DANNENBAUM ENGINEERING CORPORATION
LAREDO OFFICE:
8610 MCPHERSON, SUITE 130 LAREDO, TEXAS 78040 (956)712-9817

May 27, 2016

Webb County Engineering Dept.
1620 Santa Ursula, 2nd Floor
Laredo, Texas 78040

Attn: ***Luis Perez Garcia, P.E.***
County Engineer

Ref: ***Webb County Loop 20 Stimulus Project***

Sub: ***Supplemental Agreement No. 9 to the Main Contract***

Dear Mr. Perez Garcia,

Enclosed please find documentation for Supplemental Agreement (SA) No. 9 to the Main Contract for the Loop 20 Stimulus Project. There are two (2) partially executed Supplementals to the Main Contract contained with this letter. If appropriate, please obtain court approval and execute the two (2) originals and provide one set of originals to Dannenbaum for our file.

This Supplemental Agreement (SA) No. 9 to the Main Contract is in regards to the performance of the following additional services (described in more detail in Exhibit B-9 – Services to be provided by the Engineer);

ADDITIONAL SERVICES TO BE PERFORMED

From Supplemental Work Authorization No. 9 to Main Contract

1. **Update column design, details & standards to include 8" drain pipe.**
2. **Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.**
3. **TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.**
4. **Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to configure the existing concrete safety barrier.**
5. **Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations**

Should you have any questions or require further information this letter or any of the enclosures being transmitted herewith please feel free to contact me at (956) 712-9817.

Sincerely,

Louis H. Jones, Jr., P.E.
Principal / Project Manager

cc: Dannenbaum File No. 4571-01

Ms. Ana Duncan	Laredo District TP&P – TxDOT
Mr. Richard D. Seitz, P.E.	Dannenbaum Engineering Company – Laredo, LLC
Mr. Eric Davila, P.E.	Dannenbaum Engineering Company – Laredo, LLC
Mr. Nathaniel Olivarez, P.E.	Dannenbaum Engineering Company – Laredo, LLC
Mr. Gustavo Lopez, P.E.	Dannenbaum Engineering Company – Laredo, LLC
Mr. Anthony Garza	Dannenbaum Engineering Company – Laredo, LLC

CONTRACT FOR ENGINEERING SERVICES
SUPPLEMENTAL AGREEMENT NO. 9 to the MAIN CONTRACT

THIS SUPPLEMENTAL AGREEMENT to the **MAIN CONTRACT** for engineering services is made by and between the County of Webb the (County), and Dannenbaum Engineering Corporation the (Engineer) and becomes effective when fully executed by both parties.

BACKGROUND

The County and the Engineer executed a Contract on June 15, 2011 for engineering services described as preparation of schematics; environmental documents; and development of plans, specifications and estimates for Loop 20 main lanes from just West of Interstate 35 to 3000 LF East of Havana Road (development of PS&E for Havana Bridge Overpass not included) situated in Webb County, Texas (inclusive of resolution on policy council acts of July 28, 2010).

AGREEMENT

The County and the Engineer agree that the Contract is amended as follows:

ARTICLE 1. SCOPE OF SERVICES.

The original scope of services in Work Authorization No. 1 is amended by this Supplemental Agreement No. 9 to include the Additional services described below and as outlined in Exhibit B-9.

A. Additional Scope Added in Supplemental Agreement No. 9 to Main Contract is as follows:

1. Update column design, details & standards to include 8" drain pipe.
2. Design ITS ca Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.
3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.
4. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to reconfigure the existing concrete safety barrier.
5. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations

ARTICLE 3. COMPENSATION.

A. Maximum Amount Payable. The maximum amount payable under this contract is amended from $3,587,750.02 to $3,614,790.32, an increase of $27,040.30, to include the funds for the additional scope of services described above. (See Attachment E-1) These additional services will be performed under Supplemental Agreement No. 9 to Main Contract and Supplemental Work Authorization No. 11 to Work Authorization No. 1.
All other provisions are unchanged and remain in full force and effect.

IN WITNESS WHEREOF, this Supplemental Agreement is executed in duplicate counterparts and hereby accepted and acknowledged below.

THE ENGINEER	**THE COUNTY**
(Signature)	(Signature)
Louis H. Jones, Jr., P.E.	
(Printed Name)	(Printed Name)
Principal	
(Title)	(Title)
5/27/16	
(Date)	(Date)

LIST OF ATTACHMENTS:

Exhibit B-9, Additional Services to be Provided by the Engineer (Modified 10/20/2015)
Attachment E-9, Fee Schedule for Additional Services
Attachment F-9, Project Schedule

EXHIBIT B-9
(Modified 5/27/2016)
Additional Services To Be Provided By The Engineer
For Supplemental Agreement No. 9 to Main Contract and
Performed Under Supplemental No. 11 to Work Authorization No. 1
Shown in Red

Exhibit B-9

Services to be provided by the Engineer

Limits: Loop 20 Stimulus Project (From 0.5 Mi. West of Milo Interchange to 3000 Ft. East of Havana
Schematic, Environmental, Drainage Studies, Geotechnical, and Topo Special Services for the entire Project, and PS&E to include the following limits:

PS&E Package No. 1 (CSJ: 0086-14-065) – From beginning of Project located approximately 1,742 feet west of IH-35 to entrance and exit ramps west of McPherson Boulevard Overpass Bridges, includes Loop 20 Bridges over IH 35. (From STA 421+69.64 to approx. STA 492+35.14) (Project length = 7,010 LF) (Roadway length = 4,125 LF) (Bridge length approx. 2885 LF)

PS&E Package No. 2 (CSJ: 0086-14-057) – From entrance and exit ramps west of McPherson to end of entrance and exit ramps east of the McPherson Boulevard Overpass. Includes Loop 20 Bridges over McPherson Boulevard Bridges. (From STA 477+50.00 to approx. STA 515+37) (Project length = 7,010 LF) (Roadway length = 4,125 LF) (Bridge length approx. 2885 LF)
THIS PORTION OF THE ORIGINAL PROJECT IS CURRENTLY UNDER CONSTRUCTION.

PS&E Package No. 2A (CSJ: 0086-14-066) – From end of entrance and exit ramps east of the McPherson Boulevard Overpass to entrance and exit ramps, East of International Boulevard Overpass Bridges. Includes Loop 20 Bridges over International Boulevard. (From STA 484+37.94 to approx. STA 559+50.00) (Project length = 6,200 LF) (Roadway length = 5,600 LF) (Bridge length approx. 2885 LF)

THE PS&E PACKAGE NO. 3 IS DELETED FROM THIS CONTRACT

PS&E Package No. 3 (Deleted from this Contract) – From just past entrance and exit ramps east of International Boulevard Overpass Bridges to end of Project, connecting to existing raised median section, 3000 ft. east of Havana Road. (Scope does not include development of PS&E for Havana Overpass Bridges)(From STA 554+00 to STA 573+54.80 BK = STA 445+00.12 FWD / Equation Station) (Roadway length = 4,455 LF)

Project Length: 3.345 Miles Total Project
(WA No. 1 = 2.50 Miles)(Excludes PS&E Package No. 3)

Office: Webb County Engineer

Project Description

Under this work authorization the Engineer is to perform engineering services for Webb County (referred to as **County**), for the preparation of plans, specification and estimate, and related documents for the above listed project.

The roadway typical section will consist of 2-12' lanes with 10' shoulders, inside and out, for the limits of the project. The typical section for the proposed bridges at McPherson and International Boulevard will be the same as the roadway typical section. The typical section for the Loop 20 Bridge over IH 35 will consist of 2-12' lanes with a 4' inside shoulder and a 10' outside shoulder. The project will also include hydraulic structures, retaining walls, Illumination, signing and striping and updating of signals.

GENERAL MANAGEMENT/COORDINATION

Task: Contract and Work Authorization Management/Coordination (FC: 145/164)
The Engineer will manage and coordinate all the activities associated with this work authorization.

All communications associated with the work in this work authorization will be directly channeled through the Engineer and the County's designated project manager.

The Engineer will ensure compliance with "Article 4 - Payment Requirements" of the contract by providing a Monthly billing statement in addition to the requirements listed by the contract.

The Monthly Billing Statements should be provided no more frequently than monthly and no later than ninety (90) days after any costs are incurred and should include one original and one copy the following documents:

- Provider's Invoice that should include vendor's name, address, contact information, telephone number, Texas Payee Identification Number (TINS), complete charge information, and description of services/goods received.
- Progress report that will include the activities previously completed, activities completed during the billing period, and any pending actions from the County. The progress report should also include all work performed by sub providers.
- Progress assessment reports with actual payments made to Disadvantage Business Enterprises or Historically Underutilized Business Program as detailed in the contract.

The monthly billing statements must be mailed to:

Webb County Engineering Department
Attention: Luis Perez Garcia, P.E.
1620 Santa Ursula, 2nd Floor
Laredo, TX 78040

Task: Work Scheduling and Deliverables (FC: 145/164)
The Engineer should secure all resources necessary to produce the project deliverables listed in this work authorization and to meet the project schedule as presented in "Exhibit C". The project schedule should include milestone activities and specific delivery dates. The Engineer may identify the percentage of payment expected with each deliverable made.

The Engineer should continuously monitor the sub provider's schedules to ensure that the delivery dates are accomplished.

Task: Data Management (FC: 145/164)
The Engineer will utilize MicroStation V8 native files. The computer graphics files will have the same integrity, singularity and attributes as elements generated by the State's computer system. The Engineer should obtain from the State the latest level naming criteria.

Task: Meetings (FC: 145/164)
The Engineer will be required to attend six (6) progress meetings with designated TxDOT representatives, utility companies, and adjacent and affected landowners to coordinate and to identify conflicts to report on the project's progress. The Engineer shall be required to prepare the minutes for each meeting and provide an electronic and hardcopy to the County and TxDOT for review.

Task: QC/QA (FC: 145/164)
The Engineer should meet the project schedule as presented in "Exhibit C" of this work authorization.

The Engineer will perform quality control and quality assurance (QC/QA) review and approve any deliverables including those provided by sub providers before submission to the state.

Peer review will be provided at all levels. Internal mark-ups (redlines) and/or comments developed as part of the Engineer's QC/QA will be maintained for inspection when requested by the County.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00**

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International interim West and East bound bridges to ultimate design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

Additional Services to be Performed Under Supplemental Work Authorization No. 11 to Work Authorization No. 1

1. Update column design, details & standards to include 8" drain pipe.

2. Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.

3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.

4. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to reconfigure the existing concrete safety barrier.

5. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations

PHASE I- ADVANCED PROJECT DEVELOPMENT SERVICES

I. ROUTE AND DESIGN STUDIES

Traffic Signal Timing
Not included in this scope.

Task: Roadway Design Criteria (FC: 110)
The Engineer shall develop the roadway design criteria based on the controlling factors specified (i.e. 4R), by use of the funding categories, design speed, functional classification, roadway class and any other set criteria as set forth in Roadway Design Manual, Bridge Design Manual, Hydraulic Design Manual, and other deemed necessary TxDOT approved manuals.
The Engineer must develop a preliminary Design Summary Report (DSR) containing roadway and hydraulic criteria for discussion and evaluation in the Design Concept Conference (DCC).

Task: Preliminary Cost Estimate (FC: 110)
The Engineer shall develop a preliminary cost estimate through use of the MS Excel software. Unit bid prices used will coincide with TxDOT Laredo District averages, as available, over the preceding 3 month period and will be escalated to the proposed letting date.

Task: Design Schematic (FC: 110)
The Engineer shall perform the following tasks under this item:

- Prepare a schematic plan and profile drawing (1"=100'H, 1" = 10'V) on a continuous color plot paper roll. The schematic will include the ultimate edge of pavement, proposed pavement profile, existing utility crossings, proposed culvert crossings, proposed bridges, proposed R.O.W., existing cross streets, proposed driveways, proposed outfall channels, proposed channelized intersections, ultimate interchange configurations, traffic data (turning movements), signing, and pavement markings. All existing items, such as existing edge of pavement and existing utilities, will be obtained from existing As Builts provided by TxDOT/County.
- Provide level of service analysis for up to two options and preferred alternative.
- Update Preliminary Hydrologic and Hydraulic Analysis. TxDOT/County will provide all working files in Microstation format for all plans of existing frontage roads, including all storm systems, including all computer files (working files) for all Windstorm runs for all existing storms systems. The hydrology studies will include verifying that all existing storm systems constructed within the Loop 20 ROW are of sufficient size to handle proposed improvements in this contract. It is been assumed any detention will be provided within the ROW. This task will not include any hydrology outside the existing Loop 20 ROW. Project will include delineating drainage area on USGS map for each stream crossing within the Package No. 3 from Havana to 3000 ft. east only. The drainage areas from the existing frontage road plans will be provided by TxDOT/County in Microstation format (working files) and used to verify accuracy and adequacy for the remaining portion of the project. If these items prove to be inadequate, it will be reported in the Hydrology Study and all work to correct inadequacy will be considered additional work and outside the original scope. Project will include determining preliminary design flows for the crossings only for

portion of the Project from Havana to 3000 ft. east based on the 5, 10, 25, 50, and 100 year USGS Regression Curves or other hydrologic method approved by TxDOT on the basis of accuracy.

- Update Preliminary Hydraulic Design Analysis
  Preliminary design flows to select a cost-effective preliminary crossing design. The analysis will include a comparison between bridge versus culvert. Preliminary water surface profiling will be determined using approximate cross section taken from the USGS maps in combination with the single or two-section method of surface calculation.
- Preliminary Hydraulic Report
  Prepare a report for the project addressing Hydrologic and Hydraulic Issues. This project will not include a preliminary 100-year flood plain impact and mitigation analysis based on available FEMA Flood Plain Maps showing approximate flood plain boundaries.
- A Lighting Contour Study will not be provided. Lighting contours will be provided within the PS&E for portions of the Project from McPherson east to STA 554+00 (beginning of PS&E Package No. 3).

ADDITIONAL SERVICES TO BE PERFORMED

Redesign and Detailing of Schematic due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges Work includes, but not limited to, revisions to:

- Deletion of entrance and existing ramps
- Modifications/relocation of retaining wall
- Modifications to signing and pavement markings
- Modifications to storm water systems
- Recalculation of High Mast Lighting
- Modifications to SW3P layouts
- Modifications to typical sections
- Modifications to limits of access control

Task: Preliminary ROW Requirements (FC: 110) – NOT INCLUDED IN THIS W. A NO. 1
The Engineer shall prepare a Preliminary Right-of-Way Layout (22" H x 34" V) for proposed required Right-of-Way in the project area and submit to the County for approval. The "project area" as defined in this project for Right-of-Way purposes is only for the eastern end of project, approximately 3000 LF east of Havana Road.

