REQUEST FOR PROPOSALS

GEOTECHNICAL DESIGN MANUAL
LTRC No. 16-1GT, SIO No. DOTLT1000097

PROBLEM STATEMENT

The Louisiana Department of Transportation and Development (DOTD) Pavement and Geotechnical Section (Section 67) has developed policies and procedures over the years utilizing their own methods and those incorporated from others (AASHTO, FHWA, other states, etc.). The Pavement group of Section 67 developed a Design Guide in 2013. The Geotechnical group of Section 67 has a formal Design Guide (DG) for Mechanically Stabilized (MSE) walls, DG #8, but does not have other volumes for a complete manual. There is a need to expand on this concept, document the group processes to cover all issues, and consolidate the information into a single document with specifics covered in separate volumes like DG #8 (exploration, piles, shafts, slopes, etc.)

Training and succession planning are also important items regarding consistency of service. A Geotechnical Design Manual should be established to assist the Geotechnical Design Section with policy, training, and production activities. The manual would help clarify current design policy, ease the training of new employees, and serve as valuable reference and living document for the Section 67, other sections, consultants, etc.

Implementation of the manual would establish a policy to handle comments and/or recommendations regarding the manual/policy so they can be effectively addressed (revised or incorporated) into the document with updates. Additional benefits include the efficiency, and clarity of having the policy online, creating confidence and transparency for all actions and design decisions.

OBJECTIVES

Create a Geotechnical Design Manual that documents the current processes utilized by the DOTD Section 67, Geotechnical Design Group with explanation, hyperlinks and references to the supporting policy, design methodology, test procedures, and project development, coordination, and management.

Minimum Content Requirements:
The manual shall include at least the following topics:

1. Table of Contents
2. Project Coordination Process
3. Consultant Services and Review
4. Subsurface Investigation Guidelines
5. Field and Laboratory Testing Procedures
6. Material Description-Classification-Logging
7. GeoMechanics
8. Geotechnical LRFD Design
9. Geotechnical Resistance Factors
10. Geotechnical Performance Limits
11. LA Geology and Seismicity
12. Shallow Foundations
13. Deep Foundations
14. Embankments

15. Earth Retaining Structures
16. Ground Improvement
17. Geosynthetic Design
18. Geotechnical Reports
19. Plan Preparation
20. Specifications and Special Provisions
21. Construction QA-QC
22. Construction Monitoring and Instrumentation
23. Geotechnical Software
24. Geotechnical Design Section Forms
25. MSE Walls
26. Reinforced Soil Slopes
27. Geotechnical Template Plans
28. Project Specific Specifications List

RESEARCH APPROACH

The Louisiana Transportation Research Center (LTRC) is seeking the insight of proposers on how best to achieve the research objectives. Proposers shall describe research plans that can be realistically accomplished within the constraints of available funds and contract time as allowed in this RFP.

At least one Principal or proposal team member of submitting organization must meet the following requirements:

1. Registered Professional Civil Engineer in the State of Louisiana
2. A minimum of ten years' experience in geotechnical design
3. Prior experience in the development of a Geotechnical Design Manual
4. Working knowledge of the AASHTO LRFD Bridge Design Specifications
5. Proven project management skills, and experience with DOTD/LTRC projects
6. Technical writing skills including the capability of producing the document in the specified formats

Proposals must present the candidate's current thinking in sufficient detail to demonstrate their understanding of the problem and the soundness of their approach. Task descriptions are intended to provide a framework for conducting the research. The proposal shall address at a minimum, the following tasks:

Task 1. Records Research

The researcher will work/meet with the Project Review Committee (PRC) to ensure previous and existing efforts, investments of thought, policy, and existing processes or applications will benefit the researcher's efforts and results for the Department. The researcher is strongly encouraged to develop/link with the PRC and Section 67 to ensure that the processes and policies documented and incorporated into the manual reflect current/desired practice. References currently utilized by the Geotechnical section are listed in Appendix A.

Task 2. Interim Report

Based on the results of Task 1:

- Develop a detailed work plan outlining tasks and recommended approach to accomplish objectives.
- Prepare an interim report outlining the structure, steps, itemized costs, philosophy in the work plan, and proposed schedule to create the Geotechnical Design Manual.

