

**HIDALGO COUNTY**  
**Professional Engineering Services**  
**Contract # C-18-304-02-26**  
**Work Authorization Form**  
**WORK AUTHORIZATION NO. 1**

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 7 of the Agreement 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. d/b/a L&G Engineering, professional engineers of Mercedes, Texas hereinafter called "Engineer".

**PART 1. SCOPE OF WORK**

The purpose of this Work Authorization is for the Engineer to provide Engineering Services required for the preparation of the Re-evaluation of the Environmental Document, Public Involvement, Update Schematic, Update Hydrological Map, Update PS&E, Update the Permitted Utilities Coordination and Construction Management for the FM 88 from 0.025 Miles North of SH 107 (5<sup>th</sup> Ave.) North to FM 1925.

The scope of services to be provided by the Owner is identified in *EXHIBIT "A" - Scope of Services to be provided by the Owner* attached hereto.

The scope of services to be provided by the Engineer is identified in *EXHIBIT "B" - Scope of Services to be provided by the Engineer* attached hereto.

**PART 2. ESTIMATED COST**

The estimated cost for services under this Work Authorization is \$1,047,363.00. This amount is based upon the costs outlined in the Estimated **Cost Proposal** attached hereto as *EXHIBIT "D-1" - Estimated Man-hour Breakdown*.

**PART 3. PAYMENT**

Compensation and payment to the Engineer for the services established under this Work Authorization shall be made in accordance with Article 6 of the Agreement.

**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 shall serve as a Notice to Proceed as per Article 3, Period of Service on the Agreement. This Work Authorization shall terminate upon completion of scopes of the work authorization, as identified on *EXHIBIT "C" - Work Schedule*.

**PART 6. RESPONSIBILITIES AND OBLIGATIONS**

This Authorization does not waive the parties' responsibilities and obligations provided under the Agreement.

**PART 7. ACKNOWLEDGEMENT AND CONFIRMATION**

Acknowledgement and confirmation by Hidalgo County Precinct No. 1, Commissioner David Fuentes as to the content and detail of this Work Authorization No. 1.

**HIDALGO COUNTY  
COMMISSIONER PRECINCT NO. 1**

BY: \_\_\_\_\_

**PART 8. ACCEPTANCE AND APPROVAL**

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on \_\_\_\_\_ as indicated below.

**THE ENGINEER:  
L&G ENGINEERING**

**THE OWNER:  
HIDALGO COUNTY**

By:  \_\_\_\_\_  
Jacinto Garza, P.E.  
President

By: \_\_\_\_\_  
Richard Cortez  
County Judge

**ATTEST:**

\_\_\_\_\_  
By: Arturo Guajardo, Jr., County Clerk

**LIST OF EXHIBITS**

- Location Map
- Exhibit A - Services to be provided by Owner
- Exhibit B - Services to be provided by Engineer
- Exhibit C - Work Schedule
- Exhibit D-1 - Estimated Man-hour Breakdown

**EXHIBIT "A"**  
**Services to be provided by the County**

1. The County will issue work authorization to initiate all required services and designate the authorized representative of the coordination of each work authorization.
2. The County will provide copies of all subdivision plats of record and/or in the subdivision process.
3. The County will provide the Engineer with on-going guidance, timely reviews, and decisions necessary to complete services required by the work authorization in order to permit the Engineer to maintain an agreed upon project schedule.
4. The County will process all acceptable requests for payment in a timely manner.

**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

CONTROL: 0698-02-043

PROJECT/DESCRIPTION: Re-evaluation of the Environmental Document, Public Involvement, Update Schematic, Update Hydrological Map, Update PS&E, Update Permitted Utility Coord. Construction Management

LENGTH: 1.654 Miles

HIGHWAY: FM 88

LIMITS: From 0.25 Miles N of SH 107 (5<sup>th</sup> Ave.) North to FM 1925

**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 (Local Public Agency) shall mean THE COUNTY OF HIDALGO.

**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>N/A</u> | <u>N/A</u> | 2. Level of Service Analysis  |
| <u>NO</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 (Update Current Schematic)<br>(See Section 7, page 7-1 for schematic layout requirements) |
| <u>YES</u> | <u>NO</u>  | 7. Preliminary Right-of-Way Requirements (As Needed)  |
| <u>NO</u>  | <u>NO</u>  | 8. Design Concept Conference  |
| <u>N/A</u> | <u>N/A</u> | 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 - ADDITIONAL SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES**  
**AND PUBLIC INVOLVEMENT**  
(Function Code 120)

Services  
Provided By:  
**ENGINEER LPA**

**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.

a. Environmental Assessments

- |            |            |   |
|------------|------------|---|
| <u>N/A</u> | <u>N/A</u> | (1) An Environmental Assessment shall be prepared, anticipating a Categorical Exclusion.  |
| <u>N/A</u> | <u>N/A</u> | (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. |
| <u>N/A</u> | <u>N/A</u> | (3) An Environmental Assessment shall be prepared, anticipating the need for a Draft Environmental Impact Statement.  |
| <u>YES</u> | <u>N/A</u> | (4) A Consultation Reevaluation Memorandum and a Documented Reevaluation Checklist, shall be prepared in accordance with 23 CFR 771.129, anticipating approval.                       |

b. Environmental Impact Statement

- |            |            |   |
|------------|------------|---|
| <u>N/A</u> | <u>N/A</u> | (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. |
| <u>N/A</u> | <u>N/A</u> | (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.  |

**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.

- |            |            |  |
|------------|------------|--|
| <u>N/A</u> | <u>N/A</u> | a. A public meeting shall be scheduled, coordinated and conducted.   |
| <u>N/A</u> | <u>N/A</u> | b. Technical assistance for one public meeting, preparation of, and maintenance of contact lists, minutes of meeting, exhibit preparation, and other tasks outlined by the LPA, shall be provided.   |
| <u>YES</u> | <u>NO</u>  | c. A meeting with affected property owners shall be scheduled, coordinated & conducted, as necessary.  |
| <u>N/A</u> | <u>N/A</u> | d. A public hearing shall be held or an opportunity for a public hearing shall be afforded upon approval of the administratively complete document. All notices and mail outs shall be prepared and other tasks as outlined by the LPA shall be provided |
| <u>N/A</u> | <u>N/A</u> | d. A Notice of Availability (NOA) shall be published by the LPA upon approval of the environmental decision.   |

**3. Technical Reports**

All technical reports shall be prepared in accordance with TxDOT's environmental rules and guidelines. The Consultation Re-evaluation Memorandum and Documented Re-evaluation Checklist will determine which technical reports shall be prepared. Technical reports anticipated are as follows:

- |            |           |   |
|------------|-----------|---|
| <u>NO</u>  | <u>NO</u> | 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. |
| <u>YES</u> | <u>NO</u> | b. Biological Technical Report: A biological form and technical report shall be prepared in accordance with the STATE'S Biological Guidelines. The report shall include water resources, and threatened and endangered species.   |

**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>	c. Cultural Resources: Historical and archeological studies shall be completed in accordance with the STATE'S guidelines.
<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>NO</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>NO</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>	h. Water Resources: A Water Resources technical report shall be prepared in accordance with the STATE's water guidelines.
<u>YES</u>	<u>N/A</u>	<b>4. Environmental Scoping</b> The ENGINEER shall initiate the environmental scoping process and complete an environmental scoping document/risk assessment in coordination with TxDOT.
<u>YES</u>	<u>N/A</u>	<b>5. General Guidelines for Preparation of Environmental Documents</b> a. All technical reports shall be submitted electronically to TxDOT through their FTP site. b. The administratively complete document shall be prepared in accordance with the content and format of FHWA Technical Advisory T6640.8A and the TxDOT Administrative Code 43 TAC §2.44 and shall be submitted to TxDOT electronically through their FTP site. c. Upon completion and approval of the technical reports and checklists, the ENGINEER shall provide one (1) hard copy to the Client. All copies to TxDOT shall be in digital format. 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 7 - ADDITIONAL ROADWAY DESIGN CONTROLS

(Function Code 160)

Services  
 Provided By:  
ENGINEER LPA

YES      N/A  
YES      N/A

1. Geometric Design (Re-verify existing plans)
  - a. Horizontal and Vertical Alignment (~~Preliminary based on office surveys~~)
  - b. Schematic Layout
    - (1) The location of interchanges, main lanes, grade separations, frontage roads and ramps.
    - (2) Develop vertical and horizontal alignment of main lanes, ramps and cross roads at proposed interchanges or grade separations. Frontage road alignment data need not be shown on the schematic; however, it should be developed in sufficient detail to determine ROW needs. The degree of horizontal curves and vertical curve data, including "K" values, shall also be shown for ease of checking.
    - (3) For freeways, show the location and text of the proposed main lane guide signs. Lane lines and/or arrows indicating the number of lanes shall also be shown.
    - (4) A complete explanation of the sequence and methods of stage construction, if proposed, including the initial and ultimate proposed treatment of crossovers and ramps.
    - (5) The tentative ROW limits.
      - (a) Provide a roadway Design System (RDS) or (GEOPAK) computer tape of the preliminary earthwork to verify ROW requirements.
      - (b) Provide a graphics file containing the approved schematic.
    - (6) The geometric (pavement cross slopes, lane and shoulder widths, slope rates for fills and cuts) of the typical sections of proposed highway main lanes, ramps, frontage roads, and cross roads.
    - (7) The current and projected traffic volumes as provided by the TxDOT (20 year traffic projection, unless otherwise determined by the District Engineer).
    - (8) The control of access lines if Interstate or designated under House Bill 179.
    - (9) Direction of traffic flow on all roadways.
    - (10) Location and width of median openings for highway without access control.
    - (11) The geometric of speed change (acceleration, deceleration, climbing) lanes.

