ENGINEERING SERVICES AGREEMENT

THIS AGREEMENT is made and entered into by and between the Fort Bend Grand Parkway Toll Road Authority, a transportation corporation organized and operating under the laws of the State of Texas, hereinafter called the "FBGPTRA" and LJA Engineering, Inc., hereinafter called "Engineer."

W I T N E S S E T H

WHEREAS, the FBGPTRA proposes to design the Northbound exit ramp, Southbound exit ramp, Southbound entrance ramp, and u-turns at W. Airport, and the addition of Northbound and Southbound auxiliary mainlanes between Harlem Rd. and Mason Rd. of the Fort Bend Grand Parkway Toll Road (SH 99) between approximately 0.83 Miles South of W. Airport to Mason Rd., in Fort Bend County, Texas, (the "Project");

WHEREAS, the FBGPTRA desires to enter into an agreement with Engineer for the performance of services during the Project, that are within the scope of services in Attachment A ("Scope of Services");

NOW, THEREFORE, in consideration of the mutual covenants and conditions set forth below, the parties agree as follows:

AGREEMENT

1. General

The Engineer shall render professional services to FBGPTRA related to the Project as defined in the Scope of Services in Attachment A.

The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of Engineer's profession practicing under similar conditions at the same time and in the same locality.

2. Compensation and Payment

a. The Maximum Compensation under this Agreement is $608,196.50. The amount paid under this Agreement may not exceed the Maximum Compensation without an approved supplemental agreement.

Compensation for the performance of services within the Scope of Services described in Attachment A will be paid as a lump sum amount not to exceed $608,196.50, as shown in Attachment B.

The Engineer shall furnish satisfactory documentation of such work (e.g. timesheets, billing rates, classifications, invoices, etc.) as may be required by FBGPTRA.

b. All performance of the Scope of Services and any services outside the Scope of Services ("Additional Services"), including changes in the contractual scope of work and revision of work satisfactorily performed, will be performed only when approved in advance and authorized by the FBGPTRA, and Additional Services will be reimbursed based on the billing rates in effect at that time, to the extent that such labor costs and subcontracts are reasonable and necessary for the performance of such services. Out-of-pocket expense costs may be reimbursed only when approved in advance and authorized by the FBGPTRA. Payment will be made on the basis of project progress to be billed monthly, and, for Additional Services, on the basis of time and expense records, and, in all cases, in accordance with those payment procedures set forth in subsection d. below. Billing rates will be inclusive of all direct labor, fringe benefits, general overhead, and profit.

c. Where subcontractors are employed by the Engineer to perform pre-approved and pre-authorized Additional Services, the Engineer will be reimbursed for subcontractors' actual salaries and hourly rates, including overtime rates. Reimbursement to the subcontractor for non-salary costs incurred by subcontractor will be on the same basis as if the cost was incurred by the Engineer. For subcontractors employed for the convenience of the FBGPTRA, the Engineer will be paid a subcontract administrative fee equal to ten percent (10%) of all subcontractor invoiced amounts.

d. It is understood and agreed that monthly payments will be made to the Engineer by the FBGPTRA based on the following procedures: On or about the fifteenth day of each month during the performance of services hereunder and on or about the fifteenth day of the month following completion of all services hereunder, the Engineer shall submit to the FBGPTRA two (2) copies of invoices showing the amounts due for services performed during the previous month, set forth separately for work under this Agreement and for any Additional Services (accompanied by supporting certified time and expense records of such charges in a form acceptable to the FBGPTRA). It is specifically understood that any requests for travel reimbursements shall comply with those procedures for travel reimbursement to Fort Bend County (the "County") employees established by the Fort Bend County Auditor (the "Auditor"). The FBGPTRA shall review such invoices and approve them within 30 calendar days with such modifications as are consistent with this Agreement, and forward same to the Auditor. The County shall pay each such invoice as approved by the FBGPTRA within thirty (30) calendar days after the FBGPTRA's approval of same.

3. Time of Performance

It is understood and agreed that the time for performance of the Engineer's services under this Agreement shall begin with receipt of the Notice to Proceed. The Engineer will maintain the delivery schedule in Attachment A.

This Agreement will terminate upon the Engineer's completion of the Scope of Services to the satisfaction of the FBGPTRA.

4. The FBGPTRA's Option to Terminate

a. The FBGPTRA has the right to terminate this Agreement at its sole option at any time, with or without cause, by providing 30 days written notice of such intentions to terminate and by stating in said notice the "Termination Date" which shall be less than 30 days later than the actual receipt of such written notice by the Engineer. Upon such termination, the FBGPTRA shall compensate the Engineer in accordance with Section 2, above, for those services which were provided under this Agreement prior to its termination and which have not been previously invoiced to the FBGPTRA. The Engineer's final invoice for said services will be presented to and paid by the FBGPTRA in the same manner set forth in Section 2(d), above.

b. Termination of this Agreement and payment as described in subsection (a) of this section shall extinguish all rights, duties, obligations, and liabilities of the FBGPTRA and the Engineer under this Agreement, and this Agreement shall be of no further force and effect, provided, however, such termination shall not act to release the Engineer from liability for any previous default either under this Agreement or under any standard of conduct set by common law or statute. The obligations in Sections 5, 6, and 14 of this Agreement shall survive the termination of this Agreement.

c. If the FBGPTRA terminates this Agreement as provided in this section, no fees of any type, other than fees due and payable at the Termination Date, shall thereafter be paid to the Engineer.

d. The FBGPTRA's rights and options to terminate this Agreement, as provided in any provision of this Agreement shall be in addition to, and not in lieu of, any and all rights, actions, and privileges otherwise available under law or equity to the FBGPTRA by virtue of this Agreement or otherwise. Failure of the FBGPTRA to exercise any of its said rights, actions, options, or privileges to terminate this Agreement as provided in any provision of this Agreement shall not be deemed a waiver of any rights, actions, or privileges otherwise available under the law or equity with respect to any continuing or subsequent breaches of this Agreement or of any other standard of conduct set by common law or statute.

e. Copies of all completed and partially completed documents prepared under this Agreement shall be delivered to the FBGPTRA within 30 days of the Termination Date or upon Engineer's receipt of fees due and payable at the Termination Date, whichever is sooner, when and if this Agreement is terminated.

5. Inspection of the Engineer's Books and Records

Upon written notice (including email), the Engineer will permit the FBGPTRA, or any duly authorized agent of the FBGPTRA, to inspect and examine the books and records of the Engineer for the purpose of verifying the amount of work performed on the Project at

reasonable times during normal business hours. FBGPTRA's right to inspect survives the termination of this Agreement for a period of four years.

6. Ownership and Reuse of Documents

Upon payment in full for undisputed amounts of Engineer's services, all documents, including original drawings, estimates, specifications, field notes, and data created, produced, developed or prepared by Engineer or its approved outside advisory or support consultants (collectively, the "Documents") shall be the property of the FBGPTRA, subject to all of the following terms and conditions; provided, however, FBGPTRA shall not own and shall have no right to receive any documents not deemed "final" by the Engineer until completion or termination of this Agreement, as applicable. Engineer will deliver the Documents to FBGPTRA within 30 days of the completion or termination of this Agreement and may retain a set of reproducible record copies of the Documents, provided that the Engineer has received full compensation due pursuant to the terms of this Agreement. It is mutually agreed that FBGPTRA will use the Documents solely in connection with the Project and for no other purposes, except with the express written consent of the Engineer, which consent will not be unreasonably withheld. Any use of the Documents without the express written consent of the Engineer will be at FBGPTRA's sole risk and without liability or legal exposure to Engineer.

FBGPTRA shall also be the owner of all intellectual property rights of the services rendered hereunder, including all rights of copyright therein. It is the intention of Engineer and FBGPTRA that the services provided are a "work for hire" as the term is used in the federal Copyright Act. Moreover, Engineer hereby agrees to assign, and by these presents, does assign to FBGPTRA, all of Engineer's worldwide right, title, and interest in and to such work product and all rights of copyright therein.

Engineer agrees that all trademarks, trade names, service marks, logos, or copyrighted materials of FBGPTRA that Engineer is permitted to use in connection with the services will not be used without FBGPTRA's consent and shall remain the sole and exclusive properties of FBGPTRA, and this Agreement does not confer upon Engineer any right or interest therein or in the use thereof.

7. Personnel, Equipment, and Material

a. The Engineer represents that it presently has, or is able to obtain, adequate qualified personnel in its employment for the timely performance of the Scope of Services required under this Agreement and that the Engineer shall furnish and maintain, at its own expense, adequate and sufficient personnel and equipment, in the opinion of the FBGPTRA, to perform the Scope of Services when and as required and without delays. It is understood that the FBGPTRA will approve assignment and release of all key Engineer personnel and that the Engineer shall submit written notification of all key Engineer personnel changes for the FBGPTRA's approval prior to the implementation of such changes. For the purpose of this Agreement, key Engineer personnel are defined as: Project Manager. Services described in

this Agreement shall be performed under the direction of a Texas Licensed Professional Engineer.

b. All employees of the Engineer shall have such knowledge and experience as will enable them to perform the duties assigned to them. Any employee of the Engineer who, in the opinion of the FBGPTRA, is incompetent, or, by his conduct, becomes detrimental to the Project, shall, upon request of the FBGPTRA, immediately be removed from association with the Project.

c. Except as otherwise specified, the Engineer shall furnish all equipment, transportation, supplies, and materials required for its operation under this Agreement.

