

HIDALGO COUNTY
Professional Engineering Services
Contract # C-20-164-10-20
Work Authorization Form

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of **Article 7** of the Agreement made by and between **HIDALGO COUNTY**, action herein by and through the **Commissioner's Court**, hereinafter called the "**Owner**," and, **B2Z Engineering, LLC**, professional engineers of Mission, 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 3 N. 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 **\$1,339,474.95**. This amount is based upon the costs outlined in the Estimated **Cost Proposal** attached hereto as **EXHIBIT "D" Fee Schedule**.

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. 3**, Commissioner Joe Flores as to content and detail of this **Work Authorization No. 1**.

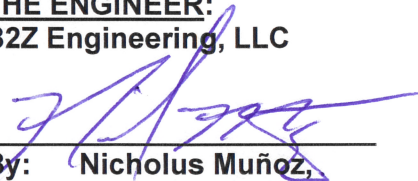
**HIDALGO COUNTY
COMMISSIONER PRECINCT NO. 3**

BY: _____

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on _____ as indicated below.

THE ENGINEER:
B2Z Engineering, LLC


By: **Nicholus Muñoz,**
Vice President

THE OWNER:
HIDALGO COUNTY

By: **Richard Cortez,**
County Judge

ATTEST:

By: **Arturo Guajardo, Jr., County Clerk**

LIST OF ATTACHMENTS

- Exhibit A – Services to be Provided by the Owner
- Exhibit B – Services to be Provided by the Engineer
- Exhibit C – Work Schedule
- Exhibit D – Fee Schedule

EXHIBIT “A”
SCOPE OF SERVICES TO BE PROVIDED BY THE OWNER

The following provides an outline of the services to be provided by the **Owner** for the proposed Mile 3 N. Road Project from FM 492 (Goodwin Rd) to Tom Gill Rd in Hidalgo County hereinafter denoted as the **Project**.

GENERAL:

The **Owner** will provide to the **Engineer** the following:

- 1) Provide the authorization to proceed with services through coordination with the project **Engineer**.
- 2) Payment for work performed by the **Engineer** and accepted by the **Owner** in accordance with Article 6 of the Agreement.
- 3) Assistance to the **Engineer**, as necessary, to obtain the required data and information from other local, regional, State and Federal agencies 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 Exhibit “C” attached to this Work Authorization.
- 6) Attend and participate in progress meetings as required and as coordinated and conducted by **Engineer**.

EXHIBIT “B”
SCOPE OF SERVICES TO BE PROVIDED BY THE ENGINEER

SECTION 1 - PROJECT DESCRIPTION

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

COUNTY/CITY: HIDALGO COUNTY

CONTROL: 0921-02-321

PROJECT/DESCRIPTION: Inspection, Material Testing, and Construction Management for the Mile 3 N. Rd Project

LENGTH: 3.41 Miles (Approx.)

HIGHWAY: Mile 3 N. Rd

LIMITS: From FM 492 (Goodwin Rd) to Tom Gill Rd

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 B2Z Engineering, LLC

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

SECTION 12 - CONSTRUCTION PHASE SERVICES
(Function Code 320)

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 26months)

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 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.
- 6) 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.
- 7) The ENGINEER 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
- 8) The ENGINEER will coordinate with the DEOR and TxDOT to obtain approval on any and all Change Orders.
- 9) 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)

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 (11/07). The construction material testing includes, but is not limited to the following:

- a) Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges/Misc.) to determine compliance of these materials with project plans and specifications.
- b) Field density testing of soils and base materials to ensure proper compaction as required by project plans and specifications.
- c) Field sampling and testing of fresh concrete, and laboratory testing of hardened concrete to determine compliance with project plans and specifications.
- d) Field compaction testing of asphalt to ensure proper compaction during lay down operations.
- e) Field inspection, sampling and laboratory testing of asphalt materials to determine their material properties and their compliance with project plans and specifications.
- f) The ENGINEER will be responsible for concrete batching as well as the asphalt testing at the plants to insure delivery of acceptable material to the job site.
- g) Any additional laboratory testing as required/requested by the 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 3 N Road Project

