WORK AUTHORIZATION NO. 3
PROJECT: BAGDAD ROAD/CR 279

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated April 7, 2020 and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and Binkley and Barfield, Inc. (the "Engineer").

Part1. The Engineer will provide the following Engineering Services set forth in Attachment "B" of this Work Authorization.

Part 2. The maximum amount payable for services under this Work Authorization without modification is **$1,704,912.**

Part 3. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the Contract.

Part 4. This Work Authorization shall become effective on the date of final acceptance and full execution of the parties hereto and shall terminate on **June 30, 2023**. The Engineering Services set forth in Attachment "B" of this Work Authorization shall be fully completed on or before said date unless extended by a Supplemental Work Authorization.

Part 5. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

Part 6. This Work Authorization is hereby accepted and acknowledged below.

EXECUTED this ____ day of _____, 20___.

ENGINEER:	COUNTY:
Binkley and Barfield, Inc.	Williamson County, Texas
By:_____	By:_____
Signature	Signature
____David Calabuig_____	_____
Printed Name	Printed Name
__Vice President ___	_____
Title	Title

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

2/18/2021

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Rate Schedule

ATTACHMENT A
SERVICES TO BE PROVIDED BY THE COUNTY FOR BAGDAD ROAD/CR 279

In general, Williamson County and its representatives to their best efforts will render services as follows:

1. Name, business address, and phone number of County's project manager.

2. Assistance to the Engineer, as necessary, with obtaining data and information from other local, regional, State and Federal agencies required for this project.

3. Provide available appropriate County data on file including plans and specifications that are deemed pertinent to the completion of the work required by the scope of services (including previous hydraulic studies, models, previous reports and studies, available existing traffic counts, and design year traffic projections).

4. Provide available criteria and full information as to the client's requirements for the project. Provide examples of acceptable format for the required deliverables.

5. Provide information on any meetings/discussions held with adjoining property owners that may impact the project.

6. Provide timely reviews and decisions necessary for the Engineer to maintain the project work schedule. Review recommendations offered by the Engineer, progress of work, and final acceptance of all documents.

7. Submittal of documentation and permits to regulatory agencies for review and comment, when specified.

8. Support project development efforts with stakeholders, coordinate meetings and interface with stakeholders, as needed.

9. Post and maintain project information for public consumption on the County website.

10. Assist with Coordination between the Engineer and the County's other consultants.

11. Negotiate with all utility companies for any agreements and/or relocations required.

12. Provide an agent as necessary to secure proposed ROW and relocate/remove improvements on proposed ROW.

ATTACHMENT B
SERVICES TO BE PROVIDED BY THE ENGINEER FOR
BAGDAD ROAD/CR 279
Work Authorization 3

PROJECT DESCRIPTION

Project Limits
The project limits are from City Limits of Liberty Hill to CR 281 for approximately 2.7 miles.

Existing Facility
The existing road is a 2-lane roadway with asphalt pavement and with varying widths of existing ROW (40ft to 180ft).

Proposed Facility
The proposed roadway is a 3-lane undivided roadway with shoulders, center turn lane, and shared use path within the proposed ROW usual width of 150ft, from the project limits mention above.

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

The following scope of services is based on the final design phase of the interim configuration facility as depicted in the Preliminary Design Schematic and LHB intersection PSE developed under Work Authorizations 1 and 2.

1. PROJECT MANAGEMENT

   a. Communication:

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

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

      - Submit monthly progress status reports to the GEC. Progress reports will include deliverable table, tasks completed, tasks/objectives that are planned for the upcoming periods, lists or descriptions of items or decisions needed from the County and its representatives. Subconsultant progress will be incorporated into the monthly progress report. A copy of the monthly progress report will be uploaded to ProjectWise.

      - Prepare correspondence, invoices, and progress reports on a monthly basis in accordance with current County requirements.

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

      - Update the WA2 project specific QA/QC plan if needed and submit to the County within thirty (30) days of notice to proceed.

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

d. Project Coordination & Administration:

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

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

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

f. Project Schedule:

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

g. **Deliverables:**

- Monthly Invoices and Progress Reports including Deliverable Table
- Project Specific QA/QC Plan
- Meeting Minutes, Sign-In Sheets, and Agendas
- Project Schedule and 3 Updates
- Project Files
- QA/QC Documentation with Deliverable

2. ROUTE AND DESIGN STUDIES

a. Data Collection:

- Develop and maintain adjacent property ownership information spreadsheet to be used for disseminating project information including owner's name, tenant name for leased property, mailing address, property address, property id number.
- Review the data collected and organize the information.

b. Stakeholder Coordination (**10** virtual meetings assumed):

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

c. **Deliverables:**

- Meeting Minutes, Sign-In Sheets, Agendas, Presentations, Maps, and Exhibits for all Stakeholder Coordination Meetings.

3. TRAFFIC EVALUATIONS AND PROJECTIONS

- Not used

4. PUBLIC INVOLVEMENT

As this is a Road Bond Project, public involvement activities will be conducted through the County's existing public involvement contract with Rifeline. The Consultant will coordinate and provide support on the public involvement with the County's GEC and public involvement consultant.

a. Public Involvement Plan

- Prepare materials and provide support for meetings with Individual Property Owners, and Stakeholder meetings. One person will attend from engineering team for meetings (**10** meetings assumed).

Deliverables:

- Prepare individual property exhibits with ROW impacts for impacted property owner meetings (Assume 10).

5. RIGHT-OF-WAY (ROW) MAPPING

a. Parcel Acquisition Documents (**34** parcel documents assumed; **34** staking assumed):

- The Surveyor will generate, recover, and/or verify existing horizontal and vertical project primary control at the site, if any, and reconcile the control to known existing intersecting projects.

- The Surveyor will establish or densify additional secondary control as needed for the project to collect data along the length of the project.
- The Surveyor will, at their discretion, use 5/8“ iron rods with distinguishing caps, cotton spindles (paved areas) or other durable entities for the project control as applicable.
- The Surveyor will field verify right-of-way monumentation, files for connecting projects and other evidence to depict the existing right-of-way lines (or alignments) for the intersecting roads at the terminus points of the project.
- The Surveyor will perform sufficient research of property records from various sources to analyze and develop an exhibit of the record ROW and property configurations for the affected area. The Surveyor will perform sufficient field work to recover property corners and other boundary related evidence to aid in the analysis and reconstruction of the affected properties. Final deliverables will be a signed and sealed survey plat and accompanying metes and bounds description for each parcel.
- Upon final approval, the Surveyor will prepare a limited ROW Plan set with Parcel numbers and owner info.
- The Surveyor will perform Title Commitment review for each parcel.

