



OREGON DEPARTMENT OF TRANSPORTATION

SPR Quarterly Progress Report
October 1, 2008 through December 31, 2008

Research Unit
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Date January 5, 2009

TO: Technical Advisory Committee Members:

Jan Six, ODOT
Tom Braibish, ODOT
Tony Allen, WSDOT
Tim Rogers, FHWA
Naser Abu-Hejleh, FHWA
Steven Soltesz, ODOT

FROM: Steve Soltesz, Research Engineer
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1. Project

Calibration of LRFD Resistance Factor for the Wave Equation Analysis Program
SPR # 683

2. Key Dates

Start Date for ODOT: July 2008
Completion Date for ODOT: September 2010

3. Principal Investigator

Trevor Smith, Professor
Civil and Environmental Engineering
Portland State University
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4. Progress

Task 1 Completed

Task 2

- Following discussion in September (reported previously) the Calibration Strategy was completed in Draft form by the issue of: *Tier Structure and Scorecard, Model Series Strategy, Blow Count Assumptions*. Documents issued and Powerpoint prepared for a TAC meeting on December 15th subsequently cancelled by heavy snow and rearranged for January 26th
- Considerable additional background from FHWA-RD-96-179 secured from Western Federal Lands. This provides insight to assumptions made by GRL for the 1997 Report, including some Bearing graphs for Case history piles

Task 3

- Data base examination of DFLTD and PDLT2000 used in NCHRP507 has been completed. Seventy eight of the PDLT2000 piles are matched in DFLTD, but many have anomalies to resolve.
- PSU Master Spreadsheet completed in source DRIVEN and GRLWEAP software notation- this also serves as baseline archive. ODOT supplied data entered and “locked down”. Ongoing PSU active Master now includes all new case histories.
- The review under approved strategy (task 2) of matched piles show thirty one are “qualified” to move into the Scorecard Tier 1 and Tier 2 for analysis. Of these only sixteen remain due to missing or errors in blow counts as well as hard driving piles dominated by end bearing.
- State key contact list continues to build. Additions include CA, LA, SC and WS. Other states identified undertaking LRFD calibration are AR, WS, CO, and IA

Task 4

- Analysis begun with the sixteen piles and advance DRIVEN analysis made.
- Likely weekly discussions will begin to discuss with Robert Miner and Jan Six the analysis in GRLWEAP and establish trends to assist in the remainder of the work

5. Problems

- Considerable confusion and errors in the PDLT2000 pile blow count especially with regard to BOR definitions. This causes no clear check to be made on BOR and each case will need careful review.
- Over 50% of the PDLT2000 database is not in DFLTD, thus no hammer information or subsurface soils are available. Extremely slow response from states that have missing data in the PDLT2000 database to allow analysis to proceed. It may be that intervention from ODOT to these states may be required.

6. Work Planned for Next Quarter

Task 4 and Task 5 now underway with initial qualified pile dataset and PSU Master working Spreadsheet is being built continually. Resolution of anomalies and new case history identification is on going.

7. Finances
SPR Project Summary

| VENDOR | FY'09 | FY'10 | FY11 | FY'12 | TOTALS |
|------------------------|-------------------|-------------------|-----------------|--------------|-------------------|
| ORIGINAL BUDGET | \$ - | \$ - | | | \$ - |
| REVISED BUDGET | \$ 124,400 | \$ 115,600 | | | \$ 240,000 |
| EXPENDITURES - VENDOR | \$ 4,271 | \$ - | \$ - | \$ - | \$ 4,271 |
| BALANCE | \$ 120,129 | \$ 115,600 | \$ - | \$ - | \$ 235,729 |
| | | | | | |
| ODOT | FY'09 | FY'10 | FY11 | FY'12 | TOTALS |
| ORIGINAL BUDGET | \$0 | \$0 | \$0 | | \$ - |
| REVISED BUDGET | \$5,000 | \$5,000 | \$1,500 | | \$ 11,500 |
| EXPENDITURES - ODOT | \$ 4,652 | \$ - | \$ - | \$ - | \$ 4,652 |
| BALANCE | \$ 348 | \$ 5,000 | \$ 1,500 | \$ - | \$ 6,848 |
| | | | | | |
| PROJECT | FY'09 | FY'10 | FY11 | FY'12 | TOTALS |
| ORIGINAL BUDGET | \$ - | \$ - | \$ - | \$ - | \$ - |
| REVISED BUDGET | \$ 129,400 | \$ 120,600 | \$ 1,500 | \$ - | \$ 251,500 |
| EXPENDITURES - PROJECT | \$ 8,923 | \$ - | \$ - | | \$ 8,923 |
| BALANCE | \$ 120,477 | \$ 120,600 | \$ 1,500 | \$ - | \$ 242,577 |