ID	Task Mode	Task Name	Start	Finish	Duration	2020																												
						S	O	N	D	Half 1, 2021				Half 2, 2021				Half 1, 2022				Half 2, 2022												
						J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J				
1			Construction Contract Administration	Mon 11/30/20	Fri 11/4/22	505 days																												
2			Construction Management	Mon 11/30/20	Fri 11/4/22	505 days																												
3			Construction Inspection	Mon 1/4/21	Fri 11/4/22	480 days																												
4			CMT - Material Testing	Mon 1/4/21	Fri 11/4/22	480 days																												
5			Post Construction	Mon 11/7/22	Fri 1/27/23	60 days																												
6			Miscellaneous Technical Activities	Mon 1/4/21	Fri 11/4/22	480 days																												

Project: Mile 3 N WA#1 Schedu
Date: Mon 10/12/20

Task		Inactive Summary		External Tasks	
Split		Manual Task		External Milestone	
Milestone		Duration-only		Deadline	
Summary		Manual Summary Rollup		Progress	
Project Summary		Manual Summary		Manual Progress	
Inactive Task		Start-only			
Inactive Milestone		Finish-only			



Exhibit D
Mile 3 N Road Project
Construction Phase Services (FC320)
Work Authorization No. 1

<i>Hidalgo County Precinct No. 3</i> <i>Construction Management Services (FC320)</i>			MANHOURS							Total Hours	Total Line Item Cost
			Sr. Construction Engineer/Manager	Construction Manager (PE/PMP)	Environmental Specialist	Construction Superintendent	Construction Inspector	Construction Record Keeper	CADD Operator		
TASKS											
Construction Contract Administration											
1	Review project plans, general notes, general conditions (Items 1L-9L), bid & contract documents, advanced funding agreement, and any other pertinent project documents.	20	16		40	40	16		8	140	\$17,132.56
2	Prepare/Coordinate & Conduct a Project Coordination Meeting with the County RPIC, TxDOT Project Mgr., Design Engineer, & other Hidalgo Co. and TxDOT Project Staff	10	4		8	4	4		8	38	\$4,817.76
3	Prepare/Coordinate & Conduct a Project Pre-Construction Meeting with the County RPIC, County Staff, TxDOT Project Manager, Design Engineer, City Officials, School District Officials, First Responders and the Construction Contractor	16	8		16	4	4		16	64	\$8,193.80
4	Coordinate w/ County RPIC and Develop/Issue a Notice to Proceed to the Contractor	4	4						8	16	\$1,994.40
5	Coordination with Design Engineer of Record, Hidalgo County RPIC, TxDOT PM, City of Penitas and Construction Contractor(s) throughout the duration of the project	92	80		32				16	220	\$36,643.92
6	Review of Contractor's DBE and EEO Programs for Compliance w/ CUF Requirements	12			40		80		8	140	\$14,537.28
7	Continuous Monitoring of Construction Expenditures vs. Available Funds in the AFA	46	16		8		8		20	98	\$14,453.24
8	Issue a Certificate of Substantial Completion at the Appropriate Time	4	8		20		24		4	60	\$6,992.36
9	Continuously monitor changes to the project and update the as-built plans as necessary. At project completion, provide final as-built plans to the County RPIC and TxDOT.	24			96		16	80		216	\$23,451.68
10	Submit a "Materials Certification Letter" at final acceptance of the project to ensure that the quality of all materials incorporated into the project is in conformance with the plans and specifications.	6	4		4		8		8	30	\$3,544.24
11	Prepare Monthly Invoicing to County	26	24		24				24	98	\$13,780.52
Subtotal Labor Hours			260	164	0	288	48	160	80	1120	\$145,541.76
Construction Management & Inspection											
Construction Management (During Construction)											
1	Conduct Frequent Meetings with the County RPIC & Contractor Throughout Construction Duration for Adherence to the Schedule (as needed)	80	16		96		24		8	224	\$32,438.56
2	Assist the RPIC with Implementation of the Adopted Quality Assurance Program (QAP)	20	4		48		24		8	104	\$13,047.52
3	Coordinate meetings and Field Visits w/ County RPIC, Design Engineer, TxDOT, City of Penitas, and FHWA representatives throughout duration of the Project and through final inspection.	80	48		86				24	238	\$35,982.98
4	Develop a Contractors Progress Payment Estimate on a Monthly Basis	48	40		96		320		416	920	\$82,659.04
5	Review & Processing of Contractor pay applications, including verification of material-on-hand (MOH) Invoices (Approval/Modification/Rejection)	8	8		24		64		20	124	\$12,663.12
6	Receive, review, respond and catalog project documentation including RFI's and submittals from the contractor. If required, obtain stakeholder (EOR) concurrence to Change and/or Modify any Requirements to the Plans or Contract Documents	48			26		52		26	152	\$18,309.74
7	Develop and negotiate proposed change orders (CO) with the contractor. If required, coordinate plan revisions with the Design Engineer on Change Orders and Obtain TxDOT concurrence	48			32			32	32	144	\$17,300.48
8	Confirm TxDOT/FHWA Participation & Eligibility on Change Orders as well as Time Extensions	32			8				4	44	\$7,232.56
Subtotal Labor Hours			364	116	0	416	0	484	32	1950	\$219,634.00

