

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 CivilTech (A Woolpert Company), hereinafter called "Engineer."

WITNESSETH

WHEREAS, the FBGPTRA proposes to design the Northbound and Southbound main lanes of the Fort Bend Grand Parkway Toll Road (SH 99) between approximately FM 1464 and W. Airport Blvd. (Project Number 126-1011), 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 \$166,528.79. 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 \$166,528.79, 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 (i) on the basis of project progress to be billed monthly, and, for Additional Services, (ii) on the basis of time and expense records, and, 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 to be provided by the FBGPTRA.

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

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. FBGPTRA's right to inspect survives the termination of this Agreement for a period of four years.

6. Ownership and Reuse of Documents

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 an engineer licensed to practice professional engineering in the State of Texas.
- 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, 1950 Lockwood Bypass, Richmond, Texas 77469, 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 CivilTech (A Woolpert Company), 11750 Katy Fwy, Suite 1260, Houston, Texas, 77079, Attention: Mike McGovern, PE, 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 18th day of August, 2021.

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

By: Bobbie Tallas

Name: Bobbie Tallas

Title: Vice Chairman

CivilTech (A Woolpert Company)
ENGINEER

By: Mike McGovern

Name: Mike McGovern

Title: Vice President – Water Resources

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

Roadway: SH 99

Limits: West Airport to FM 1464 (~3.45 miles)

County: Fort Bend

The Engineer shall provide engineering services required for the preparation of a drainage report for the roadway improvements to SH 99 from W. Airport to FM 1464 (approximately 3.45 miles). The proposed roadway improvements included widening the roadway from its current to two-lane configuration in each direction to three lanes in each direction plus ramps at Owens Rd. The drainage impact study will include evaluation of current roadway drainage condition and determination of the mitigation needs for the SH 99 roadway proposed condition.

The drainage analysis of the roadway improvements shall include evaluation of cross drainage structures and mitigation strategies to mitigate potential impacts to nearby properties and the 100-year floodplain due to the proposed roadway improvements. Necessary sizing for trunk-line and ditch drainage components (in-line detention) shall be performed to accommodate the increase of flow associated with the proposed roadway improvements.

In addition, the analysis shall evaluate the proposed roadway profile by comparing against the Atlas 14 100-year water surface elevations and available flood records.

The drainage report, signed and sealed by a professional engineer, shall include models developed for the study and applicable supporting material. Plan production is limited to development of hydraulic data sheets for bridges and bridge-class culvert crossings.

GENERAL REQUIREMENTS

Design Criteria. The Engineer shall prepare all work in accordance with the latest version of applicable TxDOT procedures, specifications, manuals, guidelines, standard drawings, standard specifications or previously approved special provisions and special specifications to include: the TxDOT's *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, 2004*, and other TxDOT approved manuals. When design criteria are not identified in TxDOT manuals, the Engineer shall notify the Fort Bend Grand Parkway Toll Road Authority (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).

Right-of-Entry and Coordination. The Engineer shall notify the FBGPTRA and secure permission to enter private property to perform any surveying, environmental, engineering, or geotechnical activities needed off FBGPTRA right-of-way (ROW). In pursuance of the FBGPTRA's policy with the general public, the Engineer shall not commit acts which would result in damages to private property, and the Engineer shall make every effort to comply with the wishes and address the concerns of affected private property owners. The Engineer shall contact each property owner prior to any entry onto the owner's property and shall request concurrence from the FBGPTRA prior to each entry.

The Engineer shall notify the FBGPTRA 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 FBGPTRA for resolution. The FBGPTRA shall have authority over the Engineer's disagreements and the FBGPTRA's decision shall be final.

The Engineer shall prepare each exhibit necessary for approval by each utility and other governmental or regulatory agency in compliance with the applicable format and guidelines required by each entity and as approved by the FBGPTRA. The Engineer shall notify the FBGPTRA in writing prior to beginning any work on any outside agency's exhibit.

Coordination. The Engineer shall coordinate issues and communications with FBGPTRA internal resource areas through the FBGPTRA SH 99 Segment D Program Manager. The FBGPTRA will communicate the resolution of issues and provide the Engineer direction through the FBGPTRA Project Manager. The Engineer shall coordinate with affected counties, cities, and all other governmental agencies through the FBGPTRA's Program Manager.

