

EXHIBIT “F”
HIDALGO COUNTY
Professional Engineering Services
Agreement # C-23-0310-08-08

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of the Professional Engineering Services Agreement No. C-23-0310-08-08, incorporated herein by reference, for the “Los Ebanos Road Project from IH-2 to FM 1016 (Military Highway)” made by and between HIDALGO COUNTY, action herein by and through the Commissioner’s Court, hereinafter called the “**Owner**,” and L&G Consulting Engineers, Inc., hereinafter called “**Engineer**”.

PART 1. SCOPE OF WORK

The purpose of this Work Authorization is for the **Engineer** to provide Engineering Services Required for EA Report, Public Involvement, Schematic Design, Permitted Utilities, Right-of-Way Acquisition, Compensable Utility Management, & Railroad Coordination for the Los Ebanos Rd Project (from I-H 2 to FM 1016 (Military Highway)).

The **Engineer** is to provide the scope of Services as required by the Agreement with Owner.

The scope of services to be provided by the **Engineer** is identified in **Attachment “A”** – “*Scope of Services to be provided by Engineer*” attached hereto and incorporated by reference.

PART 2. ESTIMATED COST

The estimated cost for services under this Work Authorization is **\$1,794,366.00**. This amount is based upon the costs outlined in the **Attachment “B”** – “*Fee Proposal*” attached hereto and incorporated by reference.

PART 3. PAYMENT

Compensation and payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the **Professional Engineering Services Agreement No. C-23-0310-08-08** between the **Owner** and the **Engineer**.

PART 4. FUNDING

This Work Authorization No. 1 shall be funded through funding source:

Account No. _____

Requisition Number _____ **(MUST BE INCLUDED AFTER CC APPROVAL)**

PART 5. PERIOD OF SERVICE

This Work Authorization shall become effective on the date of final acceptance of the parties hereto, and terminate **upon completion of the scopes of the Work Authorization, within the limits of Agreement No. C-23-0310-08-08, provided in this Work Authorization; or on**

(_____ **DATE** _____). *If applicable:* Engineer shall conform to the approved "Work/Project Schedule", attached hereto and incorporated by reference herein as **Attachment "C"**.

PART 6. RESPONSIBILITIES AND OBLIGATIONS

This Authorization does not waive the parties' responsibilities and obligations provided under the **Agreement No. C-23-0310-08-08**

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

Acknowledgement and confirmation by Hidalgo County .3_, Commissioner Everardo "Ever" Villarreal as to content and detail of this Work Authorization No. 1.

**HIDALGO COUNTY
COMMISSIONER PRECINCT NO . 3.**

By: _____
Everardo "Ever" Villarreal, Commissioner

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on August 08, 2023 as indicated below and effective as of _08_ day of August , **2023**.

EXECUTED as of the day and year first written above.

APPROVED BY COMMISSIONERS' COURT ON August 08, 2023.

Agenda Item No 91827

Executive Office: _____

ENGINEER:
L&G Consulting Engineers, Inc.

COUNTY:
COUNTY OF HIDALGO

Jacinto Garza, P.E., President

Hon. Richard F. Cortez, County Judge

ATTEST:

Arturo Guajardo, Jr., County Clerk

LIST OF ATTACHMENTS:

Attachment "A" – *Scope of Services to be provided by Engineer*

Attachment "B" – *Fee Proposal*

Attachment "C" – *Approved Work/Project Schedule (If applicable)*

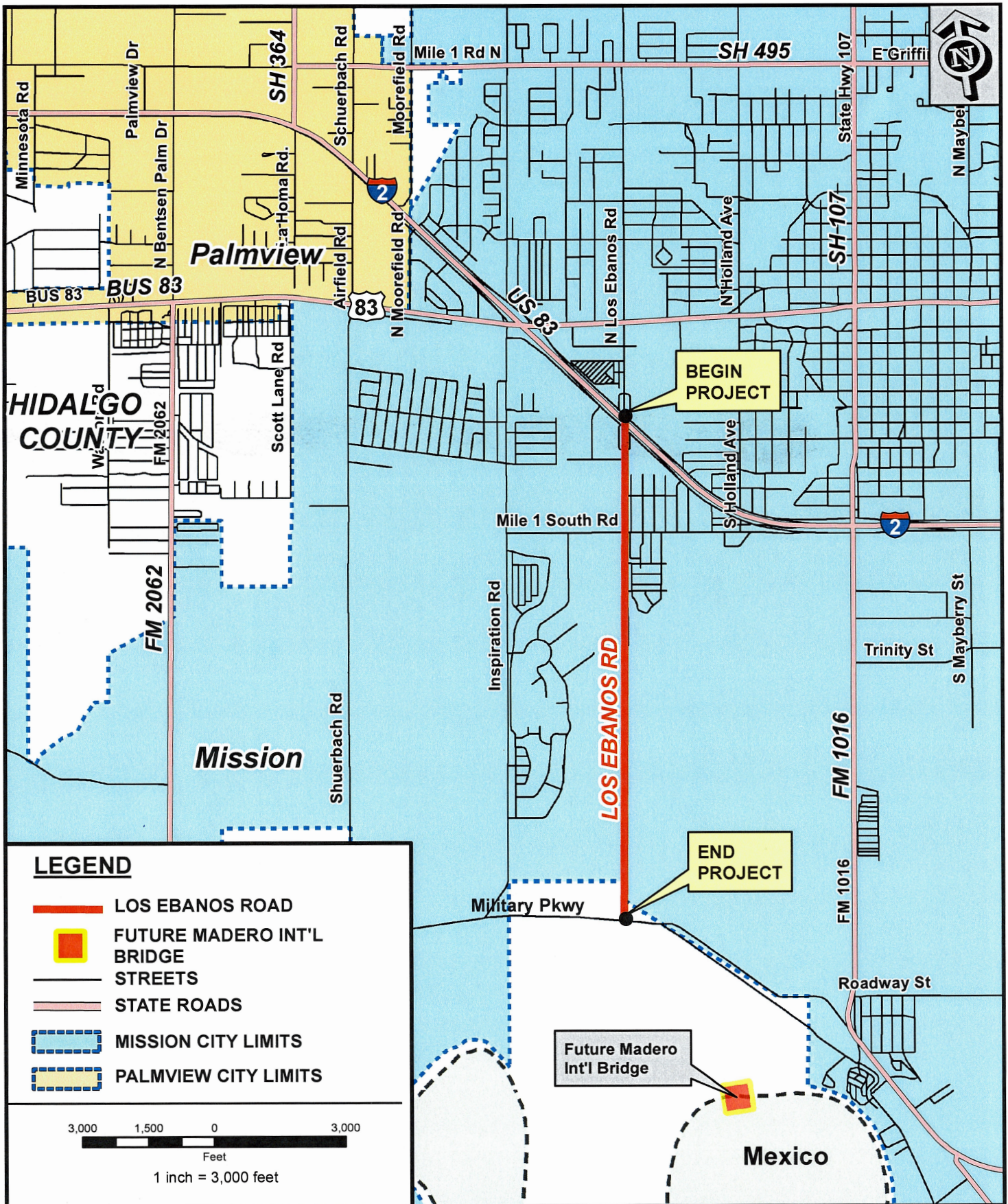


EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 1-PROJECT DESCRIPTION

The services designated herein as "Services provided by the ENGINEER" shall include the performance of all engineering services for the following described facility:

COUNTY/CITY: Hidalgo County Pct#3

CONTROL: CSJ: XXXXXXXX

PROJECT/DESCRIPTION: Los Ebanos Road Project

LENGTH: 2.2 Miles

HIGHWAY: _____

LIMITS: FROM IH-2 to FM 1016 (Military Highway)

PROJECT CLASSIFICATION

(Place an "X" in only one Project Classification)

- Surface Treatment
- Overlay
- Rehabilitation Existing Road (Scarify & Reshape)
- Convert Non-Freeway to Freeway
- Widen Freeway
- Widen Non-Freeway
- New Location Toll Freeway
- New Location Non-Freeway
- Interchange (New or Reconstruct)
- Bridge Widening or Rehabilitation
- Bridge Replacement
- Upgrade to Standards - Freeway
- Upgrade to Standards - Non-Freeway
- Miscellaneous Studies (Use Function Code 110 for All Tasks)

ENGINEER shall mean L&G Engineering.

STATE shall mean Texas Department of Transportation.

LPA shall mean Local Public Agency Hidalgo Co.

SURVEYOR shall mean ROWSS.

EXHIBIT “B”
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 2 – LEVEL OF SERVICE ANALYSIS AND ENGINEERING
 (Function Code 102)

Services
 Provided By:
ENGINEER LPA

<u>YES</u>	<u>NO</u>	<p>Preliminary Design Values <i>The Engineer will work with the Owner to establish basic design concepts, project controls and general scope of Projects.</i></p>
<u>YES</u>	<u>NO</u>	<p>Preliminary Route Locations on Uncontrolled Mapping <i>The Engineer will evaluate various alternatives (route locations, alignment shifts, geometry) for the Project.</i></p>
<u>YES</u>	<u>NO</u>	<p>Uncontrolled Mapping (w/Contours & GIS Info) <i>The Engineer will investigate the existing routes and coordinate with the Owner on establishing the best-fit alignments and mapping proposed geometry for Projects. Preliminary Location Exhibit will be developed.</i></p>
<u>NO</u>	<u>NO</u>	<p>Preliminary Traffic Evaluations & Trends <i>The Engineer will investigate existing traffic models and trends for the proposed Projects and adjacent roadways tying into the proposed Projects.</i></p>
<u>YES</u>	<u>NO</u>	<p>Preliminary Hydrologic Map <i>The Engineer will develop a Hydrologic Map for the Projects. Hydrologic Maps will be based on LIDAR and GIS information.</i></p>
<u>YES</u>	<u>NO</u>	<p>Preliminary ROW Requirements <i>The Engineer will research and identify affected property owners on the Projects utilizing the latest appraisal district file information from Hidalgo County Appraisal District and information from Carson Maps.</i></p>
<u>YES</u>	<u>NO</u>	<p>Preliminary Cost Estimates <i>The Engineer will calculate preliminary construction cost estimates for the location and geometry of the Projects.</i></p>
<u>YES</u>	<u>NO</u>	<p>Preliminary Environmental Analysis (for fatal flaws) <i>The Engineer will perform Preliminary Environmental Constraint Mapping to determine if any fatal flaws exist along the proposed alignment.</i></p>
<u>YES</u>	<u>NO</u>	<p>Project Fact Sheet with Est. Local Cost vs. Total Project Cost <i>The Engineer will produce a Project Fact Sheet providing summaries of all pertinent items in this scope of services (as required) and providing estimated local costs vs. total project costs for the Projects.</i></p>
<u>YES</u>	<u>NO</u>	<p>Meetings, Coordination & Support for Project Development <i>The Engineer shall provide coordination services and shall assist in meetings and workshops with TxDOT, Hidalgo County, Hidalgo County Drainage District No. 1 and Hidalgo County Irrigation Districts, and all other affected parties. The Engineer shall serve as representative for the Owner in coordination items. The Engineer shall coordinate with the Owner’s staff on all Project related items.</i></p>

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 3 - ROUTE AND DESIGN STUDIES

(Function Code 110)

