MISSOURI STATE HIGHWAY DEPARTMENT

GENERAL ELEVATION

PLAN

LOCATION SKETCH

Note: This drawing is not to scale, follow dimensions.

GROUNDED SKETCHES

Note: Feelings shall be carried of read
15 ft wide and sealed against vertical base,
from ground level, except use of other felt
roofs. 15 ft wide, hard rock is encountered,
all passes, stability, or disturbances
surface. This area is to be filled with earth
20 ft or more. (68.5 ft).

GENERAL NOTE:

Design Specifications A.A.S.H.O. V022

Corporation Class of Bridge: Structure,
Concrete, Class of Bridge: Structure,
Concrete, Class of Bridge: Structure.

Concrete for superstructure shall be Class 90,
for substructure shall be Class 80. The
Concrete for substructure shall be Class 80,
the Contractor reserves the right to use Class 80
in any portion of the superstructure or substructure,
subject to the basis of Class 90 provisions.

Note: Exception for bridge noses where Class B-710 will be used for
as Class 1 Specifications for Structures.

Note: Exception for bridge noses where Class B-710 will be used for
as Class 8 Evaluation for Structures.

BRIDGE OVER LITTLE BLUE CREEK

STATE ROAD FROM CASS CO. LINE NORTH
ABOUT 27 MILES S. OF JAC KSON
PROJECT NO. 733/820.

JACKSON

COUNTY
MISSOURI STATE HIGHWAY DEPARTMENT

DETAILS OF END BENT NO. 4
END BENT NO. 1 SIMILAR BY 180° ROTATION

"E" Indicates Grill and Grout at End existing Beam.

Notes:
- Plan of Piers of Beam Construction, see detail No. 4.
- Construction details of pier foundation, see detail No. 4.

SECTION E-E
SECTION F-F
SECTION C-C
SECTION D-D

ELEVATION D-D

Note: Pier and foundation in Branson Curve. All shown are weights No. 819.

DETAIL "9"

DETAIL "P"

PLAN

"E" Indicates Grill and Grout at End existing Beam.

Note: Plan of Piers of Beam Construction, see detail No. 4.
MISSOURI STATE HIGHWAY DEPARTMENT

DETAILS OF END BENT NO. 4
(BENT NO. 1 SIMILAR BY 180° ROTATION)

PLAN OF BEAM
(AT LOWER CANT JOINT)

TYPICAL SECTION THRU
NEOPRENE BEARING PAIR

Note: Neoprene Bearing Pads shall be 80 diameter.

PART LONGITUDINAL SECTION ALONG E ROADWAY

Notes for Timber-Header Columns
See sheet No. 5.

BENTS NO. 1-4

DETAIL OF STEEL PILE SPLICE

Note: This drawing is not to scale, follow dimensions.

Sheet No. 4 of 10.

JACKSON COUNTY

A-478R
MISSOURI STATE HIGHWAY DEPARTMENT

DETAILS OF INT BTS. NO. 2/3

Note: This drawing is not to scale. Follow dimensions.
MISSOURI STATE HIGHWAY DEPARTMENT

GENERAL NOTES: SLAB DRAINS
SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" MELTED SHEETS
OF A.S.T.M. A36 STEEL OR FROM 1/4" STRUCTURAL STEEL TO MATCH A.S.T.M.
AND OR W3X1.
OUTSIDE DIMENSIONS OF DRAINS ARE 8"
THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE
DRAINS ONG 1/2" BELOW THE FINISHED CONCRETE LINE.
LOCATE DRAINS IN THE SLAB A DIMENSIONS SHOWN ON THE PART
ELEVATION.
SHRINT REINFORCED STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.
THE DRAINS SHALL BE PLACED IN ACCORDANCE WITH A.S.T.M. F-22.
SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.

