

**PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT # 1
FOR
GRAND AVENUE PARKWAY PAVEMENT DISTRESS EVALUATION**

**STATE OF TEXAS §
 §
COUNTY OF TRAVIS §**

This Supplemental Agreement No. 1 to a contract for Professional Services is made by and between the City of Pflugerville, Texas ("City") and Raba Kistner Consultant, Inc. ("Consultant"). City and Consultant may be referred to herein singularly as "Party" or collectively as the "Parties."

WHEREAS, the City and Consultant executed an Agreement for Professional Services ("Agreement") on the 14th day of March, 2019 for the Grand Avenue Parkway Pavement Distress Evaluation ("Project") in the amount of \$13,735.00

WHEREAS, the City and Consultant desire to enter into a Supplemental Agreement # 1 for Professional Services for the Project in the amount of \$45,465.00 to complete Phase II of the Scope of Services indicated in the Consultant's Proposal (Proposal PAA19-009-00, dated February 22, 2019, Revision No. 1); and

WHEREAS, it has become necessary to amend the Agreement to modify the provisions for the Scope of Services, Work Schedule, and Compensation; and

NOW, THEREFORE, premises considered, the City and the Consultant agree that said Agreement is amended as follows:

Article II. Term shall be amended by changing the term of the Agreement to terminate on 10/7/2019, with the ratification and incorporation of the remaining terms of the Agreement.

Article III. Scope of Services (Exhibit 1) shall remain as presented in the original Agreement; however, this Supplemental Agreement authorizes Consultant to execute Phase II

Article III. Work Schedule (Exhibit 1), shall be amended as set forth by modifying the scope of services schedule based on a duration relative to the date of the execution of Supplemental No. 1.

Article IV. Compensation to Consultant (Exhibit 1), shall be amended by increasing by \$45,465.00 the amount payable under the Agreement for a total of \$ 59,200.00, as shown by Exhibit 1.

Except as amended hereby and as previously amended as indicated above, the terms of the Agreement shall remain unchanged and in full force and effect.

EXECUTED and AGREED to as of the dates indicated below.

**CITY OF
PFLUGERVILLE**

CONSULTANT

(Signature)



(Signature)

Printed Name: Sereniah Breland

Printed Name: Gabriel Ornelas, Jr.

Title: City Manager

Title: Senior Vice President

Date: _____

Date: 3/29/2019

APPROVED AS TO FORM:



Charles E. Zech / Scott Osburn

City Attorney

DENTON NAVARRO ROCHA BERNAL & ZECH, P.C.



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Proposal No. PAA19-009-00
February 22, 2019, Revision No. 1

Exhibit 1

Mr. Chad A. Wood, P.E., PTOE
City of Pflugerville – Public Works
15500 Sun Light Near Way, #B
Pflugerville, Texas 78660

**RE: Geotechnical Engineering Study
Grand Avenue Parkway – Pavement Failure Investigation
From Piccadilly to 200 ft South of Vikki Lynn Place
Pflugerville, Texas**

RABA KISTNER Consultants Inc. (RKCI) is pleased to submit this proposal for Geotechnical Engineering Services to the City of Pflugerville (CLIENT) for the referenced project. The broad objectives of our study will be to develop a crack map to document existing distresses, measure pavement layer thickness, identify surface anomalies, perform Falling Weight Deflectometer testing, perform subsurface soil sampling, and perform laboratory testing to assist in determining the cause(s) of the distress conditions occurring on the relatively newly reconstructed roadway. In addition, our scope of work will also include providing repair/reconstruction options of the roadway to restore the long-term performance of the pavements. Described in this proposal are:

- our understanding of currently perceived project characteristics;
- our proposed scope for field and laboratory study;
- our proposed scope for engineering evaluation and reporting;
- our tentative project schedule; and
- our lump sum study fee.

Project Description

Under consideration in this study is to perform a pavement evaluation of the distresses occurring within a 1.2-mile segment of Grand Avenue Parkway that extends from Piccadilly Road to approximately 200 linear ft south of the intersection of Vikki Lynn Street. The subject project is a 4-lane roadway that was reconstructed using a combination of in-place recycling, mill and overlay, and full-depth repair.

We also understand distress in the form of alligator-type cracking begin to occur at random locations shortly after substantial completion. Since then, more areas of this distress have been noted in addition to experiencing rutting. With the abundant rainfall events that the local area has experienced, it has been noted that fines of the underlying cement treated base materials have been noted to surface through the cracks.

Per a discussion with City of Pflugerville staff, the majority of the distress conditions have occurred where the pavement rehabilitation was performed by first milling and hauling off the upper 2 inches of asphalt, then pulverizing the upper portion of the underlying pavement and overlaying with 2 inches of hot mix asphalt. In addition to evaluating the pavement conditions and recommending repair/remediation options, the City has also asked that we provide documentation of the existing conditions.

