

WORK AUTHORIZATION NO. 1

PROJECT: On Call Materials Testing & Geotechnical Engineering Services

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated April 23, 2020 and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and PaveTex Engineering, LLC (the "Engineer").

Part 1. The Engineer will provide the following Engineering Services set forth in Attachment "B" of this Work Authorization.

Part 2. The maximum amount payable for services under this Work Authorization without modification is \$30,000.00.

Part 3. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the Contract.

Part 4. This Work Authorization shall become effective on the date of final acceptance and full execution of the parties hereto and shall terminate on June 30, 2023. The Engineering Services set forth in Attachment "B" of this Work Authorization shall be fully completed on or before said date unless extended by a Supplemental Work Authorization.

Part 5. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

Part 6. County believes it has sufficient funds currently available and authorized for expenditure to finance the costs of this Work Authorization. Engineer understands and agrees that County's payment of amounts under this Work Authorization is contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to continue to make payments under this Contract. It is further understood and agreed by Engineer that County shall have the right to terminate this Contract at the end of any County fiscal year if the governing body of County does not appropriate sufficient funds as determined by County's budget for the fiscal year in question. County may effect such termination by giving written notice of termination to Engineer.

Part 7. This Work Authorization is hereby accepted and acknowledged below.

EXECUTED this 2nd day of June, 2020.

ENGINEER:

PaveTex Engineering, LLC

By: [Signature]
Signature

Maghsoud Tahmouressi
Printed Name

President
Title

COUNTY:

Williamson County, Texas

By: [Signature]
Signature

Bill Gravell, Jr.
Printed Name

Williamson County Judge
Title

Attachment A - Services to be Provided by County

Williamson County will provide a Project Manager and will provide timely reviews and decisions necessary to enable the Engineer to maintain an agreed upon project schedule.

Attachment B – Services to be Provided by Engineer

- Perform Quality Assurance (QA) and Quality Control (QC) Construction materials sampling and testing as requested, including both laboratory and field testing of soils, base, concrete and hot mix materials, using ASTM or TxDOT testing methods.
- Perform geotechnical investigations and forensic investigations including boring, pavement cores, non-destructive testing and other geotechnical testing as directed.
- Collect samples, perform laboratory testing, interpret field data, and prepare Geotechnical Reports.
- Provide recommendations and prepare written reports for pavement design, foundation design, slope stability, and other geotechnical issues.

Attachment C - Work Schedule

Work shall begin immediately upon receipt of executed agreement between County and Engineer.

Attachment D – Fee Schedule

Please see next pages.

**Exhibit D
Rate Schedule**

Williamson County 2020 Price List

Field Technician	Unit	Unit Cost	
		Reg.	OT
1A TXAPA	hr.	\$70	\$83
1B TXAPA	hr.	\$70	\$83
Soils TXAPA SB102	hr.	\$70	\$83
Concrete	hr.	\$70	\$83
Nuclear Gauge Calibration	hr.	\$80	
Concrete Plant/ Truck Inspection	hr.	\$80	
Asphalt Distributor Calibration	hr.	\$80	
Senior Professional Engineer	hr.	\$207	
Professional Engineer	hr.	\$154	
EIT	hr.	\$90	
Project Manager	hr.	\$104	
Administrative Assistant	hr.	\$48	

