



**Precast Concrete Technical Advisory Group (PCTAG) Annual Meeting
Incidental, Drainage Products and Box Culverts
Joint FDOT/Industry (Afternoon) Minutes – Tuesday, September 17, 2019**

Meeting Attendees:

Face-to-face: Thomas Frank (SMO), John Westphal (SCO), Blake Stallworth (D1/7), Jose Armenteros (SMO), Chase Knight (SMO), Pat Upshaw (SMO), Todd Metcalfe (EJ), Jason Lambert (Forterra), Rob Wilson (PCSA), Tina Ward (PCSA), John Cole (Baldwin Lighting), Michael Wiggins (Baldwin Lighting), Tim Malone (ITS), Chip McGhee (Standard Precast), Scott Nemcek (Mack Concrete), Chet Simmons (Environmental Composites), Richard Brown (Standard Precast), Daniel Pagan (US Foundry), Jeff Wenglerski (US Foundry), Tom Campbell (Coastal Precast), Bob Rutland (Chryso), Brett Clafin (Mack Concrete), Pat Carlton (SMO), Brian Boxley (Forterra), Tim Counts (SMO), Carl Frumenti (Precast Specialties), John Curay (Oldcastle), Phillip Schlossnagle (Forterra), Billy Dugan (Oldcastle), Bill Bard (Oldcastle), Robert Frieszell (Reinforced Earth), Vincent McKoy (D2), Bo Cumbo (D2), Toby Dillow (D2), Ken Shartle (D5), Tom Kunzen (D5)

Remote: Dale DeFord (SMO), David Henderson (D1/7), Heath Henderson (D3), Steve Nolan (SCO), Cheryl Hudson (SCO), Jared Savage (D5), Brandon Moeller (D1/7), Jason Jordan (D1/7), Carl Spirio (CO-Drainage), Shawn Connolly (D1/7)

Welcome and Introduction

The subject meeting was called to order at 1:15 PM on Wednesday, September 17, 2019. The face-to-face meeting was held in the Loblolly/Longleaf/Slash conference rooms at the State Materials Office. Attendees were welcomed, provided site specific information, and asked to introduce themselves.

Discussion items:

1. *Specification updates.*
 - a. Updates to Materials Manual 9.2 Volume 2 and Section 346 were shared. Statistical analysis will be performed on the all mix designs every five years to determine compliance and to reclassify mix designs meeting higher standards. Aluminum chutes are now allowed, slag substitutions may be considered, aggregate sampling at batch plants is being removed as a requirement, and clarification of chloride testing is being included.

Binary and ternary mix definitions are included as requested by the State Design office, and the total drum revolutions limits of 300 was removed from 346.

Changes have been made to the resolution procedure, including the requirement of fabrication of an additional hold cylinder, meaning five total cylinders should be cast for each set. Three for 28-day acceptance strength, two for potential resolution testing. The comparison criteria table will be removed from Section 346 and the new criteria will be 14% maximum difference between QC and VT data, based on QC results.

If samples do not compare, resolution cylinders will be tested by the resolution laboratory (SMO or DMRO) and the results must compare within 17.5% of the 28-day equivalent strength of the resolution cylinders with the original cylinders. If QC and VT both compare within 17.5% of the original cylinders, the Department pays for the resolution process. If only QC compares then the Department pays for the resolution process as well, however if only VT compares then the Department will assess a \$1,000 pay reduction for the cost of the resolution investigation. If



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neither lab compares then the Department will pay for the resolution procedure, however further investigation is needed to determine the accuracy of the test results.

Structural adequacy will be determined by two factors. If the average compressive strength of the original cylinders is within 500 psi of the minimum compressive strength (when $f'c \leq 5000$ psi) or within 10% of the minimum (when $f'c > 5000$ psi) AND the average compressive strength with the two previous LOTS equals or exceeds $f'c$ then the concrete is determined to be structurally adequate. Otherwise further action and investigation is required.

- b. Updates to Materials Manual Volume 2 Sections 6.3 and 8.2 were shared (targeting July 2020 book):

The revised language includes:

- Approval process for Producer shop drawings for modified precast drainage structures. (applicable to 6.3 only)
- Sampling and testing requirements for Fiber Reinforced Polymer (FRP) reinforcement.
- The use of non-metallic reinforcement fasteners
- Title change of Section 929 from “Pozzolans and Slag” to “Supplementary Cementitious Materials.”
- Buy America compliance statement and dollar amount of non-domestic steel used added to required information on delivery ticket.

2. *Fly ash availability concerns from Industry and future options.*

The decline of fly ash supply was discussed and alternative sources of material were presented. Fly ash producers outside of the state of Florida do not experience the same shortages at the same time of year, so those facilities often have available material.

The cementitious materials production facilities listing can be accessed by anyone and lists all current facilities with an accepted QC plan with contact information.

