HIDALGO COUNTY
Professional Engineering Services
Contract # C-07-451-
Work Authorization Form

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Section I.A. of the Agreement made by and between **HIDALGO COUNTY**, action herein by and through the **Commissioner's Court**, hereinafter called the "**Owner**," and, **L & G Consulting Engineers, Inc.** *d/b/a* **L & G Engineering**, professional engineers of Mercedes, Texas, hereinafter called "**Engineer**".

PART 1. SCOPE OF WORK

The purpose of this Work Authorization is for the **Engineer** to provide Engineering Services required for the preparation of Schematics, Environmental Assessment, Public Involvement, ROW Mapping, Surveying, and Roadway Design for the reconstruction of FM 493 from Mile 10 to Mile 14.

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 **$1,598,950.00**. This amount is based upon the costs outlined in the Estimated **Cost Proposal** attached hereto as **EXHIBIT "D".**

PART 3. PAYMENT

Compensation and payment to the Engineer for the services established under this Work Authorization shall be made in accordance with **Article**/Part/Section **7** of the Agreement.

PART 4. FUNDING

This Work Authorization No.1 shall be funded through funding source:
Account No. **7-1336-431-00-121-049-0-841**
Requisition Number _____ **(MUST BE INCLUDED AFTER CC APPROVAL)**

PART 5. PERIOD OF SERVICE

This Work Authorization shall become effective on the date of final acceptance of the parties hereto, and terminate **upon completion of scopes of the work authorization**.

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 Sylvia S. Handy, as to content and detail of this **Work Authorization No. 1**

HIDALGO COUNTY PRECINCT NO. 1

BY: _____
Sylvia S. Handy, Commissioner

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on _____ as indicated below and effective as of ____ day of _____, 2007.

THE ENGINEER:

_____
By: Jacinto Garza, P.E.

THE OWNER:
HIDALGO COUNTY

_____
By: Juan D. Salinas, III, County Judge

ATTEST:

_____
By: Arturo Guajardo, Jr., County Clerk

LIST OF ATTACHMENTS

EXHIBIT "A" - Service to be Provided by the Owner
EXHIBIT "B" - Services to be Provided by the Engineer
EXHIBIT "C" - Work Schedule
EXHIBIT "D" - Cost Proposal

EXHIBIT "A"

SERVICES TO BE
PROVIDED BY OWNER

EXHIBIT "A"

Services to be provided by the OWNER

The following provides an outline of the services to be provided by the OWNER in the development of the Project.

The OWNER will provide to the ENGINEER the following:

(1) Authorization to the ENGINEER to begin work in accordance with Section 3 of this Agreement.

(2) Payment for work performed by the ENGINEER and accepted by the OWNER in accordance with Section 6 of the Agreement.

(3) Assistance to the ENGINEER, as necessary, to obtain the required data and information from other local, regional, State and Federal agencies that the ENGINEER cannot easily obtain.

(4) Provide any available relevant data the OWNER may have on file concerning the project.

(5) Provide timely review and decisions in response to the ENGINEER'S request for information and/or required submittals and deliverables, in order for the ENGINEER to maintain the agreed-upon work schedule prepared in accordance with Attachment "C" of this Agreement.

(6) Attend and participate in progress meetings as required and as coordinated and conducted by the ENGINEER.

(7) Assist the ENGINEER in the preparation of the project mailing list; provide representation, a site and stenographer for all public meetings; additionally:

Public Meetings

(a) Approve agenda and all exhibits prior to public meeting.
(b) Approve date and location of the meeting.
(c) Review/approve Public Meeting Report.

(8) Attend the Preliminary Concept Conference coordinated and conducted by the ENGINEER and more particularly identified in Attachment "B" of the Agreement.

(9) Assist the ENGINEER as required in the coordination with the USACE and the Federal Emergency Management Agency (FEMA) and any other coordinating agency or entity.

(10) Review and approve the Project design criteria.

(11) Review and approve change orders as required and prepared by the ENGINEER.

EXHIBIT "B"

SCOPE OF SERVICES
TO BE PROVIDED BY ENGINEER

EXHIBIT "B"

Services to be provided by the Engineer

PROJECT LIMITS:

- **FM 493: From Mile 10 North to Mile 14**

GENERAL SCOPE OF WORK:

The work to be performed by the Engineer under this Work Authorization shall consist of providing Engineering Services required for the preparation of Schematics, Environmental Assessment, Public Involvement, ROW Mapping, Surveying, Bridge and Roadway Design. The Engineer will prepare bid packages as identified in each Work Authorization for Plans, Specifications, and Estimates (PS&E) for the reconstruction of FM 493 From Mile 10 to Mile 14 in Segments, from an existing 40' rural roadway to a 5-lane curb & gutter roadway with a continuous left turn lane including all associated drainage, structures, and grading including Traffic Control, Signing & Striping, and Traffic Signal/Flashing Beacon Installations for the subject limits.

