

**ADVERTISEMENT FOR ENGINEERING AND RELATED SERVICES
OCTOBER 7, 2021**

ADDENDUM NO. 1, OCTOBER 18, 2021

CONTRACT NO. 4400022901

CONTRACT FOR LA 3094: HEARNE AVENUE BRIDGE ~~REHAB~~ AND

US 80: KCS RR OVERPASS (HBI)

STATE PROJECT NOS. H.011094 AND H.012005

F.A.P. NOS. H011094 AND H012005

ROUTES LA 3094 AND US 80

CADDO PARISH

Under the authority granted by Title 48 of Louisiana Revised Statutes, the Louisiana Department of Transportation and Development (DOTD) hereby issues this advertisement for consulting firms to provide engineering and related services. **Consultants who are a Louisiana or foreign LLC or corporation should be appropriately registered with the Louisiana Secretary of State, as contemplated by Title 12 of the Louisiana Revised Statutes, and with the Louisiana Professional Engineering and Land Surveying (LAPELS) Board under its rules for firms. If a consultant is not in good standing in accordance with those provisions, it may be subject to consequences contemplated in Title 12 and/or the LAPELS rules. All requirements of LAPELS must be met at the time the proposal is submitted. Prime consultants must be registered with the Louisiana Secretary of State and the Federal Government, using SAM.gov, prior to contract execution.**

One (1) proposal will be selected for each contract solicited per this advertisement. Only one (1) DOTD Form 24-102 proposal is required for this advertisement, and it represents the prime consultant's qualifications and those of any and all sub-consultants proposed to be used for the referenced contract(s). All identifying contract number(s) should be listed in Section 2 of the DOTD Form 24-102.

Any questions concerning this advertisement must be sent in writing to DOTDConsultantAds80@la.gov no less than 48 hours (excluding weekends and holidays) prior to the proposal deadline.

SCOPE OF SERVICES

The general tasks to be performed by the consultant for this contract are described more specifically in Attachment A, which is incorporated herein by reference.

The consultant shall perform the work in accordance with the requirements of this advertisement and the resulting contract. Deliverables shall be in such format as required in Attachment A. The work performed by the consultant shall be performed in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

MINIMUM PERSONNEL REQUIREMENTS (MPRs)

The requirements set forth in Attachment B must be met at the time the proposal is submitted.

EVALUATION CRITERIA

The criteria to be used by DOTD in evaluating responses for the selection of a consultant to perform these services are listed below:

1. firm experience on similar projects, weighting factor of three (3);
2. staff experience on similar projects, weighting factor of four (4);
3. firm size as related to the project magnitude, weighting factor of three (3);
4. past performance on similar DOTD projects, weighting factor of six (6)*;
5. current work load with DOTD, weighting factor of five (5);
6. approach and methodology, weighting factor of nine (9).

*The consultant is to identify in the table below those evaluation disciplines consistent with the approach and methodology proposed in Section 18 of the DOTD Form 24-102.

THE FOLLOWING TABLE MUST BE COMPLETED AND INCLUDED IN SECTION 12 OF THE DOTD FORM 24-102 PROPOSAL.

<p>Sub-consultants are allowed to be used for this proposal. Fill in the table by identifying only those evaluation disciplines consistent with the approach and methodology proposed in Section 18 of the DOTD Form 24-102*, the name of each firm that is part of the proposal, and the percentage of work in each past performance evaluation discipline to be performed by that firm. The percentage estimated for each evaluation discipline is for evaluation purposes only and will not control the actual performance or payment of the work. The percentages for the prime and sub-consultants must total 100% for each past performance evaluation discipline, as well as the overall total percent of the contract. (Add rows and columns as needed)</p>							
Evaluation Discipline(s)	% of Overall Contract	Prime	Firm B	Firm C	Firm D	Firm E	Each Discipline must total to 100%
							100%
							100%
							100%
Identify the percentage of work for the overall contract to be performed by the prime consultant and each sub-consultant.							
Percent of Contract	100%						-----

*The past performance evaluation disciplines are: Road, Bridge, Traffic, CE&I/OV, Geotech, Survey, Environmental, Data Collection, Planning, Right-of-Way, CPM, ITS, Appraiser and Other. The crosswalk from the old categories to the new categories can be found at the link below: http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/CCS/General%20Information/CPPR%20Crosswalk%20to%20New%20Evaluation%20Disciplines.pdf.

If sub-consultants are allowed, the prime consultant can perform less than 50% of the work, but none of the sub-consultants can perform a larger percentage of the overall contract than the prime consultant.

Proposals will be evaluated as set forth in the “Evaluation Criteria” section of this advertisement. The evaluation will be by means of a point-based rating system. Each of the above criteria will receive a rating on a scale of one (1) through five (5). The rating will then be multiplied by the corresponding weighting factor. The rating in each category will then be added to arrive at the proposal’s final rating.

DOTD’s Project Evaluation Team (PET) will be responsible for performing the above described evaluation, and will present a shortlist of the three (3) (if three are qualified), highest rated consultants to the Secretary of DOTD. The Secretary will make the final selection.

COMPLIANCE WITH SUPPLEMENTAL ETHICS REQUIREMENTS

DOTD has established supplemental ethics requirements applicable to consultants and PET members. These requirements are found in the “Supplemental Ethics Requirements” article of the sample contract linked to this advertisement, which are incorporated herein by reference. Any firm that is found to have violated these requirements may not be considered for this selection.

By submission of a proposal to perform services pursuant to this advertisement, the consultant agrees to comply with DOTD’s Supplemental Ethics Requirements.

RULES OF CONTACT UPON ADVERTISEMENT

DOTD is the single source of information regarding the contract selection. Any official correspondence will be in writing, and any official information regarding the contract will be disseminated by DOTD’s designated representative via the DOTD website. The following rules of contact will apply during the contract selection process, commencing on the advertisement posting date and ceasing at the time of final contract selection. Contact includes face-to-face communication, the use of a telephone, facsimile, electronic mail (email), or formal or informal written communications with DOTD. Any contact determined to be improper, at the sole discretion of DOTD, may result in the rejection of the proposal (i.e., DOTD Form 24-102).

Consultants and consultant organizations shall correspond with DOTD regarding this advertisement only through the email address designated herein; DOTDConsultantAds80@la.gov and during DOTD sponsored one-on-one meetings.

No consultant, or any other party on behalf of a consultant, shall contact any DOTD employee, other than as specified herein. This prohibition includes, but is not limited to, the contacting of: department, office, or section heads, project managers, members of the evaluation teams, and any official who may participate in the decision to award the contract resulting from this advertisement.

DOTD will not be responsible for any information or exchange that occurs outside the official process specified above.

By submission of a proposal to perform services pursuant to this advertisement, the consultant agrees to the communication protocol herein.

PROJECT TIME

The overall time for the completion of the scope of services is estimated to be **1000 days**.

COMPENSATION

The estimated compensation payable to the consultant for all services rendered in connection with this contract shall be **\$2,862,452**. This estimate will be used for grading purposes only. Actual compensation will be determined by DOTD based on work hours negotiated between DOTD and the selected consultant. Within fifteen (15) calendar days of notification of selection, a kick-off meeting will be held with the selected consultant and appropriate DOTD personnel. The selected consultant will be required to submit a work hour proposal within thirty (30) calendar days following the notification of selection. All negotiations must be completed within the timeframe set forth in the Consultant Contract Services Manual.

Payment will be made based on negotiated cost plus fixed fee with the exception of the geotechnical work which will be cost per unit of work. Construction Support, if required, will be based on specific rates of compensation.

