

EXHIBIT "E"

HIDALGO COUNTY
Professional Engineering Services
Inspection, Material Testing and Construction Management
Agreement # C-19-231-01-28
Work Authorization Form

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 1 of the Agreement made by and between **HIDALGO COUNTY**, action herein by and through the **Commissioner's Court**, hereinafter called the "**Owner**," and, SAMES, Inc., professional engineers of McAllen, Texas, hereinafter called "**Engineer**".

PART 1. SCOPE OF WORK

The purpose of this Work Authorization is for the **Engineer** to provide Construction Contract Administration, Construction Management & Inspection, Construction Materials Testing and Miscellaneous Technical Activities needed for the Mile 6 W Road Project.

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

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

PART 2. ESTIMATED COST

The estimated cost for services under this Work Authorization is **\$1,009,369.70**. This amount is based upon the costs outlined in the Estimated **Cost Proposal** attached hereto as **EXHIBIT "D"**.

PART 3. PAYMENT

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

PART 4. FUNDING

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

Account No's. **0-1315-126-10-121-139-1-000; 0-1315-126-20-121-039-1-000;**
0-1315-126-30-121-039-1-000; 0-1315-431-00-121-039-1-721

Requisition Number **409516** (MUST BE INCLUDED AFTER CC APPROVAL)

PART 5. PERIOD OF SERVICE

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

PART 6. RESPONSIBILITIES AND OBLIGATIONS

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

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

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

**HIDALGO COUNTY
COMMISSIONER PRECINCT No. 1.**

BY: _____

Hon. David L. Fuentes, Commissioner

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on 01-28-20 as indicated below and effective as of 28th day of January, 20 20.

**THE ENGINEER:
SAMES, Inc.**

**THE OWNER:
HIDALGO COUNTY**

By: Samuel Maldonado, P.E.
President

Richard F. Cortez
By: Richard F. Cortez, County Judge
County Judge



BY: Arturo Guajardo Jr.
Arturo Guajardo, Jr., County Clerk

APPROVED BY
COMMISSIONERS' COURT
ON: 1-28-20 M.M.

LIST OF ATTACHMENTS

- ATTACHMENT "A" - Service to be provided by the Owner
- ATTACHMENT "B" - Services to be provided by the Engineer
- ATTACHMENT "C" - Work Schedule
- ATTACHMENT "D" - Estimated Cost Proposal

EXHIBIT “A”
Services to be provided by the OWNER

The following provides an outline of the services to be provided by the Owner in the development of the Project (as defined and more particularly identified in Exhibit “A” attached to this Agreement).

General

The Owner will provide to the Engineer the following:

- (1) Provide the authorization to the Engineer to begin work.
- (2) Payment for work performed by the Engineer and accepted by the Owner in accordance with Article 3 of this agreement.
- (3) Assistance to the Engineer, as necessary, to obtain the required data and information from other local, regional, State and Federal agencies that the Engineer cannot easily obtain.
- (4) Provide any available relevant data the Owner may have on file concerning the project.
- (5) Provide timely review and decisions in response to the Engineer’s request for information and/or required submittals and deliverables, in order for the Engineer to maintain the agreed-upon work schedule prepared in accordance with Attachment “C” of this Agreement.
- (6) Attend and participate in progress meetings as required and as coordinated and conducted by the Engineer.

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

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

COUNTY/CITY: HIDALGO COUNTY

CONTROL: 0921-02-420

PROJECT/DESCRIPTION: Inspection, Material Testing, and Construction Management for the Mile 6 W Road Project

LENGTH: 2 Miles (Approx.)

HIGHWAY: Mile 6 W Road

LIMITS: From Mile 9 to Mile 11

EXISTING FACILITY

PROJECT CLASSIFICATION

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

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

ENGINEER shall mean SAMES, Inc.

STATE shall mean Texas Department of Transportation (TxDOT).

COUNTY shall mean the Hidalgo County.

