

July 8, 2022

Ms. Mary Hamann, P.E.
City of Seguin
P.O. Box 591
Seguin, Texas 78156

Re: Cordova Road Reconstruction

Dear Ms. Hamann:

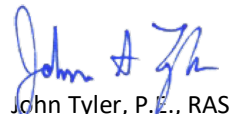
We are pleased to present this proposal for providing engineering services in connection with the above referenced project. Our proposed scope of services and associated fees can be found in the attachments labeled Exhibit A, B, C, and D.

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.

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

Sincerely,
Pape-Dawson Engineers, Inc.


John Tyler, P.E., RAS
Vice President

CITY OF SEGUIN

Signature: _____

Name: _____

Title: _____

Date: _____

Attachments

- Pape-Dawson Terms & Conditions
- Exhibit A – Services by City
- Exhibit B – Services by Engineer
- Exhibit C – Level of Effort Fee Table
- Exhibit D – Schedule

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PAPE-DAWSON ENGINEERS, INC.
RE: CORDOVA ROAD RECONSTRUCTION (the "Project")
TERMS AND CONDITIONS

PAPE-DAWSON ENGINEERS, INC., a Texas corporation, 2000 NW Loop 410, San Antonio, Texas, 78213-2251, hereinafter referred to as "Engineer", has agreed to provide Professional Services to **CITY OF SEGUIN**, hereinafter referred to as "Client," pursuant to the terms set out in a "Proposal - Scope of Services and Compensation" (the "Proposal") executed by Client and these Terms and Conditions.

ARTICLE 1: SERVICES

Engineer agrees to perform Professional Services (the "Services") in conformance with the descriptions, definitions, terms and conditions as set forth herein and on the Proposal and any Exhibits, rate sheets, and Additional Services Requests subsequently attached hereto or incorporated hereto by reference. This description of Services is intended to be general in nature and is neither a complete description of Engineer's Services nor a limitation on the Services that Engineer is to provide under this Agreement.

ARTICLE 2: PROPOSAL AND ADDITIONAL SERVICES REQUESTS

2.1 These Terms and Conditions, the Proposal and any Exhibits, rate sheets, and Additional Services Requests for this Project are hereby incorporated by reference and are collectively referred to herein as the "Agreement."

2.2 The Proposal, as amended or modified by any Additional Services Requests, shall identify the specific Scope of Services to be performed and the amount and type of compensation for the specific services.

2.3 Client shall authorize, and Engineer shall commence work set out in the Proposal and any Additional Services Requests upon Client's execution of the Proposal.

ARTICLE 3: CHANGES

3.1 The Client may at any time, by written Additional Service Request, make changes within the general scope of the Proposal relating to services to be performed for this Project. If such changes cause an increase or decrease in the Engineer's cost of, or time required for, performance of any services, an equitable adjustment shall be made and reflected in a properly executed Amendment.

3.2 The Engineer is not obligated to begin work on a change of scope or deliver that work product until a properly executed Additional Services Request is signed by the Client.

3.3 This Agreement is based on laws and regulations in effect as of the date of execution of this Agreement by Client. Changes after this date to these laws and regulations may be the basis for modifications to Engineer's scope of Services, times of performance, or compensation. In the event that there are modifications and/or additions to legal or regulatory requirements relating to the Services to be performed under this Agreement after the date of execution of this Proposal, the scope of Services, times of performance, and compensation provided for in these Terms and Conditions, the Proposal, and any subsequent Additional Services Requests shall be reflected in an appropriate Additional Services Request.

3.4 Should any of the individual tasks or services set out in the Proposal not be initiated within twenty-four (24) months of the date of execution of the Proposal by Client, Engineer reserves the right to revise the costs, fees, and scope of work for any such tasks or services not yet initiated.

ARTICLE 4: THE TERM

4.1 **Term.** Engineer shall be retained by Client as of the date Client executes the Proposal, Engineer shall complete its Services within a reasonable time, and this Agreement shall remain in effect until the Services have been fully performed or until the Engineer's Services are terminated under provisions of the Agreement.

ARTICLE 5: DUTIES

5.1 **Access.** Client will provide Engineer with access to the Property or to any other site as required by Engineer for performance of the Services.

5.2 **Client-furnished Data.** Client shall provide all criteria and full information as to Client's requirements for the Project; designate a person to act with authority on Client's behalf in respect to all aspects of the Project, examine and respond promptly to Engineer's submissions, and give prompt written notice to Engineer whenever he observes or otherwise becomes aware of any defect in the work.

Client shall also do the following and pay all costs incident thereto: Furnish to Engineer core borings, probings and subsurface exploration, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment and similar data; appropriate professional interpretations of all of the foregoing; environmental assessment and impact statements, and any other information previously made available to the Client, which may be required by Engineer, all of which Engineer may rely upon in performing its services.

Provide such legal, accounting, independent cost estimating and insurance counseling services as may be required for the Project, any auditing service required in respect of constructor(s)' applications for payment, and any inspection services to determine if constructor(s) are performing the work legally.

5.3 **Other Information.** Engineer will rely upon commonly used sources of data, including database searches and agency contacts. Engineer does not warrant the accuracy of the information obtained from those sources and has not been requested to independently verify such information.

5.4 **Indemnity.** The Engineer agrees, to the fullest extent permitted by law, to indemnify and hold the Client harmless for damages and losses arising from the negligent acts, errors or omissions of the Engineer in the performance of the professional services under this Agreement, to the extent that the Engineer is responsible for such damages and losses on a comparative basis of fault and responsibility between the Engineer and the Client. The Engineer is not obligated to indemnify the Client for the Client's own negligence.

Notwithstanding the foregoing, to the fullest extent permitted by law, engineer shall indemnify and hold the client harmless from and against all claims arising out of or resulting from bodily injury to, or sickness, disease or death of, any employee, agent or representative of engineer or any of its subcontractors.

To the fullest extent permitted by law, Client and Engineer waive against each other, and the other's employees, officers, directors, members, agents, insurers, partners, and consultants or subconsultants, any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to the Project.

5.5 **Ownership of Documents.** All designs, drawings, specifications, documents, and other work products of the Engineer, whether in hard copy or in electronic form, are instruments of service for the Services, whether Services are completed or not. Reuse, change or alteration by the Client or by others acting through or on behalf of the Client of any such instruments or service without the written permission of the Engineer will be at the Client's sole risk. Client agrees to indemnify the Engineer, its officers, partners, employees, and subcontractors from all claims, damages, losses, and costs, including, but not limited to, litigation expenses and attorney's fees, arising out of or related to such unauthorized reuse, change or alteration.

5.6 **Reporting Obligations.** Client has responsibility for complying with all legal reporting obligations. Nothing in the Agreement precludes Engineer from providing any notices or reports that it may be required by law to give to governmental entities.

5.7 **Laboratory Services.** In performing environmental services, Engineer may make use of an independent testing laboratory. Engineer will not, and Client shall not rely upon Engineer to, check the quality or accuracy of the testing laboratory's services.

5.8 **Changed Conditions.** The Client shall rely on the Engineer's judgment as to the continued adequacy of the Agreement in light of occurrences or discoveries that were not originally contemplated by or known to the Engineer. Should Engineer call for contract renegotiation, the Engineer shall identify the changed conditions necessitating renegotiation and the Engineer and the Client shall promptly and in good faith enter into renegotiation of this Agreement. If terms cannot be agreed to, the parties agree that either party has the right to terminate the Agreement.

5.9 **Opinions of Cost.** Should Engineer provide any cost opinions, it is understood that those opinions are based on the experience and judgment of Engineer and are merely opinions. Engineer does not warrant that actual costs will not vary from those opinions because, among other things, Engineer has no control over market conditions.

5.10 **Construction Observation.** If construction phase services are included in the basic services, the Engineer shall visit the project at appropriate intervals during construction to become generally familiar with the progress and quality of the contractors' work and to determine if the work is proceeding in general accordance with the Contract Documents. The Client has not retained the Engineer to make detailed inspections or to provide exhaustive or continuous project review and observation services. The Engineer does not guarantee the performance of, and shall have no responsibility for, the acts or omissions of any contractor, subcontractor, supplier or any other entity furnishing materials or performing any work on the project. Engineer shall not be responsible for the means, methods, techniques, sequences or procedures of construction selected by Contractor(s) or the safety precautions and programs incident to the work of Contractor(s).

5.11 **Subconsultants.** Engineer may employ such Subconsultants as Engineer deems necessary to assist in the performance or furnishing of the Services, subject to reasonable, timely, and substantive objections by Client.

ARTICLE 6: COMPENSATION OF SERVICES

6.1 **Compensation of Services.** Engineer's compensation for services shall be set forth in the Proposal and any subsequent Additional Services Requests.

Compensation. Client agrees to pay Engineer for Professional Services in accordance with the descriptions, definitions, terms and conditions as set forth herein and in the Proposal and any Additional Services Requests, or Amendments subsequently attached hereto or incorporated herein by reference. Expenses directly related to these services, including reproduction, travel, long distance telephone bill, express mail, special deliveries and subcontractor expenses shall include a 10% markup on cost.

Engineer reserves the right to adjust the hourly billing rates set out in the Proposal, Additional Service Requests, and/or Amendments thereto on an annual basis. Engineer shall notify Client of any hourly billing rate adjustments when they go into effect.

Payments. Engineer will invoice Client monthly in accordance with the terms and conditions of this Agreement, the Proposal, and any subsequent Additional Services Requests for Services and reimbursables. Client agrees to promptly pay Engineer at his office at 2000 NW Loop 410, San Antonio, Texas 78213-2251, the full amount of each such invoice upon receipt. In no event shall Engineer's failure to bill monthly constitute default under the terms and conditions of this Agreement.

6.2 **Sales and Use Tax.** Effective July 1, 1990, a State, City and MTA Sales Tax must be collected on Surveying Fees for the establishment of Real Property Boundaries and determining the location of structures or improvements in relation to the boundaries. Charges for prints and reproductions are also subject to a Sales Tax. Client agrees to pay Engineer the applicable Sales Tax on services and said tax is not considered a part of Engineer's compensation for services. In the event subsequent taxes are levied by Federal, State or Local authorities, relating to the services in writing and such modifications as are required shall be made a part of this Agreement.

6.3 **Right to Stop Performance.** If Client does not pay any amount due to Engineer within thirty (30) days after the invoice date, Engineer may, upon three (3) additional days' verbal or written notice to Client, stop performance of the Services until payment of the amount owed has been received.

6.4 **Interest.** Payments due and unpaid to Engineer under the Agreement shall bear interest at the rate of twelve percent (12%) per annum, or lesser if required by law, calculated from the date of the invoice, if the payment is not made within thirty (30) days of the date of the invoice.

6.5 **Attorney's Fees:** In the event Engineers' invoices for services are given to an attorney for collection, or if suit is brought for collection, or if they are collected through probate, bankruptcy, or other judicial proceeding, then Client shall pay Engineer all costs of collection, including the maximum attorney's fees allowed by Law and court costs, in addition to other amounts due.

ARTICLE 7: TERMINATION OF SERVICES

7.1 **Termination.** This Agreement may be terminated without cause at any time prior to completion of Engineer's services, either by Client or by Engineer, upon written notice to the other at the address of record. Upon receipt of written notice from Client to discontinue

work, the Engineer shall discontinue work under this Agreement immediately. In the event Client terminates the Agreement based on Client's reasonable opinion the Engineer has failed or refused to prosecute the work efficiently, promptly or with diligence, the Engineer shall have ten (10) days, from the receipt of written notification by Client, to cure such failure to perform in accordance with the terms of this Agreement.

7.2 Compensation in Event of Termination. On termination, by either Client or Engineer, Client shall pay Engineer with respect to all contracted services rendered and expenses incurred before termination an amount fixed by applying the Engineer's Standard Hourly Rates, in force at the time of termination, to all services performed to date, in addition to termination settlement costs the Engineer reasonably incurs relating to commitments which had become firm before the termination.

ARTICLE 8: RELATIONSHIP OF PARTIES

8.1 Independent Contractor: It is understood that the relationship of Engineer to Client shall be that of an independent contractor. Neither Engineer nor employees of Engineer shall be deemed to be employees of Client.

ARTICLE 9. LIMITATION OF LIABILITY

9.1 Limitation of Liability. To the fullest extent permitted by law, the total liability of Engineer and its subconsultants and subcontractors to Client for any and all injuries, claims, losses, expenses, or damages whatsoever from any cause or causes, including, but not limited to, strict liability, breach of contract, breach of warranty, negligence, or errors or omissions (collectively "Claims") shall not exceed the Engineer's total fee. In no event will Engineer, its subconsultants or subcontractors be liable for punitive, special, incidental, or consequential damages.

9.2 No Certification. Engineer shall not be required to sign any documents, no matter by whom requested, that would result in Engineer having to certify, guarantee, or warrant the existence of conditions whose existence Engineer cannot ascertain. The Client also agrees not to make resolution of any dispute with Engineer or payments of any amount due to Engineer in any way contingent upon Engineer's signing any such certification.

9.3 Execution of Documents. The Engineer shall not be required to execute any documents subsequent to the signing of this Agreement that in any way might, in the sole judgment of the Engineer, increase the Engineer's risk or the availability or cost of its professional or general liability insurance.

9.4 No Supervision of Contractors. Engineer shall not at any time supervise, direct, control, or have authority over any contractor work, nor shall Engineer have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, or the safety precautions and programs incident thereto, for security or safety at the Project site, nor for any failure of a contractor to comply with laws and regulations applicable to such contractor's furnishing and performing of its work.

9.5 Engineer shall not be responsible for the acts or omissions of any contractor, subcontractor, or supplier, or of any of their agents or employees or of any other persons (except Engineer's own agents, employees, and Subconsultants) at the Project site or otherwise furnishing or performing any work for the Project.

ARTICLE 10: MISCELLANEOUS

10.1 Entire Agreement. The Agreement (including any exhibits) contains the entire agreement between Engineer and Client, and no oral statements or prior written matter shall be of any force or effect. The Agreement may be modified only by a written document executed by both parties.

10.2 Governing Law. The Agreement shall be governed by and construed in accordance with the laws of the State of Texas.

10.3 Venue. Venue of any action under the Agreement shall be exclusively in Guadalupe County, Texas.

10.4 Severability. If any provision of the Agreement is held to be illegal, invalid or unenforceable under present or future laws, such provision shall be fully severable and the Agreement shall be construed and enforced as if such illegal, invalid or unenforceable provision is not a part hereof, and the remaining provisions shall remain in full force and effect. In lieu of any illegal, invalid or unenforceable provision, there shall be added automatically as a part of the Agreement, a provision as similar in its terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

10.5 Construction of Agreement. The parties acknowledge that each party and, if it so chooses, its counsel have reviewed and revised the Agreement and that the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Agreement or any amendments or exhibits.

10.6 Successor and Assigns: Third Party Beneficiary. The Agreement shall be binding upon Engineer, Client and their respective legal representatives, successors and permitted assigns. Neither Engineer nor Client may assign the Agreement nor any right or obligation under it without the prior written consent of the other party. Nothing in the Agreement restricts Engineer's ability to hire subcontractors in connection with the Services. The Services and any report prepared under this Agreement are for the sole benefit and sole use of Client and are not for the use of any other person. Only Client may rely upon the Agreement and the Services, unless Engineer gives Client prior and specific written approval.

10.7 Dispute Resolution. Any claim, dispute or other matter in question arising out of or related to the Agreement of the Services provided thereunder shall be subject to arbitration. Prior to arbitration, the parties shall endeavor to resolve disputes by mediation. Claims, disputes and other matters in question between the parties that are not resolved by mediation shall be decided by arbitration which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect. The demand for arbitration shall be filed in writing with the other Party to this Agreement and with the American Arbitration Association. No arbitration arising out of or relating to the Agreement shall include, by consolidation or joinder or in any other manner, an additional person or entity not a party to this Agreement. The foregoing agreement to arbitration shall be specifically enforceable in accordance with applicable law in any court having jurisdiction. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction.

10.8 **Mediation:** Any claim, dispute or other matter in question arising out of or related to this Agreement shall be subject to non-binding mediation as a condition precedent to the institution of legal proceedings by either party. If such matter relates to or is the subject of a lien arising out of the Engineer's services, the Engineer may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to resolution of the matter by mediation or other legal proceedings.

Each party agrees to include a similar mediation provision in all agreements with independent contractors and consultants retained for the Project and to require all independent contractors and consultants also to include a similar mediation provision in all agreements with their respective subcontractors, suppliers, and subconsultants, thereby providing for mediation as the initial method for dispute resolution between the parties to all those agreements.

The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the county where the project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

10.9 **No Warranty.** Engineer makes no warranty, either expressed or implied, as to Engineer's findings, recommendations, plans, specifications, or professional advice. Engineer has endeavored to perform its services in accordance with generally accepted standards of practice by recognized professional firms in performing services of a similar nature in the same locality, under similar circumstances. Client recognizes that neither Engineer nor any of Engineer's subconsultants or subcontractors owes any fiduciary responsibility to Client.

10.10 **Survival of Provisions.** Termination of the Services for any reason whatsoever shall not affect (a) any right or obligation of any party that is accrued or vested prior to such termination, and any provision of the Agreement relating to any such right or obligation shall be deemed to survive the termination of the Services or (b) any continuing obligation, liability or responsibility of Engineer and of Client which would otherwise survive termination of the Services.

10.11 Complaints regarding surveying services may be filed with the Texas Board of Professional Engineers and Land Surveyors, 1917 S. Interstate 35. Austin, TX 78741-3702.

EXHIBIT A - CITY

Designate a Project Manager to represent the City and will provide the following information or services as listed below:

Subject to availability, the services to be provided or performed by the City will include, but not be limited to, the following items:

Route and Design Studies

- Provide As-built Plans.
- Provide ROW maps.
- Provide Preliminary Cost Estimate, Project Information and other Documentation.
- Provide available Environmental Documentation.
- Provide approved traffic data.
- Provide Value Engineering Report, if available and applicable.

Social, Economic and Environmental Studies and Public Involvement

- Provide available project development documents, environmental Documentation, schematics, typical sections, public involvement records, etc.
- Review and process each necessary environmental and public involvement document prior to issuance of the construction contract.
- Provide SWP3 sheet development support to the Engineer, including required actions and practices to be performed by the Contractor during construction.

Right-of-Way Data and Utility

- Provide available existing right of way maps for the proposed project location.
- If available, Subsurface Utility Engineering (SUE) data and utility ownership/facility data; and
- Planimetric layouts and related information.

Roadway Design Controls

- Provide applicable Plans, Specifications and Estimate (PS&E) package checklists for use by the Engineer.

Drainage

- Provide existing hydraulic and hydrologic studies associated with the project and project area if available.
- Provide areas of wetlands delineation to be surveyed by the Engineer.
- Provide data, if available, including “as-built plans”, existing cross sections, existing channel and drainage easement data.

Signing, Pavement Markings and Signalization

- Furnish traffic signal justification warrants, if applicable.
- Available traffic counts, traffic projections and accident data, if available.

