HIDALGO COUNTY
Professional Engineering Services
Contract # C-18-195-07-31
Work Authorization Form

WORK AUTHORIZATION NO. 4

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 1 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 Partial PS&E Development, Right-of-Way Mapping, Surveying Services, etc.

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 **$1,039,840.00.** 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. 4 shall be funded through funding source:
Account No. 2-1315-431-00-121-039-2-710/721
Requisition Number 461548 **(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. 4.

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 October 18th, 2022 as indicated below.

Agenda Item No. 87892 Executive Office: _____

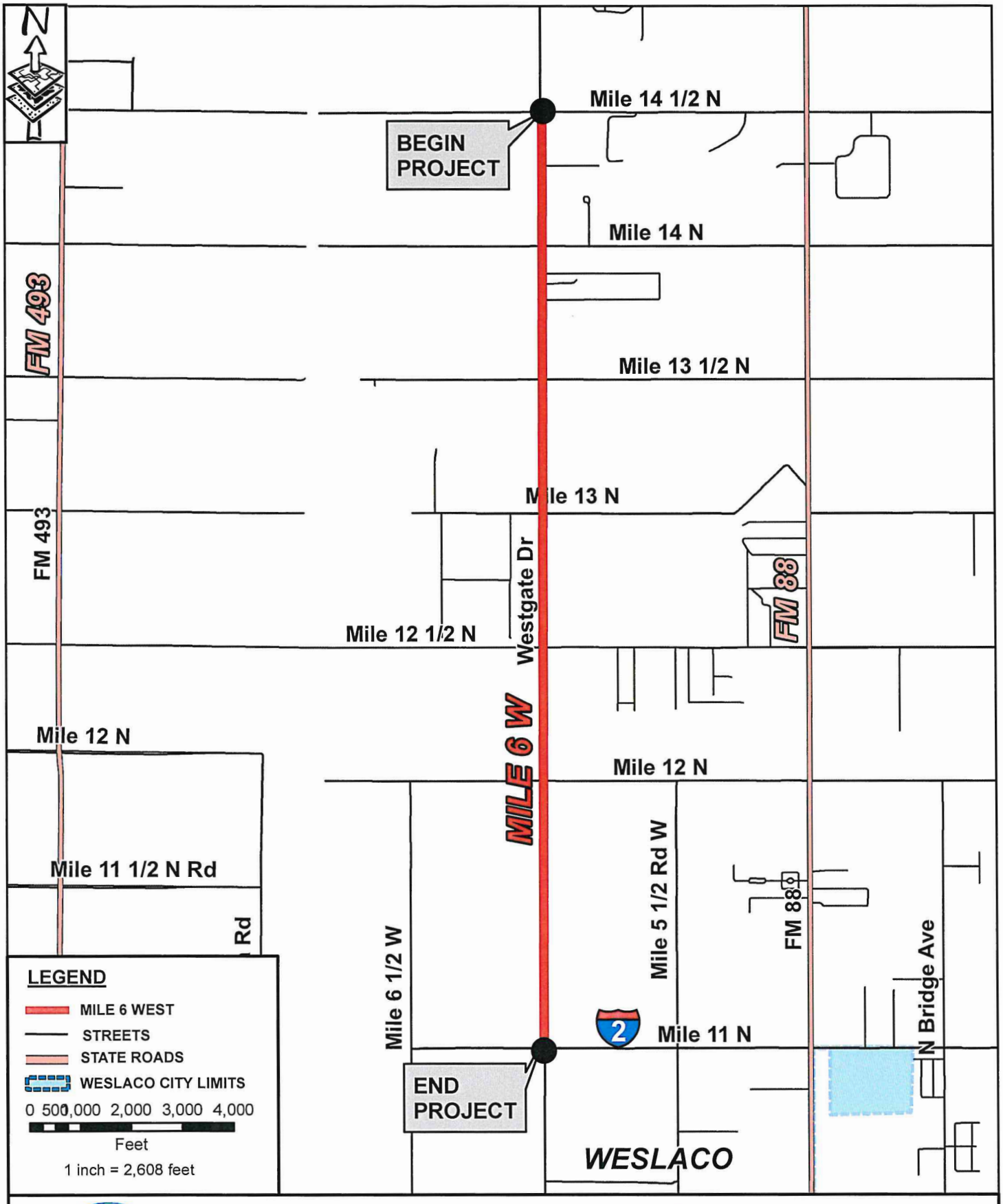
THE ENGINEER:	**THE OWNER:**
L&G ENGINEERING	**HIDALGO COUNTY**
_____	_____
By: Jacinto G aiza, P.E.	**By: Hon. Richard F. Cortez,County Judge**
President	

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



MILE 6 WEST (WESTGATE DR) LOCATION MAP

FROM MILE 14 1/2 TO MILE 11
APPROX. TOTAL PROJECT LENGTH 3.2 MILES

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 for 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 ongoing 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.

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:

PROJECT/DESCRIPTION: PROFESSIONAL ENGINEERING SERVICES

LENGTH: 3.2 Miles

HIGHWAY: Mile 6

LIMITS: FROM MILE 11 TO MILE 14 1/2

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
X 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

COUNTY shall mean Hidalgo County

CITY shall mean the City of N/A

LPA shall mean Hidalgo County

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

SECTION 5 - RIGHT-OF-WAY DATA

(Function Code 130)

Services Provided By:
SURVEYOR CITY/COUNTY

NOTE: No work involving right-of-way (ROW) data is to be performed until the ENGINEER has given the SURVEYOR written approval of the final location of the proposed ROW lines as approved by TxDOT and the CITY.

A. RIGHT-OF-WAY MAPPING:

1. PURPOSE:

The purpose of right-of-way mapping is to prepare documents suitable for the acquisition of real property interests and the probable issuance of a title policy.

2. DEFINITIONS:

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

2.1. Abstract Map – A drawing to scale prepared from record documents depicting proposed right-of-way lines, existing right-of-way lines, easement lines, and private property lines with relevant grantee names, recording data, and recording dates.

2.2. Closure/Area Calculation Sheet – A computer generated print-out of the area and the perimeter bearings, distances, curve data, and coordinates of an individual parcel of land to be acquired.

2.3. Access Denial Line – A line which indicates specific location where access to the roadway is denied.

2.4. Property Descriptions – A written metes and bounds description delineating the area and the boundary and describing the location of an individual parcel of land unique to all other parcels of land.

2.5. Owner – The most current title holder of record as determined by a study of the Real Property Records.

2.6. Parcel Plat – An 8 ½ inch by 11 inch drawing to scale depicting all the information shown on the right-of-way map regarding an individual parcel of land to be acquired.

2.7. Parent Tract – A unit or contiguous units of land under one ownership, comprising a single marketable tract of land consistent with the principle of highest and best use. A parent tract may be described by a single instrument or several instruments. A single parent tract cannot be severed by a public right-of-way, easement, or separate ownership which destroys unity of use.

2.8. Parent Tract Inset – A small line drawing, to an appropriate scale, of the parent tract perimeter placed upon the right-of-way map in the proximity of the respective parcel. Parent tract insets are used in cases where the parent tract cannot be shown to the same scale as the right-of-way map. Since parent tract insets are used to identify the limits and location of parent tracts, they should include public right-of-ways, utility easements and fee strips, and identifiable water courses which bound the parent tract.

2.9. Point of Beginning (P.O.B.) – A corner of the parcel of land to be acquired, located on the proposed right-of-way line and being the beginning terminus of the first course of the property description.

2.10. Point of Commencing (P.O.C.) – A monumented property corner which can be identified in the Real Property Records and is located outside the proposed right-of-way corridor. For title purposes, the point of commencing should be a monumented back corner of the parent tract. In the event a monumented back corner of the parent tract cannot be recovered, the nearest identifiable monumented property corner located outside the proposed right-of-way corridor may be used.

Services Provided By:
SURVEYOR CITY/COUNTY

2.11. Preliminary Right-of-Way Layout/Abstract Map – A drawing to scale depicting proposed right-of-way lines, existing right-of-way lines, proposed pavement, access denial lines, the proposed centerline alignment, private property lines, easement lines, visible improvements, visible utilities, the station and offset from the centerline alignment to each Point of Curvature (PC), Point of Tangency (PT), and angle point in the proposed right-of-way lines and to each PC, PT, and angle point in the existing right-of-way lines in areas of no proposed acquisition. *(Reference Sample Attached)*

2.12. Right-of-Way Maps/Property Description/Parcel Plats – A series of 22 inch by 34 inch and 11 inch by 17 inch drawings to scale depicting the results of relevant elements of records research, field work, analysis, computation, and map making required to determine title, delineate areas and boundaries, locate and describe utilities and improvements to the extent necessary to appraise the value and negotiate the acquisition of individual parcels of private land for a proposed right-of-way project. *(Reference Sample Attached)*

3. WORK TO BE PERFORMED:

Y N 3.1. Preliminary Right-of-Way Layout/Abstract Map:

An abstract map shall be prepared sufficient to determine the following:

3.1.1. Any and all interests of public record held in the land to be acquired.

3.1.2 The total record holdings of an owner contiguous to land to be acquired from that owner.

3.1.3. Any and all interests in land to be acquired held in common (shopping mall parking lots, subdivision reserves, etc.)

3.1.4. Any and all improvements proposed by other agencies which may have a bearing on project development.

3.1.5. All called monuments, bearings, and distances as per recorded information.

3.1.6. Preliminary Parcel numbering system.

3.1.7. Any and all utilities (permitted or of record)

3.1.8. Reference Sample provided.

Y N 3.2. Right-of-Way Map:

The SURVEYOR shall field locate property corners, existing right-of-way markers, improvements, visible utilities, verify and update the planimetric file, if provided, and as directed by the ENGINEER.