Field Testing Equipment (2 Hr Min, Tech Time Not Included)	Unit	Unit Cost
HMAC Coring		
Coring Equipment Mobilization	trip	\$80
0"-6" Depth & 6" ϕ (incl. Patching & Sample Prep)	ea.	\$101
> 6"-10" Depth & 6" ϕ (incl. Patching & Sample Prep)	ea.	\$117
> 10"-14" Depth & 6" ϕ (incl. Patching & Sample Prep)	ea.	\$159
> 14" Depth & 6" ϕ (incl. Patching & Sample Prep)	ea.	\$4.25/ in. over 14"
Concrete Coring		
Mileage- State Allowable Rate (Portal to Portal)	mile	Current IRS Rate
Concrete Coring Equipment	hr.	\$58.00
Concrete Core Bit Charges		
3" Diameter Core	in.	\$6
4" Diameter Core	in.	\$7
6" Diameter Core	in.	\$9
Geotechnical Drilling/Sampling		
Mileage- State Allowable Rate (Portal to Portal)	mile	Current IRS Rate
PaveTex Geotechnical Rig	hr.	\$85
HQ Sample Boxes	ea.	\$15
Full Geotechnical Drilling to extended depths with	Quote	Cost
Pavement Evaluation		
High Speed Profile (Mobilization)	ea.	\$150
High Speed Profile portal to portal and testing (4 hr. min.)	hr.	\$150

Soils & Aggregates (100-E Series)			
Test For	Test Method	Unit	Unit Cost
Sample Preparation	Tex-101-E	ea.	\$53
Moisture Content	Tex-103-E	ea.	\$27
Atterberg Limits	Tex-104-E, 105-E & 106-E	ea.	\$87
Linear Bar Shrinkage	Tex-107-E	ea.	\$75
Specific Gravity of Soils	Tex-108-E	ea.	\$90
Sieve Analysis	Tex-110-E, Pt. 1	ea.	\$75
Sieve Analysis	Tex-110-E, Pt. 2	ea.	\$90
Determining the amount of material in soils finer the	Tex-111-E	ea.	\$45
Moisture- Density Relationship	Tex-113-E, ASTM D1557	ea.	\$371
Moisture- Density Relationship	Tex-114-E, ASTM D698	ea.	\$265
Wet Ball Mill	Tex-116-E	ea.	\$265
Texas Triaxial Compression	Tex-117-E, Pt. 1	ea.	\$1,825
Full Triaxial Testing *	* See Note	ea.	\$2,100
Soil- Cement Testing	Tex-120-E, Pt. 1	ea.	\$1,166
Soil- Cement Testing	Tex-120-E, Pt. 2	ea.	\$318

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Soils & Aggregates (100-E Series) - cont.			
Test For	Test Method	Unit	Unit Cost
Soil- Lime Testing	Tex-121-E, Pt. 1	ea.	\$1,166
Soil- Lime Testing	Tex-121-E, Pt. 2	ea.	\$318
Lime-Fly Ash Compression	Tex-127-E	ea.	\$1,166
Soil pH	Tex-128-E	ea.	\$53
Resistivity	Tex-129-E	ea.	\$318
Measuring Thickness of Pavement Layer	Tex-140-E	ea.	\$53
Laboratory Classification of Soils for Engineering	Tex-142-E	ea.	\$10
Tube Suction Test	Tex-144-E	ea.	\$106
Sulfate Content	Tex-145-E	ea.	\$239
Conductivity of Soils	Tex-146-E	ea.	\$27
Soil Organic Content Using UV-Vis Method	Tex-148-E	ea.	\$318
Hydrometer Analysis	AASHTO T 88	ea.	\$477
California Bearing Ratio	AASHTO T 193/ ASTM C 1883	ea. point	\$318
Dynamic Cone Penetrometer in Shallow Pavement	ASTM D6951	ea.	\$85

* Full Triaxial Testing includes the following: Washed Gradation, Atterberg Limits, Moisture- Density Relationship,
Wet Ball Mill & Texas Triaxial

