OCEANAGOLD
WAIHI OPERATION

Annual Combined Stability Report

2024

Document ID: WAI-200-REP-010-003

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1. PURPOSE

The purpose of the OceanaGold Waihi Annual Combined Stability Report is to comply with the requirements of the following Hauraki District Council (HDC) consent conditions:

- LUC RC-15774 (Trio) Condition 16 – Risk of Surface Instability;
- LUC 202.2012 (Correnso) Condition 25 – Surface Stability;
- LUC 202.2016 (SUPA) Condition 19 – Surface Stability;
- LUC 202.2017 (MDDP) Condition 25 – Surface Stability; and
- LUC 202.2018 (Project Martha) Condition 75 – Underground and Surface Stability

Note: The anniversary for the Correnso report was originally 20 December, the date in 2013 when the first blast was initiated in the Correnso Consent Area. In agreement with HDC, this anniversary was revised to 31 December to coincide with other calendar year data collation and reporting. The agreed anniversary for the SUPA, MDDP and Martha Underground stability reports was also agreed to be 31 December to allow the information from the linked projects to be amalgamated into one combined report. Additionally, in agreement with HDC, the Trio Stability report has been incorporated into the combined annual stability report from 2021.

For ease of reporting and interpretation, work completed within the MDDP project area is reported within the Martha Underground sections of this report.

1.1 AS REQUIRED BY CONDITION 16 OF LUC RC-15774 (TRIO)

16. *The consent holder shall provide to the Hauraki District Council on an annual basis (within one month of the agreed anniversary) a report:*
    a) *Describing the location, depth height of completed filled stopes, and unfilled stopes;*
    b) *Describing the backfilling and compaction associate with each stope; and*
    c) *Ground conditions revealed by the mine excavations*
    d) *Describing the measures adopted to manage the risk of surface instability, particularly as provided for in Condition 15 and the outcomes of such measures.*

1.2 AS REQUIRED BY CONDITION 25 OF LUC 202.2012 (CORRENSO)

25. *The consent holder shall provide to the Council on an annual basis (within one month of the agreed anniversary) a report:*
    a) *Describing the location, depth height and volume (m^3) of stopes; and a summary of the data required by Condition 26 regarding unfilled stope voids; and*
    b) *Describing the lengths of development that, due to the encountered geotechnical conditions where multiple levels overlap, will require backfilling prior to mine closure; and*
    c) *Describing the backfilling and compaction associated with each stope; and*
    d) *Describing the ground conditions revealed by the mine excavations; and*
    e) *Describing the monitoring and measures adopted to ensure ground surface stability, particularly as provided for in Condition 23 and the outcomes of such measures; and*
    f) *Describing the location and depth of exploratory drives;*
    g) *Confirming that the extent of the mining works is confined to CEPPA, as defined in Figure 1.*

1.3 AS REQUIRED BY CONDITION 19 OF LUC 202.2016 (SUPA)

19. *The consent holder shall provide to the Council an annual report (within one month of the agreed anniversary established in condition 4 or as otherwise agreed in writing by the Council):*
    a) *Describing the location, depth height and volume (m^3) of stopes; and a summary of the data required by Condition 20 regarding unfilled stope voids; and*
    b) *Describing the lengths of development that, due to the encountered geotechnical conditions where multiple levels overlap, will require backfilling prior to mine closure; and*
    c) *Describing the backfilling and compaction associated with each stope; and*
    d) *Describing the ground conditions revealed by the mine excavations; and*
    e) *Describing the monitoring and measures adopted to ensure ground surface stability, particularly as provided for in Condition 15 and the outcomes of such measures; and*
    f) *Describing the location and depth of exploratory drives;*
    g) *Confirming that the extent of the mining works is confined to SUPA, as defined in Figure 1.*

    These reports may be prepared in conjunction with similar reports prepared in accordance with the consent conditions applying to the Correnso Underground Mine.

1.4 AS REQUIRED BY CONDITION 25 OF LUC 202.2017 (MDDP)

25. *The consent holder shall provide to the Council an annual report (within one month of the agreed anniversary established in condition 4 or as otherwise agreed in writing by the Council):*
    a) *Describing the location and depth of the exploratory drives and any intentional interceptions of historic development, rises and access drives; and*
    b) *Describing the lengths of development that, due to the encountered geotechnical conditions or where multiple levels overlap, will require backfilling prior to MDDP closure; and*
    c) *Describing the ground conditions revealed by the MDDP excavations using key identification criteria as defined by an independent geotechnical specialist and*
    d) *Describing the monitoring and measures adopted to ensure ground surface stability, particularly as provided for in condition 21 and the outcomes of such measures; and*
    e) *Confirming that the extent of the underground works is confined to the MDDP area as defined in Figure 1.*

    Advice Note:
    These reports may be prepared in conjunction with similar reports prepared in accordance with the consent conditions applying to the CEPPA and SUPA.

1.5 AS REQUIRED BY CONDITION 74 OF LUC 202.2018 (PROJECT MARTHA)

74. *The consent holder shall provide to the Council on an annual basis (within one month of an agreed anniversary date) a report:*
    a) *Describing the location, depth height and volume (m3) of stopes and a summary of the data required by Condition 75 regarding unfilled stope voids; and*
    b) *Describing the lengths of the development that, due to the encountered geotechnical conditions or where multiple levels overlap, will require backfilling prior to mine closure; and*
    c) *Describing the backfilling associated with each stope; and*
    d) *Describing the ground conditions revealed by the mine excavations; and*

e) Describing the monitoring and measures adopted to ensure surface stability, particularly as provided for in Condition 71 and the outcomes of such measures; and
f) Describing the location and depth of exploratory drives; and
g) Confirming that the extent of the mining works is confined to the Project Martha area as defined in Plan A of Appendix 2.

2. LOCATION, DEPTH, HEIGHT AND VOLUME OF STOPES

(Consent conditions: Trio c.16a, Correnso c.25a, SUPA c.19a, Project Martha c.74a)

Trio
No stoping in the Trio project area was undertaken during 2024.

Correnso/SUPA
No stoping in the Correnso/SUPA project area was undertaken during 2024. Some areas were backfilled in line with the closure plans.

A view of Correnso mining operations for the period is presented in Figure 1.

Stope extraction began in mid-2015, with production continuing through until 2022; there was no production during 2024. The upper level of mining remained at the 965 level on the Daybreak Vein and the 954 level for the upper level of Correnso. The mine's greatest depth remained unchanged at 705 mRL.

Martha Underground
Stoping commenced in the Martha Underground area in 2021 and continued through the 2024 reporting period.

The stope volume extracted in the 2024 reporting period was 171,713 m^3, with 162,261 m^3 of backfill placed (Table 1). Stope heights are typically 18 m (floor to floor).

Table 1: Martha Underground monthly stope voids and backfill volumes 2024

Month	Stope Volume (m3)	Backfill Volume (m3)
Jan-24	18,138	2,563
Feb-24	8,494	3,709
Mar-24	13,496	22,741
Apr-24	19,787	24,266
May-24	13,472	15,044
Jun-24	9,217	9,187
Jul-24	17,950	14,927
Aug-24	14,618	20,194
Sep-24	15,385	7,177
Oct-24	31,023	20,534
Nov-24	6,679	18,465

Month	Stope Volume (m3)	Backfill Volume (m3)
Dec-24	3,454	3,454
Totals	**171,713**	**162,261**

Note: Monthly backfill volume includes only stopes that were completely filled in that month i.e. the volume of partially filled stopes is not counted in the monthly total.

Stoping widths vary from 2 m to 4m depending on the vein width. The vertical extent of development at the end of 2024 was approximately 385 m spanning from 630 mRL to 1015 mRL. A view of Martha Underground mining operations undertaken to date is included as Figure 2.

Either Cemented Rock Fill (CRF; 2-9% binder content) or run of mine waste rock fill material is used to fill production and historic voids as required. Any backfilling is conducted promptly after stoping and production bogging has been completed usually within 12 hours and no longer than 24 hours after bogging has been completed.

Various mining methods have been employed to cater for different production scenarios at the Waihi underground mining operation. The methods are summarised below:

Modified Avoca

Bottom-up Modified Avoca methods are largely employed in virgin ground regions including Rex, Edward, Royal East and West. Mining occurs bottom up, up dip and along strike retreating to a central access. Stope void volumes in both the Rex and Edward generally range between 450-1,000 m^3 between levels with stope strike lengths between 8-12 m.

