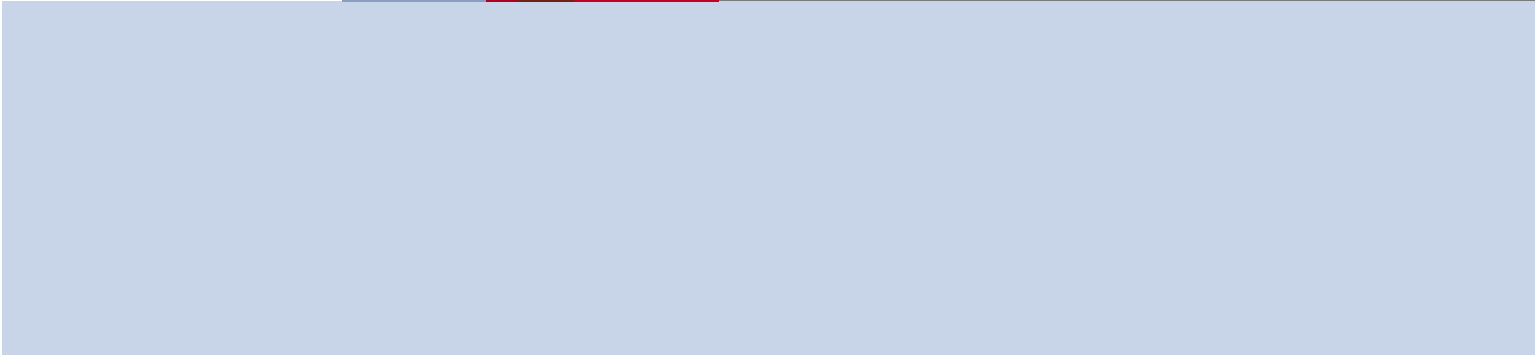


South River Bank Stabilization Pilot

South River Science Team

January 21, 2008



The miracles of science™

Bank Stabilization Pilot

Primary Objectives:

Assess the efficacy and feasibility of bank stabilization

- To prevent mercury-containing bank soils from eroding into the South River
- Improve habitat

Secondary Objectives:

- Isolate bank soils from effects of river flood wave
- Assess nature and extent of unintended consequences
 - Is there a net increase in methylation potential?
 - Has bank erosion been exacerbated elsewhere?
- Use bank pilot as opportunity to study / assess other important processes

