Florida Department of
TRANSPORTATION

Materials Specifications Update

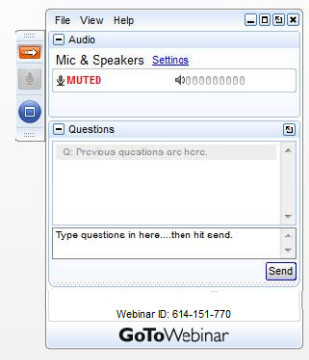
June 19, 2014

Purpose

- Communicate some of the more recent, as well as upcoming, materials-related specification changes.
- Provide a general overview of the changes. For details, participants will need to review the actual specifications.

General Rules for the Webinar

- All participants will be muted. If you have a question, send it via the Chat Feature on the GoTo Webinar Control Panel:



- As many questions as possible will be answered live at the completion of the presentations

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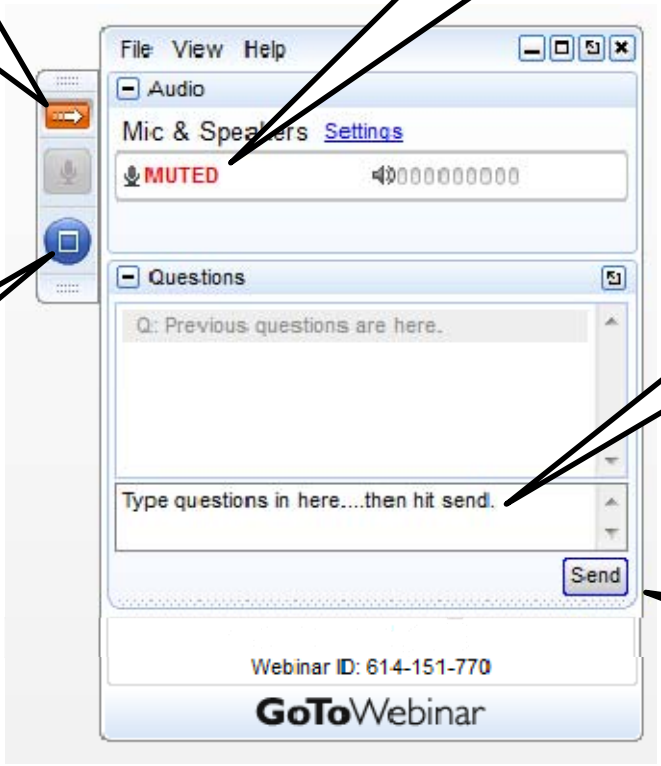

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Specification Areas to be Covered

- Asphalt
  - Greg Sholar: State Bituminous Engineer
- Concrete
  - Mike Bergin: State Structural Materials Engineer
- Earthwork
  - Ben Watson: Earthwork Engineer

Asphalt Specification Changes

July 2013 Workbook

- Section 234 – Superpave Asphalt Base
  - Can substitute a SP-12.5 Traffic Level D or E mixture in lieu of a Type B-12.5 mixture, not to exceed 500 tons for a project, at no extra cost to the Department, in limited situations if approved by the Engineer.
- Section 320 – Hot Mix Asphalt – Plant Methods and Equipment
  - Cover and tie down all loads of friction course.

July 2013 Workbook

- Section 330 – Hot Mix Asphalt - General Construction Requirements
  - Moved FC-5 temperature requirements from 337 to 330.

July 2013 Workbook

- Section 334 – Superpave Asphalt Concrete
  - Variable thickness overbuild layers constructed using a Type SP-9.5 or SP-12.5 mixtures may be tapered to zero thickness provided a minimum of 1-1/2 inches of dense-graded mix is placed over the variable thickness overbuild layer.
  - Pavement composition report changed to pavement coring report.
  - Added wording to IV procedure for roadway cores.

July 2013 Workbook

- Section 336 – Asphalt Rubber Binder
  - Eliminated ARB-5 and ARB-12.
  - Base stock for ARB-20 changed from PG 64-22 to PG 67-22.
- Section 916 – Bituminous Materials
  - Addition of “PG 76-22 (ARB)” to replace ARB-5 and ARB-12.
  - Requirements for “PG 76-22 (ARB)”:
    - Minimum 7% GTR. Certification.
    - Can use other modifiers, if needed.
    - Must meet the requirements for PG 76-22.
    - Additional “separation” requirement to minimize settlement.

July 2013 Workbook

- Section 916 – Bituminous Materials
  - Previous PG 76-22 with SBS polymer renamed to PG 76-22 (PMA).
  - PG 82-22 (PMA) added to standard specification.
  - Implementation of Multiple Stress Creep Recovery (MSCR) Jnr and % Recovery tests for PG 76-22 (ARB), PG 76-22 (PMA) and PG 82-22 (PMA) binders only.
  - Polyphosphoric acid may be used as a modifier not exceeding 1.25% by weight of asphalt binder.

July 2013 Workbook

- Section 919 – Ground Tire Rubber
  - Modified gradation requirements (only max particle size; 98% passing no. 30 sieve).
  - Removed mandatory ambient grinding requirement.
  - Changed maximum Rubber Hydrocarbon Content from 55% to 60% to reflect modern day tires.