Miscellaneous (Roadway)

- Provide example estimates, general notes and standards, sample specification lists and related hard copy documentation for the Engineer's use in preparing the preliminary estimate, general notes and specifications.
- Provide a maximum project cost to be used in the preparation of the preliminary design.
- Furnish tabulation of current applicable bid process, if applicable.
- Negotiate with each affected project utility company for relocation agreements, funding participation, or required relocation as applicable. Establish which utilities will be joint-bid vs. relocated by owner prior to construction. Coordinate procurement of owner-provided materials to be utilized by the Contractor during construction, if applicable.

Project Management and Administration

- Review, approve and update Project Design Criteria.
- Prompt Review of Deliverables.
- Provide copies of preferred Details to be used.
- Provide copies of preferred Standards to be used.
- Prepare final General Notes and final Specification Data Sheets.

Additional Responsibilities

- Provide design criteria for roadway, structures, drainage, and hydraulics.
- Interface with local, regional, State and Federal agencies (including transit agencies) or other entities on behalf of Engineer.
- Provide the Engineer with timely reviews in accordance with Exhibit C, "Work Schedule" and decisions to enable the Engineer to maintain the project schedule as approved by the City.
- Provide paper prints or electronic copies of design files containing, for example, a sample title sheet, plan profile sheet, plan sheet, sheet quantities and storm water pollution prevention plan (SW3P) sheet, if available and applicable.
- Provide the Engineer a desired list of sheet types, including their organization within the plans.
- Provide milestone guidelines as applicable to the district in which the work is being performed.
- Secure all required permits and agreements.

EXHIBIT B - ENGINEER

The Engineer will provide engineering services required for the preparation of plans, specifications and estimates (PS&E) and related documents for the expansion of Cordova Rd from SH 46 to SH 123. The project consists of widening a two-lane suburban roadway to four-lane with raised median and center turn lane and a shared use path (SUP) on both sides. Project will consist of ROW acquisition, public involvement strategy, and environmental compliance analysis. The project will include traffic level of service analysis, and review for adherence to the County and City thoroughfare plans. These services may include, but are not limited to, preparing roadway and bridge design, hydrologic and hydraulic design, traffic signal design, utility adjustment coordination, subsurface utility engineering, utility engineering, survey, and geotechnical data collection, and if requested, provide design support and testify at Right of Way hearings, and construction phase services necessary to support the design process.

GENERAL REQUIREMENTS

Design Criteria. The Engineer will prepare all work in accordance with the latest version of applicable City or State procedures, specifications, manuals, guidelines, standard drawings, and standard specifications or previously approved special provisions and special specifications, which include: the TxDOT *PS&E Preparation Manual*, *Roadway Design Manual*, *Hydraulic Design Manual*, the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD), *Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (latest Edition)*, and other City approved manuals. When design criteria are not identified in City manuals, the Engineer will notify the City and refer to the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Street*, (latest Edition) and *Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way* published by the Architectural and Transportation Compliance Board (Access Board) on July 26, 2011, 36 CFR Part 1190 or its final adopted guidelines. In addition, the Engineer will follow the City's guidelines in developing the PS&E package. The Engineer will prepare each PS&E package in a form suitable for letting through the City's construction contract bidding and awarding process.

The Engineer will submit each exception and waiver to the City for coordination and processing of approvals. If subsequent changes require additional exceptions, the Engineer will notify the City in writing as soon as possible after identification of each condition that may warrant a design exception or waiver.

Right-of-Entry and Coordination. The Engineer will notify the City and secure permission to enter private property to perform any surveying, environmental, engineering or geotechnical activities needed off City right-of-way. The Engineer will not commit acts which would result in damages to private property, and the Engineer will make every effort to comply with the wishes and address the concerns of affected private property owners.

The Engineer will contact each property owner prior to any entry onto the owner's property and should request concurrence from the City prior to each entry.

Progress Reporting and Invoicing. The Engineer will invoice according to Function Code breakdowns of the Contract for Engineering Services. The Engineer will submit each invoice in electronic format.

The Engineer will submit a monthly written progress report to the City's Project Manager. The Engineer's written progress report will describe activities during the reporting period; activities planned for the following period; problems encountered and actions taken to remedy them; list of meetings attended; and overall status, including a percent complete by task.

The Engineer will prepare a design schedule and an estimated construction contract time schedule, using Microsoft Project.

Traffic Control. The Engineer will provide all planning, labor, and equipment to develop and to execute each Traffic Control Plan (TCP) needed by the Engineer to perform services. The Engineer will comply with the requirements of the most recent edition of the TMUTCD. The Engineer will submit a copy of each TCP to the City for approval prior to commencing any work on any City roadway. The Engineer will provide all signs, flags, and safety equipment needed to execute the approved TCP. The Engineer will notify the City in writing at least one week in advance of executing each TCP requiring a lane closure.

Quality Assurance (QA) and Quality Control (QC). The Engineer will provide peer review at all levels. For each deliverable, the Engineer will have some evidence of their internal review and mark-up of that deliverable as preparation for submittal.

Personal Protective Equipment (PPE). PPE must meet current standards set by the Occupational Safety and Health Administration (OSHA) and TxDOT requirements. Each business vehicle must be clearly marked with the Engineer's business name, or the name of the appropriate subcontractor, such that the name can be identified from a distance.

Task 110 – FEASIBILITY STUDIES**ROUTE AND DESIGN STUDIES**

110.1. Data Collection and Field Reconnaissance. The Engineer will collect, review and evaluate data described below, as available. The Engineer will notify the City in writing whenever the Engineer finds disagreement with the information or documents:

1. Data, if available, from the City, including “as-built plans”.
2. Documents for existing and proposed development along proposed route from local municipalities and local ordinances related to project development.
3. Utility plans and documents from appropriate municipalities and agencies through use of OneCall.
4. Flood plain information and studies from the Federal Emergency Management Agency (FEMA), the United States Army Corps of Engineers (USACE), local municipalities, and other governmental agencies.
5. Conduct field reconnaissance and collect data including a photographic record of notable existing features.

110.2. Design Criteria. The Engineer will develop the roadway design criteria based on the controlling factors specified by the City.

110.3. Design Conference. The Engineer, in cooperation with the City and TxDOT, should plan, attend and document a Design Concept Conference (DCC) to be held prior to the 30% milestone submittal. The conference will provide for a brainstorming session in which decision makers, stakeholders and technical personnel may discuss and agree on:

- Roadway and drainage design parameters and applicable criteria
- Engineering and environmental constraints
- Project development schedule
- Other issues as identified by the City / TxDOT
- Identify any Design Exceptions and Waivers

110.4. Geotechnical Borings and Investigations:

Field Sampling and Laboratory Testing

1. Determine Locations for Proposed Geotechnical Testing – The Engineer will drill 18 total borings along the existing alignment of Cordova Road. 15 borings will be drilled through the existing pavement surface to maximum depths of 10 ft below the existing ground surface for the pavement portion of the study, spaced at approximately ¼ mile. Two (2) borings will be drilled in the vicinity of the low water

crossings to maximum depths of 20 ft below the existing ground surface. The borings near the low water crossing will be utilized for both the pavement portion of the project as well as for low water crossing foundation recommendations. Exact locations of the borings will be determined after a brief distress survey of existing pavement condition is. The general extent and severity of distresses encountered on the existing pavement will confirm the field sampling and testing program that will be conducted for the pavement reconstruction design.

2. Obtain Permits and Utility Clearances for Proposed Test Holes – The Engineer will obtain the appropriate street cut permit(s) required by the City for all drilling activities (coordinated with the assigned City Inspector). Streets will be restored to the condition required by the permit after completion of the drilling operations. The Engineer assumes that all boring locations will be accessible to a conventional, truck-mounted drilling rig. The Engineer will contact Texas Excavation Safety System, Inc (Texas811) for clearance of certain utilities. It is expected that the Client will provide information regarding the location of any underground utilities in the vicinity of our borings. The Engineer will assist in locating underground utilities provided the Client submits documentation of existing utility locations.
3. Coordinate with City for Potential Lane Closures for Drilling of Test Holes - Engineer will provide the necessary traffic control for all sampling activities that may occur for the drilling. Proper notification will be provided to the City of Seguin for public notification of lane closures.
4. Obtain Test Hole Information - Borings will be conducted at the locations and depths discussed above using industry accepted drilling practices and procedures. If contaminated soils are encountered, drilling will be suspended and environmental drilling and sampling protocols will have to be followed with additional costs to be determined.
5. Complete Geotechnical Laboratory Testing of Test Samples - From the borings, representative materials will be collected to define the strength and classification characteristics of the foundation soils. Split-spoon samples (with Standard Penetration Testing) will be completed in the P-series borings (borings in the pavement areas) while Texas Cone Penetrometer (TCP) testing will be completed in the B-series borings (borings in the low water crossing areas) with Shelby Tube and grab sampling of the auger cuttings. The laboratory testing program may include moisture content tests, Atterberg Limits (plasticity tests), unconfined compression testing, and grain size analyses. In addition to the above described testing program, up to 2 representative samples of the predominant subgrade soil will be obtained from the pavement areas and will be subjected to the Texas Triaxial test and lime series testing. The lime series testing will allow determination of required proportions of hydrated lime needed in conventional stabilization to

sufficiently reduce the plasticity of the subgrade soils. Sulfate testing will also be completed to identify the potential for sulfate induced heave.

6. If it is determined that reusing the existing paving materials as part of the reconstructed pavement is desired, samples of the asphaltic concrete and granular base may be collected for testing in the laboratory with an additional cost to be determined. The specific testing will be defined based upon the ultimate usage of the recycled material (i.e. will it be used as a granular base, a cement treated base, or asphalt treated base, etc.).

Optional Additional Service:

As an option, and if authorized, the Engineer will collect and analyze Falling Weight Deflectometer (FWD) deflection data to determine variations in subgrade support within the project limits and estimate subgrade stiffness for pavement design inputs. This data may also be used to locate cores and bore-holes within the limits of the pavement. FWD testing will be performed on both lanes.

Engineering Report

The Engineer will utilize the information gathered during the field investigation to develop the pavement designs to establish anticipated cross sections for the proposed street reconstruction.

1. Develop Pavement Designs - The Engineer will perform pavement design and submit to the State for review and approval. The Engineer will perform a pavement design using guidance from the latest San Antonio Pavement Design SOP, and the latest on-line version of the TxDOT Pavement Design Manual. Pavement design should be performed with the TxDOT FPS-21 design program. The Engineer will evaluate the project limits for determining feasibility of splitting the project limits into multiple pavement design sections to maximize performance based on existing soil types.
2. Pavement design inputs for the reconstruction will be based upon data collected from the field sampling and testing program as well as the TxDOT Pavement Design Manual.
3. Prepare Engineering Report - Pertinent information needed for the pavement design will be provided in an engineering report, which will include typical cross-sections, soil conditions encountered, and existing pavement conditions noting the general extent and severity of distresses encountered on the roadway. A recommendation as to the suitability of the existing materials for use in the reconstructed pavement may also be provided if requested by the Client at additional cost.

4. The results of the field and laboratory phases of the study in support of the final pavement design will be reviewed by the Engineer's staff of engineers and geologists. The results of the review, together with the supporting field and laboratory data, will be presented in a written, engineering report. Included therein will be an evaluation of the current condition of the pavement and recommendations concerning the reconstruction of the pavement. The Pavement Design Report will include the following information and recommendations, if applicable:
 - A summary of the field and laboratory sampling and testing program;
 - Boring logs and laboratory testing results;
 - A review of general site conditions including drainage considerations affecting pavement performance as well as a visual summary of pavement distresses encountered at the site; and
 - Pavement reconstruction design recommendations.

Also included in our report will be culvert recommendations. This will include bearing capacity and construction considerations for the three low water crossings. A global stability analysis and bridge foundation recommendations are not included as part of our scope.

Schedule

1. Submit Report to City of Seguin for Review and Approval - Project setup, boring location, obtaining permits and conducting the pavement distress survey will take approximately 12 working days. Drilling and sampling will take approximately 5 working days and laboratory testing will take an additional 15 working days (Texas Triaxial and Lime Series testing can take up to 3 weeks). Data review, pavement design, and development of the DRAFT report will take an additional 10 working days. The DRAFT report will be submitted to the Client to provide to the City for review and comment.
2. Modify Report Per Comments Received - Comments from the City will be addressed as required and a final design report will be provided.

The final report will be produced as a PDF and will be provided electronically via email.

110.5. Traffic Study. The Engineer will prepare a Traffic Study on Cordova Road from SH 46 to SH 123 to support the PS&E development for Cordova Road. The intersections of SH 46, Cordova Loop/Cordova Crossing, Barbarosa, Huber Road (CR 105) and SH 123 will be analyzed. The traffic study task includes the following services:

1. The Engineer will perform a Field Visit during the peak periods to document posted speed and actual travel speeds, traffic operations, queuing, geometry, number of lanes, traffic control, site distance, and pedestrian and bicycle movements. Field observations will be documented in the traffic study including photos.
2. The City will provide the Engineer with the following traffic counts during the peak weekday periods:
 - a. 4-hour Turning Movement Counts:
 - i. Cordova Road and Cordova Loop/Cordova Crossing
 - ii. Cordova Road and Barbarosa
 - iii. Cordova Road and Prairie Jet
 - b. 12-hour Turning Movement Counts:
 - i. Cordova Road and SH 46
 - ii. Cordova Road and Huber Road (CR 105)
 - iii. Cordova Road and SH 123
 - c. 24-Hour ADT Counts:
 - i. Cordova Road, between SH 46 and Huber Road
 - ii. Cordova Road, between Huber Road and SH 123
3. The Engineer will develop corridor level average daily and peak hour traffic projections for existing year, opening-year (assumed to be 2025), design-year (opening year +20, assumed to be 2045) and pavement design year (opening year +30, assumed to be 2055). Travel forecasts will be based on linear traffic growth rates, extrapolation of historical counts, MPO traffic demand forecasts and know development projects in the study area. Annual growth rates will be applied to existing traffic count data to produce opening year, design year, and pavement design year projections and line diagrams. The developed traffic projections results and assumptions will be summarized in the traffic analysis summary report and will be used in the preliminary screening and synchro models.
4. The Engineer will perform a traffic analysis using the information collected in parts a-c. The following items will be included in the traffic analysis:
 - a. Safety Analysis – data from City of Seguin and historical crash data (2017-2021) will be downloaded from the TxDOT C.R.I.S. system and reviewed for crash severity, manner of collision, contributing factors, and corridor crash rate will be compared to statewide average for similar facilities. A predictive crash analysis will be prepared using the HSM analysis tools for two-lane and multi-lane roadways.
 - b. Screening of alternatives – FHWA Cap-X and proven safety countermeasure tools will be used to determine preliminary intersection treatments.

- c. Synchro Analysis – A Synchro/Simtraffic analysis will be performed for the Existing, No Build-20 Year, Build-20 year for the peak periods to determine the recommended alternative. Up to 3 alternatives will be included in the analysis. Simtraffic will be used to compare measures of effectiveness for different alternatives including delay, stops, fuel consumed, and travel speeds to provide a benefit/cost ratio and determine turn lane lengths at intersections.
- d. Warrant Study – Traffic signal warrant studies are not included in this scope. Engineer will provide conduit layout for future signalization at Cordova Road/Huber Road intersection.
- e. Summary Report – The Engineer will prepare a Traffic Analysis Summary Report summarizing the field visits, data collection, traffic projects, traffic analysis including any assumptions, results and recommendations.

Task 120 – SOCIAL/ECON/ENVIRON STUDIES

SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT

120.1 TxDOT Public Meeting

The Engineer will prepare for and participate in one TxDOT public meeting to support the team with respect to environmental and cultural studies. This meeting will be limited to attendance for environmental support only.

120.2 NEPA– TxDOT Categorical Exclusion Support (BASE SERVICES)

In the event federal transportation funds are sought through the Metropolitan Planning Organization, or work will occur in TxDOT-owned right-of-way, TxDOT environmental compliance will be required. The Engineer anticipates that that the project could be cleared as an Open-Ended (d) Categorical Exclusion (CE) if certain criteria are met (i.e. less than 30 acres of new ROW and less than 10 total displacements, which are to be determined).

TxDOT Scoping

The Engineer will prepare a detailed project description in consultation with City for use by the TxDOT Core Team and for discussion during the scoping meeting. A *Project Scope for Environmental Review Documents* and a *Scope Development Tool* will be completed and distributed prior to the meeting with the TxDOT San Antonio District. The Engineer will prepare for and attend one kickoff meeting with the City, as well as one scoping meeting with TxDOT and City to identify potential issues, required agency coordination, and technical studies that may be required. This task also includes conducting follow up

items after the City kickoff and TxDOT scoping meetings including revisions to scoping documents, preparation of a detailed Project Description and Purpose and Need statement for TxDOT review.

Technical Studies/Reports and Supporting Documentation

It should be noted that CE approvals do not involve preparation of a “document.” TxDOT renders a CE approval decision based on the various environmental studies and technical reports and completion of public involvement activities. The following “base” environmental tasks are anticipated for this project. These activities are subject to change once (a.) TxDOT becomes engaged following AFA execution and (b.) TxDOT staff enters proposed project design elements into ECOS, which defines specific deliverables required for environmental clearance.

Technical Reports: As part of CE clearance activities, The Engineer will prepare the following checklists, forms and technical reports, which TxDOT will upload into their environmental tracking system (ECOS) for technical review by agency staff.

- Air Quality Conformity Report Form: The Engineer will prepare an Air Quality Technical Report in accordance with TxDOT's *Environmental Handbook - Air Quality* and the agency's *Standard Operating Procedure for Preparing Air Quality Statements*. The report will demonstrate compliance with the Clean Air Act (CAA), NEPA, and the Federal-Aid Highways Code relating to potential project-related effects that may be caused by the project. The Engineer will complete a qualitative air quality analysis, including discussion of National Ambient Air Quality Standards and transportation conformity, qualitative discussion of Mobile Source Air Toxics, congestion management process, and construction and post-construction emissions.
- Archeology Background Study: The Background Study will consist of a comprehensive review of records that pertain to the proposed project area or Area of Potential Effect (APE). Specifically, during the background study, The Engineer will consult the available resources from the Texas Historical Commission (THC), site files, and maps will be examined to gather more detailed information regarding the project area and its immediate vicinity. In addition, aerial photos, topographic maps, geologic maps, and soil survey maps will also be reviewed to provide information on land use, topography, soils, vegetation, geology, and levels of development within the project vicinity. The goal of the background study is to determine the likelihood that the project will impact significant historic cultural resources (prehistoric and historic archeological sites). Significant historic cultural resources may consist of standing structures and/or prehistoric cultural deposits that have the potential to be listed on the National Register of Historic Places and to be formally designated as State Antiquities Landmarks. The desktop study will result in the

production of a report, summarizing the resources consulted, the findings of the review, and recommendations regarding any additional field investigations that may be warranted prior to the inception of the development activities. The document will be submitted to the City to submit for review. Once the City has reviewed the report, and all comments addressed, The Engineer will produce a final version of the background study to submit to the Texas Department of Transportation (TxDOT). The submittal can be done by the City or by The Engineer, depending on the City preference. TxDOT will have final determination on the appropriate level of effort needed to comply with the Antiquities Code of Texas and if needed Section 106 of the NHPA (National Historic Preservation Act).

