ROADWAY DESIGN UNIT

DEC 2 2 2011

BENNETT
STEPHENSON
MUMFORD
OVERING
MCCOLLUM
PATEL
WALLS
FYI
REVIEW/DISCUSS WITH
PREPARE REPLY FOR

TAYLOR
BREW
GOODNIGHT
HAMIDI
J. MOORE
THOMAS
PAGE
MOORE
JIM McMEX
SIGNATURE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, PE
State Structures Engineer

DATE: December 21, 2011

SUBJECT: END BENT CAP DEPTH

2-SIDED (RETURN ORIGINAL TO JAY BENNETT) JM, POST ON OUR WEB PAGE.

In order to decrease bridge length and reduce cost, the minimum depth of end bent caps for all bridge types shall be increased from 2'-6" (760 mm) to 4'-0" (1.22 m). In addition, the top of berm shall be located 1'-0" (300 mm) above the bottom of cap. The minimum pile embedment for 4'-0" (1.22 m) end bent caps has increased to 2'-0" (610 mm). See Figure 7-23a for details.

Use Figure 7-15a when computing the required wing length. The minimum wing length, measured from the fill face, is 7'-0" (2.13 m). Use Figure 7-19 to determine the steel reinforcement and use the details shown in Figure 7-13a to develop the contract plans. Refer to Figure 7-19 to determine if a wingwall brace pile is required. When required, detail the brace pile one-third ($^1/_3$) of the length from the end of the wingwall. See Figure 7-16a for details.

When 4'-0" (1.22 m) caps are not feasible, e.g. for low water bridges or locations where excavating or raising the grade is not prudent or economical, 2'-6" (760 mm) end bent caps may be used. Detail the berm 1'-6" (450 mm) above the bottom of cap and show the piles embedded 1'-0" (300 mm) into the cap.

This policy is effective for all new projects. Investigate the feasibility of using 4'-0" (1.22 m) caps on existing projects on a case-by-case basis. The Cored Slab Standard Design Plans and Standard Drawings have been updated. Chapter 7 of the online version of the Design Manual will be updated at a later date. In addition, the following new figures have been developed for use with 4'-0" (1.22 m) end bent caps:

Section	Comment
11-1a	Stream Crossing Details (Cored Slab bridges with for 4'-0" end bent caps)
11-2a	Stream Crossing Details (Bridges with a backwall on 4'-0" end bent caps)
11-3a & 11-3b	Stream Crossing Details (Used in conjunction with Figs. 11-1a or 11-2a)
12-22a	Rip Rap Details (for 4'-0" end bent caps)
12-23a	Concrete Slope Protection (for 4'-0" end bent caps)

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