Remnant Methods

Remnant mining of historical fill and ore 'skins' was undertaken in Empire West and Edward mine area during the reporting period. Stopes were mined at various levels through these mining areas ranging from 720 mRL to 920 mRL in a transverse approach to the orebody via footwall drive development and crosscuts approaching historic voids and 'skins'.

Tailored remnant mining in Empire West has been conducted in a top-down fashion to allow establishment of a stabilised crown horizon. Local stabilisation of historic voids and fill extraction is managed through various phases of enabling works to secure historic fill:

1. Spiling - the installation of a network of spiling arrangements from transverse footwall drive development allows installation through the historic fill mass and provides bridging into the in-situ hanging wall as an interim stabilised horizon. Spilling allows initial short turnaround breakthrough into historic void/fill and enables managed undercutting of the 'stiff' historic backfill material. Pressure grouting and resin injection techniques are also employed as part the ground consolidation works prior to fill extraction if applicable.
2. Interim CRF Plug – once the supported historic backfill has been undercut at the top level the excavated void of 5-10 m wide x 4.5 m high is then immediately tight filled and 'choked' with an interim CRF Plug to provide passive resistance to the undercut fill mass.
3. Crown CRF Plug – once the upper-level interim plug has been placed and cured, extraction of historic fill materials on the lower level can commence. At completion of the target historic fill volume below the previously placed interim plug, a final crown CRF plug is placed in the extracted void via a fill pass and tipple from the top level

filling down to the lower extraction drive level. This final CRF installation completes the CRF Crown system.

Each individual CRF crown installation is approximately 12-15m along strike between levels with a target extraction volume of around 700-800m^3. Extraction and replacement with CRF is scheduled and completed in either a primary and secondary sequence, or a retreating front along strike.

The establishment of each individual crown CRF block contributes to the wider regional stability of the historic fill mass to the surface to allow future mining down dip. Regional stability is also monitored via surface settlement surveys, the Open Pit south wall Radar system and inclinometers.

3. DEVELOPMENT & EXPLORATION DRIVES

(Consent conditions: Correnso c.25b&f, SUPA c.19b&f, MDDP c.25a, Project Martha c.74f)

Areas of the mine in which development occurred during 2024 are:

- Correnso
- Edward
- Empire
- Rex
- Royal East

Figures 1 to 5 indicate development progress across the operations as of 31 December 2024.

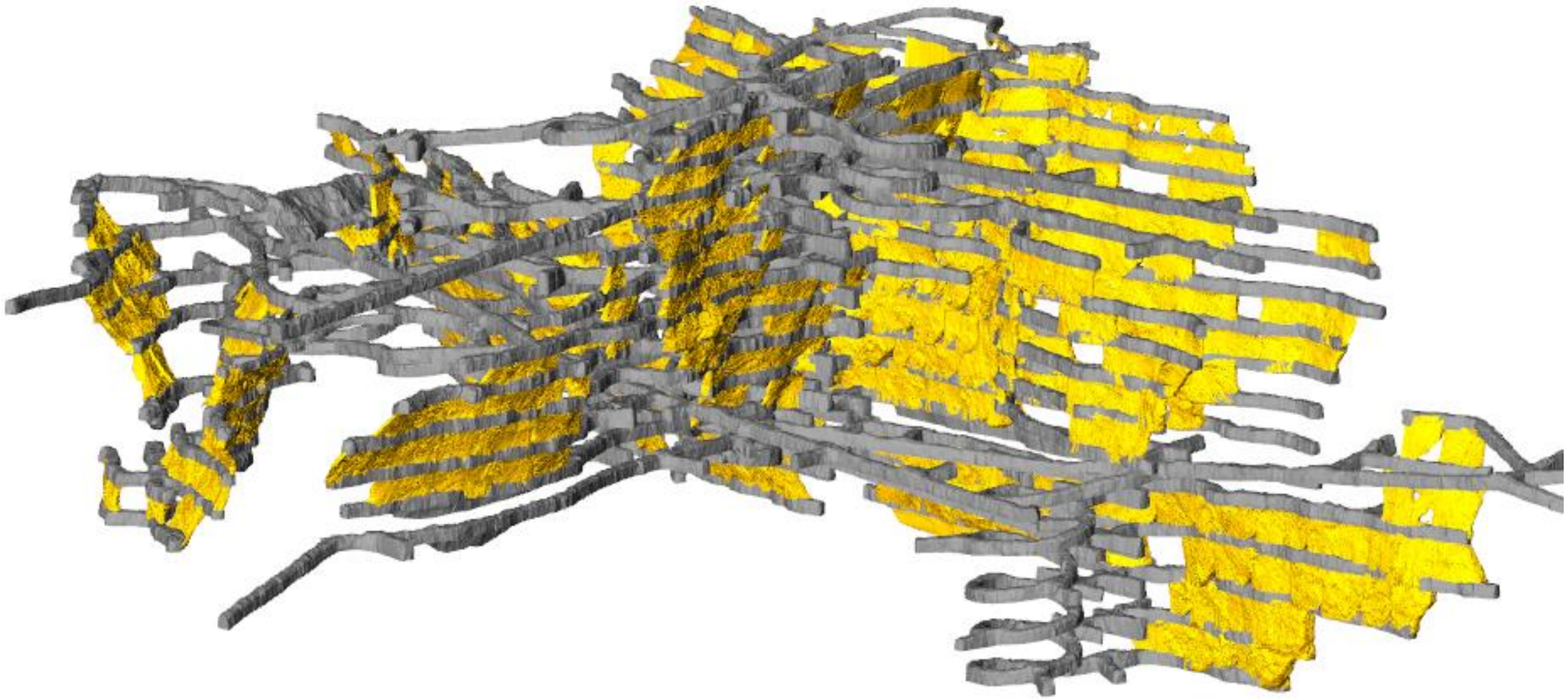


Figure 1: Oblique view of Correnso showing completed development (grey) and stoping (yellow) activities. View is looking northeast.

