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ANANTH PRASAD, P.E.
SECRETARY

December 12, 2012

This Memo Has Expired

DCE MEMORANDUM No. 27-12
(FHWA Approved: 12/12/12)

TO: **DISTRICT CONSTRUCTION ENGINEERS**

FROM: David A. Sadler, P.E., Director, Office of Construction

COPIES: Tom Byron, Bob Burleson (FTBA), Chris Richter (FHWA), Chad Thompson, Rafiq Darji, Caitlin Alcorn, Rudy Powell

SUBJECT: **BACKFILL DENSITY REQUIREMENTS FOR PIPE CULVERTS AND STRUCTURES**

The Department has been approached with a cost savings initiative from the Concrete Pipe Industry. Currently, backfill for reinforced concrete pipe (RCP) is required to achieve 100% of the Standard Proctor maximum density as determined by the AASHTO T-99 Method C regardless of cover height. By reducing the density requirement of RCP to the same standard as flexible pipe types under equivalent cover heights, the Concrete Pipe Industry stated that a contractor will spend less time and money on compaction for reinforced concrete pipe and generate a savings for the Department.

Following these discussions, the Department reviewed its specifications and backfill requirements for all pipe types and determined it could implement a change. As a result, Section 125-9.2.1 of the Standard Specifications has been changed to require pipe backfill densities of at least 95% of the Standard Proctor maximum density as determined by AASHTO T-99, Method C for all pipe types where the cover height below the bottom of base under asphalt pavement, below concrete pavement, or below unpaved ground exceeds 15 inches.

Further, the Specification change also clarifies that density requirements around drainage structures, obtain a minimum Quality Control (QC) density in any LOT of 100% of the Standard Proctor maximum density as determined by AASHTO T-99 for a distance of one pipe diameter but not less than 3 feet from the outside face of the structure.

This Specification change is scheduled to be implemented July 1, 2013. However, if a Contractor wants to implement the revised Specification (see attached) on construction projects let before July 1, 2013, he can submit a request for the change with a credit to the Department for cost savings associated with reducing his compaction efforts for RCP. These changes on active construction projects would be processed by work order or supplemental agreement.

If you have any questions, please contact Larry Ritchie at 850-414-4168.

DAS/lr

EXCAVATION FOR STRUCTURES AND PIPE.
(REV 12-3-12)

SUBARTICLE 125-8.1.1 (Pages 179 – 180) is deleted and the following substituted:

125-8.1.1 General: Backfill in the dry whenever normal dewatering equipment and methods can accomplish the needed dewatering. A LOT is defined as one lift of backfill material placement, not to exceed 500 feet in length or a single run of pipe connecting two successive structures, whichever is less. Backfill for structures and pipe compacted in one operation will be considered as one LOT within the cover zone. Backfill around structures compacted separately from the pipe will be considered as separate LOTs. Backfill on each side of the pipe for the first lift will be considered a separate LOT. Backfill on opposite sides of the pipe for the remaining lifts will be considered separate LOTs, unless the same compactive effort is applied. Same compactive effort is defined as the same type of equipment (make and model) making the same number of passes on both sides of the pipe. For multiple phase backfill, a LOT shall not extend beyond the limits of the phase.

When placing backfill within trench box each lift of backfill is considered a LOT. Placement of backfill within trench box limits will be considered a complete operation before trench box is moved for next backfill operation. When the trench box is moved for next backfill operation this will start new LOTs for each lift. Follow the density testing frequency in 125-9.3.1.

SUBARTICLE 125-9.2.1 (Pages 183) is deleted and the following substituted:

125-9.2.1 Density: Obtain a minimum QC density in any LOT of 100% of the Standard Proctor maximum density as determined by AASHTO T99, Method C, or the requirements of 125-8.3.3.1 when applicable. When the cover height below the bottom of base under asphalt pavement, below concrete pavement, or below unpaved ground, exceeds 15 inches, compact the pipe backfill to a density of at least 95% of the Standard Proctor maximum density as determined by AASHTO T99, Method C.

For density requirements around drainage structures, obtain a minimum Quality Control (QC) density in any LOT of 100% of the Standard Proctor maximum density as determined by AASHTO T99 for a distance of one pipe diameter but not less than 3 feet from the outside face of the structure.