Credere Associates LLC

Theresa Patten, PE
President/Principal Engineer

PROFESSIONAL REGISTRATIONS
Professional Engineer:
- ME #8694
- NH #13309
- MA #52129
- VT #133197

EDUCATION
- **M.S.**, 1993, Civil Engineering (Environmental Geotechnologies), Tufts University
- **B.S.**, 1991, Cum laude, Civil Engineering, Rensselaer Polytechnic Institute

PROFESSIONAL ACTIVITIES
- Executive Board Member, Maine Chapter of American Council of Engineers Companies
- Member, Society of American Military Engineers
- Member, American Society of Civil Engineers

TRAINING
- 40-hour OSHA 29 CFR 1910.120 Hazardous Waste Health and Safety Course
- 8-hour OSAH 29 CFR 1910.120 Hazardous Waste Health and Safety Refresher Course
- 24-hour ASTM Phase I and II ESA Class and 4-hour ASTM Continuing Obligations Class
- Portable Nuclear Density/Moisture Gauge Use and Safety Training and Radiation Safety Officer Training

HIGHLIGHTS OF EXPERIENCE
Ms. Patten is a geotechnical and environmental engineer with 20 years of engineering experience. In September of 2007, Ms. Patten founded the women-owned business of Credere Associates, LLC. She oversees the daily operation of the office and is principally in charge of the financial and business operations of the company. Ms. Patten serves as the senior reviewer/QC manager and Principal-in-charge for various on-going projects for Credere.

Ms. Patten's past engineering experience involved a variety of geotechnical and environmental projects including landfill design and construction, geotechnical engineering evaluations and construction, and hydrologic design and evaluations. Her project responsibilities have included managing, coordinating and conducting field work associated with geotechnical and hydrogeologic investigations; observing and documenting construction activities and providing construction quality assurance; performing calculation to support geotechnical and solid waste design projects; performing a variety of geotechnical and hydrological computer analyses; developing geotechnical and civil design recommendations; and report writing. Ms. Patten also has experience in coordinating and scheduling junior staff and subconsultants.

PROJECT EXPERIENCE INCLUDES:
SENIOR REVIEWER/QC MANAGER
Ms. Patten serves as the QC manager for all federal projects. These projects include long-term groundwater monitoring, remedial investigation/risk assessment, feasibility study, and remediation implementation. Ms. Patten is also responsible for the final work product of all Brownfield and private Phase I and Phase II ESAs. She provides the final review of the majority of reports produced at Credere to ensure a consistent work product all cross the broad

GEOTECHNICAL ENGINEERING
Project Manager/Engineer for Airport Projects. Ms. Patten has coordinated and oversaw field work associated with soil investigations at several airports. The scope of work included advancing soil borings using standard hollow-stem auger techniques (ASTM D-1452) and Standard Penetration Tests (ASTM D-1586); collecting soil and pavement samples for material testing; and preparation of final soil boing logs.

Callahan Mine Superfund Site, Brooksville, Maine
A key project which highlights Ms. Patten's experience/abilities is the Geotechnical Investigation of the Tailing Impoundment at Callahan Mine Superfund Site in Brooksville, Maine. The scope of work included a 2 month long field effort, an extensive geotechnical laboratory testing program, and static and seismic stability analyses. The objectives of the geotechnical project were to characterize the subsurface soil properties throughout the tailings impoundment, specifically the thickness and strength parameters of the glaciomarine silt-clay deposit and the tailings; determine the hydrological conditions throughout the impoundment; define the geometric configuration and geotechnical properties of the perimeter berm material; and establish the existing static and seismic stability of the tailings impoundment and evaluate the feasibility of relocating residential and/or ore pad material to the impoundment. Ms. Patten served at the Project Manager and lead geotechnical engineer on this project.