Services
Provided By:
ENGINEER LPA

- | | | |
|------------|------------|--|
| <u>NO</u> | <u>NO</u> | 1. Route Location Studies |
| <u>YES</u> | <u>N/A</u> | 2. Level of Service Analysis |
| <u>YES</u> | <u>NO</u> | 3. Traffic Evaluations and Projections |
| <u>YES</u> | <u>NO</u> | 4. Develop Roadway Design Criteria |
| <u>YES</u> | <u>NO</u> | 5. Preliminary Cost Estimates |
| <u>YES</u> | <u>NO</u> | 6. Design Schematic
(See Section 7, page 7-1 for schematic layout requirements) |
| <u>YES</u> | <u>NO</u> | 7. Preliminary Right-of-Way Requirements |
| <u>YES</u> | <u>NO</u> | 8. Design Concept Conference |
| | | 9. Soil Core Hole Drilling |
| <u>N/A</u> | <u>N/A</u> | a. Pavement (See Section 7, pages 7-2 thru 7-3 for requirements) |
| <u>N/A</u> | <u>N/A</u> | b. Retaining Walls (See Section 10, page 10-1 for requirements) |
| <u>N/A</u> | <u>N/A</u> | c. Miscellaneous Structures (See Section 10, page 10-3 for requirements) |
| <u>N/A</u> | <u>N/A</u> | d. Bridges (See Section 11, page 11-2 thru 11-3 for requirements) |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

**SECTION 4 - SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES
AND PUBLIC INVOLVEMENT**

(Function Code 120)

Services
Provided By:
ENGINEER LPA

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|---|---|
| <p><u>YES</u> <u>N/A</u></p> <p><u>N/A</u> <u>N/A</u></p> <p><u>N/A</u> <u>N/A</u></p> <p><u>N/A</u> <u>N/A</u></p> <p><u>N/A</u> <u>N/A</u></p> | <p>1. Environmental Reports
 All Environmental Reports shall be in accordance with 43 Texas Administrative Code (TAC) 2.40-2.51, Code of Federal Regulations, Title 23, Part 771 and Highway Design Operations and Procedures Manual, Part II-B.</p> <p>a. Environmental Assessments</p> <p>(1) An Environmental Assessment shall be prepared, anticipating a Categorical Exclusion.</p> <p>(2) An Environmental Assessment shall be prepared in accordance with 23 USC 327 and the 2014 TxDOT-FHWA Memorandum of Understanding, anticipating a Finding of No Significant Impact.</p> <p>(3) An Environmental Assessment shall be prepared, anticipating the need for a Draft Environmental Impact Statement.</p> <p>b. Environmental Impact Statement</p> <p>(1) A Draft Environmental Impact Statement shall be prepared. After appropriate interagency and public reviews within time limits prescribed by the Code of Federal Regulations, Title 23, Part 771 and 43 Texas Administrative Code 2.40-2.51, a Final Environmental Impact Statement shall be prepared.</p> <p>(2) A Section 4(f) Statement (Department of Transportation Act) shall be provided by the ENGINEER. The format and content of the statement is found in FHWA Technical Advisory T6640.8A.</p> |
| <p><u>YES</u> <u>N/A</u></p> <p><u>YES</u> <u>N/A</u></p> <p><u>N/A</u> <u>NO</u></p> | <p>2. Public Involvement
 All public involvement procedures shall be in accordance with 43 Texas Administrative Code (TAC) 2.40-2.51, Code of Federal Regulations Title 23, Part 771 and Highway Design Operations and Procedures Manual, Part II-B.</p> <p>a. A public involvement meeting(s) and public hearing shall be scheduled, coordinated and conducted.</p> <p>b. Technical assistance for one public meeting and one public hearing, preparation of, and maintenance of contact lists, minutes of meeting(s), exhibit preparation, and other tasks outlined by the LPA, shall be provided.</p> <p>c. A Notice of Availability (NOA) shall be published by the LPA upon approval of the environmental decision.</p> |
| <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>N/A</u> <u>N/A</u></p> | <p>3. Technical Reports
 All technical reports shall be prepared in accordance with TxDOT's environmental rules and guidelines.</p> <p>a. Air Quality Analysis
 An air quality analysis shall be prepared in accordance with the STATE'S Air Quality Guidelines. The air quality analysis shall be provided as a Technical Report and a summary of the air quality results included in the administratively complete document for the project.</p> <p>b. Biological Technical Report
 The previously approved Species Analysis Form shall be updated as per the Memorandum of Understanding (MOU) with the Texas Parks and Wildlife Department (TPWD) and shall be prepared in accordance with the STATE'S Biological Guidelines.</p> <p>c. Wetland Permits
 Two permit applications shall be prepared and all work efforts and deliverables shall be in accordance with the current TxDOT and the U.S. Army Corps of Engineers policies and procedures. Permits shall include all of the necessary maps and exhibits.</p> |

EXHIBIT "B"

SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services		
Provided By:		
<u>ENGINEER</u>	<u>LPA</u>	
<u>YES</u>	<u>N/A</u>	(1) Historic Structure Studies A records search, project coordination request, and reconnaissance survey shall be performed, and documentation prepared regarding identification efforts, National Register eligibility and potential impacts to historic properties in accordance with the state's historic structure requirements.
<u>YES</u>	<u>N/A</u>	(2) Archeological Studies File searches, project coordination request, an archeological reconnaissance, and an archeological survey shall be conducted to determine if known archeological sites are present or have been designated State Archeological Landmarks; and to identify the need (if any) to perform additional archeological investigations.
<u>YES</u>	<u>N/A</u>	d. Community Impact Analysis A community impact analysis shall be prepared in accordance with the STATE'S Community Impact Guidelines.
<u>YES</u>	<u>N/A</u>	e. Hazardous Materials The consultant shall perform an Initial Site Assessment (ISA) for hazardous materials impact in accordance with the American Society for Testing and Materials (ASTM) 1528.93 (Transaction Screen Process) and a Hazardous Materials Technical Report, as needed.
<u>YES</u>	<u>N/A</u>	f. Indirect and Cumulative Impacts Analysis An indirect and cumulative impacts analysis shall be prepared in accordance with the STATE's guidelines.
<u>YES</u>	<u>N/A</u>	g. Noise Analysis A noise analysis shall be prepared, including predicted noise levels and the consideration and evaluation of noise mitigation, in accordance with the STATE'S Noise Guidelines. The noise analysis shall be provided as a Technical Report and a summary of the noise analysis results shall be included in the administratively complete document.
<u>YES</u>	<u>N/A</u>	4. Environmental Scoping The ENGINEER shall initiate the environmental scoping process with TxDOT. An environmental scoping document and risk assessment will be completed in coordination with TxDOT.
<u>YES</u>	<u>N/A</u>	5. General Guidelines for Preparation of Environmental Documents <ol style="list-style-type: none"> a. All technical reports will be submitted electronically to TxDOT through their FTP site. b. The draft administratively complete document will be submitted to TxDOT electronically through their FTP site. c. The administratively complete document will be prepared in accordance with the content and format of FHWA Technical Advisory T6640.8A and the TxDOT Administrative Code 43 TAC §2.44. d. The administratively complete document will be submitted to TxDOT electronically through their FTP site. e. Upon completion and approval of the administratively and technically complete document, the Engineer will provide one (1) hard copy to the Client. All copies to TxDOT will be digital. f. Exhibits in the environmental document shall be color copies and text shall be black and white.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 6 - FIELD SURVEYING AND PHOTOGRAMMETRY

(Function Code 150)

Services
Provided By:
SURVEYOR LPA

DESIGN AND CONSTRUCTION SURVEYS:

PURPOSE:

The purpose of a "design survey" is to provide field information in support of transportation systems design.

The purpose of a "construction survey" is to provide field data in support of highway construction.

DEFINITIONS:

A "design survey" is defined as the combined performance of research, field work, analysis, computation, and documentation necessary to provide detailed topographic (3-dimensional) mapping of a project site. A design survey may include, but need not be limited to, cross-sections or data to create cross-sections and Digital Terrain Models (DTM), horizontal and vertical location of utilities and improvements, detailing of bridges and other structures, review of right-of-way maps, establishing control points, etc.

A "construction survey" is defined as the combined performance of reconnaissance, field work, analysis, computation, and documentation necessary to provide the horizontal and vertical position of specific ground points to be used by the construction contractor for determining lines and grades.

1. Design Surveying

YES

NO

a. Primary Project Control – 3 to 5 miles spacing

Precision shall be 1 part in 20,000 or better, unless otherwise directed by the District Engineer.

- (1) Establish horizontal control points
- (2) Establish vertical control points

NOTE: ALL BEARING AND DISTANCE SHALL BE BASED ON THE STATE PLANE COORDINATE SYSTEM NAD 1983, SOUTH ZONE. ALL DISTANCES AND COORDINATES SHALL BE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999960

YES

NO

b. Secondary Project Control – Surveyor shall recover and/or reset H&V Control Points as provided by the Engineer and create Survey Control Data Sheets for inclusion in the Construction Project Plans signed and sealed by an R.P.L.S.

- (1) No traverse should exceed 25 angle points. Planimetrics shall be 20 ft Lt & Rt from the proposed ROW as per the schematic provided by the Engineer.
- (2) The unadjusted angular error should not exceed 2 seconds per angle, plus 14 seconds.
- (3) The unadjusted ratio of precision should be one part in 10,000 or better. (The ratio of precision is the total length of the traverse divided by the total error.)
- (4) The unadjusted vertical error should not exceed 0.03 foot per mile of traverse.
- (5) Project control base lines

NO

NO

- (6) Photogrammetric ground control
 - (a) Establish horizontal control
 - (b) Establish vertical control points
 - (c) Place and maintain control point targets

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
Provided By:
SURVEYOR LPA

YES NO

- c. Other Design Surveying
- (1) **The limit of the Design surveys shall be 500-ft before and after the limits of the project as identified by the Project Engineer on the schematic. Establish horizontal and vertical control.** Set H&V Control at 1000-ft intervals along the project proposed right-of-way. Provide x, y, z for each H&V Control. Provide an H&V Control along each outfall identified on the Hydrologic Map. The H&V Control shall be #5 I.R. 2-ft in depth set in concrete. **The surveyor shall provide an H&V Control Book (a Sample shall be provided by the Engineer to the Surveyor).** The Surveyor will provide a 3-pt reference sketch with ties to the BMs for inclusion the existing H&V Control Book. Establish benchmark circuit throughout the project with a tolerance of 0.03"/ft per mile error vertically.
 - (2) Complete topographic and cross section survey, data processing, and CADD mapping (2D & 3D) for the limits of the project.
 - (3) Locate all visible utilities, data processing and CADD mapping (2D & 3D) including irrigation lines. Follow sample provided by the Engineer.
 - (4) Field locate cross culverts, driveway culverts, inverts, irrigation lines, within the project limits, data processing and CADD mapping (2D & 3D).
 - (5) Right of Entry, Right of Way Research, and Appraisal District Records is the responsibility of the Surveyor.
 - (6) The Surveyor shall stake the proposed centerline on the existing fields as approved by Engineer before construction for the purpose of utility adjustments and project location.
 - (7) Profile and cross section intersecting streets for ties into project (500-ft. beyond the proposed ROW per schematic and 20-ft wider than the existing ROW of intersecting street). Reference missing voids as per CD provided by the Engineer.
 - (8) Cross section irrigation crossings for a distance of 20-ft beyond the proposed ROW at 100-ft intervals in a DTM file. Provide a complete description of irrigation appurtances as identified by the engineer sample layout "EXHIBIT E". The SURVEYOR will meet with the ENGINEER before he ties down any irrigation lines. Jointly the SURVEYOR and the ENGINEER will identify from records such as the Irrigation District Maps and the A&M Data of existing irrigation lines that will need to be tied down. The SURVEYOR will follow the sample given to him by the ENGINEER and tie the structures horizontally and vertically and include in the field books to be submitted.
 - (9) Tie Horizontally and Vertically the existing storm drain system that lies within the existing proposed ROW including the elevation of the outfall of said recovered existing storm drain systems.
 - (10) Tie to existing underground and overhead utilities (location, elevation and direction)
Horizontally – The surveyor shall call the 1-800 number for the utilities to be marked on the ground as well as any city water and sewer lines. He shall tie all visible utility crossings with name, address and Phone #'s of utility companies. The engineer will coordinate with the utility companies and jointly the Surveyor and the Engineer will identify which utilities were missed and need to be tied down.
Vertically – The engineer shall identify all utilities that are potential conflicts and that need to be tied vertically. The engineer will advise the surveyor in writing of the needed vertical ties and the surveyor will tie the lines vertically once the surveyor has coordinated the exposure and provide the information to the engineer.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