GEOTECHNICAL RATES	UNITS	RATE
FIELD FUNCTIONS		
MOBILIZATION/DEMobilIZATION, DRILLING EQUIPMENT	mi	Negotiated
DRILL CREW TRAVEL TIME	hr	\$150.00
SUPPORT TRUCK	mi	PPM
<i>DRILLING & SAMPLING (ASTM D1586, D1587,D3441)</i>		
5ft. On Center		
100ft or less	ft	\$18.00
101ft to 150ft	ft	\$25.00
151ft to 200ft	ft	\$30.00
<i>Continuous Sampling</i>		
100ft or less	ft	\$30.00
Water Buggy	day	\$188.00
ATV Rates	day	\$200.00
<i>Cone Penetrometer Testing</i>		
100ft or less, including grouting	ft	\$13.00
101ft to 150ft	ft	\$15.00
AUGER DRILLING	ft	\$12.00
DIFFICULT BORING ACCESS	hr	\$215.00
SETTING CASING	ft	\$10.00
SEALING BOREHOLES, 4"	ft	\$6.00
CORING OF PORTLAND CEMENT CONCRETE FOR BORINGS	in	\$16.75
DIFFERENTIAL GLOBAL POSITIONING	ea.	\$28.75

LABORATORY TESTING		
<i>STRENGTH TESTING</i>		
ASTM D2850: TRIAXIAL - UNCONSOLIDATED UNDRAINED	ea.	\$65.00
ASTM D7181: TRIAXIAL - CONSOLIDATED DRAINED 3 PT.	ea.	\$700.00
ASTM D4767: TRIAXIAL - CONSOLIDATED UNDRAINED w/Pore Water	ea.	\$640.00
ASTM D3880: DIRECT SHEAR TEST	ea.	\$700.00
<i>INDEX TESTING</i>		
ASTM D4318: ATTERBERG LIMITS - METHOD A (MULTIPOINT LL)	ea.	\$95.00
ASTM D4318: ATTERBERG LIMITS - METHOD B (ONE-POINT LL)	ea.	\$62.00
ASTM D422: PARTICLE SIZE ANALYSIS (1/4" through 200 Sieve)	ea.	\$56.00
ASTM D422: PARTICLE SIZE ANALYSIS WITH HYDROMETER	ea.	\$100.00
ASTM D2216: MOISTURE CONTENT	ea.	\$10.50
ASTM D1140: PERCENT PASSING No. 200 SIEVE (WET)	ea.	\$40.00
<i>CONSOLIDATION TESTING</i>		
ASTM D2435: CONSOLIDATION TESTS WITH REBOUND	ea.	\$525.00
<i>MISCELLANEOUS TESTING</i>		
ASTM D2976: pH DETERMINATION	ea.	\$27.00
ASTM D4943: ORGANIC CONTENT	ea.	\$60.00
ASTM G187: RESISTIVITY	ea.	\$200.00
ASTM D854: SPECIFIC GRAVITY	ea.	\$102.00
SHELBY TUBE SAMPLE EXTRACTION – IN LAB	ea.	\$25.00
DRY PREPARATION OF SUBGRADE SOIL SAMPLES	ea.	\$50.00
UNIT WEIGHT OF UNDISTURBED SAMPLES (w/out Strength Testing)	ea.	\$25.00

Louisiana State Travel Regulations shall be used to determine reimbursement for meals, lodging rates, and mileage.
DOTD Traffic Control Manual shall be used to define procedures to be used for traffic control. Police Officers used for public safety shall be in accordance with DOTD's <i>Policy for Use of Police Officers in Construction/Maintenance Work Zones</i> .
Supplies (consumables such as gloves, cement, etc.) shall be no more than 10% of the drilling costs, with receipts required.
In the event of lost or damaged equipment, including but not limited to: cone penetrometers, drilling bits and rods, tools, etc. DOTD shall not be liable to absorb the cost of replacement.
All requests for additional administrative or other (not listed) compensation must be pre-approved by DOTD's Pavement & Geotechnical Services Section prior to submittal to the Consultant Contract Services Section.
Any Metric projects assigned to the Consultant will be required to be reported in Metric units except for invoices, which will use English unit equivalents.
Additional test procedures not listed above will be negotiated on a per Task Order basis as required.
Difficult Boring access charges apply for off-road borehole locations that require transporting equipment and supplies between location by the use of matting or bulldozer in excess of one hour. Hourly rates include billing rates for drill rig, service vehicles, and drill crew. Drill rig set up and dismantling is included in the drilling costs per linear foot (meter) and is not to be included in boring access charges.

Payment for unit weight of undisturbed samples will be included in the cost for unconfined compressive strength unless compressive strength is unable to be determined due to sample condition.

Invoicing for Task Orders/services of durations less than or equal to **30** days should be on one invoice.

DIRECT EXPENSES

To the extent that the consultant is allowed to claim reimbursement for direct expenses, all direct expense items that are not paid for in the firm's indirect cost rate and are needed and will be consumed during the life of the contract must be identified by the consultant during contract development. Standard equipment or resources to be used in the provision of services rendered for this contract will not be considered for payment under direct expenses.

The consultant should own most of the equipment required to provide the work and services. The cost of this equipment should be included in the consultant's indirect cost rate. Equipment may be considered "specialized" if it cannot be considered standard equipment for that particular consultant's normal operating business needs. If a consultant believes special equipment is needed for the contract, the consultant must inquire through the Question and Answer process, as provided herein, whether the identified item will be considered specialized equipment for the individual contract.

All travel related expenses will be compensated under direct expenses, and will be in accordance with the most current Louisiana Office of State Travel regulations as promulgated in the Louisiana Administrative Code under the caption "PPM No. 49", with the exception that compensation for vehicle usage will be based on actual miles traveled directly and exclusively related to project needs. Vehicle rental rates will require prior approval from the PM.

QUALITY ASSURANCE/QUALITY CONTROL

The Scope of Services provided in Attachment A includes design of one (1) or more bridges and/or component parts thereof. The prime consultant shall submit a bridge design QA/QC plan document specifically developed for this contract as part of the DOTD Form 24-102. The QA/QC plan document must comply with the minimum requirements in the DOTD Bridge Design Section Policy for QA/QC as stated in Part I, Chapter 3 of the DOTD Bridge Design & Evaluation Manual (BDEM). The grading instructions, the rating matrix, and the grading sheet for the QA/QC plan document are included in Appendix G of the BDEM Part I, Chapter 3 – Policy for QA/QC. The QA/QC plan document shall be prepared to address all evaluation criteria included in the rating matrix. The QA/QC plan document must be implemented for all bridge design activities in both design phase and construction support phase of the contract. The prime consultant is fully responsible for QA/QC of their work as well as the work of all sub-consultants. All contract proposals must include a QA/QC certification that the proposals meet the requirements of the QA/QC plan document. Attach the QA/QC plan in Section 21 of the DOTD Form 24-102.

If Attachment A includes specific QA/QC requirements that contradict those set forth above, the requirements in Attachment A control.

TRAFFIC ENGINEERING PROCESS AND REPORT TRAINING REQUIREMENTS

As part of DOTD's on-going commitment to high quality traffic engineering reports, a traffic engineering training course must be taken by traffic engineering PEs and EIs in order to be eligible to work on DOTD projects. When traffic is included as a discipline on which past performance is evaluated, for consultants performing traffic engineering services (i.e., traffic analysis throughout all DOTD project stages and/or QC of traffic analysis), appropriate personnel must successfully complete the three (3) modules of the Traffic Engineering Process and Report Course offered by Louisiana Transportation Research Center (LTRC). This Course must be completed no later than the time the proposal is submitted. **Copies of training certificates are to be included in Section 20 of the proposal.** It will be the prime consultant's responsibility to ensure their staff and sub-consultants complete the training. Copies of training records may be obtained from the LTRC website <https://registration.ltrc.lsu.edu/login>.

