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11/23/16, revised 11/28/16

Dwayne Gossett  
Project Manager  
Williamson County Facilities  
3101 SE Inner Loop  
Georgetown, Texas 78626

Re: Wilco NCF Additional Services for Karst Feature Evaluation

Dwayne,

The following is an a presentation of the potential design costs associated with the recent discovery of karst features on the Wilco NCF project site:

**Task 1 - Conduct Geological Monitoring During Karst Excavation.**

Baer Engineering	\$ 5,497.58
Halff Associates Civil Engineering	\$ 759.35
<u>BLGY Architecture</u>	<u>\$ 750.83</u>
Subtotal	\$ 7,007.76

**Task 2 – Prepare a Cave Closure Plan.**

Baer Engineering	\$ 3,322.76
Halff Associates Civil Engineering	\$ 458.95
<u>BLGY Architecture</u>	<u>\$ 453.81</u>
Subtotal	\$ 4,235.52

**Task 4 – Update the Geologic Assessment with New Information.**

Baer Engineering	\$ 2,300.10
Halff Associates Civil Engineering	\$ 317.70
<u>BLGY Architecture</u>	<u>\$ 314.14</u>
Subtotal	\$ 2,931.93

**Task 5 - Plan Revision for Redesign of Pond**

Halff Associates Civil Engineering	\$ 6,546.00
<u>BLGY Architecture</u>	<u>\$ 785.52</u>
Subtotal	\$ 7,331.52

**Summary for Tasks 1, 2, 4, & 5** **\$21,506.73**

Please note that the performance of Task 2 is contingent upon the findings of Task 1, and therefore the total above represents a worst case scenario. Please refer to the attached Baer Engineering proposal for more detailed information.

Regards,

Mark Daniel Brown  
Architect/Vice-President  
BLGY Architecture

Please note that the performance of Task 2 is contingent upon the findings of Task 1, and therefore the total above represents a worst case scenario. Please refer to the attached Baer Engineering proposal for more detailed information.

Regards,

A handwritten signature in blue ink, appearing to read 'Mark Daniel Brown', with a long horizontal flourish extending to the right.

Mark Daniel Brown  
Architect/Vice-President  
BLGY Architecture



**Baer Engineering**  
*and Environmental Consulting, Inc.*

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November 22, 2016

Halff Associates, Inc.  
4030 West Braker Lane, Suite 450  
Austin, TX 78759-5356

Sent via email to [jteague@halff.com](mailto:jteague@halff.com).

**Attention: Mr. John Teague, III, PE, Senior Project Manager**

**Reference: Karst Feature Evaluation – Edwards Aquifer Transition Zone**  
3161 SE Inner Loop, Georgetown, TX 78626  
**Baer Engineering Document No. 162039-5.020, Exhibit A**

Dear Mr. Teague:

Baer Engineering and Environmental Consulting, Inc. (Baer Engineering) is pleased to provide this proposal to assist with the evaluation of known on-site karst features at 3161 SE Inner Loop in Georgetown, Texas (Site). This project will be accomplished in accordance with 30 TAC §213: Edward Aquifer.

Baer Engineering proposes the following tasks:

1. Conduct geological monitoring during karst excavation.
2. Prepare a Cave Closure Plan.
3. Provide a biologist, licensed under United States Fish and Wildlife Service (USFWS), Section 10(a)(1)(A), to conduct a permitted presence/absence survey for endangered karst invertebrates.
4. Update the Geological Assessment with new information.

## **SCOPE OF SERVICES**

### Task 1 – Conduct geological monitoring during karst excavation.

Baer Engineering will provide a geologist to conduct excavation of the karst features identified on Site. The geologist will observe and document excavation of the discovered features. The purpose of this activity is:

- To determine connectivity between the surface feature and the aquifer; and
- To document evidence of endangered/threatened species habitat.

The map on the following page was downloaded from the Travis and Williamson Counties Karst Zones and Salamander Critical Habitat map viewer.

<http://www.arcgis.com/home/item.html?id=953ab0462a0c4f2f870c3524e5f12b8e>

According to the viewer, the Site contains no Critical Habitat for Salamanders. Four karst zones were delineated for Williamson County by George Veni in 1992<sup>1</sup>. The Site is located on Veni Zone 4, as shown by the gray coloring on the map. The Site is located adjacent to Veni Zone 3, as shown by the green coloring on the map.

