

ENGINEERING SERVICES AGREEMENT

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

WITNESSETH

WHEREAS, the FBCTRA proposes to design the Fort Bend Parkway Toll Road, Segment B-2, Section B, from station 925+00 to station 981+50 (Project Numbers: 101-1027 (FCP27)), in Fort Bend County, Texas, (the "Project");

WHEREAS, the FBCTRA 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 FBCTRA 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 \$860,876.42. 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 \$860,876.42, 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 FBCTRA.

- 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 FBCTRA, 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 FBCTRA. 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 FBCTRA, 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 FBCTRA 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 FBCTRA 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 FBCTRA). 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 FBCTRA 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 FBCTRA within thirty (30) calendar days after the FBCTRA'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 FBCTRA.

4. The FBCTRA's Option to Terminate

- a. The FBCTRA 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 FBCTRA 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 FBCTRA. The Engineer's final invoice for said services will be presented to and paid by the FBCTRA 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 FBCTRA 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 FBCTRA 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 FBCTRA'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 FBCTRA by virtue of this Agreement or otherwise. Failure of the FBCTRA 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 FBCTRA 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 FBCTRA, or any duly authorized agent of the FBCTRA, 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. FBCTRA'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 FBCTRA, subject to all of the following terms and conditions; provided, however, FBCTRA 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 FBCTRA 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 FBCTRA 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 FBCTRA's sole risk and without liability or legal exposure to Engineer.

FBCTRA 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 FBCTRA 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 FBCTRA, 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 FBCTRA that Engineer is permitted to use in connection with the services will not be used without FBCTRA's consent and shall remain the sole and exclusive properties of FBCTRA, 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 FBCTRA, to perform the Scope of Services when and as required and without delays. It is understood that the FBCTRA 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 FBCTRA'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 FBCTRA, is incompetent, or, by his conduct, becomes detrimental to the Project, shall, upon request of the FBCTRA, 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 FBCTRA

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 FBCTRA. Responsibility to the FBCTRA for sublet work shall remain with the Engineer.

10. Conference

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

11. Appearance as Witness

If requested by the FBCTRA, 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 FBCTRA 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 FBCTRA 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 FBCTRA relating to the property or facilities with respect to which this Agreement pertains, Engineer and the FBCTRA agree as follows:

- a. **ENGINEER WILL INDEMNIFY AND HOLD HARMLESS THE FBCTRA, 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 FBCTRA OR STRICT LIABILITY IMPOSED UPON THE FBCTRA AS A MATTER OF LAW (INCLUDING STRICT LIABILITY IMPOSED UPON THE FBCTRA 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 FBCTRA 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 FBCTRA and the Engineer agree to submit the dispute to mediation. In the event the FBCTRA 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 FBCTRA 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 FBCTRA under this Agreement, shall be delivered to the Fort Bend County 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 IDCUS, Inc., 15915 Katy Freeway, Suite 300, Houston, TX 77094, Attention: Larry Janak, PE, or such other place or places as the Engineer may designate by written notice delivered to the FBCTRA.

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 FBCTRA, setting forth a full and concise statement of the facts pertaining thereto. The Engineer shall also immediately send the FBCTRA 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 FBCTRA's Acts

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

19. Limitations

Notwithstanding anything herein to the contrary, all covenants and obligations of the FBCTRA under this Agreement shall be deemed to be valid covenants and obligations only to extent authorized by the Act creating the FBCTRA 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 FBCTRA 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 FBCTRA 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

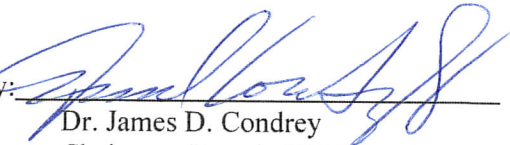
specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

- b. Prior to execution of this Agreement by FBCTRA, 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 FBCTRA may be obtained by contacting the FBCTRA's records administrator at (281) 500-6050.

[Signatures Follow]

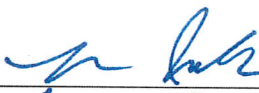
IN WITNESS WHEREOF, the parties hereto have signed or have caused their respective names to be signed to multiple counterparts to be effective on the 16th day of October, 2019.

FORT BEND COUNTY TOLL ROAD
AUTHORITY, a Texas local government
corporation

By: 

Dr. James D. Condrey
Chairman, Board of Directors

IDCUS, Inc.
ENGINEER

By: 

Name: Larry F. Jank
Title: Principal

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 SCOPE OF SERVICES

SERVICES PROVIDED BY THE ENGINEER:

**Preliminary Engineering, Final Design & PS&E
Fort Bend Parkway Segment B-2 / Section B
From west of Sienna Parkway to Sienna Ranch Road
(From Station 925+00 to Station 981+50)**

The work to be performed by the Engineer under this scope of work consists of providing various engineering design and coordination services for the development of Fort Bend Parkway B-2 /Section B will include Modified Schematics and Final Design PS&E for approximately 1.07 miles (5650 ft.) from west of Sienna Parkway to just west of Sienna Ranch Road. Fort Bend Parkway Segment B-2 will consist of developing updated schematics/PS&E for Main Lanes and Frontage roads/Access ramps from approximately STA 925+00 to Sienna Ranch Road. Design will incorporate an entrance and exit ramp (three lane southbound approach intersection at Sienna Ranch with Right & Left Turning Lanes), left turn lane for southbound Sienna Ranch Rd to the entrance ramp, Drainage Impact study, Hydrologic & Hydraulic design, Bridge design which will include two traffic lanes along with inside and outside shoulders in each direction and CTB center divider to cross Flat Bank Creek, two phase Traffic Control Plans for construction sequence for Sienna Ranch Road improvements, SPM, SW3P, Utilities, Earthwork, Cost Estimate, Quantities & Specifications.

GENERAL REQUIREMENTS

1.1. Design Criteria. The Engineer shall prepare all work in accordance with the latest version of applicable FBCTRA / TxDOT's procedures, specifications, manuals, guidelines, standard drawings, standard specifications or previously approved special provisions and special specifications to 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, 2014*, and other FBCTRA / TxDOT approved manuals. When design criteria are not identified in FBCTRA / TxDOT manuals, the Engineer shall notify the FBCTRA / TxDOT 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 guidelines shown in *Developing PS&E for a particular District* which the Engineer may download from the TxDOT's website. The Engineer shall prepare each Plan, Specification, and Estimate (PS&E) package in a form suitable for letting through the FBCTRA / TxDOT's construction contract bidding and awarding process.

The Engineer shall notify the FBCTRA / TxDOT and coordinate with adjacent engineers on all controls at project interfaces. The Engineer shall document the coordination effort, and

each engineer shall provide written concurrence regarding the agreed project controls and interfaces. In the event the Engineer and the other adjacent engineers are unable to agree, the Engineer and each adjacent engineer shall meet jointly with the FBTRA / GEC for resolution. The FBCTRA / GEC will have authority over the Engineer's disagreements and the FBTRA / GEC's decision will be final.

