NHDOT SPR2 PROGRAM
RESEARCH PROGRESS REPORT

INSTRUCTIONS:

Project # SPR 42372G		**Report Period** Year 2021 ☐Q1 (Jan-Mar) ☐Q2 (Apr-Jun) ☐Q3 (Jul-Sep) X Q4 (Oct-Dec)
Project Title: **Advancing Subsurface Investigations Beyond the Borehole**		
Project Investigator: James Degnan **Phone:** (603) 226-7826		**E-mail:** jrdegnan@usgs.gov
Project Start Date: June 30, 2021	**Project End Date:** September 30, 2023	**Project schedule status:** **X** On schedule ☐ Ahead of schedule ☐ Behind schedule

Brief Project Description:

Geotechnical site characterization sometimes fails to fully characterize the below-ground bedrock surface and hydrologic conditions using conventional borings. By combining passive Horizontal-to-Vertical Spectral Ratio (HVSR) seismic and multi-frequency electromagnetic induction geophysical methods and boring data analysis, a more thorough and accurate representation of geotechnical subsurface conditions can be produced. This effort will contribute to the overall goal of improving efficiency of the Department by reducing the disruption work plans, forced revision of designs, and cost increases from schedule delays, claims, or change orders.

Progress this Quarter (include meetings, installations, equipment purchases, significant progress, etc.):

A passive seismometer available for use on this project was purchased with overhead during the previous quarter funds. A project kick-off Technical Advisory Group (TAG) meeting was held virtually on 10/15/2021. Attendees included Krystle Pelham, NHDOT Champion, Deirdre Nash and Ann Scholz, NHDOT Research, James Degnan, Joe Ayotte, Carole Johnson, and Craig Brown, USGS and Jeff Reid and Rob Garfield, Hager-Richter Geoscience, Inc.

Items needed from NHDOT (i.e., Concurrence, Sub-contract, Assignments, Samples, Testing, etc…):

A list of potential sites and concurrence on priority is needed from NHDOT. Krystle said she would help with this during the TAG meeting. I am currently working on following up with Krystle and will consult NHDOT newsletters for additional information.

Anticipated research next three (3) months:

An internal USGS technical project review is scheduled for 2/17/2022. Work will continue on literature searches & reviews, a report outline, and site selection. Field data collection is expected to be scheduled once sites are identified.

Circumstances affecting project:

The work plan called for task 1 work to begin in the 2 quarter of 2021, but the joint funding agreement was signed at the start of the 3rd quarter, so the project start was delayed by one quarter.

Tasks (from Work Plan) add lines to table as needed	**Planned % Complete**	**Actual % Complete**
Task 1. Compile and assess literature and sites	0 to 75	15
Task 2 Collect geophysical data	0 to 50	0

Barriers or constraints to implementing research results

Developing a list of sites and schedules will help reduce project progress barriers and constraints. This will also allow for the scheduling of equipment and personnel.