

## Silas Nichols, P.E., Valued FHWA Partner

Silas Nichols grew up in the picturesque New England state of New Hampshire. Like most youngsters, he liked to play in the dirt. As the line goes, “who would have known...” Although he tells us that his mom knew early on that, as he calls it, “his obsessions,” would have predicted where he would ultimately wind up. Apparently, Mrs. Nichols was spot-on, as he has risen to a prominent position in geotechnical engineering holding the title of principal engineer – geotechnical for the Federal Highway Administration (FHWA). In this capacity, Nichols is responsible for managing the geotechnical engineering program, providing direction and leadership for the agency’s geotechnical team. The path to this eventuality included receiving his B.S. in civil engineering at Syracuse University and an M.S. in geotechnical engineering at Tufts University. He is only a (written) dissertation shy of completing his Ph.D. degree at the University of Maryland. Not a bad start for a career that has already seen him achieve laudable goals.

### How It All Began

Nichols began his career with FHWA in 2001 after consulting stints, first in Boston where he was able to work on the famous Central Artery/Tunnel (“Big Dig”) megaproject and then with a smaller firm in Baltimore working on commercial and residential projects. His first role with FHWA was in its Resource Center in Baltimore, then in Atlanta. He soon moved on to the D.C. headquarters, where he followed in the footsteps of his mentor, Jerry DiMaggio, a FHWA and a foundation industry legend. FHWA has been an important partner in the deep foundations industry for 50 years. FHWA’s geotechnical engineering program has led the industry in supporting research, developing design guidance documents, and through its

National Highway Institute, providing top-level training, both hands-on and “virtual,” for engineers, inspectors and constructors within and working with state departments of transportation.

When asked why he chose a career in the deep foundations industry, Nichols responds, “I am not sure that I consider my career one that is specifically in deep foundations. Transportation geotechnics cover a wide range of foundation alternatives, including lateral earth support and ground improvement applications. Deep foundations tend to dominate choices of support for highway structures, so I spend a significant amount of my time in this area. In addition, some innovations in design and construction have led to governance challenges and research needs that have become a priority in our program.”

Nichols is particularly proud of the FHWA initiative in developing guidance documents, known as *Geotechnical Engineering Circulars* (GECs). These important reference manuals establish guidance and standards for not only design but also for quality assurance and quality control. Examples include those that focus on Continuous Flight Auger (CFA) piles (*GEC 8*), on drilled shafts (*GEC 10*) and driven piles (*GEC 12*). He offers, “These have been updated to address significant evolution in the industry pertaining to the ability to construct much larger elements than we ever have before. These updates are also informing AASHTO (American Association of State Highway and Transportation Officials) bridge design and construction specification updates.” AASHTO specifications are the most referenced guide specifications within the transportation industry. The next geotechnical engineering circular, *GEC 9*, will focus on lateral loading on deep foundations, and will address what Nichols feels “are some glaring gaps in our design guidance.”



### A Long-Time Colleague Speaks

When it comes to how Nichols is viewed by his peers, Scott Anderson, past FHWA geotechnical engineering TST manager and now principal geotechnical engineer with BGC Engineers, tells us, “Silas was the best partner I could have had at the FHWA. He could get down into the details when he needed to, without missing a beat. However, he has thrived in two main areas. First, he is able to make connections between government, contractors, practice and academics that we all have benefited from. He has a social side that brings this all in. Second, he understands the role of the federal government and state officials, and how they work together. He has been a great advocate for geotechnical practice and foundation industry advancements, whether through sponsoring research with dollars and ‘sense,’ or knowing when new guidance was needed, and how to make guidance implementable.”

### The DFI Connection

Nichols has been involved in DFI and other industry associations throughout his career. He began attending industry conferences and seminars while still a graduate student. In 2006, he served as chair of the DFI Annual Conference on Deep Foundations

in Washington, D.C., and again later as co-chair for the 2016 DFI Annual Conference in New York City. He is a founding member of the DFI Women in Deep Foundations Committee. He regularly attends DFI events, reporting on FHWA's most recent programs and goals, and attends nearly all technical committee meetings. He was the keynote speaker for the DFI 39<sup>th</sup> Annual Conference in 2014 in Atlanta.

When asked about how he sees DFI's role, he reports, "DFI is a fantastic vehicle for outreach and communication of FHWA information. The broad membership of DFI is able to inform FHWA with respect to research and guidance gaps and needs, and the organization is receptive to opportunities to better understand how local, state and federal agencies deliver programs of interest to them. Finally, FHWA and DFI have an agreement in place to provide much needed National Highway Institute training through the administrative structure of DFI. This allows FHWA to reach consultants and contractors who undertake work in the transportation industry."

DFI Past President Dan Brown shares that, "Silas has always been a great friend to the deep foundations industry and strives to get public agencies to improve and 'do the right thing.' His behind-the-scenes work helps not only public agencies but also our entire industry. I know Silas to be a person of impeccable character and an engineer that is a credit to our profession, and I am proud to call him a friend."

As to his advice to young engineers entering the profession, Nichols states, "I think that this is an amazing time to come into the industry. If you are a designer, urban projects are becoming more and more complex, and innovative contracting structures are requiring geotechnical engineers to be much more advanced in their thinking and application than ever before. If you are in academia or research, the current challenges facing the industry are immense, as we look at ways to address aging infrastructure and new demands for solutions to complex multidisciplinary problems. Regarding necessary skill sets, I think that the most important one is to effectively communicate orally and in writing."

## From His Mentor

It is appropriate to conclude this profile with a comment from DiMaggio, Nichols' predecessor and mentor:

"Succession planning in any organization and agency is difficult. In government, it is especially difficult to find a new 'leader' to continue to grow programs. Silas assumed his current position at FHWA's headquarters in very late 2008, a few months after I retired. It is personally comforting to me in my 46<sup>th</sup> year of professional practice, that my friend, colleague and now 'client,' Silas Nichols continues to lead the 50-year plus, rich tradition of FHWA's geotechnical program. I'm sincerely proud of Silas and his accomplishments and achievements, which continue to grow and diversify based on the changing needs of the nation's highway infrastructure system."

As Nichols tells us, "I have been able to walk through a lot of different doors in my career, and the other side of each one presented a vastly different opportunity."

We are certain that doors will continue to open, and opportunities will abound.