

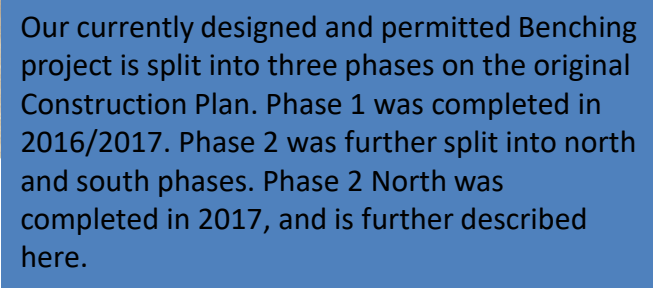
WALLKILL RIVER/BLACK DIRT REGION FLOOD MITIGATION

Orange County Soil and Water Conservation District
Phase 2 North of the Floodplain Bench Project



Looking south (upstream) towards NJ,
August 2011


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An existing access road, built as part of the 1980's Federal Flood Control Project, was within the footprint of the proposed bench, so had to be relocated.



Trees within the project area were cut early in 2017 (before March 31), as required by permit to comply with bat habitat protection stipulations. When full construction commenced in August, stumps were removed. Some of the swamp maple stumps were enormous.



Typical cuts on Phase 2
were 3 to 8 feet.



Contractor was required to identify and separately handle 5 or more distinct soil layers



Of the five soil types within the bench cut, the clay was the least 'in-demand'. Some of it was 'buried' under the bench cut.



Suitable soil from the excavation - mineral topsoil and black dirt (organic deposits) - was moved to adjacent farm fields using low ground pressure 'Hydrema' end dumps. While construction traffic can have negative impacts on agricultural land, this special equipment and sensitivity to these concerns on the part of the contractor helped to minimize impacts. Long-term, we expect this placement of 'new' soil on adjacent farm fields to increase their productivity and to be the 'best use' of soil generated by the bench construction.





For the most part, we avoided disturbing the banks of the River, but it was unavoidable where stumps would have interfered with the bench construction. Where disturbance was necessary, seed and mulch were established immediately. Sandy soils were a challenge to grass establishment.

Our primary 'structural' erosion control measure was to maintain a 'berm/swale' at the River edge of the bench. Note the pre-existing vegetation on the River bank that was not disturbed.

Any runoff from storm events flowing towards the River will be intercepted by the berm/swale.

Conveniently, an old River meander within the bench footprint was available to dissipate flows from the berm/swale practice.





Grade stakes aid the contractor in placement of soil on farm fields in a way that promotes positive drainage.

On many big jobs these days, GPS would replace us stake pounders. But sometimes, old school still rules.



An ample layer of topsoil is placed back on the bench cut to promote re-vegetation.



Beats hand-shaking!



A mixture of 2" caliper and #2 container trees were planted after broadcast seeding of a custom floodplain seed mix.

Note that the 'berm/swale' was left in place. It will have minimal impact on the functioning of the completed bench.



Stakes were added more for floodwater protection than for wind protection. These White Oak stakes, procured from a local sawyer, are smaller in diameter than the standard nursery tree stakes but are also much cheaper and seem to be doing a good job.

Looking downstream from County
Route 1 bridge at completed Phase 2
North Floodplain Bench



In addition to its flood mitigation function, the bench creates a forested riparian buffer along the River corridor.



Project Fully flooded on
1/12/18



The bench is designed to begin accepting flood flows when the River reaches what natural channel design science refers to as the 'bank full flow', which equates to a storm event that happens every 1.5 years on average. If the bench concept can be implemented continuously throughout the Black Dirt, models used in the design indicate it could protect adjacent farmland from a '10-year' storm event.



Project Fully flooded on
1/12/18



We heard a lot of complaints from the trees. "Ice, logs, wet feet for weeks. How do you expect us to survive?"

To which we replied, "Hey, are you a floodplain tree, or not?"

