OCEANAGOLD

SUMMARY OF TABLE 1 - 2012 JORC: Waihi Gold Mine

The Waihi operation is located 142 km Southeast of Auckland in the township of Waihi in the Hauraki district of New Zealand. The Waihi township is known as a gold mining town and has a notable history of gold production. Open pit mining commenced at the site in 1988 with the first ore processed in that year and underground mining commenced in 2004 with the extraction of ore commencing in late 2006. The Waihi operation holds the necessary permits, consents, certificates, licences and agreements required to operate the Martha underground mine and a restricted Martha pit.

Resources

The Waihi resource estimates, as at 31 December 2020, are presented in Table 1, Table 2, and Table 3, and are classified in accordance with CIM and JORC 2012.

The resource estimate is sub-divided into an open-cut and underground resource for reporting purposes. The open-cut resource includes material within the limits of the Martha Phase 5 pit and the Gladstone pit. The underground resources include the Wharekirauponga (WKP) project and the Martha Underground (MUG) project. The Mineral Resources are depleted for historic mining as at 31 December 2020.

Table 1: Open Cut Resource Estimate (Martha and Gladstone)

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Measured	0	0	0	0	0
Indicated	6.75	1.82	13.3	0.40	2.89
Measured & Indicated	**6.75**	**1.82**	**13.3**	**0.40**	**2.89**
Inferred	5.4	1.8	17	0.3	3.0

Table 2: Underground Resource Estimate (Martha and WKP)

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Measured	0.04	4.92	14.8	0.01	0.02
Indicated	7.00	6.35	17.9	1.43	4.01
Measured & Indicated	**7.04**	**6.35**	**17.8**	**1.44**	**4.03**
Inferred	4.4	7.7	17	1.1	2.5

Table 3: Combined Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Measured	0.04	4.92	14.8	0.01	0.02
Indicated	13.7	4.12	15.6	1.82	6.91
Measured & Indicated	**13.8**	**4.13**	**15.6**	**1.83**	**6.93**
Inferred	9.9	4.4	17	1.4	5.4

Notes to Accompany Mineral Resource Table:

1. Mineral Resources are reported inclusive of Ore Reserves where appropriate;
2. Mineral Resources are reported on a 100% basis;
3. Mineral Resources are reported to a gold price of NZD$2,394/oz;

4. Martha Phase 5 (MOP5) and Gladstone (GOP) open pit resources are reported within conceptual pit designs based on cut-off grades of 0.5g/t and 0.56g/t respectively.
5. Martha underground Mineral Resource is reported below the conceptual Martha Phase 5 open pit cutback design and is reported to a 2.15 g/t cut-off. This Resource is constrained within a conceptual underground design based upon the incremental cut-off grade.
6. The WKP Resource is constrained within a conceptual underground design - based upon the incremental cut-off grade of 2.5 g/t Au;
7. No dilution is included in the reported figures and no allowances have been made to allow for mining recoveries. Tonnages include no allowances for losses resulting from mining methods. Tonnages are rounded to the nearest 1,000 tonnes;
8. Ounces are estimates of metal contained in the Mineral Resource and do not include allowances for processing losses. Ounces are rounded to the nearest thousand ounces;
9. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
10. Tonnage and grade measurements are in metric units. Gold ounces are reported as troy ounces.

The Waihi site contains several projects at different stages of development. These include the Martha underground, the Martha open pit, the Gladstone open pit and the Wharekirauponga (WKP) project.

The Martha underground was successfully consented in February 2019 and relates directly to the mineralisation contained within the Martha vein system centred beneath the open pit mine within the Waihi Township.

WKP is located 10 km north of the township of Waihi. It is a high grade, low sulphidation epithermal vein gold-silver deposit hosted within a Miocene rhyolite dome complex.

The Martha phase 5 cutback is a full cutback of the existing pit targeting resource at depth and re-establishing pit access.

The Gladstone pit is based on a conceptual open pit centred around the Gladstone hill and Winner hill area. The resource model describes the mineralisation within Gladstone and Winner Hills and includes part of the Moonlight orebody, depleted for underground mining

This updated Table 1 report relates to changes in the Martha underground project. There has been no change in the status of the WKP, Gladstone pit and Martha open pit projects since the release of a NI 43 101 and Table 1 documents in July 2020.

Exploration activity has continued in proximity to the Martha and WKP projects. In 2021, the Company expects to drill 27,000 metres in the Martha Underground with a focus on resource conversion (20,000 metres) and resource extension (7,000 metres) to support the Life of Mine Plan. The resource is associated with numerous veins that form part of the Martha Vein system, the largest of which include the Martha, Edward, Empire, Royal and Rex veins.

Exploration continues on the WKP project with up to two diamond rigs dedicated to the project expected to drill 10,500 meters in 2021.

The major gold - silver deposits of the Waihi District are classical low sulphidation adularia-sericite epithermal quartz vein systems associated with north to northeast trending faults. Larger veins have characteristically developed in dilational sites in the steepened upper profile of extensional faults with narrower splay veins developed in the hanging wall of major vein structures. Figure 1 shows a plan of the Waihi area illustrating the major vein locations and recent drill hole collars. The Waihi epithermal gold-silver mineralised veins are hosted in Miocene andesite lavas beneath the Waihi township area.

Low sulphidation epithermal quartz veins at WKP are hosted in a rhyolite flow dome complex with overlying and interfingering lithic lapilli tuffs which are in turn partially overlain by post-mineral andesites (Figure 2). The rhyolites have undergone pervasive hydrothermal alteration, often with complete replacement of primary mineralogy by quartz and adularia with minor illite and/or smectite clay alteration. The vein system lies within a NNE trend with a low magnetic response and likely represents a combination of weakly magnetic primary lithology and magnetite-depleted hydrothermally altered lithologies. This magnetic low trend contains well-defined edges suggesting a NE trending district-scale graben boundary.

Approximately 675,000 metres of diamond drilling has been done on the Waihi projects since 1980. Approximately 42,000 metres of diamond drilling within 104 drillholes has been undertaken on the WKP project. All drill core, since 1990, was routinely oriented below the base of the post-mineral stratigraphy, either by plasticine imprint or using the Ezimark or Reflex core orientation tool.

Gold mostly occurs as electrum in the Waihi epithermal vein deposits and has a particle size less than 10µm. The main ore minerals are electrum and silver sulphides with ubiquitous pyrite and variable, though usually minor, sphalerite, galena and chalcopyrite in a gangue consisting of quartz, locally with calcite, chlorite, rhodochrosite and adularia. Base metal sulphides increase with depth.

In general, there are very few sulphides other than pyrite in the WKP veins. Major structures strike NNE and dip steeply to the west with extensional linking vein sets striking in a more northerly direction. Vein textures and geopetal indicators logged in drill core suggest south eastward tilting since vein formation.

Domaining is performed based on geological observation from logging of diamond drill core and mapping of exposure in both the open pit and underground. Mineralised geologic domains are typically narrow, subvertical epithermal veins within which gold is modelled via ordinary kriging or inverse distance methods dependent on data density. Dry bulk densities ranging between 1.8 and 2.5 t/m^3 are assigned by rock type.

Estimation is completed using either ordinary kriging (OK) or inverse distance weighting to the second or third power (ID2/ID3), as deemed suitable by the density of data in each domain.

The quantity and quality of the lithological, geotechnical, collar and down hole survey data collected in the exploration, delineation, underground, and grade control drill programs are sufficient enough to support the mineral resource and ore reserve estimation.

To classify the mineral resource, appropriate account was taken of geology, drill hole spacing, search criteria, location and geometry of historic mining voids, reliability of input data, and the Competent Person's confidence in the continuity of geology and metal values.

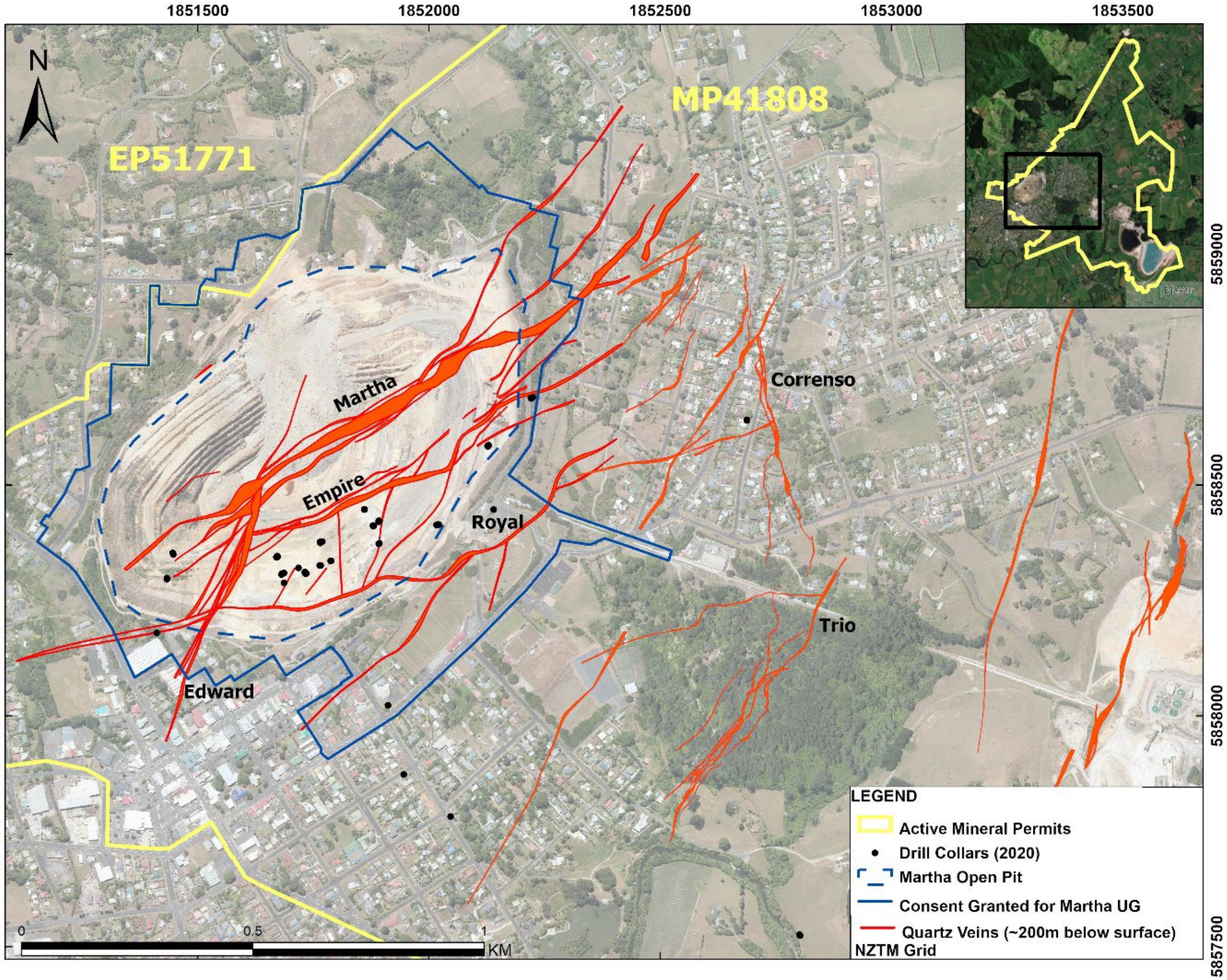

Figure 1: **Map of Waihi showing a plan view representation of the Martha vein system, recent drill collars (Jan 2020 to Dec 2020), mining permit boundaries and the area covered by Mining Consent.**

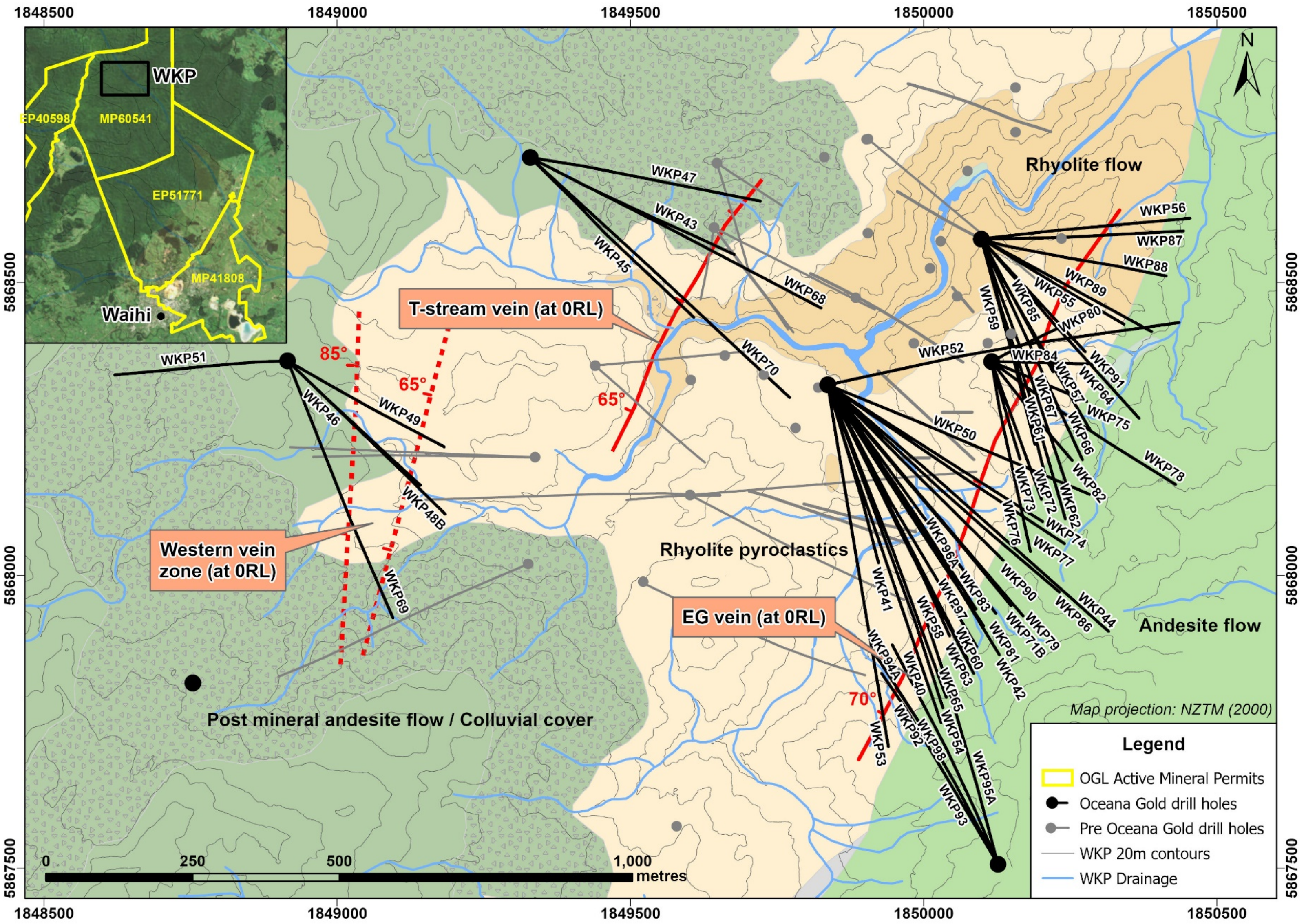

Figure 2: a) Map showing the location of WKP and b) a map showing the surface geology in plan view and diamond drill traces at WKP

Reserves

The Ore Reserve estimate for the Waihi operation as at 31 December 2020 is shown in Table 4:

Table 4: Waihi Ore Reserve Estimate

Reserve Area	Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Open Pit	Proven	-	-	-	-	-
	Probable	-	-	-	-	-
Underground	Proven	0.05	4.82	9.4	0.01	0.02
	Probable	4.46	4.33	13.5	0.62	1.94
Total Proven		0.05	4.82	9.4	0.01	0.02
Total Probable		4.46	4.33	13.5	0.62	1.94
Total		**4.52**	**4.34**	**13.5**	**0.63**	**1.95**

Notes to Accompany Ore Reserve Table:

1. Ore Reserves are reported on a 100% basis;
2. Ore Reserves are reported to a gold price of NZD 2,112/oz;
3. Tonnages include allowances for losses and dilution resulting from mining methods. Tonnages are rounded to the nearest 1,000 tonnes;
4. Ounces are estimates of metal contained in the Ore Reserves and do not include allowances for processing losses. Ounces are rounded to the nearest thousand ounces;
5. Rounding of tonnes as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
6. Tonnage and grade measurements are in metric units. Gold ounces are reported as troy ounces.

The change in Ore Reserves reported at December 31, 2020 compared with those previously reported at December 31, 2019 is reported in Table 5.

Table 5: December 2019 Ore Reserve Estimate vs. December 2020 Ore Reserve Estimate

Reserve Area	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
December 31, 2019 Reserve					
Open Pit	0.81	2.94	29.34	0.08	0.77
Underground	0.11	6.87	12.38	0.02	0.04
Total (Dec 31, 2019)	0.92	3.41	27.35	0.10	0.81
Changes to Reserve, December 2019 vs. December 2020					
Open Pit	-0.81	2.95	29.34	-0.08	-0.77
Underground	4.41	4.27	13.51	0.61	1.91
Total	3.60	4.57	9.93	0.53	1.15
December 31, 2020 Reserve					
Open Pit	0	0	0	0	0
Underground	4.52	4.34	13.5	0.63	1.95
Total (Dec 31, 2020)	4.52	4.34	13.5	0.63	1.95

Changes between the December 31, 2019 Ore Reserve and the December 31, 2020 Ore Reserve estimate reflect conversion of Martha underground Mineral Resources to Ore Reserves partially offset by depletion from Correnso and reclassification of Martha pit Ore Reserve to Mineral Resource.

Inputs to the calculation of cut-off grades for the Martha underground mine include mining costs, metallurgical recoveries, treatment and refining costs, general and administration costs, royalties, and commodity prices.

Long hole bench stoping with rock backfill is the main mining method for extraction of underground Ore Reserves. Stope dilution has been estimated based on expected geotechnical conditions, stope spans and site reconciliation. Recovery of ore requires the use of remote loaders, and allowances have been made for loss of Ore Reserves and for dilution from back fill. High cut-off grades, lower mining recoveries and higher dilutions have been applied to those Ore Reserves in close proximity to historical workings.

Recovery of gold at Waihi uses a conventional CIP plant and a conventional SABC grinding circuit. The plant has an established skilled workforce and management team in place. Recent cost estimates and processing recoveries support the reporting of the stated Ore Reserves.

The technical and economic viability of the reported Ore Reserves is supported by studies which meet the definition of a Feasibility Study. The permits and consents are in place for the extraction of the Ore Reserve for the Martha underground.

Competent Persons

Information relating to Exploration Results and Mineral Resources in this document was prepared by or under the supervision of Mr Peter Church, information relating to underground Ore Reserves were prepared by or under the supervision of Mr Trevor Maton. Information relating to metallurgy and mineral processing was prepared by or under the supervision of Mr David Carr. Messrs Carr, Church and Maton are members and Chartered Professionals of the Australasian Institute of Mining and Metallurgy. Mr Church is the Principal Resource Geologist and is a full-time employee of OceanaGold (New Zealand) Limited, whilst Mr Maton is the Studies Manager and is also a full-time employee of OceanaGold (New Zealand) Limited. Mr Carr is Chief Metallurgist and a full-time employee of OceanaGold Management Pty Limited.

Messrs Church and Maton have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Messrs Church and Maton consent to the inclusion in the report of the matters based on the information in the form and context in which it appears.

Section 1 Sampling Techniques and Data

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Sampling techniques</td><td>

The Mineral Resource estimates of individual projects in Waihi use a combination of sampling techniques including:

Martha Underground (MUG): Diamond Drilling (DD) core, Reverse Circulation (RC) chips from exploration drilling, RC chips from open pit grade control drilling, and grade control channel samples,
Martha Open pit (MOP): Diamond Drilling (DD) core, Reverse Circulation (RC) chips from exploration drilling, RC chips from open pit grade control drilling, and grade control channel samples,
Gladstone Project (GOP): DD core, RC chips from exploration drilling,
Wharekirauponga (WKP) Project: DD core.

DD and RC drilling sampling techniques are discussed further in ‘drilling techniques’ criteria.
Pit channel sampling: Channel sampling was undertaken on a regular basis prior to 2006 and occasionally since then as a method of grade control sampling in the Martha open pit. The sample material was chipped from scraped channels on the bench floor using a pneumatic hammer along 1 meter sample intervals and collected in a pre-labelled calico bag. Three QAQC samples were assigned per channel including a blank sample, a crush duplicate and a standard. Prior to 2006, this was common practice, however after 2006 RC drilling was used as the preferred method of pit grade control until mining ceased in 2016.
Underground Face Sampling: The Martha Resource estimate includes data collected by underground face sampling (channels). The sample intervals were determined by the ore control geologist based on changes in lithology, vein texture and/or alteration observed in the face. Where possible, a discrete vein has a sample start point along the left-hand contact and a sample end point along the right-hand contact of the structure. Minimum sample interval widths of 0.3 meters and maximum widths of 2.0 meters were allocated along each face. The sample material was chipped off the rock face using a hammer and collected in a pre-labelled calico bag. Three QAQC samples were assigned per face including a blank sample, a crush duplicate and a standard.
All exploration at WKP is by diamond core drilling from surface. Drilling conditions are well understood. Triple tube coring is routinely used to ensure that core recovery is acceptable.
Diamond drilling sample intervals are guided by logged geological boundaries and vary in length between 0.3 and 1.3 metres in length. Where possible, a discrete vein will have a sample start point along the up-hole contact and sample end point along the downhole contact of the structure.
Core samples are processed using industry standard practices of drying, crushing, splitting and pulverisation at the SGS Waihi or SGS Westport Laboratory. SGS are an internationally accredited global analytical services provider with strong internal governance standards and a reputation to uphold.
Checks used to verify sample representivity include the collection and analysis of field and pulp duplicates and analysis of a selection of samples through third party laboratories.
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<tr><td>Drilling techniques</td><td>
<u>Diamond Drilling:</u>

All the projects in the Waihi District study are explored using diamond drilling techniques exclusively. Given the extensive operational history at Waihi there are some legacy Reverse circulation drillholes within the drilling database. This RC data is excluded from the dataset for modelling and grade estimation.
The Martha Underground Resource Estimation uses 267,791 metres of diamond drill (DD) core in 1159 holes.
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Criteria	Commentary
	• The WKP Underground Resource Estimation uses 42,797 metres of diamond drill (DD) core in 102 holes. • All diamond drilling is triple tube wireline diamond core drilling from surface or underground. • All drill core is routinely oriented either by plasticine imprint or using Ezimark, Reflex or TruCore core orientation tools. • DD core diameter is PQ (85mm diameter), HQ3 (61mm diameter), NQ3 (45mm diameter) or BQ (36.4mm diameter). Surface holes are collared using large-diameter PQ core, both as a means of improving core recovery and to provide greater opportunity to case off and reduce diameter when drilling through broken ground and historic stopes. Underground holes are collared using HQ3 core diameter. PQ, HQ, NQ and BQ core diameters are used in the Mineral Resource estimate with HQ3 being the dominant core diameter used in the resource estimations. **RC Drilling:** • RC drill chips were collected predominantly as part of the grade control process during the Martha Open Pit operation but also on a minor scale for exploration purposes (approximately 4309 metres used in MUG estimate). 88,000 metres have been drilled in 4,445 reverse circulation (RC) grade control holes in the open pit between May 2007 and May 2015, using a 114mm hole diameter and rig-mounted cyclone sampler. This grade control RC drilling is used to inform the estimate for the Martha Underground project in proximity to the open pit. • Grade control RC collars were designed on a 10x5 metre horizontal grid, with exception of areas in proximity to highwalls or known historical voids and the holes angled at a -50° dip. • Samples were collected in a bag attached to the cyclone at 1.5 metre intervals from which a nominal 3.6kg sample was split using a cone splitter.

