

May 24, 2023

Nathan Garza
Capital Projects Manager
Transportation & Capital Improvements
550 Landa St
New Braunfels, TX 78130

Re: City of New Braunfels – Common Street Design Services Phase II
Project No. 22-021


Dear Garza:

This letter is to outline the supplemental project scope, level of effort, and schedule to complete the Common Street project from Loop 337 to FM 306 as part of the 2023 Bond Program.

The work further described and detailed in attached exhibits represent Pape-Dawson's understand of the services required by the City to complete this effort.

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

Sincerely,
Pape-Dawson Engineers, Inc.


John Tyler, P.E., RAS
Vice President

Attachments:

Exhibit A – Scope of Services
Exhibit B – Level of Effort
Exhibit C – Design Schedule

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Exhibit A

Agreement Between City of New Braunfels (CITY) and Pape-Dawson Engineers, Inc.
(ENGINEER) for Professional Services

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EXHIBIT A

SERVICES TO BE PROVIDED BY THE ENGINEER

The ENGINEER shall provide engineering services as outlined below for the design of Common Street, an approximately 1.9-mile project corridor in the City of New Braunfels, to be upgraded to be a 5-lane typical section per Preliminary Engineering Report submitted October 4, 2022.

BASIC SERVICES – GENERAL REQUIREMENTS

1. PROJECT MANAGEMENT

1.1. Project Management and Coordination

The ENGINEER shall:

- Designate a Registered Professional Engineer licensed to practice in the State of Texas to be the Project Manager throughout the duration of the Project. The ENGINEER shall not replace the designated Project Manager without the written approval of the CITY. The ENGINEER'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.
- Coordinate all subconsultant activity to include quality, timeliness, and consistency of the deliverables. Arrange and attend regular internal team project coordination meetings with task leaders and administer daily communications throughout all phases of the project development process.
- Coordinate issues and communications with City of New Braunfels through the CITY's Project Manager. The CITY will communicate the resolution of issues and provide the ENGINEER direction through the CITY's Project Manager
- Document phone calls and conference calls as required during the project to coordinate the work for various team members.
- All physical documents submitted to the CITY shall be accompanied by a letter of transmittal which shall include the project name, project limits, county, CSJ (if applicable), contract number, and an inventory of attachments. Electronic documents submitted by email shall not require a transmittal.
- Prepare a detailed graphic project work schedule indicating tasks, critical dates, milestones, deliverables, and CITY review requirements. The ENGINEER shall review the schedule monthly and provide updates regarding its progress on the schedule to the CITY.

1.2. Project Meetings

The ENGINEER shall:

- Arrange and attend a kick-off meeting with the CITY's Project Manager and subject matter experts (SMEs) to confirm overall project schedule, design approach, and data collection.
- Design Comment Review: attend design comment review meetings with the CITY
- Coordinate with Local Entities and Stakeholders: identify stakeholder requests and requirements to be incorporated into the design and/or implementation. Stakeholders will be identified by the City.
- Meet with the CITY's Project Manger's monthly to discuss overall project status and pending items.
- Prepare, Distribute, and File Correspondence for all meeting types.

1.3. Progress Reporting and Invoicing

The ENGINEER shall:

- Submit to the CITY monthly invoices in a format acceptable to the CITY with the following information:
 - 1) The budgeted and currently authorized amounts for each task, along with the invoiced and percent completed to-date amounts.
 - 2) An updated Project Schedule and related documents.
 - 3) A monthly progress report of the status of work performed through the end of the month. The ENGINEER shall summarize decisions or agreements made and shall outline unresolved or pending issues requiring the CITY's involvement or decision.
- Administer subconsultant invoices.

1.4. Design Criteria

- The ENGINEER shall identify, develop, and present the applicable design criteria to the City of New Braunfels for concurrence prior to beginning design of the project. The ENGINEER shall coordinate with the City of New Braunfels to obtain written concurrence prior to proceeding with a design if any questions arise during the design process regarding the applicability of the established design criteria.
- The design standards to be used shall include but not be limited to the current City of New Braunfels Zoning Regulations, Historic Design Guidelines, AASHTO Guide for the Development of Bicycle Facilities, Public Right of Way Accessibility

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Guidelines (PROWAG) regulated by the Texas Department of Licensing and Regulation (TDLR), and the Texas Pollutant Discharge Elimination System (TPDES) Guidelines as appropriate for cost effective design.

- The ENGINEER shall identify, prepare exhibits, and complete all necessary forms for each Design Exception and Waiver required within project limits prior to the preliminary schematic completion for coordination of approvals.

1.5. Right of Entry (ROE)

The ENGINEER shall:

- Notify the CITY if permission to enter private property is required to perform any surveying, environmental, design, or geotechnical activities.
- Prepare Right of Entry agreements to adjacent landowners, obtain CITY signature on Right of Entry agreements, and coordinate with landowners as required to request approval of Right of Entry agreements for field work outside of the existing public Rights-of-Way.
- Utilize a preferred outline for ROE agreements as provided by the CITY and combine all ROW for all disciplines into one agreement.

1.6. Media Format

- The ENGINEER shall furnish Microsoft Office and MicroStation and GEOPAK computer generated media containing the schematic and final design layouts to the CITY. All supporting attachments and exhibits must accompany the layouts.
- All media shall be developed in English units.
- Once the project goes to bid, all electronic files shall be delivered to the CITY within 30 days of written request.

1.7. Quality Assurance and Quality Control

The ENGINEER shall:

- Provide documentation of peer review at all levels with each submittal. ENGINEER will follow its standard QA/QC procedures, to include quality control in daily performance of the services, interdisciplinary review, and overall technical review for quality assurance.
- Provide written responses to all CITY-provided review comments and other agency comments with each successive submittal.

BASIC SERVICES - TASK DESCRIPTIONS (PLANNING PHASE)

FEASIBILITY STUDIES

The ENGINEER shall assist the CITY with agency meetings during development of the design as requested by the CITY. If requested by the CITY, the ENGINEER shall prepare a Notice and Opportunity to Comment and assist the CITY with stakeholder meetings, public meetings, and public hearing.

An itemization of the specific design and engineering work to be performed is detailed below.

2. ROUTE AND DESIGN STUDIES

2.1. Data Collection and Field Reconnaissance

The ENGINEER shall collect, review and evaluate data described below. The ENGINEER shall notify the CITY in writing whenever the ENGINEER finds disagreement with the information or documents:

1. Data, if available, from the City of New Braunfels, including “as-built plans”, existing schematics, right-of-way maps, Subsurface Utility Engineering (SUE) mapping, existing cross sections, existing planimetric mapping, environmental documents, existing channel and drainage easement data, cultural resources (archeological/historic sites), identified endangered species, identified hazardous material sites, current unit bid price information.
2. Traffic Impact Analysis reports, existing traffic volumes, and accident data as provided by the CITY.
3. Documents for existing and proposed development along the project, thoroughfare planning, budget, and local ordinances related to project development.
4. Utility plans and documents from appropriate municipalities and agencies.
5. Flood plain information and studies from the Federal Emergency Management Agency (FEMA), the United States Army Corps of Engineers (USACE), and other governmental agencies.
6. Conduct field reconnaissance and collect data including a photographic record of notable existing features.

2.2. Schematic Design

A preliminary engineering schematic was developed from apparent ROW in a prior project phase approved by the CITY. The ENGINEER shall update the approved preliminary engineering schematic horizontal and vertical alignments; plan view design elements to align with apparent ROW as determined by the ENGINEER's surveyor.

Refinements to the preliminary engineering schematic should include:

- Off-site drainage easement locations with associated improvements
- Temporary and permanent signalization based on recent adjacent development and projects in progress or completed by others

2.3. Preliminary Cost Estimate

The ENGINEER shall prepare a preliminary cost estimate for construction and shall assist CITY in determining costs for required easements and/or ROW and associated improvements, and eligible utility adjustments. Current unit bid prices will be used in preparation of the estimate, along with notation of projected inflationary considerations.

2.4. Agency Coordination and Public Involvement

- Assist the CITY in conducting meetings with various agencies and/or stakeholders to discuss and review the design. The ENGINEER shall document and respond to issues related to the design.
- Assist in conducting public meetings and public hearing during the project development process. The ENGINEER shall prepare exhibits, constraints maps, other necessary exhibits, and assist the CITY in the presentation.
- Participate in and facilitate Meetings with Affected Property Owners (MAPOs).
- Prepare the adjacent property owner list, and assist with conducting public meeting.
- Compile public comments received and responses to comments during the MAPOs and public meeting. Prepare documentation of MAPOs and public meetings as required. The ENGINEER must comply with the Environmental Compliance Toolkits related to public involvement provided by the CITY.
- The ENGINEER shall prepare an agenda, sign-in sheet, and meeting minutes within seven (7) working days of stakeholder meetings.
- It is assumed that the Schematic Design, issued in October 2022, from previous contracts between the CITY and the ENGINEER shall be used as the basis of design for the remainder of this project. As such, no further Schematic Design is necessary for the scope of this contract. If it is determined that additional schematic design is required, an Additional Services Request will be negotiated.

3. SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT

Based on a previously completed Environmental Constraints Analysis, the Engineer will complete coordination with the Texas Historical Commission (THC) for cultural resource compliance and possible construction monitoring.

Engineer will update the Threatened and Endangered Species Habitat Assessment.

3.1. Environmental Documentation.

Each environmental service provided by the ENGINEER shall have a deliverable. Deliverables shall summarize the methods used for the environmental services and shall summarize the results achieved. The summary of results shall be sufficiently detailed to provide satisfactory basis for thorough review by the City and (where applicable) agencies with regulatory oversight. All deliverables shall meet regulatory requirements for legal sufficiency.

1. Quality Assurance/Quality Control Review
For each deliverable, the ENGINEER shall perform quality assurance quality control (QA/QC) reviews of environmental documents and on other supporting environmental documentation to determine whether documents conform with current state and federal laws, regulations, policies, guidance, agreements, and memoranda of understanding between the City and other state or federal agencies. Upon request by the City, the ENGINEER shall provide documentation that the QA/QC reviews were performed by qualified staff.
2. Electronic versions of each deliverable must be written in software which is compatible to the City and must be provided in a changeable format for future use by the City. The ENGINEER shall supplement all hard copy deliverables with electronic copies in searchable Adobe Acrobat™ (.pdf) format unless another format is specified. Each deliverable shall be a single, searchable .pdf file that mirrors the layout and appearance of the physical deliverable. The ENGINEER shall deliver the electronic files in Microsoft Windows format, or through the ftp site.
3. Submission of Deliverables
 - All deliverables must comply with all applicable state and federal environmental laws, regulations, and procedures.
4. The CITY shall provide comments on draft deliverables to the ENGINEER. The ENGINEER shall adjust the deliverable as applicable:
 - to include any CITY commitments, findings, agreements, or determinations (e.g., wetlands, endangered species consultation, Section 106, or Section 4(f)), required for the Transportation Activity as specified by the CITY.
 - incorporate the results of public involvement and agency coordination.

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- reflect mitigation measures resulting from comments received or changes in the Transportation Activity; and
 - include with the revised document a comment response form (matrix) in the format provided by the CITY.
5. All photographs shall be color presentation and electronic. All photographs shall be well focused and clearly depict details relevant to an evaluation of the project area. Provision of photographs shall be electronic presentations of comparable quality. Comparable quality electronic photograph presentations shall be at least 1200 x 1600-pixel resolution. Photographs shall be attached to separately labeled pages that clearly identify project name; project identification (ID) number; location description, address, or Universal Transverse Mercator (UTM) of resource; description of the picture and direction of the photographic view.

3.2 Cultural Resources

As the proposed undertaking will be conducted on lands owned and controlled by the CITY, the project is subject to review under the Antiquities Code of Texas (ACT) (Texas Natural Resource Code, Title 9, Chapter 191). Oversight of compliance with the ACT is administered by the Texas Historical Commission (THC).

ENGINEER will prepare a Texas Antiquities Committee (TAC) permit application and scope of work, including 30-days of construction monitoring, the production of a technical report, and curation costs and efforts of field records and artifacts at a state-approved repository.

Project Management and Agency Coordination

The ENGINEER will consult with the THC and generate a permit application and scope of work (SOW) that will clearly outline the methods of investigations proposed for the proposed project. The SOW will be submitted to the agencies for review and official permit issuance by the THC.

Project management will consist of project set up, coordination of schedules with CITY, scheduling the Engineer Archeologist staff, and establishing management and safety protocols.

Monitoring Investigations

The ENGINEER will provide one (1) qualified Professional Archaeologist to monitor all subsurface excavations associated with the project. The Archaeologist will be present during scheduled excavations to record and document any additional historic or prehistoric features. In close coordination with the contractor's Site Safety Manager, the Archaeologist will comply with applicable Occupational Safety and Health Administration (OSHA) safety regulations and wear standard Personal Protection Equipment (PPE) at all times.

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Excavation monitoring will not impede progress during on-going construction activities. Should cultural deposits be encountered during the archaeological monitoring, the Archaeologist will request that excavations temporarily cease to allow the onset of safe conditions for archaeological crews, and adequate time for documentation. No soil screening will be conducted as a part of these investigations. Documentation will consist of recording the location of the feature using a hand-held Global Positioning System unit, photographic documentation, scaled drawing of a profile, if warranted, and description of feature characteristics on a monitoring log and feature form. The Principal Investigator will coordinate all communications between the CITY and THC.

The Archeologist will apply a limited artifact collection policy, as part of which only temporally diagnostic artifacts associated with intact cultural deposits or features (i.e., and archaeological site) are collected. Furthermore, depending on the temporal affiliation of a feature, documentation may also include the collection of a sample of the feature content. Diagnostic materials and feature samples can aid in assessing the ages of the deposits and features and will have to be curated at a state-accredited curation facility. By collecting only temporally diagnostic artifacts, The Archeologist will limit permit-mandated curation costs. All work will comply with THC and Council of Texas Archeologists (CTA) standards for the overall project, unless documented field conditions warrant otherwise.