YES      N/A

2. General Guidelines for Project Development
  - a. Prior to preparing detailed plans for a proposed project, a preliminary schematic layout shall be prepared which indicates the general geometric features and location requirements peculiar to the project. An uncontrolled aerial mosaic will be provided for this use. Four copies of the schematic layout shall be submitted through the district to the Design Division for approval and subsequent coordination with the Federal Highway Administration (FHWA) where applicable. The layout shall be submitted for two-lane arterial highway projects on new locations and for all multi-lane highway projects. **No geometric design is to be performed until the COUNTY has given the engineer written approval of the preliminary schematic layout.**
  - b. All geometric design shall be in conformance with the State's Design Division, Operations and Procedures Manual, except where variances are permitted in writing by the STATE.
  - c. The schematic layout shall include basic information which is necessary for the proper review and evaluation including the items listed above in the checklist for schematic layout.
  - d. Handling of traffic during construction shall be a consideration in the development of preliminary designs.

**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>	2. General Guidelines for Project Development ( <i>continued</i> ) <ul style="list-style-type: none"> <li>e. Upon approval of the schematic layout by Design Division (FHWA on Federal-aid projects), it shall be the basis for an exhibit at any required public hearing prior to final development of the project. If there are any changes to the schematic after the Design Division and FHWA approval and before the public hearing, four copies of the revised schematic, as displayed at the hearing, shall be submitted either prior to or accompanying the public hearing data. If there are no changes in the schematic as displayed at the hearing, only photographs of the schematic and other displays shall be submitted with the public hearing data.</li> <li>f. For all freeway construction projects, these schematics shall show the location and text of the proposed main lane guide signs. A schematic layout shall be submitted through the district to the Traffic Operations Division, Traffic Safety Section for approval and subsequent coordination with the FHWA. All signing shall be in conformance with the Texas MUTCD.</li> <li>g. On complex projects, informal contact through the district with the Design Division and FHWA personnel is encouraged with regard to development of preliminary design prior to official schematic submission.</li> <li>h. The engineer shall furnish a project tape that is compatible with the STATE's computer system, a project listing, and a cross section plot showing the original design sections containing the earthwork input and original cross sections for the project. <b>Accuracy of the earthwork design is of utmost importance since it is the basis for contractor payments and construction staking.</b></li> </ul>
<u>N/A</u>	<u>N/A</u>	3. Exhibit for Airway/Highway Clearance Permits
<u>YES</u>	<u>N/A</u>	4. Grading Design (Re-evaluate the existing plans) <ul style="list-style-type: none"> <li>a. Refine the horizontal and vertical alignment of main lanes, frontage roads, ramps, cross roads and direct connectors based upon the approved schematic layout. Determine vertical clearances at grade separations and overpasses, taking into account the appropriate super elevation rate.</li> <li>b. Typical Sections</li> <li>c. Design Cross Sections</li> <li>d. Determine Cut and Fill Quantities</li> <li>e. Slope Stability Analysis</li> <li>f. Embankment Foundation Stability Analysis</li> <li>g. Embankment Settlement Analysis</li> </ul>
<u>YES</u>	<u>N/A</u>	
<u>YES</u>	<u>N/A</u>	
<u>YES</u>	<u>N/A</u>	
<u>N/A</u>	<u>N/A</u>	
<u>N/A</u>	<u>N/A</u>	
<u>N/A</u>	<u>N/A</u>	
<u>N/A</u>	<u>N/A</u>	5. Pavement Design
<u>N/A</u>	<u>N/A</u>	a. Prior to initiating detailed plan preparations for a project, a preliminary investigation shall be made to determine the approximate section and pavement type to be used for the pavement structure. The Flexible Pavement Design Manual for flexible pavement, "Appendix F" of the Design Division, Operations and Procedures Manual, and the current AASHTO Guide for the Design of Pavement Structures, may be used for this purpose.
<u>N/A</u>	<u>N/A</u>	b. The typical section shall also reflect proposed geometric including pavement cross slopes, lane and shoulder widths, and slope rates whenever this data have not been previously shown on a schematic submission.
<u>N/A</u>	<u>N/A</u>	c. Embankment and Subgrade <ul style="list-style-type: none"> <li>(1) Soil Core Holes (Show cost estimate with Function Code 110)               <ul style="list-style-type: none"> <li>(a) Along center line</li> <li>(b) Along center line of each roadway</li> </ul> </li> </ul> The location and minimum number of soil core holes required for this project are as follows: (To be determined when schematic is being completed)

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

---

Services  
 Provided By:  
ENGINEER LPA

- |   |   |
|---|---|
| <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><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>5. Pavement Design (<i>continued</i>)</p> <p>    c. Embankment and Subgrade (<i>continued</i>)</p> <p>        (2) Identify, interpret and summarize geologic features that affect engineering design (PI, Sulfate content, % of lime)</p> <p>    d. Traffic Data for Pavement Design</p> <p>    e. Basic Design Criteria</p> <p>    f. Life Cycle Cost Analysis(es)</p> <p>    g. Cost Data</p> <p>    h. Pavement Material Properties</p> <p>    i. Rehabilitation Investigations</p> <p>        (1) Core Hole Survey (Show cost estimate with Function Code 110)</p> <p>            (a) Determine type and depth of existing material, pavement, etc. The Engineer will determine whether to salvage ACP and FLEXBASE as well as their properties and provide this information to TxDOT.</p> |
|---|---|

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

**SECTION 8 - ADDITIONAL DRAINAGE**

(Function Code 161)

Services  
 Provided By:  
ENGINEER LPA

All hydraulic design shall be in accordance with the TxDOT's Hydraulic Manual, except where variances are permitted in writing by the LPA.

- |   |   |
|---|---|
| <p><u>N/A</u>     <u>NO</u></p> <p><u>YES</u>    <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p>   | <p>1. Hydrologic Studies, Discharges (Revise as needed)</p> <p>a. Hydrologic map showing drainage areas, contours and drainage Q's.</p> <p>b. Drainage area maps showing existing conditions and proposed improvements.</p> <p>c. Hydrologic data/discharge determination</p>   |
| <p><u>NO</u>     <u>N/A</u></p> <p><u>NO</u>     <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p> <p><u>NO</u>     <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p> <p><u>NO</u>     <u>N/A</u></p> <p><u>NO</u>     <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p> | <p>2. Hydraulic Drainage Study and Documentation (Re-evaluate and verify for correctness)</p> <p>a. Hydraulic computations</p> <p>(1) Storm water detention available within the ROW (linear ft. along side drain ditch).</p> <p>(2) Storm water detention required outside the ROW (as per HCDD#1)</p> <p>(3) Culverts</p> <p>(4) Bridge waterways</p> <p>(5) Channels</p> <p>(6) Storm sewers/inlets</p> <p>(7) Pump stations</p> <p>(8) Storm Water Management facilities</p> <p>(9) Other</p> <p>(a) Irrigation Canals/Siphons</p> <p>b. Hydraulic report(s)</p> <p>c. Federal Emergency Management Agency (FEMA) floodway requirements</p> <p>d. Determine impact of proposed drainage plan on the following receiving stream(s)</p> <p>(1) Hidalgo County Drainage District Outfalls</p> <p>(2) All Irrigation District Outfalls impacted</p> |
| <p><u>NO</u>     <u>N/A</u></p> <p><u>NO</u>     <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p>   | <p>3. Layout, Structural Design and Detailing of Drainage Features</p> <p>a. Culverts</p> <p>(1) New culverts</p> <p>(2) Culvert widening and/or lengthening</p> <p>(3) Culvert replacements</p> <p>b. Storm sewers</p> <p>(1) New storm sewers</p> <p>(2) Modify existing storm sewers</p> <p>(3) Inlets</p> <p>(4) Manholes</p> <p>(5) Trunk lines</p> <p>c. Pump stations</p> <p>d. Subsurface drainage at retaining walls</p> <p>e. Outfall channel(s) within the ROW</p> <p>f. Outfall channel(s) outside the ROW</p> <p>g. Detention Pond(s) within the ROW</p> <p>h. Detention Pond(s) outside the ROW</p> <p>i. Summary of Quantities</p> <p>j. Storm Water Management facilities</p>   |
| <p><u>YES</u>    <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p> <p><u>YES</u>    <u>N/A</u></p>   | <p>4. Storm Water Pollution Prevention Plan (SW3P)</p>  |
| <p><u>YES</u>    <u>N/A</u></p> <p><u>NO</u>     <u>N/A</u></p>   | <p>5. Scour Evaluation - Waterway Structures only (to be completed by Bridge Engineer under FC 170.</p>   |

