



## Florida Department of Transportation

RICK SCOTT  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450


JIM BOXOLD  
SECRETARY

### **STRUCTURES DESIGN BULLETIN 15-01**

*(FHWA Approved: January 27, 2015)*

DATE: January 28, 2015

TO: District Directors of Transportation Operations, District Directors of Transportation Development, District Design Engineers, District Construction Engineers, District Structures Design Engineers, District Maintenance Engineers

FROM: Robert V. Robertson, P. E., State Structures Design Engineer 

COPIES: Brian Blanchard, Tom Byron, Duane Brautigam, David Sadler, Tim Lattner, Jeffrey Ger (FHWA)

SUBJECT: Update to Revisions to Policy for Post-Tensioning Tendons

### **REQUIREMENTS**

The Florida Department of Transportation (FDOT) is continuing with the implementation of flexible filler material, i.e. wax, in lieu of grout for corrosion protection on certain post-tensioning tendons. This bulletin provides a revised list of tendon types for which flexible filler material will be used and also an update to the implementation schedule for the use of flexible filler material.

Flexible filler material will be used for all external tendons and the following internal tendons:

- Partial span and full span continuity tendons in segmental box girders
- Tendons in I-beams and girders
- Draped tendons in U-beams and girders
- Strand tendons with vertical or predominantly vertical geometry
- Horizontal strand tendons in hammerhead, straddle, and C-pier caps

Grout will continue to be used for the following internal strand tendons in segmental box girders with predominantly flat geometries:

- Top slab cantilever tendons
- Top slab transverse tendons

Either grout or flexible filler material may be used in the design of the following tendons:

- Straight tendons in U-beams and girders
- Bar tendons

Flexible filler will be used for all other tendon types for which grout is not specifically required or allowed.

All tendons with flexible filler material will be assumed to be unbonded and must be designed and detailed to be fully replaceable. Design for replaceable tendons will include consideration for future access to anchorages. Partial removal of concrete members, e.g. pour backs, localized portions of bridge decks supported by concrete girders, localized portions of end diaphragms, etc., will be considered acceptable to allow for access to anchors.

Smooth wall polyethylene (PE) duct will continue to be used for external tendons and will also be used for internal tendons with flexible filler material. Corrugated polypropylene (PP) duct will continue to be used for grouted internal tendons.

See also *Structures Design Bulletin* 14-06 for additional information.

## **BACKGROUND**

Recurring issues and complications associated with the use of grout as a corrosion preventing filler material have illustrated the need for development of alternative techniques and materials for corrosion protection of tendons. One such promising technique is the use of a corrosion inhibiting flexible filler material that is pumped into the duct after the tendon is stressed. Flexible filler materials have been used successfully for this purpose for selected tendons in post-tensioned European bridges for over 10 years.

## **IMPLEMENTATION**

Design and detailing criteria, standard drawings and construction and material specifications are under development and will be distributed for review and comment to all of the post-tensioning vendors that interact with the FDOT. Draft versions of these items will be available no later than March 1, 2015 with the completed items released no later than May 1, 2015.

These new requirements apply to all design-bid-build projects which are at 30% plans or less as of the date of this bulletin and design-build projects which have the RFP release date after June 1, 2015.

## **CONTACT**

Charles E. Boyd, P.E.  
Assistant State Structures Design Engineer  
Florida Department of Transportation  
605 Suwannee Street, MS 33  
Tallahassee, FL 32399-0450  
Phone (850)-414-4275  
[charles.boyd@dot.state.fl.us](mailto:charles.boyd@dot.state.fl.us)

RVR/CEB