Drill sample recovery	• In diamond drill core recovery is estimated by measuring the recovered core length against the drilled length which is uploaded to an AcQuire Database as a percentage.
	• Recovery data has been captured for all sample intervals for all diamond drill holes.
	• Core from the Martha project is monitored for recovery daily to rationalize actual core loss against the intersection of historic mining voids with re-drilling actioned if necessary. There is no observed relationship between core recovery and grade.
	• Core recovery within veined material (>40% vein in sample interval) varies between projects and is summarized as follows:
	  o 92.4% within the Martha Underground project,
	  o +95% for the Martha phase 5 pit project
	  o 96.2% for the WKP project,
	  o 89-90% for the Gladstone project.
	• RC drill sample recoveries were assessed by weight for representivity by the sampling technician and dispatching geologist. Samples were discarded where the recovered sample weight did not correlate well with the drilled interval.

Logging	• DD core and RC chip samples have been geologically and geotechnically logged to a level of detail to support appropriate mineral resource estimation. Logging includes geotechnical parameters, lithology, weathering, alteration, structure and veining. • Geological logging is based on both qualitative identification of geological characteristics, and semi-quantitative estimates of mineral abundance. Geotechnical logging uses standard semi-quantitative definitions for estimating rock strength and fracture density.

Criteria	Commentary
	• Logging intervals are based on geological boundaries or assigned a nominal length of one metre. • Some logging processes have varied over time. Since June 2015 core has been logged using an excel spreadsheet and uploaded to an AcQuire database. Between 2009 and 2015 logging was entered using Newmont proprietary Visual Logger software and uploaded onto a web-based database. • Logging of recent drilling (2009 onwards) has been validated using inbuilt validation tables and checked for consistency. • A complete digital photographic record is maintained for all drill core. • Unsampled drill core forming part of a resource is stored in a core shed for a minimum of 2 years, but usually until the area has been mined. Core in storage is divested after a review process after which it is either thrown away or retained in government core storage facilities. • All geological logging data is stored in an acQuire database.
Sub-sampling techniques and sample preparation	• Once the core is logged, photographed and sample intervals allocated, it is cut in half length ways. If a vein is present, the cut line is preferentially aligned to intercept the downhole apex of the structure. Within each sample interval, one half of the core is bagged for sampling and the other is kept in storage. Whole core has been sampled on occasion where there was significant core loss coupled with visible electrum and for all BQ core due to reduced sample volumes. • Labelled calico bags containing the core samples were either transported to the local Waihi SGS Laboratory or the Westport SGS laboratory for crushing and sample preparation. • Sample size for resource DD holes drilled from surface is optimised through initial collection of large-diameter diamond drill core samples, generally PQ3 or HQ3. Current drilling from underground utilises an HQ3 or NQ3 diameter core size for advanced exploration and resource conversion drilling. The core is then split using a core saw to produce an initial sample size of 3.5-4kg (HQ3) or 1.7-2kg (NQ3). Drilling for the purposes of grade control utilises an HQ3 or NQ3 diameter core size which is whole core sampled to produce an initial sample size of 7-8kg or 3.5-4kg respectively. • Sample preparation (drying, crushing, splitting and pulverising) is carried out by SGS using industry standard protocols. The sample preparation flow sheet is illustrated in Figure 1.1. • Since mid-2006, sample preparation has been carried out at the SGS laboratory in Waihi. Current standardised sample preparation procedures are summarised in the flow sheet below. Prior to mid-2006, the sample preparation facility was located at the Martha mine site and operated by Waihi Gold personnel. • Standardised sample preparation procedures are based on nomograms that were developed using Gy's Estimation of the Fundamental Sampling Error. Gold particle liberation size for the Waihi gold deposits is based on petrographic studies, which indicate that gold mostly occurs as electrum in the Waihi epithermal vein deposits and has a particle size between <5 to 10µm. • Representivity of samples is checked by duplication at the crush stage, one in every 17-20 samples.

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<tr><th>Criteria</th><th>Commentary</th></tr>
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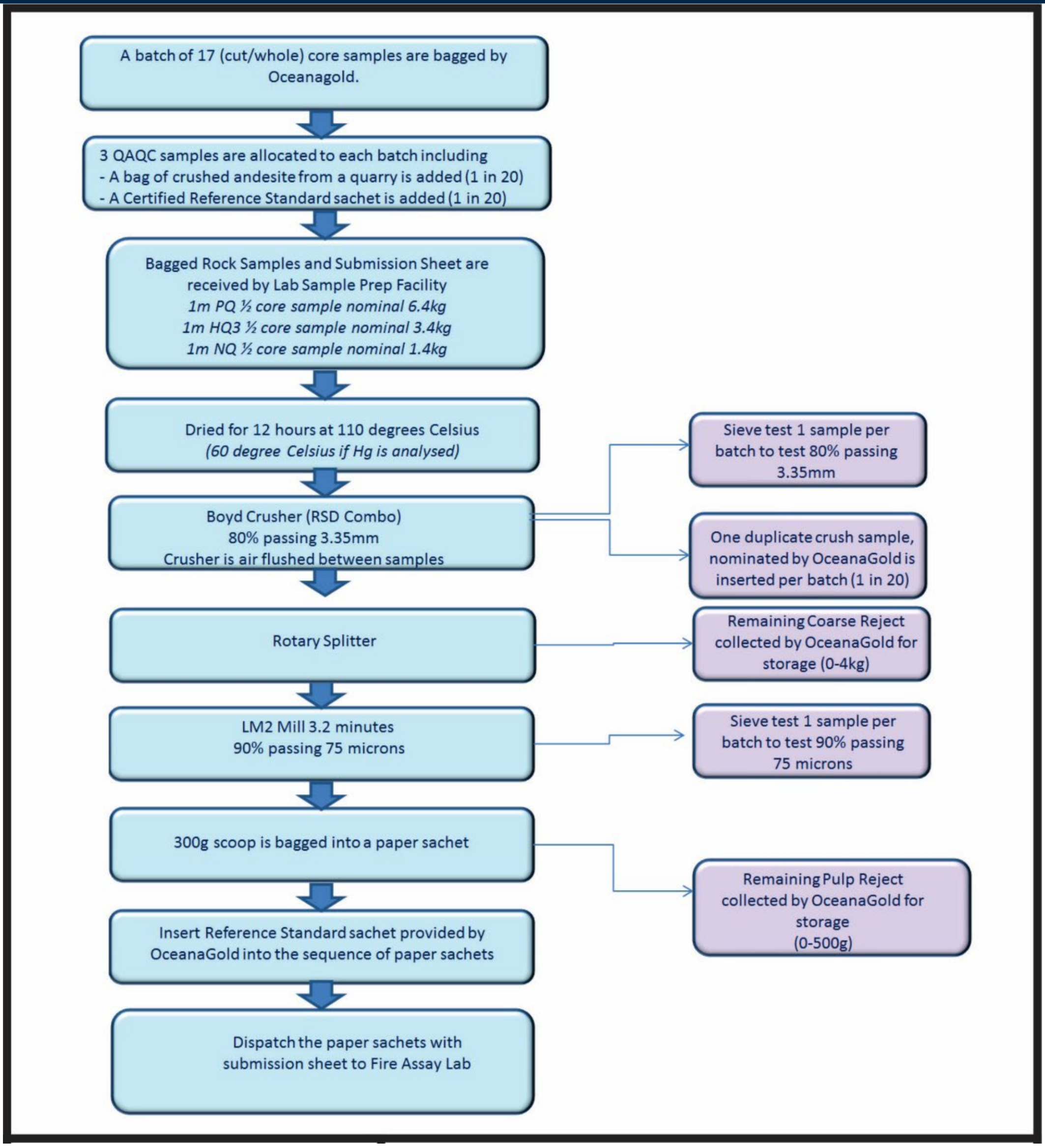

Figure 1-1: Sample Preparation Flow Sheet, SGS, Waihi

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<tr><td>Quality of assay data & laboratory tests</td><td>

- All exploration samples are assayed for gold by 30g Fire Assay with AAS finish.
- Multi-element ICP data is obtained routinely from the Waihi SGS Laboratory for all exploration assay samples for the elements silver, copper, arsenic, lead, zinc and antimony, which are potential pathfinders for epithermal mineralisation. For samples with over-range silver and lead, these elements are found to be extracted more efficiently by using a more dilute Aqua Regia digest (1-gram sample weight rather than the standard 10-gram per 50 ml).
- Quality of exploration assay results has been monitored in the following areas:
  - Sample preparation at the SGS Waihi and Westport labs through sieving of jaw crush and pulp products,
  - Monitoring of assay precision through routine generation of duplicate samples from a second split of the jaw crush and calculation of the fundamental error.
  - Monitoring of accuracy of the primary SGS assay and ALS results through insertion Certified Reference Materials (CRM's) and blanks into sample batches.

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Criteria	Commentary
	• Analyses of drill sample pulps from WKP were undertaken at the ALS laboratory in Brisbane, the ALS laboratory in Townsville and SGS laboratory in Waihi. • Blank, duplicate and CRM results are reviewed prior to uploading results in the AcQuire database and again on a weekly basis. The Waihi protocol requires CRMs to be reported to within 2 standard deviations of the certified value. The criterion for preparation duplicates is that they have a relative difference (R-R1/mean RR1) of no greater than 10%. Blanks should not exceed more than 4 times the lower detection method of the assay method. Failure in any of these thresholds triggers an investigation and re-assay.
Verification of sampling and assaying	• CRMs performance is regularly scrutinised and the database QAQC function thresholds are reviewed bi-annually. CRMs are currently assigned to batches on a rotational roster in a "pigeon pair" system. • Monthly QAQC reporting and review is undertaken on all assay results from SGS. • Multi-element data is obtained routinely from the Waihi SGS Laboratory for all exploration assay samples for the elements silver, copper, arsenic, lead, zinc and antimony, which are potential pathfinders for epithermal mineralisation. A comparison between non-routine multi-element data from Ultratrace in Perth with routine multi-element data produced by SGS Laboratory in Waihi showed good correlation between the parent (SGS) and umpire (Ultratrace) data sets for silver, lead, zinc and arsenic, which gives confidence in the accuracy of SGS data for these elements. For samples with over-range silver and lead, these elements are found to be extracted more efficiently by using a more dilute Aqua Regia digest (1-gram sample weight rather than the standard 10 grams per 50 ml). Antimony is not efficiently extracted by the current Aqua Digest method at SGS and consideration should be given to using the Peroxide Fusion extraction if more accurate antimony results are required. • For every batch of results received, SGS release its internal QAQC data to OceanaGold for review. The performance of SGS internal standards appears satisfactory. • No data from geophysical tools, spectrometers or handheld XRF instruments have been used for the estimation of Mineral Resources. • Underground Face samples contain one blank, one crush duplicate and one standard per channel. Results are required to pass QAQC validation prior to being imported to a Microsoft Access database. • Open pit RC samples contained one blank, one crush duplicate and one standard every 20 samples. Results were required to pass QAQC validation prior to being imported to an AcQuire database. • All laboratory results are uploaded directly into an AcQuire database. Below level detection limit assay results are stored in the database as half the detection limit. No other modification of the assay results is undertaken. • All intercepts are reviewed during the construction of the geological wire frames prior to grade estimation, this review involves visual comparison of core photography, assay and logging data and spatial relationships to adjacent data. Significant intercepts are reported internally on a weekly basis for peer review purposes. • Check assay programs have been undertaken for some projects in Waihi in the past as a part of advancing milestones such as feasibility level studies. • At WKP there are some visual indicators for high grade mineralisation observed in drill core. As a result, significant grade intersections are visually validated against drill core. Some holes have been subject to umpire analysis by an alternate laboratory. To date no WKP drill holes have been twinned.
Location of data points	• All historic underground mine data in Waihi was recorded in terms of Mt Eden Old Cadastral grid (MEO). This is the grid utilised for all underground and exploration activity within 3km of

Criteria	Commentary
	the Waihi Mine beyond which New Zealand Mag Grid (NZMG) and New Zealand Transverse Mercator (NZTM Grid) are utilised. • The MEO grid is offset from New Zealand Transverse Mercator (NZTM Grid) by 5215389.166 (shift mN) and 1456198.997 (shift mE). NZMG is in the NZGD1949 projection. False northing 6,023,150m north; False easting 2,510,000m east. • Relative level (RL) is calculated as Sea Level + 1000m. • Drill collars are surveyed using a total station or differential GPS by a registered professional land surveyor. At the start of the hole the drillers line up the mast in the correct azimuth using a Gyrocompass Azimuth Aligner. • The positions of underground face sampling channel samples are located by the geologist using digital Leica Disto Meter from known survey stations within headings underground. • The positions of open pit channel samples were surveyed using a total station by a registered professional land surveyor. • For the underground mine, a transformation is used to convert all data to NZGD2000 as per the regulations for the purpose of all statutory underground plans. Checks show that all underground coordinates are within the allowed 1:5000. • Down hole surveys are recorded at 30 metre intervals by using a Reflex digital downhole survey camera tool. • All the drill collars from WKP40 onwards and all OGL drill sites to date have been by accurately located by survey methods. The initial survey control for each site has been established using a Leica GNSS GPS (hired from Global Survey) using Fast Static method and post processed by Global Survey. Each drill site has then been surveyed using a Leica TCRA1205 Total Station. The total station has been setup/ orientated using resection method utilising 3 of the 4 previously established Static GPS survey control marks with the 4th one used as a check. The drill collars have then been identified and surveyed. The total station has then been moved and setup again using the same resection method and a second round of observations observed on each of the new survey control points. • WKP topographic control is from high resolution aerial photography and LiDAR providing 0.5m contour data.
Data spacing and distribution	• The Gladstone deposit has a nominal drill hole spacing of 30 meters on the major mineralised veins. A tighter spacing of 22.5 meters has been implemented in the more complicated zones exhibiting strong brecciation and/or stockwork veining. • The Martha underground project uses an average spacing to three drill holes of 60 metres for inferred and 40 metres for indicated. The extensive mining history of Martha (>135 years+) has developed significant experience in assessing the continuity of mineralisation and mining the Martha vein system and the adjacent deposits. The vein style mineralisation has a strong visual control, is well understood and has demonstrated continuity over significant ranges. An estimation run utilizing a maximum of three drill holes with a single sample per drill hole was undertaken storing the average distance to the three drill holes used to estimate the block. This formed the basis for the resource classification. • For Martha Phase 5 pit, the sample composite length was based on the nominal sample interval of 1.5 meters for DD and RC drill data and 1 meter for grade control channel data. Compositing was by fixed-length, honouring the domain boundaries. • The East Graben Vein zone of the WKP project has been intersected in drilling over a strike length of ~1km, this structure is larger than those typically encountered in the Waihi project area and on this basis the average drill hole spacing required for classification as an inferred resource has been increased by 15% to 80 metre average distance to the three closest drill holes. All other mineralisation has been classified using a distance threshold of 70 metres to the three closest drill holes for classification as inferred.

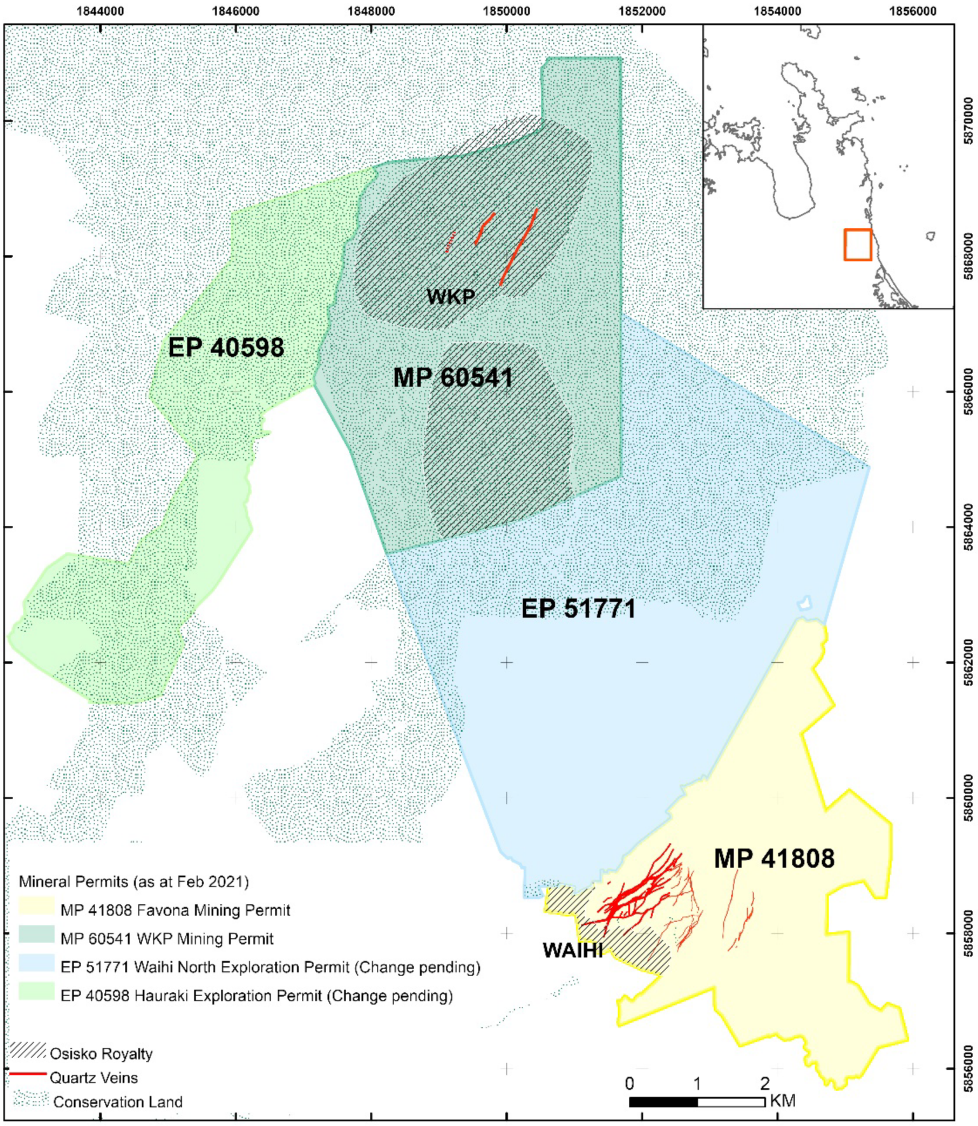
Criteria	Commentary
	• Diamond Drill samples are not composited prior to being sent to the laboratory.
Orientation of data in relation to geological structure	• Drill holes are designed to intersect known mineralised features in a nominally perpendicular orientation as much as practicable given the availability of drilling platforms. Sample intervals are selected based upon observed geological features. • All drill core is oriented downhole. Structural orientation measurements recorded during logging are used to inform vein modelling for resource estimation and true width interpretation for reporting of significant intercepts. • Sample intervals are selected based upon observed geological features. • Photogrammetry captured during underground grade control sampling is used to update the vein model for the reserve estimation.
Sample security	• Drill core is stored within secure facilities where access is controlled. Site employees transport samples to the analytical lab. The laboratory compound is secured.
Audits or reviews	• The SGS laboratory in Waihi has been audited on a quarterly basis by OceanaGold geologists and the Competent Person when possible. No sampling risks have been recorded during these visits. • Sampling techniques and data handling processes are reviewed annually during internal OceanaGold technical service reviews. External reviews of sampling techniques and data have been undertaken during third-party technical assessments • RSC Consulting Limited (RSC) was commissioned by OGC in Q4 2020 to verify that exploration data and resource estimation domains are fit for the purpose of classifying an Indicated Mineral Resource in accordance with the JORC Code (2012). Spot-checking and data verification were conducted to provide further confirmation that the data quality management system has delivered fit-for-purpose data.

Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	Waihi • Rights to prospect, explore or mine for minerals owned by the Crown are granted by permits issued under the Crown Minerals Act 1991 (CMA). Crown-owned minerals include all naturally occurring gold and silver. A map showing the location of the permits held by OceanaGold near Waihi is shown in Figure 2.1. • Mining permit MP41808 in Waihi was granted in March 2004 for a duration of 25 years, under the provisions of the Crown Minerals Act 1991. The current mining permit covers an area of 1572.59 hectares and encompasses all the Martha Phase 5 project, the Martha Underground Project and the Gladstone Project. An application has been lodged and is being processed to extend the mining permit for a further 15 years. • Royalties of the higher of a 1.0% royalty on net sales revenue from gold and silver or 5% accounting profits is payable to the Crown for MP41808. The area previously held under EP 40767 and over which MP41808 was extended is subject to an additional 2% royalty payable to Osisko (acquired from Geoinformatics and BCKP). • A Land Use Consent (202.2018.00000857) was granted by Hauraki District Council (HDC) on the 1st of February 2019 and commenced on the 27th July 2019. This Land Use Consent allows for mining of the Martha Underground resource and the remainder of the Phase 4 Martha Pit. In addition to the authorisations required by HDC, a suite of consents were obtained from Waikato Regional Council (WRC) covering matters such as vegetation removal, water takes, diversions and discharges of water, discharges to air, and construction of the tailing's storage facilities. Both HDC and WRC have conditions in place relating to mine closure, bonds and a post closure trust. Consent has not been sought for mining the Martha Phase 5 Pit, the Gladstone Pit or the WKP underground project. • The Gladstone and the Martha Projects are situated on/below land owned by various landowners including government agencies, private landowners and OceanaGold. Office blocks, the processing plant, the underground portal and the tailings facilities are on land owned by OceanaGold. A significant portion of the area covered by the current Martha open pit is owned by the Crown and administered by Land Information New Zealand (LINZ). OceanaGold holds a current access agreement for work in this area. WKP • The WKP project is located within mining permit MP60541, covering an area of 2374.08 hectares (Figure 2.1). The current term of the permit expires in August 2060. OceanaGold is authorised to commercially extract the gold resource, subject to the conditions attending to the mining permit, gaining any surface rights required by agreement with the landowners and gaining the requisite resource consents under the Resource Management Act. • OceanaGold holds 100% of the WKP permit interest. Third party rights to receive an interest in the project are confined to a Crown royalty of 1% of the turnover or 5% of the accounting profits whichever is higher and a 2% royalty payable to Osisko (acquired from Geoinformatics and BCKP) with respect to certain "target" areas. In both cases the royalties are fixed and quantifiable for the purposes of inclusion in the business plan. • The WKP prospect is situated on state-owned land administered by the NZ government through the Department of Conservation and generally open to public use for amenity purposes. OceanaGold has received an Access Arrangement (AA) granted under the CMA, for MP60541, giving surface rights to conduct exploration drilling under conditions that protect the conservation (biodiversity and amenity) values of the land. • The company has received resource consents granted by local authorities under the Resource Management Act 1991 (RMA), under which environmental effects of exploration drilling are authorized and managed within the framework of that Act in keeping with the high environmental values of the permit location. Any development of the prospect for the purposes of advancing beyond exploration would require applications at that time under

Criteria	Commentary
	the RMA and (for surface impacts only) the CMA. The RMA applies land use designations (zoning) that allow underground mining on a discretionary basis and surface impacts in limited circumstances dependent on meeting a range of objectives and policies including protecting and enhancing the biological diversity and outstanding landscape character values of the permit area and minimising ground surface disturbance. Consent has not been sought for mining the WKP Project. • Changes to NZ government policy restricting access to mine on conservation land have been proposed, subject to a statutory consultation process that has not yet commenced. The precise nature of any proposal is not currently known.
Exploration by other parties	• Waihi Gold Company held exploration and mining licences and permits over the Open Pit portion of the Martha deposit and the current underground mine since the early 1980's. The Waihi East area covering the Correnso deposit and easterly extensions of the Martha system was historically held and explored by Amoco Minerals, Cyprus Minerals and a Coeur Gold-Viking Mining joint venture from whom Waihi Gold Company purchased the tenement area in 1998. These companies drilled approximately 18km in 60 holes in the Waihi East area and identified some remnant resources on the eastern end of the Martha vein system on which they undertook scoping studies. OceanaGold purchased the Waihi Gold Company in 2015. • Previous exploration by Amoco and BP Minerals at WKP in the 1980s and 1990s was focused on sheeted stockwork veins exposed in stream channels through the prospect. Newmont as the operator of a WKP joint venture with Glass Earth in 2009-2013 identified and drilled several larger structures, encountering significant results in some holes. The Newmont/Glass Earth interest was subsequently purchased by OceanaGold in 2015.
Geology	• The Au-Ag deposits of the Waihi District are classical low-sulphidation adularia-sericite epithermal quartz vein systems associated with north to northeast trending faults. Larger veins have characteristically developed in dilational sites in the steepened upper profile of extensional faults often with narrower splay veins developed in the hanging wall of, or between more than one major vein structure. Gold occurs exclusively within quartz vein structures, usually as electrum. Free gold is only rarely observed. **Martha underground and Martha phase 5 open pit** • These two projects are focused on the large Martha vein system, a complex vein network largely comprising a dominant southeast-dipping Martha vein (up to 30m thick in places) and several NW-dipping hanging wall splays including the Empire, Welcome, Royal and Rex veins. • Two additional steeply dipping, NNE-trending and well mineralised vein structures known as the Edward and Albert veins also form an important part of the overall Martha Vein System. • The host rocks are andesitic flows, intrusives and volcaniclastics which have undergone pervasive hydrothermal alteration. Much of the Waihi area, including the Martha open pit is overlain by post-mineral volcanics (Figure 2.2). **Gladstone** • The Gladstone deposit forms the southwestern extent of the mined Favona and Moonlight deposits. • Mineralisation at Gladstone is characterized by shallow-level, hydrothermal breccias and associated banded quartz veins between 1000mRL and 1150mRL. The breccias are rooted in the tops of mineralised quartz veins, flaring upwards into hydrothermal explosion breccias. The dominant veining at Gladstone trends ENE to NNE between 035° and 080° and dips steeply to the SE. **WKP**

Criteria	Commentary
	• Low sulphidation epithermal quartz veins at WKP are hosted in a rhyolite flow dome complex with overlying and interfingering lithic lapilli tuffs which are in turn partially overlain by post-mineral andesites. The rhyolites have undergone pervasive hydrothermal alteration, often with complete replacement of primary mineralogy by quartz and adularia with minor illite and/or smectite clay alteration. • Gold mineralization occurs in quartz veining developed along two types of structurally-controlled vein arrays. The principal veins occupy laterally continuous, NE trending (025-047°), moderately dipping (60-65°) district-scale graben step faults, reaching up to 10m in width. Subsidiary, extensional veins (1-100cm wide) are developed between or adjacent to the principle fault hosted veins. These veins often form significant arrays and are moderate to steeply dipping with a more northerly to NNE strike and appear to lack lateral and vertical continuity compared to the fault hosted veins. The primary structure targeted by much of drilling at WKP is the Eastern Graben Vein (EG-Vein), compared to the more westerly T-Stream and Western Veins (Figure 2.3). In general, there are very few sulphides other than pyrite in the WKP veins.
Drill hole Information	• See Table 2 in the announcement, which lists for each hole with a significant intercept, the hole ID, intersection depth, downhole length and estimated true width of the intersect where possible to determine. • The declaration of a mineral resource for the Martha phase 5 cutback relates to updated modelling and economic assessment of historic data acquired over the course of the company's 32-year operating history mining the Martha deposit.
Data aggregation methods	• Compositing of data for grade estimation is within distinct geological boundaries, typically within modelled veins. • The grades are compiled using length weighting. • Grades are not cut in the database; however appropriate statistically derived top-cuts are assigned by domain in the estimation process.
Relationship between mineralisation widths and intercept lengths	• Drill intercepts are typically reported in true width where reliable orientation data is available or able to be inferred from angle to core axis, alternately down hole lengths are reported when orientation data is not available. Holes are designed to intersect veins at more than 60 degrees to the vein as much as practicable.

Diagrams	 *Figure 2.1 Map showing the minerals permits held by OceanaGold, areas of Conservation Land and Osisko Royalties in the area surrounding Waihi.*

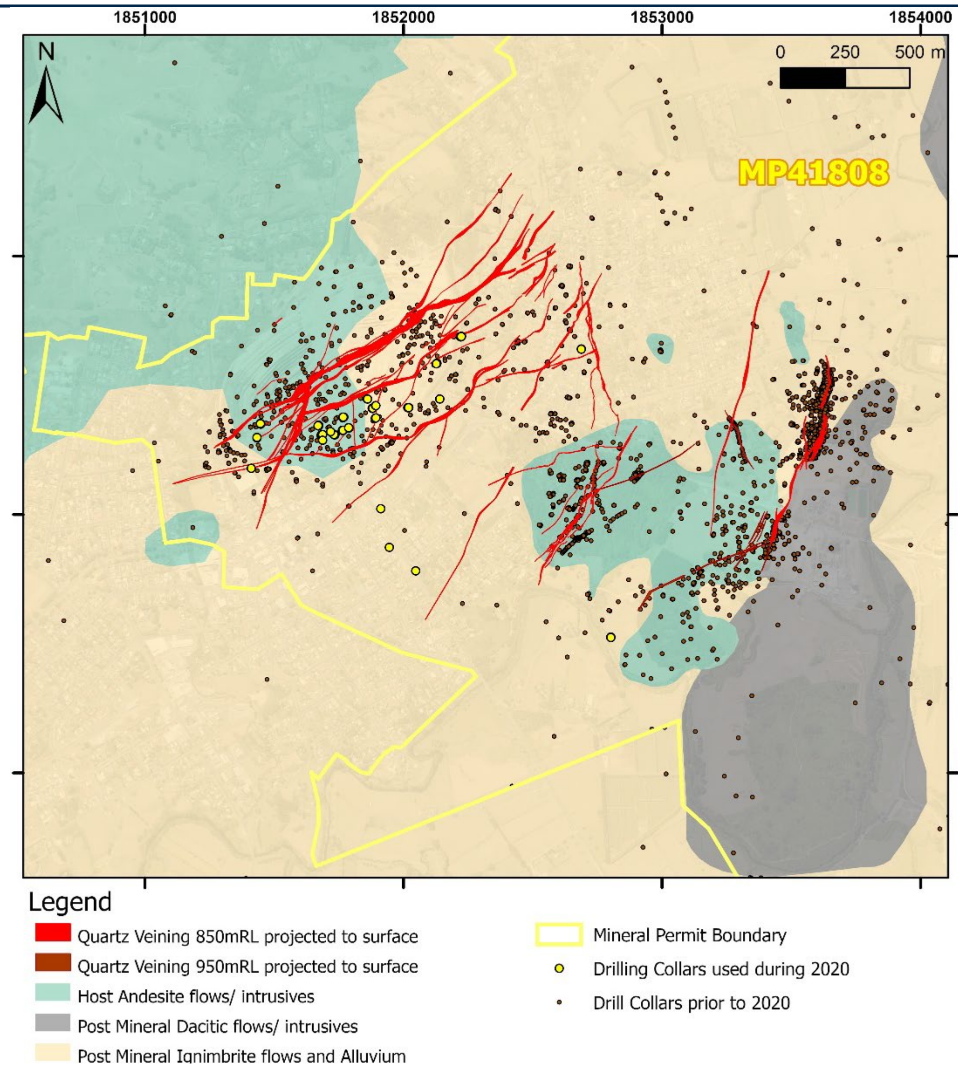


Figure 2.2: Simplified geological map of the Waihi area and positions of diamond drill collars

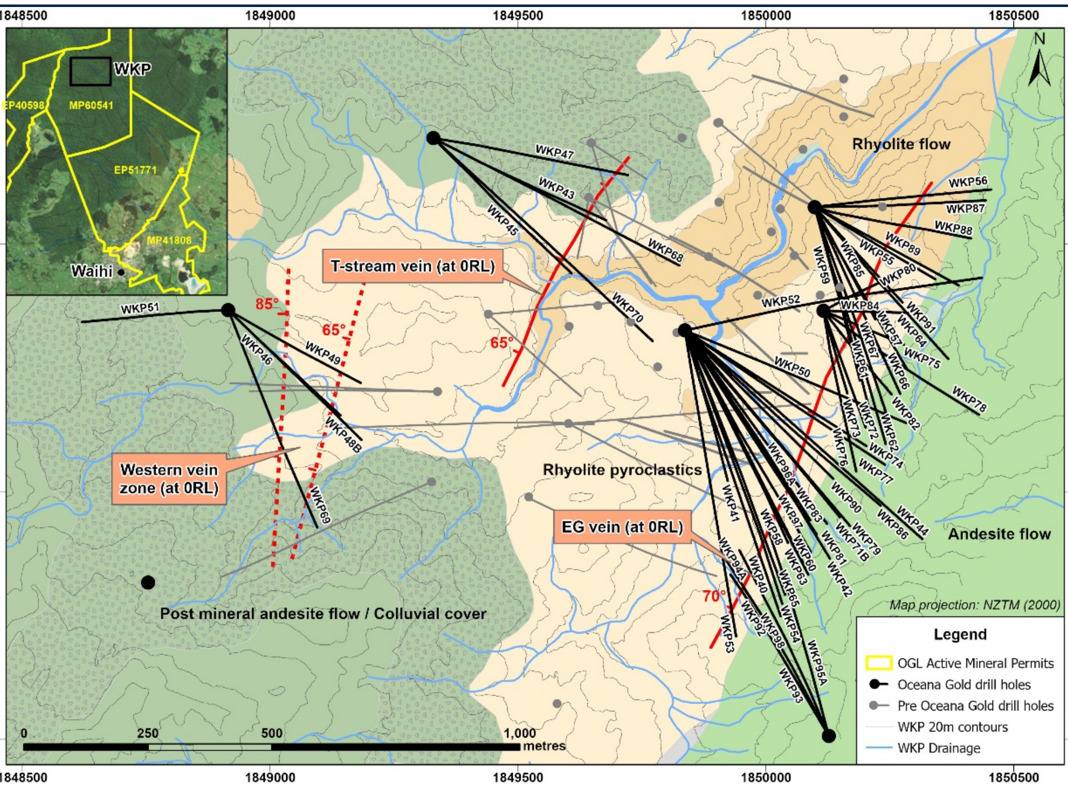
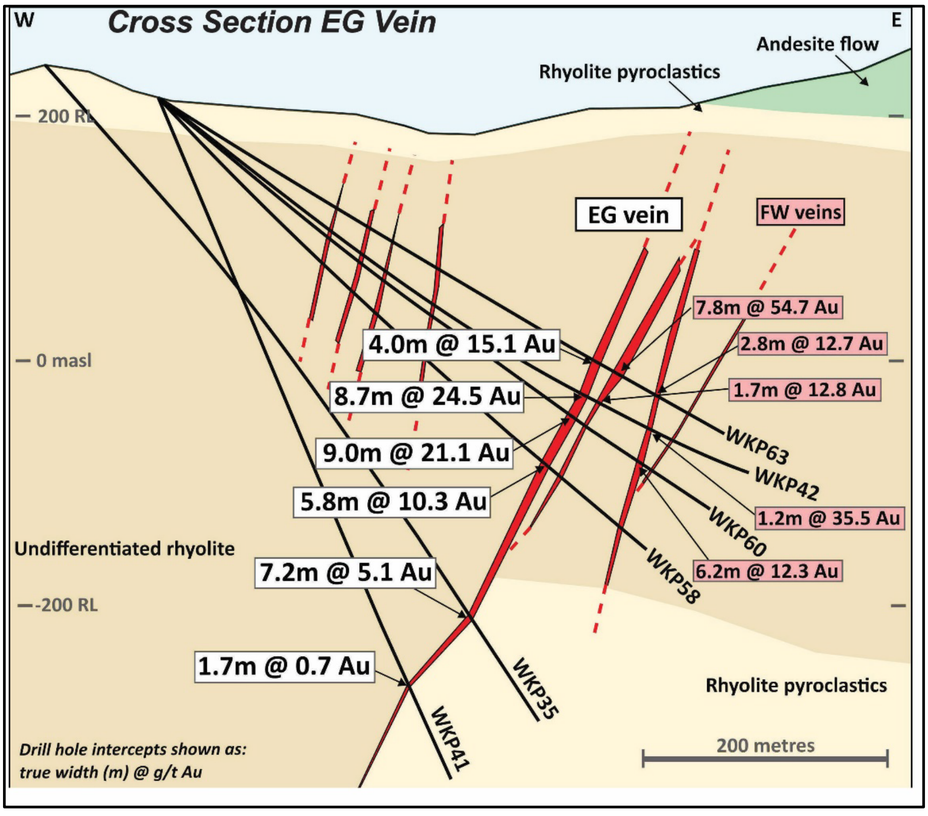
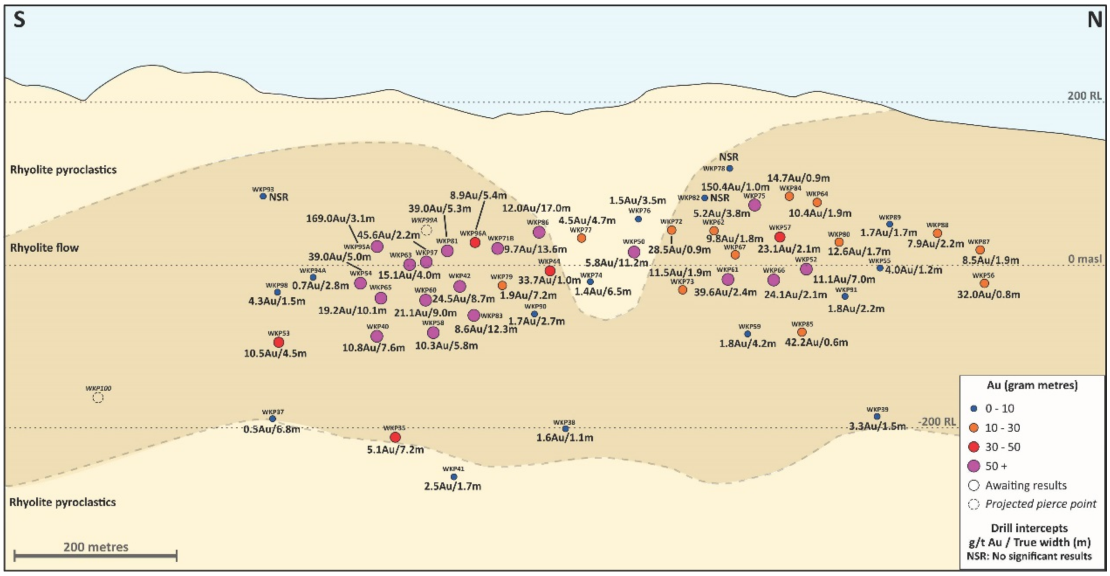


Figure 2.3: Simplified map showing surface geology, drilling and main vein zones at the WKP project (to Dec 2020)



	 *Figure 2-4: Simplified Cross and Long Sections of the EG vein at WKP*
Balanced reporting	• Recent Waihi drill hole information is available from www.oceanagold.com.
Other substantive exploration data	• OceanaGold is continuing with exploration programs within the district on permits MP41808, MP60598, EP 51771, EP40598, EP40813, EP51041, EP51630, EP52804, EP60148 and EP60149. • Exploration drilling is continuing to test the resource potential at WKP. Two drill rigs have completed approximately 4000 meters in 10 drillholes during the 2020 exploration period. • Metallurgical test work has been completed on WKP ore samples in three rounds of test work. Test work has been carried out at ALS Laboratories in Perth. Crush material derived from drill core samples have been composited with each sample composite containing approximately 30kg of sample material. • The first round of test work was conducted on two sample composites from the 'East Graben vein' with the composite samples sent away for Gravity Leach and Direct Leach test work. • The second round of test work was conducted in two parts. Part one included sample composites from the 'East Graben' vein and other geologically distinct domains, including the 'East Graben Hanging Wall' veins and the 'East Graben Footwall' veins. One sample composite was tested from each geological 'domain'. These samples were tested for Batch Flotation, Gravity Leach and Direct Leach test work. Part two of the second round tested five composite samples from the 'East Graben vein' over a wider spatial spread and tested more variable ore types with regards to Au grade and distribution of other elements. These samples were tested for Batch Flotation, Flotation Concentrate Leach, Flotation Tails Leach, Gravity Leach and Direct Leach test work. • The third round of test work was conducted on four composite samples from the 'East Graben' Vein and two composites samples from the 'East Graben Footwall' veins. The samples were tested for Batch Flotation, Flotation Concentrate Leach and Flotation Tails Leach. These tests were conducted at a variety of grind sizes, including at 106um, 90um and 75um respectively. Direct Leach test work was also carried out at a grind size of 53um and 38um. • A programme of Comminution Testwork has also been completed by JKTech on nine selected WKP vein sample composites. The samples were subject to the following

	comminution tests: SMC Test; JK Bond Ball, Bond Abrasion Index; and a Bond Rod Mill Work Index. The samples were determined to be moderately hard to hard in terms of resistance to impact breakage and hard to very hard in terms of resistance to grinding.
Further work	• OceanaGold continues to drill in the Waihi area, with 7 km of drilling planned for resource infill and 20 km planned for resource / reserve conversion for the Martha Underground project and an additional 10 km planned to advance the WKP project in 2021.