Reporting and Curation

Following the completion of the monitoring investigations, the Archeologist will produce a draft technical report of findings. The draft will be produced in accordance with the Rules of Practice and Procedure of the THC, as outlined in Chapter 26, Section 27, and the CTA Guidelines for Cultural Resources Management Reports. The draft report will describe the cultural setting of the project area, methodology, and the investigative findings. Additionally, the draft report will include recommendations for further work or no further work with appropriate justifications based on the requirements of 13 TAC 26.5(35), 13 TAC 26.20(1), and 13 TAC 26.20(2). The report will be submitted to the CITY for review. Upon approval by the CITY, the Archeologist will submit copies of the draft report to the THC for their minimum 30-day review. Following the completion of the review, the Engineer Archeologist will make any necessary revisions and prepare the final report under the TAC Permit.

Any diagnostic artifacts collected during field investigations will be submitted for final curation to the Center for Archaeological Research at the University of Texas at San Antonio for curation. Furthermore, all project related documentation produced during the investigations will be curated in accordance with federal regulation 36 CFR Part 79, and THC requirements for State Held-in-Trust collections.

3.3 Threatened and Endangered Species Habitat Evaluation Report

This task includes an assessment of habitat for rare, threatened, and endangered species and U.S. Fish & Wildlife designated critical habitat. The ENGINEER will research readily available environmental information from appropriate local, state, and federal agencies

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relative to the project area. This will include a review of desktop resources such as USGS topographic maps, aerial photography, Texas Parks and Wildlife Department (TPWD), Natural Diversity Database (TXNDD) Element of Occurrence Records (EOR), and TPWD Rare Resources by County lists. A U.S. Fish & Wildlife designated critical habitat field visit will be conducted in support of the assessment. The vegetation of the project area will be characterized, as will the ecological setting in accordance with TPWD map publications, including *The Vegetation Types of Texas*. This field data will aid in determining the potential presence habitat suitable for state and federally listed species and critical habitat in the proposed project area.

The ENGINEER will prepare a report documenting the findings, which will include:

- Executive Summary
 - Introduction (Project Purpose and Location)
- Topography and Setting
 - Topography and Drainage
 - Aerial Photography
 - Ecological Setting
 - Wetlands
- Field Investigation
- Texas Parks and Wildlife Annotated List of Rare Species
- Texas Natural Diversity Database
- U.S. Fish and Wildlife Service Information Planning and Conservation System data and Critical Habitat
- Migratory Bird Treaty Act Considerations
- References and Acronyms

3.4 Limitations and Assumptions

1. Any studies, field visits, or other activities that may be requested by CITY or other parties and are not specifically referenced in this proposal are excluded from this scope of work (i.e., Waters of the U.S. Delineation, Phase I ESA). It is assumed that TxDOT will not have environmental oversight.
2. *Agency Coordination:* Based on the information provided by the CITY, the proposed project does not require compliance with other cultural resources regulations, such as Section 106 of the National Historic Preservation Act.
3. *Additional Site Testing/Data Recovery:* This proposal represents construction monitoring investigations only.
4. *Contractor Coordination:* It is assumed that CITY will advise contractors in advance of the need to accommodate the archaeological activities, and potential temporary cessation of work activities to allow for this scope of work to be performed successfully and to satisfy obligations under the ACT.

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5. *Additional Days of Monitoring:* This proposal is based on 30, 10-hour days of monitoring by one (1) qualified Archaeologist based on the information provided by the CLIENT.
6. *Safety Training:* This proposal does not include project-related or site specific training or expenses.
7. *Documentation of Cultural Resources:* ENGINEER assumes that the documentation of a maximum of two (2) new/revisited archaeological site during the project based on the cultural and environmental setting of the Project Area.
8. *Unmarked Burials/Human Remains:* In the event that human remains are encountered in any subsurface context, work will halt immediately within 50 feet, precautions will be taken, and the CITY and THC will be immediately notified.
9. *Additional In-Depth Archival Research:* ENGINEER assumes no additional archival research will be required for the proposed project.
10. *Curation and Special Analysis:* ENGINEER will apply a limited artifact collection policy where only artifacts that are temporally diagnostic will be collected and analyzed. No special analyses will be conducted as part of this scope. All artifacts collected and the project-associated documents will be curated at a State-approved curation facility.

4. TOPOGRAPHIC SURVEY AND RIGHT-OF-WAY (ROW) DATA

General Standards for Surveying

All surveys must meet or exceed the standards set in the Professional Land Surveying Practices Act, the General Rules of Procedures and Practices promulgated by the Texas Board of Professional Engineers and Land Surveyors (TBPELS), and shall be accomplished in an organized and professional manner.

The ENGINEER's Surveyor shall use the North American Datum of 1983, NAD 83 (NA2011), epoch 2010, Texas State Plane Coordinate System, South Central Zone, with values in U.S. Survey Feet, as the basis for all horizontal coordinates derived. Project or surface coordinates will be calculated by applying a Surface Adjustment Factor to State Plane Coordinate values. The Surface Adjustment Factor for this project will be 1.00014, to match the mobile LiDAR mapping data obtained during the first phase of this project.

Elevations shall be based on the North American Vertical Datum 88 (NAVD88), GEOID18.

The ENGINEER's Surveyor shall provide temporary signing and traffic control in and around survey operations; the signing and traffic control shall comply with provisions of the Texas Manual of Uniform Traffic Control Devices. All signs, flags and safety equipment shall be provided by the ENGINEER's Surveyor. The ENGINEER's

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Surveyor shall notify the CITY at least five working days in advance of any lane closures.

The ENGINEER's Surveyor shall provide Survey Data (original and processed) to the CITY on a compact disk or other approved medium. The current program formats acceptable to the CITY are: *Microsoft Office Word 2010* for word processing, *MicroStation V8i* and *GEOPAK Survey* for graphics applications and ArcGIS for its Geo-Database platform. Data collection programs must be compatible with the current import formats allowed by *GEOPAK Survey* and be attributed with current Feature Codes.

The ENGINEER's Surveyor shall perform Quality Control/Quality Assurance on all procedures, field surveys, data, and products prior to delivery to the CITY.

ROW MAPPING

ROW Mapping for this project shall include the performance of on the ground surveys and preparation of parcel maps, and legal descriptions (metes and bounds descriptions). The purpose of right-of-way mapping is to prepare documents suitable for the acquisition of real property interests and the probable issuance of a title policy.

The ENGINEER shall review and evaluate the proposed or existing right-of-way map to verify that all construction staging and alignment considerations have been taken into account. The ENGINEER shall make every effort to prevent detours and utility relocations from extending beyond the proposed right-of-way lines. The ENGINEER shall notify the CITY in writing if it is necessary to obtain additional construction easements or rights-of-entry and shall provide justification for such action. The ENGINEER shall be responsible for identifying and delineating any temporary construction easements in areas outside the CITY's Right of Way. The CITY shall secure the necessary legal instruments.

4.1. Procedure.

All standards, procedures and equipment used by the ENGINEER's Surveyor shall be such that, at a minimum, the results of the survey shall be in compliance with the "Precision and Accuracy Requirements" set forth by the latest Board Rule as promulgated by the Texas Board of Professional Engineers and Land Surveyors (TBPELS).

A. Abstract Map (Working Sketch)

The ENGINEER's Surveyor shall prepare an abstract map sufficient to determine the following:

- Any and all interests of public record held in the land to be acquired.
- The total record holdings to be acquired from an owner contiguous to a land.

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- Any and all interests in land held in common to be acquired (shopping mall parking lots, subdivision reserves, etc.)
- Any and all improvements proposed by other agencies which may have a bearing on project development.
- All called monuments, bearings, and distances as per recorded information.

B. Right-of-Way Map

The ENGINEER's Surveyor shall field locate items such as: property corners, existing right-of-way markers, improvements, and visible utilities to prepare an electronic version (MicroStation) of a right-of-way base map for team use and reference. The base map shall be mostly composed of apparent right-of-way geometry, resolved geometry shall be calculated for proposed easements and right-of-way parcels.

C. Exhibits

The ENGINEER's Surveyor shall prepare a Property Description for each parcel or tract consisting of two parts: (1) a metes and bounds description of the property and (2) a parcel plat. Each part of a Property Description must be signed and sealed by a RPLS.

1) Metes and bounds description

A metes and bounds description must be prepared for each parcel of land to be acquired. Metes and bounds descriptions must include, but need not be limited to, the following items of information:

- State, County, and Survey within which the proposed parcel of land to be acquired is located.
- A reference to unrecorded and recorded subdivisions by name, lot, block, and recording data to the extent applicable.
- A reference by name to the grantor and grantee, date and recording data of the most current instrument(s) of conveyance describing the parent tract.

Where possible, the ENGINEER shall use execution dates in deed references as opposed to recording or filing dates. In any case, the metes and bounds description shall make clear which date is being used.

- A point of commencing.
- A point of beginning with the appropriate N and E surface coordinates.

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- A series of courses, identified by number and proceeding in a clockwise direction, describing the perimeter of the parcel of land to be acquired, and delineated with appropriate bearings, distances, and curve data.

Curve data must include the radius, delta angle, arc length, and long chord bearing and distance.

Each course must be identified either as a proposed right-of-way line, an existing right-of-way line, or a property line of the parent tract. Each property line of the parent tract must be described with an appropriate adjoiner call.

- A description of all monumentation set or found shall include, as a minimum, size and material.
- A reference to the source of bearings, coordinates, and datum used.

2) Parcel plat

A parcel plat must be prepared for each parcel of land to be acquired. Parcel plats must include each and every item of information shown on the right-of-way map which concerns the individual parcel.

4.2. General Specifications for ROW Mapping

For purposes of this Agreement, the following general specifications for right-of-way mapping apply:

- Parcel plats shall be submitted to the CITY on 8 ½ inch by 11 inch bond paper with respective borders of 7 ½ inches by 10 inches, positioned ½ inch from the top, bottom, and right edge of the sheet. Match lines must be used where more than one sheet is required.
- Parcel plats shall be drawn to a preferred scale of 1 inch = 50 feet or other appropriate scale approved by the CITY. In the case of a very large parcel the ENGINEER's Surveyor shall use multiple 8 ½ inch by 11 inch sheets with matching lines.
- The smallest size lettering acceptable on a parcel plat shall be 0.06 of an inch (Leroy #60).
- Property description shall be submitted on 8 1/2"inch by 11 inch bond paper.

4.3. Deliverables for ROW Mapping.

The following shall be provided:

- An Abstract Map (Working Sketch) of the current record title holders, in electronic (MicroStation) format.

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- A Preliminary Map showing the proposed schematic and existing right-of-way, in electronic (MicroStation) format.
- Property Descriptions (including parcel plat and metes and bounds description) for four (4) parcels and two (2) drainage easements (Parcels 121829, 5446, 50736, 412313, 143139, and 141893)
- Documentation stating that the appropriate monuments were set on the proposed right-of-way lines at intersecting property lines, and at all PCs, PTs, angle points, and intersecting right-of-way lines of side streets
- Additional Property Descriptions beyond the six (6) scoped above shall be provided for a fee of \$8,000 each.

5. DESIGN SURVEYS

5.1. General Description.

The ENGINEER will perform the research, field work, analysis, computation, and documentation necessary to provide detailed topographic (3-dimensional) mapping of a project site for the purpose of design. Limits of survey for this project are Common Street, from Loop 337 to FM 306, and seven (7) sites outside the Common Street right-of-way for additional mapping and possible easement or ROW acquisition.

5.2. Tasks to be Completed.

The ENGINEER's Surveyor shall perform the following:

- a. Set monuments and establish values for primary and secondary control points.
- b. Obtain or collect data to create cross-sections at 50' intervals and digital terrain models.
- c. Locate above ground evidence of existing utilities, including power poles, valves, and markers, excluding wire sags, inverts, and Texas 811 marks. Texas 811 will be contacted only to clear installations for control or boundary monuments.
- d. Locate topographical features and existing improvements.
- e. Provide details of existing drainage features within the project area along Common Street as well as within seven (7) sites identified outside Common Street right-of-way, (e.g., culverts, manholes, etc.), including invert, top, and size data.
- f. Locating existing apparent rights-of-way outside of the areas identified for possible easement or right-of-way acquisition.
- g. Review right-of-way maps to resolve the existing apparent rights-of-way outside the areas identified for possible easement or right-of-way acquisition
- h. Locate boreholes.

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- i. Tree Survey – collect trunk diameter at waist height, species and canopy spread for all trees of diameter four inches and greater. Multi-trunk trees shall be labeled to include both main and an additional 4 secondary trunk sizes, at waist height.
- j. Hydrographic surveying is not included in this survey scope.
- k. Mapping River/Creeks Bathymetry is not included in this survey scope.
- l. Update existing control data and publish results in survey control data sheets for inclusion into a construction plan set.

The ENGINEER's Surveyors shall also prepare a *Survey Control Index Sheet* and a *Horizontal and Vertical Control Sheet(s)*, signed, sealed and dated by the responsible RPLS for insertion into the plan set. The *Survey Control Index Sheet* shows an overall view of the project control and the relationship or primary monumentation and control used in the preparation of the project; whereas, the *Horizontal and Vertical Control sheet(s)* identifies the primary survey control and the survey control monumentation used in the preparation of the project. Both the *Survey Control Index Sheet* and the *Horizontal and Vertical Control Sheet(s)* must be used in conjunction with each other as a set.

5.3. Technical Requirements.

Design surveys shall be performed under the supervision of a RPLS currently registered with the TBPLS. Side shots or short traverse procedures used to determine horizontal and vertical locations must meet the following criteria:

- i. Side shots or short traverses shall begin and end on horizontal and vertical ground control as described above.
- ii. Standards, procedures, and equipment (may be GPS Equipment, LiDAR, Total Stations, etc.) used shall be such that horizontal locations relative to the control may be reported within the following limits:
 - Bridges and other roadway structures: less than 0.1 of one foot.
 - Utilities and improvements: less than 0.2 of one foot.
 - Cross-sections and profiles: less than 1 foot.
 - Bore holes: less than 3 feet.
- iii. Standards, procedures, and equipment (may be GPS Equipment, LiDAR, Total Stations, etc.) used shall be such that vertical locations relative to the control may be reported within the following limits:
 - Bridges and other roadway structures: less than 0.02 of one foot.
 - Utilities and improvements: less than 0.1 of one foot.
 - Cross-sections and profiles: less than 0.2 of one foot.
 - Bore holes: less than 0.5 of one foot.