8. Items to be furnished to Engineer by the FBGPTRA

As applicable, the following items will be supplied to the Engineer:

a. Copies of preliminary studies by others.

b. Assistance in coordination with all utility companies.

c. Assistance in coordination with all public and governmental entities.

9. Subletting

The Engineer shall not sublet, assign, or transfer any part of its rights or obligations in this Agreement without the prior written approval of the FBGPTRA. Responsibility to the FBGPTRA for sublet work shall remain with the Engineer.

10. Conference

At the request of the FBGPTRA, the Engineer shall provide appropriate personnel for conferences at its offices, or attend conferences at the various offices of the FBGPTRA, or at the site of the Project, and shall permit inspections of its offices by the FBGPTRA, or others when requested by the FBGPTRA.

11. Appearance as Witness

If requested by the FBGPTRA, or on its behalf, the Engineer shall prepare such engineering exhibits and plans as may be requested for all hearings and trials related to the Project and, further, it shall prepare for and appear at conferences at the office of the FBGPTRA and shall furnish competent expert engineering witnesses to provide such oral testimony and to introduce such demonstrative evidence as may be needed throughout all trials and hearings with reference to any litigation relating to the Project. Trial preparation and appearance by the Engineer in courts regarding litigation matters are Additional Services and compensation will be paid in accordance with Section 2(b).

12. Compliance with Laws

The Engineer shall comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or administrative bodies or tribunals in any matter affecting the performance of this Agreement, including, without limitation, Worker's Compensation laws, minimum and maximum salary and wage statutes and regulations, licensing laws and regulations. When required, the Engineer shall furnish the FBGPTRA with certification of compliance with said laws, statutes, ordinances, rules, regulations, orders, and decrees above specified.

13. Insurance

The Engineer shall obtain and maintain, throughout the term of the Agreement, insurance of the types and in the minimum amounts set forth in Attachment C.

14. Indemnification

With respect to claims brought by third parties against either Engineer or the FBGPTRA relating to the property or facilities with respect to which this Agreement pertains, Engineer and the FBGPTRA agree as follows:

a. **ENGINEER WILL INDEMNIFY AND HOLD HARMLESS THE FBGPTRA, ITS DIRECTORS, OFFICERS, AND EMPLOYEES AGAINST ANY CLAIMS, DEMANDS OR CAUSES OF ACTION; AND COSTS, LOSSES, LIABILITIES, EXPENSES AND JUDGMENTS INCURRED IN CONNECTION THEREWITH, INCLUDING REASONABLE ATTORNEY'S FEES AND COURT COSTS, BROUGHT BY ANY OF ENGINEER'S EMPLOYEES OR REPRESENTATIVES, OR BY ANY OTHER THIRD PARTY, BASED UPON, IN CONNECTION WITH, RESULTING FROM OR ARISING OUT OF THE NEGLIGENT ACTS, ERRORS OR OMISSIONS OF ENGINEER; HOWEVER, ENGINEER'S CONTRACTUAL OBLIGATION OF INDEMNIFICATION SHALL NOT EXTEND TO THE NEGLIGENCE OR OTHER FAULT OF THE FBGPTRA OR STRICT LIABILITY IMPOSED UPON THE FBGPTRA AS A MATTER OF LAW (INCLUDING STRICT LIABILITY IMPOSED UPON THE FBGPTRA AS A RESULT OF THE CONDITION OF THE PROPERTY OR FACILITIES WITH RESPECT TO WHICH THIS AGREEMENT PERTAINS).**

b. In the event that both the FBGPTRA and Engineer are adjudicated negligent or otherwise at fault or strictly liable without fault with respect to damage or injuries sustained by the claimant, each shall be responsible for its own costs of litigation and pro rata share of damages as determined by the proceedings.

It is a condition precedent to the indemnitor's contractual obligation of indemnification under this Agreement that the party seeking indemnity shall provide written notice of a third party claim, demand, or cause of action within 30 days after such third party claim,

demand, or cause of action is received by the party seeking indemnity. It is a further condition precedent to the indemnitor's contractual obligation of indemnification under this Agreement that the indemnitor shall thereafter have the right to participate in the investigation, defense, and resolution of such third party claim.

15. Dispute Resolution

Except as expressly provided in Section 4. Option to Terminate, if a dispute arises out of, or relates to, the breach thereof, and if the dispute cannot be settled through negotiation, then the FBGPTRA and the Engineer agree to submit the dispute to mediation. In the event the FBGPTRA or the Engineer desires to mediate any dispute, that party shall notify the other party in writing of the dispute desired to be mediated. If the parties are unable to resolve their differences within 10 days of the receipt of such notice, such dispute shall be submitted for mediation in accordance with the procedures and rules of the American Arbitration Association (or any successor organization) then in effect. The deadline for submitting the dispute to mediation can be changed if the parties mutually agree in writing to extend the time between receipt of notice and submission to mediation. The expenses of the mediator shall be shared 50 percent by the FBGPTRA and 50 percent by the Engineer. This requirement to seek mediation shall be a condition required before filing an action at law or in equity.

16. Delivery of Notices, Etc.

a. All written notices, demands, and other papers or documents to be delivered to the FBGPTRA under this Agreement, shall be delivered to the Fort Bend Grand Parkway Toll Road Authority, P.O. Box 1307, Sugar Land, Texas 77406, Attention: Mike Stone, or at such other place or places as it may from time to time designate by written notice delivered to the Engineer. For purposes of notice under this Agreement, a copy of any notice or communication hereunder shall also be forwarded to the following address: Fort Bend County Clerk, 301 Jackson Street, Richmond, Texas 77469, Attention: County Judge.

b. All written notices, demands, and other papers or documents to be delivered to the Engineer under this Agreement shall be delivered to LJA Engineering, Inc., 2929 Briarpark Dr., Suite 600, Houston, Texas, 77042, Attention: Carl Shaw or such other place or places as the Engineer may designate by written notice delivered to the FBGPTRA.

17. Reports of Accidents, Etc.

Within 24 hours after the occurrence of any accident or other event which results in, or might result in, injury to the person or property of any third person (other than an employee of the Engineer), whether or not it results from or involves any action or failure to act by the Engineer or any employee or agent of the Engineer and which arises in any manner from the performance of this Agreement, the Engineer shall send a written report of such accident or other event to the FBGPTRA, setting forth a full and concise statement of the facts pertaining thereto. The Engineer shall also immediately send the FBGPTRA a copy

of any summons, subpoena, notice, other documents served upon the Engineer, its agents, employees, or representatives, or received by it or them, in connection with any matter before any court arising in any manner from the Engineer's performance of work under this Agreement.

18. The FBGPTRA's Acts

Anything to be done under this Agreement by the FBGPTRA may be done by such persons, corporations, or firms as the FBGPTRA may designate.

19. Limitations

Notwithstanding anything herein to the contrary, all covenants and obligations of the FBGPTRA under this Agreement shall be deemed to be valid covenants and obligations only to extent authorized by the Act creating the FBGPTRA and permitted by the laws and the Constitution of the State of Texas. This Agreement shall be governed by the laws of the State of Texas, and no officer, director, or employee of the FBGPTRA shall have any personal obligation hereunder.

20. Captions Not a Part Hereof

The captions of subtitle of the several sections and divisions of this Agreement constitute no part of the content hereof, but are only labels to assist in locating and reading the provisions hereof.

21. Controlling Law, Venue

This Agreement shall be governed and construed in accordance with the laws of the State of Texas. The parties hereto acknowledge that venue is proper in Fort Bend County, Texas, for all disputes arising hereunder and waive the right to sue or be sued elsewhere.

22. Successors and Assigns

The FBGPTRA and the Engineer bind themselves and their successors, executors, administrators, and assigns to the other party of this Agreement and to the successors, executors, administrators, and assigns of the other party, in respect to all covenants of this Agreement.

23. Appendices

The Appendices attached to this Agreement, which consists of:

Attachment A	Scope of Services
Attachment B	Compensation for Scope of Services
Attachment C	Insurance Requirements

24. Statutory Terms Applicable To State Political Subdivisions

a. As required by Chapter 2270, Government Code, Engineer hereby verifies that it does not boycott Israel and will not boycott Israel through the term of this Agreement. For purposes of this verification, "boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

b. Prior to execution of this Agreement by FBGPTRA, the Engineer will be required to submit a Texas Ethics Commission Form 1295. Please see this website for details related to this disclosure: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

c. Engineer certifies and agrees that it is not identified on a list prepared and maintained under Sections 806.051, 807.051 or 2252.153, Texas Government Code.

d. In accordance with Section 176.0065, Texas Local Government Code, a list of local government officers of FBGPTRA may be obtained by contacting the FBGPTRA's records administrator at (281) 500-6050.

[Signatures Follow]

IN WITNESS WHEREOF, the parties hereto have signed or have caused their respective names to be signed to multiple counterparts to be effective on the 16th day of October, 2019.

FORT BEND GRAND PARKWAY TOLL ROAD AUTHORITY, a Texas local government corporation

By: _____
Dr. James D. Condrey
Chairman, Board of Directors

LJA Engineering, Inc.
ENGINEER

By: _____
Name: Jeff P. Collins, PE
Title: Executive Vice President

EFFECTIVE DATE

THIS AGREEMENT IS EFFECTIVE ON THE DATE IT IS APPROVED BY THE FORT BEND COUNTY COMMISSIONERS COURT, AND IF NOT SO APPROVED SHALL BE NULL AND VOID.