Hidalgo County Precinct No. 3 Construction Management Services (FC320)			MANHOURS							Total Hours	Total Line Item Cost	
			Sr. Construction Engineer/Manager	Construction Manager (PE/PMP)	Environmental Specialist	Construction Superintendent	Construction Inspector	Construction Record Keeper	CADD Operator			Admin/Clerical
TASKS												
Construction Inspection												
1	On-Site Inspection During Construction Activities & Documentation in Project Diary				860	3824	460			5144	\$491,755.64	
2	Coordination with the Public and Adjacent Property Owners on Construction Inconveniences	16			96					112	\$15,089.92	
3	Inspect storm water pollution prevention plan (SW3P) best management practice's (BMP's), as well as Compliance with Requirements of environmental permits issues and commitment (EPIC) Sheets			64	16					80	\$9,130.72	
4	Verify Daily Pay Sheets & Assure Compliance of Materials Delivered to the Job Site Meet Specifications (Including Buy America Act)				192		480			672	\$64,588.80	
5	Maintain Job Safety Measures & Implement OSHA Requirements Including Day and Night Inspection of Barricades				48		16		8	72	\$7,929.44	
6	Develop and Oversee Completion of a "Project Punch List" with the County RPIC & Contractor's Representative	8	4		24		4		12	52	\$6,367.60	
Subtotal Labor Hours			24	4	64	1236	3824	960	0	20	6132	\$594,862.12
Construction Management (Post Construction)												
1	Prepare a Final Estimate for Project Close-Out & Release of Retainage	8	4		8		20		20	60	\$6,223.44	
2	Prepare and Provide all Close-Out Documents to County RPIC	8			20		40		8	76	\$7,905.40	
3	Coordinate Final Acceptance of Project	16	6		8					30	\$5,070.04	
Subtotal Labor Hours			32	10	0	36	0	60	0	28	166	\$19,198.88
Miscellaneous Technical Activities												
1	Coordination w/ Engineer of Record for Shop Drawing Review as Appropriate	36	14		14		14			78	\$12,170.50	
2	Coordination w/ County RPIC, City of Penitas Personnel, and other utility owners on Relocation of Utilities in Conflict	36	8		120					164	\$23,283.68	
3	Track Utility Relocations and Plot Final Facility Locations on the Final As-Built Plans (if any)	16			16			40	8	80	\$8,289.76	
4	Monthly Reporting/Presentation to Hidalgo County Commissioner Pct#3 & HCMPO (as needed)	40	20		24				12	96	\$14,873.76	
Subtotal Labor Hours			128	42	0	174	0	14	40	20	418	\$58,617.70
Total Labor Hours			808	336	64	2150	3872	1678	152	726	9786	
Hourly Base Rates			\$ 62.00	\$ 60.00	\$ 37.00	\$ 42.00	\$ 30.00	\$ 28.00	\$ 23.00	\$ 22.00		
Contract Rate FY2020			\$ 186.22	\$ 180.22	\$ 111.13	\$ 126.15	\$ 90.11	\$ 84.10	\$ 69.08	\$ 66.08		
Total Costs			\$ 150,465.76	\$ 60,553.92	\$ 7,112.32	\$ 271,222.50	\$ 348,905.92	\$ 141,119.80	\$ 10,500.16	\$ 47,974.08		\$1,037,854.46