The work to be performed by the Engineer under Work Authorization No. 1 shall also include the review of the existing drainage patterns to determine if the proposed roadway can be designed utilizing the existing outfalls. The basis for this estimate is based on the premise that the existing outfalls located at the ROW line of FM 493 will be utilized. The Engineer will examine the proposed outfall locations and associated hydrologic and hydraulic conditions and determine the feasibility and practicality of using the existing outfalls or if new outfalls are needed. **This scope does not include designing outfalls outside of the existing ROW for FM 493.**

The **Engineer** will furnish all equipment, materials, supplies, and incidentals as needed to perform the services required by this Work Authorization, except as otherwise specified in Exhibit A, "Services to be Provided by the State".

GENERAL SCOPE OF WORK:

The Scope of Work for this Work Authorization will be identified as follows:

- ***FC110 ~ Design Schematic Development***
- ***FC120 ~Social, Economic, and Environmental Studies, and Public Involvement***
- ***FC130 ~ Existing Right-of-Way Determination***
- ***FC150 ~ Design Surveys***
- ***FC160 ~ Roadway Design***
- ***FC161 ~ Hydrologic/Hydraulic Study***
- ***FC162 ~ Signing, Pav't Marking, Signals***
- ***FC163 ~ Irrigation Str., Estimate, Specs, Gen Notes, Misc***
- ***FC164 ~ Contract Management***

FC 110 ~ DESIGN SCHEMATIC DEVELOPMENT

After the existing centerline alignment is recovered and the proposed centerline is approved by TxDOT, the Engineer will develop a design schematic for submittal to TxDOT's Design Division.

Design Criteria

- The Engineer will prepare a Design Summary Report (DSR) to document the design criteria for the project and submit it to TxDOT for further processing.
- A Design Concept Conference (DCC) will be held to discuss and review the design criteria. The Engineer will prepare a Meeting Summary Report which will describe in detail the decisions made at the DCC and distribute it to everyone in attendance.
- The Engineer will prepare a preliminary construction cost estimate based on the results of the DCC and submit it to TxDOT.

Design Schematic

- The Engineer will develop a preliminary design schematic, based on the alignment previously selected, and submit to TxDOT for review.
- The Engineer will revise the schematic to incorporate TxDOT's comments and provide to TxDOT.
- A public meeting/hearing is not proposed for this project; however, a workshop/meeting with the City of Elsa is proposed and the Engineer will attend and will provide TxDOT with technical support.
- The Engineer will meet with TxDOT after the workshop/meeting to discuss modifications, if any, to the design schematic. The Engineer will incorporate the changes agreed upon, into the schematic and submit the revised schematic to TxDOT for further submittal to the Design Division and/or FHWA.
- After receiving approval of the design schematic from TxDOT, the Engineer will proceed with finalizing the design and complete the PS&E.
- This Scope does not include technical assistance for either a Public Meeting and/or Public Hearing.
- The Schematic details will be completed to the Districts identified checklist.

Drainage

- The Engineer will evaluate the adequacy of the existing outfalls and develop a Hydrologic Map for the project identifying if any outfalls are needed for the project. The Engineer will coordinate with the Hidalgo County Drainage District No. 1, the Irrigation Districts, and cities in the area.

Irrigation Structures

- The Engineer will define the horizontal layout of the irrigation system in place and draw on the schematic the basis for maintaining the irrigation system whole.

FC 120 ~ ENVIRONMENTAL STUDIES, AND PUBLIC INVOLVEMENT

The Engineer will conduct the necessary research and field investigations to prepare an Environmental Assessment document to obtain a Categorical Exclusion clearance for the project.

Task I. Document Purpose and Need for the Project: This section will include text and graphics illustrating the description, purpose and need, objectives of the project and the existing and proposed project design. This section will also provide a description of the issues eliminated from further study.

Task II. Alternatives: This section will include text and graphics illustrating the different alternatives considered prior to selecting the preferred. It will also describe the reasonable alternatives and those eliminated from further study.

Task III. Affected Environment and Environmental Consequences: For each of the following categories the necessary background and field reconnaissance will be performed to gather data necessary for the completion of the EA. This will assist in determining which issues should be eliminated from further study or studied in detail.

Land Use and Socio-economic Impacts: Pertinent social and economic issues will be addressed in the EA; a separate report will not be prepared. At this time, it is unknown if relocations will occur; however, the EA will address any relocations anticipated. No other impacts to land use, land planning or socio-economic issues are anticipated. A Section 4(f)/6(f) will not be prepared.

Ecological Resources: A characterization of the project's ecological resources, including wetlands, vegetation, prime farmland and wildlife habitat characteristics will be performed. Ecologically sensitive resources including protected species, if any, will be identified in order to assess potential effects of project construction and operation. Any presence or absence surveys for endangered species will not be conducted. The project will be assessed for compliance with the Nationwide Permit Program; however, a permit is not anticipated. Any permitting required will be conducted by TxDOT.

Hazardous Materials: A field screening and an internet data search for potential hazardous materials sites will be conducted. A Phase I Environmental Site Assessment for hazardous materials will not be conducted.

Noise and Air Quality: A noise analysis and air quality impacts will be assessed under this scope.