WORK ZONE TRAINING REQUIREMENTS

As part of DOTD's on-going commitment to work zone safety, required work zone training courses must now be taken every four (4) years in order for personnel to remain eligible to work on DOTD projects. For consultants performing preconstruction services (e.g., design, survey, subsurface utility, geotechnical, traffic, bridge inspection, environmental services), appropriate personnel must successfully complete these courses. In general, the person in responsible charge of traffic control plans shall be required to have Traffic Control Supervisor training. For preconstruction field services performed within the clear zone, at least one (1) member of the field crew shall have Traffic Control Supervisor or Traffic Control Technician training. The consultant should identify all personnel listed in the staffing plan for the contract who have completed the appropriate work zone training courses. All preconstruction work zone training requirements shall be met **prior to contract execution**. It will be the prime consultant's responsibility to ensure their staff and sub-consultants have the appropriate work zone training.

In addition to the above requirements, if the Scope of Services set forth in Attachment A includes Construction Engineering and Inspection (CE&I), the following training requirements shall be met **at the time the proposal is submitted**:

Field Engineers:	Traffic Control Technician Traffic Control Supervisor Flagger
Field Engineer Interns:	Traffic Control Technician Traffic Control Supervisor Flagger
Field Senior Technicians, Survey Party Chiefs, and SUE Worksite Traffic Supervisors*:	Traffic Control Technician Traffic Control Supervisor Flagger

Other Field Personnel*: Traffic Control Technician
Flagger

* excluding Asphalt Plant Inspector, Paint Managers, and Paint Inspectors

Approved courses are offered by ATSSA and AGC. Substitutes for these courses must be approved by the DOTD Work Zone Task Force. For more information, please contact DOTD HQ Construction at 225-379-1584. Specific training course requirements are:

Flagger: Successful completion every four (4) years of a work zone flagger course approved by the Department. The “DOTD Maintenance Basic Flagging Procedures Workshop” is not an acceptable substitute for the ATSSA and AGC flagging courses.

Traffic Control Technician (TCT): Successful completion every four (4) years of a work zone traffic control technician course approved the Department. After initial successful completion, it is not necessary to retake this course every four (4) years if Traffic Control Supervisor training is completed every four (4) years.

Traffic Control Supervisor (TCS): Successful completion of a work zone traffic control supervisor course approved by the Department. Following an initial completion, traffic control supervisors must either complete a one (1)-day TCS refresher course or retake the original two (2)-day TCS course every four (4) years.

ATSSA contact information: (877) 642-4637

REFERENCES

All services and documents will meet the standard requirements as to format and content of DOTD and will be prepared in accordance with the latest applicable editions, supplements, and revisions of the following:

1. AASHTO Standards – <https://www.transportation.org/>
2. ASTM Standards – <https://www.astm.org/BOOKSTORE/BOS/index.html>
3. DOTD Test Procedures – http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Materials_Lab/Pages/Menu_TPM.aspx
4. DOTD Location and Survey Manual – http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/LocationSurvey/Manuals%20and%20Forms/Location_and_Survey_Manual.pdf
5. Addendum “A” to the Location & Survey Manual – http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/LocationSurvey/Manuals%20and%20Forms/Location%20and%20Survey%20Manual%20-%20Addendum%20A.pdf

6. DOTD Roadway Design Procedures and Details –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Road_Design/Pages/Road-Design-Manual.aspx
7. DOTD Design Guidelines –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Road_Design/Memoranda/Minimum%20Design%20Guidelines.pdf
8. DOTD Hydraulics Manual –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Public_Works/Hydraulics/Documents/Hydraulics%20Manual.pdf
9. Louisiana Standard Specifications for Roads and Bridges –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Standard_Specifications/Pages/Standard%20Specifications.aspx
10. Manual on Uniform Traffic Control Devices (Non-DOTD Link) –
<http://mutcd.fhwa.dot.gov/>
11. DOTD Traffic Signal Manual –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Traffic_Engineering/Traffic%20Control/Traffic%20Signal%20Manual%20V3%20-%207.1.20.pdf
12. National Environmental Policy Act (NEPA)
13. DOTD Stage 1 Planning/Environmental Manual of Standard Practice - http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Environmental/Pages/Stage_1.aspx
14. National Electrical Safety Code
15. National Electrical Code (NFPA 70)
16. A Policy on Geometric Design of Highways and Streets (AASHTO) –
https://bookstore.transportation.org/collection_detail.aspx?ID=110
17. DOTD Construction Contract Administration Manual –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Pages/Engineering_Docs.aspx
18. DOTD Materials Sampling Manual –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Materials_Lab/Pages/Menu_MSM.aspx
19. DOTD Bridge Design and Evaluation Manual –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Bridge_Design/Pages/BDEM.aspx
20. Consultant Contract Services Manual –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/CCS/Manuals/CCS%20Manual%20rev%20Oct%202020.pdf
21. Bridge Inspector's Reference Manual – <https://www.fhwa.dot.gov/bridge/nbis.cfm>

22. Federal Aid Off-System Highway Bridge Program Guidelines –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Bridge_Design/Manuals/Other%20Manuals%20-%20Guidelines/2019%20Federal%20Aid%20Off-System%20Highway%20Bridge%20Program%20Guidelines.pdf
23. Code of Federal Regulations 29 CFR 1926 (OSHA)
24. Complete Streets –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Multimodal/Highway_Safety/Complete_Streets/Pages/default.aspx
25. Traffic Engineering Manual -
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Traffic_Engineering/Misc%20Documents/Traffic%20Engineering%20Manual.pdf
26. Traffic Engineering Process and Report –
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Traffic_Engineering/ManualsPublications/Pages/TEPR.aspx
27. Geotechnical Engineering Services Document
28. FHWA Geotechnical Engineering Circular No. 5 (GEC 5)
29. FHWA Geotechnical Engineering Circular No. 12 (GEC 12)
30. LADOTD Construction of Geotechnical Boreholes and Groundwater Monitoring Systems
31. LTRC Project No. 98-3GT: Evaluation of Bearing Capacity of Piles from Cone Penetration Test Data

CONTRACT EXECUTION REQUIREMENTS

The selected consultant will be required to execute the contract within ten (10) days after receipt of the contract.

A sample of the contract provisions can be found at the following link: http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/CCS/Pages/Advertisements.aspx.

REVISIONS TO THE ADVERTISEMENT

DOTD reserves the right to revise any part of the advertisement by issuing addenda to the advertisement at any time. Issuance of this advertisement in no way constitutes a commitment by DOTD to award a contract. DOTD reserves the right to accept or reject, in whole or part, all DOTD Form 24-102s submitted, and/or cancel this consultant services procurement if it is determined to be in DOTD's best interest. All materials submitted in response to this advertisement become the property of DOTD, and selection or rejection of a proposal does not affect this right. DOTD also reserves the right, at its sole discretion, to waive administrative informalities contained in the advertisement.

CLARIFICATIONS

DOTD reserves the right to request clarification of ambiguities or apparent inconsistencies found within any proposal, if it is determined to be in DOTD's best interest.

PROPOSAL REQUIREMENTS

The consultant's proposal for this advertisement must be submitted by email to DOTDConsultantAds80@la.gov using the most current version of the DOTD Form 24-102 (available at http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/CCS/Pages/Manuals_Forms_Agreements.aspx). Hard copies of the consultant's proposal are not required. All proposals must be in accordance with the requirements of this advertisement, and the Consultant Contract Services Manual. Unless otherwise stated in this advertisement, copies of licenses and certificates are not required to be submitted with the proposal.

If more than one (1) contract is to be selected based on this advertisement, no prime consultant is allowed to be a sub-consultant on any other consultant's 24-102. If a prime consultant is submitted as a sub-consultant on another consultant's 24-102, its proposal as a prime consultant may be deemed non-responsive.

ANY CONSULTANT FAILING TO SUBMIT ANY OF THE INFORMATION REQUIRED ON THE DOTD FORM 24-102, OR PROVIDING INACCURATE INFORMATION ON THE DOTD FORM 24-102, MAY BE CONSIDERED NON-RESPONSIVE.

DOTD employees may not submit a proposal, nor be included as part of a consultant's proposal.