1.2. Progress Reporting and Invoicing. The Engineer shall invoice according to Function Code breakdowns shown in Attachment "A" of the Contract for Engineering Services and Exhibit "B" - *Fee Schedule* for Fort Bend parkway Segment B-2. The Engineer shall submit each invoice in a format acceptable to the FBCTRA / GEC..

The Engineer shall submit a monthly written progress report to the FBCTRA / GEC'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.

The Engineer shall schedule milestone submittals at 30%, 60%, 90%, 95% and final project completion phases. The Engineer shall advise the FBCTRA / GEC in writing if the Engineer is not able to meet the scheduled milestone review date.

Once the project goes to letting, all electronic files shall be delivered within 30 days of written request in conformance with the latest version of the FBCTRA / GEC.

1.3. Traffic Control Plans. (IMS) The Engineer shall provide all planning, labor, and equipment to develop and to execute each Traffic Control Plan (TCP) needed by the Engineer to perform services for Fort Bend Parkway Segment B2 / Section B. The Engineer shall comply with the requirements of the most recent edition of the TMUTCD. The Engineer shall provide all signs, flags, and safety equipment needed to execute the approved TCP.

1.4. Coordination. The Engineer shall coordinate issues and communications with FBTRA / GEC.'s Project Manager. The FBTRA / GEC will communicate the resolution of issues and provide the Engineer direction through the FBTRA / GEC's Project Manager.

1.5. Level of Effort. For Fort Bend Parkway Segment B2 / Section B, the Engineer shall base the level of effort at each phase on the prior work developed in earlier phases without unnecessary repetition or re-study. As directed by the FBCTRA / GEC, the Engineer shall provide written justification regarding whether or not additional or repeated level of effort of earlier completed work is warranted, or if additional detail will be better addressed at a later stage in the project development.

1.6. Quality Assurance and Quality Control. 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 Authority'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 Authority in advance, the Authority, 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.

1.7. Use of TxDOT's Standards. The Engineer shall identify and insert the applicable, current TxDOT's Standard Details, District Standard Details, or miscellaneous details that have been approved for use as frequently as is feasible. 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.

1.8. Organization of Plan Sheets. The PS&E shall be complete and organized in accordance with TxDOT criterion. The PS&E package shall be suitable for the bidding and awarding of a construction contract, and in accordance with the latest FBCTRA's policies and procedures.

TASK DESCRIPTIONS AND FUNCTION CODES

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

FC 102(110) - Route and Design Studies

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

1. Data, if available, from the FBCTRA / TxDOT, including "as-built plans", existing schematics, right-of-way maps, Subsurface Utility Engineering (SUE) mapping, existing cross sections, existing planimetric mapping, existing channel and drainage easement data, existing traffic counts, accident data, Bridge Inspection records, current unit bid price information, current special provisions, special specifications, and standard drawings. The Engineer shall conduct field reconnaissance and collect data including a photographic record (to be maintained in Engineer's office) of notable existing features.

2. Documents for existing and proposed development along Fort Bend Parkway Segment B2 / Section B from local municipalities and local ordinances related to project development.
3. Utility plans and documents from appropriate municipalities and agencies.
4. Readily available flood plain information and studies from the Federal Emergency Management Agency (FEMA), the U. S. Army Corps of Engineers (USACE), local municipalities and other governmental agencies in addition to that provided by the FBCTRA / TxDOT.
5. The Engineer shall utilize the available boring logs and other Geotechnical Investigation data prepared by the FBCTRA Consultant.

110.2. Design Criteria. The Engineer shall utilize the roadway design criteria developed by the GEC for 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 FBCTRA / TxDOT approved manuals.

FC 130 – Right-of-Way Data

130.1. Utility Locations and Research. The Engineer shall identify and coordinate with the FBCTRA / GEC / MUD / LID / Private Utilities to determine the location of each existing and proposed utility and develop Utility Conflict Matrix with recommendation to GEC for possible relocations. Attend possible meetings with the various utility companies to discuss potential conflicts (if required).

FC 145 (FC 110-150; 163; and 160-170) – Project Management and Administration

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

145.1. Project Management and Coordination.

The Engineer shall coordinate all sub-consultant 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 FBCTRA / GEC 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.

FC 160 (160) – Roadway Design Controls

The Engineer shall inform the FBCTRA 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 FBCTRA / GEC unless otherwise directed by the FBCTRA / GEC to proceed.

160.1. Geometric Design. The Engineer shall:

- A. Refine Schematic. The Engineer shall review the schematic provided by the FBCTRA / GEC to confirm their understanding of the project and to use as a basis for the PS&E design. The Engineer shall refine the horizontal and vertical alignment of the design schematic in English units for main lanes and verify the following:
 - a. The Engineer shall review and confirm if an auxiliary lane is needed between Sienna Parkway and Sienna Ranch Road in both directions.
 - b. The Engineer shall review and refine the future main lane profile over Sienna Ranch Road to ensure that the proposed stub-out is at the proper location and/or elevation for the future Sienna Ranch overpass, including vertical clearance.

Modifications must be coordinated with the FBCTRA / GEC and adjacent Engineers.

160.2. Roadway Design. (MAIN LANES – IDCUS)

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

The plan view shall contain the following design elements:

1. Calculated roadway centerlines for mainlanes, ramps, cross streets and frontage roads, as applicable. Horizontal control points shall be shown. The alignments shall be calculated using GEOPAK.

2. Pavement edges for all improvements (mainlanes, direct connectors, 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 shall also be shown.
7. Drawing scale shall be 1"=100'
8. Control of access line, & ROW lines and easements.
9. Begin/end superelevation transitions and cross slope changes.
10. Limits of rip rap, 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 shall 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 shall 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'.

160.3 Roadway Design (Frontage Road/Access Ramps Only). (IMS)

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

shoulders. The design shall be consistent with the approved schematic or refined schematic and the current Roadway Design Manual.

160.4. Typical Sections:

Typical sections shall be required for all proposed and existing roadways and structures. Typical sections shall include width of travel lanes, shoulders, outer separations, border widths, curb offsets, managed lanes, and ROW. The typical section shall also include PGL, centerline, pavement design, longitudinal joints, side slopes, sodding/seeding limits, concrete traffic barriers and sidewalks, if required, station limits, common proposed and existing structures including retaining walls, existing pavement removal (pavement coring shall be performed by the Engineer to determine existing pavement structure for removal items only, see FC 110) riprap, limits of embankment and excavation, etc. The typical sections shall also reference Pay Schedule for Item of work "Ride Quality of Pavement Surface".

160.5. Main Lane Road Design: (IDCUS) The Engineer shall provide the design of main lanes with full shoulders, The design shall be consistent with the approved schematic or refined schematic and the current Roadway Design Manual. IDCUS shall Provide Alignment Geometry for Sienna Ranch Road for IMS. Provide Rail Detail for Light Standard.