Field Investigations: Field visits to identify potential environmental constraints involving land use, ecological resources and potential hazardous material sites will be conducted.

Graphics: Report graphics will be prepared for the EA as needed to show the project location, typical sections and project area photographs. In addition, the project layouts/photographs will show those resources that are necessary to convey the project's impacts to the reviewers.

Public Involvement – A discussion will be provided regarding any public involvement which occurs on the project. The Engineer will assist the District in providing technical support for one workshop/meeting. No other public involvement activities will be done under this scope.

Report Preparation and Submittal – The Engineer will prepare an environmental document (EA) that complies with applicable procedures of the National Environmental Policy Act (EPA) and Federal Highway Administration Technical Advisory 6640.8A. The analysis will address the adverse and beneficial impacts of project construction and operation. Mitigation options will be emphasized where adverse impacts may potentially occur.

The Engineer will submit one draft copy of the report for review by the District. Color photographs and exhibits will be included in both the draft and final reports. All review comment responses will be provided in writing and a meeting will not be required to discuss review comments. The draft report will be revised to incorporate District's comments. Thirteen (13) sets of the revised report will be submitted for review by ENV. After ENV reviews the report, the document will be revised and eight (8) sets of the report will be submitted. Because this project would obtain a Categorical Exclusion, no other revisions will need to be made. Upon receiving a Categorical Exclusion, a CD which includes the document and exhibits will be provided to the District for their files.

Coordination – L&G will coordinate with the SWCA to conduct the Historical Resources Survey and report. TxDOT will coordinate with the appropriate resource agencies to obtain environment clearance for completion of project.

Assumptions used to derive to proposed fee estimate and scope of services:

- The Engineer will conduct field investigations in two field trips.
- The Engineer will attend the DCC and one workshop/meeting.
- All investigations will be conducted based on existing literature, field reconnaissance and aerial photographic interpretation.
- The draft EA will be submitted to TxDOT in less than 30 days after obtaining a preliminary schematic and/or receipt of data needed.

FC 120 ~ ENVIRONMENTAL STUDIES, AND PUBLIC INVOLVEMENT

(SERVICES TO BE PROVIDED BY SWCA)

SWCA, Inc. will conduct the historic resource investigations for inclusion in this report and/or submittal to the Texas Historical Commission (THC).

The following tasks will be performed by SWCA on behalf of L&G Engineering for a proposed 6-mile road improvement project of Farm-to-Market (FM) 493 from Mile 10 Road to SH 107 in Hidalgo County, Texas. SWCA will identify, document, and record extant buildings, structures, and objects constructed 50 years prior to the letting date of the construction project or earlier within the project's Area of Potential Effect (APE). SWCA will then evaluate all identified resources for National Register of Historic Places (NRHP) eligibility. The scope of services and associated cost estimate are based on the assumption that the APE/survey area will extend 150 feet beyond the proposed right-of-way boundaries. It is additionally assumed that up to 100

historic resources may be located within the survey area, based on a cursory examination of the Edcouch USGS 7.5' quadrangle maps, and the fact that the project area travels through the center of the town of Elsa (established in 1927). The client shall provide SWCA with details of the proposed project, including a description of the existing roadway and an outline of the proposed roadway construction. This outline will include road improvements and landscape alterations such as the development of curbs, drainage systems, sidewalks, and ditches. The proposed scope of services is a reconnaissance-level identification and evaluation of non-archaeological historic-age resources, which includes a literature review, reconnaissance survey, and summary reconnaissance report.

Literature Review and Research Design

SWCA will conduct a literature review of the project area and present a research design to TxDOT-Environmental Affairs Division (ENV), as described in ENV guidance procedures regarding historic resource surveys. This review includes the examination of files at THC to identify historic properties that have been previously listed in the NRHP, designated as Recorded Texas Historical Landmarks, and/or are included in the Texas Historic Sites Inventory or other available local historical surveys. SWCA will also check other available archival sources, such as historic maps or aerial photographs, to locate previously unidentified potential historic resources in the project's area of potential effect. A historic literature review will also be conducted to establish appropriate historical and cultural contexts for the project area. This information will be compiled along with a survey methodology as part of the research design that will be submitted to ENV and the Texas Historical Commission (THC) for a final determination of the APE and approval for the project to proceed.

Reconnaissance Survey

Following completion of the preliminary research tasks, a SWCA architectural historian will carry out a reconnaissance field survey of the proposed alignment to identify and record historic buildings, structures, and objects within the project's APE. The historian will plot the location of each identified resource on a USGS (or similar) map, take photographs, obtain addresses, and gather physical data on the structure such as property type and subtype classifications, stylistic influences, construction dates, integrity issues and preliminary eligibility recommendations.

Summary Reconnaissance Report

SWCA will provide L&G Engineering, Inc. with four copies of a summary reconnaissance report that will include the following:

- A letter report containing an overview of the results of the reconnaissance survey. The letter report will describe the findings of the reconnaissance survey and recommend the need, if any, to conduct further survey efforts. The letter report will have sufficient detail and clarity to provide a basis for making determinations of NRHP eligibility.

