

**COLOR CODE:**

Black -- Agenda Item  
Orange -- Agenda Item Author/Presenter  
Blue -- Agenda Item Discussion  
Green -- Action Items

**CONCRETE TECHNICAL COUNCIL MINUTES**

**4-12-2017**

**Welcome**

**Opening comments** (Bergin/Malerk)– Welcome, announcements, and introduction of attendees. Discussed anti-trust agreement and the location of the document.

**Specification 353 - Slab Replacement**

Update on specification revisions and maturity testing (Bergin)

*A complete update of Standard Specification 353 Concrete Pavement Slab Replacement is implemented for Contracts starting July 2016. The new specification includes many changes among which are:*

*Mandatory use of the maturity meter for opening the pavement to traffic when the maturity curve indicates a strength of 1600 psi. There are no concrete strength cylinders required for opening to traffic.*

*The strength-maturity relationship curve is developed using the Arrhenius maturity function.*

*Acceptance of the concrete is determined by strength tests at 28 days. Acceptance cylinder fabrication is required on a day's production. Three cylinders are made for 28 day strength acceptance at 3000 psi.*

*A demonstration slab is required, including the maturity curve. The demonstration slab can be permanent if accepted.*

*The accelerator is incorporated in accordance with, but not to exceed the recommendations of the admixture manufacturer.*

*Plastic properties are taken before the accelerator is added. Sample in accordance with 346 including unit weight at jobsite. Air content is not required for Specification 353.*

*Field delivered tolerances for the concrete are provided in the specification.*

*Maturity curve deviation allowance for slump and unit weight have tolerances determined for that particular maturity curve. It is recommended that the contractor has several maturity curves for adjustments in the mix.*

*CMEC has developed a class for the Arrhenius maturity function.*

*ACTION Item #1: Recommended that FDOT consider a situation where the accelerator is added at the plant rather than the jobsite.*

### **Cementitious Material**

Documentation for change of materials in silo. (Westcott)

*Documentation is required to verify that silos are empty before changing brands, types or sources of cement. Section 921-1.1 is specific on intermingling of cements. The documentation has even included pictures of the empty silo.*

*Visually demonstrating the empty silo is impractical because of the need to shut down the entire operation. A recommendation to provide an inventory level of the silo and control contents by a consumption basis. For cements only, silos are emptied if changing materials from cement to ash.*

*A functional method is needed to do this.*

*ACTION Item #2: Forward as an agenda item for CMTAG to consider solutions. Could it be address in a quality control plan?*

Flyash substitution and slump loss test requirement (Shepard)

*Issues raised when a request is made in November for a new mix verification for a flyash change in accordance with MM 9.2.8 under drilled shaft concrete. The new hot weather mix requires a slump loss test during the cold months. The hot weather mix is tested in the truck and may be delayed for months waiting for hot weather. How is it possible to fulfill the requirement in a timely manner?*

*Suggestions include using a lab mixer big enough for a series of tests. Perform the slump test by putting the truck in the shop where ambient temperature can be controlled.*

*ACTION Item #3: CMTAG agenda item - do we need a method to allow slump loss during the winter time?*

### **Aggregate Gradation Frequency**

Remove requirement for a no cost change order in Materials Bulletin 06-17 (Lorenz)

*A revised Materials Bulletin went out last Friday which does not require a no-cost change order. Review on Material Office website MB 06-17.*

## **Recycled Water**

Discuss status of recycled water use for conditioning coarse aggregate for all classes of concrete. (Westcott)

*Clarification is needed on the interpretation of wet conditioning of any aggregate for 347 or 346. The intent was to restrict using recycled water for structural concrete because it typically has a high alkali content. Section 923-1 says "Recycled and reclaimed may be used only to sprinkle the coarse aggregate stockpiles and for batching concrete meeting the requirements of Section 347". So reclaimed/recycled water is currently used to condition all coarse aggregate.*

*ACTION Item #4: FDOT to check on wording and clarify.*

*Is recycled city water (grey water) acceptable? If the grey water is tested and meets the criteria it is acceptable for all uses. What about any reclaimed water? If the water is in a holding pond it varies widely with rain, etc so there is a big difference between recycled water from a fixed source and reclaimed water in a holding pond. But the method to test for approval to use should work.*

*ACTION Item #5: FDOT to check wording and criteria for recycled and reclaimed.*

## **Ternary Mix Designs**

Clarify why ternary mix designs must meet resistivity requirements. (Westcott)

*There is a problem if the producer uses a ternary mix and it has to have surface resistivity testing even if the concrete is not used for a highly aggressive structural element. The resistivity requirement was developed for prestress yards to allow ternary blends to be used in extremely aggressive environments with low cover (3"). If there is 4" of cover in the element then the resistivity test is not required. The producer does not know the cover on the element. The suggestion is to look at having surface resistivity not dependent on cementitious makeup but by cover on the element.*