Section 3. Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	• Drill hole data is initially captured in an Access Database used for drill hole planning and management. That data is validated by several inbuilt data-entry checks. • The data is imported from Access into the main AcQuire database interface which includes validation protocols. • Personnel are well trained and routinely check source versus input data during the entry process. • The Martha underground model r1120_mug_subblocked_fnl.bmf incorporates all available data, exploration diamond drilling, in-pit channel grade control data and in-pit RC grade control data have all been utilised in both the building of the geologic model and in the grade estimate. • In the construction of the MUG model it was recognised that there is significant historic crosscut data from the historic level development (circa 1880 to 1930) that could be utilised to aid in estimating grade particularly in the poorly drilled portions of the deposit. This legacy crosscut data is of unknown quality, grade historically was recorded as an economic value and a gold equivalent value was back calculated for this data set previously. The legacy crosscut data is utilised in the construction of vein wireframes. This data is excluded from the grade estimation for material reported under this report. • The cross-cut data was reviewed spatially and only data that spanned the full width of the vein was selected for utilisation in the vein wireframe construction. This data was further limited to only the second pass grade estimation pass which is utilised on an on-site basis purely as an aid to drill planning. • Each dataset was extracted independently from the parent Waihi AcQuire database for EDA purposes. Local Vulcan isis databases are created with the extracted data. These local databases are then flagged with domain codes and utilised for all subsequent processes
Site visits	• Peter Church has been employed at the operating mine since 2011. He is employed in the role of Principal Resource Geologist with responsibility for resource estimation. • The wider resource development team is site-based and familiar with mine geology and exploration protocol. Validation of interpretation is regularly performed during mine development. • In the preparation of the Martha underground model, OceanaGold Group Geologist Tim O'Sullivan was consulted with regards to some technical considerations in the construction of the models for the Martha and WKP deposits. Past Group Geologist Mike Stewart has also been widely consulted in the construction of various other models that contribute to the combined Martha, Gladstone and Wharekirauponga (WKP) Resource. • Martha underground resource estimation protocols were independently reviewed and deemed fit for purpose in 2018 by Entech Pty Ltd during project study work. • RSC Consulting Limited (RSC) was commissioned by OGC in Q4 2020 to verify that exploration data and resource estimation domains are fit for the purpose of classifying an Indicated Mineral Resource in accordance with the JORC Code (2012). Spot-checking and data verification were conducted to provide further confirmation that the data quality management system has delivered fit-for-purpose data.
Geological interpretation	**Martha Resources** • Open pit and underground mining since 1988 have provided a large database of mapping and grade control sampling, which has confirmed the geological interpretation to date. • The geologic interpretation processes utilised in construction of all Waihi Models utilizes log data, assay data, underground face and backs mapping – where available, digital core photos and oriented core measurements, all of which are systematically collected

Criteria	Commentary
	and validated. The dip and dip direction of significant veins, faults, bedding and geological contacts are estimated from oriented core measurements. • Gold mineralisation is confined to quartz veins and is not disseminated in wall rock; therefore, the main vein boundaries are usually coincident with assay intervals, which attempt to honour the geology. There are a small number of instances where high grade assay results located immediately outside the main vein boundary have been included within the vein wireframe; such as where the grade is interpreted as belonging to small-scale, localized, parallel or sub-parallel veins / stringers rather than being attributed to contamination or a cross-cutting structure. • Geological modelling of the Martha Underground project was performed in Leapfrog Geo 6.0 using the interval selection and vein systems tools. The project was linked directly to the ADMWAIHIEXP AcQuire database using the AcQuire API. • Key geological features are interpreted from a combination of spatially referenced logging, assay and mapping data. Domain-specific grade and geological continuity characteristics were created to create representative wireframes of vein structures. The following data sources contribute to final wireframe shapes: o Exploration drilling data – Diamond and rare RC o Open Pit Grade Control channel samples and RC samples o Historic Quartz Vein Mapping o Historic mining triangulations o Surface mapping o Full width historic x-cuts o Core Photography and Logs • Diamond drilling intersects were assigned to structures from a merged assay and geology table. Discrete colourmaps were used to ensure that only distinguishing features were selectable. Criteria commonly used to determine inclusion within a vein include; o Au and Ag values o Vein quartz percentage o Composition of the interval, commonly quartz or quartz-calcite o Lithology type, including void intercepts (for example stope fill, open stope, cavity) o Brecciation type and intensity • Filters were commonly applied to identify primary structures within dense data. These were modified on a vein-by-vein basis and compared to core photography to establish geological consistency between veins. • A structural database was constructed using the structural modelling functions in Leapfrog Geo. Oriented discs were used to inform intercept relationships, with structure type, thickness and measurement confidence commonly used as filters. • The digital core photographic record is used extensively during the modelling process. Identifiable characteristics of veins can be recognised, such as mineralogical and textural characteristics, the nature of contacts, and the existence and relative timing of mineral phases within the vein zones. The mineralized veins have a distinctive appearance, and common textures and mineralogy - consisting of chlorite-smectite clays and base-metal sulphides, along with quartz, and which are commonly complex due to internal multi-phase syn- and post-mineralisation deformation, quite different to barren veins such as the 5995 (calcite-quartz lode). Another reference used to guide the geological interpretation is the mapped geometry of veins that have been mined previously. Waihi veins are characterised by sinuous deflections that tend to be continuous over a

Criteria	Commentary

	considerable vertical extent. Where the orientation data varies along the length of a given vein, or down dip, it is considered in context of the overall geometry of the deflections.
	• Geological models are integrated with regional geology and with detailed surface topographic models, which are routinely updated by mine surveyors. Geological models and geological concepts have been routinely reviewed by internal and external reviewers.
	
	Wharekirauponga (WKP)
	
	• The geologic interpretation processes utilised in construction of the WKP model utilizes log data, assay data, underground face and backs mapping – where available, digital core photos and oriented core measurements, all of which are systematically collected and validated. The dip and dip direction of significant veins, faults, bedding and geological contacts are estimated from oriented core measurements.
	• Gold mineralisation is confined to quartz veins and is not disseminated in wall rock; therefore, the main vein boundaries are usually coincident with assay intervals, which attempt to honour the geology.
	• Geological modelling is performed in Leapfrog Geo 6.0 using the interval selection and vein systems tools. The project was linked directly to the ADMWAIHIEXP AcQuire database using the AcQuire API.
	• Key geological features are interpreted from a combination of spatially referenced logging, assay and mapping data. Domain-specific grade and geological continuity characteristics were created to create representative wireframes of vein structures. The following data sources contribute to final wireframe shapes:
	  o Exploration drilling data – Diamond and rare RC
	  o Surface mapping
	  o Core Photography and Logs
	• Diamond drilling intersects were assigned to structures from a merged assay and geology table. Discrete colourmaps were used to ensure that only distinguishing features were selectable. Criteria commonly used to determine inclusion within a vein include;
	  o Au and Ag values,
	  o Vein quartz percentage,
	  o Composition of the interval, commonly quartz or quartz-calcite,
	  o Lithology type, and
	  o Brecciation type and intensity
	• Filters were commonly applied to identify primary structures within dense data. These were modified on a vein-by-vein basis and compared to core photography to establish geological consistency between veins.
	• A structural database was constructed using the structural modelling functions in Leapfrog Geo. Oriented discs were used to inform intercept relationships, with structure type, thickness and measurement confidence commonly used as filters.
	• The digital core photographic record is used extensively during the modelling process. Identifiable characteristics of veins can be recognised, such as mineralogical and textural characteristics, the nature of contacts, and the existence and relative timing of mineral phases within the vein zones.
	• Geological models are integrated with regional geology and with detailed surface topographic models, which are routinely updated by mine surveyors. Geological models and geological concepts have been routinely reviewed by internal and external reviewers.

Criteria	Commentary
Dimensions	**<u>Martha underground Resources</u>**

- **<u>Martha Underground</u> –** r1120_MUG_subblocked_ fnl.bdf block model was constructed in Mt Eden old grid.
  - Origin: X 395200; Y 642200; Z 500 (Mine Grid)
  - Rotation: Bearing 065; Plunge 0; Dip 0
  - Parent cell size 10.0m X, 10.0m Y, and 10.0m Z
  - Sub blocking cell size 1.0m X, 1.0m Y, and 1.0m Z
  - Offset in X direction 1600m
  - Offset in Y direction 1200m
  - Offset in Z direction 700m

<u>Martha Phase 5 Pit</u> – r1119_MOP_ph5

Variable	X	Y	Z
Origin	395150	642330	500
Extents (m)	1700	950	700
Block Size (Parent)	5	5	5
Sub Block Size	1.25	1.2	1.25
Orientation	+65 degrees	X axis around Z	

- **<u>Gladstone Project</u>** - Block definition for the Gladstone deposit
  - r0218_GLOP_small_reg.bdf
  - Regularised block model – cell size. 2.5 m
  - Offset in X direction 400m
  - Offset in Y direction 800m
  - Offset in Z direction 300m
  - Origin: X 396600: Y 642200: Z 900.0
  - Rotation: Bearing 135; Plunge 0; Dip 0
- **<u>WKP</u>**
- Block Model Dimensions – WKP0120.bmf

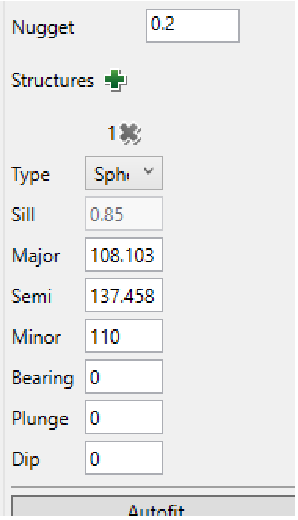
Variable	X	Y	Z
Origin	2759700	6429325	-345
Extents (m)	900	1000	620
Block Size (Parent)	10	10	10
No. of Blocks (Parent)	280	164	62
Sub Block Size	0.5	0.5	0.5
Orientation	+100 degrees	X axis around Z	

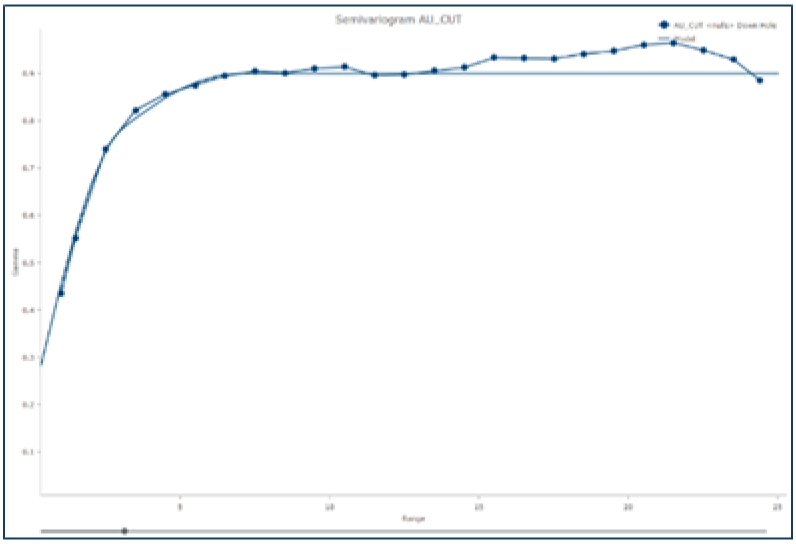
Criteria	Commentary
	•
Estimation and modelling techniques	**Martha Resources** • The modelling process employed in the grade estimation for all the Waihi projects is performed using numerous Vulcan and Leapfrog processes summarized in the steps outlined below: o Input data Validation o Update lithological domains, geologic model construction, o Data selection, Drill hole data selection from the site AcQuire database o Exclusion of unwanted drill holes by data type o Flag data files by lithology, o Composite drill holes to fixed length composites within defined geological boundaries, typically 1m using length weighting, o Exploratory data analysis by domain, generation of domain and data type summary statistics o Variography o Assign top cuts by domain and data type to input data files o Block Model construction based upon lithological wireframes, o Run estimation for all domains for Au, Ag, As, Resource Classification, o Assign density, mining depletions, back fill grade, stripping of negative values from non-estimated blocks, assignment of grade to dilution domains o Classify model, • Vulcan version 12.0 was used to produce model estimations. Estimations were performed in individual lithological domains using length weighted down hole composites. • Sub-blocking with either ordinary kriging (OK) or inverse distance weighting to the second power (ID2) is used for all underground models. ordinary kriging in conjunction with tetra-unfolding –has repeatedly demonstrated to produce outputs that are consistent with those achieved using ID2 and also produce acceptable reconciliation between resource and mill in the case of the underground projects that have been in production over the mines recent history. The method of unfolding was adopted for the estimation of vein models as a way of dealing with the sinuous character of the veins. • The underground block models are rotated in bearing to align with the dominant strike of the veins and they are run using Vulcan software. Sub-blocking is used to define narrow veins and to maintain volume integrity with the geology solids. The grade estimation for all models is strictly controlled by the geology, with both sample selection and estimation of blocks limited to domains defined by the geology interpretation solids. Gold is estimated using one of the following methods; either - a single pass with a combined channel and drilling dataset; OR - two-pass estimation using a combined dataset with short search range first, then followed by a second pass using drillhole data only with longer search ranges to estimate blocks not estimated in the first pass. Compositing • Composite weighting by length was applied during estimation to avoid bias from very small, high grade composites. There has been no change to the compositing method for any Waihi projects used since May 2010. • The standard method used to define composites for all resources was to flag the raw data in the local drilling database for the project against the geology solids. The Vulcan compositing program (run length) was run to generate a length composited database at the required sample length. Compositing was by fixed length, honouring the domain

Criteria	Commentary
	boundaries. 1 m fixed length composites are routinely generated for the narrow veins across all deposits. There are five vein-based domains in the Martha underground project that have a vein width of greater than 10 m, these broader domains are composited to a 2 m fixed length interval. • For narrow domains across all underground deposit the drilling data is composited to a 1m composite length using the distributed technique, this methodology is consistent with the techniques applied for the Waihi deposits. Composite weighting by length is applied during estimation to avoid bias from small, high grade composites. • Open pit models are estimated using larger composites. Vein domains are composited to a 1.5 m length and bulk domains to 3 m, this being representative of the mining bench height and therefore the implied mining selectivity inherent in the model. Grade Capping • Reconciliation history for the Waihi project has demonstrated that some level of high-grade restriction is necessary to limit the influence of outliers on grade estimates for the epithermal veins that have been mined during the operations history. • Statistical assessment of the input data is undertaken by domain, typical top-cut selection is based on the assessment of the population distribution characteristics and for inverse distance estimates cutting at the 98th percentile on the log probability distribution has been a long-standing methodology that has produced acceptable results. Estimates using an ordinary kriged estimation scheme utilise a 99th percentile threshold. • The use of this method in determining top cuts has resulted in good reconciliation historically. Typically, different data types are assessed independently in the capping analysis process. • The Martha Underground estimate is based on an Ordinary Kriged Estimation plan and based on comparative assessment of the Ordinary Kriged outputs a top-cut % of 99 has been adopted for kriged estimates. • The metal removed analysis includes tabulation of the following: ○ Number of samples above the cap ○ Percentage of samples above the cap ○ Minimum, maximum, mean, and variance of samples above the cap ○ Mean and variance of uncapped data ○ Mean and variance of capped data ○ Capped % difference: $\frac{(\text{uncapped mean} - \text{capped mean})}{\text{uncapped mean}} \times 100\%$ ○ Contribution of the samples above the cap to the uncapped variance: $(\text{mean above the cap} - \text{uncapped mean})^2 \times \frac{\text{\% of data above the cap}}{\text{uncapped variance}}$ ○ Contribution of the samples above the cap to the total metal: $(\text{\% of data above the cap}) \times \frac{\text{mean of data above cap}}{\text{uncapped mean}}$ Variography • Down hole and directional variography are typically run using Snowden Supervisor v7 software or Vulcan Version 12.0. Variograms are run to test spatial continuity within the selected geological domains. • The process of domaining in the Waihi deposits removes the majority of the variance and consequently compromises the variogram modelling process. The best variography is therefore obtained for the Martha deposit when un-domained data is utilised. Variogram orientation is defined for each domain based on the strike and dip of the veins as modelled. Both downhole and omni-direction variograms have been defined that fitting of

Criteria	Commentary

a variogram model. The variogram structure is defined using a standardised spherical single structure model with parameters as follows:





Estimation / Interpolation Methods

- Veins for the Martha underground model were interpreted using Leapfrog software. Vein and geology wireframes were then utilised to construct a block model within Vulcan. Compositing of data for grade estimation is within distinct geological boundaries. For this model the vein domains were estimated using Ordinary kriging and tetra unfolding was employed to deal with complex vein geometries and to aid in resolution of the grade distribution and sample selection for the estimation.
- The Martha Underground block model is rotated in bearing to align with the dominant strike of the veins and they are run using Vulcan® software. Sub-blocking is used to define narrow veins and to maintain volume integrity with the geology solids. The grade estimation for all models is strictly controlled by the geology, with both sample selection and estimation of blocks limited to domains defined by the geological interpretation solids. Gold is estimated using one of the following methods; either - a single pass with a combined channel and drilling dataset; OR - two-pass estimation using a combined dataset with short search range first, then followed by a second pass using drill hole data only with longer search ranges to estimate blocks not estimated in the first pass.

Criteria	Commentary

WKP

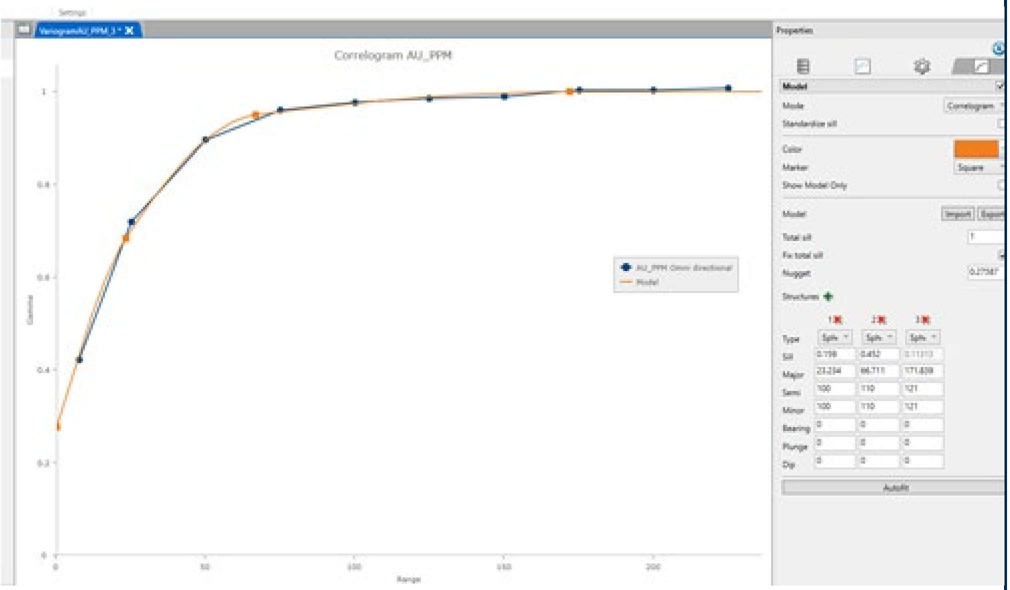
Grade Capping

- Reconciliation history for the Waihi project has demonstrated that some level of high-grade restriction is necessary to limit the influence of outliers on grade estimates for the epithermal veins that have been mined during the operations history.
- Statistical assessment of the input data is undertaken by domain, typical top-cut selection is based on the assessment of the population distribution characteristics and for inverse distance estimates cutting at the 98th percentile on the log probability distribution has been a long-standing methodology that has produced acceptable results. Estimates using an ordinary kriged estimation scheme utilise a 99th percentile threshold.
- The use of this method in determining top cuts has resulted in good reconciliation historically. Typically, different data types are assessed independently in the capping analysis process.

Variography

- The process of domaining in the WKP deposits removes the majority of the variance and consequently compromises the variogram modelling process. The best variography is therefore obtained for the deposit when un-domained data is utilised. Variogram orientation is defined for each domain based on the strike and dip of the veins as modelled. Both downhole and omni-direction variograms have been defined that fitting of a variogram model. The variogram structure is defined using a standardised spherical single structure model.

Figure 3-1: Omnidirectional variogram – WKP all data,



Estimation / Interpolation Methods

- Veins for the WKP underground model were interpreted using Leapfrog software. Vein and geology wireframes were then utilised to construct a block model within Vulcan. Compositing of data for grade estimation is within distinct geological boundaries. For this model the vein domains were estimated using Inverse distance estimation techniques.
- The WKP block model is rotated in bearing to align with the dominant strike of the veins. Sub-blocking is used to define narrow veins and to maintain volume integrity with the geology solids.

Criteria	Commentary
	• The grade estimation for all models is strictly controlled by the geology, with both sample selection and estimation of blocks limited to domains defined by the geological interpretation solids. Gold is estimated using a single estimation pass.
Moisture	• Estimates of tonnage are prepared on a dry basis.
Cut-off parameters	• All cut-off grades have been estimated using a long-term gold price of USD1,700 and exchange rate of USD 0.71:NZD (NZD2,394/oz.) and silver price of USD17/oz. as advised by OGC. Estimated cut-off grades for the various Mineral Resources are shown below in Table 3-1.

Table 3-1: Resource Cut-off Grade Estimates

Area	Price NZD/oz.	Metal Recovery	Process Cost NZD/t	G&A NZD/t	Sustain Capex NZD/t	Mining NZD/t	Royalty %	Cut-off Grade
MOP5	2,394	90%	28	10	-	-4	2%	0.50
MUG	2,394	94%	33	20	9	90	2%	2.15
GOP	2,394	71%	25	10	-	-4	2%	0.56
WKP	2,394	90%	33	10	8	115	4%	2.50

- Inputs into the cut-off grade estimate include mining, processing, general and administration operating costs, sustaining capital and royalties and are based around the Waihi site previous operating experiences.
- Credits are provided within the open pits for mining costs as transport and placement of waste incurs an increase in costs when compared to material sent for processing.

Mining factors or assumptions

<u>**Martha Underground Project**</u>

<u>Hydrogeology</u>

- GWS Limited Consulting (GWS) have modelled the groundwater system in Waihi since the late 1980's.
- GWS report that a shallow groundwater system associated with volcanic ash, alluvium and completely weathered rhyolite tephra is present at shallow depth. Monitoring data shows that it is unaffected by mine dewatering except immediately adjacent to the Martha Pit. Shallow groundwater levels are controlled principally by rainfall infiltration, low surface soil permeability and natural and assisted drainage to surface water systems.
- GWS report that the higher volumes of water in the deeper aquifer are contained primarily in the quartz vein, the historic underground workings and infiltrated through the open pit which is more permeable than the surrounding andesite country rock. Water levels are maintained at the lowest underground mine level (705mRL) by the current underground pumping system.
- Further drawdown of the water table is required to extract the Martha Underground resource. Permits are in place for the drawdown of the water table to 500mRL. Boreholes have been installed and operational for further dewatering as part of the Martha underground. A slurry pump system has been installed on 790mRL capable of handling the high level of entrained solids for the other minor pump stations.
- GWS estimate the average daily pumping rates to dewater to 500mRL range from 14,000m^3/day to 16,700m^3/day.

<u>Historic Stope Modelling</u>

Stope Fill

- Accurate definition and appropriate assessment of historical workings is a key consideration for the Martha underground project.

Criteria	Commentary
	• Wireframes of the historic workings include development levels, open stopes, filled stopes, shafts, passes and the 'Milking Cow' caved zone. These wireframes are dynamic and are continually updated as current underground mining activity and diamond drilling intercept these old workings and historical plans become more readily available. • Recent underground mining provides the most accurate source of evidence to update the historical workings including mining through old workings, targeted probe holes and scanning of the old voids. • Logging geologists identify voids and stope material within the diamond drill core and provide an interpretation of the workings as open stopes or levels, filled stopes or collapsed stope zones. ***Methodology*** • Stope shapes were originally digitised using stope widths annotated from historical long-section plans. The stope orientation was determined by vein wireframes and/or known drill hole intercepts. • As new data for historical workings become available this it reviewed and the wireframes updated accordingly. • Individual stope files that are situated entirely within the open pit shell and the 'Milking Cow' collapsed zone are archived and not included in the stope model. ***Modelling of voids*** • Historical stope voids and backfill is captured in the model via the *mined* variable. No back filled material is included in the reported Mineral Resource, this material is regarded as an exploration target and will be de-risked through further exploration work.

