

ENGINEERING SERVICES AGREEMENT

THIS AGREEMENT is made and entered by and between COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas, hereinafter referred to as "County", and, BROWN & GAY ENGINEERS, INC., a TEXAS Corporation, hereinafter referred to as "Engineer", to be effective from and after the date as provided herein.

WITNESSETH:

WHEREAS, the County desires to engage the services of the Engineer for the Collin County Outer Loop Segment 3A Access Road Plans, Specifications and Estimate Preparation from Custer Road (FM 2478) to US 75"Project"; and

WHEREAS, the Engineer desires to render such engineering services for the County upon the terms and conditions provided herein.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That for and in consideration of the covenants contained herein, and for the mutual benefits to be obtained hereby, the parties hereto agree as follows:

1. Retention of the Engineer

The County hereby agrees to retain the Engineer to perform professional engineering services in connection with the Project; Engineer agrees to perform such services in accordance with the terms and conditions of this Agreement, exercising the same degree of care, skill, and diligence as is ordinarily possessed and exercised by a member of the same profession, currently practicing, under similar circumstances.

II. Scope of Services

2.1 The parties agree that Engineer shall perform such services as are set forth herein and described in Exhibit "A", which is attached hereto and thereby made a part of this Agreement. Work for each phase shall be preceded by a Notice to Proceed issued by County. The parties understand and agree that deviations or modifications in the form of written change orders may be authorized from time to time by the County.

2.2 The Engineer will serve as County's professional engineering representative under this Agreement, providing professional engineering, consultation, advice and furnishing customary services incidental thereto. The Engineer agrees to cooperate and coordinate with other design professionals, the County and its contractors to help facilitate efficient construction of the Project and maintain the Project schedule.

2.3 The Engineer shall advise the County with regard to the necessity for subcontract work such as special surveys, tests, test borings, or other subsurface investigations in connection with design and engineering work to be performed hereunder. The Engineer shall also advise the County concerning the results of same. Such survey, test, and investigations shall be furnished to the County.

2.4 The presence or duties of the Engineer's personnel at a construction site, whether as on-site representatives or otherwise, do not make the Engineer or its personnel in any way responsible for those duties that belong to County's construction contractors or other entities, and do not relieve the construction contractors or any other entity of their obligations, duties, and responsibilities, including but not limited to, all construction methods, means, techniques, sequences and procedures necessary for completing all portions of the construction work in accordance with the Contract Documents and any health or safety precautions required by such construction work. The Engineer and its personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions.

2.5 The Engineer will make periodic recommendations for periodic construction progress payments to the construction contractor. Recommendations by the Engineer to the County for periodic construction progress payments to the construction contractor will be based on the Engineer's knowledge, information, and belief from sampling and observation that the work has progressed to the point indicated. Such recommendations do not represent that there are not other matters at issue between the County and the construction contractor that affect the amount that should be paid.

2.6 The Engineer agrees to provide a complete and coordinated set of drawings and specifications for the construction of the Project, exercising the same degree of care, skill, and diligence as is ordinarily possessed and exercised by a member of the same profession, currently practicing, under similar circumstances. Construction drawings, specifications, and other construction documents prepared by the Engineer or its consultants and submitted to the County for approval or contractors for bidding or negotiation purposes shall be complete and capable of construction "as is". While the utility of communications between design professionals and construction contractors for the purpose of clarifying design intent is recognized, the Project should be capable of construction without the necessity of formal revisions or contract modifications to provide missing design information after construction contracts are awarded. Said documents shall comply with all applicable codes, ordinances, statutes, and regulations governing the design of the Project.

2.7 The Engineer shall assist the County in the preparation and filing of documents required for the approval of governmental authorities having jurisdiction over the Project.

III. Schedule of Services

3.1 The Engineer agrees to commence its services immediately upon execution of this Agreement, or as otherwise directed in writing by the County, and to proceed diligently with said services to completion as described in the Completion Schedule attached hereto as Exhibit "B" and thereby made a part of this Agreement. Engineer shall not be considered in default of this Agreement for delays in performance caused by circumstances beyond its reasonable control. Should such circumstances occur, the Engineer shall, within a reasonable time of being prevented from performing, give written notice to the County describing the circumstances preventing continued performance and the efforts being made to resume performance of this Agreement.

3.2 In the event that the Engineer is delayed in the progress of the work on the Project by an act or neglect of the County, County's employees, or separate contractors employed by the County, or by changes ordered in the Project, fire, adverse weather conditions not reasonably anticipated, unavoidable casualties or other causes beyond the Engineer's control, or delay authorized by the County pending arbitration, or by other causes which the County and Engineer agree may justify delay, then the Contract Time shall be reasonably extended by Contract Amendment. The County shall have the right at any time to delay or

suspend the work or any part thereof for any reasonable time and if this happens, the Engineer's sole remedy for any delays or suspension shall be any extension of time. However, should the delay continue for more than one year past the original completion date in the completion schedule, the Engineer may request to renegotiate their professional fee provided that the fee is reasonable and substantiated by documents showing the need for the requested increase. Any request for a fee increase shall be submitted to County for final approval. The County shall not be independently liable to the Engineer for any delay or interference caused by circumstances beyond the County's control or any delay caused by any other person or entity.

IV. Compensation and Method of Payment

The parties agree that Engineer shall be compensated for all services provided pursuant to this Agreement in the amount and manner described and set forth in the Payment Schedule attached hereto as Exhibit "C" and thereby made a part of this Agreement. Engineer further agrees that it will prepare and present such monthly progress reports and itemized statements as are described in said Exhibit "C". Payment will be made in accordance with The Texas Government Code, Title 10, Subtitle F, Chapter 2251. Engineer further agrees to the following terms prior to payment being due by County:

A. Invoice and Payment

- (1) The Engineer shall provide the County sufficient documentation to reasonably substantiate the invoices.
- (2) The Engineer will issue monthly invoices for all work performed under the Agreement.
- (3) In the event of disputed or contested billing, only that portion so contested will be withheld from payment, and the undisputed portion will be paid. The County will exercise reasonableness in contesting any portion thereof. NO interest will accrue on any contested portion of the billing until mutually resolved.
- (4) In the event of any conflict between Paragraph IV and Chapter 2251 of the Texas Government Code, The Texas Government Code shall prevail.

V. Information to be provided by the County

5.1 The County agrees to furnish to Engineer, prior to the Engineer's commencement of its services, all that information set forth and described on Exhibit "D", which is attached hereto and thereby made a part of this Agreement.

5.2 The County will make its facilities accessible to the Engineer as required for the Engineer's performance of its services. The Engineer represents that it understands the scope of this Agreement and has reviewed and inspected the Project sites, and can fully perform its obligations pursuant to this Agreement. Any failure of the Engineer to acquaint itself with the available information will not relieve the Engineer from its responsibilities pursuant to this Agreement.

5.3 The County shall disclose, to the extent known to the County, the results of prior tests, inspections or investigations conducted for the Project upon request by the Engineer.

VI. Progress Meetings

In addition to providing the monthly progress reports as required under Paragraph IV herein above, Engineer agrees to attend all monthly progress meetings scheduled by County,

and at such meetings to outline work accomplished and special problem or delays encountered in connection with the Project during the previous report period, as well as planned work activities and special problems and delays anticipated for the next report period. The Engineer agrees to cooperate and coordinate with other design professionals, the County and its contractors to help facilitate efficient construction of the Project and maintain the Project schedule.

VII. Insurance

Engineer agrees to meet all insurance requirements as set forth on Exhibit "E" which is attached hereto and thereby made a part of this Agreement.

VIII. Indemnity

Engineer agrees to indemnify the County to the fullest extent allowed by section 271.904 of the Texas Local Government Code, including payment of the County's reasonable attorneys' fees to the extent such is allowed under 271.904(b).

IX. Independent Contractor

In the performance of services hereunder, the Engineer shall be deemed an independent contractor and shall not, with respect to its acts or omissions, be deemed an agent, subcontractor or employee of the County.

X. Assignment and Subletting

The Engineer agrees that neither this Agreement nor the services to be performed hereunder will be assigned or sublet without the prior written consent of the County. The Engineer further agrees that the assignment or subletting or any portion or feature of the services required in the performance of this Agreement shall not relieve the Engineer from its full obligations to the County as provided by this Agreement.

XI. Audits and Records/Prohibited Interest

11.1 The Engineer agrees that at any time during normal business hours, and as often as County may deem necessary, Engineer shall make available to representatives of the County for examination all of its records with respect to all matters covered by this Agreement, and will permit such representatives of the County to audit, examine, copy and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Agreement, all for a period of three (3) years from the date of final settlement of this Agreement or of such other or longer period, if any, as may be required by applicable statute or other lawful requirements.

11.2 The Engineer agrees that it is aware of the conflict of interest requirements of the state law which are applicable to persons entering into contracts with the County and will abide by the same. Further, a lawful representative of Engineer shall execute the Affidavit shown in Exhibit "F". Engineer understands and agrees that the existence of a conflict of interest during the term of this Agreement will render the agreement voidable.

11.3 The Engineer acknowledges to the County that it has made full disclosure in writing of any existing conflicts of interest or potential conflicts of interest, including personal

financial interest, direct or indirect, in property abutting the proposed Project and business relationships with persons or entities with interest in abutting properties.

XII. Contract Termination

The parties agree that County shall have the right to terminate this Agreement without cause upon thirty (30) days written notice to Engineer. In the event of such termination without cause, Engineer shall deliver to County all finished or unfinished documents, data, studies, surveys, drawings, maps, models, reports, photographs or other items prepared by Engineer in connection with this Agreement. Engineer shall have the right to terminate this Agreement upon thirty (30) days written notice to County in the event of the County's breach of any material term of this Agreement, including but not limited to compensation and method of payment. Regardless of which party initiates termination, Engineer shall be entitled to compensation for any and all services completed to the satisfaction of County in accordance with the provisions of this Agreement prior to termination.

XIII. Cost Estimates

The parties recognize and agree that any and all Engineer's estimates of probable construction costs (estimates) prepared by Engineer in connection with the Project represent the best judgment of Engineer as a design professional familiar with the construction industry, but that the Engineer has no control over costs or the price of labor, equipment or materials or over the Contractor's methods of pricing and does not guarantee that any bids solicited or received in connection with the Project will not vary from estimates prepared by Engineer.

XIV. Ownership of Documents

Original drawings and specifications (Instruments of Service) created by Engineer are the property of the Engineer; however, the Project is the property of the County, and Engineer may not use the drawings and specifications for any purpose not relating to the Project without County's consent. County shall be furnished with such reproductions of drawings and specifications as County may reasonably require. Upon completion of the services or any earlier termination of this Agreement under Article XII, and payment in full of all monies due Engineer, Engineer will revise drawings to reflect significant changes made during construction as per the marked-up prints, drawings, and other data furnished to the Engineer by or through the County or Contractor. Engineer will promptly furnish the County with one (1) complete set of reproducible record prints. All such reproductions shall be the property of the County who may use them without the Engineer's permission for any proper purpose relating to the Project, including but not limited to, maintenance of the Project, additions to the Project, or completion of the Project. The aforementioned revisions will be based upon information supplied by the County's construction contractor and will be assumed by Engineer to be complete and accurate. As such, Engineer shall not be responsible for errors or omissions resulting therefrom. Prints shall be furnished, as an additional service, at any other time requested by County. The County may use such drawings in any manner it desires; provided, however, that the Engineer shall not be liable for the use of such drawings for any project other than the Project described herein.

XV. Complete Contract

15.1 This Agreement, including the exhibits hereto numbered "A" through "F", constitute the entire agreement by and between the parties regarding the subject matter hereof and supersedes all prior written or oral understandings. This Agreement may only be amended,

supplemented, modified or canceled by a duly executed written instrument, signed by the County and the Engineer.

15.2 Warranties contained in this Agreement are in addition to and not in lieu of, any and all other liability imposed upon the Engineer by law with respect to the Engineer's duties, obligations, and performance hereunder. The Engineer's liability hereunder shall survive the County's final acceptance and payment for the Project. All representations and warranties set forth in this Agreement, including without limitation, this paragraph, shall survive the final completion of the Work or earlier termination of this Agreement. The Engineer acknowledges that the County is relying upon the Engineer's skill and experience in performing the services pursuant to this Agreement.

XVI. Mailing of Notices

Unless instructed otherwise in writing, Engineer agrees that all notices or communications to the County permitted or required under this Agreement shall be addressed to the County at the following address:

Mr. Clarence Daugherty, P.E.
Collin County Engineering
4690 Community Ave., Suite 200
McKinney, TX 75071

Mr. Matt Dobecka
Collin County Purchasing Department
2300 Bloomdale #3160
McKinney, Texas 75071

Mr. Bill Bilyeu
Collin County Administrator
2300 Bloomdale #4192
McKinney, Texas 75071

County agrees that all notices or communications to Engineer permitted or required under this Agreement shall be addressed to Engineer at the following address:

Mr. Stoney Skidmore, P.E.
Brown & Gay Engineers, Inc.
2595 Dallas Pkwy #101
Frisco, TX 75034

All notices or communications required to be given in writing by one party or the other shall be considered as having been given to the date such notice or communication is posted by the sending party.

XVII. Miscellaneous

A. Paragraph Headings

The paragraph headings contained herein are for convenience only and are not intended to define or limit the scope of any provision in this Agreement.

B. Interpret Contract Fairly

Although this Agreement is drafted by County, should any part be in dispute, the parties agree that the Agreement shall not be construed more favorable for either party.

C. Venue/Governing Law

The parties agree that the laws of the State of Texas shall govern this Agreement, and that it is performable in Collin County, Texas. The venue for any litigation related to this Agreement shall be in Collin County, Texas.

