



Caribou-Targhee National Forest & Idaho Transportation Department



West Pine Creek Highway Bridge Replacement and Stream Restoration Project - FY2015

*Prepared by Louis Wasniewski, Forest Hydrologist, C-TNF
Michael Jones, Professional Landscape Architect, ITD
Randy Johnson PE, Project Manager, Forsgren Associates, Inc.*

Executive Summary

State Highway 31 crosses West Pine Creek approximately 8 miles North of Swan Valley, Idaho in Bonneville County. The Caribou-Targhee National Forest provides an easement for the land the bridge and Highway cross. The original bridge was constructed in 1936 by the US Forest Service. Upgrades and widening occurred in the mid-1950's at which time about 800 feet of West Pine Creek was channelized upstream of the bridge to straighten and contain the stream's approach. Immediately south of the current West Pine Cr. Hwy 31 Bridge is an intersection with Forest Service Road (FSR 230) that provides access to a highly used organizational camp and trailhead. The Forest Service Road runs parallel to the channelized West Pine Creek. This intersection is pinched between a rock bluff and the West Pine Hwy Bridge limiting sight and stopping distance and was a traffic hazard for vehicles turning onto or off of the Hwy.

ITD initiated discussion with the Forest Service to discuss bridge replacement and modifications to address safety of the Forest Service Road intersection. The US Forest Service suggested to ITD that the new bridge be constructed approximately 300' north on the existing road alignment so that the stream could be restored to a historic channel location. This collaboration created a win-win situation whereby the channelized West Pine Creek would be restored to a historic meandering location; public safety would be improved at the FSR 230 intersection with Hwy 31; the Hwy 31 Bridge would be replaced to meet Hwy standards and public safety; and the bridge could be constructed in a dry condition reducing construction costs.

