

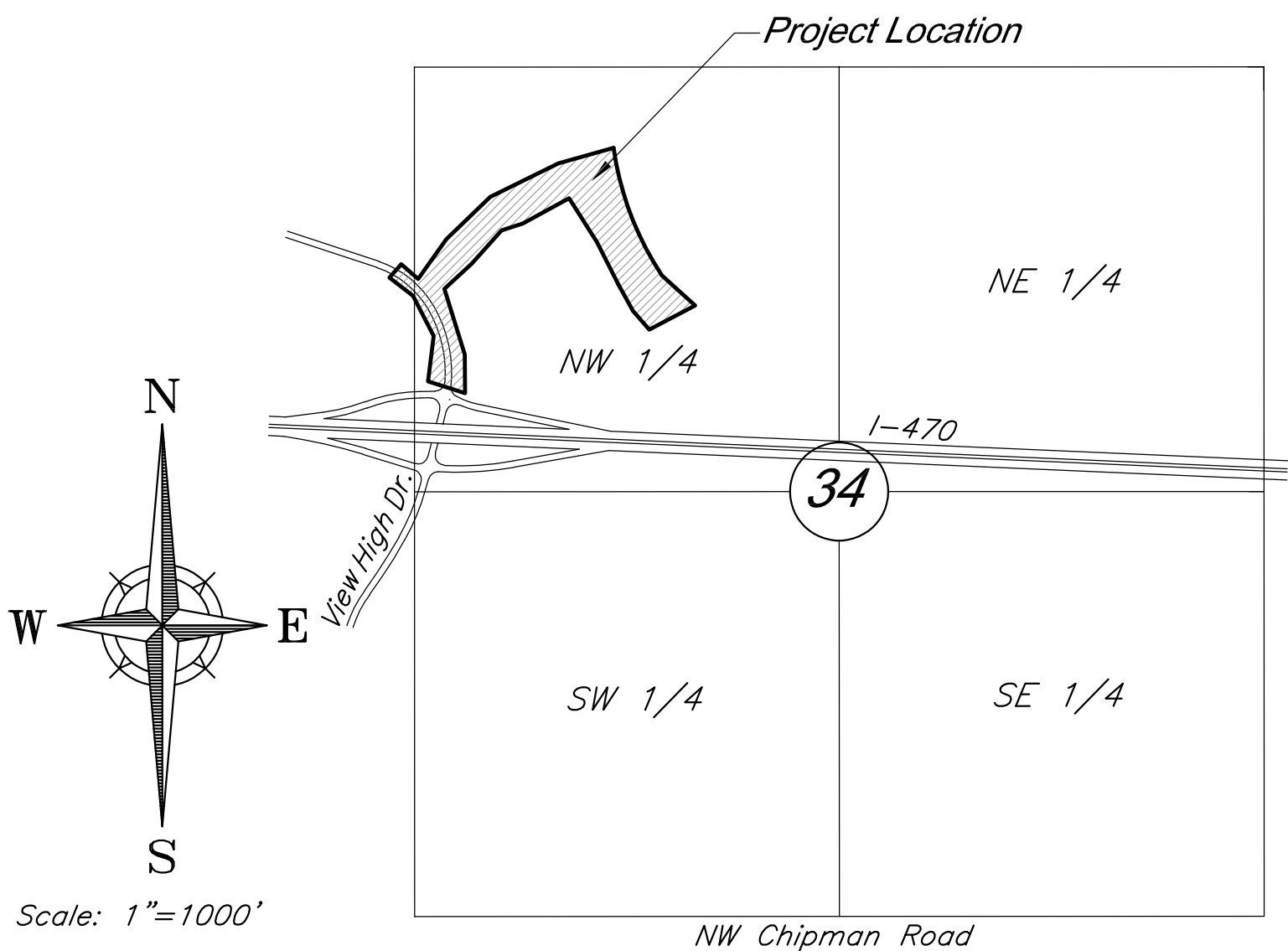
*EAST BRIDGE PLANS  
FOR  
PARAGON STAR DEVELOPMENT – LEE’S SUMMIT, MO  
View High Dr, View High Pkwy, River Rd  
Sections 33 & 34–Township 48–Range 32  
City of Lee’s Summit  
Jackson County, Missouri*

**Summary of Quantities**

Item No.	Description	Unit	Unit Quantity
1	East Bridge	L.S.	1

**PROJECT BENCHMARK**

BM #11 – Chiseled “L” on top  
Northeast corner of concrete guardrail  
at the Northeast corner of 1470 bridge  
spanning View High Drive.  
EL=833.80



**Design Speed = 40 mph**

**VICINITY MAP**

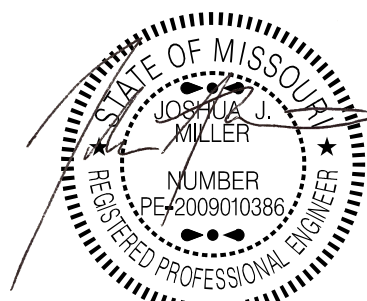
**Section 33 & 34-T48N-R32W**

**UTILITY CONTACTS**

Sanitary Sewers	Mr. Jeff Thorn, PE City of Lee's Summit Water Utilities 1200 SE Hamblen Road Lee's Summit, MO 64063 (816) 969-1922 email: jeff.thorn@cityofLS.net	Gas	Mr. Donnie Richards Missouri Gas Energy 7500 E 35th Terrace Kansas City, MO 64129 (816) 472-9464 Fax (816) 472-3488 email: donnie.richards@sug.com
	Mr. Jeff Shook Little Blue Valley Sewer District 21101 East 78 Highway Independence, MO 64057 (816) 285-1522 email: jshook@lbvsd.net	Cable Television	Mr. Greg Thomas Time Warner Cable 8221 W. 119th Street Overland Park, KS 66213 (913) 643-1950 email: greg.thomas@twcable.com
Water	Mr. Jeff Thorn, PE City of Lee's Summit Water Utilities 1200 SE Hamblen Road Lee's Summit, MO 64063 (816) 969-1922 email: jeff.thorn@cityofLS.net	Telephone	Ms. Glenda Charles AT&T 1425 Oak Street Kansas City, MO 64106 (816) 365-1669 Fax (816) 275-1109 email: gc6954@att.com
Electric Service	Mr. Nathan Michael Evergy P.O. Box 418679 Kansas City, MO 64141 (816) 220-5210 Fax (816) 245-3623 email: Nathan.Michael@kcpl.com		

DEVELOPED AND OWNED BY:  
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LEE'S SUMMIT, MISSOURI 64086  
PHONE: (816) 802-6801  
CONTACT: Mr. Flip Short  
EMAIL: fshort@legacytouch.com

PREPARED & SUBMITTED BY:  
GEORGE BUTLER ASSOCIATES, INC.  
9801 RENNER BOULEVARD  
LENEXA, KANSAS 66219  
PHONE: 913-492-0400  
FAX: 913-577-8312  
CONTACT: BRAD BURTON P.E.  
EMAIL: BBURTON@GBATEAM.COM



PROJECT ENGINEER:

**INDEX OF SHEETS**

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A6.16	

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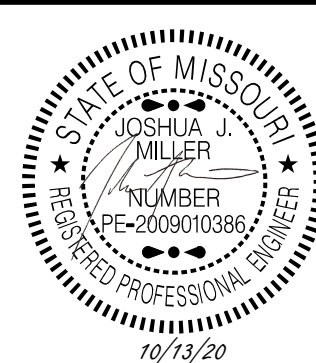


EAST BRIDGE  
(50'-105'-50') PRESTRESSED CONCRETE NU-GIRDER SPANS

SEC/SUR 34

TWP 48N

RGE 32W



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DATE: 09-17-20  
DESIGN BY: JJM  
DRAWN BY: DWM  
PROJECT NO.: 12720  
SHEET NO. 1  
TOTAL SHEETS 30

JOSHUA J. MILLER  
PROFESSIONAL ENGINEER  
PE-2009010386

East Bridge Plans  
**Paragon Star Development**  
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

BM #11 Chiseled "L" on top Northeast corner of concrete guardrail at Northeast corner of I-470 Bridge spanning View High Drive. Elev. = 833.80

Notice and Disclaimer Regarding Boring Log Data

"●" Indicates location of borings.

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the Geotechnical Engineer for the design of the bridge, are shown on Sheet No. 30. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the Engineer or elsewhere.

The Engineer does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this bridge. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here, or on any other documentation not expressly warranted, which the contractor may obtain from the Engineer.

Hydrologic Data
Drainage Area = 56.8 (sq. mi.) Design Flood Frequency = 50 years Design Flood Discharge = 4,794 cfs Design Flood (D.F.) Elevation = 809.4
Base Flood (100-year)
Base Flood Elevation = 810.9 Base Flood Discharge = 5,636 cfs Estimated Backwater = 0.1 ft Average Velocity thru Opening = 2.4 ft/s
Freeboard (50-year)
Design High Water = 809.4 Freeboard = 2.6 ft
Roadway Overtopping
Overtopping Flood Frequency >500 years

Notes:

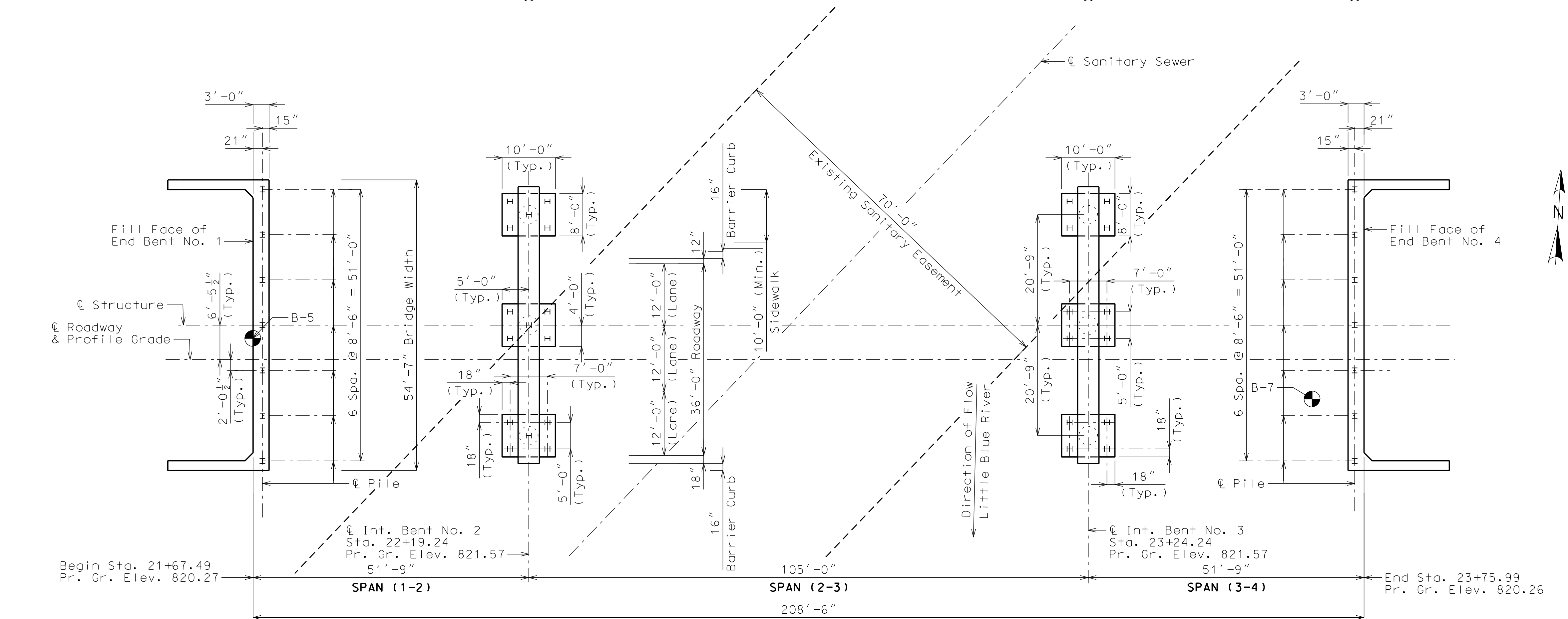
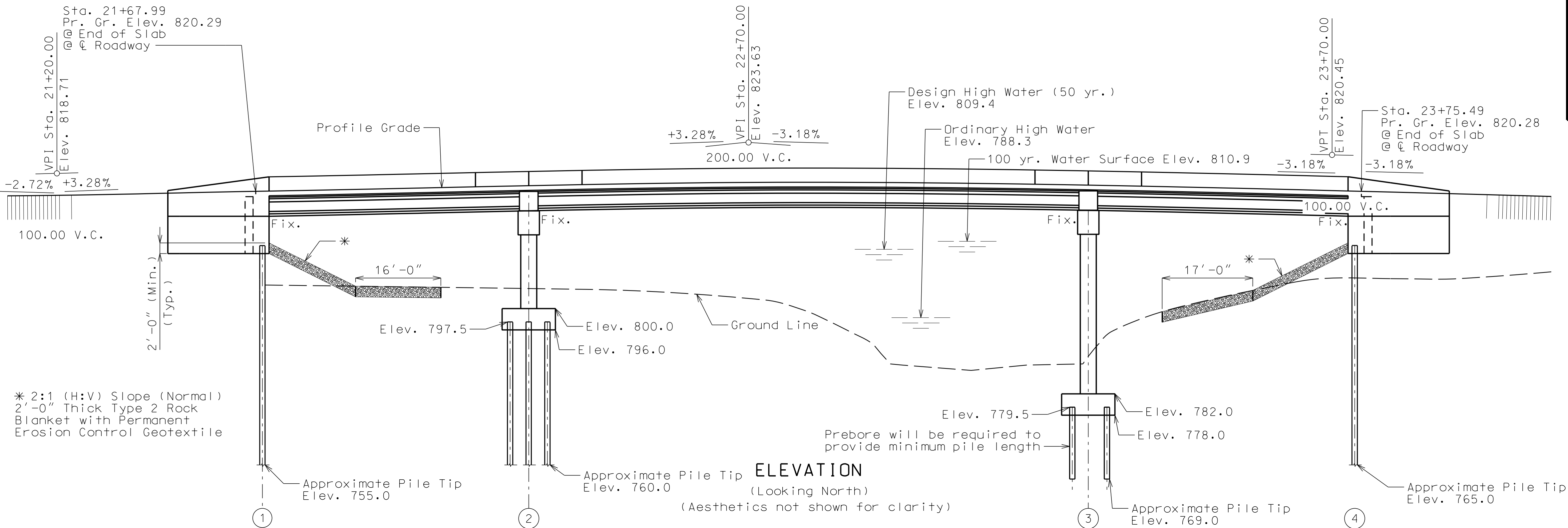
Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

All bents are parallel.

All longitudinal dimensions shown are horizontal.

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PLAN

Note: This drawing is not to scale. Follow dimensions.

BRIDGE: EAST PARAGON PARKWAY OVER LITTLE BLUE RIVER

General Notes:

Design Specifications:  
2012 AASHTO LRFD Bridge Design Specifications (6th Ed.) and 2013 Interim Revisions.  
Seismic Design Category = A  
All referenced specifications shall refer to Missouri Standard Specifications for Highway Construction unless otherwise noted. Construction of the bridge shall conform to the MoDOT standard specification. Payment for construction of the bridge shall be completely covered by the lump sum.

Design Loading:  
Vehicular = HL-93  
Future Wearing Surface = 35 lb/sf  
Earth = 120 lb/cf  
Equivalent Fluid Pressure = 70 lb/cf

Design Unit Stresses:  
Class B Concrete (Substructure)  $f'c = 4,000$  psi  
Class B-1 Concrete (Barrier Curb)  $f'c = 4,000$  psi  
Class B-2 Concrete (Superstructure except Barrier Curb)  $f'c = 4,000$  psi  
Reinforcing Steel (Grade 60)  $fy = 60,000$  psi  
Structural Steel HP Pile (ASTM A709 Grade 50S)  $fy = 50,000$  psi  
For Precast Prestressed Panel Stresses, see Sheet No. 17.  
For Prestressed Girder Stresses, See Sheets No. 14 & 15.

Neoprene Pads:  
Plain and Laminated Neoprene Bearing Pads shall be 60 durometer and shall be in accordance with Sec 716.

Joint Filler:  
All joint filler shall be in accordance with Section 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:  
Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.  
All reinforcement shall be epoxy coated.

Minimum clearance between galvanized piles and uncoated (plain) bar supports shall be 1 1/2". Nylon, PVC, or other polyethylene spacers shall be used to maintain clearance. Nylon cable ties shall be used to bind the spacers to the reinforcement.

Miscellaneous:  
City Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:

☐ Constant Joint Filler

☐ Variable Joint Filler

FOUNDATION DATA					
TYPE	DESIGN DATA	BENT NUMBER			
		1	2	3	4
Load Bearing Pile	Pile Type and Size	HP12x53	HP12x53	HP12x53	HP12x53
	Number	ea	7	15	12
	Approximate Length per Each	ft	55	38	10
	Pile Point Reinforcement	ea	7	15	12
	Min. Galvanized Penetration (Elev.)	ft	full depth	full depth	full depth
	Est. Max. Scour Depth 500 (Elev.)	ft	794	790	792
	Pile Driving Verification Method		WEAP	DT	DT
	Resistance Factor		0.5	0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip	428	512	540
				434	

WEAP = Wave Equation Analysis of Piles

Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

Prebore for piles at Bent No. 3 to elevation 769.0.

HP piles are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702.

All piles shall be galvanized to the full length of pile.

Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

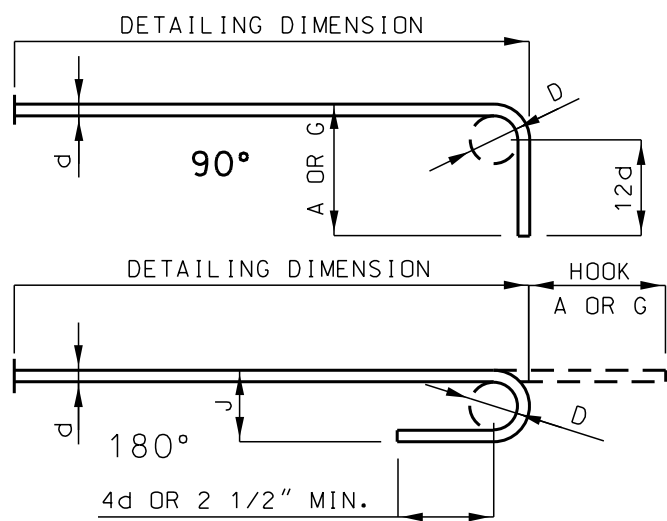
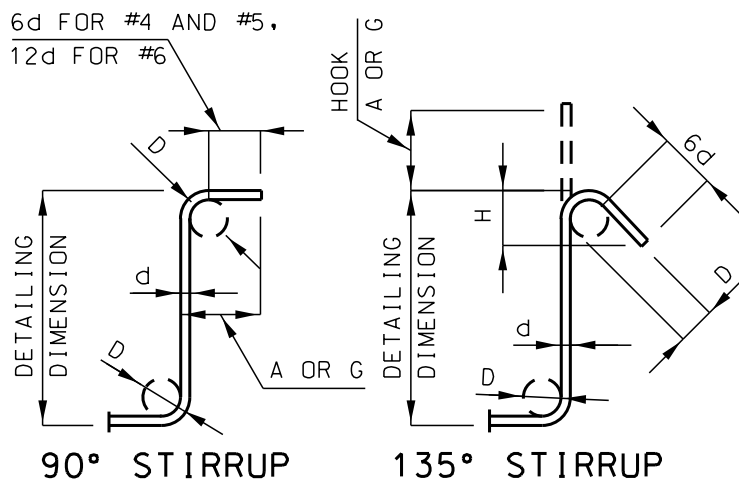
The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II, or III.

Contractor to provide shoring plan for piers signed and sealed by a professional engineer licensed in the State of Missouri.

For all drill and grout applications the contractor shall use one of the qualified resin anchor systems in accordance with Sec. 1039

Contractor shall provide rebar shop drawings for review prior to ordering reinforcement.



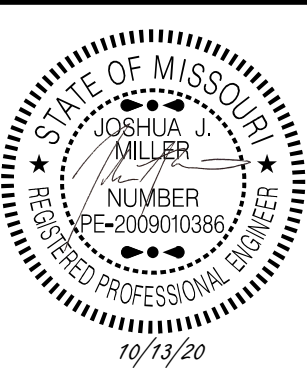
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS	90° HOOKS	
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE:

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.  
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.  
E = EPOXY COATED REINFORCEMENT.  
S = STIRRUP.  
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.  
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.  
NO. EA. = NUMBER OF BARS OF EACH LENGTH.  
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)  
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.  
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.  
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.  
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.



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DATE: 09-17-20  
DESIGN BY: JJM  
DRAWN BY: DWM  
PROJECT NO.: 12720  
SHEET NO. 2  
TOTAL SHEETS 30

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PROFESSIONAL ENGINEER  
PE-2009010386

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**Paragon Star Development**  
Lee's Summit, Missouri

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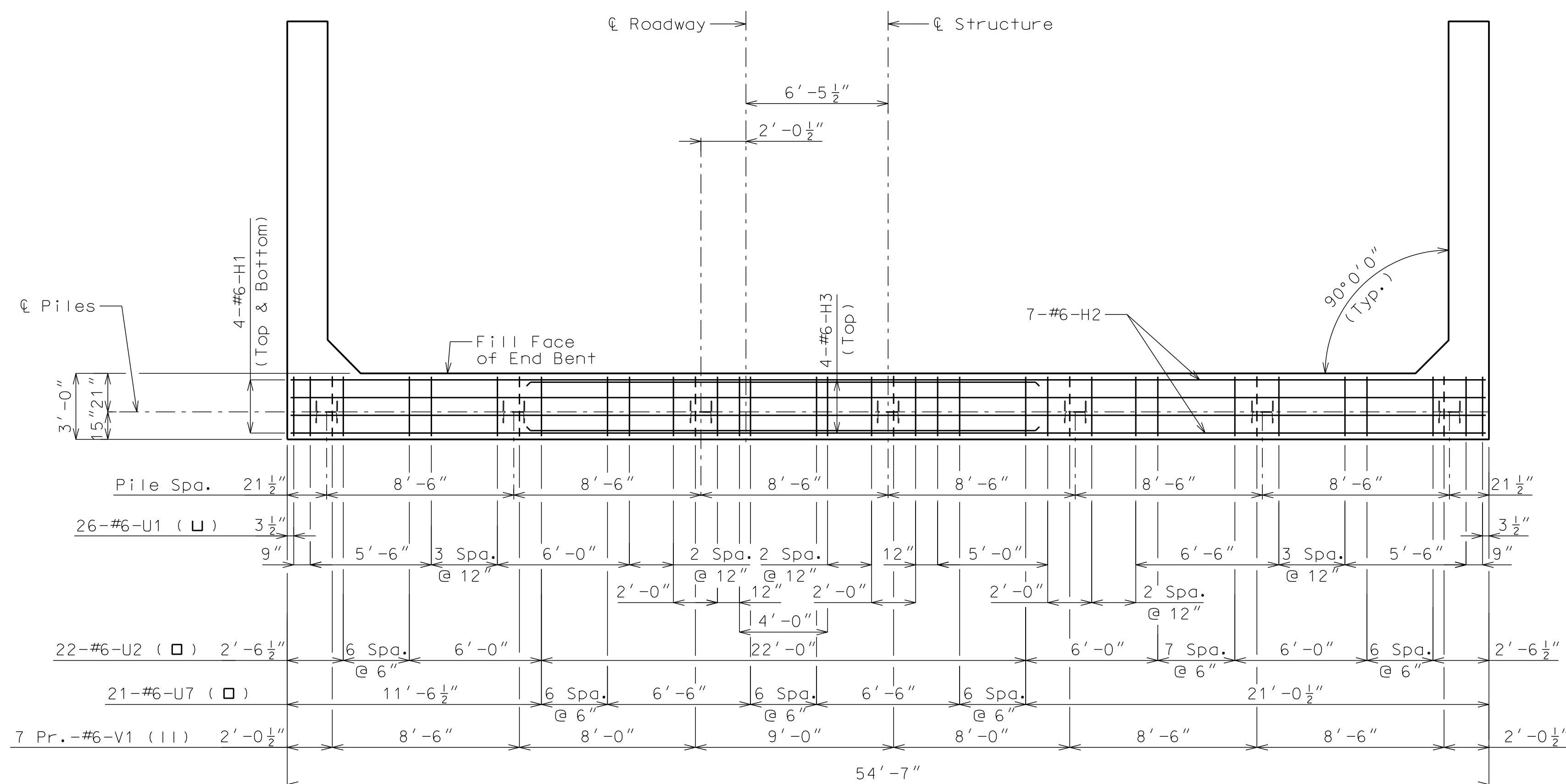
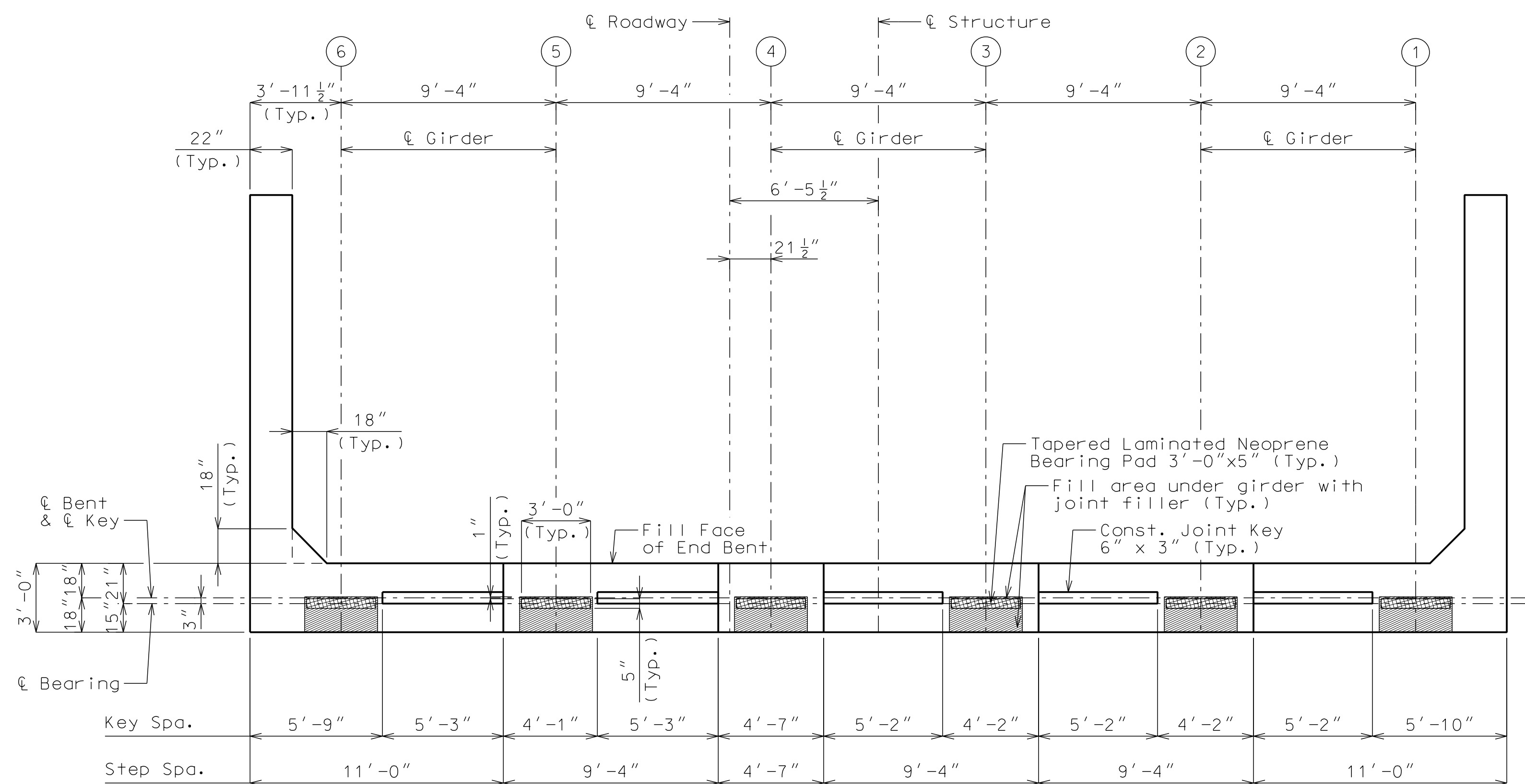
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GENERAL NOTES

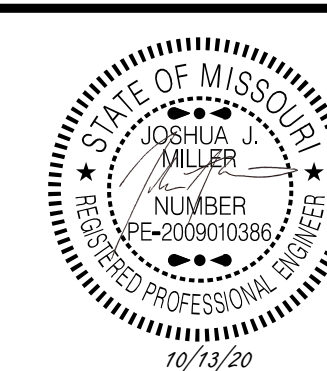
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# DETAILS OF END BENT NO. 1

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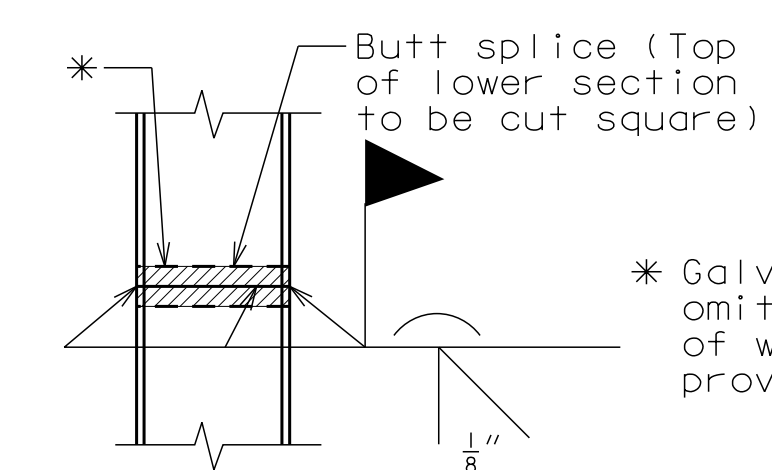
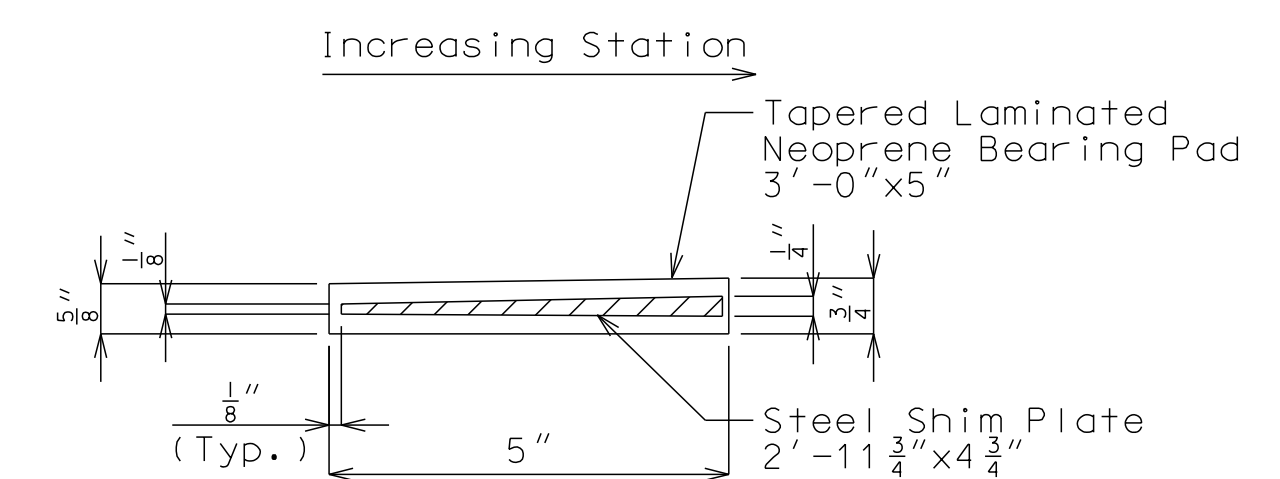
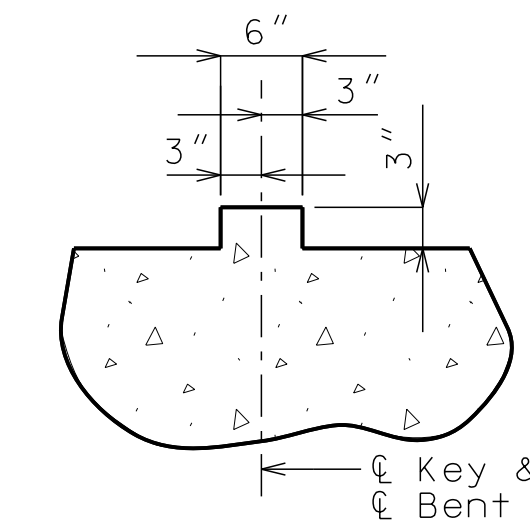
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\* Galvanizing material shall be omitted or removed 1 inch clear of weld locations. See special provisions.

Notes:

For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

For details of Vertical Drain at End Bents, see Sheet No. 6.

Reinforcing steel shall be shifted to clear piles. U-bars shall clear piles by at least  $1\frac{1}{2}"$ .

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

For reinforcement of Barrier Curb, see Sheets No. 21-23 and 26.

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STATE OF MISSOURI

JOSHUA J. MILLER

REGISTERED PROFESSIONAL ENGINEER

10/13/20

PE-2009010386

10/13/20

DATE: 09-17-20

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PROJECT NO.: 12720

SHEET NO. 4

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East Bridge Plans

Paragon Star Development

Lee's Summit, Missouri

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PROFESSIONAL ENGINEER

PE-2009010386

NO.

DATE

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Notes:

For details of End Bent No. 1 not shown, see Sheets No. 3 & 5.

For details of Vertical Drain at End Bents, see Sheet No. 6.

Reinforcing steel shall be shifted to clear piles. U-bars shall clear piles by at least 1 1/2".

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

For reinforcement of Barrier Curb, see Sheets No. 21-23 and 26.

Reinforcing steel shall be shifted as necessary to miss conduit system.

For Conduit Details, see Sheet No. 26 and 27.

For Elevations A-A & B-B, See Sheet No. 5.

For Sections C-C, D-D, E-E & F-F See Sheet No. 5.

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DETAILS OF END BENT NO. 1

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STATE OF MISSOURI

JOSHUA J. MILLER

REGISTERED PROFESSIONAL ENGINEER

10/13/20

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DATE: 09-17-20

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DRAWN BY: DWM

PROJECT NO.: 12720

SHEET NO. 5

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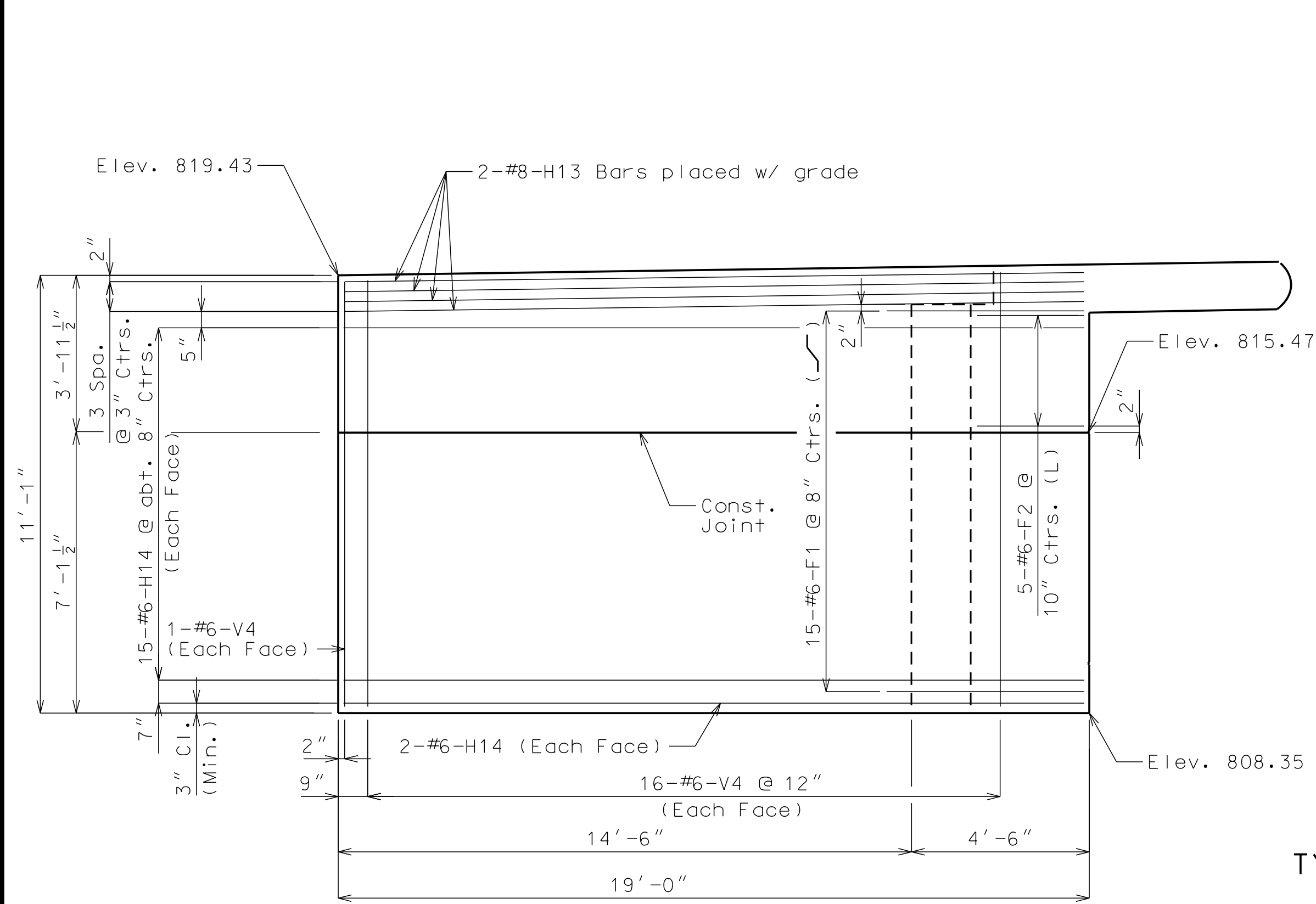
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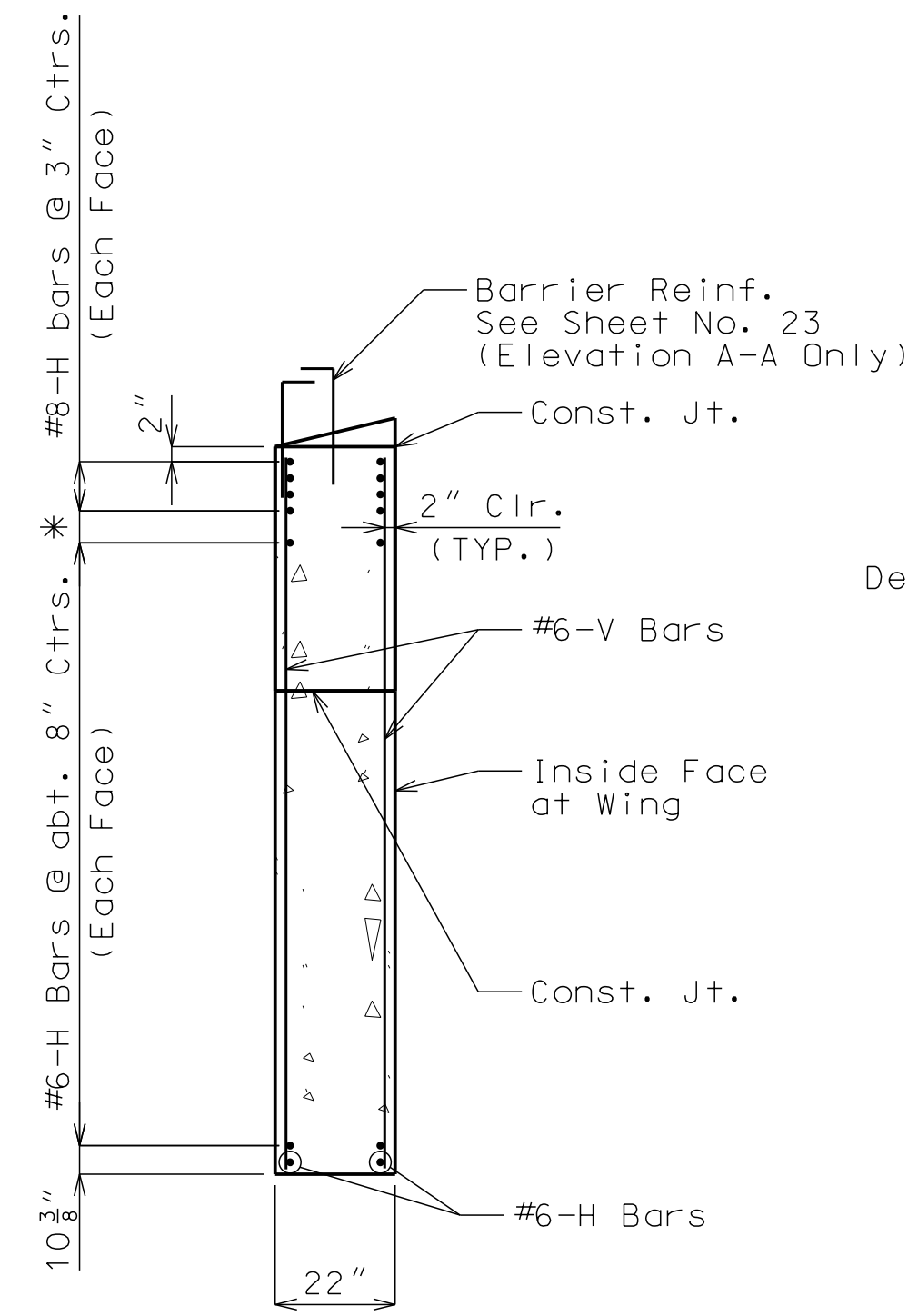
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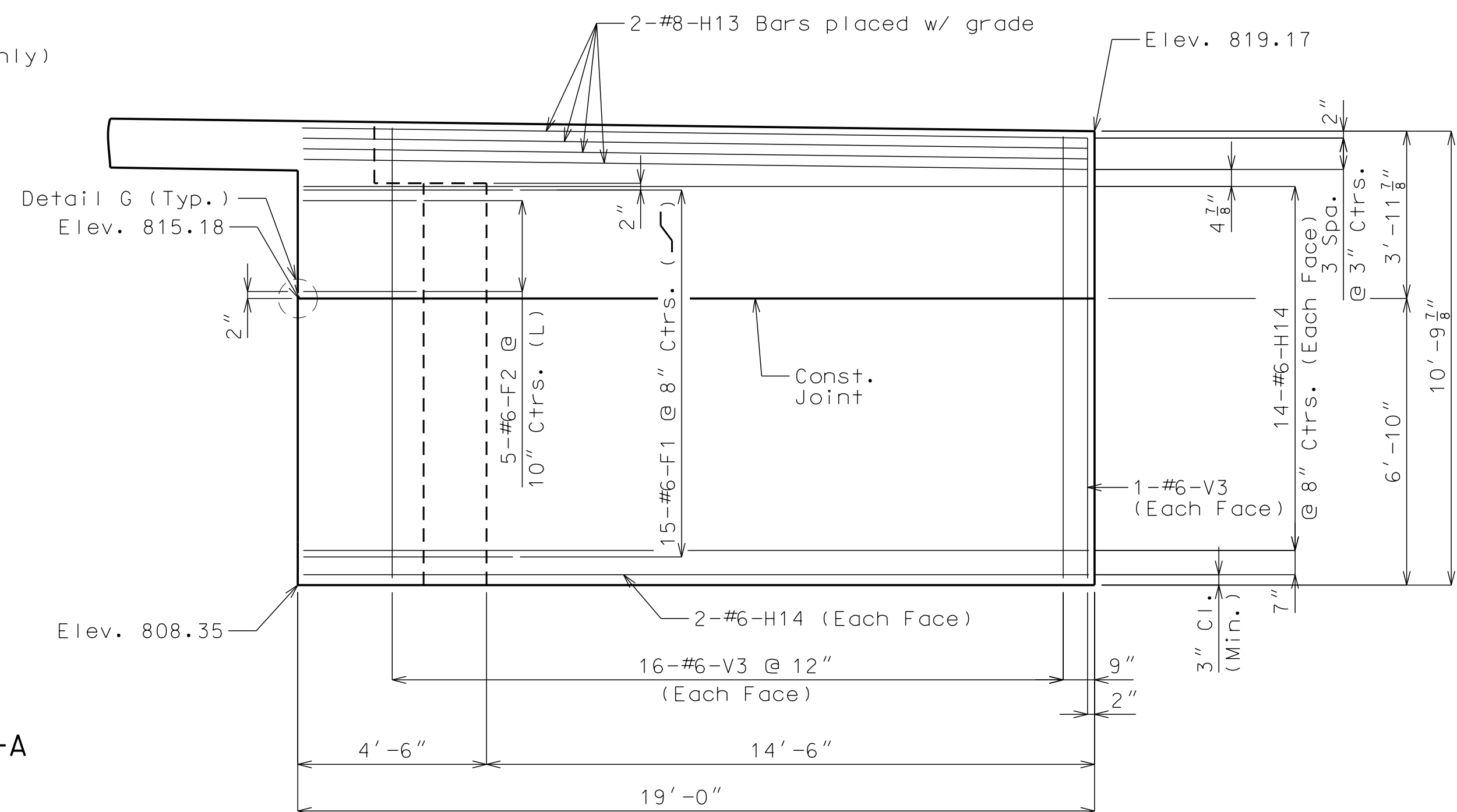


ELEVATION A-A

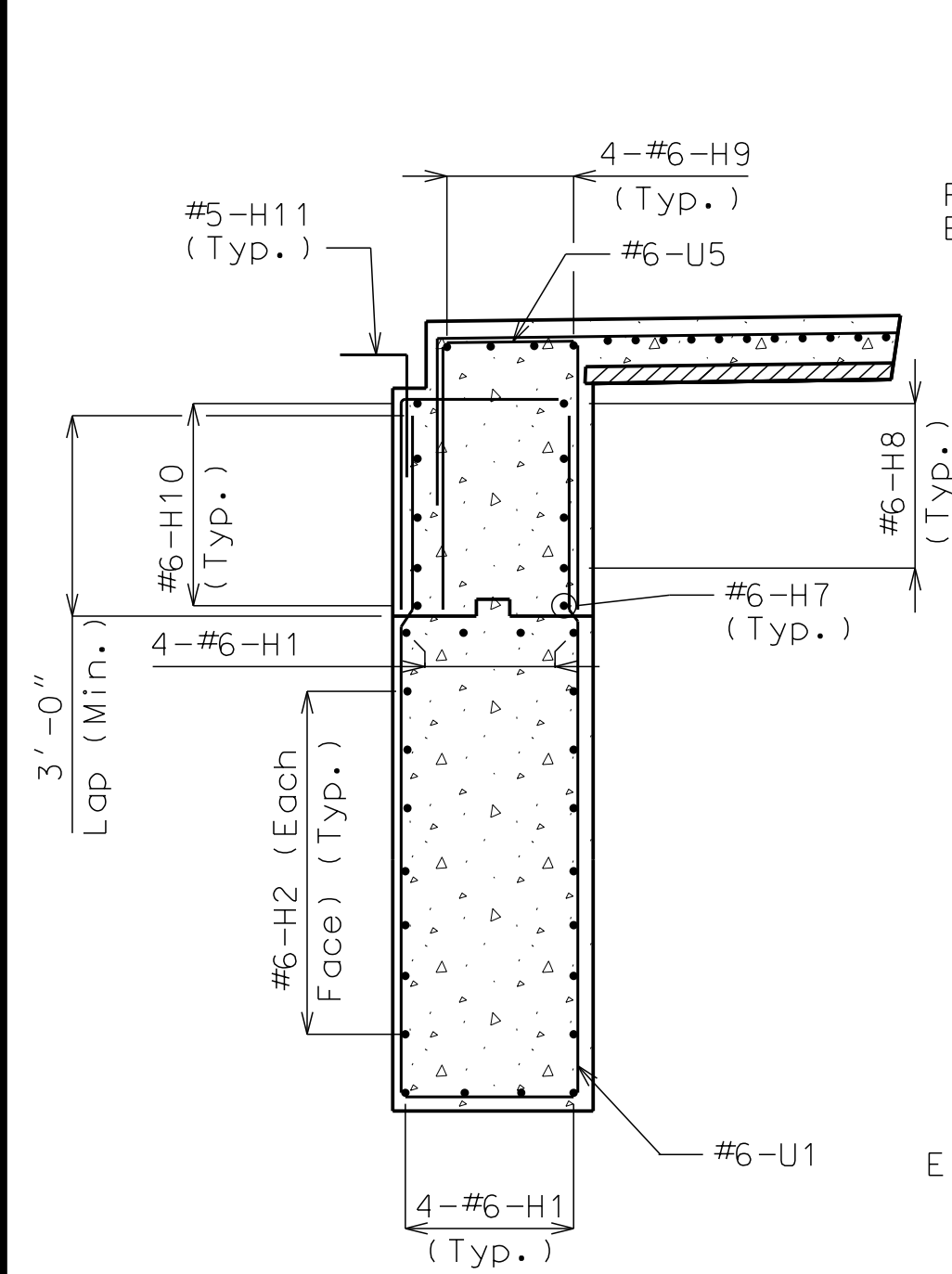


TYPICAL SECTION THRU ELEVATION A-A

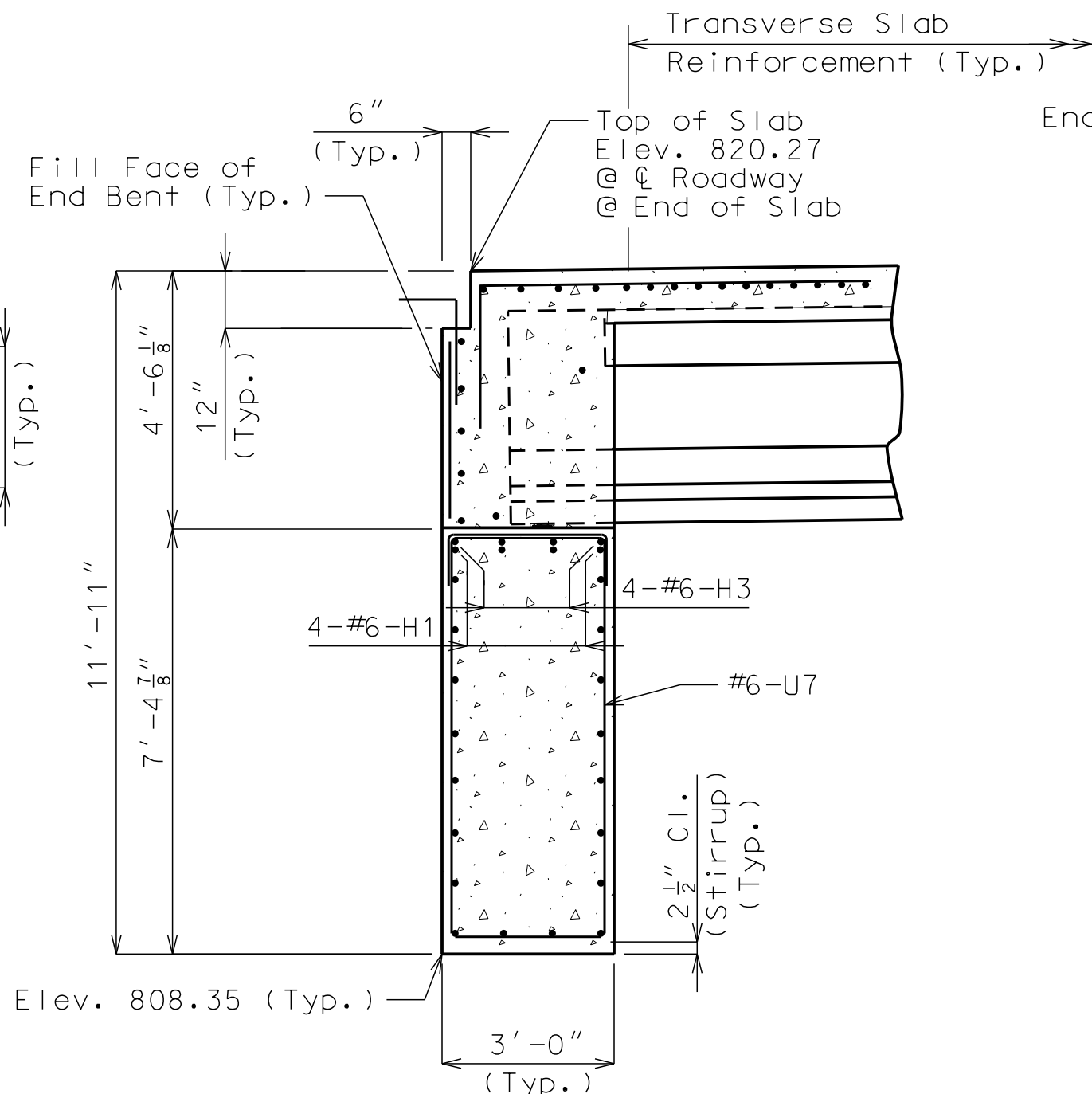
Looking down station  
(\*Varies)



