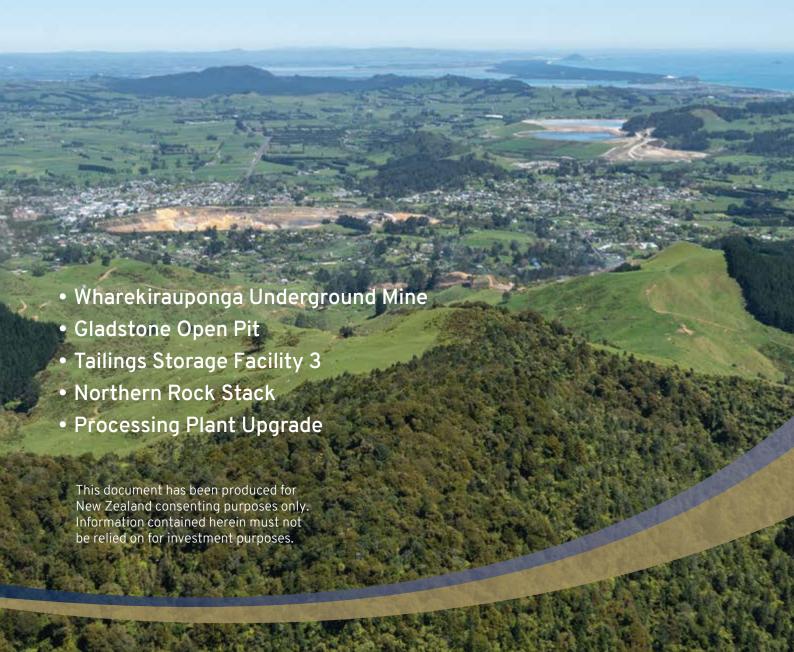


# THE PROPOSED WAIHI NORTH PROJECT OVERVIEW



## WAIHI NORTH PROJECT OVERVIEW





## ABOUT THE WAIHI NORTH PROJECT

When we acquired the Waihi Mining operations in 2015, OceanaGold made a commitment to the New Zealand Government to invest in extending the life of mining in Waihi. We obtained consents for, and have since begun, operation of our Martha Underground Mine at Waihi. We also undertook extensive exploration in the area, as laid out in our Waihi District Study released in July 2020. This exploration programme included our announcement, in February 2019, of gold and silver resource deposits beneath Wharekirauponga and at the location of the proposed Gladstone Open Pit. We have named this the Waihi North Project.

Since then, we have confirmed the viability of an underground mine at Wharekirauponga and the related infrastructure to support this. Further technical and exploration studies have been successfully completed, which have allowed us to refine and optimise the project.

The New Zealand Government has recently acknowledged the Waihi North Project's significant regional and national benefits by announcing it in the Fast-track Approvals Bill. We have now lodged our application to be assessed under the Fast-track process.

The Waihi North Project will integrate with the already consented mining activities at Waihi and has five main components:

- 1. Wharekirauponga Underground Mine A new underground mine at Wharekirauponga, just north of Waihi, and associated infrastructure at a portal entrance on company land at the end of Willows Road, Waihi.
- **2. Gladstone Open Pit** A pit adjacent to the OceanaGold Waihi Processing Plant.
- **3. Tailings Storage** Increasing tailings storage capacity by constructing a third tailings storage facility (TSF3) immediately east of the current facilities.
- **4. Northern Rock Stack (NRS)** A rock storage facility to the north of the current tailings storage facilities.
- **5. Processing Plant Upgrade** Increasing throughput capacity at our existing Processing Plant.

These proposed works stand to create several hundred additional jobs in the region and produce billions of dollars of exports over the coming years. This will continue to support Waihi and the region's development, as gold and silver mining has done for over 100 years.







## **ABOUT US**

OceanaGold Corporation is a gold producer with over 34 years of operating responsibly in New Zealand. The company was founded in New Zealand, at Otago's Macraes operation (which it continues to operate) and has built an international portfolio as one of the most progressive gold miners in the world.

OceanaGold's acquisition of Waihi Gold in 2015 deepened the company's Kiwi roots, enabling it to share decades of mining innovation and leadership to advance the development of Waihi's gold and silver resources.

At Waihi, we currently operate a successful underground mining operation and are actively exploring in the region.

We have underground and surface mines at the Macraes operation in the South Island, plus mines in the Philippines and the United States.

We are also actively closing a mine at Reefton in the South Island, having successfully operated that mine on Department of Conservation administered Forest Park.

OceanaGold has a proven track record of working within a tight regulatory framework including controls relating to vibration, noise, dust, ground surface stability, flora and fauna, and water management.

We are committed to responsible mining, managing our impacts and, more broadly, ensuring this project makes a positive contribution to our host communities and society, and to the natural values of the area.





## WAIHI'S GOLD MINING HISTORY

Waihi has long been a leading producer of gold and silver, supporting regional economies, contributing to New Zealand's exports, and driving innovation in mining technology and practices.

The historic Martha Mine (1878 – 1952) was one of the most important gold and silver mines in the world, and the current mining operations remain vital to Waihi and the region. If consented, the Waihi North Project will see Waihi embark upon a new era in gold and silver production that will help sustain it well into the future.