- Archaeological Pedestrian Survey: If the recommendations of the Background Study consist of additional field investigations, and if the THC and TxDOT review concur with these recommendations, The Engineer will perform a cultural resources survey of 100% of the portions of the APE that will be impacted by the planned development. This APE will include all portions of the project area that fall within the limits of the proposed construction, as well as the buffer zone required by the USACE. Prior to the cultural resources survey, The Engineer archaeologists will prepare the archeological Scope of Work (SOW). To a large extent, the SOW will consist of the Background Study and its recommendations. Additional text will describe the details of the field investigations, analysis procedures, and technical reporting considerations. During the archeological investigations, Engineer will adhere to a non-collect artifact policy. Once the appropriate acceptance of the SOW is received, the cultural resources survey will be initiated and will be accompanied by shovel testing. Following the completion of the field work, the archaeologists will produce a technical report in accordance with the Council of Texas Archeologists (CTA) *Guidelines for Cultural Resources Management Reports*. Project generated documents will be kept on file at the Engineer's Archaeological Laboratory. The technical report of findings will detail the field and laboratory methodologies employed, and the results of the investigations, as well as recommendations regarding the NRHP and SAL eligibility of any deposits encountered within the project APE. The draft technical report will be submitted to the Client for review prior to being submitted to TxDOT and/or the THC for their review.
- Indirect Impacts & Cumulative Impacts Analyses: The Engineer will prepare a *Risk Assessment for Indirect Impacts* and a *Risk Assessment for Cumulative Impacts* for review by TxDOT, and conduct detailed analyses, if needed. The analyses will follow TxDOT's latest multi-step guidance for each, as well as other TxDOT-cited references.
- Species Analysis Spreadsheet and Form: The Engineer will evaluate all pertinent ecological data to adequately complete the Species Analysis Form

and Species Analysis Spreadsheet. This will include a review of Endangered Species Act compliance, Bald and Golden Eagle Protection Act, Migratory Bird Protection, and other considerations. Supporting documentation will be provided (e.g. TPWD Natural Diversity Database, USFWS Critical Habitat Map data, USFWS Information for Planning and Consultation, etc.). This work will be conducted by a qualified biologist

- Hazardous Materials Initial Site Assessment: The Initial Site Assessment (ISA) will be conducted with the objectives of 1) identifying and assessing potentially contaminated sites early in project development, 2) coordinating early with federal/ state/ local agencies to assess the contamination and the cleanup needed; and 3) determining and implementing measures early to avoid or minimize involvement with substantially contaminated properties. The Engineer will complete the ISA and attach applicable figures and appendices (e.g. Project Location Map, USGS Topographic Map, Historical Aerial Photographs, Project Schematic, Regulatory Database, Historical Topographic Maps, Fire Insurance Map Report, City Directory Report, and Site Photographs). Requirements for addressing hazardous materials as they relate to the NEPA process will be addressed in accordance with TxDOT's *Environmental Handbook for Hazardous Materials*.
- Project Coordination Request for Historic Studies: A Project Coordination Request for Historic Studies (PCR) will make recommendations for the completion of formal pedestrian and historic standing structure surveys. If upon review of these documents, the TxDOT Environmental Affairs Division concurs with the recommendations, the appropriate permit will be obtained for the completion of these aforementioned surveys and subsequent reporting.
- Community Impact Assessment: The Engineer will prepare a technical report related to community impacts, which will include the following elements:
 - Community Profile: Population and Demographic Characteristics: U.S. Department of Commerce, Bureau of the Census information will be obtained and summarized within appropriate cartographic boundaries. This will include an analysis of census-derived income and poverty characteristics, as well as race and origin data for the project area. Once demographics are adequately identified, this data will be reviewed in order to identify whether any of the above populations would receive disproportionate adverse impacts as a result of implementing the project. Public facilities, meeting places, transportation, and other community amenities will be identified.
 - Displacements: A detailed description of anticipated displacement will be included, as well as a discussion of compliance with the Uniform

Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act).

- Travel Pattern and Access: This section will describe potential temporary and permanent impacts to travel patterns and access in the project area, and how this might impact the community.
 - Community Cohesion: Based on public information, the field visit, and public involvement results, the document will define the community's characteristics and identify whether the project has the potential to adversely impact community cohesion in the vicinity.
 - Environmental Justice: Using published demographic data, minority and low income populations will be identified in order to assess whether the project will result in disproportionately adverse impacts on such populations.
 - Limited English Proficiency: U.S. Census Bureau data for English-speaking proficiency will be reviewed in order to identify the presence of non-English speaking persons and to appropriately plan for public involvement activities.
 - Utilities and Emergency Services: This section will describe any project-related impact to utilities and access for emergency services.
- Traffic Noise Analysis and Technical Report: This report will include a summary of the traffic noise analysis that will be accomplished in accordance with TxDOT's (FHWA-approved) *Guidelines for Analysis and Abatement of Roadway Traffic Noise* (2011) and TxDOT's *Environmental Handbook for Traffic Noise* (2016). The Engineer will conduct the following activities:
 - Conduct a field survey to identify the traffic noise receivers.
 - Determine the existing traffic noise levels and the predicted traffic noise levels using the latest version of FHWA's Traffic Noise Model (TNM) to calculate existing and predicted traffic noise levels at receiver locations. The traffic noise modeling and analysis will be conducted in accordance with 23 CFR 772 and TxDOT's *Guidelines for the Analysis and Abatement of Roadway Traffic Noise*. Traffic projections prepared by the Engineer and approved by TxDOT will be used in the TNM.
 - Determine if any receivers will be impacted, and, prepare a *Traffic Noise Technical Report* documenting the analysis. The report will include appropriate supporting figures showing impacted receiver locations, if any.
 - Submit the report to TxDOT for review and address two rounds of comments from TxDOT.
 - If traffic noise impacts are predicted to occur at one or more receivers, include consideration of traffic noise abatement measures to mitigate and/or abate the traffic noise impacts for each impacted receiver, and evaluate each proposed abatement measure for feasibility and

- reasonableness regarding traffic noise impact reduction.
 - If traffic noise abatement is proposed, participate in a TxDOT-led Traffic Noise Workshop with the adjacent property owner, which would inform the owner about any noise abatement proposal(s) and determine whether such measures are desirable to the owner.
 - Assist in addressing public comments from the Traffic Noise Workshop.
 - Prepare a Traffic Noise Workshop Summary Report documenting the workshop process and outcome.
- Surface Waters Analysis and Section 404 Impact Table: This documentation will address Section 404 of the CWA: Waters of the U.S., Section 401 of the CWA: Water Quality Certification, Executive Order 11990, Wetlands, Rivers and Harbors Act of 1899, Section 10, General Bridge Act/Section 9 of the Rivers and Harbors Act, Section 303(d) of the CWA, Section 402 of the CWA: Texas Pollutant Discharge Elimination System and MS4, Floodplains, and Edwards Aquifer. Once design information is available, the 404 impacts table will capture temporary and permanent impacts and describe require permits, if any.
 - Potential Waters of the U.S. Determination/Delineation: Using TxDOT's *Waters of the U.S. Delineation Report Template*, the Engineer will conduct field investigations and prepare a Waters of the U.S. (including wetlands) delineation report in accordance with current federal delineation methodology including the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and 2010 Regional Supplement for the Great Plains Region. The Engineer will identify and delineate the boundaries of potential waters of the U.S., including special aquatic sites (e.g., wetlands), and collect representative wetland sample data points. If no wetlands features are readily observed in the field, Wetland Determination Data Forms will be completed to document negative findings. Any identified stream/wetland boundaries will be surveyed using a survey-grade Global Positioning Satellite (GPS) system.
 - Environmental Permits, Issues, & Commitments (EPIC) Sheet: Based on studies completed, and identified permits and commitments, the Engineer will complete an EPIC sheet for inclusion in the project plans.

The Engineer will address TxDOT comments on all technical reports and documentation through environmental approval to include two rounds of comments from City and three rounds of comments from TxDOT.

120.3 Section 404 Nationwide Permit PCN

Should the project impact greater than 0.1 acre of any wetland, it will require a pre-construction notification (PCN) to the U.S. Army Corps of Engineers (USACE). The Engineer will prepare a PCN for the appropriate Nationwide Permit following the USACE Fort Worth District's application process. This scope includes permit application seeking coverage under Nationwide Permit 39 (NWP 39 for Commercial and Institutional Developments). The Engineer will complete the application and coordinate with City for pertinent project information and required data. Such data includes information regarding project location, applicant, property ownership, project impacts and mitigation (See Limitations), and supporting graphics for the agency's review. The application will be submitted to City for review and signature prior to submitting to the USACE.

This task also involves coordinating required drawings with City, obtaining adjacent property owner contact information, compiling required figures and attachments, GIS support activities for required drawings, conducting quality reviews, clerical support, and addressing two rounds of comments each from City and the USACE.

120.4 Environmental Coordination. This item represents an allowance and allotment to account for time not specifically required for design purposes:

- Preparation of exhibits in support of meetings, as requested.
- Coordinate environmental team to meet schedule and deliverables.
- Attend project coordination meetings.
- Coordination and status reporting with client.
- Includes site visits with client and/or client representatives.
- Coordinate project development with client and project engineers
- Prepare invoicing and progress reports

120.5 Environmental Limitations

- Only those environmental activities specifically described in Section 120 are included in this scope.
- Right-of-Entry will be obtained by the Engineer for environmental studies.
- Archaeological budget is based on an approximate 3.5-mile corridor within a 75-foot ROW. If proposed ROW exceeds 100 feet, field archaeology effort will be affected, and a supplemental authorization would be needed.
- The scope of work for NEPA Compliance assumes that a CE will be appropriate for the proposed project and that TxDOT will not require an Environmental Assessment (EA). If during scoping or performance of technical studies, TxDOT determines that an EA is appropriate, a change order will be requested.
- This scope of work assumes that an NWP would be appropriate for the project. It does not include the preparation of an Individual Permit (IP) or any compensatory

mitigation activities (e.g. stream condition assessment, mitigation bank coordination, etc.).

- A Phase I Environmental Site Assessment is not included in this scope.
- The scope of work includes CE support activities only. Should TxDOT determine that an Environmental Assessment (EA) level analysis and document is needed, this would be considered an additive alternate, requiring a supplemental authorization.

120.6 Optional Environmental Assessment

In the event TxDOT requires an Environmental Assessment (EA), the Engineer will prepare the document in accordance with Environmental Handbook - Preparing an Environmental Assessment and the latest Environmental Assessment Outline. In addition to summarizing the technical studies described above, this task involves conducting additional analyses and preparing appropriate document sections. These may include the following detailed sections:

- Introduction
- Project Description
 - Existing Facility
 - Proposed Facility
 - Logical Termini and Independent Utility
 - Planning Consistency
- Purpose and Need
 - Need
 - Supporting Facts and/or Data
 - Purpose
- Alternatives
 - Build Alternative(s)
 - No-Build Alternative
 - Preliminary Alternatives Considered but Eliminated from Further Consideration
- Affected Environment and Environmental Consequences
 - Right-of-Way/Displacements
 - Land Use
 - Farmlands
 - Utility Relocation
 - Bicycle and Pedestrian Facilities
 - Community Impacts
 - Visual/Aesthetic Impacts
 - Cultural Resources
 - Archeology
 - Historic Properties

- Protected Lands
- Water Resources
 - Clean Water Act Section 404
 - Clean Water Act Section 401
 - Executive Order 11990 Wetlands
 - Rivers and Harbors Act
 - Clean Water Act Section 303(d)
 - Clean Water Act Section 402
 - Floodplains
 - Wild and Scenic Rivers
 - Coastal Barrier Resources
 - Coastal Zone Management
 - Edwards Aquifer
 - International Boundary and Water Commission
 - Drinking Water Systems
- Biological Resources
 - Impacts to Vegetation
 - Executive Order 13112 on Invasive Species
 - Executive Memorandum on Environmentally and Economically Beneficial
 - Landscaping
 - Impacts to Wildlife
 - Migratory Bird Protections
 - Fish and Wildlife Coordination Act
 - Bald and Golden Eagle Protection Act of 2007
 - Magnuson-Stevens Fishery Conservation Management Act
 - Marine Mammal Protection Act
 - Threatened, Endangered, and Candidate Species
- Air Quality
- Hazardous Materials
- Traffic Noise
- Induced Growth
- Cumulative Impacts
- Construction Phase Impacts
- Greenhouse Gas and Climate Change*
 - Statewide On-road GHG*
 - Mitigation Measures*
 - TxDOT and a Changing Climate*
- Agency Coordination
- Public Involvement
- Post-Environmental Clearance Activities and Design/Construction Commitments
 - Post-Environmental Clearance Activities
 - Design/Construction Commitments
- Conclusion

- References
- Names and Qualifications of Persons Preparing the EA or Conducting an Independent Evaluation of the EA

Appendices In addition to the above, the Engineer will address comments from the State and will prepare a draft Finding of No Significant Impact (FONSI).

120.7 Public Involvement

The Team will develop and implement a public involvement program to support the team with respect to environmental and cultural studies. All public involvement activities will be conducted in accordance with the National Environmental Policy Act.

Design Phase:

Stakeholder Communications

The Engineer will develop a stakeholder database including a mailing list of stakeholders adjacent to the project. The list will be supplemented with other key stakeholders such as nearby schools, businesses and other interests that may be impacted by the project and will be updated as new stakeholders are identified. The database will be used to disseminate information about the project, opportunities for input, and notification of meetings.

The Engineer will communicate with stakeholders throughout the project duration to provide details on the design process, how to participate in project development, and updates on the progress. The Engineer will respond to questions and comments from stakeholders and the public via phone or email and will log all communications in the stakeholder database.

The Engineer will arrange and facilitate meetings with property owners or stakeholder groups as needed to support project understanding and coordinate regarding issues such as impacts to individual property.

Deliverables:

- Stakeholder database in Excel format
- Stakeholder outreach with documentation
- Responses to questions and comments with documentation
- Planning and facilitation of up to ten (10) stakeholder meetings and up to four (4) days of office hours
- Stakeholder meeting materials
- Stakeholder meeting summaries

Project Materials

The Engineer will review materials developed by the City and provide suggestions on materials needed.

Deliverables:

- Review materials and project website (2 rounds)

Public Meetings

The Engineer will plan and facilitate up to two (2) public meetings to share project information with and collect feedback from the public. CD&P will develop print and digital materials, presentations, and exhibits for public viewing and distribute meeting notices to affected property owners, elected officials, stakeholders, school districts, local affected agencies, utility owners, and any other individuals who have shown interest in the project. Meetings may include a virtual component depending on the topic and logistics.

Deliverables:

- Meeting planning (logistics, location, facility prep)
- Meeting announcements such as email notices, signage, calling civic group contacts, etc. (in English and Spanish)
- Meeting facilitation with at least one bilingual English/Spanish staff member
- Public meeting materials (invite, PowerPoint, exhibits, appropriate signage, sign-in and input collection tools e.g., survey, comment card, etc. in English and Spanish)
- Electronic version of public meeting materials for posting online
- Summary report and documentation

ROW, Utility, and Construction Phase:

Stakeholder Communications

The Engineer will maintain and update the stakeholder database as new contact information is available. The database will be used to disseminate information about the project and construction activities.

The Engineer will communicate with stakeholders throughout the project duration to provide details on the project, construction activities and schedule, lane closures, and traffic shifts. The Engineer will respond to questions and comments from stakeholders and the public via phone or email and will log all communications in the stakeholder database. Updates will be shared through emails, flyers, media releases, social media, and community meetings (meeting at the beginning and middle of construction).

Deliverables:

- Stakeholder database in Excel format
- Stakeholder outreach with documentation
- Responses to questions and comments with documentation
- Planning and facilitation of up to two (2) community meetings

Project Materials

The Engineer will share recommendations for materials needed and review materials and website content.

Deliverables:

- Review materials and project website (2 rounds)

Task 130 – RIGHT-OF-WAY (ROW) DATA

130.1. Right-of-Way (ROW) Mapping. The Engineer will review and evaluate the proposed or existing right-of-way to verify that all construction staging and alignment considerations have been taken into account. The Engineer will notify the City in writing if it is necessary to obtain additional construction easements or rights-of-entry. The Engineer will be responsible for identifying and delineating any temporary construction easements in areas outside the City's Right of Way. The City will secure the necessary legal instruments.

130.2 The Engineer's Surveyor will pursue the right to enter private properties as necessary to complete on the ground surveys in order to prepare a right-of-way layout map and individual property descriptions for right-of-way acquisition. Property descriptions should include one or more parcel plats and corresponding legal description(s) (metes and bounds descriptions) suitable for the acquisition of real property interests and the probable issuance of a title policy.

All standards, procedures, and equipment used by the Engineer's Surveyor will be such that the results of the survey will be in accordance with Board Rule 663.15, as promulgated by the Texas Board of Professional Land Surveyors.

DEFINITIONS

For purposes of this Contract, the following definitions should apply:

- Property Description – A document prepared for the conveyance of a property interest, reflecting a boundary survey, monumented on the ground, signed and sealed by a Registered Professional Land Surveyor (RPLS), and consisting of the following two (2) parts:

- A written metes and bounds description delineating the area, boundary and location of an individual parcel of land, unique to all other parcels of land.
- A parcel plat – An 8 ½ inch by 11 inch drawing to scale depicting an individual parcel of land to be acquired, suitable to determine title and to delineate areas and boundaries. Utilities and improvements should be shown to the extent necessary to appraise the value and negotiate the acquisition for the proposed right-of-way project
- Owner – The most current title holder of record as determined by a study of the Real Property Records.
- Parent Tract – A unit or contiguous units of land under one ownership, comprising one single marketable tract of land consistent with the principle of highest and best use.
 - A parent tract may be described by a single instrument or several instruments but remain unsevered by a public right-of-way, easement, or separate ownership which destroys unity of use.
- Point of Beginning (P.O.B.) – A corner of the parcel of land to be acquired, located on the proposed right-of-way line and being the beginning terminus of the first course of the property description.
- Point of Commencing (P.O.C.) – A monumented property corner which can be identified in the Real Property Records and is located outside the proposed right-of-way corridor. P.O.C. should be a monumented back corner of the parent tract. If a monumented back corner of the parent tract cannot be recovered, the nearest identifiable monumented property corner located outside the proposed right-of-way corridor will be used.
- Right-of-Way Layout Map – A drawing to scale depicting the proposed right-of-way lines; existing right-of-way lines as determined by research, field recovery, and RPLS analysis; proposed centerline alignment, private property lines as determined by record in areas of no acquisition and by research, field recovery, and RPLS analysis in areas of proposed acquisition; easement lines adjacent to or intersecting the proposed or existing right-of-way lines, and locations of each proposed acquisition parcel along with acquisition information summarized in table format.