- Photographic documentation for each identified historic resource. At a minimum, this documentation will include an oblique view of the primary facade and a side elevation of each resource, with the subject filling the frame. All photographs will be 3.5" x 5" or 4" x 6" color prints. All photographs will be well-focused and clearly depict architectural and other

details relevant to an evaluation of the resource's character-defining features. Photographs will be attached to separately labeled pages that clearly identify project name, address (or location) of resource, and site ID number.

- An inventory of all identified resources provided in tabular form that lists their site ID numbers, locations, property and subtype classifications, stylistic influences, construction dates, integrity issues, and preliminary NRHP eligibility recommendations.

- A map or maps showing the location of each identified historic resource labeled with its appropriate site ID number. Outbuildings and landscape features will be reported as subsets of the main site ID number for a property. The project APE, major street names, and other directional landmarks will be clearly indicated on the map. Maps will be based on aerial photographs, USGS 7.5-minute quadrangle topographic maps, or similarly detailed maps.

- Proposed changes to the research design arising from the results of the reconnaissance survey, including contextual issues, comparative property information needs, data gaps, and other items necessary to finalize the evaluation and documentation phases of the project.

Draft copies of the report will be submitted to L&G Engineering for review and comment prior to submittal to ENV for their review. Once the draft has been reviewed, any appropriate edits will be made and a final report will be submitted to L&G Engineering and ENV.

FC 130 ~ PRELIMINARY ROW DETERMINATION

(SERVICES TO BE PROVIDED BY RODS SURVEYING)

FM 493 FROM MILE 10 TO MILE 14

General

1. The **Surveyor** will recover and or re-establish the existing Right-of-Way for the subject project.
2. The **Surveyor** shall monument the recovered ROW at all at all PCs, PTs, angle points, intersecting right-of-way lines of side streets, and 1000-feet stations after coordinating with the L&G Engineer. The **Surveyor** shall also monument all ROW corners.
3. **The Surveyor will submit a separate existing R.O.W. layout drawing (at scale of 1 inch = 100 feet), delineating the existing points recovered and all R.O.W. monuments that will be set before setting any points on the ground**. This map shall be utilized by L&G to attach it to the requests for the utility companies to adjust their lines prior to construction.
   a. This map shall also contain the proposed centerline as set on the ground – **again do not set a centerline for construction until L&G Engineers have approved.**
   b. Existing right-of-way lines will be delineated with appropriate bearings, distances, and curve data. The proposed centerline alignment will be delineated with appropriate bearings, distances, curve data and stationing. The existing ROW layout sheets stationing will be based on the proposed alignment. A north arrow will be shown on each sheet and, if possible, in the upper right hand corner.
   c. Monumentation set or found will be shown and described as to material and size.
   d. A station and offset based on the proposed alignment will be shown for all points set and/or recovered.
   e. Intersecting streets will be shown and identified by name and right-of-way width.
   f. Railroads will be shown and identified by name and right-of-way width.
   g. A note will be included on each sheet stating the basis of bearings, coordinates, and datum used.
   h. All existing right-of-way layout sheets shall be 11" x 17". The borders around these map sheets should ½" from the right side of the map, the top and the bottom. The border on the left side is 2". Scale of 1"=100'.

FC 150 ~ DESIGN SURVEYING

(SERVICES TO BE PROVIDED BY RODS SURVEYING)

FM 493 FROM MILE 10 TO MILE 14

A. Design Survey

1. **The Limit of the Design survey shall be 1000-ft before and after the limits of the project. Set horizontal and vertical control for FM 493 between Mile 10 and SH 107. The Basis for the H &V Control shall be the control previously established on FM 493 south of Mile 10.** Set benchmarks at max 1000-ft intervals. The BM's shall be #5 I.R. 2-ft in depth set in concrete. An H&V Book will be provided to the Engineer with 3-pt reference ties.

2. Field Topographic Survey - Verify accuracy of existing topographic information by checking coordinates of Horizontal control points and elevations of benchmarks previously established by TxDOT.
3. Update existing planimetric data with current information of any improvements and apparent changes in the topography since the original planimetric data was obtained as well as field tie all existing drainage structures, driveways, and pavement edges as well as all existing roadway centerline and roadside drainage ditch profiles.
4. Fill all existing planimetric mapping void areas along FM 493, data processing and CADD mapping (2d and 3d) update, (4.7 Miles including additional limits).
5. Field locate cross culverts, driveway culverts, inverts, irrigation lines, within the project limits, data processing and CADD mapping (2d and 3d) update.
6. Right of Entry, Right of Way Research, and Appraisal District Records is the responsibility of the surveyor.

6a. The surveyor shall recover and reestablish the existing centerline then coordinate with the Engineer to establish the existing centerline stationing based on the old stationing of the previous plans south of Mile 10.

