

WORK AUTHORIZATION NO. 2

PROJECT: On Call Geotechnical Engineering and Material Testing

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated **January 10, 2017** and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and **Rodriguez Engineering Laboratories, 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 **\$50,000.**

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 **September 30, 2017**. 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 1st day of August, 2017.

ENGINEER:

Rodriguez Engineering Laboratories, LLC

By: Gerald L. O'Connor
Signature

Donald L. O'Connor
Printed Name

Senior Materials Engineer
Title

COUNTY:

Williamson County, Texas

By: [Signature]
Signature

DAN A. CATTI
Printed Name

County Judge
Title

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

Attachment A - Services to be Provided by County

Williamson County Road & Bridge Division personnel will provide project direction, review and oversight.

Attachment B - Services to be Provided by Engineer

The following scope of services will be provided as requested by Williamson County (County) or the County's representative. The Engineer, Rodriguez Engineering Laboratories, LLC (REL) understands that the County has particular project requirements; therefore, scope of services and qualified staff is assigned to meet the needs defined in those specifications.

Construction Materials Sampling and Testing

REL understands the importance of QC/QA testing of the construction process so that our clients obtain a quality-constructed project that both satisfies the project plans and the specifications. REL will provide construction materials sampling and testing services for the County on an as-needed basis for the Geotechnical Engineering and Materials Testing Projects; including both laboratory and field testing of soils, base, concrete, and hot-mix materials, using ASTM or TxDOT testing methods. The testing frequency will be based on the current TxDOT Guide Schedule of Sampling and Testing or as directed by the County. The testing services are including but not are limited to the following:

Geotechnical Investigation:

- Perform geotechnical investigation as requested by the County including borings, pavement cores, non-destructive testing, etc.
- Collect samples, perform laboratory testing, interpret field data, and prepare reports of substrate properties.
- Provide recommendations and prepare written geotechnical reports for pavement design, bridge foundation, select fill, etc.

Soils Testing:

- Perform soils testing as required by project specifications or as requested by the County for liquid limit, plasticity index, gradation, moisture/density relations, Texas triaxial, wet ball mill, bar linear shrinkage, soil -lime compression, CTB testing, resistivity of soils, organic content, soil pH, pH/lime series, PI/lime series, deleterious materials, sulfate content of soils, in-place density, thickness determination, pulverization gradation, etc.

Hot Mix Asphaltic Concrete Testing:

- Perform asphaltic mixture testing as required by project specifications or as requested by the County for voids in mineral aggregates, lab molded density, maximum theoretical specific gravity, gradation, asphalt content, boil test, indirect tensile strength, moisture content, draindown test, hamburg wheel-tracking test, overlay test, thickness, in-place air voids, etc.
- Test HMA pavement as required by project specifications or as requested by the County during installation for segregation profile, joint density, thermal profile, ride quality test, etc.
- Test HMA aggregate as required by project specifications or as requested by the County for L.A. abrasion, magnesium sulfate soundness, SAC, micro-deval, sand equivalent, etc. Hveem stability will be tested if needed.
- Review mix design of HMA as requested.

Microsurfacing Mixture Testing:

- Test microsurfacing aggregate as required by project specifications or as requested by the County for magnesium sulfate soundness, gradation, crushed face count, acid insoluble, SAC, and sand equivalent.
- Obtain a minimum of one binder and tack-coat sample per project/source if not pre-approved by CST/M&P before use.

Seal Coat Testing:

- Perform seal-coat aggregate testing as required by project specifications or as requested by the County for gradation, LA abrasion, magnesium sulfate soundness, SAC, pressure slake, freeze thaw, unit weight, absorption, angularity, deleterious material, decantation, flakiness index, etc.

Portland Cement Concrete Testing:

- Perform PCC testing as required by project specifications or as requested by the County for compressive strength, slump, air content, temperature test, etc.
- Perform concrete aggregate testing as required by project specifications or requested by the County for gradation, decantation, deleterious materials, L.A. abrasion, magnesium sulfate soundness, sand equivalent, organic impurities, fineness modulus, acid insoluble residue, etc.
- Review mix design of concrete as requested.

Attachment C - Work Schedule

Rodriguez Engineering Laboratories, LLC will provide geotechnical engineering and construction materials testing services for Williamson County Road & Bridge Division (County). These services will be provided as requested by the County or County's representative on an as-needed basis for the Geotechnical Engineering and Materials Testing projects.

