AMENDMENT NO. 1 TO AGREEMENT FOR PROFESSIONAL SERVICES

This Amendment No. 1 to Contract No. K-2324-155 is between the City of Norman, Oklahoma, a municipal corporation, (hereinafter "OWNER") and Garver, LLC, (hereinafter "CONSULTANT").

WITNESSETH:

WHEREAS, the parties entered into Contract No. K-2324-155 on April 9, 2024, pursuant to which CONSULTANT was to provide professional services, including: Preliminary engineering, design survey, hydraulic and hydrologic analysis, and geotechnical investigation services in connection with the Porter Avenue Bridge Replacement ("Project").

WHEREAS, Contract No. K-2324-155 was for a total amount of ONE MILLION FIVE HUNDRED EIGHT THOUSAND SIX HUNDRED THRITY-EIGHT AND 00/100 DOLLARS (**$1,508,638.00**).

WHEREAS, OWNER requires various additional services from CONSULTANT, necessitating an amendment to Contract No. K-2324-155, which supplements the scope, cost, and project schedule of K-2324-155; and

NOW, THEREFORE, the parties desire to amend Contract K-2324-155 as follows:

I. The Project shall be amended to add and supplement CONSULTANT'S provision of the professional services under the contract to also include those professional services described in the attached "Porter Avenue over Little River Bridge Replacement Amendment No. 1" dated November 13, 2025 (attached hereto as **Attachment A**, hereafter "Amendment 1 Services");

II. The Amendment 1 Services shall be provided at a total additional cost of ONE HUNDRED SIXTY-SEVEN THOUSAND FOUR HUNDRED AND 00/100 DOLLARS (**$167,400.00**) as set forth in **Attachment A**, for a new total contract amount of ONE MILLION SIX HUNDRED SEVENTY-SIX THOUSAND THIRTY-EIGHT AND 00/100 DOLLARS (**$1,676,038.00**);

Contract K-2324-155 shall only be amended as required to give full force and effect to these amendments. All other terms of Contract K-2324-155 shall remain in full force and effect.

IN WITNESS WHEREOF, the OWNER and the CONSULTANT have executed this Agreement.

DATED this _____ day of _____, 2025.

CITY OF NORMAN, OKLAHOMA
("OWNER")

By: _____
Mayor Stephen Holman

ATTEST:

By: _____
Brenda Hall, City Clerk

Approved as to form and legality this 3 day of December, 2025.

Elizabeth Muckala
City Attorney

GARVER, LLC
("CONSULTANT")

By: _____

Name: J. Bret Cabbiness, PE

Title: Sr. Project Manager

ATTEST:

By: John Strahm

Title: PROJECT ENGINEER

ATTACHMENT A - SCOPE OF SERVICES
AMENDMENT NO. 1 TO K-2324-155

GENERAL

The CONSULTANT is to provide services in connection with the addition of Cast-in-Place (CIP) and Mechanically Stabilized Earth (MSE) Retaining Walls for the proposed bridge for Porter Avenue over Little River. Retaining Walls will be incorporated into the final construction plans at the southeast and northeast ends of the bridge and approach roadway to eliminate/minimize the need for right-of-way acquisition along the east side of Porter Avenue. Additional Environmental services will be required for the completion of the TTP Environmental Checklist and Section 404 Permitting.

The OWNER intends to expand the design work beyond the original scope of work included in the original AGREEMENT. The following work shall be considered as the additional design work beyond the original scope of work:

A. Bridge Design

The proposed bridge layout and design will be revised to accommodate the incorporation of two (2) CIP retaining walls at the southeast and northeast ends of the bridge. The bridge abutments and riprap/front slopes are affected by the addition of retaining walls at the bridge ends. Moment slabs at the edge of the roadway will be required at all retaining wall locations.

B. Retaining Wall Design

The addition of two (2) MSE retaining walls will be required with the proposed roadway at the southeast and northeast corners of the proposed bridge from the end of the CIP retaining walls until they can tie into the proposed roadway grading. These retaining walls are required to eliminate/minimize the need for right-of-way acquisition along the east side of Porter Avenue. Retaining wall typical sections and layout sheets will be developed for the final construction plans. It is anticipated that each wall will be approximately 300' long by 15' tall.

