PAPE-DAWSON ENGINEERS

March 7, 2023

Andrew Zagars, P.E.
City of Killeen
3201-A S.W.S. Young Drive
City of Killeen, Texas 76542

Re: City of Killeen Stagecoach Rd Reconstruction

Dear Mr. Zagars:

We are pleased to present this proposal for providing civil engineering and surveying services in connection with the above referenced project. Our proposed scope of services and associated fees are as follows:

Project Limits
The project limits are from Aquilla Dr to E Trimmier Rd for approximately 3.75 miles.

Proposed Facility
Proposed roadway is a 5-lane roadway with curb and gutter, turn lanes, and sidewalk.

Design Criteria
The proposed design criteria for the project will be developed from City of Killeen, Bell County and TxDOT design criteria. It is anticipated that in most cases the most stringent of the Design Criteria.

1. PROJECT MANAGEMENT AND COORDINATION (TASK 501) $75,000

a. Communication:

- Designate one Licensed Professional Engineer (Texas) to be responsible for the project management, and all communications with the City and its representatives.

b. Monthly Progress Report, Invoices, and Billings (12 months assumed):

- Submit monthly progress status reports to the City. Progress reports will include deliverable table, tasks completed, tasks/objectives that are planned for the upcoming periods, lists or descriptions of items or decisions needed from the City and its representatives. Subconsultant progress will be incorporated into the monthly progress report. A copy of the monthly progress report will be submitted to the City.
- Prepare correspondence, invoices, and progress reports on a monthly basis in accordance with current City requirements.

c. Quality Assurance and Quality Control (QA/QC) Plan:

- For each deliverable submittal, provide evidence of their internal review and mark-up of that deliverable as preparation for submittal and in accordance with submitted project specific QA/QC plan.
- Provide continuous QA/QC throughout the duration of the scheduled services included herein to appraise both technical and business performance and provide direction for project activities.

d. Project Coordination & Administration:

- Prepare and maintain routine project record keeping including records of meetings and minutes.
- Correspondence and coordination will be handled through & with the concurrence of the CITY.
- Manage project activities (including documenting emails, phone and conference calls, maintain project files for the length of the project, meeting agendas, meeting minutes, and schedule meetings), direct Engineer's team/staff, coordinate and review sub-consultant work, correspond with the City and its representatives, and assist the City and its representatives in preparing responses to project-related inquiries.

e. Progress/Coordination Meetings (**4** external meetings assumed):

- Attend a kickoff meeting and coordination/progress meeting with the City and its representatives and stakeholders, as necessary to communicate development of the project and design issues.
- Prepare agenda and sign-in sheets for external coordination/progress meetings.
- Prepare meeting minutes for review via email within three (3) business days of the external coordination/progress meeting.
- Conduct internal coordination meetings as required to advance the development of the project.

f. Project Schedule:

- Maintain a project schedule indicating tasks, subtasks, critical dates, milestones, and deliverables. Submit to City as requested.

g. **Deliverables:**

- Monthly Invoices and Progress Reports including Deliverable Table
- Project Specific QA/QC Plan
- Meeting Minutes, Sign-In Sheets, and Agendas
- Project Schedule and Updates
- Project Files
- QA/QC Documentation with Deliverable

2. PRELIMINARY DESIGN (TASK 202) $100,000

a. Data Collection:

- Perform record research and obtain existing information, including but not limited to: as-built plans, construction plans, right of way maps, traffic data, environmental reports, studies, future land use maps, floodplain data, official copies of FEMA floodplain and drainage models and analyses. Obtain construction plans for projects within the project limits and abutting roadways. Obtain drainage studies, reports, and mapping for the project area, including reports for developments affecting the drainage area. Obtain existing schematic from CITY.
- Conduct a field investigation of the proposed roadway alignment and the surrounding area to determine field conditions including photographic record of notable existing features.
- Review the data collected and organize the information.

b. Stakeholder Coordination (**2** meetings assumed):

- Schedule, coordinate logistics for and prepare agendas, sign in sheets, meeting minutes, discussion topics, presentations, overall exhibits, and maps of the project limits for stakeholder coordination.
- Coordinate with affected local agencies and City's consultants. Includes preparing/reviewing presentations and other communications materials for elected official briefings.
- Attend meeting with stakeholders (**2** meetings assumed).

c. Design Development:

- Analyze and identify project-specific design criteria (typical sections, design speed, functional classification, geometric criteria) in accordance with the latest versions of the TxDOT Roadway Design Manual.
- Develop preliminary construction phasing alternatives, including cost and duration for each phase considered.
- Develop schematic roll plots and/or exhibits to depict the preliminary design concept with the City and stakeholders.
- The Engineer will coordinate with the City to select a preferred alternative for construction phasing and details prior to beginning PS&E.

d. **Deliverables:**

- Meeting Minutes, Sign-In Sheets, Agendas, Presentations, Maps, and Exhibits for all Stakeholder Coordination Meetings.
- Draft and Final Constraints Map Refined Route Option and Technical Memorandum Recommendation (pdf and hardcopies)
- Draft and Final Design Summary Form (pdf and hardcopies).