1: Veni, G. 1992. Geological controls on cave development and the distribution of cave fauna in the Austin, Texas, region. Report prepared for U.S. Fish and Wildlife Service, Austin, Texas. George Veni and Associates, San Antonio, Texas. 77 pp.

**Baer Engineering and Environmental Consulting, Inc.**

7756 Northcross Drive, Suite 211  Austin, Texas, U.S.A. 78757  
Telephone: (512) 453-3733  [www.BaerEng.com](http://www.BaerEng.com)  Fax: (512) 453-3316

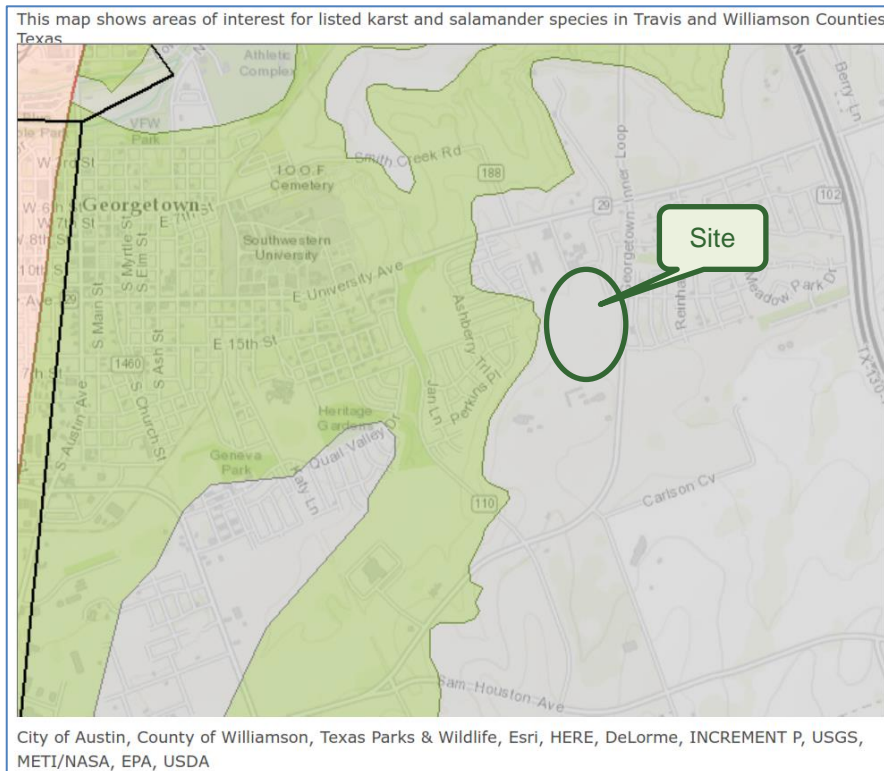
The Veni Zones for Travis and Williamson Counties are defined as:

Veni Zone 1	Areas known to contain endangered karst invertebrate species.
Veni Zone 2	Areas having a high probability of containing suitable habitat for endangered karst invertebrate species.
Veni Zone 3	Areas that probably do not contain endangered karst invertebrate species.
<b>Veni Zone 4</b>	Areas, both cavernous and non-cavernous, that do not contain endangered karst invertebrate species.

Because of the location of this property, Baer Engineering does not expect that threatened and endangered species habitat will be found in the project area.

The following scope was prepared in accordance with USFWS Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys for Endangered Karst

Invertebrates in Central Texas.



A Baer Engineering geologist will be on site to assess each karst feature for suitable endangered karst invertebrate habitat. The assessment will be conducted in two parts:

1. Reconnaissance excavation using hand tools.
2. Additional excavation with heavy equipment.

The first step of the evaluation is to conduct a reconnaissance excavation using shovels and hand tools. Baer Engineering will use hand tools to clear

the features of leaf litter, loose soils, and small rocks, not to exceed a depth or diameter of one foot. We will use a rod to probe into the soils of each feature to locate other voids and to evaluate the feature's origin and permeability.

We recommend that the reconnaissance survey be completed on a day prior to the excavation with heavy equipment. This will allow the field personnel to map out what needs to be done, while minimizing impact upon the habitat. We will mobilize a two-person crew, with hand tools, for the initial assessment.