- Submittals and electronic drafts of each chapter based on technical content included in all previous sessions for comment by the DOTD Geotechnical staff. Interim drafts shall be submitted for review and comment in accordance with the schedule to be determined and approved by the committee chair and PRC.

Task 3. Independent Research and Recommendations

Based on the results of Task 2, and the researcher's independent research and experience, the researcher will provide recommendations on select subject matter to fortify the DOTD Geotechnical Design Manual. This will include, but may not be limited to, periodic review, and incorporation as necessary, of AASHTO LRFD Bridge Design Specification revisions, attendance at technical meetings with Pavement and Geotechnical Services Section to review and discuss revisions or updates to the Manual, and independent research as requested by DOTD Pavement and Geotechnical Services Section on subjects to be added or updated within the Manual.

Task 4. Communications.

The researcher will organize, meet with, and document regularly scheduled technical sessions with the DOTD Geotechnical Design staff to discuss the various subjects/chapters to be included in the manual. The researcher shall provide updates throughout the progress of the project and be tied to project milestones (topics / chapters). The researcher will foster communication and feedback methods to review drafted sections, and provide continuing maintenance for updates and revisions throughout the duration of the contract.

Task 5. Provide a Geotechnical Design Manual

Provide a final draft of the Geotechnical Design Manual in written and electronic linkable hypertext format. Sections (topics) may be reviewed prior to the complete manual, but all sections must be complete and submitted for review, and submitted with the Final Report (Task 6) three (3) months prior to the project completion date for review and approval. The remaining months will be utilized for Project Review Committee review edits and revisions prior to the end of the project. The deliverables shall be complete after twelve (12) months and be accompanied by a final demonstration to the Project Review Committee.

Task 6. Provide a Final Report and Technical Summary

The research shall provide a final report that documents the entire research effort for internal future reference and the benefit of others. A Technical Summary document (two pages), and a summary presentation to the Project Review Committee (PRC) upon completion of the work. The final report shall direct and recommend future steps toward the incorporation/implementation of the research into department policy, and include recommendations on other areas that could be further expanded in subsequent research projects. The final draft report and technical summary are due three (3) months prior to the project completion date for review and approval.

DELIVERABLES

The proposal shall include project deliverables for appropriate tasks. Deliverables shall be due as defined in the proposal. The proposal shall include at a minimum the following deliverables:

- Interim Report and Presentation to the PRC (Task 2)
- Independent Recommendations (Task 3)
- Communication Meetings (Task 4)
- Design Manual and Supporting Documentation (Task 5) at 12 months
- Final Report and Technical Summary (Task 6) at 12 months

SPECIAL NOTES

A. LTRC research projects will be conducted in accordance with the LTRC Manual of Research Procedures, 2003 edition. (http://www.ltrc.lsu.edu/pdf/research_man03.pdf)

B. Any work that is anticipated to be required from LTRC or DOTD forces shall be specifically detailed in the proposal.

C. LTRC projects are intended to produce results that will be applied in practice. It is expected that the implementation of the results of this research into practice will evolve as a concerted effort during this project. The final report must contain an implementation plan to include, as a minimum, the following:
   a. The "product" expected from the research;
   b. A realistic assessment of impediments to successful implementation;
   c. The activities necessary for successful implementation; and
   d. The criteria for judging the progress and consequences of implementation.

D. To assist in the implementation process, the investigators of this research shall present the final results to LA DOTD officials in an oral presentation to be held in Baton Rouge, Louisiana at LA DOTD Headquarters after acceptance of the final report.

E. The proposal should include travel to meet with the Project Review Committee for a "kick off" meeting, presentation of interim report, and presentation of the final report at a minimum. Funds budgeted for travel shall be limited to what is necessary for the conduct of the research. Funds shall not be budgeted for conference travel. Funding for technology transfer of research results are available upon request subject to LTRC approval and available funds.