C. Roadway Design

The proposed roadway grading will be revised to accommodate the incorporation of two (2) CIP and two (2) MSE retaining walls at the southeast and northeast ends of the bridge. The proposed grading limits will be revised to stay within existing right-of-way along the east side of Porter Avenue.

D. Geotechnical Investigations and Design

The geotechnical investigation will be performed by a subconsultant. A global stability analysis will be performed on the retaining walls. The geotechnical services include retaining wall field explorations, analysis and reporting.

E. Environmental

The scope of work consists of environmental studies to complete all remaining checklist documents and agency coordination. This includes the TTP Environmental Checklist/Categorical Exclusion document and Section 404 Permitting.

F. Extra Work

The following items are not included under this agreement but will be considered as extra work:

A. Redesign for the OWNER'S convenience or due to changed conditions after previous alternate direction and/or approval.
B. Design of OWNER owned utility relocations.
C. Utility potholing.
D. Property negotiation and acquisition appraisals.
E. Front end construction contract documents.
F. Construction materials testing.
G. Construction inspection and observation.
H. Environmental Handling and Documentation including wetlands identification or mitigation plans for other work related to environmentally or historically (culturally) significant items.
I. Coordination with the USACE and preparation/submittal of an Individual or Nationwide 404 permit.
J. Services after construction, such as warranty follow-up, surety work, etc.
K. Construction surveying or surveying for as-built conditions.

Extra Work will be as directed by the OWNER in writing for an additional fee as agreed upon by the OWNER and CONSULTANT.

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ATTACHMENT B – SCHEDULE

The CONSULTANT shall begin work under this Agreement within ten (10) days of a Notice to Proceed (NTP) and shall complete the work in accordance with the schedule below:

Phase Description	Submittal Date
65% Plan-in-Hand (R/W & Utility Submittal)	March 2026
ROW Acquisition Documents Final	May 2026
Final Plans (95% Complete) Final Plan Submittal	August 2026
Final Plans, Specifications & Estimate (100%)	November 2026

Attachment C - Compensation

Amendment No. 1

City of Norman
Porter Avenue over Little River Bridge Replacement

FEE SUMMARY

Fee Type	Title I Service	Estimated Fees
Lump Sum	Environmental And Permitting	$ 8,100.00
Lump Sum	65% Plan-In-Hand (R/W & Utility	$ 27,200.00
Lump Sum	Final Plans, Specifications And Estimate	$ 132,100.00
	Subtotal for Title I Service	**$ 167,400.00**

Exhibit B

City of Norman
Porter Avenue over Little River Bridge Replacement

Environmental and Permitting

	WORK TASK DESCRIPTION	ES-6	ES-4	ES-3	ES-2	E-4
		T14 - Trans RC Planning & Envir	T14 - Trans RC Planning & Envir	T14 - Trans RC Planning & Envir	T14 - Trans RC Planning & Envir	T03 - Trans RC West Region Bridge
		$367.00	$219.00	$194.00	$151.00	$223.00
		hr	hr	hr	hr	hr
1.	**ENVIRONMENTAL**					
	NEPA Documentation					
	1. Complete TTP Environmental Checklist (CatEx)		12		30	4
	Subtotal - ENVIRONMENTAL	**0**	**12**	**0**	**30**	**4**
	Hours	**0**	**12**	**0**	**30**	**4**
	Salary Costs	$0.00	$2,628.00	$0.00	$4,530.00	$892.00

SUBTOTAL - SALARIES:		**$8,050.00**
DIRECT NON-LABOR EXPENSES		
Document Printing/Reproduction/Assembly	$0.00	
Postage/Freight/Courier	$0.00	
Office Supplies/Equipment	$50.00	
Communications	$0.00	
Survey Supplies	$0.00	
Aerial Photography	$0.00	
GPS Equipment	$0.00	
Computer Modeling/Software Use	$0.00	
Traffic Counting Equipment	$0.00	
Locator/Tracer/Thermal Imager Equipment	$0.00	
Travel Costs	$0.00	
SUBTOTAL - DIRECT NON-LABOR EXPENSES:		**$50.00**
SUBTOTAL:		**$8,100.00**
SUBCONSULTANTS FEE:		**$0.00**
TOTAL FEE:		**$8,100.00**

