MILL CREEK
WATERSHED COUNCIL
OF COMMUNITIES

In-Progress Project Summary: Lowhead Dams Mitigation in Cincinnati

Anticipated Completion: 2017

The Mill Creek Lowhead Dam Modification project will address the last two remaining lowhead dams in the Lower Mill Creek in the City of Cincinnati. These lowhead dams are concrete-encased sewer pipes which have been exposed over time as the streambed has eroded.

The primary goals of this project are to (1) permanently protect critical Metropolitan Sewer District of Greater Cincinnati (MSDGC) infrastructure, (2) increase in-stream habitat and decrease non-point source pollution in the Mill Creek, and (3) increase recreation potential. In partnership with the City of Cincinnati Office of Environmental Quality and MSDGC, the Mill Creek Watershed Council of Communities (Council) secured a Section 319 grant contingent on a certain percentage of local match.

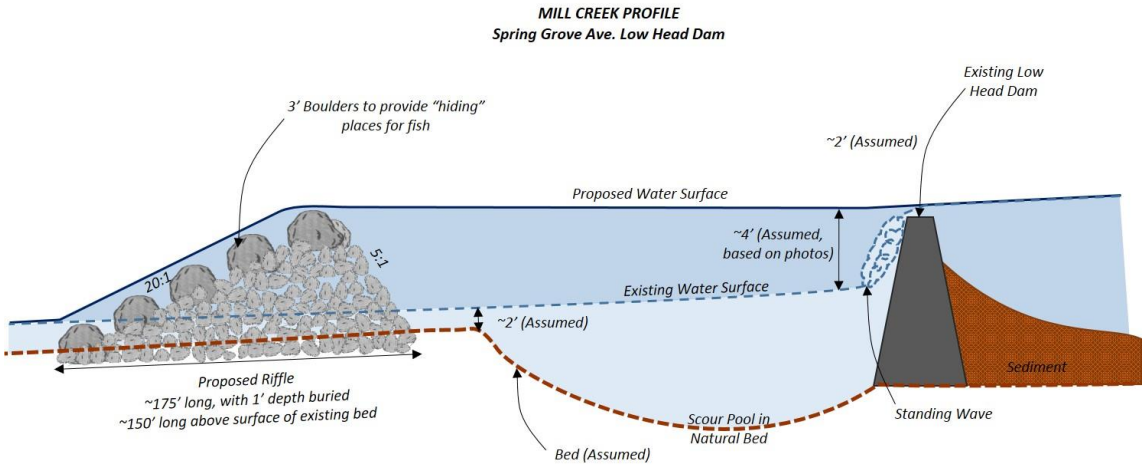
Project Summary

Lowhead dams create barriers to both fish and human passage in the stream. Dams also create deep scour pools in the streambed as water flows over them with high energy, displacing cobbles and sediment on the stream bottom. Scour pools can undermine infrastructure crossings and cause failure of pipes. By creating riffles downstream of the lowhead dams, the energy of the existing 3-4 foot drop in the stream will be transferred from the dams to the riffles. The scour pools will then naturally backfill with sediment that is transported down the stream. New riffles in the stream will allow fish passage, canoe and kayak passage, and provide healthy riffle-pool development in the stream bed, benefiting the overall ecological health of the stream.

At-Risk Infrastructure

Both lowhead dams proposed for modification in this project are MSDGC sewer crossings. The upstream dam contains a 12” clay pipe; the downstream dam contains a much larger 72” semi-elliptical reinforced concrete pipe. Modification of the dams as proposed will not remove any of the existing casing on the pipes, but will significantly decrease the stress placed on the pipes by allowing the scour pools to fill with

sediment and moving the current drop in stream surface profile to a downstream riffle structure as shown below.



Previous Application on the Mill Creek

These types of structures have been used successfully on the Mill Creek and elsewhere. In highly modified urban streams where full dam removal is cost prohibitive, these constructed riffles are a cost-effective approach to protecting threatened infrastructure and improving in-stream habitat.

This is an after photo of a rock riffle constructed downstream of the lowhead dam just downstream of the Hopple Street Viaduct. The sewer infrastructure has been permanently protected with careful placement of rock and localized in-stream habitat has been improved. This structure allows for fish passage.

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This photo shows a constructed rock riffle just downstream of North Bend Road. These structures protect infrastructure, improve habitat, and provide recreational opportunity for paddlers. Note OEQ's own Larry Falkin in the stern of the blue canoe. This area is also one of the best fishing spots in the Mill Creek.

Both of these projects were funded by MSDGC as part of its Supplemental Environmental Projects in the consent decree.

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