DATE OF COMMISSIONERS COURT APPROVAL: _____

AGENDA ITEM NO.: _____

ATTACHMENT A

SERVICES TO BE PROVIDED BY THE ENGINEER

The Engineer shall provide engineering services required for the preparation of plans, specifications and estimates (PS&E) and related documents, for:

- SH 99 NB Exit Ramp and Frontage Road South of W Airport
- SH 99 NB Entrance Ramp North of W Airport
- SH 99 NB to SB and SB to NB U-Turns at W Airport
- SH 99 NB Aux Lane between Harlem and Mason
- SH 99 SB Aux Lane between Harlem and Mason

These services include, but are not limited to, preparing roadway design, hydrologic and hydraulic design, and utility engineering.

GENERAL REQUIREMENTS

1.1. Design Criteria. The Engineer shall prepare all work in accordance with the latest version of applicable TxDOT's procedures, specifications, manuals, guidelines, standard drawings, and standard specifications or previously approved special provisions and special specifications, which include: the *PS&E Preparation Manual*, *Roadway Design Manual*, *Hydraulic Design Manual*, the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD), *Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (latest Edition)*, and other TxDOT approved manuals. When design criteria are not identified in TxDOT manuals, the Engineer shall notify the FBGPTRA and refer to the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Street,* (latest Edition). In addition, the Engineer shall follow the FBGPTRA's guidelines in developing the PS&E package.

The Engineer shall identify, prepare exhibits and complete all necessary forms for each Design Exception and Waiver required within project limits prior to the 50% project completion submittal. The Engineer shall submit each exception and waiver to the FBGPTRA for coordination and processing of approvals. If subsequent changes require additional exceptions, the Engineer shall notify the FBGPTRA in writing as soon as possible after identification of each condition that may warrant a design exception or waiver.

1.2. Progress Reporting and Invoicing. The Engineer shall invoice according to Function Code breakdowns shown in Attachment "C" of the Contract for Engineering Services and Exhibit "D" - *Fee Schedule*, of each Work Authorization. The Engineer shall submit each invoice in a format acceptable to the FBGPTRA.

The Engineer shall submit a monthly written progress report to the FBGPTRA's Project Manager regardless of whether the Engineer is invoicing for that month. The Engineer's

written progress report shall describe activities during the reporting period; activities planned for the following period; problems encountered and actions taken to remedy them; list of meetings attended; and overall status, including a percent complete by task.

Final payment is contingent upon the FBGPTRA's receipt and confirmation by the FBGPTRA's Project Manager that the electronic files run and is formatted in accordance with Attachment G of the contract and all review comments are addressed.

1.3. Coordination. The Engineer shall coordinate issues and communications through the FBGPTRA's Project Manager.

1.4. Quality Assurance (QA) and Quality Control (QC). The Engineer shall provide peer review at all levels. For each deliverable, the Engineer shall have some evidence of their internal review and mark-up of that deliverable as preparation for submittal. A milestone submittal is not considered complete unless the required milestone documents and associated internal red-line mark-ups are submitted. The FBGPTRA's Project Manager may require the Engineer to submit the Engineer's internal mark-up (red-lines) or comments developed as part the Engineer's quality control step. When internal mark-ups are requested by the FBGPTRA in advance, the FBGPTRA, at its sole discretion, may reject the actual deliverable should the Engineer fail to provide the evidence of quality control. The Engineer shall clearly label each document submitted for quality assurance as an internal mark-up document.

The Engineer shall perform QA and QC on all survey procedures, field surveys, data, and products prior to delivery to the FBGPTRA. If, at any time, during the course of reviewing a survey submittal it becomes apparent to the FBGPTRA that the submittal contains errors, omissions, or inconsistencies, the FBGPTRA may cease its review and immediately return the submittal to the Engineer for appropriate action by the Engineer. A submittal returned to the Engineer for this reason is not a submittal for purposes of the submission schedule.

1.5. Use of TxDOT's Standards. The Engineer shall identify and insert as frequently as is feasible the applicable, current TxDOT's Standard Details, District Standard Details, or miscellaneous details that have been approved for use in the plan. The Engineer shall sign, seal, and date each Standard and miscellaneous detail if the Standard selected has not been adopted for use in a District. The Engineer shall obtain approval for use of these details during the early stages of design from the FBGPTRA Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment. The Engineer shall retain the responsibility for the appropriate selection of each Standard identified for use within their design.

1.6. Organization of Plan Sheets. The PS&E shall be complete and organized in accordance with the latest edition TxDOT's PS&E Preparation Manual. The PS&E package shall be suitable for the bidding and awarding of a construction contract, and in

accordance with the latest FBGPTRA's policies and procedures, and the District's PS&E Checklist.

1.7. Organization of Design Project Folder and Files (Electronic Project Files). The Engineer shall organize the electronic project files in accordance with TxDOT's File Management System (FMS) format.

1.8. Personal Protective Equipment (PPE). The Engineer shall, and shall require its subcontractors to, (1) provide personal protective equipment (PPE) to their personnel, (2) provide business vehicles for their personnel, and (3) require their personnel to use PPE and drive only business vehicles while performing work on or near roadways. The PPE must meet all (1) current standards set by the Occupational Safety and Health Administration (OSHA) and (2) TxDOT requirements (e.g., safety glasses, Type 3 (TY 3) pants for night work). Each business vehicle must be clearly marked with the Engineer's business name, or the name of the appropriate subcontractor, such that the name can be identified from a distance.

TASK DESCRIPTIONS AND FUNCTION CODES

The Engineer shall categorize each task performed to correspond with the Function Codes (FC) and Task Descriptions.

FUNCTION CODE 102(110) – FEASIBILITY STUDIES

ROUTE AND DESIGN STUDIES

A. Data Collection and Field Reconnaissance. The Engineer shall collect, review and evaluate data described below. The Engineer shall notify the FBGPTRA in writing whenever the Engineer finds disagreement with the information or documents:

1. Data, if available, from the FBGPTRA, including "as-built plans", existing schematics, right-of-way maps, Subsurface Utility Engineering (SUE) mapping, existing cross sections, existing planimetric mapping, environmental documents, existing channel and drainage easement data, existing traffic counts, accident data, Bridge Inspection records, Project Management Information system (PMIS) data, identified endangered species, identified hazardous material sites, current unit bid price information, current special provisions, special specifications, and standard drawings.
2. Documents for existing and proposed development along proposed route from local municipalities and local ordinances related to project development.
3. Utility plans and documents from appropriate municipalities and agencies.
4. Flood plain information and studies from the Federal Emergency Management Agency (FEMA), the United States Army Corps of Engineers (USACE), local municipalities, and other governmental agencies.

5. Conduct field reconnaissance and collect data including a photographic record of notable existing features.

B. Design Criteria. The Engineer shall develop the roadway design criteria based on the controlling factors specified by the FBGPTRA (*i.e.* 4R, 3R, 2R, or special facilities), design speed, functional classification, roadway class and any other set criteria as set forth in *PS&E Preparation Manual*, *Roadway Design Manual*, *Bridge Design Manual*, *Hydraulic Design Manual*, and other deemed necessary TxDOT approved manuals. The Engineer shall obtain written concurrence from the FBGPTRA prior to proceeding with a design if any questions arise during the design process regarding the applicability of FBGPTRA's design criteria.

C. Preliminary Cost Estimates. The Engineer shall develop a preliminary cost estimate using the Average Low Bid Unit Price. The Engineer shall estimate the total project cost including preliminary engineering, final engineering, right-of-way (ROW) acquisition, environmental compliance and mitigation, construction, utility relocation, and construction engineering inspection (CEI).

D. Geotechnical Borings and Investigations: The Engineer shall coordinate with the Geotechnical Engineer for boring locations and will review the draft and final Geotechnical Report.

FUNCTION CODE 130(130) – RIGHT-OF-WAY (ROW) DATA

A. Utility Engineering. Utility Engineering shall include utility coordination meetings with individual utility companies, communication and coordination with utilities, conducting, utility research, identifying and resolving utility conflicts, and preparing utility exhibits. QL "A" SUE Test Holes are not included in this scope of work.

1. Utility Coordination

The Utility Coordinator shall perform utility coordination and liaison activities with involved utility owners, their consultants, and the FBGPTRA to achieve timely project notifications, formal coordination meetings, conflict analysis and resolution. The Utility Coordinator shall act as the "Responsible Party" as indicated in TxDOT's – Utility Cooperative Management Process (See TxDOT's ROW Utility Manual, chapter 2).

a. The Utility Coordinator shall coordinate all activities with the FBGPTRA, or their designee, to facilitate the orderly progress and timely completion of the FBGPTRA design phase.

b. As required by the FBGPTRA the Utility Coordinator shall coordinate with the local utilities committees to present a footprint of the FBGPTRA projects with represented utility companies and owners.

The Utility Coordinator shall also coordinate with any other utility committees which may include state, county, city, or other officials, if needed.

c. The Utility Coordinator shall provide initial project notification letters to all affected utility companies, owners, and other concerned parties.

d. The Utility Coordinator shall provide the FBGPTRA and all affected utility companies and owners a Utility Contact List for each project with all information such as: (i) Owner's Name; (ii) Contact Person; (iii) Telephone Numbers; (iv) Emergency Contact Number; (v) E-mail addresses; (vi) as well as all pertinent information concerning their respective affected utilities and facilities, including but not limited to: size, number of poles, material, and other information which readily identifies the utilities companies' facilities.

e. The Utility Coordinator shall advise utility companies and owners of the general characteristics of the Project and provide an illustration of the project footprint for mark-up of the utility facility locations that occupy the project area.