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

CONSTRUCTION MANAGEMENT SERVICES:

The ENGINEER will provide Construction Engineering, Geotechnical & Construction Material Testing, and Construction Inspection/Record Keeping services for and during the construction of the Project, or portions of the Project, approved by the COUNTY. Specific services for CONSTRUCTION MANAGEMENT AND SUPPORT by the ENGINEER will include the following:

Construction Contract Administration:

- 1) In general, the ENGINEER will provide the management and engineering support in accordance with TxDOT's LGPP Manual required for consultation and advisement to the COUNTY, and act as the COUNTY's representative as provided in the General Condition of the Construction Contract.
- 2) The ENGINEER will coordinate and conduct both a "Pre-Coordination Meeting" and a "Pre-Construction Conference" as required by the LGPP.
- 3) The ENGINEER will work with the County RPIC to develop and issue a Notice to Proceed (NTP) to the contractor.
- 4) The ENGINEER will coordinate with the Design Engineer of Record (DEOR) and will use his best efforts to protect the COUNTY against defects and deficiencies in the work of the Contractor. The ENGINEER will promptly notify the COUNTY of any such defect or deficiency and take all steps possible to require the Contractor to correct the defect or deficiency.
- 5) The ENGINEER will review the contractor's DBE Program and EEO Plan for compliance throughout the project.
- 6) The ENGINEER will ensure that all eligible expenditures are appropriately allocated with regards to the Federal Monies identified on the AFA and inform the County RPIC of any potential exposure.
- 7) The ENGINEER will work with the County RPIC to develop a Certificate of Substantial Completion at the appropriate time.
- 8) The ENGINEER will develop as built plans identifying any field and change order modifications done during the project. When applicable the ENGINEER will work with the DEOR to prepare the engineering data, including plan sheet drawings, specifications, and estimates, for the preparation of construction contract change orders, which may be required due to actual field conditions encountered or new requirements directed by the COUNTY.
- 9) The ENGINEER will provide the County RPIC a Certification that all work performed on the project met and/or exceeded the project specifications.

Construction Management and Inspection:

Construction Management (During Construction)

- 1) The ENGINEER will conduct frequent meetings w/ County RPIC & Contractor throughout the construction duration of the project.
 - 2) The ENGINEER will assist the County RPIC with the implementation of the adopted Quality Assurance Program (QAP)
 - 3) The ENGINEER will conduct team field visits with the County RPIC, Design Engineer, TxDOT, Cities, and FHWA representatives throughout duration of the project (Estimated at 19 months)
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EXHIBIT “B”
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

- 4) The ENGINEER will review quantities as submitted by the Contractor and will coordinate with the County RPIC for the preparation of the monthly and final estimates for payment to the Contractor.
- 5) The ENGINEER will coordinate with the DEOR to obtain concurrence on any suggestions or RFI's made by the contractor to modify the plans and/or contract documents.
- 6) The ENGINEER will coordinate with County RPIC, Design Engineer, TxDOT/FHWA Representatives, and City Personnel to participate in all Project Related Stakeholder Meetings, Construction Status Meetings, and Final Inspection
- 7) The ENGINEER will coordinate with the DEOR and TxDOT to obtain approval on any and all Change Orders.
- 8) The ENGINEER will confirm TxDOT/FHWA Participation & Eligibility on Change Orders as well as Time Extensions prior to executing them for the project.

Construction Inspection

- 1) The ENGINEER will provide Project site inspection of the authorized construction contract as follows:
 - a) The ENGINEER will provide visits by a Senior Construction Engineer or a competent representative of the ENGINEER to the site of construction for the purpose of monitoring the Contractor's progress and conformance to the construction contract plans and specifications.
 - b) The ENGINEER will provide a Construction Manager to coordinate with the public and adjacent property owners on construction inconveniences.
 - c) The ENGINEER will furnish the services of a Construction Superintendent and/or Construction Inspector(s) for full-time on-site inspection services.
 - a. The ENGINEER will provide construction oversight to monitor/inspect the Contractor's daily progress and conformance to PS&E specifications.
 - b. The ENGINEER will provide an Environmental Specialist to inspect SW3P BMP's, as well as compliance w/ the requirements of the EPIC sheets.
 - c. The ENGINEER will maintain job safety measures and implement OSHA requirements including day/night inspection of barricades
 - d. The ENGINEER will develop and oversee completion of a "Project Punch List" with the County RPIC & Contractor's Representative.

Construction Management (Post Construction)

- 1) The ENGINEER will prepare a Final Estimate for Project Close-Out & Release Retainage.
- 2) The ENGINEER will provide all Close-Out Documents to County RPIC.
- 3) The ENGINEER will coordinate "Final Acceptance" of the project.