## THE WAIHI NORTH PROJECT

Gold was first discovered at Wharekirauponga in the 1890s. Modern exploration for gold began at Wharekirauponga in the 1970s, with several mining companies conducting significant exploration campaigns in the area throughout the 1980s and 1990s. Newmont continued this exploration through the 2000s until OceanaGold purchased the Waihi operations and ongoing exploration programme in 2015, before finalising ownership of the interest at Wharekirauponga in 2016.

Since acquiring the Wharekirauponga interest, OceanaGold Waihi has undertaken further technical studies, including approximately 57 km of exploration drilling.

As a result of an extensive exploration programme, we have identified additional ore deposits that we are looking to mine through the proposed Waihi North Project.

The project will integrate with already consented mining activities and has five main components:

- 1. Wharekirauponga Underground Mine A new underground mine north of Waihi, and associated infrastructure at a portal entrance on company land at the end of Willows Road, Waihi.
- **2. Gladstone Open Pit** A pit directly adjacent to the OceanaGold Waihi Processing Plant.
- **3. Tailings Storage** Increasing tailings storage capacity by constructing a third tailings storage facility (TSF3) immediately east of the current TSFs, including some quarrying activities within the TSF3 footprint.
- **4. Northern Rock Stack** (NRS) A rock storage facility to the north of the current tailings storage facilities, including some quarrying activity to provide materials for construction of TSF3.
- **5.** Processing Plant Upgrade Increasing throughput capacity at our existing Processing Plant.

  The Waihi North Project has the potential to produce over 1.6 million ounces of gold and over 3 million ounces of silver over an 11-year period, complementing the already consented Project Martha and extending the life of mining in Waihi to 2042.\*

#### **INTEGRATION**

All elements of the Waihi North Project are linked and interact with each other. Integration with our existing mining activities and infrastructure is a critical aspect of the proposal. Much of our existing mining infrastructure will be used to process, store, and dispose of material extracted as part of the Waihi North Project.

#### **POSSIBLE TIMELINE**

Any final timeline for the development of the project is conditional on obtaining regulatory approvals, subject to final project design.

However, our proposed project anticipates development along the following lines:

- 1. The Waihi North Project will commence with additional exploratory and geotechnical drilling in the Wharekirauponga area, upgrades to our existing Water Treatment Plant, tunnelling works, and construction of the Wharekirauponga Underground Mine surface infrastructure at Willows Road.
- 2. Construction of TSF3 begins, utilising quarrying activities within the final TSF3 and NRS footprints for the necessary material.
- 3. The Processing Plant upgrades take place, along with beginning the Gladstone Open Pit.
- 4. At this point in the project, we anticipate to reach the orebody at Wharekirauponga, and mine development and stoping will begin.
- 5. When mining of the Gladstone Pit is complete, it will be lined and used for tailings storage before final rehabilitation. The Wharekirauponga Underground Mine will be progressively backfilled during operation, similar to our existing underground mines, and once completed the mine will be sealed and rehabilitated.



\* This document has been produced for New Zealand consenting purposes only. Information contained herein must not be relied on for investment purposes.



## REHABILITATION

We acknowledge that the proposed Waihi North Project, if approved, will result in localised impacts on the environment; these will be mitigated in the long term through rehabilitation and remediation activities.

Rehabilitation is a major part of OceanaGold's approach to modern mine planning. The Waihi North Project will be designed to ensure adequate resources for rehabilitation and mine closure are included. Rehabilitation of disturbed areas will progress as areas become available and will be ongoing throughout the life of the Waihi North Project.

#### THE POST MINING ERA

As part of the Waihi North Project we are making a commitment to work collaboratively with our local communities to create opportunities, build resilience, and leave a positive, long-lasting legacy well beyond the mining life cycle.

All mining undertaken by OceanaGold in New Zealand is supported by bank guarantees (bonds) covering the full estimated cost of rehabilitation, which are adjusted annually.

These operate under the independent oversight of the relevant District and Regional Councils.

All OceanaGold Waihi operations have closure plans in place that are reviewed annually, and the Waihi North Project will be incorporated into these plans. In preparing these plans we will consult with our stakeholders in relation to economic impact, employment, post-closure environmental impacts, and public health and safety to ensure that what we propose will leave a positive legacy for the community.

#### LOOKING TO THE FUTURE

The Waihi North Project has the potential to play a meaningful role in supporting the regional economy in the coming years, providing economic benefits and job security. The project will require a larger workforce, creating several hundred new, high-quality jobs, whilst continuing to engage a range of local and regional suppliers.

More than just economic considerations however, this project also represents an opportunity for OceanaGold Waihi to incorporate social, cultural, and environmental benefits within the project design itself – creating improvements over and above what would occur in absence of the project and resulting in a net gain to the Waihi area.

The Waihi North Project signifies a long-term commitment to, and investment in, the wider region. If consented, the project will extend the proposed life of mining to 2042 and possibly beyond, longer than any single previous outlook.

#### **BIODIVERSITY**

The Wharekirauponga area is home to several native and endemic species. Measures to improve future outcomes for biodiversity, including the Archey's Frog, will be integral to the project.

We understand that native bush and its biodiversity are precious to all of us. Our extensive ecological studies, including work we have done during our exploration phase, are already providing the scientific and ecological community with a greater insight into the species that inhabit this area.





## WHAREKIRAUPONGA UNDERGROUND MINE

The proposed Wharekirauponga Underground Mine is located north of Waihi, beneath Forest Park administered by the Department of Conservation (DOC).

This mine would be accessed via an underground tunnel from company land on Willows Road, outside the Forest Park, allowing us to minimise our surface impacts.