3. ENVIRONMENTAL REVIEW REPORT (TASK 232) $70,000

a. Environmental Project Management and Coordination

This item represents an allowance for time not specifically required for design purposes:

- Preparation of exhibits for marketing, permitting, etc. as requested.
- Coordinate project team to meet schedule and deliverables.
- Attend project coordination meetings. Proposal allows twelve (12) hours of meetings.

b. Environmental Review Report

As part of the project planning process, a natural resource desktop review and limited field assessment to occur including:

- Desktop review of U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department threatened and endangered species listed for the county
- Review of the likelihood of occurrence of endangered species to be found on the property using aerial photography
- Review of the National Wetland Inventory, National Hydrography Dataset, and Federal Emergency Management Agency stream data to determine for the potential of jurisdictional waters
- Hazardous materials database search for hazardous materials concerns
- Report to be prepared describing endangered species assessment methodology and characteristics of the property that support the conclusions of habitat potential, the potential for jurisdictional waters to occur on the subject property, and environmental concerns pertaining to hazardous materials.

c. County Due Diligence:

- The Environmental Services will include studies and documentation required, per the Williamson County Environmental Protocol, for the various regulating authorities, including the Texas Historical Commission (THC), U.S. Army Corp of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), and Williamson County Conservation Foundation (WCCF). The intention of the Environmental Services is to attain necessary clearance letters and approvals in order to proceed with the proposed project.

d. Data Collection & Field Reconnaissance:

- Obtain and update periodically publicly available information including but not limited to: locations of public buildings (schools, churches, parks), aerial photography, National Wetland Inventory Maps, County Soil Survey Maps, Texas Commission on Environmental Quality (TCEQ) & Environmental Protection Agency (EPA) Hazardous Materials Database Information, FEMA Floodplain Information, Vegetation Information, Environmental Information from the appropriate local, state, or federal agencies, including for state and federally-listed species, Edwards Aquifer Information.

- Conduct a regulatory records review to identify listed hazardous waste generators, treatment, storage and disposal facilities; solid waste landfills, unauthorized sites; documented spills; oil and gas exploration and production sites; and underground storage tank sites within the proposed site location. The review will also identify other environmental risks along the project corridor.

- Conduct field reconnaissance to visually inspect the project site for additional risks and field verify any environmental risks identified by the regulatory records review

e. Section 404 Clean Water Act Compliance:

- Conduct a site visit that will delineate wetland boundaries and ordinary high-water marks of jurisdictional waters within the project ROW. It is anticipated that this project will be covered under a Nationwide Permit (NWP 14) without a pre-construction notification (PCN).
- Prepare a Jurisdictional Waters Delineation Report identifying specific impacts of the project on the Waters of the U.S. (including special aquatic sites), measures to minimize the impacts will be identified, and discuss applicable Section 404 options in accordance with current permits and conditions based on data collection and field reconnaissance.
- *If it is determined, after the Jurisdictional Waters Delineation Report, that a PCN is required; a supplemental work authorization would be required. The Jurisdictional Waters Delineation Report and NWP with PCN are subject to the U.S. Army Corps of Engineers Forth Worth District review and issuance of a permit.*

f. Texas Antiquities Code (TAC) Compliance:

- Prepare an Agency Consultation Letter for the lead regulatory agency in order to determine if field reconnaissance is necessary, and the level of effort required.
- If necessary, prepare a Project Initiation Letter, Texas Antiquities Permit Application, and Associated Scope of Work based on data collection and field reconnaissance.
- Conduct a pedestrian survey and report of sufficient intensity to determine the nature, extent, and potential significance of any cultural resources located within the Area of Potential Effect in accordance with full report guidelines as outlined by the Texas Historical Commissions Rules of Practice and Procedures.
- Coordination with Texas Historical Commission including submittals to Texas Historical Commission and project records to the appropriate curation facility per Texas Historical Commission requirements.
- *If U.S. Army Corps of Engineers (USACE) permitting for Waters of the U.S. under the Clean Water Act (Section 404/408) following jurisdictional delineations is necessary, additional cultural resources investigation may be required. If needed, investigations under Section 106 of the NHPA to be coordinated with the USACE regulatory archaeologist under a supplemental scope and fee.*

g. **Deliverables:**

- Draft & Final Environmental Due Diligence Report
- Draft & Final Jurisdictional Waters Delineation Report
- Draft & Final Texas Antiquities Permit Application Associated Scope of Work and Report

4. SUBSURFACE UTILITY ENGINEERING (TASK 390) $82,000

a. See attached proposal in Exhibit A

5. SURVEYING (TASK 105) $80,000

a. Right of Entry (**5** letters assumed):