160.6. Sienna Ranch Road. (IMS) The Engineer shall provide an intersection layout detailing the pavement design at the intersection of the cross street (Sienna Ranch Road). The layout shall include the curb returns, geometrics, and transition length, stationing, pavement and drainage details. The Engineer shall design for full pavement width to the ROW and provide a transition to the existing roadway.

Traffic signal design will be provided by others, which includes the location and details of pedestrian ramps and all signal equipment. The Engineer shall coordinate the Sienna Ranch Rd and Frontage Road/Access Ramp design with the signal consultant's signal design and reference the signal design into the plan and profile sheets and layouts.

160.7. Frontage Road/Access Ramp Design: (IMS) The Engineer shall provide the design of Frontage Roads/Access ramps with full shoulders. The design shall be consistent with the approved schematic or refined schematic and the current Roadway Design Manual.

160.8. 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 shall 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 shall consider existing pavement removals. Annotation shall include at a minimum existing/proposed right of way, side slopes (front & back), profiles, etc.

Cross sections shall be submitted by the Engineer at the 30%, 60%, 90%, 95%, and final submittals, respectively.

160.9. Wetlands Information. From the information provided by the FBCTRA / GEC, the Engineer shall show in the plans that the wetland areas are to be surveyed, staked, and fenced.

160.10. Pavement Design. (By others): If applicable, the Engineer shall incorporate the pavement design developed by the FBCTRA / GEC for this project. The Engineer shall implement mainlane and frontage road/access ramp pavement design of Continuously Reinforced Concrete Pavement (CRCP), Asphalt Stabilized Base (ASB), Portland Cement Treated Base (PCTB), and Lime Treated Subgrade (LTS) as specified in the work authorization.

FUNCTION CODE 160(161) -

DRAINAGE

161.1. 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, 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, LiDAR data, 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 FBCTRA / GEC.
5. Meet with local government officials to obtain historical flood records. Interview local residents or local government employees to obtain additional high-water information if available.
6. Coordinate with Fort Bend County Drainage District/Levee District.

161.2. Hydrologic Studies. The Engineer shall provide the following services for the development of hydrology for roadway impact analysis:

1. Calculate discharges using appropriate hydrologic methods and as approved by the FBCTRA / GEC.
2. Consider the pre-construction and post-construction conditions in the hydrologic study.
3. Develop 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.

161.3. Complex Hydraulic Design and Documentation. The Engineer shall provide the following services:

1. Gather information regarding existing drainage facilities and features from existing plans and other available studies or sources.
2. Perform hydraulic design and analysis using appropriate hydraulic methods, which may include computer models such as HEC-RAS and XPSWMM. Data entry for appropriate hydraulic computer programs shall consist of a combination of both on-the-ground survey and other appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies.
3. Consider pre-construction, present and post-construction conditions, as well as future widening.
4. Quantify impacts, beneficial or adverse, in terms of increases in peak flow rates and water surface elevations for the above listed hydraulic conditions and hydrologic events. Impacts will be determined both upstream and downstream of the bridge crossings.
5. If necessary, present mitigation measures along with the advantages and disadvantages of each. Each method must consider the effects on the entire area. Include approximate construction costs in the report.
6. Provide hand calculations which quantify the cut and fill within the 1% AEP flood plain, if any.
7. Prepare a Hydrologic and Hydraulic Report detailing the hydrologic study and hydraulic design.

161.4. Storm Drains.

The Engineer shall provide the following services:

1. Size inlets, laterals, trunk line, ditches 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

FBCTRA / GEC. Storm drain design software shall be selected as directed by the FBCTRA / GEC.

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. Limit discharge into existing storm drains and ditches to the capacity of the existing system, which will be determined by the Engineer. Evaluate alternate flow routes, if necessary, to relieve system overload.
4. Identify areas requiring trench protection, excavation, shoring, and dewatering.
5. The storm sewer system and ditches between Flat Bank Creek and Sienna Ranch Road shall be designed and sized to accommodate the future Fort Bend Parkway Toll Road extension drainage between the levee west of Sienna Ranch Road and Sienna Ranch Road. The preliminary future horizontal geometrics west of Sienna Ranch Road will be provided by the FBCTRA / GEC.

161.5. Cross-Drainage Structures.

The Engineer shall provide the following services:

1. Determine drainage areas and flows for Flat Bank Creek crossing (from previous report(s)).
2. Cross drainage design shall be performed using HEC RAS.

161.6. Scour Analysis.

The Engineer shall provide the following services:

1. Perform a scour analysis for each proposed bridge/bridge-class culvert structure: Proposed Bridge at Flat Bank Creek.
2. Prepare each scour analysis using a FBCTRA / GEC-approved methodology listed in the Work Authorization. The Engineer shall select the methodology based on the site conditions such as the presence of cohesive or cohesion less soil, rock or depth of rock, proposed foundation type, and existing site performance. The Engineer shall follow the methodology outlined in the TxDOT Geotechnical Manual. The Engineer shall coordinate with the FBCTRA / GEC prior to commencing any work on any Stream Migration Study. This coordination must include consultation with the appropriate FBCTRA / GEC technical expert.
3. Provide the FBCTRA / GEC the potential scour depths, envelope and any recommended countermeasures including bridge design modifications and revetment.
4. Prepare scour report for the bridge over Flat Bank Creek.

161.7. Plans, Specifications and Estimates (PS&E) Development for Hydraulics.

The Engineer shall provide the following services:

1. Prepare the PS&E package in accordance with the applicable requirements of TxDOT'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. Scour Data Sheets (if applicable)
 - iv. Culvert Layout Sheets
 - v. Storm Drain Plan/Profile Sheets including profile grade line of parallel ditches
 - vi. Roadway Plan & Profile Sheets
 - vii. Drainage Summary Sheet
 - viii. Design details for non-standard boxes and/or inlets.
 - ix. All other relevant sheets
2. Prepare culvert cross sections and identify each cross section's station location.
3. Identify areas requiring trench protection, excavation, shoring and dewatering.
4. Prepare drainage area maps.
5. Select any necessary standard details from TxDOT or District's 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.
13. Prepare Hydraulic Data Sheets for any bridge or cross drainage structures at the outfall channel and indicate site location (e.g., station and name of creek or bayou), if applicable.
14. Develop layouts for the following:
 - i. Subsurface drainage at retaining walls.
 - ii. Outfall channels within existing ROW.
 - iii. Bridge deck drainage systems, including internal drainage piping within the bents where required on structures.

FC 160 (162) – Signing, Pavement Markings and Signalization (Permanent)

162.1. Signing. The Engineer shall prepare drawings, specifications and details for all signs. The Engineer shall coordinate with the FBCTRA / GEC (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.
- 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.

162.2. Pavement Marking. The Engineer shall detail both permanent and temporary pavement markings and channelization devices on plan sheets. The Engineer shall coordinate with the FBCTRA / GEC (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.

