



ATTACHMENT I – General Qualifications

ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:  
ADSP015-00004729

STATE PROCUREMENT OFFICE  
Department of Administration  
100 North 15<sup>th</sup> Avenue, Suite 201  
Phoenix, Arizona 85007

**DEFINITIONS**

**Architect Services, Engineer Services, Land Surveying Services, Assayer Services, Geologist Services and Landscape Architect Services:** Those professional services within the scope of the practice of those services as provided in ARS § 32-101.

**Branch Office:** A geographically distinct place of business or subsidiary office of a firm that has a key role on the team.

**Discipline:** Primary technical capabilities of key personnel, as evidenced by academic degree, professional registration, certification, and/or extensive experience.

**Firm:** Defined in ARS § 32-101(B.19.).

**Key Personnel:** Individuals who will have major contract responsibilities and/or provide unusual or unique expertise.

**SPECIFIC INSTRUCTIONS:**

1. Complete this form for each branch office seeking work under this RFQ.
  - a. – e. **Firm (or Branch Office) Name and Address.** Self-explanatory.
  - f. **Year Established.** Enter the year the firm (or branch office, if appropriate) was established under the current name.
  - g. **Ownership.**
    - (g1). *Type.* Enter the type of ownership or legal structure of the firm (sole proprietor, partnership, corporation, joint venture, etc.).
    - (g2). *Small Business Status.* A firm is a small business if the firm has less than 100 employees **or** has gross revenues of \$4 million or less.
  - h.-j. **Point of Contact.** Provide this information for a representative of the firm that the Customer can contact for additional information. The representative must be empowered to speak on contractual and policy matters.
  - k. **Name of Firm.** Enter the name of the firm.
2. **Employees by Discipline.**
  - a. Select disciplines from the List of Disciplines (Function Code) listed on Page 3 of 4 Instructions. For employees that do not qualify for any of the disciplines, select Other. *Note: The intended searchable database indicated in the RFQ will be populated from the Qualifications Form I Excel attachment only.*
  - b. Each person can be counted only twice; once for his/her primary function and once for his/her secondary function. Primary and secondary functions should be indicated by including a “P” or an “S” in column b after the Description Title is given.
  - c-d. If the form is completed for a firm (including all branch offices), enter the number of employees by disciplines in column c. If the form is completed for a branch office, enter the number of employees by discipline in column d and for the firm in column c.
3. **Profile of Firm's Experience and Annual Average Revenue for Last Year.**
  - a. Enter the approximate number of projects the firm (or branch) has done attributable by Profile Code listed on Page 3 of 4 Instructions over the last year.



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- b. Enter the appropriate Profile Codes from Instructions Pages 3 of 4 that represent the type of work the firm (or branch) has done over the last year.
  - c. Using the Revenue Index Number on Page 3 of 6 Form, indicate the approximate revenue the firm has earned over the last year per Profile Code entered into the table.
4. **Resumes of Key Personnel Proposed for This Contract.** Complete this section for each key person who will participate in this contract.
  - a. Self-explanatory.
  - b. Self-explanatory
  - c. Total years of relevant experience (block c1), and years of relevant experience with current firm, but not necessarily the same branch/office (block c2).
  - d. Name, City and State of the firm where the person currently works, which must correspond with one of the firms (or branch office or a firm, if appropriate) listed in Section 1.
  - e. Provide information on the highest relevant academic degree(s) received. Indicate the area(s) of specialization for each degree.
  - f. Provide information on current relevant professional registration(s) and in which State(s) they are current.
  - g. Provide information on any other professional qualifications relating to this contract, such as education, professional registration, publications, organizational memberships, certifications, training, awards, and foreign language capabilities.
  - h. Provide information on no more than five (5) projects in the last year which the person had a significant role that demonstrates the person's capability relevant to her/his proposed role in this contract. These projects do not necessarily have to be any of the projects presented in Section 5 for the project team if the person was not involved in any of those those projects or the person worked on other projects that were more relevant than the team projects in Section 5. Use the check box provided to indicate if the project was performed with any office of the current firm. If any of the professional services or construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description and Specific Role.
5. **Example Projects Which Best Illustrate Firms Qualification for this contract.** Select project where multiple team members worked together, if possible, that demonstrate the team's capability to perform work similar to that required for this contract. Complete one Section 5 for each project. List no more than five (5) projects.
  - a. Title and Locations of project or contract. For an indefinite delivery contract, the location is the geographic scope of the contract.
  - b. Enter the year completed of the professional services (such as planning, engineering study, or design), and/or the year completed if construction. If any of the professional services or the construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description of Project and Relevance to This Contract (block f).
  - c. Project Owner or user, such as a government agency or installation, an institution, a corporation or private individual.
  - d. Provide the original budget or not to exceed dollar amount for the project.
  - e. Provide the Total Cost of the Project. If any of the professional services or construction projects is not complete, indicate the percentage complete and whether this project will be on budget, over or under budget.
  - f. Brief Description: Indicate scope, size, and length of project, principle elements and special features of the project. Discuss the relevance of the example project to this contract.
6. **Additional Information.** Use this section to provide additional information you feel may be necessary to describe your firm's qualifications for this contract.
7. **Annual Average Professional Services Revenues of Firm for Last 3 Years.** Complete this block for the firm or branch office for which this form is completed. In column a, enter an approximate percentage of total work attributable to State, Federal or Municipal Work. In column b, enter an approximate percentage of total work attributable to Non-Government work. Percentages should take into consideration work completed over the last 3 years.



