

# BLAST VIBRATION

## OVERVIEW

As part of the mining process, explosives would be used to break the rock into fragments so that it can be easily excavated and transported. These blasts cause vibrations that travel through the ground away from the blast, like waves from a stone thrown into a pond. This is referred to as blast vibration.

Blasting required as part of Project Quattro would be subject to a number of conditions that appropriately combine the requirements of protecting the amenity of the residents of Waihi and preventing building damage, whilst allowing for a scale of drilling and blasting appropriate for mining.

## KEY EFFECTS

If consent is granted for Project Quattro, blasting would take place in the Martha open pit, and the proposed Gladstone pit.

The maximum blast vibration levels permitted at Waihi's existing mining operations are specified in consent conditions and similar conditions are expected for Project Quattro. They are set to respect resident amenity and are well below the levels known

to cause either superficial or structural damage to buildings.

## MEASURING VIBRATIONS

OceanaGold Waihi uses intensive vibration monitoring and management systems which are aligned with international best practice.

Information from every blast is recorded and becomes a reference for planning future blasts.

Fixed monitoring stations are located at strategic, approved sites. A portable vibration monitor is also used to collect additional data.

The amount of vibration is measured in velocity (millimetres of movement per second) and is related to the explosives used in each blast hole and the distance from the blast - the closer to the blast, generally the greater the vibration.





## MANAGEMENT MEASURES

The blasting activities for the Martha pit will require a high level of control due to the proximity to residences. The same level of control as used previously throughout the life to date of the Martha pit will be exercised.

Martha Open Pit Phase 5 would employ drill and blasting techniques typical of those required near residential areas. Best practices would be followed with respect to controlling potential environmental and amenity effects.

A vibration management plan would be developed, that sets out procedures for designing, managing, monitoring and reporting all blasts, and for responding to concerns or complaints from the public.

OceanaGold Waihi will achieve compliance with the consent conditions by applying practices such as:

- Conservative blast designs and explosive charge weights.
- Minimum charge weights to achieve required fragmentation.
- Quality explosive ingredients and blast-hole stemming.

Blasting effect mitigation measures may include:

- The protective consent limit of 95% compliance with a blast vibration level of 5 mm/per second.
- In the Martha pit, a restricted blast window between 10 am and 3 pm from Monday to Friday, and between 10 am and 12 pm on Saturdays with no blasting on Sundays or public holidays.
- A potential modified window when blasting on the western wall of the Martha pit to avoid blasting at 'pick up time' from Central School.
- In the Gladstone pit, a restricted blast window between 7 am and 7 pm from Monday to Saturday, with no blasting on Sundays or public holidays.
- A blast warning system via a device that provides an audible alarm, provided by OceanaGold Waihi to those who want it, and in some cases text and phone calls.
- The Amenity Effect Programme (AEP) that compensates for blast vibration effects will be available to qualifying residents.

## CONCLUSION

The proposed controls on blasting in the Martha and Gladstone pits represent a set of criteria that would appropriately combine the requirements of protecting the amenity of Waihi residents and preventing building damage, while allowing for controlled and efficient blasting.

### **We welcome your input into developing Project Quattro.**

If you have an idea, concern, question or opinion, we want to hear from you. You can contact us through our website;

[www.waihigold.co.nz](http://www.waihigold.co.nz)

or visit us at our Project Information Office;

**86 Seddon Street, Waihi.**

Or use our Community Engagement Line;

**0800 924 444**