The Engineer shall provide the following information on sign/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, or to be relocated.
- Proposed signs (illustrated, numbered and size).
- Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
- Quantities of existing pavement markings to be removed.
- Proposed delineators and object markers.
- 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.

FC 160 (163) – Miscellaneous (Roadway)

The Engineer shall provide the following services:

163.1. Retaining Walls. The Engineer shall provide layouts (scale 1"=100'), elevations, quantity estimate, summary of quantities, typical cross sections and structural details of the retaining wall along the north side of the mainlane curve at approximately STA 930+00.

If applicable, architectural standard drawings will be provided by the FBCTRA / GEC and shall be incorporated into design details. The specific requirements for each item are as follows:

1. Layout Plan

- (1) Designation of reference line
- (2) Beginning and ending retaining wall stations
- (3) Offset from reference line
- (4) Horizontal curve data
- (5) Total length of wall
- (6) Indicate face of wall
- (7) All wall dimensions and alignment relations (alignment data as necessary)
- (8) Soil boring locations
- (9) Drainage, signing, lightning, etc. that is mounted on or passing through the wall.
- (10) Subsurface drainage structures or utilities which could be impacted by wall construction.

2. Elevation:
 - (a) Top of wall elevations
 - (b) Existing and finished ground line elevations
 - (c) Vertical limits of measurement for payment
 - (d) Type, limits and anchorage details of railing (only if Traffic Railing foundation standard is not being used on this project)
 - (e) Top and bottom of wall profiles plotted at correct station & elevation.
 - (f) Underdrains
 - (g) Any soil improvement, if applicable.
 - (h) Drainage, signing, lighting etc. as noted above
 - (i) Drainage structures and utilities as noted above

3. Sectional View:
 - (a) Reinforced volume
 - (b) Underdrain location
 - (c) Soil improvements, if applicable.

4. General Guidelines for Retaining Walls
 - (a) The Engineer shall perform design calculations to check the external stability of the walls including slope stability, bearing, sliding and overturning and detail drawings in accordance with the standard requirements of the State.
 - (b) For retaining wall submittals, the Engineer shall look at State's Bridge Division website for current requirements.

163.2. Traffic Control Plan, Detours, Sequence of Const. For Sienna Ranch Rd.

The Engineer shall prepare Traffic Control Plans (TCP) for the project. A detailed TCP shall be developed in accordance with the latest edition of the TMUTCD. The Engineer is to implement the current Barricade and Construction (BC) standards as applicable. The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers.

1. The Engineer shall provide a written narrative of the construction sequencing and work activities for two-phases of construction for the Sienna Ranch Road improvements and determine the existing and proposed traffic control devices (regulatory signs, warning 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, and detours required to maintain lane continuity throughout the construction phasing.
2. Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access.

3. Prepare each TCP in coordination with the FBCTRA / GEC. The TCP shall include interim signing for every phase of construction. Interim signing shall 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 project.
4. Describe the type of work to be performed for each phase of sequence of construction and any special instructions (e.g. storm sewer, culverts, illumination, signals, retaining walls, signing, paving surface sequencing or concrete placement, ROW restrictions, utilities, etc.) that the contractor should be made aware within limits of construction, obliteration, and shifting or detouring of traffic prior to proceeding with the next phase.
5. 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.

163.3. Illumination. The Engineer shall refer to TxDOT's *Highway Illumination Manual* and other deemed necessary approved manuals for design of continuous lighting and safety lighting for all conventional and underpass lighting. The Engineer shall provide a preliminary layout for initial review and approval by the FBCTRA / GEC. The Engineer shall prepare circuit wiring diagrams showing the number of luminaries on each circuit, electrical conductors, length of runs, service pole assemblies. The Engineer shall integrate existing illumination within the project limits into the proposed design. The Engineer shall coordinate with the FBCTRA / GEC to determine the location of proposed safety and conventional lighting.

Safety lighting is proposed at Ramps E, F, G, and H (similar to existing Ramps C and D). Conduit and associated fittings are proposed for future conventional lighting along the median barrier.

163.4. 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 shall include text describing the plan, quantities, type, phase and locations of erosion control devices and any required permanent erosion control.

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

163.6. Estimate. The Engineer shall independently develop and report quantities necessary to construct contract in standard FBCTRA / TxDOT bid format at the specified milestones and Final PS&E submittals. The deliverable is an Excel spreadsheet with list of bid items, descriptions, units, and quantities.

163.7. 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 FBCTRA / GEC *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.

FC 160(170) – Bridge Design (NIC) (To be added by Contract Modification)

170.1. Bridge Layout. The Engineer shall prepare the bridge layout plan sheet. The Engineer shall determine the location of each soil boring needed for foundation design in accordance with the *Geotechnical Manual*.

Prior to preparation of each bridge layout, the Engineer shall prepare a comparative cost analysis of bridge structures to determine: (1) the optimum bridge beams for vertical clearance over railroads, roadway, or waterways, (2) the optimum bridge structure versus roadway embankment, pavement, soil stabilization, and retaining walls, and (3) to determine optimum in bridge beams for the direct connectors.

The Engineer shall submit each bridge layout early in the plan preparation process to obtain approval from the FBCTRA / GEC. The Engineer shall comply with all relevant sections of the latest edition of TXDOT's LRFD Bridge Design Manual, Bridge Project Development Manual, Bridge Detailing Manual, and AASHTO LRFD Bridge Design Specifications and respective checklists. Each bridge layout sheet shall include bridge typical sections, structural dimensions, abutment and bent locations, superstructure and substructure types. The Engineer shall locate and plot all soil borings and utilities, show proposed retaining walls, and, for staged construction, indicate limits of existing bridge for removal and reconstruction.

170.2. Bridge Detail Summary. The Engineer shall prepare bridge quantities, estimates and specifications in accordance to the above-listed manuals.

170.3. Bridge Structural Details. The Engineer shall prepare each structural design and develop detailed structural drawings of all required details in compliance with above-listed manuals.

Additionally, the Engineer shall perform the following tasks:

- Perform calculations for design of bridge abutments and bents.
- Perform calculations for bridge slab design.
- Perform calculations to determine elevations of bridge substructure and super structure elements.
- Perform calculations for bridge concrete beam design.

- Prepare necessary foundation details and plan sheets.
- Prepare plan sheets for abutment and bent design.
- Prepare plan sheets for additional abutment and bent details.
- Prepare framing plan and slab plan sheets.
- Compute and prepare tables for slab and bearing seat elevations, dead load deflections, etc.
- Design beams and prepare beam design tables and plan sheets.
- Prepare Bridge Summary Sheet.