5.4. Deliverables for Design Survey.

- Digital Terrain Models (DTM) and the Triangular Irregular Network (TIN) files in a format acceptable by the CITY.
- Maps, plans, or sketches prepared by the ENGINEER's Surveyor showing the results of field surveys.
- Computer printouts or other tabulations summarizing the results of field surveys.
- Digital files or media acceptable by the CITY containing field survey data (ASCII Data files).
- Maps, plats, plans, sketches, or other documents acquired from utility companies, private corporations, or other public agencies, the contents of which are relevant to the survey.
- Field survey notes, as electronic and hard copies.
- An 8 ½ inch by 11 inch survey control data sheet for each control point which must include, but need not be limited to, a location sketch, a physical description of the point including a minimum of two reference ties, surface coordinates, a surface adjustment factor, elevation, and the horizontal and vertical datums used.

6. GEOTECHNICAL BORINGS AND INVESTIGATIONS

All geotechnical work should be performed in accordance with the latest version of TxDOT's Geotechnical Manual and Manual of Test Procedures. American Society for Testing Materials (ASTM) test procedures will be used only in the absence of TxDOT procedures. All soil classification should be done in accordance with the Unified Soil Classification System

6.1. Field and Laboratory Workplan.

The ENGINEER shall recommend the location and depth of proposed soil borings, testing and analysis as needed for pavement design recommendations. The CITY will review and provide comments on the ENGINEER's proposed field work plan. Upon approval, the ENGINEER shall perform the field work, soil testing and prepare the boring logs.

The ENGINEER shall provide a letter to the CITY's Project Manager showing the proposed dates, anticipated durations, and traffic control standards per TMUTCD to be used for the field work for review and approval prior to beginning investigations. Borings and cores will be located in the field utilizing handheld GPS equipment providing the coordinates. The Texas 811 One Call system will

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be contacted for location services prior to drilling operations. Groundwater measurements, if encountered, will be taken at the time of drilling only. After completion of borings, open boreholes will be backfilled with soil cuttings or bentonite chips. The holes through the existing pavement sections shall be patched using "cold patch" asphaltic concrete.

Street cut permit will be provided by CITY without any permit fee.

6.2. Geotechnical Analysis.

The pavement section options will be developed using the latest available TxDOT Pavement Design Guidance Manual for flexible pavements. Triaxial soil classification will be completed to support the pavement design and up to 3 pavement options will be provided for selection by the design team.

6.3. Geotechnical Report.

The ENGINEER shall provide a signed, sealed and dated geotechnical report to include a map showing the location of the borings, boring logs, laboratory test results, generalized subsurface conditions, ground water conditions, and pavement design and construction recommendations to include up to 3 flexible pavement options.

7. UTILITY COORDINATION AND SUE

7.1 Utility Investigation

The ENGINEER shall obtain information on existing utilities from utility owners and shall conduct investigations to identify and evaluate all known existing and proposed public and private utilities. The ENGINEER shall identify potential conflicts and attempt to minimize the potential adverse utility impacts in the preparation of the design.

The ENGINEER shall prepare a base map depicting the utility locations.

The ENGINEER shall create and maintain a utility conflict matrix generally summarizing each affected asset type and general conflict with proposed features as a communication tool to the utility owner and their assigned designers. No detailed conflict matrix of individual utility assets (ex: specific utility valves, meters, poles, line segments) will be developed. The ENGINEER shall maintain a utility conflict exhibit through the duration of the contract identifying potential known conflicts and track their resolution progress with each utility owner. The format of the utility conflict matrix and exhibit shall be determined by the ENGINEER.

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The ENGINEER will identify locations where SUE (QL A, B, C, and/or D) is required. SUE investigations will be incorporated into the design deliverables once approved by CITY.

7.2 Utility Engineering.

Utility Engineering includes the identification of utility conflicts, coordination and resolution of utility conflicts. The ENGINEER shall coordinate all activities with the CITY to facilitate the orderly progress and timely completion of the CITY's design phase.

1. COORDINATION OF ENGINEERING ACTIVITIES

Utility Layout: The ENGINEER shall maintain a utility layout in the version of MicroStation used for the project. This layout shall include known existing utilities which are to remain in place or be abandoned, and all adjusted utilities. This layout shall be utilized to monitor the necessity and evaluate alternatives. The ENGINEER shall 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 adjustments and meeting the current Utility Accommodation Rules.

7.3 Utility Coordination

The ENGINEER shall:

1. Establish contact with known existing utilities within and adjacent to the project limits and coordinate monthly utility coordination meetings to discuss concepts and options for design and construction.
2. Plan and conduct workshop meetings with utilities that incorporate the CITY's project team to review and resolve conflicts.
3. Create the agenda and exhibits for all coordination meetings as directed by the CITY.
4. Schedule and conduct a utility kick-off meeting to obtain more information on existing facilities within the project limits. Major utility facilities shall be discussed and analyzed to avoid relocation, if possible.
5. Schedule and conduct utility relocation meetings with the CITY and affected utility owners to coordinate the utility relocation effort and resolve problems. Prepare meeting minutes of such meetings. The meetings shall review:
 - o Existing facilities including major facilities to be avoided if possible
 - o Preferred relocation within a utility corridor designated by the ENGINEER
 - o Utility Conflict matrix

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- Utility Conflict Exhibit

7.4 Deliverables for Utility Coordination.

The following deliverables will be prepared at 60% and Final PS&E milestones

- Utility Conflict Matrix
- Utility Conflict Exhibit

7.5 Review of Utility's Proposed Adjustments

1. Evaluate Alternatives: The ENGINEER shall evaluate alternatives in the adjustment of utilities balancing the needs of both the CITY and the Utility.
2. 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.
 - a. The ENGINEER shall review PS&E for utilities joint bid in the roadway project's construction contract for conformance with the roadway design.
 - b. Utility Certification/Special Provisions: The ENGINEER shall submit a Utility Certification that known utilities are clear for roadway construction. However, if the utility adjustments are not complete prior to the CITY's project letting, a Special Provision may be required outlining all outstanding utility conflicts and their effects on the roadway project's construction. The ENGINEER shall assist the CITY in determining the details of any necessary Utility Clearance Special Provision.

7.6 Subsurface Utility Engineering (SUE)

The ENGINEER shall complete a Quality Level "B" Subsurface Utility Engineering (SUE) investigation ROW to ROW along Common Street from Loop 337 to FM 306; the investigation also includes 200'± along side streets that connect to Common Street for Signal Improvements. ENGINEER assumes 69,400 LF of "QLB" for this scope of work. In addition, The ENGINEER will perform Quality Level A SUE at up to twenty (20) test hole locations Proposed test hole locations will be determined by the Client and TRG once the QL "B" SUE deliverable has been reviewed. It is assumed that QL "A" SUE test holes will follow QL "B" SUE Designating Services.

SUE includes utility investigations subsurface and above ground prepared in accordance with AASHTO standards and the following Utility Quality Levels.

A. UTILITY QUALITY LEVELS

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

- a. Quality Level D - Existing Records: Utilities are plotted from review of available existing records.
- b. 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.
- c. Quality Level B - Designate: Two-dimensional horizontal mapping.
- d. Quality Level A - Locate (Test Hole): Three-dimensional mapping and other characterization data.

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 shall:

- a. As requested by the CITY compile "As Built" information from plans, plats and other location data as provided by the utility owners.
- b. Coordinate with utility owner when utility owner's policy is to designate their own facilities at no cost for preliminary survey purposes. The ENGINEER shall examine utility owner's work to ensure accuracy and completeness.
- c. 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.
- d. 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, shall 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

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test hole vacuum excavation. A note must be placed on the designate deliverable only that states "lines sizes are from best available records".

- e. Determine and inform the CITY of the approximate utility depths at critical locations. This depth indication is understood by both the ENGINEER and the CITY State to be approximate only and is not intended to be used preparing the right of way and construction plans.

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 shall:

- a. 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.
- b. Coordinate with utility owner inspectors as may be required by law or utility owner policy.
- c. 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.
- d. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the ENGINEER:
 - Elevation of top of utility tied to the datum of the furnished plan.
 - Identify a minimum of two benchmarks utilized.
 - Elevation of existing grade over utility at test hole location.
 - Horizontal location referenced to project coordinate datum.
 - Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.

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- Utility facility material(s) and condition.
 - Pavement thickness and type.
 - Coating/Wrapping information and condition.
 - Unusual circumstances or field conditions.
- e. 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 CITY.
- f. Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material.
- g. Furnish and install a permanent above ground marker directly above center line of the utility facility.
- h. Plot utility location position information to scale over laid on the design plans, and provide a comprehensive utility plan sign and sealed by the responsible Engineer.
- i. Return plans, profiles, and test hole data sheets to the CITY. If requested, conduct a review of the findings with the CITY.
- j. Street cut permits as required will be provided by the CITY at no cost.

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 on CD of Quality A, B, C & D SUE in Microstation and PDF format as requested by the city.

BASIC SERVICES - TASK DESCRIPTIONS (DETAIL DESIGN PHASE)

Utilize 2014 TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, and detail standards where applicable. PS&E package shall be prepared in a form suitable for bidding through the CITY construction contract bidding and award process.

8. ROADWAY DESIGN

The ENGINEER shall inform the CITY of any changes made from previous initial meetings regarding each exception, waiver, and variance that may affect the design.

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The ENGINEER shall cease all work under this task until the exceptions, waivers, and variances have been resolved between the ENGINEER and the CITY.

8.1 Geometric Design.

If requested by the CITY, the ENGINEER shall use Bentley's Microstation technology in the design and preparation of the roadway plan sheets. ENGINEER shall refine horizontal and vertical alignment and pavement edges. The level of effort is based on prior work from the schematic design. Refinements of this phase are anticipated to result from coordination with final project constraints.

8.2 Plan and Profile Layouts

The ENGINEER shall 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 planning phase.

Plan and Profile must be shown on same sheets.

The plan view must contain the following design elements:

1. Calculated roadway centerlines for all roadways, as applicable. Horizontal control points must be shown. The alignments must be calculated using Bentley GEOPAK.
2. Pavement edges for all improvements.
3. Lane and pavement width dimensions.
4. Existing major subsurface and surface utilities.
5. Existing and proposed ROW lines, easements, and control of access lines.
6. Proposed structure locations, lengths, and widths.
7. Direction of traffic flow on all roadways.
8. Lane lines and arrows indicating the number of lanes.
9. Begin and end superelevation transitions and cross slope changes.
10. Limits of riprap, block sod, and seeding.
11. Existing utilities and structures.
12. Benchmark information.
13. Radii call outs, curb location, and PROWAG compliance items.

The profile view must contain the following design elements:

1. Calculated profile grade for all proposed roadways. Vertical curve data, including "K" values must be shown.
2. Existing and proposed profiles along the proposed centerline.

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3. Water surface elevations at major stream crossing for design and check year storms.

8.3 Typical Sections.

The ENGINEER shall prepare typical sections for all proposed and existing roadways and structures. 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, and sidewalks. If required, station limits, common proposed and existing structures including retaining walls, existing pavement removal, riprap, limits of embankment and excavation should be included.

8.4 Cross Streets.

The ENGINEER shall provide an intersection layout detailing the pavement design and drainage design at the intersection of each cross street. The layout must include the horizontal and vertical alignments, curb returns, geometrics, transition length, stationing, pavement, drainage details, and PROWAG compliance items. The ENGINEER shall design for full pavement width to the ROW and provide a transition to the existing roadway.

8.5 Cut and Fill Quantities.

The ENGINEER shall develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 100 foot intervals. Cross sections must be delivered in standard GEOPAK format on 11"x17" sheets or roll plots and electronic files. The ENGINEER shall provide all criteria and input files used to generate the design cross sections. Cross sections and quantities must include existing pavement removals. Annotation shall include at a minimum existing and proposed ROW, side slopes (front & back), profiles, etc.

8.6 Plan Preparation.

The ENGINEER shall develop general and roadway discipline PS&E plan sheets, updating the design based on internal and CITY review comments at 90% and Final PS&E milestones. Sheet types include:

- Title
- Index of Sheets
- General Notes
- Quantity Summary
- Project Layout
- Horizontal Alignment Data
- Driveway Summary Table
- Miscellaneous Sheets - Standards
- Earthwork Quantity Tables

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- Roadway Details

8.7 Pavement Design.

The ENGINEER shall incorporate the pavement design per the geotechnical report approved by the CITY.

8.8 Pedestrian and Bicycle Facilities.

The ENGINEER shall coordinate with the CITY to incorporate pedestrian and bicycle facilities as required or shown on the project's schematic. All pedestrian and bicycle facilities must be designed in accordance with the latest PROWAG, and the AASHTO Guide for the Development of Bicycle Facilities.

9. DRAINAGE DESIGN

The ENGINEER shall provide the following services based on prior work from the schematic design phase. Refinements to the preliminary drainage study will incorporate the final geometric design.

9.1. Data Collection.

The ENGINEER shall provide the following data collection services:

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

9.2. Hydrologic Studies.

The ENGINEER shall provide the following services:

1. Incorporate in the hydrologic study a thorough evaluation of the methodology available, comparison of the results of two or more methods, and calibration of results against measured data, if available.
2. Calculate discharges using appropriate hydrologic methods. Update the preliminary exterior (off site) and interior (on site) drainage area maps.
3. Consider the pre-construction and post-construction conditions in the hydrologic study.
4. 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.
5. Include, at a minimum, the “design” frequency to be specified for the project and the 1% Annual Exceedance Probability (AEP) storm frequency.
6. Compare calculated discharges to the effective FEMA flows. If calculated discharges are to be used in the model instead of the effective FEMA flows, full justification must be documented.