Table 3-2 Historical Stoping Modelling Variables

Mined Variable value	Material Type	Modifying factors
0	In-situ	As estimated
1	Back filled stopes	Density and grade modified
2	Subsidence	Density and grade modified
5	Open stope	Density set to zero, grade removed
6	Open development	Density set to zero, grade removed

Criteria	Commentary
	<u>Geotechnical</u> • Ground conditions within the Martha underground project will be impacted due to proximity to historic mining voids. Mechanisms for mitigating the associated risks have been considered within the recently completed feasibility study. • AMC, engineering consultants, investigated the stability of the underground workings and reported that based on the current understanding of ground conditions, the planned ongoing investigation of conditions as suitable drilling positions become available, and the proposed cautious approach to development using close ground control techniques where required. AMC is confident that the proposed Martha underground mine can be developed and brought into production without any compromise to underground or surface stability. • AMC reported that the ground conditions influence the mining method, the means of access, and the design of stopes and access tunnels. A critical aspect of the Martha Underground Project is to undertake investigations to understand those conditions so that

Criteria	Commentary
	a safe and efficient mining method and well-informed approach to developing the mine is used. Mining Method • Mining method selection work for the Martha underground was undertaken by SRK in 2011, 2016 and 2017 and confirmed by Entech in 2018 and 2020 and by OceanaGold in 2020. • Four mining methods are proposed for Martha underground: 1. Modified Avoca with rockfill in virgin (previously unmined) areas. 2. Modified Avoca with rockfill in remnant areas adjacent to collapsed stopes separated by an intermediate pillar. 3. Modified Avoca with rockfill in remnant areas adjacent historical stopes filled with engineered fill (CRF / CAF) 4. Bottom upside ring method with CRF/CAF/RF where skins adjacent to historical backfill are extracted. Mining Recovery and Dilution • No mining recovery or dilution were applied to the Mineral Resource estimate. Mineral Resource Estimate • OceanaGold has estimated the Mineral Resource using the Deswik Stope Optimiser (SO). • The Mineral Resource is reported within the SO shapes above the 2.15 g/t cut-off grade. No unclassified material contained within the SO shapes is reported. • Nominal stope dimensions of 15 meters high by 10 metres in length were selected for the design. • Stope widths vary, depending on the thickness of the mineralisation. A minimum stope width of 0.5 meters was used and 0.5 metres of dilution was applied to both the footwall and hanging wall resulting in a minimum stope width of 1.5 meters. • A maximum stope width of 15 metres was used with a minimum pillar width between stopes of 8 meters. A maximum percentage of historical stoping of 10% was allowed in each SO shape. • The method of specifying the strike and dip angles for the initial stope-seed-shapes in SO was to apply a stope control surface wireframe over the full extent of the orebody where stope shapes are to be generated. • The following stope shapes were manually excluded from the Mineral Resource estimate: o Isolated stope shapes either showing lack of continuity or distant from the main concentrations of shapes. o Stopes closer than 50 meters from the surface. o Within a solid created as an exclusion solid around the historical “Milking Cow” zone by projecting the cave zone outwards by 20 meters. o All stopes intersecting the base of the Martha Reserve pit. • Figure 3-2 presents the SO shapes after exclusion based on geotechnical and economic assessment.

Criteria	Commentary

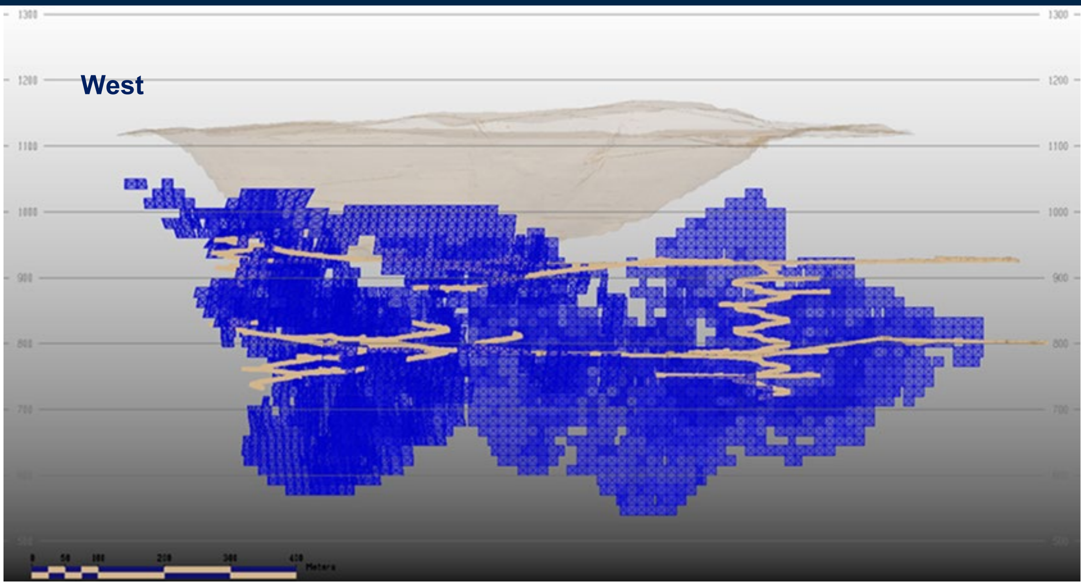


Figure 3-2: Martha Underground Mineral Resource Long Section

Martha Open Pit

- The MOP5 cutback was developed from a Whittle optimisation carried out in 2016 and further validated in 2017. Inputs comprised a maximum 7 Mt per annum operation and 1.5 Mt per annum processing throughput. Open pit slopes were generated for separate rectangular sub-regions based on different rock units calibrated with existing pit slopes and with allowance for haul roads. Processing and administration costs were estimated from the existing Waihi Operation. Mining costs were based on actual mining costs from 2006 to 2007 when the Martha Pit was operating at moderate production rates escalated by the Consumer Price Index (CPI).
- The Whittle optimisation and the optimum pit selected considered the proximity of the pit to the Waihi township, social and environmental constraints and the need for high geotechnical factors of safety and limits on encroachment.
- The design slopes for the MOP5 cutback are shown in Table 3-3. Berm intervals are generally 20 metres below 1090 mRL and 15m above 1090 mRL. In the past slopes to the south and south-west have been flatter due to effect of historic workings on the rock mass quality, the proximity of the town and presence of argillic andesite, Slopes to the east are the shallowest slopes due to presence of the post-mineral sediments comprising tuffs and alluvial layers as well as a weaker andesite unit.

Table 3-3: MOP5 Pit Slope Design Criteria

Bench (mRL)	Berm width	Face Height	South / West Walls	North-West Walls	North-East / South-East Walls	East Wall
1135 to 1150	5	15			35	
1120 to 1135	5	15	25		35	
1103.5 to 1120	5	16	30	35	35	30
1090 to 1103.5	7	14	45	55	60	35
1070 to 1090	7	20	45	65	60	30
1050 to 1070	7	20	50	65	55	45
1030 to 1050	7	20	55	65	55	55

Criteria	Commentary

1010 to 1030	7	20	55	70	55	45
990 to 1010	7	20	55	70	55	50
970 to 990	7	20	55	70	55	50
950 to 970	7	20	55	70	55	50
930 to 950	7	20	55	70	55	55
910 to 930	7	20	60	70	55	60
Below 890	7	20	60	70	60	60

- The pit encroaches towards the town centre, residential and low-density residential zones, and for this reason a plan change to the Hauraki District Plan will be required to consent this project.

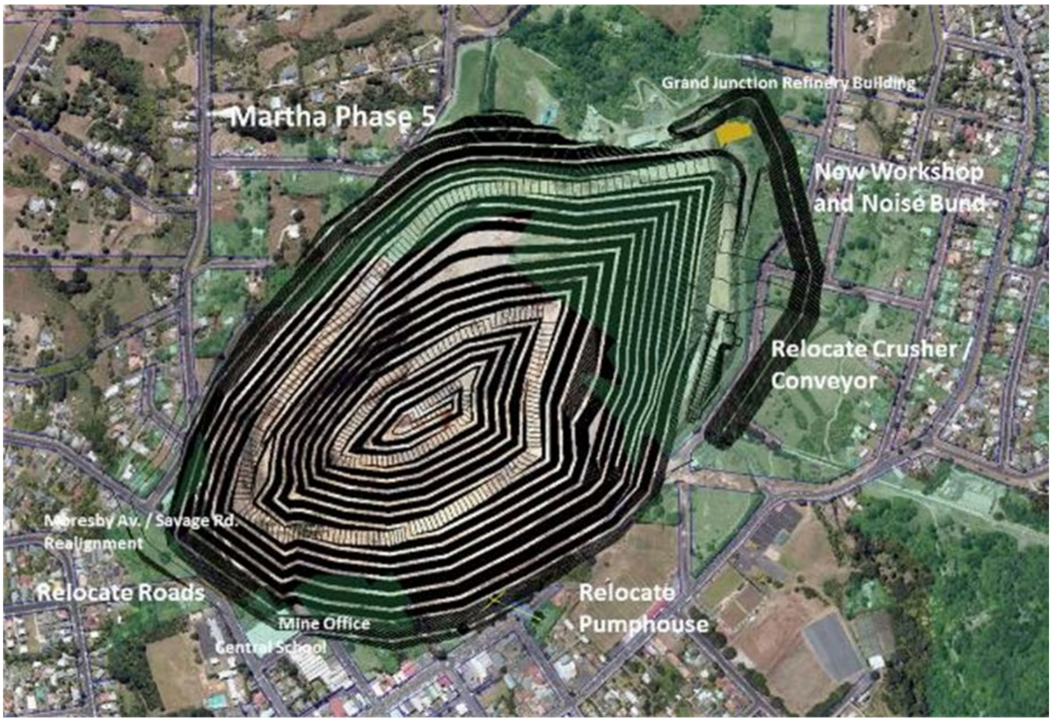


Figure 3-3: Martha Open Pit Conceptual Design

Hydrogeology

- The Martha open pit is already dewatered by the Correnso workings and the Martha underground. No additional dewatering will be required for the open pit resource.
- Any pit wall run-off captured in the base of the pit that is not lost or diverted into the underground will be removed by diesel pumping units and pumped into the historic workings or delivered to the WTP for treatment prior to discharge to the Ohinemuri River under the existing treated water discharge consent.
- The walls in the current pit have been depressurized using horizontal drain holes generally 20 metres long but up to 100 metres long. Drain holes in the existing east wall targeted bases of paleo-valleys and extracted up to 60 l/sec during drilling. The dewatering has been monitored with a network of piezometers around the pit perimeter. This practice should continue as required.

Geotechnical

- PSM has reviewed the design inputs into the slope model for the pit optimization and conceptual design, and concluded:

Criteria	Commentary
	◦ There are no "fatal flaws" in the planned mining. ◦ The slopes used to date are appropriate for the conditions at the level of study. ◦ The effect of historic workings on the slopes has been assessed and there are some areas where design modifications and or remediation will be required as part of future design works. ◦ Phase 5 will be the first pit excavated at Waihi where most of the slopes are outside historic underground cave and subsidence affected rock masses. This means there is probably significant upside potential in many of the deeper slope sections. ◦ Although geotechnical drill-hole coverage is limited, this is not considered an issue because there is substantial cored exploration drill-hole coverage in most areas of the Phase 5 pit. ◦ Notwithstanding the points above, there are information gaps in some upper walls; geological structure to the south; and general geological structure in some other walls that will need to be addressed in future studies. Mining Recovery and Dilution • The minimum mining width has been set at 2.5 metres wide. The selective mining unit developed for the geological block model is a bench height of 2.5 metres, and east west dimension of 2.5 metres and north south dimension of 2.5 metres with orientation reflecting the main trend of the mineralised veins in an east westerly direction. • The Mineral Resource zones are broad on each mining bench, and the overall dilution edge effects are minimal, with the result that there is expected to be little difference between the overall in situ and diluted tonnes and grade. The Mineral Resource block model has a block dimension which is larger than the optimum selective mining unit (SMU) for the equipment currently operating at Waihi. • No mining losses were applied. It is considered that the resource estimation technique applied to the broad mineral resource zones provides an adequate estimate of the Mineral Resource tonnes and grades. Reconciliation data from mining the Martha open pit also supports this approach. **Gladstone Open Pit** • The Gladstone Resource is reported within a conceptual pit design defined using a USD 1500 gold price, this resource is largely Indicated however approximately 10% of the contained metal within the Resource reporting pit shell is classified as inferred. • The method for estimating the Mineral Resource involved a 2018 pit optimisation study using the "Whittle" Lerch-Grossman algorithm to determine the economic limits. • Operating costs were estimated based on previous contractor rates for the Martha open pit conventional drill, blast, load and haul with standard mid-sized mining equipment. The selected mining method and design is appropriate for the Gladstone open pit. • Allowances in the costs estimates were made for separating waste into hard and soft material and further categorised into potentially acid forming or non-acid forming rock and placing in engineered structures. • Cut-off grades were reviewed in 2020 and reduced to 0.56g/t. • The conceptual pit design in shown in Figure 3-4. ***Figure 3-4: Gladstone Open Pit Conceptual Design***

Criteria	Commentary

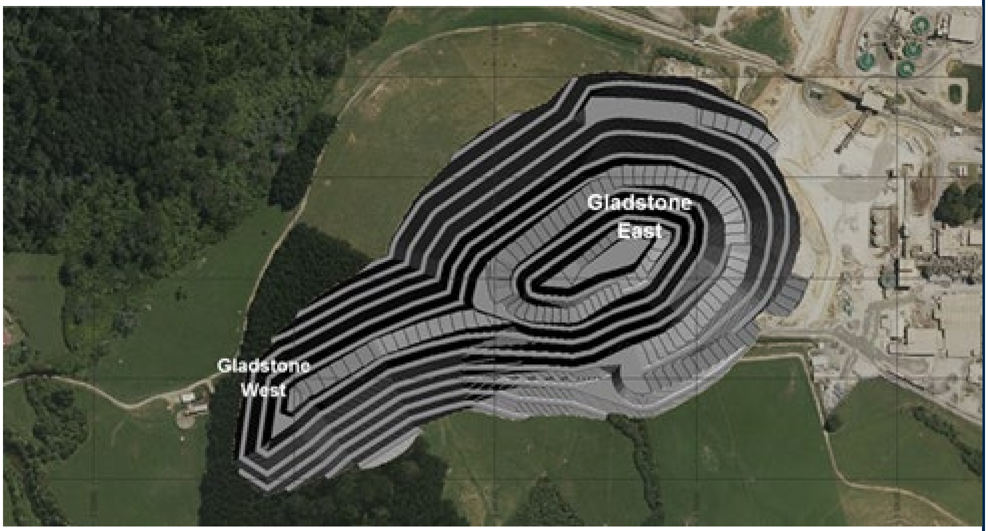
	
	
	<u>Hydrogeology</u>
	• Two aquifers are interpreted across the site, an upper aquifer within the surficial materials and young volcanics, and a lower aquifer within the andesite with the two aquifers partially separated by the lower permeability, weathered and hydrothermally altered cap at the top of the andesite sequence.
	• The model at Gladstone comprises:
	  o An upper perched groundwater system within the surficial materials of moderate to low hydraulic conductivity, with pore pressures below hydrostatic and a standing water level at ~1096mRL with seasonal fluctuation;
	  o A lower groundwater system in the Andesite with a standing water level of approximately ~1075mRL.
	
	<u>Geotechnical</u>
	• Geotechnical studies during 2017 on preliminary design concepts including geotechnical drilling, rock / soil testing and detailed core logging showed that the slopes in the Winner Hill pit and the northern slopes in Gladstone Hill were generally satisfactory under fully saturated or partially drained conditions. However, the southern and eastern upper slopes were shown to be marginally stable under fully or partially saturated conditions particularly where there was a significant depth of the surficial deposits.
	• The geological model shows the north-western wall will comprise andesite, overlain by a thin band of hydrothermal breccia and a relatively thin sheet of rhyolitic tuff/ignimbrite thickening to the south. The south-eastern wall has a thicker band of rhyolitic tuff/ignimbrite and hydrothermal breccia overlying andesite; and the east wall has the greatest thicknesses of dacite and volcaniclastics.
	• Design pit slopes were modified based on a detailed geotechnical study completed by PSM in early 2018 including three additional geotechnical holes and geotechnical modelling. Geotechnical domains were re-defined based on the recent analysis. The design criteria used to support calculation of Mineral Resources are reported in Table 3-4 below.

Table 3-4: Gladstone Pit Slopes

Pit Design Parameter	Bench Height m	Face Slope degrees	Berm Width m
Gladstone Pit			
• 1040 to 1100	15	60	5
• 1100 to 1140	10	40	5
• Breccias / Dacites	10	40	5
• Surface to 6m depth		35	
Haul Road Width	• 20m wide @1 in 10, surface to 1070, • 12m wide @ 1 in 9 to 1040		
Winner Pit			
• 1060 to 1085	15	60	5
• 1085 to 1100	15	55	5
• 1100 to 1130	10	55	5
• Surface to 8m depth		30	
Haul Road Width		18m wide 1 in 10	

Mining Recovery and Dilution

- The minimum mining width has been set at 2.5 metres wide. The selective mining unit developed for the geological block model is a bench height of 2.5 metres, and east west dimension of 2.5 metres and north south dimension of 2.5 metres with orientation reflecting the main trend of the mineralised veins in an east westerly direction.
- The Mineral Resource zones are broad on each mining bench, and the overall dilution edge effects are minimal, with the result that there is expected to be little difference between the overall in situ and diluted tonnes and grade. The Mineral Resource block model has a block dimension which is larger than the optimum selective mining unit (SMU) for the equipment currently operating at Waihi.
- No mining losses were applied. It is considered that the resource estimation technique applied to the broad mineral resource zones provides an adequate estimate of the Mineral Resource tonnes and grades. Reconciliation data from mining the Martha open pit also supports this approach.

WKP

Hydrogeology

- GWS report that the catchment area for the Wharekirauponga Stream is approximately 15 km^2 and with 2.17 meters/year rainfall, the average daily rainfall volume reporting to the catchment is in the order of 89,178 m^3/d, with most rainfall in winter although sub-tropical storms can produce heavy events in summer.
- GWS state that there are insufficient piezometers constructed within the WKP area to enable the development of a potentiometric surface and given the difficulties with site access may remain the case going forward. The potentiometric surface is, however, expected to mimic that of the surrounding topography.
- To date, two sets of piezometers, each having a shallow and deep well setting, have been constructed at the site. These piezometers indicate a vertically downward hydraulic gradient in the range of 0.55 to 0.59 m/m.
- Further work is still required to understand how groundwater interacts with surface waters around WKP and with the stream channels.

Criteria	Commentary
	Geotechnical • SRK have assessed the geotechnical data to establish the geotechnical characteristics and conceptual design elements for the underground mine. The assessment entailed: o Understanding the geological setting of the gold deposit; o Creation and population of an interpretable geotechnical property database based on the limited geotechnical core logging available; o Collection and recording of suitable core samples for rock property testing in a laboratory, supported by field estimates (point loads) of rock strengths; o Graphical representation, interpretation and reporting of recorded data, culminating that describes the geotechnical environment, and o Transformation of data into Barton's Q' value. • SRK recommended that the hydraulic radii shown in Table 3-5 be used for initial stope sizing by area and depth.

Table 3-5: Preliminary Geotechnical Parameters for WKP Stope Sizing

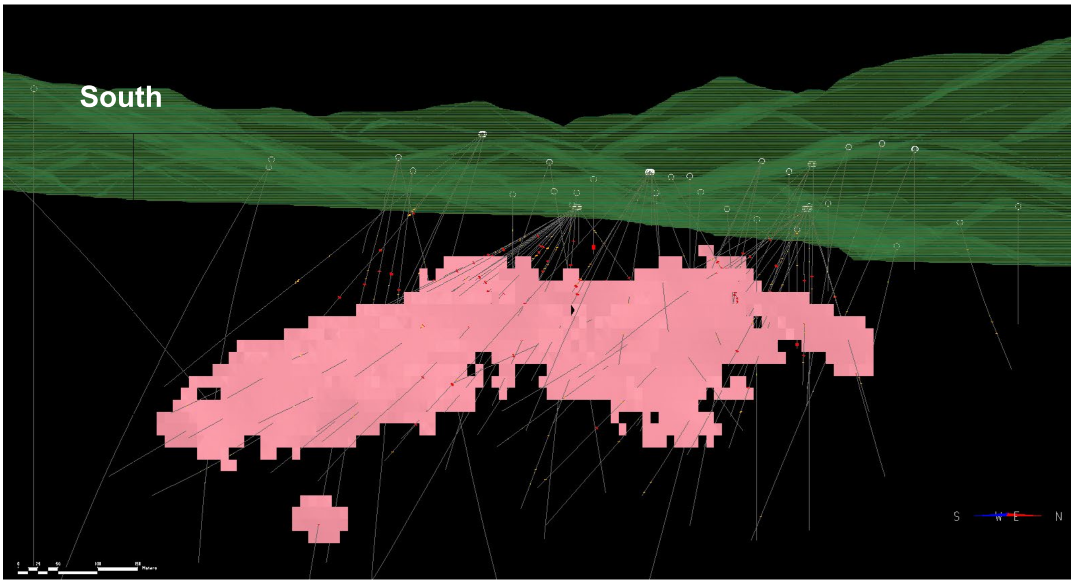
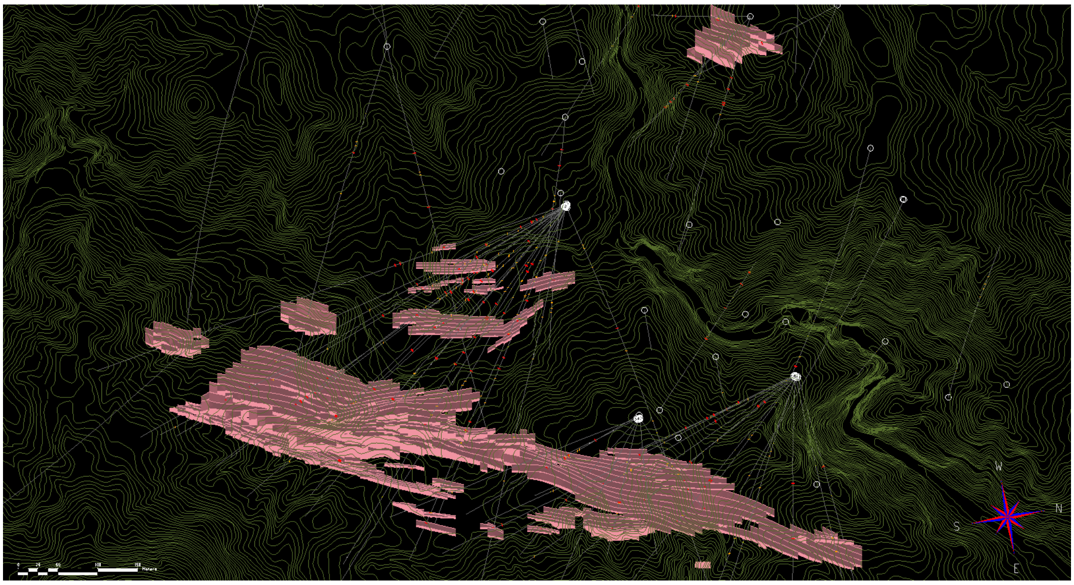
	Eastern Graben EG Rhyolite		Central Area Lapilli Tuff		Western T stream Rhyolite	
	HR min	HR max	HR min	HR max	HR min	HR max
80-160m	5.5	5.5	5.1	5.1	6.8	6.8
160-240m	4.8	5.5	4.5	5.1	6.8	6.8
260-320m	4.2	5.5	4.0	5.1	6.7	6.8

Mining Method

- Mining method selection work for the WKP Project was undertaken by SRK in 2019,
- SRK state both pillar and artificially supported methods are suitable for the WKP deposit. The deposit will not be able to be supplied an engineered fill such as paste or cemented hydraulic fill because the location of the processing plant is 10 km distance from the mine. Backfill for the mine could be either cemented rock fill or rock fill.
- The use of in-situ pillars was not considered by SRK due to the high grade of the Mineral Resource, as such if pillars are required these could be cemented fill rather than in-situ pillars.
- The existing OceanaGold operation Waihi use the Avoca mining method and SRK considers that Avoca mining method is also suitable for WKP.
- SRK recommended a sub-level height of 20m and stope strike length of 15 meters be adopted for stope optimisation which is within the preliminary geotechnical parameters with a HR of 4.3.