FC 309 - Construction Phase Services (NOT IN SCOPE)

Deliverables

Plans

The Engineer shall provide the following information at each submittal:

1. 30% Plans Submittal

- 1.1. 11" x 17" plan sheets for the FBCTRA / GEC review (pdf)
- 1.2. Estimate of construction cost (Excel and pdf)
- 1.3. Engineer's internal QA/QC markup set (pdf)
- 1.4. 11" x 17" bridge and retaining wall layouts (pdf)

2. 60% Plans Submittal:

- 2.1. 11" x 17" plan sets for the FBCTRA / GEC review (pdf)
- 2.2. Estimate of construction cost (Excel and pdf)
- 2.3. Engineer's internal QA/QC marked up set (pdf)

3. Review Submittal (90%)

- 3.1. 11" x 17" plan sheets for the FBTRA / TxDOT review (pdf)
- 3.2. Estimate of construction cost (Excel and pdf)
- 3.3. Marked up general notes (Word and pdf)
- 3.4. List of governing Specifications and Special Provisions in addition to those required including New Special Specifications and Special Provisions (Word and pdf)
- 3.5. Engineer's internal QA/QC marked up set (pdf)
- 3.6. Other supporting documents (Word, Excel, pdf)
- 3.7. List of plan sheets for GEC to prepare Index

4. Review Submittal (95%):

- 4.1. 11" x 17" plan sheets for the FBTRA / GEC review

- 4.2. List of governing Specifications and Special Provisions in addition to those required (Word and pdf)
 - 4.3. Marked up general notes (Word and pdf)
 - 4.4. Estimate of construction cost (Excel and pdf)
 - 4.5. Engineer sign, seal and date supplemental sheets (8 ½" x 11").
 - 4.6. Engineer's internal QA/QC marked-up set (pdf)
 - 4.7. Other supporting documents (Excel, pdf, Word, etc.)
 - 4.8. List of plan sheets for GEC to prepare Index
5. Final submittal (100%).
- 5.1. Revised supporting documents from 95% review comments (Word, Excel, pdf, etc.)
 - 5.2. Final plans in PDF portfolio format. Plans may be signed and sealed electronically.

Electronic Copies

The Engineer shall furnish the FBCTRA / GEC with a flash drive of the final plans in the current CADD system used by the FBCTRA / GEC, .pdf format, and in the FBCTRA's File Management System (FMS) format.

The Engineer shall also provide cross section information (in dgn, XLR & ASCII formats) for the contractor's use.

Calculations

The Engineer shall provide all quantity and non-structural design calculations.

Provide a bound copy of all engineering calculations, analysis, input calculations, quantities, geometric designs (GEOPAK GPK files), etc. relating to the project's structural elements. Project structural elements include, but are not limited to: bridges, retaining walls, overhead sign foundations, high-mast illumination foundations, non-standard culverts, custom headwalls and drainage appurtenances.

Provide working copies of all spreadsheets and output from any programs utilized in a universally reliable format.

The Engineer may provide the requested information on a flash drive. Submit elements normally bound using a .pdf format.

Schedule

1. 30% Plans Submittal including bridge layouts – 60 days after receiving approved survey drawings.

2. 60% Plans Submittal – 60 days after receiving 30% comments and draft geotechnical report.
3. 90% Plans Submittal – 40 days after receiving 60% comments and approved geotechnical report.
4. 95% Plans Submittal – 30 days after receiving 90% comments.
5. 100% Plans Submittal – 20 days after receiving 95% comments.

Special Considerations (Contract Amendments Required)

Bridge Design Fee (IMS): Project Team will negotiate the Bridge Fee upon refinement of the Schematics. It is expected that the Fort Bend Parkway Segment B-2 Schematics improvements will modify the Bridge Structure & Alignment & Geometrics.

Retaining Wall Structure (Parcel 153) (IDCUS): Project Team may negotiate a retaining wall structure at Parcel 153 to accommodate a culvert design for storm water conveyance. The decision will be based on an actual a surveyed cross section at the location of the Parcel, DTM and developed cross section at the location.

		SUBTOTALS	IDCUS	IMS
FC 102 (110)	Total Labor Cost (Lump Sum)	\$28,363.00	\$20,035.00	\$8,328.00
		\$ -		
FC 130 (130)	Total Labor Cost (Lump Sum)	\$13,825.12	\$13,825.12	\$0.00
		\$ -		
FC 145 (164)	Total Labor Cost (Lump Sum)	\$104,063.12	\$86,279.12	\$17,784.00
		\$ -		
FC 160 (160)	Total Labor Cost (Lump Sum)	\$298,060.94	\$229,180.94	\$68,880.00
		\$ -		
FC 160 (161)	Total Labor Cost (Lump Sum)	\$235,446.66	\$235,446.66	\$0.00
		\$ -		
FC 160 (162)	Total Labor Cost (Lump Sum)	\$56,953.50	\$56,953.50	\$0.00
		\$ -		
FC 160 (163)	Total Labor Cost (Lump Sum)	\$119,984.08	\$102,254.08	\$17,730.00
		\$ -		
	Other Direct Expenses	\$4,180.00	\$3,100.00	\$1,080.00
Grand Totals		\$860,876.42	\$747,074.42	\$113,802.00