7. Stake proposed centerline/baseline at 1000-foot stations, PC's and PT's as directed by Engineer. (No. 5 I.R. 2-ft long).—FOR CONSTRUCTION but not until the Engineer directs the surveyor to do so.
8. **The Surveyor shall also paint the proposed centerline on the proposed pavement. (500-ft stations and a tick mark at 100-ft stations ---12 inches long with approved paint by Engineer) before construction for the purpose of utility adjustments and project location.**
9. Extend topographic survey 500 feet to each side of the existing Right-of-Way on all the intersecting streets for the limit of the project except at the existing drain ditches, the survey shall be extended 500-ft east and west from the existing FM 493 ROW and the x-sections shall be 50-ft Lt and Rt from the ditch centerline plus tieing in all topo.

B. Utilities

1. Coordinate with engineer to have all existing underground utilities marked by utility companies along FM 493 and intersecting streets. Field tie the marked locations and process the information to include in the planimetric CADD mapping files. Utility lines shall be properly labeled and placed in separate levels in accordance with TxDOT requirements.
2. Collect vertical information of all exposed (by utility companies) utilities that have been identified as possible conflicts by the Engineer and process as above.

C. Miscellaneous

1. Provide the engineer with a copy of all field books developed during this project. The field books shall supplement the graphical information submitted by the surveyor. Accurate sketches of the existing conditions of all irrigation and drainage structures that were tied down by the surveyor shall be included in the field books.

2. A horizontal and vertical. control book shall be submitted to the engineer. This control book shall include the reference sketches to the BM's and Horizontal Control. Points as well as describe the basis of the datum's used.

FC 160 – DESIGN (SERVICES TO BE PROVIDED BY L&G)

PS&E for the above work shall be prepared in accordance with the applicable requirements of TxDOT Specifications, Standards, and manuals (updated for revisions). Whenever possible, the Department's standard drawings, standard specifications, or previously approved special provisions and/or special specifications will be used. If a special provision and/or special specification must be developed for this project, it shall be in the Departmental format and, to the extent possible, incorporate references to approved Department test procedures.

The Engineer shall furnish three (3) final cross-section plots showing both the original terrain (modified) and the design cross-sections, showing the roadway template. The design cross-sections shall indicate the slope rate on the side slopes.

FC 161 – DRAINAGE (SERVICES TO BE PROVIDED BY L&G)

The Engineer will perform a Geopak Drainage generated drainage analysis for all drain systems which will also include contributing runoff from the Adjacent Properties. This drainage analysis will be prepared prior to detailed design of drainage structures and will contain drainage area map(s), hydraulic calculations and Thysys and/or HEC-RAS analysis for TxDOT to approve.

FC 161 - STORM WATER POLUTION PREVENTION PLAN (SW3P)
(SERVICES TO BE PROVIDED BY L&G)

The **ENGINEER** shall complete the plans adequately addressing a storm water pollution prevention plan for the entire project during all phases of construction. SW3P layouts shall be developed on the TCP plan sheets. SW3P plans shall **generally** include the following drawings:

- **Summary Sheet on TCP's**
- **Details & Standards**

The Engineer shall develop a project specific Storm Water Pollution Prevention Plan (SW3P) to comply with the Federal Regulations (40 CFR part 122) published in the Federal Register on Sept. 9, 1992.

FC 162 - SIGNAL DESIGN
(SERVICES TO BE PROVIDED BY ETSI)

PROJECT LIMITS:
FM 493: From Mile 10 North to MILE 14

GENERAL SCOPE OF WORK:

Project Understanding

Ergonomic Transportation Solutions, Inc. (ETSI) will produce a complete set of Plans,

Specifications and Estimates (PS&E) that cover the installation of permanent signals along FM 493 at the following intersections:

FM 493 at Mile 10 1/2 – Existing signal will require major modifications, such as pole relocation and rewiring, new loop detector placement and controller relocation.

TASK 1 – General Notes for Traffic Signal installation

ETSI will setup the General Notes sheet(s) and prepare the general notes for the traffic signal design, as well as the signing, pavement marking and wheelchair ramp design at the above intersections.

TASK 2 – Estimate and Quantities

ETSI will prepare Basis of Estimate sheets with adequate number of columns to reflect the number of the above intersections and one column for the total quantities.

ETSI will calculate quantities and prepare cost estimates at 60%, 90% and 100% levels of completion.

TASK 3 – Condition Diagram

ETSI will setup the condition diagram sheets that would show the existing configuration of each intersection and other elements as required by TxDOT.

TASK 4 – Proposed Signal Plan Layout

ETSI will setup proposed signal layout sheets that would show the proposed geometry of the above intersections along with the basic elements of the signal design, such as location of signal poles, pedestrian poles, wheel chair ramps, cross walks and service pole locations.

ETSI with assistance from L&G Engineering will contact the local power company for electrical service requirements at each of the above interceptions.

ETSI will produce submittals for TxDOT's review at the 60%, 90% and 100% completion levels.

TASK 5 – Signal Phasing and Timing

Based on traffic counts furnished by TxDOT, ETSI will develop optimal phasing and timing charts for each of the AM peak, PM peak and Off-peak time periods, using appropriate software. The charts will be presented to TxDOT for review and approval before their incorporation into the plan sheets.