- Prepare and mail right of entry letters per the City's standard for the project team including geotechnical and environmental. Send a second follow up letter to non-responsive property owners.

b. Field Surveying:

- Recover and verify existing horizontal and vertical control established for prior construction. Reestablish control where necessary.
- Locate existing visible and above ground utilities along designated route.
- Acquire invert elevations of Storm Sewer, Wastewater Manholes and inlet boxes where accessible. Determine elevation of water valves, where accessible.
- Locate underground utilities located, potholed and marked by Subsurface Utility Engineer.
- Detail culverts crossings on Stagecoach Road at Trimmier and Embers Creeks. Collect two cross sections, upstream and downstream from culvert on Trimmier Creek.
- Supplement LIDAR topographic information where needed.
- Survey the area at approximately **50**-foot sections **75**-feet on either side of the proposed roadway centerline including locate visible improvements and utilities including driveways, water wells, storage tanks, drainage structures (size, material, flowline elevations), edge of pavement/shoulder, physical centerline, guardrail, fences, signs, mailboxes, trees 8" inch diameter and greater, locate property boundaries sufficient to re-establish apparent ROW.

c. LiDAR Surveying:

Complete a control, improvement, topographic, and utility survey within approximately 3.8 miles of Stagecoach Road from the Aquila Dr to E. Trimmier Road in Killeen, TX

- Targets for mobile LiDAR will be set at approximately 700' intervals within the project limits. They will consist of chevrons painted on the pavement with a PK nail set on the inside corner of the chevron.

- Ground truthing cross section sections will be collected at the beginning and end of the project limits and half way between ground control targets to minimize calibration bias, and will consist of a minimum of 5 points (3 on pavement and 2 on natural ground).
- Mobile LiDAR data will be collected within the project limits, from apparent ROW to apparent ROW.
- The acquired mobile LiDAR data will be calibrated to control targets set on the project.
- The calibrated mobile LiDAR will be checked against the ground truthing cross sections to ensure the calibration is holding away from control. At this point the data will be approved for production
- A ground truthing and calibration report will be produced as evidence of the calibration accuracy showing the expected accuracy of the LiDAR data within the project limits.
- Topographic data will be extracted from the Mobile LiDAR point cloud and a MicroStation 3D DTM drawing and associated GEOPAK tin file will be generated.
- The final DTM will be checked against the ground truthing points to ensure the extracted data is accurately representing the calibrated LiDAR data
- Conventional survey will be supplemented where lidar data cannot be completed.
- As-builts of existing utilities will be provided by client. If no as-builts are available, additional features may be extracted from the lidar data for an additional fee.

d. **Deliverables:**

- Right of Entry Letters, Follow Up Letters, and Executed Right of Entry Documents.
- Mapping in 2-D and 3-D MicroStation Files
- PDF of each Surveyor Project Notebook

6. GEOTECHNICAL SERVICES (TASK 292) $100,000

a. Soil Borings:

- Perform twenty-five (25) pavement borings, spaced approximately at 0.15 miles (800 lineal feet apart) to a depth of fifteen (15) feet.
- Develop soil boring layout for approval from the County prior to mobilization.

b. Geotech Report:

- Provide a Geotechnical Investigation Report for the project evaluated by a professional geotechnical engineer Licensed in the State of Texas. The following items will be included in the geotechnical report: soil boring locations, boring logs (TxDOT Wincore output graphs/format), and plan of borings, subsurface exploration procedures, encountered subsurface conditions, field and laboratory test results, description of surface and subsurface conditions, and groundwater conditions. Swell potential evaluations, Pavement thickness design alternatives with subgrade stabilization and PVR calculations.

- Provide Soil Core Hole Drilling required for pavement borings. Follow the procedures in the City of Killeen Transportation Manual and contact the appropriate utility location services to have underground utilities located prior to drilling in an area.
- Perform appropriate laboratory tests on soil samples recovered from the borings. Laboratory testing will include but not limited to moisture content, liquid limit, plastic limit, unconfined compression, Texas Triaxial, resilient modulus, and free swell, sulfate testing, and particle size analysis tests, visual classification, dry density, Dynamic Cone Penetrometer (DCP), sulfate content tests, lime series analyses.
- Perform a pavement condition assessment consisting of field inspection on existing pavement conditions and all other pertinent features that could affect the pavement design including observations of subsurface water.
- Create a Preliminary Pavement Report and Final Pavement Report based on field testing, subsequent laboratory testing, following the format noted in the Williamson County Design Criteria Manual.
- Prepare and analyze three (3) pavement design options. The options will consist of a full-depth hot mix design with stabilized subgrade. Full depth reclamation (FRD) will also be considered as an option. All pavement design analyses should be performed with TxDOT software FPS-21.