Task: Design Concept Conference (FC: 110)
The Engineer will organize and attend a preliminary concept (or kick-off) meeting:

1. To identify and confirm with Webb County/ TxDOT corridor issues that would influence the location and ultimate selection of a preferred alignment.
2. To develop criteria to evaluate alternative corridors considering existing and future development, current and future land use, environmental factors, socioeconomic issues,

geographic features, political issues, traffic volumes, traffic service, utility impacts, transportation infrastructure, and cost.

The Engineer shall attend one design concept conference at the Webb County Engineer's Office, or TxDOT Laredo District Office. The Engineer shall prepare the minutes for the meeting and forward to the County and TxDOT with all item addressed and agreed.

Task: Soil Core Hole Drilling (FC: 110)

1. The Engineer shall perform soil core hole drilling for: a.) Pavement, b.) Retaining Walls, or c) Bridges. No core drilling is to be accomplished until TxDOT has given the engineer written approval.
2. The Engineer shall perform the following items under this task:
   - Perform geotechnical field and laboratory testing services along roadway centerline alignment to classify soils at a maximum of 10 locations. The services will include locating the borings in the field utilizing tape and right angle measurements from existing benchmarks; drilling ten borings to a maximum depth of 20 ft. below existing grades. The borings will be tied by the surveyor.
   - Perform the geotechnical drilling and engineering services for the bridge structures in Webb County at:
     - Loop 20 and IH 35
     - McPherson Road
     - International Boulevard
   - Establish in consultation with the County and TxDOT, the locations of the test holes utilizing station and offset from proposed base line. The Engineer's surveyor shall field stake and tie the boring locations (obtain x,y, z coordinates).
   - Drill a minimum of two bridge borings per each bridge location or as determined by structural engineer, Webb County / TxDOT utilizing auger drilling techniques to a maximum depth of 75 ft below existing grades or until five consecutive TCP test results of 100 blows for less than 4 in. are recorded, whichever is shallower; perform Texas Cone Penetrometer (TCP) tests at 2.5 ft. intervals for the first 10 ft. and at 5 ft. intervals.
   - Visually classify the soil samples during drilling operations.
   - Perform gradation testing on the scour sample.
   - Provide a written engineering report to include the results of our classification and TCP testing in WinCore format boring logs, as well as pier capacity curve and the results of the gradation tests.
   - Provide field sampling and laboratory analysis, according to TxDOT Standards, to produce Pier Capacity Charts to be used in the bridge foundation design. Provide boring logs to be shown on bridge layouts and in conformance with TxDOT criteria.
   - Provide field sampling and laboratory analysis to produce recommendations on retaining wall design. Provide global stability analysis for the retaining walls.

- Provide Global Stability Analysis at all cut and/or fill locations

3. If required, the Engineer shall provide all traffic control, labor and equipment for the Traffic Control Plan (TCP) while performing services under this work authorization. The Engineer shall comply with the regulations of the most recent edition of the "Texas Manual on Uniform Traffic Control Devices". The Engineer must submit the TCP to the respective Area Office to obtain approval from the Traffic Control Safety Review Committee concerning the proposed method of handling traffic prior to the commencement of geotechnical work.

Task: Coordinate Right of Entry (ROE) for Environmental Document
The Engineer shall coordinate right of entry with the County and TxDOT at the specified locations for the preparation of PS&E. The Engineer shall be responsible for recording and preparing the logs to forward them electronically to the County and TxDOT.

II. SOCIAL, ECONOMICAL, AND PUBLIC INVOLVEMENT

Purpose:
The purpose of this task order is to provide professional services to assist Webb County (**COUNTY**) in meeting environmental planning and historic preservation compliance requirements for the preparation of a **Categorical Exclusion (CE) for Loop 20 from west of IH 35 to east of Havana Road, located in Laredo, Webb County, Texas**. The **ENGINEER** shall assist the **COUNTY** in meeting the requirements of Federal laws and Executive Orders (EO), including but not limited to, the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA at 40 CFR Part 1500, and FHWA's regulations for implementing NEPA at 23 CFR Part 771; Section 106 of the National Historic Preservation Act (NHPA) and implementing regulations at 36 CFR Part 800; the Endangered Species Act (ESA); the Clean Water Act (CWA); the Farmland Protection Policy Act (FPPA); EO 11988 – Floodplain Management; EO 11990 – Protection of Wetlands; EO 12898 – Environmental Justice, and other applicable requirements including those addressing hazardous materials.

Background:
The **Texas Department of Transportation (TxDOT) Laredo District** prepared and received a Finding of No Significant Impact (FONSI) for the Loop 20 EA dated December 1991 (Revised June 1993). Construction of phase I was completed. Phase II, or construction of the main lanes within the proposed project limits are currently proposed; however, since the original document is 19 years old and a variety of regulatory and guidance changes have occurred, it was decided that the preparation of a CE would be appropriate for the previous scope for this project. TxDOT Laredo District will prepare a classification letter and seek concurrence from TxDOT Environmental Affairs Division and/or FHWA to this effect. <Note: Official coordination will take place with EA Division based on new scope.

PROJECT MANAGEMENT

Project Management and Coordination – The **ENGINEER** will conduct Project Management and Coordination for the Environmental Process, including 2 environmental project meetings with the **COUNTY's** Project Manager. Brief progress reports shall accompany each monthly invoice. The **ENGINEER** will handle all environmental project coordination with the concurrence and quality control of the **COUNTY**. The **ENGINEER** will also manage project invoices/billings and subcontractor services for environmental services. TxDOT will manage Texas Parks and Wildlife and other government agencies as they deem necessary project invoices/billings for environmental services as customarily handled.

Quality Assurance/Quality Control - The **ENGINEER** will conduct an independent comprehensive quality assurance/quality control review of the environmental document at appropriate milestone points during the project, to appraise both technical and business performance and provide direction for project activities. The **ENGINEER** will also review all environmental correspondence, environmental technical reports, and environmental NEPA documents for quality assurance.

SOCIAL, ECONOMIC, AND ENVIRONMENTAL STUDIES

The **ENGINEER** will prepare a CE for the project and assist the **COUNTY** in following this document through TxDOT approval. The CE will include discussions of purpose and need, existing and proposed design, affected environment, and environmental consequences. The environmental document will comply with every aspect of the National Environmental Policy Act of 1969. Environmental documentation will be prepared utilizing the appropriate outline in accordance with TxDOT Environmental Affairs Division *Standards of Uniformity for Categorical Exclusions*.

The **ENGINEER** will study the existing environment within the area of the proposed project. This will include information from data collection and field investigations. The **ENGINEER** will document potential environmental impacts associated with the proposed project. Impacts to be addressed will be in accordance with applicable state and federal guidelines. The **ENGINEER** will address minor design changes which occur prior to document submittal. The CE will be organized according to the TxDOT's preferred format and will include the following sections, as applicable to this project:

Topic/Resource
Cover Sheet
Table of Contents
Proposed Action
Surrounding Area
Specific Areas of Environmental Concern e.g. Socioeconomic, Water Resources,
Permits/Commitments
Public Involvement
Exhibits/Figures/Coordination
CE Determination (Conclusion)

Data Collection - The data collection phase and site reconnaissance visits will begin upon notice to proceed. The **ENGINEER** will obtain publicly available information including:

- Locations of public buildings, schools, churches, parks, etc.;
- Design information including easement locations and site plans from project engineers;
- Aerial/Infrared photography, if available and as needed;
- Historical site listings, as applicable;
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, as applicable;
- Texas Commission on Environmental Quality (TCEQ) and Environmental Protection Agency (EPA) hazardous materials database information, as applicable;

Need and Purpose – The **ENGINEER** will update the Need and Purpose section per August 2007 AASHTO guidelines for preparation of need and purpose. The Engineer will include discussions of logical termini and independent utility, alternatives, and right of way.

Proposed Action — The **ENGINEER** will describe what the existing facility looks like and what the proposed facility will look like. At a minimum, this includes the number of lanes (and dimensions), shoulders (with dimensions), medians (type and dimensions), drainage (open-ditch or underground storm sewer), right of way width, and any other information necessary to compare the difference between the existing and proposed facilities. Other items to be discussed in this section include as appropriate: existing and proposed average daily traffic; existing and proposed posted speed limits; project funding; logical termini and independent utility; alternatives; and ROW.

Surrounding Area – The **ENGINEER** will document and describe the project area land use and natural setting.

Socioeconomic Investigations - Utilizing the 2000 census data and 2009 Poverty Guidelines, the **ENGINEER** will address any disproportionately high and adverse health or environmental impacts to any social group, particularly any minority or low-income populations according to Executive Order 12898 on Environmental Justice.

Water Resources – The 100-year flood plain, as delineated by FEMA, will be identified and the impacts of the proposed project will be assessed. Jurisdictional waters of the U.S. will be identified. Impacts will be evaluated and recommendations for any required permits under Section 404 of the Clean Water Act will be made. Impacts to water quality will also be addressed as appropriate under Sections 401 and 402 of the Clean Water Act and the Texas Surface Water Quality Standards (TSWQS) enumerated in Title 30, Chapter 307 of the Texas Administrative Code. All potential wetland sites will be noted during the field investigation and shown on a location map. The **ENGINEER** will not provide any wetland determinations and/or wetland delineation under this work authorization. The **COUNTY** will decide on a case by case basis which potential wetland areas will need to be determined and/or delineated. The **ENGINEER** will provide this work under a separate supplemental task order, if needed.

The **ENGINEER** will make a recommendation as to which USACE permit type may be applicable at each crossing. The **COUNTY** will be responsible for providing all section 404 coordination with the

USACE. The **COUNTY** will also be responsible for providing all necessary section 401 coordination with TCEQ. Applications and exhibits that may be required by the USACE to obtain permits and to satisfy mitigation requirements are not included in this scope of services. If requested, the **ENGINEER** may provide those services under a separate supplemental task order.

Air Quality – Since the proposed project would serve less than 140,000 vehicle per day, the **ENGINEER** will provide a qualitative discussion on air quality as prescribed by TxDOT ENV guidelines. Air quality modeling will not be prepared under this task order.
Noise Analysis – The **ENGINEER** will obtain traffic and vehicle data for noise analysis from TxDOT TPP department as well as CAD or GIS schematic of proposed facility, and input latest aerial photography and existing land use for areas adjacent to proposed facility. The **ENGINEER** will conduct a noise determination utilizing TNM 2.5 or TNM lookup and model traffic data and determine if the proposed project impacts sensitive noise receivers. The **ENGINEER** will prepare a Noise Analysis and write-up in accordance with the TxDOT guidelines to include in the environmental document. The following assumptions have been made regarding noise: All review comments will be provided in writing and a meeting will not be required to discuss review comments; If a barrier analysis is required, it will be completed under a supplemental work authorization.

ADDITIONAL SERVICES PERFORMED

The **ENGINEER** will update the current noise determination to reflect the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges utilizing the new noise guidelines have been issued by the Texas Department of Transportation for preparation of noise analysis. Effective July 13, 2011, the use of TNM look-up tables is no longer allowed. The project must be modeled using TNM 2.5 and on site noise measurements must be taken. Field measurements shall be accomplished with sound meters that meet or exceed ANSI S1.4-1983, Type. The **ENGINEER** will prepare a revised Noise Analysis and write-up in accordance with the TxDOT guidelines to include in the environmental document.

Vegetation - The **ENGINEER** will document the natural surroundings of the proposed project through desktop and supplemented by field observations. A summary discussion will be provided in the CE.
Threatened and Endangered Species – The **ENGINEER** will access and review the most recent federal and state databases as well as review the Natural Diversity Database for inclusion in the CE.

Cultural Resources – The **ENGINEER** will prepare a Project Coordination Request for review and comment by TxDOT. If required, The **ENGINEER** shall prepare a research design conforming to *Standards of submission for Non Archeological Historic-Age Resource Research Designs*.

In 2007, a Class III field survey was conducted of this project area and a new archeological field survey will not be necessary for the current action. The **ENGINEER** will conduct a records check to verify and update as necessary the status of the project area with regards to archeological resources. The **ENGINEER** will prepare draft text for the NEPA document that summarizes the results of the cultural resources surveys and the evaluation of effects, if any, on NRHP-eligible or listed properties.

Construction Impacts – The **ENGINEER** will discuss potential impacts and minimization measures within the CE.

Hazardous Materials – The **ENGINEER** will conduct a database search to ASTM standards and complete a Hazardous Materials Initial Site Assessment (ISA). Results will be summarized for inclusion in the CE..

Indirect and Cumulative Impacts – Since the proposed project would add capacity, per the screening tools in Appendix C of the revised *Guidance on Preparing Indirect and Cumulative Impact Analysis*, June 2009 the project CE will require an indirect and cumulative impacts analysis to evaluate potential project effects on the surrounding environment . The ENGINEER will follow the seven-step process for indirect impact analysis as well as the eight-step guidelines for identifying and assessing cumulative impacts. If the analysis results in the identification of substantial indirect or cumulative effects, it may not be appropriate to proceed with a CE. The **ENGINEER** would coordinate with TxDOT and FHWA to determine the appropriate document classification.

Permits/Commitments – The **ENGINEER** will list permits and commitments identified within the PCE.

Public Involvement – Public involvement issues are considered of primary importance under NEPA. Public involvement work will include a summary of past and current public involvement activities as provided by the TxDOT and the **COUNTY** for the project. The **ENGINEER** will organize, prepare for, attend, and participate in one (1) Public Meeting. The **ENGINEER** will meet with the **COUNTY** up to two (2) times at scheduled pre-meetings in advance of the proposed meetings. The **ENGINEER** will create and maintain a database of elected officials, adjacent property owners and other interested persons and groups. In preparation for the public meeting, the **ENGINEER** shall secure the meeting location, date and time (includes securing a/v equipment, chairs/tables, podium, etc.) prepare and publish legal notices and display ads (submitting an electronic copy to the **COUNTY** the day of publication) and will arrange for a court reporter to be present, as needed. The **ENGINEER** will prepare postcard meeting notices for distribution to adjacent property owners, notification letters to elected officials, meeting agendas, name tags, sign-in sheets, speaker cards, comment cards and Power Point presentations with accompanying speech. Up to two (2) exhibit board designs will be prepared by the **ENGINEER** for the public meeting as well as Media Packets (a folder that will include a news release, project map and comment card). All materials will be prepared in English, and Spanish if necessary. Spanish translation will also be provided at the public meeting, if necessary.

A Public Meeting Summary Report will be prepared by the **ENGINEER**. This report will include the summary and analysis, comment/response report, transcripts (as applicable), meeting materials, and meeting photographs. The **ENGINEER** will update the CE per the public meeting, as appropriate.

Exhibits/Figures/Coordination - The **ENGINEER** will prepare base maps for field use and exhibits that are included in the environmental document including as appropriate location map, typical sections, project layouts, photos, survey reports, and records of any preliminary coordination.

