

# **AMENDMENT NO. 1 TO CONTRACT FOR ENGINEERING SERVICES**

This Amendment No. 1 to Contract for Engineering Services (“Amendment No. 1”) is by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and **Raba Kistner, Inc.** (the “Engineer”).

## **RECITALS**

**WHEREAS**, the County and the Engineer previously executed that certain Contract for Engineering Services (the “Contract”), being dated effective **March 19, 2024** wherein Engineer agreed to perform certain professional engineering services in connection with the 24RFSQ12 **Materials Testing and Geotechnical Services** for Williamson County Road and Bridge (“Project”);

**WHEREAS**, pursuant to **Article 14**, the terms of the Contract may be modified by a written, fully executed Contract Amendment;

**WHEREAS**, the parties wish to amend the Rate Schedule under **Exhibit D** of the Contract; and

**WHEREAS**, it has become necessary to supplement, modify and amend the Contract in accordance with the provisions thereof.

## **AGREEMENT**

**NOW, THEREFORE**, premises considered, the County and the Engineer agree that the Contract is supplemented, amended and modified as follows:

### **I. Amendment to Exhibit D – Rate Schedule**

**Exhibit D – Rate Schedule of the Contract shall be amended and supplanted by the Exhibit D that attached hereto and incorporated herein by reference.**

### **II. Terms of Contract Control and Extent of Amendment No. 1**

All other terms of the Contract and any prior amendments thereto which have not been specifically amended herein shall remain the same and shall continue in full force and effect.

III. IN WITNESS WHEREOF, the County and the Engineer have executed this Amendment No. 1 in duplicate, to be effective as of the date of the last party's execution below.

ENGINEER:

**Raba Kistner, Inc.**

By: Yvonne G. Thomas

Printed Name: Yvonne Garcia Thomas, P.E.

Title: Vice President

Date: February 19, 2025

COUNTY:

**Williamson County, Texas**

By: Bill Gravell Jr.  
Bill Gravell (Feb 25, 2025 11:43 CST)

Printed Name: Bill Gravell, Jr.

Title: County Judge

Date: \_\_\_\_\_

**Exhibit D**

**Rate Schedule**

Please see next page(s).

**ON-CALL GEOTECHNICAL ENGINEERING AND CONSTRUCTION  
MATERIALS TESTING CONSULTING SERRVICES  
WILLIAMSON COUNTY  
RABA KISTNER CONSULTANTS, INC.**

**EXHIBIT D - RATE SCHEDULE**

**PROFESSIONAL HOURLY RATES**

	<b><u>2025 PRICE</u></b>	<b><u>UNIT</u></b>
Principal	\$ 255.00	HR
Senior Geotechnical Engineer	\$ 233.58	HR
Senior Project Manager	\$ 207.06	HR
Project Manager	\$ 204.10	HR
Geotechnical Engineer (Design Engineer)	\$ 182.03	HR
Project Engineer	\$ 159.12	HR
Engineer in Training	\$ 146.07	HR
Geologist	\$ 154.02	HR
Environmental Scientist	\$ 129.54	HR
Geotechnical Logger	\$ 119.02	HR
CADD Technician	\$ 104.81	HR
Senior Geotechnical Engineering Technician	\$ 91.80	HR
Geotechnical Laboratory Technician	\$ 82.74	HR
Geotechnical Engineering Technician	\$ 77.22	HR
Archaeologist	\$ 137.70	HR
GIS	\$ 110.16	HR
Admin/Clerical	\$ 71.40	HR