Attachment D - Fee Schedule

See attached

EXHIBIT D

RATE SCHEDULE

| Rodriguez Engineering Laboratories, LLC | Unit | Fees |
|---|------------|------------|
| 1. Field Technician (2 hr. minimum) | | |
| 1.1 Soil Technician | Per hr | \$55.00 |
| 1.2 Concrete Technician TxDOT or ACI Grade I | Per hr | \$55.00 |
| 1.3 Asphalt Technician | | |
| 1.3.1 TxDOT Certified Technician (Level IA & IB) | Per hr | \$55.00 |
| 1.3.2 TxDOT Certified Technician (Level II) | Per hr | \$75.00 |
| 1.4 Senior Field Inspector | Per hr | \$75.00 |
| 1.5 Structural Steel Technician | | |
| 1.5.1 CWI | Per hr | \$90.00 |
| 1.5.2 NDT Level II | Per hr | \$90.00 |
| 1.6. Bolting Inspection | Per hr | \$90.00 |
| 1.7 NICET Level III | Per hr | \$90.00 |
| 2. Field Testing Equipment (2 hr. minimum, technician time not included) | | |
| 2.1 Vehicle | | |
| 2.1.1 Vehicle (Within 50 miles from our office) | Per day | \$50.00 |
| 2.1.2 Vehicle (More than 50 miles from our office) | Per mile | IRS Rate |
| 2.2 Dye Penetrant -- Magnetic Particle Supplies | | At Cost |
| 2.3 Ultrasonic Testing Equipment | Per hr | \$23.00 |
| 2.4 Concrete Coring Equipment | Per hr | \$39.00 |
| 2.4.1 Concrete Core Bit Charges | | |
| 2.4.1.1 3 inch diameter core | Per inch | \$4.50 |
| 2.4.1.2 4 inch diameter core | Per inch | \$5.50 |
| 2.4.1.3 6 inch diameter core | Per inch | \$7.70 |
| 2.5 Heavy Falling Weight Deflectometer (20 Test-points minimum, Technician time not included) | Test Point | \$20.00 |
| 2.6 Profilograph Testing (Technician time not included) | Day | \$400.00 |
| 3. Testing of Soils and Base Materials | | |
| 3.1 Bulk Sample Pick-Up | | |
| 3.1.1 Inside the City of Austin ETJ (2 hrs or less tech time) | Per Trip | \$110.00 |
| 3.1.2 Outside the City of Austin ETJ (2 hrs Minimum) | Per hr | \$55.00 |
| 3.2 Field Nuclear Density (Without Technician Time (3 Minimum)) | Per ea | \$39.00 |
| 3.3 Sample Preparation (TEX-101-E) | Per ea | \$68.00 |
| 3.4 Natural Moisture Content (TEX-103-E) | Per ea | \$20.00 |
| 3.5 Sieve Analysis (TEX-110-E) | Per ea | \$71.00 |
| 3.6 Atterberg Limits (Liquid and Plastic Limits) (TEX-104-E, TEX-105-E, TEX-106-E) | Per ea | \$71.00 |
| 3.7 Percent Passing No. 200 Sieve (TEX-111-E) | Per ea | \$48.00 |
| 3.8 Bar Linear Shrinkage of Soils (TEX-107-E) | Per ea | \$60.00 |
| 3.9 Moisture Density Relationship (ASTM D 698) Standard Proctor Compaction Test) | Per ea | \$253.00 |
| 3.10 Moisture Density Relationship (ASTM D 1557) (Modified Proctor Compaction Test) | Per ea | \$253.00 |
| 3.11 Moisture Density Relationship (TEX-113-E) Compaction Test | Per ea | \$253.00 |
| 3.12 Moisture Density Relationship (TEX-114-E, Part I) Compaction Test | Per ea | \$253.00 |
| 3.13 Moisture Density Relationship (TEX-114-E, Part II) Compaction Test | Per ea | \$280.00 |
| 3.14 Texas Triaxial Compression Test on Base Material TEX- 117E, Part II; including the | | |
| 3.15 Molding, Curing and Testing 8 Specimens | Per ea | \$1,265.00 |
| 3.3 Sample Preparation (TEX-101-E) | Per ea | \$55.00 |
| 3.5 Sieve Analysis (TEX-110-E) | Per ea | \$71.00 |
| 3.6 Atterberg Limits (TEX-104-E, TEX-105-E, TEX-106-E) | Per ea | \$71.00 |
| 3.8 Bar Linear Shrinkage of Soils (TEX-107-E) | Per ea | \$60.00 |
| 3.11 Moisture Density Relationship (TEX-113-E) Compaction Test | Per ea | \$253.00 |
| 3.16 Wet Ball Mill (TEX-116-E) | Per ea | \$220.00 |