DELIVERABLES

1. Right-of-Way layout map of Cordova Road from SH 46 to SH 123, to include the adjacent 200-feet of intersecting rights-of-way.
2. Up to 30 property descriptions.
3. PDF copies of record documents (deeds, plats, and easements) obtained in the course of preparing the right-of-way layout map and property descriptions, named according to volume-page or document number.
4. PDF copies of rights-of-entry received, linked within an Ownership database.
5. Surveyor's Report describing methods used and results obtained.

130.2. Utility Adjustment Coordination and Engineering. The Engineer will determine the location of each existing and proposed utility based on available records and provide the City supporting information, including potential utility conflicts, for utility coordination meetings to be conducted by the City. In preparing the City for such meetings, the Engineer will identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts. Utility Adjustment Coordination should include utility coordination meetings with individual utility companies, communication and coordination with utilities.

1. Utility Coordination

The Utility Coordinator will perform utility coordination and liaison activities with involved utility owners, their consultants, the City and the State to achieve timely project notifications, formal coordination meetings, conflict analysis and resolution during the 42-month project schedule.

- a. The Utility Coordinator will coordinate all activities with the City, or their designee, to facilitate the orderly progress and timely completion of the City design phase and utility construction. The Utility Coordinator will be responsible for the following:
 - i. Workplan. Coordinate a work plan including a list of the proposed meetings and coordination activities, and related tasks to be performed and a schedule. The work plan must satisfy the requirements of the project and must be approved by the City prior to commencing work.

- ii. Initial Project Meeting. Attend an initial meeting and an on-site inspection (when appropriate) to ensure familiarity with existing conditions, project requirements and prepare a written report of the meeting.
 - iii. External Communications. The Utility Coordinator will coordinate all activities with the City and its consultants or other contractors or representatives. Also, the Utility Coordinator will provide the City copies of diaries, correspondence and other documentation of work-related communications between the Utility Coordinator, utility owners and other outside entities when requested by the City.
 - iv. Progress Meetings. The Utility Coordinator will implement a schedule of periodic meetings with each utility company and owner or owner's representatives for coordination purposes (5 meetings per utility company, not to exceed 60 meetings). Such meetings should commence as early as possible in the design process and should continue until completion of the project. The Utility Coordinator will hold 1 joint milestone meeting at each design phase (30%, 60%, 90% and final). The Utility Coordinator will provide and produce meeting minutes of all meetings with said utility companies, owners or owners' representatives within seven (7) business days.
- b. As required by the City the Utility Coordinator will coordinate with the local utilities committees to present a foot print of the City's projects with represented utility companies and owners. The Utility Coordinator will also coordinate with any other utility committees which may include county, city, or other officials, if needed. This is a max of 3 meetings.
- c. The Utility Coordinator will provide the City and all affected utility companies and owners a Utility Contact List for each project with all information such as: (i) Owner's Name; (ii) Contact Person; (iii) Telephone Numbers; (iv) Emergency Contact Number; (v) E-mail addresses.
- d. The Utility Coordinator will advise utility companies and owners of the general characteristics of the Project and create an illustration of the project footprint for mark-up of the utility facility locations that occupy the project area. This illustration will be sent at project kickoff.

- e. **Utility Certification and Special Provisions.** The Utility Engineer will submit upon request a Utility Certification or a Special Provisions report. The Utility Certification or Special Provisions report will certify that all utilities are clear for highway construction. However, if the utility adjustments are not complete prior to highway project letting, a Special Provision should be required outlining all outstanding utility conflicts and their effects on highway construction. Furthermore, a Utility Clearance schedule, signed by the utility owner should be provided with the certification as noted above. The formats for the Certification and the Clearance schedule will be provided by the State.

2. UTILITY ENGINEERING

Utility Engineering includes the identification of utility conflicts, coordination, compliance with the UAR, and resolution of utility conflicts. The Engineer will coordinate all activities with the City, or the City's designee, to facilitate the orderly progress and timely completion of the City's design phase.

A. COORDINATION OF ENGINEERING ACTIVITIES

1. **Utility Layout:** The Engineer will maintain a utility layout in the latest version of Micro Station. This layout (20 sheets) should include all existing utilities which are to remain in place or be abandoned, and all adjusted utilities. This layout should be utilized to monitor the necessity and evaluate alternatives. The Utility Engineer will utilize the layout of existing utilities as prepared, if available, and make a determination of the following:
 - a. Facilities in conflict with the proposed project that are to be relocated.
 - b. Facilities to be abandoned in place.
 - c. Facilities to remain in service and in place as a result roadway design adjustment and meeting the current UAR.
 - d. The Utility Engineer will be responsible for determining if there are additional facilities, not shown in the Subsurface Utility Engineering (SUE) documents, which require relocation. The Engineer will coordinate this information with the City immediately upon discovery.
2. Evaluate existing utilities and determine initial conflicts.
3. Prepare and maintain Utility Conflict Matrix (UCM).

B. REVIEW OF UTILITY'S PROPOSED ADJUSTMENTS

1. Evaluate Alternatives: The Utility Engineer will evaluate alternatives in the adjustment of utilities balancing the needs of the City, State and the Utility.
2. Review Estimates and Schedules: The Utility Engineer will review the utility adjustment estimates for reasonableness of cost and the timely scheduling of the adjustment.
3. The Utility Engineer will review plans for compliance with Utility Accommodation Rules and proposed location data. The responsibility for quality and accuracy of Utility adjustment plans will remain with the Utility Company.
4. Review and verify periodically the construction of the utility construction according to the utility companies' plans, including survey, SUE, and periodic construction observation. This includes 1 site visits per month for 18 months of utility relocations

Deliverables:

The Engineer will provide the following deliverables for the appropriate assigned task:

- Record of correspondence with utility companies and their representatives.
- Utility certifications and special provisions.
- Meeting minutes and sign-in sheets.
- Regularly updated (throughout project) and final Utility Conflict Matrix.
- Regularly updated (throughout project) and final signed and sealed utility layouts.
- Regularly updated (throughout project) and final utility adjustment/relocation schedule.

Task 131 – RIGHT OF WAY ACQUISITION

All members of the ROW Team are required to follow the guidelines set forth:

- Establish a rigorous and orderly framework for the ROW project's implementation in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the Uniform Act or URA), and all current amendments to the Uniform Act.
- Demonstrate the existence of a realistic plan to meet the administrative, technical, coordination and construction requirements of project, as well as delivering the project in accordance with the construction letting schedules; and

- Promote teamwork among all project participants

The ROW Team will provide project ROW administration, title and closing, negotiations, relocation, condemnation support services, and real estate appraisal and review appraisal oversight. In addition, we will be responsible for providing the initial Right of Entries for environmental and survey.

The ROW Team will follow a filing system and electronic document controls system in a format that is acceptable and approved by the city of Seguin. These systems will contain all project related information and parcel related information to include property owner name and contact information, payment information, all correspondence with property owners and displaces, etc.

The communications of the ROW Team take a variety of forms to ensure that every team member receives project information in a timely and accurate manner.

The ROW Team will participate in regularly scheduled meetings throughout the month to coordinate project activities and priorities. The meetings include:

- Weekly status meetings with the ROW Team
- ROW Coordination Status meetings with the city of Seguin or their consultants as required.
- These meetings will be held to discuss status, schedule, risks, and actions necessary to maintain schedule.

The ROW Team produces several internal reports that detail and track the project status. These include:

- Initial property owner contact list for use in distribution of introduction letters or as determined necessary by the city of Seguin.
- Weekly activity reports.
- Monthly progress reports of completed tasks.
- Parcel status reports

A tracking tool will be used to monitor the process and ensure schedule adherence.

The ROW acquisition is subject to the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the Uniform Act or URA), and all current amendments to the Uniform Act. The Uniform Act is the standard for Federal and federally funded real property acquisition programs. The Office of Real Estate Services of the Federal Highway Administration (FHWA) is the lead agency concerning all Uniform Relocation Assistance and Real Property Acquisition policies and related issues. All current TxDOT regulations, policies, and procedures as set forth in its current Right of Way manuals will

be applicable. The Pinnacle ROW Team will observe all other applicable Federal and State laws, as well as sound business and management principles.

The ROW Team will be responsible for all the required activities of the ROW process to complete the purchase of all real property or real property interests in the proposed highway facility.

The ROW Team acts as the city of Seguin's managing agent throughout the ROW acquisition process. The City of Seguin will be the ultimate recipient (grantee) of all ROW acquired for this highway facility.

The ROW Team provides qualified and experienced personnel to accomplish the management and performance of services for the various ROW disciplines. In addition to the extensive ROW experience of the team, there are fundamental strategies that will be implemented to reduce risk and ensure that the schedule is met. The Pinnacle ROW Team intends to have possession of all parcels prior to their construction letting dates. As part of this process, the ROW Team will implement the following:

- Identify and prioritize long lead parcels, and the risks associated with their acquisition, such as,
 - Residential displacements in a rural area with limited comparables;
 - Services stations that include removal of Underground Storage Tanks (USTs);
 - Business Displacements;
 - Parcels with Title curative issues i.e. estates, heirships, multiple interest owners, trusts etc.;
 - Cell towers, sub-station, pipeline easements and electrical transmission lines
- Assign appraisers to like properties to promote consistency in values
 - Residential
 - Vacant
 - Commercial improved
- Instruct the appraisers to identify personal vs. real property using the Property Classification Agreement (Form A-9) and tenant owned improvement.
- Initiate and maintain written communications and personal contact with the property owners and/or displaces from the onset of the ROW acquisition process. Be available and responsive.
- Secure a Notice of Intent to acquire on certain parcels that would allow us to initiate the relocation assistance process before the initial offer has been made.
- Initiate the dual process by conducting negotiations/condemnation currently on parcels that cannot be negotiated. These would include parcels that have title matters that cannot be cured or parcels where negotiations or administrative settlements were not successful.
- Early contact with Courts to discuss process and anticipated number of ED Parcels.

Management

- Prepare initial property owner contact list for use by the city of Seguin
- Attend status meetings with appropriate Project Personnel. Date, required attendees, time and location are determined by the city of Seguin.
- Provide a bi-monthly written report to the city on the status of service tasks completed and service tasks remaining in order to bring each parcel into possession
- Coordinate with the appropriate city staff and Contractors that have the responsibility of clearing the right of way after parcels become acquired.
- Maintain working files in the project management office.
- Electronically submit all documents generated or received to the city. Upon closing of a parcel, Pinnacle will transfer to the city office all remaining documents not previously submitted in a format type determined by the city.
- Maintain records of all payments including, but not limited to, warrant/check number, amount, and date paid.
- Maintain copies of all correspondence and contacts with property owners.

Right of Entry

- Conduct initial property owner discussions of project
- Deliver the property description to the owner
- In the event a Right of Entry is not granted by the property owner, submit a contact log to the city documenting the correspondence with the property owner
- Prepare required Right of Entry form to be signed and delivered to the city.
- Right of Entry forms will be on City letterhead and will be delivered to property owners by mail.

Negotiations

- Analyze preliminary Title Commitment report to determine potential title problems, propose and inform the city of methods to cure title deficiencies.
- Analyze appraisal and appraisal review reports and confirm the city's approved value prior to making an offer for each parcel.
- Issue property description of the acquisition area to the property owner.
- Prepare all documents required or requested by the city on applicable city forms. (i.e.; the initial offer letter, memorandum of agreement, instruments of conveyance)

- Send the written offer, appraisal report and required brochures to each property owner or the property owner's designated representative through CMRRR; maintain coordination of all closing activities, including but not limited to following-up on contacts and securing the necessary instruments upon acceptance of the city's offer; and retain copies of the unsigned CMRRR receipt and the appraisal as support for billing purposes.
- Provide closing services in conjunction with the title company and should be required to attend closings. In the event of a closing by mail, title work must be reviewed prior to the closing by mail and again prior to recording of the instrument.
- Advise property owner of the administrative settlement process, assist them with the preparation of a counteroffer package, and should transmit to the city any written counteroffer from property owners including applicable city forms, supporting documentation and written comments with regard to Administrative Settlements in accordance with city policy and procedures.
- Secure a final title policy for all parcels acquired, insuring acceptable title to the city. Title and title policy services are considered pass-through costs payable by the city to the contracted title company.

Condemnation services will be performed on as needed basis and at the direction of the city. The city will reserve the right to modify condemnation services for the proposal and contract currently in place.

Relocation Assistance Services for Residential, Business, Personal Property

- If the city directs to cease all Contract services and terminate a contract through no fault of the Acquisition Provider, Acquisition Provider will work with the city to determine if each relocation is to proceed or letters rescinding relocation benefits are to be sent.
- Team will notify all city approved Displacees of eligibility for relocation assistance. At the time of initial contact, Team will provide Displacees, that are approved by the city, with a Relocation Assistance Packet consisting of the following approved forms:
 1. Parcel advisory services record
 2. Certificate of eligibility
 3. Relocation Assistance Brochure
- Provide on-going relocation assistance and advisory services to Displacees affected by the acquisition of right of way and deliver required city forms to local office that are signed by the Displacee. On-going advisory services include monitoring the move and any necessary relocation activities taken by the Displacee. Frequency and manner for monitoring the move must match the complexity of the relocation, however, the expectation is multiple in-person site

visits, which is standard practice, and must be documented in the contact log portion of the required city forms to be submitted at close out.

- Locate, evaluate, and maintain files on comparable available housing as well as listings for non-residential properties, for the duration of the project. These files are subject to review by the city of as deemed necessary.
- Compute and submit the request for relocation housing/rental supplement to the city on the appropriate city forms with supporting photos attached for each property.
- Provide 90-day notice.
- Not deliver the 90-day notice prior to a personal interview with the Displacee during which time the Relocation Agent determines the type, needs, and eligibilities of the Displacee, or before the issuance of the initial offer.
- Provide 30-day notice to vacate once the city has possession of the property. The Displacee must be given a minimum of 90 days' notice prior to being required to vacate.
- Immediately notify the city if the Displacee does not vacate the premises after 30-day notice expires.
- Perform a decent, safe, and sanitary (DSS) inspection of replacement housing in accordance with city policy.
- Prepare all relocation claims on appropriate forms and in accordance with the city policies and procedures.
- Acquisition Provider will coordinate and monitor moves with displaced homeowners, business owners, tenants, and with moving companies in accordance with city procedures.
- Relocation Agent must maintain relocation contact logs on appropriate city forms journaling all attempted and completed contacts with all parties, including descriptions of the reasons and outcome for each contact. Copies of all Displacees' emails with date and time sent must be captured in relocation contact logs.
- Provide an executed certification of eligibility with all Displacee claims.
- The city must approve the timing and content of any notice to a Displacee concerning relocations prior to sending the notice.
- Prepare all relocation payment claim submissions for all Displacees in accordance with city guidelines.

Exclusions

The following exclusions have been identified and will not be included in the services to be provided:

- Clearing the ROW
- Utility Accommodation

Task 145 – MANAGING CONTRACTED/DONATED PE**PROJECT MANAGEMENT AND ADMINISTRATION**

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

The Engineer will coordinate all subconsultant activity to include quality of and consistency of plans and administration of the invoices and monthly progress reports.

The Engineer will:

- Prepare monthly written progress reports for each project.
- Develop and maintain a detailed project schedule to track project conformance.
- Meet on a bi-weekly scheduled basis with the City to review project progress.
- Prepare and distribute meeting minutes bi-weekly
- Document phone calls and conference calls as required during the project to coordinate the work for various team members.

Task 150 – Roadway Survey

The Engineer's Surveyor will direct field data acquisition and office compilation efforts, utilizing the right-of-entry permissions obtained under Function Code 130 (Right-of-way mapping), to map the unnamed tributary of the Guadalupe River within 600-feet of the Cordova road right-of-way and to complete a design survey of approximately 23 acres to include the Cordova Road right-of-way from SH 46 to SH 123, approximately 200-feet of intersecting rights-of-way, and within and 50-feet adjacent to areas of proposed acquisition.

Survey horizontal data will be based on the North American Datum of 1983 (NAD83), Texas Coordinate System of 1983 (State Plane Coordinates), established for the South Central Zone, with values in U.S. Survey Feet and adjusted to surface coordinates by applying (multiplying) grid coordinates by a surface adjustment factor of 1.00015.

Survey vertical data will be based on the North American Vertical Datum of 1988 (NAVD88), Geoid 12A, unless directed otherwise.

1. TASKS TO BE COMPLETED**3.1. Design Surveys**

The Engineer's Surveyor will perform the following tasks:

- i. Obtain or collect data to create cross-sections and digital terrain models
- ii. Obtain cross-section information along the unnamed tributary of the Guadalupe River from the Cordova Road right-of-way line to 600'-distant from the right-of-way line for hydraulic modeling.
- iii. Locate above ground evidence of existing utilities, including Texas811 locate marks, correlate to map information, and obtain top of stem or invert information if possible.
- iv. Locate topographical features and existing improvements such as signs, paint stripes, driveways, sidewalks, curbs, and ramps.
- v. Provide details of existing drainage features, (e.g., culverts, manholes, etc.).
- vi. Locate wetlands if marked in the field by an environmental team.
- vii. Establish additional and verify existing control points. Horizontal and Vertical control ties will be made and tabulated to other control points in the vicinity, which were established by other sources such as the Texas Department of Transportation, or National Geodetic Survey (NGS).
- viii. Locate boreholes.
- ix. Locate and tag trees 10-inches in diameter or greater within the project area.
- x. Document project control points within a Survey Control Index Sheet and Horizontal and Vertical Control Sheet(s), signed, sealed and dated by the responsible RPLS for insertion into the plan set.

2. DELIVERABLES

- i. Digital Terrain Models (DTM) and the Triangular Irregular Network (TIN) files in MicroStation 3D format.

- ii. Planimetric drawing in MicroStation 2D format with additional labeling, contours shown at 1-foot intervals, and all survey points on discrete levels for selective viewing.
- iii. "Point, Northing, Easting, Elevation, Description" format text files of field survey data points (ASCII Data files).
- iv. A utility company contact spreadsheet and associated Texas811 locate request numbers as well as maps, plats, plans, sketches, or other documents acquired from utility companies, private corporations, or other public agencies relevant to the survey.
- v. A signed and sealed PDF copy of the 11 inch by 17 inch survey control data sheets.
- vi. Site photographs.
- vii. All GEOPAK GPK files.

Task 160 - ROADWAY DESIGN

ROADWAY DESIGN CONTROLS

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

160.1. Geometric Design. The Engineer will:

- A. **Preliminary Geometric Project Layout.** The Engineer will develop a preliminary geometric project layout (Layout) for the full length of the project to be reviewed and approved by the City prior to the Engineer proceeding with the 30% milestone submittal package.

Preliminary layout will identify up to 2 design alternatives for alignments at the intersections of SH 46 and SH 123. Each will be developed based on traffic projections collected by the City.

The Layout must consist of a planimetric file of existing features and the proposed improvements within the existing and any proposed ROW. The Layout must also include the following features: existing and proposed ROW, existing and proposed horizontal and vertical alignment and profile grade line, cross culverts, lane widths, cross slopes, ditch slopes, pavement structure, clear zone, dedicated right turn lanes, corner clips, retaining walls (if applicable) guard rail (if applicable), and water surface elevations for 25yr and 100yr rainfall frequencies. Existing major subsurface and surface utilities should be shown on the Layout where known.