Field Study

Based on the information provided to us by Mr. Chad Wood, P.E. with the City of Pflugerville, our brief walk-through site visit, and our understanding of the City's objectives, we are proposing the following field study:

- RKCI will subcontract with Dynatest to perform a pavement surface condition assessment using a Dynatest Multi-Functional Vehicle (MFV) on 100 percent of the evaluated roadway. This scope of service will document the pavement roughness, develop distresses and crack maps, and obtain rutting continuous measurements. A permanent digital record of the roadway will be obtained. The equipment is set up with a Pavemetric Crack Measurement System to measure and obtain crack patterns while driving the roadway at a relatively high rate of speed.
- RKCI will subcontract with Dynatest to perform Ground Penetrating Radar (GPR) using a GSSI GPR Unit that is mounted to the MFV. The purpose of the GPR testing is to collect continuous pavement thickness measurements in a non-destructive manner, thereby reducing the number of roadway cores. Additionally, subsurface anomalies can be identified that further assist in evaluating the causes of distress. This data will require correlation with thickness measurements obtained via roadway cores.
- RKCI will subcontract with Dynatest to perform Falling Weight Deflectometer (FWD) Testing. The FWD is crucial in determining in-place layer moduli using back calculation techniques. This will in turn assist in determining the most appropriate options for rehabilitating the roadway and pinpoint the location of weak layers that warrant addressing. In order to perform the most accurate back calculations, the data must be correlated with thickness information collected from a combination of continuous GPR data and/or pavement core data.
- RKCI recommends drilling up to twelve (12) borings. The borings will extend to approximate depths of 10 ft below the existing ground surface utilizing a truck-mounted drilling rig. The number and location of the borings will be further defined following completion of the GPR and FWD Testing.

Samples will be taken using conventional split-spoon, Shelby-tube sampling techniques, and augering techniques. Borings will be located in the field utilizing a recreation grade hand-held GPS device and/or tape and right angle measurements from existing benchmarks. Our scope of service does not include surveying in the boring locations. The borings will be backfilled utilizing similar materials, such as auger cuttings generated during drilling activities, cement treated base materials, cold mix asphalt.

- RKCI may recommend excavating one to two test pits within an area(s) of distress to further evaluate the subsurface conditions and assess the in-place condition of the cement stabilized materials. We are recommending this as an option in the event that further information is required to supplement our assessment. *We have assumed that the City of Pflugerville will provide*

Proposal No. PAA19-009-00
February 22, 2019, Revision No. 1

the labor and equipment necessary to perform this work. We believe that this visual assessment could be performed at the time of an upcoming repair.

Two days of traffic control are planned to perform the subsurface soil evaluation. Additionally, a moving lane closure will be required for one full day of FWD data collection. Per the client's request and recommendation, RKCI will be requesting the City of Pflugerville and Southwest/Windermere public utility companies to verify that the proposed boring locations are not in conflict with underground utilities.

Laboratory Study

Upon completion of the subsurface exploration, a testing program will be designed to define the strength and classification characteristics of the foundation soils and rock stratigraphy. The testing program will include moisture content tests, Atterberg Limits (plasticity tests), sulfate testing, and possibly unconfined compression testing of the cement stabilized road base assuming the material is competent enough to be cored and extracted for laboratory testing. The type and number of tests will be based on subsurface conditions encountered in the field, and our engineering judgment.

Engineering Report

The field and laboratory phases of the study will be reviewed by our staff of engineers. The results of our review, together with the supporting field and laboratory data, will be presented in a written, engineering report. The Engineering Report may include the following information and recommendations, if applicable:

- A summary of the field and laboratory sampling and testing program,
- Boring logs and laboratory testing results;
- General site conditions to include geology, subsurface stratigraphy, groundwater conditions, and the presence of fill material, if encountered.
- Pavement distress and Crack Maps of the existing roadway conditions
- Pavement rutting measurements.
- Continuous measurement of existing pavement layer thickness based on GPR data and pavement cores.
- Results of FWD testing, including back calculated layer moduli.
- Opinions of the probable cause for the relatively premature nature of the pavement distresses
- Pavement rehabilitation recommendations and construction guidelines.

The final report will be produced in a digital PDF and delivered via email.

Tentative Project Schedule

Based on our present workload, we anticipate that we could begin the field exploration phase of this study within five to eight working days of receiving your written authorization. The field exploration and laboratory testing phase of the study is expected to take approximately five to fifteen working days to complete.

