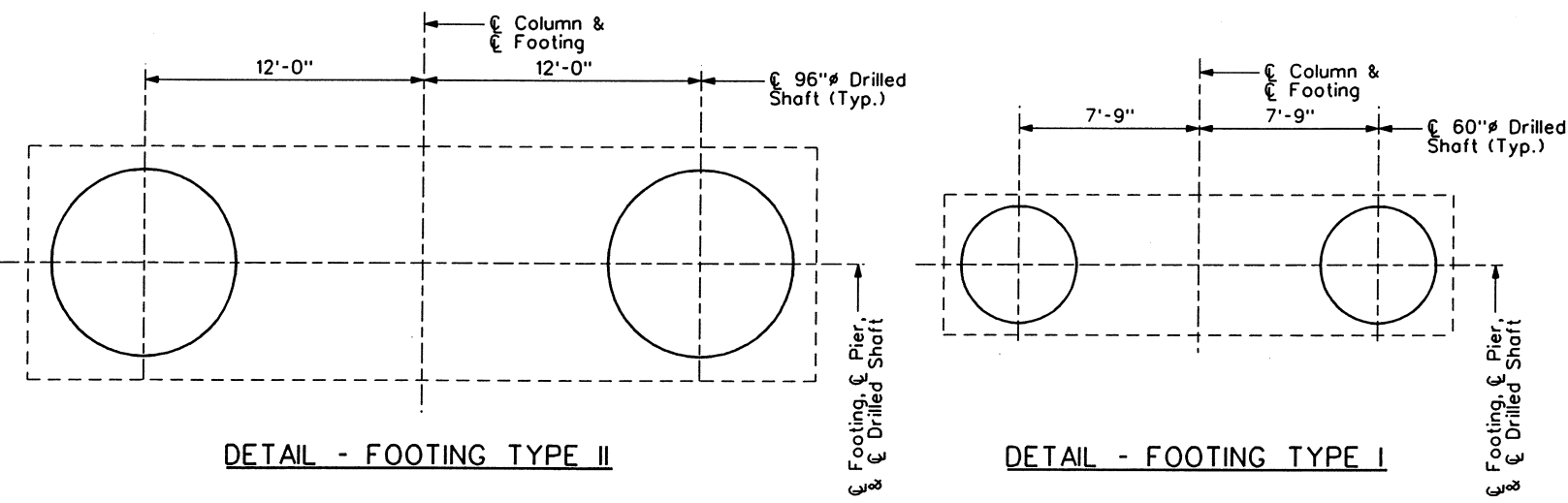
Areas of Potential Contamination
(See Environmental Health and Safety Management Sections
in the Project Specifications for More Information)

To Project Limits

PLAN

CALL UNCC
TWO WORKING DAYS
BEFORE YOU DIG
1-800-922-1987
METRO DENVER AREA
UTILITY NOTIFICATION CENTER OF COLORADO

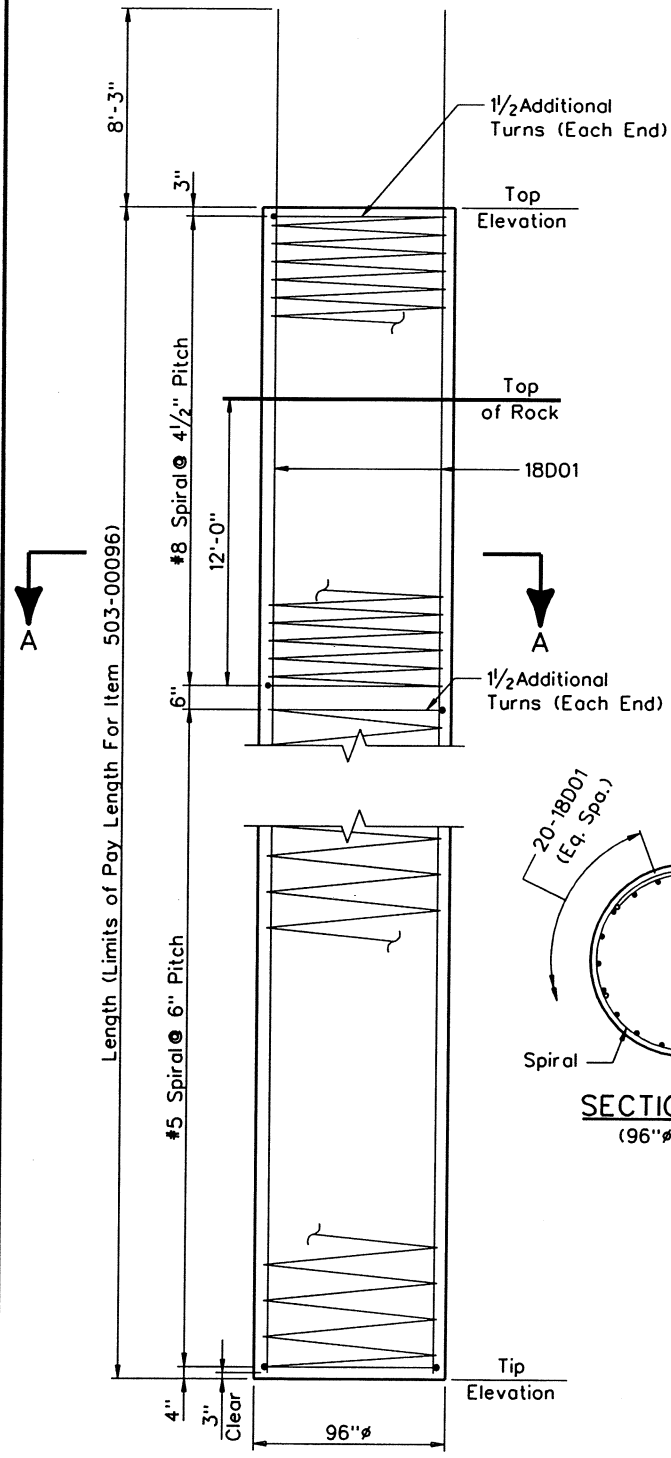
NOTE: UTILITY LOCATIONS SHOWN ON THE PLANS ARE FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 105.10 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987 FOR LOCATION OF MEMBER UTILITIES AT LEAST TWO BUSINESS DAYS PRIOR TO ANY EXCAVATION OR OTHER EARTH WORK (NOT INCLUDING THE ACTUAL DAY OF NOTIFICATION). LOCATION AND NOTIFICATION OF BOTH UNCC MEMBER AND NON-MEMBER UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY.



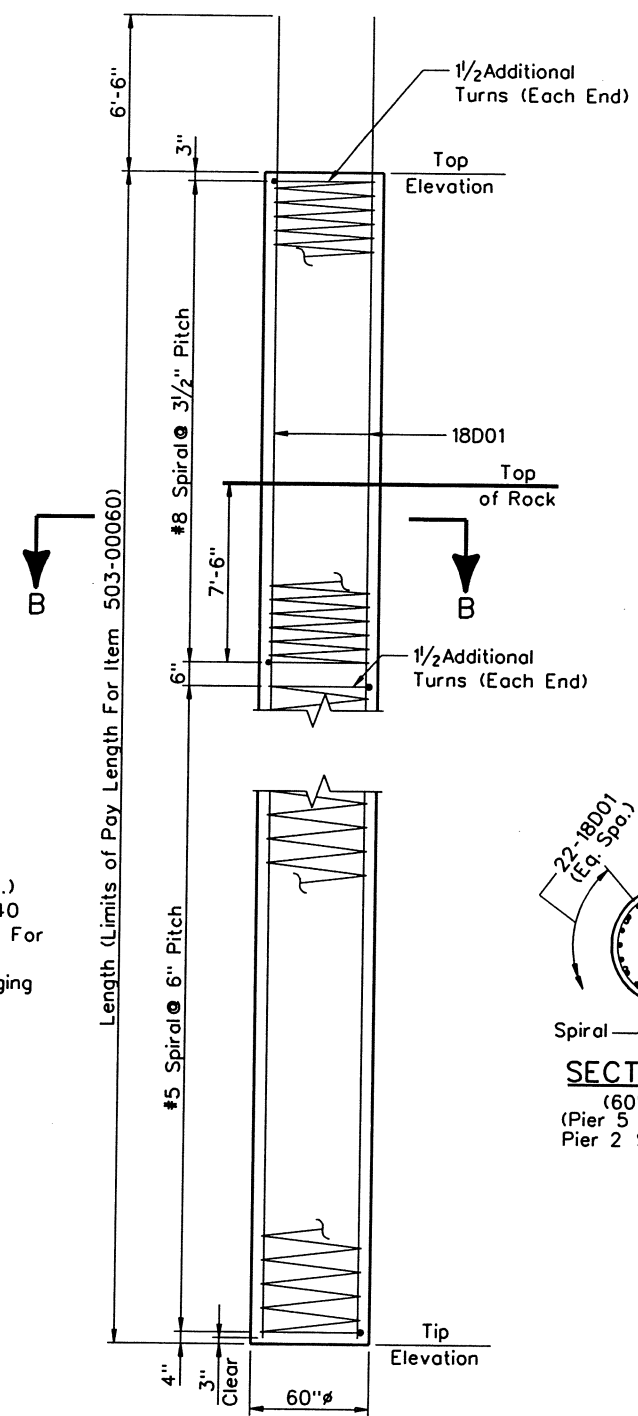
- NOTES:**
1. See Footing Type I and Type II sheets for footing dimensions.
 2. See General Layout sheets for horizontal control data.
 3. See Drilled Shaft Details sheet for drilled shaft details and elevations.
 4. Attention is called to existing concrete members, walls, and other debris from previous construction. Complete or partial removal of these items may be necessary to construct the new bridge and should be factored into the Contractor's bid. Note that removal of these items are included under Pay Item 202-00003, Removal of Structure (Special). See Miscellaneous Removals sheet for additional information.
 5. See Engineering Geology sheets for boring data.
 6. Utilities shown are approximate. See Utility Plans for additional information.

Print Date: 12/11/2006	Sheet Revisions			Colorado Department of Transportation		As Constructed		FOUNDATION LAYOUT II		Project No./Code	
Drawing File Name: 13141_Foundation_Layout_II.dgn	Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2		No Revisions: Revised: Void:		Designer: K. Montgomery Detailer: D. Anderson Sheet Subset: BRIDGE		BR 0961-008 13141 Sheet Number 110	
Horiz. Scale:											
Unit Information	Unit Leader Initials										
Figg Bridge Engineers, Inc. 1873 South Belleaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400											

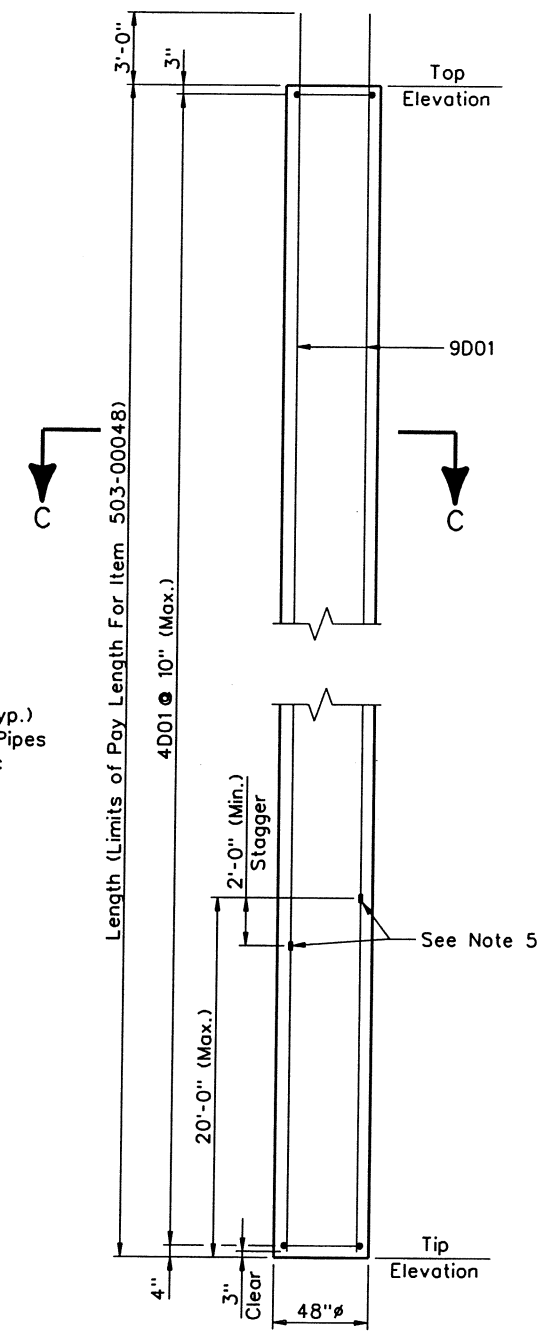
Design	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Designed By	RKM	12/06	RJA	12/06	JRD	12/06
Checked By	MSK	12/06	RKM	12/06	DAT	12/06
Detail	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Quantities						
By						
Checked By						



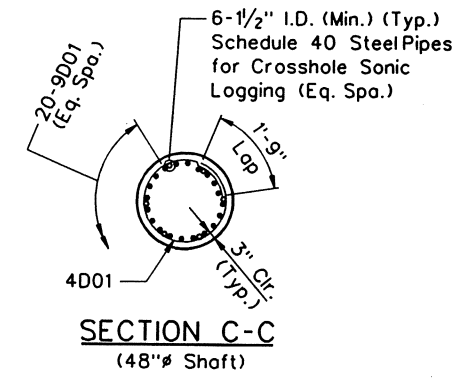
ELEVATION - PIERS 3&4 SHAFTS
(Pay Item 503-00096, Drilled Caisson (96 Inch))



ELEVATION - PIERS 2&5 SHAFTS
(Pay Item 503-00060, Drilled Caisson (60 Inch))



ELEVATION - ABUTMENT SHAFTS
(Pay Item 503-00048, Drilled Caisson (48 Inch))

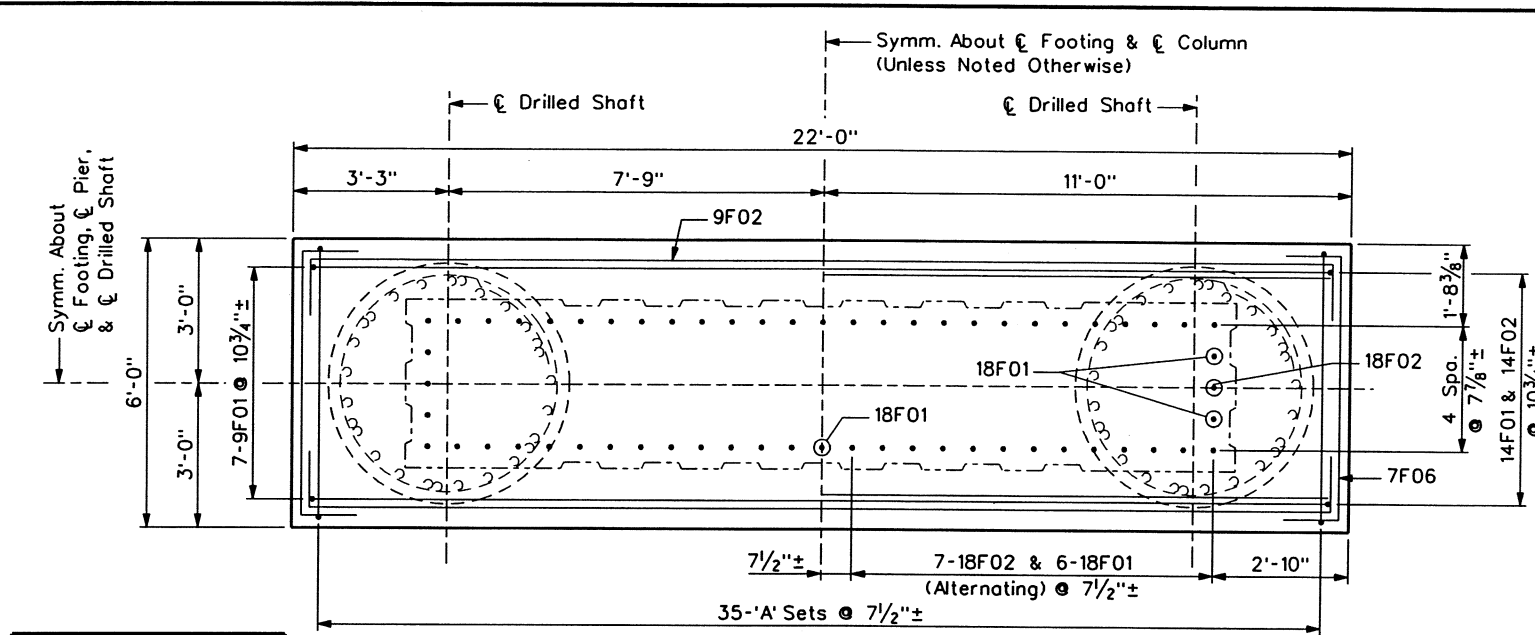


LEGEND

4	D	01	Bar Number
	D		D - Drilled Shaft
			Bar Size

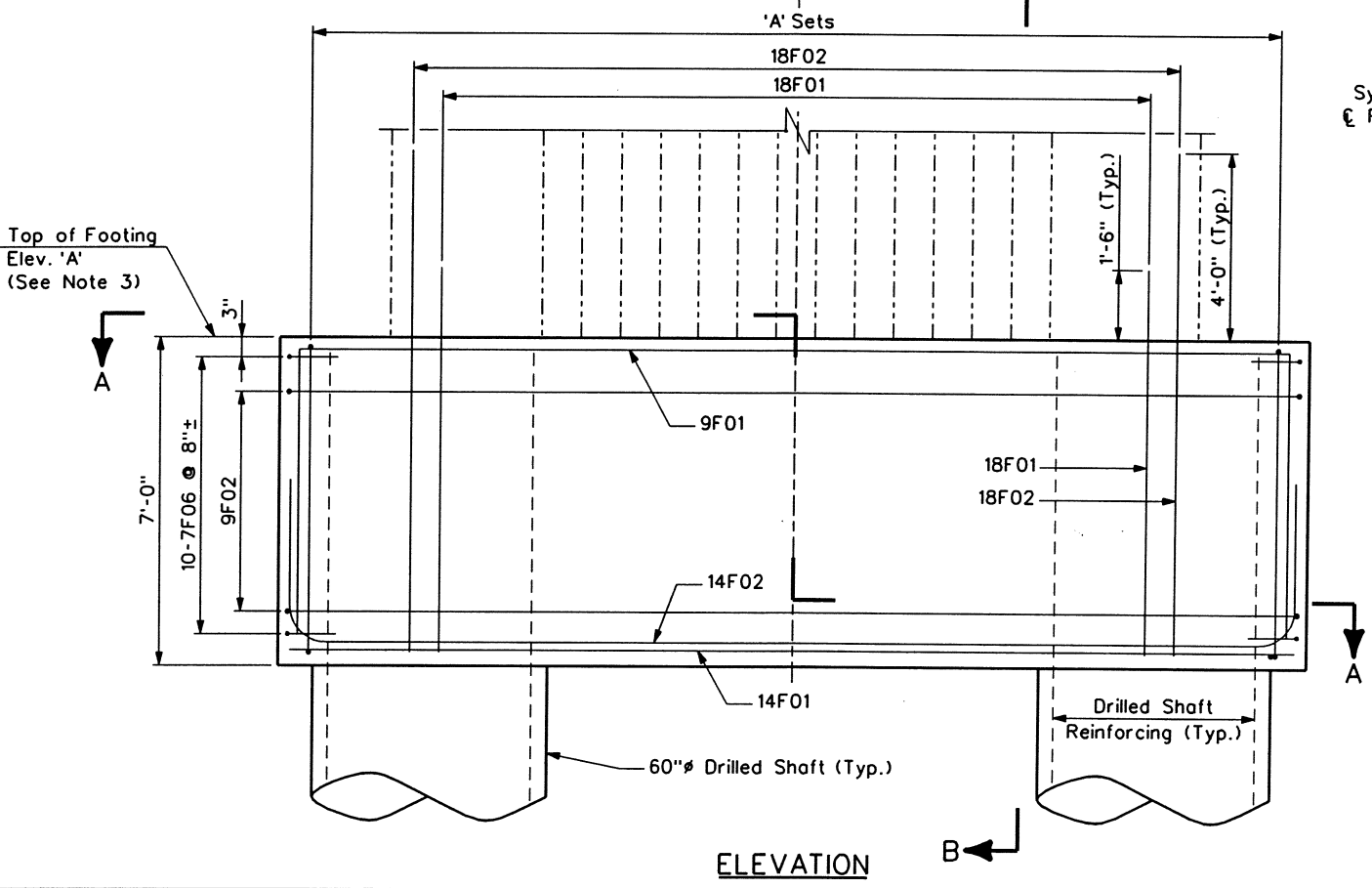
NOTES:
1. For drilled shaft data and notes, see Drilled Shaft Details II sheet.

Print Date: 01/26/2007	Sheet Revisions			Colorado Department of Transportation		As Constructed		DRILLED SHAFT DETAILS I		Project No./Code			
Drawing File Name: 13141_Drilled_Shaft_Details.dgn	Date:	Comments:	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2		No Revisions:		Designer: K. Montgomery Detailer: R. Adams Sheet Subset: BRIDGE		BR 0961-008			
Horiz. Scale: Vert. Scale:						Revised:				Structure Numbers		13141	
Unit Information Unit Leader Initials						Void:				K-18-GS (EB) K-18-GT (WB)		Sheet Number	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400					KSR		Subset Sheets: B14 of B169		111				

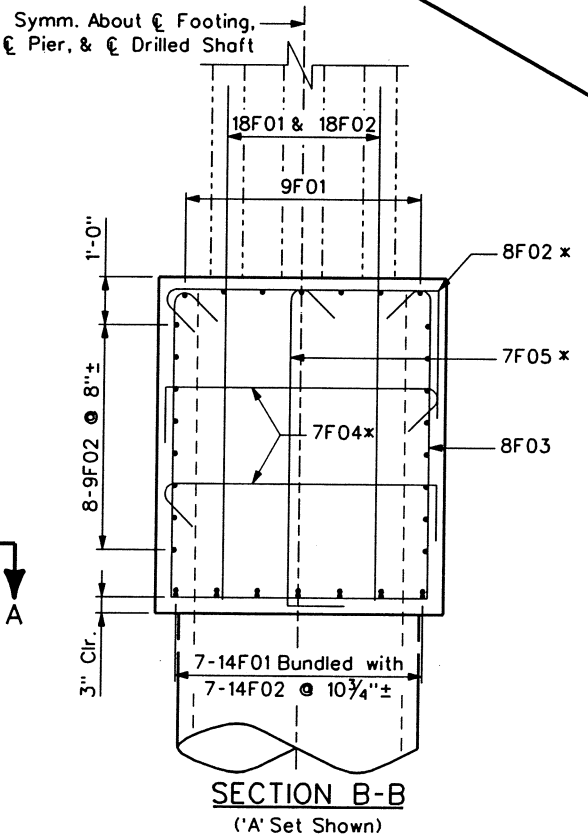


Footing	Elev. 'A'
Pier 2	4664.0
Pier 5	4665.0

HALF PLAN - TOP SECTION A-A HALF PLAN - BOTTOM



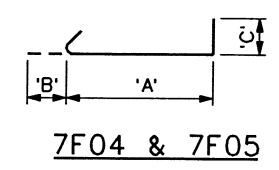
ELEVATION



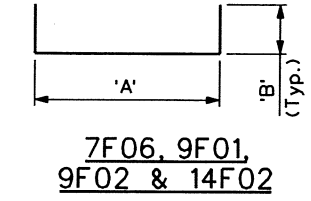
SECTION B-B ('A' Set Shown)

ESTIMATED QUANTITIES - FOOTING TYPE I

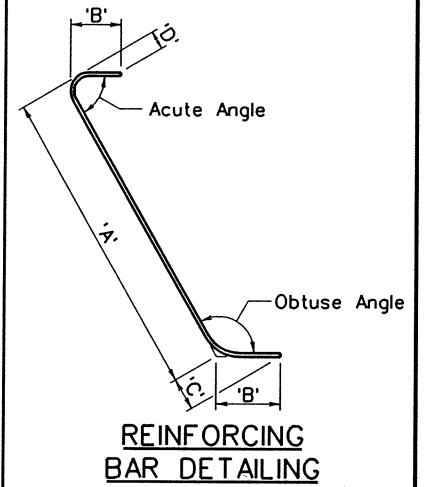
Item No.	Item Description	Unit	Quantity
601-03040	Concrete Class D (Bridge)	CY	34.2
602-00000	Reinforcing Steel	LB	17,336



Bar	'A'	'B'	'C'
7F04	5'-8"	9"	1'-2"
7F05	6'-7"	9"	1'-2"



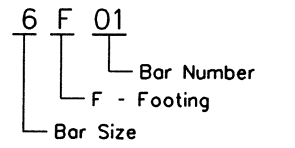
Bar	'A'	'B'
7F06	5'-5 3/4"	1'-2"
9F01	21'-5 1/2"	6'-2"
9F02	21'-8"	1'-7"
14F02	21'-5 1/2"	2'-7"



BAR LIST - FOOTING TYPE I

Bar	No.	Length	Bent	Str.
7F04	70	7'-7"	•	
7F05	35	8'-6"	•	
7F06	20	7'-9 3/4"	•	
8F02	35	9'-8 1/2"	•	
8F03	35	20'-7"	•	
9F01	7	33'-9 1/2"	•	
9F02	16	24'-10"	•	
14F01	7	21'-8"	•	•
14F02	7	26'-7 1/2"	•	•
18F01	30	8'-3"	•	•
18F02	30	10'-9"	•	•

LEGEND



NOTES:

- This drawing is valid for footings at Pier Columns 2 and 5. These footings are considered Mass Concrete. See project specifications.
- See Foundation Layout sheets for plan location of footings and drilled shafts.
- Top of footing shall be a minimum of 1'-6" below grade. If the ground elevation at the location of the footing results in the footing being less than 1'-6" below grade, the Contractor shall re-grade around the footing or the top of footing elevation shall be adjusted to obtain this criteria. Top of shaft and bottom of pier column elevations shall be adjusted accordingly.
- See Piers 2 & 5 Dimensions sheet for pier column dimensions.
- Concrete cover shall be 2" unless otherwise noted.
- Concrete shall be Class D, 4500 psi.
- Reinforcing is non-epoxy coated.
- 'A' Set bars include: 2-7F04, 1-7F05, 1-8F02, and 1-8F03.
- *9. Alternate orientation of hooks for 7F04, 7F05, and 8F02 bars.

Design	Detail	Quantity
INITIAL	DATE	INITIAL
DESIGNED BY	DATE	CHECKED BY
CHKD BY	DATE	DATE

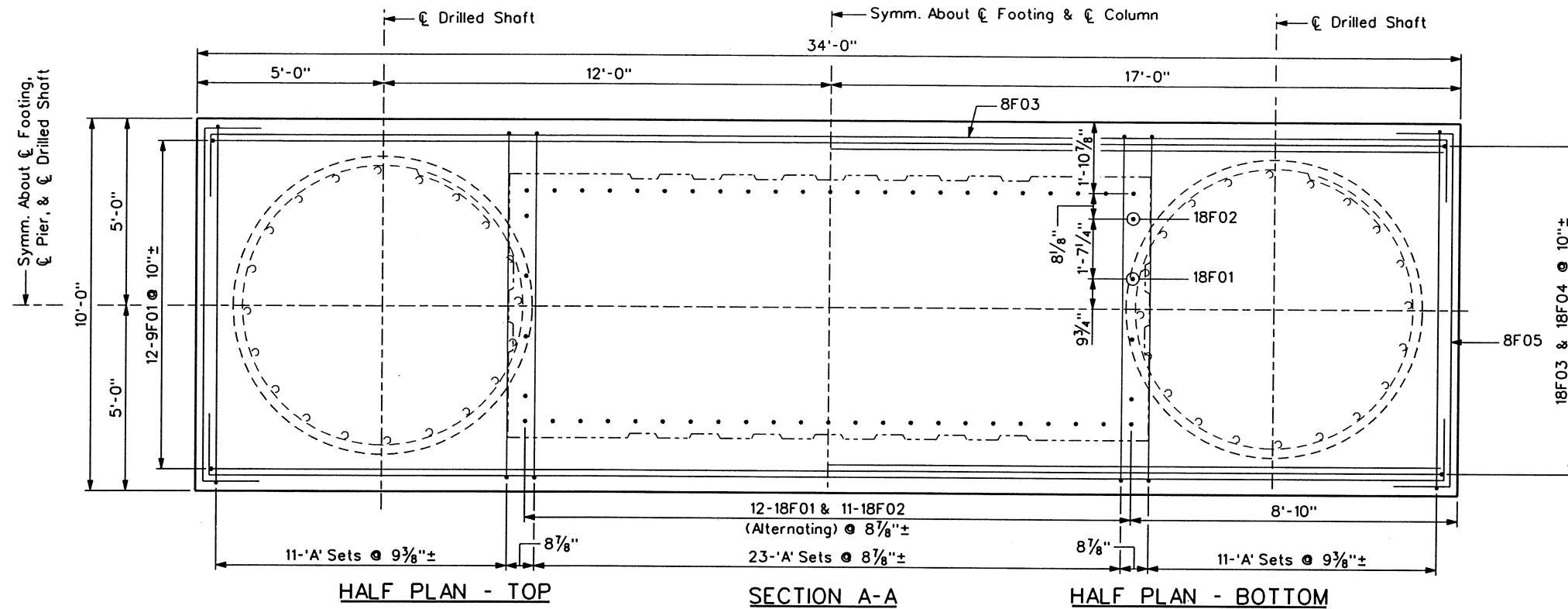
Print Date: 12/13/2006
 Drawing File Name: 13141_Footing_Type_I.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	FOOTING TYPE I DIMENSIONS AND REINFORCING	
No Revisions:	Designer: P. Hill	Structure Numbers: K-18-GS (EB)
Revised:	Detailer: P. Hill	Subset Sheets: B15 of B169
Void:	Sheet Subset: BRIDGE	

Project No./Code
 BR 0961-008
 13141
 Sheet Number 112



HALF PLAN - TOP

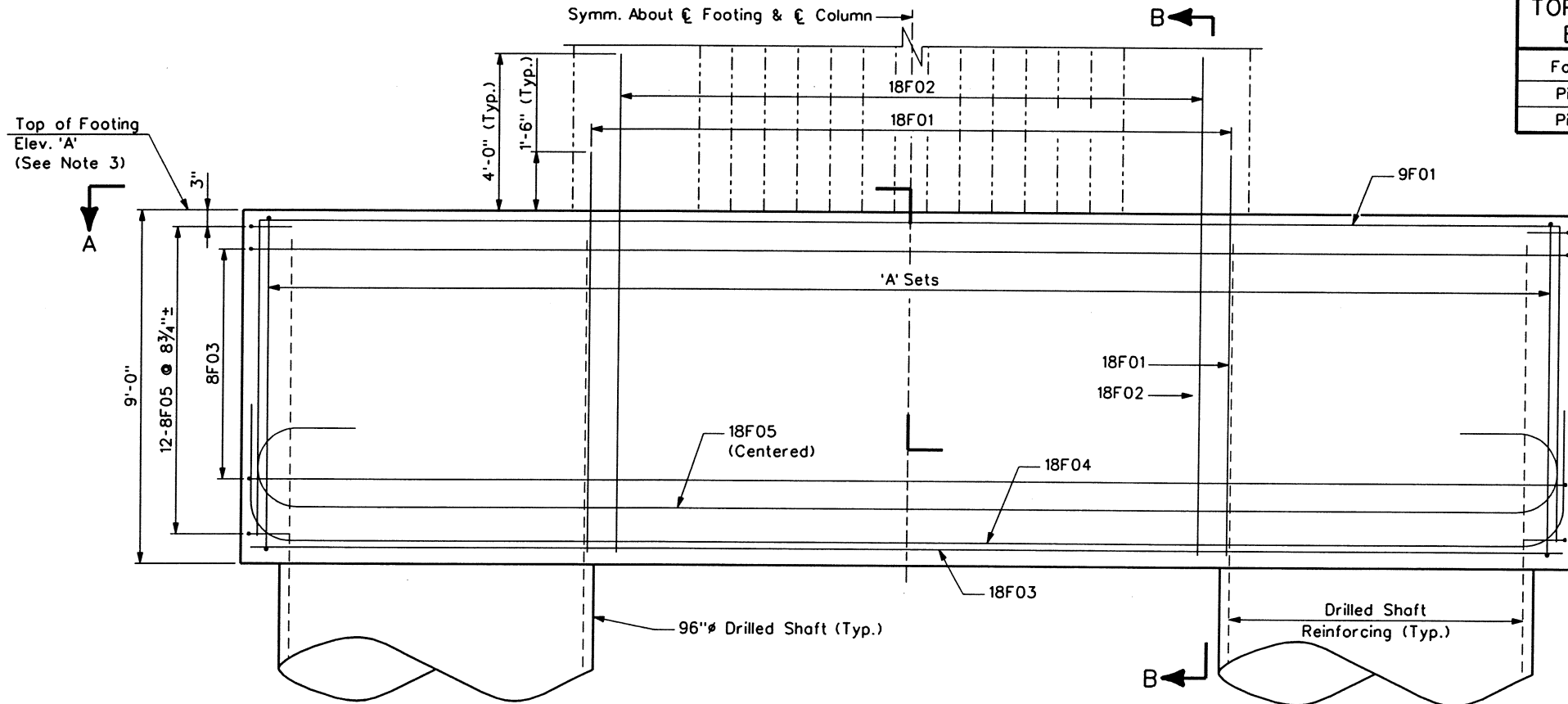
SECTION A-A

HALF PLAN - BOTTOM
(18F05 Bars Not Shown for Clarity)

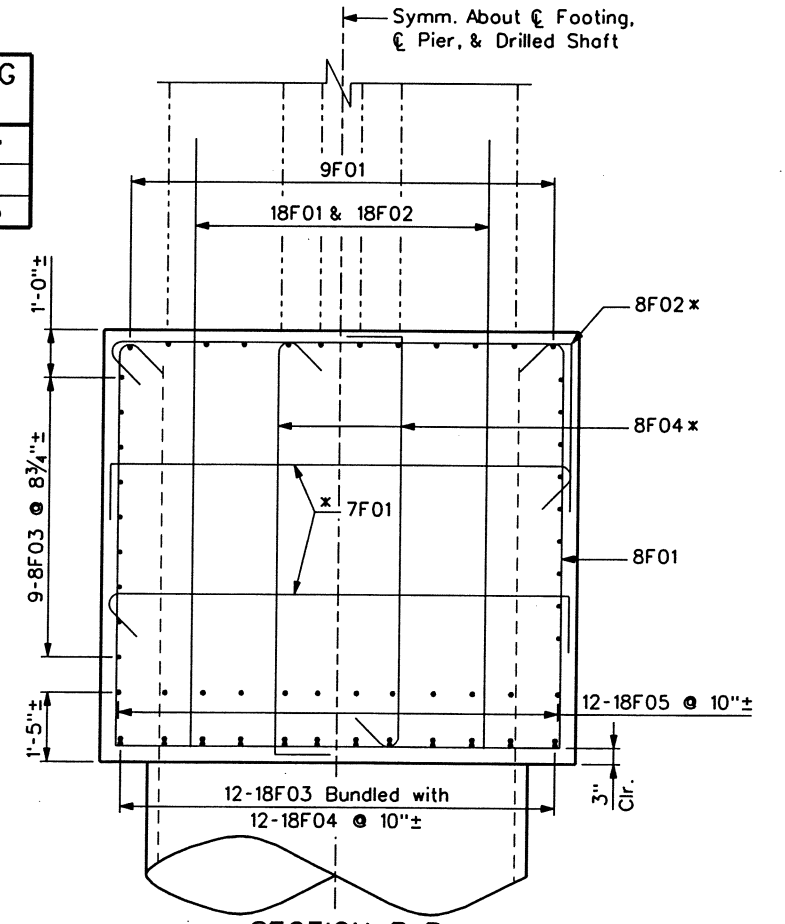
NOTES:

1. This drawing is valid for footings at Pier Columns 3 and 4. These footings are considered Mass Concrete. See project specifications.
2. See Foundation Layout sheets for plan location of footings and drilled shafts.
3. Top of footing shall be a minimum of 1'-6" below grade. If the ground elevation at the location of the footing results in the footing being less than 1'-6" below grade, the Contractor shall re-grade around the footing or the top of footing elevation shall be adjusted to obtain this criteria. Top of shaft and bottom of pier column elevations shall be adjusted accordingly.
4. See Piers 3 & 4 Dimensions sheet for pier column dimensions.
5. Concrete cover shall be 2" unless otherwise noted.
6. Concrete shall be Class D, 4500 psi.
7. Reinforcing is non-epoxy coated.
8. 'A' Set bars include: 2-7F01, 1-8F01, 1-8F02, and 2-8F04
- * 9. Alternate orientation of hooks for 7F01, 8F02, and 8F04 bars.

TOP OF FOOTING ELEVATIONS	
Footing	Elev. 'A'
Pier 3	4671.0
Pier 4	4665.5



ELEVATION



SECTION B-B
('A' Set Shown)

Design	INITIAL	DATE	DETAIL	INITIAL	DATE	Quantities	
						By	Checked By
Designed By	PJH	12/06	Checked By	PJH	12/06	Quantities By	PJH
Checked By	MSK	12/06	Checked By	MSK	12/06	Checked By	DAT

Print Date: 12/14/2006
 Drawing File Name: 1314L.Footing_Type_II_Dims_&_Reinf_.I.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information: Unit Leader Initials

FIGG Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

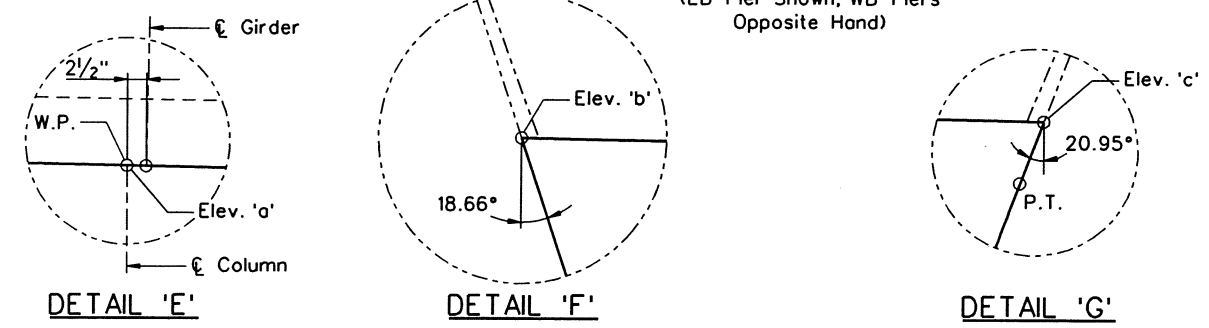
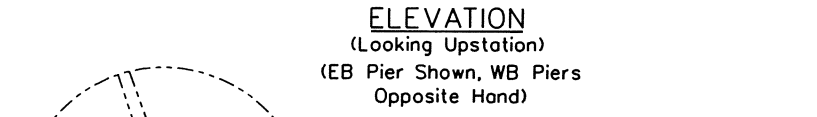
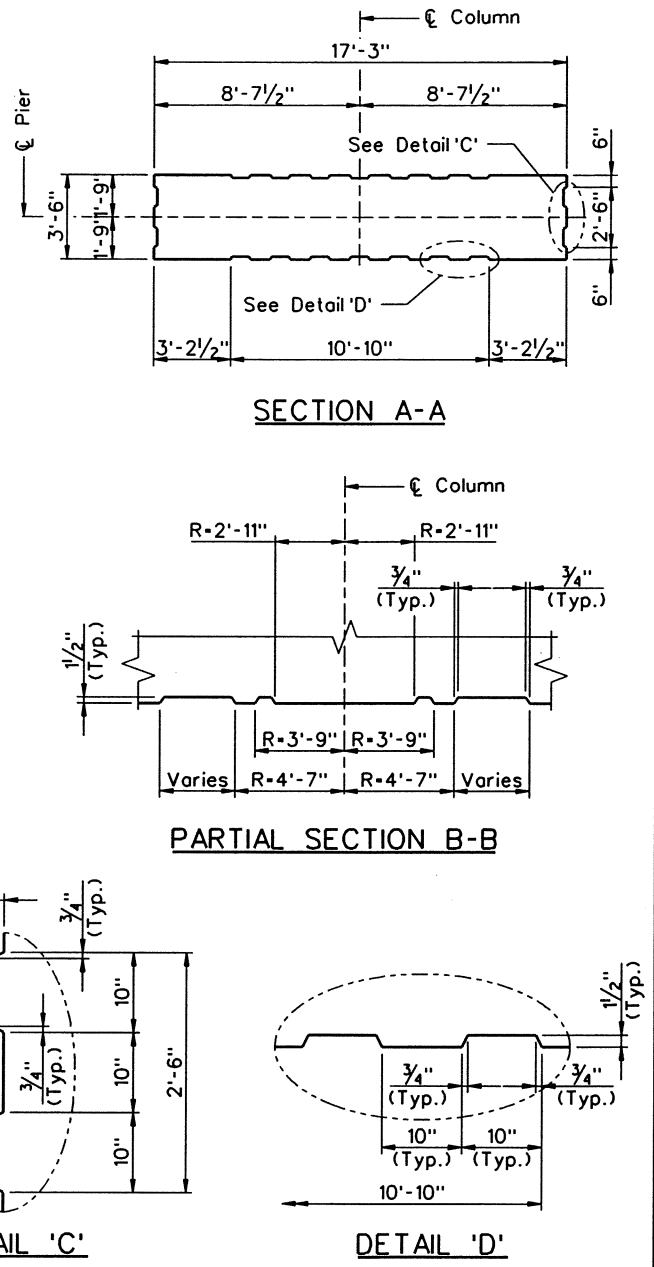
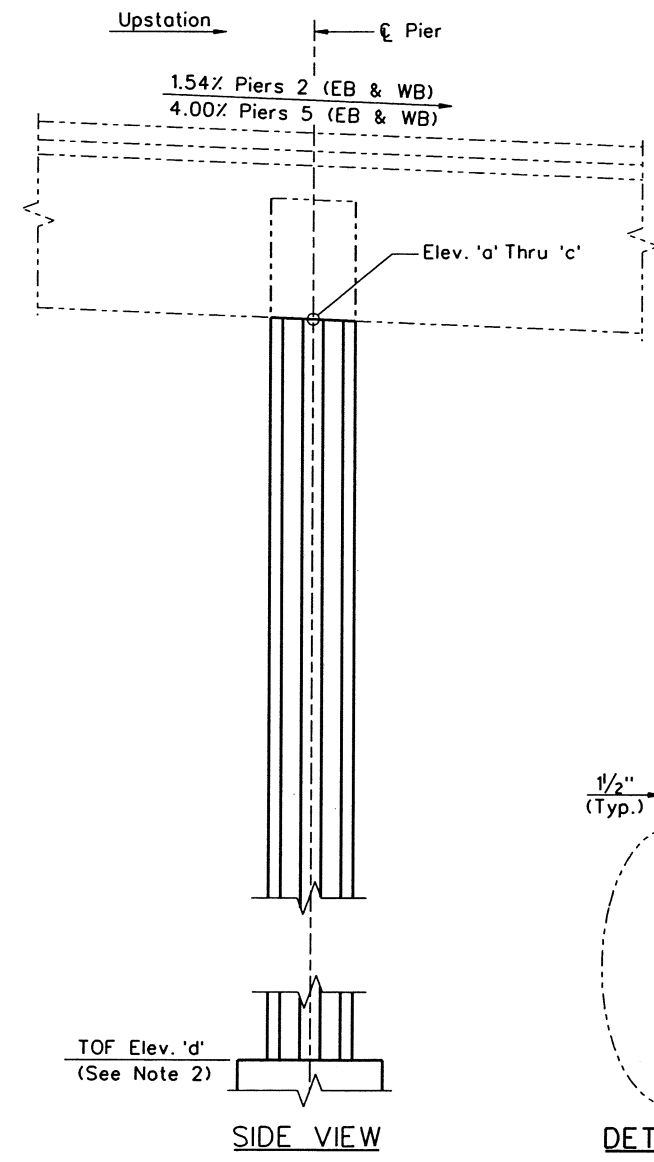
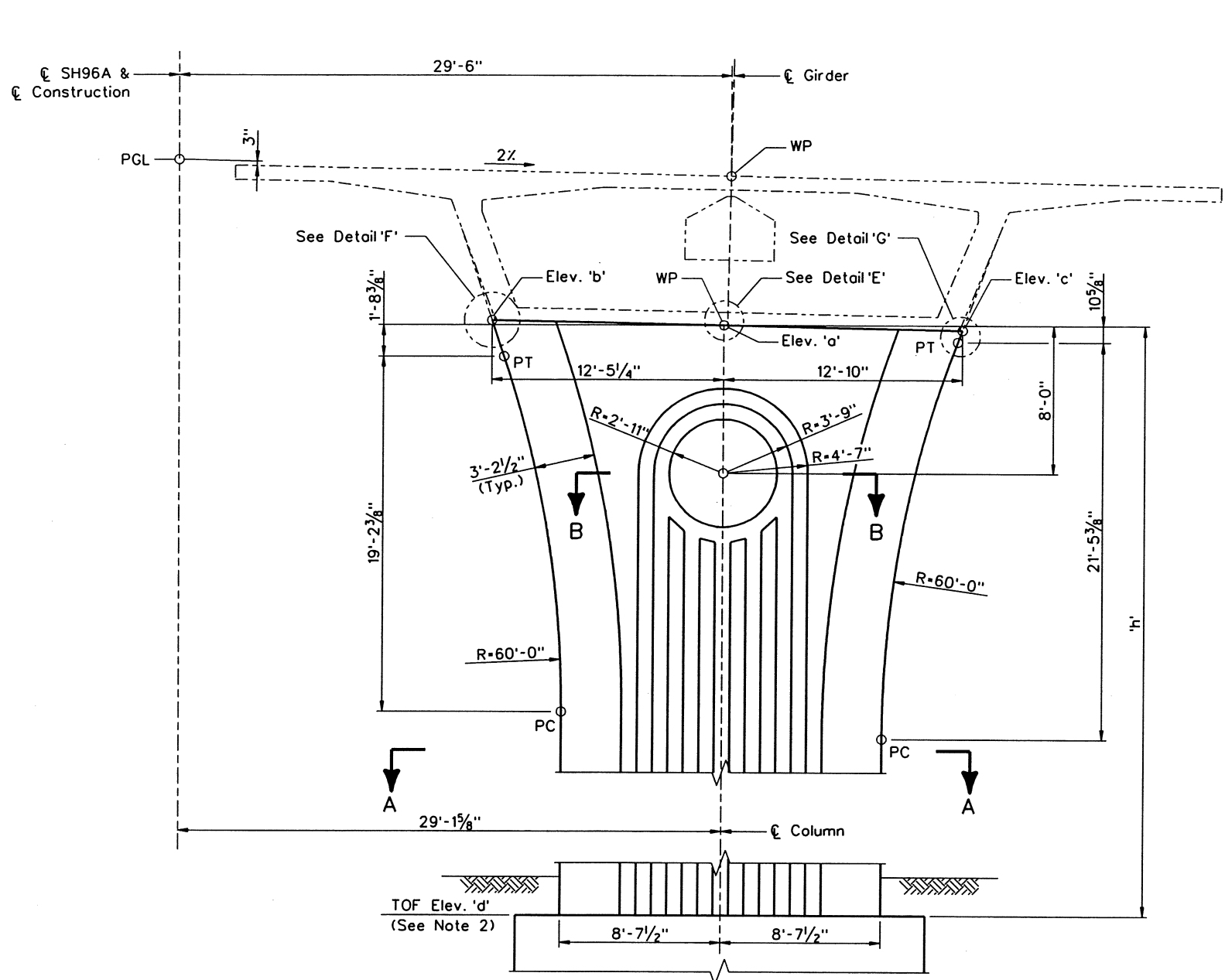
Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed
No Revisions:
Revised:
Void:

FOOTING TYPE II DIMENSIONS AND REINFORCING I			
Designer:	P. Hill	Structure Numbers	K-18-GS (EB)
Detailer:	P. Hill	Structure Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B16 of B169

Project No./Code
BR 0961-008
13141
Sheet Number 113

Design	INITIAL	DATE	DESIGNED BY	CHECKED BY
	RKM	12/06	MSK	12/06
Detail	INITIAL	DATE	DESIGNED BY	CHECKED BY
	RJA	12/06	RKM	12/06
Quantities	INITIAL	DATE	QUANTITIES BY	CHECKED BY
	PJH	12/06	DAI	12/06



Pier	'a'	'b'	'c'	'd'	'h'
2 (EB)	4712.94	4713.18	4712.68	4664.0	48'-11 1/4"
2 (WB)	4712.94	4713.18	4712.68	4664.0	48'-11 1/4"
5 (EB)	4691.16	4691.40	4690.90	4665.0	26'-1 1/8"
5 (WB)	4691.40	4691.64	4691.14	4665.0	26'-4 3/4"

- NOTES:**
- See Foundation Layout sheets for plan location of pier columns.
 - See Footing Type I Dimensions and Reinforcing sheets for footing details.
 - See Pier 2 & 5 Diaphragm sheets for pier diaphragm details.

Print Date: 12/13/2006
 Drawing File Name: 13141_Piers_2_&_5_Dims.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Date:	Comments	Init.

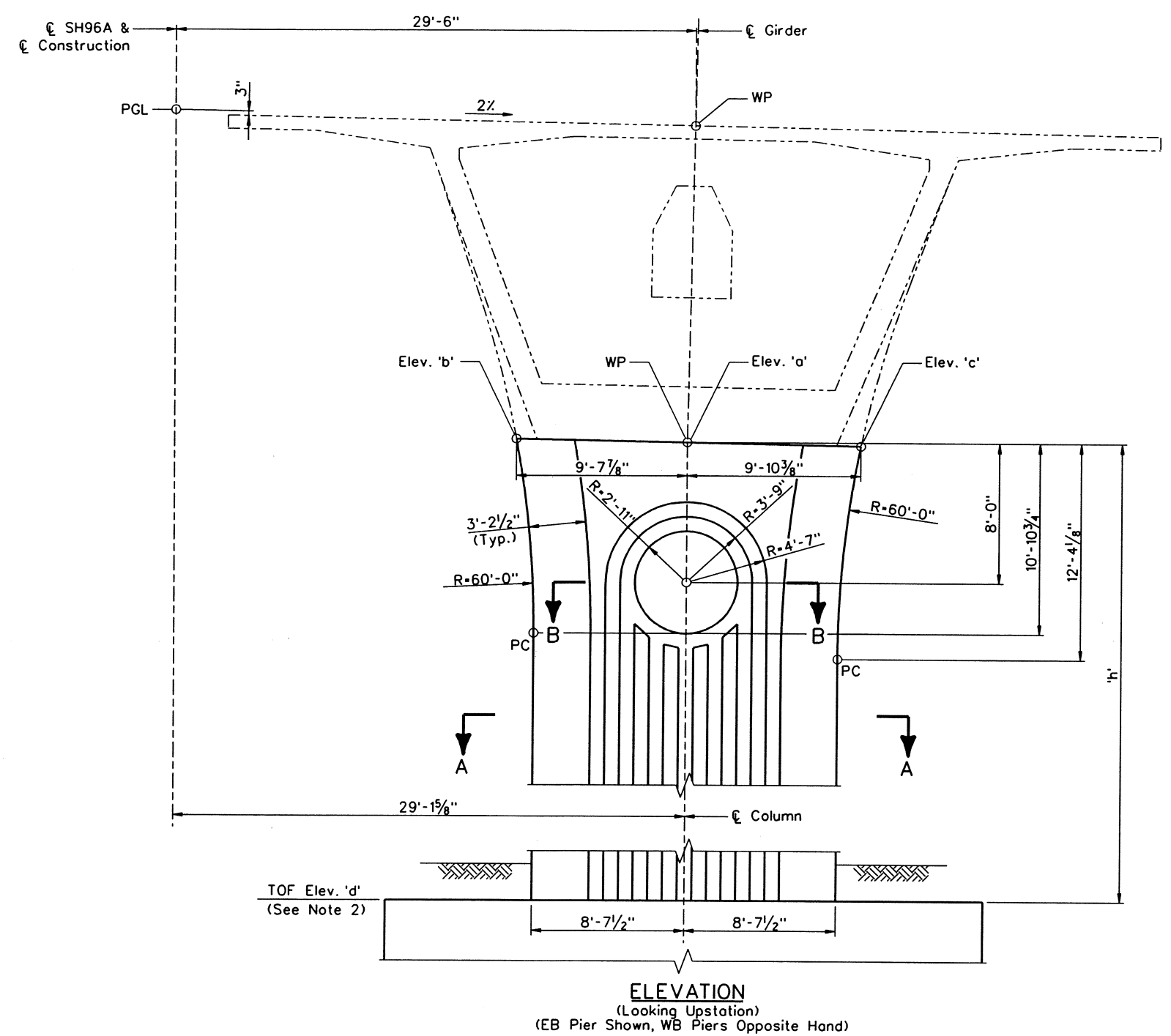
Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed
 No Revisions:
 Revised:
 Void:

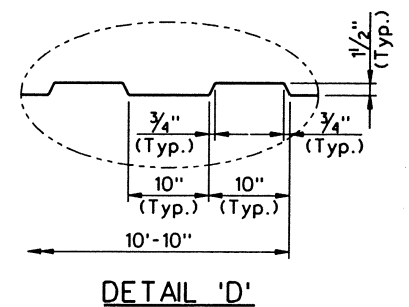
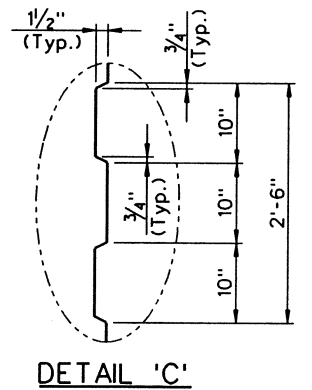
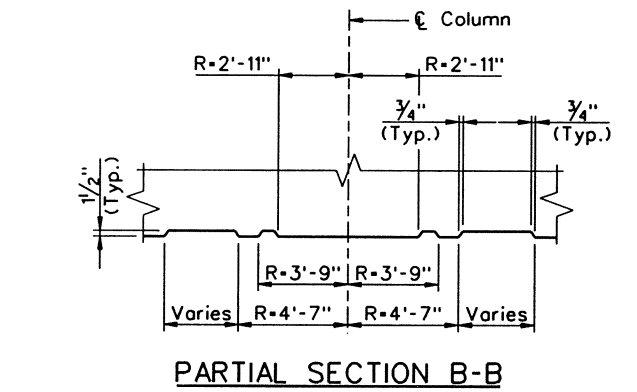
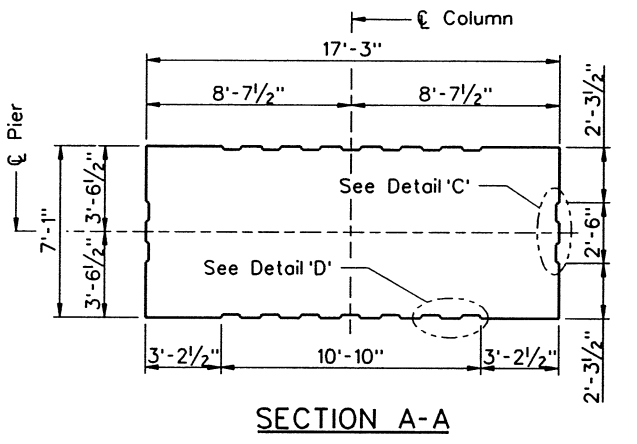
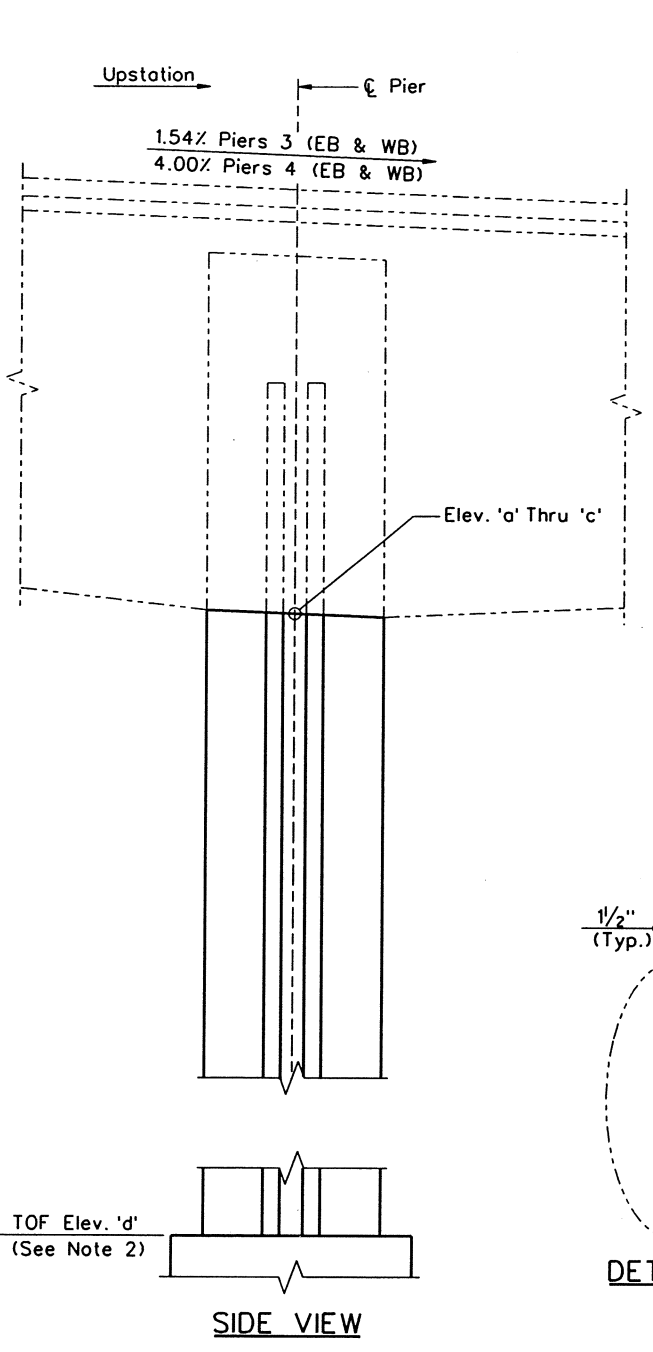
Designer: K. Montgomery	Structure Numbers: K-18-GS (EB)
Detailer: R. Adams	Structure Numbers: K-18-GT (WB)
Sheet Subset: BRIDGE	Subset Sheets: B18 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number 115

Design	INITIAL	DATE	QUANTITIES
	BY	DATE	BY
Checked By	INITIAL	DATE	QUANTITIES
	BY	DATE	BY



VARIABLE ELEVATIONS & DIMENSIONS					
Pier	'a'	'b'	'c'	'd'	'h'
3 (EB)	4699.28	4699.48	4699.09	4671.00	28'-3 ³ / ₈ "
3 (WB)	4699.34	4699.54	4699.15	4671.00	28'-4 ¹ / ₈ "
4 (EB)	4690.27	4690.47	4690.08	4665.50	24'-9 ¹ / ₄ "
4 (WB)	4690.55	4690.75	4690.36	4665.50	25'-0 ⁵ / ₈ "



- NOTES:**
- See Foundation Layout sheets for plan location of pier columns.
 - See Footing Type II Dimensions and Reinforcing sheets for footing details.
 - See Pier Table sheets for Pier table details.
 - Piers 3 and 4 are considered Mass Concrete. See project specifications.

Print Date: 12/13/2006
 Drawing File Name: 13141_Piers_3_&_4_Dims.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

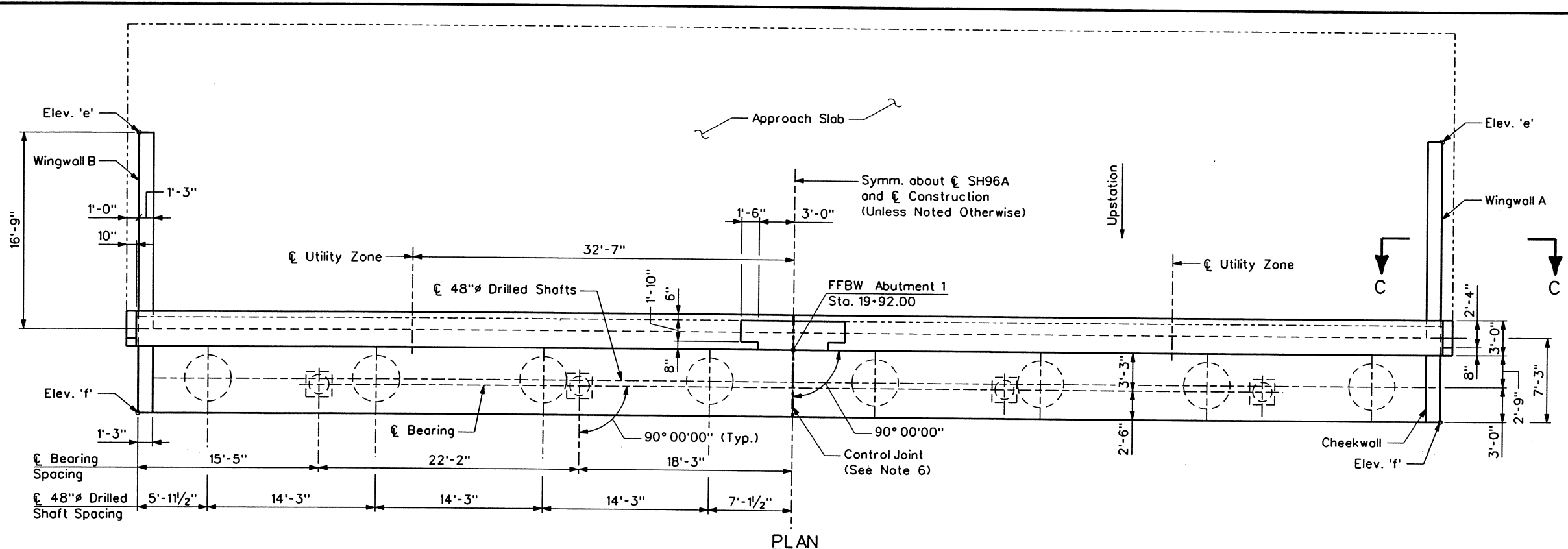
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

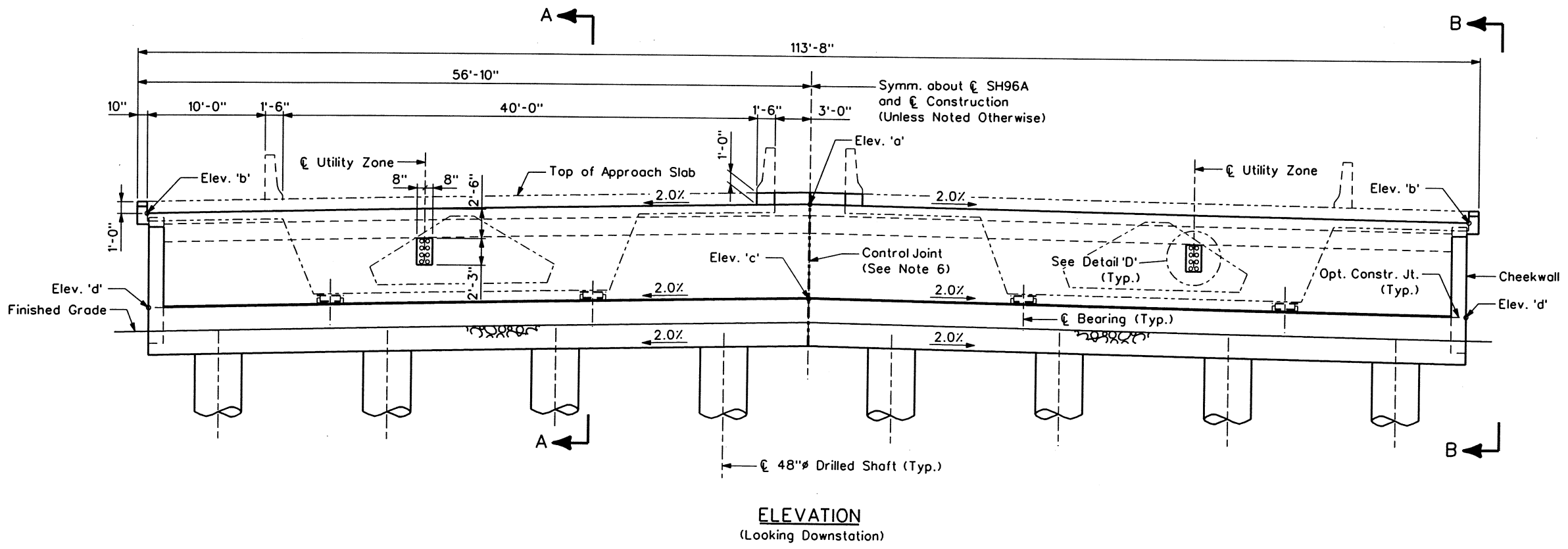
As Constructed
 No Revisions:
 Revised:
 Void:

PIERS 3 & 4 DIMENSIONS		
Designer: K. Montgomery	Structure Numbers	K-18-GS (EB)
Detailer: R. Adams	Structure Numbers	K-18-GT (WB)
Sheet Subset: BRIDGE	Subset Sheets:	B21 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number 118



ELEVATIONS	
Elev. 'a'	4722.86
Elev. 'b'	4721.74
Elev. 'c'	4714.86
Elev. 'd'	4713.74
Elev. 'e'	4721.61
Elev. 'f'	4720.58



- NOTES:**
- Bearing seat elevations allow for 11" between the bottom of the girder and the bearing seat at \bar{C} Bearing. Abutment seat elevations shall be adjusted to account for actual bearing thickness, the riser pad thickness, and the dimensions shown on the Bearing Details sheet. Abutment beam vertical height (4'-0" min.) shall be maintained and the backwall, sidewall, and wingwall heights adjusted accordingly.
 - Optional construction joints are allowed as shown. Wingwall shall not be placed without backwall and cheekwall. Alternate construction joints may be used as approved by the Engineer.
 - For drilled shaft details and reinforcing, see Drilled Shaft Details sheet.
 - For View B-B, Sections A-A and C-C, and Detail D, see Abutment 1 Dimensions II sheet.
 - For abutment excavation and backfill details, see Bridge Excavation and Backfill sheets.
 - For control joint details, see Abutment 1 Reinforcing sheets.