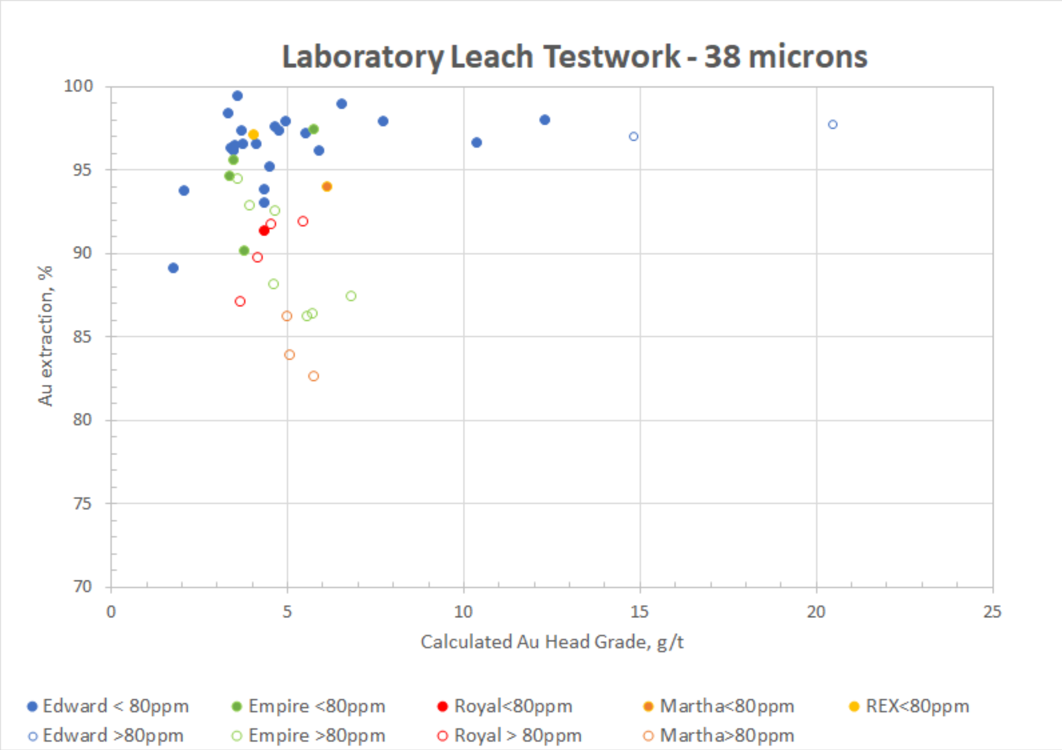
Mineral Resource Estimate

- OceanaGold has evaluated the Mineral Resource using the Deswik® Stope Optimiser (SO).
- The Mineral Resource is reported within the SO shapes above the 2.5 g/t cut-off grade. No unclassified material contained within the SO shapes is reported.
- Nominal stope dimensions of 15 meters high by 15 meters in length were selected for the SO.

Criteria	Commentary
	• Stope widths vary, depending on the thickness of the mineralisation. A minimum mining width of 0.5 meters was used and 0.5 meters of dilution was applied to both the footwall and hangingwall resulting in a minimum stope width of 1.5 meters. • A maximum stope width of 15m was used with a minimum pillar width between stopes of 8 meters. • The method of specifying the strike and dip angles for the initial stope-seed-shapes in SO was to apply a stope control surface wireframe over the full extent of the orebody where stope shapes are to be generated. • All shapes within 50 meters of the surface topography were excluded from the estimate. Figure 3-5 and Figure 3-6 present the SO shapes. ***Figure 3-5: WKP Mineral Resource Long Section***  ***Figure 3-6: WKP Mineral Resource Plan View***  Mining Recovery and Dilution • No mining recovery or dilution were applied to the Mineral Resource estimate.

Criteria	Commentary
Metallurgical factors or assumptions	**<u>Martha Underground Project</u>** • Prior to 2018 metallurgical test work has been completed on 30 composite samples of mineral resource intercepts from Edward (18), Martha (9), Welcome (1) and Empire East (2). Twenty-three samples were submitted to the Newmont Inverness testing facility. Six samples representing the Edward vein were submitted to Ammtec Laboratory in Perth, Western Australia. Samples were mostly submitted both as quarter core and as jaw crush reject material (95% <7mm), if both were available. • In 2019 a further 18 composites were tested from intercepts were submitted to AMML Laboratories in Australia for testing direct leach performance. • In 2020, 25 composites samples from intercepts were sent to the Macraes Laboratory for testing direct leach performance, and 22 composites samples were sent to JKTech for comminution testing. • Separately, flotation testing was done on 27 samples (Phase 1 - 9 samples, Phase 2 - 18 samples) at a grind size of 75 µm. Results from this testwork indicated that there is little to no recovery benefit at 1% sulphur grade. • Gold extraction results for historical, 2019 and 2020 samples at different grind sizes indicate that a 38 µm grind size provides the best gold extraction in the laboratory. On average for all metallurgical samples, gold recovery improvement between 38 µm and 53 µm is 0.70% for Edward, 0.90% for Empire, 3.10% for Martha, 2.4% for Royal and 0.90% for Rex. Plant operating experience has shown that an equivalent laboratory gold recovery at a P80 of 38 µm is equivalent to a grind size P80 of 53 µm in the plant. This relationship is due to the laboratory grind testwork being in open circuit, whereas in the plant the grinding circuit is in closed circuit. This results in the higher density sulphides being preferentially ground finer and hence liberating more gold particles that are disseminated within the sulphides. • Figure 3-8 shows gold extraction (recovery) for the historical,2019 and 2020 samples tested at a grind size of 38 microns against calculated gold feed grades. These results show a range of recoveries from 89% to 99% for the Edward samples, 83% to 94% for Martha samples, 86% to 97% for Empire, 87% to 92% for Royal and 92% to 94% for Rex samples. Figure 3.9 highlights the difference in gold recoveries for lower arsenic grade composites, i.e. below 80ppm As (solid circles), versus those, for high arsenic grade composites, i.e. above 80ppm As (hollow circles).; high arsenic grade composites typically show lower gold recoveries. The scheduled arsenic grades for the mine reserves are generally within the 25-75ppm range for which higher gold recoveries are expected. • Project work and metallurgical testing have shown Martha underground mineral resources to be amenable for processing via the existing Waihi treatment plant flowsheet and achieve practicable throughput rates, reagent and consumable consumption and process recovery. • A metallurgical recovery of 94% been used for the Mineral Resource cut-off calculation. ***Figure 3-7: Laboratory Leach Testwork Chart***

Criteria	Commentary

	
	<u>Martha Open Pit</u>
	• Martha open pit metallurgical recovery of gold is estimated at 90% and silver recovery is estimated at 63% based on the process plant performance and reconciliations over the last 30 years of operation extracting similar veins.
	<u>Gladstone Open Pit</u>
	• Laboratory scale test work has been conducted on the drill hole samples obtained for the Gladstone Mineral Resource. The key focus of the metallurgical work has been to derive gold recovery, throughput rates, reagent consumption and to confirm the suitability of current Plant configuration. This test work has shown the Gladstone mineral resource to be amenable for processing via the existing Waihi treatment plant flow-sheet. Recovery is shown to vary with the weathering extent of the Gladstone resource.
	• The weathered domain achieves higher recoveries than the primary un-weathered domain. Separate recovery relationships have been determined for the weathered and un-weathered domains. A small separate metallurgical domain characterised by the hydrothermal breccia host rock was also identified.
	• A grind size of P_{80} of 90 microns has been selected, as plant operating experience has shown that this is equivalent to a laboratory gold recovery at a P_{80} of 75 microns. The gold and arsenic relationship identified in Correnso resource is not observed in the Gladstone Resource. The statistically significant drivers of recovery within the Gladstone resource are weathering and gold head grade.
	• The recovery estimate from the test work is calculated at a P_{80} of 75 microns
	  ○ Weathered: Recovery % = 100 * (0.902 – (0.049 / Head Grade Au))
	  ○ Un-weathered: Recovery % = 100 * (0.85 – (0.452 / Head Grade Au))
	  ○ Hydrothermal Breccia: Recovery % = 74%
	• This relationship predicts an average recovery for the Gladstone Resource of 71% based on the average Mineral Resource grade of 1.5 g/t Au.

Criteria	Commentary

	WKP
	• During 2017 and 2018 a series of ten composite samples were generated from drill core obtained from the WKP EG vein across the long section and at varying depths in several test programs. A further 6 composites were generated from additional drilling and tested during 2019 from both the EG Vein and EG FW Vein. Twelve of these composites represent material in the main EG vein with the other four testing the adjacent footwall and hanging wall structures.
	• The composite samples were subjected to a standard suite of tests to characterise the recovery of gold from the samples via conventional mineral processing flowsheets similar to that employed at the Waihi process plant.
	• Testing on the composites was completed by ALS Metallurgy in Perth, Australia and included:
	    o Head assay and screen fire assay,
	    o Gravity gold recovery at 106 pm grind size,
	    o Cyanide leach of both gravity concentrate and gravity tails, and
	    o Sulphide flotation and leaching of flotation products.
	• The average gold recovery from leaching on the main EG vein samples averages 90.7% and suggests the majority of the EG vein material can be classified as free milling. The lower recovery experienced in composites 4 and 6 may be attributable to the higher sulphur feed grade and likely partially refractory locked in sulphides. Table 3-6 presents the testwork recoveries for each composite tested

Table 3-6: Metallurgical Testwork Samples and Recoveries

Composite No	Zone	Head Grade (Au g/t)	Grind Size P80 (pm)	Total recovery (%)
1	EG Vein	7.96	106	95.5
2	EG Vein	28.70	53	89.5
3	EG Vein	9.78	53	89.3
4	EG FW Vein	5.08	53	66.4
5	EG FW Vein	4.46	53	80.9
6	EG Vein	3.78	106	68.8
7	EG Vein	5.35	106	91.2
8	EG Vein	6.65	106	95.8
9	EG Vein	5.72	106	84.3
10	EG Vein	7.58	106	89.1
11	EG Vein	50.6	53	92.6
12	EG Vein	19.4	53	94.7
13	EG FW Vein	13.1	53	86.1

Criteria	Commentary
	<table><tr><td>14</td><td>EG Vein</td><td>17.7</td><td>53</td><td>96.2</td></tr><tr><td>15</td><td>EG FW Vein</td><td>62.8</td><td>53</td><td>93.4</td></tr><tr><td>16</td><td>EG Vein</td><td>22.6</td><td>53</td><td>94.6</td></tr></table> • Preliminary flotation testing at a P80 of 106 pm was completed on eight of the composite samples. The recoveries were not an improvement on the direct leach results and insufficient gold was recovered to the flotation concentrate to consider the flotation tailings a discard stream. • The 2019 composites examined the effect of grind size on overall recovery with average recovery increasing to 94.3% at a 38 µm grind vs a recovery of 92.9% at 53 µm size in the laboratory. The test work completed to date supports the adoption of a direct leach flowsheet for gold recovery at a primary grind size of 38 µm and an expected recovery of 90% or higher is a reasonable assumption given that optimisation work has not yet been completed. Plant operating experience has shown that an equivalent laboratory gold recovery at a P80 of 38 microns is equivalent to a grind size P80 of 53 microns in the plant. • 90% recovery has been adopted for the cut-off grade calculation.
Environmental factors or assumptions	• The Waihi operation holds the necessary permits, consents, certificates, licences and agreements required to conduct its current operations, and to construct and operate the Martha underground. **<u>Martha Underground</u>** • All permits are in place for the Martha underground. The Hauraki District Council and Waikato Regional Councils have issued resource consents for Project Martha. The conditions impose restrictions on blasting magnitudes and firing times, mine design, geotechnical monitoring, dewatering and surface stability. **<u>Martha Open Pit (MOP5)</u>** • Martha open pit project environmental studies have commenced, environmental factors are assumed to be in line with those previously experienced on site. • Studies have assumed that the rehabilitation of the Martha pit will be to form a recreational lake with rehabilitated surfaces above lake level. **<u>Gladstone Open Pit</u>** • Gladstone project environmental studies have commenced, environmental factors are assumed to be in line with those previously experienced on site. **<u>WKP</u>** • Baseline monitoring and surveys are currently underway by experienced and qualified third-parties. The assessment will include terrestrial and aquatic biodiversity.
Bulk density	• An updated assessment of density determinations was completed in May 2018. Weight measurements are routinely collected for representative core samples in air and in water during the logging process. • **<u>Martha Underground Resources</u>** • Density readings are routinely collected during logging of diamond drill core. Bulk Density (BD) is automatically calculated using the following formula: $\frac{\text{Weight in Air}}{(\text{Weight in Air} - \text{Weight in water})} = BD$

Criteria	Commentary

Domain (MUG)	Sample Count	Mean BD	Standard Deviation
Quartz Andesite	1,361	2.52	0.15
Quartz Vein	634	2.53	0.09
High Base Metal content logged	426	2.56	0.08
Global Average	2,156	2.50	0.16

- The bulk density of the andesite host rock and the vein structures in the Martha Underground are influenced by several factors. It generally decreases when it is oxidised near the surface and at depth it also decreases where it has been affected by hydrothermal alteration. In general, the andesites have a BD of less than 2.8 grams per cubic/cm. The BD of quartz veining within the Martha underground is more influenced by weathering adjacent to historical mine workings than surface weathering. Other factors that influence the BD include the concentration of clay minerals (within the veins and host rocks), calcite and base metal content (within the vein zones), and presence or type of historical mine workings.
- In assigning density within the mineral resource estimate, historic stope fill is assigned a density of 1.8. Collapse zones associated with the Milking Cow subsidence zone has been assigned a density of 1.9.

WKP

WKP bulk density measurements are routinely collected during logging of diamond drill core. A field in the AcQuire database is setup to automatically calculate the bulk density from these density measurements using the same formula as the Martha Underground Resource described above.

Domain (WKP)	Sample Count	Mean BD
Waste Rock	156	2.45
Quartz Vein	79	2.54
Global Average	235	2.50

Gladstone

- Gladstone densities range from 2.0 to 2.5 g/cm3, densities are assigned based on geologic unit and oxidation state.

Zone	Area	Oxide Density	Primary Density
1	Black Hill Dacite	2.2	2.2
2	Rhyolite Tuff	2.1	2.3
3	Andesite	2.0	2.2
4	Volcaniclastics	2.0	2.0
5	Hydrothermal Breccias	2.2	2.2
9	Quartz Veins	2.3	2.5
Mined 1	Mined Development	0	0
Mined 2	Avoca Stopes	1.8	1.8

Classification

Martha Resources

- The resource classification is based on an assessment of average drilling density.
- Confidence category is defined by average drill hole spacing, the ranges employed in classification of the Martha underground Mineral Resource are consistent with the ranges used in classification of other vein zones currently being mined within the larger Waihi operation.

Criteria	Commentary
	• There is significant experience in mining and assessing the continuity of mineralisation with the veins for Martha and the adjacent deposits, the vein style mineralisation has a strong visual control and is well understood and has demonstrated continuity over significant ranges. • An estimation run utilizing a maximum of three drill holes with a single sample per drill hole was undertaken storing the average distance to the three drill holes used to estimate the block. This forms the basis for the drill hole spacing and therefore the confidence categorisation.

Table 3-7: Average Drill hole spacing required for resource classification

Confidence category	Vein Zones Average distance to 3 closest holes	Stope backfill
Measured	N/A	N/A
Indicated	0 to 40 m	N/A
Inferred	40 to 60 m	N/A

- Mine fill within the historic stopes is not classified as Mineral Resource.
- The resource estimate outlined in this document appropriately reflects the Competent Person's view of the deposit.

WKP

- The Mineral Resource classification is based on average drill hole spacing. The ranges employed in classification of the WKP scoping resource model are slightly greater than ranges used in classification of other vein zones currently being mined within the larger Waihi operation, based on the demonstrated continuity of the EG vein over approximately 1,000 metres along strike.
- Indicated Resource is defined using an average distance to the three closest drill holes of 50 metres. Only the EG vein has been considered for classification as Indicated Resource. The Mineral Resource classification is shown in Table 3-8.

Table 3-8: Average Drill hole spacing required for resource classification

Confidence Category	EG Vein Average distance to 3 closest holes	All Other Veins Average distance to 3 closest holes
Measured	N/A	N/A
Indicated	0 to 50 m	N/A
Inferred	50 to 70 m	0 to 60 m

- There is significant local experience in mining and assessing the continuity of epithermal mineralisation with the nearby veining in Waihi. The vein style mineralisation present at WKP is similar to Waihi, it also has a strong visual control and a demonstrated continuity over significant ranges.
- An estimation calculated using a maximum of three drill holes with a single sample per drill hole was undertaken storing the average distance to the three drill holes used to estimate the block. This forms the basis for the drill hole spacing and therefore the resource classification.
- Polygons are developed based on the results of this estimation pass for coding into the block model for the higher confidence category zones to overcome spotty distribution of classification criteria.

Criteria	Commentary
	• The resource estimate outlined in this document appropriately reflects the Competent Person's view of the deposit.

Audits or reviews	• The models are regularly cross checked by OceanaGold employees that are familiar with the resource estimation practices employed on site.
	• OceanaGold Group Geologist - Tim O'Sullivan has undertaken a site review for the Martha Underground Model.
	• Entech Pty Ltd has also undertaken an independent review of the Martha Underground resource model.
	• SRK was engaged to undertake an independent assessment of an earlier WKP resource estimate and concluded that:
	  ○ The conceptual geological model appears sound and consistent with the experience of nearby mineralisation and existing resources.
	  ○ SRK found no issues with the integrity of the database.
	  ○ SRK has no concerns with the QAQC.
	  ○ Lode boundaries are based on a specifically defined combination of structure mineralisation and grade and the model appears to adhere well to this set of rules
	  ○ SRK considers that the top-cuts employed in the estimate may be inconsistent and that the estimate may be conservative in grade (and ultimately gold metal content).
	  ○ Grade estimation appears to be in the sub-blocks rather than the parent blocks, this is not good practice as support volumes are not consistent, however SRK does not consider this to be a material concern in the context of the current use of the model.
	  ○ Resource classifications of Indicated and Inferred areas are considered appropriate.
	  ○ The Resource model and drilling are at a relatively early stage and have been modelled, estimated and classified appropriately for the purpose of mining study.
	• The minor issues identified by SRK in the previous model have generally been rectified in the latest iteration of the model.
	• OceanaGold Group Geologist - Tim O'Sullivan has undertaken a peer review of the latest WKP Resource Model.
	• RSC Consulting Limited (RSC) was commissioned by OGC in Q4 2021 to undertake an independent review of the quality of all data and data collection processes; and domaining practices supporting the mineral resource that underpins the feasibility study (2020 Mineral Resource).
	• RSC concluded that;
	• Location, Density, Geology and Grade Data meets appropriate quality objectives to allow for the estimation of Indicated Mineral Resources.
	• OGL's quality assurance (QA) systems are generally of a high standard.
	• The use of implicit modelling in the complex vein environment to be good practice and considers it to have been applied effectively.