EXHIBIT D

RATE SCHEDULE

| Rodriguez Engineering Laboratories, LLC | Unit | Fees |
|--|-----------|----------|
| 3.17 Permeability/Conductivity of Silt or Clay (ASTM D 5084) | Per ea | \$425.00 |
| 3.18 Sample Remolding | Per ea | \$58.00 |
| 3.19 Soil Specific Gravity (TEX-108-E) | Per ea | \$68.00 |
| 3.20 Soil Lime Compression Test (TEX-121-E), per specimen | Per ea | \$74.00 |
| 3.21 Resistivity of Soils (TEX-129-E) | Per ea | \$99.00 |
| 3.22 Lime Series Curve (ASTM D 4318) | Per point | \$99.00 |
| 3.23 Stabilization Ability of Lime by Soil pH (TEX-121-E Part III) up to 6 Points | Per Each | \$270.00 |
| 3.24 Field Gradation of Lime Soil (1.75, 0.75, No 4 Sieve), in addition to technician time | Per Point | \$20.00 |
| 3.25 Soluble Sulfate Content (TEX-145-E) | Per ea | \$95.00 |
| 3.26 pH of Soils (TEX-128-E) | Per ea | \$65.00 |
| 3.27 Hydrometer Analysis (ASTM D 422) (Without mechanical sieve analysis) | Per ea | \$104.00 |
| 3.28 Thickness Determination (Tex-140-E), in addition to technician time | Per ea | \$18.00 |
| 4. Testing of Concrete and Aggregates | | |
| 4.1 Sample Pick-Up | | |
| 4.1.1 Inside the City of Austin ETJ (2 hrs or less tech time) | Per Trip | \$110.00 |
| 4.1.2 Outside the City of Austin ETJ (2 hrs Minimum) | Per hr | \$55.00 |
| 4.2 Aggregate Gradation (TEX-401-A) | Per ea | \$71.00 |
| 4.3 Specific Gravity of Aggregate | Per ea | \$55.00 |
| 4.4 Absorption of Aggregate | Per ea | \$36.00 |
| 4.5 Unit Weight of Aggregate | Per ea | \$36.00 |
| 4.6 Abrasion Test (TEX-410-A) | Per ea | \$242.00 |
| 4.7 Decantation (TEX-406-E) | Per ea | \$33.00 |
| 4.8 Organic Impurities, Tex-408-A | Per ea | \$50.00 |
| 4.9 Soundness, Sodium or Magnesium, 5 cycles (Tex-411-A) | Per ea | \$355.00 |
| 4.10 Concrete Cylinder Compressive Strength (TEX-418-A) | Per ea | \$25.50 |
| 4.11 Beam Flexural Strength (TEX-420-A or TEX 448-A) | Per ea | \$38.50 |
| 4.12 Coarse Aggregate Angularity | Per ea | \$74.00 |
| 4.13 Fine Aggregate Angularity | Per ea | \$74.00 |
| 4.14 Flat, Elongated Particles | Per ea | \$74.00 |
| 4.15 Deleterious Materials (Clay Lumps/Friable Part I) | Per ea | \$66.00 |
| 4.16 Crushed Face Count | Per ea | \$75.00 |
| 4.17 Sand Equivalent (Clay Content), Tex-203-F | Per ea | \$86.00 |
| 5. Testing of HMA and Liquid Asphalt | | |
| 5.1 Bag Sample Pick-up From Source, Project, or Field Office | | |
| 5.1.1 Inside the City of Austin ETJ (2 hrs or less tech time) | Per Trip | \$110.00 |
| 5.1.2 Outside the City of Austin ETJ (2 hrs Minimum) | Per hr | \$55.00 |
| 5.2 Obtaining Field-cut Specimens | | |
| 5.2.1 0" to 6" Depth & 6" Ø, including patching & sample Preparation, 3 minimum) | Per ea | \$93.50 |
| 5.2.2 > 6" to 10" Depth & 6" Ø, including patching & sample Preparation, 3 minimum) | Per ea | \$104.50 |
| 5.2.3 > 10" to 14" Depth & 6" Ø, including patching & sample Preparation, 3 minimum) | Per ea | \$137.50 |
| 5.2.4 > 14" Depth & 6" Ø, including patching & sample Preparation, 3 minimum) | | \$137.50 |
| plus \$5 per inch beyond 14" | | \$5.50 |
| 5.3 Specimen Molding by TGC, Tex-206-F (3 per set) | Per ea | \$60.00 |
| 5.4 Specimen Molding by SGC, Tex-241-F (3 per set) | Per ea | \$85.00 |
| 5.5 Bulk Density of Compacted Specimens, Tex-207-F, Part I (3 per set) | Per ea | \$60.00 |
| 5.6 Hveem Stability, Tex-208-F (3 per set) | Per ea | \$60.00 |
| 5.7 Asphalt Content by Extraction, Tex-210-F | Per ea | \$161.00 |
| 5.8 Asphalt Content by Ignition Oven, Tex-236-F | Per ea | \$161.00 |
| 5.9 Gradation of Aggregate from Extraction or Ignition, Tex-200-F | Per ea | \$71.00 |