Miscellaneous Technical Activities:

- 1) The ENGINEER will coordinate with the Design Engineer of Record to review and check all shop or working drawings furnished by the Contractor.
 - 2) The ENGINEER will track Utility Relocations and develop as built drawings to depict the location of the utility and the work as actually constructed. The COUNTY will be furnished five (5) set of prints.
 - 3) The ENGINEER will provide Monthly Reports/Presentations to Hidalgo County Commissioners Court and the HCMPO (as requested)
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EXHIBIT "B"
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

- 4) The ENGINEER will provide inspection of all materials and equipment furnished/used by the Contractor as follows:
 - a) Review and record all laboratory, shop and mill tests of materials and equipment for compliance with the construction contract specifications.
 - b) Observe and/or perform Project record testing and/or independent assurance testing as outlined in the construction contract specifications.

CONSTRUCTION MATERIAL TESTING:

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

- a) Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.
 - b) Field density testing of soils and base materials to ensure proper compaction as required by project plans and specifications.
 - c) Field sampling and testing of fresh concrete, and laboratory testing of hardened concrete to determine compliance with project plans and specifications.
 - d) Field compaction testing of asphalt to ensure proper compaction during lay down operations.
 - e) Field inspection, sampling and laboratory testing of asphalt materials to determine their material properties and their compliance with project plans and specifications.
 - f) The ENGINEER will be responsible for concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site.
 - g) Any additional laboratory testing as required/requested by the COUNTY and the project plans and specifications.
 - h) Providing accurate and timely reports to the COUNTY RPIC and all/other recipients as designated by the COUNTY RPIC.
 - i) The ENGINEER will verify the concrete and asphalt designs to assure it is in accordance with TxDOT specifications to be developed by the contractor.
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Activity ID	Activity Name	Budgeted Total Cost				Physical Complete				2020				2021				2022	
		Original Duration	Remaining Duration	Start	Finish	Activity % Complete	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
Exhibit "C" Work Schedule Mile 6 West (Mile 9 to Mile1)																			
A1000	Construction Contract Administration	485	485	01-Jan-20	12-Oct-21	0%													
A1010	Construction Management	421	421	01-Jan-20	11-Aug-21	0%													
A1020	Construction Inspection	378	378	02-Mar-20*	11-Aug-21	0%													
A1030	CMT - Material Testing	378	378	02-Mar-20*	11-Aug-21	0%													
A1040	Post Construction	44	44	12-Aug-21*	12-Oct-21	0%													
A1050	Miscellaneous Technical Activities	398	398	03-Feb-20*	11-Aug-21	0%													

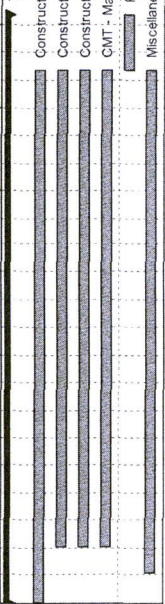


EXHIBIT D
 Mile 6 West (from Mile 9 to Mile 11)
 (Work Authorization 1)