D. Parties Bound

County and Engineer, and their partners, successors, subcontractors, executors, legal representatives, and administrators are hereby bound to the terms and conditions of this Agreement.

E. Severability

In the event a term, condition, or provision of this Agreement is determined to be void, unenforceable, or unlawful by a court of competent jurisdiction, then that term, condition, or provision shall be deleted and the remainder of the Agreement shall remain in full force and effect.

F. Effective Date

This Agreement shall be effective from and after execution by both parties hereto.

G. Term of Agreement

The term of Agreement shall conform to the schedule as stipulated in Exhibit "B" attached herein. No other extension shall be authorized unless granted by written agreement between the County and Engineer.

H. Observe and Comply

Engineer shall at all times observe and comply with all federal and State laws and regulations and with all City ordinances and regulations which in any way affect this Agreement and the work hereunder, and shall observe and comply with all orders, laws, ordinances and regulations which may exist or may be enacted later by governing bodies having jurisdiction or authority for such enactment. No plea of misunderstanding or ignorance thereof shall be considered. Engineer agrees to defend, indemnify and hold harmless County and all of its officers, agents, and employees from and against all claims or liability arising out of the violation or any such order, law, ordinance, or regulation, whether it be by itself or its employees.

I. Expenses for Enforcement

In the event either Party hereto is required to employ an attorney to enforce the provisions of this Agreement or is required to commence legal proceedings to enforce the provisions hereof, the prevailing Party shall be entitled to recover from the other, reasonable attorney's fees and court costs incurred in connection with such enforcement, including collection.

WITNESS OUR HANDS AND SEALS on the date indicated below.

Date: 12/12/19

COLLIN COUNTY, TEXAS

By: Michalyn Rains

Michalyn Rains, CPPO, CPPB

Purchasing Agent

Court Order No. 2019-1116-12-09

Date: 11/19/2019

By: Brian Reinhardt

Brian Reinhardt, PE

Print Name

Title: Senior Project Manager

ACKNOWLEDGMENT

STATE OF TEXAS }
 }
 COUNTY OF COLLIN }

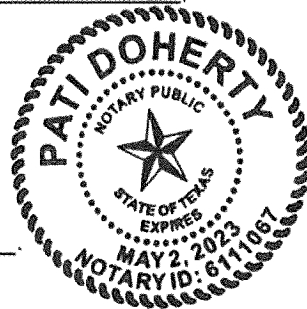
BEFORE ME, Pati Doherty on this day personally appeared Brian Reinhardt, of BGE, Inc., a Texas Corporation, known to me (or proved to me on the oath of _____ or through Texas Drivers License (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same as the act and deed of the corporation, for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 19th day of November, 2019.

Pati Doherty
 Notary Public, State of Texas

Pati Doherty
 Printed Name

My Commission expires on the 2nd day of May, 2023.



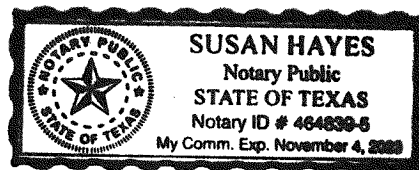
STATE OF TEXAS }
 }
 COUNTY OF COLLIN }

BEFORE ME, Susan Hayes on this day personally appeared Michalyn Rains, Purchasing Agent of COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same as the act and deed of COLLIN COUNTY, TEXAS, for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 12th day of December, 2019.

Susan Hayes
 Notary Public, State of Texas

Susan Hayes
 Printed Name



My Commission expires on the 4th day of November, 2023.

EXHIBIT "A"

SCOPE OF SERVICES

Collin County Outer Loop Segment 3A Access Road Plans, Specifications and Estimate Preparation from Custer Road (FM 2478) to US 75

PURPOSE

The Scope of Work to be performed by the ENGINEER under this contract will consist of the preparation of final plans, specifications and estimates (PS&E) for a 2-lane roadway. The project limits for the improvements to the Collin County Outer Loop Access Road (ultimate westbound frontage road with curb and gutter) along Segment 3A is from Custer Road (FM 2478) to US 75 (the Project).

DETAILS

- The Engineer will prepare plans, details and compute quantities to include grading, paving, drainage, removals, bridges, traffic control/construction sequencing, storm water pollution prevention plans, signals and miscellaneous details.
- Design Criteria for the project shall comply with TxDOT 4R guidelines for urban arterials.
- This Project will be developed utilizing English units of measure and all final plan sheets will be half size (11"x17").
- The work described in this scope of services will include the following major work tasks: Assembly and Review of Data; Roadway Design; Drainage Design; Traffic Design; Structure Design and Project Management; Special and Incremental Services will include Survey and Geotechnical Services; Incremental Services will include Supplemental Roadway Design, Subsurface Utility Information (SUE) and Utility Coordination.

BASIC SERVICES

1. ASSEMBLY AND REVIEW OF DATA

Collection of Data, Reports, and Maps

The determination of data requirements, availability, and sources will be coordinated with the COUNTY. Once the data needs and sources are identified, the ENGINEER will contact the appropriate agencies and organizations to obtain the data. Data to be collected will include, but not be limited to:

- Utility plans and documents from appropriate municipalities and utility companies.
- Readily available plan sets for crossing or abutting sections within the Project Limits.
- Readily available flood plain information and studies from the Federal Emergency Management Agency, FEMA, the Corps of Engineers and/or other governmental agencies. The ENGINEER will obtain electronic and/or hard copies from the COUNTY: GIS Data, drainage reports, mapping, survey, and improvement plans within the scoped area. The ENGINEER will acquire from the COUNTY any aerial mapping and soil data for the designated area.

Review of Data

The ENGINEER will review the data collected and from this information will:

- Integrate additional data into the study file and evaluate tasks for supporting documentation.
- Develop additional field data, as needed, following review and discussion with the COUNTY.

Roadway Design Criteria

The ENGINEER shall apply appropriate Roadway Design Criteria based on TxDOT 4R guidelines for urban arterials and prepare a Design Criteria Tabulation for the project and will submit to the COUNTY for approval. The ENGINEER will use the design criteria to identify the maximum and minimum values for all design elements including drainage criteria and will identify the project preferred values.

2. ROADWAY DESIGN

GENERAL

Typical Sections

The ENGINEER shall prepare the existing and proposed typical sections of the roadway, to include Collin County Outer Loop Access Road, FM 2478 (existing only, proposed sections to be provided by COUNTY), County Road 156, County Road 125, FM 543, County Road 204, County Road 206, Trinity Falls Parkway, Littrell Lane, County Road 282, County Road 286, County Road 277, and US 75 Access Road. The existing pavement structures shall be based on available as-built plan data provided by the COUNTY. (Assumed 15 plan sheets)

Miscellaneous Sheets

- Title sheet (Assumed 1 plan sheet)
- Index of sheets (Assumed 1 plan sheet)
- Project layout sheets at 1" = 1000' scale (Assumed 5 plan sheets)
- Survey control data sheet (Assumed 5 plan sheets)

TRAFFIC CONTROL

Traffic Control Plan

The ENGINEER shall prepare traffic control and sequence of construction plans at a scale of 1" = 100'. The TCP plan will show staged construction of the cross streets improvements to maintain local access. The plans shall identify work areas, temporary paving, temporary shoring, signing, detour alignments, barricades, temporary drainage and other traffic control related items as required. A narrative will be prepared and submitted to the COUNTY for review and incorporation into the plans. Traffic control will utilize TxDOT standard details and meet the requirements of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

- Develop Traffic Control Advance Warning Layout (Assumed 1 plan sheet)

In conjunction with the Traffic Control Layouts, the Engineer shall develop an overall advance warning layout in conformance with TxDOT standard requirements.

- Develop Traffic Control Typical Sections (Assumed 4 plan sheets)

In conjunction with the Traffic Control Layouts, the Engineer shall develop typical cross sections showing lane widths, edge conditions, channelization and proposed construction area.

- Develop Sequence of Construction, Narrative, and General Notes (Assumed 2 plan sheet)

The Engineer shall develop a sequence of construction for the proposed improvements including a written narrative and any applicable general notes.

- Traffic Control Layouts (Assumed 3 phases, 5 plan sheets)

Prepare layouts (1" = 100') showing the travel lanes and construction area for each phase of construction. Included in the layouts will be temporary signing and striping, channelization devices, barricades and a narrative of the sequence of work.

- Intersection Staging Plans (Assumed 2 intersections, 4 plan sheets)

Develop typical intersection staging plans for similar intersections. Develop custom intersection staging layouts only for special conditions.

- Driveway Staging Plans (Assumed 1 plan sheet)

Develop a typical driveway staging plan for similar driveways. Develop custom driveway staging layouts only for special conditions.

- TCP Quantities Summary Sheet (standard TCP items not covered by item 502 "Barricades and Traffic Handling")

The Engineer shall develop TCP Quantity Summary Sheets

- Detour Plans (Assumed 2 plan sheet)

For offsite detour routings on existing streets, roads, or highways, provide layouts of proposed routing, showing "trail blazing" signs at intersections.

- Traffic Control Standard Details

Identify and include applicable TxDOT traffic control standard details for inclusion in the plans.

ROADWAY DESIGN

Horizontal Alignment Data Sheet (Assumed 1 plan sheet)

The ENGINEER shall provide a plan sheet with all applicable horizontal alignment data (Geopak output) along the project.

Removal Sheets (Assumed 5 plan sheets)

The ENGINEER shall provide removal layouts showing items to be removed at a 1" = 100' scale on dual plan layout sheets. Surface features to be removed including driveways, streets, storm sewer piping, storm sewer inlets, abandoned water mains and abandoned sanitary sewer mains will be identified with approximate quantities on the removal sheets. It is assumed the franchised utilities will

either remove their own equipment or will abandon it in place. Information on abandoned water mains and sanitary sewer will be provided by others. The removal of buildings and building foundations located within the proposed ROW is assumed to be within the scope of this contract and will be identified for removal.

Roadway Plan and Profiles

The ENGINEER shall develop the plan sheets and profile sheets at a Scale of 1" = 100' (on 11" x 17" sheets) for the Collin County Outer Loop Access Road and cross streets for this project. The ENGINEER shall refine the vertical alignment for the roadway based upon the approved design criteria and design ultimate schematic. The horizontal curve data and vertical curve data shall be shown including "K" values. The vertical profiles shall use the approved design ultimate schematic as the starting profile, with minor adjustments as necessary.

The plan and profile sheets will include the following:

- Collin County Outer Loop Access Road (Assumed 44 plan sheets)
- County Road 156 (Assumed 1 plan sheet)
- County Road 125 (Assumed 1 plan sheet)
- FM 543 (Assumed 1 plan sheet)
- County Road 204 (Assumed 1 plan sheet)
- County Road 206 (Assumed 1 plan sheet)
- Trinity Falls Parkway (Assumed 1 plan sheet)
- County Road 282 (Assumed 1 plan sheet)
- County Road 286 (Assumed 1 plan sheet)
- County Road 277 (Assumed 1 plan sheet)
- US 75 Access Road (Assumed 1 plan sheet)
- FM 2478 (Assumed 0 plan sheet – Designed/constructed by Others)
- Littrell Lane (Assumed 1 plan sheet)
- County Road 125 Cul-de-sac (Assumed 1 plan sheet)

Intersection Layout Sheets (Assumed 11 plan sheets)

The ENGINEER shall develop contour plans and intersection details for eleven (11) intersections (as listed above). Layouts will be at a scale of 1" = 20'.

Driveway Profiles / Details Summary (Assumed 2 plan sheets)

The ENGINEER shall analyze up to twenty (20) driveways within the project and develop driveway profiles as needed to ensure that driveways function as intended. (For example, residential driveways will be designed to accommodate passenger cars; commercial driveways will be designed to accommodate trucks (WB-50). Delineate the limits of construction outside of the right of way needed to secure an adequate driveway profile. Calculate and summarize driveway quantities.

Driveway details (dimensions, grades, and quantities) will be prepared in a tabular format.

Miscellaneous Roadway Details (Assumed 5 plan sheet)

Prepare any and all necessary plan details necessary to clarify the construction requirements of the paving facilities.

Roadway Cross Sections

The ENGINEER shall prepare proposed cross sections at a scale of 1" = 10' horizontal and 1" = 10' vertical (on 11"X17" format) or appropriate scale for detail and review. Cross sections shall be created at all critical locations and on 100-foot increments for Collin County Outer Loop Access Road and cross streets with construction beyond the radius return.

The ENGINEER shall determine the quantities of cut and fill for each cross section and provide the earthwork quantities in a tabular format in the plans.

Assembly of Roadway Standards

The ENGINEER will select standard details applicable to the roadway design as needed for construction and include in the plans for the 60%, 90%, and final submittals.

BID PREPARATION (ROADWAY)

The ENGINEER shall provide the following related to bid preparation of roadway elements including:

- Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 30%, 60%, 90% and final submittal and at major project milestones.
- Construction timeline will be prepared using Microsoft Project or similar scheduling software at the 90% and final submittal.
- Applicable general notes and specifications from lists provided by the COUNTY.
- Roadway General Notes and Special Specifications for the Project at the 90% and final submittal.
- Standard Specifications, Bid Forms and Contract Documents for the Project at the 90% and final submittal. Sections to be included are: Advertisement for Bids, Instructions to Bidders, Governing Specifications and Special Provisions, General Notes, Bid Form, Base Bid Schedule, Construction Agreement, Texas Statutory Payment and Performance Bond, Performance Bond and Maintenance Bond.

QUALITY CONTROL (ROADWAY)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

- QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be made available for review along with each submittal.

3. DRAINAGE DESIGN

HYDROLOGY

The ENGINEER shall subdivide the overall drainage areas into sub-areas and calculate the discharge directed to each proposed culvert or inlet. Prepare drainage area map identifying all sub-areas. The ENGINEER shall prepare drainage area maps on standard 11" x 17" plan sheets.

