

Kris Bass Engineering, PLLC

Stormwater and Ecosystems Restoration
Design · Modeling · Consulting

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COMPANY PROFILE

Kris Bass Engineering is an owner operated company created to pursue design and implementation projects in the fields of stormwater and ecosystem restoration. The firm owner is a Professional Engineer with over 10 years of experience in environmental engineering applications. Particular specialties include coastal water quality projects, sandbed stream restoration, marsh restoration, and stormwater wetlands. The company provides specialty consulting and engineering services as a part of environmental design teams. Primary missions include contributing to innovative environmental solutions and a dedication to ensuring quality finished products.

AREAS OF EXPERTISE

Stormwater Management

Watershed and System Planning, Retrofit and BMP Treatment Design, Stormwater Maintenance and Inspections

Stream and Wetland Restoration

Geomorphic Analysis, Hydraulic and Hydrologic Modeling, Assessment and Design, Detailed Plan Design

Construction Management

Construction Inspection, Oversight and Planning Services for Stormwater or Restoration Implementation.

SPECIALIZED SERVICES

Stormwater Maintenance Inspections

Full suite of inspection services related to meeting stormwater requirements. Experience with most municipalities in NC. We have established relationships with several BMP management companies and can help expedite any and all maintenance and repair services.

Innovative Stormwater Design Services

Design services specializing in the repair and retrofit of failing systems. Expertise in the conversion of troublesome BMPs to sustainable and highly functional treatment facilities. Experience with all aspects of design, permitting, and construction oversight.

Watershed/Stormwater Modeling

Computer modeling to predict watershed runoff response and the performance of stormwater treatment systems. Proficiency with WinTR55, HEC/HMS, SWMM, PCSWMM and many pollutant load estimation models.

Ecosystem Restoration Design

Consulting and design services related to stream and wetland restoration projects. Specialty in coastal restoration designs including sandbed stream analysis and design, tidal marsh restoration design, and peatland type wetland systems.

Riverine Modeling

One dimensional and Multi-dimensional modeling of riverine systems to predict the behavior of restoration designs or existing systems. Analysis with HEC-RAS, HEC-GeoRAS, BRI-STARS, River2D, MDSWMS, CCHE2D, and other riverine models. Assistance with in-house model approach planning and development.

Construction Assistance

Planning and inspection services for environmental construction projects. Assistance with project planning, phasing, and permit compliance. Particular expertise in coastal construction, stormwater wetlands, and other restoration projects.

PROFESSIONAL EXPERIENCE

Water Quality Extension Associate

NCSU Biological and Agricultural Engineering Department
Water Quality Group, Raleigh, NC
June 2003 to present

Ecosystems Engineer

Blue, Land, Water, Infrastructure, PA
Garner and Southern Pines, NC
May 2000 to June 2003

ACCOMPLISHMENT SUMMARY

- Led designs and performed construction oversight for over 10,000 linear feet of stream restoration and over 1,000 acres of wetland restoration. Supported research level monitoring efforts at 5 sites.
- Led designs and performed construction oversight for 15 stormwater wetlands and at least 5 other stormwater BMP projects. Supported design, construction, and monitoring activities for at least 10 other stormwater projects.
- Led monitoring activities and report preparation for 8 restoration projects.
- Led evaluations for 20 grant funded stormwater improvement projects throughout NC. Have provided annual inspection services for over 100 stormwater BMP's in North Carolina in each of the past 3 years.
- Provided support and instruction for over 20 workshops and training courses. Developed and led 3 separate instructional workshops, and 2 yearly for the past 4 years.
- Delivered or co-authored over 10 presentations at professional conferences.

REPRESENTATIVE PROJECTS

Taylor Site Stream and Wetland Restoration Project

Analysis, design, and monitoring for an 8 acre, 1200 linear foot sand bed stream and wetland restoration project in Cayce, South Carolina.

Sturgeon City Park and Marsh Restoration Project

Design and construction management on a 5 acre tidal creek and marsh restoration project in Jacksonville, NC.

Core Creek Stream and Wetland Restoration

Restoration design and construction oversight for 1600 feet of coastal plain sandbed stream and 10 acres of wetlands.

Chowan Country Club Water Quality Project

Design and construction management of golf course redesign for drainage and water quality improvement. The project involves a stormwater management system with over 10 acres of various types of stormwater wetlands.

North River Stream and Wetland Restoration

Design, analysis, permitting, and construction oversight on several phases of this large project. Phases included 35 acres of tidal marsh and over 250 acres of freshwater wetlands. Over 6,000 feet of stream were restored as part of the project.

Lenoir Stormwater Wetland Retrofit

Led design team on this 3 acre stormwater wetland project. Assisted with analysis, design, and construction oversight of this unique project in the City of Lenoir, NC.

