

## A Case Study: Remediation of Abandoned Mines for Residential Development

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**Abstract :** The site for a residential apartment building overlies an abandoned iron mine in granitic gneiss in northern New Jersey. The mine stope is about 137 m (450 long) and dipping over 344m (800 feet) at 450 to 500. As the building footprint straddles, the mine site needed remediation. The remediation scheme consisted of compaction grouting a minimum 10 m (30 ft.) depth of the mine stope in rock to establish a buttress for the hanging wall and allow support of the building foundation. The rock strength parameters (friction and cohesion) were established based on Hoek Geologic Strength Index (GSI). The derived strength parameters were used in the wedge analysis to simulate rock cave-in. It was concluded that a cave-in would be unlikely. Verification holes confirmed the effectiveness of grouting. Although post grouting micro gravity survey depicted a few anomalies, no anomalies were found to exist by further drilling and excavation.

**Keywords :** grout, stope, rock, properties

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