

Research Project Status Report

July 1, 2007 – September 30, 2007

<i>Project Title</i> Subsurface Drainage for Landslide and Slope Stabilization		<i>Agmt./Task No.</i> T4120-10	<i>Item No.</i>	<i>Agency Bgt. No.</i>
<i>Research Agency</i> WSU/UBC		<i>Start Date</i> 3/2007	<i>Estimated Completion</i> 12/2010	<i>Revised Completion</i>
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<i>Funding Source</i> CA, MD, MS, MT, NH, OH, PA, TX, WA, WY		<i>Schedule Status</i> <input checked="" type="checkbox"/> On schedule <input type="checkbox"/> Ahead of schedule <input type="checkbox"/> On revised schedule <input type="checkbox"/> Behind schedule		
<i>Research Area</i> <input type="checkbox"/> Bridges & Structures <input type="checkbox"/> Environment <input checked="" type="checkbox"/> Highway Design & Safety <input type="checkbox"/> Mobility & Intermodal Planning <input checked="" type="checkbox"/> Operations & Materials <input type="checkbox"/> Traffic & Intelligent Transportation Systems Evaluation				
<i>Original Estimated Cost</i> \$ 300,000	<i>Revised Cost</i>	<i>% Funds Expended</i> 2%	<i>% Work Completed</i> 5%	
<i>Objective</i> (1) Provide best practices and guidance for subsurface drainage applications for slope stabilization, including subsurface investigation and testing, groundwater-flow characterization, analysis, drain configurations and design, installation methods, monitoring, and maintenance. (2) Evaluate new applications of existing materials and technologies, such as trenchless technologies (horizontal directional drilling, micro tunneling, guided boring, etc.) and other innovative technologies and materials, for stabilizing slopes using subsurface drainage.				

Project Progress:

WSDOT has contracted with Washington State University and this research began in August.

Researchers have begun to collect existing data and literature on the use of subsurface drainage applications. The sources include WSDOT project files, information from other state DOT's, and technical reports. These data will be analyzed systematically to quantify the changes in groundwater flow pattern and pore pressure distribution as a result of drain installations. This is done along with relevant geological data. As a first step, WSDOT projects on SR 101 at MP 69.8, MP 184, and MP 322 are being analyzed in detail with the one on MP 69.8 nearing completion. The results show that at lower elevations, the water level reduced after the installation of horizontal drains. But, at higher elevations, the effect was negligible and pore pressures continued to remain.

New Period Proposed Activity:

- Complete the synthesis of existing data for other sites.
- Examine geological and soil conditions contributing to changes in observed pore pressure pattern.
- Initiate groundwater-flow characterization using computer software.