Direct Expenses	Mileage: \$0.575/mile	\$ 15,906.80
	CMT (See Detailed Breakdown on Page 3 of 6 ~ 6 of 6)	\$ 285,713.69
	Total Direct Expenses	\$ 301,620.49

B2Z Engineering Total Cost

\$1,339,474.95

EXHIBIT D
ESTIMATED MAN-HOURS AND TEST BREAKDOWN

Hidalgo County Pct. 3 - Mile 3 N Construction Materials Testing							
Embankment (Test All Fill Material Including Cut From Job) (ITEM 132)							
<ul style="list-style-type: none"> • 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 proposer compaction as required by project plans and specifications. 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Liquid Limit	Tex-104-E	PI-15 ~ Every 5,000 CY	included with PI	Each		\$45.00	\$0.00
Plasticity Index	Tex-106-E	PI-15 ~ Every 5,000 CY		Each	36	\$45.00	\$1,620.00
Gradation	Tex-110-E	20		Each	18	\$90.00	\$1,620.00
Moisture/Density	Tex-114-E	10		Each	5	\$225.00	\$1,125.00
In-Place Density	Tex-115-E	Every 5,000 CY or 6,000 Linear Feet (Min. 1 per Lift)	Inc. to 10 - 2 per Leg (Job)	Each	60	\$28.00	\$1,680.00
Test Reports			LL/PI, Grad, MD, FD	Each	119	\$25.00	\$2,975.00
Laboratory/Field Technician		92	80	Hour-	279	\$78.09	\$21,787.11
# of Trips (Tech)		12	60 Trips (28 Miles RT)	Mile	1680	\$0.575	\$966.00
**Admin/Clerical		46	16	Hour	44	\$66.08	\$2,907.52
		4					
		24				Item Subtotal	\$34,680.63
Subgrade (Untreated) (ITEM 260)							
<ul style="list-style-type: none"> • Sampling and laboratory testing of soils and base materials proposed for use in the construction of Project (Roads/Bridges): 24 24 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Organic Content	Tex-148-E	Each 500 LF or 5000 CY		Each	10	\$500.00	\$5,000.00
Sulfate Content	Tex-145-E	80		Each	10	\$95.00	\$950.00
Test Reports		20	OC & SC	Each	20	\$25.00	\$500.00
Laboratory/Field Technician		80	48	Hour	20	\$78.09	\$1,561.80
# of Trips (Tech)		48	10 Trips (28 Miles RT)	Mile	280	\$0.575	\$161.00
**Admin/Clerical		8		Hour	8	\$66.08	\$528.64
		48				Item Subtotal	\$8,701.44
		48					
Lime (ITEM 260)							
<ul style="list-style-type: none"> • 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. 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Compliance of Lime (DMS 6350)	Tex-600-J	1 per 200 Tons		Each	19	\$425.00	\$8,075.00
						Item Subtotal	\$8,075.00
Subgrade (Lime Treated) (ITEM 260)							
<ul style="list-style-type: none"> • 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 proposer compaction as required by project plans and specifications. 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Pulverization Gradation	Tex-101-E (Part III)	Each 4,500 CY	Inc. to 5 - 8 per Leg (Job)	Each	12	\$100.00	\$1,200.00
Liquid Limit	Tex-104-E		included with PI	Each		\$45.00	\$0.00
Plasticity Index	Tex-106-E	Each 5,000 CY	Inc. to 5 - 8 per Leg (Job)	Each	11	\$45.00	\$495.00
Gradation	Tex-110-E	Each 5,000 CY	Inc. to 5 - 8 per Leg (Job)	Each	11	\$90.00	\$990.00
Moisture/Density	Tex-121-E (Part II)	Every 20,000 CY		Each	2	\$225.00	\$450.00
In-Place Density	Tex-115-E	Every 3,000 CY	Inc. to 10 - 12 per Leg (Job)	Each	36	\$28.00	\$1,008.00
Test Reports			LL/PI, MD, FD	Each	72	\$25.00	\$1,800.00
Laboratory/Field Technician		36	4 hrs - PI,Gr,MD, 2 hrs - FD	Hour	216	\$78.09	\$16,867.44
# of Trips (Tech)		36	29 Trips (28 Miles RT)	Mile	812	\$0.575	\$466.90
**Admin/Clerical				Hour	27	\$66.08	\$1,784.16
		40	20			Item Subtotal	\$25,061.50