- Contact information for all production facilities is maintained by the production facilities directly.
- The profile manager and contact person are maintained by the production facility, however the QC manager is updated and maintained by the Department.

A question was posed regarding chloride content of fly ash. The Department does not limit chloride content of individual concrete constituents, given that different proportions of those constituents are used in the concrete mixes.

3. *Concrete CCTV poles.*

The following items were discussed regarding Standard Plans 641-020:

- a. Sheet 1 of 5, General Notes, Note 6-A: Minimum concrete strength at transfer was previously listed as 4 ksi, but is now 6 ksi. What were the reasons for this change? It was determined that 6 ksi was needed for handling/removal from the bed. The Producer can submit calculations to propose different transfer strengths for shorter pole lengths in accordance with FDOT Specifications Section 5 (5-1.4.6.1).



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- b. Sheet 3 of 5, Section A-A, Strand Pattern 1: Producer would like to relocate the prestressing strand so as to accommodate the Large Handhole cast in the poles.

Structures design stated they would be willing to look at it. However, given that these are Construction submittals, the appropriate avenue should probably be that if any pushback is received from the project level regarding the deviation submittal, then those folks could contact Structures Design. The Producer should let project personnel know that this has been discussed directly with Structures Design, that there may be a possibility of the acceptability of minor deviations from the Standard Plans.

- c. Sheet 3 of 5, Pole Elevation – Storage and Handling locations: The Producer performs calculations regarding storage and handling locations for pole stresses on their stretch trailers, which are pre-marked on their submitted shop tickets. The engineers approving shop tickets go directly by what is on Standard Plans, which may not correspond with their calculated hauling locations.

- See response to 3. b. above
- It was mentioned that the project level engineers reviewing the drawing submittals tend to simply reject if it does not meet the Standard Plans, and do not typically look at the calculations submitted.
- It was mentioned that all of those details should be submitted up front (potentially put right on the shop drawing) regarding handling location deviations, which may make the process easier.
- FDOT Specifications Section 5 (5-1.4.6.1) states: "Indicate on the shop drawings all deviations from the Contract drawings and itemize all deviations in the letter of transmittal."
- CCTV Poles came out of the Traffic Ops Office. Now that they are not APL items, the Standard Plans are the benchmark for acceptance of the product. If any adjustments are needed to those Standard Plans, they should be directed to Traffic Ops. It was again stated that the shop drawing submittal process in Section 5 should be followed, rather than directly to Structures Design.

- d. Sheet 4 of 5, Handhole Detail, Size of large handhole (4-1/2" x 30") – Producer would like to change the size to (4" x 24") if possible.: The Producer typically locates the centerline of handhole ~ 4' 3" from ground line, but when control cabinet is installed, the straps that fasten the control cabinet cover the handhole box. Does the handhole need to be 30"?

- This is a question for Traffic Ops. It is recommended to send the handhole photos to their office.
- The lowering device company states that they need minimum of 18" in order to get the lowering tool in and lower the device.
- The FDOT Standard Plans website contains a Modification Request Origination Form. <https://www.fdot.gov/design/standardplans>. This webpage also includes an industry review link.



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Action: The Producer should submit any deviations via the shop drawing submittal procedure in FDOT Specifications Section 5, and can contact Roadway/Traffic Ops regarding modification requests for Index # 641-020.

4. *Producer shop drawings for modified drainage structures.*

An effort was recently undertaken to re-approve Producer shop drawings for routinely produced precast concrete drainage structures that deviate from the Standard Plans. This modified process has been used for years to allow the precast Industry some latitude on the manufacturing process to deliver precast drainage structures that maintain both the structural and hydraulic integrity of the design shown in the Standard Plans. However, given that there were approved drawings out there from the early 90s, a more robust process was needed to track the approvals and ensure they meet the design intent of the current Standard Plans.

The following steps were taken:

- We reached out to Industry to send all of their previously-approved Producer shop drawings for routinely manufactured drainage structures that deviate from the Standard Plans to the State Drainage Office for review and re-approval.
- The State Drainage Office received, reviewed, and approved drawings that met the structural and hydraulic intent of the Standard Plans.
- Stamped/approved drawings were sent back to Producers and District Materials personnel, for their files, and for incorporation into the Plants' QC Plan.
- Language was added to Materials Manual 6.3 v2 regarding Producer Shop Drawing approvals for modified structures (targeting submittal for July 2020 book).
- Language was added to the Precast Concrete Drainage Quality Control Plan Review checklist (Appendix B05) and to the MAC precast concrete drainage producer QCP checklists to verify that approved producer shop drawings are in the Producer QC Plan for any structures manufactured that deviate from the Standard Plans.