A right-of-way map shall be prepared for each proposed right-of-way project. A right-of-way map shall include a title sheet, an index sheet, a survey control index sheet, a horizontal and vertical control data sheet, and sufficient plan sheets to cover the proposed project, or as directed by the ENGINEER. The STATE has developed standard title sheets, index sheets, and plan sheets, copies of which the SURVEYOR shall request and secure for all purposes of this Contract. Plan sheets shall include, but need not be limited to, the following items of information. By mutual agreement between the Texas Board of Professional Land Surveying and the TxDOT, right-of-way maps need not be signed and sealed by a Registered Professional Land Surveyor.

3.2.1. Proposed right-of-way lines shall be delineated with appropriate bearings, distances, and curve data. Curve data shall include the radius, delta angle, arc length, and long chord bearing and distance.

3.2.2. Existing right-of-way lines shall be delineated with appropriate bearings, distances, and curve data to the extent necessary to describe the individual parcels of land to be acquired. Curve data shall include the radius, delta angle, arc length, and long chord bearing and distance.

Services Provided By: SURVEYOR	CITY/COUNTY
Y	N

3.2 *Right-of-Way Map Continued (continued)*

3.2.3. The proposed project baseline alignment shall be delineated with appropriate bearings, distances, and curve data. Curve data shall include the station of the curve Point of Intersection (PI), radius, delta angle, arc length, tangent length, long chord bearing and distance, and the N and E coordinates of the curve PI. All alignment PCs, PTs, and even 500 foot stations shall be labeled as to station.

3.2.4. Proposed paving lines combined with relevant existing paving lines shall be shown to the extent necessary to compile a complete picture of proposed traffic movements. Proposed paving on the final mylars submitted to the ENGINEER shall be shaded with a dot pattern or highlighted by some other means acceptable to the ENGINEER.

3.2.5. Access denial lines shall be shown sufficiently to indicate areas where access is to be denied and where access is to be permitted if required by the ENGINEER.

3.2.6. Private property lines shall be delineated with appropriate bearings, distances, and curve data to the extent necessary to describe the individual parcels of land to be acquired. Curve data shall include the radius, delta angle, arc length, and long chord bearing and distance.

3.2.7. Porción lines, subdivision lines and survey lines shall be shown and identified by name and Porción number.

3.2.8. County lines and city limit lines shall be located and identified by name.

3.2.9. A north arrow shall be shown on each sheet, and, if possible, located in the upper right corner of the sheet.

3.2.10. Monumentation set or found shall be shown and described as to material and size.

3.2.11. A station and offset shall be shown for each PC, PT, and angle point in the proposed right-of-way lines. Stations and offsets shall be with respect to the proposed centerline alignment.

3.2.12. Intersecting and adjoining public right-of-ways shall be shown and identified by name, right-of-way width, and recording data.

3.2.13. Railroads shall be shown and identified by name, right-of-way width, and recording data.

3.2.14. Utility corridors shall be identified as to easement or fee and recording information shall be identified.

3.2.15. Easements and fee strips shall be shown and identified by width, owner, distance of easement to a property corner of the parent track, and recording data.

3.2.16. Building lines or set-back lines shall be shown and identified.

3.2.17. Visible improvements located within the proposed right-of-way corridor or within 50 feet of a proposed right-of-way line shall be shown and identified.

3.2.18. Structures shall be identified as commercial or residential, by number of stories, and as to type (brick, wood frame, etc.).

3.2.19. Structures which are severed by a proposed right-of-way line shall be dimensioned to the extent necessary to completely delineate the severed parts.

3.2.20. Parking areas, billboards, and other on-premise signs which are severed by a proposed right-of-way line shall be dimensioned to the extent necessary to delineate that portion of the parking area, billboard, or sign which is located within the proposed right-of-way corridor.

Services Provided By: SURVEYOR	CITY/COUNTY	
Y	N	3.2 *Right-of-Way Map Continued (continued)*

3.2.21. In cases where structures are located outside the proposed right-of-way corridor and within 25 feet of a proposed right-of-way line, the shortest distance between the structure and the proposed right-of-way line shall be shown and field verified.

3.2.22. Visible utilities located within the proposed right-of-way corridor or within 50 feet of a proposed right-of-way line shall be shown and identified.

3.2.23. The location of underground utilities and fuel storage tanks situated within the proposed right-of-way corridor or within 50 feet of a proposed right-of-way line shall be determined and shown as required by the ENGINEER. The visible location of stand pipes, vents and filler caps in conjunction with available design and as-built drawings may be used to determine a most probable location and size in the event an actual location is indeterminable.

3.2.24. Points of commencing and points of beginning shall be shown and labeled. Points of beginning shall be shown with their respective N and E surface coordinates. As an exception, a point of commencing will not be required in the case of a total taking without a remainder.

3.2.25. Each parcel of land to be acquired shall be identified by a parcel number which shall appear in the ownership tabulation and on the right-of-way map in the proximity of the respective parcel. If the SURVEYOR is unfamiliar with the criteria used by the STATE to assign parcel numbers, he shall seek the assistance of the ENGINEER at the time the abstract map is complete. THE SURVEYOR SHALL SEEK ASSISTANCE FROM THE ENGINEER IN DEVELOPING AN OWNERSHIP TABULATION TABLE.

3.2.26. An ownership tabulation shall be shown which shall include the parcel number, existing area of the parent tract, lot(s) and block(s) constituting the parent tract when applicable, owner's name, type of conveyance, film code, county clerk's file number, taking area, and remaining area of the parent tract located left and/or right of the centerline alignment. Types of conveyance, film code and file numbers refer to conveyances into the STATE and will be added to the right-of-way map by the STATE at a later date. Several blank lines shall be provided in the tabulation block to facilitate future map additions.

3.2.27. A parent tract inset shall be shown for each parent tract which cannot be shown to scale on the right-of-way map. The use of broken scale lines should be avoided. When parent tract insets are used, the point of commencing with the appropriate bearing and distance to the point of beginning may be shown on the parent tract inset.

3.2.28. A note shall be included on the title sheet and each map sheet stating the source of bearings, coordinates, and datum used.

3.2.29. Appropriate notes shall be included on the title sheet and each map sheet stating the following:

a. Month(s) and year abstracting upon which the map is based.
b. Month(s) and year field surveys were conducted upon which the map is based.
c. Month and year the map was completed by the SURVEYOR.

3.2.30. The right-of-way CSJ number, if available, shall be shown on each right-of-way map sheet.

Services Provided By: SURVEYOR	CITY/COUNTY	

3.3. Exhibits:

An Exhibit shall be prepared for each parcel or tract consisting of a property description and a parcel plat.

Y N 3.3.1. Property Description:

A property description shall be prepared for each parcel of land to be acquired. Standard formats for property descriptions, copies of which the SURVEYOR shall request to the ENGINEER and secure for all purposes of this Contract. Property descriptions shall include, but need not be limited to, the following items of information.

All property descriptions shall be signed and sealed by a Registered Professional Land Surveyor. The property description shall begin with a general description which shall include as a minimum:

a. State, County, and Survey within which the proposed parcel of land to be acquired is located.
b. A reference to unrecorded and recorded subdivisions by name, lot, block, and recording data to the extent applicable.
c. A reference by name to the grantor and grantee, date and recording data of the most current instrument(s) of conveyance describing the parent tract. Use execution dates in deed references as opposed to recording or filing dates. In any case, the property description shall make clear which date is being used.
   The property description shall continue with a metes and bounds description which shall include as a minimum:
d. A point of commencing.
e. A point of beginning with the appropriate N and E surface coordinates.
f. A series of courses, identified by number and proceeding in a clockwise direction, describing the perimeter of the parcel of land to be acquired, and delineated with appropriate bearings, distances, and curve data.
   Curve data shall include the radius, delta angle, arc length, and long chord bearing and distance. Each course shall be identified either as a proposed right-of-way line, and existing right-of-way line, or a property line of the parent tract. Each property line of the parent tract shall be described with an appropriate adjoiner call.
g. A description of all monumentation set or found shall include, as a minimum, size and material.
h. A reference to the source of bearings, coordinates, and datum used.

Y N 3.3.2. Parcel Plat:

A parcel plat shall be prepared for each parcel of land to be acquired. The STATE has developed standard formats for parcel plats, copies of which the SURVEYOR shall request from the ENGINEER and secure for all purposes in this Contract. Parcel plats shall include each and every item of information shown on the right-of-way map which concerns the individual parcel. All parcel plats shall be signed and sealed by a Registered Professional Land Surveyor.

