

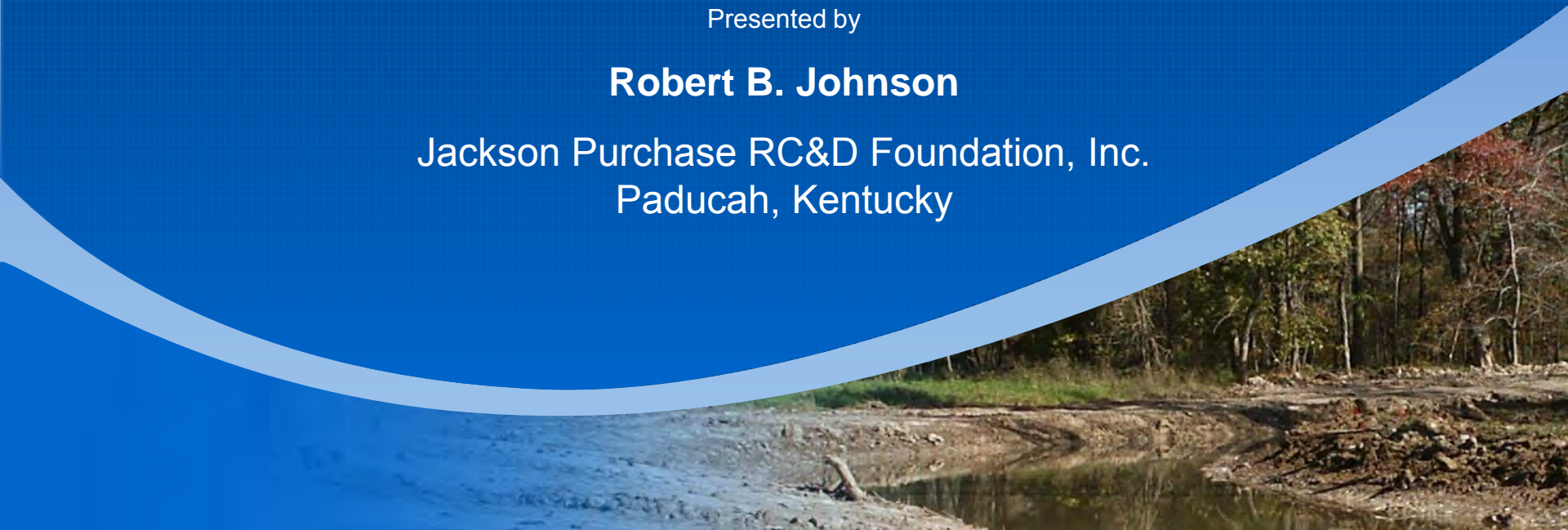
Obion Creek Stream Restoration

Restoration of a Channelized Straight-line Ditch
to a Naturalized Meandering Stream

Presented by

Robert B. Johnson

Jackson Purchase RC&D Foundation, Inc.
Paducah, Kentucky



Partners with the Jackson Purchase RC&D

KY State Nature Preserves Commission

University of Louisville Stream Institute

KY Dept. of Fish and Wildlife Resources

Kentucky Transportation Cabinet

Obion Creek Watershed Conservancy District

Hickman County Fiscal Court

Douglas Amphibious, Inc.



Obion Creek Restoration Channel Design and Construction Team

Channel Design

Bill Vesely – Research Project
Engineer, Civil and Environmental
Engineering, University of Louisville

Construction Management

Dwain Abell – Licensed Land Surveyor
and Civil Engineering Technician,
USDA/NRCS (retired)

Channel Survey

Brain Matherly – Research Technologist
Senior, Licensed Land Surveyor,
Civil and Environmental
Engineering, University of Louisville

Permit Applications

Charlie McIntire – Resource Manager,
USDA/NRCS

Pre-Design Studies

D. Joseph Hagerty – Professor, Civil
and Environmental Engineering,
University of Louisville

Kevin Skinner – Post Doctoral Research
Associate, Geomorphology,
University of Nottingham