January 2014 Workbook

- Section 320 – Hot Mix Asphalt – Plant Methods and Equipment
  - Allows the first five loads of WMA to be produced at HMA temperature for purposes of heating the paver. Mix temperature not to exceed 330°F.
- Section 330 – Hot Mix Asphalt - General Construction Requirements
  - Do not use diesel fuel or other petroleum based solvents contained in an open container for cleaning purposes on the paver.

January 2014 Workbook

- Section 334 – Superpave Asphalt Concrete
  - Removed coarse graded mixtures.
  - Increased maximum lift thickness of fine graded SP-19.0 mix type from 3" to 3-1/2" because coarse graded mixtures were removed.
- Section 337 – Asphalt Concrete Friction Courses
  - Increased maximum possible design AC content for granite FC-5 mixtures from 7.0 to 7.5%.

January 2014 Workbook

- Section 916 – Bituminous Materials
  - Added a statement that excess PG 76-22 (ARB) could be mixed with unmodified PG 52-28, PG 58-22, and PG 67-22 under certain conditions, as outlined in the specification.

July 2014 Workbook

- Section 300 - Prime and Tack Coats
  - Removed cut-back prime coats and emulsion grades not being used any more.
  - Added two new trackless tack products.
- Section 320 – Hot Mix Asphalt – Plant Methods and Equipment
  - Added language "For warm mix asphalt, the Contractor may produce the first five loads of the production day *and at other times when approved by the Engineer,* at a hot mix asphalt temperature not to exceed 330°F for purposes of heating the asphalt paver.

July 2014 Workbook

- Section 334 – Superpave Asphalt Concrete
  - Added clarification for SP-19.0 mixtures: "Type SP-19.0 - May not be used in the final (top) structural layer *below FC-5 mixtures. Type SP-19.0 mixtures are permissible in the layer directly below FC-9.5 and FC-12.5 mixtures*."
  - Set time limit of 60 days for how long a Lot can be left open.

July 2014 Workbook

- Section 916 – Bituminous Materials
  - Removed cut-backs, some emulsions, and added trackless tacks.
  - Emulsions now approved and monitored like binders. Added to the QPL.
  - For PG 76-22 (ARB), provide a certification statement on the product evaluation application and in the Quality Control Program that a minimum of 7.0% GTR is used in the formulation of the binder.

Concrete Specification Changes January Workbook

July 2013 Workbook

- 350 CEMENT CONCRETE PAVEMENT
- 350-2 Materials
  - Clarified the class of concrete and Lot size to be used for concrete pavement

July 2013 Workbook

- 400 CONCRETE STRUCTURES
- 400-15.2.4 Class 3 Surface Finish
  - Clarified the use of forms and the color produced by the liner

July 2013 Workbook

- 415 REINFORCING STEEL
- 415-5.1 General
  - Rename the subsection
  - Defined concrete cover and bar spacing when not specified

July 2013 Workbook

- 450 PRECAST PRESTRESSED CONCRETE CONSTRUCTION
- 450-10.5.2 Beams
  - Surface finish specified for external surfaces when not specified
- 450-10.5.4 Slabs and Double-T Beams
  - Surface finish specified for external surfaces when not specified

July 2013 Workbook

- 949 BRICK AND CONCRETE MASONRY UNITS FOR MANHOLES, INLETS AND OTHER STRUCTURES
- 949-1 Clay Brick and Shale Brick
  - Clarified the national standard reference and type of brick
- 949-2 Concrete Brick
  - Clarified the specification of concrete brick
- 949-3 Concrete Masonry Units
  - Clarified the specification for masonry units for use in manholes, inlets and similar structures
- 949-4 Acceptance
  - Clarified the method and requirement for acceptance

January 2014 Workbook

- Section 346 PORTLAND CEMENT CONCRETE
- 346-3.3 Mass Concrete: Reduced the monitoring of simultaneously placed elements with the Engineer's approval under specified conditions.
  - Least dimension must be the same
  - Same mix design, placement temperatures and insulation thermal resistance values
  - Temperature monitoring devices must be installed in all elements
  - The first element must be monitored and temperature recorded
  - Time frames given for work to start for subsequent elements
  - Changes to monitored element must apply to all elements
  - Action described for failures to comply with this requirement

January 2014 Workbook

- 353 CONCRETE PAVEMENT SLAB REPLACEMENT
- 353-1 Description: Replace the existing defective area of concrete pavement with portland cement concrete
  - Emphasized the area must be free of any uncontrolled cracks
- 353-7 Placing, Striking Off, Consolidating and Finishing Concrete
  - If surface irregularities are identified by the Engineer, action to be taken is described

January 2014 Workbook

- 400 CONCRETE STRUCTURES
- 400-15.1 General Surface Finish (Required for All Surfaces)
  - Clarified cleaning of exposed surfaces
  - Prepare surface to ensure patching mortar will bond and clarified what the patching mortar should consist of
  - Prescription for an alternate mortar that could be used
  - Clarified the curing process