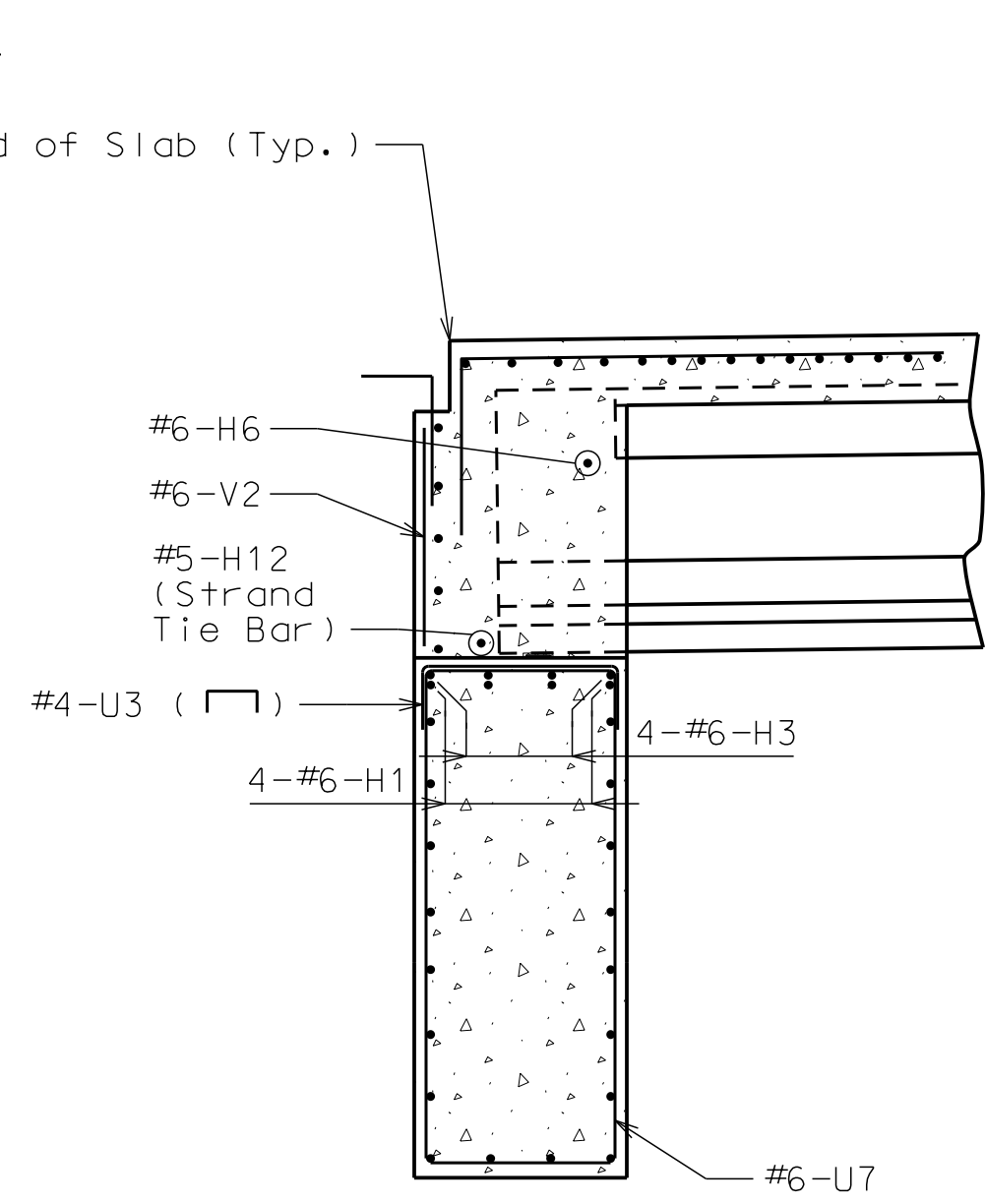
ELEVATION B-B



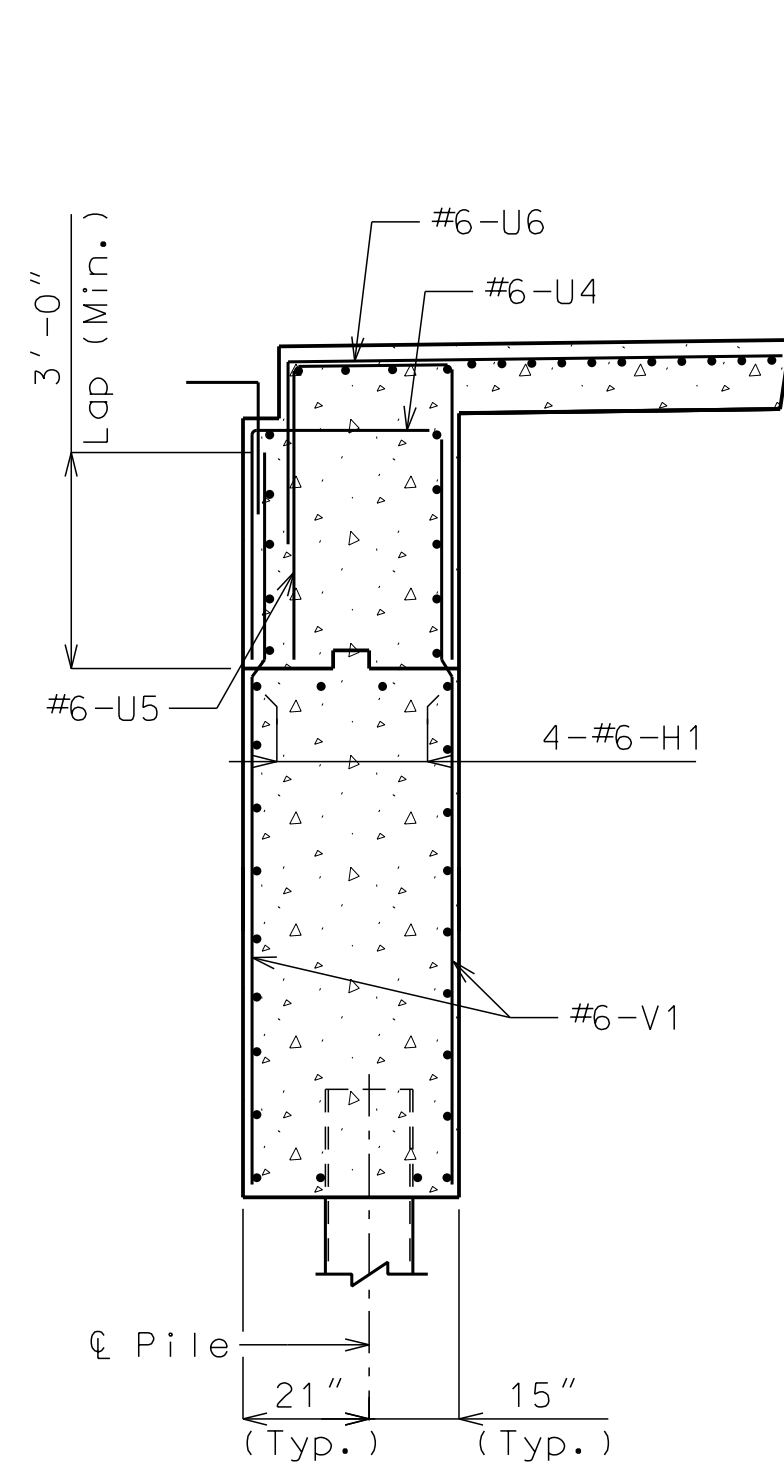
SECTION C-C



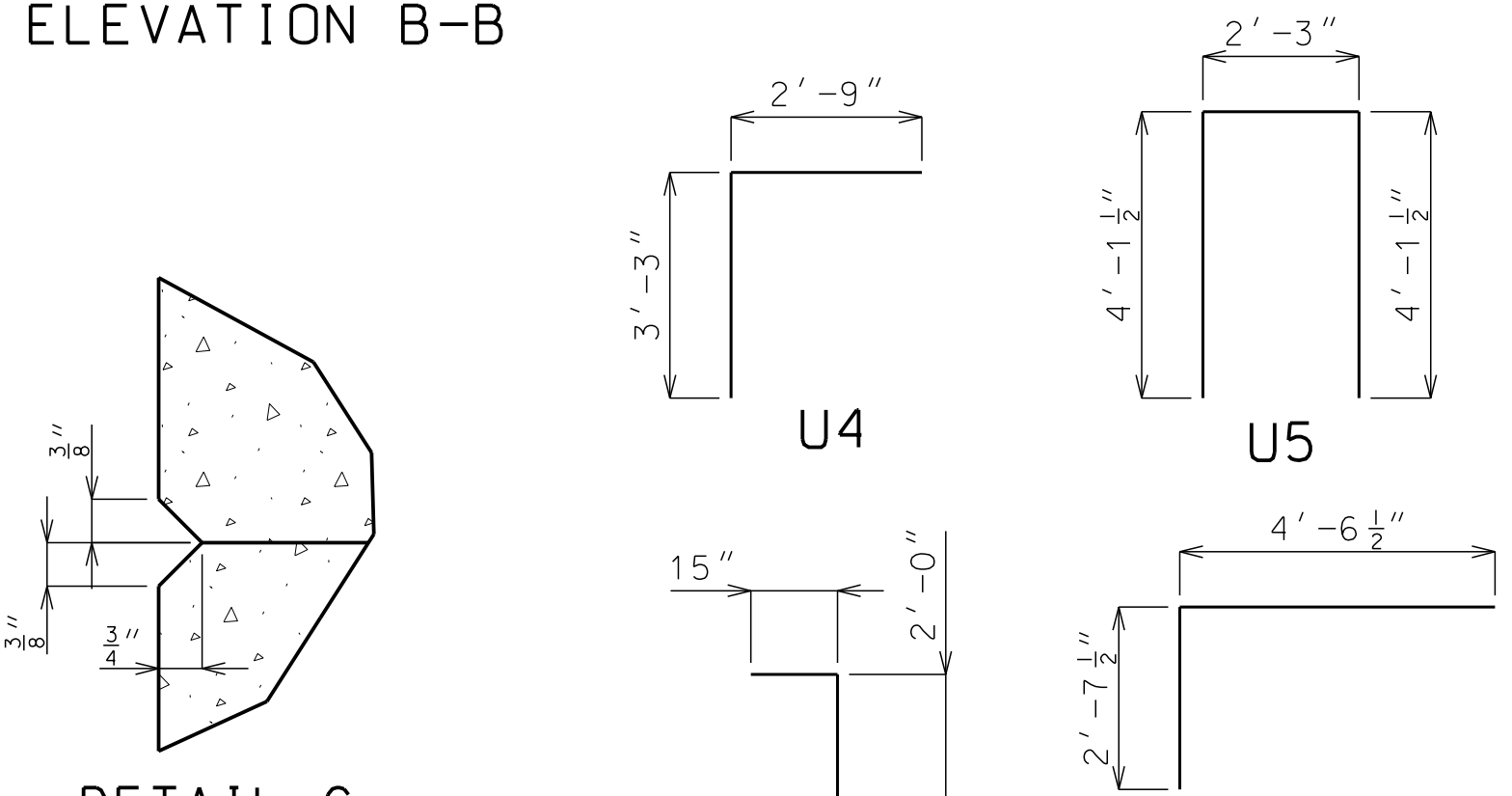
SECTION D-D



SECTION E-E



SECTION F-F



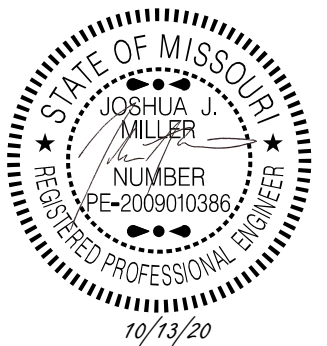
BAR BENDING DIAGRAM

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Notes:  
For details of End Bent No. 1 not shown, See Sheets No. 3 & 4.  
For location of Elevations A-A & B-B, See Sheet No. 4.  
For location of Sections C-C, D-D, E-E & F-F See Sheet No. 4.  
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inch.  
For reinforcement of Barrier Curb, See Sheets No. 21-23 and 26.  
HP pile shall be galvanized to the minimum galvanized penetration (elevation) (See Foundation Data).

Note: This drawing is not to scale. Follow dimensions.





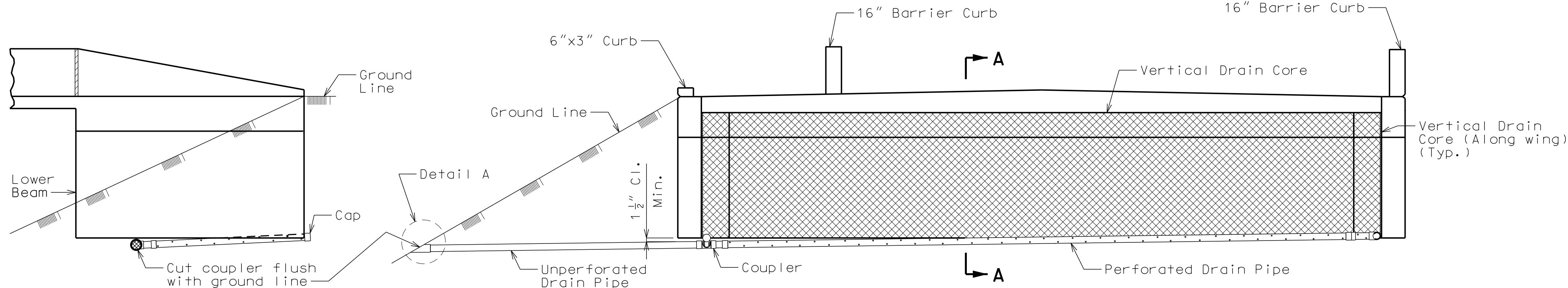
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6	30

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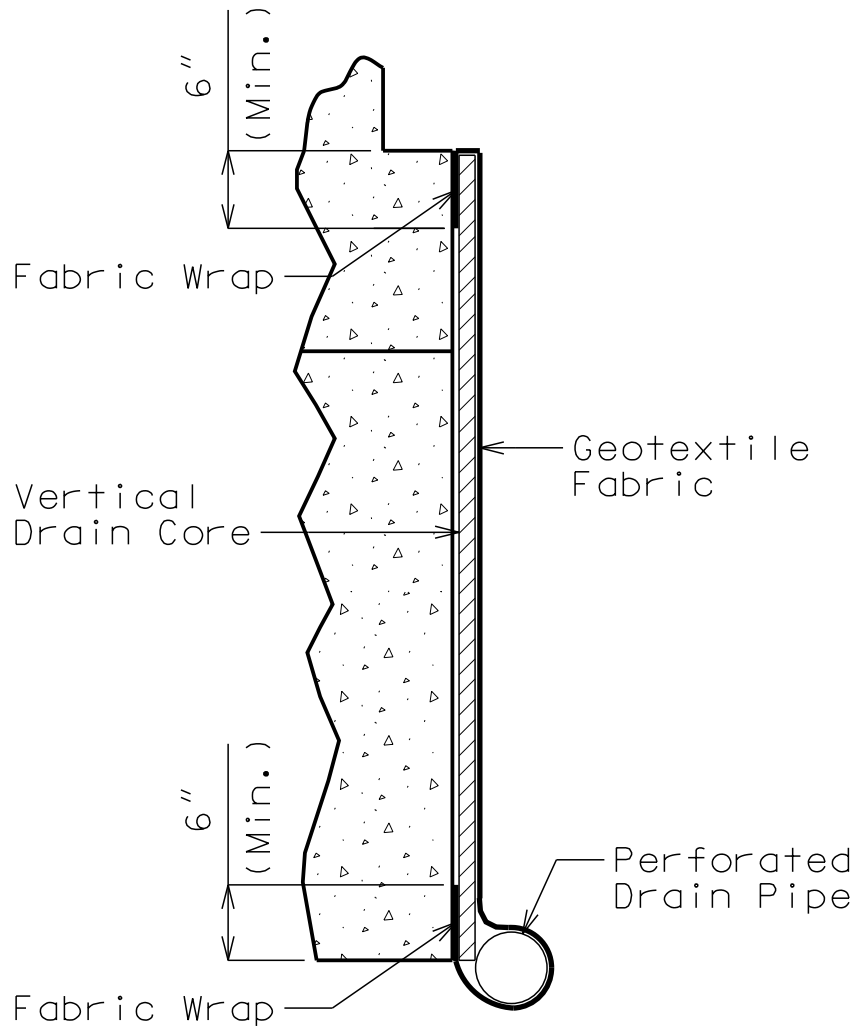
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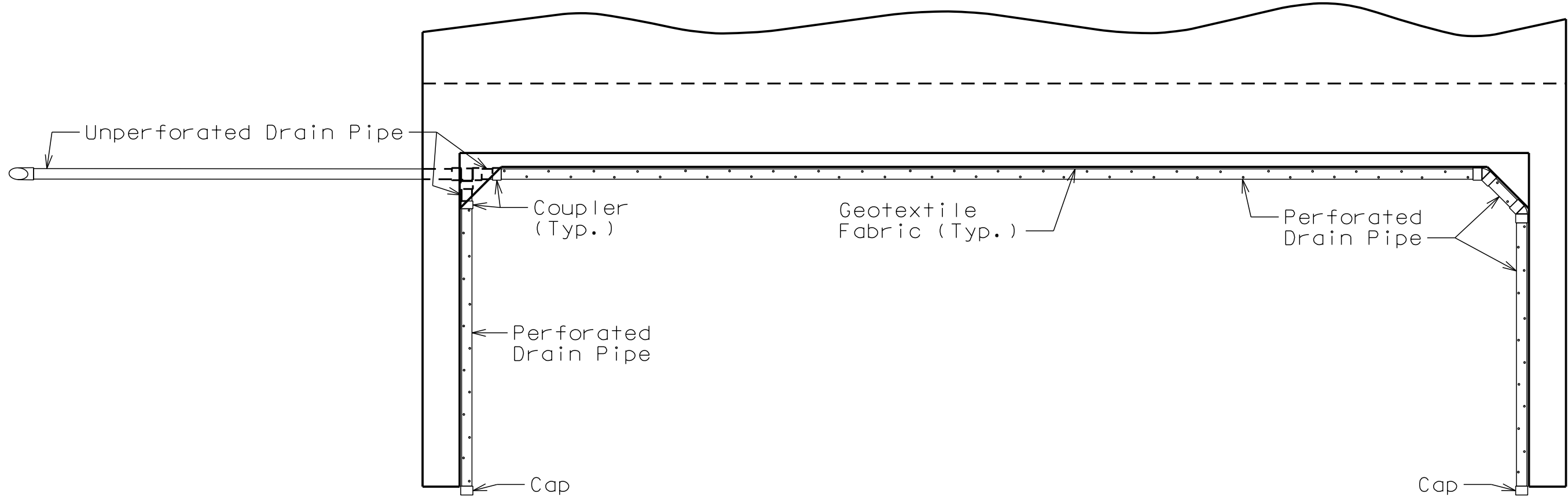


ELEVATION OF SOUTH WING

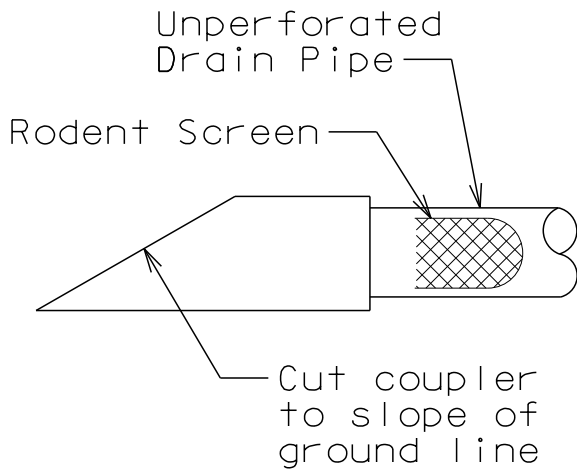
ELEVATION OF END BENT



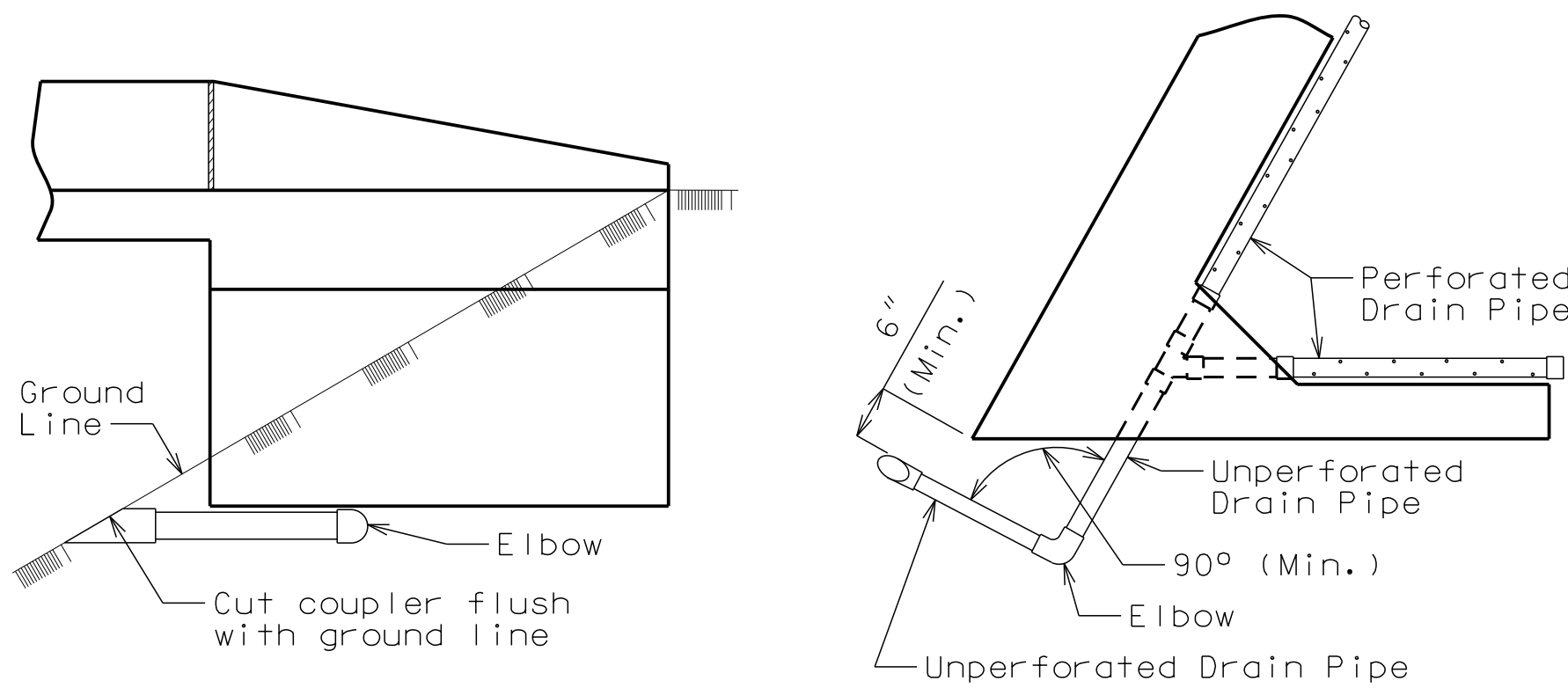
PART SECTION A-A  
(Section thru wing similar)



PLAN OF END BENT



DETAIL A



ELEVATION OF SOUTH WING

PART PLAN

OPTIONAL TURNED DRAIN

(Only if rock is encountered outside of wing)

# VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

Note: This drawing is not to scale. Follow dimensions.

## General Notes:

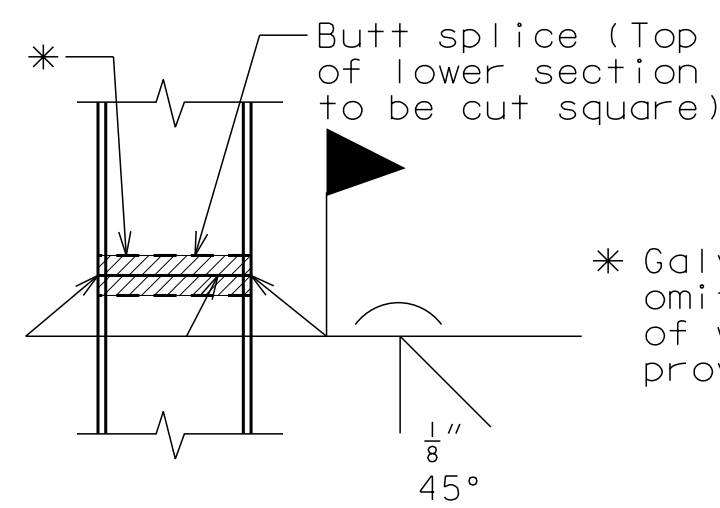
All drain pipe shall be sloped 1 to 2 percent.

Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.

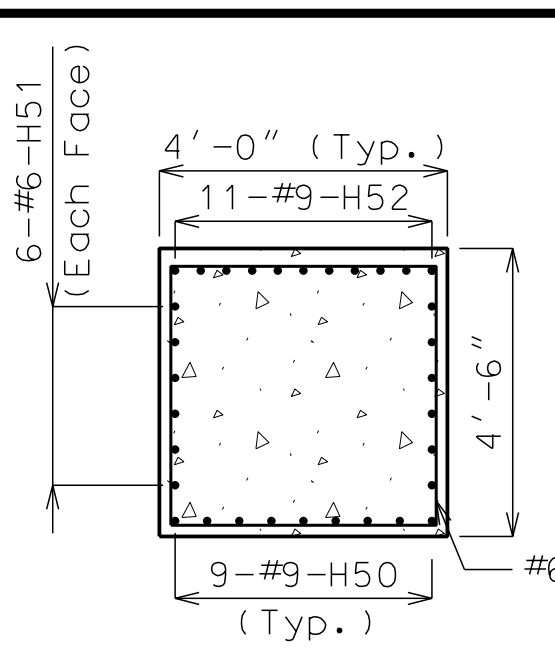
Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

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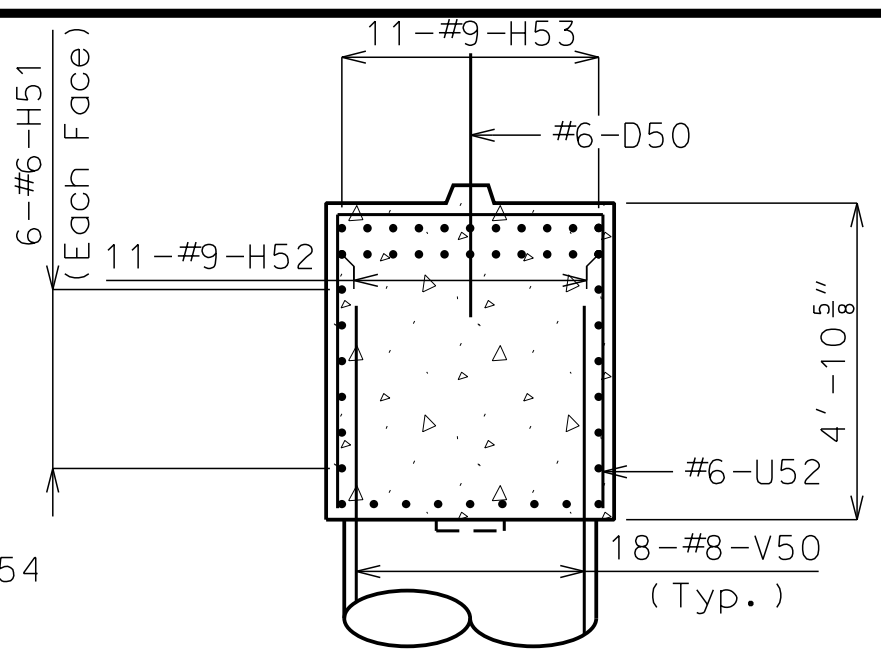


STEEL PILE SPLICE  
(if required)

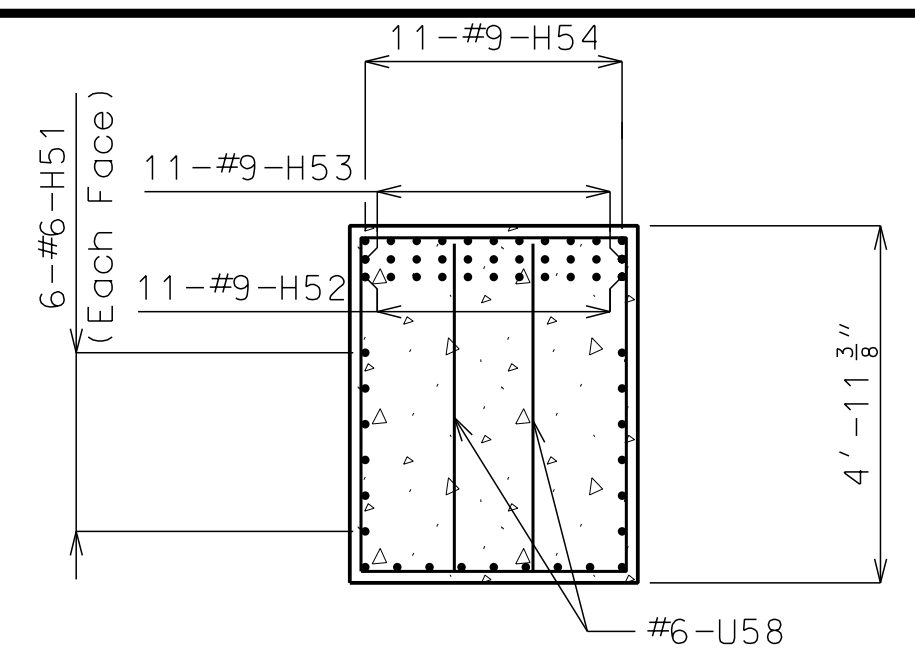
\* Galvanizing material shall be omitted or removed 1 inch clear of weld locations. See special provisions.



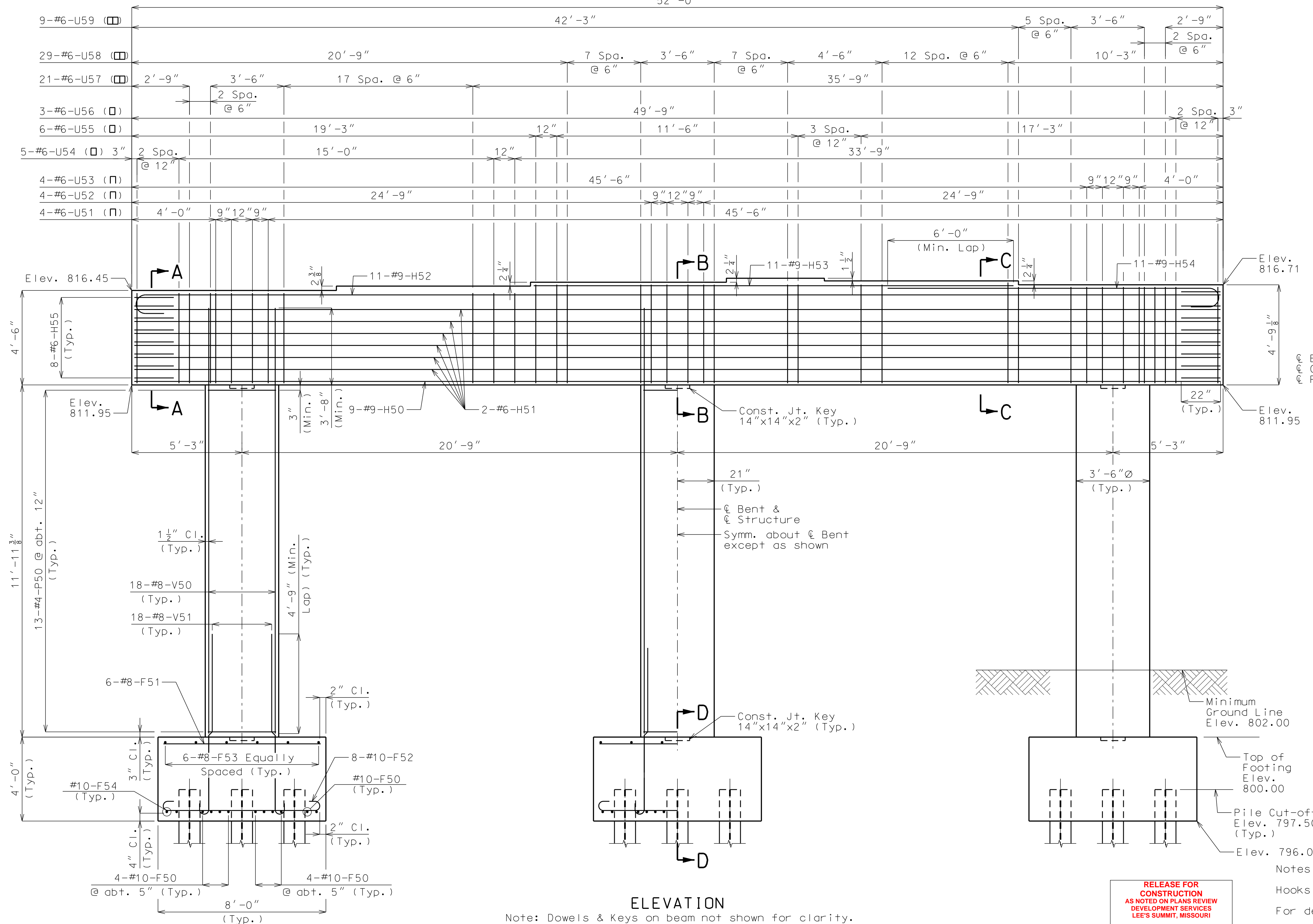
SECTION A-A



SECTION B-B



SECTION C-C



ELEVATION

Note: Dowels & Keys on beam not shown for clarity.

## DETAILS OF INTERMEDIATE BENT NO. 2

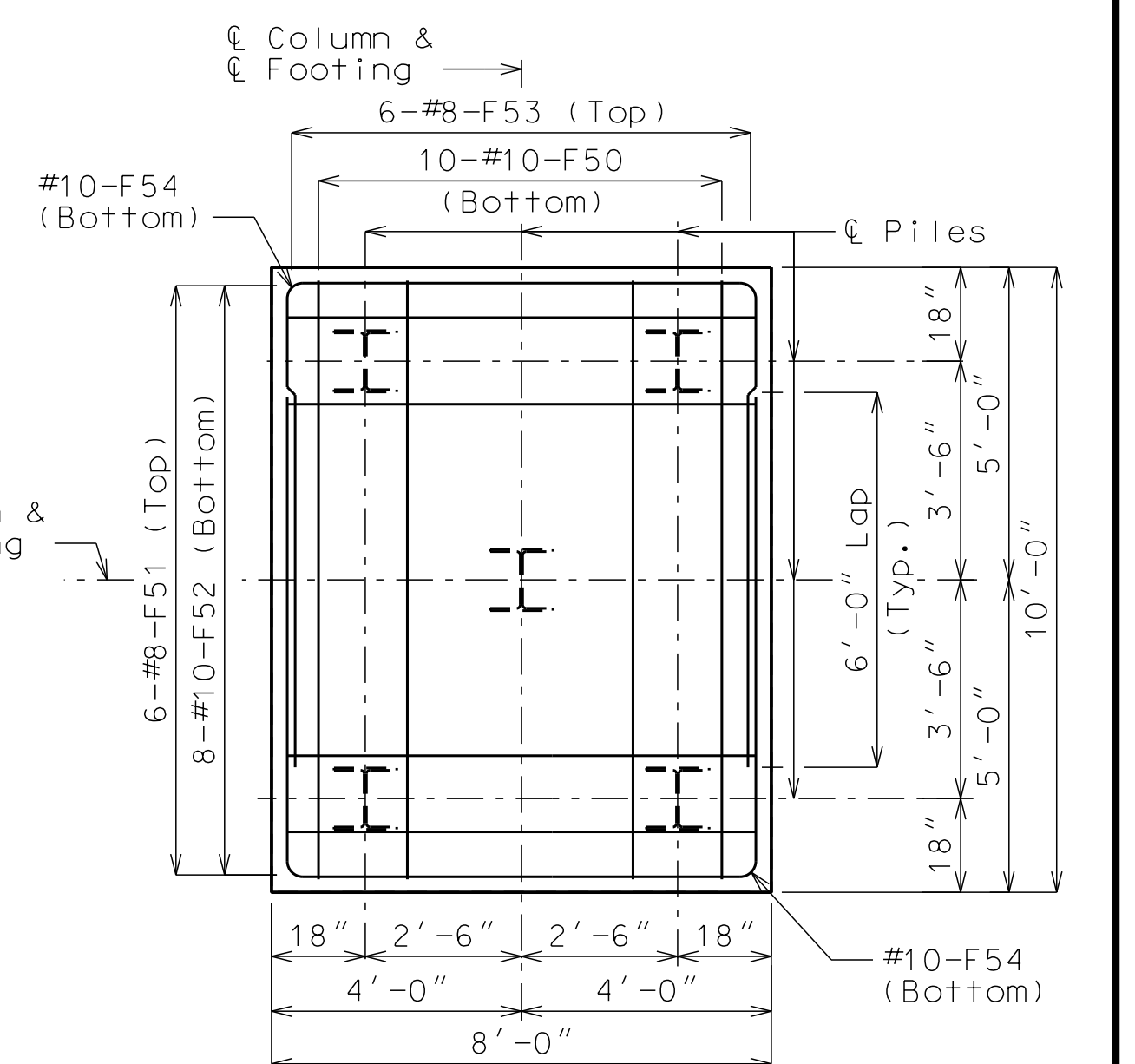
Note: This drawing is not to scale. Follow dimensions.



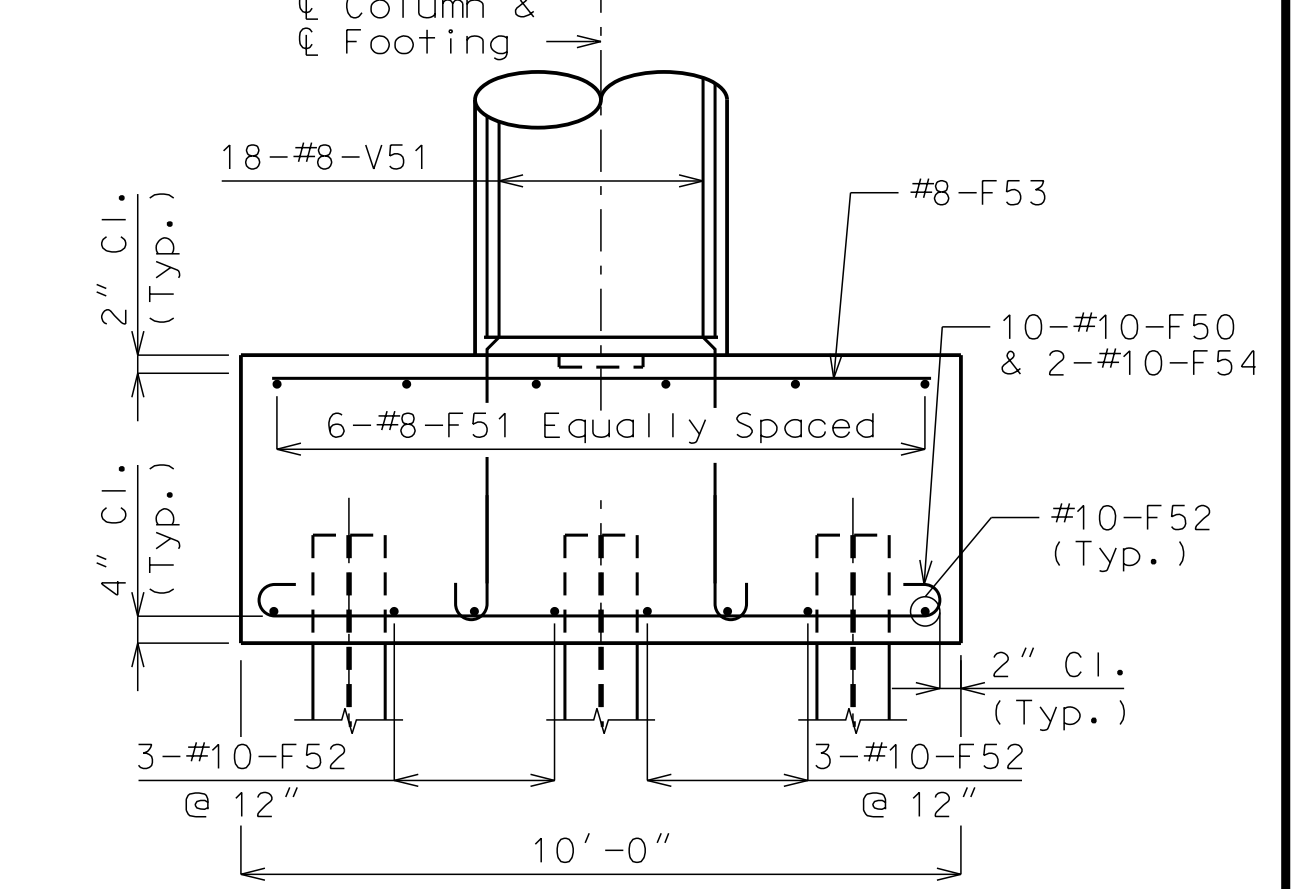
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DATE:	09-17-20
DESIGN BY:	JJM
DRAWN BY:	DWM
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
7	30

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PLAN OF FOOTING



SECTION D-D

Notes:

- Hooks shown shall be standard 180 degree hooks.
- For details of Int. Bent No. 2 not shown, see Sheet No. 8.
- Reinforcing steel shall be shifted to clear piles by 1 1/2".
- For steps 2" or more, use 2 1/4"x1/2" joint filler up vertical face.

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10/13/20

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DESIGN BY: JJM  
DRAWN BY: DWM  
PROJECT NO.: 12720  
SHEET NO. 8  
TOTAL SHEETS 30

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PLAN OF BEAM SHOWING REINFORCEMENT

PLAN OF BEAM

DETAIL OF KEY

BEARING PAD DETAIL

## DETAILS OF INTERMEDIATE BENT NO. 2

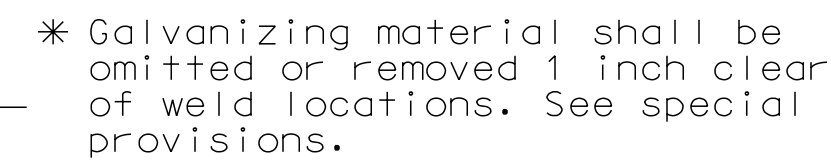
Note: This drawing is not to scale. Follow dimensions.

Notes:

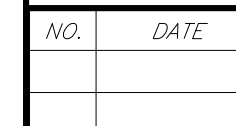
For details of Int. Bent No. 2 not shown, see Sheet No. 7.

For steps 2" or more, use 2 1/4"x1/2" joint filler up vertical face.

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Note: This drawing is not to scale. Follow dimensions.



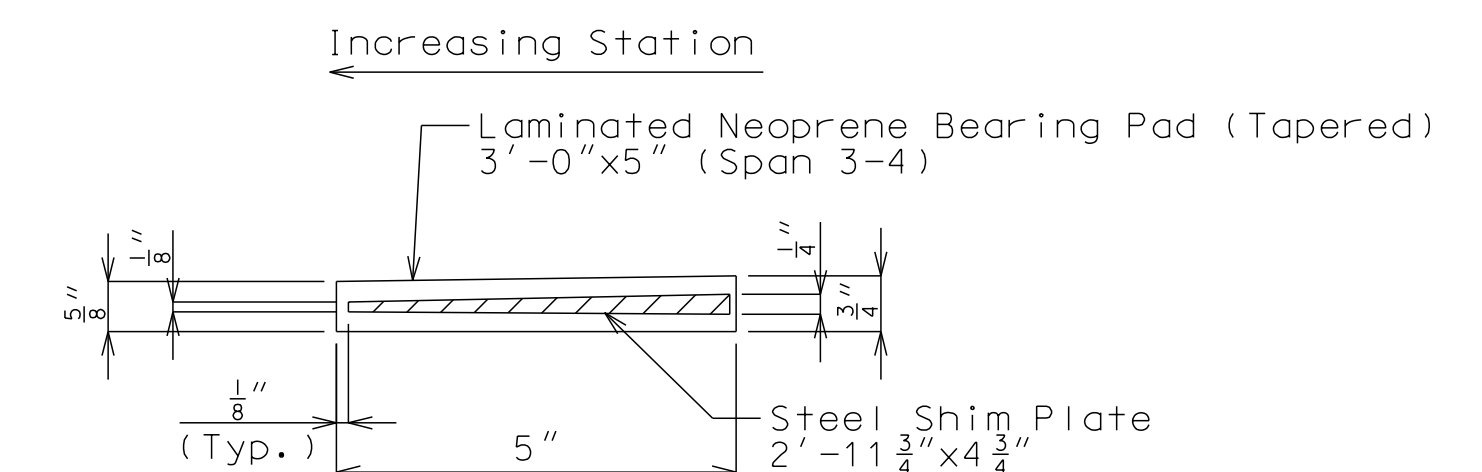
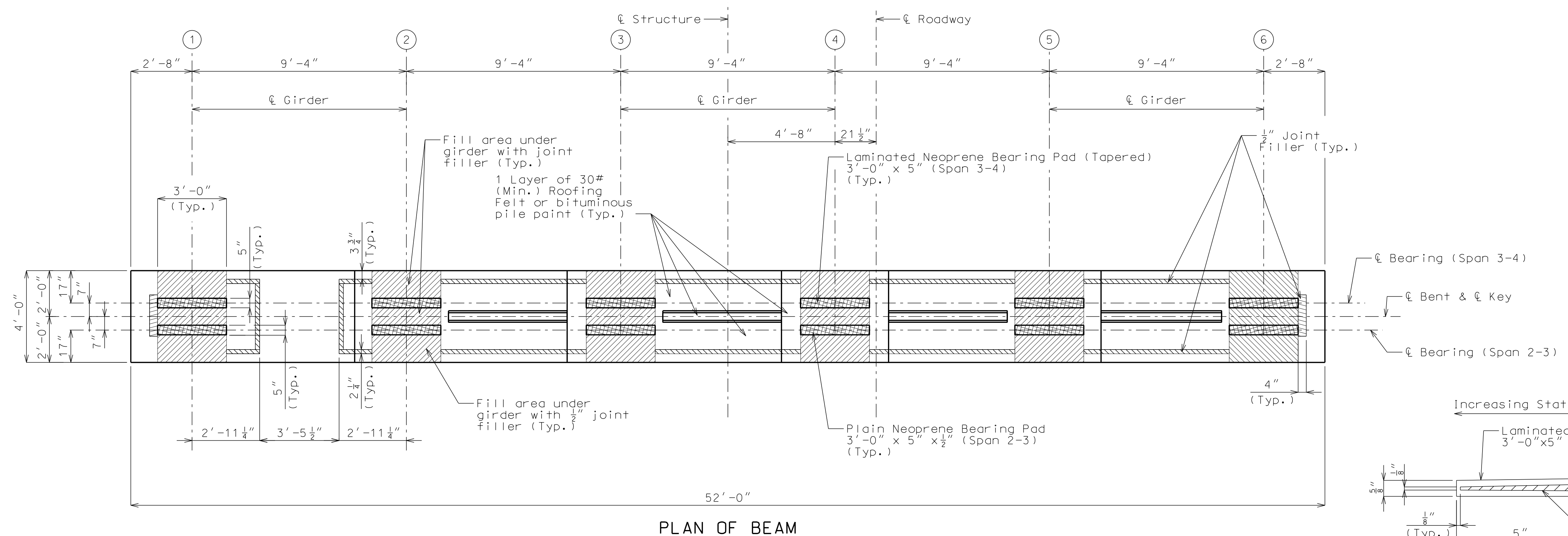
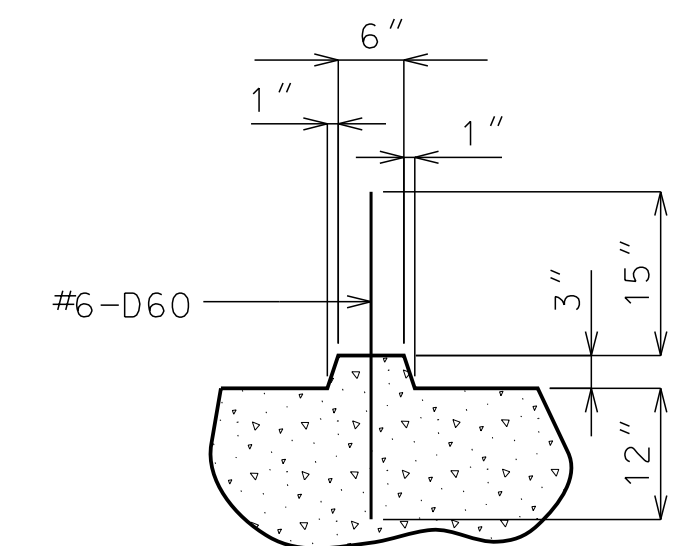
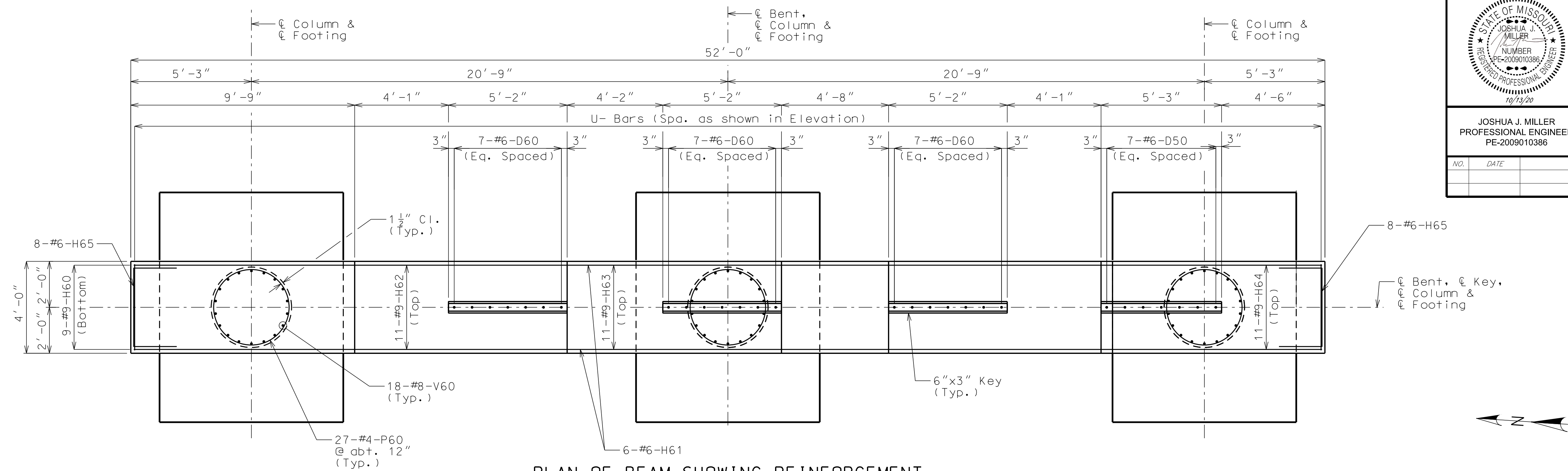
DATE: 09-17-20	
DESIGN BY: JJM	
DRAWN BY: DWM	
PROJECT NO.: 12720	
SHEET NO.	TOTAL SHEETS
9	30



For steps 2" or more, use 2 1/4" x 1/2" joint filler up vertical face.

