

Vegetated Stormwater Facilities

January 25 & 26, 2023

Instructors: Gail Shaloum, Todd Blossom & Rob Livingston

AGENDA:

Day 1 (Jan 25) 8:00 am – 4:45 pm

Understanding the System – Gail Shaloum

8:00 – Introductions (15 min)

8:15 – Welcome & Overview (5 min)

8:20 – Clean Water Act and Legal Background (10 min)

8:30 – Facility Types and Components (10 min)

8:40 – How They Function (15 min)

8:55 – Break (10 min)

9:05 – Look at examples on campus (50 min)

9:55 – Break (10 min)

10:05 – Soils and Sediment (10 min)

10:15 – Operations and Maintenance Overview (5 min)

10:20 – Review Activity – design plans (10 min)

Site Management – Gail Shaloum

10:30 – Introduction to Site Management (5 min)

10:35 – Key Points for Landscapers-How to Help Your Customers (5 min)

10:40 – Storm Water Pollution Control Plan (10 min)

10:50 – Regulations, Record-keeping, and Inspections (10 min)

11:00 – Break (10 min)

11:10 – Common Problems Found During Inspection & How to Fix Them (25 min)

11:35 – Examples of Failing Facilities (20 min)

11:55 – Communicating with Customers and Regulators (10 min)

12:05 – Quiz & wrap up (10 min)

12:15 – Lunch Break (30 min)

Maintenance – Todd Blossom

12:45 –Overview of Session (5 min)

12:50 – Before You Arrive On-Site (10 min)

- Regulations
- Planting Plan Review
- Seasonal Maintenance Calendar

1:00 – Be Safe (5 min)

- PPE
- Common Hazards

1:05 - On-Site Activities (40 min)

- Site Considerations
- Trash Removal
- Erosion Issues & Control
- Sediment Issues, Removal & Disposal
- Standing Water Issues
- Structural Checks & Fixes

1:45 - Design Considerations (10 min)

1:55 – Break (10 min)

2:05 - Plant ID (15 min)

2:20 – Plant ID Practice (25 min)

2:45 – Weed Control (20 min)

3:05 – Break (10 min)

3:15 –Pruning & Placement (10 min)

3:25 – Vegetation Case Studies – activity & discussion (40 min)

4:05 – Water & Other Factors Affecting Plant Growth (5 min)

4:10 – Record Keeping (10 min)

4:20 – Quiz (15 min)

4:35 – Wrap-up (10 min)

4:45 – Adjourn

Day 2 (Jan 26) 9:00 am – Noon

Site Evaluation & Practice – Rob Livingston, Todd Blossom, Gail Shaloum

Meet at Environmental Learning Center

9:00 – Welcome & overview (5 min)

9:05 – Tour: Visit various types of facilities in route to Barlow parking lot (15 min)

- Swale, rain garden, culvert
- Point out potential impact of gas tank in Clairmont parking lot as an example of the need to look at the entire area and how it might affect a stormwater facility.

9:20 – Barlow parking lot facilities: (40 min)

- Identify system components and design/maintenance issues
- Look for sediment, clogged drains, overgrown vegetation, etc.
- Inspection Practice - *Student Activity*

10:00 – DeJardin Rain Garden or Infiltration Pond facilities: (20 min)

- Maintenance Evaluation – *Student Activity*

10:20 – Detention pond near Niemeyer: (45 min)

- Inspection Practice – *Student Activity*
- Inspection of vaults

11:05 – Break (10 min)

11:15 – Communication with the Owner/Property Manager: (40 min)

- Guidance on language and approach for communicating with owner/manager
- Communication Practice – *Student Activity*

11:55 – Wrap-up (5 min)

COURSE DESCRIPTION:

This workshop will provide an overview of vegetated stormwater facilities (bioswales, raingardens, etc.): how they function, management considerations, and strategies for long-term viability. Participants will learn about regulatory requirements, such as record-keeping and inspections, and learn how to evaluate and properly maintain the plants and other system components. The intended audience includes landscapers, regulatory inspectors and public works/stormwater maintenance personnel. The field portion of class includes practice inspecting a facility, identifying problems, record-keeping and plant identification. You may choose to take all four of the sessions, only the online lectures, or only the on-site practice, depending on your needs.

LEARNING OUTCOMES:

Learning Outcomes:

Upon completion of *Vegetated Stormwater Facilities: Lecture*, students should be able to:

- Explain the regulatory background on why these facilities are needed.
- Identify various types of vegetated stormwater facilities, their component parts and how they function.
- Prepare for a successful agency inspection: who does them, why and what are they looking for.
- Find and follow pertinent regulations that influence stormwater facility maintenance procedures.
- Conduct an evaluation of a stormwater facility, and develop a seasonal maintenance plan, including successful and safe weed management.
- Identify problems in a facility and suggest strategies for mitigation.
- Identify commonly used plants that are appropriate for use in these facilities.
- Keep appropriate records.

Upon completion of *Site Evaluation & Practice*, students should be able to:

- Put their knowledge into practice by identifying various types of vegetated stormwater facilities and their component parts in the field.
- Put their knowledge into practice by identifying in the field some of the commonly used plants that are appropriate for use in these facilities.
- Put their knowledge into practice by identifying problems in a facility and suggesting strategies for mitigation.
- Put their knowledge into practice by evaluating a stormwater facility's maintenance needs: identifying issues, developing a strategy for maintenance based on the customer's desires, keeping records, and communicating with the customer.

- Conduct an inspection of a stormwater facility, fill out reports, and communicate results with the customer.

BIOS:

Gail Shaloum - Technical Services Coordinator for Clackamas Water Environment Services, manages projects including: stormwater education, low impact development design, the RiverHealth Stewardship grant program, and the Watershed Health Education Program. Prior to joining WES in 2011, she worked for Metro, educating developers on low impact development stormwater practices. She is a natural resources scientist and landscape architect with over 30 years of experience working in stormwater management, stream restoration, wetland mitigation, NEPA compliance, and low impact development practices—in both the public and private sectors. She is a graduate of Rutgers University and Oregon Graduate Institute.

Todd Blossom - Owner and operator of Blossom, a full-service landscaping company, since 1999. He is certified in permaculture design and seeks to promote ecological solutions through his work of integrating food, native plants and stormwater management into the landscape. His experience with swales and raingardens is extensive, having worked closely with the City of Portland's stormwater management program for over 10 years. This involvement includes both installations and maintenance of facilities through the city's private residence retrofit program, and the Green Street, public right of way program. Todd also has a particular interest in connecting people with place and has found an opportunity to do this through the landscape and outdoor environment. He is actively engaged in local community organizations including: Ecotrust, Audubon Society, Alberta Main Street, and the East Multnomah Soil & Water Conservation District.

Rob Livingston - Rob Livingston, Technical Services Specialist in the Watershed Protection division at Clackamas Water Environment Services, is a graduate of the Water & Environmental Technology program at Clackamas Community College. For the past 23 years, he has done Stormwater Source Control work for Clackamas County, the City of McMinnville, and the City of Milwaukie. His responsibilities include conducting inspections of stormwater facilities.