TOHICKON AQUEDUCT REHABILITATION
Delaware Canal National Landmark
1992-2001

William Collins, RLA, Simone Collins Landscape Architecture
David C. Fischetti, P.E., DCF Engineering – superstructure engineer of record
before 1932
Commercial operation 1832 - 1931
Ole swimmin’ hole on Labor Day, 1931
Two days after Labor Day, 1931
Catastrophic failure of upstream truss
View downstream of failure
After WW2
Managing water flow during construction
New state park aqueduct
Conditions by 1992
30-35 years useful life
Inspiration

Gift Bridge, Guelph Ontario, Timber Framers Guild, 1992
Inspiration

Gift Bridge, hand raising
Gift Bridge, *completed – 120 span*
Inspiration

Roebling Aqueduct – former Delaware & Hudson Canal Lackawaxen, PA

Rehabilitation by NPS
Duck Creek Aqueduct – Burr Arch Truss
Swiftwater Canal, Matamoras, IN
Tohickon Aqueduct - Engineering and Architecture

Superstructure engineering – DCF Engineering

Architecture design – Simone Collins Landscape Architecture
New superstructure on rehabilitated substructures
David C. Fischetti, P.E. - Engineer of Record (superstructure)
Detail – upper truss chord
Detail – transverse systems
Detail – trunk and truss cap sheathing
Detail – trunk liner system (ultimately modified)
Detail – trunk liner system – welding seams
Detail – façade liner, watered aqueduct
Detail – outrigger towpath (under construction)
Detail – completed towpath
Detail – Bearing at north abutment
Workers for J.D. Eckman contractors stand at the refurbished Tohickon Aqueduct near Point Pleasant. Students and professors of the University of Maine are testing a new polymer that is supposed to reinforce the timber construction.

Tohickon Aqueduct project becomes college experiment

UMaine AWEC assumes FRP responsibilities
Detail – FRPs were applied to transverse beams
Detail – Catwalk installed to read gauges
Detail – Gauge and monofilament lines
Tohickon Aqueduct – watered
COSTS

$100,000  US FOREST SERVICE  timber engineering

$  PA DCNR / PA DEP  civil engineering

$2.1M  PennDOT / FHWA  construction
Acknowledgements

Point Pleasant Community Association.
Pennsylvania Dept. of Conservation and Natural Resources - Bureau of Facilities Design and Construction
Pennsylvania Department of Environmental Protection - Bureau of Flood Protection
USDA Forest Service – Wood in Transportation Program
USDA Forest Service – Economic Action Program
Pennsylvania Rural Development Council.
UMaine – Advanced Wood Engineering Center
Pennsylvania Forestry Association.
National Canal Museum.
Friends of the Delaware Canal.

Opening Day
“Aqueducky” race
AWARDS

2003  HONORABLE MENTION – Rail Trail Design Recognition
Bridges/Tunnels Rehabilitation
*Rails to Trails Conservancy,
American Society of Landscape Architects*

2003  HONOR AWARD
*American Society of Landscape Architects, PA/DE Chapter*

2002  1st PLACE – NATIONAL TIMBER BRIDGE AWARD
Rehabilitation of an Existing Bridge
*APA Engineered Wood Association,
Federal Highway Administration, US Forest Service*

2002  EXCELLENCE IN DESIGN  Franklin Wood Award -
*Central Bucks AIA / Chamber of Commerce*
Contact

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