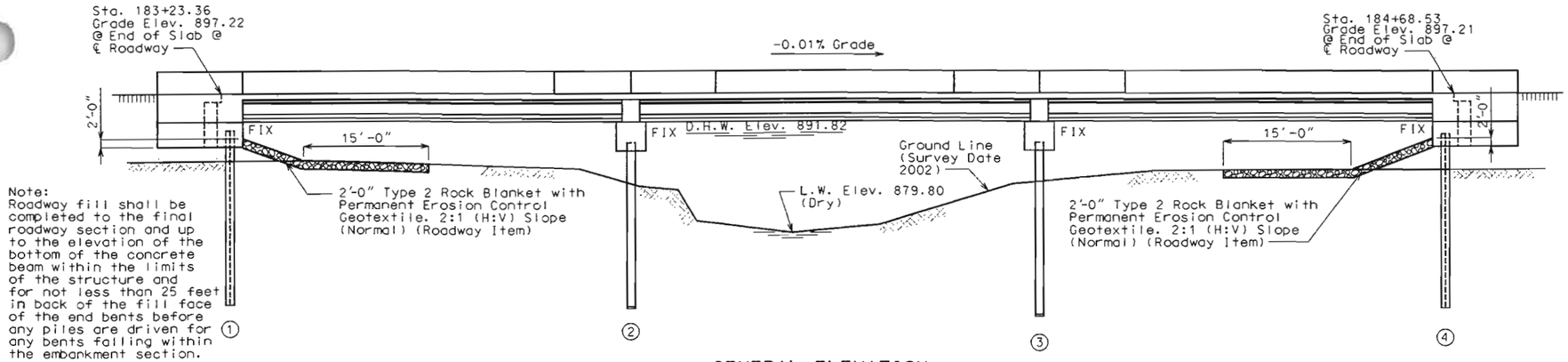
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION
(3 @ 48′) PRESTRESSED CONCRETE I-GIRDER SPANS

State	Proj. No.	Sheet No.
MO		B33
SEC 16	TWP 35N	RGE 24W



GENERAL ELEVATION

NOTES:

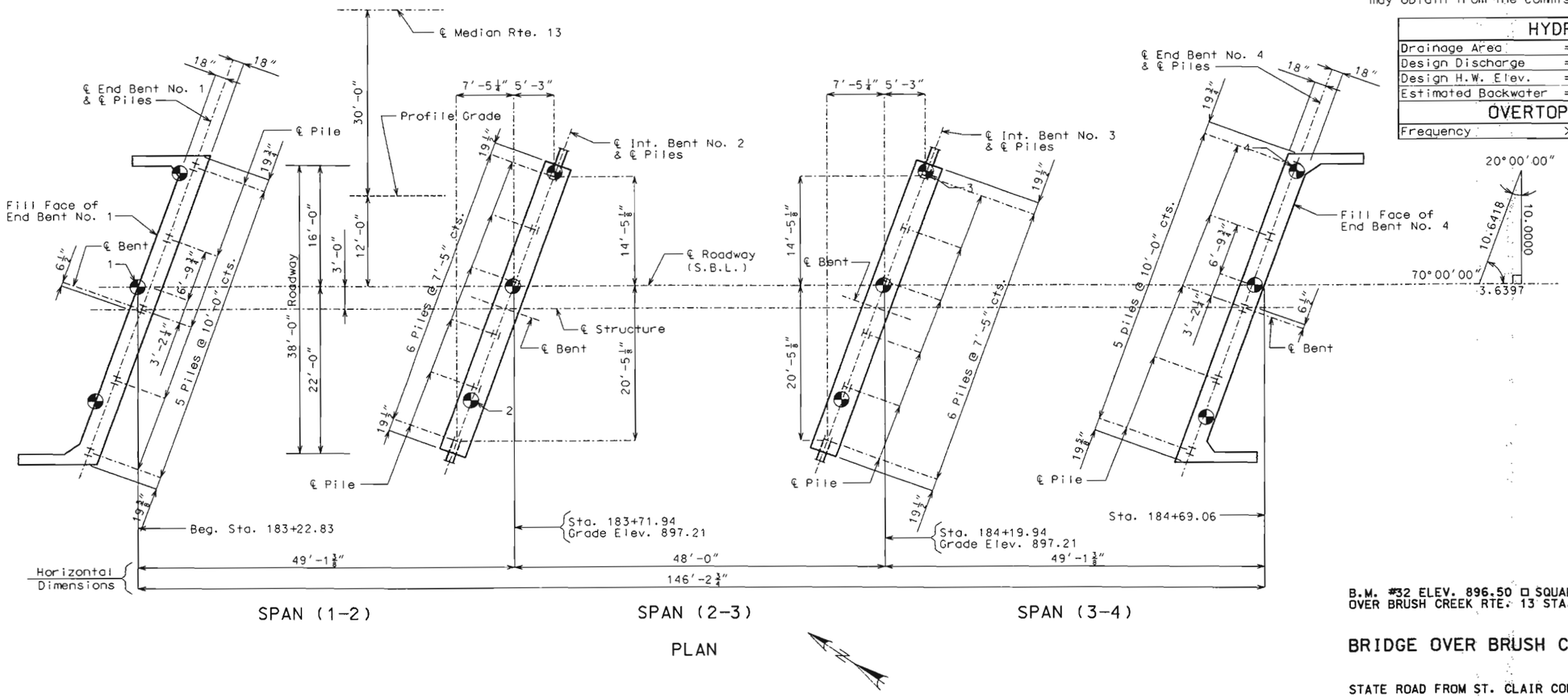
For General Notes, Pile Data, Location Sketch and Estimated Quantities, see Sheet No. 2.

"⊕" Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data
The locations of all subsurface borings for this structure are shown on the bridge plan sheet for this structure. Boring data for the numbered locations is shown on Sheet No. 3. 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 department for the design of the project, is available from the Project Contact upon written request as outlined in the Project Special Provisions. No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. 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 those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

HYDROLOGIC DATA		
Drainage Area	=	7.5 sq. miles (Hilly/Rolling)
Design Discharge	=	4,320 cu. ft./sec. (100 years)
Design H.W. Elev.	=	891.82 feet (100 years)
Estimated Backwater	=	3.12 feet
OVERTOPPING FLOOD DATA		
Frequency		> 500 years



PLAN

B.M. #32 ELEV. 896.50 □ SQUARE ON S.W. WING SOUTH END OF BRIDGE OVER BRUSH CREEK RTE. 13 STA. 184+68.8 23.6′ LEFT OF ℄ MEDIAN

BRIDGE OVER BRUSH CREEK

STATE ROAD FROM ST. CLAIR COUNTY LINE TO RTE. 123
ABOUT 3.6 MILES S.E. OF ST. CLAIR COUNTY LINE
PROJECT NO. STA. 183+22.83
JOB NO. J8P0590B RTE. 13 (S.B.L.)

POLK COUNTY Date: 6/10/04

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER
DATE 6-10-04

STD. 609.00
STD. 706.35
A7004

REV.

Designed Feb. 2004
Detailed Feb. 2004
Checked Apr. 2004

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

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State	Proj. No.	Sheet No.
MO		B34

Estimated Quantities

Item		Substr.	Superstr.	Total
Bridge Approach Slab (Bridge)	sq. yard		220	220
Structural Steel Piles (12 in.)	linear foot	456		456
Pre-bore for Piling	linear foot	189		189
Pile Point Reinforcement	each	22		22
Class B Concrete (Substructure)	cu. yard	69.0		69.0
Slab on Concrete I-Girder	sq. yard		656	656
* Safety Barrier Curb	linear foot		321	321
Prestressed Concrete I-Girder, 48 ft. Span	each		15	15
Reinforcing Steel (Bridges)	pound	5.080		5.080
Slab Drain	each		24	24
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		10	10
Laminated Neoprene Bearing Pad	each		20	20

* Safety Barrier Curb shall be cast-in-place option or slip-form option.

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete I-Girder.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete I-Girder.

All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete I-Girder.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete I-Girder.

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

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20 Modified
35 #/sq. ft. Future Wearing Surface
Earth - 120 #/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft.
Superstructure: Simply-supported, non-composite for dead load.
Continuous composite for live load.

Design Unit Stresses:
Class B Concrete (Substructure) f'c = 3.000 psi
Class B-1 Concrete (Safety Barrier Curb) f'c = 4.000 psi
Class B-2 Concrete (Superstructure, except Prestressed Girders and Safety Barrier Curb) f'c = 4.000 psi

Reinforcing Steel (Grade 60) fy = 60.000 psi
Steel Pile (ASTM A709 Grade 36) fb = 9.000 psi fy = 36.000 psi

For Precast Prestressed Panel Stresses, see Sheet No. 17.

For Prestressed Girder Stresses, see Sheet No. 15.

Neoprene Pads:
Bearings shall be 60 durometer neoprene pads.

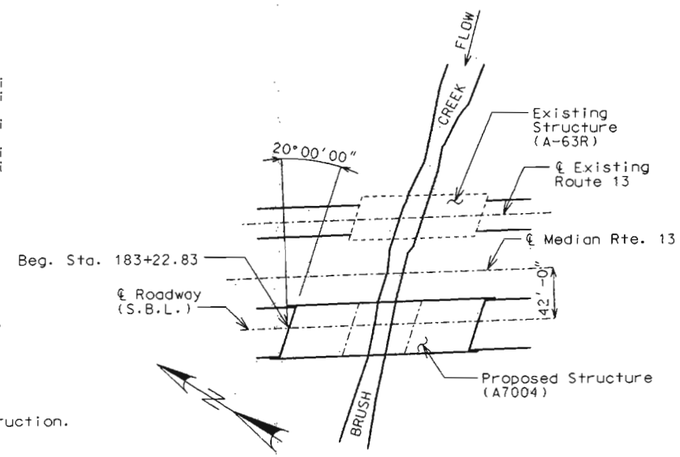
Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

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

Traffic Handling:
Traffic to be maintained on existing structure (A-63R) during construction. (See Roadway Plans).

Structural Steel Protective Coatings:
All exposed surfaces of structural steel piles shall have protective coatings applied in accordance with Sec 702.

Miscellaneous:
"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.



LOCATION SKETCH

Estimated Quantities for Slab on Concrete I-Girder

Item		Total
Class B-2 Concrete	cu. yard	172.9
Reinforcing Steel	pound	8.400
Reinforcing Steel (Epoxy Coated)	pound	43.840

The table of Estimated Quantities for Slab on Concrete I-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard with the horizontal dimensions as shown on the plan of slab. Payment for prestressed panels, conventional forms, all concrete and coated and uncoated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

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.

The Estimated Quantities for Slab on Concrete I-Girder are based on skewed precast prestressed end panels.

Class B-2 Concrete quantity is based on minimum top flange thickness and minimum joint material thickness.

The prestressed panel quantities are not included in the table of Estimated Quantities for Slab on Concrete I-Girder.

Pile Data

Bent No.		1	2	3	4
Pile Type and Size		HP12 X 53	HP12 X 53	HP12 X 53	HP12 X 53
Number		5	6	6	5
Approximate Length	foot	21	20	21	21
Design Bearing	ton	61	62	62	61
Hammer Energy Required	foot-pound	13,700	14,600	14,600	13,700

Minimum energy requirement of hammer is based on plan length and design bearing value of piles.

All piles shall be driven to practical refusal.

Prebore for piles at Bents No. 2 & 3 to Elevation 870.00.

Manufactured pile point reinforcement shall be used on all piles in this structure.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28895
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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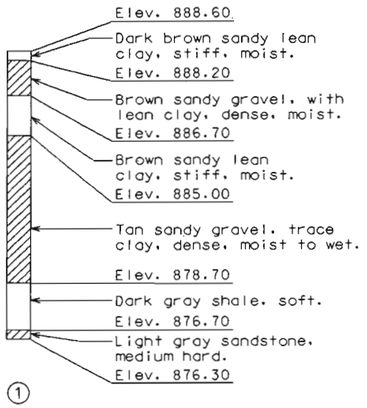
State	Proj. No.	Sheet No.
MO		B35



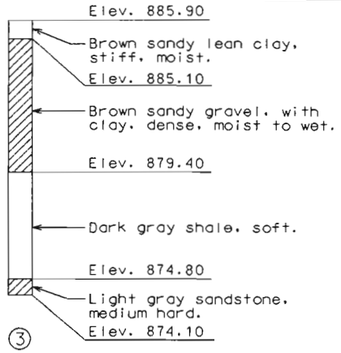
①

Standard Penetration Test

Depth (ft.)	SPT Blows/6"	Pocket Pen. (tsf)	
			Elev. 886.50
			Dark brown sandy lean clay, stiff, moist.
5.0	6-11-9	Gravel	Elev. 881.70
			Tan sandy gravel, scattered clay, dense, moist to wet.
			Elev. 879.80
			Light gray medium grained sandstone, thin bedded, medium hard, scattered thin vuggy zones throughout.
			Elev. 869.80

②

(Core)



③

Standard Penetration Test

Depth (ft.)	SPT Blows/6"	Pocket Pen. (tsf)	
			Elev. 887.60
			Dark brown sandy lean clay, stiff, moist.
			Elev. 885.10
5.0	9-14-21	Gravel	Brown sandy gravel, with clay, dense, moist to wet.
			Elev. 878.00
			Dark gray thinly laminated shale, soft, many pyrite crystals throughout.
			Elev. 874.50
			Light gray medium grained sandstone, thin bedded, medium hard, trace thin weathered zones throughout.
			Elev. 866.60
			Tan fine grained siltstone, with chert seams, thin bedded, soft to medium hard.
			Elev. 864.70
			Tannish-gray medium grained sandstone, thin bedded, medium hard.
			Elev. 862.90

④

(Core)

BORING DATA

NOTE:
For location of borings and Notice and Disclaimer Regarding Boring Log Data, see Sheet No. 1.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

REV.

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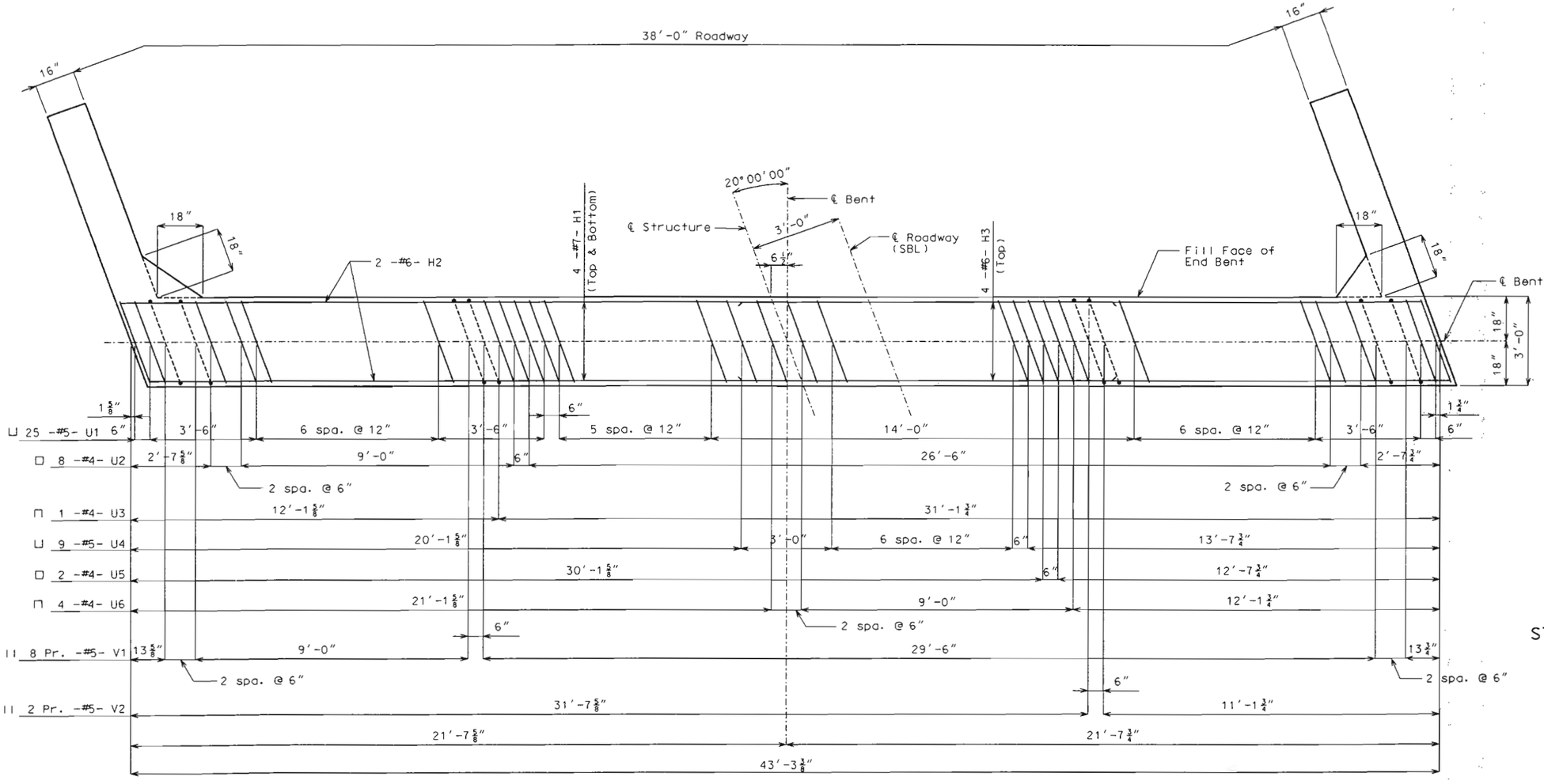
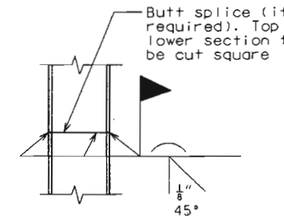
State	Proj. No.	Sheet No.
MO		B36



PLAN OF BEAM SHOWING REINFORCEMENT



STEEL PILE SPLICE

NOTES:

For details of End Bent No. 1 not shown, see Sheets No. 5, 6 and 7.

For details of vertical drain at end bent, see Sheet No. 8.

All U-bars and Pr. V-bars in End Bent are to be placed parallel to ℄ Roadway.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF END BENT NO. 1

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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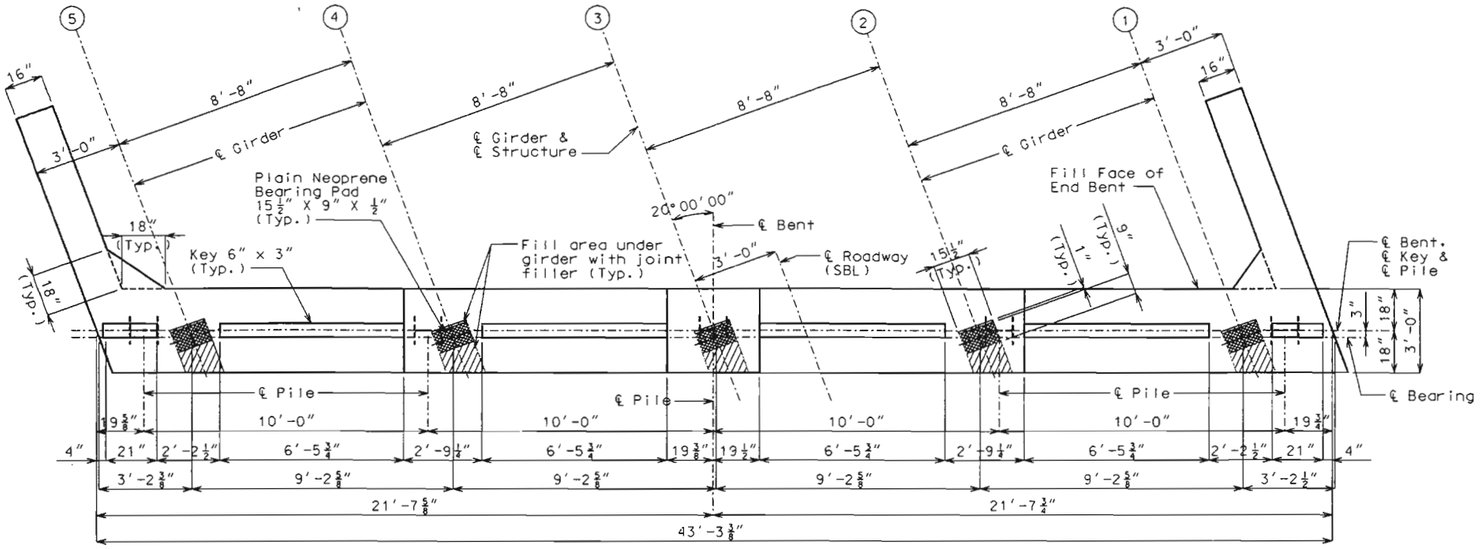
State	Proj. No.	Sheet No.
MO		B37



PLAN OF BEAM SHOWING DIMENSIONS

NOTES:

For details of End Bent No. 1 not shown, see Sheets No. 4, 6 and 7.

For Steel Pile Splice detail, see Sheet No. 4.

For locations of #5 - H4 (Strand Tie Bar) and Coil Tie Rods, see Sheet No. 15.

For Elevations A-A & B-B and Section Thru Wing, see Sheet No. 7.

For details of vertical drain at end bent, see Sheet No. 8.