- The Surveyor will monument the corners of the acquired tract of land. Assumption: The Surveyor understands that Williamson County will obtain and maintain Right of Entry from the affected landowners along the project route. This will include landowners subject to boundary line verification or data gathering on tracts adjoining the project tracts. Copies of the signed ROE letters will be supplied to the Surveyor prior to work commencing. Limitations for access will be addressed as they become known and adjustments to scope of work, fee estimates, time schedules, and other tasks will be made by supplemental proposal.

b. **Deliverables:**

- Draft Parcel Acquisition Documents (pdf), including :
  - ASCII point file, DGN files, and/or DWG files as appropriate.
  - Preliminary set and final Parcel survey plats with metes and bounds sketches.
  - Overall ROW/Property Schematic of the project limits with numbered parcels depicted.
  - Two CD-ROM containing the specified files.
  - PDF file of each Surveyor’s project field book if requested.
- Final Parcel Acquisition Documents (one original and pdf)

6. ENVIRONMENTAL SERVICES (For Limits mentioned above)

a. Constraints Mapping

- Develop a constraints map that includes environmental resources, known constraints (structures, floodplain, karst features), cultural and historic resources, hazardous material sites, aerial photography, contour information, utility information, that is based on research of public databases and sources.

b. County Environmental Due Diligence:

- The Environmental Services will include studies and documentation required, per the Williamson County Environmental Protocol, for the various regulating authorities, including the Texas Historical Commission (THC), U.S. Army Corp of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), and Williamson County Conservation Foundation (WCCF). The intention of the Environmental Services is to attain necessary clearance letters and approvals in order to proceed with the proposed project. It is assumed that all required coordination with the USFWS and WCCF will be completed by the County's Environmental Consultant. Compliance with NEPA and TxDOT Environmental approvals are not included in this scope.

c. Data Collection & Field Reconnaissance:

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

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

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

d. Hazardous Materials Initial Site Assessment:

- Prepare a Hazardous Materials Initial Assessment (ISA): Conduct a preliminary Hazardous Materials Assessment based on the data collection and field reconnaissance conducted and identify potential hazardous material sites that may be impacted by the proposed project.

e. Section 404 Clean Water Act Compliance:

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

f. Historic Resources: Coordinate with applicable lead federal agency and THC to determine the Area of Potential Effects (APE) for historic-age above-ground resources. If required, perform survey of historic-age resources in the APE. Prepare a summary letter report meeting the requirements of the THC's Request for SHPO Consultation Form, including recommendations regarding eligibility for the National Register of Historic Places and evaluation of the effect of the undertaking on any historic properties.

g. Archeological Resources: Prepare a Texas Antiquities Permit Application and Associated Scope of Work based on data collection and field reconnaissance. Conduct a pedestrian survey and report of sufficient intensity to determine the nature, extent, and potential significance of any cultural resources located within the Area of Potential Effect in accordance with full report guidelines as outlined by the Texas Historical Commissions Rules of Practice and Procedures. Coordination with Texas Historical Commission including submittals to Texas Historical Commission and project records to the appropriate curation facility per Texas Historical Commission requirements.

h. **Deliverables:**

- Draft & Final Environmental Constraints Map
- Draft & Final Environmental Due Diligence Report
- Draft & Final Hazardous Materials Assessment
- Draft & Final Jurisdictional Waters Delineation Report
- Draft & Final Historic Resources Compliance Memo or Letter to the THC
- Draft & Final Archeological Resources Report or Letter to the THC

7. GEOTECHNICAL SERVICES

a. Soil Borings:

- Perform ten (10) pavement borings spaced along the entire proposed alignment to a depth of fifteen (15) feet.
- Perform eight (8) retaining wall borings at about 200 ft spacing located at the San Gabriel River drilled to a depth of up to 15 ft below the existing ground surface or at least 5 ft in the limestone rock, whichever occurs first.
- Perform seven (7) bridge borings at four bridge locations. The borings will extend to a depth of 55 ft below the existing ground surface and samples. Texas Cone Penetrometer testing will be performed at all boring locations.
- Complete one (1) intersection boring, designated as Boring B-5 from the adjacent LJA scope of work (The fee associated with completing this boring remain in LJA scope of work).
- Collect 3 bulk samples at each bridge location for scour analyses testing.
- Develop soil boring layout for approval from the County prior to mobilization.

b. Geotech Report:

- Provide a Geotechnical Investigation Report for the project evaluated by a professional geotechnical engineer Licensed in the State of Texas. The following items will be included in the geotechnical report: soil boring locations, boring logs (TxDOT Wincore output graphs/format), and plan of borings, subsurface exploration procedures, encountered subsurface conditions, field and laboratory test results, description of surface and subsurface conditions, groundwater conditions, analysis and recommendations for settlement and slope stability of the earthen embankments; analysis and recommendations for bridge foundations, including allowable bearing and skin friction resistance, L-pile parameters for lateral analysis of drilled shafts, and recommendations for addressing karst features if encountered; recommendations for culvert bedding; analysis and recommendations for wingwalls, headwalls, retaining wall recommendations and Global Stability Analysis (including retaining wall design calculations and recommendations for wall settlement estimations, global stability analyses, and external stability including overturning, sliding and bearing capacity);and bridges, general earthwork recommendations; Swell potential evaluations; Pavement thickness design alternatives with subgrade stabilization; PVR calculations.
- Provide Soil Core Hole Drilling required for pavement borings. Follow the procedures in the Williamson County Design Criteria Manual and contact the appropriate utility location services to have underground utilities located prior to drilling in an area.
- Perform appropriate laboratory tests on soil samples recovered from the borings. Laboratory testing may include but not limited to moisture content, liquid limit, plastic limit, unconfined compression, Texas Cone Penetration Tests (per TEX 132-E), Texas Triaxial, resilient modulus, and free swell, sulfate testing, and particle size analysis tests, visual classification, dry density, California Bearing Ratio (CBR) tests, sulfate content tests, lime series analyses, and other tests as prescribed in the TxDOT Geotechnical Manual.

- The Engineer will incorporate soil boring data sheets prepared, signed, sealed and dated by the Geotechnical Engineer and in accordance with TxDOT's current WINCORE software.
- Perform a pavement condition assessment consisting of field inspection on existing pavement conditions and all other pertinent features that could affect the pavement design including observations of subsurface water.
- Create a Preliminary Pavement Report and Final Pavement Report based on field testing, subsequent laboratory testing, following the format noted in the Williamson County Design Criteria Manual.
- Prepare and analyze three (3) pavement design options. The options will consist of a full-depth hot mix design to be used in small areas or for temporary pavement, asphalt overlaying flexible base and lime stabilized subgrade, and asphalt overlying flexible base with cement stabilize base. Provide a temporary pavement section for traffic control design with asphalt overlaying flexible base, if needed. All pavement design analyses should be performed with TxDOT software FPS-21, unless otherwise approved by the County.

c. Assumptions – Traffic assumptions and ESAL determination will be provided by the client. We understand that a Traffic Impact Study was performed and Traffic Predictions for the proposed roadway are included in the Alliance Transportation Group, Inc. report provided by the County.

Deliverables:

- Preliminary and Final Pavement Report.
- Draft & Final Geotech Report

8. PLAN PREPARATION (PS&E) SERVICES

Prepare plans per the current Williamson County Design Criteria Manual including applicable submittal requirements including cost estimate, checklists, hardcopies, CAD files, comment responses, design waivers/exceptions, general notes, quantities, updated design schedule, construction time determination. The engineer will develop and submit these Plans, Specifications & Estimates (PS&E) at 60%, 90%, 100% and Final Design to be included with the Liberty Hill Bypass Project plans.

a. Roadway/General:

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

- Prepare typical section(s) for all proposed and existing roadways, cross streets with the shared use path.