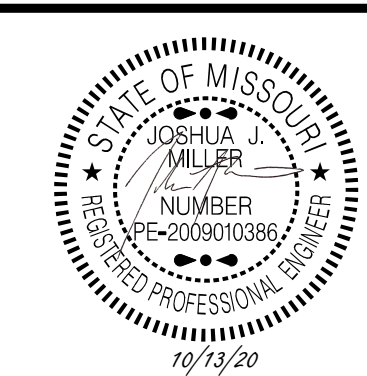
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### DETAILS OF INTERMEDIATE BENT NO. 3

Note: This drawing is not to scale. Follow dimensions.



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SHEET NO.	TOTAL SHEETS
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**10**

**30**

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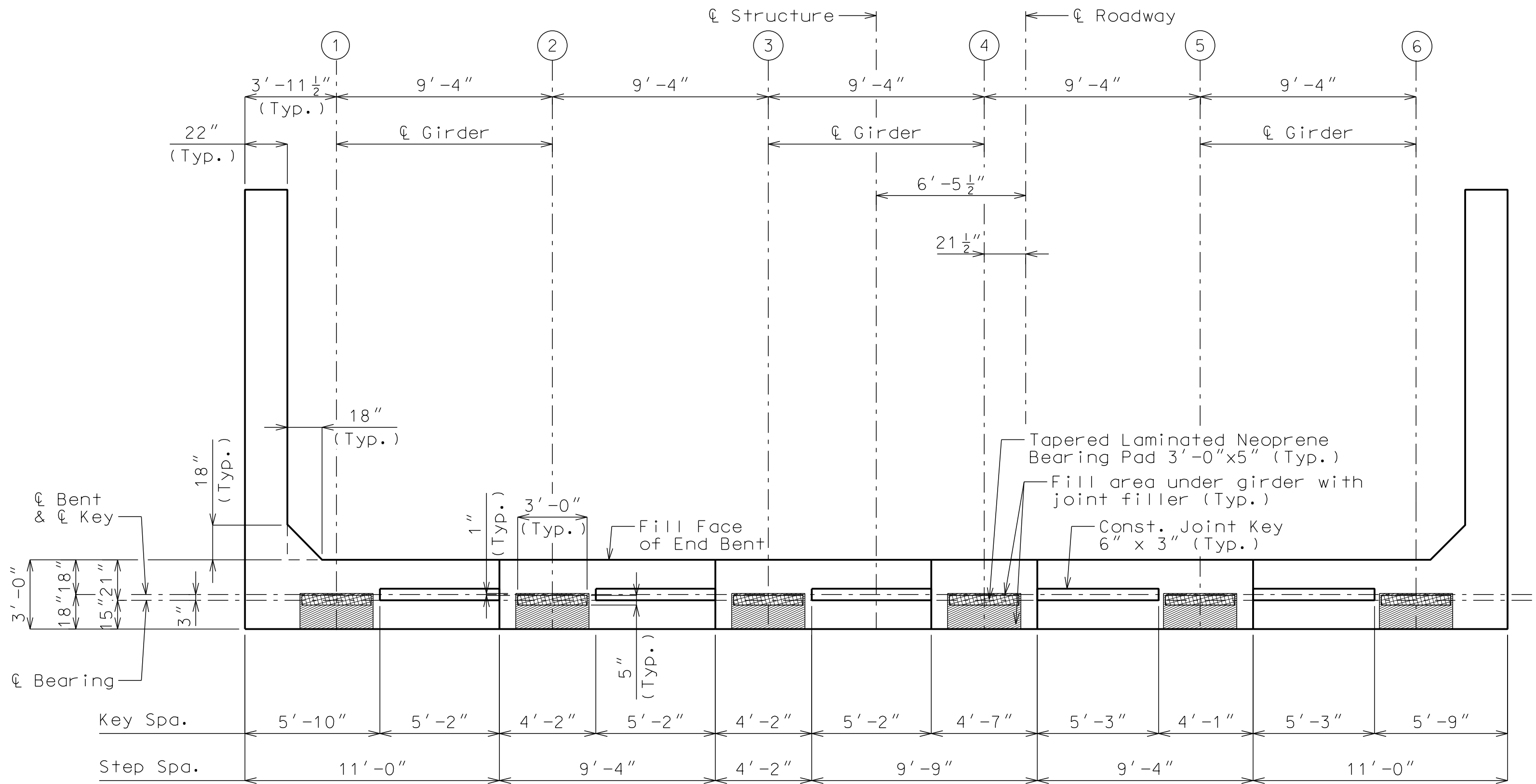
Notes:

For details of Int. Bent No. 3 not shown, see Sheet No. 9.

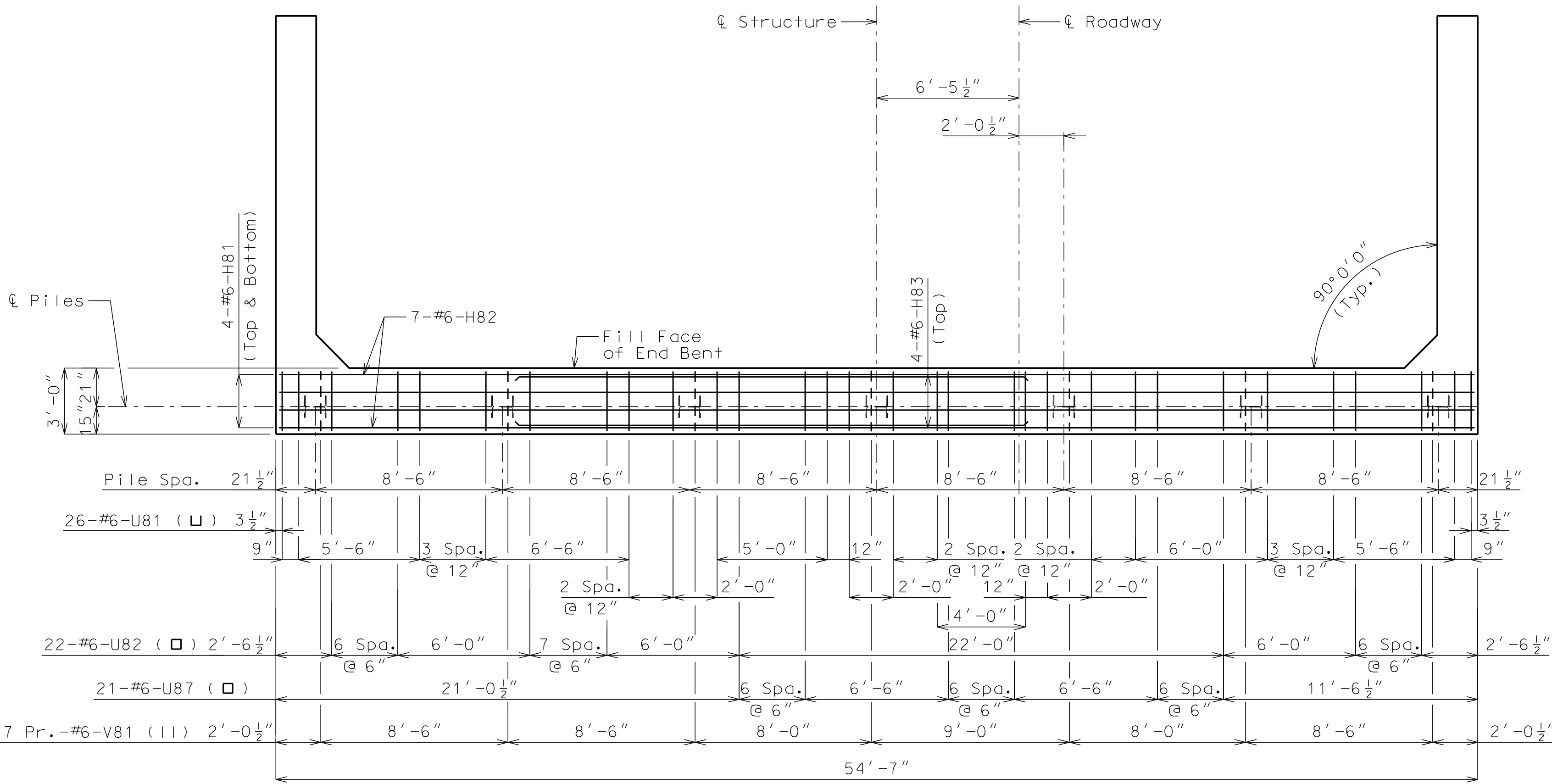
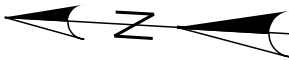
For steps 2" or more, use 2¼"x½" joint filler up vertical face.

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PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT  
(Note: Steps and keys not shown for clarity)

DETAILS OF END BENT NO. 4

Note: This drawing is not to scale. Follow dimensions.

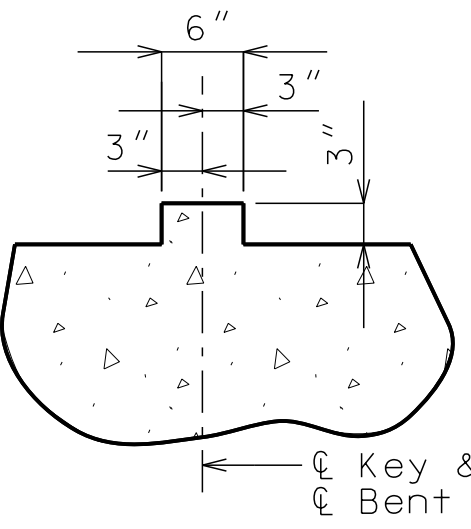
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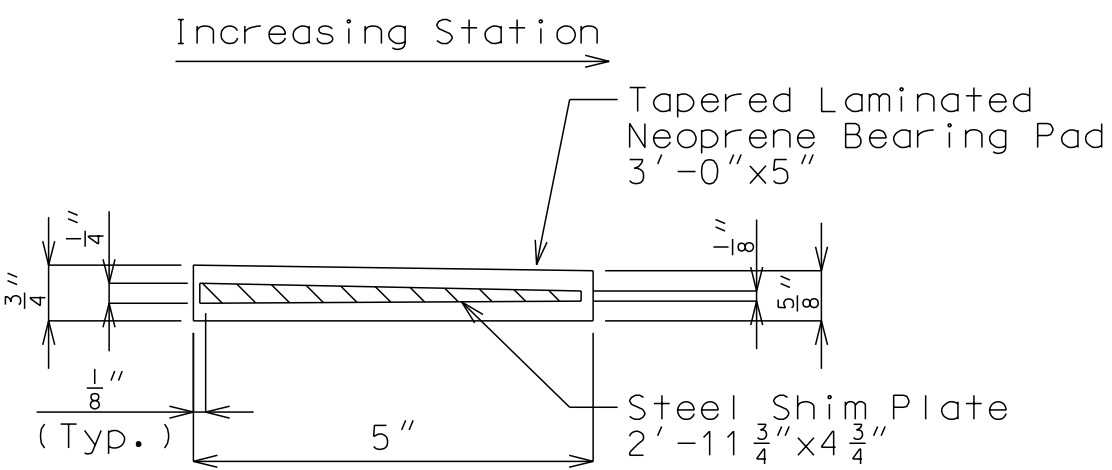
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SECTION THRU KEY



BEARING PAD DETAIL

- Notes:
- For details of End Bent No. 4 not shown, see Sheets No. 12 and 13.
  - For details of Vertical Drain at End Bents, see Sheet No. 6.
  - Reinforcing steel shall be shifted to clear piles. U-bars shall clear piles by at least 1 1/2".
  - All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
  - For reinforcement of Barrier Curb, see Sheets No. 21-23 and 26.

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STATE OF MISSOURI

JOSHUA J. MILLER

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SHEET NO. 13

TOTAL SHEETS 30

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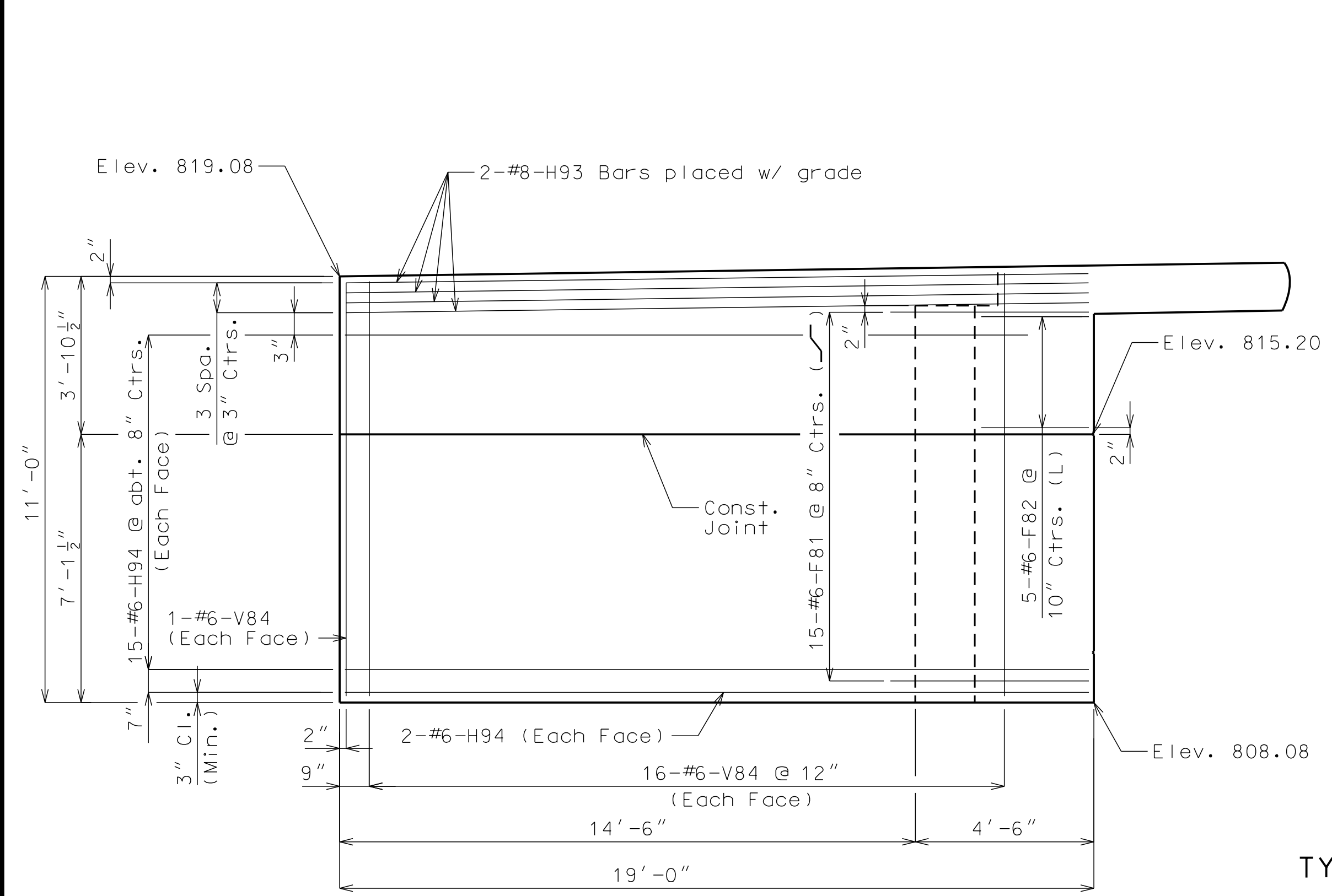
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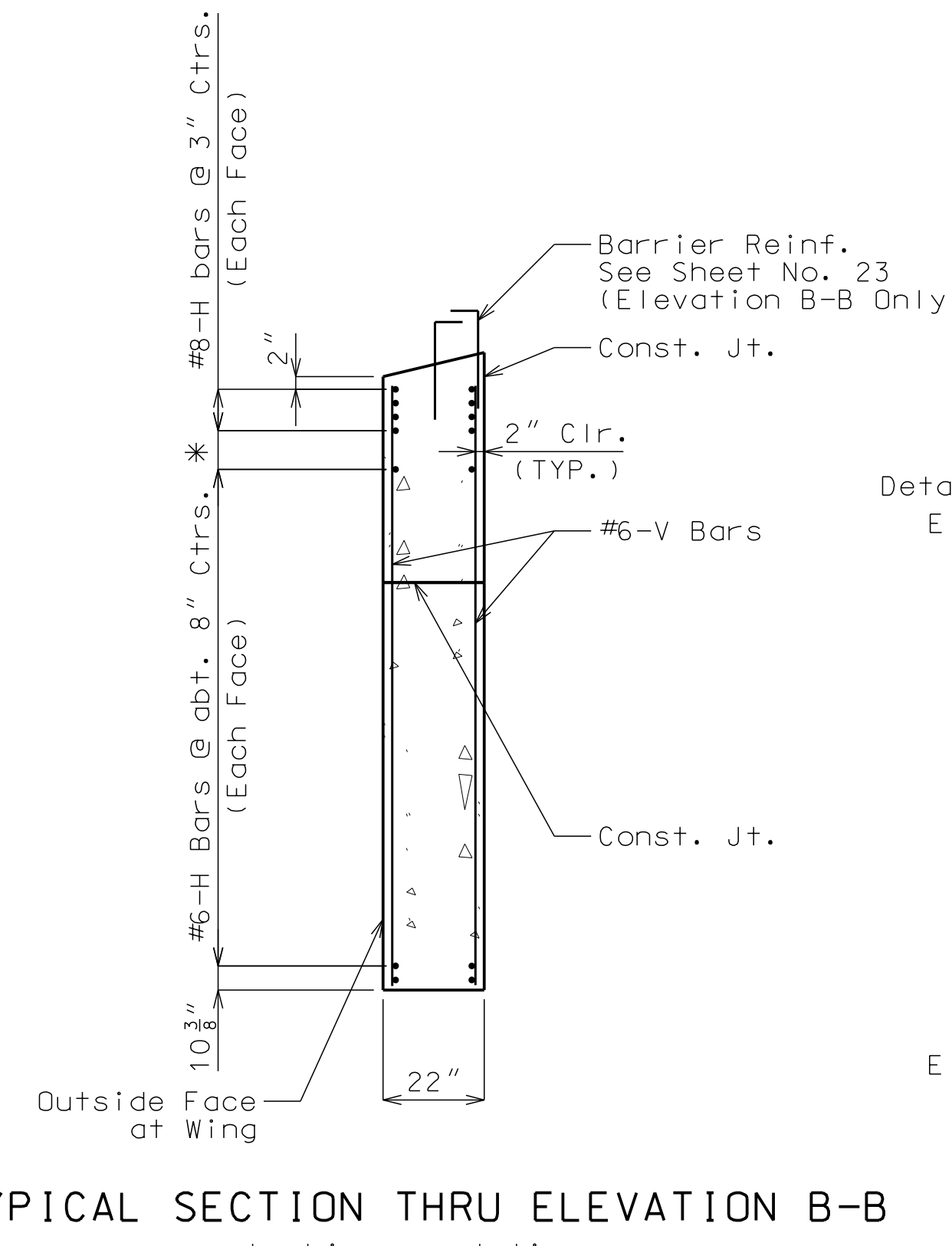
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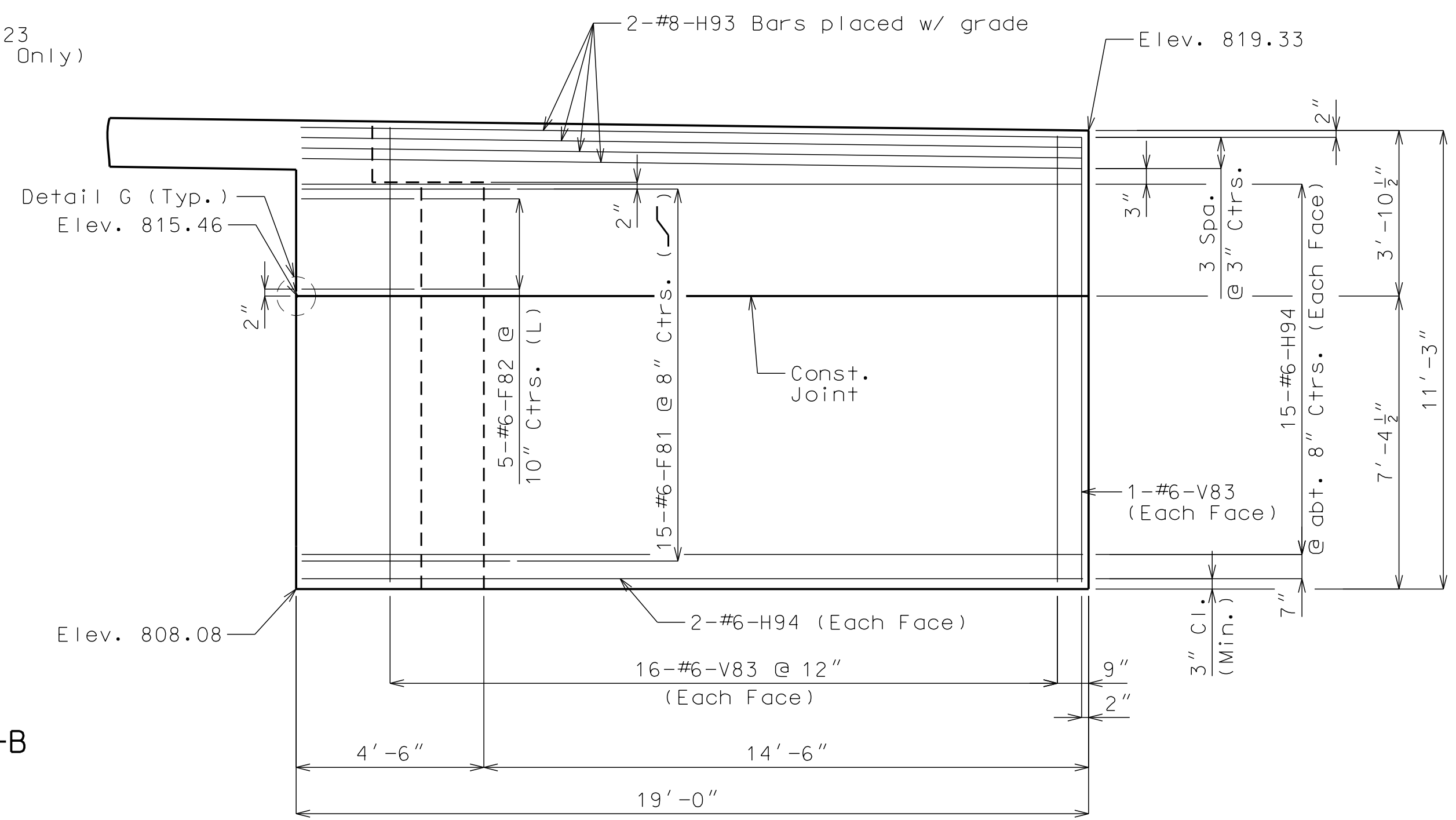


ELEVATION A-A

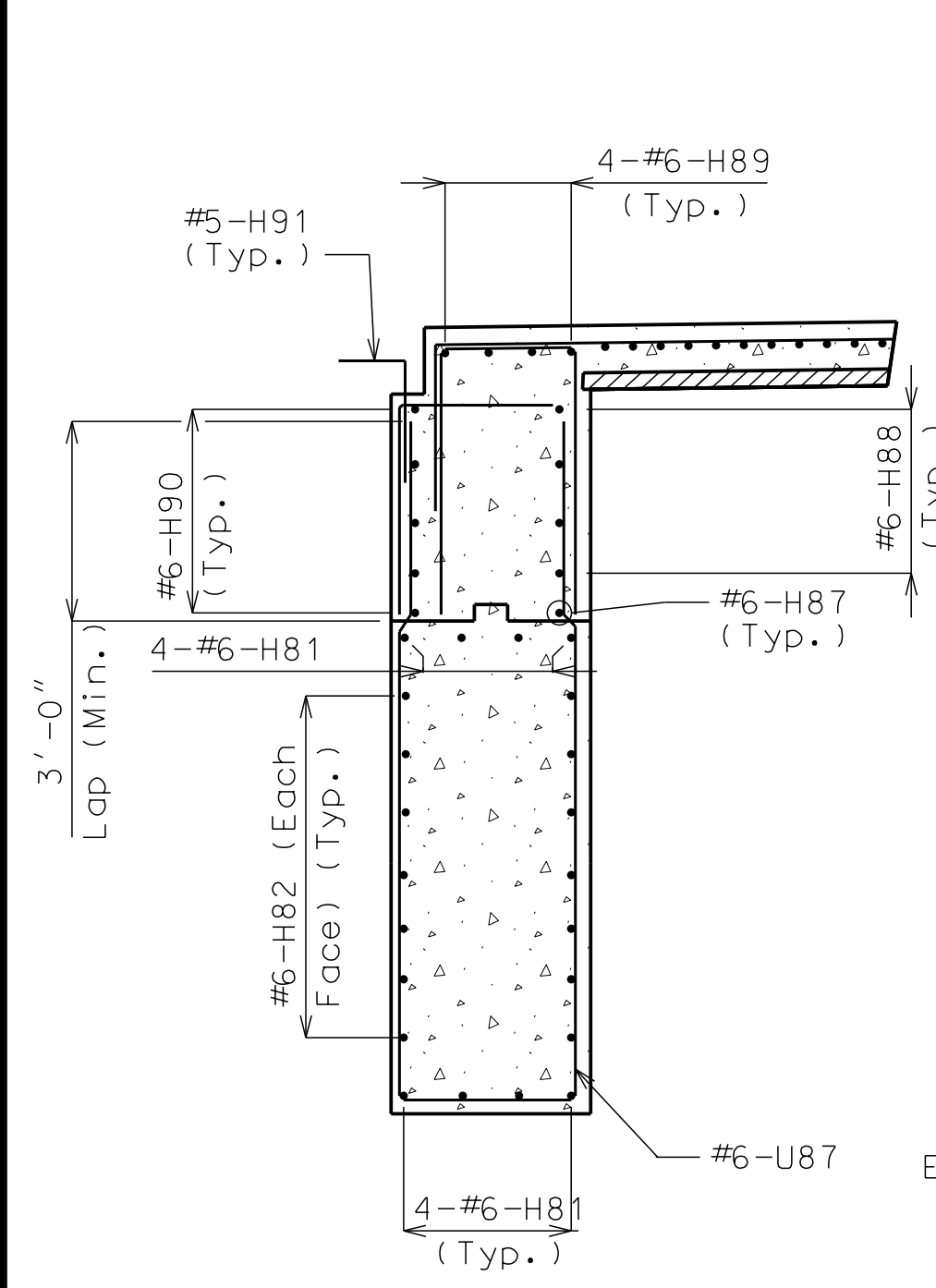


TYPICAL SECTION THRU ELEVATION B-B

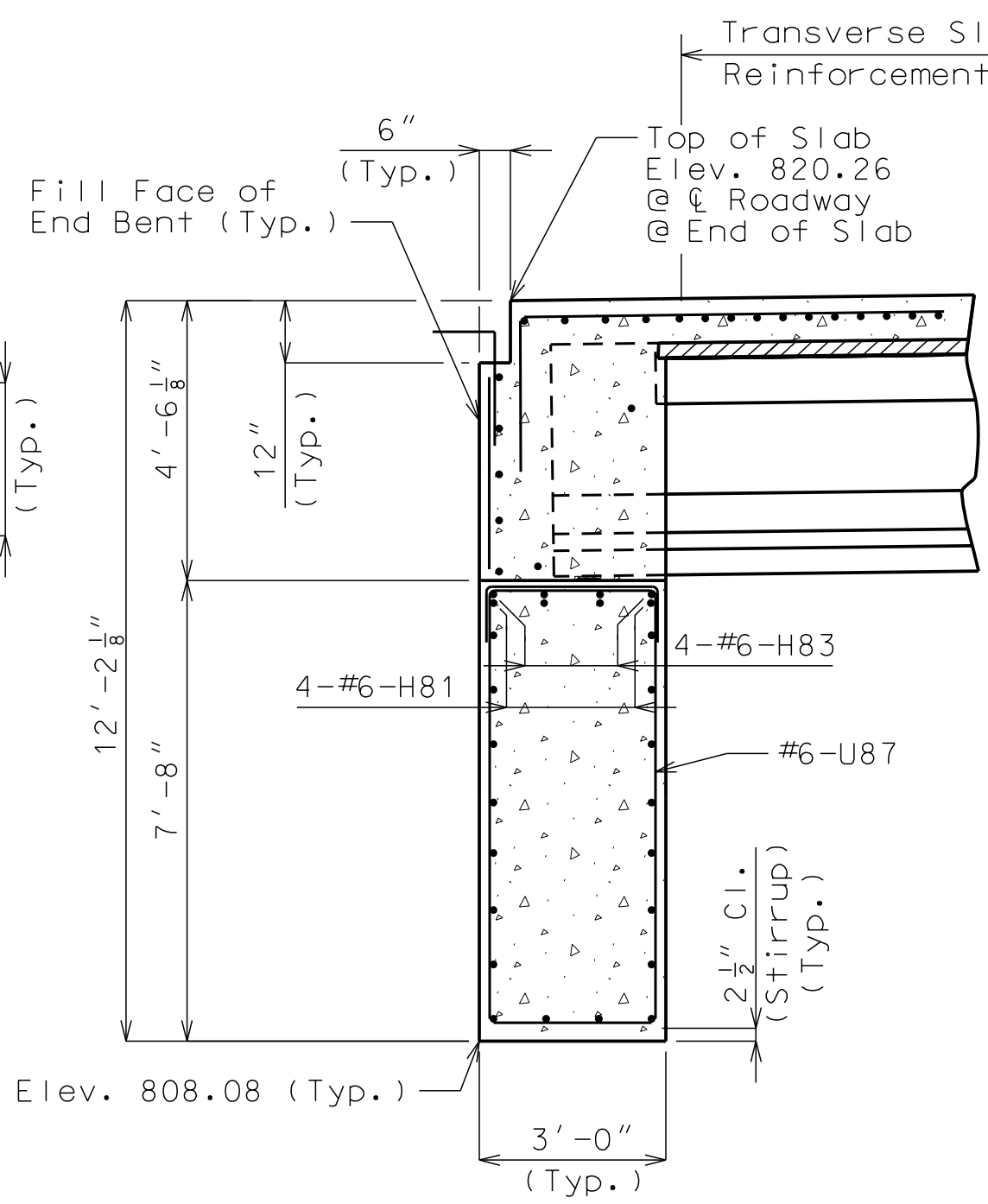
Looking up station  
(\*Varies)



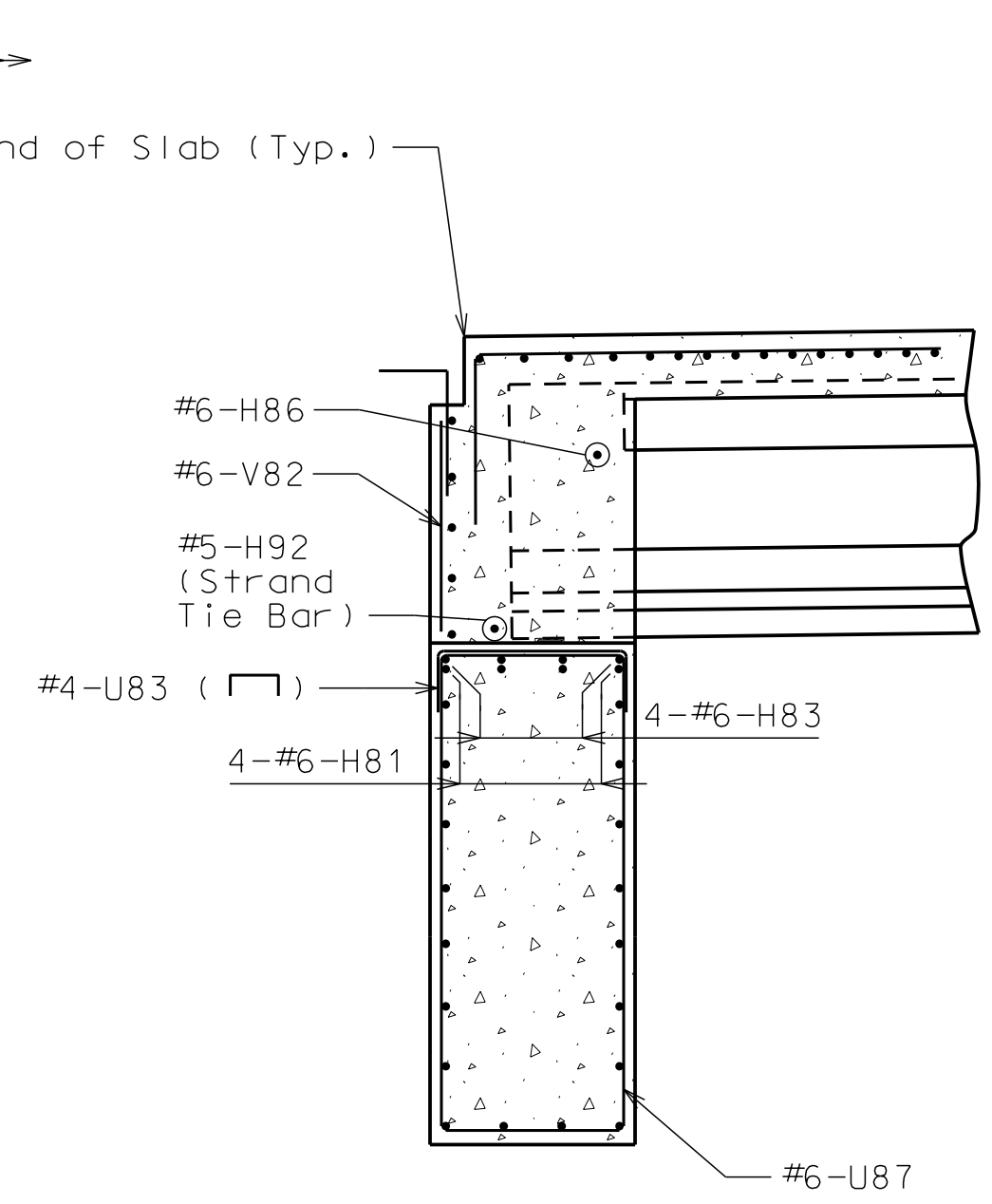
ELEVATION B-B



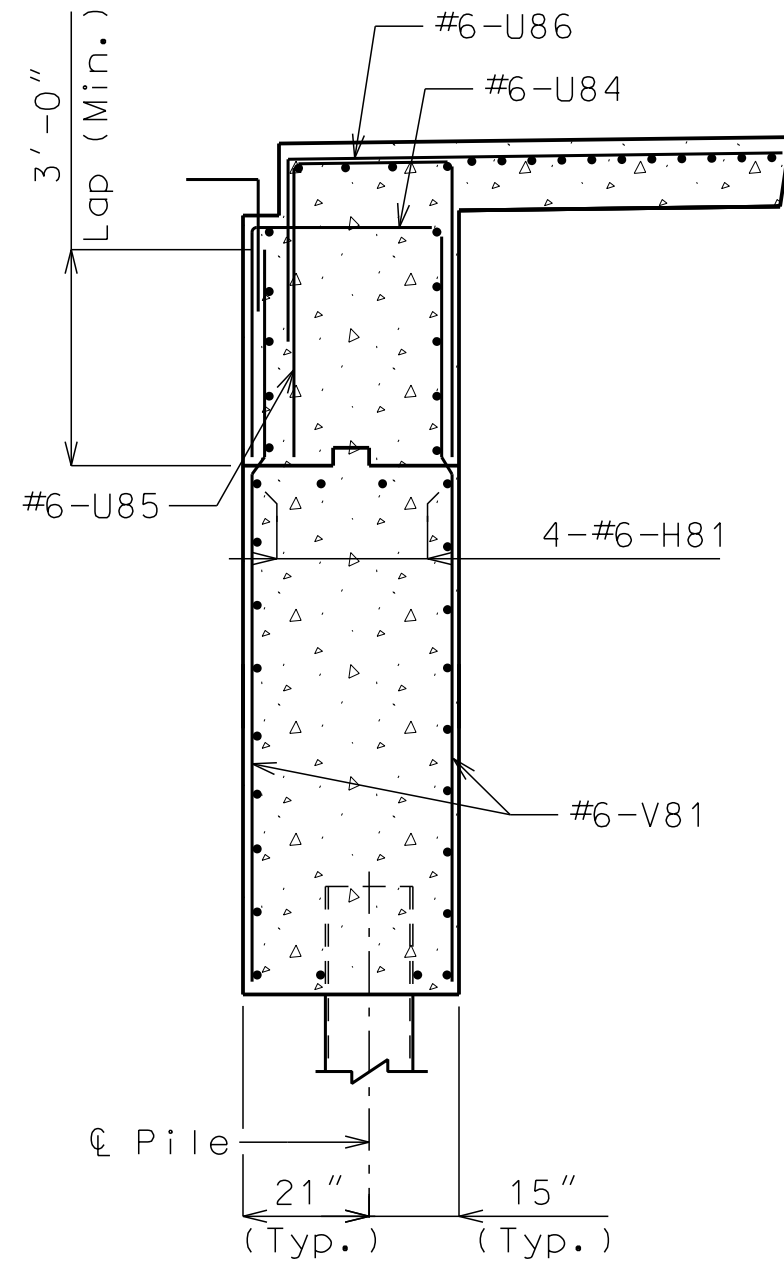
SECTION C-C



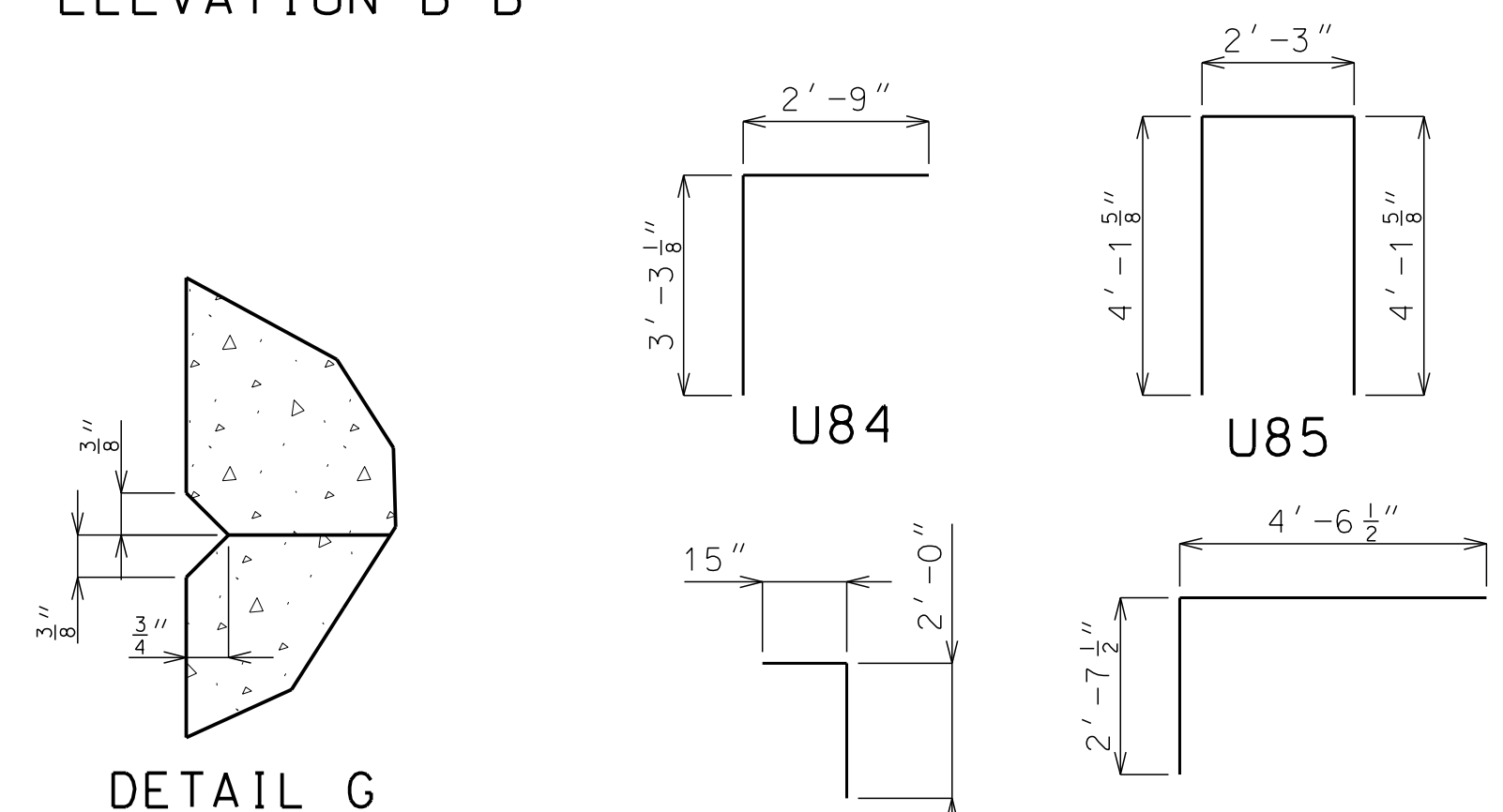
SECTION D-D



SECTION E-E



SECTION F-F



BAR BENDING DIAGRAMS

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Notes:

For details of End Bent No. 4 not shown, See Sheets No. 11 and 12.

For location of Elevations A-A & B-B, See Sheet No. 12.

For location of Sections C-C, D-D, E-E & F-F See Sheet No. 12.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inch.

For reinforcement of Barrier Curb, See Sheets No. 21-23 and 26.

HP pile shall be galvanized to the minimum galvanized penetration (elevation) (See Foundation Data).

Note: This drawing is not to scale. Follow dimensions.



Concrete for prestressed girders shall be Class A-1 with  $f'c = 8500$  psi and  $f'ci = 7000$  psi.

(+) indicates prestressing strand.

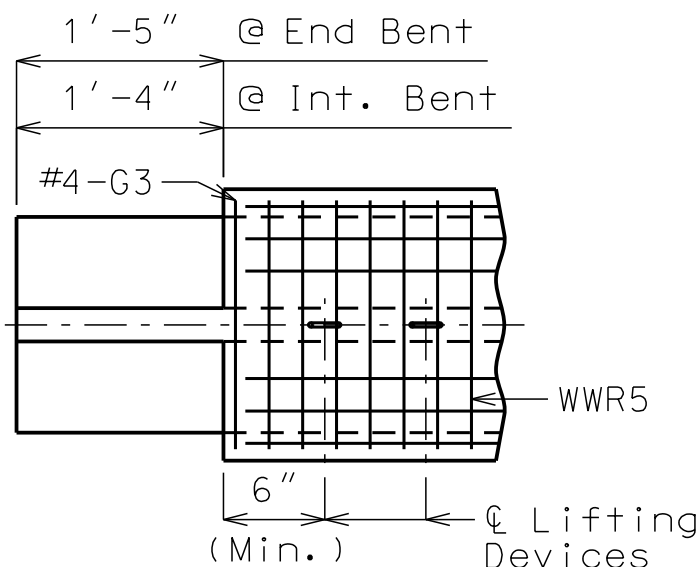
Use 14 strands with an initial prestress force of 615.2 kips.

Prestressing tendons shall be uncoated, seven-wire, low-relaxation strands, 0.6 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in accordance with Sec 1029. Fabricator shall be responsible for location and design of lifting devices.

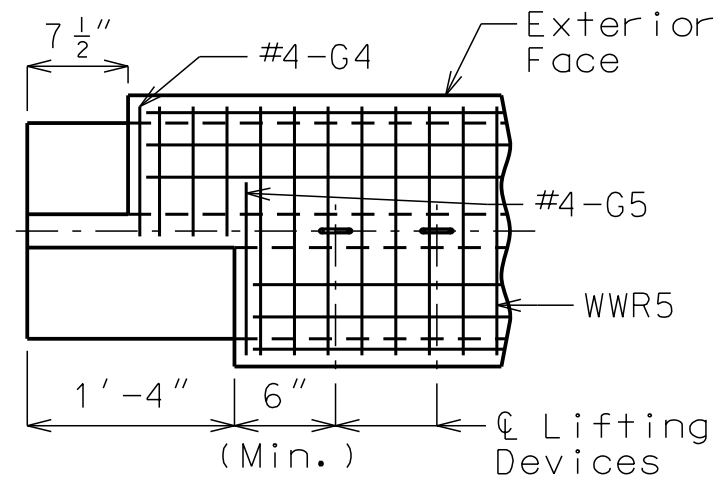
\* Girder top flange shall be steel troweled to a smooth finish for 8" at the edges, as shown. Apply two layers of 30-lb roofing felt as a bond breaker to this region only excluding where joint filler is applied. The center portion shall be rough finished by scarifying the surface transversely with a wire brush, and no laitance shall remain on the surface.

\*\* At the contractor's option the location for bent-up strands may be varied from that shown for fully bonded strands only. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if additional strand tie bars are required.

Fabricator shall be responsible for location and design of lifting devices.