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8. **Authorized Representative.** An authorized representative of the firm or branch office must sign and date the completed form. Signing attests that the information provided is current and factual. Provide the name and title of the authorized representative who signed the form.

List of Disciplines (Function Codes) for Question 2

- |                           |  |                          |
|---------------------------|--|--------------------------|
| Aeronautical Engineer     | Environmental Engineer                   | Mining Engineer          |
| Agricultural Engineer     | Environmental Scientist                  | Nuclear Engineer         |
| Archeologist              | Fire Protection Engineer                 | Petroleum Engineer       |
| Architect                 | Geodetic Surveyor                        | Photogrammetrist         |
| Architectural Engineering | Geographic Information System Specialist | Project Manager          |
| Biologist                 | Geological Engineer                      | Sanitary Engineer        |
| CADD Technician           | Geologist                                | Soils Engineer           |
| Chemical Engineer         | Hydrographic Surveyor                    | Structural Engineer      |
| Civil Engineer            | Hydraulic Engineer                       | Technician/Analyst       |
| Construction Manager      | Hydrologist                              | Transportation Engineer  |
| Construction Inspector    | Industrial Engineer                      | Water Resources Engineer |
| Control Systems Engineer  | Landscape Architect                      |                          |
| Cost Engineer/Estimator   | Mechanical Engineer                      |                          |
| Ecologist                 | Metallurgical Engineer                   |                          |
| Electrical Engineer       |  |                          |

List of Experience Categories (Profile Codes for Question 3)

- |   |  |
|---|--|
| Acoustics, Noise Abatement  | Dams ( <i>Concrete; Arch</i> )                                       |
| Aerial Photography; Airborne Data and Imagery Collection and Analysis           | Dams ( <i>Earth; Rock</i> ); Dikes; Levees                           |
| Activity Centers  | Desalinization ( <i>Process and Facilities</i> )                     |
| Air Pollution Control   | Design-Build - Preparation of Requests for Proposals                 |
| Airports; Navajds; Airport Lighting; Aircraft Fueling                           | Digital Elevation and Terrain Model Development                      |
| Airports; Terminals and Hangars; Freight Handling                               | Digital Orthophotography   |
| Agricultural Development; Grain Storage; Farm Mechanization                     | Dining Halls; Clubs; Restaurants                                     |
| Animal Facilities   | Dredging Studies and Design  |
| Anti-Terrorism/Force Protection   | Design & Planning Structured Parking Facilities                      |
| Area Master Planning  | Detention Security Systems   |
| Auditoriums and Theaters  | Disability / Special Needs   |
| Automation; Controls; Instrumentation   | Ecological and Archeological Investigations                          |
| Barracks; Dormitories   | Educational Facilities; Classrooms                                   |
| Bridge Design: Bridges  | Electrical Studies and Design  |
| Cartography   | Electronics  |
| Cemeteries ( <i>Planning and Relocation</i> )                                   | Elevators; Escalators; People-Movers                                 |
| Chemical Processing and Storage   | Energy / Water Auditing Savings                                      |
| Child Care/Development Facilities   | Energy Conservation; New Energy Sources                              |
| Codes; Standards; Ordinances  | Environmental Impact Studies, Assessments or Statements              |
| Cold Storage; Refrigeration and Fast Freeze                                     | Fallout Shelters; Blast-Resistant Design                             |
| Commercial Building ( <i>Low Rise</i> ); Shopping Centers                       | Fire Protection  |
| Community Facilities  | Fisheries; Fish Ladders  |
| Communications Systems; TV; Microwave   | Forensic Engineering   |
| Computer Facilities   | Garages; Vehicles Maintenance Facilities; Parking                    |
| Conservation and Resource Management  | Gas Systems ( <i>Propane; Natural, Etc.</i> )                        |
| Construction Management   | Geodetic Surveying: Ground and Airborne                              |
| Construction Surveying  | Heating; Ventilating; Air Conditioning                               |
| Corrosion Control; Cathodic Protection Electrolysis                             | Highways; Streets; Airfield Paving; Parking Lots                     |
| Cost Estimating; Cost Engineering and Analysis; Parametric Costing; Forecasting | Historical Preservation  |
| Cryogenic Facilities  | Hospital and Medical Facilities                                      |
| Construction Materials Testing  | Hotels; Motels   |
|   | <i>Housing (Residential, Multi-Family; Apartments; Condominiums)</i> |