Design		Detail		Quantity	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
JMB	12/06	JMB	12/06	JMB	12/06
RKM	12/06	JMB	12/06	ECA	12/06
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By

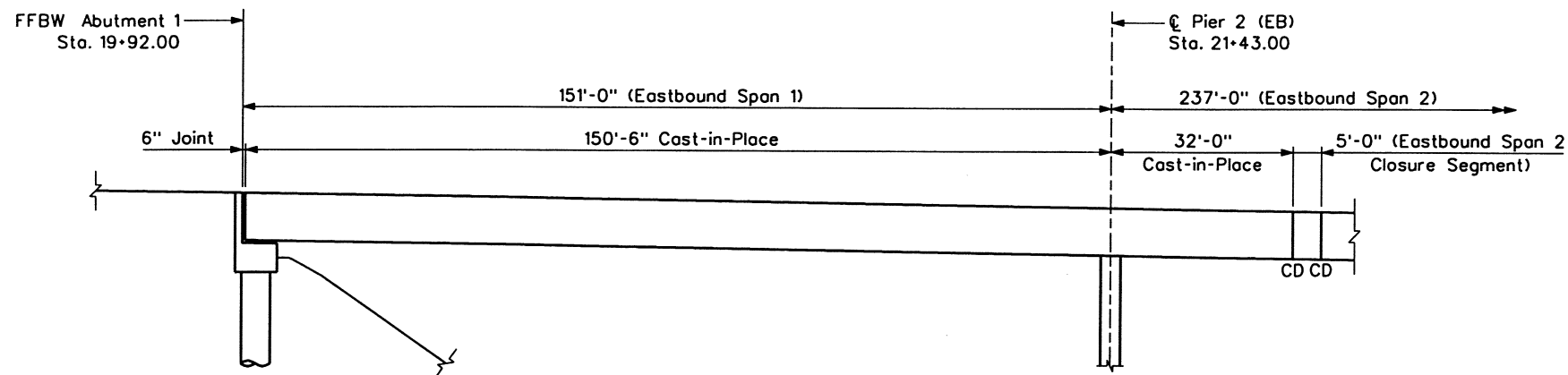
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 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

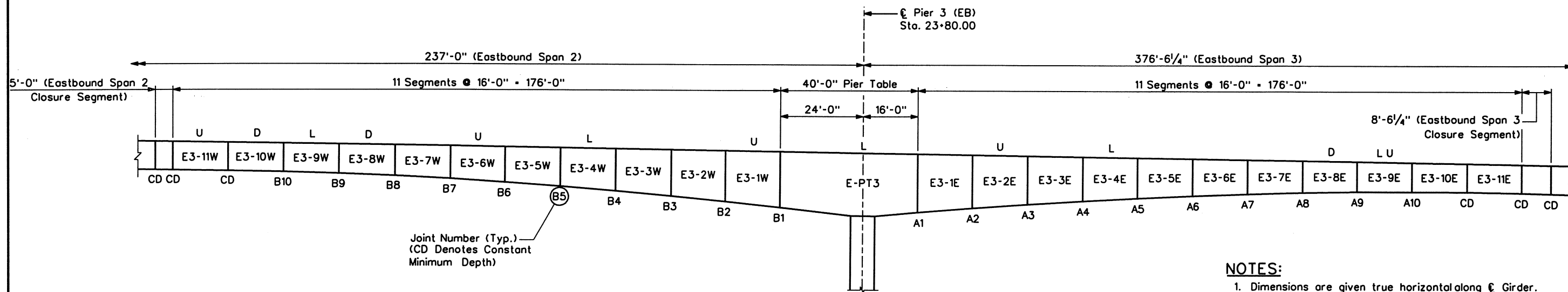
Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed		ABUTMENT 1 DIMENSIONS I	
No Revisions:		Designer:	M. Bodemar
Revised:		Detailer:	D. Anderson
Void:		Sheet Subset:	BRIDGE
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		Subset Sheets:	B24 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number 121

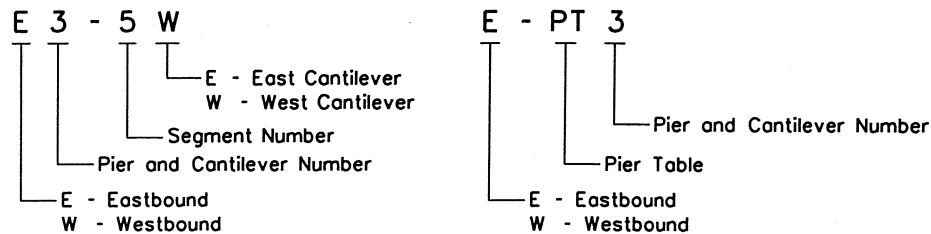


ELEVATION - PIER 2 EASTBOUND



ELEVATION - PIER 3 EASTBOUND

SEGMENT LEGEND



NOTES:

- Dimensions are given true horizontal along \bar{C} Girder.
- Joints are true vertical.
- See Variable Depth, Constant Depth, and Closure Segment Dimension sheets for segment dimensions.
- See Pier Table Dimension and P.T. Details sheet for pier table dimensions.
- See Spans 1 and 5 C.I.P. Construction Layout sheets for girder dimensions in cast-in-place portions.
- D - Denotes Deviation Segment
L - Denotes light pole pilaster located at \bar{C} Segment. For details, see Miscellaneous Details IV Sheet.
U - Denotes under viaduct light located at \bar{C} segment. For details, see Miscellaneous Details V and VI sheets.

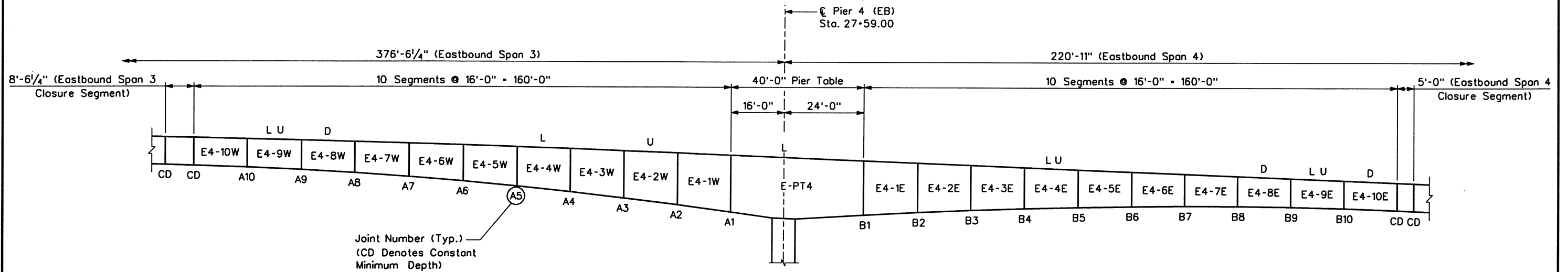
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Design	INITIAL	DATE	DESIGNED BY	CHECKED BY
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	KAM	12/06	KAM	DAT

Print Date: 11/30/2006	Sheet Revisions			Colorado Department of Transportation	As Constructed	SEGMENT DESIGNATION I (EASTBOUND)		Project No./Code BR 0961-008
Drawing File Name: 13141_Segment_Designation_1.dgn	Date:	Comments	Init.			No Revisions:	Designer: K. Montgomery	
Horiz. Scale: Vert. Scale:				902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702	Revised:	Detailer: S. Fall	Numbers: K-18-GT (WB)	13141
Unit Information Unit Leader Initials					Region 2	Void:	Sheet Subset: BRIDGE	Subset Sheets: B37 of B169

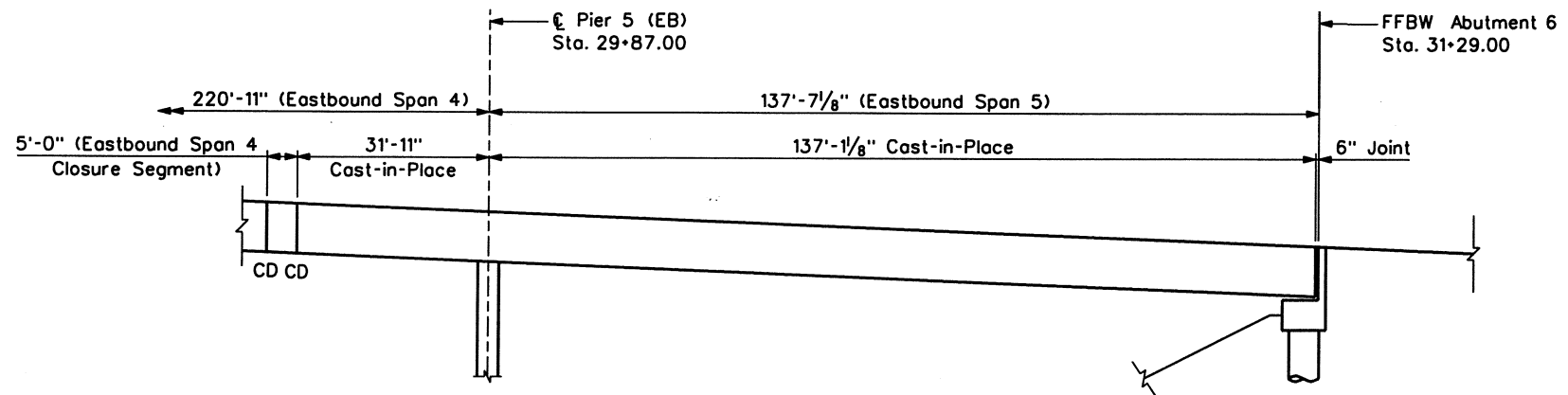
FIGG Bridge Engineers, Inc.
1873 South Bellaire St., Suite 1500
Denver, Colorado 80222
(303)757-7400



Region 2 KSR



ELEVATION - PIER 4 EASTBOUND

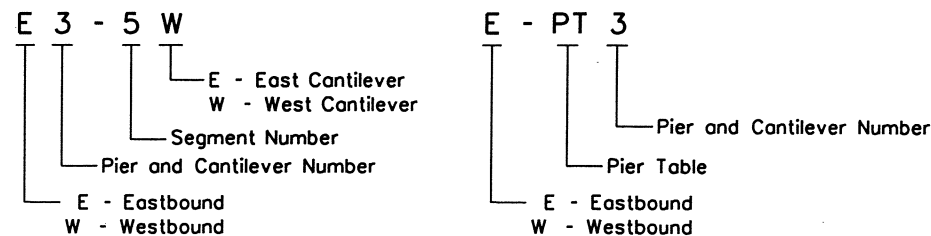


ELEVATION - PIER 5 EASTBOUND

NOTES:

1. Dimensions are given true horizontal along \bar{C} Girder.
2. Joints are true vertical.
3. See Variable Depth, Constant Depth, and Closure Segment Dimension sheets for segment dimensions.
4. See Pier Table Dimension and P.T. Details sheet for pier table dimensions.
5. See Spans 1 and 5 C.I.P. Construction Layout sheets for girder dimensions in cast-in-place portions.
6. D - Denotes Deviation Segment
L - Denotes light pole pilaster located at \bar{C} Segment. For details, see Miscellaneous Details IV Sheet.
U - Denotes under viaduct light located at \bar{C} segment. For details, see Miscellaneous Details V and VI sheets.

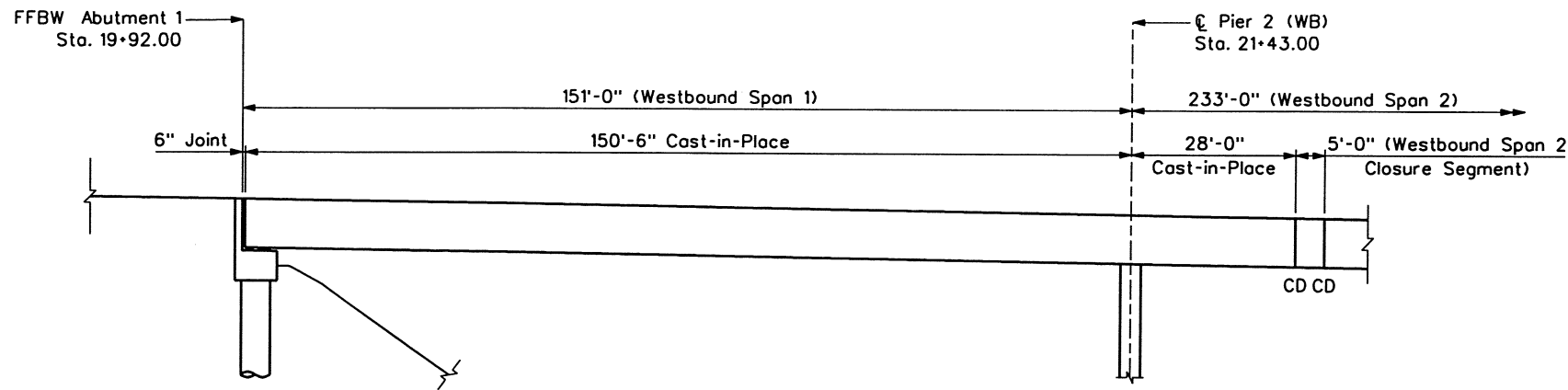
SEGMENT LEGEND



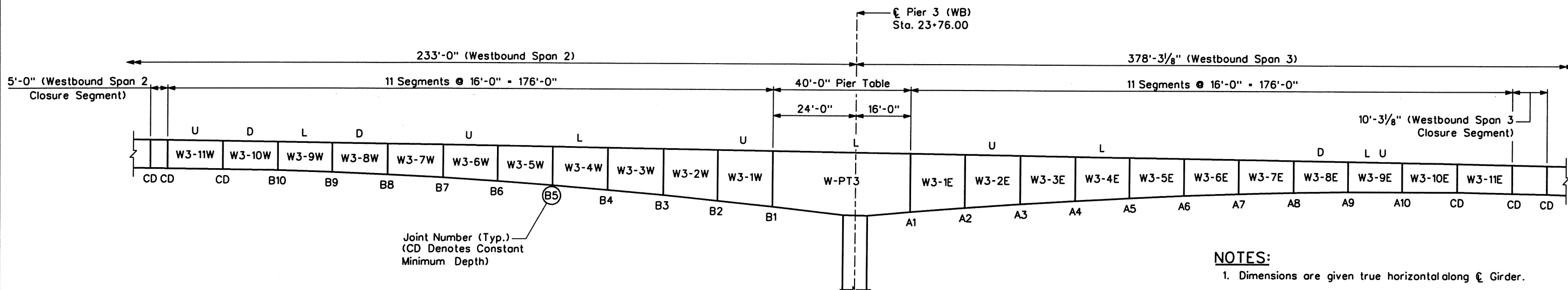
Design	INITIAL	DATE	DESIGNED BY	CHECKED BY
Detail	INITIAL	DATE	DESIGNED BY	CHECKED BY
Quantities	INITIAL	DATE	DESIGNED BY	CHECKED BY
	KAM	12/06	KAM	DAT
	KAM	12/06	KAM	DAT

Print Date: 11/30/2006	Sheet Revisions			Colorado Department of Transportation	As Constructed	SEGMENT DESIGNATION II (EASTBOUND)		Project No./Code
Drawing File Name: 13141_Segment_Designation_II.dgn	Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2 KSR	No Revisions:	Designer: K. Montgomery Structure K-18-GS (EB)		BR 0961-008
Horiz. Scale: Vert. Scale:					Revised:	Detailer: S. Fall Numbers K-18-GT (WB)		13141
Unit Information Unit Leader Initials					Void:	Sheet Subset: BRIDGE Subset Sheets: B38 of B169		Sheet Number 135

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1873 South Belloire St., Suite 1500
Denver, Colorado 80222
(303)757-7400

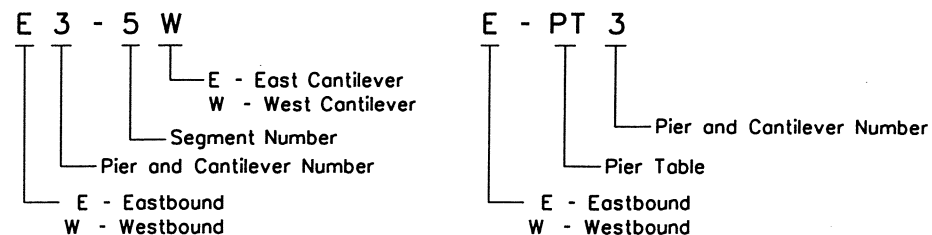


ELEVATION - PIER 2 WESTBOUND



ELEVATION - PIER 3 WESTBOUND

SEGMENT LEGEND

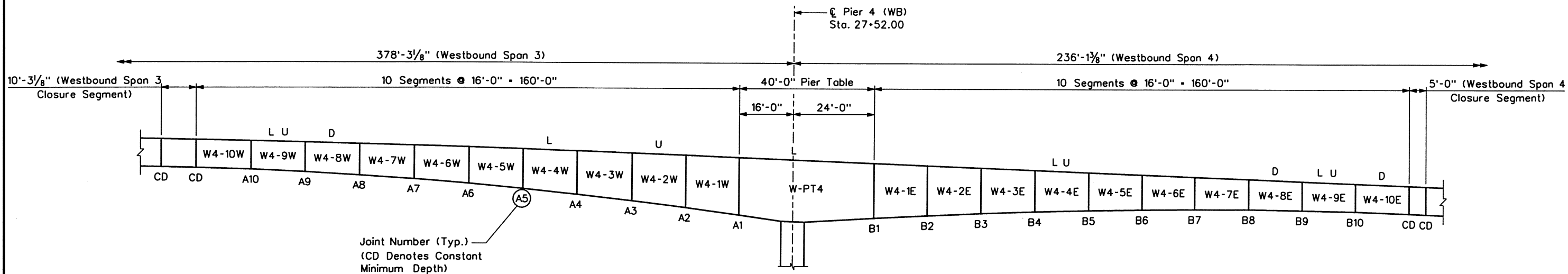


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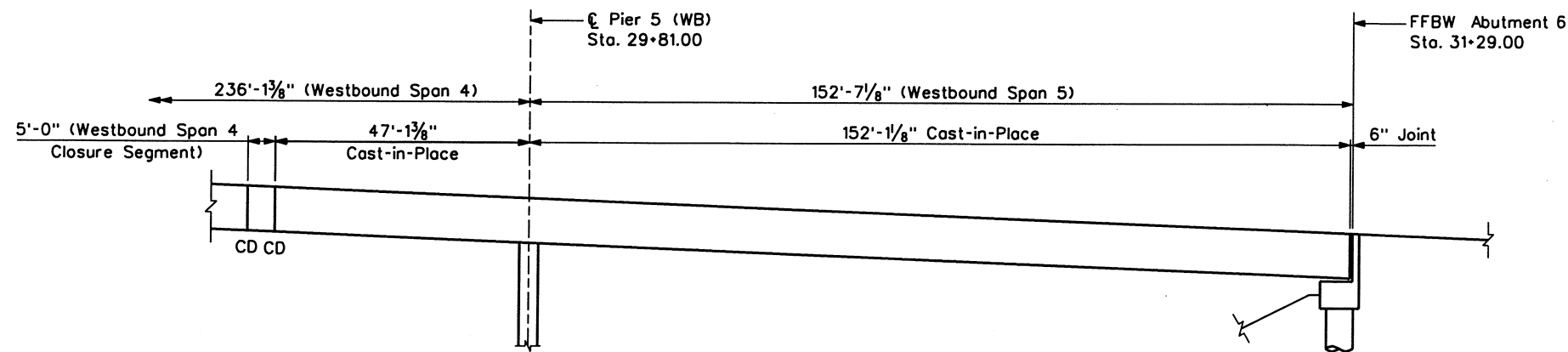
- Dimensions are given true horizontal along ℄ Girder.
- Joints are true vertical.
- See Variable Depth, Constant Depth, and Closure Segment Dimension sheets for segment dimensions.
- See Pier Table Dimension and P.T. Details sheet for pier table dimensions.
- See Spans 1 and 5 C.I.P. Construction Layout sheets for girder dimensions in cast-in-place portions.
- D - Denotes Deviation Segment
L - Denotes light pole pilaster located at ℄ Segment. For details, see Miscellaneous Details IV Sheet.
U - Denotes under viaduct light located at ℄ segment. For details, see Miscellaneous Details V and VI sheets.

Design	INITIAL	DATE	INITIAL	DATE
	RAM	12/06	RAM	12/06
Detail	INITIAL	DATE	INITIAL	DATE
	SJF	12/06	RKM	12/06
Quantities	By	Checked By	By	Checked By
	RAM	RAM	RKM	RKM

Print Date: 11/30/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		SEGMENT DESIGNATION III (WESTBOUND)		Project No./Code	
Drawing File Name: 13141_Segment_Designation_III.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		BR 0961-008		
Horiz. Scale: Vert. Scale:		Unit Leader Initials		Region 2 KSR		Revised:		Designer: K. Montgomery Detailer: S. Fall		13141	
Unit Information		Figg Bridge Engineers, Inc. 1873 South Belloire St., Suite 1500 Denver, Colorado 80222 (303)757-7400		Region 2 KSR		Void:		Structure Numbers: K-18-GS (EB) K-18-GT (WB)		Sheet Number 136	
Unit Information		Unit Leader Initials		Region 2 KSR		Void:		Sheet Subset: BRIDGE		Subset Sheets: B39 of B169	



ELEVATION - PIER 4 WESTBOUND

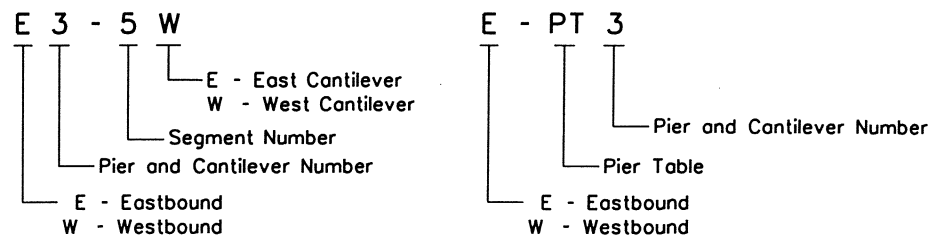


ELEVATION - PIER 5 WESTBOUND

NOTES:

1. Dimensions are given true horizontal along \bar{C} Girder.
2. Joints are true vertical.
3. See Variable Depth, Constant Depth, and Closure Segment Dimension sheets for segment dimensions.
4. See Pier Table Dimension and P.T. Details sheet for pier table dimensions.
5. See Spans 1 and 5 C.I.P. Construction Layout sheets for girder dimensions in cast-in-place portions.
6. D - Denotes Deviation Segment
 L - Denotes light pole pilaster located at \bar{C} Segment. For details, see Miscellaneous Details IV Sheet.
 U - Denotes under viaduct light located at \bar{C} segment. For details, see Miscellaneous Details V and VI sheets.

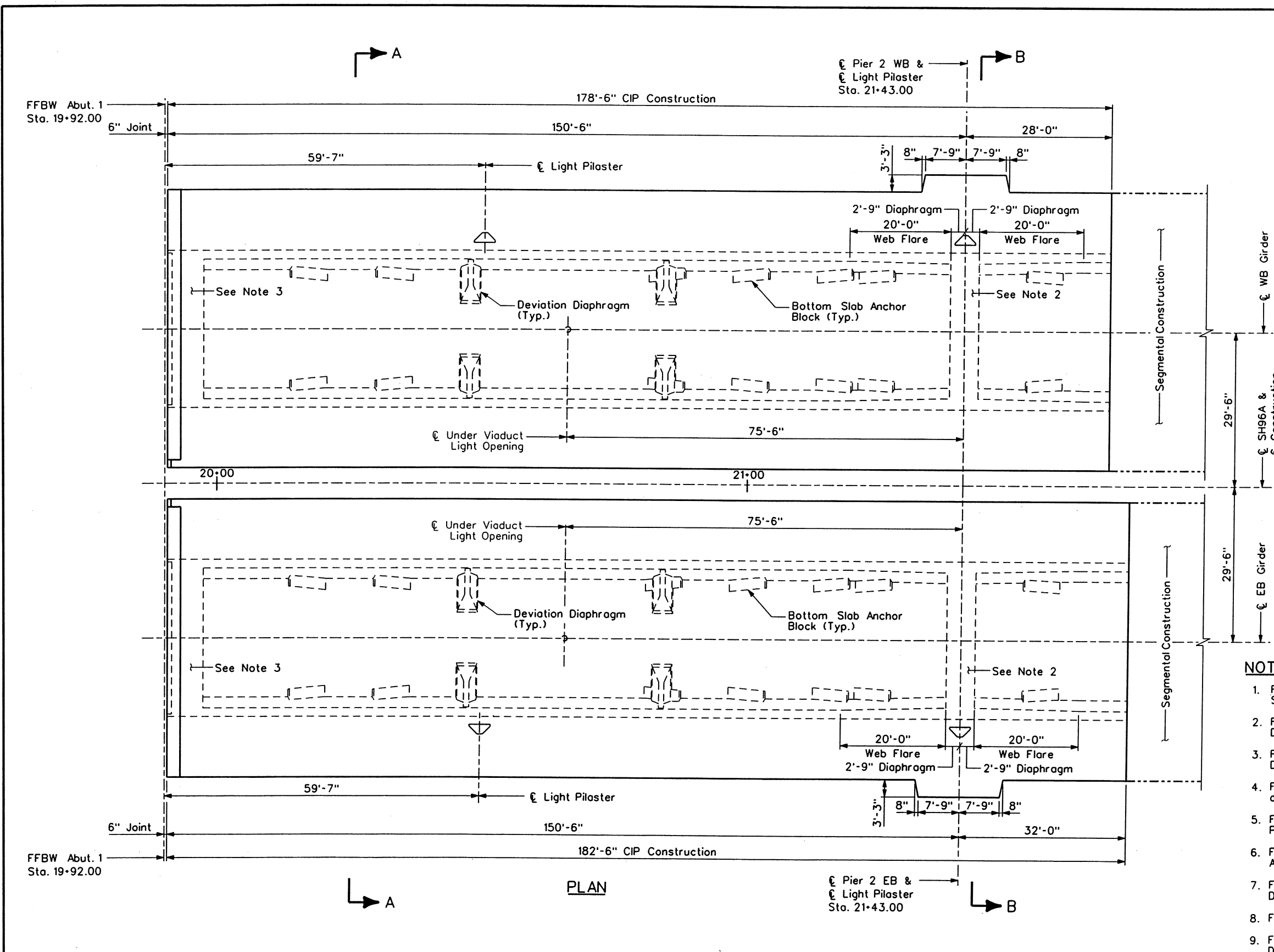
SEGMENT LEGEND



Design	INITIAL	DATE	QUANTITIES
	DATE	DATE	DATE
Designed By	INITIAL	DATE	QUANTITIES
	DATE	DATE	DATE
Checked By	INITIAL	DATE	QUANTITIES
	DATE	DATE	DATE

Print Date: 11/30/2006	Sheet Revisions			Colorado Department of Transportation 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2	As Constructed No Revisions: Revised: Void:	SEGMENT DESIGNATION IV (WESTBOUND)		Project No./Code
Drawing File Name: 13141_Segment_Designation_IV.dgn	Date:	Comments:	Init.:			Designer: K. Montgomery	Structure Numbers	K-18-GS (EB) K-18-GT (WB)
Horiz. Scale: Vert. Scale:				KSR	Detailer: S. Fall		13141	
Unit Information Unit Leader Initials					Sheet Subset: BRIDGE		Subset Sheets: B40 of B169	Sheet Number 137






NOTES:

1. For Sections A-A and B-B, see C.I.P. Construction Section Dimensions sheet.
2. For diaphragm dimensions at Pier 2, see Piers 2 & 5 Diaphragm Dimensions and P.T. Details sheet.
3. For diaphragm dimensions at abutment, see Abutment Diaphragm Dimensions and P.T. Details sheets.
4. For location of bottom slab anchor blocks and deviation diaphragms, see Longitudinal Post-Tensioning Layout sheets.
5. For location of post-tensioning ducts, see Longitudinal Post-Tensioning Layout sheets and Bulkhead Details sheet.
6. For details of bottom slab anchor blocks, see Bottom Slab Anchor Block Dimensions and Reinforcing sheets.
7. For details of deviation diaphragms, see Deviation Diaphragm Dimensions and P.T. Details and Reinforcing sheets.
8. For details of light pilasters, see Miscellaneous Details IV sheet.
9. For under viaduct light opening details, See Miscellaneous Details V and VI sheets.

Design		Detail		Quantities	
Designed By	Checked By	INITIAL	DATE	INITIAL	DATE
KAM	RRM	KAM	12/06	KAM	12/06
Checked By	Checked By	Quantities By	Checked By	Quantities By	Checked By
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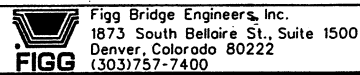
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 Unit Information Unit Leader Initials

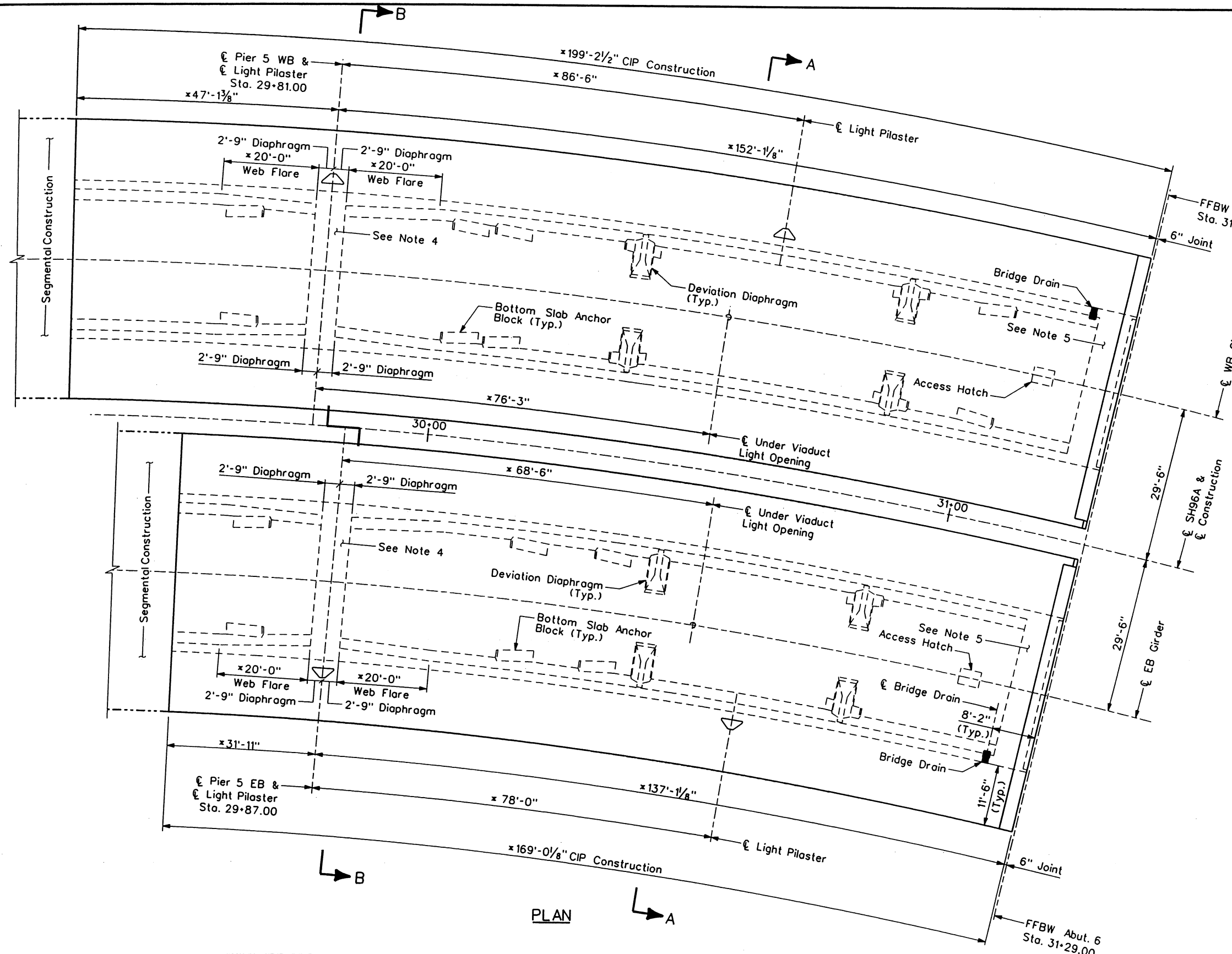
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

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 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	SPANS 1 C.I.P. CONSTRUCTION LAYOUT	
No Revisions:	Designer: K. McLaughlin	Structure: K-18-GS (EB)
Revised:	Detailer: R. Adams	Numbers: K-18-GT (WB)
Void:	Sheet Subset: BRIDGE	Subset Sheets: B41 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number **138**






NOTES:

1. For Sections A-A and B-B, see C.I.P. Construction Section Dimensions sheet.
- * 2. Dimensions noted are measured along ϵ Girder.
3. Box girder cross-section shall follow the curve defined by ϵ Girder with chords of not greater than 16'-0" along ϵ Girder.
4. For diaphragm dimensions at Pier 5, see Piers 2 & 5 Diaphragm Dimensions and P.T. Details sheet.
5. For diaphragm dimensions at abutment, see Abutment Diaphragm Dimensions and P.T. Details sheets.
6. For location of bottom slab anchor blocks and deviation diaphragms, see Post-Tensioning Layout sheets.
7. For location of post-tensioning ducts, see Post-Tensioning Layout sheets and Bulkhead Details sheets.
8. For details of bottom slab anchor blocks, see Bottom Slab Anchor Block Dimensions and Reinforcing sheets.
9. For details of deviation diaphragms, see Deviation Diaphragm Dimensions and P.T. Details and Reinforcing sheets.
10. For bridge drain details, see Bridge Drainage Details sheets.
11. For access hatch details, see Miscellaneous Details I sheet.
12. For details of light pilasters, see Miscellaneous Details IV sheet.
13. For under viaduct light opening details, see Miscellaneous Details V and VI sheets.

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Designed By	12/06	Checked By	12/06	Checked By	12/06
Checked By	12/06	Checked By	12/06	Checked By	12/06

Print Date: 12/6/2006
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 Unit Information Unit Leader Initials

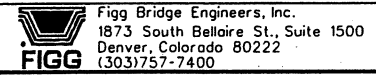
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Date:	Comments	Init.

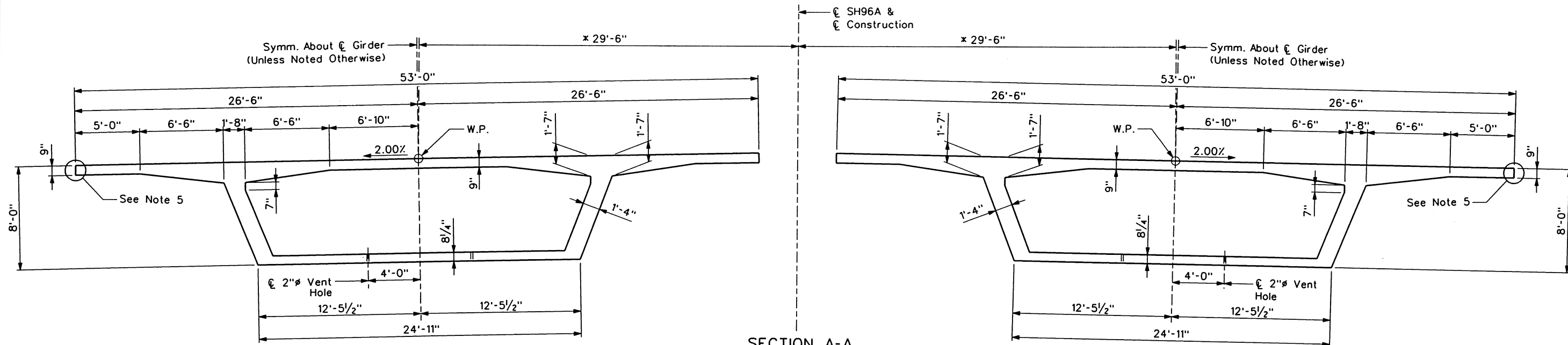
Colorado Department of Transportation

 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	No Revisions:
Revised:	
Void:	

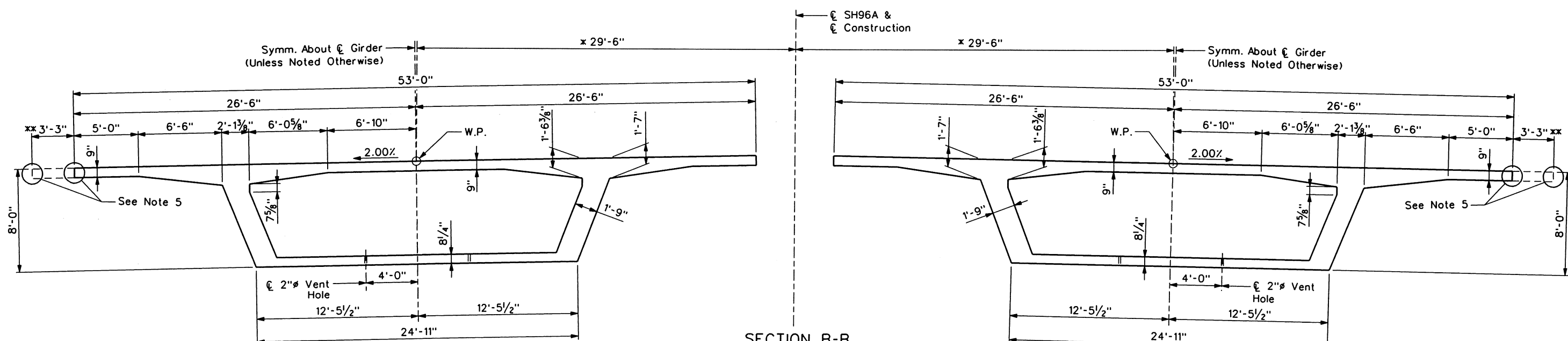
SPANS 5 C.I.P. CONSTRUCTION LAYOUT			
Designer:	K. McLaughlin	Structure Numbers	K-18-GS (EB)
Detailer:	R. Adams	Structure Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B42 of B169

Project No./Code	BR 0961-008
	13141
Sheet Number	139





SECTION A-A
(Typical Section)

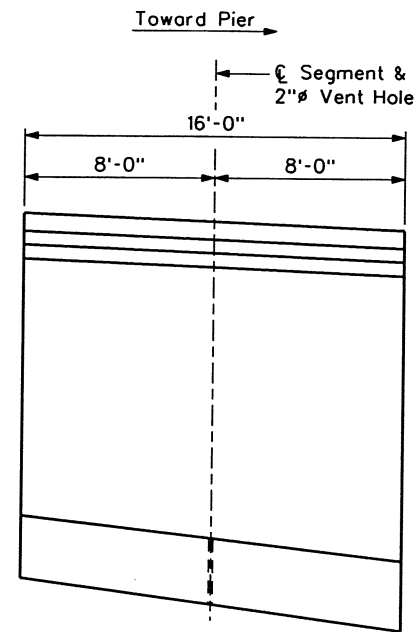
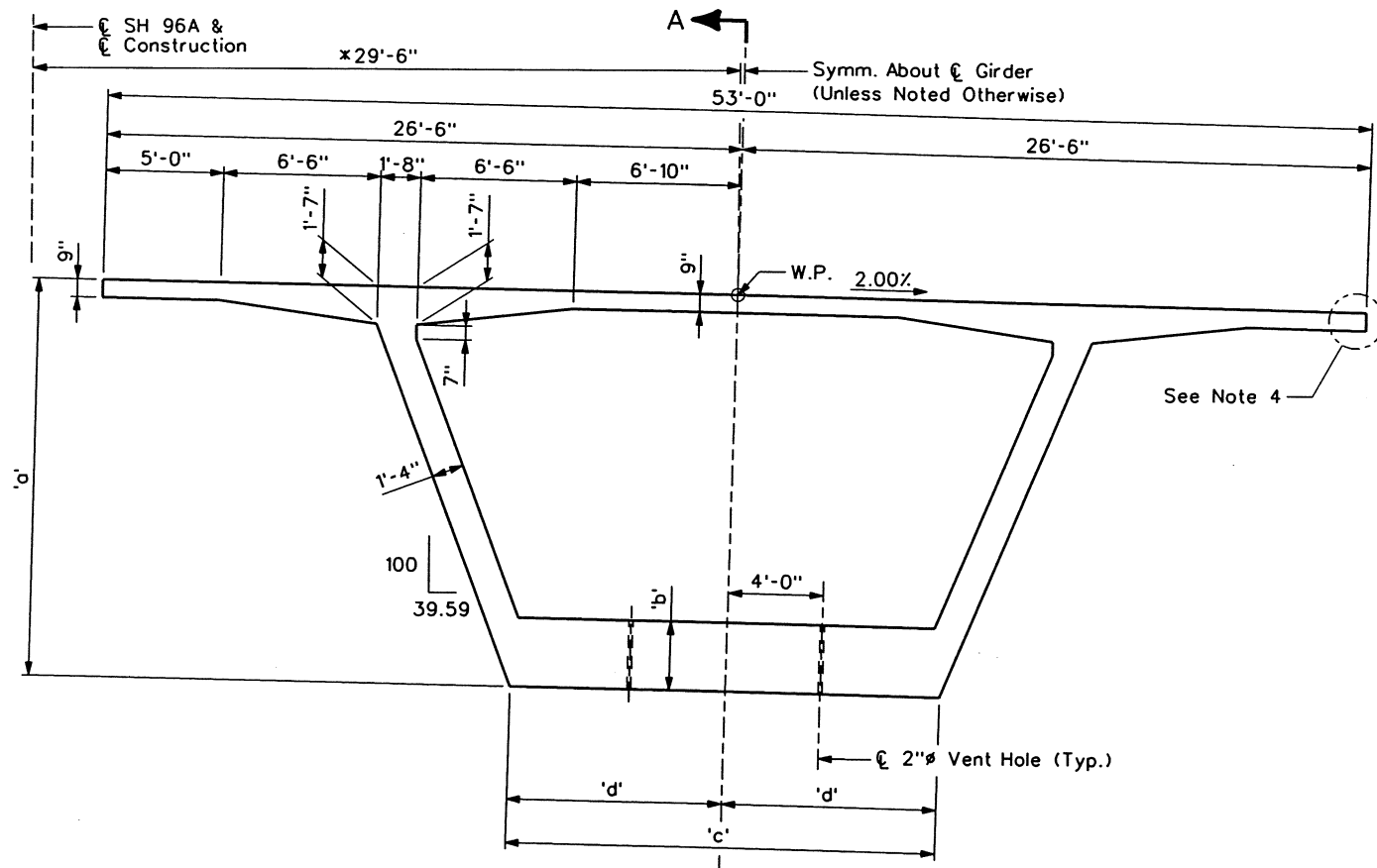


SECTION B-B
(Section at Face of Piers 2 & 5 Diaphragms)

- NOTES:**
- Vent holes are located 10'-0" off the face of the diaphragms and at equal spaces after that, not to exceed 16'-0".
 - The transition from Section A-A to Section B-B (Web Flare) occurs over 20'-0" as shown on Spans 1 & 5 C.I.P. Construction Layout sheets.
 - *3. Measured along true horizontal.
 - **4. For longitudinal extents of 3'-3" overlook wing extension at Piers 2 (EB & WB), see Spans 1 C.I.P. Construction Layout sheet.
 5. Roughen vertical face minimum 1/4" amplitude on pedestrian curb side only.

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
KAM	12/06	KAM	12/06	KAM	12/06
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By
RKM	12/06	KAM	12/06	DAT	12/06

Print Date: 12/14/2006	Sheet Revisions			Colorado Department of Transportation	As Constructed	C.I.P. CONSTRUCTION SECTION		Project No./Code
Drawing File Name: 13141_CIP_Const_Section_Dims.dgn	Date:	Comments	Init.			DIMENSIONS		
Horiz. Scale: Vert. Scale:	Unit Leader Initials			902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2 KSR	No Revisions:	Designer: K. McLaughlin	Structure: K-18-GS (EB)	13141
Unit Information					Revised:	Detailer: R. Adams	Structure Numbers: K-18-GT (WB)	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400					Void:	Sheet Subset: BRIDGE	Subset Sheets: B43 of B169	Sheet Number: 140



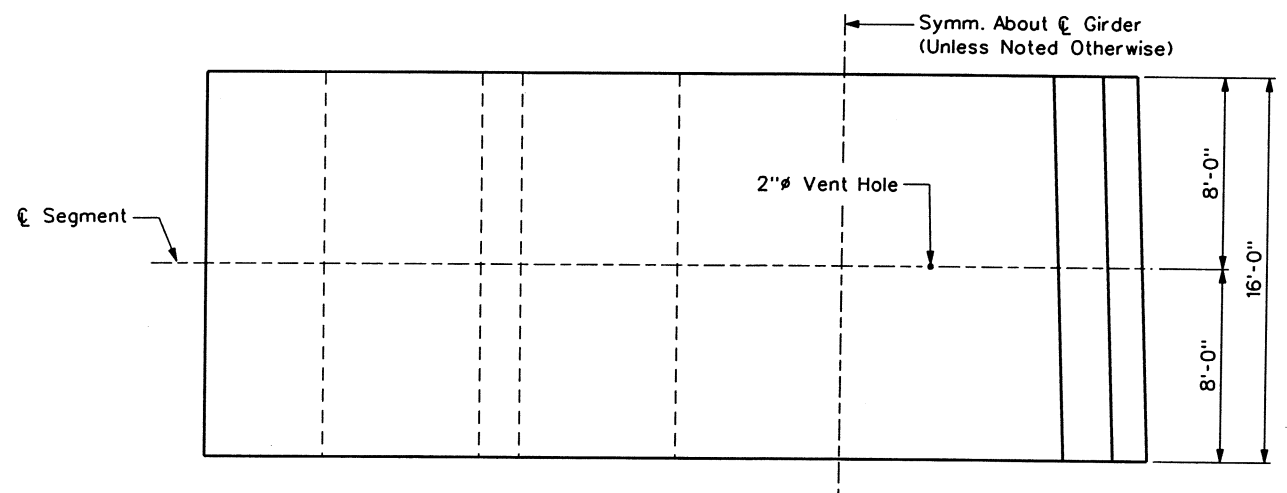
SECTION A-A

VARIABLE DIMENSIONS				
Joint Number	'a'	'b'	'c'	'd'
A1	16'-8 3/4"	2'-11"	18'-0"	9'-0"
A2	15'-2 3/4"	2'-7 1/4"	19'-2 3/8"	9'-7 3/16"
A3	13'-10 1/8"	2'-3 3/8"	20'-3 1/2"	10'-1 1/4"
A4	12'-7 7/8"	1'-11 1/2"	21'-3 3/8"	10'-7 11/16"
A5	11'-5 3/4"	1'-7 3/4"	22'-2"	11'-1"
A6	10'-6 1/8"	1'-3 3/8"	22'-11 1/4"	11'-5 5/8"
A7	9'-8 1/8"	1'-0 1/8"	23'-7"	11'-9 1/2"
A8	9'-0"	8/4"	24'-1 1/2"	12'-0 3/4"
A9	8'-5 3/4"	8/4"	24'-6 1/2"	12'-3 1/4"
A10	8'-1 5/8"	8/4"	24'-9 3/4"	12'-4 1/8"
CD	8'-0"	8/4"	24'-11"	12'-5 1/2"
B1	15'-11 1/2"	2'-9 1/8"	18'-7 3/8"	9'-3 1/16"
B2	14'-6 1/4"	2'-5 1/4"	19'-9 1/8"	9'-10 9/16"
B3	13'-2 1/2"	2'-1 1/2"	20'-9 5/8"	10'-4 13/16"
B4	12'-0 1/4"	1'-9 5/8"	21'-8 3/4"	10'-10 3/8"
B5	10'-11 1/4"	1'-5 3/4"	22'-6 3/4"	11'-3 3/8"
B6	10'-0 1/8"	1'-2"	23'-3 1/4"	11'-7 5/8"
B7	9'-3 3/8"	10/8"	23'-10 1/2"	11'-11 1/4"
B8	8'-8 5/8"	8/4"	24'-4 1/8"	12'-2 1/16"
B9	8'-3 1/2"	8/4"	24'-8 1/4"	12'-4 1/8"
B10	8'-0 1/2"	8/4"	24'-10 5/8"	12'-5 5/16"

NOTES:

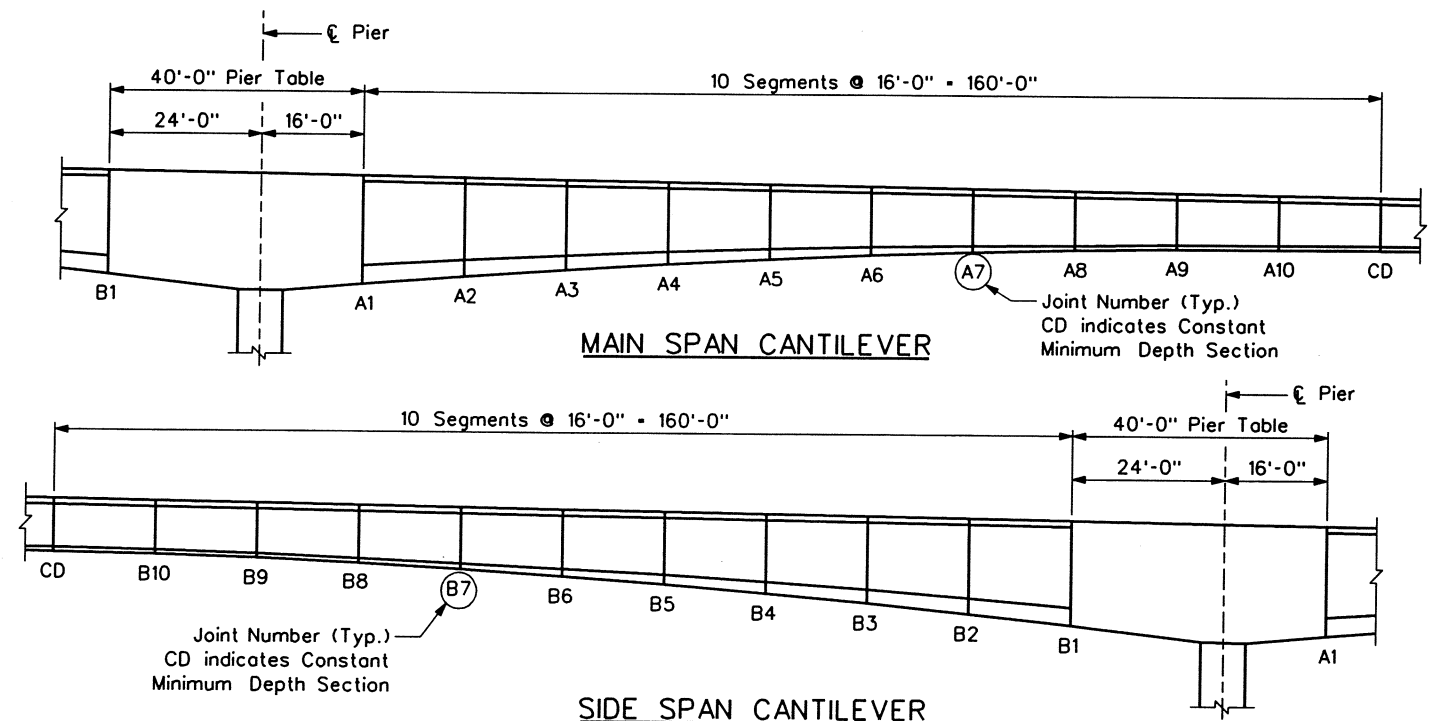
- Longitudinal dimensions are measured true horizontal along \bar{c} Girder.
- See Segment Designation sheets and Constant Depth Segment Dimension sheet for additional information not shown.
- Measured along true horizontal.
- Roughen vertical face minimum 1/4" amplitude on pedestrian curb side only.

CROSS SECTION
(Looking Upstation - Eastbound Shown)



HALF PLAN - TOP SLAB

HALF PLAN - BOTTOM SLAB



MAIN SPAN CANTILEVER

SIDE SPAN CANTILEVER

Design	INITIAL		DATE		Designed By	Checked By	Quantity	INITIAL	DATE	Checked By	Quantity
	KAM	RKM	12/06	12/06							
Detail											
Quantities											

Print Date: 12/14/2006

Drawing File Name: 13141_Variable_Depth_Seg_Dims.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

FIGG Figg Bridge Engineers, Inc.
1873 South Bellaire St., Suite 1500
Denver, Colorado 80222
(303)757-7400

R-X
0000

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation

902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

Region 2

KSR

As Constructed

No Revisions:

Revised:

Void:

VARIABLE DEPTH SEGMENT DIMENSIONS

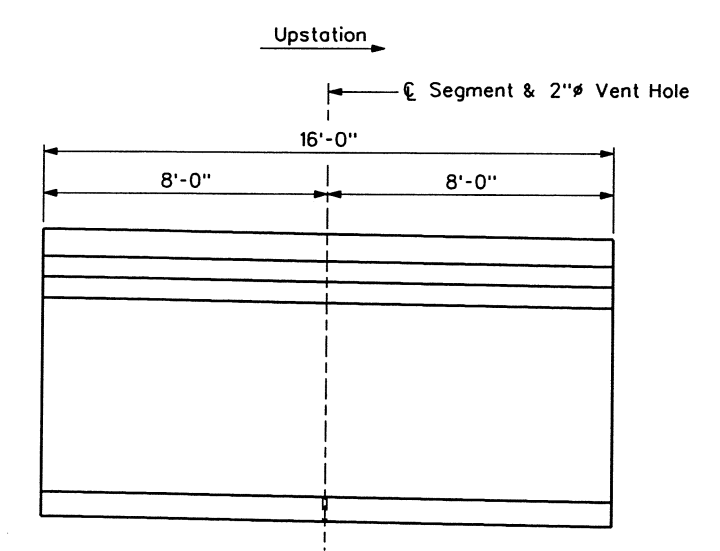
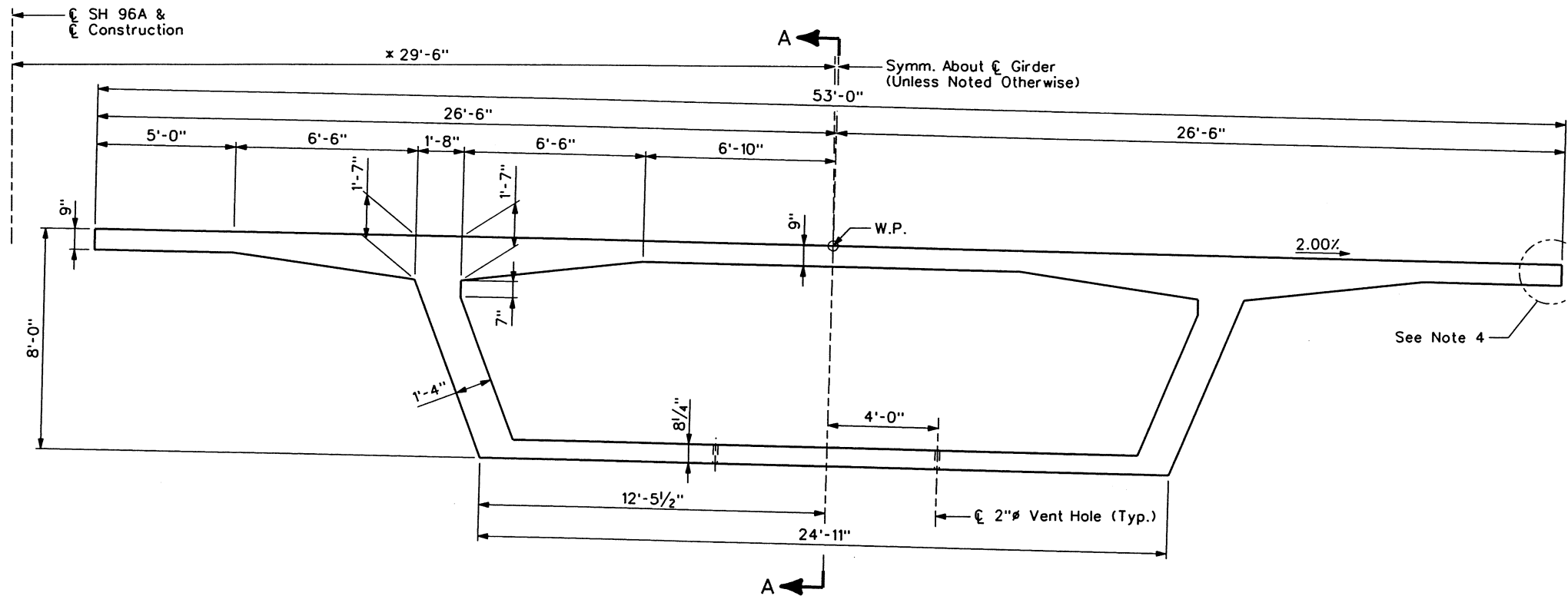
Designer:	K. McLaughlin	Structure	K-18-GS (EB)
Detailer:	D. Anderson	Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B51 of B169

Project No./Code

BR 0961-008

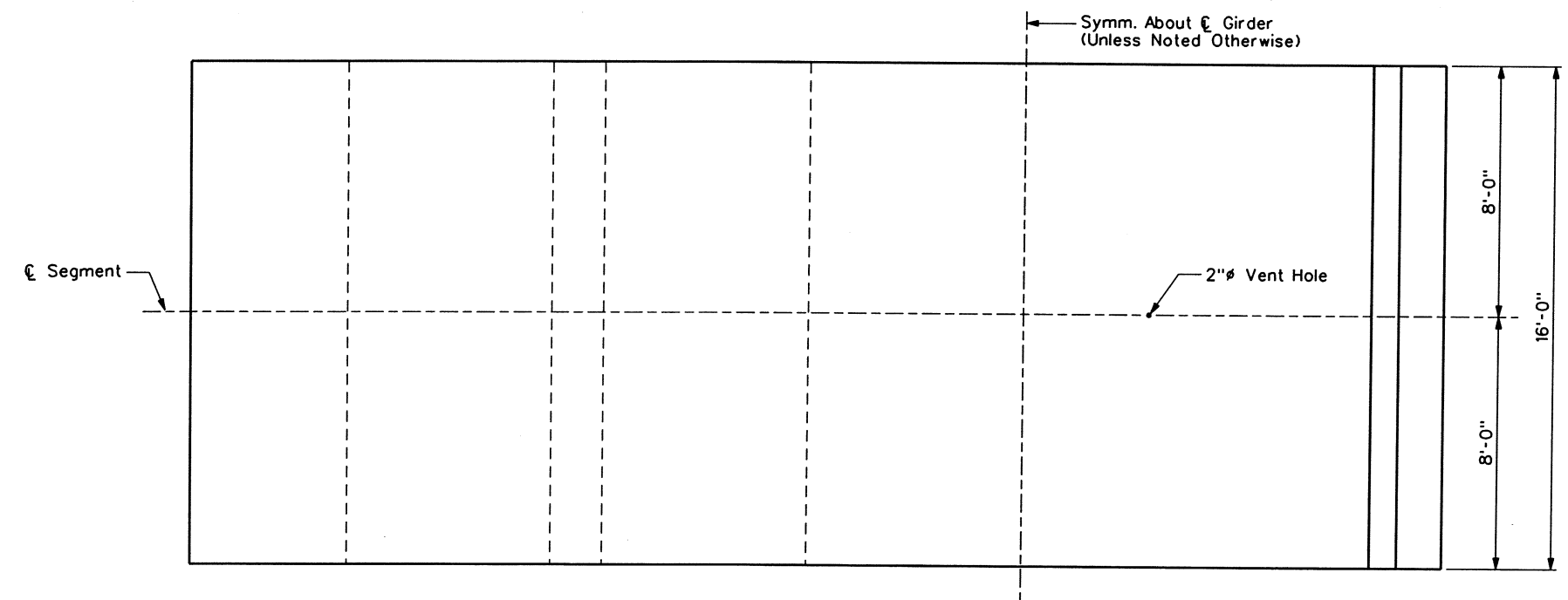
13141

Sheet Number 148



CROSS SECTION
(Looking Upstation - Eastbound Shown)

SECTION A-A



HALF PLAN - TOP SLAB

HALF PLAN - BOTTOM SLAB

NOTES:

1. Longitudinal dimensions are measured true horizontal along G Girder.
2. Drawing applies to Segments W3-11W, W3-11E, E3-11W, and E3-11E.
- *3. Measured along true horizontal.
4. Roughen vertical face minimum 1/4" amplitude on pedestrian curb side only.