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	ADMIN CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FEASIBILITY STUDIES - FC 102 (110)												
ROUTE & DESIGN STUDIES	8	8	12		16	24				68	N/A	N/A
PROJECT SETUP / INITIATION / DATA COLLECTION & FIELD RECONNAISSANCE	4	4	8							16	N/A	N/A
ROADWAY AND HYDRAULIC DESIGN CRITERIA	2	8	8							18	N/A	N/A
DESIGN CRITERION	4	8	8							20	N/A	N/A
REVIEW GEOTECHNICAL REPORT												
HOURS SUB-TOTALS	18	28	36	0	16	24	0	0	0	122		
CONTRACT RATE PER HOUR	\$213.94	\$189.02	\$155.60	\$127.40	\$97.48	\$155.42	\$97.40	\$79.77	\$112.00			
TOTAL LABOR COSTS	\$3,850.92	\$5,292.56	\$5,601.60	\$0.00	\$1,559.84	\$3,730.08	\$0.00	\$0.00	\$0.00	\$20,035.00		
% DISTRIBUTION OF STAFFING	14.8%	23.0%	23.5%	0.0%	13.1%	18.7%	0.0%	0.0%	0.0%			
SUBTOTAL - FC 102 (110)										\$20,035.00		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	ADMIN CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
RIGHT OF WAY - FC 130 (130)												
UTILITY LOCATIONS & RESEARCH	4		24	40						68	N/A	N/A
UTILITY RESEARCH & COORDINATION	4	0	8	16						28	N/A	N/A
HOURS SUB-TOTALS	8	0	32	56	0	0	0	0	0	96		
CONTRACT RATE PER HOUR	\$213.94	\$189.02	\$155.60	\$127.40	\$97.48	\$155.42	\$97.40	\$79.77	\$112.00			
TOTAL LABOR COSTS	\$1,711.52	\$0.00	\$4,979.20	\$7,134.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13,825.12		
% DISTRIBUTION OF STAFFING	8.3%	0.0%	33.3%	58.3%	0.0%	0.0%	0.0%	0.0%	0.0%			
SUBTOTAL - FC 102 (110)										\$13,825.12		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	ADMIN CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
MANAGING/CONTRACTED/DONATED PE - FC 145 (164)												
PROJECT MANAGEMENT AND ADMINISTRATION	64	64	32						64	224		
PROJECT MANAGEMENT & COORDINATION WITH THE GEC / EBTRA	24	40	24							68	N/A	N/A
PROJECT MANAGEMENT & COORDINATION WITH RAS ENGINEERS	8	16	16	32						72	N/A	N/A
PROJECT MANAGEMENT & COORDINATION WITH PROGRESSIVE ENGINEERS (TRAFFIC)	12	16	16	24						68	N/A	N/A
PROJECT MANAGEMENT & COORDINATION WITH RPS KLOTZ (SECTION A)										24	N/A	N/A
PROJECT MANAGEMENT & COORDINATION WITH SURVEYOR	8	16	16							74	N/A	N/A
PROJECT MANAGEMENT & COORDINATION WITH GEOTECHNICAL CONSULTANT	8	16	16							74	N/A	N/A
HOURS SUB-TOTALS	124	168	88	56	0	0	0	0	64	500		
CONTRACT RATE PER HOUR	\$213.94	\$189.02	\$155.60	\$127.40	\$97.48	\$155.42	\$97.40	\$79.77	\$112.00			
TOTAL LABOR COSTS	\$26,528.56	\$31,795.36	\$13,862.80	\$7,134.40	\$0.00	\$0.00	\$0.00	\$0.00	\$7,198.00	\$66,278.12		
% DISTRIBUTION OF STAFFING	24.8%	33.6%	17.6%	11.2%	0.0%	0.0%	0.0%	0.0%	12.8%			
SUBTOTAL - FC 145 (164)										\$66,278.12		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	ADMIN/CLERICAL	TOTAL LAB. HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
ROADWAY DESIGN - FC 160 (160)												
ROADWAY DESIGN CONTROLS												
REFINE FORTBEND PARKWAY SCHEMATICS	12	16	30			40				98	N/A	N/A
A. ADJUST & MODIFY (H & V) ALIGN (EVAL. AUX. LANE & SIENNA RANCH BRIDGE PROFILE)	12	16	30			40				98	N/A	N/A
B. EVALUATE / REVIEW FLAT BANK BRIDGE GEOMETRY / WIDTH REDUCTION	8	16	20			40				84	N/A	N/A
C. ADJUST & MODIFY LANE GEOMETRY AT INTERSECTION / DRIVEWAY / RIGHT TURN												
ROADWAY DESIGN:												
PROJECT LAYOUTS	2	1	8	4	12	40				67	2	34
RAMP ALIGNMENT (H&V) FOR IMS AND MAINLANE ALIGNMENT (H & V)	8	16	40	24	40	40				166	N/A	N/A
HORIZONTAL ALIGNMENT DATA SHEETS	6	8	20	18	20	32				102	3	34
EXISTING TYPICAL SECTIONS	2	4	8			12				26	1	26
PROPOSED TYPICAL SECTIONS (INCL. SIENNA RANCH ROAD)	6	8	20	20	40	40				134	3	45
MAIN LANE - ROADWAY PLAN AND PROFILE (SCALE: H 1"=100' V 1"=10')	24	20	60	0	40	120				324	7	46
INTERSECTION ALIGNMENT GEOMETRY (FOR IMS INTERSECTION LAYOUT)	2	4	24			24				54	4	14
MISCELLANEOUS DETAILS (RAIL DETAIL FOR ILLUMINATION)	1	2	6		12	20				41	1	41
EARTHWORK CROSS SECTIONS	8	16	40		60	120				244	24	10
ROADWAY SUMMARY QUANTITY SHEETS (MAIN LANES)	2	4	8		32	40				86	2	43
LIST OF TXDOT STANDARDS	1	4	4			4				13	N/A	N/A
HOURS SUB-TOTALS	94	135	316	54	256	612	60	0	0	1539	47	
CONTRACT RATE PER HOUR	\$213.94	\$189.02	\$155.60	\$127.40	\$97.40	\$155.42	\$97.40	\$76.77	\$112.00			
TOTAL LABOR COSTS	\$20,110.36	\$25,517.70	\$49,486.30	\$24,957.44	\$25,117.04	\$95,117.04	\$5,844.00	\$0.00	\$0.00	\$228,180.84		
% DISTRIBUTION OF STAFFING	6.11%	8.77%	20.96%	4.16%	16.63%	39.77%	3.90%	0.00%	0.00%			
SUBTOTAL - FC 160 (160)										\$229,180.84		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	ADMIN/CLERICAL	TOTAL LAB. HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
ROADWAY DESIGN - FC 160 (161)												
DRAINAGE (H&H)												
DATA COLLECTION INCLUDING FIELD INSPECTION AND COORDINATION WITH GEC	2	2	8	6	8	0	4	0		30	0	
IDENTIFY DRAINAGE OUTFALLS AND DETERMINE EXISTING AND PROPOSED DRAINAGE ARE	2	4	6	24	32	20	12	12		116		
PRELIMINARY DRAINAGE LAYOUTS	1	4	8	12	24	16	16	8		88		
DETERMINE PEAK FLOWS AT FLAT BANK CREEK	2	4	8	24	24	4	0	8		74		
PERFORM FLAT BANK CREEK HYDRAULIC ANALYSIS	2	4	6	16	24	16	8	4		80		
CREATE EXISTING XPSWMM MODEL	2	2	8	8	8	8	4	8		38		
EVALUATE HYDRAULIC IMPACT	2	2	8	8	8	8	4	4		38		
PREPARE LAYOUT SHEETS FOR THREE (3) ALTERNATIVES FOR FUTURE EXTENSION WEST OF SIENNA RANCH RD	2	4	8	8	16	8	8	6		108		
PREPARE PRELIMINARY DRAINAGE TECHNICAL REPORT	2	8	16	12	16	16	16	12		98		
FLAT BANK CREEK BRIDGE SCOUR ANALYSIS AND REPORT												
PS&E Development												
DRAINAGE AREA MAPS (OVERALL MAPS) 1	2	4	8	8	8	4	4	4		30	1	30
DRAINAGE AREA MAPS (INTERIOR LAYOUTS)(1"=100')	2	4	16	36	36	20	24	24		162	6	27
RUNOFF COMPUTATION TABLES	2	4	6	12	14	12	12	12		78	3	26
GEOPAK OUTPUT TABLES	2	2	6	12	20	14	16	12		84	5	17
DRAINAGE PLAN AND PROFILES (SCALE: H 1"=100' V 1"=10')	2	24	24	80	80	40	48	48		386	14	28
STORM SEWER LATERALS (SCALE: H 1"=100' V 1"=10')	2	6	12	16	12	20	12	12		92	3	31
HYDRAULIC DATA SHEETS	2	4	4	4	4	4	4	4		20	1	20
DRAINAGE DETAILS	2	8	12	12	12	4	8	8		62	2	31
DITCH CALCULATION SHEETS	2	8	20	15	15	15	15	15		90	4	23
LIST OF TXDOT STANDARDS	1	4	4			6	0	0		15	0	
STORM SEWER SUMMARIES	1	1	10	12	16	14	14	12		80	1	80
CULVERT LAYOUT SHEET @ WETLAND AREA (-STA 955+00)	1	1	4	6	10	10	6	2		40	1	40
HOURS SUB-TOTALS	32	108	212	363	427	312	239	165	0	1,688	40	
CONTRACT RATE PER HOUR	\$213.94	\$189.02	\$155.60	\$127.40	\$97.40	\$155.42	\$97.40	\$76.77	\$112.00			
TOTAL LABOR COSTS	\$6,846.26	\$20,414.16	\$32,997.20	\$45,246.20	\$41,628.23	\$48,491.04	\$23,276.60	\$15,555.15	\$0.00	\$235,446.66		
% DISTRIBUTION OF STAFFING	2.06%	7.02%	13.76%	23.59%	27.75%	28.27%	15.33%	12.67%	0.00%			
SUBTOTAL - FC 160 (161)										\$235,446.66		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	ADMIN/CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
ROADWAY DESIGN - FC 160 (162)												
SIGNING, PVT. MARKING,	8	16	40	60		88				212	7	30
SIGNING AND PAVEMENT MARKING LAYOUTS	2	4	12	24		32				74	2	37
LARGE SIGNS DETAILS (ASSUME 4)	4		16	24		32				76	2	38
SIGNING SUMMARIES (LARGE & SMALL)	1	4	4			4				13	N/A	N/A
LIST OF TxDOT STANDARDS												
HOURS SUB-TOTALS	15	24	72	108	0	156	0	0	0	375	11	
CONTRACT RATE PER HOUR	\$213.94	\$189.02	\$155.60	\$127.40	\$97.40	\$155.42	\$97.40	\$79.77	\$112.00			
TOTAL LABOR COSTS	\$3,209.10	\$4,539.48	\$11,203.20	\$13,759.20	\$0.00	\$24,243.52	\$0.00	\$0.00	\$0.00	\$56,953.50		
% DISTRIBUTION OF STAFFING	15.2%	25.0%	75.0%	112.5%	0.0%	182.5%	0.0%	0.0%	0.0%			
SUBTOTAL - FC 160 (162)										\$56,953.50		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	ADMIN/CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
ROADWAY DESIGN - FC 160 (163)												
MISCELLANEOUS (ROADWAY)	4	0	16	0	60	40				120	6	20
STORMWATER POLLUTION PREVENTION PLANS	4	8	16	24	24	40				92	2	46
RETAINING WALL ALONG NORTH SIDE OF MAIN-LANE CURVE	4	8	24	24	60	40				160	5	27
ILLUMINATION PLAN LAYOUT (1"=100)	4	8	16		32	32				92	4	23
ILLUMINATION DETAILS / CIRCUIT DIAGRAM SHEETS	1	2	4		8	8				16	1	16
ILLUMINATION SUMMARY SHEET	1	4	4			4				13	N/A	N/A
QUANTITIES, SPECIFICATIONS & ESTIMATE:												
LIST OF SHEETS (INDEX BY OTHERS)	2	4	8			8				22	1	22
COMPLETE & TABULATE QUANTITIES	4	8	24	40	60					136	N/A	N/A
GENERAL NOTES, SPECIFICATIONS AND PROVISIONS	12	24								36	N/A	N/A
QUANTITIES (30, 60, 90 & FINAL) WITH VARIANCE REPORT	4	4	8	0	40					56	N/A	N/A
HOURS SUB-TOTALS	40	70	120	84	276	172	0	0	0	742	20	
CONTRACT RATE PER HOUR	\$213.94	\$189.02	\$155.60	\$127.40	\$97.40	\$155.42	\$97.40	\$79.77	\$112.00			
TOTAL LABOR COSTS	\$8,557.60	\$13,231.40	\$18,672.00	\$9,533.60	\$26,907.24	\$26,732.24	\$0.00	\$0.00	\$0.00	\$102,254.08		
% DISTRIBUTION OF STAFFING	5.39%	9.43%	16.17%	8.63%	37.20%	23.18%	0.00%	0.00%	0.00%			
SUBTOTAL - FC 160 (163)										\$102,254.08		