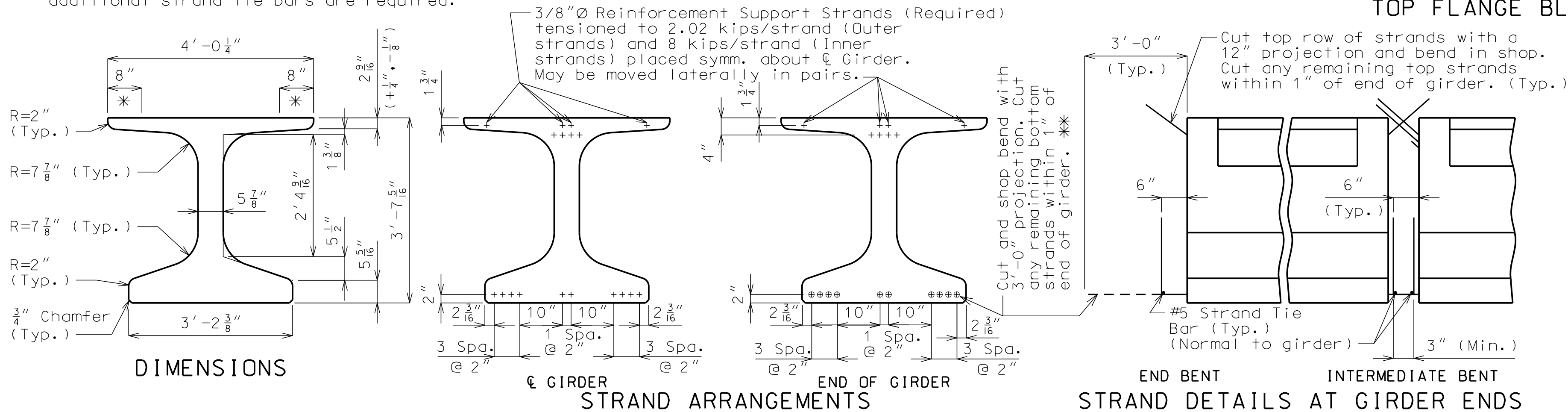


INTERIOR GIRDER AT ALL BENTS  
& EXTERIOR GIRDER AT END BENT  
FOR SPANS 1 & 3 GIRDERS



LEFT EXTERIOR GIRDER AT  
INTERMEDIATE BENT FOR SPANS 1 & 3  
GIRDERS (ROTATE 180° FOR RIGHT EXTERIOR)

## TOP FLANGE BLOCKOUT



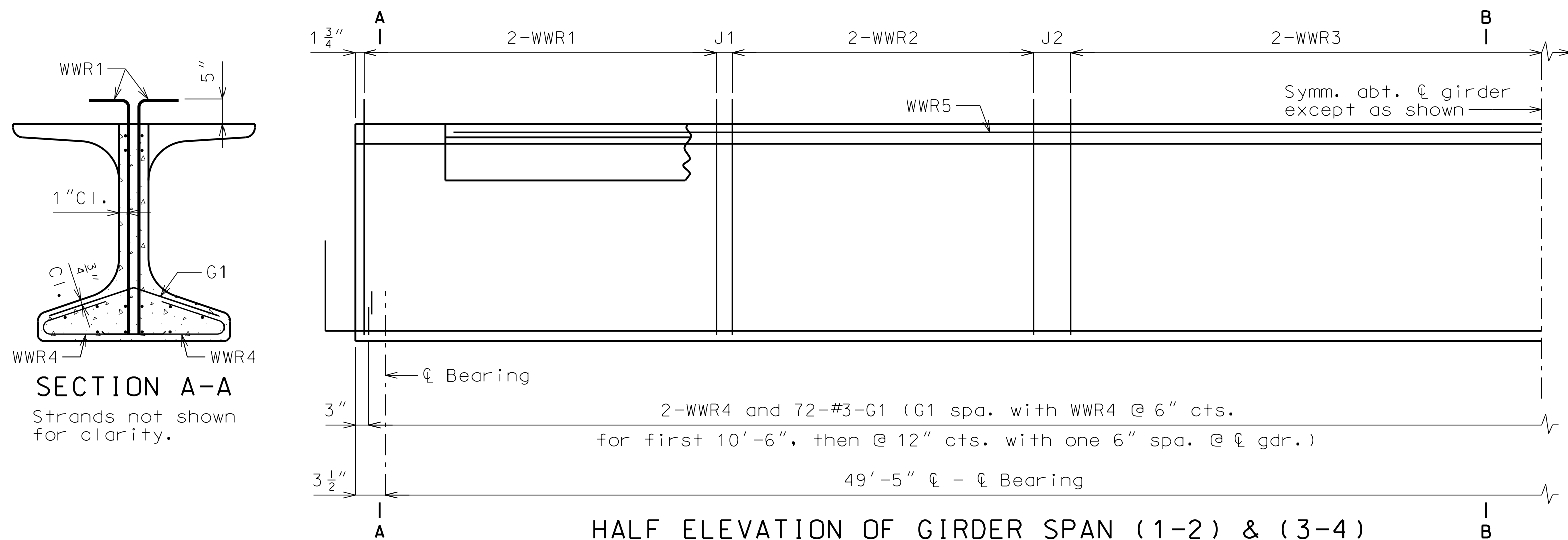
BILL OF REINFORCING STEEL - EACH GIRDER				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAMS
72	3 G1	2'-10"	8	
2	4 G3	3'-10 1/4"	20	
2	4 G4	2'-1"	20	
2	4 G5	2'-8 1/8"	20	

G4 and G5 not required for interior girders.

WELDED WIRE REINFORCEMENT - EACH GIRDER				
MARK	WIRE SIZE	S	L	J
WWR1	D31	6"	4'-6"	6"
WWR2	D31	12"	9'-0"	10 1/4"
WWR3	D31	12"	20'-0"	

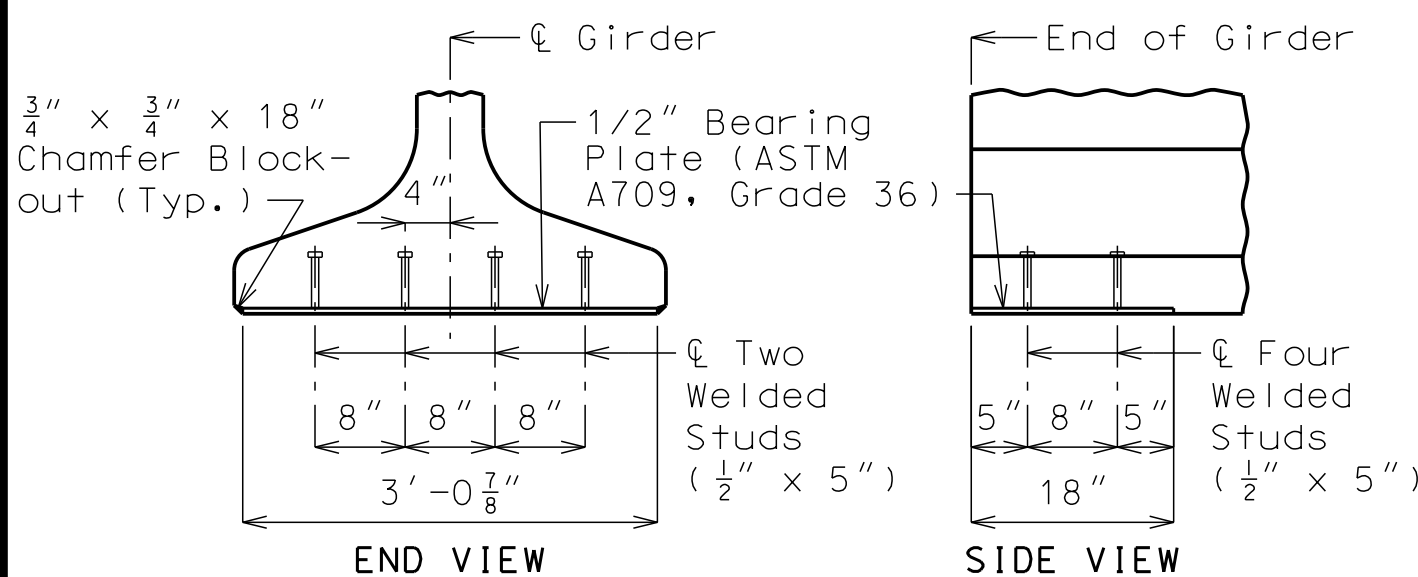
  

BENDING DIAGRAMS				



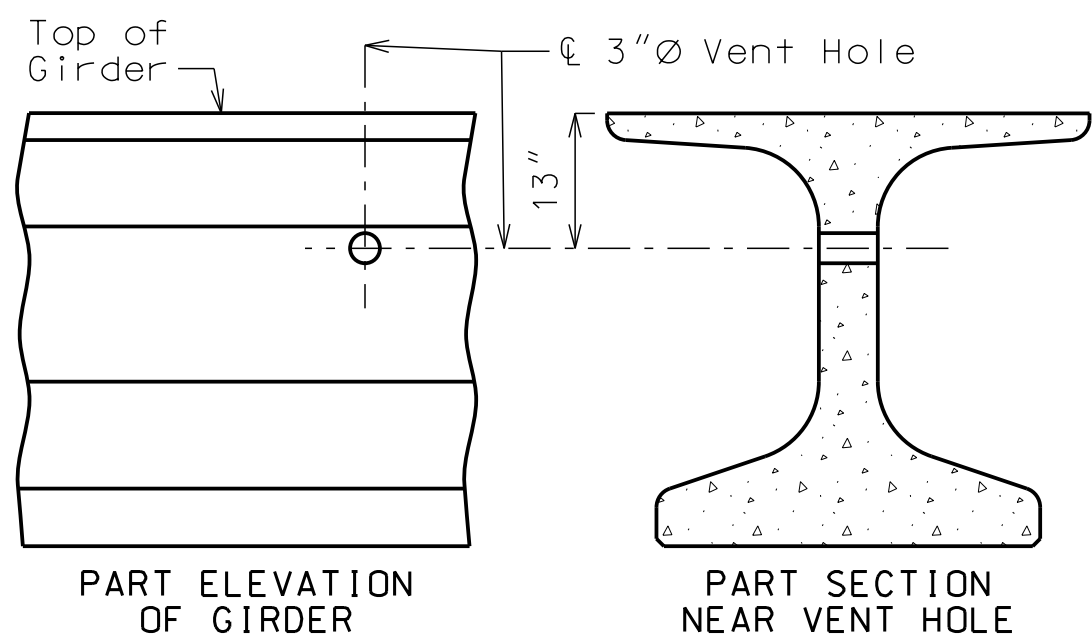
HALF ELEVATION OF GIRDER SPAN (1-2) & (3-4)

Exterior and interior girders are the same, except for coil ties and top flange blockout. Reinforcement support strands not shown for clarity.



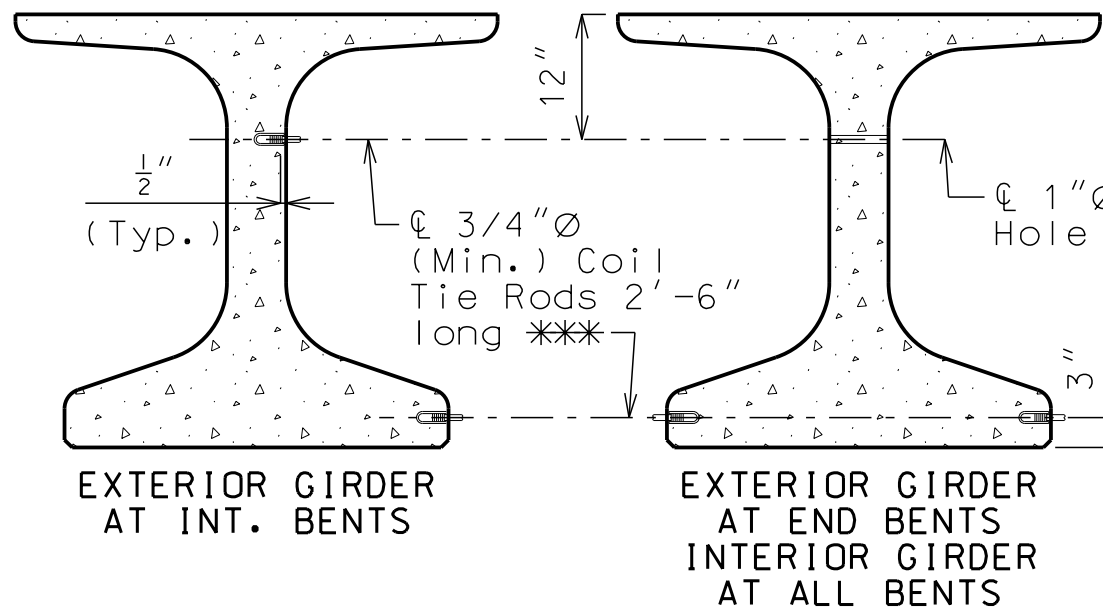
BEARING PLATE DETAILS

Galvanize the 1/2" bearing plate (ASTM A709 Grade 36) in accordance with ASTM A123.



DETAILS OF VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



DETAILS OF COIL TIES

Cast 1" hole horizontally in girder for #6 bar 5'-6" long and clear reinforcing steel or strands by 1 1/2" minimum.

\*\*\* Length of coil tie rods at exterior face of exterior girders at end bents = 2'-4".

\*\*\* Length of coil tie rods at faces adjacent to conduit blockout of Girders No. 1 & 2 at intermediate bents = 17".



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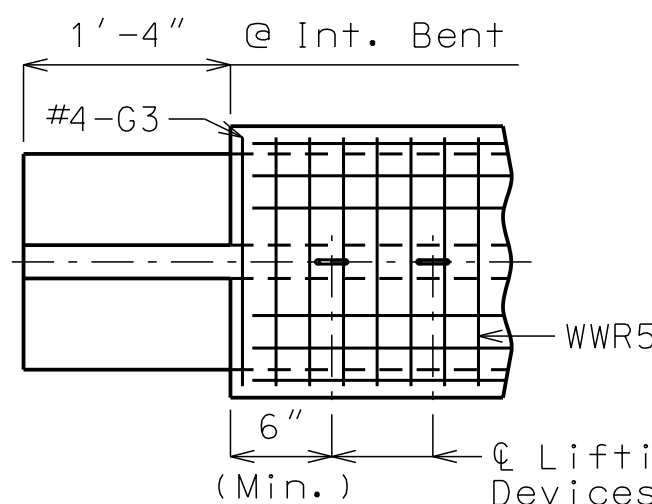


Fabricator shall be responsible for location and design of lifting devices.

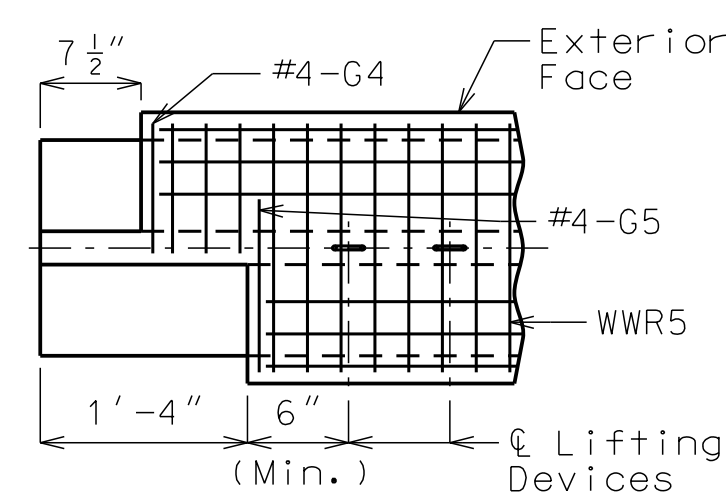
Use 38 strands with an initial prestress force of 1669.8 kips.

\* Girder top flange shall be steel troweled to a smooth finish for 8" at the edges, as shown. Apply two layers of 30-lb roofing felt as a bond breaker to this region only excluding where joint filler is applied. The center portion shall be rough finished by scarifying the surface transversely with a wire brush, and no laitance shall remain on the surface.

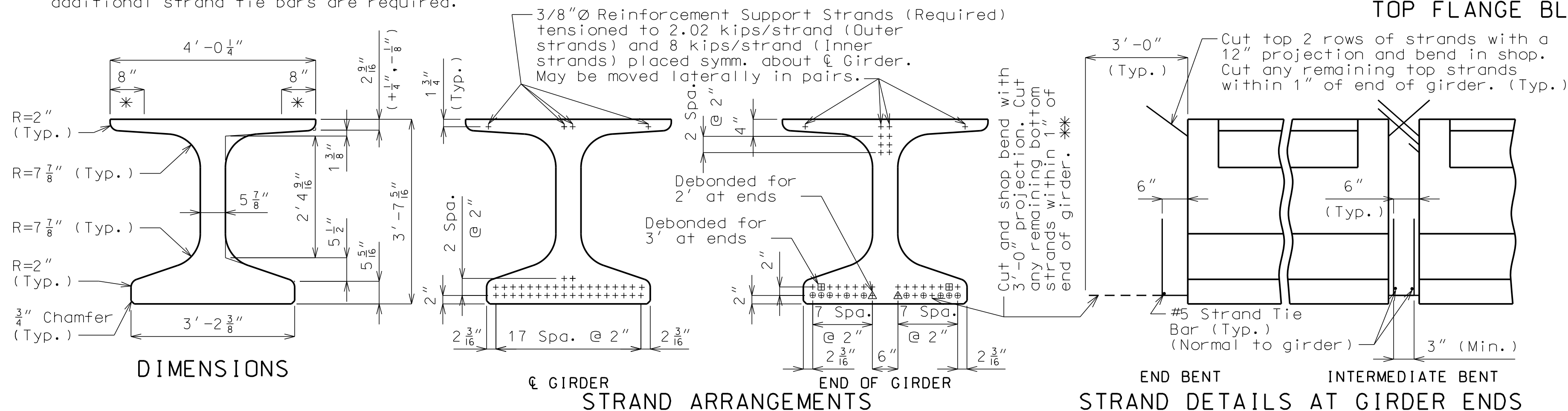
At the contractor's option the location for bent-up strands may be varied from that shown for fully bonded strands only. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if additional strand tie bars are required.



INTERIOR GIRDER AT INTERMEDIATE  
BENT FOR SPAN 2 GIRDERS



LEFT EXTERIOR GIRDER AT  
INTERMEDIATE BENT FOR SPAN 2 GIRDERS  
(ROTATE 180° FOR RIGHT EXTERIOR)



END BENT INTERMEDIATE BENT  
STRAND DETAILS AT GIRDER ENDS

BILL OF REINFORCING STEEL - EACH GIRDER				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	
125	3 G1	2' - 10"	8	<p>BENDING DIAGRAMS</p> <p>SHAPE 8</p> <p>SHAPE 10</p> <p>SHAPE 20</p>
2	4 G3	3' - 10 <sup>1</sup> / <sub>4</sub> "	20	
2	4 G4	2' - 1"	20	
2	4 G5	2' - 8 <sup>1</sup> / <sub>8</sub> "	20	

G4 and G5 not required for interior girders.

WELDED WIRE REINFORCEMENT – EACH GIRDER

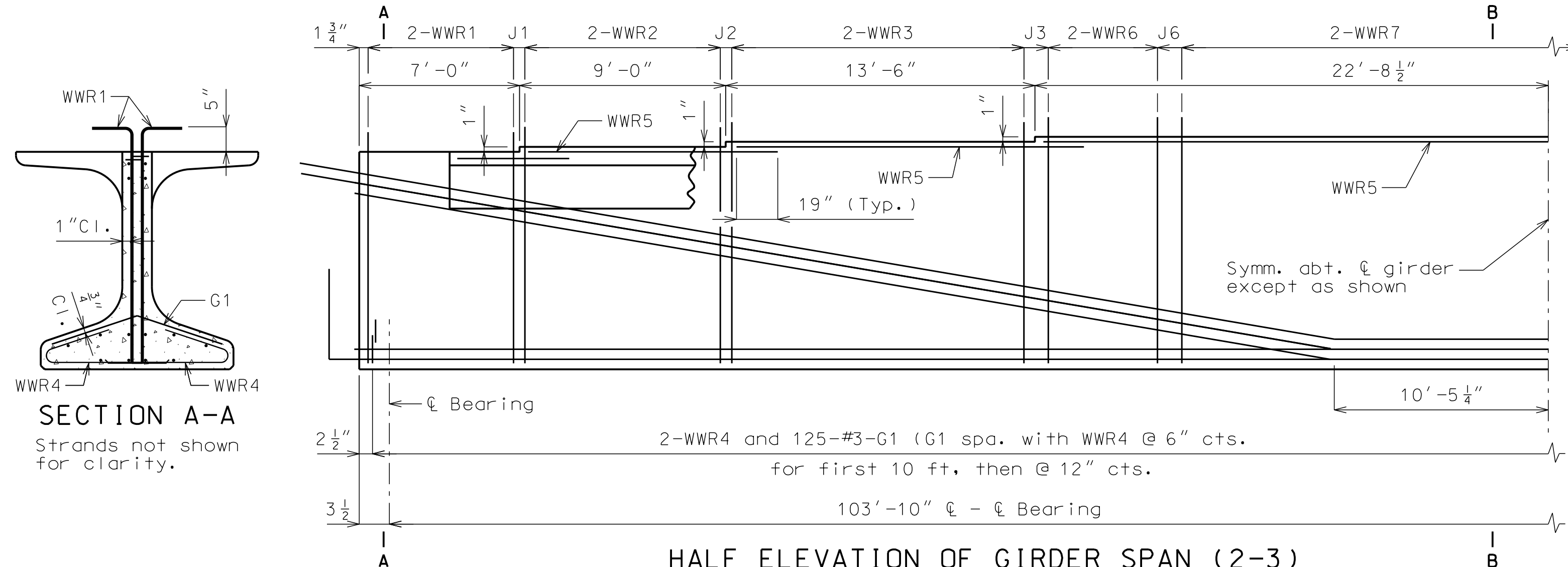
MARK	WIRE SIZE	S	L	J
WWR1	D31	6"	6'-6"	6"
WWR2	D31	6"	8'-6"	6"
WWR3	D31	12"	13'-0"	12"
WWR6	D31	12"	5'-0"	12 $\frac{3}{4}$ "
WWR7	D31	18"	32'-0"	

BENDING DIAGRAMS

The figure shows bending diagrams for welded wire reinforcement for each girder. The diagrams are as follows:

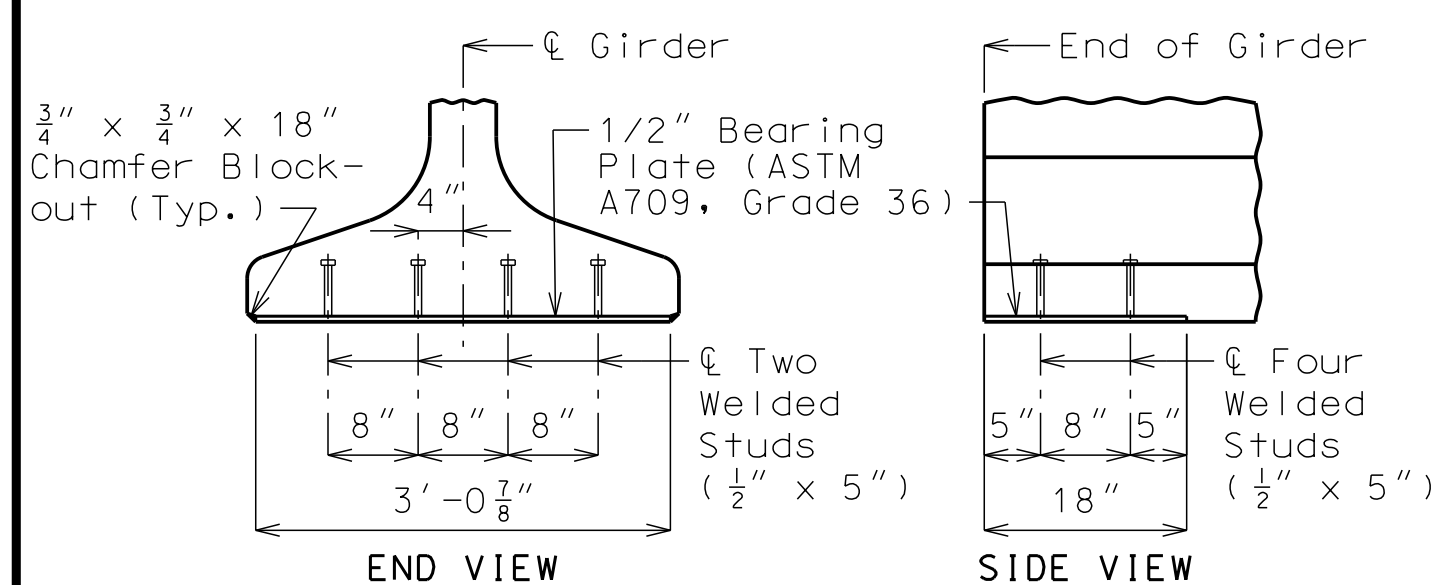
- WWR1, WWR2, WWR3, WWR6, WWR7:** A single diagram showing the layout of reinforcement bars. The dimensions are:
  - WWR1: 2'-7  $\frac{1}{2}$ "
  - WWR2: 2'-8  $\frac{1}{2}$ "
  - WWR3: 2'-9  $\frac{1}{2}$ "
  - WWR6: 2'-10  $\frac{1}{2}$ "
  - WWR7: 2'-10  $\frac{1}{2}$ "
  - Wire size: W8
  - Wire size @ 18" Sp.
  - Wire size @ 12" Sp.
  - Wire size @ 6" Sp.
  - Wire size @ 4" Sp.
  - Wire size @ 3" Sp.
  - Wire size @ 2" Sp.
  - Wire size @ 1" Sp.
  - Wire size @ 1/2" Sp.
  - Wire size @ 1/4" Sp.
  - Wire size @ 1/8" Sp.
  - Wire size @ 1/16" Sp.
  - Wire size @ 1/32" Sp.
  - Wire size @ 1/64" Sp.
  - Wire size @ 1/128" Sp.
  - Wire size @ 1/256" Sp.
  - Wire size @ 1/512" Sp.
  - Wire size @ 1/1024" Sp.
  - Wire size @ 1/2048" Sp.
  - Wire size @ 1/4096" Sp.
  - Wire size @ 1/8192" Sp.
  - Wire size @ 1/16384" Sp.
  - Wire size @ 1/32768" Sp.
  - Wire size @ 1/65536" Sp.
  - Wire size @ 1/131072" Sp.
  - Wire size @ 1/262144" Sp.
  - Wire size @ 1/524288" Sp.
  - Wire size @ 1/1048576" Sp.
  - Wire size @ 1/2097152" Sp.
  - Wire size @ 1/4194304" Sp.
  - Wire size @ 1/8388608" Sp.
  - Wire size @ 1/16777216" Sp.
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  - Wire size @ 1/134217728" Sp.
  - Wire size @ 1/268435456" Sp.
  - Wire size @ 1/536870912" Sp.
  - Wire size @ 1/1073741824" Sp.
  - Wire size @ 1/2147483648" Sp.
  - Wire size @ 1/4294967296" Sp.
  - Wire size @ 1/8589934592" Sp.
  - Wire size @ 1/17179869184" Sp.
  - Wire size @ 1/34359738368" Sp.
  - Wire size @ 1/68719476736" Sp.
  - Wire size @ 1/137438953472" Sp.
  - Wire size @ 1/274877906944" Sp.
  - Wire size @ 1/549755813888" Sp.
  - Wire size @ 1/1099511627776" Sp.
  - Wire size @ 1/2199023255552" Sp.
  - Wire size @ 1/4398046511104" Sp.
  - Wire size @ 1/8796093022208" Sp.
  - Wire size @ 1/17592186044416" Sp.
  - Wire size @ 1/35184372088832" Sp.
  - Wire size @ 1/70368744177664" Sp.
  - Wire size @ 1/140737488355328" Sp.
  - Wire size @ 1/281474976710656" Sp.
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  - Wire size @ 1/2305843009213693952" Sp.
  - Wire size @ 1/4611686018427387904" Sp.
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  - Wire size @ 1/18446744073709551616" Sp.
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  - Wire size @ 1/20282409603651670423947251286016" Sp.
  - Wire size @ 1/40564819207303340847894502572032" Sp.
  - Wire size @ 1/81129638414606681695789005144064" Sp.
  - Wire size @ 1/162259276829213363391578010288128" Sp

WELDED WIRE PLACEMENT



HALF ELEVATION OF GIRDER SPAN (2-3)

Exterior and interior girders are the same, except for coil ties, and top flange blackout. Reinforcement support strands not shown for clarity.



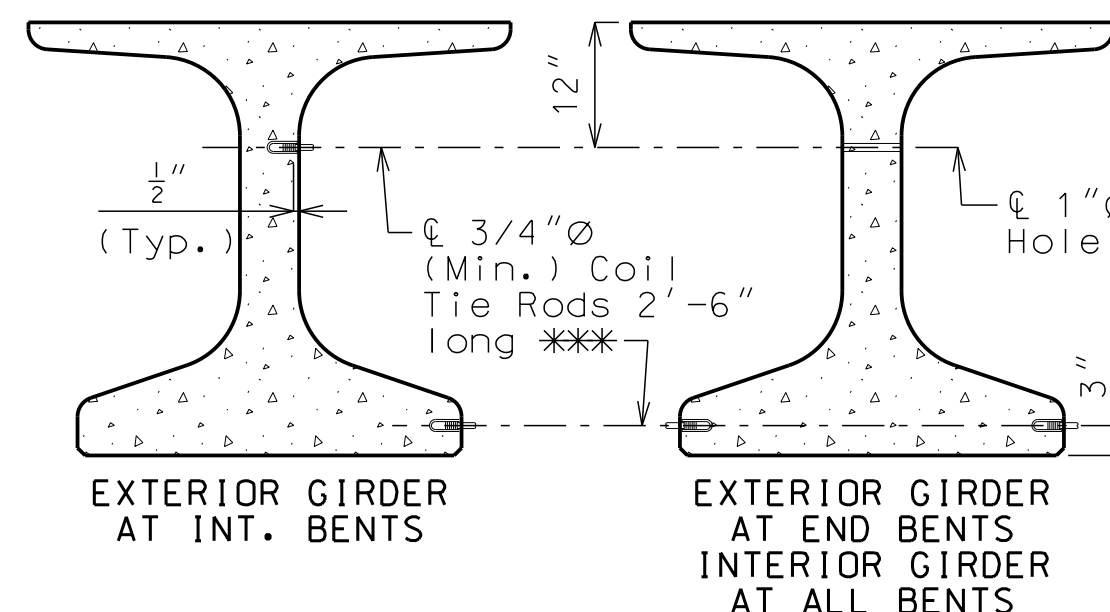
## BEARING PLATE DETAILS

The figure contains two technical drawings of a girder:

- Left Drawing:** A side elevation of a girder section. It shows a vertical profile with a central horizontal line. A circle representing a hole is located on this line. A dimension line indicates a vertical distance of 13" from the top of the girder to the center of the hole. An arrow points to the top edge with the label "Top of Girder".
- Right Drawing:** A cross-section of the girder, labeled "PART SECTION NEAR VENT HOLE". It shows an I-beam shape. The top flange is filled with a stippled pattern. A horizontal line passes through the center of the web, representing the hole. A dimension line indicates a vertical distance of 13" from the top of the flange to the center of the hole. Above this drawing, the text "Ø 3" Ø Vent Hole" is written.

### DETAILS OF VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



### DETAILS OF COIL TIES

Cast 1"Ø hole horizontally in girder for #6 bar 5'-6" long and clear reinforcing steel or strands by 1 1/2" minimum.

\*\*\* Length of coil tie rods at exterior face of exterior girders at end bents = 2'-4".

\*\*\* Length of coil tie rods at faces adjacent to conduit blockout of Girders No. 1 & 2 at intermediate bents = 17".

General Notes:

Reinforcing Steel:

All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1", unless otherwise shown.

All bar reinforcement shall be Grade 60.

Welded Wire Reinforcement (WWR) shall be in accordance with AASHTO M 221. WWR shall not be epoxy coated.

Miscellaneous:

Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting thru forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For location of coil ties and #6 bars at concrete bent diaphragms,  
see Sheets No. 4, 5, 12, 13 and 16.

For Girder Camber Diagram, see Sheet No. 18.

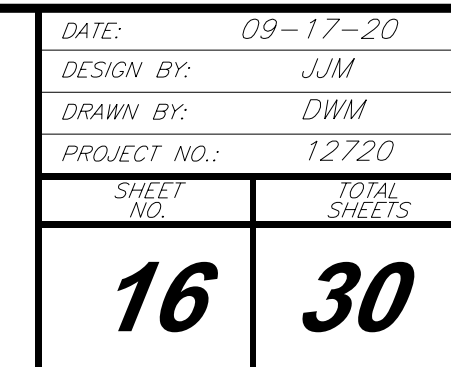
Precaster shall make necessary adjustment in length of girder to account for slope of road and camber of girder. Adjust beam length and top flange blockout dimensions as necessary.

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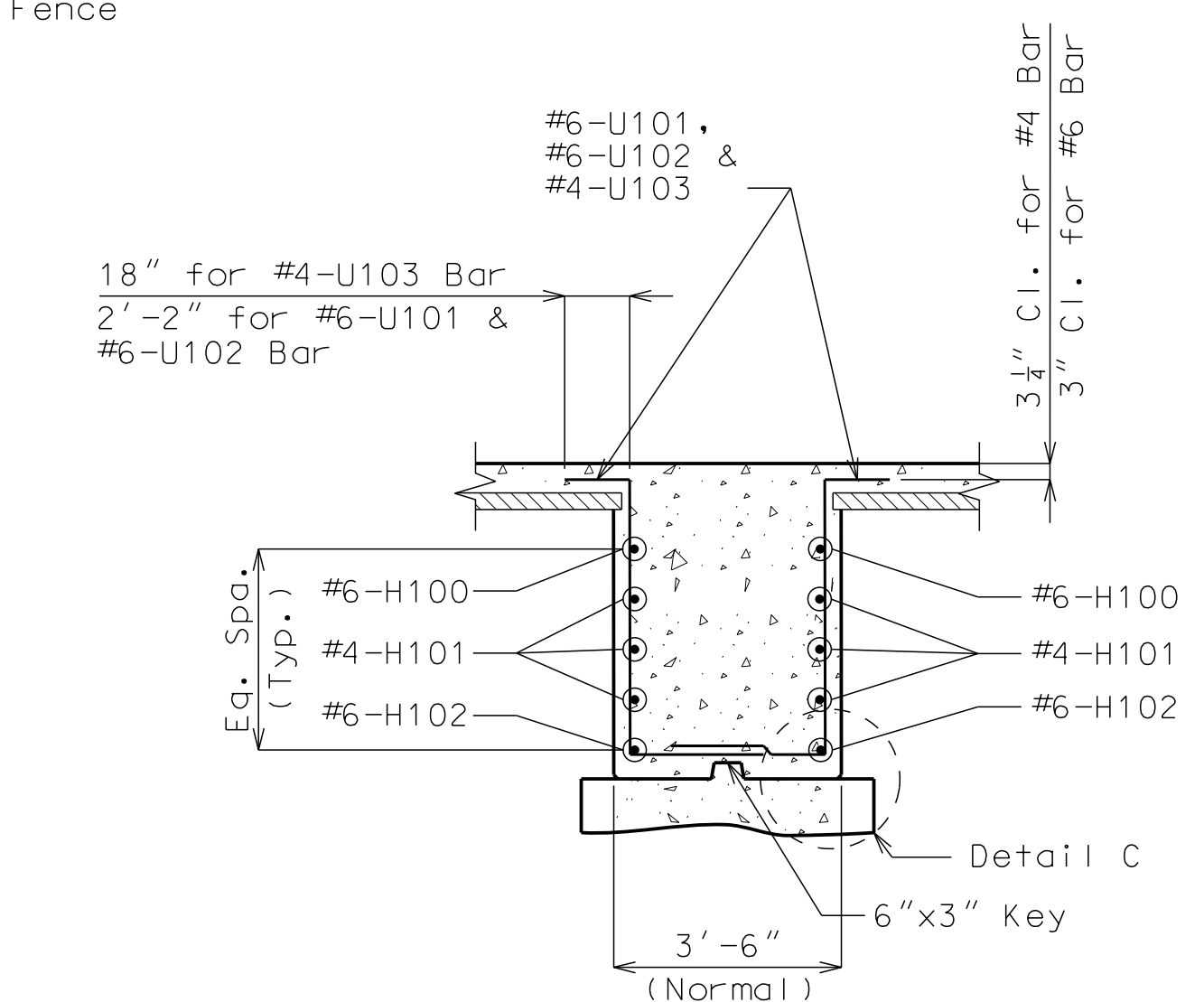
Note: This drawing is not to scale. Follow dimensions.



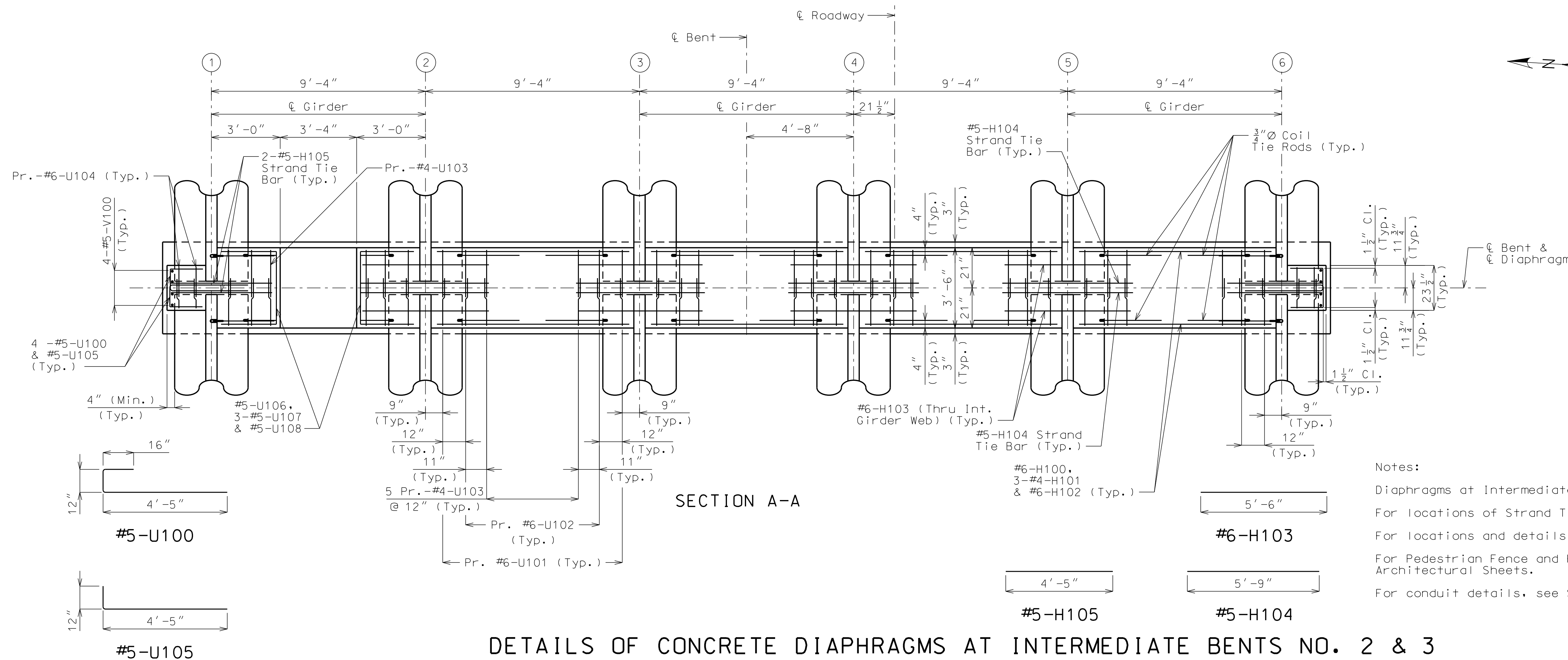


*East Bridge Plans*  
**Paragon Star Development**

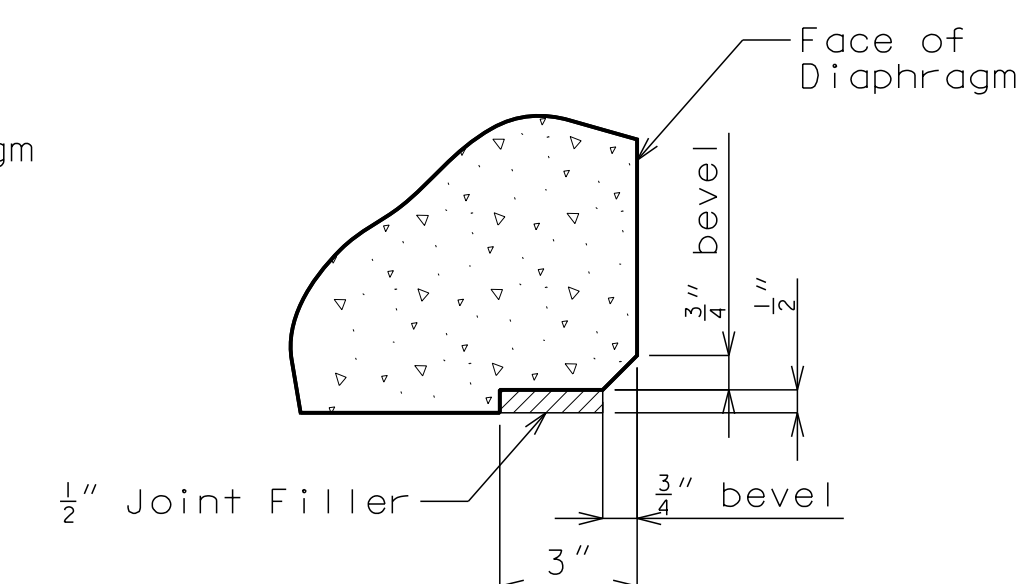
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SECTION NEAR INTERMEDIATE BENT  
(Conduits and conduit hanger not shown for clarity.)



SECTION B-B



DETAIL C

Notes:

Diaphragms at Intermediate Bents shall be built vertically.

For locations of Strand Tie Bars, see Sheets No. 14 and 15.

For locations and details of Coil Tie Rods, see Sheets No. 14 and 15.

For Pedestrian Fence and Pedestrian Rail details, see Architectural Sheets.

For conduit details, see Sheets No. 26 and 27.

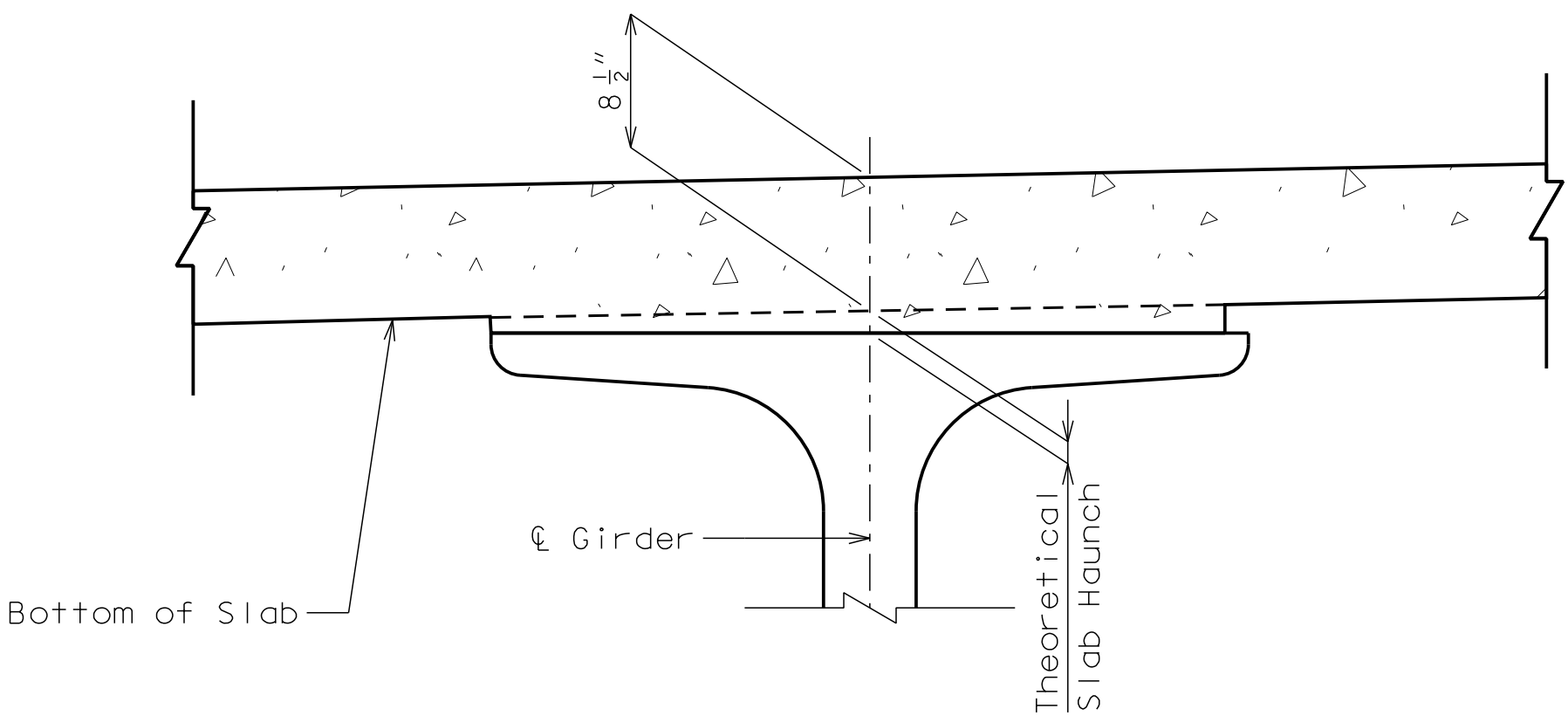
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Note: This drawing is not to scale. Follow dimensions.

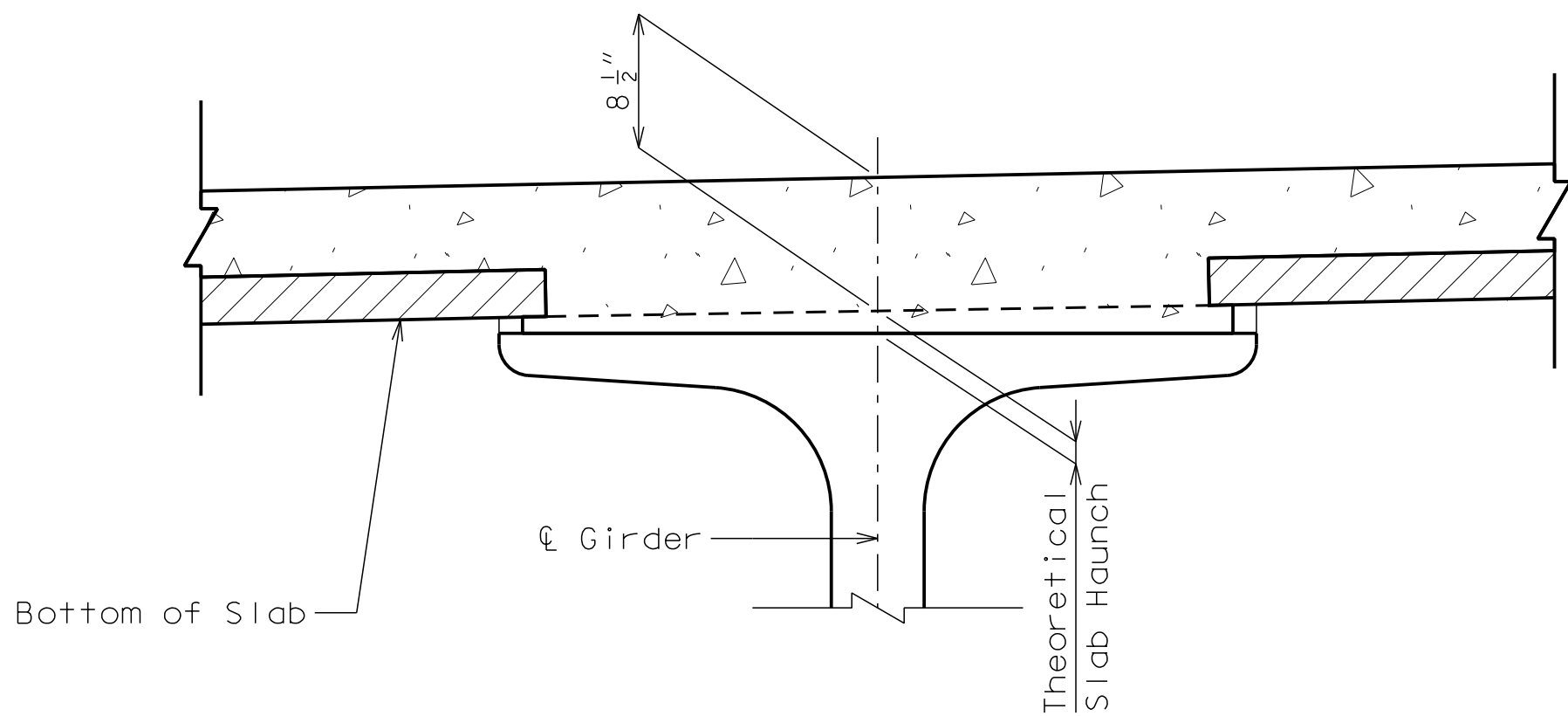




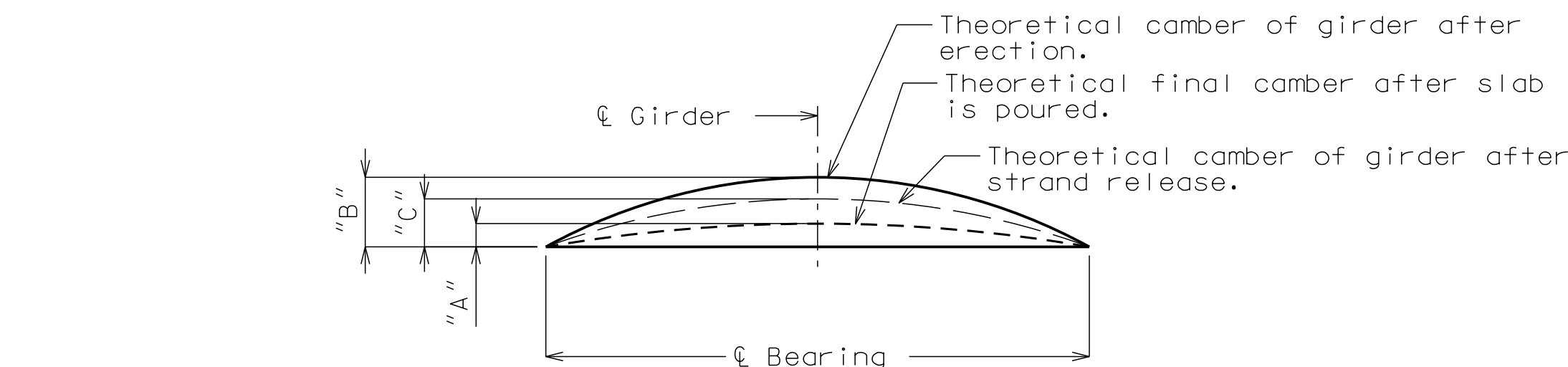




THEORETICAL SLAB HAUNCH WITHOUT PRECAST PANELS



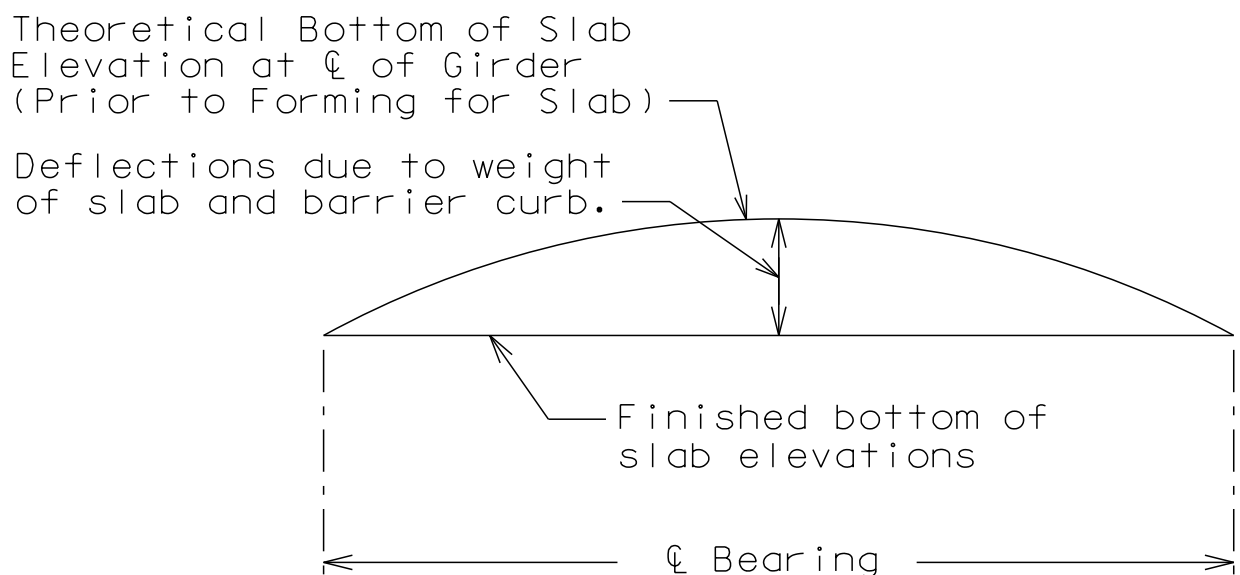
THEORETICAL SLAB HAUNCH WITH PRECAST PANELS



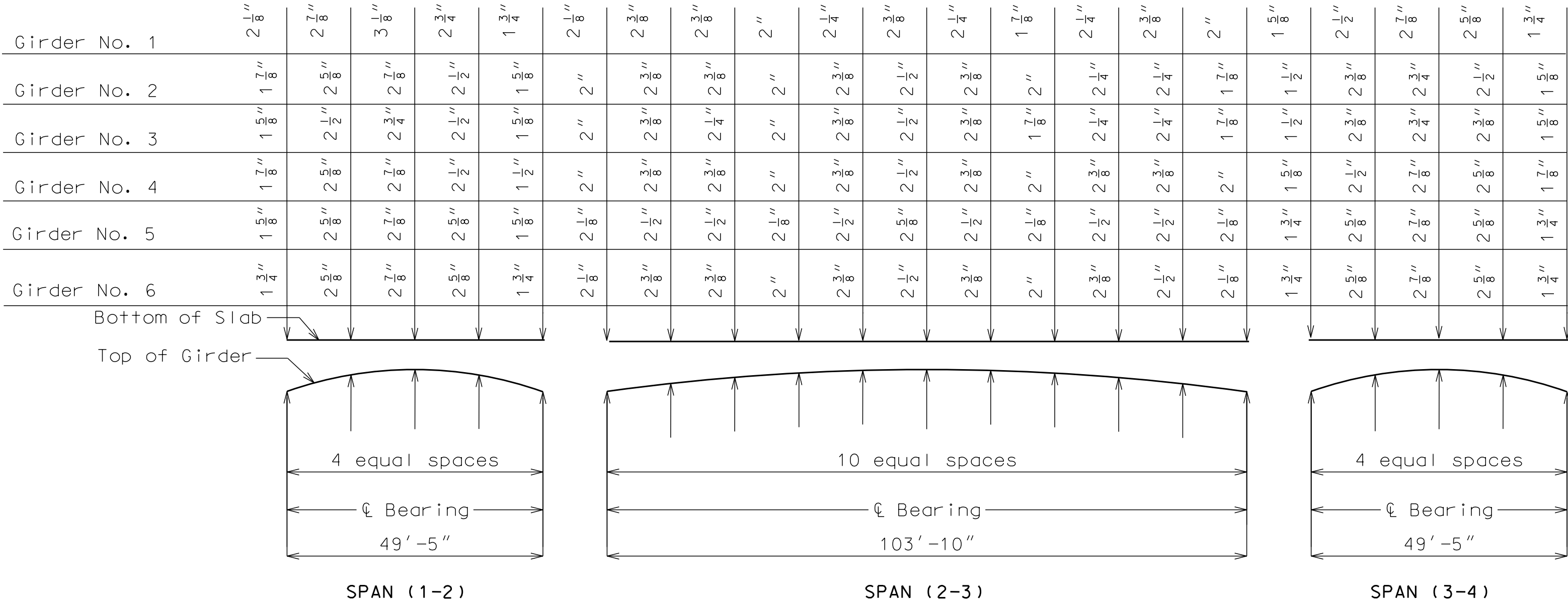
	Span (1-2)			Span (2-3)			Span (3-4)		
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"
Ext. Girder	0"	1/8"	1/8"	1 7/8"	5"	2 3/4"	0"	1/8"	1/8"
Int. Girder	0"			1 3/4"			0"		

GIRDER CAMBER DIAGRAM

Conversion factors for girder camber.  
0.1 pt. = 0.314 x 0.5 pt.  
0.2 pt. = 0.593 x 0.5 pt.  
0.25 pt. = 0.7125 x 0.5 pt.  
0.3 pt. = 0.813 x 0.5 pt.  
0.4 pt. = 0.952 x 0.5 pt.



