



OREGON DEPARTMENT OF TRANSPORTATION

SPR Quarterly Progress Report
January 1, 2009 through March 31, 2009

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Date April 2, 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 2- Considerable progress

- Near weekly discussions with Jan Six and Bert Minor conducted to explore the standards of field practice for pile driving and ascertain ODOT practice norms around GRLWEAP modeling.
- Significant database shortcoming around lack of critical information to allow crosschecking to FHWA endorsed approaches. Any strategy which uses measured energy or stroke and explores effects of time is limited as PDLT2000 does not contain these values

Task 3-Substantially complete and reported at TAC meeting of January 26th

- Resolution of data base missing data continues. Anomalies continue to show up. Water table is most often lacking.
- BOR has no clear definition but established in field by pile driving inspection and contractor/client acceptance.

Task 4 Substantial progress

- Renewal secured from Pile Dynamics Inc of the GRLWEAP version now in effect until December
- All 19 Tier 1 case histories have a completed model series 1 at EOID and model series 2 at BOR both with GRLWEAP defaults.
- Model Series 3 has begun for Modified BOR.

Task 5 Good Progress

- Rebuilding Database in PSU format under 2 versions: *PDLT2000 PSU Master*, and the full version which includes all new identified case histories called *FULL PSU Master*. The first version permits an examination of the EOID “do-over” to NCHRP 507. Recalibration is based on the second Master.

5. Problems

- Lack of enthusiasm by many state DOT’s to supply missing soils logs, and in some cases the soil and hammer details. Contact and request for intervention made of Steve Soltesz and Jan Six for assistance.
- Very little specifics in the databases to properly define BOR. Some have BOR restrikes AFTER the static load test.

6. Work Planned for Next Quarter

- Continue to rebuild the Full PSU Master and resolve anomalies.
- Model Series 3 on Task 4 to be compiled.
- A selection of 20 of the new case histories are to be examined to study if trends follow NCHRP507
- Design of sub groups for statistical exploration.

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	\$ 60,890	\$ -	\$ -	\$ -	\$ 60,890
BALANCE	\$ 63,510	\$ 115,600	\$ -	\$ -	\$ 179,110
ODOT	FY'09	FY'10	FY11	FY'12	TOTALS
ORIGINAL BUDGET	\$0	\$0	\$0		\$ -
REVISED BUDGET	\$7,500	\$5,000	\$1,500		\$ 14,000
EXPENDITURES - ODOT	\$ 6,699	\$ -	\$ -	\$ -	\$ 6,699
BALANCE	\$ 801	\$ 5,000	\$ 1,500	\$ -	\$ 7,301
PROJECT	FY'09	FY'10	FY11	FY'12	TOTALS
ORIGINAL BUDGET	\$ -	\$ -	\$ -	\$ -	\$ -
REVISED BUDGET	\$ 131,900	\$ 120,600	\$ 1,500	\$ -	\$ 254,000
EXPENDITURES - PROJECT	\$ 67,589	\$ -	\$ -		\$ 67,589
BALANCE	\$ 64,311	\$ 120,600	\$ 1,500	\$ -	\$ 186,411