Report Preparation – The **ENGINEER** will prepare the Draft CE according to TxDOT ENV guidelines and samples provided by the **COUNTY**. The **ENGINEER** will address up to three sets of comments to the Draft CE and revise the document based on suggestions from the **COUNTY**, FHWA, and TxDOT prior to preparing and reproducing a final document. The **ENGINEER** will reproduce and provide a maximum of 9 hard copies of the revised CE and 15 hard copies of the final version as well as one electronic copy of the final CE to the **COUNTY**.

CE Determination – The **ENGINEER** will prepare the summary/conclusion section of the CE and CE checklist as required by TxDOT guidance.

Schedule and Reporting Requirements:

The **ENGINEER** shall submit monthly status reports outlining progress completed the previous week. The schedule of deliverables and milestones is as follows:

- Task Order Notice to Proceed
- On-site evaluations (including coordination with COUNTY)
- Agency coordination
- Draft CE
- Final CE

Contract Deliverables:

- Electronic draft CE
- Electronic and hardcopy final CE

Coordination:

- Principal / Project Manager and contact information:
- Principal: Louis H. Jones, P.E., Dannenbaum (956)712-9817 Office; (832)771-4904 Cellular; louis.jones@dannenbaum.com;
- Project Manager: Louis H. Jones, P.E., Dannenbaum (956)712-9817 Office; (832)771-4904 Cellular; louis.jones@dannenbaum.com

NOTE:

1. **The following tasks are not covered in this scope of services and may or may not be necessary. If deemed necessary, these tasks could be conducted under a separate or supplemental task order.**

    - Air Quality Modeling
    - Preparation and coordination for Section 4(f) or Section 6(f) approval
    - Threatened and Endangered Species Surveys
    - Biological Assessments
    - Section 7 Consultation
    - Evaluation of Wildlife or Farmlands

- Cave or solution feature mitigation.
- Document submittal to TCEQ.
- Coordination with TCEQ other than for one-time reconnaissance.
- Construction phase services.
- Work extending beyond the specified limits of the project at the time of this work order.
- Any Section 404 permitting (Individual or Nationwide) Wetland delineations and Pre-construction notification to the U.S. Army Corps of Engineers or Individual Permit.
- Hazardous materials Phase I & II ESAs;
- Additional meetings not previously specified; and
- Additional documentation services requested as a result of a change in environmental regulations or **COUNTY**/TxDOT documentation standards from those in practice and acceptable at the time of approval of this work authorization.

2. **Only those services expressly stated in this task order will be performed. If any services, other than those expressly stated in this task order are required, the ENGINEER may perform those services under a separate or supplemental task order.**

III. FIELD SURVEYING AND PHOTOGRAMMETRY

The Engineer's Surveyor shall assure compliance and adherence to all rules, regulations and policies as set forth by the Texas Board of Professional Land Surveyors.

The Engineer's Surveyor shall provide all traffic control, labor and equipment for the Traffic Control Plan (TCP) while performing services under this work authorization. The Engineer's Surveyor shall comply with the regulations of the most recent edition of the "Texas Manual on Uniform Traffic Control Devices". The Engineer must submit the TCP to the respective Area Office to obtain approval from the Traffic Control Safety Review Committee concerning the proposed method of handling traffic prior to the surveyor's commencement of work.

FIELD SURVEY

All surveying for this project shall be provided in English Units

Task: Obtain Permission for Right of Entry (FC: 150)

Right of Entry for any and all surveying outside the existing RIGHT-OF-WAY shall be required and obtained by the Engineer prior to commencing work.

Task: Establish Ground Control (FC: 150)

Under this Task, the surveyor shall:

1. Establish Horizontal & Vertical Control.
2. Recover existing (primary) control along project limits and recover adjacent existing TxDOT control as well as NGS A or B and First Order Horizontal and First Order Vertical control stations in the vicinity of the survey.

3. Set all monuments and complete GPS obstruction field sketches, to reach descriptions and reference swing ties. Also, update, if necessary, all information on existing control to be used on this survey. Monuments will consist of aluminum disks. The station ID is to be stamped on the disk.
4. Perform a GPS static survey of all stations using dual frequency GPS survey equipment.
5. Process, analyze and adjust the data. Final coordinates should be provided in the Texas Coordinate System, South or South Central Zone in US Survey Feet. Provide coordinates in NAD83/86 and NAD83/93.
6. Provide vertical positions in NAVD88.

Task: Establish Benchmark Circuit (FC: 150)

The surveyor shall Establish Vertical Control Benchmarks by setting permanent benchmarks with an Aluminum disk on a 5/8" iron rod set in concrete, every 1000' throughout the limits of the project. Establish elevations on set points within the specifications of the TSPS Category 8. If applicable, NGS first order benchmarks shall be incorporated into the level loops utilizing the NAVD88 Datum elevations. TxDOT BM control sheets shall be created for the newly establish BMs and included in the deliverables.

In addition, 11"x17" Project Control Sheets shall also be generated for all the control monuments set on this project. These Project Control Sheets shall have all horizontal and vertical control monuments depicted in relation to the construction baseline as provided by the Engineer. They shall be signed and sealed on white mylar 11"x17" sheets. Individual signed and sealed 8 ½ x 11 TxDOT IBM control sheets (Recovery Sketches) in PDF format shall be created for all existing and newly established BM's. Both the 8 ½ x 11 BM sheets (Recovery Sketches) and Project Control Sheets shall be included in the deliverables.

Task: Establish Base Lines (FC: 150)

1. The proposed construction baseline alignment and ROW baseline alignment shall be the same on this project.
2. Stake the proposed roadway baseline and its relation to the right of way.
3. Place a 60d nail or concrete PK nail at every angle point, PC's, PT's and at every 500 foot even interval stations along baseline alignment.
4. Reference all angle points, PC's, PT's, and at 1000 foot interval stations with iron pins on the right of way line (on both sides).
5. Stationing shall correspond with the design centerline. Stationing shall be painted at 500-foot stations on the pavement using traffic paint. Letters shall be 12" high, and oil base paint of quality that meets or exceeds traffic paint requirements shall be required.
6. Should the stationing fall outside the pavement, then the stationing shall be placed on a 36" wood lathe.

Task: Obtain Cross Sections from Field Surveying (FC: 150)

The surveyor shall locate and identify all topography (natural and man-made) within the existing and proposed right-of-way, for the entire length of the project plus any other added length needed by the engineer for incidental construction. Off-Site Detention Ponds are not included. The location of the man made structures from outside edge of existing frontage roads to existing ROW on the portion of the Project from IH 35 to Havana will not be included in this scope. Topographic information shall include, but not be limited to, right of way monumentation (include type), dimensions of lanes, shoulders, tapers, and taking roadway cross-sections (i.e. center line, pavement edges, ditch flow lines, ROW) at a maximum of 100 ft intervals or at any severe change in vertical elevation throughout the project limits, plus any areas that look recently disturbed by excavation or embankment, and will extend left and right of the roadway to a minimum of 200 ft from proposed baseline.

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL NO. 7 TO WORK AUTHORIZATION NO. 1

1. The Surveyor will conduct a topographic survey of the embankment area between the eastbound and westbound frontage roads east of the proposed International Boulevard Overpass Bridge from approximately STA 542+00 to STA 552+00.

2. The Surveyor will additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from approximately STA 542+00 to STA 565+00.

The surveyor shall label and describe all structure, surface, element in the actual 2D Micro-Station Planimetric Graphic file.

Task: Ground Topography (FC: 150) (This task is only applicable for the portion of the Project from Havana to 3000 ft, east of Havana.)

1. Driveway (Public Access, Commercial, & Private) and Turnouts
   a. Locate and obtain approximate centerline station.
   b. Determine driveway radiuses, establish a center line and obtain profile along intersecting driveways (i.e. centerline, radiuses, right and left gutters/shoulders) to a distance of 300 feet from the edge of pavement/gutter of the State Roadway. For commercial and private driveway, obtain profile to the right of way limits or as directed by the engineer.
   c. Inventory by type (dirt, caliche, gravel, concrete or paved). Including width and type of existing ramp according to TxDOT standards. Also include radius, skewed angle and distance to right of way.
   d. Obtain length (from existing edge of pavement to R.O.W. line) and width at R.O.W. line.
   e. Inventory public access, commercial, and private driveways.
   f. Obtain elevations at both edges of the driveway or turnout in line with the side drain.

g. Label name for each roadway if available and describe drive surface each driveway (concrete, asphalt pavement, caliche or dirt).

2. Side Drains
   a. Obtain approximate roadway centerline station.
   b. Obtain size, length, description of structure, and conditions.
   c. Obtain F.L. elevations at both ends and offsets to driveway or turnout centerline.
   d. Label descriptions (size and length) on each side drain.

3. Culverts:
   a. Obtain size of drainage structure, type, skewed angle, and material. Label and describe each structures (for example if it's an irrigation or drainage culvert) size and length.
   b. Locate and obtain inlet and outlet flow lines elevations at structures, top of headwall, aprons, edge of pavement, and center line.
   c. Obtain profile and cross sections of upstream and downstream ravines on man-made channels leading from and to the existing or proposed structure. These profiles and cross sections shall extend from inlet and outlet flow lines to distance of 500 ft. beyond the right of way or as directed by the Engineer.
   d. Determine type of wingwall (i.e. flared wingwall, parallel, etc...) and safety end treatments (pipe runners, safety end treatments, barrier rail, etc...) according to TxDOT standards. For barrier rail include type of end treatments, location, type, length, and height.
   e. Obtain pictures of culverts barrels and outlet and inlet view to right of way line.

4. Ditches:
   Determine the type of ditch (i.e. concrete, gabions, energy dissipater, etc.) and corresponding dimensions and conditions.

5. Inlets & Manholes **(This task is only applicable for the portion of the Project from Havana to 3000 ft, east of Havana.)**
   a. Obtain inlet opening width(s) and grate inlet dimensions.
   b. Locate and obtain elevation flow lines at inlet width openings, grate inlets, top of curb, and gutter lip elevations.
   c. Locate and obtain elevation(s) at top of manhole lid.
   d. Locate and obtain invert flow elevations for all inlets, junction boxes, and manholes. Include all inlet and outlet elevations from drainage structures leading to the inlets, junction boxes, and manholes. Obtain the size, material, and direction of flow for these drainage structures.
   e. Locate all outfall locations, size of drainage structure, length from last inlet/junction box/manhole, and elevations.

6. Bridges: (Manadas Creek)
   For hydraulic modeling, the Engineer shall direct the surveyor to establish the center line alignment of the creek/river to obtain necessary cross sections upstream and downstream for hydraulic analysis. The surveyor shall gather all geometric characteristics of the existing (to include all substructure, super structure, railing, and deck) bridge and hydraulic opening under the structure for hydraulic modeling purposes. Obtain horizontal clearance, vertical clearances,

abutment and bent locations, and for bridge rail include location, type of end treatments, type, length, and height.

7. The surveyor shall tie all soil core drilling.
   a. Bridges: (I35)

8. Surveyor to provide topographic survey of existing north and south bound I35 bridges and existing railroad bridge.

9. Fence, Mailboxes, and Sign Inventory. **This task is only applicable for the portion of the Project from Havana to 3000 ft, east of Havana.)**
   a. Locate and inventory fence, describe type, limits, and gates. Include photographs.
   b. Locate and obtain mailboxes inventory (type-identify as single, double or multiple) for all mailboxes within R.O.W. and at all intersection locations. Include photographs.
   c. Locate and obtain sign inventory (type) for all signs within R.O.W. and at all intersection locations Include pictures.

10. Utilities:
    Refer to Right of Way Services, "Task: Utilities", for services to be provided by the surveyor.

11. Structures, Trees, Walks, Monuments, etc.:
    a. Obtain locations of all structures (encroaching buildings, canopy, etc...) trees, walks, monuments, and support systems.
    b. Obtain sidewalk material (concrete, asphalt or other) including width and type of existing ramp according to TxDOT standards.
    c. Determine elevations of all elements as described in (a) above. All elevations of trees shall be at there base.
    d. Indicate the size of each tree trunk for trees 1foot above ground within existing and proposed project right-of-way.
    e. Label all elements as described in (1) above.

12. Traffic Signals, Flashing Beacons, and Illumination
    a. Locate poles and traffic controller box.
    b. Locate pedestrian poles and height of pedestrian push buttons.
    c. Located crosswalks and stop bar.
    d. Obtain lane(s), shoulder(s), left and right turning lanes - taper widths.
    e. Locate traffic signal heads and illumination.

13. Railroad Traffic Signals, and Railroad Replanking
    a. The surveyor shall obtain information at least 100 ft. either side of crossing, along the roadway and along the railroad tracks, including (all tracks, switches, railroad warning devices, pavement markings, block signals, and railroad milepost markers, etc.).
    b. Show directional traffic arrows.
    c. Angle between highway and railroad tracks.
    d. Obtain approval from UPRR.

14. Miscellaneous
    a. This item requires the surveyor to pick up any items that may be an obstruction for the proposed construction or may require special attention during the development of construction plans (ex: oil and gas on proposed right of way, etc.)
    b. ASCII files shall be provided to the County and TxDOT. These files shall be retrieved from GPS/Data Collector and shall be compatible with Microstation.

Task: Deliverables:

1. Field books, containing all information gathered in the field, this information shall be to the surveyor's best knowledge, accurate and complete.
2. Original and a copy of the Horizontal and Vertical Control Survey Report, listing all horizontal points and vertical benchmarks with both datums, with sketches showing location and reference ties in the recover of said points.
3. Right of Entry Letters
4. Two copies of the Electronic Files (TXT, Planimetric,TIN, and DTM) containing survey information with proper identification and with the following data format x, y, and z (NAD83 coordinate system)
5. Planimetric: will extend along Loop 20 from just west of IH 35 to 3000 LF east of Havana Road and shall include all information gathered on the topographic survey

DTM:

1. The DTM will extend along Loop 20 from just west of IH 35 to east of Havana Road to the existing 6-Lane roadway, and shall include minimum breaklines of roadway striping, edge of pavement, top and bottom of bank. Spot elevation, sidewalks, and high and low points. If DTM will extend beyond ROW line into private property provide copy of Right of Entry Form.
2. Only TxDOT SDMS feature code(s) will be allowed, when collecting the DTM. (Current Feature code list is TxDOT06)
3. Tie visible right of way monuments.
4. Topo shots will not exceed 500 feet from the instrument and distance between ground shots will not exceed 100 feet when using conventional surveying equipment.
5. Locate trees which have a trunk diameter of 6" or greater at chest height and provide species and drip line diameter as a PD tag within existing and the proposed ROW for TxDOT Loop 20.
6. Provide a description of each instrument set up and back sight with height of instrument and staff height noted, the last shot of each setup shall be to a control point.
7. Provide a sketch showing all survey chains collected with first and last point numbers.