Town Lake Restoration Project

Assessment of restoration options for this 10 acre lake on the NC 303(d) list. Analysis of sediment deposition, development of sustainable solutions for the lake. Development of detailed plans and construction management for project implementation.

Stormwater BMP Inspector

Inspection of stormwater BMP's in Raleigh, Cary, Durham, and Apex, NC. Inspection of facilities to ensure performance and regulatory requirements are met. Development of maintenance and modification plans as needed.

Jack Smith Creek Stormwater Wetland Project

Led design team, analysis, permitting, and construction work on a 25 acre, innovative stormwater project in New Bern, NC.

Lux Farms Hydrologic Restoration

Conceptual design and planning, participate with stakeholder team to develop plans for a 3,000 acre wetlands restoration and water quality project.

Black Creek Watershed Restoration

Led design and construction oversight for 5 stormwater BMP projects in an impaired watershed. Participate with stakeholder team in developing projects and other watershed initiatives.

INVESTIGATIONS & RESEARCH

- Evaluation of an In-Stream Constructed Wetland in North Carolina's Coastal Plain.
- Monitoring of NC Ecosystem Enhancement Program Stream and Wetland Restoration Projects
- Water Quality Assessment of a Degraded Stream Prior to Restoration
- Channel Evolution and Sediment Transport in a Restored Sandbed Stream
- Evaluating Design Methods for Restoring Sandbed Streams in NC's Coastal Plain
- Constructed Stormwater Wetlands for Golf Courses
- Assessment and Evaluation of Stormwater Improvement Projects for the NCCWMTF
- A BMP Matrix for Targeted Pollutants in TMDL Watersheds
- Water Quality Impacts of Coastal Stream Restoration

RECENT PRESENTATIONS, SEMINARS & CONFERENCES

<p>NCSU SRI Stream Restoration Conference (presenter) <i>Fall 2012, Wilmington, NC</i></p> <p>Land and Sea Grant National Conference (presenter) <i>Spring 2012, Portland, Oregon</i></p> <p>NCSU SRI River Course IV. Coastal Stream and Wetland Restoration (tour leader, instructor) <i>Spring 2011, Eastern North Carolina</i></p> <p>NCSU Stormwater Wetland Design Workshop (tour leader, instructor) <i>Spring and Summer 2011, North Carolina</i></p> <p>NCSU SRI Stream Restoration Conference (presenter) <i>Fall 2010, Raleigh, North Carolina</i></p> <p>NCSU - Integrating Civil 3D and GIS (instructor) <i>Fall 2009, Raleigh, North Carolina</i></p> <p>NCSU SRI River Course III. Advanced Stream Restoration Design (instructor) <i>Fall 2009, Raleigh, North Carolina</i></p> <p>NCSU SRI River Course IV. Coastal Stream and Wetland Restoration (tour leader, instructor) <i>Spring 2008, Eastern North Carolina</i></p> <p>EWRI World Environmental and Water Resources Conference (presenter) <i>Spring 2007, Tampa, Florida</i></p> <p>ASABE Annual International Meeting (presenter) <i>Summer 2006, Portland, Oregon</i></p> <p>Federal Interagency Hydrology and Sedimentation Conference <i>Spring 2006, Reno, Nevada</i></p> <p>NCSU SRI River Course III. Advanced Stream Restoration Design Principles (workshop instructor, presenter) <i>Winter 2005 - present</i></p>	<p>NC DLR Erosion Control Workshop (invited speaker) <i>Spring 2012, Raleigh, North Carolina</i></p> <p>AEES Annual Meeting (presenter and tour leader) <i>Spring 2011, Asheville, North Carolina</i></p> <p>NC DENR NCWAM Training Workshop <i>Fall 2010, Haw River, North Carolina</i></p> <p>NCSU SRI River Course IV. Coastal Stream and Wetland Restoration (tour leader, instructor) <i>Spring 2010, Eastern North Carolina</i></p> <p>NCSU Advanced Stormwater Wetland Design (instructor) <i>Fall 2009, Raleigh, North Carolina</i></p> <p>NCSU SRI River Course III. Advanced Stream Restoration Design (instructor) <i>Fall 2008, Raleigh, North Carolina</i></p> <p>Mid-Atlantic Stream Restoration Conference (poster) <i>Winter 2007, Cumberland, Maryland</i></p> <p>NCSU SRI Stream Restoration Conference (presenter) <i>Fall 2006, Charlotte, North Carolina</i></p> <p>International Conference on Hydrology and Management of Forested Wetlands <i>Spring 2006, New Bern, North Carolina</i></p> <p>Stormwater Wetland and Bioretention Design Workshop (instructor) <i>Spring 2006, Winston Salem, North Carolina</i></p> <p>National Non-point Source Monitoring Workshop (tour leader) <i>Fall 2005, Raleigh, North Carolina</i></p> <p>NCSU SRI Autocad for Stream Restoration (workshop instructor) <i>2003-present</i></p>
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