Pipe Advisory Group Meeting Minutes - September 12, 2003

Attendees

Rod Powers, FDOT
Jeffrey Ger, FHWA
Doug Todd, Contech
Jim Schluter, Contech
Bill Burnette, Contech
Jim Park, ADS
Rick Traylor, Rinker
Tim Toliver, Hancor
Jeff Enyart, Hardie Pipe
Jeff Chastain, Hardie Pipe
Paul Harkins, Hardie Pipe
Camille Rubeiz, PPI
Tom Fussner, ADS
Jim Goddard, ADS
Jeff Hiott, PPI
Carl Tyner, Quality Culvert
Brian Flint, Contech
Mark McCormick, Contech
Angel DeJesus, Hanson
Rob Adamson, Contech
Jeff Hite, Rinker
Josh Beakley, ACPA
Brian Blanchard, FDOT
Ron Craig, Hanson
John Kurdziel, ADS
Robert Greer, FDOT (welcome only)
Tim McGrath, Simpson-Gumpertz (by phone)
Grace Hsuan, Drexel University (by phone)
Rick Renna, FDOT

Preliminaries

Robert Greer, Director of Design, welcomed the P.A.G. participants.

Pipe Supplier Issues

Florida Concrete Pipe Institute – Selection of Manning's N-value – Angel DeJesus
Angel DeJesus presented data from Utah State and FHWA-RD-75-90 (flow resistance in corrugated culverts) showing that the presence of corrugations increases hydraulic roughness. He advocated an approach of (1) statistically evaluating data for the different pipes in use, (2) adjusting corrugated pipes for changes in corrugation, the presence of debris, etc. expected during the pipe lifetime, and (3) applying a safety factor to the expected design n-value.

Jim Goddard stated that HDPE pipes, deliberately roughened and with 1/3" protrusions had n-values between 0.010 – 0.015. He suggested that all pipes use n = 0.015 to account for debris. Rick Renna added that the FDOT methodology for storm sewer design was very conservative, providing a tacit safety factor during the design process. Tim Toliver stated that Angel's graph on n-values was inconsistent with HDPE pipe research. Angel DeJesus' presentation may be downloaded from the ftp site:

ftp://ftp.dot.state.fl.us/fdot/co/drainage/Pipe/

Updates on FDOT Initiatives

HDPE Pipe Service Life Protocol

Rick Renna presented the Department's approach to the problem, focusing on the necessity for finished product testing when the manufacturing process affects the finished pipe properties. He stated that the FDOT protocol is based on the findings of NCHRP 429 and simply carries forward the recommended direction from that report. Mr. Renna stated that the full protocol was based on rigorous testing that would take several years to complete and that the Department was creating an interim specification for establishing 100-year service life. The Interim Specification calls for the same type of testing but with some assumed and derived parameters from other polyethylene applications. Allowing an interim specification is a management decision to accept a short term limited risk to shorten the time for the HDPE Pipe industry to realize 100-year recognition. Mr. Renna stated that this interim acceptance approach is consistent with the treatment of other products and would be conditional upon pursuit of the full protocol. Mr. Renna stated that the comment period on this proposed change would continue through the end of October.

Dr. Tim McGrath, SGH Inc., presented his installation analysis via telephone. His presentation and report addressed the evaluation of expected stress levels in corrugated HDPE pipe, the development of a simplified calculation for maximum tension stress, and recommendations on installation controls to minimize risk of exceeding expected stress levels. He discussed the strain effects of different backfills and compaction levels and his recommendations for minimum cover. Mr. Renna added that the Department was not requiring select backfill based on the confidence of the State Construction Engineer that the Department would be consistently obtaining proper compaction on its construction projects.

Dr. Grace Hsuan presented her materials testing protocol via telephone. Her topics included testing to establish stress crack resistance (SCR), oxidation resistance, and long term finished pipe properties. SCR was evaluated on finished pipe junctions and longitudinal profile points per the recommendations of NCHRP 429 to establish predicted crack-free performance over the pipe service life. Her presentation included discussions of her investigation into evaluating antioxidants (AO) and AO depletion in air and water. Ultimately, the focus of the protocol is to predict the AO lifetime and resultant preservation of the pipe structural properties. Dr. Hsuan's discussion on pipe properties focused on short and long term tensile strength and flexural modulus.

All three of the presentations discussed above may be downloaded at the ftp site below:

ftp://ftp.dot.state.fl.us/fdot/co/drainage/Pipe/

Some members of the PAG, representing competing industries, felt that the Department was being excessively generous to the HDPE Pipe Industry in offering an interim specification, that

they had gone through years of effort to achieve service life recognition. Mr. Renna responded that the Department had been looking at polyethylene pipe for over 10 years.

Concerns were voiced relevant to authentication of test results presented by HDPE pipe manufacturers for establishing service life. Rod Powers stated that the test results must be certified by PPI.

Mr. Renna welcomed written comments from the PAG members, re-stating that the comments period would remain open through the end of October.

The meeting was adjourned at 2 pm.