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


---

**SECTION 9 - ADDITIONAL SIGNING, MARKINGS AND SIGNALIZATION**  
(Function Code 162)

Services  
Provided By:  
ENGINEER LPA

- |            |            |   |
|------------|------------|---|
| <u>YES</u> | <u>N/A</u> | 1. Signing and Markings Layout <ul style="list-style-type: none"> <li>a. Requirements (Separate Layout) <ul style="list-style-type: none"> <li>(1) Roadway layout</li> <li>(2) Center line with station numbering</li> <li>(3) ROW lines</li> <li>(4) Culverts and other structures that present a hazard to traffic</li> <li>(5) Location of utilities, if not shown on plan and profile</li> <li>(6) Existing signs to remain, to be removed, to be relocated</li> <li>(7) Proposed signs (illustrated and numbered)</li> <li>(8) Existing overhead sign bridges to remain, to be revised, removed or relocated</li> <li>(9) Proposed overhead sign bridges indicating location by plan layout (electrical details need not be shown on this layout)</li> <li>(10) Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation</li> <li>(12) Quantities of existing pavement markings to be removed</li> <li>(13) Proposed delineators and object markers</li> </ul> </li> <li>b. For projects involving freeway to freeway or other types of directional interchanges, projects including left-hand ramps or connections, the following information must be provided: <ul style="list-style-type: none"> <li>(1) The location of interchanges, main lanes, grade separations, frontage roads and ramps</li> <li>(2) complete explanation of the sequence and methods of stage construction, where applicable, which would include the initial and ultimate proposed treatment of crossovers and ramps</li> <li>(3) The number of lanes in each section of proposed highway and the location of changes in numbers of lanes</li> <li>(4) The projected traffic volumes as provided by the STATE (20 year traffic projection, unless otherwise determined by the District Engineer)</li> <li>(5) Tentative ROW limits</li> <li>(6) Direction of traffic flow on all roadways</li> <li>(7) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations</li> </ul> </li> </ul> |
| <u>YES</u> | <u>N/A</u> | 2. Summary of Small Signs Tabulation  |
| <u>NO</u>  | <u>N/A</u> | 3. Summary of Large Signs Tabulation including all Guide Signs  |
| <u>YES</u> | <u>N/A</u> | 4. Sign Detail Sheets <ul style="list-style-type: none"> <li>a. All signs except route markers</li> <li>b. Design details for large guide signs</li> <li>c. Dimensions of letters, shields, borders, corner radii etc.</li> <li>d. Designation of shields attached to guide signs</li> <li>e. Designation of arrow used on exit direction signs</li> </ul>  |

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

---

Services  
 Provided By:  
ENGINEER LPA

- |   |  |
|---|--|
| <p><u>YES</u>      <u>N/A</u></p> <p><u>NO</u>        <u>N/A</u></p> <p><u>NO</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><u>N/A</u>        <u>N/A</u></p> <p><u>YES</u>        <u>N/A</u></p> | <p>5. Traffic Signals</p> <p>a. Development of Justification (Warrant) Data</p> <p>(1) Location Map<br/>       Relationship of proposed installation to other traffic signals, highways, business areas and traffic generators</p> <p>(2) Photographs as appropriate</p> <p>(3) Accident data as appropriate</p> <p>(4) Vehicle volumes (provided by TxDOT)</p> <p>(a) Existing</p> <p>(b) Estimated</p> <p>(c) Projected</p> <p>(d) Pedestrian</p> <p>(5) Traffic Survey - Count Analysis</p> <p>(6) Recommendation based on above data</p> <p>b. Layout</p> <p>(1) Title Sheet (when applicable)</p> <p>(a) Describe the location</p> <p>(b) Type of installation</p> <p>(c) Area map with project limits for each location</p> <p>(d) Index of sheets</p> <p>(e) Space for official signatures</p> <p>(2) Estimate and quantity sheet (when applicable)</p> <p>(a) List of all bid items</p> <p>(b) Bid item quantities</p> <p>(c) Specification item number</p> <p>(d) Paid item description and unit of measure</p> <p>(3) Basis of estimate sheet (list of materials)</p> <p>(4) General notes and specification data sheet</p> <p>(5) Condition diagram</p> <p>(a) Highway and intersection design features</p> <p>(b) Roadside development</p> <p>(c) Traffic control including illumination</p> <p>(6) Plan sheet(s)</p> <p>(a) Existing traffic control that will remain (signs and markings)</p> <p>(b) Existing utilities</p> <p>(c) Proposed highway improvements</p> <p>(d) Proposed installation</p> <p>(e) Proposed additional traffic controls</p> <p>(f) When applicable, proposed conduit for Railroad interconnect with standard details for runs under tracks.</p> <p>(g) Proposed illumination attached to signal poles.</p> <p>(7) Notes for plan layout</p> <p>(8) Elevation sheet(s) (span wire design)</p> <p>(9) Phase sequence diagram(s)</p> <p>(a) Signal locations</p> <p>(b) Signal indications</p> <p>(c) Phase diagram</p> <p>(d) Signal sequence table</p> <p>(e) Flashing operation (normal and emergency)</p> <p>(f) Preemption operation (when applicable)</p> <p>(g) Interval timing, cycle length and offset</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>	5. Traffic Signals <i>(continued)</i>
		b. Layout <i>(continued)</i>
		(10) Construction detail sheets(s)
		(a) Poles (TxDOT standard sheets)
		(b) Detectors
		(c) Pull Box and conduit layout
		(d) Controller Foundation standard sheet
		(11) Marking details (when applicable)
		(12) Barricade and warning sign standard sheet and any special details for work zone traffic control for special conditions
		(13) Aerial or underground interconnect details (when applicable)
		c. General Requirements
		(1) Contact local utility company
		(a) Confirm power source
		(b) Discuss route of aerial or underground interconnect cable (when applicable)
		(c) Adjustment of overhead utility lines
<u>YES</u>	<u>N/A</u>	(2) Prepare governing specifications and special provisions list
<u>YES</u>	<u>N/A</u>	(3) Prepare project estimate
<u>YES</u>	<u>N/A</u>	d. Summary of Quantities

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

SECTION 10 - ADDITIONAL MISCELLANEOUS (ROADWAY)

(Function Code 163)

Services  
Provided By:  
ENGINEER LPA

- |            |            |  |   |
|------------|------------|--|---|
|            |            |  | 1. Retaining Walls  |
|            |            |  | a. Structural Details   |
| <u>N/A</u> | <u>N/A</u> |  | (1) Cast-in-Place Cantilever at _____ locations. (TxDOT Standard Retaining Wall)*   |
| <u>N/A</u> | <u>N/A</u> |  | (2) Tiedback Retaining Wall at _____ location. (TxDOT standard retaining wall)  |
| <u>N/A</u> | <u>N/A</u> |  | (3) Specialized Retaining Wall at _____ locations (Unique Design).*   |
|            |            |  | b. Alternate Patented Retaining Walls at all locations. (Layouts Only)**  |
| <u>N/A</u> | <u>N/A</u> |  | (1) Mechanically Stabilized Earth   |
| <u>N/A</u> | <u>N/A</u> |  | (2) Concrete Block Wall Systems   |
| <u>N/A</u> | <u>N/A</u> |  | c. Retaining Wall Layout (PLAN)   |
|            |            |  | (1) Designation of reference line   |
|            |            |  | (2) Beginning and ending retaining wall stations  |
|            |            |  | (3) Station of each retaining wall joint***   |
|            |            |  | (4) Offset from reference line  |
|            |            |  | (5) Horizontal curve data   |
|            |            |  | (6) Number of retaining wall panels and lengths***  |
|            |            |  | (7) Total length of wall  |
|            |            |  | (8) Indicate face of wall   |
|            |            |  | (9) All wall dimensions and alignment relations (alignment data as necessary)   |
|            |            |  | (10) Soil core hole locations   |
| <u>N/A</u> | <u>N/A</u> |  | d. Retaining Wall Layout (ELEVATION)  |
|            |            |  | (1) Top of wall elevations at each joint or intervals***  |
|            |            |  | (2) Existing and finished ground line elevations  |
|            |            |  | (3) Height of stem at each joint***   |
|            |            |  | (4) Wall panel designations***  |
|            |            |  | (5) Top of footing elevations***  |
|            |            |  | (6) Limits of measurement for payment****   |
|            |            |  | (7) Type, limits and anchorage details of railing (If applicable)   |
|            |            |  | (8) Top and bottom of wall profiles and soil core hole data plotted at correct station and elevation. The plot shall be at the same scale as the wall profile. Ground water elevations and the observation date shall be shown.                         |
| <u>N/A</u> | <u>N/A</u> |  | e. Foundation Studies (Show cost estimate with Function Code 110)   |
| <u>N/A</u> | <u>N/A</u> |  | (1) The soil core holes shall be obtained at approximately 200 foot intervals along retaining wall alignments. The core holes shall extend 25 feet below the footing elevation.   |
| <u>N/A</u> | <u>N/A</u> |  | f. Stability Analysis (the ENGINEER shall estimate this task as part of his bid to complete the work).  |
| <u>N/A</u> | <u>N/A</u> |  | g. Estimate   |
| <u>N/A</u> | <u>N/A</u> |  | h. Summary of Quantities  |
| <u>N/A</u> | <u>N/A</u> |  | i. Typical X-section.   |
| <u>N/A</u> | <u>N/A</u> |  | j. General Guidelines for Retaining Walls   |
|            |            |  | (1) The ENGINEER shall make final design calculations and final detail drawings in accordance with standard requirements of the Texas Department of Transportation. <b>The designer and checker shall check all calculations and initial each page.</b> |
|            |            |  | (2) The ground water level should be observed at the water strike.  |
|            |            |  | (3) For purposes of uniformity statewide, soil core hole data shall be shown on layouts as illustrated in the Bridges and Structures Foundation Exploration and Design Manual.  |
|            |            |  | (4) Foundation exploration shall conform to the requirements set forth in Administrative Circular No. 25-84, Administrative Circular 33-87 and Administrative Circular No. 25-92.   |