Services Provided By: SURVEYOR	CITY/COUNTY		
		4.	**DELIVERABLES:** In preparing right-of-way maps, the following is an outline of the work to be submitted (records should be delivered in a binder):
Y	N	4.1.	An Abstract Map of the current record title holders included in the Preliminary Map showing the proposed schematic and existing right-of-way as per General Specifications defined in 2.11.
Y	N	4.2.	A Right-of-Way map for the project limits under cover of Title Sheet, Index Sheet, Control Data Sheet, and Exhibits of the property descriptions and parcel plats as per General Specifications defined in 2.12, 3.2 and 3.3. ROW Map Submittal Requirements: 4.2.1. Two (2) paper sets of half-size ROW maps (11"x 17") 4.2.2. One (1) paper set of the full-size ROW maps (22"x 34") 4.2.3. Four (4) sets of original metes & bounds descriptions (field notes) with parcel plats (signed & sealed by the surveyor). *Do not include traverse sheet.* 4.2.4. City requires one (1) electronic copy of the ROW Map on a CD, and One (1) copy of the DGN electronic file on a CD from the surveyor- Both the electronic copy of the ROW Map and the DGN file can be on one CD. IF Roadway is ON-SYSTEM and after Administrative Approval of the ROW Maps by Division (REVISIONS) Submittal Requirements: 4.2.5. Two (2) paper sets of the half-size of the affected ROW map sheets (11"x17"), detailing the revision 4.2.6. One (1) paper set of the full-size of the affected ROW map sheets (22"x 34"), detailing the revision 4.2.7. Four (4) sets of any revised original metes & bounds descriptions (field notes) with parcel plats (signed & sealed by the surveyor). *Do not include traverse sheet.* 4.2.8. Division needs one (1) electronic copy of the revised ROW Map sheets on a CD, and 4.2.9. One (1) copy of the DGN electronic file on a CD from the surveyor- detailing the revision-Both the electronic copy of the revised ROW Map sheets and the DGN file can be on one CD.
Y	N	4.3.	Set a #5 Iron Rod 2-ft. in depth on the proposed right-of-way lines at intersecting property lines, and at all PCs, PTs, angle points, intersecting right-of-way lines of side streets, and at 1,000 foot stations of the proposed centerline alignment.
Y	N	4.4.	Set a #5 Iron Rod 2–ft. in depth on the existing right-of-way lines in areas of no acquisition at all PCs, PTs, angle points, and 1,000 foot stations, and as directed by the ENGINEER of the proposed centerline.
Y	N	4.5.	A SURVEYOR's report, outlining the approach, reasons or basis for the existing right-of-way determination, and conclusions made.
Y	N	4.6.	Records used to establish ownership.
Y	N	4.7.	ROW and parcel filed notes signed and sealed by a RPLS.
Y	N	4.8.	Computation sheets of survey closures, ground surveys, etc. used to develop plats and meets and bound information.
Y	N	4.9.	Items indicated under the Automation Requirements Section 6.
Y	N	4.10	Completed (Attached) Checklist with submittal of ROW Map etc.
Y	N	4.11	Set #5 Iron Rod 2 –ft. in depth at all corners of a proposed parcel.

Services Provided By:
SURVEYOR CITY/COUNTY

5. GENERAL REQUIREMENTS:

For purposes of this Contract, the following general requirements shall apply:

Y N

5.1. Copies of instruments of record submitted to the ENGINEER shall be indexed by parcel number.

5.2. Coordinates appearing on right-of-way maps, on parcel plats, and in property descriptions shall be surface coordinates based on the Texas State Plane Coordinate System. The combined adjustment factors (sea level factor x scale factor) which have been developed by the STATE for its use are as follows:

5.2.1. In (List Applicable Counties): Counties (---------- Zone), grid coordinates are multiplied by a combined adjustment factor of 1.xxxxxx to obtain surface coordinates. For work in Counties other than those listed, the ENGINEER will provide the combine adjustment factor.

5.3. Line and curve tables may be used when necessary.

5.4. The number of centerline alignment stations to be shown on a single plan sheet shall be restricted to the extent necessary to allow approximately 4 inches between match lines and sheet borders for future details and notes.

5.5. A minimum 4 inch by 4 inch space shall be reserved at the bottom right corner of each map sheet for future revision notes.

6. AUTOMATION REQUIREMENTS:

In addition to standard hard copy plots and mylar copies, the following will be required electronically:

Y N

6.1. Right-of-way maps and parcel plats shall be prepared using a *Micro Station* software graphics system capable of producing graphics files that can be plotted and viewed without further modification or conversion using the State's *Micro Station V8* graphics system.

6.2. It is the intent of the ENGINEER to secure graphics files which have elements of equal integrity, singularity, and attributes as elements prepared using the State's *Micro Station V8* graphics system.

6.3. For purposes of clarity, consistency, and ease of utilization, the SURVEYOR shall request and secure standards relevant to right-of-way mapping to the extent necessary to ensure that the needs of the ENGINEER are met. This includes, but may not be limited to, TxDOT seed file and corresponding units.def file, TxDOT font resource file, TxDOT GEOPAK SMD file, TxDOT DGNLIB, associated cell libraries and custom line styles, and other files as deemed appropriate for the project.

6.4. Graphics files furnished to the ENGINEER by the SURVEYOR shall be submitted on a Compact Disk CD, DVD or USB, in a format compatible with the STATE's computer system. The SURVEYOR shall confer with the ENGINEER regarding acceptable media and formats before making submissions. The SURVEYOR shall request and secure a Consultant File Index form provided by the ENGINEER, to be completed by the SURVEYOR, and to be submitted to the ENGINEER along with the graphics files.

6.5. Property descriptions shall be prepared using a computer word processing system capable of producing data files readable using *Microsoft Office Word Version 2007* word processing software.

6.6. Data files furnished to the ENGINEER by the SURVEYOR shall be submitted in ACSII format on a CD, DVD or USB.

6.7. Provide to the ENGINEER electronic copies of all instruments of record acquired pursuant to a work authorization.

Services Provided By:
SURVEYOR CITY/COUNTY

7. **GENERAL SPECIFICATIONS:**
For purposes of this Contract, the following general specifications for right-of-way mapping shall apply:

Y N

7.1. Completed right-of-way maps shall be submitted to the ENGINEER on single or double matte mylar, 22 inches by 34 inches in size with a 21 inch by 32 inch printed border positioned ½ inch from the top, bottom, and right edge of the sheet. Two copies on 11 inch by 17 inch paper will also be supplied to the ENGINEER.

7.2. Parcel plats shall be submitted to the ENGINEER on 8 ½ inch by 11 inch bond paper with respective borders of 7 ½ inches by 10 inches, positioned ½ inch from the top, bottom, and right edge of the sheet. Match lines shall be used where more than one sheet is required.

7.3. Right-of-way maps shall be drawn to a scale of 1 inch = 50 feet. An appropriate scale other than 1 inch = 50 feet may be used on some proposed right-of-way projects upon prior approval by the ENGINEER.

7.4. Since right-of-way maps are reduced in size by one-half for archiving purposes, the smallest size lettering acceptable on a right-of-way map shall be 1/10 of one inch (Leroy #100). A right-of-way map which contains any lettering smaller than 1/10 of one inch will not be accepted by the ENGINEER.

7.5. Parcel plats shall be drawn to a preferred scale of 1 inch = 50 feet. An appropriate scale other than 1 inch = 50 feet may be used on some proposed right-of-way projects upon prior approval by the ENGINEER. In the case of a very large parcel which would be difficult to show with clarity on a single 8 ½ inch by 11 inch sheet, the SURVEYOR shall use multiple 8 ½ inch by 11 inch sheets with matching lines.

7.6. The smallest size lettering acceptable on a parcel plat shall be 0.06 of an inch (Leroy #60).

7.7. Property descriptions shall be submitted on 8 ½ inch by 11 inch bond paper.

7.8. The ENGINEER has encountered a number of mylar products which are considered unacceptable. The SURVEYOR shall confer with the ENGINEER regarding mylar products he intends to use which have not been previously used on State projects.

7.9. Zip-A-Tone or other similar stick-on products shall not be used on right-of-way maps or parcel plats.

8. **ADHERENCE TO STANDARDS:**
For purposes of clarity, consistency, and ease of understanding, the CITY/COUNTY, as an acquiring agency of private property for public use, has adopted the STATE standards and formats for right-of-way mapping which have proven to facilitate the processes of negotiation, appraisal, relocation assistance, and condemnation. It shall be the responsibility of the SURVEYOR to adhere to these standards and formats to every extent possible to ensure that the needs of the acquiring agency are met.

SAMPLES ATTACHED FC 130: (FURNISHED UPON REQUEST FROM THE PROJECT ENGINEER)

- PRELIMINARY Right-of-Way Layout / Abstract Map
- Right-of-Way Map, Field Notes, Parcel Sketches and Area Computation Sheets

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

ROW MAP CHECKLIST

Consultant: _____
Contract/WA# _____
Responsible Office: _____
Project Manager: _____
County: _____
Highway: _____
RCSJ: _____
CCSJ: _____

As the responsible consultant project manager, I hereby certify that the attached ROW Map has undergone a QA/QC review, with the following applicable items specifically checked for accuracy, completeness and constructability (as noted by Checkmarks)

_____
Signature Date

_____
Printed Name

(This Checklist must be signed by the RPLS and turned in with all proposed ROW Projects.

MAP:

General

___ All documents have been proofread and are accurate.
___ Title Commitments for each individual parcel.
___ Graphics files compatible with Micro station and Word software are provided.
___ Photos of proposed ROW staking included.
___ Field notes and Parcel Plats are numbered continuous.
___ Scale shall be 1"=50' or 1"=100".