2. Utility Research.

The Utility Coordinator shall conduct research to acquire record drawings of utilities within the corridor from all utility companies. The Utility Coordinator shall conduct field investigations to identify visible surface features and evidence of existing utilities.

3. Utility Conflicts.

The Utility Coordinator shall identify utilities that conflict with highway construction or the "Utility Accommodation Rules" (UAR) and make the utility company aware of these conflicts. The Utility Coordinator will track conflicts with a Utility Conflict Matrix and maintain status of each conflict. The Utility Coordinator will work with the Engineer and utility companies to resolve all conflicts.

4. Utility Exhibits

The Engineer shall prepare utility exhibits that identify existing and proposed utilities throughout the project limits. The utility exhibits shall be plan view only at a scale of 1"=100'.

FUNCTION CODE 145(145, 164) – MANAGING CONTRACTED/DONATED PE

PROJECT MANAGEMENT AND ADMINISTRATION

The Engineer, in association with the FBGPTRA Project Manager shall be responsible for directing and coordinating all activities associated with the project to comply with FBGPTRA policies and procedures, and to deliver that work on time.

Project Management and Coordination. The Engineer shall coordinate all activity to include quality of and consistency of plans and administration of the invoices and monthly progress reports. The Engineer shall coordinate with necessary local entities.

The Engineer shall:

- Prepare monthly written progress reports for each project.
- Meet on a scheduled basis with the FBGPTRA Project Manager to review project progress. Prepare, distribute, and file both written and electronic correspondence.
- Prepare and distribute meeting minutes.
- Document phone calls and conference calls as required during the project to coordinate the work for various team members.

FUNCTION CODE 160(150) – ROADWAY DESIGN

Design Surveys and Construction Surveys

The Engineer shall incorporate survey control sheets provided. The Engineer shall also review the survey to ensure completeness and incorporate survey into design. The Engineer shall coordinate with the surveyor consultant as necessary.

SH 99, from Oyster Creek to Mason Road Design Surveys:

- Review existing data.
- Recover and verify existing project control.
- Perform datum ties as required.
- Collect LiDAR and Ortho data along 3.1 mile stretch of SH99, from Oyster Creek to Mason Road. The width will be from ROW to ROW or ROW to Proposed ROW. Area of interest is in Sugar Land Regional Class D airspace.
- Perform Ground Truthing as a check on LiDAR data, obtain any topographic survey for obscured areas, and locate utilities and improvements. More detailed surveys will be done as follows:

- Northbound from the turnaround at Oyster Creek to the toll plaza approximately 2700 L.F north of West Airport Boulevard. Detailed data form the east edge of the Main Lane to the ROW or Proposed ROW (approximately 7,100 L.F.).

- Southbound from approximately 1300 L.F. north of West Airport Blvd to 1400 L.F. south of West Airport Blvd. Detailed data form the west edge of the Main Lane to the ROW. The crossing area under SH 99 at West Airport Blvd. will be included, including the low chord of existing bridge (approximately 2,700 L.F.).

- Northbound from the culvert crossing which is about 2,000 L.F. north of Harlem Road for approximately 4,200 L.F. Said point being about 900 feet easterly from Mason Road. The width will be from the inside edge of the Main Lane to the ROW. The intersection of Mason Road will not be included. (approximately 4,200 L.F.).

- Southbound from Mason Road to a point about 1,500 L.F. north of Harlem. Said point being about 900 feet easterly from Mason Road. The width will be from the inside edge of the Main Lane, or where a feeder road exists, the inside edge of the feeder road to the ROW (approximately 5,400 L.F.).

- SH 99 topographic survey; includes Texas 811 call to have utilities marked (approximately 16,000 L.F.).

- Prepare a digital terrain model (DTM) of the topographic survey.

- Set and tie additional control as required for PS&E (estimate 12).

- Prepare survey control index sheet and monument sketches.

- Prepare horizontal and vertical control sheets.

FUNCTION CODE 160(160) - ROADWAY DESIGN

ROADWAY DESIGN CONTROLS

The Engineer shall inform the FBGPTRA of changes made from previous initial meetings regarding each exception, waiver, and variance that may affect the design. The Engineer shall cease all work under this task until the exceptions, waivers, and variances have been resolved between the Engineer and the FBGPTRA unless otherwise directed by the FBGPTRA to proceed. The Engineer shall identify, prepare exhibits, and complete all necessary forms for Design Exceptions and Waivers within project limits prior to the 50% Submittal. These exceptions shall be provided to the FBGPTRA for coordination and processing of approvals.

A. Roadway Design.

If requested by the FBGPTRA, the Engineer shall use Bentley's OpenRoads 3D Design technology in the design and preparation of the roadway plan sheets.

The Engineer shall provide roadway plan and profile drawings using CADD standards as required by the FBGPTRA. The drawings must consist of a planimetric file of existing features and files of the proposed improvements. The roadway base map must contain line work that depicts existing surface features obtained from the schematic drawing. Existing major subsurface and surface utilities must be shown if requested by the FBGPTRA. Existing and proposed right-of-way lines must be shown. Plan and Profile must be shown on separate or same sheets (this depends upon width of pavement) for main lanes, frontage roads, and ramps.

The plan view must contain the following design elements:

1. Calculated roadway centerlines for mainlanes, ramps, cross streets and frontage roads, as applicable. Horizontal control points must be shown. The alignments must be calculated using GEOPAK.
2. Pavement edges for all improvements (mainlanes, ramps, cross streets, driveways and frontage roads, if applicable).
3. Lane and pavement width dimensions.
4. The geometrics of ramps, auxiliary and managed lanes.
5. Proposed structure locations, lengths, and widths.
6. Direction of traffic flow on all roadways. Lane lines and arrows indicating the number of lanes must also be shown.
7. Drawing scale shall be 1"=100'
8. Control of access line, ROW lines and easements.
9. Begin and end superelevation transitions and cross slope changes.
10. Limits of riprap, block sod, and seeding.
11. Existing utilities and structures.
12. Benchmark information.
13. Radii call outs, curb location, Concrete Traffic Barrier (CTB), guard fence, crash safety items and American with Disabilities Act Accessibility Guidelines (ADAAG) compliance items.

The profile view must contain the following design elements:

1. Calculated profile grade for proposed mainlanes (cite direction), direct connectors, ramps, cross streets and frontage roads, if applicable. Vertical curve data, including "K" values must be shown.
2. Existing and proposed profiles along the proposed centerline of the mainlanes, the outside shoulder line of ramps, and the outside gutter line of the designated (north, south, east or west) bound frontage roads.
3. Water surface elevations at major stream crossing for 2, 5, 10, 25, 50, and 100 year storms.
4. Calculated vertical clearances at grade separations and overpasses, taking into account the appropriate superelevation rate, superstructure depth and required clearance.

5. The location of interchanges, mainlanes, grade separations and ramps (shall include cross sections of any proposed or existing roadway, structure, or utility crossing).
6. Drawing vertical scale to be 1"=10'.

The Engineer shall develop Removal Layouts at a scale of 1"=100' (plan view only) to identify items and quantities to be removed.

B. Typical Sections: The Engineer shall prepare typical sections for all proposed and existing roadways and structures. Typical sections must include width of travel lanes, shoulders, outer separations, border widths, curb offsets, managed lanes, and ROW. The typical section must also include Proposed Profile Grade Line (PGL), centerline, pavement design (provided by FBGPTRA), longitudinal joints, side slopes, sodding or seeding limits, concrete traffic barriers and sidewalks, if required, station limits, common proposed and existing structures including retaining walls, existing pavement removal, riprap, limits of embankment and excavation, etc.

C. Mainlane and Frontage Road Design: The Engineer shall provide the design of mainlanes with full shoulders (SH 99 NB & SB Aux Lanes between Mason and Harlem), frontage roads (SH 99 NBFR south of W Airport), entrance and exit ramps, and auxiliary lanes. The design must be consistent with the approved schematic or refined schematic and the current *TxDOT Roadway Design Manual*.

D. Cross Streets. The Engineer shall provide an intersection layout detailing the pavement design and drainage design at the intersection of SH 99 and W Airport (U-Turns only). The layout must include the horizontal and vertical alignments, curb returns, geometrics, transition length, stationing, pavement, drainage details, and American with Disabilities Act Accessibility Guidelines (ADAAG) compliance items. The Engineer shall design for full pavement width to the ROW and provide a transition to the existing roadway.

E. Cut and Fill Quantities. The Engineer shall develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 100 feet intervals. Cross sections must be delivered in standard GEOPAK format on 11"x17" sheets or roll plots and electronic files. The Engineer shall provide all criteria and input files used to generate the design cross sections. Cross sections and quantities must include existing pavement removals. Annotation shall include at a minimum existing and proposed ROW, side slopes (front & back), profiles, etc.

F. Plan Preparation. The Engineer shall prepare roadway plans, profiles and typical sections for the proposed improvements. The drawings will provide an overall view of the roadway and existing ground elevations with respect to the various storm design frequencies for the length of the project. This will enable the

FBGPTRA to determine the most feasible proposed roadway profile. The FBGPTRA will approve the proposed profiles, 3D models (if applicable), and cross sections before the Engineer continues with the subsequent submittals. This scope of services and the corresponding cost proposal are based on the Engineer preparing plans to construct freeway main lanes, ramps, frontage roads, and u-turns at intersections. The roadway plans must be organized in the sequence as described in the *PS&E Preparation manual*.