EXHIBIT D
RATE SCHEDULE

| Rodríguez Engineering Laboratories, LLC | Unit | Fees |
|---|----------|----------|
| 5.10 Maximum Theoretical Specific Gravity, Rice Method (TEX-227-F) | | |
| 5.10.1 Bag Sample, Rice | Per ea | \$50.00 |
| 5.10.2 Core Sample, Rice | Per ea | \$60.00 |
| 5.11 Bulk Density of Core Specimens (Tex-207-F, Part I) | Per ea | \$24.00 |
| 5.12 Bulk Density of Core Specimens (Vacuum Method) (Tex-207-F, Part I & VI) | Per ea | \$60.00 |
| 5.13 Sand Equivalent, Tex-203-F | Per ea | \$86.00 |
| 5.14 Micro Deval Abrasion (Tex-461-A) | Per ea | \$220.00 |
| 5.15 Indirect Tensile Strength, Tex-226-F (Molding Not Included) | Per ea | \$65.00 |
| 5.16 Residue by Evaporation | Per ea | \$135.00 |
| 5.17 Boiling Stripping Test (Tex-530-C) | Per ea | \$100.00 |
| 5.18 Hamburg Wheel Tracker (Tex-242-F) | Per ea | \$500.00 |
| 5.19 Hamburg Wheel Tracker (Tex-242-F) (Molded by Client) | Per ea | \$350.00 |
| 5.20 Cantabro Loss (Tex-245-F) (Molding Not Included) | Per ea | \$100.00 |
| 5.21 Absorption Recovery, Tex-211-F (Extraction Not Included) | Per ea | \$214.00 |
| 5.22 Storage Stability (24 Hrs) | Per ea | \$100.00 |
| 5.23 Density of Emulsified Asphalt (ASTM D6937) | Per ea | \$65.00 |
| 5.24 Demulsibility (Anionic or Cationic Emulsions) | Per ea | \$65.00 |
| 5.25 Viscosity (Brookfield or Saybolt) | Per ea | \$55.00 |
| 5.26 Penetration | Per ea | \$57.00 |
| 5.27 Ductility | Per ea | \$91.00 |
| 5.28 Float Test | Per ea | \$75.00 |
| 5.29 Elastic Recovery | Per ea | \$75.00 |
| 5.30 Cement Mix | Per ea | \$65.00 |
| 5.31 Softening Point (Ring and Ball) | Per ea | \$91.00 |
| 5.32 Absolute Viscosity (Cutback Asphalt or Coal Tars) | Per ea | \$57.00 |
| 5.33 Residue by Distillation (Cutback or Emulsified Asphalts) | Per ea | \$135.00 |
| 5.34 Breaking Index (Asphalt Emulsions) | Per ea | \$85.00 |
| 5.35 Sieve Test | Per ea | \$40.00 |
| 6. Geotechnical Services | | |
| 6.1 Mobilization/Demobilization (Within 50 miles from our office), 2-Man Crew with Rig | Per ea | \$250.00 |
| 6.2 Mobilization/Demobilization, 2-Man Crew with Rig (More than 50 miles from our office) | Per mile | \$3.20 |
| 6.3 Vehicle (Water Truck, Pick-Up, etc.) | | |
| 6.3.1 Vehicle (Within 50 miles from our office) | Per day | \$50.00 |
| 6.3.2 Vehicle (More than 50 miles from our office) | Per mile | IRS Rate |
| 6.4 Technician (Drilling Support) | | |
| 6.4.1 Helper, Engineering Technician (Mobilization/Demobilization) | Per hr | \$55.00 |
| 6.4.2 Logger, Senior Engineering Technician (Portal to Portal) | Per hr | \$75.00 |
| 6.5 Drilling | | |
| 6.5.1 Auger or Wash Borings, Soil (Add \$3.00/LF for drilling deeper than 50 ft) | Per LF | \$15.00 |
| 6.5.2 Auger or Coring, Soft Rock | Per LF | \$20.00 |
| 6.5.3 Rock Coring | Per LF | \$22.50 |
| 6.6 Grout/Bentonite Backfill | Per LF | \$4.50 |
| 6.7 Undisturbed Shelby Tube Sample | Per ea | \$25.00 |
| 6.8 Standard Penetration Test | Per ea | \$45.00 |
| 6.9 Texas Cone Penetration Test | Per ea | \$45.00 |
| 6.10 Dynamic Cone Penetrometer (Without Technician time) | Per ea | \$125.00 |
| 6.11 Unconsolidated/Consolidated Undrained Triaxial (Multiple Stage) | Per ea | \$515.00 |
| 6.12 Consolidated Drained Triaxial (Multiple Stage) | Per ea | \$750.00 |
| 6.13 Organic Content Determination | Per ea | \$95.00 |