A connecting transport tunnel back to our existing Processing Plant allows us to transport materials in and out of the Wharekirauponga area without vehicles on public surface roads.

We recognise the significance and sensitivity of the Wharekirauponga area and its ecology, which is an important recreational area, and home to several native and endemic species.

That's why any potential mining operation we may undertake within the Forest Park would only be underground – not at the surface level.

The Wharekirauponga Underground Mine consists of four main subcomponents:

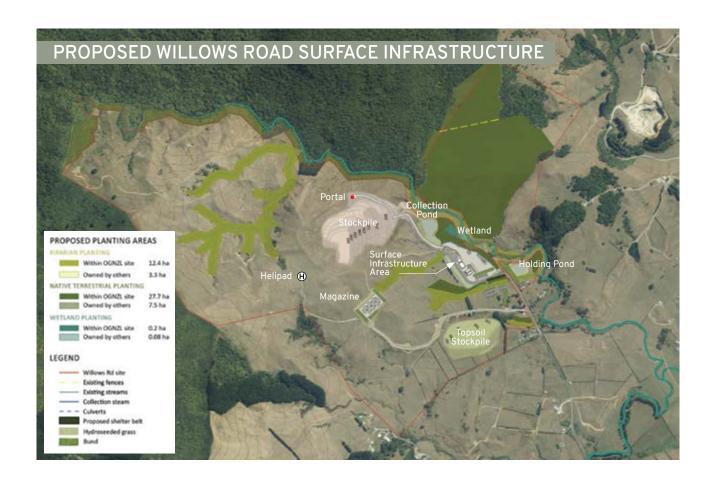
- Access Tunnels to the orebody. We are proposing an approximately 7 km access tunnel that extends from a portal on Company land at the end of Willows Road, Waihi, to the base of the Wharekirauponga resource.
- Ventilation Raises.

These are required for air circulation and as an emergency exit from the orebody tunnel. The current tunnel proposal would require a total of four ventilation raises close to the mining area. Suitable locations are currently being investigated.

- Willows Road Surface Infrastructure. To facilitate the construction and operation of the Wharekirauponga mine, some surface infrastructure will need to be constructed at the Willows Road location.
- A 4.8 km Tunnel to the Waihi Processing Plant.

To allow for access between the orebody and our existing processing facilities in Waihi.









## **ACCESS TUNNELS**

These tunnels would be developed using a similar drilling and blasting method, similar to how we develop drives in our current underground mining operations at Waihi.

Rock extracted through the tunnelling process would be loaded into trucks and then hauled to a temporary surface stockpile at Willows Road. As mining progresses, this rock would be returned into the Wharekirauponga Underground Mine for backfilling purposes.

#### **OREBODY ACCESS TUNNEL**

We are proposing an approximately 7 km access tunnel that extends from a portal on company land at the end of Willows Road, Waihi, to the base of the Wharekirauponga resource. The majority of this tunnel would be constructed as a 'dual decline'. A dual decline tunnel consists of two tunnels running in parallel, with short connections between the two created every few hundred metres. Bulkheads are also installed on these connections, providing the ability to seal one tunnel from another as needed for air flow management purposes, or in the unlikely event of an emergency situation. This design provides a high level of airflow throughout the mine and minimises the number of surface ventilation raises.

Tunnelling would begin at the Willows Road land and continue until the orebody at Wharekirauponga is reached. Upon reaching the orebody, development drives would be undertaken to allow mining to commence.

These development drives would be similar to the drives that have been successfully constructed for the existing underground operations in Waihi.

### INTERCONNECTING TRANSPORT TUNNEL

A single 4.8 km long tunnel would be constructed from the Willows Road land to the Waihi Processing Plant, linking to the dual decline tunnel system underground.

This will be used to transport ore from the underground mine to the Waihi Processing Plant once mining begins. The tunnel could also provide general operational access between the Wharekirauponga Underground Mine and the Waihi Processing Plant.

#### **HOURS OF OPERATION**

OceanaGold Waihi is proposing that the Wharekirauponga Underground Mine would operate 24 hours a day, seven days a week.





## **EFFECTS**

#### NOISE

If the Waihi North Project is approved, we will be required to manage our activities so that we comply with strict noise limits set through the regulatory approvals process.

There are a range of noise management measures that may be implemented to meet these requirements, including:

- Equipment selection and maintenance.
- Limiting some activities to certain times of the day.
- · Noise bunding.
- Acoustic cladding around potentially noisy machinery.

#### **BLASTING AND VIBRATION**

A key consideration for OceanaGold Waihi in developing the proposed Waihi North Project is any potential amenity effects our operations may have on residents.

#### Willows Road Portal

Due to the location and direction of the dual decline tunnel system to the orebody, residents close to the Willows Road portal are unlikely to experience any reduction in amenity due to vibration from its development.

#### Interconnecting Transport Tunnel

Any associated amenity effects on property in relation to the tunnel would be temporary and localised during the development stage. Once the tunnel is completed there would be no appreciable ongoing effects to amenity.

#### AIR QUALITY

If the Waihi North Project is approved, we will be required to comply with consent conditions for air quality set through the regulatory approvals process.

This will require OceanaGold Waihi to produce an Air Quality Management Plan.