- Offsite drainage area map for the site (Scale of 1" = 2000') (Assumed 2 plan sheet)
- Storm sewer inlet area maps. (Scale of 1" = 500') (Assumed 2 plan sheets)

The ENGINEER shall design storm sewer improvements for the Collin County Outer Loop Access Road. The runoff to each inlet and bridge and deck drainage will be calculated in accordance with COUNTY criteria using the appropriate design frequency and as defined in the TxDOT Hydraulic Manual and as shown on standard TxDOT runoff and inlet computation plan sheets.

HYDRAULIC DESIGN

Hydraulic Design for Culverts, Bridge Waterways & Storm Sewer

The ENGINEER will perform necessary hydraulic computations for the design of this project utilizing HEC-RAS, GEOPAK Drainage, HY-8, or other hydraulic modeling software approved by the COUNTY. Calculations will include culverts, bridge waterways, channels, storm sewers and inlets.

The ENGINEER will provide all hydraulic calculations to the COUNTY by showing the necessary information in the final plan set.

Bridge Hydraulic Reports

The ENGINEER shall utilize the hydrologic study prepared during the schematic phase and HEC-HMS (or best available) data to determine discharges at the proposed crossings for the following FEMA regulated waterways:

- Honey Creek
- East Fork Trinity River

The ENGINEER shall conduct a field investigation to document the creek characteristics in the vicinity of the proposed crossings. The hydrologic model will be developed with existing land use conditions and future developed conditions. It is assumed that no channel realignment design will be required.

The ENGINEER will develop a hydraulic model of the existing channels and conditions using the channel survey data and field observation notes, and calibrate the model using available FEMA maps and information. The ENGINEER shall develop a hydraulic model of the proposed crossing utilizing the existing hydraulic model and incorporating the proposed structure.

The ENGINEER shall analyze and check scour impacts for the 100-year flood and the lower of the 500-year or overtopping event to the proposed crossing structures for scour potential and channel stability and will incorporate scour protection into the crossing structure design if determined to be necessary. The ENGINEER shall prepare the Hydraulic Reports for Honey Creek and East Fork Trinity River in accordance to the COUNTY and STATE criteria comparing the existing creek conditions with the proposed roadway crossing. The ENGINEER shall prepare working maps, profiles, cross sections, and tables to be included with the drainage report.

DRAINAGE STRUCTURE DESIGN

Culvert Layouts (Assumed 9 plan sheet)

Prepare seven (7) non-bridge class culvert crossing and two (2) bridge class culvert crossing layout sheets for each cross-drainage structure in accordance with State standard details, the TxDOT Hydraulic Design Manual and the hydraulic computations developed utilizing HY-8 or other approved method. Prepare layouts at 1" = 20' on 11"x17" plan sheets unless otherwise directed.

Storm Sewer Plan & Profile Sheets (Assumed 17 plan sheets)

Prepare storm sewer plan and profile sheets depicting storm sewer, inlets and manholes necessary to drain the facility and convey the runoff to the designated discharge points. The storm sewer plan profiles will be consistent with the hydraulic computations developed using Geopak Drainage or other approved method, and the TxDOT Hydraulic Design Manual. Inlets, manholes and junctions will be in accordance with TxDOT standard details. Prepare layouts at 1" = 100' on 11"x17" plan sheets unless otherwise directed.

Miscellaneous Drainage Details (Assumed 1 plan sheet)

Prepare any and all necessary plan details necessary to clarify the construction requirements of the drainage facilities.

Assembly of Drainage Standards

The ENGINEER will select standard details applicable to the drainage design as needed for construction and include in the plans for the 60%, 90%, and final submittals.

OPEN CHANNEL DESIGN

Special Ditch/Channel Layout Sheets (Assumed 2 plan sheet)

The ENGINEER shall prepare special ditch and/or channel grading layout sheets at 1"=50' scale showing proposed grading contours, typical channel section, and limits of grading. Earthwork associated with proposed ditch and/or channel excavations will be tabulated and included in earthwork summary.

STORM WATER POLLUTION PREVENTION PLAN (SW3P)

SW3P Data Sheet (Assumed 1 plan sheet)

The ENGINEER shall prepare SW3P on standard TxDOT SW3P plan sheet.

SW3P Layouts (Assumed 17 plan sheets)

The ENGINEER shall design a SW3P erosion control plan consistent with the project construction phases that will minimize sediment discharge from the project site through runoff. The ENGINEER shall prepare an erosion control plan at a 1" = 500' scale for each phase of construction.

Post-Construction Plans (BMP Control for TNRCC Section 401)

The ENGINEER will analyze/design the use of vegetative filter strips, grassy swales, special ditch grading, and other non-structural BMP controls within the proposed corridor. Any other BMP control designs, such as permanent detention and/or sedimentation ponds will be considered as additional services.

Temporary Drainage

The ENGINEER shall review the temporary drainage during phased construction by running cross sections at major phases of the TCP. The ENGINEER shall review drainage for positive flow and

perform a low point review. Temporary drainage will not include hydrologic study but may include temporary pipes and ditch flow lines included in the phases of construction.

BID PREPARATION (DRAINAGE)

The ENGINEER shall provide the following related to bid preparation of drainage elements including:

- Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 60%, 90% and final submittal and at major project milestones.
- Applicable general notes and specifications from lists provided by the COUNTY.
- Drainage Standard and Special Specifications for the Project at the 90% and final submittal.

QUALITY CONTROL (DRAINAGE)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

- QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be provided with each submittal.

4. TRAFFIC DESIGN

SIGNING AND PAVEMENT MARKINGS

Signing and Pavement Marking Layout (Assumed 9 plan sheets)

The ENGINEER shall prepare a traffic signing and pavement marking layouts at a scale of 1" = 200' feet on a standard 11" x 17" plan sheets. The layouts will identify the locations of proposed signing and permanent pavement markings in accordance with applicable TxDOT standards and the latest edition of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Summary Tables (Assumed 1 plan sheet)

The ENGINEER shall prepare a small sign summary table utilizing TxDOT standard sheets.

Assembly of Sign and Marking Standards

The ENGINEER will select standard details applicable to the signing and marking design as needed for construction and include in the plans for the 60%, 90%, and final submittals.

ILLUMINATION

The ENGINEER will refer to TxDOT's Highway Illumination Manual and other deemed necessary State approved manuals for design of safety lighting at the following intersections.

- County Road 156
- County Road 125
- FM 543
- County Road 204
- County Road 206
- Trinity Falls Parkway

- County Road 282
- County Road 286
- County Road 277
- US 75 Access Road
- FM 2478 (Assumed to be provided by others – will verify and coordinate with COUNTY)
- County Road 125 Cul-de-sac

The ENGINEER will prepare circuit wiring diagrams showing the number of luminaires on each circuit, electrical conductors, length of runs, and service pole assemblies.

SIGNALIZATION

No traffic signals are anticipated for the Project, if they become necessary the design will be provided as Additional Services.

BID PREPARATION (TRAFFIC)

The ENGINEER shall provide the following related to bid preparation of traffic elements including:

- Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 60%, 90% and final submittal and at major project milestones.
- Applicable general notes and specifications from lists provided by the COUNTY.
- Traffic Standard and Special Specifications for the Project at the 90% and final submittal.

QUALITY CONTROL (TRAFFIC)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

- QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be provided with each submittal.

5. STRUCTURAL DESIGN

RETAINING WALLS

The ENGINEER shall produce complete Retaining Wall Layouts and Structural Details for the proposed retaining walls. The ENGINEER shall develop the foundation design in accordance with the TxDOT's Bridge Division Geotechnical Manual.

HONEY CREEK

The ENGINEER shall produce complete Bridge Layouts and Structural Details for the proposed Honey Creek Bridge. The structure is approximately 2300' long and 30' wide with a varying skew. It is assumed the structure will consist of an I-Girder superstructure supported by cast-in-place concrete bents on a drilled shaft foundation. The bents and columns will be designed with future expansion considerations.

EAST FORK TRINITY RIVER

The ENGINEER shall produce complete Bridge Layouts and Structural Details for the proposed Honey Creek Bridge. The structure is approximately 1900' long and 30' wide with a varying skew. It is assumed the structure will consist of an I-Girder superstructure supported by cast-in-place concrete bents on a drilled shaft foundation. The bents and columns will be designed with future expansion considerations.

STRUCTURE

The ENGINEER shall prepare structural details for bridge. The details shall include abutment details, interior bent details, span/unit details and I-girder details. The bridge design shall also accommodate future expansion for a widened section. TxDOT standards shall be used if possible. Prestressed concrete I-Girder units shall be designed to be continuous slab, with no integral concrete end diaphragms. Bents shall be standard TxDOT multi-column bents with standard circular columns and rectangular bent caps and shall not include aesthetic details. The ENGINEER should size the bridge to meet drainage requirements.

BRIDGE LAYOUTS

The ENGINEER shall prepare bridge layouts in accordance with TxDOT's Bridge Division Manuals. The ENGINEER shall determine the location of each soil boring needed for foundation design in accordance with the TxDOT Geotechnical Manual.

FOUNDATION DESIGN

The ENGINEER shall develop the foundation design in accordance with the TxDOT's Bridge Division Geotechnical Manual.

BRIDGE TOTAL QUANTITIES AND COST ESTIMATES

The ENGINEER shall provide all of the bridge quantities by construction phase and the estimate of probable cost for the bridge.

BEARING SEAT AND CONTROL ELEVATIONS

The ENGINEER shall provide bearing seat elevations for each beam and control elevations for each abutment and bent.

GENERAL GUIDELINES FOR BRIDGE DESIGN

The ENGINEER shall make final design calculations and provide information to the COUNTY. The bridge designs shall be in accordance with TxDOT's Bridge Division manuals. TxDOT standard details will be used to the extent possible.

BRIDGE CLASSIFICATION CULVERT LAYOUTS

The ENGINEER shall prepare culvert layouts for submission to the Bridge Division for culverts that meet criteria for bridge classification culverts.

BID PREPARATION (BRIDGE)

The ENGINEER shall provide the following related to bid preparation of bridge/structural elements including:

- Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 30%, 60%, 90% and final submittal and at major project milestones.
- Applicable general notes and specifications from lists provided by the COUNTY.
- Bridge Standard and Special Specifications for the Project at the 90% and final submittal.

QUALITY CONTROL (BRIDGE)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

- QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be provided with each submittal.

6. PROJECT MANAGEMENT

Project Coordination and Resolution Meetings

The ENGINEER shall prepare for and attend the below listed meetings with the COUNTY with up to two (2) team members. Meetings will include the following:

- Design Kickoff Meeting
- 30% Design Status and Coordination Meeting
- 60% Comment Review Resolution Meeting
- 90% Comment Review Resolution Meeting
- Project Coordination Meetings with stakeholders (assume 10)

PS&E Package Coordination

The ENGINEER shall manage the assembly of the PS&E package to include the following:

- Plan assembly with sheet numbers.
- Coordination with subconsultants for deliverables.
- Printing of complete PS&E submittals for delivery to the COUNTY.

Project Administration

The ENGINEER's project manager will be responsible for directing and coordinating all activities and personnel associated with delivering this project. The project manager will prepare project correspondence and monthly progress reports, coordinate with sub consultants, and maintain routine project record keeping.

Bid Phase Services

The ENGINEER will assist the COUNTY with the pre-bid conference and in the final selection of a Contractor for construction of the project. The ENGINEER will prepare and furnish bid documents to prospective bidders and keep record of recipients. The cost for bid package reproduction and delivery

will be determined by reproduction cost plus shipping and handling, and will be the responsibility of prospective bidders. The ENGINEER will assist the COUNTY in receiving prospective bidder inquiries, and preparing and issuing addenda as necessary. The ENGINEER will assist the COUNTY in opening and evaluating bids for responsiveness, including developing a tabulation spreadsheet summarizing each bid. The ENGINEER will prepare a Notice of Award; assemble, deliver, and execute contract documents for construction; and prepare a Notice to Proceed. The ENGINEER will incorporate addenda into contract documents and issue a conformed set. During construction, the ENGINEER will receive, answer, and keep record of Requests for Information (RFI's) and Shop Drawings submitted by the Contractor.

Invoicing

The ENGINEER shall prepare monthly invoices for the project including a progress report reflecting the overall % complete for the project, and any outstanding issues that need to be addressed.

SPECIAL SERVICES

1. SS1. SURVEY

General Standards

All surveys shall meet or exceed the standards set in the Professional Land Surveying Practices Act, the General Rules of Procedures and Practices promulgated by the Texas Board of Professional Land Surveying (TBPLS), and TxDOT's Survey Manual, latest edition, and shall be accomplished in an organized and workman-like manner, subject to the approval of the County.

The North American Datum of 1983 (NAD83), Texas Coordinate System of 1983 (State Plane Coordinates), applicable to the zone or zones in which the work is performed, with values in U.S. Survey Feet, will be used as the basis for all horizontal coordinates derived, unless otherwise directed by the County. Elevations will be based on the North American Vertical Datum 88 (NAVD88), unless otherwise directed by the County.

All GPS work, whether primary control surveys or other, shall meet or exceed the current TxDOT's GPS Manual of Practice, latest edition, to the order of accuracy specified in the categories listed below or in a work authorization. If the order of accuracy is not specified in this contract or in a work authorization, the work shall meet or exceed the order of accuracy specified in the publications listed in this paragraph.

All conventional horizontal and vertical control surveys shall meet or exceed the current, TxDOT's Survey Manual, latest edition, and the Texas Society of Professional Surveyors (TSPS) Manual of Practice for Land Surveying in the State of Texas, latest edition, to the order of accuracy specified, and in the categories listed below or in a work authorization. If the order of accuracy is not specified in this contract or in a work authorization, the work shall meet or exceed the order of accuracy specified in the publications listed in this paragraph.