Title Sheet Requirements

___ Title and description of project including county, limits, etc....
___ Vicinity map with beginning and ending station
___ Equations and Exceptions
___ Index
___ Legend
___ Title block completely filled out with Construction and R.O.W. CSJs'
___ List all Major Utilities from Station to Station

Individual Map Sheet Requirements

___ Sheet size 34" X 22"
___ Text legible when reduced to half-scale.
___ Title block completely filled out with R.O.W. CSJ
___ Matchlines
___ Project layout sheet
___ Existing utility lines and easements, deed reference, as shown on Schedule "B" of the Title Commitment, and defined on parcel plats

Existing information:

___ R.O.W. lines
___ Whole property or whole property inset
___ Roadways
___ Survey, county, and city limit lines shown and labeled
___ Improvements shown and labeled *(see below)*
___ Monumentation i.e. P.C., P.T., Break Points
___ North arrow
___ Scale
___ Property lines

___ Property descriptions i.e., lot, block, tract, subdivision, etc…
___ Identify existing and proposed access denial locations *(if applicable)*

Proposed information:
___ #5- 2-ft iron road set monumentation i.e. P.C., P.T., Break Points and 1000' stations at proposed ROW lines and where existing ROW line is the proposed ROW.
___ Survey and R.O.W. lines
___ Basis of bearings
___ Parcel bearings and distances correspond with traverse sheet
___ Outside ties (P.O.C.) corresponds with field notes
___ Point of beginning (P.O.B.) established on proposed R.O.W. line
___ Parcel tied to baseline
___ Baseline information shown i.e. Stationing, bearings, curve data, etc…
___ Conveyance information shown in tables i.e. parcel number, grantors name, amount of take, remainder etc.
___ Math checked on remainder

Improvements:
___ Improvements bisected or within 25' of proposed R.O.W. line are shown on map with stationing and distance from proposed R.O.W. line. Buildings are labeled and dimensioned.
___ Off-premise outdoor advertising signs within proposed R.O.W. are shown and labeled.

Utilities:
___ All utilities within or crossing existing and proposed right of way are shown and labeled as to size, easement or fee width, and recording data of instrument.
___ Location of underground storage tanks and/or filler caps are shown and labeled

FIELD NOTES - Heading
___ County
___ Highway
___ Parcel number
___ R.O.W. CSJ
___ Construction CSJ

General Description or "preamble"
___ Area of parcel to be acquired is shown in acreage (0.000) for rural land and/or square feet (to nearest whole sq. ft.) for urban land or smaller parcels
Parent tract data is shown:
___ Size of parent tract
___ Survey data or lot, block, and subdivision
___ Name of last recorded seller and buyer
___ Date, volume and page or document number of last recorded conveyance
___ Records and county of last recorded conveyance

Beginning Description
___ Point of commencement is on outside tie and is described accurately by bearings and distances as it leads to the point of beginning.
___ Point of beginning is on proposed R.O.W. line

Particular Description
___ Traverse calls are clockwise sequence
___ Bearings and distances correspond exactly with map, parcel sketch, and traverse sheet
___ Bearings are to nearest whole second and distances are to the nearest one-hundredth of a foot
___ Calls are numbered
___ Denial of access shall be described from beginning to end *(if applicable)*

Closing Description
___ Last call leads back to P.O.B.
___ Restates area of parcel

___ Establishes taking in existing road R.O.W. if applicable
___ Legal description is referenced to Plat
___ Sealed and signed
___ Include an access clause whether access is permitted or denied *(if applicable)*

PARCEL SKETCH:

___ Shows P.O.B. and P.O.C.
___ All data corresponds exactly with Map and Field Notes
___ Sheet size is no larger than 81/2" x 11"
___ Plat closely matches example provided
___ Plat referenced to legal description
___ Sealed and signed
___ Include an access clause whether access is permitted or denied *(if applicable)*
___ Existing utility lines and easements (deed reference, if available);

TRAVERSE SHEET

___ Computations show area to be acquired in sq. ft. or acres, whichever is applicable
___ Computations show area that is existing road R.O.W. if applicable
___ Traverse calls are in clockwise sequence
___ Error of closure meets the following:

Secondary rural	.0003
Primary rural - secondary urban	.0002
Urban or industrial	.00013

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

SECTION 6 - FIELD SURVEYING AND PHOTOGRAMMETRY

(Function Code 150)

ADDITIONAL FIELD SURVEYS AS IDENTIFIED ON THE EXHIBIT "D" BY THE SURVEYOR

Services Provided By:
SURVEYOR CITY/COUNTY

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 (Recover and / or Re- Establish)

Y N 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

Y N 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

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

Services Provided By: SURVEYOR	CITY/COUNTY	
Y	N	c. Other Design Surveying (Additional Surveys not gathered in WA#1)

(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.

Services Provided By: SURVEYOR	CITY/COUNTY	
Y	N	(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.
		(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.
Y	N	(13) ROW staking (Existing and Proposed @ 1,000 ft. stations PC's PT's and Angle points as per ROW Map)
N	N	(14) Soil core hole staking at bridge class structures.
N	N	(15) Determine changes in topography from voids and outdated maps due to development, erosion, etc.
Y	N	(16) Profiles of existing drainage facilities.
N	N	(17) Measurement of hydraulic opening under existing bridges.
Y	N	(18) Obtain elevations of manholes and valves of utilities
Y	N	(19) Provide temporary signs, traffic control, flags, safety equipment, etc.
N	N	(20) Ties to existing bridges railroad rail elevations or culverts that may conflict with new construction.
N	N	(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.
Y	N	(22) Inventory signs, mailboxes, and driveways
N	N	(23) Locate wetlands.
Y	N	(24) Locate existing right-of-ways.

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:

N	N	(1) Stake existing and/or proposed right-of-ways.
N	N	(2) Stake existing and/or proposed baseline/centerline.
N	N	(3) Stake proposed bridge structures.
N	N	(4) Stake proposed drainage structures, such as manholes, culverts, etc.
N	N	(5) Set grade stakes.
N	N	(6) Recover and check existing control points.
N	N	(7) Establish additional control points.
N	N	(8) Check elevations and locations of structures.
N	N	(9) Determine and resolve conflicts associated with survey data.

Services Provided By:
SURVEYOR CITY/COUNTY

N N **2. Photogrammetric Products**
- a. Uncontrolled Photography
  - (1) Contact Prints
  - (2) Mosaics
  - (3) Digital ortho plots
- b. Mapping
  - (1) Planimetric Maps
  - (2) Contour Maps
  - (3) Cross Sections
  - (4) Profiles
  - (5) Digital Terrain Models (DTM)

3. <u>UTILITY SUBSURFACE INVESTIGATION:</u> (FINALIZE ANY ADDITIONAL AREAS NOT TIED DOWN IN WA #1)
<u>Utility Quality Levels</u> are in cumulative order (least to greatest) as follows

Y N 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.

Y N 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.

Y N 3.3. <u>Subsurface Utility Locate (Test Hole) Service (Quality Level A),</u> **THE SURVEYOR SHALL ESTIMATE LOCATING VERICALLY 25 UTILITES PER MILE OR AS IDENTIFIED BY THE ENGINEER.** 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:

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.

Services Provided By:
SURVEYOR CITY/COUNTY

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: (NOT SUBMITTED IN WA#1)

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

Y N 4.1. Digital Terrain Models (DTM) in a format acceptable by the ENGINEER.

Y N 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.

Y N 4.3. Computer printouts or other tabulations summarizing the results of field surveys.

Y N 4.4. Digital files or media acceptable by the ENGINEER containing field survey data.

Y N 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.

Y N 4.6. Field survey notes, as electronic and/or hard copies.

Y N 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.

Services Provided By: SURVEYOR	CITY/COUNTY	
		4. *Deliverables (continued)*
Y	N	4.8. Final mylar set of 11 inch by 17 inch Survey Control data sheets sign and seal by the RPLS per TxDOT guidelines.
Y	N	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.
Y	N	4.10. Survey reports in a format requested by the ENGINEER.
Y	N	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.

Services Provided By:	
SURVEYOR	CITY/COUNTY

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

SECTION 7 - ROADWAY DESIGN CONTROLS
ENGINEER SHALL COMPLETE ONLY 20% OF THE PS&E FOR THIS PROJECT

(Function Code 160)

Services Provided By: ENGINEER	CITY/COUNTY	
		1. Geometric Design
N	N	a. Horizontal and Vertical Alignment
N	N	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.
N	N	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.

Services Provided By: ENGINEER	CITY/COUNTY	
N	N	2. General Guidelines for Project Development *(continued)*
		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.
		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.
		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.
		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. **Accuracy of the earthwork design is of utmost importance since it is the basis for contractor payments and construction staking.**
N	N	3. Exhibit for Airway/Highway Clearance Permits
		4. Grading Design
N	N	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.
N	N	b. Typical Sections
Y	N	c. Design Cross Sections
Y	N	d. Determine Cut and Fill Quantities
Y	N	e. Slope Stability Analysis
Y	N	f. Embankment Foundation Stability Analysis
Y	N	g. Embankment Settlement Analysis
		5. Pavement Design
N	N	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.
N	N	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.
		c. Embankment and Subgrade
		(1) Soil Core Holes (Show cost estimate with Function Code 110)
Y	N	(a) Along center line
Y	N	(b) Along center line of each roadway

The location and minimum number of soil core holes required for this project are as follows: (To be determined when schematic is being completed)

Services Provided By: ENGINEER	CITY/COUNTY	
		5. Pavement Design *(continued)*
		c. Embankment and Subgrade *(continued)*
Y	N	(2) Identify, interpret and summarize geologic features that affect engineering design (PI, Sulfate content, % of lime)
N	N	d. Traffic Data for Pavement Design
N	N	e. Basic Design Criteria
N	N	f. Life Cycle Cost Analysis(es)
N	N	g. Cost Data
N	N	h. Pavement Material Properties
Y	N	i. Rehabilitation Investigations
N	N	(1) Core Hole Survey (Show cost estimate with Function Code 110)
		(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 Client.

