

# Wetland and Upland Habitat Restoration Design: Considerations for Increased Success

University of Washington  
Center for Urban Horticulture

## Detailed Outline

### Day 1:

- Overview of course outline and expectations
- Overview of “mitigation” success/failure
  - Common causes, recurring problems, reasons for success, good & bad specs
- Analysis of Existing Site Conditions
  - Hydrology
    - Soils
    - Aspect
    - Landscape setting
    - Functions
  - Establishing Goals and Objectives
  - Performance Standards
  - Design Elements
    - Hydrology
      - Sources
      - Behavior
      - Excavation and grading
    - Soils
      - Conservation of existing soils - when and how to keep
      - Decompaction - how will grading or construction change existing soils and how will new soils be handled
      - Imported topsoil
      - Amendments
      - Fertilizer
      - Mulch
      - Vendors
    - Plants
      - Choosing species
      - Determining form (container, bareroot, plugs, live stakes, tubers, seeds, etc.).
      - Determining size and quantities
      - Plant sources
      - Salvage
      - Vendors
      - Labels, pruning, other
      - Warranties, acceptance, and replacement
    - Wildlife
      - Target species to attract
      - Habitat features to include
      - Placement of habitat features (LWD, etc.)

## Day 2

### • Installation

Landscape contractor's qualifications and references

Installation experience

On-site field supervision

Scheduling and sequencing

Sequencing

Multi-year phasing

Coordination with other construction activities

- Permit time constraints

- Ideal earthwork and planting times and conflicts

Site preparation

Weed control

Retained vegetation and habitat feature marking and protection

- Care of retained material damaged during construction

Site clearing

Earthwork

Topsoil salvage

Grading

Soil prep

- Topsoil transportation and storage

- Amendments

- Creation of temporary irrigation system if it happens before plant installation

Seeding

Plants

Transportation & delivery notification

Inspection and acceptance (include lab here if there is time)

Storage

Handling

Planting

Fertilizer application

Staking, marking, tree shelters, etc.

Mulch application

Creation of temporary irrigation system if it happens after plant installation

Clean-up and disposal

Installation inspection and acceptance

Punch lists

As-builts

### • Maintenance

Maintenance contractor qualifications and references

On-site field supervision

Tasks

Irrigation

Weeding – including species specific information

Removing stakes and ties

- Renewing mulch
- Repairing barriers
- Renewing monitoring markers
- Frequency and duration
- Measures to facilitate activities (flags/labels, protectors)
- Final maintenance inspection and acceptance
- Monitoring
  - Tasks
  - Frequency and duration
  - Measures to facilitate activities (flags/labels, protectors)
  - Reporting
  - Final monitoring inspection and acceptance
- Plan Specifications Overview (covered in detail in spring course)
  - Creating drawings and other documentation
- Estimating cost
  - Estimating tools
    - Personal experience
    - Home-made spreadsheets
    - Trade estimates – e.g. Means Estimator
  - Standard pricing
    - Hourly labor rates
    - Plants and materials mark-ups
    - Overhead and profit
- Bonds
- Pre-bid preparation and meetings
- Post-award, pre-construction preparation and meetings
- Installation oversight
- Contingencies/Warranties
  - Re-grading
  - Modify water inlet/outlet
  - Soil modifications (decompaction, pH fixes, mulch, etc.)
  - Plant replacement

Questions:

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