**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>	
		<p>2. Traffic Control Plan, Detours and Sequence of Construction</p> <p>Traffic Control Plans (TCP) are required for all projects. A detailed TCP shall be developed when traffic handling during construction involves complications for which a feasible solution is not covered by the Texas MUTCD or the current Barricade and Construction (BC) Standards. The following items are required on all Traffic Control Plan Layouts:</p> <ol style="list-style-type: none"> <li>a. The sequence of construction and method of handling traffic during each phase.</li> <li>b. The existing and proposed traffic control devices that will be used to handle traffic during each construction sequence. Include signals, regulatory signs, warning signs, construction warning signs, guide signs, route markers, construction pavement markings, channelizing devices, portable changeable message signs, flashing arrow boards, barricades, barriers, etc.</li> <li>c. The proposed traffic control devices (stop signs, signals, flag person, etc.) at grade intersections during each construction sequence.</li> <li>d. Where detours are provided, typical cross sections shall be shown.</li> <li>e. Road construction work hours shall be developed after an investigation of the traffic volumes has been performed.</li> </ol>
<u>N/A</u>	<u>N/A</u>	<p>3. Illumination</p> <ol style="list-style-type: none"> <li>a. Preliminary Roadway Illumination Layout and Circuit Layout               <ol style="list-style-type: none"> <li>(1) For projects involving freeway to freeway or other types of directional interchanges and projects including left-hand ramps or connections, provide the following:                   <ol style="list-style-type: none"> <li>(a) The location of interchanges, main lanes, grade separations, frontage roads and ramps</li> <li>(b) A complete explanation of the sequence and methods of stage construction, where applicable, which would include the initial and ultimate proposed treatment of crossovers and ramps</li> <li>(c) The number of lanes in each section of proposed highway and the location of changes in the number of lanes</li> <li>(d) The projected traffic volumes as provided by the STATE (20 year traffic projection unless otherwise determined by the district engineer)</li> <li>(e) Tentative ROW limits</li> <li>(f) Direction of traffic flow on all roadways</li> <li>(g) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations</li> </ol> </li> </ol> </li> <li>b. Final Roadway Illumination and Electrical Circuit Layouts               <ol style="list-style-type: none"> <li>(1) Roadway layout showing pavement edges, shoulders, curbs, retaining walls, etc.</li> <li>(2) Center line with station numbering.</li> <li>(3) ROW lines.</li> <li>(4) Symbol legend. Use department standard symbols for lighting and electrical.</li> <li>(5) Culverts and other structures that present a hazard to traffic.</li> <li>(6) Location of underground utilities, if not shown on plan profile.</li> <li>(7) Location of overhead electrical lines, both crossing and parallel to ROW.</li> <li>(8) Existing sign lighting circuits and roadway illumination to remain, to be removed, to be relocated.</li> <li>(9) Existing service poles, electrical circuits, ground boxes, etc.</li> <li>(10) Contact electric utility for service pole locations, voltage characteristics.</li> <li>(11) Location of proposed sign lighting circuits and roadway illumination.</li> <li>(12) Proposed electrical circuits.</li> <li>(13) Tabulation of all quantities including proposed, existing to be relocated, existing to be removed. The layout sheet quantities and lighting summary shall be shown. Tabulations to include estimated quantity with a column for final quantities.</li> </ol> </li> </ol>
<u>N/A</u>	<u>N/A</u>	

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

Services		
Provided By:		
<u>ENGINEER</u>	<u>LPA</u>	
<u>N/A</u>	<u>N/A</u>	3. Illumination <i>(continued)</i>
		c. General Guidelines for Illumination (If applicable) The ENGINEER shall submit to the LPA, well in advance of PS&E due date, the roadway illumination and electrical circuit layout sheets for review by the STATE. Two copies of the layout sheets are to be submitted. One copy will be returned to the Engineer showing corrections that are to be made by the ENGINEER. When final plan submission is made, the ENGINEER shall provide a written statement regarding completion of the corrections.
<u>YES</u>	<u>N/A</u>	4. Miscellaneous Drafting/Standards
<u>N/A</u>	<u>N/A</u>	a. Erosion Control
		b. Landscape Development
<u>YES</u>	<u>N/A</u>	5. Compute and Tabulate Quantities
<u>YES</u>	<u>N/A</u>	6. Special Utility Details (Irrigation lines)
		7. Miscellaneous Structures
		a. Type of Structure*
		(1) Overhead Sign Bridges (O.S.B.) Modifications or special O.S.B. designs shall be prepared using the same design assumptions that are used for the standard O.S.B. structures.
<u>N/A</u>	<u>N/A</u>	(a) New O.S.B. structure(s)
<u>N/A</u>	<u>N/A</u>	(b) Structural evaluation of existing O.S.B. structure(s) that are to remain in place or to be relocated.
<u>N/A</u>	<u>N/A</u>	(2) High Mast Illumination Poles (HMIP)
<u>N/A</u>	<u>N/A</u>	(3) Traffic Signal Supports
<u>N/A</u>	<u>N/A</u>	(4) Conventional Illumination Poles
<u>N/A</u>	<u>N/A</u>	(5) Sound Barrier Walls
<u>N/A</u>	<u>N/A</u>	b. Checklist for Layouts
		(1) Reference appropriate O.S.B. standard
		(2) Drilled shaft size and length
		(3) Soil strength used for design {indicate basis and boring(s) used}
		(4) Design height
		(5) Tower heights
		(6) Leg spacings
		(7) Design wind speed
<u>N/A</u>	<u>N/A</u>	c. Foundation Studies (Show cost estimate with Function Code 110) The soils exploration requirements for miscellaneous structures on this project are as follows: (To be provided by the Engineer on an as-needed basis)
		8. Agreements
<u>N/A</u>	<u>N/A</u>	a. Utility Agreements
<u>YES</u>	<u>N/A</u>	b. Exhibits for Utility Agreements
<u>N/A</u>	<u>N/A</u>	c. Railroad Agreements
		d. Railroad Exhibits
<u>N/A</u>	<u>N/A</u>	(1) Railroad Underpasses
<u>N/A</u>	<u>N/A</u>	(2) Railroad Overpasses
<u>N/A</u>	<u>N/A</u>	(3) Railroad Grade Crossing (Replanking)
<u>N/A</u>	<u>N/A</u>	(4) Railroad Grade Crossing Warning Systems (Signals)
<u>N/A</u>	<u>N/A</u>	(5) Other Miscellaneous Sketches for Railroads
<u>N/A</u>	<u>N/A</u>	e. Traffic Signal Agreements
<u>N/A</u>	<u>N/A</u>	f. Exhibits for Traffic Signal Agreements
<u>N/A</u>	<u>N/A</u>	9. Estimate
<u>N/A</u>	<u>N/A</u>	10. Specifications and General Notes

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

---

**SECTION 11 – PROJECT MANAGEMENT**  
(Function Code 164)

**Meetings, Coordination & Support for Project Management**

The Engineer shall meet and coordinate with the Texas Department of Transportation, Hidalgo County Metropolitan Planning Organization, City of Elsa, Hidalgo County and the Hidalgo County Drainage District No. 1 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.