Project Manager/Engineer at various projects. Ms. Patten has coordinated and conducted field work associated with geotechnical evaluations at numerous sites encompassing a wide range of subsurface conditions from deep deposits of sensitive soft clay to bony till. Field work has comprised of completing test boring and test pit programs including logging subsurface conditions, classifying soils, conducting in-situ field vanes, collecting undisturbed Shelby tubes and/or bedrock core samples, installing piezometers, inclinations, and settlement plates associated with settlement monitoring programs. Ms. Patten evaluated subsurface conditions; estimated anticipated settlement based on consolidation test; evaluating clay strength and stability of embankments; calculated the allowable bearing capacity of the soil; and developed recommendations for both shallow and deep foundations, retaining walls, pavement sections, reuse of on-site soil materials, and earthwork construction. Ms. Patten provided construction quality control, coordination of soils laboratory testing; performed field moisture-density test of compacted fill. Prepared daily field reports summarizing the contractor's activities, results of field density test, and any additional field recommendations.

BROWNFIELDS PROJECT MANAGEMENT:

Project Management, Eastern Fine Paper, Brewer, Maine: The project involves the "fast track" redevelopment of a mill site into a modular manufacturing facility. Ms. Patten is responsible working with the Maine DEP to meet the requirements of the No Action Assurance Letter. The deliverables include developing a groundwater and soil management plan including a long term pore water monitoring program, weekly construction reports, final closure reports. Other responsibilities included dealing with the financial complexities of a Brownfields project, responding to site/project changes, responding to Maine DEP requests, and coordinating writing, and reviewing reports.

GEOENVIRONMENTAL ENGINEERING/INVESTIGATIONS

Supplemental Assessments and Long Term Groundwater/Gas Monitoring at various projects: Ms. Patten coordinated and conducted field work associated with supplemental hydrologic assessments, including observing and logging the installation of overburden and/or bedrock groundwater quality monitoring wells. Additionally, she was responsible for completing periodic sampling events field work, evaluating and interpreting water quality data, and report writing.

Remediation to support Defense Fuel Supply Center Closure, Harpswell, Maine. The project involved the evaluation and remediation of a site where releases of gasoline and JP-5 jet fuel have contaminated overburden and bedrock aquifers.

CONSTRUCTION QA/QC

Bath Iron Works, Bath, Maine. This long term design-build project involved the design and construction of three shipways on filled land in the Kennebec River, as well as new dry dock and landing facilities. Ms. Patten conducted field work associated with geotechnical evaluation including off shore drilling to support the design of a land level transfer system, evaluated subsurface conditions and performed preliminary stability calculation of underwater slopes. Ms. Patten managed and coordinating field staff to provide construction quality assurance for geotechnical aspects of construction, including bedrock probing, blast monitoring, removal of unsuitable dredge material, caisson construction, cofferdam cell construction, precast concrete pile installation, and pile driving. Ms. Patten prepared and/or reviewed daily field reports documenting contractors' activities and engineering recommendations. Ms. Patten dealt with the day to day management of this 2-year construction project which had up to 12 people covering contractors' activities on a rotation schedule, 24 hours and day, 7 days a week.

SOLID WASTE ENGINEERING

Design Calculations to Support Construction and Closure Multiple Special Waste Landfill Units, Norridgewock, Maine. The projects involved the design of multiple secure, double-lined special waste landfills overlying deep, sensitive clay and abutting a municipal solid waste landfill which had a massive failure in 1989. Used HELP water balance model and other analytical techniques to predict head build-up on and leakage through the barrier components of the liner and cover system. Assessed anticipated capacity of the drainage system, sized leachate collection system components, and assessed filtration and clogging potential of the specified geotextiles. Performed pipe strength calculations; estimated sump volumes and pump cycles. Performed static liner and cover stability analyses and seismic displacement analyses. Developed preliminary final grading plans based on post-cyclic static stability analysis with reduced clay shear strengths based on the earthquake induce strains. Performed static stability analyses to support recommended fill heights and to develop preliminary final grading plans. Performed calculations to support the design of a road to be constructed over the composite landfill cover system, including required subbase thickness, anticipated pressure on the geomembrane, geomembrane and GCL puncture resistance, and road stability.