Bituminous (200-F Series)			
Test For	Test Method	Unit	Unit Cost
Dry Sieve Analysis	Tex-200-F, Part I	ea.	\$50
Washed Sieve Analysis	Tex-200-F, Part II	ea.	\$85
Bulk Specific Gravity & % Absorption	Tex-201-F	ea.	\$85
Apparent Specific Gravity	Tex-202-F	ea.	\$85
Sand Equivalent	Tex-203-F	ea.	\$85
Mix Design	Tex-204-F	ea.	\$2,500
Mixing	Tex-205-F	set of 3	\$75
Molding (TGC)	Tex-206-F	set of 3	\$60
Laboratory-Molded Density	Tex-207-F, Part I	set of 3	\$40
In-Place Density (Core Testing)	Tex-207-F, Part I	ea.	\$25
In-Place Density (Nuclear Method)	Tex-207-F, Part III (Min. of 3)	ea.	\$30
In-Place Air Voids (Core Lock)	Tex-207-F, Part VI	set of 2	\$75
Hveem Stability	Tex-208-F	set of 3	\$120
Asphalt Content by Extraction & Gradation	Tex-210-F	ea.	\$175
Asphalt Recovery from Abson Process	Tex-211-F	ea.	\$250
Moisture Content	Tex-212-F	ea.	\$25
Hydrocarbon Volatile Content	Tex-213-F	ea.	\$100
Deleterious Material	Tex-217-F	ea.	\$50
Decantation	Tex-217-F, Part II	ea.	\$100
Flakiness Index	Tex-224-F	ea.	\$100
Indirect Tensile Strength	Tex-226-F	ea.	\$50
Theoretical Maximum Specific Gravity	Tex-227-F	ea.	\$77
Drain-down Test	Tex-235-F	ea.	\$75
Asphalt Content by Ignition Oven & Gradation	Tex-236-F	ea.	\$175
Ignition Oven Correction Factors	Tex-236-F	ea.	\$500
Compacting Specimens Using the Superpave Gyratory	Tex-241-F	set of 2	\$70
Hamburg Wheel-Tracking Test	Tex-242-F	ea.	\$500
Cantabro Loss	Tex-245-F	ea.	\$200
Overlay Test	Tex-248-F	ea.	\$750
Flat and Elongated Particles	Tex-280-F	ea.	\$100

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Concrete (400-A Series)			
Test For	Test Method	Unit	Unit Cost
Sieve Analysis of Fine and Coarse Aggregate & Fineness Modulus	Tex-401-A & Tex-402-A	ea.	\$85
Saturated Surface-Dry Specific Gravity & Absorption of	Tex-403-A	ea.	\$85
Unit Weight	Tex-404-A	ea.	\$85
Material Finer than 75 Micrometer (No. 200) Sieve in Mineral Aggregates (Decantation)	Tex-406-A	ea.	\$100
Acid Insoluble Residue for Concrete Aggregate	Tex-406-A, Part III	ea.	\$350
Organic Matter Content	ASTM D 5268	ea.	\$100
Organic Impurities in Fine Aggregate for Concrete	Tex-408-A	ea.	\$100
Los Angeles Abrasion	Tex-410-A	ea.	\$300
Magnesium or Sodium Sulfate Soundness	Tex-411-A	ea.	\$300
Concrete Cylinder Compressive Strength	Tex-418-A	ea.	\$24
Concrete Flexural Beam Compressive Strength	Tex-419-A	ea.	\$24
Pressure Slake	Tex-431-A	ea.	\$250
Freezer Thaw	Tex-432-A	ea.	\$250
24 Hr Water Absorption	Tex-433-A	ea.	\$85
Polish Test for Coarse Aggregate	AASHTO T 278 & 279/ Tex-438-A	ea.	\$1,200
Flexural Strength of Concrete Using Simple Beam Third Point Loading	Tex-448A	ea.	\$35
Coarse Aggregate Angularity (Crushed Faces)	Tex-460-A	ea.	\$30
Micro-Deval Abrasion	Tex-461-A	ea.	\$300
Moisture Susceptibility	Tex-530-C	ea.	\$50
Alkali-Silica Reactivity (ASR)	AASHTO T 303 (ASTM C 1260) ASTM C1567	ea.	\$1,200