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

---

**SECTION 12 - ADDITIONAL BRIDGE DESIGN**  
(Function Code 170)

Services  
Provided By:  
**ENGINEER LPA**

			<u>NUMBER REQUIRED</u>
		<b>1. Preparation of Structural Details</b>	
		<b>a. New Structure(s)</b>	
<u>N/A</u>	<u>N/A</u>	(1) Underpass(es)	_____
<u>N/A</u>	<u>N/A</u>	(2) Overpass(es)	_____
<u>N/A</u>	<u>N/A</u>	(3) Main Lanes	_____
<u>N/A</u>	<u>N/A</u>	(4) Direct Connector(s)	_____
<u>N/A</u>	<u>N/A</u>	(5) Ramp Bridge(s)	_____
<u>N/A</u>	<u>N/A</u>	(6) Waterway Structure(s)**	_____
<u>N/A</u>	<u>N/A</u>	(7) Pedestrian Structure(s)	_____
<u>N/A</u>	<u>N/A</u>	(8) Utility Structure(s)	_____
<u>N/A</u>	<u>N/A</u>	(9) Railroad Underpass(es)	_____
<u>N/A</u>	<u>N/A</u>	(10) Railroad Overpass(es)	_____
<u>N/A</u>	<u>N/A</u>	(11) Bridge Classification Culvert(s)**	_____
<u>N/A</u>	<u>N/A</u>	(11) Alternate Structural Designs	_____
<u>N/A</u>	<u>N/A</u>	(12) Alternate Foundation Design	_____
		Total New Structures =	_____
		<b>b. Existing Structure(s)</b>	
<u>N/A</u>	<u>N/A</u>	(1) Bridge Widening, Rehabilitation and/or Modification of Existing Structure(s)	_____
<u>N/A</u>	<u>N/A</u>	(2) Bridge Replacement	_____
<u>N/A</u>	<u>N/A</u>	(3) Raising Bridge Elevation	_____
<u>N/A</u>	<u>N/A</u>	(4) Bridge Classification Culvert(s) Widening and/or Modification of Existing Structures(s)	_____
<u>N/A</u>	<u>N/A</u>	(5) Railroad Overpass(es)	_____
<u>N/A</u>	<u>N/A</u>	(6) Railroad Underpass(es)	_____
		Total Existing Structures =	_____

\* Contour plots of bridge gores are required for projects involving ramps within the main bridge in order to ensure project transition. The Template data and vertical alignment necessary to generate the contour plots are also required.

\*\* In the early stages of a project, it sometimes cannot be determined whether a Waterway Bridge Structure or a Bridge Classification Culvert (20' minimum length) will be required. Therefore, the ENGINEER should be aware that either of these two types of bridges may be reclassified later in the project for the other type when more information is known that would dictate a change in structure classification.

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

---

Services  
Provided By:  
ENGINEER LPA

- N/A      N/A      2. Preparation of Bridge Layouts (each bridge)
- a. Bridge Layouts (PLAN)
- (1) Horizontal curve information or bearing of centerline.
  - (2) Including horizontal, vertical, and template information of all roadways or railroads crossed.
  - (3) Bearing of center line or reference line.
  - (4) Skew angle(s).
  - (5) Slope for header banks and approach fills.
  - (6) Control stations at beginning and ending of bridge (with deck elevation), intersections, etc.
  - (7) Approach pavement and crown width.
  - (8) Bridge roadway width and curbs, face of rail, shoulders, or sidewalks.
  - (9) Approach slab and curb returns.
  - (10) Limits and type of riprap.
  - (11) Proposed features under structure.
  - (12) Location of profile grade line.
  - (13) North arrow.
  - (14) Typical bridge roadway section including preliminary proposed beam types and spacings.
  - (15) Cross slope and super elevation data.
  - (16) Minimum horizontal clearances when applicable.
    - (a) Dimensions to features that control clearances. (Calculate and indicate points of minimum vertical and horizontal clearances.
  - (17) Location of soil core holes (station and offset), shown on layout.
  - (18) Bent stations and bearings.
  - (19) Retaining wall locations.
  - (20) Traffic flow directional arrows.
  - (21) Railing types shown.
  - (22) Joint types and seal size, if used.
  - (23) Beam line numbers consistent with span details.
  - (24) Critical horizontal clearances (location of railroad tracks, nearby structures and utilities).
  - (25) Bearings of utilities.
- b. Bridge Layouts (ELEVATION)
- (1) Type of foundation.
  - (2) Finished grade elevations at beginning and end of bridge.
  - (3) Overall length of structure.
  - (4) Length, type of spans and units.
  - (5) Type of railing.
  - (6) Minimum calculated vertical clearance(s).
  - (7) Existing and proposed ground lines clearly marked.
  - (8) Grid elevations and stations.
  - (9) Bent numbers encircled.
  - (10) Stationing of bridge compatible with grid stations.
  - (11) Standard title.
  - (12) Profile grade data.
  - (13) Type of riprap.
  - (14) Soil Core Hole information with penetrometer test data shall be shown on the bridge layout at correct station, elevation and scale.
  - (15) Fixed/expansion condition of all bents.
  - (16) Column "H" heights.
  - (17) Number, size and length of foundations.

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

---

Services  
 Provided By:  
ENGINEER LPA

- |   |  |
|---|--|
| <p><u>N/A</u>      <u>N/A</u></p>   | <p>2. Preparation of Bridge Layouts (each bridge) <i>(continued)</i><br/>       c. Additional layout requirements for waterway structures and bridge classification culverts.<br/>           (1) Design and 100-year peak discharges.<br/>           (2) Design and 100-year high water (HW) (Recorded HW and date if available)<br/>           (3) Natural and through-bridge velocities for design and 100-year floods.<br/>           (4) Calculated backwater for design and 100-year floods.<br/>           (5) Direction of flow for waterway crossings.<br/>           (6) Contours for water crossing.</p>   |
| <p><u>N/A</u>      <u>N/A</u><br/> <u>N/A</u>      <u>N/A</u></p>                                 | <p>3. Bridge Classification Culvert, Estimate, Quantities, and Specifications (each bridge)<br/>       4. Foundation Studies (Show cost estimate with Function Code 110)<br/>       The minimum number of soil core holes shall be obtained in accordance with Section 1-301 of the Bridges and Structures Foundation Exploration and Design Manual. Soil core holes shall be obtained at approximately (300 foot) intervals along bridge alignments. Texas cone penetrometer (TCP) tests shall be conducted in all soil types encountered at a maximum of (10 foot) intervals. If single column bents with single drilled shafts are planned, TCP values should be taken at close intervals in the upper (15 feet).</p> |
| <p><u>N/A</u>      <u>N/A</u><br/> <u>N/A</u>      <u>N/A</u><br/> <u>N/A</u>      <u>N/A</u></p> | <p>5. Bridge Total Quantities and Cost Estimates (each bridge)<br/>       6. Bridge Special Provisions and Specifications (each bridge)<br/>       7. Bearing seat elevations for each beam or girder. Top of cap elevations for non-beam type structures.</p>   |
| <p><u>N/A</u>      <u>N/A</u></p>   | <p>8. General Guidelines for Bridge Design<br/>       a. The ENGINEER shall prepare a bridge layout of each bridge structure for Company's review and approval. The bridge layout shall be in conformance with the Bridges and Structures, Operation and Planning Manual and the Bridges and Structures, Detailing Manual. Soil core hole data is not required for submission of the preliminary bridge layout. <b>No bridge design work is to be performed until the LPA has given the engineer written approval of the preliminary bridge layout.</b></p>  |

Several months may be required, after the preliminary bridge layout is submitted, for the district to obtain approval and/or permits from the following:

- TxDOT Design Division, when applicable:
  - Railroad Companies
  - FHWA
  - U.S. Army Corps of Engineers
  - U.S. Coast Guard
  - Bureau of Reclamation
  - Texas Parks and Wildlife
  - Others

Therefore, the bridge layout should be submitted at the earliest possible date and the ENGINEER's design schedule should reflect this.

- b. All bridge superstructure and substructure design will be reviewed by the Design Division for purposes of verifying structural integrity and optimization of design.
- c. The final bridge layout shall be in conformance with the Bridges and Structures, Operation and Planning Manual and the Bridges and Structures Detailing Manual.

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

---

Services  
Provided By:  
ENGINEER LPA

8. General Guidelines for Bridge Design (*continued*)
- d. The ENGINEER shall make final design calculations and final detail drawings in accordance with standard requirements of the Texas Department of Transportation. All bridge design shall be in conformance with the Texas Department of Transportation Bridges and Structures Operation and Planning Manual, the current American Association of State Highway and Transportation Officials or American Railway Engineers Association Specifications for railway structures, Standard Specifications for Highway Bridges, including applicable interim specifications, and the Bridges and Structures, Foundation Exploration and Design Manual. The ENGINEER shall furnish design calculations to the Design Division. **The designer and checker shall check all calculations and initial each page.**
  - e. Structural steel or prestressed concrete shop drawings, form work drawings and false work drawings are not part of the design requirements. However, contract plans shall be in sufficient detail to permit the preparation of complete shop details for fabrication and erection.
  - f. Elements of the bridge (abutments, bents, slabs, etc.) shall be detailed to a metric scale of 1:20 (1/2 inch equals one foot architect scale) or 1:50 (1/4 inch equals one foot architect scale) to provide clear legible drawings when the drawings are reduced. Lettering shall be a minimum size of 4 millimeters (5/32 inch) height for hand lettering and 140 for lettering by computer-aided design and drafting (CADD).
  - g. Standard drawings for beams, diaframs, railings, armor joints, riprap, etc., shall be furnished to the ENGINEER upon request. These standards shall not be redrawn by the ENGINEER nor shall his title block be transferred to the standard drawings. Modifications to the standards, if necessary, shall be clearly identified and designated by "MOD" in the standard title. Specific special drawings prepared by the ENGINEER shall not be identified as standards.
  - h. Bridge layout sheets shall have the same vertical and horizontal scale. Usually a metric scale of 1:100 (1 inch = 10 feet) or 1:200 (1 inch = 20 feet) is used. Sections of existing and proposed structures usually have a metric scale of 1:50 (1 inch = 5 feet). Soil core holes shall be positioned and labeled on the bridge layout plan view. The core hole data shall be plotted at the correct station, at the same vertical scale, and at the proper elevation unless otherwise approved by the Design Division.
  - i. APPENDIX C, "GENERAL PLAN CHECKLIST", on pages C-1 thru C-5, more specifically relates various sheet types, details, summaries, standards, etc.
  - j. For purposes of uniformity statewide, soil core hole data shall be shown on layouts as illustrated in the Bridges and Structures Foundation Exploration and Design Manual.
  - k. Geometry and structural design errors found after acceptance of bridge plans shall be promptly corrected by the consultant at no cost to the Company.