TYPICAL SLAB ELEVATIONS DIAGRAM



THEORETICAL SLAB HAUNCHING DIAGRAM

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab)																					
	Span (1-2) (49'-5" CL brg - CL brg.)					Span (2-3) (103'-10" CL brg - CL brg.)										Span (3-4) (49'-5" CL brg - CL brg.)					
	CL brg.	.25	.50	.75	CL brg.	CL brg.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	CL brg.	CL brg.	.25	.50	.75	CL brg.
Girder No. 1	819.02	819.41	819.75	820.03	820.26	820.28	820.51	820.71	820.85	820.94	820.96	820.93	820.85	820.70	820.51	820.27	820.25	820.02	819.74	819.40	819.01
Girder No. 2	819.21	819.60	819.94	820.22	820.45	820.47	820.71	820.90	821.05	821.14	821.17	821.14	821.05	820.90	820.70	820.46	820.44	820.21	819.93	819.59	819.20
Girder No. 3	819.39	819.79	820.13	820.41	820.63	820.65	820.89	821.09	821.24	821.32	821.35	821.32	821.23	821.09	820.89	820.65	820.63	820.40	820.12	819.78	819.38
Girder No. 4	819.58	819.97	820.31	820.59	820.82	820.84	821.08	821.28	821.42	821.51	821.54	821.51	821.42	821.27	821.07	820.83	820.81	820.59	820.30	819.96	819.57
Girder No. 5	819.47	819.86	820.20	820.48	820.70	820.72	820.97	821.16	821.31	821.40	821.43	821.40	821.30	821.16	820.96	820.72	820.70	820.47	820.19	819.85	819.46
Girder No. 6	819.28	819.67	820.01	820.29	820.52	820.54	820.77	820.97	821.11	821.19	821.22	821.19	821.10	820.96	820.77	820.53	820.51	820.28	820.00	819.66	819.27

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab including precast panel.

SLAB DETAILS

Note: This drawing is not to scale. Follow dimensions.

**GBA**  
architects  
engineers

9801 Renner Boulevard  
Lenexa, Kansas 66219  
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DATE: 09-17-20  
DESIGN BY: JJM  
DRAWN BY: DWM  
PROJECT NO.: 12720

SHEET NO. 18  
TOTAL SHEETS 30

JOSHUA J. MILLER  
PROFESSIONAL ENGINEER  
PE-2009010386

East Bridge Plans  
**Paragon Star Development**  
Lee's Summit, Missouri

NO. DATE

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DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI  
03/05/2021

STATE OF MISSOURI

JOSHUA J. MILLER

REGISTERED PROFESSIONAL ENGINEER

10/13/20

PE-2009010386

NUMBER

10/13/20

DATE: 09-17-20

DESIGN BY: JJM

DRAWN BY: DWM

PROJECT NO.: 12720

SHEET NO. 19

TOTAL SHEETS 30

GBA

architects

engineers

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Lenexa, Kansas 66219

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East Bridge Plans

Paragon Star Development

Lee's Summit, Missouri

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The diagram illustrates the plan view of a bridge slab with three spans: Span (1-2) of 50'-0", Span (2-3) of 105'-0", and Span (3-4) of 50'-0". It shows the layout of top and bottom reinforcement bars, including their types, sizes, and spacing. Key features include:   
 - **Top Reinforcement:** Shows bars #5-S11, #8-S9, and #5-S12. Spacing for #5-S11 is 44" @ 15", for #8-S9 is 43" @ 15", and for #5-S12 is 44" @ 15".   
 - **Bottom Reinforcement:** Shows bars #5-S10 and #5-S8. Spacing for #5-S10 is 43" @ 6" and for #5-S8 is 203" @ 12".   
 - **Dimensions:** Span lengths are 50'-0" each. Total length is 155'-0".   
 - **Labels:** Includes "End of Slab @ End Bent No. 1", "End of Slab @ End Bent No. 4", "Left Edge of Slab", "Right Edge of Slab", "Int. Bent No. 2", "Int. Bent No. 3", "Brg. Bent No. 1", "Brg. Bent No. 4", "Structure", "Roadway", and "TOP REINFORCEMENT" / "BOTTOM REINFORCEMENT".   
 - **Notes:** "2'-5" (Min. Lap) (Typ.)" and "2'-9" (Typ.)" are noted for lap lengths and dimensions.

North arrow pointing up. Scale bar showing 24'-2" and 5'-6".

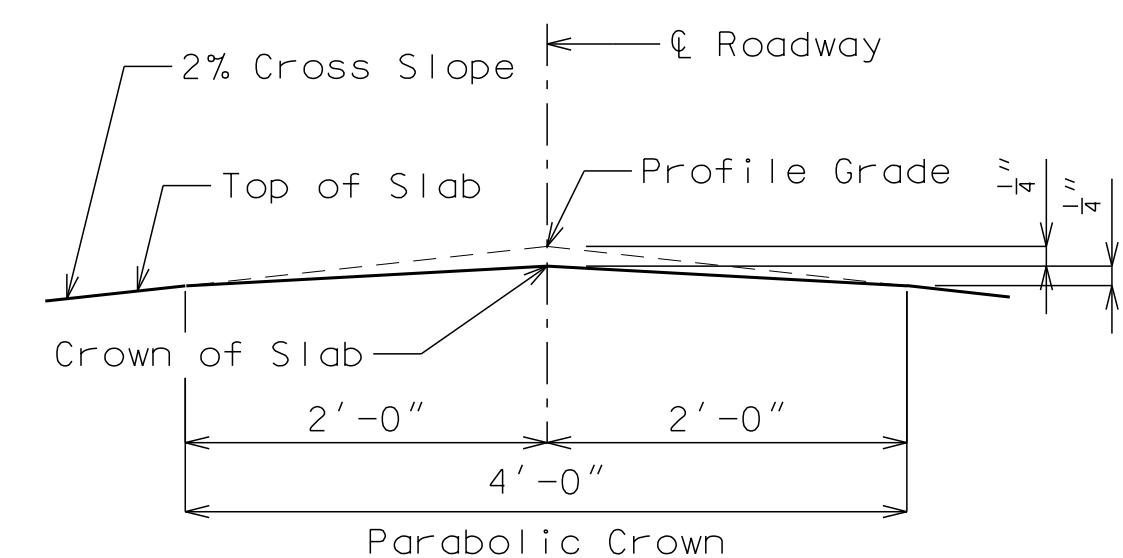
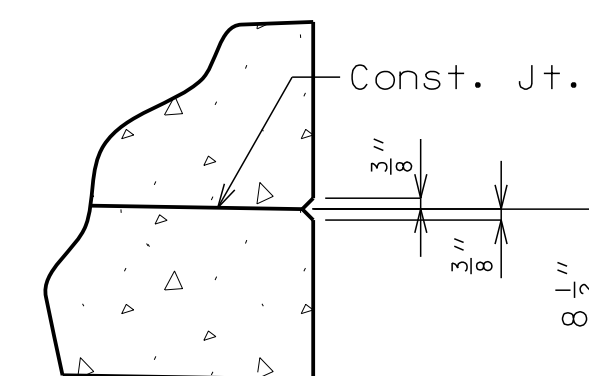
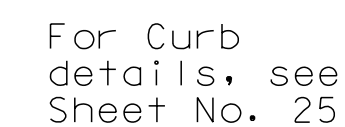
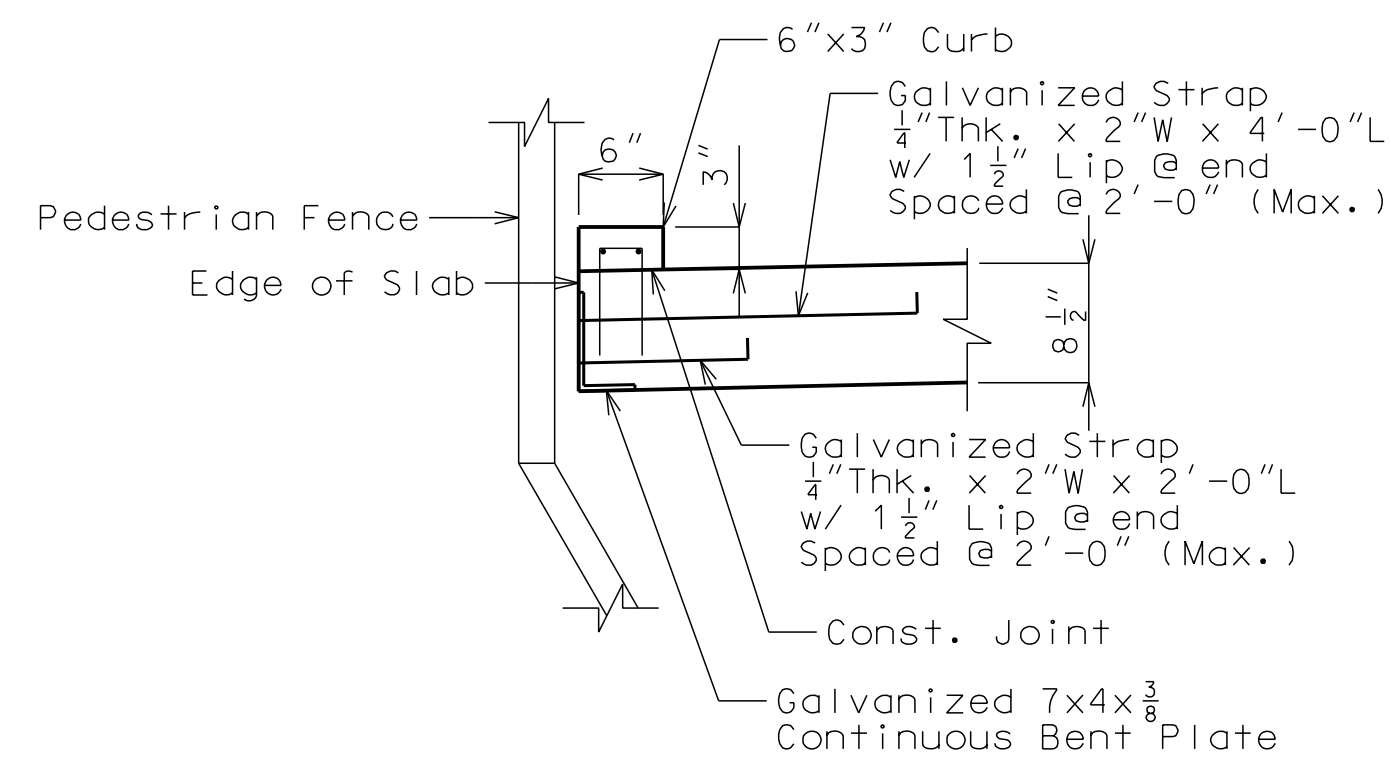
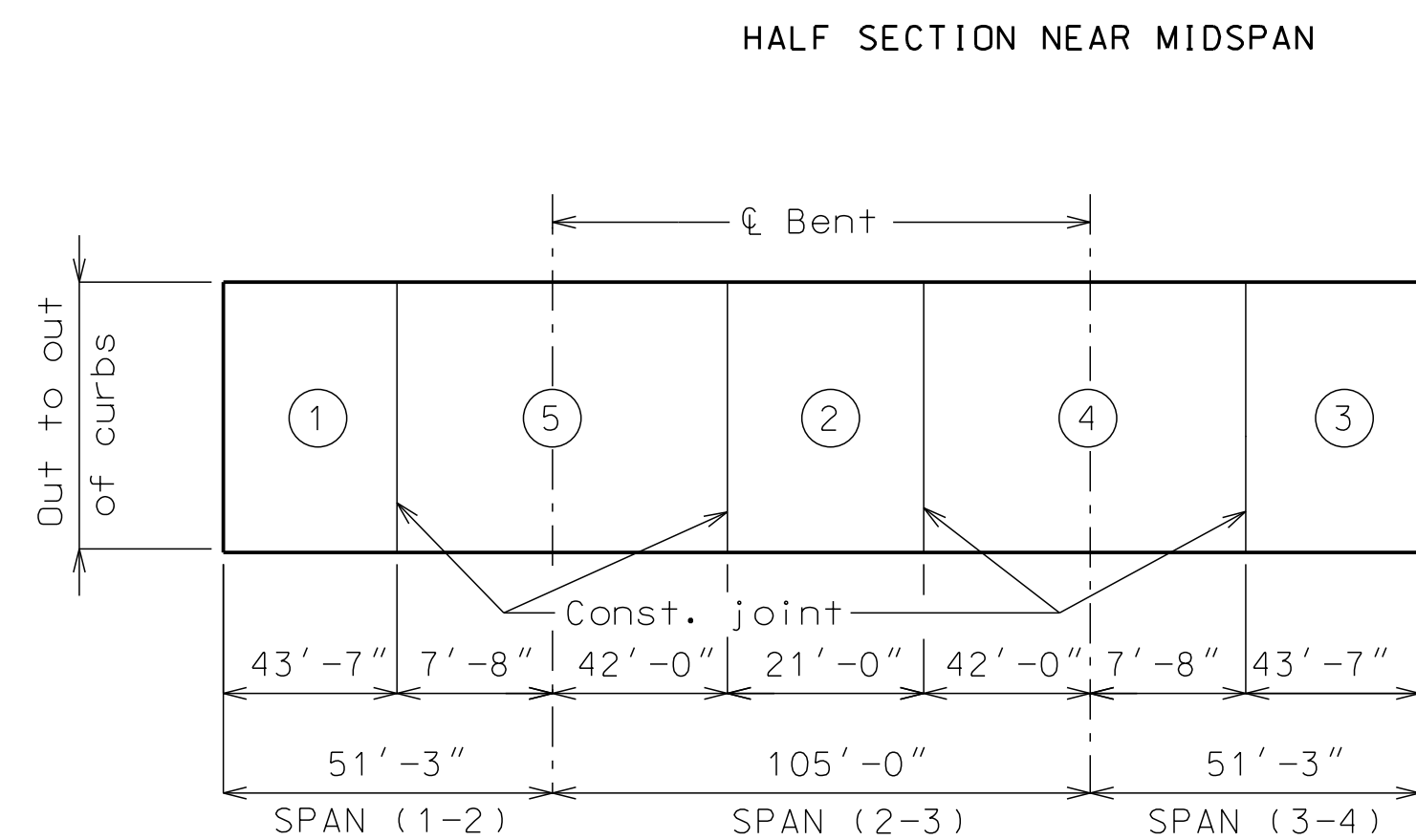
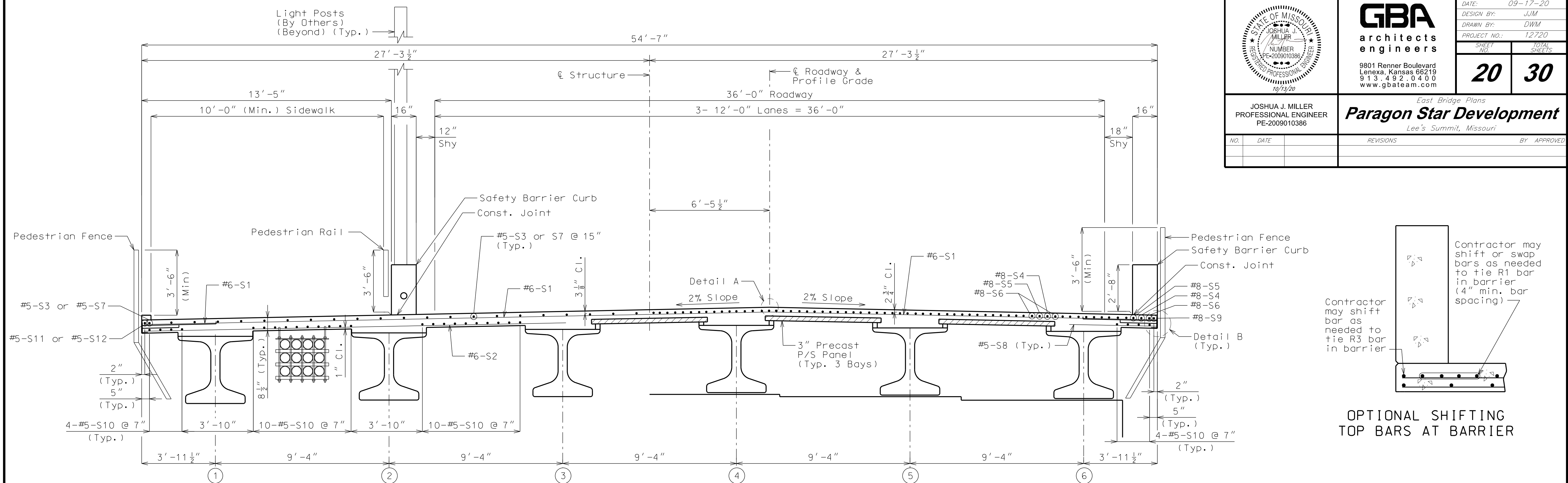
PLAN OF SLAB SHOWING REINFORCING

Note: This drawing is not to scale. Follow dimensions.

Note: Barrier and curb reinforcement not shown for clarity.

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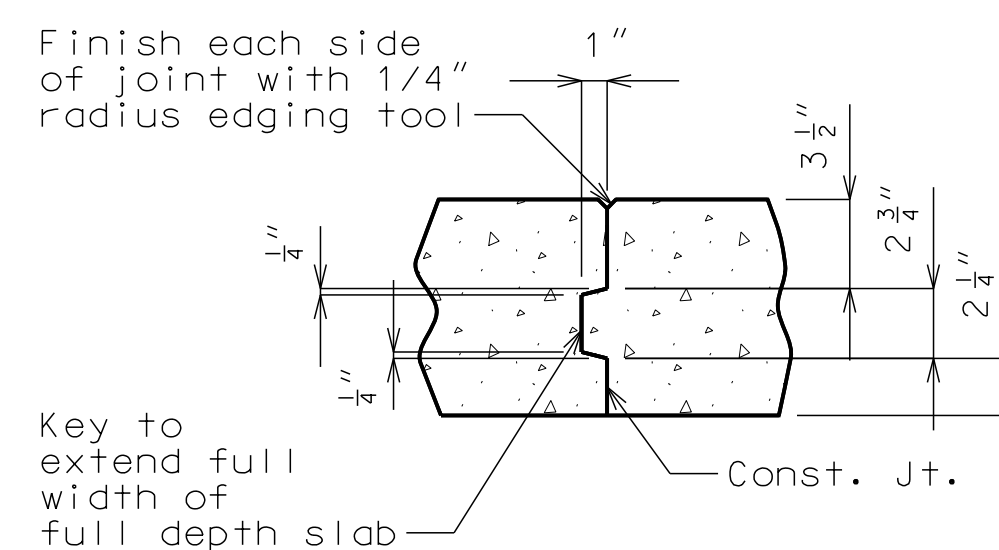




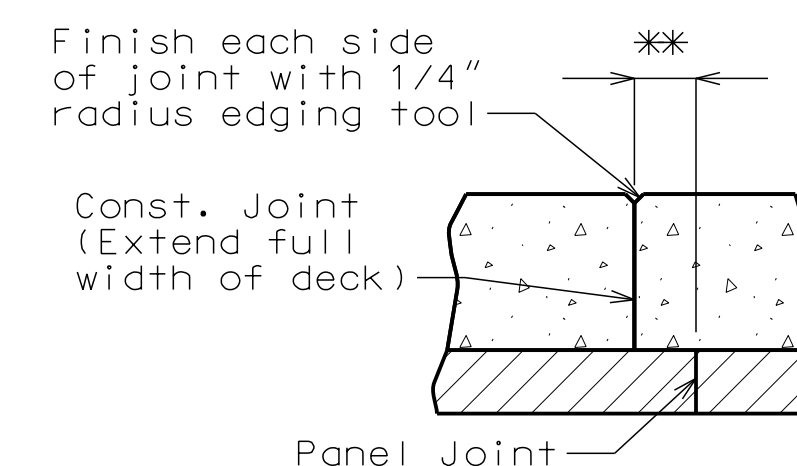
Basic sequence	Sequence of Pours					Min. rate of pour cu. yds./hr.	
	Direction					With retarder	
	1	2	3	4	5	25	
Either direction							
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate pours "A"	1		5 + 2		4 + 3		38
	End to 5		1 to 4		2 to end		
Alternate pours "B"	1 + 5 + 2			4 + 3			38
	End to 4			2 to end			
Alternate pours "C"	1 + 5 + 2 + 4 + 3						38
	End to end						

Note: The contractor shall pour and satisfactorily finish the slab pours at the rate given.

## SLAB POURING SEQUENCE



FULL DEPTH SLAB



SLAB ON PANELS

SLAB CONSTRUCTION JOINT

Notes:

For details of precast prestressed panels, see Sheet No. 17.

For reinforcement of Barrier Curb not shown,  
see Sheets No. 21-23 and 26.

For Theoretical Bottom of Slab Elevations,  
Girder Camber Diagram and Theoretical Slab  
Haunching Diagram, see Sheet No. 18.

For Plan of Slab Showing Reinforcement, see  
Sheet No. 19.

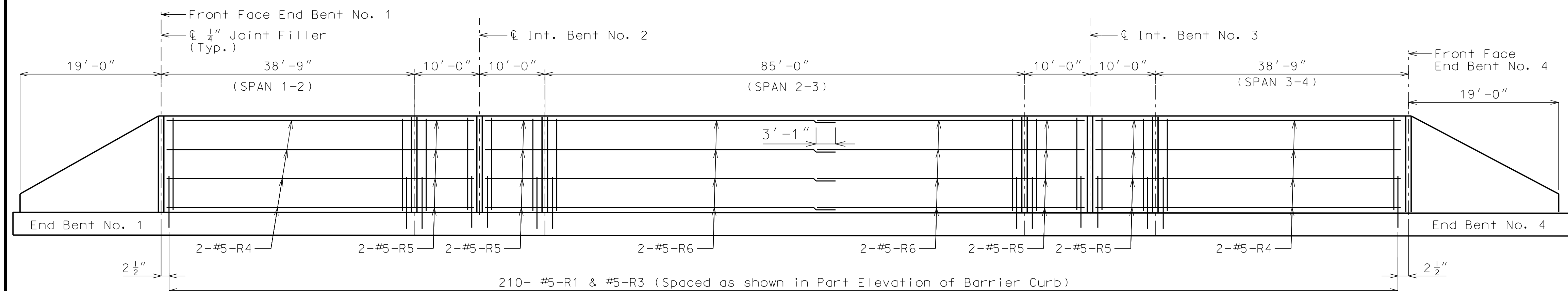
For Conduit details, see Sheets No 26 and 27.

For Pedestrian Fence and Pedestrian Rail details, see Architectural Sheets.

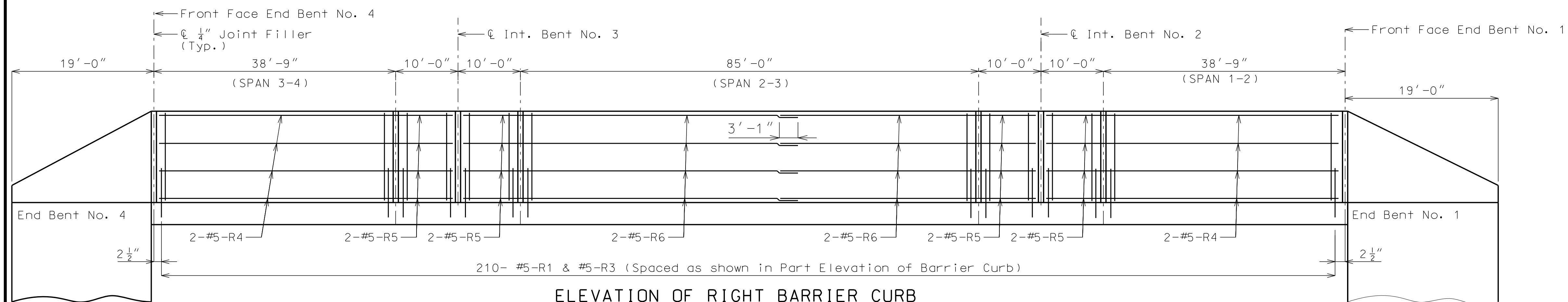
For median details, see Street Plans.

The sidewalk segment of the bridge shall have a minimum cross-slope of 1.5%. Cross-slopes steeper than 2% are not compliant with ADA and must be made compliant by whatever means necessary, including removal and replacement.

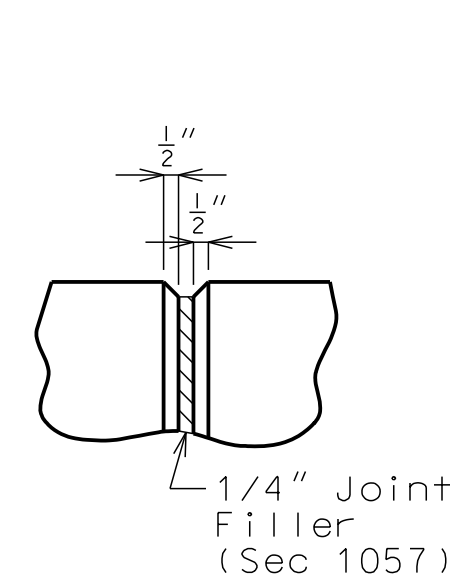
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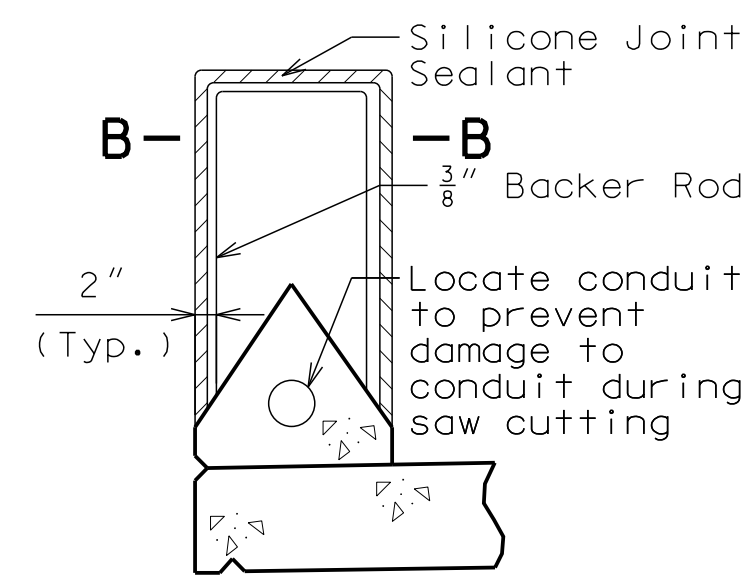
ELEVATION OF LEFT BARRIER CURB  
Longitudinal dimensions are horizontal.



ELEVATION OF RIGHT BARRIER CURB  
Longitudinal dimensions are horizontal.

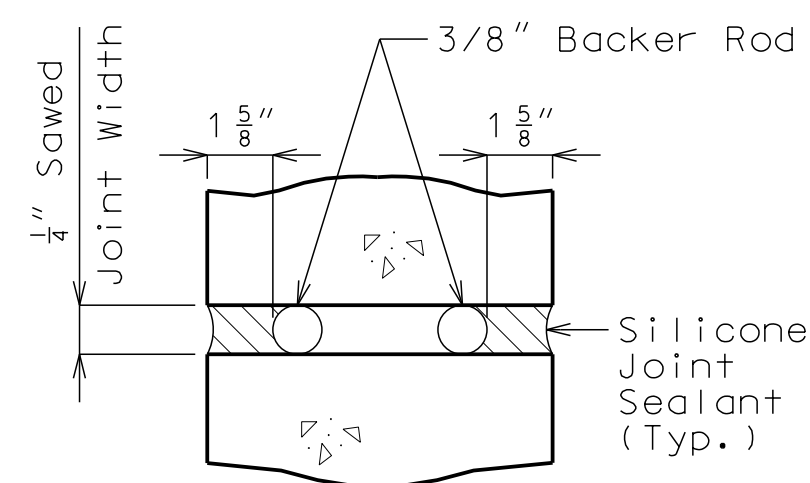


PART ELEVATION AT FORMED JOINT

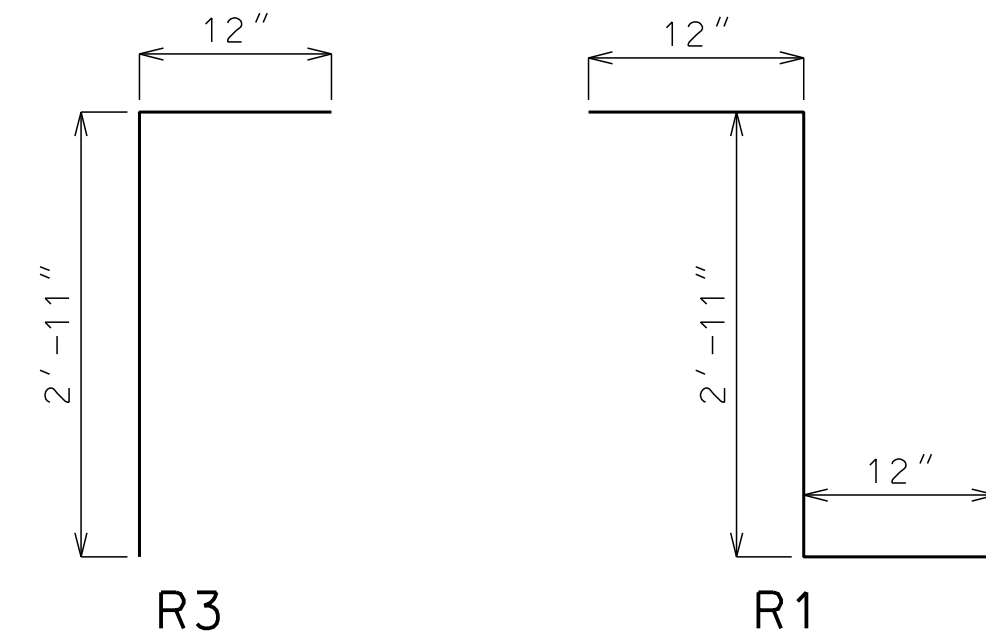


SECTION THRU SAW CUT JOINT

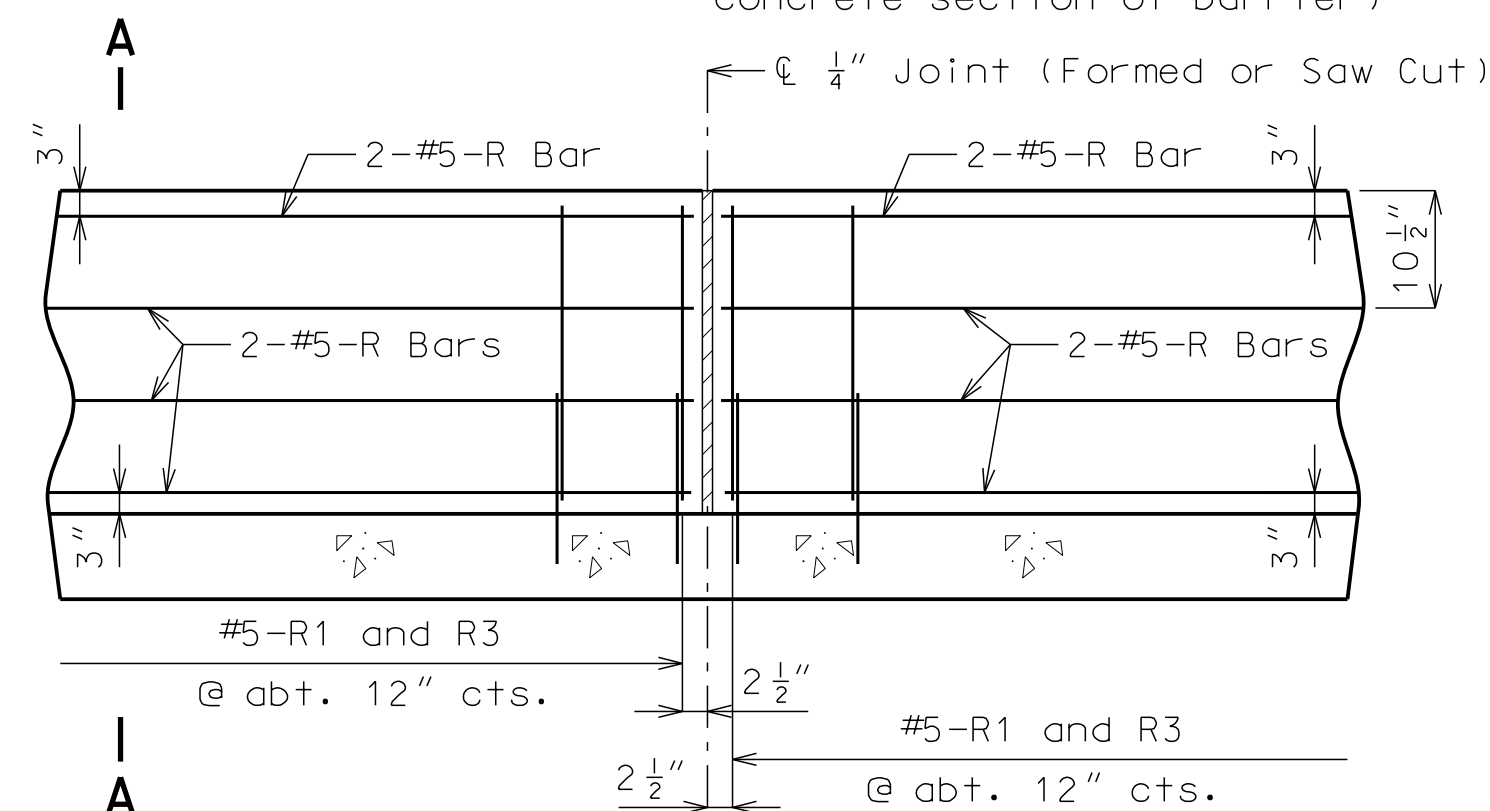
(Use when conduit is required)  
(Place conduit in center of concrete section of barrier)



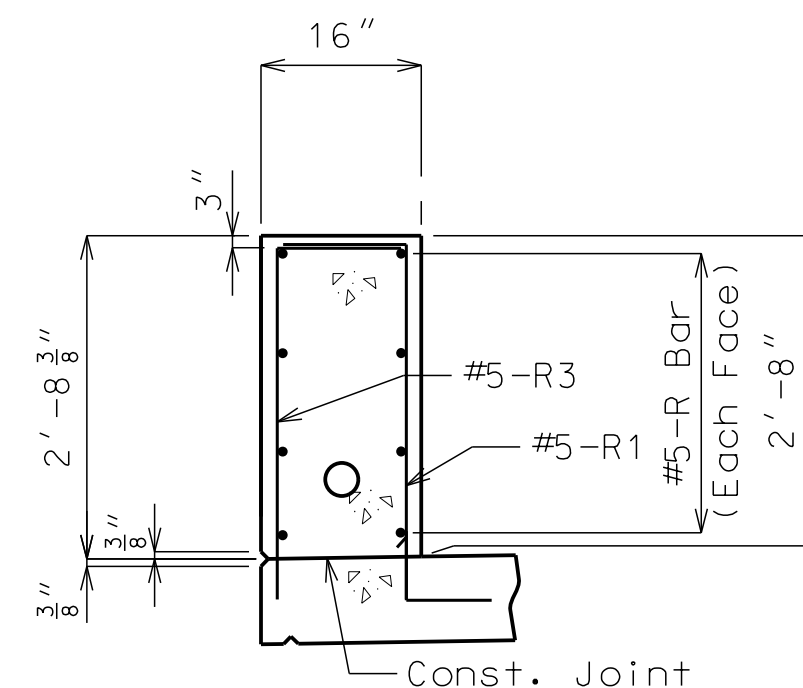
SECTION B-B



BAR BENDING DIAGRAM

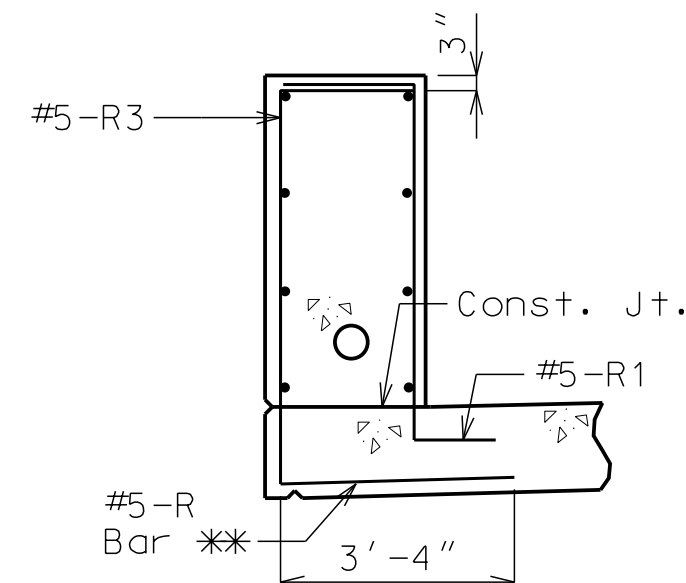


PART ELEVATION OF BARRIER CURB



SECTION A-A

The cross-sectional area above the slab = 3.56 sq. ft.



R-BAR PERMISSIBLE ALTERNATE SHAPE

\*\* The R3 bar and #5 bottom transverse slab bar in cantilever (P/S panels only) combination may be furnished as one bar as shown, at the contractor's option.

## CONVENTIONAL-FORMED BARRIER CURB

Note: This drawing is not to scale. Follow dimensions.

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	DESIGN BY: JJM	
	DRAWN BY: DWM	
	PROJECT NO.: 12720	
 9801 Renner Boulevard Lenexa, Kansas 66219 913.492.0400 www.gbateam.com	SHEET NO.	TOTAL SHEETS
	21	30
East Bridge Plans <b>Paragon Star Development</b> Lee's Summit, Missouri		
JOSHUA J. MILLER PROFESSIONAL ENGINEER PE-2009010386		
NO.	DATE	REVISIONS
		BY
		APPROVED

### General Notes

Top of barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Concrete in the barrier curb shall be Class B-1.

Concrete traffic barrier delineators shall be placed on top of the barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

For Conduit Details, see Sheets No. 26 and 27.

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03/05/2021



STATE OF MISSOURI

JOSHUA J. MILLER

REGISTERED PROFESSIONAL ENGINEER

10/13/20

PE-2009010386

GBA

architects  
engineers

9801 Renner Boulevard  
Lenexa, Kansas 66219  
913.492.0400  
www.gbateam.com

DATE: 09-17-20

DESIGN BY: JJM

DRAWN BY: DWM

PROJECT NO.: 12720

SHEET NO. 22

TOTAL SHEETS 30

JOSHUA J. MILLER  
PROFESSIONAL ENGINEER  
PE-2009010386

East Bridge Plans  
**Paragon Star Development**  
Lee's Summit, Missouri

NO. DATE

REVISIONS BY APPROVED

SECTION A-A

SECTION B-B

SECTION C-C

K10  
\*\* Varies 8" to 2'-10"

ELEVATION  
END BENT NO. 1

ELEVATION  
END BENT NO. 4

PLAN  
END BENT NO. 1

PLAN  
END BENT NO. 4

**General Notes**  
Concrete traffic barrier delineators shall be placed on top of the barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617 of the Missouri Standard Specifications for Highway Construction. Delineators on bridges with two-lane, two way traffic shall have retroreflective sheeting on both sides.

**Reinforcing Steel:**  
Minimum clearance to reinforcing steel shall be 1½".

CONVENTIONAL-FORMED LEFT BARRIER CURB  
AT END BENTS ON CONCRETE APPROACH SLAB

Note: This drawing is not to scale. Follow dimensions.

RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI  
03/05/2021

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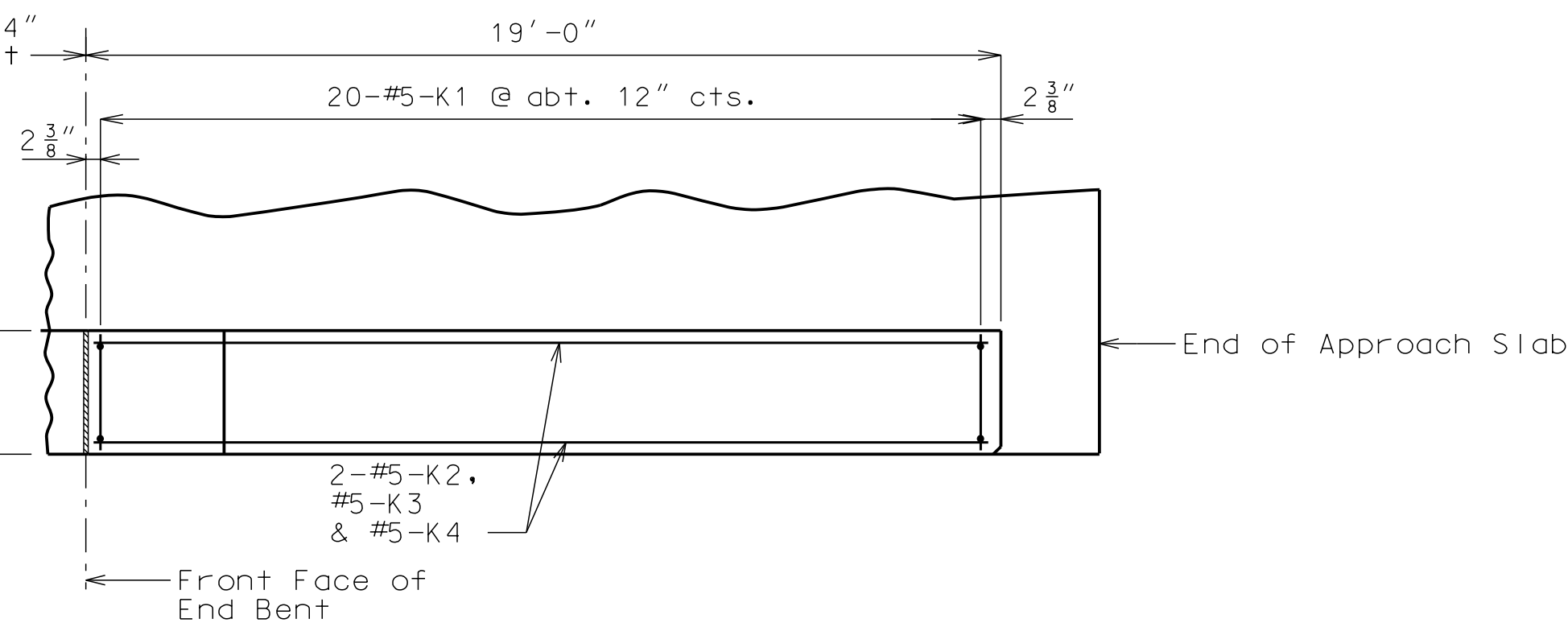
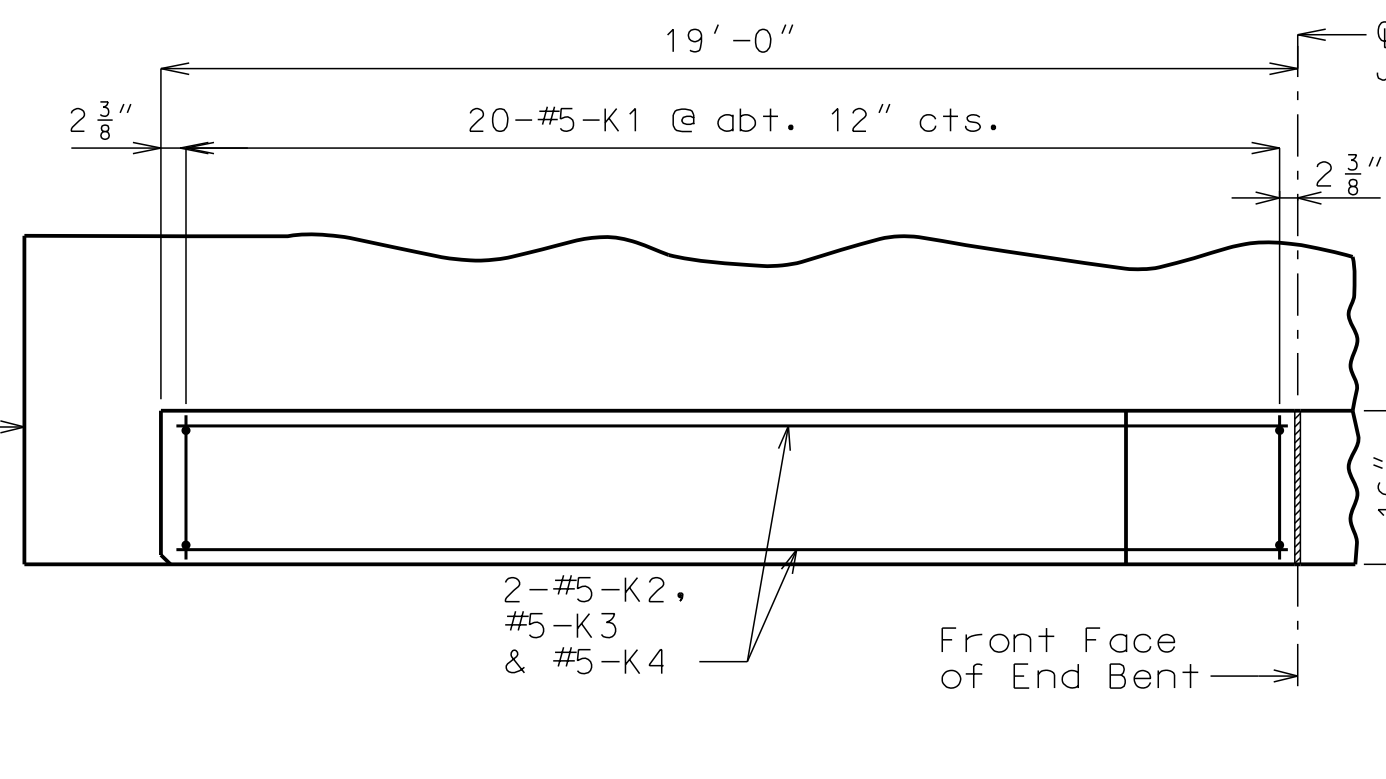
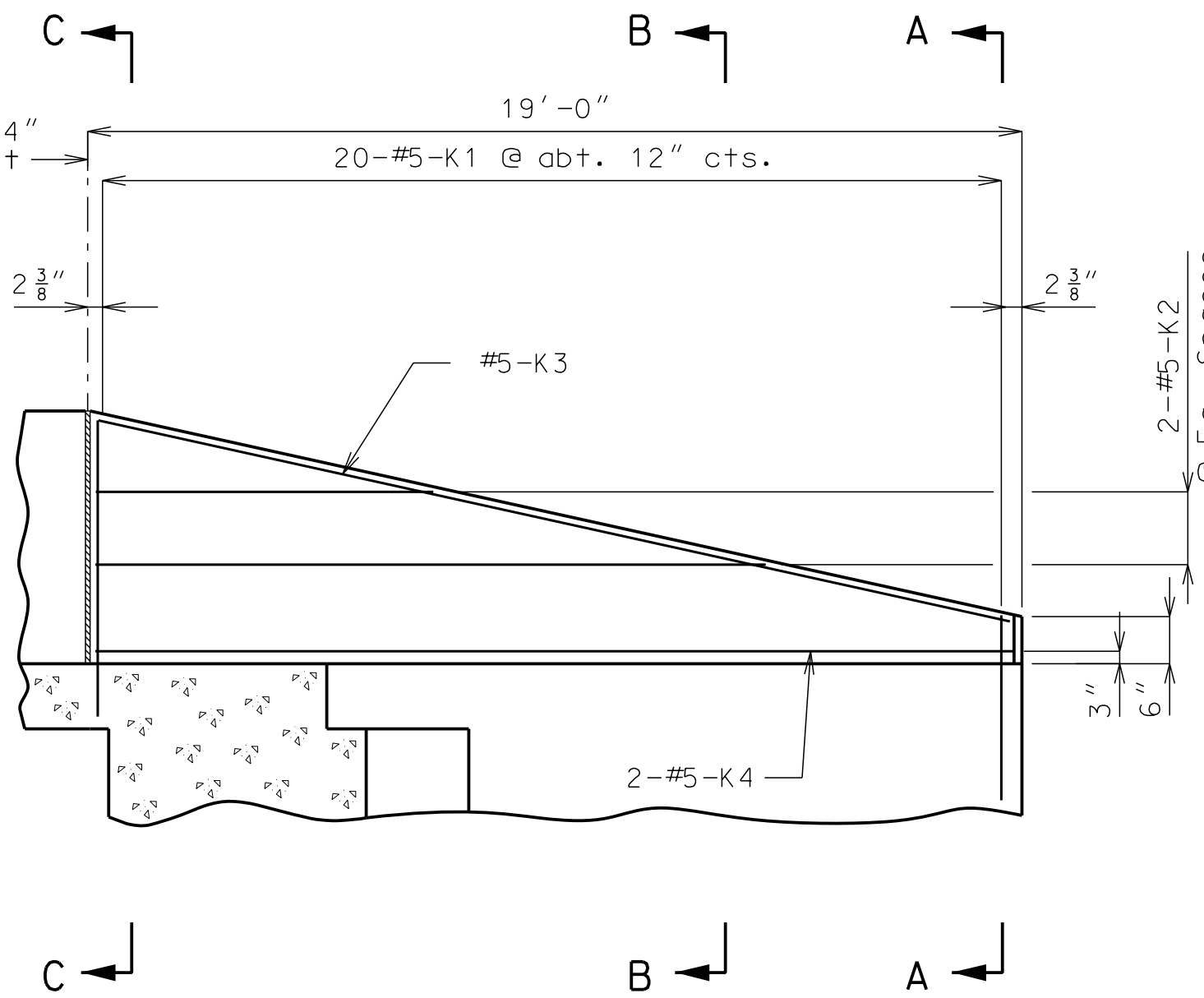
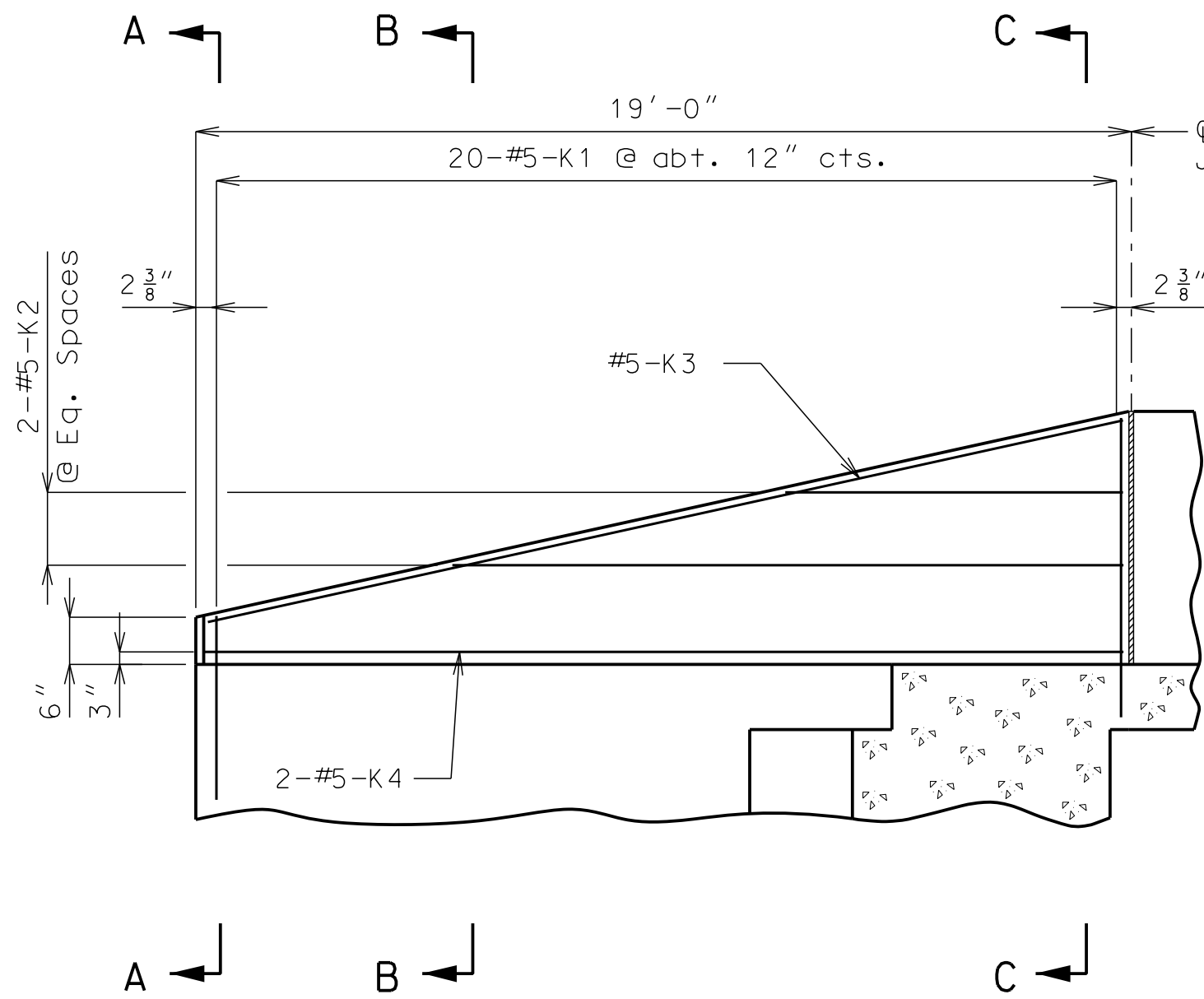
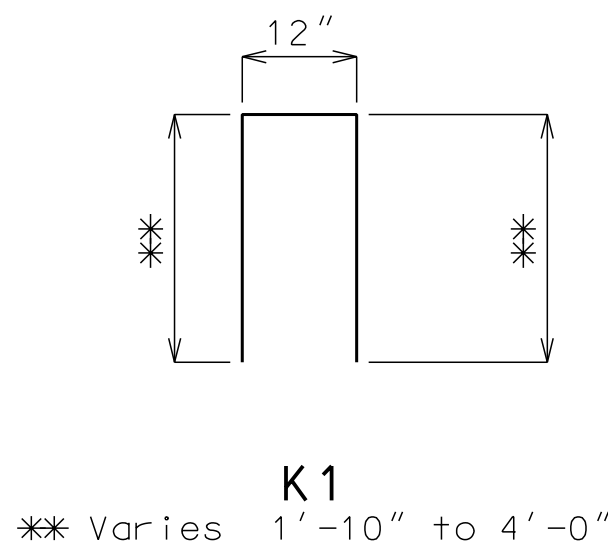
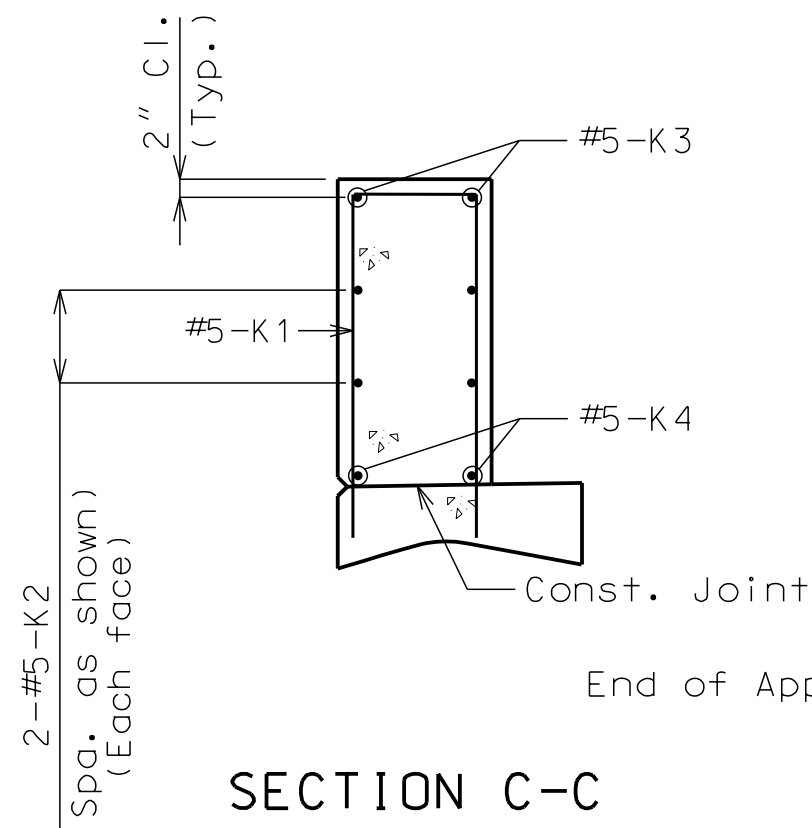
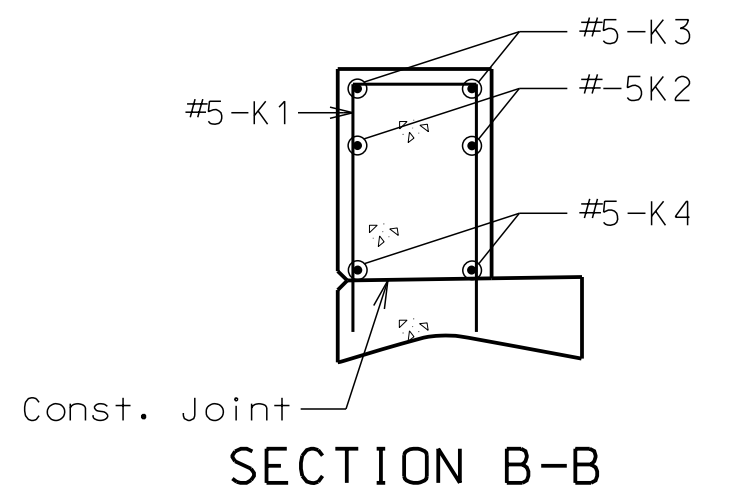
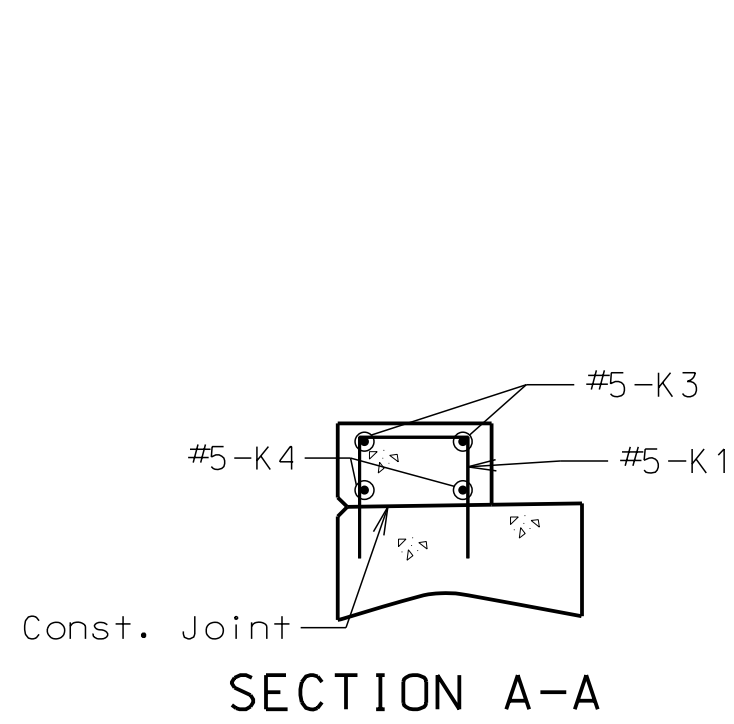
East Bridge Plans

Paragon Star Development

Lee's Summit, Missouri

JOSHUA J. MILLER  
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PE-2009010386

NO.	DATE	REVISIONS	BY	APPROVED



General Notes

Concrete traffic barrier delineators shall be placed on top of the barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617 of the Missouri Standard Specifications for Highway Construction. Delineators on bridges with two-lane, two way traffic shall have retroreflective sheeting on both sides.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2".

CONVENTIONAL-FORMED RIGHT BARRIER CURB AT END BENTS ON WING

Note: This drawing is not to scale. Follow dimensions.

RELEASE FOR  
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LEE'S SUMMIT, MISSOURI  
03/05/2021



STATE OF MISSOURI

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10/13/20

NUMBER  
PE-2009010386

DATE: 09-17-20

DESIGN BY: JJM

DRAWN BY: DWM

PROJECT NO.: 12720

SHEET NO. 24

TOTAL SHEETS 30

GBA

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East Bridge Plans

Paragon Star Development

Lee's Summit, Missouri

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**ELEVATION**  
(Looking North)  
(Pedestrian Fence not shown for clarity. See Architectural Sheets.)

Notes:

For details of Light Support and Barrier reinforcement, see Sheet No. 26.

For conduit details, see Sheets No. 26 and 27.

For light standards, light baseplate, and wiring, see "Public Street, Storm Sewer and Street Lighting Plans for Paragon Star Development Paragon Parkway" plans set.

For curb and raised median details, see Sheet No. 25.

For aesthetic details and connections, see Architectural Sheets.

**PLAN**  
(Conduit System with hanger not shown for clarity)  
**GENERAL PLAN AND ELEVATION OF AESTHETIC DETAILS, LIGHTING, AND CONDUIT**

Note: This drawing is not to scale. Follow dimensions.

**DETAIL A**

**DETAIL B**

RELEASE FOR  
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STATE OF MISSOURI

JOSHUA J. MILLER

REGISTERED PROFESSIONAL ENGINEER

NUMBER

PE-2009010386

10/13/20

DATE:

09-17-20

DESIGN BY:

JJM

DRAWN BY:

DWM

PROJECT NO.:

12720

SHEET NO.

25

TOTAL SHEETS

30

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Lenexa, Kansas 66219

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East Bridge Plans

Paragon Star Development

Lee's Summit, Missouri

NO.

DATE

REVISIONS

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**PART ELEVATION AT FORMED JOINT**

1"Ø PVC pipe with screen and geotextile cover to prevent sand escape, approx. 10' spacing.

#4P4 Spa. @ 18"

16" Lap Splice (Typ.)

1" Sand

Pavers per Paragon Standards

R = 1"

#4P2

#4P5 (Typ.) Drill & Grout @ 18"

#4P3 (Typ.) (20" Min. Lap)

#4P1 Spa. @ 18" Ea. Direction

#4P3 Spa. @ 18"

1/4" Joint Filler (Sec 1057)

**TYPICAL SECTION**

6'-0"

3'-0"

6"

4"

2"

8 1/2" Deck

Ø Roadway & Profile Grade

Ø Girder

**SIDEWALK CURB DETAIL ON CONCRETE APPROACH SLAB**

6"x3" Curb

Const. Joint

6"

4"

3"

8 1/2"

Pedestrian Fence

Edge of Slab

#4 - S100

#4 - S101 @ 12"

For curb extents see Sheet No. 24. Curb joints are similar to barrier curb joints.

**SIDEWALK CURB DETAIL ON WING**

6"x3" Curb

Const. Joint

6"

4"

3"

8 1/2"

Pedestrian Fence

Edge of Slab

#4 - S100

#4 - S101 @ 12"

For curb extents see Sheet No. 24. Curb joints are similar to barrier curb joints.

**PLAN OF MEDIAN ON BRIDGE & APPROACH SLAB**

6'-3 1/4"

10'-0"

10'-0"

38'-9"

6'-0" Median

6"

6"

Ø 1/4" Joint Filler

Ø 1/4" Joint Filler

Ø 1/4" Joint Filler

Ø Roadway & Profile Grade

Face of Pier Beam (below) Int. Bent No. 3

Ø Int. Bent No. 3

Ø End Bent No. 4

Ø 1/4" Joint Filler

End of Slab

Ø Roadway & Profile Grade

Front Face of End Bent No. 4

Approach Slab

Ø 3'-0" x 18" Sleeper Slab and Ø 3/4" Joint Filler

Note:  
See Street Plans for median details and extents.

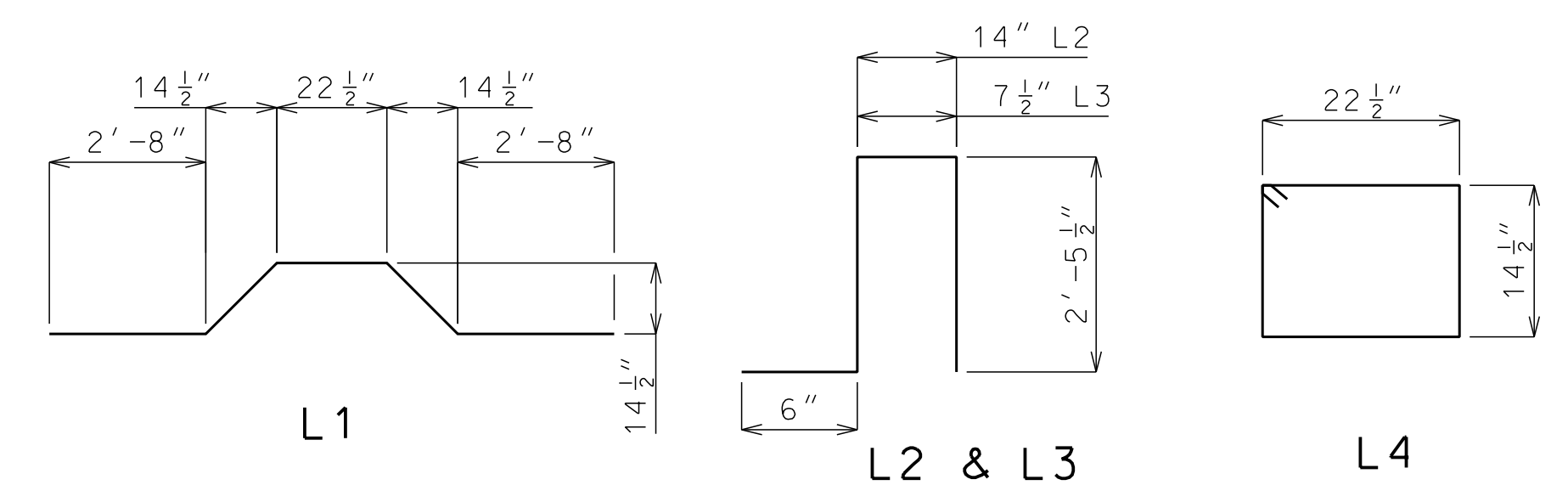
## MEDIAN AND CURB DETAILS

Note: This drawing is not to scale. Follow dimensions.

RELEASE FOR  
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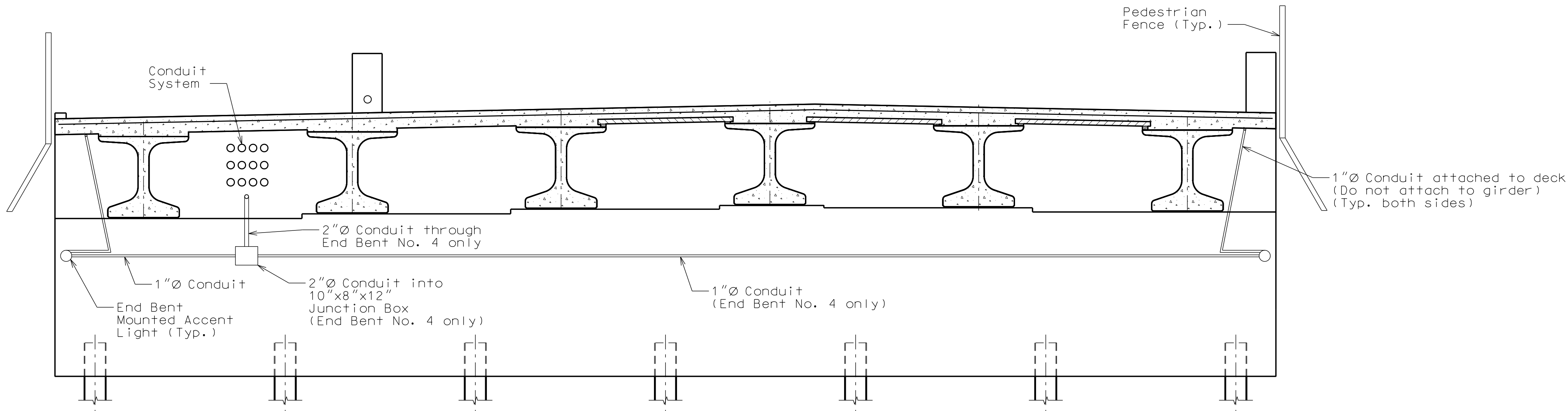


Cast-in-place anchors for the 12-duct conduit system shall be designed per the conduit hanger's engineer and the design shall be signed and sealed by a registered Professional Engineer in the State of Missouri. The design and details shall be submitted to the owner for review a minimum for four weeks prior to the start of fabrication.

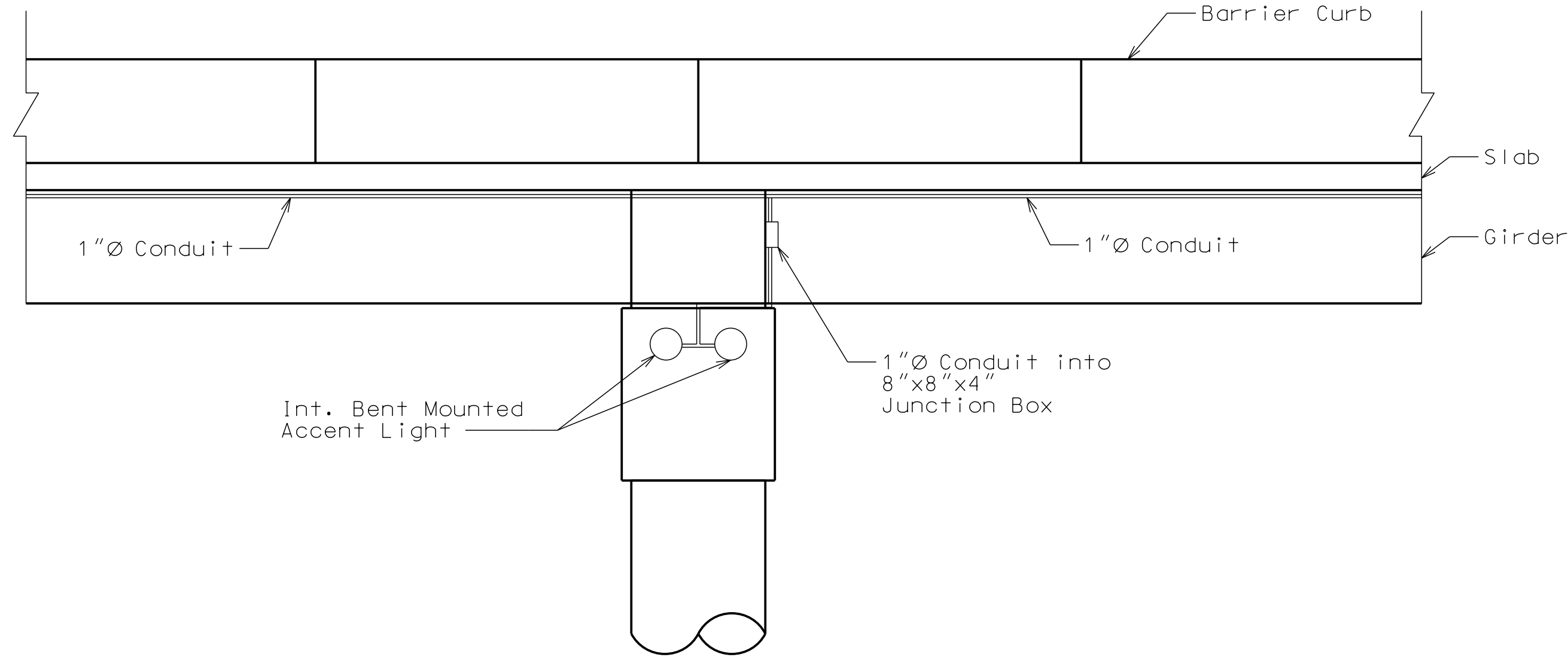


## BENDING DIAGRAMS

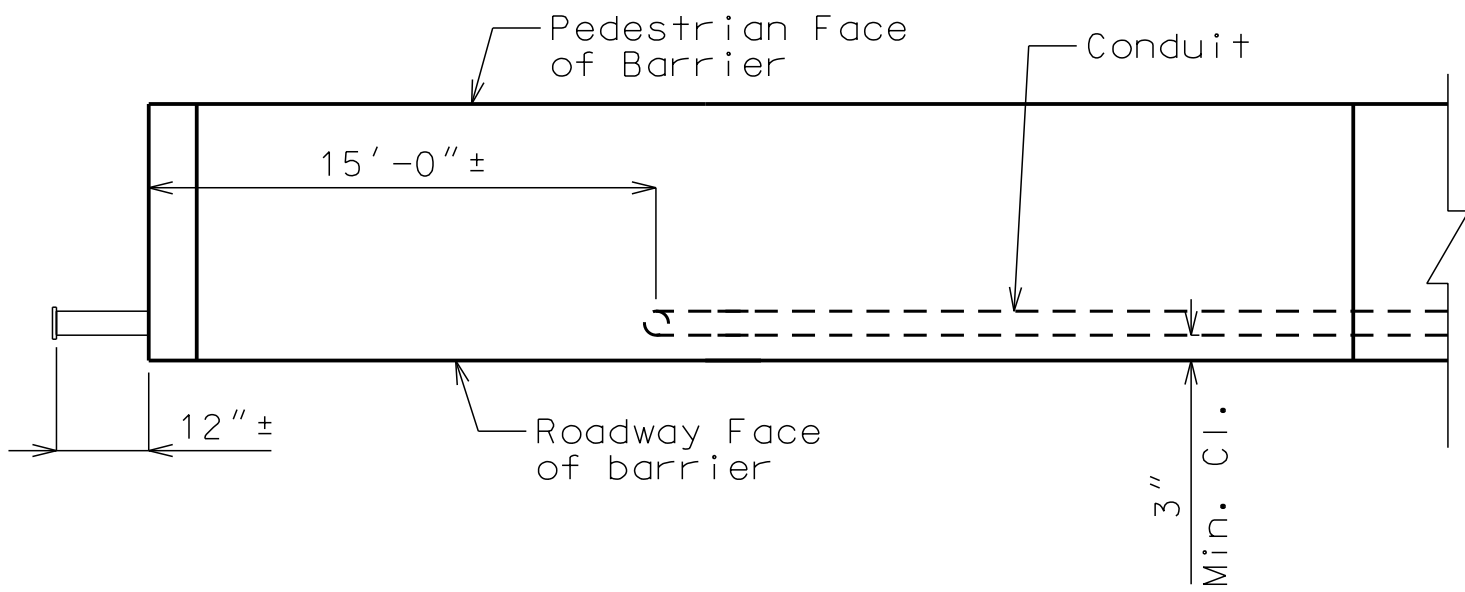
Note: This drawing is not to scale. Follow dimensions.



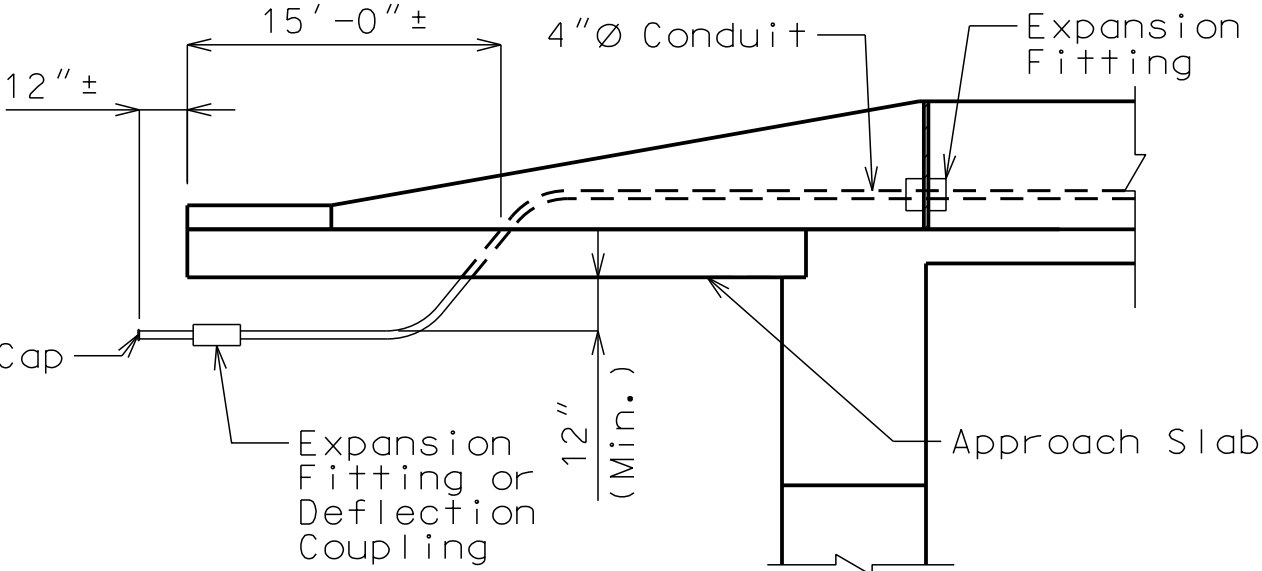
TYPICAL END BENT ELEVATION SHOWING  
LIGHTING AND CONDUIT  
(End Bent No. 4 shown, End Bent No. 1 similar)



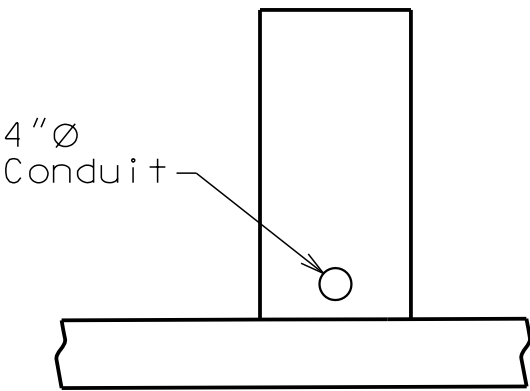
TYPICAL INT. BENT ELEVATION SHOWING  
LIGHTING AND CONDUIT  
(Right fascia shown, left fascia similar)



PLAN AT LEFT BARRIER CURB  
(Left barrier at End Bent No. 1 shown,  
left barrier at End Bent No. 4 similar)



ELEVATION SHOWING CONDUITS  
NEAR END BENTS AT LEFT  
BARRIER CURB  
(Left barrier at End Bent No. 1 shown,  
Left barrier at End Bent No. 4 similar)



TYPICAL SECTION  
OF LEFT  
BARRIER CURB



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DATE:	09-17-20
DESIGN BY:	JJM
DRAWN BY:	DWM
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
27	30

JOSHUA J. MILLER  
PROFESSIONAL ENGINEER  
PE-2009010386

East Bridge Plans  
**Paragon Star Development**  
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

RELEASE FOR  
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CONDUIT DETAILS

Note: This drawing is not to scale. Follow dimensions.



STATE OF MISSOURI  
JOSHUA J. MILLER  
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10/13/20

DATE: 09-17-20  
DESIGN BY: JJM  
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PROJECT NO.: 12720  
SHEET NO. 28  
TOTAL SHEETS 30

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East Bridge Plans  
**Paragon Star Development**  
Lee's Summit, Missouri

JOSHUA J. MILLER  
PROFESSIONAL ENGINEER  
PE-2009010386

NO. DATE

REVISIONS

BY APPROVED

20'-0"

Outside Face of 6"x3" Curb

#5 Bars at 12" cts. (Top and bottom)

3'-0" x 18" Sleeper Slab and 3/4" Joint Filler

3-#6 Bars in Sleeper Slab (Top and bottom)

BRIDGE

BRIDGE APPROACH SLAB

CONCRETE PAVEMENT (Roadway item)

End of Slab

3/4" Joint Filler (Typ.) \*

Outside Face of Bridge Barrier Curb

1/4" Joint Filler between Curbs (Typ.) \*

Outside Face of Curb and Bridge Approach Slab (Typ.)

#5 Bars at 12" cts. (Top)

#6 Bars at 5" cts. (Bottom)

#4 Stirrup Bars at abt. 12" cts. (In sleeper slab)

20'-0"

PART PLAN SHOWING REINFORCEMENT

Joint Sealing Material

2 3/4" Ø (Clear opening)

Sand

Approach Slab Thickness

UNDERSEAL ACCESS HOLE DETAIL (If required)

Finish each side of joint with 1/4" radius edging tool

2"

Const. Joint

1/3 Depth

CONST. JOINT DETAIL

Curb & Gutter

End of Barrier Transition

Align gutter line of barrier transition with roadway curb and gutter.

1" Chamfer

3/4" Joint Filler \*

1/4" Jt. Filler \*

SECTION E-E (Between curbs)

(See Street plans for concrete curb on Approach Slab to roadway curb details)

3/4" Jt. Filler (Typ.) \*

6"x3" Curb

#5 Bars at 12" cts.

Transition from roadway crown to bridge crown as necessary

#5 Bars at 12" cts.

#5 Bars at 12" cts.

#6 Bars at 5" cts.

Bridge Barrier Curb (Typ.)

SECTION A-A

Transition from roadway crown to bridge crown as necessary

#5 Bars at 12" cts.

Curb (Typ.)

#5 Bars at 12" cts.

#5 Bars at 12" cts.

#6 Bars at 5" cts.

SECTION B-B

#5-H Bars at abt. 12" cts. (See end bent sheets)

End of Slab

12"

#5 Bars at 12" cts. (Top and bottom)

3'-0" x 18" Sleeper Slab and 3/4" Jt. Filler

#5 Bars at 12" cts.

Timber Header

2 Layers of 30-lb (Min.) Roofing Felt (Placed between bridge approach slab, roadway concrete pavement and sleeper slab)

#6 Bars at 5" cts.

2 1/2"

2 Layers of 4 Mil Polyethylene Sheeting (Placed between bridge approach slab and granular base) in accordance with ASTM E 1745 Performance Class A

Type 5 Aggregate Base

Perforated Drain Pipe (Slope to drain)

18"

3'-0"

3-#6 Bars (Top and bottom)

#4 Stirrup Bars at abt. 12" cts.; 2'-9"x 13 1/2" out to out; Actual length = 8'-3"; CRSI 90° stirrup hook.

Bottom of Sleeper Slab

SECTION C-C

DETAILS OF BRIDGE APPROACH SLAB (MAJOR ROAD)

3" x 10" Timber Header

1"

3"

3/4" Ø x 8" Lag Bolt (Washer under head) with 4" Coil Tie Insert

Roadway Face of Bridge Approach Slab

3" x 8" Wood Block or Optional 3" Wedge Blocks

Top of Sleeper Slab

6" x 1" Wood Scab (Nail to block)

SECTION D-D DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

Header Supports at abt. 3'-0" cts.

Roadway Surface and 3" x 10" Timber Header

6" x 1" Wood Scab

3" x 8" Wood Block

Optional 3" Wedge Block

Top of Sleeper Slab

8" (Min.)

PART ELEVATION

Note: This drawing is not to scale. Follow dimensions.

General Notes:

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #5 bars 29".

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

The contractor shall pour and satisfactorily finish the bridge before pouring the bridge approach slab.

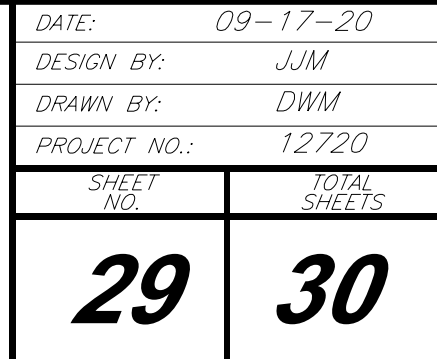
For Concrete Approach Pavement details, see Street plans.

See Street Plans for details of Curb on Approach Slab.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract lump sum price for the bridge.

\* Seal joint between vertical face of approach slab and wing with "Silicone Joint Sealant for Saw Cut and Formed Joints" in accordance with Sec 717.

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03/05/2021



*East Bridge Plans*  
**Paragon Star Development**  
*Local Community Meeting*

NO.	DATE	REVISIONS	BY	APPROVED



As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					END BENT NO. 1
1					
2					
3					
4					
5					
6					
7					
					INT. BENT NO. 2
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					INT. BENT NO. 3
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
					END BENT NO. 4
35					
36					
37					
38					
39					
40					
41					

**Note:**  
Indicate in remarks column:  
A. Pile type and grade  
B. Batter  
C. Driven to practical refusal  
D. PDA test pile  
E. Minimum tip elevation controlled  
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

This sheet to be completed by City construction personnel.

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LEE'S SUMMIT, MISSOURI  
03/05/2021**

## AS-BUILT PILE DATA

Note: This drawing is not to scale. Follow dimensions.



THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 02195051 PARAGON STAR BRID.GPJ TERRACON\_DATATEMPLATE.GDT 7/16/19

BORING LOG NO. B-5													Page 1 of 1			
PROJECT: Paragon Star Bridges						CLIENT: GBA Lenexa, KS										
SITE: I-470 and View High Drive Lee's Summit, MO																
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan  Latitude: 38.9389° Longitude: -94.4442°  Approximate Surface Elev.: 802 (Ft.) +/-				DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES	
		DEPTH ELEVATION (Ft.) 0.5 801.5+/-														
2		6" ROOT ZONE														
		LEAN CLAY (CL), brown to gray, medium stiff - with organics to 1.5 feet														
3		- very soft to soft, with fine sand below 8 feet														
41.0 761+/-																
SHALE, with limestone lenses, gray, highly to moderately weathered																
48.7 753.5+/-																
Boring Terminated at 48.7 Feet																
Stratification lines are approximate. In-situ, the transition may be gradual. Classification estimated from disturbed samples. Core samples and petrographic analysis may reveal other rock types.																
Advancement Method: 0 to 10 ft: Continuous Flight Augers 10 to 48.7 ft.: Wash Bore				See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).				Notes:								
Abandonment Method: Boring backfilled with Auger Cuttings				See Supporting Information for explanation of symbols and abbreviations. Elevations were interpolated from a topographic site plan.												
WATER LEVEL OBSERVATIONS				Terracon				Boring Started: 07-01-2019				Boring Completed: 07-01-2019				
8 ft. while drilling								Drill Rig: 884				Driller: DB				
7 ft. at completion								Project No.: 02195051								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 02195051 PARAGON STAR BRID.GPJ TERRACON\_DATATEMPLATE.GDT 7/16/19

BORING LOG NO. B-7													Page 1 of 1		
PROJECT: Paragon Star Bridges						CLIENT: GBA Lenexa, KS									
SITE: I-470 and View High Drive Lee's Summit, MO															
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan  Latitude: 38.9389° Longitude: -94.4435°  Approximate Surface Elev.: 816 (Ft.) +/-				DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		DEPTH ELEVATION (Ft.) 0.5 815.5+/-													
2		6" ROOT ZONE													
		LEAN CLAY (CL), with fine sand, brown to gray, medium stiff													
3		- very soft to soft below 8.5 feet													
43.5 772.5+/-															
SHALE, gray, highly to moderately weathered															
48.7 767.5+/-															
Boring Terminated at 48.7 Feet															
Stratification lines are approximate. In-situ, the transition may be gradual. Classification estimated from disturbed samples. Core samples and petrographic analysis may reveal other rock types.															
Advancement Method: 0 to 10 ft: Continuous Flight Augers 10 to 48.7 ft.: Wash Bore				See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).				Notes:							
Abandonment Method: Boring backfilled with Auger Cuttings				See Supporting Information for explanation of symbols and abbreviations. Elevations were interpolated from a topographic site plan.											
WATER LEVEL OBSERVATIONS				Terracon				Boring Started: 07-02-2019				Boring Completed: 07-02-2019			
8.5 ft. at completion								Drill Rig: 884				Driller: DB			
								Project No.: 02195051							

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LEE'S SUMMIT, MISSOURI  
03/05/2021

BORING DATA

Note: For locations of borings, see Sheet No. 1.

Note: This drawing is not to scale. Follow dimensions.



GENERAL NOTES

1. "A" SERIES DRAWINGS PERTAIN TO, BUT ARE NOT LIMITED TO: BRIDGE RAILS, RAIL STRUCTURE, RAIL FINISHES, AND BRIDGE LIGHTING.
2. ALL SPOT ELEVATIONS ARE TO STATE BASE PLANE COORDINATES USED BY THE BRIDGE AND CIVIL SCOPES.
3. ALL SPOT ELEVATIONS ARE FOR GENERAL COORDINATION PURPOSES ONLY. REFERENCE CIVIL AND BRIDGE SCOPES FOR OFFICIAL ELEVATIONS.
4. ALL WELDS ARE TO BE CONTINUOUS AND WATER TIGHT U.N.O.
5. ALL STEEL IS TO BE FULLY GALVANIZED. ANY GALVANIZING REMOVED DURING THE CONSTRUCTION OR INSTALLATION PROCESS SHALL BE REPAIRED WITH A ZINC-RICH PRIMER. BECAUSE ZINC-RICH PRIMER IS UNDERSTOOD TO BE A SHORTER LIVED FINISH AS WELL AS HAVING A DIFFERENT APPEARANCE THAN ACTUAL GALVANIZING, EVERY EFFORT SHALL BE MADE TO MINIMIZE RELIANCE UPON ZINC-RICH PRIMER.
6. ANY DIMENSIONS BETWEEN PRIMARY STRUCTURAL ELEMENTS (SUCH AS GRIDS) ARE FOR REFERENCE ONLY. REFERENCE BRIDGE STUCTURE DRAWINGS FOR OFFICIAL DIMENSIONS OF BRIDGE STRUCTURE.
7. ALSO FOR REFERENCE ONLY ARE PORTRAYAL OF BRIDGE COMPONENTS, INCLUDING BUT NOT LIMITED TO: BRIDGE DECK, CURB TRANSITION BARRIERS, ROADWAY BARRIERS, GIRDERS, PIER BEAMS, PIERS, ABUTMENTS, ABUTMENT WING WALLS, AND APPROACH SLABS. REFERENCE BRIDGE STUCTURE DRAWINGS FOR OFFICIAL DOCUMENTATION OF BRIDGE COMPONENTS.
8. REFERENCE CIVIL DRAWINGS FOR ADJACENCT CIVIL SCOPE, INCLUDING BUT NOT LIMITED TO: ADJACENT DRIVE PAVING, CURBS, MEDIANS, AND STREET SIGNAGE.
9. REFERENCE BRIDGE ELECTRICAL/LIGHTING PACKAGE FOR ADDITIONAL LIGHTING INFORMATION AT BRIDGE DECK LIGHTING AND AT BRIDGE SIDE LIGHTING.
10. FOR INFORMATION ON CONDUIT ROUTING, REFERENCE ALL OF THE FOLLOWING: BRIDGE RAIL DRAWINGS, BRIDGE DRAWINGS, ELECTRICAL/LIGHTING DRAWINGS.
11. ALL ELECTRICAL CONDUIT SHALL BE WRAPPED TIGHT TO AND ALIGNED WITH ADJACENT SURFACES. RADIUS CORNERS ARE TO BE KEPT TO BUILDABLE MINIMUM, AND CHANGES IN DIRECTION SHALL BE 90 DEGREES WHERE POSSIBLE.

CODE INFORMATION

IBC 2018  
GUARD RAIL  
HEIGHT: 42" MINIMUM  
WHERE REQUIRED: AT LOCATIONS OF ELEVATION CHANGE > 30".  
STRUCTURAL RESISTANCE FOR HORIZONTAL FORCES  
POINT LOAD: 200 LB  
DISTRIBUTED LOAD: 50 LB / LF  
MAXIMUM OPENING WIDTH: 4"

PROJECT-SPECIFIC TERMINOLOGY

OFFICIAL TERMS USED THROUGHOUT RAIL SCOPE ARE DENOTED BY *ITALICS*.

**BRIDGE AND CIVIL - (FOR REFERENCE ONLY, SEE BRIDGE AND CIVIL DWGS FOR OFFICIAL TERMINOLOGY PERTAINING TO RESPECTIVE SCOPES)**

**DRIVE** - PAVED PATH INTENDED FOR VEHICULAR TRAVEL. ALSO CALLED A ROAD.

**APPROACH SLAB** - ROADWAY SURFACE TRANSITION SITUATED BETWEEN THE *BRIDGE DECK* AND *DRIVE*.

**BRIDGE** - A STRUCTURE SPANNING A LAND AREA OF RELATIVELY LOWER GRADE ELEVATIONS, TYPICALLY CONNECTING *DRIVES* AND/OR *PEDESTRIAN PATHWAYS* ON EITHER SIDE.

**ROADWAY** - AT A PAVED *DRIVE* OR *BRIDGE*, THE PORTION OF CONSTRUCTION INTENDED FOR VEHICULAR TRAVEL.

**SIDEWALK** - TYPICALLY RUNNING PARALLEL WITH AND IN VICINITY TO A *DRIVE*, A PAVED GROUND CONSTRUCTION INTENDED FOR TRAVEL BY INHABITANTS ON FOOT (PEDESTRIANS).

**PEDESTRIAN PATHWAY** - ON A *BRIDGE*, THE PORTION OF THE *BRIDGE DECK* INTENDED FOR INHABITANTS ON FOOT (PEDISTRANS).

**BRIDGE DECK** - THE CONTINUOUS HORIZONTAL CONCRETE SLAB WORKING IN CONCERT WITH THE REST OF THE BRIDGE STRUCTURE. THE DECK'S PRIMARY FUNCTIONS ARE: 1. PROVIDE A FINISH SURFACE FOR VEHICLES AND PEDESTRIANS ON THE *BRIDGE*. 2. (IN SOME CASES) ACT AS A DIAPHRAGM, PROVIDING STABILITY TO OVERALL STRUCTURAL SYSTEM OF THE BRIDGE (RE: BRIDGE DWGS). 3. THE *BRIDGE DECK* AND *BRIDGE DECK EDGE ANGLE* TRANSFER LOADS FROM THE *RAIL ASSEMBLIES* AND *ROADWAY BARRIERS* BACK TO THE *BRIDGE GIRDERS*, *PIER BEAMS* AND *BRIDGE PIERS*.

**BRIDGE DECK EDGE ANGLE** - THE EMBEDDED STEEL SHAPE AT THE *BRIDGE DECK* EDGE PROVIDING FOR THE *RAIL ASSEMBLIES* IN-FIELD ATTACHMENT TO THE *BRIDGE DECK*.

**ABUTMENT** - AN ASSEMBLY OF VERTICAL CONCRETE WALLS LOCATED AT THE ENDS OF EACH *BRIDGE* CLEAR SPAN. INCLUDES THE *MAIN ABUTMENT* AND *ABUTMENT WING WALLS*.

**ABUTMENT (MAIN)** - THE PORTION OF THE *ABUTMENT* RUNNING PERPENDICULAR TO THE DIRECTION OF BRIDGE TRAVEL. MAIN ABUTMENT'S PRIMARY FUNCTIONS ARE TO: 1. SUPPORT THE END RUNS OF BRIDGE GIRDERS AND 2. RETAIN SOIL UNDER THE APPROACH SLAB.

**ABUTMENT (WING WALLS)** - THE RETURN LEGS OF THE *ABUTMENT* RUNNING PARALLEL WITH THE DIRECTION OF BRIDGE TRAVEL. THE WING WALLS PRIMARY FUNCTIONS ARE: 1. TO RETAIN SOIL UNDER THE APPROACH SLABS.

**ROADWAY BARRIER** - A CONCRETE WALL ON TOP OF THE *BRIDGE DECK* WHOSE PRIMARY FUNCTIONS INCLUDE: KEEPING VEHICLES ON THE ROADWAY 2. KEEPING PEDESTRIANS OFF THE ROADWAY (*PEDESTRIAN/ROADWAY BARRIER* WHEN DOING BOTH).