SECTION 8 – DRAINAGE
THE ENGINEER SHALL COMPLETE ONLY 20% OF THE DRAINAGE DESIGN FOR THE PROJECT, EXCEPT AS NOTED OTHERWISE

(Function Code 161)

Services Provided By: ENGINEER	CITY/COUNTY	
		All hydraulic design shall be in accordance with the TxDOT's Hydraulic Manual, except where variances are permitted in writing by the COUNTY.
		1. Hydrologic Studies, Discharges
N	N	a. Hydrologic Map showing drainage areas, contours and drainage Q's.
Y	N	b. Drainage area maps showing existing conditions and proposed improvements. (Final Version)
Y	N	c. Hydrologic data/discharge determination
		2. Hydraulic Drainage Study and Documentation
		a. Hydraulic computations
Y	N	(1) Storm water detention available within the ROW (linear ft. along side drain ditch).
Y	N	(2) Storm water detention required outside the ROW (as per HCDD#1)
Y	N	(3) Culverts
Y	N	(4) Bridge waterways
Y	N	(5) Channels
Y	N	(6) Storm sewers/inlets
Y	N	(7) Pump stations
Y	N	(8) Storm Water Management facilities
Y	N	(9) Other
		(a) Irrigation Canals/Siphons
Y	N	b. Hydraulic report(s) (100% Report)
Y	N	c. Federal Emergency Management Agency (FEMA) floodway requirements
Y	N	d. Determine impact of proposed drainage plan on the following receiving stream(s)
		(1) Hidalgo County Drainage District Outfalls
		(2) All Irrigation District Outfalls impacted
		3. Layout, Structural Design and Detailing of Drainage Features
		a. Culverts
Y	N	(1) New culverts
Y	N	(2) Culvert widening and/or lengthening
Y	N	(3) Culvert replacements
		b. Storm sewers
Y	N	(1) New storm sewers
Y	N	(2) Modify existing storm sewers
Y	N	(3) Inlets
Y	N	(4) Manholes
Y	N	(5) Trunk lines
Y	N	c. Pump stations
Y	N	d. Subsurface drainage at retaining walls
Y	N	e. Outfall channel(s) within the ROW
Y	N	f. Outfall channel(s) outside the ROW
Y	N	g. Detention Pond(s) within the ROW
Y	N	h. Detention Pond(s) outside the ROW
Y	N	i. Summary of Quantities
Y	N	j. Storm Water Management facilities
Y	N	4. Storm Water Pollution Prevention Plan (SW3P)
N	N	5. Scour Evaluation - Waterway Structures only (to be completed by Bridge Engineer under FC 170.

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

SECTION 9 - SIGNING, MARKINGS AND SIGNALIZATION

(Function Code 162)

Services Provided By: ENGINEER	CITY/COUNTY	
N	N	1. Signing and Markings Layout

a. Requirements (Separate Layout)
   (1) Roadway layout
   (2) Center line with station numbering
   (3) ROW lines
   (4) Culverts and other structures that present a hazard to traffic
   (5) Location of utilities, if not shown on plan and profile
   (6) Existing signs to remain, to be removed, to be relocated
   (7) Proposed signs (illustrated and numbered)
   (8) Existing overhead sign bridges to remain, to be revised, removed or relocated
   (9) Proposed overhead sign bridges indicating location by plan layout (electrical details need not be shown on this layout)
   (10) Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation
   (12) Quantities of existing pavement markings to be removed
   (13) Proposed delineators and object markers

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:
   (1) The location of interchanges, main lanes, grade separations, frontage roads and ramps
   (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
   (3) The number of lanes in each section of proposed highway and the location of changes in numbers of lanes
   (4) The projected traffic volumes as provided by the STATE (20 year traffic projection, unless otherwise determined by the District Engineer)
   (5) Tentative ROW limits
   (6) Direction of traffic flow on all roadways
   (7) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations

N	N	2. Summary of Small Signs Tabulation
N	N	3. Summary of Large Signs Tabulation including all Guide Signs
N	N	4. Sign Detail Sheets

a. All signs except route markers
b. Design details for large guide signs
c. Dimensions of letters, shields, borders, corner radii etc.
d. Designation of shields attached to guide signs
e. Designation of arrow used on exit direction signs

Services Provided By: ENGINEER	CITY/COUNTY	
N	N	5. Traffic Signals (5 FLASHING BEACONS)

a. ETSI will produce a complete set of Plans, Specifications and Cost Estimates (PS&E) that cover the following flashing beacon designs at the following intersections:

- Mile 6 West Road at Mile 12 North Road
- Mile 6 West Road at Mile 12.5 North Road
- Mile 6 West Road at Mile 13 North Road
- Mile 6 West Road at Mile 13.5 North Road
- Mile 6 West Road at Mile 14 North Road

N N 6. ETSI will prepare plans, specifications and cost estimates for FIVE FLASHING BEACONS, as follows:

- **TASK 1 – General Notes for Flashing Beacon Design**
  ETSI will prepare the general notes based on TxDOT's latest practices.
- **TASK 2 – Basis of Estimate**
  ETSI will prepare Basis of Estimate sheet(s) with adequate number of columns to reflect the number of the above intersections and one column for the total quantities.
  ETSI will calculate quantities at 90% and 100% levels of completion or as directed by Engineer.
- **TASK 3 – Condition Diagram**
  ETSI will collect from various agencies the existing geometries for the above intersections. Information from these plans will be verified in the field and then incorporated into the condition diagram sheets.
  ETSI will setup the condition diagram sheets that would show the existing configuration of each intersection, existing utilities and other elements in accordance with TxDOT design practices and as required by Engineer. ETSI will show which items are to be removed and which to are to remain.
- **TASK 4 – Proposed Flashing Beacon Plan Layout**
  ETSI will setup proposed flashing beacon layout sheets that would show the proposed geometries of the above intersections along with the basic elements of the flashing beacon design, such as location of strain poles, span wire configurations, service drop locations, flasher indications in accordance with TxDOT Design practices and as required by Engineer.
  The proposed layouts will also show existing equipment to remain, existing equipment to be removed and proposed new equipment to be installed by the contractor.
  ETSI with assistance from the Engineer will contact the local power company for electrical service requirements at each of the above intersections.
  ETSI will produce submittals for Client's review at the 90% and 100% completion levels or as directed by Engineer.
- **TASK 5 – Electrical Schedules**
  ETSI will prepare tables, depicting the electrical schedule for the wiring connections at each intersection.
- **TASK 6 – Intersection Signing, Pavement Markings and Curb Ramps**
  While working on the proposed layouts, ETSI will also locate the cross walks and stop bars at the intersections, as they affect the flashing beacon design and furnish this information to Engineer. Curb ramps and cross walks will conform to current US Access Board's Proposed Accessibility Guidelines as well as ADA standards.

Services Provided By: ENGINEER	CITY/COUNTY (*continued*)	
N	N	ETSI will produce submittals for Client's review at the 90% and 100% completion levels.

- **TASK 7 – Standard Sheets List**
  ETSI will prepare a list of standard sheets for the 90% and 100% submittals. ETSI will also prepare the drill shaft tables on the TSFD standard sheet as well as the shipping parts list on the SP/SMA standard sheet.
- **TASK 8 –Specifications List and Cost Estimate**
  ETSI will prepare a list with all pertinent specifications and special provisions as they relate to the above tasks. ETSI will also prepare cost estimates using Pharr District's average bid values at the 90% and 100% submittals.
- **TASK 9 – Coordination and Meetings**
  ETSI will participate in one or more project progress meetings as requested by Engineer.

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

SECTION 10 - MISCELLANEOUS (ROADWAY) - THE ENGINEER SHALL COMPLETE ONLY 20% OF THE WORK ASSOCIATED FOR THIS PROJECT

(Function Code 163)

Services Provided By: ENGINEER	CITY/COUNTY	
		1. Retaining Walls
		a. Structural Details
N/A	N/A	(1) Cast-in-Place Cantilever at _____ locations. (TxDOT Standard Retaining Wall)*
N/A	N/A	(2) Tiedback Retaining Wall at _____ location. (TxDOT standard retaining wall)
N/A	N/A	(3) Specialized Retaining Wall at _____ locations (Unique Design).*
		b. Alternate Patented Retaining Walls at all locations. (Layouts Only)**
N/A	N/A	(1) Mechanically Stabilized Earth
N/A	N/A	(2) Concrete Block Wall Systems
N/A	N/A	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
N/A	N/A	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.
N/A	N/A	e. Foundation Studies (Show cost estimate with Function Code 110)
N/A	N/A	(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.
N/A	N/A	f. Stability Analysis (the ENGINEER shall estimate this task as part of his bid to complete the work).
N/A	N/A	g. Estimate
N/A	N/A	h. Summary of Quantities
N/A	N/A	i. Typical X-section.
N/A	N/A	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. **The designer and checker shall check all calculations and initial each page.**
		(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.

Services Provided By: ENGINEER	CITY/COUNTY	
Y	N	2. Traffic Control Plan, Detours and Sequence of Construction

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:

a. The sequence of construction and method of handling traffic during each phase.
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.
c. The proposed traffic control devices (stop signs, signals, flag person, etc.) at grade intersections during each construction sequence.
d. Where detours are provided, typical cross sections shall be shown.
e. Road construction work hours shall be developed after an investigation of the traffic volumes has been performed.

3. Illumination

Y N a. Preliminary Roadway Illumination Layout and Circuit Layout

(1) For projects involving freeway to freeway or other types of directional interchanges and projects including left-hand ramps or connections, provide the following:
(a) The location of interchanges, main lanes, grade separations, frontage roads and ramps
(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
(c) The number of lanes in each section of proposed highway and the location of changes in the number of lanes
(d) The projected traffic volumes as provided by the STATE (20 year traffic projection unless otherwise determined by the district engineer)
(e) Tentative ROW limits
(f) Direction of traffic flow on all roadways
(g) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations

Y N b. Final Roadway Illumination and Electrical Circuit Layouts

(1) Roadway layout showing pavement edges, shoulders, curbs, retaining walls, etc.
(2) Center line with station numbering.
(3) ROW lines.
(4) Symbol legend. Use department standard symbols for lighting and electrical.
(5) Culverts and other structures that present a hazard to traffic.
(6) Location of underground utilities, if not shown on plan profile.
(7) Location of overhead electrical lines, both crossing and parallel to ROW.
(8) Existing sign lighting circuits and roadway illumination to remain, to be removed, to be relocated.
(9) Existing service poles, electrical circuits, ground boxes, etc.
(10) Contact electric utility for service pole locations, voltage characteristics.
(11) Location of proposed sign lighting circuits and roadway illumination.
(12) Proposed electrical circuits.
(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.

