Three Geology-Based Approaches to Repairing Rock Slopes Along A Rail Corridor

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Overview

- Linear Projects Encounter Many Slopes, geologic settings and terrains.
- Geology outlines the problem
- Case Studies of three site settings:
  - Site 1 – The Eggs from Hell
  - Site 2 – Raveling/Slaking Shale
  - Site 3 – Valleyside Joints/Differential Weathering
Problem Recognition – Structural Control
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Problem Recognition – Differential Weathering

Center block is ~40 ft long, 24 ft high (top to underlying shales), ~15 - 25 feet deep into slope

Left block Supported by shales

Release Joints

Back Joint

Spalling shales

Back Joint
Common Approaches to addressing Rockfalls

- Remove/Repair the Hazard
- Control the Hazard
- Avoid the Hazard
Three Sites within ~5 miles of each other....
Obscured views....
Site 1 – The Eggs
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Site 1 – The Eggs
Site 1 – The Eggs
Site 1 – The Eggs – scaling/trimming
Site 1 – The Eggs – Trimming/Boulder Buster
Site 1 – The Eggs
Site 1 – The Eggs - shotcrete facing on shales
Site 1 – The Eggs – keyed in shotcrete
Site 1 – The Eggs – Completed South End
Raveling/Slaking Shale
**Raveling/Slaking Shale – Initial Assessment**

- Trim overhang and remove Trees and root mass at crest
- Install wire mesh drape (double-twist)
- Construct Shotcrete curb and gutter
- Remove Vegetation above tunnel Brow and grade to improve drainage As directed by Engineer
- Apply Shotcrete Armor with dowels And mesh as directed by Engineer
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Valleyside Joints/Differential Weathering
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