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**ASX ANNOUNCEMENT**

**31 July 2020**

# Updated Savannah Ore Reserve and Mine Plan

## KEY POINTS

- Updated Mine Plan based on an updated Ore Reserve estimate completed for the Savannah Project by specialist consultants, Entech
- Outcomes confirm an attractive, near-term nickel sulphide mine restart opportunity
- Total Savannah Ore Reserve (including Savannah North) at 30 June 2020 of **8.3Mt @ 1.23% Ni, 0.59% Cu and 0.08% Co for 102kt Ni, 48.5kt Cu and 7kt Co contained metal**
- Updated Mine Plan includes some Inferred Resources located near Ore Reserves, which increases the mining inventory to **10.4Mt @ 1.22% Ni, 0.54% Cu and 0.08% Co for 127kt Ni, 56kt Cu and 8.5Kt Co contained metal**
- The Savannah North orebody remains open along strike and at depth, providing significant potential to bring more material into the Mine Plan with future underground drilling
- Attractive Base Case financial outcomes, including pre-tax cash flow of A$468M and $NPV_8$ of A$262M[1]
- Consensus Case (using consensus commodity price forecasts) delivers pre-tax cash flow of A$637M and $NPV_8$ of A$343M[2]
- Key operational outcomes of the Mine Plan include:
  - Increased mine life of approximately 13 years, with majority of ore sourced from the Savannah North orebody
  - Average annual production for years 1 to 12 of 8,810t Ni, 4,579t Cu and 659t Co in concentrate
  - Average site All-in Costs[3] for years 1 to 12 of A$7.54/lb payable Ni (US$5.27/lb payable Ni), net of Cu and Co by-product credits[4]
- Underground pre-production development works planned to be funded from existing cash reserves and including completion of the Fresh Air Raise ("FAR 3") ventilation works, will commence in August 2020 and are expected to be concluded by the end of March quarter 2021, allowing for a potential restart in the first half of 2021

Panoramic Resources Limited (ASX:PAN) ("Panoramic" or the "Company") is pleased to provide the outcomes of an updated Ore Reserve and Mine Plan for the Savannah Nickel Project ("Savannah" or the "Project") in Western Australia. The outcomes confirm Savannah as an attractive, near-term nickel sulphide mine restart opportunity.

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[1] Base Case financial outcomes of the Mine Plan based on exchange rate of AUD:USD 0.70 and commodity prices of US$15,750/t Ni, US$6,300/t Cu and US$38,500/t Co as adopted by Entech in its Ore Reserves calculation.
[2] Consensus Case financial outcomes of the Mine Plan based on exchange rate of AUD:USD 0.70 and commodity prices provided by Consensus Economics as outlined in Table 2 of this announcement.
[3] Includes all site mining, processing, general & administrative, freight and concentrate handling costs, capital expenditure and royalties.
[4] Assuming Base Case commodity prices and exchange rate.

The Mine Plan and Ore Reserve update was completed by specialist consultants, Entech, with oversight and input from the Panoramic management team. The full Mine Plan update report compiled by Entech is appended to this announcement.

Following the positive outcomes of the update, underground pre-production development will recommence in August 2020, with the objective of completing the Savannah North ventilation raise and certain additional underground works to support the future mining of Savannah North. These programs will leave the Project significantly de-risked and capable of being restarted in the first half of 2021.

Commenting on the new Mine Plan and Ore Reserve, Managing Director & CEO, Victor Rajasooriar, said:

*"The updated Mine Plan and Ore Reserve for Savannah underpin the potential future restart of the operation and confirm the significant value of the asset.*

*"This updated technical study includes the results of all infill drilling completed at Savannah and applies the learnings gained from our recent operating experience. In doing so we have further de-risked the potential Project restart.*

*"The Mine Plan provides an attractive base case for Savannah, with significant capacity to further enhance the mining inventory by converting the Inferred Resources at Savannah North and the orebody remaining open at depth and along strike. Furthermore, the Project is highly leveraged to upside in nickel prices expected to be driven by the electric vehicle market, as evidenced by the consensus case financial metrics using consensus forecast prices.*

*"We now have a firm foundation to recommence underground pre-production development next month, to complete ventilation works for Savannah North and complete areas of capital development to lay further groundwork for a potential restart of operations. This work will be concluded towards the end of the March quarter 2021 and we expect to be in a position where the Project is capable of being restarted in the first half of 2021.*

*"Any decision to restart the operation will only be made by the Board after due consideration of commodity markets, operational factors and the Company's broader strategic objectives."*

## Updated Mine Plan

The updated Mine Plan builds on previous technical studies completed for Savannah, principally the Updated Feasibility Study completed in October 2017. Fundamental aspects of the potential restart strategy remain unchanged from when Savannah was operational earlier in the year, including mining method, geotechnical parameters and ore processing.

Mine scheduling has been adjusted with the objective of ramping up ore production to 960,000t per annum as quickly as possible. Ore sourced from Savannah North underpins the potential restart strategy, with scheduling of ore from Savannah remnants limited to a maximum of 25,000t per month (materially less than the previous Mine Plan).

The updated Ore Reserve underpins an estimated 13 year mine life[5]. The majority of ore in the first 5 years of the Mine Plan is sourced from Proven Ore Reserves, whilst Probable Ore Reserves provide the majority of ore feed from year 6 onwards.

Inferred Resources are introduced as a meaningful ore source from the end of year 3. Overall, Inferred Resources comprise 19.3% of the Mine Plan and no more than 20% of the ore source from any year in the first 7 years. Underground diamond drilling is planned during operations with the aim of upgrading portions of the Inferred Resources into Ore Reserve, with additional drilling platforms becoming available as the mine deepens.