Results

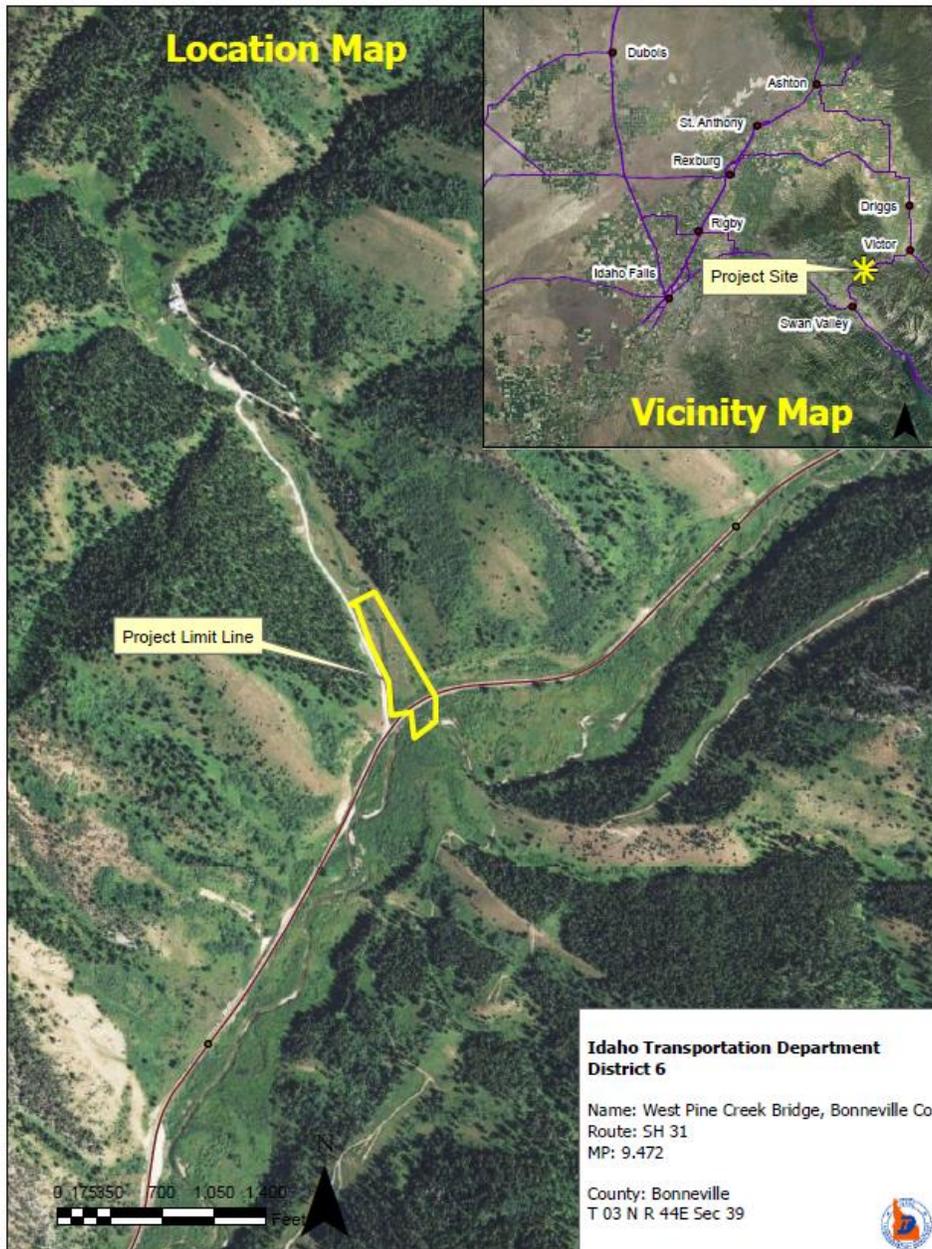
This project was implemented between July and September of 2015 through a contract administered by ITD. The old undersized Hwy 31 Bridge contained a 14 foot wide stream opening that was replaced with a 20 foot wide span to restore hydrologic function and stability at this crossing on West Pine Creek and increased public safety. The associated stream restoration work re-meandered the straightened, ditch-like channel increasing the length from approximately 907 feet to 1,143 feet which restored an additional 236 feet of channel and associated aquatic habitat. West Pine Creek provided essential habitat for the native Yellowstone Cutthroat Trout and this project has direct benefits for this Forest Service identified sensitive species. The increase in channel length decreases stream slope and power creating more slow water pool habitat for all aquatic organisms to benefit. The restored channel also reconnects the stream to its floodplain by elevating the stream nearly 4-6ft at the lower end. This will create an additional 17,450 sq. ft. (0.4 acres) of wetlands along the restored stream corridor at a minimum. The project will also restore up to 5 acres of riparian habitat by converting adjacent sage brush areas into willow and cottonwood dominated valley bottom.

Contributions

ITD contributed a majority of the project costs (design and implementation) totaling about \$878,000 for the bridge replacement and the stream restoration. The Forest Service provided technical stream restoration review and oversight along with the design contractor (Forsgren Associates Inc).