In order to ensure accuracy and accountability of the services provided under this contract, the Surveyor may be required to certify work performed under this contract as true and correct according to, TxDOT's Survey Manual, latest edition, TxDOT's GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

The Surveyor shall provide temporary signing and traffic control in and around survey operations. All signs, flags and safety equipment shall be provided by the Surveyor. Collin County shall be notified at least 48 hours in advance of any lane closures.

The Surveyor shall provide all personnel, equipment, and survey supplies necessary for the performance of the activities required by this agreement or by any work authorization.

Data (original and processed) shall be provided to the County on a compact disk or other approved medium and shall be in the following formats: Microsoft Word for word processing, MicroStation, Geopak V8i for graphics applications.

Variations from these software applications or other requirements listed above shall only be allowed if requested in writing by the Surveyor and approved by the County.

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

The Standards for services that are not boundary-related but that relate to surveying for engineering projects may be determined by the project Engineer, construction specifications, or design specifications.

Specific Work to Be Performed from CR 286 to US 75 crossover structure:

- The Surveyor will provide detailed topographic survey in the area of the proposed connection to US 75.
- If any easements are required, the Surveyor will coordinate with the County to amend previously prepared parcel documents.
- Prepare a parcel exhibit along with a meets and bound description for proposed CR 125 cul-de-sac. This will be signed and sealed by a Texas Registered Professional Land Surveyor for acquisition purposes.
- It is assumed previously acquired ROE is adequate. If additional ROE is required, the Surveyor shall obtain Right-of-Entry permission prior to physically accessing any private property. Surveyor will utilize public records to determine ownership data and secure permission to enter private property for purposes of performing Land Surveying. A right-of-entry (ROE) letter will be prepared on County letterhead and mailed or delivered to each property owner. The Surveyor will make reasonable attempts to contact each landowner verbally prior to conducting any fieldwork if written correspondence is not successful. A log of all contact with landowners will be maintained.
- All Surveying shall be performed under the direct supervision of a Professional Land Surveyor licensed and in good standing with the State of Texas.
- Locate and document boring holes after drilling is completed.
- The surveyor will provide transmission line sag elevations along with atmospheric conditions to determine vertical clearance heights for existing grade and proposed roadways.

Deliverables for Survey and Task

- 2D topographic data in Microstation v8i format.
- 3D Digital Terrain Model (DTM) in Microstation v8i format.
- Horizontal and Vertical Control Sheets.

2. SS2. GEOTECHNICAL SERVICES

The geotechnical investigation performed for the referenced project will consist of field and laboratory investigations, engineering analysis, and a report prepared by a Licensed Professional Engineer.

Field Investigation

The field investigation will consist of drilling bridge borings, wall/embankment borings, and pavement borings. One bridge boring will be drilled on each end of the proposed bridge near the proposed abutment and spaced no greater than 300 ft apart for longer bridges. Wall borings will be spaced at 200

ft. Pavement borings will be spaced evenly along the proposed roadway alignment and drilled to 15 ft below proposed grade elevations. Spacing and depths will follow TxDOT's Geotechnical Manual and may be adjusted by the Geotechnical Engineer's recommendations. A boring plan will be developed and submitted to the COUNTY for review and approval.

The bridge borings will be drilled until 20 feet of unweathered rock is penetrated. Unweathered rock is anticipated to be encountered at average depths of 40 feet below the existing ground surface. Therefore, it is anticipated that the test borings will be drilled to depths of 60 feet below the existing ground surface. If unweathered rock is encountered at average depths of greater than 40 feet, additional drilling footage will be required in order to penetrate 20 feet into unweathered rock.

Subsurface soil samples will be secured with thin walled tube and/or split spoon samples depending on soil type and consistency. Rock encountered within the bridge borings will be continuously rock cored and will also be evaluated using the Texas Department of Transportation Penetrometer (TxDOT Cone). In addition, TxDOT cone testing will be performed on 5-foot intervals for the overburden soils for the bridge borings. All samples will be properly logged, packaged, sealed, and placed in a core box for transportation to the laboratory. The test borings will be backfilled with soil cuttings and the pavement will be patched upon completion.

The ENGINEER will assist the COUNTY in obtaining the right-of-entry to the all of the properties and assumes that the boring locations will be accessible to our conventional truck mounted drilling equipment during normal working hours. Should unusual soil conditions be encountered, we will provide the COUNTY with a recommendation and cost estimate to explore these conditions.

The ENGINEER will contact Dig Tess to have them locate underground utilities. However, the ENGINEER is not responsible for damage to underground utilities that are not identified prior to drilling.

Laboratory Investigation

Laboratory tests will be conducted to classify the soil and to evaluate the volume change potential and strength of the soil and rock present at the site. Per TxDOT standards, Atterberg limits, sieve analysis and moisture contents will be performed on every stratum within each of the pavement borings. The volume change potential of the soils will also be evaluated by swell tests. The strength of the soil will be estimated using hand penetrometer tests and unconfined compressive strength tests. Unconfined compressive strength testing will also be performed on the rock cores. Sulfate testing will be performed at 0 to 2 feet and 2 to 4 feet per TxDOT standards. Lime / PI series tests will also be performed on selected clay samples. CU triaxial testing and one-dimensional consolidation testing may be performed for the slope stability and settlement analyses of the proposed embankments.

Engineering Analyses

Results of field and laboratory work will be presented in an engineering report. The report will include our recommendations to guide design and construction of the new roadway and will include the following:

- Generalized soils stratigraphy and groundwater levels. Results of classification and TCP testing with WinCore format boring logs.
- Site Condition.

- Site Geology.
- Visually classify the soil samples by an engineer in the laboratory.
- Straight shaft pier recommendations for the design of the bridges.
- Gradation test results for scour analyses.
- Pavement subgrade stabilization recommendations.
- Concrete pavement section recommendations based upon design traffic data provided by others.
- Comments on the presence and effect of expansive soils on pavement construction will be provided. Alternative methods of reducing any anticipated shrink/swell movements associated with expansive clays will be included for pavement construction, if required.
- Slope stability analyses for proposed embankments.
- Embankment fill and compaction recommendations.

INCREMENTAL SERVICES

The following incremental services are considered supplemental to basic or special services as described above and are to be billed by the ENGINEER on a time and materials basis as outlined below not to exceed an overall amount. Prior to any incremental services being performed, the ENGINEER shall prepare for the COUNTY a fee proposal based on pre-negotiated rates. The ENGINEER shall not begin any work until written authorization has been provided by the COUNTY.

1. IS1. INTERCHANGE DESIGN

The ENGINEER will perform the engineering analysis and design for the connection to the US 75 frontage road intersection, due to the complexity and impact to the multi-level interchange, in accordance with the scope items described above under BASIC SERVICES, including roadway, drainage and traffic engineering for the multi-level interchange (designed by HNTB). The total not to exceed amount for this effort shall be \$50,000.00 and will be billed to the COUNTY at the labor category rates set forth in the fee estimate.

2. IS2. STRUCTURAL AESTHETICS

The ENGINEER shall develop and include details for aesthetic treatments to retaining wall and bridge elements. An aesthetic plan will be developed and submitted for approval by the COUNTY prior to implementing in structural design and layouts. The approved plan will be incorporated into design and details developed to include in the plans.

3. IS3. SUBSURFACE UTILITY ENGINEERING (SUE)

Assumptions

The following assumptions were made for the preparation of this Scope of Services. If these assumptions do not prove correct, a modification to the scope and budget for this project may be required.

- This proposal and fee is based on the assumption that crews will be able to proceed unimpeded. Down time or additional mobilization or demobilization caused by restricted access, project changes, weather or other factors that are outside of the ENGINEER's control may be charged per the attached rate schedule.
- The ENGINEER will not perform any work outside of the scope of services herein without written authorization.

- Subsurface Utility Engineering services include comprehensive record research/collection of all known existing utility systems, survey of all visible utility surface features, and field designating using various geophysical equipment for detecting underground utilities. The lowest confidence level of data collected is record information and the highest confidence level is utilities found via excavation. All of the collected information is analyzed and combined to prepare a detailed utility map showing utilities of record that could not be found, active/inactive utilities, utilities that were found using geophysical equipment and precise utility locations that were uncovered.
- The accuracy of depth readings of utilities taken from electromagnetic geophysical equipment depends greatly on soil type, soil moisture content, depth of utility, proximity to other utilities, material of the conduit, etc. It is because of this that the equipment manufacturers do not warrant and/or guarantee the accuracy of the equipment's depth readings. The only method of ensuring an accurate depth is to expose the utility for measurement.
- Suitability maps show GPR effectiveness is low in the project area. The ENGINEER will utilize GPR during the utility investigation and will note on the deliverables whether the radar had success detecting known utilities or not.
- The ENGINEER may utilize the following geophysical equipment on the project:
 - Radiodetection RD8100
 - Vivax-Metrotech VM-810
 - Sensit Ultra-Trac APL
 - IDS Opera DUO
 - Tenable rodder
 - Sonde
- All equipment may not be used on each site as equipment is selected based upon geophysical application necessary to find a target utility
- Normal traffic control, for Subsurface Utility Engineering services, is considered standard placement of traffic cones, freestanding warning signage and vehicle-mounted traffic directional sign. Traffic control requiring lane closures, traffic detouring, flagpersons, police, etc., is considered special traffic control. This service will be subcontracted to an approved subcontractor and billed to the Client at cost plus 10%.
- Sanitary and Storm Drain systems will be shown as QL-C based on surveyed invert data.
- It is assumed that no contaminated materials are encountered. If contaminated materials or soils are encountered the COUNTY will be notified immediately and any remediation will be the COUNTY's responsibility and cost.
- Paint markings placed on the ground are to be used for design purposes only and not for construction purposes. The use of QL-B information provided does not relieve any contractor or the COUNTY from the duty to comply with applicable utility damage prevention laws and regulations, including, but not limited to, giving notification to utility owners or the Texas One Call System before excavation.
- Non-metallic piping, inactive electric, and/or communication lines may or may not be found by electromagnetic, sonic, or acoustical designating practices. The ENGINEER does not warrant and/or guarantee that all existing utilities will be found.
- All work will be performed during daytime hours.

The ENGINEER will provide all the following Subsurface Utility Engineering (SUE) services to the standard of care applicable in the SUE profession. The services meet the standard guidelines of ASCE C-I 38-02 circular for "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data". Irrigation systems and electrical wiring for landscape lighting are excluded from the scope of this proposal.

Quality Level A (QL-A) Test Hole Services

Test Hole services to locate accurate horizontal and vertical positions of subsurface utilities by excavating a test hole using vacuum excavation techniques and equipment that is non-destructive to utilities. In performing test-hole services, SUE provider will:

- Provide up to twenty-five (25) test holes.
- Test hole locations will be chosen by the ENGINEER.
- The ENGINEER will use designating equipment to lay out the test hole locations.
- The test holes will be surveyed by BGE.
- Provide all equipment, personnel and supplies required to perform locating services.
- Excavate test hole to expose the utility to be measured in such a manner that ensures the safety of the excavation and the integrity of the utility to be measured. In performing such excavations, the ENGINEER shall comply with applicable utility damage prevention laws. Excavations will be performed using specially developed vacuum excavation equipment that is non-destructive to existing facilities.
- Furnish and install survey markers directly above the centerline of utility structure.
- Investigate, evaluate, measure and record:
 - Actual depth to top of utility referenced to a survey marker installed directly above the centerline of the exposed utility structure.
 - Outside diameter of utility and configuration of non-encased, multi conduit systems.
- Backfill around the exposed facility using the excavated materials compacted in six-inch lifts.
- In grass and landscape areas, restoration shall be as reasonably possible to the condition that existed prior to excavation.
- Any permitting fees will be invoiced to the COUNTY at cost plus 10%.

All areas where test holes are required shall be accessible by standard driving with vacuum excavation vehicle plus the range of a 15-ft hose.

SUE DELIVERABLES

A SUE CAD file depicting the QL-A test hole locations will be prepared for this project. A Test Hole Report and a data summary form will be prepared. The Test Hole Report will be signed and sealed by a Registered Professional Engineer. The utilities will be referenced by the type of utility, color coded to American Public Works Association (APWA) standards.

All electronic project files created, and/or modified will be transmitted via email, or delivered on a CD if requested by the COUNTY. All CAD files will be created in AutoCAD / Civil 3D 2015 or MicroStation V8 format.

ESTIMATED FEES

The ENGINEER will provide the services as described above on a **time and materials** fee basis based on the rate schedule below. The estimate of services needed on the project are **not to exceed** \$40,000.00.

Local Mobilization/Demobilization Fee Applies at the rate of once per project assignment. Minor/Standard Traffic Control is included (consists of warning signs and cones). Lane Closures requiring Flashing Arrow Board(s) is additional. Complex or Specialized Traffic Control is additional.

It is the client's responsibility to provide a dump site or a vacuum box/containment vessel for removal of Hydro Vac spoils if no dump site is provided by Client.

Paved areas may require coring to perform vacuum excavation services. In such cases the ENGINEER will provide a Core Rig and Operator. Core rig rate includes materials & equipment to replace and set core (keyhole) following vacuum excavation completion.

SPECIAL NOTES FOR HYDRO EXCAVATION SERVICES

Hydro Vac Services will require metered water recharge fees and authorized spoils disposal locations. All excavated material remains the exclusive property of the client or project owner upon whose land, easement or ROW wherein the excavations are performed. The project owner understands and acknowledges that Hydro Excavation indicates and includes the use of water to aid in the vacuum excavation process and that the resulting excavated materials may be oversaturated with water as a result of the hydro vac process.