9.3. Storm Drains.

The ENGINEER shall provide the following services:

1. Design and analyze storm drains using GEOPAK Drainage or other software as approved by the CITY.
2. Size inlets, laterals, trunk line and outfall.
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 headlosses. 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 system assuming flowing full at junction. When oversized storm drains are used for detention, the ENGINEER shall evaluate the hydraulic gradeline throughout the whole system, within project limits, for the design frequency. The ENGINEER shall coordinate with the CITY any proposed changes to the detention systems. The CITY will assess the effects of such changes on the comprehensive drainage studies.
6. Identify areas requiring trench protection, excavation, shoring, and de-watering.

9.4. Temporary Drainage Facilities.

The ENGINEER shall provide the following services:

1. Develop plans for all temporary drainage facilities necessary to allow staged construction of the project and to conform with the phasing of adjacent construction projects without significant impact to the hydraulic capacity of the area. Drainage area maps are not required for temporary drainage.

Deliverables:

The Engineer shall provide the following:

- Drainage PS&E plans sheets (included with each milestone submittal).
- Electronic copy of drainage models. A preliminary set of models shall be submitted at the 60% and 90% milestone submittals, and the final at the 100% milestone submittal.
- Electronic copy of Drainage Report. A preliminary report should be submitted at the 60% and finalized at 90% milestone submittals.
- Applicable City permit applications will be submitted at final PS&E milestone.

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

The ENGINEER shall provide the following services:

- a. Prepare the PS&E package in accordance with the applicable requirements of the specifications, standards, and manuals. Include the following sheets and documents, as appropriate:
 - Exterior/Interior Drainage Area Maps
 - Hydrologic Data Sheets
 - Hydraulic Data Sheets
 - Proposed Channel Grading Layout
 - Storm Drain and Inlets computations sheets
 - Storm Drain Plan/Profile Sheets
 - Storm Drain Laterals and Details
 - Include profile grade line of parallel ditches on the Roadway Plan/Profile sheets, if applicable.
- b. Identify areas requiring trench protection, excavation, shoring and dewatering.
- c. Select any necessary standard details for items such as inlets, manholes, junction boxes and end treatments.
- d. Prepare details for non-standard inlets, manholes and junction boxes.
- e. Prepare drainage details for outlet protection, outlet structures and utility accommodation structures.

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- f. Identify pipe strength requirements
- g. Prepare drainage facility quantity summaries
- h. Identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts.
- i. Consider pedestrian facilities, utility impacts, driveway grades, and retaining wall impacts.
- j. Identify existing ground elevation profiles at the ROW lines on storm sewer plan and profile sheets.
- k. Develop layouts, Non-Standard Structural Design for the following:
 - Subsurface drainage at retaining walls.
 - Outfall channels within existing ROW.

10. SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)

10.1. Signing.

The ENGINEER shall prepare drawings, specifications, and details for all signs. The ENGINEER shall:

- Prepare sign detail sheets for guide signs showing dimensions, lettering, shields, borders, corner radii
- Provide a summary of large and small signs to be removed, relocated, or replaced.
- Designate the shields to be attached to guide signs.
- Illustrate and number the proposed signs on plan sheets.
- Select each sign foundation from TxDOT Standards.
- Prepare Summary of Quantities and small signs tabulation.
- Prepare Large Signs tabulation along with design details for large guide signs.
-

Summary of Quantities

- a. Small signs tabulation
- b. Large signs tabulation including all guide signs

Sign Detail Sheets

- a. All signs except route markers
- b. Design details for large guide signs
- c. Dimensioning (letters, shields, borders, etc.)
- d. Designation of shields attached to guide signs

10.2. Pavement Marking.

The ENGINEER shall detail both permanent and temporary pavement markings and channelization devices on plan sheets. The ENGINEER shall select Pavement markings from the latest standards.

The ENGINEER shall 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.

10.3. Traffic Signal Warrant Studies.

The ENGINEER shall prepare a traffic signal warrant study to support their recommendation for the continuous activation of an existing traffic signal or a proposed traffic signal based on projected volumes. Each warrant study must include addressing pedestrian signals along with obtaining both traffic and pedestrian counts.

The ENGINEER shall implement each proposed traffic signal improvement within existing ROW unless otherwise approved by the CITY. The ENGINEER shall refer to latest version of the TMUTCD and traffic standards for work performed for either temporary or permanent traffic signals. The ENGINEER shall develop and include a timing plan for each signal improvement.

The ENGINEER will develop traffic signal warrant studies for the following intersections along the corridor.

- Common Street at Hanz Drive

The traffic signals at Loop 337, Gruene Road, Old FM 306, and FM 306 are already existing signalized intersections. No traffic signal warrant studies will be prepared for those intersections.

10.4. Traffic Signals.

Based upon the results of the Traffic Warrant Studies, the ENGINEER shall identify and prepare Traffic Signal Plans for all warranted traffic signals. The ENGINEER shall confirm the power source for all signals and coordinate with the appropriate utility agency. Traffic Signal Plans must be signed and sealed by a Texas Registered Professional Engineer. The ENGINEER shall develop all quantities, general notes, specifications and incorporate the appropriate agency standards required to complete construction.

The ENGINEER will prepare permanent traffic signal plans for:

Loop 337
Gruene Road
Hanz Drive
Old FM 306
FM 306

The ENGINEER shall provide the following information in the Traffic Signal Plans:

1. Layout
 - a. Estimate and quantity sheet
 - List of all bid items
 - Bid item quantities
 - Specification item number
 - Paid item description and unit of measure
 - b. Basis of estimate sheet (list of materials)
 - c. General notes and specification data.
 - d. Condition diagram
 - Highway and intersection design features
 - Roadside development
 - Traffic control including illumination
 - e. Plan sheet(s)
 - Existing traffic control that will remain (signs and markings)
 - Existing utilities
 - Proposed highway improvements
 - Proposed installation
 - Proposed additional traffic controls
 - Proposed illumination attached to signal poles.
 - Proposed power pole source
 - f. Notes for plan layout
 - g. Phase sequence diagram(s)
 - Signal locations
 - Signal indications
 - Phase diagram
 - Signal sequence table
 - Flashing operation (normal and emergency)

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- Preemption operation (when applicable)
 - Contact responsible Agency to obtain interval timing, cycle length and offset
 - h. Construction detail sheets(s)
 - Poles (State standard sheets)
 - Detectors
 - Pull Box and conduit layout
 - Controller Foundation standard sheet
 - Electrical chart
 - i. Marking details (when applicable)
 - j. Aerial or underground interconnect details (when applicable)
2. General Requirements
- a. Contact local utility company (confirm power source)
 - b. Prepare governing specifications and special provisions list
 - c. Prepare project estimate
 - d. Conduct traffic counts and prepare Traffic Signal Warrant Studies for all proposed and existing traffic signals at designated locations.

11. MISCELLANEOUS ROADWAY SERVICES

The ENGINEER shall provide the following services:

11.1. Traffic Control Plan, Detours, Sequence of Construction.

The ENGINEER shall 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 shall implement current Barricade and Construction and Work Zone TCP standards as applicable. The ENGINEER shall interface and coordinate phases of work, including the TCP, with adjacent projects. The ENGINEER shall:

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 shall show proposed traffic control devices at grade intersections during each construction phase (stop signs, flag-person, signals, etc.). The ENGINEER shall show temporary roadways, ramps, structures and detours required to maintain lane continuity throughout the construction phasing. If temporary shoring is required, prepare layouts and show the limits on the applicable TCP.
2. Assist the CITY in coordinating mitigation of impacts to adjacent schools, emergency vehicles, pedestrians, bicyclists and neighborhoods.

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3. Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access. Notify the CITY for coordination and approval in the event existing access must be eliminated.
4. Design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The ENGINEER shall show horizontal and vertical location of culverts and required cross sectional area of culverts.
5. 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 shall notify the CITY in writing of the need and justification for such action. The ENGINEER shall identify and coordinate with all utility companies for relocations required.
6. 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, illumination, 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.
7. 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.
8. Identify and delineate any outstanding ROW parcels.
9. Delineate areas of wetlands on traffic control plans.

11.2. Temporary Traffic Signals

The ENGINEER shall coordinate with the CITY if it determines that an existing traffic signal will be affected by the project. The ENGINEER shall address the adjustment or realignment of traffic signal heads and the use of detection for travel lanes and side streets on the plans as directed by the CITY. The ENGINEER will prepare temporary traffic signals for the Loop 337, Gruene Road, Old FM 306, and FM 306 intersections.

11.3. Illumination (Permanent)(Traffic Signals).

The ENGINEER shall refer to TxDOT's *Highway Illumination Manual* and other deemed necessary approved manuals for design of continuous lighting and safety lighting for all conventional lighting. The ENGINEER shall include safety lighting as part of each design on each traffic signal. The ENGINEER shall provide a preliminary layout for initial review and approval by the CITY. The ENGINEER shall prepare circuit wiring diagrams showing the number of luminaries on each circuit, electrical conductors, length of runs, service pole assemblies.

11.4. StormWater Pollution Prevention Plans (SW3P).

The ENGINEER shall develop SW3P, on separate sheets from (but in conformance with) the TCP, to minimize potential impact to receiving waterways. The SW3P must

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

11.5. Compute and Tabulate Quantities.

The ENGINEER shall provide the bid item summaries and quantities within all formal submittals.

11.6. Estimate.

The ENGINEER shall independently develop and report quantities necessary to construct the contract at the specified milestones and Final PS&E submittals. The ENGINEER shall prepare each construction cost estimates using quantities and historical unit bid prices along with engineering judgement and the particular conditions of the Project.

11.7. Contract time determination.

The ENGINEER shall prepare a CPM schedule with sufficient detail to determine the approximate time required for construction of the project in calendar days. The schedule will be developed in Microsoft Project. 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. The ENGINEER shall provide assistance to the CITY in interpreting the schedule.

11.8. Specifications and General Notes.

The ENGINEER shall identify necessary standard specifications, special specifications, special provisions and the appropriate reference items. The ENGINEER shall prepare General Notes from the CITY's *Master List of General Notes*, Special Specifications and Special Provisions in the required format for inclusion in the plans and bidding documents.

11.9. Constructability Review.

The ENGINEER shall provide Independent Quality Review of the constructability PS&E sets.

The ENGINEER shall perform constructability reviews at major project design milestones 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/Traffic Control, Drainage (Temporary and Permanent), Storm Water Pollution Prevention Plan (SW3P), Environmental Permits, Issues and Commitments (EPIC) addressed, 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. Reviews must be captured in a Constructability Log identifying

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areas of concern and potential conflict. The ENGINEER shall provide the results of all Constructability reviews and recommendations to the CITY at major project design milestone submittals.

DETAIL DESIGN PHASE DELIVERABLES

The ENGINEER shall provide the following information in digital format at each submittal. No hard copies will be provided:

30% Submittal.

- **PDF plan sheets for the CITY's review in accordance with CITY's 30% checklist.**
- Traffic Control Plan phasing layout showing phasing concept and TCP typical sections per phase
- Preliminary estimate of construction cost.
- ENGINEER's internal QA and QC markup set.
- Utility Conflict Matrix
- If applicable, a letter listing any proposed Design Exceptions with existing and proposed typical sections, location map and design exception exhibits.
- If applicable, a Preliminary 3D corridor model.

60% Submittal.

- **PDF plan sheets for the CITY's review in accordance with CITY's 60% checklist.**
- Design cross sections.
- Quantity Summary sheets with Bid Items identified
- Updated estimate of construction cost.
- ENGINEER's internal QA and QC marked up set.
- Comment responses to 30% submittal review(s)
- Utility Conflict Matrix
- If applicable, updated 3D corridor model.

90% Submittal.

- PDF plan sheets for the CITY's review in accordance with CITY's 90% checklist.
- Joint Bid Utility plan sets as provided by the CITY or by others
- Design cross sections.
- Quantity Summary sheets with Bid Items and quantities fill out
- Estimate of construction cost based on Unit Costs.
- Marked up general notes
- Construction time determination CPM schedule.
- Proposal Manual including list of applicable specifications.
- ENGINEER's internal QA and QC marked up set.
- Comment responses to 60% submittal review(s)

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- Utility Conflict Matrix
- If applicable, updated 3D corridor model.

100% Submittal.

- Signed and Sealed by a licensed P.E. in Texas
- Complete PS&E and all supporting documents
- Final ENGINEER's Estimate of construction cost based on Unit Costs.
- Proposal Manual including Bid Form
- ENGINEER's internal QA and QC marked up set.
- Comment responses to 90% submittal review(s)

Final Documents.

- Comment responses and final revisions to review(s) of the 100% submittal.

Bid and Construction phase services are omitted from this proposal and will be negotiated by separate work authorization.