PHASE II- RIGHT OF WAY SERVICES

Task: Ownership Data and Permission for Right of Entry (FC: 130) NOT INCLUDED IN THIS WA NO. 1

The Engineer shall obtain ownership data for all impacted property owners within the project limits and shall obtain right of entry from all property owners prior to commencing any work for surveying, environmental, and/or right of way services. **This task is only applicable for the portion of the Project from Havana to 3000 ft, east of Havana.)**

Task: Existing and Proposed Utility Layouts, Utility Coordination and Meetings (FC: 130)

The Engineer shall perform the following duties. **This task will not include utility investigation for utilities from existing ROW to outside edge to existing frontage roads from I 35 to Havana.**

1. The Engineer shall meet with the County, TxDOT Area Office and Utility providers periodically to coordinate the work efforts and resolve any utility related problems. The Engineer shall prepare the minutes for these meetings and forwarded to the County. The Engineer shall address the following issues and any other items deemed necessary during the Utility Coordination meetings:
    a. Activities completed since last meeting
    b. Problems encountered.
    c. Late activities.
    d. Activities required by the next progress meeting.
    e. Solutions for unresolved and/or anticipated problems.
    f. Information or items required from other agencies/consultants.
2. If a reimbursable utility relocation exists, the Engineer shall request conveyance documents from the utility provider and shall notify the County Engineer in writing. If utility is allowed by permit, information shall be obtained from the TxDOT Director of Maintenance.

3. The Engineer shall notify the Utility companies in writing and request the following information in writing:
    a. Project letting date and request they relocate prior to letting.
    b. Develop their relocation plan according to the TxDOT Utility Accommodation Policy Manual.
    c. Forward their relocation plan to the Engineer.
    d. Request in writing when relocation of utilities will be complete.
    e. Upon immediate completion of relocation, request they forward as-built plans to the County and TxDOT.

4. The Engineer shall develop the typical sections, alignment, and preliminary cross sections addressing the utility location and shall forward these to the respective utility company.

5. The Engineer shall update all files and plans based on the utility company responses.

6. The Engineer shall identify all utility conflicts on the plans and prepare layouts and profiles of existing utility crossings showing conflicts of utilities with proposed improvements. The Engineer

shall forward these layouts to the County. During design process, the Engineer shall field verify all visible utility conflicts.

7. The Engineer shall verify the proposed relocation plan submitted by the Utility companies to assure their design is according to Utility Accommodation Policy Manual. Upon the Engineer's review and concurrence with the proposed relocation plan, they shall forward their recommendation for approval to the County.

Task: Topographic -Utility locations (FC: 130)
The Engineer's Surveyor shall gather all vertical and horizontal overhead utilities (location, elevation, direction, etc.) crossing the existing ROW or within the existing frontage roads from I 35 to Havana and within any proposed right of way from Havana to 3000 ft. east of Havana.
Subsurface Utility Engineering (SUE) will not be provided in this scope for this project.

Task: Property Descriptions (Field Notes) for Temporary Construction Easement Drainage Easements or Fee Simple Conveyances (FC: 130)
No drainage or construction easements are included in this scope.
Task: Parcel Plats (FC: 130) NOT INCLUDED IN THIS W. A NO. 1
A parcel plat will be prepared for each parcel of land to be acquired. TxDOT has developed standard formats for parcel plats, copies of which the Engineer will request and secure for all purposes. All parcel plats will be (8-1/2" x 11") signed and sealed by a Registered Professional Land Surveyor. They should reflect the property owners and adjoining owners name and recording information. Parcel plats, survey should include metes and bounds property descriptions of takings.
Task: ROW Maps (FC: 130) NOT INCLUDED IN THIS W. A NO. 1
All ROW maps are reviewed and approved for technical completeness, compliance with TxDOT guidelines and adherence to the Professional Land Surveyors Practices Act by the District.

All ROW map pages must be uniform in size (22" x 34"), form and arrangement. The uniformity must conform to TxDOT standards and guidelines and include similar font styles and sizes for each map sheet, as well as a neat, readable arrangement of data on each sheet. The entire ROW map will be bound by the left margin of each set.

Projects should contain the following map sheets:

a. Title sheet
b. Parcel Index Sheet – Shows an overall view of project parcels and plan sheets. It may be omitted if all applicable data can be placed on individual map sheets.
c. Control Sheet – This sheet shows an overall view of project and relationship to primary monumentation and control.

If preferred, this information may be included on the Parcel Index Sheet.

- Plan Sheets 1 and 2

Reference Publications for ROW Map Preparation

- TxDOT Surveying Guide, TSPS Manual of Practice, Professional Land Surveyors Practices Act Rules and Regulations, and the TxDOT Right of Way Manual.

Task: Existing and Proposed Right of Way (FC: 130) NOT INCLUDED IN THIS W. A NO. 1
The Engineer shall stake all proposed right of way necessary for preparation and construction of this project. . **This task is only applicable for the portion of the Project from Havana to 3000 ft, east of Havana.)**

- On each plan sheet show the following:
  a. Existing ROW (by bearing an distance) in areas where new ROW is needed. In areas where new ROW is only needed on one side, the ROW on both sides of the new facility needs to be delineated and monumented.
  b. Existing ROW monuments;
  c. Record ownership data of adjacent properties.
  d. PC's, PTs and PIs (show and label).
  e. Existing utility lines and easements (deed reference, if available).
  f. Existing improvements such as buildup and fences, etc. Potential obstructions and/ or encroachments. (Locate any improvement within 25 feet of new ROW line. This will assist appraisers in determining damages to the remainder of properties).
  g. Survey lines, city limit lines and county lines (show and label all).
  h. Existing public roads, streets, alleyways, existing drainage or channel easement (include recorded plat or deed reference).
  i. The whole property relative to existing and proposed right of way. If the property is too large to fit on the map sheet at the existing sheet scale, draw an inset at a smaller or not to scale with a not stating "N.T.S."
  j. The existing ROW line should be labeled "Existing Right of Way."
  k. Each individual property line should be shown on the map sheet, with respect to and their relationship with existing ROW line based on information obtained during preliminary surveys, research of tax records, deeds, and subdivision plats.
- On each plan sheet show the following:
  a. New ROW lines.
  b. New ROW markers
  c. Portions of the proposed design. Although a ROW map is not to be used to construct a highway, you should show, by either a single line or shading, the following proposed items or additional topography information:
     (1). frontage roads
     (2). main lanes
     (3). connecting ramps

When control of access is used, dictated by the approved schematic design, the control of access should be described in a recorded deed. Limits of denied access should be staked on the ground. The control of access clauses may be included in the property descriptions or as a separate instrument. If a metes and bounds description is prepared to describe a controlled access line, it must be signed and sealed by an RPLS.

- On Federal Aid Projects such as Interstate, U.S. and State Highways showing the whole property on the map is a requirement.

Note: Only those services expressly stated in this task order will be performed. If any services, other than those expressly stated in this task order are required, the **ENGINEER** may perform those services under a separate or supplemental task order.

PHASE III- PLAN, SPECIFICATIONS AND ESTIMATE SERVICES FOR PS&E PACKAGES NO. 1, 2, AND NO. 2A ONLY

The Engineer shall prepare and submit the 30%, 60%, 90% and final submissions in accordance to the Laredo District PS&E Submissions requirements. The County Project Manager is responsible for the coordination, review, and the quality submission of the PS&E packages prepared by consultants. The following tasks identify the responsibilities and deliverables that shall be carried out by the Engineer as part of PS&E development and submissions:

I. GENERAL

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of PS&E Documents for Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to:

I. GENERAL

- Title Sheet (FC 163)
- Project Layout/Index of Sheets (FC 163)
- Typical Sections (FC 160)
- Estimate and Quantities (FC 163)
- Consolidated Summaries (FC 163)

Task: Title Sheet (FC: 163)

The Engineer shall prepare and submit this work under this task in accordance to the PS&E Preparation Manual and other deemed necessary TxDOT approved manuals.

Task: Project Layout/ Index (FC: 163)

The Engineer shall prepare and submit work under this task in accordance to the PS&E Preparation Manual and other deemed necessary TxDOT approved manuals. The location of project should depict the entire project with beginning and ending (Station Numbers/Reference Markers) for each noted CSJ. Mapping landmarks (side streets, creeks, etc.) along with North Arrow and a scale should be shown to help relate the physical location of the project. By use of shading or cross-hatching, the proposed areas of construction should be shown.

Task: Typical Sections –Configuration (Lane/Shoulder/Cut/Fill/etc.) (FC: 160)
The Engineer shall use the Design Speed, the Funding Category, Average Daily Traffic, ADT, Roadway Classification, Location Type, and the appropriate Design Criteria to develop the typical sections as set forth in the Roadway Design Manual, PS&E Preparation Manual and other deemed necessary TxDOT approved manuals to prepare and submit the work under this task. The existing typical section should be shown with current roadway (pavement, right of way, etc.) characteristics. The proposed typical sections should be shown below the existing typical section with all related pertinent (pavement, right of way, etc.) information for the proposed roadway construction.

Task: Typical Sections – Pavement Design (FC: 160)
Pavement Design to be provided by TxDOT.

Task: Typical Sections – Pavement Design Foundation Studies (FC: 110)
Pavement Design Foundation Studies to be provided by the Engineer.

Task: General Notes (FC: 163)
The Engineer shall prepare and submit work under this task in accordance to the PS&E Preparation Manual and other deemed necessary TxDOT approved manuals. The Engineer shall compile all pertinent General Notes and develop any Special Provisions/Special Specifications applicable and required for this project. Specifications and General Notes will be provided to the County electronically in acceptable format for transferring data.

Task: Estimate and Quantity (FC: 163)
The Engineer shall prepare and submit work under this task in accordance to the PS&E Preparation Manual and other deemed necessary TxDOT approved manuals. For all items, the Engineer shall prepare a complete listing of construction bid items and all applicable provisions, compute estimated quantities required for each item, and compute estimated cost of construction work based on current TxDOT average low bid unit prices and estimated quantities.

Task: Consolidated Summaries (FC: 163)
For Roadway, Bridge and Traffic quantities, the Engineer shall prepare and submit work under this task in accordance to the PS&E Preparation Manual and other deemed necessary County and TxDOT approved manuals. All summaries shall be consolidated per CSJ, City or County participation, etc. In addition some summaries (Traffic Control Plan, SW3P, etc.) shall be consolidated if applicable according to each phases of sequence of construction. Any quantities shown "For Contractor Information Only" should be shown as such.

Additional Services to be Performed Under Supplemental Work Authorization No. 11 to Work Authorization No. 1

1. Update column design, details & standards to include 8" drain pipe.
2. Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.
3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.
6. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to reconfigure the existing concrete safety barrier.
4. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations

II. TRAFFIC CONTROL PLANS (TCP)

The Engineer shall contact the County Project Manager prior to the 30% plan submission to address the approval of the Traffic Control Plan. The Engineer attends a meeting to make a presentation to the County and the TxDOT Laredo District Traffic Safety Review Team, DTSRT to obtain approval. At this time, the Engineer shall notify the State if they plan on requesting a speed reduction at the work zones. The Engineer shall prepare the request form using the latest approved Strip Map within the project limits in conjunction with the Traffic Standards for this request. If the project limits is within the city limits, the request shall be coordinated with the State and the local municipality at the early design process.

Prior to making a presentation to the County and the TxDOT DTSRT, the Engineer shall be responsible to advise County Project Manager of any traffic control issues that may affect the design from any previous initial meetings. The plans shall address the Typical Sections, Phases Narrative, Phase Layouts, and Temporary Traffic Signals and Illumination for each respective phase.

The Engineer shall provide the County with a hardcopy and accompanying electronic file of a schedule and Critical Path Method for project duration for each phase of construction using Primavera software.

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of Traffic Control Narrative and Plans for Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to:

II. TRAFFIC CONTROL PLANS (TCP)

- Phase Narrative (FC 163)

- Typical Sections (FC 163)
- Phases Layouts (FC 163)

Task: Phase Narrative (FC: 163)
The Engineer shall describe the type of work to be performed for each phase of sequence of construction and any special instructions (ex: storm sewer, culverts, bridges, railing, illumination, signals, retaining walls, signing, paving surface sequencing or concrete placement, ROW restrictions, utilities, etc.) that the contractor should be made aware to include limits of construction, obliteration, and shifting or detouring of traffic prior to the proceeding phase.

Loop 20 Stimulus Project (From 0.5 Mi. West of Milo Interchange to 3000 LF East of Havana.

Schematic, Environmental, ROW and Topo Special Services, and PS&E to include the following limits:

PS&E Package No. 1 – From beginning of Project located approximately 174.2 feet west of IH-35 to entrance and exit ramps west of McPherson Boulevard Overpass Bridges, includes Loop 20 Bridges over IH 35. (From STA 421+69.64 to approx. STA 492+35.14) (Project length = 7,010 LF) (Roadway length = 4,125 LF) (Bridge length approx. 2885 LF)

PS&E Package No. 2– From entrance and exit ramps west of McPherson to end of entrance and exit ramps east of the McPherson Boulevard Overpass. Includes Loop 20 Bridges over McPherson Boulevard Bridges. (From STA 477+50.00 to approx. STA 515+37) (Project length = 7,010 LF) (Roadway length = 4,125 LF) (Bridge length approx. 2885 LF)
THIS PORTION OF THE ORIGINAL PROJECT IS CURRENTLY UNDER CONSTRUCTION.

PS&E Package No. 2A - From end of entrance and exit ramps east of the McPherson Boulevard Overpass to entrance and exit ramps, east of International Boulevard Overpass Bridges. Includes Loop 20 Bridges over International Boulevard. (From STA 484+37.94 to approx. STA 559+50.00) (Project length = 6,200 LF) (Roadway length = 5,600 LF) (Bridge length approx. 2885 LF)

THE PS&E PACKAGE NO. 3 WILL BE DELETED FROM THIS WORK AUTHORIZATION

PS&E Package No. 3 (Deleted from this Work Authorization) – From just past entrance and exit ramps east of International Boulevard Overpass Bridges to end of Project, connecting to existing raised median section, 3000 ft. east of Havana Road. (Scope does not include development of PS&E for Havana Overpass Bridges)(From STA 554+00 to STA 573+54.80 BK = STA 445+00.12 FWD / Equation Station) (Roadway length = 4,455 LF)

Task: Typical Sections (FC: 163)
The Engineer shall include the work limits, the location of channelizing devices, positive barrier, location & direction of traffic, work area, stations, pavement markings, and other information deemed necessary for each phase of sequence of construction.