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Hotels; Motels  
Hydraulics and Pneumatics  
Hydrographic Surveying  
Industrial Buildings; Manufacturing Plants  
Industrial Processes; Quality Control  
Industrial Waste Treatment  
Intelligent Transportation Systems  
Infrastructure  
Irrigation; Drainage  
Judicial and Courtroom Facilities  
Laboratories; Medical Research Facilities  
Land Surveying  
Landscape Architecture  
Libraries; Museums; Galleries  
Lighting (*Interior; Display; Theater, Etc.*)  
Lighting (*Exteriors; Streets; Memorials; Athletic Fields, Etc.*)  
Labs - General  
Labs – Research – Dry  
Labs – Research – Wet  
LEED Accredited A/E  
LEED Independent 3<sup>rd</sup> Party Building Commissioning  
Mapping Location/Addressing Systems  
Materials Handling Systems; Conveyors; Sorters  
Metallurgy  
Materials Testing  
Measurement / Verification / Conservation Water Consumption Savings  
Mining and Mineralogy  
Medical Related  
Modular Systems Design; Fabricated Structures or Components  
Mold Investigation  
Museums  
Nuclear Facilities; Nuclear Shielding  
Office Buildings; Industrial Parks  
Outdoor Recreation  
Petroleum and Fuel (*Storage and Distribution*)  
Photogrammetry  
Pipelines (*Cross-Country - Liquid and Gas*)  
Phase I Environmental  
Prisons & Correctional Facilities  
Plumbing and Piping Design  
Prisons and Correctional Facilities  
Product, Machine Equipment Design Pneumatic Structures, Air-Support Buildings Power Generation, Transmission, Distribution Public Safety Facilities  
Radar; Sonar; Radio and Radar Telescopes  
Radio Frequency Systems and Shielding's  
Railroad; Rapid Transit  
Recreation Facilities (*Parks, Marinas, Etc.*)  
Refrigeration Plants/Systems  
Rehabilitation (*Buildings; Structures; Facilities*)  
Research Facilities  
Resources Recovery; Recycling  
Roof Infrared Imaging to Identify Water Leaks

Roofing  
Safety Engineering; Accident Studies; OSHA Studies  
Security Systems; Intruder and Smoke Detection  
Seismic Designs and Studies  
Sewage Collection, Treatment and Disposal  
Soils and Geologic Studies; Foundations  
Solar Energy Utilization  
Solid Wastes; Incineration; Landfill  
Special Environments; Clean Rooms, Etc.  
Structural Design; Special Structures  
Surveying; Platting; Mapping; Flood Plain Studies  
Sustainable Design  
Swimming Pools  
Storm Water Handling and Facilities  
Specifications Writing  
Toxicology  
Testing and Inspection Services  
Traffic and Transportation Engineering  
Topographic Surveying and Mapping  
Towers (*Self-Supporting and Guyed Systems*)  
Tunnels and Subways  
Traffic Studies  
Transportation  
Urban renewals; Community Development  
Utilities (*Gas and Steam*)  
Value Analysis; Life-Cycle Costing  
Warehouse and Depots  
Water Resources; Hydrology; Ground Water  
Water Supply; Treatment and Distribution  
Wind Tunnels; Research/Testing Facilities Design  
Waste Water Treatment Facility  
Water Well Rehabilitation; Water Well Work  
Zoning; Land Use Studies



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(If a firm has branch offices, complete for each specific branch office seeking work.)

1. **Annual Request for Qualifications**

a. FIRM (OR BRANCH OFFICE ) NAME:	Shannon & Wilson, Inc.
b. FIRM (OR BRANCH OFFICE) STREET:	1321 Bannock Street, Suite 200
c. FIRM (OR BRANCH OFFICE) CITY:	Denver
d. FIRM (OR BRANCH OFFICE) STATE:	Colorado
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	80204
f. YEAR ESTABLISHED:	1954
(g1). OWNERSHIP - TYPE:	Corporation, Employee Owned
(g2) OWNERSHIP - SMALL BUSINESS STATUS:	No
h. POINT OF CONTACT NAME AND TITLE:	Greg Fischer, Senior Vice President
i. POINT OF CONTACT TELEPHONE NUMBER:	303-825-3800
j. POINT OF CONTACT E-MAIL ADDRESS:	grf@shanwil.com
k. NAME OF FIRM (If block 1a is a branch office):	



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**2. EMPLOYEES BY DISCIPLINE**

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
Civil Engineer	P	2	0
Construction Inspector	P	3	0
Environmental Engineer	P	11	0
Environmental Scientist	P	22	0
Geotechnical Engineer	P	84	13
Geologist	P	37	3
Mining Engineer	P	1	0
Technician/Analyst	P	27	6
Chemist	P	5	0
Biologist	P	5	0
CADD Technician	P	6	0
Computer Programmer	P	10	0
Geographic Information System Specialist	P	3	0
Hydraulic Engineer	P	3	0
Soils Engineer	P	6	0
Seismic Engineer	P	6	0
Hydroecologist	P	10	0
Underground Engineer	P	6	1
<b>Total</b>		<b>247</b>	<b>23</b>



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**3. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST YEAR**