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|----------------------------------|---|
| <p><u>YES</u> <u>NO</u></p> | <p>(11) Cross section and profile all outfall channels identified on the Hydrologic Map for a distance of 200-ft beyond the proposed ROW upstream and downstream at 100-ft intervals. The SURVEYOR will provide a complete 2D/3D File including utilities of the outfalls identified.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(12) Driveways and Turnouts
 (a) Inventory commercial entrances, public roads and side streets separately.
 (b) Obtain centerline station. (Width at ROW, PAV'T and existing radius.
 (c) Inventory by type (dirt, caliche, gravel or paved). If paved, indicate condition in terms of no patches, has patches or has potholes.
 (d) Obtain width at R.O.W. line.
 (e) Obtain elevations at both edges of the driveway or turnout in line with the side drain.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(13) ROW staking (Existing and Proposed @ 1,000 ft. stations PC's PT's and Angle points as per ROW Map)</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(14) Soil core hole staking at bridge class structures.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(15) Determine changes in topography from voids and outdated maps due to development, erosion, etc.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(16) Profiles of existing drainage facilities.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(17) Measurement of hydraulic opening under existing bridges.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(18) Obtain elevations of manholes and valves of utilities</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(19) Provide temporary signs, traffic control, flags, safety equipment, etc.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(20) Ties to existing bridges railroad rail elevations or culverts that may conflict with new construction.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(21) Bridge widening top of deck and/or top of cap elevations at the Profile Grade Line (PGL) and the edges of slab at bent locations.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(22) Inventory signs, mailboxes, and driveways</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(23) Locate wetlands.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(24) Locate existing right-of-ways.</p> |

d. Construction Surveys:
 In performing construction surveys, the following will be requested by the ENGINEER on an as needed basis, but need not be limited to:

- | | |
|---------------------------------|---|
| <p><u>NO</u> <u>NO</u></p> | <p>(1) Stake existing and/or proposed right-of-ways.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(2) Stake existing and/or proposed baseline/centerline.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(3) Stake proposed bridge structures.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(4) Stake proposed drainage structures, such as manholes, culverts, etc.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(5) Set grade stakes.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(6) Recover and check existing control points.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(7) Establish additional control points.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(8) Check elevations and locations of structures.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(9) Determine and resolve conflicts associated with survey data.</p> |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

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|------------|-----------|--|
| <u>NO</u> | <u>NO</u> | <p>2. Photogrammetric Products</p> <p>a. Uncontrolled Photography</p> <ul style="list-style-type: none"> (1) Contact Prints (2) Mosaics (3) Digital ortho plots <p>b. Mapping</p> <ul style="list-style-type: none"> (1) Planimetric Maps (2) Contour Maps (3) Cross Sections (4) Profiles (5) Digital Terrain Models (DTM) |
| | | <p>3. <u>UTILITY SUBSURFACE INVESTIGATION:</u>
 <u>Utility Quality Levels</u> are in cumulative order (least to greatest) as follows</p> |
| <u>YES</u> | <u>NO</u> | <p>3.1. Quality Level C - Existing Records: Utilities are plotted from review of available existing records that will be generated by the Engineer on the schematic and provided to the surveyor for his further creation of a Utility Map which will be turned in as a deliverable as part of this work order.</p> |
| <u>YES</u> | <u>NO</u> | <p>3.2. Quality Level B - Surface Visible Feature Survey: The Surveyor shall gather the field tied Utility Information and compare it to the existing records (if any) as provided by the Engineer and correlate with surveyed surface-visible features. The surveyor shall create a Utility Layout Map or plan layout 2D, showing the limits of the proposed project and limits of the work area required for this work authorization; including highway stations, limits within existing or proposed right of way. 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. The Layout Map will include all utilities that have been field tied – 2D Horizontal Utilities. This Layout will be provided to the Engineer and a meeting held with Engineer to identify which utilities will need to be tied down vertically. A note must be placed on the designate deliverable only that states "lines sizes are from best available records". All above ground appurtenance locations must be included in the deliverable to the Engineer. This information will be provided in the latest version of Micro Station or Geopak used by the State. The electronic file will be delivered on C.D. or DVD. A hard copy is required and must be signed, sealed, and dated by the Surveyor. Note: Determine and inform the Engineer of the approximate utility depths at critical locations. This depth indication is understood by the Engineer to be approximate only and is not intended to be used for preparing the construction plans.</p> |
| <u>YES</u> | <u>NO</u> | <p>3.3. <u>Subsurface Utility Locate (Test Hole) Service (Quality Level A), THE SURVEYOR SHALL ESTIMATE LOCATING VERTICALLY 25 UTILITES PER MILE OR AS IDENTIFIED BY THE ENGINEER.</u> Locate shall mean 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 and C. The Surveyor shall:</p> <p>3.3.1 Review the requested test hole locations that have been identified by the Engineer and Coordinate with utility owner inspectors as may be required by law or utility owner policy.</p> |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

3. *Utility Subsurface (continued)*
 - 3.3.2 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 and/or bottom of utility tied to the datum of the furnished plan.
 - Identify a minimum of two benchmarks utilized. Elevations shall be within an accuracy of 15mm (.591 inches) of utilized benchmarks.
 - 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.
 - Utility facility material(s).
 - Utility facility condition.
 - Coating/Wrapping information and condition.
 - Unusual circumstances or field conditions.
 - 3.3.3 Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate State District Office.
 - 3.3.4 Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material. The Engineer shall be responsible for the integrity of the backfill and surface restoration for a period of three years. Install a marker ribbon throughout the backfill.
 - 3.3.5 Provide complete restoration of work site and landscape to equal or better condition than before excavation.
 - 3.3.6 Plot utility location position information on the Utility Layout sheet and identify the vertical elevation and sealed by the responsible Surveyor. This information will be provided in the latest version of Micro Station or Geopak format used by the State. The electronic file will be delivered on C.D or DVD.

4. DELIVERABLES:

The deliverables to be specified in individual work authorizations for design surveys and construction surveys may be any combination of the following:

- | | |
|--|---|
| <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p>
<p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p>
<p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> | <p>4.1. Digital Terrain Models (DTM) in a format acceptable by the ENGINEER.</p> <p>4.2. Final H&V Field Book Binder with all pertinent information obtained in the field for Design Surveys. Maps, plans, or sketches prepared by the SURVEYOR showing the results of field surveys.</p> <p>4.3. Computer printouts or other tabulations summarizing the results of field surveys.</p> <p>4.4. Digital files or media acceptable by the ENGINEER containing field survey data.</p> <p>4.5. 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.</p> <p>4.6. Field survey notes, as electronic and/or hard copies.</p> <p>4.7. A H&V Control Book identifying the basis of the Primary and Secondary Control and an 8 ½ inch by 11 inch survey control data sheet for each construction control point which shall 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. Survey control data sheets shall be signed and sealed by the supervising Registered Professional Land Surveyor.</p> |
|--|---|

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

4. *Deliverables (continued)*

- | | | |
|------------|-----------|--|
| <u>YES</u> | <u>NO</u> | 4.8. Final mylar set of 11 inch by 17 inch Survey Control data sheets sign and seal by the RPLS per TxDOT guidelines. |
| <u>YES</u> | <u>NO</u> | 4.9. A digital and/or hard copy of all computer printouts of horizontal and vertical conventional traverses, GPS analysis and results, data including property descriptions with field notes and plats, right-of-way maps, and survey control data sheets to include in the H&V Field Book Binder. |
| <u>YES</u> | <u>NO</u> | 4.10. Survey reports in a format requested by the ENGINEER. |
| <u>YES</u> | <u>NO</u> | 4.11. Items indicated under the Automation Requirements Section 6. |

5. GENERAL REQUIREMENTS:

- 5.1. Design surveys and construction surveys shall be performed under the supervision of a Registered Professional Land Surveyor currently registered with the Texas Board of Professional Land Surveying.
- 5.2. Horizontal ground control used for design surveys and construction surveys, furnished to the SURVEYOR by the ENGINEER or based on acceptable methods conducted by the SURVEYOR, shall meet the standards of accuracy required by the STATE.
- 5.3. Reference may be made to standards of accuracy for horizontal control traverses, as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the TxDOT Survey Manual, latest edition, the TxDOT GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- 5.4. Vertical ground control used for design surveys and construction surveys, furnished to the SURVEYOR by the ENGINEER or based on acceptable methods conducted by the SURVEYOR, shall meet the standards of accuracy required by the ENGINEER.
- 5.5. Reference may be made to standards of accuracy for vertical control traverses, as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the TxDOT Survey Manual, latest edition, the TxDOT GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- 5.6. Side shots or short traverse procedures used to determine horizontal and vertical locations shall meet the following criteria:
 - Side shots or short traverses shall begin and end on horizontal and vertical ground control as described above.
 - Standards, procedures, and equipment 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.
 - Standards, procedures, and equipment 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.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
Provided By:
SURVEYOR LPA

5. **AUTOMATION REQUIREMENTS:**

- 6.1 Planimetric design files (DGN) shall be fully compatible with the State's *Micro Station V8* graphics program without further modification or conversion.
- 6.2 Electronically collected and processed field survey data files shall be fully compatible with the State's *CADD* systems without further modification or conversion. All files shall incorporate only those feature codes currently being used by the STATE.
- 6.3 Digital Terrain Models (DTM) shall be fully compatible with the STATE's *GEOPAK* system without further modification or conversion. All DTM files shall be fully edited and rectified to provide a complete digital terrain model with all necessary break lines.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

ADDITIONAL RESPONSIBILITIES

A. TRAFFIC CONTROL:

The SURVEYOR shall control traffic in and near surveying operations adequately to comply with provisions of the latest edition of the TxDOT Manual on Uniform Traffic Control Devices – Part VI and the latest edition of the Occupational Safety Manual both of which can be found on the TxDOT internet site.

In the event field crew personnel must divert traffic or close traveled lanes, a Traffic Control Plan based upon principles outlined in the latest edition of the TxDOT Manual on Uniform Traffic Control Devices – Part VI shall be prepared by the SURVEYOR and approved by the ENGINEER prior to commencement of field work. A copy of the approved plan shall be in the possession of field crew personnel on the job site at all times and shall be made available to the ENGINEER for inspection upon request.

B. INVOICING:

Payment requests shall include a SURVEYOR's invoice. With each payment request, the SURVEYOR shall submit a project status report which will, as a minimum, include the percentage of total work complete as of the date of the payment request and a description of current work activity. The percentage of total work complete shall not be based simply on the percentage of funds expended, but shall be based on the best judgment of the SURVEYOR as to the percentage of actual work complete.