TASK 6 – Standard Sheets List

ETSI will prepare a list of standard sheets for the 60%, 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 7 –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 at the 60%, 90% and 100% submittals.

TASK 8 – Electrical Schedules

ETSI will prepare tables, depicting the electrical schedule for each signalized intersection. The electrical schedules will be shown on the same sheets with the loop detector schedules and phasing/timing tables.

TASK 9 – Field Investigation and Meetings

ETSI will conduct field investigations at the above intersection locations and record pertinent signal design information as well as identify potential design issues.

ETSI will participate in one project progress meeting with L&G/TxDOT.

TASK 10 – Other services

ETSI will provide tables with electrical service data for each of the services poles required at the above intersections.

Other services not covered in the above scope will be negotiated separately.

ADDITIONAL SERVICES

Additional services not covered in the above scope will be negotiated separately. In addition to the above intersections, ETSI will conduct field investigations at the intersection of FM 493 and Mile 10. From available photographs, it appears that no signal work will be necessary at this intersection. However, if during field investigations, it is determined that signal modifications are necessary, the effort required to prepare the signal modification plans will be negotiated separately.

It is also possible that temporary traffic signal plans may be necessary at the intersection of FM 493 with MILE 14, to control traffic during construction. The right of way at this intersection is limited and handling traffic during contraction may require interim traffic signals. After development of the traffic control plans, ETSI will investigate the need for temporary traffic signals and the effort required to prepare temporary signal plans will be negotiated separately.

FC 162 - SIGNAL DESIGN

(SERVICES TO BE PROVIDED BY L&G)

L&G shall furnish ETSI hard copies and electronic versions of the existing topographic data as well as the proposed geometric design with all related reference files.

L&G will be responsible for contacting all utility companies present at the above intersections and furnish such information to ETSI. ETSI will assist L&G in identifying and resolving utility conflicts as required by L&G.

L&G shall also provide coordination and communication for the progress of the signal design work among all parties involved.

FC 162 – PAVEMENT MARKING AND MARKER LAYOUTS

(SERVICES TO BE PROVIDED BY L&G)

TASK 1 – Plan Layouts (1"=100')

L&G will produce a complete set of Plans, Specifications and Estimates (PS&E) that cover the pavement marking and markers along FM 493 and all cross street approaches for the length shown in the plan and profile layouts. Work will include design of ADA compliant wheelchair ramps that line up with the proposed crosswalks and signal pole locations. L&G will coordinate signal pole placement with cross walks and wheel chair ramps. L&GI will prepare pavement marking details for the following cross streets:

FM 493 at Mile 10 ½ - Pavement markings for transition to existing roadway.
FM 493 at Mile 11 - Pavement markings for transition to existing roadway.
FM 493 at Mile 11 ½ - Pavement markings for transition to existing roadway.
FM 493 at Mile 12 - Pavement markings for transition to existing roadway.
FM 493 at Mile 12 ½ - Pavement markings for transition to existing roadway.
FM 493 at Mile 13 - Pavement markings for transition to existing roadway.
FM 493 at Mile 13 ½ - Pavement markings for transition to existing roadway.
FM 493 at Mile 14 - Pavement markings for transition to existing roadway.

TASK 2 – Estimate and Quantities

L&G will prepare a summary of pavement marking and marker quantities (Basis of Estimate sheet) with adequate number of columns to reflect the types of markings to be installed by each payout sheet and one column for the total quantities.

L&G will calculate quantities at 60%, 90% and 100% levels of completion.

TASK 3 – Standard Sheets List

L&G will calculate quantities at 60%, 90% and 100% levels of completion.

TASK 4 –Specifications List and Cost Estimate

L&G will prepare a list with all pertinent specifications and special provisions as they relate to the above tasks. L&G will also prepare cost estimates at the 60%, 90% and 100% submittals.

FC 162 – SIGNING AND DELINEATION LAYOUTS

(SERVICES TO BE PROVIDED BY L&G)

TASK 1 – Plan Layouts (1"=100')

L&G will produce a complete set of Plans, Specifications and Estimates (PS&E) that cover the signing and delineation along FM 493 and all cross street approaches for the length shown in the

plan and profile layouts. The work will include design of flashing beacons near the School. The plans will show the following:

Existing signs to remain in place
Existing signs to be removed
Proposed new signs
Proposed new delineators and object markers.

L&G will prepare signing and delineation plans for all major cross streets.

TASK 2 – Summary of Small Signs

L&G will prepare a summary of small signs sheets along with a descriptive codes sheet. (Basis of Estimate sheet).

L&G will calculate quantities at 60%, 90% and 100% levels of completion.

TASK 3 – Standard Sheets List

L&G will calculate quantities at 60%, 90% and 100% levels of completion.

TASK 4 –Specifications List and Cost Estimate

L&G will prepare a list with all pertinent specifications and special provisions as they relate to the above tasks. L&G will also prepare cost estimates at the 60%, 90% and 100% submittals.