Contract and/or part-time employees are allowed. Such employees should be shown in Section 14 of the DOTD Form 24-102 with an asterisk denoting their employment status.

The DOTD Form 24-102 should be identified with **contract number 4400022901 and/or State Project Nos. H.011094 and H.012005**, and must be received by DOTD via email **no later than 3:00 p.m. CST on Thursday, October 28, 2021**.

ATTACHMENT A – SCOPE OF SERVICES

The project time is **typical**.

The route classification for **H.011094** is **NHS** and for **H.012005** is **Non-NHS State**.

The home office indirect cost rate shall be applicable to all services except as otherwise designated hereafter.

PROJECT DESCRIPTION

The consultant will be required to provide all necessary engineering and related services required for developing plans for the replacement of two bridges crossing the Kansas City Southern Railroad (KCS) in Caddo Parish. The project numbers and recall numbers are as follows:

Project No.	Recall	Route	Crossing Description	Latitude	Longitude	Parish
H.011094	013885	LA 3094	Kansas City Southern RR	32.494620	-93.780200	Caddo
H.012005	013480	US 80	Kansas City Southern RR	32.492380	-93.764300	Caddo

SITE EXPECTATIONS AND ASSUMPTIONS

These locations have been selected based on several specific features. If during project development the proposed work falls outside the following conditions, stop work and notify the project manager immediately:

- Environmental investigation will result in a Categorical Exclusion (CE) or an Environmental Assessment (EA).
- Transportation Management Plan is a Level 2.
- New substructures will be driven pile or drilled shaft supported bridges.
- If adequate space is not available for a slope, permanent earth retaining structures such as MSE walls, cantilever retaining walls, sheet piles, etc. will be required.

PROJECT SCHEDULE

The 100% Final Plan date for H.011094 is February 1, 2024 and the 100% Final Plan date for H.012005 is February 1, 2023. Before beginning work on the items listed below, submit a project schedule for the major work items listed below for the projects on this contract.

Additionally, before beginning preliminary plans, submit a project schedule containing at a minimum, all dates for deliverables in the preliminary and final plans section.

TOPOGRAPHIC SURVEY SERVICES (H.011094)

The topographic survey for H.011094 has been completed and will be made available to the consultant.

TOPOGRAPHIC SURVEY SERVICES (H.012005)

A topographic survey shall be required along a portion of the existing route. A complete topographic survey including all utilities with depths and all drainage is required, along with finish floor elevations of all buildings that fall in the survey limits. The utility supported by the bridge bents should be surveyed through the length of the project. This project shall be completed in accordance with the Location and Survey Manual and all current accepted Location and Survey Automation procedures and also meet the designer's requirements.

The survey shall begin and end 500 feet beyond either end of the subject structure. In addition, Lakeshore Drive, Johnson Street, and Cedar Street shall be surveyed 300 feet from the intersection with US 80. The width of the Survey and DTM shall extend from apparent right of way to apparent right of way. The project alignments shall be established using the existing centerline of roads.

Permission of land owners shall be acquired by the consultant before entering any property associated with this description.

All work shall be done in the English units of measurement, and no drainage map is required.

DELIVERABLES:

Static GPS / RTK for Primary Control

- 1) GPS raw data files
- 2) GPS rinex files
- 3) NGS OPUS solution printouts
- 4) GPS point description document
- 5) GPS control sketch

Traverse for Primary Control

- 1) Traverse sketch

Levels

- 1) Levels field book (3 wire forward, single wire return)
- 2) BM tabulation form
- 3) TBM tabulation form
- 4) Documentation on vertical control point (NGS benchmark) held for levels.

Utilities

- 1) Letter to DOTD Utility Relocation Engineer listing all Utility Companies, Utility Company address and Utility Company contact person
- 2) Letter to DOTD Utility Relocation Engineer listing La. One call contacts and ticket numbers.

Survey Data Collector File Types

The following data collector file types are supported by Bentley Inroads Survey, version 8.5 or later version, and may be acceptable.

- SDMS (.cal)
- Sokkia SDR (.sdr)
- SMI Raw (.raw)
- LISCAD GSI (.gsi)
- Wild GRE (.gre)
- AASHTO SDMS (.sdm)
- Zeiss REC500 (.zss)
- Geodimeter (.raw)
- Topcon FC4 (.fc4)
- Nikon (.mwd)
- TDS (.rw5)
- TDS RAW (.raw)
- Trimble DC (.dc)

Location and Survey is familiar with only the Sokkia SDR and Trimble DC data collector file types and cannot verify which of the listed data types work correctly and/or contain the required information.

Survey Feature Codes and Attributes Required

Refer to the Location and Survey Feature Code Guide Book (revised 01-30-09) for a listing and description of survey feature codes and attributes required for each code.

Survey Data Collector File Required Information

Any data collector file type submitted for total station surveys should contain the following information;

- 1) primary control points
 - primary control point number
 - primary control point x, y & z coordinates
 - primary control point DOTD feature code
 - primary control point DOTD attributes *

- 2) instrument setup
 - setup point number
 - setup point x, y & z coordinates
 - setup point DOTD feature code
 - setup point DOTD attributes *
 - instrument height

- 3) backsight observation
 - backsight point number
 - backsight point x, y & z coordinates
 - backsight point DOTD feature code
 - backsight point DOTD attributes *
 - backsight horizontal angle
 - backsight vertical angle
 - backsight slope distance
 - backsight target height
 - backsight tolerance errors

- 4) foresite observation
 - foresite point number
 - foresite point DOTD feature code
 - foresite point DOTD attributes *
 - foresite horizontal angle
 - foresite vertical angle
 - foresite slope distance
 - foresite target height

- 5) prism constant correction (should be applied at the total station)

- 6) atmospheric corrections (should be applied at the total station)

* The consultant will be responsible to input the required attribute information into the final edited and corrected survey data file (.FWD) if the acceptable data collector file type does not support attributes. A field book should be used to record point number and attribute and delivered with the survey deliverables.

Final Edited and Corrected Survey Data File (.FWD)

The final edited and corrected survey data file must be a Bentley Inroads Survey, version 8.5 or later version, .FWD file with all errors and erroneous data removed. This .FWD file, when opened in Microstation, version 8.5 or later version, with Bentley Inroads Survey, must generate correct 3d plan graphics with all required DOTD attribute information included.

Final 3D CADD File (.DGN)

The final 3d cadd file must be a Microstation, version 8.5 or later version, 3d, .DGN file, generated by Bentley Inroads Survey, from the final .FWD file described above. All DOTD cells, colors and line styles must be utilized. All attribute information must be attached to all cells and lines of the survey as tags. DOTD level organization must be utilized. The survey alignment must be merged from the final 2d cadd file described below.

Final 2D CADD File (.DGN)

The final 2d cadd file must be a Microstation, version 8.5, 2d, .DGN file, generated with Bentley Inroads Survey software containing the survey alignment.

Final Digital Terrain Model File (.DTM)

The final digital terrain model file must be a Bentley Inroads, version 8.5 or later version, .DTM file, generated by Bentley Inroads Survey, from the final .FWD file described above and must contain all points and breaklines of the surveyed surface. The perimeter of the DTM must be clean and contain no erroneous information.

Final Geometry File (.ALG)

The final geometry file must be a Bentley Inroads, version 8.5 or later version, .ALG file, generated by Bentley Inroads Survey, from the final .FWD file described above and must contain the complete geometry of every point and line in the survey and survey alignment, along with all descriptions and attributes of every point and line.

Final Geometry ASCII File (TXT)

The final geometry ASCII file must contain all points of the survey and survey alignment and must be a comma delimited file containing the following information in the following format;

Point number, northing, easting, elevation, description, attribute information

- 1) Location Report
- 2) Survey Activity and Progress Report
- 3) Property Owners Permission of Entry Form
- 4) Storage Tank Report Form
- 5) Storage Tank/Hazardous Waste Site Information Form

Surveyors Certification

It is the responsibility of your firm to provide Location and Survey with a survey that is accurate, correct, and conforms to all applicable minimum standards for engineering surveys. The survey deliverables must meet the “*LADOTD Software and deliverable Standards for Electronic plans*” as describe herein.