For details and reinforcement of safety barrier curb not shown, see Sheet No. 23.

For details of approach slab, see Sheet No. 25.

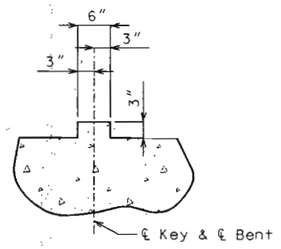
Bend #6 - F1 & F3 bars in field to clear girders.

Strands at end of girder shall be field bent or, if necessary, cut in field to maintain 1½" minimum clearance to fill face of end bent.

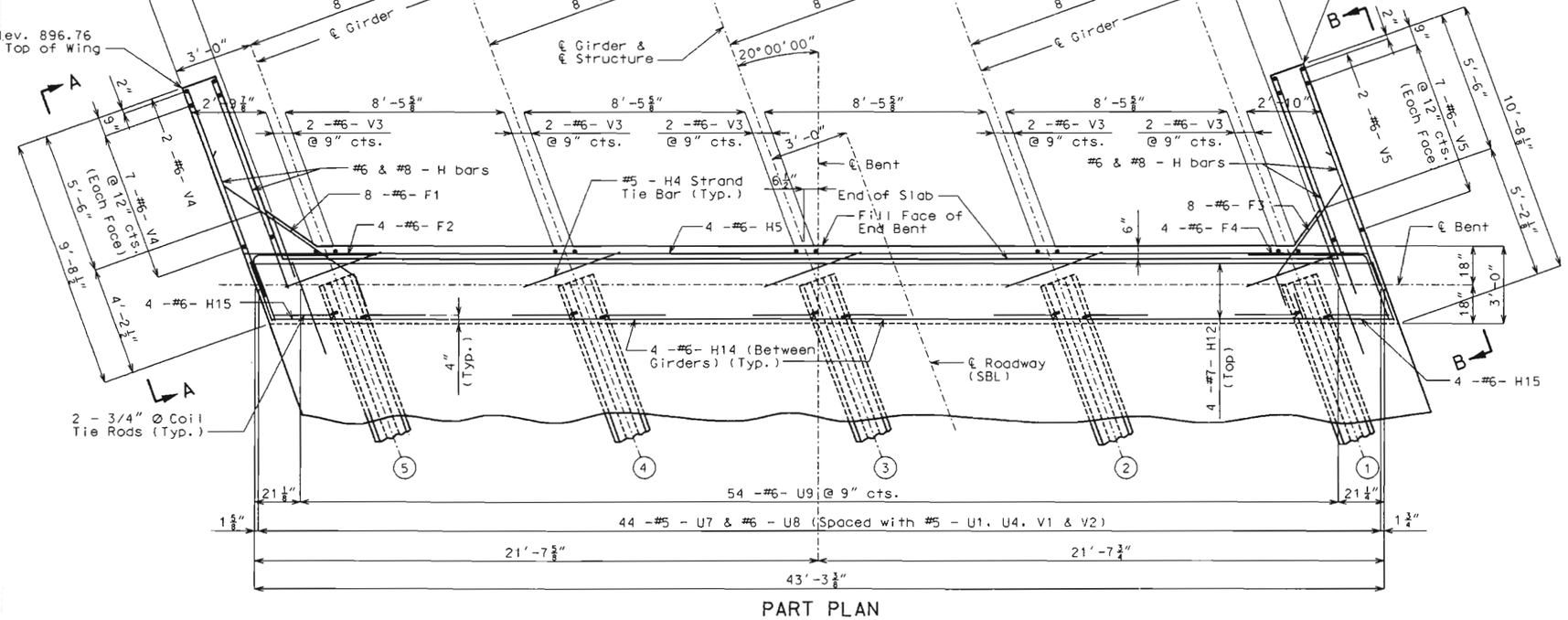
All vertical reinforcing bars in the substructure beam shall be field adjusted to clear piles by at least 1½".

All U-bars in End Bent are to be placed parallel to ℄ Roadway.

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



TYPICAL SECTION THRU KEY



PART PLAN

DETAILS OF END BENT NO. 1

DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER STATE OF MISSOURI

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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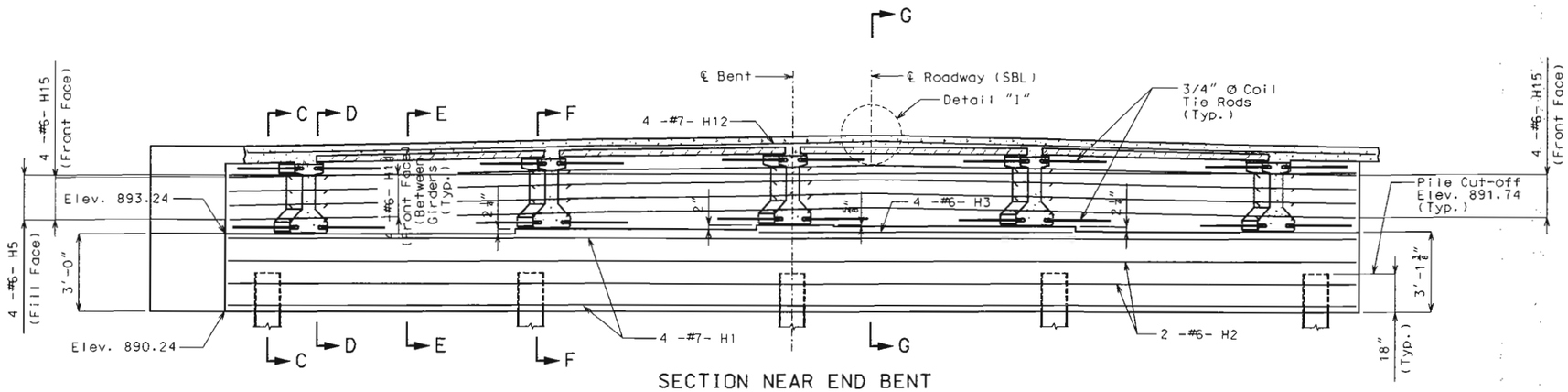
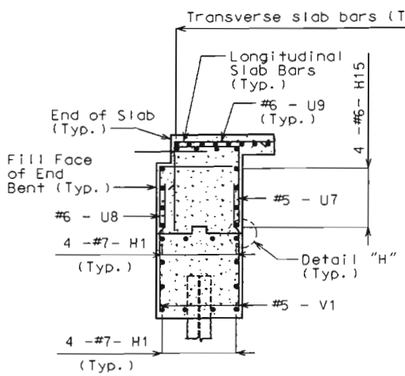
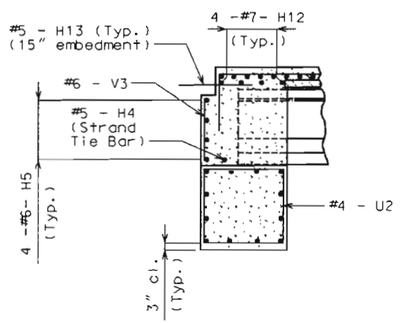
State	Proj. No.	Sheet No.
MO		B38



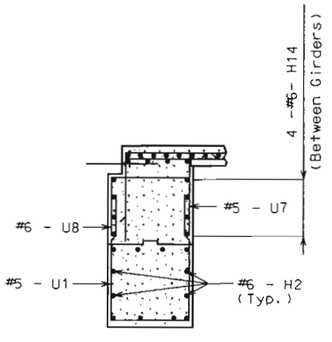
SECTION NEAR END BENT



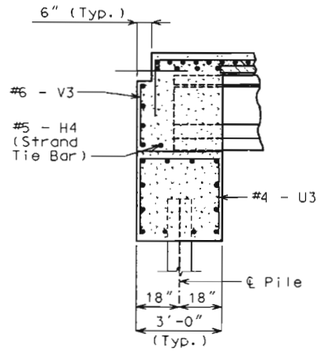
SECTION C-C



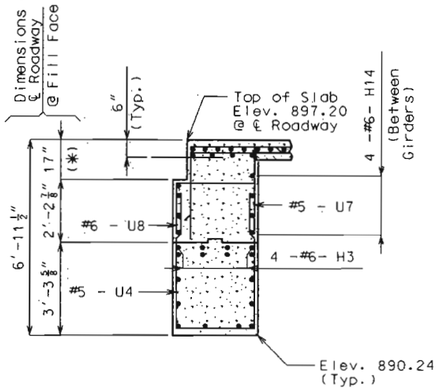
SECTION D-D



SECTION E-E

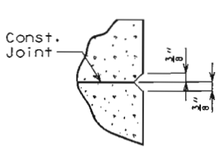


SECTION F-F

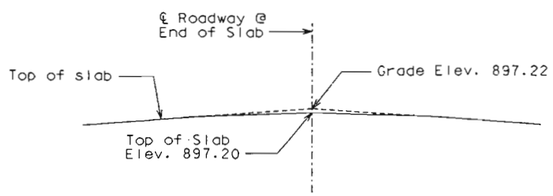


SECTION G-G

(*) = 12" min. @ gutterline.



DETAIL "H"



DETAIL "I"

NOTES:

For Steel Pile Splice Detail, see Sheet No. 4.

For Section Thru Key, see Sheet No. 5.

For details of End Bent No. 1 not shown, see Sheets No. 4, 5 and 7.

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Structural Steel Piles (12 in.)	linear foot	105
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	17.7

NOTE: These quantities are included in the Estimated Quantities Table on Sheet No. 2.

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF END BENT NO. 1

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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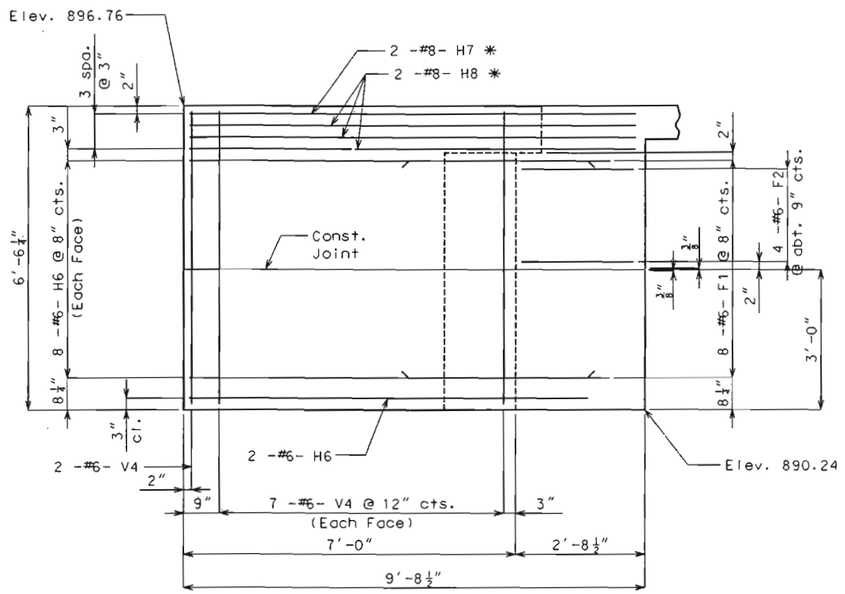
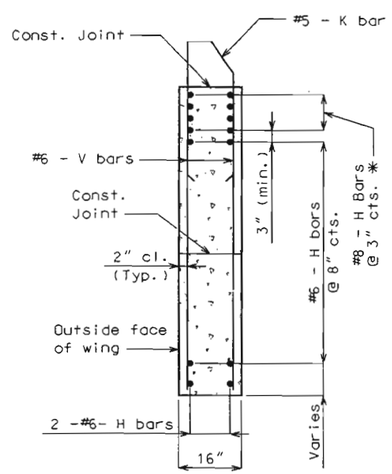
State	Proj. No.	Sheet No.
MO		B39



ELEVATION A-A



TYPICAL SECTION THRU WING

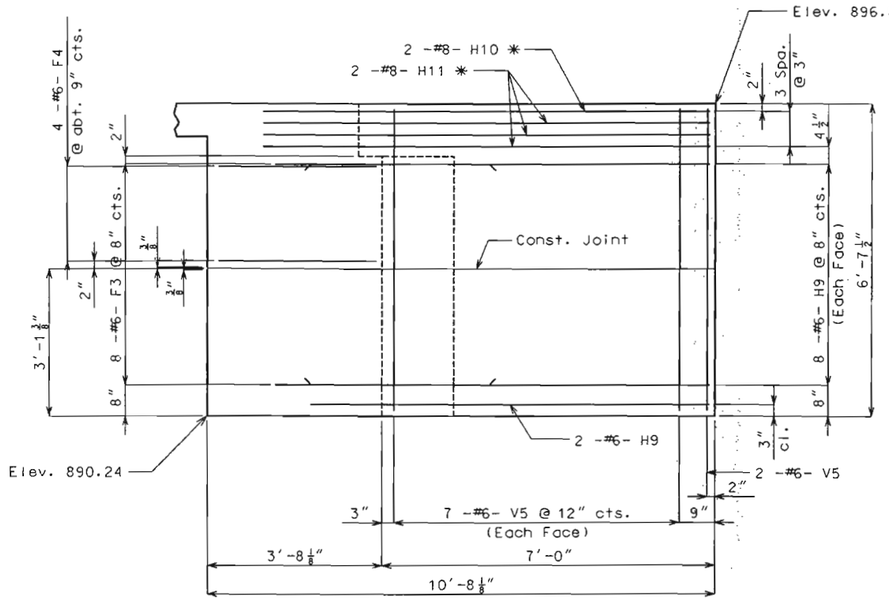
* Placed with grade

NOTES:

For location of Elevations A-A and B-B, see Sheet No. 5.

For details of End Bent No. 1 not shown, see Sheets No. 4, 5 and 6.

For reinforcement of Safety Barrier Curb not shown, see Sheet No. 23.



ELEVATION B-B

DATE 6-10-04

DETAILS OF END BENT NO. 1

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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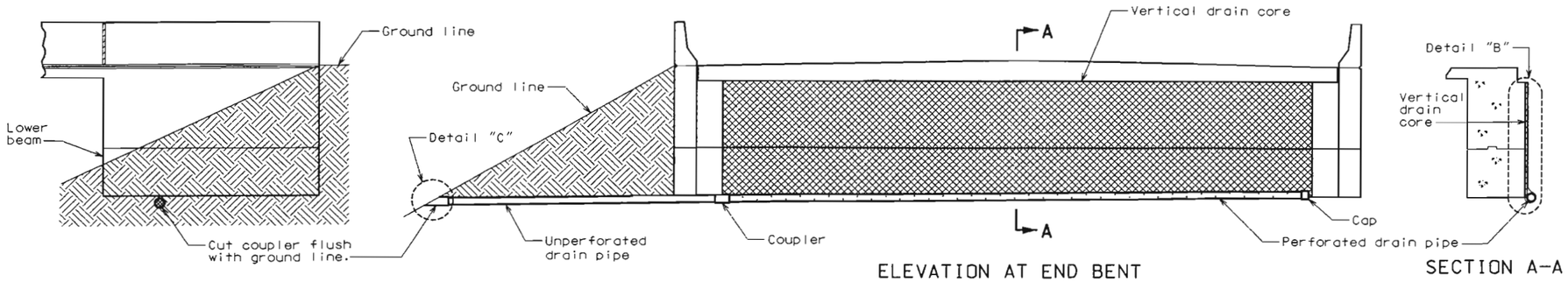
State	Proj. No.	Sheet No.
MO		840



ELEVATION OF WING

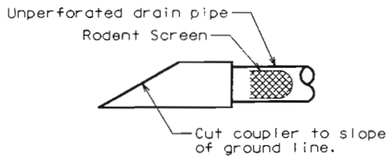
ELEVATION AT END BENT

SECTION A–A

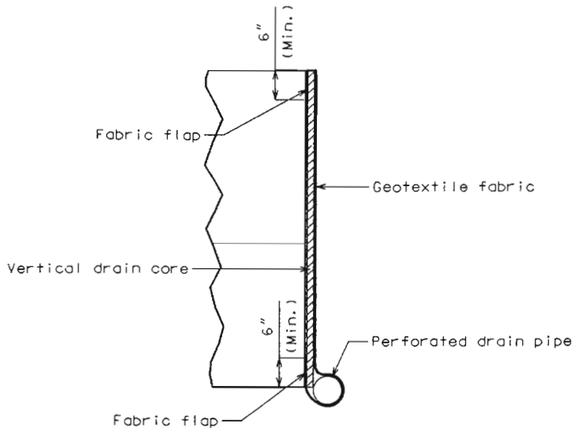
Note:
Drain pipe may be either 6" diameter corrugated metallic-coated steel pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

Place drain pipe at fill face of end bent and slope to lowest grade of ground line, also missing the lower beam of end bent by 1-1/2". (See elevation at end bent.)

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

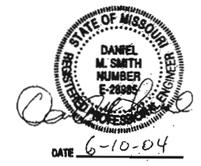


DETAIL "C"



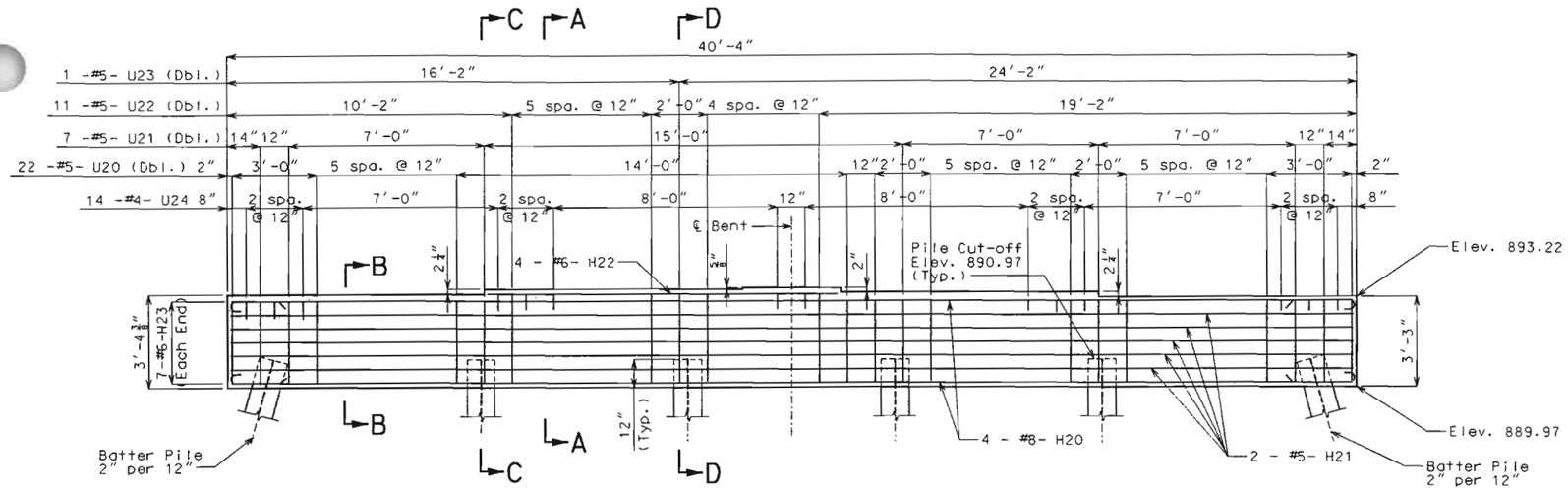
DETAIL "B"