C. EASEMENTS, LETTERS OF PERMISSION, ETC.

The SURVEYOR shall be responsible for delineating easements. The SURVEYOR will be responsible for securing the necessary legal instruments and obtaining all Right-of-Entries (ROEs).

D. MEETINGS:

The ENGINEER shall setup the necessary meetings with the SURVEYOR in order to assure all field information is provided on-time and products are delivered in accordance with TxDOT's specifications. SURVEYOR must attend all meetings involving data provided if requested by ENGINEER.

E. PROJECT MANAGER/SURVEYOR COMMUNICATION:

The SURVEYOR shall designate one Texas Registered Professional Land Surveyor (RPLS) to be responsible throughout the project for project surveying coordination and all communications, including billing, with the ENGINEER.

F. OFFICE LOCATION:

The SURVEYOR will perform the services to be provided under this agreement out of a local office and have a crew available to perform requested tasks within 24 hours of request. The coordinating SURVEYOR's Project Manager (RPLS) shall be accessible at all times and working from the local office.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Document and Information Exchange

Data, Plan Sheets, General Notes and/or Specifications provided to the LPA shall be furnished on 8GB USB flash drives. Each 8 GB flash drive shall have a file titled Table of Contents. The Table of Contents shall indicate the locations of files within the directory structure of the documentation.

General Notes and specifications shall be provided in MS Office 2007 format. Plan sheets shall be provided in Microstation DGN or GEOPAK GPK format. PDF copies of plan sheets shall also be provided.

Two copies of the documentation shall be provided to the LPA.

If required, the ENGINEER shall provide to the LPA, a CD that contains all the plan sheets for the project. The graphics tape shall be compatible with the LPA's computer system.

CD Tape Required (YES or NO): YES

Proposal Time

The time indicated in the proposal and the contract shall include time necessary for reviews, approval, etc.

Office Location

The ENGINEER will perform the services to be provided under this agreement out of their office or offices listed below:

<u>Service</u>	<u>Office Location</u>
Environmental Document	Mercedes Office
Public Involvement	Mission Office
Schematic Design	Mission Office
Hydraulic Modeling	Mission Office
Surveys	Mission Office

The work effort will be managed out of the _____ Mercedes _____
(City)

office located at 2100 West Expressway 83 _____,
(Address)
Mercedes _____, Texas _____.
(City) (State)

EXHIBIT D-1
PROJECT FEE SCHEDULE AND ESTIMATED MAN-HOUR BREAKDOWN

Los Ebanos Road Project
(from: I-H 2 to FM 1016 (Military Highway))

		MANHOURS											
		Senior Project Manager	Senior Engineer	Senior Environmental Scientist /Specialist	Project Engineer	Senior Engineer Tech	Environmental Scientist /Specialist	CADD Operator / GISAnalyst	Admin / Clerical	TOTAL HOURS	Sub-Contract Amounts / ROW COST	L&G TOTAL LINE ITEM COST	*ROUNDED TOTAL LINE ITEM COST
CONTRACT RATE		292.99	229.45	208.27	197.68	141.2	102.37	95.31	77.66				
WORK AUTHORIZATION NO. 1													
PHASE I - EA, PUBLIC INVOLVEMENT, SCHEMATIC, DESIGN													
Function Code	Description of Work												
102	Determ. of Local Costs vs State Cost/Feas. Study and Agreements/ AFA with TxDOT/LPA coord. Etc	19	67		117				12	215		\$ 45,000.44	\$ 45,000.00
120	Environmental Document with TxDOT	35		342			475		63	915		\$ 135,001.32	\$ 135,000.00
120	Public Involvement for the project with stakeholders and 1 Public Meeting	23	96		163				80	362		\$ 67,200.61	\$ 67,200.00
120	Archeological and Historical Research			177			179		21	377	\$ 33,183.50	\$ 56,818.88	\$ 90,000.00
120	Engineering Technical Support at Public Mtgs with Layouts etc	10	33		61	54			17	175		\$ 31,505.25	\$ 31,500.00
110	Schematic for ROADWAY, BRIDGES & OUTFALLS	75	872		991	1355			79	3372		\$ 615,416.67	\$ 615,416.00
110	Traffic Data Request as per TxDOT Directive	10	26		31	39			20	126	\$ 37,919.76	\$ 22,083.68	\$ 60,000.00
110	Level of Service Analysis to justify 4-lane	25	103		111	122			23	384	\$ 44,087.82	\$ 71,913.16	\$ 116,000.00
162	Traffic Signal Warrants	8	25		42				8	83		\$ 17,004.01	\$ 17,000.00
161	Hydrological Drainage Area Map identifying Outfalls	25	54		80	97			10	266		\$ 50,002.45	\$ 50,000.00
161	Hydrological Model and REPORT for (TXDOT) Outfall Drain Ditches outfalls & capacities	34	157		197	373			31	792		\$ 140,003.33	\$ 140,000.00
110	Office Surveys for Schematic (Prel. Ownership Identification and Property Rights) ROADWAY	20	96		109	138			14	377		\$ 70,006.96	\$ 70,000.00
163	Preliminary Compensable Utilities Identification on Schematic (ROADWAY AND OUTFALLS)	15	70		95	98			12	290		\$ 54,005.47	\$ 54,000.00
110	Update Schematic based on comments as provide by TxDOT/FHWA for schematic and EA update w/FHWA,	11	27		56	63			8	165		\$ 30,005.00	\$ 30,000.00
120	Engineering Technical Support to address Public Hearing with Layouts etc	10	20		39	46			10	125		\$ 22,500.22	\$ 22,500.00
150	Field Surveys for Design and Construction OF ROADWAY & OUTFALLS	2	7		9				6	24	\$ 119,321.00	\$ 4,437.21	\$ 123,750.00
120	Either address the Public or hold 1 Public Hearing	12	15	32	27		71		10	167		\$ 27,004.50	\$ 27,000.00
150	Sub-Surface Utility Engineering (SUE) 25 pot holes/mile	14	143		145				12	314	\$ 33,500.00	\$ 66,508.73	\$ 100,000.00
SUB-TOTAL		348	1811	551	2273	2385	725	0	436	8529	\$ 268,012.08	\$ 1,526,417.89	\$ 1,794,366.00

Subtotal Manhour Fee with Sub-Consultant Costs: \$ 1,794,429.97

*** Total Project Fee: \$ 1,794,366.00**

*Rounded Figure



C&M Associates, Inc.

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Dallas, TX 75252
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Fax: 214-889-5049
www.candm-associates.com

Memorandum

Griffin J. Harris P.E., PTOE
Principal Traffic Engineer
gharris@candm-associates.com

Date: June 12, 2023
To: Armando J. Sandoval, P.E.
Vice President
L&G Consulting Engineers
2100 W. Expressway 83
Mercedes, TX 78570
Subject: South Los Ebanos Road Traffic Projections: Scope of Services

Dear Armando,

This memorandum details C&M Associates, Inc.'s (C&M) scope of services regarding the development of traffic projections for South Los Ebanos Road from I-2 to Military Road (the Project) in Mission, TX and Hidalgo County, TX on behalf of L&G Engineering (L&G).

This scope assumes an Option B delivery method for traffic projections in which C&M acts as extended staff to TxDOT's Transportation Planning and Programming Division (TPP). TPP will have the ultimate review and approval authority on all products developed under this scope of services. All products will be developed based on TPP's Standard Operating Procedures (SOP) for development of traffic projections. C&M has followed the TPP SOP on TxDOT traffic projections work and understands its requirements. The official request for Option B must be submitted by Hidalgo County to TxDOT-TPP through the TxDOT district.

Task 1: Review of Existing Information and Traffic Counts Collection

C&M will first review all relevant available documentation regarding the Project. To determine historical traffic growth rate, C&M will summarize historical traffic counts on the major roadways within the study area from the Texas Department of Transportation's (TxDOT) Traffic Count Database System (TCDS), in the form of annual average daily traffic (AADT) counts.

C&M will collect four 24-hour turning movement counts at the intersections of South Los Ebanos Road with the North and South I-2 frontage roads, Mile 1 S Road, and Military Road. Traffic count data will be compiled and analyzed.

Task 2: Travel Demand Model (TDM) Runs

For this study, C&M will adopt the 2045 Lower Rio Grande Valley (LRGV) TDM developed by the Texas Transportation Institute (TTI) for TxDOT. The LRGV TDM is a trip-based model developed in the TransCAD

environment, utilizing TripCal5 software for trip generation. This TDM will be used by C&M to estimate traffic growth over a 20-year period based on future developments considered by the MPOs of the region and to understand the changes in traffic pattern when South Los Ebanos Road is connected.

Task 3: ITE Trip Generation

The Project traverses areas designated as agricultural use, light industrial use, and single-family use according to the City of Mission zoning map. With the connection of South Los Ebanos Road, it is likely that more residential and commercial development will appear within the corridor. C&M will review development plans in the corridor and utilize the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 11th edition* to estimate future demands.

Task 4: Develop Traffic Projections

C&M will develop traffic projections utilizing the TxDOT-TPP's standard operating procedure (SOP). AADT forecasts will be developed for the opening year, horizon year (opening year +20), and pavement design year (opening year +30). C&M will use 2030 as the planned opening year of the Project.

This scope includes the development of AADT on South Los Ebanos Road within the project limits and the daily turning movements at the intersections of I-2 North Frontage Road, I-2 South Frontage Road, Mile 1 S Road, and Military Road. The 24-hour turning movement counts will be used to generate AADT data which will be reviewed and compared to existing count stations on TCDS and converted to the base year 2021 traffic volumes. The turning movement percentages from turning movement counts will be utilized in developing traffic volumes at the intersections.

Task 5: Documentation

C&M will prepare the Draft and Final versions for three documents:

1. Request for Option B Traffic Projections and Traffic Package.
2. Traffic Projections Methodology Memorandum in which the historical traffic data, historical growth rate, vehicle classification, and proposed methodology will be summarized.
3. Traffic Projections Memorandum in which the AADT traffic projections and the TAHD table will be presented (the draft version will not include the pavement design data).

These memoranda need to be reviewed and approved by TPP as part of the Option B process. C&M will develop all of the documents in the above sequence and provide them to L&G. However, the final approval of the submittals by TPP could take an estimated 16-20 weeks. The actual duration of the approval process depends on TPP's workload. Communication with TPP can only happen through the local TxDOT district.

Proposed Schedule and Budget

C&M can begin work immediately upon receipt of the Notice to Proceed (NTP). C&M estimates a timeframe of six (6) weeks to complete the traffic projections study. As shown in Table 1, C&M proposes a lump sum fee of \$31,919.76 in addition to \$6,000 in direct costs (charged based on actual costs) to be used for potential traffic counts required in the study area.