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

Services Provided By: ENGINEER	CITY/COUNTY	
		3. Illumination *(continued)*
Y	N	c. General Guidelines for Illumination (If applicable) The ENGINEER shall submit to the COUNTY, 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.
		4. Miscellaneous Drafting/Standards
Y	N	a. Erosion Control
Y	N	b. Landscape Development
Y	N	5. Compute and Tabulate Quantities
Y	N	6. Special Utility Details (Irrigation lines)
N	N	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.
N	N	(a) New O.S.B. structure(s)
N	N	(b) Structural evaluation of existing O.S.B. structure(s) that are to remain in place or to be relocated.
N	N	(2) High Mast Illumination Poles (HMIP)
N	N	(3) Traffic Signal Supports
N	N	(4) Conventional Illumination Poles
N	N	(5) Sound Barrier Walls
N	N	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
N	N	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
Y	N	a. Utility Agreements
Y	N	b. Exhibits for Utility Agreements
N	N	c. Railroad Agreements
		d. Railroad Exhibits
N	N	(1) Railroad Underpasses
N	N	(2) Railroad Overpasses
N	N	(3) Railroad Grade Crossing (Replanking)
N	N	(4) Railroad Grade Crossing Warning Systems (Signals)
N	N	(5) Other Miscellaneous Sketches for Railroads
N	N	e. Traffic Signal Agreements
Y	N	f. Exhibits for Traffic Signal Agreements
Y	N	9. Estimate
Y	N	10. Specifications and General Notes

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

SECTION 11 - BRIDGE DESIGN

(Function Code 170)

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

* Countour 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.

Services Provided By: ENGINEER	CITY/COUNTY	
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.

Services Provided By: ENGINEER	CITY/COUNTY	
N/A	N/A	2. Preparation of Bridge Layouts (each bridge) *(continued)* c. Additional layout requirements for waterway structures and bridge classification culverts. (1) Design and 100-year peak discharges. (2) Design and 100-year high water (HW) (Recorded HW and date if available) (3) Natural and through-bridge velocities for design and 100-year floods. (4) Calculated backwater for design and 100-year floods. (5) Direction of flow for waterway crossings. (6) Contours for water crossing.
N/A	N/A	3. Bridge Classification Culvert, Estimate, Quantities, and Specifications (each bridge)
N/A	N/A	4. Foundation Studies (Show cost estimate with Function Code 110) 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).
N/A	N/A	5. Bridge Total Quantities and Cost Estimates (each bridge)
N/A	N/A	6. Bridge Special Provisions and Specifications (each bridge)
N/A	N/A	7. Bearing seat elevations for each beam or girder. Top of cap elevations for non-beam type structures.
N/A	N/A	8. General Guidelines for Bridge Design 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. **No bridge design work is to be performed until the COUNTY has given the engineer written approval of the preliminary bridge layout.** 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.

Services Provided By:
ENGINEER CITY/COUNTY

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.

SECTION 12 - CONSTRUCTION PHASE SERVICES

(Function Code 320)

Services Provided By: ENGINEER	LPA	
NO	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 LPA. Specific (basic and special) services for CONSTRUCTION MANAGEMENT AND SUPPORT by the ENGINEER will include the following:
		Construction Bidding:
NO	NO	1) The ENGINEER will furnish the LPA the necessary copies of approved plans, specifications, notices to bidders, and proposals as prepared under PS&E.
NO	NO	2) The ENGINEER will assist the LPA 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:
NO	NO	3) In general, the ENGINEER will provide the management and engineering support/data required for consultation and advisement to the LPA and act as the LPA's representative as provided in the General Condition of the Construction Contract.
NO	NO	4) The ENGINEER will coordinate and conduct a pre-construction conference (if required).
NO	NO	5) Defects and Deficiencies. The ENGINEER will use his best efforts to protect the LPA against defects and deficiencies in the work of the Contractor. The ENGINEER will promptly notify the LPA of any such defect or deficiency, and take all steps possible to require the Contractor to correct the defect or deficiency.
NO	NO	6) Contractor Payment. The ENGINEER will review quantities as submitted by the Contractor and will coordinate with the LPA 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:
NO	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.
NO	NO	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:

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

NO NO 9) Control of Materials & Equipment. The ENGINEER will provide inspection of all materials and equipment furnished/used by the Contractor as follows:

NO NO a) Review and record all laboratory, shop and mill tests of materials and equipment for compliance with the construction contract specifications.

NO NO b) Observe and/or perform Project record testing and/or independent assurance testing as outlined in the construction contract specifications.

NO NO 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 LPA.

NO NO 11) As Built Drawings. The ENGINEER will develop as built drawings to depict the work as actually constructed. The LPA will be furnished five (5) set of prints.

NO NO CONSTRUCTION MATERIAL TESTING:

The ENGINEER will provide the LPA 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 LPA and the project plans and specifications.
(h) Providing accurate and timely reports to the LPA and all/other recipients as designated by the LPA.
(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

SECTION 13 - FC 600 – ACQUISITION PROVIDER SERVICES (for EST. 88 PARCELS INCLUDING EASEMENTS AND 0 RELOCATIONS/DISPLACEMENTS)

(Services to be provided by L&G Engineering)

Services Provided By: ENGINEER	CITY/COUNTY	
		1) PROJECT ADMINISTRATION
N	N	a) Negotiation of Scope of Services for Work Authorization
		i) Acquisition Provider will visit project site with COUNTY personnel if necessary.
N	N	b) Project Presence at L&G Consultant Office Headquarters
		i) Full Project Office
		(1) No Joint Use of COUNTY or TxDOT facilities
		(2) Open during normal COUNTY and State work hours
		(3) Personnel available to answer questions
		(4) Availability of Project Files
		(5) At least one office staff member is required to be a current commissioned notary public.
N	N	c) Overhead Costs
		i) Administrative costs
N	N	d) Communication
		i) Provide monthly progress reports with invoice.
		ii) Participate in project review meetings as determined by the COUNTY.
		iii) Prepare initial property owner contact list for use by the COUNTY in distribution of Acquisition Provider introduction letters.
		iv) Prepare and Mail via Certified, Return Receipt Requested method, all introduction letters for each individual parcel.
N	N	e) File Management
		i) Project and parcel files will be kept in the COUNTY's Office, if necessary. Working files will be kept in the Acquisition Provider's project administrative office, but documents generated or received by the Acquisition Provider will be forwarded to the COUNTY office as they are generated or received by the Acquisition Provider, if necessary.
		ii) Prepare payment transmittal request utilizing standard payment submissions forms with supporting documentation.
		iii) Maintain records of all payments including check number, amount, and date paid, etc.
		iv) Provide copies of all incoming and outgoing correspondence as generated if requested by COUNTY at provider conference.
		v) Maintain copies of all correspondence and contacts with property owners.
		2) TITLE SERVICES
N	N	a) Secure preliminary title commitments from the Title Company that will be providing title insurance. Cost of preliminary title commitments will be paid by the Acquisition Provider (if requested by the title company) and will be included in the Acquisition Provider's scope of work for payment and paid as a separate item.
N	N	b) Secure title commitment updates in accordance with insurance rules and requirements for parcel payment submissions. Cost of title commitment updates will be paid by the Acquisition Provider (if requested by the title company) and will be included in the Acquisition Provider's scope of work and paid as a separate item.
N	N	c) Secure title insurance for all parcels acquired, insuring acceptable title to COUNTY OF HIDALGO. Written approval by the COUNTY required for any exception.

Services Provided By: ENGINEER	CITY/COUNTY	
		3) APPRAISAL
N	N	a) Appraiser may be selected from TxDOT's list of state approved fee appraisers. This list will be available for review at all District offices or at the Right of Way Division Office at 118 E. Riverside Drive, Austin, Texas, upon request.
N	N	b) Secure written permission (if necessary) from the owner to enter the property from which land is to be acquired. If the Acquisition Provider and/or the fee appraiser, after diligent effort, are unable to secure the necessary letter of permission from the property owner, a waiver must be obtained, in writing from the COUNTY/TxDOT. Maintain permission letters with appraisal reports.
N	N	c) Prepare (if necessary) pre-appraisal contact with interest owner(s) for each parcel using acceptable COUNTY/TxDOT forms.
N	N	d) Contact property owners or their designated representative to offer opportunity to accompany the appraiser on the appraiser's inspection of subject property. Maintain record of contact in file.
N	N	e) Prepare complete appraisal report for each parcel to be acquired utilizing TxDOT Forms No. ROW-A-5 and ROW-A-6 as applicable. These reports shall conform to TxDOT/COUNTY policies and procedures along with the Uniform Standards of Professional Appraisal Practices.
N	N	f) As necessary, prepare written notification to COUNTY/TxDOT of any environmental concerns associated with the right of way to be acquired which could require environmental remediation.
N	N	g) All completed appraisals will be administratively reviewed by L&G Engineering ROW Office and recommended for approval by TxDOT.
N	N	h) As necessary, the appraiser will appear and or testify as an Expert Witness in eminent domain proceedings and be available for pre-hearing /pre-trial meetings as directed by L&G Engineering and/or TxDOT.
N	N	i) As necessary, the appraiser will coordinate with review appraiser regarding revisions, comments, or additional information that may be required.
N	N	j) The cost of the appraiser appearing as an expert witness for testimony at special commissioners hearing must be included in the proposed fee schedule for the appraiser. The cost of the appraiser's expert witness testimony for trial is not part of this contract, and shall be paid by the COUNTY.
		4) APPRAISAL REVIEW
N	N	a) Review Appraiser may be selected from TxDOT's list of state approved fee appraisers. This list is available for viewing at all District offices or the Right of Way Division office at 118 E. Riverside Drive, Austin, Texas upon request.
N	N	b) Review all appraisal reports for each parcel to determine consistency of values, supporting documentation related to the conclusion reached and compliance with TxDOT/COUNTY policies and procedures and the Uniform Standards of Professional Appraisal Practices.
N	N	c) Prepare and submit to TxDOT the Form ROW-RTA-10 "Tabulation of Values", for each appraisal.