FC 163 - IRRIGATION SIPHONS AND CANALS

(SERVICES TO BE PROVIDED BY L&G)

The ENGINEER shall coordinate with the Irrigation District(s) and prepare all necessary drawings needed for maintaining the functionality of irrigation districts irrigation lines.

FC 163: TRAFFIC CONTROL

(SERVICES TO BE PROVIDED BY L&G)

The Engineer shall determine the project construction sequence and design a traffic control plan based upon the Texas MUTCD and the latest district traffic control design requirements. This shall include field investigations into such items as any Drainage Structures, utilities, R.O.W. restrictions, adjacent properties and cross street access, and other items which may ultimately affect the safe handling of traffic during the construction sequence.

The engineer shall meet with the Pharr District personnel early in the project design as soon as a construction sequence is developed. The construction sequence shall be updated periodically as the design progresses.

The engineer shall prepare drawings for each phase, based upon the agreed sequence of construction. The drawings shall indicate traffic lanes versus work zones per phase, including all required detours. Consideration shall be given to the use of temporary traffic control signals and, if needed, how to utilize and coordinate with the various phases. The drawings will be used by the District to obtain final concept approval of the TCP from the District Traffic Control Review

Committee. Based on the results of the safety review team meeting, the detailed Traffic Control PS&E will be completed.

FC 163: UTILITIES

(SERVICES TO BE PROVIDED BY L&G)

The Engineer shall coordinate the utilities as follows: (L&G will conduct two utility meetings with the owners at the District Office or at L&G's office)

A. Determine the ownership of the existing utilities on the subject project.

B. Contact the utility owners and locate (horizontally and vertically) existing utilities on the ground.

C. Evaluate utility conflicts with proposed construction. Prepare and submit drawings to the City, Utility Companies and copies to TxDOT, for required utility adjustment. The following information will be submitted for each required utility adjustment.

1. A reproducible drawing 8-1\2" x 11", 11" x 17", or 22" x 34" (as appropriate) for each utility adjustment

2. Drawing will include the following:

   a) Existing and/or proposed R.O.W lines.
   b) Existing and/or proposed roadways.
   c) Proposed drainage structure
   d) Existing underground utility in plan and profile.
   e) Owner of utility.
   f) Benchmark

3. Provide copies to TxDOT of correspondence with utility companies and cities. If initial contact was made by phone, provide name of company and representative's name and telephone number.

4. Prepare a detailed list to TxDOT of all conflicts with existing utilities during the drainage structure design phase. List must include the following:

   a) Highway station number.
   b) Name of utility company and type of facility.
   c) Proposed highway facility - the conflict with: storm sewer, roadway, drainage ditch, drill shaft, etc.

4. The Engineer shall be responsible for notifying all utility owners, early in the design phase, regarding any utility adjustments.

5. Utility agreements to be developed by consultant, sent by consultant to companies and coordinate with them.

FC 164 – CONTRACT MANAGEMENT

(SERVICES TO BE PROVIDED BY L&G)

The Engineer will be required to meet with designated TxDOT representatives on a regularly scheduled basis to report on progress. A typewritten progress report will be required, together with evidence of the work accomplished during the period since the previous report. A bar chart indicating the percentage of completion of each task shown on Attachment "C" will also be required. Formal progress reports with bar charts will be required on a monthly basis.

The Engineer will establish a separate cost accounting system for each control-section-job (C-S-J) number to properly allocate all labor and expenses incurred. The Engineer shall invoice monthly according to Function Code breakdowns.

EXHIBIT "C"
WORK SCHEDULE

Client: Hidalgo County
WA #1

ATTACHMENT C
WORK SCHEDULE
FM 493
FROM MILE 10 TO MILE 14

TASK AND DESCRIPTION	FIRM	2007-2008													2009									
		DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	S	
WORK AUTHORIZATION NO. 1																								
Entire Length of Project																								
PROJECT PLANNING																								
Obtain Right of Entry (SURVEYING)	RODS																							
Update Planimetric and DTM files	RODS																							
DESIGN SURVEYS	RODS																							
EXISTING RIGHT-OF-WAY LAYOUT	RODS																							
meetings - w/ Hidalgo County Drainage District No. 1	L&G																							
meetings w/ City of Donna	L&G																							
meetings - w/ Precinct No.1	L&G																							
Hydrologic Map	L&G																							
Utility Coordination	L&G																							
Coordination with TXDOT AND COUNTY	L&G																							
Coordination with 2 Irrigation Districts	L&G																							
Schematic & Environmental Document Development																								
Develop Schematic with outfalls	L&G																							
Meet w/TxDOT and revise schematic as per comments	L&G																							
TXDOT and COUNTY approves Schematic	TXDOT																							
Draft Environmental Document, Field Visits, etc	L&G																							
Submit Draft EA	L&G																							
District Review/Revisions	TXDOT																							
ENV Review/Revisions	TXDOT																							
Revisions as per ENV comments	L&G																							
Agency Coordination	TXDOT																							
Categorical Exclusion Clearance	TXDOT																							
PS&E DEVELOPMENT FROM: MILE 10 TO MILE 14																								
TXDOT AND COUNTY REVIEW OF OUTFALL LOCATIONS	L&G																							
COMPLETE INTERSECTION LAYOUTS	L&G																							
DESIGN HYDRAULIC STRUCTURES OUTFALLS, ETC	L&G																							
DESIGN STORM DRAIN SYSTEM	L&G																							
DESIGN ROADWAY	L&G																							
SIGNING, PAVT MARKINGS AND SIGNALS	L&G/ETSI																							
TXDOT REVIEW PLAN SUMBMITTAL AND LET PROJECT	TXDOT																							
TXDOT COMPLETES ROW MAP																								

