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

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete One Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Etna Interchange Rehabilitation Project, Preliminary and Final Design Services, S.R. 0028, Sections A19, A24 & A34-A37 Allegheny County, PA	2012	2012

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	d. POINT OF CONTACT TELEPHONE NUMBER
PENNDOT District 11-0	Mr. Erik Porter	412-429-4869

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size and cost)*

This project involves rehabilitation of the Etna Interchange where S.R. 0028 intersects S.R. 0008 along the Allegheny River. The project entails 5 separate construction phases to complete over 4 miles of limited access highway improvements, widen portions of the project to improve capacity from two to four through-lanes over the full length of project, reconstruct 10 multi-span and 3 single-span bridges, construct more than 5,000 linear feet of new retaining walls, relocate a 60" diameter water main, realign several ramps and improve rockfall protection along an existing cut slope.

Principal Features of Work: AWK was responsible for geotechnical and hazardous waste services to support preliminary and final design. AWK was also responsible to prepare plans for rockfall mitigation and to provide construction consultation services. AWK's services generally included the following.

Hazardous Waste: AWK completed a detailed study to investigate the waste impacts on proposed construction. This work included an Initial Site Assessment (ISA) and Preliminary Site Investigation (PSI). The following key elements were completed for this work.

- Identification of 33 parcels with potential waste concerns. An evaluation was conducted to identify 11 parcels for further study during the PSI. These parcels were identified based on a detailed literature review, site reconnaissance and contacts with property owners.
- A detailed study at 11 suspect waste sites. This study generally included development of a site-specific Health and Safety Plan (HASP) in accordance with 29 CFR 1910.120, a Sampling and Analysis Plan, and collection of 45 soil samples using Geoprobe sampling equipment. Photoionization detectors were used to detect volatile organic compounds in the field. Samples were submitted to the laboratory for TPH, RCRA metals and select other compounds to identify possible waste constituents.
- Data obtained was used to characterize potential waste areas and identify waste management requirements for construction.

A health risk assessment was completed to assess impacts of potential contaminants on worker safety.

Geotechnical: AWK was responsible for all geotechnical services for this project. The following is an overview of principal geotechnical activities performed on this project.

- Administration of 12 separate Subsurface Boring, Sampling and Testing Contracts (SBSTCs) to investigate subsurface conditions. Available information was used to develop a detailed Problem Statement and Draft Exploration Plan (PSDEP) for each construction phase. The SBSTCs entailed more than 20,000 LF of test borings, dozens of test pits to expose existing substructure foundations, and instrumentation to evaluate substructure distress.
- Development and implementation of a geophysical survey program at multiple bridges to determine if existing pile foundations are point-bearing on rock and locate a curved section of 60" water main below a 40-foot high embankment. A combination of seismic tomography (3D imaging), downhole ground penetrating radar and electrical resistivity methods were used. The results of the survey were presented at the 54th Highway Geology Symposium in 2002 in Burlington, VT.
- Preliminary geotechnical engineering to determine existing subsurface conditions, assess feasible alternatives and prepare recommendations to support a Step 9 submission.
- Geotechnical analyses were completed to support LFD and LRFD design, including settlement and bearing capacity analyses for shallow and deep foundations, downdrag analysis of drilled shaft and driven pile foundations, global stability analysis at retaining walls using PASTABL and Rockfall simulation using the Colorado Rockfall Simultaion Program (CRSP)
- Pre-Final and Final Geotechnical Engineering to support final design. Evaluations were completed to support design of shallow and deep foundations, temporary support towers, cantilevered and anchored retaining wall design, utility relocation and rockfall protection improvements.
- Preparation of Soil Profile Plans and geotechnical-related special provisions.
- Preparation of Plans, specifications and cost estimates to improve rockfall protection at existing rock cuts along S.R. 0028.
- Construction consultation to review contractor submittals.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a	AWK Consulting Engineers, Inc.	Turtle Creek, PA	Sub Contractor
b	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE