



## Florida Department of Transportation

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GOVERNOR

605 Suwannee Street  
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JOSÉ ABREU  
SECRETARY

Date: July 10, 2003

August 4, 2003 (*REVISED*)

### MEMORANDUM

**TO:** District Structures Design Engineers:  
Gerry Moliere, Rod Nelson, Keith Shores, John Danielsen, Neil Kenis,  
Kim Saing, Jose Rodriguez and Agnes Spielmann,  
District Geotechnical Engineers:  
Terry Puckett, Chandra Samakur, Sam Weede, Juan Castellanos,  
Kathy Gray and Wing Heung,

**FROM:** William N. Nickas, P.E., State Structures Design Engineer

**COPIES:** Assistant Secretary Ken Morefield,  
District Secretaries:  
Ricky Langley, Aage Schroder, Edward Prescott, Rick Chesser, Mike  
Snyder, John Martinez, Ken Hartmann and Jim Ely,  
State Highway Engineer, Freddie Simmons,  
Office of General Council, Pamela Leslie and Clay McGonagill,  
Director Office of Design, Bob Greer,  
District Directors of Production:  
Mike Williams, Dave Byrd, Gene Martin,  
Gerry O'Reilly, Noranne Downs, John Martinez, Donald Skelton and  
Nancy Clements,  
District Directors of Operations:  
Debbie Hunt, Jim MacLaughlin, Jimmy Rodgers, James Wolfe, George  
Gilhooley, Gus Pego, John Temple and Bruce Seiler,  
Structures Design Engineers:  
William Domico, Bob Nichols, Jack Evans, Larry Sessions and  
Marcus Ansley,  
State Geotechnical Engineer, Larry Jones,  
Federal Highway Administration:  
Jim St John, Florida Division Administrator; Doug Edwards, Bridge  
Engineer – Florida Division; Myint Lwin, Director, Office of Bridge  
Technology; Peter Osborn, Geotechnical & Hydraulics Team Leader,  
FHWA Resource Center; and Chris Dumas, Geotechnical Engineer,  
State Specifications Engineer, Duane F. Brautigam,  
State Construction Engineer, Ananth Prasad,  
District Construction Engineers:  
Jon Sands, Henry Haggerty, Steve Benak, Jennifer Olson, Frank O'Dea,  
Mark Croft, James Moulton and Bill Sears,  
District Structures and Facilities Engineers:  
Pepe Garcia, Bud Rosier, John Locke, Jorge Martos, Ron Meade, Frank  
Guyamier, Pepe Garcia and Mike Werner

**SUBJECT:** Temporary Design Bulletin C03-06 (*REVISED*)  
Discontinue Consideration of Drilled Shafts with Pressure-Grouted Tips.

**REQUIREMENTS:**

Until further notice, drilled shafts with pressure-grouted tips shall not be used on FDOT projects. Previously issued requirements or instructions to consider the use of drilled shafts with pressure-grouted tips (or post-grouted drilled shafts) are hereby rescinded.

**COMMENTARY:**

An unresolved assertion of patent exists regarding the use of this foundation type. While the Department would most likely prevail if challenged, the potential exists for construction cost savings to be offset by the cost of engineering man-hours redirected by the litigation.

**BACKGROUND:**

In 1997, the FDOT began documented research and development activities to formulate a formal design methodology for the use of drilled shafts with pressure-grouted tips, based on various published papers describing load tests by others. These papers, published between 1983 and 1996 described experiments and presentations between 1975 and 1989 may be found in conference proceedings such as The Proceedings of the December 1994 International Conference on Design and Construction of Deep Foundations sponsored by FHWA, DFI, TRB and AASHTO; The Proceedings of the Eighth European Conference on Soil Mechanics and Foundation Engineering (Helsinki, Finland, May 23-26, 1983); and geotechnical engineering magazines. The FDOT has also discovered foreign patents including: GB2207944, dated February 15, 1989; JP1239221, dated September 25, 1989; and JP2125015, dated May 14, 1990.

The FDOT advertised a Request for Proposals on November 04, 1997 and entered into a research contract with The University of South Florida on June 01, 1999. As a result of that research, a design methodology was presented at the 2000 FDOT Design Conference, and two bridge projects were constructed using drilled shafts with pressure-grouted tips in Florida. The foundations for the Royal Park bridge project utilizing 64 shafts with pressure-grouted tips were completed in July 2002. ~~The PGA Boulevard project utilizing 92 shafts with pressure grouted tips, let as a Value Engineering Change Proposal in May 2002, completed foundation construction in May, 2003.~~ ***The PGA Boulevard project was designed with Precast-Prestress Piles (PPCP). The Contractor submitted a Value Engineering Cost Proposal (VECP) redesign of the foundations of the interchange and changed the PPCP to 110 pressure grouted tip shafts. Seventy-eight (78) (2 test, 68 bridge shafts, and 8 shafts for architect towers) of the 110 shafts to be constructed have been installed in Phase I. The remaining thirty-two (32) are being constructed in Phase II.***

A third bridge was planned to be constructed utilizing this foundation type in Pensacola, however, Mr. August H Beck, III of the A.H. Beck Foundation Company, Inc. of San Antonio, Texas sent a letter to Ananth Prasad, State Construction Engineer and Lawrence Jones, State Geotechnical Engineer, dated April 3, 2003, advising us they understand *FDOT is considering designing into one or more of its construction projects a post-grouted pier that is covered by our patent.* The letter advised that they were willing to license their patent to each installer/contractor. Further, the letter asked FDOT to *place the following notice on the design documents for projects involving post-grouted piers:*

*The process described herein is covered by  
U.S. Patent No. 6,371,698 "Post-Stressed  
Pier" For licensing information contact:*

*A.H. Beck Foundation Co., Inc.  
5123 Blanco Road  
San Antonio, Texas 78216  
(210)-342-5261*

Based on the existence of extensive prior art, the FDOT is convinced the patent is neither valid nor enforceable. However, in order to be responsive to Mr. Beck's letter asserting a patent, the FDOT contacted A. H. Beck Foundation Company, Inc. and provided copies of many of the historical publications documenting prior art for this construction technique. Despite the overwhelming prior art, A.H. Beck Foundation Company, Inc. has refused to acknowledge that the patent is unenforceable. Rather, A.H. Beck Foundation Company, Inc. offered the FDOT a license to construct "post-grouted piers" on terms the FDOT does not consider to be reasonable under the circumstances.

Therefore, FDOT has declined the current offer of license from A.H. Beck Foundation Company, Inc. and determined not to continue to design drilled shafts with pressure-grouted tips at this time.

**FOLLOW-UP:**

Given that the FHWA has shown considerable interest in this construction technique based on the successful usage in Europe, Japan, Florida and other states, FDOT anticipates that the FHWA will likely review A.H. Beck Foundation Company, Inc.'s assertion of patent rights.

Effective immediately, however, the FDOT will not pursue designs nor construct drilled shaft foundations with pressure-grouted tips, until FDOT determines its next course of action.

LJ/CM/WNN