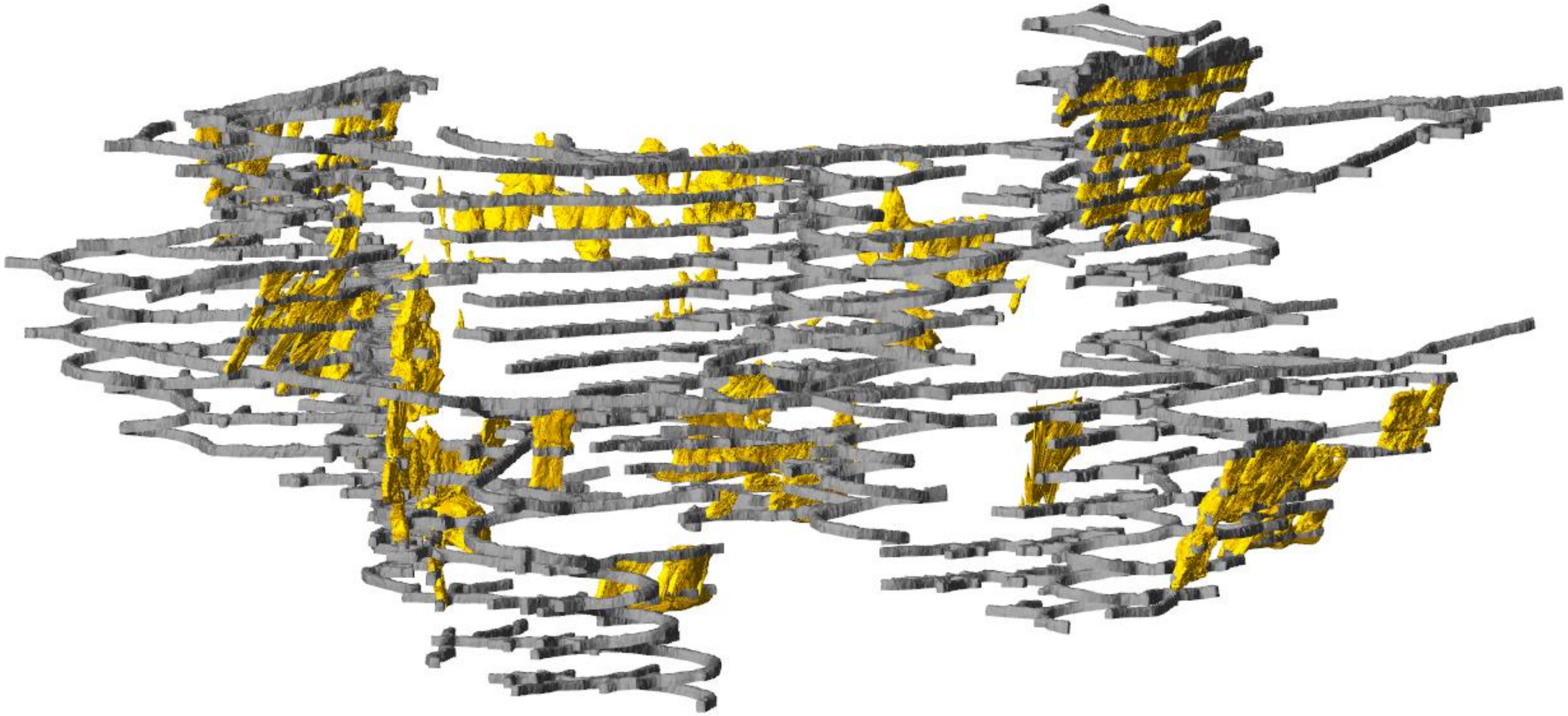


Figure 2: Oblique view of Martha Underground showing completed development (grey) and stoping (yellow) activities. View looking northeast.

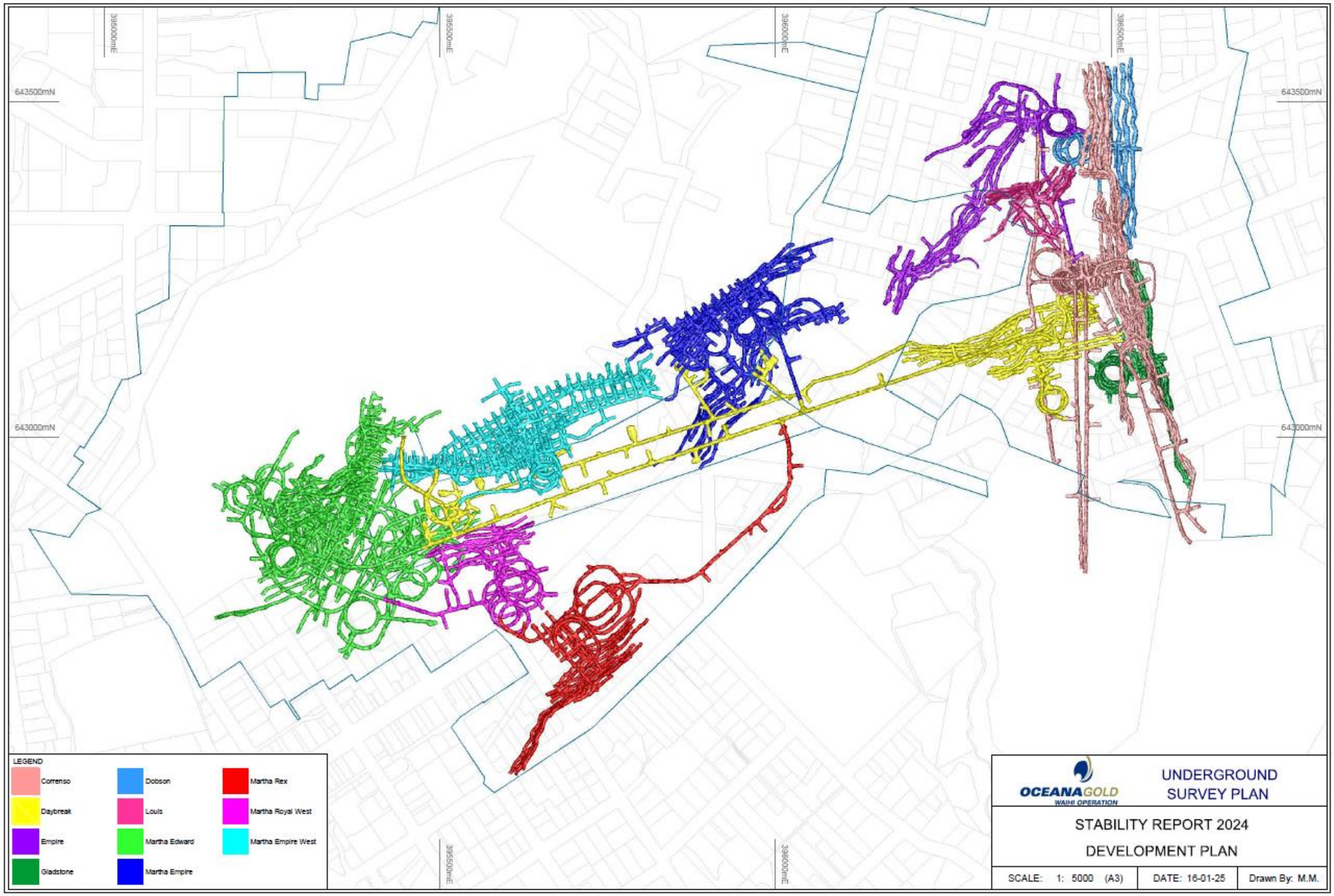


Figure 3: Development – Plan View

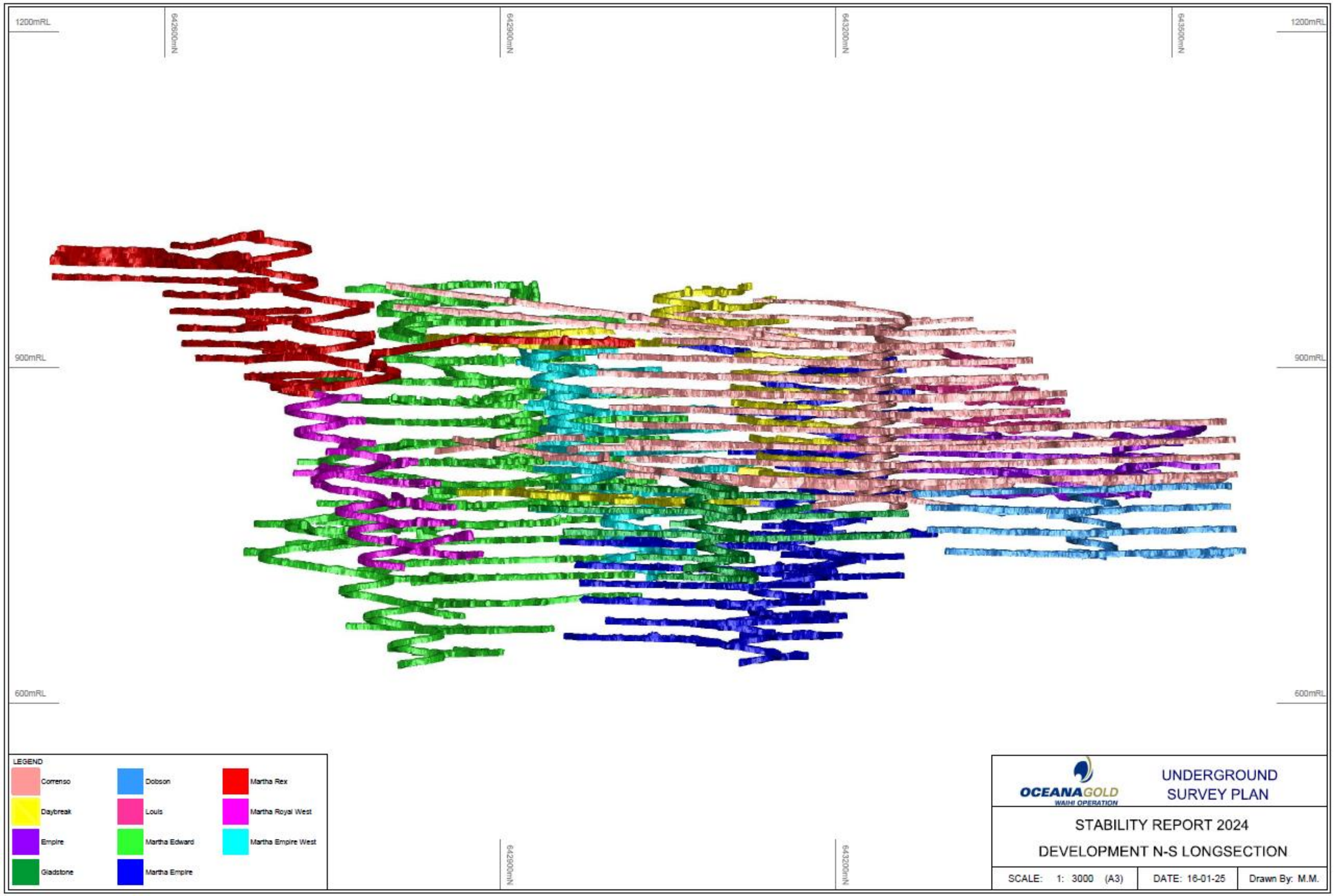


Figure 4: Development – Long Section View (left to right: south to north)