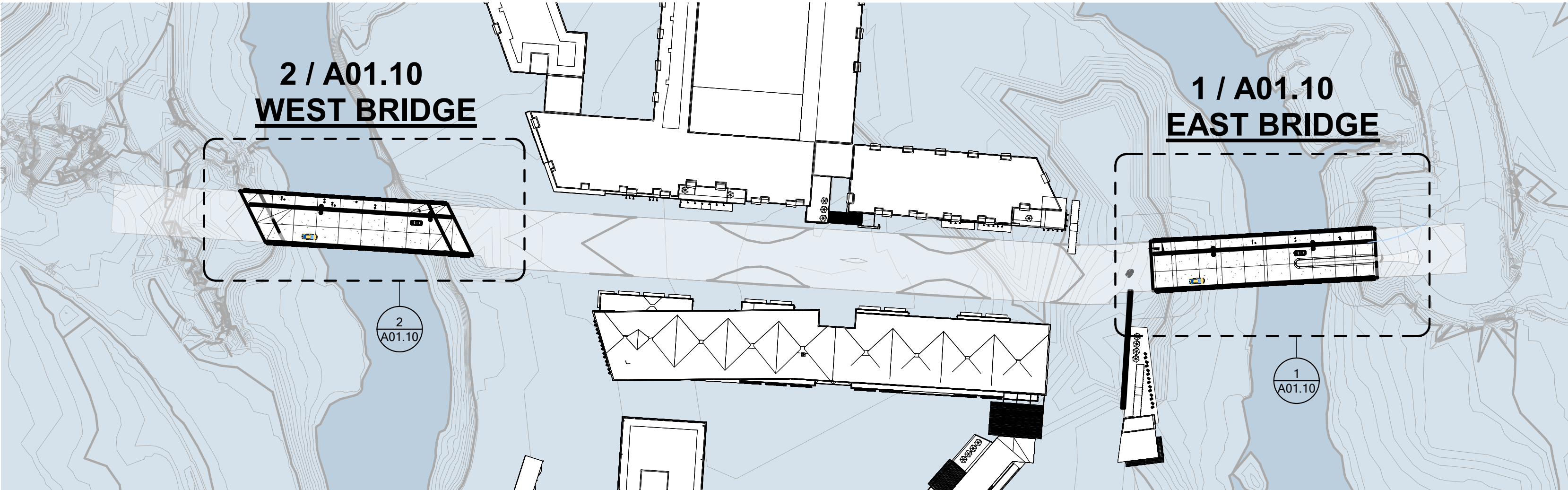
**CURB** - CONCRETE PROFILE ALONG THE ROADWAY EDGE WHOSE PRIMARY FUNCTIONS INCLUDE: 1. CHANNELING WATER DRAINAGE ALONG DESIGNED PATHWAYS 2. KEEPING STRAY VEHICLES ON THE ROADWAY BY ACTING AS A MINOR PHYSICAL BARRIER AND AS A NOTIFICATION.

**CURB TRANSITION BARRIER** - CONCRETE WALL WITH A SLOPING TOP SURFACE, ACTING AS A GRADUAL CHANGE IN HEIGHT FROM A ROADWAY CURB TO A BRIDGE ROADWAY BARRIER. PRIMARY FUNCTIONS: 1. ELIMINATE A BLUNT FORCE IMPACT OF STRAY VEHICALS UPON CROSSING A BRIDGE

**BRIDGE LONG SPAN GIRDERS** - STRUCTURAL MEMBERS THAT SPAN THE OPENING BENEATH THE BRIDGE, SITUATED UNDER THE *BRIDGE DECK* AND OVER THE *BRIDGE PIER BEAMS* / *BENTS*.

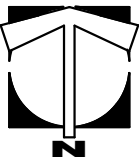
**BRIDGE PIER BEAMS OR BENTS** - CONCRETE GIRDER DIRECTLY ATOP *BRIDGE PIERS*, THESE MEMBERS COLLECT ALL THE FORCES OF THE *LONG SPAN BRIDGE GIRDERS* AND "BENDS" (*BENT*) THE FORCES TO THE PIERS.

**BRIDGE PIERS** - SITUATED AT INTERMEDIATE *BRIDGE BENTS*, *PIERS* ARE VERTICAL CONCRETE COLUMNS WHOSE PRIMARY FUNCTIONS ARE TO: 1. TRANSFER VERTICAL LOADS FROM *BRIDGE PIER BEAMS* TO PIER FOUNDATION SYSTEMS IN THE GROUND. 2. CREATE A CLEARING UNDER A BRIDGE FOR OTHER ENTITIES (SUCH AS WATER) TO PASS. 3. MAINTAIN A PLAN PROFILE THAT REDUCES FRICTION BETWEEN MOVING WATER PASSING UNDER THE BRIDGE.



SITE PLAN - ARCHITECTURAL

1  
A01.00 SCALE: 1" = 100'-0"



WEST BRIDGE - RAIL SHEET LIST

REV #	SHEET #	DESCRIPTION
A01.00	GENERAL - SITE PLAN	
A01.10	PLANS	
A03.10	WEST BRIDGE - NORTH RAIL RUN	
A03.11	WEST BRIDGE - SOUTH RAIL RUN	
A03.12	WEST BRIDGE - MIDDLE RAIL RUN	
A05.20	RAIL DETAILS	
A05.21	RAIL DETAILS	
A05.30	LIGHT MOUNT DETAILS	
A06.10	RAIL VERT TYPES	
A06.11	SCHEDULE - WEST BRIDGE RAIL VERTS - NORTH RAIL RUN	
A06.12	SCHEDULE - WEST BRIDGE RAIL VERTS - SOUTH RAIL RUN	
A06.13	SCHEDULE - WEST BRIDGE RAIL VERTS - MIDDLE RAIL RUN	

EAST BRIDGE - RAIL SHEET LIST

REV #	SHEET #	DESCRIPTION
A01.00	GENERAL - SITE PLAN	
A01.10	PLANS	
A03.20	EAST BRIDGE - NORTH RAIL RUN	
A03.21	EAST BRIDGE - SOUTH RAIL RUN	
A03.22	EAST BRIDGE - MIDDLE RAIL RUN	
A05.20	RAIL DETAILS	
A05.21	RAIL DETAILS	
A05.30	LIGHT MOUNT DETAILS	
A06.10	RAIL VERT TYPES	
A06.14	SCHEDULE - EAST BRIDGE RAIL VERTS - NORTH RAIL RUN	
A06.15	SCHEDULE - EAST BRIDGE RAIL VERTS - SOUTH RAIL RUN	
A06.16	SCHEDULE - EAST BRIDGE RAIL VERTS - MIDDLE RAIL RUN	

RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI  
03/05/2021

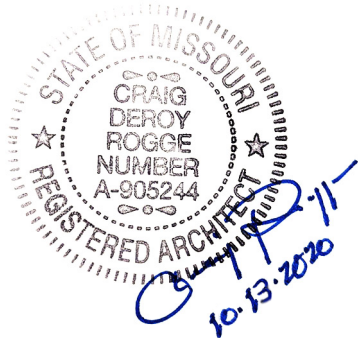
GBA

9801 Renner Blvd. Ste. 300  
Lenexa, KS 66219  
913.492.0400  
gbateam.com

EAST BRIDGE PLANS

View High Dr, View High Pkwy, River Rd  
Lee's Summit, MO

REV	DATE	DESCRIPTION



PROJECT NUMBER	12720.62
DATE	2020.10.13
ISSUE FOR CONSTRUCTION	

DESIGNED:	NJC
DRAWN:	NJC
REVIEWED:	CLR

SHEET TITLE

GENERAL - SITE PLAN

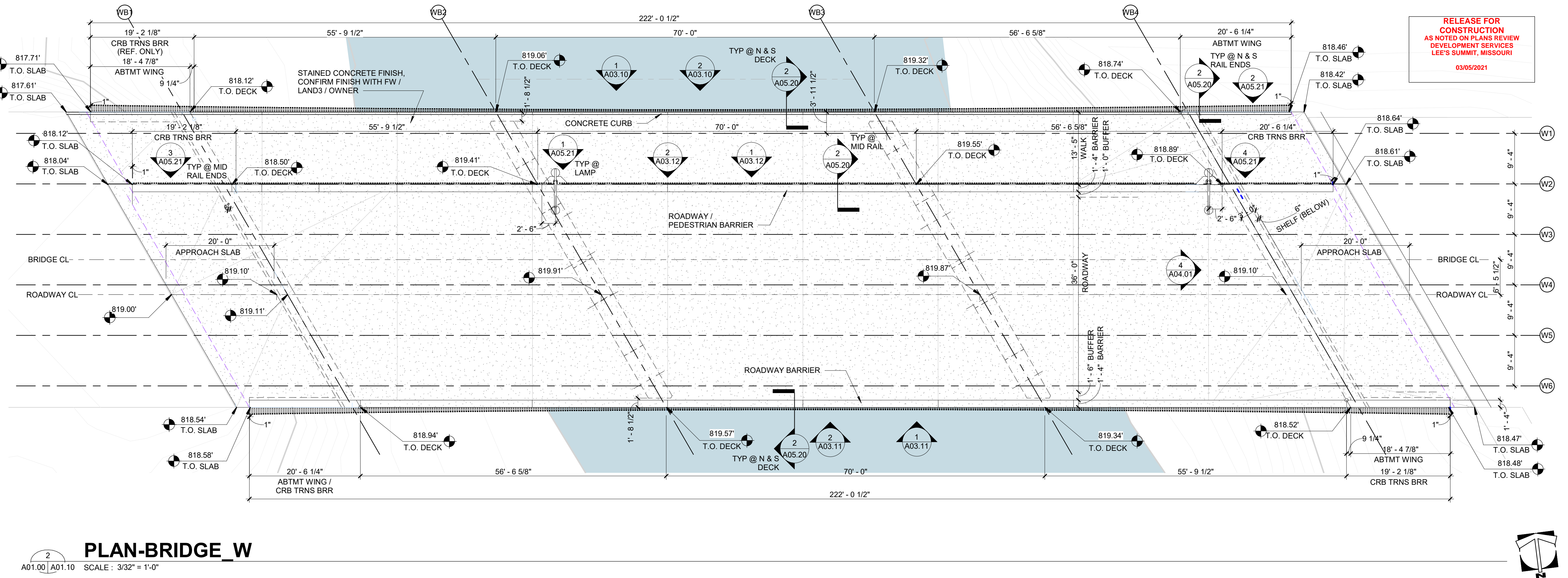
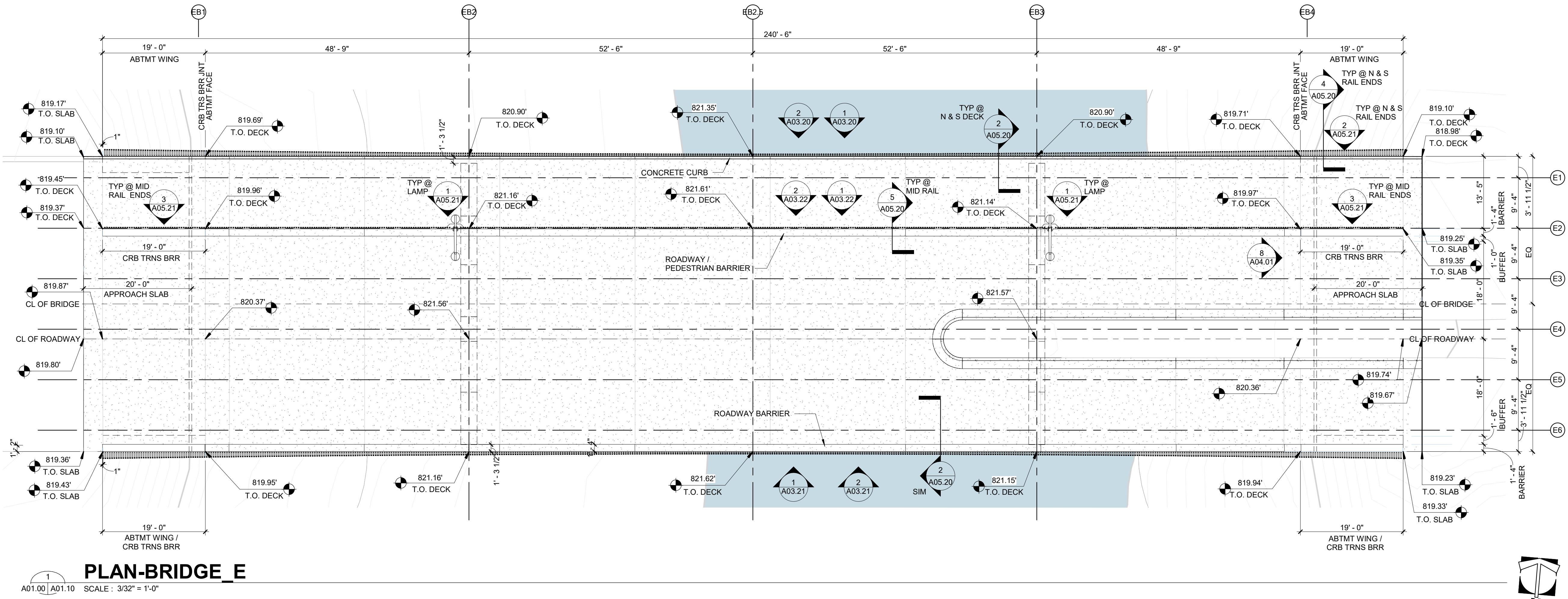
SHEET NUMBER

A01.00

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Engineering COA# 000133  
Architecture COA# 000212  
Land Surveying COA# 000059



## EAST BRIDGE PLANS

View High Dr, View High Pkwy, River Rd  
Lee's Summit, MO

REV	DATE	DESCRIPTION
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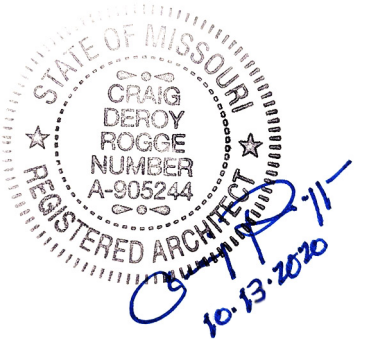
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View High Dr, View High Pkwy, River Rd  
Lee's Summit, MO

REV	DATE	DESCRIPTION



PROJECT NUMBER  
12720.62

DATE \_\_\_\_\_

2020.10.13

## ISSUE FOR CONSTRUCTION

DESIGNED:	NJC
DRAWN:	NJC
REVIEWED:	CLR

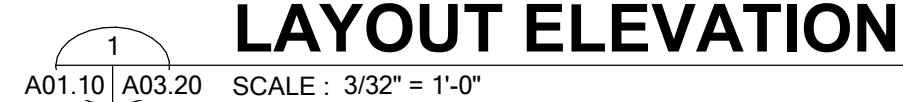
SHEET TITLE

*EAST BRIDGE - NORTH RAIL  
RUN*

SHEET NUMBER

**A03.20**

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Engineering COA# E-92  
Architecture COA# A-45  
Land Sureveying COA# LS-8



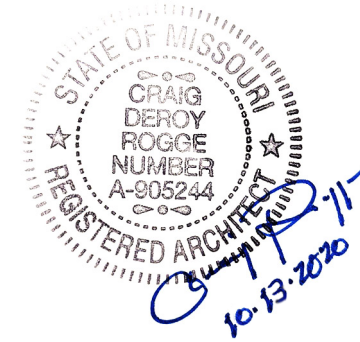
1. RE: A01.00 FOR PROJECT TERMINOLOGY.
2. RE: RAIL ELEVATIONS FOR:
  - a. RAIL VERT LAYOUT
  - b. RAIL HORIZONTAL LAYOUT
  - c. RAIL VERT BREAK LAYOUT.
3. RE: 1 / A06.10 FOR:
  - a. RAIL VERT CONFIGURATION TYPES.
4. RE: RAIL SCHEDULES FOR:
  - a. RAIL VERT VERTICAL LOCATION RELATIONSHIP TO EACH RAIL RUN BASELINE ELEVATION
  - b. RAIL VERT LEG LENGTHS
  - c. RAIL VERT BREAK ANGLES
  - d. ANCHORAGE LOCATIONS
  - e. RAIL HORIZONTAL LOCATIONS

**RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI**

**03/05/2021**



REV	DATE	DESCRIPTION

PROJECT NUMBER  
12720.62

DATE

2020.10.13

ISSUE FOR CONSTRUCTION

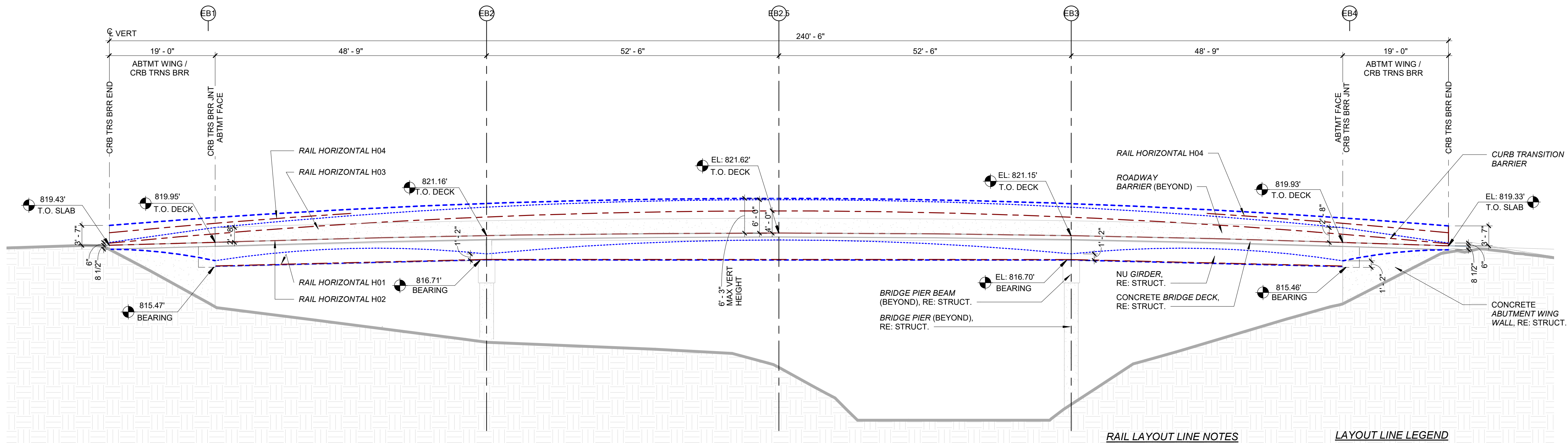
DESIGNED: NJC  
DRAWN: NJC  
REVIEWED: CLR

SHEET TITLE

EAST BRIDGE - SOUTH RAIL  
RUN

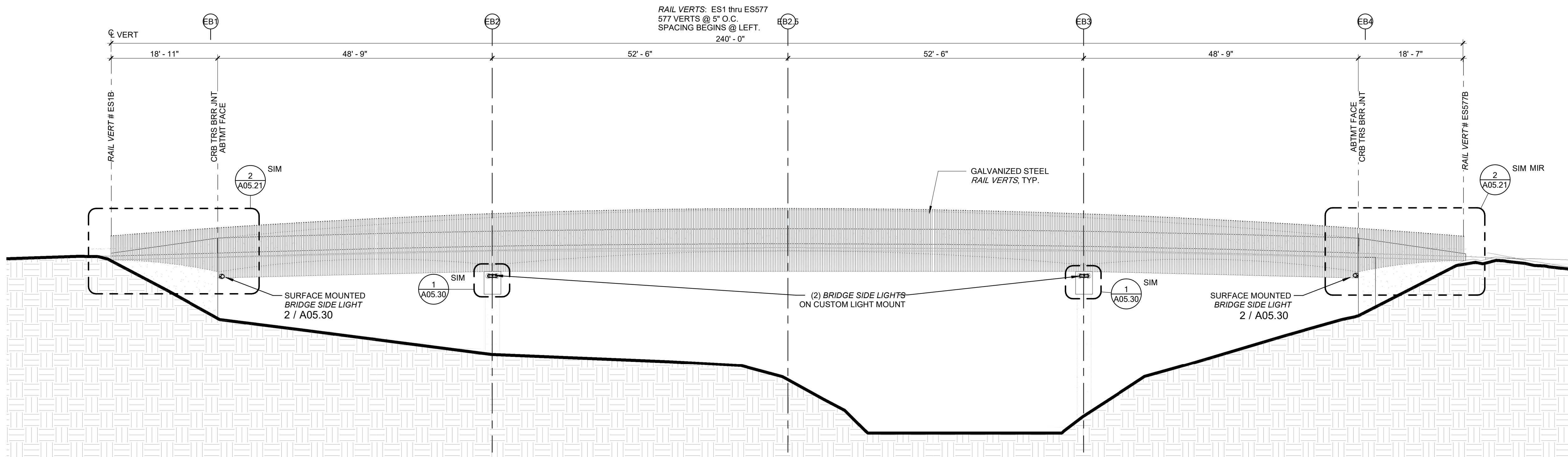
SHEET NUMBER

A03.21

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Engineering COA# E-92  
Architecture COA# A-45  
Land Surveying COA# LS-8

## LAYOUT ELEVATION

A01.10 | A03.21 SCALE : 3/32" = 1'-0"



## ELEVATION

A01.10 | A03.21 SCALE : 3/32" = 1'-0"

## RAIL LAYOUT LINE NOTES

1. LAYOUT LINES PORTRAY BASIC LOCATIONS OF RAIL VERT TOP, BOTTOM & BREAKS, AND RAIL HORIZONTALS.  
RE: 01/A06.10 RAIL VERT TYPES AND RAIL SCHEDULES FOR EXACT LOCATIONS AT EACH RAIL VERT.

## LAYOUT LINE LEGEND

RAIL VERT TOP / BOTTOM LINE

RAIL VERT BREAK LINE

RAIL HORIZONTAL LINE

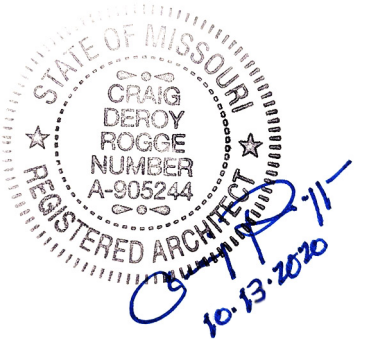
## RAIL REFERENCE

- RE: A01.00 FOR PROJECT TERMINOLOGY.
- RE: RAIL ELEVATIONS FOR:
  - RAIL VERT LAYOUT
  - RAIL HORIZONTAL LAYOUT
  - RAIL VERT BREAK LAYOUT.
- RE: 1 / A06.10 FOR:
  - RAIL VERT CONFIGURATION TYPES.
- RE: RAIL SCHEDULES FOR:
  - RAIL VERT VERTICAL LOCATION RELATIVE TO EACH RAIL RUN BASELINE ELEVATION
  - RAIL VERT LEG LENGTHS
  - RAIL VERT BREAK ANGLES
  - ANCHORAGE LOCATIONS
  - RAIL HORIZONTAL LOCATIONS

RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI  
03/05/2021

View High Dr, View High Pkwy, River Rd  
Lee's Summit, MO

REV	DATE	DESCRIPTION



PROJECT NUMBER  
12720.62

DATE \_\_\_\_\_

2020.10.13

## ISSUE FOR CONSTRUCTION

DESIGNED: NJC

DRAWN: NJC

REVIEWED: CLR

SHEET TITLE

*EAST BRIDGE - MIDDLE RAIL  
RUN*

SHEET NUMBER

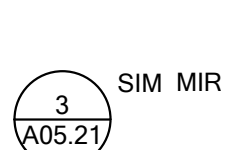
**A03.22**

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Engineering COA# E-92  
Architecture COA# A-45  
Land Sureveying COA# LS-8



**LAYOUT**

1  
A01.10 A03.22 SCALE : 3/32" = 1'-0"



2  
A01.10 A03.22 SCALE : 3/32" = 1'-0"

1. RE: A01.00 FOR PROJECT TERMINOLOGY.

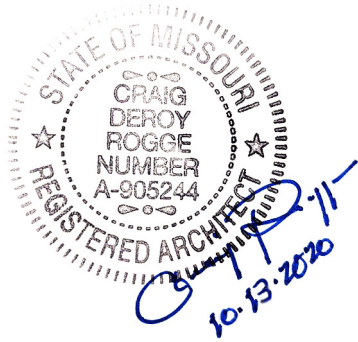
2. RE: RAIL ELEVATIONS FOR:
  - a. RAIL VERT LAYOUT
  - b. RAIL HORIZONTAL LAYOUT
  - c. RAIL VERT BREAK LAYOUT.
3. RE: 1 / A06.10 FOR:
  - a. RAIL VERT CONFIGURATION TYPES.
4. RE: RAIL SCHEDULES FOR:
  - a. RAIL VERT VERTICAL LOCATION RELATIVE TO EACH RAIL RUN BASELINE ELEVATION
  - b. RAIL VERT LEG LENGTHS
  - c. RAIL VERT BREAK ANGLES
  - d. ANCHORAGE LOCATIONS
  - e. RAIL HORIZONTAL LOCATIONS

**RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI**

**03/05/2021**



REV	DATE	DESCRIPTION



PROJECT NUMBER	12720.62
DATE	2020.10.13
ISSUE FOR CONSTRUCTION	

DESIGNED:	NJC
DRAWN:	NJC
REVIEWED:	CLR

SHEET TITLE

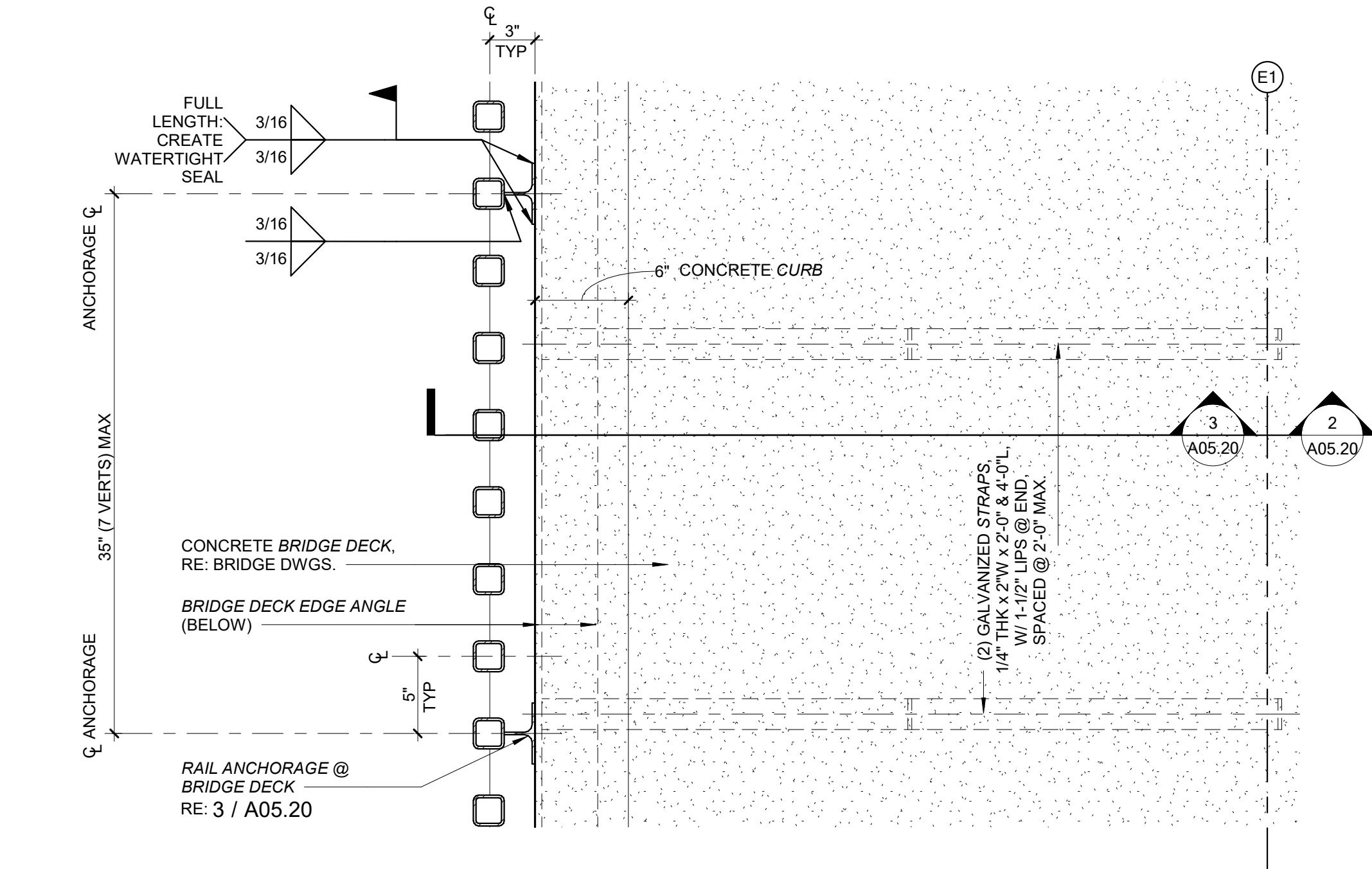
RAIL DETAILS

SHEET NUMBER

A05.20

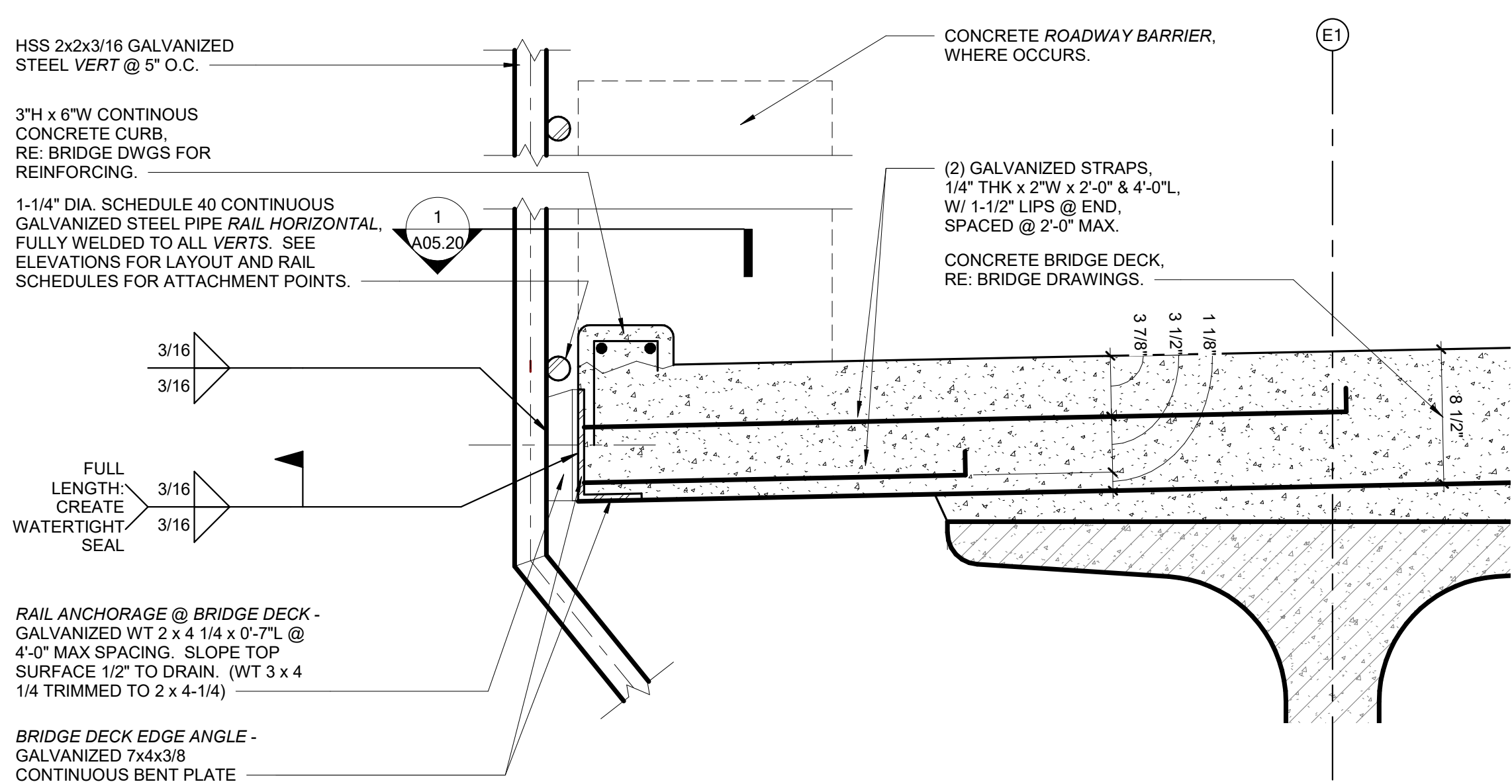
RAIL REFERENCE

- RE: A01.00 FOR PROJECT TERMINOLOGY.
- RE: RAIL ELEVATIONS FOR:
  - RAIL VERT LAYOUT
  - RAIL HORIZONTAL LAYOUT
  - RAIL VERT BREAK LAYOUT.
- RE: 1 / A06.10 FOR:
  - RAIL VERT CONFIGURATION TYPES.
- RE: RAIL SCHEDULES FOR:
  - RAIL VERT VERTICAL LOCATION RELATIVE TO EACH RAIL RUN BASELINE ELEVATION
  - RAIL VERT LEG LENGTHS
  - RAIL VERT BREAK ANGLES
  - ANCHORAGE LOCATIONS
  - RAIL HORIZONTAL LOCATIONS



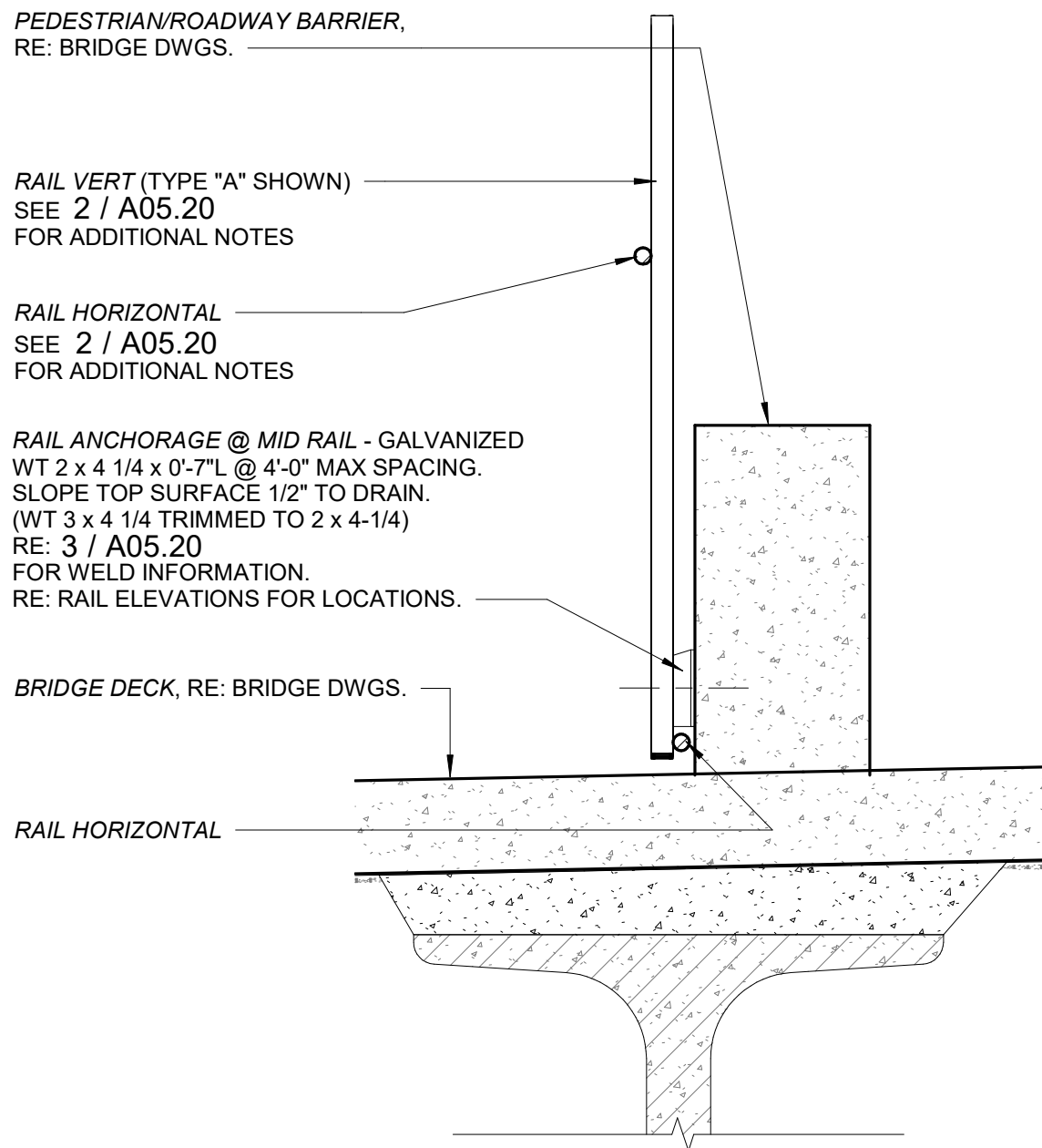
PLAN DETAIL @ TYP. ANCHORAGE

1  
A05.20 | A05.20 SCALE : 1 1/2" = 1'-0"



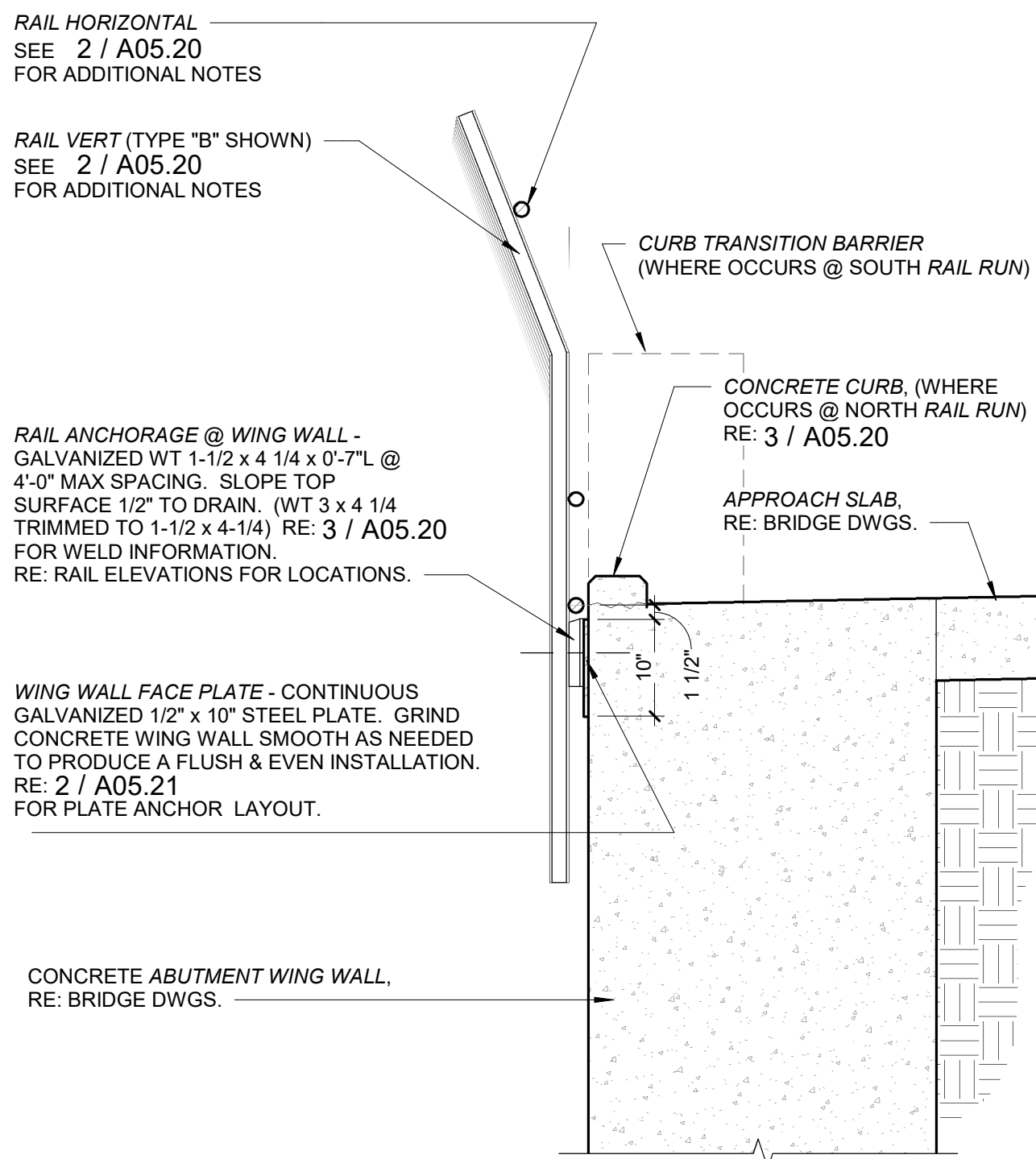
DETAIL - RAIL @ DECK EDGE - TYP

3  
A05.20 | A05.20 SCALE : 1 1/2" = 1'-0"



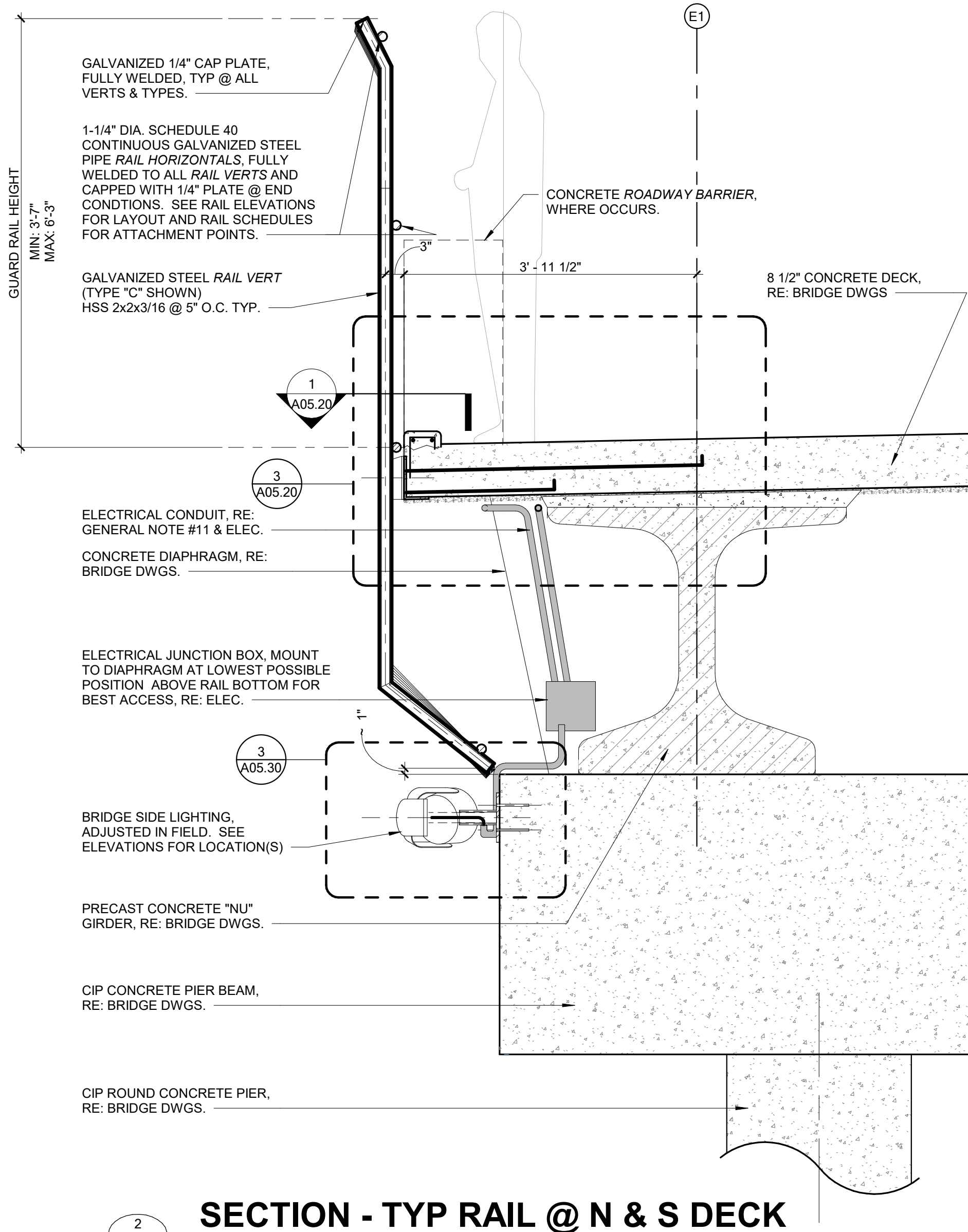
TYP RAIL SECTION @ MID RAIL

5  
A01.10 | A05.20 SCALE : 3/4" = 1'-0"



SECTION - TYP RAIL @ N & S ENDS

4  
A01.10 | A05.20 SCALE : 3/4" = 1'-0"

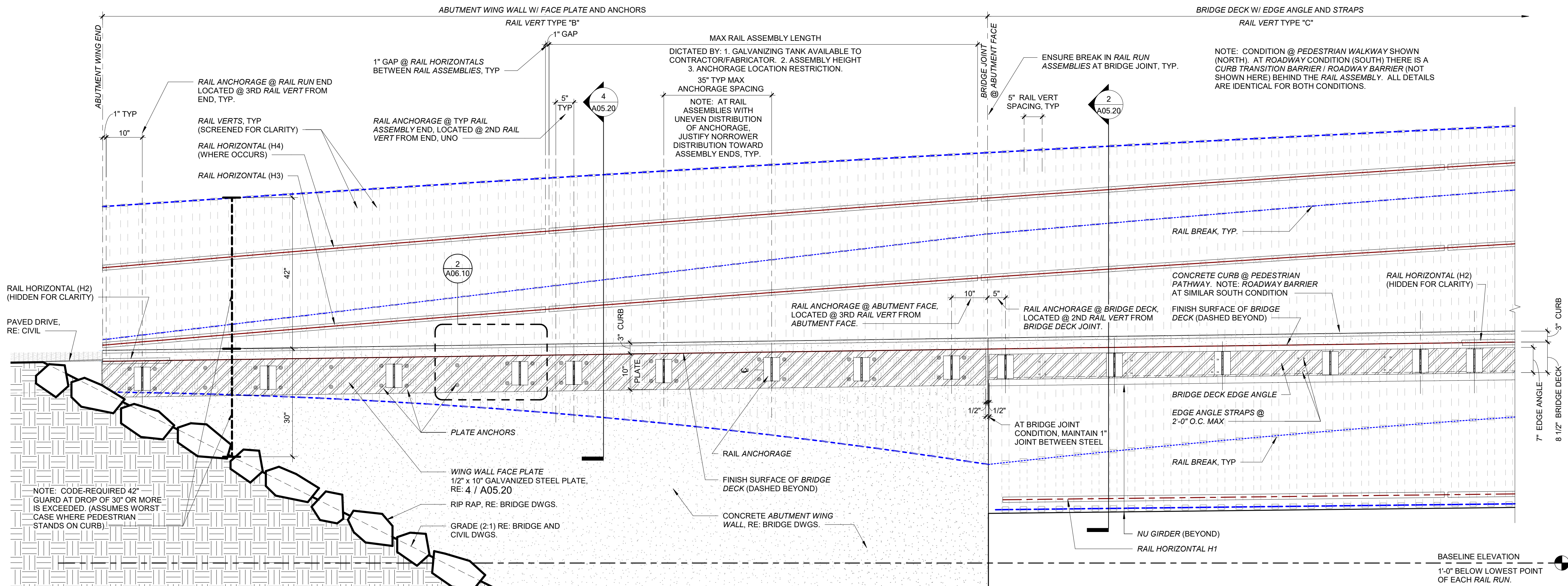


SECTION - TYP RAIL @ N & S DECK

2  
A01.10 | A05.20 SCALE : 3/4" = 1'-0"

RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI  
03/05/2021



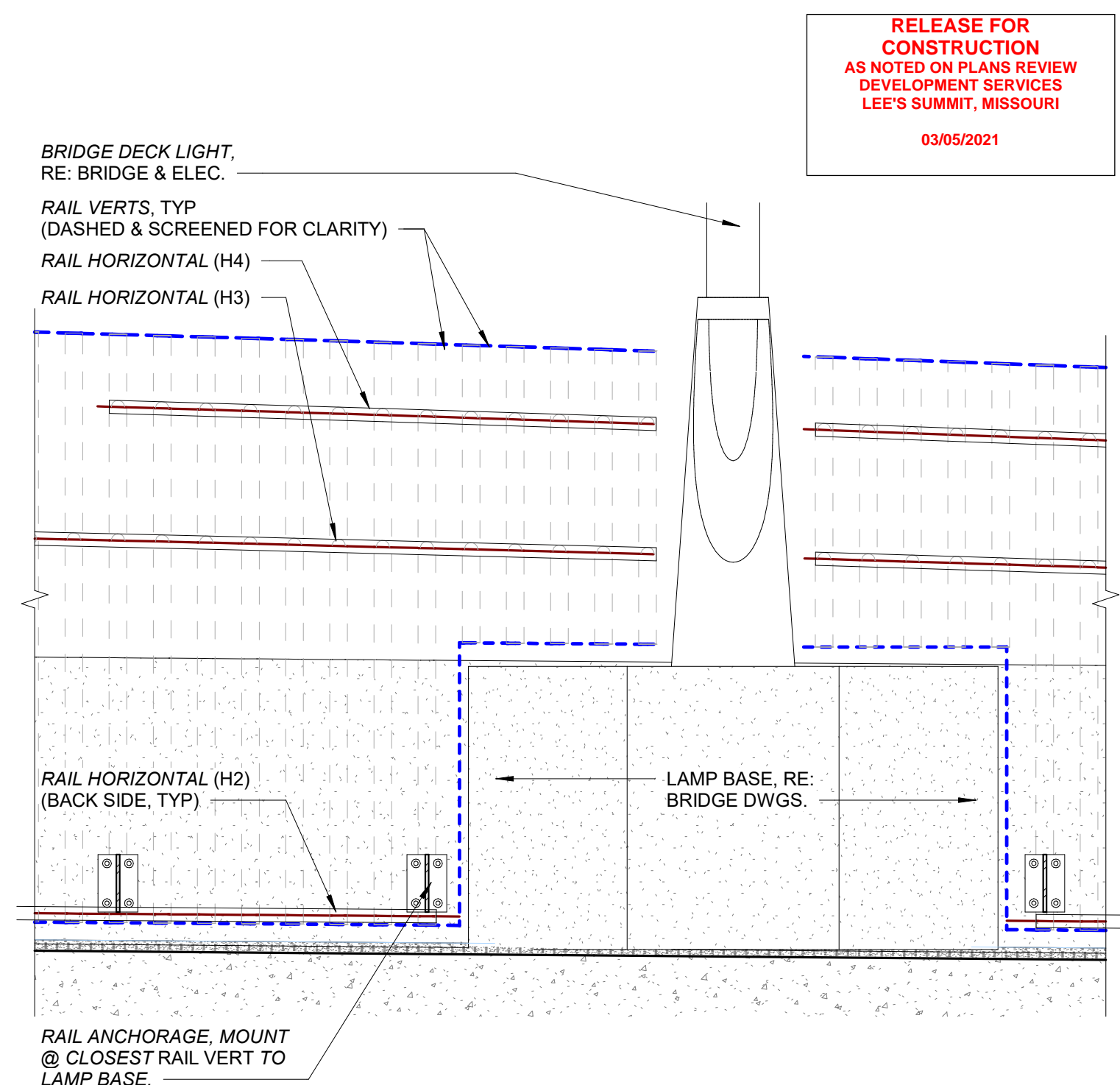
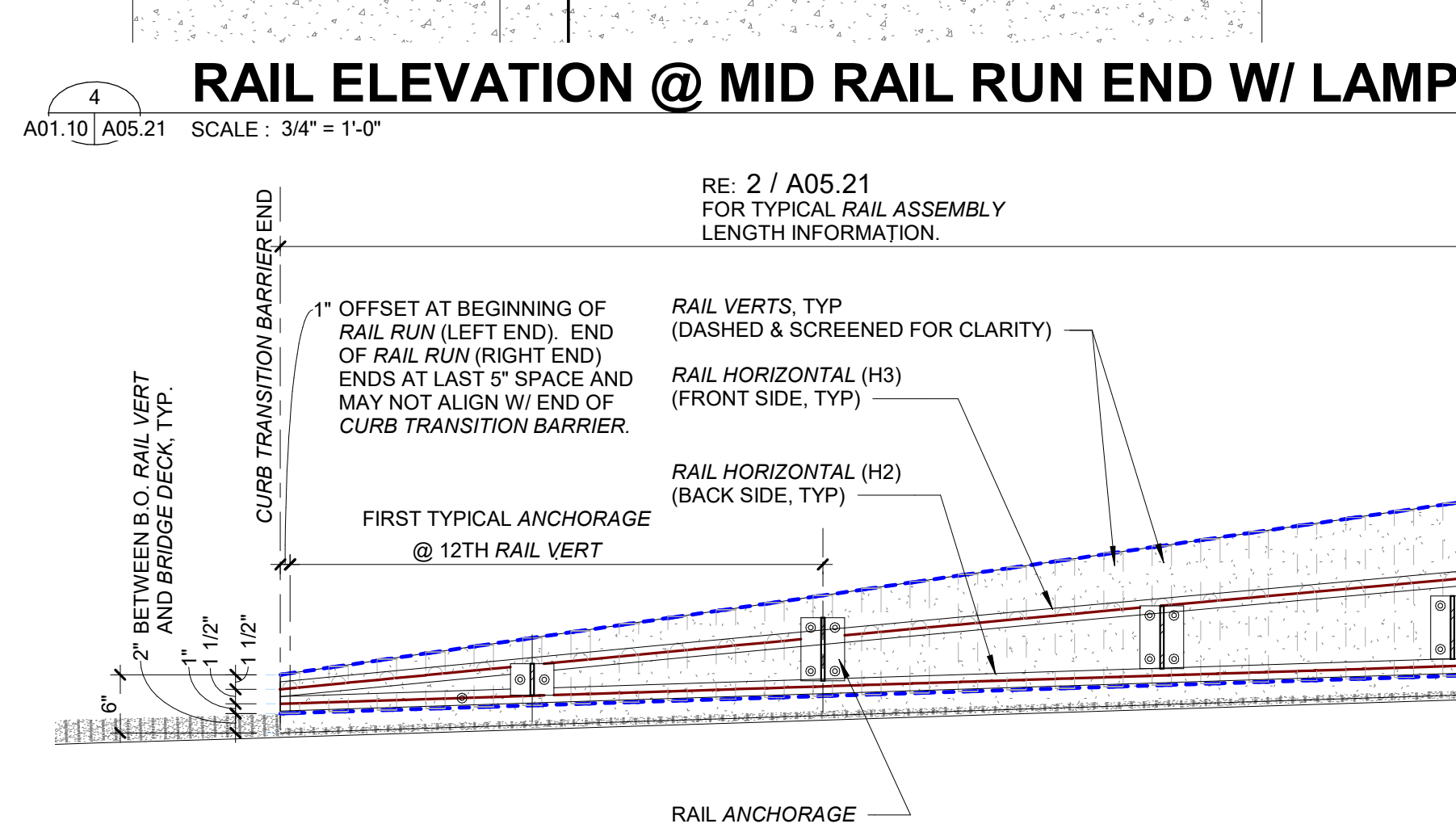


## LAYOUT LINE LEGEND

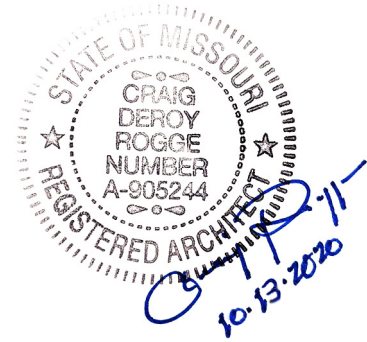
- RAIL VERT TOP / BOTTOM LINE
- RAIL VERT BREAK LINE
- RAIL HORIZONTAL LINE

## RAIL LAYOUT LINE NOTES

1. LAYOUT LINES PORTRAY BASIC LOCATIONS OF RAIL VERT TOP, BOTTOM & BREAKS, AND RAIL HORIZONTALS.  
RE: 01/A06.10 RAIL VERT TYPES AND RAIL SCHEDULES FOR EXACT LOCATIONS AT EACH RAIL VERT.