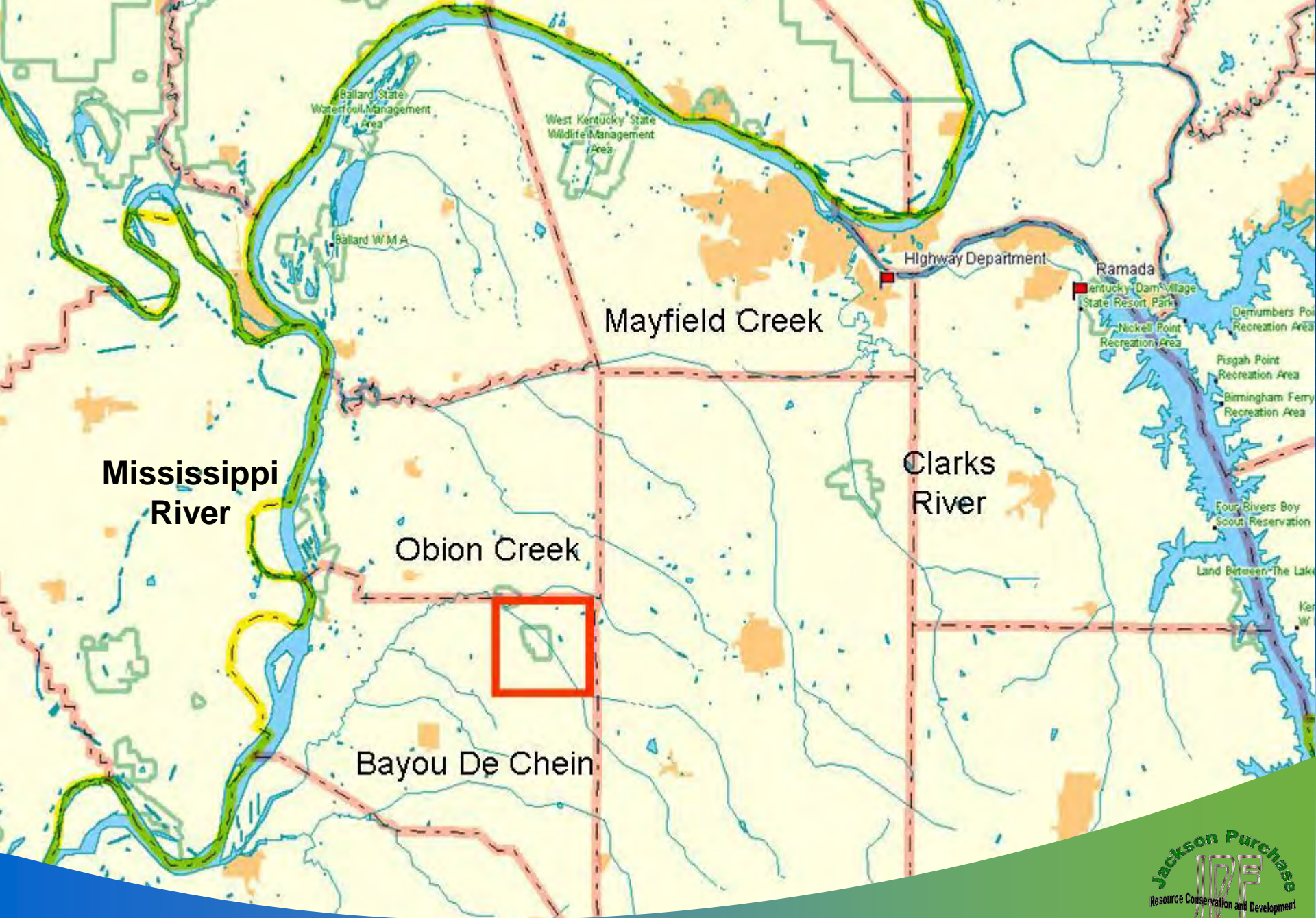
Mike Croasdaile – Post Graduate
Research Associate,
Geomorphology,
University of Nottingham

Anna Wood – Post Doctoral Research
Fellow and Geomorphologist, Civil
and Environmental Engineering,
University of Louisville

Andrea Curini – Research Associate
and Engineering Geologist, Civil and
Environmental Engineering,
University of Louisville

