

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 **\$1,008,569.70.** 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. _____

Requisition Number _____ (MUST BE INCLUDED AFTER CC APPROVAL)

PART 5. PERIOD OF SERVICE

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

PART 6. RESPONSIBILITIES AND OBLIGATIONS

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

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

Acknowledgement and confirmation by **Hidalgo County Precinct No. 1**, Commissioner **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 _____ as indicated below and effective as of ____ day of _____, 20____.

**THE ENGINEER:
SAMES, Inc.**

**THE OWNER:
HIDALGO COUNTY**

By: Samuel Maldonado, P.E.
President

By: Richard F. Cortez, County Judge
County Judge

ATTEST:

BY: _____
Arturo Guajardo, Jr., County Clerk

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.

Exhibit "C" Work Schedule Mile 6 West (Mile 9 to Mile11)			Physical Complete													09-Jan-20 11:16		
Activity ID	Activity Name	Budgeted Total Cost	Original Duration	Remaining Duration	Start	Finish	Activity % Complete	2020				2021				2022		
								Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Exhibit "C" Work Schedule Mile 6 West (Mile 9 to Mile1		\$0.00	465	465	01-Jan-20	12-Oct-21												▼ 12-Oct-21, Exhibit "C" Work Sched
A1000	Construction Contract Administration	\$0.00	421	421	01-Jan-20	11-Aug-21	0%											Construction Contract Administration
A1010	Construction Management	\$0.00	378	378	02-Mar-20*	11-Aug-21	0%											Construction Management
A1020	Construction Inspection	\$0.00	378	378	02-Mar-20*	11-Aug-21	0%											Construction Inspection
A1030	CMT - Material Testing	\$0.00	378	378	02-Mar-20*	11-Aug-21	0%											CMT - Material Testing
A1040	Post Construction	\$0.00	44	44	12-Aug-21*	12-Oct-21	0%											Post Construction
A1050	Miscellaneous Technical Activities	\$0.00	398	398	03-Feb-20*	11-Aug-21	0%											Miscellaneous Technical Activities

Actual Work
 Critical Remaining Work
 Summary
 Remaining Work
 ◆ Milestone

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	Inspector (2)	Project Controls	CADD Tech	Records/Document Control	Environmental Compliance	Project Admin/Clerk	Totals
Construction Administration					(Quality Control Manager)		(EIT)					
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 RPIC, 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		4		8	44
5	Coordinate w/ County RPIC and Develop/Issue a Notice to Proceed to the Contractor.	2	2	2					2		2	10
6	Coordination with Design Engineer, Hidalgo County RPIC, TxDOT PM, City of Weslaco, and Construction Contractor(s) throughout the duration of the project.	16	70	150					48		64	348
7	Review of Contractor's DBE and EEO programs for Compliance w/CUF requirements.	12	12	16	16				8		16	80
8	Continuous Monitoring of Construction Expenditures vs. Available Funds in the AFA.	16	12	10	6		32		6		16	98
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 RPIC and TxDOT that Project was Constructed as Designed & Compliance w/Release of the Retainage.	16	2	32	32			78	12		24	196
11	Coordinate with the County RPIC 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							16	29
Subtotal Labor Hours		94	152	259	100	10	40	79	98	4	160	
Construction Management & Inspection												
Construction Management (During Construction)												
1	Conduct Monthly Meeting with the County RPIC & Contractor throughout construction duration for adherence to the schedule.	4	16	16	16				16		16	84
2	Assist the RPIC with Implementation of the Adopted Quality Assurance Program (QAP).	8	16	8					16		8	56
3	Coordinate/attend field visits w/County RPIC, Design Engineer, TxDOT, FHWA representatives and/or with other project stakeholders throughout duration of the project.	4		4	8						4	20
4	Review/Coordinate Contractors' Progress Payment Estimate on a monthly basis.			36	36		36		72		36	216
5	Process contractor invoices (approval/modification/rejection) and submit recommendation for payment.	8	36	36	16				16		24	136
6	Process RFI's/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				32		30	198
7	Conduct Construction Activity "Hold Points" (new tasks/scope of work) meetings and "Hands Down" (incident review) meetings as needed.	2	4	4	8		9		8		8	43
8	Coordinate with County RPIC, Design Engineer, TxDOT/FHWA Representatives, and City of Weslaco to participate in 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			8				8	52
Subtotal Hours		50	160	225	156	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

