RESTORATION ON THE MAGNESS FARM

Integrating Stream, Wetland, Riparian, Floodplain, and Groundwater

A Model of Regenerative Design

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BACKGROUND

• Maryland State Highway Administration (MdSHA) Environmental Stewardship Project, not Mitigation for Project Impacts

• TEA-21 Program Funded, with additional MdSHA and County funding contributions

• MdSHA has Adopted Approach of Optimizing Site Restoration Values
THE MAGNESS FARM STORY

Drainage ‘Improvements’
- Surface drainage ditches
- Subsurface tiles
- Spring developments
WHY THIS PROJECT?

• New generation interested in agricultural history and telling that story

• Largest surface ditch developed into a problem

• Part of farm has never been productive

• Knows thousands of tons of sediment have gone down into Deer Creek (trout waters)
RESTORATION APPROACH

• ‘Fill’ excavated ditch to raise channel
• Place rock weirs to control channel incision
• Incorporate bentonite fabric ‘plugs’ to stop preferential groundwater flow
• Remove groundwater tile drains
• Remove spring development structures
RESTORATION GOALS

• Safe, non-erosive conveyance of surface water
• Restore wetland hydrology through groundwater restoration and holding water on the landscape
• Restore forested wetland and vernal pool habitats
• Provide water quality benefits for sediments and nutrients
Regenerative
Humans (Hominids)
PARTICIPATING AS nature – Co-evolution of the Whole System

Restorative
Humans DOING THINGS TO nature – assisting the evolution of Sub-Systems

Sustainable
Neutral – “100% less bad” (McDonough)

Green
Relative Improvement (LEED, GB Tool, Green Globe, etc.)

Conventional Practice
“One step better than breaking the law” (Croxton)

Trajectory of Environmentally Responsible Design
Integrative Design Collaborative and Regenesis 2006 - Bill Reed, reed@integrativedesign.net
<table>
<thead>
<tr>
<th>Project</th>
<th>Cost</th>
<th>Benefits</th>
<th>Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>$87,000</td>
<td>7.5 acres of wetland restoration</td>
<td>$375,000</td>
</tr>
<tr>
<td>Construction</td>
<td>$429,000</td>
<td>1100 LF of stream restoration</td>
<td>$385,000</td>
</tr>
<tr>
<td>Oversight</td>
<td>$43,000</td>
<td>66,000 cf water storage/treatment</td>
<td>$660,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$559,000</strong></td>
<td><strong>Not Included:</strong> Habitat value, groundwater restoration, aesthetic value, etc. ???</td>
<td><strong>$1,420,000</strong></td>
</tr>
</tbody>
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*Cost/Benefit ratio: 1:2.5*

*Value is calculated based on a conventional cost of: $50k/acre wetland; $350 lf/stream; and, $10 cf of water storage.*