Exhibit B

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Est Construction Amt: \$23,500,000.00

Roadway Name: Common Street

% of Construction: 10.02%

FEE SUMMARY

BASIC SERVICES - PLANNING PHASE	Pape-Dawson	PD Survey	The Rios Group (SUE)	Raba-Kistner (GEO)	Raba-Kistner (ENV)	TOTALS BY DISCIPLINE
1. PROJECT MANAGEMENT AND COORDINATION	\$117,980.00	\$0.00	\$4,400.00	\$0.00	\$0.00	\$122,380.00
2. ROUTE AND DESIGN STUDIES	\$117,675.00	\$0.00	\$0.00	\$0.00	\$0.00	\$117,675.00
3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	\$4,365.00	\$0.00	\$0.00	\$0.00	\$43,939.00	\$48,304.00
4. TOPOGRAPHIC SURVEY AND RIGHT-OF-WAY (ROW) DATA	\$4,365.00	\$58,055.00	\$0.00	\$0.00	\$0.00	\$62,420.00
5. DESIGN SURVEYS	\$4,365.00	\$176,050.00	\$0.00	\$0.00	\$0.00	\$180,415.00
6. GEOTECHNICAL BORINGS AND INVESTIGATIONS	\$4,365.00	\$0.00	\$0.00	\$9,682.50	\$0.00	\$14,047.50
7. UTILITY COORDINATION AND SUE	\$62,485.00	\$0.00	\$0.00	\$0.00	\$0.00	\$62,485.00
SUBTOTALS - HOURLY NOT TO EXCEED	\$315,600.00	\$234,105.00	\$4,400.00	\$9,682.50	\$43,939.00	\$607,726.50
EXPENSES	\$0.00	\$0.00	\$0.00	\$25,957.25	\$4,302.00	\$30,259.25
TOTAL PLANNING PHASE - HOURLY NOT TO EXCEED	\$315,600.00	\$234,105.00	\$4,400.00	\$35,639.75	\$48,241.00	\$637,985.75
BASIC SERVICES - Detailed Design Phase	Pape-Dawson	PD Survey	The Rios Group (SUE)	Raba-Kistner (GEO)	Raba-Kistner (ENV)	TOTALS BY DISCIPLINE
8. ROADWAY DESIGN	\$460,370.00	\$0.00	\$0.00	\$0.00	\$0.00	\$460,370.00
9. DRAINAGE DESIGN	\$503,935.00	\$0.00	\$0.00	\$0.00	\$0.00	\$503,935.00
10. SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	\$303,155.00	\$0.00	\$0.00	\$0.00	\$0.00	\$303,155.00
11. MISCELLANEOUS ROADWAY SERVICES	\$296,605.00	\$0.00	\$0.00	\$0.00	\$0.00	\$296,605.00
SUBTOTALS - HOURLY NOT TO EXCEED	\$1,564,065.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,564,065.00
EXPENSES	\$168.00	\$0.00	\$0.00	\$0.00	\$0.00	\$168.00
TOTAL DETAILED DESIGN - HOURLY NOT TO EXCEED	\$1,564,233.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,564,233.00
ADDITIONAL SERVICES	Pape-Dawson	PD Survey	The Rios Group (SUE)	Raba-Kistner (GEO)	Raba-Kistner (ENV)	TOTALS BY DISCIPLINE
Subsurface Utility Engr (SUE) - UNIT COST BASIS	\$0.00	\$0.00	\$151,600.00	\$0.00	\$0.00	\$151,600.00
TOTAL ADDT'L SERVICES - HOURLY NOT TO EXCEED	\$0.00	\$0.00	\$151,600.00	\$0.00	\$0.00	\$151,600.00
TOTAL CONTRACT	\$1,879,833.00	\$234,105.00	\$156,000.00	\$35,639.75	\$48,241.00	\$2,353,818.75

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Design Leader	Senior Engineer	EIT	Designer	Technician	Admin / Clerical	GIS Analyst	Utilities Coordinator	Project Principal	Project Coordinator	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
BASIC SERVICES													
1. PROJECT MANAGEMENT AND COORDINATION													
1.1. Project Management and Coordination													
Coordinate Subconsultant Activities	12	40									120	172	\$ 30,700.00
Document phone calls and emails	12	12									24	48	\$ 9,120.00
Develop and Maintain Project Schedule			12									12	\$ 2,580.00
1.2. Project Meetings													
Kickoff Meeting (In-Person)	4	4										8	\$ 1,720.00
Design Comment Review (Virtual)													\$ -
30% Schematic	2	2										4	\$ 860.00
60% PS&E	2	2										4	\$ 860.00
90% PS&E	2	2										4	\$ 860.00
100% PS&E	2	2										4	\$ 860.00
Prepare and distribute meeting minutes	10	20									24	54	\$ 10,310.00
Coordinate with Local Entities and Stakeholders	40	80									24	144	\$ 29,360.00
Monthly Status Meetings (Virtual)	12	12									24	48	\$ 9,120.00
Prepare, Distribute, and File Correspondence		16									24	40	\$ 7,240.00
1.3. Progress Reporting and Invoicing													
1.3.1. Progress Reporting	12		6				24					42	\$ 6,270.00
1.5. Right of Entry													
Right of Entry Letters and Supporting Exhibits	4	8		8		36						56	\$ 8,120.00
Prime HOURS SUB-TOTALS	114	200	18	8	0	36	24	0	0	0	240	640	640
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$25,650.00	\$41,000.00	\$3,870.00	\$1,080.00	\$0.00	\$4,500.00	\$2,280.00	\$0.00	\$0.00	\$0.00	\$39,600.00		\$117,980.00
Prime % DISTRIBUTION OF STAFF HOURS	17.8%	31.3%	2.8%	1.3%	0.0%	5.6%	3.8%	0.0%	0.0%	0.0%	37.5%		
SUBTOTAL (1. PROJECT MANAGEMENT AND COORDINATION)													
2. ROUTE AND DESIGN STUDIES													
2.1. Data Collection and Field Reconnaissance													
Site Visit Photodocumentation		8		16								24	\$ 3,800.00
Data Collection		4	8	16								28	\$ 4,700.00
2.2. Schematic Design													
Offsite Drainage Horizontal Alignment			40									40	\$ 8,600.00
Offsite Drainage Vertical Alignment			40									40	\$ 8,600.00
Plan View Design Elements				80	60	40						180	\$ 25,100.00
Review and incorporation of detailed ROW		8	20		40	40						68	\$ 12,140.00
Schematic exhibit preparation	4	8		40	60	40						152	\$ 22,240.00
2.3. Preliminary Cost Estimates													
2.3.1. Preliminary Cost Estimates	1	2		12	12							27	\$ 4,115.00
2.4. Agency Coordination and Public Involvement													
Review Schematic with Agencies and/or Stakeholders (Virtual, 4 max)	4	4										8	\$ 1,720.00
Coordinate details for Public Meeting	4	8										12	\$ 2,540.00
Participate in MAPOs (8 max)	32	32										64	\$ 13,760.00
Document Comments and Responses from MAPOs, Public Meeting	8	16									32	56	\$ 10,360.00
Prime HOURS SUB-TOTALS													
Prime CONTRACT RATE PER HOUR													
Prime TOTAL LABOR COSTS													
Prime % DISTRIBUTION OF STAFF HOURS													
SUBTOTAL (2. ROUTE AND DESIGN STUDIES)													
3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT													
3.1. Environmental Documentation													
Coordinate, Review and Incorporate Subconsultant Deliverables	2	8								1	12	23	\$ 4,365.00
Prime HOURS SUB-TOTALS													
Prime CONTRACT RATE PER HOUR													
Prime TOTAL LABOR COSTS													
Prime % DISTRIBUTION OF STAFF HOURS													

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Design Leader	Senior Engineer	EIT	Designer	Technician	Admin / Clerical	GIS Analyst	Utilities Coordinator	Project Principal	Project Coordinator	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
SUBTOTAL (3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT)													\$4,365.00
4. TOPOGRAPHIC SURVEY AND RIGHT-OF-WAY (ROW) DATA													
4.3 Deliverables for ROW Mapping													\$ -
Coordinate, Review and Incorporate Survey Deliverables	2	8								1	12	23	\$ 4,365.00
													\$ -
Prime HOURS SUB-TOTALS	2	8	0	0	0	0	0	0	0	1	12	23	23
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$450.00	\$1,640.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$295.00	\$1,980.00		\$4,365.00
Prime % DISTRIBUTION OF STAFF HOURS	8.7%	34.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	52.2%		
SUBTOTAL (4. TOPOGRAPHIC SURVEY AND RIGHT-OF-WAY (ROW) DATA)													\$ 4,365.00
5. DESIGN SURVEYS													\$ -
5.4 Deliverables for Design Survey													\$ -
Coordinate, Review and Incorporate Survey Deliverables	2	8								1	12	23	\$ 4,365.00
													\$ -
Prime HOURS SUB-TOTALS	2	8	0	0	0	0	0	0	0	1	12	23	23
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$450.00	\$1,640.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$295.00	\$1,980.00		\$4,365.00
Prime % DISTRIBUTION OF STAFF HOURS	8.7%	34.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	52.2%		
SUBTOTAL (5. DESIGN SURVEYS)													\$ 4,365.00

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Design Leader	Senior Engineer	EIT	Designer	Technician	Admin / Clerical	GIS Analyst	Utilities Coordinator	Project Principal	Project Coordinator	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
6. GEOTECHNICAL BORINGS AND INVESTIGATIONS													\$ -
6.3 Geotechnical Report													\$ -
Coordinate, Review and Incorporate Subconsultant Deliverables	2	8								1	12	23	\$ 4,365.00
													\$ -
Prime HOURS SUB-TOTALS	2	8	0	0	0	0	0	0	0	1	12	23	23
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$450.00	\$1,640.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$295.00	\$1,980.00		\$4,365.00
Prime % DISTRIBUTION OF STAFF HOURS	8.7%	34.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	52.2%		
SUBTOTAL (6. GEOTECHNICAL BORINGS AND INVESTIGATIONS)													\$4,365.00
7. UTILITY COORDINATION AND SUE													\$ -
7.1. Utility Investigation													\$ -
Review proposed utility plans for conflict with the design		8		16				40	24			88	\$ 13,640.00
Utility Conflict Narrative		4		8					16			28	\$ 4,860.00
Utility Conflict Exhibit		4			32	20			16			72	\$ 11,240.00
Coordinate, Review and Incorporate Subconsultant Deliverables (SUE)	2	8							12	1		23	\$ 4,605.00
7.3. Utility Coordination													\$ -
Identify Affected Utility Owners		2							8			10	\$ 1,890.00
Conduct Utility Workshop Meetings													\$ -
60% PS&E Utility Kickoff (Virtual)		2							4			6	\$ 1,150.00
Final PS&E Required Utility Relocation (Virtual)		2							4			6	\$ 1,150.00
Prepare and Distribute Meeting Minutes		1							4			5	\$ 945.00
7.5. Review of Utility's Proposed Adjustments													\$ -
Evaluate Alternatives		16							40			56	\$ 10,680.00
Review Estimates and Schedules		2							8			10	\$ 1,890.00
Review Plans		4							16			20	\$ 3,780.00
Review Joint Bid Utility Plans		8							24			32	\$ 6,080.00
Special Provision Development		1							2			3	\$ 575.00
													\$ -
Prime HOURS SUB-TOTALS	2	62	0	24	32	20	0	40	178	1	0	359	359
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$450.00	\$12,710.00	\$0.00	\$3,240.00	\$4,960.00	\$2,500.00	\$0.00	\$5,400.00	\$32,930.00	\$295.00	\$0.00		\$62,485.00
Prime % DISTRIBUTION OF STAFF HOURS	0.6%	17.3%	0.0%	6.7%	8.9%	5.6%	0.0%	11.1%	49.6%	0.3%	0.0%		
SUBTOTAL (7. UTILITY COORDINATION AND SUE)													\$62,485.00

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Design Leader	Senior Engineer	EIT	Designer	Technician	Admin / Clerical	GIS Analyst	Utilities Coordinator	Project Principal	Project Coordinator	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
8. ROADWAY DESIGN													\$ -
8.1. Geometric Design													\$ -
60% Develop 3D model based on schematic refinements	1	8		32	40							81	\$ 12,385.00
8.2. Plan and Profile Layouts													\$ -
60% Create Roadway Plan and Profile (Assumes 35 sheets @ 30-scale)	4	40	72	144	144	112						516	\$ 80,340.00
Update 90% PS&E	2	32	60	112	112	96						414	\$ 64,390.00
Update Final PS&E	1	8	40	80	80							209	\$ 33,665.00
8.3. Typical Sections						60						60	\$ 7,500.00
60% Create Existing Typical Sections (Assumes 1 Sheet)		2		16		24						42	\$ 5,570.00
60% Create Proposed Typical Sections (Assumes 2 Sheets)	1	2		24		48						75	\$ 9,875.00
Update 90% PS&E		1		4		8						13	\$ 1,745.00
Update Final PS&E		1		4		8						13	\$ 1,745.00
8.4. Cross Streets													\$ -
60% Create Intersection Layouts (Assumes 10 Sheets)	2	4	8	16	24	36						90	\$ 13,370.00
Update 90% PS&E	1	2	4	8	8	20						35	\$ 5,075.00
Update Final PS&E		1	4	8		20						33	\$ 4,645.00
8.5. Cut and Fill Quantities													\$ -
60% Develop Templates		20	40									60	\$ 12,700.00
60% Develop Proposed Cross Sections @ 50' Intervals	4	20	40									64	\$ 13,600.00
60% Develop Cut/Fill Quantities	1	8	40	20								69	\$ 13,165.00
60% Cross Section Sheets (Assumes 100 sheets)		8	16		40							64	\$ 11,280.00
Update 90% PS&E	1	4	32									37	\$ 7,925.00
Update Final PS&E	1	4	24									29	\$ 6,205.00
8.6. Plan Preparation													\$ -
60% Title Sheet (1 Sheet)		1				8						9	\$ 1,205.00
60% Index of Sheets (2 Sheets)		1		8								9	\$ 1,285.00
60% General Notes (10 Sheets)	1	4	8	16								29	\$ 4,925.00
60% Estimate and Quantity Sheet (2 Sheets)						2						2	\$ 250.00
60% Quantity Summary Sheets (8 sheets)		1		24	24	8						57	\$ 8,165.00
60% Project Layout (1 Sheet)		1			8	4						13	\$ 1,945.00
60% Horizontal Alignment Data Sheet (1 Sheet)		1			8							9	\$ 1,445.00
60% Driveway Summary Tables (1 Sheet)		8	20	40		16						84	\$ 13,340.00
60% Miscellaneous Sheets - Standards (15 Sheets)		1		4		8						13	\$ 1,745.00
60% Earthwork Quantity Tables (1 Sheet)		4	32	16		16						68	\$ 11,860.00
60% Roadway Detail Sheets (5 Sheets)		4			40	8						52	\$ 8,020.00
Update 90% PS&E	1	16	40	60	40	40						197	\$ 31,405.00
Update Final PS&E	1	8	32	32	20	32						125	\$ 20,165.00
8.7. Pavement Design													\$ -
60% Coordinate, Review and Incorporate Subconsultant Deliverables	1	2	8	24								35	\$ 5,595.00
Update 90% PS&E	1	4	6	16		8						35	\$ 5,495.00
Update Final PS&E	1	2	4	8		6						21	\$ 3,325.00
8.8. Pedestrian and Bicycle Facilities Design													\$ -
60% Detail Design of Bicycle and Pedestrian Elements	1	8	8	24	40						8	89	\$ 14,345.00
Update 90% PS&E	1	4	6	16	20	32						79	\$ 11,595.00
Update Final PS&E	1	2	4	8	10	24						49	\$ 7,125.00
TDLR - RAS plan review and inspection coordination	1	2										11	\$ 1,955.00
Prime HOURS SUB-TOTALS	29	239	548	764	650	644	0	0	0	0	16	2890	2890
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$6,525.00	\$48,995.00	\$117,820.00	\$103,140.00	\$100,750.00	\$80,500.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,640.00		\$460,370.00
Prime % DISTRIBUTION OF STAFF HOURS	1.0%	8.3%	19.0%	26.4%	22.5%	22.3%	0.0%	0.0%	0.0%	0.0%	0.6%		
SUBTOTAL (8. ROADWAY DESIGN)													\$460,370.00