7. PLAN PREPARATION (PS&E) SERVICES (TASK 504 $1,200,000

Prepare plans per the current City design criteria including applicable submittal requirements for cost estimate, checklists, hardcopies, CAD files, comment responses, design waivers/exceptions, general notes, quantities, updated design schedule, construction time determination. The engineer will develop and submit these Plans, Specifications & Estimates (PS&E) at 60%, 90%, and Final Design.

PS&E Design includes layouts and details required to establish the proposed roadway alignment and profile, provide positive drainage to existing storm drain structures, replace existing and/or construct new curb and sidewalk, traffic control and constructibility, replace existing pavement markings, and maintain storm water and pollution protection. Utility relocation design will be addressed as needed. Plansheets are anticipated to include:

a. Roadway/General:

- Title Sheet
  - Prepare a project title sheet as required for the construction plans, utilizing the template provided by the County.
- Index of Sheets
  - Prepare an index sheet(s) that shows each sheets location in the plan set.
- Project Layout
  - Prepare a project layout sheet(s) that clearly indicates the limits of the entire project.

- Typical Sections
  - Prepare typical section(s) for all proposed and existing roadways, cross streets with the shared use path.
  - Develop details for pavement transitions and end conditions, saw cuts at abutting roadways, cut and restore operations, and overlays as required.
- General Notes
  - Prepare general notes for applicable project-specific items, utilizing the master general notes provided by the County.
- Survey data
  - Prepare benchmark layout sheet(s) that clearly indicate the benchmark locations and associated control information.
- Horizontal Alignment Data
  - Prepare horizontal alignment data sheet(s) that depict the horizontal geometric information for the roadways to be included in the construction plan set.
- Summary Sheets
  - Prepare summary sheet(s) that tabulate, combine, and summarize quantities of the various construction items.
- Removal Plans
  - Prepare removal sheet(s) that clearly identify any items to be removed.
- Roadway Plan & Profiles
  - Prepare roadway plan and profile sheets that depict the proposed roadway improvements.
- Side Street/Intersection Plans
  - Prepare side street/intersection layout sheets.
  - Provide contours or details of drainage patterns for street intersections including slope or elevations along gutter to avoid ponding at intersections. Where applicable, provide details of volume of flow and velocity through intersections.
- Miscellaneous
  - Develop miscellaneous roadway detail sheets for the project that depict details required, which are not defined in standard detail sheets.
- Cross Sections
  - Develop cross sections at 50-foot stations and other locations as necessary for the determination of cut and fill quantities. These sections will also be used to further refine the design vertical geometry.

b. Traffic Control:

- Traffic Control Plans (TCP)
  - Prepare traffic control typical section(s) for each stage of the construction sequence to clearly delineate the position of the existing traffic with respect to the proposed construction.
  - Prepare a detailed narrative for the sequence of construction and traffic control general notes utilizing the sequence approved during the schematic phase. Any changes to the sequence of construction will be approved by the County prior to developing detailed TCP layouts.
  - Prepare detailed TCP layouts for each phase.
  - Develop traffic control detail(s) for items not covered by County or TxDOT standard details.
  - Compute an Engineer's opinion of construction schedule in order to determine an approximate duration for each of the phases of construction.
  - Consider the construction sequence and plan for temporary functioning of drainage systems.

c. Signing and Pavement Markings Layouts:

- Prepare signing and pavement marking layouts for limits of full depth reconstruction.
- Prepare pavement marking details for non-standard conditions.
- Prepare detail sheets for small signs for non-standard signs.

d. Stormwater Pollution Prevention Plan (SW3P):

- Prepare stormwater pollution prevention layout sheets for each phase of construction.

e. **Deliverables:**

- 60%, 90%, & Final Plansheet Submittals including applicable Williamson County Submittal Checklists.
- Engineer's Opinion of Probable Construction Cost
- Design Summary Form
- MicroStation OpenRoads Designer final design files
- Cross Sections
- Final Surface DTM
- Estimated Construction Schedule

8. DRAINAGE STUDY (TASK 390) $250,000

(2 Locations, approx. 300' east of Flanigan Drive and Stagecoach at Tyler Drive):

a. Data Collection and Coordination:

- Coordinate with City of Killeen on drainage analysis solution
- Review and collect data related to drainage issues at 2 locations (approx. 300' east of Flanigan Drive and Stagecoach at Tyler Drive)

b. Hydrologic and Hydraulic Analysis:

- Delineate drainage areas for structures at 2 locations
- Calculate existing and proposed conditions hydrologic parameters
- Calculate existing and proposed conditions flows
- Develop existing and proposed conditions hydrologic models using HEC-HMS
- Develop existing conditions 2-Dimensional model using HEC-RAS
- Develop proposed conditions 2-Dimensional model using HEC-RAS
- Develop proposed solution to drainage issues noted at 2 locations (approx. 300' east of Flanigan Drive and Stagecoach at Tyler Drive)
- Prepare preliminary design and layout for the cross-drainage structures necessary to solve drainage issues at 2 locations.

c. Documentation:

- Document analysis in the form of a letter report
- Create exhibits and tables of modeling results of the drainage analysis
- If detention is recommended or required prepare a routing analysis to determine preliminary size and ROW needs for proposed detention ponds.