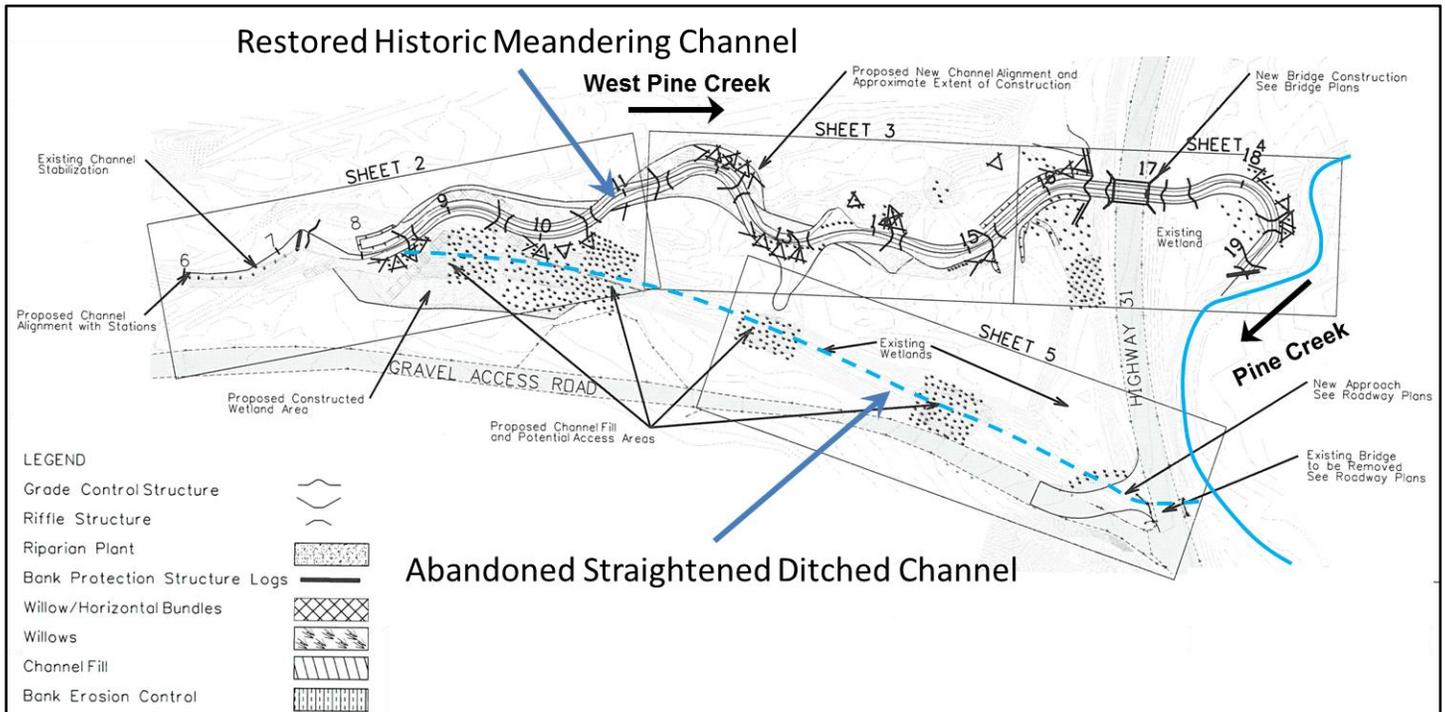
Design Costs and Contributions	Construction Costs and Contributions
ITD Staff Design - \$55,500	ITD Staff Costs - \$39,000
Consultant Design - \$133,000	Consultant Costs - \$30,500
<i>FS Contribution (In-Kind) - \$10,000</i>	Stream \$210,000
	Bridge \$410,000
	<i>FS Contribution (In-Kind) - \$8,000</i>
Design Totals: \$188,500	Construction Total: \$689,500

Project Location Map



Designs and Photos

Restoration Design Prepared by Forsgren Associates Inc. with review by Caribou-Targhee National Forest



Before photo looking down valley along FSR230 (on right) with the downcut 3-5ft straightened West Pine Creek. The downcut channel is disconnected from its floodplain and contained limited riparian and wetland habitat.



Old Hwy Bridge crossing of West Pine Creek



FSR 230 intersection with Hwy 31 pinched between the Hwy bridge and the rock bluff.

Map of created wetlands associated with West Pine Creek Restoration.



Project Photos:



Inlet of new bridge location- constructed in the dry in West Pine's historic channel location. Construction performed by Knife River Corporation.



Outlet of new bridge



Outlet of new bridge

Stream Restoration Photos



Stream restoration work was performed by Rockin' T Construction through Knife River Corporation designed by Forsgren Associates Inc. Implementation oversight performed by ITD, C-T NF, and Forsgren.



West Pine Creek historic channel being re-constructed with whole tree revetment for stream stability and instream aquatic habitat.



Newly re-constructed West Pine Creek channel now flowing water in its meandering historic location. Transplant whole willows and whole tree revetment restoration design treatments provides vegetation recovery, stream stability and instream aquatic habitat.



Newly re-constructed meandering stream channel at the upstream end where the historic channel was re-activated.



Newly re-constructed meandering stream channel at the mid-way point of the historic channel re-activated.



Newly re-constructed historic stream channel upstream of the new 20ft wide span Hwy 31 Bridge.