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
KAM	12/06	KAM	12/06	KAM	12/06
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By
RKM	12/06	KAM	12/06	DAT	12/06

Print Date: 12/14/2006
 Drawing File Name: 13141_Constant_Depth_Seg_Dims.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

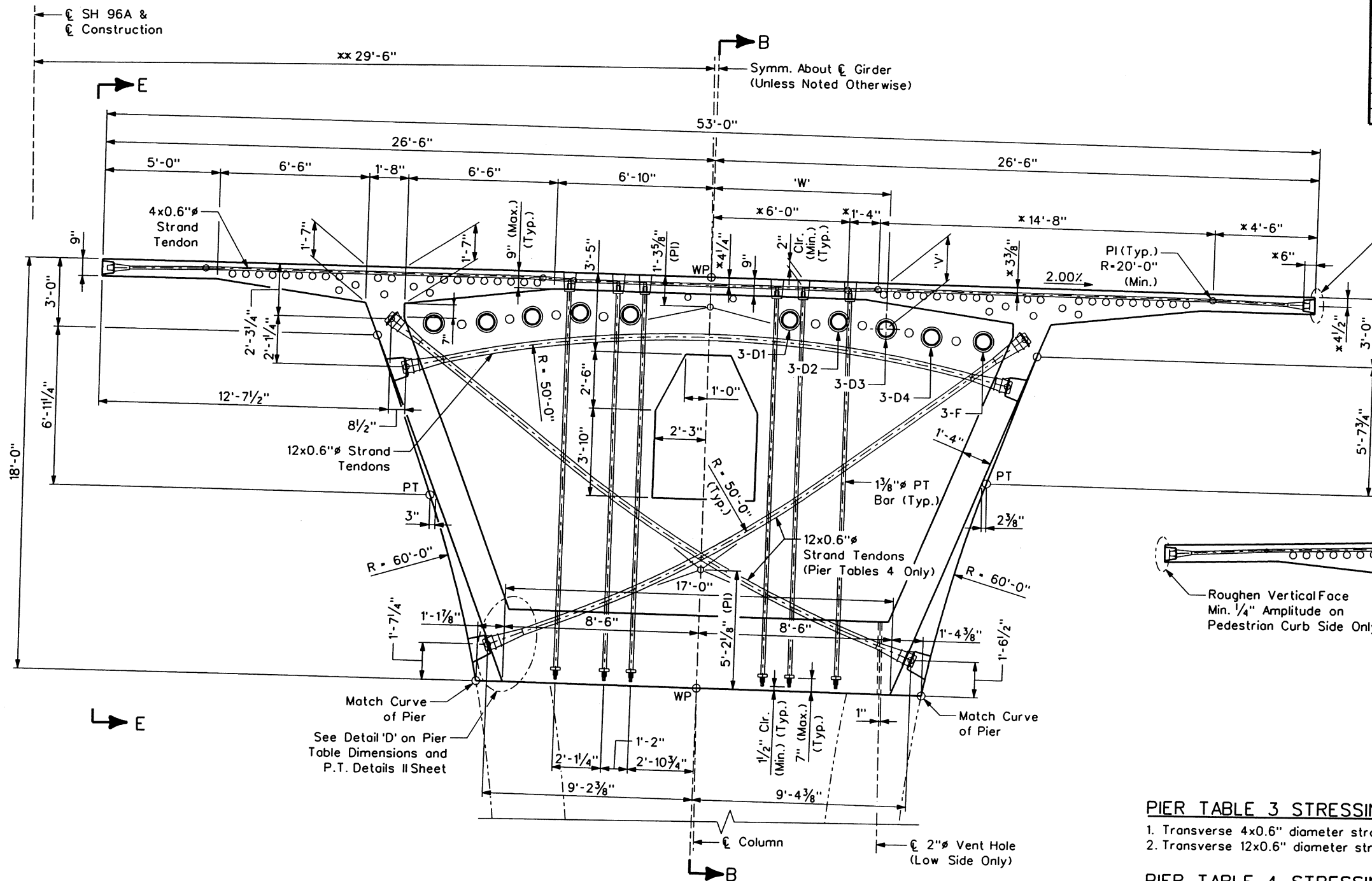
Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed
No Revisions:
Revised:
Void:

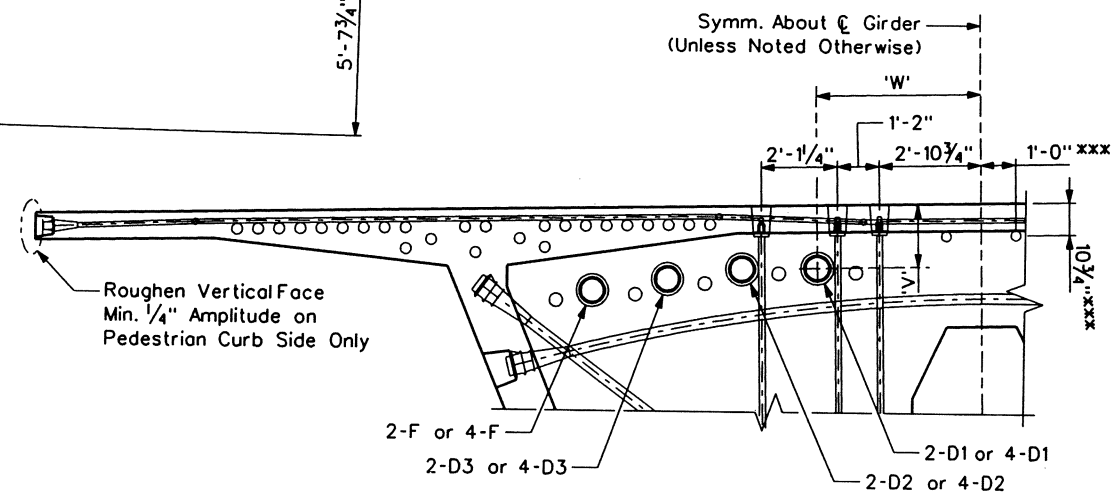
CONSTANT DEPTH SEGMENT DIMENSIONS			
Designer:	K. McLaughlin	Structure Numbers	K-18-GS (EB)
Detailer:	D. Anderson	Structure Numbers	K-18*GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B56 of B169

Project No./Code
BR 0961-008
13141
Sheet Number 153

VARIABLE DRAPED POST-TENSIONING DIMENSIONS					
Tendon	Anchor and P.I.		Tendon	Anchor and P.I.	
	'W'	'V'		'W'	'V'
3-D1	3'-6"	1'-9"	2-D1 or 4-D1	4'-7 1/2"	1'-9"
3-D2	5'-8"	1'-9"	2-D2 or 4-D2	6'-8 1/2"	1'-9"
3-D3	7'-9"	2'-0"	2-D3 or 4-D3	8'-9 1/2"	2'-0"
3-D4	9'-9"	2'-3 1/2"	--	--	--
3-F	12'-0 1/2"	2'-5"	2-F or 4-F	10'-11"	2'-3 1/2"



Roughen Vertical Face
Min. 1/4" Amplitude on
Pedestrian Curb Side Only



PARTIAL SECTION C-C
*** 3" Hole for Electrical Conduit

PIER TABLE 3 STRESSING SEQUENCE

1. Transverse 4x0.6" diameter strand tendons in the top slab.
2. Transverse 12x0.6" diameter strand tendons above the diaphragm opening.

PIER TABLE 4 STRESSING SEQUENCE

1. Transverse 4x0.6" diameter strand tendons in the top slab.
2. Diagonal 12x0.6" diameter strand tendons within the diaphragm.
3. Transverse 12x0.6" diameter strand tendons above the diaphragm opening.

NOTES:

1. For notes, see Pier Table Dimensions and P.T. Details II sheet.

Design		Detail		Quantity	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
EEA	12/06	EEA	12/06	EEA	12/06
BTL	12/06	BTL	12/06	BTL	12/06
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By

Print Date: 12/20/2006
 Drawing File Name: 13141_Pier_Table_Dims_&_PT_I.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials

FIGG Bridge Engineers, Inc.
 1873 South Belloire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

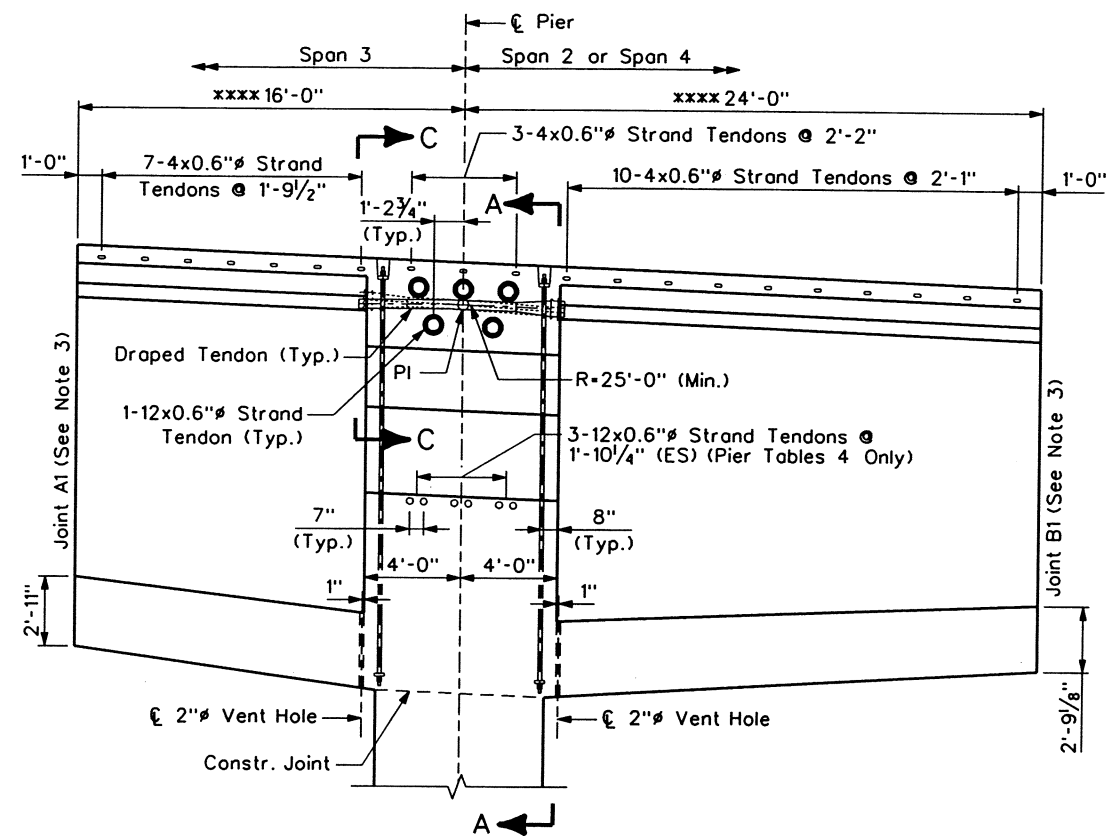
Colorado Department of Transportation

DOT 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702

Region 2 KSR

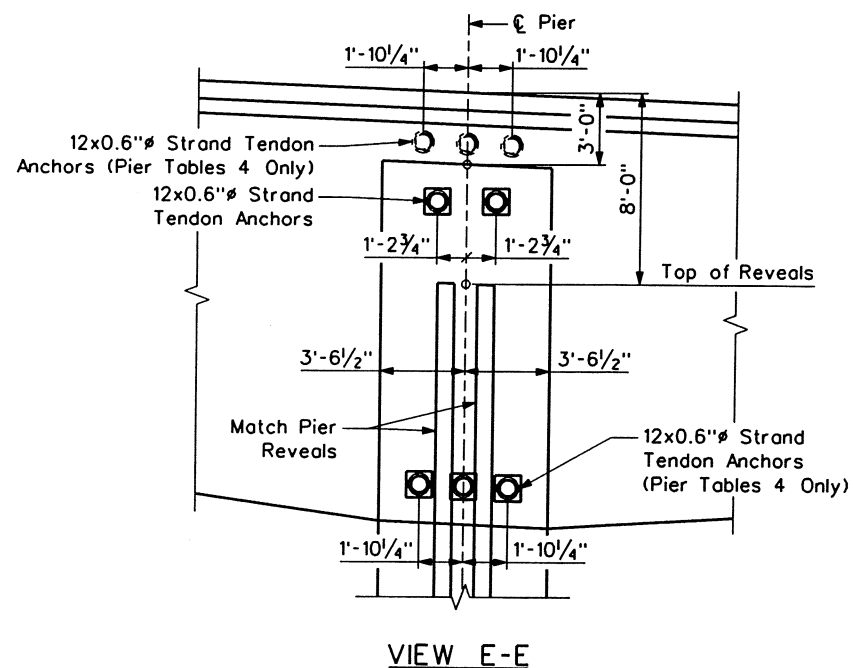
As Constructed	PIER TABLE DIMENSIONS AND P.T. DETAILS I	
No Revisions:	Designer: E. Adams	Structure Numbers: K-18-GS (EB)
Revised:	Detailer: D. Anderson	Subset Sheets: K-18-GT (WB)
Void:	Sheet Subset: BRIDGE	Subset Sheets: B63 of B169

Project No./Code
BR 0961-008
13141
Sheet Number 160

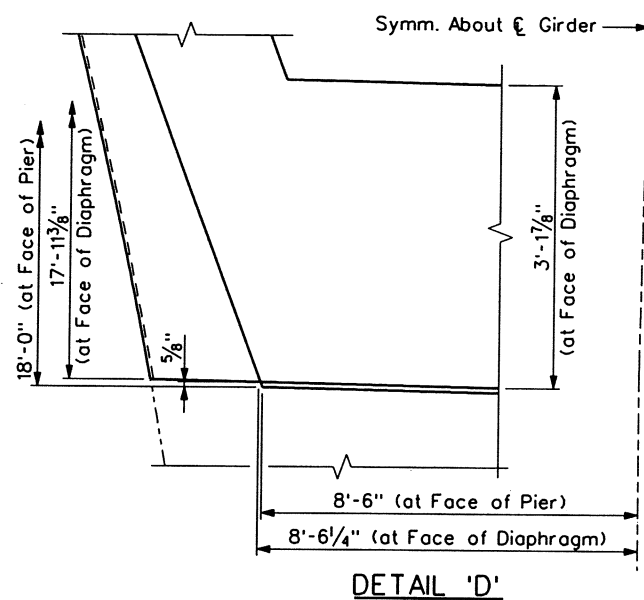


SECTION B-B

xxxx Measure True Horizontal Along \bar{C} Girder



VIEW E-E



DETAIL 'D'

NOTES:

- xx1. Measured along true horizontal.
- 2. Pier table cross-section shall follow the curve defined by \bar{C} Girder with chords of not greater than 16'-0" along \bar{C} Girder.
- 3. See Variable Depth Segment Dimensions sheet for section dimensions at joints A1 and B1.
- x4. Dimensions shown are for profile of transverse 4x0.6" diameter strand tendons in pier table diaphragms only. Vertical dimensions are to \bar{C} duct. For transverse 4x0.6" diameter strand tendon profiles within the pier tables, but outside the diaphragms, see Transverse Post-Tensioning Details sheet.
- 5. Stress all 4x0.6" diameter strand tendons to a force of 176 kips after the concrete reaches a minimum compressive strength of 4000 psi. Tendons shall be stressed from alternating ends and prior to lowering any formwork.
- 6. The 4x0.6" diameter strand tendons shall be stressed, grouted, and have blockouts poured back prior to stressing any longitudinal tendons.
- 7. For transverse post-tensioning local zone anchorage reinforcing, see Transverse Post-Tensioning Details sheet.
- 8. For transverse post-tensioning quantities, see Pier Table Reinforcing V sheet.
- 9. All draped tendons, including the future tendons are 19x0.6" diameter strand tendons.
- 10. For additional longitudinal post-tensioning details and for locations of cantilever tendons, see Longitudinal Post-Tensioning Layout sheets and Bulkhead Details sheet.
- 11. For longitudinal post-tensioning quantities, cantilever tendon post-tensioning quantities, and local zone anchorage reinforcing, see Longitudinal P.T. Quantities and Stressing Schedule sheets.
- 12. The anchorage hardware, local zone reinforcing, and rigid pipe duct shall be installed for the future tendons. Future tendons are not installed. For treatment of empty future tendon anchorages, see Post-Tensioning Grouting And Anchorage Protection Details sheet.
- 13. P.T. bars shall be stressed to obtain a force of 160 kips (min.) after seating. Force shall be verified with a lift-off.
- 14. All P.T. bars shall be stressed, grouted, and have blockouts poured back prior to stressing any longitudinal tendons.
- 15. Stress all 12x0.6" diameter strand tendons to a force of 527 kips after concrete reaches a minimum compressive strength of 4000 psi. Tendons shall be single end stressed from alternating sides.
- 16. Attention is called to the fact that the upper non-stressing anchorages of the diagonal 12x0.6" diameter strand tendons are completely embedded in concrete and no blockouts will be allowed. Keeper plates or some other positive mechanical means shall be used to secure the tendon to non-stressing anchorages.

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
EEA	12/06	EEA	12/06	EEA	12/06
BTL	12/06	EEA	12/06	EEA	12/06
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By

Print Date: 12/19/2006

Drawing File Name: I3141_Pier_Table_Dims_&_PT_II.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

FIGG Figg Bridge Engineers, Inc.
1873 South Bellaire St., Suite 1500
Denver, Colorado 80222
(303)757-7400

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation

DOT 902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702
Region 2 KSR

As Constructed

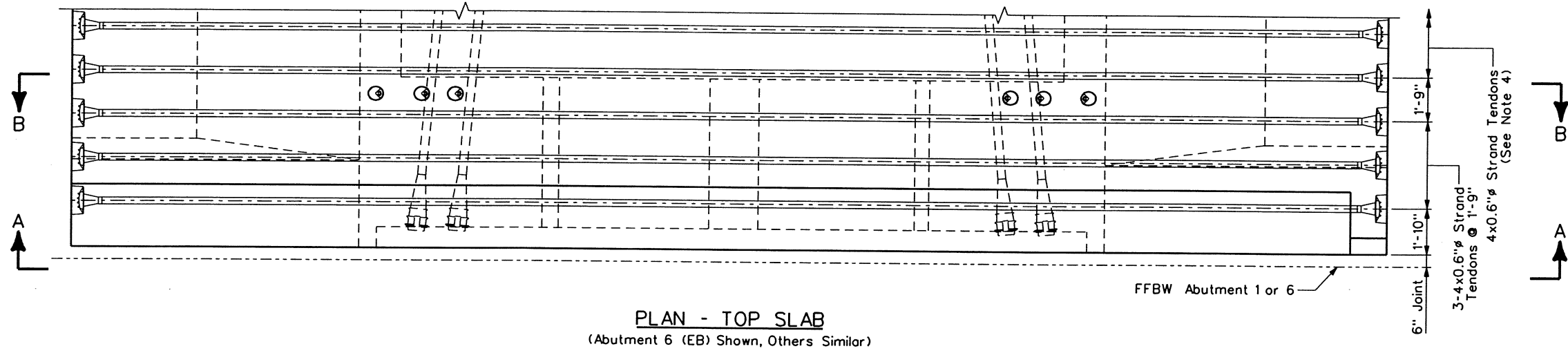
No Revisions:
Revised:
Void:

PIER TABLE DIMENSIONS AND P.T. DETAILS II

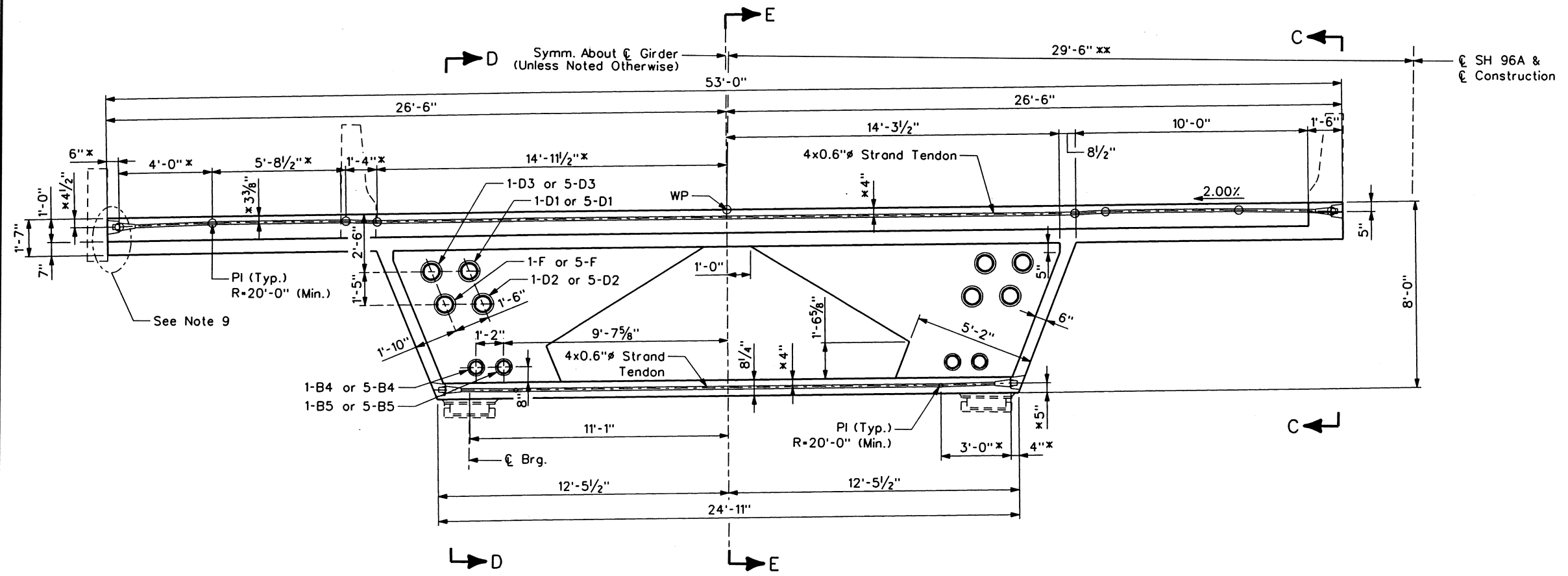
Designer:	E. Adams	Structure Numbers:	K-18-GS (EB)
Detailer:	D. Anderson	Structure Numbers:	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B63 of B169

Project No./Code

BR 0961-008
13141
Sheet Number 160



PLAN - TOP SLAB
(Abutment 6 (EB) Shown, Others Similar)



VIEW A-A - EXPANSION JOINT FACE
(Abutment 6 (EB) Shown, Looking Downstation)

- NOTES:**
- For View C-C and Sections B-B, D-D, and E-E, see Abutment Diaphragm Dimensions and P.T. Details II sheet.
 - Measured along true horizontal.
 - Box girder cross-section shall follow the curve defined by C.G. Girder with chords of not greater than 16'-0" along C.G. Girder.
 - For spacing of transverse 4x0.6" diameter strand tendons in cast-in-place end spans, see Spans 1 C.I.P. Section Reinforcing I sheet and Spans 5 C.I.P. Section Reinforcing I sheet.
 - Dimensions shown are for profile of transverse 4x0.6" diameter strand tendons in abutment diaphragm only. Vertical dimensions are to C.G. duct.
 - Stress all 4x0.6" diameter strand tendons not in the expansion joint breakout to a force of 176 kips after the concrete reaches a minimum compressive strength of 4000 psi. Tendons shall be stressed from alternating ends and prior to lowering any formwork.
 - The 4x0.6" diameter strand tendons not in the expansion joint breakout shall be stressed, grouted, and have blockouts poured back prior to stressing any longitudinal tendons.
 - The 4x0.6" diameter strand tendon in the expansion joint breakout shall be stressed to a force of 176 kips after installation of the modular joint. For additional details, see Expansion Joint Details sheets.
 - Roughen vertical face minimum 1/4" amplitude on pedestrian curb side only.
 - For transverse post-tensioning quantities, see Abutment Diaphragm Reinforcing IV sheet.
 - All draped tendons, including the future tendons are 19x0.6" diameter strand tendons. All bottom slab tendons are 12x0.6" diameter strand tendons.
 - For additional longitudinal post-tensioning details, see Longitudinal Post-Tensioning Layout sheets and Bulkhead Details sheet.
 - For longitudinal post-tensioning quantities and local zone anchorage reinforcing, see Longitudinal P.T. Quantities and Stressing Schedule sheets.
 - The anchorage hardware, local zone reinforcing, and rigid pipe duct shall be installed for the future tendons. Future tendons are not installed. For treatment of empty future tendon anchorages, see Post-Tensioning Grouting and Anchorage Protection Details sheet.

Design	INITIAL	DATE	QUANTITIES
	KAM	12/06	12/06
Checked By	INITIAL	DATE	QUANTITIES
	BTL	12/06	12/06

Print Date: 12/15/2006
 Drawing File Name: 13141_Abut_Diaphragm_Dims_&_PT_Details_I.dwg
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Belloire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

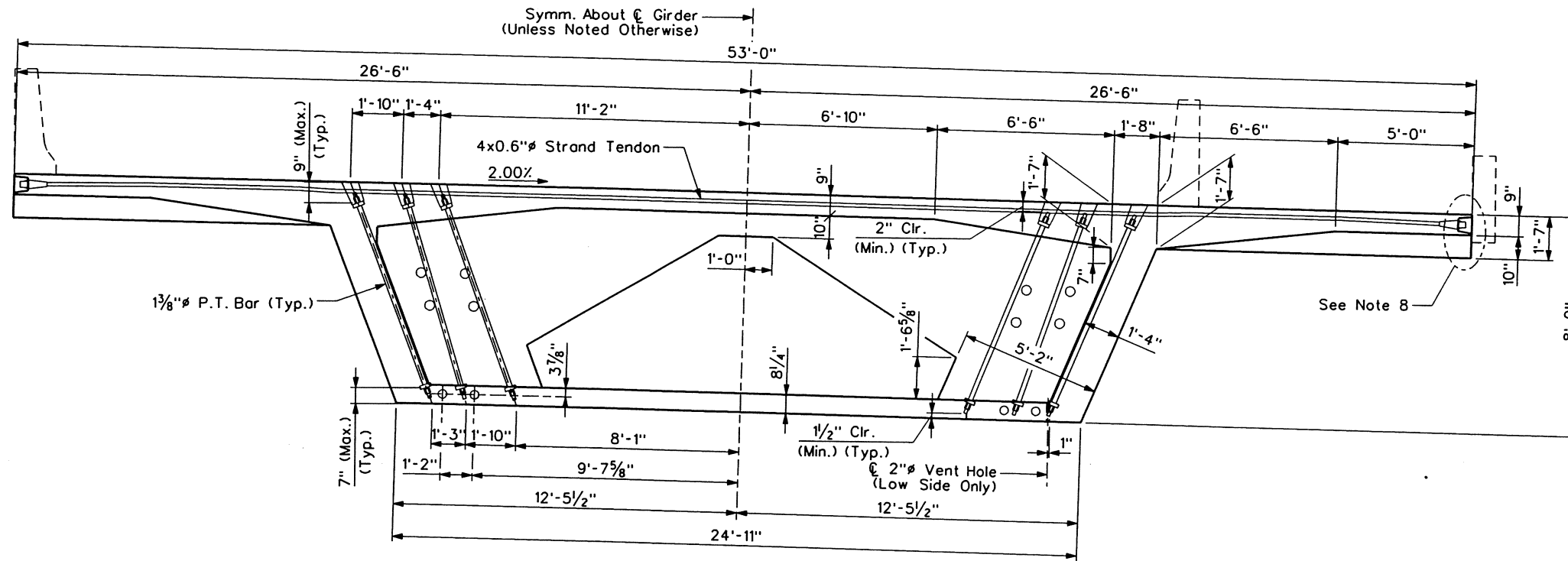
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

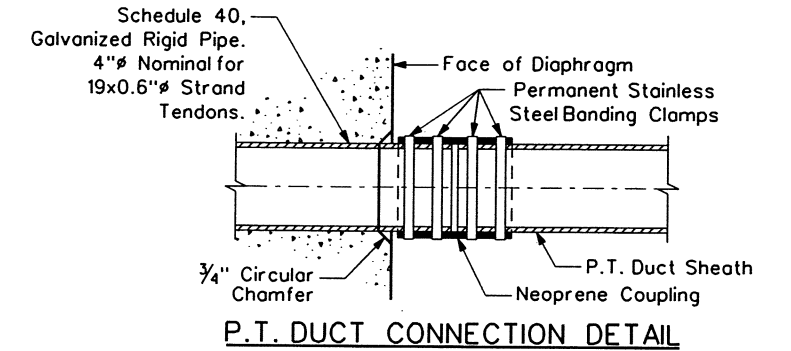
As Constructed
 No Revisions:
 Revised:
 Void:

ABUTMENT DIAPHRAGM DIMENSIONS AND P.T. DETAILS I			
Designer:	K. McLaughlin	Structure Numbers	K-18-GS (EB)
Detailer:	D. Anderson	Structure Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B80 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number 177

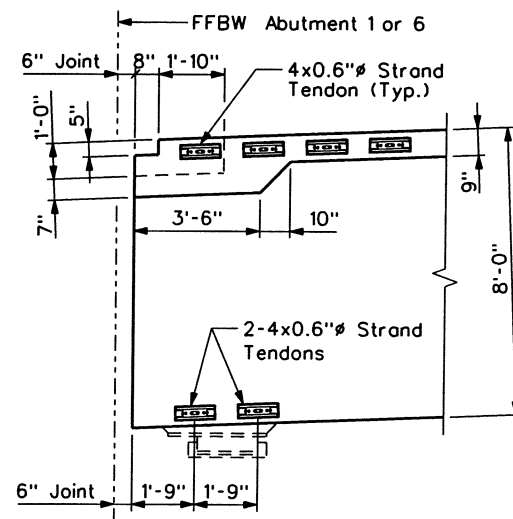


SECTION B-B - SPAN FACE
(Looking Upstation)

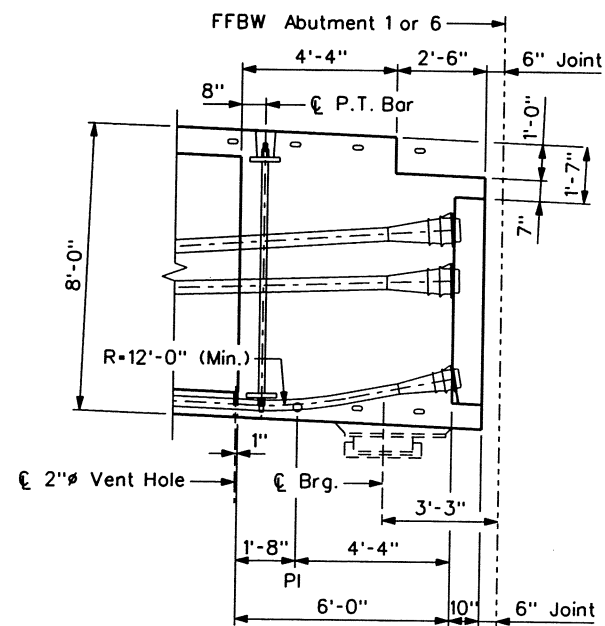


NOTES:

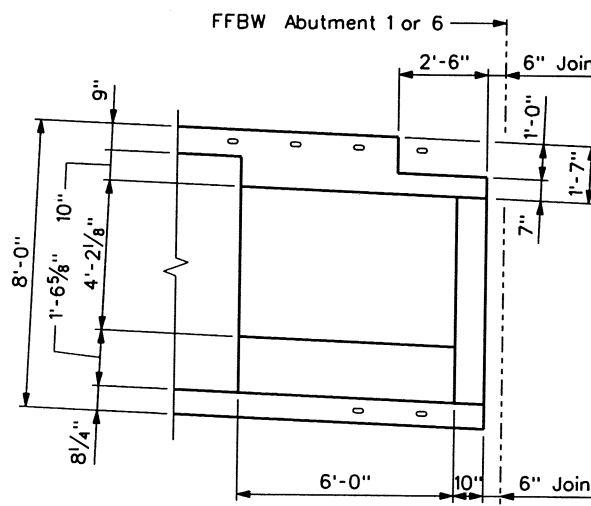
- Box girder cross-section shall follow the curve defined by \bar{C} Girder with chords of not greater than 16'-0" along \bar{C} Girder.
- For transverse tendon profile in top slab, see Abutment Diaphragm Dimensions and P.T. Details I sheet.
- P.T. bars shall be stressed to obtain a force of 160 kips (min.) after seating. Force shall be verified with a lift-off. P.T. bars shall be stressed after the concrete reaches a minimum compressive strength of 4000 psi.
- All P.T. bars shall be stressed, grouted, and have blockouts poured back prior to stressing any longitudinal tendons.
- Stress all 4x0.6" diameter strand tendons not in expansion joint blockout to a force of 176 kips after the concrete reaches a minimum compressive strength of 4000 psi. Tendons shall be stressed from alternating ends and prior to lowering any formwork.
- The 4x0.6" diameter strand tendons not in the expansion joint blockout shall be stressed, grouted, and have blockouts poured back prior to stressing any longitudinal tendons.
- The 4x0.6" diameter strand tendon in the expansion joint blockout shall be stressed after installation of the modular joint. For additional details, see Expansion Joint Details sheets.
- Roughen vertical face minimum 1/4" amplitude on pedestrian curb side only.
- For transverse post-tensioning quantities, see Abutment Diaphragm Reinforcing IV sheet.
- All draped tendons, including the future tendons are 19x0.6" diameter strand tendons. All bottom slab tendons are 12x0.6" diameter strand tendons.
- For additional longitudinal post-tensioning details, see Longitudinal Post-Tensioning Layout sheets and Bulkhead Details sheet.
- For longitudinal post-tensioning quantities and local zone anchorage reinforcing, see Longitudinal P.T. Quantities and Stressing Schedule sheets.
- The anchorage hardware, local zone reinforcing, and rigid pipe duct shall be installed for the future tendons. Future tendons are not installed. For treatment of empty future tendon anchorages, see Post-Tensioning Grouting and Anchorage Protection Details sheet.



VIEW C-C



SECTION D-D



SECTION E-E

Design	INITIAL	DATE	QUANTITIES	INITIAL	DATE	QUANTITIES
	By	By	By	By	By	By
Detail	INITIAL	DATE	QUANTITIES	INITIAL	DATE	QUANTITIES
	By	By	By	By	By	By
Check	INITIAL	DATE	QUANTITIES	INITIAL	DATE	QUANTITIES
	By	By	By	By	By	By

Print Date: 12/15/2006
 Drawing File Name: 13141_Abut_Diaphragm_Dims_&_PT_Details_II.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Belleaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

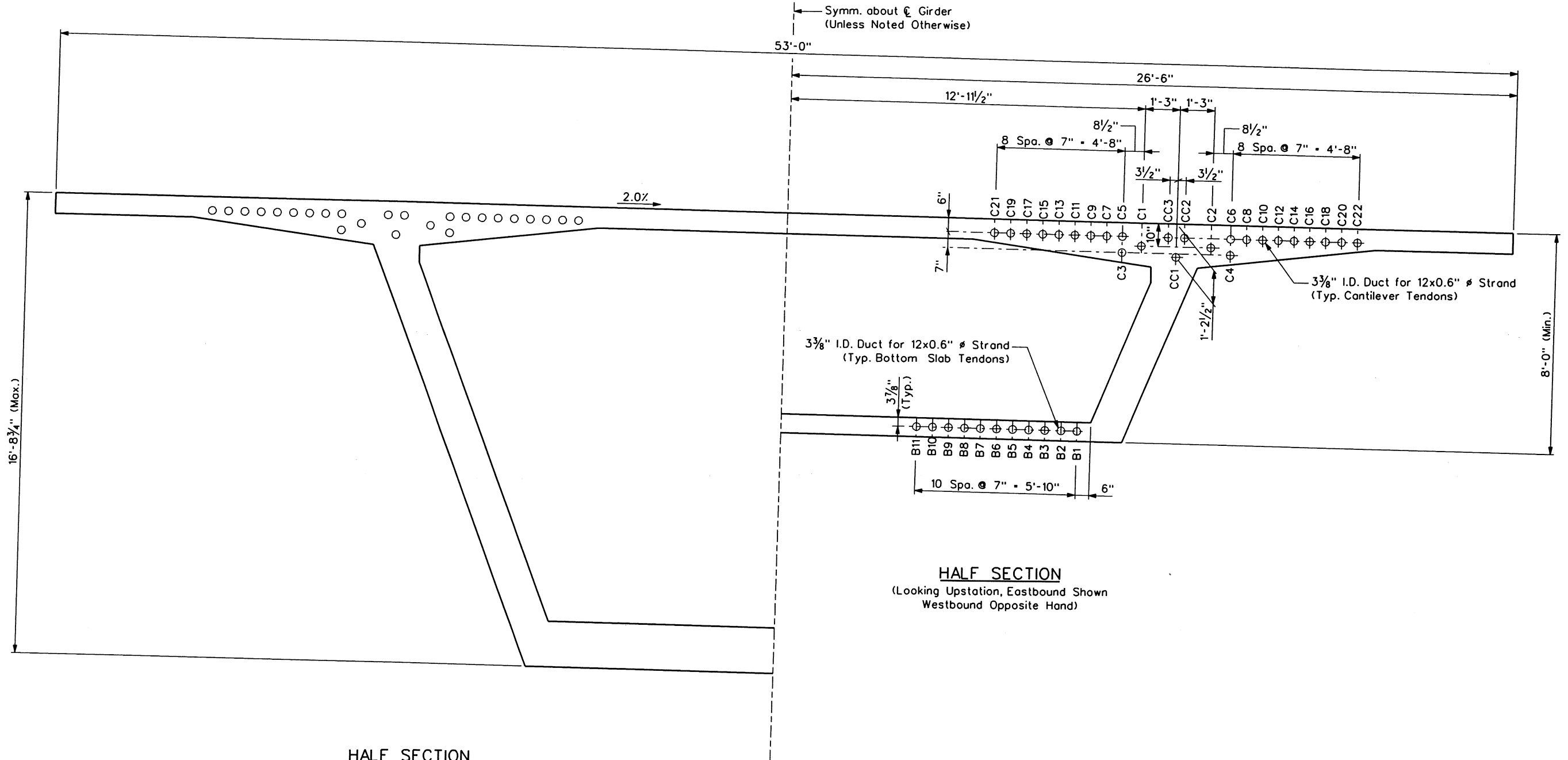
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	ABUTMENT DIAPHRAGM DIMENSIONS AND P.T. DETAILS II	
No Revisions:	Designer: K. McLaughlin	Structure: K-18-GS (EB)
Revised:	Detailer: D. Anderson	Numbers: K-18-GT (WB)
Void:	Sheet Subset: BRIDGE	Subset Sheets: B81 of B169

Project No./Code	BR 0961-008
	13141
Sheet Number	178

Design		Detail		Quantities	
Designed By	Checked By	INITIAL	DATE	INITIAL	DATE
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Checked By	Checked By	Checked By	Checked By	Checked By	Checked By
KAM	KAM	KAM	KAM	KAM	KAM

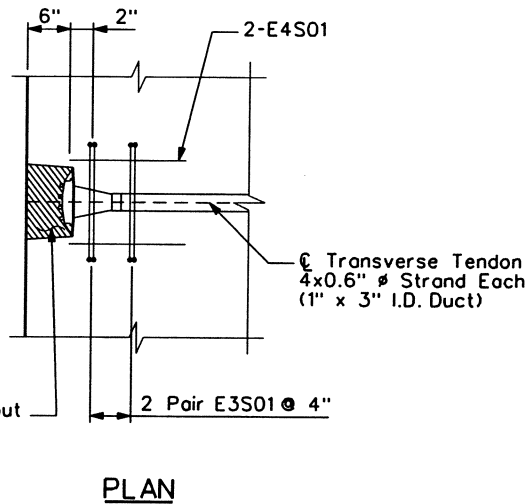
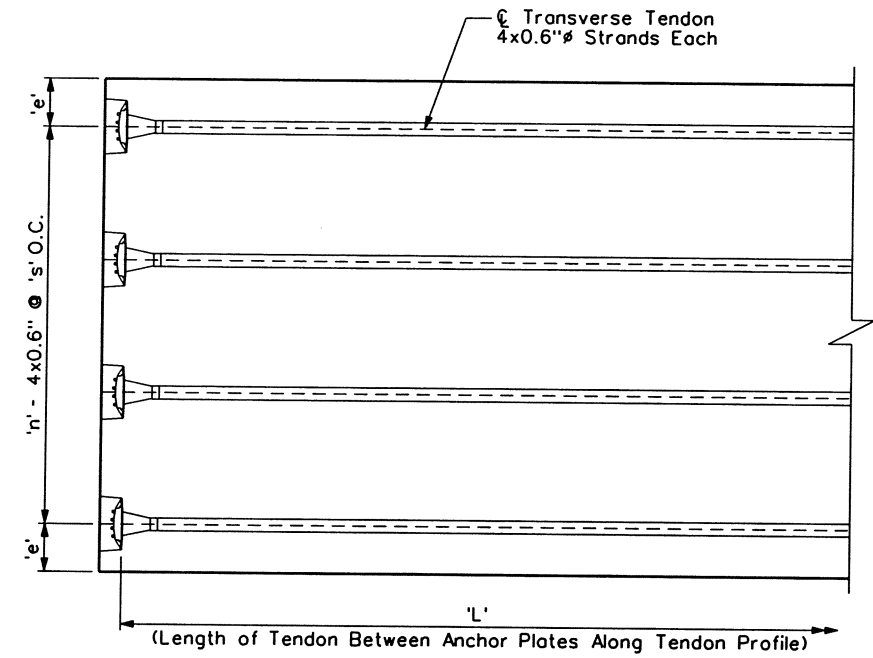
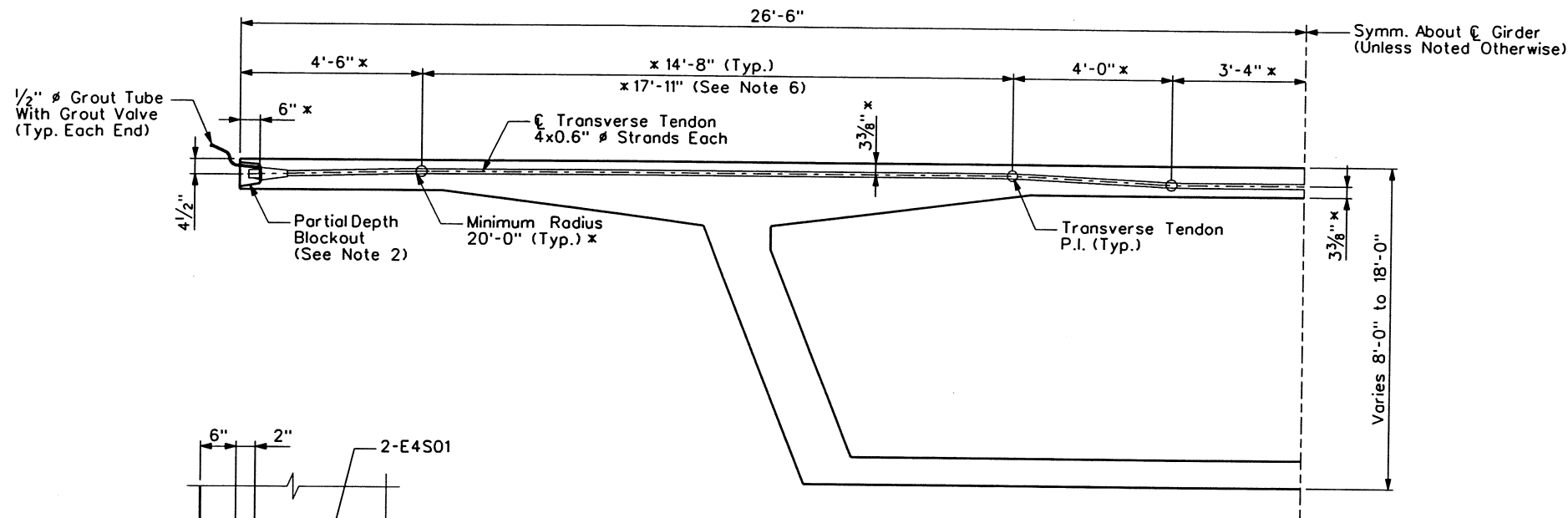


HALF SECTION
(Looking Upstation, Eastbound Shown
Westbound Opposite Hand)

HALF SECTION
(Looking Upstation, Eastbound Shown
Westbound Opposite Hand)

- NOTES:**
- See Variable Depth, Constant Depth, or Closure Joint Segment Dimensions sheets for segment dimensions.
 - See Longitudinal Post-Tensioning Layout and Longitudinal Post-Tensioning Details sheets for P.T. details.

Print Date: 12/19/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		BULKHEAD DETAILS		Project No./Code		
Drawing File Name: 13141_Bulkhead_Details.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		BR 0961-008			
Horiz. Scale:	Vert. Scale:				Region 2		Revised:		Designer: K. Montgomery	Structure	K-18-GS (EB)	
Unit Information	Unit Leader Initials				KSR		Void:		Detailer: D. Anderson	Numbers	K-18-GT (WB)	
Figg Bridge Engineers, Inc. 1873 South Belloire St., Suite 1500 Denver, Colorado 80222 (303)757-7400									Sheet Subset: BRIDGE	Subset Sheets: B103 of B169	Sheet Number	200



CROSS SECTION
 (Typical Segment Shown, Other Segment Types Similar)
 * Dimensions are to C Transverse Tendon Duct
 (For Tendon Profiles in Diaphragms, See Abutment Diaphragm, Piers 2 and 5 Diaphragm, and Pier Table Dimensions and P.T. Details Sheets)

PARTIAL PLAN
 (See Transverse Post-Tensioning Schedule for Variables 'e', 'n', 'L', and 's')

TRANSVERSE POST-TENSIONING SCHEDULE								
Segment Type	Tendon Type	Number of Tendons 'n'	Tendon Length 'L'	Edge Distance 'e'	Tendon Spacing 's'	**Tendon Weight (lbs.)	Number of Segments	**Total Weight (lbs)
16'-0" TS/DS	4x0.6" #	5	52'-0" ¹¹ / ₁₆ "	1'-6"	3'-3"	154	84	64680
5'-0" CS	4x0.6" #	2	52'-0" ¹¹ / ₁₆ "	10" ¹ / ₂ "	3'-3"	154	4	1232
8'-6" ¹ / ₄ " CS	4x0.6" #	3	52'-0" ¹¹ / ₁₆ "	1'-0" ¹ / ₈ "	3'-3"	154	1	462
10'-3" ¹ / ₈ " CS	4x0.6" #	4	52'-0" ¹¹ / ₁₆ "	1'-0"	2'-9"	154	1	616
							Total:	66990

TS Denotes Typical Segment
 CS Denotes Closure Segment
 DS Denotes Deviator Segment

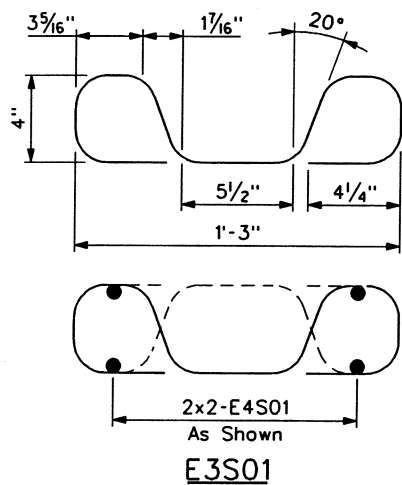
NOTES:

- After the segment concrete reaches a minimum compressive strength of 4000 psi, and prior to releasing formwork and advancing form traveler, the 0.6" strands shall be stressed to 44 kips each for a total tendon force of 176 kips. The tendons shall be single end stressed from alternating ends of the segment.
- The tendons shall be grouted within 7 days of installation and the anchorages shall be poured back, per the grouting and anchorage details shown on the Post-Tensioning Grouting and Anchorage Protection Details sheet, no more than 14 days after the tendons have been grouted.
- Weights tabulated in the transverse post-tensioning schedule are measured from anchor to anchor along the profile of the tendon. There will be no payment made for additional strand required beyond the anchor plates for jacking. The cost of the anchorage hardware is incidental to Pay Item 618-00002 Prestressing Steel Wire Or Strand.
- Bars E3S01 and E4S01 are provided as minimum local zone reinforcing steel and may not be an ideal fit for all types of 4x0.6" tendon anchorages. The post-tensioning supplier shall verify the adequacy of the local zone reinforcing shown and adjust as necessary to meet the post-tensioning system requirements.
- For transverse P.T. quantities in pier tables, see Pier Table Reinforcing V sheet. For transverse P.T. quantities in pier diaphragms, see Piers 2 and 5 Diaphragm Reinforcing III sheet. For transverse P.T. quantities in abutment diaphragms, see Abutment Diaphragm Reinforcing IV sheet. For transverse P.T. quantities in C.I.P. end spans, see Spans 1 C.I.P. Section Reinforcing III sheet and Spans 5 C.I.P. Section Reinforcing III sheet.
- 17'-11" dimension is for tendons in 3'-3" overlook wing extension on overlook side only.

Design	INITIAL	DATE	DESIGNED BY	CHECKED BY	Detail		Quantities	
					INITIAL	DATE	INITIAL	DATE
Designed By	JDS	12/7/06	Checked By	RJA	12/7/06	Checked By	JDS	12/7/06
Checked By	KLB	12/7/06	Checked By	JDS	12/7/06	Checked By	JDS	12/7/06

Stressing Blockout (See Note 2)

BENDING DIAGRAMS
 (All Dimensions are out to out)



BAR LIST/ONE ANCHOR

Bar	No.	Length	Bent	Str.
E3S01	4	2'-10"	•	
E4S01	4	1'-0"		•

Number preceding letter denotes bar size.

Cost of the E3S01 and E4S01 bars are included in Pay Item 618-00002 Prestressing Steel Wire Or Strand (See Note 4).

ESTIMATED QUANTITIES FOR TYPICAL, DEVIATOR, AND CLOSURE SEGMENTS TRANSVERSE POST-TENSIONING

Item No.	Item Description	Unit	Quantity
618-00002	Prestressing Steel Wire Or Strand	MKFT	3982

Print Date: 12/13/2006

Drawing File Name: 13141_Transverse_PT_Details.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

FIGG Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

(R-X)
 0000

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation



902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702

Region 2

KSR

As Constructed

No Revisions:

Revised:

Void:

TRANSVERSE POST-TENSIONING DETAILS

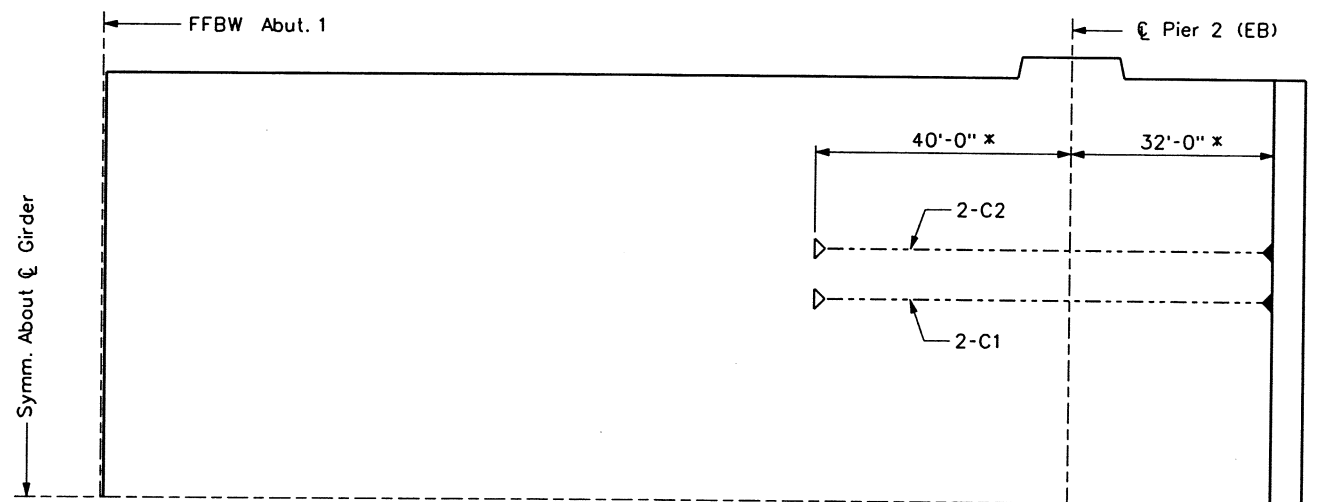
Designer:	J. Stauffer	Structure	K-18-GS (EB)
Detailer:	R. Adams	Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets	B104 of B169

Project No./Code

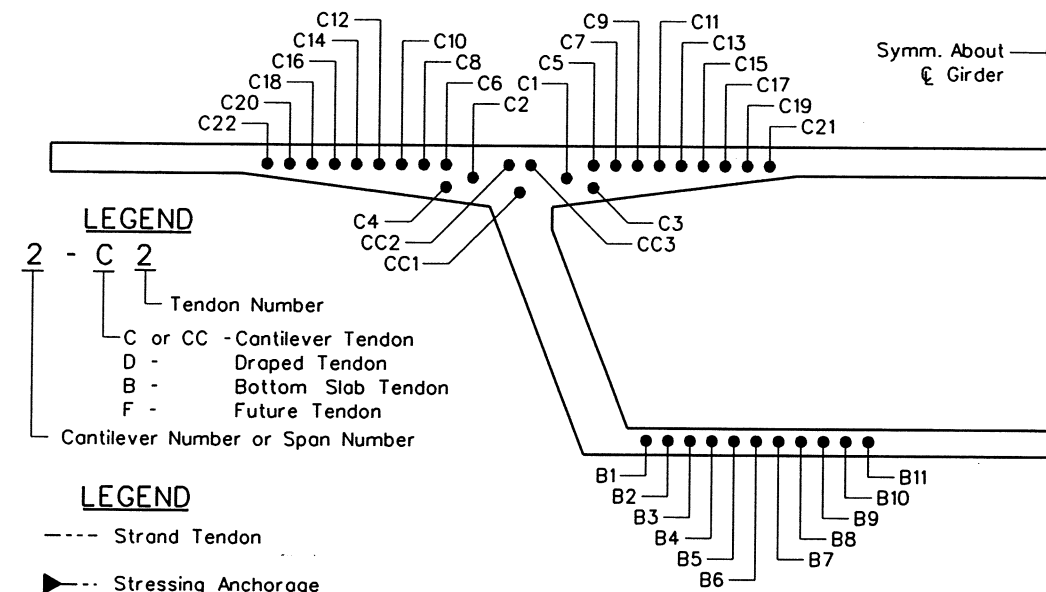
BR 0961-008

13141

Sheet Number 201



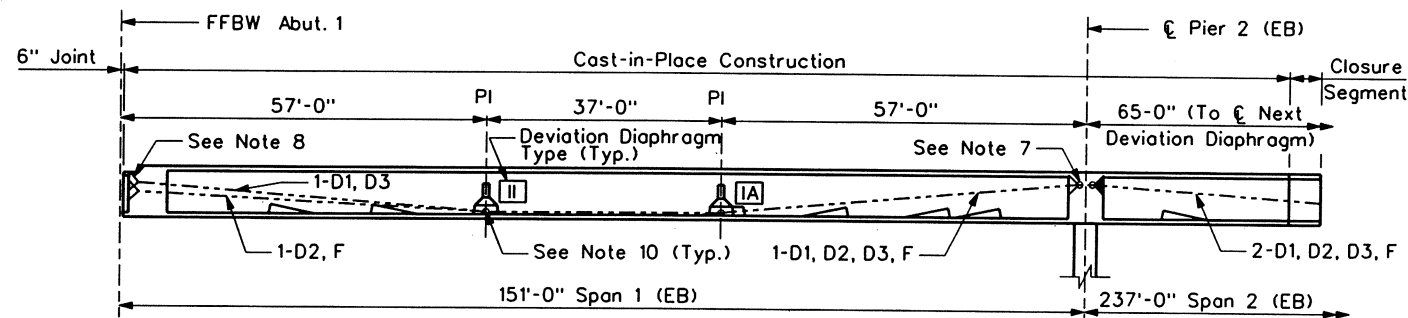
SPAN 1 (EB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



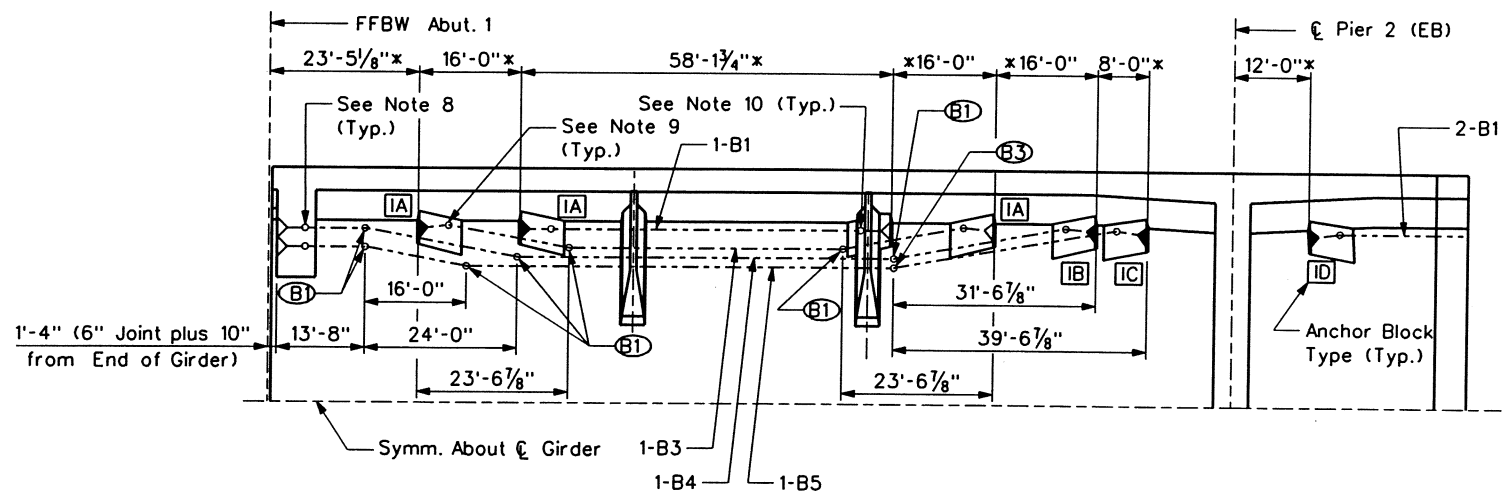
LEGEND
 2 - C 2
 Tendon Number
 C or CC - Cantilever Tendon
 D - Draped Tendon
 B - Bottom Slab Tendon
 F - Future Tendon
 Cantilever Number or Span Number

LEGEND
 --- Strand Tendon
 Stressing Anchorage
 Non-Stressing Anchorage
 (C) Deviation Type

DUCT LOCATIONS



SPAN 1 (EB) ELEVATION - DRAPED TENDONS



SPAN 1 (EB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

NOTES:

- All cantilever and bottom slab tendons are 12 x 0.6" diameter strand tendons. All draped and future tendons are 19 x 0.6" diameter strand tendons.
- The anchorage hardware, local zone reinforcing and rigid pipe duct shall be installed for the future tendons. Future tendons themselves are not installed. See Post-Tensioning Grouting and Anchorage Protection Details sheet for treatment of empty future tendon anchorages at abutment diaphragms.
- Tendon numbers reflect the duct location a given tendon runs through in the central non-deviating length of the tendon.
- Unless noted by deviation type, tendons run straight between bulkhead duct locations.
- All dimensions are true horizontal measured along Centerline Girder.
- Dimensions noted are to the centerline of the tendon at the face of the anchor.
- For tendon deviations and anchorage locations in pier tables, or Piers 2 and 5 diaphragms, see Pier Table Dimensions and P.T. Details and Piers 2 and 5 Diaphragm Dimensions and P.T. Details sheets.
- For tendon deviations and anchorage locations in abutment diaphragm, see Abutment Diaphragm Dimensions and P.T. Details sheets.
- For tendon deviations and anchorage details in bottom slab anchor blocks, see Bottom Slab Anchor Block Type I and II Dimensions and Reinforcing sheets.
- For tendon deviations and anchorage details in deviation diaphragms, see Deviation Diaphragm Type I and II Dimensions and P.T. Details sheets.
- For tendon deviations noted by deviation types, see Longitudinal Post-Tensioning Details sheets.
- For longitudinal post-tensioning quantities and stressing forces, see Longitudinal P.T. Quantities and Stressing Schedule sheets.
- For stressing sequence during erection, see Superstructure Construction Schematic sheets.