Proposal No. PAA19-009-00
February 22, 2019, Revision No. 1

Engineering analyses and preparation of the engineering report is expected to take an additional two to three weeks to complete following completion of our field work. We will be pleased to provide the design team with verbal design information as the data becomes available.

Project Cost

The total lump sum cost for the study scope outlined herein will be **\$59,200.00**. An itemized cost of the task are provided below:

Phase I

- FWD & GPR Testing and Data Reduction - ~~\$13,735.00~~

Phase I Total = \$13,735.00

Phase II

- Distress Data Collection and Data Reduction - **\$10,450.00**
- Field Operations, including Drilling, Sampling, and Traffic Control - **\$11,800.00**
- Laboratory Testing - **\$1,750.00**
- Engineering Site Visits, Evaluation, Coordination, Data Analysis & Report Preparation - **\$21,465.00**

Phase II Total = \$45,465.00

Should unusual soil conditions be encountered in the field that indicates the desirability of significantly broadening the scope of the study, we will contact you to receive authorization before proceeding with any additional work. Additional services will be billed on a unit basis in accordance with our standard fees as indicated on the attached Schedule of Fees for Professional Services.

It is our understanding that the Client will provide access to all boring locations for a conventional, truck-mounted drilling rig and that the Client will provide underground utility clearance. RKCI will assist in locating underground utilities, provided the Client submits documentation of existing utility locations. RKCI will take all precautions to prevent damage to property; however, RKCI cannot be responsible for tire rutting.

It should be noted that our study scope and project cost does include professional time or travel expenses for participation in one team meetings. If additional consultation is warranted beyond this amount, they will be billed at our standard billing rates for professional time plus expenses.

Acceptance

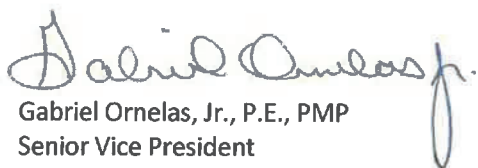
We appreciate the opportunity of submitting this contract and look forward to working with you in the development of this project, which will be carried out in accordance with this proposal and Professional Service Agreement between the City of Pflugerville and RKCI.

Proposal No. PAA19-009-00
February 22, 2019, Revision No. 1

RKCI considers the data and information contained in this proposal to be proprietary. This statement of qualifications and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part of any purpose other than to evaluate this proposal.

Very truly yours,

RABA KISTNER CONSULTANTS, INC.



Gabriel Ornelas, Jr., P.E., PMP
Senior Vice President

GO: tlc

Attachments: Cost Estimate Worksheet

Copies Submitted: Above (1)

ESTIMATE WORKSHEET FOR: Grand Avenue Parkway - Pavement

Notes: _____
 Geologic Formation: Austin Chalk
 Geologic Formation Continued: _____

Prepared by: GO Date: 02/22/2019
 PROPOSAL NO: PAA19-009-00, Revision No. 1

CLIENT:
 Chad A. Wood, P.E., PTOE

Type	Number	Depth	Soil	Rock	Soil	Rock
City of Pflugerville - Public Works						
15500 Sun Light Near Way, #B	Borings	12	10		120	0
Pflugerville, Texas 78660					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
Totals		12	10		120	0

FIELD OPERATIONS	QUANTITY	UNIT PRICE	TOTAL	Percent of Total
Mobilization of Drill Rig (Min Charge)	1 l.s.	\$321.30	\$321.30	
Mobilization of Drill Rig	0 miles	\$4.12	\$0.00	
3" Thin-Wall Sampling in Cohesive Soils or Intermittent Sampling in Granular Soils	120 l.f.	\$16.07	\$1,928.40	
Rock Augering (Hard)	0 l.f.	\$17.78	\$0.00	
Nx Core Drilling - (Soft Rock)	0 l.f.	\$20.09	\$0.00	
Nx Core Drilling - (Hard Rock)	0 l.f.	\$21.80	\$0.00	
Air Rotary	0 l.f.	\$18.36	\$0.00	
Field Penetrations SPT	0 ea.	\$19.51	\$0.00	
THD	0 ea.	\$21.80	\$0.00	
Air Compressor	0 day	\$187.46	\$0.00	
Bentonite Backfill	0 bag	\$13.86	\$0.00	
Driller Standby	0 hrs.	\$187.46	\$0.00	
Driller Cleanup	2 hrs.	\$214.24	\$428.48	
Driller Per Diem (Including Per Diem)	0 m/day	\$182.10	\$0.00	
		10% Markup	\$267.82	5.0%
Drilling Subtotal:			\$2,946.00	