The Engineer will develop the proposed alignment to avoid the relocation of existing utilities as much as possible. The Engineer will consider Americans with Disabilities Act (ADA) requirements when developing the Layout. The Layout must be prepared in accordance with the current Roadway Design Manual developed by the Texas Department of Transportation. The Engineer will provide horizontal and vertical alignment of the project layout in English units. The Engineer will also provide proposed and existing typical sections with the profile grade line (PGL), lane widths, cross slopes, ROW lines, ditch shapes, and pavement structures, etc.

160.2. Roadway Design.

The Engineer will provide roadway plan and profile drawings using CADD standards as required by the City. The drawings must consist of a planimetric file of existing features and files of the proposed improvements. The roadway base map must contain line work that depicts existing surface features obtained from the schematic drawing. Existing major subsurface and surface utilities must be shown if requested by the City. Existing and proposed right-of-way lines must be shown. Plan and Profile must be shown on separate or same sheets.

The plan view should contain the following design elements:

- Calculated roadway centerlines for mainlanes and cross streets, as applicable. Horizontal control points should be shown.
- Pavement edges for all improvements.
- Lane and pavement width dimensions.
- Proposed structure locations, lengths, and widths.
- Direction of traffic flow on all roadways. Lane lines and arrows indicating the number of lanes must also be shown.
- Drawing scale should be appropriate for level of detail
- ROW lines and easements.
- Begin and end superelevation transitions and cross slope changes.

- Limits of riprap, block sod, and seeding.
- Existing utilities and structures, if known.
- Radii call outs, curb location, guard fence, crash safety items.
- ADA Accessibility Guidelines compliance items.

The profile view should contain the following design elements:

- Calculated profile grade. Vertical curve data, including “K” values
- Existing and proposed profiles along the proposed centerline.
- Water surface elevations at major stream crossing for 25 and 100 year storms.
- Drawing vertical scale to be appropriate for level of detail

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

160.4. Cross Streets. The Engineer will provide detailing on roadway plan and profile sheets of horizontal and vertical alignments, curb returns, geometrics, transition length, stationing, pavement, drainage details, and American with Disabilities Act Accessibility Guidelines (ADAAG) compliance items.

160.5. Cut and Fill Quantities. The Engineer will develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 100 foot intervals. Cross sections must be delivered in standard GEOPAK format on 11"x17" sheets and electronic files. Cross sections and quantities must include existing pavement removals. Annotation should include at a minimum existing and proposed ROW, side slopes (front & back), profiles, etc.

The Engineer will submit one set of drawings at the 90% and final submittals.

160.6. Plan Preparation. The Engineer will prepare roadway plans, profiles and typical sections for the proposed improvements. Prior to the 60% submittal, the Engineer will schedule a workshop to review profiles and cross-sections with the City. The profile and cross sections must depict the 25 and 100-year (if available) water surface elevations. The drawings will provide an overall view of the roadway and existing ground elevations with respect to the various storm design frequencies for the length of the project. This will enable the City to determine the most feasible

proposed roadway profile. The City will approve the proposed profiles, 3D corridor models, and cross sections before the Engineer continues with the subsequent submittals. This scope of services and the corresponding cost proposal are based on the Engineer preparing plans to construct roads and cross streets at intersections. The roadway plans must consist of the types and be organized in the sequence as described in TxDOT's PS&E Preparation manual.

160.7. Pedestrian and Bicycle Facilities. The Engineer will coordinate with the City to incorporate context-appropriate shared use paths as required (one on each side of the road) to allow for pedestrian and bicycle use. All pedestrian facilities must be designed in accordance with the latest Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG), Americans with Disabilities Act Accessibility Standards (2010) or the Texas Accessibility Standards (TAS). Pedestrian facilities include, but are not limited to, sidewalks, curb ramps, (sidewalk) ramps, pedestrian bridges, driveway crossings, street crossings, access to pedestrian push buttons and signal heads, pedestrian hybrid beacons, transit stops, and street furniture. All bikeways must be designed in accordance with the latest AASHTO Guide for the Development of Bicycle Facilities. Shared use paths must be designed in accordance with the latest Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG), Americans with Disabilities Act Accessibility Standards (2010) or the Texas Accessibility Standards (TAS).

Task 161 - ROADWAY DESIGN

DRAINAGE

161.1. Data Collection. The Engineer will provide the following data collection services:

- Conduct field inspections to observe current conditions and the outfall channels, the cross-drainage structures, drainage easements, the tributary channel, and land development projects that contribute flow to the tributary. Document field inspections with digital photos.
- Collect available applicable data including GIS data and maps, site survey data, construction plans, previous reports and studies, and readily available rainfall history for the area. Particular sources of data collected must include, but are not limited to, the State, County, and Federal Emergency Management Agency (FEMA).
- Collect available Flood Insurance Rate Maps (FIRMs), Flood Insurance Study (FIS) study data, and models.
- Meet with City to obtain historical flood records. Interview local residents or local government employees to obtain additional high-water information if available. Obtain frequency of road closure and any additional high-water information from the City.

161.2. Hydrologic Studies. The Engineer will provide the following services:

- Calculate discharges using appropriate hydrologic methods and as approved by the City.
- Consider the pre-construction and post-construction conditions in the hydrologic study, as required in the individual Work Authorization.
- Obtain the drainage area boundaries and hydrologic parameters such as impervious covered areas, and overland flow paths and slopes from appropriate sources including, but are not limited to, topographic maps, GIS modeling, construction plans, and existing hydrologic studies. The Engineer will not use existing hydrologic studies without assessing of their validity. If necessary, obtain additional information such as local rainfall from official sites such as airports.
- Obtain approved hydrologic models for City.

161.3. Complex Hydraulic Design and Documentation. The Engineer will provide the following services as required to perform duties:

- Gather information regarding existing drainage facilities and features from existing plans and other available studies or sources. The City will provide approved flood models in HEC-RAS format.
- Perform hydraulic design and analysis using appropriate hydraulic methods, which may include computer models such as HEC-RAS. Data entry for appropriate hydraulic computer programs should consist of a combination of both on-the-ground survey and other appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies.
- Use the current effective FEMA models, where appropriate, as a base model for the analysis. If a “best available data” model is provided by the local floodplain administrator, it must be utilized accordingly for this analysis. Review the provided base model for correctness and updated as needed. If the provided effective model is not in a HEC-RAS format, convert it to HEC-RAS for this analysis.
- Quantify impacts, beneficial or adverse, in terms of increases in peak flow rates and water surface elevations for the above listed hydraulic conditions and hydrologic events. Impacts will be determined both upstream and downstream of the bridge crossings.

161.4. Storm Drains.

The Engineer will provide the following services:

1. Design and analyze storm drains using GeoPak Drainage.
2. Size inlets, laterals, trunk line and outfall. Develop designs that minimize the interference with the passage of traffic or incur damage to the highway and local property in accordance with the TxDOT *Hydraulic Design Manual* and any specific guidance provided by the City.
3. Determine hydraulic grade line starting at the outfall channel for each storm drain design. Use the design water surface elevation of the outfall as the starting basis (tailwater) for the design of the proposed storm sewer system.
4. Calculate manhole head losses. Compute manhole head losses as per FHWA's HEC-22.
5. Limit discharge into existing storm drains and existing outfalls to the capacity of the existing downstream system, which will be determined by the Engineer.
6. Identify areas requiring trench protection.
7. If applicable, design detention ponds (maximum two (2) detention ponds).

161.5. Cross-Drainage Structures.

The Engineer will provide the following services:

1. Determine drainage areas and flows for cross culvert drainage systems.
2. Determine the sizing of the drainage crossings. Cross drainage design should be performed using HY-8.

161.6. Temporary Drainage Facilities.

The Engineer will develop plans for all temporary drainage facilities necessary to allow staged construction of the project and to conform with the phasing of the project. Drainage area maps are not required for temporary drainage.

161.8. Environmental Permits.

The Engineer will notify the City project manager when site conditions may require environmental permits such as Nationwide Permit, §404 Individual Permits (including mitigation and monitoring) and U. S. Coast Guard and U.S. Army Corps of Engineers §10 Permits.

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

The Engineer will provide the following services:

1. Include the following sheets and documents, as appropriate:
 - i. Hydrologic Data Sheets
 - ii. Hydraulic Data Sheets
 - iii. Culvert Layout Sheets
 - iv. Storm Drain Plan/Profile Sheets
 - v. Roadway Plan & Profile Sheets including profile grade line of parallel ditches, if applicable.
2. Prepare culvert cross sections and identify each cross section's station location.
3. Provide ROW grading as necessary to determine positive drainage, grade changes, etc.
4. Identify areas requiring trench protection, excavation, and shoring.
5. Prepare drainage area maps.
6. If applicable, prepare plan and profile sheets for storm drain systems and outfall ditches.
7. If applicable, prepare detention plans and details (maximum two (2) ponds and six (6) total sheets). No structural engineering included.
8. Select any necessary standard details from State or City's list of standards for items such as inlets, manholes, junction boxes and end treatments.
9. Prepare drainage details for outlet protection, outlet structures and utility accommodation structures.
10. Identify pipe strength requirements.
11. Prepare drainage facility quantity summaries.
12. Identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts.

13. Identify existing ground elevation profiles at the ROW lines on storm sewer plan and profile sheets.
14. Prepare Hydraulic Data Sheets for any bridge or cross drainage structures at the outfall channel and indicate site location, if applicable.
15. Develop layouts for the following:
 - i. Outfall channels within existing ROW.
 - ii. Bridge deck drainage systems, including internal drainage piping within the bents where required on structures.

Task 162 - ROADWAY DESIGN

SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)

162.1. Signing. The Engineer will prepare drawings and specifications for all small signs. All small signs will be standard TMUTCD signs and no unique signs will be detailed. The Engineer will coordinate with the City (and other Engineers as required) for overall temporary, interim and final signing strategies and placement of signs outside contract limits. The Engineer will:

- Illustrate and number the proposed signs on plan sheets.
- Select each sign foundation from TxDOT Standards.
- An on-the-ground sign inventory will not be performed. Signs to remain will be labeled and identified on the signing and marking layouts.
- A summary of signs will not be required.

162.2. Pavement Marking. The Engineer will provide layouts with station/offset for permanent pavement markings and channelization devices on plan sheets. Standard pavement markings will be shown, and unique non-standard details will not be developed. The Engineer will coordinate with the City for overall final pavement marking strategies. The Engineer will select Pavement markings from the latest TxDOT standards.

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

- Roadway layout.
- Center line with station numbering.
- Culverts and other structures that present a hazard to traffic.

- Location of utilities.
- Existing signs to remain, to be removed, to be relocated or replaced.
- Proposed signs (illustrated, numbered and size).
- Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
- Quantities of existing pavement markings to be removed.
- Proposed delineators, object markers, and mailboxes.
- Right-of-way limits.
- Direction of traffic flow on all roadways.

162.3. Traffic Warrant Studies.

The Engineer will implement each proposed traffic signal improvement within existing City ROW unless otherwise approved by the City. The Engineer will refer to latest version of the *TMUTCD* and The City's roadway and traffic standards for work performed for either temporary or permanent traffic signals. The Engineer will develop and include a timing plan for each signal improvement.

162.4. Traffic Signals. The Engineer will identify and prepare Traffic Signal Plans for the upgrade of the SH 46 and Cordova Road intersection and new traffic signal at Cordova Road and SH 123 intersection. A temporary traffic signal plan will be developed for SH 46 and Cordova Road. The Engineer will confirm the power source for all signals and coordinate with the appropriate utility agency. The Engineer will develop all quantities, general notes, specifications and incorporate the appropriate standards required to complete construction. The Engineer will provide the following information in the Traffic Signal Plans:

1. Layout

- a. Estimate and quantity sheet
 - (1) List of all bid items
 - (2) Bid item quantities
 - (3) Specification item number
 - (4) Paid item description and unit of measure
- b. Basis of estimate sheet (list of materials)
- c. General notes and specification data.
- d. Condition diagram
 - (1) Highway and intersection design features
 - (2) Roadside development
 - (3) Traffic control including illumination
- e. Plan sheet(s)
 - (1) Existing traffic control that will remain (signs and markings)
 - (2) Existing utilities
 - (3) Proposed highway improvements

- (4) Proposed installation
 - (5) Proposed additional traffic controls
 - (6) Proposed illumination attached to signal poles.
 - (7) Proposed power pole source
 - f. Notes for plan layout
 - g. Phase sequence diagram(s)
 - (1) Signal locations
 - (2) Signal indications
 - (3) Phase diagram
 - (4) Signal sequence table
 - (5) Flashing operation (normal and emergency)
 - (6) Preemption operation (when applicable)
 - h. Construction detail sheets(s)
 - (1) Poles (State standard sheets)
 - (2) Detectors
 - (3) Pull Box and conduit layout
 - (4) Controller Foundation standard sheet
 - (5) Electrical chart
 - i. Marking details (when applicable)
 - j. Aerial or underground interconnect details (when applicable)
2. Summary of Quantities
- a. Small signs tabulation
3. Sign Detail Sheets
- a. All signs except route markers
 - b. Dimensioning (letters, shields, borders, etc.)
 - c. Designation of shields attached to guide signs

Task 163 - ROADWAY DESIGN

MISCELLANEOUS (ROADWAY)

The Engineer will provide the following services:

163.1. Retaining Walls and Miscellaneous Structures. The Engineer will develop each retaining wall design and determine the location of each soil boring needed for the foundation design of each retaining wall in accordance with the *Geotechnical Manual*. Prior to preparation of retaining wall layouts, the Engineer will prepare a comparative cost analysis of different types of retaining walls versus roadway embankment, pavement, soil stabilization, retaining walls type, and available ROW to determine optimum selection based on economics, construction time duration, ROW encroachments (need for construction easements) and construction feasibility. For stage construction, the Engineer will indicate limits of existing

retaining walls for removal and reconstruction and determine limits of temporary retaining walls to be shown on the TCP.

The approximate limits of each retaining wall should be based on Station or length. The Engineer will notify the City the type of retaining walls that will be used for and Cut and Fill location. Retaining wall types must include:

- Spread Footing Walls (High Footing Pressure Design and Low Footing Pressure Design). The Engineer will select a spread footing wall for fill situation when considerable room behind the walls is available for forming, constructing, and backfilling the footings and stem. The Engineer will notify the City when the quantity is less than 1000 square feet to have as option in the plans to cast in place a spread footing wall design. This selection has to be approved to City.
- Mechanically Stabilized Earth (MSE) Walls. The Engineer will prepare the retaining wall layouts showing plan and profile or retaining walls for design by a City/TxDOT approved vendor.
- Drilled Shaft Walls

The Engineer will provide layout on the roadway layouts and include, elevations, quantity estimate, summary of quantities, typical cross sections and structural details of retaining walls within the project.

If applicable, the City will provide architectural standard drawings.

1. Layout Plan

- a. Designation of reference line
- b. Beginning and ending retaining wall stations
- c. Offset from reference line
- d. Horizontal curve data
- e. Total length of wall
- f. Indicate face of wall
- g. All wall dimensions and alignment relations (alignment data as necessary)
- h. Soil boring locations
- i. Drainage, signing, lightning, etc. that is mounted on or passing through the wall
- j. Subsurface drainage structures or utilities which could be impacted by wall construction.

2. Elevation

- a. Top of wall elevations
- b. Existing and finished ground line elevations
- c. Vertical limits of measurement for payment

- d. Type, limits and anchorage details of railing (only if Traffic Railing foundation standard is not being used on this project)
 - e. Top and bottom of wall profiles plotted at correct station & elevation
 - f. Underdrains
 - g. Any soil improvement, if applicable
 - h. Drainage, signing, lighting etc. as noted above
 - i. Drainage structures and utilities as noted above
3. Sectional View
- a. Underdrain location
 - b. Soil improvements, if applicable.
4. General Guidelines for Retaining Walls
- a. The Engineer will perform design calculations to check the external stability of the walls including slope stability, bearing, sliding and overturning and detail drawings in accordance with the standard requirements of the City

163.2. Traffic Control Plan, Detours, Sequence of Construction. The Engineer will prepare Traffic Control Plans (TCP) including TCP typical sections, for the project. A detailed TCP must be developed in accordance with the latest edition of the TMUTCD. The Engineer will implement the current TxDOT Barricade and Construction (BC) standards and TCP standards as applicable. The Engineer will:

- 1. Provide a written narrative of the construction sequencing and work activities per phase and determine the existing and proposed traffic control devices (regulatory signs, warning signs, guide signs, route markers, construction pavement markings, barricades, flag personnel, temporary traffic signals, etc.) to be used to handle traffic during each construction sequence. The Engineer will show proposed traffic control devices at grade intersections during each construction phase (stop signs, flag person, signals, etc.). The Engineer will show temporary roadways and detours required to maintain lane continuity throughout the construction phasing.
- 2. The Engineer will assist the City in coordinating mitigation of impacts to adjacent schools, emergency vehicles, pedestrians, bicyclists and neighborhoods.
- 3. Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access. The Engineer will notify the City in the event existing access must be eliminated and must receive approval from the City prior to any elimination of existing access.
- 4. Design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The Engineer will

show horizontal and vertical location of culverts and required cross sectional area of culverts.

5. Prepare each TCP in coordination with the City. The TCP must include interim signing for every phase of construction. Interim signing must include regulatory, warning, construction, route, and guide signs. The Engineer will interface and coordinate phases of work, including the TCP, with adjacent Engineers, which are responsible for the preparation of the PS&E for adjacent projects.
6. Maintain continuous access to abutting properties during all phases of the TCP. The Engineer will develop a list of each abutting property along its alignment. Notes will be incorporated into the TCP to instruct the contractor to maintain access to these properties during construction. No phased driveway construction or phased TCP pertaining to driveway access to adjoining properties will be incorporated into the plans.
7. Make every effort to prevent detours and utility relocations from extending beyond the proposed Right-of-way lines. If it is necessary to obtain additional permanent or temporary easements and Right-of-Entry, the Engineer will notify the City in writing of the need and justification for such action.
8. Describe the type of work to be performed for each phase of sequence of construction and any special instructions (e.g. storm drain, culverts, bridges, railing, signals, retaining walls, signing, paving surface sequencing or concrete placement, ROW restrictions, utilities, etc.) that the contractor should be made aware to include limits of construction, obliteration, and shifting or detouring of traffic prior to the proceeding phase.
9. Include the work limits, the location of channelizing devices, positive barrier, location and direction of traffic, work area, stations, pavement markings, and other information deemed necessary for each phase of construction.
11. Delineate areas of wetlands on traffic control plans.

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

163.6. Compute and Tabulate Quantities. The Engineer will provide the summaries and quantities within all formal submittals.

163.11. Estimate. The Engineer will independently develop and report quantities necessary to construct the contract in standard City bid format at the specified milestones and Final PS&E submittals. The Engineer will prepare each

construction cost estimates using Estimator or any approved method. The estimate will be provided at each milestone submittal.