- General Notes
  - Prepare general notes for applicable project-specific items, utilizing the master general notes provided by the County.
- Survey data
  - Prepare benchmark layout sheet(s) that clearly indicate the benchmark locations and associated control information.
- Horizontal Alignment Data
  - Prepare horizontal alignment data sheet(s) that depict the horizontal geometric information for the roadways to be included in the construction plan set.
- Summary Sheets
  - Prepare summary sheet(s) that tabulate, combine, and summarize quantities of the various construction items.
- Removal Plans
  - Prepare removal sheet(s) that clearly identify any items to be removed.
- Roadway Plan & Profiles
  - Prepare roadway plan and profile sheets that depict the proposed roadway improvements.
- Side Street/Intersection Plans
  - Prepare side street/intersection layout sheets for up to CR 281, N. Fawn Ridge Dr, Antlers Trl, Silver Creek Dr. and Highland Oaks Dr.
  - Provide contours or details of drainage patterns for street intersections including slope or elevations along gutter to avoid ponding at intersections. Where applicable, provide details of volume of flow and velocity through intersections.
- Shared Use Path Plans
  - Prepare shared use path plan and profile sheets.
  - Provide additional detail sheets when it is required for project specific conditions.
- Driveways
  - Prepare driveway profiles/culverts for each driveway along the project corridor. When possible, these driveways will be defined in a tabular format. Non-typical driveways may require special details.
  - Where applicable, provide details of volume of flow and velocity across driveway intersections.
- Miscellaneous Details
  - Develop miscellaneous roadway detail sheets for the project that depict details required, which are not defined in standard detail sheets.

- Retaining walls
  - Develop retaining wall plan & profile sheets up to **four** (4) locations. It is anticipated MSE walls will be used at the following locations:
    - NB from station 286+40 to South San Gabriel bridge
    - NB from South San Gabriel bridge to station 299+50
    - SB from station 288+00 to South San Gabriel bridge
    - SB from South San Gabriel bridge to station 300+00.
  - Develop retaining wall typical sections to include on plan & profile sheets.
  - No special aesthetic features are anticipated for the retaining walls
- Cross Sections
  - Develop cross sections at 50-foot stations and other locations as necessary for the determination of cut and fill quantities. These sections will also be used to further refine the design vertical geometry.
- Standard Details
  - As appropriate, Standards that require modification will be revised and sealed by the ENGINEER. Williamson County or TxDOT Standard Details will be utilized to the extent applicable.
- Traffic Control:
- Traffic Control Plans (TCP)
  - Prepare traffic control typical section(s) for each stage of the construction sequence to clearly delineate the position of the existing traffic with respect to the proposed construction.
  - Prepare a detailed narrative for the sequence of construction and traffic control general notes utilizing the sequence approved during the schematic phase. Any changes to the sequence of construction will be approved by the County prior to developing detailed TCP layouts.
  - Prepare detailed TCP layouts for each phase.
  - Develop traffic control detail(s) for items not covered by County or TxDOT standard details.
  - Develop quantities and details for removal of existing pavement markings and proposed temporary pavement markings as needed for traffic operations during construction
  - Compute an Engineer's opinion of construction schedule in order to determine an approximate duration for each of the phases of construction.
  - Consider the construction sequence and plan for temporary functioning of drainage systems.
  - Select appropriate standard details and incorporate into plan set.

b. Drainage:

- Drainage Area Maps
  - Develop existing and proposed external drainage area maps to show the overall project and drainage basin divides, if needed.
- Interior Drainage Area Maps
  - Prepare interior drainage area maps that depict drainage area boundaries and flow direction arrows for roadside ditch, culverts and storm drain inlets in accordance with Williamson County Design Criteria Manual.
  - Each area will be identified and cross-referenced to the computation sheets.
  - Provide documentation of all adverse impacts resulting from the proposed facility in proposed condition. Provide a comparison of existing vs proposed at each outfall from the project area.
  - Provide plans to mitigate adverse impacts to nearby buildings, property access points, and runoff patterns.
- Hydraulic Data Sheets
  - Develop a hydraulic data sheet including hydraulic cross sections and hydraulic calculations at all HEC-RAS culvert and bridge locations in accordance with Williamson County Design Criteria Manual.
- Culvert Layout Sheets
  - Develop culvert layout sheets including plan, profile, riprap or grading details at all the major crossing locations, up to **one** (**1**) location.
- Culvert Standards and Detail Sheets
  - Select culvert standards based on headwall configuration and fill conditions. Develop details as needed for non-standard headwalls, special shoring, special grading at upstream and downstream transitions, structural excavation, backfill, permanent erosion control, bank stabilization and energy dissipation.
- Drainage Computation Sheets
  - Document criteria, input and computations used to calculate run-off and hydraulics for each inlet & gutter, pipe, culvert, ditch, pond or point of interest in accordance with Williamson County Design Criteria Manual.
- Drainage Plan Sheets
  - Use County or TxDOT standards details unless otherwise approved by the County's GEC. Provide drainage design details for "non-standard" drainage structures in instances where they are not covered by County or TxDOT standard details.
  - Prepare a tabular ditch layout schedule that depicts pertinent information about the roadside ditch geometry and design. This table will include station, offset, flow line elevation, velocity, ditch lining material, as well as ditch bottom width. This information may be shown on Drainage Plan sheets.

- Identify known or potential utility conflicts on the plan sheets.

- Detention Plans
  - Coordinate with the County's GEC as needed to ensure that proposed mitigation and/or detention facilities are in an acceptable location and have acceptable maintenance access and safety features. Provide landscaping setbacks, if requested. Criteria for this determination will be based, in part, on drainage information provided by the Engineer and on the existing and proposed design for the project area.
  - If detention is required, provide routing analysis of storm hydrographs for the proposed condition. Design stormwater control structures, detention basin layouts and details and provide a detailed maintenance plan.
  - Plan sheets showing the detention layout, cross sections and grading.
  - Design Criteria & Design maximum water surface elevations.
  - Detail sheets showing structural information.
  - Geotechnical Recommendations.

c. Signing and Pavement Markings Layouts:
   - Prepare signing and pavement marking layouts.
   - Prepare pavement marking details for non-standard conditions.
   - Prepare detail sheets for small signs for non-standard signs.

d. Stormwater Pollution Prevention Plan (SW3P):
   - Develop SW3P narrative in conformance with the TCP to minimize potential impacts to receiving waterways.
   - Prepare Temporary Erosion Control Layouts.
   - Prepare Permanent Erosion Control Layouts.

e. Bridge Design:
   - Bridge design will comply with the COUNTY's Design Criteria Manual, and relevant sections of the latest edition of TxDOT's LRFD Bridge Design Manual, Bridge Project Development Manual, Bridge Detailing Guide, and respective checklists, and the AASHTO LRFD Bridge Design Specifications. Bridge Engineer will analyze/ identify project-specific bridge design criteria per Wilco and TxDOT. Bridge structures are assumed to be typical TxDOT prestressed concrete girder superstructures with standardized bents and abutments with drilled shaft foundations.
   - Prior to Bridge Layout preparation, the Bridge Engineer will conduct field reconnaissance to visually inspect the project site to observe and document any existing natural or man-made features that may influence the layout and design of bridge elements, as well as the condition of nearby existing structures subject to flow and scour effects.

- Also prior to Bridge Layout preparation, the Bridge Engineer will coordinate with Roadway, Hydraulics and Geotechnical Engineers to optimize the layout of the structure and confirm adequacy of hydraulic opening and make adjustments to the schematic layout (bent layout, bridge limits, structure type, etc.) as needed.
- Prepare preliminary and final bridge layouts with typical sections for up to **three** (**3**) bridges.
  - 1] South Fork San Gabriel River Bridge (approx. 600 ft long, constant width, potentially skewed substructure, deck with integral raised sidewalk and SUP on one side)

    2] Bridge at Jinks Branch (approx. 130' ft long, constant width, skewed substructure, deck with integral raised sidewalk and SUP on one side)

    3] Bridge at Silver Creek Dr. (approx. 40' ft long, constant width, skewed substructure, deck with integral raised sidewalk and SUP on one side)
- The bridge layout will include bridge typical sections, structural dimensions, abutment and bent locations, superstructure and substructure types. The ENGINEER will locate and plot all soil borings and utilities, show proposed retaining walls in the vicinity of the bridge. No phased construction is anticipated for the San Gabriel bridge. Bridge Layout effort includes performing preliminary and final bridge geometry calculations as part of the work for generating all structural elements required for the above-mentioned bridges.
- Prepare total bridge quantities, estimates and summary sheets for bridges and perform calculations to determine elevations of bridge substructure and super structure elements.
- Provide structural plans and details required for the bridge construction plans. Use TxDOT standards and details when practical. Modify TxDOT standards as required for project specific conditions. No special aesthetic features are anticipated for the bridge structure or bridge railing; standard TxDOT details will be used.

