Iowa Department of Transportation

Letter of Transmittal

Office of Bridges and Structures
800 Lincoln Way (515)-233-7924
Ames, IA 50010 Fax (515)-239-1978

September 25, 2013

ID No	1267

To: HERBERGER CONSTRUCTION CO.,
2508 WEST 2ND
INDIANOLA, IA 50125

Design No.	113	Station	
File No.	30484	Section	
Job No.			
County	CASS		
Project	BRF-092-2(36)--38-15		
Project			
Location			

We are sending you

[X] *Attached* [ ] *Under Separate Cover*

[ ] Plans
[ ] Prints
[X] Shop Drawings
[ ] Falsework Plans

Item	Copies	Sheets	Description	1. No Exceptions Taken	2. Make Corrections Noted *	3. Amend and Resubmit	4. Rejected - See Remarks
1	1	3	PROCEDURES FOR PREFABRICATED BRIDGE	X			
			SUPERSTRUCTURE MOVE				

* No Resubmittal Necessary

Remarks: **It is recommended to have the QA/QC checklist on-site prior to the bridge move.**

Signed *Brett Kloss*
Brett Kloss
Office of Bridges and Structures

Cc:

W. SUNDAY-CONSTRUCTION
HERBERGER CONSTRUCTION CO., INC. (2 COPIES)
OFFICE COPY
S. NIXON-CRESTON RCE (2 COPIES)

Herberger Construction Company, Inc.

P.O. BOX 326 • INDIANOLA, IOWA 50125
PHONE (515) 961-5564 • FAX (515) 962-1496

September 20, 2013

Iowa Department of Transportation
Scott Nixon P.E.
701 E. Taylor
Creston, Iowa 50801

Ref: Cass County BFF-092-2(36)—38-15
Subject: Jacking and Rolling Plan

Dear Scott:

Our intended jacking plan to raise and lower the bridge is to use five jacks, two with 160 ton capacity and three with 100 ton capacity. Our plan is to raise the west abutment a ¼ inch, strip the form work out and then set on to the rollers. We will then go to the east abutment and repeat the process. We will control the lift at each abutment with the use of five individual P-80 hand pumps with gages attached. We anticipate the following PSI to our jacks at each location to lift the bridge equally.

160 Ton Jack	100 Ton Jack	100 Ton Jack	100 Ton Jack	160 Ton Jack
6100 Lbs.	2260 Lbs.	6241 Lbs.	2260 Lbs.	6100 Lbs.

Please see Sheet 15 of 45 of our Appendix A Engineering Analysis for the weights of the bridge at each jacking location.

Our intended rolling plan is to use two RR-5020 double acting cylinders with 50 ton capacity each to pull the bridge from the south side of the new abutment. Please see our Super Structure Move Plan for location of the cylinders. Both cylinders will be controlled by one Power Pump ZU4 which has a 10,000 pound per square inch pumping capacity. I have enclosed a copy of our lay out diagram showing our system. Our cylinders have a 20 inch extension capacity with a four minute cycle time to extend and retract. This will require 30 to 35 cycles to move the bridge into final position. We will control the movement of the cylinders with a manifold on the power side of the system to help maintain the proper alignment of the bridge with the new abutments. We will mark our channel guide rail with locations so we can measure and maintain a parallel alignment on center line of each abutment. Due to the use of rollers on a hard surface we do not feel we will have much in the way of twisting or deflections of the bridge. We will set up an instrument and check elevations of the bridge during the bridge move at intervals of every ten feet of movement.

Our QA/QC procedures are as follows.

Our project superintendent on site is Dean Herberger; he will be in charge of the bridge move. We are doing maturity testing for the concrete abutment for this project. Temperatures will be checked with the use of I Buttons placed into the concrete and reports made after the proper time has occurred. All splice rod connections will be checked for the proper thread length prior to moving the bridge. Construction of our jacking system will be checked against our move system shop drawing prior to the bridge move for correct placement. We will double check alignment of our rolling channel prior to the bridge move to make sure it is square to center lines. Doug Reinert will be the operator of our jacking system. He is the

same person who tested the system in our shop as well as the person who ran the system during the test move. All personal will be with in site distance of one another and with easy communication of each other. The design engineer may be on site depending on move time or available by phone if needed. Safety officer will be on site to review the system for safety hazard. Due to the slow movement of the bridge we do not anticipate a problem with safety. We estimate the bridge will have a movement rate of twenty two seconds to go one inch. This should give us ample time to make any corrections needed to maintain alignment of the bridge by closing down one of the cylinders and advancing the other cylinder to catch up. The cylinders have a 20 inch extension capacity, so we should be at the same location at the end of every cycle.

The following is our Contingency Plan.

We have purchased all new jacking equipment for the proposed move. We have tested the system in our yard and we did a test move at the bridge site moving the bridge eight inches. We had the following PSI pressures during the move. 1600 Pounds of pressure to get the bridge moving, then the pressures went down to 1400 pounds to keep the bridge moving. This equates to 17,696 pound of force to start the bridge and 15,484 pounds to keep it moving. We plan on having spare parts available for our moving system at the job site in case of breakdown. Our supplier of the jacking system will have available at their office one extra cylinder and an extra pump with hoses if needed. We will also have two extra rollers on site in case of breakdown.

If you need anything else from us please let us know.

Sincerely

Curtis M. Brown P.E.
Herberger Construction Company Inc.

1 Cylinder
Applies hydraulic force.
Page 5

2 Cylinder Base Plate
For applications such as lifting where additional cylinder stability is required.
Page 10

3 Pump
Provides hydraulic flow.
Page 56

4 Hose
Transports hydraulic fluid.
Page 114-115

5 Male Coupler
For quick connection of the hose to system components.
Page 116-117

6 Female Coupler
For quick connection of the hose end to the system components.
Page 116-117

7 Gauge
To monitor pressure of the hydraulic circuit.
Page 120-123

8 Gauge Adaptor
For quick and easy gauge installation.
Page 126

9 Swivel Connector
Allows proper alignment of valves and/or gauges. Used when units being connected cannot be rotated.
Page 126

10 Auto-damper Valve V-10
Used to protect gauge from damage due to sudden pulses in the system. Needs no adjustment and allows correct positioning of gauge, prior to tightening.
Page 129

11 4-Way Directional Control Valve
Controls the direction of hydraulic fluid in a double-acting system.
Page 106

12 3-Way Directional Control Valve
Controls the direction of hydraulic fluid in a single-acting system.
Page 106

13 Safety Holding Valve
Controls load descent in lifting applications.
Page 129

14 Manifold
Allows distribution of hydraulic fluid from one power source to several cylinders
Page 118

15 Needle Valve
Regulates the flow of hydraulic fluid to or from the cylinders.
Page 129

Double-acting cylinder set-up used in a push/pull application.