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number (see below)
Numerous	Bridges	7
Numerous	Buildings (low and high-rise)	5
Numerous	Earth dams, levees, rivers, waterways, flood control	5
Numerous	Environmental studies	7
Numerous	Harbors; port facilities	4
Numerous	Hazardous waste management; USTs	4
Numerous	Highways and airfields	6
Numerous	Industrial facilities; mining, mineralogy	3
Numerous	Pipelines	4
Numerous	Railroad; rapid transit	7
Numerous	Sewage Collection; treatment	5
Numerous	Geotechnical studies	8
Numerous	Solid waste disposal	4
Numerous	Construction management; testing; inspection	5
Numerous	Tunnels; subways; underground	5
Numerous	Hydrology; groundwater	5

**PROFESSIONAL SERVICES REVENUE INDEX NUMBER**

- |   |   |
|---|---|
| 1. Less than \$100,000                  | 6. \$2 million to less than \$5 million   |
| 2. \$100,000 to less than \$250,000     | 7. \$5 million to less than \$10 million  |
| 3. \$250,000 to less than \$500,000     | 8. \$10 million to less than \$25 million |
| 4. \$500,000 to less than \$1 million   | 9. \$25 million to less than \$50 million |
| 5. \$1 million to less than \$2 million | 10. \$50 million or greater               |



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**4. Resumes of Key Personnel Proposed for this Contract** (Complete one Section 4 for each key person.)

a. NAME: Greg Fischer	b. ROLE IN THIS CONTRACT Geotechnical Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 29	2. WITH CURRENT FIRM 26

d. LOCATION (City and State) Denver, Colorado

e. EDUCATION (DEGREE AND SPECIALIZATION) PhD in Civil Engineering	f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Engineer in AZ and 24 other States
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g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.)

- American Council of Engineering Companies
- American Society of Civil Engineers
- American Public Work Association
- Structural Engineers Association of Colorado
- International Geotextile Society
- North American Geosynthetic Society
- Society of American Military Engineers
- American Society of Foundation Engineers
- Association of State Dam Safety Officials

**H. RELEVANT PROJECTS**

1.	(1) TITLE AND LOCATION (City and State) <b>I-25 North Design- Build</b>	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE As Principal-in-Charge, Greg oversaw geotechnical services for this Design-Build project involving roadway widening from Colorado Springs to Monument that included interchange reconfiguration, bridge replacements, trenchless crossings, and box culverts. Work included subsurface investigations and laboratory testing, engineering analysis and foundation design, and over 10 miles of pavement design.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) <b>I-94 Painted Canyon Landslide (Billings County, ND)</b>	(2) YEAR COMPLETED-
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Greg was the Principal-in-Charge for evaluation of a large landslide on I-94 in Theodore Roosevelt National Park. The project included evaluating various stabilization alternatives to mitigate this landslide, including an anchored drilled shaft wall, slope re-grading, drainage improvements, and a ground anchor and block system.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) <b>Emergency Response 2013 Flood Event (Larimer County, CO)</b>	(2) YEAR COMPLETED-
		Professional Services 2014 Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Greg led Shannon & Wilson's emergency geotechnical services as part of the US 34 reconstruction project between Loveland and Estes Park. The work consisted of assisting CDOT with reconstruction activities including rebuilding the roadway, which was severely damaged by the September 2013 rain event and subsequent flooding. Greg provided recommendations for scour protection, embankment reconstruction, and to address landslides and rock falls.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) <b>I-94 East of Glendive Geotechnical Investigation</b>	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Greg was the Principal-in-Charge overseeing geotechnical investigations to identify potential causes for roadway settlement, subsurface voids, piping and severe erosion, and damaged drainage culverts along a 6-mile stretch of highway. Work involved subsurface explorations and geophysical investigations to characterize site conditions, which consisted of weak soils and highly-erosive, dispersive clay. Several rehabilitation options were developed and analyzed to assist the Montana Department of Transportation in evaluating various options for roadway rehabilitation.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) <b>RTD I-225 Light Rail</b>	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Greg is currently serving as the project manager for geotechnical services for approximately 10 miles of new light rail line, including 8 bridges, numerous retaining walls, and paving of adjacent roadways. The field exploration program for the project consists of more than 4,000 feet of drilling in urban areas. Greg is overseeing recommendations for drilled shaft and driven pile foundations for bridges; cast-in-place concrete retaining walls; MSE retaining walls; cantilevered and anchored drilled shaft walls; soil nail walls; track section and subgrade; and pavement design.	<input checked="" type="checkbox"/> Check if project performed with current firm