**DIRECT EXPENSES**

	<b><u>2025 PRICE</u></b>	<b><u>UNIT</u></b>
Lab Testing (Moisture Content)	\$ 16.65	TEST
Lab Testing (Atterberg Limit)	\$ 125.84	TEST
Lab Testing (Percent Passing No. 200 Sieve)	\$ 70.75	TEST
Lab Testing (Sieve Analysis)	\$ 120.04	TEST
Lab Testing (Hydrometer)	\$ 391.65	TEST
Lab Testing (Corrosivity:Chloride, pH, Resisitivity.	\$ 186.95	TEST
Lab Testing (Unconfined Compression –Soil)	\$ 75.46	TEST
Lab Testing (Unconfined Compression – Rock)	\$ 41.92	TEST
Lab Testing (Direct Shear)	\$ 650.18	TEST
Lab Testing (Sulfate Testing)	\$ 125.12	TEST
Lab Testing (Lime Series Curve)	\$ 452.33	TEST
Lab Testing (Moisture/Density Test)	\$ 350.45	TEST
Lab Testing (Resilient Modulus)	\$ 1,985.82	TEST
Lab Testing (California Bearing Ratio Test)	\$ 1,011.05	TEST
Consolidated Undrained (CU) Triaxial Comp Test	\$ 1,925.00	TEST
Texas Triaxial Compression (TEX-117-E)	\$ 2,200.00	TEST
Organics	\$ 125.00	TEST

**FIELD DRILLING SERVICES**

	<b><u>2025 PRICE</u></b>	<b><u>UNIT</u></b>
<b>Mobilization of drilling Rig</b>	\$ 600.00	EA
<b>Auger Drilling (Does not include logging)</b>		
soil	\$ 24.40	FT
soft rock		
<b>Standard Wet Rotary (Does not include logging)</b>	\$ 27.58	FT
<b>Hollow Stem Drilling</b>	\$ 30.89	FT
<b>Nx Rock Core (Does not include logging)</b>		
Soft rock (marl, shale)	\$ 40.31	FT
Hard rock (limestone, sandstone)	\$ 53.04	FT
<b>Sampling</b>		
Standard Penetration Test (ASTM D1586)	\$ 29.92	TEST
Shelby Tube (ASTM D1587)	\$ 24.40	TEST
Texas Cone Penetrometer Test (THO, Tex-132-E)	\$ 32.88	TEST
<b>Other Expenses/Charges</b>		
Standby Time	\$ 284.29	HR
Mileage - non-drilling equipment Grout backfill	current rate	MILE
Grout backfill	\$ 7.00	FT
Dozer/clearing cost	cost	EA
Logger truck charge	\$ 68.01	DAY
Standard pavement coring	\$ 93.05	EA
Concrete/AC patch	\$ 79.38	EA
Traffic control - signs, barricades	cost	EA
Utility Locates	cost	EA
Brush Clearing	cost	EA
All other outside expenses	cost	EA

## ATTACHMENT D - FEE SCHEDULE

### ON-CALL GEOTECHNICAL ENGINEERING AND CONSTRUCTION MATERIALS TESTING CONSULTING SERVICES WILLIAMSON COUNTY RABA KISTNER CONSULTANTS, INC.

#### ASPHALTIC CONCRETE

ASTM D 75	<b>Sampling Raw Materials of Composite Mix</b>	<b>UNIT</b>	<b>2025</b>
	Technician Time	per hour \$	66.54
Asphalt Institute Manual	<b>Asphaltic Plant Observation - To Verify Aggregate Size and Quality, Batch Weights and Temperature</b>		
	Technician Time	per hour \$	80.61
Asphalt Institute Manual	<b>Asphaltic Site Observation - To Observe Preparation, Laydown Operations, Asphaltic Concrete Temperatures, Mat Thickness and Mat Density Determination</b>		
	Technician Time	per hour \$	80.61
ASTM D 2950	<b>Nuclear Density Test with Inspection</b>	each \$	20.56
	<b>Nuclear Density Test</b>	each \$	32.46

<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	<u>UNIT</u>	<u>2025</u>
ASTM D 2172; TxDOT, TEX-210-F	<b>Extraction Test, Bitumen Content and Aggregate Sieve Analysis of Asphaltic Concrete</b>	each \$	248.86
ASTM D 2172; TxDOT, TEX-210-F	Extraction Test, Bitumen Content Only	each \$	169.88
	<b>Asphaltic Concrete Extraction; Bitumen Content and Aggregates; Sieve Analysis of Asphaltic Concrete; Molding Specimens (Hveem or Marshall); Laboratory Density (Molded Specimen); Stability Test (Hveem); and Maximum Theoretical Specific Gravity (Rice Gravity)</b>	per set \$	596.19
Hveem, TxDOT, TEX-206-F; Marshall, ASTM D 1559	<b>Molding Specimens</b>		
	Hveem or Marshall	per set \$	74.66
	Superpave (2 per set)	per set \$	149.32
TxDOT, TEX-207-F; ASTM D 2726	<b>Laboratory Density Test</b>		
	a) Molded Speciment	per set \$	78.99
	b) Asphalt Core	each \$	66.00
	c) Superpave (2 per set)	per set \$	93.05
Hveem, TxDOT, TEX-208-F; Marshall, ASTM D 1559	<b>Stability Test</b>		
	Marshall	per set \$	74.66
	Hveem	per set \$	74.66
Asphalt Institute Manual and TxDOT; Mix Designs	<b>Corp of Engineers or FAA</b>	each \$	2,492.96
	<b>TxDOT Quality Control/Quality Assurance</b>	each \$	2,492.96
	<b>TxDOT CMHB</b>	each \$	3,546.85
	<b>TxDOT Calibration Mix and Pans</b>	each \$	417.66
	<b>TxDOT Black Base Design, Item 345</b>	each \$	1,865.40
TxDOT, TEX-200-F; ASTM C 136	<b>Sieve Analysis of Aggregate</b>	each \$	50.85
TxDOT, TEX-203-F; ASTM D 2419	<b>Sand Equivalent Test</b>	each \$	107.12
AASHTO TP 33	<b>Fine Aggregate Angularity</b>	each \$	63.84

ASTM D 4791-95	<b>Flat and Elongated Particle</b>	each	\$	63.84
TxDOT, TEX-201-F; ASTM C 127	<b>Specific Gravity (Coarse or Fine Aggregate)</b>	each	\$	50.85
TxDOT, TEX-201-F; ASTM C 127	<b>Absorption (Coarse or Fine Aggregate) (Includes Specific Gravity)</b>	each	\$	78.99
TxDOT, TEX-411-A; ASTM C 88	<b>Sulfate Soundness (Time and Test)</b>			
	Preparation Time	per hour	\$	66.54
	a) Magnesium - 5 Cycle	each	\$	630.82
	b) Sodium - 5 Cycle	each	\$	562.65
CSM030 CSM030	<b>Los Angeles Abrasion Test (Time and Test)</b>			
	Los Angeles Abrasion Test (Small or Large Coarse Aggregate)	each	\$	243.45
Asphalt Inst. SP-2 TxDOT, Item 3066 AASHTO PP 28-95	<b>Superpave TM Mix Design (Includes Aggregate, Specific Gravity and Sieve Analysis) (Does Not Include TSR)</b>	each	\$	7,708.28
TxDOT, TEX-227-F; AASHTO T 209; ASTM D 2041	<b>Maximum Theoretical Specific Gravity (Rice Gravity)</b>	each	\$	115.78
TxDOT, TEX-226-F; AASHTO T 283; ASTM D 4867	<b>Moisture Sensitivity Test (Tensile Strength Ratio Test)</b>			
	with Freeze/Thaw	each	\$	666.52
	without Freeze/Thaw	each	\$	522.61
TxDOT, Item 3157	<b>Cold Processed – Recycled Paving Material (RPM)</b>			
	Mixture Design			
	Mixture Verification (QC) Strength, Stability (Hveem, Modified Marshall)	per set	\$	973.81
TxDOT, TEX-126-E (Modified)	<b>Molding and Strength</b>	per set	\$	475.01
TxDOT, TEX-208-F (Modified)	<b>Molding and Hveem</b>	per set	\$	179.61
ASTM D 1559	<b>Molding and Marshall</b>	per set	\$	167.71
TxDOT, TEX-103-E	<b>Molded Moisture Content</b>	each	\$	17.31

#### CEMENT TREATED BASE

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	<u>UNIT</u>	<u>2025</u>
PCA	<b>Sampling Raw Materials for Mix Verification</b>		
	Technician Time	per hour	\$ 66.54
	<b>Sampling Contractor Processed Material</b>		
	Technician Time	per hour	\$ 66.54
<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	<u>UNIT</u>	<u>2025</u>
PCA	<b>Molding Controlled Processed Material</b>	each	\$ 89.81
PCA	<b>Unconfined Compressive Strength Testing</b>	each	\$ 40.03
ASTM D 559; ASTM D 560	<b>Durability (2 Specimens per Set) (Percent Loss in 12 Cycles)</b>		
	Wet Dry/Freeze Thaw	per set	\$ 764.99
	<b>Mix Design</b>		
PCA;	Mix Design - Cement Treated Base (Does Not		

TxDOT, TEX-120-E; ASTM D 558	Include Durability)	each	\$	1,523.48
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### CONCRETE

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	<u>UNIT</u>		<u>2025</u>
ASTM C 31; ASTM C 172; ASTM C 143	<b>Sampling Concrete to Conduct Slump Test, Measure Concrete Temperature, Cast Test Specimen and Transport Test Specimen to Laboratory Next Day</b> Technician Time Pick-Up of Test Specimen Standby Time	per hour per hour per hour	\$ \$ \$	66.54 66.54 66.54
ASTM C 39; ASTM C 617	<b>Cylinder Compressive Strength Testing and Reporting (In Conjunction with Sampling)</b> a) 6x12 or 4x8 - Normal Weight or Lightweight Structural (Minimum of 4) b) 3x6 - Lightweight Insulating Cellular (Minimum of 6 - Includes Two Dry Densities) c) "Hold" Cylinder (Additional Charge) d) "Strip" Cylinder (Additional Charge) e) Compressive Strength - 2x2 Cubes f) Dry Density - Concrete Cylinder	each  each each each each each	\$  \$ \$ \$ \$ \$	22.72  33.54 15.15 17.31 32.46 57.35
ASTM C 78	<b>Flexural Strength Testing and Reporting (In Conjunction with Sampling Beams)</b>	each	\$	70.33
ASTM C 231 ASTM C 173 AASHTO T 199	<b>Air Content (In Conjunction with Sampling)</b> a) Pressure b) Volumetric c) Chase	each each each	\$ \$ \$	41.12 49.77 21.64
ASTM C 138	<b>Unit Weight</b>	each	\$	36.79
ASTM C 143	<b>Additional Slump Test</b>	each	\$	31.38
ACI 311; ACI 304	<b>Concrete Plant Observation - To Observe and Record Aggregate Types, Batch Weights, Concrete Consistency and Mixing Time</b> Technician Time	per hour	\$	66.54
ACI 311; ACI 304	<b>Concrete Site Observation - To Record the Consistency of Concrete, Verify and Adjust Slump within Project Specifications and Sample for Test Specimens</b> Technician Time	per hour	\$	66.54
<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	<u>UNIT</u>		
CI 211.1	<b>Hardrock Concrete Mix Design Calculations and Proportioning to Include Six Confirmatory Cylinders (Physical Properties Not Included)</b>	each	\$	393.85
ACI 211.1 (303.R)	<b>Architectural Mix Design</b>	each	\$	428.48
ACI 211.2	<b>Lightweight Structural Mix Design</b>	each	\$	405.76
ASTM C 270	<b>Masonry Mortar Mix Design Including Six Cubes and Water Retention (Physical Properties Not Included)</b>	each	\$	428.48
ASTM C 1202	<b>Chloride Ion Permeability</b>	per set	\$	341.92
ASTM C 39	<b>Cylinders Compressive Strength Testing and Reporting F.O.B. Cylinders to Our Laboratory</b>	each	\$	35.71



ASTM C 496	<b>Splitting Tensile Strength of Concrete Cylinders</b> Tensile Test	each	\$	56.26
ASTM C 666	<b>Freeze-Thaw Test</b>	per set	\$	475.01
ASTM C 469	<b>Determination of Young's Modulus of Elasticity (Time, Test and Set-Up)</b>	each	\$	107.12
ASTM C 803	<b>Windsor Probe (Includes Surface Preparation)</b>	per hour	\$	110.37
ASTM C 805	<b>Schmidt Rebound Number</b>	per hour	\$	112.53

