

Recent Development in Natural Terrain Landslide Risk Management and Mitigation

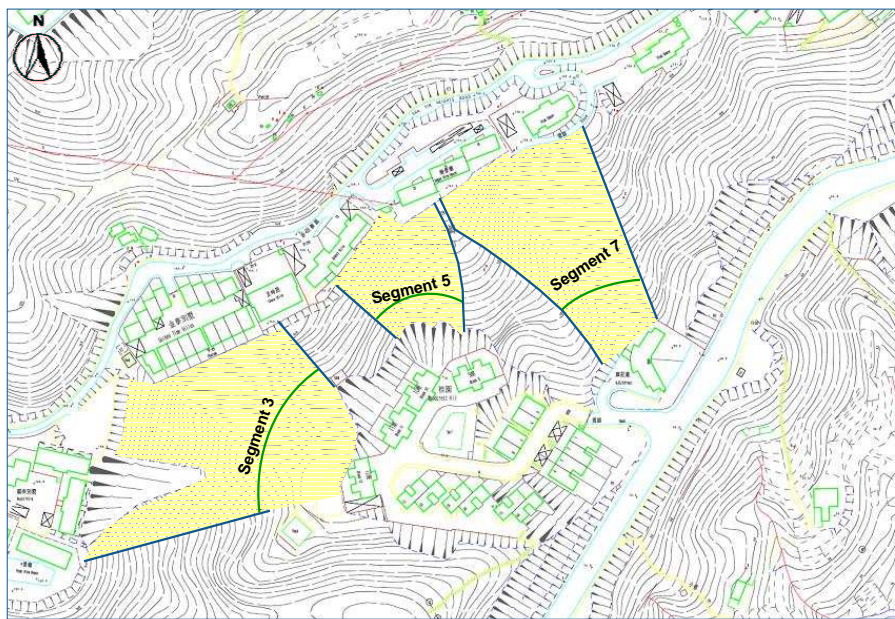


Shatin Heights, Shatin

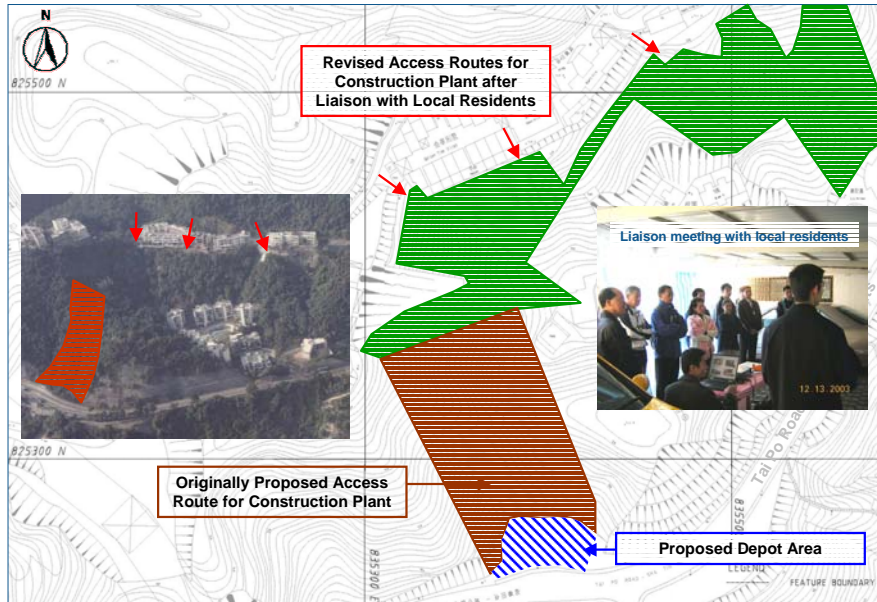
- Several residential buildings, such as K.K. Terrace, Woodcrest Hill, etc., were located at close proximity to the toe of the concerned natural terrain.
- Three areas were identified as having potential for landsliding, and the landslide debris giving rise to channelised debris flow which could seriously affect the residential developments at the base of the streamcourse.
- Mitigation measures are proposed under the Landslip Preventive Measures (LPM) Programme to protect the occupants at the Residential Buildings.

Tung Wan, Lantau Island

- A hostel (Island Hostel) and a Primary Special School (Mok Law Shui Wah School) were located at about 10m (nearest distance) away from the concerned natural terrain.
- Several instability incidents shown that the concerned natural terrain above the hostel and school is susceptible to landslides, which could threaten the Hostel and School.
- Mitigation measures are proposed under the Landslip Preventive Measures (LPM) Programme to protect the occupants at the School and Hostel.