The transmittal letter shall be signed and sealed, certifying correctness of survey and deliverable standards.

Suggested transmittal letter wording:

Transmitted herewith is the completed topographic survey for the captioned project. This field survey is certified to have been performed within acceptable standards of practice for engineering surveys, has been reviewed, checked, and is considered to be correct within those standards. This

transmittal is in accordance with LADOTD software and Deliverable Standards for Electronic Plans and includes the following:

A transmittal letter from the design engineer stating that the topographic survey has been reviewed and is acceptable for design is also required.

PROPERTY SURVEY

Shall consist of all Investigations, Studies, and Field Property Surveys required for the preparation of the Base R/W Map. The Field Property Survey shall be based on the same survey control as the Topographic Survey. The Property Survey Plat shall show all surveyed property lines and existing right of way with ties to project centerline. Upon completion of the property survey, the consultant will notify the Location and Survey Administrator, in writing, and provide the following:

- 1) ASCII file listing coordinates and descriptions of all found monuments,
- 2) PDF copy of all documents (plats, maps, etc) used to determine property line locations.
- 3) PDF copy of title take-offs or title research reports used to determine property line locations
- 4) MicroStation DGN file of the Property Survey Plat, and
- 5) PDF file of the Property Survey Plat

BASE R/W MAPS

The Base R/W Map shall show the adopted project centerline, all existing R/W, limits of construction, appropriate topography (residences, commercial buildings, structures, etc.), parcel line locations and ownerships, and required taking lines, with ties to the adopted project centerline. Individual parcel metes and bounds and precise area calculations are not required at this time, however, the approximate area of each required parcel and remaining area shall be determined and shown on the Base Map. These Maps shall be in the same standard format and shall form the basis for the Final R/W Map. Specifically, this work shall be performed in accordance with all principles and objectives set forth in the latest issue of the DOTD's Location and Survey Manual Addendum A, although currently acceptable surveying standards and methods, as approved by the Location and Survey Administrator, may be used. For purposes of a joint review meeting, the Base R/W Map shall be furnished at approximately 60% completion, and reviewed by a DOTD Team. Appropriate revisions recommended for inclusion in the Final R/W Map shall be addressed by the consultant.

DELIVERABLES:

- 1) Two full size paper copies of the Base Map
 - a. PDF copy of the Base Map including all sheets named "*H.xxxxxx_60% Base Map_yymmdd.PDF*"

FINAL R/W MAPS

The Final R/W Map preparation shall include all activities necessary to complete the Final R/W Map and shall be performed in accordance with the requirements specified in the latest issue of the DOTD's Location and Survey Manual Addendum A. The Final R/W Map shall be the Base R/W Map as described above, and shall also include all revisions recommended by the Joint Review Team, parcel metes and bounds, parcel acquisition blocks, parcel areas, remaining areas, Lambert coordinates on project centerline at each end of each map sheet and P.C.'s, P.I.'s and P.T.'s of project centerline curves.

DELIVERABLES:

- 1) The original matte films.
- 2) MicroStation DGN file of the Right of Way Map.
- 3) PDF Copy of the Final Right of Way Map named "*H.XXXXXX_FINAL ROW Map_yymmdd.PDF*"
- 4) PDF copy of each required Full Title Research Report with affected Parcel Numbers listed in the upper right hand corner. Named "*H.XXXXXX_Parcel X.PDF*".
- 5) ASCII file containing the DOTD COGO program input commands for creating parcel descriptions suitable for use by the DOTD's Real Estate Section, named "*H.XXXXXX.IN*"

TITLE TAKE-OFF

Title Take-Off is defined as a report of the deed of ownership of the current property owner, and all survey documents, (plats, maps, etc.) associated with the current ownership deed. One Title Take-Off may be obtained for each parcel, if necessary, to expedite commencement of field work. The Title Take-Off is not considered a part of the Title Research Report and may be performed by the Surveyor.

GEOTECHNICAL INVESTIGATION AND DESIGN SERVICES

The geotechnical portion of this project will consist of furnishing geotechnical investigation services and foundation design for the following proposed structures. Hereafter, all sites are referred to as bridge sites, regardless of whether the final design includes a bridge or box culvert.

Project No.	Recall	District	Crossing Description	Length (ft)	Bridge Borings	Subgrade Borings
H.011094	013885	04	KANSAS CITY SOUTHERN RR	248	5	2
H.012005	013480	04	KANSAS CITY SOUTHERN RR	132	4	2

The following scope is applicable to the typical type of bridge site anticipated for this project. The number of borings is estimated based on bridge length and conforms to typical DOTD practice and AASHTO requirements. A shallow subgrade soil survey boring shall also be made at the end of each bridge. The consultant shall notify DOTD immediately if it becomes evident that a particular site requires geotechnical investigation and/or engineering efforts that are beyond this scope, including additional borings.

GEOTECHNICAL INVESTIGATION

The consultant shall perform a geotechnical investigation consisting of soil borings, laboratory testing, optional cone penetrometer test (CPT) soundings, soil classification, site characterization, and soil boring logs. In addition to the referenced ASTM designations, refer to *FHWA Geotechnical Engineering Circular No. 5* (GEC 5) for best practices pertaining to geotechnical site characterization.

Field Investigation – Bridge Borings

The field investigation may consist of traditional soil borings with laboratory testing, or a combination of that along with CPT soundings (ASTM D3441, ASTM D5778). At least one soil boring shall be made at each bridge site. Cone penetrometer soundings may be used in lieu of additional borings, but shall not be utilized where the geology does not permit the CPT rig to acquire data to the depth needed to perform foundation design for the bridge. It is the consultant's responsibility to conduct a desk study prior to commencing fieldwork in order to determine the adequacy of the proposed fieldwork for that particular site.

Borings/soundings shall be made to a minimum depth of 120 feet below existing grade; however, actual depths may need to be deeper depending on the anticipated foundation reactions. Reduction in foundation capacity due to scour shall be considered when planning the geotechnical investigation.

Water level readings shall be made in all soil borings. If the field investigation requires multiple days to complete, at least one 24-hour water level observation shall be made. Boring/sounding locations shall be located initially using a hand-held GPS. Final coordinates and elevations shall be surveyed.

Sampling

Soil borings shall be made using wet/mud rotary methods below the water table, with solid-stem augering (ASTM D1452) permissible above the water table. Sampling shall consist of pushing thin-walled Shelby tubes in cohesive soils (ASTM D1587) and Standard Penetration Testing (SPT) in cohesionless soils (ASTM D1586). Continuous sampling shall be performed within at least the upper 10 feet, followed by either:

- Sampling at 5-foot centers in cohesive soils, or
- Sampling at 3-foot centers in cohesionless soils.

Shelby tube sampling in cohesionless soils and SPT sampling in cohesive soils will not be allowed, except on a case-by-case basis where Shelby tubes cannot be pushed into very hard cohesive soils. When a Shelby tube is retrieved with no recovery, the hole shall be cleaned out and a SPT shall be performed directly below the previous sampling interval.

Borehole Abandonment

Boreholes and CPT soundings shall be backfilled in accordance with all local, State, and Federal regulations. Refer to the *Construction of Geotechnical Boreholes and Groundwater Monitoring Systems Handbook* for State regulations in the making of boreholes.

Sample Storage and Transport

The following practices shall be observed during transport and storage of the samples:

- Cohesive samples may be extruded in the field provided they are stiff enough to be wrapped and transported, otherwise, samples shall be extruded at the laboratory;
- Shelby tubes not extruded in the field shall be sealed using expansion packers to prevent moisture loss and disturbance;
- Samples shall be extruded using a continuous pressure hydraulic ram. Extrusion by any other method, such as water pressure, is prohibited;
- Samples shall be extruded directly onto a sample trough, not caught by the hand; and
- Samples shall be transported vertically in the same orientation that they were sampled.