Design	DATE	12/06	Checked By	EEA
	INITIAL		Checked By	EEA
Detail	DATE	12/06	Checked By	EEA
	INITIAL		Checked By	EEA
Quantities	DATE	12/06	Checked By	EEA
	INITIAL		Checked By	EEA

Print Date: 12/19/2006

Drawing File Name: 13141_Long_PT-Layout_1.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

FIGG Figg Bridge Engineers, Inc.
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Denver, Colorado 80222
(303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation



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Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

Region 2

KSR

As Constructed

No Revisions:

Revised:

Void:

LONGITUDINAL POST-TENSIONING
LAYOUT I

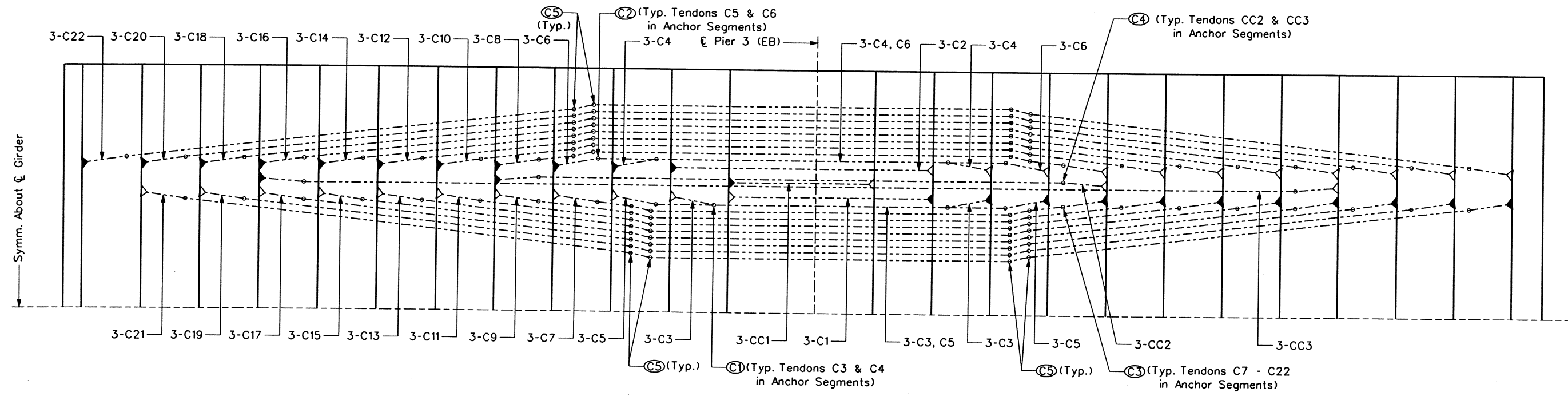
Designer: K. Montgomery	Structure Numbers	K-18-GS (EB)
Detailer: S. Fall		K-18-GT (WB)
Sheet Subset: BRIDGE	Subset Sheets: B105 of B169	

Project No./Code

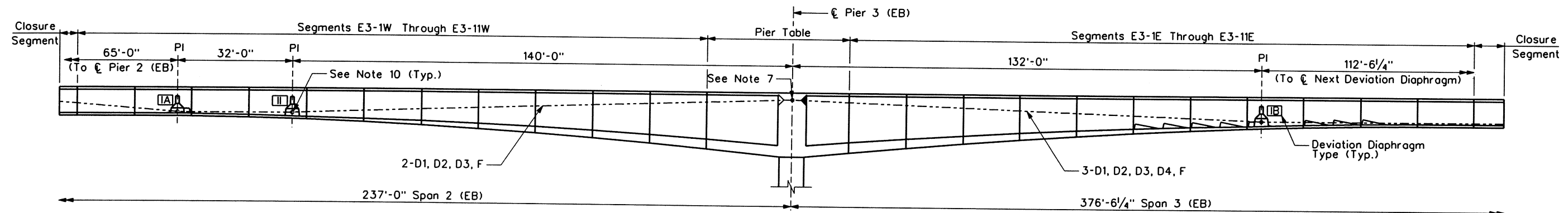
BR 0961-008

13141

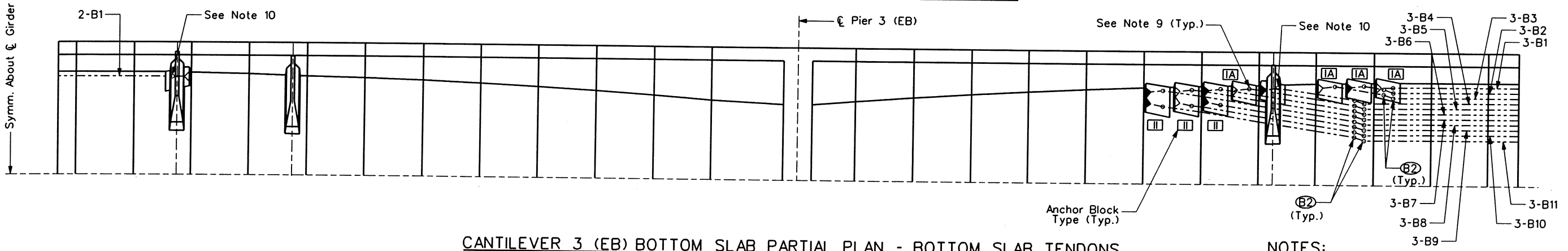
Sheet Number 202



CANTILEVER 3 (EB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



CANTILEVER 3 (EB) ELEVATION - DRAPED TENDONS

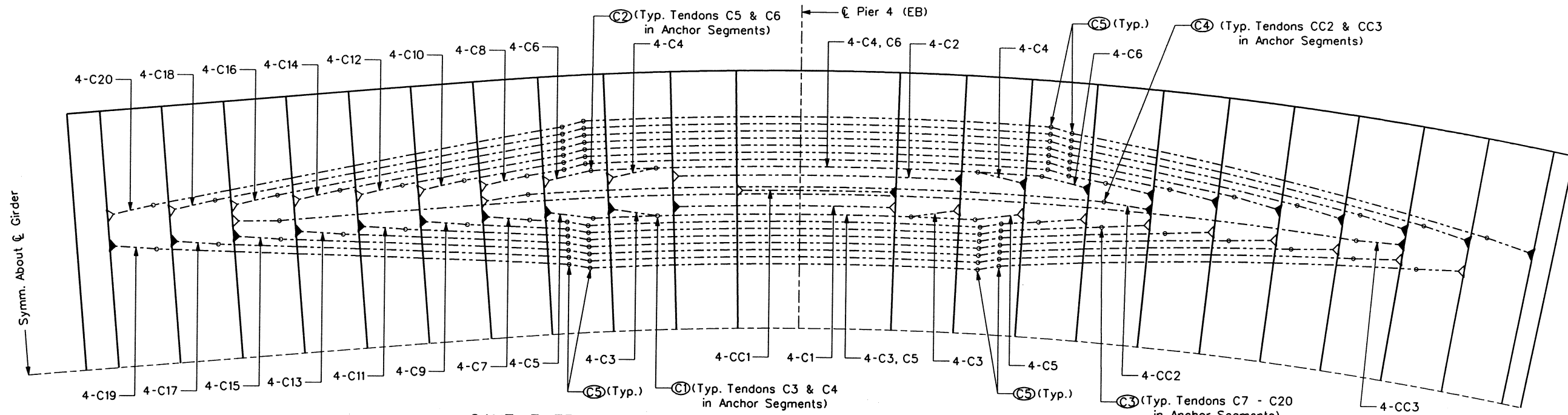


CANTILEVER 3 (EB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

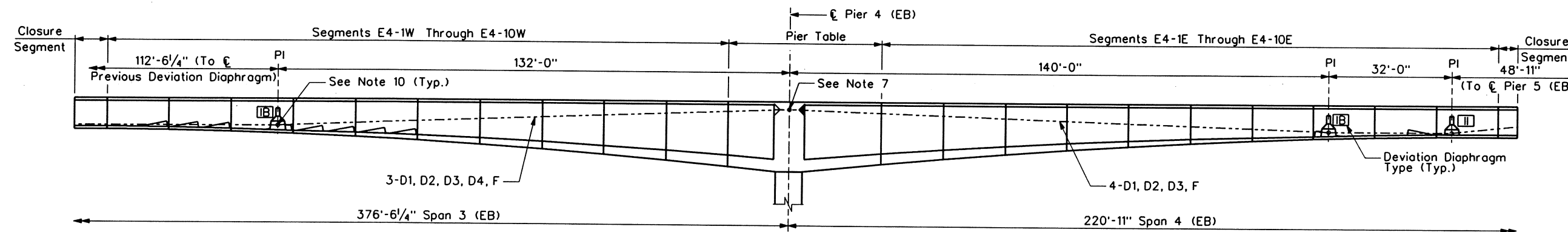
NOTES:
1. For notes and legends, see Longitudinal Post-Tensioning Layout I and IV sheets.

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Detail	INITIAL	DATE	DESIGNED BY	CHECKED BY
	EEA	12/06	EEA	EEA
Quantities	INITIAL	DATE	QUANTITIES BY	CHECKED BY
	EEA	12/06	EEA	EEA

Print Date: 12/15/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		LONGITUDINAL POST-TENSIONING LAYOUT II		Project No./Code	
Drawing File Name: 13141_Long_PT-Layout_II.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		Designer: K. Montgomery		BR 0961-008
Horiz. Scale: Vert. Scale:					Region 2 KSR		Revised:		Structure Numbers		13141
Unit Information Unit Leader Initials							Void:		K-18-GS (EB)		Sheet Number
Figg Bridge Engineers, Inc. 1873 South Belloire St., Suite 1500 Denver, Colorado 80222 (303)757-7400							Sheet Subset: BRIDGE		Subset Sheets: B106 of B169		

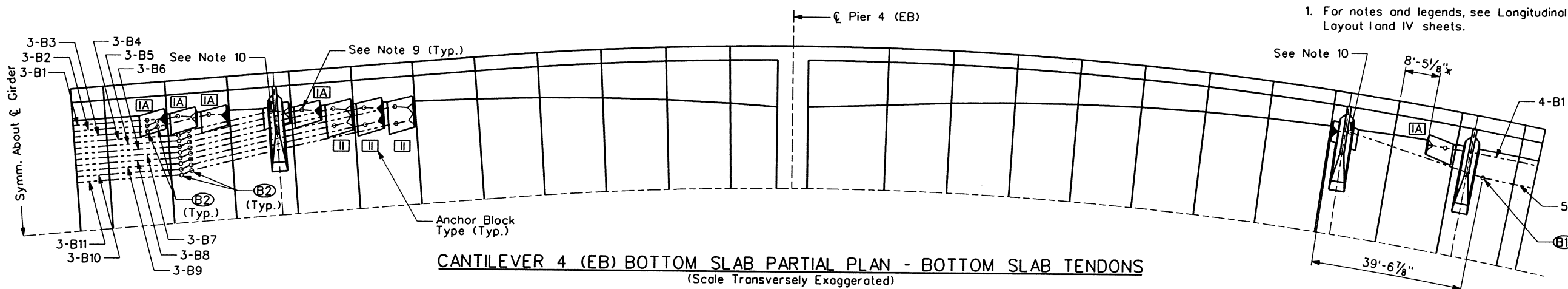


CANTILEVER 4 (EB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



CANTILEVER 4 (EB) ELEVATION - DRAPED TENDONS

NOTES:
1. For notes and legends, see Longitudinal Post-Tensioning Layout and IV sheets.



CANTILEVER 4 (EB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

Design	INITIAL	DATE	QUANTITIES
	RKM	12/06	12/06
Detail	INITIAL	DATE	QUANTITIES
	SJF	12/06	12/06
Checked By	EEA	12/06	12/06
	EEA	12/06	12/06

Print Date: 12/19/2006

Drawing File Name: I3141_Long_PT-Layout_III.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

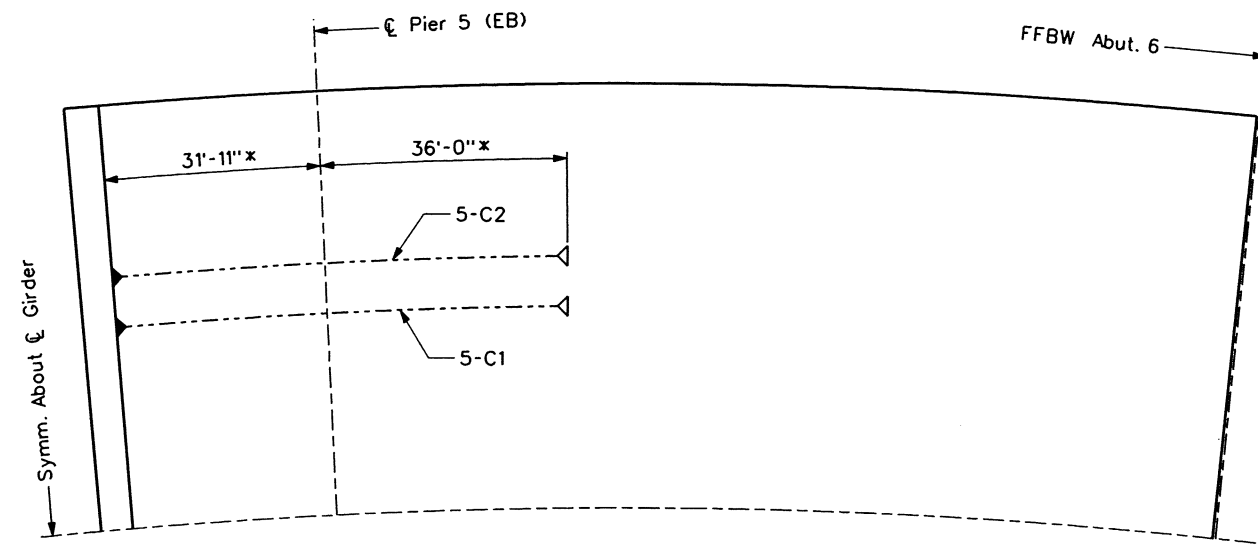
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

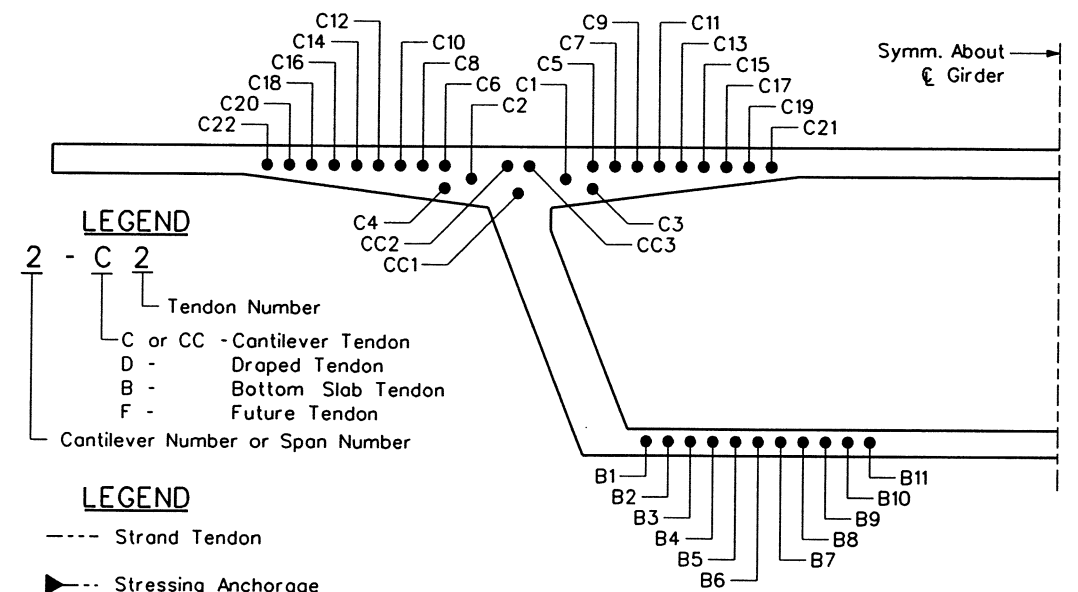
As Constructed
 No Revisions:
 Revised:
 Void:

LONGITUDINAL POST-TENSIONING
 LAYOUT III
 Designer: K. Montgomery
 Detailer: S. Fall
 Sheet Subset: BRIDGE
 Structure Numbers: K-18-GS (EB)
 K-18-GT (WB)
 Subset Sheets: B107 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number 204



SPAN 5 (EB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



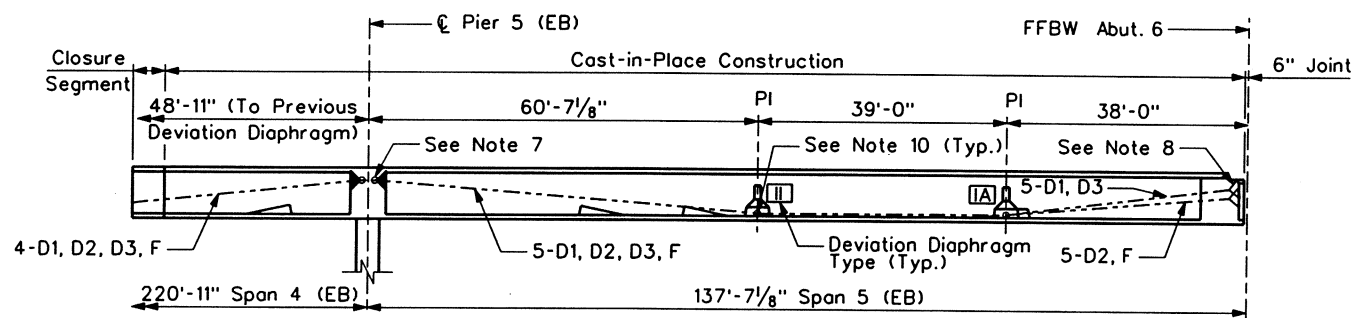
LEGEND

- 2 - C 2 Tendon Number
- C or CC - Cantilever Tendon
- D - Draped Tendon
- B - Bottom Slab Tendon
- F - Future Tendon
- Cantilever Number or Span Number

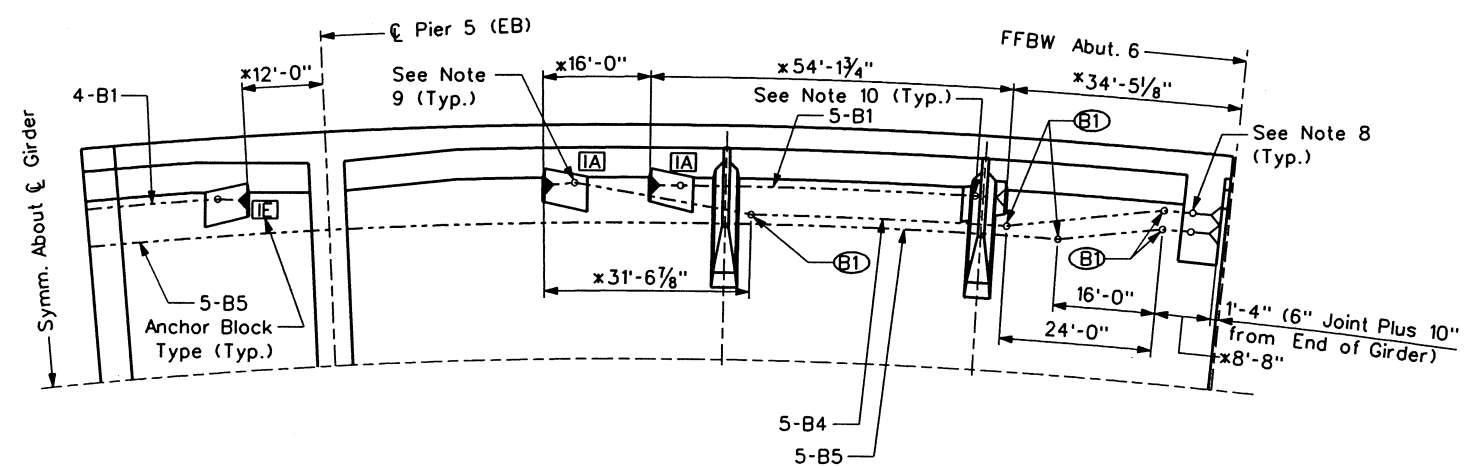
LEGEND

- Strand Tendon
- ▶ Stressing Anchorage
- ◀ Non-Stressing Anchorage
- (C2) Deviation Type

DUCT LOCATIONS



SPAN 5 (EB) ELEVATION - DRAPED TENDONS



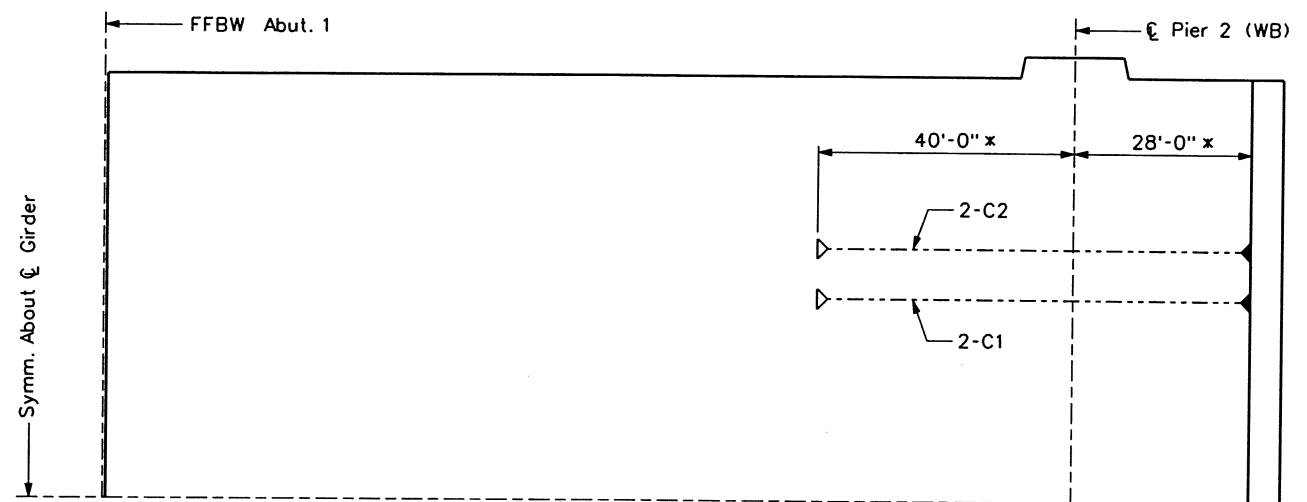
SPAN 5 (EB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

NOTES:

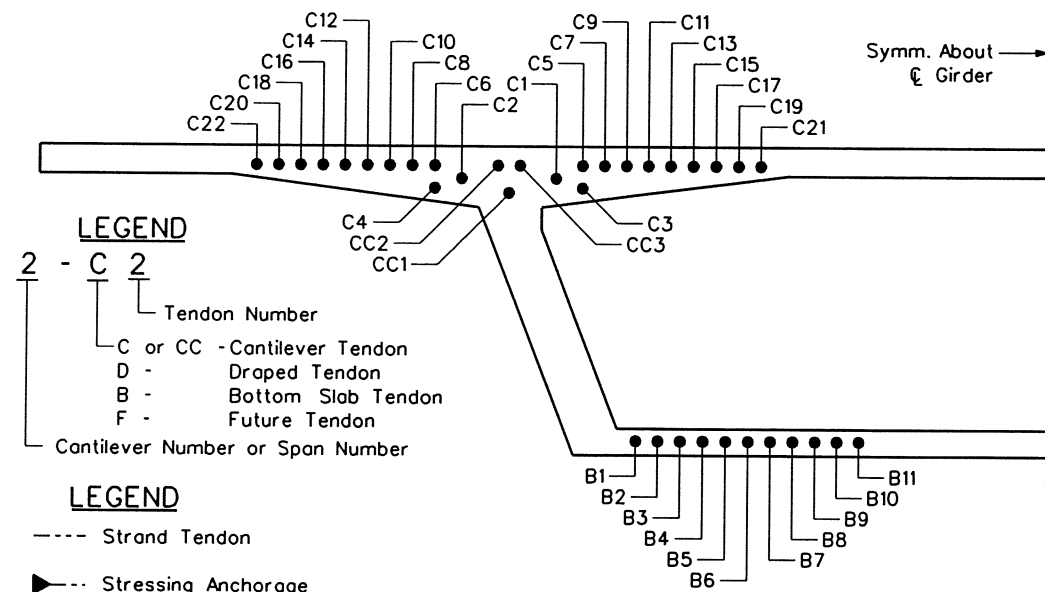
1. All cantilever and bottom slab tendons are 12 x 0.6" diameter strand tendons. All draped and future tendons are 19 x 0.6" diameter strand tendons.
2. The anchorage hardware, local zone reinforcing and rigid pipe duct shall be installed for the future tendons. Future tendons themselves are not installed. See Post-Tensioning Grouting and Anchorage Protection Details sheet for treatment of empty future tendon anchorages at abutment diaphragms.
3. Tendon numbers reflect the duct location a given tendon runs through in the central non-deviating length of the tendon.
4. Unless noted by deviation type, tendons run straight between bulkhead duct locations.
5. All dimensions are true horizontal measured along Centerline Girder.
- *6. Dimensions noted are to the centerline of the tendon at the face of the anchor.
7. For tendon deviations and anchorage locations in pier tables, or Piers 2 and 5 diaphragms, see Pier Table Dimensions and P.T. Details and Piers 2 and 5 Diaphragm Dimensions and P.T. Details sheets.
8. For tendon deviations and anchorage locations in abutment diaphragm, see Abutment Diaphragm Dimensions and P.T. Details sheets.
9. For tendon deviations and anchorage details in bottom slab anchor blocks, see Bottom Slab Anchor Block Type I and II Dimensions and Reinforcing sheets.
10. For tendon deviations and anchorage details in deviation diaphragms, see Deviation Diaphragm Type I and II Dimensions and P.T. Details sheets.
11. For tendon deviations noted by deviation types, see Longitudinal Post-Tensioning Details sheets.
12. For longitudinal post-tensioning quantities and stressing forces, see Longitudinal P.T. Quantities and Stressing Schedule sheets.
13. For stressing sequence during erection, see Superstructure Construction Schematic sheets.

Design	INITIAL	DATE	QUANTITIES	INITIAL
	RM	12/06	BY	EEA
Checked By	EEA	12/06	Checked By	EEA
	EEA	12/06	Checked By	EEA

Print Date: 12/15/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		LONGITUDINAL POST-TENSIONING		Project No./Code		
Drawing File Name: 13141_Long_PT-Layout_IV.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		LAYOUT IV		BR 0961-008	
Horiz. Scale: Vert. Scale:					Region 2 KSR		Revised:		Designer: K. Montgomery		Structure Numbers	
Unit Information Unit Leader Initials							Void:		Detailer: S. Fall		K-18-GS (EB)	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400									Sheet Subset: BRIDGE		Subset Sheets: B108 of B169	
									K-18-GT (WB)		13141	
											Sheet Number 205	

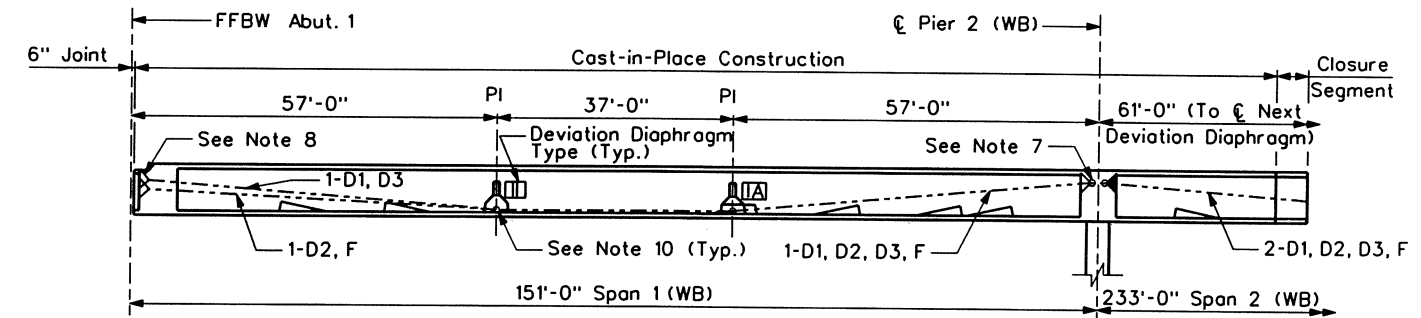


SPAN 1 (WB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



- LEGEND**
- 2 - C 2
 - Tendon Number
 - C or CC - Cantilever Tendon
 - D - Draped Tendon
 - B - Bottom Slab Tendon
 - F - Future Tendon
 - Cantilever Number or Span Number
- LEGEND**
- Strand Tendon
 - ▶ Stressing Anchorage
 - ◀ Non-Stressing Anchorage
 - ⊙ Deviation Type

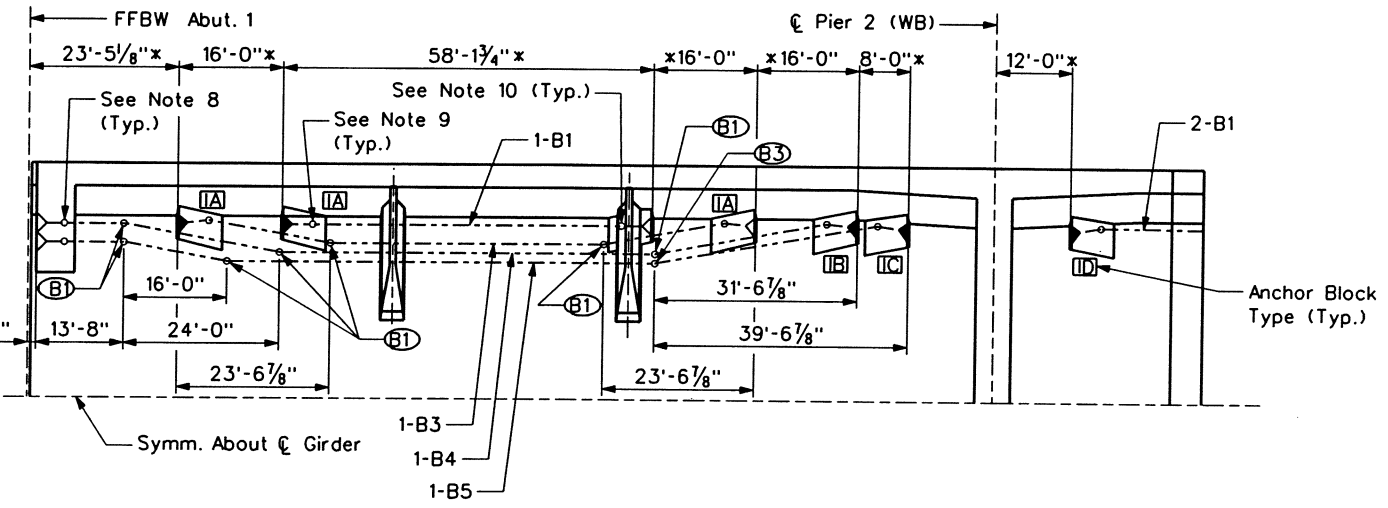
DUCT LOCATIONS



SPAN 1 (WB) ELEVATION - DRAPED TENDONS

NOTES:

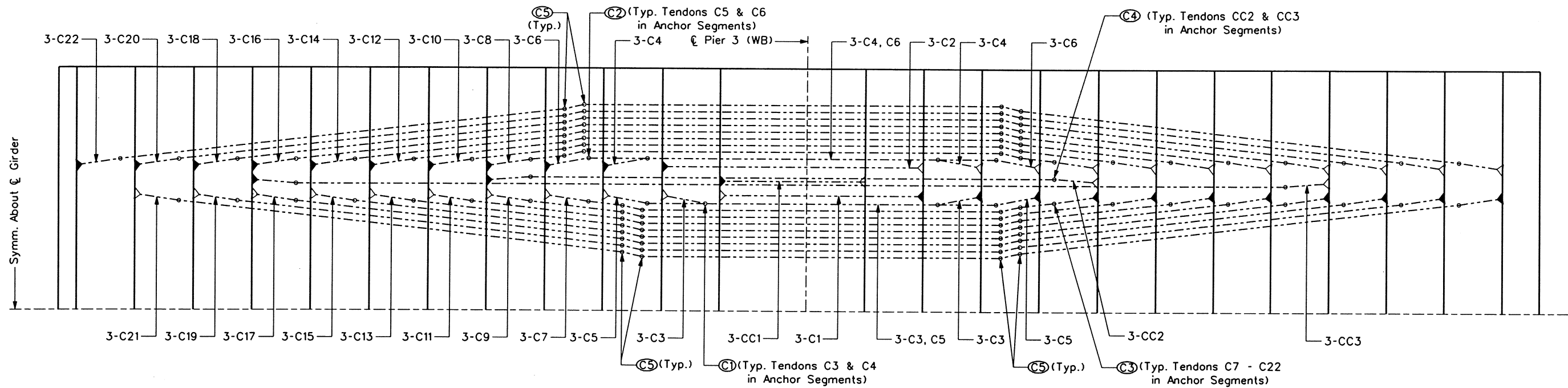
1. All cantilever and bottom slab tendons are 12 x 0.6" diameter strand tendons. All draped and future tendons are 19 x 0.6" diameter strand tendons.
2. The anchorage hardware, local zone reinforcing and rigid pipe duct shall be installed for the future tendons. Future tendons themselves are not installed. See Post-Tensioning Grouting and Anchorage Protection Details sheet for treatment of empty future tendon anchorages at abutment diaphragms.
3. Tendon numbers reflect the duct location a given tendon runs through in the central non-deviating length of the tendon.
4. Unless noted by deviation type, tendons run straight between bulkhead duct locations.
5. All dimensions are true horizontal measured along Centerline Girder.
- *6. Dimensions noted are to the centerline of the tendon at the face of the anchor.
7. For tendon deviations and anchorage locations in pier tables, or Piers 2 and 5 diaphragms, see Pier Table Dimensions and P.T. Details and Piers 2 and 5 Diaphragm Dimensions and P.T. Details sheets.
8. For tendon deviations and anchorage locations in abutment diaphragm, see Abutment Diaphragm Dimensions and P.T. Details sheets.
9. For tendon deviations and anchorage details in bottom slab anchor blocks, see Bottom Slab Anchor Block Type I and II Dimensions and Reinforcing sheets.
10. For tendon deviations and anchorage details in deviation diaphragms, see Deviation Diaphragm Type I and II Dimensions and P.T. Details sheets.
11. For tendon deviations noted by deviation types, see Longitudinal Post-Tensioning Details sheets.
12. For longitudinal post-tensioning quantities and stressing forces, see Longitudinal P.T. Quantities and Stressing Schedule sheets.
13. For stressing sequence during erection, see Superstructure Construction Schematic sheets.



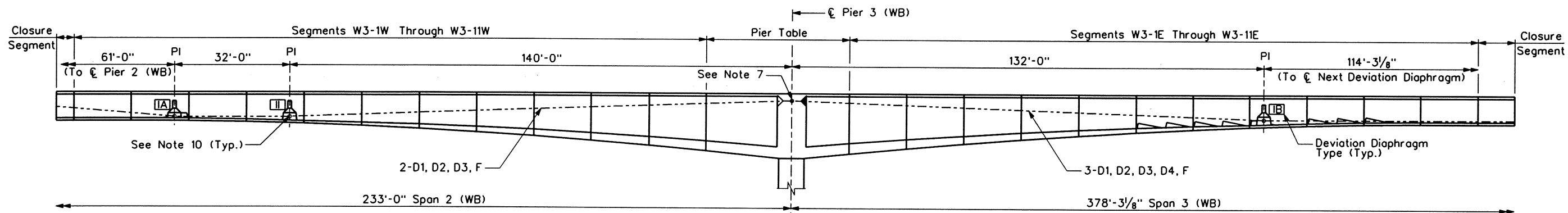
SPAN 1 (WB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

Design	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
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Detail	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
	KAM	12/06	KAM	12/06	EEA	12/06
Quantities	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
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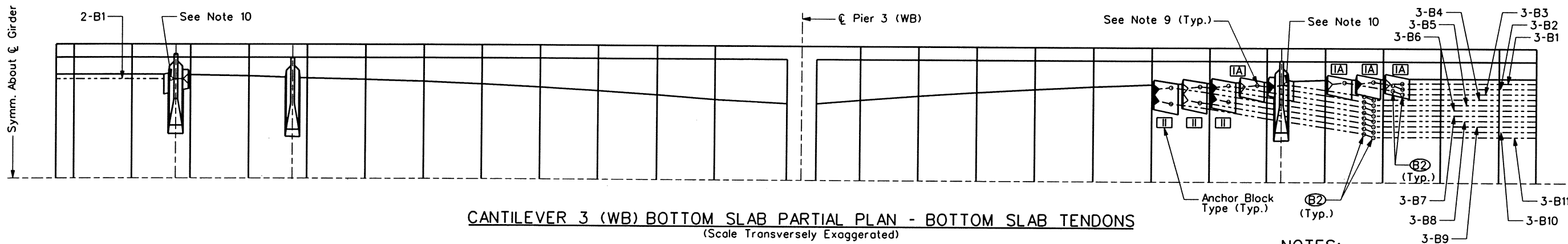
Print Date: 12/19/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		LONGITUDINAL POST-TENSIONING LAYOUT V		Project No./Code	
Drawing File Name: 13141_Long_PT-Layout_V.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		BR 0961-008		13141
Horiz. Scale: Vert. Scale:					Region 2 KSR		Revised:		Designer: K. Montgomery Structure K-18-GS (EB)		
Unit Information Unit Leader Initials							Void:		Detailer: S. Fall Numbers K-18-GT (WB)		206
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400									Sheet Subset: BRIDGE Subset Sheets: B109 of B169		



CANTILEVER 3 (WB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



CANTILEVER 3 (WB) ELEVATION - DRAPED TENDONS



CANTILEVER 3 (WB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

- NOTES:**
- For notes and legends, see Longitudinal Post-Tensioning Layout V and VIII sheets.

Design	Initial	Date	Checked By	Quantity	Initial	Date	Checked By
Designed By	RKM	12/06	KAM	Quantity	EEA	12/06	EEA
Checked By	KAM	12/06	KAM	Quantity	EEA	12/06	EEA

Print Date: 12/19/2006

Drawing File Name: 13141_Long_PT-Layout_VI.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

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Denver, Colorado 80222
(303)757-7400

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Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation



Region 2

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Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

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As Constructed

No Revisions:

Revised:

Void:

LONGITUDINAL POST-TENSIONING LAYOUT VI

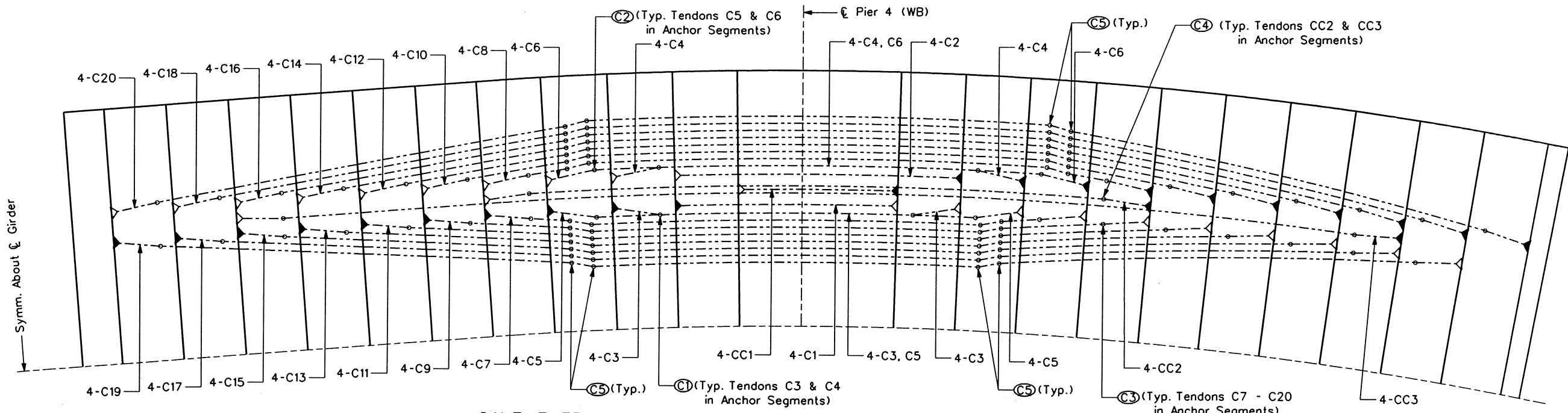
Designer: K. Montgomery	Structure Numbers	K-18-GS (EB)
Detailer: S. Fall	Structure Numbers	K-18-GT (WB)
Sheet Subset: BRIDGE	Subset Sheets: B110 of B169	

Project No./Code

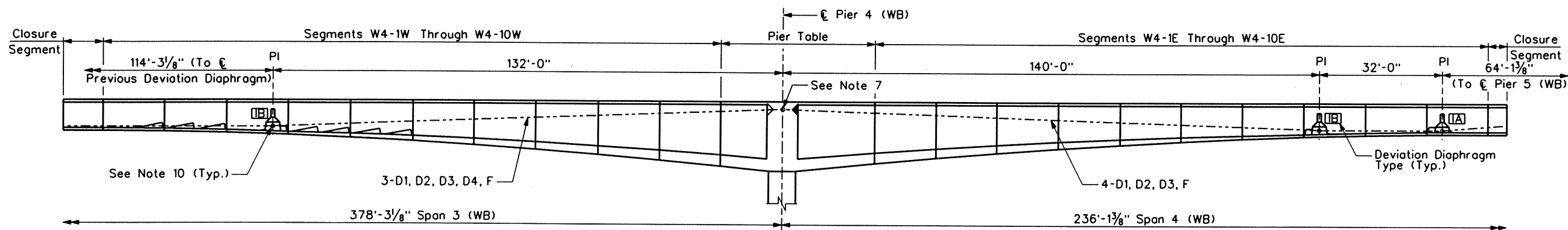
BR 0961-008

13141

Sheet Number 207

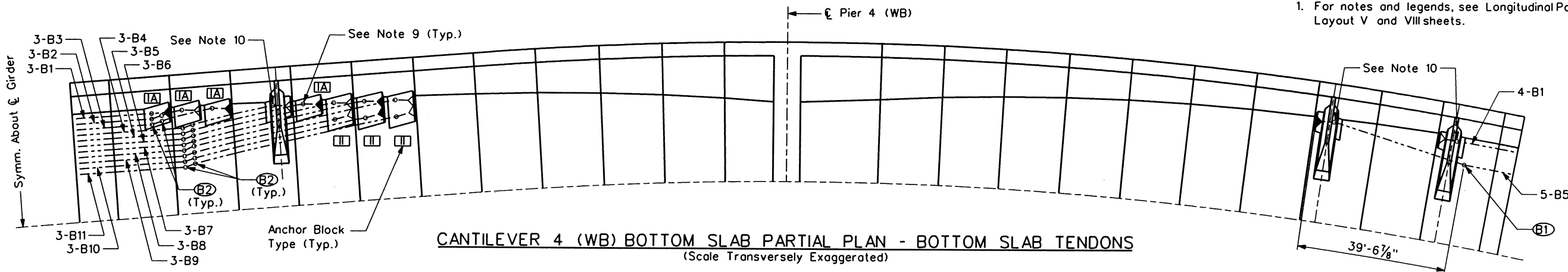


CANTILEVER 4 (WB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



CANTILEVER 4 (WB) ELEVATION - DRAPED TENDONS

NOTES:
1. For notes and legends, see Longitudinal Post-Tensioning Layout V and VIII sheets.



CANTILEVER 4 (WB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

Design	INITIAL	DATE	INITIAL	DATE
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Checked By	INITIAL	DATE	INITIAL	DATE
	KAM	12/06	KAM	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	EA	12/06	EA	12/06

Print Date: 12/19/2006

Drawing File Name: I3141_Long_PT-Layout_VII.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

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1873 South Bellaire St., Suite 1500
Denver, Colorado 80222
(303)757-7400

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Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation

902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

Region 2

KSR

As Constructed

No Revisions:

Revised:

Void:

LONGITUDINAL POST-TENSIONING LAYOUT VII

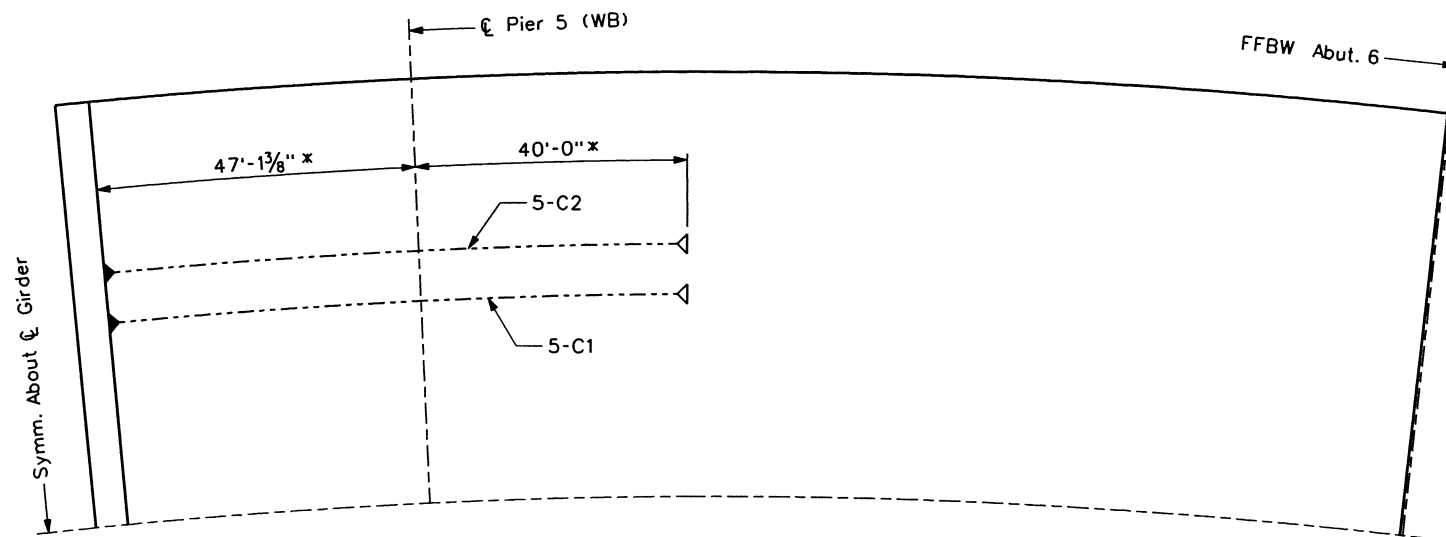
Designer: K. Montgomery	Structure Numbers: K-18-GS (EB)
Detailer: S. Fall	Structure Numbers: K-18-GT (WB)
Sheet Subset: BRIDGE	Subset Sheets: B111 of B169

Project No./Code

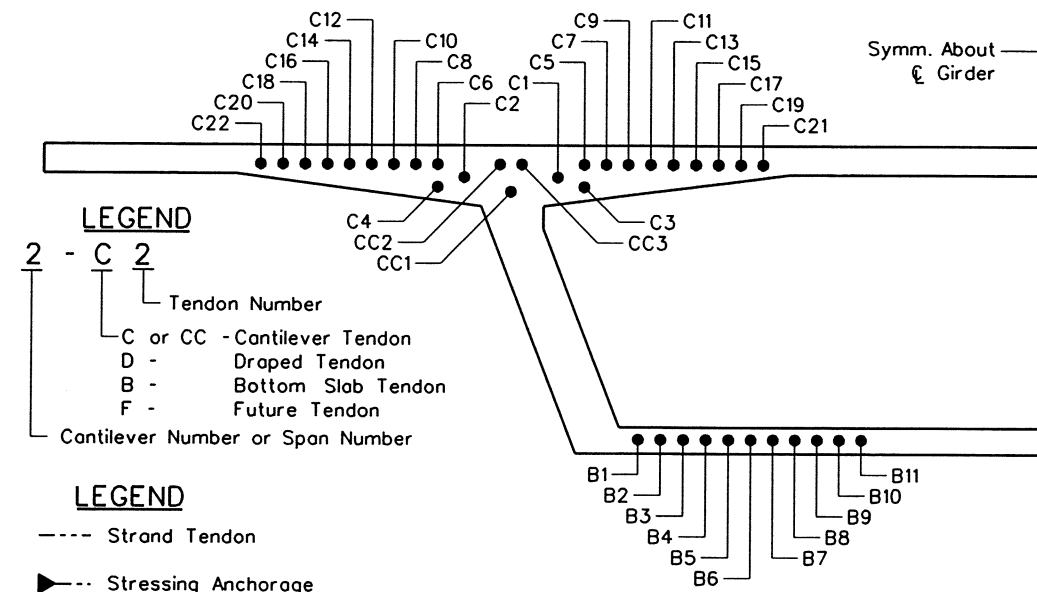
BR 0961-008

13141

Sheet Number 208



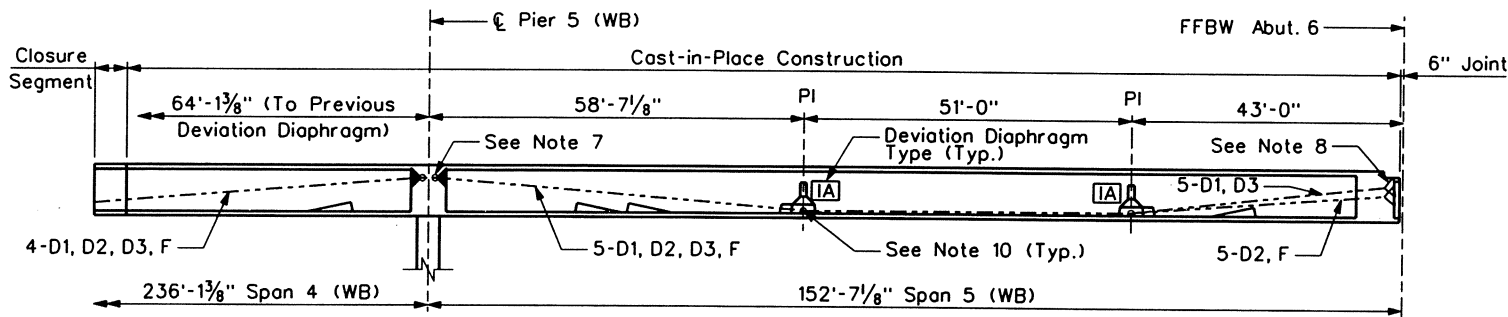
SPAN 5 (WB) TOP SLAB PARTIAL PLAN - CANTILEVER TENDONS
(Scale Transversely Exaggerated)



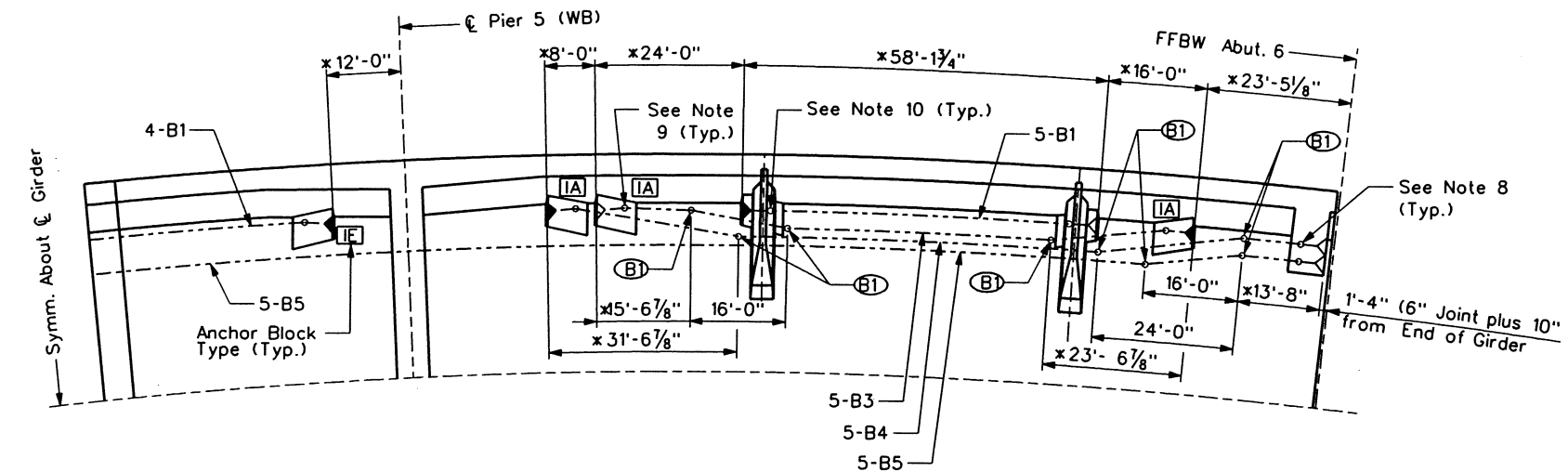
LEGEND
 2 - C 2 Tendon Number
 C or CC - Cantilever Tendon
 D - Draped Tendon
 B - Bottom Slab Tendon
 F - Future Tendon
 Cantilever Number or Span Number

LEGEND
 --- Strand Tendon
 ▸--- Stranding Anchorage
 ▸--- Non-Stranding Anchorage
 (C) Deviation Type

DUCT LOCATIONS



SPAN 5 (WB) ELEVATION - DRAPED TENDONS



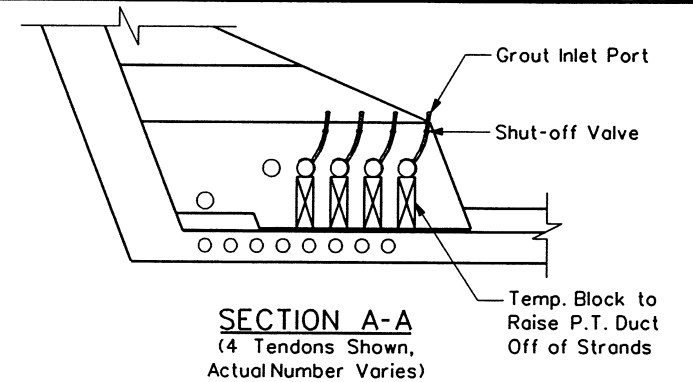
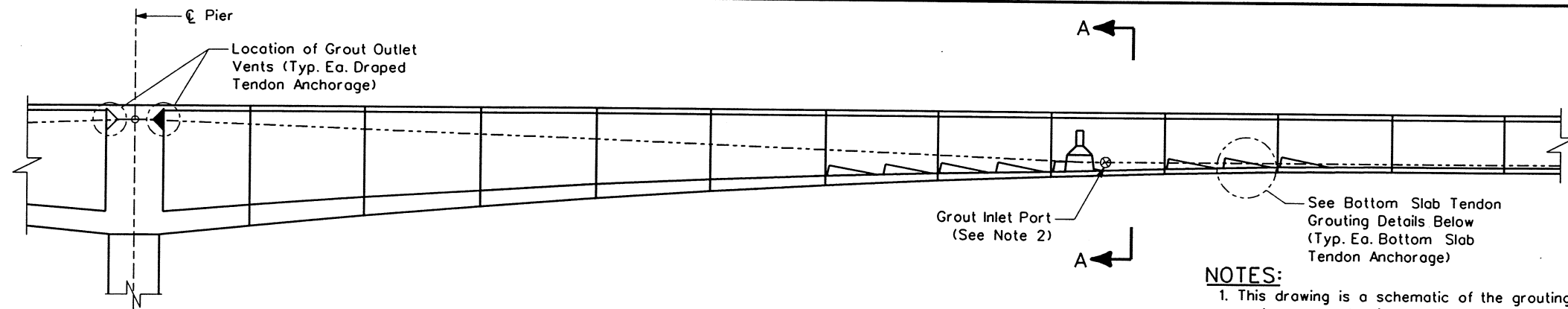
SPAN 5 (WB) BOTTOM SLAB PARTIAL PLAN - BOTTOM SLAB TENDONS
(Scale Transversely Exaggerated)

NOTES:

- All cantilever and bottom slab tendons are 12 x 0.6" diameter strand tendons. All draped and future tendons are 19 x 0.6" diameter strand tendons.
- The anchorage hardware, local zone reinforcing and rigid pipe duct shall be installed for the future tendons. Future tendons themselves are not installed. See Post-Tensioning Grouting and Anchorage Protection Details sheet for treatment of empty future tendon anchorages at abutment diaphragms.
- Tendon numbers reflect the duct location a given tendon runs through in the central non-deviating length of the tendon.
- Unless noted by deviation type, tendons run straight between bulkhead duct locations.
- All dimensions are true horizontal measured along Centerline Girder.
- Dimensions noted are to the centerline of the tendon at the face of the anchor.
- For tendon deviations and anchorage locations in pier tables, or Piers 2 and 5 diaphragms, see Pier Table Dimensions and P.T. Details and Piers 2 and 5 Diaphragm Dimensions and P.T. Details sheets.
- For tendon deviations and anchorage locations in abutment diaphragm, see Abutment Diaphragm Dimensions and P.T. Details sheets.
- For tendon deviations and anchorage details in bottom slab anchor blocks, see Bottom Slab Anchor Block Type I and II Dimensions and Reinforcing sheets.
- For tendon deviations and anchorage details in deviation diaphragms, see Deviation Diaphragm Type I and II Dimensions and P.T. Details sheets.
- For tendon deviations noted by deviation types, see Longitudinal Post-Tensioning Details sheets.
- For longitudinal post-tensioning quantities and stressing forces, see Longitudinal P.T. Quantities and Stressing Schedule sheets.
- For stressing sequence during erection, see Superstructure Construction Schematic sheets.

Design	Initial	Date	Checked By	Design	Initial	Date	Checked By
	RKM	12/06	KAM		EEA	12/06	DAT
Quantity	Initial	Date	Checked By	Quantity	Initial	Date	Checked By

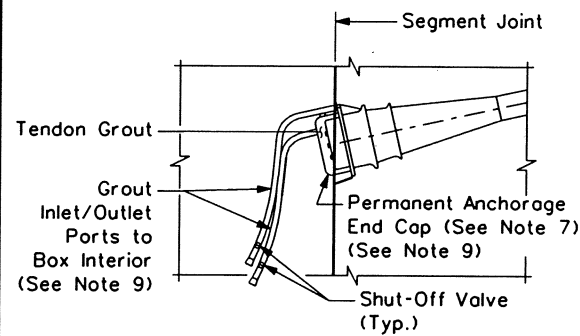
Print Date: 12/15/2006	Sheet Revisions			Colorado Department of Transportation	As Constructed	LONGITUDINAL POST-TENSIONING		Project No./Code
Drawing File Name: 13141_Long_PT-Layout_VIII.dgn	Date:	Comments	Init.			No Revisions:	LAYOUT VIII	
Horiz. Scale: Vert. Scale:				902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702	Revised:	Designer: K. Montgomery	Structure: K-18-GS (EB)	13141
Unit Information Unit Leader Initials					Void:	Detailer: S. Fall	Numbers: K-18-GT (WB)	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400	Region 2			KSR	Sheet Subset: BRIDGE	Subset Sheets: B112 of B169		



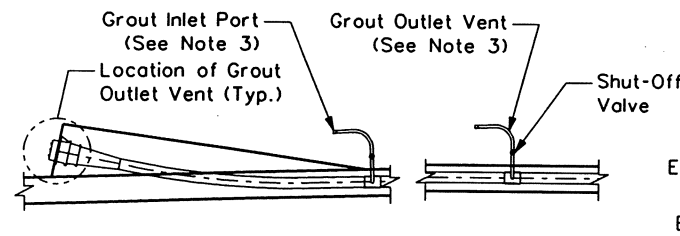
ELEVATION - DRAPED TENDON GROUTING DETAILS
(Span 3 Shown, Other Spans Similar)

- NOTES:**
1. This drawing is a schematic of the grouting and anchorage protection details required for this project. See the Project Special Provisions for additional requirements.
 2. The grout inlet port for the draped tendons shall be located between the two deviation diaphragms in a given span at the low point of the tendons accounting for the global bridge geometry. Grout outlet vents shall be located at each anchorage.
 3. The grout inlet port for the bottom slab tendons shall be located just outside of the anchor block at the low end of the tendons accounting for global bridge geometry. Grout outlet vents shall be located at each anchorage, at the tendon high point (near midspan) accounting for global bridge geometry, and approximately 3'-0" from each high point in the direction of grout flow.

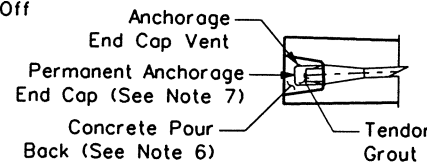
- NOTES (Cont.):**
4. Grout inlet ports and outlet vents for the cantilever tendons and transverse tendons shall be located at each anchorage. Inlet and outlet ports shall never extend to the top deck.
 5. Positive mechanical shut-off valves are required at all grout inlet ports and outlet vents.
 6. The concrete caps and concrete pour backs at the anchorages shall be of a mix approved by the Engineer prior to use. An epoxy bonding agent, used in strict accordance with the manufacturer's recommendations, shall thoroughly coat all mating surfaces for the block or pour back. Epoxy bonding compound shall be approved by the Engineer prior to use. Where permanent anchorage end caps are not present, strand tails or p.t. bars shall have 2" min. clearance from the surface of the concrete block. Where permanent anchorage end caps are present, the concrete block shall provide 2" min. cover over the end caps.
 7. The permanent anchorage end cap shall be non-corrosive (plastic), UV resistant, and attach directly to the anchorage plates. They shall completely encapsulate the strand tails and, where applicable, the wedge plate. They shall provide 1" min. clearance from the cap to the strand tails and be completely filled with grout. Except for cantilever tendons, the end cap vent shall be cut off and the exposed grout thoroughly coated with an elastomeric membrane prior to pouring the block or pour back.
 8. All holes for the #3 bars shall be drilled prior to stressing any tendons in the diaphragm. The bars shall be epoxied into the holes using an epoxy approved by the Engineer and used in strict accordance with the manufacturer's recommendations. The annular space between the bars and the hole shall be completely filled with no voids.
 9. Cantilever tendon permanent anchorage end caps and grout inlet/outlet ports shall be installed prior to casting the next cantilever or closure segment.
 10. The elastomeric waterproofing membrane shall consist of a single component, hot or cold applied, elastomeric membrane. Hot applied elastomeric membranes shall conform to the requirements of ASTM D 3405, except that the blocks for the bond test shall be as described in ASTM D 1191. Cold applied elastomeric membranes shall be one of the following products or an approved equal: Boscoseal PU from Bostik Fidle, EpoxySystems Product #417 or Sonoshield HLM 5000 from Degussa Construction Chemicals.