Task: Phases Layouts (FC: 163)

If Engineer determines that a standard is not applicable to address the entire project, then the Engineer shall prepare layouts for each respective phase of sequence of construction to illustrate any necessary additional construction details not covered by the Standards to address work limits for each sequence in stations, channelizing devices, barricades, positive barrier, tapers, buffer zones, TCP signage, SIGNS, work zone pavement markings, work area, location & direction of traffic, locations for pedestrian crossings, and other information deemed necessary for each phase of sequence of construction. The Engineer shall develop the layouts by referring to the TxDOT standards, latest version of the TxMUTCD and the Sign Crew Field Book for non-TCP signage that may be needed as part of the TCP signage for intersections. The layouts shall address construction of detours, access to business, homes, side streets, and driveways, and reroute of traffic to other roads. In addition, the Engineer shall assure that drainage issues have been addressed as result of changes in horizontal and vertical profiles by specifying the location and size of the temporary drainage structures. The Engineer shall determine the hydrology and hydraulics in accordance the information shown on "V. DRAINAGE DETAILS". Show all necessary documentation required for "V. DRAINAGE DETAILS" on the traffic control plans as for Contractor information only. When using positive barrier, the engineer shall check for sight distance from adjacent roads and streets.

The Engineer shall prepare the plan and profile sheets and cross sections for all detours using the criteria established under "III. ROADWAY DETAILS, Task: Plans and Profile, Function Code: 160". These sheets and cross sections shall follow the phase layouts on the plans.

Task: Standards (FC: 163)

The Engineer shall identify and insert, as frequent as feasible, all applicable, current TxDOT standards. District Standards and/or miscellaneous details that have been approved for use at other Districts shall be signed, sealed, and dated by a Registered/Licensed Engineer in Texas for use in the Laredo District. The use of these details shall be approved during the early stages of design by the Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

The Engineer shall identify and insert all applicable TxDOT standards preferably at all times. Standards that have not been approved for use in the Laredo District shall be signed, sealed, and dated by a Registered Engineer in Texas for use as details. Approval shall be requested at the early stage of the plan preparation from TxDOT regarding the use of these details. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving**

existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

III. ROADWAY DETAILS

The Engineer shall design, prepare and submit the work under this section in accordance to the Roadway Design Manual, Hydraulic Design Manual, PS&E Preparation Manual, latest version of TxMUTCD and other deemed necessary State approved manuals. In addition, when criteria is not identified in TxDOT manuals, the Engineer will reference design elements from AASHTO, A Policy on Geometric Design of Highways and Street (2001-4th Edition) and obtain written approval from TxDOT for their use prior to commencing any design work.
The Engineer shall be responsible, at the early plan development stage, to inform the County of changes made from previous initial meetings regarding all exceptions, waivers, and variances that

may affect the design. The Engineer shall cease all work under this task until the exceptions, waivers, and variances have been resolved between the Engineer, the County, and TxDOT, unless otherwise directed by the County to proceed.

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of Roadway Details for Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to:

III. ROADWAY DETAILS

- Alignment Sheets (FC 160)
- Plan and Profile (FC 160)
- Slope Stability Design Foundation Studies (FC 110)
- Intersection Details (FC 160)
- Miscellaneous Details, Etc. (FC 160)

Task: Alignment Sheets (FC: 160)
The alignment sheet(s) include the following for complex projects and/or where it is not desirable to show the following information on the plan and profiles sheet(s): include the project limits for the entire project, label curve date bearings/coordinates for each alignment, computer generated data may be graphically place on the sheet(s) and applicable surface adjustment factor of 1.00003 the State Plane Coordinates System should be noted on this sheet(s). Alignment sheets will not be included for the existing frontage roads.

Task: Benchmark Data Sheet (FC: 160)
The Benchmark Data sheet shall be developed in tabulated form and accompanied by surveyor's sketch showing the Station Number from respective alignment, Offset, and Elevation and Physical Description. All coordinates shall be shown in surface by using the combined scale factor of 1.00003.

Task: Plan and Profile (FC: 160)
The Engineer shall design the plan (horizontal) and profile (vertical) including roadway transitions based on the controlling criteria previously defined and as set forth in the previously listed. The Engineer shall develop the alignment for the project in GEOPAK format. This task (Plan and Profile – FC 160) will not include any existing frontage roads. All work required on existing frontage roads will be considered additional services and is presently not included.

The Engineer shall identify and notify the County, of all locations not meeting the set criteria. In addition, the Engineer shall provide alternatives and a recommendation to address these design issues.

The Engineer shall verify the roadway's existing profile and plan, the superelevation transition lengths (according to the superelevation rate and distance between the axis of rotation and the edge of travel way), and all ponding areas.

The Engineer shall develop and verify all cross sections in preparation of the proposed traffic control plan, drainage, utilities, right-of-way, and access onto adjacent properties. In addition, the cross sections shall be drained to maintain the natural watershed unless otherwise directed by the County.

The Engineer shall determine all cut and fill quantities.

Task: Slope Stability Design Foundation Studies (FC: 110)
The Engineer shall perform a global stability analysis on fill areas on bridge approaches and other areas where the height of fill is determined to be greater than 15 feet typically. No geotechnical investigations are to be initiated until the County has given the Engineer written approval. The Engineer shall prepare an engineering report showing all material testing locations, with a summary of all geotechnical investigations, project background, and a summary of recommendations.

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

The following additional geotechnical analysis is require for the design of the relocated MSE retaining walls located on the west side of the proposed International Blvd Overpass Bridge (Package 2A) resulting from deletion of the previously proposed entrance and exit ramp and MSE retaining walls.

1. Performance of global stability analyses for relocated MSE retaining walls on north and south sides of proposed mainlanes west of the International Blvd. overpass bridge.

2. Evaluating undercuts requirements for relocated MSE walls on west side of International Blvd Overpass Bridge. Work will include preparing a table to be used to estimate undercut volumes for walls greater than or less than 13 feet, which involve different undercut fill.

3. Evaluate how deep to found the MSE footings and reinforcing zones be given to undercuts, fills to raise grades, and box culvert structures.

Additional Services to be Performed Under Supplemental Work Authorization No. 11 to Work Authorization No. 1

1. Update column design, details & standards to include 8" drain pipe.
2. Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.
3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.
4. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to reconfigure the existing concrete safety barrier.
5. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations

Task: Intersection Details (FC: 160)

The Engineer shall design all proposed intersections to accommodate the design vehicles turning radius. The ADA-wheelchair ramps shall be designed in accordance to the TDLR compliance and the latest TxDOT's Pedestrian Ramp Standards in conjunction with the requirement of the latest version of the TxMUTCD as it relates location of the traffic signals pedestrian heads, signage, and pavement markings. Also, the Engineer shall design all intersections in accordance to TxDOT's, "Regulations for Access Driveways to State Highways" or any approved latest version of the "Access Management Manual". In addition, the Engineer shall assure the location and verification of any storm sewer inlets, and utilities are not within pathway of the pedestrian element nor outside of the limitations of the right of away. In those instances where the Engineer has identified a variance for this task, the Engineer shall notify the State immediately and cease any work further until this issue has been resolved between Engineer and the State-Area Office. The Engineer shall design the intersection by preventing the bottom of the vehicles to be wedged when accessing onto a street.

Task: Driveway Details (FC: 160)

The Engineer shall design all proposed driveways in accordance TxDOT's, "Regulations for Access Driveways to State Highways", any approved latest version of the "Access Management Manual", and the Laredo District Standard Driveway Details. The scope of this project does not include any work on existing driveways from I 35 to Havana. The Engineer shall note on the plans and during early design process when a construction license agreement is needed to construct a portion of the driveway outside of the State's Right of Way. The Engineer shall design the intersection by preventing the bottom of the vehicles to be wedged when accessing onto an adjacent property.

Task: Miscellaneous Details, Etc. (FC: 160)

The Engineer shall design all longitudinal barriers (railing and guardrail), raised median, fencing, bus bays, parking areas, mailboxes, and shoulder texturing in accordance to the criteria set forth in the roadway design manual and standards. Miscellaneous Details Sheet(s) may be developed to illustrate any necessary additional construction details not covered by the Standards. Standards that have not been approved for use in the Laredo District shall be signed, sealed, and dated by a

Registered Professional Engineer in Texas for use as details. Approval shall be requested at the early stage of the plan preparation from TxDOT throughout the County regarding the use of these details. In addition as part of the approval process, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

Task: Standards (FC: 160)
The Engineer shall identify and insert all applicable TxDOT standards preferably at all times.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00**

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

IV. WALL DETAILS

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of MSE Retaining Walls for Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to:

IV. WALL DETAILS

- Wall Layouts (FC 163)

Task: Wall Layouts (FC: 163)

The Engineer shall refer to the Roadway Design Manual, PS&E Preparation Manual, Bridge Design Manual, Bridge Design Manual, Bridge Detailing Manual, Bridge Project Development Manual, Bridge Railing Manual, and other deemed necessary State approved manuals to prepare and submit the work under this task. Determine the location of soil boring needed for foundation design of the retaining wall located upstream and downstream of proposed bridges, in accordance to the Geotechnical Manual. Prior to preparation of retaining wall layouts, prepare a comparative cost analysis of different types of retaining walls versus roadway embankment/pavement/soil stabilization/retaining walls type/available ROW to determine optimum selection based on economics, construction time duration, ROW encroachments (need for construction easements) and construction feasibility. The Engineer shall submit early in the plan preparation the retaining wall layouts to obtain approval from TxDOT-District 22 and Bridge Division. All necessary information from above referenced manuals and respective checklists shall be incorporated into the retaining wall layouts. For stage construction, indicate limits of existing retaining walls for removal and reconstruction.
The approximate limits of the retaining wall are as follows:

PS&E Package No. 1 (CSJ: 0086-14-065) – From beginning of Project located approximately 174.2 feet west of IH-35 to entrance and exit ramps west of McPherson Boulevard Overpass Bridges, includes Loop 20 Bridges over IH 35. (From STA 421+90 to approx. STA 492+00) (Project length = 7,010 LF) (Roadway length = 4,125 LF) (Bridge length approx. 2885 LF)

PS&E Package No. 2 (CSJ: 0086-14-057) – From entrance and exit ramps west of McPherson to end of entrance and exit ramps east of the McPherson Boulevard Overpass. Includes Loop 20 Bridges over McPherson Boulevard Bridges. (From STA 422+00 to approx. STA 554+00) (Project length = 7,010 LF) (Roadway length = 4,125 LF) (Bridge length approx. 2885 LF)
THIS PORTION OF PROJECT IS CURRENTLY UNDER CONSTRUCTION.

PS&E Package No. 2A (CSJ: 0086-14-066) - From end of entrance and exit ramps east of the McPherson Boulevard Overpass to entrance and exit ramps, east of International Boulevard

Overpass Bridges. Includes Loop 20 Bridges over International Boulevard. (From STA 422+00 to approx. STA 554+00) (Project length = 6,200 LF) (Roadway length = 5,600 LF) (Bridge length approx. 2885 LF)

THE PS&E PACKAGE NO. 3 WILL BE DELETED FROM THIS WORK AUTHORIZATION

PS&E Package No. 3 (Deleted from this Work Authorization) – From just past entrance and exit ramps east of International Boulevard Overpass Bridges to end of Project, connecting to existing raised median section, 3000 ft. east of Havana Road. (Scope does not include development of PS&E for Havana Overpass Bridges)(From STA 554+00 to STA 573+54.80 BK = STA 445+00.12 FWD / Equation Station) (Roadway length = 4,455 LF)

The Engineer shall notify the County and TxDOT the type of retaining walls that will be used for Cut and Fill locations.

Mechanically Stabilized Earth (MSE) Walls:
The supplier shall perform the internal design of the wall. The Engineer shall prepare the retaining wall layouts showing plan and profile or retaining walls for design by TxDOT approved vendor. The Engineer is responsible for design of geometry and wall stability. A slope of 4:1 or flatter shall be incorporated from the existing and finished ground line elevation to the face of the retaining wall.

Task: Standards (FC: 163)
The Engineer shall identify and insert, as frequent as feasible, all applicable, current TxDOT standards. District Standards and/or miscellaneous details that have been approved for use at other Districts shall be signed, sealed, and dated by a Registered/Licensed Engineer in Texas for use in the County and the TxDOT Laredo District. The use of these details shall be approved during the early stages of design by the Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00**

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

V. DRAINAGE DETAILS

The Engineer shall use the Roadway Design Manual, Hydraulic Manual, PS&E Preparation Manual, and other deemed necessary TxDOT approved manuals to prepare and submit the work under this section

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of Drainage Plans and Calculations due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to:

V. DRAINAGE DETAILS

- Drainage Area Maps (FC 161)
- Hydrology Calculations (FC 161)
- Hydraulic Calculations (FC 161)
- Plan and Profile Sheet (FC 161)
- Miscellaneous Details (FC 161)

Task: Drainage Area Maps (FC: 161)

The Engineer shall prepare a drainage area map for all the drainage areas for all storm lines and cross culverts that are proposed within the project limits. The Engineer shall use the USGS Quad Maps to maintain the historical flow path or any other acceptable source that will have to be approved by the State. No drainage area maps will be prepared for any existing storm lines within the project limits.

Task: Hydrology Calculations (FC: 161)

The Engineer shall use the above-listed manuals to prepare and submit the work under this task. The hydrology calculations shall have the following:

- Hydrological Method used
- Drainage Area Number to corresponding culvert number, Size of Drainage Area,
- Cover of existing (i.e. include percentage of each cover to arrive at C, or CN)
- Design Frequency based on the functional classification, type of roadway, and any other information noted on the Hydraulic Manual, Roadway Design Manual, or any other TxDOT literature and guidelines. Include the intensity and/or Precipitation for 24-hr rainfall. If using the US Regression Equations, the Engineer shall include the Stream Slope and Channel Length.
- Time of concentration (i.e. sheet flow, overland flow, & channel flow).

The above task will not include any hydrology calculations for areas outside the existing right-of-way or for any existing storm lines within the existing right-of-way.

Task: Hydraulic Calculations (FC: 161)

The Engineer shall use the above-listed manuals to prepare and submit the work under this task. The hydraulic calculations shall have the following:

- Description-Material, Size, & Entrance(headwall)
- Design discharges, Flow per barrel, barrel slope, and Manning n-value
- Inlet flow line, allowable headwater, roadway (shoulder) elevation, calculated inlet headwater elevation
- Outlet flow line, Tailwater for design frequency/frequencies, type of flow, critical depth, and calculated friction losses, calculated outlet water elevation
- Controlling headwater elevation, outlet velocity, and recommended countermeasures to maintain an acceptable outlet velocity.

The Engineer will not perform any new hydraulic calculations for any existing storm lines within or outside the existing right-of-way. The Engineer will only verify the provided existing calculations and that existing storm sewer lines are adequate.

The Engineer has assumed all existing storm sewer within the project limits were designed to handle proposed improvements and is adequate. Any engineering work required to modify the existing storm sewer shall be considered out of scope.