Flexible Base (Untreated - Stockpile Testing) (ITEM 247)								
<ul style="list-style-type: none"> 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. 								
		TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Liquid Limit		Tex-104-E		included with PI	Each	1	\$45.00	\$0.00
Plasticity Index		Tex-106-E	Each 5,000 CY		Each	11	\$45.00	\$495.00
Gradation		Tex-110-E	Each 5,000 CY		Each	11	\$90.00	\$990.00
Moisture/Density		Tex-113-E	Every 20,000 CY		Each	3	\$225.00	\$675.00
Wet Ball Mill		Tex-116-E	Every 20,000 CY		Each	3	\$250.00	\$750.00
Triaxial		Tex-117-E	Every 20,000 CY		Each	3	\$2,300.00	\$6,900.00
Test Reports				LL/PI, MD, WB, Triaxial	Each	28	\$25.00	\$700.00
Laboratory/Field Technician				2 hrs - LL,PI,MD & WB/Triax.	Hour	68	\$78.09	\$5,310.12
# of Trips (Tech)				3 Trip (80 Miles RT)	Mile	240	\$0.575	\$138.00
**Admin/Clerical					Hour	12	\$66.08	\$792.96
							Item Subtotal	\$16,751.08
Flexible Base (Lime Treated) (ITEM 247)								
<ul style="list-style-type: none"> 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 proposer compaction as required by project plans and specifications. 								
		TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Liquid Limit		Tex-104-E		included with PI	Each	0	\$45.00	\$0.00
Plasticity Index		Tex-106-E	Each 5,000 CY	Inc. to 5 - 8 per Leg (Job)	Each	11	\$45.00	\$495.00
Gradation		Tex-110-E	Each 5,000 CY	Inc. to 5 - 8 per Leg (Job)	Each-4	11	\$90.00	\$990.00
Moisture/Density		Tex-121-E (Part II)	Every 20,000 CY	Complete Mixture	Each	3	\$225.00	\$675.00
In-Place Density		Tex-115-E	Every 3,000 CY	Inc. to 10 -12 per Leg (Job)	Each	38	\$28.00	\$1,064.00
Test Reports				LL/PI, MD, FD	Each	63	\$25.00	\$1,575.00
Laboratory/Field Technician				2 hrs - PI,Gr,MD, 2 hrs - FD	Hour	94	\$78.09	\$7,340.46
# of Trips (Tech)				49 Trips (28 Miles RT)	Mile	1372	\$0.575	\$788.90
**Admin/Clerical					Hour	20	\$66.08	\$1,321.60
							Item Subtotal	\$14,249.96
Pipe Bedding Material (Shall Be Pit Run Gravel w Max Size 3/4 in.)								
<ul style="list-style-type: none"> 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 proposer compaction as required by project plans and specifications. 								
		Test	Spec	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Plasticity Index		Tex-106-E	Shall Conform D 2321	1 per Project	Each	1	\$45.00	\$45.00
Gradation		Tex-110-E		1 per 500 LF of Bedding	Each	40	\$90.00	\$3,600.00