Discussion of relative accuracy/ confidence	**<u>WKP</u>** • In reviewing the nature of the WKP deposit it is considered appropriate to employ the same modelling and estimation workflows used for the Waihi deposits to estimate the in-

Criteria	Commentary
	situ resource for this deposit. This opinion is formed based on the geologic knowledge and the detailed statistical evaluation of the data obtained through drilling. • Numerous methods have been used to validate the integrity of the WKP0219_USC resource model. The validation has included: o validation of the new data, o a review of the interpretation, including classification shapes, o a review of the methodology, o a review of the exploratory data analysis (EDA), including variography and search neighbourhoods, o global grade and tonnage comparisons with the previous model o a visual sectional validation of the block model with interpretation and drilling, and o Swath plots are generated using the Vulcan drift analysis tools. **<u>Martha Underground Resource.</u>** • Mining operations on the Martha Underground resource focused on the establishment of the capital infrastructure at this early stage of the project. Minor development derived ore extraction has taken place and is expected to increase throughout 2021 • There is no reconciliation history for underground mining of the Martha underground project with which to validate the model. Notwithstanding though the grade estimate and modelling techniques in preparing this estimate are consistent with the techniques utilised in estimates for the Correnso project and other narrow vein epithermal vein systems in the Waihi district, many of which have been extensively mined and have reconciled well with production records at the time of mining

Section 4. Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• The Mineral Resource estimate used as a basis for conversion to an Ore Reserves is described in Section 3 of this Table 1. • Mineral Resources are reported inclusive of the Ore Reserves.
Site Visits	• The Competent Person for Underground Ore Reserves is Trevor Maton who has been employed at Waihi from 2003 and has been involved in the design and development of the open pit and underground mines since 2003.
Study status	• The type and level of study is a Feasibility Study as defined in Section 40 of the JORC Code, 2012 Edition. • The Feasibility Study has been used to convert Mineral Resources to Ore Reserves and approximately 60% of the Indicated Mineral Resource has been converted to Probable Ore Reserve. • All permits have been granted to enable mining of Martha underground. • All permits have been granted to enable mining of MP4 to provide backfill for the Martha underground. • Underground mining and ore processing at Waihi has been in continuous operation since 2004. • The study work undertaken for Martha underground mine meets Feasibility Study level standard. Mining studies have been conducted for geotechnical stability, numerical modelling, mine design, mine planning, ventilation, power and infrastructure, cut-off grade, detailed cost estimation and economic evaluation. • The site has had a 15-year operating experience with mineral resource reconciliation and metallurgical recovery performance of the underground resources. Actual costs for underground mining, ore processing, G&A and selling costs are known. • A mine plan has been developed which is technically achievable and economically viable. All Modifying Factors have been considered. • Consents are in place for all underground mining covered by this Section of the report and all planned mining methods are in accordance with the license, permit and consent conditions, principally related to placement of backfill, blast vibration limits, method of working and hydrogeological controls.

Cut-off parameters	• Cut –off grade is based on Ore Reserve metal prices of NZD 2,112 per ounce. A silver price of NZ$26 per ounce for silver is applied as a by-product credit to the operating costs.
	• Inputs to the calculation of cut-off grades for Waihi open pit and underground include mining costs, metallurgical recoveries, treatment and refining costs, general and administrative costs, royalties and metal prices.
	
	<u>**Correnso**</u>
	• The following cut-off grades have been used to determine the underground Ore Reserve:
	    ○ Narrow vein ore development and stoping beyond designed limits 1.4g/t Au,
	    ○ Narrow vein ore development beyond stope limits 2.7g/t Au,
	    ○ Ore development and stoping beyond designed limits 2.4g/t Au,
	    ○ Ore development beyond stope limits 2.6g/t Au,
	    ○ Low grade development ore 1.8g/t.

Criteria	Commentary

	Martha Underground
	• Cut off grades take into account silver as a credit at a 2.7:1 ratio to gold and silver process recovery of 60%. Mining costs include:
	  o finance leases on mobile equipment,
	  o supply and placement of rockfill and CAF,
	  o additional mine development for placing fill in historic workings, and
	  o footwall and crosscut development, additional ring drilling and higher proportions of remote mucking for the backfill remnant areas.
	• Mining cut-off grades vary based on the mining method and are summarised in Table 4-1.

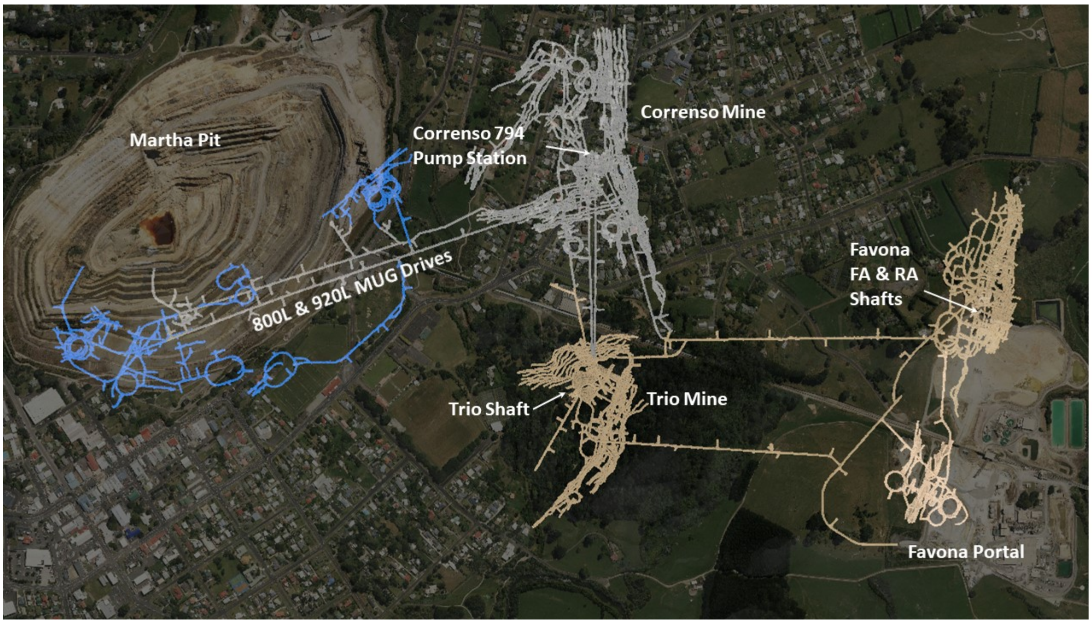
Table 4-1: MUG Cut-off Grade by Mining Method

Area	Cut-off grade (g/t Au)
Virgin Avoca mining	2.4
Avoca mining in remnant areas with CRF	2.8
Backfill remnant areas, or side ring mining method	3.3

Criteria	Commentary
Mining factors or assumptions	**Correnso** Mining Methods • Correnso underground is in the final stages of mining with activity focussed on the veins that make up the upper Correnso and Louis mining areas. • The mining method is predominantly narrow vein modified Avoca. • The remaining Ore Reserve is estimated at 50kt at 4.82g/t for 8koz. Au. **Martha Underground** Mining Methods The Martha underground is accessed via the existing Favona portal through the existing Trio and Correnso workings and shares the ventilation development and shafts as well as the Correnso workshop, Trio cribroom and dewatering systems. Exploration drives were completed on 800[1] mRL and 920 mRL in 2018. Refer Figure 4-1 for the extent of mine development as at the end of 2020.

[1] Note that the RL used for the underground mine is based on the Mt. Eden Grid with 1000m added to the mean sea level so as to avoid the need for negative levels.

Figure 4-1: MUG Mine Access Development



- Development of Martha underground commenced in mid-2019 and 2,169 m of lateral development and a 120 m ventilation raise were completed by the end of 2019 and a further 7,554 m of lateral development completed in 2020. Development up to end 2020 has been focussed on ramp accesses for Edward, Empire, Rex and Royal mine zones, ventilation connections, pumping well access drives, drilling platforms and back fill drives as well as the breakthroughs into the pit.
- Based on the proposed mining method and equipment, historical experience and orebody geometries, the development strategy for all underground areas involves mining of declines for access to five main stoping blocks. Access drives will be mined to develop drilling and loading levels, generally targeted to intersect the orebodies centrally. Access drives will be spaced at 18m vertically over the height of the mine. Each access drive will have a dedicated sump, substation recess and development for escape and return air raises. Ore drives will be developed in both directions along strike from the access drives. Stockpiles will be mined off the decline and in levels for truck loading. The development design used for the Feasibility Study aligns with current operating practices at Waihi.
- Key differences with current operating practices involves the development of footwall drives, crosscuts and a pass system in selected locations mainly confined to Edward, Empire east and west to backfill the historical workings with CRF or RF. Cross cut spacing is generally at 20m to 25m spacing. Historical stopes are backfilled to provide both regional and local stability.
- The mine design is shown in plan view in Figure 4-2 and long section in Figure 4-3.

Figure 4-2: Martha Underground Overview Plan View

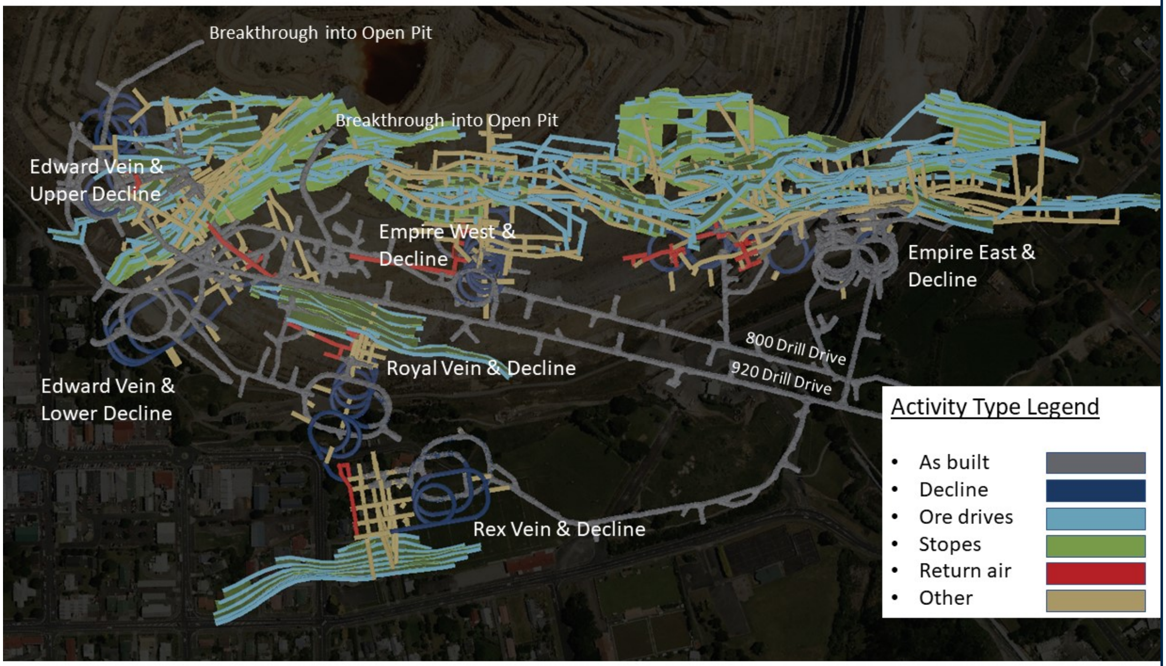
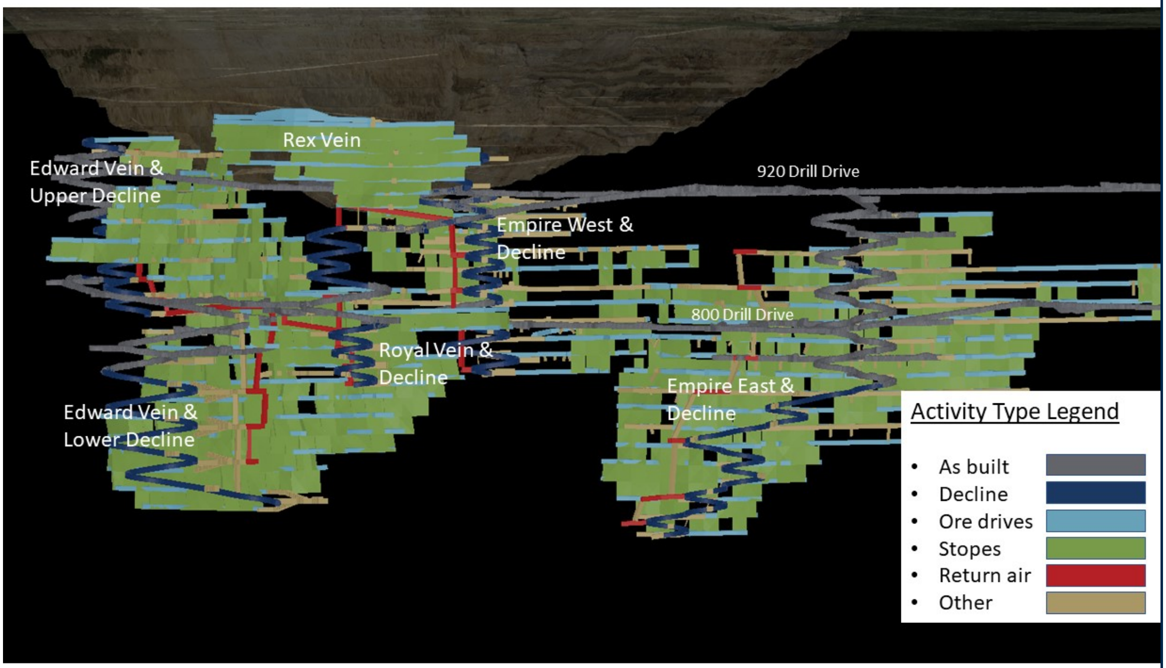


Figure 4-3: Martha Underground Overview Long Section



- Mining method selection work for the Martha underground was undertaken by SRK in 2011, 2016 and 2017 and confirmed by Entech in 2018 and 2020 and by OceanaGold in 2020. Four mining methods are proposed for the mine:
  1. Modified Avoca with rockfill in virgin (previously unmined) areas.
  2. Modified Avoca with rockfill in remnant areas adjacent to collapsed stopes separated by an intermediate pillar.
  3. Modified Avoca with rockfill in remnant areas adjacent historical stopes filled with engineered fill (CRF / CAF)
  4. Bottom up side ring method with CRF/CAF/RF where skins adjacent to historical backfill are extracted.
- Much of the Ore Reserve can be extracted using the modified Avoca mining method, refer Figure 4-4, similar to the methods employed at Favona, Trio and Correnso. The modified Avoca method with RF is a semi-selective and productive underground mining method, and

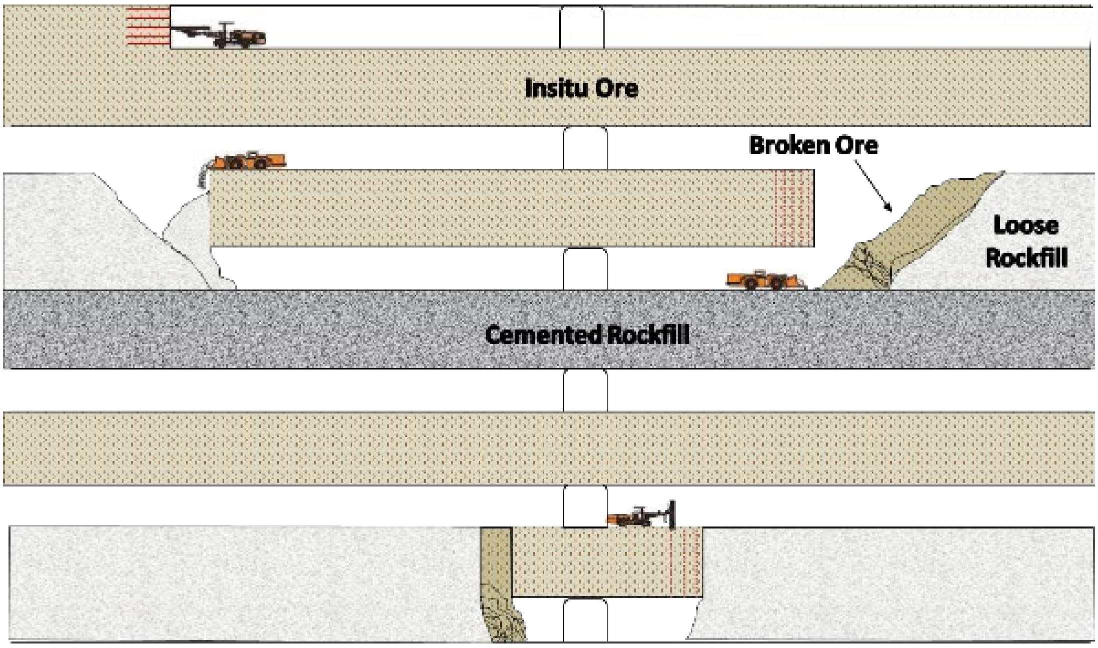
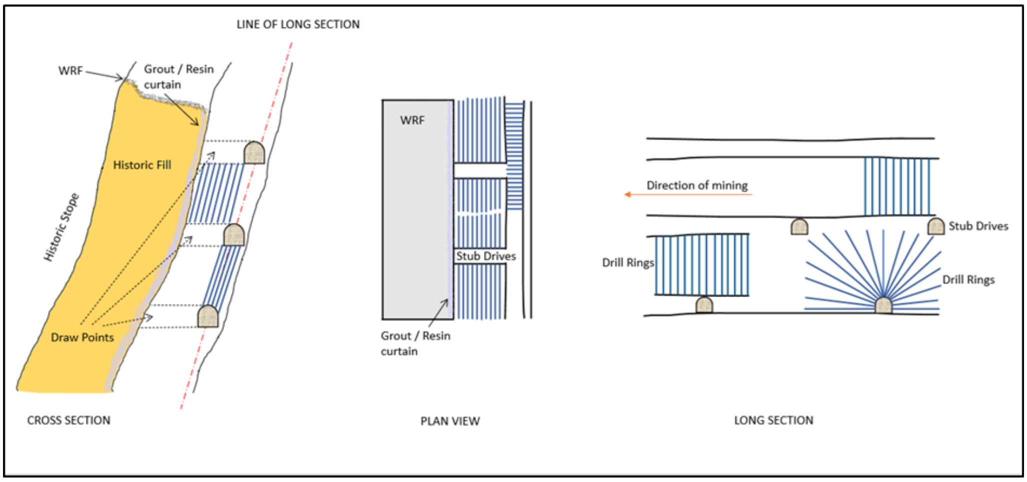
Criteria	Commentary
	well suited for steeply dipping deposits of moderate thickness. It is typically one of the most productive and lower-cost mining methods applied across many different styles of mineralisation. • Stope structural support is provided through a combination of cable bolting and uncemented RF. It is not planned to leave rib pillars unless there is limited access to the sub-level or recommended to maintain overall mine stability. *Figure 4-4: Modified Avoca Mining Method*  Source SRK Consulting Ltd • A small proportion of the Ore Reserve will involve the extraction of remnant skins in the footwall or hangingwall of previously mined (historical) stopes, or the extraction of both remnant skins. Historical backfill may also be mined and experience with OP mining shows this material may be above the cut-off. However, as it is currently classified as Inferred Resource it is not included as Ore Reserve. • Following detailed studies over the last nine years, three methods are proposed for the extraction of remnant areas, adjacent to historic workings, viz. 1. A modified Avoca method whereby the historic stope is backfilled with CRF prior to stoping and the remnant skin is extracted by conventional modified Avoca using RF in a bottoms up sequence that exposes the CRF. 2. A modified Avoca method adjacent the collapsed historic stope where backfill with CRF is not feasible and a stand off from the historic wall of 3.5m maintained with lower estimated recoveries, higher dilutions. 3. A remote side ring method where the historic backfill is extracted together with remnant wall rock in a bottom up sequence. The side ring method is described in detail below. The side ring method is described in detail below. • The side ring mining method for the extraction of remnant skins will use conventional remote drilling and loading methods, combined with remote LHD equipment. This method involves additional waste development adjacent to the remnant stopes, which increases overall development quantities and mining costs. Entech concluded that once established, the method is expected to achieve acceptable mining recovery with few safety issues anticipated. The proposed mining method is illustrated in Figure 4-5. This method is employed in the Empire west area and comprises a very small proportion of the Ore Reserve.

Figure 4-5: Remnant Mining Method



Source Entech Consulting Ltd, 2021.

- Stopes were optimised using the Deswik Shape Optimiser using only Indicated classified blocks (There are no Measured classified blocks in the Martha resource model).
- In general mining areas at MUG are designed with either a 15m or 18m level spacing, floor to floor. This is primarily to limit blast vibration, but this also assists hanging wall and footwall stability. This is in line with previously mined areas and has proven to be successful and efficient.
- Stopes are designed with dilution on both the footwall and the hanging wall based on geotechnical assessment for the immediate mining area, which when applied with the stope recovery factors reconciles with previous performance of stopes in active mining areas.
- Stope recovery factors consider the difficulties associated with recovering all ore from a stope, particularly under remote control operations. Additionally, it allows for the potential loss of metal due to excess dilution burying ore and limiting recovering of all the ore. Recovery and dilution factors are shown in Table 4-2.
- Geotechnical investigations and stope exposure recommendations for MUG were provided by Entech, Beck Engineering and AMC. Further geotechnical investigation and assessment will be completed as the study work progresses.
- Grade control drilling will be required as the underground develops to better define the mineralisation prior to mining. Some holes will be used as resource infill and to probe the areas with old voids in MUG. Chip sampling of underground drives will also be employed.
- As MUG targets a mix of old workings and new lodes, a conservative approach was adopted for the mine production and development which excluded all Indicated Mineral Resources within the previously heavily mined Martha veins or caved zones. This area will be re-evaluated in future studies.
- The Feasibility Study considers the provision of all necessary infrastructure to facilitate the mining activities proposed including future TSF lifts, mining, power, office and workshop infrastructure.

Hydrogeology

- GWS Limited Consulting (GWS) have modelled the groundwater system in Waihi since the late 1980's. Regular monitoring is compared to the modelled predictions and is discussed in the annual settlement and dewatering monitoring report submitted to the Regulators.
- GWS report that a shallow groundwater system associated with volcanic ash, alluvium and completely weathered rhyolite tephra is present at shallow depth. Monitoring data shows that it is unaffected by mine dewatering except immediately adjacent to the Martha Pit. Shallow groundwater levels are controlled principally by rainfall infiltration, low surface soil permeability and natural and assisted drainage to surface water systems.

Criteria	Commentary
	• GWS report that the higher volumes of water in the deeper aquifer are contained primarily in the quartz vein, the historic underground workings and infiltrated through the open pit which is more permeable than the surrounding andesite country rock. This system has been drained from the mine dewatering system within the underground mine. Currently the water level is at approximately 695mRL. • Further drawdown of the water table is required to extract the Martha Underground resource. Permits are in place for the drawdown of the water table to 500mRL. Boreholes have been installed and operational for further dewatering as part of the Martha underground. A slurry pump system has been installed on 790mRL capable of handling the high level of entrained solids for the other minor pump stations. • GWS estimate the average daily pumping rates to dewater to 500mRL range from 14,000m^3/day to 16,700m^3/day. Geotechnical Model • The geotechnical model for stoping assessments was based on empirical modelling using Q ratings for the rock mass quality and applying the Mathews method to determine stable spans. Geotechnical modelling is impacted by mine design where level spacing was set by blast vibration limits and modelling had to ensure stable pillars were left. • Geotechnical assessments indicate that rock mass conditions within the ore zones and immediately adjacent to the ore zones are generally of fair to very good quality. In general, the ground conditions do not require any special remediation other than standard first pass ground support. • It has been proven that stable stope strike spans of up to 20m can routinely be mined. • 3D numerical modelling was undertaken to assess the global effects of mining including global mine stability, risk due to chimney failure of individual stopes, and the effects on ground surface subsidence and settlement. The numerical modelling concluded that the likely effects on ground surface stability due to mining would be negligible. • The stability of the design has been checked with 3D numerical stress-strain analyses of the workings which included consideration for mine-scale faulting. The modelling results confirm that stopes and access drifts are predicted to remain stable during active mining. Mining Recovery and Dilution • Stopes are designed with dilution on both the footwall and the hanging wall based on geotechnical assessment for the immediate mining area, which when applied with the stope recovery factors reconciles with performance of stopes in active mining areas. • Tonnage recovery factors shown in the table below for stoping include in-situ ore plus dilution material. Metal recovery factors consider the difficulties associated with recovering all ore from a stope, particularly under remote control operations. Additionally, it allows for the potential loss of metal due to excess dilution burying ore and limiting recovering of all the ore. Tonnage recovery factors shown in the table below for stoping include in situ ore plus dilution material. Metal recovery factors consider the difficulties associated with recovering all ore from a stope, particularly under remote control operations. Additionally, the factors allow for the potential loss of metal due to excess dilution burying ore and limiting recovering of all of the ore.

Table 4-2: Underground Mining Dilution & Recovery Factors

Mining Method - Modifying Factors	Wall / Rill Dilution	Under-break	Bogging Recovery	Modifying factors	Comments
Virgin Avoca & Mining against Cemented Fill					
Tonnes	5%		96%	1.0	Based on Correnso

Criteria	Commentary

oz. Au		3%	96%	0.93	Based on Correnso
Proximal to Collapse (+3m pillar)					
Tonnes	7%		93%	1.0	Increase – shorter panels
oz. Au		3%	93%	0.9	Allow Some panels to fail
Adjacent to Collapse or Historic Fill					
Tonnes	25%		70%	0.88	Corners cannot be bogged out
oz. Au		5%	70%	0.67	High dilution in historic fill

- No Inferred Resource metal has been included in the Ore Reserve.
- Each individual design item was interrogated to report against each Mineral Resource category, and the average grade of each design item assessed allowing only contribution of metal from Measured and Indicated Mineral Resource categories. As such, any Inferred Resource material was effectively included as diluting material at zero grade.
- Much of the infrastructure required for the chosen mining method to extract the underground Ore Reserve is already in place. Additional detail is provided under the heading Infrastructure later in this table.

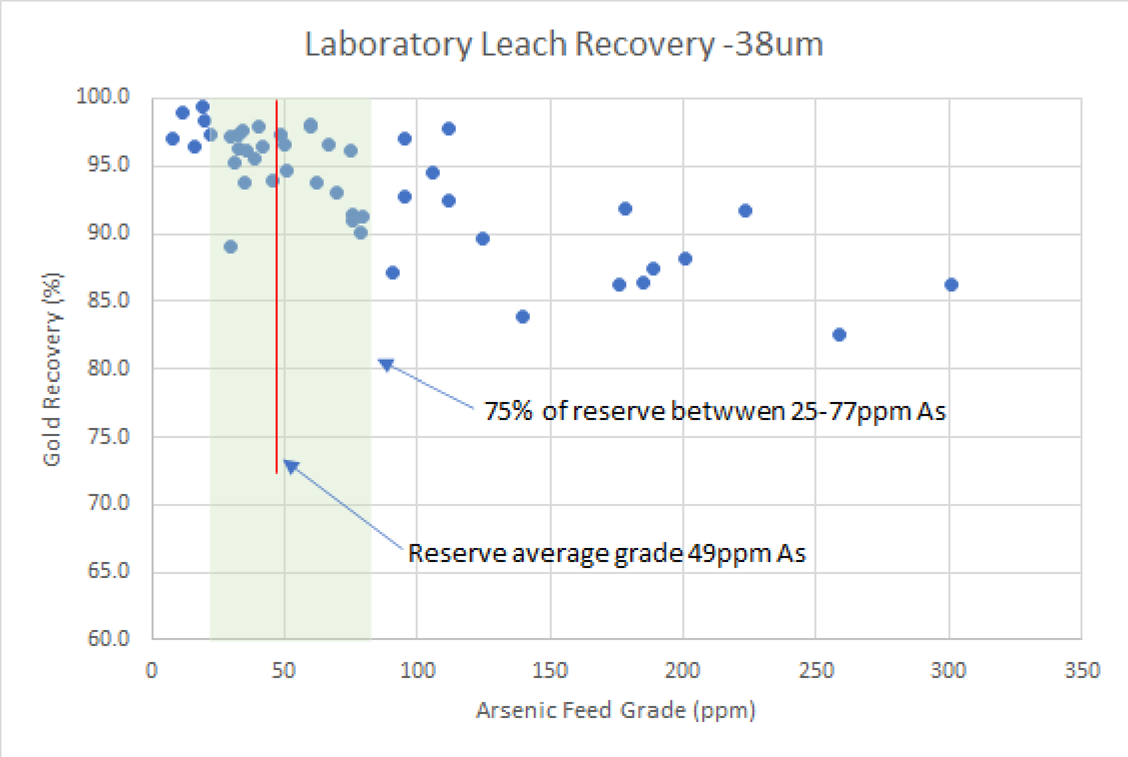
Metallurgical factors or assumptions

- The metallurgical process at Waihi is well-tested and proven technology, having been in operation for 29 continuous years.
- Ore processing consists of five stages: comminution, leaching/adsorption, elution, electro-winning and smelting. Underground stockpile ore is reclaimed at between 40 to 100 tonnes per hour by front end loader and fed onto a static grizzly with an aperture of 200 mm.
- The processing plant has the capacity to treat up to 900,000 tonnes of Martha underground ore per annum.
- The recovery models developed for each of the Martha vein structures provided below are based on the reviewed leach testwork results conducted on the historical, 2019 and 2020 samples. Multiple Linear Regression was used to predict gold recovery with the explanatory variables being gold head grade and arsenic content in the feed. Table 4-3 provides the recovery models developed for Edward, Empire, Martha, Royal and Rex domains.

Table 4-3 MUG Recovery Models

Domain	Recovery
Edward	Recovery (%) = 96.69 + (0.51 * Au ppm) – (0.077 * As ppm), r^2=0.38
Empire	Recovery (%) = 93.74 + (1.33 * Au ppm) – (0.081 * As ppm),, r^2=0.90
Martha	Recovery (%) = 76.41 + (2.68 * Au ppm) – (0.024 * As ppm), r^2=0.55
Royal	Recovery (%) = 80.25 + (1.41 * Au ppm) + (0.023 * As ppm), r^2=0.96
Rex	Recovery (%) = 91.92 + (0.78 * Au ppm) - (0.092 * As ppm), r^2=0.87

- The gold recovery models developed for Martha underground deposit are used to forecast gold recovery in the mine schedule on a yearly basis based on Gold and Arsenic feed grades. The average grade of the reserve is 49 ppm Arsenic and approximately 75% of the reserve between 25 and 77ppm Arsenic, the impact of arsenic grade on gold recovery for the ore composites tested is shown in Figure 4-6 below along with the averrage and modelled reserve grade ranges. Applying the recovery models to the mine schedule indicates the total gold recovery for MUG is 94.9% for the Ore Reserve.

Criteria	Commentary
	Figure 4-6: Recovery / Arsenic Feed grade Relationships  • A review of the methodology used to estimate the metallurgical recoveries and testwork was undertaken by G Butcher Consulting Pty Ltd which endorsed the laboratory testing and mathematical modelling methods used to develop the recovery algorithms and that the selection of sampling locations and the representivity of the ore domains appears to have been undertaken with diligence, although additional sampling and testing of the Rex and Royal domains is recommended to improve the confidence of the models developed to date.
Environmental	• The Waihi operation holds the necessary permits, consents, certificates, licences and agreements required to operate the Correnso and Martha underground mines. • Environmental data has been collected over the last 29 years of Waihi operations and baseline data was collected prior to the start of operations and reported in the original mining license application. Data is routinely collected for noise levels, blast vibration, air quality, and discharge water quality from various sources, ground settlement and ground water levels. Data collected in relation to hydrogeology, open pit and tailings storage facility, geotechnical engineering, geochemistry, closure and rehabilitation is peer reviewed on an annual basis by independent reviewers engaged by the Regional Council, District Council and central Government • Environmental studies conducted by independent consultants and company staff as part of the Correnso underground project are more extensive than would normally be required but was required to provide sufficient information to support a consent application for Waihi Correnso. The environmental effects-based reports were all independently reviewed by consultants employed by the regulators (consent issuers) and were also subject to an extensive hearing process where the issues were thoroughly assessed by independent commissioners. • The 29-year operational history since attainment of commercial production in 1988 has provided a good understanding of performance of the waste rock dumps and tailings storage facility. • All waste produced from the underground mine is classified as potentially acid forming and is returned underground as stope backfill. The Martha and Correnso consents requires material to be classified according to acid forming potential, and PAF material requires lime dosing.

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td></td><td>Waste from the open pit is crushed and conveyed 2.0km from the open pit to the waste development load-out site where it is transported a further 1km to the Waste Development Area or stockpiled for future use. At the Waste Development Area, the waste is selectively placed in accordance with a quality control and geochemical control program to form a dam for the tailing's impoundment. All waste is compacted in accordance with strict design specifications
Vibration modelling has been completed for Correnso by Heilig and Partners to ensure mining methods can meet the consent conditions.</td></tr>
<tr><td>Infrastructure</td><td>The Waihi operation has been in commercial production since 1988 and all mine site infrastructure has been completed to support the open pit and underground operations including; tailings storage facility, workshops, water treatment plant and ore processing facilities.
The project is an active mining project with the majority of the infrastructure required for its ongoing operation already in place. Site access from major ports, international and domestic airports and roads are well established at the Waihi site. Supplies, equipment, and materials are trucked to the sites via the paved roads. As this is a gold project there are no concentrate shipping constraints. There are no material logistic limitations impact the project.
New surface infrastructure comprises raising of the TSF's, provision of a duplicated 33kV power line, construction of a cement batch plant and refurbishment of the open pit crusher and overland conveyor.</td></tr>
<tr><td>Capital & Operating Costs</td><td><u>Correnso Underground</u>
No capital costs are required for the remaining Ore Reserve in the Correnso underground. areas.
Operating costs are well known from 15 years of continuous operations.
<u>Martha Underground</u>
Capital costs are developed for growth and sustaining capital. Growth capital represents pre-production underground mining and capital required to increase production. OGC developed the sustaining capital cost estimate to account for underground mine development, mine equipment and TSF construction capital costs through the LOM, by applying the same estimating methodology as for growth capital.
The capital cost estimate for the FS has an expected accuracy of $\underline{+}$ 15%. Underground capital mine development costs are well known through the sites operating history as is the costs of salaries, wages, ground support, drilling, blasting and mobile plant consumables.
The estimate includes direct and indirect costs (such as engineering, procurement, construction and start-up of facilities) as well as owner's costs and contingency associated with mine and process facilities and on-site infrastructure.
The following areas are included in the estimate:
Mine (underground mine development, equipment fleet finance leases, cement backfill plant and supporting infrastructure and services).
Process plant replacement of existing Waihi SAG Mill shell (currently being fabricated with known costs).
Tailings Storage Facility raises to TSF1A and TSF2 estimated by independent consultants.
On-site infrastructure (water treatment and distribution, electrical substation and distribution, and other general facilities).</td></tr>
</table>

Criteria	Commentary
	○ Pit rim works including relocation of public roads, estimated by independent consultant. ○ Property purchases above the Rex orebody. ○ Duplication of the 33kV line from Waikino to Waihi with a buried cable and new substation estimated by independent consultant. ○ Incremental mine site rehabilitation. • Engineering work, being in the range of 25–30% of total engineering for the project, was carried out to support the estimate. • The capital costs including sustaining capital is outlined in Table 4-4. The range of accuracy for the capital cost estimate is + 15%.

Table 4-4: Capital Costs Initial and Sustaining

Summary Capital Expenditure	Growth MUG LOM Estimate USD M	Sustaining MUG LOM Estimate USD M
General and Administration Costs	0.00	2.20
Processing	0.00	4.51
Open Pit Mining Martha Pit	0.00	4.20
Underground Mining Martha	25.50	114.37
TSF Constructions	0.00	12.19
Infrastructure	12.39	0.00
Rehabilitation	0.00	1.37
Total	**37.89**	**138.84**

• The operating cost estimate is +/- 15%. This level of accuracy is attributed to the site operating history over a range of conditions. Table 4-5 summarizes the estimated operating costs and is approximately USD 115 / t for the Ore Reserve.

Table 4-5: Operating Costs

Summary Operating Expenditure	LOM Estimate USD M	LOM Estimate USD / tonne
General and Administration Costs	80.11	17.97
Processing	134.29	30.12
Open Pit Mining Martha Pit	21.29	4.78
Underground Mining Martha	276.86	62.10
Total	**512.54**	**114.97**

Criteria	Commentary
Revenue factors	• Detailed mine designs were undertaken for both the open pit and underground Ore Reserves. Diluted and recovered grades were calculated for all material being mined, which were in turn assessed against the relevant cut-off grades for determination of inclusion within the Ore Reserve estimate. Head grades for material sent to the process plant directly correspond to mined grades calculated. • Silver credits are not included in the revenue factors but as a by-product cost offset. • All costs at the Waihi operation are based in New Zealand Dollars. Costs have been converted using the following exchange rate which is the long-term OceanaGold benchmark rate: ○ USD 0.71 = NZD 1.00 • Charges for transportation, treatment and refining charges are based on operational history and in part based on existing contracts that are periodically reviewed and renewed. • Metal prices used in the economic evaluation were US$1,500 per ounce for gold and US$17 per ounce for silver, fixed for the life of the mine.

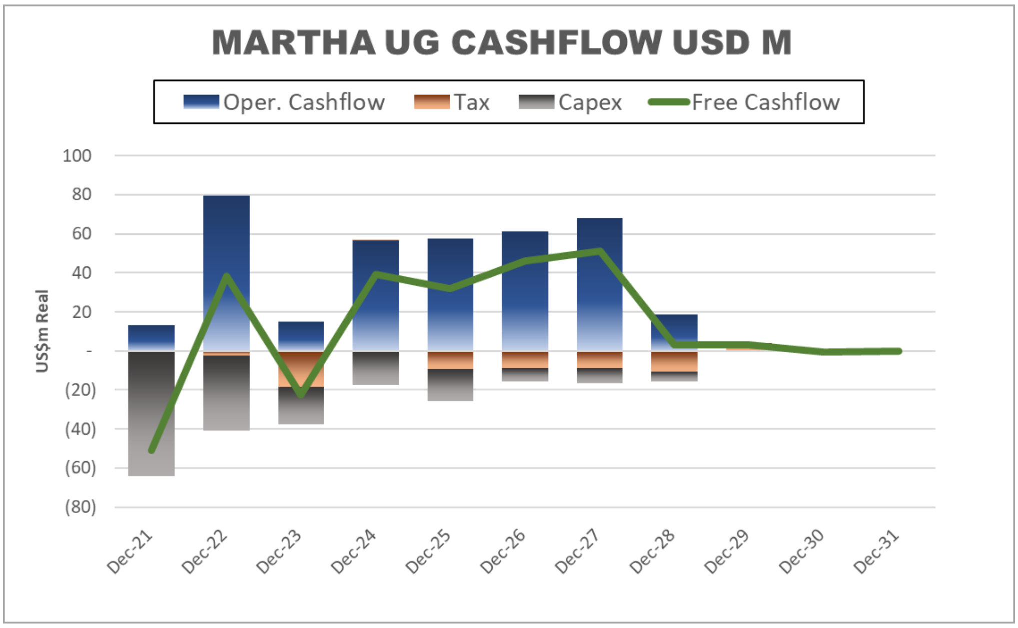
Criteria	Commentary
Market assessment	• Long-term market assessments are provided by a number of independent companies. There are no hedge contracts in respect of production from the Waihi operation. • The market for gold doré is well-established.

Economic	• Mining costs, processing costs and general and administrative costs at Waihi are well understood, with 28 years of continuous operation.
	• Assumptions for economic analysis include:
	  ○ Processing plant production rate of 0.9 Mtpa has been scheduled.
	  ○ Gold Price: USD 1,500 /oz.
	  ○ Exchange Rate: USD 0.71: NZD 1.00
	  ○ Metallurgical recovery average of 94.9% for MUG but varies based on Au, As grades,
	  ○ Royalty payments include higher of 1% of net sale revenue or 5% accounting profit to the Crown, and 2% to a third-party specific to a localised area of Rex.
	  ○ Revenue is recognised at the time of production.
	  ○ Discount 5%
	  ○ Corporate tax rate 28%.
	• The key economic results are as presented in Table 4-6, using 1 January 2021 as the reference commencement date. The cash flow summary is presented in Table 4-6 Cash Flow analysis is presented for both the Reserve case and the Inferred case.

Table 4-6: Key Economic Metrics

Financial Metric	Unit	Reserve Case
Gold Price	$/oz	1500
Exchange Rate	USD:NZD	0.71
Before Tax		
$NPV_{5\%}$	USD M	143
Internal Rate of Return	%	47
LOM Cumulative Free Cash Flow	USD M	193
After Tax		
$NPV_{5\%}$	USD M	99.4
Internal Rate of Return	%	36
LOM Cumulative Free Cash Flow	USD M	139
Payback Period	years	3.9
Cash Costs C1	USD/oz.	839
AISC	USD/oz.	1107

• The LOM projections for the Ore Reserve free cashflow, are shown in Figure 4-7.

Criteria	Commentary
	Figure 4-7: Cash Flow Profile Reserve Case  • The Martha underground shows a positive free cash flow and a positive net present value. • There is a transparent, quoted market for the sale of gold. • Long-term market assessments are provided by a number of independent companies. There are no hedge contracts in respect of production from the Waihi operation.
Social	• The Correnso and Martha underground project has an established grouping of stakeholders and project affected people whom have been engaged via the various stakeholder engagement structures such as Iwi, Resident Groups, Community based organizations and local government. • Prescribed Peer Review meetings held between OceanaGold, Hauraki District Council, Waikato Regional Council and the Ministry of Business and Innovation. • The operation has already established complaints and grievance systems / procedures for the ongoing management of all project grievances. This procedure will be a key process by which any associated complaints and grievances that arise from the operations will be addressed. • Both the Correnso and Martha consent are prescriptive in terms of stakeholder engagement with the Community. In addition to stakeholder engagement, the consent requires OceanaGold to maintain a Property Policy to support property values in the area. This requires the Company to provide funds to purchase properties above stopes and pay ex-gratia payments to property owners above mine development and to make amenity effects payments for blast vibration.
Other	• The Waihi operation is in a high rainfall area, and heavy rain events are not unexpected. Procedures and costing are in place to deal with such events and will not impact on the viability of extracting the Ore Reserve. • Provision has been made in the underground study to account for anticipated water inflow, based on a hydrogeology study undertaken by GWS Consulting Ltd. • The Waihi operation holds the permits, consents, certificates, licences and agreements required to conduct its current operations, and to construct and operate the Martha underground mine. • New Zealand has an established framework that is well regulated and monitored by a range of regulatory bodies. Waihi Gold has dedicated programs and personnel involved in monitoring consent compliance and works closely with authorities to promptly address additional requests

Criteria	Commentary
	for information. Risks associated with review and renewal of operating consents is, upon that basis, regarded as manageable within the ordinary course of business. • Contracts are in place covering underground mining, transportation and refining of bullion, and the purchase and delivery of fuel, electricity supply, explosives and other commodities. These agreements conform to industry norms. • Waihi Gold maintains a number of operating permits for the importation of reagents into New Zealand. New Zealand has an established framework that is well regulated and monitored by a range of regulatory bodies. Risk associated with renewal of importation permits, is upon that basis regarded as manageable. • There is no material, unresolved matters dependent upon a third party on which extraction of the Ore Reserve is contingent.
Classification	• The Proved Ore Reserve is a sub-set of Measured Mineral Resources, and the Probable Ore Reserve is derived from Indicated Mineral Resources. Inferred Mineral Resource material has been included as dilution only, with no Inferred Resource metal included in the Ore Reserve estimate. • No Probable Ore Reserves have been derived from Measured Mineral Resources. • It is the opinion of the Competent Person for Ore Reserve estimation that the Mineral Resource classification adequately represents the degree of confidence in the orebody.

Audits or reviews	• In 2017, OceanaGold conducted an internal technical review for the Waihi operation. The guiding principles for the review included quality of data, supporting information, methodologies employed, conformance to acceptance industry practice and professional standards, and site coverage and capability. The review concluded:
	  ○ Historically the models at Waihi have reconciled well against production, providing confidence in the Ore Reserve estimates and the ability to deliver them.
	  ○ The reconciliation process is well understood and well documented. Stopes are routinely closed out, with an analysis of mining performance, dilution and ore-loss.
	  ○ The underground mine geology team is stable and is appropriately resourced for the level of geological complexity and production rate.

Discussion of relative accuracy/ confidence	• Reconciliation of actual production to the Mineral Resource model since the commencement of operations indicates that the estimate is representative of the deposit (see resource model versus mine versus mill reconciliation in "discussion of relative accuracy/ confidence" in Section 3). • Planned mining performances were benchmarked against 10 years of existing mine performances for lateral advance, trucking, loading and stope drill, blast and fill. • Metallurgical recoveries have been partly based on historical plant data processing Martha and Correnso ores over the last 30 years and from independent and Company laboratory testwork. • Mining costs have been estimated from budget quotations, existing contracts, current labour rates, factored estimates or cost data from similar operations/projects. • Processing and administration costs have been estimated from current costs projected forwards and adjusted to align with the mining plan. • Cost estimate accuracy for the Feasibility Study is considered to be in the order of ±15%.