**CONCRETE AGGREGATES**

<b><u>REFERENCE</u></b>	<b><u>FIELD SERVICES</u></b>	<b><u>UNIT</u></b>	<b><u>2025</u></b>	
ASTM D 75; TxDOT, TEX-400-A	<b>Sampling Concrete Aggregates</b> Technician Time	per hour	\$	66.54
<b><u>REFERENCE</u></b>	<b><u>LABORATORY SERVICES</u></b>	<b><u>UNIT</u></b>	<b><u>2025</u></b>	
ASTM C 566	<b>Moisture Content</b>	each	\$	17.31
ASTM C 29; TxDOT, TEX-404-A	<b>Unit Weight (Coarse or Fine)</b>			
	a) Loose	each	\$	43.28
	b) Rodded	each	\$	43.28
ASTM C 127; ASTM C 128; TxDOT, TEX-201-F	<b>Specific Gravity (Coarse or Fine)</b>	each	\$	50.85
ASTM C 123	<b>Lightweight Particles (Plus Cost of Materials)</b>	per test	\$	75.74
ASTM C 127; ASTM C 128; TxDOT, TEX-201-F	<b>Absorption</b>			
	a) Normal Weight Aggregate (Coarse or Fine)	each	\$	32.46
	b) Lightweight Aggregate (Coarse)	each	\$	35.71
ASTM C 136; TxDOT, TEX-401-A	<b>Sieve Analysis (Dry) for ASTM C 33 Specifications</b>			
	a) Coarse, Per Sample	each	\$	55.18
	b) Fine, Per Sample	each	\$	67.08
ASTM C 117; TxDOT, TEX-406-A	<b>Amount Finer than No. 200 (Decantation)</b>	each	\$	47.61
ASTM C 131; ASTM C 535	<b>Los Angeles Abrasion (Time and Test)</b>	each	\$	243.45
ASTM C 88; TxDOT, TEX-411-A	<b>Sulfate Soundness (Time and Test)</b>			
	Preparation Time	per hour	\$	66.54
	a) Magnesium - 5 Cycle	each	\$	630.82
	b) Sodium - 5 Cycle	each	\$	562.65
ASTM C 117; ASTM C 29; ASTM C 127; ASTM C 128; ASTM C 566; TxDOT, TEX-406-A; TxDOT, TEX-404-A; TxDOT, TEX-201-F; TxDOT, TEX-401-A	<b>Physical Properties of Aggregates - Includes Decantation, Rodded Unit Weight, Specific Gravity, Absorption, Sieve Analysis and Moisture Content (Per Aggregate Type and Size)</b>			
	Conducted in Conjunction with Concrete Mix Design	each	\$	188.27
	Conducted Separate from Concrete Mix Design	each	\$	243.45
ASTM C 40;	<b>Organic Impurities</b>	each	\$	125.00

TxDOT, TEX-408-A

ASTM C 2419; TxDOT, TEX-203-F	<b>Sand Equivalent Values</b>	each	\$	108.20
ASTM C 142	<b>Clay Lumps and Friable Particles</b>	each	\$	73.58
ASTM C 641	<b>Staining Materials in Lightweight Concrete Aggregate</b>	each	\$	73.58

### CORING

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	<u>UNIT</u>	<u>2025</u>
ASTM C 42; ACI 318	<b>Technician Time and Equipment</b>		
	a) One Man	per hour	\$ 81.15
	b) Two Men	per hour	\$ 124.43
	c) Reinforcing Steel Detector	per day	\$ 432.81
	d) Coring	per day	\$ 378.71
	e) Generator	per day	\$ 162.30
	<b>Bit Wear</b>		
	a) Limestone Aggregate	per inch	\$ 8.12
	b) Quartz Aggregate (River Gravel)	per inch	\$ 9.20

<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	<u>UNIT</u>	<u>2025</u>
ASTM C 42 a)	<b>Sawed Ends for Compressive Strength Test</b>		
	a) Limestone Aggregate	square inch	\$ 2.71
ASTM C 39; ASTM C 42; ASTM C 174; ASTM C 617	<b>Compressive Strength of Concrete Core Includes Measurements, Capping and Testing</b>	each	\$ 35.71
	<b>Report Photographs</b>		
	<b>Laboratory Air-Dried Unit Weight</b>	each	\$ 21.64

