**A Peer Exchange and Review of Deep Foundation Testing Methodologies at Caltrans**

**Solicitation No. 1321**

**Study Description**

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| **Background:**Caltrans has a history of adopting new technologies and methodologies to evaluate foundations on their construction projects; this is particularly true for deep foundations. Some of their current test methods, practices and procedures are to use both gamma-gamma logging (GGL) and crosshole-sonic logging (CSL) to accept cast-in-drilled-hole (CIDH or drilled shafts) constructed in wet conditions. In an effort to keep with the tradition of adopting new technologies, Caltrans proposes this peer exchange and GGL data review as an opportunity to improve their practices.  |
| **Objectives:**There are two objectives of this study; first to perform a peer review of the Caltrans Geotechnical Services Foundation Testing Branch (FTB). This review will evaluate current practices used to for deep foundations (piles) on Caltrans construction projects. Some of the current test methods, practices and procedures include gamma-gamma logging (GGL); crosshole sonic logging (CSL); pile load testing, Pile Driving Analyses ,Sonic Caliper Testing and Vibration Monitoring. Information to be reviewed includes current operational practices and procedures associated with managing the testing program, conducting the tests, and managing the analysis and reports generated for Caltrans projects. In addition to reviewing Caltrans current practice, the review will identify best practices and improvements that can be made to the current methodologies used to accept deep foundations. Included in this effort will be the identification of new technologies that should be considered by Caltrans for adoption. The second objective of this review effort is to be available to provide advice to the Department regarding their continuing effort of reviewing existing GGL data and to evaluate processes for adequacy.  |
| **Scope of Work:**For the first objective in this study, the peer review panel consisting of both national and State DOT experts will be assembled to review Caltrans current test methods, practices and procedures for foundation testing that includes test methods used, record archiving, policy and procedure manuals used, training of staff and other relevant information that will facilitate the review so that best practices and recommendations for improvement can be identified. In addition to reviewing information, the panel will interview Caltrans and Industry staff from construction, structures construction, bridge design, and geotechnical services. The peer review panel will also draw on personal expertise and familiarity with the industry to make recommendations for new technologies and methodologies for Caltrans to evaluate and possibly adopt into practice. The Peer review panel is expected to consist of geotechnical deep foundations subject matter experts from the following agencies/industries: two national FHWA , 4-7 State DOT, two industry technical specialists (*i.e.* ADSC), and one report writer/subject. It is expected that the Peer Review team identified will have three meetings in Sacramento, CA. With regard to objective two, Caltrans is currently assembling a comprehensive set of existing GGL data. The analysis of this data will identify irregularities, strengthen the management of data integrity, and improve the current GGL data collection process. The peer review panel will review the methodology used for this Caltrans effort and be available to provide advice. It is expected that additional expertise will be added to the Peer Review team for this objective will include additional subject matter specialists in data analysis and geophysics. It is anticipated that the team will have up to two meetings in Sacramento. Additional webinar meetings will be held as the comprehensive GGL data analysis progresses. |
| **Comments:**Benefits: Caltrans, and other states, will be able to improve the methods and procedures used to evaluate foundations constructed on their projects. This will improve the quality of deep foundations testing methods, practices and processes. Time Schedule: The first objective, the peer exchange, of this study will take place from March 2012 to April 30, 2012. The target date for the final report is May 31, 2012. The second objective, GGL data analysis, will start in April 2012 and is expected to take approximately six months. Deliverables: There will be a report that documents the review process and identifies best practices and recommendations for improvement that relate to the Caltrans Foundation Testing Branch and the practices used to both evaluate deep foundations and manage the overall testing and acceptance program. A report will also be generated that summarizes the panels comments and review of the comprehensive data analysis of the GGL data. |