7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Roger A. Failmezger, P.E., F. ASCE
President

b. Project Assignment:

Senior Subsurface Investigator

c. Name of Firm with which associated:

In-Situ Soil Testing, L.C.

d. Years Experience: With this Firm 15.0 With Other Firms 15.0

e. Education: Degree(s)/Year/Specialization

M.E.C.E., 1982, University of Florida
B.S.C.E., 1981, Lehigh University

f. Active Registration: Year First Registered/Discipline

1986 - Professional Engineer in Virginia, Maryland, Pennsylvania
2006 - Fellow ASCE

g. Other Experience and Qualifications relevant to the proposed project:

Mr. Failmezger has supervised and planned geotechnical exploration programs and performed geotechnical design for numerous infrastructure projects. Those projects have included large diameter water and sewer mains, roadways, airport pavements, bridges, subway stations, office buildings, retaining walls, and earth dams. Based on his design background, Mr. Failmezger knows that one of the most difficult geotechnical tasks is numerically characterizing the subsurface conditions to accurately determine what values of soil/rock strength, deformation moduli, lateral/vertical stresses and permeability to use for design.

Mr. Failmezger has been an invited speaker numerous times at VDOT, ASCE, Soil Nailing Users' meetings to discuss these topics. At the International Site Characterization conference, Dr. Marchetti invited him to be a speaker for the dilatometer short course. He was an invited speaker at the 1999 and 2004 national ASCE conventions and the 50 years of pressuremeters International Symposium. He has published over 10 technical papers on in-situ testing and probability. He organizes the Virginia ASCE Geotechnical Section meetings and was an editor and the organizer for the Second International Flat Blade Dilatometer Conference in 2006. He created a CD-ROM that contains a large volume of technical documents that has been used by 5000 engineers worldwide.

Mr. Failmezger discovered that risk is linearly related to factor of safety and its standard deviation and developed design charts to quantify the probability of success. With accurate data, he has shown that designs will be tailored to the owner's needs and acount for the heterogeniety or homogeniety of the subsurface conditions. In traditional desgin, the factor of safety is arbitrarily chosen and risk is not quantified.

Geotechnical designs involve determining what the soil's response is to static and dynamic loads. Mr. Failmezger specializes in performing dilatometer, electric piezocone, pressuremeter, borehole shear tests, and Ko step blade tests. Dilatometer tests are particularly useful for quantifying settlement under shallow foundations or embankment loads and for lateral load analysis of deep foundations. Electric piezocone testing provides excellent data for soil stratigraphy, vertical pile capacity, time rate of settlement and dewatering design. Seismic tests are performed with either dilatometer or piezocone tests at 1-meter intervals to determine shear wave velocity and low strain shear modulus for dynamic analyses. Pressuremeter tests provide good data for modelling the load response in dense sands or rock where direct push methods (dilatometer and piezocone) cannot be used. Borehole shear tests can evaluate the drained shear strength parameters of soil/rock and can be used to accurately determine the long term stability of a slope. Rock pressuremeter and rock shear tests are useful to quantify rock properties. In a published paper, Failmezger showed that RQD does not correlate with rock deformation moduli.

Mr. Failmezger has planned and supervised the geotechnical investigation and performed foundation design for many bridge projects. For the Wilson bridge, he has performed the in-situ testing, which included dilatometer, piezocone, pressuremeter and borehole shear. He performed a dilatometer sounding that extended 100 feet into the Potomac Group clays. For the Coleman bridge, he performed or supervised over 80 pressuremeter tests and 400 dilatometer tests, including the deepest one ever performed in the U.S. at a depth of 240 feet. For the Strait Crossing Bridge between New Brunswick and Prince Edward Island, Canada, he assisted with performing a 2000 ton drilled pier load test using the Osterberg method. For Pinners Point bridge, he evaluated the alluvial clays and determined that they were not as soft or thick as originially thought. As a result, the retaining walls will be designed as mechnically stabilized earth walls instead of the much more expensive pile supported walls. He performed several deep CPTU soundings (up to 172 feet) and performed vertical pile design analyses for the proposed drilled shafts. He performed dilatometer and pushed-in pressuremeter tests to evaluate the settlement of an embankment for U.S. Route 20 crossing of the Mississippi River. He performed rock pressuremeter tests for Route 295/Route 64 interchange and Dulles Airport expansion. He performed rock shear tests for failed slopes in Ohio and Iowa and for the design of drilled shafts in rock, which were the first applications of this technology.

At Washington National Airport, with dilatometer tests he showed that the compressibility of the alluvial clays was within acceptable limits for the proposed aprons and thus the originally proposed time consuming and costly soil surcharging was eliminated. He performed dilatometer tests for a large department store and showed that the proposed 0.8 to 1.0 million dollar deep foundations were unneccessary and with spread footings settlement would be between 0.25 and 0.75 inches. His predictions were confirmed with an embankment load test that showed 0.5 inches of settlement. For the Maryland Route 5 Interchange, he performed piezocone and dilatometer tests and showed that the expensive stone column ground improvement was unnecessary.