Additionally, the ENGINEER will:

- Perform calculation for foundation design and prepare necessary foundation details
- Perform calculations for design of abutments and prepare abutment plans and details
- Perform calculations for design of interior bents and prepare bent plans and details
- Prepare girder framing plan
- Perform calculations for bridge slab design and compute and prepare tables for slab and bearing seat elevations, dead load deflections, etc.
- Perform calculations for bridge superstructure design and prepare prestressed girder data sheet
- Select and prepare appropriate TxDOT and County Bridge Standards
- Modify standards as required for project specific conditions (maximum 4 sheets anticipated).

- Provide special structural details when it is required for project specific conditions (maximum 2 sheets anticipated - Assume that no bridge deck drains/details will be required).
  - The Bridge Engineer will conduct an interdisciplinary review and a constructability review to ensure that the bridge elements are coordinated with roadway, utilities, hydraulics and traffic control plans and the structure can be built simply and

without conflict
- Prepare General Notes for bridge-related items
- Prepare special provisions and special specifications related to bridge items in accordance with the above-listed manuals and guidelines
- Prepare Construction Cost Estimates @ 3 milestones for bridge-related items

f. Scour Analyses:

- Perform a scour analysis at the bridge mentioned above, before submittal of preliminary bridge layouts.
- Provide the County the potential scour depths, envelope and any recommended countermeasures including bridge design modifications and/or revetment.

g. Water Quality:

- Review existing water quality features.
- Develop a Draft and Final Contributing Zone Plan (CZP), since this project is within the Edwards Aquifer Contributing Zone. Once the CZP is approved by the County, submit documentation to Texas Commission on Environmental Quality (TCEQ).
- Prepare water quality, temporary and permanent, Best Management Practices (BMPs) to comply with TCEQ regulations.
- Prepare and submit Agent Authorization form with Draft CZP.

h. Pay Application Fee(s).

i. **Deliverables:**
- 60%, 90%, 100% & Final PS&E Submittals including applicable Williamson County Submittal Checklists.
- Preliminary (at 60%) and Final Bridge Layouts (at 90%)
- Bridge Plans and Details
- Estimated Construction Costs at 60%, 90%, 100% & Final PS&E submittals.
- Drainage Models
- Draft & Final CZP
- Drainage Models

9. BIDDING PHASE SERVICES

a. Bidding Phase Services:

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

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

10. DELIVERABLES:

a. Documents:

- All contract documents, including a pdf copy of each deliverable, native electronic files, models and calculations will be uploaded to the County's project management database at each milestone and at the completion of the project. One hard copy of each deliverable will be provided unless additional copies are required per the submittal checklist.

11. EXCLUSIONS:

a. The following items are not included in this work authorization:

- DRAINAGE STUDY
- SCHEMATIC DEVELOPMENT.
- CLOMR OR LOMR.
- TXDOT NEPA DOCUMENTATION.
- NATIONWIDE PERMIT (NWP 14 WITH A PRE-CONSTRUCTION NOTIFICATION (PCN).
- THREATENED AND ENDANGERED SPECIES ENVIRONMENTAL SERVICES
- GEOLOGICAL ASSESMENT SERVICES
- CONSTRUCTION PHASE SERVICES.
- UTILITY COORDINATION OR RELOCATION ESTIMATES.
- SUBJECT MATTER EXPERT / EXPERT WITNESS TESTIMONY

ATTACHMENT C
SCHEDULE FOR
BAGDAD ROAD/CR 279

Task	Description	Begin Date	End Date
	NTP	3/01/2021	
1.	Project Management	3/01/2021	6/30/2023
2.	Route Design and Studies	3/16/2021	11/12/2021
4.	Public Involvement	3/16/2021	12/07/2021
5.	ROW Mapping	3/16/2021	9/15/2021
6.	Environmental Services	3/16/2021	8/16/2021
7.	Geotechnical Services	3/16/2021	6/15/2021
8.	PS&E Services	3/29/2021	11/23/2021
	60% Submittal		6/11/2021
	90% Submittal		10/22/2021
	100% Submittal		12/07/2021
9.	Bidding Services	5/23/2023*	6/23/2023

*ROW acquisition and utility relocations to be done by County

PRIME PROVIDER NAME: Binkley & Barfield, Inc.
PROJECT NAME: Bagdad Rd from Lp 332 to CR 281
Work Authorization #3- Bagdad Rd PS&E
2/17/2021

Bagdad Rd from Lp 332 to CR 281 TASK NO./DESCRIPTION	GRAND TOTAL	BBI	Cox McLain Envl. Cons.	Inland Geodetics, LLC	P.E. Structural Consultants, Inc.	Raba Kistner Counsultants, Inc.	TASK TOTAL
I. Project Management							
SUBTOTAL		$198,566	$ 1,485.00		$26,110		$226,161
II. Route Design and Studies							
SUBTOTAL		$11,446					$11,446
IV. Public Involvement							
SUBTOTAL		$2,620	$ -				$2,620
V. ROW Mapping							
SUBTOTAL		$6,654		$ 200,004			$206,658
VI. Environmental Services							
SUBTOTAL		$4,400	$ 37,760.00				$42,160
VII. Geotechnical Services							
SUBTOTAL		$5,674				$79,198	$84,872
VIII. PS&E Services							
SUBTOTAL		$979,617			$119,870		$1,099,487
IX. Bidding Services							
SUBTOTAL		$23,186			$0		$23,186
TOTAL LABOR FOR DESIGN SERVICES	**$ 1,696,590**	$ 1,232,163	$ 39,245	$ 200,004	$ 145,980	$ 79,198	**$ 1,696,590**
PROJECT EXPENSE ESTIMATE	**$ 8,322**	$ 1,093	$ 5,608	$ 1,355	$ 267		**$ 8,322**
TOTAL PROJECT COST	**$ 1,704,912**	$ 1,233,255	$ 44,853	$ 201,359	$ 146,247	$ 79,198	**$ 1,704,912**

Attachment D - WA #3
RATE SCHEDULE

PRIME PROVIDER NAME: Binkley & Barfield, Inc.
PROJECT NAME: Bagdad Rd from Lp 332 to CR 281
Work Authorization #3- Bagdad Rd PS&E
2/17/2021

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
I. Project Management													
Monthly Invoicing and Progress Reports (Est. 12 months)		24								36	60		
Quality Assurance and Quality Control (QA/QC) Plan update	1	4		8						2	15		
Quality Assurance and Quality Control for all deliverables			320								320		
Project Coordination & Administration, internal progress meetings (48), Including Sub-Consultant Coordination (Est. 12 months)	24	144	48	96			96				408		
Progress/Coordination Meetings including agendas and minutes (4 external meetings assumed)	6	24		32							62		
Project Schedule and Updates (3 updates)		7		14							21		
HOURS SUB-TOTALS	31	203	368	150	0	0	96	0	0	38	886		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$8,959.00	$55,825.00	$82,800.00	$27,150.00	$0.00	$0.00	$20,640.00	$0.00	$0.00	$3,192.00	$198,566.00		
% DISTRIBUTION OF STAFFING	3.50%	22.91%	41.53%	16.93%	0.00%	0.00%	10.84%	0.00%	0.00%	4.29%			
SUBTOTAL											**$198,566.00**		