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

163.13. Specifications and General Notes. The Engineer will identify necessary standard specifications, special specifications, special provisions and the appropriate reference items. The Engineer will provide General Notes, Special Specifications and Special Provisions in the required format.

163.14. Constructability Review. The Engineer will provide Independent Quality Review of the constructability of the PS&E sets.

The Engineer will perform constructability reviews at major project design milestones (60%, 90%, and final plan) to identify potential constructability issues and options that would provide substantial time savings during construction. The constructability review must be performed for all roadway and structural elements such as Sequence of Work and Traffic Control, Drainage (Temporary and Permanent), Storm Water Pollution Prevention Plan (SW3P), identify Utility conflicts; ensuring accuracy and appropriate use of Items, Quantities, General Notes, Standard and Special Specifications, Special Provisions, Contract Time/Schedule, Standards; and providing detailed comments in an approved format.

Task 164 – SUBSURFACE UTILITY ENGINEERING

Utility Engineering Investigation (Subsurface Utility Engineering) includes utility investigations subsurface and above ground prepared in accordance with AASHTO standards [ASCE C-1 38-02 (<http://www.fhwa.dot.gov/programadmin/asce.cfm>)] and Utility Quality Levels.

The Engineer will complete a Quality Level B subsurface utility engineering (SUE) investigation (inclusive of Quality Levels C & D) along Cordova Road from SH 46 to SH 123. The Engineer will obtain rim/invert data on existing sanitary sewer mains within the project limits. The Engineer will obtain utility ownership of overhead utilities throughout the project limits as well as obtain sag elevations for overhead utilities crossing Cordova Road throughout the

project limits.

The Engineer will complete up to thirty (30) Quality Level A test holes as needed at potential conflict locations.

A. UTILITY QUALITY LEVELS

Utility Quality Levels are defined in cumulative order (least to greatest) as follows:

1. Quality Level D - Existing Records: Utilities are plotted from review of available existing records.
2. Quality Level C - Surface Visible Feature Survey: Quality level "D" information from existing records is correlated with surveyed surface-visible features. Includes Quality Level D information. If there are variances in the designated work area of Level D, a new schematic or plan layout will be necessary to identify the limits of the proposed project and the limits of the work area required for the work authorization; including highway stations, limits within existing or proposed right of way, additional areas outside the proposed right of way, and distances or areas to be included along existing intersecting roadways.
3. Quality Level B - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications are referenced to established survey control. Incorporates quality levels C and D information to produce Quality Level B. If there are variances in the designated work area of Level D, a new schematic or plan layout will be necessary to identify the limits of the proposed project and the limits of the work area required for the work authorization; including highway stations, limits within existing or proposed right of way, additional areas outside the proposed right of way, and distances or areas to be included along existing intersecting roadways.
4. Quality Level A - Locate (Test Hole): Three-dimensional mapping and other characterization data. This information is obtained through exposing utility facilities through test holes and measuring and recording (to appropriate survey control) utility/environment data. Incorporates quality levels B, C and D information to produce Quality Level A.

B. DESIGNATE (QUALITY LEVEL B)

Designate means to indicate the horizontal location of underground utilities by the application and interpretation of appropriate non-destructive surface geophysical techniques and reference to established survey control. Designate (Quality Level B) Services are inclusive of Quality levels C and D.

The Engineer will:

1. As requested by the City compile "As Built" information from plans, plats and other location data as provided by the utility owners.
2. Coordinate with utility owner when utility owner's policy is to designate their own facilities at no cost for preliminary survey purposes. The Engineer will examine utility owner's work to ensure accuracy and completeness.
3. Designate, record, and mark the horizontal location of the existing utility facilities and their service laterals to existing buildings using non-destructive surface geophysical techniques. No storm sewer facilities are to be designated unless authorized by the City. A non-water base paint, utilizing the APWA color code scheme, must be used on all surface markings of underground utilities.
4. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. A color-coded composite utility facility plan with utility owner names, quality levels, line sizes and subsurface utility locate (test hole) locations, will be prepared and delivered to the City. It is understood by both the Engineer and the City that the line sizes of designated utility facilities detailed on the deliverable are from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. A note must be placed on the designate deliverable only that states "lines sizes are from best available records". All above ground appurtenance locations must be included in the deliverable to the City. This information will be provided in the latest version of Micro Station or Geopak used by the City. The electronic file will be delivered on CD or DVD, as required by the City. A hard copy is required and must be signed, sealed, and dated by the Engineer. When requested by the City, the designated utility information must be over laid on the Cities design plans.
5. Determine and inform the City of the approximate utility depths at critical locations as determined by the City. This depth indication is understood by both the Engineer and the City to be approximate only and is not intended to be used preparing the right of way and construction plans.
6. Provide a monthly summary of work completed and in process with adequate detail to verify compliance with agreed work schedule.

7. Close-out permits as required.
8. Clearly identify all utilities that were discovered from quality levels C and D investigation, but cannot be depicted in quality level B standards. These utilities must have a unique line style and symbology in the designate (Quality Level B) deliverable.
9. Comply with all applicable City policy and procedural manuals.

C. SUBSURFACE UTILITY LOCATE (TEST HOLE) SERVICE (QUALITY LEVEL A)

Locate means to obtain precise horizontal and vertical position, material type, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non-destructive excavation techniques that ensures the integrity of the utility facility. Subsurface Utility Locate (Test Hole) Services (Quality Level A) are inclusive of Quality Levels B, C, and D.

The Engineer will:

1. Review requested test hole locations and advise the City in the development of an appropriate locate (test hole) work plan relative to the existing utility infrastructure and proposed roadway design elements.
2. Coordinate with utility owner inspectors as may be required by law or utility owner policy.
3. Neatly cut and remove existing pavement material, such that the cut not to exceed 0.10 square meters (1.076 square feet) unless unusual circumstances exist.
4. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the Engineer:
 - a. Elevation of top and/or bottom of utility tied to the datum of the furnished plan.
 - b. Identify a minimum of two benchmarks utilized. Elevations should be within an accuracy of 15mm (.591 inches) of utilized benchmarks.
 - c. Elevation of existing grade over utility at test hole location.
 - d. Horizontal location referenced to project coordinate datum.

- e. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.
 - f. Utility facility material(s).
 - g. Utility facility condition.
 - h. Pavement thickness and type.
 - i. Coating/Wrapping information and condition.
 - j. Unusual circumstances or field conditions.
5. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate City Office.
 6. Be responsible for any damage to the utility during the locating process. In the event of damage, the Engineer will stop work, notify the appropriate utility facility owner, the City, and appropriate regulatory agencies. The regulatory agencies include, but are not limited to the Railroad Commission of Texas and the Texas Commission on Environmental Quality. The Engineer will not resume work until the utility facility owner has determined the corrective action to be taken. The Engineer will be liable for all costs involved in the repair or replacement of the utility facility.
 7. Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material. The Engineer will be responsible for the integrity of the backfill and surface restoration for a period of three years. Install a marker ribbon throughout the backfill.
 8. Furnish and install a permanent above ground marker (as specified by the City, directly above center line of the utility facility).
 9. Provide complete restoration of work site and landscape to equal or better condition than before excavation. If a work site and landscape is not appropriately restored, the Engineer will return to correct the condition at no extra charge to the City.
 10. Plot utility location position information to scale and provide a comprehensive utility plan sign and sealed by the responsible Engineer. This information should be provided in the latest version of Micro Station or Geopak format used by the City.

The electronic file will be delivered on C.D or DVD. When requested by the City, the Locate information must be over laid on the Cities design plans.

11. Return plans, profiles, and test hole data sheets to the City. If requested, conduct a review of the findings with the City.
12. Close-out permits as required.

Deliverables:

- Utility Records/As-Builts obtained from utility owners
- Final SUE Plans signed & sealed (11" x 17")
- Final SUE Test Hole Data Forms signed & sealed (8.5" x 11")
- Electronic files of Quality Level C/D, B & A SUE in Microstation and PDF format as requested by the City.

Task 309 – CONSTRUCTION SUPPORT AND ADMINISTRATION

The Engineer's involvement during construction will be defined by separate work authorization.

Deliverables

The Engineer will provide the following information at submittal milestones defined below:

1. Schematic Layout
 - 1.1. Roll plot layout (100:1 Scale)
 - 1.2. Estimate of probable construction cost
 - 1.3. Traffic memo detailed analysis and warrants
 - 1.4. Design Summary Report
 - 1.5. Draft CPM Schedule
 - 1.6. Utility conflict matrix
2. 30% Plans Submittal:
 - 2.1. PDF of 11" x 17" plan sets for City review.
 - 2.2. Estimate of probable construction cost
 - 2.3. Engineer's internal QA and QC marked up set.
 - 2.4. TCP Narrative
 - 2.5. Design Summary Report
 - 2.6. Updated CPM Schedule
 - 2.7. Utility conflict matrix
 - 2.8. Design Exceptions

3. 60% Plans Submittal:
 - 3.1. PDF of 11" x 17" plan sets for City review.
 - 3.2. Estimate of probable construction cost
 - 3.3. Engineer's internal QA and QC marked up set.
 - 3.4. Design Summary Report
 - 3.5. Updated CPM Schedule
 - 3.6. Utility conflict matrix
 - 3.7. New Special Specifications and Special Provisions, if applicable.
 - 3.8. Draft General Notes
4. Review Submittal (90%)
 - 4.1. PDF of 11" x 17" plan sets for City review.
 - 4.2. Estimate of probable construction cost
 - 4.3. Engineer's internal QA and QC marked up set.
 - 4.4. Design Summary Report
 - 4.5. Updated CPM Schedule
 - 4.6. Utility conflict matrix
 - 4.7. New Special Specifications and Special Provisions, if applicable.
 - 4.8. General Notes
5. Final submittal (100%).
 - 5.1. PDF of 11" x 17".
 - 5.2. Revised supporting documents from 90% review comments.
 - 5.3. Estimate of probable construction cost.

Electronic Copies

The Engineer will furnish the City an electronic copy of the final plans in the format of Bentley MicroStation system and .pdf format.

The Engineer will also provide separate electronic copy containing cross section information (in dgn format).

The Engineer will provide an electronic copy of MS Project for construction time estimate.

Cordova Rd - Reconstruction (SH 46 to SH123) Project: 2022-09 Seguin, TX Pape-Dawson Consulting Engineers, Inc.									
Provider:	Pape-Dawson Consulting Engineers, Inc.	SUBTOTALS	LUMP SUM FEES						
			Pape-Dawson	Raba Kistner ENV	Raba Kistner Geotech	CD&P	Rios	Pinnacle	Pape-Dawson Survey
Task 110	Field Investigations Review and Analysis	\$ 78,095.00	\$ 65,170.00		\$ 12,925.00				
Task 120	Project Support and Public Involvement	\$ 271,567.00	\$ 30,040.00	\$ 120,127.00		\$ 121,400.00			
Task 130	Right-of-Way (ROW) Survey and Utility Investigation	\$ 510,355.00	\$ 139,905.00						\$ 370,450.00
Task 131	Right-of-Way (ROW) Acquisition	\$ 622,750.00						\$ 622,750.00	
Task 145	Project Management and Administration	\$ 300,015.00	\$ 300,015.00						
Task 150	Design Surveys	\$ 247,860.00	\$ 19,000.00						\$ 228,860.00
Task 160	Roadway Design Controls	\$ 856,480.00	\$ 856,480.00						
Task 161	Drainage Design	\$ 595,045.00	\$ 595,045.00						
Task 162	Signing, Pavement Markings and Signalization	\$ 161,280.00	\$ 161,280.00						
Task 163	Miscellaneous (Services)	\$ 278,020.00	\$ 278,020.00						
Task 164	Subsurface Utility Engineering	\$ 42,320.00					\$ 42,320.00		
Task 309	Construction Phase Services	\$ 160,600.00	\$ 160,600.00						
Direct Expenses		\$ 129,166.65	\$ 17,130.00	\$ 5,853.00	\$ 22,642.00	\$ 8,733.15	\$ 62,878.50	\$ 5,850.00	\$ 6,080.00
SUBTOTAL BASE FEE		\$ 4,124,387.00	\$ 2,622,685.00	\$ 125,980.00	\$ 35,567.00	\$ 130,133.15	\$ 105,198.50	\$ 628,600.00	\$ 605,390.00
Supplemental Services		\$ 174,664.00	\$ 89,220.00	\$ 70,444.00	\$ 15,000.00				
TOTAL FEE		\$ 4,428,217.65	\$ 2,711,905.00	\$ 196,424.00	\$ 50,567.00	\$ 130,133.15	\$ 105,198.50	\$ 628,600.00	\$ 605,390.00
% TOTAL			61.2%	4.4%	1.1%	2.9%	2.4%	14.2%	13.7%

