

RESEARCH NOTES

OREGON DEPARTMENT OF TRANSPORTATION
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BRUGG CABLE MESH ROCKFALL FENCE

Shellrock Mountain Section
Lower Columbia River Highway (I-84)
Hood River County

September 1992

RSN 92-6

A Brugg Cable Mesh Rockfall Fence was installed in 1991 along I-84 from MP 52.1 to 52.7 to prevent large (> 3 foot diameter) rocks from entering the travel lanes. This was one of the first major installations of the Brugg Cable Mesh Rockfall Fence in the United States and it was a Federal Highway Administration (FHWA) experimental features project. The fence is a patented proprietary item and consists of cable mesh attached to H-beam posts that incorporate a friction brake. The fence was installed in the Columbia River Gorge Scenic Area; to minimize its visual impact, it was painted a dark earth tone.

On August 8, 1992, a 1.7 ton rock impacted the Brugg Cable Mesh Rockfall Fence installed at Shellrock Mountain (See Figure 1). The rock dislodged from the cliffs above the talus slope, and bounded down the talus slope in five to fifty foot bounces. Its final bounce was in the fallout area, then it went eight vertical feet and hit the near west edge of a 6.5 foot mesh section about mid-height at Station 567+80 and was retained in the rock fallout area.



Figure 1: Brugg Cable Mesh Rockfall Fence after August 8, 1992 rockfall.

There was minor damage to the fence as it dissipated the rock's energy. On the section impacted, the upper friction brake was pulled twenty-two inches, the lower was pulled one inch, the lacing rope was pulled five inches, and three cable clamps were opened. The foundation and its post nearest the impact rotated twenty degrees without damaging any attachment bolts. The post then bent the upper section of the bin wall. The bolt to hold the flange holding the lower perimeter cable was bent.

The calculations to estimate the rocks energy at impact have not been completed, but the rock is near the size used to estimate the 75 ft. tons design energy. Therefore, the fence stopped a rock at or above its design energy with only minor damage. This rock would have entered the eastbound travel lanes near the skip line if the fence was not there.

Recently, a report for this research project was published titled, "Brugg Cable Mesh Rockfall Fence, Construction Report." To obtain a copy of this report or any additional information regarding the rockfall, please contact:

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