The Engineer shall design all ditches to assure the design discharge is capable of being contained within the size of the ditch and set depth and freeboard as indicated on the TxDOT Roadway Design Manual, Hydraulic Manual, PS&E Preparation Manual and other deemed necessary State approved manuals.

The Engineer will not design any ditches or detention facilities outside the existing right-of-way.

Task: Culvert Layouts, Cross Sections, and Detail Sheets (FC: 161)
The Engineer shall use the above-listed manuals to prepare and submit the work under this task.

Task: Plan and Profile Sheet (FC: 161)
The Engineer shall use the above-listed manuals to prepare and submit the work under this task. The Engineer shall show the location of culverts and ditches on the roadway's plan view. No plan and profile sheets will be prepared for any existing storm sewer systems within or outside existing Loop 20 ROW.

The Storm Sewer design shall have it owns plan and profile sheets. The Engineer shall use the above-listed manuals to prepare and submit the work under this task.

Task: Miscellaneous Details (FC: 161)
The Engineer shall use TxDOT standards preferably at all times. Modification to inlets, pipe connection, bedding details, and other elements pertaining to drainage details shall be include under this work task. The BCS sheet must be submitted for all box culverts within the project limits. This sheet must be signed and sealed by the Engineer.

Task: Standards (FC: 161)
The Engineer shall identify and insert, as frequent as feasible, all applicable, current TxDOT standards. District Standards and/or miscellaneous details that have been approved for use at other Districts shall be signed, sealed, and dated by a Registered/Licensed Engineer in Texas for use in the County and the TxDOT Laredo District. The use of these details shall be approved during the early stages of design by the Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south**

side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

VI. UTILITIES

Task: Subsurface Utility Services (SUE) (FC: 150)

The Engineer will provide Subsurface Utility Engineering (S.U.E.) Services - Level A Test Hole to locate conflicting underground utilities.

Scope of Work:

1. A total of Twenty-four (24) Subsurface Utility Engineering Quality Level A test holes will be excavated at specific conflict points to determine the horizontal and vertical location of existing utilities in conflict with proposed construction of Loop 20 mainlanes and ramps, under design and delineated in red on Attachment A: Conflict Locations, as provided by Client. Eleven (11)

test hole locations reside between IH35 and McPherson and thirteen (13) between McPherson and International.

2. Test holes will be performed by means of non-destructive vacuum air-excavation, which will determine the material, top, orientation, and horizontal and vertical location of the utility at each desired location. In order to perform the test holes, the following will also be completed: contact Texas One Call agency to notify of digging intent, perform on-site field inspection and designate the desired utility to determine above-ground location (by way of electromagnetic designation). Locations will be backfilled to TxDOT standards. Surveyors will then tie-in test holes to provided project control.

Deliverable:

1. Submittal for the SUE services to be performed will consist of a CADD plan drawing (Microstation format) of the test hole, as well as a professional engineer signed and sealed test hole data sheet to include x, y, z coordinate data, utility details, survey control information and plan and profile views of the exposed utility.

Schedule:

1. Fieldwork will begin upon notice to proceed and approval of permits.
2. Deliverables will be submitted within 2 weeks of completed fieldwork.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00**

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the

eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

VII. BRIDGES

The Engineer shall refer to the Roadway Design Manual, PS&E Preparation Manual, BRINSAP File, Bridge Design Manual, Bridge Detailing Manual, Geotechnical Manual, Bridge Project Development Manual, Bridge Railing Manual, and other deemed necessary TxDOT approved manuals to prepare and submit the work under this section.

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of International Boulevard Overpass Bridges in Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to the following:

Task: Bridge Layout (FC: 170)

The Engineer shall prepare all the bridge layout plan sheets. Determine the location of soil boring needed for foundation design of the bridges located on Loop 20 at IH 35/UPRR, McPherson Road, and International Boulevard, in accordance to the Geotechnical Manual. Prior to preparation of bridge layouts, prepare a comparative cost analysis of bridge structures to determine optimum in bridge beams for vertical clearance (railroad/roadway/waterway). Prior to preparation of bridge layouts, prepare a comparative cost analysis of bridge structures versus roadway embankment/pavement/soil stabilization/retaining walls to determine optimum in bridge beams for the direct connectors. The Engineer shall submit early in the plan preparation the bridge layouts to obtain approval from the County, the TxDOT-District 22, and Bridge Division. All necessary information from above referenced manuals and respective checklist shall be incorporated into the bridge layouts to include bridge

typical sections, structural dimensions, abutment and bent locations, superstructure and substructure types. Locate and plot all soil borings and utilities. Show proposed retaining walls. For stage construction, indicate limits of existing bridge for removal and reconstruction.

Task: Bridge Detail Summary (FC: 170)
The Engineer shall prepare bridge quantities, estimates and specifications in accordance to all manuals as defined in Section VII. Bridges.

Task: Bridge Structural Details (FC: 170)
The Engineer shall refer to the referenced manuals in Section VII Bridges to prepare structural design and develop detailed structural drawings of all required details in an effort to submit the work under this task.

Additionally, the Engineer shall perform the following tasks:

- Perform calculations for design of bridge abutments.
- Perform calculations for bridge slab design.
- Perform calculations to determine elevations of bridge substructure and super structure elements.
- Perform calculations for bridge box beam design.
- Prepare necessary foundation details and plan sheets.
- Prepare plan sheets for abutment design.
- Prepare plan sheets for additional abutment details.
- Prepare framing plan and slab plan sheets.
- Compute and prepare tables for slab and bearing seat elevations, dead load deflections, etc.
- Design beams and prepare beam design tables.
- Prepare Bridge Summary Sheet

Note: All calculations to be provided in deliverables.

Task: Bridge Design Foundation Studies (FC: 110)
The Engineer shall analyze the geotechnical information to determine appropriate soil bearing values, and shall perform analysis calculations to determine appropriate foundation.

Task: Bridge Standards (FC: 170)
The Engineer shall identify and insert, as frequent as feasible, all applicable, current TxDOT standards. District Standards and/or miscellaneous details that have been approved for use at other Districts shall be signed, sealed, and dated by a Registered/Licensed Engineer in Texas for use in the County and the TxDOT Laredo District. The use of these details shall be approved during the early stages of design by the Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00**

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

4. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

5. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

6. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

7. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

Additional Services to be Performed Under Supplemental Work Authorization No. 11 to Work Authorization No. 1

1. Update column design, details & standards to include 8" drain pipe.
2. Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.
3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.
4. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to reconfigure the existing concrete safety barrier.
5. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundation

VIII. TRAFFIC ITEMS

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of Traffic Items for Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to the following:

Task: Illumination (FC: 163)
The Engineer shall refer to TxDOT's Highway Illumination Manual and other deemed necessary State approved manuals for design of continuous lighting for all high-mast lighting from McPherson to STA 554+00 (beginning of PS&E Package No. 3), and underpass lighting at proposed bridges. Lighting contours will be provided and preliminary layouts for all high mast lighting from McPherson to STA 554+00 (beginning of PS&E Package No. 3) shall be provided for initial review and approval. Circuit wiring diagrams shall be prepared showing the number of luminaries on each circuit, electrical conductors, length of runs, service pole assemblies. Underpass lighting shall be used on all bridge structures within this project (IH 35, McPherson and International). Any existing illumination within the project limits shall be coordinated with the proposed design. Task does not include Illumination warrants. FAA permit for high mast lighting is not part of this scope. Webb County / TXDOT to submit FAA permit. Coordinate with the County and TxDOT to determine the location of proposed high-mast and underpass lighting.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and**

Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

Task: (Illumination) Standards (FC: 163)

The Engineer shall identify and insert, as frequent as feasible, all applicable, current TxDOT standards. District Standards and/or miscellaneous details that have been approved for use at other Districts shall be signed, sealed, and dated by a Registered/Licensed Engineer in Texas for use in the County and the TxDOT Laredo District. The use of these details shall be approved during the early stages of design by the Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

Task: Signing (FC: 162)

The Engineer shall inventory all signage through the project limits including those limits that are considered incidental to the project limits. All intersections and roadway signage shall be designed and spaced according to the requirements set forth in TxDOT's Sign Crew Field Book and standards for work under this task. Any signs no longer used by TxDOT shall be taken out and replace by an accepted TxMUTCD signs. The Engineer shall design all signage according to the latest version of the TxMUTCD, Supplemental to TxMUTCD, and TxDOT's Signs and Markings Manual.

Additional Services to be Performed Under Supplemental Work Authorization No. 11 to Work Authorization No. 1

1. Update column design, details & standards to include 8" drain pipe.
2. Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.
3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.
4. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to reconfigure the existing concrete safety barrier.
5. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations

Task: (Signing) Standards (FC: 162)

The Engineer shall identify and insert, as frequent as feasible, all applicable, current TxDOT standards. District Standards and/or miscellaneous details that have been approved for use at other Districts shall be signed, sealed, and dated by a Registered/Licensed Engineer in Texas for use in the Laredo District. The use of these details shall be approved during the early stages of design by the County and the TxDOT Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

Task: Pavement Markings (FC: 162)

The Engineer shall refer to latest version of the TxMUTCD, Supplemental to TxMUTCD, TxDOT's Signs and Markings Manual, TxDOT's Sign Crew Field Book and standards for work under this task. For two lane roadways, the Engineer shall verify and bring to current the pavement markings for passing and no passing locations according to the TxMUTCD. The pavement markings at intersections shall be designed according to pedestrian locations as shown on the latest Ramp Standards and TxMUTCD.

Additional Services to be Performed Under Supplemental Work Authorization No. 11 to Work Authorization No. 1

1. Update column design, details & standards to include 8" drain pipe.
2. Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.
3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.
4. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts are needed to reconfigure the existing concrete safety barrier.
5. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations

Task: (Pavement Markings) Standards (FC: 162)

The Engineer shall identify and insert, as frequent as feasible, all applicable, current TxDOT standards. District Standards and/or miscellaneous details that have been approved for use at other Districts shall be signed, sealed, and dated by a Registered/Licensed Engineer in Texas for use in the Laredo District. The use of these details shall be approved during the early stages of design by the County and the TxDOT Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment.

IX ENVIRONMENTAL

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of Environmental Items in Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to the following:

Task: Storm Water Pollution Prevention Plans (SW3P) (FC: 161)

The Engineer shall submit and prepare SW3P sheets when soil is to be disturbed as part of the erosion control measures during each phase of the sequence of construction. The general plan for the SW3P on this project is to enclose the area under construction including existing and proposed inlets with erosion control devices and provide a stabilized construction entrances at points where traffic will be entering or leaving the construction site. The Engineer shall also design structures or features to control erosion and suspended sediments for post-construction. A standardized General Note will serve as the SW3P where there is to be no soil disturbance (seal coats, overlays, etc.) in the project. The Engineer shall refer to the Hydraulic Design Manual, TxDOT standards, TxDOT Storm Water Management Guidelines, the Environmental Manual, and District Environmental Staff for guidance on work under this task. Erosion Control measures shall conform to one or more of the approved TxDOT / Texas Natural Resources Conservation Commission (TNRCC) / US

Environmental Protection Agency (EPA) / US Army Corps of Engineers (USACE) Best Management Practices. The appropriate Best Management Practice(s) shall be listed on the Environmental Issues, Permits, and Commitments (EIPC) sheet to be included as a Plan Sheet and shall be followed by the Engineer and Contractor to completion.

Task: Sensitive Areas (FC: 161)

Sensitive areas shall be delineated by the County and the TxDOT District and/or Division Environmental Staff and any Avoidance, Minimization, and/or Compensation actions and shall be described on the EIPC sheet, which shall be included as a Plan Sheet. Sensitive areas may require coordination with other agencies, including USACE, EPA, US Fish & Wildlife Service (USFWS), FHWA, TNRCC, Texas Historical Commission (THC), and Texas Parks & Wildlife Department (TPWD). Actions described on the EIPC, other Plan Sheets, or General Notes, shall be followed to completion by the Engineer and Contractor. Special consideration may be required for impacts on Water Resources, Biological Resources, Noise, Archeological Resources, Historical Resources, and Public Involvement. Further guidance and considerations can be found in the Environmental Manual and from the District Environmental staff.

Task: Miscellaneous (FC: 161)

X. MISCELLANEOUS

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of Miscellaneous Items in Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to the following:

Task: SW3P (FC: 161)

The Engineer shall prepare and submit this work under this task in accordance to the PS&E Preparation Manual and other deemed necessary TxDOT approved manuals.

1. Details
2. The Engineer shall describe the Erosion Control Devices to be used in the project.

Task: Aesthetics (FC: 163)

Prepare and submit plan sheets based on concepts submitted by TxDOT. Aesthetics may involve retaining walls, ground plan treatment, as well as, plant design, irrigations systems, and lighting systems.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00**

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

XI. CROSS SECTIONS

ADDITIONAL SERVICES PERFORMED UNDER SUPPLEMENTAL WORK AUTHORIZATION NO. 7 TO WORK AUTHORIZATION NO. 1

Redesign and Detailing of Cross-Sections in Package 2A due to the deletion of the entrance and exit ramps and modifications to retain walls on the west side of the International Overpass Bridges. Work includes, but not limited to, revisions to the following:

Task: Cross Sections (FC: 160)
The Engineer shall submit preliminary cross sections as part of traffic control layouts for review and approval of the proposed traffic control plans by the County and the TxDOT Traffic Control Safety Review Committee. Two rolls of cross sections shall be included with each submittal for review. The design cross - sections shall indicate the slope rate on the side slopes and shall be included at the end of the plans following "X Miscellaneous". The Engineer shall use GeoPak software and provide TxDOT with the applicable files. The Engineer has included 123 cross sections in this scope for this Work Authorization No. 1. If additional cross sections are needed, the additional cross sections will be considered out of scope.

The remaining 42 cross sections for PS&E Package No. 3 will be deleted from this work authorization.

Additional Services to be Performed Under Supplemental Work Authorization No. 8 to Work Authorization No. 1

- **Additional Project Management required to modify International Boulevard Plan Set (PS&E Package 1-(CSJ: 0086-14-065) to Update to 2014 Standard Manual and Specification; Modify for pavement design change and modify to account for moving existing ramp East of International Boulevard; Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00**

Modify International Interim West and East Bound Bridges to Ultimate Bridge Design

1. Provide Additional Project Management for modifying IH 35 Plan Set (PS&E Package 1 CSJ: 0086-14-65) PS&E for 2014 Standard Manual, Specifications and Drainage standards.

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings to follow new pavement design provided by TxDOT.

3. Conduct survey of the existing topography east of International along the outside of the eastbound frontage road and the Right of Way. Survey additional driveways and concrete pavement on the south side of the eastbound frontage road that were constructed by the new Wal-Mart development from sta 542+00 to sta 565+00.