If the project requires backfilling with material other than the material excavated via the hydro vac process, such as flowable fill or select backfill, the project owner will be required to provide a spoils box, vacuum box, or stockpiling location within or reasonably close to the project site for the purpose of holding the hydro vac excavated materials. BGE can provide a vacuum box/containment vessel from a third-party environmental services company for removal of Hydro Vac spoils if no dump site is provided by Client. BGE will request a fee proposal from environmental services company and the cost of vac box and spoils disposal will be passed through to client at cost plus 10% based on the fee proposal provided by the environmental services company.

The project owner is required to disclose any known or suspected information regarding the project site and its underlying soil conditions such as; chemical, petrochemical, hydrocarbon, asbestos, naturally occurring radioactive materials (NORM) or any other known or suspected contamination within the project site.

When performing hydro excavation in known, suspected or encountered contamination areas, the ENGINEER staff shall don additional Personal Protective Equipment (PPE). All costs associated with the use of additional PPE dictated by the site conditions and deemed reasonable and prudent, including wash-down, decontamination or disposal of said PPE, shall be charged to the client/project owner as a direct pass through cost. Examples of additional PPE may include but not be limited to; dust masks, respirators, face shields, protective coveralls, protective gloves and rubber boots.

Pothole or Test Hole Option:

Potholes are strictly the excavation and exposure of the subject facility with a measurement of depth and notation of facility size, type and composition painted on the ground and/or provided in a non-certified report. This report will be provided by Vac Crew onsite upon completion of potholes and typically is handwritten.

Test holes provide the same level of information as pot holes, and are surveyed for a precision x,y & z coordinate and are provided in a test hole report, signed and sealed by an Engineer. Test Holes require Survey and Engineer review. Vac Crew, Survey and Engineer fees will be in accordance with the rates shown in exhibit C.

4. IS4. UTILITY COORDINATION

Utility Coordination

The ENGINEER shall assist the COUNTY in planning, coordinating, and attend up to ten (10) utility coordination meetings with the identified affected utility companies within the limits of the project. These meetings will establish the preliminary schedule for the respective utility adjustments performed by others. The ENGINEER will provide up to two (2) team members at each meeting. Provide status updates on design progress, schedule, and relocation needs. Provide 60%, 90% and 100% design plans to the franchise utilities for review.

Design Exhibits – Prepare any necessary design exhibits in CAD or PDF which may provide clarification and/or assist franchise utilities with understanding project impacts or relocation needs.

Site Visits – Perform up to three (3) site visits with the COUNTY and/or impacted franchise utility representatives.

Utility Agreements

The COUNTY shall prepare and obtain all necessary Utility Agreements for the project. The ENGINEER shall aid the COUNTY in production of exhibits and estimates for the utility agreements.

5. IS5. PHASED CONSTRUCTION PACKAGES

The COUNTY may decide to divide the project into two (2) construction packages. The ENGINEER will develop the plans to be two (2) separate volumes. The Engineer will provide bid phase services as described above under BASIC SERVICES for a secondary phase construction letting.

ADDITIONAL SERVICES

The following additional services are beyond the scope of services described above. However, the ENGINEER can provide the additional services, if required, upon the County's written request. Any additional amounts paid to the ENGINEER as a result of any material change to the scope of the project shall be agreed upon under a separate contract.

The additional services include, but are not limited to, the following:

Additional Engineering and Construction Services

- Signal Design
- Shop Drawing Review
- Construction Phase Services

EXHIBIT “B”

FINAL DESIGN COMPLETION SCHEDULE

Refer to the attached schedule for deliverable/milestone dates

1. Preliminary Design Coordination Review

- Plan and Profile sheets of 30% design
- Electronic Files of the submittal package in pdf format
- Attend design coordination / review meeting with the County.

2. 60% Design Submittal

- 3 sets of 11” x 17” plan sets with 30% Design Comments addressed
- Update Title Sheet with Index of Sheets including Standards Final Existing and Proposed Typical Sections
- Preliminary Summary Sheets Preliminary Traffic Control Plans
- Control Data Sheets & Right of Way Marker Sheets Plan and Profile Sheets for all Alignments
- Preliminary Intersection Layouts
- Miscellaneous Roadway Details Preliminary Storm Sewer Plans Final Drainage Area Maps
- Final Hydraulic Computations Final Culvert Layouts
- Existing Utility Plans Final Bridge Layouts
- Preliminary Bridge Details
- Preliminary Signing & Pavement Marking Layouts
- Preliminary SW3P Layouts
- 1 set of 11” x 17” cross sections
- Estimate of construction cost
- ENGINEER’s internal QAQC marked-up set
- Electronic Files of the submittal package in pdf format

3. 90% Design Submittal

- 3 sets of 11” x 17” complete plan set with 60% Comments addressed
- 1 set of 11” x 17” cross sections
- Estimate of construction cost
- Preliminary Specification, Bid Form, General Notes and Contract Document
- Construction Schedule
- ENGINEER’s internal QAQC marked-up set
- Electronic Files of the submittal package in pdf format

4. Final Submittal

- Six (6) Paper sets of 11” x 17” plan sheets with 90% Comments addressed
- PDF Portfolio of 11” x 17” signed and sealed
- Final Estimate of construction cost Final Construction Schedule
- Final Specification, Bid Form, General Notes and Contract Document ENGINEER’S internal QAQC mark-up set
- CD of Final drawings including GPK files for the COUNTY

- 1 set of 11" X 17" final cross sections (Paper)
- PDF of Final Cross Sections

5. Calculations

The ENGINEER shall provide a 3-ring binder with all quantity and design calculations.

EXHIBIT B **Work Schedule**

BGE, Inc.
Highway: Collin County Outer Loop Segment 3
Limits: Custer Rd to US 75
County: Collin

ID	Task Name	Duration	Start	Finish	Predictors	Predecessors
1	Overall Project Duration	363 days	Mon 10/14/19	Wed 3/3/21		
2	Milestones	265 days	Wed 2/26/20	Wed 3/3/21		
3	30% Plans Submittal (Preliminary)	0 days	Wed 2/26/20	Wed 2/26/20	28	
4	60% Plans Submittal (Plans Adequate)	0 days	Wed 9/2/20	Wed 9/2/20	52	
5	95% Plans Submittal (Pre-Final)	0 days	Wed 1/13/21	Wed 1/13/21	71	
6	100% Plans Submittal (Final)	0 days	Wed 3/3/21	Wed 3/3/21	76	
7	Negotiations/Scoping	41 days	Mon 10/14/19	Mon 12/9/19		
8	Negotiations/Scoping	24 days	Mon 10/14/19	Thu 11/14/19		
9	Contract Processing (Purchasing)	17 days	Fri 11/15/19	Mon 12/9/19	8	
10	Notice to Proceed	0 days	Mon 12/9/19	Mon 12/9/19	9	
11	Assembly and Review of Data	31 days	Tue 12/10/19	Tue 1/21/20		
12	Gather Existing Data	5 days	Tue 12/10/19	Mon 12/16/19	10	
13	Review/Modify Alignments	5 days	Tue 12/17/19	Mon 12/23/19	12	
14	Develop Roadway Design Criteria	2 days	Tue 12/10/19	Wed 12/11/19	10	
15	Design Kickoff Meeting	0 days	Wed 12/11/19	Wed 12/11/19	14	
16	Right of Entry	20 days	Tue 12/10/19	Mon 1/6/20	10	
17	Supplemental Survey	21 days	Tue 12/24/19	Tue 1/21/20	1655+10 days	
18	PS&E	320 days	Thu 12/12/19	Wed 3/3/21		
19	30% Plan Preparation	45 days	Thu 12/12/19	Wed 2/12/20		
27	BGE Internal QA/QC	2 wks	Thu 2/13/20	Wed 2/26/20	19	
28	30% Submittal	0 days	Wed 2/26/20	Wed 2/26/20	27	
29	30% County Review	4 wks	Thu 2/27/20	Wed 3/25/20	28	
30	Preliminary Bridge Layouts	60 days	Thu 1/2/20	Wed 3/25/20		
37	60% Plan Preparation	100 days	Thu 3/26/20	Wed 6/12/20	29	
51	BGE Internal QA/QC	3 wks	Thu 6/13/20	Wed 6/2/20	37	

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Manual Progress
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Field-only	Deadline	
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Progress	

BGE, Inc.			EXHIBIT B												Contract TO-BE-DETERMINED WA No. 2											
Highway: Collin County Outer Loop Segment 3			Work Schedule																							
Limits: Custer Rd to US 75																										
County: Collin																										
ID	Task Name	Duration	Start	Finish	Predecessors	5/19	6/13	7/10	8/14	9/11	10/13	11/10	12/8	1/5	2/2	3/1	4/5	5/3	6/7	7/5	8/2	9/6	10/4	11/1	12/5	1/2
52	60% Submittal	0 days	Wed 9/2/20	Wed 9/2/20	51																					
53	60% County Review	4 wks	Thu 9/3/20	Wed 9/30/20	52																					
54	95% Plan Preparation	80 days	Thu 9/3/20	Wed 12/23/20																						
70	BGE Internal QA/QC	3 wks	Thu 12/24/20	Wed 1/13/21	54																					
71	95% Submittal	0 days	Wed 1/13/21	Wed 1/13/21	70																					
72	95% County Review	4 wks	Thu 1/14/21	Wed 2/10/21	71																					
73	100% Plan Preparation	15 days	Thu 2/11/21	Wed 3/3/21																						
76	100% Submittal	0 days	Wed 3/3/21	Wed 3/3/21	75																					
77	Plan and Bid Package Processing	3 mons	Thu 3/4/21	Wed 5/26/21	76																					
78	Letting	0 days	Wed 5/26/21	Wed 5/26/21	77																					
79	Post Letting Support	47 days	Thu 5/27/21	Fri 7/30/21	78																					
80	Termination Date	0 days	Fri 7/30/21	Fri 7/30/21	79																					
81		1 day?	Thu 8/29/19	Thu 8/29/19																						

Task	Summary	Project Summary	Inactive Task	Inactive Milestone	Duration-only	Manual Summary Rollup	Start-only	External Milestone	Manual Progress
Project: CCOL-S3 PS&E WA2									
Milestone									

EXHIBIT "C"

PAYMENT SCHEDULE

Invoices will be transmitted to the County on a monthly basis based on a percentage of completion up to that time, and payments to the Engineer will be made as follows:

- A derivation of the total contract fee amount is attached.

EXHIBIT C - Fee Schedule

Method of Payment: Lump Sum with exception of Incremental Services

WA No. 2
Contract No. 2020-049

Colin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

SUMMARY					
Function Code	BGE, Inc.			Firm	
	Labor Cost	ETTL	LS	Labor Cost	Total
1. ASSEMBLY AND REVIEW OF DATA	\$ 12,718.00				\$ 12,718.00
2. ROADWAY DESIGN	\$ 617,274.00				\$ 617,274.00
3. DRAINAGE DESIGN	\$ 326,910.00				\$ 326,910.00
4. TRAFFIC DESIGN	\$ 141,676.00				\$ 141,676.00
5. STRUCTURAL DESIGN	\$ 456,246.00				\$ 456,246.00
6. PROJECT MANAGEMENT	\$ 146,594.00				\$ 146,594.00
Basic Services Labor Cost	\$ 1,701,418.00	\$ -	\$ -		\$ 1,701,418.00
Basic Direct Expenses	\$ 4,283.00				\$ 4,283.00
Basic Subtotal	\$ 1,705,701.00	\$ -	\$ -		\$ 1,705,701.00
SS1. SURVEY	\$ 28,590.00				\$ 28,590.00
SS2. GEOTECHNICAL SERVICES	\$ 12,370.00	\$ 78,852.00			\$ 91,222.00
Special Services Labor Cost	\$ 40,960.00	\$ 78,852.00	\$ -		\$ 119,812.00
Special Direct Expenses	\$ 3,774.00	\$ 164,128.22			\$ 167,902.22
Special Services Subtotal	\$ 44,734.00	\$ 242,980.22	\$ -		\$ 287,714.22
Lump Sum Total	\$ 1,750,435.00	\$ 242,980.22	\$ -		\$ 1,993,415.22
IS1. INTERCHANGE DESIGN	\$ 40,144.00				\$ 40,144.00
IS2. STRUCTURAL AESTHETICS	\$ 42,998.00				\$ 42,998.00
IS3. SUBSURFACE UTILITY ENGINEERING (SUE)	\$ 4,526.00		\$ 13,077.00		\$ 17,603.00
IS4. UTILITY COORDINATION	\$ 45,612.00				\$ 45,612.00
IS5. PHASED CONSTRUCTION PACKAGES	\$ 54,625.00				\$ 54,625.00
Incremental Services Labor Cost	\$ 187,905.00	\$ -	\$ 13,077.00		\$ 200,982.00
Incremental Services Direct Expenses	\$ -		\$ 24,635.00		\$ 24,635.00
Incremental Services Subtotal	\$ 187,905.00	\$ -	\$ 37,712.00		\$ 225,617.00
Grand Total	\$ 1,938,340.00	\$ 242,980.22	\$ 37,712.00		\$ 2,219,032.22
Percent of Total Fee	87.35%	10.95%	1.70%		100%