G. Pedestrian Facilities. The Engineer shall coordinate with the FBGPTRA to incorporate pedestrian facilities. All pedestrian facilities must be designed in accordance with the latest Americans with Disabilities Act Accessibility Guidelines (ADAAG), and the Texas Accessibility Standards (TAS),

FUNCTION CODE 160(161) - DRAINAGE

DRAINAGE

A. Data Collection. The Engineer shall provide the following data collection services:

1. Conduct field inspections to observe current conditions and the outfall channels, the cross drainage structures, drainage easements, the tributary channel, and land development projects that contribute flow to the tributary. Document field inspections with digital photos.
2. Collect available applicable data including GIS data and maps, site survey data, construction plans, previous reports and studies, and readily available rainfall history for the area. Particular sources of data collected must include, but are not limited to, the State, County, and Federal Emergency Management Agency (FEMA).
3. Collect available Flood Insurance Rate Maps (FIRMs), Flood Insurance Study (FIS) study data, and models.
4. Review survey data and coordinate any additional surveying needs with FBGPTRA.
5. At the FBGPTRA's request, existing drainage structures shall be represented in a 3D MicroStation model.

B. Hydrologic Studies. The Engineer shall provide the following services:

1. Incorporate in the hydrologic study a thorough evaluation of the methodology available, comparison of the results of two or more methods, and calibration of results against measured data, if available.
2. Calculate discharges using appropriate hydrologic methods and as approved by the FBGPTRA.
3. Consider the pre-construction and post-construction conditions in the hydrologic study, as required in the individual Work Authorization.
4. Obtain the drainage area boundaries and hydrologic parameters such as impervious covered areas, and overland flow paths and slopes from

appropriate sources including, but are not limited to, topographic maps, GIS modeling, construction plans, and existing hydrologic studies. The Engineer shall not use existing hydrologic studies without assessing of their validity. If necessary, obtain additional information such as local rainfall from official sites such as airports.

5. Include, at a minimum, the "design" frequency to be specified in the Work Authorization and the 1% Annual Exceedance Probability (AEP) storm frequency. The report must include the full range of frequencies (50%, 20% 10%, 4%, 2%, 1%, and 0.2% AEP).
6. Compare calculated discharges to the effective FEMA flows. If calculated discharges are to be used in the model instead of the effective FEMA flows, full justification must be documented.

C. Storm Drains.

The Engineer shall provide the following services for the SH 99 NB Frontage Road and West Airport U-Turns:

1. Design and analyze storm drains using software as approved by the FBGPTRA.
1. Size inlets, laterals, trunk line and outfall. Develop designs that minimize the interference with the passage of traffic or incur damage to the highway and local property in accordance with TxDOT's Hydraulic Design Manual, District criteria and any specific guidance provided by the FBGPTRA. Storm drain design software shall be selected as directed by the Work Authorization.
2. Determine hydraulic grade line starting at the outfall channel for each storm drain design. Use the design water surface elevation of the outfall as the starting basis (tailwater) for the design of the proposed storm sewer system.
3. Calculate manhole headlosses. Compute manhole head losses as per FHWA's HEC-22.
4. Limit discharge into existing storm drains and existing outfalls to the capacity of the existing system, which will be determined by the Engineer. Evaluate alternate flow routes or detention, if necessary, to relieve system overload. Determine the amount of the total detention storage to control storm drain runoff for the design frequency based on hydrograph routing for the full range of frequencies (50%, 20% 10%, 4%, 2%, 1%, and 0.2% AEP), as well as a rough estimate of the available on-site volume. When oversized storm drains are used for detention, the Engineer shall evaluate the hydraulic gradeline throughout the whole system, within project limits, for the design frequency or frequencies. The Engineer shall coordinate with the FBGPTRA any proposed changes to the detention systems. The

FBGPTRA will assess the effects of such changes on the comprehensive drainage studies.

5. Identify areas requiring trench protection, excavation, shoring, and de-watering.

D. Cross-Drainage Structures.

Not Applicable

E. Temporary Drainage Facilities.

The Engineer shall develop plans for all temporary drainage facilities necessary to allow staged construction of the project and to conform with the phasing of adjacent construction projects without significant impact to the hydraulic capacity of the area. Drainage area maps are not required for temporary drainage.

F. Plans, Specifications and Estimates (PS&E) Development for Hydraulics. The Engineer shall provide the following services for the SH 99 NB Frontage Road and West Airport U-Turns:

1. Prepare the PS&E package in accordance with the applicable requirements of the FBGPTRA's specifications, standards, and manuals, including the PS&E Preparation Manual. Include the following sheets and documents, as appropriate:

    i. Hydrologic Data Sheets

    ii. Hydraulic Data Sheets

    iii. Culvert Layout Sheets

    iv. Storm Drain Plan/Profile Sheets

    v. Roadway Plan & Profile Sheets including profile grade line of parallel ditches, if applicable.

    vi. All other relevant sheets

2. Identify areas requiring trench protection, excavation, shoring and de-watering.

3. Prepare drainage area maps.

4. If applicable, prepare plan and profile sheets for storm drain systems and outfall ditches.

5. Select any necessary standard details from TxDOT list of standards for items such as inlets, manholes, junction boxes and end treatments.

6. Prepare details for non-standard inlets, manholes and junction boxes.

7. Prepare drainage details for outlet protection, outlet structures and utility accommodation structures.

8. Identify pipe strength requirements.

9. Prepare drainage facility quantity summaries.

10. Identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts.

11. Consider pedestrian facilities, utility impacts, driveway grades, retaining wall and concrete traffic barrier drainage impacts.

12. Identify existing ground elevation profiles at the ROW lines on storm sewer plan and profile sheets.

FUNCTION CODE 160(162) - ROADWAY DESIGN

SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)

A. Signing. The Engineer shall prepare drawings, specifications, and details for all signs. The Engineer shall coordinate with the FBGPTRA (and other Engineers as required) for overall temporary, interim and final signing strategies and placement of signs outside contract limits. The Engineer shall:

- Prepare sign detail sheets for large guide signs showing dimensions, lettering, shields, borders, corner radii, etc., and shall provide a summary of large and small signs to be removed, relocated, or replaced.
- Designate the shields to be attached to guide signs.
- Illustrate and number the proposed signs on plan sheets.
- Select each sign foundation from TxDOT Standards.
- Prepare Sign Structure Elevations for:
  - 1 New OSB
  - 1 Existing OSB with Sign Panel Replacement
  - 1 Existing COSS with Sign Panel Replacement

B. Pavement Marking. The Engineer shall detail both permanent and temporary pavement markings and channelization devices on plan sheets. The Engineer shall coordinate with the FBGPTRA (and other Engineers as required) for overall temporary, interim, and final pavement marking strategies. The Engineer shall select Pavement markings from the latest TxDOT standards.

If requested by the FBGPTRA, the Engineer shall provide a 3D model with the proposed pavement marking stenciled onto the model.

The Engineer shall provide the following information on sign and pavement marking layouts:

- Roadway layout.
- Center line with station numbering.
- Designation of arrow used on exit direction signs
- Culverts and other structures that present a hazard to traffic.
- Location of utilities.
- Existing signs to remain, to be removed, to be relocated or replaced.
- Proposed signs (illustrated, numbered and size).
- Proposed overhead sign bridges to remain, to be revised, removed, relocated, or replaced.
- Proposed overhead sign bridges, indicating location by plan.
- Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
- Quantities of existing pavement markings to be removed.
- Proposed delineators, object markers, and mailboxes.
- The location of interchanges, mainlanes, grade separations, frontage roads and ramps.
- The number of lanes in each section of proposed highway and the location of changes in numbers of lanes.
- Right-of-way limits.
- Direction of traffic flow on all roadways.

FUNCTION CODE 160(163) - ROADWAY DESIGN

MISCELLANEOUS (ROADWAY)

The Engineer shall provide the following services:

A. **Traffic Control Plan, Detours, Sequence of Construction.** The Engineer shall prepare Traffic Control Plans (TCP) including TCP typical sections, for the project. The Engineer shall implement the current Barricade and Construction (BC) standards and TCP standards as applicable. The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers. The Engineer shall:

1. Provide a written narrative of the construction sequencing and work activities per phase and determine the existing and proposed traffic control devices (regulatory signs, warning signs, guide signs, route markers, construction pavement markings, barricades, flag personnel,

temporary traffic signals, etc.) to be used to handle traffic during each construction sequence. The Engineer shall show proposed traffic control devices at grade intersections during each construction phase (stop signs, flag person, signals, etc.). The Engineer shall show temporary roadways, ramps, structures and detours required to maintain lane continuity throughout the construction phasing. If temporary shoring is required, prepare layouts and show the limits on the applicable TCP.

2. Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access. The Engineer shall notify the FBGPTRA in the event existing access must be eliminated, and must receive approval from the FBGPTRA prior to any elimination of existing access.
3. Design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The Engineer shall show horizontal and vertical location of culverts and required cross sectional area of culverts.
4. Prepare each TCP in coordination with the FBGPTRA. The TCP must include interim signing for every phase of construction. Interim signing must include regulatory, warning, construction, route, and guide signs. The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers, which are responsible for the preparation of the PS&E for adjacent projects.
5. Maintain continuous access to abutting properties during all phases of the TCP.
6. Make every effort to prevent detours and utility relocations from extending beyond the proposed Right-of-way lines. If it is necessary to obtain additional permanent or temporary easements and Right-of-Entry, the Engineer shall notify the FBGPTRA in writing of the need and justification for such action. The Engineer shall identify and coordinate with all utility companies for relocations required.
7. Describe the type of work to be performed for each phase of sequence of construction and any special instructions (e.g. storm drain, culverts, bridges, railing, illumination, signals, retaining walls, signing, paving surface sequencing or concrete placement, ROW restrictions, utilities, etc.) that the contractor should be made aware to include limits of construction, obliteration, and shifting or detouring of traffic prior to the proceeding phase.
8. Include the work limits, the location of channelizing devices, positive barrier, location and direction of traffic, work area, stations, pavement markings, and other information deemed necessary for each phase of construction.
9. Identify and delineate any outstanding ROW parcels.
10. Delineate areas of wetlands on traffic control plans.