VERTICAL DRAIN AT END BENTS

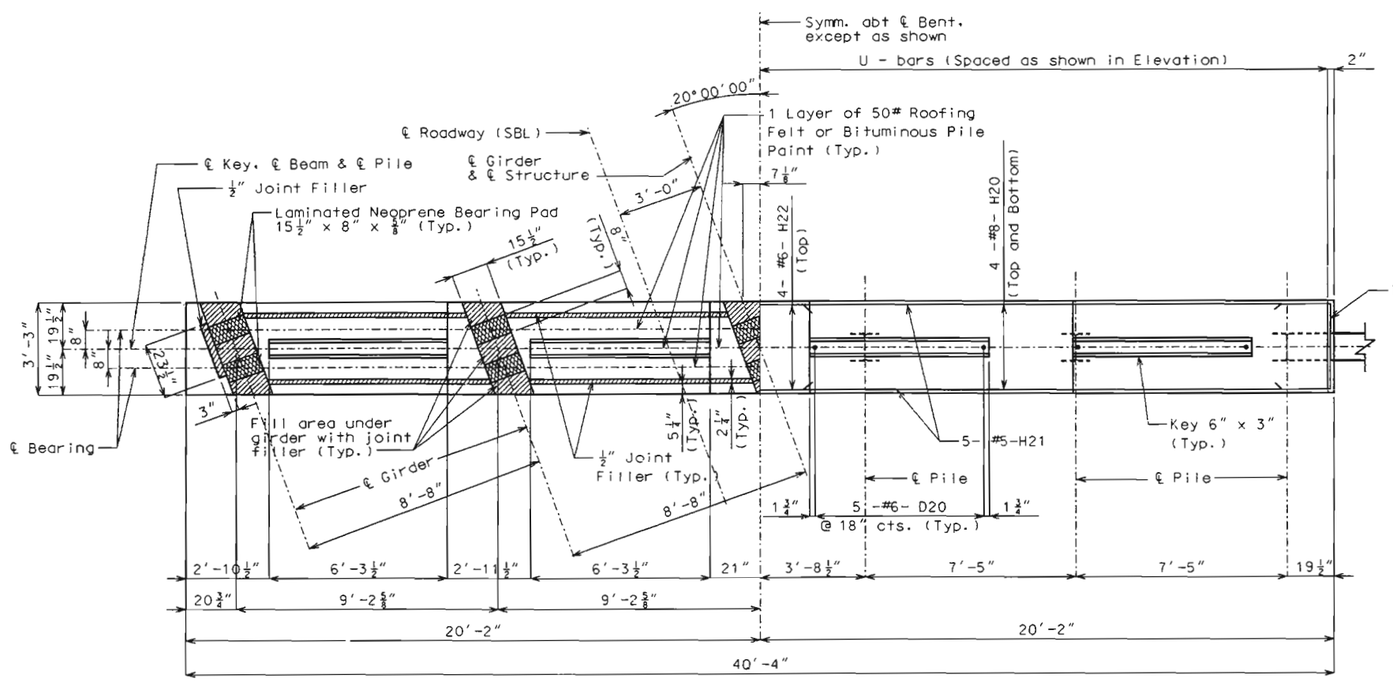


DATE 6-10-04

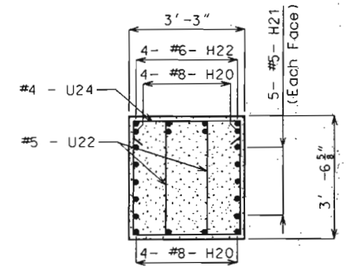
State	Proj. No.	Sheet No.
MO		B41



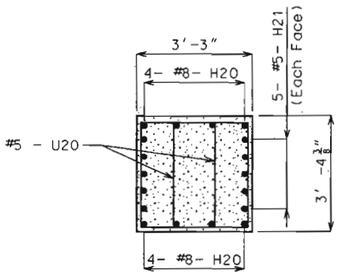
ELEVATION



PLAN OF BEAM



SECTION A-A



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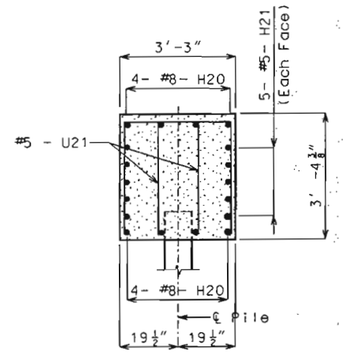
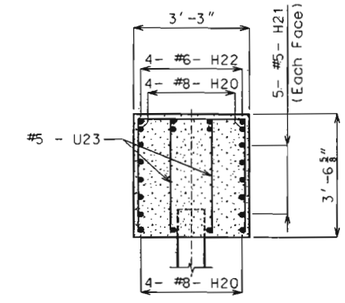
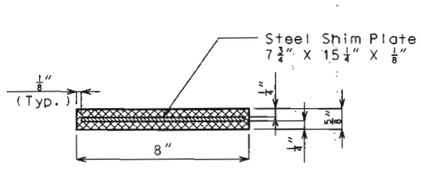


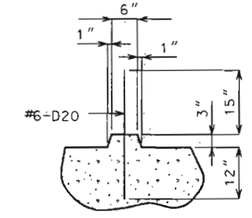
SECTION C-C



SECTION D-D



TYPICAL SECTION THRU 8" x 15½" x ⅝" LAMINATED NEOPRENE BEARING PAD



DETAIL OF KEY

NOTES:

For steps 2" or more, use 2-1/4" x ½" joint filler up vertical face.

For Steel Pile Splice Detail, see Sheet No. 4.

All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least 1-1/2".

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Structural Steel Piles (12 in.)	linear foot	120
Pre-Bore for Piling	linear foot	95
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	16.8
Reinforcing Steel (Bridges)	pound	2,540

NOTE: These quantities are included in the Estimated Quantities table on Sheet No. 2.

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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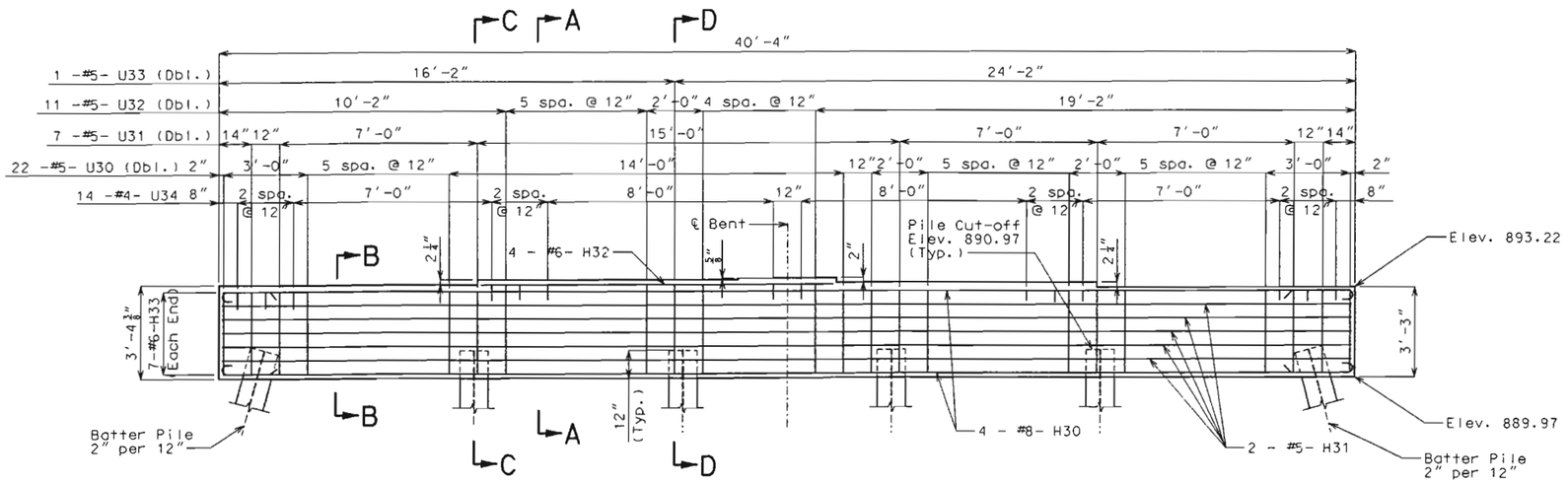
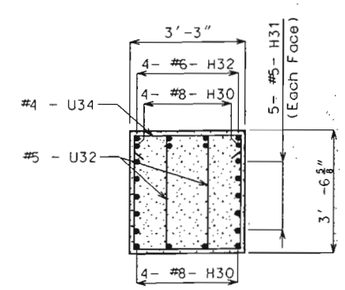
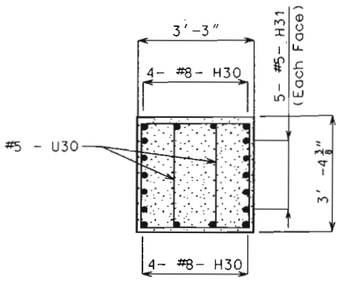
State	Proj. No.	Sheet No.
MO		B42



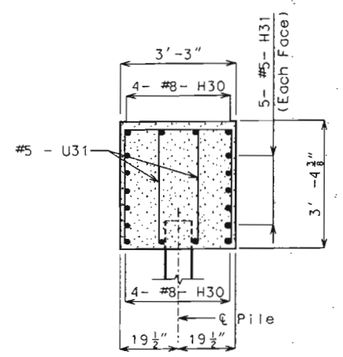
ELEVATION



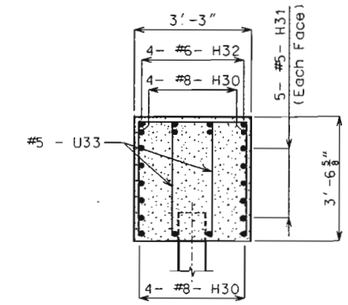
SECTION A-A



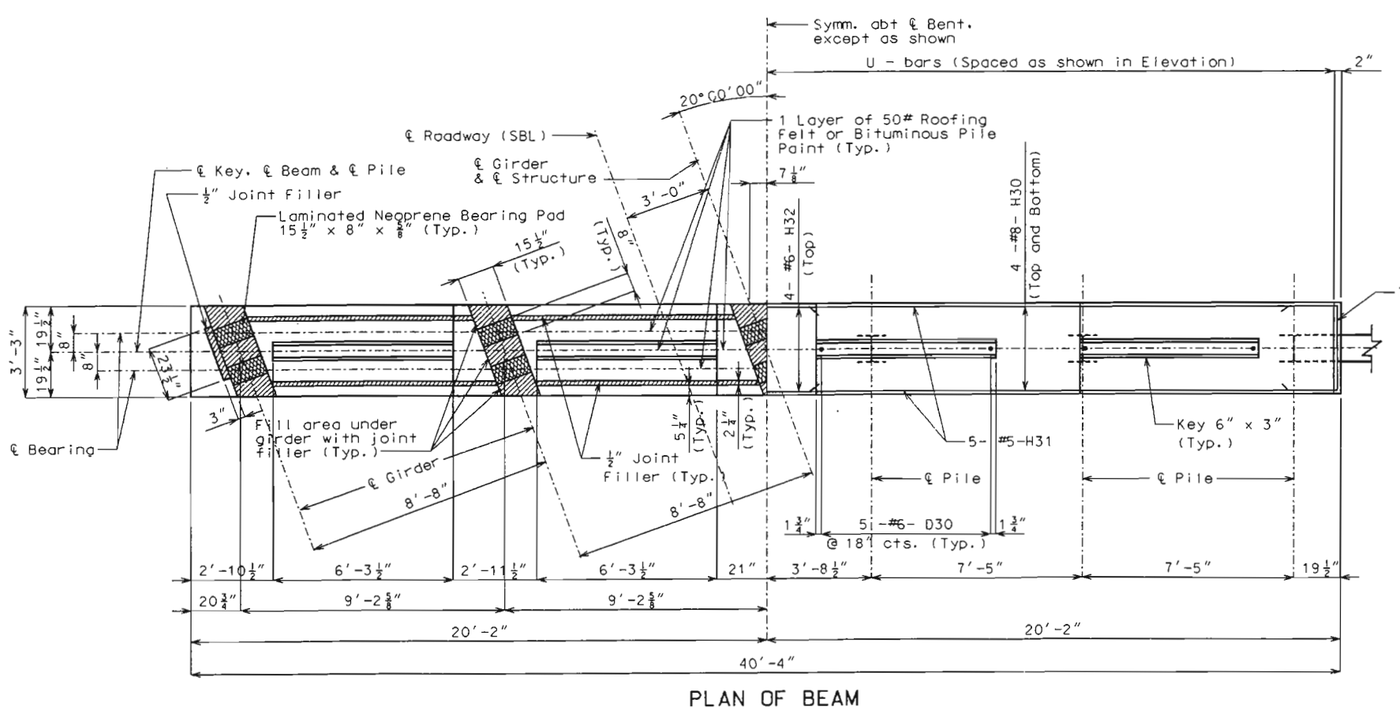
SECTION B-B



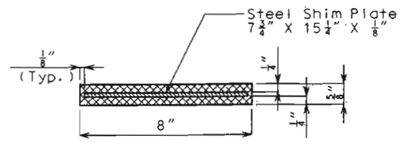
SECTION C-C



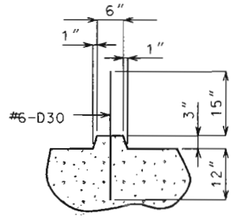
SECTION D-D



PLAN OF BEAM



TYPICAL SECTION THRU 8" x 15½" x ⅝" LAMINATED NEOPRENE BEARING PAD



DETAIL OF KEY

NOTES:

For steps 2" or more, use 2-1/4" x ½" joint filler up vertical face.

For Steel Pile Splice Detail, see Sheet No. 4.

All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least 1-1/2".

Substructure Quantity Table for Bent No. 3		
Item		Quantity
Structural Steel Piles (12 in.)	linear foot	126
Pre-Bore for Piling	linear foot	94
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	16.8
Reinforcing Steel (Bridges)	pound	2,540

NOTE: These quantities are included in the Estimated Quantities table on Sheet No. 2.

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

REV.

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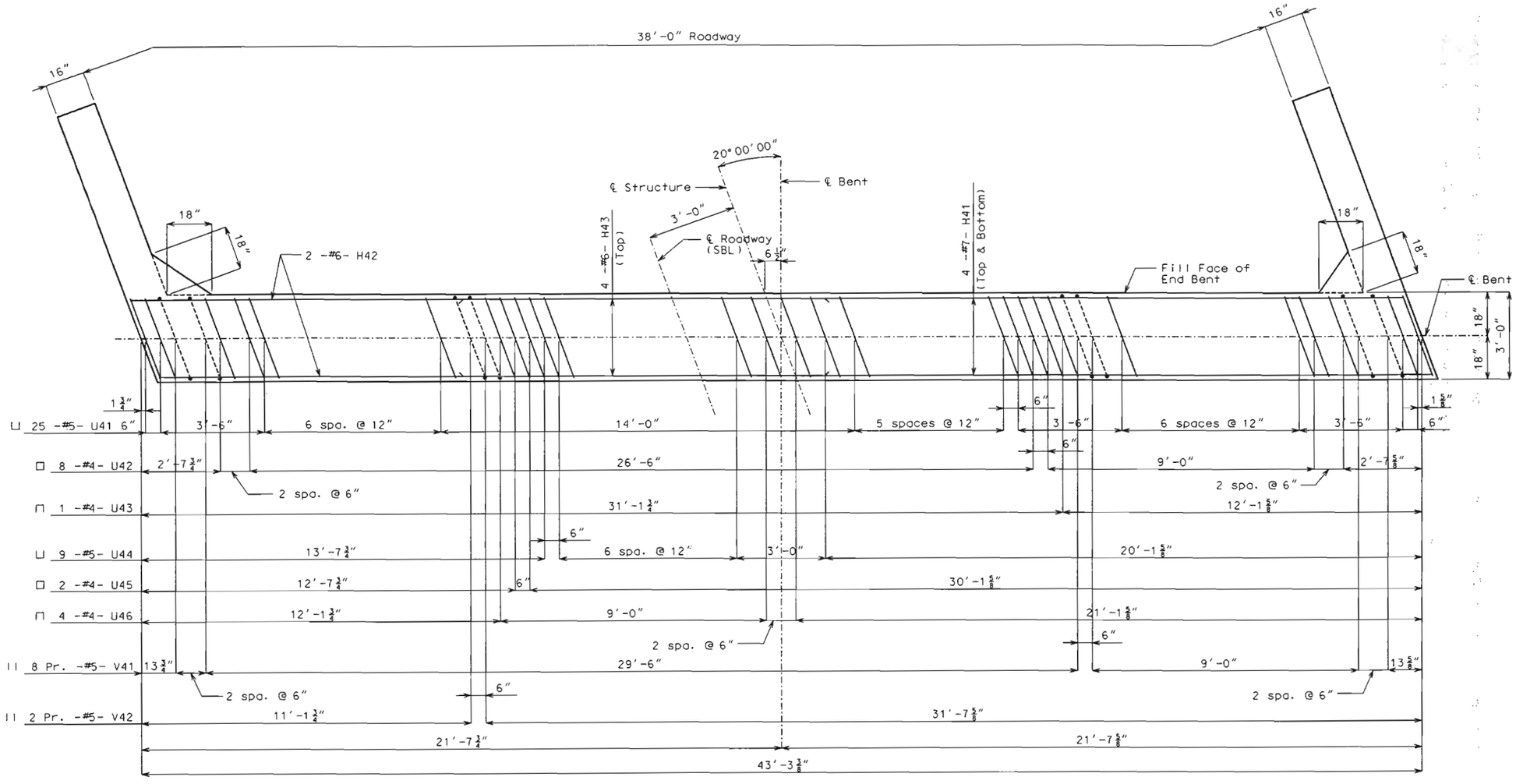
State	Proj. No.	Sheet No.
MO		B43



PLAN OF BEAM SHOWING REINFORCEMENT

NOTES:

For Steel Pile Splice Detail, see Sheet No. 4.

For details of vertical drain at end bent, see Sheet No. 8.

For details of End Bent No. 4 not shown, see Sheets No. 12, 13 and 14.

All U-bars and Pr. V-bars in End Bent are to be placed parallel to ℄ Roadway.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF END BENT NO. 4

Detailed Mar. 2004
Checked Apr. 2004

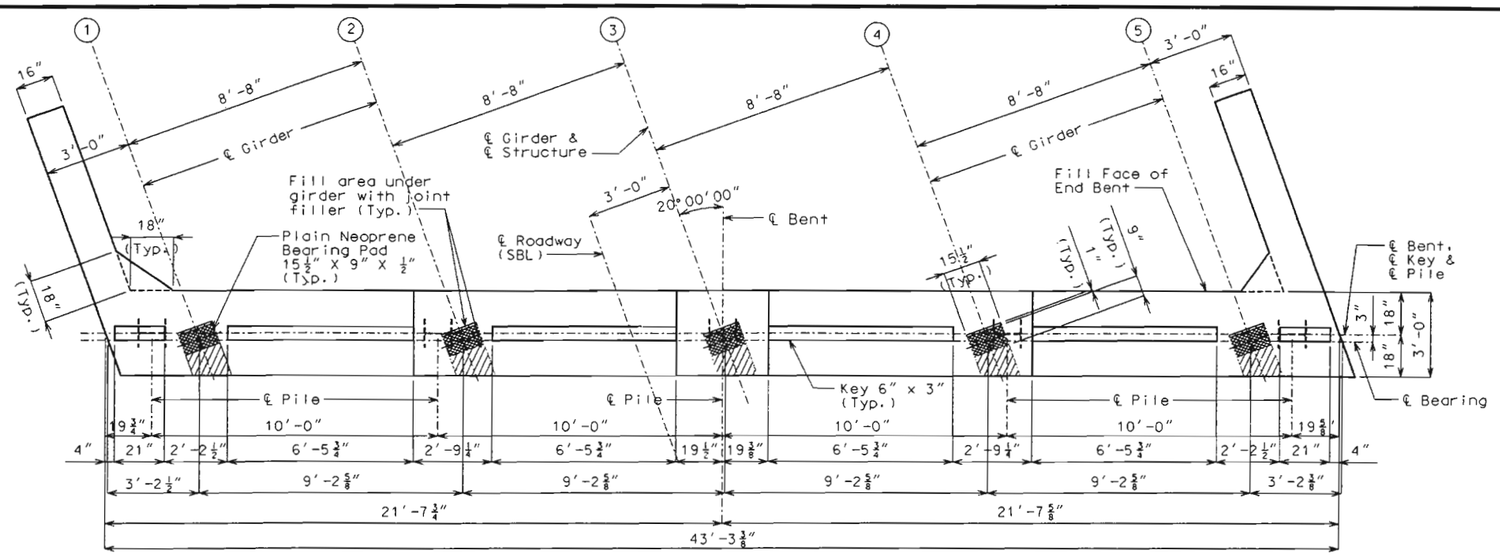
Note: This drawing is not to scale. Follow dimensions.

POLK COUNTY A7004

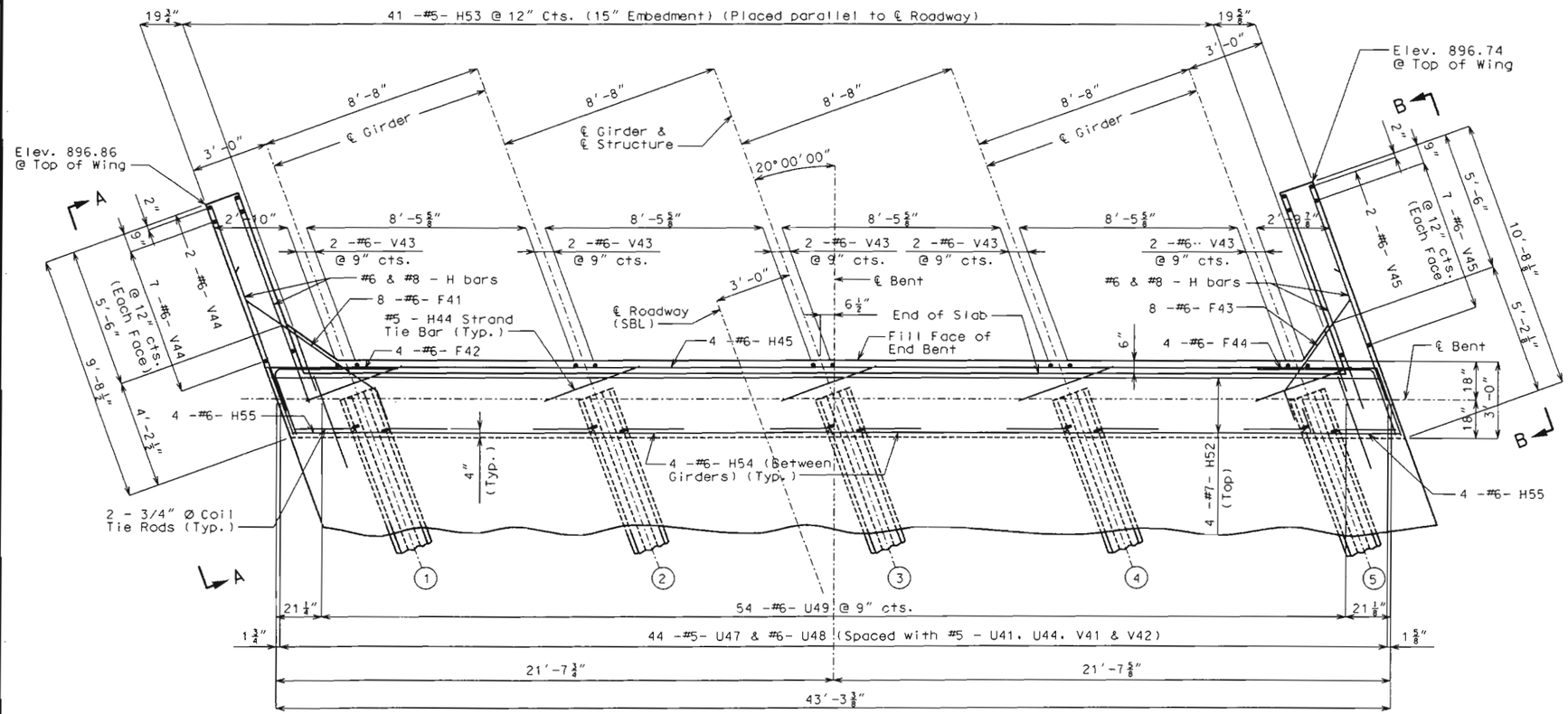
REV.