The Engineer shall perform the services per the task and description of work provided below:

TASKS TO BE PERFORMED BY THE ENGINEER:

1 Data Collection

The Engineer shall provide the following services:

- 1.1 Conduct field inspections to observe current drainage conditions, outfall channels, cross-drainage structures, drainage easements, tributary channels, and land development projects that contribute flow to the project area. Document field inspections with digital photos.
- 1.2 Collect available applicable data including GIS data and maps, site survey data, construction plans, previous studies and reports, and readily available rainfall records for the area. Data collected must include, but are not limited to, the

Exhibit B

State, County (FBCTRA), and Federal Emergency Management Agency (FEMA).

- 1.3 Meet with local government officials to obtain historical flood records.
- 1.4 Review collected data.

2 Hydrologic Studies

The Engineer shall conduct a hydrologic analysis using Atlas 14 rainfall for approximately 3.45 miles of SH 99 and includes five (5) drainage outfalls as identified in the following table. The analysis shall be completed for existing and proposed conditions.

Outfall ID	Station*
OF-1	963+70
OF-2	960+80
OF-3	929+60
OF-4	885+70
OF-5	835+90

*Station number is from previous drainage study by AECOM.

The Engineer shall provide the following services:

2.1 Existing (Current) Condition

- a. Delineate drainage area boundaries for the areas draining to the current constructed drainage systems. Drainage area delineation from previous studies will be reviewed and information utilized as appropriate if it is determined to be accurate.
- b. Determine existing conditions hydrologic parameters such as impervious cover, overland flow paths and slopes from appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies. This will be performed for the approximately 3.45 miles of roadway ROW, for the contributing ROW offsite drainage areas and for the contributing drainage area to the cross-drainage structures. This includes the larger drainage areas to each crossing/outfall as well as sub-drainage areas specific to each existing and proposed ditch/storm sewer.
- c. Calculate existing conditions discharges (Atlas 14) using appropriate hydrologic methods for the 10% and 1% AEP storm frequencies. This includes development of both peak flows and inflow hydrographs.

2.2 Proposed Condition

- a. Delineate drainage area boundaries for the approximately 3.45 miles of roadway ROW and contributing drainage areas to the proposed roadway ROW. Drainage area delineation from previous studies will be reviewed and information utilized as appropriate if it is determined to be accurate.

- b. Determine proposed conditions hydrologic parameters such as impervious cover, overland flow paths and slopes from appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies. This will be performed for the approximately 3.45 miles of roadway ROW. Offsite and crossing drainage will remain unchanged from existing conditions.
- c. Calculate proposed conditions discharges (Atlas 14) using appropriate hydrologic methods for the 10% and 1% AEP storm frequencies. This includes development of both peak flows and inflow hydrographs.

3 Cross-Drainage Structures Hydraulic Analysis

The Engineer shall analyze five (5) drainage crossings, which include:

- 2 bridge crossings
- 2 bridge-class culvert crossings
- 1 non bridge-class culvert crossing

The scope of work for the cross-structures hydraulic analysis shall include the following:

3.1 Existing Conditions

- a. Analyze hydraulics for each crossing and develop models as necessary and appropriate, in HY-8, HEC-RAS, or other approved methodology/software for existing conditions. Determine a reasonable downstream tailwater condition based on information available. If available, the existing effective FEMA models will be used as a base model for the analysis. If a "best available data" model is provided by the local floodplain administrator, it shall be utilized accordingly for this analysis. The provided base model shall be reviewed for correctness and updated as needed. If the provided effective model is not in HEC-RAS format, it shall be converted to HEC-RAS for this analysis. If the FEMA effective model or other "best available" model is not available, the Engineer shall develop the model based on survey information.
- b. Determine the existing conditions 10-yr and 100-yr water surface elevations at each crossing.

3.2 Proposed Conditions

- a. Analyze hydraulics for each crossing and develop models as necessary and appropriate, in HY-8, HEC-RAS, or other approved methodology/software for proposed conditions.
- b. Determine the proposed conditions 10-yr and 100-yr water surface elevations at each crossing.
- c. Consider and analyze floodplain conveyance impacts, as necessary

- and appropriate. This includes assessment and/or floodplain modeling of existing and proposed floodplain equalizer structures.
- d. Analyze each crossing to assess the hydraulic performance of proposed improvements, in accordance with FBCTRA hydraulic design criteria.
 - e. Quantify impacts, beneficial or adverse. Impacts will be determined both upstream and downstream of the culvert/bridge crossings for events up to and including the 1% AEP storm. If necessary, mitigation measures shall be analyzed and developed, including ROW needs.
 - f. Compute approximate changes in right-of-way corridor 1% AEP floodplain volumes between existing and proposed roadway conditions. Offsite mitigation may be required to offset a decrease in 1% AEP floodplain volumes. If necessary, conceptual mitigation measures shall be presented, including ROW needs.

