January 17, 2017

Memorandum to: John Pilipchuk, L.G., P.E.
State Geotechnical Engineer

WBS No.: 38406.1.2
TIP No.: B-4544
Project ID: 29076
County: Harnett
Description: Bridge No. 134 on SR 1722 (Three Bridge Rd) over Black River

Re: Design Scour Elevations

After a review of site flooding history, historical scour depth, and geologic conditions encountered at the site, Stewart has determined the design scour elevation (DSE), and presents the following:

Location	Theoretical Scour Elevation	Historical Scour Elevation	Design Scour Elevation	Does DSE impact end bents?
Center of Channel	168 feet	168 feet	168 feet	No

The Theoretical Scour Elevation is from the Bridge Survey and Hydraulic Design Report dated 9/13/2016 . The Design Scour Elevation is the same as the Theoretical Scour Elevation. The subsurface investigation revealed alluvial material at the end bents, which interpolated indicates loose silty sand and coarse sand in the center of the channel to an elevation of approximately 168 feet. These materials are resistant to scour.



Donald W. Brown, Jr., PE
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