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
II. Route Design and Studies													
Property Ownership spreadsheet updates		4				16					20		
Stakeholder Coordination and meetings (10 virtual meetings assumed)		30									30		
HOURS SUB-TOTALS	0	34	0	0	0	16	0	0	0	0	50		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$0.00	$9,350.00	$0.00	$0.00	$0.00	$2,096.00	$0.00	$0.00	$0.00	$0.00	$11,446.00		
% DISTRIBUTION OF STAFFING	0.00%	68.00%	0.00%	0.00%	0.00%	32.00%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL											**$11,446.00**		

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
IV. Public Involvement													
Prepare exhibits with ROW impacts for impacted property owner meetings (10 assumed)						20					20		
HOURS SUB-TOTALS	0	0	0	0	0	20	0	0	0	0	20		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$0.00	$0.00	$0.00	$0.00	$0.00	$2,620.00	$0.00	$0.00	$0.00	$0.00	$2,620.00		
% DISTRIBUTION OF STAFFING	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL											**$2,620.00**		

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
V. ROW Mapping													
ALSO SEE INLAND FEE ESTIMATE													
Review parcel acquisition documents (34 parcels)		8				34					42		
HOURS SUB-TOTALS	0	8	0	0	0	34	0	0	0	0	42		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$0.00	$2,200.00	$0.00	$0.00	$0.00	$4,454.00	$0.00	$0.00	$0.00	$0.00	$6,654.00		
% DISTRIBUTION OF STAFFING	0.00%	19.05%	0.00%	0.00%	0.00%	80.95%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL											**$6,654.00**		

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
VI. Environmental Services													
ALSO SEE COX FEE ESTIMATE													
Review of env documents		16									16		
HOURS SUB-TOTALS	0	16	0	0	0	0	0	0	0	0	16		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$0.00	$4,400.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$4,400.00		
% DISTRIBUTION OF STAFFING	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL											**$4,400.00**		

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
VII. Geotechnical Services													
ALSO SEE RABA FEE ESTIMATE													
Review of pavement and geotech reports	2	8		16							26		
HOURS SUB-TOTALS	2	8	0	16	0	0	0	0	0	0	26		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$578.00	$2,200.00	$0.00	$2,896.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$5,674.00		
% DISTRIBUTION OF STAFFING	7.69%	30.77%	0.00%	61.54%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL											**$5,674.00**		

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
VIII. PS&E Services													
TITLE SHEET / INDEX SHEET			1			5		5			11	1	11
PROJECT LAYOUT		1	2	3		8		6			20	6	3
PROPOSED TYPICAL SECTIONS	3	6	12	30		32		16			99	3	33
GENERAL NOTES		4	8	6		16		4			38	20	2
HORIZONTAL AND VERTICAL ALIGNMENT DATA SHEET						16		8			24	3	8
QUANTITIES		8	16	32		80		80			216	4	54
SUMMARY SHEETS				8		80		64			152	4	38
REMOVAL PLANS (SCALE 1"=100' DOUBLE BANK)	4	8	12	24		64		48			160	6	27
PLAN AND PROFILE (SCALE: H 1"= 100') including SUP.	4	32	60	94		440		120			750	24	31
INTERSECTION GRADING (SCALE: V 1"=20') (5)	3	12	12	30		96		72			225	5	45
DRIVEWAY PLAN AND PROFILES (35)		10	20	70		208		20			328	35	9
MSE wall P&P (4 walls)		8	24	48				48			128	4	32
MSE wall details and standards (4 walls)		8	10	16	24	24		40			122	5	24
MSE Wall Design Data Sheet		2	8	16							26	2	13
MISCELLANEOUS ROADWAY DETAILS		4	12	32		80		32			160	4	40
CROSS SECTIONS AND EARTHWORK		16	20	36		180		180			432	80	5
TCP, DETOURS AND SEQUENCE OF CONSTRUCTION (3 PHASES)	6	16	32	40		160		96			350	30	12
TCP DETAILS, TYPICAL SECTIONS	4	8	12	16		48		64			152	12	13
ADVANCE SIGNING LAYOUTS	1	2		8		16		12			39	2	20
EXISTING DRAINAGE AREA MAPS	1	2	2	4		12					21	12	2
PROPOSED DRAINAGE AREA MAPS	1	2	2	8		20					33	12	3
(1) CULVERT PLAN & PROFILE	1	2	4	16		16					39	2	20
CULVERT STANDARDS AND DETAIL SHEETS		1	2	4		6					13	4	3
DRAINAGE PLAN AND PROFILE SHEETS	4	4	16	40		192					256	6	43
DRAINAGE CALCULATION SHEETS	4	6	24	80		80					194	4	49
DETENTION PLANS (3 ponds)	6	9	24	30		96					165	3	55
GRADING FOR DITCH/POND (3 ponds)	3	6	9	18		48					84	3	28
POND DETAILS (3 ponds)		3	9	12		24					48	3	16

DRAFT CZP	1	4	2	12		20					39		
ADDRESS CZP COMMENTS		2		4		12					18		
PREPARE CZP AGENDA AUTHORIZATION FORM		1		2		2					5		
FINAL CZP	1	4		4		8					17		
SIGNING AND PAVEMENT MARKING LAYOUTS (SCALE 1"=100' DOUBLE BANK)		8	8	54		72		72			214	6	36
SIGNING SUMMARIES (SMALL)		4	8	18		54		18			102	3	34
EROSION CONTROL AND SWPPP PLANS (SCALE 1"=100' DOUBLE BANK)		8	14	36		108		36			202	6	34
CONSTRUCTION TIME DETERMINATION SCHEDULE UPDATES (3)		3		12		24					39		
COST ESTIMATES (3)		16	32	48		40		20			156		
SPECS AND FRONT END DOCUMENTS		16	24								40		
f. BRIDGE DESIGN													
a. Bridge at Jinks Branch (130 ft)													
BRIDGE LAYOUT			3	10	10	16		16			55	1	55
SUMMARY OF BRIDGE QUANTITIES/BEARING SEAT ELEVATIONS			2	4	4	6		8			24	1	24
SOIL BORING SHEETS			1	1	2	2		3			9	1	9
ABUTMENT 1 and 2 DETAILS			5	24	24	36		32			121	2	61
SLAB PLAN			2	8	8	10		16			44	1	44
NONSTANDARD BRIDGE BEAM DESIGN			3	5	6	10		10			34	4	9
a. Bridge at Silver Creek Dr. (44 ft)													
BRIDGE LAYOUT			2	8	10	16		16			52	1	52
SUMMARY OF BRIDGE QUANTITIES/BEARING SEAT ELEVATIONS			2	2	4	8		8			24	1	24
SOIL BORING SHEETS			1	1	1	2		4			9	1	9
ABUTMENT 1 and 2 DETAILS			4	20	24	36		32			116	2	58
SLAB PLAN			1	6	8	10		16			41	1	41
NONSTANDARD BRIDGE BEAM DESIGN			2	4	6	10		10			32	4	8
MISCELLANEOUS DETAILS			1	4	6	6		10			27	4	7
TXDOT STANDARDS			2	2	2	4		3			13	15	1
SUBMITTAL PREPARATION			3	4	5	6		6			24		
SUBMITTALS													
60% PLANS		6		12		16		16		8	58		
60% COUNTY MEETING AND COMMENT RESPONSE	1	4	4	12						2	23		
90% PLANS		6		12		16		16		8	58		
90% COUNTY MEETING AND COMMENT RESPONSE	1	4	4	12						2	23		
100% PLANS		6		12		16		16		8	58		
100% COUNTY MEETING AND COMMENT RESPONSE	1	4	4	12						2	23		
BID READY DOCUMENTS	1	6		12		16		16		8	59		
HOURS SUB-TOTALS	51	282	487	1098	144	2629	0	1315	0	38	6044		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$14,739.00	$77,550.00	$109,575.00	$198,738.00	$21,024.00	$344,399.00	$0.00	$210,400.00	$0.00	$3,192.00	$979,617.00		
% DISTRIBUTION OF STAFFING	0.84%	4.67%	8.06%	18.17%	2.38%	43.50%	0.00%	21.76%	0.00%	0.63%			
SUBTOTAL											**$979,617.00**		