DESCRIPTION	TOTAL MH BY FC	TOTAL COSTS BY FC
FEASIBILITY STUDIES - FC 102 (110)	122	\$20,035.00
RIGHT OF WAY - FC 130 (130)	34	\$13,825.72
MANAGING CONTRACTED/DONATED PE - FC 145 (164)	50	\$8,239.72
ROADWAY DESIGN - FC 160 (160)	1,539	\$23,780.84
ROADWAY DESIGN - FC 160 (161)	1,988	\$25,446.86
ROADWAY DESIGN - FC 160 (162)	375	\$5,953.50
ROADWAY DESIGN - FC 160 (163)	742	\$10,225.18
SUBTOTAL LABOR EXPENSES	5262	\$743,874.42
OTHER DIRECT EXPENSES		
MILEAGE (# OF MILES) (CURRENT STATE RATE)	500	\$280.00
TOLL CHARGES	50	\$100.00
PHOTO COPIES (B/W)(11X17)	2500	\$925.00
PHOTO COPIES (COLOR)(11X17)	7200	\$900.00
PHOTO COPIES (B/W) (8" X 11-1/2")	500	\$50.00
PHOTO COPIES (COLOR)(8" X 11-1/2")	1000	\$450.00
PLOTS (COLOR ON BOND)	1000	\$500.00
DELIVERIES (COURIER)	5	\$175.00
SUBTOTAL DIRECT EXPENSES		\$3,199.00
SUBCONTRACTS:		
OTHER PROVIDERS (FC XXX) INPUT TOTAL \$ FROM INB ENGINEERS SEPARATE SPREADSHEET		\$113,802.00
SUBCONTRACT SUB-TOTAL		\$113,802.00

SUMMARY	COST AMT
TOTAL COSTS FOR PRIME ONLY	\$743,874.42
NON-SALARY (OTHER DIRECT EXPENSES) FOR PRIME ONLY	\$3,100.00
SUBCONTRACTS (INCLUDES LABOR COSTS AND DIRECT EXPENSES)	\$113,802.00
GRAND TOTAL	\$860,776.42