Colin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager	QA/QC Manager	Survey Engineer	Project Engineer	Design Engineer	Engineer-in-Training	CAAD Operator	Admin/ Clerical	Total Labor Hours	Hours / Sheet	Total Labor Costs
1. ASSEMBLY AND REVIEW OF DATA												
Collection of Data, Reports, and Maps	N/A		8			16	16			40	N/A	\$5,176.00
Review of Data	N/A	4	4			16	8			32	N/A	\$4,628.00
Roadway Design Criteria	N/A	2	2			16				20	N/A	\$2,914.00
1. ASSEMBLY AND REVIEW OF DATA Total Hours												
1. ASSEMBLY AND REVIEW OF DATA Total Cost		6	14	0	0	48	24	0	0	92		\$12,718.00
2. ROADWAY DESIGN												
GENERAL												
Typical Sections (Existing and Proposed)	15	15	15	0	0	30	120	120		300	20	\$37,095.00
Miscellaneous Sheets												
Title Sheet	1	1	1	0	0	0	2	6		10	10	\$1,377.00
Index of Sheets	1	1	1	0	0	0	2	6		10	10	\$1,377.00
Project Layout Sheets	5	10	5	0	0	15	30	10		70	14	\$9,660.00
TRAFFIC CONTROL PLAN												
Traffic Control Advance Warning Layout	1	1	1	2	0	2	8	8		22	22	\$2,857.00
Traffic Control Typical Sections	4	4	4	8	0	0	40	16		80	20	\$10,108.00
Sequence of Construction, Narrative, and General Notes	2	2	2	4	0	16	24	16		64	32	\$8,014.00
Traffic Control Layouts (assume 3 phases)	44	0	44	44	0	176	352	176		792	18	\$95,968.00
Intersection Staging Plans	8	16	16	32	0	96	64	64		288	36	\$36,632.00
Driveway Staging Plans	1	2	2	4	0	12	8	8		36	36	\$4,954.00
TCP Quantities Summary Sheet	1	1	4	0	2	4	12	4		27	27	\$3,532.00
Detour Plans	2	0	0	2	0	0	8	16		26	13	\$3,110.00
Traffic Control Standard Details	N/A									0	N/A	\$0.00
ROADWAY DESIGN												
Horizontal Alignment Data Sheet	1	0	0	0	1	0	2	4		7	7	\$832.00
Removal Sheets	5	5	5	0	10	0	40	40		100	20	\$12,605.00
Plan and Profile Sheets (1"=100' Scale)												
Colin County Outer Loop Access Road	44	44	44	0	88	176	528	352		1232	28	\$150,524.00
County Road 156	1	1	1	0	2	4	12	8		28	28	\$3,421.00
County Road 125	1	1	1	0	2	4	12	8		28	28	\$3,421.00
County Road 125 - CUL-de-sac	1	1	1	0	2	4	12	8		28	28	\$3,421.00
FM 543	1	1	1	0	2	4	12	8		28	28	\$3,421.00
County Road 204	1	1	1	0	2	4	12	8		28	28	\$3,421.00
County Road 206	1	1	1	0	2	4	12	8		28	28	\$3,421.00
Trinity Falls Parkway	1	1	1	0	2	4	12	8		28	28	\$3,421.00
Littell Lane	1	1	1	0	2	4	12	8		28	28	\$3,421.00
County Road 282	1	1	1	0	2	4	12	8		28	28	\$3,421.00
County Road 286	1	1	1	0	2	4	12	8		28	28	\$3,421.00
County Road 277	1	1	1	0	2	4	12	8		28	28	\$3,421.00
US 75 Access Road	1	1	1	0	2	4	12	8		28	28	\$3,421.00

Colin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager \$260.00	QA/QC Manager \$197.00	Senior Engineer \$185.00	Project Engineer \$152.00	Design Engineer \$125.00	Engineering/Planning \$100.00	CADD Operator \$120.00	Admin/Clerical \$60.00	Total Labor Hours	Hours / Sheet	Total Labor Costs
Intersection Layout Sheets (1"=20' Scale)	11	0	0	0	0	44	132	88		264	24	\$28,260.00
Driveway Profiles / Details Summary (up to 3 driveways)	2	0	0	0	4	4	24	16		48	24	\$5,428.00
Miscellaneous Roadway Details	5	5	5	0	10	0	20	40		80	16	\$10,605.00
Roadway Cross Sections (100' intervals)	N/A	12	24			80	160	360		636	N/A	\$77,048.00
Earthwork Quantity Tables	5	5	5	0	10	20	60	40		140	28	\$17,105.00
Assembly of Roadway Standards	N/A	1	1	0	16	16	4			38	N/A	\$5,289.00
BID PREPARATION (ROADWAY)												
Estimate of probable cost (4 submittals)	N/A	8	4		32	32	42			118	N/A	\$15,932.00
Construction time line	N/A	8	4		16					28	N/A	\$5,300.00
Applicable general notes and specifications (list provided by county)	N/A	16	4		16					36	N/A	\$7,360.00
General Notes and Special Specifications	N/A	8	2		32					42	N/A	\$7,338.00
Specifications, Bid Forms and Contract Documents	N/A	8	2		32					42	N/A	\$7,338.00
QUALITY CONTROL (ROADWAY)												
QA/QC will be performed prior to each submittal	N/A	12	12	8						32	N/A	\$7,044.00
2. ROADWAY DESIGN Total Hours		197	219	104	263	771	1834	1485	0	4804		
2. ROADWAY DESIGN Total Cost		\$51,220.00	\$43,143.00	\$20,280.00	\$44,536.00	\$66,375.00	\$183,400.00	\$78,320.00	\$0.00			\$617,274.00

3. DRAINAGE DESIGN												
HYDROLOGY												
Offsite drainage area map (1"=2000' Scale)	2	2	0	0	4	8	32	8		54	27	\$6,288.00
Storm sewer inlet area maps (1"=500' Scale)	9	9	0	0	9	18	72	36		144	16	\$17,478.00
HYDRAULIC DESIGN												
Hydraulic Design for Culverts & Storm Sewer	N/A									0	N/A	\$0.00
Hydraulic Design for nine (9) Culverts	N/A	16	16	40	60	80	120	40		372	N/A	\$55,032.00
Hydraulic Design for Storm Sewer	N/A	22	22		80	200	240			564	N/A	\$71,214.00
DRAINAGE STRUCTURE DESIGN												
Culvert Layout (1"=20' Scale)	1	1	1	2	4	8	16	8		40	40	\$5,015.00
Storm Sewer Plan & Profile Sheets (1"=100' Scale)	44	44	44	0	88	0	176	352		704	16	\$93,324.00
Miscellaneous Drainage Details	1	1	1	2	4	8	16	8		40	40	\$5,015.00
Assembly of Drainage Standards	1	0	0	0	0	0	0	0		0	0	\$0.00
OPEN CHANNEL DESIGN												
Ditch/Channel Layout Sheets (1"=50')	2	0	0		0	0	0	0		0	0	\$0.00
Wilson Creek Channel Layout Sheets (1"=50')	2	0	0		0	0	0	0		0	0	\$0.00
STORM WATER POLLUTION PREVENTION PLAN (SW3P)												
SW3P Data Sheet	1	0	0	0	0	0	0	0		0	0	\$0.00
SW3P Layouts (1"=100' Scale) (each phase)	44	0	44	0	44	0	88	176		352	8	\$45,276.00
Temporary Drainage	N/A									0	N/A	\$0.00

Colin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager	QA/QC Manager	Senior Engineer	Project Engineer	Design Engineer	Engineer-in-Training	CADD Operator	Admin/ Clerical	Total Labor Hours	Hours / Sheet	Total Labor Costs
BID PREPARATION (DRAINAGE)												
Estimate of probable cost (each submittal)	N/A	8	4		32	32	42			118	N/A	\$15,932.00
Applicable general notes and specifications (list provided by county)	N/A	8	4		16					28	N/A	\$5,300.00
Drainage Standard and Special Specifications	N/A	16	4		16					36	N/A	\$7,380.00
QUALITY CONTROL (DRAINAGE)												
QA/QC will be performed prior to each submittal	N/A	8	8							16	N/A	\$3,656.00
3. DRAINAGE DESIGN Total Hours		135	148	44	357	354	802	628	0	2468		
3. DRAINAGE DESIGN Total Cost		\$35,100.00	\$29,156.00	\$8,580.00	\$54,264.00	\$44,750.00	\$80,200.00	\$75,360.00	\$0.00			\$326,910.00
4. TRAFFIC DESIGN												
SIGNING AND PAVEMENT MARKINGS												
Signing and Pavement Marking Layout (1"=200' Scale)	22	0	22	22	0	176	264	176		660	30	\$78,144.00
Summary Tables	2	0	2	2	0	8	16	8		36	18	\$4,344.00
Assembly of Sign and Marking Standards	N/A									0	N/A	\$0.00
ILLUMINATION												
Design Safety Lighting (up to 12 Intersections)	6	8	6	6	24	24	72	72		212	35.3333	\$26,920.00
BID PREPARATION (TRAFFIC)												
Estimate of probable cost (each submittal)	N/A	8	4		32	32	42			118	N/A	\$15,932.00
Applicable general notes and specifications (list provided by county)	N/A	8	4		16					28	N/A	\$5,300.00
Traffic Standard and Special Specifications	N/A	16	4		16					36	N/A	\$7,380.00
QUALITY CONTROL (TRAFFIC)												
QA/QC will be performed prior to each submittal	N/A	8	8							16	N/A	\$3,656.00
4. TRAFFIC DESIGN Total Hours		48	50	30	88	240	394	256	0	1106		
4. TRAFFIC DESIGN Total Cost		\$12,480.00	\$9,850.00	\$5,850.00	\$13,376.00	\$30,000.00	\$39,400.00	\$30,720.00	\$0.00			\$141,676.00

Colin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager \$260.00	QA/QC Manager \$197.00	Senior Engineer \$185.00	Project Engineer \$152.00	Design Engineer \$125.00	Engineer-in-Training \$100.00	CAAD Operator \$120.00	Admin/ Clerical \$66.00	Total Labor Hours	Hours / Sheet	Total Labor Costs
Retaining Walls	9	18	18	18	0	144	144	72		414	46	\$52,776.00
HONEY CREEK												
Bridge Layouts (1"=40' Scale)	6	12	12	12	0	96	96	48		276	46	\$35,184.00
Bridge Typical Sections	1	1	2	8	0	4	12	4		31	31	\$4,384.00
Prepare Foundation Plans	3	6	6	18	0	24	48	36		138	46	\$18,372.00
Prepare Framing Plan	6	6	12	24	0	48	96	96		282	47	\$35,724.00
Prepare Slab Plan	6	6	12	24	0	48	96	96		282	47	\$35,724.00
Prepare Abutment Details	4	4	8	24	0	32	64	64		196	49	\$25,376.00
Prepare Intermediate Bent Details	6	6	12	24	0	48	96	96		282	47	\$35,724.00
Prepare Beam Design Sheet (IGND)	1	1	2	8	0	8	16	4		39	39	\$5,294.00
Prepare Bridge Quantity Summary	1	1	0	4	1	0	0	4		10	10	\$1,672.00
EAST FORK TRINITY RIVER												
Bridge Layouts (1"=40' Scale)	5	10	10	10	0	80	80	40		230	46	\$29,320.00
Bridge Typical Sections	1	1	2	8	0	4	12	4		31	31	\$4,384.00
Prepare Foundation Plans	3	6	6	18	0	24	48	36		138	46	\$18,372.00
Prepare Framing Plan	5	5	10	20	0	40	80	80		235	47	\$29,770.00
Prepare Slab Plan	5	5	10	20	0	40	80	80		235	47	\$29,770.00
Prepare Abutment Details	4	4	8	24	0	32	64	64		196	49	\$25,376.00
Prepare Intermediate Bent Details	5	5	10	20	0	40	80	80		235	47	\$29,770.00
Prepare Beam Design Sheet (IGND)	1	1	2	8	0	8	16	4		39	39	\$5,294.00
Prepare Bridge Quantity Summary	1	1	0	4	1	0	0	4		10	10	\$1,672.00
BID PREPARATION (BRIDGE)												
Estimate of probable cost (each submittal)	N/A	6	4		32	32	42			118	N/A	\$15,932.00
Applicable general notes and specifications (list provided by county)	N/A	8	4		16					28	N/A	\$5,900.00
Bridge Standard and Special Specifications	N/A	16	4		16					36	N/A	\$7,380.00
QUALITY CONTROL (BRIDGE)												
QA/QC will be performed prior to each submittal	N/A	8	8							16	N/A	\$3,656.00
5. STRUCTURE DESIGN Total Hours		139	162	296	66	752	1170	912	0	3487		
5. STRUCTURE DESIGN Total Cost		\$36,140.00	\$31,914.00	\$57,720.00	\$10,032.00	\$34,000.00	\$117,000.00	\$109,440.00	\$0.00			\$456,246.00