TASK DESCRIPTION	PRINCIPAL	Sr. PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	EIT II	PRODUCTION MANAGER	Sr. CADD Designer	CADD Designer	CLERICAL/ Administrator	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
IX. Bidding Services													
Prepare bid documents		2		8							10		
Pre-bid meeting		3		3							6		
Respond to bidder's questions (up to 10)		2.5		10							12.5		
Prepare project addenda (up to 3)		12		24				48			84		
Analyze bid items and provide recommendation		2		8							10		
HOURS SUB-TOTALS	0	21.5	0	53	0	0	0	48	0	0	122.5		
CONTRACT RATE PER HOUR	$289.00	$275.00	$225.00	$181.00	$146.00	$131.00	$215.00	$160.00	$128.00	$84.00			
TOTAL LABOR COSTS	$0.00	$5,912.50	$0.00	$9,593.00	$0.00	$0.00	$0.00	$7,680.00	$0.00	$0.00	$23,185.50		
% DISTRIBUTION OF STAFFING	0.00%	17.55%	0.00%	43.27%	0.00%	0.00%	0.00%	39.18%	0.00%	0.00%			
SUBTOTAL											**$23,185.50**		

LABOR SUMMARIES BY TASK										TOTAL MH BY TASK	TOTAL COST BY TASK
I. Project Management										886	$198,566.00
II. Route Design and Studies										50	$11,446.00
III. Traffic Evaluation and Projections										0	$0.00
IV. Public Involvement										20	$2,620.00
V. ROW Mapping										42	$6,654.00
VI. Environmental Services										16	$4,400.00
VII. Geotechnical Services										26	$5,674.00
VIII. PS&E Services										6,044	$979,617.00
IX. Bidding Services										123	$23,185.50
SUBTOTAL LABOR EXPENSES										7206.5	$1,232,162.50
OTHER DIRECT EXPENSES	**# OF UNITS**	**COST/UNIT**									
Mileage (# of miles) (current IRS rate)	500	$0.560									$280.00
Photocopies B/W (11 X 17)	500	$0.25									$125.00
Color Roll plot	200	$2.50									$500.00
Photocopies Color (8.5 X 11)	50	$0.75									$37.50
Photocopies Color (11 X 17)	100	$1.25									$125.00
Tolls	20	$1.25									$25.00
											$0.00
SUBTOTAL DIRECT EXPENSES											$1,092.50

SUMMARY	
TOTAL COSTS FOR PRIME ONLY	$1,232,162.50
NON-SALARY (OTHER DIRECT EXPENSES) FOR PRIME ONLY	$1,092.50
GRAND TOTAL	$1,233,255.00

SUBPROVIDER NAME: Cox McLain Envl. Cons.
PROJECT NAME: Bagdad Rd from Lp 332 to CR 281
Work Authorization #3- Bagdad Rd PS&E
2/17/2021

Personnel Classification	Admin/Clerical	Principal-In-Charge	Project Manager	Senior GIS Operator	GIS Operator	GIS Technician	Senior Geologist	Senior Environmental Planner	Environmental Planner IV	Environmental Planner III	Environmental Planner I/II	Environmental Scientist IV	Environmental Scientist III	Environmental Scientist I/II	Senior Biologist	Biologist IV	Biologist III	Senior Archeologist - Principal Investigator	Archeologist IV	Archeologist III	Archeologist I/II	Senior Architectural Historian	Architectural Historian	Environmental Inspector
Hourly Rate	$ 65.00	$ 165.00	$ 150.00	$ 95.00	$ 85.00	$ 75.00	$ 110.00	$ 130.00	$ 110.00	$ 95.00	$ 85.00	$ 95.00	$ 85.00	$ 75.00	$ 110.00	$ 95.00	$ 85.00	$ 110.00	$ 95.00	$ 85.00	$ 75.00	$ 115.00	$ 90.00	$ 85.00
1. Project Management																								
a. Communication																								
b. Monthly Project Report																								
- invoicing (9 months assumed)	9		6																					
4. Public Involvement																								
-Develop Exhibits, Fact Sheets, and FAQ Sheets - support to RifeLine as needed																								
- Attend PI Meetings upon Request (up to 2 meetings)																								
6. Environmental Services																								
a. Constraints Mapping	1		2	1	12	2				1		2	2			1			1				1	
b.Wilco Environmental Due Diligence Report		2	2	1	8			1			1	8	8			1			1				1	
c. Data Collection & Field Recon.			2		4						6	8				6			6					
d. HazMat Initial Assessment	1		1		10	2	10						18	12										
e. Section 404 Compliance			1	1	12	2									18	32								
f. Historic Resources																								
-letter to THC			1	2	2																	4	8	
-fieldwork and prep				3																		14	14	
-letter report - draft			2	4	2																	10	30	
-letter report - final				2																		4	8	
g. Archeological Report & Survey			1		8													4	28	28	8			
Total Hours	11	2	18	14	58	6	10	1	0	1	7	18	28	12	18	40	0	4	36	28	8	32	62	0
Cost Total	$ 715.00	$ 330.00	$ 2,700.00	$ 1,330.00	$ 4,930.00	$ 450.00	$ 1,100.00	$ 130.00	$ -	$ 95.00	$ 595.00	$ 1,710.00	$ 2,380.00	$ 900.00	$ 1,980.00	$ 3,800.00	$ -	$ 440.00	$ 3,420.00	$ 2,380.00	$ 600.00	$ 3,680.00	$ 5,580.00	$ -

Total Labor $ 39,245.00

Total Labor and DE $ 44,853.00

Direct Expenses

Description	Unit	Unit Cost		
In-house Photocopies B/W (8 1/2" X 11")	Per Page	$0.16		$0.00
In-house Photocopies Color (8 1/2" X 11")	Per Page	$0.75		$0.00
In-house Photocopies B/W (11" X 17")	Per Page	$0.32		$0.00
In-house Photocopies Color (11" X 17")	Per Page	$1.50		$0.00
Hazardous Materials Database Search	Per Search	$800.00	1.00	$800.00
Environmental Database Search	Per Mile	$250.00		$0.00
Backhoe + operator (at cost)	Per Day	$1,500.00	2.00	$3,000.00
Mileage (Allowable IRS Rate)	Per mile	$0.56	300.00	$168.00
Hotel (taxes/fees not included)	Per night	$94.00		$0.00
Hotel taxes/fees -- 15%	Per night	$14.10		$0.00
Per Diem	Per day	$56.00	8.00	$448.00
Field Supplies/PPE	Per day	$250.00		$0.00
TARL curation fee	Per drawer	$500.00	2.00	$1,000.00
TARL site registration	Per site	$96.00	2.00	$192.00
Airfare (standard coach rate at cost)	R/T	$550.00		$0.00

