

**Avalon****Industrial Services Ltd**

high / difficult access - consultancy - contracting - training

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Mauao Camp Bluff drill and blast rock scaling proposal

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Background

Avalon Consulting's February 2003 engineering geological investigation of the rock faces around Mauao for Tauranga District Council identified between 300 and 500 tonnes of marginally stable rock face potentially presenting a hazard to the camp ground and requiring further investigation. Survey benchmarks were installed and re-survey and more detailed investigation was scheduled for October.

Further investigation and measurements made on 23 October identified recent movements, upgrading the rating of the potential hazard to the point where immediate removal has become the preferred course of mitigation.

Aim

The aim of the works is to scale the rocks identified in a safe manner that aims to have zero person injury and minimises damage to property.

Responsibilities

Avalon will have overall responsibility for directing the physical works on the rock face (drilling, blasting and scaling) and for coordinating with TDC and Bob Gray Contracting.

Avalon's § 7(2)(a) † Privacy will be responsible for identifying the extent of rock to be removed.

§ 7(2)(a) † Privacy will be responsible for identifying appropriate shot hole locations to split the blocks into the smallest practicable fragments, and for directing the placement and firing of the shots.

TDC will be responsible for organising site security and for placement of the shipping container barriers in the camp ground.

Rock face/Cliff top site safety will be directed by Avalon, our nominated safety supervisor will be § 7(2)(a) † Privacy

Rock drilling plant and equipment will be provided by both Avalon and Gray Contractors.

Provision of an air compressor, environmental protection and regular refuelling will be the responsibility of TDC.

Avalon will be responsible for hand scaling of blast damaged rock and final reprofiling on the bluff. TDC will be responsible for clearance of rock from the lower slopes and camp ground.

Liabilities & insurances

We take all practicable steps to discharge our works in a professional manner and to minimise all hazards as far as possible; however, it is in the nature of this work that there are inherent hazards that unfortunately cannot be entirely eliminated.

Regarding responsibility for any consequential damage caused to Council or 3rd party property: Avalon cannot accept any responsibility or insurance claims for any damage to Council or 3rd party persons or property arising from the rock scaling operations we are undertaking on behalf of Tauranga District Council.

Programme

We would propose commencing the works on Monday 10 November.

It is currently planned that drilling will be completed by the evening of Wednesday 12th and firing will take place on the 13th from 11am onwards. The rock face will be hand scaled and tidied up on Fri 14th (and possibly Sat 15th).

Methodology

Rock Drilling

Shot holes will be drilled using a combination of air and electric tools. Drill hole depths will be up to 3.2m. All drilling plant will be supported on independent suspension systems to reduce any risk to operators. During the works our staff will constantly monitor the bluff for signs of instability/increasing hazards. If any movement is detected the all operations will cease and the situation will be reviewed.

Blasting

Setting of charges and firing will be directed by s 7(2)(a) † Privacy assisted by Avalon as required.

Access Techniques

Safe access will be gained using industrial rope access techniques. Our equipment will comply with all applicable Statute, OSH Guidelines and Standards.

Anchorage for rope access systems will be ground anchors on the summit and (in situ proof tested and certified) expansion bolts set into stable rock outcrop.

Lookouts & Track Closures

All access to Mauao will be closed 24hrs, barriered and security patrolled for the duration of our works.

The security persons will be provided by TDC and will supply a radio for communication with Avalon's Site Supervisor.

Avalon's site team will have independent radios to ensure good communications at all times. Our Site Supervisor will act as coordinator for communications between our team and the security lookouts/TDC (who will be on a separate radio system).

Health & Safety- General

All our works are undertaken in full conformance with HSE legislation, OSH guidelines and relevant AS/NZS (and international) standards. Keeping a high level of safety on our sites is of paramount importance.

Our company Health and Safety Policy and Safe Working Procedures document is extensive due to the nature of our business; a copy is included in each Site File – kept by our Site Supervisor.

We believe training and experience is the key to safety. Our personnel go through thorough structured training programs and progress through three levels of Industrial Roped Access training. Our methods and assessments are in line with best international practice.

All our personnel are qualified first aiders. First aid and rope rescue recovery kits are at hand on all our sites. All our personnel are trained in rescue recovery techniques.

Avalon Industrial Services Ltd carries out NZQA accredited training for major industrial clients (such as Methanex, ABB and NZMP/Anchor Products), in a range of fields including; Height Safety Awareness, Fall Arrest, Rope Rescue and Confined Space Working. In addition to our contracting and training operations we regularly act as specialist safety consultants.

Health & Safety- Specific

The works are OSH notifiable activities. Written notice of the height aspect of the works will be given to OSH by Avalon. s 7(2)(a) f Privacy Contractors will be notifying the explosives works.

We have a formal hazard ID and management process. A full safety and site induction briefing will be carried out on site before any work commences. All site personnel will be present. If any new personnel are to be given access to the site they will be given a full safety briefing. The following list gives some of the hazards which will need to be addressed, it is not comprehensive yet.

- **On site communication;** our teams carry short range RT radios as standard, Our staff will work in sight of each other such that each person has a 'standby' person able to see them at all times. The Site Supervisor will have a radio providing communication with the security lookouts.
- **Rockfall hazard;** Whilst carrying out the works the rockfall hazard will be minimised. All material to be removed from the rock face will be removed in a controlled manner. Suitable PPE to be worn (safety 'climbing' helmets, overalls & safety footwear). The team will descend at a steady rate and no persons will work below others. We will not descend below rocks which may be disturbed by our ropes. Public access will be prevented as described above.
- **Work at heights;** Our Safe Working Procedures and training deal with work at heights.
- **Emergency plan;** Plans will be devised for all foreseeable emergencies.
- **First aid;** All personnel are qualified first aiders. A first aid kit will be available at the summit.
- **Materials;** MSDS sheets for the proposed potentially hazardous products (herbicides) will be reviewed. All recommended precautions will be followed. MSDS sheets will be on site along with all appropriate PPE and all our personnel will be familiar with the procedures to be followed.
- **Dust etc;** Dust masks and goggles will be available to staff as required.
- **Driving;** The 4WD track to the summit is very exposed and requires extreme care. Speeds will be kept under 10kph at all times and only our most experienced staff will be designated to drive the track.
- **Compressor & generator;** These items will be carefully handled to avoid any spillages/environmental contamination. Fire extinguishers will be present on site
- **Explosives;** s 7(2)(a) of Privacy to supply all hazard ID's and team briefings/instruction as necessary.

Environmental

We always endeavour to carry out our business in an environmentally responsible manner and take all practicable steps to care for the environment. We are used to working within the limitations of resource consents.

TDC will be responsible for providing polythene sheeting to create a fuel storage/spillage catchment.