Task Descriptions	\$265.00	\$225.00	\$195.00	\$180.00	\$165.00	\$135.00	\$150.00	\$135.00	\$110.00	\$125.00	\$135.00	\$115.00	\$365.00	Total Hours	Total Cost
	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In-Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal		
Task 110 Field Investigations Review and Analysis															
Data Collection and Field Reconnaissance															
As-built & other existing available data		2				16		8	12					38	\$ 5,010.00
Utility plans from municipalities and agencies		4								24				28	\$ 3,900.00
Field review and data collection	6	6				6				6				24	\$ 4,500.00
Design Criteria (develop design criteria; agency review)	8		4	4										16	\$ 3,620.00
Design Concept Conference															
30% DDRT	2	4												6	\$ 1,430.00
30% DSRT	2	4												6	\$ 1,430.00
60% DDRT	2	4												6	\$ 1,430.00
60% DSRT	2	4												6	\$ 1,430.00
90% Review	4	6											2	12	\$ 3,140.00
Traffic Study															
Field review and data collection		1		4		4								9	\$ 1,485.00
Traffic Analysis		2	8	2		4								16	\$ 2,910.00
Traffic Projections	1	2	4	8		32			8					55	\$ 8,135.00
Safety Analysis		2	2	8		16								28	\$ 4,440.00
Synchro Analysis		6	8	16		48								78	\$ 12,270.00
Traffic Summary	2	2		16		32		4	12					68	\$ 10,040.00
Subtotal Hours:	29	49	26	58	0	158	0	12	32	30	0	0	2	396	\$ 65,170.00
Subtotal Labor Cost:	\$7,685.00	\$11,025.00	\$5,070.00	\$10,440.00	\$0.00	\$21,330.00	\$0.00	\$1,620.00	\$3,520.00	\$3,750.00	\$0.00	\$0.00	\$730.00		\$ 65,170.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In-Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 120 Project Support and Public Involvement															
Community Meetings															
Prepare for meetings	6	24	6			24	24	32	44					160	\$ 24,160.00
Attend (3) community meetings	12	12												24	\$ 5,880.00
Subtotal Hours:	18	36	6	0	0	24	24	32	44	0	0	0	0	184	\$ 30,040.00
Subtotal Labor Cost:	\$4,770.00	\$8,100.00	\$1,170.00	\$0.00	\$0.00	\$3,240.00	\$3,600.00	\$4,320.00	\$4,840.00	\$0.00	\$0.00	\$0.00	\$0.00		\$ 30,040.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 130 Right-of-Way (ROW) Survey and Utility Investigation															
Review Right-of-Way Base Map															
Evaluate existing ROW	8	12				12		4	12					48	\$ 8,300.00
Identify and delineate construction easement or rights of entry needs	2	4				8			16					30	\$ 4,270.00
Utility Adjustment Coordination and Engineering															
1.a Utility Coordination (Anticipate 12 Utility Companies)															
i. Workplan		20		20		40								80	\$ 13,500.00
ii. Initial/Kickoff Project Meeting	1	1		1		1								4	\$ 805.00
iii. External Communications and Coordination Log				20		40								60	\$ 9,000.00
iv. Progress Meetings															
30% Utility Coordination Meeting	1	1		2		2		1		2				9	\$ 1,505.00
60% Utility Coordination Meeting	1	1		2		2		1		2				9	\$ 1,505.00
95% Utility Coordination Meeting	1	1		2		2		1		2				9	\$ 1,505.00
Final Utility Coordination Meeting	1	1		2		2		1		2				9	\$ 1,505.00
Individual Company Utility Coordination Meetings (5 per utility/60 max)	30	30		30		60		30		60				240	\$ 39,750.00
1.b Coordinate with Utility Committees	4	4		8		8				8				32	\$ 5,480.00
1.c Develop and Provide Utility Contact List				1		2								3	\$ 450.00
1.d Provide Project Footprint and Obtain Markups				2		4								6	\$ 900.00
1.e Utility Certification and Special Provision	2	2		4		4								12	\$ 2,240.00
2. Utility Engineering															
A. Engineering Activities															
1. Utility Layout sheets (20 sheets)						20								20	\$ 2,700.00
2. Evaluate and identify conflicts	4	4		10		40								58	\$ 9,160.00
3. Prepare and Maintain UCM				8		24				24				56	\$ 7,680.00
B. Review of Utilities Proposed Adjustments															
1. Evaluate Alternatives				16		16								32	\$ 5,040.00
2. Review Estimates and Schedules				4		8								12	\$ 1,800.00
3. Review UAR Compliance				4		10				10				24	\$ 3,320.00
4. Verify/Review Relocations	8	10		48		48								114	\$ 19,490.00
Subtotal Hours:	63	91	0	184	0	353	0	38	28	110	0	0	0	867	\$ 139,905.00
Subtotal Labor Cost:	\$16,695.00	\$20,475.00	\$0.00	\$33,120.00	\$0.00	\$47,655.00	\$0.00	\$5,130.00	\$3,080.00	\$13,750.00	\$0.00	\$0.00	\$0.00		\$ 139,905.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 145 Project Management and Administration															
Coordinate subconsultant activities	96	48												144	\$ 36,240.00
Invoices	42	84											72	198	\$ 56,310.00
Coordinate with local entities	40	40											12	92	\$ 23,980.00
Monthly progress reports	20	40											36	96	\$ 27,440.00
Develop and maintain project schedule	84												21	105	\$ 29,925.00
Bi-Weekly Coordination Meetings (42 Total)	168	168												336	\$ 82,320.00
Prepare, distribute, and file correspondence	20	84												104	\$ 24,200.00
Document phone calls / emails	40	40												80	\$ 19,600.00
Subtotal Hours:	510	504	0	0	0	0	0	0	0	0	0	0	141	1155	\$ 300,015.00
Subtotal Labor Cost:	\$135,150.00	\$113,400.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$51,465.00		\$ 300,015.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 150 Design Surveys															
Design surveys															
Identify additional survey needs	16	20	8		8	24	24				4			104	\$ 19,000.00
Subtotal Hours:	16	20	8	0	8	24	24	0	0	0	4	0	0	104	\$ 19,000.00
Subtotal Labor Cost:	\$4,240.00	\$4,500.00	\$1,560.00	\$0.00	\$1,320.00	\$3,240.00	\$3,600.00	\$0.00	\$0.00	\$0.00	\$540.00	\$0.00	\$0.00		\$ 19,000.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 160 Roadway Design Controls															
Geometric design															
Update geometric project layout	8	16	8	8	16	96	240	320	468					1180	\$ 155,000.00
Develop model based on the preliminary layout			60			96	240							396	\$ 60,660.00
Roadway Design															
Roadway plan and profile (1"=40') (46 Sheets)					88	168	168	360	360					1144	\$ 150,600.00
QAQC	60	96											32	188	\$ 49,180.00
Typical Sections															
Existing Typical Sections (2 Sheet)	2	6			4	4	16	16						48	\$ 7,640.00
Proposed Typical Sections (4 Sheets)	8	16			4	8	16	24	8					84	\$ 13,980.00
Cross streets															
Intersection details on Plan and Profile Sheets (9 sheets)	4	8	18		36	72	72	36	72					318	\$ 45,610.00
Cut and fill quantities															
Develop Templates	1	2				24	40	80						147	\$ 20,755.00
Develop Proposed Cross Sections @ 50' Intervals	1	2				96	160							259	\$ 37,675.00
Develop Cut/Fill Quantities	1	2				32	64							99	\$ 14,635.00
Cross Section Sheets (185 sheets)	1	2					32	96	160					291	\$ 36,075.00
Plan preparation															
Title Sheet (1 Sheet)	4	4							8					16	\$ 2,840.00
Index of Sheets (2 Sheets)	4	8							16					28	\$ 4,620.00
General Notes (10 Sheets)	4	12							4					20	\$ 4,200.00
Estimate and Quantity Sheet (4 Sheets)	2	4						8						14	\$ 2,510.00
Quantity Summary Sheets (12 Sheets)	4	8	96		96	160	160							524	\$ 83,020.00
Project Layout (1"=100') (9 Sheets)	4	4				18	36	72						134	\$ 19,510.00
Horizontal Alignment Data Sheets (3 Sheet)	4	8				12			12					36	\$ 5,800.00
Driveway Summary Tables (2 Sheet)	4	8				32			64					108	\$ 14,220.00
Miscellaneous Sheets - Standards (8 Sheets)	8	16	16	32	32	64	60	60	120					408	\$ 58,820.00
Earthwork Quantity tables (2 Sheet)	4	4				8		8						24	\$ 4,120.00
Roadway detail sheets (8 Sheets)	8	30	16	32	32	64	60	60	120					422	\$ 61,970.00
Pedestrian and Bicycle Facilities	4	4				8								16	\$ 3,040.00
Subtotal Hours:	140	260	214	72	308	962	1364	1140	1412	0	0	0	32	5904	\$ 856,480.00
Subtotal Labor Cost:	\$37,100.00	\$58,500.00	\$41,730.00	\$12,960.00	\$50,820.00	\$129,870.00	\$204,600.00	\$153,900.00	\$155,320.00	\$0.00	\$0.00	\$0.00	\$11,680.00		\$ 856,480.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 161 Drainage Design															
Data Collection															
Collect GIS data				2		8					20			30	\$ 4,140.00
Collect FIRMS, FIS Study		8		16										24	\$ 4,680.00
Existing Drainage structures review	4	4	8	8	16	24								64	\$ 10,840.00
Meet with local officials	8	16												24	\$ 5,720.00
Hydrologic Studies															
Calculate discharges	2	8	20	20	32	60		24	16				1	183	\$ 28,575.00
Consider pre & post construction	2	8	12	12	24	40		24	16				1	139	\$ 21,555.00
Determine drainage areas	2	2	4	8	20	24		20	20					100	\$ 14,640.00
Evaluate model at design frequencies	2	2	4	8	4	4								24	\$ 4,400.00
Compare discharges to FEMA	2	2	4	8	4	4								24	\$ 4,400.00
Complex Hydraulic Design and Documentation															
Perform hydraulic design and analysis	2	4	8	8	16	40					16		1	95	\$ 14,995.00
Review and update FEMA model	1	2	2	4	8	8								25	\$ 4,225.00
Develop HEC-RAS models	8	16	20	24	40	80							1	189	\$ 31,705.00
Quantify impacts upstream and downstream	8	16	20	24	40	72							1	181	\$ 30,625.00
Compute 1% AEP volumes	2	2	4	8	20	24								60	\$ 9,740.00
Storm Drains (max 500LF)															
Design and Analyze	2	2	4	8	48	60								124	\$ 19,220.00
Size Inlets, laterals, trunk line, and outfall	2	2	4	8	48	60								124	\$ 19,220.00
Determine HGL at outfalls	2	2	4	8	8	8								32	\$ 5,600.00
Existing system evaluation	2	2	4	8	12	12								40	\$ 6,800.00
Detention system design (max 2 ponds)	2	2		8	16	24								52	\$ 8,300.00
Cross-Drainage Structures															
Determine drainage areas and compute flows	2	8	16	16	40	48					8		1	139	\$ 22,855.00
Determine sizing of cross-drainage	4	4	8	16	80	108								220	\$ 34,180.00
Temporary Drainage Facilities															
Design temporary drainage facilities	2	2	4	8	32	40							1	89	\$ 14,245.00
Environmental Permits															
Permitting needs assessment		4		4		16							1	25	\$ 4,145.00
PS&E for Hydraulics															
Hydrologic Data Sheets (3 Sheets)		8	16	16	32	48		20	20				1	161	\$ 24,825.00
Hydraulic Data Sheets (3 Sheets)	2	2	4	8	20	24		20	20				1	101	\$ 15,005.00
Culvert Layout Sheets (Profile Only) (2 Sheets)	2	2	4	8	8	8		40	40				1	113	\$ 15,765.00
Storm drain plan and profile (1"=50') (36 Sheets)	32	40	40	40	100	120		108	108				1	589	\$ 92,005.00
Storm drain lateral profiles (10 Sheets)	8	8	10	10	40	40		80	80				1	277	\$ 39,635.00
Specify areas for trench protection, excavation, and shoring	2	2	4	8	8	8		8	8				1	49	\$ 7,925.00
Prepare drainage area maps	2	2	4	8	8	8		24	24				1	81	\$ 11,845.00
Plan & Profile of outfall pipes and ditches (1"=50') (2 Sheets)	2	2	4	8	12	12		40	40				1	121	\$ 16,965.00
Detention pond plans and details (max 6 sheets)	2	2		8	8	8		20	20				1	69	\$ 10,085.00
Select standards (25 Sheets)	2	4		8		16		20	40				1	91	\$ 12,495.00
Prepare details for outlet protection and utility accommodation structures	2	2	4	8	8	8		8	8				1	49	\$ 7,925.00
Prepare Hydraulic Data Sheets for cross drainage structures (2 Sheets)	2	2	4	8	8	8		40	40				1	113	\$ 15,765.00
Subtotal Hours:	119	194	244	372	760	1072	0	496	500	0	44	0	20	3821	\$ 595,045.00
Subtotal Labor Cost:	\$31,535.00	\$43,650.00	\$47,580.00	\$66,960.00	\$125,400.00	\$144,720.00	\$0.00	\$66,960.00	\$55,000.00	\$0.00	\$5,940.00	\$0.00	\$7,300.00		\$ 595,045.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 162 Signing, Pavement Markings and Signalization															
Pavement Marking															
Signing and Pavement Marking Sheets (1"=50' 18 Sheets)	8	16			24	32	32	40	60					212	\$ 30,800.00
Pavment Marking Misc Detail Sheets					2	8		16	24					50	\$ 6,210.00
Pavment Marking Quantities/Summaries/Sheet Qty Blocks						4		16	40					60	\$ 7,100.00
Pavement Marking Standards								8	16					24	\$ 2,840.00
Small signs tabulations for signal-related signs	4	8			16	60		60						148	\$ 21,700.00
Sign detail sheets for signal-related signs	4	8			16	16		48						92	\$ 14,140.00
Signing Quantities/Summaries/Sheet Qty Blocks						4		16	40					60	\$ 7,100.00
Signing Standards								8	16					24	\$ 2,840.00
Traffic Signal Plans															
Timing Study		2	2	6		16								26	\$ 4,080.00
1. SH 46 and Cordova Road															
Existing Conditions	2		1	5		5	12							25	\$ 4,100.00
Temporary Signal Plan	2			5		10	28							45	\$ 6,980.00
Proposed Conditions	2		2	6		10	10							30	\$ 4,850.00
Conduit and Conductor Schedule			1	4		6	10		7					28	\$ 3,995.00
Pole Schedule			2	3		5	10		7					27	\$ 3,875.00
Elevation Views			3	5		7	7		7					29	\$ 4,250.00
2. SH 123 and Cordova Road															
Proposed Conditions	2		2	6		10	10							30	\$ 4,850.00
Conduit and Conductor Schedule			1	4		6	10		7					28	\$ 3,995.00
Pole Schedule			2	3		5	10		7					27	\$ 3,875.00
Elevation Views			3	5		7	7		7					29	\$ 4,250.00
Traffic Signal Standards			2			24			80					106	\$ 12,430.00
Traffic Signal Summary Sheets and Q-Boxes			1	4		16								21	\$ 3,075.00
Traffic Signal Estimate			1	2		8	4							15	\$ 2,235.00
Contact Utility Company and Coordinate Power Location in Field		2		4		4								10	\$ 1,710.00
Subtotal Hours:	24	36	23	62	58	263	150	212	318	0	0	0	0	1146	\$ 161,280.00
Subtotal Labor Cost:	\$6,360.00	\$8,100.00	\$4,485.00	\$11,160.00	\$9,570.00	\$35,505.00	\$22,500.00	\$28,620.00	\$34,980.00	\$0.00	\$0.00	\$0.00	\$0.00		\$ 161,280.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Task 163 Miscellaneous (Services)															
Retaining Walls and Miscellaneous Structures															
Coordinate Wall Layouts (2 sheets)	4	16	32			48			64					164	\$ 24,420.00
Traffic Control Plan, Detours, Sequence of Construction															
Develop construction sequencing	8			48		64								120	\$ 19,400.00
Coordinate with City / TxDOT	16	16												32	\$ 7,840.00
Develop detour plan	4	8		8										20	\$ 4,300.00
TCP Sheets (1" = 100' : 36 Sheets)	8	16		24		136	136	270	270					860	\$ 114,950.00
Storm Water Pollution Prevention Plans (SW3P)															
Develop SW3P	4	8			32	32								76	\$ 12,460.00
SW3P Sheets (36 Sheets)	4	8		16		72		140	140					380	\$ 49,760.00
Compute and Tabulate Quantities															
Incorporate summaries from subproviders into plans						24								24	\$ 3,240.00
Incorporate summaries from subproviders into estimate						24								24	\$ 3,240.00
Estimate for each submittal															
Develop Estimate for Schematic Layout	1	2		8		8								19	\$ 3,235.00
Develop Estimate at 30%	1	2		8		8								19	\$ 3,235.00
Develop Estimate at 60%	1	2		8		8								19	\$ 3,235.00
Develop Estimate at 90%	1	2		8		8								19	\$ 3,235.00
Develop Estimate at Final	2	4		8		8								22	\$ 3,950.00
Contract time determination (CTD)															
90% CTD	1	4												5	\$ 1,165.00
Final CTD	1	4												5	\$ 1,165.00
Specifications and general notes															
Identify Specifications, prepare Governing Specifications list	4		8											12	\$ 2,620.00
Develop General Notes	4		4											8	\$ 1,840.00
Provide Special specs/provisions	4		32											36	\$ 7,300.00
Constructability review															
60%	2												4	6	\$ 1,990.00
90%	2												4	6	\$ 1,990.00
Final plans	2												8	10	\$ 3,450.00
Subtotal Hours:	74	92	76	136	32	440	136	410	474	0	0	0	16	1886	\$278,020.00
Subtotal Labor Cost:	\$19,610.00	\$20,700.00	\$14,820.00	\$24,480.00	\$5,280.00	\$59,400.00	\$20,400.00	\$55,350.00	\$52,140.00	\$0.00	\$0.00	\$0.00	\$5,840.00		\$278,020.00

BASIS SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
FC 309 (309) Design Verif/Changes/Alter															
Construction Phase Services (Bi-Weekly Meeting and Field Observation)	120	240				240								600	\$ 118,200.00
Shop Drawing Review (Not to Exceed 40 Submittals with 1 Response to Comments)	40		40		80	80								240	\$ 42,400.00
Subtotal Hours:	160	240	40	0	80	320	0	0	0	0	0	0	0	840	\$ 160,600.00
Subtotal Labor Cost:	\$42,400.00	\$54,000.00	\$7,800.00	\$0.00	\$13,200.00	\$43,200.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$ 160,600.00

TOTAL HOURS =	1153	1522	637	884	1246	3616	1698	2340	2808	140	48	0	211		16303
TOTAL COST =	\$305,545.00	\$342,450.00	\$124,215.00	\$159,120.00	\$205,590.00	\$488,160.00	\$254,700.00	\$315,900.00	\$308,880.00	\$17,500.00	\$6,480.00	\$0.00	\$77,015.00		\$ 2,605,555.00
TOTAL % =	12%	13%	5%	6%	8%	19%	10%	12%	12%	1%	0%	0%	3%		100%

Additional SERVICES Task Descriptions	Sr. Project Manager	Deputy Project Manager	Design Leader	Senior Engineer	Project Engineer	Engineer-In- Training	Designer	Senior Engineer Tech	Engineer Tech	Utility Coordinator	GIS Analyst	Billing Coordinator	Project Principal	Total Hours	Total Cost
Public Meetings (3 Public Meetings)	12	12				42	24	42						132	\$ 20,820.00
Stakeholder Meetings (Not to Exceed 40 hrs)	40	40											40	120	\$ 34,200.00
ROW Support (Not to Exceed 40hrs)	40	40											40	120	\$ 34,200.00
Subtotal Hours:	92	92	0	0	0	42	24	42	0	0	0	0	80	372	\$ 89,220.00
Subtotal Labor Cost:	\$24,380.00	\$20,700.00	\$0.00	\$0.00	\$0.00	\$5,670.00	\$3,600.00	\$5,670.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29,200.00		\$ 89,220.00

OTHER DIRECT EXPENSES	UNIT	RATE	QUANTITY	TOTAL COST
Mileage	mile	\$ 0.585	8000	\$ 4,680.00
TDLR Permitting	LS	\$ 3,500.00	1	\$ 3,500.00
Photocopies B/W (11" X 17")	each	\$ 0.30	12000	\$ 3,600.00
Photocopies B/W (8 1/2" X 11")	each	\$ 0.25	2000	\$ 500.00
Photocopies Color (11" X 17")	each	\$ 1.25	1000	\$ 1,250.00
Photocopies Color (8 1/2" X 11")	each	\$ 1.00	2000	\$ 2,000.00
Plots (Color on Photographic Paper)	per sq. ft.	\$ 5.00	200	\$ 1,000.00
Certified Mail	each	\$ 3.75	160	\$ 600.00
TOTAL OTHER DIRECT EXPENSES				\$ 17,130.00

Provider: Pape-Dawson - Survey

TASK DESCRIPTION	\$ 250.00	\$ 165.00	\$ 215.00	\$ 265.00	\$ 265.00	\$ 195.00	\$ 180.00	\$ 115.00		
	Project Surveyor (RPLS)	Survey Tech	2-man crew	3-man crew	Geospatial Manager	Senior LiDAR Technician	LIDAR Technician	Billing Coordinator	Total Hours	Total Cost
Right-of-Way (ROW) Mapping										
1. Prepare a right-of-way layout map of Cordova Road from SH 46 to SH 123, to include approximately 200-feet of intersecting rights-of-way.										
A. Pursue right-of-entry.										
a. Research ownership and create an ownership map and corresponding database for properties within the project corridor.	1	20							21	\$ 3,550.00
b. Compose, obtain City approval, and send right-of-entry request letter to property owners (2-layers deep) as a starting point. Subsequent contact efforts shall include phone calls, certified mail, as well as personal visits.	10	30						20	60	\$ 9,750.00
c. Update ownership map and database as responses are received.		10							10	\$ 1,650.00
B. Research										
a. Research, draft, and assemble the deeds and plats of adjacent properties in the project corridor. (17 plats and 50 deeds estimated)	20	130							150	\$ 26,450.00
b. Research, draft, and assemble the adjacent easements within the project corridor. (50 unplatted properties)	20	150							170	\$ 29,750.00
C. Field Recovery										
a. Create upload files for field recovery.	1	5							6	\$ 1,075.00
b. Field recover boundary evidence inside the right-of-way. (180 corners estimated)	20	60	180						260	\$ 53,600.00
c. Coordinate entry into private properties.	1	5	5						11	\$ 2,150.00
d. Field recover boundary evidence inside private properties. (80 corners estimated)	10	25	80						115	\$ 23,825.00
D. Boundary Resolution										
a. Resolve existing right-of-way lines.	40								40	\$ 10,000.00
b. Resolve adjacent property lines.	40								40	\$ 10,000.00
E. Prepare Deliverables										
a. Assemble map components. (20 Map Sheets estimated)	20	200							220	\$ 38,000.00
b. QA/QC map	20	10							30	\$ 6,650.00
c. Address City comments	2	20							22	\$ 3,800.00
2. Prepare up to 30 property descriptions.										
a. Create parcel plats.	25	240							265	\$ 45,850.00
b. Create parcel descriptions	10	190							200	\$ 33,850.00
c. QA/QC property descriptions	60								60	\$ 15,000.00
d. Address City comments	5	30							35	\$ 6,200.00
3. Stake the proposed right-of-way.										
a. Create upload files for field staking.	2	5							7	\$ 1,325.00
b. Coordinate entry into private properties.	1	5	5						11	\$ 2,150.00
c. Stake proposed right-of-way	10	30	60						100	\$ 20,350.00
4. Monument the proposed right-of-way parcels.										
a. Create upload files.	2	20							22	\$ 3,800.00
b. Coordinate entry into private properties.		5	5						10	\$ 1,900.00
c. Set monuments at parcel corners.	10	20	60						90	\$ 18,700.00
5. Deliverables										
a. Package deliverables to share with the City of Seguin.	1	5							6	\$ 1,075.00
HOURS SUB-TOTALS	331	1215	395	0	0	0	0	20		1961
TOTAL LABOR COSTS	\$82,750.00	\$200,475.00	\$84,925.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,300.00		\$370,450.00
% DISTRIBUTION OF STAFFING	16.9%	62.0%	20.1%	0.0%	0.0%	0.0%	0.0%	1.0%		
										\$370,450.00