OTHER DIRECT EXPENSES	QUANTITY	UNIT PRICE	TOTAL	Percent of Total
Selective Brush Clearing (Hydro-Axe)	0 day	\$2,678.00	\$0.00	
Selective Brush Clearing (Minor Clearing)	0 day	\$1,821.04	\$0.00	
Traffic Control (Full Day Lane Closure)	2 day	\$1,606.80	\$3,213.60	
Traffic Control (Partial Day Lane Closure)	0 day	\$803.40	\$0.00	
Traffic Control (Flagging)	1 day	\$2,678.00	\$2,678.00	
Street Cut Permit	0 each	\$374.92	\$0.00	
Dyntest FWD & GPR	1 each	\$10,201.00	\$10,201.00	
Dyntest Distress Data Collection	1 each	\$9,487.00	\$9,487.00	
		10% Markup	\$2,557.96	47.5%
Other Direct Expenses Subtotal:			\$30,134.56	

STAKING/LOGGING/COORDINATION	Notes	QUANTITY	UNIT PRICE	TOTAL	Percent of Total
Staking		3 hrs.	\$112.52	\$337.56	
Logging (Geologist)		16 hrs.	\$112.52	\$1,800.32	
Logging (Engineering Tech)		0 hrs.	\$73.14	\$0.00	
Logger Per Diem (Including Hotel)		0 m/days	\$151.90	\$0.00	
Logger Truck (Local)		4 day	\$61.89	\$247.56	
Logger Truck (Mileage)		0 mile	\$0.79	\$0.00	
Supplies (i.e. boxes, tape, flags)		0 ea/boring	\$18.38	\$0.00	
					4%
Logging Subtotal:			\$2,365.44		

LABORATORY TESTS	QUANTITY	UNIT PRICE	TOTAL	Percent of Total
Atterberg Limits	12 ea.	\$100.27	\$1,203.24	
Moisture Content (at 5 ft intervals)	35 ea.	\$9.75	\$341.15	
Minus 200-mesh Sieve	0 ea.	\$55.70	\$0.00	
Unconfined Compression (Soil)	6 ea.	\$30.08	\$180.48	
Unconfined Compression (Rock)	0 ea.	\$41.22	\$0.00	
Hydrometer	0 ea.	\$338.67	\$0.00	
Sieve Analysis	0 ea.	\$88.04	\$0.00	
pH	0 ea.	\$41.22	\$0.00	
Free Swell Test	0 ea.	\$194.96	\$0.00	
Pressure Swell Test	0 ea.	\$1,236.59	\$0.00	
Sulfate Testing	0 ea.	\$100.27	\$0.00	
Corrosivity Test (Chloride, pH, Resistivity)	0 ea.	\$166.40	\$0.00	
Moisture-Density Test Only	0 ea.	\$272.94	\$0.00	
CBR(M-D with 1 Specimen)	0 ea.	\$378.78	\$0.00	
Permeability + Remolding	0 ea.	\$518.03	\$0.00	
				2.9%
Testing Subtotal:			\$1,724.87	

ENGINEERING AND REPORT	QUANTITY	UNIT PRICE	TOTAL	Percent of Total
Geotechnical Engineer (GO) - Site Visit	5 hrs.	\$206.32	\$1,031.60	
Geotechnical Engineer (GO) - Coordinate GPR & FWD	3 hrs.	\$206.32	\$618.96	
Geotechnical Engineer (GO) - Evaluation of GPR & FWD	7 hrs.	\$206.32	\$1,444.24	
Geotechnical Engineer (GO) - Analysis of Data & Report Prep	15 hrs.	\$206.32	\$3,094.80	
Geotechnical Engineer (GO) - Review Final Report	5 hrs.	\$200.81	\$1,004.05	
Geotechnical Engineer (Transtec) - Back Calculate Moduli	25 hrs.	\$200.81	\$5,020.25	
Geotechnical Engineer (YG) - Coordinate Field Study & Prepare Report	20 hrs.	\$137.92	\$2,758.40	
Geotechnical Engineer (Transtec) - Back Calculate Moduli	45 hrs.	\$137.92	\$6,206.40	
Graduate Engineer (RS) - Assign Lab Testing, Report Preparation	16 hrs.	\$114.75	\$1,836.00	
Geologist (DS)	0 hrs.	\$114.75	\$0.00	
Engineering Technician	0 hrs.	\$62.89	\$0.00	
Logdraft - Prepare Boring Logs	2 hrs.	\$71.72	\$143.44	
Drafter - Prepare Graphics	4 hrs.	\$103.71	\$414.84	
Secretary/Word Processor	5 hrs.	\$71.72	\$358.60	
Project Set-up	1 hrs.	\$71.72	\$71.72	
				40.5%
Engineering Subtotal:			\$24,003.30	

TOTAL: \$59,197.16 \$59,200