Test Reports				Grad	Each	40	\$25.00	\$1,000.00
Laboratory/Field Technician				2 hrs - Grad	Hour	80	\$78.09	\$6,247.20
# of Trips (Tech)				20 Trips (28 Miles RT)	Mile	560	\$0.575	\$322.00
**Admin/Clerical					Hour	14	\$66.08	\$925.12
							Item Subtotal	\$12,139.32
Box Culvert Final Backfill Material (Shall be Class I-IV, A1, A2 or A3 or Cement Stabilized, Max PI of 19, 92% SPD, 8" Compact Lifts)								
<ul style="list-style-type: none"> 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 proposer compaction as required by project plans and specifications. 								
		Test	Spec	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Plasticity Index		Tex-106-E	CI I-IV, Max PI of 19	Assume 1 Mtl for Project	Each	1	\$45.00	\$45.00
Gradation		Tex-110-E	CI I-IV, Max PI of 19	Assume 1 Mtl for Project	Each	2	\$90.00	\$180.00
Moisture/Density		Tex-114-E	One per Each Material	Assume 1 Mtl for Project	Each	2	\$225.00	\$450.00
In-Place Density		Tex-115-E	Every 400 CY of Backfill		Each	64	\$28.00	\$1,792.00
Test Reports				LL/PI, Grad, MD, FD	Each	69	\$25.00	\$1,725.00
Laboratory/Field Technician				2 hrs - PI,Gr,MD, 2 hrs - FD	Hour	72	\$78.09	\$5,622.48
# of Trips (Tech)				34 Trips (28 Miles RT)	Mile	952	\$0.575	\$547.40
**Admin/Clerical					Hour	34	\$66.08	\$2,246.72
							Item Subtotal	\$12,608.60
Box Culvert Backfill Material (Shall be Class I-IV, Max PI of 19, 95% SPD, 8" Compact Lifts)								
<ul style="list-style-type: none"> 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 proposer compaction as required by project plans and specifications. 								
		Test	Spec	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Plasticity Index		Tex-106-E	CI I-IV, A1-3, Max PI of 19	Assume 1 Mtl for Project	Each	1	\$45.00	\$45.00
Gradation		Tex-110-E	CI I-IV, A1-3, Max PI of 19	Assume 1 Mtl for Project	Each	1	\$90.00	\$90.00
Moisture/Density		Tex-114-E	One per Each Material	Assume 1 Mtl for Project	Each	1	\$225.00	\$225.00
In-Place Density		Tex-115-E	Every 400 CY of Backfill		Each	10	\$28.00	\$280.00
Test Reports				LL/PI, Grad, MD, FD	Each	13	\$25.00	\$325.00
Laboratory/Field Technician				4 hrs - PI,Gr,MD, 2 hrs - FD	Hour	32	\$78.09	\$2,498.88
# of Trips (Tech)				9 Trips (28 Miles RT)	Mile	252	\$0.575	\$144.90
**Admin/Clerical					Hour	8	\$66.08	\$528.64
							Item Subtotal	\$4,137.42

