

**NHDOT SPR2 PROGRAM  
RESEARCH PROGRESS REPORT**

<b>Project #</b> SPR 42372E		<b>Report Period:</b> Year 2021 <input type="checkbox"/> Q1 (Jan-Mar) <input type="checkbox"/> Q2 (Apr-Jun) <input checked="" type="checkbox"/> Q3 (Jul-Sep) <input type="checkbox"/> Q4 (Oct-Dec)	
<b>Project Title:</b> Crushed Gravel for Shoulder Leveling 304.32			
<b>Project Investigator:</b> Kevin Belanger <b>Phone:</b> 603-352-2303		<b>E-mail:</b> Kevin.J.Belanger@dot.nh.gov	
<b>Project Start Date:</b> 4/22/2021	<b>Project End Date:</b> 12/31/2022	<b>Project schedule status:</b> <input checked="" type="checkbox"/> On schedule <input type="checkbox"/> Ahead of schedule <input type="checkbox"/> Behind schedule	

**Brief Project Description:**

After the Department's resurfacing contracts are complete and accepted, gravel is placed to level the shoulder along the newly paved roadway sections. This material tends to ravel or wash out depending on factors that include the profile grade, amount of storm water runoff, and the extent of vehicle off tracking. Shoulder gravel material on the paved roadway presents a safety hazard and creates a maintenance issue for the District workforce. Concerns that the current specification does not provide a final product that is well compacted and stay in place may be related to the material where other factors may include the site condition and/or placement method.

The Bureau of Highway Maintenance will establish test sections for the purpose of evaluating different gradations and compaction methods when placing shoulder gravel. The outcome of this project will be to recommend improvements to the Department's specification 304.32, Crushed Gravel for Shoulder Leveling that improves performance of gravel used for shoulder leveling.

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

District 4 crews did a compaction test in August and tested 3 different rollers. There were 2 different size steel drum/rubber tire rollers similar to what contractors are currently use, and an Offset Vibratory roller that attaches to a skid steer or loader. The Offset vibratory roller (attached to a skid steer) was found to give the most consistent result and was chosen to be used as the compaction method on the remainder of the test sections.

District 4 has placed 5 test gradations, each increasing the amount of silt by about 5%, the range being from about 6% up to 25%. Those were all placed by the same crew and compaction was done with the same offset vibratory roller. Site visits are being done with a goal of bi-weekly inspections to document the results.

District 1 has placed test gradations as well.

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

Continue to monitor test segments placed to evaluate performance in both D1 and D4.

Place one remaining test segment in D4 to compare bank run material to "crushed/processed" material.

**Anticipated research next three (3) months:**

Begin to compile results of performance evaluations, and put together data to present to the specifications committee.

**Circumstances affecting project:**

District 4 resurfacing contract is slightly behind the planned start schedule for paving, which could affect the availability of the test segments.

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<b>Tasks (from Work Plan)</b>	<b>Planned % Complete</b>	<b>Actual % Complete</b>
Select roadway segments to place test sections	100	100
Establish gradations to be tested	100	95
Determine methods of consolidation/Compaction	100	100
Install shoulder gravel Segments	100	90
Monitor segments Document results.	50	25
Evaluate results and make recommendations for specifications.	0	0
Prepare reports.	0	0

**Barriers or constraints to implementing research results**

We do not currently foresee any issues with completing the project.