

## Paperless Bridge Memo

**Bridge Memorandum**

Job No.: J30601C Bridge No.: A01241  
 County: Cooper Rte.: 5 over I-70

Final Layout: U.L.P., Estimating & Roadwork & Make Composite (SR-72-72-58) Continuous Wide Flange Spans

**Roadway Width:** 30'-0" plus 16" Safety Barrier Curbs  
**Alignment:** Tangent  
**Skew:** 88°45' RA  
**Grade:** Match existing (Original Grade plus 1")  
**Leaving:** H20-44 (3.5%), H20-44 (new zone)  
**Reg. Station:** 49+84.576 (match existing)  
**Traffic Handling:** Bridge traffic control plus detour traffic on bridge during construction.  
**Existing Bridge:** Rehab A-124 and use in place.

**GENERAL NOTES:**  
 Remove existing Bridge Deck (non-continuous).  
 Install 7'1/2" CIP slab, no panels with 3/16" conc. slope. Stay-in-place forms if optional.  
 Install Stone Concrete.  
 Erect bridge deck over backwall maintaining a sliding slab on backwall @ End Beams #1 & #5.  
 Install Safety Barrier Curbs.  
 Install Slab Drain.  
 Install Protective Coating (Epoxy) @ End Beams #1 & #5.  
 Perform Non-Destructive Testing on all existing top cover plates.

**SPECIAL NOTES:**  
 Roadway reflecting adjacent to bridge ends to match bridge deck, (ditch, ditch, hem)  
 Paving to be done in another contract.

Element Codes: TPM  
 Bridge Division Code: SPM

Estimated Construction Cost: \$427,660

Bridge: *Chris Shanks* Date: *10/14/2008*  
 District: *Chris Shanks* Date: *10/14/2008*  
 District: *Chris Shanks* Date: *10/14/2008*

**BRIDGE MEMORANDUM**

Job No.: J350517 - NE Bridge No.: A788  
 Route: 7 (unim) over Indian Camp Creek County: Warren  
 Final Layout: (SR-47) Precast Concrete N7-35 Girder Spans  
**Roadway Width:** 28'-0" (symmetrical) plus 16" Safety Barrier Curbs  
**Skew:** 10° Right Advance  
**Leaving:** H2-60  
**Alignment:** Tangent  
**Profile Grade:** VPI Sta. 114+77.00, Elev. 542.49, +0.55% back, -0.69% ahead, L = 200'  
**Reg. Station:** 113+48.97 @ Full Face End Beam No. 1  
**Traffic Handling:** Sta. 113+48.97 to Sta. 115+52.53 = Structure to be closed to traffic during construction.  
**Existing Bridge:** R0030 to be removed per standard specs, estimated cost \$21,000 (Bridge Item, included in estimate)

**GENERAL NOTES:**  
 \* Unimproved Profile Grade and Structure are located along & Ebe. J.  
 \* Use unimproved end beam with 9'-0" long raised back wings.  
 \* Remove old roadway fill under the ends of the bridge to natural ground line (Roadway Item).  
 \* Spill fill slopes shall be 2:1 (GV) normal to end beam (Roadway Item).  
 \* Provide 2' thick Type 2 Rock Blanket with Denatured Ethanol Control Geotextile at both end beams along full height of spill slopes. Extend Rock Blanket with Geotextile from toe of spill slope towards channel 8' at both end beams.  
 \* Wing Rock Blanket around end beam and extend 30' along side slope on upstream side of bridge (Roadway Item).  
 \* Provide Bridge Approach Slab (Minor) as a Bridge Item. Slab length is 20 feet.  
 \* Investigate the possibility of using 3 girder lines during final design of structure.  
 \* No slab drains are required on structure.  
 \* Seismic Performance Category A.  
 \* Provide right-of-way as required for construction.  
 \* Subsoils will utilize as required for construction.  
 \* No conduit, lighting, utility supports, sign supports, fencing or sidewalks are to be included in the final bridge plans.  
 \* Route 7 AADT Count (2015) = 3200; AADT Design (2035) = 4450; AADT = 11%; Design Speed = 35 mph.  
 \* A NTP Good study for Warren County, MO (ITEM Post 2010C01690), Effective Date November 4, 2009 shows this construction site in a "Zone A" Good hazard area subject to 100-year flooding. Base Flood elevations have not been determined nor has a floodway been identified. The Bridge Division will obtain the required Floodplain Development Permit.  
 \* Programmed Bridge STP Amount = \$430,000 (provided by the bridge office).  
 \* Existing Bridge R0030 Estimated Backwater (100 year) = 2.24'. The Bridge Division will initiate a design exception.

Estimated Working Days = 40      FY15 Estimated Construction Cost = \$423,000  
 \* Does not include inflation from Planning (9% compound annually)

| Hydrologic Data                      |                  |
|--------------------------------------|------------------|
| Drainage Area                        | = 31.2 (sq. mi.) |
| Backwater Base Flood Data (100 year) |                  |
| High Water Elev.                     | = 335.86         |
| Design Discharge                     | = 8211 (cfs)     |
| Estimated Backwater                  | = 2.23 (ft)      |
| Average Velocity thru Opening        | = 6.49 (ft/sec)  |
| Freeboard                            |                  |
| Design Freeboard                     | = 10 (year)      |
| Design Discharge                     | = 7050 (cfs)     |
| Design Head                          | = 107.00         |
| Design High Water (RHW) Elev.        | = 342.50         |
| Roadway Overlap                      |                  |
| Design Elev. (1" below Roadway)      | = 338.34         |
| Design Discharge                     | = 10,943 (cfs)   |
| Design Frequency                     | = 500 (years)    |

District contact is Christopher Knapp, TPM (573) 248-2588  
 Bridge contact is Michele Atkinson, SPM (573) 232-3171

Christopher Shanks      06/06/14  
 Date  
 Prepared by: Christopher Shanks

Michele Atkinson      06/07/14  
 Date  
 Bridge: Michele Atkinson

Christopher Knapp      06/15/14  
 Date  
 District: Christopher Knapp

Rhawn Parrish      06/15/14  
 Date  
 District: Rhawn Parrish

### Description

A bridge memo is created for all bridge projects (new bridges, re decks, rehabs, culverts, walls) to share the intended scope of work with the districts and document the agreed upon bridge work. The paperless bridge memo is stored and shared in SharePoint, so districts can review, modify and sign the electronic document. Prior to this process, the bridge memo was printed, signed, scanned and then emailed to the district for review and signature. The district would then print, markup any changes, sign, scan and email the memo back to the Bridge Division.

### Benefit

This new process saves time and resources by eliminating the need to print, scan and email the bridge memo multiple times. The old process often resulted in a poor quality, hard to read final version. It resulted in multiple versions of the same document stored on the network and server. One copy on SharePoint decreases the storage space and number of attachments emailed back and forth. Paperless memos encourage collaboration between the Bridge Division and districts by giving districts a better opportunity to make suggestions. The final version of the memo with suggestions and changes made during the design process is easy and convenient to find so everyone is certain they are looking at the most-up-to date version.

### For More Information Contact:

Chris Shanks at [christopher.shanks@modot.mo.gov](mailto:christopher.shanks@modot.mo.gov) or (573) 522-1627.

Additional screenshots of paperless memos can be seen by accessing the Innovations Challenge homepage at: <http://wwwi/intranet/cr/SolutionsAtWork/Innovations.htm>.