Following are the steps going forward:

- Future requests for modified pre-cast structure designs will require the Manufacturer to submit shop drawings to the State Drainage Office, including "Signed and Sealed" structural calculations to demonstrate the revised design meets, or exceeds, the structural intent of the design represented in the current version of the Standard Plans.
- During Producer QC Plan review and routine verification inspections, District Materials personnel will verify that current approved shop drawings are present, if the plant produces any routine structures that deviate from the Standard Plans.
- During Process Reviews with the District Materials personnel, SMO will verify that approved drawings are present (if applicable) in the Producer QC Plans.

Some comments from the group included:



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- Jason Lambert stated that the Materials Manual language should help, but asked given the issues with CEIs rejecting some of these modified products, is there a statement that to say that these drawings are approved in lieu of the Standard Plans?

This can be added to the Materials Manual language.

- Did the CEIs indicate why they were reviewing and rejecting structures that had previously approved shop drawings?

Producers stated that in some cases the CEI was comparing the previously approved shop drawing to the Standard Plans and rejecting if it did not match.

Action: Materials will verify approved shop drawings for modified drainage structures (if applicable) during QC plan review and routine QC program inspections.

5. *Approval process for precast Producer drainage product variances.*

Covered under item 4.

6. *Index 425-052: Does the 3" steel clearance apply equally for precast (6" wall) and CIP (8" wall)?*

- The clearance is as shown in the Standard Plans for both the 6" and 8" sections.
- Structures Design stated they would take a look at the wall thickness differences between 425-052 and 425-010.
- The cover isn't necessarily clearance for durability, but rather for positioning structurally. It was stated that these criteria are covered in the Structures Manual, Volume 1, Chapter 3, section 17.

7. *Type P riser diameters listed in Index 425-010.*

The Producer inquired about the Type P riser. Alternate A shows either 3'-6" or 4'-0" diameter, and Alternate B shows only 3'-6". Some producers offer both diameters, and some just 4'-0". Should the same diameters be offered for both? Producer also asked about Note #9 which references minimum cover except for 3'-6" units. Could the note be updated to reference both 3'-6" and 4'-0"?

- The 48" option for the Alternate B round riser will be added to the July 2020-2021 Standard Plans eBook
- Structures Design requested that the Producer mark up the sheet and send in requests for consideration.
- The FDOT Standard Plans website contains a Modification Request Origination Form. <https://www.fdot.gov/design/standardplans>. This webpage also includes an industry review link.

8. *Will additional requirements be forthcoming for QC technicians who test SCC, for example a CTQP certification?*

The ACI Self-Consolidating Concrete Testing Technician is a new requirement for technicians performing SCC plastic property testing. There is currently no intention of including the ACI SCC certification under the umbrella of CTQP.

- A Producer asked about the mix design approval process for SCC mixes. Those requirements are in Materials Manual Section 8.4 Volume 2.



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9. *Is it permissible to provide additional dunnage at mid-span for prestressed strain poles in excess of 30' in length?*

The Producer indicated that they experience some warping/bowing on some of the larger strain poles (typically on poles >30').

- The Standard Plans contain the minimum dunnage locations. There are no objections to additional dunnage.
- It is likely less critical with symmetrically prestressed elements vs. prestressed beams where only the bottom is pretensioned. Settling dunnage is a concern if there is additional dunnage at mid-span.

10. *Open Forum*

a. A Producer asked if Materials Bulletin 05-19 for Precast Prestressed Concrete Producers could be applied to Incidental Precast Concrete Producers, and if the minimum slag proportion for cement replacement could be reduced to below 50%.

- The Materials Bulletin is an exception specific to Precast Prestressed Concrete, under certain circumstances, and does not apply to Incidental Precast Concrete.
- The 50% minimum slag proportions in Table 2 of Section 346 must be followed.

b. A Producer stated that they were cited during a recent plant certification agency inspection for rodding and tapping their flowing concrete samples during air content and unit weight tests. They were told that the flowing concrete sampling procedures should follow ASTM C1758 for SCC. It was asked if there is any correlation between the slump of flowing concrete vs. the spread of SCC.

- We are not aware of the existence of a correlation.
- The Contract Documents govern for FDOT projects.

c. Index 425-052. Producer posed a question regarding dimensions of the Type H Grates (2-Grate vs. 4-Grate inlet).

The FDOT Standard Plans website contains a Modification Request Origination Form. <https://www.fdot.gov/design/standardplans>. An email address was also provided to the Producer for this particular question. We can forward to the appropriate parties.

d. Index 425-052. Producer posed a question regarding the weights of the grates. There have been some design changes to the grates and weights have remained the same. Producer would like to propose modifications to the Standard.

The FDOT Standard Plans website contains a Modification Request Origination Form. <https://www.fdot.gov/design/standardplans>. An email address was also provided to the Producer for this particular question. We can forward to the appropriate parties.

Meeting was adjourned at approximately 4:30 PM on Tuesday, September 17, 2019