Problems Cause by Previous Channelization in 1927 & 1937

- Ponded water and braided channels upstream and downstream of KY307
- Flooding upstream and over KY307
- Debris blockage of Obion Creek old constructed channel upstream of KY307
- Sediment blockage of Obion Creek upstream and downstream of KY307
- Dead and dying timber
- Wetland loss
- Loss of adjacent farmland



Mississippi River

Mayfield Creek

Clarks River

Obion Creek

Bayou De Chein



Obion Creek, Mississippi River tributary, Hickman County, Kentucky



Blockage upstream of KY-307 bridge





Dead and dying timber before project



Debris blockage upstream of KY-307 bridge

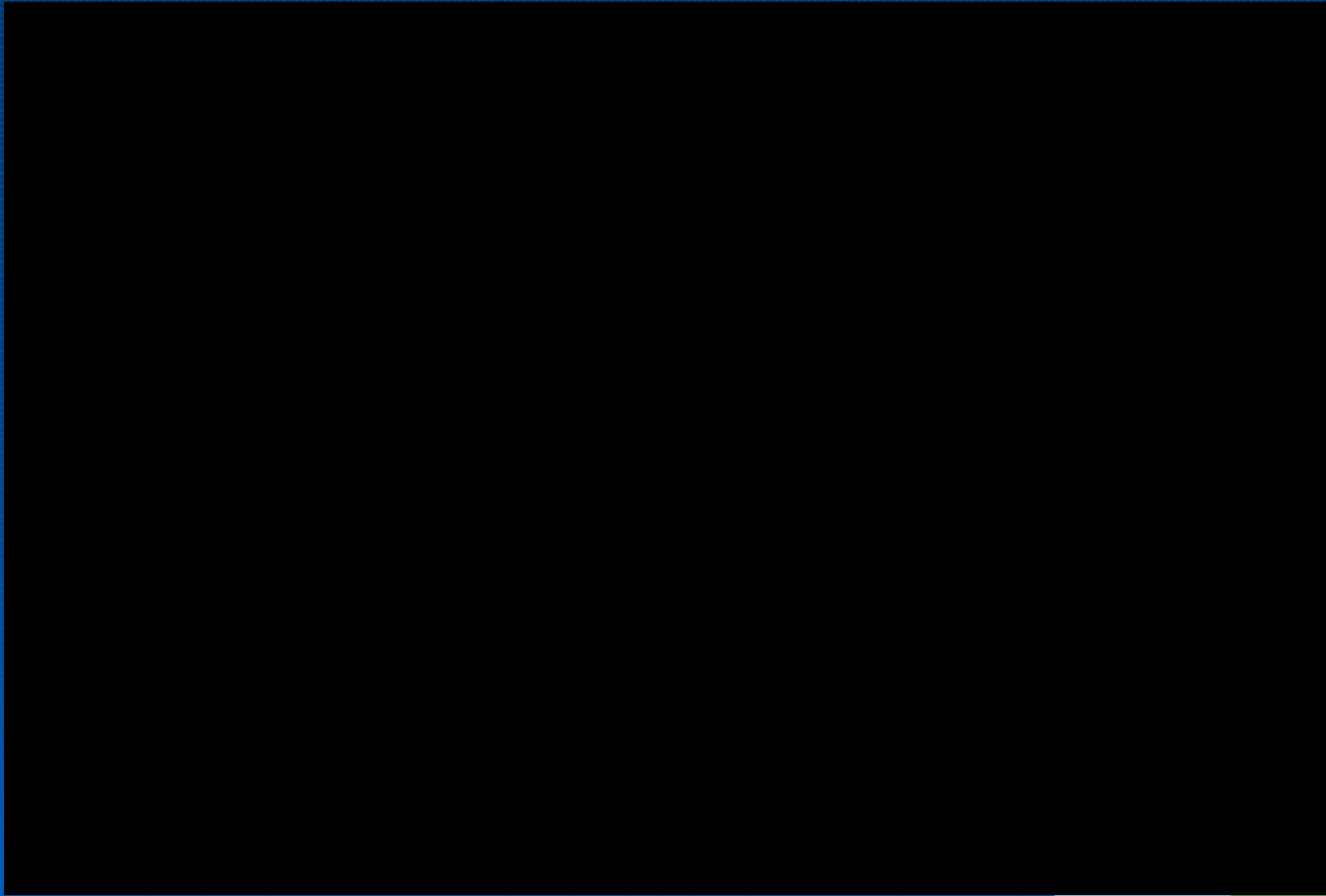


Un-channelized reach downstream of project area



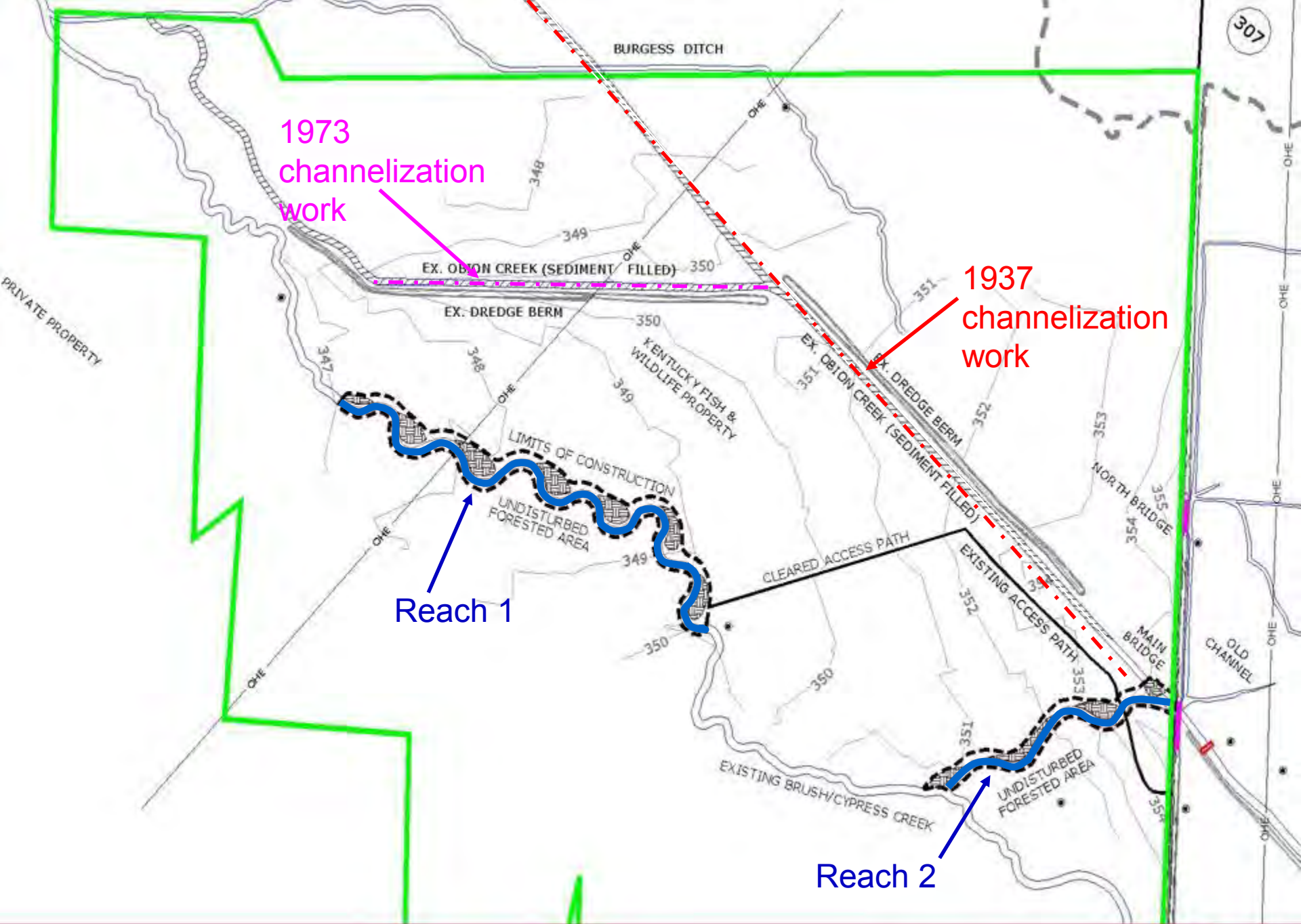


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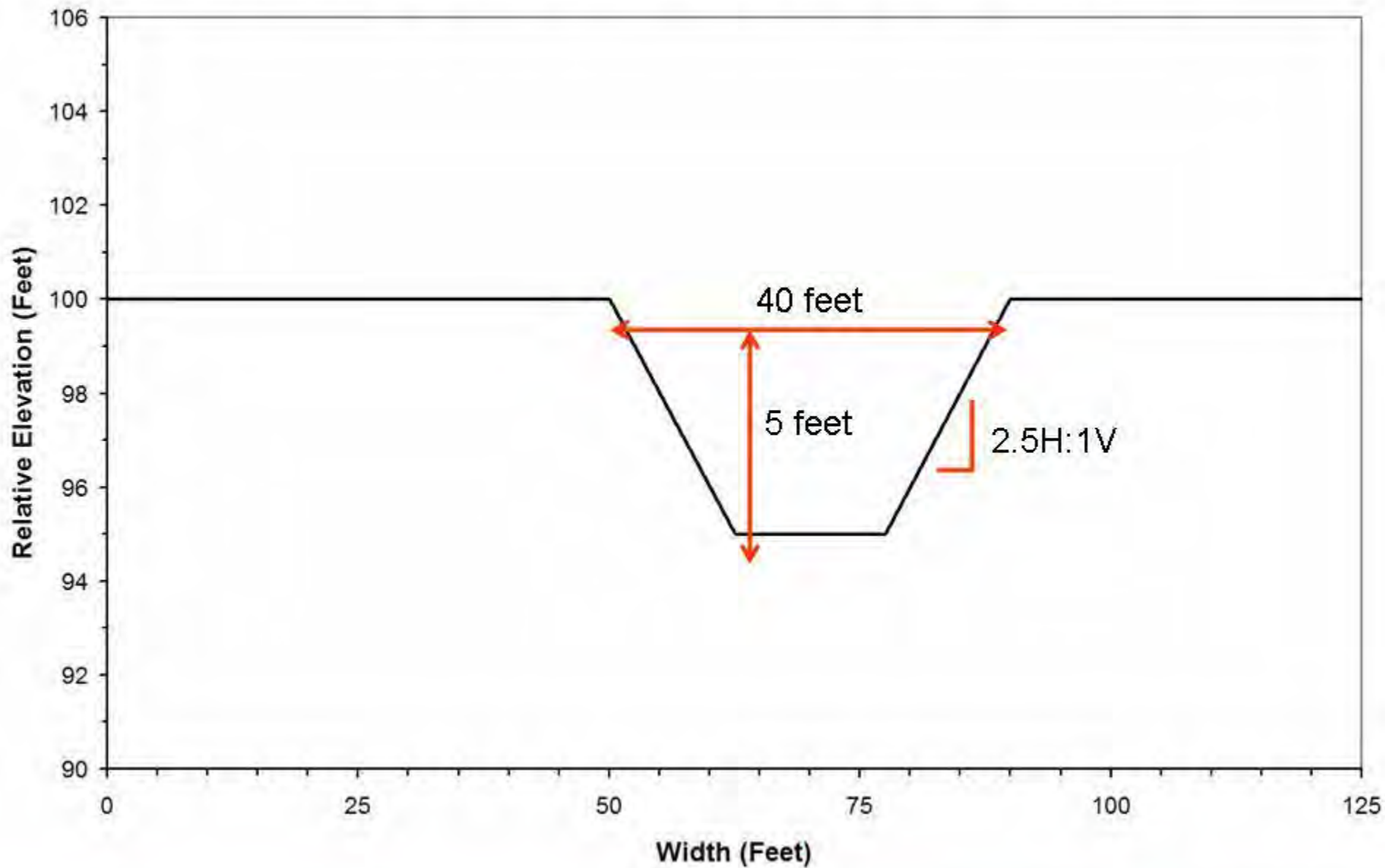