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FEASIBILITY STUDIES - FC 102 (110)												
ROUTE & DESIGN STUDIES	2	4	16						2	20	N/A	N/A
DATA COLLECTION & FIELD RECONNAISSANCE	2	4	8						2	16	N/A	N/A
ROADWAY AND HYDRAULIC DESIGN CRITERIA	2	4	8						2	16	N/A	N/A
REVIEW GEOTECHNICAL REPORT	2	2	4						2	10	N/A	N/A
FLOOD PLAIN INFORMATION & STUDIES												
HOURS SUB-TOTALS	8	10	36						8	62		
CONTRACT RATE PER HOUR	\$225.00	\$180.00	\$165.00	\$120.00	\$90.00	\$60.00	\$120.00	\$80.00	\$51.00	\$9328.00		
TOTAL LABOR COSTS	\$1,800.00	\$1,800.00	\$6,000.00	\$4,320.00	\$900.00	\$300.00	\$960.00	\$640.00	\$402.00	\$9,328.00		
% DISTRIBUTION OF STAFFING	12.8%	15.1%	64.1%		0.0%	0.0%	0.0%	0.0%	12.9%			
SUBTOTAL - FC 102 (110)										\$9,328.00		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
MARKING CONTRACT/EDUCATED PE - FC 145 (144)												
PROJECT MANAGEMENT AND ADMINISTRATION	24	40	24						24	112	N/A	N/A
PROJECT MANAGEMENT & COORDINATION WITH IDCUS ENGINEERS												
HOURS SUB-TOTALS	24	40	24						24	112		
CONTRACT RATE PER HOUR	\$225.00	\$180.00	\$165.00	\$120.00	\$90.00	\$60.00	\$120.00	\$80.00	\$51.00	\$17,784.00	1	
TOTAL LABOR COSTS	\$5,400.00	\$7,200.00	\$3,960.00	\$2,880.00	\$900.00	\$300.00	\$960.00	\$640.00	\$1,224.00	\$17,784.00		
% DISTRIBUTION OF STAFFING	38.7%	44.5%	38.7%	0.0%	0.0%	0.0%	0.0%	0.0%	38.7%			
SUBTOTAL - FC 145 (164)										\$17,784.00		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
ROADWAY DESIGN - FC 160 (160)												
ROADWAY DESIGN CONTROLS	2	4	8	6					0	40	N/A	N/A
ROADWAY DESIGN												
COORDINATE RAMP H AND V ALIGNMENT DATA SHEETS -W/IDCUS	12	0	16	16					0	88	2	43
SIENNA RANCH ROADWAY PLAN AND PROFILE (SCALE: H 1"=100' V 1"=10')	12	4	8	48					0	216	6	36
RAMP PLAN & PROFILES	12	4	8	40					0	112	3	37
SIENNA RANCH INTERSECTION LAYOUTS & GRADING	2	2	4	24					0	62	2	31
SIENNA RANCH PAVEMENT REMOVAL PLANS	2	2	4	4					0	8	N/A	N/A
EARTHWORK CROSS SECTIONS (Coordination with IDCUS)	2	2	4	12					0	26	N/A	N/A
COORDINATE ROADWAY QUANTITIES (RAMP AND SIENNA RANCH)												
HOURS SUB-TOTALS	44	10	28	160					0	520	13	
CONTRACT RATE PER HOUR	\$225.00	\$180.00	\$165.00	\$120.00	\$90.00	\$60.00	\$120.00	\$80.00	\$51.00	\$968,880.00		
TOTAL LABOR COSTS	\$9,900.00	\$1,800.00	\$4,620.00	\$19,200.00	\$900.00	\$300.00	\$960.00	\$640.00	\$0.00	\$968,880.00		
% DISTRIBUTION OF STAFFING	8.48%	1.92%	5.38%	28.85%	0.00%	0.00%	55.39%	0.00%	0.00%			
SUBTOTAL - FC 160 (160)										\$968,880.00		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	SENIOR CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
Traffic Control Plans - FC 163.1												
Traffic Control Plan, Detours, Sequence of Const. For Sienna Ranch Rd.												
163.1 (1) WRITTEN NARRATIVE	1	2	4	4	12					19	N/A	N/A
163.1 (2) DEVELOP SIENNA RANCH TCP SHEETS WITH PHASES OF CONSTRUCTION	4	8	24	8	54		60			450	6	25
163.1 (3) COORDINATE TCP WITH FBC/PA/GC/ID/CUS	1	4	8	8						13	N/A	N/A
HOURS SUB-TOTALS	6	14	36	36	68	0	60	0	0	482	6	30
CONTRACT RATE PER HOUR	\$225.00	\$180.00	\$165.00	\$120.00	\$90.00	\$90.00	\$120.00	\$80.00	\$51.00			
TOTAL LABOR COSTS	\$1,350.00	\$2,520.00	\$5,940.00	\$4,320.00	\$5,840.00	\$0.00	\$3,600.00	\$0.00	\$90.00	\$17,730.00		
% DISTRIBUTION OF STAFFING	3.30%	7.69%	19.78%	36.26%	32.97%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL - FC 160 (163)										\$17,730.00		

DESCRIPTION	TOTAL MH BY FC	TOTAL COSTS BY FC
FEASIBILITY STUDIES - FC 102 (110)	82	\$6,328.00
MANAGING CONTRACTED/DONATED PE - FC 145 (164)	112	\$17,784.00
ROADWAY DESIGN - FC 160 (160)	520	\$69,680.00
ROADWAY DESIGN - FC 160 (163)	162	\$17,730.00
SUBTOTAL LABOR EXPENSES	876	\$112,722.00
OTHER DIRECT EXPENSES		
MILEAGE (# OF MILES) (CURRENT STATE RATE)	1000	\$580.00
MISCELLANEOUS ITEMS NOT OTHERWISE DETAILED (REPRODUCTION, DELIVERIES, ETC.)	1	\$500.00
SUBTOTAL DIRECT EXPENSES		\$1,080.00

SUMMARY	TOTAL COSTS FOR SUB ONLY	NON-SALARY (OTHER DIRECT EXPENSES) FOR SUB ONLY	SUBCONTRACTS (INCLUDES LABOR COSTS AND DIRECT EXPENSES)	GRAND TOTAL
TOTAL COSTS FOR SUB ONLY	\$112,722.00	\$1,080.00		\$113,802.00
NON-SALARY (OTHER DIRECT EXPENSES) FOR SUB ONLY		\$1,080.00		\$1,080.00
SUBCONTRACTS (INCLUDES LABOR COSTS AND DIRECT EXPENSES)				
GRAND TOTAL				\$113,802.00

ATTACHMENT C

The Engineer shall furnish certificates of insurance to the FBCTRA 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 FBCTRA 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 FBCTRA and the FBCTRA'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 FBCTRA and the FBCTRA's Directors, with the exception of insurance required under paragraph "e."

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

1 of 1

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

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
 IDCUS Inc.
 Houston, TX United States

Certificate Number:
 2019-549121

Date Filed:
 10/08/2019

Date Acknowledged:
 10/14/2019

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.
 Fort Bend County 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.
 Project 101-1027 (FCP 27)
 Fort Bend Parkway Toll Road Segment B2 / Section B - From west of Sienna Parkway to Sienna Ranch Road

4	Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
			Controlling	Intermediary

5 Check only if there is NO Interested Party.

6 UNSWORN DECLARATION

My name is _____, and my date of birth is _____

My address is _____ (street) _____ (city) _____ (state) _____ (zip code) _____ (country)

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

Executed in _____ County, State of _____, on the _____ day of _____, 20____

 (Declarant) Business entity