ESTIMATE SUMMARY OF MAN-HOURS
 Date 1/20/2020

TASK DESCRIPTIONS	Senior Construction Engineer	Construction Manager	Assistant Construction Mgr.	Construction Superintendent (Quality Control Manager)	Inspector (2)	Project Controls (EIT)	CADD Tech	Records/Document Control	Environmental Compliance	Project Admin/Clerk	Totals
Construction Administration											
1 Review project plans, specifications, general notes, general conditions, bid & contract documents, advanced funding agreement, and any other pertinent project document.	8	16	16	32		4		8	4	4	92
2 Prepare Construction Management Plan for services during construction.	4	16	8	2	2		1	4		2	39
3 Prepare/Coordinate & Conduct a Project Coordination Meeting with the County RPC, TxDOT Project Manager, Design Engineer, and other Hidalgo Co. and TxDOT Project Staff.	4	4	4	4	4			2		2	24
4 Prepare/Coordinate & Conduct Pre-Construction Meeting with Contractor & all project stakeholders.	4	8	8	4	4			4		8	44
5 Coordinate w/ County RPC and Develop/Issue a Notice to Proceed to the Contractor.	2	2	2	2				2		2	10
6 Coordination with Design Engineer, Hidalgo County RPC, TxDOT PM, City of Weslaco, and Construction Contractor throughout the duration of the project.	16	70	150	16				48		64	348
7 Review of Contractor's DBE and EEO programs for Compliance w/CLUF requirements.	12	12	10	6		32		8		16	80
8 Continuous Monitoring of Construction Expenditures vs. Available Funds in the AFA.	16	12	10	6				6		16	89
9 Issue a Certificate of Substantial Completion as required.	4	2	2	2				2		4	16
10 Update monitor As-Built Plans and provide Certification to the County RPC and TxDOT that Project was Constructed as Designed & Compliance with Release of the Retainage.	16	2	32	32			78	12		24	166
11 Coordinate with the County RPC to issue certification that all work performed on the project met and/or exceeded the project specifications.	8	4	2	2				2		2	20
12 Review/Prepare Monthly Invoicing to County	0	4	9					6		16	29
Subtotal Labor Hours	94	162	259	100	10	40	79	98	4	160	
Construction Management & Inspection											
Construction Management (During Construction)											
1 Conduct Monthly Meeting with the County RPC & Contractor throughout construction duration for 1 reference to the schedule.	4	16	16	16				16		16	84
2 Assist the RPC with Implementation of the Adopted Quality Assurance Program (QAP).	8	16	8					16		8	56
3 Coordinate/attend field visits w/County RPC, Design Engineer, TxDOT, FHWA representatives and/or other project stakeholders throughout duration of the project.	4		4	8		36		72		4	20
4 Review/Coordinate Contractor's Progress Payment Estimate on a monthly basis.			36	36				16		24	136
5 Process contractor invoices (approval/modification/rejection) and submit recommendation for payment.	8	36	36	16				32		30	198
6 Process RFIs/RFP's and coordinate with Design Engineer as required by the contractor to change or modify any requirements of the plans or contract documents.	8	32	64	32				8		8	43
7 Conduct Construction Activity "Hold Points" (new tasks/scope of work) meetings and "Hands Down" Incident (review) meetings w/County RPC, Design Engineer, TxDOT/FHWA Representatives, and City of Weslaco.	2	4	4	8		9				8	33
8 Coordinate with all project related stakeholder meetings, construction status meetings, and final inspection.	4	8	9	8						4	33
9 Coordinate with the Design Engineer on change orders and obtain TxDOT approval.	8	32	32	32		16		16		16	152
10 Review/confirm TxDOT/FHWA Participation & Eligibility on change orders for cost and/or time.	4	16	16	16		8		4		8	52
Subtotal Hours	50	160	225	166	0	69	0	176	0	154	

EXHIBIT D
 Mile 6 West (from Mile 9 to Mile 11)
 (Work Authorization 1)

ESTIMATE SUMMARY OF MAN-HOURS
 Date 1/20/2020

Activity	0	8	72	1090	16	3266	76	0	488	156	156	120	4146
Construction Inspection													
1 On-site inspection during construction activities, and as required after hours.						750							4146
2 Daily Reports (Raven) and daily documentation in project diaries.				166								120	276
3 Coordination with the public and adjacent property owners on construction inconveniences.		8	16	36									84
4 Inspect SWGP BMP's, as well as compliance with requirements of EPIC Sheets.					36								244
5 Verify Daily Pay sheets & Assure Compliance of Materials delivered to the job site meet specifications (Including Bay Area Act).			48							16			318
6 Ensure Contractor maintains job safety measures & Implements OSHA requirements, including day/night inspection of traffic control devices and barricades.				72	40					270			168
7 Develop and oversee completion of a "project punch list" with the County RPIC & Contractor.			8	16		16				40			64
Subtotal Labor Hours		0	8	1090	16	3266	76	0	488	156		144	
Construction management (post construction)													
1 Prepare a final estimate for project close out & release of retainage	2	4	4	16						16			50
2 Prepare and provide all close out documents to County RPIC.	2	4	4	4						4			14
3 Coordinate Final Acceptance of project with County, TXDOT and FHWA.	4	8	8	4						4			38
Subtotal Labor Hours	8	12	16	20	0	0	0	0	24	0	0	20	
Miscellaneous Technical Activities													
1 Coordination Design Engineer for shop drawing and other submittals review as required.	8	24	24	16						4			80
2 Coordination w/County RPIC and Utility personnel (City of Weslaco, NAVSC, HCID, EAL) on relocation of utilities in conflict.	8	32	24	16						4			88
3 Track utility relocations and plot final locations on the Final As-built Plans as required.	2	4	8	36						16			106
4 Monthly reporting/presentation to Hidalgo County Commissioner Pct. #1, City of Weslaco & HCMPO (as needed).	16		16							36			32
Subtotal Labor Hours	34	60	72	68	0	0	0	0	24	0	0	12	
TOTAL HOURS		186	392	1434	3266	80	185	65	820	160	65	480	7692
Loaded Hourly Rates		\$ 175.00	\$ 150.00	\$ 140.00	\$ 120.00	\$ 80.00	\$ 65.00	\$ 65.00	\$ 75.00	\$ 75.00	\$ 65.00	\$ 65.00	\$ 746.20
Direct Labor		\$ 32,550.00	\$ 59,800.00	\$ 90,160.00	\$ 172,080.00	\$ 261,280.00	\$ 15,725.00	\$ 7,475.00	\$ 61,500.00	\$ 15,200.00	\$ 31,850.00	\$ 31,850.00	\$ 746,520.00
TOTAL ESTIMATE		\$ 32,550.00	\$ 88,800.00	\$ 90,160.00	\$ 172,080.00	\$ 261,280.00	\$ 15,725.00	\$ 7,475.00	\$ 61,500.00	\$ 15,200.00	\$ 31,850.00	\$ 31,850.00	\$ 746,520.00

