

Beyond Pipe and Pond:

Research Based Stormwater System Design Workshop



This one-day workshop features science based, technical information and research results related to the design and performance of stormwater treatment systems. It was developed for engineers and other professionals involved in the development or review of stormwater treatment designs, such as individuals from private consulting firms, public works departments, and planning offices.

Workshop Goal

Improve your ability to choose the stormwater treatment system or combination of systems that can achieve water quality targets in compliance with current and impending regulations, while at the same time effectively matching peak flows and reducing runoff volume.

What You'll Learn

Participation in this workshop will help you to....

- ✓ Understand the latest stormwater treatment system performance data from the University of New Hampshire Stormwater Center;
- ✓ Use this information to overcome technical barriers to effective design;
- ✓ Use understanding of system performance to address both water quality and quantity;
- ✓ Critique existing stormwater site designs for their ability to maximize performance.

You will explore how differences in the design and function of stormwater treatment systems can impact their ability to meet common engineering targets for stormwater management. The efficacy of connecting systems in treatment trains for targeted pollutant removal will be covered. You will have a chance to apply what you learn about system design and performance as you critically assess three professional site designs.

Fast Facts

When? May 5, 2010

Where? Waquoit Bay National Estuarine Research Reserve, 149 Waquoit Highway (Route 28)

Who should attend? Stormwater engineers & others involved in design or review of stormwater site designs

Fee: \$200—waived! This workshop is being offered at no charge with funding support from the Waquoit Bay Reserve Coastal Training Program (CTP), the University of New Hampshire Stormwater Center (UNHSC), the NOAA Coastal Services Center (CSC), and the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET).

Register: Go to www.waquoitbayreserve.org, click on the events calendar, and select "Beyond Pipe and Pond." First-time online registrants: select "Add me as a user" and enter and save the required information, then go back to register. Previous registrants: enter your e-mail address as your User ID, and then submit registration.

Questions: : Contact Tonna-Marie Rogers, CTP Coordinator at 508-457-0495, ext. 110, or tonna-marie.surgeon-rogers@state.ma.us

Provides seven Professional Development Hours (PDHs) through the UNHSC!

This workshop was based on the UNHSC's independent, scientific evaluation of the performance of stormwater treatment systems. Workshop development was made possible through a partnership of the UNHSC, NOAA CSC, CICEET and the National Estuarine Research Reserve System Coastal Training Program. Stormwater engineers and professionals from around the country provided input on training design for this course.

This training is being hosted locally by the Waquoit Bay National Estuarine Research Reserve Coastal Training Program.



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About the University of New Hampshire Stormwater Center (UNHSC)

UNHSC operates a nationally unique research field site at which stormwater treatment system performance is evaluated in a side-by-side setting. Center scientists combine this evaluation with research that targets specific issues in the rapidly evolving field of stormwater management. This workshop is one in a range of educational tools based on UNHSC's work. Learn more at www.unh.edu/erg/cstev

Workshop Trainers

Each workshop will be led by one or more of the following stormwater scientists & educators:

[James Houle, C.P.S.W.Q.](#)

Phone: 603-862-1445; email: james.houle@unh.edu

James Houle is the UNHSC outreach coordinator and program manager. He develops and delivers outreach and education products to communicate the Center's stormwater system performance data and research findings to a wide range of stormwater managers. He also supervises the Center's growing body of targeted research projects. Mr. Houle has more than ten years of experience with water quality related issues in New Hampshire and is a certified professional in stormwater quality (C.P.S.W.Q.). He holds an M.A. in Sustainable Development and a B.S. in Molecular Biology. He is enrolled in UNH's Natural Resources & Earth Systems Science Ph.D. program.

[Dr. Robert Roseen, P.E.](#)

Phone: 603-862-4024; email: robert.roseen@unh.edu

Robert Roseen is the director of the UNHSC. He is a licensed professional engineer and assistant research professor in the Department of Civil Engineering at UNH. He has a broad range of expertise in water resources engineering, including stormwater management, low impact development design, hydrology and hydraulics evaluations, stream restoration and enhancement alternatives, dam removal assessment, groundwater investigations, nutrient and TMDL studies, remote sensing, and GIS applications. Dr. Roseen teaches classes on stormwater management and design, fluids mechanics, and hydrologic monitoring. He participates in the ASCE Task Committee on Guidelines for Certification of Manufactured Stormwater BMPs of the Urban Water Resources Research Council (UWRRC), ASCE EWRI Permeable Pavement Technical Committee, and the Hydrology, Hydraulics, and Water Quality Committee of the Transportation Research Board. He consults in the review and design of development projects, specializing in LID stormwater treatment systems, and water resources investigations.

[Dr. Thomas P. Ballestero, P.E.](#)

Phone: 603-862-1405; email: tom.ballestero@unh.edu

Tom Ballestero is a water resources engineer and hydrologist. He serves as lead scientist for the UNHSC. He is an associate professor in the Department of Civil Engineering at UNH and is a founding member of the University's Environmental Research Group. His experience with surface water runoff extends back to 1976, when he co-taught short courses on modeling techniques. In addition to his work with the UNHSC, his current research examines the use of contaminated sediments in coastal wetlands and the land application of biosolids. Dr. Ballestero teaches advanced courses on stormwater systems, sediment transport, open channel flow, engineering hydrology, and hydrologic monitoring. His current consulting work includes: rainfall-runoff calculations, design of stormwater control facilities, monitoring water quality consequences of stormwater, forensic studies of flood-related stormwater system failures, expert witness testimony, and review of development proposals.

Workshop Agenda

Goal

Learn how to use UNHSC performance and design data as a means to improve your ability to choose the stormwater system or combination of systems that can achieve water quality targets in compliance with current and impending regulations, while effectively matching peak flows and reducing runoff volume.

Agenda

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| 8:30–9:10 AM | Course Overview & Introductions
Review the agenda for the day and participants introductions. |
| 9:10–9:30 AM | University of New Hampshire Stormwater Center (UNHSC)
Understand why the UNHSC was created, how it evaluates stormwater treatment system performance, and how the range of data it generates is relevant to your work. |
| 9:30–10:15 AM | Effectively Targeting Pollutants
Learn how unit operations and processes (UOPs) work in stormwater treatment systems to target pollutants of concern. |
| 10:15–10:30 AM | Break |
| 10:30 AM to noon | Stormwater Treatment System Performance Data
Learn about UNHSC performance data and how it can be combined with an understanding of UOPs to generate effective stormwater management strategies that can meet stormwater regulatory targets at federal, state and local levels. |
| Noon to 1:00 PM | Lunch |
| 1:00–1:30 PM | Local Case Study: Effective Stormwater Design at Work in Your Community
Hear from a Horsley Witten stormwater engineer about effective stormwater management designs that have been implemented in your area– topics to include design, performance, barriers, cost, maintenance and lessons learned, and an opportunity for Q&A. |
| 1:30–4:15 PM
(Includes
15 minute break) | Stormwater Design Assessment
Apply the data and concepts learned earlier in the day to critique real site designs using references and professional materials. During this interactive session, participants will share findings and discuss the strengths and limitations of such designs in their local context. |
| 4:15–4:30 pm | Review, Wrap Up, and Workshop Evaluation |