Services Provided By: ENGINEER	CITY/COUNTY	
N	N	h) Maintain parcel files of original documentation related to the purchase of the real property or property interests.
N	N	i) Advise property owner on the Administrative Settlement process. Transmit to TxDOT any written counter offer from property owners including supporting documentation, and provider recommendation with regard to Administrative Settlements in accordance with COUNTY /TxDOT policy and procedures.
N	N	j) Prepare final offer letter, documents of conveyance as necessary.
N	N	k) Appear and provide Expert Witness testimony as an Acquisition Provider when requested.
N	N	l) Meet at the L&G Engineering ROW office in Mission once per week as agreed-upon with the Right of Way Acquisition Manager/Administrator.
N	N	m) Provide a monthly progress report per parcel by the 25th of the month with invoice.
N	N	n) The consultant shall, as part of this proposal, estimate 20% of the parcels identified on Page 37 may result in condemnation. The consultant shall be available for any meeting/hearings as requested by the COUNTY Attorney.
		7) CLOSING SERVICE FEES
N	N	a) Coordinate with COUNTY and Title Company to obtain an updated title commitment along with other Forms and certified copy of the instrument of conveyance necessary when requesting the Parcel Payment from the COUNTY.
N	N	b) Acquisition Provider shall attend closings and provide closing services in conjunction with Title Company.
N	N	c) Acquisition Provider shall record all original instruments immediately after closing at the respective County Clerk's Office, except for donations which must be forwarded to TxDOT for acceptance by the Texas Transportation Commission.
		8) RELOCATION ASSISTANCE SERVICES (separate Work Authorization will be issued once relocations have been identified, unless noted otherwise).
N	N	a) The amount of relocations or displacements as identified. L&G will provide relocation advisory services. L&G will compute replacement housing supplements (owner occupant and/or tenants)
N	N	b) L&G will provide advisory services to business displacements and relocate them effectively.
N	N	c) TxDOT will review, approve and pay for all relocation costs as per the Agreement.
		9) CONDEMNATION SUPPORT
N	N	a) Pre-Hearing Support i) Upon receipt of a copy of the final offer, request an updated title commitment for Eminent Domain from the Title Company. ii) Prepare a Bisection Clause for the original set of Legal Descriptions supplied by Surveyor, if applicable. iii) Use the information from the Title Commitment to join all interested parties on the necessary forms. Spouses of owners must also be joined.

Services Provided By: ENGINEER	CITY/COUNTY	
		iv) Upon completion of the necessary forms, prepare a packet containing 2 copies each of the following documents: Title Commitment, Negotiator's Reports, Appraisal Acknowledgment, Preappraisal Contact Sheet, signed and sealed property description, and plat, Final Offer Letter, any correspondence from the land owner or representatives, along with one copy of the appraisal report. Submit packet to the COUNTY Office for submission to the COUNTY Attorney's office.
		v) Upon receipt of concurrence for the Appraisal Witness, request the update of appraisal.
		vi) Upon receipt of packet prepared by the COUNTY Attorney which will include Petition for Condemnation, Lis Pendens, Order Appointing Special Commissioners, Order Setting Hearing, Oath of Special Commissioner, and Notice of Hearings, developed by the COUNTY Attorney; the attorney shall file the original petition with the COUNTY Court at Law or other appropriate Court for a cause number to be assigned.
		vii) The COUNTY attorney shall file the Lis Pendens including the cause number with the COUNTY Clerk's Office.
		viii) Upon assignment of a court, the COUNTY Attorney shall file the Order Appointing Commissioners with the judge retaining a copy of the Order for the files.
		ix) Following appointment of Special Commissioners by the judge, the COUNTY shall secure the following documents: Oath of Commissioners signed by the Commissioners, Order Setting Hearing, 2 copies of the Notice of Hearing signed by the Commissioners.
		x) The COUNTY shall file all originals with the court and send copies marked "copy" to L & G Engineering.
		xi) The COUNTY Attorney shall send a copy of the petition to the Title Company so that the Title Company can make sure the appropriate parties were joined and that no changes in title have occurred.
		xii) The COUNTY Attorney shall set the Special Commissioners Hearing after the updated appraisal has been submitted, if there is no change in value. If there is an increase in value, COUNTY will approve the new value and the COUNTY's provider will present a revised offer and a final offer letter and submit a copy of the final offer letter.
		xiii) The COUNTY Attorney shall coordinate a pre-hearing conference prior to the hearing (the day before or earlier) to discuss facts of the case with the COUNTY, Appraiser, and Negotiator.
		xiv) After the hearing is set, the COUNTY Attorney shall serve Notices of Hearing to the indicated parties at least 11 days prior to the Commissioner's hearing. If it is necessary to join the Federal Government, be advised that they have an additional 60 days to prepare for the Hearing.
		xv) Once the notices have been served, the COUNTY Attorney shall file the original notices with the court and send copies stamped "copy" to L&G Engineering ROW Office.
		xvi) The COUNTY's Attorney shall send a reminder letter 2-3 weeks in advance to the COUNTY Administration offices, Acquisition Provider, the three special commissioners and court reporter concerning Hearing dates.
N	N	b) Post Hearing Support (by COUNTY Attorney)
		i) For the hearing, prepare the necessary forms and Special Commissioners time sheets and submit forms to Hidalgo COUNTY clerk's office.
		ii) Obtain the signatures of Special Commissioners on the Award of Commissioners and file with the court for the judge's signatures within 48 hours of the Hearing.
		iii) Give timesheets to Judge. The amount paid to the Special Commissioners is determined by the Judge.
		iv) Obtain and distribute 3 certified copies of the award as follows: 1 certified copy to the title company with a request for a commitment, 1 certified copy to the COUNTY, 1 certified copy to L&G Engineering with the Commitment to request the warrant in the amount of the Special Commissioners Award.

Services Provided By:
ENGINEER CITY/COUNTY

v) Send the Commitment and the Award to COUNTY, along with individual special commissioner's billing requesting the payment for their fees.
vi) File COUNTY warrant in the registry of the court. File a Notice of Deposit with the court and send certified copies to each defendant notifying them of the date of the deposit. The Date of Deposit is the Date of Take.
vii) Take photograph of the interest to be acquired (if necessary) on the day of deposit for relocation verification.
viii) Send written notices of the date of deposit to the COUNTY Administration office and all interested parties.
ix) Appear as Expert Witness as requested. Sub-contractors must also appear as Expert Witnesses as requested.
x) All acquisition negotiations file indicating all "due diligence" provided by the Acquisition Provider will be directed to the COUNTY Attorney's office for his further handling in accordance to the Eminent Domain process by the COUNTY.

10) COMPENSABLE UTILITIES

Utility Accommodation is an integral factor in road construction and design. Coordination of utility adjustments is a necessary function within planning, design, acquisition and construction and requires the administration of property rights issues, utility policy, and reimbursement of eligible utility adjustments. It includes the following tasks:

N N a) Preliminary Design Consultations
i) Conduct Field Investigation and review Certificate of Convenience and Necessity boundaries to identify utility providers within the project area. Communications through letter, phone calls and email to establish a contact list. Coordinate data gathering by surveyors and design team. Introduce project to utility providers.

N N b) Field Observations and Verifications
i) Provide maps to Utility providers to "redline" and identify conflicts. Coordinate exposures and data collection by surveyor. Provide and confirm utility data on project maps. Order Utility Location Service.

N N c) Exchange of Information with Utility Providers
i) Provide project schedule.
ii) Request schedules for utility adjustments.
iii) Identify who is responsible for utility process.

N N d) Confirmation of Property Interests
i) Request Documents.
ii) Coordination of data on maps and citation of property interest documents.
iii) Confirm utilities are within easements.

N N e) Coordination of Agreements
i) Identify utilities that are compensable.
ii) Determine parties and agreements necessary to complete compensable process.
iii) Coordinate execution and processing of Standard Utility Agreements.

N N f) Utility Meetings throughout project development
i) Set up and coordinate utility meetings during planning, design, acquisition and construction phases.
ii) Attend and participate in meetings by other parties.