Table 1. Proposed Budget

DESCRIPTION	Project Manager	Quality Manager	Project Engineer IV	Project Engineer II	Document Controller	Total Labor Hrs.	Remarks	Task Cost
Task 0. Project Management/Coordination	12		6			18		\$ 3,809.40
Task 1. Review of Existing Information	4		12	24		40		\$ 5,246.04
Task 2. Travel Demand Model (TDM) runs	2		12	24		38		\$ 4,740.66
Task 3. ITE Trip Generation	2		12	24		38		\$ 4,740.66
Task 4. Develop Traffic Projections	4		16	32		52		\$ 6,657.80
Task 5. Documentation	6	4	12	18	8	48		\$ 6,725.20
Subtotal	30	4	70	122	8	234		\$ 31,919.76
HOURS TOTAL	30	4	70	122	8	234		
LABOR RATE PER HOUR	\$252.69	\$249.97	\$129.52	\$111.71	\$80.52			
TOTAL DIRECT LABOR COSTS	\$ 7,580.70	\$ 999.88	\$ 9,066.40	\$ 13,628.62	\$ 644.16	\$ 31,919.76		
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	23.75%	3.13%	28.40%	42.70%	2.02%	100.00%	CHECK	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	12.82%	1.71%	29.91%	52.14%	3.42%	100.00%	\$ 31,919.76	
TOTAL DIRECT LABOR COST								\$ 31,919.76
Traffic counts (4–24-hour turning movement counts)*								\$ 6,000.00
TOTAL DIRECT EXPENSES*								\$ 6,000.00
GRAND TOTAL								\$ 37,919.76

* Direct expenses will be charged based on actual costs.

ETSI GROUP LLC

5300 Hollister, Suite 220

Houston, Texas 77040

Tel. (713) 956-9601

Fax: (713) 956-9667

June 21, 2023

Mr. Jacinto Garza, P.E.,
President
L & G Engineering
2100 W. Expressway 83
Mercedes, Texas 78570

**Reference: Capacity and Level of Service Analysis for
Los Ebanos Road: From IH 2 to Military Road,
Hidalgo County, Texas**

Dear Jacinto:

We are pleased to submit the attached fee proposal to conduct the referenced services. Our work will cover capacity and level of service analysis to fulfill TxDOT requirements. The analysis will cover all segments and controlled intersections along Los Ebanos Road. Our effort will involve traffic modeling for the entire facility during two peak traffic hours and for two target dates, as required by TxDOT; Construction Completion Year and Future Design Year (20 years after construction).

Analyses methodologies described in TRB's Highway Capacity Manual, latest edition will be used to assess the quality of traffic flow in order to fulfill TxDOT's requirements.

Our proposed fee for this effort is \$44,087.82. Exhibit A shows the proposed scope of services, Exhibit B shows a breakdown of our proposed fees and Exhibit C shows the proposed timeline schedule.

As always we thank you for giving us the opportunity to assist you.

Sincerely,



Harry C. Simeonidis, P.E.,
President

Attachments

EXHIBIT "A"

SCOPE OF SERVICES

CAPACITY AND LEVEL OF SERVICE ANALYSIS

Along Los Ebanos Road: From IH 2 to Military Road

Los Ebanos Road is a proposed new roadway facility that would run in a general north south directions and would connect IH 2 with Military Road. Currently, Los Ebanos Road is a two lane road without shoulders and runs for about half a mile south from IH 2 and terminates at Mile 1 South. Los Ebanos Road also extends north of Military Road for about 1 mile as a gravel road, providing some of the right of way that would be required for the construction of a new roadway.

At the northwest quadrant of the intersection of Los Ebanos with Mile 1 South Road, there is an Elementary School (Leal Elementary) that would require a separate "School Traffic Circulation" study to determine improvements or changes to the school's current traffic operations.

ETSI Group LLC (ETSI) will provide traffic analysis services to assess future quality of traffic flow along Los Ebanos Road, from IH 2 to Military Road, in Hidalgo County, Texas.

Analysis input data will include existing traffic count data along with future projected traffic data from available sources. Traffic counts at various points along Los Ebanos Road will be furnished by L&G.

The analysis will follow TRB's Highway Capacity Manual, latest edition and it will cover two peak traffic periods (usually 1 typical weekday AM hour and 1 typical weekday PM hour), for two scenarios: 1) Construction Completion Year Scenario and 2) Future Design Year Scenario (20 years after construction).

Key elements of the study are:

- Assessment of traffic trends and capacities on the existing Los Ebanos Road,
- Determination and assessment of future traffic patterns, including vehicles, bicycles and pedestrians,
- Determination of geometric requirements to ensure acceptable quality of traffic flow (LOS B or better for the corridor and LOS C or better for intersection operations).

- Determination of intersection controls
- Determination of lane assignments
- Determination of access management treatments
- Determination of Pedestrian facility requirements
- Determination of Bicycle facility requirements

The study effort is described in the following tasks:

TASK I - COLLECTION OF PERTINENT INFORMATION

ETSI will assemble and review project related data from various sources, including public agencies as well as private entities. This effort will consist of data collection in the following categories:

- Review and assess 24 hour Turning Movement Counts furnished by L&G. Such volumes may include truck volumes, pedestrian volumes, as well as bicycle volumes. The counts will be conducted by others at the following locations:
 - Los Ebanos Road at IH 2 at (both sides of the interchange)
 - Los Ebanos Road at Mile 1 South Road
 - Los Ebanos Road at Military Road
- Collect Traffic trends on competing parallel corridors, such as Inspiration Road if available
- Collect related CADD files of the study area (to be furnished by L&G)
- Collect other available Engineering Maps and topographic data in electronic and/or hard copy format
- Collect existing and/or planned Development in the area (obtained from local governments and/or the Lower Rio Grande Valley MPO)
- Collect Short and Long Range Transportation Planned Improvements in the area that may influence traffic operations within the study area
- Collect existing and projected Land Use, Socioeconomic and Other Demographic Data (obtained from the Lower Rio Grande Valley MPO)
- Collect crash records from available TxDOT databases if available
- Data to be provided by L&G:
 - Travel Demand Model assignments for base and future years (produced by others)
 - Relevant study reports, if available

- Design data from record drawings of existing and proposed facilities
- Roadway inventory information, including the number of lanes, speed limits, pavement and ROW widths
- Aerial photos
- Other information as the need arises

The data collection process may require coordination meetings with local community officials. The following agencies may be contacted to provide input and available information for the study:

- Texas Department of Transportation
- Lower Rio Grande Valley MPO (LRGV MPO)
- Hidalgo County

Deliverables: ETSI will present a summary list of all data collected within an appendix of the Final Study report. Electronic files of the data will be submitted to L&G.

TASK II – FIELD RECONNAISSANCE

ETSI will conduct field investigations along the study corridor and will record data relevant to traffic flow, such as:

- Record intersection geometries and controls
- Record presence of pedestrian and bicycle facilities and flows
- Identify major traffic generators if any and record their potential access to Los Ebanos Road
- Record unsafe conditions as observed
- Identify site distance restrictions if any
- Identify posted speed limits
- Identify presence of roadway illumination
- Record visible utilities, including power lines
- Record existing development in the vicinity of the corridor

The above field information will be used to develop and evaluate the Existing and Future Conditions along the Los Ebanos Road corridor.

Deliverables: Field reconnaissance data will be organized in report and exhibit/table format in the Final Study report.

TASK III – TRAFFIC PROJECTIONS AND TRIP GENERATION

After assembly of all traffic data, ETSI will assess and determine peak traffic periods for analysis purposes. ETSI will balance the traffic count data to reflect two peak traffic hours, typically one AM peak and one PM for a typical weekday.

ETSI will also develop Average Weekday Daily Traffic volumes for each link within the corridor to represent the "Built" traffic conditions (Construction Year and Future Year).

Classification of trucks and buses will be presented for the peak traffic hour and also for the typical weekday.

Facility peak-hour factors and directional distribution ratios will be calculated for the various sections of the corridor.

ETSI will review and assess current and future planned Land Use information, collected from the LRGV MPO.

ETSI will review the vacant land adjacent to the proposed corridor and develop trip generation rates and new trips, based on committed future planned developments.

ETSI will distribute the newly generated trips on the "Built" scenarios and the adjacent roadway network.

Peak Hour turning movement volumes will be developed for all analysis scenarios.

Parallel competing corridor traffic will be assessed for potential diversion to the new improved Los Ebanos Road facility. Diverted trips may be considered and added to the Total Volumes.

Deliverables: ETSI will present the trip generation and projection in the final report.

TASK IV – DEVELOP AND ANALYZE ALTERNATIVE SCENARIOS

Based on collected information, ETSI will develop a model network on SYNCHRO or VISSIM or other TxDOT accepted platform to accommodate the traffic flows (all modes) on the proposed geometric conditions of the corridor. ETSI will utilize HCS methodologies to evaluate corridor

capacities and quality of traffic flow for the proposed geometric conditions. Evaluations will be performed for the target Construction Year and a Future Year. The Future Year usually follows the Construction Year by 20 years. All significant roadway links will be coded into the model, including driveways that provide access to major generators.

Using the SYNCHRO or other compatible platforms and based on information received from L&G, ETSI will test the following alternative scenarios:

- Construction Completion Year (future traffic)
- Future Design Year (future traffic)

Capacity and Level of Service analyses will be performed for two peak traffic hours in a typical weekday. Usually these fall within the morning peak period from 6:00am to 9:00am and within the afternoon peak period from 4:00pm to 6:30pm.

Input for the model will include balanced peak hour traffic volumes, preliminary anticipated geometries and controls. Signalized intersections if warranted will be modeled based on optimal phasing and timing plans.

Level of Service indices along with vehicle queues, delays and other measurements of effectiveness will be assessed for accuracy based on field observations.

Several iterations may be conducted on the above scenarios in order to reach satisfactory results and acceptable quality of traffic flow.

ETSI may offer recommendations for improving vehicular, pedestrian and bicycle flow through the facility. Such improvements may include:

1. Capacity improvements
2. Added turn lanes
3. Access Management Improvements
4. Pedestrian accommodations
5. Bicycle accommodations
6. Safety improvements, such continuous and/or safety lighting
7. Proposed signalization or other warning devices
8. Intelligent Transportation Systems improvements

Deliverables: ETSI will present the methodology and analysis results for the Alternative Scenarios in Final Study report.

TASK V - SAFETY ANALYSIS

ETSI will conduct a safety analysis as part of the Capacity analysis using the latest version of the Highway Safety Software that is included in the Highway Capacity Software. Analysis results will show the anticipated crashes for the new facility and the cost to society.

Input parameters for evaluation are AADT's, number of driveways, number of lanes, existence of TWLTL, median treatments, lighting, roadside objects, lane widths, intersection treatments, left turn phasing, pedestrian volumes, number of bus stops and number of alcohol sales establishments. Default calibration values will be used to determine the predicted crash frequency and cost to society since existing values are not currently available.

TASK VI - TRAFFIC ENGINEERING REPORT

ETSI will prepare a report that describes each of the above tasks. The report will cover all contributing factors of the traffic engineering elements of the study, the methodologies used and recommendations for improvements. Adequate number of exhibits and tables will be presented along with renderings of traffic simulation snap shots depicting the various alternative scenarios.

The report will be submitted in draft form for review. After review comments have been received, ETSI will make the necessary modifications and produce the final report.

TASK VII - PROJECT COORDINATION

ETSI will coordinate its effort with L&G during the duration of the project. ETSI may contact other agencies upon authorization from L&G.

ETSI will participate in one or more virtual meetings with L&G as necessary.

R. O. W. Surveying Services, L.L.C.

June 6, 2023

Mr. Armando Sandoval P.E., Vice President
L&G Engineering
2100 West Expressway 83
Mercedes, Tx 78570

Proposal: Proposal FNC 130/150
Los Ebanos
Work Authorization # _____
Limits: Military Rd. to I2 (Expressway US83)

Dear Mr. Sandoval:

Thank you for your consideration for the Surveying Services from ROWSS for the above mentioned project. The attached EXHIBIT B Services to be provided by Surveyor, EXHIBIT C Work Schedule, and EXHIBIT D Surveying Fee Schedule. The following is the breakdown for FC 150

FC 150	
Los Ebanos –	\$152,821

If you have any questions or need additional information, please contact me at (956) 451-2670.