*ACTION Item #6: FDOT to check if wording and process are working (by Class?).*

## **Concrete Delivery**

Issues with sampling from first portion of truck. (D1&7)

*Recommend checking the first portion of a truck for acceptance. The current requirements are to sample in the middle of the truck. For drilled shafts a sample the middle of the truck that fails in slump or air has concrete already in the product. A graph of slump tests at the beginning and*

*middle of the truck support the suggestion. Also a suggestion to drop the penalty for plastic properties for verification by strength by wording.*

*ACTION Item #7: Also consider the option for meeting the compressive strength for the concrete if the plastic properties come in the first part of the load.*

*ACTION Item #8: Industry to discuss solutions and provide recommendation and comment to FDOT.*

#### **E-tickets and concrete deliveries (SCO)**

*All contracts beginning July 2017 are electronic (no paper). However, truck tickets are still paper. FDOT Construction is working to determine what is needed in the ticket. There are plans for pilot projects and we want to be methodical in the pilots. The goal is to be completely paperless using some type of mobile device. SCO is determining what the needs are and will be for data use and storage (are we collecting things that aren't used.) The plan is to remain neutral in type of hardware for data collection but consistent in what is uploaded and stored.*

*ACTION Item #9: Check with FHWA and ACI for guidance.*

*ACTION Item #10: Email and comments to John and Mike. Need to know what is needed and what isn't. IOWA DOT piloted an e-ticketing project. There is a presentation that Amy can provide.*

#### **Expansion Materials for Concrete Pavement**

Why is expansion material required between curb & gutter and the concrete pavement.  
(Schmitt)

*Why are expansion materials required between curb and gutter and concrete pavement. Many states do not use it anymore. An example in Sandwich Illinois has tie bars connecting the curb & gutter and the concrete pavement. The joints in the C & G need to match joints in the concrete pavement so they have to be planned.*

*ACTION Item #11: Bring to attention of pavement design if necessary. (Is there a problem with water getting into those curb joints)?*

#### **Materials Acceptance and Certification (MAC)**

MAC Update (SMO)

*Comments on MAC:*

*Users are having trouble with people getting signed into the site. Once achieve access entering data is working well.*

*Issues where the chloride data is not entered in the system although the testing was done.*

*Flyash specific gravities change daily. Suggest using an average value?*

*It is extra work to have to copy in a pdf of aggregate and other supporting documents repeatedly. Why can't MAC auto populate that type of information.*

*Items that have results repeatedly entered under different functions - like same mill cert that comes from multi plants - have to be entered repeatedly. Why can't MAC auto populate that type of information.*

*When entering new mixes have to upload all the documents again. How would you associate the documents to multiple mixes?*

*Notification is cumbersome between the lab, construction, project administrator, etc - need to get notifications that prompt activity rather than chasing down the activity. The notifications got dropped from the rebuild. Expect it to be a future enhancement - may occur by end of next year. D5 still using issue forms to keep track of progress on mixes.*

*ACTION Item #12: Can we or the producer look at the chloride data? In addition to fly ash look at the other cementitious materials. Producers worry about contractors submitting a mix that just was added to the QCP but the producer does not have the materials.*

*ACTION Item #13: See if there is a way to not re-enter same information, things like mill certs, sp gr etc. and address other issues that were noted.*

## **Research Issues**

Short presentation (SMO)

Bottom Line = Optimized blended aggregate and reduced paste with type f water reducer makes better concrete.

As long as the cement factor and w/c ratio are dictated this won't work. But the goal is toward performance specs.

If there is a reduction of cement goal, is the department looking at longer times for acceptance? In particular for mass concrete where a longer time would allow lowering the cement for heat control.

Is it feasible to look at all the materials available in Florida that may be interchangeable? Primary idea is space filling with aggregate and finally lower cement/paste content.

Ideas: Discuss the reduction of mix cement content - Table 3, maybe tie this to SR values. District use of effective aggregate grading?

## **Open Forum**

Chlorides and flyash: We have some approved sources that have high chlorides. Do the flyash suppliers have any requirements that address chlorides in the materials? It is up to the producer to verify chlorides in the mix. Suggested that the flyash mill certs should have the chloride

content (but how that affects the chlorides in the mix isn't a sure thing). Noted that the producer can look at their product and make adjustments but if the department places limits on how much it restricts the producer. **ACTION Item #14: No action at this time.**

What are the requirements designating when curing compound should be applied? Curing requirements are in Section 400-16 of the specifications. After assuring that the delivered concrete meets specifications it is important to monitor what the contractor does to follow the curing specification. **ACTION Item #15: Check the wording in the specification for time requirements.**

**ACTION Item #16: Coal Ash Association - can we get an update on this?**

**NEXT MEETING:** October 2017

**ADJOURN**

**ATTACHMENTS:**

Attachment 1: List of attendees.

Attachment 2: Section 353 Highlights

Attachment 3: Plastic Properties vs Sampling Location

Attachment 4: Concrete Expansion Joints

Attachment 5: FDOT Concrete Research