

**TRANSPORTATION POOLED FUND PROGRAM  
QUARTERLY PROGRESS REPORT**

Lead Agency: ---- **Utah Department of Transportation** ----

**INSTRUCTIONS:**

*Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.*

<b>Transportation Pooled Fund Program Project #</b>  <p style="text-align: center;">(TPF-5(257))</p>	<b>Transportation Pooled Fund Program - Report Period:</b> <input checked="" type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> Quarter 4 (October 1 – December 31)	
<b>Project Title: Evaluation of Spliced Sleeve Connections for Precast RC Bridge Piers</b>		
<b>Name of Project Manager(s):</b> <p style="text-align: center;">Abdul Wakil</p>	<b>Phone Number:</b> <p style="text-align: center;">801-633-1034</p>	<b>E-Mail</b> <p style="text-align: center;">awakil@utah.gov</p>
<b>Lead Agency Project ID:</b> <p style="text-align: center;">5H06604H, UT11.502</p>	<b>Other Project ID (i.e., contract #):</b> <p style="text-align: center;">12-8775</p>	<b>Project Start Date:</b> <p style="text-align: center;">3/23/2012</p>
<b>Original Project End Date:</b> <p style="text-align: center;">3/30/2013</p>	<b>Current Project End Date:</b> <p style="text-align: center;">10/30/2013</p>	<b>Number of Extensions:</b> <p style="text-align: center;">1</p>

Project schedule status:

On schedule  On revised schedule       Ahead of schedule       Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Percentage of Work Completed to Date
<b>\$175,848.00</b>	<b>\$17584.00</b>	<b>10%</b>

**Quarterly** Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$17584.00, 10%	\$17584.00	17%

**Project Description:**

The splice sleeve connection is being considered as the method of choice for connecting precast concrete bridge elements. The purpose of this project is to perform experiments to evaluate the performance of the splice sleeve connection between a reinforced concrete square bridge column and a bridge footing (Type I) or a reinforced concrete square bridge column and a bridge cap beam (Type II) in a seismic setting. This information is very valuable for construction of bridges using Accelerated Bridge Construction in areas with seismic activity.

The present proposal aims at performing cyclic tests to verify the capacity of the splice sleeve connection in seismic regions for connecting precast elements such as footings and columns or columns and cap beams. The splice sleeve connection is being considered as the method of choice for connecting precast concrete bridge elements. The purpose of this proposal is to perform experiments to evaluate the performance of the splice sleeve connection between a reinforced concrete square bridge column and a bridge footing (Type I) or a reinforced concrete square bridge column and a bridge cap beam (Type II) in a seismic setting. This information is very valuable for construction of bridges using Accelerated Bridge Construction in areas with seismic activity.

Work in this area is very limited. However, every effort will be made to identify any work related to this issue and will be reviewed with the purpose of adding value to the proposed tests. The tests envisioned are designed to be approximately half-scale compared to typical bridge dimensions. The dimensions of the column for Type I tests are 21 in. x 21 in., with 6#8 mild steel reinforcing bars and a height of 8 ft and 6 in. The dimensions of the footing for Type I connections are 6 ft long x 3 ft wide x 2 ft deep. The column and footing details for the column to footing connection (Type I) are shown in Figure 1. Note that Type I connections will utilize the NMB splice sleeve system.

The dimensions of the column for Type II tests are 21 in. x 21 in., with 6#8 mild steel reinforcing bars and a height of 8 ft and 6 in. The dimensions of the cap beam for Type II connections are 9 ft long x 2 ft wide x 2 ft deep. The column and cap beam details for the column to cap beam connection (Type II) are shown in Figure 2. It is to be noted that the cap beam is shown in the upside down position; this is done for ease of testing. Note that Type II connections will utilize the Lenton Interlock mechanical splice system.

