Mill Valley Slide Repair
Soldier Pile Walls with Tiebacks Save Property

Case Study

The Challenge

During the winter of 2017, a large section of this hillside property in Mill Valley started to slide downhill. RWR was called in on an emergency basis to stabilize the property before further catastrophic failure occurred. An existing soldier beam retaining wall at the head scarp was becoming undermined and a section of a wall at the bottom of the slide had begun to yield and was out of plumb. The yielding section of the lower wall was directly downhill from a corner of the residence and a collapse would have caused the slide to fail directly up to the foundation, putting the house at risk.

Yielding Lower Wall

Undermining Of Wall At Head Scarp

Action

The head scarp was stabilized by installing a system of tiebacks and walers to restrain the majority of the existing upper retaining wall, while an older section of wall directly under a small guest house was completely removed and replaced with a new steel soldier pile wall and the same tieback and waler system.

The failing section of the lower wall was completely demolished and replaced and the wall was then extended across the entire hillside to retain the bottom of the slide. The same wall design was used: a steel soldier pile and p.t. wood lagging system restrained at the top with tiebacks and steel walers. Tiebacks and walers were also installed across the remaining existing lower wall to prevent any further failures.

The hillside was rebuilt by benching the slide area, installing sub-drains and then reinstalling the soil in compacted lifts. The project was completed by seeding then placing erosion control netting over all disturbed areas.

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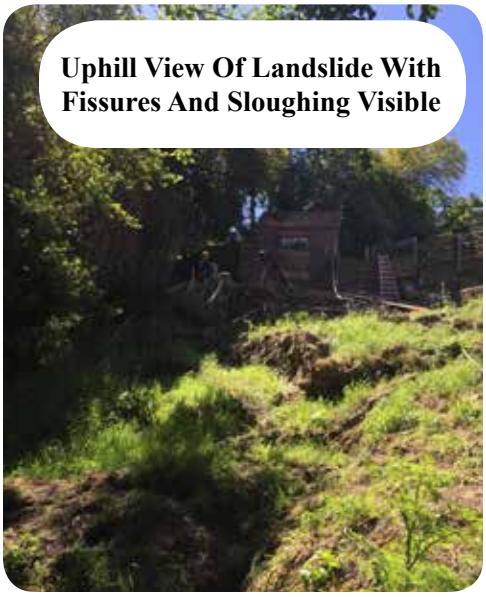
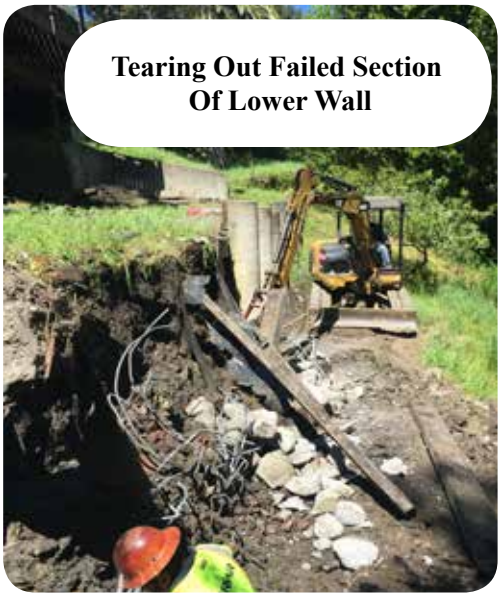


Uphill View Of Landslide With Fissures And Sloughing Visible



Tearing Out Failed Section Of Lower Wall

Midway Through Construction With Slope Rebuilt

Aerial View Of Stabilized Property

Results:

The property has been successfully and completely stabilized, and has cycled through several heavy winters with no further movement or distress. The subsurface drainage systems in the earth benches and behind the lower wall are preventing any hydrostatic buildup in the soils as well. The owner's property has been returned to its full use and value.

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