Construction Inspection												
1	On-site Inspection during construction activities, and as required after hours.					750	3240			156		4146
2	Daily Reports (Raken) and daily documentation in project diaries.					156					120	276
3	Coordination with the public and adjacent property owners on construction inconveniences.		8	16		60						84
4	Inspect SW3P BMP's, as well as compliance with requirements of EPIC Sheets.					36		36		16	156	244
5	Verify Daily Pay sheets & Assure Compliance of Materials delivered to the job site meet specifications (Including Buy America Act).			48						270		318
6	Ensure Contractor maintains job safety measures & Implements OSHA requirements, including day/night inspection of traffic control devices and barricades.					72		40		40	16	168
7	Develop and oversee completion of a "project punch list" with the County RPIC & Contractor.			8		16	16			16	8	64
Subtotal Labor Hours			0	8	72	1090	3256	76	0	498	156	144
Construction management (post construction)												
1	Prepare a final estimate for project close out & release of retainage		2	4	4	16				16	8	50
2	Prepare and provide all close out documents to County RPIC.		2		4					4	4	14
3	Coordinate Final Acceptance of project with County, TXDOT and FHWA.		4	8	8	4				4	8	36
Subtotal Labor Hours			8	12	16	20	0	0	0	24	0	20
Miscellaneous Technical Activities												
1	Coordination Design Engineer for shop drawing and other submittals review as required.		8	24	24	16				4	4	80
2	Coordination w/County RPIC and Utility personnel (City of Weslaco, NAWSC, HCID, Et.Al.) on relocation of utilities in conflict.		8	32	24	16				4	4	88
3	Track utility relocations and plot final locations on the Final As-built Plans as required.		2	4	8	36			36	16	4	106
4	Monthly reporting/presentation to Hidalgo County Commissioner Pct. #1, City of Weslaco & HCMPO (as needed).		16		16							32
Subtotal Labor Hours			34	60	72	68	0	0	36	24	0	12
TOTAL HOURS			186	392	644	1434	3266	185	115	820	160	490
Loaded Hourly Rates			\$ 175.00	\$ 150.00	\$ 140.00	\$ 120.00	\$ 80.00	\$ 85.00	\$ 65.00	\$ 75.00	\$ 95.00	\$ 65.00
Direct Labor			\$ 32,550.00	\$ 58,800.00	\$ 90,160.00	\$ 172,080.00	\$ 261,280.00	\$ 15,725.00	\$ 7,475.00	\$ 61,500.00	\$ 15,200.00	\$ 31,850.00
TOTAL ESTIMATE			\$ 32,550.00	\$ 58,800.00	\$ 90,160.00	\$ 172,080.00	\$ 261,280.00	\$ 15,725.00	\$ 7,475.00	\$ 61,500.00	\$ 15,200.00	\$ 31,850.00

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 (Mileage, Printing, Copying and Misc. Direct Expenses)			\$ 7,466.20	
							Construction Material Testing			\$ 254,483.50	

CONTRACT AMOUNT **\$ 1,008,569.70**

EXHIBIT D
CONSTRUCTION MANAGEMENT FC300 (330)
ESTIMATED MAN-HOURS AND TEST BREAKDOWN



Hidalgo County Pct. 1 - Mile 6 West Project - CSJ: 0921-02-420
Construction Materials Testing



Embankment (Test All Fill Material Including Cut From Job) (ITEM 132)

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	Pl>15 ~ Every 5,000 CY	Included with PI	Each		\$70.00	
Plasticity Index	Tex-106-E	Pl>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 Lift)	Every 600 Linear Feet (Min. 1 per Lift)	Each	12	\$31.00	\$372.00
			LL/PI, Grad, MD, FD	Each	37	\$33.00	\$1,221.00
Tech Time (Soils)			6 hrs - PI, Gr, MD, 6 hrs - FD	Hour	148	\$79.00	\$11,692.00
# of Trips (Tech)			14 Trips (26 Miles RT)	Trip	37	\$40.00	\$1,480.00
**Admin/Clerical				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-I	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 III)	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
			LL/PI, Grad, MD, FD	Each	33	\$33.00	\$1,089.00
Tech Time (Soils)			4 hrs - PI, Gr, MD, 4 hrs - FD	Hour	132	\$79.00	\$10,428.00
# of Trips (Tech)			25 Trips (26 Miles RT)	Trip	33	\$40.00	\$1,320.00
**Admin/Clerical				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 III)	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
MicroDeval	Tex-461-A	1 Per every 12 Sublots	May be Eliminated based on Test History	Each	1	\$500.00	\$500.00
Flat & Elongated Particles	Tex-280-F	1 Per Project Per Source Per Design		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 Aggr.			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			1 Cores Per Sublot Per Design		Each	80	\$235.00	\$18,800.00
In-Place Air Voids		Tex-207-F	1 Cores Per Sublot Per Design		Each	80	\$25.00	\$2,000.00
Segregation Profile		Tex-207-F (Part V)	1 Per Project Per Source Per Design		Each	1	\$315.00	\$315.00
Joint Density		Tex-207-F (Part VII)	1 Per Project Per Source Per Design		Each	1	\$315.00	\$315.00
Tack Coat Adhesion		Tex-243-F	1 Per Project Per Source Per Design	Waived by Engineer	Each		\$100.00	\$0.00
Thermal Profile		Tex-244-F	1 Per Project Per Source Per Design		Each	1	\$205.00	\$205.00
Ride Quality		Tex-1001-S	Engineer may verify Contractor's results		Each		\$3,100.00	\$0.00
Reports					Each	260	\$33.00	\$8,580.00
Tech Time (Agg)				8 hours per 2 days (trips/test - CA/FA/Co)	Hour	16	\$79.00	\$1,264.00
Tech Time (Asph)				8 hours per 20 days	Hour	160	\$79.00	\$12,640.00
# of Trips (Tech)				20 Trips (26 Miles RT)	Trip	20	\$40.00	\$800.00
**Admin/Clerical					Hour	40	\$63.00	\$2,520.00
							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)		Each	1	\$50.00	\$50.00
Fine Aggregate				QA Test. (QC by Source)				
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		\$55.00	\$0.00
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	24	\$20.00	\$480.00
Entrained Air		Tex-416-A	One per 2 Sets		Each	24	\$25.00	\$600.00
Temperature		Tex-422-A	One per 2 Sets		Each	24	\$5.00	\$120.00
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	\$19,614.00

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	\$33.00	\$462.00
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	\$33.00	\$792.00
Tech Time (Asph)			12 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, mangement, and administration

Summary

Sub-Total (CMT Items) =	\$192,521.50
CMT Engineering Coord. (Coord. w/RPIC/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 : \$254,483.50