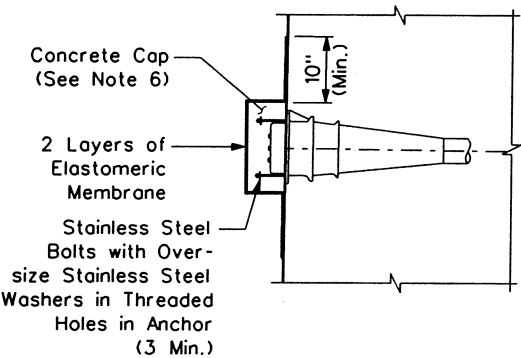
CANTILEVER TENDON ANCHORAGE DETAIL



BOTTOM SLAB TENDON GROUTING DETAILS

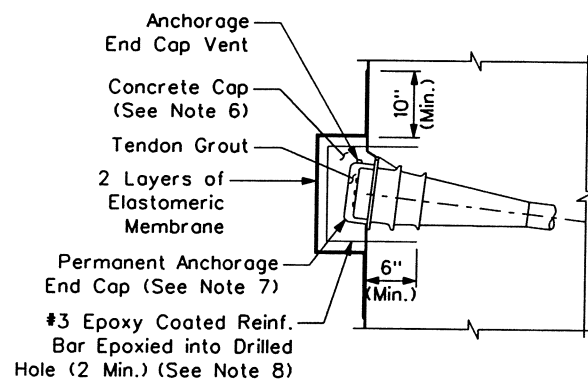


TRANSVERSE TENDON ANCHORAGE DETAIL



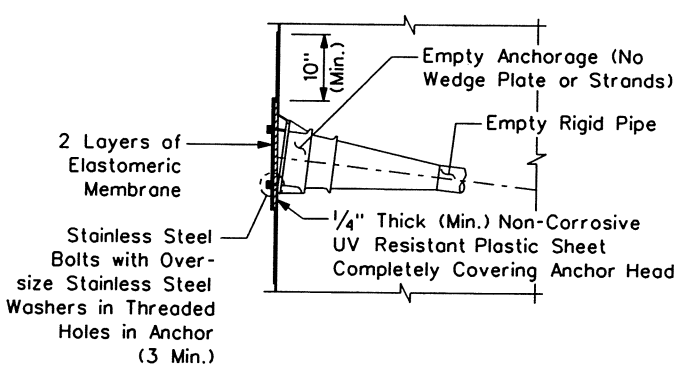
ANCHORAGE PROTECTION DETAIL TYPE A

(Valid for Bottom Slab Tendons Anchoring in Interior Blocks and Draped Tendons Anchoring on Interior Pier Diaphragm)
(Concrete Caps May be for Individual Tendons or Groups of Tendons)



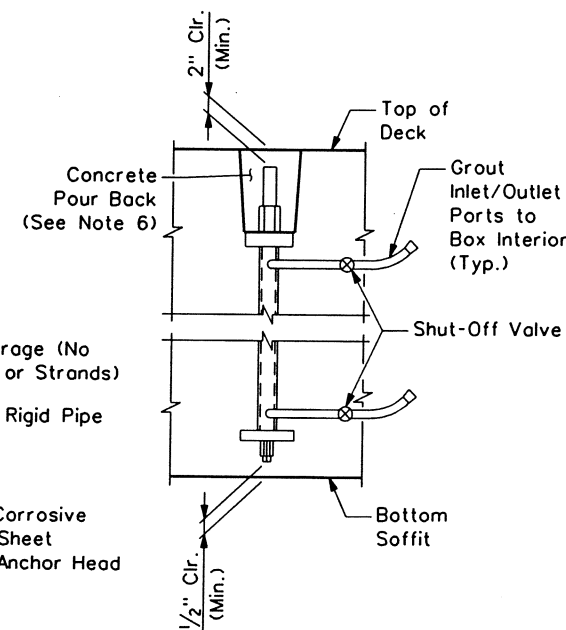
ANCHORAGE PROTECTION DETAIL TYPE B

(Valid for Draped and Bottom Slab Tendons Anchoring on Abutment Diaphragm)
(Concrete Caps May be for Individual Tendons or Groups of Tendons)



ANCHORAGE PROTECTION DETAIL TYPE C

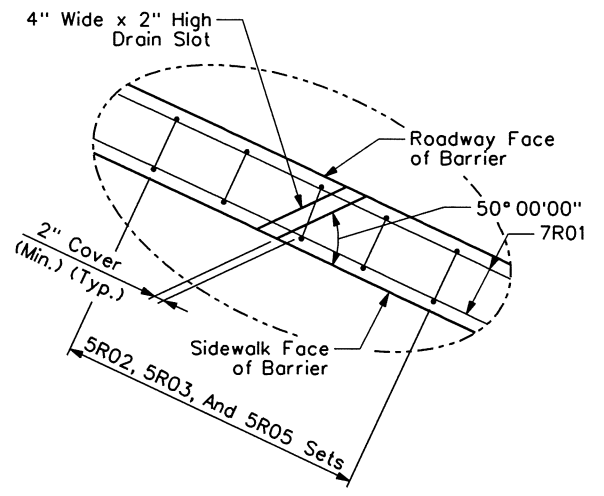
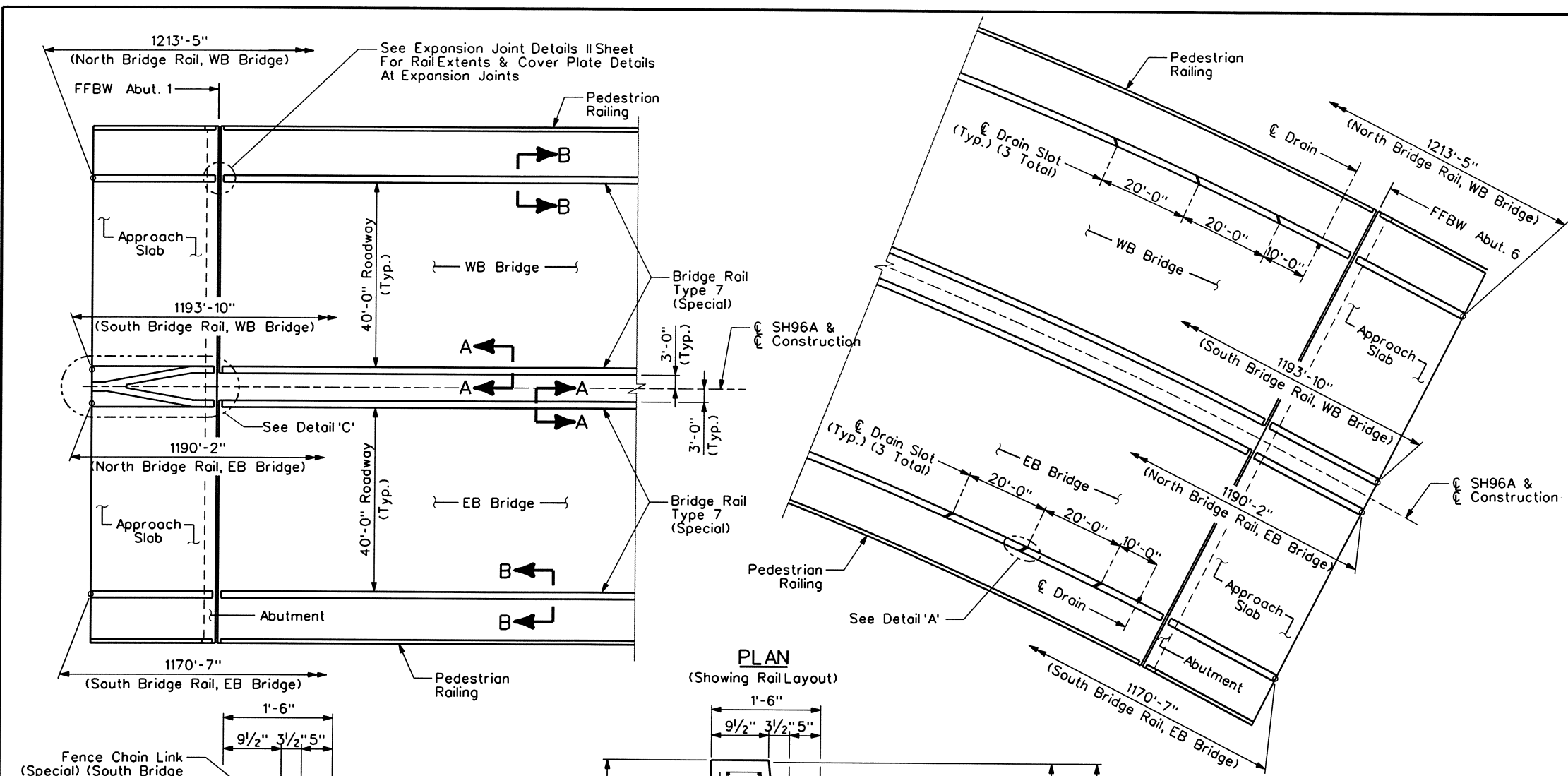
(Valid for Draped Future Post-Tensioning Anchors on Abutment Diaphragms Only)



POST-TENSIONING BAR DETAIL

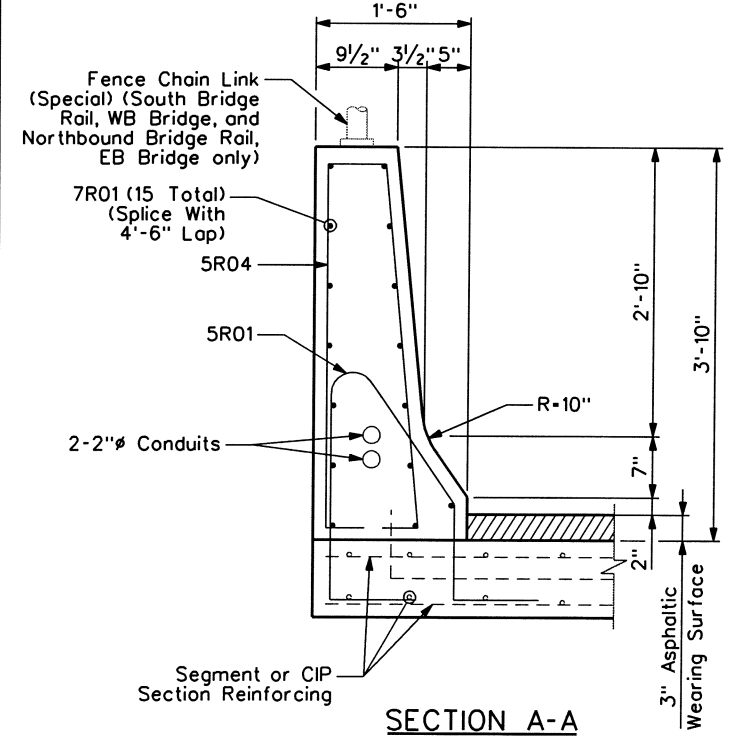
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	RKM	12/06	DR	RKM	12/06	DR
Checked By	INITIAL	DATE	QUANTITIES	INITIAL	DATE	QUANTITIES
	RKM	12/06	DR	RKM	12/06	DR

Print Date: 12/15/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		POST-TENSIONING GROUTING AND ANCHORAGE PROTECTION DETAILS		Project No./Code	
Drawing File Name: 13141_PT_Groutng_&_Anchorage_Preat_Details.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438, FAX: 719-546-5702		No Revisions:		BR 0961-008		
Horiz. Scale: Vert. Scale:					Region 2 KSR		Revised:		13141		
Unit Information Unit Leader Initials							Void:		Sheet Number 214		
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400							Designer: K. Montgomery Detailer: D. Anderson		Structure Numbers K-18-GS (EB) K-18-GT (WB)		
							Sheet Subset: BRIDGE		Subset Sheets: B117 of B169		

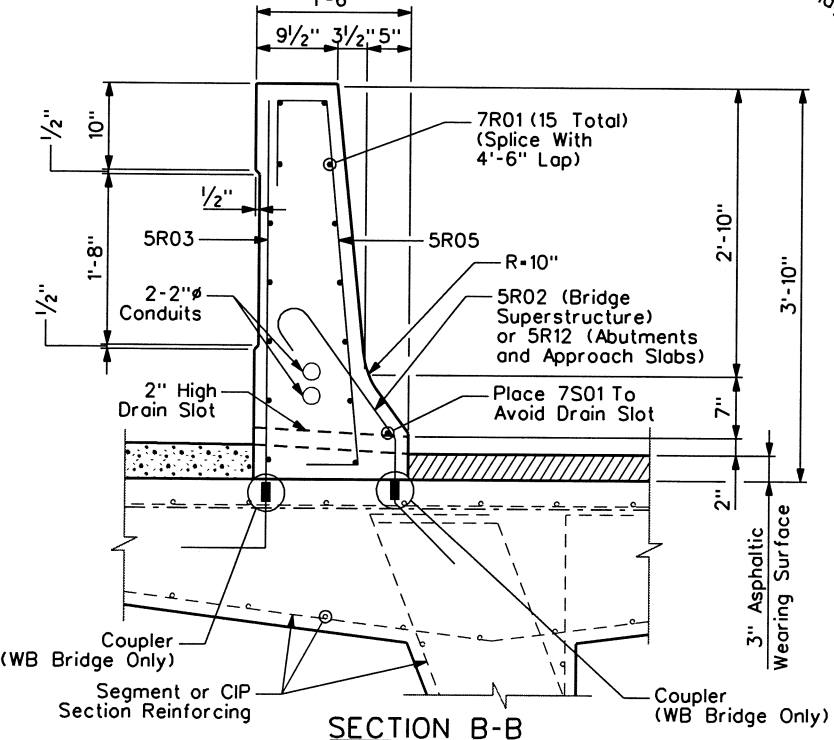


- NOTES:**
- Concrete for bridge railing shall be Class D, 4500 psi.
 - Reinforcing for bridge rail shall be epoxy coated. Concrete cover shall be 2" typical and 1/2" under expansion joint sliding plates.
 - 5R01, 5R02, and 5R03 bars are at an average spacing of 1'-0". See Segment Reinforcing, CIP Section Reinforcing, Abutment Reinforcing and Approach Slab Details Sheets for placement in these elements.
 - The top and side surfaces shall be tested with a 10 foot straightedge laid along the surfaces in the longitudinal direction. Deviation of the concrete surface from the straightedge shall be less than 1/4" plus allowance for roadway horizontal and vertical curvature, if any.
 - See Fence Chain Link (Special) sheets for fence post and anchorage spacing.
 - 6" x 6" x 4" deep pullboxes shall be placed at a 300' maximum spacing on the back face of all Bridge Rails Type 7. Cost of pullboxes is incidental to the cost of the conduit. Provide expansion couplers for all conduits at expansion joints. See the Expansion Joint Details I Sheet for movements.
 - The Bridge Railing Type 7 quantity represents 4 bridge rails along the entire length from the beginning of one approach slab to the end of the other approach slab. The cost of the railing transition and median curb at Abutment 1.
 - The South Bridge Rail of the WB Bridge is cast after both bridges are complete. To allow traffic temporarily in both directions on the WB Bridge, the 5R02 and 5R03 bars will need to be coupled as shown on these drawings. The first part of these bars will be placed in the primary pours. Plastic caps or some other form of protection for the couplers will need to be utilized. After EB traffic is switched to the EB bridge, the deck shall be chipped back within the limits of the bridge rail to expose the couplers, the second part of these bars shall be coupled to the first, the remainder of the reinforcing placed, and the bridge rail cast. The cost of the couplers and all labor for the construction of this bridge rail shall be included in the bid price.
 - The typical bridge railing bars as detailed in this drawing can be used for the bridge railing on the abutments and approach slabs. The Contractor may elect to modify these bars for placement in these elements at no additional cost to CDOT.

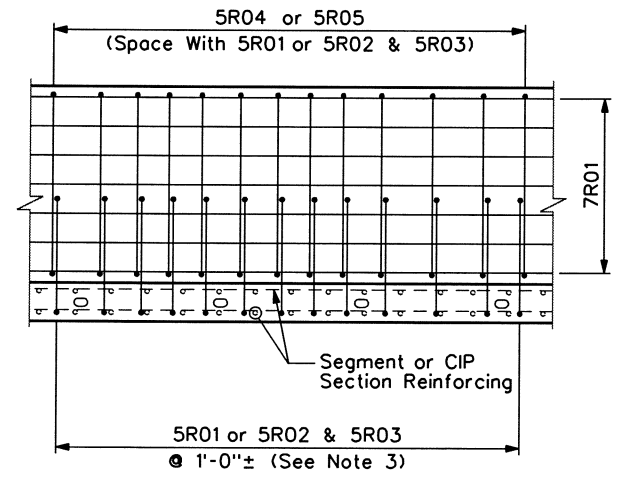
PLAN
(Showing Rail Layout)



SECTION A-A



SECTION B-B



ELEVATION
(Showing Typical Reinforcing)

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
JRD	12/06	RKM	12/06	RKM	12/06
Checked By	12/06	Checked By	12/06	Checked By	12/06

Print Date: 03/15/2007
 Drawing File Name: 13141_Bridge_Rail_Type_7_Special_Details_I.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

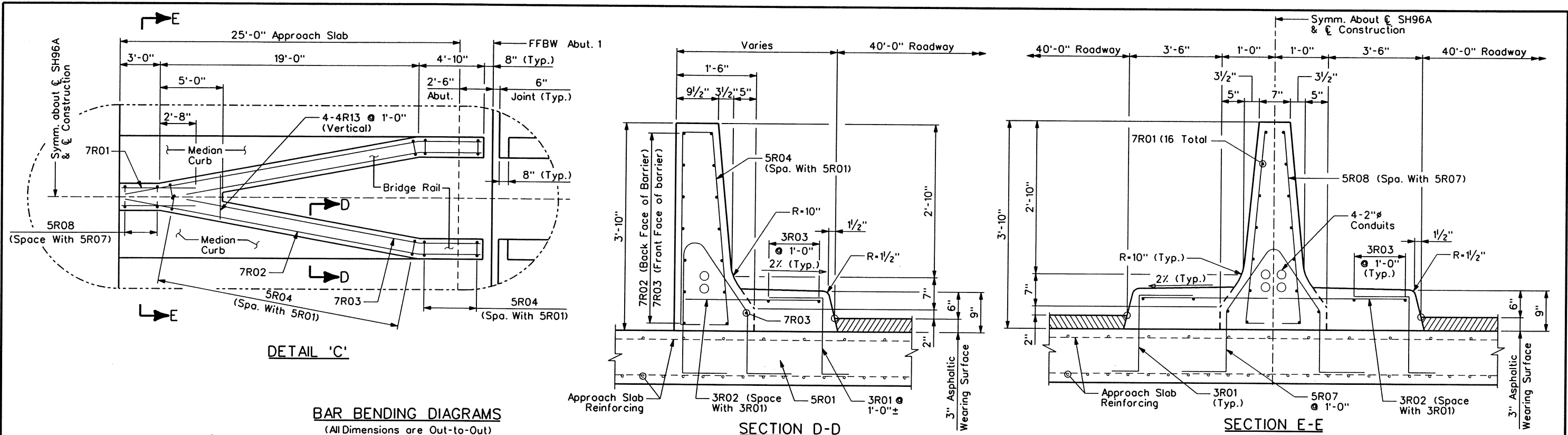
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

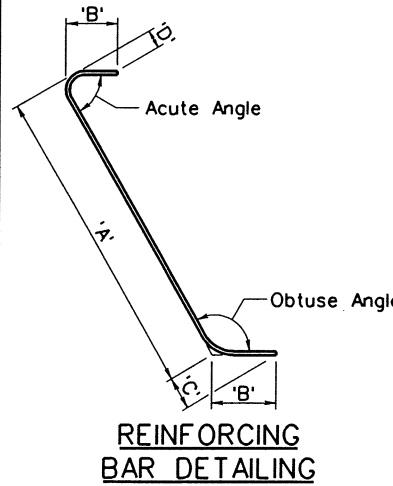
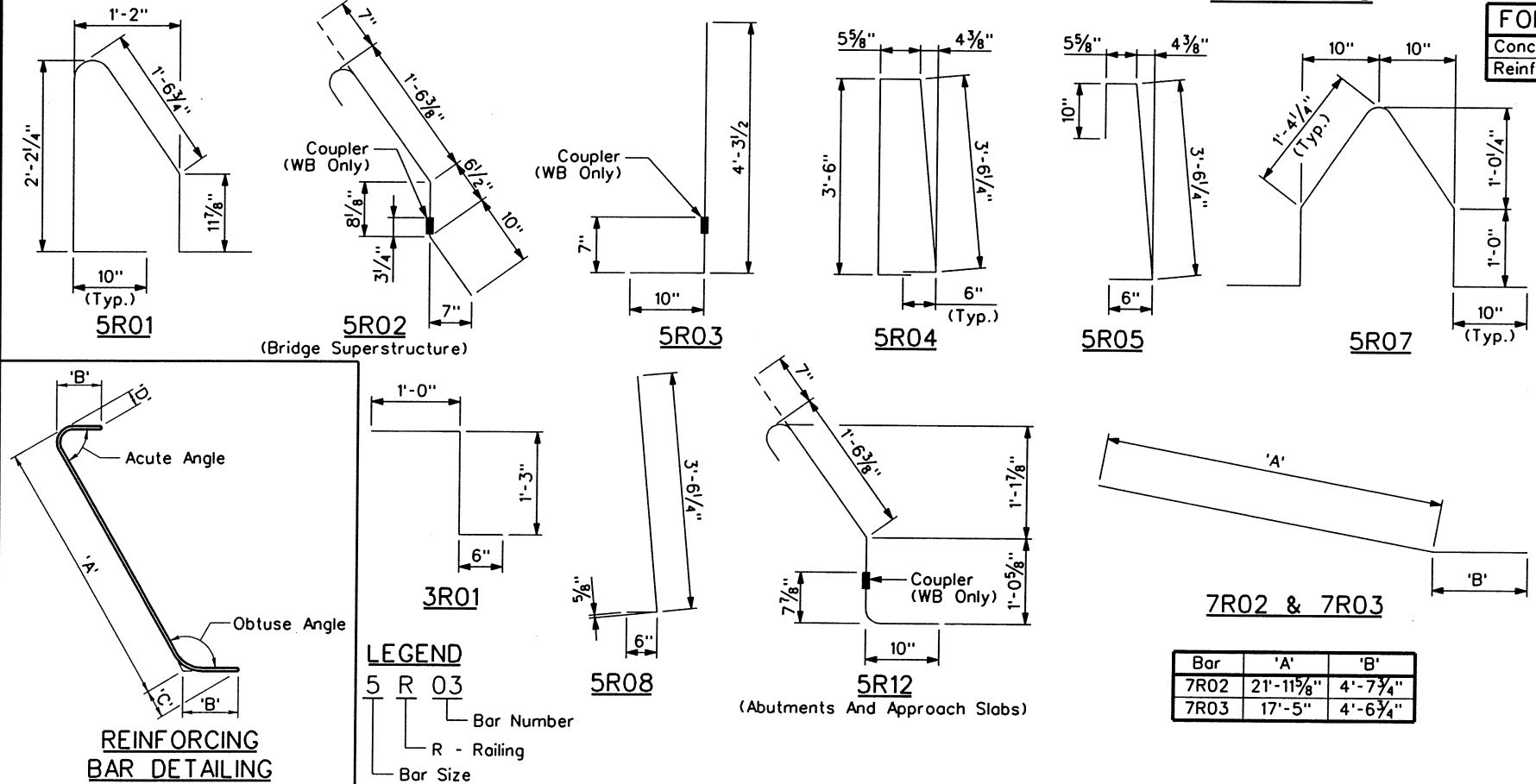
As Constructed
No Revisions:
Revised:
Void:

BRIDGE RAIL TYPE 7 (SPECIAL) DETAILS I	
Designer: K. Montgomery	Structure K-18-GS (EB)
Detailer: R. Adams	Numbers K-18-GT (WB)
Sheet Subset: BRIDGE	Subset Sheets: B120 of B169

Project No./Code
BR 0961-008
13141
Sheet Number 217



BAR BENDING DIAGRAMS
(All Dimensions are Out-to-Out)



LEGEND
5 R 03 Bar Number
R - Railing
Bar Size

FOR INFORMATION ONLY QUANTITIES

Concrete Class D (Bridge)	0.15	CY/LF
Reinforcing Steel (Epoxy Coated)	4.7	LB/LF

ESTIMATED QUANTITIES

Item No.	Item Description	Unit	Quantity
606-10705	Bridge Rail Type 7 (Special)	LF	4768

- NOTES:**
- Concrete for bridge railing shall be Class D, 4500 psi.
 - Reinforcing for bridge rail shall be epoxy coated. Concrete cover shall be 2" typical and 1/2" under expansion joint sliding plates.
 - 3R01, 5R01, 5R02, 5R03, and 5R07 bars are at an average spacing of 1'-0". See Segment Reinforcing, CIP Section Reinforcing, Abutment Reinforcing, and Approach Slab Details Sheets for placement in these elements.
 - The top and side surfaces shall be tested with a 10 foot straightedge laid along the surfaces in the longitudinal direction. Deviation of the concrete surface from the straightedge shall be less than 1/4" plus allowance for roadway horizontal and vertical curvature, if any.
 - See Fence Chain Link (Special) sheets for fence post and anchorage spacing.
 - 6" x 6" x 4" deep pullboxes shall be placed at a 300' maximum spacing on the back face of all Bridge Rails Type 7. Cost of pullboxes is incidental to the cost of the conduit. Provide expansion couplers for all conduits at expansion joints. See the Expansion Joint Details Sheet for movements.
 - The Bridge Railing Type 7 quantity represents 4 bridge rails along the entire length from the beginning of one approach slab to the end of the other approach slab. The cost of the Bridge Railing Type 7 shall include the cost of the railing transition and median curb at Abutment 1.
 - The South Bridge Rail of the WB Bridge is cast after both bridges are complete. To allow traffic temporarily in both directions on the WB Bridge, the 5R02 and 5R03 bars will need to be coupled as shown on these drawings. The first part of these bars will be placed in the primary pours. Plastic caps or some other form of protection for couplers will need to be utilized. After EB traffic is switched to the EB bridge, the deck shall be chipped back within the limits of the bridge rail to expose the couplers, the second part of these bars shall be coupled to the first, the remainder of the reinforcing placed, and the bridge rail cast. The cost of the couplers and all labor for the construction of this bridge rail shall be included in the bid price.
 - The typical bridge railing bars as detailed in this drawing can be used for the bridge railing on the abutments and approach slabs. The contractor may elect to modify these bars for placement in these elements at no additional cost to CDOT.
 - The "For Information Only" quantities are for the typical railing (Sections A-A and B-B).
 - See the Lighting and Conduit Details III sheet for conduit quantities.

Bar	'A'	'B'
7R02	21'-11 5/8"	4'-7 3/4"
7R03	17'-5"	4'-6 3/4"

Print Date: 1/4/2007
 Drawing File Name: 13141_Bridge_Rail_Type_7_Special_Details_II.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials

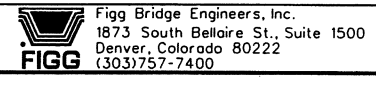
Sheet Revisions

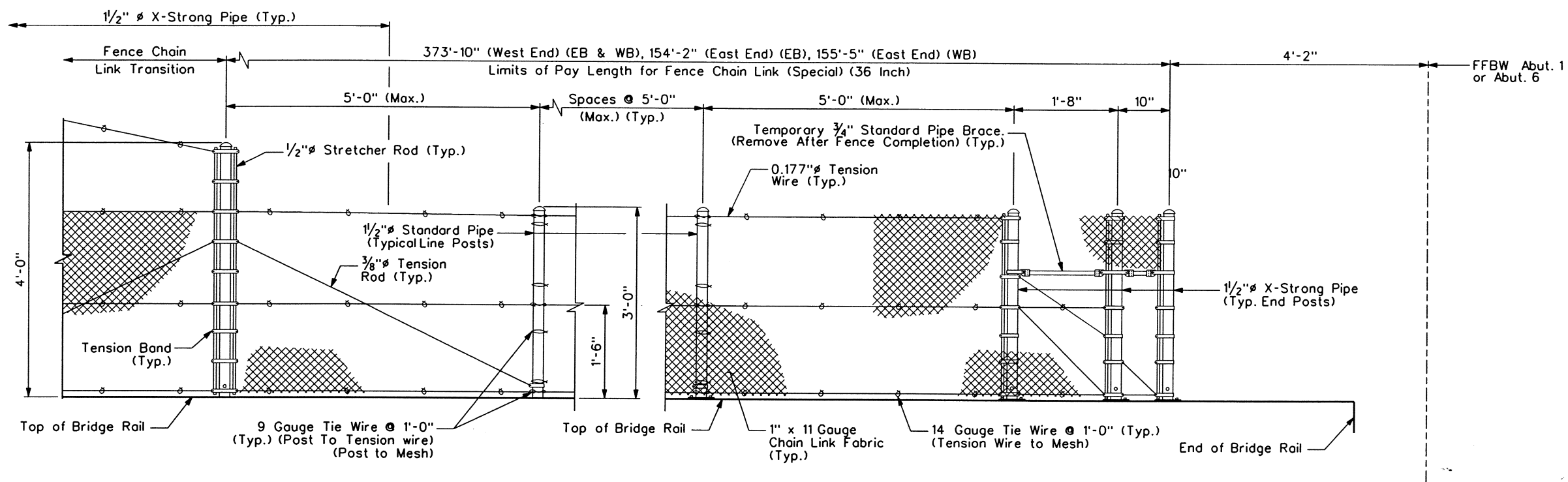
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	BRIDGE RAIL TYPE 7 (SPECIAL) DETAILS II		Project No./Code
No Revisions:			BR 0961-008
Revised:	Designer: K. Montgomery	Structure Numbers: K-18-GS (EB)	13141
Void:	Detailer: R. Adams	Subset Sheets: B121 of B169	Sheet Number 218

Design	Detail	Quantities
INITIAL	DATE	INITIAL
DESIGNED BY	DATE	QUANTITIES BY
CHECKED BY	DATE	CHECKED BY





BRACE POST

LINE POSTS

END POSTS

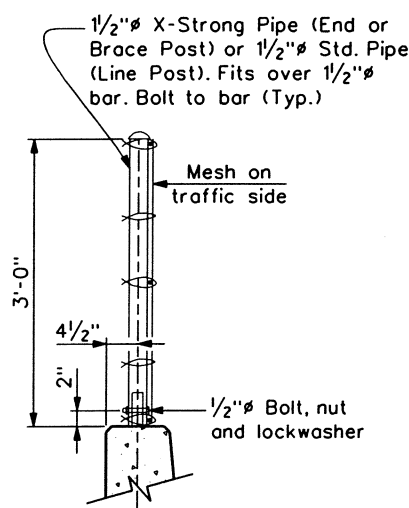
NOTES:

1. Fence Chain Link is on inside bridge rails closest to ϵ SH96A only.
2. Anchorage assembly shall be galvanized after fabrication. If vinyl coating is specified, the fence assembly shall be galvanized and vinyl coated after fabrication. Anchorage shall only be galvanized after fabrication.
3. Tension rods and wires shall have turnbuckles.
4. Posts shall be vertical.
5. Pipe shall conform to ASTM A53 Type E or S, Grade B.

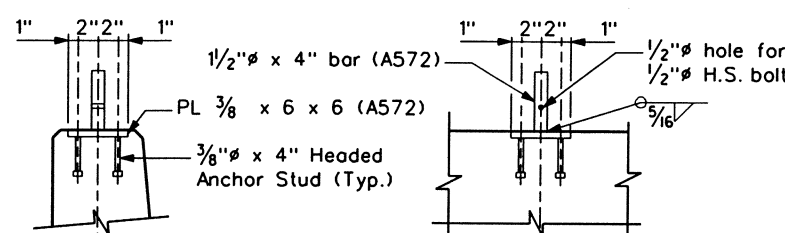
DESIGN DATA:

Total Tension = 5400 lbs.
 Test with Max. Midbay deflection = 1/4" for Lateral Load of 160 lbs. on 1 ft², 1'-6" up @ center of bay
 Live Load: wind load = 11 psf or snow impact load = 96 plf @ 1'-6" up
 Structural Steel: Pipe f_y = 35,000 psi
 ASTM A572 (GR 50) f_y = 50,000 psi

Standard Color Vinyl Coatings over Galvanized Wire	Munsell Color System No. (as per ASTM)
Galvanized Only	None
Brown	7YR 2.4/1.75
Green	8.8G 2.63/5.8
Black	1.8PB 1.26/0.5

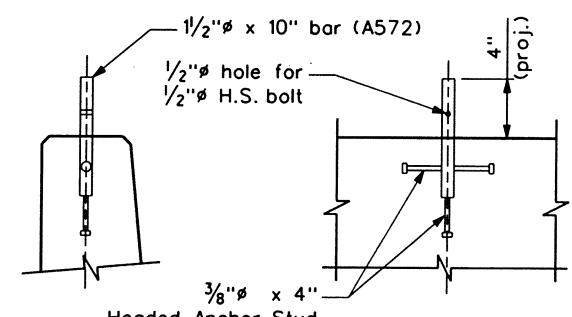


TYPICAL SECTION



SECTION

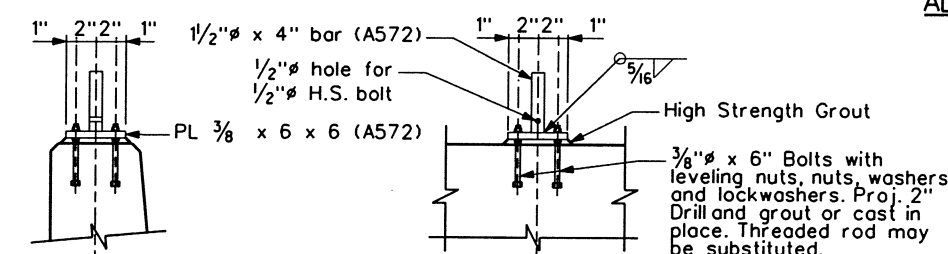
ELEVATION



SECTION

ELEVATION

ALTERNATIVE ANCHORAGE DETAILS



SECTION

ELEVATION

ALTERNATIVE ANCHORAGE DETAILS

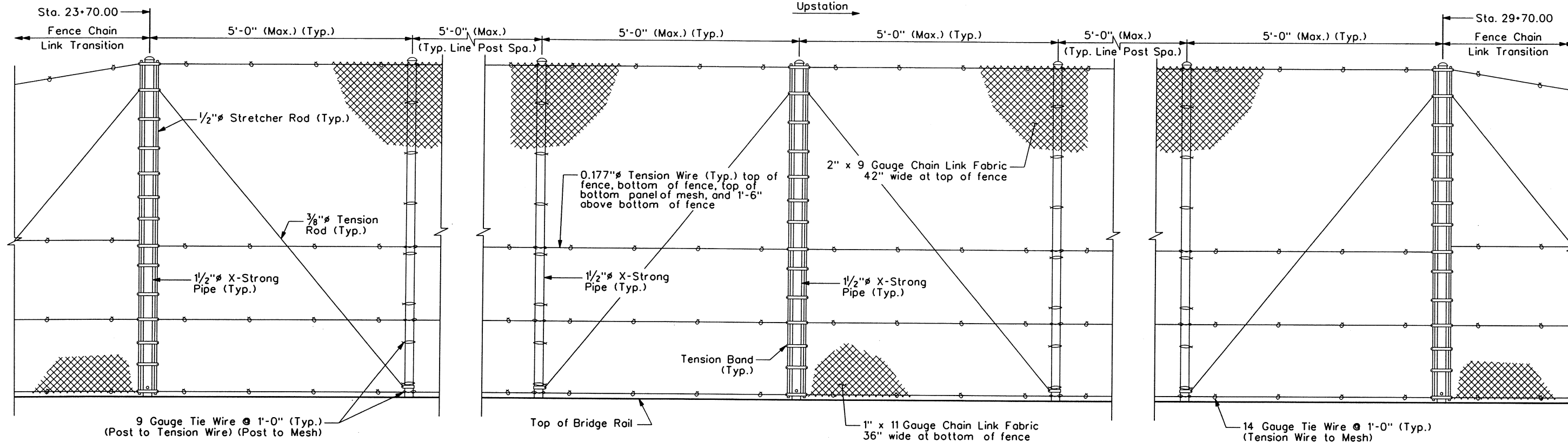
ESTIMATED QUANTITIES			
Item No.	Item Description	Unit	Quantity
607-53137	Fence Chain Link (Special) (36 Inch)	LF	1057

Design	Quantities		Detail		Check	
	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Designed By	RKM	12/06	Checked By	RKM	12/06	12/06
Checked By	JRD	12/06	Checked By	DAI	12/06	12/06

Print Date: 12/11/2006	Sheet Revisions			Colorado Department of Transportation	As Constructed	FENCE CHAIN LINK (SPECIAL) (36 INCH)		Project No./Code BR 0961-008
Drawing File Name: 13141_Fence_Chainlink_Special_36in.dgn	Date:	Comments	Init.			No Revisions:	Designer: K. Montgomery	
Horiz. Scale: Vert. Scale:				902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2	Revised:	Detailer: S. Fall	Numbers: K-18-GT (WB)	13141
Unit Information Unit Leader Initials					Void:	Sheet Subset: BRIDGE	Subset Sheets: B122 of B169	Sheet Number: 219

FIGG Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303) 757-7400

599'-0" (EB), 601'-0" (WB), Limits of Pay Length for Fence Chain Link (Special) (78 Inch)



BRACE POST

LINE POSTS

LINE POSTS

BRACE POST

LINE POSTS

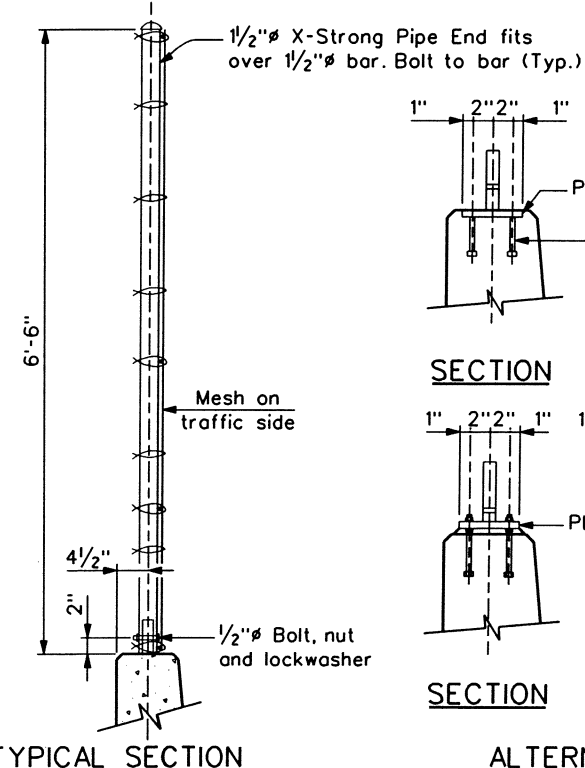
LINE POSTS

BRACE POST

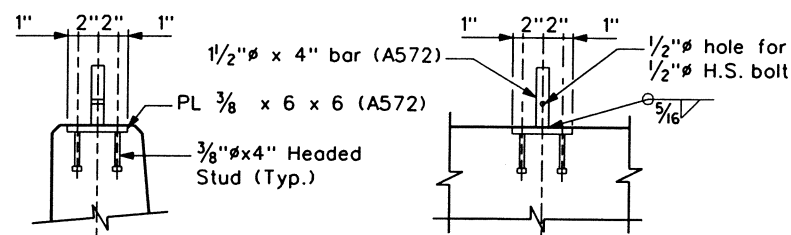
(Place as Close as Practical to Midway Between Transitions)

NOTES:

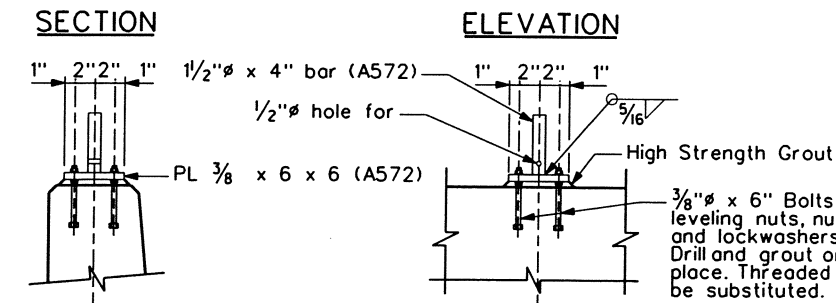
1. Fence Chain Link is on inside bridge rails closest to ϕ SH96A only.
2. Anchorage assembly shall be galvanized after fabrication. If vinyl coating is specified, the fence assembly shall be galvanized and vinyl coated after fabrication. Anchorage shall only be galvanized after fabrication.
3. Tension rods and wires shall have turnbuckles.
4. Posts shall be vertical.
5. Pipe shall conform to ASTM A53 Type E or S, Grade B.
6. Stations given are along ϕ SH96A. Transitions should be located radially.



TYPICAL SECTION



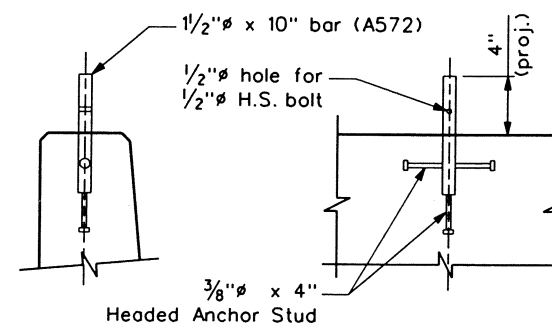
ELEVATION



SECTION

ELEVATION

ALTERNATIVE ANCHORAGE DETAILS



SECTION ELEVATION ALTERNATIVE ANCHORAGE DETAIL

DESIGN DATA:

Total Tension = 5400 lbs.
 Test with Max. Midbay deflection = 1/4" for Lateral Load of 160 lbs. on 1 ft², 1'-6" up @ center of bay
 Live Load wind load = 11 psf, 1" mesh
 wind load = 6 psf, 2" mesh
 or snow impact load = 96 plf @ 1'-6" up
 Structural Steel: Pipe f_y = 35,000 psi
 ASTM A572 (GR 50) f_y = 50,000 psi

Standard Color Vinyl Coatings over Galvanized Wire	Munsell Color System No. (as per ASTM)
Galvanized Only	None
Brown	7YR 2.4/1.75
Green	8.8G 2.63/5.8
Black	1.8PB 1.26/0.5

ESTIMATED QUANTITIES		
Item No.	Item Description	Unit Quantity
607-53178	Fence Chain Link (Special) (78 Inch)	LF 1200.0

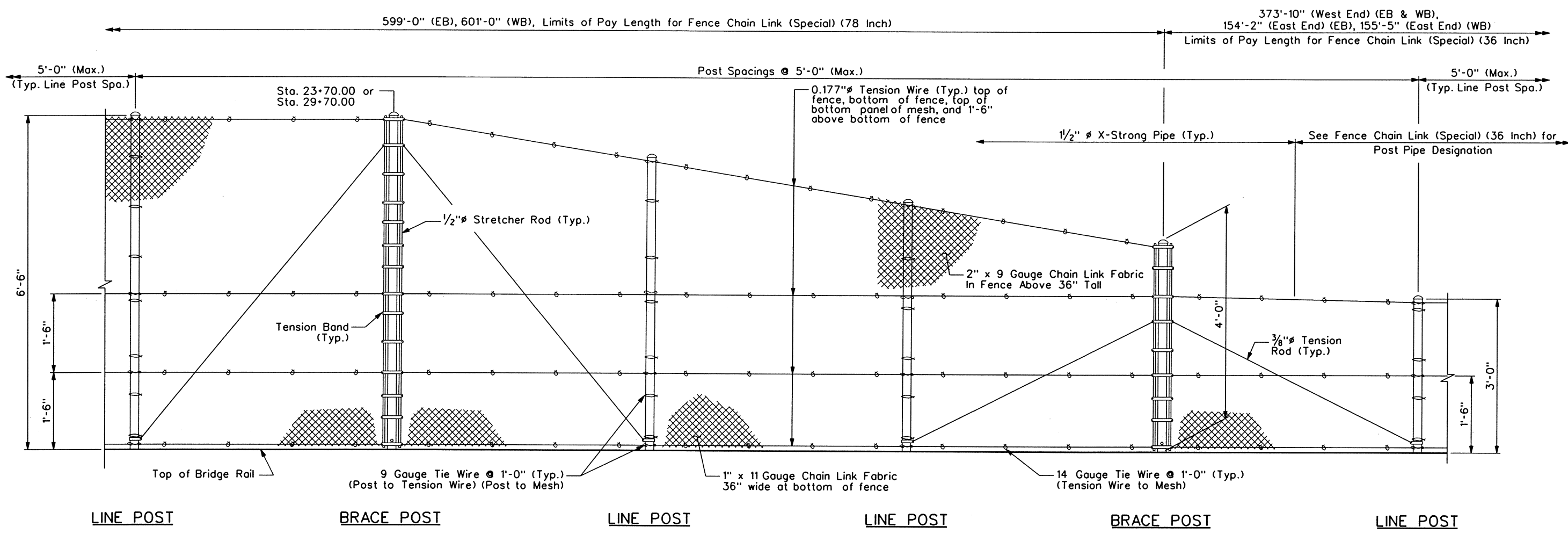
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 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Balfiore St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	FENCE CHAIN LINK (SPECIAL) (78 INCH)		Project No./Code
No Revisions:			BR 0961-008
Revised:	Designer: K. Montgomery	Structure: K-18-GS (EB)	13141
Void:	Detailer: S. Fall	Numbers: K-18-GT (WB)	Sheet Number 220
	Sheet Subset: BRIDGE	Subset Sheets: B123 of B169	

Design	Quantity		DATE	INITIAL
	INITIAL	DATE		
Designed By	RKM	12/06	12/06	RKM
Checked By	JRD	12/06	12/06	JRD
Detail				
Quantity				
INITIAL				
DATE				
Checked By				
Quantity				
Checked By				
DATE				
INITIAL				



Quantities	INITIAL	DATE	MM/YY
Designed By	XXX	MM/YY	MM/YY
Checked By	XXX	MM/YY	MM/YY
Detail	INITIAL	DATE	MM/YY
Designed By	XXX	MM/YY	MM/YY
Checked By	XXX	MM/YY	MM/YY
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Designed By	XXX	MM/YY	MM/YY
Checked By	XXX	MM/YY	MM/YY

NOTES:

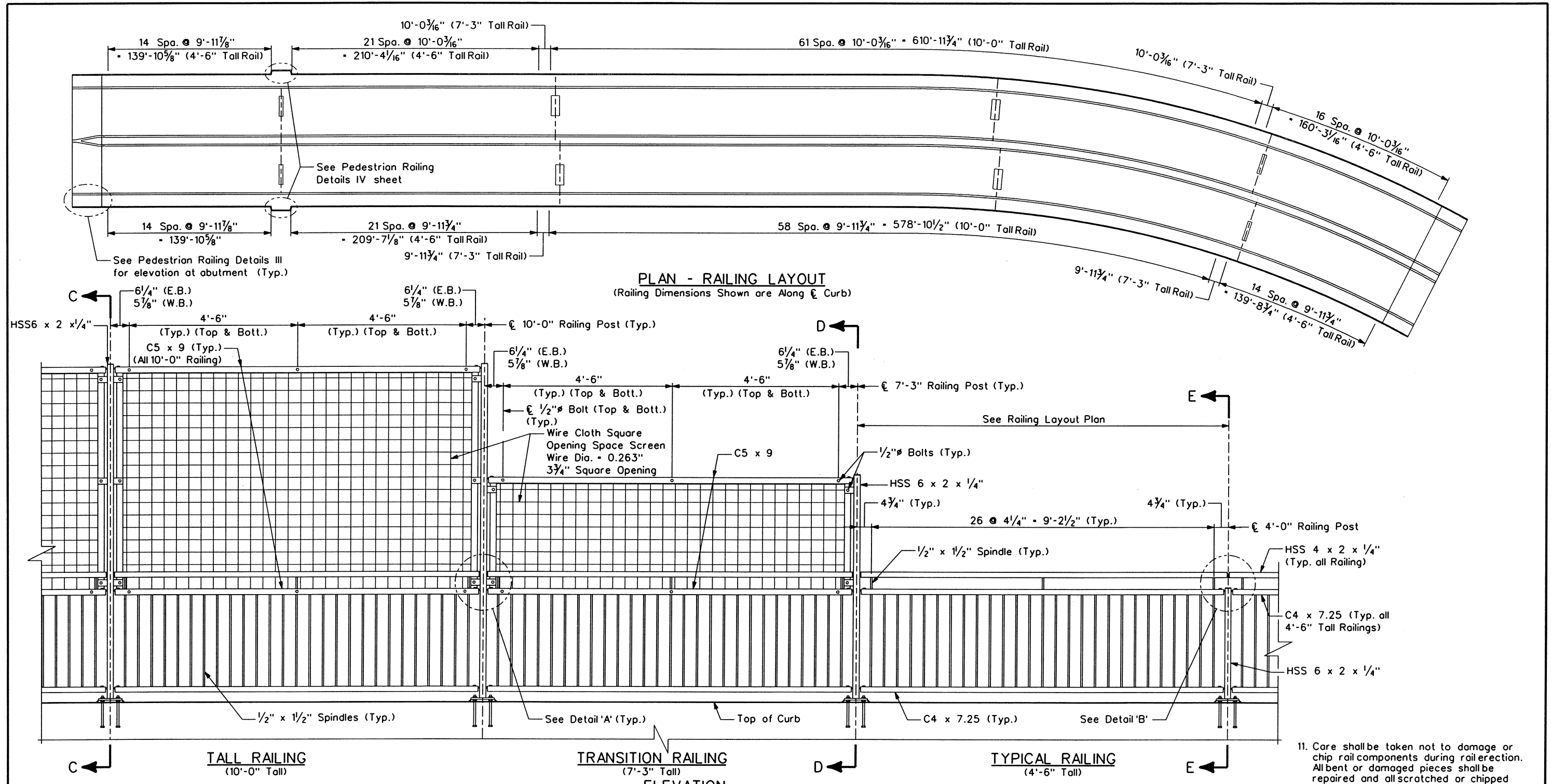
- See Fence Chain Link (Special) (36 Inch) and Fence Chain Link (Special) (78 Inch) sheets for post anchorage details.
- Anchorage assembly shall be galvanized after fabrication. If vinyl coating is specified, the fence assembly shall be galvanized and vinylcoated after fabrication. Anchorage shall only be galvanized after fabrication.
- Tension rods and wires shall have turnbuckles.
- Posts shall be vertical.
- Pipe shall conform to ASTM A53 Type E or S, Grade B.
- Transition at Station 29+70.00 shown. Transition at Station 23+70.00 opposite hand.
- Stations given are along ϕ SH96A. Transitions should be located radially.

DESIGN DATA:

Total Tension = 5400 lbs.
 Test with Max. Midbay deflection = 1/4" for Lateral Load of 160 lbs. on 1 ft², 1'-6" up @ center of bay
 Live Load: wind load = 11 psf, 1" mesh
 wind load = 6 psf, 2" mesh
 or snow impact load = 96 plf @ 1'-6" up
 Structural Steel: Pipe f_y = 35,000 psi
 ASTM A572 (GR 50) f_y = 50,000 psi

Standard Color Vinyl Coatings over Galvanized Wire	Munsell Color System No. (as per ASTM)
Galvanized Only	None
Brown	7YR 2.4/1.75
Green	8.8G 2.63/5.8
Black	1.8PB 1.26/0.5

Print Date: 12/11/2006	Sheet Revisions			Colorado Department of Transportation	As Constructed	FENCE CHAIN LINK TRANSITION DETAILS		Project No./Code	
Drawing File Name: 13141_Fence_Chainlink_Transition-Details.dgn	Date:	Comments	Init.					BR 0961-008	
Horiz. Scale: Vert. Scale:				902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702	No Revisions:	Designer: K. Montgomery		Structure	K-18-GS (EB)
Unit Information Unit Leader Initials						Region 2	Revised:	Detailer: S. Fall	
Figg Bridge Engineers, Inc. 1673 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400				Region 2	Void:	Sheet Subset: BRIDGE		Subset Sheets	B124 of B169
								Sheet Number	

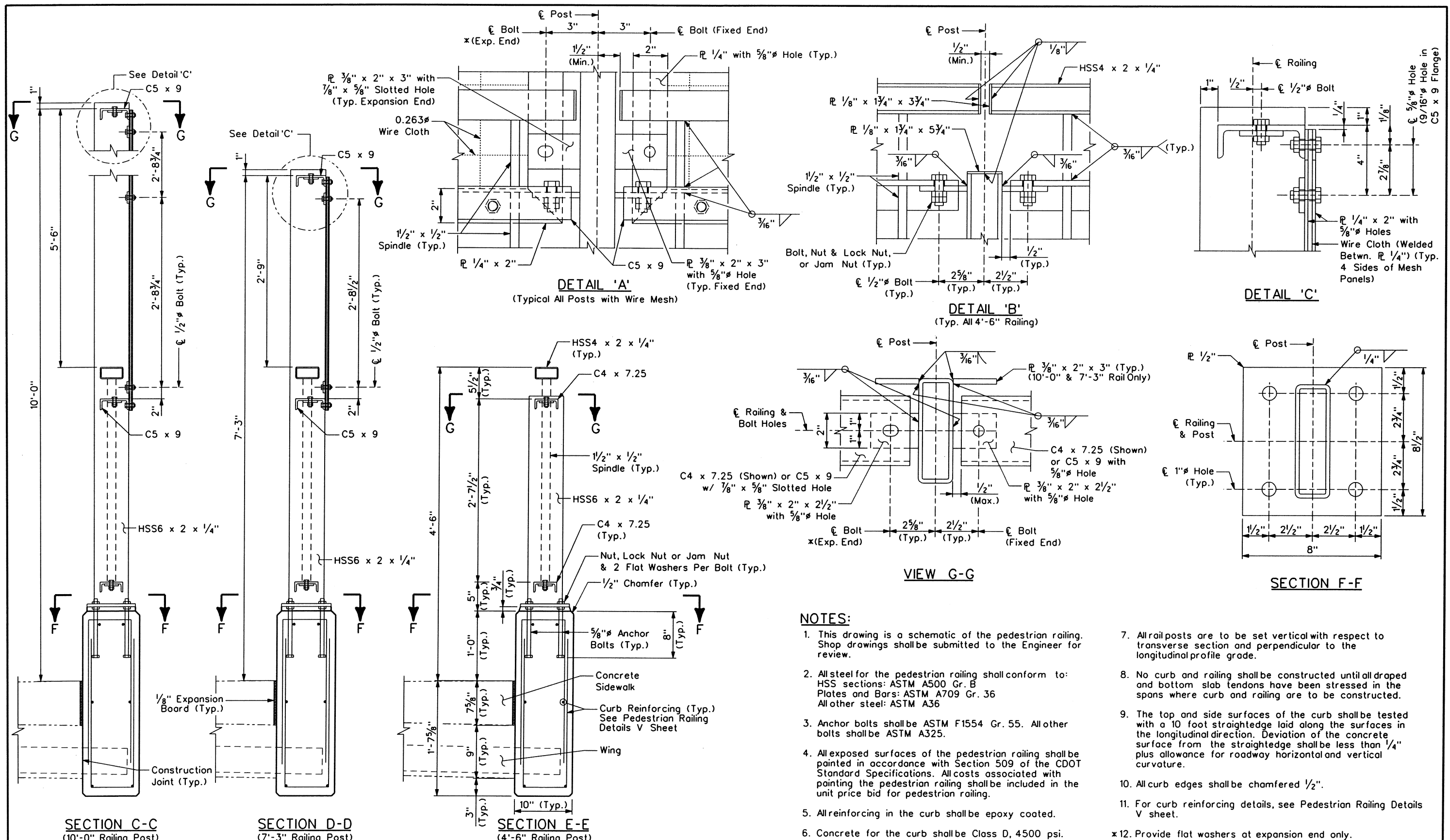


- NOTES:**
- This drawing is a schematic of the pedestrian railing. Shop drawings shall be submitted to the Engineer for review.
 - All steel for the pedestrian railing shall conform to: HSS sections: ASTM A500 Gr. B; Plates and Bars: ASTM A709 Gr. 36; All other steel: ASTM A36.
 - Anchor bolts shall be ASTM F1554 Gr. 55. All other bolts shall be ASTM A325.
 - All exposed surfaces of the pedestrian railing shall be painted in accordance with Section 509 of the CDOT Standard Specifications. All costs associated with painting the pedestrian railing shall be included in the unit price bid for pedestrian railing.
 - Concrete for the curb shall be Class D, 4500 psi.
 - For curb reinforcing, see Pedestrian Railing Details II and V sheets.
 - All rail posts are to be set vertical with respect to transverse section and perpendicular to the longitudinal profile grade.
 - All railing panels shall have one fixed end and one expansion end. For connection details, see Pedestrian Railing Details II sheet.
 - The bid price for Item No. 514-00201 Pedestrian Railing (Steel) (Special) shall include the curb and rail shown on Pedestrian Railing Details sheets I-V. The bid price shall include all concrete, reinforcing, steel, bolts, labor, and other incidental items required to construct the curb and railing.
 - No curb and railing shall be constructed until all draped and bottom slab tendons have been stressed in the spans where curb and railing are to be constructed.
 - Care shall be taken not to damage or chip rail components during rail erection. All bent or damaged pieces shall be repaired and all scratched or chipped point shall be touched up in accordance with section 509 of the CDOT Standard Specifications, with color to match.
 - The top and side surfaces of the curb shall be tested with a 10 foot straightedge laid along the surfaces in the longitudinal direction. Deviation of the concrete surface from the straightedge shall be less than 1/4" plus allowance for roadway horizontal and vertical curvature.

Design	INITIAL	DATE	INITIAL	DATE
	PJH	12/06	PJH	12/06
Checked By	INITIAL	DATE	INITIAL	DATE
	BTL	12/06	DTL	12/06
Detail	INITIAL	DATE	INITIAL	DATE
	PJH	12/06	DTL	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	PJH	12/06	DTL	12/06

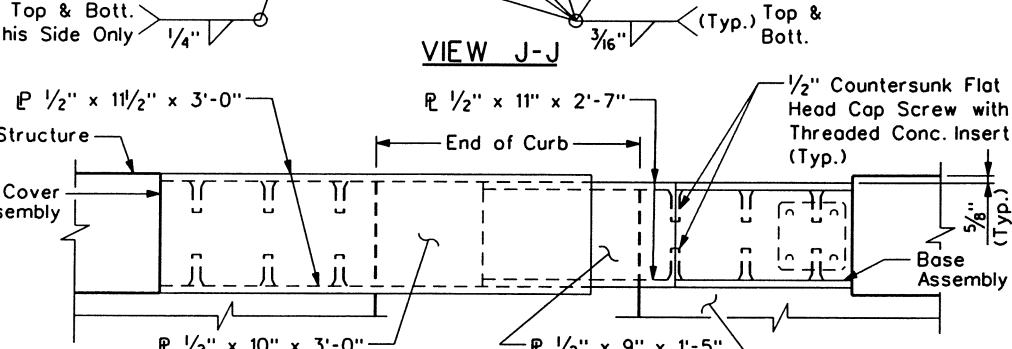
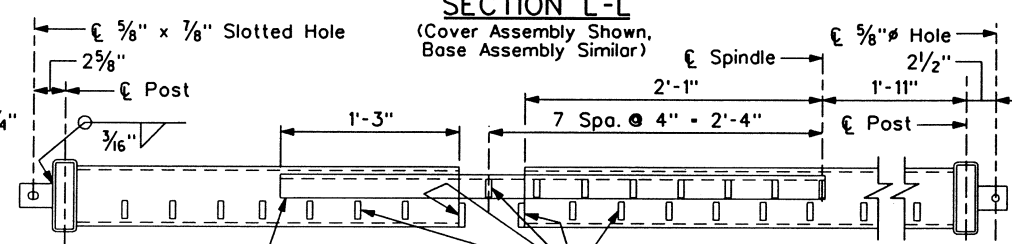
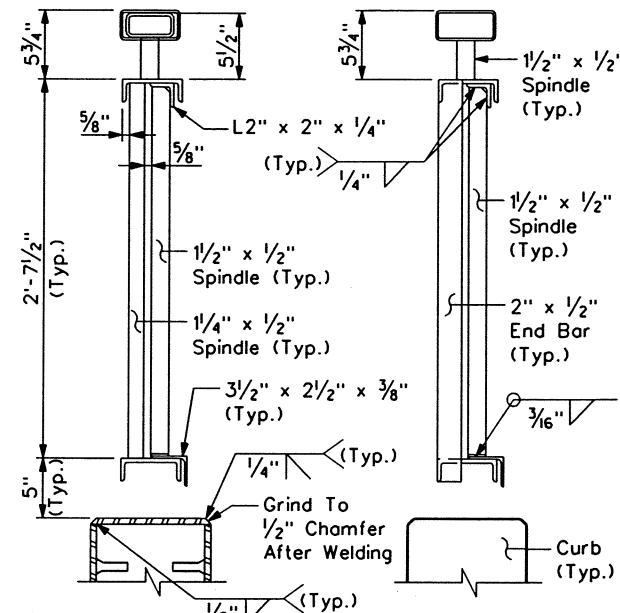
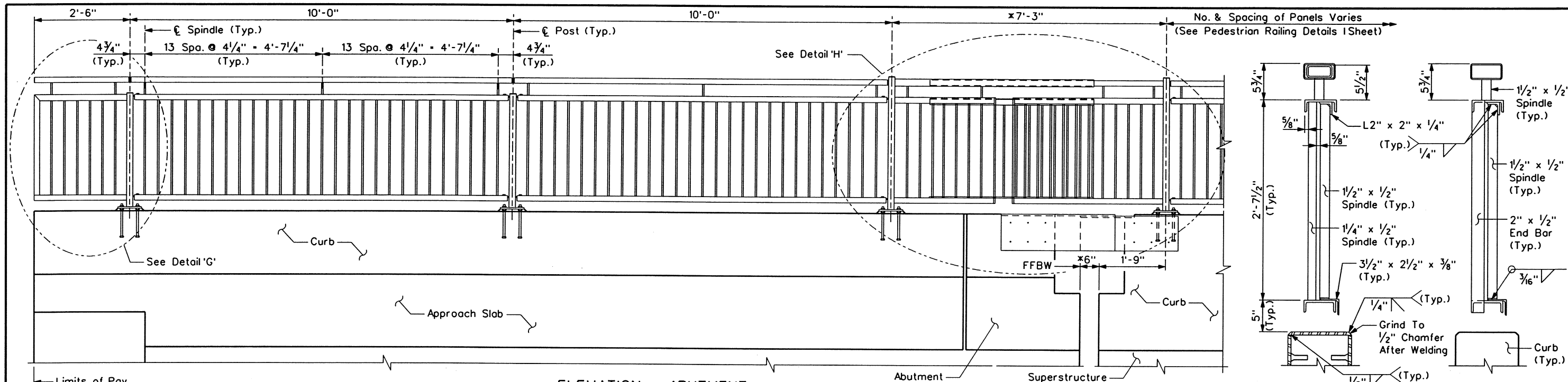
Print Date: 12/14/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		PEDESTRIAN RAILING DETAILS I		Project No./Code	
Drawing File Name: 13141_Ped_Rail_Det_I.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		Designer: P. Hill		BR 0961-008
Horiz. Scale: Vert. Scale:					Region 2 KSR		Revised:		Structure: K-18-GS (EB)		13141
Unit Information Unit Leader Initials							Void:		Detailer: D. Anderson		Sheet Number 222
Figg Bridge Engineers, Inc. 1873 South Belloire St., Suite 1500 Denver, Colorado 80222 (303)757-7400									Numbers: K-18-GT (WB)		
									Sheet Subset: BRIDGE		
									Subset Sheets: B125 of B169		

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
PJH	12/06	PJH	12/06	PJH	12/06
Designed By	Detailed By	Checked By	Checked By	Checked By	Checked By
BTL	BTL	PJH	PJH	DAI	DAI
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By



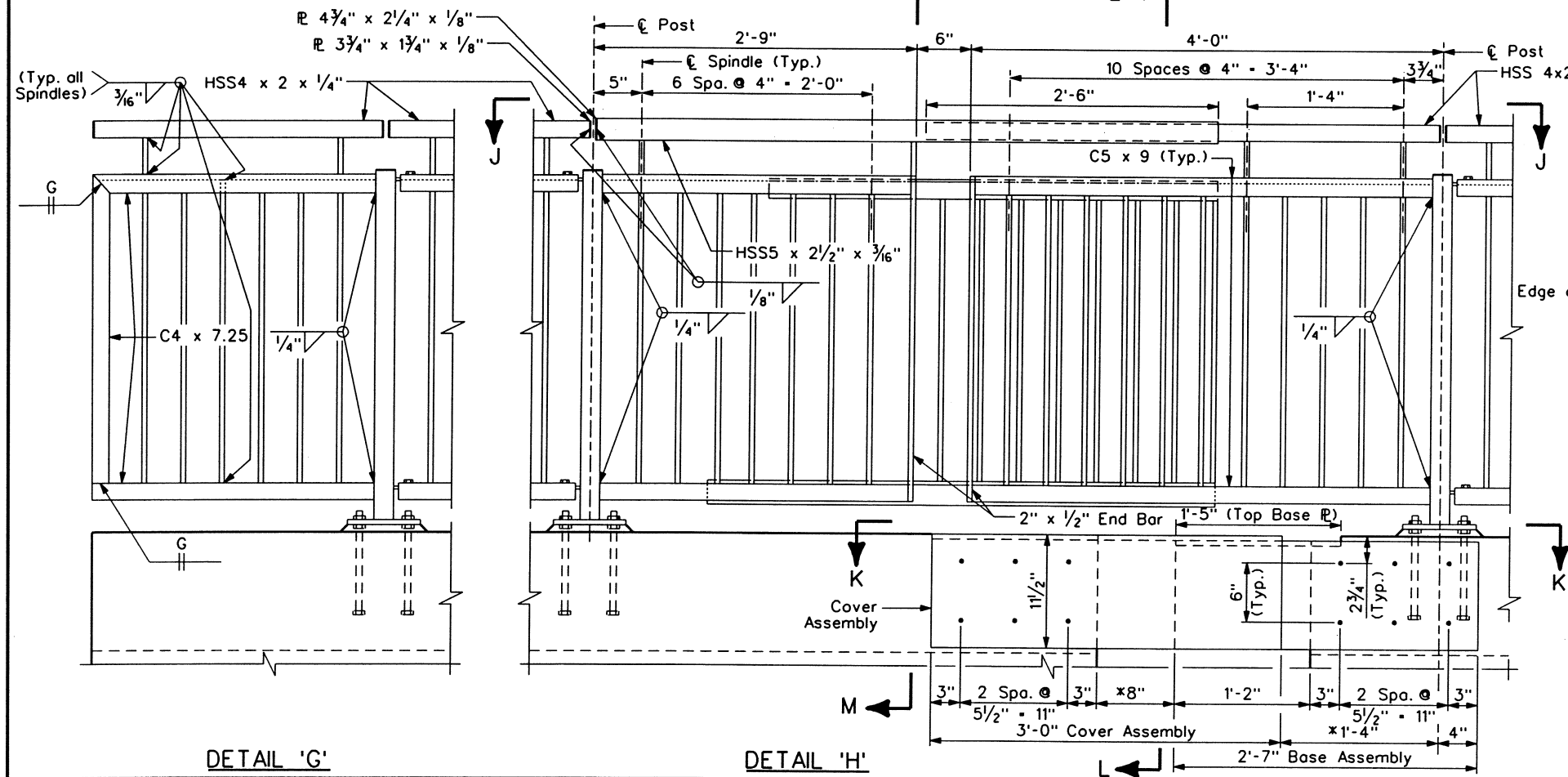
- NOTES:**
- This drawing is a schematic of the pedestrian railing. Shop drawings shall be submitted to the Engineer for review.
 - All steel for the pedestrian railing shall conform to: HSS sections: ASTM A500 Gr. B; Plates and Bars: ASTM A709 Gr. 36; All other steel: ASTM A36.
 - Anchor bolts shall be ASTM F1554 Gr. 55. All other bolts shall be ASTM A325.
 - All exposed surfaces of the pedestrian railing shall be painted in accordance with Section 509 of the CDOT Standard Specifications. All costs associated with painting the pedestrian railing shall be included in the unit price bid for pedestrian railing.
 - All reinforcing in the curb shall be epoxy coated.
 - Concrete for the curb shall be Class D, 4500 psi.
 - All railposts are to be set vertical with respect to transverse section and perpendicular to the longitudinal profile grade.
 - No curb and railing shall be constructed until all draped and bottom slab tendons have been stressed in the spans where curb and railing are to be constructed.
 - The top and side surfaces of the curb shall be tested with a 10 foot straightedge laid along the surfaces in the longitudinal direction. Deviation of the concrete surface from the straightedge shall be less than 1/4" plus allowance for roadway horizontal and vertical curvature.
 - All curb edges shall be chamfered 1/2".
 - For curb reinforcing details, see Pedestrian Railing Details V sheet.
 - Provide flat washers at expansion end only.