4 Roadway Impact Analysis

The Engineer shall analyze discharges into the identified five (5) outfalls and assess detention needs necessary to mitigate impacts associated with the proposed development using methods described below. The roadway is drained by a combination of roadside and median ditches and storm sewer systems.

Hydraulic analysis of the existing and proposed conditions ditch/storm sewer systems, including any necessary in-line or off-line detention, will be performed for the Atlas 14 10-year and 100-year storm events using dynamic modeling software such as XPSWMM or PCSWMM.

Specific scope of work includes the following:

4.1 Existing Conditions

- a. Develop an existing conditions dynamic model for each of the 5 outfall systems. The dynamic model shall include median/roadside ditches, storm sewer systems, and culverts connecting independent drainage systems.
- b. Determine the tailwater elevation at each outfall based on engineering judgement and best available data.
- c. Assess the drainage system to determine allowable discharges to each outfall and the current hydraulic grade line through the drainage system for the 10-yr and 100-yr storm events.

4.2 Proposed Conditions

- a. Develop a proposed conditions dynamic model for each of the 5 outfall systems. The dynamic model shall include median/roadside ditches, storm sewer systems and culverts connecting independent drainage systems.
- b. Assess the drainage system to evaluate if the proposed conditions discharge to the drainage system outfalls are less than or equal to the existing conditions for the 100-year storm event.

- c. Conduct a 1% AEP sheet flow analysis using the dynamic model for the proposed condition.

5 Drainage Report

The Engineer shall provide the following services:

- 5.1 Letter Report – the letter report should summarize the roadway profile analysis for existing and proposed conditions. Water Surface Elevation profiles generated by this effort shall be utilized to inform the FBCTRA of potential design challenges and existing design issues.
- 5.2 Draft Drainage Report
- 5.3 Final Drainage Report – the drainage report shall include, at a minimum, the following sections:
 - a. Introduction: location, study objectives, general creek and watershed information, and other pertinent facts
 - b. Hydrology: watershed description, soil and land use information, hydrologic data and methodology or models used to develop flow data, pertinent input data and parameters of hydrologic analyses, summary table of results for a full range of peak discharges.
 - c. Hydraulics: overview of hydraulic modeling process, including data sources, specific models used, description of existing structures, drainage system characteristics, and other pertinent facts; discussion of design alternatives and the results of respective hydraulic modeling for the scenarios evaluated; hydraulic model output data for existing and proposed conditions.
 - d. Conclusions/Recommendations: summary of study objectives, alternatives considered, analysis findings, and recommended solutions.
 - e. Exhibits: including at a minimum - location map, topography map, drainage area map, land-use map, and FEMA FIRM
 - f. Appendices: detailed hydrologic calculations, models, model output files, photographs, and other pertinent information.
 - g. Compact Disc or USB: including PDFs of full report, exhibits and all appendices (including hydrologic and hydraulic models)

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

The PS&E development will be performed for both the proposed roadway conditions. The Engineer shall provide the following services:

- 1. Prepare Hydraulic Data Sheets for three bridge structures (Ditch M, Bullhead Slough, and Oyster Creek). Estimated at three sheets.
- 2. Prepare Hydraulic Data Sheets for two bridge-class culverts. Estimated at 2 sheets.

6 Scour Analysis

The Engineer shall provide the following services:

- 6.1 Perform a scour analysis for the 2 bridge structures, if work to the structures is proposed, using the HEC-18 methodologies.
- 6.2 Provide FBCTRA the potential scour depths, envelope, and any recommended countermeasures including bridge design modifications and/or revetment.
- 6.3 Develop a scour report for the two bridge crossings and complete a scour summary form 2605 for each bridge crossing.