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

---

**SECTION 13 - CONSTRUCTION PHASE SERVICES**  
(Function Code 320)

Services  
Provided By:  
ENGINEER CITY/COUNTY

YES    NO    **CONSTRUCTION MANAGEMENT SERVICES:**

The ENGINEER will provide engineering, geotechnical testing and support services for and during the construction of the Project or portions of the Project approved by the COUNTY. Specific (basic and special) services for CONSTRUCTION MANAGEMENT AND SUPPORT by the ENGINEER will include the following:

**Construction Bidding:**

- N/A    NA    1) The ENGINEER will furnish the COUNTY the necessary copies of approved plans, specifications, notices to bidders, and proposals as prepared under PS&E.
- N/A    NA    2) The ENGINEER will assist the COUNTY on the tabulation of bids, recommendations to the Owner as to the proper action on all bid proposals received, and the preparation of formal contract documents for the award of each construction contract.

**Construction Contract Administration and Inspection:**

- YES    NO    3) In general, the ENGINEER will provide the management and engineering support/data required for consultation and advisement to the COUNTY and act as the COUNTY's representative as provided in the General Condition of the Construction Contract.
- N/A    NA    4) The ENGINEER will coordinate and conduct a pre-construction conference (if required).
- YES    NO    5) Defects and Deficiencies. The ENGINEER will use his best efforts to protect the COUNTY against defects and deficiencies in the work of the Contractor. The ENGINEER will promptly notify the COUNTY of any such defect or deficiency, and take all steps possible to require the Contractor to correct the defect or deficiency.
- N/A    NA    6) Contractor Payment. The ENGINEER will review quantities as submitted by the Contractor and will coordinate with the COUNTY for the preparation of the monthly and final estimates for payment to the Contractor.
- 7) The ENGINEER will provide Project site inspection of the authorized construction contract as follows:
- YES    NO    a) Project Engineer. The ENGINEER will provide visits by the Project Engineer or a competent representative of the ENGINEER to the site of construction for the purpose of monitoring the Contractor's progress and conformance to the construction contract plans and specifications.
- N/A    N/A    b) Resident Engineer and/or Construction Inspector(s). The ENGINEER will furnish the services of a Resident Engineer and/or Construction Inspector(s) for on the site inspection construction to monitor/inspect the Contractor's daily progress and conformance to TxDOT's PS&E specifications.

**Miscellaneous Technical Activities:**

- YES    NO    8) Shop Drawings. The ENGINEER will review and check all shop or working drawings furnished by the Contractor.

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

<u>N/A</u>	<u>N/A</u>	9) Control of Materials & Equipment. The ENGINEER will provide inspection of all materials and equipment furnished/used by the Contractor as follows:
		<ul style="list-style-type: none"> <li>a) Review and record all laboratory, shop and mill tests of materials and equipment for compliance with the construction contract specifications.</li> <li>b) Observe and/or perform Project record testing and/or independent assurance testing as outlined in the construction contract specifications.</li> </ul>
<u>YES</u>	<u>NO</u>	10) Change Orders. When applicable the ENGINEER will prepare the engineering data, including plan sheet drawings, specifications, and estimates, for the preparation of construction contract change orders, which may be required due to actual field conditions encountered or new requirements directed by the COUNTY.
<u>N/A</u>	<u>N/A</u>	11) As Built Drawings. The ENGINEER will develop as built drawings to depict the work as actually constructed. The COUNTY will be furnished five (5) set of prints.

N/A      N/A      **CONSTRUCTION MATERIAL TESTING:**

The ENGINEER will provide the COUNTY with construction material testing services for the Project. The services to be provided include sampling and testing of all construction materials as required by the project plans and specifications. All sampling frequencies and test procedures will be performed in general accordance with the Texas Department of Transportation TEX methods (or ASTM methods as required) as outlined in the Guide Schedule for Sampling and Testing (11/07). The construction material testing includes, but is not limited to the following:

- (a) Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.
- (b) Field density testing of soils and base materials to ensure proper compaction as required by project plans and specifications.
- (c) Field sampling and testing of fresh concrete, and laboratory testing of hardened concrete to determine compliance with project plans and specifications.
- (d) Field compaction testing of asphalt to ensure proper compaction during lay down operations.
- (e) Field inspection, sampling and laboratory testing of asphalt materials to determine their material properties and their compliance with project plans and specifications.
- (f) The ENGINEER will be responsible for concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site.
- (g) Any additional laboratory testing as required/requested by the COUNTY and the project plans and specifications.
- (h) Providing accurate and timely reports to the COUNTY and all/other recipients as designated by the COUNTY.
- (i) The ENGINEER will verify the concrete and asphalt designs to assure it is in accordance with TxDOT specifications to be developed by the contractor.

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

---

**ADDITIONAL RESONSIBILITIES**

**Easements, Letters of Permission, Etc.**

The ENGINEER shall be responsible for delineating easements. The ENGINEER will be responsible for securing the necessary legal instruments.

**Coordination of Utilities**

The ENGINEER shall furnish the LPA prints of a project layout which will be distributed by ENGINEER to various utility companies to determine which utilities are in the limits of the project. These shall be preliminary layouts. Upon completion of the preliminary drainage plans and U&D sheets, the ENGINEER shall distribute to the various utility companies and request return. Upon return of these prints, the ENGINEER will schedule a meeting with the various utility companies to discuss potential conflicts and conformance with the State's Utility Accommodation Policy. The ENGINEER is responsible for coordination with the various utility companies for exposing potential conflicts and field ties to uncover utilities in potential conflict areas.

**Meetings**

Meetings will be held with the FHWA, State Officials, local governments, property owners, utility owners, railroad companies, other consulting firms, etc., as needed or required by the LPA. The ENGINEER shall coordinate through the LPA for the development of this project with any local entity having jurisdiction or interest in the project (i.e., city, county, etc).

**Specifications, Special Provisions, Special Specifications**

Use the State's standard specifications or previously approved special provisions and/or special specifications. If a special provision and/or special specification is developed for this project, it shall be in the State's format and incorporate references to approved State test procedures.

**Project Manager/Engineer Communication**

The ENGINEER shall designate one Texas Registered Professional Engineer to be responsible throughout the project for project management and all communications, including billing, with the LPA's Director. Any replacements to the ENGINEER's designated Project Manager/Engineer must be approved by the LPA.

Engineering documents produced for the department's engineering projects shall be signed, sealed and dated or CADD sealed in accordance with Administrative Order No. 5-89 and Administrative Circular No. 26-91.

**Design Responsibilities**

The ENGINEER is responsible for design errors and/or omissions that become evident before, during or after construction of the project. The ENGINEER's responsibility for all questions arising from design errors and/or omissions will be determined by the LPA and all decisions shall be final and binding. This would include, but not necessarily be limited to:

1. All design errors and/or omissions resulting in additional design work to correct the errors and/or omissions.
2. Preparation of design documents and detail drawings necessary for a field change due to design errors and/or omissions.
3. Revision of original tracings to the extent required for a field change due to design errors and/or omissions.

The ENGINEER shall promptly make necessary revisions or corrections resulting from the ENGINEER's errors, omissions or negligent acts without additional compensation. Acceptance of the work by the LPA will not relieve the ENGINEER of the responsibility for subsequent correction of any such errors or omissions or for clarification of any ambiguities.