B. Illumination. The Engineer shall refer to TxDOT's *Highway Illumination Manual* and other deemed necessary FBGPTRA approved manuals for design of safety lighting and underpass lighting. The Engineer shall prepare photometrics for safety and underpass lighting to ensure adequate light coverage. The Engineer shall prepare circuit wiring diagrams showing the number of luminaries on each circuit, electrical conductors, length of runs, service pole assemblies. Underpass lighting for proposed u-turns must be used on all structures within each project. The Engineer shall integrate existing illumination within the project limits into the proposed design. The Engineer shall coordinate with the FBGPTRA to determine the location of proposed ramp safety lighting, and underpass lighting.

C. Storm Water Pollution Prevention Plans (SW3P). The Engineer shall develop SW3P, on separate sheets from (but in conformance with) the TCP, to minimize potential impact to receiving waterways. The SW3P must include text describing the plan, quantities, type, phase and locations of erosion control devices and any required permanent erosion control.

D. Compute and Tabulate Quantities. The Engineer shall provide the summaries and quantities within all formal submittals.

E. Estimate. The Engineer shall independently develop and report quantities necessary to construct the contract in standard FBGPTRA bid format at the Final PS&E submittal-.

F. Contract time determination. The Engineer shall prepare a detailed contract time estimate to determine the approximate time required for construction of the project in calendar and working days (based on the TxDOT standard definitions of calendar and working days) at the 90% and Final PS&E milestone. The schedule must include tasks, subtasks, critical dates, milestones, deliverables, and review requirements in a format which depicts the interdependence of the various items and adjacent construction packages. The Engineer shall provide assistance to the FBGPTRA in interpreting the schedule.

G. Specifications and General Notes. The Engineer shall identify necessary standard specifications, special specifications, special provisions and the appropriate reference items. The Engineer shall prepare General Notes from the TxDOT Houston District's *Master List of General Notes*, Special Specifications and Special Provisions for inclusion in the plans and bidding documents. The Engineer shall provide General Notes, Special Specifications and Special Provisions in the required format.

H. Incorporate SH 99 SB Exit Ramp. The Engineer shall incorporate SH 99 SB Exit Ramp provided by FBGPTRA into PS&E package.

ANTICIPATED SCHEDULE

- NTP: November 5, 2019
- Receive Partial Survey: January 6, 2020
- Receive Final Survey: January 20, 2020
- 50% Submittal: March 6, 2020
- 90% Submittal: April 24, 2020
- Final Submittal: May 29, 2020

Hwy: SH 99
County: Ft. Bend

ATTACHMENT B-FEE SCHEDULE - LJA ENGINEERING, INC.
METHOD OF PAYMENT:

Lump Sum - LJA Engineering, Inc.
Lump Sum - LJA Surveying, Inc.

COMPANY	FEE
LJA Engineering, Inc.	$516,438.50
LJA Surveying, Inc.	$91,758.00
TOTAL	**$608,196.50**

Attachment B-FEE SCHEDULE (LJA Engineering, Inc.)
METHOD OF PAYMENT: LUMP SUM

PRIME PROVIDER NAME: LJA Engineering, Inc.
PROJECT NAME/CSJ: West Airport Improvements/Harlem & Mason ML Widening
Limits: West Airport Frontage Road/ML between Harlem Road and Mason Road

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
ROUTE AND DESIGN STUDIES (FC 110)											
A. DATA COLLECTION & FIELD RECONNAISSANCE	4	8	8		8				28	N/A	N/A
B. REVIEW DESIGN CRITERIA		2	4		4				10	N/A	N/A
C. PRELIMINARY COST ESTIMATES	1	2	4		8				15	N/A	N/A
D. GEOTECHNICAL BORINGS AND INVESTIGATIONS										N/A	N/A
1. COORDINATE / REVIEW GEOTECHNCIAL REPORT	4	4	4						12	N/A	N/A
HOURS SUB-TOTALS	9	16	20	0	20	0	0	0	65	0	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$2,205.00	$3,264.00	$3,040.00	$0.00	$2,020.00	$0.00	$0.00	$0.00	$10,529.00		
% DISTRIBUTION OF STAFFING	13.85%	24.62%	30.77%	0.00%	30.77%	0.00%	0.00%	0.00%			
SUBTOTAL (FC 110)									**$10,529.00**		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
RIGHT-OF-WAY DATA (FC 130)											
A. UTILITY ENGINEERING											
1. UTILITY COORDINATION (General Coordination + 2 Meetings)	8	8	16					4	36	N/A	N/A
2. UTILITY RESEARCH		4	8		16			4	32	N/A	N/A
3. UTILITY CONFLICTS		4	8		8				20	N/A	N/A
HOURS SUB-TOTALS	8	16	32	0	24	0	0	8	88	0	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$1,960.00	$3,264.00	$4,864.00	$0.00	$2,424.00	$0.00	$0.00	$632.00	$13,144.00		
% DISTRIBUTION OF STAFFING	9.09%	18.18%	36.36%	0.00%	27.27%	0.00%	0.00%	9.09%			
SUBTOTAL (FC 130)									**$13,144.00**		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
MANAGING CONTRACTED / DONATED PE (FC 145)											
A. PREPARE MONTHLY PROGRESS REPORTS	12	12						6	30	N/A	N/A
B. ATTEND COORDINATION MEETINGS (ASSUME 8 MEETINGS)	16	16							32	N/A	N/A
C. PREPARE MEETING MINUTES	8	8						4	20	N/A	N/A
D. PROJECT COORDINATION AND CONFERENCE CALLS	20	20							40	N/A	N/A
HOURS SUB-TOTALS	56	56	0	0	0	0	0	10	122	0	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$13,720.00	$11,424.00	$0.00	$0.00	$0.00	$0.00	$0.00	$790.00	$25,934.00		
% DISTRIBUTION OF STAFFING	45.90%	45.90%	0.00%	0.00%	0.00%	0.00%	0.00%	8.20%			
SUBTOTAL (FC 145)									**$25,934.00**		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
DESIGN SURVEYS AND CONSTRUCTION SURVEYS (FC 150)											
A. INCORPORATE SURVEY CONTROL SHEETS		2			4		4		10	N/A	N/A
B. COORDINATE/REVIEW SURVEY	2	2	2		8	8			22	N/A	N/A
HOURS SUB-TOTALS	2	4	2	0	12	8	4	0	32	0	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$490.00	$816.00	$304.00	$0.00	$1,212.00	$1,192.00	$384.00	$0.00	$4,398.00		
% DISTRIBUTION OF STAFFING	6.25%	12.50%	6.25%	0.00%	37.50%	25.00%	12.50%	0.00%			
SUBTOTAL (FC 150)									**$4,398.00**		

Attachment B-FEE SCHEDULE (LJA Engineering, Inc.)
METHOD OF PAYMENT: LUMP SUM

PRIME PROVIDER NAME: LJA Engineering, Inc.
PROJECT NAME/CSJ: West Airport Improvements/Harlem & Mason ML Widening
Limits: West Airport Frontage Road/ML between Harlem Road and Mason Road

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
ROADWAY DESIGN CONTROLS (FC160)											
A. ROADWAY DESIGN										N/A	N/A
1. HORIZONTAL ALIGNMENT DATA SHEET	2	4	12	16	20	20	12		86	4	22
B. TYPICAL SECTIONS										N/A	N/A
1. EXISTING TYPICAL SECTIONS	3	3	6		12		24		48	3	16
2. PROPOSED TYPICAL SECTIONS	5	10	20		40		48		123	5	25
C. MAINLANE AND FRONTAGE ROAD DESIGN										N/A	N/A
1. SH 99 NB FRTG RD P&P (1"=100')	4	4	12	16	30	16	30		112	4	28
2. SH 99 NB EXIT RAMP P&P (1"=100')	2	2	6	8	14	8	16		56	2	28
3. SH 99 NB ENT RAMP P&P (1"=100')	2	2	6	8	14	8	16		56	2	28
4. SH 99 NBML AUX LANE P&P (1"=100')	3	3	6	8	16	8	20		64	3	21
5. SH 99 SBML AUX LANE P&P (1"=100')	4	4	8	12	20	12	24		84	4	21
D. CROSS STREETS										N/A	N/A
1. SH 99 NB TO SB U-TURN AT W AIRPORT P&P (1"=100')	1	2	2	4	4	4	8		25	1	25
2. SH 99 SB TO NB U-TURN AT W AIRPORT P&P (1"=100')	2	4	4	8	8	8	16		50	2	25
3. SH 99 AT W AIRPORT U-TURN GRADING LAYOUT (1"=40')	1	2	3	4	6	4	8		28	1	28
E. CUT AND FILL QUANTITIES (100' INTERVALS)	10	10	25	25	80	50			200	50	4
F. PLAN PREPARATION										N/A	N/A
1. SUMMARY OF ROADWAY AND REMOVAL QUANTITIES	2	2	3	3	8		2		20	1	20
2. ROADWAY STANDARDS	2				4		4		10	10	1
3. TITLE SHEET	2		2		4		4		12	1	12
4. INDEX OF SHEETS	2		2		6		4		14	1	14
5. PROJECT LAYOUT		2	4		6		8		20	1	20
6. MISCELLANEOUS ROADWAY DETAILS	2	2	4		8		8		24	1	24
G. PEDESTRIAN FACILITIES	1	1	4		4				10	N/A	N/A
HOURS SUB-TOTALS	50	57	129	112	304	138	252	0	1,042	96	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$12,250.00	$11,628.00	$19,608.00	$15,232.00	$30,704.00	$20,562.00	$24,192.00	$0.00	$134,176.00		
% DISTRIBUTION OF STAFFING	4.80%	5.47%	12.38%	10.75%	29.17%	13.24%	24.18%	0.00%			
SUBTOTAL (FC 160)									**$134,176.00**		