PROJECT MANAGEMENT

The Engineer shall provide the following services:

1. Attend kick-off meeting with the FBGPTRA SH 99 Segment D Program Manager and TxDOT to discuss the project locations and limits, design criteria and requirements.
2. Coordinate with subconsultant team.
3. Coordinate with the FBGPTRA Program Manager and TxDOT in the development of the analysis for the required drainage improvements. This shall include, but is not limited to, attending meetings to discuss progress, clarify design issues, schedule, etc. The Engineer shall coordinate all milestone submittals. This includes up to 10 total in-person meetings.
4. Coordinate with Fort Bend County and all other government agencies, as necessary.
5. Perform general project management tasks including invoicing, progress reports, and general coordination with the FBGPTRA. This includes preparation of meeting minutes within five business days of the meeting.
6. Implement Quality Assurance / Quality Control program for each deliverable. The FBGPTRA may at any time review the Engineer's Quality Control. The FBGPTRA may request all markup documents including drawings and engineering reports from the Engineer.

DELIVERABLES

The Engineer shall submit the following to the FBGPTRA:

Reports:

1. Letter Report – the Engineer shall prepare a brief letter report summarizing data collection efforts and preliminary findings related to the current roadway condition. The letter report should highlight identified outfall where additional detention volume maybe required to bring the roadway system up to TxDOT design standards.
2. Draft Drainage Report (Three [3] copies) – The report shall document and justify all data, boundary conditions, assumptions, methodologies, and results. The text, tables, exhibits, and appendices shall document clearly and concisely the work performed and results found. The report shall provide recommendations for critical review by the FBGPTRA. The text, tables, exhibits, and appendices

Exhibit B

(including computer models) shall be saved on a compact disc and included with each report. Assume one round of comments from the FBGPTRA. The Engineer shall address all FBGPTRA comments.

3. Final Drainage Report (Three [3] copies) – The report shall be signed and sealed by a professional engineer.
4. The Engineer shall prepare a separate scour report, combining analysis and findings for all crossings which require a scour analysis.

Calculations:

The Engineer shall provide the copies of all spreadsheets and output from any programs used on a CD/DVD in a universally reliable format. The Engineer may provide the requested information on a CD/DVD in pdf format.

NTP Approval: August 28, 2021

Schedule of Deliverables

- Existing Condition SWMM Analysis – November 19, 2021
- Existing Condition Drainage Crossing Analysis – November 19, 2021
- Letter Report – December 17, 2021
- Proposed Condition Analysis, PS&E Items and Drainage Report are dependent on the PS&E design schedule, a schedule will be determined for these items once the PS&E design schedule is confirmed.