Exhibit B

City of Norman
Porter Avenue over Little River Bridge Replacement

65% Plan-in-Hand (R/W & Utility Submittal)

	WORK TASK DESCRIPTION	E-6	E-5	E-4	E-3	E-1	T-2	E-6	E-2	E-1	T-2
		T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T28 - Trans Central OK Muni	T28 - Trans Central OK Muni	T28 - Trans Central OK Muni	T28 - Trans Central OK Muni
		$333.00	$272.00	$223.00	$191.00	$146.00	$127.00	$333.00	$171.00	$146.00	$127.00
		hr	hr	hr	hr	hr	hr	hr	hr	hr	hr
1	**Project Management**										
	Administration and Coordination	2		4				4	4		
	Quality Control Review							2	1		
	Submittals to Client			2							
	Subtotal - Project Management	2	0	6	0	0	0	6	5	0	0
2	**Roadway**										
	Add Two (2) MSE Retaining Walls (NE/SE Sides)										
	Coordination w/ Geotech on Preliminary Retaining Wall Design								2		
	Create Retaining Wall Model (Plan View and Cross-Sections)								4	8	16
	Preliminary Typical Sections / Details / Notes								2	4	8
	Preliminary Quantities								2	4	8
	Revise Grading Model (Plan/Profile View and Cross-Sections)								4	8	16
	Revise Opinion of Probable Construction Cost								1		
	R/W Meeting w/ Owner							2	2		
	Subtotal - Roadway	0	0	0	0	0	0	2	17	36	48
3	**Bridge**										
	Preliminary Cast-in-Place Retaining Wall Design/Sizing			4	8						
	Revise Bridge Plans										
	Summary of Pay Quantities and Notes					2	4				
	General Plan and Elevation					4	4				
	Revise Quantities				2	2					
	Revise Engineer's OPCC				2	2					
	R/W Plans QA/QC	2		4							
	R/W Meeting with Owner	2		4	2						
	Subtotal - Bridge	4	0	12	14	10	8	0	0	0	0
	Hours	6	0	18	14	10	8	8	22	24	48
	Salary Costs	$1,998.00	$0.00	$4,014.00	$2,674.00	$1,460.00	$1,016.00	$2,664.00	$3,762.00	$3,504.00	$6,096.00

SUBTOTAL - SALARIES:		**$27,188.00**
DIRECT NON-LABOR EXPENSES		
Document Printing/Reproduction/Assembly	$0.00	
Postage/Freight/Courier	$0.00	
Office Supplies/Equipment	$12.00	
Communications	$0.00	
Survey Supplies	$0.00	
Aerial Photography	$0.00	
GPS Equipment	$0.00	
Computer Modeling/Software Use	$0.00	
Traffic Counting Equipment	$0.00	
Locator/Tracer/Thermal Imager Equipment	$0.00	
Travel Costs	$0.00	
SUBTOTAL - DIRECT NON-LABOR EXPENSES:		**$12.00**
SUBTOTAL:		**$27,200.00**
SUBCONSULTANTS FEE:		**$0.00**
TOTAL FEE:		**$27,200.00**

Exhibit B

City of Norman
Porter Avenue over Little River Bridge Replacement

Final Plans, Specifications and Estimate (100%)