ELEVATION

SLAB DRAIN DETAILS

PLAN

PART PLAN OF SLAB

PART ELEVATION OF SLAB

Note: This drawing is not to scale. Follow dimensions.
Sheet No. 7 of 10.
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

GENERAL NOTES:
- Design loading: PL-160, PF-100, TF-100, SF-100
- Design unit weight: 2,000 lbs per cu. ft.
- Reinforcing Steel:
  - Minimum yield strength: 60,000 psi
  - Maximum size: 1 in. in diameter
  - Bar spacing: 3 in.

Note: Reinforcing steel shall be placed within the concrete beam and the fill shall be placed against the face of the beam.

Elevation Datum:
- EL 35.830

Reinforcing Steel:
- Minimum yield strength: 60,000 psi
- Maximum size: 1 in. in diameter
- Bar spacing: 3 in.

Traffic Maintenance:
- Traffic to be maintained during construction.

Coat of Finishing and Mixing Agent:
- Shall be consistent with the finish coat of the concrete.

Hydrologic Data:
- Drainage Area: 60 sq. mi.
- Base Design: 65 years

Pile Footing Data:
- Bearing Pile:
  - Diameter: 2 ft.
  - Length: 30 ft.
  - Cover: 2 ft.

Minimum energy requirement of hammer based on pile design and design bearing value.

LOCATION SKETCH

LOCATION OF ELEVATION

PLAN

Elevations

1. E. End Rev. (S.R. 71)
2. E. End Rev. (S.R. 71)
3. E. End Rev. (S.R. 71)
4. E. End Rev. (S.R. 71)

HYDROLOGIC DATA
- Drainage Area: 60 sq. mi.
- Base Design: 65 years

PILE FOOTING DATA
- Bearing Pile:
  - Diameter: 2 ft.
  - Length: 30 ft.
  - Cover: 2 ft.

Minimum energy requirement of hammer based on pile design and design bearing value.

All piles shall be driven to practical refusal.

Bridge:
- Bridge over Little Blue River
- State Route from Blue Ridge U.D.O. to Cass County Line
- Location: Grandview
- Project No.: 4-U-7-1256
- Job No.: 4-U-7-1306
- Engineer: A.E. Jackson
- Date: 10-25-67

ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Low</th>
<th>High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>C80</td>
<td>Concrete</td>
<td>100</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>SBA</td>
<td>Steel</td>
<td>50</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>SBA</td>
<td>Reinforcing Steel</td>
<td>25</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>SBA</td>
<td>Structural Steel</td>
<td>50</td>
<td>100</td>
<td>150</td>
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<td>SBA</td>
<td>Miscellaneous</td>
<td>50</td>
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</tr>
<tr>
<td>SBA</td>
<td>Safety Barriers</td>
<td>50</td>
<td>100</td>
<td>150</td>
</tr>
</tbody>
</table>

Note: All quantities are in cubic yards (cu. yd.)

F.M. 41; 700.9; Top Blf in Nw. 1/4 sec. of 4.2.5 Bridge

STATE ROAD FROM BLUE RIDGE U.D.O. TO CASS COUNTY LINE

IN GRANDVIEW

PROJECT NO.: 4-U-7-1256

JOB NO.: 4-U-7-1306

CASS JACOBSON

Date: 10-25-67

CASS-JACKSON

COUNTY

STD.

112-233

STD.

112-233

STD.

112-233

STD.

112-233

STD.

112-233

STD.

112-233
El. 950.2
Brown lean clay, with cobble and gravel, moist, stiff
El. 948.7

Tan and gray shale, soft
El. 938.6

El. 920.8
Relatively fresh limestone
El. 919.3

El. 916.7

El. 946.4
Brown lean clay, stiff, moist
El. 938.6

Brown lean clay, with cobble and gravel, moist, stiff
El. 940.5

Gray clay, stiff, moist
El. 938.7

Dolostone, shelly
El. 936.0

Gray shale, thinly laminated, soft from 28.0 to 28.5
El. 908.0

Gray limestone, fine grained, medium bedded
El. 906.8

Gray shale, limestone
El. 905.4

El. 905.8

El. 950.8
Brown gravelly, lestage, 12", very moist, stiff
El. 946.0

Black lean clay, moist, stiff
El. 940.5

Tan and gray shale, soft, free water at 10.3
El. 938.7

Gray shale, soft
El. 916.7

BORING DATA

For boring locations see Sheet No. 1.
For notation and clarifications regarding boring log data see Sheet No. 1.

Sheet No. 3 of 15

Detailed May 2006
Checked December 2006
Notes: This drawing is not to scale. Follow dimensions.
SECTION THRU LAMINATED NEOPRENE BEARING PAD

TYPICAL SPlice DETAIL

Notes:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.
The cost of furnishing and installing the resin anchor system complete in place will be considered completely covered in the contract unit price for Class B Concrete (Substructure).
The minimum embedment depth in concrete with 4°C = 4,000 psi for the resin anchor system shall be at least required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but not less than 5".
For location of Section A-A & Section B-B, see Sheet No. 4.
For details of Conduit System On Structure, see Sheet No. 2.
**SUBSTRUCTURE QUANTITY TABLE FOR BENT NO. 2 & NO. 3**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>BENT NO. 2</th>
<th>BENT NO. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1 Excavation</td>
<td>Cubic Yard</td>
<td>10</td>
</tr>
<tr>
<td>Class 2 Excavation</td>
<td>Cubic Yard</td>
<td>20</td>
</tr>
<tr>
<td>Concrete</td>
<td>Pounds</td>
<td>1180</td>
</tr>
<tr>
<td>Rebar (Structural)</td>
<td>Pounds</td>
<td>8.2</td>
</tr>
</tbody>
</table>

**DETAILS OF INTERMEDIATE BENTS NO. 2 & 3**

Notes: These quantities are included in the Estimated Quantities shown on Sheet No. 2.
DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

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

Sheet No. 1 of 15

Detailed May 2006
Checked December 2006
SECTION NEAR CENTER OF END SPANS

SECTION NEAR INT. BT.

The contractor shall furnish an approved rebar to retard the set of the concrete for 2½ hours and shall pour and consistantly finish the slab pours temporarily. Transverse construction joints as shown on the plans, unless the contractor is equipped to pour and consistantly finish the roadway slab at a rate which permits a continuous pouring through some or all joints as approved by the engineer. Expansive Class B-2 concrete shall be used in the closure pour. Forms shall be released before the closure pour.

Any damage to existing epoxy coated reinforcement shall be repaired in accordance with Sec. 113.

For details of Conduit System On Structure, see Sheet No. 2.

SLAB SECTIONS

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

Sheet No. 9 of 15
NOTES:

- Slab drains may be fabricated of either 1/4" welded sheets of ASTM A690 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

- Slab drain bracket assembly shall be ASTM A690 Grade 36 steel.

-出炉 dimensions of drains are 9" 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 shall be galvanized in accordance with ASTM A123.

- Shop drawings will not be required for the slab drains.
SECTION NEAR LEFT SAFETY BARRIER CURB

R-BAR PERMISSIBLE ALTERNATE SHAPE

1) The R1 and R2 bar combination may be furnished in one bar, as shown, at the contractor's option. All dimensions are cut to build.

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

A

Notes:
- Use a minimum lap of 2-1/2" for horizontal safety barrier curb bars. The cross-sectional area above the slit = 2.28 sq. ft.
- Joint filler shall be Class B-1.
- Measurements of safety barrier curb to be run from outside top of side rail and end of wing to end of wing.
- Concrete traffic barrier dividers shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 611-10 and in accordance with Sec 611. Concrete traffic barrier dividers will be considered for "Safety Barrier Curb".

