Duck Creek Streambank Stabilization; Davenport, IA

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Davenport, Iowa
Existing Crossing February, 2012
Upstream south bank February, 2012
Upstream S. bank October, 2012
Downstream Cut-bank Near Utility Pole
Downstream with Exposed Utilities
Downstream Cut bank with Abandoned Utilities
Existing Structure  Facing Upstream(September 28, 2012)
For this project, keys are not needed as upstream of the ERR both banks consist of large expanses of grouted riprap.
HISTORIC CONDITION

Profile view

Bed of the stream prior to headcut migration through this area

Approx. 1.5 ft of substrate cover over the encased sewerline (measured old dirt line on highway bridge columns immediately upstream)

Sewer line encased in concrete

Gas line
PRE-PROJECT CONDITION

Huge scour hole downstream of the sewer line exposing high pressure gas line

Deep pool
Riffle composed of material from a failed attempt to stop headcut migration
Deep scour hole
Gas line (exposed)
Sewer line encased in concrete

Profile view
Tadpoles
Darters
Bullhead
Blue Gill
Sucker & Large-mouth Bass
Large-mouth Bass
ERR crest built 1.5 ft above the sewer line, total height 4.5 ft, 20 to 1 slope on ERR, 4 to 1 on glide (water places glide stones in compression).
ERR extends into deep pool so that tailwater will dissipate energy.

Duck Creek ERR

Water surface

Deep pool

Gas line protected

Sewer line encased in concrete

Profile view
CONSTRUCTION-Filling in some of the scour hole & starting on the ERR. Sewer line in center of pix.
Upstream
- sand bed stream - LPSTP -

Longitudinal Peaked Stone Toe Protection (LPSTP) with side slopes at the angle of repose

Slide by Derrick 3/16/09, Modified by Stineman 2/21/13
The stream will adjust to the LPSTP, & the LPSTP will self-adjust to armor the resulting scour hole.
The LPSTP has self-adjusted
- sand bed stream - LPSTP -

Install Live Siltation
- sand bed stream - LPSTP -

Install TRM

Slide by Derrick 3/16/09, Modified by Stineman 2/21/13
- sand bed stream - LPSTP -

Sloped bank
Rolled-out TRM
sand bed stream - LPSTP -

Soil cover TRM and top of stone
Upstream
Upstream
Upstream
Upstream
Upstream
Upstream
Downstream
Downstream
Downstream
Downstream
Downstream
Downstream
Downstream
Downstream
Downstream
Downstream
Downstream
Dam 1/11/13
## COST

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Units</th>
<th>Price</th>
<th>Quantity</th>
<th>Total</th>
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<td>LPSTP RR-5 Stone (delivered)</td>
<td>Tons</td>
<td>$29.35</td>
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<td>Staples for TRM (box 1,000)</td>
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