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Design Leader	Senior Engineer	EIT	Designer	Technician	Admin / Clerical	GIS Analyst	Utilities Coordinator	Project Principal	Project Coordinator	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
9. DRAINAGE DESIGN													\$ -
9.1. Data Collection													\$ -
Field Inspections			8	8								16	\$ 2,800.00
Collect and review available data				24								24	\$ 3,240.00
9.2. Hydrologic Studies													\$ -
Calculate discharges			24	16								40	\$ 7,320.00
9.3. Storm Drains													\$ -
60% Design and Analyze		40	80	80								200	\$ 36,200.00
60% Size inlets, laterals, trunk line, and outfall		16	40	40								96	\$ 17,280.00
60% Determine HGL at outfalls		4	16	32								52	\$ 8,580.00
60% Existing system evaluation		24	40	40								104	\$ 18,920.00
9.4. Temporary Drainage Facilities													\$ -
90% Develop plans for temporary facilities				12	8	12						32	\$ 4,360.00
9.5. PS&E for Hydraulics													\$ -
60% Hydrologic Data Sheets (4 Sheets)			10	10	24	24						68	\$ 10,220.00
Update 90% PS&E		4	8	12								24	\$ 4,160.00
Update Final PS&E		2	8	12								22	\$ 3,750.00
60% Hydraulic Data Sheets (4 Sheets)			10	10	24	24						68	\$ 10,220.00
Update 90% PS&E		4	8	12								24	\$ 4,160.00
Update Final PS&E		2	8	12								22	\$ 3,750.00
60% Culvert Layout Sheets (Profile Only) (1 Sheet)			4	16	24	24						68	\$ 9,740.00
Update 90% PS&E		4	8	12								24	\$ 4,160.00
Update Final PS&E		2	8	12								22	\$ 3,750.00
60% Storm Drain Plan and Profile (35 Sheets)		16	80	136	96	224						552	\$ 81,720.00
Update 90% PS&E		2	20	60	120	160						362	\$ 51,410.00
Update Final PS&E		1	10	40	40	80						171	\$ 23,955.00
60% Storm Drain Lateral Profiles (10 Sheets)		4	40	96	140	130						410	\$ 60,330.00
Update 90% PS&E		2	20	60								82	\$ 12,810.00
Update Final PS&E		1	10	40								51	\$ 7,755.00
60% Specify areas for trench protection, excavation, and shoring		1	4	16		16						37	\$ 5,225.00
Update 90% PS&E		4	8	12								24	\$ 4,160.00
Update Final PS&E		2	8	12								22	\$ 3,750.00
60% Prepare Drainage Area Maps			8	24		24						56	\$ 7,960.00
Update 90% PS&E		4	8	12								24	\$ 4,160.00
Update Final PS&E		2	8	12								22	\$ 3,750.00
60% Plan & Profile outfall pipes and ditches (4 Sheets)		2	8		16	16						42	\$ 6,610.00
Update 90% PS&E		4	8	12								24	\$ 4,160.00
Update Final PS&E		2	8	12								22	\$ 3,750.00
60% Select Standards (30 Sheets)		3	5	5	10	10						33	\$ 5,165.00
Prepare details for outlet protection and utility accommodation structures		2	24	10	10							46	\$ 8,470.00
9.6. Drainage Report													\$ -
Develop hydrology and report graphics, exhibits		2	16	24	20	32						94	\$ 14,190.00
Develop hydraulic models and report graphics, exhibits		2	16	24	20	32						94	\$ 14,190.00
Drainage Report 60%	2	8	40	60								110	\$ 18,790.00
Update 90%	1	4	20	20								45	\$ 8,045.00
Permit Application			2	4								6	\$ 970.00
													\$ -
Prime HOURS SUB-TOTALS	3	170	651	1051	552	808	0	0	0	0	0	3235	3235
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$675.00	\$34,850.00	\$139,965.00	\$141,885.00	\$85,560.00	\$101,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$503,935.00
Prime % DISTRIBUTION OF STAFF HOURS	0.1%	5.3%	20.1%	32.5%	17.1%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
SUBTOTAL (9. DRAINAGE DESIGN)													\$503,935.00

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Design Leader	Senior Engineer	EIT	Designer	Technician	Admin / Clerical	GIS Analyst	Utilities Coordinator	Project Principal	Project Coordinator	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
10. SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)													\$ -
10.1. Signing													\$ -
60% Sign and Pavement Marking Layout Sheets (20 Sheets)	2	12	24	40	80	40						198	\$ 30,870.00
Update 90% PS&E	1	8	12	30	60	30						141	\$ 21,545.00
Update Final PS&E	1	4	8	20	10	20						63	\$ 9,515.00
10.2. Pavement Marking													\$ -
60% Notes for plan layout			10	8		4						22	\$ 3,730.00
60% Pavement Marking Details			24	40	80	40						184	\$ 27,960.00
60% Sign Tabulations				8		8						16	\$ 2,080.00
Update 90% PS&E		8	12	30	60	30						140	\$ 21,320.00
Update Final PS&E		4	8	20	20	20						72	\$ 10,840.00
10.3. Traffic Signal Warrant Studies													\$ -
60% Traffic Signal Warrant Analysis (1 intersection)	1	4	8	24			4					41	\$ 6,385.00
10.4. Traffic Signals													\$ -
FM 306 and Common Street													\$ -
Existing Conditions	1	2	10	20			6					39	\$ 6,235.00
Proposed Conditions	1	8	12	24			6					51	\$ 8,435.00
Conduit and Conductor Schedule		4	10	20			6					40	\$ 6,420.00
Pole Schedule		4	8	12			6					30	\$ 4,910.00
Elevation Views	1	4	10	16			6					37	\$ 6,105.00
FM 306 and Gruene Road													\$ -
Existing Conditions	1	2	10	20			6					39	\$ 6,235.00
Proposed Conditions	1	8	12	24			6					51	\$ 8,435.00
Conduit and Conductor Schedule		4	10	20			6					40	\$ 6,420.00
Pole Schedule		4	6	12			6					28	\$ 4,480.00
Elevation Views	1	4	8	16			6					35	\$ 5,675.00
FM 306 and Hanz Drive													\$ -
Existing Conditions	1	2	10	20			6					39	\$ 6,235.00
Proposed Conditions	1	8	12	24			6					51	\$ 8,435.00
Conduit and Conductor Schedule		4	10	20			6					40	\$ 6,420.00
Pole Schedule		4	8	12			6					30	\$ 4,910.00
Elevation Views	1	4	10	16			6					37	\$ 6,105.00
FM 306 and Old FM 306													\$ -
Existing Conditions	1	2	10	20			6					39	\$ 6,235.00
Proposed Conditions	1	8	12	24			6					51	\$ 8,435.00
Conduit and Conductor Schedule		4	10	20			6					40	\$ 6,420.00
Pole Schedule		4	8	12			6					30	\$ 4,910.00
Elevation Views	1	4	10	16			6					37	\$ 6,105.00
FM 306 and FM 306													\$ -
Existing Conditions	1	2	10	20			6					39	\$ 6,235.00
Proposed Conditions	1	8	12	24			6					51	\$ 8,435.00
Conduit and Conductor Schedule		4	10	20			6					40	\$ 6,420.00
Pole Schedule		4	8	12			6					30	\$ 4,910.00
Elevation Views	1	4	10	16			6					37	\$ 6,105.00
Traffic Signal Standards	1		2	4			12					19	\$ 2,695.00
Traffic Signal Qty Summary Sheet	1	2	4	8								15	\$ 2,575.00
Traffic Signal Estimate	1	2	4	8								15	\$ 2,575.00
Contact Utility Company and Coordinate Power Location in Field			4	4								8	\$ 1,400.00
													\$ -
Prime HOURS SUB-TOTALS	23	154	366	704	310	354	4	0	0	0	0	1915	1915
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$5,175.00	\$31,570.00	\$78,690.00	\$95,040.00	\$48,050.00	\$44,250.00	\$380.00	\$0.00	\$0.00	\$0.00	\$0.00		\$303,155.00
Prime % DISTRIBUTION OF STAFF HOURS	1.2%	8.0%	19.1%	36.8%	16.2%	18.5%	0.2%	0.0%	0.0%	0.0%	0.0%		
SUBTOTAL (10. SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT))													\$303,155.00

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Design Leader	Senior Engineer	EIT	Designer	Technician	Admin / Clerical	GIS Analyst	Utilities Coordinator	Project Principal	Project Coordinator	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
11. MISCELLANEOUS ROADWAY SERVICES													\$ -
11.1. Traffic Control Plan, Sequence of Construction													\$ -
60% Develop construction sequencing	2	8	16		40	8						74	\$ 12,730.00
Coordinate with City	2	4										6	\$ 1,270.00
60% Develop detour plan	2	4	8		32	8						54	\$ 8,950.00
60% TCP Sheets (2 Phases, 80 Sheets)	16	40	60	100	100	80						396	\$ 63,700.00
Update 90% PS&E	12	32	60	60	60	60						284	\$ 47,060.00
Update Final PS&E	8	24	60	32	40	32						196	\$ 34,140.00
11.4. SW3P													\$ -
60% Develop SW3P		1	4	12								17	\$ 2,685.00
60% SW3P Sheets (20 Sheets)		4	8	40	48	40						140	\$ 20,380.00
Update 90% PS&E		2	6	24	40	24						96	\$ 14,140.00
Update Final PS&E		1	4	8	24	8						45	\$ 6,865.00
11.5. Compute and Tabulate Quantities and Estimates													\$ -
60% Incorporate summaries from subproviders into plans		4	8									12	\$ 2,540.00
60% Incorporate summaries from subproviders into estimate		8	16									24	\$ 5,080.00
60% PS&E submittal		16	12	32	32							92	\$ 15,140.00
90% PS&E submittal		12	14	32	32							90	\$ 14,750.00
100% PS&E submittal		8	8	32	32							80	\$ 12,640.00
11.7. Contract Time Determination													\$ -
90% PS&E submittal		4	8	4								16	\$ 3,080.00
100% PS&E submittal		4	2									6	\$ 1,250.00
11.8. Specifications and General Notes													\$ -
90% Identify Specifications, prepare Governing Specifications list	1	2	4	8								15	\$ 2,575.00
60% Develop General Notes	1	4	8									13	\$ 2,765.00
Update 90% PS&E		4	8									12	\$ 2,540.00
Update 100% PS&E		4	8									12	\$ 2,540.00
Provide special specifications/provisions		2	4									6	\$ 1,270.00
11.9. Constructability Review													\$ -
60%	1	16	8							4		29	\$ 6,405.00
90%	1	16	6							8		31	\$ 7,155.00
Final Submittal	1	16	4							2		23	\$ 4,955.00
													\$ -
Prime HOURS SUB-TOTALS	47	240	344	384	480	260	0	0	0	14	0	1769	1769
Prime CONTRACT RATE PER HOUR	\$ 225.00	\$ 205.00	\$ 215.00	\$ 135.00	\$ 155.00	\$ 125.00	\$ 95.00	\$ 135.00	\$ 185.00	\$ 295.00	\$ 165.00		
Prime TOTAL LABOR COSTS	\$10,575.00	\$49,200.00	\$73,960.00	\$51,840.00	\$74,400.00	\$32,500.00	\$0.00	\$0.00	\$0.00	\$4,130.00	\$0.00		\$296,605.00
Prime % DISTRIBUTION OF STAFF HOURS	2.7%	13.6%	19.4%	21.7%	27.1%	14.7%	0.0%	0.0%	0.0%	0.8%	0.0%	100%	
SUBTOTAL (11. MISCELLANEOUS ROADWAY SERVICES)													\$296,605.00
Prime Total BASIC SERVICES Total Hours	279	1187	2035	3099	2196	2202	28	40	178	19	336	11599	11599
Prime Total BASIC SERVICES Labor Cost	\$62,775.00	\$243,335.00	\$437,525.00	\$418,365.00	\$340,380.00	\$275,250.00	\$2,660.00	\$5,400.00	\$32,930.00	\$5,605.00	\$55,440.00		\$1,879,665.00
Prime Total BASIC SVS % Dist. of Staff Hours	2.4%	10.2%	17.5%	26.7%	18.9%	19.0%	0.2%	0.3%	1.5%	0.2%	2.9%	100%	

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

BASIC SERVICES - Expenses				
OTHER DIRECT EXPENSES				
Services To Be Provided	Unit	Unit Cost	QUANTITY	COST
Shipping/Postage				
Standard Postage	letter	\$ 0.55	60	\$ 33.00
Certified Letter Return Receipt	each	\$ 6.75	20	\$ 135.00
Travel				
Mileage	mile	\$ 0.58	\$ -	\$0.00
Subtotal Other Direct Expense:				\$ 168.00