Asphalt (500-C Series)			
Test For	Test Method	Unit	Unit Cost
Boil Test	Tex-530-C	ea.	\$50.00
Rubber Property—Resilience by Vertical Rebound	ASTM D 2632	ea.	\$50.00
Settlement and Storage Stability of Emulsified Asphalts	AASHTO T 59 (ASTM D 6930)	ea.	\$75.00
Specific Gravity of Emulsified Asphalt	ASTM D 244	ea.	\$55.00
Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel	AASHTO R28	ea.	\$180.00
Solubility of Bituminous Materials	Tex-507-C/AASHTO T44	ea.	\$180.00
Flash and Fire Points by Cleveland Open Cup	Tex-504-C/AASHTO T48	ea.	\$110.00
Penetration of Bituminous Materials	Tex-502-C/AASHTO T49	ea.	\$110.00
Float Test for Bituminous Materials	Tex-519-C/AASHTO T50	ea.	\$110.00
Ductility of Asphalt Materials	Tex-503-C/AASHTO T51	ea.	\$120.00
Softening Point of Bitumen (Ring and Ball Apparatus)	Tex-505-C/AASHTO T53	ea.	\$120.00
Distillation of Cutback Asphalt Products	Tex-515-C/AASHTO T78	ea.	\$200.00
Effect of Heat and Air on Asphalt Materials (Thin-Film Oven Test)	Tex-510-C/AASHTO T179	ea.	\$100.00
Kinematic Viscosity of Asphalts (Bitumens)	Tex-529-C/AASHTO T201	ea.	\$120.00
Viscosity of Asphalts by Vacuum Capillary Viscometer	Tex-528-C/AASHTO T202	ea.	\$125.00
Specific Gravity	Tex-508-C/AASHTO T228	ea.	\$120.00
Rolling Thin-Film Oven Testing	AASHTO T240	ea.	\$100.00
Specific Gravity of Liquid Asphalts by Hydrometer	AASHTO T295	ea.	\$120.00
Elastic Recovery Test of Bituminous Materials by Means of a Ductilometer	Tex-539-C/AASHTO T301	ea.	\$120.00
Determining the Flexural Creep Stiffness of Asphalt Binder Using the Bending Beam Rheometer (BBR)	AASHTO T313	ea.	\$160.00
Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)	AASHTO T315	ea.	\$140.00

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Asphalt (500-C Series) - cont.			
Test For	Test Method	Unit	Unit Cost
Viscosity Determination of Asphalt Binder Using Rotational Viscometer	AASHTO T316	ea.	\$105.00
Multiple Stress Creep and Recovery (MSCR) at 64° C, 25mm plate, 1mm gap	AASHTO T350	ea.	\$50.00
Cement Mixing	AASHTO T59	ea.	\$105.00
Demulsibility	AASHTO T59	ea.	\$120.00
Density	AASHTO T59	ea.	\$120.00
Particle Charge	AASHTO T59	ea.	\$105.00
Residue by Distillation	AASHTO T59	ea.	\$250.00
Residue by Evaporation	AASHTO T59	ea.	\$105.00
Saybolt Viscosity at 50° C (122°F)	AASHTO T59	ea.	\$130.00
Sieve Test	AASHTO T59	ea.	\$105.00
Spot Test of Asphaltic Materials	Tex-509-C/AASHTO T102	ea.	\$105.00
Water in Petroleum Products and Bituminous Materials by Distillation	ASTM D95	ea.	\$95.00
Polymer Separation, 48 hr.	Tex-540-C	ea.	\$105.00
Asphalt Binder Water in Petroleum	Tex-501-C/AASHTO T55	ea.	\$65.00
Flash Point with Tag Open-Cup Apparatus for Use with Material Having a Flash Point Less Than 93°C (200°F)	Tex-512-C/AASHTO T79	ea.	\$100.00
Saybolt Viscosity	Tex-513-C/AASHTO T72	ea.	\$95.00