ATTACHMENT B
SH99 FROM WEST AIRPORT TO FM 1464
FEE SCHUDULE

DESCRIPTION OF WORK TASK			Project Manager	Deputy Project Manager	Quality Manager	Senior Engineer	Project Engineer	Design Engineer	Engineer- in-Training	Senior GIS Analsyst	Junior GIS Analsyst	Engineer Tech	Senior Hydrologist	Admin/ Clerical	Total Labor	Total Labor
			\$226.35	\$205.22	\$200.71	\$188.26	\$150.90	\$128.92	\$99.62	\$147.81	\$111.24	\$92.30	\$188.26	\$70.32	Hours	Cost per Task
PROJECT MANAGEMENT																
0.0	Project Management															
	1.	Particiapte in kick-off meeting	2	2											4	\$863.14
	2.	Coordinate with subconsultant team	4	16			16								36	\$6,603.32
	3.	Coordinate with FBGPTRA Program Manager	8	8			8								24	\$4,659.76
	4.	Coordinate with FBC	2	2			2								6	\$1,164.94
	5.	Project management (invoicing, progress reports, etc.)	8										8		16	\$2,373.36
	Subtotal HR		24	28	0	0	26	0	0	0	0	0	0	8	86	
	Subtoal Cost		\$5,432.40	\$5,746.16	\$0.00	\$0.00	\$3,923.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$562.56		\$15,664.52
DRAINAGE STUDY																
1.0	Data Collection															
	1.	Conduct field inspections					4		8				2		14	\$1,777.08
	2.	Collect available applicable data					4		4				2		10	\$1,378.60
	3.	Obtain historical flood records through various means noted					2		2						4	\$501.04
	4.	Review survey data and coordinate additional surveying needs with State					4		8				2		14	\$1,777.08
	Subtotal HR		0	0	0	0	14	0	22	0	0	0	6	0	42	
	Subtoal Cost		\$0.00	\$0.00	\$0.00	\$0.00	\$2,112.60	\$0.00	\$2,191.64	\$0.00	\$0.00	\$0.00	\$1,129.56	\$0.00		\$5,433.80
2.0	Hydrologic Studies (5 Outfalls, Station 835+90, 885+70, 929+60, 960+80, 963+70)															
	1.	Current Conditions														
	a.	Delineate drainage area boundaries for existing conditions					2		10		6				18	\$1,965.44
	b.	Determine existing conditions hydrologic parameters					2		10	2	6				20	\$2,261.06
	c.	Calculate existing conditions discharges for the 10% and 1% AEP storm frequencies. Atlas 14 rainfall data will be used when developing discharges.					4		14						18	\$1,998.28
	2.	Proposed Conditions														\$0.00
	a.	Delineate drainage area boundaries for proposed conditions					5		15		8				28	\$3,138.72
	b.	Determine proposed conditions hydrologic parameters					5		10	2	6		2		25	\$3,090.28
	c.	Calculate proposed conditions discharges for the 10% and 1% AEP storm frequencies. Atlas 14 rainfall data will be used when developing discharges.					6		10						16	\$1,901.60
	QA/QC Hydrologic Studies				12										12	\$2,408.52
	Subtotal HR		0	0	12	0	24	0	69	4	26	0	2	0	137	
	Subtoal Cost		\$0.00	\$0.00	\$2,408.52	\$0.00	\$3,621.60	\$0.00	\$6,873.78	\$591.24	\$2,892.24	\$0.00	\$376.52	\$0.00		\$16,763.90
3.0	Cross-Drainage Structures Hydraulic Analysis: 2 Bridges, 2 Bridge Class Culverts, 1 Non-Bridge Class Culvert															
	1.	Existing Conditions														
	a.	Analyze hydraulics for each crossing and develop models as necessary for existing conditions		2			4		16	2	4				28	\$3,348.54
	b.	Determine existing conditions 10-yr and 100-yr water surface elevations at each crossing					2		5						7	\$799.90
	2.	Proposed Conditions														\$0.00
	a.	Analyze hydraulics for each crossing and develop models as necessary for proposed conditions		2			4		10	4	5				25	\$3,157.68
	b.	Determine proposed conditions 10-yr and 100-yr water surface elevations at each crossing		1			2		6						9	\$1,104.74