T:\br-proj\robinp1\Special Assignments\J8P0590B\A7004_011.dgn 02:07:20 PM 06/10/2004

State	Proj. No.	Sheet No.
MO		B44



PLAN OF BEAM SHOWING DIMENSIONS



PART PLAN

NOTES:

For Steel Pile Splice detail, see Sheet No. 4

For details of End Bent No. 4 not shown, see Sheets No. 11, 13 and 14.

For Elevations A-A & B-B and Section Thru Wing, see Sheet No. 14.

For details of vertical drain at end bent, see Sheet No. 8.

For locations of Coil Tie Rods and #5 - H44 (Strand Tie Bar), see Sheet No. 15.

For details and reinforcement of safety barrier curb not shown, see Sheet No. 23.

For details of approach slab, see Sheet No. 25.

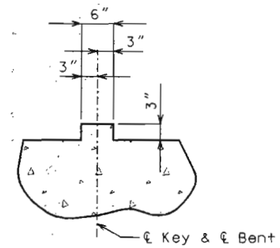
Bend #6 - F41 & F43 bars in field to clear girders.

Strands at end of girder shall be field bent or, if necessary, cut in field to maintain 1½" minimum clearance to fill face of end bent.

All vertical reinforcing bars in the substructure beam shall be field adjusted to clear piles by at least 1½".

All U-bars in End Bent are to be placed parallel to ℄ Roadway.

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



TYPICAL SECTION THRU KEY

DATE 6-10-04

DETAILS OF END BENT NO. 4

Detailed Mar. 2004
Checked Apr. 2004

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

Sheet No. 12 of 28

POLK COUNTY

A7004 REV.

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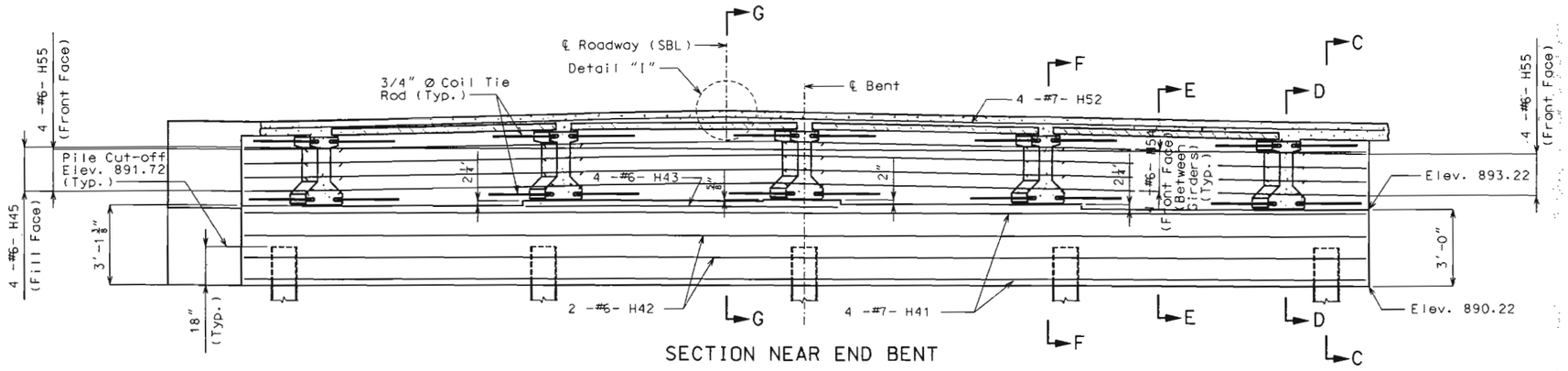
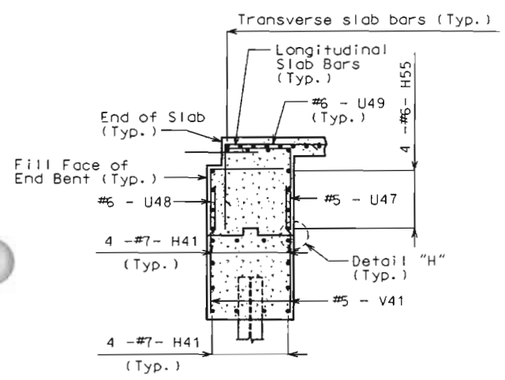
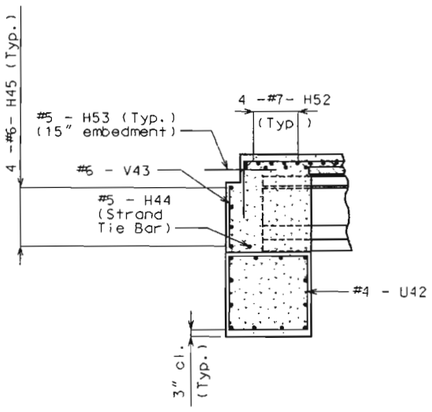
State	Proj. No.	Sheet No.
MO		B45



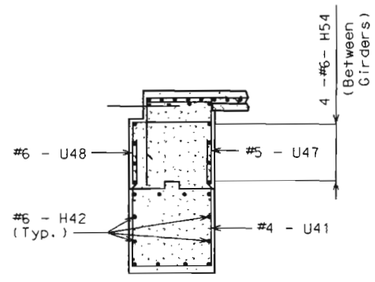
SECTION NEAR END BENT



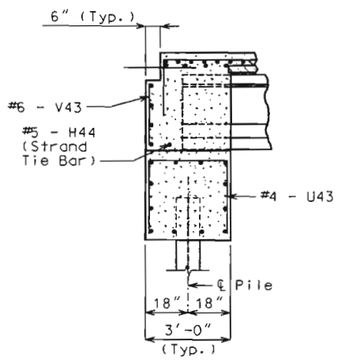
SECTION C-C



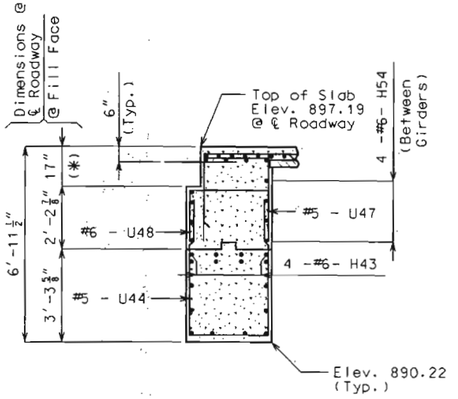
SECTION D-D



SECTION E-E

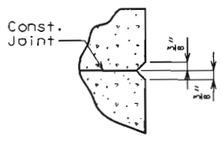


SECTION F-F

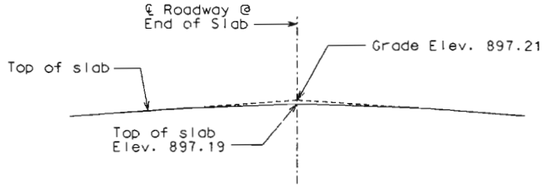


SECTION G-G

(*) = 12" min. @ gutterline.



DETAIL "H"



DETAIL "I"

NOTES:

For Steel Pile Splice Detail, see Sheet No. 4.

For Section Thru Key, see Sheet No. 12.

For details of End Bent No. 4 not shown, see Sheets No. 11, 12 and 14.

Substructure Quantity Table for Bent No. 4		
Item		Quantity
Structural Steel Piles (12 in.)	linear foot	105
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	17.7

NOTE: These quantities are included in the Estimated Quantities Table on Sheet No. 2.

STATE OF MISSOURI
DANIEL M. SMITH NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF END BENT NO. 4

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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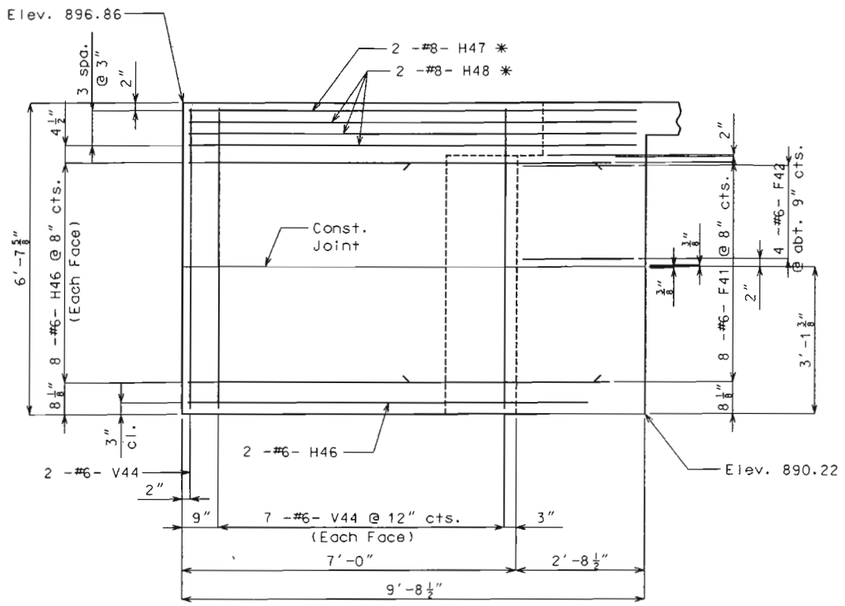
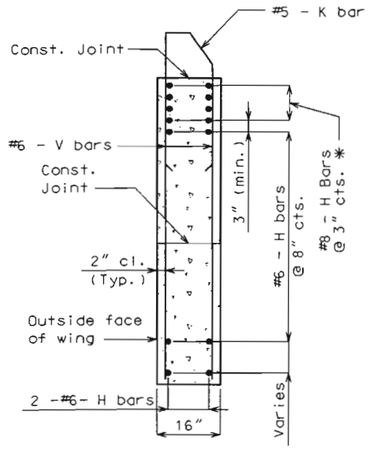
State	Proj. No.	Sheet No.
MO		B46

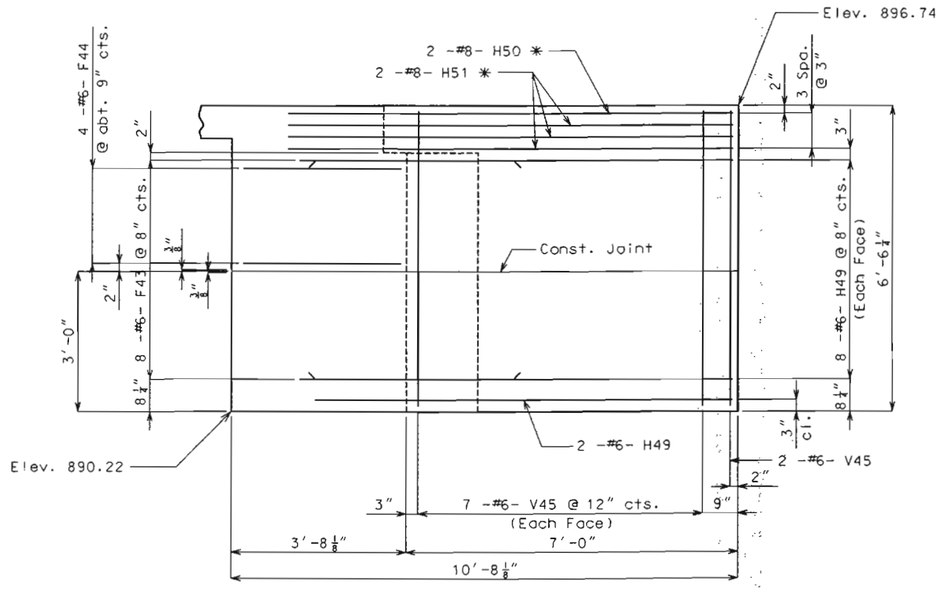


ELEVATION A-A



TYPICAL SECTION THRU WING

* Placed with grade.



ELEVATION B-B

NOTES:

For location of Elevations A-A and B-B, see Sheet No. 12.

For details of End Bent No. 4 not shown, see Sheets No. 11, 12 and 13.

For reinforcement of Safety Barrier Curb not shown, see Sheet No. 23.

DATE 6-10-04

DETAILS OF END BENT NO. 4

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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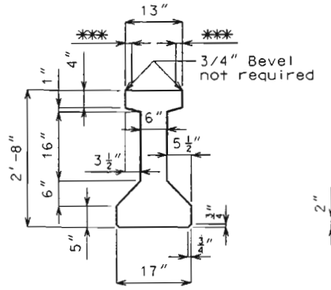
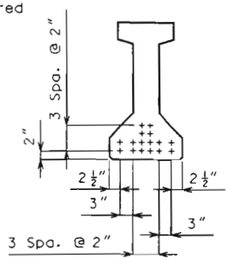
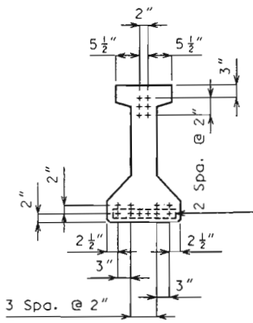
State	Proj. No.	Sheet No.
MO		B47



GIRDER DIMENSIONS

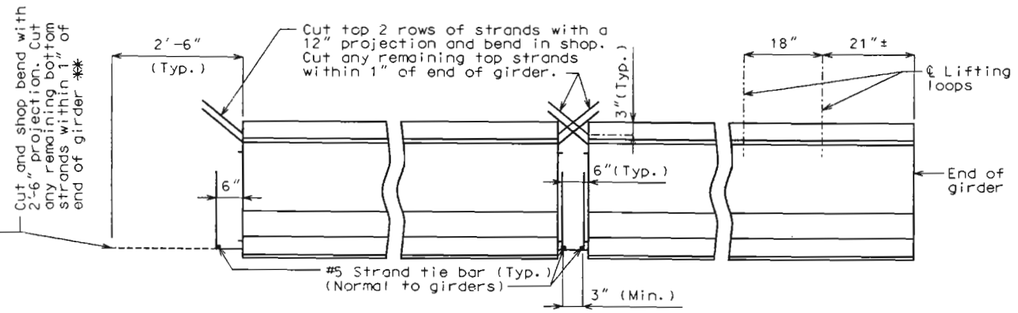


℄ GIRDER



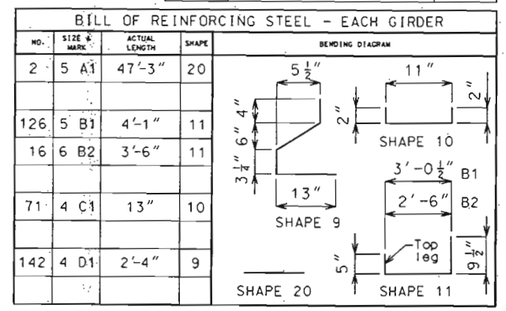
END OF GIRDER

STRAND ARRANGEMENTS



END BENT INTERMEDIATE BENT

STRAND DETAILS AT GIRDER ENDS



LOCATION OF LIFTING LOOPS

BILL OF REINFORCING STEEL - EACH GIRDER

NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
2	5 A1	47'-3"	20	
126	5 B1	4'-1"	11	
16	6 B2	3'-6"	11	
71	4 C1	13"	10	
142	4 D1	2'-4"	9	

Concrete for prestressed girders shall be Class A-1 with f'c = 6.000 psi and f'ci = 4.500 psi.

(+) indicates prestressing strand.

Use 16 strands with an initial prestress force of 475 kips.

Prestressing tendons shall be uncoated, seven-wire, low-relaxation strands, 1/2 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in accordance with Sec 1029.

** At the contractor's option the location for bent-up strands may be varied from that shown. 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.

*** At contractor's option a 1-1/2" to 1-3/4" smooth finish strip is permitted to facilitate placement of preformed fiber expansion joint material or expanded or extruded polystyrene bedding material for the prestressed panels.

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.

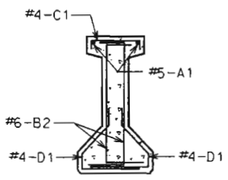
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1".

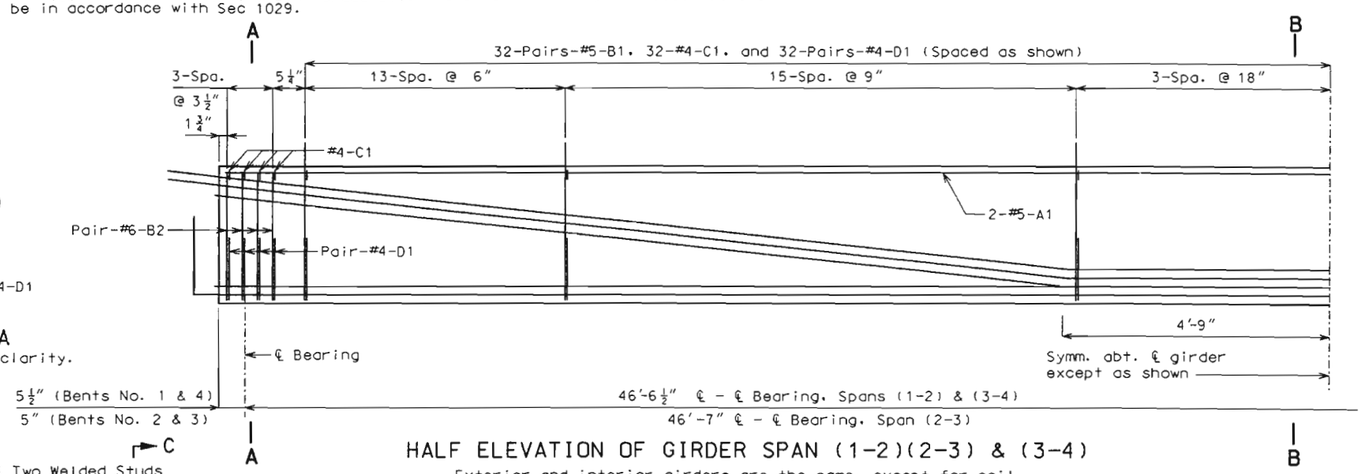
All reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.



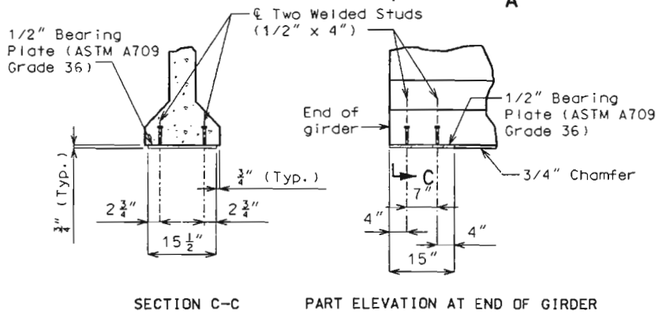
SECTION A-A
Strands not shown for clarity.



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

Exterior and interior girders are the same, except for coil ties and coil inserts for slab drains.

SECTION B-B
Strands not shown for clarity.

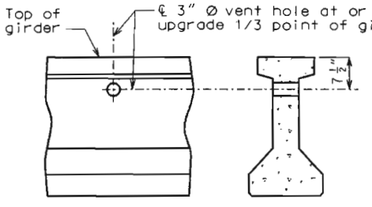


SECTION C-C PART ELEVATION AT END OF GIRDER

BEARING PLATE DETAILS

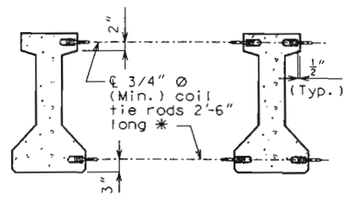
Galvanize the 1/2" bearing plate (ASTM A709 Grade 36) in accordance with ASTM A123.

Cost of furnishing, galvanizing, and installing the 1/2" bearing plate (ASTM A709 Grade 36) and welded studs in the prestressed girder will be considered completely covered by the contract unit price for Prestressed Concrete I-girder per each.



PART ELEVATION OF GIRDER PART SECTION NEAR 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.



EXTERIOR GIRDERS AT INT. BENTS

EXTERIOR GIRDERS AT END BENTS INTERIOR GIRDERS AT ALL BENTS

DETAILS OF COIL TIES

Cost of 3/4" Ø coil tie rods placed in diaphragms will be considered completely covered by the contract unit price for Prestressed Concrete I-Girder.

