St. Luke's Restoration of Nature

Stream Daylighting & Ecosystem Restoration Project
2013-2018

St. Luke's Restoration of Nature

What's Wrong with This Picture?

An Invasion of Tree Snatchers

Traces of
Historic Stream Valley

42 inch stormwater outfall draining 28 urban acres

Tidal Interface - Watergate Pointe Partner to stop erosion, replace Phragmites, enhance property values

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

1753 EBLING TRAIL ♦ ANNAPOLIS, MD 21401
tel. 410-849-3211 fax. 410-849-2136

Underwood & Associates: A Treatment Train of BMPs (redlined educational trail)

St. Luke's Episcopal Church
1101 Bay Ridge Avenue
410-268-5419
www.stlukeseastport.org

St. Luke's Restoration of Nature:

A Comprehensive Watershed Restoration & Environmental Education Project

St. Luke's Episcopal Church has restored an historic stream, wetland, tidal marsh, and living shoreline and is completing restoration of critical area native plant species to serve Chesapeake Bay restoration goals, environmental education, and quality community greenspace. This 4-acre project is located on Back Creek, subwatershed of the Severn River, tributary of the Chesapeake Bay. Benefits include: clean water for the Bay = required Total Maximum Daily Load (TMDL) reduction credit contributions for Annapolis, a nature sanctuary to sustain all life through restoration of ecosystems, climate change resiliency, and a looped walking trail with informative signage to serve environmental stewardship for decades to come while faciliating recreation and health/ mediative/spiritual well being needs for all.

Features: A treatment train of Chesapeake Bay Program best management practices mitigates a municipal stormwater pipe system, which had conveyed 28 urban acres of polluted stormwater directly into Back Creek. Daylighted stormwater pipes and 7 curb cuts at the highest possible elevation capture and release the stormwater into bioswales, which foster infiltration and aquifer replenishment; thereby creating clean groundwater entering stream and wetland below. The stream aka regenerative stormwater conveyance (RSC) works to treat sediment and excess nutrients through pools and weirs; replicating the work of natural streams with forested buffers. The RSC links to wetland, maximizing nutrient reduction, then the RSC resumes treating more daylighted stormwater. The lower RSC ties into restored tidal marsh and a 270 linear ft. living shoreline, filtering more sediment and providing quality habitat for aquatic species and waterfowl. Infiltrating and cooling native trees, along with native shrubs, grasses, and herbaceous species, serve the ecosystem and wildlife and faciliate beauty along the educational trail.

Partners/Funders: DNR Chesapeake and Atlantic Coastal Bays Trust Fund, RiverWise Congregations (Alliance for the Chesapeake Bay, Anne Arundel County Watershed Stewards Academy, Interfaith Partners of the Chesapeake), The Episcopal Church United Thank Offering, and hundreds of other grantors, organizations, private donors, and supporters of church Restoration fundaisers, Special thanks to: AA County Watershed Stewards Academy for credentialing St. Luke's Master Watershed Stewards, Underwood & Associates who fulfilled a church goal of caring for creation through an exceptional understanding of coastal plain ecosystem restoration, and our financial management sponsor, Alliance for the Chesapeake Bay, whose steadfast leadership around the Bay and here at St. Luke's is inspirational to all.

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The Only Non - Fun Part of Stream Restoration: Permitting: Federal, State, and Local Jurisdiction: June 2015

Permits Achieved + Grading Permit in Hand = Celebration

August 2017: Christmas in September!

Plants and More Plants!!!!

First BMP installed: Living Shoreline, 270 Linear Feet

1400 Linear Feet
of Regenerative Stream Channel

Wetlands Reforming

Upland bioswales. These mimic the work of natural sills, which maximize clean water production for the stream through replenished aquifers and seepage. The stormwater is captured in the upland and through multiple curb cuts into bioswales.

More Upland Bioswales for infiltration at the top of the RSC Infiltrates via perforated pipe at 12’ deep and conveys excess to first step pool and daylighted drain.