**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>
PS&E	Mission Office
Schematic	Mission Office
Environmental Document	Mercedes 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 "B"**  
**SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER**

---

**APPENDIX A - PLAN SHEET SEQUENCE PROCEDURE**

1. Title Sheet  
Detailed Index of Sheets
2. Typical Sections
3. General Notes and Specifications Data
4. Estimate and Quantity Sheets
5. Storm Water Pollution Prevention Plan (SW3P) Sheets
6. Traffic Control Plans
  - a. Sequence of Construction Layouts
  - b. Detour Plan/Profile/Typical Sections/Quantities
7. Roadway Layouts
  - a. Roadway Plan/Profile Sheets
  - b. Intersection Plan/Profile Sheets
  - c. Intersection Layouts
  - d. Alignment Layouts/Data
  - e. Ramp Layouts/Profiles
  - f. Connection Roads/U-turns Layouts/Profile
8. Roadway Details
  - a. Concrete Pavement Details/Standards
  - b. Concrete Pavement Terminal Anchorage Details/Standards
  - c. Bridge Approach Details/Standards
  - d. Bridge Terminal Anchorage Details/Standards
  - e. Roadway/Median Barrier Details/Standards
  - f. Curb Details
  - g. Driveway Details/Typical Sections/Standards
9. Signing Layouts and Marking Layouts
10. Traffic Signal Layouts
11. Lighting Layouts
12. Illumination Detail Standards (HMID, HMIF, HMIP, RID)
13. Utility Layouts/Profiles
14. Drainage Area Maps and Hydraulic Data
  - a. General Drainage Area Maps
  - b. Stage-Discharge Curves
  - c. Main Cross-Drainage Culvert/Bridge Hydraulic Data
  - d. Drainage Area Maps/Culverts/Storm Sewer
  - e. Hydraulic Data/Culverts/Inlets/Storm Sewer/Pumps
15. Detailed Drainage Plans
  - a. Drainage Plan/Profile Sheets (Storm Sewer Plan/Profile Sheets)
  - b. Channel Plan/Profiles/Typical Sections
  - c. Box Culvert Plan/Profile
  - d. Pipe Sewer/Culvert Cross Sections

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

---

**APPENDIX A - PLAN SHEET SEQUENCE PROCEDURE (Continued)**

16. Drainage Structural Details/Standards
  - a. Inlet Details/Standards
  - b. Manhole Details/Standards
  - c. Junction Box Details/Standards
  - d. Safety End Treatment Details/Standards
  - e. Box Culvert Details/Standards
  - f. Culvert Wingwall Details/Standards
  - g. Excavation-Backfill Diaphragms
  - h. Riprap Details/Standards
  - i. Temporary Pollution and Erosion Control Details
17. Pumphouse Layouts
18. Pumphouse Details
19. Pumphouse Standard Details
20. Bridge Layouts/Profile/Typical Sections\*
21. Bridge Details\*
  - a. Summary of Bridge Quantities
  - b. Abutments
  - c. Interior Bents
  - d. Spans
  - e. Special details for the specific bridge
22. Bridge Standard Details\*
23. Bridge Railing Standards
24. Retaining Wall Layouts/Profiles\*\*
25. Retaining Wall Details\*\*
26. Retaining Wall Standard Details\*\*
27. Guard Fence/Standards and Signal Pole Standards
28. Signal/Electrical Details/Standards and Signal Pole Standards
29. Signing/Markers/Striping Details/Standards
30. Barricade/Construction/Beacon Standards
31. Miscellaneous Standards
  - a. Chain Link Fence Standards
  - b. Bridge End Detail/Standards
  - c. Roadway Clearance Details/Standards
  - e. Attenuator Standards

**NOTE:** Variations of these plan sheet sequence guidelines may be permitted if approved in writing by the County.

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

---

**APPENDIX B - PLAN PREPARATION PROCEDURES**

1. **Title Sheet**  
The ENGINEER shall be responsible for completing the title sheet as required and formatted by the STATE and as discussed in Part V of the Highway Design, Operations and Procedures Manual. Refer to Section K - Plans, 1 - Title Sheets, page 5-24, for the procedure to be used regarding all plans prepared by the ENGINEER.
2. **Project Layout**  
The project layout shall clearly depict the entire project as it is proposed and will usually be drawn at a scale of 1 inch=100 feet or 1 inch=200 feet, depending on the size of the project.
3. **Typical Sections**  
See Part IV of the Highway Design, Operations and Procedures Manual.
4. **Sequence of Work Sheets (Traffic Control Plan)**  
Clarity and completeness should be the rule to follow in preparing these sheets, with particular attention given to location of construction signs and barricades, lane widths, protection of drop offs, etc. For a reference guide use the Texas Department of Transportation, Texas Manual on Uniform Traffic Control Devices. Usual scale of 1 inch=100 feet and/or 1 inch=50 feet for special locations. A narrative sequence shall be included in the special provisions for the project. Staging of structural elements shall be considered. Provisions for drainage shall be considered, included and indicated during all stages of construction operations.
5. **Removal Item Sheets**  
These sheets indicate removal of existing facilities necessary to the proposed construction. (1 inch=40 feet) (use same scale as plan/profile sheets).
6. **Summary Sheets**  
Summary Sheets are required to indicate type, quantity and/or location of work for individual items of the proposed project.
7. **Alignment Layout Sheets**  
These sheets indicate the horizontal alignment with curve data and coordinates usually tabulated thereon. On some projects, depending on size, this information may be included on the plan profile sheets. Usual scale (1 inch=100 feet) or (1 inch=40 feet).
8. **Plan Profile Sheet**  
Clarity and completeness should be the rule to follow in preparation of these sheets. Usual scale (1 inch=40 feet or 1 inch=50 feet) or (1 inch=20 feet), depending on project complexity.
9. **Drainage Area Maps**  
Usual scale (1 inch=100 feet) and/or (1 inch=200 feet) supplemented by large scale area maps as necessary.
10. **Drainage Plan Profile Sheets**  
These sheets may be required on some projects to clearly depict location of inlets, storm sewer lines, and profile of storm sewer lines and laterals. Usual scale (1 inch=40 feet or 1 inch=50 feet) or (1 inch=20 feet). Storm sewer design does include redesign of storm sewers imposed by utility constraints developing after initial reviews by the STATE and consequential redesign and adjustments.
11. **Runoff, Inlet, Storm Sewer and Culvert Sheets**  
Use standard sheets.

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

---

**APPENDIX B - PLAN PREPARATION PROCEDURES (Continued)**

12. Culvert Cross Sections and Details  
District standard reproducible sheets can be furnished (one each) to the ENGINEER for modification of special designs.
13. Manhole and Inlet Details  
District standard reproducible sheets can be furnished (one each) to the ENGINEER.
14. Miscellaneous Detail  
Curb, Sidewalk, Driveways, etc.
15. Intersection Details
16. Marking Layouts and/or Details  
Layouts of the entire project with markings depicted thereon. Usual scale 1:500 (1 inch=40 feet or 1 inch=50 feet). On some projects typical details might suffice.
17. Structural Details  
Bridge layout sheets shall have the same horizontal and vertical scale. Usually (1 inch = 10 feet) (1 inch = 20 feet). Sections of existing and proposed structures usually have a scale of (1 inch = 5 feet). Elements of the bridge (abutments, bents, slabs, etc.) shall be detailed to a (1/2 inch = 1 foot) or (1/4 inch equals 1 foot) architect scale to provide clear legible drawings when reduced. Letters shall be a minimum size of 4 millimeters (5/32 inch) height for hand lettering and 140 for lettering by computer-aided design and drafting (CADD).
18. Overhead Sign Bridge Layouts  
A maximum of four structures may be shown on each layout sheet. The reference to the appropriate overhead sign bridge (OSB) standard and the following requirements shall be shown on the layout:
  - (1) Drilled shaft size and length
  - (2) Soil strength used for design {indicate basis and boring(s) used}
  - (3) Design height
  - (4) Tower height
  - (5) Leg spacings and
  - (6) Design wind speed.

The wind speed design map need not be included in the project plans. Designation of tower member size and anchor bolt size shall not be shown. For OSBs which require special design, the design shall be in accordance with the AASHTO sign specifications (see Item 22 of References on page 49) and to the same loading requirements as for normal standard structures. Structures (special or standard) which will have changeable message signs shall be analyzed by the ENGINEER.