Print Date: 12/14/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Drawing File Name: 13141_Ped_Rail_Det_II.dgn		Date:	Comments	Init.	No Revisions:		PEDESTRIAN RAILING DETAILS II		BR 0961-008
Horiz. Scale: Vert. Scale:					Revised:		Designer: P. Hill	Structure: K-18-GS (EB)	13141
Unit Information Unit Leader Initials					Void:		Detailer: D. Anderson	Numbers: K-18-GT (WB)	Sheet Number
Figg Bridge Engineers, Inc. 1873 South Bellair St., Suite 1500 Denver, Colorado 80222 (303)757-7400		Region 2		902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 KSR		Sheet Subset: BRIDGE		Subset Sheets: B126 of B169	223



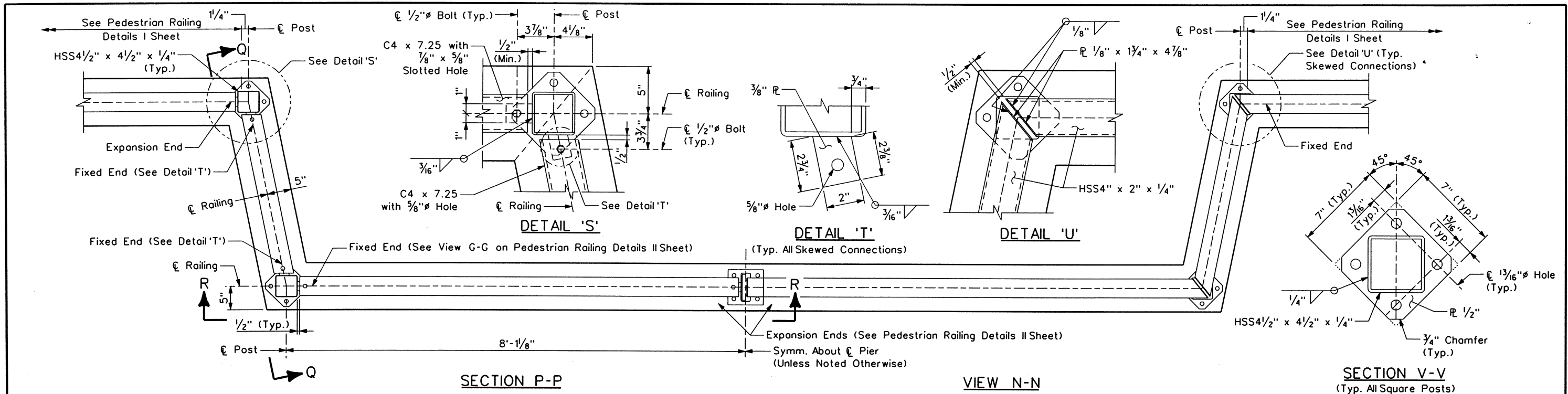
NOTES:

- This drawing is a schematic of the pedestrian railing. Shop drawings shall be submitted to the Engineer for review.
- All steel for the pedestrian railing shall conform to: HSS sections: ASTM A500 Gr. B Plates and Bars: ASTM A709 Gr. 36 All other steel: ASTM A36
- Anchor bolts shall be ASTM F1554 Gr. 55. All other bolts shall be ASTM A325.
- All exposed surfaces of the pedestrian railing shall be painted in accordance with Section 509 of the CDOT Standard Specifications. All costs associated with painting the pedestrian railing shall be included in the unit price bid for pedestrian railing.
- Dimension varies with temperature, and is based on a 6" gap between the abutment and superstructure at the time of casting. The remaining dimensions for the fixed railing and expansion panel remain constant.
- All curb edges shall be chamfered 1/2".
- For additional notes, see Pedestrian Railing Details I sheet.



Design	Checked By		Checked By		Checked By	
	DATE	INITIAL	DATE	INITIAL	DATE	INITIAL
Designed By	12/06	PJH	12/06	BTL	12/06	DAT
Checked By	12/06	BTL	12/06	BTL	12/06	DAT

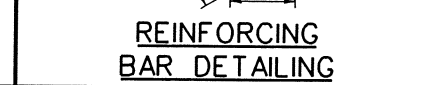
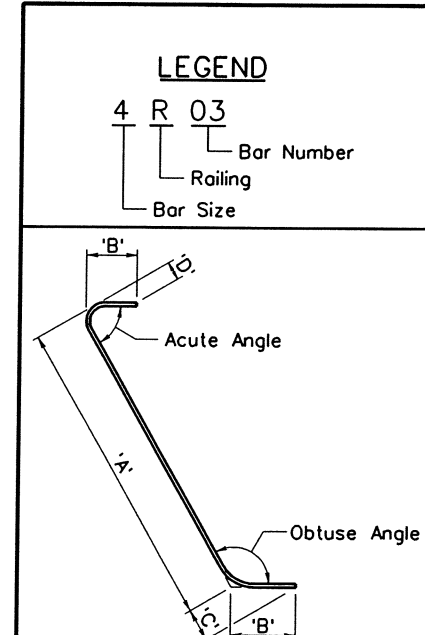
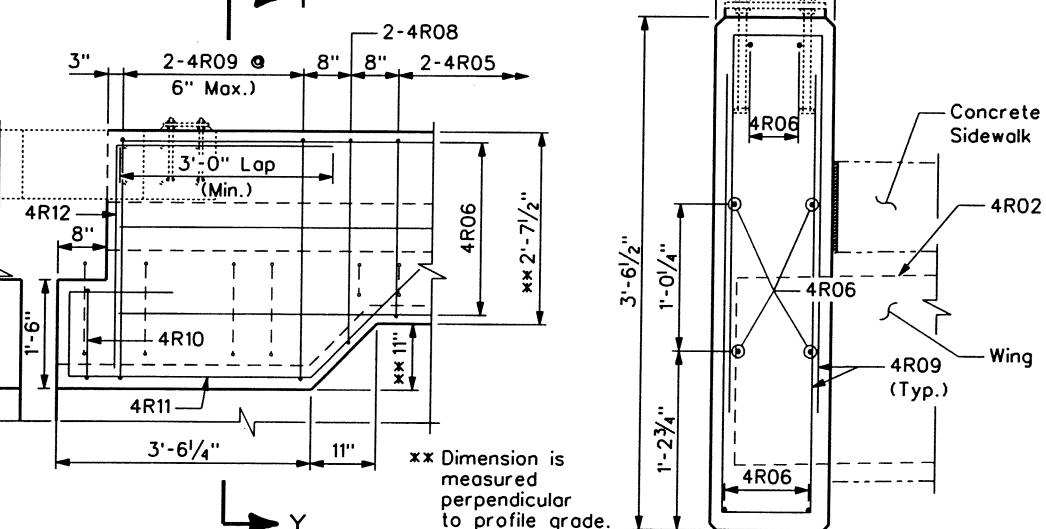
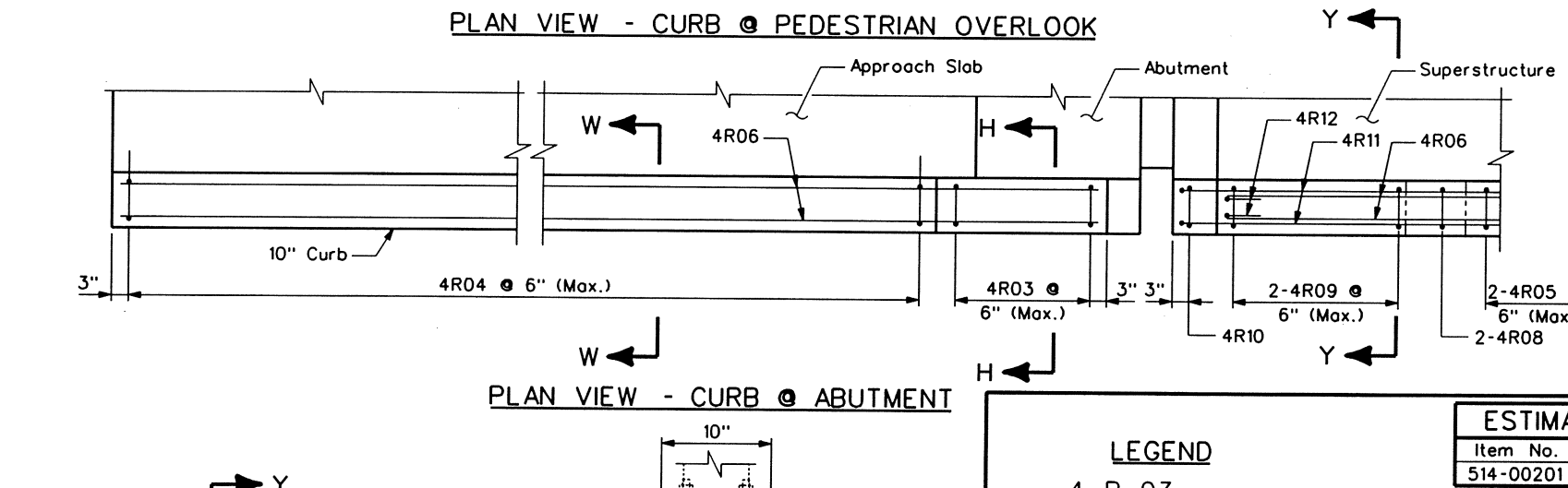
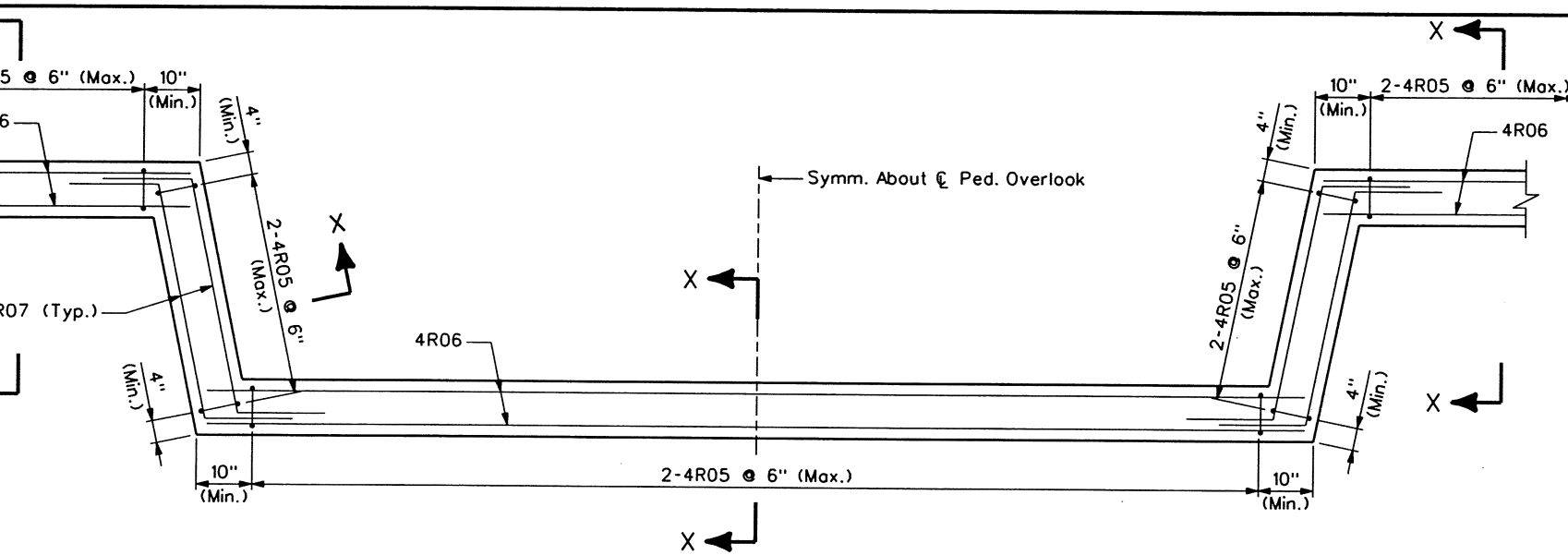
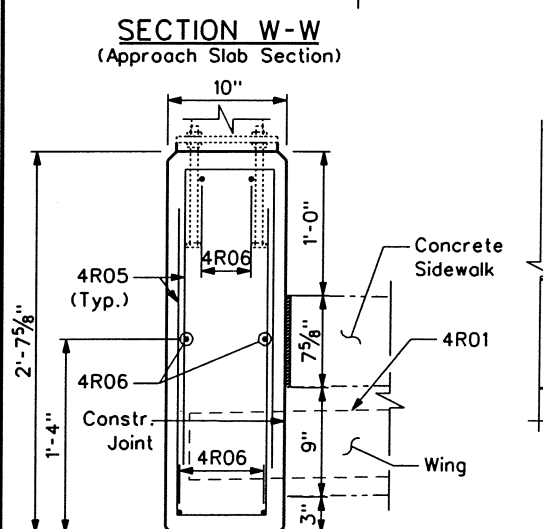
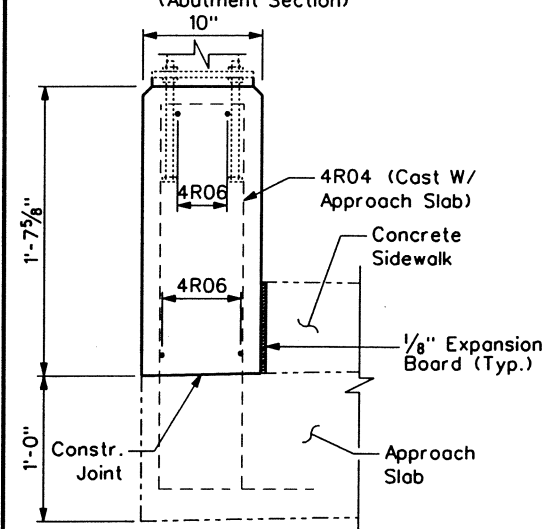
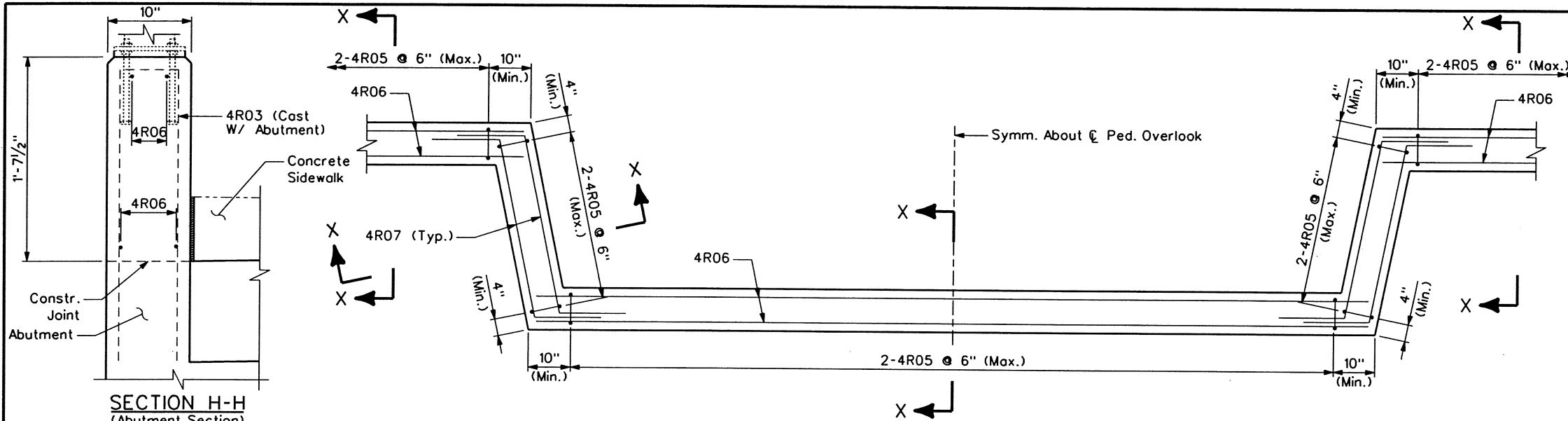
Print Date: 12/20/2006		Drawing File Name: 13141_Ped_Rail_Det_III.dgn		Horizontal Scale: Vert. Scale:		Unit Information: Unit Leader Initials		Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400		Sheet Revisions Date: Comments Init.		Colorado Department of Transportation 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2 KSR		As Constructed No Revisions: Revised: Void:		PEDESTRIAN RAILING DETAILS III Designer: P. Hill Structure: K-18-GS (EB) Detailer: D. Anderson Numbers: K-18-GT (WB) Sheet Subset: BRIDGE Subset Sheets: B127 of B169		Project No./Code BR 0961-008 13141 Sheet Number: 224	
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- NOTES:**
- This drawing is a schematic of the pedestrian railing. Shop drawings shall be submitted to the Engineer for review.
 - All steel for the pedestrian railing shall conform to: HSS sections: ASTM A500 Gr. B Plates and Bars: ASTM A709 Gr. 36 All other steel: ASTM A36
 - Anchor bolts shall be ASTM F1554 Gr. 55. All other bolts shall be ASTM A325.
 - All exposed surfaces of the pedestrian railing shall be painted in accordance with Section 509 of the CDOT Standard Specifications. All costs associated with painting the pedestrian railing shall be included in the unit price bid for pedestrian railing.
 - All railposts are to be set vertical with respect to transverse section and perpendicular to the longitudinal profile grade.
 - No curb and railing shall be constructed until all draped and bottom slab tendons have been stressed in the spans where curb and railing are to be constructed.
 - The top and side surfaces of the curb shall be tested with a 10 foot straightedge laid along the surfaces in the longitudinal direction. Deviation of the concrete surface from the straightedge shall be less than 1/4" plus allowance for roadway horizontal and vertical curvature.
 - All curb edges shall be chamfered 1/2"
 - For curb reinforcing details, see Pedestrian Railing Details V sheet.
 - For additional connection details, see Pedestrian Railing Details II sheet.
 - EB pedestrian overlook shown, WB pedestrian overlook mirrored about \bar{C} SH96A.

Design	INITIAL	DATE	INITIAL	DATE
	PJH	12/06	PJH	12/06
Detail	INITIAL	DATE	INITIAL	DATE
	PJH	12/06	PJH	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	PJH	12/06	PJH	12/06

Print Date: 12/3/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Drawing File Name: 13141_Ped_Rail_Det_IV.dgn		Date:	Comments	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		PEDESTRIAN RAILING DETAILS IV	
Horiz. Scale: Vert. Scale:				Region 2 KSR		Revised:		BR 0961-008	
Unit Information Unit Leader Initials						Void:		Designer: P. Hill Structure: K-18-GS (EB)	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400								Detailer: D. Anderson Numbers: K-18-GT (WB)	
								Sheet Subset: BRIDGE Subset Sheets: B128 of B169	
								Sheet Number 225	



BAR BENDING DIAGRAMS

(All Dimensions are Out-to-Out)

Bar	'A'	'B'
4R01	3'-4 1/2"	4 7/8"
4R02	3'-4 1/2"	1'-2 7/8"
4R03	2'-9"	6"
4R05	2'-3"	6"
4R08	2'-6"	6"
4R09	2'-9"	6"

4R01, 4R02, 4R03, 4R05, 4R08 & 4R09

LEGEND

4 R 03
Bar Number
Railing
Bar Size

ESTIMATED QUANTITIES - WB PEDESTRIAN RAILING

Item No.	Item Description	Unit	Quantity
514-00201	Pedestrian Rail (Steel) (Special)	LF	1,224

ESTIMATED QUANTITIES - EB PEDESTRIAN RAILING

Item No.	Item Description	Unit	Quantity
514-00201	Pedestrian Rail (Steel) (Special)	LF	1,171

- ### NOTES:
- This drawing is a schematic of the pedestrian railing. Shop drawings shall be submitted to the Engineer for review.
 - All exposed surfaces of the pedestrian railing shall be painted in accordance with Section 509 of the CDOT Standard Specifications. All costs associated with painting the pedestrian railing shall be included in the unit price bid for pedestrian railing. Concrete for the curb shall be Class D, 4500 psi.
 - The bid price for item 514-00201 Pedestrian Railing (Steel) (Special) shall include the curb and rail shown on Pedestrian Railing Details sheets I-V. The bid price shall include all concrete, reinforcing, steel, bolts, labor, and other incidental items required to construct the curb and railing.
 - No curb and railing shall be constructed until all draped and bottom slab tendons have been stressed in the spans where curb and railing are to be constructed.
 - The top and side surfaces of the curb shall be tested with a 10 foot straightedge laid along the surfaces in the longitudinal direction. Deviation of the concrete surface from the straightedge shall be less than 1/4" plus allowance for roadway horizontal and vertical curvature.
 - For placement of 4R01, 4R02, 4R03 & 4R04 bars, see adjacent element reinforcing sheets.
 - All curb edges shall be chamfered 1/2".
 - All reinforcing in the curb shall be epoxy coated.

Design	Initial	Date	Checked By	Quantity	Initial	Date	Checked By
Designed By	PJH	12/06	BTL	12/06	Checked By	DAI	12/06
Detail	Initial	Date	Checked By	Quantity	Initial	Date	Checked By
Designed By	PJH	12/06	BTL	12/06	Checked By	DAI	12/06

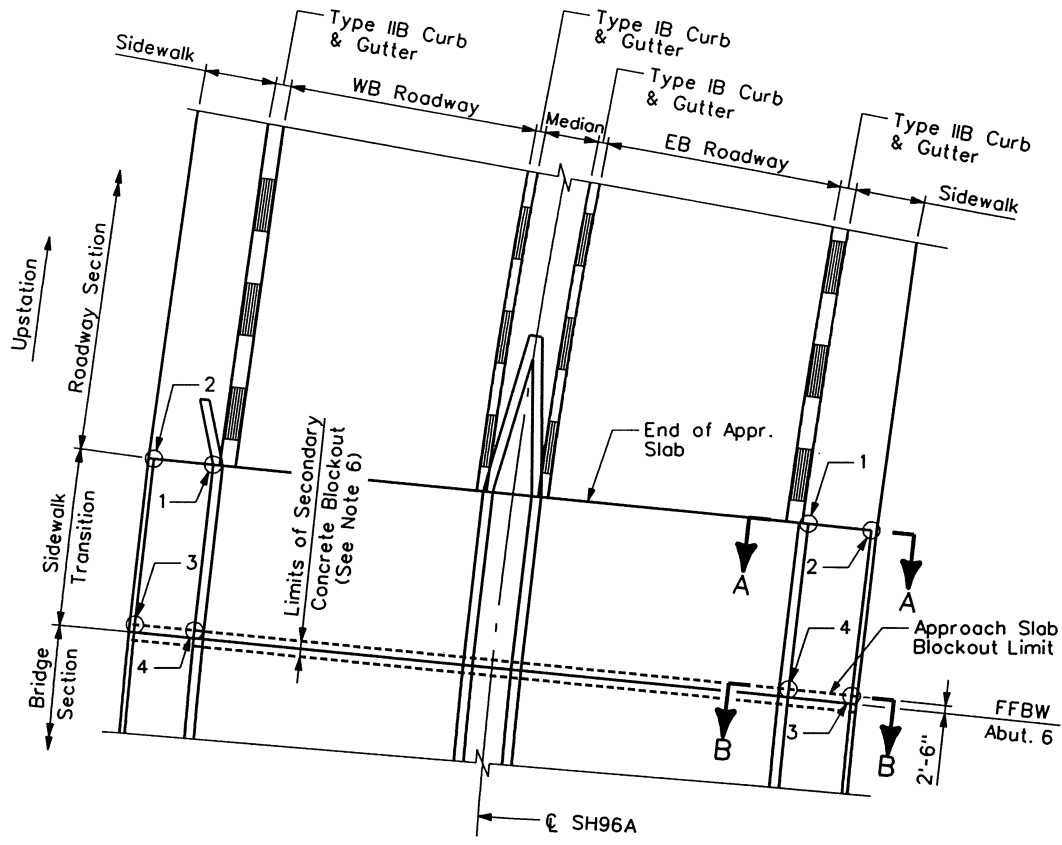
Print Date: 12/20/2006
Drawing File Name: I3141_Ped_Rail_Det_V.dgn
Horiz. Scale: Vert. Scale: Unit Information Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

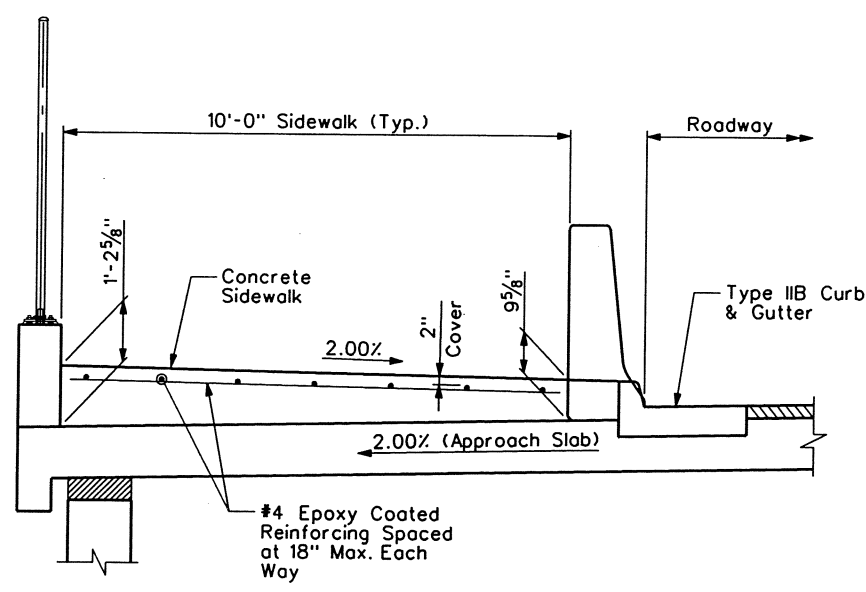
Colorado Department of Transportation
902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702
Region 2 KSR

As Constructed		PEDESTRIAN RAILING DETAILS V		Project No./Code	
No Revisions:		Designer:	P. Hill	Structure	K-18-GS (EB)
Revised:		Detailer:	D. Anderson	Numbers	K-18-GT (WB)
Void:		Sheet Subset:	BRIDGE	Subset Sheets:	B129 of B169
				BR 0961-008	13141
					Sheet Number 226

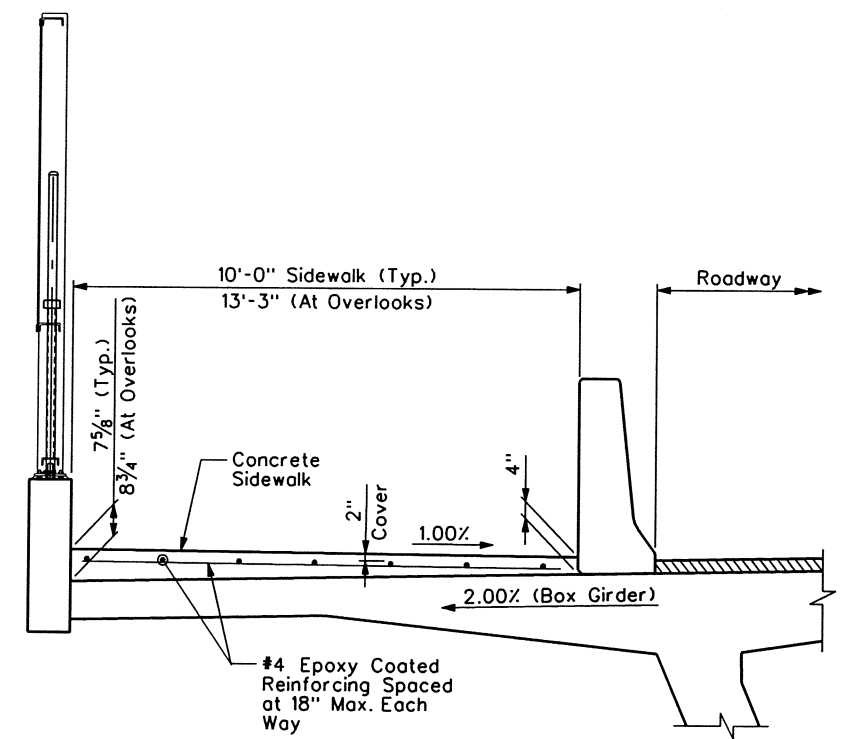
Fig Bridge Engineers, Inc.
1873 South Bellaire St., Suite 1500
Denver, Colorado 80222
(303)757-7400



ABUTMENT 6 PLAN



SECTION A-A



SECTION B-B

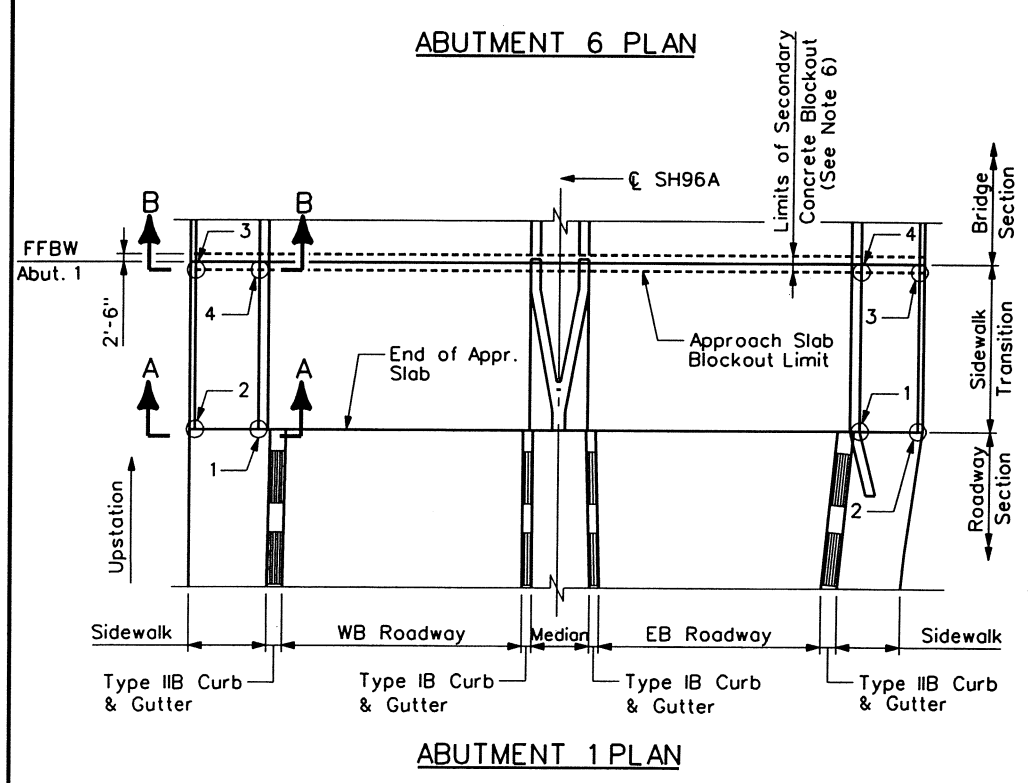
SIDEWALK TRANSITION ELEVATION TABLE					
Abutment No.	Direction	Location	Offset (Ft)	Station	Elevation
Abutment 1	EB	①	+46	19+64.50	4724.17
		②	+56	19+64.50	4724.37
		③	+56	19+89.50	4723.38
		④	+46	19+89.50	4723.28
Abutment 6	WB	①	-46	19+64.50	4724.17
		②	-56	19+64.50	4724.37
		③	-56	19+89.50	4723.38
		④	-46	19+89.50	4723.28
Abutment 6	EB	①	+46	31+57.90	4692.78
		②	+56	31+58.23	4692.97
		③	+56	31+31.66	4693.38
		④	+46	31+31.63	4693.28
Abutment 6	WB	①	-46	31+55.23	4692.89
		②	-56	31+54.97	4693.09
		③	-56	31+31.36	4693.44
		④	-46	31+31.38	4693.34

x (+) Offset Indicates Right, (-) Offset Indicates Left (Looking Upstation)

ESTIMATED QUANTITIES			
Item No.	Item Description	Unit	Quantity
601-05540	Concrete Class HT (Deck Topping)	CY	437

NOTES:

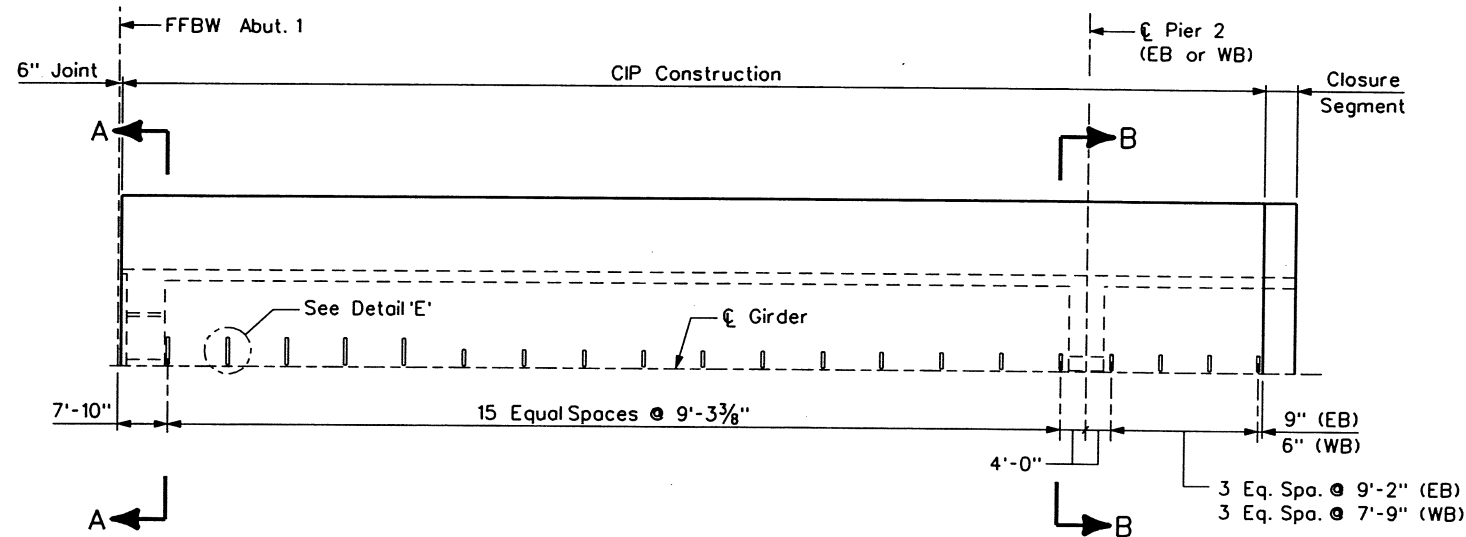
- Concrete for sidewalks shall be Class HT. All requirements for Class HT overlays shall apply.
- Epoxy reinforcing shall have 2" clear to the top surface, bridge railing, and pedestrian railing curb. Cost of epoxy reinforcing is incidental to the cost of the sidewalk concrete.
- Sidewalk shall be placed after the adjacent bridge railing and pedestrian railing curb. Sidewalk transition shall occur smoothly across entire approach slab.
- 1/2" deep x 1/8" wide control joints shall be placed radial to CL Girder at equal spaces not to exceed 10'-0". Control joints shall be formed into plastic concrete during finishing. Saw cut joints are not allowed.
- Extent of concrete sidewalk is from beginning of one approach slab to the end of the other approach slab.
- See Expansion Joint Details sheets for details of expansion joints & secondary concrete blockouts.
- Cost for the Class HT concrete sidewalk shall include all materials and labor for preparation, placement, curing, and other operations for constructing the sidewalk.



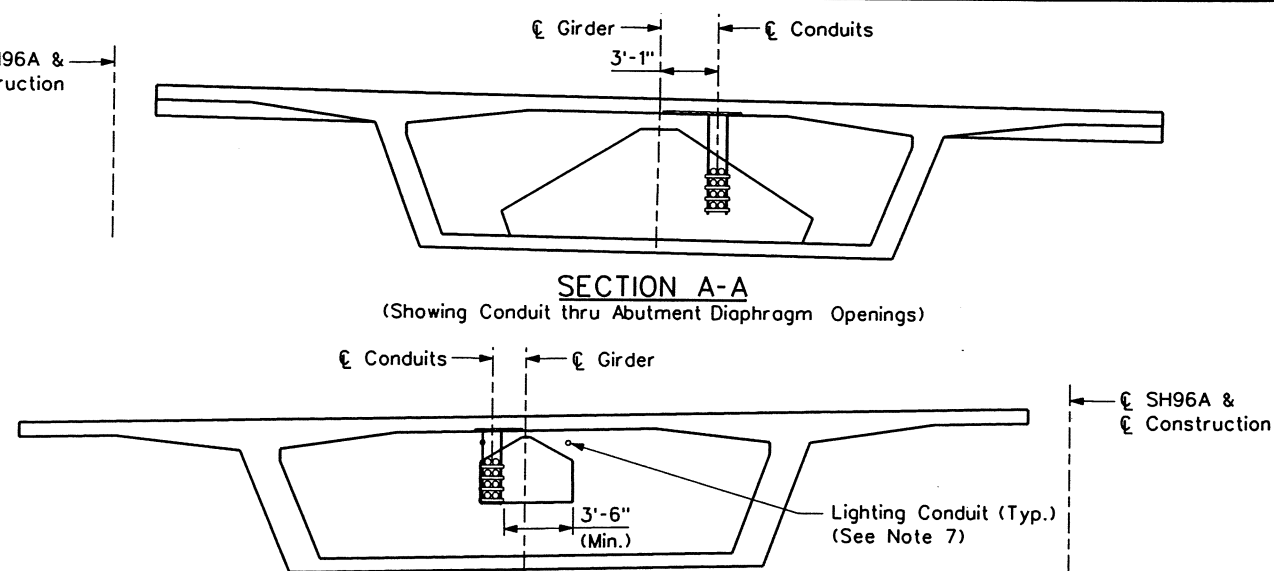
ABUTMENT 1 PLAN

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
JRD	12/06	JRD	12/06	JRD	12/06
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By
KRM	12/06	JRD	12/06	DAT	12/06

Print Date: 3/15/2007		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Drawing File Name: 13141_Sidewalk_Details.dgn		Date:	Comments	Init.	No Revisions:		SIDEWALK DETAILS		BR 0961-008
Horiz. Scale: Vert. Scale:					Revised:		Designer: J. Dvorak	Structure: K-18-GS (EB)	13141
Unit Information Unit Leader Initials					Void:		Detailer: R. Adams	Numbers: K-18-GT (WB)	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 150Q Denver, Colorado 80222 (303)757-7400		902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		Region 2 KSR		Sheet Subset: BRIDGE		Subset Sheets: B134 of B169	Sheet Number: 232

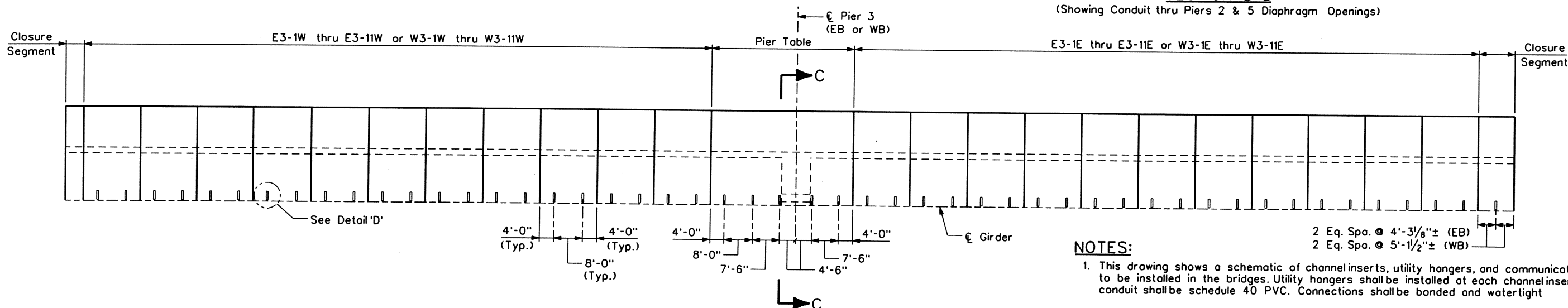


SPAN 1 REFLECTED TOP SLAB PLAN

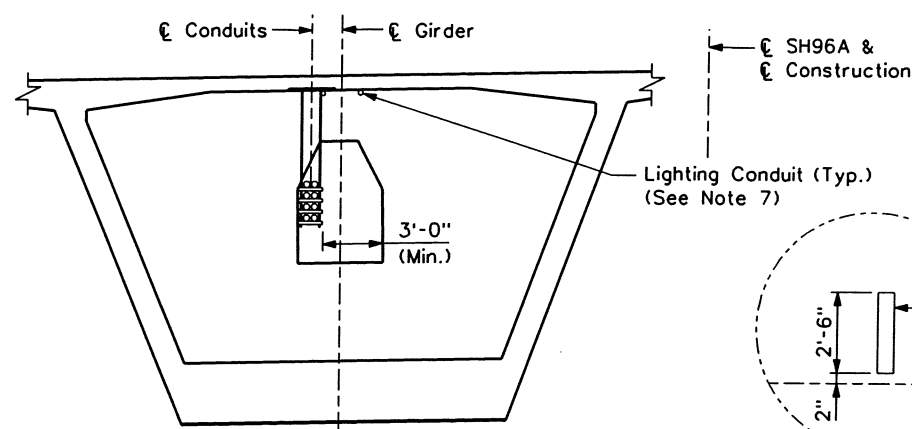


SECTION A-A
(Showing Conduit thru Abutment Diaphragm Openings)

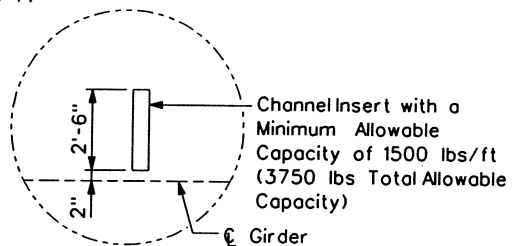
SECTION B-B
(Showing Conduit thru Piers 2 & 5 Diaphragm Openings)



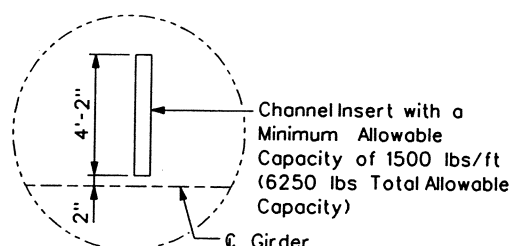
CANTILEVER 3 REFLECTED TOP SLAB PLAN



SECTION C-C
(Showing Conduit thru Piers 3 & 4 Diaphragm Openings)



DETAIL 'D'
(Showing Typical Insert)



DETAIL 'E'
(Showing Typical Insert)

NOTES:

1. This drawing shows a schematic of channel inserts, utility hangers, and communications conduit to be installed in the bridges. Utility hangers shall be installed at each channel insert. Qwest conduit shall be schedule 40 PVC. Connections shall be bonded and watertight.
2. All longitudinal dimensions are measured along \bar{c} girder. Longitudinal location of inserts may be adjusted $\pm 6"$ to avoid transverse tendon locations. Maximum distance between inserts shall not exceed 10'-0" ctc.
3. Channel inserts and all components of utility hangers to be galvanized or stainless steel. For conduit details, see utility drawings elsewhere in the plans.
4. The channel inserts and utility hangers are paid under Item 613-04020, Hanger System. The conduits are paid under the individual items listed on a LF basis. See the Conduit and Lighting Details III sheet for quantities.
5. See utility drawings elsewhere in the plans for details and quantities for conduit in approach roadways. Conduit quantities listed on these sheets are for conduit on the bridge only (BFBW to BFBW).
6. See the Abutment Dimensions and Reinforcing sheets for conduit penetrations through the abutment backwalls. Conduit expansion couplers capable of accommodating the anticipated movements shall be provided for each conduit at each abutment. See the Expansion Joint Details sheets for movements. In addition, couplers for Qwest conduits shall be sized in accordance with Qwest requirements. Cost of expansion couplers are incidental to the cost of the conduit.
7. See Conduit and Lighting Details III sheet for lighting on and in the bridges, maintenance power outlets, and associated conduits.
8. See the Bridge Rail Type 7 (Special) Details sheets for conduit in the bridge rail.

Design	INITIAL	DATE	INITIAL	DATE
	JRD	12/06	RKM	12/06
Checked By	INITIAL	DATE	INITIAL	DATE
	JRD	12/06	RKM	12/06
Detail	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06

Print Date: 12/20/2006

Drawing File Name: 13141_Conduit_Lighting_Det_I.dgn

Horiz. Scale: Vert. Scale:

Unit Information Unit Leader Initials

FIGG Bridge Engineers, Inc.
1873 South Bellaire St., Suite 1500
Denver, Colorado 80222
(303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

DOT
DEPARTMENT OF TRANSPORTATION

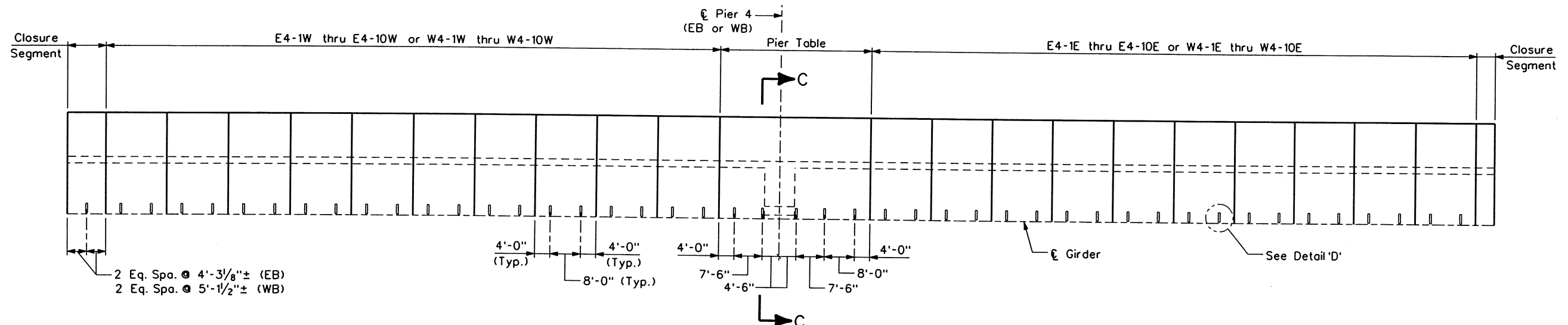
902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

Region 2 KSR

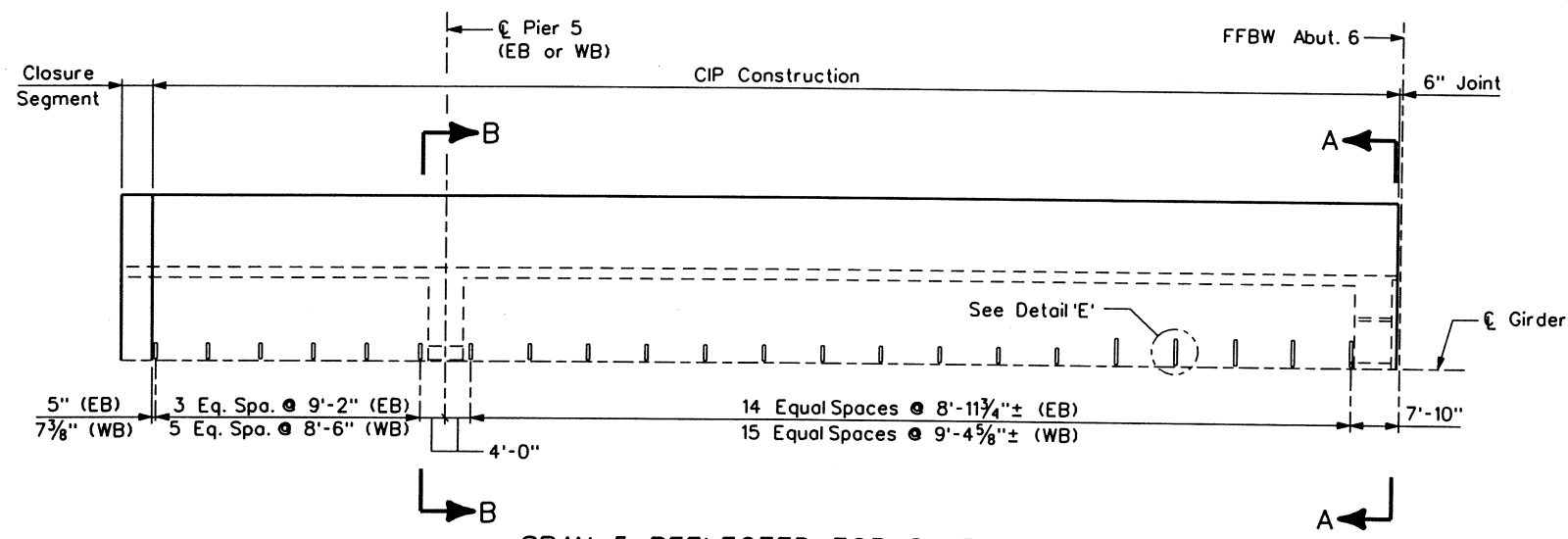
As Constructed
No Revisions:
Revised:
Void:

CONDUIT AND LIGHTING DETAILS I			
Designer: K. Montgomery	Structure Numbers	K-18-GS (EB)	
Detailer: D. Anderson	Structure Numbers	K-18-GT (WB)	
Sheet Subset: BRIDGE	Subset Sheets	B134 of B169	

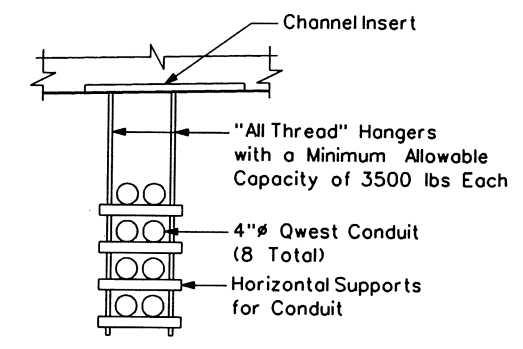
Project No./Code	BR 0961-008
	13141
Sheet Number	231



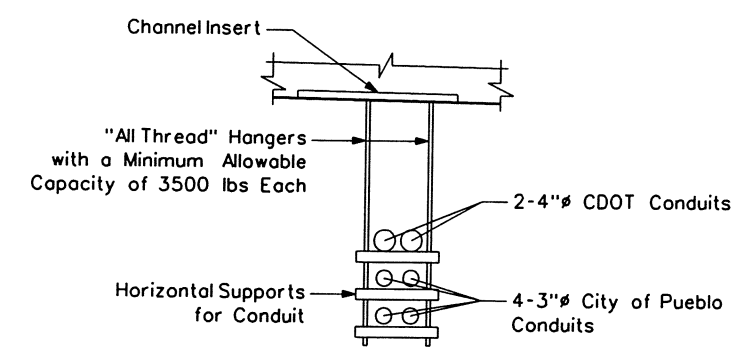
CANTILEVER 4 REFLECTED TOP SLAB PLAN



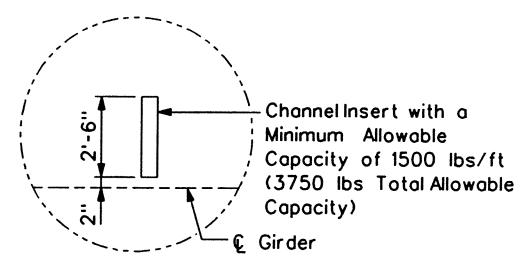
SPAN 5 REFLECTED TOP SLAB PLAN



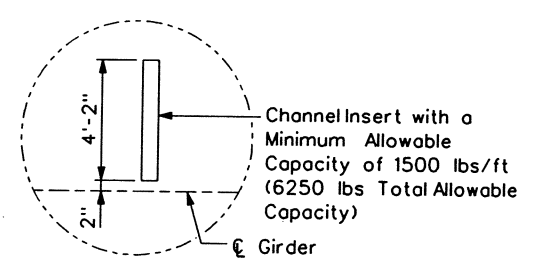
UTILITY HANGER DETAIL (WB Bridge)



UTILITY HANGER DETAIL (EB Bridge)



DETAIL 'D' (Showing Typical Insert)



DETAIL 'E' (Showing Typical Insert)

NOTES:

1. This drawing shows a schematic of channel inserts, utility hangers, and communications conduit to be installed in the bridges. Utility hangers shall be installed at each channel insert. Qwest conduit shall be schedule 40 PVC. Connections shall be bonded and watertight.
2. All longitudinal dimensions are measured along ϵ girder. Horizontal curvature is not shown for simplicity. Longitudinal location of inserts may be adjusted $\pm 6''$ to avoid transverse tendon locations. Maximum distance between inserts shall not exceed 10'-0" etc.
3. Channel inserts and all components of utility hangers to be galvanized or stainless steel. For conduit details, see utility drawings elsewhere in the plans.
4. The channel inserts and utility hangers are paid under Item 613-04020, Hanger System. The conduits are paid under the individual items listed on a LF basis. See the Conduit and Lighting Details III sheet for quantities.
5. See utility drawings elsewhere in the plans for details and quantities for conduit in approach roadways. Conduit quantities listed on these sheets are for conduit on the bridge only (BFBW to BFBW).
6. See the Abutment Dimensions and Reinforcing sheets for conduit penetrations through the abutment backwalls. Conduit expansion couplers capable of accommodating the anticipated movements shall be provided for each conduit at each abutment. See the Expansion Joint Details sheets for movements. In addition, couplers for Qwest conduits shall be sized in accordance with Qwest requirements. Cost of expansion couplers are incidental to the cost of the conduit.
7. See Conduit and Lighting Details III sheet for lighting on and in the bridges, maintenance power outlets, and associated conduits.
8. See the Bridge Rail Type 7 (Special) Details sheets for conduit in the bridge rail.

Design	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06

Print Date: 12/15/2006
 Drawing File Name: 13141_Conduit_Lighting_Det_II.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

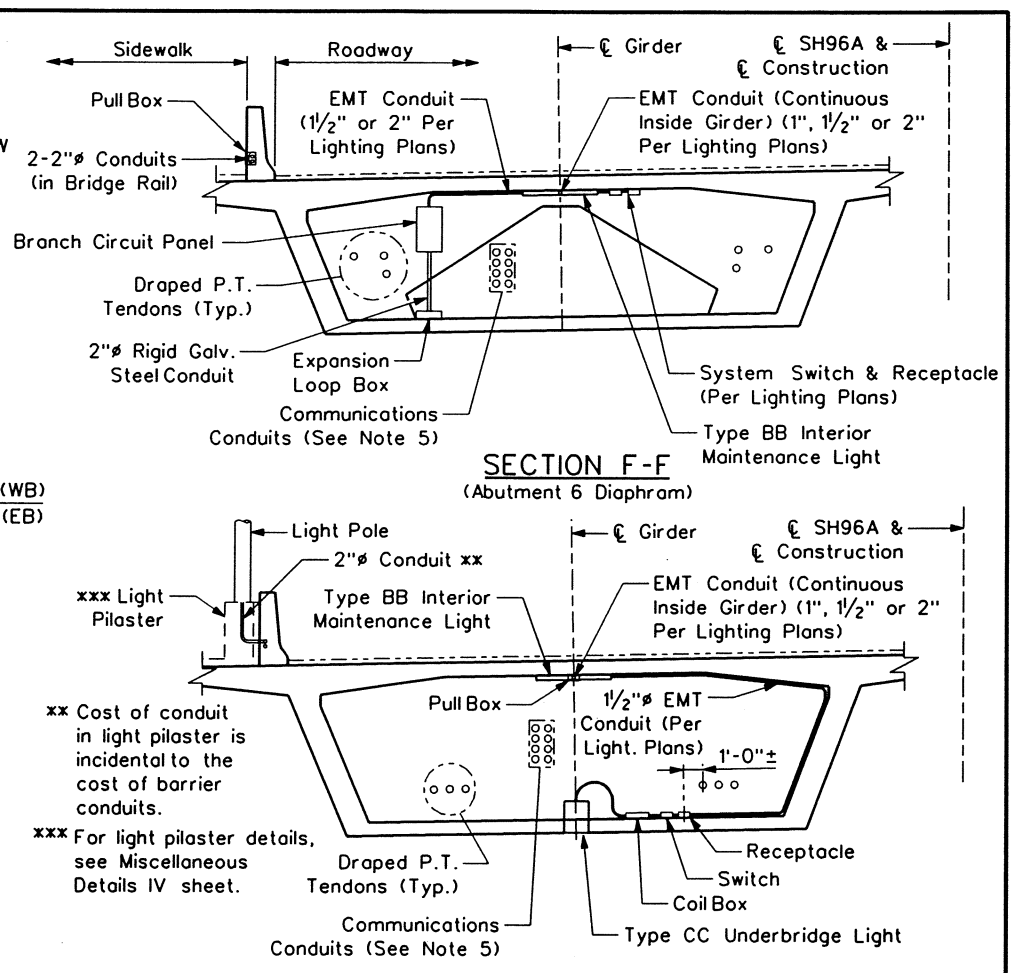
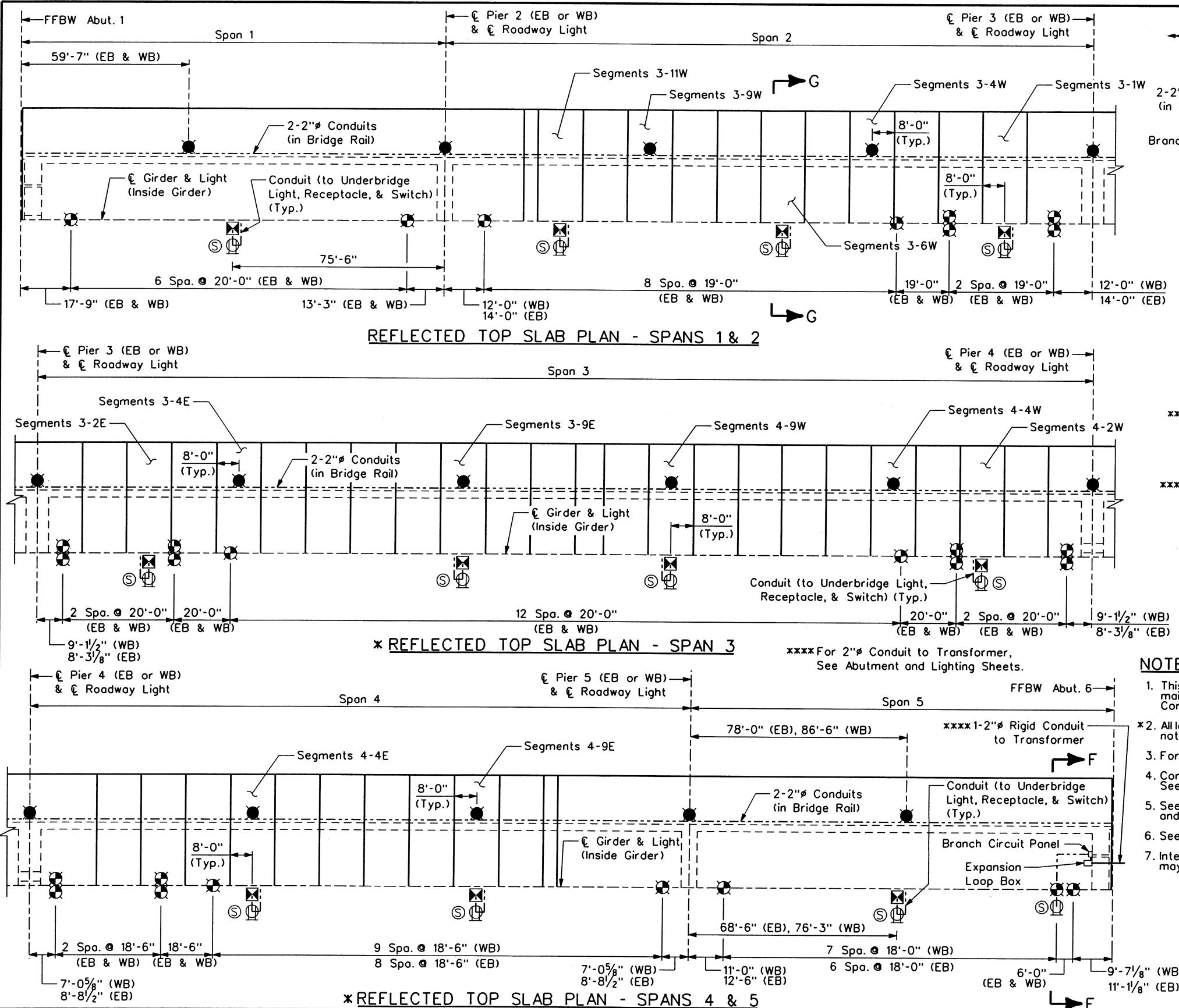
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed
 No Revisions:
 Revised:
 Void:

CONDUIT AND LIGHTING DETAILS II			
Designer:	K. Montgomery	Structure Numbers	K-18-GS (EB)
Detailer:	D. Anderson	Structure Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B135 of B169

Project No./Code
 BR 0961-008
 13141
 Sheet Number **232**



LEGEND

- ⊗ - Interior Maintenance Light (Single)
- ⊗⊗ - Interior Maintenance Light (Double)
- ⊗ - Roadway Light
- ⊗ - Underbridge Light
- ⊗ - Receptacle
- ⊗ - Disconnect Switch

NOTES:

1. This drawing shows a schematic of required lighting on and in the EB and WB bridges, maintenance receptacles, switches, and conduits. See lighting plans for additional details. Conduit and other materials shall be in accordance with the Plans and Project Specifications.
2. All longitudinal dimensions are measured along centerline girder. Horizontal curvature is not shown.
3. For conduit, light, receptacle, and switch details, see lighting drawings.
4. Conduits within the bridges are measured and paid by the linear foot for the items listed. See Lighting Plans for underground conduit and other pay items.
5. See the Conduit and Lighting Details I and II sheets for communications conduit and associated hanger supports required in the bridges.
6. See the Bridge Rail Type 7 Special Details sheets for bridge rail conduits.
7. Interior maintenance lights, conduit, receptacles, switches, and other items may be mounted using drilled fasteners with a depth not to exceed 1 inch.