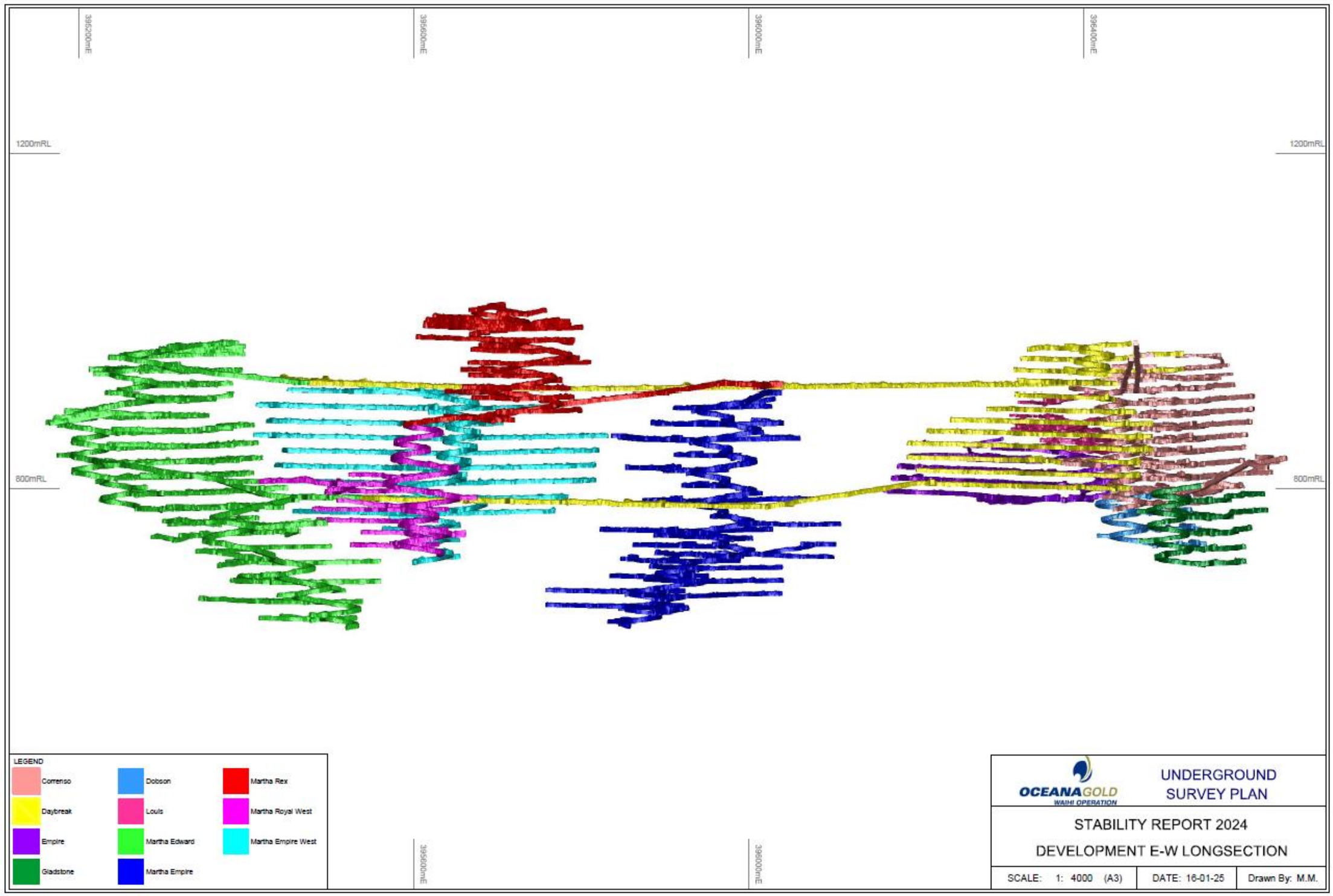


Figure 5: Development – Long Section View (left to right: west to east)

4. BACKFILLING AND COMPACTION

(Consent conditions: Trio c.16b, Correnso c.25c, SUPA c.19c, MDDP c.25b, Project Martha c.74c)

All stopes extracted to date are backfilled with either loose rock, consolidated fill, or CRF, as is dictated by the mining method and conditions. In some cases, compaction occurs during backfilling by the machine placing the fill in the stope, then continues with subsequent operations of heavy machinery on top of the backfill.

Where identified and intersected, historical voids have been backfilled; volumes have been incorporated into the overall stoping backfill data.

Extensions of drives beyond stoping areas were also backfilled where required.

5. GROUND CONDITION REVEALED BY EXCAVATIONS

(Consent conditions: Trio c.16c, Correnso c.25d, SUPA c.19d, MDDP c.25c, Project Martha c.74d; Consent conditions: Correnso c.25b, SUPA c.19b, MDDP c.25b, Project Martha c.74b)

Ground conditions encountered were mostly as expected. General ground conditions for each mining area have been summarised below. The rock mass classification terms (Very Poor, Poor, Fair, Good, Very Good) are derived and in line with NGI (Barton, 1974) Q-value rock mass classification terms based on a combination of the blockiness of the rock mass, the frictional properties of the joints and the stress environment.

Trio
Ground conditions encountered in the Trio project area have been covered in previous editions of the Trio Stability Reports. No new conditions have been encountered during this reporting period.

Correnso/SUPA
Correnso resumed limited operations in 2024 to extract remaining strike drive ore and commence closure backfilling.

Mining operations commenced at the 940 level have consistently encountered good ground conditions, characterized by well-interlocked structures and an undisturbed rock mass consisting of cubical blocks formed by three distinct sets of joints, all of which are dry. Throughout the development of this area in 2024, there have been no significant instances of overbreak or major geotechnical events.

Martha - Edward
The Edward Decline has continued to be developed during 2024. Mining activities were advanced to the 23 level, where the general ground conditions were assessed as Fair to Good. However, certain localized areas, particularly those characterized by moderate to highly weathered zones typically linked to geological formations such as the Welcome series of structures, were classified as Poor to Very Poor rock mass. The application of Fibre Reinforced Shotcrete (FRS) and enhanced ground support were implemented locally in areas that exhibited greater oxidation and weathering, serving as profile control measure in conjunction with corrosion prevention.

The development activities in the upper and mid Edward ore drive have been challenged by adverse ground conditions, which are typically associated with geological structures and mineralization. The rock mass is heavily jointed and oxidized, with the most intense oxidation found in relation to various vein structures and subsequent jointing. Local exsolution cavities are observed within the veined regions, and the occurrence of discontinuous shear zones is common in areas with compromised ground conditions. To enhance structural integrity during development, secondary support techniques, including shotcrete, in-cycle fibrecrete, and cable bolts, have been utilized to provide passive and

deeper embedment support mechanisms. The classification of the rock mass in these regions varies from Very Poor to only slightly above Fair.

The rock mass conditions adjacent to the Open Pit (South) wall at Edward are distinguished by increased weathering of joints and a more fractured of rock mass. However, oxidation is still predominantly associated with veining, along with historical dissolution and groundwater interactions during cycles of dewatering.

Martha – Empire West
The capital development at Empire West in 2024 was advancing in 18 level. This rock mass is predominantly characterized by closely spaced, sub-vertical joints that show moderate to high levels of weathering. Furthermore, there are steeply dipping fault zones present, which contain brecciated materials and localized clay infillings. The geotechnical quality of this rock mass is rated as 'fair' to 'poor,' indicating a considerable likelihood of rockfall and spalling, especially in areas where stress concentrations are elevated near fault intersections. Groundwater is present but not under significant pressure. To maintain stability in the excavation zones, a comprehensive ground support system has been established, incorporating rock bolts, shotcrete, and additional long anchor of bolts.

