

REGISTRATION FORM  
STREAM INVESTIGATION, STABILIZATION & DESIGN  
WORKSHOP  
WITH AN EMPHASIS ON INNOVATIVE APPROACHES TO STREAM  
STABILIZATION AND RESTORATION

This free workshop is sponsored by the U.S. Army Corps of Engineers Water Operations Technical Support (WOTS) Program, and the Omaha District Corps of Engineers. This workshop is limited to 70 people.

**TIME:** 9:00 am-5:00pm, September 26-28, 2006

**CLASSROOM:** NRD Building at Chalco Hills/Wehrspahn Lake, Wehrspahn Conference Room, 8901 South 154th Street, Omaha, 68138-3621 (about 15 miles west of downtown Omaha, NE)

**ACCOMODATIONS:** Hotel Accommodations-TBA

**INSTRUCTOR:** Dave Derrick, Research Hydraulic Engineer with the Corps of Engineer's Engineering Research & Development Center's Coastal & Hydraulics Laboratory (ERDC-CHL) The objectives of this workshop are to introduce the methodology and procedures for initiating, planning, analyzing, and ultimately designing long-term sustainable river and stream stabilization/restoration projects. Innovative, environmentally sensitive, and cost-effective approaches to channel restoration will be discussed. Comprehensive case studies will also be presented. See enclosed draft agenda for details. A day of field trips to local stream sites will be conducted. Rain gear and appropriate field clothes are recommended for the field trip. Two weeks before class registered participants will be e-mailed instructions on how to download class notes from a dedicated FTP site. Participants can print & bring notes to class, or bring a laptop.  
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I would like to register for this workshop:

NAME: \_\_\_\_\_

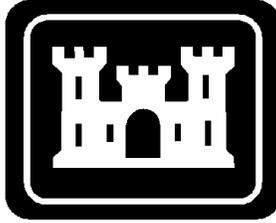
E-MAIL: \_\_\_\_\_

AGENCY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

Please return this form by e-mail or fax (not both) to: [Bernadette Taylor](mailto:Bernadette.W.Taylor@usace.army.mil),  
e-mail: [Bernadette.W.Taylor@usace.army.mil](mailto:Bernadette.W.Taylor@usace.army.mil) Fax: 402-896-0997



**STREAM INVESTIGATION, STABILIZATION & DESIGN WORKSHOP  
(WITH AN EMPHASIS ON INNOVATIVE APPROACHES TO STREAM  
STABILIZATION AND RESTORATION)  
SEPT. 26-28, 2006**

NRD Building at Chalco Hills/Wehrspahn Lake, Wehrspahn Conference Room,  
8901 South 154th Street, Omaha, 68138-3621 (about 15 miles west of  
downtown Omaha, NE)

**AGENDA**

**DAY 1 – Sept 26, 2006**

- 9:00-9:20 Student and Teacher Introductions
- 9:20-10:15 The Philosophy of Restoration (Goal and Function Based Design), Project Planning, Monitoring, & How Streams Dissipate Energy
- 10:15-10:30 **BREAK**
- 10:30-12:00 The Channel Evolution Model (CEM) & Grade Control
- 12:00-1:00 **LUNCH**
- 1:00-2:30 Everything Outside the Active Channel - The Importance of the Riparian Buffer Zone, Watershed Management Problems, Rain Gardens, Sediment Issues, etc.
- 2:30-4:30 Resistive and Continuous Bank Stabilization Methods (with break)
- 4:30-5:00 Recently Developed Innovative Techniques to Restore Function to Aquatic and Terrestrial Areas and

**DAY 2 – Sept 27, 2006**

- 9:00-9:10 Announcements and Housekeeping
- 9:10-10:30 Redirective, Indirect, & Discontinuous Methods: Retards, Permeable Dikes, Jacks, Vane Dikes, Impermeable Structures Normal to Flow (Transverse Dikes, Contraction Dikes, Spur Dikes Both High & Low and Short & Long) L-Head & T-Head Dikes, Downstream Angled Structures,

Upstream Angled Structures (Rock Vanes), the Bendway Weir, and Combinations of Redirective and Resistive Methods.

- 10:30-12:00 Bioengineering Philosophy and Methods for Streambank Protection Using Native Plants (with break)
- 12:00-1:00 **LUNCH**
- 1:00-2:30 TWO CASE STUDIES - Putting it All Together – Catt Creek @ Savage Road Highway Protection Project (resistive, redirective, & bioengineering on an incised channel with an engineered floodplain bench with integrated vernal pools and wetlands), and The McKinstry Creek Complete Channel and Floodplain Realignment Project
- 2:30-3:00 **THE ABRUPT PLANFORM MODIFIERS** - 5 methods to replicate small radius 90 degree bends, impinging flow situations, and bends that exit into the middle of the next bend (no crossing in between) {Regular, Wrong-Way and Twin Spin Boil-Up Pools, & Angle and Grand Slams}.
- 3:00-3:15 How to Choose a Bank Protection Method
- 3:15-3:30 Project Construction
- 3:30-4:45 How to Conduct a Field Investigation of a Streambank Erosion Problem
- a. Fundamentals of Fluvial Geomorphology
  - b. How to Read a Stream
  - c. Field Equipment
  - d. Safety
- 4:45-5:00 Review (Dave's 47 Ways to Stay out of Trouble)

### **DAY 3 – Sept 28, 2006**

#### **FIELD INVESTIGATIONS-“Every stream is a classroom” DLD.**

- 9:00-4:30 Field Trip: Site Analyses of the several streams
- a.) Development of project performance goals (function based)
  - b.) Analysis of existing, historical, and future flow and erosion processes and conditions
  - c.) Flow visualization of proposed project (based on project goals)
  - d.) Development of several stream stabilization conceptual designs
  - e.) Analyze overall effects of chosen conceptual design on the stream system and riparian corridor
- 4:50-5:00 Wrap-Up Workshop
- END OF WORKSHOP**

## **WORKSHOP OVERVIEW AND GOALS**

- \* Provide a consistent philosophy of bank stabilization design, with an emphasis on understanding the stream as a complex inter-related system, and understanding both local and system-wide processes and problems.
- \* Provide an overview of the concepts of grade control and the Channel Evolution Model (CEM)
- \* Provide instruction in developing appropriate project goals
- \* Teach bank protection methods and how to choose the appropriate method or combination of techniques
- \* Clarify the importance of project constructability, monitoring, and maintenance
- \* Teach students how to read a stream (with instruction in field equipment needs and safety), and how to perform a comprehensive analysis of a streambank erosion problem.
- \* Reinforce the classroom lectures by performing a series of in-the-field site analyses, understanding the role of project goals in the development of conceptual flow analyses, and designing stabilization plans that relate to the project performance goals.
- \* Provide class handouts and notes, a comprehensive glossary, and avenues for help