We will consider the following characteristics<sup>2</sup>:

CHARACTERISTIC	FAVORABLE FOR HABITAT	APPLICABLE TO SITE
Developed near a fracture	Yes	Yes
Extends $\geq 3.3$ feet below the surface	Yes	Yes
Morphology similar to the pre-excavation appearance of a nearby cave	Yes	No
Contains a visible humanly or potentially humanly enterable void	Yes	Yes
Close to caves known to contain endangered species	Yes	No
Located in Veni Zone 1 or 2	Yes	No
Has physical characteristics that suggest the presence of a cave, including size, appearance, catchment basin, conduits, air flow, and mammal etchings	Yes	Yes
Loose soil/rock fill to $\geq$ one foot	Yes	Yes
Clean-washed rocks at base of fill	Yes	Yes
Contains fill that does not match the surrounding area	Yes	Yes
Contains roots and/or black soil	Yes	Yes
Located near structural features that may promote cave and karst features to develop, such as a fault, photo-lineament, or area of increased fracture density	Yes	Yes
Vegetation near the feature includes trees (for example, cedar elm trees) that may grow in cave entrances and other karst features	Yes	Yes
All, or nearly all, floors, walls, and ceilings are covered with calcite speleothems	No	Yes
Absence of non-listed troglobites or troglophiles	No	Yes
Lacks evidence of water-formed features that may indicate episodic moisture, such as recently formed scallops and pitting of sediments and bedrock, sediment depositional patterns exhibiting flow or ponding, or recent speleothem growth.	No	Yes
Absence of discernible airflow	No	Yes
Feature not collapse-formed or related to a collapse.	No	Yes

2: Veni, G. and J.R. Reddell, 2002, Protocols for Assessing Karst Features for Endangered Invertebrate Species. Report by George Veni and Associates, San Antonio, Texas. 7 pp.

If, after a thorough assessment, Baer Engineering determines there is no potential for the feature to open to a void or cave, then no additional surveys are needed. After the initial reconnaissance excavation, a backhoe and operator (provided by others) will open features displaying the potential for karst habitat. Note that if potential habitat is observed, excavation must cease and a biologist holding a valid 10(a)(1)(A) permit must be called in.

The size of excavations will be kept as small as possible while allowing space for efficient excavation efforts and creating an area safe for entry. Multiple entrances will cause the cave (if present) to dry out. Therefore, only one entrance can be excavated at a time. Additional entrances should be sealed with natural fill equivalent in permeability to what was excavated. To minimize promotion of red-imported fire ant (*Solenopsis invicta*) activity and siltation of streams, excavated material from all features should be evenly distributed downslope of and at least sixteen feet from the features. Sediments should be distributed in thicknesses of no more than one-inch to allow rapid integration into the existing soils and stabilization by vegetation.

Baer Engineering will cease excavation upon encountering:

1. A cave (caves may require further excavation during biological surveys);
2. Solid bedrock with no conduits;

3. Packed clay with no airflow present (the passage should be checked several times under different surface temperature conditions (for example, cool mornings, warm evenings) before determining there is no airflow);
4. Potential archaeological or paleontological materials; or
5. When continued excavation would be dangerous.

Karst features have been known to develop high concentrations of CO<sub>2</sub> because of their locations in limestone. Baer Engineering will have a CO<sub>2</sub> meter at the site for collecting concentration data.

If a void or cave that may contain suitable habitat for endangered karst invertebrates is encountered during excavation, work must stop and a qualified individual holding a valid Section 10(a)(1)(A) scientific permit should survey for endangered karst invertebrates. If needed, the permitted person will conduct or supervise further excavations within the cave. A final karst feature survey report shall be provided to the Service's Austin Ecological Services Field Office if excavation is conducted under a 10(a)(1)(A) permit.

While active excavation is ongoing, features will be covered with tarps to maintain the moisture levels in the formation. Tarps should be secured as tightly as possible to prevent air from entering or exiting the feature. Metal plates should not be used for this purpose. They can dry out the habitat by conducting heat into the feature.

Upon completion of excavation activities, the area should be returned as much as possible to its original condition. If a cave is discovered, a cave gate may be installed for security. Features that are excavated into caves should usually be left open enough that human access for biological surveys is possible. However, openings larger than 3.3 feet into relatively small caves may be detrimental to the karst ecosystem by increasing drying and temperature fluctuation.

The deliverable for this task is a letter report, including a detailed map of the karst features, photographs, a discussion of the process, and findings. This information will be included in the revised geological assessment and in the design of the facilities on site.