The upper level of Empire West is characterized by generally poor to very poor ground conditions. The process of mine development frequently intersects with historical mining activities that have already taken place. Rehabilitation work is typically performed to ensure the stabilization of the mining area, which involves backfilling the voids and crown pillar stabilisations.

Martha – Empire and Royal East
Capital development activities in the Empire and Royal East regions are continuing to decline below the 22 level. The access and ore drive development in the Empire mining area has consistently encountered favourable rock mass conditions, which are characterized by good to very good ground stability. Standard installation practices have been adequate for general development, with no additional secondary support required. However, some localized support enhancements have been necessary in the Empire and Royal East areas due to the presence of local wedge-forming discontinuities and structures associated with the orebody and shears. It has been observed that rock mass conditions are becoming increasingly oxidized near the Open Pit (south) wall, although this oxidation remains primarily linked to veining and geological structures.

Martha – Rex and Royal West
The development of capital and ore drives in the Rex and local sections of the Royal West area has progressed throughout 2024. The ore drive development from the hanging wall has predominantly experienced Fair to Good ground conditions. In contrast, the vein and ore body structures within the Rex have been identified as having 'sugary' quartzose rock mass conditions, ranging from Very Poor to Poor. Consequently, enhancements to local support have been necessary, incorporating fibrecrete, spiling, and deeper embedment split-set support, in addition to ground consolidation methods and techniques involving injection. In the Royal West mining areas, level access and ore drive development have generally faced Fair to Very Good rock mass conditions, with only localized support upgrades needed due to specific mining geometries, wedge-forming discontinuities, or localized zones of poor ground, typically linked to weathered or sheared geological formations.

In situations where ground conditions indicate potential vulnerability to long-term geotechnical instability, or where multiple levels intersect, development areas have been compactly backfilled as a preventive measure before the closure of the levels.

6. MONITORING AND MEASURES FOR STABILITY

(Consent conditions: Trio c.16d, Correnso c.25e, SUPA c.19e, MDDP c.25d, Project Martha c.74e)

Monitoring instrumentation is used at Waihi Operations to manage either exposure to geotechnical risks or to obtain data for design validation. When monitoring is used as a tool to manage exposure of personnel to potential hazards, it must be designed such that:

1. Deterioration associated with the hazard is measurable prior to exposure becoming unacceptable.
2. Monitoring and data interpretation can be completed whilst allowing adequate time to react to incoming information.

Established instrumentation monitoring at Waihi Operations comprises:

- An array of three extensometers (with 5 displacement anchors each) have been installed from the surface above the Rex mining area to identify any deterioration in crown pillar areas. Data from these extensometers is recorded every 12 hours using an automated recording and display system.

  The findings indicate that there is no substantial change anticipated in 2024, and the long-term trend remains stable, with a convergence rate value of <1 mm/day, which can be regarded as negligible or relatively constant.

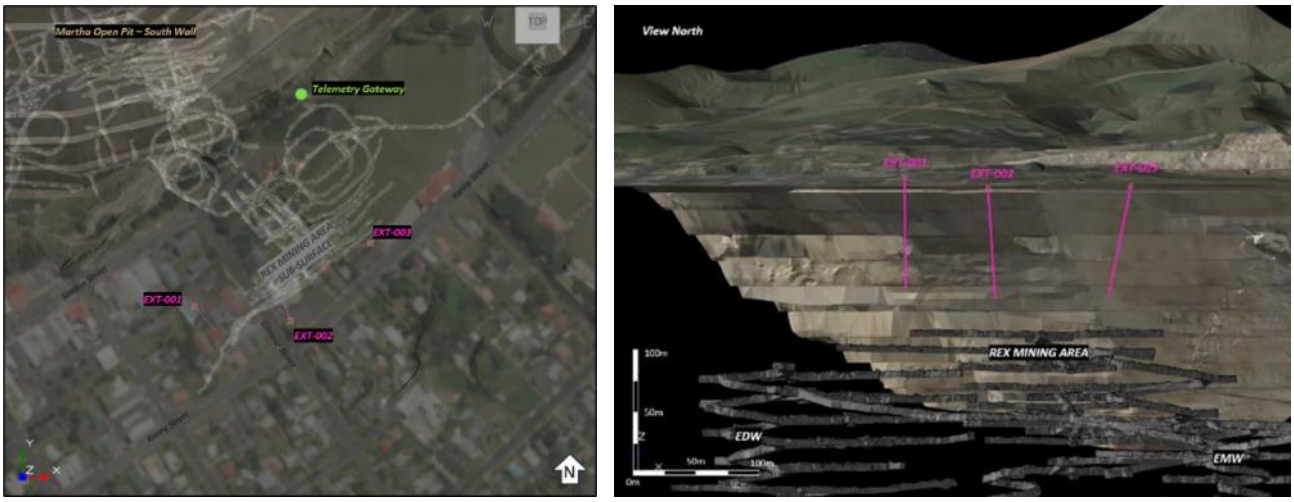


Figure 6: **Rex Mining Area Surface Extensometer Locations**

- One MPBX extensometer is installed in the wide span of the DDC5 bolt store. This unit is measured manually. Two clock-it extensometers are also installed in this area. These units are read visually.
- Two clock-it extensometers are installed in the 800 Edward Decline to monitor the decline floor pillar above an open stope ≈10m below.
- A micro seismic monitoring system is installed to comply with operational licence conditions. This IMS (Institute of Mine Seismology) system records continuously and data is reviewed by IMS who provide daily summary and monthly reports to site engineers. Event activity is displayed in real-time via Ticker software in the geotechnical office. This system has not been installed to specifically monitor the routine occurrence of mining induced seismic activity (which is uncommon across the operation) It is installed as a tool to identify energy released during unplanned displacement that may not be otherwise observable with the objective of pre-emptively managing void propagation and preventing

surface instability. Events recorded with magnitudes greater than -0.5 are to be reported to HDC through the applicable site representative.

The health of the seismic system is relatively stable throughout 2024.

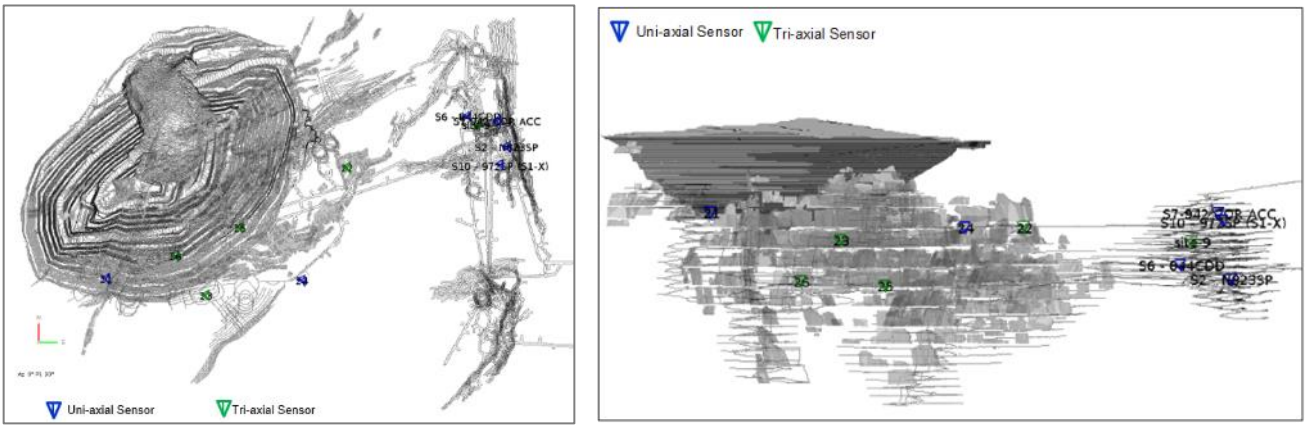


Figure 7: **Microseismic Sensor Locations in Waihi Underground**

During the mine planning and design processes, assessment of key geotechnical considerations is needed to permit an efficient and effective approval process. These considerations are listed in Table 2 complete list of assessment criteria is documented in the Geotechnical stope approval document & supporting risk assessment.