ENGINEERING WORK FOR SCHEMATIC & PS&E
ENVIRONMENTAL ASSESSMENT WORK
TXDOT FUNCTION

EXHIBIT "D"
FEE SCHEDULE

EXHIBIT "D" FEE SCHEDULE

ENGINEERING BUDGET ESTIMATE AND FEE FOR FM 493 NORTH PROJECT

ROADWAY PROJECT ENTIRE LENGTH.....	FM 493: Mile 10 to SH 107
LIMITS: Segment 1	Mile 10 North to Mile 14
LIMITS: Segment 2	Mile 14 North to SH 107
EXISTING ROADWAY SECTION:	40' - Rural
EXISTING ROW WIDTH:	variable 80' - Rural
PROPOSED ROADWAY SECTION:	64'-84' F-F max Urban + aux
PROPOSED ROW WIDTH:	120' max
ESTIMATED CONSTRUCTION COST for Segment 1...(3.5 Mil/mi).....	$14,000,000.00
EST CONSTRUCTION COST for Segment 2 plus Bridge...(3.5 Mil/mi plus 500K).....	$9,250,000.00
ESTIMATED TOTAL CONSTRUCTION COST for Segment 1 & 2.....	$23,250,000.00
LENGTH:	6.5 Miles

ESTIMATED PROJECT COSTS	*STATE*	*LOCAL*
TOTAL ROADWAY CONSTRUCTION COST	$23,250,000.00	$ -
WORK AUTHORIZATION NO. 1		
PHASE IA - PLANNING & DESIGN FOR SEGMENT 1&2		
Schematic		$ 292,950.00
L&G Survey Work		$ 25,000.00
H&V Control		$ 18,000.00
Establish Existing ROW		$ 73,500.00
Design Surveys including outfalls		$ 83,500.00
Environmental Assessment & PI Support and Hist and Archeological		$ 90,000.00
PHASE IB - DESIGN FOR SEGMENT 1		
PS&E Development		$ 980,000.00
Construction Management		$ 36,000.00
WORK AUTHORIZATION NO. 2		
PHASE IC - DESIGN FOR SEGMENT 2		
PS&E Development		$ 647,500.00
Bridge Design		$ -
Bridge Scour Report for TxDOT		$ 15,000.00
Bridge Layout for TxDOT		$ 25,000.00
Construction Management		$ 36,000.00
NEW CONTRACT OR COUNTY COMPLETES WORK		
PHASE II - ESTIMATED RIGHT OF WAY COSTS FOR SEGMENT 1 & 2		
ROW Mapping & Field Surveying (based on 130 parcels)	$ 286,000.00	
Compensible Utilities	$ 500,000.00	$ -
Roadway Right-of-Way Costs - 576000 sqft @ $4.00 average/sq ft	$ 934,187.00	$ -
Roadway Right-of-Way Costs - Acq.Services @ (est. 130 Parcels @ $10,000/Parcel Avg.)		$ 1,300,000.00
PHASE III - CONSTRUCTION FOR SEGMENT 1 & 2		
TxDOT Construction Inspection	$ 2,557,500.00	

SUB-TOTAL WORK AUTHORIZATION NO. 1		**$ 1,598,950.00**
SUB-TOTAL WORK AUTHORIZATION NO. 2		**$ 723,500.00**
ESTIMATED SUB-TOTAL PHASE II	**$1,720,187.00**	**$ 1,300,000.00**
ESTIMATED PHASE III plus Const. Cost	**$25,807,500.00**	
TOTAL PROJECT COST		**$ 31,130,137.00**

L&G Engineering Proposed Engineering Fee for Work Authorization No. 1 (% is for info purposes)

SPECIAL SERVICES					
L&G	Surveys	**0.108%** of Total Const. Cost	$	25,000.00	
RODS	**Surveys**	**0.753% of Total Const. Cost**	**$**	**175,000.00**	
L&G	TXDOT Schematic	**1.260%** of Total Const. Cost	$	292,950.00	
L&G	Environ Assessment & Public Involment	**0.387%** of Total Const. Cost	$	90,000.00	
L&G	Construction Management with TXDOT	**0.257%** of Const. Cost for Segment 1	$	36,000.00	
SUB-TOTAL					$ 618,950.00
BASIC SERVICES					
L&G	PS&E Engineering Fee	**7.000%** of Const. Cost for Segment 1	$	980,000.00	
SUB-TOTAL					$ 980,000.00

Proposed maximum amount payable under the Work Authorization #1 **$ 1,598,950.00**