Follow ASTM D4220 for sample transportation except as noted herein.

Field Logs

Soil borings shall be logged in the field using the visual-manual method for classification (ASTM D2488).

Field Investigation – Shallow Subgrade Soil Survey

A subgrade soil survey boring shall be made within 100 feet of each bridge end. Subgrade soil survey borings can be made utilizing continuous-flight augers, pneumatic, or direct-push sampling. The depth of each boring should be at least 8 feet below the finished roadway elevation or natural ground, whichever is greater, with additional sampling and testing requirements for areas of cut/fill greater than 10 feet. In these cases of excessive cut/fill heights, the deep soil borings may be more appropriate.

Laboratory Testing

All laboratory testing shall conform to applicable ASTM and AASHTO test designations.

Bridge Borings

The following laboratory tests shall be performed, at a minimum:

- Moisture content (ASTM D2216) – all samples;
- Unconsolidated-undrained triaxial compressive strength (ASTM D2850) – 75% of all cohesive samples;
- Atterberg Limits (ASTM D4318) – 75% of all cohesive samples; and
- Grain size testing (ASTM D1140 and ASTM D6913) – as needed to classify granular soils.

If consolidation testing is needed, one-dimensional consolidation tests (ASTM D 2435) may be performed in cases where settlement due to fill is expected to be significant.

Dry preparation methods shall not be used for any bridge or structure borings.

Extrusion Logs

While extruding soil samples from bridge borings in the lab, an extrusion log shall be made using the visual-manual classification method. New pocket penetrometer readings shall be made on representative portions of the samples.

Shallow Subgrade Soil Surveys

The different layers of the soil strata shall be identified every foot or strata break at the discretion of the lab engineer of record using the AASHTO classification system (ASTM D3282, AASHTO M 145) and the following tests:

- Atterberg Limits (ASTM D4318) – 100% of all cohesive samples; and
- Moisture content (ASTM D2216) – all samples;
- Grain size testing (ASTM D1140 and ASTM D6913) – as needed to classify granular soils;
- Hydrometer tests (ASTM D7928) – 75% of samples;
- Percent Organics (ASTM D2974) – as needed; and
- pH (ASTM G51) and resistivity (AASHTO T 288) – as needed, at applicable pipe crossings.

Dry preparation methods (ASTM D421) shall be used where applicable to test shallow subgrade soil survey samples.

Site Characterization & Boring Logs

For bridge borings, the consultant shall use the field and laboratory data to classify the soils according to the Unified Soil Classification System (USCS) (ASTM D2487). The results shall be presented on signed and sealed soil boring logs adhering to the standard DOTD boring log format. In addition to the USCS classification, the soil descriptions shall include soil consistency/strength, color, and other details or inclusions such as seams, nodules, organics, etc.

Cone penetrometer test soundings shall be presented on signed and sealed logs adhering to the standard DOTD CPT log format. This standard format presents tip resistance, side friction, pore water pressure, and classification based on the Zhang and Tumay method. Examples of boring logs and CPT logs can be furnished upon request.

Shallow Subgrade soil survey borings shall be presented in a tabular format containing all test results and classified using the AASHTO soil classification method.

GEOTECHNICAL ENGINEERING DESIGN

The following geotechnical design elements are anticipated for this project. Should the project scope change from these assumptions, DOTD should be notified immediately.

Driven Pile Design

Driven pile foundations may be used to support proposed bridge structures. Pile tip elevations shall be designed using the static equilibrium methods presented in FHWA Geotechnical

Engineering Circular No. 12 (GEC 12). Specifically, the Nordlund and α methods shall be used in cohesionless and cohesive soils, respectively.

If CPT soundings are made, pile design shall also be evaluated by the Schmertmann, LCPC, and DeRuiter & Beringen Methods, which are presented in the final report for LTRC Project 98-3GT, *Evaluation of Bearing Capacity of Piles from Cone Penetration Test Data* (Hani and Abu-Farsakh, 1999). The computations can be automated using the Louisiana Pile Design by Cone Penetration Test software, published by LTRC and located at <http://www.ltrc.lsu.edu/downloads.html>. In general, the most conservative pile capacity curves generated from the GEC 12 and CPT direct methods should be used in design in the absence of site-specific load test data.

LRFD Design

The load and resistance factor design (LRFD) method shall be used to set pile lengths. Subsurface data for each bridge site shall be evaluated and divided into design “sites” (design reaches) based on the variability of the data. Refer to GEC 5 for best practices on selecting sites for LRFD design. At a minimum, all of the following resistance factors (ϕ) and corresponding pile resistance verification methods shall be evaluated based on costs and engineering benefits:

- $\phi = 0.80$: One Test Pile per design site with 2% (or a minimum of two) production piles tested using dynamic monitoring and signal matching;
- $\phi = 0.65$: One Indicator Pile per design site with 2% (or a minimum of two) production piles tested using dynamic monitoring and signal matching; or
- $\phi = 0.50$: No Test/Indicator Piles, end-of-drive pile resistance verification using the Modified Gates equation.

Recent bid histories for estimating the costs of the various resistance factor scenarios may be found at:

http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Project_Management/Pages/Cost_Estimating_Tools.aspx

Scour

Pile design shall consider scour in accordance with *Bridge Design Technical Memorandum 21* (BDTM.21). Per *Bridge Design Technical Memorandum 32, Rev. 3* (BDTM.32.3), required nominal resistances shall be computed for two cases and presented on the Pile Data Tables:

- The case where the pile is driven to the required tip elevation without the benefit of predrilling, and thus developing full side friction along its entire embedment length; and
- The case where the contractor performs predrilling to the scour elevation in order to advance the pile; thus eliminating side friction within the predrill/scour zone.

Note that the Louisiana Pile Design by Cone Penetration Test software does not take scour into account; therefore, for sites with a significant overburden effect (sand profiles), pile design using CPT may not be appropriate.

Other Considerations

Additional design considerations such as lateral loading, uplift, group effect, downdrag, etc. shall be addressed in accordance with GEC 12.

Drilled Shaft Design

A drilled shaft analysis is required on all projects utilizing drilled shafts to support proposed bridge structures. The objective of a Drilled Shaft Analysis Design is to determine the diameter, tip elevation and installation procedure for the project subsurface soil conditions. The analysis shall consist of modeling the appropriate soil investigations data to define the project subsurface soil profile and soil parameters as well as including scour elevations. The analysis should also include selecting appropriate design methodology following FHWA Geotechnical Engineering Circular No. 10 (GEC 10) and LTRC Project 07-2GT, *Calibration of Resistance Factors Needed in the LRFD Design of Drilled Shafts* (Abu-Farsakh et al., 2010) to determine ultimate base and side resistances and selection appropriate resistance factors and field verification methods. The analysis also needs to include axial and lateral load analyses to determine shaft diameters and tip elevation as well as analyses to determine appropriate construction methods for project soil conditions.

Deliverables for drilled shaft foundation analyses shall include:

- 1) Design spreadsheets or calculations indicating the geotechnical design parameters utilized for each boring log or reach, including scour elevations if applicable;
- 2) Graphical or tabulated representation of the drilled shaft capacity vs. tip elevation for each shaft diameter;
- 3) Lateral load analyses;
- 4) Considerations for “downdrag”;
- 5) Effect of foundation interactions, new adjacent to existing;
- 6) Recommended plan drilled shaft diameters and tip elevations for all bents (shown in the Drilled Shaft Data Table);
- 7) Recommended construction methods with discussion of potential installation issues;
- 8) Recommendations for construction quality control;
- 9) Drilled shaft notes for the Bridge General Notes Sheet;
- 10) Special Provision for Integrity Testing, if required for project; and
- 11) Special Provision for drilled shaft Load Test, if required for project.

