

TECHNOLOGICAL INNOVATION: 2006

Myra Canyon Trestles

The Myra Canyon trestles - located near the city of Kelowna, British Columbia - were constructed by the Kettle Valley Railway ("KVR"), a subsidiary of the Canadian Pacific Railway, as part of a secondary main line route that operated across southern British Columbia.

In a truly outstanding feat of railway construction engineering, KVR Chief Engineer Andrew McCulloch managed to locate, layout, and construct a railway directly through the Myra Canyon by seemingly hanging the supporting engineering works around the rim of the canyon, several thousand feet above the canyon floor. The railway swung into the canyon, just west of Myra Station, on a 0.40% ascending grade, and was literally shaped and fitted to the contours of the canyon walls in winding around the U-shaped canyon and across two large gaps in the canyon walls where the East Canyon and West Canyon (Pooley) creeks had cut deep cleavages. In a distance of but six miles, twenty major wood trestles were constructed to carry the rail line across wide gaps, deep cleavages, and depressions in the canyons walls; and all were built on a curve, or tangents to a curve, with from 7 to 12 degrees of curvature to conform to the natural contours of the canyon walls, and thereby minimize rock excavation on the sections between the trestles. Indeed, one trestle, at Mile 87.4, was built in an S-configuration, with a 12 degree right turn followed by a 12 degree left turn to conform to the winding configuration of the canyon wall in proceeding from east to west at that location.

In all cases, the curvature of the rail line was minimized through long graceful curves across several trestles, and by turning the rail line gradually throughout the length of the longer trestles. The largest of the wood frame trestles, the trestle at Mile 87.9 crossing the West Canyon Creek, was a stupendous structure, 750' long and 182' high, and turned the rail line almost 90 degrees over its entire length at the head of the canyon, while not exceeding a curvature of 12 degrees anywhere along its entire length. Although the Myra Canyon trestles were not the largest ever constructed on a Canadian railway, they were of a comparable size, and in their location, configurations, number, and alignments, the trestles in the Myra Canyon were impressive engineering works, and were unmatched on any other six-mile section of a Canadian railway.

On the whole length of the railway through the Myra Canyon only two tunnels and three deep rock cuts were required; and they were built either on curves or tangents to curves to conform to the alignment of the rail line winding around the canyon walls. However, they were substantial works. The East Tunnel at Mile 85.7 was 375' long on a 12 degree curve; the West Tunnel at Mile 86.4 was 277.5' long on a 7 degree curve ; and the rock cuts at Mile 84.7 and Mile 86.7 were 30' to 40' deep and bisected solid rock outcrops on the canyon walls. In each case, these works were left as blasted out of the rocks, devoid of any masonry adornment or dressing of the rock face beyond some scaling to remove loose rock.

Overall, the construction and positioning of the trestles greatly minimize the amount of rock excavation that would otherwise have been require to route a railway through the canyon. Indeed, it seemed to some observers that the whole length of rail line through the Myra Canyon was but a continuous line of trestles. Moreover, the line was carried almost on a level



throughout the canyon. It had a slight 0.40% ascending grade from the eastern entrance to a 4,179' elevation summit level at a trestle at Mile 85.9, the highest summit level on the KVR, and a slight 0.40% descending grade running westward from the summit.

No sooner was the rail line open than the awe-inspiring works high up on the mountain side in the Myra Canyon were recognized as constituting a phenomenal feat of railway engineering and construction; and McCulloch's assistant engineers began to refer to the Kettle Valley Railway as "McCulloch's Wonder".

After the abandonment of the Kettle Valley Railway in the 1970's, development of the Myra Canyon trestles as a public recreational area began. Thousands of visitors enjoyed the spectacular engineering feats in the Canyon until a disastrous fire in the summer of 2003 destroyed twelve of the wooden trestles and damaged two steel structures in the Canyon.

The loss of the trestles and their significant historic and tourism values warranted immediate action. As a result, the Myra Canyon Trestle Assessment Steering Committee was formed. The Steering Committee members include the Ministry of Competition, Science and Enterprise, Ministry of Water, Land and Air Protection, Parks Canada, Western Economic Diversification, Myra Canyon Trestle Restoration Society, Trails BC, Friends of the South Slopes, the Regional District of Central Okanagan and the Canadian Pacific Railway. The mandate of the Steering Committee was to assess the damages to the trestles and develop options for rebuilding them. As a result, On October 17, 2003 BC Premier Gordon Campbell announced the appointment of a task force to work with communities, volunteers, the private sector and the federal government to help develop a plan to rebuild and restore the Myra Canyon trestles.

On August 26, 2004, Premier Gordon Campbell and Senator Ross Fitzpatrick announced a \$13.5-million partnership between the provincial and federal governments to rebuild the historic Myra Canyon trestles. Work began on Trestle #18 in October, 2004 with a target date of late 2007 for complete reconstruction. Visitors are encouraged to come back to Myra Canyon!

A portion of the above was adapted with the permission of Parks Canada from the Historic Sites and Monuments Board of Canada report prepared by Robert W. Passfield, Historian, Parks Canada Agency.