EXHIBIT D

RATE SCHEDULE

| Rodriguez Engineering Laboratories, LLC | Unit | Fees |
|--|---------|----------|
| 6.14 Consolidation Test | Per ea | \$525.00 |
| 6.15 California Bearing Ratio (CBR) Test | Per ea | \$485.00 |
| 6.16 Dry Unit Weight Test | Per ea | \$35.00 |
| 6.17 Unconfined Compressive Strength Test | Per ea | \$55.00 |
| 6.18 Traffic Control (Safety Cones and Signs) | Per day | \$250.00 |
| 6.19 Traffic Control (Single Moving Lane Closure) | Per day | \$880.00 |
| 6.20 Flagging Services (Incl. Equipment, Set-up, Two-man Crew) | Per day | \$980.00 |
| 6.21 Patching Bores/Cores | Per ea | \$25.00 |
| 6.22 Bulk Sample (Triaxial, Proctor, etc) | Per hr | \$55.00 |
| 6.23 Cut & Excavate Test Pit on Pavement, Approx. 18"x18", Inc. Sampling | Per ea | \$200.00 |
| 6.24 Standby Time (Drill Rig and Crew) | Per hr | \$195.00 |
| 7. Engineering Consultation | | |
| 7.1 Principal | Per hr | \$145.00 |
| 7.2 Senior Project Manager | Per hr | \$130.00 |
| 7.3 Project Manager | Per hr | \$115.00 |
| 7.4 Project Engineer | Per hr | \$115.00 |
| 7.5 Senior Geologist | Per hr | \$108.00 |
| 7.6 Laboratory Manager | Per hr | \$108.00 |
| 7.7 Graduate Engineer | Per hr | \$85.00 |
| 7.8 Senior Engineering Technician | Per hr | \$75.00 |
| 7.9 Secretary/Clerical | Per hr | \$48.00 |
| 8. Outside Services (Reimbursables) | | At Cost |
| 9. Subconsultants | | At Cost |

- Ø Minimum call-out charge for technician and equipment is 2 hours. Charges are accrued portal to portal.
- Ø The densities test unit rate is based on a minimum of 3 tests per trip.
- Ø Transportation charges are applicable for all field testing assignments including sample pick up.
but, if the technician is already at the job site, there is no sample pick up charges.
- Ø Subconsultants' fees shall be approved previous to work beginning.