Collin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager \$260.00	QA/QC Manager \$197.00	Senior Engineer \$195.00	Project Engineer \$152.00	Design Engineer \$125.00	Engineer-in-Training \$100.00	QA/QC Operator \$120.00	Admin/Clerical \$65.00	Total Labor Hours	Hours / Sheet	Total Labor Costs
6. PROJECT MANAGEMENT												
Project Coordination and Resolution Meetings												
Design Kickoff Meeting	N/A	10		2	2					14	N/A	\$3,294.00
30% Design Status and Coordination Meeting	N/A	20		8	8					36	N/A	\$7,976.00
60% Comment Review Resolution Meeting	N/A	20		10	10					40	N/A	\$8,670.00
95% Comment Review Resolution Meeting	N/A	20		10	10					40	N/A	\$8,670.00
PS&E Package Coordination												
Plan assembly with sheet numbers	N/A	8	8							16	N/A	\$3,656.00
Coordination with subconsultants for deliverables	N/A	16	16							32	N/A	\$7,312.00
Printing of complete PS&E submittals	N/A	2	2							4	N/A	\$911.00
Project Administration (Assume 24 months)	N/A	96							24	120	N/A	\$26,544.00
Stakeholder Coordination (Assume 10 meetings)	N/A	20		20			40			80	N/A	\$13,100.00
Bid Phase Coordination												
Prebid Conference	N/A	6	2	6		4	8			26	N/A	\$4,424.00
Bid Package preparation and delivery	N/A	8	8	20		20	4		4	64	N/A	\$10,720.00
Receive, Answer, & Log RFIs	N/A	6		10		4	4	8		32	N/A	\$5,376.00
Shop Drawing Review	N/A	6	12	24		24				66	N/A	\$11,604.00
Addenda	N/A	6	6	16		4				40	N/A	\$7,322.00
Bid Opening and Tabulation	N/A	8		8		20	4			40	N/A	\$6,540.00
Recommendation of Contract Award	N/A	4	4	4		10				18	N/A	\$3,070.00
Confirm Contract	N/A	2	2	4		10	4			22	N/A	\$3,344.00
Invoicing (Assume 24 months)	N/A	48							24	72	N/A	\$14,064.00
6. PROJECT MANAGEMENT Total Hours		306	56	142	30	96	64	16	52	762		
6. PROJECT MANAGEMENT Total Cost		\$79,560.00	\$11,052.00	\$27,666.00	\$4,560.00	\$12,000.00	\$6,400.00	\$1,920.00	\$3,432.00			\$146,594.00
SS2. GEOTECHNICAL SERVICES												
Field Investigation												
Coordination of Field Investigation Activities	N/A	12								12	N/A	\$3,126.00
Laboratory Investigation												
Review of Laboratory Investigation Activities	N/A	2	2	16						20	N/A	\$4,034.00
Engineering Analysis												
Review and Coordination of Geotechnical Report	N/A	2	8	16						26	N/A	\$5,216.00
SS2. GEOTECHNICAL SERVICES Total Hours		16	10	32	0	0	0	0	0	58		
SS2. GEOTECHNICAL SERVICES Total Cost		\$4,100.00	\$1,870.00	\$6,340.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$12,370.00

Collin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager	QA/QC Manager	Senior Engineer	Project Engineer	Design Engineer	Engineer-in-Training	CADD Operator	Admin/Clerical	Total Labor Hours	Hours / Sheet	Total Labor Costs
IS1. ROADWAY DESIGN (INTERCHANGE DESIGN) Coordination and Engineering analysis and design for US 75 Interchange.	N/A	12	8		24	120	120	40		324	N/A	\$40,144.00
IS1. ROADWAY DESIGN (INTERCHANGE DESIGN) Total Hours		12	8	0	24	120	120	40	0	324		
IS1. ROADWAY DESIGN (INTERCHANGE DESIGN) Total Cost		\$3,120.00	\$1,576.00	\$0.00	\$3,648.00	\$15,000.00	\$12,000.00	\$4,000.00	\$0.00			\$40,144.00
IS2. STRUCTURAL AESTHETICS												
Develop Aesthetic Plan	N/A	2	2		12	24	24	60		124	N/A	\$15,338.00
Implement Aesthetic Details	N/A	6	8		12	60	40	60		226	N/A	\$27,660.00
IS2. STRUCTURAL AESTHETICS Total Hours		8	10	0	24	84	104	120	0	350		
IS2. STRUCTURAL AESTHETICS Total Cost		\$2,060.00	\$1,970.00	\$0.00	\$3,648.00	\$10,500.00	\$10,400.00	\$4,000.00	\$0.00			\$42,998.00
IS3. SUBSURFACE UTILITY ENGINEERING (SUE) Coordination and Management	N/A	2	2		6	12	12			34	N/A	\$4,526.00
IS3. SUBSURFACE UTILITY ENGINEERING (SUE) Total Hours		2	2	0	6	12	12	0	0	34		
IS3. SUBSURFACE UTILITY ENGINEERING (SUE) Total Cost		\$520.00	\$304.00	\$0.00	\$912.00	\$1,500.00	\$1,200.00	\$0.00	\$0.00			\$4,526.00
IS4. UTILITY COORDINATION												
Utility Coordination												
Assist in planning, coordinating, and attend up to three (3) utility coordination meetings	N/A	20		20		12		30		82	N/A	\$14,200.00
Provide status updates on design progress, schedule, and relocation needs	N/A	12				18	18			48	N/A	\$7,170.00
Prepare any necessary design exhibits	N/A	2		10		12		48		72	N/A	\$9,720.00
Perform up to three (3) site visits	N/A	6			6		6			18	N/A	\$3,072.00
Utility Agreements												
Ad the COUNTY in production of exhibits and estimates for the utility agreements.	N/A	4		8			24	24		60	N/A	\$7,860.00
SUE Coordination and Management	N/A	4		8				8		20	N/A	\$3,560.00
IS4. UTILITY COORDINATION Total Hours		48	0	46	6	42	48	110	0	300		
IS4. UTILITY COORDINATION Total Cost		\$12,460.00	\$0.00	\$8,970.00	\$912.00	\$5,250.00	\$4,800.00	\$13,200.00	\$0.00			\$45,612.00
IS5. PHASED CONSTRUCTION PACKAGES												
Develop Plans in 2 volumes	N/A	12	10		12	15	32	40		121	N/A	\$16,785.00
Bid Phase Services - Second Phase	N/A									0	N/A	\$0.00
Prebid Conference	N/A	3	2	3		2	4			14	N/A	\$2,409.00
Bid Package preparation and delivery	N/A	8	8	10		10	4		4	44	N/A	\$7,520.00
Receive Answer, & Log RFI's	N/A	6		10		4	4	8		32	N/A	\$5,370.00
Shop Drawing Review	N/A	3	6	12		12				33	N/A	\$5,802.00
Addenda	N/A	3	3	10		4		8		28	N/A	\$4,781.00
Bid Opening and Tabulation	N/A	8		8		12	4			32	N/A	\$5,540.00
Recommendation of Contract Award	N/A	4		4		10				18	N/A	\$3,070.00
Conform Contract	N/A	2	2	4		10	4			22	N/A	\$3,344.00
IS5. PHASED CONSTRUCTION PACKAGES Total Hours		49	31	61	12	79	52	56	4	344		
IS5. PHASED CONSTRUCTION PACKAGES Total Cost		\$12,740.00	\$6,107.00	\$11,855.00	\$1,824.00	\$9,875.00	\$5,200.00	\$6,720.00	\$264.00			\$54,625.00
Total Hours		831	649	616	834	2261	4288	3298	52	12829		
Total Costs		\$216,060.00	\$127,853.00	\$120,120.00	\$1,267,764.00	\$282,625.00	\$428,800.00	\$365,760.00	\$3,432.00			\$1,701,418.00

EXHIBIT C - Fee Schedule
Method of Payment: Lump Sum with exception of Incremental Services

Colin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager	QA/QC Manager	Senior Engineer	Project Engineer	Design Engineer	Engineer-in-Training	CADD Operator	Admin/ Clerical	Total Labor Hours	Hours / Sheet	Total Labor Costs
BASIC DIRECT EXPENSES												
		Unit	Rate	Quantity	Totals	Summary						
8.5" x 11" Copies (b&w)		EA	\$0.10	1000	\$100.00	1. ASSEMBLY AND REVIEW OF DATA						
11" x 17" Copies (b&w)		EA	\$0.20	3000	\$600.00	2. ROADWAY DESIGN						
11x17" Copies (color)		EA	\$1.25	1500	\$1,875.00	3. DRAINAGE DESIGN						
COLOR Roll Plots		SF	\$3.20	200	\$640.00	4. TRAFFIC DESIGN						
Binding		EA	\$20.00	8	\$160.00	5. STRUCTURAL DESIGN						
USB Thumb Drive		EA	\$15.00	8	\$120.00	6. PROJECT MANAGEMENT						
Postage (express mail)		EA	\$2.00	12	\$24.00	Basic Labor Costs						
Car Mileage		MI	\$0.58	300	\$174.00	Basic Direct Expenses Costs						
Miscellaneous Supplies (w/approval from County PM)		EA	\$100.00	5	\$500.00	Basic Total Costs						
Toll Charges (each)		EA	\$5.00	16	\$80.00	Special Services Labor Costs						
					\$0.00	Special Services Expenses Costs						
					\$0.00	Special Services Total Costs						
					\$0.00	IS1. ROADWAY DESIGN (CROSSOVER DESIGN)						
					\$0.00	IS2. STRUCTURAL AESTHETICS						
					\$0.00	IS3. SUBSURFACE UTILITY ENGINEERING (SUE)						
					\$0.00	IS4. UTILITY COORDINATION						
					\$0.00	IS5. PHASED CONSTRUCTION PACKAGES						
					\$0.00	Incremental Services Labor Costs						
					\$0.00	Incremental Services Expenses Costs						
					\$0.00	Incremental Services Total Costs						
					\$0.00	BGE, Inc. - Total						
					\$0.00	BGE, Inc. - Total						
					\$0.00	TOTAL BASIC DIRECT EXPENSES						
					\$4,283.00							
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EXHIBIT C - Fee Schedule
Method of Payment: Lump Sum with exception of Incremental Services

Colin County Outer Loop Segment 3A
Prime Provider: BGE, Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager	QA/QC Manager	RPLS	Survey Tech	Records Research	Survey Crew (2 man)	CADD Operator	Admin/ Clerical	Total Labor Hours	Hours / Sheet	Total Labor Costs
SS1. SURVEY												
Provide detailed topographic survey in the area of the proposed connection to US 75	N/A			2	4		40			46	N/A	\$6,876.00
Coordinate with the County to amend previously prepared parcel documents due to required easements	N/A	2		4	4	4				14	N/A	\$2,292.00
Provide data for bore holes and power lines sags	N/A	2		2	4		36	8		52	N/A	\$7,756.00
Provide 2D topographic data in Microstation V8i format	N/A			1	4			8		13	N/A	\$1,638.00
Provide 3D Digital Terrain Model (DTM) in Microstation V8i format	N/A			1	4			8		13	N/A	\$1,638.00
Provide Horizontal and Vertical Control Sheets	N/A	2	2	8	4			8		24	N/A	\$3,936.00
Prepare Parcel Exhibit	N/A	2		4	4	4	8	8		30	N/A	\$4,452.00
SS1. SURVEY Total Hours		8	2	22	28	8	84	40	0	192		
SS1. SURVEY Total Cost		\$2,080.00	\$394.00	\$4,356.00	\$3,360.00	\$1,000.00	\$12,600.00	\$4,800.00	\$0.00			\$28,590.00

BASIC DIRECT EXPENSES					Unit	Rate	Quantity	Totals
Utility Vehicle - UTV					DAY	\$125.00	10	\$1,250.00
Deed Copies					SHEET	\$5.00		\$0.00
GPS Unit					HOURS	\$25.00	80	\$2,000.00
Map Records					SHEET	\$5.00		\$0.00
Mileage					EA	\$0.54		\$0.00
Photocopies B&W (8.5x11)					EA	\$0.10		\$0.00
Plan Reproduction B&W (11x17)					EA	\$0.20		\$0.00
Postage (express mail)					EA	\$12.40	10	\$124.00
Primary Control Monument - Poured 2-3 Feet (includes cap, One Call, cre					EA	\$250.00		\$0.00
Field Markers ("T" post, paint, and flagging tape)					EA	\$20.00	20	\$400.00
								\$0.00
								\$0.00
								\$0.00
TOTAL BASIC DIRECT EXPENSES								\$3,774.00

EXHIBIT C - Fee Schedule
Method of Payment: Lump Sum with exception of Incremental Services

Colin County Outer Loop Segment 3A
Subprovider: Lamb-Star Engineering
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

Task Description	No. of Sheets	Project Manager	Senior Engineer	Design Engineer	Utility Coordinator	Field Coordinator	2-Man Survey Crew	Designating Engineer	Admin/ Clerical	Total Labor Hours	Hours / Sheet	Total Labor Costs
IS2. SUBSURFACE UTILITY ENGINEERING (SUE)												
Quality Level A (QL-A) Test Hole Services												
Project Coordination and Management	N/A	4			8	8	8	30	6	64	N/A	\$7,354.00
Data Processing	N/A			12						12	N/A	\$1,500.00
Test Hole Report	15		1	8	16					25	1,66667	\$3,371.00
Data Summary Form	N/A			1	2					3	N/A	\$397.00
QA/QC	N/A	1	1							2	N/A	\$455.00
IS2. SUBSURFACE UTILITY ENGINEERING (SUE) Total Hours		5	2	21	26	8	8	30	6	106		
IS2. SUBSURFACE UTILITY ENGINEERING (SUE) Total Cost		\$1,300.00	\$390.00	\$2,625.00	\$3,536.00	\$880.00	\$1,160.00	\$2,790.00	\$396.00			\$13,077.00

Total Hours	5	2	21	26	8	8	30	6	106			
Total Costs	\$1,300.00	\$390.00	\$2,625.00	\$3,536.00	\$880.00	\$1,160.00	\$2,790.00	\$396.00				\$13,077.00

BASIC DIRECT EXPENSES					Unit	Rate	Quantity	Totals
VAC Crew Rate					hour	\$258.00	60	\$15,480.00
Overtime Rate					hour	\$277.00	10	\$2,770.00
Mobilization					hour	\$157.00	10	\$1,570.00
Backfill Labor					hour	\$89.00	15	\$1,335.00
Chase Truck					hour	\$21.00	40	\$840.00
Traffic Control					day	\$104.00	2	\$208.00
GPS Receiver					day	\$26.00	1	\$26.00
Car Mileage					mile	\$0.58	700	\$406.00
Core Rig					hour	\$200.00	10	\$2,000.00
								\$0.00
								\$0.00
								\$0.00
								\$0.00
TOTAL BASIC DIRECT EXPENSES								\$24,635.00