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	RPLS - Principal	RPLS Task Leader	Senior Survey Tech	Survey Tech	2-Man Survey Crew	3-Man Survey Crew	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
BASIC SERVICES								
4. TOPOGRAPHIC SURVEY AND RIGHT-OF-WAY (ROW) DATA								\$ -
4.1. ROW MAPPING								\$ -
a. Abstract Map (no plan sheets)								\$ -
Create Ownership map from Appraisal District information to begin research and track right-of-entry. (6 properties)	1	1	1	1			4	\$ 735.00
Research and draft existing ROW maps as needed to resolve property lines. (8 maps estimated)	1	5	20	2			28	\$ 4,490.00
Research and draft existing ROW deeds as needed to resolve property lines. (6 row deeds estimated)	1	2	6	1			10	\$ 1,680.00
Research and draft property deeds and plats as needed to resolve property lines (6 properties estimated)	1	2	6	1			10	\$ 1,680.00
Research and draft easements adjacent to existing and proposed easements. Assemble Abstract Map for field recovery.	1	3	12	1			17	\$ 2,775.00
	1	1	1	4			7	\$ 1,110.00
b. Preliminary Map (no plan sheets)								\$ -
Recover boundary evidence along the ROW. (20 points estimated)	1	2	8	2	5	20	38	\$ 8,630.00
Resolve existing ROW (at proposed easements only - all other geometry shall be apparent right-of-way)	5	5	10				20	\$ 3,800.00
Assemble Preliminary ROW map. (no plan sheets, MicroStation base map only)	1	2	5	20			28	\$ 3,905.00
c. Create Final map with Title Sheet, Index Sheet, Control Data Sheets. (no plan sheets)								\$ -
Work with design team to finalize proposed geometry.	1	1	2				4	\$ 760.00
d. Create Property Descriptions for ROW or Drainage Easement Acquisition (4 parcels and 2 easements calculated).								\$ -
Coordinate entry into private properties to survey back corners and gather additional topo. (8 properties estimated)	1	1	1	1		1	5	\$ 1,010.00
Recover boundary evidence outside ROW. (10 points estimated)	1	2	4	2		20	29	\$ 7,005.00
Survey utilities, improvements, and topography within and 25-feet from proposed ROW lines. (Effort captured in line 162 (g.3.), shown below)								\$ -
Incorporate additional survey data into design survey base maps. (Effort captured in line 162 (g.3.), shown below)								\$ -
Resolve adjacent property lines as needed to complete property descriptions.	1	5					6	\$ 1,240.00
Create Property Descriptions. (6 estimated)	1	5	10	60			76	\$ 10,240.00
QA/QC Property Descriptions	1	5	5				11	\$ 1,990.00
Monument parcel corners with iron rods. (16 corners estimated)	1	2	4	2		20	29	\$ 7,005.00
Prime HOURS SUB-TOTALS	20	44	95	97	5	61	322	\$ 58,055.00
Prime CONTRACT RATE PER HOUR	\$ 265.00	\$ 195.00	\$ 150.00	\$ 125.00	\$ 205.00	\$ 275.00		
Prime TOTAL LABOR COSTS	\$5,300.00	\$8,580.00	\$14,250.00	\$12,125.00	\$1,025.00	\$16,775.00		\$58,055.00
Prime % DISTRIBUTION OF STAFF HOURS	6.2%	13.7%	29.5%	30.1%	1.6%	18.9%		

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	RPLS - Principal	RPLS Task Leader	Senior Survey Tech	Survey Tech	2-Man Survey Crew	3-Man Survey Crew	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
SUBTOTAL (4. TOPOGRAPHIC SURVEY AND RIGHT-OF-WAY (ROW) DATA)								\$58,055.00
5. DESIGN SURVEYS								\$ -
5.1. DESIGN SURVEYS								\$ -
a. Set monuments and establish values for primary and secondary control points.	5	5					10	\$ 2,300.00
1. Complete datum checks on existing TxDOT and/or existing NGS control points.		1	2		4		7	\$ 1,315.00
2. Establish secondary control network (20 points estimated).	1	2	2			5	10	\$ 2,330.00
3. Clear locations for secondary control points with Texas 811.		1	1	5		4	11	\$ 2,070.00
4. Set, sketch, photograph, and survey secondary control points		2	10	2		20	34	\$ 7,640.00
5. Level secondary control points		2	10			20	32	\$ 7,390.00
6. Establish two pairs of intervisible primary control points (concrete settings), one at each end of the project.		2	2	4		20	28	\$ 6,690.00
7. Clear locations for primary control points with Texas 811.			1	2		2	5	\$ 950.00
8. Set, sketch, photograph, and survey primary control point				1		2	3	\$ 675.00
9. Level primary control points			2			4	6	\$ 1,400.00
b. Obtain or collect data to create cross-sections at 50' intervals and digital terrain models.	1	5					6	\$ 1,240.00
1. Remove mobile LiDAR data outside the roadway from the existing DTM.			2				2	\$ 300.00
2. Collect supplemental data outside the roadway.		5	5	25		50	85	\$ 18,600.00
3. Integrate supplemental data into LiDAR deliverables from the previous phase.		1	5	10			16	\$ 2,195.00
4. Field verify final contours.		1	1	5			7	\$ 970.00
5. QA/QC, address field check elements, document and distribute	1	1	1	1			4	\$ 735.00
c. Locate above ground evidence of existing utilities, including power poles, valves, and markers, excluding wire sags, inverts, and Texas 811 marks. Texas 811 will be contacted only to clear installations for control or boundary monuments.	1	5					6	\$ 1,240.00
1. Remove utility evidence from the existing mobile LiDAR DTM.			2				2	\$ 300.00
2. Collect supplemental utility data		2	2	10		20	34	\$ 7,440.00
3. Blend supplemental data			2	10			12	\$ 1,550.00
4. Field check blended DTM			1	5			6	\$ 775.00
5. QA/QC, address field check elements, document and distribute	1	1	1	1			4	\$ 735.00
d. Locate topographical features and existing improvements.	1	5					6	\$ 1,240.00
1. Remove topographical features from existing mobile LiDAR DTM.			2				2	\$ 300.00
2. Collect supplemental conventional data of topographical features outside the roadway.		5	5	25		50	85	\$ 18,600.00
3. Blend supplemental data			5	10			15	\$ 2,000.00
4. Field check blended DTM			1	5			6	\$ 775.00
e. Provide details of existing drainage features, (e.g., culverts, manholes, etc.), including invert, top, and size data.	1	5					6	\$ 1,240.00
1. Remove drainage details from existing mobile LiDAR DTM.				2			2	\$ 250.00
2. Collect supplemental conventional data inside the Common St. ROW		5	5	25		50	85	\$ 18,600.00
3. Collect supplemental conventional data outside the Common St. ROW		5	5	25		50	85	\$ 18,600.00

FEE SCHEDULE

Engineer: Pape-Dawson Consulting Engineers, Inc.

Roadway Name: Common Street

TASK DESCRIPTION	RPLS - Principal	RPLS Task Leader	Senior Survey Tech	Survey Tech	2-Man Survey Crew	3-Man Survey Crew	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
4. Blend supplemental data			5	10			15	\$ 2,000.00
5. Field check blended DTM			1	5			6	\$ 775.00
f. Locate existing apparent rights-of-way outside of the areas identified for possible easement or right-of-way acquisition.	5	20	20	5			50	\$ 8,850.00
g. Review right-of-way maps to resolve the existing apparent right-of-way outside the areas identified for possible easement or right-of-way acquisition.	5	20	20	5			50	\$ 8,850.00
j. Locate boreholes.				2	5		7	\$ 1,275.00
k. Tree Survey - collect trunk diameter at waist height, species and canopy spread for all trees of diameter four inches and greater. Multi-trunk trees shall be labeled to include both main and an additional 4 secondary trunk sizes, at waist height.	2	2	1	5	10		20	\$ 3,745.00
l. Hydrographic surveying is not included in this survey scope.								\$ -
m. Mapping River/Creeks Bathymetry is not included in this survey scope.								\$ -
n. Update existing control data and publish results in survey control data sheets for inclusion into a construction plan set.	2	5		55			62	\$ 8,380.00
1. Create 8-1/2x11 TxDOT control point sheets for all primary control point pairs (4 points).	1	5	10				16	\$ 2,740.00
2. Publish both primary and secondary project control in 11x17 format for inclusion in a construction plan set and the ROW map.	1	5	10	50			66	\$ 8,990.00
Prime HOURS SUB-TOTALS	28	118	142	310	19	297	914	914
Prime CONTRACT RATE PER HOUR	\$ 265.00	\$ 195.00	\$ 150.00	\$ 125.00	\$ 205.00	\$ 275.00		
Prime TOTAL LABOR COSTS	\$7,420.00	\$23,010.00	\$21,300.00	\$38,750.00	\$3,895.00	\$81,675.00		\$176,050.00
Prime % DISTRIBUTION OF STAFF HOURS	3.1%	12.9%	15.5%	33.9%	2.1%	32.5%		
SUBTOTAL (5. DESIGN SURVEYS)								\$ 176,050.00
Prime Total BASIC SERVICES Total Hours	48	162	237	407	24	358	1236	1236
Prime Total BASIC SERVICES Labor Cost	\$12,720.00	\$31,590.00	\$35,550.00	\$50,875.00	\$4,920.00	\$98,450.00		\$234,105.00
Prime Total BASIC SVS % Dist. of Staff Hours	3.9%	13.1%	19.2%	32.9%	1.9%	29.0%	100%	

FEE SCHEDULE

Engineer: The Rios Group

Roadway Name: Common Street

TASK DESCRIPTION	Senior Project Manager	Senior Engineer	Project Engineer	Project Coordinator	SUE Field Manager	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
BASIC SERVICES							
1. PROJECT MANAGEMENT AND COORDINATION							
1.1. Project Management and Coordination							
City of New Bruanfels and Design Team coordination meetings						0	\$ -
1.2. Project Meetings							
Preliminary Drainage Scoping Meeting						0	\$ -
30% Schematic Review						0	\$ -
60% Review	4	2		10	24	40	\$ 4,400.00
95% Review						0	\$ -
100% DDRT						0	\$ -
LG Project Development Checklist						0	\$ -
1.3. Progress Reporting and Invoicing							
1.5. Right of Entry							
Right of Entry Letters						0	\$ -
Prime HOURS SUB-TOTALS	4	2	0	10	24	40	40
Prime CONTRACT RATE PER HOUR	\$ 190.00	\$ 160.00	\$ 145.00	\$ 80.00	\$ 105.00		
Prime TOTAL LABOR COSTS	\$760.00	\$320.00	\$0.00	\$800.00	\$2,520.00		\$4,400.00
Prime % DISTRIBUTION OF STAFF HOURS	10.0%	5.0%	0.0%	25.0%	60.0%		
SUBTOTAL (1. PROJECT MANAGEMENT AND COORDINATION)							
							\$4,400.00
Prime Total BASIC SERVICES Total Hours	4	2	0	10	24	40	40
Prime Total BASIC SERVICES Labor Cost	\$760.00	\$320.00	\$0.00	\$800.00	\$2,520.00		\$4,400.00
Prime Total BASIC SVS % Dist. of Staff Hours	10.0%	5.0%	0.0%	25.0%	60.0%	100%	

FEE SCHEDULE

Engineer: The Rios Group
 Roadway Name: Common Street

ADDITIONAL SERVICES				
SUE UTILITY - COMBINED SURVEY (UNIT COST)				
<u>Services To Be Provided</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>QUANTITY</u>	<u>COST</u>
SUE Mobilization/Demobilization				
This cost is intended to be a one-time expense compensation for mobilizing/demobilizing personnel and equipment portal to portal. Vacuum excavation truck (non-local)	Mile			\$ -
SUE (Quality Level B - Utility Designation)				
Includes labor and equipment for records research, designating, engineering, surveying, CADD, mapping and limited traffic control.	LF	\$ 1.75	69400	\$ 121,450.00
SUE (Quality Level A - Utility Locate, Test Holes)				
Includes labor and equipment for vacuum excavation, engineering, surveying, CADD, and limited traffic control. These prices reflect that a Quality Level B service has been provided.				
Level A: 0 to 5 ft.	each	\$ 1,250.00	15	\$ 18,750.00
Level A: > 5 to 8 ft.	each	\$ 1,450.00	4	\$ 5,800.00
Level A: > 8 to 13 ft.	each	\$ 1,850.00	1	\$ 1,850.00
Level A: > 13 to 20 ft.	each	\$ 2,650.00		\$ -
Level A: > 20 ft.	FT	\$ 225.00		\$ -
Other Direct Expenses				
Traffic Control Services, Arrow Boards and Attenuator trucks - Small Project (Includes labor, equipment and fuel)	day	\$ 750.00	5	\$ 3,750.00
Total				\$ 151,600.00

FEE SCHEDULE

Engineer: Raba Kistner, Inc.
 Roadway Name: Common Street

TASK DESCRIPTION	Principal	Senior Project Manager	Project Manager	Project Engineer (P.E.)	Engineer-In-Training	Engineering Tech	CAD Tech	Clerical	TOTAL HRS.	TOTAL LABOR HRS. & COSTS
BASIC SERVICES										
6. GEOTECHNICAL BORINGS AND INVESTIGATIONS										
6.1 Field and Laboratory Workplan										
Pavement Core Location Recommendations, and Traffic Control Plans			0.5		1	1			2.5	\$ 267.50
Pavement Core/ Soil Boring Layouts						4			4	\$ 320.00
Utility Clearances						2			2	\$ 160.00
Coordination for Coring, Drilling, Sampling, Logging, and Traffic Control					1	2			3	\$ 270.00
Logging of borings						10			10	\$ 800.00
Collection of Bulk Subgrade Samples in Grassy ROW for Lime Series						2			2	\$ 160.00
Water Level Readings and Backfill						1			1	\$ 80.00
Non-Drilling Logger Time for setting/resetting Traffic Control						2			2	\$ 160.00
Non-Drilling Logger Time for Delays Beyond GEO SUB3' Control									0	\$ -
Laboratory Test Assignments					1				1	\$ 110.00
Input Laboratory Test Data					1				1	\$ 110.00
Preparation of Boring Logs					1				1	\$ 110.00
Modulus Back-calculation of FWD data provided by TxDOT									0	\$ -
Review GPR Data provided by TxDOT									0	\$ -
6.3 Geotechnical Report										
Pavement Design			4		10				14	\$ 1,720.00
Bridge Foundation Capacity Analyses									0	\$ -
Preparing Progress Reports and Invoices			2					12	14	\$ 1,150.00
Preparation of Draft Geotechnical Report	1		2		4		2	1	10	\$ 1,205.00
Finalize Geotechnical Report based on Review Comments	1		2		4		2	1	10	\$ 1,205.00
Soil Boring Data Sheets			1		1			2	4	\$ 405.00
Meetings	2		2		2				6	\$ 920.00
Teleconference			2		2				4	\$ 530.00
GEO SUB3 HOURS SUB-TOTALS	4	0	15.5	0	28	24	4	16	91.5	91.5
GEO SUB3 CONTRACT RATE PER HOUR	\$ 195.00	\$ 180.00	\$ 155.00	\$ 135.00	\$ 110.00	\$ 80.00	\$ 95.00	\$ 70.00		
GEO SUB3 TOTAL LABOR COSTS	\$780.00	\$0.00	\$2,402.50	\$0.00	\$3,080.00	\$1,920.00	\$380.00	\$1,120.00		\$9,682.50
GEO SUB3 % DISTRIBUTION OF STAFF HOURS	4.4%	0.0%	16.9%	0.0%	30.6%	26.2%	4.4%	17.5%		
SUBTOTAL (6. GEOTECHNICAL BORINGS AND INVESTIGATIONS)										\$9,682.50