At Bay Ridge Avenue COG inlet where the stream is first released with a connection to the municipal stormwater pipe system

St. Luke's Restoration of Nature Under Construction Fall 2017

Visible Signs of Restoring Hydrological Function

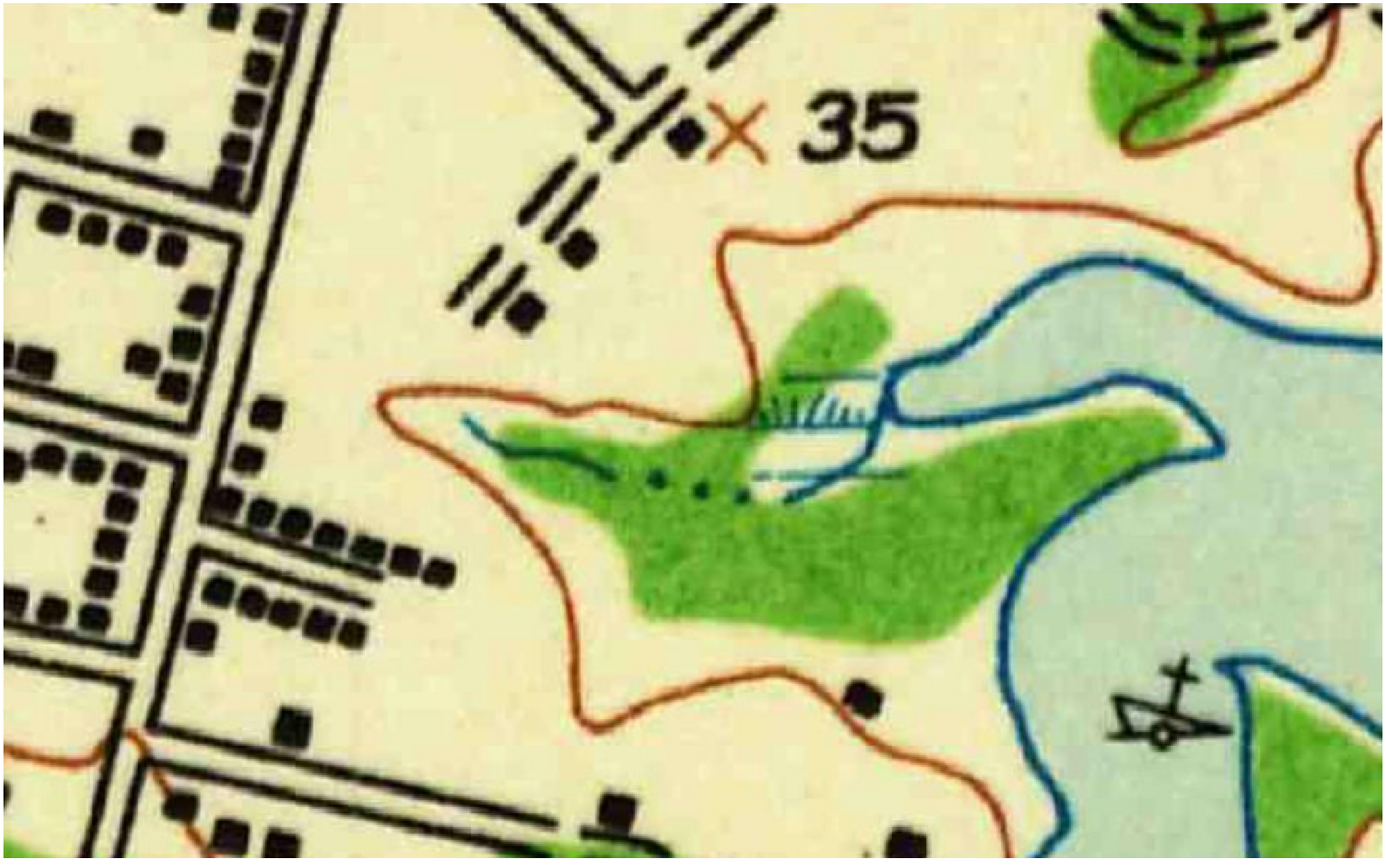
Amazingly Clear at the Bottom

Clarity in the Creek for Hannah, the Restoration's Happiest Resident

Evolving Trails

Evolving Environmental Stewardship

Stream Valley (1944 US Army Corps of Engineers' Map)



Artist's pre-settlement riparian, transitional, and upslope landscape as here interpreted using plant macrofossils from southeastern Pennsylvania. The valley-bottom foreground consists of palustrine, persistent, emergent wetlands with tussock sedge vegetation, including Carex spp., Eleocharis spp., and Scirpus spp. [8]. Lower slopes support a Red Maple-Black Ash deciduous swamp forest. Other components of this community include Hazel Alder (Alnus serrulata) and various species of willow (Salix spp.). The upper slope forest community in the background is a Red Oak-American Beech mixed hardwood forest dominated by various species of red and white oaks (Quercus spp.), American Beech (Fagus grandifolia), and Sweet Birch (Betula lenta). Other community constituents include Eastern Hophornbeam (Ostrya virginiana), American Chestnut (Castanea dentata), Mountain Maple (Acer spicatum), American Sycamore (Platanus occidentalis), and Tulip Tree (Liriodendron tulipifera). Artwork: Rebecca Wilf.

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