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

For location of coil inserts at slab drains, see Sheet No. 18.

For location of coil ties, see Sheets No. 5, 12 & 16.

For details of diaphragms, see Sheets No. 6, 13 & 16.

For Girder Camber Diagram, see Sheet No. 19.

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

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

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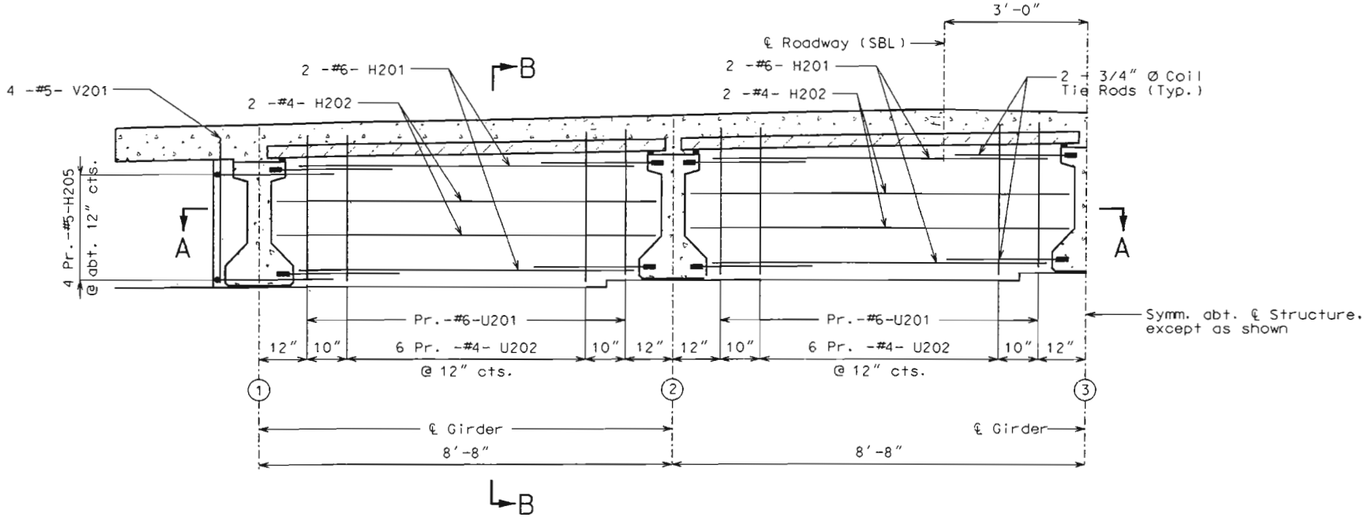
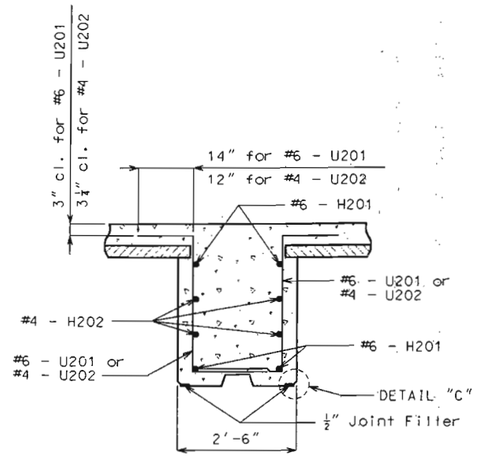
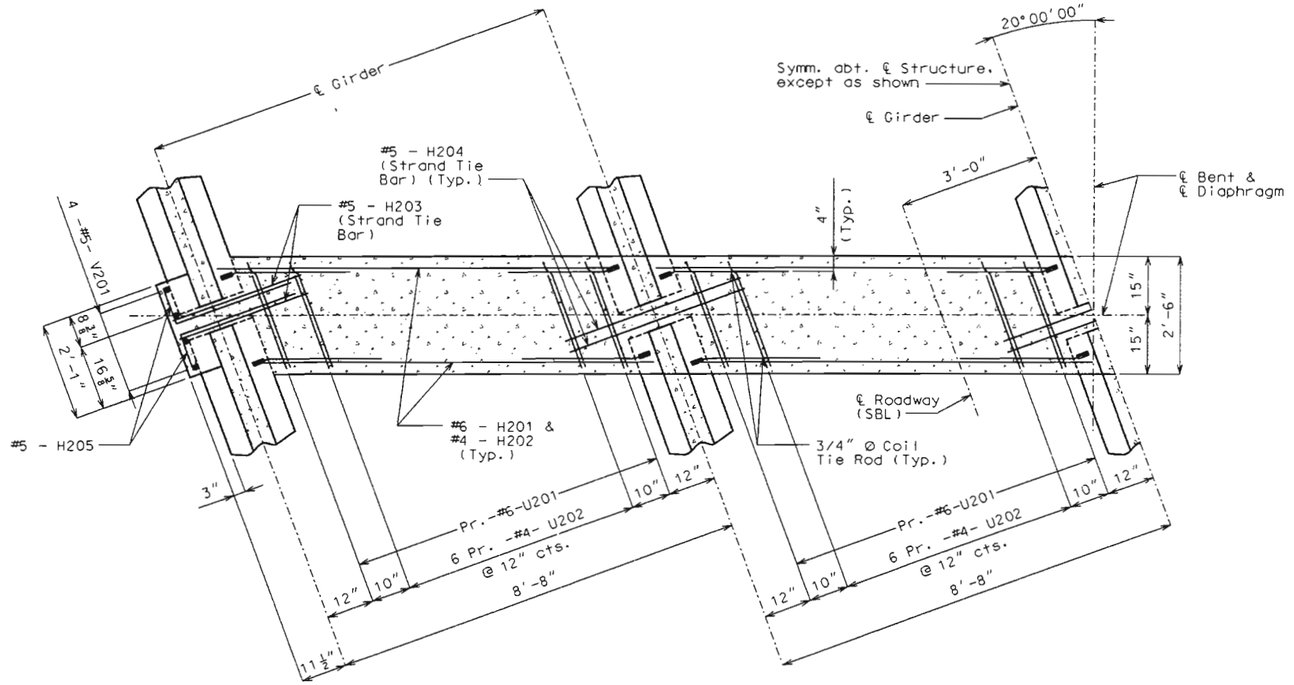
State	Proj. No.	Sheet No.
MO		B48



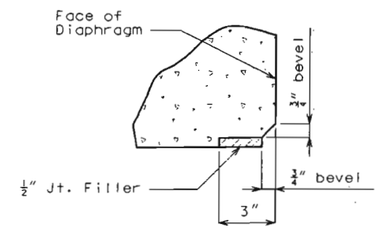
HALF SECTION NEAR INTERMEDIATE BENTS
(Normal to ℄ Roadway)



SECTION B-B



SECTION A-A



DETAIL "C"

NOTES:

Diaphragm at Intermediate Bents shall be built vertical.

For location of #5 - H203 & #5 - H204 (Strand Tie Bars) and Coil Tie Rods, see Sheet No. 15.

All U-bars in diaphragms are to be placed parallel to ℄ Roadway.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 AND 3

Detailed Apr. 2004
Checked Apr. 2004

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

POLK COUNTY A7004 REV.

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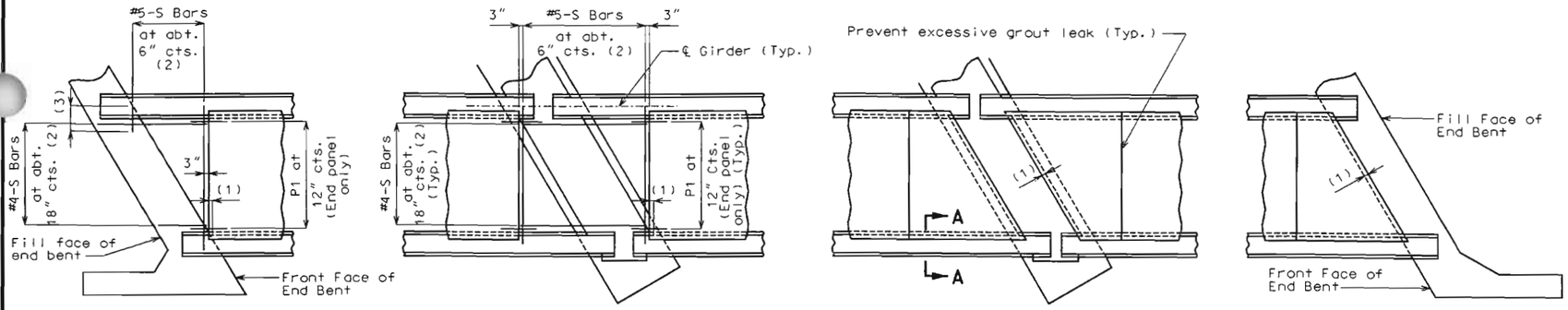
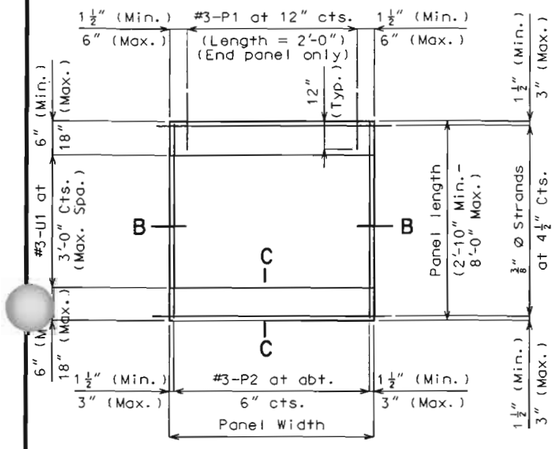
State	Proj. No.	Sheet No.
MO		849



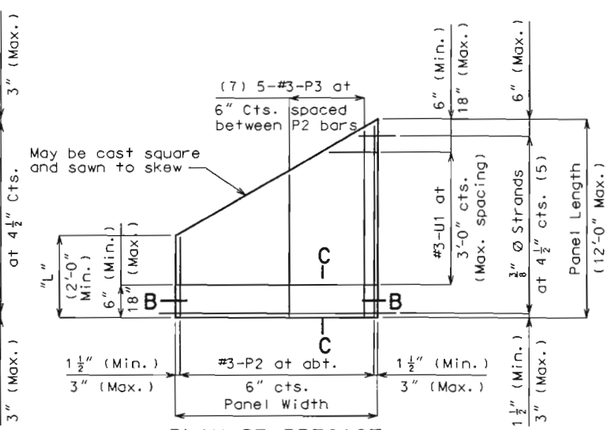
PANELS-SQUARED ENDS

PANELS-SKEWED ENDS

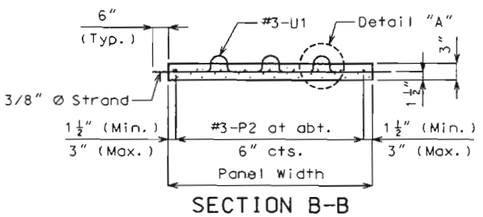
PLAN OF PRECAST PRESTRESSED PANELS PLACEMENT



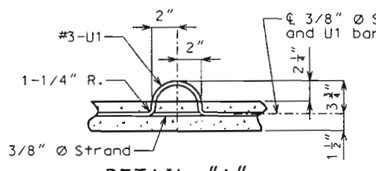
PLAN OF PRECAST PRESTRESSED PANEL



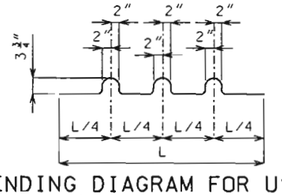
PLAN OF PRECAST PRESTRESSED PANEL (SKEWED END-OPTIONAL)



SECTION B-B

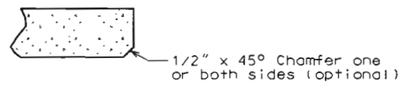


DETAIL "A"

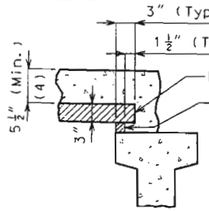


BENDING DIAGRAM FOR U1 BAR

U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars).



SECTION C-C



SECTION A-A

Note: Use slab haunching diagram on Sheet No. 19 for determining thickness of preformed fiber expansion joint material or polystyrene bedding material within the limits noted in general notes.

NOTES:

Cost of S-bars will be considered completely covered by the contract unit price for the slab.

S-bars are not listed in the bill of reinforcing.

(1) End panels shall be dimensioned 1" min. to 1-1/2" max. from the inside face of diaphragm.

(2) S-bars shown are bottom steel in slab between panels and used with squared end panels only.

(3) Extend S-bars 18 inches beyond the front face of end bents only.

(4) In order to maintain minimum slab thickness, it may be necessary to raise the grade uniformly throughout the structure. No payment will be made for additional labor or materials required for necessary grade adjustment.

(5) Any strand 2'-0" or shorter shall have a #4 reinforcing bar on each side of it, centered between strands. Strands 2'-0" or shorter may then be debonded at the fabricator's option.

(6) All panel support pads shall be glued to the girder. When support thickness exceeds 1-1/2 inches, the pads shall be glued top and bottom. The glue used shall be the type recommended by the panel support pads manufacturer.

(7) Use #3-P3 bars if panel is skewed 45° or greater.

GENERAL NOTES:

PRESTRESSED PANELS:

Concrete for prestressed panels shall be Class A-1 with f'c = 6,000 psi, f'ci = 3,500 psi.

The top surface of all panels shall receive a scored finish with a depth of scoring of 1/8" perpendicular to the prestressing strands in the panels.

Prestressing tendons shall be high-tensile strength uncoated seven-wire, low-relaxation strands for prestressed concrete in accordance with AASHTO M 203 Grade 270, with nominal diameter of strand = 3/8" and nominal area = 0.085 sq.in. and minimum ultimate strength = 22.95 kips (270 ksi). Larger strands may be used with the same spacing and initial tension.

Initial prestressing force = 17.2 kips/strand.

The method and sequence of releasing the strands shall be shown on the shop drawings.

Suitable anchorage devices for lifting panels may be cast in panels, provided the devices are shown on the shop drawings and approved by the engineer. Panel lengths shall be determined by the contractor and shown on the shop drawings.

When square end panels are used at skewed bents, the skewed portion shall be cast full depth. No separate payment will be made for additional concrete and reinforcing required.

Support from diaphragm forms is required under the optional skewed end until cast-in-place concrete has reached 3,000 psi compressive strength.

Minimum preformed fiber expansion joint material or polystyrene bedding material thickness shall be 3/4 inch. Thicker material may be used on one or both sides of the girder to reduce cast-in-place concrete thickness to within tolerances. No more than 2 inches total thickness shall be used.

The same thickness of material shall be used under any one edge of any panel except at locations where top flange thickness may be stepped. The maximum change in thickness between adjacent panels shall be 1/4 inch. The polystyrene bedding material may be cut to match haunch height above top of flange.

Slab thickness over prestressed panels varies due to girder camber.

At the contractor's option, the variation in slab thickness over prestressed panels may be eliminated or reduced by increasing and varying the girder top flange thickness. Dimensions shall be shown on the shop drawings.

REINFORCING STEEL:

All dimensions are out to out.

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

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

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

The prestressed panel quantities are not included in the table of estimated quantities for the slab.

If U1 bars interfere with placement of slab steel, U1 loops may be bent over, as necessary, to clear slab steel.

Welded wire fabric or welded deformed bar mats providing a minimum area of reinforcing perpendicular to strands of 0.22 sq. in./ft., with spacing parallel to strands sufficient to insure proper handling, may be used in lieu of the #3-P2 bars shown. Wire or bar diameter shall not be larger then 0.375 inch. The above alternative reinforcement criteria may be used in lieu of the #3-P3 bars, when required, and placed over a width not less than 2 feet.

The reinforcing steel shall be tied securely to the 3/8" Ø strands with the following maximum spacing in each direction:
#3-P2 bars at 16 inches.
Welded wire fabric or welded deformed bar mats at 2'-0".

Tie the #3-U1 bars to the #3-P2 bars, to the welded wire fabric or the welded deformed bar mats at about 3'-0" centers.

All reinforcement other than prestressing strands shall be epoxy coated.

Precast panels may be in contact with stirrup reinforcing in diaphragms.

REGISTERED STATE OF MISSOURI DANIEL M. SMITH NUMBER E-29955 PROFESSIONAL ENGINEER

DATE 6-10-04

DETAILS OF PRECAST PRESTRESSED PANELS

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

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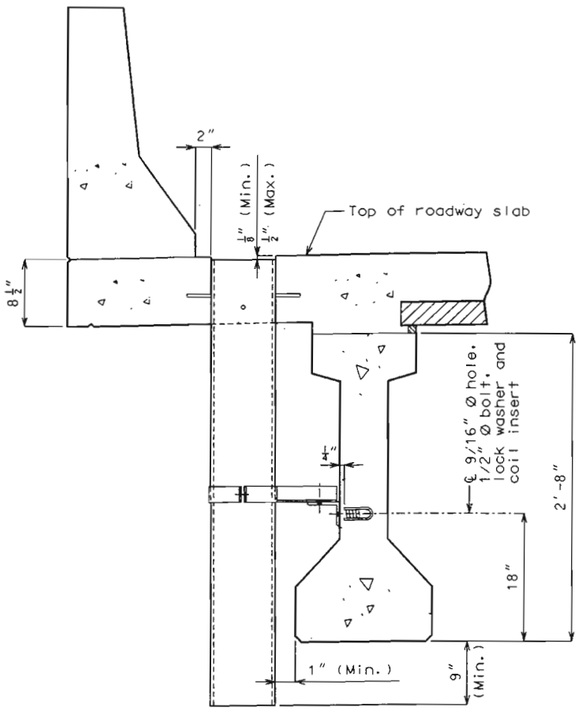
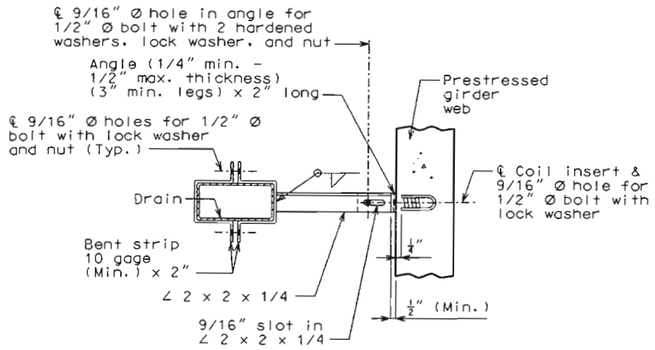
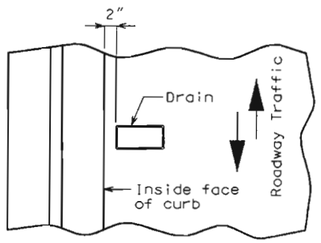
State	Proj. No.	Sheet No.
MO		B50



PART SECTION NEAR DRAIN

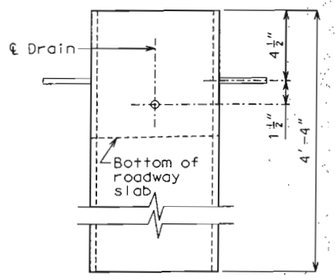


PART SECTION SHOWING BRACKET ASSEMBLY

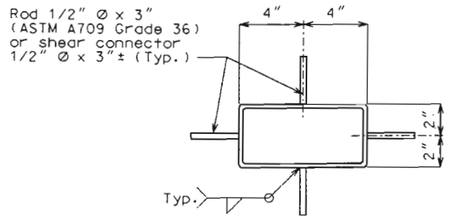


PART PLAN OF SLAB AT DRAIN

DETAILS OF DRAINS TRANSVERSE TO ROADWAY



ELEVATION OF DRAIN



PLAN OF DRAIN

NOTE:

Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

Outside dimensions of drains are 8" x 4".

Locate drains in slab by dimensions shown in Part Section Near Drain.

Shift reinforcing steel in field where necessary to clear drains.

The drains, coil inserts and bracket assembly shall be galvanized in accordance with ASTM A123.

All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with ASTM A153.

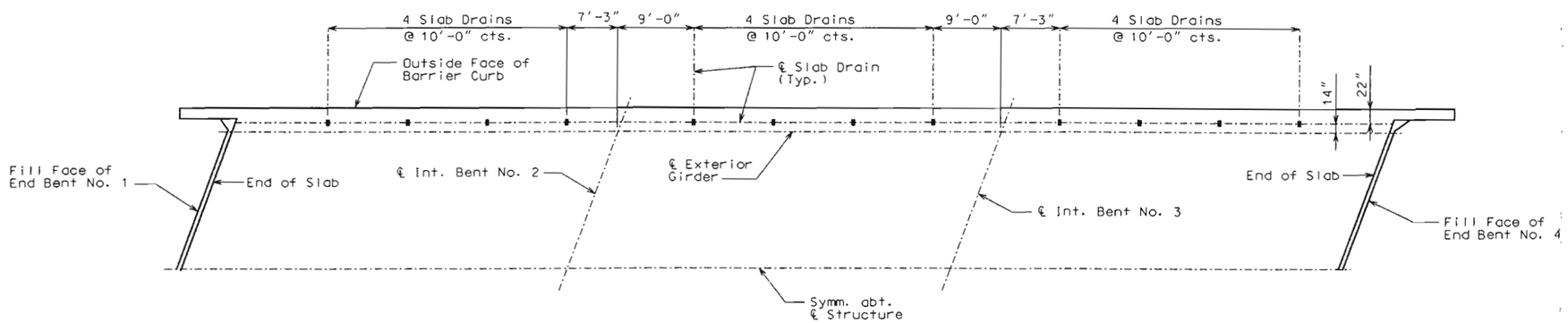
The coil insert required for the bracket assembly attachment shall be located on the Prestressed I-Girder shop drawings.