Percentage of Time on the Project

5.96%	12.56%	20.64%	45.96%	104.68%	5.93%	3.69%	26.28%	5.13%	15.71%
					Direct Expenses (Engg, Printing, Copying and Misc. Direct Expenses)	Construction Material Testing			

CONTRACT AMOUNT \$ 1,006,369.70



Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.
Field density testing of soils and base materials to ensure proper compaction as required by project plans and specifications.

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Liquid Limit	Tex-104-E	P15-15 ~ Every 5,000 CY	Included with PI	Each		\$70.00	
Plasticity Index	Tex-106-E	P15-15 ~ Every 5,000 CY		Each	15	\$70.00	\$1,050.00
Gradation	Tex-110-E	Every 10,000 CY		Each	8	\$70.00	\$560.00
Moisture/Density	Tex-114-E	One per Each Material		Each	2	\$220.00	\$440.00
In-Place Density Reports	Tex-115-E	Every 5,000 CY or 600 Linear Feet (Min. 1 per (ft)	Every 600 Linear Feet (Min. 1 per Lift)	Each	12	\$31.00	\$372.00
Tech Time (Soils)			LL/PI, Grad, MD, FD	Each	37	\$33.00	\$1,221.00
# of Trips (Tech)			6 hrs - PI, Gr, MD, 6 hrs - FD	Hour	148	\$79.00	\$11,692.00
**Admin/Clerical			14 Trips (26 Miles RT)	Trip	37	\$40.00	\$1,480.00
				Hour	12	\$63.00	\$756.00
				Item Subtotal			\$17,571.00

Subgrade (Untreated) (ITEM 260)

Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Organic Content	Tex-148-E	Each 500 LF or 5,000 CY		Each	10	\$120.00	\$1,200.00
Sulfate Content	Tex-145-E	Each 500 LF or 5,000 CY		Each	10	\$90.00	\$900.00
Reports			OC & SC	Each	10	\$31.00	\$310.00
Tech Time (Soils)			6 hrs - OC/SC	Hour	60	\$79.00	\$4,740.00
# of Trips (Tech)			21 Trips (26 Miles RT)	Trip	10	\$40.00	\$400.00
**Admin/Clerical				Hour	7.00	\$63.00	\$441.00
				Item Subtotal			\$7,991.00

Lime (ITEM 260)

Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Compliance of Lime (DMS 6350)	Tex-600-J	1 per 200 tons		Each	3	\$350.00	\$1,050.00
				Item Subtotal			\$1,050.00

Subgrade (Lime Treated) (ITEM 260)

Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.
Field density testing of soils and base materials to ensure proper compaction as required by project plans and specifications.

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Pulverization Gradation	Tex-101-E (Part II)	Each 4,500 CY		Each	5	\$100.00	\$500.00
Liquid Limit	Tex-104-E		Included with PI	Each		\$70.00	
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	5	\$70.00	\$350.00
Gradation	Tex-110-E	Each 5,000 CY		Each	5	\$70.00	\$350.00
Moisture/Density	Tex-121-E (Part II)	Every 20,000 CY		Each	5	\$220.00	\$1,100.00
In-Place Density Reports	Tex-115-E	Every 3,000 CY or 300 Linear Feet	Every 300 Linear Feet (Min. 1 per Lift)	Each	34	\$31.00	\$1,054.00
Tech Time (Soils)			LL/PI, Grad, MD, FD	Each	33	\$33.00	\$1,089.00
# of Trips (Tech)			4 hrs - PI, Gr, MD, 4 hrs - FD	Hour	132	\$79.00	\$10,428.00
**Admin/Clerical			25 Trips (26 Miles RT)	Trip	33	\$40.00	\$1,320.00
				Hour	17.50	\$63.00	\$1,102.50
				Item Subtotal			\$17,293.50