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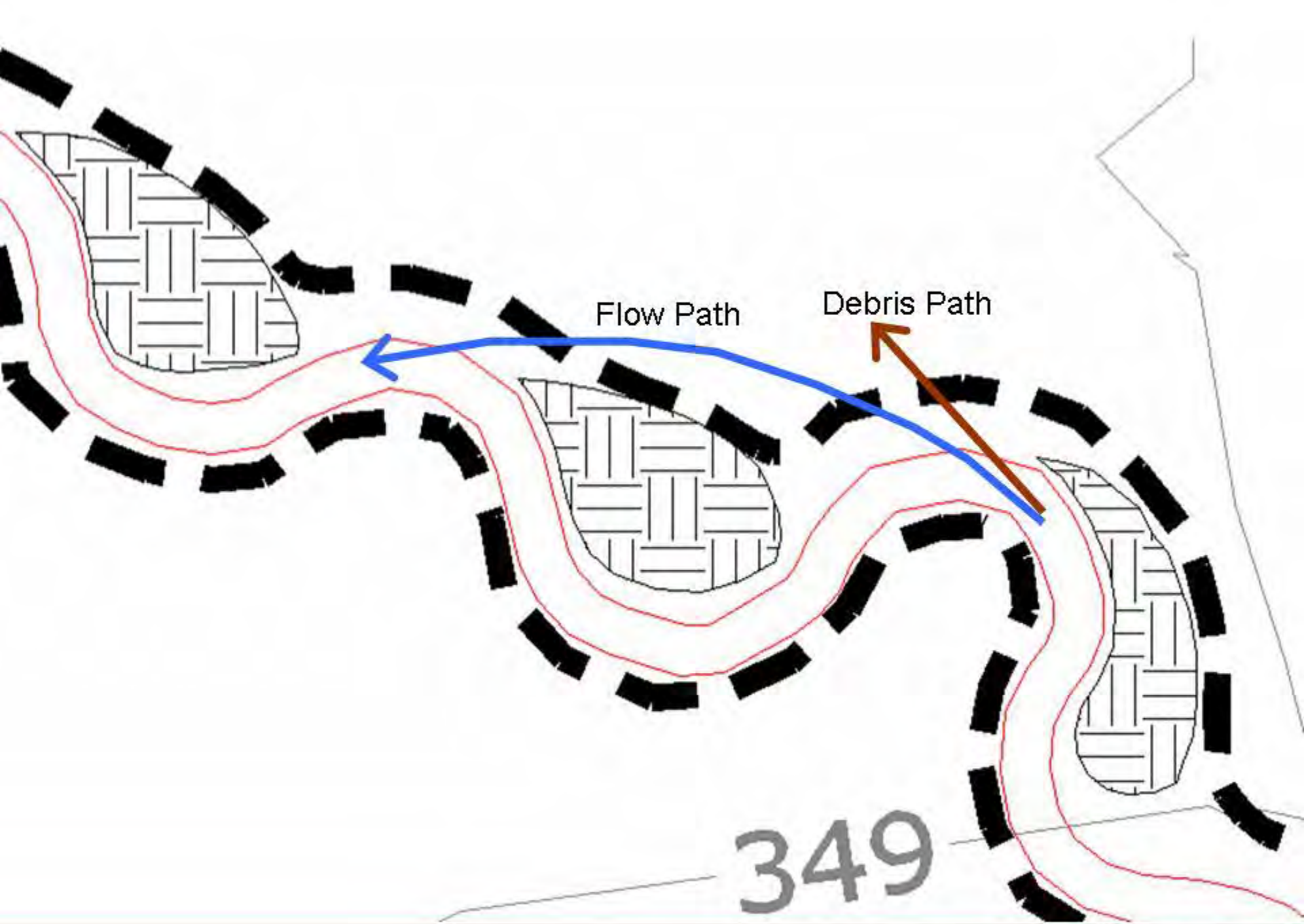


