Arkansas State Highway and Transportation Department  
Transportation Research Committee

RESEARCH PROBLEM STATEMENT

DATE: 09/11/2016  PROJECT AREA: Design

TITLE: Static and Statnamic Lateral Testing of Deep Foundations

PROBLEM STATEMENT:
According to AASHTO LRFD Sections 10.7.2.4 and 10.8.2.3, deep foundations must be designed for horizontal movement. Currently, the Arkansas State Highway and Transportation Department does not design for the lateral capacity of deep foundations. A total of 14 deep foundation elements were constructed tested (axial capacity only) in association with the TRC 1204 and TRC 1502 research projects. To date, the results of these research projects have led to 1) the development of axial resistance factors and t-z curves that may be used to design future bridge foundations within the state of Arkansas and 2) modifications to the required rock socket depth for drilled shaft foundations. Due to the expense of installing the TRC-1204 and TRFC-1502 foundations, the foundations were designed to enable additional testing. Specifically, static (pull-foundations together) and dynamic (statnamic) tests may be conducted on these foundations to develop p-y curves and lateral resistance factors for use in future bridge designs within the state of Arkansas.

OBJECTIVES:
Like the axial parameters (t-z, Q-z) and axial resistance factors that were developed from the TRC-1204 (static) and TRC-1502 (dynamic) projects, the objective of this research project is to develop lateral parameters (p-y) and lateral resistance factors for Arkansas soils. These parameters will then be implemented into the AASHTO LRFD design procedures to produce designs that take into account all service limit states.

FORM OF RESEARCH IMPLEMENTATION:
The research will be implemented through the use of developed Lateral Resistance Factors and p-y curves.

REVIEWER: Justin Lester  
Estimated Project Duration: 12

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Standing Subcommitteee Ranking: 0  
Advisory Council Ranking: 0  
Statement Combined with Statement Number(s):