FILLED JOINT DETAIL

The curb shall be cured by Type I-B or Type 2 liquid membrane-foming compound in accordance with Sec 1055. Surface sealing for concrete shall be in accordance with Sec. 703. Wall and membrane material shall not be permitted.
**DETAILS OF LEFT SAFETY BARRIER CURB AT END BENTS**

**NOTES:** Use a minimum top of 2'-0" between K9 and K10 bars.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

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

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

---

**SECTION A-A**

**PART ELEVATION**

- 6" Joint Filler
- 10'-0"
- 21'-0" M-42 & K2
- 6" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 3" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 11" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 2'-0" Spec. 8.6" Spec. 8.6" Spec. 8.6"

**SECTION B-B**

**PART ELEVATION**

- Spaced with M-44 bars.
- Fit M-44 bar to follow transition face of curb.

**SECTION C-C**

**PART ELEVATION**

- 6" Joint Filler
- 10'-0"
- 21'-0" M-44 & K2 (Spec. as shown)
- 6" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 3" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 11" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 2'-0" Spec. 8.6" Spec. 8.6" Spec. 8.6"

---

**SECTION D-D**

**PART ELEVATION**

- 6" Joint Filler
- 10'-0"
- 21'-0" M-42 & K2 (Spec. as shown)
- 6" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 3" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 11" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 2'-0" Spec. 8.6" Spec. 8.6" Spec. 8.6"

**SECTION E-E**

**PART ELEVATION**

- The top two K9 and K10 bars should be left with a position close to those shown in Sections A-A thru F-F.

**SECTION F-F**

**PART ELEVATION**

- 6" Joint Filler
- 10'-0"
- 21'-0" M-44 & K2 (Spec. as shown)
- 6" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 3" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 11" Spec. 8.6" Spec. 8.6" Spec. 8.6"
- 2'-0" Spec. 8.6" Spec. 8.6" Spec. 8.6"
PLAN SHOWING
PILE NUMBERING FOR RECORDING
"AS BUILT PILE" DATA

"AS BUILT PILE" DATA

<table>
<thead>
<tr>
<th>PILE NO.</th>
<th>LENGTH IN PLACE (FT.)</th>
<th>COMPUTED BEARING (TON)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>End Bent No. 1</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>End Bent No. 4</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: INDICATE IN REMARKS COLUMN:
A: 1 if pile were driven to practical refusal;
B: 1 if pile batter is other than shown on bent detail sheet;
C: 1 if type of pile used.

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

Sheet No. 15 of 15

\(\text{December 2006}\)
FINAL PLANS

SECTION THRU LAMINATED NEOPRENE BEARING PAD

TYPICAL SPLICE DETAIL

Notes:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec. 1038.
The cost of furnishing and installing the resin anchor system complete in place will be considered completely covered in the contract unit price for Class B Concrete Substructures.
The minimum embedment depth in aggregate with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec. 1038 but not less than 1.5".
For location of Section A-A & Section B-B, see Sheet No. 4.
For details of conduit system on structure, see Sheet No. 2.

EXISTING WING REMOVAL ELEVATION

DETAIL OF STEEL PILE SPLICE

DETAILS OF END BENT NO. 1 & 4

Sheet No. 5 of 15

Notes: This drawing is not to scale. Follow dimensions.
**ELEVATION**

- Existing rebar to be left intact.
- Note: This drawing is not to scale. Follow dimensions.

**SECTION A-A**

- Note: For Plan see Sheet No. 7.

**SECTION B-B**

- Note: These quantities are included in the estimated quantities shown on Sheet No. 2.

**SUBSTRUCTURE QUANTITY TABLE FOR BENT NO. 2 & NO. 3**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>BENT NO. 2 QUANTITY</th>
<th>BENT NO. 3 QUANTITY</th>
<th>LINE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Excavation</td>
<td>Cubic Yard</td>
<td>10</td>
<td>2330</td>
</tr>
<tr>
<td>Class II Excavation</td>
<td>Cubic Yard</td>
<td>20</td>
<td>2330</td>
</tr>
<tr>
<td>Concrete</td>
<td>Cubic Yard</td>
<td>8.2</td>
<td>2340</td>
</tr>
<tr>
<td>Reinforcing Steel (BR1500)</td>
<td>Pounds</td>
<td>1160</td>
<td>2440</td>
</tr>
</tbody>
</table>