Team

SR Bank Stabilization Pilot

DuPont

VADEQ

VADGIF

University of Delaware

URS

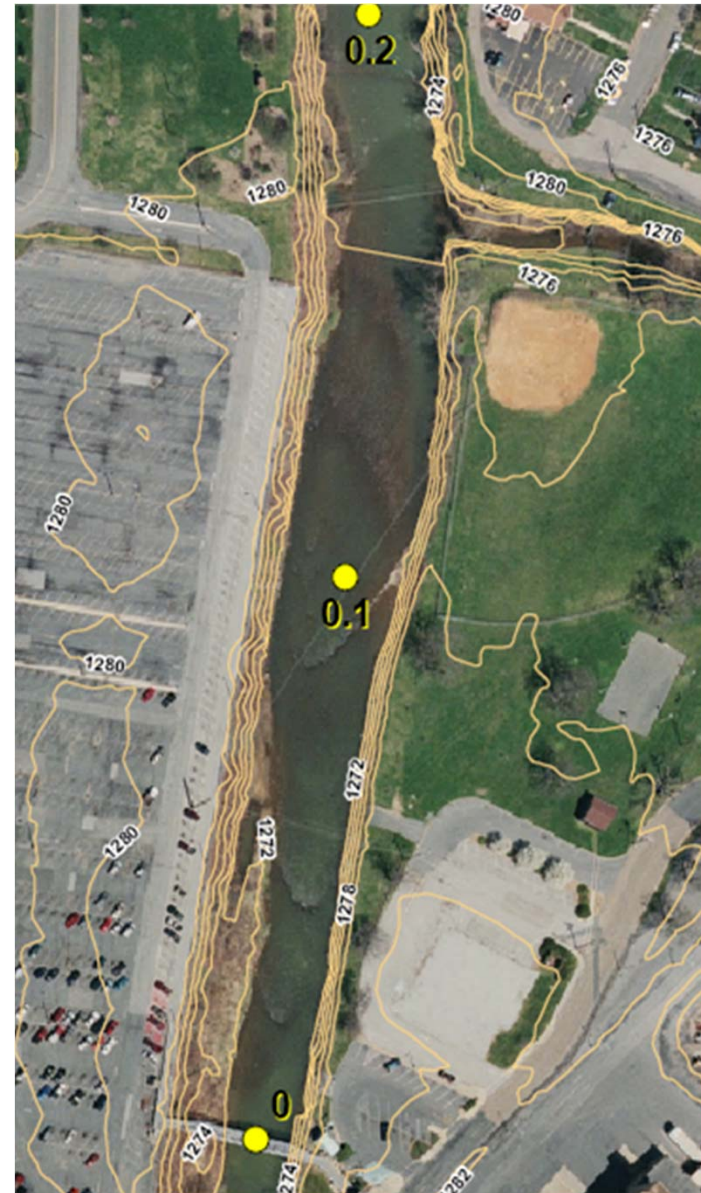
Interfluve

Other Stakeholders

INVISTA

City of Waynesboro

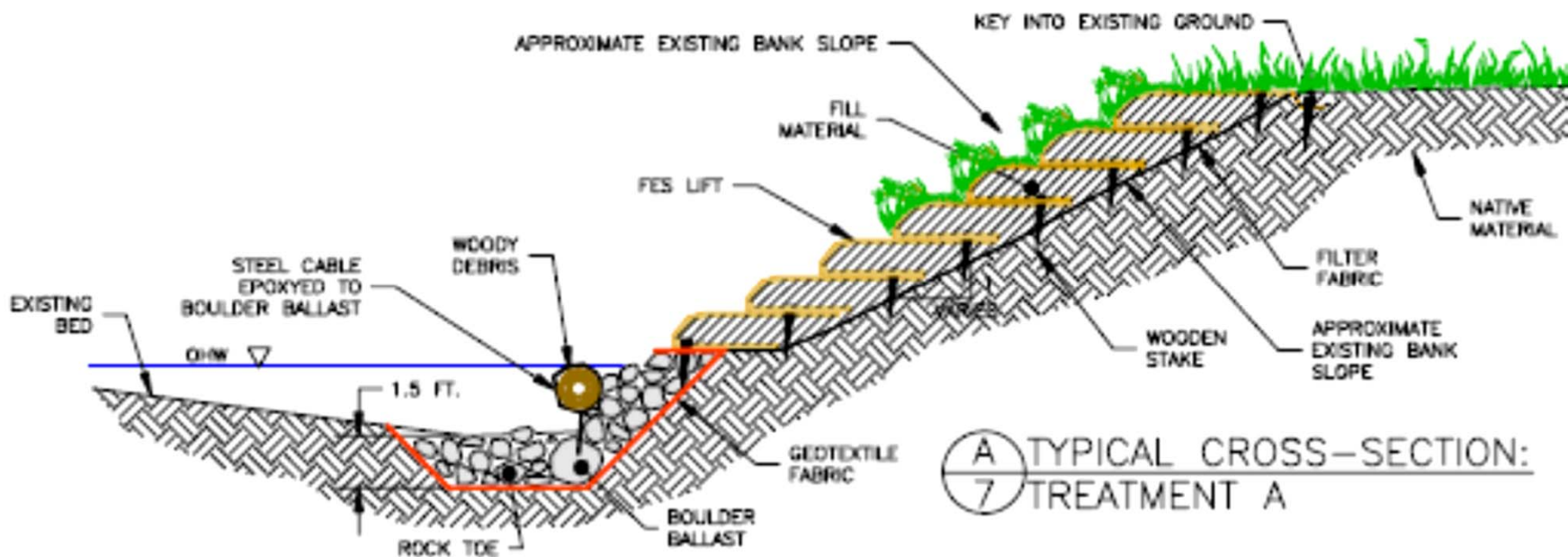
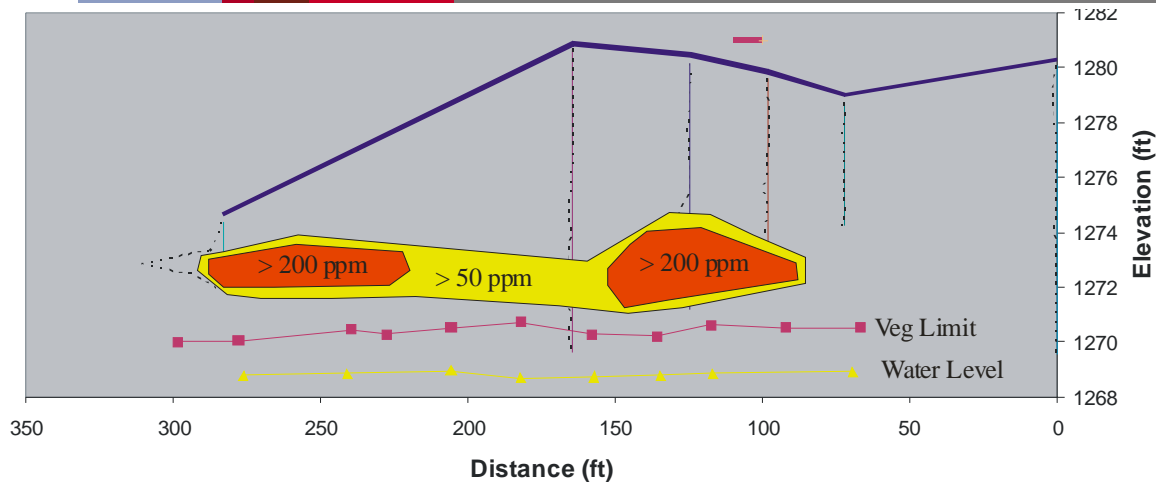
Trout Unlimited