Sincerely,



Julio Cerda, P.E./Owner

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 1-PROJECT DESCRIPTION

The services designated herein as "Services provided by the ENGINEER" shall include the performance of all engineering services for the following described facility:

COUNTY/CITY: Hidalgo

CONTROL: _____

PROJECT/DESCRIPTION: _____

LENGTH: 3.06 Miles including Ditch, Canal and Road crossings

HIGHWAY: Los Ebanos Rd.

LIMITS: From US 83 to Military Pkwy/

PROJECT CLASSIFICATION

(Place an "X" in only one Project Classification)

- Surface Treatment
- Overlay
- Rehabilitation Existing Road (Scarify & Reshape)
- Convert Non-Freeway to Freeway
- Widen Freeway
- Widen Non-Freeway
- New Location Toll Freeway
- New Location Non-Freeway
- Interchange (New or Reconstruct)
- Bridge Widening or Rehabilitation
- Bridge Replacement
- Upgrade to Standards - Freeway
- Upgrade to Standards - Non-Freeway
- Miscellaneous Studies (Use Function Code 110 for All Tasks)
- Design Survey/Control Recovery

ENGINEER shall mean L&G Engineering.

STATE shall mean Texas Department of Transportation

COUNTY shall mean Hidalgo County.

CITY shall mean City of Mission

Surveyor shall mean ROW Surveying Services

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 6 - FIELD SURVEYING AND PHOTOGRAMMETRY

(Function Code 150)

Services
Provided By:
SURVEYOR LPA

DESIGN AND CONSTRUCTION SURVEYS:

PURPOSE:

The purpose of a "design survey" is to provide field information in support of transportation systems design.

The purpose of a "construction survey" is to provide field data in support of highway construction.

DEFINITIONS:

A "design survey" is defined as the combined performance of research, field work, analysis, computation, and documentation necessary to provide detailed topographic (3-dimensional) mapping of a project site. A design survey may include, but need not be limited to, cross-sections or data to create cross-sections and Digital Terrain Models (DTM), horizontal and vertical location of utilities and improvements, detailing of bridges and other structures, review of right-of-way maps, establishing control points, etc.

A "construction survey" is defined as the combined performance of reconnaissance, field work, analysis, computation, and documentation necessary to provide the horizontal and vertical position of specific ground points to be used by the construction contractor for determining lines and grades.

- | | | |
|------------|-----------|--|
| <u>YES</u> | <u>NO</u> | <p>1. Design Surveying</p> <p>a. Primary Project Control – 3 to 5 miles spacing
Precision shall be 1 part in 20,000 or better, unless otherwise directed by the District Engineer.</p> <ul style="list-style-type: none">(1) Establish horizontal control points(2) Establish vertical control points <p style="text-align: center;">NOTE: ALL BEARING AND DISTANCE SHALL BE BASED ON THE STATE PLANE COORDINATE SYSTEM NAD 1983, SOUTH ZONE. ALL DISTANCES AND COORDINATES SHALL BE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999960</p> |
| <u>YES</u> | <u>NO</u> | <p>b. Secondary Project Control – Surveyor shall recover and/or reset H&V Control Points as provided by the Engineer and create Survey Control Data Sheets for inclusion in the Construction Project Plans signed and sealed by an R.P.L.S.</p> <ul style="list-style-type: none">(1) No traverse should exceed 25 angle points. Planimetrics shall be 20 ft Lt & Rt from the proposed ROW as per the schematic provided by the Engineer.(2) The unadjusted angular error should not exceed 2 seconds per angle, plus 14 seconds.(3) The unadjusted ratio of precision should be one part in 10,000 or better. (The ratio of precision is the total length of the traverse divided by the total error.)(4) The unadjusted vertical error should not exceed 0.03 foot per mile of traverse.(5) Project control base lines |
| <u>NO</u> | <u>NO</u> | <ul style="list-style-type: none">(6) Photogrammetric ground control<ul style="list-style-type: none">(a) Establish horizontal control(b) Establish vertical control points(c) Place and maintain control point targets |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services

Provided By:

SURVEYOR LPA

YES NO

c. Other Design Surveying

- (1) **The limit of the Design surveys shall be 500-ft before and after the limits of the project as identified by the Project Engineer on the schematic. Establish horizontal and vertical control.** Set H&V Control at 1000-ft intervals along the project proposed right-of-way. Provide x, y, z for each H&V Control. Provide an H&V Control along each outfall identified on the Hydrologic Map. The H&V Control shall be #5 I.R. 2-ft in depth set in concrete. **The surveyor shall provide an H&V Control Book (a Sample shall be provided by the Engineer to the Surveyor).** The Surveyor will provide a 3-pt reference sketch with ties to the BMs for inclusion the existing H&V Control Book. Establish benchmark circuit throughout the project with a tolerance of 0.03'/ft per mile error vertically.
- (2) Complete topographic and cross section survey, data processing, and CADD mapping (2D & 3D) for the limits of the project.
- (3) Locate all visible utilities, data processing and CADD mapping (2D & 3D) including irrigation lines. Follow sample provided by the Engineer.
- (4) Field locate cross culverts, driveway culverts, inverts, irrigation lines, within the project limits, data processing and CADD mapping (2D & 3D).
- (5) Right of Entry, Right of Way Research, and Appraisal District Records is the responsibility of the Surveyor.
- (6) The Surveyor shall stake the proposed centerline on the existing fields as approved by Engineer before construction for the purpose of utility adjustments and project location.
- (7) Profile and cross section intersecting streets for ties into project (500-ft. beyond the proposed ROW per schematic and 20-ft wider than the existing ROW of intersecting street). Reference missing voids as per CD provided by the Engineer.
- (8) Cross section irrigation crossings for a distance of 20-ft beyond the proposed ROW at 100-ft intervals in a DTM file. Provide a complete description of irrigation appurtances as identified by the engineer sample layout "EXHIBIT E". The SURVEYOR will meet with the ENGINEER before he ties down any irrigation lines. Jointly the SURVEYOR and the ENGINEER will identify from records such as the Irrigation District Maps and the A&M Data of existing irrigation lines that will need to be tied down. The SURVEYOR will follow the sample given to him by the ENGINEER and tie the structures horizontally and vertically and include in the field books to be submitted.
- (9) Tie Horizontally and Vertically the existing storm drain system that lies within the existing proposed ROW including the elevation of the outfall of said recovered existing storm drain systems.
- (10) Tie to existing underground and overhead utilities (location, elevation and direction)

Horizontally – The surveyor shall call the 1-800 number for the utilities to be marked on the ground as well as any city water and sewer lines. He shall tie all visible utility crossings with name, address and Phone #'s of utility companies. The engineer will coordinate with the utility companies and jointly the Surveyor and the Engineer will identify which utilities were missed and need to be tied down.

Vertically – The engineer shall identify all utilities that are potential conflicts and that need to be tied vertically. The engineer will advise the surveyor in writing of the needed vertical ties and the surveyor will tie the lines vertically once the surveyor has coordinated the exposure and provide the information to the engineer.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

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|----------------------------------|---|
| <p><u>YES</u> <u>NO</u></p> | <p>(11) Cross section and profile all outfall channels identified on the Hydrologic Map for a distance of 200-ft beyond the proposed ROW upstream and downstream at 100-ft intervals. The SURVEYOR will provide a complete 2D/3D File including utilities of the outfalls identified.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(12) Driveways and Turnouts
 (a) Inventory commercial entrances, public roads and side streets separately.
 (b) Obtain centerline station. (Width at ROW, PAV'T and existing radius.
 (c) Inventory by type (dirt, caliche, gravel or paved). If paved, indicate condition in terms of no patches, has patches or has potholes.
 (d) Obtain width at R.O.W. line.
 (e) Obtain elevations at both edges of the driveway or turnout in line with the side drain.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(13) ROW staking (Existing and Proposed @ 1,000 ft. stations PC's PT's and Angle points as per ROW Map)</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(14) Soil core hole staking at bridge class structures.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(15) Determine changes in topography from voids and outdated maps due to development, erosion, etc.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(16) Profiles of existing drainage facilities.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(17) Measurement of hydraulic opening under existing bridges.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(18) Obtain elevations of manholes and valves of utilities</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(19) Provide temporary signs, traffic control, flags, safety equipment, etc.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(20) Ties to existing bridges railroad rail elevations or culverts that may conflict with new construction.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(21) Bridge widening top of deck and/or top of cap elevations at the Profile Grade Line (PGL) and the edges of slab at bent locations.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(22) Inventory signs, mailboxes, and driveways</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(23) Locate wetlands.</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>(24) Locate existing right-of-ways.</p> |

d. Construction Surveys:

In performing construction surveys, the following will be requested by the ENGINEER on an as needed basis, but need not be limited to:

- | | |
|---------------------------------|---|
| <p><u>NO</u> <u>NO</u></p> | <p>(1) Stake existing and/or proposed right-of-ways.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(2) Stake existing and/or proposed baseline/centerline.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(3) Stake proposed bridge structures.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(4) Stake proposed drainage structures, such as manholes, culverts, etc.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(5) Set grade stakes.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(6) Recover and check existing control points.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(7) Establish additional control points.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(8) Check elevations and locations of structures.</p> |
| <p><u>NO</u> <u>NO</u></p> | <p>(9) Determine and resolve conflicts associated with survey data.</p> |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

- | | | |
|------------|-----------|--|
| <u>NO</u> | <u>NO</u> | <p>2. Photogrammetric Products</p> <p>a. Uncontrolled Photography</p> <p style="margin-left: 20px;">(1) Contact Prints</p> <p style="margin-left: 20px;">(2) Mosaics</p> <p style="margin-left: 20px;">(3) Digital ortho plots</p> <p>b. Mapping</p> <p style="margin-left: 20px;">(1) Planimetric Maps</p> <p style="margin-left: 20px;">(2) Contour Maps</p> <p style="margin-left: 20px;">(3) Cross Sections</p> <p style="margin-left: 20px;">(4) Profiles</p> <p style="margin-left: 20px;">(5) Digital Terrain Models (DTM)</p> |
| | | <p>3. <u>UTILITY SUBSURFACE INVESTIGATION:</u>
 <u>Utility Quality Levels</u> are in cumulative order (least to greatest) as follows</p> |
| <u>YES</u> | <u>NO</u> | <p>3.1. Quality Level C - Existing Records: Utilities are plotted from review of available existing records that will be generated by the Engineer on the schematic and provided to the surveyor for his further creation of a Utility Map which will be turned in as a deliverable as part of this work order.</p> |
| <u>YES</u> | <u>NO</u> | <p>3.2. Quality Level B - Surface Visible Feature Survey: The Surveyor shall gather the field tied Utility Information and compare it to the existing records (if any) as provided by the Engineer and correlate with surveyed surface-visible features. The surveyor shall create a Utility Layout Map or plan layout 2D, showing the limits of the proposed project and limits of the work area required for this work authorization; including highway stations, limits within existing or proposed right of way. 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. The Layout Map will include all utilities that have been field tied – 2D Horizontal Utilities. This Layout will be provided to the Engineer and a meeting held with Engineer to identify which utilities will need to be tied down vertically. A note must be placed on the designate deliverable only that states "lines sizes are from best available records". All above ground appurtenance locations must be included in the deliverable to the Engineer. This information will be provided in the latest version of Micro Station or Geopak used by the State. The electronic file will be delivered on C.D. or DVD. A hard copy is required and must be signed, sealed, and dated by the Surveyor. Note: Determine and inform the Engineer of the approximate utility depths at critical locations. This depth indication is understood by the Engineer to be approximate only and is not intended to be used for preparing the construction plans.</p> |
| <u>YES</u> | <u>NO</u> | <p>3.3. <u>Subsurface Utility Locate (Test Hole) Service (Quality Level A), THE SURVEYOR SHALL ESTIMATE LOCATING VERTICALLY 25 UTILITES PER MILE OR AS IDENTIFIED BY THE ENGINEER.</u> Locate shall mean 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 and C. The Surveyor shall:</p> <p>3.3.1 Review the requested test hole locations that have been identified by the Engineer and Coordinate with utility owner inspectors as may be required by law or utility owner policy.</p> |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