There are a range of air quality management measures that may be implemented to meet the requirements of consent conditions, including:

- Applying dust suppression methods.
- Keeping stockpiles low so wind is less likely to spread dust.
- Planting pasture, shrubs, and trees as soon as rehabilitation areas are available.
- Washing vehicles before leaving site to travel on public roads.

#### **GROUND SETTLEMENT**

By utilising proven mining techniques, we will protect from the negative impacts of surface settlement both at the mine and along the tunnel route. Mining of the orebody will occur entirely from the underground tunnel utilising the same proven methods we currently employ for our Correnso and Martha underground projects.

Voids that may cause instability will be backfilled with rock as we progress.

#### **DEWATERING**

OceanaGold Waihi expects to encounter water inflows during the operation of the mine.

Water inflows, together with any water used in the mining process would be pumped to the existing OceanaGold Waihi Water Treatment Plant for treatment if not suitable for on-site discharge. Boreholes would be drilled ahead of workings to detect water bearing structures and appropriate mitigation applied to avoid any surface impacts.







## **VENTILATION RAISES**

Ventilation raises, providing fresh air supply to the Wharekirauponga Underground Mine, would be required to supply sufficient air for a safe working environment and as emergency exits.

Based on the current design, we are proposing to construct up to five ventilation raises. Four of these would be within the Forest Park area, either on Forest Park administered by the Department of Conservation, or on unformed Hauraki District Council road reserve. The fifth would be located on company land near the tunnel portal.

OceanaGold Waihi is proposing that stringent ecological conditions be applied to ensure that sites are appropriately selected to minimise adverse effects on ecological and landscape values.

We will ensure minimal disruption and carry out detailed technical studies before we embark on any shaft construction. Studies are ongoing to ensure that the vent locations have minimal effect on the environment and are placed to avoid areas of high value habitat.

A drilling platform would be established on the preferred site and exploration, geotechnical, and hydrogeological drilling and analysis would be undertaken.

These raises would be temporary structures in place for the life of the mine and would be fully rehabilitated upon completion of mining.

The construction of the ventilation raises would occur from the surface via helicopter support. The initial construction footprint would be up to 900 m<sup>2</sup>.

A vent stack would be established at the top of each ventilation raise. These would be installed by helicopter and remain in place for the duration of the project.

Once constructed, and following progressive rehab, the operational surface footprint of each vent stack would reduce to no greater than 12 m x 12 m. The surrounding disturbed area would begin rehabilitation as soon as construction was completed.





## WILLOWS ROAD SURFACE INFRASTRUCTURE

To facilitate the construction of the tunnels and operation of the Wharekirauponga underground mine, some surface infrastructure would need to be constructed at the Willows Road property.

#### SITE ACCESS ROADS

A sealed private road from the northern end of Willows Road onto the site would need to be constructed. A haul road would be established from the portal to the rock stockpile, with a connection to a workshop and a wash pad.

#### SITE SERVICES

Site services, such as power, fibre optic cable, and potable water would be brought to the site from the existing OceanaGold Waihi Processing Plant via a buried trench. Where required, this trench would also be used to transport water back to the existing OceanaGold Waihi Water Treatment Plant.

An office and changing rooms would be established. These would be comprised of modular, temporary style buildings.

Power and water connections would also need to be arranged, and a sewage system installed.

#### OFFICE AND CHANGE HOUSE

At the site of the portal, an office and changing rooms would be established. These would be comprised of modular, temporary style buildings with an approximate footprint of 250 m². Power and water connections would also need to be arranged, and a sewage system installed.

### SERVICE WORKSHOP AND REFUELLING

The workshop would include a sealed undercover area. Re-fuelling would be undertaken via a dedicated fuelling station until the tunnel had progressed, at which point an appropriately certified tank would be installed underground.

#### **HELIPAD**

We are proposing to establish a helipad with adjacent parking as part of the Willows Road site. The existing track to the proposed location of the helipad will also be upgraded and widened to facilitate vehicle access.

#### **ROCK STORAGE**

Rock extracted through the tunnelling process would be stockpiled in the tunnel, loaded into trucks, and then hauled to a surface stockpile. A single stockpile of approximately 7 ha would be required to temporarily store the rock. Stockpile contact water would be collected in a pond and pumped back to the existing Waihi Water Treatment Plant for treatment if not suitable for discharge on site.

All rock from the tunnelling stockpile will be progressively returned underground to backfill mined voids approximately thirteen years after commencement of first site works.

Once the Willows Road rock stockpile is exhausted, the site will be rehabilitated and further rock for backfilling voids will be obtained from the NRS, and transported using the interconnecting tunnel from the existing Processing Plant.

#### **EXPLOSIVES MAGAZINES**

Explosives magazines that conform to New Zealand hazardous substances regulations would be located on site, south of the rock stack on company land. The explosives magazines would be locked and securely fenced, with access strictly controlled.

#### **PORTAL**

A portal on company land north of the end of Willows Road in Waihi would form the entrance to the access tunnel. A second portal would also need to be established at the existing Waihi Processing Plant to provide access to the connecting Transport Tunnel. Earthworks would be undertaken to form these portals. Appropriate earthmoving equipment would be utilised and, if necessary, blasting would be used.

Other service infrastructure would then be installed at each portal including temporary ventilation fans, water storage tanks, transformers, lighting, and safety tag boards.





#### WILLOWS ROAD SURFACE INFRASTRUCTURE

#### LIGHTING

To allow us to operate outside of daylight hours, lighting will need to be established at various locations. The lighting will be designed and located so that light spill is minimised to protect the amenity of nearby residents.

#### NOISE

If the Waihi North Project is approved, we will be required to manage our activities so that we comply with strict noise limits set through the regulatory approvals process.

There is a range of noise management measures that may be implemented to meet these requirements, including:

- Equipment selection and maintenance.
- Construction and vegetation of noise bunds.
- Limiting the height of stockpiles.
- Acoustic cladding around potentially noisy machinery.
- Closed board fencing.
- Acoustic noise wall on some sections of perimeter noise bund.

#### AIR QUALITY

If the Waihi North Project is approved, we will be required to comply with consent conditions for air quality set through the regulatory approvals process.

This will require OceanaGold Waihi to produce an Air Quality Management Plan.

There are a range of air quality management measures that may

be implemented to meet these requirements, including:

- Watering haul roads and using sprinkler systems and water sprays where required.
- Dust collectors and filters on machinery.
- Keeping stockpiles low, so the wind is less likely to spread dust.
- Planting grass to cover long-term stockpiles.
- Planting pasture, shrubs, and trees as soon as rehabilitation areas are available
- Washing vehicles before leaving the site to travel on public roads.

#### PROPERTY DAMAGE

Consent conditions for vibration from the development of the transport tunnel will be set well below the level where property damage could occur. We know from the community that there can be concern around what we would do if mine-related activity caused property damage. In recognition of this, we have a procedure in place to assist owners if they believe their property may have been damaged. If it is determined that property damage is attributable to our activities, we will remedy the damage at our cost. Our experience in Waihi with our Correnso and Martha Underground mines shows that this approach provides assurance to property owners on land above any underground infrastructure.

### ENVIRONMENTAL NET GAIN AND BIODIVERSITY

A key project commitment is to initiate and sustain an environmental net gain throughout the life of the project such that the immediate area and environment is left in an improved state from an ecological perspective than had the project not taken place.

At the Willows Road infrastructure area, we plan to:

- Protect natural environmental and ecological assets identified on the land as part of the independent ecological surveys and assessments undertaken.
- Develop alternate and enhanced water courses where diversions are necessary to establish site infrastructure. This will include riparian zone establishment and stock exclusion measures.
- Undertake early screen planting to enhance visual aspects of the development for neighbours and the community.
- Fence unaffected tributaries, streams, identified natural wetland, and remnant bush areas to exclude stock and establish a programme of riparian zone improvement in these areas. This would include removal of perched culverts and similar structures which currently form a barrier to appropriate native fish migration in the tributaries.
- Re-establish and enhance water courses once stockpiles are removed.





## CLOSURE AND REHABILITATION

At closure of the Wharekirauponga Underground Mine, all ventilation stacks would be removed, and the ventilation shafts would be sealed. The shaft collars would be covered over and prepared to encourage natural revegetation.

The effectiveness of this rehabilitation would be monitored and managed for a period of no less than five years following closure to ensure the success of the remediation.

The tunnel portals will be securely sealed, and the entrances backfilled with rock prior to the placement of topsoil.

All surface infrastructure at Willows Road will be removed, and footprint areas fully rehabilitated.





## **GLADSTONE OPEN PIT**

Recent exploration work has identified a new open pit mining opportunity on Company-owned land adjacent to our Processing Plant.

Regulatory approvals for the Gladstone Open Pit will be sought as part of the Waihi North Project. The proposed Gladstone Open Pit will be much smaller than the Martha Open Pit and will mine out parts of Gladstone Hill and Winner Hill.

Once the Gladstone Pit is no longer being mined, it will be lined, backfilled with tailings, then capped.

#### **OVERVIEW**

The pit will have a depth of around 140 m below the top of Gladstone Hill, and about half that below the foot of Gladstone Hill.

The length of the pit will be around 600 m. At its widest point, the pit will measure a little over 300 m wide.

To accommodate the new pit, the following preliminary works will need to be conducted:

- An area planted in pine will need to be cleared.
- Topsoil will be removed and stockpiled for use in rehabilitation upon completion of the project.
- The construction of noise bunds, screens, and clean water diversion drains.
- The relocation of the existing underground mine portal and its infrastructure.
- Re-establishing the portal and

portal infrastructure within the Gladstone Pit.

- A crusher will be established on the northern side of the existing conveyor. This will allow rock material to be crushed and conveyed across the Ohinemuri River to the TSFs and NRS.
- Re-align the gravel road from the end of Clark Street to access the motocross track.
- Relocation of a section of the mountain bike track.





#### **EFFECTS**

#### NOISE

If the Waihi North Project is approved, we will be required to manage our activities at the Gladstone Open Pit so that we comply with strict noise limits set through the regulatory approvals process.

There are a range of noise management measures that may be implemented to meet these requirements, including:

- Equipment selection and maintenance.
- Construction and vegetation of noise bunds.
- Limiting the height of stockpiles
- Acoustic cladding around potentially noisy machinery.
- Closed board fencing.
- Acoustic noise wall on sections of perimeter noise bunds.
- Limit when some activities occur.

#### **BLASTING AND VIBRATION**

Drilling and blasting in the pit will be required for the removal of ore and rock, although some of the upper areas may be excavated without blasting.

It is proposed that blasting will occur daily between Monday and Saturday; 7:00 am - 6:00 pm as required. OceanaGold Waihi will propose a compliance level of 5 mm/s for 95% of the monitored events. This is the same criteria that applies to our current operations. These levels are set to be protective of amenity and well below levels capable of causing property damage.

We recognise that some residents close to the Gladstone Pit may, from

time to time, experience a perceived reduction in amenity due to mining activities. As a result, we will extend the Amenity Effect Programme to the Gladstone Pit area. Payments will be made to qualifying residents in accordance with the criteria of the existing programme.

#### AIR QUALITY

If the Waihi North Project is approved, we will be required to comply with consent conditions for air quality set through the regulatory approvals process. This will require OceanaGold Waihi to produce an Air Quality Management Plan.

There are a range of air quality management measures we can take at the Gladstone Open Pit that may be implemented to meet these requirements, including:

- Watering haul roads and using sprinkler systems and water sprays where required.
- Dust collectors and filters on drill rigs and crushers.
- Applying dust suppression product.
- Keeping stockpiles low, so the wind is less likely to spread dust.
- Planting grass to cover long-term stockpiles.
- Planting pasture, shrubs and trees as soon as rehabilitation areas are available.
- Washing vehicles before leaving the site to travel on public roads.

#### LIGHTING

To provide for mining outside of daylight hours, lighting will need to be established in the Gladstone Pit, around the new explosives magazine and in the laydown areas.

All lighting within the pit will be relocated as required, and as mining activities progress. The lighting will be designed and located so that light spill is minimised to protect the amenity of nearby residents.

#### DEWATERING

Some dewatering will be required to lower localised groundwater and manage pit wall runoff from rainfall events.

Diesel or electric powered pumps will be located in the pit, and all pumped water will be directed to the Water Treatment Plant before discharging to the Ohinemuri River.

Small settling ponds, silt fences and diversion drains will also be built around the pit in order to contain the discharge of sediment to watercourses.

#### **GROUND SETTLEMENT**

The settlement effects associated with the Gladstone Pit are expected to be very small and pose little risk of damage to buildings or infrastructure. In the very unlikely event that property damage does occur due to settlement, OceanaGold Waihi will mitigate any adverse outcome by applying its 'We Break, We Pay' management measure.

#### HOURS OF OPERATION

OceanaGold Waihi is proposing that the Gladstone Pit operate 24 hours a day, seven days a week.

#### **HERITAGE**

There are some historic gold mining remains over much of the Gladstone Hill and Winner Hill area, that includes drives, shafts, terraces, and tailings. These remains have been assessed as having only modest heritage value. The area has been heavily modified by the planting of pine trees and prospecting from the 1970s to 1999. Whilst the effects have been identified as minimal, OceanaGold Waihi will undertake positive actions to address these effects as part of the broader Waihi North Project archaeological and heritage management measures.

#### **PROPERTY DAMAGE**

Consent conditions for vibration will be set well below the level where property damage could occur. We know from the community that there can be concern around what we would do if mine-related activity caused property damage. In recognition of this, we have a procedure in place to assist owners if they believe their property may have been damaged.

If it is determined that property damage is attributable to our activities, OceanaGold Waihi will remedy the damage at our cost.

#### **PROPERTY VALUES**

The extension of the planned mine life to 2042, if approved, will continue the positive impact on property values that has been experienced in Waihi since modern mining commenced. Our property value assessment has identified the potential for the proposed Waihi North Project to have a minor impact on the values of a small number of properties near the Gladstone pit. This is not expected to be long lasting.

The properties identified in the assessment would be eligible for our Top Up management measure in accordance with the criteria of our property programme.

For full details go to <u>waihigold.co.nz</u> or contact OceanaGold Waihi directly.

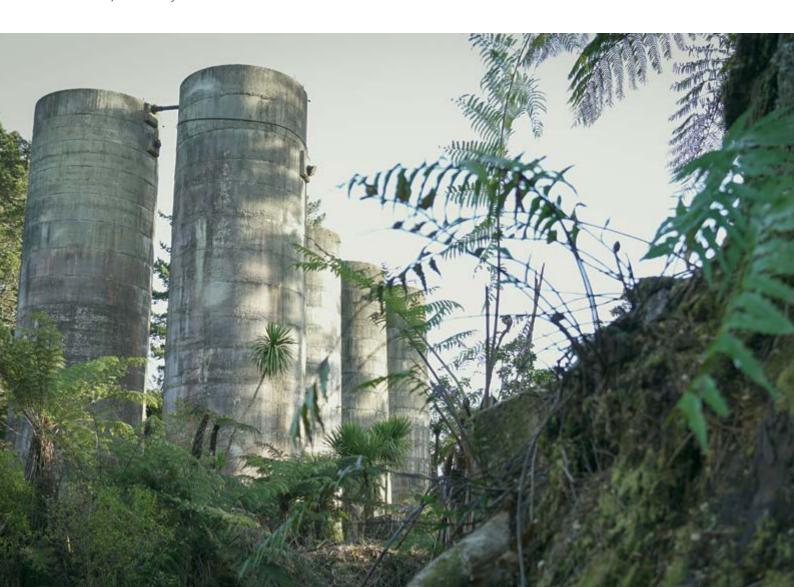
#### **REHABILITATION**

Once the Gladstone Pit is no longer OceanaGold Waihi is currently proposing in-pit tailings storage using Gladstone open pit. In-pit tailings storage, as the name suggests, is the process of backfilling an open pit mine with tailings.

After mining of Gladstone is complete, the pit will be backfilled with tailings.

The management of tailings is critical to environmental protection. In light of this, the pit would be lined before tailings are stored within it. This is to reduce the potential for seepage to enter the groundwater system. Although in-pit tailings storage is different to Waihi's existing tailings storage facilities, the approach to tailings storage management remains the same:

- Robust design and site management including consenting, operational management, monitoring, and reporting.
- Regular auditing of conformance with standards and consents requirements at a site and corporate level.
- Independent reviews by third-party experts.
- After the pit has been backfilled with tailings it will be capped with a layer of rock, and topsoil would be re-laid.





## TAILINGS STORAGE

Tailings are the finely ground rock particles left over after the gold and silver have been extracted. A tailings storage facility (TSF) is a structure built for the purposes of storing these tailings and other by-products from the gold and silver extraction process.

The tailings from the Waihi mines are currently stored in tailings impoundments. Waihi's tailings impoundments are carefully engineered rock structures that are designed in accordance with national and international standards to safely withstand significant seismic and weather events.

The current TSF1A, TSF2, and the proposed Gladstone Open Pit tailings storage have insufficient capacity for the tailings volume from processing ore from the proposed Wharekirauponga Underground Mine and Gladstone Open Pit. As part of the Waihi North Project, OceanaGold Waihi is proposing to construct a new Tailings Storage Facility (TSF3) on Company land immediately east of the current facilities, and adding tailings storage within the Gladstone Open Pit.





## TSF 3

#### TSF3 is proposed to be constructed immediately east of the current facilities.

#### **PREPARATION**

Geotechnical investigations have identified that TSF3 construction will firstly require material to be stripped from its footprint. This area is about 60 Ha, and the material will be stockpiled on OceanaGold Waihi land close to Trig Road North. It is likely that this material will be used for future rehabilitation work or for use later in the project.

#### CONSTRUCTION

Rock from within the NRS and TSF3 footprint areas will initially be used to construct TSF3. Temporary quarrying activities would be used to source this material.

Once a starter embankment is constructed, material from the Gladstone Open Pit, and later the already consented Martha Open Pit north wall layback is anticipated to be used for subsequent crest raises of TSF3.

During the initial foundation works, silt control will be provided to avoid dirty water discharging to waterways. This water may also be pumped to the existing Water Treatment Plant. At a minimum, erosion and sediment control will follow Waikato Regional Council guidelines.

TSF3 construction will involve building an uphill diversion drain, perimeter drains to capture stormwater runoff, and a perimeter road to provide access for operation and maintenance. For operations, a fully lined silt collection pond will be constructed in the lowest area of the TSF3 site. All runoff collected in the pond will be pumped to the Water Treatment Plant. The new collection pond will also include an overflow spillway to the Ruahorehore Stream.

TSF3 will be lined to reduce the potential for any seepage to enter the groundwater system. At the lower levels, TSF3 will be lined with a 1.5 mm thick liner, while at higher levels, a layer of low-permeability, compacted clay is proposed, as is used in the existing TSFs.

#### **EFFECTS**

During the initial construction phase of TSF3, we anticipate temporary amenity effects in the area. If the Waihi North Project is approved, we will be required to manage our activities at TSF3 so that we comply with strict noise and vibration limits, as well as air quality requirements set through the regulatory approvals process.

#### **OPERATION**

All designs and plans are put through a rigorous review process and will need to adhere to all regulatory requirements. If the required consents are granted, the structure will be extensively monitored throughout and beyond its construction phase, and all monitoring data will be annually collated and reported on. The data and reports will be independently reviewed to ensure the ongoing structural integrity and safety of the structure. The independent review findings will be reported to the Council after each review.





## **TSF3 REHABILITATION**

The outer walls of the TSF3 embankment will be progressively rehabilitated to pasture during and following construction.

This involves applying a layer of subsoil material, followed by a layer of topsoil and then agricultural seed mix. The land will then be grazed by young dry-cattle.

Native trees and shrubs have been planted on various areas of TSF1A and TSF2. These plantings provide a food source and nesting sites for birds.

Similar planting is planned for TSF3.

Once the deposition of tailings ceases, they will continue to consolidate, and

after a relatively short period of time, water quality in the tailings storage pond is expected to reach a level suitable for direct discharge to the Ohinemuri River, as it already has for TSF2.

When the tailings impoundments are later closed, they will be partially capped, leaving a wetland and small pond on the top. The pond outlet structures will allow fish passage from nearby waterways.

The ponds will be able to support the range of aquatic organisms typically found in such pond-like environments and wetlands. The riparian planting adjacent to the pond edge will trap sediment and nutrients in the runoff waters and assist in maintaining water quality.





## NORTHERN ROCK STACK

Although much of the rock from the Gladstone open pit can be used to construct TSF3, and provide backfill for the Wharekirauponga underground operations, at times during the mine life there will still be a surplus of rock that requires storage in a separate stack; the proposed NRS.

The NRS will accommodate the life of mine production of surplus rock. It will sit on company owned land as an extension of the existing rock stack, and will have a maximum footprint of approximately 35 Ha depending on mine sequencing. It will be constructed to an approximate height of up to 85 m above the natural topography.

#### PREPARATORY WORKS

Construction of the NRS will require about 18 Ha of topsoil to be stripped and stockpiled, to a height of around 10 m, adjacent to Golden Valley Road. An OceanaGold Waihi owned house will need to be relocated to enable this stockpiling to occur. Rock from temporary quarry activities within the NRS footprint area will

#### NRS DESIGN FEATURES

The NRS would incorporate similar design features as the existing TSFs. These features would include a low permeability liner beneath the stack, subsurface seepage drains, leachate collection drains, and capping.

initially be used to construct TSF3.

#### NOISE

If the Waihi North Project is approved, we will be required to manage our activities so that we comply with strict noise limits set through the regulatory approvals process.

There are a range of noise management measures that may be implemented at the NRS to meet these requirements, including:

- Equipment selection and maintenance.
- · Construction of noise bunds.
- Cladding to reduce conveyor noise.
- Limiting the height of stockpiles.
- Acoustic cladding around potentially noisy machinery.
- · Closed board fencing.
- Acoustic noise wall on sections of perimeter noise bunds.

#### **LIGHTING**

To allow us to operate outside of daylight hours, lighting will need to be established around the proposed NRS. The lighting will be designed and located so that light spill is minimised to protect the amenity of nearby residents.

#### **PROPERTY VALUES**

The extension of the planned mine life to 2042, if approved, will continue to positively impact Waihi property values.

Our property value assessment has identified the potential for the proposed Waihi North Project to have a minor impact on the values of a small number of properties near the NRS. This is not expected to be longlasting.

The properties identified in the assessment would be eligible for our Top Up management measure in accordance with the criteria of our property programme.

For full details go to waihigold.co.nz or contact OceanaGold Waihi directly.

#### **HOURS OF OPERATION**

OceanaGold Waihi is proposing that the operations on the NRS could take place from 7:00 am to 9:00 pm, Monday to Friday, and 7:00 am to 6:00 pm Saturday.

#### REHABILITATION

The NRS would be progressively rehabilitated in accordance with the surrounding area. On completion, it would be grass-covered and function as part of the surrounding farmland.





## PROCESSING PLANT UPGRADE

Our existing Processing Plant has been in operation at Waihi since 1987. The Waihi North Project requires a plant upgrade to increase its capacity and extend its life for a further 14 years.

The proposed upgrade would increase processing capacity from its current annualised rate of 1.25 million tonnes, up to 1.6 million tonnes.

The main components of the process plant upgrade are:

- Replacing the existing mobile and jaw crushers with a modular primary crusher.
- Increasing current milling capacity by installing the mill from the Company's Reefton Mine, where mining has now concluded
- Refurbishment of the adsorption circuit and installation of new pumps and pipelines to transport tailings to TSF3. As part of these works, we will also upgrade our existing Water Treatment Plant, and temporary project facilities, such as offices, parking, and equipment laydown yards will be required during the upgrades. These facilities will be built within the current footprint of the Process Plant and will be removed once the upgrade work is complete. A benefit of these upgrade works is that they provide additional jobs during the construction phase. Under this proposed project, both the Process Plant and

Under this proposed project, both the Process Plant and Water Treatment Plant would continue to operate 24 hours a day, seven days a week.







## MANAGING OUR EFFECTS

At OceanaGold Waihi, we are committed to responsible mining. We are actively closing a mine at Reefton in the South Island, having successfully operated that mine on Forest Park land.

The Waihi North Project will demonstrate that it is possible to operate responsibly under conservation land, deliver economic development, and leave a positive legacy.

We will be applying the 'effects management hierarchy' to ensure that any adverse impacts associated with the Waihi North Project are avoided, minimised and otherwise offset.

By applying these principles, the effects associated with the Waihi North Project will be appropriately managed. Through this project OceanaGold Waihi will look to identify and implement additional actions that go beyond mitigating effects.

We are committing to a broad scale biodiversity enhancement programme in the Southern Coromandel out to at least 2050, designed in conjunction with iwi, with a value of at least \$8.4 million.

This will provide long-term (intergenerational) positive ecological outcomes and help ensure that species such as the Archey's frog are protected and have improved outcomes as a result of our work in the area.

OceanaGold Waihi also operates in close proximity to a number of residential properties and therefore must monitor and meet very stringent limits on the mine's environmental effects.

#### **GET IN TOUCH**

More information on how we plan to manage our effects can be found on our website.

If you have an idea, concern, question, or opinion, please aet in touch.





## HOW TO FIND MORE INFORMATION

OceanaGold Waihi is committed to a long-term partnership with the community, and it is important to us that you have reliable information about what we are proposing and what it means to you.

This booklet has been designed to provide a brief overview of the Waihi North Project. Much more detail is available on each topic by visiting our website or contacting us directly. We will ensure that the community is kept up-to-date on the progress of the project. Ultimately, we want the Waihi North Project to proactively contribute to the goals and aspirations of the communities with an interest in the area.

#### PROJECT INFORMATION OFFICE

Our Project Information Office in Seddon Street will have staff available to answer questions and listen to your views and ideas.

You can also get copies of all our more detailed information brochures, and other project information at the information office.

#### THE OPENING HOURS ARE:

9:30 am to 12.00 pm 12.30 pm to 4:00 pm, Monday to Friday.

#### **PUBLIC INFORMATION SESSIONS**

We will be holding open public information sessions and also hope that community groups will invite us to their meetings, so we have a further opportunity to share and discuss the information we have available.

#### **NEWSPAPER UPDATES**

We will also keep you updated through local newspapers.

#### FREEPHONE 0800 924 444

As always, our free community engagement line is available seven days a week.