January 2014 Workbook

- 425 INLETS, MANHOLES, AND JUNCTION BOXES
- 425-1 Description
  - Deleted when brick masonry could be used
- 425-6.5 Laying Brick
  - Clarified when brick masonry could be used

July 2014 Workbook

- 350 CEMENT CONCRETE PAVEMENT
- 350-1 Description
  - Provided an alternative to steel bars by using welded wire reinforcement when required
- 350-7.2 Welded Wire Reinforcement
  - Renamed subsection
- 350-17.2 Joints and Cracks
  - Defined method of determining length to be paid, for cleaning and sealing joints
  - Defined method of determining length to be paid, for sealing cracks

July 2014 Workbook

- 353 CONCRETE PAVEMENT SLAB REPLACEMENT
- 353-2 Materials
  - Revised title of material and specification reference
- 353-9.1 General
  - Added requirement to clean and seal joints and how to do it
- 353-11 Method of Measurement
  - Defined how to determine pay quantities

July 2014 Workbook

- 400 CONCRETE STRUCTURES
- 400-7.10 Requirements for Successive Layers
  - Describe placement of concrete in continuous horizontal layers and the reason
- 400-16.6 Traffic Barriers, Railings, Parapets and End Post
  - Clarified what type of curing compound is to be used and when it may not be removed
- 400-21.3 Classification of Cracks
  - Clarified classification of cracks in bridge decks and the option the Engineer may take
- 400-23.3 Reinforcing Steel
  - Clarified when payment of welded wire reinforcement is not made

July 2014 Workbook

- 415 REINFORCING STEEL
- 415-2 Materials
  - Clarified fabric under materials
- 415-6.1 General
  - Clarified the use of the word fabric and what the wire is used for
- 415-7.1 General
  - Clarified the use of the word fabric and adding the words welded wire

July 2014 Workbook

- 925 CURING MATERIALS FOR CONCRETE
- 925-2 Membrane-Forming Curing Compound
  - Clarified the general section to include: the title and agitate material in accordance with the manufactures recommendation
  - Clarified the information required on the labels
  - Acceptance of material is by Qualified Products Listing (QPL)
  - Defined procedure for being placed on the QPL
  - Performance values added for the testing laboratories
  - Defined certification requirement from the Contractor
  - Defined storage and life cycle for the material

Earthwork Specification Changes

July 2013 Workbook

- Section 125 – Excavation for Structures and Pipe – Same density requirements for all pipe types within a minimum cover height
  - When the cover height below the bottom of base under asphalt pavement, below concrete pavement, or below unpaved ground, exceeds 15 inches, compact all pipe backfill to 95% standard proctor
  - For density requirements around drainage structures, obtain 100% standard proctor for a distance of one pipe diameter but not less than 3 feet from the outside face of the structure

January 2014 Workbook

- Section 162 – Prepared Soil Layer – Define Lot size, and revised sampling and testing requirements
  - Lot size defined as 0.5 shoulder miles
  - Minimum organic content of 1.5% for each Lot
  - Verification sampling frequency of 1 per four Lots
  - Resolution procedure added for failing verification samples

July 2014 Workbook

- Section 120 – Excavation and Embankment – Lot Definition for shoulders, bike/shared use paths, and sidewalks
  - Removed “Days Production” to clarify Lot lengths for shoulders, etc. to be a maximum of 2000 feet long
    - Applies to subgrade (Section 160) and base (Section 200)

July 2014 Workbook

- Section 125 – Excavation for Structures and Pipe – Reduced test frequency for trench box construction
  - If reduced frequency testing is approved, density testing for trench box operations is one per four Lots

July 2014 Workbook

- Section 200 – Rock Base – Reuse of Existing Base Rock
  - Provides a procedure, that if approved, that will allow the use of existing rock for base construction
  - Payment is addressed by a cost savings initiative

July 2014 Workbook

- Section 548 – Retaining Wall Systems – Coarse Aggregate for Backfill
  - Provides an option to use coarse aggregate backfill
    - Compaction is based on a rolling pattern instead of nuclear density testing

July 2014 Workbook

- Section 548 – Retaining Wall Systems – Bridge Abutments on Spread Footings
  - Add compaction requirements for the select backfill in the proximity of the spread footings
  - Revise joint cover geotextile to stronger material in the proximity of the spread footings

July 2014 Workbook

- Section 914 – Stabilization Materials – Fossil Fuel Combustion Products (FFCPs)
  - The legislature changed Florida Statute 403.70 which allow FFCPs as a stabilization material
  - Must not be used outside the paved area and not less than 3 feet above the design high groundwater table
  - Must meet all applicable air or water quality standards or criteria in Florida Department of Environmental Protection (FDEP) rules

Q & A Session

Answers to all submitted questions will be posted on the State Materials Office website:

http://www.dot.state.fl.us/statematerialsoffice/

Under the “Meetings and Events” Link

THANK YOU…

Please e-mail us at materials@dot.state.fl.us with any other questions that you may have