Bridge Foundation Load Test Program

If the project subsurface conditions are difficult, significant uncertainties exist in the foundation design, and cost savings can be predicted, a load test program may be appropriate. Depending on project conditions, a load test program may be included either in the Design or in the Construction phase. The load test program shall include the following:

- 1) Location and Type of proposed load test;
- 2) Design of test foundation (pile, drilled shaft, or other);

- 3) Dynamic test procedures and schedules;
- 4) Load increment requirements;
- 5) Maximum test load;
- 6) Instrumentation requirements;
- 7) Load test Layout and Design Sheets for plans;
- 8) Special Provisions for construction of test foundation and load test methodology;
- 9) Interpretation of load test results and recommendations; and
- 10) Foundation load test report.

Slope Stability

End slopes steeper than 3(H):1(V) shall be analyzed for slope stability using the Spencer method. A maximum resistance factor of 0.75 (equivalent minimum FoS \approx 1.3) shall be used for typical conditions. A maximum resistance factor of 0.85 (equivalent minimum FoS \approx 1.2) is adequate for rapid drawdown conditions. All potentially critical geometry, groundwater, surface water, and other loading conditions shall be considered for drained and undrained conditions as applicable.

Embankment Settlement

The addition of fill may lead to settlement concerns of existing subsurface soils. Consolidation/settlement analysis may be needed to determine the amount of settlement in inches/feet, to estimate the time required for settlement to take place when the proposed embankment is constructed on the project subsurface soils, and to make appropriate Engineering Design Recommendations relative to consolidation settlement. An embankment settlement analysis should include modeling of the appropriate borings logs and critical embankment geometry and determining the predicted total consolidation settlement and the predicted time rate to achieve only 1 inch of post-construction settlement occur. If reaching 1 inch of post-construction settlement is anticipated to occur in a time period greater than 5 months, recommendations to reduce the amount of consolidation settlement and/or to accelerate the settlement through the use of lightweight fills, surcharge placement, wick drains or other methods determined by the engineer. If necessary, engineer should provide recommendations for a settlement monitoring program.

Earth Retaining Structures (ERS)

When adequate space is not available for a slope, a retaining wall may be required. The DOTD has used Mechanically Stabilized Earth (MSE) Walls, Gravity Concrete Walls, Sheet Pile Walls, plus other types for transportation projects. The selection of the most appropriate retaining wall type for the specific project requirements and site and subsurface conditions can have profound effects on the project cost and constructability. Earth retaining structure calculations must include:

- Global stability check of ERS;
- External stability check of ERS;
- Settlement analysis of ERS;
- Analysis of governing load conditions under drained and undrained soil conditions; and
- Analysis of any other critical/governing configurations of the ERS.

The DOTD developed “MSEW Design Guide, G.E.D.G. No. 8,” latest edition may be used as a reference. Only DOTD approved wall systems will be allowed. Minimum embedment requirements and backfill material requirements must be included in the plans.

If sheet piles will be required to construct the design, sheeting must be designed by the Geotechnical engineer and section type, tip elevations, cutoff elevations, and stationing must be provided in plans. Calculations should include appropriate undrained and drained soil conditions and estimated long-term and short-term deflections. The resistance factors from the AASHTO Bridge Design Specifications, latest edition, shall be used to design sheet pile walls. The USACE Design Guide titled “EM-1110-2-2504- Design of Sheet Pile Walls” may be used as a reference.

DELIVERABLES

The following deliverables shall be provided during the course of the geotechnical investigation

Geotechnical Investigation Plan

Prior to beginning the field work associated with the geotechnical investigation, submit a site layout with proposed boring/CPT locations for review and approval. Additionally, coordinate with district personnel and provide traffic control plan if traffic will be affected. Traffic control plan should include anticipated dates of road/lane closure and limits of road/lane closure. Final traffic control plan should be submitted 60 days prior to anticipated closure dates.

Geotechnical Data Report

The consultant shall furnish a final Geotechnical Data Report (GDR) detailing the results of the subsurface investigation. The GDR shall contain only factual information and no opinions or engineering recommendations. The GDR shall include, at a minimum:

- 1) Cover letter with executive summary describing the subsurface investigation
- 2) Table of contents
- 3) Report Body containing the following sections, at a minimum:
 - a. Project Description
 - b. Summary of subsurface investigation, including description of methods and standards used
 - c. Summary of laboratory testing performed, including description of methods and standards used
- 4) Appendix containing the following items, at a minimum:
 - a. Boring plan
 - b. General bridge plan & profile sheet used to establish the boring locations
 - c. Soil boring logs
 - d. Plots of grain size distribution curves and consolidation tests, as applicable
 - e. Laboratory test data sheets, including extrusion logs, stress vs. strain plots for triaxial testing, consolidation test deformation vs. time plots (when applicable), Atterberg Limit worksheets, etc.

Geotechnical Interpretation Report

The consultant shall furnish a final Geotechnical Interpretation Report (GIR) detailing assumptions, design methodologies, and final recommendations. The report shall be signed and sealed by a professional civil engineer, registered in the state of Louisiana, and shall include the following items, at a minimum:

- 1) Cover letter with executive summary describing the structure type, loads, and pile lengths. All plan-related notes and tables shall be provided in the cover letter.
- 2) Table of contents
- 3) Report Body containing the following sections, at a minimum:
 - a. Project Description
 - i. Summary of structure type
 - ii. Summary of subsurface investigation
 - iii. Summary of laboratory testing performed
 - b. Subsurface Conditions
 - i. Generalized subsurface profile
 - ii. Summary of groundwater conditions
 - c. Foundation Analyses
 - i. Summary of design codes and specifications followed
 - ii. Description of static pile analysis method(s) used as well as any relevant assumptions
 - iii. Discussion of the evaluation of various LRFD resistance factors, field verification methods, and associated costs
 - iv. Recommended foundation tip elevations/lengths
 - v. Brief construction recommendations, identification of potential difficult driving conditions, etc.
 - d. Slope Stability Recommendations (if applicable)
 - e. Embankment Settlement Recommendations (if applicable)
 - f. Earth Retaining Structures Recommendations (if applicable)
- 4) Appendix containing the following items, at a minimum:
 - a. Any revised documents from the GDR, such as boring plans or soil boring logs
 - b. Plots of relevant soil data versus elevation including the interpreted design profile for each design site
 - c. Nominal pile resistance versus elevation plots for each design site and pile size/type
 - d. Pile data table
 - e. Plots of settlement versus time for any relevant consolidation settlement runs (if applicable)
 - f. Slope stability output plots for any relevant global stability analyses as well as external stability calculations for ERS (if applicable)

Report Format

The report shall be submitted in electronic format as a searchable .pdf file with bookmarks denoting the various sections of the report. Report body, charts, and figures shall be generated

directly from the source applications in order to minimize file size. Documents scanned as raster images shall only be used when no other option exists for their inclusion into the report. All pages shall print to either 8.5" x 11" or 11" x 17" without scaling or adjustment.

Geotechnical Data

All geotechnical data shall be furnished to DOTD adhering to the DOTD's standard gINT schema, either as a .gpj file, or as an Excel spreadsheet capable of being imported into gINT without remapping of the column titles. A copy of the standard template (in gINT and/or spreadsheet form) can be provided upon request.

Soil Boring Logs

In addition to including half-size boring logs in the GIR, the logs shall also be included in the plans as signed and sealed full-size sheets.

