



A research, outreach, and implementation project funded by the Great Lakes Restoration Initiative

PROJECT PARTNERS

Putnam County Soil and Water Conservation District

The Nature Conservancy

The Ohio State University

USDA Agricultural Research Service.



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Two-Stage Ditch Case Study: Niese Joint County Ditch, Putnam & Defiance County, OH

PROJECT HISTORY AND PURPOSE

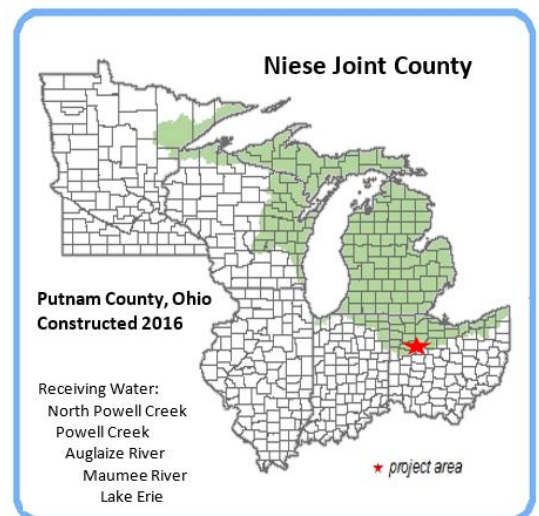
Powell Creek drains 98 square miles over multiple counties in the Western Lake Erie Basin. More than 80% of the watershed is used for corn, soybean and wheat production. Once part of the Great Black Swamp, this watershed is flat, poorly drained and has extensive subsurface drainage. Powell Creek tributaries are not supporting fishes and other aquatic life found in average streams in this part of Ohio (Ohio EPA, 2009).

North Powell Creek was channelized in 1996 and is maintained every 3 to 4 years for brush and sandbar removal and vegetation control. Fine sediment caused by soil erosion and channel maintenance activities is the primary impairment to aquatic life in this watershed. Phosphorus and nitrogen high, which can give rise to abundant algae production further degrading water quality.

A two-stage channel was constructed in 2016 on Niese Joint County Ditch to stabilize ditch banks and reduce sedimentation. Putnam SWCD, The Ohio State University, and Putnam County Engineers worked together to survey the site and develop design plans for the two-stage ditch. It is under the maintenance of the Putnam County Engineer. It is the site of a USDA-ARS water quality monitoring station.

PROJECT LOCATION

Niese Joint County Ditch is a tributary to North Powell Creek, Auglaize River, and Maumee River that is currently under maintenance by the Putnam County Engineer. It drains 1075 acres subsurface-tiled agricultural fields and pasture (>90%).



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Before Construction



During Construction



After Construction

Site Physical Characteristics

Drainage Area: 1075 acres

Channel Slope, Average: 0.16%

Project Length: 1,500 linear feet

Landowner: William and Jane Oedy

Project Costs

Earth Work Costs: \$11,399.00

- **Mobilization: \$1,060.00, lump sum**
- **Site Preparation, clearing and grubbing: \$900.00**
- **Soil Excavation, Hauling, Leveling: \$9,439.00**
 - ❖ **7,300 cubic yards @ \$1.15 per cubic yard, removal from channel**
 - ❖ **4.8 cubic yards per linear foot of channel**

Outlet repair, protection and erosion control: \$6,660.00

Seed and Seeding, 1.15 acres: \$5,475.00

Miscellaneous Labor, clean up: \$1,356.00

Engineering, survey, and inspection: \$0
(designed, surveyed and inspection done by Putnam County Engineer, OSU, and Putnam Soil and Water Conservation District)

Total Costs

Total Cost: \$24,890.00

Cost per linear foot: \$16.59

of p removed per year: 120 lbs