F. LTRC's mission includes the support of higher education in Louisiana. Consultant and out-of-state institutions submitting proposals are encouraged to cooperate and collaborate with Louisiana universities for the purpose of sharing of knowledge and increasing transportation expertise in the academic community.

G. Graduate assistance stipends are allowed. Tuition reimbursement or tuition remission rates applied to stipends are not allowed.

H. To equitably answer any questions regarding this Request for Proposals, the Louisiana Department of Transportation and Development (DOTD) website will be updated with questions and answers and related documents regarding the project.
   http://webmail.dotd.louisiana.gov/agrestat.nsf/WebAdvertisements?OpenPage
   LA DOTD makes these documents available for informational purposes only to aid in the efficient dissemination of information to interested parties. LA DOTD does not warrant the documents against deficiencies of any kind. The data contained within this web site will be periodically updated. Interested parties are responsible to be aware of any updates. Questions regarding this RFP should be submitted in writing to the LTRC contact person. Questions must be received by close of business seven calendar days prior to deadline date.

I. Consultants and business entities shall be registered with the Secretary of State in order to be able to work in Louisiana prior to award of contract. http://www.sos.la.gov/tabid/1011/Default.aspx

J. If Sub-Consultants/Entities are used, the Prime Consultant/Entity must perform a minimum of 51% of the work for the overall project.

K. LTRC reserves the right to withhold invoice payments for delinquent deliverables as defined in the proposal.

ESTIMATED COST
$80,000.00

ESTIMATED COMPLETION TIME
15 Months *(includes 3 months for review and approval of final report - i.e. draft final report due in 12 months)*

LTRC PRIMARY CONTACT
Gavin P. Gautreau, P.E.
LTRC, Senior Geotechnical Research Engineer
Gavin.Gautreau@LA.GOV 225-767-9110

AUTHORIZATION TO BEGIN WORK:
December 2015 (estimated)

PROPOSAL FORMAT
All proposals are require formatting according to the LTRC Manual of Research Procedures available on the web site: www.ltrc.lsu.edu. Chapter 2 of that manual provides guidance on proposal development.

PROPOSAL SELECTION
The Project Review Committee selected for this project will review, evaluate, and rank all proposals received using the criteria established on the attached proposal review form.

DEADLINE FOR RECEIPT OF PROPOSALS
Ten copies of the proposal must be received by LTRC by the close of business **November 20, 2015**. Proposals should be submitted to:

Harold R. Paul, Director
Louisiana Transportation Research Center
4101 Gourrier Avenue
Baton Rouge, LA 70808

APPENDIX

References:

The following references currently used by the DOTD geotechnical staff should be used to develop the manual:

1. AASHTO LRFD Bridge Design Specifications
2. ASTM Standards and/or DOTD Test Procedures
3. DOTD Standard Specifications for Roads and Bridges
4. Construction Contract Administration Manual
5. DOTD Bridge Design Manual
6. DOTD Road Design Manual
7. DOTD Hydraulics Manual
8. Materials Sampling Manual
9. Materials Testing Procedures Manual
10. DOTD Introduction to Pile Driving Inspection
11. Deep Soil Boring Request and Field & Laboratory Request Form
12. The latest FHWA/NHI Publications as follows:
    a. Subsurface Investigations Manual
    b. Earth Retaining Systems, Geotechnical engineering Circular No.2
    c. MSE Walls and Reinforced Soil Slopes
    d. Geochemical Instrumentation Manual
    e. Drilled shafts: Construction Procedures and Design Methods Manual
    f. Soils and Foundations Workshop Manual
    g. Geosynthetic Design and Construction Guidelines Manual
    h. Ground Improvement Technical Summaries
    i. Design and Construction of Driven Pile Foundations, Vols. 1 & 2
    j. Soil Slope and Embankment Design, Reference Manual
    k. Manual for Design & Construction Monitoring of Soil Nail Walls
    l. Soil Nailing Field Inspection Manual
    m. Advanced Technology for Slope Stability
13. USS Steel Sheet Pile Design Guide
14. NAVFAC Design Manuals, DM 7.1, DM. 7.2, and DM 7.3, May 1982

Consultant Contract Services Manual