REV	DATE	DESCRIPTION



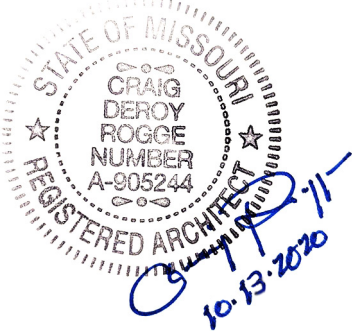
PROJECT NUMBER	12720.62
DATE	2020.10.13
ISSUE FOR CONSTRUCTION	
DESIGNED:	NJC
DRAWN:	NJC
REVIEWED:	CLR
SHEET TITLE	RAIL DETAILS
SHEET NUMBER	A05.21







REV	DATE	DESCRIPTION



PROJECT NUMBER	12720.62
DATE	2020.10.13
ISSUE FOR CONSTRUCTION	
DESIGNED:	NJC
DRAWN:	NJC
REVIEWED:	CLR
SHEET TITLE	RAIL VERT TYPES
SHEET NUMBER	A06.10

RAIL VERT TYPE NOTES

1. RAIL "P01V" ELEVATIONS SHALL BE USED FOR VERTICAL ALIGNMENT OF MEMBERS DURING SHOP ASSEMBLY.
2. VERTICAL DIMENSIONS OR ELEVATIONS STATED IN RAIL VERT SCHEDULES ARE TO BASELINE ELEVATION FOR EACH RAIL RUN. THE BASELINE ELEVATION IS ARBITRARILY SET TO 1'-0" BELOW THE LOWEST POINT OF EACH RAIL RUN AND IS UNIQUE TO EACH RAIL RUN.
3. ANCHORAGE SPACING LOGIC IS SPECIFIED IN DOCUMENTS, BUT ANCHORAGE IS NOT PRESENT AT EVERY RAIL VERT. BECAUSE SPECIFIC ANCHORAGE PLAN LOCATIONS ARE LAID OUT BY FABRICATOR, "ANV" ELEVATION HAS BEEN PROVIDED FOR ALL RAIL VERTS.

RAIL VERT TYPE LEGEND

"#\" SYMBOL REPRESENTS A NUMBER

P0# - POINT AT CENTERPOINT OF RAIL VERT SEGMENT, LOCATED AT EITHER: RAIL VERT ENDS (TOP/BOTTOM) OR RAIL VERT BREAKS.

P0#V - POINT VERTICAL DISTANCE TO BASELINE ELEVATION

L0# - RAIL VERT SEGEMENT (LEG) OR LENGTH OF SEGMENT (LEG)

H0# - RAIL HORIZONTAL

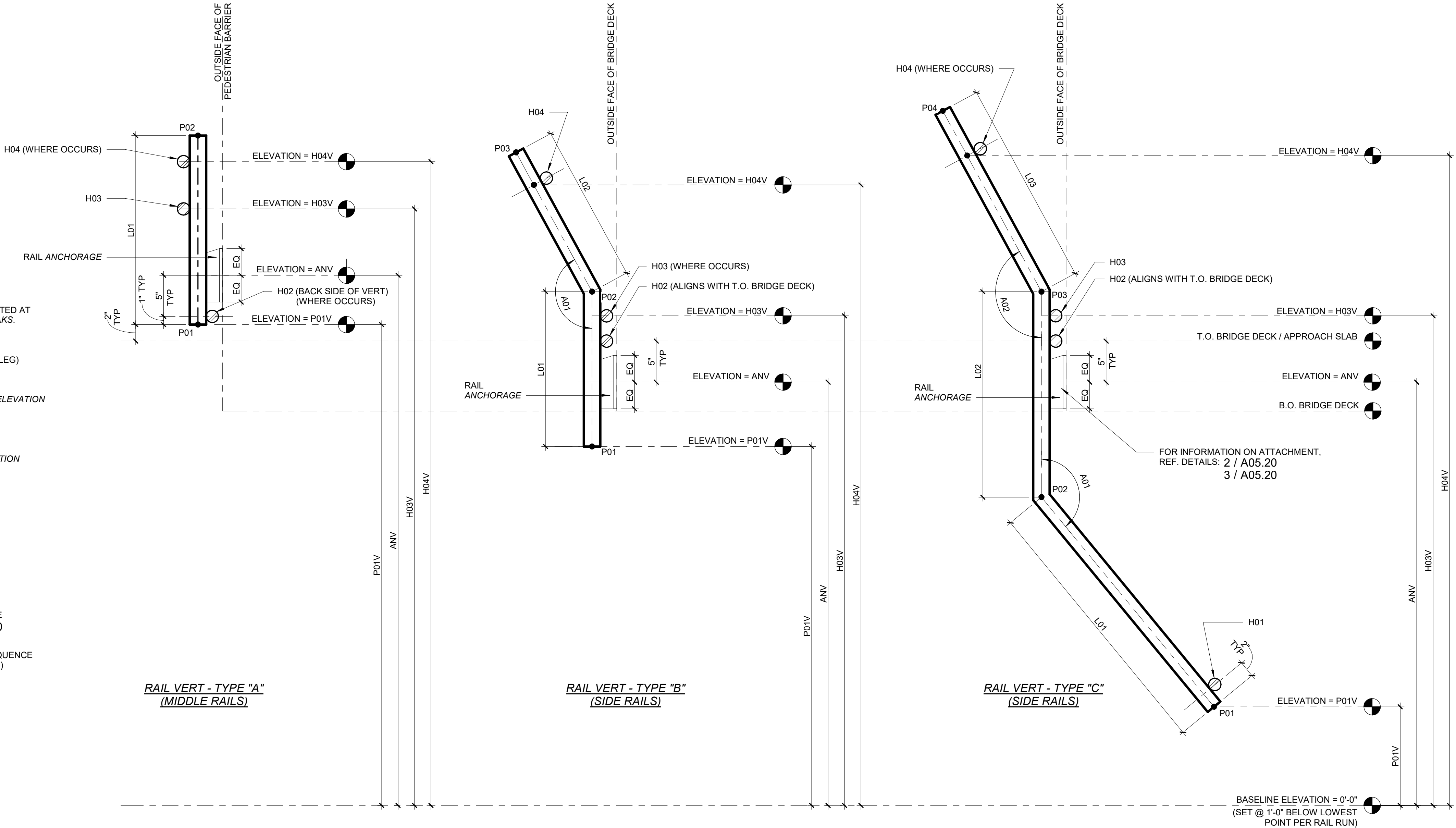
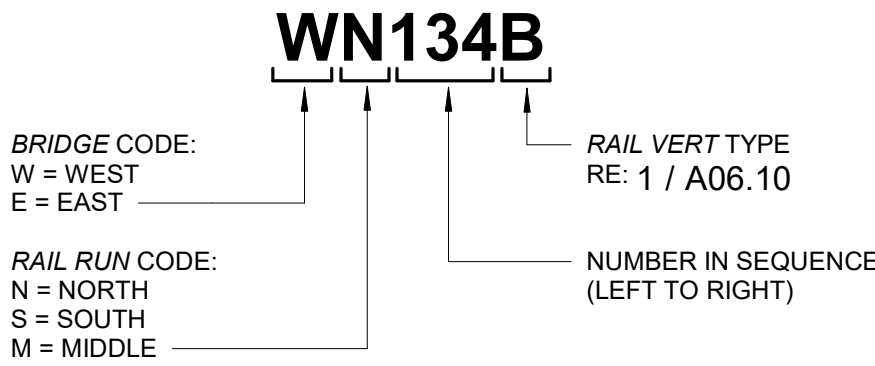
H0#V - RAIL HORIZONTAL VERTICAL DISTANCE TO BASELINE ELEVATION

A0# - ANGLE BETWEEN ADJACENT RAIL VERT SEGMENTS

AN01 - CENTERLINE OF ANCHORAGE

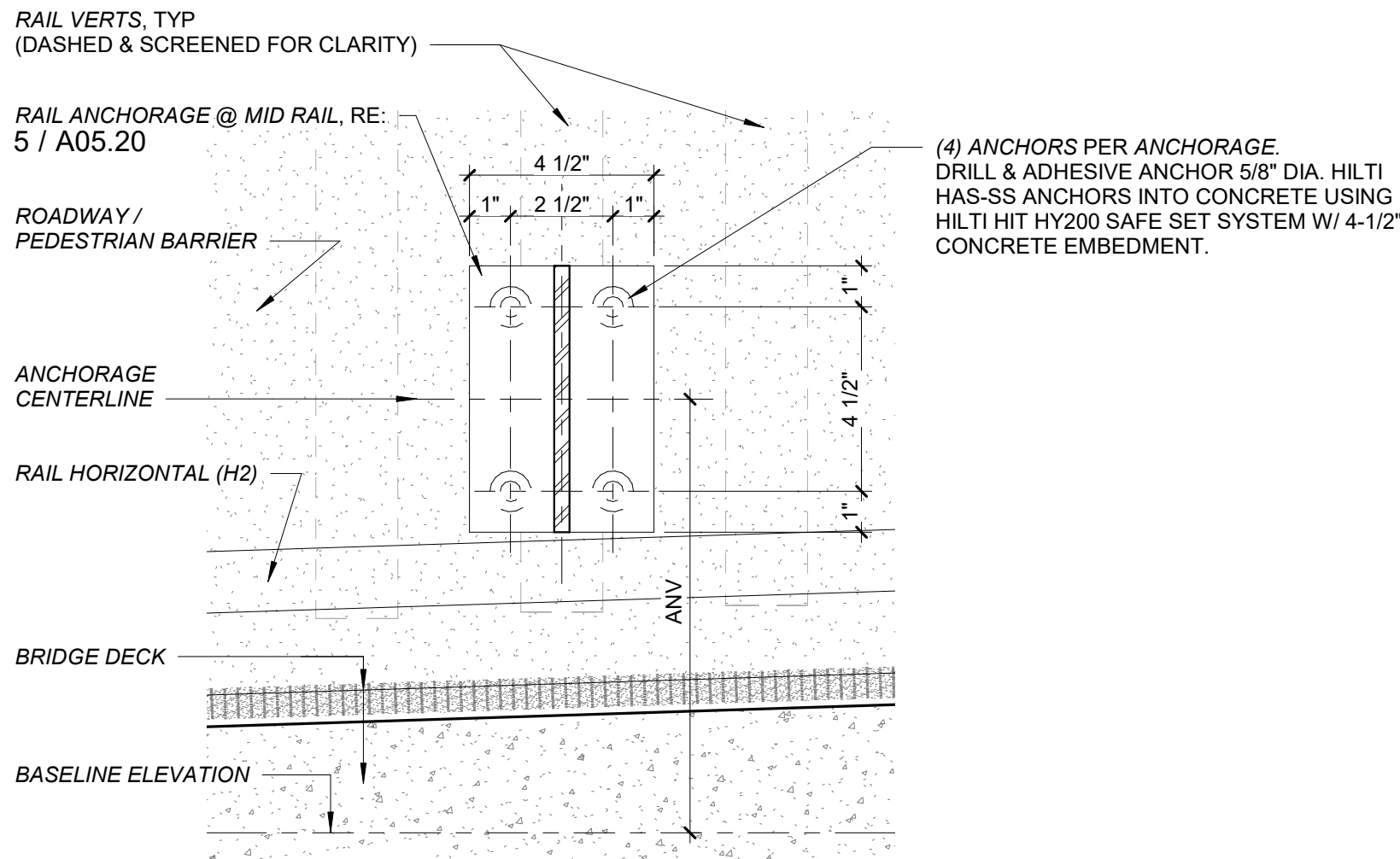
ANV - ANCHORAGE VERTICAL DISTANCE TO BASELINE ELEVATION

RAIL VERT ID LOGIC



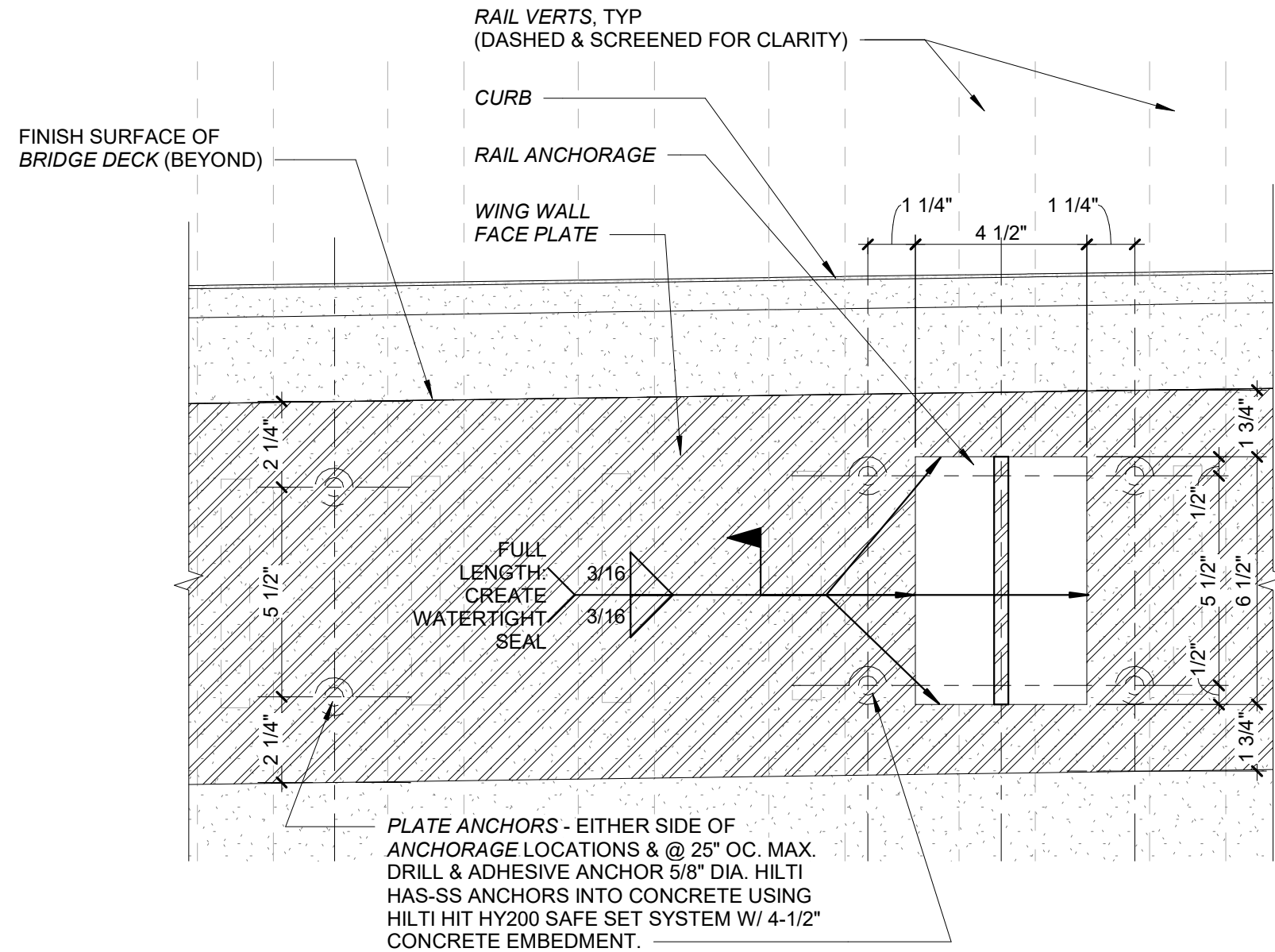
RAIL VERT TYPES

1  
A06.10 SCALE : 1 1/2" = 1'-0"



DETAIL ELEVATION - ANCHORAGE AT MID RAIL RUN

3  
A05.21 A06.10 SCALE : 3" = 1'-0"



DETAIL ELEVATION - PLATE ANCHORS

2  
A05.21 A06.10 SCALE : 3" = 1'-0"

RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI  
03/05/2021







EAST BRIDGE - SOUTH RAIL

ID	P01V	L01	A01	L02	A02	L03	LTOT	ANV	H03
ES1B	4'-11.14"	1'-2.58"	161.960"	3'-2.34"		4'-6.38"	4'-4.34"	5'-2.38"	7'-0.34"
ES2B	4'-11.18"	1'-3.58"	161.918"	3'-2.38"		4'-6.34"	4'-4.78"	5'-2.34"	7'-1.14"
ES3B	4'-11.12"	1'-4.14"	161.834"	3'-2.14"		4'-6.42"	4'-5.14"	5'-2.14"	7'-1.34"
ES4B	4'-11"	1'-5.38"	161.800"	3'-1.34"		4'-6.34"	4'-5.14"	5'-3.34"	7'-0.14"
ES5B	4'-0.78"	1'-5.34"	161.784"	3'-1.12"		4'-7.14"	4'-5.14"	5'-4.14"	7'-2.34"
ES6B	4'-0.58"	1'-5.38"	161.768"	3'-1.12"		4'-7.14"	4'-5.14"	5'-4.14"	7'-2.34"
ES7B	4'-0.12"	1'-8.38"	161.832"	3'-0.12"		4'-8.78"	4'-5.34"	5'-5.58"	7'-4.18"
ES8B	3'-9.18"	2'-7.12"	160.800"	2'-2.12"		2'-4.12"	4'-7.14"	5'-10.34"	7'-9.14"
ES9B	4'-0"	1'-10.18"	161.521"	2'-11.78"		4'-10"	4'-6"	5'-6.58"	7'-5.18"
ES10B	3'-11.78"	1'-11.18"	161.462"	2'-11.12"		4'-10.58"	4'-6.18"	5'-7.18"	7'-5.12"
ES11B	3'-11.12"	1'-11.18"	161.400"	2'-11.12"		4'-11.18"	4'-6.18"	5'-7.18"	7'-5.12"
ES12B	3'-11.14"	2'-11.18"	161.338"	2'-10.78"		5'-0"	4'-6.38"	5'-7.38"	7'-6.12"
ES13B	3'-11"	2'-11.18"	161.273"	2'-10.58"		5'-0.34"	4'-6.12"	5'-8.12"	7'-7"
ES14B	3'-10.58"	2'-13.18"	161.205"	2'-10.58"		5'-1.34"	4'-6.38"	5'-8.38"	7'-7.38"
ES15B	3'-10.14"	2'-13.18"	161.140"	2'-10.14"		5'-1.34"	4'-6.38"	5'-8.38"	7'-7.38"
ES16B	3'-10.14"	2'-13.18"	161.135"	2'-10.14"		5'-1.34"	4'-6.38"	5'-8.38"	7'-7.38"
ES17B	3'-9.78"	2'-5.14"	161.062"	2'-9.58"		5'-2.78"	4'-4"	5'-9.78"	7'-8.34"
ES18B	3'-9.12"	2'-3.38"	160.987"	2'-9.14"		5'-3.58"	4'-7.18"	5'-10.38"	7'-8.34"
ES19B	3'-8.18"	2'-7.12"	160.909"	2'-7.22"		5'-4.12"	4'-7.14"	5'-10.34"	7'-8.14"
ES20B	3'-8.58"	2'-8.58"	160.828"	2'-8.58"		5'-5.14"	4'-7.38"	5'-11.14"	7'-9.34"
ES21B	3'-8.18"	2'-9.78"	160.744"	2'-8.18"		5'-6.18"	4'-7.12"	5'-11.58"	7'-10.34"
ES22B	3'-8.18"	2'-11"	160.657"	2'-8"		5'-7"	4'-6.58"	5'-12.18"	7'-10.34"
ES23B	3'-8.12"	3'-0.14"	160.568"	2'-7.58"		5'-7.78"	4'-3.34"	6'-0.58"	7'-11"
ES24B	3'-6.58"	3'-1.12"	160.475"	2'-7.18"		5'-8.34"	4'-7.78"	6'-1"	7'-11.12"
ES25B	3'-6.18"	3'-1.12"	160.387"	2'-6.78"		5'-9.34"	4'-7.78"	6'-1"	7'-11.12"
ES26B	3'-5.12"	3'-1.18"	160.278"	2'-6.58"		5'-10.34"	4'-8.18"	6'-1.78"	8'-0.38"
ES27B	3'-4.78"	3'-5.38"	160.175"	2'-6.18"		5'-11.58"	4'-8.38"	6'-2.38"	8'-0.78"
ES28B	3'-4.14"	3'-5.38"	160.072"	2'-5.78"		5'-12.58"	4'-8.38"	6'-2.38"	8'-0.78"
ES29B	3'-3.58"	3'-8.18"	159.957"	2'-5.58"		6'-1.58"	4'-8.58"	6'-3.14"	8'-1.34"
ES30B	3'-2.78"	3'-8.12"	159.842"	2'-5.18"		6'-2.34"	4'-8.34"	6'-3.58"	8'-2.18"
ES31B	3'-2.14"	3'-10.78"	159.723"	2'-4.78"		6'-3.78"	4'-8.38"	6'-4.38"	8'-2.78"
ES32B	3'-1.12"	4'-3.38"	159.599"	2'-4.12"		6'-4.78"	4'-9"	6'-4.12"	8-3"
ES33B	3'-0.34"	4'-1.34"	159.471"	2'-4.14"		6'-6"	4'-9.18"	6'-5"	8-3.12"
ES34B	3'-0"	4'-3.14"	159.339"	2'-3.78"		6'-7.18"	4'-9.14"	6'-5.38"	8-3.78"
ES35B	2'-11.18"	4'-3.38"	159.207"	2'-3.38"		6'-8.14"	4'-9.38"	6'-5.38"	8-4.38"
ES36B	2'-10.38"	4'-6.14"	159.058"	2'-3.18"		6'-10.12"	4'-9.12"	6'-5.14"	8-4.34"
ES37B	2'-9.12"	4'-7.78"	158.911"	2'-2.34"		6'-10.58"	4'-9.34"	6'-5.34"	8-5.18"
ES38B	2'-8.58"	4'-7.78"	158.823"	2'-2.34"		6'-10.58"	4'-9.34"	6'-5.34"	8-5.18"
ES39B	2'-7.34"	4'-11"	158.658"	2'-2.18"		7'-1.18"	4'-10"	6'-7.12"	8-6"
ES40B	2'-6.78"	5'-0.58"	158.433"	2'-2.14"		7'-2.38"	4'-10.18"	6'-8"	8-6.12"
ES41B	2'-6.12"	5'-3.38"	158.207"	2'-2.14"		7'-3.58"	4'-10.18"	6'-8"	8-6.12"
ES42B	2'-5"	5'-3.78"	158.084"	2'-2.14"		7-5"	4'-10.38"	6'-8.34"	8-7.14"
ES43B	2'-4"	5'-5.58"	157.899"	2'-0.58"		7-6.14"	4'-10.12"	6'-9.14"	8-7.34"
ES44B	2'-3.58"	5'-9.18"	157.707"	2'-0.18"		7-7.58"	4'-10.12"	6'-9.12"	8-7.34"
ES45B	2'-1.78"	5'-9.18"	157.507"	2'-0.18"		7-9"	4'-10.34"	6'-10"	8-8.12"
ES46B	2'-0.78"	5'-10.78"	157.299"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES47B	2'-0.18"	5'-10.78"	157.091"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES48B	2'-0.12"	5'-10.78"	156.883"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES49B	2'-0.12"	5'-10.78"	156.675"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES50B	2'-0.12"	5'-10.78"	156.467"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES51B	2'-0.12"	5'-10.78"	156.259"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES52B	2'-0.12"	5'-10.78"	156.051"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES53B	2'-0.12"	5'-10.78"	155.843"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES54B	2'-0.12"	5'-10.78"	155.635"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES55B	2'-0.12"	5'-10.78"	155.427"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES56B	2'-0.12"	5'-10.78"	155.219"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES57B	2'-0.12"	5'-10.78"	155.011"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES58B	2'-0.12"	5'-10.78"	154.803"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES59B	2'-0.12"	5'-10.78"	154.595"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES60B	2'-0.12"	5'-10.78"	154.387"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES61B	2'-0.12"	5'-10.78"	154.179"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES62B	2'-0.12"	5'-10.78"	153.971"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES63B	2'-0.12"	5'-10.78"	153.763"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES64B	2'-0.12"	5'-10.78"	153.555"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES65B	2'-0.12"	5'-10.78"	153.347"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES66B	2'-0.12"	5'-10.78"	153.139"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES67B	2'-0.12"	5'-10.78"	152.931"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES68B	2'-0.12"	5'-10.78"	152.723"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES69B	2'-0.12"	5'-10.78"	152.515"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES70B	2'-0.12"	5'-10.78"	152.307"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES71B	2'-0.12"	5'-10.78"	152.099"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES72B	2'-0.12"	5'-10.78"	151.891"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES73B	2'-0.12"	5'-10.78"	151.683"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES74B	2'-0.12"	5'-10.78"	151.475"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES75B	2'-0.12"	5'-10.78"	151.267"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES76B	2'-0.12"	5'-10.78"	151.059"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES77B	2'-0.12"	5'-10.78"	150.851"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES78B	2'-0.12"	5'-10.78"	150.643"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES79B	2'-0.12"	5'-10.78"	150.435"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES80B	2'-0.12"	5'-10.78"	150.227"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES81B	2'-0.12"	5'-10.78"	150.019"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES82B	2'-0.12"	5'-10.78"	149.811"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES83B	2'-0.12"	5'-10.78"	149.603"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES84B	2'-0.12"	5'-10.78"	149.395"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES85B	2'-0.12"	5'-10.78"	149.187"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES86B	2'-0.12"	5'-10.78"	148.979"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES87B	2'-0.12"	5'-10.78"	148.771"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES88B	2'-0.12"	5'-10.78"	148.563"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES89B	2'-0.12"	5'-10.78"	148.355"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES90B	2'-0.12"	5'-10.78"	148.147"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES91B	2'-0.12"	5'-10.78"	147.939"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES92B	2'-0.12"	5'-10.78"	147.731"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES93B	2'-0.12"	5'-10.78"	147.523"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES94B	2'-0.12"	5'-10.78"	147.315"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES95B	2'-0.12"	5'-10.78"	147.107"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES96B	2'-0.12"	5'-10.78"	146.899"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES97B	2'-0.12"	5'-10.78"	146.691"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES98B	2'-0.12"	5'-10.78"	146.483"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES99B	2'-0.12"	5'-10.78"	146.275"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES100B	2'-0.12"	5'-10.78"	146.067"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES101B	2'-0.12"	5'-10.78"	145.859"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES102B	2'-0.12"	5'-10.78"	145.651"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES103B	2'-0.12"	5'-10.78"	145.443"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES104B	2'-0.12"	5'-10.78"	145.235"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES105B	2'-0.12"	5'-10.78"	145.027"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES106B	2'-0.12"	5'-10.78"	144.819"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES107B	2'-0.12"	5'-10.78"	144.611"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES108B	2'-0.12"	5'-10.78"	144.403"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES109B	2'-0.12"	5'-10.78"	144.195"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES110B	2'-0.12"	5'-10.78"	143.987"	1'-11.58"		7-10.12"	4'-10.78"	6'-10.38"	8-9"
ES111B	2'-0.12"								



## EAST BRIDGE - MIDDLE RUN

ID	P01V	L01	A01	L02	A02	L03	LTOT	ANV	H03V	H04V
EM1A	1'-0"	0'-4.18"				0'-4.18"	1'-5"	1'-2.58"		
EM2A	1'-0.14"	0'-4.58"				0'-4.58"	1'-5.14"	1'-3.18"		
EM3A	1'-0.38"	0'-5.08"				0'-5.08"	1'-5.68"	1'-3.68"		
EM4A	1'-0.12"	0'-5.78"				0'-5.78"	1'-6.12"	1'-4.18"		
EM5A	1'-0.58"	0'-6.38"				0'-6.38"	1'-6.98"	1'-4.12"		
EM6A	1'-1.18"	0'-7.18"				0'-7.18"	1'-7.78"	1'-4.18"		
EM7A	1'-1"	0'-7.12"				0'-7.12"	1'-7"	1'-5.12"		
EM8A	1'-1.18"	0'-8.18"				0'-8.18"	1'-8.78"	1'-5"		
EM9A	1'-1.38"	0'-9.18"				0'-9.18"	1'-9.78"	1'-5.18"		
EM10A	1'-1.12"	0'-9.14"				0'-9.14"	1'-9.62"	1'-5"		
EM11A	1'-1.58"	0'-9.78"				0'-9.78"	1'-10.38"	1'-5.78"		
EM12A	1'-1.34"	0'-10.38"				0'-10.38"	1'-10.98"	1'-5.78"		
EM13A	1'-2"	0'-11"				0'-11"	1'-11.58"	1'-6.18"		
EM14A	1'-2.18"	0'-11.12"				0'-11.12"	1'-11.78"	1'-6.78"		
EM15A	1'-2.14"	0'-11.08"				0'-11.08"	1'-11.68"	1'-6.78"		
EM16A	1'-2.18"	0'-11.08"				0'-11.08"	1'-11.68"	1'-6.78"		
EM17A	1'-2.58"	0'-11.34"				0'-11.34"	1'-11.94"	1'-7.18"		
EM18A	1'-2.34"	0'-11.34"				0'-11.34"	1'-11.94"	1'-7.18"		
EM19A	1'-2.78"	0'-12.38"				0'-12.38"	1'-12.98"	1'-8.18"		
EM20A	1'-3.18"	0'-13"				0'-13"	1'-13.58"	1'-8.78"		
EM21A	1'-3.14"	0'-13.12"				0'-13.12"	1'-13.72"	1'-8.78"		
EM22A	1'-3.38"	0'-14.18"				0'-14.18"	1'-14.78"	1'-9.78"		
EM23A	1'-3.58"	0'-14.58"				0'-14.58"	1'-15.18"	1'-10.18"		
EM24A	1'-3.34"	0'-15.14"				0'-15.14"	1'-15.74"	1'-10.18"		
EM25A	1'-3.78"	0'-15.78"				0'-15.78"	1'-16.38"	1'-10.78"		
EM26A	1'-4"	0'-16.38"				0'-16.38"	1'-16.98"	1'-11.38"		
EM27A	1'-4.14"	0'-17"				0'-17"	1'-17.58"	1'-11.78"		
EM28A	1'-4.38"	0'-17.12"				0'-17.12"	1'-17.72"	1'-11.98"		
EM29A	1'-4.12"	0'-18.18"				0'-18.18"	1'-18.78"	1'-12.78"		
EM30A	1'-4.34"	0'-18.58"				0'-18.58"	1'-19.18"	1'-13.18"		
EM31A	1'-4.78"	0'-19.18"				0'-19.18"	1'-19.78"	1'-13.78"		
EM32A	1'-5"	0'-19.34"				0'-19.34"	1'-19.94"	1'-14.18"		
EM33A	1'-5.18"	0'-19.38"				0'-19.38"	1'-19.98"	1'-14.28"		
EM34A	1'-5.38"	0'-19.78"				0'-19.78"	1'-20.38"	1'-14.68"		
EM35A	1'-5.58"	0'-20.18"				0'-20.18"	1'-20.78"	1'-14.88"		
EM36A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM37A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM38A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM39A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM40A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM41A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM42A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM43A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM44A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM45A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM46A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM47A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM48A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM49A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM50A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM51A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM52A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM53A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM54A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM55A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM56A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM57A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM58A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM59A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM60A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM61A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM62A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM63A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM64A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM65A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM66A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM67A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM68A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM69A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM70A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM71A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM72A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM73A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM74A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM75A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM76A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM77A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM78A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM79A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM80A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM81A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM82A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM83A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM84A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM85A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM86A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM87A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM88A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM89A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM90A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM91A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM92A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM93A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM94A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM95A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM96A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM97A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM98A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM99A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		
EM100A	1'-5.78"	0'-20.58"				0'-20.58"	1'-21.18"	1'-15.08"		

## EAST BRIDGE - MIDDLE RUN

ID	P01V	L01	A01	L02	A02	L03	LTOT	ANV	H03V	H04V
EM172A	2'-10.38"	5'-1"					5'-1"	3'-3.38"	6'-1.12"	
EM173A	2'-10.38"	5'-1.18"					5'-1.18"	3'-3.38"	6'-1.58"	
EM174A	2'-10.12"	5'-1.12"					5'-1.38"	3'-3.12"	6'-1.78"	
EM175A	2'-10.12"	5'-1.12"					5'-1.12"	3'-3.12"	6'-2.18"	
EM176A	2'-10.58"	5'-1.58"					5'-1.58"	3'-3.58"	6'-2.14"	
EM177A	2'-10.34"	5'-1.34"					5'-1.34"	3'-3.34"	6'-2.12"	
EM178A	2'-10.34"	5'-2"					5'-2"	3'-3.34"	6'-2.58"	
EM179A	2'-10.78"	5'-2.18"					5'-2.18"	3'-3.78"	6'-2.78"	
EM180A	2'-10.78"	5'-2.14"					5'-2.14"	3'-3.78"	6'-3"	
EM181A	2'-11"	5'-2.38"					5'-2.38"	3'-4"	6'-3.14"	
EM182A	2'-11"	5'-2.58"					5'-2.58"	3'-4"	6'-3.38"	
EM183A	2'-11.18"	5'-2.34"					5'-2.34"	3'-4.18"	6'-3.58"	
EM184A	2'-11.18"	5'-2.38"					5'-2.38"	3'-4.18"	6'-3.34"	
EM185A	2'-11.14"	5'-3"					5'-3"	3'-4.14"	6'-3.78"	
EM186A	2'-11.14"	5'-3.18"					5'-3.18"	3'-4.14"	6'-4.18"	
EM187A	2'-11.38"	5'-3.14"					5'-3.14"	3'-4.38"	6'-4.14"	
EM188A	2'-11.12"	5'-3.12"					5'-3.12"	3'-4.12"	6'-4.12"	
EM189A	2'-11.12"	5'-3.58"					5'-3.58"	3'-4.12"	6'-4.58"	
EM190A	2'-11.58"	5'-3.34"					5'-3.34"	3'-4.58"	6'-4.34"	
EM191A	2'-11.58"	5'-3.78"					5'-3.78"	3'-4.58"	6'-5"	
EM192A	2'-11.34"	5'-4"					5'-4"	3'-4.34"	6'-5.18"	
EM193A	2'-11.34"	5'-4.18"					5'-4.18"	3'-4.34"	6'-5.14"	
EM194A	2'-11.78"	5'-4.14"					5'-4.14"	3'-4.78"	6'-5.12"	
EM195A	2'-11.78"	5'-4.38"					5'-4.38"	3'-4.78"	6'-5.58"	
EM196A	2'-11.78"	5'-4.12"					5'-4.12"	3'-5"	6'-5.34"	
EM197A	2'-11.78"	5'-4.58"					5'-4.58"	3'-5"	6'-5.58"	
EM198A	3'-0.18"	5'-4.34"					5'-4.34"	3'-5.18"	6'-6.18"	
EM199A	3'-0.14"	5'-4.78"					5'-4.78"	3'-5.18"	6'-6.14"	
EM200A	3'-0.14"	5'-5"					5'-5"	3'-5.14"	6'-6.38"	
EM201A	3'-0.38"	5'-5"					5'-5"	3'-5.38"	6'-6.58"	
EM202A	3'-0.38"	5'-5.18"					5'-5.18"	3'-5.38"	6'-6.94"	
EM203A	3'-0.12"	5'-5.14"					5'-5.14"	3'-5.12"	6'-6.78"	
EM204A	3'-0.12"	5'-5.38"					5'-5.38"	3'-5.12"	6'-7.18"	
EM205A	3'-0.58"	5'-5.12"					5'-5.12"	3'-5.58"	6'-7.18"	
EM206A	3'-0.58"	5'-5.58"					5'-5.58"	3'-5.58"	6'-7.14"	
EM207A	3'-0.34"	5'-5.34"					5'-5.58"	3'-5.34"	6'-7.12"	
EM208A	3'-0.78"	5'-5.34"					5'-5.34"	3'-5.78"	6'-7.58"	
EM209A	3'-0.78"	5'-5.78"					5'-5.78"	3'-5.78"	6'-7.34"	
EM210A	3'-0.78"	5'-6"					5'-6"	3'-6"	6'-7.78"	
EM211A	3'-1"	5'-6.18"					5'-6.18"	3'-6"	6'-8"	
EM212A	3'-1.18"	5'-6.18"					5'-6.18"	3'-6.18"	6'-8.18"	
EM213A	3'-1.18"	5'-6.14"					5'-6.14"	3'-6.18"	6'-8.18"	
EM214A	3'-1.14"	5'-6.38"					5'-6.38"	3'-6.14"	6'-8.38"	
EM215A	3'-1.14"	5'-6.38"					5'-6.38"	3'-6.14"	6'-8.12"	
EM216A	3'-1.38"	5'-6.12"					5'-6.12"	3'-6.38"	6'-8.58"	
EM217A	3'-1.38"	5'-6.38"					5'-6.38"	3'-6.38"	6'-8.34"	
EM218A	3'-1.12"	5'-6.58"					5'-6.58"	3'-6.12"	6'-8.78"	
EM219A	3'-1.58"	5'-6.34"					5'-6.34"	3'-6.58"	6'-9"	
EM220A	3'-1.58"	5'-6.78"					5'-6.34"	3'-6.58"	6'-9.18"	
EM221A	3'-1.34"	5'-6.78"					5'-6.78"	3'-6.34"	6'-9.34"	
EM222A	3'-1.34"	5'-7"					5'-7"	3'-6.34"	6'-9.38"	
EM223A	3'-1.34"	5'-7.18"					5'-7.18"	3'-6.34"	6'-10.12"	
EM224A	3'-1.34"	5'-7.18"					5'-7.18"	3'-6.34"	6'-9.58"	
EM225A	3'-1.78"	5'-7.14"					5'-7.14"	3'-6.78"	6'-9.34"	
EM226A	3'-1.78"	5'-7.38"					5'-7.38"	3'-6.78"	6'-9.78"	
EM227A	3'-1.78"	5'-7.12"					5'-7.12"	3'-6.78"	6'-9.78"	
EM228A	3'-1.78"	5'-7.58"					5'-7.58"	3'-6.78"	6'-10"	
EM229A	3'-1.78"	5'-7.34"					5'-7.34"	3'-6.78"	6'-10.18"	
EM230A	3'-2"	5'-7.34"					5'-7.34"	3'-7"	6'-10.14"	
EM231A	3'-2"	5'-7.78"					5'-7.78"	3'-7"	6'-10.38"	
EM232A	3'-2"	5'-8"					5'-8"	3'-7"	6'-10.38"	
EM233A	3'-2"	5'-8.18"					5'-8.18"	3'-7"	6'-10.12"	
EM234A	3'-2"	5'-8.18"					5'-8.18"	3'-7"	6'-10.58"	
EM235A	3'-2"	5'-8.14"					5'-8.14"	3'-7.7"	6'-10.34"	
EM236A	3'-2.18"	5'-8.18"					5'-8.38"	3'-7.18"	6'-10.78"	
EM237A	3'-2.18"	5'-8.12"					5'-8.12"	3'-7.18"	6'-10.78"	
EM238A	3'-2.18"	5'-8.12"					5'-8.12"	3'-7.18"	6'-11"	
EM239A	3'-2.18"	5'-8.58"					5'-8.58"	3'-7.18"	6'-11.18"	
EM240A	3'-2.18"	5'-8.58"					5'-8.58"	3'-7.18"	6'-11.18"	
EM241A	3'-2.18"	5'-8.34"					5'-8.34"	3'-7.18"	6'-11.14"	
EM242A	3'-2.14"	5'-8.78"					5'-8.78"	3'-7.14"	6'-11.38"	
EM243A	3'-2.14"	5'-8.78"					5'-8.78"	3'-7.14"	6'-11.38"	
EM244A	3'-2.14"	5'-9"					5'-9"	3'-7.14"	6'-11.12"	
EM245A	3'-2.14"	5'-9"					5'-9"	3'-7.14"	6'-11.58"	
EM246A	3'-2.14"	5'-9.18"					5'-9.18"	3'-7.14"	6'-11.58"	
EM247A	3'-2.38"	5'-9.18"					5'-9.18"	3'-7.38"	6'-11.34"	
EM248A	3'-2.38"	5'-9.14"					5'-9.14"	3'-7.38"	6'-11.34"	
EM249A	3'-2.38"	5'-9.14"					5'-9.14"	3'-7.38"	6'-11.78"	
EM250A	3'-2.38"	5'-9.38"					5'-9.38"	3'-7.38"	7"	
EM251A	3'-2.38"	5'-9.38"					5'-9.38"	3'-7.38"	7.04"	
EM252A	3'-2.38"	5'-9.12"					5'-9.12"	3'-7.38"	7.08"	
EM253A	3'-2.12"	5'-9.12"					5'-9.12"	3'-7.12"	7.08"	
EM254A	3'-2.12"	5'-9.58"					5'-9.58"	3'-7.12"	7.04"	
EM255A	3'-2.12"	5'-9.58"					5'-9.58"	3'-7.12"	7.04"	
EM256A	3'-2.12"	5'-9.38"					5'-9.38"	3'-7.12"	7.08"	
EM257A	3'-2.12"	5'-9.34"					5'-9.34"	3'-7.12"	7.08"	
EM258A	3'-2.58"	5'-9.34"					5'-9.34"	3'-5.58"	7.08"	
EM259A	3'-2.58"	5'-9.34"					5'-9.34"	3'-5.58"	7.08"	
EM260A	3'-2.58"	5'-9.78"					5'-9.78"	3'-5.58"	7.08"	
EM261A	3'-2.58"	5'-9.78"					5'-9.78"	3'-5.58"	7.08"	
EM262A	3'-2.58"	5'-9.78"					5'-9.78"	3'-5.58"	7.08"	
EM263A	3'-2.58"	5'-9.78"					5'-9.78"	3'-5.58"	7.04"	
EM264A	3'-2.34"	5'-10"					5'-10"	3'-7.34"	7.04"	
EM265A	3'-2.34"	5'-10"					5'-10"	3'-7.34"	7.04"	
EM266A	3'-2.34"	5'-10"					5'-10"	3'-7.34"	7.08"	
EM267A	3'-2.34"	5'-10"					5'-10"	3'-7.34"	7.08"	
EM268A	3'-2.34"	5'-10.18"					5'-10.18"	3'-7.34"	7.08"	
EM269A	3'-2.78"	5'-10.58"					5'-10.18"	3'-7.78"	7.1"	
EM270A	3'-2.78"	5'-10.18"					5'-10.18"	3'-7.78"	7.1"	
EM271A	3'-2.78"	5'-10.18"					5'-10.18"	3'-7.78"	7.1"	
EM272A	3'-2.78"	5'-10.18"					5'-10.18"	3'-7.78"	7.1"	
EM273A	3'-2.78"	5'-10.18"					5'-10.18"	3'-7.78"	7.1.18"	
EM274A	3'-2.78"	5'-10.18"					5'-10.18"	3'-7.78"	7.1.18"	
EM275A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.18"	
EM276A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.18"	
EM277A	3'-3"	5'-10.78"					5'-10.18"	3'-8"	7.1.18"	
EM278A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.14"	
EM279A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.14"	
EM280A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM281A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM282A	3'-3.18"	5'-10.58"					5'-10.18"	3'-8.18"	7.1.14"	
EM283A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM284A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM285A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.14"	
EM286A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM287A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM288A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM289A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM290A	3'-3.38"	5'-10"					5'-10"	3'-8.38"	7.1.38"	
EM291A	3'-3.14"	5'-10"					5'-10"	3'-8.14"	7.1.38"	
EM292A	3'-3.14"	5'-10"					5'-10"	3'-8.14"	7.1.38"	
EM293A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM294A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM295A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM296A	3'-3.14"	5'-10.18"					5'-10.18"	3'-8.14"	7.1.38"	
EM297A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM298A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM299A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM300A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM301A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM302A	3'-3.18"	5'-10.18"					5'-10.18"	3'-8.18"	7.1.14"	
EM303A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.14"	
EM304A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.14"	
EM305A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.18"	
EM306A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.18"	
EM307A	3'-3"	5'-10.18"					5'-10.18"	3'-8"	7.1.18"	
EM308A	3'-3"	5'-10"					5'-10"	3'-8"	7.1.18"	
EM309A	3'-2.78"	5'-10"					5'-10"	3'-7.78"	7.1"	
EM310A	3'-2.78"	5'-10"					5'-10"	3'-7.78"	7.1"	
EM311A	3'-2.78"	5'-10"					5'-10"	3'-7.78"	7.1"	
EM312A	3'-2.78"	5'-10"	</							