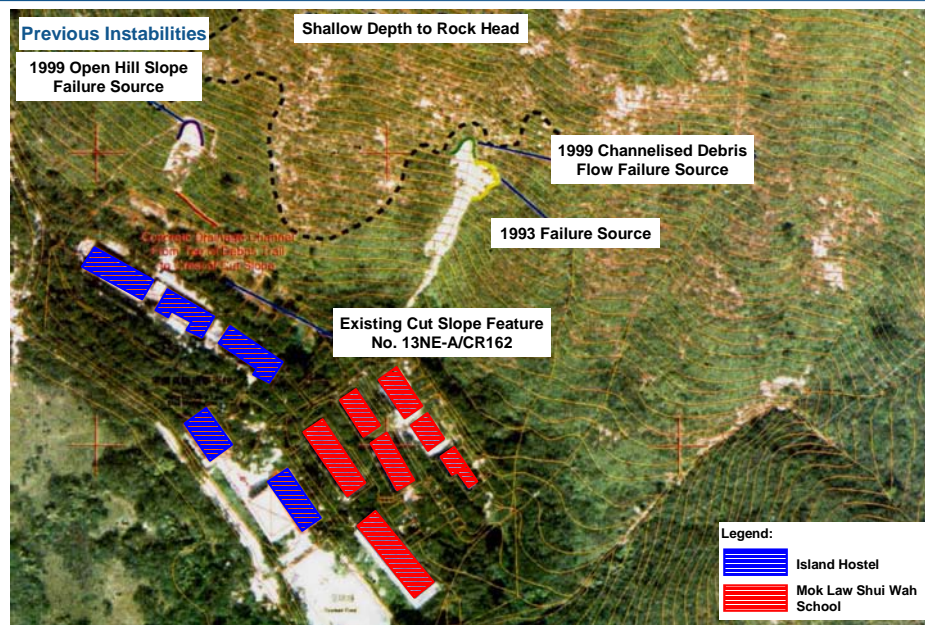
Proposed Access Routes for Construction Plant



Proposed Mitigation Measures

Soil Nailing





Previous Instabilities



GEO Incident No. MW 1999/11/231



• Date of Failure :
~ 03-Aug-1999

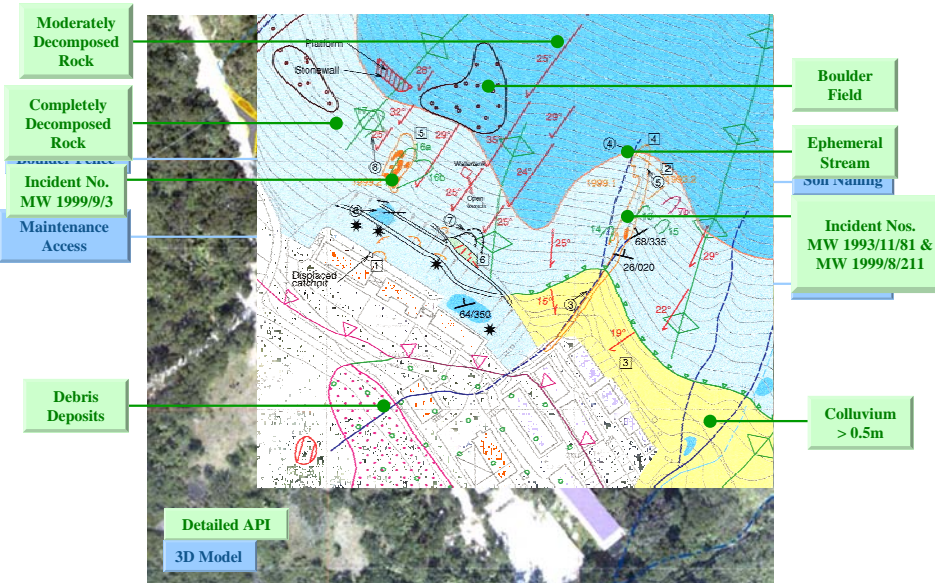
• Possible Cause of Failure :
~ Rupture of watermain
~ Infiltration

• Scale of Failure
~ 25m



• Scale of Failure
~ 40m

Proposed Mitigation Measures



Environmental Impacts and Mitigation Measures

- Proposed Mitigation Works falls within boundary of Lantau South Country Park
- Should be regarded as Designated Project
- Obtain Environmental Permit under EIA Ordinance is required
- Detailed Assessment for the potential Environmental Impacts had been carried out:

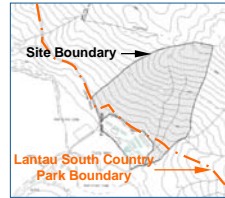
Air Pollution Impact

Ecological Impact

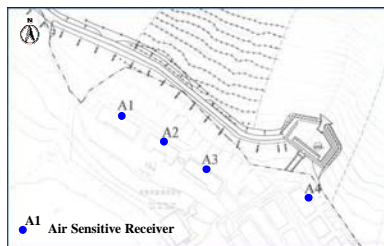
Noise Pollution Impact

Landscape & Visual Impact

Water Pollution Impact



Air Pollution Impacts and Mitigation Measures

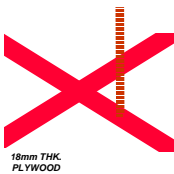


- Source of Impacts
 - Dust nuisance and gaseous emissions arising from construction plant and vehicles, construction activities such as drilling of soil nails and bulk excavation.
- Mitigation Measures
 - Regular watering
 - Tarpaulin covering to dusty vehicle loads
 - Establishment of vehicle washing facilities



Environmental Impacts and Mitigation Measures

Noise Pollution Impact



Source of Impact

- Usage of Powered Mechanical Plants, such as air compressor, drilling rig, backhoe and roller during construction
- Noise Sensitive Receivers (N1 to N5) situated in close proximity (around 10m)

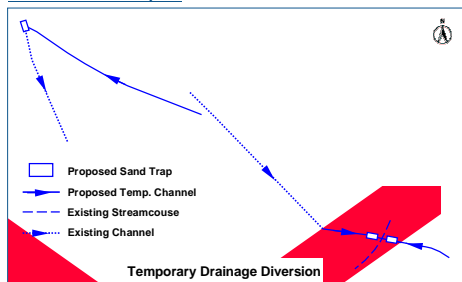
Mitigation Measures

- Adoption of Quiet Powered Mechanical Equipment [reduced 11dB(A)]
- Restriction in the 24H percentage on-time
- Operation of Temporary Noise Barrier compressors for soil nails installation in Areas A, B, C, D and E simultaneously is not allowed
- Using of Temporary Noise Barrier [reduced 10dB(A)]



Environmental Impacts and Mitigation Measures

Water Pollution Impact



Source of Impacts

- Sewage arising from the on-site construction
- Runoff and drainage during construction phase
- Contains suspended solids and contaminants

Mitigation Measures

- Properly treat the runoff by using sedimentation tanks or silt traps
- Discharge the construction effluent and foul to the public sewer or streamcourse should be strictly prohibited



Web Cam Real Time Surveillance

- Real Time & Remote Supervision
- Comprehensive Record Photos

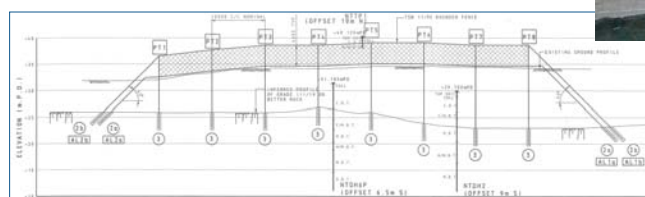
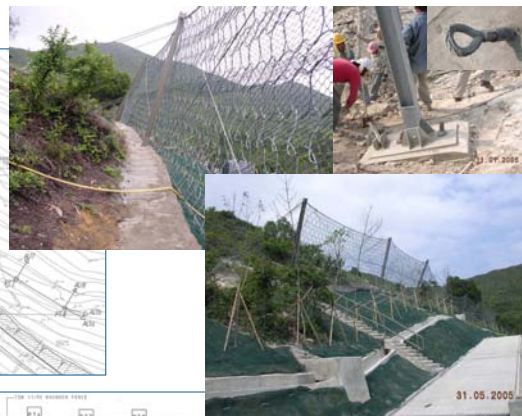


THANK YOU

Soil Nailing

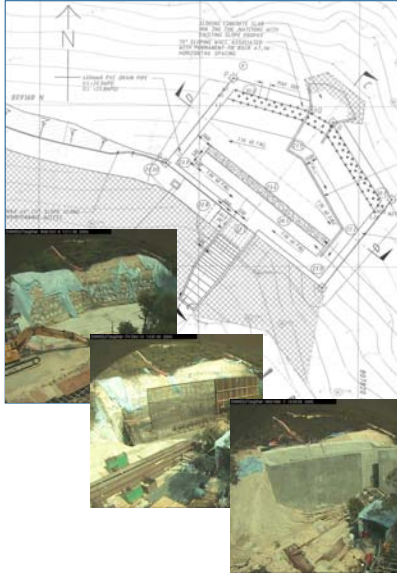


Boulder Fence



Proposed Mitigation Measures

Check Dam



3D Modeling



Real Time Records

SWMS03TungWan Thu Apr 8 17:10:18 2004