ESTIMATED QUANTITIES			
Item No.	Item Description	Unit	Quantity
613-00100	1" Inch Electrical Conduit	LF	268
613-00150	1 1/2" Inch Electrical Conduit	LF	1,993
613-00200	2" Inch Electrical Conduit	LF	11,531
613-00300	3" Inch Electrical Conduit	LF	4,500
613-00400	4" Inch Electrical Conduit	LF	11,490
613-04020	Hanger System	LS	1

Design	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06
Checked By	INITIAL	DATE	INITIAL	DATE
	JRO	12/06	RKM	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06

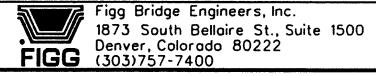
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 Unit Information Unit Leader Initials

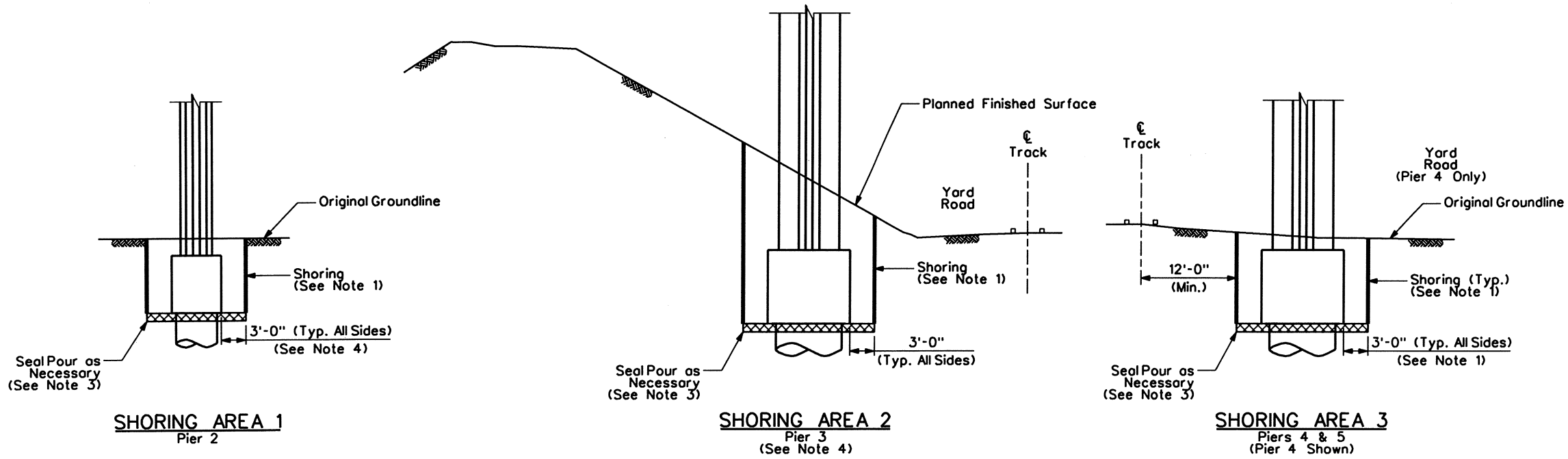
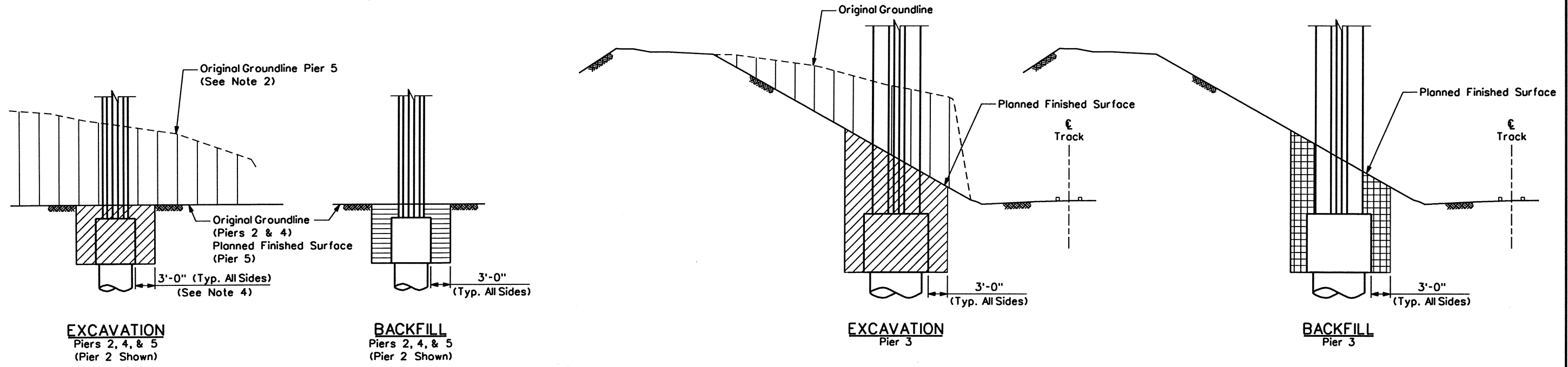
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	
No Revisions:	
Revised:	
Void:	

Project No./Code
 BR 0961-008
 13141
 Sheet Number 233





- NOTES:**
- Shoring required to construct footings near Railroads shall be in accordance with Railroad requirements and submitted to the appropriate Railroad for review and approval prior to installation. Shoring shall not be constructed within 12-feet of the centerline of any track per Railroad requirements.
 - Removal of existing fill at Abutment 1, Pier 3, Pier 5 and Abutment 6 is included in the Roadway Grading Plans and Quantities for Unclassified Excavation. Structure Excavation quantities are calculated to the limits shown. See Grading Plans for excavation of existing fill.
 - The means and methods of providing shoring and dewatering the excavation to construct footings in the dry is the responsibility of the Contractor. Seal pours may be necessary to achieve dry footing construction. Any additional excavation required to facilitate a seal pour shall be considered incidental to Structure Excavation. Any seal pours required shall be incidental to Shoring and shall be included in the Contractor's bid.
 - Any additional excavation and shoring required at Pier 3 to facilitate stability prop shall be considered incidental to Structure Excavation and Shoring. Top of stability prop foundation shall be constructed to an elevation 2' minimum below final grade. Backfill Pier 3 (EB & WB) with material excavated from floodwall or similar material. Pier 3 backfill will be paid under Item 206-00050, Structure Backfill (Special).
 - For excavation and backfill at Abutments 1 & 6, see Bridge Excavation and Backfill II sheet.
 - For additional shoring information, see Special Provisions.
 - Contaminated soil may be present. For material handling of excavated material, see Special Provisions.
 - Rock may be present in the lower portion of the excavation at any pier location.

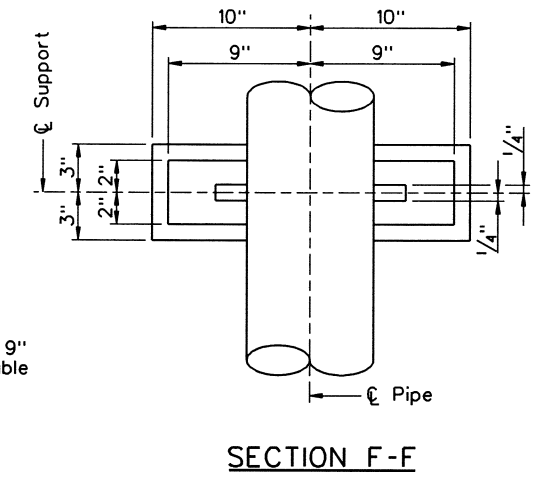
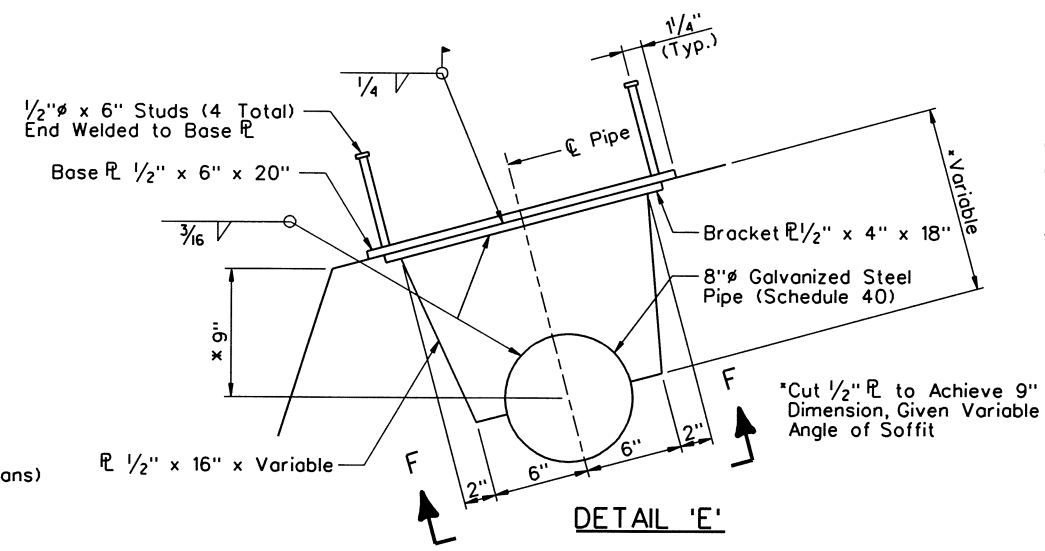
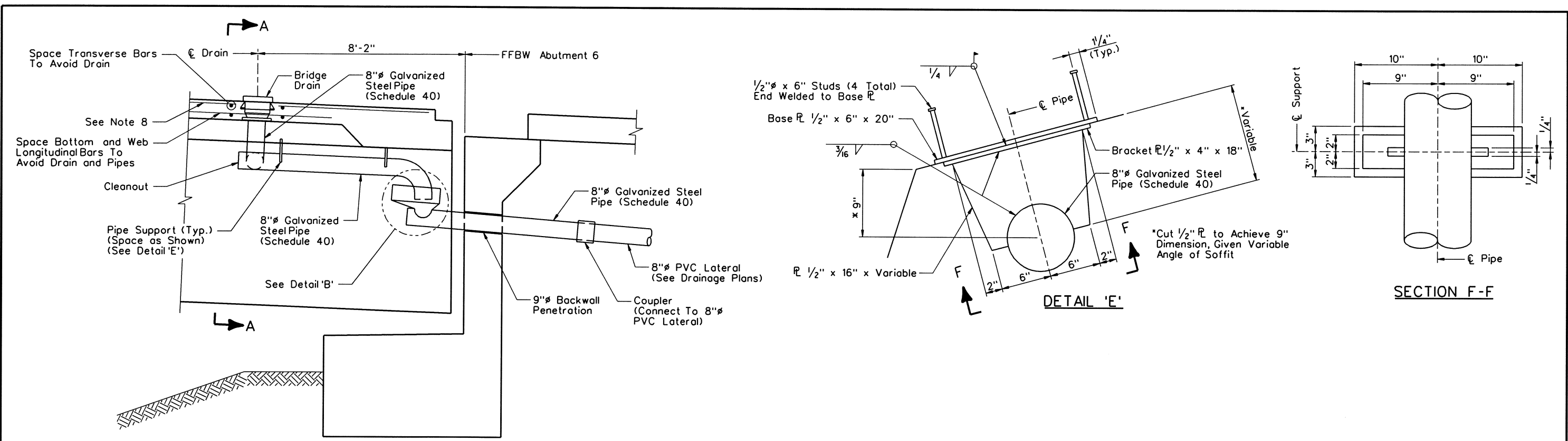
LEGEND

- Unclassified Excavation
- Structure Excavation
- Structure Backfill (Class 1)
- Structure Backfill (Special)

Item No.	Item Description	Unit	Quantity								Total
			Pier 2 (WB)	Pier 2 (EB)	Pier 3 (WB)	Pier 3 (EB)	Pier 4 (WB)	Pier 4 (EB)	Pier 5 (WB)	Pier 5 (EB)	
206-00000	Structure Excavation	CY	103	106	320	367	263	263	110	116	1,648
206-00050	Structure Backfill (Special)	CY	-	-	187	225	-	-	-	-	412
206-00100	Structure Backfill (Class 1)	CY	66	68	-	-	140	140	71	77	562
206-01781	Shoring (Area 1)	LS	0.5	0.5	-	-	-	-	-	-	1
206-01782	Shoring (Area 2)	LS	-	-	0.5	0.5	-	-	-	-	1
206-01783	Shoring (Area 3)	LS	-	-	-	-	0.25	0.25	0.25	0.25	1

Quantities	INITIAL	DATE	QUANTITIES BY	DATE
	JRD	12/06	JRD	12/06
Design	INITIAL	DATE	DESIGNED BY	DATE
	JRD	12/06	RKM	12/06

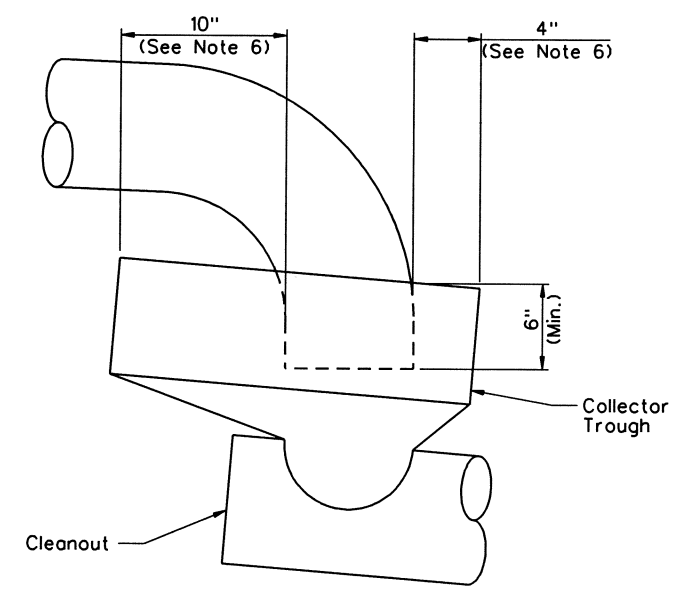
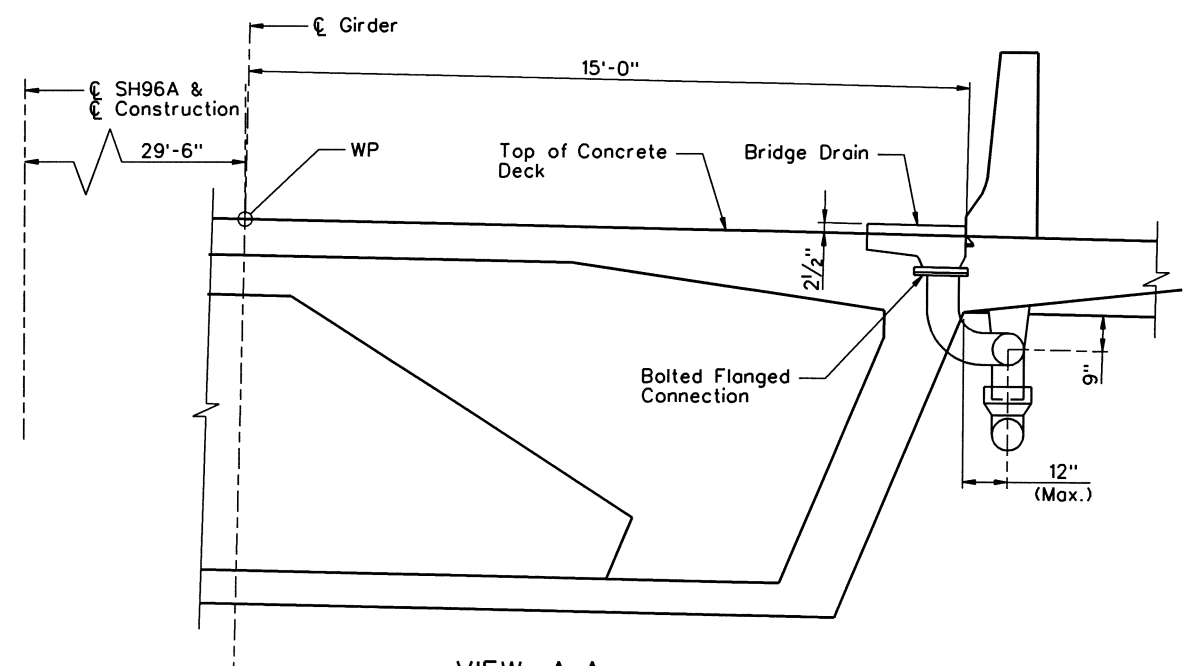
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Drawing File Name: 13141_Bridge_Excavation_Backfill_I.dgn	Date:	Comments		Init.	No Revisions:		
Horiz. Scale: Vert. Scale:			902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702	Revised:	Designer: J. Dvorak	Structure Numbers: K-18-GS (EB)	13141
Unit Information Unit Leader Initials				Region 2 KSR	Void:	Detailer: S. Fall	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400					Sheet Subset: BRIDGE	Subset Sheets: B137 of B169	Sheet Number 234



ELEVATION AT ABUTMENT 6

NOTES:

1. This drawing shows a schematic of the drainage details. Prior to fabrication and installation, working drawings, which comply with the requirements of Section 105 of the Specifications, shall be submitted.
2. The bridge drains shall be of the type and size shown and shall be made of ductile iron conforming to ASTM A536-80, Grade 65-45-12. Bolts for the attachment of the grating shall conform to ASTM A307. Grating shall have full and even seating.
3. The pipe for the bridge drains shall conform to ASTM A53. With the exception of the connection to the bridge drain, all connections shall be welded or fitted. Flanged connections will not be allowed.
4. Steel for the support brackets and collector trough shall conform to AASHTO M270, Grade 36 or Grade 50.
5. Pipe, support brackets, and trough shall be hot dip galvanized after fabrication. Galvanizing shall conform to AASHTO M111. Galvanizing shall be repaired after field welding the bracket plates to the base plates. Surfaces exposed in the permanent condition shall be painted with two coats of a zinc rich inorganic paint matching Federal Color No. ??.
6. Collector trough shall be sized to accommodate the longitudinal movements shown in Detail 'B' and side-to-side movement of 1" each way.
7. Bridge drains shall be placed and secured at the positions shown on the plans prior to placement of concrete.
8. A Maximum of 3 top longitudinal bars may be cut to within 2" of drains. All other longitudinal bars shall be spaced to avoid drains.
9. The drainage system shall be watertight to pass the following test without leakage. The upper portion system shall be temporarily plugged at the outlet to the collector trough. The lower part of the system shall be temporarily plugged at, or behind the abutment backwall. Both parts of the system shall be completely filled with water for a minimum of one hour to check for leaks. Any leaks shall be repaired at the Contractor's expense.
10. The cost of piping, supports, collector trough and leak test are incidental to the cost of the bridge drains. Bridge drains shall be measured by the number of bridge drains, installed with all incidental items, and accepted. Payment will be made under Pay Item 513-00690, Bridge Drain (Special).



DETAIL 'B'

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
RKM	12/06	RJA	12/06	RKM	12/06
Designed By	Checked By	Designed By	Checked By	Quantities By	Checked By
JRD	JRD	RKM	RKM	DAT	DAT

Print Date: 03/15/2007		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Drawing File Name: 13141_Bridge_Drainage_Details_I.dgn		Date:	Comments	Init.	No Revisions:		BRIDGE DRAINAGE DETAILS I		BR 0961-008
Horiz. Scale: Vert. Scale:					Revised:		Designer: K. Montgomery	Structure	K-18-GS (EB)
Unit Information Unit Leader Initials					Void:		Detailer: R. Adams	Numbers	K-18-GT (WB)
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400					Region 2		Sheet Subset: BRIDGE	Subset Sheets: B141 of B169	13141
					KSR				Sheet Number 238

NOTES:

- The notes on this drawing are applicable to the Superstructure Construction Schematic I, Superstructure Construction Schematic II, and Superstructure Construction Schematic III drawings that follow.
- The information shown on the Superstructure Construction Schematic (I, II, & III) drawings illustrate the assumptions made by the Engineer of Record during design of the structure. Information shown is for information only. The Contractor is responsible for selecting the means and methods of construction, and shall submit details of these means and methods to the Engineer for review. This shall include details of the construction sequence as well as supporting calculations showing the influence of the selected sequence, loads, and details on the structure, in accordance with the contract plans and Project Specifications.
- The Contractor shall be responsible for stability of the structure during construction with due consideration of the construction sequence assumed in design and his selected means and methods.
- The Contractor shall be responsible for the design of falsework, formwork, and other temporary works in conformance with AASHTO and the requirements of the Project Specifications. Where applicable, falsework design and details shall also be in accordance with railroad requirements and shall provide at least the minimum temporary railroad clearances required during construction, as specified by the railroads. All other temporary clearances shall be met, and the Contractor is responsible for providing all specified clearances of the affected railroads, OSHA, CDOT, City of Pueblo, and other governing agencies during construction. Erection over the Railroad's right-of-way shall be designed to not interrupt railroad operations and shall be developed to enable track(s) to remain open for Railroad traffic per Railroad requirements. The quantity and characteristics of drainage flow in the in the yard shall be maintained in such a way as to avoid detrimental drainage impacts to the yard. The Contractor shall include the cost of meeting all requirements in the contract bid price.
- The bridge piers have NOT been designed to resist the out-of-balance loads during cantilever construction. Therefore, a stability prop(s) and counterweights are required to maintain stability of the cantilevers during cantilever construction. The Contractor is responsible for determining the location and loads acting on the prop(s) based on his selected means and methods, and for the design of the prop(s) and their foundations, for additional reinforcing needed in the superstructure at the prop(s) location(s) and all other details associated with use of the prop(s) in construction. In addition, the Contractor is responsible for determination of counterweight needs based on his selected means and methods, and for determination of the size and locations of the counterweights on the structure at all stages and phases of construction.

- The Contractor is responsible for checking the adequacy of the structure and providing any additional reinforcing and/or other modifications needed to resist construction loads. No additional payment will be made for this additional reinforcing and/or other modifications to the structure. The cost of any additional reinforcing and/or other modifications to the structure to accommodate the Contractor's selected means and methods shall be included in the contract bid price.
- The trail running along the Arkansas River and the Loop Ramp road adjacent to Abutment 6 shall remain open during construction in accordance with the contract plans and Project Specifications.


The trail shall be maintained with a minimum width of 10'-0", a minimum vertical clearance of 8'-6", and shall be enclosed in a CDOT approved safety enclosure. Temporary barricades shall be provided to guide pedestrians through the work area in a manner most convenient to the Contractor. It is understood that temporary pedestrian access closures will be needed for some construction activities occurring in this region. Any closures shall be coordinated with the Engineer.

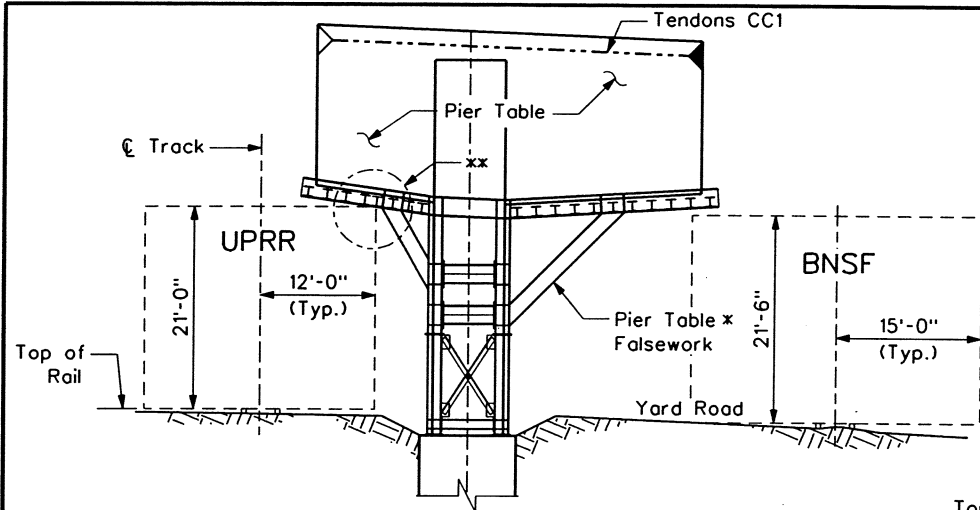
Falsework shall span the Loop Ramp road to maintain the road in its current two-lane configuration with a minimum vertical clearance of 14'-6", as per the planned construction phasing, and in accordance with the contract plans and Project Specifications. Falsework shall be protected from vehicle impact through the use of temporary barriers in accordance with AASHTO requirements.
- Cantilever construction and construction of the end span regions on falsework may occur simultaneously or in sequence as determined by the Contractor. However, closure pour segments in both spans 2 and 4 must be placed prior to pouring the main span closure in Span 3 in accordance with the superstructure construction schematic drawings.
- Post-tensioning tendons shall be stressed in the sequence and construction step shown in the Superstructure Construction Schematic drawings.

The Contractor shall stress each pair of tendons to either side of the centerline girder prior to moving to the next pair of tendons. For example, tendons 3-B11 (right) and 3-B11 (left) shall be stressed prior to stressing tendons 3-B10, where left and right denote the tendons to either side of the centerline girder.
- Utilities shown on the superstructure construction schematic drawings are not intended to be all inclusive of utilities within the project limits. See Utilities plans for additional utility information.
- For existing clearances to railroad tracks, see Railroad Clearances drawing.
- For additional information related to construction near railroad tracks, see Construction Over Railroad drawing.

OVERHEAD POWERLINES EXIST IN THE VICINITY OF PIER 5 AND ABUTMENT 6. TEMPORARY SHUTDOWN OF THESE LINES IS REQUIRED FOR CONSTRUCTION IN THIS REGION. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY (AQUILA NETWORKS) FOR NECESSARY SHUTDOWNS TO ENSURE A SAFE WORKING ENVIRONMENT. SEE PROJECT SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, THE UTILITIES PROJECT SPECIAL PROVISION AND STANDARD SPECIAL PROVISION REVISION OF SECTION 107 PROJECT SAFETY.

Design	INITIAL	DATE	Checked By	Checked By
	RKM	12/06		
Detail	INITIAL	DATE	Checked By	Checked By
	RKM	12/06		
Quantities	INITIAL	DATE	Checked By	Checked By
	RKM	12/06		

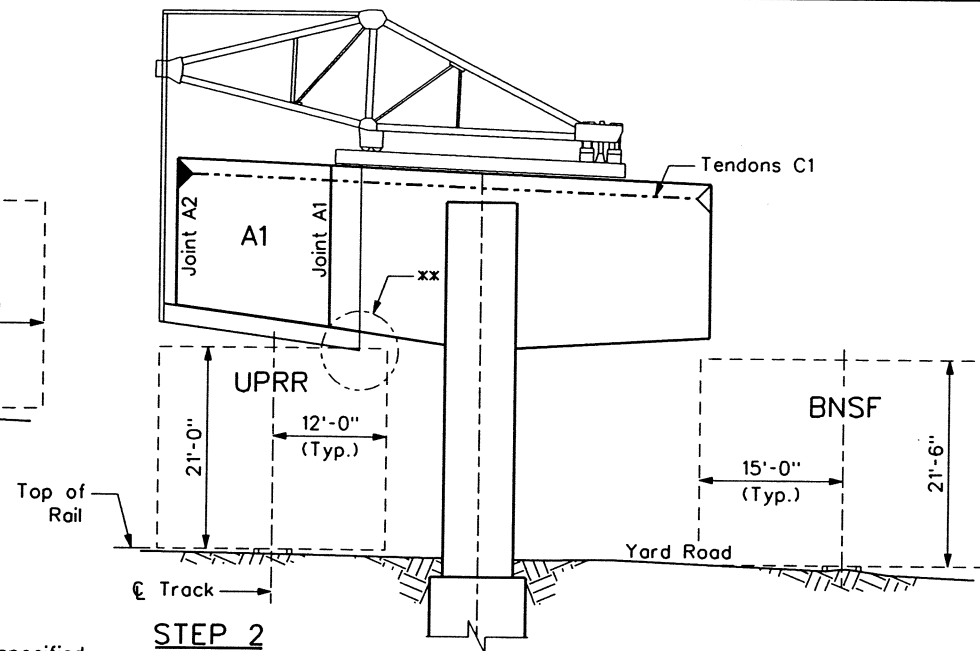
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Drawing File Name: 13141_Constr_Schem_Notes.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:		NOTES		BR 0961-008	
Horiz. Scale: Vert. Scale:		<input checked="" type="checkbox"/>			Region 2 KSR		Revised:		Designer: K. Montgomery		13141	
Unit Information Unit Leader Initials		<input type="checkbox"/>					Void:		Detailer: D. Anderson		Sheet Number 246	
 Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400		<input type="checkbox"/>							Structure Numbers		K-18-GS (EB) K-18-GT (WB)	
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STEP 1

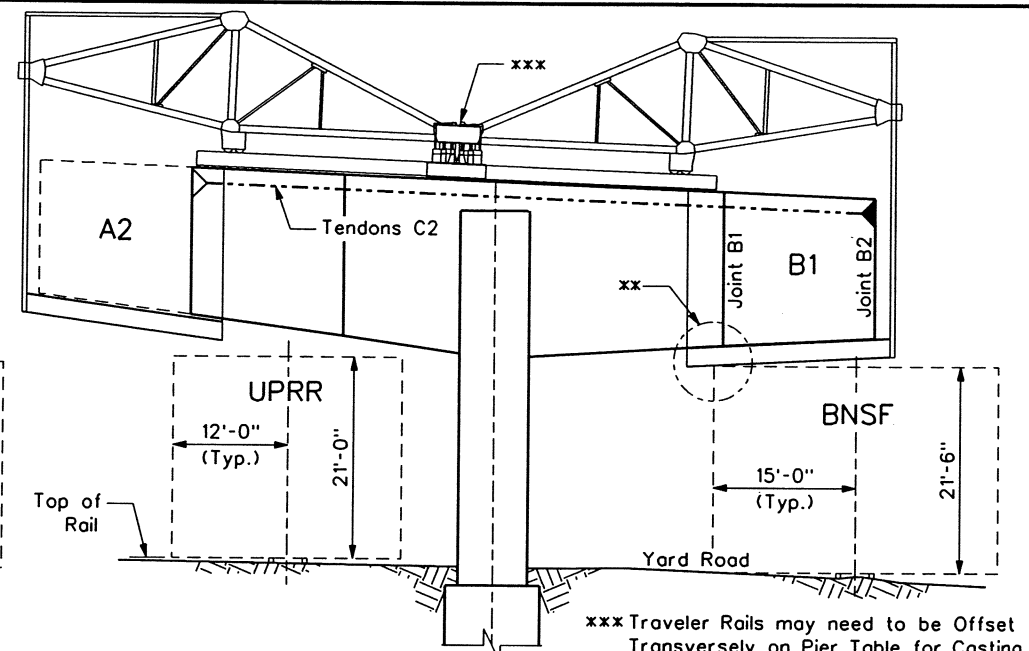
- Construct the pier table on falsework after column is constructed.
- Stress transverse tendons in pier table followed by Tendons CC1 (See Note 2).
- Remove pier table falsework.

xx Possible encroachment into specified railroad clearance zone. Contractor to be aware when selecting erection equipment.



STEP 2

- Erect first form traveler.
- Cast Segment A1.
- Stress transverse tendons in Segment A1 followed by Tendons C1 (See Note 2).
- Advance form traveler into position to cast Segment A2.



STEP 3

- Erect second form traveler.
- Cast Segment B1.
- Stress transverse tendons in Segment B1 followed by Tendons C2 (See Note 2).
- Advance form traveler into position to cast Segment B2.

xxx Traveler Rails may need to be Offset Transversely on Pier Table for Casting of First Segments

NOTES:

- This drawing is a schematic for cast-in-place segmental construction of the cantilevers (Cantilever 4 shown). See Superstructure Construction Schematic II and III sheets for additional information on the overall construction sequence.
- Concrete shall achieve a minimum compressive strength of 4000 psi prior to stressing any post-tensioning anchoring in that element or segment. The transverse tendons in a segment shall be stressed first, followed by the cantilever tendons. All tendons anchoring in a segment shall be stressed prior to lowering the forms and advancing the form traveler.
- The following minimum railroad clearances shall be maintained at all times and for all tracks, measured from centerline track and top of rail:

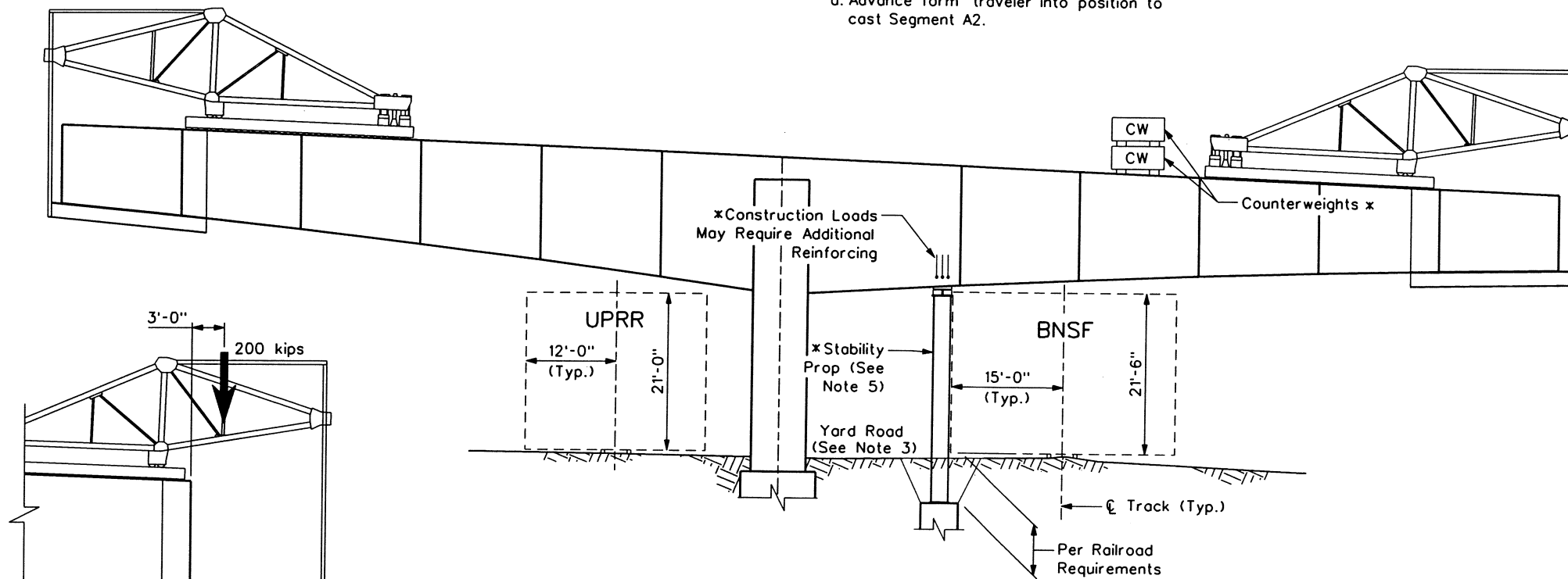
Vertical Clearance	21'-0" (UPRR)	21'-6" (BNSF)
Horizontal Clearance	12'-0" (UPRR)	15'-0" (BNSF)

Work within these limits would require temporary track closure or a variance from the affected railroad. Granting of such a variance is dependent on submittal of details and is at the sole discretion of the railroad.

The Yard Road shall be maintained as directed by the Railroad Yard Masters.

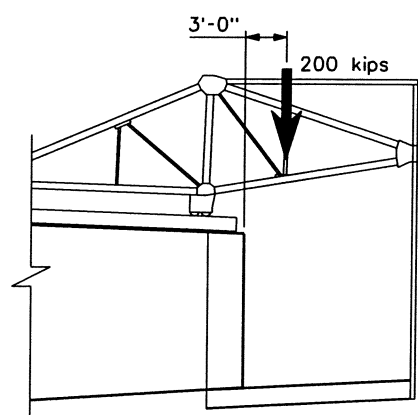
- See Pier Table Dimensions and P.T. Details Sheet for stressing sequence for pier table diaphragm post-tensioning.

*5. For additional information, see Superstructure Construction Notes sheet.



STEP 4

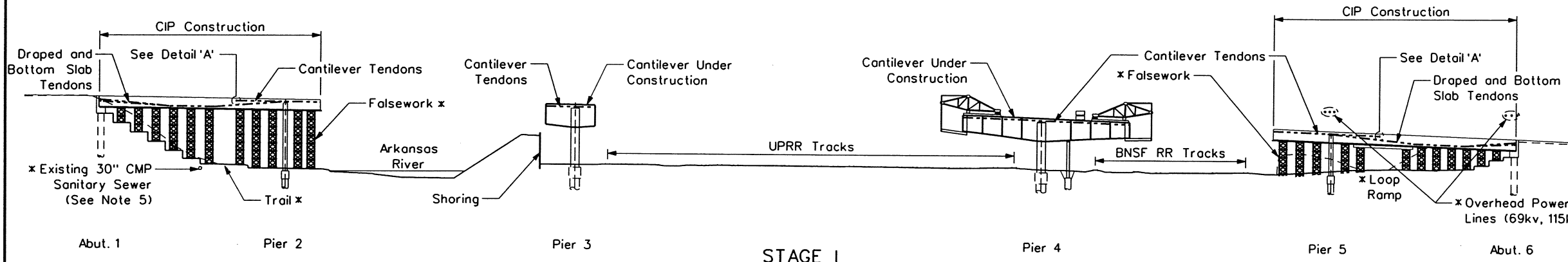
- Continue casting segment pairs, always casting segment Type A first. Cantilever tendons are stressed in sequence as casting proceeds outwards.



**FORM TRAVELER
WEIGHT ASSUMED
FOR DESIGN**

Design	Designed By	DATE	Checked By	DATE
	Checked By	DATE	Checked By	DATE
Detail	Designed By	DATE	Checked By	DATE
	Checked By	DATE	Checked By	DATE
Quantities	Designed By	DATE	Checked By	DATE
	Checked By	DATE	Checked By	DATE

Print Date: 12/8/2006	Sheet Revisions			Colorado Department of Transportation 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702 Region 2	As Constructed No Revisions: Revised: Void:	SUPERSTRUCTURE CONSTRUCTION		Project No./Code BR 0961-008	
Drawing File Name: 13141_Constr_Schem01.dgn	Date:	Comments	Init.			SCHEMATIC I			
Horiz. Scale: Vert. Scale:						Designer: K. Montgomery	Structure	K-18-GS (EB)	13141
Unit Information Unit Leader Initials						Detailer: D. Anderson	Numbers	K-18-GT (WB)	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400						Sheet Subset: BRIDGE	Subset Sheets: B150 of B169	Sheet Number	247

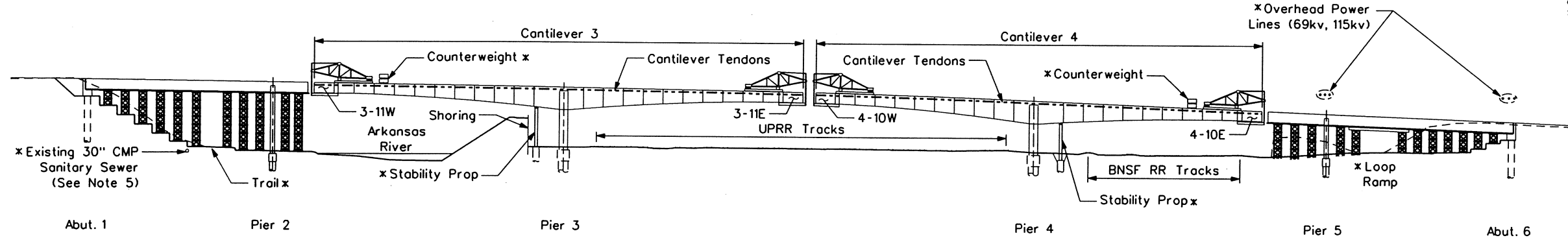


STAGE I

STAGE I:

1. Construct CIP construction regions on falsework after abutments and Piers 2 and 5 are constructed.
2. Stress transverse tendons in CIP construction regions.
3. Stress Cantilever Tendons 2-C1, 2-C2, 5-C1, and 5-C2.
4. Pour back dead end breakout for Cantilever Tendons. (See Detail 'A')
5. Stress Draped Tendons 1-D1, 1-D2, 1-D3, 5-D1, 5-D2, and 5-D3.
6. Stress Bottom Slab Tendons 1-B1 through 1-B5 and 5-B1 through 5-B4.
7. Leave falsework in place. (Forms may be stripped, but falsework supports girder soffit.)

Note: Tendons shall be stressed in pairs per requirements listed on the Superstructure Construction Notes sheet.



STAGE II

STAGE II:

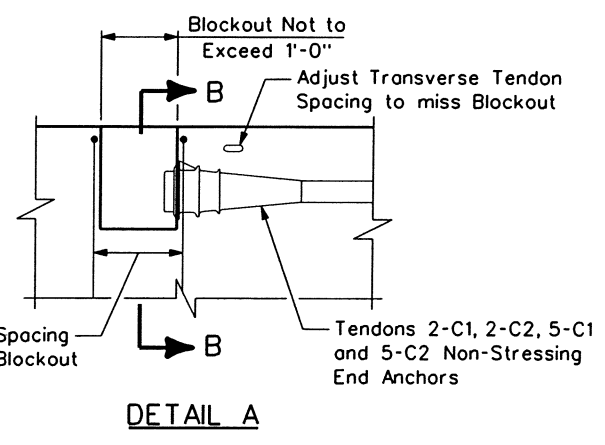
1. Construct cantilevers per sequence given on Superstructure Construction Schematic I, Sheet. Cantilever Tendons 3-C1 through 3-C22, 3-CC1 through 3-CC3, 4-C1 through 4-C20 and 4-CC1 through 4-CC3 are stressed in sequence during cantilever construction.
- The pier tables and the first three segments to either side of a cantilever shall achieve a concrete compressive strength of 5800 psi prior to pouring the tenth segments to either side of a cantilever. The fourth through seventh segments to either side of a cantilever shall achieve 5000 psi prior to casting the tenth segments to either side of a cantilever.

Note: Tendons shall be stressed in pairs per requirements listed on the Superstructure Construction Notes sheet.

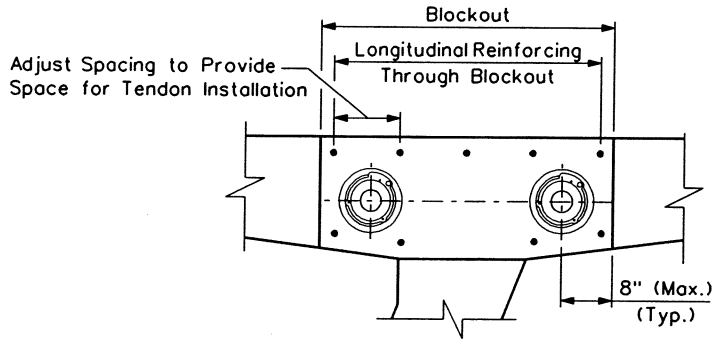
NOTES:

1. This drawing shows the overall construction sequence for both the EB and WB structures. See Superstructure Construction Schematic IV sheet for traffic phasing on the bridge structures.
2. The CIP construction region concrete shall achieve a minimum compressive strength of 4000 psi prior to stressing any post-tensioning anchoring in that region. The transverse tendons in the CIP construction regions shall be stressed first, followed by the cantilever, draped and bottom slab tendons. All transverse tendons shall be stressed prior to removing any formwork.
3. See Pier Table Dimensions and P.T. Details, Piers 2 & 5 Dimensions and P.T. Details, and Abutment Diaphragm Dimensions & P.T. Details sheets for stressing sequence for diaphragm post-tensioning.
- *4. For additional information, see Superstructure Construction Notes sheet.
5. Protect existing 30" CMP Sanitary Sewer from displacement and damage during construction. Falsework towers shall not be located directly over sewer line or in conflict with existing manholes.

Design	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	SEF	12/06	RKM	12/06
Detail	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06	RKM	12/06
Quantities	INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06	RKM	12/06



DETAIL A



SECTION B-B

OVERHEAD POWERLINES EXIST IN THE VICINITY OF PIER 5 AND ABUTMENT 6. TEMPORARY SHUTDOWN OF THESE LINES IS REQUIRED FOR CONSTRUCTION IN THIS REGION. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY (AQUILA NETWORKS) FOR NECESSARY SHUTDOWNS TO ENSURE A SAFE WORKING ENVIRONMENT. SEE PROJECT SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, THE UTILITIES PROJECT SPECIAL PROVISION AND STANDARD SPECIAL PROVISION REVISION OF SECTION 107 PROJECT SAFETY.

Print Date: 12/8/2006
Drawing File Name: 13141_Constr_Schem02.dgn
Horiz. Scale: Vert. Scale:
Unit Information Unit Leader Initials
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

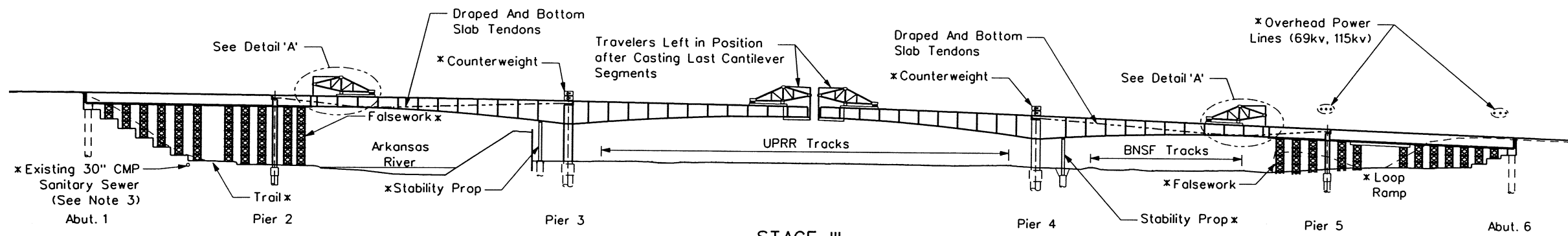
Colorado Department of Transportation

902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702

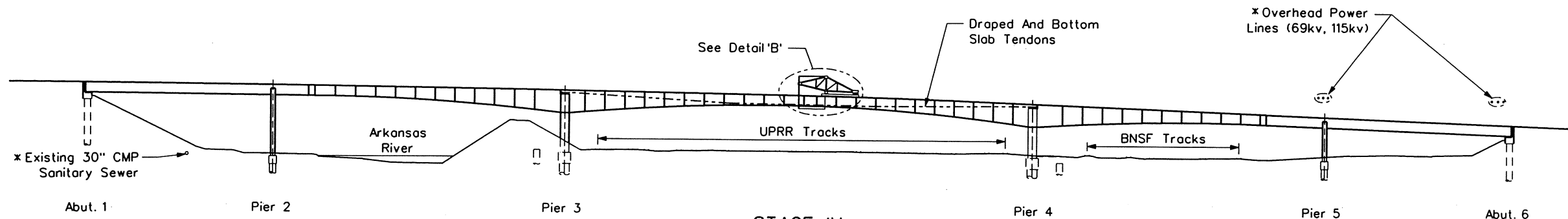
Region 2 KSR

As Constructed	SUPERSTRUCTURE CONSTRUCTION		Project No./Code
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Revised:	Designer: K. Montgomery	Structure Numbers: K-18-GS (EB)	13141
Void:	Detailer: D. Anderson	Structure Numbers: K-18-GT (WB)	Sheet Number 248
	Sheet Subset: BRIDGE	Subset Sheets: B151 of B169	

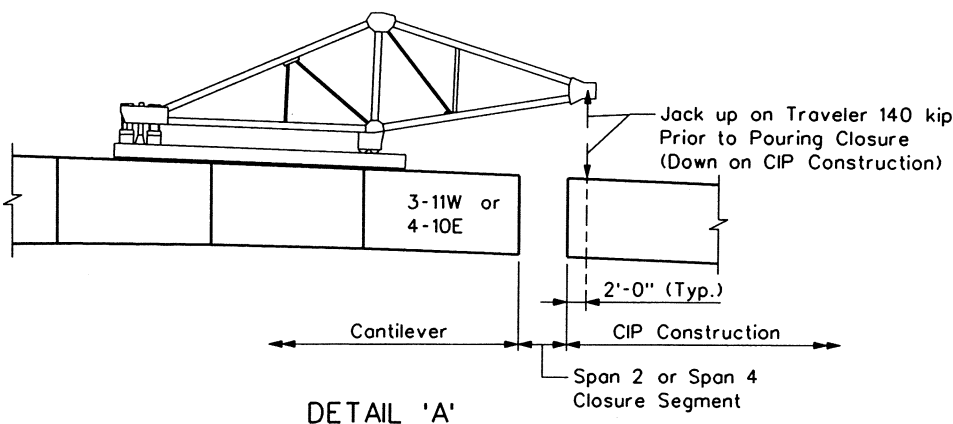
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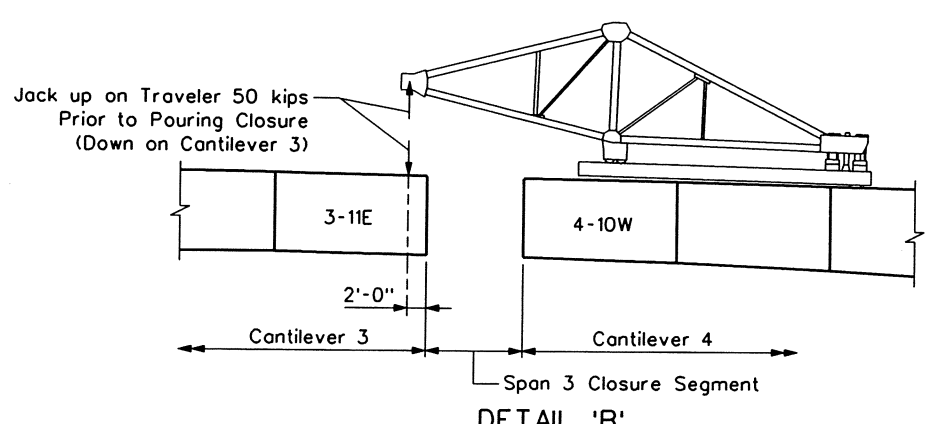
STAGE III



STAGE IV



DETAIL 'A'
(Side Span Closure)



DETAIL 'B'
(Main Span Closure)

NOTES:

- This drawing shows the overall construction sequence for both the EB and WB structures. See Superstructure Construction Schematic IV sheet for traffic phasing on the bridge structures.
- For additional information, see Superstructure Construction sheet.
- Protect existing 30" CMP Sanitary Sewer from displacement and damage during construction. Falsework towers shall not be located directly over sewer line or in conflict with existing manholes.

OVERHEAD POWERLINES EXIST IN THE VICINITY OF PIER 5 AND ABUTMENT 6. TEMPORARY SHUTDOWN OF THESE LINES IS REQUIRED FOR CONSTRUCTION IN THIS REGION. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY (AQUILA NETWORKS) FOR NECESSARY SHUTDOWNS TO ENSURE A SAFE WORKING ENVIRONMENT. SEE PROJECT SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, THE UTILITIES PROJECT SPECIAL PROVISION AND STANDARD SPECIAL PROVISION REVISION OF SECTION 107 PROJECT SAFETY.

STAGE III:

- After cantilevers are complete, advance travelers into position to cast Span 2 and Span 4 closure segments. (See Detail 'A') Main Span travelers remain in position.
- Jack up on travelers (down on CIP Construction) 140 kips total (70 kips per web to balance cantilevers).
- Remove counterweights or place over Piers 3 and 4.
- Pour Span 2 and Span 4 closure segments.
- After closure segments achieve a minimum compressive strength of 1500 psi and not more than 8 hours after pouring closure segments, stress Tendons 2-D3 and 4-D3.
- After closure segments achieve a minimum compressive strength of 2500 psi, stress Tendons 2-D1, 2-D2, 4-D1, and 4-D2. Jacking force between traveler and CIP construction may now be removed.
- After closure segments achieve a minimum compressive strength of 4000 psi, stress transverse tendons in closure segment, followed by Tendons 2-B1, 4-B1, and 5-B5. Travelers in Spans 2 and 4, stability props, and falsework may now be removed.

STAGE IV:

- Remove traveler from Cantilever 3E. Move traveler on Cantilever 4W into position to cast Span 3 closure segment (See Detail 'B').
- Jack up on traveler (down on Cantilever 3) 50 kips total (25 kips per web).
- Pour Span 3 closure segment.
- After closure segment achieves a minimum compressive strength of 1500 psi and not more than 8 hours after pouring closure segment, stress Tendons 3-D4.
- After closure segment achieves a minimum compressive strength of 2500 psi, stress Tendons 3-D3, 3-D2, and 3-D1.
- After closure segment achieves a minimum compressive strength of 4000 psi, stress transverse tendons in closure segment, followed by Tendons 3-B11, 3-B10, 3-B9, 3-B8, and 3-B7. Traveler may now be removed.
- After closure segment achieves a minimum compressive strength of 5000 psi, stress Tendons 3-B6, 3-B5, and 3-B4.
- After closure segment achieves a minimum compressive strength of 5800 psi and no sooner than 60 days after pouring closure segment, stress Tendons 3-B3, 3-B2, and 3-B1.

STAGE V:

- WB (Phase I): Cast Pedestrian curb & South Bridge rail, place expansion joints and associated temporary asphalt, install temporary lighting, and complete other finishing operations. These operations may take place any time after Stage IV, Step 6, is complete.
- EB (Phases I & II): Cast all railings, place the sidewalk, expansion joints, and wearing surface, and complete other finishing operations. These operations may take place any time after Stage IV, Step 6, is complete.
- WB (Phase III): Cast North Bridge rail, remove temporary lighting and install pedestrian railing, remove temporary asphalt, place wearing surface and sidewalk, and complete other finishing operations.
- For Phase designation, See Traffic Control Plans.

Print Date: 12/7/2006

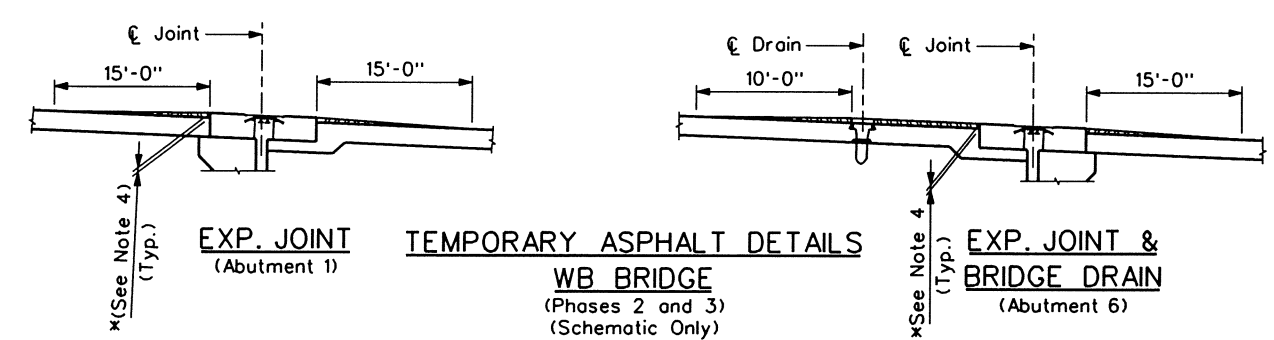
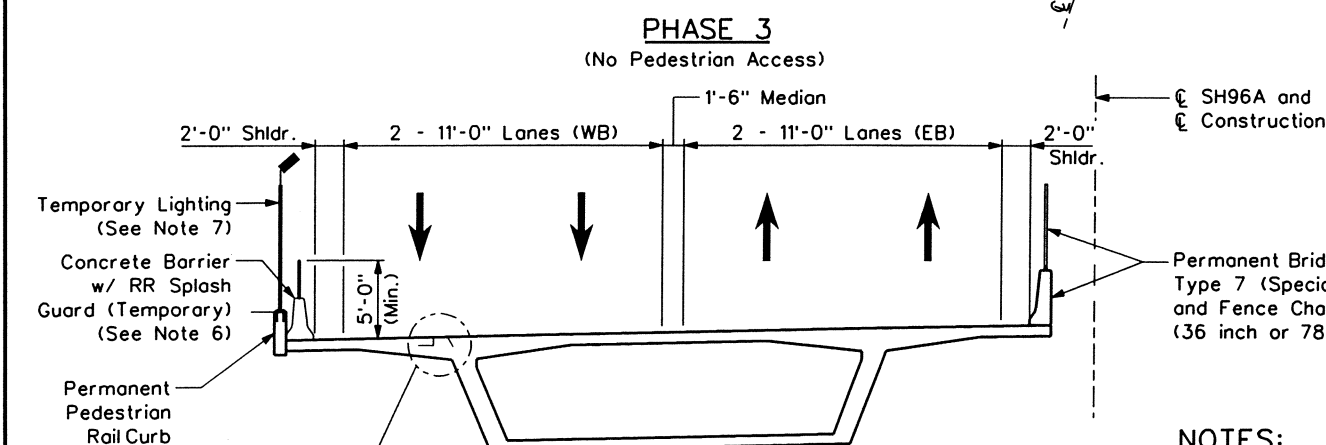
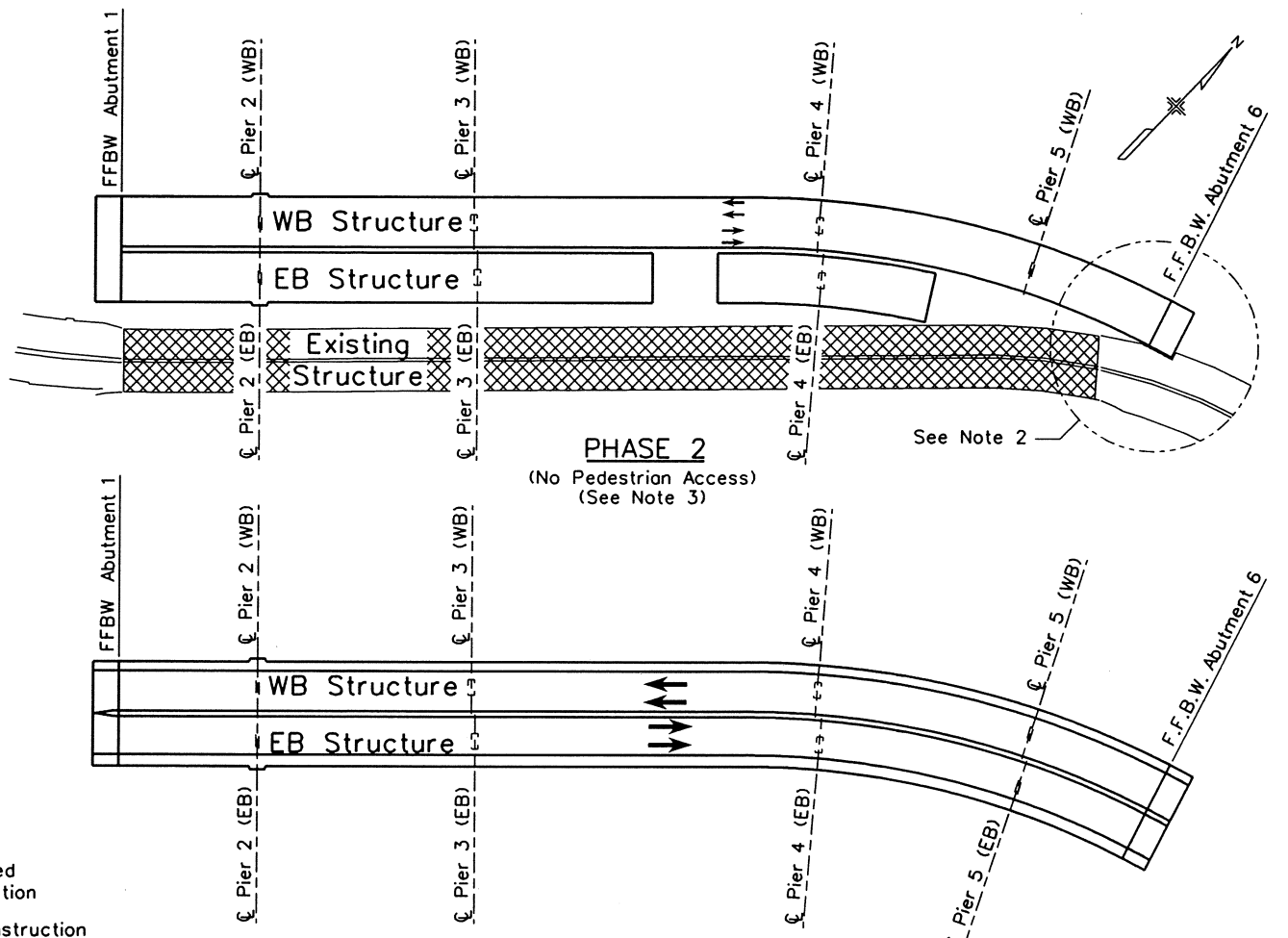
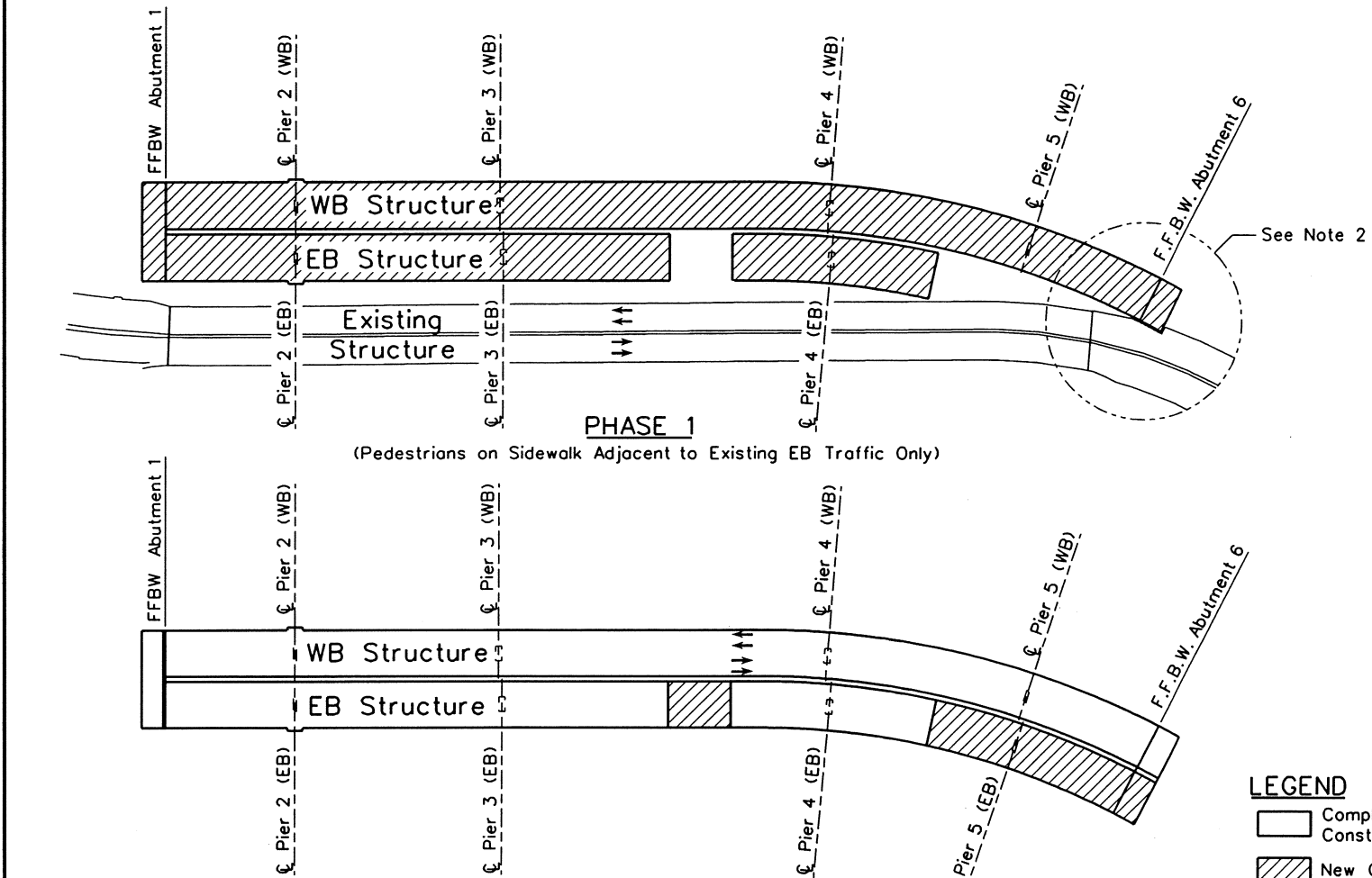
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 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed	SUPERSTRUCTURE CONSTRUCTION		Project No./Code
No Revisions:	SCHEMATIC III		BR 0961-008
Revised:	Designer: K. Montgomery	Structure Numbers: K-18-GS (EB)	13141
Void:	Detailer: D. Anderson	Structure Numbers: K-18-GT (WB)	Sheet Number 249
	Sheet Subset: BRIDGE	Subset Sheets: B152 of B169	

Design	INITIAL	DATE	QUANTITIES	INITIAL	DATE
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Detail	INITIAL	DATE	QUANTITIES	INITIAL	DATE
	DESIGNED BY	12/06	BY	12/06	BY



NOTES:

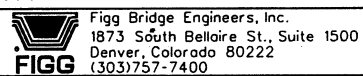
- This drawing shows bridge construction phasing to accommodate traffic phasing on the bridge structures in accordance with the overall traffic control plan. See Superstructure Construction Schematic I - III sheets for superstructure construction sequence.
- Shoring and sidewalk closure will be necessary for construction of the WB portion of Abutment 6 and associated approach slab. See Abutment 6 and Bridge Excavation and Backfill sheets for more information.
- Contractor shall coordinate with Qwest for installation of Qwest communications cables on new WB structure. Qwest shall have service transferred to new WB structure prior to Contractor beginning removal of existing structure.
- Temporary asphalt is paid for under Item Hot Mix Asphalt (Patching) (Asphalt). Temporary asphalt thickness shall accommodate permanent pedestrian sidewalk thickness. Contractor shall make smooth transitions across the expansion joints as directed by the Engineer. Consideration should be given to drainage to avoid ponding on the roadway. Asphalt shall be completely removed prior to placing waterproofing membrane for final deck asphalt overlay.
- See Construction Phasing and Traffic Control Plans.
- Splash guard is required on temporary concrete barrier from Sta. 23+55 to Sta. 29+85 and shall be approved by the Engineer prior to use.
- For temporary lighting, see lighting plans.