WORK TASK DESCRIPTION	E-6	E-5	E-4	E-3	E-1	T-2	E-6	E-5	E-1	T-2
	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T03 - Trans RC West Region Bridge	T26 - Trans Central OK Mgmt	T26 - Trans Central OK Mgmt	T26 - Trans Central OK Mgmt	T26 - Trans Central OK Mgmt
	$333.00	$272.00	$223.00	$191.00	$146.00	$127.00	$333.00	$171.00	$146.00	$127.00
	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr
1. Project Management										
Administration and Coordination	2		8							
Quality Control Review										
Submittals to Client			4							
Subtotal - Project Management	**2**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2. Roadway										
Add Two (2) MSE Retaining Walls (NE/SE Sides)										
Coordination w/ Geotech on Final Retaining Wall Design								2		
Revise Retaining Wall Model (Plan View and Cross-Sections)								4	6	12
Create Retaining Wall Plan & Profile Sheets							2	8	20	40
Final Typical Sections / Details / Notes								2	4	8
Final Quantities								2	4	8
Final Grading Model (Plan/Profile View and Cross-Sections)								4	8	16
Revise Opinion of Probable Construction Cost								2		
Subtotal - Roadway	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**24**	**42**	**84**
3. Bridge										
Bridge Structural Design										
Design Abutment Design										
Revise Layout/Geometry to Accomodate Retaining Walls			2	4						
Revised Design for Switch to Drilled Shaft Foundations			2	4	4					
Design Moment Slabs										
Create Layout/Coordinate with Roadway			4	4						
Perform Structural Design				4	12					
Perform Structural Design Check			2	8						
Design CIP Retaining Walls - 2 Unique Designs										
Create Layout/Coordinate with Roadway			4	8						
Perform Structural Design		2	2	24	24					
Perform Structural Design Check		8	16	8						
Bridge Final Plans										
Revise Summary of Pay Quantities and Notes					2	2				
Revise General Plan and Elevation Sheets					2	2				
Revise Staking Detail Sheet(s)				2	2	4				
Revise Abutment Detail Sheet(s)			2	2	8	12				
Revise Wingwall Detail Sheet(s)					4	4				
Revise Substructure Excavation Detail Sheet(s)				2	4	8				
Prepare Retaining Wall Detail Sheet(s)		2	4	8	20	32				
Prepare Moment Slab Detail Sheets				2	8	18				
Finalize Pay Items, Bid Quantities, and Pay Item Notes										
Finalize Quantities				4	8					
Finalize Engineer's OPCC				2	2					
Final Plan QA/QC	6	8	16	24						
Final Plan Review with Owner										
Subtotal - Bridge	**6**	**20**	**84**	**160**	**160**	**80**	**0**	**0**	**0**	**0**
4. Geotechnical										
Coordination with Subconsultant			2							
Retaining Wall Study QA/QC			2	2						
Subtotal - Geotechnical	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**
Hours	8	20	70	110	100	80	2	24	42	84
Salary Costs	$2,664.00	$5,440.00	$15,610.00	$21,010.00	$14,600.00	$10,160.00	$666.00	$4,104.00	$6,132.00	$10,668.00

SUBTOTAL - SALARIES: **$91,054.00**

DIRECT NON-LABOR EXPENSES

Document Printing/Reproduction/Assembly	$0.00
Postage/Freight/Courier	$0.00
Office Supplies/Equipment	$63.50
Communications	$0.00
Survey Supplies	$0.00
Aerial Photography	$0.00
GPS Equipment	$0.00
Computer Modeling/Software Use	$0.00
Traffic Counting Equipment	$0.00
Locator/Tracer/Thermal Imager Equipment	$0.00
Travel Costs	$0.00
SUBTOTAL - DIRECT NON-LABOR EXPENSES:	**$63.50**
SUBTOTAL:	**$91,117.50**
SUBCONSULTANTS FEE:	**$40,982.50**
TOTAL FEE:	**$132,100.00**

Arrowhead Engineering Company
5171 84th Ave. SE
Noble, OK 73068
405.310.8467
www.arrowheadengineering.us

November 5, 2025

Jeff Rundle, PE
Garver
226 W. Gray Street, Suite 103
Norman, OK 73069

RE: ***Proposal for Supplemental Geotechnical Engineering Services***
City of Norman: Bridge over Little River—N. Porter Ave.
Proposed Retaining Walls

Arrowhead Engineering Co., LLC is pleased to submit the following proposal for a Supplemental Geotechnical Investigation on the above referenced project.