ATTACHMENT B
SH99 FROM WEST AIRPORT TO FM 1464
FEE SCHUDULE

DESCRIPTION OF WORK TASK				Project Manager	Deputy Project Manager	Quality Manager	Senior Engineer	Project Engineer	Design Engineer	Engineer-in-Training	Senior GIS Analsyst	Junior GIS Analsyst	Engineer Tech	Senior Hydrologist	Admin/ Clerical	Total Labor	Total Labor		
				\$226.35	\$205.22	\$200.71	\$188.26	\$150.90	\$128.92	\$99.62	\$147.81	\$111.24	\$92.30	\$188.26	\$70.32	Hours	Cost per Task		
		c.	Analyze floodplain conveyance impacts, including assessment and/or floodplain modeling of existing and proposed floodplain equalizer structures		1			4		6				2		13	\$1,783.06		
		d.	Analyze each crossing to assess the hydraulic performance of proposed improvements					4		6	4	5				19	\$2,348.76		
		e.	Quantify impacts, beneficial or adverse, both upstream and downstream of the culvert/bridge crossings for events up to and including the 1% AEP storm. If mitigation is necessary, include ROW needs.		2			2		6				2		12	\$1,686.48		
		f.	Compute approximate changes in right-of-way corridor 1% AEP floodplain volumes between exisiting and proposed roadway conditions. Offsite mitigation may be required, if necessary, present conceptual measures including ROW needs.		1					6		4				11	\$1,247.90		
		QA/QC Hydraulic Design				15										15	\$3,010.65		
	Subtotal HR			0	9	15	0	22	0	61	10	18	0	4	0	139			
	Subtoal Cost			\$0.00	\$1,846.98	\$3,010.65	\$0.00	\$3,319.80	\$0.00	\$6,076.82	\$1,478.10	\$2,002.32	\$0.00	\$753.04	\$0.00		\$18,487.71		
4.0	Roadway Impact Analysis																		
	1.	Existing Conditions																	
		a.	Develop an existing conditions dynamic model for each of the 5 outfall systems. The dynamic model shall include ditches, storm sewers and culverts connecting the independent drainage systems. The model shall terminate at the outfalls.					4		60	4	8		4		80	\$8,815.00		
		b.	Determine the tailwater elevation at each outfall based on engineering judgement and best available data.					1		12						13	\$1,346.34		
		c.	Assess the existing conditions drainage system to determine allowable discharges to each outfall and the existing hydraulic grade line through the system for the 10-year and 100-year storm events.		2			8		18		4		4		36	\$4,608.80		
	2.	Proposed Conditions																	
		a.	Develop a proposed conditions dynamic model for each of the 5 outfall systems. The dynamic model shall include ditches, storm sewers and culverts connecting the independent drainage systems. The model shall terminate at the outfalls.					8		64	4	8		8		92	\$10,570.12		
		b.	Assess the proposed drainage system to evaluate if the proposed conditions discharges to the drainage system outfalls are less than or equal to the existing conditions for the 100-year storm event.		2			16		80		4		24		126	\$15,757.64		
		c.	Conduct a 1% AEP sheet flow analysis using the dyamic model for the proposed condition.		1			2		16				2		21	\$2,477.46		
		QA/QC Impact Analysis				20										20	\$4,014.20		
	Subtotal HR			0	5	20	0	39	0	250	8	24	0	42	0	388			
	Subtoal Cost			\$0.00	\$1,026.10	\$4,014.20	\$0.00	\$5,885.10	\$0.00	\$24,905.00	\$1,182.48	\$2,669.76	\$0.00	\$7,906.92	\$0.00		\$47,589.56		
5.0	Drainage Report																		
	1.	Letter Report			2	5		15		25	4	20		4		75	\$9,737.07		
	2.	Draft Drainage Report		2	2	5		30	5	55	4	25		4	1	133	\$16,712.99		
	3.	Final Drainage Report			2	5		12	4	20	4	15		3	1	66	\$8,627.81		
	PS&E Development for Hydraulics																		
	1	Prepare hydraulic data sheets for 3 bridge structures						4		20			16			40	\$4,072.80		
	2	Prepare hydraulic data sheets for 2 bridge class culvert crossings						2		12			12			26	\$2,604.84		
	Subtotal HR			2	6	15	0	63	9	132	12	60	28	11	2	340			
	Subtoal Cost			\$452.70	\$1,231.32	\$3,010.65	\$0.00	\$9,506.70	\$1,160.28	\$13,149.84	\$1,773.72	\$6,674.40	\$2,584.40	\$2,070.86	\$140.64		\$41,755.51		
6.0	Scour Analysis																		
	1	Perform a scour analysis for 2 bridge structures					4	8		64		12				88	\$9,670.80		
	2	Provide FBCTRA the potential scour depths, envelope and any recommended countermeasures including bridge design modifications and/or revetment.			1		8	8		16		8				41	\$5,402.34		
	3	Scour Report		1	1		2	5		25	1	5				40	\$4,757.10		
		QA/QC Scour Analysis				5										5	\$1,003.55		
	Subtotal HR			1	2	5	14	21	0	105	1	25	0	0	0	174			
	Subtoal Cost			\$226.35	\$410.44	\$1,003.55	\$2,635.64	\$3,168.90	\$0.00	\$10,460.10	\$147.81	\$2,781.00	\$0.00	\$0.00	\$0.00		\$20,833.79		
			Total Labor Cost	\$6,111.45	\$10,261.00	\$13,447.57	\$2,635.64	\$31,538.10	\$1,160.28	\$63,657.18	\$5,173.35	\$17,019.72	\$2,584.40	\$12,236.90	\$703.20		\$166,528.79		

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

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.**

CivilTech Engineering Inc
Cypress, TX United States

Certificate Number:
2021-778339

Date Filed:
07/14/2021

Date Acknowledged:
08/18/2021

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.

Project #126-1011
Professional Engineering Services for NORTHBOUND & SOUTHBOUND MAIN LANES OF FORT BEND GRAND PARKWAY TOLL ROAD (SH 99) BETWEEN APPROXIMATELY FM 1464 & W AIRPORT BOULEVARD (FORT BEND COUNTY, TX)

4	Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
			Controlling	Intermediary
	Phipps, Steve	Cypress, TX United States	X	
	Heid, Josh	Cypress, TX United States	X	
	Cattran, Scott	Cypress, TX United States	X	

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____.
(month) (year)

Signature of authorized agent of contracting business entity
(Declarant)