

| UTC Project Information – Project 3.12 | |
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| Project Title | Lateral loading of unreinforced rigid elements and basal stability of column-supported systems |
| University | University of Maine |
| Principal Investigator | Aaron Gallant |
| PI Contact Information | aaron.gallant@maine.edu (207-581-2391) |
| Co-PI(s) | N/A |
| Co-PI Contact Information | N/A |
| Funding Source(s) and Amounts Provided (by each agency or organization) | Federal: \$65,020.00; Umaine: \$97,100.00; Deep Foundations Institute (DFI): \$33,380 |
| Total Project Cost | \$195,500.00 |
| Agency ID or Contract Number | 69A3551847101 |
| Start and End Dates | 6/1/2019-12/31/2022 |
| Brief Description of Research Project | The use of rigid column-support to stabilize fill embankments and MSE walls continues to grow in popularity, especially among DOTs and transportation agencies for roadway, railway, and bridge applications because of its distinct advantage in accelerating construction in fill scenarios. However, perimeter columns may be subjected to appreciable lateral loading and excessive tensile stressing in the concrete that may lead to a cessation of the load transfer mechanisms (e.g. arching) and subsequent basal instability. The objectives of this project are to (i) understand the conditions (e.g. fill scenario, subgrade materials, area replacement ratio) that influence lateral loads and bending in exterior columns and (ii) generate design guidance regarding the necessity of reinforcement in perimeter elements subject to lateral loading near the perimeter of slopes, embankments, and MSE walls. |
| Describe Implementation of Research Outcomes (or why not implemented) | This project is in its initial research phase. Implementation of Research outcomes will be reported upon completion of initial research. |
| Place Any Photos Here | |
| Impacts/Benefits of Implementation (actual, not anticipated) | This project is in its initial research phase. Impacts and benefits of the research will be reported after the implementation phase. |
| Web Links | |
| | <ul style="list-style-type: none"> • Reports • Project website |