Project Information

It is our understanding that the project will now include the construction of two (2) new retaining walls for the Bridge over Little River project for City of Norman along N. Porter Avenue. We understand that one wall is expected to be a cast-in-place concrete wall, while the other is expected to be a mechanically stabilized earth (MSE) wall.

Scope of Geotechnical Engineering Services

Based on our understanding of the project scope, ODOT Geotechnical Specifications and local industry practices, we have prepared the following scope of services:

- **Porter Ave. Bridge over Little River – Proposed Retaining Walls**
- **Norman, Oklahoma**
- **November 5, 2025**

Proposed Retaining Walls

A. Advance a total of four (4) retaining wall borings (two (2) borings per wall) to a minimum depth of 10 feet into bedrock. The retaining wall borings will be sampled using the Standard Penetration Test (SPT) at a maximum of 5 feet intervals. The borings will be located as close as possible to the proposed retaining walls. Traffic control (daily lane closure) is anticipated to be required on some of the borings. We anticipated bedrock will be encountered at depths of approximately 35 to 45 feet in there borings.

B. Additionally, five (5) cone penetrometer (CPT) soundings will be advanced to supplement the borings.

C. Once bedrock is encountered, the rock hardness will be tested using the Texas Cone Penetrometer (TCP) on a maximum of 5 feet intervals.

D. The soil samples recovered will be tested to determine the soil classification (Atterberg Limits and gradation) and moisture content.

E. Groundwater levels will be measured during and 24 hours after completion of the drilling. The borings will be plugged per Oklahoma Water Resources Board (OWRB) requirements.

F. The borings will be located in the field by an Engineer using the plans provided. Vertical control established in the project plans will be used to obtain surface elevations of the borings.

G. A retaining wall geotechnical report containing recommendations for the design and construction of the proposed walls will be provided. For the cast-in-place wall, we'll conduct a global stability analysis, and provide bearing capacity and sliding resistance recommendations. For the MSE wall, we'll also conduct a global stability analysis, and provide bearing capacity and sliding resistance recommendations. Then we'll also provide MSE wall design parameters and the minimum reinforcement zone lengths The report will be prepared by and under the supervision of a registered Professional Engineer in the State of Oklahoma.

Proposed Fee

Based on the outlined Scope of Services provided above, the estimated cost of the geotechnical engineering tasks is provided below.

Retaining Walls Investigation	$40,962.50	(unit price)

The invoice will reflect actual quantities using the attached unit price sheets for this project. If additional work is necessary beyond what is estimated, they will be invoiced using the unit rates shown.

- **Porter Ave. Bridge over Little River – Proposed Retaining Walls**
- **Norman, Oklahoma**
- **November 5, 2025**

General

Should you have any questions regarding this cost estimate please contact me at (405) 310-8467. If you are in agreement with proposal, please provide a Notice to Proceed by emailing it to corby@arrowheadengineering.us

Sincerely,
Arrowhead Engineering Co, LLC

Corby W. Key, PE
President

NOTICE TO PROCEED

By: _____

Name & Signature of Officer

For: _____

Name and Address of Firm if different than addressed

Date: _____

CITY OF NORMAN - BRIDGE OVER LITTLE RIVER ON PORTER AVE.
GEOTECHNICAL FEE SCHEDULE - RETAINING WALLS
ARROWHEAD ENGINEERING CO, LLC