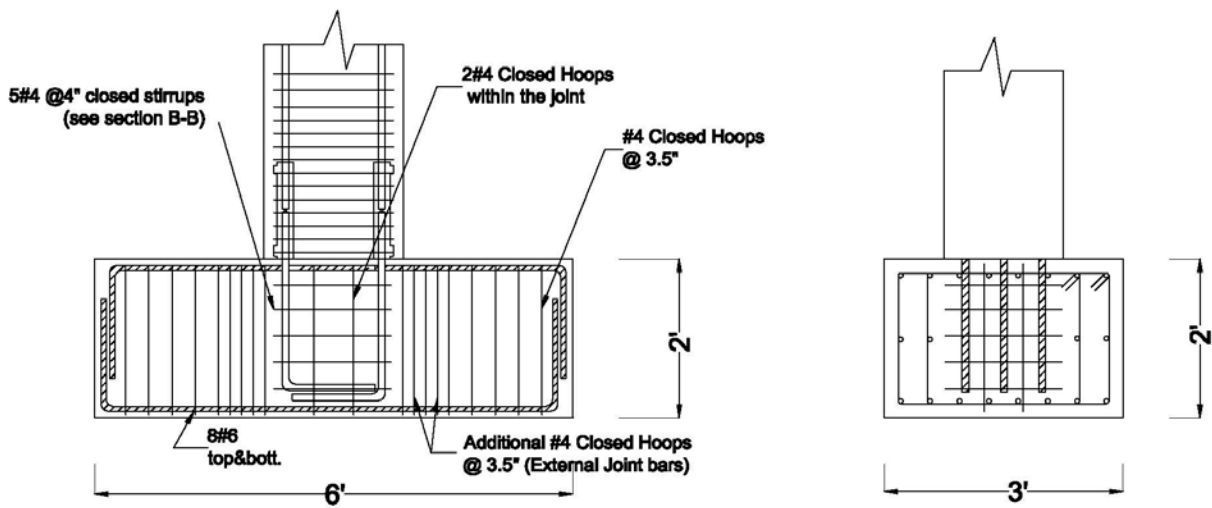
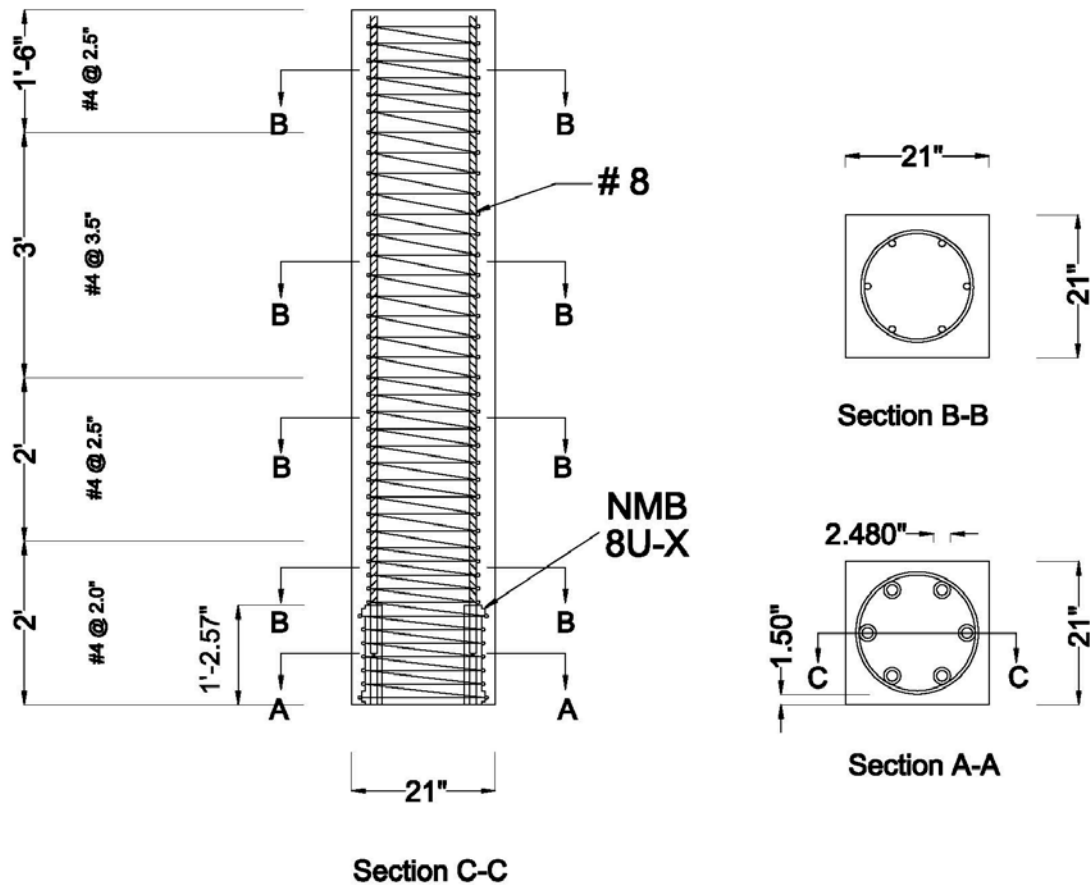


Figure 1. Column and footing details for the column to footing tests using NMB splice sleeves.