### LIME

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	<u>UNIT</u>	<u>2025</u>
National Lime Association	<b>Continuous Observation to Monitor and Record Equipment Functions, Specific Gravity of the Lime Slurry and Observation of Stabilization Location and Depth</b>		
	Technician Time	per hour	\$ 66.54
<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	<u>UNIT</u>	<u>2025</u>
STM D 422; TxDOT, TEX-101-E, Pt. II	<b>Sieve Analysis of Pulverized Materials for Gradation Compliance</b>	each	\$ 81.15
ASTM D 4318; TxDOT, TEX-112-E	<b>Lime Series Curve Determination Including Five Atterberg Limits</b>	each	\$ 568.06
TEX-121-E	<b>Soil-Lime Testing Part III</b>	each	\$ 443.63
ASTM C 183	<b>Standard Method of Sampling Hydraulic Cement</b>	per hour	\$ 66.54
ASTM C 109	<b>Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50mm Cube Specimen)</b>	each	\$ 31.38
ASTM C 185	<b>Air Content of Hydraulic Cement Mortar</b>	each	\$ 63.84

ASTM C 266; ASTM C 191	<b>Time of Setting of Hydraulic Cement by Gillmore/Vicat Needles</b>	each	\$	76.82
ASTM C 151	<b>Autoclave Expansion of Portland Cement</b>	each	\$	255.36
ASTM C 187	<b>Normal Consistency of Hydraulic Cement</b>	each	\$	63.84
ASTM C 188	<b>Specific Gravity of Hydraulic Cement</b>	each	\$	74.66
ASTM C 430	<b>Fineness of Hydraulic Cement by the No. 325 Sieve</b>	each	\$	74.66
ASTM C 451	<b>Early Stiffening of Portland Cement (Paste Method)</b>	each	\$	63.84
ASTM C 114	<b>Chemical Analysis</b>	each	\$	469.59
ASTM C 91	<b>Water Retention of Masonry Cement</b>	each	\$	119.02
ASTM C 150	<b>Chemical Analysis</b>	each	\$	470.68
	<b>Physical Analysis</b>	each	\$	933.78

#### SOILS (Earthwork)

<u>REFERENCE</u>	<u>FIELD SERVICES</u>	<u>UNIT</u>		<u>2025</u>
ASTM D 75	<b>Sampling Subgrade, Fill or Base</b> Technician Time	per hour	\$	66.54
	<b>In-Place Moisture-Density Test</b> Technician Time	per hour	\$	66.54
ASTM D 2922	Nuclear Density	each	\$	32.46
ASTM D 2167; ASTM D 1556	<b>Volumetric Density (Sand Cone)</b>	each	\$	93.05
	<b>Fill and Embankment Observation - Testing for Compliance with the Project Specifications to Verify Proper Moisture and Compaction Conditions in Order to Produce a Quality Fill and Uniform Workmanship (Time, Test and Mileage)</b> Technician Time (Hourly Rate)	per hour	\$	66.54
	<b>Proof Rolling Observation</b>	per hour	\$	66.54
ASTM D 2922	<b>Nuclear Density Test with Observation</b>	each	\$	20.56
<u>REFERENCE</u>	<u>LABORATORY SERVICES</u>	<u>UNIT</u>		<u>2025</u>
ASTM D 2216; TxDOT, TEX-103-E	<b>Moisture Content</b>	each	\$	17.31
	<b>Atterberg Limits</b> a) ASTM or TxDOT (TEX-104, TEX-105-E, TEX-106-E)	each	\$	130.87
	<b>Shrinkage Limit in Conjunction with Atterberg Limits</b> a) Volumetric	each	\$	132.01
	b) Linear (TxDOT, TEX-107-E)	each	\$	132.01
ASTM D 422; TxDOT, TEX-101-E; TxDOT, TEX-110-E	<b>Sieve Analysis</b> a) Washed through No. 40 (Up to 5 Sieves) b) Washed through No. 200 (Up to 4 Sieves) c) Additional Sieves	each each each	\$ \$ \$	73.58 108.20 17.31
ASTM D 1140 TEX-145-E	<b>Amount Finer than No. 200 Sieve</b>	each	\$	73.58
	<b>Determining Sulfate Content in Soils</b>	each	\$	91.97
	<b>Moisture-Density Relationship (Proctor)</b> Preparation Time	per hour	\$	66.54
Preparation Time ASTM D 698;	ASTM	each	\$	364.47