Table 2: Key Geotechnical Design Considerations

ACTIVITY	KEY GEOTECHNICAL CONSIDERATIONS
Development Design	• Intended use & longevity • Failure modes, (block or wedge failure) • Proximity to other excavations (existing & proposed at time of design) • Development orientation and geometry • Ground conditions (both presently and for the life of the excavation) • Proximity to regional structures or adverse geomechanical domains • Future confinement loss at brow locations

Stope Design	• Maximum probable span stability (with consideration of reconciliation data)
	• The influence of regional structures or geomechanical domains on excavation stability
	• Stress re-distribution and its effect on:
	  ◦ The stability of production areas
	  ◦ Nearby development or infrastructure
	  ◦ Nearby unfilled production areas
	  ◦ Regional pillar stability
	• Regional stoping effects on future production
	• Influence on access development & critical infrastructure
	• Stand-off distances to other excavations
	• Long term stability & backfill controls

The evaluation of the elements presented in Table 2 aims to confirm that the implementation of minimum ground control standards, along with any supplementary control measures utilized to address residual vulnerabilities, is sufficient to guarantee safe access and optimize production efficiency.

7. MINING CONFINED TO CONSENT BOUNDARIES

(Consent conditions: Correnso c.25g, SUPA c.19g, MDDP c.25e, Project Martha c.74g)

Figure 8 displays the current mine development overlying an aerial projection, with the consent boundaries superimposed. All current works are entirely within the consent boundaries.

Surveying methodology has been previously audited and found to be well within the standards prescribed. This accuracy has been utilised to ensure that works stay conservatively within consent boundaries.

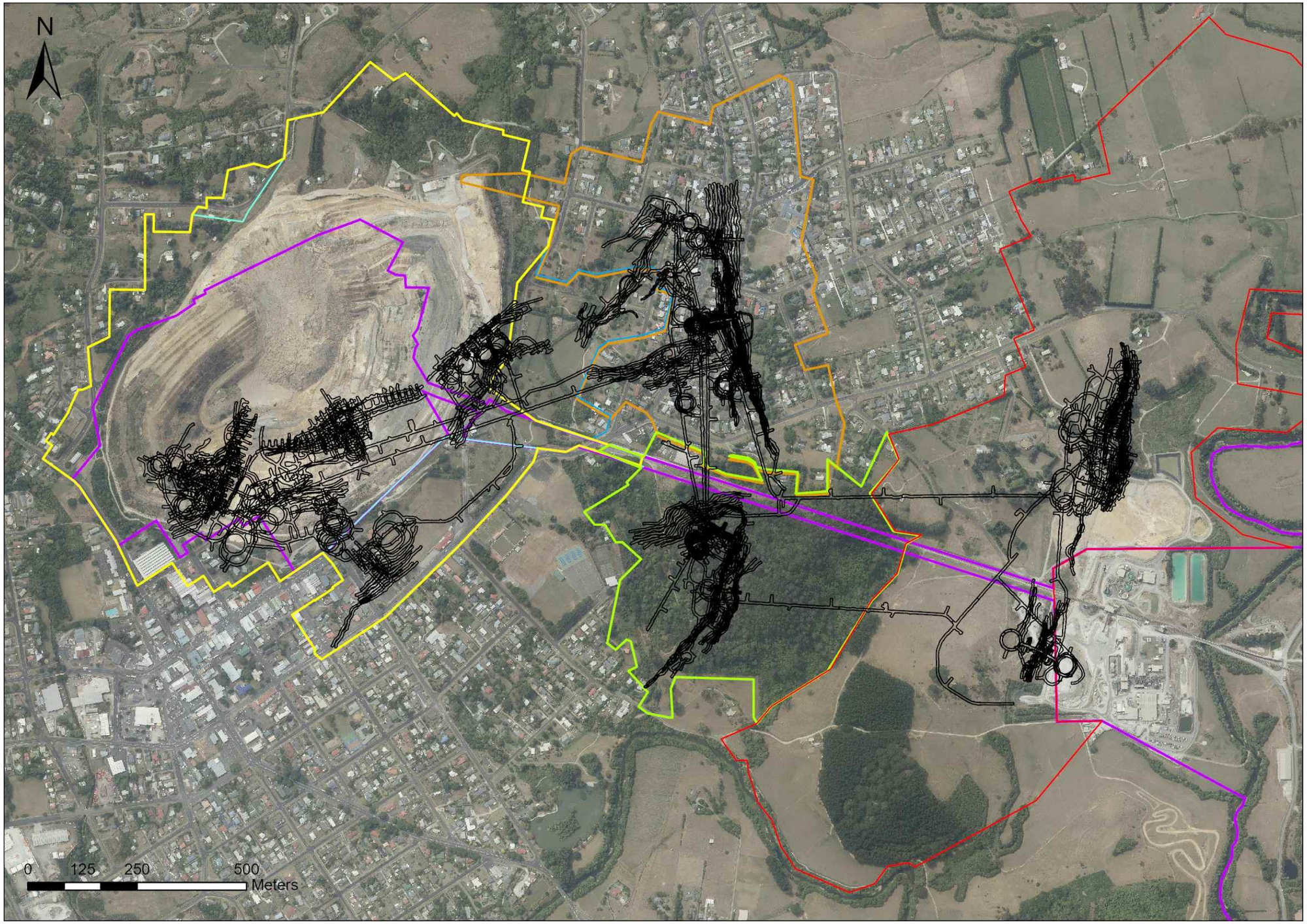


Figure 8: Plan of Development (as at Jan 2025) overlying Consent and Licence boundaries

8. REVIEW OF CONSENT CONDITION REQUIREMENTS

Review of related consent condition requirements regarding surface stability:

- LUC RC-15774 (TRIO) - Condition 15
- LUC 202.2012 (CORRENSO) - Condition 23
- LUC 202.2016 (SUPA) - Condition 15
- LUC 202.2017 (MDDP) - Condition 21
- LUC 202.2018 (PROJECT MARTHA) - Condition 71

Table 3: Review of related consent condition requirements

Summarised requirement	Comment	Report Reference
Mining methods used require stope voids to be backfilled	All stopes are backfilled as is required for the Avoca mining method (pictorial representation in Appendix B).	Appendix B
	The limited areas of Cut and Fill mining have also been backfilled. Backfilling of remnant mining areas is covered in Section 2.	Section 2
Limits to upper levels of stoping	The uppermost level on which stoping has been carried out by the end of 2024 was the Rex 3 level (1010mRL).	Section 2
Development backfilling where required by geotechnical conditions	Unless ground conditions were encountered that create geotechnical instability, or where multiple levels overlap, no areas of development having ground conditions described in section 5 are expected to require backfilling.	Section 4 Section 5
Seismic monitoring and rock movement monitoring	Refer to section 6	Section 6
Grouting of surface-drilled holes	No surface-drilled exploration holes during the reporting period.	
Interception of surface-drilled holes with water flows, and their treatment	No water flows from intersection of workings with previously drilled holes.	Appendix C
Works confined within consent boundaries	Refer to Figure 8	Figure 8
Historical open voids formed from caving or stoping shall be identified to be backfilled	Refer to section 4	Section 4
No stoping in the Rex Orebody shall occur above a depth of at least 40m below the top of the andesite	Stoping in the Rex Orebody has been undertaken to 23m depth into the andesite, after investigations were reported to the Council to demonstrate to its satisfaction that surface stability will be ensured at this lesser depth.	
Backfilling of any other underground workings that overlap with the Martha Underground Mine where geotechnical conditions require backfilling to ensure long-term stability	Refer to sections 4 & 5	Section 4 Section 5
Three extensometers to be installed from the surface above the Rex Orebody where practicable	Refer to section 6	Section 6

9. CONCLUSION

OceanaGold has fully complied with Conditions 16 (of HDC LUC RC-15774 [Trio]), 25 (of HDC LUC 202.2012 [Correnso]), 19 (of HDC LUC 202.2016 [SUPA]), 25 (of HDC LUC 202.2017 [MDDP]) and 74 (HDC LUC 202.2018 [Project Martha]) and the risk of ground surface instability is extremely low due to the geology of the area and best practice underground mining methodologies which have been employed.

Six-monthly tilt surveys have continued to show that there is no evidence of mining induced surface instability.

10. REFERENCES

Barton et al (1974). Barton, N., Lien, R. and Lunde, J. 1974. Engineering classification of rock masses for the design of tunnel support. Rock Mech., May. 189-236.