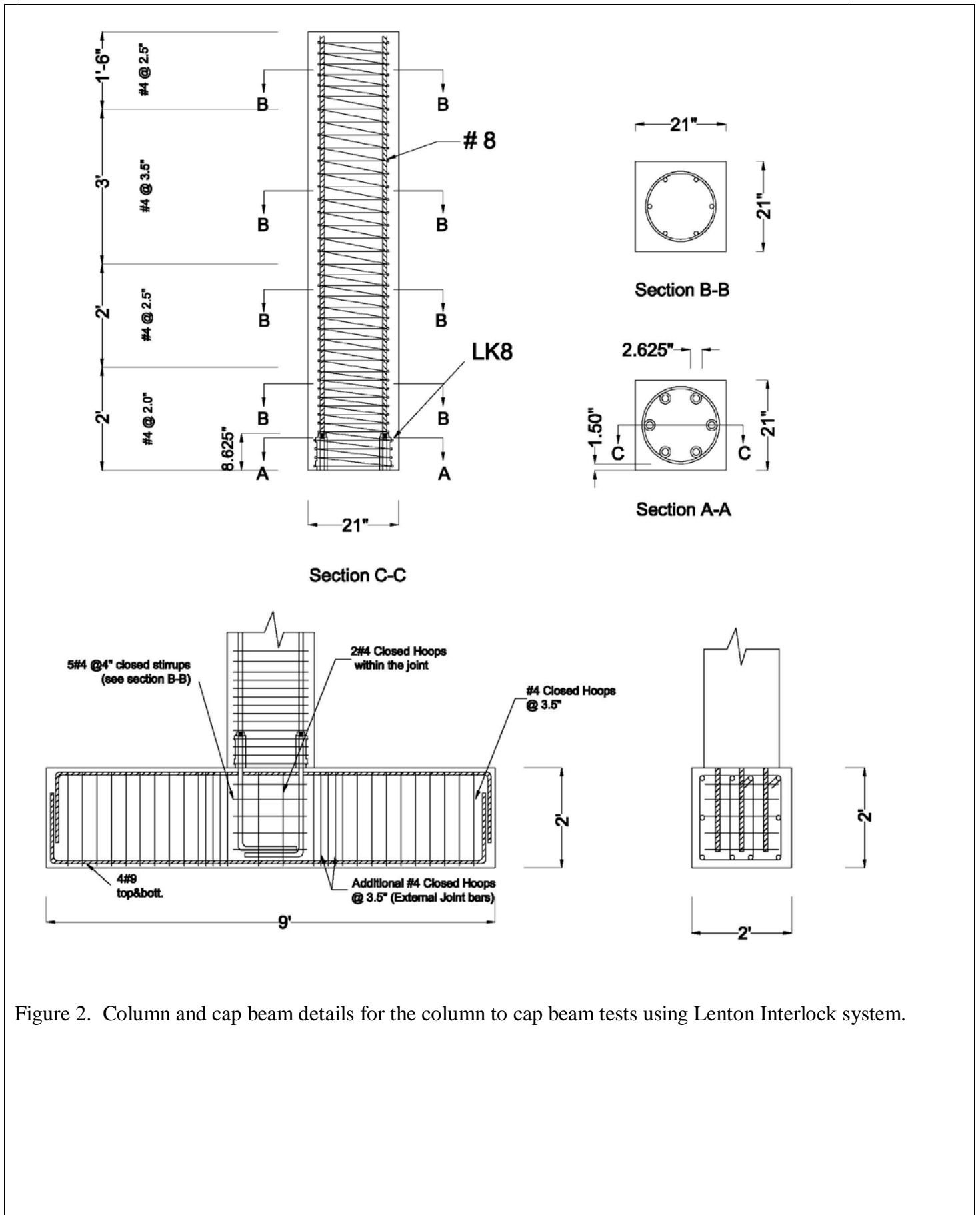


Figure 2. Column and cap beam details for the column to cap beam tests using Lenton Interlock system.

**Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**

Task 1. Review of the existing experimental results for sleeved connections is complete.

**Anticipated work next quarter:**

It is anticipated that in the present quarter, the precast concrete column, footing, and cap beam will be built.

**Significant Results:**

There are no significant results to report at the present time since no tests have been conducted.

**Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).**

None.

**Potential Implementation:**

It is anticipated the Utah DOT will implement the findings of this research once it is completed in Accelerated Bridge Construction (ABC). Hopefully New York State Department of Transportation and Texas Department of Transportation will be able to implement them too.