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

---

**APPENDIX C - GENERAL PLAN CHECKLIST**

Services  
 Provided By:  
ENGINEER COUNTY

___	___	Title Sheet
___	___	Project Layout
___	___	Sequence of Work
___	___	Detour Layouts & Profiles
___	___	Construction Pavement Markings
___	___	Signing & Barricades
___	___	Construction Sign & Beacons
___	___	Typical Sections
___	___	Shaping & Finishing Sections
___	___	Slopes Adjacent to Shoulders
___	___	Estimate & Quantities
___	___	General Notes & Specification Data
___	___	Grading Summary
___	___	Miscellaneous Summaries (See following "SUMMARIES" heading)
___	___	Horizontal Curve Data & Alignment Layouts
___	___	Drainage Summaries
___	___	Structure Summaries
___	___	Erosion Control Summary & Details
___	___	Plan/Profile Sheets
___	___	Erosion Control Summary & Details
___	___	Pavement Contours
___	___	Superelevation Transition (If Required)
___	___	Grading Contours
___	___	Guard Fence Layouts
___	___	Storm Water Pollution Prevention Plans (SW3P)
___	___	Drainage Area Maps
___	___	Hydraulic Data
___	___	Drainage Sheets
___	___	Bridge Hydrology Sheets
___	___	Inlet & Manhole Details
___	___	Utility Support Details
___	___	Culvert Cross Sections & Details
___	___	Special Culvert Designs
___	___	Special Drainage Details
___	___	Chain Link Fence Locations
___	___	Ramp Details Sheet
___	___	Removal Item Sheet - Including detours (Shown in detour summary, No payment for removal; subsidiary to construction detours)
___	___	Pavement Details
___	___	Pavement Standard Modification for Concrete Shoulder
___	___	Concrete Pavement Continuously Reinforced (CPCR)
___	___	Concrete Pavement Contraction Design (CPCD)
___	___	Concrete Pavement Details - Jointed Reinforced (Steel Bars) (CPJR)
___	___	Bridge Approach Slab Details
___	___	Vehicle Attenuator Details
___	___	Miscellaneous Details
___	___	Wheelchair Ramps
___	___	Pavement Marking Details
___	___	Modified Standards
___	___	List of Standards
___	___	Permanent Signing Plans & Quantities

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

---

**APPENDIX C - GENERAL PLAN CHECKLIST (continued)**

Services  
 Provided By:  
ENGINEER COUNTY

- |     |     |   |
|-----|-----|---|
| ___ | ___ | Permanent Lighting Plans, Quantities & Standards                            |
| ___ | ___ | Bridge Layout(s)  |
| ___ | ___ | Bridge Details  |
| ___ | ___ | Retaining Wall Layout(s)  |
| ___ | ___ | Retaining Wall Details  |
| ___ | ___ | Pumphouse Details   |
| ___ | ___ | Underdrain Details (Retaining Walls)  |
| ___ | ___ | Culvert Standards   |
| ___ | ___ | Soil Profile  |
| ___ | ___ | Temporary Traffic Signals   |
| ___ | ___ | Design Cross Sections   |
| ___ | ___ | Estimate  |
| ___ | ___ | List of Standard Specification, Special Provisions & Special Specifications |
| ___ | ___ | Detour Special Provisions (If Required)                                     |
| ___ | ___ | Construction Time Estimate  |
| ___ | ___ | Critical Path Method (CPM)  |
| ___ | ___ | Unit Price Documentation  |

**Miscellaneous**

- |     |     |                             |
|-----|-----|-----------------------------|
| ___ | ___ | Conduit Requirements        |
| ___ | ___ | Traffic signal Requirements |

**Summaries**

**(ALL BELOW YES FOR ENGINEER AND NO FOR COUNTY UNLESS NOTED OTHERWISE)**

- |     |     |   |
|-----|-----|---|
| ___ | ___ | Salvaging and Placing Topsoil                       |
| ___ | ___ | Prepare ROW   |
| ___ | ___ | Remove Old Structures                               |
| ___ | ___ | Scarify Existing Pavement                           |
| ___ | ___ | Remove Old Concrete Curb of Curb and Gutter (C&G)   |
| ___ | ___ | Remove Old Concrete Pavement                        |
| ___ | ___ | Remove Old Concrete Riprap                          |
| ___ | ___ | Remove Metal Beam Guard Fence                       |
| ___ | ___ | Galvanized steel Beam Guard Fence (12Ga) (GSBGF)    |
| ___ | ___ | Temporary Guard Fence (TEMPGF)                      |
| ___ | ___ | Summary of Concrete Flumes                          |
| ___ | ___ | Curbs   |
| ___ | ___ | Adjust Manholes & Inlets                            |
| ___ | ___ | Underdrains   |
| ___ | ___ | Base and Pavement                                   |
| ___ | ___ | Large Structure                                     |
| ___ | ___ | Concrete Riprap (RR8 & RR9)                         |
| ___ | ___ | Temporary Portable Concrete Barrier (PCBR)          |
| ___ | ___ | Concrete Traffic Barrier                            |
| ___ | ___ | Vehicle Attenuator                                  |
| ___ | ___ | Guard Rail Energy Absorbing Terminal (Great System) |
| ___ | ___ | Pavement Markings & Blast Cleaning (Thermoplastic)  |
| ___ | ___ | Retaining Walls                                     |
| ___ | ___ | Large Structure Summaries                           |
| ___ | ___ | Small Structure Summaries                           |

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

---

**APPENDIX C - GENERAL PLAN CHECKLIST (continued)**

Services  
 Provided By:  
ENGINEER COUNTY

<b>Summaries</b>	<b>(ALL BELOW YES FOR ENGINEER AND NO FOR COUNTY UNLESS NOTED OTHERWISE)</b>	
___	___	Earthwork (Roadway & Channel) & Channel Details
___	___	Culverts
___	___	Detours
___	___	Seeding or Mulch Sod - Quantity Only
___	___	Inlet & Manholes
___	___	Sidewalks
___	___	Construction Pavement Markings
___	___	Driveways
___	___	Concrete Median
___	___	Storm Sewers
___	___	Head Walls & Safety End Treatments
___	___	Curb Openings
___	___	Manholes
___	___	Chain Link Fence, Remove & Replace Chain Link Fence
___	___	Remove & Relay Reinforced Concrete Pipe (RCP) or Pipe Sewer



**EXHIBIT D-1**

**ESTIMATED MAN-HOUR BREAKDOWN**

FM 88 PROJECT ~ from 0.25 Miles N of SH 107 (5th Ave.) North to FM 1925

	Senior Project Manager	Senior Engineer	Senior Environmental Scientist / Specialist	Project Engineer	Right-of-Way Administrator	Senior Engineer Tech	CADD Operator/GIS Analyst	Environmental Planner / Specialist	Admin / Clerical	TOTAL HOURS	Sub-Contract Amounts / ROW COST	TOTAL LINE ITEM COST
<b>CONTRACT RATE</b>												
<b>WORK AUTHORIZATION NO. 1 - WITH HIDALGO COUNTY</b>												
<b>PHASE I - EA, PUBLIC INVOLVEMENT &amp; SCHEMATIC DESIGN</b>												
1												
2	30	30	200	30	28.50	22	97	140	3.89	440,885		\$ 54,000.00
3	20	30	100	100			16	80	8,610	345,110		\$ 49,942.00
4	5	15		80			201		3,609	354,609		\$ 39,860.00
5	6	13		60			139		3,546	242,546		\$ 26,085.00
6	20	20		150		67	200		7,198	397,198		\$ 22,500.00
7	6	6		37	8	50			13,398	168,398		\$ 45,000.00
8	4	4		60	16	67			14,532	117,532		\$ 22,500.00
9	6	6		60	16	67			13,398	168,398		\$ 22,500.00
10	8	8	4	22	4				39,221	85,221		\$ 10,000.00
11	80	140		600		1150	1222		3,427	3195,427		\$ 358,986.00
12	40	40		658			330		22,888	1090,888		\$ 135,000.02
13	4	10		40			110		8,324	172,324	\$ 2,620.11	\$ 17,379.92
14	2	2		24			60		2,439	90,439		\$ 9,000.00
15	6	8		60		80	116		7,884	277,884		\$ 30,000.00
16	20	20		340			167		23,907	570,907		\$ 69,919.00
17	20	20		740			80		39,467	899,467		\$ 119,861.00
<b>SUB-TOTAL MANHOURS AND PROJECT FEE:</b>											\$ 2,620.11	\$ 1,044,742.95
<b>* TOTAL PROJECT FEE W/SUB-CONSULTANT FEE:</b>											\$	\$ 1,047,363.00

\* Rounded Figure

**EXHIBIT A "FEE SCHEDULE" - UPDATE SIGNAL, SIGNING AND MARKINGS PLANS  
FM 88: FROM NORTH OF SH 107 TO FM 1925**

Ergonomic Transportation Solutions, Inc.

TASK	MANHOURS					Total
	Project Manager	Traffic Engineer	CADD/ Designer	Administrative Assistant		
1		1				1
2		2	2			4
3		6	6			12
4		1	4			5
5		1	4			5
6	2					
<b>Subtotal</b>	<b>2</b>	<b>11</b>	<b>16</b>			<b>27</b>
<b>Total Sheets/Labor Hours</b>		<b>11</b>	<b>16</b>			<b>27</b>
Contract Rates	\$ 68.00	\$ 34.00	\$ 23.00	\$ 19.00		\$ 878.00
Direct Salary Cost	\$ 136.00	\$ 374.00	\$ 368.00	-		\$ 1,450.98
Overhead Multiplier	\$ 224.75	\$ 618.07	\$ 608.16	-		\$ 291.12
Fixed Fee	\$ 45.09	\$ 124.01	\$ 122.02	-		\$ 2,620.11
<b>Total Labor Costs</b>	<b>\$ 405.85</b>	<b>\$ 1,116.08</b>	<b>\$ 1,098.18</b>	<b>\$ -</b>		<b>\$ 2,620.11</b>

Ergonomic Transportation Solutions, Inc. Expenses  
EXPENSES

Total Expenses

ETSI Total Cost

\$ -  
\$ -  
\$ -  
\$ -

\$ 2,620.11