Typical Channel Cross-Section, Obion Creek Stream Restoration





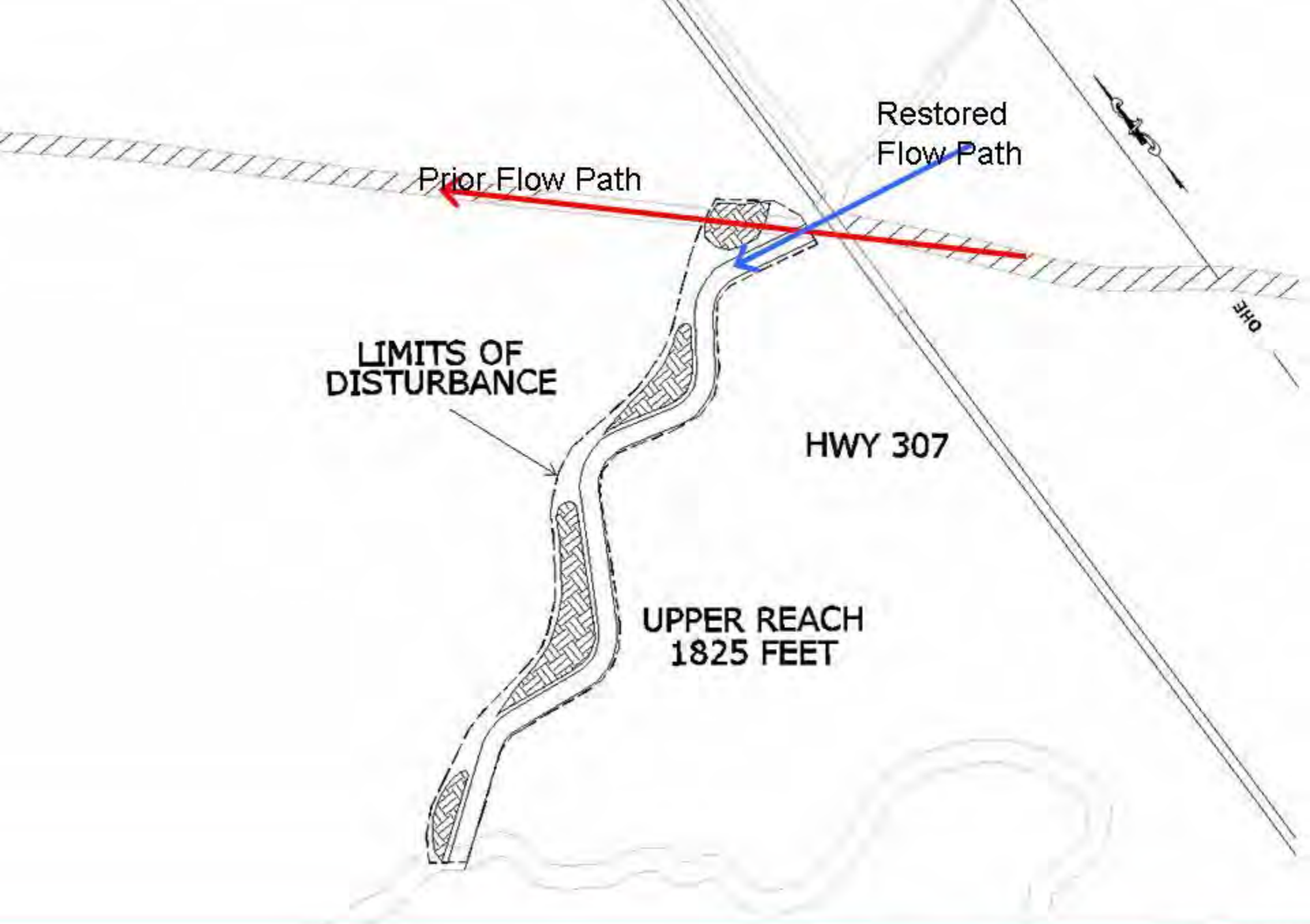
Stream Construction



Flow Path

Debris Path

349





Aerial view of
lower reach



Completed stream meander





Constructed stream meander



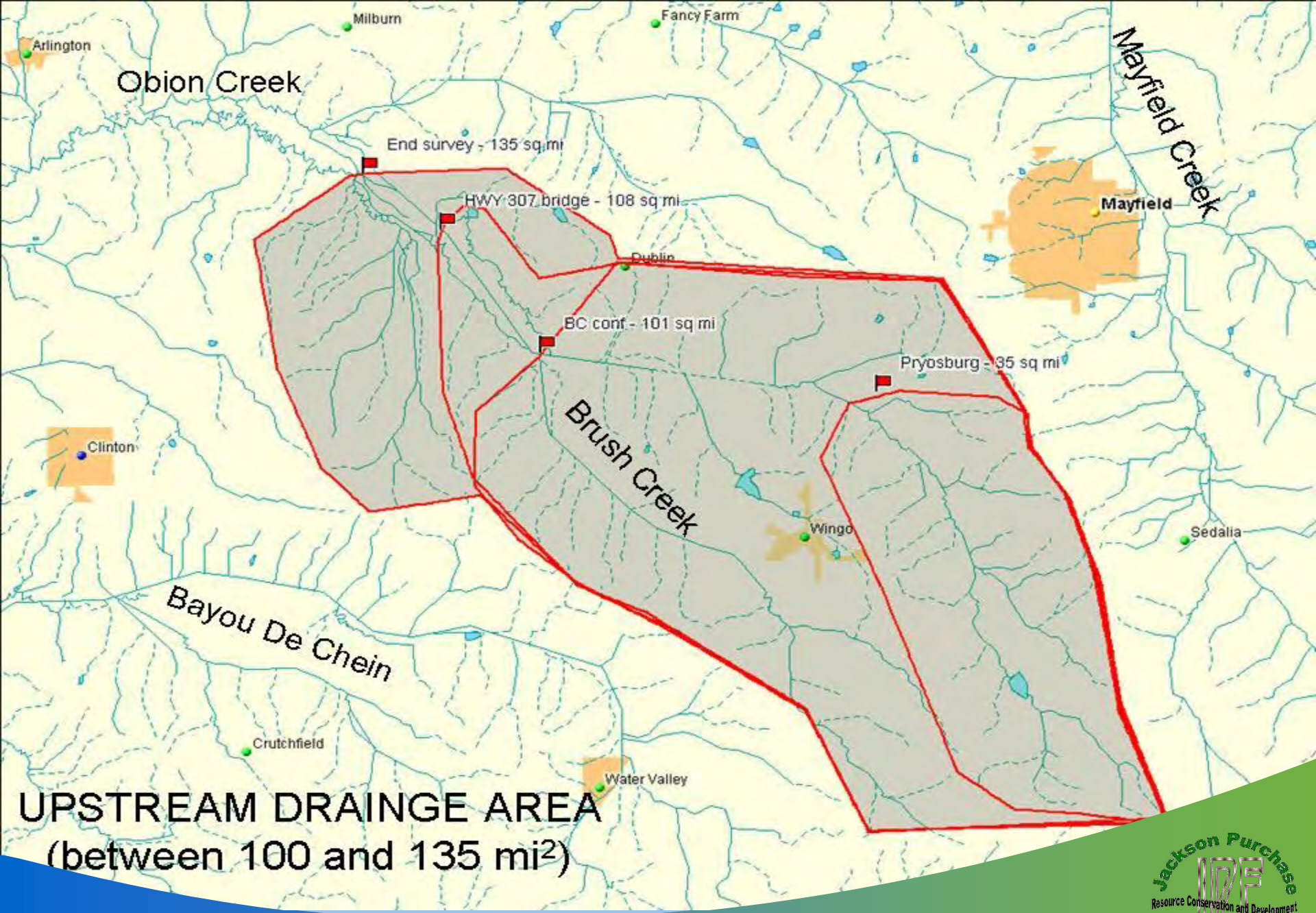


Deep pools constructed for aquatic habitat



Low Cost Stream Restoration

- Actual construction costs
\$22 per linear foot
- Total Costs including watershed assessment, design, survey, construction, pre & post monitoring, admin/overhead
\$81 per linear foot



UPSTREAM DRAINAGE AREA
(between 100 and 135 mi²)

$Q_{10} = 10,725$ cfs





**Anabranching
Channels**

**Sediment
Filled
Channel**





***Obion Creek
Stream Restoration***

www.jpf.org