ASTM D 1557				
AASHTO T 99;	AASHTO	each	\$	364.47
AASHTO T 180				
TxDOT, TEX-113-E;	TxDOT	each	\$	364.47
TxDOT, TEX-114-E				
MIL STD CE 55A	Corps of Engineers	each	\$	364.47
ASTM D 535				
ASTM D 1883	<b>California Bearing Ratio - Short Method; Includes Moisture-Density Relationship and Three Test Specimens</b>	per set	\$	1,051.49
	Each Additional Specimen	each	\$	229.01
TxDOT, TEX-117-E	<b>TxDOT Triaxial – Short Method; Includes Moisture-Density Relationship and Up to Six Test Specimens</b>			
	Part I	per set	\$	1,742.05
	Part II	per set	\$	1,601.38
	Each Additional Specimen	each	\$	194.76
ASTM D 854;	<b>Specific Gravity</b>	each	\$	108.20
TxDOT, TEX-108-E				
ASTM D 422;	<b>Hydrometer Analysis (Includes Sample Preparation, Grain Size Curve and Specific Gravity)</b>	each	\$	353.82
TxDOT, TEX-110-E				
ASTM D 5084	<b>Hydraulic Conductivity</b>	each	\$	550.75
ASTM D 2166	<b>Unit Weight</b>	each	\$	36.79
TxDOT, TEX-116-E	<b>Wet Ball Mill</b>	each	\$	266.18
	<b>Water Content and Visual Classification</b>	each	\$	17.31
	<b>Unconfined Compression (includes unit dry weight)</b>			
	a) Soil Shelby Tube Specimens	each	\$	62.46
	b) Rock Core Specimens	each	\$	78.48
	(1) Sawed Specimen Ends	per end	\$	15.15
	<b>Triaxial Compression</b>	each	\$	2,288.00
	<b>Direct Shear</b>	each	\$	676.19
	<b>Consolidation (Not Including Specific Gravity)</b>	each	\$	2,002.00
	<b>Swell Test</b>		\$	-
	a) Pressure Method	each	\$	384.12
	b) Free Swell	each	\$	205.58

## **SUBCONSULTANTS - Rodriguez Engineering Laboratories LLC**

### **CONSTRUCTION MATERIALS TESTING SERVICES**

#### **HMAC Field Testing and Sample Pick-up**

	Trip Charge (round-trip from REL Austin) (Vehicle or Mileage is not Included)	Per hr	\$	72.80
	Field Tech Time (on-site only, 2-hour minimum)	Per hr	\$	72.80
Tex-207-F, VII	Longitudinal Joint Density with Density Gauge (Tex-207-F, VII) (Plus Tech time)	Per ea	\$	94.63
Tex-207-F, Part V	Mat Segregation with Density Gauge (Tex-207-F, Part V) (Plus Tech time)	Per ea	\$	94.63
Tex-140-E	Pavement Thickness Determination (Tex-140-E)(Plus Tech time)	Per ea	\$	24.27
Tex-244-F	Thermal Profile (Tex-244-F)(Plus Tech time)	Per ea	\$	212.31
	Permeability or Water Flow of Hot Mix Asphalt	Per ea	\$	90.56