Deliverables:

- Schematic Preliminary and Final Drainage Reports signed and sealed by a professional engineer in the State of Texas.
- Applicable GIS, Hydrologic and Hydraulic Models or CAD files referenced in the drainage study.

9. BIDDING PHASE SERVICES (TASK 401) $25,000

a. Bidding Phase Services:

- Prepare all applicable construction documents for bidding. Attend the pre-bid meeting. Respond to bidder's questions during the bid period. Prepare project addenda up to three (3) during bid period. Analyze contractor bids, prepare bid tabulation, and make recommendation for award to the apparent low bidder via a letter. Attend the pre-construction conference.

b. **Deliverables:**
- Letter of Recommendation for Award, with Bid Tabulation.

THIS PROPOSAL ASSUMES AND/OR EXCLUDES THE FOLLOWING:

- ♦ Construction Phase Services
- ♦ Public Involvement
- ♦ Driveway Profiles And Details
- ♦ Row Survey and Mapping.
- ♦ Existing Storm Drain Modifications and Analysis
- ♦ Traffic Evaluations and Projections.
- ♦ CLOMR or LOMR.
- ♦ Nationwide Permit (Nwp 14 With A Pre-Construction Notification (Pcn).
- ♦ Threatened And Endangered Species Environmental Services

SUMMARY OF SCOPE AND FEES

1.	Project Management and Coordination	Task 501		$75,000
2.	Preliminary Design	Task 202		$100,000
3.	Environmental Review Report	Task 232		$70,000
4.	Subsurface Utility Engineering	Task 390		$82,000
5.	Surveying	Task 105		$80,000
6.	Geotechnical Services	Task 292		$100,000
7.	Plan Preparation (PS&E) Services	Task 50		$1,200,000
8.	Drainage Study	Task 390		$250,000
9.	Bidding Phase Services	Task 401		$25,000
			Total:	**$1,982,000**

BASIS OF COMPENSATION

Pape-Dawson's compensation for the above services shown as lump sum fee and will be billed by percent complete.

A budget of **$1,982,000** is the estimated cost of Pape-Dawson's current understanding of the services above. This budget figure does not include any Direct Expenses (defined below) or applicable sales tax on services. If this budget figure is exceeded, Pape-Dawson may request modification of this Agreement.

AGREEMENT

The attached Terms and Conditions are incorporated into this Proposal by reference and become part of the agreement between the Client and Pape-Dawson by execution of this Proposal. If the terms of this Proposal are acceptable, please acknowledge such by signing below and returning the executed Proposal to us via e-mail or US Mail for our records. Receipt of the executed Proposal serves as authorization for us to proceed with the work.

The costs, fees, budget, and scope of work set out herein are valid for ninety (90) days from the date of this Proposal. If Pape-Dawson does not receive an executed Proposal from the Client within ninety (90) days from the date of this Proposal, the costs, fees, budget, and scope of work are subject to revision at Pape-Dawson's sole discretion. Pape-Dawson will provide a revised Proposal with the modified costs, budget, and scope of work should revisions be made.

We appreciate the opportunity to work with you on this project.

Sincerely,
Pape-Dawson Engineers, Inc.

Brian Allen, P.E., CFM
Senior Project Manager

Steven Dean, P.E., CFM
Vice President, Water Resources

CITY OF KILLEEN

Signature:_____

Name:_____

Title:_____

Date:_____

CITY OF KILLEEN
ACCOUNTS PAYABLE CONTACT INFO

Name:_____

Address:_____

Phone:_____

Email:_____

Exhibit A

THE RIOS GROUP

March 3, 2023

Brian Allen, P.E., CFM
Pape-Dawson Engineers, Inc.
10801 North Mopac Expressway
Building 3 - Suite 200,
Austin, TX 78759
512-454-8711
BAllen@pape-dawson.com

RE: Subsurface Utility Engineering
City of Killeen Stagecoach Road

Dear Mr. Allen:

The Rios Group, Inc. (TRG) is pleased to submit a cost proposal for Subsurface Utility Engineering (SUE) for the above referenced project. This proposal is based on information provided via email on February 28, 2023.

Introduction

TRG will perform SUE services for this project in general accordance with the recommended practices and procedures described in ASCE publication CI/ASCE 38-02 "Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data." As described in the publication, four levels have been established to describe and depict the quality of subsurface utility information. The four quality levels are as follows:

- Quality Level D (QL"D") – Information obtained from existing utility records.
- Quality Level C (QL"C") – Surveyed data depicting visible above-ground features supplemented with QL"D" information.
- Quality Level B (QL"B") – Two-dimensional horizontal information obtained through the application and interpretation of non-destructive surface geophysical methods. Also known as "designating," this level incorporates QL"C" information and provides horizontal positioning of subsurface utilities to within approximately 1.0 foot.
- Quality Level A (QL"A") – Three-dimensional horizontal and vertical information obtained through non-destructive vacuum excavation equipment to expose utilities at critical points. Also known as "locating," this level incorporates QL"B" information and provides horizontal and vertical positioning of subsurface utilities to within approximately 0.05 feet.