Flexible Base (Untreated) - Stockpile Testing (ITEM 247)

Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Liquid Limit	Tex-104-E		Included with PI	Each		\$70.00	
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	5	\$70.00	\$350.00
Gradation	Tex-110-E	Each 5,000 CY		Each	5	\$70.00	\$350.00
Moisture/Density	Tex-113-E	Every 20,000 CY		Each	2	\$220.00	\$440.00
Wet Ball Mill	Tex-116-E	Every 20,000 CY		Each	2	\$210.00	\$420.00
Triaxial	Tex-117-E	Every 20,000 CY		Each	1	\$2,200.00	\$2,200.00
Reports			LL/PI, Grad, MD, FD	Each	6	\$33.00	\$198.00
Tech Time (Soils)			6 hrs - PI, Gr, MD, 6 hrs - FD	Hour	24	\$79.00	\$1,896.00
# of Trips (Tech)			4 Trips (26 Miles RT)	Trip	8	\$40.00	\$320.00
**Admin/Clerical				Hour	4.00	\$63.00	\$252.00
						Item Subtotal	\$6,426.00

Flexible Base (Lime Treated) (ITEM 247)

Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.
Field density testing of soils and base materials to ensure proper compaction as required by project plans and specifications.

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Pulverization Gradation	Tex-101-E (Part II)	Each 4,500 CY		Each	16	\$105.00	\$1,680.00
Liquid Limit	Tex-104-E		Included with PI	Each			
Plasticity Index	Tex-106-E	Each 5,000 CY		Each	20	\$70.00	\$1,400.00
Gradation	Tex-110-E	Each 5,000 CY		Each	20	\$70.00	\$1,400.00
Moisture/Density	Tex-121-E (Part II)	Every 20,000 CY		Each	8	\$220.00	\$1,760.00
In-Place Density	Tex-115-E	Every 3,000 CY or 300 Linear Feet	Every 300 Linear Feet (Min. 1 per Lift)	Each	50	\$31.00	\$1,550.00
Reports			LL/PI, Grad, MD, FD	Each	31	\$33.00	\$1,023.00
Tech Time (Soils)			6 hrs - PI, Gr, MD, 6 hrs - FD	Hour	117	\$79.00	\$9,243.00
# of Trips (Tech)			20 Trips (26 Miles RT)	Trip	20	\$40.00	\$800.00
**Admin/Clerical				Hour	13.00	\$63.00	\$819.00
						Item Subtotal	\$19,675.00

Asphalt Concrete Pavement (ITEM 2341 - HMA-QC/QA)

Field compaction testing of asphalt to ensure proper compaction during lay down operations.
Field sampling and laboratory testing of asphalt materials to determine their material properties and their compliance with project plans and specifications.

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Coarse Aggregate			Stockpile				
L.A. Abrasion	Tex-410-A	1 Per Project Per Source Per Design	if BRSQC meets Project Spec ~ Remove	Each		\$450.00	\$0.00
Soundness	Tex-411-A	1 Per Project Per Source Per Design	if BRSQC meets Project Spec ~ Remove	Each		\$450.00	\$0.00
Gradation	Tex-200-F	1 Per Project Per Source Per Design		Each	1	\$70.00	\$70.00
Microbeal	Tex-461-A	1 Per every 12 Sublots		Each	1	\$500.00	\$500.00
Flat & Elongated Particles	Tex-280-F	1 Per Project Per Source Per Design	May be Eliminated based on Test History	Each	1	\$60.00	\$60.00
Coarse Aggregate Angularity	Tex-460-A (Part I)	1 Per Project Per Source Per Design		Each	1	\$60.00	\$60.00
Deleterious Material & Decant	Tex-217-F	1 Per Project Per Source Per Design		Each	1	\$50.00	\$50.00
Fine Aggregate			Stockpile				
Bar Linear Shrinkage	Tex-107-E	1 Per Project Per Source Per Design		Each	1	\$45.00	\$45.00
Organic Impurities	Tex-408-A	1 Per Project Per Source Per Design		Each	1	\$50.00	\$50.00
Gradation	Tex-200-F	1 Per Project Per Source Per Design		Each	1	\$70.00	\$70.00
Mineral Filler			Bin or Silo				
Bar Linear Shrinkage	Tex-107-E	1 Per Project Per Source Per Design	Assume No Filler	Each		\$45.00	\$0.00
Gradation	Tex-200-F	1 Per Project Per Source Per Design	Assume No Filler	Each		\$70.00	\$0.00
Combined Aggc.			Stockpile or Feeder Belt				
Sand Equivalent	Tex-203-F	1 Per Project Per Source Per Design		Each	1	\$80.00	\$80.00
Complete Mix			Truck Sample				
Asphalt Content (%)	Tex-236-F	1 Per Lot Per Design		Each	20	\$95.00	\$1,900.00
Voids in Mineral Aggr. (VMA)	Tex-204-F	1 Per Sublot Per Design	with 227-F Rice Gravity	Each	80	\$90.00	\$7,200.00
Gradation	Tex-236-F	Min. 1 Per 12 Sublots Per Design		Each	7	\$70.00	\$490.00
Boil Test	Tex-530-C	1 Per Project Per Source Per Design	Waived by Engineer	Each		\$90.00	\$0.00
Indirect Tensile-Dry	Tex-226-F	1 Per Project Per Source Per Design	Waived by Engineer	Each		\$300.00	\$0.00
Moisture Content	Tex-212-F (Part II)	1 Per Project Per Source Per Design		Each	1	\$19.00	\$19.00

