

Geotechnical Services

The challenging subsurface conditions of the Piedmont and Coastal Plain have been a cornerstone of Duffield Associates' practice since our founding. Our team of professional engineers, geologists, and scientists actively balance client cost and risk while providing innovative, holistic solutions for this complex geology.

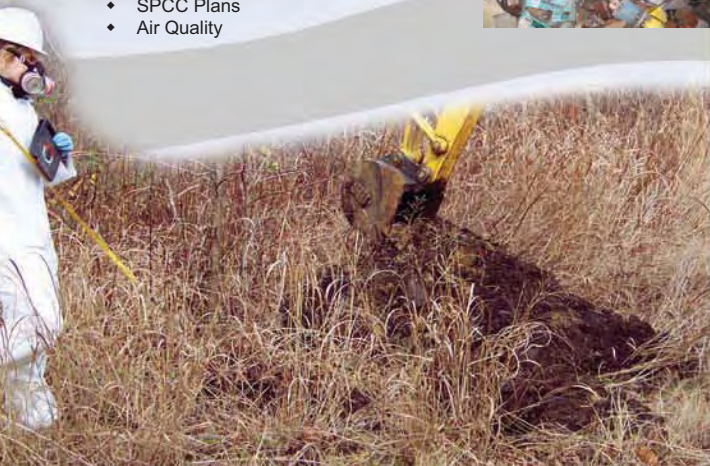
- ◆ Shallow & Deep Foundation Design/Evaluations
- ◆ Soft Soils Evaluations
- ◆ Engineering Geology
- ◆ Dam Evaluations
- ◆ Waterfront/Marine Engineering
- ◆ Manufactured Soil Design
- ◆ Pavement Design and Maintenance
- ◆ Geotechnical Instrumentation
- ◆ Geotechnical Site Evaluations
- ◆ Mechanically Stabilized Earth (MSE) Structures Design
- ◆ Geosynthetics Design
- ◆ Forensic Engineering
- ◆ Expert Testimony



Environmental Services

By skillfully negotiating the maze of local, state and federal regulatory agencies, our Environment Services Group facilitates timely and cost-effective solutions to our clients' environmental challenges. Add technological strength and practical experience, and it is clear why Duffield Associates is one of the region's most active consulting firms in addressing environmental issues.

- ◆ Environmental Assessments
- ◆ Brownfields Evaluations/Development
- ◆ Tank Evaluations
- ◆ Asbestos Abatement
- ◆ Environmental Compliance Audits
- ◆ Site Remediation
- ◆ SPCC Plans
- ◆ Air Quality



Waterfront and Coastal Engineering

Waterfront, coastal, and marine projects demand multidisciplinary, technical expertise such as offered by Duffield Associates' coastal, structural, geotechnical, water-resources, and environmental engineers and scientists. Add a strong working relationship with local, state, and federal regulatory agencies, and the outcome is the award-winning project solutions developed by our results-oriented team.



- ◆ Waterfront/Coastal Structures
- ◆ Coastal and Estuarine Modeling
- ◆ Shoreline Stabilization
- ◆ Harbor and Marina Planning and Design
- ◆ Sediment Sample Collection and Analysis
- ◆ Dredge Management
- ◆ Permitting
- ◆ Coastal Zone Management
- ◆ Stability Analyses
- ◆ Beach Replenishment
- ◆ Coastal Hazard Assessment



Construction Review Services

Collaboration is key to our Construction Review Group's high-caliber testing/review, consulting, and construction administration services. Teaming with our engineers and scientists - as well as with our clients' staff - our field representatives and residents provide the compliance, quality, and problem-solving needed on every project we undertake.

- ◆ Quality Assurance/Quality Control
- ◆ Review and Testing of:
 - Soils and Pavements
 - Concrete and Masonry
 - Reinforced Steel
 - Structural Steel/Fire Resistive Materials
- ◆ Resident Project Representation
- ◆ Specialized Construction Management
- ◆ AASHTO and USACE Certified Laboratory Testing
- ◆ Construction Claims



Structural Engineering Services

Creative evaluation, analysis, and design is the foundation of Duffield's Structural Engineering Group, whether for new construction, restoration, or the modification of existing structures. Recognized for design innovation, we tackle projects with diverse systems in structural steel, concrete, composites, cold-form framing, timber and masonry.

- ◆ Industrial/Heavy Structures
- ◆ Earth Retaining Systems
- ◆ Deep and Shallow Foundations
- ◆ Bridges
- ◆ Structural Condition/Failure Assessments
- ◆ Emergency Response and Stabilization
- ◆ Pre and Post Construction Surveys
- ◆ Contract Administration
- ◆ Permitting/Agency Liaison



Water Resources & Infrastructure and Ecological Services

A responsive, creative and cost-effective solution to our clients' water resource, infrastructure and ecological challenge is our commitment. Combining our technical expertise, our comprehensive knowledge of the regulatory process, and our working relationships with regulators, we bring innovative and workable solutions to our clients' projects. We are committed to meet our clients' objectives and expectations while implementing environmentally sensitive solutions.



- ◆ Flood Studies/Analysis/ Mapping
- ◆ Drainage Studies
- ◆ Stormwater Management
- ◆ Water Discharge Studies
- ◆ Redevelopment
- ◆ Dam Studies & Design
- ◆ Resource Extraction & Mining
- ◆ Forensic Engineering
- ◆ Hydraulic Design
- ◆ Surface Water Modeling
- ◆ Community Wastewater Systems Evaluations/Design

- ◆ Water/Wastewater Infrastructure
- ◆ Erosion & Sediment Control
- ◆ Resource Protection
- ◆ Hydrogeology
- ◆ Permitting
- ◆ Stream Restoration/Stabilization
- ◆ Wetlands Studies/Mitigation
- ◆ Water Supply Studies
- ◆ Geographic Information Systems
- ◆ Water Resource Protection Area Evaluations
- ◆ Water Quality NPS/NPDES
- ◆ Ecological Landscape Architecture



Duffield Associates, Inc., an award-winning firm known for its creative problem-solving and innovative design work, offers geoscience solutions to our clients.

For over 30 years, we have provided engineering and science consulting in a range of specialties including:

- ◆ **Geotechnical Engineering**
- ◆ **Environmental Services**
- ◆ **Water Resources**
- ◆ **Coastal/Waterfront Engineering**
- ◆ **Construction Services**
- ◆ **Structural Engineering**
- ◆ **AASHTO and USACE Certified Materials Testing**

Our staff of engineering and science professionals is prepared to assist our clients in every aspect of their projects...from concept ...through construction...into operation. We solve problems and seek to add value.



DUFFIELD ASSOCIATES

Consultants in the Geosciences

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From Concept...through Construction



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Adding Value through Innovative Solutions