Services

Provided By:
ENGINEER CITY/COUNTY

11) PAYMENT SCHEDULE

N N

a) Project Administration
   i) Payment and Milestones
      (a) Full Project Office
         (1) Lump Sum Basis (assume 1 year project presence)
         (2) Initial payment of 25% upon establishment of a project office with functional phone and utility services.
         (3) Remainder paid out in equal monthly installments of 15% starting the following month.
         (4) Monthly billing to COUNTY OF HIDALGO will be required.

b) Title Services
   ii) Payment
      (a) Per Parcel basis.
   iii) Milestones
      (a) 100% upon securing initial title commitment.

c) Appraisal Services
   i) Payment
      (a) Per Parcel Basis
   ii) Milestones
      (a) 100% paid upon delivery of complete and acceptable appraisal report

d) Appraisal Review
   i) Payment
      (a) Per Parcel Basis
   ii) Milestones
      (a) 100% upon submission of ROW-A-10

e) Appraisal Update
   i) Payment
      (a) Per Parcel Basis
   ii) Milestones
      (a) 100% upon delivery of complete and acceptable appraisal update.

f) Negotiation, Task, and Fees
   i) Payment
      (a) Per Parcel Basis
   ii) Milestones
      (a) 80% upon presentation of initial offer.
      (b) 20% upon successful negotiation and all instruments are recorded.

g) Closing Service Fees
   i) Payment
      (a) Per Parcel Basis
   ii) Milestones
      (a) 100% upon recordation of instrument of conveyance.

h) Relocation Assistance
   i) Payment
      (a) Per Relocation
   ii) Milestones
      (a) 100% upon issuance of 90-day vacancy letter.

i) Compensable Utilities
   i) Payment
      (a) By percent complete

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 COUNTY 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 COUNTY. The ENGINEER shall coordinate through the COUNTY 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 COUNTY**'s** Director. Any replacements to the ENGINEER's designated Project Manager/Engineer must be approved by the COUNTY.

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 COUNTY 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 COUNTY 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 COUNTY 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 COUNTY.

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

Service	Office Location
PS&E	Mission Office

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

office located at 2100 West Expressway 83 (Address),

Mercedes (City), Texas (State).

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

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 Diaphrams
    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.

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.

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

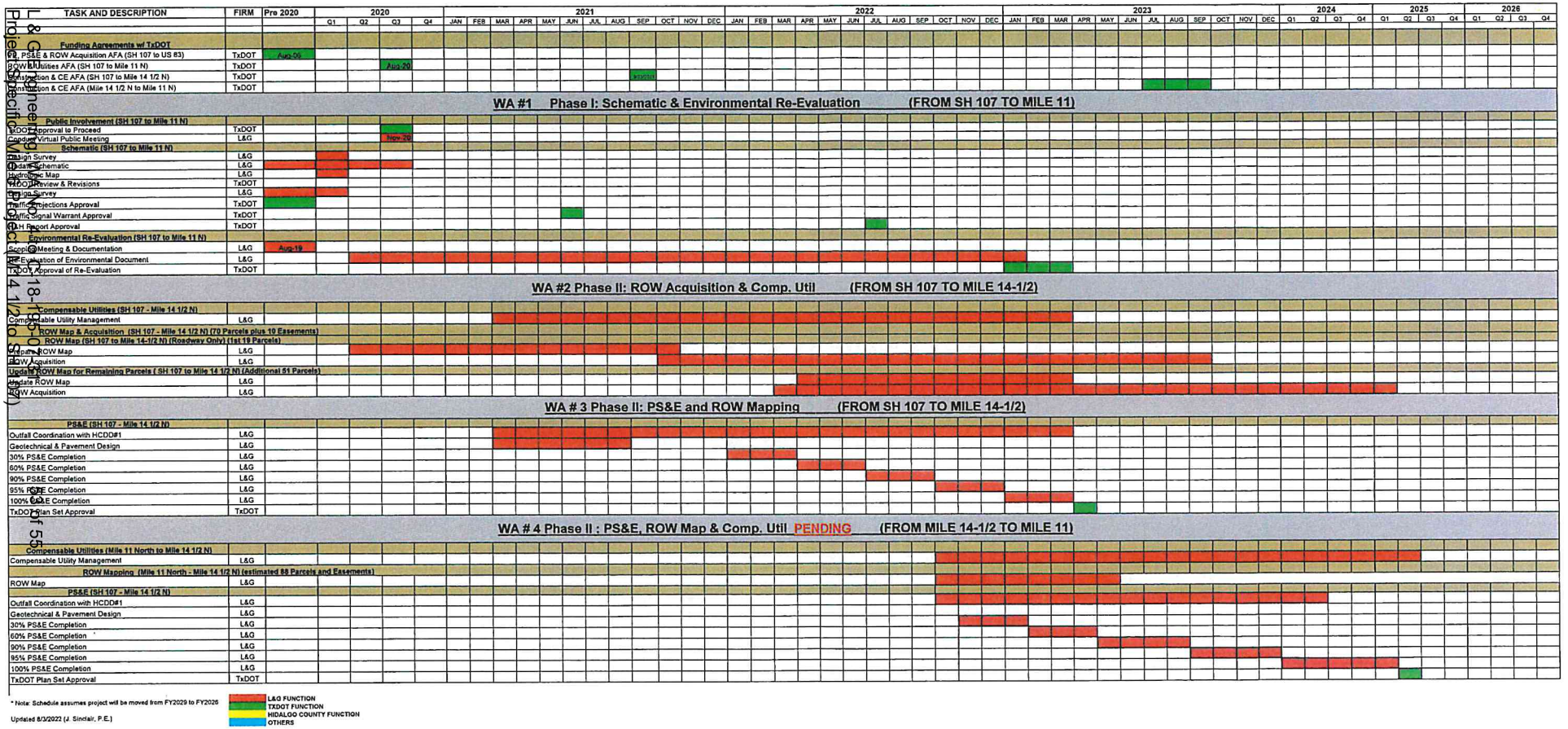
16. Marking Layouts and/or Details
Layouts of the entire project with markings depicted thereon. Usual scale 1:500 (1 inch=40 feet or 1 inch=50 feet). On some projects typical details might suffice.

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.

Client: Hidalgo County Precinct 1

PROJECT DEVELOPMENT SCHEDULE
MILE 6 W
(FROM SH 107 TO MILE 11 N)
Length = 5.18 Miles



* Note: Schedule assumes project will be moved from FY2029 to FY2026

Updated 8/3/2022 (J. Sinclair, P.E.)

L&G FUNCTION
TXDOT FUNCTION
HIDALGO COUNTY FUNCTION
OTHERS

Project Schedule - Engineering & Construction Phase - 18-5-1 - Mile 6 W (SH 107 to Mile 11 N) - Length = 5.18 Miles.xlsx

10:21 AM8/22/2022

EXHIBIT "D-1"
ESTIMATED MAN-HOUR BREAKDOWN

MILE 6 PROJECT ~ from Mile 11 to Mile 14 1/2

L & G Engineering, WA #4 to C-18-195-07-31
Project Specific- Mile 6 Project (Mile 11 to Mile 14 1/2)
54 of 55

Function Code	Description of Work	Senior Project Manager	Senior Engineer	Project Engineer	Senior Engineer Tech	CADD Operator/GIS Analyst	Admin / Clerical	TOTAL HOURS	Sub-Contract Amounts / ROW COST	* TOTAL LINE ITEM COST
	CONTRACT RATE	215.34	180.42	139.68	116.40	78.57	58.20			
WORK AUTHORIZATION NO. 4 - WITH HIDALGO COUNTY Pct. No. 1										
PHASE II - Engineering Services required for Partial PS&E Development, Right-of-Way Mapping, Surveying Services, etc.										
164	Project Management	14	44	59			14	131		$ 20,000.00
215	Additional field Surveys and Subsurface Utility Investigation	19	60	56	33		16	184	$ 22,500.00	$ 27,500.00
230	Complete ROW Map Roadway	100	260	268	203		43	874	$ 264,000.00	$ 132,000.00
801	Est. Compensable Uitlity Mngmt for Acq. of Property Rights and Compensation for Utility Adjust(s)	14	51	63	63		8	199		$ 28,800.00
150	PS&E Development Roadway	185	589	604	603		96	2077		$ 306,240.00
160	PS&E Development for Irrigation Structures ,Siphon and Irrigation Bypass	15	43	45	72	70	6	251		$ 31,500.00
330	Geotechnical	75	160	175	172		9	591		$ 90,000.00
160	Engineering Fee to Create 1 set of Plans and Submit through TxDOT	6	22	25	24	22	4	103		$ 13,500.00
161	Hydrologic Model & Report for Roadway	80	98	200	98		13	489		$ 75,000.00
163	Permitted Utilities Coordination to adjust utilities on the Roadway	11	32	69	75	21	11	219		$ 28,800.00
SUB-TOTAL		**519**	**1359**	**1564**	**1343**	**113**	**220**	**5118**	**$ 286,500.00**	**$ 753,340.00**

Sub-Total Manhours Fee with Subconsultant Fee:	$ 1,039,840.00
*** TOTAL PROJECT FEE:**	**$ 1,039,840.00**

QUINTANILLA, HEADLEY AND ASSOCIATES, INC.

Consulting Engineers ★ Land Surveyors
Alfonso Quintanilla, P.E. # 95534 R.P.L.S #4856 Eulalio Ramirez, P.E. # 77062
Engineering Firm Registration No. F-1513
Surveying Firm Registration No. 100411-00
Municipal & County Projects ★ Subdivisions ★ Surveys

July 21, 2022

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

Re: Mile 6 West Road Project from Mile 11 North Road to Mile 14 North Road

Dear Mr. Garza,

I am pleased to submit this proposal to provide the professional surveying services.

Function Code 130: 88 parcels @ $ 3,000.00 (includes title reports): $ 264,000.00
Function Code 150: Additional road topography and SUE: $ 22,500.00

Total fee: $ 286,500.00

Please review this proposal and let me know if you have any questions. I am ready to start this work immediately.

Respectfully,

Alfonso Quintanilla, P.E., R.P.L.S.
President

124 E. Stubbs, Edinburg, TX 78539 ★ Phone 956/381-6480 ★ Fax 956/381-0527