Shop drawings will not be required for the slab drains and the bracket assembly.

Coil inserts shall have a concrete pull-out strength (ultimate load) of at least 2,500 pounds in 5,000 psi concrete.

The bolt required to attach the slab drain bracket assembly to the prestresssed girder web shall be supplied by the prestressed I-Girder fabricator.

SLAB DRAIN DETAILS



SPAN (1-2) SPAN (2-3) SPAN (3-4)

HALF PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS

NOTE: Longitudinal dimensions shown are horizontal along ℄ Exterior girders.

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28995 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

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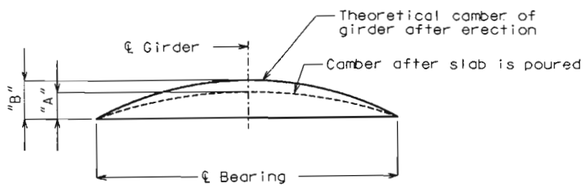
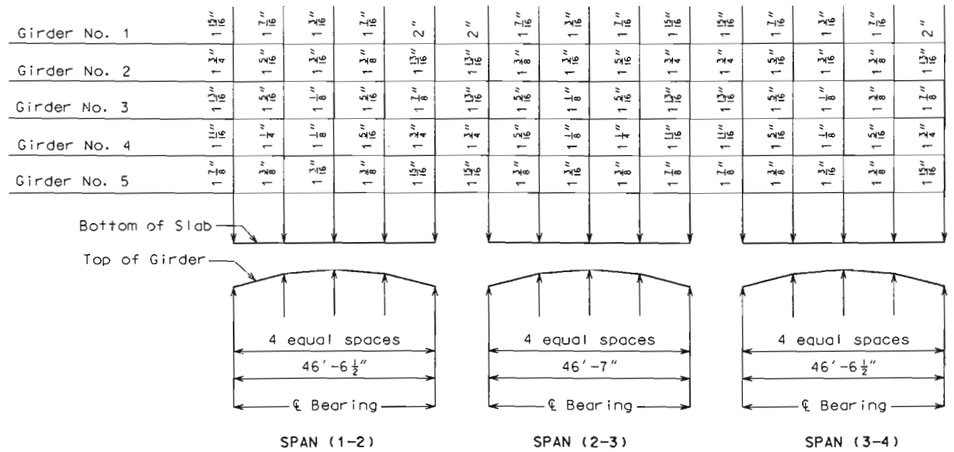
State	Proj. No.	Sheet No.
MO		B51



	All Spans	
	"A"	"B"
Girders No. 1 & 5	$\frac{3}{4}$"	$1\frac{1}{2}$"
Girders No. 2 & 4	$\frac{5}{8}$"	
Girder No. 3	$\frac{11}{16}$"	

GIRDER CAMBER DIAGRAM

Conversion factor for girder camber
0.25 pt. = 0.7125 x 0.5 pt.



THEORETICAL SLAB HAUNCHING DIAGRAM

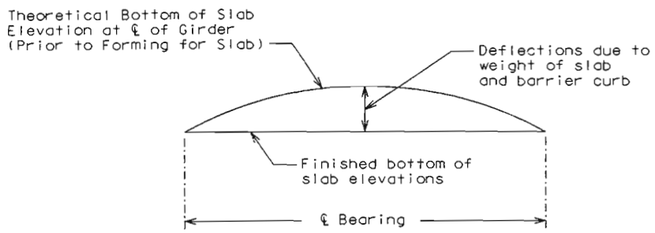
NOTE:

If girder camber is different from that shown in the camber diagram, 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.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete I-Girder.

Theoretical Bottom of Slab Elevations at ℄ of Girder (Prior to Forming for Slab) **															
	Span (1-2) (46'-6½" ℄ brg. - ℄ brg.					Span (2-3) (46'-7" ℄ brg. - ℄ brg.)					Span (3-4) (46'-6½" ℄ brg. - ℄ brg.)				
	℄ brg.	.25	.50	.75	℄ brg.	℄ brg.	.25	.50	.75	℄ brg.	℄ brg.	.25	.50	.75	℄ brg.
Girder no. 1	896.22	896.25	896.26	896.25	896.22	896.22	896.25	896.26	896.25	896.21	896.21	896.24	896.25	896.24	896.21
Girder no. 2	896.40	896.43	896.45	896.43	896.39	896.39	896.43	896.44	896.43	896.39	896.39	896.42	896.44	896.42	896.38
Girder no. 3	896.45	896.48	896.50	896.48	896.45	896.45	896.48	896.49	896.48	896.44	896.44	896.47	896.49	896.47	896.44
Girder no. 4	896.28	896.31	896.33	896.31	896.27	896.27	896.31	896.32	896.31	896.27	896.27	896.30	896.32	896.30	896.26
Girder no. 5	896.11	896.13	896.14	896.13	896.10	896.10	896.13	896.14	896.13	896.10	896.10	896.12	896.14	896.12	896.09

** Elevations are based on a constant slab thickness of $8\frac{1}{2}$" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier curb.



TYPICAL SLAB ELEVATIONS DIAGRAM

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

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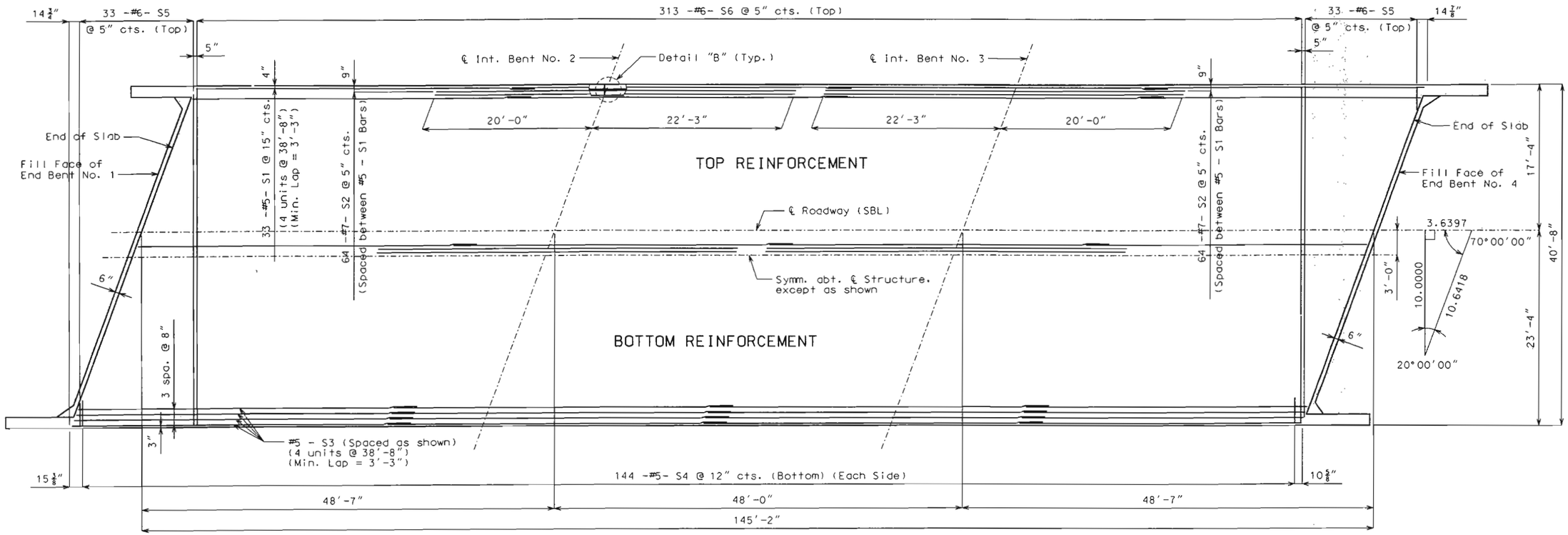
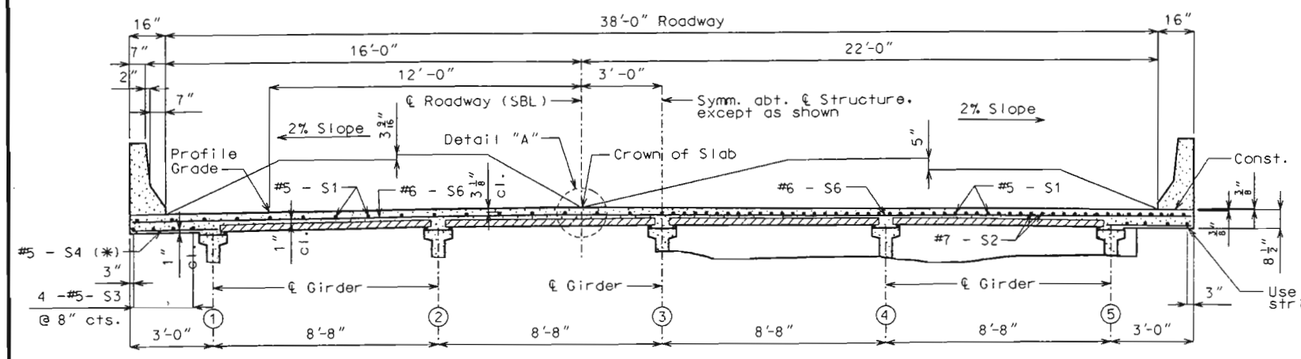
State	Proj. No.	Sheet No.
MO		B52



SPAN (1-2) SPAN (2-3) SPAN (3-4)

PLAN OF SLAB SHOWING REINFORCEMENT

NOTE: Longitudinal slab dimensions are measured horizontally.



HALF SECTION NEAR ℄ SPAN HALF SECTION NEAR INTERMEDIATE BENT

(*) Alternate bar shape available. see Safety Barrier Curb sheets.

NOTES:

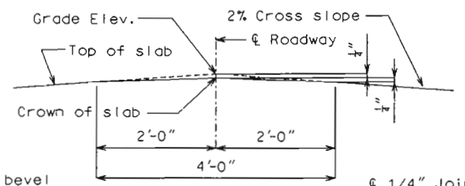
For details of Precast Prestressed Panels. see Sheet No. 17.

For details and locations of Slab Drains. see Sheet No. 18.

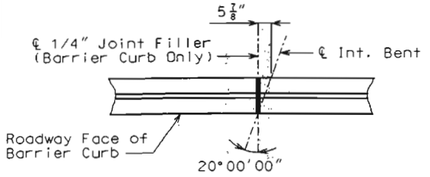
For Theoretical Slab Haunching Diagram. Girder Camber Diagram and Theoretical Bottom of Slab Elevations. see Sheet No. 19.

For Slab Pouring Sequence. see Sheet No. 21.

For details and reinforcement of Safety Barrier Curb not shown. see Sheets No. 22. 23 & 24.



DETAIL "A"



DETAIL "B"

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

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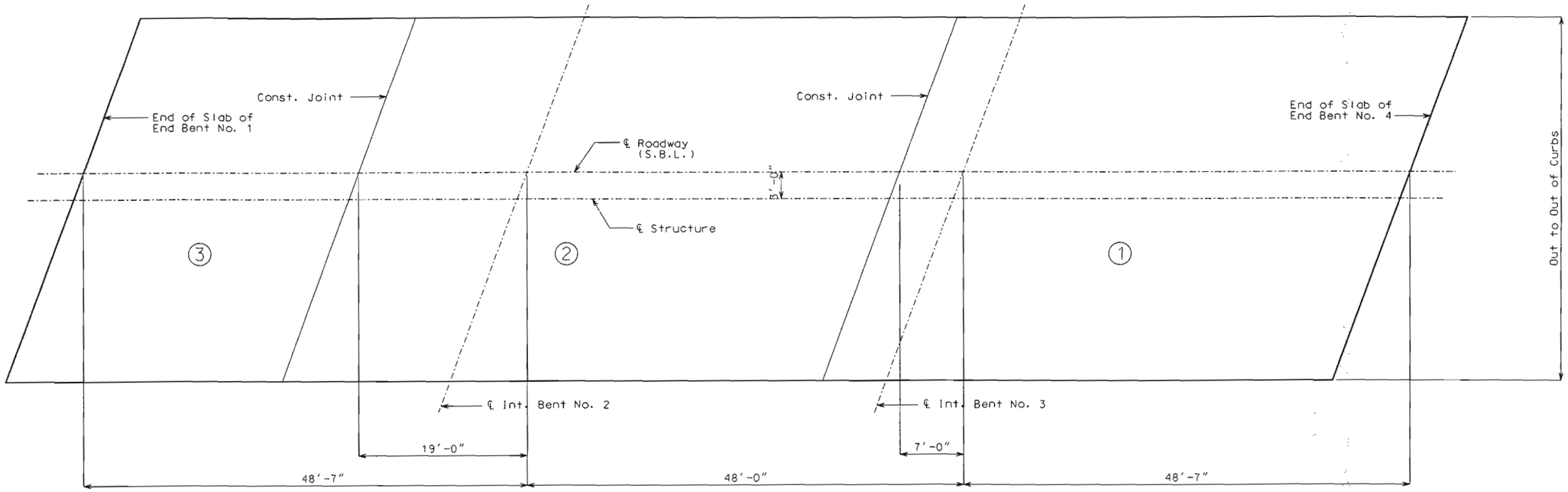
State	Proj. No.	Sheet No.
MO		B53



SPAN (1-2) SPAN (2-3) SPAN (3-4)

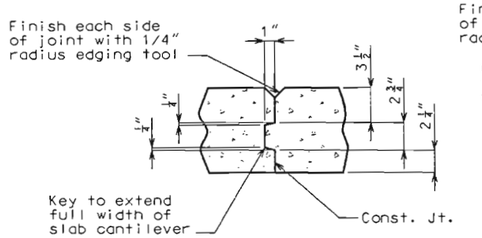
Note: Longitudinal dimensions are horizontal.

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

Note: The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours. and shall pour and satisfactorily finish the slab pours at the rate given.

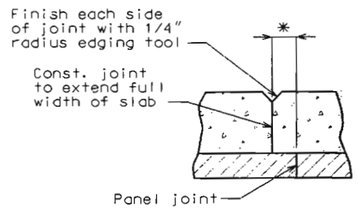
The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE



(Slab Cantilever)

✱ Adjust the construction joint to a clearance of 6 inches minimum from the panel joint.



(Slab on Precast Panels)

SLAB CONSTRUCTION JOINT DETAILS

STATE OF MISSOURI — DANIEL M. SMITH NUMBER E-28385 — REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
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Note: This drawing is not to scale. Follow dimensions.

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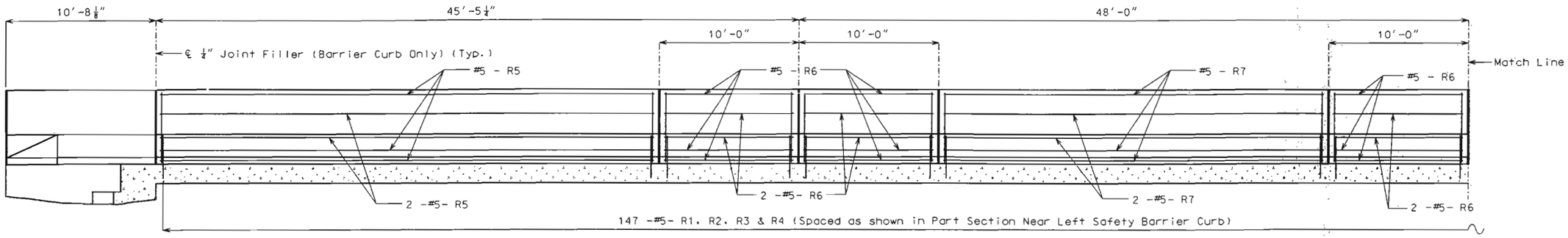
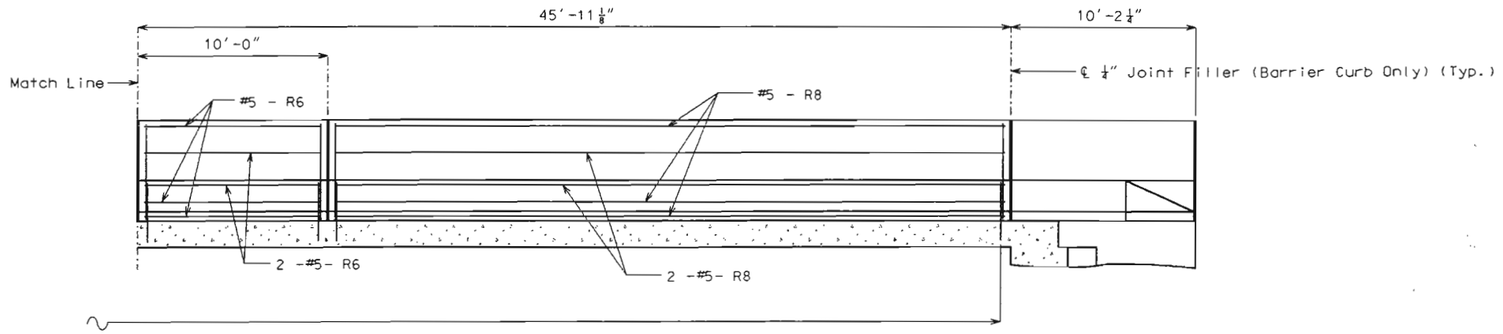
State	Proj. No.	Sheet No.
MO		B54



SPAN (1-2) SPAN (2-3)

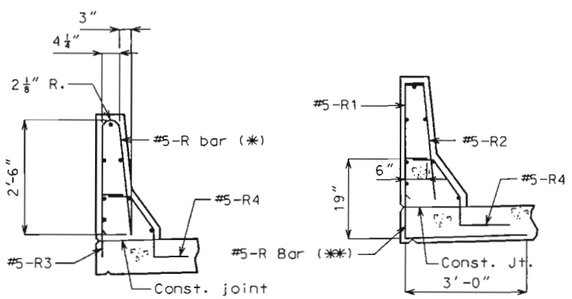


SPAN (3-4)

SECTION NEAR LEFT SAFETY BARRIER CURB

(RIGHT BARRIER CURB SIMILAR. BY 180° ROTATION)

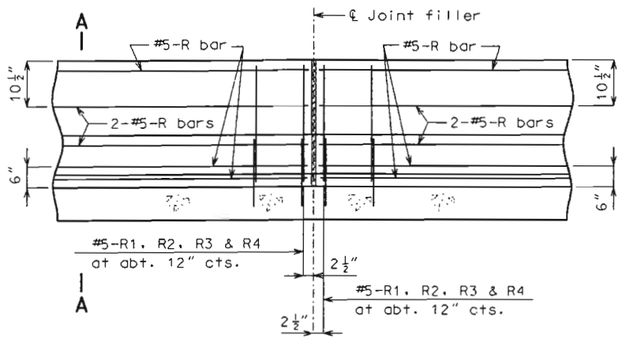
Note: Longitudinal dimensions are horizontal.



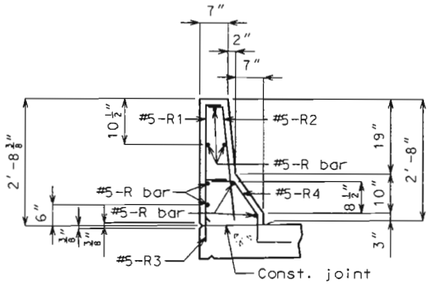
R-BAR PERMISSIBLE ALTERNATE SHAPE

(*) The R1 and R2 bar combination may be furnished as one bar. as shown. at the contractor's option. (All dimensions are out to out.)

(**) 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.



PART SECTION NEAR LEFT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)

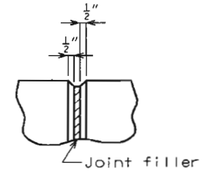


PART SECTION A-A

Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.28 sq. ft.



FILLED JOINT DETAIL

Notes:

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

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

Payment for all concrete and reinforcement. complete-in-place. will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

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

Measurement of safety barrier curb is to the nearest linear foot for each structure. measured along the outside top of slab from end of wing to end of wing.

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-24985 REGISTERED PROFESSIONAL ENGINEER

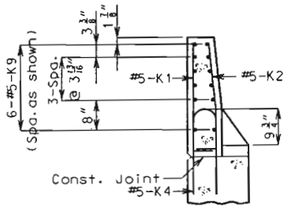
DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

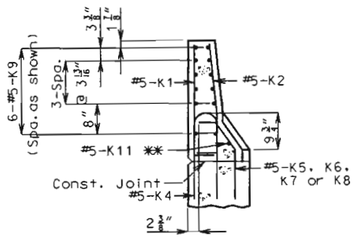
Note: This drawing is not to scale. Follow dimensions.