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**4. Resumes of Key Personnel Proposed for this Contract** *(Complete one Section 4 for each key person.)*

a. NAME: Mark Vessely	b. ROLE IN THIS CONTRACT Geotechnical Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 19 years	2. WITH CURRENT FIRM 4 years

d. LOCATION (City and State)- Denver, CO

e. EDUCATION (DEGREE AND SPECIALIZATION) BS- Geotechnical Engineering MS- Civil Engineering	f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Engineer- Colorado Professional Geologist- Colorado
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g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.)  
 Transportation Research Board- Member of Geotechnical Asset Management Subcommittee  
 American Society of Civil Engineers- Steering Committee Member for 2006, 2008, 2010, 2012 Geotechnical Seminars  
 Colorado Association of Geotechnical Engineers- President (2011), Vice President (2010), Secretary (2009), Board Member at Large (2007-2008)  
 FHWA Northwest Geotechnical Workshop and Highway Geology Symposium- State DOT Workshop Coordinator for 2006 Joint Conference in Breckenridge, Colorado

**H. RELEVANT PROJECTS**

1.	(1) TITLE AND LOCATION (City and State) <b>CDOT Geotechnical and Geologic Hazards On-Call</b>	(2) YEAR COMPLETED-
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mark is the project manager for a multi-year on call project to provide CDOT geotechnical services for multiple tasks ranging from emergency response requests for landslides and rockfall, drilling investigations, laboratory services, and design for geotechnical projects including rockfall and slope stabilization. Additionally, we have provided draft documents to CDOT in support of asset management plans and the first CDOT geotechnical design manual. Other representative tasks under this contract have included evaluating the feasibility of using radar systems as stand-alone devices or in combination with other instrumentation to provide a full-time monitoring system that for rockfall and rockslides in Glenwood Canyon; performing a Quality Control and Quality Assurance (QA/QC) assessment of the Colorado Rockfall Hazard Rating System; design and construction services for a sinkhole that formed above an abandoned railroad tunnel at Tennessee Pass on U.S. Highway 24; development of mobile data collection applications to support staff activities in the field; and implementation of an real time automatic data acquisition system to allow CDOT staff to view multiple geotechnical monitoring locations around the state via an web based system.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) <b>Weld County Road 49 Extension (Weld County, CO)</b>	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mark is project manager for geotechnical services for this roadway expansion project involving approximately 3 miles of new 4-lane roadway; a new 1,000-foot-long bridge over the Cache La Poudre River; widening of bridges over the Platte River; and a new structure over the Ogilvy ditch. Work included geotechnical investigations, pavement design, and foundation design recommendations for driven pile foundations with a length of over 100 feet.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) <b>Red Rock Scenic Loop Drive (Las Vegas, Nevada)</b>	(2) YEAR COMPLETE
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mark was the Project Manager for geotechnical design of roadway improvements, including roadway widening, new alignment alternatives, bridge structures, and pavement rehabilitation for over thirteen miles of existing roadway and trail access parking lots within the Red Rock Canyon National Conservation area. The primary roadway for the project is a one-way loop road with several gravel surfaced side roads that also is very popular for bicycle touring. Shannon & Wilson provided geotechnical engineering analysis to develop recommendations for new and rehabilitation pavement designs, bridge structure foundations, and excavation into caliche soil deposits.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) <b>Grand Avenue Value Engineering Study (Glenwood Springs, CO)</b>	(2) YEAR COMPLETED
		Professional Services 2014 Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mark was the geotechnical team member for a value engineering study of the Grand Avenue Bridge Replacement in Glenwood Springs. During the study, Mark provided value engineering concepts related to deep and shallow foundations, mitigation of construction risk for hydrothermal groundwater resources, wall design, and vibration monitoring.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) <b>Federal Bridge Replacement over the BNSF Railway (Adams County, CO)</b>	(2) YEAR COMPLETED-
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mark managed the geotechnical investigation for the replacement of the a multi-span bridges over the railroad. Due to poor embankment soils, geofam was used at several locations to accommodate a grade raise while maintaining the stability of the embankment. The project also required a pavement design in accordance with CDOT Pavement Design Manual.	<input checked="" type="checkbox"/> Check if project performed with current firm



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**4. Resumes of Key Personnel Proposed for this Contract** *(Complete one Section 4 for each key person.)*

a. NAME: Paul Macklin	b. ROLE IN THIS CONTRACT Geotechnical Engineer/Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 31 years	2. WITH CURRENT FIRM 6 months
d. LOCATION <i>(City and State)</i>			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS- Geology MS- Civil Engineering		f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Engineer- Colorado	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> Member, American Society of Civil Engineers Treasurer, Board of Directors, Rocky Mountain Chapter, Association of Drilled Shaft Contractors			