Total Direct Expenses **5608.00**

SUBPROVIDER NAME: Inlands Geodetics, LLC
PROJECT NAME: Bagdad Rd from Lp 332 to CR 281
Work Authorization #3- Bagdad Rd PS&E
2/17/2021

SERVICE	2 CREW	3 CREW	4 CREW	1GPS	PM	RPLS	SEN TECH	TECH	LSLS	ADMIN	DIRECT	GPS REC.($15/Unit/Hour)		VEHICLES($60/Unit/Day)		ATV's ($55/Unit/Day)		INDIRECT	TOTAL
RATE / HOUR	$150	$170	$190	$120	$140	$135	$102	$98	$150	$58		# of Units	# of Hours	# of Units	# of Days	# of Units	# of Days		
ADMIN MOBILIZATION					16 HRS	12 HRS	8 HRS			24 HRS	$ 6,068.00							$ -	$ 6,068.00
											$ -							$ -	$ -
PROPERTY RESEARCH					8 HRS	16 HRS	72 HRS			4 HRS	$ 10,856.00							$ -	$ 10,856.00
											$ -							$ -	$ -
ROE COORDINATION					8 HRS		16 HRS			4 HRS	$ 2,984.00							$ -	$ 2,984.00
INITIAL FIELD SURVEY	224 HRS			64 HRS		24 HRS	40 HRS			24 HRS	$ 49,992.00							$ -	$ 49,992.00
BOUNDARY ANALYSIS						24 HRS	32 HRS			2 HRS	$ 6,620.00							$ -	$ 6,620.00
SECONDARY FIELD SURVEY	32 HRS			24 HRS		4 HRS	16 HRS				$ 9,852.00							$ -	$ 9,852.00
PARCEL PREPARATION (34 P)					12 HRS	40 HRS	680 HRS				$ 76,440.00							$ -	$ 76,440.00
											$ -							$ -	$ -
TITLE REVIEW					8 HRS	64 HRS	64 HRS			4 HRS	$ 16,520.00							$ -	$ 16,520.00
PARCEL MONUMENTATION	72 HRS			40 HRS		16 HRS	24 HRS			8 HRS	$ 20,672.00							$ -	$ 20,672.00
											$ -							$ -	$ -
	328 HRS	0 HRS	0 HRS	128 HRS	52 HRS	200 HRS	952 HRS	0 HRS	0 HRS	70 HRS	$ 200,004.00		0 HRS		0 DAYS		0 DAYS	$ -	$ 200,004.00
SUB-TOTAL	328 HRS	0 HRS	0 HRS	128 HRS	52 HRS	200 HRS	952 HRS	0 HRS	0 HRS	70 HRS	$ 200,004.00	TOTAL	0 HRS	TOTAL	0 DAYS	TOTAL	0 DAYS	$ -	$ 200,004.00
REIMBURSEABLE ITEMS																			$ 1,355.00
REIMBURSEABLE SERVICES																			$ -
ESTIMATED FEE	$49,200	$0	$0	$15,360	$7,280	$27,000	$97,104	$0	$0	$4,060			$0		$0		$0		$ 201,359.00

$201,359

Cost Variables:

GPS Receivers	$15
Vehicle	$60
ATV	$55

Reimburseable Services Include:

	$0.00
	$0.00
	$0.00
Total:	$0.00

Reimburseable Fees Include:

mileage	$1,035.00
SUPPLIES	$320.00
	$0.00
Total:	$1,355.00

SUBPROVIDER NAME: P.E. Structural Consultants, Inc.
PROJECT NAME: Bagdad Rd from Lp 332 to CR 281
Work Authorization #3- Bagdad Rd PS&E
2/17/2021

TASK DESCRIPTION	Principal Engineer	Sr. Project Manager VP	Senior Structural Engineer	Senior Struct'l QAQC Manager	Structural Engineer Project Manager	Structural Project Engineer	Structural Design Engineer	EIT II	CADD Production Manager	Senior CADD Technician	CADD Technician	Admin/Clerical	TOTAL LABOR HRS. & COSTS	No. Shts	hrs/sht
Williamson County Bagdad Road/CR 279 0 **Subprovider: P.E. Structural Consultants, Inc. (PESC)**															
1. Management and Coordination															
b. Monthly Progress Reports and Invoices	2	10										10	22		
c. QA/QC Process and Documentation		6	12	24	24	6		6	6	3			87	3	29.00
d. Project Coordination and Administration	2	10							5			5	22		
e. Progress/Coordination Meetings		10							4				14		
SubTotal Management/Coordination - Hours	**4**	**36**	**12**	**24**	**24**	**6**	**0**	**6**	**15**	**3**	**0**	**15**	**145**		
SubTotal Management/Coordination - Cost	**$1,060.00**	**$7,920.00**	**$2,520.00**	**$4,800.00**	**$4,368.00**	**$900.00**	**$0.00**	**$672.00**	**$2,400.00**	**$345.00**	**$0.00**	**$1,125.00**	**$26,110.00**		17.9%
8. Plan Preparation (PS&E) Services															
f. Bridge Design - S. Fork San Gabriel River (~600', 6 spans, skew, constant width)															
Design Criteria		4	2										6		
Field Reconnaissance		1	6			0		6				2	15		
Review Data (Prelim Schem, H&H, Survey, etc.) & optimize structure		8	0			16				4			28		
Bridge Layout	2	8	8			24		36	8	8	24		118	2	59.00
Bridge Quantities & Bearing Seat Elevations		2	2			8		16	2		8		38	1	38.00
Abutment Plans and Details	1	6	6			9		18	6	12	18		76	3	25.33
Interior Bent Plans and Details	1	4	8			8		24	8	16	24		93	4	23.25
Foundation Design and Details	1	4	4			6		8	4	4			31	1	31.00
Bridge Framing Plan		4	8			12		16	4		12		56	2	28.00
Slab Plan, Transverse Section & Details		8	12			16		32	8	8	32		116	4	29.00
Prestressed Concrete Girder Design and Data Sheets		4	4			8		12	2	4	4		38	1	38.00
Identify/prepare appropriate Bridge Standards		4				4			4		8		20	10	2.00
Modify standards as req'd (4 sheets max)		8	4			8		8	8		8		44	4	11.00
Prepare special structural details where req'd (2 shts max)	2	4	8			12			8	12	12		58	2	29.00
Constructability & Interdiscipline Review	2	8	4	8		4							26		
General Notes, Specifications		4	2			2							8		
Prepare 60%, 100% and Final Bridge Cost Estimates		3	3			6		18					30		
Prepare 60%, 100% and Final PS&E Submittals incl Wilco Checklist	3	3	3	3		3		6					21		
Prep Final Calculation Packages & CADD files	0	2	2	2		4			1				11		
SubTotal Management/Coordination - Hours	**12**	**89**	**86**	**13**	**0**	**150**	**0**	**200**	**63**	**68**	**150**	**2**	**833**		
SubTotal Management/Coordination - Cost	**$3,180.00**	**$19,580.00**	**$18,060.00**	**$2,600.00**	**$0.00**	**$22,500.00**	**$0.00**	**$22,400.00**	**$10,080.00**	**$7,820.00**	**$13,500.00**	**$150.00**	**$119,870.00**	34	82.1%
9. Bidding Phase Services															
Assist Prime with assembling bid docs													0		
Attend pre-bid meeting													0		
Analyze bid items for bridge and provide recommendation													0		
Attend Pre-construction Conference													0		
SubTotal Management/Coordination - Hours	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
SubTotal Management/Coordination - Cost	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**		
HOURS SUB-TOTALS	16	125	98	37	24	156	0	206	78	71	150	17	978		28.76
CONTRACT RATE PER HOUR	**$265.00**	**$220.00**	**$210.00**	**$200.00**	**$182.00**	**$150.00**	**$125.00**	**$112.00**	**$160.00**	**$115.00**	**$90.00**	**$75.00**	**$1,904.00**		
TOTAL LABOR COSTS	$ 4,240.00	$ 27,500.00	$ 20,580.00	$ 7,400.00	$ 4,368.00	$ 23,400.00	$ -	$ 23,072.00	$ 12,480.00	$ 8,165.00	$ 13,500.00	$ 1,275.00	$145,980.00		1.3%
SUBTOTAL	$ 4,240.00	$ 27,500.00	$ 20,580.00	$ 7,400.00	$ 4,368.00	$ 23,400.00	$ -	$ 23,072.00	$ 12,480.00	$ 8,165.00	$ 13,500.00	$ 1,275.00	**$145,980.00**		