POLK COUNTY A7004

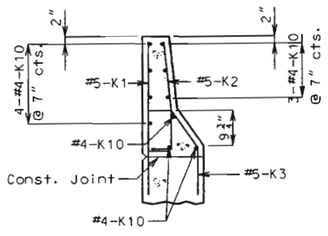
State	Proj. No.	Sheet No.
MO		B55



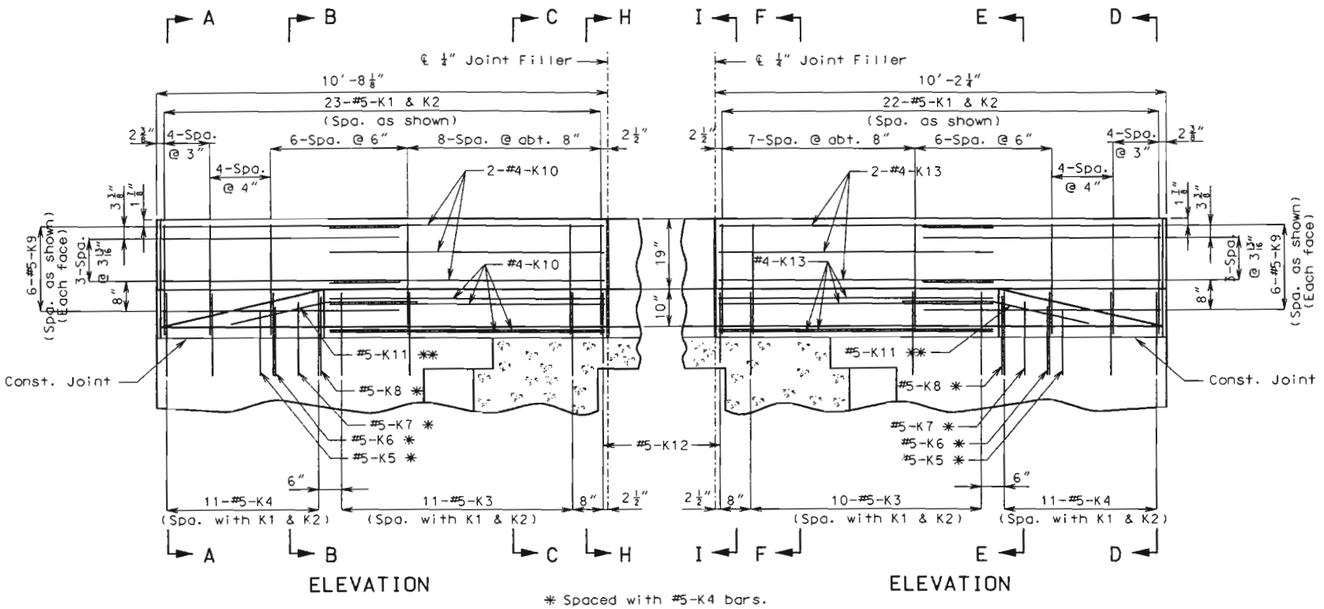
SECTION A-A



SECTION B-B



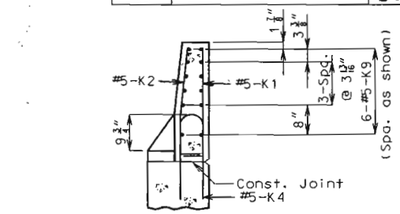
SECTION C-C



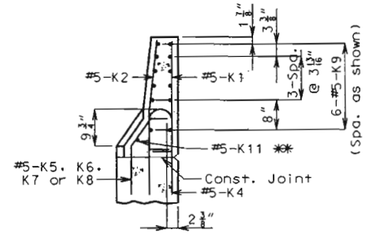
ELEVATION ELEVATION

* Spaced with #5-K4 bars.

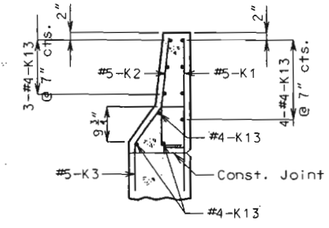
** Fit bar to follow transition face of curb.



SECTION D-D

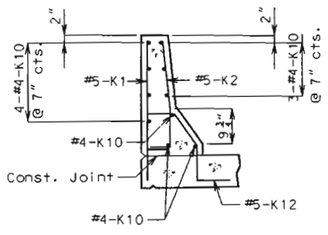


SECTION E-E

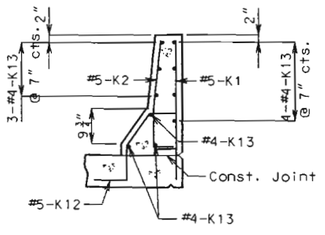


SECTION F-F

PLAN PLAN

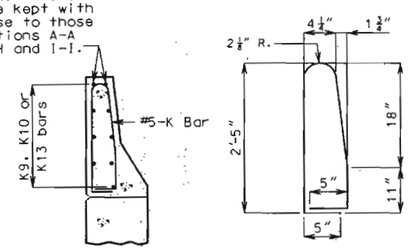


SECTION H-H



SECTION I-I

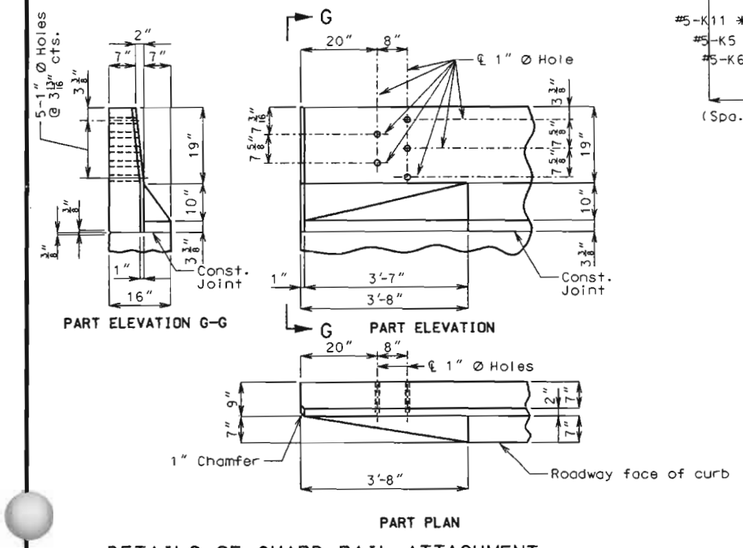
The top two K9, K10 or K13 bars shall be kept with position close to those shown in Sections A-A thru F-F, H-H and I-I.



(K3 or K4 thru K8 bars not shown for clarity)

K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (***)

(***) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.



DETAILS OF GUARD RAIL ATTACHMENT

NOTE: Use a minimum lap of 2'-0" between K9 and K10 or K13 bars.

DETAILS OF SAFETY BARRIER CURB AT END BENTS

(Left barrier curb shown; right barrier curb similar)

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-23985 REGISTERED PROFESSIONAL ENGINEER

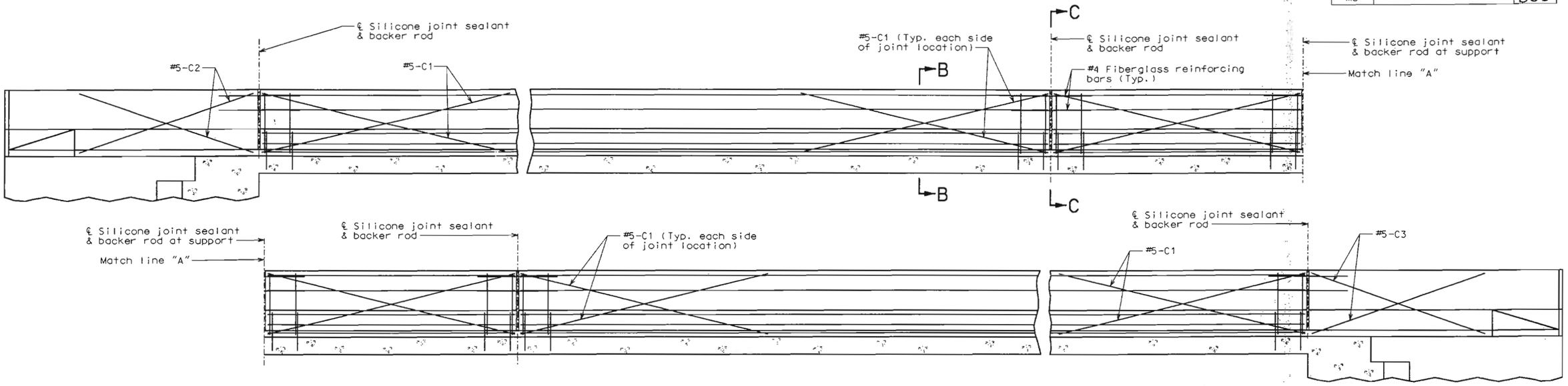
DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

State	Proj. No.	Sheet No.
MO		B56



TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

Notes:

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

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

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

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Scale prevention treatment will not be permitted.

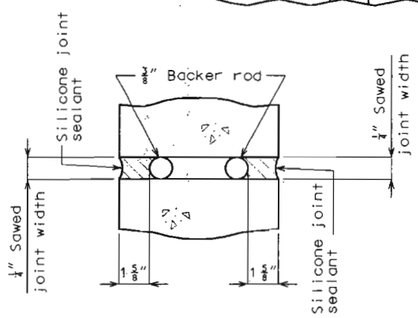
Notes:

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

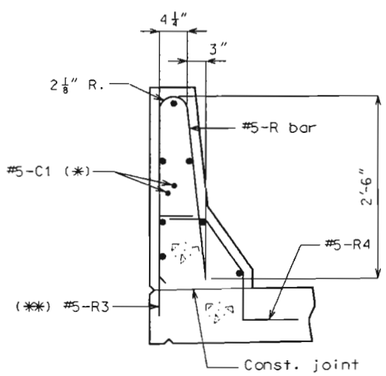
For Slip-Form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a tranversely broomed finish.



SECTION A-A

Note:

Cost of silicone joint sealant and backer rod complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

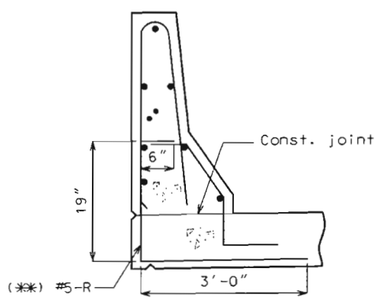


PART SECTION B-B

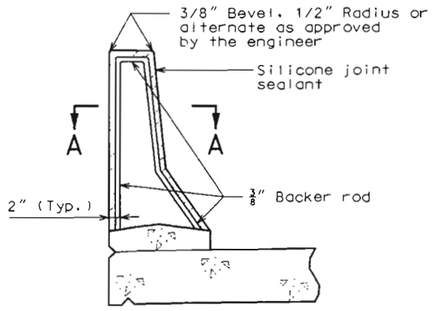
Notes:

(*) Each side of joint location.

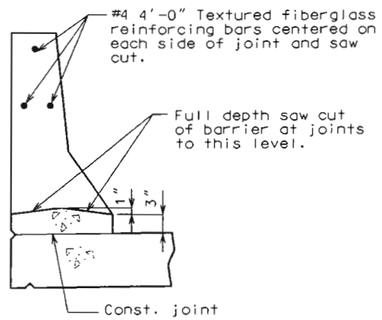
(**) The R3 bar and #5 bottom transverse slab bar in cantilever (P/S panels only) combination may be furnished as one bar at the contractor's option.



PART SECTION B-B
(Optional #5-R bar shown)



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

(Left barrier curb shown, right barrier curb similar.)

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

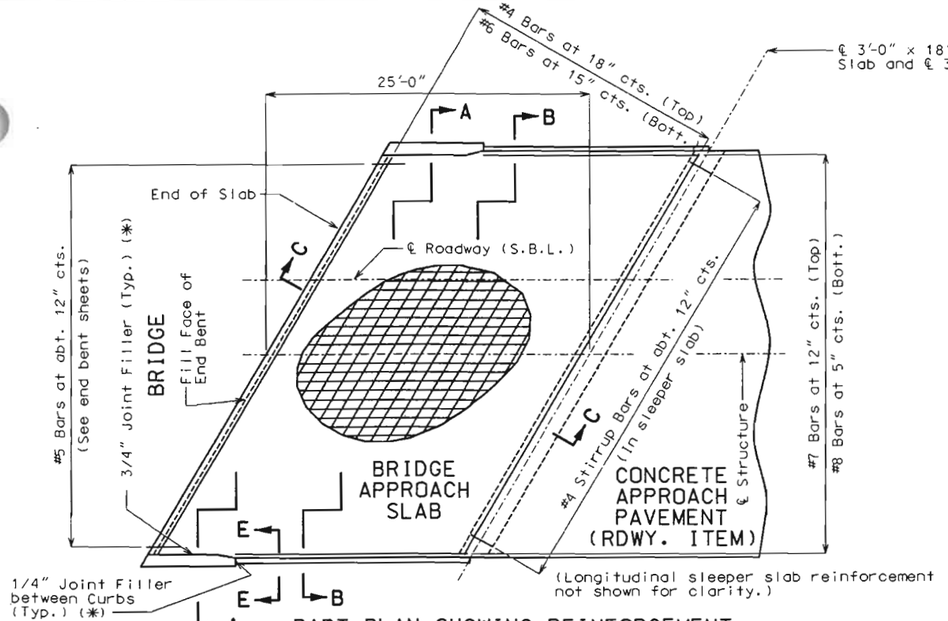
STATE OF MISSOURI DANIEL M. SMITH NUMBER E-29985 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

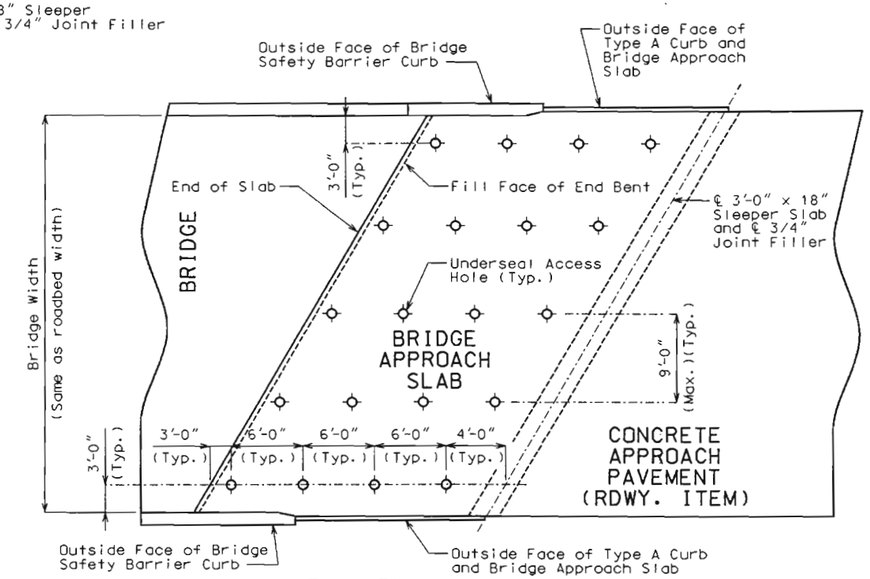
Detailed Apr. 2004
Checked Apr. 2004

POLK COUNTY A7004

State	Proj. No.	Sheet No.
MO		B57



PART PLAN SHOWING REINFORCEMENT



PART PLAN
(SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)

GENERAL NOTES:

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

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

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

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 #4 & #6 bars 18" and 2'-2" respectively.

Mechanical bar splices will be in accordance with Sec 706

* 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.

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

The contractor shall pour and satisfactorily finish the bridge or semi-deep slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge or semi-deep 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 under by the contract unit price for Bridge Approach Slab (Bridge), per square yard.

For Concrete Approach Pavement details, see roadway plans.

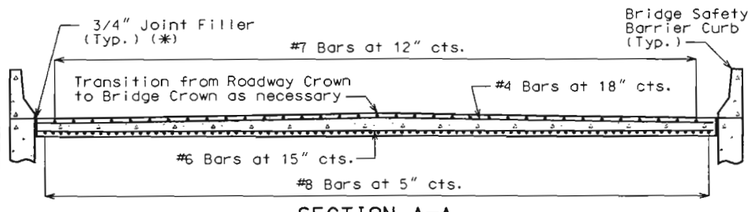
See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.

With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of roadway surface

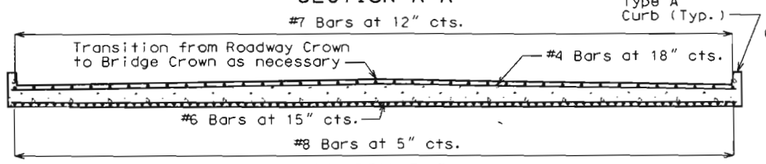
At the contractor's option, Grade 40 reinforcement may be substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment. No additional payment will be made for this substitution.

When Grade 40 reinforcement is substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment, the reinforcement may be bent up to 90 degrees with a 2" minimum radius near the abutment to allow compaction of the backfill material near the abutment. Damage to epoxy coating shall be repaired in accordance with Sec 710.

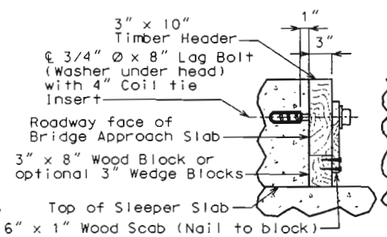
Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.



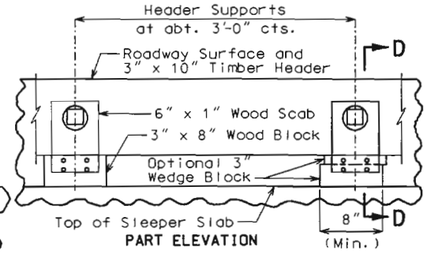
SECTION A-A



SECTION B-B



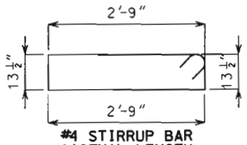
SECTION D-D



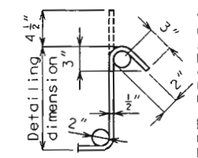
PART ELEVATION

Note: Remove timber header when concrete pavement is placed.

DETAILS OF TIMBER HEADER

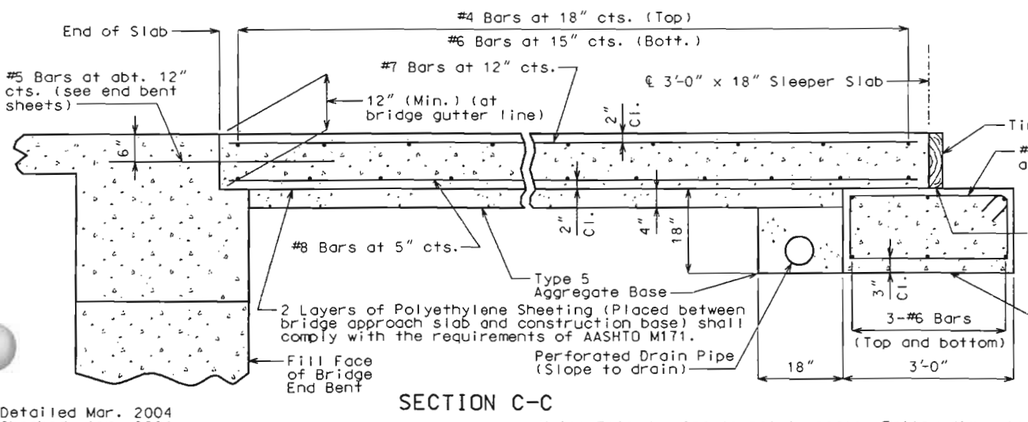


#4 STIRRUP BAR (ACTUAL LENGTH = 8'-3")

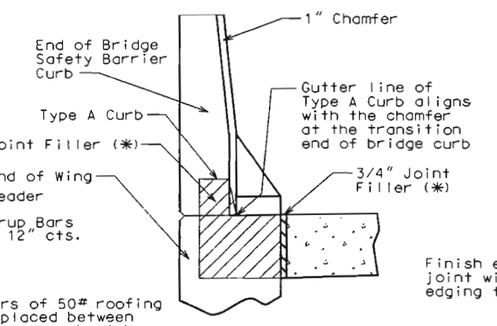


TYPICAL 135° STIRRUP HOOK DIMENSIONS BENDING DIAGRAM

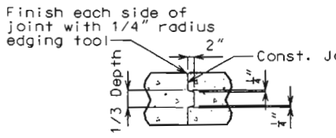
Note:
Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use (nearest inch).