4. Modify International Interim West and East bound bridges to ultimate bridge design.

Additional Services to be Performed Under Supplemental Work Authorization No. 10 to Work Authorization No. 1

1. Provide Additional Field Survey of IH 35 & LP 20 intersection and survey for drainage modification between EBFR and the ROW (FC 150)

2. Modify IH 35 Package 1 (CSJ: 0086-14-065) PS&E drawings (Function Codes: 130,160,161,162,163, 164 & 170) as required due to:
   - Re-Survey of IH 35 & LP 20 Intersection
   - Additional ITS items (Bridge) added by TxDOT (Camera and Foundation).
   - Drainage modifications between EBFR and the ROW

3. Modify Earthwork and Cross Sections due to existing embankment being relocated to outside the Project (FC 160)

ELECTRONIC FILE DELIVERABLES (DELIVERABLES FOR PS&E PACKAGE NO. 3 WILL BE DELETED FROM THIS WORK AUTHORIZATION)

The Engineer shall forward to the County and TxDOT, three (3) sets of CD/DVDs or an external hard drive with all the files containing the information and layouts used to prepare the PS&E.

Each CD/DVD shall be labeled and include the following:

- CSJ
- County
- Highway
- Date of the CD Burn
- INTERIM (in 1" letters) Note: As-built shall specify FINAL
- Volume sequence (ie. Disk 1 of 3)

Each CD/DVD created shall have the standard directory structure, as follows:

CSJ_DIR Structure (XXXXXXXX)
- ADV PLAN
  - ENV
  - PROJ COORD
  - ROW
    - Field Notes
    - Maps
    - Plats
    - Utility-SUE
  - SCHEMATIC
    - Final
    - Preliminary
  - SURVEY
    - Construction

- Design
- CONSTR
  - CHG ORDERS
  - P3-SCH
    - Construction
    - Design
- CORRESPONDENCE
  - ADV PLAN
  - CONSTR
  - DESIGN
  - ENV
  - ROW
    - Division
    - Owners
    - SUE
  - UTILITIES
    - AEP-Electric
    - Center Point-Gas
    - City-Waste Water
      - Eng-Firm
    - City-Water
      - Eng-Firm
    - Laredo MPO
    - Medina Coop-Electric
    - Other
    - SBC-ATT
    - Sponsor Agency
    - Time Warner-Cable
    - TxDOT-TMS
- DESIGN
  - BatchPlot
  - Bridge
  - Drainage
  - Estimate
    - Preliminary
    - Final
  - General
  - GeoPak
  - Misc
  - Pavmt Design
  - PS&E
  - REF Files
  - Roadway

- Driveways
- Standards
  - Bridge
  - Drainage
  - Illumination
    - Elec
  - Pavmt Markers
  - Retain Walls
  - Roadway
  - Signing
  - SW3P
  - TCP
  - TMS
  - Traff Signals
- Summaries
  - Excel
- TCP
  - Phase I
  - Phase II
- Traffic
- Walls
- Xsec

DOCUMENTS
MSTN_File Structure
OLD FILES

A "readme" file should be created and placed under the "documents" subdirectory. The readme file should be composed of the minimum directory structure detailed above and modified to list particular files that are contained under the various subdirectories. This information will guide the end user to the location of particular files. In addition to the file information, the readme file should contain the general project information such as the CSJ, Limits of Construction, and Type of Improvements.

All CADDSEALS placed on finished documents are to remain on that document. Do not remove CADDSEALS. The file naming convention will be as shown below. Not all plan sets will have all of the listed sheets.

Sheet File Type Naming Convention

Title Sheet *TTL*.DGN
Supplemental Index *INDX*.DGN
General Notes & Spec. Data *GNOT*.DGN
Estimate & Quantities *E&Q*.DGN
Consolidated Summaries *SUM*.DGN
Project Layout *PRJLO*.DGN

Typical Sections *TYP*.DGN
Traffic Control Plans *TCP*.DGN
Horizontal Alignment Data *HAD*.DGN
Bench Mark Data *BM*.DGN
Table of Cross Slopes *CS*.DGN
Plan & Profile Sheets *PP*.DGN
Landscape Sheets *LAND*.DGN
Irrigation Sheets *IRRI*.DGN
Detail Sheets (any) *DET*.DGN
Drainage Area Maps *DA*.DGN
Hydraulic Data Sheets *HD*.DGN
Storm Sewer Plan & Profiles *SS*.DGN
Culvert Cross Sections *CUL*.DGN
Water Quality Facilities *WQ*.DGN
Retaining Wall Sheets *RET*.DGN
Bridge Layouts *BR*.DGN
Bridge Quantities/Bearing Seat Info *BRQUAN*.DGN
SW3P Info Sheet *SW3P*.DGN
Erosion Control (Temp & Perm) *EC*.DGN
Signing Layouts *SIGN*.DGN
Pavement Markers (incl. Delineation) *PMLO*.DGN
Signalization Sheets *SIG*.DGN (including electrical service sheets)
Illumination Sheets *ILLI*.DGN (including electrical service sheets)
Roadway Cross Sections *XS.DGN
Master Design File *MDF.DGN
Alignment File *ALN*.DGN

Where an "*" (wildcard) appears in the filename, the user is free to describe the file as they see fit as long as the required.

DELIVERABLES

I. ADVANCED PROJECT DEVELOPMENT DELIVERABLES

A. GEOTECHNICAL DELIVERABLES

The Engineer shall submit the Geotechnical Report signed and sealed by a Registered Professional Engineer in the State of Texas.

B. SCHEMATIC DELIVERABLES

The Engineer shall furnish 3 rolls of schematic for each submission for review by the State (90% and 100%).

1. The Engineer shall furnish 3 signed paper copies and 1 mylar of the final schematic plan and profile drawing on a continuous color plot paper roll.
2. The Engineer shall provide a CD with PDF and electronic design files.
3. The Engineer shall provide a Highway Traffic Operations Design and Analysis Report.
4. The Engineer shall provide a preliminary cost estimate on a CD with PDF and electronic files.
5. The Engineer shall prepare the minutes for 1 design concept conference.
6. The Engineer shall attend 3 coordination meetings with Webb County and TxDOT at the specified location to fast track the preparation of the schematic, and will prepare the meeting minutes electronically on a CD in PDF Format .
7. The Engineer shall submit 3 copies of the draft environmental document for each submission for review by TxDOT electronically on a CD in PDF Format.
8. The Engineer shall submit 10 hard copies of the final environmental report electronically on a CD in PDF Format.
9. The Engineer shall develop, produce and mail a bilingual project newsletter prior to the Public Meeting, Hearing and after approval of the Environmental Assessment Document and submit it electronically on a CD in PDF Format.
10. The Engineer shall conduct a Public Hearing to introduce the project and obtain input from the major stakeholders and agencies on constraints and issues.
11. The Engineer shall prepare a Public Hearing Report (Summary and Analysis) and submit it electronically on a CD in PDF Format
12. The Engineer shall provide to Webb County, which will forward to the State, an external hard drive with all the files containing the information and layouts used to prepare the schematic.
13. The Engineer shall provide to Webb County meeting minutes of all discussions and decisions reached with TxDOT and stakeholders electronically on a CD in PDF Format.
14. The Engineer shall provide to Webb County a revised Hydraulic Report electronically on a CD in PDF Format.

C. SURVEY DELIVERABLES

Field Surveying Deliverables

1. Field books, containing all information gathered in the field, this information shall be to the Enginer's Surveyor best knowledge, accurate and complete.
2. Original and a copy of the Horizontal and Vertical Control Survey Report, listing all horizontal points and vertical benchmarks with both datums, with signed and sealed sketches showing location and reference ties in the recover of said points in PDF format.
3. Project Horizontal and Vertical Control (11"x17") mylar sheets.
4. Right of Entry Letters
5. Two copies of the Electronic Files (TXT, 2D (Planimetric) and 3D (DTM) MicroStation files, Geopak TIN, and Geopak DAT files) containing survey information with proper identification and with the following data format x, y, and z (NAD83/93 coordinate system)
6. Planimetric: shall include all information gathered on the topographic survey
7. Provide a 1" = 40' scale Micro station electronic drawings in both 2D & 3D and all other files listed below on CD/DVD media. All files shall adhere to the following:
   a. Survey Data to be provided in MicroStation V8, Version 08.05.02.35 format.
   b. It shall be in English Units (US Survey feet).
   c. A hard copy of survey will also need to be provided, in PDF format.
   d. Elevations of all topo shots will be provided with corresponding point number on a separate level.
   e. Base maps shall be prepared in accordance to TxDOT standards for plan drawings, 11" x 17" plan format. Base map scale shall be 1" = 40". Minimum text size shall be a Leroy #8.
   f. 11" x 17" Survey control sheets on mylar film signed and sealed by a Registered Professional Land Surveyor (R.P.L.S.) in the state of Texas.
   g. Copies of Texas One-Call or Dig Tess locate confirmation request tickets and any other correspondence with individual utility providers
   h. All topographic shots in 2D file will be provided with elevation, point number, node and descriptor on separate levels in the same text size.

List of Files needed:

(*) In all file names listed below represents Primary Highway Name; i.e. "Highway"

1. TOPO (*_topo.dgn = 2D file)
2. DTM (*_dtm.dgn = 3D file)
3. ROW (*_row.dgn = 2D ROW file)
4. BM Sketches (*_SK.dgn = 2D)
5. BM-SKETCHES.PDF (PDF file of Signed & Sealed Recovery Sketches)
6. DAT (*.dat = Geopak DAT file)
7. TIN (*.tin = Geopak TIN file)
8. Ascii Text (*.xyz = XYZ.txt file)
9. BM_SURFACE-CONTROL LISTING (*_ADJSURF.SFT)
10. CONTROL (*_cntrl.dgn = 2D file)

II RIGHT OF WAY DELIVERABLES (DELIVERABLES FOR PS&E PACKAGE NO. 3 WILL BE DELETED FROM THIS WORK AUTHORIZATION)

A. Right of Entry letters
B. ROW Map; Parcel Plats and Metes and Bounds Property Descriptions

III PS&E DELIVERABLES (DELIVERABLES FOR PS&E PACKAGE NO. 3 WILL BE DELETED FROM THIS WORK AUTHORIZATION)

The Engineer shall deliver to the County and the TxDOT Project Manager assigned by TxDOT fifteen (15) copies of the 1st and 2nd and final submittal. For the final submittal, the Engineer shall submit one set in Mylar accompanied by a paper copy. The Engineer shall develop an Exhibit C, Work Schedule for all project submissions.

A. 1st PS&E Submittal

1. Approved (signed form) Design Summary Report
2. Title Sheet
3. Typical Sections (existing and proposed)
4. Traffic Control Plan
5. Plan & Profile
6. Alignment Data Sheet, if applicable
7. Benchmark Data Sheet, if applicable
8. Vertical Alignment (existing and proposed)
9. Horizontal Alignment (existing and proposed)
10. Design Exceptions/Waivers/Variance-Identified
11. Hydrological Drainage Area Map for areas for the proposed storm lines and cross culverts
12. Utility Layout (conflicts identified)
13. Bridge Layouts (including bridge class structures)
14. Miscellaneous Details
15. Preliminary Estimate
16. Newly created Special Provisions/Specifications to be used (Form 1814)
17. Applicable General Notes
18. Applicable Pay Items
19. R.O.W. (issues identified)
20. FEMA coordination, status if required
21. Draft Hydraulic Report
22. Draft Geotechnical Report
23. Draft Traffic Studies Report, if required
24. Surveying Information

B. 2nd PS&E Submittal - The 60% PS&E submission includes updates from the previous submissions and the following:

1. Index Sheet (1)
2. Hydrologic Computation Sheets (1)
3. Hydraulic Data Sheets (1)
4. Drainage Area Maps (1)
5. Drainage Plan & Profile (1)
6. Drainage Structure Details (1)
7. Storm Sewer Details (1)
8. Storm Water Pollution Prevention Plan
9. Bridge Details
10. Railroad Exhibit A
11. Retaining Walls
12. Miscellaneous Details (EPIC Sheet)
13. Corresponding Quantity Summary Sheets
14. Corresponding Standard Detail Sheets for all Items of Work in this submittal
15. Updated General Notes
16. Updated Estimate
17. Utility Adjustment/Relocation Details
18. R.O.W. Acquisition Detail
19. 2 Rolls of Cross Sections
20. District Design Review Team, DDRT Form
21. District Traffic Safety Review Team, DTSRT Form
22. Hydraulic Report
23. Geotechnical Report
24. Traffic Studies Report, if required
25. Submit 3 CDs/DVD for 60% submission in PDF format including general notes and proposed bid items. Plan Sheets will have watermark indicate a "60% PS&E" on every plan sheet.

All drainage items designated with the (1) symbol will only be provided for the proposed storm sewer and cross culverts within the project limits. These items will not be prepared for any existing storm sewer within the project limits.

C. 3rd S&E Submittal –The 90% PS&E submission includes updates from the previous submissions and the following:

1. Final Index of Sheets
2. Pavement Marking Layout/Details
3. Signalization (existing and proposed) –NOT INCLUDED IN THIS SCOPE
4. Illumination (FROM I 35 TO MCPHERSON – NOT INCLUDED IN THIS SCOPE)
5. Traffic Management Items, if required
6. Miscellaneous Details
7. Corresponding Quantity Summary Sheets
8. Corresponding Standard Detail Sheets for all Items of Work in this submittal
9. Cross Sections (1 set) (Paper or disk/CD format)
10. Estimate(DCIS)
11. General Notes
12. Certifications
13. Form 1002
14. Specification List (DCIS)
15. New Special Provisions & Special Specifications. If required, include Form 1814.
16. Contract Time Determination
17. Request for Construction Speed Zone. If required, include Form 1204 with District Engineer approval or a copy of the county or city ordinance.
18. Third Party Agreements – NOT INCLUDED IN THIS SCOPE
19. Airway-Highway Clearance, if required
20. List of any commitments made during the Public Involvement Process

D. Final PS&E Submittal - (Mylar sheets)

1. PS&E Package 100% complete
2. To be submitted Four Months prior to letting.
3. Construction in Excel format (See attached example –shown on Exhibit "A" – Services to be provided by the State, Item K)
4. Form 1002
5. General Notes
6. Special Specifications and Special Provisions with a completed Form 1814 in TxDOT format
7. (2) each signed and sealed Specification Certifications
8. Utility, ROW Encroachment, ROW Acquisition, ROW Relocation Certifications – (3) originals of each signed and sealed.
9. Special Specifications, Special Provisions and applicable reference items to all items involved in the PS&E in Excel spreadsheet format ((See attached example –shown on Exhibit "A" – Services to be provided by the State, Item K)
10. Construction CPM Schedule
11. It is suggested that the Engineer follow these steps to assure a proper submission of the

Engineer's estimate.