FIELD SERVICES								
	Charge Item				UNIT	UNIT PRICES	NO OF UNITS	COST
21	Geotechnical Drilling, Coring, and Soil Survey Sampling (Soil & Rock)	A.	Soil Drilling (Augers)		feet	$27.00	160	$4,320.00
		B.	Shale, Sandstone, Siltstone, Gypsum, and Anhydrite Bedrock (Rockbit Drilling)		feet	$38.00	40	$1,520.00
		C.	Shale, Sandstone, Siltstone, Gypsum, and Anhydrite Bedrock (Coring)		feet	$70.00		$0.00
		D.	Limestone, Conglomerates, and Dolomite Bedrock (Coring)		feet	$80.00		$0.00
		E.	Chert, Granite, and other Igneous Bedrock (Coring)		feet	$110.00		$0.00
		F.	Poorly Cemented Geologic Formations (i.e. Ogallala Unit) (Coring / Sampling with Denison or Pitcher Barrel Sampler)		feet	$75.00		$0.00
		G.	Borehole Casing (HW/HWT or PW/PWT)		feet	$40.00		$0.00
		H	Drilling and/or Sampling for Shoulder, In-Place, and Pavement and Subgrade Soil Surveys		feet	$40.00		$0.00
		I.	Drilling and/or Sampling for Pedological and Geological Surveys		hours	$220.00		$0.00
22	Standard Penetration Test (ASTM D1586 / D1586M)				each test	$32.00	32	$1,024.00
23	Texas Cone Penetration (TCP) Test				each test	$40.00		$0.00
24	Dynamic Cone Penetrometer (DCP) Test for Shallow Pavement Applications (ASTM D6951)				feet	$25.00		$0.00
25	Thin-Walled Tube Sample (ASTM D1587 / D1587M)				each sample	$40.00		$0.00
26	Mechanical and Electrical Friction Cone and Piezocone Penetration Testing (CPT) of Soils (ASTM D3441 and D5778)	A.	Penetration Testing		feet	$32.00	218.2	$6,982.40
		B.	Dissipation Testing		hours	$250.00		$0.00
		C.	Seismic Shear Wave Testing		each test	$30.00		$0.00
27	Pressuremeter Test (ASTM D4719)	A.	Pressuremeter Test in Soil		each test	$550.00		$0.00
		B.	Pressuremeter Test in Bedrock		each test	$650.00		$0.00
		C.	Unload-Reload Cycle		each cycle	$150.00		$0.00
28	Flat Plate Dilatometer Test (ASTM D6635)	A.	Dilatometer Testing		each test	$80.00		$0.00
		B.	Dissipation Testing		hours	$300.00		$0.00
29	Borehole Jack Test (ASTM D4971)				each test	$750.00		$0.00
30	Rock Dilatometer (ASTM D8359)				each test	$950.00		$0.00
31	Seismograph Surveys	A.	Engineering Surveys	12 Channel Spread	each shot point	$300.00		$0.00
		B.	Engineering Surveys	24 Channel Spread	each shot point	$320.00		$0.00
		C.	Rippability Surveys	12 Channel Spread	each shot point	$350.00		$0.00
		D.	Rippability Surveys	24 Channel Spread	each shot point	$370.00		$0.00
32	Monitoring Well Installation (ASTM D5092 / D5092M)				feet	$60.00		$0.00
33	Water Bailing and Sampling				hours	$155.00		$0.00
34	Field Permeability Test (ASTM D6391)				each test	$800.00		$0.00
35	Borehole Plugging (OWRB Specification 785:35 - 11-2)	A.	Bentonite		feet	$8.50	100	$850.00
		B.	Cement Grout		feet	$15.00		$0.00
36	Bridge Deck Boring - Core Hole Repair				each boring	$150.00		$0.00
37	Dozer Working Time for Borehole Access and Work Area Development				hours	$250.00		$0.00
38	Traffic Control				Per Day	$2,500.00	1	$2,500.00
39	Towboat/Barge Mobilization of Equipment	A.	Mobilization of Equipment		NPTO	NPTO		
		B.	Daily Rate		NPTO	NPTO		
40	Mobilization	A.	Truck Mounted Drilling Rig (Weighing less than or equal to 26,000 lbs) (per vehicle)		miles	$6.00		$0.00
		B.	Truck Mounted Drilling Rig (Weighing more than 26,000 lbs - CDL Driver Required) (per vehicle)		miles	$7.50		$0.00
		C.	Vehicle Hauling Dozer, Trackhoe or ATV Drilling Rig (Non-CDL) (per vehicle)		miles	$6.50		$0.00
		D.	Vehicle Hauling Dozer, Trackhoe or ATV Drilling Rig (CDL Driver Required) (per vehicle)		miles	$8.00	60	$480.00
		E.	Support Truck with Trailer (Water Tank, Pavement Coring, FWD, GPR) (per vehicle)		miles	$6.50	60	$390.00
		F.	Standard Vehicle (Car, Truck, or SUV) with no trailer (per vehicle)		miles	$2.00		$0.00
41	Pavement Coring, Evaluation, and Non-Destructive Testing	A.	Pavement Coring	Concrete Coring (0 to 12 inches thick pavement)	each core	$105.00		$0.00
				Concrete Coring (more than 12 inches thick pavement)	each core	$130.00		$0.00
				Asphalt Coring (0 to 12 inches thick pavement)	each core	$95.00		$0.00
				Asphalt Coring (more than 12 inches thick pavement)	each core	$120.00		$0.00
		B.	Pavement Distress Identification		lane-mile tested	$415.00		$0.00
		C.	Falling Weight Deflectometer (FWD)		lane-mile tested	$590.00		$0.00
		D.	Ground Penetrating Radar (GPR)		lane-mile tested	$650.00		$0.00
42	Survey for Geotechnical Borings	A.	Level and Rod (Performed by On-Site Field Personnel)		per hour	$250.00	2	$500.00
		B.	Survey Crew		NPTO	NPTO		
43	Site Preparation Work for Environmental Conformance				NPTO	NPTO		
44	Per Diem and Overnight Lodging (Field Crew excluding Field Engineer / Geologist)	A.	Per Diem (Overnight Stay)		per day per person	$59.00		$0.00
		B.	Lodging		per night per person	$107.00		$0.00
						Subtotal		$18,566.40