TASK DESCRIPTION	Project Surveyor (RPLS)	Survey Tech	2-man crew	3-man crew	Geospatial Manager	Senior LiDAR Technician	LiDAR Technician	Billing Coordinator	Total Hours	Total Cost
FUNCTION CODE 160(150) - ROADWAY DESIGN										
i. Obtain or collect data to create cross-sections and digital terrain models.										
1. Create stake-out and upload files to facilitate field data collection.	1	5							6	\$ 1,075.00
2. Set, survey, and level aerial control panels. (20 panels)	2	8		20					30	\$ 7,120.00
3. Survey aerial check points. (42 points)	3	12		30					45	\$ 10,680.00
4. Acquire aerial survey data										
a. Flight Planning and approval					10	2			12	\$ 3,040.00
b. Mobilization (round trip) and Setup						6	6		12	\$ 2,250.00
c. Data Acquisition						8	8		16	\$ 3,000.00
d. Post-Processing and Calibration						5	50		55	\$ 9,975.00
e. Classification and Data Cleanup						2	20		22	\$ 3,990.00
f. Create DTM surfaces						1	10		11	\$ 1,995.00
g. Feature Extraction						4	40		44	\$ 7,980.00
h. Create Deliverables						1	10		11	\$ 1,995.00
i. QC					10				10	\$ 2,650.00
5. Acquire supplemental conventional data within obscured areas.	3	15		30					48	\$ 11,175.00
6. Blend aerial and supplemental conventional data.	1	10							11	\$ 1,900.00
7. Field verify contours.	1	2							3	\$ 580.00
ii. Obtain cross-section information along the unnamed tributary of the Guadalupe river from the Cordova Road right-of-way line to 600-feet distant from the right-of-way line for hydraulic modeling.										
1. Coordinate entry into private properties.	1	1	1						3	\$ 630.00
2. Create stake-out and upload files to facilitate field data collection.	1	5							6	\$ 1,075.00
3. Obtain cross-section data and integrate into deliverables.	1	5	10						16	\$ 3,225.00
iii. Locate above ground evidence of existing utilities, including Texas811 locate marks, correlate to map information, and obtain top of stem or invert information if possible.										
1. Contact Texas 811 and mark project area with white paint for utility locates within project area.	1	10							11	\$ 1,900.00
2. Create and update utility company contact spreadsheet as utility data is received.	1	5							6	\$ 1,075.00
3. Search Texas Railroad Commission website for pipelines within the project area.		1							1	\$ 165.00
4. Contact pipeline companies if no above ground evidence was found in the field.		1							1	\$ 165.00
5. Research and contact non-participating utility providers for locate or map data.	1	10							11	\$ 1,900.00
6. Process and visualize existing utility field data consistent with TxDOT survey codes, symbols and levels.	3	15	30						48	\$ 9,675.00
7. Rectify map data to field located above-ground evidence as appropriate.	1	10							11	\$ 1,900.00
8. Field verify utility data.	1	2							3	\$ 580.00
iv. Locate topographical features and existing improvements such as signs, paint stripes, driveways, sidewalks, curbs, and ramps.				10					10	\$ 2,650.00
1. Process and visualize topographical features and existing improvements not captured with aerial mapping, consistent with TxDOT survey codes, symbols and levels. (inside the right-of-way)	1	5		10					16	\$ 3,725.00
2. Coordinate entry into private properties.		5		5					10	\$ 2,150.00
3. Process and visualize topographical features and existing improvements not captured with aerial mapping, consistent with TxDOT survey codes, symbols and levels. (inside proposed rights-of-way)	20	90		180					290	\$ 67,550.00
4. Field verify topographical features and existing improvements.	1	4							5	\$ 910.00
v. Provide details of existing drainage features, (e.g., culverts, manholes, etc.).										
1. Process and visualize supplemental survey data of existing drainage features, consistent with TxDOT survey codes, symbols and levels.	5	25		50					80	\$ 18,625.00
2. Field verify existing drainage feature data.	1	2							3	\$ 580.00

vi. Locate wetlands if marked in the field by an environmental team.									
1. Process and visualize wetland field data, marked in the field by the environmental team, consistent with TxDOT survey codes, symbols and levels.	2	5	10					17	\$ 3,475.00
2. Field verify wetland data.	1	2						3	\$ 580.00
vii. Establish additional and verify existing control points. Horizontal and Vertical control ties will be made and tabulated to other control points in the vicinity, which were established by other sources such as the Texas Department of Transportation, or National Geodetic Survey (NGS).									
1. Research and survey existing control in the area.	1	2	5					8	\$ 1,655.00
2. Create stake-out and upload files to facilitate existing control point recovery.	1	5						6	\$ 1,075.00
3. Set, survey, and sketch project control points.	1	10	20					31	\$ 6,200.00
4. Level project control points.	4	20	40					64	\$ 12,900.00
viii. Locate boreholes.									
1. Create stake-out and upload files to facilitate field data collection.	1	3						4	\$ 745.00
2. Process and visualize bore data consistent with TxDOT survey codes, symbols and levels..	1	6	16					23	\$ 4,680.00
3. Create coordinate files for geotechnical team.	1	4						5	\$ 910.00
ix. Locate and tag trees 10-inches in diameter or greater within the project area.		2		5				7	\$ 1,655.00
x. Document project control points within a Survey Control Index Sheet and Horizontal and Vertical Control Sheet(s), signed, sealed and dated by the responsible RPLS for insertion into the plan set.	2	40						42	\$ 7,100.00
HOURS SUB-TOTALS	65	347	132	340	20	29	144	0	1077
TOTAL LABOR COSTS	\$16,250.00	\$57,255.00	\$28,380.00	\$90,100.00	\$5,300.00	\$5,655.00	\$25,920.00	\$0.00	\$ 228,860.00
% DISTRIBUTION OF STAFFING	6.0%	32.2%	12.3%	31.6%	1.9%	2.7%	13.4%	0.0%	
									\$ 228,860.00

OTHER DIRECT EXPENSES	UNIT	RATE						QUANTITY	TOTAL COST
Mileage	mile	\$ 0.585						8000	\$ 4,680.00
Deed Copies	sheet	\$ 2.00						700	\$ 1,400.00
TOTAL OTHER DIRECT EXPENSES									\$ 6,080.00

Sub Provider: Raba Kistner - Environmental

TASK DESCRIPTION	\$ 194.00	\$ 194.00	\$ 145.00	\$ 125.00	\$ 105.00	\$ 100.00	\$ 98.00	\$ 87.00	\$ 145.00	\$ 92.00	\$ 103.00	\$ 95.00	\$ 80.00	\$ 68.00	Total Hours	Total Cost
	EP&P Director	Sr. Geologist	Senior PM NEPA/NR	Senior Env Scientist	Env. Scientist II	Env. Scientist	Env. Scientist	Env. Scientist I	Pl, Arch.	Project Arch.	Historian	GIS Analyst	Business Manager	Clerical		
120.1 TxDOT Public Meeting (1)	8		24					24				8			64	\$ 7,880.00
120.2 NEPA Compliance – TxDOT Categorical Exclusion Support																
TxDOT Scoping	8		24									4			36	\$ 5,412.00
Air Quality Conformity Report Form	1		4					12							17	\$ 1,818.00
Archeology Background Study									2	24		4	2	2	34	\$ 3,174.00
Archaeological Pedestrian Survey									12	156		8	2	2	180	\$ 17,148.00
Indirect Impacts Assessment	4		16					40				16			76	\$ 8,096.00
Cumulative Impacts Analysis	4		16					40				16			76	\$ 8,096.00
Species Analysis Spreadsheet and Form	2		2			40						8			52	\$ 5,438.00
Hazardous Materials Initial Site Assessment	1		2			24						4			31	\$ 3,264.00
Project Coordination Request for Historical Studies	1		4								32	4			41	\$ 4,450.00
Community Impact Assessment	4							32				16			52	\$ 5,080.00
Traffic Noise Analysis	8		64					24				24			120	\$ 15,200.00
Surface Waters Analysis Form & 404 Impacts Table	4		4					32							40	\$ 4,140.00
Waters of the US Delineation	4		4			8		48				4			68	\$ 6,712.00
EPIC Sheet	1		1			2									4	\$ 539.00
120.3 Section 404 Nationwide Permit PCN	8		4			32						16			60	\$ 6,852.00
120.4 Environmental Coordination	32		60										24		116	\$ 16,828.00
HOURS SUB-TOTALS	90	0	229	0	0	106	0	252	14	180	32	132	28	4		1067
TOTAL LABOR COSTS	\$17,460.00	\$0.00	\$33,205.00	\$0.00	\$0.00	\$10,600.00	\$0.00	\$21,924.00	\$2,030.00	\$16,560.00	\$3,296.00	\$12,540.00	\$2,240.00	\$272.00		\$ 120,127.00
% DISTRIBUTION OF STAFFING	8.4%	0.0%	21.5%	0.0%	0.0%	9.9%	0.0%	23.6%	1.3%	16.9%	3.0%	12.4%	2.6%	0.4%		100%
																\$ 120,127.00

OTHER DIRECT EXPENSES	UNIT	RATE	QUANTITY	TOTAL COST
Mileage	mile	\$ 0.585	500	\$ 292.50
Lodging/Hotel - Taxes and Fees	day/person	\$ 45.00	2	\$ 90.00
Lodging/Hotel (Taxes/fees not included)	day/person	\$ 96.00	2	\$ 192.00
Meals (Excluding alcohol & tips) (Overnight stay required)	day/person	\$ 50.00	4	\$ 200.00
Aerial Photos	each	\$ 125.00	1	\$ 125.00
Hazmat Database	day	\$ 450.00	1	\$ 450.00
Leica Survey-Grade GPS	each	\$ 150.00	1	\$ 150.00
Environmental Field Supplies	day	\$ 25.00	5	\$ 125.00
GPS Rental	day	\$ 120.00	6	\$ 720.00
TxSite Form	each	\$ 96.00	1	\$ 96.00
Backhoe Operator	day	\$ 2,500.00	1	\$ 2,500.00
Truck	day	\$ 70.00	5	\$ 350.00
Photocopies Color (11" X 17")	each	\$ 1.25	50	\$ 62.50
Photocopies Color (8 1/2" X 11")	each	\$ 1.00	500	\$ 500.00
TOTAL OTHER DIRECT EXPENSES				\$ 5,853.00

120.6 Optional Environmental Assessment	80		120	8		96		180		16	16	80		8	604	\$ 70,444.00
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Sub Provider: Raba Kistner - Geotechnical

	\$ 180.00	\$ 155.00	\$ 135.00	\$ 110.00	\$ 75.00	\$ 95.00	\$ 120.00	\$ 70.00		
TASK DESCRIPTION	Sr. Project Manager	Project Manager	Project Engineer	EIT	Cad Tech I	Cad Tech II	Logger	Admin / Clerical	Total Hours	Total Cost
1. Field Coordination										
Staking							12		12	\$ 1,440.00
Logging							30		30	\$ 3,600.00
Drilling Coordination							8		8	\$ 960.00
Traffic Control Coordination							4		4	\$ 480.00
2. Laboratory Assignments and Testing				4					4	\$ 440.00
3. Engineering and Reporting	2	5	10	24	3	1		8	53	\$ 6,005.00
HOURS SUB-TOTALS	2	5	10	28	3	1	54	8		111
TOTAL LABOR COSTS	\$360.00	\$775.00	\$1,350.00	\$3,080.00	\$225.00	\$95.00	\$6,480.00	\$560.00		\$ 12,925.00
% DISTRIBUTION OF STAFFING	1.8%	4.5%	9.0%	25.2%	2.7%	0.9%	48.6%	7.2%		100%
										\$ 12,925.00

OTHER DIRECT EXPENSES	UNIT	RATE						QUANTITY	Total Cost
Mobilization of Drill Rig (Min Charge)	each	\$ 250.000						3	\$ 750.00
Auger Drilling, 0 to 25 ft	ft	\$ 11.000						210	\$ 2,310.00
Standard Penetration Tests, 0 to 25 ft	each	\$ 39.000						75	\$ 2,925.00
TCP Tests, 0 to 25 ft	each	\$ 39.000						15	\$ 585.00
DCP Testing	each	\$ 15.000						18	\$ 270.00
Concrete/Asphalt Patch	each	\$ 60.00						18	\$ 1,080.00
Driller Standby	hr	\$ 250.00						2	\$ 500.00
Logger Truck	mile	\$ 0.83						300	\$ 249.00
Supplies	per boring	\$ 8.00						18	\$ 144.00
Traffic Control (Full Lane Closure)	day	\$ 1,500.00						3	\$ 4,500.00
Atterberg Limits	each	\$ 95.00						21	\$ 1,995.00
Moisture Content	each	\$ 13.00						80	\$ 1,040.00
Minus 200-mesh Sieve	each	\$ 60.00						6	\$ 360.00
Unconfined Compression (Soil)	each	\$ 59.00						6	\$ 354.00
Sulfate Content Testing	each	\$ 95.00						4	\$ 380.00
Texas Triaxial (Tex-117-E)	each	\$ 1,600.00						2	\$ 3,200.00
Lime Series Curve	each	\$ 500.00						4	\$ 2,000.00
TOTAL OTHER DIRECT EXPENSES									\$ 22,642.00

Optional Line Items

Falling Weight Deflectometer Analysis (~3.5 miles) \$ 15,000.00

Sub Provider: Rios

TASK DESCRIPTION	\$ 190.00	\$ 150.00	\$ 95.00	\$ 160.00	\$ 145.00	\$ 110.00	\$ 90.00	\$ 105.00	\$ 132.00	\$ 255.00	\$ 80.00	\$ 70.00		
	Senior Project Manager	Project Manager	Assistant Project Manager	Engineer - Senior	Professional Engineer	Engineer Technician - Senior	Engineer Technician	SUE Field Manager	Designating QLB / 1-Man	Designating QLB / 2-Man	Project Coordinator	Admin / Clerical	Total Hours	Total Cost
1. Quality Level "B" SUE - Designate	4	12	24	2	12	2	40	30	80	40	10	2	258	\$ 35,570.00
2. Quality Level "A" SUE - Test Holes	2	4	4	2	4	1	12	24			8	2	63	\$ 63.00
HOURS SUB-TOTALS	6	16	28	4	16	3	52	54	80	40	18	4		321
TOTAL LABOR COSTS	\$1,140.00	\$2,400.00	\$2,660.00	\$640.00	\$2,320.00	\$330.00	\$4,680.00	\$5,670.00	\$10,560.00	\$10,200.00	\$1,440.00	\$280.00		\$42,320.00
% DISTRIBUTION OF STAFFING	1.9%	5.0%	8.7%	1.2%	5.0%	0.9%	16.2%	16.8%	24.9%	12.5%	5.6%	1.2%		100%
														\$42,320.00

OTHER DIRECT EXPENSES	UNIT	RATE											QUANTITY	Total Cost
Mileage	mile	\$ 0.585											2100	\$ 1,228.50
0 - 6 feet	each	\$ 1,300.000											25	\$ 32,500.00
6.01 - 10 feet	each	\$ 1,750.000											3	\$ 5,250.00
10+ feet	each	\$ 2,800.000											2	\$ 5,600.00
Pavement Coring	wach	\$ 350.000											5	\$ 1,750.00
Flowable Backfill	each	\$ 250.000											5	\$ 1,250.00
Traffic Control (Standard)	day	\$ 525.00											2	\$ 1,050.00
Traffic Control (W/ TMA)	day	\$ 875.00											2	\$ 1,750.00
Survey (RPLS) - QL"B" & QL"A"	day	\$ 2,500.00											5	\$ 12,500.00
TOTAL OTHER DIRECT EXPENSES														\$ 62,878.50

Sub Provider: CD&P

TASK DESCRIPTION	\$ 180.00	\$ 150.00	\$ 125.00	\$ 100.00	Total Hours	Total Cost
	Public Involvement Manager	Sr. Public Involvement Specialist	Public Involvement Specialist	Public Involvement Coordinator		
Stakeholder Communications						
Stakeholder Database		2		12	14	\$ 1,500.00
Stakeholder outreach with documentation	4		16	16	36	\$ 4,320.00
Responses to questions and comments with documentation	8		16	16	40	\$ 5,040.00
Planning and facilitate up to 10 stakeholder meetings & up to 4 days of office hours	72			72	144	\$ 20,160.00
Stakeholder meeting materials	4	16		8	28	\$ 3,920.00
Stakeholder meeting summaries	8			20	28	\$ 3,440.00
Project Materials						
Review materials and project website (2 rounds)	4		8		12	\$ 1,720.00
Public Meetings up to 2						
Meeting planning (logistics, location, facility prep)	4		16	16	36	\$ 4,320.00
Meeting announcements	2	6	8	8	24	\$ 3,060.00
Meeting facilitation	12		12	24	48	\$ 6,060.00
Public meeting materials	8	20	8	12	48	\$ 6,640.00
Electronic version of public meeting materials for posting online		8			8	\$ 1,200.00
Summary report and documentation	8		16	16	40	\$ 5,040.00
Project Management						
Project coordination meetings and updates (up to 12)	12		12		24	\$ 3,660.00
Monthly invoicing and status reports (up to 12)	12		12		24	\$ 3,660.00
ROW,UTILITY, CONSTRUCTION PHASE						
Stakeholder Communications						
Stakeholder Database		2		40	42	\$ 4,300.00
Stakeholder outreach with documentation	8	15		15	38	\$ 5,190.00
Responses to questions and comments with documentation	8	15		15	38	\$ 5,190.00
Planning and facilitate up to 2 community meetings	32		32	32	96	\$ 12,960.00
Project Materials						
Review materials and project website (2 rounds)	4		8		12	\$ 1,720.00

Project Management						
Project coordination meetings and updates (up to 30)	30		30		60	\$ 9,150.00
Monthly invoicing and status reports (up to 30)	30		30		60	\$ 9,150.00
HOURS SUB-TOTALS	270	84	224	322		900
TOTAL LABOR COSTS	\$48,600.00	\$12,600.00	\$28,000.00	\$32,200.00		\$ 121,400.00
% DISTRIBUTION OF STAFFING	30.0%	9.3%	24.9%	35.8%		100%
						\$ 121,400.00

OTHER DIRECT EXPENSES	UNIT	RATE		QUANTITY		TOTAL COST
Mileage	mile	\$ 0.585		3390		\$ 1,983.15
Photocopies Color (11" X 17")	each	\$ 1.25		1000		\$ 1,250.00
Printing expense (signage, foam boards, postcards)						\$ 2,000.00
Postage and mailing services						\$ 2,000.00
General meeting costs (venue, supplies)						\$ 500.00
Advertisements						\$ 1,000.00
TOTAL OTHER DIRECT EXPENSES						\$ 8,733.15

Sub Provider: Pinnacle

TASK DESCRIPTION	\$ 125.00		
	Parcel Acquisition Manager	Total Hours	Total Cost
Right of Entry	255	255	\$ 31,875.00
Negotiations	2964	2964	\$ 370,500.00
Condemnation	660	660	\$ 82,500.00
Personal Property Relocation	160	160	\$ 20,000.00
Residential Relocation	400	400	\$ 50,000.00
Business Relocation	288	288	\$ 36,000.00
Project Management (57 Parcels)	255	255	\$ 31,875.00
HOURS SUB-TOTALS	4982		4982
TOTAL LABOR COSTS	\$622,750.00		\$ 622,750.00
% DISTRIBUTION OF STAFFING	100.0%		100%
			\$ 622,750.00

OTHER DIRECT EXPENSES	UNIT	RATE	QUANTITY	TOTAL COST
Mileage	mile	\$ 0.585	10000	\$5,850.00
TOTAL OTHER DIRECT EXPENSES				\$5,850.00