Asphalt Concrete Pavement (- HMA-QC/QA w/ surface treatment)							
<ul style="list-style-type: none"> 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. 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Coarse Aggr.			Stockpile				
L.A. Abrasion	Tex-410-A	1 Per Project Per Source Per Design	if BRSQC meets Project Spec - Remove	Each	0	\$500.00	\$0.00
Soundness	Tex-411-A	1 Per Project Per Source Per Design	if BRSQC meets Project Spec - Remove	Each	0	\$500.00	\$0.00
Gradation	Tex-200-F	1 Per Project Per Source Per Design		Each	2	\$75.00	\$150.00
MicroDeval	Tex-461-A	1 Per every 12 Sublots	May be Eliminated based on Test History	Each	0		\$0.00
Flat & Elongated Particles	Tex-280-F	1 Per Project Per Source Per Design		Each	1	\$60.00	\$60.00
Coarse Aggr. Angularity	Tex-460-A (Part I)	1 Per Project Per Source Per Design		Each	1	\$60.00	\$60.00
Del. Matl. and Decant	Tex-217-F	1 Per Project Per Source Per Design		Each	1	\$50.00	\$50.00
Fine Aggr.			Stockpile				\$0.00
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	\$75.00	\$75.00
Mineral Filler			Bin or Silo				\$0.00
Bar Linear Shrinkage	Tex-107-E	1 Per Project Per Source Per Design	Assume No Filler	Each	0	\$45.00	\$0.00
Gradation	Tex-200-F	1 Per Project Per Source Per Design	Assume No Filler	Each	0	\$75.00	\$0.00
Combined Aggr.			Stockpile or Feeder Belt				\$0.00
Sand Equivalent	Tex-203-F	1 Per Project Per Source Per Design		Each	1	\$80.00	\$80.00
Complete Mix			Truck Sample				\$0.00
Asphalt Content (%)	Tex-236-F	1 Per Lot Per Design		Each	31	\$95.00	\$2,945.00
Voids in Mineral Aggr. (VMA)	Tex-207-F	1 Per Sublot Per Design	with 227-F Rice Gravity	Each	12	\$90.00	\$1,080.00
Gradation	Tex-236-F	Min 1 Per 12 Sublots Per Design		Each	10	\$95.00	\$950.00
Boil Test	Tex-530-C	1 Per Project Per Source Per Design	Waived by Engineer	Each	0	\$90.00	\$0.00
Indirect Tensile - Dry	Tex-226-F	1 Per Project Per Source Per Design	Waived by Engineer	Each	0	\$62.50	\$0.00
Moisture Content	Tex-212-F (Part II)	1 Per Project Per Source Per Design		Each	1	\$18.00	\$18.00
Lab Molded Density	Tex-207-F	1 Per Sublot Per Design		Each	30	\$90.00	\$2,700.00
Hamburg Wheel Tracker	Tex-242-F	1 Per Project Per Source Per Design	Make Contractor Perform Test	Each	2	\$1,500.00	\$3,000.00
Roadway			At Site				\$0.00
Field Coring		2 Cores Per Sublot Per Design	Make Contractor Perform Test	Each	0	\$0.00	\$0.00
In-Place Air Voids	Tex-207-F	2 Cores Per Sublot Per Design		Each	240	\$25.00	\$6,000.00
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	0	\$100.00	\$0.00
Thermal Profile	Tex-244-F	1 Per Project Per Source Per Design		Each	1	\$200.00	\$200.00
Ride Quality	Tex-1001-S	Engineer may verify Contractor's results	Make Contractor Perform Test	Each	0		\$0.00
Asphalt Binder Compliance	DMS-6310	1 Per Project Per Source Per Design		Each	3	\$1,500.00	\$4,500.00
Test Reports				Each	69	\$25.00	\$1,725.00
Laboratory/Field Technician			8 hours per 1 day (trips/test - CA/FA/Co)	Hour	24	\$78.09	\$1,874.16
Laboratory/Field Technician			12 hours per 30 days	Hour	30	\$78.09	\$2,342.70
# of Trips (Tech)			31 Trips (40 Miles RT)	Mile	1240	\$0.575	\$713.00
**Admin/Clerical				Hour	30	\$66.08	\$1,982.40
						Item Subtotal	\$31,230.26