Appendix A – Related Consent Conditions

As required by Condition 15 of LUC RC-15774 (Trio)

15. *Mining operations shall be conducted to minimise the risk of surface instability above the Trio Underground Mine. In particular, the following measures are to be adopted in this regard:*
    - *Employ only the modified Avoca Mining method in mining operations*
    - *Ensure that stopes mined on the upper two levels in the Union vein do not exceed 30m in length measured along the lower length of the stope void.*
    - *Conduct an intensive drilling programme to confirm ground conditions in the lower levels of the old Union vein workings to ensure that an effective crown pillar thickness is left between the old workings and the Trio Underground Mine to maintain stability underground and hence stability of the surface*

    Measures adopted to minimise the risk of surface instability shall be reported to Council in accordance with Condition 16.

As required by Condition 23 of LUC 202.2012 (Correnso)

23. *Underground mining within the Correnso Underground Mine shall be conducted to ensure ground surface stability. This shall include adoption of the following measures:*

    a) *Mining methods shall be restricted to those that require stope voids to be backfilled to provide an operating floor for further stoping to proceed.*

    b) *No stoping shall occur above whichever of the following criteria sets the lower (deeper) level:*
        i) *A depth of at least 130m below the ground surface.*

        ii) *A depth of at least 40m below the top of the andesite, unless geotechnical investigations reported to the Council demonstrate to its satisfaction that a greater or lesser depth is appropriate to ensure surface stability.*

    c) *Backfilling of any other underground workings where geotechnical conditions require backfilling to ensure long-term stability.*

    d) *Seismic monitoring and rock movement monitoring of underground mine workings for the duration of mining including backfilling and any other underground rehabilitation work.*

    e) *Grouting of all future surface-drilled holes to a depth below the top of the andesite.*

    f) *Any surface drillhole having significant and sustained water flows into the workings shall be grouted from underground within three shifts (36 hours) of being intersected. The hole shall be grouted to at least 30 metres from the collar using the same method used to grout uphole cable bolts.*

As required by Condition 15 of LUC 202.2016 (SUPA)

15. *Underground mining within the Slevin Underground Mine shall be conducted to ensure ground surface stability. This shall include adoption of the following measures:*

    a) *Mining methods shall be restricted to those that require stope voids to be backfilled to provide an operating floor for further stoping to proceed.*

b) No stoping shall occur above whichever of the following criteria sets the lower (deeper) level:

iii) A depth of at least 130m below the ground surface.

iv) A depth of at least 40m below the top of the andesite, unless geotechnical investigations reported to the Council demonstrate to its satisfaction that a greater or lesser depth is appropriate to ensure surface stability.

c) Backfilling of any other underground workings where geotechnical conditions require backfilling to ensure long-term stability.

d) Seismic monitoring and rock movement monitoring of underground mine workings for the duration of mining including backfilling and any other underground rehabilitation work.

e) Grouting of all future surface-drilled holes to a depth below the top of the andesite.

f) *Any surface drillhole having significant and sustained water flows into the workings shall be grouted from underground within three shifts (36 hours) of being intersected. The hole shall be grouted to at least 30 metres from the collar using the same method used to grout uphole cable bolts.*

As required by Condition 21 of LUC 202.2017 (MDDP)

21. Underground operations within the Alternative MDDP Breakthrough Drive shall be conducted to ensure ground surface stability. This shall include adoption of the following measures:

a) No stoping shall occur.

b) Backfilling of any other underground workings where geotechnical conditions require backfilling to ensure long-term stability and in particular at least 50m of the ventilation drive shall be backfilled either before the expiry of this consent or immediately following the completion of any subsequent underground mining that may result from the Alternative MDDP Breakthrough Drive exploration, whichever is the latter.

c) Seismic monitoring and rock movement monitoring of underground mine workings for the duration of exploration including backfilling and any other underground rehabilitation work.

d) Grouting of all future surface-drilled holes to a depth below the top of the andesite.

e) *Any surface drillhole having significant and sustained water flows into the workings shall be grouted from underground within three shifts (36 hours) of being intersected. The hole shall be grouted to at least 30 metres from the collar using the same method used to grout uphole cable bolts.*

As required by Condition 71 of LUC 202.2018 (Project Martha)

71. Underground mining within the Martha Underground Mine shall be conducted to ensure ground surface stability. This shall include adoption of the following measures:

a. Mining methods shall be restricted to those that require stope voids created or enlarged as a result of this consent to be backfilled;

b. Historical open voids formed from caving or stoping shall be identified to be backfilled to ensure that these do not cause localised disturbance or displacement as a result of interaction with future stoping. This is to ensure short term and long-term stability;

c. *No stoping in the Rex Orebody shall occur above a depth of at least 40m below the top of the andesite, unless investigations reported to the Council demonstrate to its satisfaction that a lesser depth will ensure surface stability. Any such investigation report is to include, at least, results from groundwater monitoring above the Rex workings, results from extensometers installed from the surface above the Rex workings, and surface settlement results from markers in the area above the Rex Orebody;*

d. *No stoping shall occur within 20 m of the mapped extent of the Milking Cow Zone. This three dimensional zone is held within the consent holder's geological model and shown schematically as Appendix 4;*

e. *Backfilling of any other underground workings that overlap with the Martha Underground Mine where geotechnical conditions require backfilling to ensure long-term stability;*

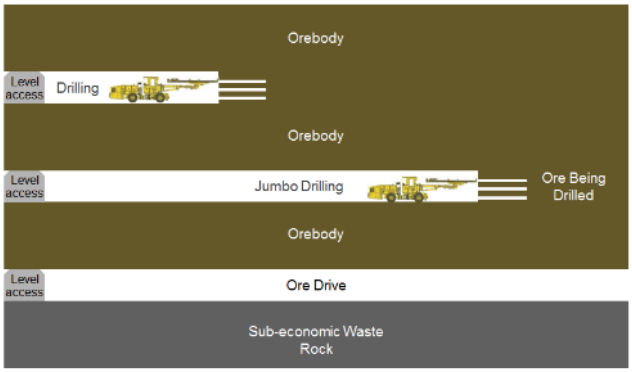
f. *Seismic monitoring and rock movement monitoring of underground mine workings for the duration of mining including backfilling and any other underground rehabilitation work to include at least the monitoring of three extensometers to be installed from the surface above the Rex Orebody where practicable; and*

g. *Grouting of all future surface-drilled holes to a depth below the top of the andesite.*

