Maryland State Highway Administration

Paint Branch Fish Passage

Baltimore, Maryland

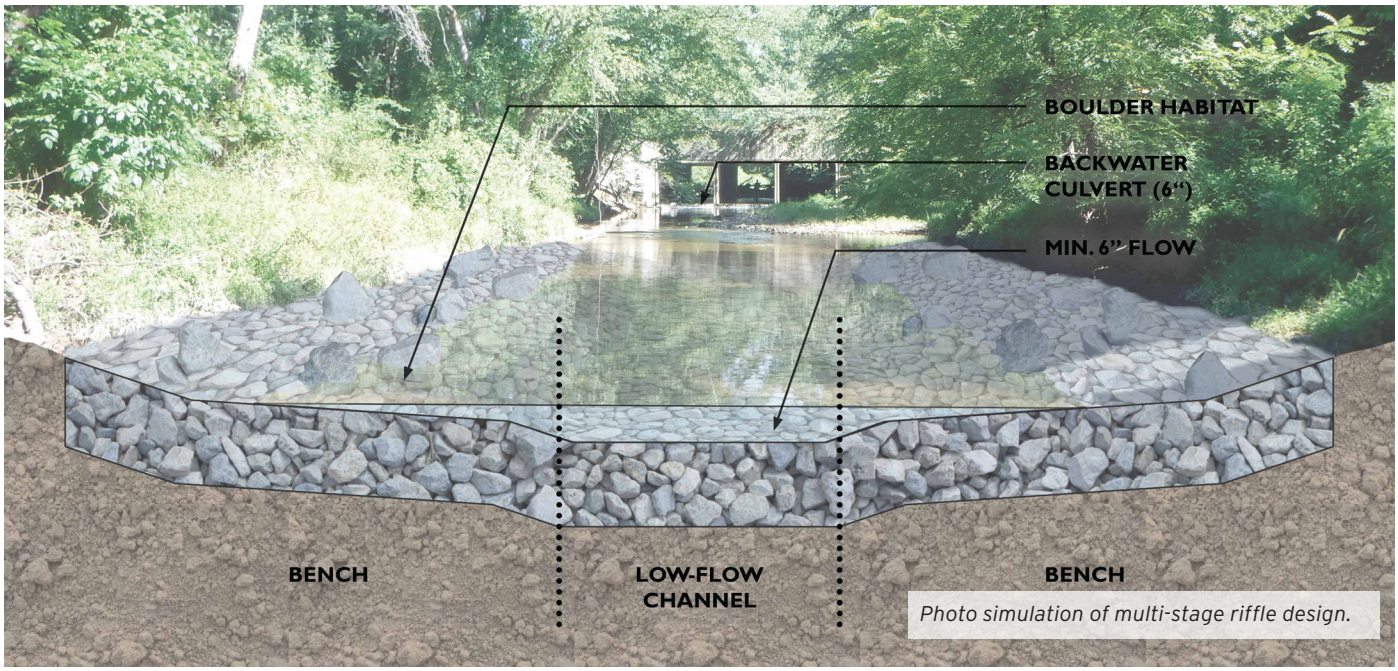

Photo simulation of multi-stage riffle design.

Restoring fish passage to a degraded stream reach opens 14 miles of high quality habitat in a highly urbanized watershed.

SERVICES

Ecological Restoration
Assessment
Biological Monitoring
Design
Fish Passage
Stream Restoration
Habitat Restoration

Paint Branch is a 14-mile, high-quality Use III Trout Stream that winds through two of Maryland's most densely populated counties. Through an on-call environmental design and permitting contract with the Maryland State Highway Administration, Biohabitats developed a design to restore fish passage near an interstate interchange as mitigation for impacts associated with planned road improvements. Two culverts at the site were trapping debris and sediment, which blocked fish passage and caused severe aggradation.

The restoration needed to balance the needs of fish with those of the stream system and infrastructure. This required a stream gauge analysis to determine base flow conditions during periods when anadromous & catadromous fish would travel through the stream. Biohabitats conducted fish sampling in accordance with MBSS protocols, evaluated target species and limiting factors, analyzed hydrology, and assessed fluvial geomorphology to understand the long-term base level controls, lateral migration zone, and influence of sediment and debris on the selected fishway. After conducting an alternatives analysis of nature-like structures and structural designs, Biohabitats determined that given sediment and debris loads, a constructed riffle design would be the most sustainable solution.

The design created a multi-stage channel which accommodated the full range of watershed flows and established low flow hydraulics appropriate for target species. The final package included an adaptive management strategy to address debris accumulation at the culverts, coordination with FEMA regarding increased flood elevations, and a flood action plan for construction activities. The restoration required substantial coordination with, and amendments to the master plan for the USDA's Beltsville Agricultural Research Center, owner of the downstream section of the project.