Attachment B-FEE SCHEDULE (LJA Engineering, Inc.)
METHOD OF PAYMENT: LUMP SUM

PRIME PROVIDER NAME: LJA Engineering, Inc.
PROJECT NAME/CSJ: West Airport Improvements/Harlem & Mason ML Widening
Limits: West Airport Frontage Road/ML between Harlem Road and Mason Road

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
DRAINAGE (FC161)											
A. DATA COLLECTION		8	8		8				24	N/A	N/A
B. HYDROLOGIC STUDIES										N/A	N/A
1. OVERALL DRAINAGE AREA MAP	2	4	8		8		8		30	1	30
2. COMPUTE DESIGN FLOWS	2	4	10		24				40	N/A	N/A
3. DETENTION REQUIREMENTS	2	6	12		20				40	N/A	N/A
4. DRAINAGE MEMO FOR W AIRPORT RAMPS AND U-TURNS	2	4	6		8			4	24	N/A	N/A
5. DRAINAGE MEMO FOR SH 99 MAINLANE AUX LANES	2	4	6		8			4	24	N/A	N/A
C. STORM DRAINS										N/A	N/A
1. EVALUATE EXISTING STORM SEWER CAPACITY	2	10	16		32				60	N/A	N/A
2. SUB DRAINAGE AREA MAPS (WEST AIRPT & NB FRTG RD ONLY) (1"=100')	4	18	36		60		60		178	7	25
3. HYDRAULIC DATA SHEETS		2	8		12		30		52	3	17
4. SH 99 NB FRTG RD DRAINAGE P&P (1"=100')	4	8	16		30		40		98	4	25
5. SH 99 NB EXIT RAMP DRAINAGE P&P (1"=100')	2	4	8		12		24		50	2	25
6. SH 99 NB ENT RAMP DRAINAGE P&P (1"=100')	2	4	8		12		24		50	2	25
7. W AIRPORT U-TURN DRAINAGE P&P (1"=100')		2	8		16		24		50	2	25
D. TEMPORARY DRAINAGE FACILITIES	2	2	4		8		8		24	N/A	N/A
E. PLANS, SPECIFICATIONS AND ESTIMATES (PS&E) DEVELOPMENT FOR HYDRAULICS										N/A	N/A
1. SUMMARY OF QUANTITIES	2	2	3	3	8		2		20	1	20
2. DRAINAGE STANDARDS	2				4		4		10	10	1
3. MISCELLANEOUS DRAINAGE DETAILS	1	8	8		8	8	4		37	1	37
HOURS SUB-TOTALS	31	90	165	3	278	8	228	8	811	0	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$7,595.00	$18,360.00	$25,080.00	$408.00	$28,078.00	$1,192.00	$21,888.00	$632.00	$103,233.00		
% DISTRIBUTION OF STAFFING	3.82%	11.10%	20.35%	0.37%	34.28%	0.99%	28.11%	0.99%			
SUBTOTAL (FC 161)									**$103,233.00**		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (FC 162)											
A / B. SIGNING / PAVEMENT MARKING										N/A	N/A
1. SIGNING AND MARKING LAYOUTS (1"=100')	2	4	8	24	40	24	80		182	12	15
2. SUMMARY OF SMALL SIGN TABULATIONS			8		16		16		40	4	10
3. SUMMARY OF LARGE SIGN TABULATION			2		4		4		10	1	10
4. SIGN DETAILS		2	6	8		6	8		30	1	30
5. OVERHEAD STRUCTURES										N/A	N/A
a. OSB ELEV LAYOUT (1 NEW SIGN STRUCTURE)	1	2	8	8		4	8		31	1	31
b. OSB ELEV LAYOUT (1 SIGN PANEL REPLACEMENT)	1	2	8	8		4	8		31	1	31
c. COSS ELEV LAYOUT (1 SIGN PANEL REPLACEMENT)	1	2	8	8		4	8		31	1	31
6. SUMMARY OF QUANTITIES	2	2	3	3	8		2		20	1	20
7. SIGNING AND MARKING STANDARDS	2				4		4		10	10	1
HOURS SUB-TOTALS	9	14	51	59	72	42	138	0	385	0	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$2,205.00	$2,856.00	$7,752.00	$8,024.00	$7,272.00	$6,258.00	$13,248.00	$0.00	$47,615.00		
% DISTRIBUTION OF STAFFING	2.34%	3.64%	13.25%	15.32%	18.70%	10.91%	35.84%	0.00%			
SUBTOTAL (FC 162)									**$47,615.00**		

MULLER LAW GROUP
A PROFESSIONAL LIMITED LIABILITY COMPANY
202 CENTURY SQUARE BOULEVARD | SUGAR LAND, TX 77478 | 281.500.6050

Attachment B-FEE SCHEDULE (LJA Engineering, Inc.)
METHOD OF PAYMENT: LUMP SUM

PRIME PROVIDER NAME: LJA Engineering, Inc.
PROJECT NAME/CSJ: West Airport Improvements/Harlem & Mason ML Widening
Limits: West Airport Frontage Road/ML between Harlem Road and Mason Road

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
MISCELLANEOUS (ROADWAY) (FC 163)											
A. TRAFFIC CONTROL PLAN, DETOURS, SEQUENCE OF CONST											
1. ADVANCE WARNING SIGN LAYOUT		2	4		6		8		20	2	10
2. MAINLANE AND FRONTAGE TRAFFIC CONTROL											
a. TRAFFIC CONTROL TYPICAL SECTIONS - PHASE 1 (NB FRTG RD, RAMPS, U-TURNS)	1	2	3		6		8		20	1	20
b. TRAFFIC CONTROL PLAN LAYOUT - PHASE 1 (NB FRTG RD, RAMPS, U-TURNS)	5	9	22		35	24	48		143	7	20
c. TRAFFIC CONTROL TYPICAL SECTIONS - PHASE 2 (NB FRTG RD, RAMPS, U-TURNS)	1	2	3		6		8		20	1	20
d. TRAFFIC CONTROL PLAN LAYOUT - PHASE 2 (NB FRTG RD, RAMPS, U-TURNS)	5	9	22		35	24	48		143	7	20
e. TRAFFIC CONTROL TYPICAL SECTIONS - PHASE 1 (NB & SB ML AUX LANES)	1	2	3		6		8		20	1	20
f. TRAFFIC CONTROL PLAN LAYOUT - PHASE 1 (NB & SB ML AUX LANES)	4	6	16		26	18	30		100	5	20
3. TCP SUMMARY OF QUANTITIES	2	2	6		8		2		20	1	20
4. TCP STANDARDS	2				4		4		10	10	1
B. ILLUMINATION										N/A	N/A
1A. SAFETY LIGHTING RELOCATION LAYOUTS	4	12	12		20	12	40		100	8	13
1B. UNDERPASS LIGHTING LAYOUTS (W AIRPORT)	1	6	12		16	4	16		55	1	55
1C. PHOTOMETRIC ANALYSIS	2	4	8		16				30	N/A	N/A
2. BRIDGE CONDUIT ELEVATION DETAILS	1	4	8		10		12		35	1	35
a. CIRCUIT DIAGRAMS		6	6		12		16		40	2	20
b. VOLTAGE DROP CALCULATIONS		4	8		12				24	N/A	N/A
c. COORDINATE POWER DROP			5		5				10	N/A	N/A
d. ILLUMINATION SUMMARY OF QUANTITIES	2	2	8		8		4		24	1	24
e. ILLUMINATION STANDARDS	2				4		4		10	10	1
C. STORM WATER POLLUTION PREVENTION PLANS (SW3P)										N/A	N/A
1. EPIC SHEET	1		3		6				10	1	10
2. SW3P SHEET	1		3		6				10	1	10
3. SW3P LAYOUTS (1"=100')	12	24	36		48		60		180	12	15
4. SW3P SUMMARY OF QUANTITIES	2	2	6		8		2		20	1	20
5. SW3P STANDARDS	2				4		4		10	10	1
D. COMPUTE AND TABULATE QUANTITIES	2	10	24		24				60	N/A	N/A
E. ESTIMATE (Excel spreadsheet)	2	4	30		24				60	N/A	N/A
F. CONTRACT TIME DETERMINATION	6	8	30		40				84	N/A	N/A
G. SPECIFICATIONS AND GENERAL NOTES	8	8	8	16					40	N/A	N/A
H. INCORPORATE SH 99 SB EXIT RAMP INTO PLANS	2	2	2		8	4			18	N/A	N/A
HOURS SUB-TOTALS	71	130	288	16	403	86	322	0	1,316	83	
CONTRACT RATE PER HOUR	$245.00	$204.00	$152.00	$136.00	$101.00	$149.00	$96.00	$79.00			
TOTAL LABOR COSTS	$17,395.00	$26,520.00	$43,776.00	$2,176.00	$40,703.00	$12,814.00	$30,912.00	$0.00	$174,296.00		
% DISTRIBUTION OF STAFFING	5.40%	9.88%	21.88%	1.22%	30.62%	6.53%	24.47%	0.00%			
SUBTOTAL (FC 163)									**$174,296.00**		