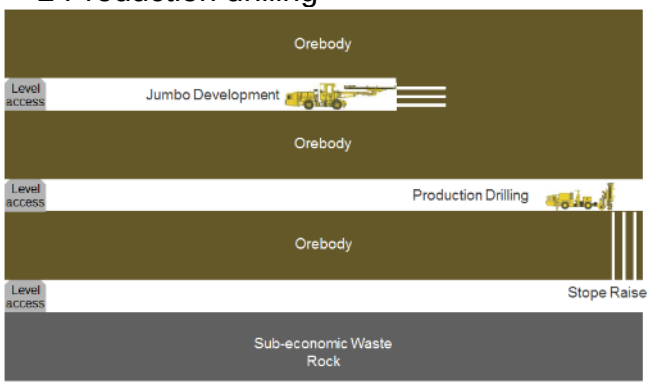
Appendix B - Modified Avoca Technique

Schematic of Modified Avoca Technique

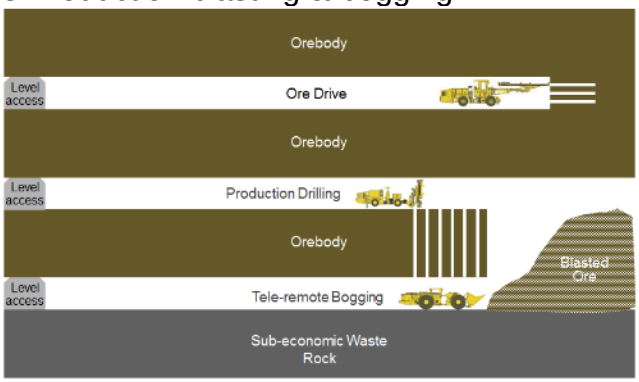
1 Drill drive access



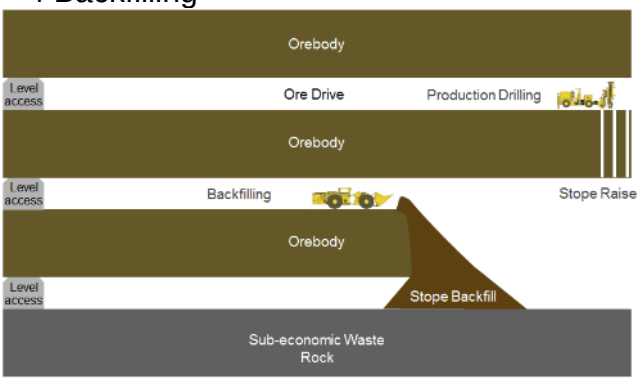
2 Production drilling



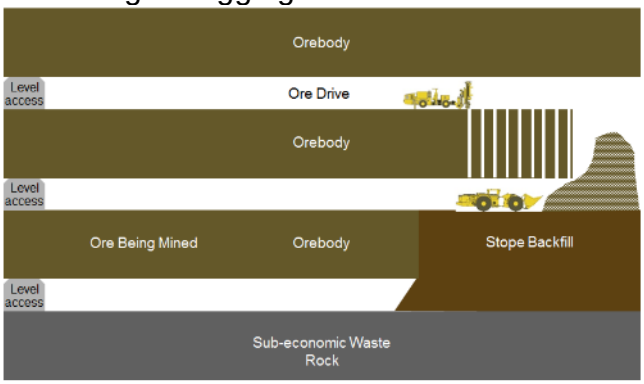
3 Production blasting & bogging



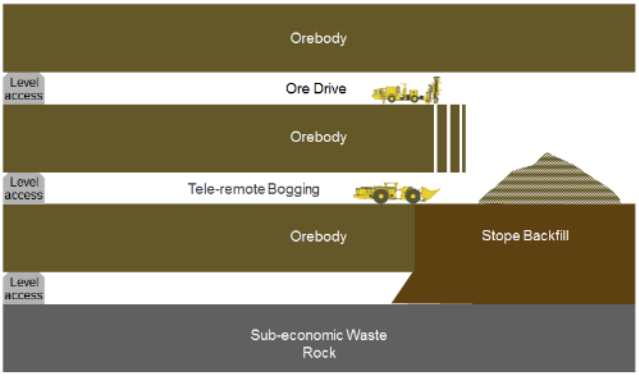
4 Backfilling



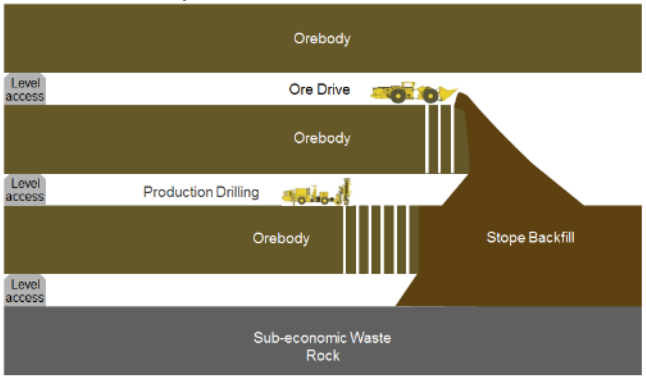
5 Blasting & bogging over backfill



6 Progressive blasting/bogging



7 Multi-level production/backfill



Appendix C - Surface Drillholes Intersecting Workings

The table below lists surface drillholes which intersect development, along with their pierce points. There were no surface holes drilled in 2024 and there were no water flows from the intersection of workings with previously drilled holes.

Hole ID	Level	Drive	E	N	m.R.L	Date intersected	Pickup	Grouting status	Comments
CGD008	810	C4-FW	396488.5	643473.4	821.4	13/06/2015	Estimated	Not grouted	Hole dry - no evidence of being a water conduit at this level: no Fe staining
UW320	912	ACC	396431.997	643265.11	917.774	13/04/2015	Surveyed	Not grouted	Hole dry
UW348	900	C1-N	396520.5	643263.45	907.62	14/12/2015	Estimated	Grouted	Trickling water which ceased within a day - grouted 16/12/2015
UW358A	900	C1-S	396586.70	643035.20	910.55	25/07/2016	Estimated	Grouted	Low flow, originally grouted within 12 hours, re-grouted after 36 hours. Surrounding split sets grouted as were acting as a conduit. Flow was approximately 1ltr/min
UW365	810	C4-FW	396488.4	643474.8	821.4	9/06/2015	Estimated	Not grouted	Hole dry
UW368	825	C7-S	396515.304	643114.23	833.067	26/08/2015	Surveyed	Grouted	Minor flow - hole re-grouted 16/12/2015
UW386	915	ORE PASS	396482.291	643218.53	914.937	4/02/2015	Surveyed	Not grouted	Hole dry - now in ore pass
UW390	840	C1-S	396541.39	643198.97	844.082	25/03/2015	Surveyed	Not grouted	Hole dry - no evidence of being a water conduit at this level: no Fe staining
UW393	840	C4-HW	396472.922	643416.31	851.398	16/08/2015	Estimated	Not grouted	Hole dry
UW402	953	CDD	396449.3	643126.9	930.5	17/12/2014	Surveyed	Grouted	Hole was producing minimal water for only a few hours
UW402	855	C7-S	396515.03	643092.42	864.645	18/10/2015	Surveyed	Not grouted	Dry - second time intersecting hole with development - was grouted on the 953
UW374	860	DB-HWW	396237.72	643120.73	871.896	16/12/2016	Surveyed	Not grouted	Hole was dry, no indication of previous water - i.e. no fe staining, etc.
CGD003	942	ACC	396486.76	643260.62	941.1	12/03/2017	Estimated	Not grouted	Only a very light trickle and ceased completely within 24 hours
UW339	~775	Dobson RAD	396489.45	643296.31	778.239	10/06/2017	Surveyed	Not grouted	Hole intercept in backs dry but producing water from the floor due to being below the current water table. Floor intercept plugged 26/6/17 but no need to plug the backs intercept.
UW178	767	TS	396531.446	642606.78	772.142	29/07/2019	Estimated	Not grouted	Hole dry
UW363	752	ACC	396414.65	642616.38	603.538	17/05/2020	Estimated	Not grouted	Hole dry
UW146	752	TN	396421.954	642748.94	612.354	7/10/2020	Estimated	Not grouted	Hole dry
UW366A	782	TN	396531.684	642608.27	789.086	12/06/2019	Estimated	Not grouted	Hole dry
UW412A	EDW6ODR4	MUG	395288.973	642890.04	961.675	12/10/2021	Estimated	Not grouted	Hole dry
UW457	EDW 006 ACC	MUG	395261.179	642840.59	958.36	5/06/2021	Surveyed	Grouted	No significant flow
UW658	EDW 007 5 2 1	MUG	395355.032	642926.43	939.1	11/05/2021	Surveyed	Grout from 496.70m to the Surface, Van ruth plug set at 360m	No significant flow
UW418	EDW 008 ACC	MUG	395311.079	642864.49	922.453	28/06/2020	Surveyed	Not grouted	No significant flow
UW498	REX 007 ODR 5 02	MUG	395707.58	642657.05	924.99	24/05/2021	Estimated	140m - 100m; Set HQCWBP @ 140m; Mix and pump 289.8L of grout. 12 x 25kg 289.8L	Hole dry
UW414	EDW 009 ODR 3 2 1 2	MUG	395316.365	642968.55	911.071	26/07/2021	Estimated	Not grouted	No significant flow
UW412A	EDW 009 ACC	MUG	395340.937	642880.67	907.23	27/10/2021	Surveyed	Not grouted	Hole dry
UW738	REX 006 ODR 02	MUG	395689.31	642629.53	939.14	7/11/2021	Estimated	Grouted hole from 284.3m, 136 x Cement, 3800ltrs.	Hole dry intersected at 274 m down hole
UW414A	EDW 13 FWD 13	MUG	395352.51	642880.08	833.35	1/04/2022	Estimated	Grouted	Hole dry
UW721	REX 003 ODR 1 01	MUG	395757.86	642668.11	976.30	28/05/2022	Estimated	Grouted	Hole dry
UW722	REX 004 ODR 02	MUG	395707.41	642630.64	967.03	30/05/2022	Estimated	Grouted	Hole dry
UW678	REX 004 ODR 02	MUG	395682.33	642609.08	969.59	13/05/2022	Estimated	Grouted	Hole dry
UW710	REX 002 ODR 02	MUG	395721.01	642625.06	988.85	5/08/2022	Estimated	Grouted	Hole dry
UW719	REX 002 ODR 02	MUG	395689.19	642607.20	994.23	25/08/2022	Estimated	Grouted	Hole dry