Lab Molded Density	Tex-207-F	1 Per Sublot Per Design	Each	80	\$90.00	\$7,200.00
Hamburg Wheel Tracker	Tex-242-F	1 Per Project Per Source Per Design	Each	1	\$900.00	\$900.00
Roadway		At Site	Each			
Field Coring	Tex-207-F	1 Cores Per Sublot Per Design	Each	80	\$235.00	\$18,800.00
In-Place Air Voids	Tex-207-F (Part V)	1 Per Project Per Source Per Design	Each	80	\$25.00	\$2,000.00
Segregation Profile	Tex-207-F (Part VII)	1 Per Project Per Source Per Design	Each	1	\$315.00	\$315.00
Joint Density	Tex-243-F	1 Per Project Per Source Per Design	Each	1	\$315.00	\$315.00
Tack Coat Adhesion	Tex-244-F	1 Per Project Per Source Per Design	Each	1	\$100.00	\$100.00
Thermal Profile	Tex-1001-5	Engineer may verify Contractor's results	Each	1	\$205.00	\$205.00
Ride Quality			Each	260	\$3,100.00	\$807,000.00
Reports			Hour	16	\$79.00	\$1,264.00
Tech Time (Agg)		8 hours per 2 days (trips/test - CA/FA/Co)	Hour	160	\$79.00	\$12,640.00
Tech Time (Asph)		20 Trips (26 Miles RT)	Trip	20	\$40.00	\$800.00
# of Trips (Tech)			Hour	40	\$63.00	\$2,520.00
**Admin/Clerical					Item Subtotal	\$66,133.00

Hydraulic Cement Concrete ~ Curb/Sidewalks/Traffic Signals & Misc. (Class A/C)

Field sampling and testing of fresh concrete and laboratory testing of hardened concrete to determine compliance with project plans and specifications. Concrete batching at the plants to insure delivery of acceptable material to the job site (as required).

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Coarse Aggregate			QA Test. (QC by Source)				
L.A. Abrasion	Tex-410-A	Two Each Source	If CRSQC meets Project Spec ~ Remove	Each		\$450.00	\$0.00
Soundness	Tex-411-A	Two Each Source	If CRSQC meets Project Spec ~ Remove	Each		\$450.00	\$0.00
Sieve Analysis	Tex-401-A	Each 1,000 CY (ea source)	5 Sieve	Each	1	\$70.00	\$70.00
Decantation	Tex-406-A	Each 20,000 CY (or source)		Each	1	\$50.00	\$50.00
Deleterious Material	Tex-413-A	Each 20,000 CY (or source)	QA Test. (QC by Source)	Each	1	\$50.00	\$50.00
Fine Aggregate							
Sand Equivalent	Tex-203-F	Each 1,000 CY (ea source)		Each	1	\$80.00	\$80.00
Organic Impurities	Tex-408-A	1 Per Project Per Source		Each	1	\$50.00	\$50.00
Sieve Analysis	Tex-401-A	Each 1,000 CY (ea source)		Each	1	\$70.00	\$70.00
Fineness Mod.	Tex-402-A	Each 1,000 CY (ea source)		Each	1	\$15.00	\$15.00
Deleterious Material	Tex-413-A	Each 20,000 CY (or source)		Each	1	\$55.00	\$55.00
Acid Insoluble	Tex-612-J	Two Each Source	If CRSQC meets Project Spec ~ Remove	Each		\$90.00	\$0.00
Mineral Filler			QA Test. (QC by Source)				
Sieve Analysis	Tex-401-A	Two Each Source	If No Mineral Filler utilized in Mix~Remove	Each		\$90.00	\$0.00
Concrete							
*Strength	Tex-418-A	Each 60 CY (2 Sets = 4 Cyl.)	use 1 set per Pour (40 Pours)	Each	40	\$33.00	\$1,320.00
Slump	Tex-415-A	One per 2 Sets		Each	40	\$20.00	\$800.00
Entrained Air	Tex-416-A	One per 2 Sets		Each	40	\$25.00	\$1,000.00
Temperature	Tex-422-A	One per 2 Sets		Each	40	\$5.00	\$200.00
Reports			CA, FA, MF, Conc.	Each	102	\$33.00	\$3,366.00
Tech Time (Agg)			8 hours per 2 days (trips/test - CA/FA/Co)	Hour	16	\$83.00	\$1,328.00
Tech Time (Conc)			6 hrs per pour - 4 hours per pickup	Hour	120	\$79.00	\$9,480.00
# of Trips (Tech)			48 Trips (26 Miles RT)	Trip	24	\$40.00	\$960.00
**Admin/Clerical				Hour	25	\$63.00	\$1,575.00
						Item Subtotal	\$20,414.00

