Florida Department of Transportation

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August 6, 2008

Dr. Leslie McCarthy, PhD, P.E.
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 938
Proposed Specification: 9380500-Post-Tensioning Grout

Dear Dr. McCarthy:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.
Please review and transmit your comments, if any, within four weeks. Comments should be sent via Email to ST986RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4110.

Sincerely,

Rudy Powell, Jr., P.E.
State Specifications Engineer

RP/dm
Attachment
cc: Gregory Jones, General Counsel
Florida Transportation Builders' Assoc.
State Construction Engineer

POST-TENSION GROUT
(REV. 6/13/08)

ARTICLES 938-5 through 938-7 (Pages 834-835) are deleted and the following substituted:

~~**938-5 Simulated Field High Temperature Fluidity Test.**~~

~~Perform a conditioned laboratory high temperature grout fluidity test as described below using production grouting equipment utilizing both mixing and storage tanks. Grouts must conform to the requirements of 938-4 including initial fluidity test. For the test to be successful, the grout must have an efflux time of not greater than 30 seconds at the end of the one hour test period. Efflux time may be determined by either ASTM C939 or the modified ASTM C939 described herein.~~

~~(a) Perform the test in a temperature conditioned laboratory. Condition the room, grout, water, duct, pump, mixer and all other equipment to be used to a temperature of 90°F for a minimum of 12 hours prior to the test.~~

~~(b) Use 400 feet (±10 feet) of duct (tube) for the test. Use a duct with a nominal inside diameter of 1 inch.~~

~~(c) Mix the grout to the specified water content. Pump the grout through the duct until the grout discharges from the outlet end of the duct and is returned to the pump.~~

~~(d) Start the one hour test period after the duct is completely filled with grout. Record the time to circulate the grout through the duct. Constantly pump and recirculate the grout into the commercial grout mixer storage tank.~~

~~(e) Pump and recirculate the grout for a minimum of one hour.~~

~~(f) Record at 15 minute intervals throughout the test period, the pumping pressure at the inlet, grout temperature, and fluidity at the discharge outlet.~~

~~**938-6**~~*938-5* **Accelerated Corrosion Test Method (ACTM).**

Perform the ACTM as outlined in Appendix B of the "Specification for Grouting of Post-Tensioning Structures" published by the Post-Tensioning Institute. Report the time to corrosion for both the grout being tested and the control sample using a 0.45 water-cement ratio neat grout.

A grout that shows a longer average time to corrosion in the ACTM than the control sample and the time to corrosion exceed 1,000 hours is considered satisfactory.

~~**938-7**~~*938-6* **Variation in Testing for Specific Applications.**

~~**938-7.1**~~*938-6.1* **Horizontal Applications:** Horizontal grout applications are defined as grouting of all superstructure tendons and transverse substructure tendons in caps, struts, etc. All physical requirements defined in 938-4~~,~~ *and* 938-5 ~~and 938-6~~ are applicable for grouts used in horizontal applications.

~~**938-7.2**~~*938-6.2* **Vertical Applications:** Vertical grout applications are defined as grouting of substructure column tendons. All physical requirements defined in 938-4~~,~~ *and* 938-5 ~~and 938-6~~ are applicable for grouts used in vertical applications. In addition, perform the Schupack Pressure Bleed Test Procedure for Cement Grouts for Post-Tensioned Structures as outlined in Appendix C of the "Specification for Grouting of Post-Tensioned Structures" published by the Post-Tensioning Institute. Report the

percent bleed for the grout tested. Test grout at the specified pressure of 100 psi. An acceptable test will result in no bleed water (0.0 percent).

~~**938-7.3**~~*938-6.3* **Repair Applications:** Repair applications are used to augment grouting operations which did not completely fill the duct or anchorage. For new construction, repairs may be made with the same grout approved for use in the tendon as long as the volume of the void is less 0.5 gal~~.~~. In all other cases, use a non-sanded grout meeting the requirements of 938-4 and ~~938-6~~*938-5* with a modified maximum permeability of 2,800 coulombs (ASTM C 1202 at 30 volts). Non-sanded grouts shall have 95% passing on the #100 sieve and 90% passing the #170 sieve as determined by ASTM C33. Each sieve may be washed and dried before weighing in accordance with the procedure in ASTM C117 modified for sieve size.

POST-TENSION GROUT
(REV. 6/13/08)

ARTICLES 938-5 through 938-7 (Pages 834-835) are deleted and the following substituted:

938-5 Accelerated Corrosion Test Method (ACTM).

Perform the ACTM as outlined in Appendix B of the "Specification for Grouting of Post-Tensioning Structures" published by the Post-Tensioning Institute. Report the time to corrosion for both the grout being tested and the control sample using a 0.45 water-cement ratio neat grout.

A grout that shows a longer average time to corrosion in the ACTM than the control sample and the time to corrosion exceed 1,000 hours is considered satisfactory.

938-6 Variation in Testing for Specific Applications.

938-6.1 Horizontal Applications: Horizontal grout applications are defined as grouting of all superstructure tendons and transverse substructure tendons in caps, struts, etc. All physical requirements defined in 938-4 and 938-5 are applicable for grouts used in horizontal applications.

938-6.2 Vertical Applications: Vertical grout applications are defined as grouting of substructure column tendons. All physical requirements defined in 938-4 and 938-5 are applicable for grouts used in vertical applications. In addition, perform the Schupack Pressure Bleed Test Procedure for Cement Grouts for Post-Tensioned Structures as outlined in Appendix C of the "Specification for Grouting of Post-Tensioned Structures" published by the Post-Tensioning Institute. Report the percent bleed for the grout tested. Test grout at the specified pressure of 100 psi. An acceptable test will result in no bleed water (0.0 percent).

938-6.3 Repair Applications: Repair applications are used to augment grouting operations which did not completely fill the duct or anchorage. For new construction, repairs may be made with the same grout approved for use in the tendon as long as the volume of the void is less 0.5 gal. In all other cases, use a non-sanded grout meeting the requirements of 938-4 and 938-5 with a modified maximum permeability of 2,800 coulombs (ASTM C 1202 at 30 volts). Non-sanded grouts shall have 95% passing on the #100 sieve and 90% passing the #170 sieve as determined by ASTM C33. Each sieve may be washed and dried before weighing in accordance with the procedure in ASTM C117 modified for sieve size.