FEE SCHEDULE

Engineer: Raba Kistner, Inc.
 Roadway Name: Common Street

BASIC SERVICES				
MATERIALS LABORATORY ENGINEERING SERVICES				
<u>Services To Be Provided</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>QUANTITY</u>	<u>COST</u>
Atterberg Limits	ea.	\$95.00	20	\$ 1,900.00
Moisture Content	ea.	\$13.00	40	\$ 520.00
Minus 200-mesh Sieve	ea.	\$60.00	5	\$ 300.00
Unconfined Compression (Soil)	ea.	\$59.00		\$ -
Unconfined Compression (Rock)	ea.	\$53.00		\$ -
Unconsolidated Undrained Triaxial	ea.	\$75.00		\$ -
Hydrometer	ea.	\$300.00		\$ -
Sieve Analysis	ea.	\$95.00		\$ -
pH	ea.	\$75.00		\$ -
Swell Test (Free)	ea.	\$200.00		\$ -
Swell Test (Pressure)	ea.	\$352.00		\$ -
Sulfate Content Testing	ea.	\$95.00	10	\$ 950.00
Resistivity	ea.	\$215.00		\$ -
Chloride	ea.	\$80.00		\$ -
Moisture/Density Relationship Only	ea.	\$300.00		\$ -
CBR 3-point (M/D with 1 Specimen)	ea.	\$900.00		\$ -
Permeability + Remolding	ea.	\$675.00		\$ -
pH-Lime Series Curve (no strength)	ea.	\$500.00	4	\$ 2,000.00
PI-Lime Series Curve (no strength)	ea.	\$472.00		\$ -
Soil-Lime Compressive Strength	ea.	\$235.00	4	\$ 940.00
Soil-Cement Compressive Strength	ea.	\$235.00		\$ -
Texas Triaxial	ea.	\$1,600.00	4	\$ 6,400.00
Direct Shear	ea.	\$1,200.00		\$ -
Consolidation without hysteresis Loop	ea.	\$830.00		\$ -
Consolidation with hysteresis Loop	ea.	\$990.00		\$ -
Subtotal Unit Costs:				\$ 13,010.00

FEE SCHEDULE

Engineer: Raba Kistner, Inc.
 Roadway Name: Common Street

BASIC SERVICES				
GEOTECHNICAL FIELD ENGINEERING SERVICES				
Services To Be Provided	Unit	Unit Cost	QUANTITY	COST
Mobilization of Drill Rig (Min Charge)	l.s.	\$250.00	2	\$ 500.00
Mobilization of Drill Rig (mileage)	mile	\$4.95		\$ -
Auger Drilling, 0 to 25 ft	l.f.	\$11.00	150	\$ 1,650.00
Auger Drilling, 25 to 50 ft	l.f.	\$12.00		\$ -
Auger Drilling, 50 to 100 ft	l.f.	\$13.00		\$ -
Air Rotary Drilling, 0 to 25 ft	l.f.	\$11.00		\$ -
Air Rotary Drilling, 25 to 50 ft	l.f.	\$12.00		\$ -
Air Rotary Drilling, 50 to 100 ft	l.f.	\$13.00		\$ -
Core Drilling and Sampling, 0 to 25 ft	l.f.	\$30.00		\$ -
Core Drilling and Sampling, 25 to 50 ft	l.f.	\$30.00		\$ -
Core Drilling and Sampling, 50 to 100 ft	l.f.	\$35.00		\$ -
Water Truck	day	\$300.00		\$ -
Shelby Tubes, 0 to 25 ft	ea.	\$39.00		\$ -
Shelby Tubes, 25 to 50 ft	ea.	\$39.00		\$ -
Shelby Tubes, 50 to 100 ft	ea.	\$39.00		\$ -
Standard Penetration Tests, 0 to 25 ft	ea.	\$39.00		\$ -
Standard Penetration Tests, 25 to 50 ft	ea.	\$42.00		\$ -
Standard Penetration Tests, 50 to 100 ft	ea.	\$45.00		\$ -
TCP Tests, 0 to 25 ft	ea.	\$39.00	40	\$ 1,560.00
TCP Tests, 25 to 50 ft	ea.	\$42.00		\$ -
TCP Tests, 50 to 100 ft	ea.	\$45.00		\$ -
DCP Testing	ea.	\$15.00	10	\$ 150.00
Bentonite Backfill	units	\$4.50	150	\$ 675.00
Pavement Coring	ea.	\$175.00	10	\$ 1,750.00
Concrete/Asphalt Patch	ea.	\$60.00	10	\$ 600.00
Driller Standby	hrs.	\$250.00	4	\$ 1,000.00
Driller Per Diem	m/day	\$175.00		\$ -
Subtotal Unit Costs:				\$ 7,885.00

FEE SCHEDULE

Engineer: Raba Kistner, Inc.
 Roadway Name: Common Street

BASIC SERVICES				
OTHER DIRECT EXPENSES - FC 110				
Services To Be Provided	Unit	Unit Cost	QUANTITY	COST
Travel				
Mileage (Site Reconnaissance Vehicle)	mile	\$ 0.830	25	\$ 20.75
Mileage (Logger Vehicle)	mile	\$ 0.830	50	\$ 41.50
Shipping/Postage				
Materials and Shipping	per package	cost		\$ -
Standard Postage	letter	cost		\$ -
Courier Services	each	cost		\$ -
Certified Letter Return Receipt	each	cost		\$ -
Copying / Printing / Reproduction / Photo				
Photocopies B/W (8 1/2" X 11")	each	\$ 0.10		\$ -
Photocopies B/W (11" X 17")	each	\$ 0.15		\$ -
Photocopies Color (8 1/2" X 11")	each	\$ 0.15		\$ -
Photocopies Color (11" X 17")	each	\$ 0.20		\$ -
Miscellaneous				
Traffic Control Services, partial lane closure	day	\$ 2,000.00		\$ -
Traffic Control Services, full lane closure	day	\$ 2,500.00	2	\$ 5,000.00
Traffic Control Services, full lane closure with 1 officer	day	\$ 3,500.00		\$ -
Subtotal Other Direct Expense:				\$ 5,062.25

FEE SCHEDULE

Engineer: Raba Kistner, Inc.
 Roadway Name: Common Street

TASK DESCRIPTION	Project Manager	Cultural Resources Director	Senior CADD Operator	Senior Environmental Planner	Environmental Planner II	Archeologist	Sr. Archeologist	Laboratory Supervisor	Business Manager	Admin/ Clerical	TOTAL HRS.
BASIC SERVICES											
3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT											
3.2 Cultural Resources	2	4	12	4		352	17	4	2	6	403
3.3 Threatened and Endangered Species Habitat Evaluation	2		4	4	20				2	2	34
ENV SUB4 HOURS SUB-TOTALS	4	4	16	8	20	352	17	4	4	8	437
ENV SUB4 CONTRACT RATE PER HOUR	\$ 197.00	\$ 195.00	\$ 110.00	\$ 145.00	\$ 105.00	\$ 95.00	\$ 155.00	\$ 85.00	\$ 88.00	\$ 73.00	
ENV SUB4 TOTAL LABOR COSTS	\$788.00	\$780.00	\$1,760.00	\$1,160.00	\$2,100.00	\$33,440.00	\$2,635.00	\$340.00	\$352.00	\$584.00	
ENV SUB4 % DISTRIBUTION OF STAFF HOURS	0.9%	0.9%	3.7%	1.8%	4.6%	80.5%	3.9%	0.9%	0.9%	1.8%	
SUBTOTAL (3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT)											

FEE SCHEDULE

Engineer: Raba Kistner, Inc.
 Roadway Name: Common Street

TASK DESCRIPTION	TOTAL LABOR HRS. & COSTS
BASIC SERVICES	
3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	
3.2 Cultural Resources	\$ 40,103.00
3.3 Threatened and Endangered Species Habitat Evaluation	\$ 3,836.00
ENV SUB4 HOURS SUB-TOTALS	437
ENV SUB4 CONTRACT RATE PER HOUR	
ENV SUB4 TOTAL LABOR COSTS	\$43,939.00
ENV SUB4 % DISTRIBUTION OF STAFF HOURS	
SUBTOTAL (3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT)	\$43,939.00

FEE SCHEDULE

Engineer: Raba Kistner, Inc.
 Roadway Name: Common Street

BASIC SERVICES				
OTHER DIRECT EXPENSES - FC 110				
Services To Be Provided	Unit	Unit Cost	QUANTITY	COST
Travel				
Truck	day	\$ 70.000	31	\$ 2,170.00
Shipping/Postage				
Standard Postage	letter	\$ 0.63		\$ -
Miscellaneous				
Field Supplies	each	\$ 50.00	6	\$ 300.00
Curation	each	\$ 800.00	1	\$ 800.00
TexSite Form	each	\$ 96.00	2	\$ 192.00
GEO XT	day	\$ 120.00	7	\$ 840.00
Subtotal Other Direct Expense:				\$ 4,302.00

ID	Task Name	Duration	Start	Finish	Predecessors	Calendar																											
						Half 2, 2023	Half 1, 2024	Half 2, 2024	Half 1, 2025	Half 2, 2025	Half 1, 2026	Half 2, 2026	Half 1, 2027	Half 2, 2027	Half 1, 2028																		
						M	J	S	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J	S	N	J					
1	Exhibit C	1180 days	Mon 7/10/23	Fri 1/14/28		[Gantt bar for Exhibit C]																											
2	NB 22-021: Common Street PS&E	1180 days	Mon 7/10/23	Fri 1/14/28		[Gantt bar for NB 22-021: Common Street PS&E]																											
3	Start Date	0 days	Mon 7/10/23	Mon 7/10/23		[Gantt bar for Start Date]																											
4	Utility Coordination Conference	0 days	Mon 12/11/23	Mon 12/11/23	16FS-10 days	[Gantt bar for Utility Coordination Conference]																											
5	30% Schematic Submittal	0 days	Fri 12/22/23	Fri 12/22/23	16	[Gantt bar for 30% Schematic Submittal]																											
6	60% Plan Submittal	0 days	Fri 3/22/24	Fri 3/22/24	19	[Gantt bar for 60% Plan Submittal]																											
7	90% Plan Submittal	0 days	Fri 5/31/24	Fri 5/31/24	22	[Gantt bar for 90% Plan Submittal]																											
8	Final Plan Submittal	0 days	Fri 7/19/24	Fri 7/19/24	25	[Gantt bar for Final Plan Submittal]																											
9	Utility Relocation	390 days	Mon 7/22/24	Fri 1/16/26	8	[Gantt bar for Utility Relocation]																											
10	Bid Phase	80 days	Mon 9/29/25	Fri 1/16/26	8FS+310 days	[Gantt bar for Bid Phase]																											
11	Construction	520 days	Mon 1/19/26	Fri 1/14/28	9	[Gantt bar for Construction]																											
12	NB 22-021: Common Street PS&E	270 days	Mon 7/10/23	Fri 7/19/24		[Gantt bar for NB 22-021: Common Street PS&E]																											
13	Survey	30 days	Mon 7/10/23	Fri 8/18/23	3	[Gantt bar for Survey]																											
14	Survey Processing & Delivery	30 days	Mon 8/21/23	Fri 9/29/23	13	[Gantt bar for Survey Processing & Delivery]																											
15	Develop ROW Map	60 days	Mon 8/21/23	Fri 11/10/23	13	[Gantt bar for Develop ROW Map]																											
16	Initial / Update Geometric Design	60 days	Mon 10/2/23	Fri 12/22/23	14	[Gantt bar for Initial / Update Geometric Design]																											
17	Public Meeting	0 days	Mon 11/13/23	Mon 11/13/23	16	[Gantt bar for Public Meeting]																											
18	60% Plan Development	55 days	Mon 12/25/23	Fri 3/8/24	16	[Gantt bar for 60% Plan Development]																											
19	QA/QC	10 days	Mon 3/11/24	Fri 3/22/24	18	[Gantt bar for QA/QC]																											
20	City Review	10 days	Mon 3/25/24	Fri 4/5/24	19	[Gantt bar for City Review]																											
21	90% Plan Development	35 days	Mon 4/8/24	Fri 5/24/24	20	[Gantt bar for 90% Plan Development]																											
22	QA/QC	5 days	Mon 5/27/24	Fri 5/31/24	21	[Gantt bar for QA/QC]																											
23	City Review	10 days	Mon 6/3/24	Fri 6/14/24	22	[Gantt bar for City Review]																											
24	100% Plan Development	20 days	Mon 6/17/24	Fri 7/12/24	23	[Gantt bar for 100% Plan Development]																											
25	Final Plan Field Review and QA/QC	5 days	Mon 7/15/24	Fri 7/19/24	24	[Gantt bar for Final Plan Field Review and QA/QC]																											