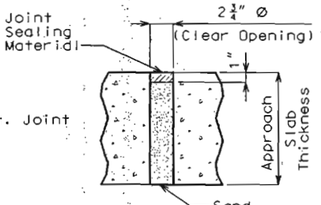
SECTION C-C



SECTION E-E
(BETWEEN CURBS)



CONST. JOINT DETAIL
(IF REQUIRED)



TYPICAL UNDERSEAL ACCESS HOLE DETAIL

BRIDGE APPROACH SLAB

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28995 REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

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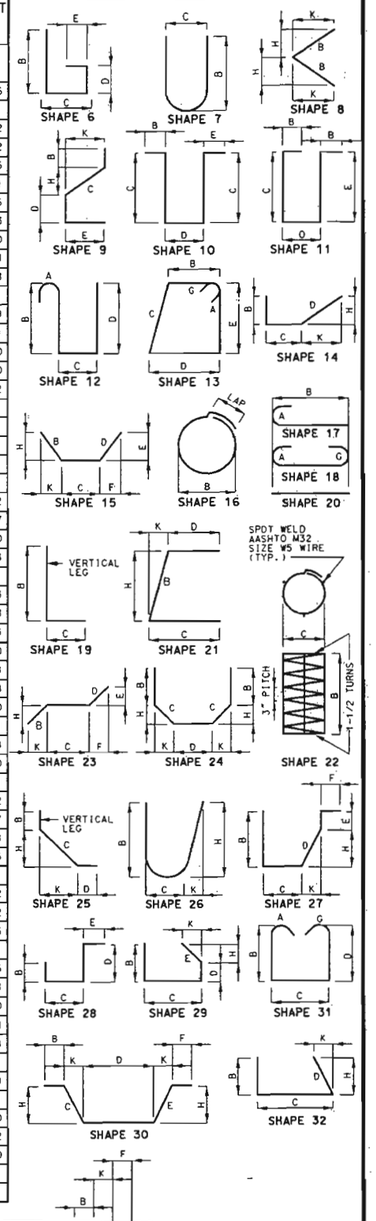
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			SUBSTR.																
			INT. BENT																
			NO. 2																
20	6	D20	BEAM KEY		20		X			2 6.000							2 6	2 6	75
8	8	H20	BEAM		18		X			40 1.000							41 11	41 11	895
10	5	H21	BEAM		20		X			40 1.000							40 1	40 1	418
4	6	H22	BEAM		20		X			12 6.000							12 6	12 6	75
14	6	H23	BEAM		10	S	X				22.000	2 10.750					6 7	6 3	131
44	5	U20	BEAM		13	S	X			2 1.750	3 0.000	2 1.750	3 0.000				11 3	10 11	501
14	5	U21	BEAM		10	S	X				3 0.000	2 1.750					8 2	7 11	116
22	5	U22	BEAM		13	S	X			2 1.750	3 3.625	2 1.750	3 3.625				11 10	11 6	264
2	5	U23	BEAM		10	S	X				3 3.625	2 1.750					8 9	8 7	18
14	4	U24	BEAM		10	S	X				9.625	3 0.000					4 7	4 5	41
			INT. BENT																
			NO. 3																
20	6	D30	BEAM KEY		20		X			2 6.000							2 6	2 6	75
8	8	H30	BEAM		18		X			40 1.000							41 11	41 11	895
10	5	H31	BEAM		20		X			40 1.000							40 1	40 1	418
4	6	H32	BEAM		20		X			12 6.000							12 6	12 6	75
14	6	H33	BEAM		10	S	X				22.000	2 10.750					6 7	6 3	131
44	5	U30	BEAM		13	S	X			2 1.750	3 0.000	2 1.750	3 0.000				11 3	10 11	501
14	5	U31	BEAM		10	S	X				3 0.000	2 1.750					8 2	7 11	116
22	5	U32	BEAM		13	S	X			2 1.750	3 3.625	2 1.750	3 3.625				11 10	11 6	264
2	5	U33	BEAM		10	S	X				3 3.625	2 1.750					8 9	8 7	18
14	4	U34	BEAM		10	S	X				9.625	3 0.000					4 7	4 5	41
			SUPERSTR.																
			END BENT																
			NO. 1																
8	6	F1	WING BRACE		23	S				14.000	6 2.500	14.000	8.000	11.500	8.000	11.500	8 7	8 6	102
4	6	F2	DIAPHRAGM		21	S				2 9.500	5 2.875				2 7.500	11.500	8 0	7 9	47
8	6	F3	WING BRACE		23	S				14.000	4 5.000	14.000	11.500	8.000	11.500	8.000	6 9	6 8	80
4	6	F4	DIAPHRAGM		23	S				2 9.500	4 4.750				2 7.500	11.500	7 2	7 1	43
8	7	H1	BEAM		20					43 0.000							43 0	43 0	703
4	6	H2	BEAM		20					43 0.000							43 0	43 0	258
4	6	H3	BEAM		20					12 2.000							12 2	12 2	73
5	5	H4	STRAND TIE		20					3 11.000							3 11	3 11	20
4	6	H5	DIAPHRAGM		20					43 0.000							43 0	43 0	258
18	6	H6	WING		20					8 5.000							8 5	8 5	228
2	8	H7	WING	E	20					9 5.000							9 5	9 5	50
6	8	H8	WING		20					9 5.000							9 5	9 5	151
18	6	H9	WING		20					8 5.000							8 5	8 5	228
4	8	H10	WING	E	20					9 5.000							9 5	9 5	101
6	8	H11	WING		20					9 5.000							9 5	9 5	151
4	7	H12	DIAPHRAGM	E	20					43 0.000							43 0	43 0	352
41	5	H13	DIAPHRAGM	E	20					2 6.000							2 6	2 6	107
16	6	H14	DIAPHRAGM		20					7 5.000							7 5	7 5	178

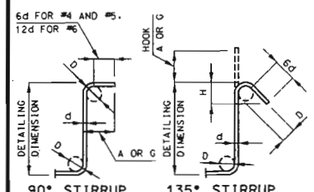
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
8	6	H15	DIAPHRAGM		20					2 2.000							2 2	2 2	26
25	5	U1	BEAM		10	S					4 9.750	2 11.125					12 7	12 4	322
8	4	U2	BEAM		13	S				2 11.125	2 7.500	2 11.125	2 7.500				11 10	11 7	62
1	4	U3	BEAM		10	S					2 7.500	2 11.125					8 2	8 0	5
9	5	U4	BEAM		10	S					5 1.250	2 11.125					13 2	12 11	121
2	4	U5	BEAM		13	S				2 11.125	2 11.125	2 11.125	2 11.125				12 6	12 3	16
4	4	U6	BEAM		10	S					2 11.125	2 11.125					8 9	8 7	23
44	5	U7	DIAPHRAGM	E	10	S					3 1.875	2 4.750					8 9	8 6	390
44	6	U8	DIAPHRAGM		19	S				23.250	2 11.125						4 10	4 9	314
54	6	U9	DIAPHRAGM	E	19	S				3 0.500	4 4.750						7 5	7 3	588
16	5	V1	BEAM		20					4 9.000							4 9	4 9	79
4	5	V2	BEAM		20					5 0.000							5 0	5 0	21
10	6	V3	DIAPHRAGM		20					2 0.000							2 0	2 0	30
16	6	V4	WING		20					6 3.000							6 3	6 3	150
16	6	V5	WING		20					6 4.000							6 4	6 4	152
			END BENT																
			NO. 4																
8	6	F41	WING BRACE		23	S				14.000	6 2.500	14.000	8.000	11.500	8.000	11.500	8 7	8 6	102
4	6	F42	DIAPHRAGM		21	S				2 9.500	5 2.875				2 7.500	11.500	8 0	7 9	47
8	6	F43	WING BRACE		23	S				14.000	4 5.000	14.000	11.500	8.000	11.500	8.000	6 9	6 8	80
4	6	F44	DIAPHRAGM		23	S				2 9.500	4 4.750				2 7.500	11.500	7 2	7 1	43
8	7	H41	BEAM		20					43 0.000							43 0	43 0	703
4	6	H42	BEAM		20					43 0.000							43 0	43 0	258
4	6	H43	BEAM		20					12 2.000							12 2	12 2	73
5	5	H44	STRAND TIE		20					3 11.000							3 11	3 11	20
4	6	H45	DIAPHRAGM		20					43 0.000							43 0	43 0	258
18	6	H46	WING		20					8 5.000							8 5	8 5	228
2	8	H47	WING	E	20					9 5.000							9 5	9 5	50
6	8	H48	WING		20					9 5.000							9 5	9 5	151
18	6	H49	WING		20					8 5.000							8 5	8 5	228
2	8	H50	WING	E	20					9 5.000							9 5	9 5	50
6	8	H51	WING		20					9 5.000							9 5	9 5	151
4	7	H52	DIAPHRAGM	E	20					43 0.000							43 0	43 0	352
41	5	H53	DIAPHRAGM	E	20					2 6.000							2 6	2 6	107
16	6	H54	DIAPHRAGM		20					7 5.000							7 5	7 5	178
8	6	H55	DIAPHRAGM		20					2 2.000							2 2	2 2	26
25	5	U41	BEAM		10	S					4 9.750	2 11.125					12 7	12 4	322
8	4	U42	BEAM		13	S				2 11.125	2 7.500	2 11.125	2 7.500				11 10	11 7	62
1	4	U43	BEAM		10	S					2 7.500	2 11.125					8 5	8 3	5
9	5	U44	BEAM		10	S					5 1.250	2 11.125					13 2	12 11	121
2	4	U45	BEAM		13	S				2 11.125	2 11.125	2 11.125	2 11.125				12 6	12 3	16
4	4	U46	BEAM		10	S					2 11.125	2 11.125					8 9	8 7	23
44	5	U47	DIAPHRAGM	E	10	S					3 1.875	2 4.750					8 9	8 6	390
44	6	U48	DIAPHRAGM		19	S				23.250	2 11.125						4 10	4 9	314
54	6	U49	DIAPHRAGM	E	19	S				3 0.500	4 4.750						7 5	7 3	588
16	5	V41	BEAM		20					4 9.000							4 9	4 9	79
4	5	V42	BEAM		20					5 0.000							5 0	5 0	21
10	6	V43	DIAPHRAGM		20					2 0.000							2 0	2 0	30
16	6	V44	WING		20					6 4.000							6 4	6 4	152
16	6	V45	WING		20					6 3.000							6 3	6 3	150

State	Proj. No.	Sheet No.
MO		B58



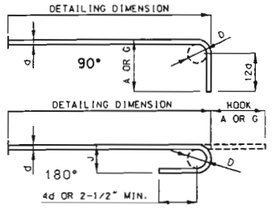
BENDING DIAGRAMS



DETAILED MAY 2004
CHECKED MAY 2004

STIRRUP HOOK DIMENSIONS GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK 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"

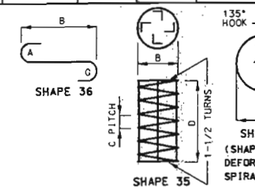
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS					
		ALL GRADES			
BAR SIZE	D (IN.)	180° HOOKS A OR G	180° HOOKS J	90° HOOKS 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"	

TWO ADDITIONAL #8 - H10 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. 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 FABRICATOR'S 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.



NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 26 OF 28

POLK COUNTY A7004

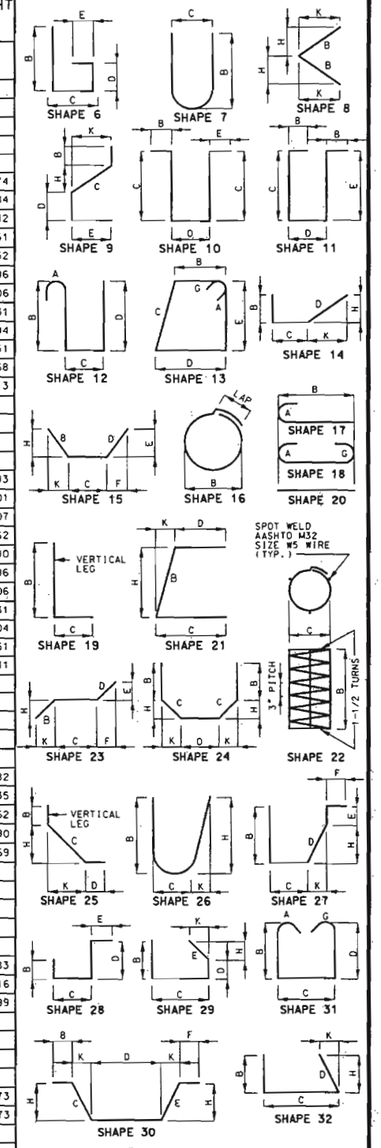
BILL OF REINFORCING STEEL

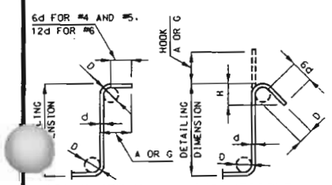
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			DIAPH. AT																
			BENTS 2 & 3																
32	6	H201	DIAPHRAGM		20					7 5.000							7 5	7 5	356
32	4	H202	DIAPHRAGM		20					8 5.000							8 5	8 5	180
8	5	H203	STRAND TIE		20					2 10.000							2 10	2 10	24
12	5	H204	STRAND TIE		20					3 11.000							3 11	3 11	49
32	5	H205	DIAPHRAGM		19	S				2 6.500	9.500						3 4	3 3	108
32	6	U201	DIAPHRAGM	E	28	S					2 4.750	2 11.875	14.000				6 7	6 3	300
96	4	U202	DIAPHRAGM	E	28	S					2 4.750	2 11.875	12.000				6 5	6 3	401
16	5	V201	DIAPHRAGM	E	20					3 1.500							3 2	3 2	53
			SLAB																
132	5	S1	SLAB	E	20					38 8.000							38 8	38 8	5323
130	7	S2	SLAB	E	20					42 3.000							42 3	42 3	11227
32	5	S3	SLAB	E	20					38 8.000							38 8	38 8	1291
288	5	S4	SLAB	E	20					3 0.000							3 0	3 0	901
66	6	S5	SLAB	E	20			V	2	39 6.000							39 6	39 6	
			INCREMENT =							2 10.000							2 10	2 10	2098
			13.750 INCH																
315	6	S6	SLAB	E	20					40 5.000							40 5	40 5	19122
			BARRIER CURB																
90	5	K1	BARRIER CURB	E	19	S				2 5.000	5.125						2 10	2 9	258
90	5	K2	BARRIER CURB	E	14	S				5.125	11.125	18.000			2.000	17.875	2 10	2 9	258
42	5	K3	BARRIER CURB	E	27	S				2 5.875	5.125	12.000	20.000		9.875	6.875	5 7	5 5	237
44	5	K4	BARRIER CURB	E	7					2 5.875	6.000						5 2	5 2	237
4	5	K5	BARRIER CURB	E	25	S				20.000	6.750	4.375			5.500	4.000	2 7	2 6	10
4	5	K6	BARRIER CURB	E	25	S				20.000	7.875	4.375			6.500	4.500	2 8	2 8	11
4	5	K7	BARRIER CURB	E	25	S				20.000	9.625	4.375			7.875	5.500	2 10	2 9	11
4	5	K8	BARRIER CURB	E	25	S				20.000	11.250	4.375			9.250	6.500	3 0	2 11	12
48	5	K9	BARRIER CURB	E	20					5 9.000							5 9	5 9	288
22	4	K10	BARRIER CURB	E	20					6 9.000							6 9	6 9	99
4	5	K11	BARRIER CURB	E	8					2 2.125					2 2.000	2.375	4 4	4 4	18
4	5	K12	BARRIER CURB	E	27	S				17.000	5.125	12.000	7.125	12.000	9.875	6.875	4 5	4 2	17
20	4	K13	BARRIER CURB	E	20					6 3.000							6 3	6 3	84
294	5	R1	BARRIER CURB	E	19	S				2 6.000	3.500						2 10	2 8	818
294	5	R2	BARRIER CURB	E	15	S				2 6.125	3.500				2 6.000	3.000	2 10	2 9	843
294	5	R3	BARRIER CURB	E	19	S				17.000	6.000						0 23	0 22	562
294	5	R4	BARRIER CURB	E	27	S					6.000	11.250	7.000	12.000	9.250	6.375	3 0	2 10	869
14	5	R5	BARRIER CURB	E	20					35 2.000							35 2	35 2	514
56	5	R6	BARRIER CURB	E	20					9 9.000							9 9	9 9	569
16	5	R7	BARRIER CURB	E	20					27 9.000							27 9	27 9	463
14	5	R8	BARRIER CURB	E	20					35 8.000							35 8	35 8	521
			SLIP FORM																
			BARRIER CURB																
40	5	C1	SLIP FORM	E	20					10 0.000							10 0	10 0	417
4	5	C2	SLIP FORM	E	20					7 0.000							7 0	7 0	29
4	5	C3	SLIP FORM	E	20					6 6.000							6 6	6 6	27

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			TOTALS																
	4																		474
	4			E															584
	5																		3942
	5			E															15551
	6																		5252
	6			E															22696
	7																		1406
	7			E															11931
	8																		2394
	8			E															251
			TOTAL																13468
			TOTAL	E															51013
			Slab on																
			Girder																
	4																		393
	4			E															401
	5																		1307
	5			E															8562
	6																		4690
	6			E															22696
	7																		1406
	7			E															11931
	8																		604
	8			E															251
			TOTAL																52241
			Reinforcing																
			Steel																
			(Bridges)																
	4																		82
	5																		2635
	6																		562
	8																		1790
			TOTAL																5069
			Safety																
			Barrier																
			Curb																
	4			E															183
	5			E															6516
			TOTAL																6699
			Slip Form																
			Option																
	5			E															473
			TOTAL																473

State	Proj. No.	Sheet No.
MO		859

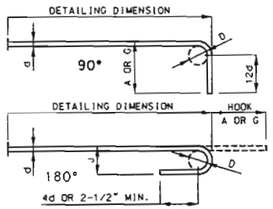




DETAILED MAY 2004
CHECKED MAY 2004

STIRRUP HOOK DIMENSIONS GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK 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"

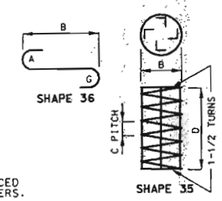
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

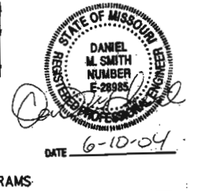


END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2-1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3-3/4"	7"	5"	10"
#6	4-1/2"	8"	6"	12"
#7	5-1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9-1/2"	15"	11-3/4"	19"
#10	10-3/4"	17"	13-1/4"	22"
#11	12"	19"	14-3/4"	2'-0"
#14	18-1/4"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

TWO ADDITIONAL #7 - S2, #6 - S6, #4 - K10 & #5 - R7 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. 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 FABRICATOR'S 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.

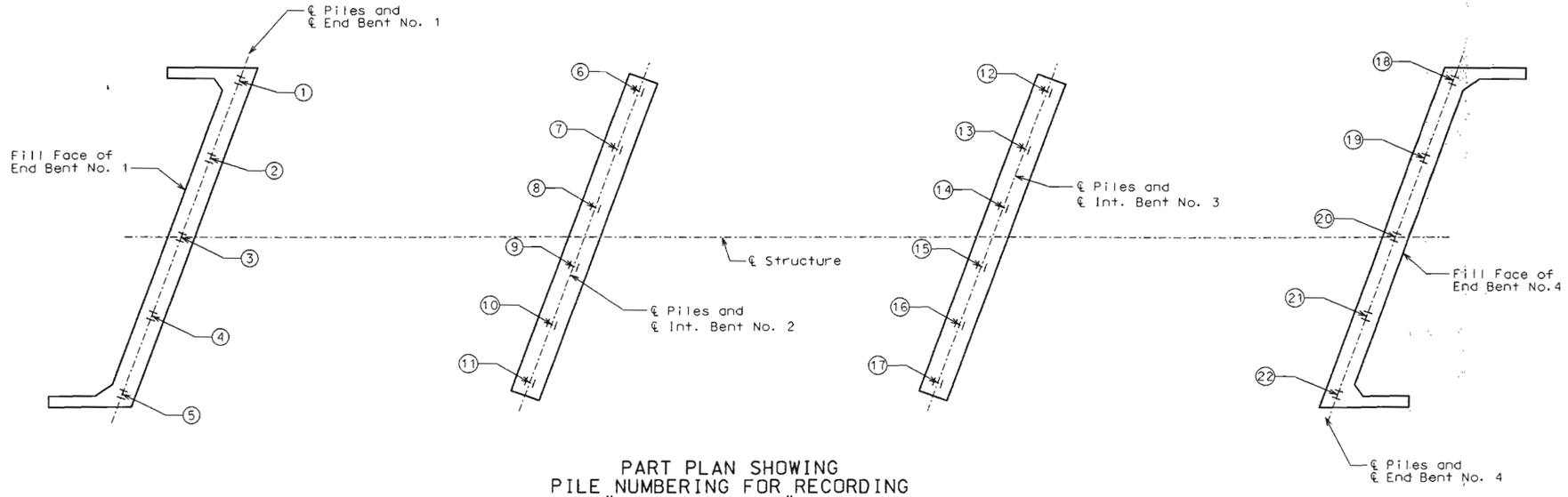




NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

POLK COUNTY A7004

State	Proj. No.	Sheet No.
MO.		B60



PART PLAN SHOWING
PILE NUMBERING FOR RECORDING
"AS BUILT PILE" DATA

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
			End Bent No. 1
1			
2			
3			
4			
5			

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
			Int. Bent No. 2
6			
7			
8			
9			
10			
11			
			Int. Bent No. 3
12			
13			
14			
15			
16			
17			

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
			End Bent No. 4
18			
19			
20			
21			
22			

NOTE: INDICATE IN REMARKS COLUMN:
A.) IF PILING WERE DRIVEN TO PRACTICAL REFUSAL.
B.) PILE BATTER IF OTHER THAN SHOWN ON BENT DETAIL SHEET.
C.) TYPE OF PILING USED.

NOTE: THIS SHEET TO BE COMPLETED BY MoDOT CONSTRUCTION PERSONNEL.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 6-10-04

Detailed Mar. 2004
Checked Apr. 2004

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

POLK COUNTY A7004

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