DESCRIPTION	TOTAL MH BY FC	TOTAL COST BY FC
ROUTE AND DESIGN STUDIES (FC 110)	65	$10,529.00
RIGHT-OF-WAY DATA (FC 130)	88	$13,144.00
MANAGING CONTRACTED / DONATED PE (FC 145)	122	$25,934.00
DESIGN SURVEYS AND CONSTRUCTION SURVEYS (FC 150)	32	$4,398.00
ROADWAY DESIGN CONTROLS (FC160)	1,042	$134,176.00
DRAINAGE (FC161)	811	$103,233.00
SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (FC 162)	385	$47,615.00
MISCELLANEOUS (ROADWAY) (FC 163)	1,316	$174,296.00

OTHER DIRECT EXPENSES	# OF UNITS	COST/UNIT	UNIT	
Mileage	200	$0.58	mile	$116.00
Courier Services	10	$25.00	each	$250.00
Photocopies B/W (8 1/2" x 11")	100	$0.10	each	$10.00
Photocopies B/W (11" x 17")	3000	$0.20	each	$600.00
Photocopies Color (8 1/2" x 11")	50	$0.75	each	$37.50
Photocopies Color (11" x 17")	400	$1.25	each	$500.00
Plots (Color on Bond)	400	$4.00	square foot	$1,600.00
SUBTOTAL DIRECT EXPENSES				**$3,113.50**

SUMMARY	
TOTAL COSTS FOR LJA ONLY	$513,325.00
NON-SALARY (OTHER DIRECT EXPENSES) FOR LJA ONLY	$3,113.50
GRAND TOTAL LJA	**$516,438.50**

202 Century Square Boulevard | Sugar Land, TX 77478 | 281.500.6050
MULLER LAW GROUP
A Professional Limited Liability Company

ATTACHMENT B-FEE SCHEDULE (LJA Surveying, Inc.)
METHOD OF PAYMENT: LUMP SUM

PRIME PROVIDER NAME: LJA Engineering, Inc.
PROJECT NAME/CSJ: West Airport Improvements/Harlem & Mason ML Widening
Limits: West Airport Frontage Road/ML between Harlem Road and Mason Road

TASK DESCRIPTION	3-PERSON FIELD CREW	RPLS PROJECT MANAGER	SENIOR SURVEY TECH	FIELD CREW SUPERVISOR	RPLS SURVEY MANAGER	GPS SPECIALIST	LIDAR FIELD CREW	PHOTOGRAMMETRY FIELD CREW	AERIAL PROCESSING TECHNICIAN	PROJECT CO-ORDINATOR FWAL	AIRBORNE LIDAR PROCESSING TECHNICIAN	TOTAL LABOR HRS. & COSTS	NO OF DWGS	HR / SHT
DESIGN SURVEYS AND CONSTRUCTION SURVEYS (FC 150)														
A. RECOVER AND VERIFY EXISTING TxDOT CONTROL	40	2	2	4	1	20						69	N/A	N/A
B. SET AND TIE ADDITIONAL CONTROL AS REQUIRED	30	2	2	3	1	3						41	N/A	N/A
C. PERFORM DATUM TIES AS REQUIRED	10	1	2	1	1	4						19	N/A	N/A
D. LOCATE EXISTING IMPROVEMENTS NOT SHOWN IN THE PLANIMETRICS	20	4	10	2	1	4						41	N/A	N/A
E. PROVIDE DETAILS OF EXISTING BRIDGE STRUCTURES	10	2	4	1	1	3						21	N/A	N/A
F. OBTAIN STORM SEWER CROSS CULVERTS MANHOLE FLOWLINES AND LOCATIONS	20	2	8	2	1	4						37	N/A	N/A
G. LOCATE SELECTED ROW MONUMENTS	10	6	6	1	1	3						27	N/A	N/A
H. SURVEY CONTROL INDEX SHEET & MONUMENT SKETCHES		8	24		3							35	N/A	N/A
J. HORIZONTAL AND VERTICAL CONTROL SHEETS		18	40		4							62	N/A	N/A
K. TIE GROUND CONTROL FOR AERIAL DATA	20	3	2	2	1	3						31	N/A	N/A
L. LIDAR ACQUISITION							4				6	10	N/A	N/A
M. PHOTOGRAMMETRY								4			6	10	N/A	N/A
N. AERIAL DATA TERRASOLID AND TOPODOT PROCESSING - DTM									120			120	N/A	N/A
O. LIIDAR CREW MOBILIZATION FEE							0.4					0.4	N/A	N/A
P. SAFETY AND AIRSPACE EVALUATION FEE										1		1	N/A	N/A
HOURS SUB-TOTALS	160	48	100	16	15	44	4	4	120	1	12	524	0	
CONTRACT RATE PER HOUR	$175.00	$165.00	$110.00	$125.00	$185.00	$160.00	$1,800.00	$675.00	$160.00	$250.00	$125.00			
TOTAL LABOR COSTS	$28,000.00	$7,920.00	$11,000.00	$2,000.00	$2,775.00	$7,040.00	$7,920.00	$2,700.00	$19,200.00	$250.00	$1,500.00	$90,305.00		
% DISTRIBUTION OF STAFFING	30.51%	9.15%	19.07%	3.05%	2.86%	8.39%	0.84%	0.76%	22.68%	0.19%	2.29%			
SUBTOTAL (FC 150)												**$90,305.00**		

DESCRIPTION	TOTAL MH BY FC	TOTAL COST BY FC
DESIGN SURVEYS AND CONSTRUCTION SURVEYS (FC 150)	524	$90,305.00

OTHER DIRECT EXPENSES	# OF UNITS	COST/UNIT	UNIT	
Mileage	1600	$0.58	mile	$928.00
Plots (B/W on Bond)	100	$1.25	square foot	$125.00
Plots (Color on Bond)	100	$4.00	square foot	$400.00
SUBTOTAL DIRECT EXPENSES				**$1,453.00**

SUMMARY	
TOTAL COSTS FOR LJA SURVEY ONLY	$90,305.00
NON-SALARY (OTHER DIRECT EXPENSES) FOR LJA SURVEY ONLY	$1,453.00
GRAND TOTAL LJA	**$91,758.00**

Attachment C

The Engineer shall furnish certificates of insurance to the FBGPTRA evidencing compliance with the insurance requirements hereof. Certificates shall indicate name of the Engineer, name of insurance company, policy number, term of coverage and limits of coverage. The Engineer shall cause its insurance companies to provide the FBGPTRA with at least 30 days prior written notice of any cancellation or non-renewal of the insurance coverage required under this Agreement. The Engineer shall obtain such insurance from such companies having a Bests rating of B+/VII or better, licensed or approved to transact business in the State of Texas, and shall obtain such insurance of the following types and minimum limits:

a. Workers' Compensation insurance in accordance with the laws of the State of Texas, or state of hire/location of Services, and Employers' Liability coverage with a limit of not less than $1,000,000 each employee for Occupational Disease, $1,000,000 policy limit for Occupational Disease; and Employer's Liability of $1,000,000 each accident.

b. Commercial General Liability insurance including coverage for Products/Completed Operations, Blanket Contractual, Broad Form Property Damage, Personal Injury/Advertising Liability, and Bodily Injury and Property Damage with limits of not less than:

$2,000,000	general aggregate limit
$1,000,000	each occurrence, combined single limit
$2,000,000	aggregate Products, combined single limit
$1,000,000	aggregate Personal Injury/Advertising Liability
$50,000	Fire Legal Liability
$5,000	Premises Medical

c. Business Automobile Liability coverage applying to owned, non-owned and hired automobiles with limits not less than $1,000,000 each occurrence combined single limit for Bodily Injury and Property Damage combined.

d. Umbrella Excess Liability insurance written as excess of Employer's Liability, with limits not less than $2,000,000 each occurrence combined single limit.

e. Professional Liability insurance with limits not less than $2,000,000 each claim/annual aggregate.

The FBGPTRA and the FBGPTRA's Directors shall be named as additional insureds to all coverages required above, except for those requirements in paragraphs "a" and "e." All policies written on behalf of the Engineer shall contain a waiver of subrogation in favor of the FBGPTRA and the FBGPTRA's Directors, with the exception of insurance required under paragraph "e."

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2019-552109

Date Filed:
10/16/2019

Date Acknowledged:
10/16/2019

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

LJA Engineering, Inc.
Houston, TX United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

Fort Bend Grand Parkway Toll Road Authority

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.

19-03865
Professional Engineering Services for SH 99 at West Airport

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary
Ladner, Calvin T	Houston, TX United States	X	
Collins, Jeff P	Houston, TX United States	X	
Ross, James D	Houston, TX United States	X	

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is [redacted], and my date of birth is [redacted].

My address is [redacted].
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in [redacted] County, State o[redacted] on the [redacted] day of [redacted], 2[redacted].
(month) (year)

[redacted]
Signature of authorized agent of contracting business entity
(Declarant)