The table below shows our estimated fee for this task.

TASK 1	PERSONNEL	RATE	UNITS	COST
Prepare for field reconnaissance	Project Geologist	\$105.84	4	\$423.36
Field reconnaissance <ul style="list-style-type: none"> <li>Assume one 10-hour day</li> <li>Geologist</li> </ul>	Field Geologist	\$100.86	10	\$1,008.60
Field reconnaissance <ul style="list-style-type: none"> <li>Assume one 10-hour day</li> <li>Field Scientist</li> </ul>	Field Scientist	\$100.86	10	\$1,008.60
GIS/CAD – prepare map of results	GIS/CAD/Database	\$87.97	4	\$351.88
Additional excavation <ul style="list-style-type: none"> <li>Heavy equipment</li> <li>Assume one 10-hour day</li> </ul>	Field Geologist	\$100.86	10	\$1,008.60
Prepare documentation	Field Geologist	\$100.86	8	\$806.88
GIS/CAD – prepare map of results	GIS/CAD/Database	\$87.97	2	\$175.94
Quality Control <ul style="list-style-type: none"> <li>Both field days</li> <li>Seal document</li> </ul>	Senior Geologist	\$159.68	4	\$638.72
Job Supplies	At cost	\$25.00	1	\$25.00
CO <sub>2</sub> Meter Rental	Per day	\$25.00	2	\$50.00
			<b>Total</b>	<b>\$5,497.58</b>

### Task 2 – Prepare a Cave Closure Plan.

In the event that no karst invertebrate habitat is identified, Baer Engineering will prepare a Cave Closure Plan (void mitigation). We are not aware of specific Georgetown/Williamson County rules regarding void mitigation and will use the City of Austin Environmental Criteria Manual §1.12.0 – Void and Water Flow Mitigation as a Best Practices guideline. We will include closure of the open boreholes in this plan.

The table below shows our estimated fee for this task.

<b>TASK 2</b>	<b>PERSONNEL</b>	<b>RATE</b>	<b>UNITS</b>	<b>COST</b>
Draft plan	Project Geologist	\$105.84	16	\$1,693.44
GIS/CAD – prepare drawings	GIS/CAD/Database	\$87.97	4	\$351.88
Quality Control, edit, and seal plan	Senior Geologist	\$159.68	8	\$1,277.44
			<b>Total</b>	<b>\$3,322.76</b>

### Task 4 – Update the Geologic Assessment with new information.

Baer Engineering will prepare and seal an updated Geologic Assessment that includes information derived from the tasks listed above.

<b>TASK 4</b>	<b>PERSONNEL</b>	<b>RATE</b>	<b>UNITS</b>	<b>COST</b>
Update Geologic Assessment	Project Geologist	\$105.84	8	\$846.72
GIS/CAD – prepare drawings	GIS/CAD/Database	\$87.97	2	\$175.94
Quality Control, edit, and seal plan	Senior Geologist	\$159.68	8	\$1,277.44
			<b>Total</b>	<b>\$2,300.10</b>

### **LIMITATIONS**

Recognize that special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing program, implemented with the appropriate equipment and experienced personnel under the direction of a trained professional who functions in accordance with a professional standard of care may fail to detect certain conditions, because they are hidden and therefore cannot be considered in development of a subsurface exploration program. For similar reasons, actual environmental, geologic and geotechnical conditions that the scientist properly infers to exist between sampling points may differ significantly from those that actually exist. The passage of time must also be considered. Recognize that, due to natural occurrences or direct or indirect human intervention at the site or distant from it, actual conditions discovered may quickly change. Realize that



nothing can be done to eliminate these risks altogether, but certain techniques can be applied by the scientist to help reduce them to that level deemed tolerable by client. The scientist is available to explain these risks and risk reduction methods to client but, in any event, the scope of services included with this agreement is that which client agreed to or selected in light of his own risk preferences and other considerations.

#### **FEE PROPOSAL AND PROJECT SCHEDULE**

We will invoice this project on a lump sum, by task, basis. The exception to this is **Task 3**. Because the costs can vary depending upon site conditions, we recommend invoicing this task as a fixed fee for Baer services plus the fee from the permitted biologist. Each task will be invoiced as shown in the table below. Total costs for the execution of this scope of work are estimated to be \$22,564.20. Baer Engineering can commence the field reconnaissance the week of November 28, 2016.