#### **Laboratory Testing of HMAC**

	Asphalt Content by Extraction (TEX-210-F, T164)	Per ea	\$	203.82
	Asphalt Content by Ignition Method (Tex-236-F)	Per ea	\$	218.38
	Specimen Molding by SGC (TEX-241-F) (2 per set)	Per ea	\$	103.12
	Specimen Molding by TGC (TEX-206-F) (3 per set)	Per ea	\$	75.22
	Bulk Density of Compacted Specimens (TEX-207-F, Part I) (2 or 3 per set)	Per ea	\$	75.22
	Hveem Stability (TEX-208-F) (3 per set)	Per ea	\$	75.22
	Gradation of Aggregate from Extraction or Ignition (TEX-200-F)	Per ea	\$	94.63
	Hamburg Wheel Tracker (TEX-242-F) (Includes Molding)	Per ea	\$	686.67
	Indirect Tensile Strength (TEX-226-F) (Molding is not included)	Per ea	\$	88.56
	Bulk Specific Gravity of Core (Tex-207-F Part I)	Per ea	\$	32.76
	Bulk Specific Gravity of Core (Tex-207-F Part VI), in addition to Specific Gravity (3.2.14)	Per ea	\$	75.22
	Maximum Theoretical Specific Gravity, Rice Method (Tex 227-F)			
	Bag Sample	Per ea	\$	67.94
	Core Sample	Per ea	\$	80.08
	Cantabro Loss (TEX-245-F) (Molding is not included)	Per ea	\$	135.87
	Boiling Stripping Test (TEX-530-C)	Per ea	\$	133.45
	Draindown Characteristics of Bituminous Materials (Tex-235-F)	Per ea	\$	134.00
	Moisture Content of Bituminous Materials (Tex-212-F)	Per ea	\$	50.00
	Shear Bond Strength Test (Tex-249-F)	Per ea	\$	248.24
	Ideal Cracking Test (Tex-250-F)	Per ea	\$	362.02
	Thickness of HMAC cores by Direct Measurement	Per ea	\$	15.76

#### **HMAC Coring**

	Trip Charge (round-trip from REL Austin) (Vehicle or Mileage is not Included)	Per hr	\$	72.80
	Field Tech time (on-site only, 2-hour minimum)	Per hr	\$	72.80
	Core, per inch thickness			
	0"-6" depth @ 6"Ø (includes patching and sample prep.)	Per ea	\$	118.90
	> 6"-10" depth @ 6"Ø (includes patching and sample prep.)	Per ea	\$	131.63
	> 10"-14" depth @ 6"Ø (includes patching and sample prep.)	Per ea	\$	169.85
	>14" depth @ 6"Ø (includes patching and sample prep.)	Per ea	\$	169.85
	Per inch beyond 14" depth @ 6"Ø (includes patching and sample prep.)	Per inch	\$	7.28

#### **Laboratory Testing of Liquid Asphalt and Emulsions**

	Abson Recovery (Extraction using Solvent is not Included)	Per ea	\$	291.17
	Breaking Index (Asphalt Emulsions)	Per ea	\$	114.04
	Cement Mix	Per ea	\$	86.13
	Demulsibility (Anionic or Cationic Emulsions)	Per ea	\$	86.13
	Density of Emulsified Asphalt	Per ea	\$	86.13
	Ductility of Bituminous Materials	Per ea	\$	122.54
	Elastic Recovery Test	Per ea	\$	99.48
	Float Test For Bituminous Materials	Per ea	\$	99.48
	Kinematic Viscosity of Cut-Back Asphalt	Per ea	\$	122.54
	Penetration of Bituminous Materials	Per ea	\$	76.44
	Residue by Distillation (Cutback or Emulsified Asphalts)	Per ea	\$	179.55
	Residue by Evaporation	Per ea	\$	179.55

Saybolt Viscosity of Emulsified Asphalt at 25°C (77°F)	Per ea	\$	76.44
Saybolt Viscosity of Emulsified Asphalt at 50°C (122°F)	Per ea	\$	76.44
Sieve Test of Emulsified Asphalt	Per ea	\$	53.38
Softening Point of Bitumen (Ring-and-Ball)	Per ea	\$	122.54
Storage Stability (24 Hrs)	Per ea	\$	133.45
Specific Gravity of Emulsified Asphalt	Per ea	\$	82.49
Viscosity by Vacuum Capillary Viscometer	Per ea	\$	122.54
Report of Asphalt Test Results (includes clerical, engineering review/seal, etc.)	Per ea	\$	100.70

#### **Field Testing Equipment**

##### **Vehicle**

Within City of Austin ETJ, within 50 miles (one-way) from REL	Per trip	\$	85.00
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#### **Engineering Consultation**

Principal	Per hr	\$	280.24
Project Manager/Professional Engineer	Per hr	\$	179.55
Project Engineer	Per hr	\$	139.52
Graduate Engineer	Per hr	\$	104.34
Senior Engineering Technician	Per hr	\$	90.99
Engineering Technician (Asphalt, Concrete, Soils, etc.)	Per hr	\$	72.80
Clerical	Per hr	\$	58.23