PRELIMINARY PLAN DEVELOPMENT SERVICES

The consultant shall develop preliminary plans and all associated forms and reports for each project outlined above. The consultant shall provide preliminary plans for the project including, but not limited to, the following:

- Title Sheet
- Typical Section and Details
- Summary of Estimated Quantities
- Miscellaneous Details & General Notes
- Temporary Construction Signs, Suggested Sequence of Construction/Detour Route Signing
- Cross-Sections (Earthwork)
- Geometric Details
- Plan/Profile Sheets
- Drainage Plan/Profile Sheets
- Existing Drainage Map
- Design Drainage Map
- Construction Cost Estimate
- Bridge Sheets as outlined in the DOTD Bridge Design and Evaluation Manual

DELIVERABLES:

- Proposed Plan Development Schedule
- Bridge Design Criteria
- 30% Preliminary Plans
- 60% Preliminary Plans
- 90% Preliminary Plans
- Plan-in-Hand Meeting Attendance
- 100% Preliminary Plans
- Transportation Management Plan Checklist

- Plan Constructability Review Form
- Preliminary Design Report
- Design Waivers or Design Exceptions (if required)
- Preliminary Construction Cost Estimate

FINAL PLAN DEVELOPMENT SERVICES

The consultant shall provide final plans for the project including, but not limited to, the following:

- Title Sheet
- Typical Section and Details
- Summary Sheets
- Summary of Estimated Quantities
- Miscellaneous Details & General Notes
- Temporary Erosion Control
- Temporary Construction Signs, Suggested Sequence of Construction/Detour Route Signing
- Cross-Sections (Earthwork)
- Geometric Details
- Plan/Prof Sheets
- Drainage Plan/Profile Sheets
- Existing Drainage Map
- Design Drainage Map
- Summary of Drainage Structures
- Pavement Marking Sheets
- Construction Cost Estimate
- Bridge Sheets as outlined in the DOTD Bridge Design and Evaluation Manual

The consultant shall develop final plans and all associated forms and reports for each project outlined above.

Deliverables:

- 30% Final Plans
- 60% Final Plans
- JPR Meeting Attendance
- 90% Final Plans
- Final Plan Review Meeting Attendance
- 98% Final Plans for plan quality unit
- Plan development required documentation
- 100% Final Plans
- Final Transportation Management Plan Checklist
- Final Bridge Design Criteria
- Final Design Report

- Final Design Waivers or Design Exceptions (if required)
- Final Construction Cost Estimate
- As-Design Rating Report and Summary Sheet
- Calculation Book
- Design and Rating Software files

Additional Comments:

Electronic files will be in MicroStation and Inroads formats. Plans shall be CADD Conformed and submitted with the 100% Preliminary Plan and 100% Final Plan Submittals.

The consultant shall be required to provide the DOTD Project Manager with Meeting Minutes for all meetings (including Plan in Hand and Final Plan Review) conducted with DOTD and/or Agency Stakeholders no later than three (3) business days.

The consultant shall keep a log of all Agency provided comments and shall provide DOTD with a disposition of comments response following each plan submittal.

The consultant shall provide the Department with a Final Calculations Report (electronic format is acceptable) of all design and engineering related calculations pertinent to the project including a copy of all comments and disposition of comments. The report should be indexed and tabbed for ease of navigation. Information contained in the report should be neatly arranged and legible.

The consultant shall ensure that a Preliminary and Final QA/QC Checklist is submitted at the completion of Preliminary and Final Plans.

ADDITIONAL SERVICES

Construction Support, if required, may be established by Supplemental Agreement to this contract at the sole discretion of DOTD.

SERVICES TO BE PERFORMED / ITEMS TO BE PROVIDED BY DOTD

Topographic Survey for H.011094.

If available, the DOTD will provide the following information as applicable:

- Traffic Data
- Pavement Design
- Access to As-built plans
- Standard plans and special details

ELECTRONIC DELIVERABLES

Consultant hereby agrees to produce electronic deliverables in conformance with DOTD Software and Deliverable Standards for Electronic Plans document in effect as of the effective date of the most recent contract action or modification, unless exempted in writing by the Project Manager. Consultant is also responsible for ensuring that sub-consultants submit their electronic deliverables in conformance with the same standards. DOTD Software and Deliverable Standards for Electronic Plans document and DOTD CAD Standards Downloads are available via links on the DOTD web site.

Consultant shall apply patches to CAD Standard Resources and install incremental updates of software as needed or required. Consultant hereby agrees to install major updates to software versions and CAD Standard Resources in a timely manner. Major updates of CAD standards and software versions shall be applied per directive or approval of the DOTD Design Automation Manager. Such updates will not have a significant impact on the plan development time or project delivery date, nor will they require Consultant to purchase additional software. Prior to proceeding with plan development, Consultant shall contact the Project Manager for any special instructions regarding project-specific requirements.

In the event that any Digital Plan Delivery Standard conflicts with written documentation, including DOTD plan-development Manuals, the Digital Plan Delivery Standard governs. Consultant is responsible for contacting the Project Manager should questions arise.

Consultant shall upload (or check in) electronic deliverables directly into the DOTD ProjectWise repository at each plan delivery milestone. Consultants are responsible for performing certain operations at each milestone including, but not limited to, the following:

- Upload (or check in) CAD plan deliverables to the discipline “Plans” folder
- Apply and maintain indexing attributes to CAD plans (and other deliverables as needed)
- Publish PDF format plan submittals in ProjectWise using automated publishing tools
- Digitally sign PDF format plan submittals in ProjectWise according to DOTD standards and procedures (Final Plans, Revisions and Change Orders). Signatures shall be applied in signature blocks provided with electronic seals and Title Sheets.

Additionally, after reviewing deliverables for each submittal milestone, the Project Manager shall notify Consultant regarding the availability of two automatically-generated informational reports in ProjectWise. These reports document the completion status and other information regarding indexing attributes and CAD standards. Consultants shall take these reports into account and make any necessary adjustments to plans before the next submittal milestone; or sooner, if directed by the Project Manager.

ATTACHMENT B – MINIMUM PERSONNEL REQUIREMENTS (MPRs)

The following requirements must be met at the time the proposal is submitted:

1. At least one (1) principal of the prime consultant shall be a registered professional engineer in the state of Louisiana.
2. At least one (1) principal or other responsible member of the prime consultant shall be currently registered in the state of Louisiana as a professional engineer in civil engineering.
3. At least one (1) principal or responsible member of the prime consultant shall be a professional civil engineer, registered in the state of Louisiana, and shall have a minimum of ten (10) years of experience in responsible charge of bridge design.
4. At least one (1) professional civil engineer, registered in the state of Louisiana, shall have a minimum of ten (10) years of experience in structural design involving bridge structures.
5. At least one (1) professional land surveyor, registered in the state of Louisiana, shall have a minimum of five (5) years of experience in conducting topographic surveys.
6. At least one (1) professional land surveyor, registered in the state of Louisiana, shall have a minimum of five (5) years of experience in conducting property surveys and preparing right of way maps.
7. At least one (1) professional civil engineer, registered in the state of Louisiana, shall have a minimum of ten (10) years of experience in the geotechnical design involving Louisiana soils and bridge structures.
8. At least one (1) laboratory manager shall have a minimum of five (5) years of experience in geotechnical laboratory testing.
9. At least one (1) professional civil engineer, registered in the state of Louisiana, shall have a minimum of ten (10) years of experience in roadway design.

MPRS ARE TO BE MET BY SEPARATE INDIVIDUALS OF THE PRIME CONSULTANT, UNLESS STATED OTHERWISE BELOW.

MPR Nos. 1 through 3 may be met by the same person.

MPR Nos. 5 and 6 may be met by the same person.

MPR Nos. 7 and 8 may be met by the same person.

MPR Nos. 4 through 9 may be satisfied through the use of a sub-consultant(s).

NOTE: WHEN SATISFYING A MINIMUM PERSONNEL REQUIREMENT, PLEASE ENSURE THE RÉSUMÉ REFLECTS REQUIRED EXPERIENCE AS REQUESTED.

- Please note the number of MPRs are minimal; however, all relevant personnel necessary to perform the Scope of Services must be identified in Section 14 of the DOTD Form 24-102 and their resumes included in Section 16 of the DOTD Form 24-102.