**H. RELEVANT PROJECTS**

1.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>US-6 Bridges Design-Build Project (Denver, CO)</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <i>As geotechnical lead for the design-build contractor, Paul provided foundation design recommendations and retaining wall design for 11 bridges and 28 retaining walls (1 cast in place cantilever wall, 5 ground nail walls, 3 hybrid walls and 19 MSE walls). Developed plans and specifications for the retaining walls; conducted overall (global) stability, external limit state and serviceability (settlement) design calculations; and, shop drawing review for the different wall systems.</i>	<input type="checkbox"/> Check if project performed with current firm	
2.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>Interstate Highway I-70 (Eagle-Vail, CO)</b>	(2) YEAR COMPLETED-	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <i>Completed site investigation and provided geotechnical design recommendations for innovative micropile current wall to protect existing scour susceptible bridge piers supporting interstate traffic over the Eagle River.</i>	<input checked="" type="checkbox"/> Check if project performed with current firm	
3.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>SH 5, Mount Evans Road (Clear Creek County, CO)</b>	(2) YEAR COMPLETED-	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <i>Developed engineering plans and specifications for an embedded retaining wall on a CDOT project. Slope erosion was undermining the asphalt travel lanes and threatening to close the Mount Evans Road located at Elevation 12,500 feet. An embedded retaining wall consisting of micropiles was selected for mitigation based on minimal impacts to the existing terrain, ease of construction using smaller, maneuverable drilling equipment to construct the micropiles and overall cost.</i>	<input checked="" type="checkbox"/> Check if project performed with current firm	
4.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>Peoria Crossing Project (Denver, CO)</b>	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <i>As geotechnical lead for the design-build contractor, Paul provided stability and settlement analyses (elastic settlement, consolidation settlement and time rate of settlement) for the approach embankments and 6 MSE walls adjacent to the Peoria Street Bridge. The settlement and time rate of settlement analyses was used to stage the approach embankment and retaining wall construction; thereby eliminating the need for deep foundations/foundation improvement initially required in the RFP.</i>	<input type="checkbox"/> Check if project performed with current firm	
5.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>SH-9 Iron Springs (Breckenridge, CO)</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <i>Geotechnical Project Manager for CDOT realignment of a SH 9 roadway segment. Responsible for the completion of a geotechnical subsurface investigation, field mapping, laboratory testing and preparation of a professional report with design recommendations on a highway alignment relocation project.</i>	<input checked="" type="checkbox"/> Check if project performed with current firm	



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Phoenix, Arizona 85007**

a. NAME: Travis Deane	b. ROLE IN THIS CONTRACT Geotechnical Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 22	2. WITH CURRENT FIRM 11
d. LOCATION ( <i>City and State</i> ) Los Angeles, California			
e. EDUCATION ( <i>DEGREE AND SPECIALIZATION</i> ) BS & MS in Civil Engineering		f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Engineer- Civil; California and Washington Professional Engineer- Geotechnical; California	
g. OTHER PROFESSIONAL QUALIFICATIONS ( <i>Organizations, Awards, etc.</i> ) The Association of Engineering Firms Practicing in the Geosciences American Society of Civil Engineers			

**H. RELEVANT PROJECTS**

1.	(1) TITLE AND LOCATION ( <i>City and State</i> ) <b>City of Los Angeles On-Call, White Point Landslide (San Pedro, CA)</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE Geotechnical project manager for exploration and repair of a large landslide, including preparing recommendations to maintain stability, protect adjacent properties, and restore City infrastructure. The landslide failed in fall 2011, mobilizing about 250,000 cubic yard, destroying the road and utilities and threatening nearby properties. Travis reviewed and helped initiate the exploration program of the site on an emergency basis. He also reviewed and helped prepare instrumentation installation to measure ground movement and to characterize a complex hydrogeologic system. Repairs are currently in design and construction, including dewatering using directional drilling, regrading, and high strength tieback anchors. Travis is currently preparing final design, including preparing construction contract documents. The designs include considerations for tar that is present in the Altamira Shale.	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION ( <i>City and State</i> ) <b>Chadwick School (Palos Verdes, CA)</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE Project Manager for a new access route from Crenshaw Boulevard to the main campus. Travis prepared a feasibility study for a new access road traversing a steep slope with known landslides. Feasible options consisted of several tunneling alternatives, including cut-and-cover, segmental excavation, and other techniques. The tunnel length is about 800 feet with a diameter of 36 feet. He reviewed previous geotechnical studies performed on campus by other consultants to estimate subsurface conditions.	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION ( <i>City and State</i> ) <b>SR-89 Grade Separation &amp; Replacement Project (Truckee, CA)</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE The Town of Truckee and Caltrans have been investigating widening SR-89 to accommodate increasing traffic flows. This segment of roadway includes an 80-year old, 25-foot wide double-lane tunnel, known as the "Mousehole," under a fill embankment supporting mainline Union Pacific Railroad tracks. Because of numerous constraints, we were directed to evaluate tunneling options that could be used to construct twin 40-foot-wide highway tunnels and a 12 foot-wide pedestrian tunnel without disrupting rail traffic. As project engineer, Travis helped prepare an assessment to evaluate tunneling options and worked on the selected final design with the project team. We completed a limited exploration program of the embankment consisting of both horizontal and vertical drilling. We evaluated four options for the highway tunnel replacement, and based on the information collection and project constraints, recommended the sequential excavation method (SEM or also known as the New Austrian Tunneling Method) be considered for two new tunnels and a pipe jacking method for the new multi-use pedestrian tunnel.	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	(1) TITLE AND LOCATION ( <i>City and State</i> ) <b>Mount Lee Washout Emergency Road Repair (Hollywood, CA)</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE Lead geotechnical engineer and designer of an emergency repair for a washed out roadway below the "Hollywood" sign. This section of Mulholland Highway was closed to general traffic but was used by the City to access communication towers on top of Mount Lee. The Los Angeles Bureau of Engineering requested we work with Griffith Company (contractor) to develop the repair and begin construction within two days after the initial site meeting to review the washout. Travis worked with the City and contractor to review four repair options and explored the washout with the contractor's equipment to determine the most feasible repair option. This repair consisted of excavating into the existing rock cut of the roadway and using the material to fill the washout and buttress the fill side of the road. The road was passable within two weeks and reopened entirely within two months.	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	(1) TITLE AND LOCATION ( <i>City and State</i> ) <b>Union Pacific Railroad, Intermodal Facility Expansion ( Lathrop, CA)</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE Project Manager for expansion of a truck-train transfer facility. UPRR acquired the adjacent eastern parcel with approximately 96 acres for the proposed facility expansion. Our services included subsurface exploration consisting of six soil borings, 18 cone penetration tests, and eight test pits for a new lead track into the yard. Distress had been noted in the concrete pavement of the existing yard following construction in 1992. The purpose of our exploration was to detect variations in the subsurface soils throughout the existing yard and new addition. We prepared pavement design recommendations for new concrete slabs and recommendations to mitigate existing distress and reduce potential of future distress to new slabs.	<input checked="" type="checkbox"/>	Check if project performed with current firm