3. *Utility Subsurface (continued)*
 - 3.3.2 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 and/or bottom of utility tied to the datum of the furnished plan.
 - Identify a minimum of two benchmarks utilized. Elevations shall be within an accuracy of 15mm (.591 inches) of utilized benchmarks.
 - 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.
 - Utility facility material(s).
 - Utility facility condition.
 - Coating/Wrapping information and condition.
 - Unusual circumstances or field conditions.
 - 3.3.3 Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate State District Office.
 - 3.3.4 Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material. The Engineer shall be responsible for the integrity of the backfill and surface restoration for a period of three years. Install a marker ribbon throughout the backfill.
 - 3.3.5 Provide complete restoration of work site and landscape to equal or better condition than before excavation.
 - 3.3.6 Plot utility location position information on the Utility Layout sheet and identify the vertical elevation and sealed by the responsible Surveyor. This information will be provided in the latest version of Micro Station or Geopak format used by the State. The electronic file will be delivered on C.D or DVD.

4. DELIVERABLES:

The deliverables to be specified in individual work authorizations for design surveys and construction surveys may be any combination of the following:

- | | |
|--|--|
| <u>YES</u> <u>NO</u>
<u>YES</u> <u>NO</u> | 4.1. Digital Terrain Models (DTM) in a format acceptable by the ENGINEER.
4.2. Final H&V Field Book Binder with all pertinent information obtained in the field for Design Surveys. Maps, plans, or sketches prepared by the SURVEYOR showing the results of field surveys. |
| <u>YES</u> <u>NO</u>
<u>YES</u> <u>NO</u>
<u>YES</u> <u>NO</u> | 4.3. Computer printouts or other tabulations summarizing the results of field surveys.
4.4. Digital files or media acceptable by the ENGINEER containing field survey data.
4.5. 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. |
| <u>YES</u> <u>NO</u>
<u>YES</u> <u>NO</u> | 4.6. Field survey notes, as electronic and/or hard copies.
4.7. A H&V Control Book identifying the basis of the Primary and Secondary Control and an 8 ½ inch by 11 inch survey control data sheet for each construction control point which shall 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. Survey control data sheets shall be signed and sealed by the supervising Registered Professional Land Surveyor. |

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
 Provided By:
SURVEYOR LPA

4. *Deliverables (continued)*

- | | |
|---|---|
| <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> | <p>4.8. Final mylar set of 11 inch by 17 inch Survey Control data sheets sign and seal by the RPLS per TxDOT guidelines.</p> <p>4.9. A digital and/or hard copy of all computer printouts of horizontal and vertical conventional traverses, GPS analysis and results, data including property descriptions with field notes and plats, right-of-way maps, and survey control data sheets to include in the H&V Field Book Binder.</p> <p>4.10. Survey reports in a format requested by the ENGINEER.</p> <p>4.11. Items indicated under the Automation Requirements Section 6.</p> |
|---|---|

5. GENERAL REQUIREMENTS:

- 5.1. Design surveys and construction surveys shall be performed under the supervision of a Registered Professional Land Surveyor currently registered with the Texas Board of Professional Land Surveying.
- 5.2. Horizontal ground control used for design surveys and construction surveys, furnished to the SURVEYOR by the ENGINEER or based on acceptable methods conducted by the SURVEYOR, shall meet the standards of accuracy required by the STATE.
- 5.3. Reference may be made to standards of accuracy for horizontal control traverses, as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the TxDOT Survey Manual, latest edition, the TxDOT GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- 5.4. Vertical ground control used for design surveys and construction surveys, furnished to the SURVEYOR by the ENGINEER or based on acceptable methods conducted by the SURVEYOR, shall meet the standards of accuracy required by the ENGINEER.
- 5.5. Reference may be made to standards of accuracy for vertical control traverses, as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the TxDOT Survey Manual, latest edition, the TxDOT GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- 5.6. Side shots or short traverse procedures used to determine horizontal and vertical locations shall meet the following criteria:
 - Side shots or short traverses shall begin and end on horizontal and vertical ground control as described above.
 - Standards, procedures, and equipment 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.
 - Standards, procedures, and equipment 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.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

Services
Provided By:
SURVEYOR LPA

5. **AUTOMATION REQUIREMENTS:**

- 6.1 Planimetric design files (DGN) shall be fully compatible with the State's *Micro Station V8* graphics program without further modification or conversion.
- 6.2 Electronically collected and processed field survey data files shall be fully compatible with the State's *CADD* systems without further modification or conversion. All files shall incorporate only those feature codes currently being used by the STATE.
- 6.3 Digital Terrain Models (DTM) shall be fully compatible with the STATE's *GEOPAK* system without further modification or conversion. All DTM files shall be fully edited and rectified to provide a complete digital terrain model with all necessary break lines.

EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

ADDITIONAL RESPONSIBILITIES

A. TRAFFIC CONTROL:

The SURVEYOR shall control traffic in and near surveying operations adequately to comply with provisions of the latest edition of the TxDOT Manual on Uniform Traffic Control Devices – Part VI and the latest edition of the Occupational Safety Manual both of which can be found on the TxDOT internet site.

In the event field crew personnel must divert traffic or close traveled lanes, a Traffic Control Plan based upon principles outlined in the latest edition of the TxDOT Manual on Uniform Traffic Control Devices – Part VI shall be prepared by the SURVEYOR and approved by the ENGINEER prior to commencement of field work. A copy of the approved plan shall be in the possession of field crew personnel on the job site at all times and shall be made available to the ENGINEER for inspection upon request.

B. INVOICING:

Payment requests shall include a SURVEYOR's invoice. With each payment request, the SURVEYOR shall submit a project status report which will, as a minimum, include the percentage of total work complete as of the date of the payment request and a description of current work activity. The percentage of total work complete shall not be based simply on the percentage of funds expended, but shall be based on the best judgment of the SURVEYOR as to the percentage of actual work complete.

C. EASEMENTS, LETTERS OF PERMISSION, ETC.

The SURVEYOR shall be responsible for delineating easements. The SURVEYOR will be responsible for securing the necessary legal instruments and obtaining all Right-of-Entries (ROEs).

D. MEETINGS:

The ENGINEER shall setup the necessary meetings with the SURVEYOR in order to assure all field information is provided on-time and products are delivered in accordance with TxDOT's specifications. SURVEYOR must attend all meetings involving data provided if requested by ENGINEER.

E. PROJECT MANAGER/SURVEYOR COMMUNICATION:

The SURVEYOR shall designate one Texas Registered Professional Land Surveyor (RPLS) to be responsible throughout the project for project surveying coordination and all communications, including billing, with the ENGINEER.

F. OFFICE LOCATION:

The SURVEYOR will perform the services to be provided under this agreement out of a local office and have a crew available to perform requested tasks within 24 hours of request. The coordinating SURVEYOR's Project Manager (RPLS) shall be accessible at all times and working from the local office.



ENVIRONMENTAL CONSULTANTS

Sound Science. Creative Solutions.®

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www.swca.com

May 23, 2023

Velma N. Garcia
Environmental Project Manager
L&G Engineering
2100 W. Exp 83
Mercedes TX 78570

Submitted electronically via email to: velma@lgengineers.com

**Proposal for Cultural Resources Investigations for the Los Ebanos Road Improvement Project,
Mission, Texas**

Dear Ms. Garcia,

SWCA Environmental Consultants (SWCA) is pleased to submit this scope of work and cost estimate to L&G Engineering to conduct cultural resource investigations on the Los Ebanos Road Improvement Project in Mission, Texas.

SWCA offers these services on a time and materials basis, not to exceed the agreed-upon compensation cap, per the following scope of services. If you find the scope of services, terms, and costs of this proposal to be acceptable, please respond to the email in which this document is attached with a notice to proceed. We look forward to the opportunity to work with you on this project. If you require further information or clarification on elements of our scope of work, please feel free to contact me at (512) 476-0891 or via email at kmiller@swca.com.

Sincerely,

A handwritten signature in black ink that reads "Kevin A. Miller". The signature is written in a cursive, flowing style.

Kevin A. Miller
Vice President - Cultural Resources

Attachment: Scope of Work and Cost Estimate

Cc: Hannah Curry (Architectural Historian), SWCA
Martin Handy – Cultural Resources Director

SCOPE OF WORK

L&G Engineering (L&G) has requested a scope of work and cost estimate from SWCA to conduct a cultural resources survey for the Los Ebanos Road Improvement Project (project). The area to be surveyed is along Los Ebanos Road, beginning at Military Road to the south and US 83 to the north (approximately 2 miles) and will include drainage improvements along approximately 2,640 feet of an existing outfall. The project crosses a historic Irrigation Canal system that is not within a historic district. The project is being funded by Hidalgo County with participation from the Federal Highway Administration (FHWA) and TxDOT as a reviewing party.

Based on this information, the project will be subject to Section 106 of the National Historic Preservation Act (NHPA). In addition, the project will be located within lands owned or controlled by Hidalgo County and the TxDOT, both political subdivisions of the State of Texas. The Antiquities Code of Texas (ACT) requires political subdivisions to notify the Texas Historical Commission (THC) of ground-disturbing activity on publicly owned or maintained lands. It is anticipated that the project will require an Antiquities Permit issued by the THC for an archaeological survey.

TASK 1: HISTORIC RESOURCES INVESTIGATIONS

PROJECT COORDINATION REQUEST (PCR)

An SWCA architectural historian meeting the Secretary of the Interior's professional qualifications will develop Project Coordination Request (PCR) documentation based on a desktop study and overview field assessment in the project area to identify the potential for aboveground historic-age properties. This task is two-fold and consists of filling out appropriate forms from the TxDOT Historic Resource Toolkit, and the assembly of supporting attachments, including maps, photographs, and supporting data. A completed PCR is submitted to the TxDOT Environmental Affairs Historic Studies (ENV-HIST) for further guidance on amending the scope of the project.

HISTORIC RECORDS AND FILE SEARCH

SWCA shall perform a records search of the project to identify non-archeological historic properties that have been previously listed in the National Register of Historic Places (NRHP), are designated as Recorded Texas Historical Landmarks, as State Antiquities Landmarks, County Historic Landmarks, or have been evaluated for NRHP eligibility by other available historic surveys. SWCA will review other available archival sources, such as historic maps and/or aerial photographs, to locate previously unidentified potential historic resources in the project's study area. Reviews will be conducted to determine whether any historic or historic-age Canals are also located within the project study area.

HISTORIC RESOURCES SURVEY AND REPORT (OPTIONAL)

As informed by the PCR, SWCA will conduct a reconnaissance survey to identify, evaluate, and document any structures or aboveground resources in the area of potential effect for the proposed project. These findings will be recorded in a report format prepared by SWCA architectural historians meeting TxDOT reporting standards in the TxDOT Historical Studies Toolkit.

