Evaluation of Static Resistance Through FB-DEEP

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Reevaluate and Improve FB-DEEP for Other Pile Types and Soil/Rock

NBR = 105 tons
Improve FB-DEEP H Pile Design

- Collect Data from FDOT projects Using H Piles (e.g. I-95)
  - SPT borings
  - PDA records (e.g. certification Letters for Bridge Piers)
  - Upload into Online Database, evaluate skin and tip resistance based on soil type, and SPT blow count
Reevaluate and Improve FB-DEEP for Other Pile Types and Soil/Rock Layers (FBDEEP-4) analyzed.

Competent Limestone and Weathered Limestone Layers (FBDEEP-4) analyzed.

The same.
Improve FB-DEEP for Prestressed Concrete in Weathered and Competent Limestone

• Collect Data from FDOT projects Using PSCP Piles (e.g. I-595, etc.)
  – SPT borings
  – PDA records (e.g. certification Letters for Bridge Piers)
  – Upload into Online Database, evaluate skin and tip resistance based on soil type, and SPT blow count (consider differentiating competent from weathered limestone)
Reevaluate and Improve FB-DEEP for Other Pile Types and Soil/Rock

- 36” Open Pipe Pile
- 36” Cylinder Pile
Cylinder Pile

Pipe Pile – Smaller of A or B

A) Unplugged:

\[ Q_s = f_s \times (A_{\text{surf,inside}} + A_{\text{surf,outside}}) \]

\[ Q_{\text{tip}} = q_p \times A_{\text{ring}} \]

B) Plugged:

\[ Q_s = f_s \times (A_{\text{surf,inside}} + A_{\text{surf,outside}}) \]

\[ Q_{\text{tip}} = q_p \times A_{\text{total,tip}} \]
Update FB-DEEP Design for Steel Pipe Piles

• Collect Data from FDOT projects Using steel Pipe Piles (e.g. SR-79, SR-46)
  - SPT borings
  - PDA records (e.g. certification Letters for Bridge Piers)
  - Upload into Online Database, evaluate skin and tip resistance based on soil type, and SPT blow count, (consider API approach and others)
FB-DEEP Analysis of Cased Drilled Shafts Installed in Florida Limestone

\[
f_s \neq 0 \propto \alpha(q_u, q_t)
\]

\[
f_s \propto q_u, q_t
\]
Improve FB-DEEP Design for Cased Drilled Shafts into Florida Limestone

• Collect new Data (lab and load tests) from FDOT projects Using cased shafts into limestone (e.g. Leroy Selmon widening)

• Search old databases (FDOT access database), contact other southern DOTs for data

• Develop unit skin friction vs. deformation (T-Z curve) for cased section of drilled shafts in Limestone
Thank You

Questions?