Scope of Work

Based on information provided by Pape-Dawson Engineers, Inc. (Client), TRG has developed a proposed scope for SUE services on this project. This scope may be modified, with Client and TRG concurrence, during the performance of work if warranted by changing or unexpected field conditions.

The scope of this proposal includes QL"C"/"D" SUE services to support the design of the subject project. The limits of the SUE investigation are highlighted in yellow on Exhibit B and will include the full width of the existing ROW of Stagecoach Road. TRG will attempt to depict the following utilities within this area: potable water, reclaimed water, chilled water, natural gas/crude oil/refined product pipelines, communication duct banks, fiber optic, cable television, telephone, electric, wastewater and storm drain facilities. Additionally, TRG will attempt to depict utility service lines, however, because these lines are often non-conductive and not shown on records TRG cannot guarantee all service lines will be included in the final deliverables. Irrigation lines and an inventory of overhead utilities are excluded from this scope of work.

Additionally, the scope of this proposal includes 50 hours (5 days) of QL"B" field work at key locations to be identified by the Client following a review of the QL"C"/"D" deliverables. TRG can attempt to designate the following utilities within the areas identified by the Client: potable water, reclaimed water, chilled water, natural gas/crude oil/refined product pipelines, communication duct banks, fiber optic, cable television, telephone, and electric. Wastewater and storm drain facilities will be inverted at manholes, and will be depicted as QL"C" information. Additionally, TRG will attempt to designate utility service lines, however, because these lines are often non-conductive and not shown on records TRG cannot guarantee all service lines will be included in the final deliverables. Irrigation lines and an inventory of overhead utilities are excluded from this scope of work.

In addition to providing QL"B" SUE services, TRG will attempt to provide Electronic Depth readings calculated by TRG's geophysical equipment. If Electronic Depth readings can be obtained, they will be provided every 25 feet. However, due to the inconsistency with Electronic Depth readings, TRG cannot guarantee the accuracy of the information. Data will be provided for informational purposes only.

This proposal also includes up to twenty (20) QL"A" SUE test holes at locations that will be provided by the Client following a review of the QL"B"/"C"/"D" information.

The survey of SUE field markings and utility appurtenances is excluded from this scope of work. It is assumed that the Client's surveyor will provide survey data of SUE field marks, test holes, and utility appurtenances at no cost to TRG.

Any necessary Right-Of-Entry (ROE) permits will be provided by the Client prior to the start of field work.

TRG Procedures

QL"D" and "C" – Records Research and Surface Feature Survey

It is the responsibility of the SUE provider to perform due-diligence with regard to records research and the acquisition of available utility records. The due-diligence provided for this project will consist of contacting the applicable One Call agency and associated utility owners/municipalities, visually inspecting the work area for evidence of utilities, and reviewing available utility record information. Additional utilities not identified through these efforts will be referred to as Unknown utilities.

QL"B" – Designating

Following a review of the project scope and available utility records with the project manager, TRG field personnel will begin designating the approximate horizontal position of known subsurface utilities within the project area. A suite of geophysical equipment that includes magnetic and electromagnetic induction will be used to designate conductive utilities. Where access is available, a sonde will be inserted into non-conductive utilities to provide a medium for transmission which can then be designated using geophysical equipment. Non-conductive utilities can also be designated using other proven methods, such as rodding and probing. TRG will make a reasonable attempt to designate Unknown utilities identified during field work; however, no guarantee is made that all Unknown utilities will be designated. Utilities will be marked and labeled to distinguish type and ownership. Field data depicting the designated utilities, as well as relevant surface features, will be produced to ensure accuracy and completeness of subsequent survey data. The TRG project manager will review the collected survey data, field data, and utility records for accuracy and completeness.

QL"A" – Locating

TRG will utilize non-destructive vacuum excavation equipment to excavate test holes at the requested locations. To layout the test holes, TRG will follow the *QL"B" – Designating* procedures described above. Once each utility is located, TRG will record the size, type, material, and depth. Test holes will be uniquely marked. Excavations will be backfilled by mechanical means with the appropriate material, and the original surface will be restored. If necessary, TRG can core pavement up to a depth of 12 inches. Asphalt surfaces will be repaired with an asphalt cold patch, and concrete cores will be epoxied in place, flush with the surrounding surface. TRG assumes that flowable fill will not be required when backfilling test holes and that full-section pavement repair (including sidewalks) will not be required to restore the original pavement surface. If requested, these services can be provided at an additional cost.

