Quarterly Progress Report:
Project Number and Title: 2.2: Concrete Systems for a 100-Year Design Life
Research Area: New Materials for Longevity and Constructability
PI: *Professor Eric N. Landis, Ph.D., University of Maine*
Postdoctoral Research Associate: *Hosain Haddad Kolour, Ph.D., PE, University of Maine*
Reporting Period: *Apr 2021 to Jun 2021*
Submission Date: *30 Jun 2021*

Overview: (Please answer each question individually)
Summary of activities during the reporting period:

- Literature review.
- Visiting Brewer bridge and taking 6 cylinders for compressive strength and 2 prisms for shrinkage tests
- Receiving and reading some new documents and reports from Maine DOT
- Monthly Zoom Meeting with Maine DOT engineers
- Batching, casting, and completing test matrix
- Receiving slag from Dragon

During last three months, we worked on our test matrix. We made some trial batches and final batches as well. We cast some cylinders and prism for our tests. We spent some time on reading the reports and documents. We visited a bridge in Brewer and we took some concrete for compressive strength and shrinkage test. We had monthly Zoom meeting with MaineDOT engineers. We presented our literature review, test results, and findings from similar projects from other states, then we talked about their issues with Maine projects. Particularly, we discussed about cracks in Bangor (Ohio street) bridge. They sent us some additional documents and reports.

Table 1: Task Progress

Task Number	Start Date	End Date	% Complete
Task 1: Inventory early age cracking problems	03/01/2020	Continue	40%
Task 2: Inventory longer-term cracking problems	03/01/2020	Continue	40%
Task 3: Develop solutions using alternative concrete mixes	09/01/2020	Continue	40%
Task 4: Examine new technologies	09/01/2020	Continue	30%

Table 2: Budget Progress

Project Budget	Spend Amount	Spend Percentage to Date
$83,300 (from UTC)	Information is coming soon	

Describe any opportunities for training/professional development that have been provided…

One postdoctoral research associate is working in this project. It will be a great opportunity for him to learn about writing proposals, preparing reports, participating in meeting, attending conferences, and working with professionals in UTC, UMaine Advanced Structures and Composites Center, and MaineDOT.

Seven undergraduate students have been involved in this project. It will be a great experience for them to be familiar with ASTM tests and standards. They will learn how to conduct the experiments, how to follow the standards, and how to work in a team in a real project.

Participants and Collaborators:

Use the table below to list all individuals who have worked on the project.

Table 5: Active Principal Investigators, faculty, administrators, and Management Team Members			
Individual Name	**Email Address**	**Department**	**Role in Research**
Professor Eric N. Landis	*landis@maine.edu*	*Civil and Environmental Engineering*	*PI*
Dr. Hosain Haddad Kolour	*hosain.haddad@maine.edu*	*Civil and Environmental Engineering*	*Perform the experiments and analysis the results*

Use the table below to list all students who have participated in the project during the reporting. (This includes all paid, unpaid, intern, independent study, or any other student that participated in this project.)

Table 6: Student Participants during the reporting period				
Student Name	**Email Address**	**Class**	**Major**	**Role in research**
Parry Seddiqi		senior	Civil and Environmental Engineering	Help in performing the experiments
Kelsey Weir		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Madison Ala		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Nicholas Tiner		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Alexander Baur		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Tanner Laflamme		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Emma White		sophomore	Civil and Environmental Engineering	Help in performing the experiments

Use the table below to list organizations have been involved as partners on this project and their contribution to the project.

Table 8: Research Project Collaborators during the reporting period						
Organization	**Location**	**Contribution to the Project**				
		Financial Support	**In-Kind Support**	**Facilities**	**Collaborative Research**	**Personnel Exchanges**
University of Maine	Maine	X	X	X		

Who is the Technical Champion for this project?
Name: *Michael.Redmond*
Title: Concrete *Quality Specialist at MaineDOT Bridge Program*
Organization: *MaineDOT*
Location (City & State): *Augusta, Maine*

Email Address: *Michael.Redmond@maine.gov*

Changes:
Because of COVID 19 pandemic, we started our project in June, not in March.

Planned Activities:
Casting concrete and testing the concrete specimens based on test matrix. Interpreting the results. Doing some new tests following our meeting with MaineDOT engineers.