Plum Run Stream Restoration Summary

On Friday November 22, Flyway Construction began to mobilize on the south side of Tigue Road in preparation for a stream restoration project. While this is in close proximity to Toll Brothers' Darlington Ridge project, the two projects are separate. The stream restoration work is spearheaded by the Brandywine Red Clay Alliance (BRCA) (http://www.brandywineredclay.org/_ in collaboration with East Bradford Township, Stroud Water Research, and others. This is part of BRCA's "Red Streams Blue" project (http://www.brandywineredclay.org/watershed-conservation/red-streams-blue/plum-run/).

Below are some facts from BRCA about the project:

- Our project is independent from the Toll project and was identified as a worthwhile stream restoration project in our 2008 Plum Run Stream Restoration Plan (when Tigue farm was an active cattle operation).
    - Plum Run is a Focus Area – an impaired tributary to Brandywine Creek and a BRC *Red Streams Blue* Stream Restoration Plan priority watershed.
    - We have completed 5 projects since 2010:
        - 5,000 feet restored
        - Two projects remaining to restore – 5,690 feet of Plum Run
        - When completed, over 2 miles of stream will be restored
    - Phase 1 (Tigue Farm to Tankle's property) is expected to continue into January 2020.
    - We have funding for Phase 2 (Tankle's property to the breast of the old dam). This Phase is currently out to public bid, with the bid opening December 20, 2019. Work would be in January with an end date of March 2020.
    - Phase 3 will be from the breast of the dam to Strode's Mill. We are writing grants for this phase this winter. Construction is slated for 2021.
- We have all the required permits for the full project from DEP, CCCD, and the US Army Corps.
- As a best practice for water quality, aquatic, and wildlife habitat, we are installing 9 acres of riparian forest buffer in partnership with Stroud Water Research. Stroud has extensive research on successful tree planting techniques, getting 80 – 85% survival, using these "clean culture methods."
    - In Chester County, invasive grasses, vines, trees and shrubs will outcompete and kill young sapling trees without management.
    - Tree plantings must be maintained a minimum of 4 years to be established to survive.
    - Planting sites must be clear of invasive trees, vines and grasses for survival and this site is over run with invasives. Therefore, we are clearing out all invasives with heavy mowing equipment, then preparing the ground with a grass to stabilize the soils to provide an open site for new tree planting in spring. THIS REMOVAL MAY STARTLE SOME PEOPLE AS IT WILL OPEN THE SITE UP TO SUNLIGHT ETC., HOWEVER IT IS NEEDED TO PROVIDE FOR NEW TREES TO GET ESTABLISHED.
    - "Clean culture" plantings put trees in rows to allow mowing 2-3x/year of grasses, vines, etc. to reduce competition.
    - Trees are planted in plastic 5-foot-tall tubes to prevent browsing from deer, rabbits, etc. that kill trees.
    - Herbicides are applied in the tube and a 3-foot radius around each tree to prevent vines from growing up young trees.

    - After 4 years, we'll evaluate for continued maintenance plan. We expect trees to be growing out of the top of the 5-foot tubes by then, however we may keep mowing and keep plastic tubes on the trees to prevent deer buck rubs from killing young trees. We hope that within 10 years trees are strong, surviving on their own, and starting to provide the shade cover that keeps some invasive from growing.
    - THIS IS A PROVEN LONG-TERM PLAN FOR SUCCESSFUL CONVERSION FROM OLD FARM FIELD TO FORESTED RIPARIAN BUFFER.
- Our stream restoration will also be clearing the areas adjacent and in the stream, which may also startle some residents. Our permit identifies best management practices with appropriate limits of soil disturbance, wetland protections, etc. Some details include:
    - We may remove invasive, dead, dying, and compromised trees next to the stream if needed. We work to preserve mature trees that are helping to stabilize the banks.
    - Many of the cut trees are used as "root wads" and installed into eroding stream banks with roots in the water, slowing water flow, preventing new erosion and providing fish habitat.
    - Plum Run has steeply eroded banks up to 8 feet tall in some places. These are legacy soils that washed into the streams over the past 300 years from past farming and forestry practices that did not protect native soils, instead they washed downstream and filled our Plum Run valley and wetlands with 2 to 8 feet of soil. Our project work to reduce the erosion of these soils into the stream by:
        - Pulling back steeply eroded banks to a 3:1 or 4:1 slope, removing the soil, and planting the exposed area with native grasses and wildflowers.
        - This process also reconnects the stream to floodplains and wetlands during high stream flow, reducing erosion and flooding.
        - In-stream structures using rock and wood, protect banks from eroding, slows down water pressure and provide fish habitat.
    - WHILE THESE PRACTICES MAY APPEAR LIKE A DRAMATIC CHANGE DURING CONSTRUCTION, THEY GROW IN QUICKLY TO PROTECT THE STREAM. THE COMPLETED STREAM RESTORATION ACROSS FROM TIGUE ROAD ON 52 AND DOWNSTREAM OF STRODE'S MILL (OFF BIRMINGHAM ROAD) ARE GOOD HIGHLY VISIBLE SUCCESSFUL RESTORATION PROJECTS.