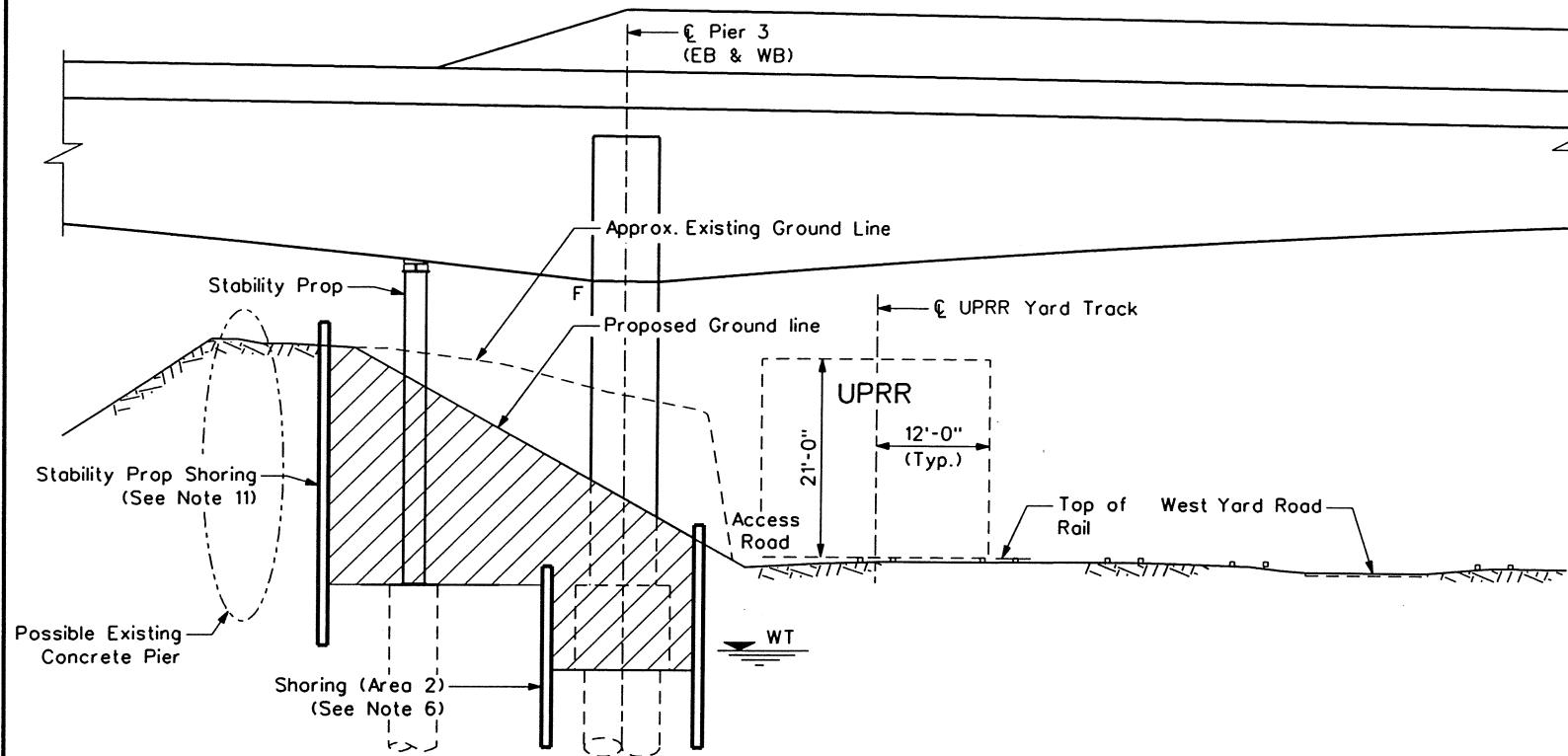
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Unit Information Unit Leader Initials

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Date:	Comments	Init.

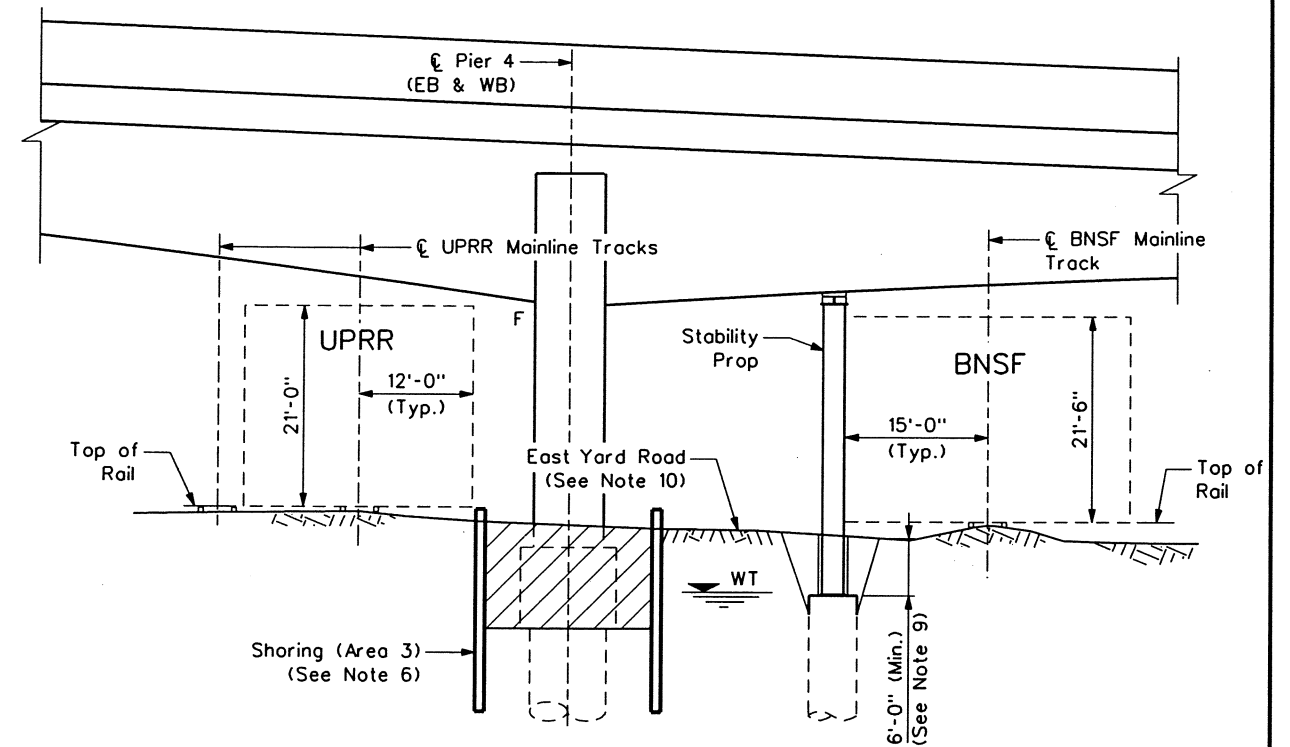
Colorado Department of Transportation
902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5438 FAX: 719-546-5702
Region 2 KSR

As Constructed	SUPERSTRUCTURE CONSTRUCTION		Project No./Code BR 0961-008
No Revisions:	SCHEMATIC IV		
Revised:	Designer: K. Montgomery	Structure Numbers: K-18-GS (EB)	13141
Void:	Detailer: D. Anderson	Structure Numbers: K-18-GT (WB)	
	Sheet Subset: BRIDGE	Subset Sheets: B153 of B169	Sheet Number: 250





CONSTRUCTION AT PIER 3
(WT Denotes Water Table at Time of Exploration)



CONSTRUCTION AT PIER 4
(WT Denotes Water Table at Time of Exploration)

NOTES:

- This drawing is a schematic depicting some of the requirements of the railroads (UPRR, BNSF) for construction within the railroad yard. See Superstructure Construction Schematic sheets and the Project Specifications for additional requirements.
- The Contractor shall follow all requirements for constructing within the railroad yard on railroad property, as shown on the contract drawings, contained in the Project Specifications, and in all manner communicated to the Contractor by the Railroads.
- Top of rail elevations shall be verified by survey PRIOR TO BEGINNING CONSTRUCTION OF ANY PORTION OF THE STRUCTURE. This survey information shall be supplied to the Engineer and any discrepancies between the top-of-rail profile shown in the Contract Plans and as determined from the Contractor's survey resolved prior to beginning construction. The Contractor shall allow for a 30-day review period of the Contractor's top-of-rail survey information before beginning any bridge construction.
- Clear zones shall be maintained at all times. See Superstructure Construction Schematic sheet.
- Flaggers supplied by the Railroads shall be present at any time construction personnel or equipment are scheduled to be within 25'-0" of the centerline of a track. Under no circumstances shall construction personnel or equipment approach closer than 25'-0" to the centerline of a track without flaggers present.
- Shoring required to construct footings near tracks shall be in accordance with Railroad requirements and shall be submitted to the Railroads for review and approval prior to installation. See Bridge Excavation and Backfill Sheets for additional shoring information.
- Falsework required to construct the superstructure adjacent to and above tracks shall be in accordance with Railroad requirements and shall be submitted to the Railroads for review and approval prior to installation of falsework.
- Additional information for construction within the railroad yard is included in the Project Specifications and can be obtained from:
UPRR - "Guidelines for Design and Construction of Falsework for Structures over Union Pacific Railroad"
"Guidelines for Design and Construction of Shoring Adjacent to Active Union Pacific Railroad Tracks"
BNSF - "Guidelines for Design and Construction of Grade Separation Structures"
- Top of stability prop foundation shall be constructed to an elevation a minimum of 6'-0" below final grade in accordance with railroad requirements.
- Contractor shall coordinate construction of Pier 4 and superstructure stability prop(s) with the railroads, including phasing of the east railroad yard road. The yard road shall be maintained per the direction of the Yard Masters.
- Any additional excavation and shoring required at Pier 3 to facilitate stability prop shall be considered incidental to Structure Excavation, Structure Backfill, and Shoring. Upon removal of prop, shoring shall be removed and excavation shall be backfilled properly with material matching that removed.
- The Contractor shall provide a minimum of one foot-candle (or better) for temporary lighting to any yard area shaded by the construction. Temporary lighting shall remain in place as required until such time as permanent lighting is installed.

THE REQUIREMENTS SHOWN ON THIS DRAWING DEPICT SOME OF THE REQUIREMENTS OF THE AFFECTED RAILROADS (UPRR, BNSF) FOR CONSTRUCTION ON, NEAR, AND OVER RAILROAD PROPERTY, TRACKS, AND FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL RAILROAD REQUIREMENTS AS WELL AS CONFORMING TO ANY AND ALL SAFETY OR OTHER REQUIREMENTS FROM OTHER GOVERNING AGENCIES, INCLUDING, BUT NOT LIMITED TO, OSHA, EPA, AND OTHERS.

CONSTRUCTION IMPACTS RESULTING FROM OPERATIONS ON, NEAR, AND OVER RAILROAD PROPERTY, TRACKS, AND FACILITIES SHALL BE CONSIDERED BY THE CONTRACTOR AND INCLUDED IN THE CONTRACT BID PRICE. CONSIDERATIONS SHALL INCLUDE, BUT ARE NOT LIMITED TO, MEANS AND METHODS OF CONSTRUCTION, SAFETY, RAILROAD COORDINATION, TEMPORARY CLEARANCES, TRACK CLOSURE REQUESTS, FALSEWORK (DESIGN, INSTALLATION, AND REMOVAL), SHORING, ACCESS, STAGING, WORK TIME RESTRICTIONS, MAINTENANCE OF YARD TRAFFIC, FLAGGING, DEMOLITION, AND OTHERS. THE CONTRACTOR SHALL PLAN HIS WORK TO BE IN ACCORDANCE WITH THE CONSTRUCTION SCHEDULE GIVEN RAILROAD REQUIREMENTS AND CONSTRUCTION ON, NEAR, AND OVER RAILROAD PROPERTY, TRACKS, AND FACILITIES.

Design	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	SEF	12/06
Detail	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	RKM	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	RKM	12/06	DAT	12/06

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Unit Information	Unit Leader Initials					Revised:	Structure Numbers	K-18-GS (EB)	
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							Sheet Subset: BRIDGE	Subset Sheets: B154 of B169	

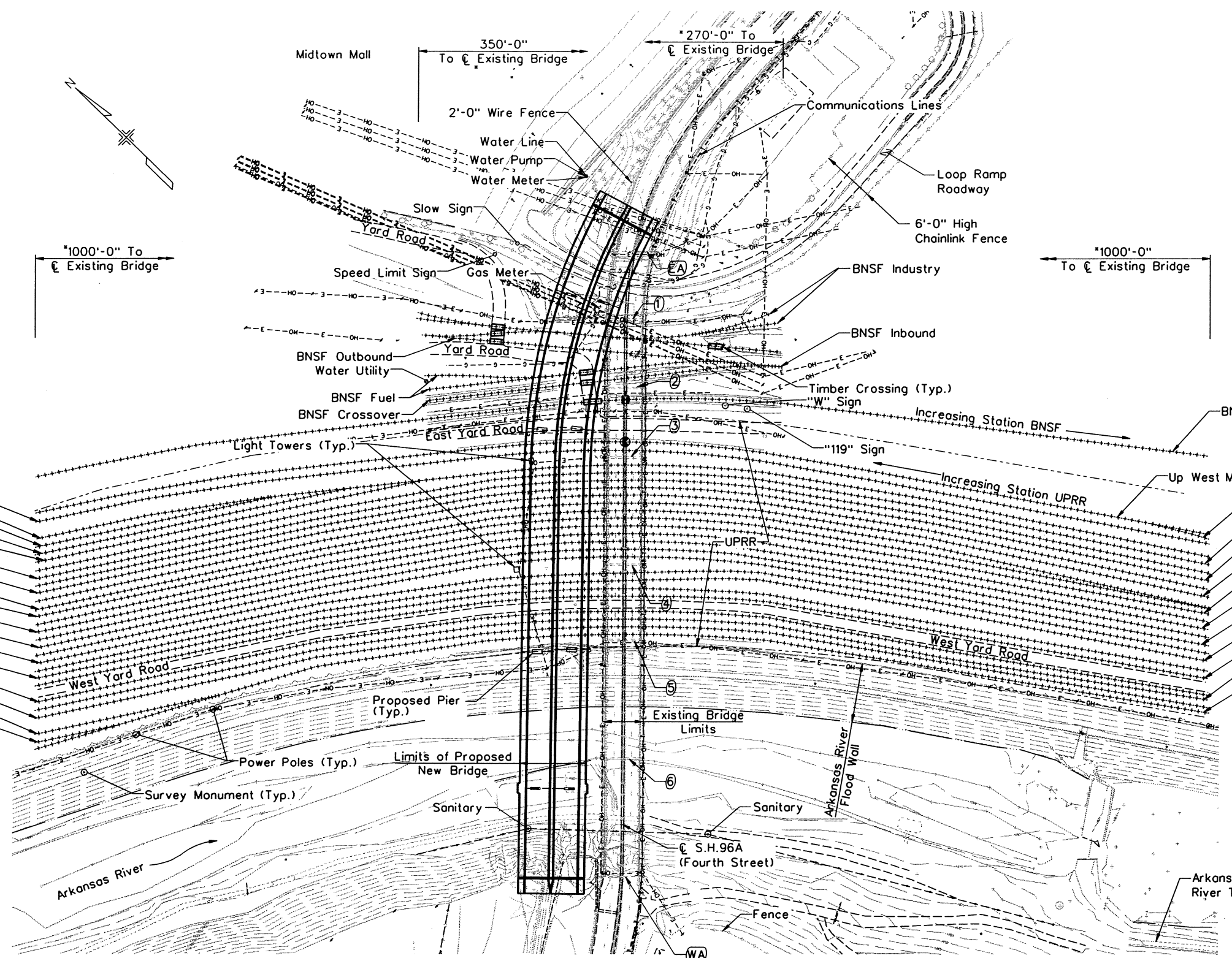
LEGEND

- Gas Line - - - - -
- Overhead Electric Lines - - - - -
- Edge of Roadway - - - - -
- Guardrail - - - - -
- River Limits - - - - -
- Railroad Track + + + + +
- ⊕ - Existing Bridge Pier Number, East or West Abutment
- UPRR Milepost 117.92 ⬤
- BNSF Milepost 118.8 ⬤
- Limits of Track Survey
- Right-of-Way (ROW) Boundary - - - - -

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
JRD	12/06	JRD	12/06	JRD	12/06
Designed By	Checked By	Detailed By	Checked By	Quantities By	Checked By
JRD	RKM	JRD	JRD	JRD	JRD

- Up East Mainline
- Up Yard Track 1
- Up Yard Track 1A
- Up Yard Track 1B
- Up Yard Track 1C
- Up Yard Track 3
- Up Yard Track 5
- Up Yard Track 7
- Up Yard Track 8
- Up Yard Track 10
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- Up Yard Track 21A
- Up Yard Track 21B

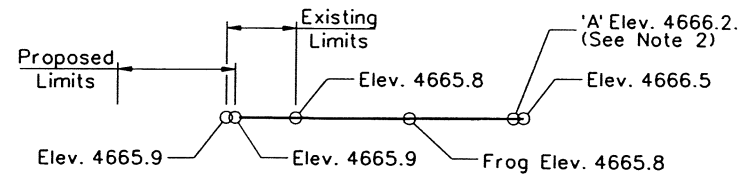
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- Up Yard Track 2
- Up Yard Track 4
- Up Yard Track 6
- Up Yard Track 9
- Up Yard Track 11
- Up Yard Track 13
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- Up Yard Track 19
- Up Yard Track 21



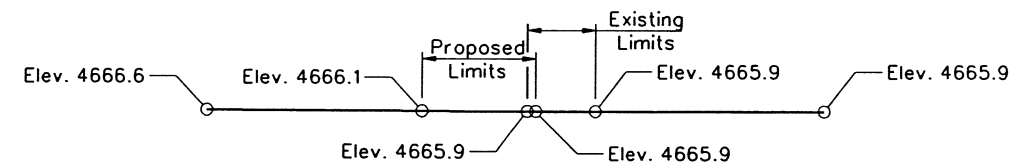
PLAN

Railroad Information (Existing Bridge)	
UPRR Milepost 117.92 DOT #253147Y	BNSF Milepost 118.8 DOT #003496V BNSF Bridge #619.3

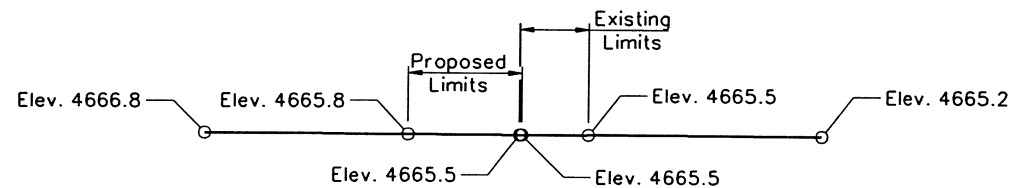
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Unit Information Unit Leader Initials							Void:		Detailer: R. Adams		Sheet Number
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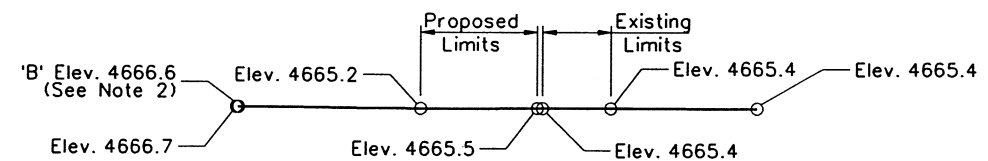
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(Projected)



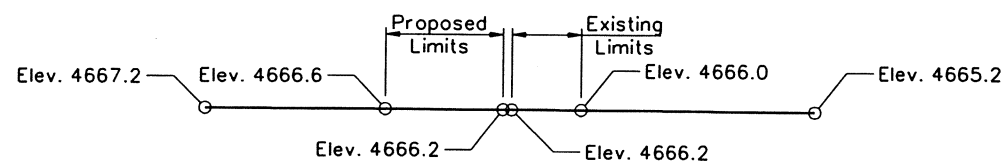
ELEVATION BNSF INBOUND
(Projected)



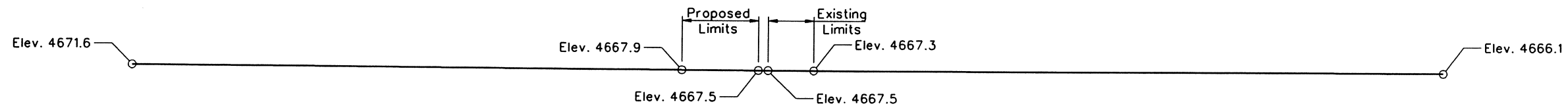
ELEVATION BNSF OUTBOUND
(Projected)



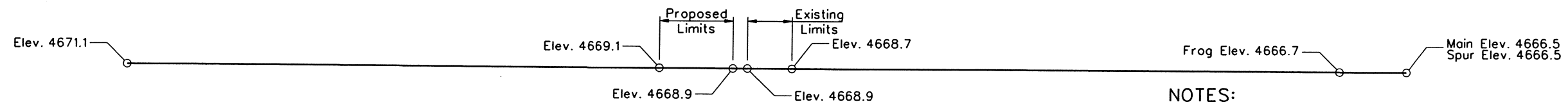
ELEVATION BNSF FUEL
(Projected)



ELEVATION BNSF CROSSOVER
(Projected)



ELEVATION BNSF MAINLINE
(Projected)



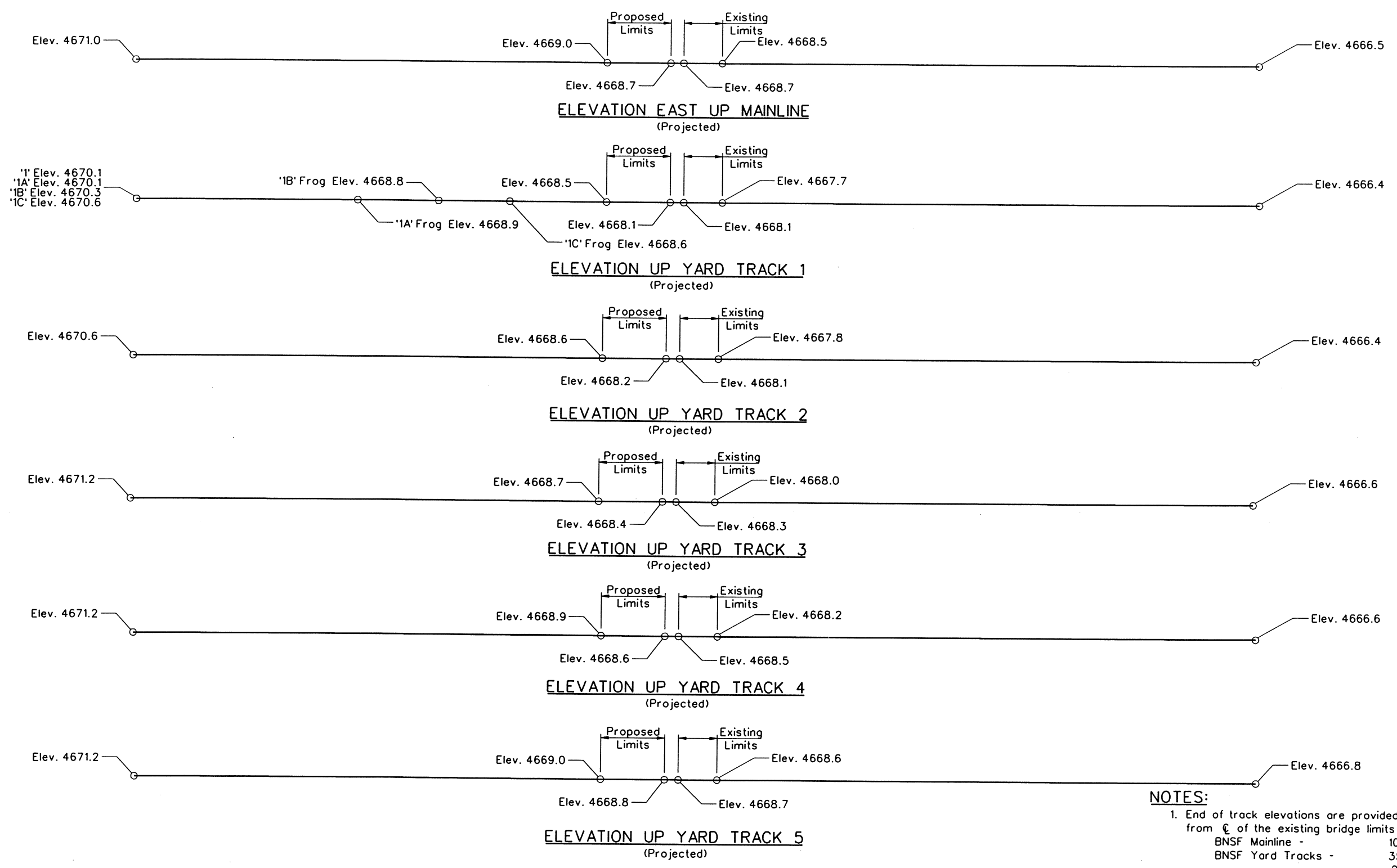
ELEVATION WEST UP MAINLINE
(Projected)

NOTES:

- End of track elevations are provided Upstation and Downstation from ζ of the existing bridge limits along the track as follows:
 BNSF Mainline - 1008'
 BNSF Yard Tracks - 350' Downstation
 270' Upstation
 UPRR Mainline - 1012'
 UPRR Yard Tracks - 1014'
- 'A' refers to East BNSF Industry Track Elevation.
 'B' refers to East BNSF Fuel Track Elevation.
- Top of rail elevations shown for proposed limits shall be verified by Contractor prior to beginning construction. Any discrepancies shall be brought to the attention of the Railroad.

Design	Designed By	JRD	Checked By	RKM	DATE	12/06
	Checked By					
Detail	INITIAL	JRD	Checked By	JRD	DATE	12/06
	DATE	12/06	Checked By			
Quantities	INITIAL	JRD	Checked By	JRD	DATE	12/06
	DATE	12/06	Checked By			

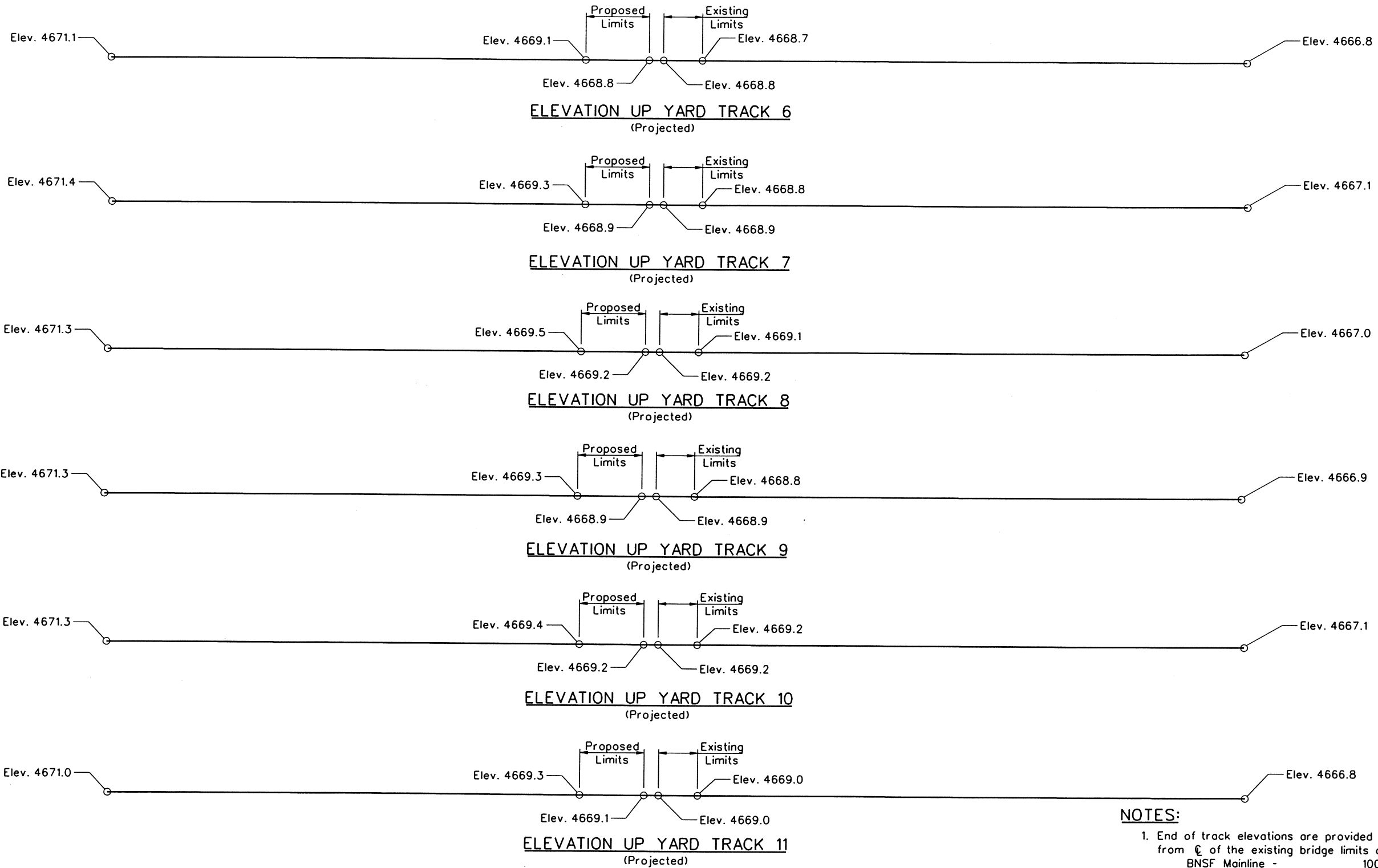
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Unit Information Unit Leader Initials							Void:		Structure: K-18-GS (EB)
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400							Detailer: R. Adams		Numbers: K-18-GT (WB)
							Sheet Subset: BRIDGE		Subset Sheets: B156 of B169
									Sheet Number: 253



- NOTES:**
- End of track elevations are provided Upstation and Downstation from ϵ of the existing bridge limits along the track as follows:
 BNSF Mainline - 1008'
 BNSF Yard Tracks - 350' Downstation
 270' Upstation
 UPRR Mainline - 1012'
 UPRR Yard Tracks - 1014'
 - Top of rail elevations shown for proposed limits shall be verified by Contractor prior to beginning construction. Any discrepancies shall be brought to the attention of the Railroad.

Design		Detail		Quantities	
Designed By	Checked By	INITIAL	RJA	INITIAL	JRD
RKM			JRD		DAT
DATE	DATE	DATE	DATE	DATE	DATE
12/06	12/06	12/06	12/06	12/06	12/06

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Unit Information Unit Leader Initials					K-18-GS (EB)		Void:		Sheet Number 254		
Figg Bridge Engineers, Inc. 1873 South Belleaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400					DEPARTMENT OF TRANSPORTATION		Designer: J. Dvorak Detailer: R. Adams Sheet Subset: BRIDGE		Structure Numbers: K-18-GT (WB) Subset Sheets: B157 of B169		

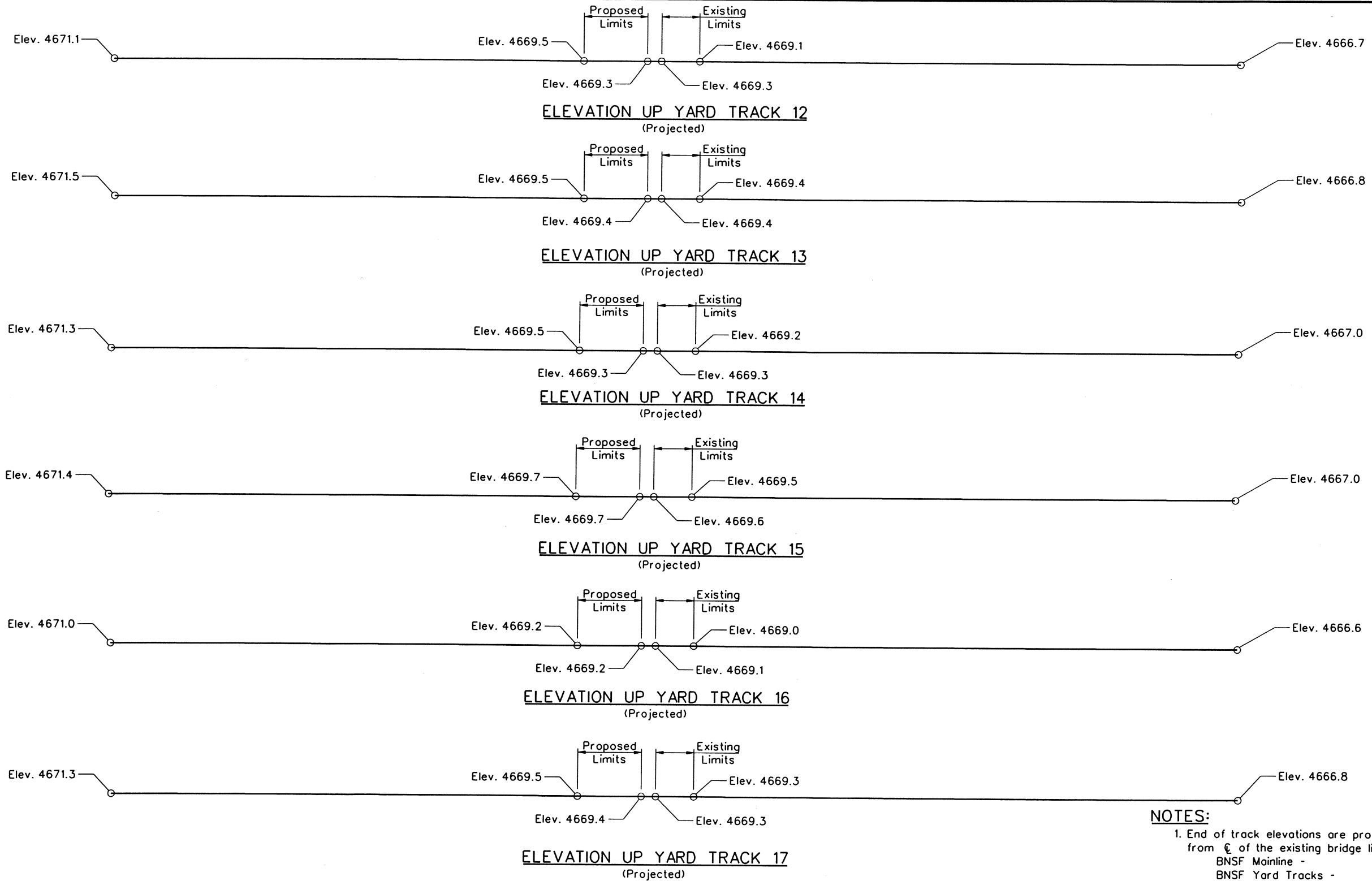


NOTES:

- End of track elevations are provided Upstation and Downstation from $\text{\textcircled{C}}$ of the existing bridge limits along the track as follows:
 BNSF Mainline - 1008'
 BNSF Yard Tracks - 350' Downstation
 270' Upstation
 UPRR Mainline - 1012'
 UPRR Yard Tracks - 1014'
- Top of rail elevations shown for proposed limits shall be verified by Contractor prior to beginning construction. Any discrepancies shall be brought to the attention of the Railroad.

Design	INITIAL	DATE	DESIGNED BY	CHECKED BY
	JRD	12/06	RKM	
Detail	INITIAL	DATE	DETAILED BY	CHECKED BY
	JRD	12/06	JRD	
Quantities	INITIAL	DATE	QUANTITIES BY	CHECKED BY
	JRD	12/06	JRD	

Print Date: 12/8/2006		Sheet Revisions		Colorado Department of Transportation		As Constructed		RAILROAD TRACK PROFILE III		Project No./Code	
Drawing File Name: 13141_RRPROFILE_3.dgn		Date:	Comments	Init.	902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		No Revisions:	Designer: J. Dvorak		BR 0961-008	
Horiz. Scale: Vert. Scale:					Region 2 KSR		Revised:	Structure: K-18-GS (EB)		13141	
Unit Information Unit Leader Initials							Void:	Detailer: R. Adams		Sheet Number 255	
Figg Bridge Engineers, Inc. 1873 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400								Sheet Subset: BRIDGE		Subset Sheets: B158 of B169	



NOTES:

- End of track elevations are provided Upstation and Downstation from ϕ of the existing bridge limits along the track as follows:
 BNSF Mainline - 1008'
 BNSF Yard Tracks - 350' Downstation
 270' Upstation
 UPRR Mainline - 1012'
 UPRR Yard Tracks - 1014'

2. Top of rail elevations shown for proposed limits shall be verified by Contractor prior to beginning construction. Any discrepancies shall be brought to the attention of the Railroad.

Design		Detail		Quantities	
Designed By	Checked By	INITIAL	DATE	INITIAL	DATE
JRD	RJM	JRD	12/06	JRD	12/06
Detailed By		Checked By		Checked By	
JRD		JRD		DAT	

Print Date: 12/8/2006
 Drawing File Name: 13141_RRPROFILE_4.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials

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 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

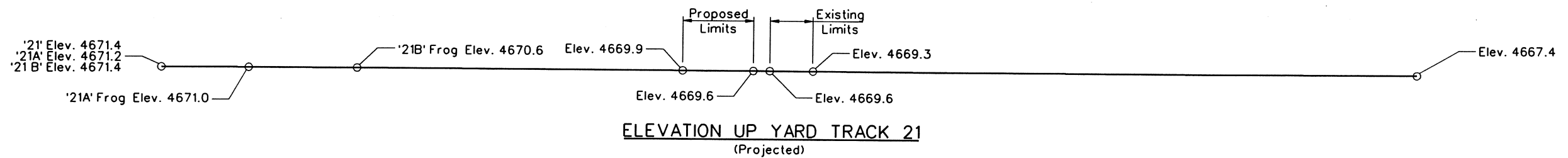
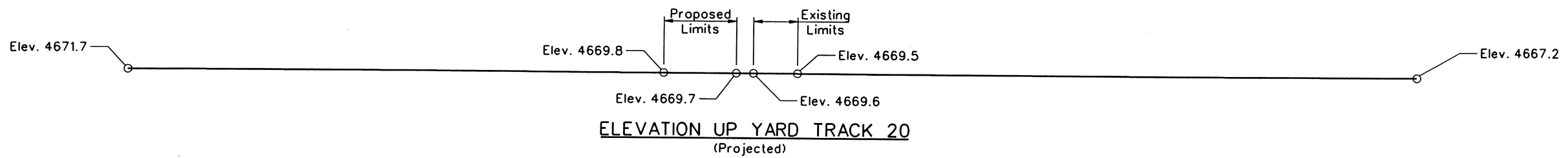
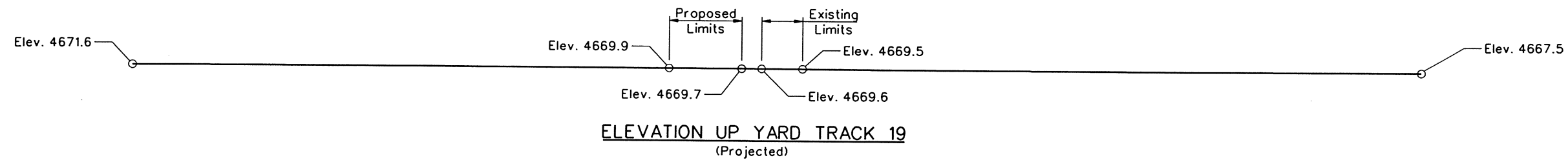
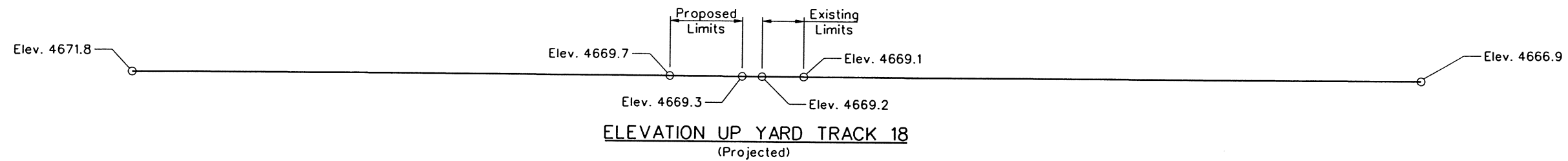
902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5438 FAX: 719-546-5702

Region 2 KSR

As Constructed
No Revisions:
Revised:
Void:

RAILROAD TRACK PROFILE IV			
Designer:	J. Dvorak	Structure Numbers	K-18-GS (EB)
Detailer:	R. Adams	Structure Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B159 of B169

Project No./Code	BR 0961-008
Sheet Number	256



NOTES:

- End of track elevations are provided Upstation and Downstation from ϵ of the existing bridge limits along the track as follows:

BNSF Mainline -	1008'
BNSF Yard Tracks -	350' Downstation 270' Upstation
UPRR Mainline -	1012'
UPRR Yard Tracks -	1014'
- Top of rail elevations shown for proposed limits shall be verified by Contractor prior to beginning construction. Any discrepancies shall be brought to the attention of the Railroad.

Design		Detail		Quantities	
Designed By	Checked By	INITIAL	DATE	INITIAL	DATE
JRD	RKM	JRD	12/06	JRD	12/06
Detailed By		Checked By		Checked By	
JRD		JRD		DAT	
12/06		12/06		12/06	

Print Date: 12/8/2006
 Drawing File Name: 13141_RRPROFILE_5.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials

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 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

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Region 2 KSR

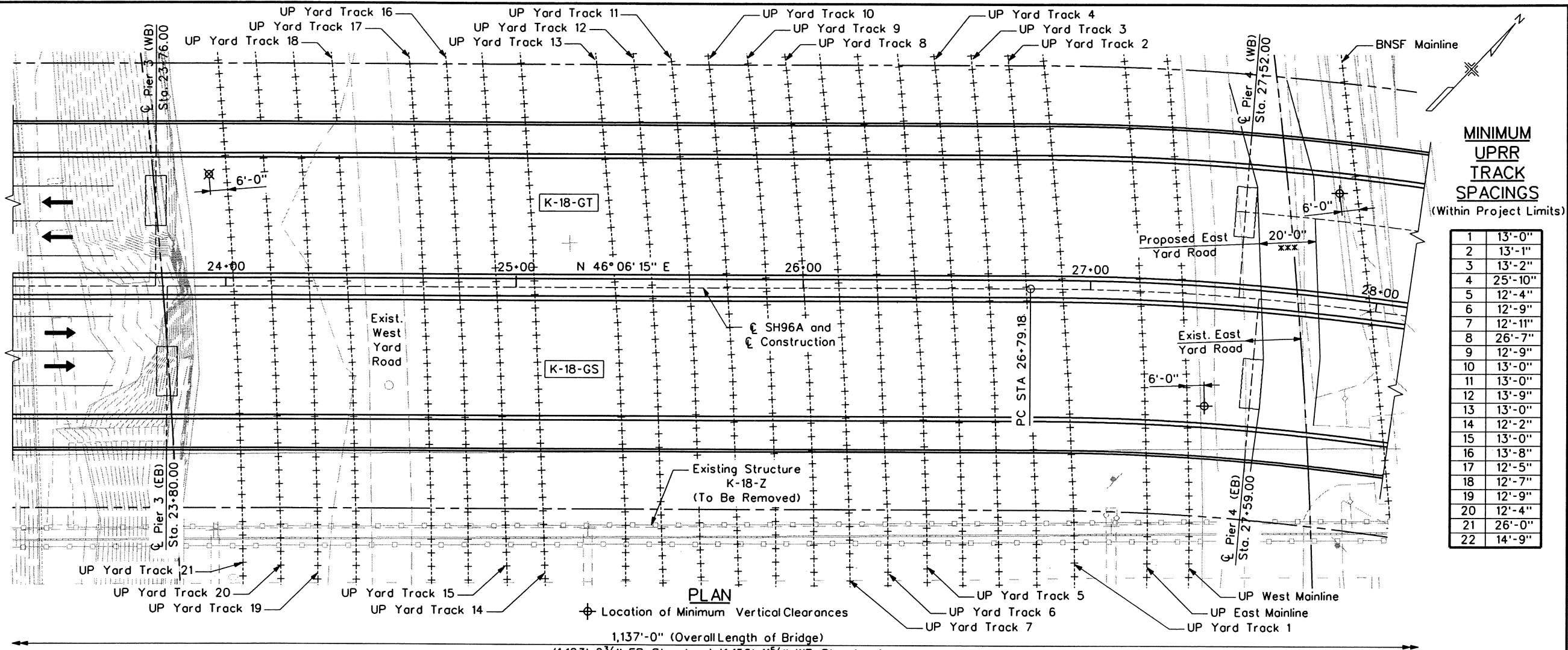
As Constructed	
No Revisions:	
Revised:	
Void:	

RAILROAD TRACK PROFILE V			
Designer:	J. Dvorak	Structure Numbers	K-18-GS (EB)
Detailer:	R. Adams	Structure Numbers	K-18-GT (WB)
Sheet Subset:	BRIDGE	Subset Sheets:	B160 of B169

Project No./Code	
BR 0961-008	
13141	
Sheet Number	257

NOTES:

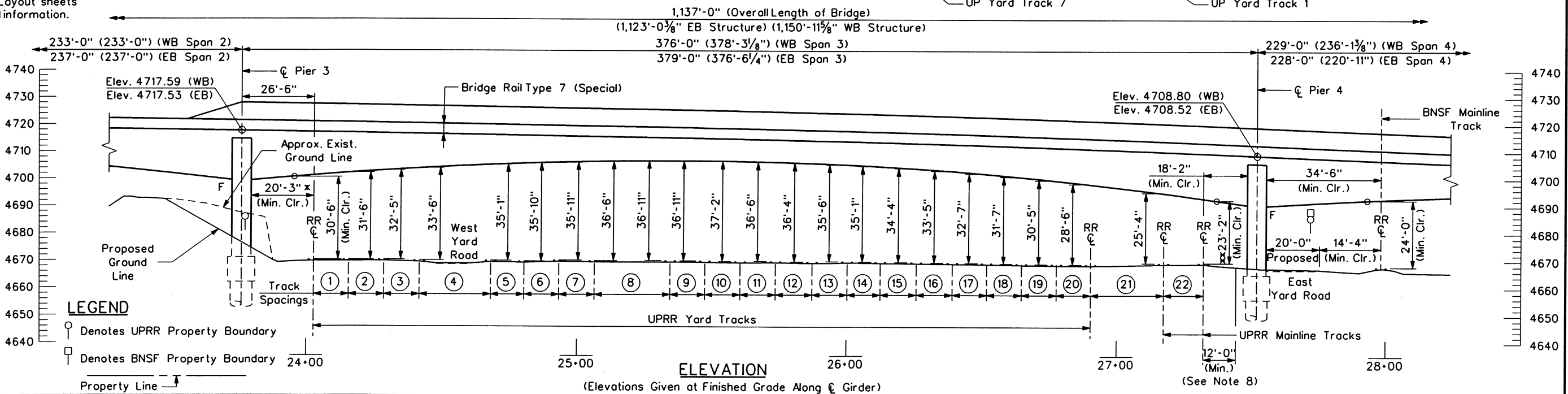
1. Span lengths given along \bar{C} SH96A & \bar{C} Construction. (xx'-x") denotes span lengths along \bar{C} Girder.
- *2. Horizontal clearance is from \bar{C} track. For temporary clearances required during construction, see Super-structure Construction Schematic sheets.
- **3. Vertical clearance is from top of rail. For temporary clearances required during construction, see Super-structure Construction Schematic sheets.
- ***4. Maintain East Yard Road and maintain 16'-0" width around Pier 4 and temporary Prop during construction.
5. For under-viaduct lighting, see Lighting and Electrical sheets.
6. For Right-of-Way limits, see Right-of-Way Plans.
7. For Railroad milepost and increasing station direction and track elevations, see Railroad Plan and Railroad Track Profiles sheets.
8. Excavation and Shoring shall be per Railroad guidelines. See Bridge Excavation and Backfill sheet and Project Specifications.
9. See General Layout sheets for additional information.



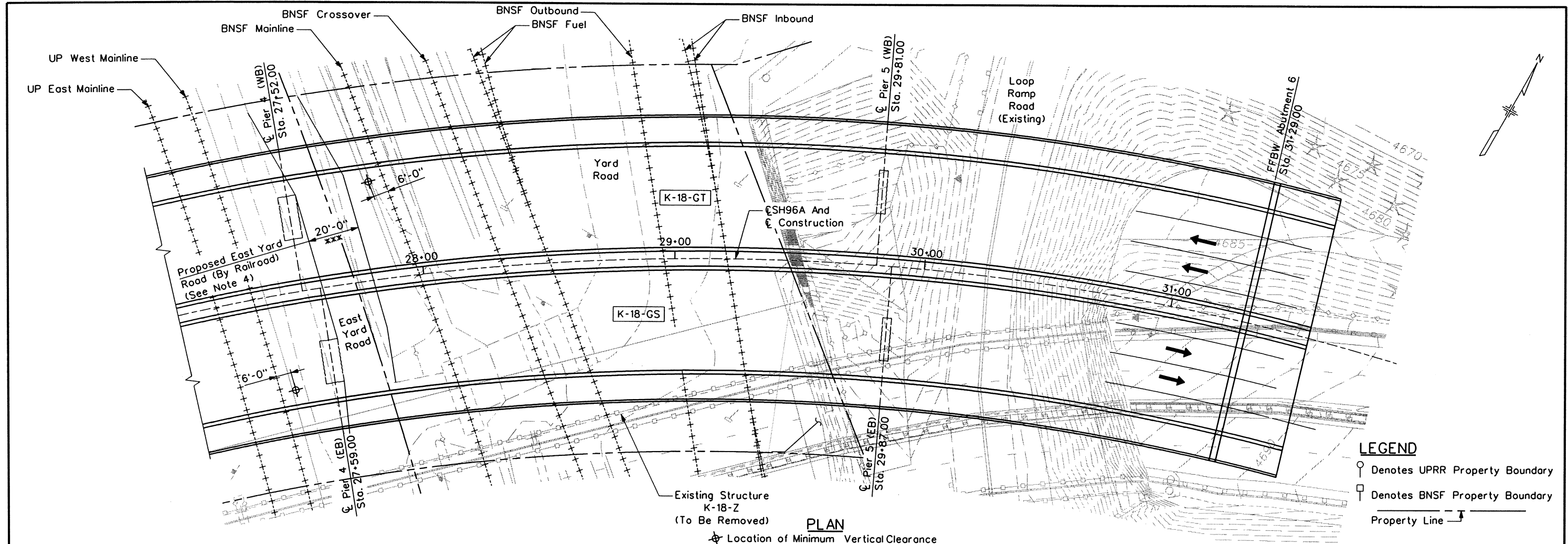
MINIMUM UPRR TRACK SPACINGS (Within Project Limits)

1	13'-0"
2	13'-1"
3	13'-2"
4	25'-10"
5	12'-4"
6	12'-9"
7	12'-11"
8	26'-7"
9	12'-9"
10	13'-0"
11	13'-0"
12	13'-9"
13	13'-0"
14	12'-2"
15	13'-0"
16	13'-8"
17	12'-5"
18	12'-7"
19	12'-9"
20	12'-4"
21	26'-0"
22	14'-9"

Design	INITIAL	DATE	INITIAL	DATE
	JRD	12/06	JRD	12/06
Designed By	Checked By	Checked By	Checked By	Checked By
	RKM	JRD	JRD	DAI
Detail	INITIAL	DATE	INITIAL	DATE
	JRD	12/06	JRD	12/06
Quantities	INITIAL	DATE	INITIAL	DATE
	JRD	12/06	JRD	12/06



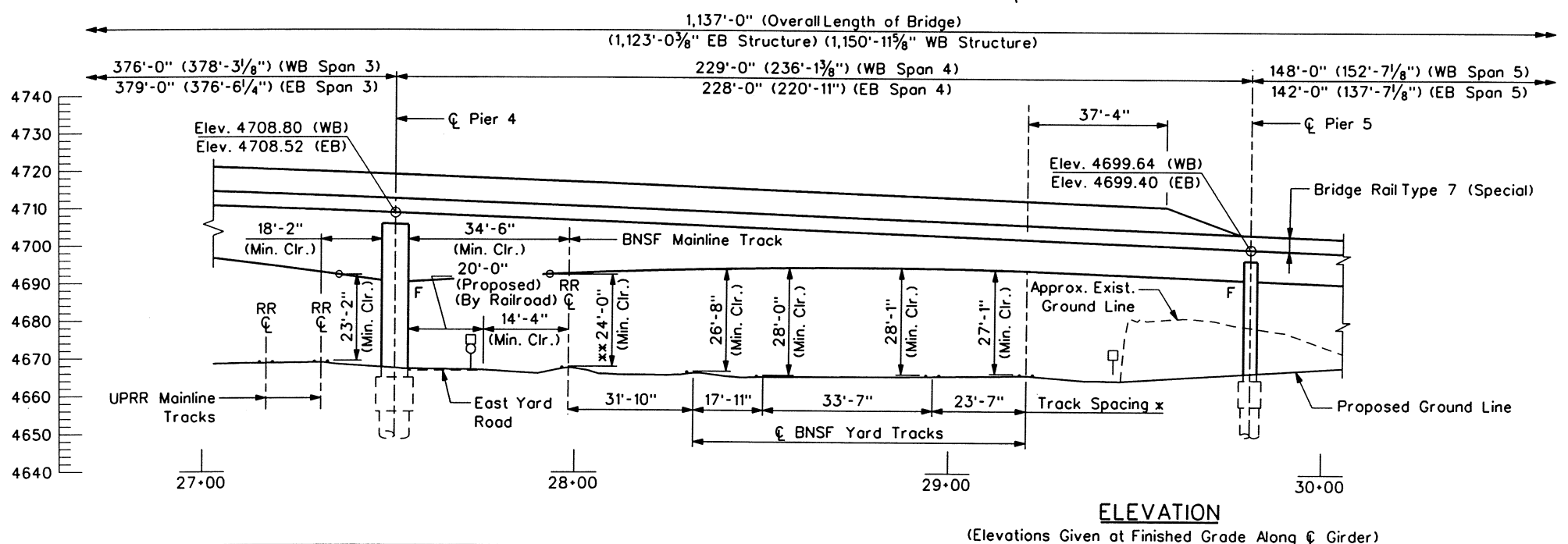
Print Date: 1/3/2007		Sheet Revisions		Colorado Department of Transportation		As Constructed		RAILROAD CLEARANCES I		Project No./Code	
Drawing File Name: 13141_Railroad_Clearances_I.dgn		Date:	Comments	Init.	No Revisions:		Designer: J. Dvorak Detailer: D. Anderson Sheet Subset: BRIDGE		BR 0961-008		
Horiz. Scale: Vert. Scale:					Revised:				Structure: K-18-GS (EB) Numbers: K-18-GT (WB)		13141
Unit Information Unit Leader Initials						Void:		Subset Sheets: B161 of B169		Sheet Number	
 Figg Bridge Engineers, Inc. 1875 South Bellaire St., Suite 1500 Denver, Colorado 80222 (303)757-7400		 Region 2		902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5438 FAX: 719-546-5702		KSR				Sheet Number 258	



LEGEND

- Denotes UPRR Property Boundary
- Denotes BNSF Property Boundary
- Property Line

PLAN
 ⊕ Location of Minimum Vertical Clearance



ELEVATION
 (Elevations Given at Finished Grade Along G Girder)

- NOTES:**
1. Span lengths given along SH96A & Construction. (xx'-x'') denotes span lengths along G Girder.
 - *2. Horizontal clearance is from G track. For temporary clearances required during construction, see Superstructure Construction Schematic sheets.
 - **3. Vertical clearance is from top of rail. For temporary clearances required during construction, see Superstructure Construction Schematic sheets.
 - xxx4. Maintain East Yard Road and maintain 16'-0" width around Pier 4 and temporary prop during construction.
 5. For under-viaduct lighting, see Lighting and Electrical sheets.
 6. For Right-of-Way limits, see Right-of-Way Plans.
 7. For Railroad milepost and increasing station direction and track elevations, see Railroad Plan and Railroad Track Profiles sheets.
 8. Excavation and Shoring shall be per Railroad guidelines. See Bridge Excavation and Backfill sheet and Project Specifications.
 9. See General Layout sheets for additional information.
 10. Track spacing shown for BNSF is the minimum within project limits.

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
JRD	12/06	JRD	12/06	JRD	12/06
Designed By	Checked By	Detailed By	Checked By	Quantities By	Checked By
JRD	RJM	JRD	JRD	JRD	DAT
Checked By		Checked By		Checked By	

Print Date: 1/3/2007
 Drawing File Name: 13141_Railroad_Clearances_II.dgn
 Horiz. Scale: Vert. Scale:
 Unit Information Unit Leader Initials
 Figg Bridge Engineers, Inc.
 1873 South Bellaire St., Suite 1500
 Denver, Colorado 80222
 (303)757-7400

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
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 Phone: 719-546-5438 FAX: 719-546-5702
 Region 2 KSR

As Constructed No Revisions: Revised: Void:	RAILROAD CLEARANCES II		Project No./Code BR 0961-008
	Designer: J. Dvorak	Structure Numbers: K-18-GS (EB) K-18-GT (WB)	13141
	Detailer: D. Anderson	Sheet Subset: BRIDGE	Subset Sheets: B162 of B169
			Sheet Number 259