Note: NPTO = Negotiated per Task Order or Contract

For the emankment study, two borings and two CPTu soundings are proposed. The borings will be used to supplement the CPTu sounding which will be used to measure in-situ soil properties. Bedrock is estimated to be within 50 feet from the ground surface. Spt's will be done on 10 feet intervals in the soil borings. Laboratory testing will consist of moisture on each soil sample and soil classifciations (AL & Gradation). Therefore, traffic control (lane-closure) has been estimated in the event the shoulders are not accessible to the highest fill heights.

CITY OF NORMAN - BRIDGE OVER LITTLE RIVER ON PORTER AVE.
GEOTECHNICAL FEE SCHEDULE -RETAINING WALLS
ARROWHEAD ENGINEERING CO, LLC

LABORATORY TESTING								
No.	**Charge Item**			**Test Method(s)**	**Unit**	**Unit Prices**	NO OF UNITS	COST
1	Soil Classification (Gradation and Atterberg Limits)			AASHTO T88, T89, and T90	each sample	$160.00	32	$5,120.00
2	Moisture Content			AASHTO T265	each test	$12.00	32	$384.00
3	Specific Gravity			AASHTO T100	each test	$85.00		$0.00
4	Chunk Density			AASHTO T233	each test	$40.00		$0.00
5	Dispersive Characteristics Testing	A.	Hydrometer	AASHTO T88	each test	$150.00		$0.00
		B.	Double Hydrometer	ASTM D4221	each test	$220.00		$0.00
		C.	Pinhole Test	ASTM D4647 / D4647M	each test	$190.00		$0.00
		D.	Crumb Test	ASTM D6572	each test	$60.00		$0.00
6	Soil Resistivity			AASHTO T288	each test	$95.00		$0.00
7	Soluble Sulfate Content			OHD L-49	each test	$70.00		$0.00
8	pH	A.	Soil	ASTM D4972 or AASHTO T289	each test	$80.00		$0.00
		B.	Water	ASTM D1293	each test	$80.00		$0.00
9	Sulfate Ion (SO_4)	A.	Soil	AASHTO T290	each test	$70.00		$0.00
		B.	Water	ASTM D516	each test	$70.00		$0.00
10	Chloride Ion (CL)	A.	Soil	AASHTO T291	each test	$80.00		$0.00
		B.	Water	ASTM D512	each test	$80.00		$0.00
11	Slake Durability of Shales and Other Weak Rocks			ASTM D4644	each test	$180.00		$0.00
12	Unconfined Compressive Strength	A.	Cohesive Soil	AASHTO T208	each test	$90.00		$0.00
		B.	Rock Cores	ASTM D7012 (Method C)	each test	$115.00		$0.00
		C.	Rock Cores with Strain Measurement	ASTM D7012 (Method D)	each test	$300.00		$0.00
13	Point Load Test			ASTM D5731	each test	$55.00		$0.00
14	Moisture-Density Test	A.	Standard Effort	AASHTO T99 - Method A	each test	$180.00		$0.00
				AASHTO T99 - Method B	each test	$190.00		$0.00
				AASHTO T99 - Method C	each test	$200.00		$0.00
				AASHTO T99 - Method D	each test	$210.00		$0.00
		B.	Modified Effort	AASHTO T180 - Method A	each test	$195.00		$0.00
				AASHTO T180 - Method B	each test	$205.00		$0.00
				AASHTO T180 - Method C	each test	$215.00		$0.00
				AASHTO T180 - Method D	each test	$225.00		$0.00
15	One Dimensional Consolidation Test			ASTM D2435 / D2435M	each test	$550.00		$0.00
16	One Dimensional Swell or Collapse Test			ASTM D4546	each test	$350.00		$0.00
17	Drained Direct Shear Test	A.	Cohesionless Soil	AASHTO T236	each test	$575.00		$0.00
		B.	Cohesive Soil	AASHTO T236	each test	$900.00		$0.00
18	Triaxial Shear Test	A.	Unconsolidated Undrained (UU)	AASHTO T296	each test	$600.00		$0.00
		B.	Consolidated Undrained (CU) with Pore Pressure Measurement	AASHTO T297	each test	$1,450.00		$0.00
19	Torsional Ring Shear Test			ASTM D6467	each test	$850.00		$0.00
20	Resilient Modulus			AASHTO T307	each test	$675.00		$0.00
							Subtotal	$5,504.00