TASK		COST
	1. Conduct geological monitoring during karst excavation.	\$5,497.58
*	2. Prepare a Cave Closure Plan.	\$3,322.76
*	3. Provide a fee for a United States Fish and Wildlife Service (USFWS), Section 10(a)(1)(A)-permitted presence/absence survey for endangered karst invertebrates.	\$11,443.76
	4. Update the Geological Assessment with new information.	\$2,300.10
		\$22,564.20

\* Note: Items 2 and 3 will be needed in the case that a cave or evidence of endangered species is discovered during the excavation process.

If the scope of services, project schedule, and fee proposal presented herein meet with your approval, please provide us with a notice to proceed. We will complete this project under the terms and conditions of our existing contract with Halff Associates.

Baer Engineering thanks you for the opportunity to propose our consulting services on this project. If you have questions regarding our scope of work, schedule, or fee please call me at (512) 453-3733.

Respectfully submitted,  
**BAER ENGINEERING AND ENVIRONMENTAL CONSULTING, INC.**

  
Rosemary Wyman, P.G. (TX751), CHMM, CPESC  
Manager, Environmental, Health, and Safety Services  
Principal Geologist

Attachments: Schedule of Fees

#### **TEXAS BOARD OF PROFESSIONAL GEOSCIENTISTS**

Complaints on the geoscience services provided by Baer Engineering can be directed to the Texas Board of Professional Geoscientists, P.O. Box 13225, Austin, Texas 78711, (512) 936-4400.

## WRITTEN AUTHORIZATION TO PROCEED

\_\_\_\_\_  
Authorized Client Signature\*

\_\_\_\_\_  
Date

## AUTHORIZATION TO PROCEED

\*The individual executing this Agreement warrants that he or she is duly authorized to execute and deliver this Agreement and that such execution is binding upon such party. Client's signature attests to financial responsibility, ability and willingness to pay invoices in accordance with Baer Engineering and Environmental Consulting, Inc.'s terms.

## SCHEDULE OF FEES

STAFF TYPE	HOURLY RATE
Senior Scientist	\$159.68
Project Scientist	\$105.84
Field Scientist	\$100.86
GIS/Database Development	\$87.97
Administrative Assistant	\$70.74

Charges will be made at the rates listed above for time spent in project management, consultation or meetings related to the project, conducting field surveys, sampling, evaluations, review and analysis of field and laboratory data, report preparation and review, design, travel time, etc.



4030 West Braker Lane, Ste 450  
Austin, Texas 78759  
(512) 777-4600  
Fax (512) 252-8141

## **ADDITIONAL SERVICES CONFIRMATION**

<b>To:</b>	Mr. Mark Brown Architect/Vice President BLGY, Inc.	<b>Date:</b>	November 22, 2016
<b>From:</b>	John Teague, PE	<b>AVO:</b>	31358
<b>Email:</b>	jteague@halff.com	<b>Project:</b>	Williamson County – North Campus Facility
<b>VIA:</b>	email		

As per discussions with Brody Harris of BLGY, additional services are being requested to monitor excavation of sensitive features on the site as well as provide additional documentation and reports. The following additional services will be provided:

**Direct Labor (Halff Associates, Inc.).....\$1,536.00**  
Halff Associates will coordinate with BLGY, Williamson County, and the Sub-consultant to facilitate communication between project disciplines and ensure project information is relayed. In addition, Halff will provide contract administration services to comply with invoicing requirements as set forth in the contract. The fee for direct labor is based on the following rates: Project Manager – 5 hrs @\$224.00 per hour and Senior PE – 2 hrs @ 208.00 per hour.

**Subconsultant Costs (Baer) - (See Attachment "A").....\$11,120.44**

**TOTAL FEE:.....\$12,656.44**

The fee noted above shall be considered a lump sum fee. This scope and fee is an addendum to the contract dated November 17, 2015 between Halff Associates, Inc. and BLGY, Inc. Our services will be invoiced based on the schedule outlined in the prime contract.

Upon execution, this proposal shall become a part of the previously executed agreement noted above. Please sign and date below and return a copy to me (fax or scan is acceptable). If you have any questions or require additional information please do not hesitate to e-mail or call me at 512-777-4580.