TASK 2: ARCHAEOLOGICAL INVESTIGATIONS

RECORDS AND FILE SEARCH

SWCA will conduct a thorough archaeological literature and records search for the proposed project and surrounding area. SWCA will review the Texas Archeological Sites Atlas (Atlas) online database for any previously recorded

surveys and historic or prehistoric archaeological sites located in, or immediately adjacent to, the project area. If needed, an SWCA archaeologist will physically examine site files, records, and maps files housed at the Texas Archeological Research Laboratory and the THC Library. In addition, the Atlas review will include the following types of information: National Register of Historic Places (NRHP) properties, State Antiquities Landmarks (SAL), Official Texas Historical Markers, Recorded Texas Historic Landmarks, cemeteries, and local neighborhood surveys. SWCA will also review the Texas Department of Transportation's Texas Historic Overlay, a mapping / geographic information system (GIS) database with historic maps and resource information covering most portions of the state. Other critical factors that SWCA will examine include the level of previous disturbances from residential and commercial development, types of soils present, and any obvious standing structures greater than 45 years in age that appear on U.S. Geological Survey (USGS) topographic maps. Together the gathered information will allow SWCA to identify any areas that have the potential to contain significant, undocumented cultural resources and evaluate archaeological potential.

Once the formal background review and literature search is complete, SWCA will report the findings of the review and make professional recommendations for the proposed project in a TxDOT formatted report. Following a review of the report by L&G, SWCA will make any necessary edits to the document and provide the document for TxDOT review and agency consultation.

ARCHAEOLOGICAL SURVEY

Should the TxDOT determine that an archaeological survey is warranted, SWCA's Principal Investigator will prepare a scope of work (including the results of the background review) and submit it to L&G and the agencies for their review. Upon receipt and incorporation of comments, SWCA will then submit the scope of work and an Antiquities Permit application to the THC for review. In general, the THC will review the scope of work and issue the permit within 30 days of receipt of the application.

Once an Antiquities Permit has been obtained, SWCA will conduct an archaeological field survey of the approximately 2-mile-long Los Ebanos Road project area. The survey will be of sufficient intensity to determine the nature, extent, and, if possible, potential significance of any cultural resources located within the proposed project area. Subsurface explorations will be accomplished through shovel testing. The placement and quantity of these excavations will depend on the level of disturbance within the proposed project boundary and the nature of the soils, geology, and topography. The location of each shovel test will be plotted using a sub-meter accurate GPS receiver, and each test will be recorded on appropriate project field forms. Areas with previously recorded sites or other cultural resources revealed in the archival research will require additional shovel testing to explore the nature of the cultural deposits. Conversely, heavily disturbed and modified areas in the proposed project area may not be shovel tested. According to THC linear survey standards, 16 shovel tests should be excavated for every linear mile of 100-foot-wide corridor being assessed; for a project area of this length and width to be systematically assessed, approximately **55 shovel tests** would need to be excavated.

If an archaeological site is encountered, additional shovel tests will be excavated per site; based on a preliminary review of the Atlas data, there are no known archaeological sites identified within or immediately adjacent to the project area. If new archaeological sites are discovered during the investigations, they will be explored as much as possible with consideration to land access constraints. All discovered sites will be assessed for their potential significance so that recommendations can be made for proper management (i.e., avoidance, non-avoidance, or further work). Additional subsurface investigations will be conducted per THC standards at discovered sites to define horizontal and vertical boundaries. SWCA anticipates that no more than one (1) archaeological site will be identified and require delineation (**n=12 shovel tests**).

Based on the soils and geomorphic setting in the project area south of large irrigation canal and the Mission Hike and Bike Trail, SWCA proposes to excavate **4 backhoe trenches** in the project area. The primary method for quickly and

efficiently exploring these areas is with mechanical excavation (i.e., backhoe trenching). Trench placement at each location will be determined by the level of existing disturbance, the location of any impacted areas (such as construction), and the preservation potential for archaeological sites as determined by the SWCA Geoarchaeologist. All mechanical trenching will be monitored by an experienced archaeologist while excavations are underway, and all work will be performed in accordance with Occupational Safety and Health Administrations (OSHA) regulations (29 CFR Part 1926) and overseen by an OSHA competent archaeologist.

Backhoe trenches will be excavated to a depth sufficient to determine the presence/absence of buried cultural materials and allow the complete recording of all features and geomorphic information to depths of project impacts. Generally, trenches will be 1.2 to 1.5 m (4 to 5 feet) deep, 7 m (23 feet) in length, and 0.75 m (2.5 feet) wide and excavated approximately every 200 m (656 feet) along the corridor. Once the trenches / benched trenches have been excavated, an SWCA archaeologist will scrape down both walls of the trench, examining the profiles for artifacts, features, or other cultural manifestations. Stratigraphic descriptions will be recorded for each trench. All features encountered during trenching will be mapped and photographed. Upon completion of excavation, all trenches will be backfilled, leveled, and returned, as much as possible, to its original state.

If a backhoe trench contains cultural materials, these items are documented on the form and (if possible) photographed in situ during the profile recording. Additionally, a column sample is excavated down one side of the backhoe trench. The column samples are 30-x-30-cm in size and extend from the ground surface to the base of the trench or until clearly pre-cultural, Pleistocene-aged deposits are encountered. Soil from the column sample is removed in 20 cm levels and screened through ¼-inch hardware screen mesh. If the cultural materials in the backhoe trench are identified to be within intact deposits, found in association with a cultural feature (e.g., hearth), or not isolated, then additional trenches may be excavated.

SWCA will complete appropriate State of Texas Archeological Site Data Forms for each site discovered during the investigations. A detailed plan map of each site will be produced, and locations will be plotted on USGS 7.5-minute topographic quadrangle maps and relevant project maps for planning purposes. SWCA proposes a non-collection survey. Artifacts will be tabulated, analyzed, and documented in the field, but not collected. Temporally diagnostic artifacts will be described in detail and photographed in the field. This policy will reduce curation costs once the fieldwork is concluded; however, as per the stipulations of the Antiquities Permit, all paperwork and photographs generated during field investigations must be curated at an approved repository.

REPORT PREPARATION AND CURATION

SWCA will prepare a draft report of the investigations within four (4) weeks of completion of the field survey. The cultural resources report will conform to THC and Council of Texas Archeologists (CTA) reporting standards. The report will document the general nature of the project area, the methodology used in the investigations, the presence and condition of any previously recorded sites revealed in the records review, the general nature and extent of cultural resources encountered during the archaeological and architectural history surveys, recommendations on the need for further work, and the potential significance of the cultural resources for NRHP and SAL status.

SWCA will submit a draft copy of the report to L&G for review and comment. Once this has been accomplished, SWCA will incorporate any appropriate edits and will submit a revised draft report to the TxDOT and THC for their review and comment; the agency has up to 30 days to complete their reviews and provide commentary. Once the draft report has been reviewed and accepted by the THC, the report will be finalized and submitted to the THC. Field records and photographs will be curated at an approved curatorial facility, which in this case is the Center for Archaeological Research at The University of Texas at San Antonio; this curation process may take up to 30 days to complete once concurrence has been received from the agency.

ASSUMPTIONS

- L&G will provide SWCA with project maps, aerals, KMZs, and/or shapefiles prior to the investigations.
- SWCA assumes that L&G or their designee will coordinate all rights-of entry and that SWCA will have complete and unfettered access to the survey areas, allowing archaeological surveys to be conducted over approximately one, four (4)-day mobilization.
- SWCA assumes that a single scope of work and Antiquities Permit will be applicable for the project area.
- SWCA will respond to one round of comments from L&G, TxDOT, and the THC regarding the scope of work and Antiquities Permit.
- Shovel testing and backhoe trenching will be conducted per current THC standards.
- SWCA assumes that no more than one (1) archaeological site will be identified during these surveys; if additional sites are encountered, it may be necessary for SWCA to negotiate a change order to cover additional costs needed for site investigation.
- SWCA will respond to one round of consolidated comments from L&G, TxDOT, and the THC before finalizing reports.

PROPOSED SCHEDULE AND BUDGET

SWCA offers the scope of work described herein on a time and materials basis, not to exceed the agreed-upon compensation cap, per the scope of work and the terms listed in the current Services Agreement between SWCA and L&G. SWCA can provide the scope of work, in consideration of the assumptions, for an estimated cost of **\$33,183.50**.

Table 1. Summary Budget for the Los Ebanos Road Improvements Project

TASK	DESCRIPTION	TIMELINE	COST
Task 1	Historic Resource PCR	Submitted within two (2) weeks of NTP.	\$2,204.00
	Historic Records and File Search	Submitted within four (4) weeks of NTP.	\$1,653.00
	Historic Reconnaissance and Report (if required)	Submitted within four (4) weeks of fieldwork completion.	\$3,300.00
Task 2	Archaeological Records and Files Search	Conducted within two (2) weeks of NTP	\$3,225.00
	Archaeological Survey	Conducted within three (4) weeks of Antiquities Permit issuance.	\$15,225.00
	Report Preparation and Curation	Draft report submitted within four (4) weeks of fieldwork completion. Please note that the THC has up to 30 calendar days to review the draft report.	\$7,576.50
TOTAL			\$33,183.50



2023 LABOR CATEGORIES AND BILLING RATES

Environmental Consulting Services

Cultural Resources		Graphics/Media Production	
Environmental Resources		GIS/CADD Resources	
Paleontology		Technical Writing/Editing	
Scientific Resources		Training/Facilitating	
Planning Resources		Air Quality	
Subject Matter Expert IV.....	\$279.00	Specialist VIII.....	\$150.00
Subject Matter Expert III.....	\$255.00	Specialist VII.....	\$140.00
Subject Matter Expert II.....	\$230.00	Specialist VI.....	\$130.00
Subject Matter Expert I.....	\$219.00	Specialist V.....	\$117.00
Specialist XIV.....	\$230.00	Specialist IV.....	\$107.00
Specialist XIII.....	\$219.00	Specialist III.....	\$97.00
Specialist XII.....	\$215.00	Specialist II.....	\$85.00
Specialist XI.....	\$197.00	Specialist I.....	\$72.00
Specialist X.....	\$180.00	Technician II.....	\$60.00
Specialist IX.....	\$161.00		

Engineering and Special Services (Tier 1)

Subject Matter Expert IV.....	\$265.00	Specialist X.....	\$197.00
Subject Matter Expert III.....	\$265.00	Specialist IX.....	\$180.00
Subject Matter Expert II.....	\$240.00	Specialist VIII.....	\$161.00
Subject Matter Expert I.....	\$230.00	Specialist VII.....	\$150.00
Specialist XIV.....	\$255.00	Specialist VI.....	\$140.00
Specialist XIII.....	\$240.00	Specialist V.....	\$130.00
Specialist XII.....	\$230.00	Specialist IV.....	\$117.00
Specialist XI.....	\$215.00		

Direct expenses are subject to a 15% administrative markup and subcontractor expenses are subject to a 20% administrative markup. These rates do not apply to depositions or testimonies at administrative hearings and trials. Such activities fall under our Expert Witness rates, which vary by state.

A communication/data fee is invoiced at a rate of 3% of labor to cover such expenses (i.e.: cell phones, data plans, faxes, etc.).

Overtime is invoiced at 1.2 times standard rates.

Per Diem is billed at the GSA rate in place at the time of billing. Mileage is billed at the IRS mileage rate in place at the time of billing.