12. The Engineer shall download the latest 2004 English Descriptive Codes from the TxDOT website prior to commencing to generate the Engineer's estimate, this is to assure that the proper Item and Descriptive Codes as required by DCIS are being used.
13. The Engineer shall upload the Engineer's estimate to State's Mainframe (DCIS) upon 100% submittal.
14. The Engineer shall verify the "Unit Bid" prices for each of the items on the estimate by checking the district wide unit bid prices on the TxDOT website, if a particular item has not been used in this district, the Engineer shall check a neighboring district for the use of the item, or if that is unsuccessful, the Engineer shall refer to the statewide unit bid averages.
15. The Engineer shall breakout all items for every bridge or bridge class culvert per bridge or bridge class culvert. This means all bridge items shall be coded correctly by having every bridge or bridge class culvert item coded with a B1, B2, B3, etc. as a suffix on the Estimator input. Example: All bridge items for bridge #1 shall have a B1 suffix in the description. The same would be done for all other subsequent bridges or bridge class culverts in the estimate.
16. The Engineer shall submit a Microsoft Excel® Spreadsheet that specifies the required special provisions and reference items that are required for each of the standard specifications and or special specifications used on the project estimate.
17. The Engineer shall verify the required special provisions and reference items for each item by checking the 2004 Special Provisions Required Checklist and 2004 Specification Guidelines, which are available on the TxDOT website. (N/A)

ATTACHMENT E-9
FEE SCHEDULE

DANNENBAUM ENGINEERING CORPORATION
WEBB COUNTY LOOP 20 STIMULUS PROJECT
SUPPLEMENTAL WORK AUTHORIZATION NO. 11 (SWA #11) TO WORK AUTHORIZATION NO. 1 (WA #1)
CONSISTING OF:
1. Update column deisng, details & standards to include 8" drain pipe.
2. Design ITS camera pole due to elevation of camera. Recommendation by Dannenbaum for redesign of TxDOT ITS camera pole standard.
3. TxDOT previously requested 4 cameras poles to be installed on the project, as per TxDOT 3 cameras poles will be installed on this project.
4. Modify removal layouts due to reconfiguration of McPherson and International overpasses. Additional layouts were needed to remove the existing concrete safety barrier.
5. Develop 3 ITS camera pole elevation layouts for detailing of camera poles and foundations.

DANNENBAUM ENGINEERING CORPORATION
FEE SUMMARY

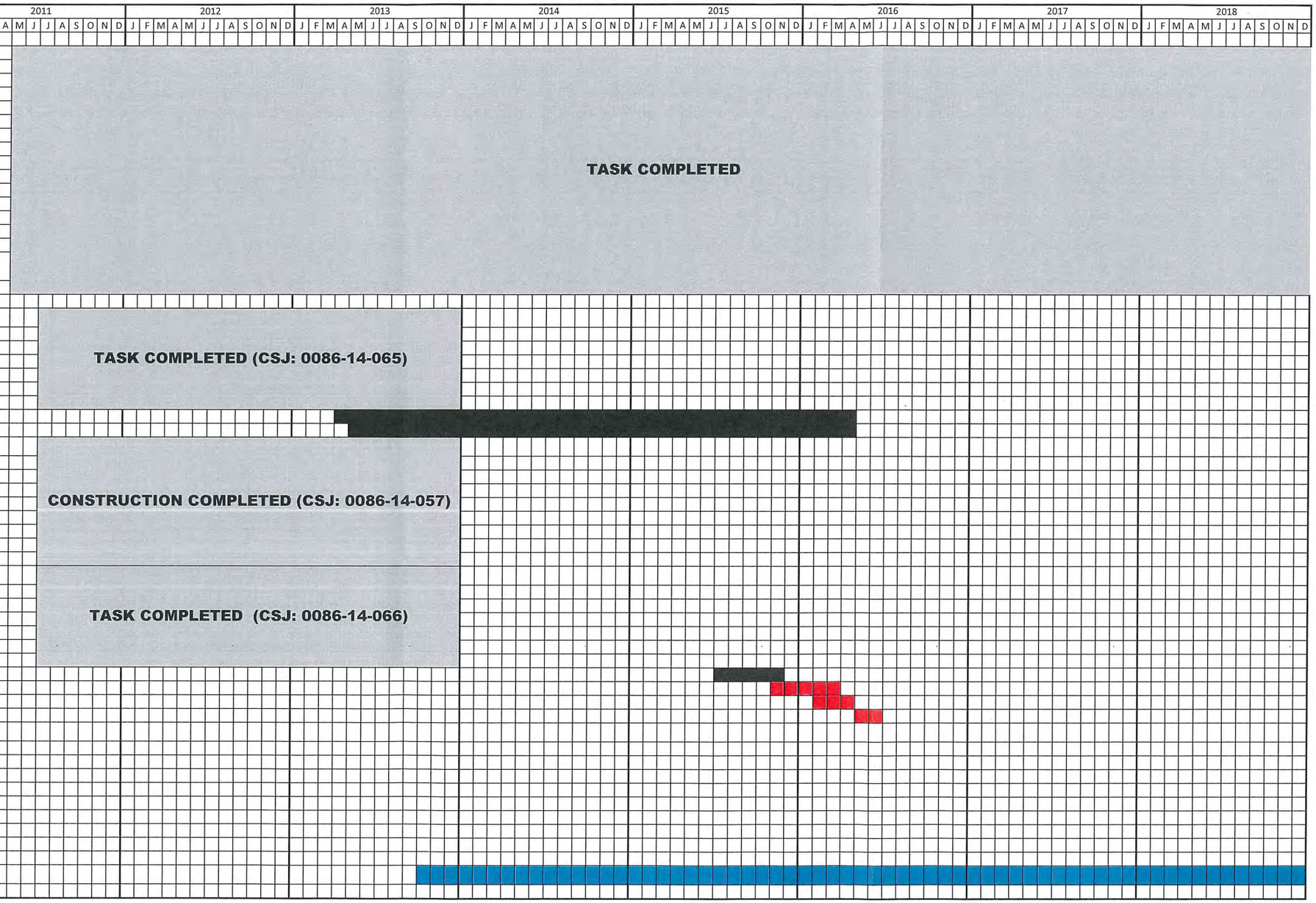
BASIC SERVICES DESCRIPTION	Principal	PM	Senior Engineer-Civil	Senior Engineer-Bridge	Engineer	Senior Designer	CADD Operator/ Tech	Clerical	Total Labor Hrs.	Remarks	Cost Per Task
GENERAL											
SUMMARY OF BRIDGE				1	4		2		7		$ 865.30
SUMMARY OF REMOVAL					2		4		6		$ 598.02
SUMMARY OF SIGNING AND PVMT MRKGS					1		3		4		$ 382.47
SUB-TOTAL SHEETS - GENERAL	0	0	0	1	7	0	9	0	17		$ 1,845.79
FC 160 - ROADWAY DETAILS											
MODIFY REMOVAL LAYOUTS DUE TO CONSTRUCTION RECONFIGURATION OF MCPHERSON AND INTERNATIONAL					1	32	40		73		$ 6,883.29
SUB-TOTAL SHEETS - FC 160 - ROADWAY DETAILS	0	0	0	0	1	32	40	0	73		$ 6,883.29
FC 170 - BRIDGES											
UPDATE COLUMN DESIGN & STANDARD TO INCLUDE 8" DRAIN PIPE				2	4	16	32		54		$ 5,245.52
DESIGN ITS CAMERA POLE DUE TO ELEVATION OF CAMERA				10	40	20	5		75		$ 9,534.10
SIZE COLUMNS & FOUNDATIONS FOR ITS CAMERAS ORIGINALLY 4 CAMERAS REVISED TO 3 CAMERAS				10	14	6	6		36		$ 4,690.12
SUB-TOTAL SHEETS - FC 170 - BRIDGES	0	0	0	2	4	16	32	0	54		$ 10,089.50
FC 162 - SIGNS, PVMT MRKGS & DELINEATION											
DEVELOP ITS CAMERA ELEVATION LAYOUTS (3 SHEETS)					8	24	40		40		$ 6,954.72
SUB-TOTAL SHEETS - FC 162 - SIGNS, PVMT MRKGS & DELINEATION	0	0	0	2	0	0	0	0	0		$ 6,954.72
TOTAL HOURS - DANNENBAUM BASIC SERVICES	0	0	0	14	43	73	107	0	220		
LABOR RATE PER HOUR	$ 227.02	$ 210.20	$ 154.56	$ 170.02	$ 132.09	$ 106.65	$ 83.46	$ 64.92			
DIRECT LABOR COSTS	$ -	$ -	$ -	$ 2,380.28	$ 5,679.87	$ 7,785.45	$ 8,888.49	$ -	$ 24,734.09	CHECK	
TOTAL COST	$ -	$ -	$ -	$ 2,380.28	$ 5,679.87	$ 7,785.45	$ 8,888.49	$ -	$ 24,734.09	$ 24,734.09	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	0.00%	0.00%	0.00%	9.62%	22.96%	31.48%	35.94%	0.00%	100.00%		
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	0.00%	0.00%	0.00%	6.38%	19.59%	33.26%	48.52%	0.00%	100.00%		
DANNENBAUM (MODIFY PLANS - TOTAL ENGINEERING FEE)											$ 25,773.30
REPRO -30 SHEETS X $5.00 / SHEET (MYLAR)X 6 SETS										$ -	
REPRO -30 SHEETS X $1.00 / SHEET (CHECK PLOTS & REVIEW SETS) X 6 SETS										$ 180.00	
AIRFARE - $188 X 2 PERSON X 10 MEETINGS										$ -	
CAR RENTAL - $85 / TRIP X 4 TRIP										$ 340.00	
PER DIEM - $100 /NIGHT STAY X 2 PERSON X 1 NIGHT ($75 hotel/$25 meals)										$ 100.00	
DELIVERY SERVICES (OVERNIGHT EXPRESS) - $25 / PACKAGE X 3 PACKAGES										$ 75.00	
MILEAGE 4 TRIP x 286 MI / TRIP @ $0.50 per mile										$ 572.00	
DANNENBAUM (TOTAL - DIRECT EXPENSES FEE)										$ 1,267.00	$ 1,267.00
TOTAL ENGINEERING											$ 27,040.30

ATTACHMENT F-9
WORK SCHEDULE

ATTACHMENT F - 9
SWA NO. 11 to WA NO 1 WORK SCHEDULE
WEBB COUNTY, TX - LOOP 20 STIMULUS PROJECT
SUPPLEMENTAL WORK AUTHORIZATION #11 TO WORK AUTHORIZATION #1
Schematic, Environmental, ROW, and Topo Special Services and the Development of Three (3) PS&E Packages

Prepared 26 March 2013

	Start Date	End Date	Duration
Webb County, Tx - Loop 20 Stimulus Project			
Lp 20 From West of IH 35 to East of Havana			
Environmental Studies			
Environmental Studies Review/Approval			
Public Meeting			
Package No. 1			
Package No. 2			
Package No. 2A			
Package No. 3			
Schematic Design			
Schematic Review/Approval			
Geotechnical			
Surveying			
ROW Acquisition Including Survey, Parcel Plats - For 3rd PS&E Package Only			
Hydraulic/Hydrology Studies			
PS&E - Design Package No. 1 (CSJ: 0086-14-065)			
Preparation of 30% PS&E Documents			
TxDot Review of 30 % PS&E Documents			
Preparation of 60% PS&E Documents			
TxDot Review of 60% PS&E Documents			
Preparation of 90 % PS&E Documents			
TxDot Review of 90% PS&E Documents			
Preparation of Final PS&E Documents	**1-Apr-13**	**1-Mar-16**	**33 mo**
TxDOT / FHWA Approval(s)	**1-May-13**	**2-May-16**	**31 mo**
PS&E - Design Package No. 2 (CSJ: 0086-14-057)			
Preparation of 30% PS&E Documents			
TxDot Review of 30 % PS&E Documents			
Preparation of 60% PS&E Documents			
TxDot Review of 60% PS&E Documents			
Preparation of 90 % PS&E Documents			
TxDot Review of 90% PS&E Documents			
Preparation of Final PS&E Documents			
TxDOT / FHWA Approval(s)			
PS&E - Design Package No. 2A (CSJ: 0086-14-066)			
Preparation of 30% PS&E Documents			
TxDot Review of 30 % PS&E Documents			
Preparation of 60% PS&E Documents			
TxDot Review of 60% PS&E Documents			
Preparation of 90 % PS&E Documents			
TxDot Review of 90% PS&E Documents			
Preparation of Final PS&E Documents **SWA No. 8 to WA No. 1**	**1-Jul-15**	**1-Dec-15**	**5 mo**
TxDOT / FHWA Approval(s) **SWA No. 9 to WA No. 1**	**1-Nov-15**	**1-Apr-16**	**5 mo**
TxDOT / FHWA Approval(s) **SWA No. 10 to WA No. 1**	**1-Feb-16**	**30-Apr-16**	**3 mo**
TxDOT / FHWA Approval(s) **SWA No. 11 to WA No. 1**	**30-Apr-16**	**1-Jun-16**	**2 mo**
PS&E - Design Package No. 3 (ROW Required)	TBD	TBD	TBD
Preparation of 30% PS&E Documents	TBD	TBD	TBD
TxDot Review of 30 % PS&E Documents	TBD	TBD	TBD
Preparation of 60% PS&E Documents	TBD	TBD	TBD
TxDot Review of 60% PS&E Documents	TBD	TBD	TBD
Preparation of 90 % PS&E Documents	TBD	TBD	TBD
TxDot Review of 90% PS&E Documents	TBD	TBD	TBD
Preparation of Final PS&E Documents	TBD	TBD	TBD
TxDOT / FHWA Approval(s)	TBD	TBD	TBD
TBD = TO BE DETERMINED			
FUTURE SUPPLEMENTAL WORK AS REQUESTED	1-Oct-13	31-Dec-18	63 mo



(CSJ: 0086-14-065) PS&E - Design Package No. 1 (No ROW Required)

From beginning of Project from west end to just past entrance and exit ramps west of McPherson (From STA 421+90 to approx STA 492+00. (Includes IH 35 Bridges, approx 2885 LF) (Project length = 7,010 LF) (Roadway length = 4,125 LF)

(CSJ: 0086-14-057) PS&E - Design Package No. 2 (No ROW Required)

From just past entrance and exit ramps west of McPherson to just past entrance and exit ramps, east of International Boulevard (From STA 422+00 to approx STA 554+00) (Includes McPherson and International Blvd. bridges, approx 600 LF) (Project length = 6,200 LF) (Roadway length = 5,600 LF)

(CSJ: 0086-14-066) PS&E - Design Package No. 2A (No ROW Required)

From just past entrance and exit ramps west of McPherson to just past entrance and exit ramps, east of International Boulevard (From STA 422+00 to approx STA 554+00) (Includes McPherson and International Blvd. bridges, approx 600 LF) (Project length = 6,200 LF) (Roadway length = 5,600 LF)

PS&E - Design Package No. 3 (ROW Required)