Colin County Outer Loop Segment 3A
Subprovider: E TTL Engineers and Consultants Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER-IN-TRAINING	CADD OPERATOR	GEOLOGIST	ADMIN/CLERICAL	TOTAL HRS. & COSTS
CONTRACT RATE PER HOUR	\$ 195.00	\$ 186.00	\$ 146.00	\$ 125.00	\$ 94.00	\$ 80.00	\$ 101.00	\$ 66.00	
FUNCTION CODE 102 (110) - FEASIBILITY STUDIES									
ROUTE & DESIGN STUDIES									
GEO-TECHNICAL BORINGS AND INVESTIGATIONS									
Prepare Preliminary Plan of Borings for County Review	1		1			4	4		9
Right-of-Entry Coordination	1						2		3
Stake Boreholes and Utility Clearance							8		9
Drilling Coordination & Logging	4		16				24		24
Review Field Logs & Assign Laboratory Testing					8		250		270
Laboratory Data Review	4				24				8
Boring Logs Preparation	10					24			28
Pavement Designs	4	8	20		32				34
Bridge Foundation Design	4	8	20		48				64
Retaining Wall Design	8	8	20		60				80
Design Concept Meeting & Review Drawings	8								96
Draft Report Preparation	4	4	16			12			8
Final Report Preparation	2	2	8			4			36
									16
HOURS SUB-TOTALS	50	30	101	0	172	44	288	0	685
SUBTOTAL FC 102 (110)	\$9,750.00	\$5,580.00	\$14,746.00	\$0.00	\$16,168.00	\$3,520.00	\$29,088.00	\$0.00	\$78,852.00
LABOR SUBTOTAL									
TOTAL HOURS	50	30	101	0	172	44	288	0	685
CONTRACT RATE PER HOUR	\$ 195.00	\$ 186.00	\$ 146.00	\$ 125.00	\$ 94.00	\$ 80.00	\$ 101.00	\$ 66.00	
SUBTOTAL LABOR EXPENSES	\$ 9,750.00	\$ 5,580.00	\$ 14,746.00	\$ -	\$ 16,168.00	\$ 3,520.00	\$ 29,088.00	\$ -	\$78,852.00
UNIT COSTS (GEOTECHNICAL)									
Unconfined Compressive Strength (Soil)	QUANTITY	UNIT	RATE	ASTM D2166					TOTAL
One Dimensional Consolidation Properties of Soil	74	each	\$ 60.00	ASTM D2435					\$ 4,440.00
Unconfined Compressive Strength (Rock)	7	each	\$ 350.00	ASTM D2938					\$ 2,450.00
One Dimensional Swell, Methods A & B	74	each	\$ 70.00	ASTM D4546					\$ 5,180.00
Miscellaneous Testing	15	each	\$ 110.00						\$ 1,650.00
Soil Boring with SPT	32	each	\$ 60.00	ASTM D1586					\$ 1,920.00
Soil Boring/Rock Coring with TCP (< 60 ft.)		LF	\$ 25.00	Tex-132-E					\$ -
Soil Boring/Rock Coring with TCP (> 60 ft.)	1,710	LF	\$ 35.00	Tex-132-E					\$ 59,850.00
Soil Boring/Rock Coring without TCP (< 60 ft.)	320	LF	\$ 38.00	Tex-132-E					\$ 12,160.00
Soil Boring/Rock Coring without TCP (> 60 ft.)	465	LF	\$ 32.00						\$ 14,880.00
Drilling Rig Mobilization/Demobilization (for projects more than 100 miles)		LF	\$ 35.00						\$ -
a. Truck Mounted Rig									\$ -
b. Marsh Buggy Mounted Rig	266	Mile	\$ 4.42						\$ 1,175.72
Determining of Moisture Content in Soils	266	Mile	\$ 5.75						\$ 1,529.50
Determining Liquid Limit of Soils	135	Each	\$ 12.00	TEX-103-E					\$ 1,620.00
Determining Plastic Limit of Soils	135	Each	\$ 32.50	TEX-104-E					\$ 4,387.50
Determining Plasticity Index	135	Each	\$ 32.50	TEX-105-E					\$ 4,387.50
Determining the Amount of Material in Soils Finer than the 75 microner (No. 200) Sieve	135	Each	\$ 10.00	TEX-106-E					\$ 1,350.00
Bar Linear Shrinkage	135	Each	\$ 40.00	TEX-111-E					\$ 5,400.00
		Each	\$ 42.50	TEX-107-E					\$ -

Subprovider: E TTL Engineers and Consultants Inc.
Contract No.: 2020-049
Project Limits: FM 2478 (Custer Rd) to US 75

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER-IN-TRAINING	CADD OPERATOR	GEOLOGIST	ADMIN/CLERICAL	TOTAL HRS. & COSTS
CONTRACT RATE PER HOUR	\$ 195.00	\$ 186.00	\$ 146.00	\$ 125.00	\$ 94.00	\$ 80.00	\$ 101.00	\$ 66.00	
Specific Gravity of Soils		Each	\$ 65.00	TEX-108-E					\$ -
Determination of Particle Size Analysis of Soils Text (Part I) - Retained #40		Each	\$ 60.00	TEX-110-E					\$ -
Determination of Particle Size Analysis of Soils Text (Part II) - Hydrometer Analysis	7	Each	\$ 90.00	TEX-110-E					\$ 630.00
Triaxial Compression for Disturbed Soils and Base Materials (Part I)	5	Each	\$ 1,250.00	TEX-117-E					\$ 6,250.00
Triaxial Compression for Disturbed Soils and Base Materials (Part II)		Each	\$ 1,100.00	TEX-117-E					\$ -
Consolidated Undrained Triaxial Compression Test for Undisturbed Soils(CU) (single-stage)	3	Each	\$ 1,250.00	ASTM D4767					\$ 3,750.00
Consolidated Undrained Triaxial Compression Test for Undisturbed Soils (CU) (multi-stage)		Each	\$ 1,250.00	ASTM D4767					\$ -
Borehole Grouting - Bentonite Chips (Only in water)	270	LF	\$ 8.00						\$ 2,160.00
SUBTOTAL UNIT COSTS (GEOTECHNICAL)									\$ 135,170.22

TASK DESCRIPTION	QUANTITY	UNIT	RATE	TOTAL
DIRECT EXPENSES				TOTAL
Lodging/Hotel - Taxes and Fees	90	day/person	\$ 30.000	\$ 2,700.00
Lodging/Hotel (Taxes/fees not included)	90	day/person	\$ 96.000	\$ 8,640.00
Meals (Excluding alcohol & tips) (Overnight stay required)	90	day/person	\$ 46.000	\$ 4,140.00
Mileage	1600	mile	\$ 0.580	\$ 928.00
Traffic Control Services, Arrow Boards and Attenuator Trucks - Large Project (Includes labor, equipment and fuel)		day	\$ 3,000.000	\$ -
Traffic Control Services, Arrow Boards and Attenuator Trucks - Medium Project (Includes labor, equipment and fuel)	3	day	\$ 2,350.000	\$ 7,050.00
Traffic Control Services, Arrow Boards and Attenuator Trucks - Small Project (Includes labor, equipment and fuel)		day	\$ 1,600.000	\$ -
Attenuator trucks - (Lane/Shoulder Closure) (Includes labor, equipment and fuel)		day	\$ 500.000	\$ -
Attenuator trucks - (No Lane Closure) (Includes labor, equipment and fuel)		day	\$ 500.000	\$ -
Flashing Arrow Board		day	\$ 500.000	\$ -
Portable Message Board		day	\$ 300.000	\$ -
Law Enforcement/Uniform Officer (including vehicle)		hour	\$ 78.000	\$ -
Required Permit Fees (non-railroad)		each	\$ 500.000	\$ -
Backhoe / Dozer Rental	5	day	\$ 1,100.000	\$ 5,500.00
SUBTOTAL DIRECT EXPENSES				\$ 28,958.00
TOTAL UNIT COSTS & ODES				\$ 164,128.22
TOTAL				\$ 242,980.22

EXHIBIT "D"

INFORMATION TO BE PROVIDED BY THE COUNTY

The COUNTY will furnish the Engineer the following items upon request, if available no later than 30 days from Notice to Proceed (NTP):

- Assist the Engineer, as necessary, in order to obtain the required data and information from other local, regional, State and Federal agencies.
- Assist in Coordinating Right of Entry for all properties within or adjacent to project limits.
- Available existing and future right-of-way plans for entire project.
- Perform all requirements of ROW acquisition including appraisals, negotiations, eminent domain, relocation and property management.
- Assist the Engineer in negotiations with all local, state and federal agencies, utility companies and railroads for agreements and/or relocations required.
- Assist the Engineer, as necessary, in order to obtain the following data:
 - Utility plans and documents from appropriate municipalities and utility companies.
 - Readily available plan sets for crossing sections and improvement plans within the Project Limits.
 - Readily available flood plain information, studies and models from the Federal Emergency Management Agency, FEMA, the Corps of Engineers and/or other governmental agencies.
 - Readily available GIS Data
 - Readily available drainage reports
 - Readily available aerial mapping and soil data for the designated area.
 - Prior environmental studies and reports

EXHIBIT "E"

INSURANCE REQUIREMENTS

1.1 Before commencing work, the vendor shall be required, at its own expense, to furnish the Collin County Purchasing Agent with certified copies of all insurance certificate(s) indicating the coverage to remain in force throughout the term of this contract.

1.1.1 Commercial General Liability insurance at minimum combined single limits of (\$1,000,000 per-occurrence and \$2,000,000 general aggregate) for bodily injury and property damage, which coverage shall include products/completed operations at \$2,000,000 per occurrence. Coverage must be written on an occurrence form.

1.1.2 Workers Compensation insurance at statutory limits, including employers liability coverage at \$500,000. In addition to these, the contractor must meet each stipulation below as required by the Texas Department of Insurance, Division of Workers' Compensation. (Note: If you have questions concerning these requirements, you are instructed to contact the DWC at (512)440-3789).

1.1.2.1 Definitions: Certificate of coverage ("certificate"); A copy of a certificate of authority of self-insure issued by the commission, or a coverage agreement (DWC-81, DWC-82, DWC-83, OR DWC-84), showing statutory workers compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in 406.096) includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

1.1.2.2 The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

1.1.2.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

1.1.2.4 If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must,

prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

1.1.2.5 The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

1.1.2.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

1.1.2.5.2 no later than seven (7) days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

1.1.2.6 The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

1.1.2.7 The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

1.1.2.8 The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

1.1.2.9 The contractor shall contractually require each person with whom it contracts to provide services on a project, to:

1.1.2.9.1 provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;

1.1.2.9.2 provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

1.1.2.9.3 provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

1.1.2.9.4 obtain from each other person with whom it contracts, and provide to the contractor:

1.1.2.9.4.1 a certificate of coverage, prior to the other person beginning work on the project; and

1.1.2.9.4.2 a new certificate of coverage showing extension of coverage, prior to the end of the coverage

period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

1.1.2.9.5 retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

1.1.2.9.6 notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

1.1.2.9.7 contractually require each person with whom it contracts, to perform as required by paragraphs 1.1.2.1 through 1.1.2.7, with the certificates of coverage to be provided to the person for whom they are providing services.

1.1.2.10 By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

1.1.2.11 The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

1.1.3 Commercial Automobile Liability insurance shall be no less than \$1,000,000 combined single limits per accident for bodily injury and property damage, including owned, non-owned, and hired vehicle coverage.

1.1.4 Professional Liability Insurance at minimum limits of \$1,000,000. This policy must have a two (2) year extended period of coverage, (i.e. tail coverage). If you choose to have project coverage endorsed onto your base policy, this would be acceptable.

1.2 The required limits may be satisfied by any combination of primary, excess or umbrella liability insurances, provided the primary policy complies with the above requirements and the excess umbrella is following form. The vendor may maintain reasonable and customary deductibles, subject to approval by County.

1.3 With reference to the foregoing insurance requirement, the vendor shall endorse applicable insurance policies as follows:

1.3.1 A waiver of subrogation in favor of County, its officials, employees, volunteers and officers shall be contained in all policies.

1.3.2 The vendor's insurance coverage shall name County as additional insured under the General Liability policy.

1.3.3 All insurance policies shall be endorsed to the effect that County will receive at least thirty (30) days' notice prior to cancellation, non-renewal or termination of the policy.

1.3.4 All copies of Certificates of Insurance shall reference the project/contract number.

1.4 All insurance shall be purchased from an insurance company that meets the following requirements:

1.4.1 A financial rating of A-VII or higher as assigned by the BEST Rating Company or equivalent.

1.5 Certificates of Insurance shall be prepared and executed by the insurance company or its authorized agent, and shall contain provisions representing and warranting the following:

1.5.1 Sets forth all endorsements and insurance coverages according to requirements and instructions contained herein.

1.5.2 Sets forth the notice of cancellation or termination to County.

EXHIBIT "F"

AFFIDAVIT OF REGULATION OF CONFLICTS OF INTEREST

The undersigned declares and affirms that during the term of this contract they will maintain compliance as defined in Vernon's Texas Codes Annotated, Local Government Code Title 5, Section C, Chapter 171.

I further understand and acknowledge that the existence of a conflict of interest at any time during the term of this contract will render the contract voidable.

Name of Firm: BGE, Inc.
 Title of Officer: Senior Vice President
 Signature of Officer: *Mike Garrison, P.E.*
 Print Name: Mike Garrison, P.E.
 Date: 11/22/2019

ACKNOWLEDGMENT

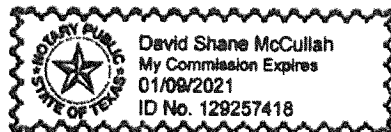
STATE OF TEXAS }
 }
 COUNTY OF Collin }

BEFORE ME, on this day personally appeared Mike Garrison, known to me (or proved to me on the oath of _____ or through Texas Drivers License (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this, the 22nd day of November, 2019.

David S. McCullah
 Notary Public, State of Texas

David S. McCullah
 Printed Name



My Commission expires on the 9 day of January, 2021.