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**4. Resumes of Key Personnel Proposed for this Contract** (Complete one Section 4 for each key person.)

a. NAME: Beth Widmann	b. ROLE IN THIS CONTRACT Professional Geologist	c. YEARS EXPERIENCE	
		1. TOTAL 20	2. WITH CURRENT FIRM 7
d. LOCATION (City and State) Denver, Colorado			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS & MS in Structural Geology		f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Geologist- Colorado Registered Geologist- Arizona	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.) American Public Works Association (APWA)			

**H. RELEVANT PROJECTS**

1.	(1) TITLE AND LOCATION (City and State) <b>CDOT Emergency Response 2013 Flood Event, Boulder and Larimer Counties, Colorado.</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE As a project geologist, Beth provided emergency assessment of several flood damaged sites affected by landslides, debris flow, and rockfall. Work included rapid assessment of affected sites and preparation of reports documenting field observations and providing recommendations for mitigation activities.	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) <b>CDOT Flood Recovery Office, Greeley, Colorado.</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Since February 2014, Beth has been assisting with the flood recovery effort by providing part time project management and GIS support at the Flood Recovery Office in Greeley. Beth has been involved with developing new geo-spatial data as well as working with numerous agencies to gather existing data. The GIS data was used to create maps for field use and official damage reports; to develop and populate a website for internal use by CDOT staff and their project partners as well as a public facing website; and to help manage and quality check project data. Beth was also involved in gathering materials for a 1-year anniversary media event and is currently part of a team tasked with preparing guidelines for management of future disaster events.	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) <b>CDOT Rockfall Management Plan, Colorado.</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Beth was involved in the compilation and GIS analysis of rockfall data to develop a risk-based management plan to guide prioritization of future risk mitigation projects. As part of this project, Beth assisted in the development of a GIS-based, mobile data collection system designed to allow CDOT staff to capture real-time rockfall event data using a smart phone or tablet. Additionally, Beth is working with CDOT and the Colorado Avalanche Information Center to expand the rockfall mobile system to include avalanche events.	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) <b>CDOT Geotechnical Asset Management Program, Colorado.</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Beth is currently involved in the compilation and analysis of data from multiple sources to develop a comprehensive database of geologic hazards affecting CDOT roadways and assets. The data is being used to assess risk, prioritize sites for mitigation, and assist with decisions regarding program funding. Beth's responsibilities include researching and compiling relevant data, assigning scoring criteria to individual sites, analyzing data using ArcGIS, and preparing figures for CDOT presentations and meetings with management and transportation commission staff.	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) <b>CDOT Wall Inventory, Colorado.</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Beth is currently involved in the development of a comprehensive retaining wall asset inventory and condition assessment of all wall features on CDOT maintained roadways. Beth's work involves quality checking wall location information and providing spatial analysis of wall inventory data using ArcGIS. Beth is also assisting with risk assessment and development of a risk-based management plan that will prioritize repair needs and help guide future funding decisions.	<input checked="" type="checkbox"/>	Check if project performed with current firm



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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION (City and State) Yuma Seismic Strengthening Evaluation (Yuma, AZ)	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2009	CONSTRUCTION (If applicable)

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER U.S. Bureau of Reclamation	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$33,000	e. TOTAL COST OF PROJECT \$33,448
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)  
Shannon & Wilson is currently completing a geotechnical liquefaction hazard assesment for the U.S. Bureau of Reclamation's Yuma Project Office Headquarters, located at the Yuma Desalting Plant. Our work is being completed in support of a seismic retrofit of the building. As part of our evaluation we reviewed several previous studies at the site. Using the Standard Penetration Test results, boring logs, and laboratory data provided to us by the Bureau of Reclamation, we performed simplified empirical analyses using three of the most widely used and accepted methods to evaluate liquefaction potential beneath the site. We also used empirical methods to assess the magnitude of earthquake-induced settlement. Additionally, we used an empirical method to assess the potential for earthquake-induced lateral spreading at the site.

