

Florida DOT Pipe Advisory Group

Meeting Notes

October 30, 2013, 10 am - 4 pm, SMO

- Introductions / Sign in / Meeting Overview (Rick Renna – 5 min)

- Attendee list:



PAG 10-30-13 Sign
In Sheet

- Welcome from the Chief Engineer (Tom Byron - 10 min)

- Tim Ruelke welcomed the PAG in the stead of Tom Byron.

- Presentation:



Opening Remarks -
PAG 10-30-13.pdf

- Discussed Work Program, budget, toll facilities, design build projects and the upcoming I-4 project

- Steel Reinforced Polyethylene Pipe Service Life (Mario / Rod Powers, Contech - 45 min)

- Presentation:



DMX FDOT PAG
103013.pdf

- Mario Paredes mentioned that HDPE testing used the same protocol as testing for AASHTO M294 corrugated HDPE pipe.

- Doug Holdener asked the following (**responses** included):
 - Was structural analysis performed with 50% rib loss? **yes**
 - Why 5% strain? **This is the standard for HDPE testing.**
 - What happens if ribs are completely cut off? **It depends on where and how many ribs are removed.** Would it affect the structural performance of the pipe? **Yes.** Would the entire pipe fail? **No.**
 - Will damaged pipes would be repaired before installation. **Yes.**
- LRFD Pipe Cover Heights (Rick / Rick Jenkins, FDOT - 30 min)

- Presentation:



PAG 2013 LRFD.pdf

- Q: Does PVC allowable cover of 40 feet fail the smell test?
 - A: No, it was expected for PVC to increase. FDOT knew that PVC max cover was too shallow within the FDOT 205 Standard Index.
- Q: Are assumptions and calculations available in the new 2014 Drainage Manual?
 - A: The assumptions will be added to the Drainage Manual Appendix E. The formulas are per AASHTO LRFD requirements.
- Q: Can an engineer perform the calculations and provide sign and sealed results and change min or maximum covers?
 - A: The general notes in Appendix E states that calculations may be done per site specific conditions. Must have site specific justification to depart from the DM; i.e., you may not simply use calculations for a CSI on every job.
- 100-year Polypropylene Pipe Service Life (Mario / Jon Sickels, ADS - 45 min) (**responses** included)

- Presentation:



ADS Sickels - PP DSL
- FDOT PAG 10-30-13

- Jon Sickles from ADS discussed service life and testing of the Polypropylene Pipe (PP)
 - Tests similar to tests used on HDPE
 - PP higher stress crack resistance than HDPE
- Mike Pluimer asked why PP pipe was not removed from stress cracking requirements since it is known it isn't an issue. ***FDOT was being deliberately conservative so the test was done.***
- Would PP and HDPE start deflecting at same point? ***Jon said yes as long as both were at yield point. But the PP would not deflect as much as HDPE.***
- Bill Burnette asked if all pipe sizes/profiles were tested. **Yes**
- Rick added PP less likely to crack than HDPE but is more susceptible to oxidation than HDPE.
- Rick gave update on acceptance of PP, that the ADS proposal was under review, and that comments were welcome from the PAG.
- Research Updates (***responses*** included)
 - Flexible Pipe Time Dependent Creep (Rick Renna / Dr. Crowley - 45 min)

- Presentation:



soil_box_PAG.pdf

- Dr. Raf Crowley gave an update and background to the research project on flexible pipe time dependent creep.
- Early target deflection (to avoid > 5% long term deflection) determined to be 3.5% by SGH using numerical modeling.
- Was 24 hrs of data used to develop the lifetime results for the pipe? **Yes.**
- Question was asked whether another phase to the research project would be conducted, specifically with the resulting computer mode. ***Not right now.***
- Dr Crowley said that the soil had a lot more to do with the deflection results than the actual pipe.
- In the field application, would a pipe be required to be pulled out and replaced once the 3.5% limited was met in early inspection? ***No, it would more than likely be left up to the contractor to take the chance. 5% is the final threshold.***

- RCP Corrosion Cell (Mario Paredes - 30 min)

- Presentation:



Reinforced Concrete
Pipe PAG Presentation

- Service Life equation was discussed by Mario.
 - He discussed the empirical formula used for service life and findings of concrete pipe from the field and lab. Research of pipe in high chloride environments suggest that pipe is corroding but there are no significant cracks. Cover is not as critical because service life is not diffusion based. He broke down some service life calculations with various concrete covers in the pipe walls.
 - What if pipe already cracked and then corrosion of reinforcing steel takes place? **Mario answered that it depends on environment and soil cover as to whether the pipe will last for the intended service life. The role of cracks is still under investigation but the data suggest that once the soil is properly compacted and the pipe is under water, the steel plays no role structural or durability wise.**
 - What percent of corrosion do we depend on for service life in concrete pipes? We do not have a number. **Once the model is identified, we will see if any corrosion is acceptable. However, it is doubtful we would depend on certain percentage.**
 - Is maintenance giving us data on old pipes? **Not as much as we want but Mario is working with them to get more data. He has requested that concrete pipe removal be inspected and recorded for analysis.**
- Yesterday's Meeting with Video Pipe Inspection Industry (Larry Ritchie - 30 min) (**responses** included)
 - Larry gave a recap of the meeting yesterday.
 - FDOT is further along in the use and refinement of video inspection than anyone else nationally.
 - He talked about some of the consultants doing sample testing of the "Gauntlet" for accuracy.
 - He explained that this process will certify inspectors.
 - Change in pipe type, PVC, concrete, HDPE, and metal within the Gauntlet has caused problems.
 - FDOT wants more consistency in reports.
 - Someone asked about the calibration of the equipment. **Larry explained that the gauntlet has known issues that must be noted and described (size and location of holes and deflection, etc).**

- Tour of Pipe Video Inspection Circuit, aka, “The Gauntlet” (Larry – 30 min) (outside)
 - Some of the attendees went out to look at the gauntlet.
 - Larry explained that they may bury the pipe runs but limited space is the issue.
 - Larry explained that the runs need to be 100 ft to allow for an appropriate test length for the inspection devices.
 - Some suggestions were made including burying the pipes, and alternating the pipe type per certification period. Maybe have 4 options and draw a pipe type out of the hat when the consultant shows up for certification to make sure that they have to make the appropriate adjustments to the devices on site for each pipe type.