Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

September 4, 2009

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 462
Proposed Specification: 4620200 Post-Tensioning

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Charles Boyd to include the requirement that only approved systems shown on the Structures Design Office (SDO) website can be constructed and, as a condition for review and approval, post-tensioning vendors must submit fully detailed drawings suitable for posting on the SDO website.

Please review and transmit your comments, if any, within two 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 414-4280.

Sincerely,

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

RP/dt
Attachment
cc: Gregory Jones, Chief Civil Litigation
Florida Transportation Builders' Assoc.
State Construction Engineer

POST-TENSIONING.
(REV *9-3*~~6-29~~-09)

ARTICLE 462-2 (of the Supplemental Specifications) is deleted and the following substituted:

462-2 Certification of Post-Tensioning Systems.

Use only post-tensioning systems that are approved by the State Structures Design Office *and that are shown on the State Structures Design Office's Approved Post Tensioning Systems List website*. Manufacturers seeking evaluation of their post-tensioning systems must submit test results to the Structures Design Office and include certified test reports from an independent laboratory audited by AASHTO Materials Reference Laboratory (AMRL) which shows the post-tensioning system meets all the requirements specified herein. *Manufacturers must also submit fully detailed drawings showing all components of their post-tensioning systems for posting on the State Structures Design Office's Approved Post Tensioning Systems List website.* Test plastic components in a certified independent laboratory accredited through the laboratory accreditation program of the Geosynthetic Accredi*t*ation Institute (GAI) or the American Association for Laboratory Accreditation (A2LA). Certification of test reports may be performed by an independent laboratory located outside the U.S., if the independent laboratory is approved by the State Materials Office. If any component of the post-tensioning system is modified or replaced, the appropriate component test and entire system test, if needed, must be retested in accordance with the requirements herein and an updated application made to the Structures Design Office containing the test reports and revised system drawings. Before attempting to change post-tensioning system components contact the State Structures Design Office for direction.

~~Perform certification test for the plastic on a sample formed or cut from the finished product. Provide the Engineer with certification that the plastic from the duct sample complies with all requirements of the specified cell class, stress-crack rating and the specified amount of antioxidant. Certify to the Engineer that the post-tensioning system being furnished is in compliance with all requirements stated herein.~~

Ensure that all components of a system are stamped with the suppliers name, trademark model number and size corresponding to catalog designation. Post-tensioning systems consist of an assembly of components for various sizes of strand or bars assembled and pressure tested. Post-tensioning systems will have to be developed and tested both internal (corrugated duct) and external (smooth duct) applications for each of the following:

Department standard tendon sizes for designing and detailing consist of 0.6 inch diameter strand in anchorages containing 4, 7, 12, 15, 19 and 27 strands; standard bar sizes from 5/8 to 1 3/4 inch diameter. Systems using alternate anchorage sizes and/or strands utilizing 1/2 inch strand and providing equivalent force to these standard sizes may be submitted for approval.

Prior to installing any post-tensioning hardware, furnish the Engineer with a certification from the PT supplier that the PT system chosen for the project meets the requirements of Section 462 and is a Department approved PT system along with a list of

the system components and drawings. ~~Upon completion of post-tensioning installation, provide a certification that the PT system supplied was installed without modification and met the requirements of the contract documents.~~

SUBARTICLE 462-4.2.5.5 (of the Supplemental Specifications) is deleted and the following substituted:

462-4.2.5.5 Corrugated Plastic Duct: Do not use ducts manufactured from recycled material. Use seamless fabrication methods to manufacture ducts.

Use corrugated duct manufactured from non-colored, unfilled polypropylene meeting the requirements of ASTM D4101 “Standard Specification for Polypropylene Plastic Injection and Extrusion Materials” with a cell classification range of PP0340B14541 to PP0340B67884. The duct shall be white in color containing antioxidant(s) with a minimum Oxidati*ve* ~~on~~ Induction Time (OIT) according to ASTM D 3895 of 20 minutes and containing a non-yellowing light stabilizer. Perform ~~OIT~~ test*s* on samples from the finished product. Furnish duct with a minimum thickness as defined in the following table:

Duct Shape	Duct Diameter	Duct Thickness
Flat	any size	0.08 inch
Round	0.9 inch	0.08 inch
Round	2.375 inches	0.08 inch
Round	3.0 inches	0.10 inch
Round	3.35 inches	0.10 inch
Round	4.0 inches	0.12 inch
Round	4.5 inches	0.14 inch
Round	5.125 inches	0.16 inch
Round	5.71 inches	0.16 inch

SUBARTICLE 462-4.2.5.6 (of the Supplemental Specifications) is deleted and the following substituted:

462-4.2.5.6 Smooth Duct: Use smooth duct manufactured from 100% virgin polyethylene resin meeting the requirements of ASTM D 3350 with a minimum cell class of 344464C. Use resin containing antioxidant(s). Perform ~~OIT~~ test*s* on samples taken from the finished product. ~~resulting in a m~~*M*inimum Oxidative Induction Time (OIT) according to ASTM D 3895 *shall be* ~~of~~ 40 minutes. Manufacture

duct with a dimension ratio (DR) of 17.0 or less as established by either ASTM D 3055 or ASTM F 714 as appropriate for the manufacturing process used.

Use smooth duct meeting the minimum pressure rating (working pressure) of 100 psi and manufactured to either of the following Specifications: ASTM D 3035 “Standard Specifications for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter” or ASTM F 714 “Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter”.

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