Batching for Hydraulic Cement Concrete (Class A/C) & Asphalt Concrete Pavement (ACP) Inspection of Batching at Plant (1 Tech per Plant, Reports)

Field sampling and testing of fresh concrete and laboratory testing of hardened concrete to determine compliance with project plans and specifications.
 Concrete batching as well as asphalt testing at the plants to insure delivery of acceptable material to the job site(as required).

Test Item	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate 2019	Total
Concrete Reports				Each	14	\$333.00	\$4,662.00
Tech Time (Conc)			14 Conc Plant Inspections	Hour	112	\$79.00	\$8,848.00
# of Trips (Tech)			14 Trips (26 Miles RT)	Trip	14	\$40.00	\$560.00
** Admin/Clerical				Hour	14.00	\$63.00	\$882.00
Hot Mix Reports				Each	24	\$333.00	\$7,992.00
Tech Time (Asph)			1.2 hours per 24 days	Hour	288	\$79.00	\$22,752.00
# of Trips (Tech)			24 Trips (26 Miles RT)	Trip	24	\$40.00	\$960.00
** Admin/Clerical				Hour	24.00	\$63.00	\$1,512.00
				Item Subtotal			\$36,768.00

*Concrete Strength testing includes strength testing of cylinder specimens (breaks) as well as preparation, holding, and curing of strength specimen costs
 ~ 1 Set is defined as 2 Cylinders (7-day or 28-day)
 ~ All Structural Concrete requires a minimum 1 Set per Test Location (4 Cyl.)

**Project Administrative Fee is assessed on a per invoice basis and involves engineering review, evaluation, management, and administration

Summary

Sub-Total (CMT Items) = **\$193,321.50**
 CMT Engineering Coord. (Coord. w/PPIC/Rpt. Rev.) (73 hrs x 134/Hr.) **\$9,782.00**
 Project Engineer (QA/QC of CMT) (164 hrs x 176/Hr.) **\$28,864.00**
 CMT Engineering Coord. (Coord. w/CEI & CMT Team) (174 hrs x 134/Hr.) **\$23,316.00**

Construction Materials Testing Total :

\$255,283.50

Activity ID	Activity Name	Budgeted Total Cost	Original Duration		Remaining Duration	Start	Finish	Physical Complete	2022										
			Duration	%					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Exhibit "C" Work Schedule Mile 6 West (Mile 9 to Mile11)													09-Jan-20 11:16						
A1000	Construction Contract Administration	\$0.00	465	0%	465	01-Jan-20	12-Oct-21	0%											
A1010	Construction Management	\$0.00	421	0%	421	01-Jan-20	11-Aug-21	0%											
A1020	Construction Inspection	\$0.00	378	0%	378	02-Mar-20*	11-Aug-21	0%											
A1030	CMT - Material Testing	\$0.00	378	0%	378	02-Mar-20*	11-Aug-21	0%											
A1040	Post Construction	\$0.00	44	0%	44	12-Aug-21*	12-Oct-21	0%											
A1050	Miscellaneous Technical Activities	\$0.00	398	0%	398	03-Feb-20*	11-Aug-21	0%											