SUMMARY	
TOTAL COSTS PESC LABOR	$145,980.00
TOTAL COSTS PESC ODE'S	$ 266.50
GRAND TOTAL	**$146,246.50**

OTHER DIRECT EXPENSES	**UNIT**	**RATE**	**Quantity**	**Total**	
MILEAGE	MI	0.560	150	$ 84.00	1 RT from PESC to site plus ~2 mtgs @ 25 mi ea way
Photocopies B/W (8 1/2" X 11") (per page)	PAGE	$0.15	150	$ 22.50	Reproduction from internal use only - assumes Prime provides submittal copies
Photocopies Color (8 1/2" X 11") (per page)	PAGE	$1.00	50	$ 50.00	
Photocopies B/W (11" X 17") (per page)	PAGE	$0.25	120	$ 30.00	
Photocopies Color (11" X 17") (per page)	PAGE	$2.00	40	$ 80.00	
TOTAL OTHER DIRECT EXPENSES				**$ 266.50**	

SUBPROVIDER NAME: Raba Kistner Counsultants, Inc.
PROJECT NAME: Bagdad Rd from Lp 332 to CR 281
Work Authorization #3- Bagdad Rd PS&E

ESTIMATE WORKSHEET FOR: Bagdad Rd Ultimate Concept (Preliminary Design Schematic)

Notes:
Liberty Hill Bypass Intersection at Bagdad
Bagdad Rd from Loop 33 to CR 281 - 3.06 Miles

Geologic Formation: Glen Rose Formation
Geologic Formation Continued:

Prepared by: GO **Date:** 2/3/2021
PROPOSAL NO: PAA20-143-00

CLIENT:
David Calabuig, SRI., MBA, PE
Managing Director - Transportation
2401 Double Creek Drive, Suite 200
Round Rock, Texas 786654
512 292 0006
dcalabuig@binkleybarfield.com

Type	Number	Depth	Soil	Rock	Soil	Rock
Pavements	10	15	15	0	**150**	**0**
Note: Boring at Intesection is already scope for the LJA Contract (Broing B-5)	1	15	0	0	**0**	**0**
Bridge	7	50	50		**350**	**0**
Retaining Wall	8	15	15		**120**	**0**
					0	**0**
Totals	26	95			**620**	**0**

FIELD OPERATIONS		**QUANTITY**		**UNIT PRICE**	**TOTAL**	
Mobilization of Drill Rig (Min Charge)		1	l.s.	$495.00	$495.00	
Mobilization of Drill Rig		0	miles	$6.50	$0.00	
3" Thin-Wall Sampling in Cohesive Soils or Intermittent Sampling in Granular Soils		620	l.f.	$19.50	$12,090.00	
Hollow Stem Drilling		0	l.f.	$28.00	$0.00	
Nx Core Drilling - (Soft Rock)		0	l.f.	$35.00	$0.00	
Nx Core Drilling - (Hard Rock)		0	l.f.	$42.00	$0.00	
Field Penetrations SPT		25	ea.	$20.00	$500.00	
Field Penetrations THD		70	ea.	$25.00	$1,750.00	
Bentonite Backfill		440	FT	$3.50	$1,540.00	
Driller Standby		2	hrs.	$195.00	$390.00	
Driller Cleanup		1	hrs.	$222.81	$222.81	
Driller Per Diem (Including Per Diem)		0	m/day	$189.38	$0.00	**Percent of**
				Drilling Subtotal:	***$16,987.81***	**21.4%**
OTHER DIRECT EXPENSES						
Traffic Control		7	day	$3,000.00	$21,000.00	
				Other Direct Expenses Subtotal:	***$21,000.00***	***26.5%***

STAKING/LOGGING/COORDINATION	**Notes**					
Geotechnical Logger (coordination)		6.0	hrs.	$110.00	$660.00	
Geotechnical Logger (staking)		8.0	hrs.	$110.00	$880.00	
Geotechnical Logger (logging)		112.0	hrs.	$110.00	$12,320.00	
Senior Geotechnical Engineering Technician		0.0	hrs.	$80.00	$0.00	
Logger Truck (Mileage)		490	mile	$0.85	$416.50	***Percent of***
				Logging Subtotal:	***$14,276.50***	***18%***
LABORATORY TESTS						
Atterberg Limits		35	ea.	$105.00	$3,675.00	
Moisture Content (at 5 ft intervals)		170	ea.	$15.00	$2,550.00	
Minus 200-mesh Sieve		25	ea.	$58.00	$1,450.00	
Unconfined Compression (Soil)		0	ea.	$32.00	$0.00	
Unconfined Compression (Rock)		0	ea.	$38.00	$0.00	
Hydrometer		0	ea.	$355.00	$0.00	
Sieve Analysis	Scour Analysis	3	ea.	$85.00	$255.00	
Sulfate Testing		8	ea.	$98.00	$784.00	
Corrosivity Test (Chloride, pH, Resistivity)		1	ea.	$175.00	$175.00	
Moisture-Density Test Only		3	ea.	$295.00	$885.00	
CBR(M-D with 1 Specimen)		2	ea.	$185.00	$370.00	***Percent of***
Resilient Modulus		1	ea.	$1,800.00	$1,800.00	***Total***
Lime Series Curve		3	ea.	$285.00	$855.00	***Total***
				Testing Subtotal:	***$12,799.00***	**16.2%**

ENGINEERING AND REPORT	**QUANTITY**		**UNIT PRICE**	**TOTAL**	
Principal	0	hrs.	$220.00	$0.00	
Senior Geotechnical Engineer	5.0	hrs.	$195.00	$975.00	
Project Manager	16.0	hrs.	$185.00	$2,960.00	
Geotechnical Engineer	24.0	hrs.	$165.00	$3,960.00	
Graduate Engineer (ZB)	38.0	hrs.	$135.00	$5,130.00	
CADD Technician	3.0	hrs.	$95.00	$285.00	***Percent of***
Secretary/Word Processor	7.0	hrs.	$60.00	$420.00	***Total***
			Engineering Subtotal:	**$14,135.00**	**17.8%**
			TOTAL:	***$79,198.31***	