a. TITLE AND LOCATION (City and State) 2013 Emergency Flood Response (Boulder and Larimer Counties, CO)	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2014	CONSTRUCTION (If applicable)

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Atkins/Kiewit/ Colorado Department of Transportation	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT \$268,000
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g. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)  
Shannon & Wilson's emergency geotechnical services to Kiewit as part of the US 34 reconstruction project between Loveland and Estes Park. The work consisted of assisting Colorado DOT and Kiewit with reconstruction activities including rebuilding the roadway, which was severely damaged by the September 2013 rain event and subsequent flooding. Shannon & Wilson, Inc. provided recommendations for scour protection, embankment reconstruction, and to address landslides and rock falls. The team provided services for over 100 near-consecutive days.

a. TITLE AND LOCATION (City and State) I-25 North Design-Build	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION (If applicable)

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Parsons Brinckerhoff/ Colorado Department of Transportation	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT \$265,000
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BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)  
Design-Build project involving roadway widening from Colorado Springs to Monument that included interchange reconfiguration, bridge replacements, trenchless crossings, and box culverts. Work included subsurface investigations and laboratory testing, engineering analysis and foundation design, and over 10 miles of pavement design.



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a. TITLE AND LOCATION <i>(City and State)</i> Colorado Department of Transportation On-Call Contracts- Geotechnical and Rockfall	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER CDOT	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT \$1,114,701
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h. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)  
Shannon & Wilson has been supporting the Colorado Department of Transportation's Rockfall Group on an as-needed basis since 2011. Projects are issued on a task order basis, which to-date have included Geologic mapping along rockfall-prone sections of highways, developing rockfall mitigation measures, and evaluation and other geotechnical hazards, including post-fire induced debris flows. Shannon & Wilson has also provided Evaluation of the feasibility of using radar systems as stand-alone devices or in combination with other instrumentation to provide a full-time monitoring system that for rockfall and rockslides. Additionally we have been providing field personnel/engineers to observe and document various rockfall mitigation construction projects around the state, including installation/repair of slope mesh, scaling, blasting, and shotcrete repair of a barrier wall.

a. TITLE AND LOCATION <i>(City and State)</i> White Point Landslide (San Pedro, CA)	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER Hayward Baker, Inc./City of Los Angeles	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT \$897,487
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i. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)  
Shannon & Wilson began a study for the City of Los Angeles shortly after the slide failure that included geologic mapping and explorations, characterization of the existing slide mechanism, slope stability calculations, and geotechnical instrumentation. These efforts lead to additional study required to develop grading/stabilization recommendations for the exiting slide failure and predictively evaluate local potential for future landslide failures. The predictive evaluation included a groundwater flow model that simulated dewatering and groundwater control options. The study culminated a two pronged remediation strategy to stabilize the coastal bluff east of the landslide. The remediation consisted of 20 horizontal directional gravity-fed drains to dewater the bluff and 16 tieback anchors to provide redundant and surficial stability. Shannon & Wilson provided engineering support though the duration of approval through the California Coastal Commission and construction in environmentally sensitive and tar-sand laden areas. Shannon & Wilson will continue to monitor local instrumentation for the next five years to evaluate drain and tieback performance in connection to ongoing slope stability.



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6. ADDITIONAL INFORMATION

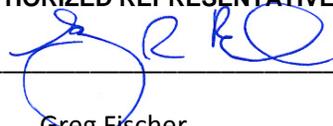
a. PROVIDE ANY ADDITIONAL INFORMATION YOU FEEL MAY BE NECESSARY TO DESCRIBE YOUR FIRMS QUALIFICATIONS. (ATTACH ADDITIONAL SHEETS AS NEEDED.)

Shannon & Wilson is an employee-owned, nationally recognized geotechnical and environmental engineering firm with 10 offices across the country. We are licensed and have worked throughout the U.S. and our staff is committed to travelling to project sites. For any State of Arizona contract, work will be performed primarily by staff from our Denver, Colorado, office with support from our other offices across the country as needed. As a firm, Shannon & Wilson has extensive experience with geotechnical engineering and geologic hazards mitigation for federal, state, and municipal transportation agencies, as well as freight railroads and utilities throughout North America. Our expertise is the result of 60 years of experience in the industry, and we have a well-earned reputation for providing high-quality technical services. Our services include project development, field explorations, engineering analysis and design, geotechnical testing services, and pavement design.

7. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

a. Percentage of Total Work Attributable to State, Federal and Municipal Government Work:	60
b. Percentage of Total Work Attributable to Non-Government Work:	40

8. AUTHORIZED REPRESENTATIVE. The foregoing is a statement of facts.

Signature:  Date: 12/17/14  
Name: Greg Fischer Title: Senior Vice President