Hydraulic Cement Concrete ~ Drill Shafts, Wingwalls & Traffic Rail Foundation (Class C)							
<ul style="list-style-type: none"> 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 the asphalt testing at the plants to insure delivery of acceptable material to the job site (as required). 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Coarse Aggr.			QA Test. (QC by Source)				
Decantation	Tex-406-A	Each 20,000 CY(or source)		Each	1	\$50.00	\$50.00
Sieve Analysis	Tex-401-A	Each 1,000 CY(ea source)	5 Sieve	Each	6	\$90.00	\$540.00
Deleterious Matl.	Tex-413-A	Each 20,000 CY(or source)		Each	1	\$50.00	\$50.00
L.A. Abrasion	Tex-410-A	Two Each Source	if CRSQC meets Project Spec - Remove	Each	0	\$600.00	\$0.00
Soundness	Tex-411-A	Two Each Source	if CRSQC meets Project Spec - Remove	Each	0	\$600.00	\$0.00
Fine Aggr.			QA Test. (QC by Source)				\$0.00
Sand Equivalent	Tex-203-F	Each 1,000 CY(ea source)		Each	6	\$80.00	\$480.00
Organic Imp.	Tex-408-A	One Per Project Per Source		Each	1	\$50.00	\$50.00
Sieve Analysis	Tex-401-A	Each 1,000 CY(ea source)		Each	6	\$90.00	\$540.00
Fineness Mod.	Tex-402-A	Each 1,000 CY(ea source)		Each	6	\$15.00	\$90.00
Deleterious Matl.	Tex-413-A	Each 20,000 CY(or source)		Each	1	\$50.00	\$50.00
Acid Insoluble	Tex-612-J	Two Each Source	if CRSQC meets Project Spec - Remove	Each	0	\$90.00	\$0.00
Mineral Filler			QA Test. (QC by Source)				\$0.00
Sieve Analysis	Tex-401-A	Two Each Source	if No Mineral Filler utilized in Mix - Remove	Each	0	\$90.00	\$0.00
Concrete							\$0.00
*Strength	Tex-447-A & Tex-418-A	Each 60 CY(2 Sets = 5 Cyl.)	use 2 Sets per Pour (12 Pours)	Each	15	\$30.00	\$450.00
Slump	Tex-415-A	One per 2 Sets		Each	3	\$20.00	\$60.00
Entrained Air	Tex-416-A	One per 2 Sets		Each	3	\$25.00	\$75.00
Temperature	Tex-422-A	One per 2 Sets		Each	3	\$5.00	\$15.00
							\$0.00
Test Reports			CA,FA,MF,Conc.	Each	31	\$25.00	\$775.00
Laboratory/Field Technician				Hour	28	\$78.09	\$2,186.52
# of Trips (Tech)			5 Trips (40 Miles RT)	Mile	200	\$0.575	\$115.00
**Admin/Clerical				Hour	26	\$66.08	\$1,718.08
						Item Subtotal	\$7,244.60
Hydraulic Cement Concrete Misc. - Riprap/Riprap(Mowstrip)/Curb/Sidewalk(Class A)							
<ul style="list-style-type: none"> 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 the asphalt testing at the plants to insure delivery of acceptable material to the job site (as required). 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Concrete							
*Strength	Tex-447-A & Tex-418-A	Each 180 CY(1 Set = 2 Cyl.)	Adjust Per Str & Placement	Each	210	\$30.00	\$6,300.00
Slump	Tex-415-A			Each	70	\$20.00	\$1,400.00
Entrained Air	Tex-416-A			Each	0	\$25.00	\$0.00
Temperature	Tex-422-A			Each	70	\$5.00	\$350.00
							\$0.00
Test Reports			Conc.	Each	70	\$25.00	\$1,750.00
Laboratory/Field Technician				Hour	210	\$78.09	\$16,398.90
# of Trips (Tech)			70 Trips (28 Miles RT)	Mile	1960	\$0.575	\$1,127.00
**Admin/Clerical				Hour	35	\$66.08	\$2,312.80
						Item Subtotal	\$29,638.70
Batching for Hydraulic Cement Concrete (Class C&S) & Asphalt Concrete Pavement (ACP) - Inspection of Batching at Plant (1 Tech per Plant, Reports)							
<ul style="list-style-type: none"> 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 the asphalt testing at the plants to insure delivery of acceptable material to the job site (as required). 							
	TxDOT Test	TxDOT Guide Specs	Additional Assumptions	Unit	Qty.	Contract Rate	Total
Concrete							
Laboratory/Field Technician				Hour	12	\$78.09	\$937.08
# of Trips (Tech)			3 Trip (40 Miles RT)	Mile	120	\$0.575	\$69.00
				Test Reports	3	\$25.00	\$75.00
Hot Mix							
Laboratory/Field Technician				Hour	200	\$78.09	\$15,618.00
# of Trips (Tech)			30 Trips (50 Miles RT)	Mile	1500	\$0.575	\$862.50
				Test Reports	5	\$25.00	\$125.00
**Admin/Clerical				Hour	24	\$66.08	\$1,585.92
						Item Subtotal	\$19,272.50

* 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 2 Sets per Test Location (5 Cyl.)
** Project Administrative Fee is assessed on a per invoice basis and involves engineering review, evaluation, management and administration

Summary		
Sub-Total (CMT Items) =		\$223,791.01
**Sr. Eng. Tech. (Coor. w/Pct 3/Rpt. Rev.)(282 hrs x 114.14Hr.)		\$32,187.48
**Project Engineer (Admin. Fee - Oversight) (220 hrs x 135.16 Hr.)		\$29,735.20

Construction Materials Testing Total : \$285,713.69