By: \_\_\_\_\_  
(Print name)

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

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

COPIES:

☒ File ☐ Owner ☐ Contractor ☐ Other:



9500 Amberglen Blvd.  
Building F, Suite 125  
Austin, Texas 78729  
(512) 777-4600  
Fax (512) 252-8141

## **ADDITIONAL SERVICES CONFIRMATION**

**To:** Mr. Mark Brown  
Architect/Vice President  
BLGY, Inc.

**Date:** November 23, 2016

**From:** John Teague, PE

**AVO:** 31345

**Email:** jteague@halff.com

**Project:** Williamson County – North Campus Facility

**VIA:** email

As per our discussion on November 15, 2016, potential additional services are being requested to prepare plan revisions for the subject site. The following additional services will be provided if they are deemed necessary after the excavation of the karst features identified on the Geologic Report created August 9, 2016 by Baer Engineering and the karst features identified by the TCEQ in their memorandum dated November 10, 2016.

**Plan Revision Redesign of pond:** Halff Associates will prepare plan revisions as outlined in the table below for the North Campus Facility site development drawings.

Revision No.	Scope Description	Sheets Affected	Fee
1	Redesign pond maintaining a 50 ft minimum buffer from karst features. New design will have equal capacities and outflows as previous design.	3, 4, 39, 51, 52, 57, 61, 62	\$ 2,510.00
2	Redesign drainage channel entering the new pond maintaining a 50 ft buffer from before mentioned karst features.	3, 4, 5, 39, 51, 52, 53, 57, 58, 59, 61, 62	\$ 2,510.00
3	Design berms to divert drainage from entering the before mentioned karst features.	4, 39, 51, 52, 57, 58, 61	\$ 1,526.00

**TOTAL FEE:**..... **\$6,546.00**

The fee noted above shall be considered a lump sum fee. This scope and fee is an addendum to the contract dated November 17, 2015 between Halff Associates, Inc. and BLGY, Inc. Our services will be invoiced based on the schedule outlined in the prime contract.

Upon execution, this proposal shall become a part of the previously executed agreement noted above. Please sign and date below and return a copy to me (fax or scan is acceptable). If you have any questions or require additional information please do not hesitate to e-mail or call me at 512-777-4580.

By: \_\_\_\_\_  
(Print name)

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

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

COPIES:

☒ File ☐ Owner ☐ Contractor ☐ Other:

FEE ESTIMATE

PROJECT TASK	PRINCIPAL	CIVIL LEAD/ PROJECT MANAGER	SENIOR PROF. ENGR. (PE)	MID PROF. ENGR (PE)	JUNIOR PROF. ENGR. (PE)	EIT	CADD/GIS TECH	RPLS	SURVEY TECH	2-MAN SURVEY CREW	DESIGNATING 1 MAN CREW	DESIGNATING 2 MAN CREW	SUE MANAGER	SUE FIELD MANAGER	ADMIN/ CLERICAL	TOTAL
ADDITIONAL SERVICES FOR ADD ALT PREPARATION																
A. ADDITIONAL SERVICES FOR GEOLOGIC FEATURES		5.0		14.0		9.0	22.0								1.0	\$6,546.00
TOTAL Estimated Fee																\$6,546.00
HOURLY RATES	\$275.00	\$224.00	\$208.00	\$155.00	\$110.00	\$100.00	\$104.00	\$155.00	\$115.00	\$140.00	\$70.00	\$140.00	\$130.00	\$115.00	\$68.00	

# BLGY Architecture

Date: 28-Nov-16

PARTNERS:		Fuse, Halff, JQ, HCE. SSCI, Tech Center, Coleman, BAI, Armko, True North.										
			WILCO NCF									
LABOR COST	TASK	Principal	Vice President (PM)	Vice President (PA)	Project Designer II	Project Designer I	Clerical II	Clerical I	CAD Designer			
\$750.83	TASK 1	0.0	1.0		4.0							
\$453.81	TASK 2	0.0	1.0		1.9							
\$314.14	TASK 4	0.0	1.0		1.0							
\$785.52	TASK 5	0.0	1.0		4.2							
\$0.00												
\$2,304.29	Total Hours	0.0	4.0	0.0	11.1	0.0	0.0	0.0	0.0			
	Hourly Rate:	\$ 224.40	\$ 168.77	\$ 163.16	\$ 147.26	\$ 146.23	\$ 107.53	\$ 76.44	\$ 99.34			
	Amount	\$0.00	\$675.08	\$0.00	\$1,629.21	\$0.00	\$0.00	\$0.00	\$0.00			
						Fee					\$2,304.29	