some Design Criteria

- Withstand erosion
 - Shear stresses caused by 2 to 500 year recurrence floods (HEC-RAS)
- Do not increase flooding risk
 - FEMA and City of Waynesboro guidelines
 - Water surface elevation at 100 year flood is not significantly increased – HEC RAS indicates an increase of 0.01 ft (0.3 cm)
- Provide a tie-in for additional in river work that may be undertaken by VA DGIF
- Include elements that improve river and riparian habitat (shade, fish habitat, natural width of the river)

Draft Design Plan



Monitoring Elements (baseline and post construction)

Erosion / Loading (lines of evidence)

- LiDAR imaging and erosion pins –current and post construction imaging
- Characterize flow conditions (velocity, elevation, channel width)
- Near bank fine-grained sediments at base of bank
- Pore water Hg
- Biological Monitoring (clams)
- Bank vegetation assessment (post construction)

Habitat Assessment

- Qualitative habitat survey
- Rapid Bioassessment Protocol

Dissolution of Bank Soils

- Groundwater / Surface Water levels and quality pre- and post construction
- Cations / anions

Increased Methylation Potential

- MHg analysis of pore water and base of bank sediments

Current Schedule

- ✓ Pre-design data collected
 - ✓ Conceptual Design (30%)
 - ✓ Measures of Success
 - ✓ Draft Monitoring Plan (baseline and post-construction)
-
- Feb / Mar 2009: Pre-application Permit Review
 - Mar – May 09: Permitting
 - Apr 09: 100% design and Stakeholder communication
 - Apr – Aug 09: Bid Process / Contracting
 - Sept – Oct 09: Mobilization / Construction