TRG will establish any necessary routine traffic control measures at no additional cost. However, if non-routine traffic control measures (lane closures, traffic detours, flagpersons, etc.) are required, this service will be invoiced as a direct expense. Due to the risk of damage, TRG will not attempt to probe or excavate test holes on AC water lines unless approval is obtained from the owner in advance. Additionally, excavation in rock, or to a depth greater than 18 feet, is considered beyond the scope of this proposal.

TRG has made the following assumptions with regard to the test holes on this project:

- All test holes will be accessible to truck-mounted vacuum excavation equipment.
- Right-Of-Way (ROW) permits from the City of Killeen (COK), Texas Department of Transportation (TxDOT) and/or Bell County will be required. TRG will obtain all required permits and ensure that coordination and compliance with the appropriate entity is provided.
- Designed traffic control plans will not be required. It is assumed that TxDOT typical TCP details will be utilized for any required lane closures.

- Non-routine traffic control measures will be required. TRG will acquire the services of a qualified Maintenance-Of-Traffic (MOT) Subcontractor and ensure that adequate traffic control is provided.
- The coring of pavement will be required at up to five (5) locations.

Deliverables

TRG will provide the following as a final deliverable to the Client:

- A utility file in CAD format depicting all designated and located utilities. The Client will provide TRG with any necessary background files for use in completing the final deliverables.
- A summary sheet of all test hole coordinate data and depth information.
- 8.5" x 11" Test Hole Data Forms for all test hole locations completed. These plans will be signed and sealed by a Professional Engineer and delivered to the Client in electronic PDF form.
- 11" x 17" SUE Plan Sheets depicting all designated and located utilities. These plans will be signed and sealed by a Professional Engineer and delivered to the Client in electronic PDF form.

Schedule

TRG can mobilize within three (3) weeks of receiving Notice-To-Proceed (NTP). TRG estimates that the QL"C"/"D" SUE work can be completed in thirty (30) working days, broken down as follows:

- Records Research – 20 days
- QL"C"/"D" deliverable preparation – 10 days (following receipt of planimetric survey from Client)

TRG estimates that the QL"B" SUE work can be completed in twenty (20) working days, broken down as follows:

- QL"B" field work – 5 days
- QL"B" deliverable preparation – 15 days (following receipt of survey data from Client)

TRG estimates that the QL"A" SUE work can be completed in twenty-seven (27) working days following approval of the any required ROW permits, broken down as follows:

- Layout test holes and QL"A" field work– 12 days
- QL"A" deliverable preparation – 15 days (following receipt of survey data from Client)

Estimated Fee

The total estimated cost to complete the work described herein is **Seventy-Four Thousand Four Hundred Forty-Eight Dollars and 21/100 ($74,448.21)**. An itemized breakdown of cost is provided in Exhibit A. Please note that these pricings are based on an assumption of quantities, and that only actual quantities will be invoiced – up to the total Contract amount.

We look forward to working with you on this project. If there are any questions, please do not hesitate to call at 512.580.5440.

Respectfully,

The Rios Group, Inc.

Charlie Phipps
Project Manager

THE RIOS GROUP

Estimate for Subsurface Utility Engineering

City of Killeen Stagecoach Road

EXHIBIT A

Hourly Office Labor		*Rate*	*Assumed Quantity*	*Unit of Measure*		*Sub-Total*
Supervisory Engineer	$	190.86	8	HR	$	1,526.88
SUE Project Manager	$	169.71	15	HR	$	2,545.65
Professional Engineer	$	165.19	9	HR	$	1,486.71
Assistant Project Manager	$	118.30	8	HR	$	946.40
Engineer in Training	$	110.49	5	HR	$	552.45
CADD Technician	$	74.84	150	HR	$	11,226.00
Engineering Technician	$	74.67	20	HR	$	1,493.40
Field Manager	$	127.23	20	HR	$	2,544.60
Administrative Specialist	$	81.39	8	HR	$	651.12
Sub-Total					**$**	**22,973.21**

Direct Expenses		*Rate*	*Assumed Quantity*	*Unit of Measure*		*Sub-Total*
ROW Permit	$	500.00	1	EA	$	500.00
Traffic Control (Standard)	$	1,000.00	5	DAY	$	5,000.00
Sub-Total					**$**	**5,500.00**

QL"B" SUE Designating		*Rate*	*Assumed Quantity*	*Unit of Measure*		*Sub-Total*
One Designating Person - TH Layou	$	160.00	20	HR	$	3,200.00
One Designating Person	$	160.00	30	HR	$	4,800.00
Two Person Designating Crew	$	250.00	20	HR	$	5,000.00
Sub-Total					**$**	**13,000.00**