**DETAILS OF INTERMEDIATE BENTS NO. 2 & 3**

- Sheet No. 6 of 15

- Note: This drawing is not to scale. Follow dimensions.
FINAL PLANS

PLAN

DETAIL SHOWING KEY & JOINT FILLER

DETAIL SHOWING KEY

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3
FINAL PLANS

PLAN OF SLAB SHOWING TOP REINFORCEMENT

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

SLAB PLAN

Detailed May 2006
Checked December 2006

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

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 of 25 cubic yards per hour. The contractor shall observe the transverse construction joints as shown on the plans, unless the contractor is equipped to pour and satisfactorily finish the roadway slab at the rate which permits a continuous pouring through deck or all joints as approved by the engineer.

Expansive Class B-2 concrete shall be used in the closure pour. Forms shall be released before the closure pour.

Any damage to existing epoxy coated reinforcement shall be repaired in accordance with SBD 710.

For details of construction on structure, see Sheet No. 2.
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 drain.

The drains shall be galvanized in accordance with ASTM A123.

Shop drawings will not be required for the slab drains.

LOCATION OF SLAB Drains

SLAB Drain DETAILS
NOTES:
1. Use a minimum gap of 2-1/2" between K3 and K10 bars.
Concrete traffic barrier delineators shall be placed on top of the safety barrier as shown in Section E. They shall not exceed 5-1/2" in compliance with Sec 657. Concrete traffic barrier delineators shall be considered completely covered by the contract unit price for "Safety Barrier Curb".
2. The top two K3 and K10 bars shall be kept with gaps in order to make the transition from thru F-F.

DETAILS OF LEFT SAFETY BARRIER CURB AT END BENTS
TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

Notes:
Joint sealant and backer rod shall be used on all slip-form barrier curb. Slip-in-place joint filler shall be in accordance with Sec. 705 for slip-in-place joint sealant for saw cut and formed joints.
Concrete finish barrier delimiters shall be placed on top of the safety barrier curb, as shown on glassy Standard Plans 6170 and in accordance with Sec. 705. Concrete traffic barrier delimiters will be considered completely covered by the contract unit price for "Safety Barrier Curb".

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

Notes:
- Top of safety barrier curb shall be built parallel to road with barrier curb joints (except at end berm) not to grade.
- Pervious for all concrete and reinforcement, saw-in-place, will be considered complete.
- Top of safety barrier curb shall be Class B-1.
- Measurement of safety barrier curb is to the nearest inch and for each structure measured along the outside top of side from end of wing to end of wing.
- The curb shall be cured by application of Type 1-D or Type 2 Liquid Waterstop-forming compound in dips at least one time for 24 hours. Curing of concrete in accordance with Sec. 705 will not be permitted.

PART SECTION B-B
2" (typ.)

SECTION THRU JOINT

PART SECTION C-C

Sheet No. 13 of 15

Detailed: May 2006
Checked: December 2006

This drawing is not to scale. Follow dimensions.
**PLAN SHOWING**

**PILE NUMBERING FOR RECORDING**

**"AS BUILT PILE" DATA**

<table>
<thead>
<tr>
<th>PILE NO.</th>
<th>LENGTH (FT.)</th>
<th>COMPUTED WEIGHT (TONS)</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
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<td>End Bent No. 1</td>
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<td>2</td>
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<td>File driven to practical refusal</td>
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<td>3</td>
<td>17</td>
<td>35</td>
<td>End Bent No. 4</td>
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<tr>
<td>4</td>
<td>16</td>
<td>35</td>
<td>File driven to practical refusal</td>
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<td><strong>TOTAL</strong></td>
<td><strong>65</strong></td>
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</tbody>
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**NOTE:** THIS SHEET TO BE COMPLETED BY MDOT CONSTRUCTION PERSONNEL.