CITY OF NORMAN - BRIDGE OVER LITTLE RIVER ON PORTER AVE.
GEOTECHNICAL FEE SCHEDULE - RETAINING WALLS
ARROWHEAD ENGINEERING CO, LLC

ENGINEERING							
Charge Item				UNIT	UNIT PRICES	NO OF UNITS	COST
45	Mobilization for Field Engineer and/or Geologist	A.	Preliminary Site Reconnaissance, etc.	miles	$3.50	30	$105.00
		B.	Field Coordination and Borehole Logging	miles	$3.50	30	$105.00
46	Per Diem and Overnight Lodging (Field Engineer / Geologist)	A.	Per Diem (Overnight Stay)	per day per person	$59.00		
		B.	Lodging	per night per person	$107.00		
47	Engineering	A.	Field Work Planning / Desk Reconnaissance	per hour	$245.33	2	$490.65
		B.	Preliminary Site Reconnaissance	per hour	$245.33	2	$490.65
		C.	Pedological and Geological Survey Research and Assessment	per hour	$245.33		$0.00
		D.	Environmental Review Coordination	per hour	$245.33		$0.00
		E.	Field Coordination	per hour	$245.33		$0.00
		F.	Borehole Logging	per hour	$245.33	20	$4,906.50
		G.	Global Stability Analysis	per hour	$245.33	16	$3,925.20
		H.	Settlement Analysis	per hour	$245.33		$0.00
		I.	Retaining Wall Analysis	per hour	$245.33	4	$981.30
		J.	Bearing Capacity Analysis	per hour	$245.33		$0.00
		K.	End Bearing and Friction Pile Analysis	per hour	$245.33		$0.00
		L.	End Bearing and Friction Drilled Shaft Analysis	per hour	$245.33		$0.00
		M.	Seismic Analysis	per hour	$245.33		$0.00
		N.	Miscellaneous Analysis	per hour	$245.33		$0.00
		O.	FWD Backcalculation and Analysis	per hour	$245.33		$0.00
		P.	GPR Analysis	per hour	$245.33		$0.00
		Q.	Pavement Design	per hour	$245.33		$0.00
		R.	Report Preparation	per hour	$245.33	24	$5,887.80
		S.	Meetings	per hour	$245.33		$0.00
					Subtotal		$16,892.10
					Estimated Total		$40,962.50

Embankment & Slope Stability Investigation