Session 21

Rick Renna

FL. Dept. of Transportation

Central Office Drainage Projects & Future Directions

Topic Description

This presentation discusses current and future work efforts of Central Office Drainage Section, affording the audience opportunity to comment on the priorities of these projects and suggest other areas on needed attention within the Drainage procedures, specs, standards, and guidance.

Speaker Biography

Rick Renna has worked for the Department for over 32 years, the last 19 of which have been in hydraulics design. He has served as the State Hydraulics Engineer since 2001.

CO Drainage Section Activities

2006 DESIGN CONFERENCE
Designing For More Than Bridges and Roads

August 1, 2006

Topics….

- Current Activities
- Upcoming Activities
- Research

Recent Improvements - Website

http://www.dot.state.fl.us/rddesign/dr/DrainageWebsite.htm

- New URL – No Spaces
- Bridge Scour Guidance
  - Rock / Clay Scour
  - Course and Program
  - Sheppard's Pier Scour Equation
  - Existing Bridge Scour Evaluation Scope
  - Complex Pier Procedure
- HDPE Pipe Research / Spec
- 14-86 Drainage Connection Permits
- Training Opportunities

New Drainage Handbooks

- Exfiltration Systems HB
  - Exfiltration Trenches
  - Well Injection
  - Modeling

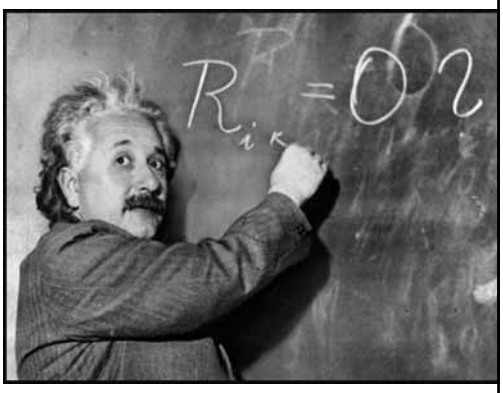
Upcoming Drainage Handbooks

2007, Hopefully…

- Open Channel HB
- Bridge Hydraulics HB
  - Riverine Analysis
  - Scour Procedures
  - Deck Drainage

Drainage Training Courses

- Storm Sewer Design
- Drainage Standards
- Optional Pipe
- Culvert Hydraulics
- Pond Design
- Bridge Scour
- NHI HEC 25 (Future)



Modification to Rule 14-86

- Update Legal Language
- Reduce Number of Storms
- Check Spread And Storm Sewer Impacts
- Adjacent vs. Abutting
- No Impervious Area Added, But Flow Patterns Are Changes
- Additional Standardized Forms

New Procedures & Specs

- Complex Pier Scour Procedure
- HDPE Pipe Protocol

New and Upcoming Tools

- Complex Pier Scour Spreadsheet
- Improved Culvert Service Life Estimator
  - Added pipe availability
- Barrier Wall Spread Program Incorporated into Geopak

Overhaul of Drainage Specs & Standards

- Address….
  - Conflicting and/or Unclear Language / Drawings
  - Misplaced and Outdated References
- Future Changes
  - Update & Incorporate Revetment TSP's into Specs
    - Grout filled Mattresses - Filter Point (Rigid) and Articulating Block
    - Gabions (Mats and Baskets)
    - Articulating Concrete Block
  - Eliminate Natural Hay Bales (Jan. 1, 2007)

Drainage Software Updates
ASAD and Geopak Drainage

Re-established DrTAC in early 2006 to address:

- Training/Training Manual
- Support
- "Bugs"
- Technical Content
- User-Friendliness

Current DrTAC Tasks

- Addressing over 100 technical comments from FDOT and Consultants
- Update/Enhancements to the Storm Drain Tabulation Sheet
- Writing scope of services for Geopak Training Manual/Users Manual
- FDOT Cell Library & Criteria File Issues
- Geopak User Friendliness
- ASAD Structure Definition Files

Stormwater Management Academy

"Managed Stormwater is Good Water"

H2O4U

Website:

http://stormwater.ucf.edu/

Stormwater Management Academy

"Managed Stormwater is Good Water"

- Erosion & Sediment Control
  - DEP, WMDs, USGS, DOT
  - Slope Erosion Protection, Sediment Capture
  - Specs, Standards, Inspector's Guide, Drainage HB
  - Inlet Protection
- Pervious Concrete
  - I-4 Rest Stop Test Section
- Stormwater Re-use

Ongoing Roadway Research

- FRCP Soil Box Testing
- Base Clearance from Groundwater
  - Pavement Design
  - Constructability
  - Ultimately Incorporated into Procedures

Bridge & Coastal Engineering

- Hurricane Modeling Refinements
- Pier Scour Equation Improvements
  - Effects of Suspended Sediments
  - Complex Pier Procedure
  - Sediment Gradation
- Coastal Contraction Scour
- Wave Loading on Bridges
  - AASHTO/FHWA T.F.
  - Lab & Numerical Studies
  - Probabilistic Bridge Code

Thank You....

Questions or Comments?