



# CLACKAMAS HIGHWAY, OREGON, OR224, UNITED STATES

**Rockfall Protection**

# Clackamas Highway, Oregon, OR224

## Rockfall Protection

**Project Location Country** Clackamas Highway, Oregon, OR224  
Estacada, Oregon  
United States

**Year of installation** 2015

**Customer Engineering Contractor** Oregon Department of Transportation  
Oregon Department of Transportation  
High-Tech Rockfall Construction, Inc.

**Initial situation** The Clackamas Highway (OR 224) is an expressway that passes through hilly farmland to the city of Estacada, OR, continuing southeast into the Mount Hood National Forest, ending to the small community of Ripplebrook. In September of 2014, a wildfire named Pit 36 broke out growing quickly and burning 5500 acres of the steep heavily timbered slopes (The Oregonian 9.15.14). Already near vertical highway rock cuts along OR 224, combined with freshly burned and exposed ground were perfect conditions for high rockslide and landslide potential.

Not a short two months after the fire two rockslides dumped 350 cubic yards of material across both lanes of Highway 224 near milepost 35 forcing residents and loggers to take a 1-1/2 hour detour (The Oregonian, 11.10.14). After an emergency clean-up of the rockslides the highway was reopened awaiting permanent rockfall mitigation measures to be implemented. Engineering Geologists from the Oregon Department of Transportation investigated the slopes and evaluated the rockfall hazard for a permanent mitigation strategy.

**Description** Through the design process Geobrugg provided technical support on various flexible rockfall mitigation systems. The Engineering Geologists from the Oregon Department of Transportation chose to mitigate future rockfall with the use of an Attenuator Hybrid Rockfall Barrier System.

The Rockfall Impact Attenuator Systems supplied on this project utilizes GBE-500A post and rope infrastructure supporting TECCO® G80/4 [mm] mesh that drapes down to the safe runout zone at the toe of the rock slope. As specified in the projects plans, two attenuator hybrid rockfall barriers were installed as a part of this project. One system is 300 feet long, with 4 meter tall posts, having an approximately 80 feet long TECCO® mesh draped tail.

The second system was much longer at 987 feet in length and was customized with three system heights at 4 meters, 6 meters, and again dropping down to 3 meters. Specialized posts were developed in order to transition between the various system heights in a continuous manner, optimizing post spacing and rope layouts. The draped TECCO® mesh tails on these systems are up to 100 feet long terminating nominally 10 feet above the toe of the slope.

The attenuator hybrid rockfall barrier systems are fully compliant with Buy America requirements for steel being made from steel forged and manufactured in the United States.

**Protected object** Road

**Other installed applications** Rockfall Protection

**Corrosion protection** Galvanized, GEOBRUGG SUPERCOATING

**Energy absorption capacity** N/A

**System height** 3.0 m, 4.0 m, 6.0 m

**System length** 393 m

**For questions please contact our Geobrugg specialist at your side**

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