QL"A" SUE Test Holes						
Unit Rate - Depth		*Outside Pavement Rate*	*Assumed Quantity*	*Unit Of Measure*		*Sub-Total*
0 - 5 feet	$	1,315.00	10	EA	$	13,150.00
5 - 8 feet	$	1,600.00	5	EA	$	8,000.00
8 - 13 feet	$	1,995.00	5	EA	$	9,975.00
13 - 20 feet	$	2,575.00	0	EA	$	-
Over 20 feet	$	3,025.00	0	EA	$	-
Pavement Coring	$	370.00	5	EA	$	1,850.00
Test Hole Total			20			
Sub-Total					**$**	**32,975.00**
Total Estimated Cost					**$**	**74,448.21**

575 Round Rock West Drive, Building K, Suite 400 | Round Rock, TX 78681 | Phone: 512.580.5440

Subsurface Utility Engineering | Utility Coordination

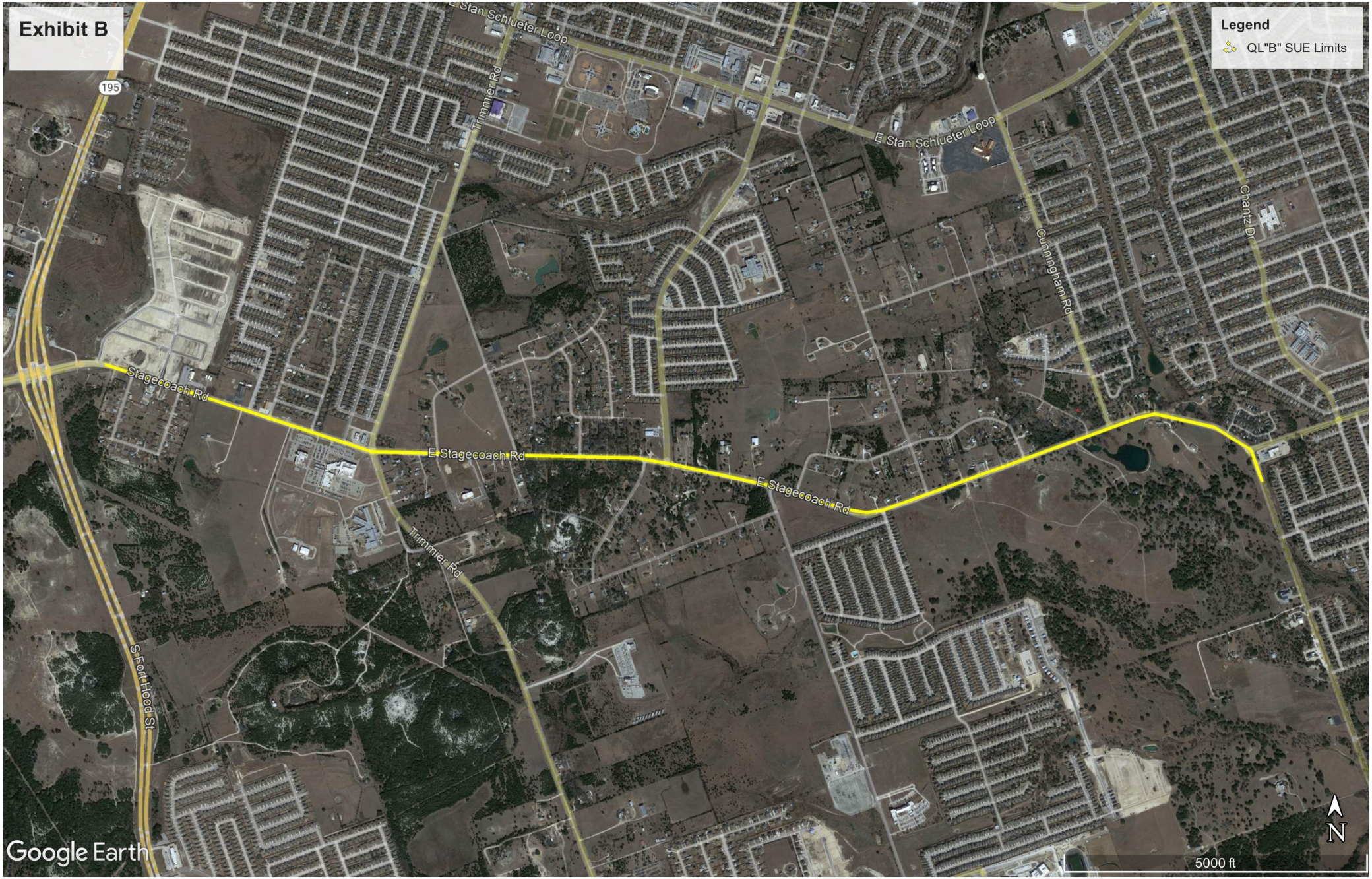
Exhibit B
Legend
QL"B" SUE Limits
195
E Stan Schlueter Loop
Trimmier Rd
E Stan Schlueter Loop
Cunningham Rd
Chantz Dr
Stagecoach Rd
E Stagecoach Rd
E Stagecoach Rd
Trimmier Rd
S Fort Hood St
Google Earth
N
5000 ft