

PROJECT INFORMATION

COUNTY Statewide

PROJECT DESCRIPTION Geotechnical engineering and Laboratory services on a statewide basis.

PROJECT MANAGER William Broyles

USER DIVISION Division of Materials

APPROXIMATE FEE \$250,000 UPSET LIMIT

PROCUREMENT SCHEDULE

RESPONSE DATE	Thursday, November 12, 1998, 4:30 p.m. (Frankfort Time)
FIRST SELECTION COMMITTEE DATE	Approximately 3 working days after responses are due.
SECOND COMMITTEE DATE	Approximately 10 working days after 1 st selection meeting (Selected firm will be notified)

EVALUATION FACTORS

1. Relative experience of professional personnel assigned to project team with highway projects for KTC and/or federal, local or other state governmental agencies. (10 points.)
2. Capacity to comply with project schedule. (10 points)
3. Past record of performance on project of similar type and complexity. (10 points)
4. Project approach and proposed procedures to accomplish the services for the project. (10 points)
5. Consultant's Kentucky offices where work is to be performed. (2 points)

**SELECTION COMMITTEE
MEMBERS**

1. Jon Staggs, State Auditor's Office
2. William Broyles, User Division
3. Darrin Beckett, User Division
4. Andre Johannes, Secretary's Pool
5. Ken Sperry, Secretary's Pool
6. Jasper Sullivan, Governor's Pool

DBE REQUIREMENT

None

SPECIAL INSTRUCTIONS

Three (3) firms will be selected to provide these services. The contract period is each firm receiving a one-year contract with the option of extending the period for (1) year. The firms will be placed in a pool, randomly drawn and listed in consecutive order (1 - 3). This order will determine the numerical order in which projects will be offered to firms on a rotating basis. Firm will be offered an additional project until the remaining firms on the list have been offered a project. If a firm declines to accept a project, that firm shall not be eligible to accept another project until the remaining firms on the list are offered a project. If a firm declines a project or does not respond to an invitation to perform services for a project within 14 days, documentation shall be placed in the project files and the next firm on the list shall be offered the project. If the next firm on the list declines, the project shall be offered to the next firm, etc.

Only contract modifications for time extensions shall be allowed during the life of the contract. The three agreement will have upset limits of \$250,000 unless when the upset limit is reached, no more work will be assigned under the agreement.

SCOPE

The services provided are: geotechnical engineering and laboratory services on a statewide basis. Services may include: Conventional Geotechnical Engineering Analyses, Geotechnical Earthquake Engineering Analyses, Laboratory Testing, Logging Rock Cores, Preliminary Plans, Meetings, and preparation of Reports. Services should be performed in general accordance with the KYTC Geotechnical Manual with exceptions to be provided at the Pre-Negotiation Meetings.

CONVENTIONAL GEOTECHNICAL ENGINEERING ANALYSES TASK

Tasks may include Slope Stability, Settlement, Deep Foundation, Wave Equation Derivability, Negative Skin Friction, Bearing Capacity, and Retaining Wall Analyses to be performed in accordance with the KYTC Geotechnical Manual.

GEOTECHNICAL EARTHQUAKE ENGINEERING ANALYSES TASK

Tasks may include preliminary geotechnical earthquake engineering analyses. This analyses should be a basis to determine whether more sophisticated analyses are needed. Results of Seismic Hazard Analyses are presented in Research Report KTC-96-4, Source Zones, Recurrence Rates, and Time Histories for Earthquakes Affecting Kentucky, performed by the Kentucky Transportation Center at the University of Kentucky. This report contains recommended Peak Particle Accelerations, Time Histories, and Response Spectra for each county in Kentucky. These results may be used for the analyses defined below performed in a particular county.

Simplified Seismic Site Response Analysis Task - Use empirical relationships (e.g. Seed and Idriss, 1982; Idriss, 1990; etc.) to assess the influence of the general soil type at the site on seismic site response. This will involve correlating ground motions to rock motions in order to estimate the free-field acceleration at the site and, if applicable, the peak acceleration at the top of an

embankment.

Equivalent-Linear One-Dimensional Site Response Analysis Task - Use the computer program SHAKE to assess the shear stress, shear strain, and acceleration time histories for the ground surface and each layer within the soil profile. Acceleration time-histories presented in Research Report KTC-96-4 can be used as input for these analyses. (Computer data files for these time-histories are available from the Kentucky Transportation Center.) The derivation of site-specific dynamic soil parameters will be included in the scope of work; these parameters will be determined from correlations with the soil engineering properties, which will be provided.

Liquefaction Analysis Task - Evaluate the potential for liquefaction for a given profile in saturated sand deposits using the Simplified Procedure (Seed and Idriss, 1982, etc.) and refinements noted in the Proceedings of the National Center for Earthquake Engineering Research Workshop of Evaluation of Liquefaction Resistance of Soils (1996). Develop a profile of Factor of Safety Against Liquefaction vs. Depth. These analyses will always be performed in conjunction with one of the previously defined site response analyses.

Post-Liquefaction Deformation Analysis Task - Estimate the liquefaction-induced settlement (e.g. Tokimatsu and Seed, 1987, or Ishihara, 1993) and lateral displacement (Hamada, et al, 1987) of a saturated sand deposit. This analysis will always be performed in conjunction with a liquefaction analysis.

Seismic Settlement Evaluation Task - Evaluate the seismic settlement of an unsaturated sand deposit (Tokimatsu and Seed, 1987). This analysis will always be performed in conjunction with one of the previously defined site response analyses.

Seismic Slope Stability Analysis Task - Use a pseudo-static limit equilibrium method to evaluate the factor of safety of a soil slope during seismic events. This analysis

will always be performed in conjunction with a liquefaction analysis.

LABORATORY TESTING - Tasks may include: Moisture Content; Soil Classification, Wash and Sieve Gradation; Moisture-Density, CBR and Soil Classification, Unconfined Compression on Soil, One-Dimensional Consolidation, Consolidated-Undrained Triaxial Compression with Pore Pressure Measurements, Unconsolidated-Undrained Triaxial, Slake Durability, and Unconfined Compression on Rock, performed in accordance with the KYTC Geotechnical Manual.

LOGGING ROCK CORES - Tasks may include Logging Rock Cores by a Registered Professional Geologist in accordance with the KYTC Geotechnical Manual. This will be paid a a unit price per meter.

PRELIMINARY PLANS - Tasks include engineering and CADD necessary to prepare a preliminary boring plan and necessary field visits with drill crews or office personnel to adjust the plan, performed in accordance with the KYTC Geotechnical Manual.

MEETINGS - Tasks may include Preliminary, Rock Core, and Final Meetings in accordance with KYTC Geotechnical Manual.

PREPARATION OF REPORTS - Tasks may include preparing reports in accordance with the KYTC Geotechnical Manual, including furnishing the Department with 15 copies of all reports.

**PREQUALIFICATION
REQUIREMENTS**

The consultant shall be prequalified in all areas as follows:

[GEOTECHNICAL SERVICES](#)

- ENGINEERING
- LABORATORY TESTING

Last modified: May 17, 2001