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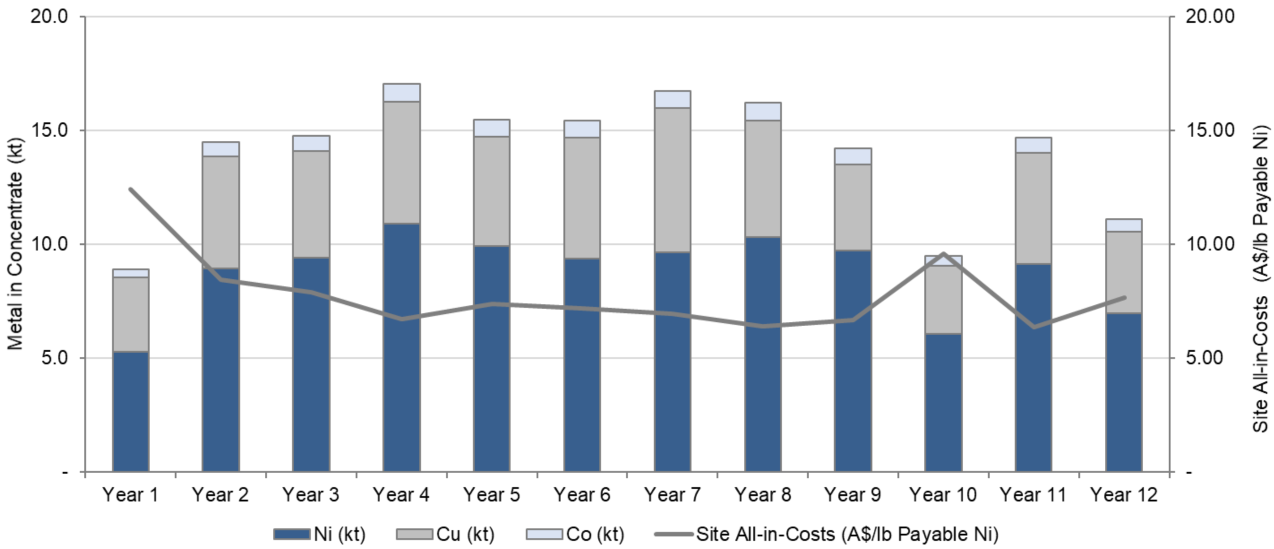
[5] **Cautionary Statement**: The updated Mine Plan contains 80.7% Ore Reserve and 19.3% Inferred Mineral Resource. There is only 1.2% of Inferred Resources included in the first 3 years of the updated Mine Plan. There is a lower level of geological confidence associated with the Inferred Mineral Resource and there is no certainty that further exploration work will result in the conversion to an Ore Reserve or that the production target itself will be realised.

Average annual production from Savannah over years 1 to 12 is estimated at 8,810t Ni, 4,579t Cu and 659t Co metal in concentrate. Site All-in Costs[6] over the same period are estimated to average A$7.54/lb payable Ni (or US$5.27/lb payable Ni) across the life of mine (see Figure 1).[7]

Figure 1: Mine Plan Production and Site All-in Costs




The updated Mine Plan has conservative dilution parameters and mining recoveries (reducing overall head grades) and includes latest contractor mining costs and higher milling consumables than previously estimated in the Updated Feasibility Study from 2017.

Processing recoveries average 83% Ni, 98% Cu and 92% Co over the life of mine, based on historical plant performance for Savannah ore and an extensive metallurgical test work program on samples from Savannah North. It is assumed no deleterious elements will be contained in the concentrate produced.

Other costs estimates were based on recent operating experience at Savannah, direct quotes from key suppliers or from Entech's database.

Key macroeconomic assumptions for commodity price and exchange rate used to determine the Ore Reserve plan's economic viability are summarised in Table 1. These assumptions are used as the Base Case scenario.

Table 1: Base Case Commodity Price and Exchange Rate Assumptions

| Item | US$/t | AUD:USD | A$/t |
|---|---|---|---|
| Nickel | 15,750 | 0.70 | 22,500 |
| Copper | 6,300 | 0.70 | 9,000 |
| Cobalt | 38,500 | 0.70 | 55,000 |

[6] Includes all site mining, processing, general & administrative, freight and concentrate handling costs, capital expenditure and royalties.
[7] Assuming Base Case commodity prices and exchange rate.

A Consensus Case was modelled based on a consensus market forecasts[8] with the commodity price and exchange rates used shown in Table 2 below.

Table 2: Consensus Case Commodity Price and Exchange Rate Assumptions

| Item | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026+ |
|---|---|---|---|---|---|---|---|
| Nickel (US$/t) | 12,606 | 13,903 | 14,741 | 15,012 | 15,628 | 16,077 | 17,595 |
| Copper (US$/t) | 5,335 | 5,787 | 6,154 | 6,258 | 6,469 | 6,765 | 7,351 |
| Cobalt (US$/t) | 36,206 | 38,512 | 42,668 | 43,539 | 46,794 | 48,950 | 53,457 |
| AUD:USD | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |

Financial modelling also assumes a 2.5% royalty on the value of metal in concentrate payable to the WA Government and a 1.25% Net Smelter Return royalty to the Purnululu and Malarngowem People.

Savannah is located on a granted Mining Lease and fully permitted. No additional approvals for mine restart, other than the standard notifications required under the *Mines Safety and Inspection Act* 1994 (WA). A Native Title Agreement with the Purnululu and Malarngowem People is in place through the Kimberley Nickel Co-Existence Agreement.

The significant existing infrastructure on site, including the 1.0 Mtpa processing plant, diesel power station, underground mine services, accommodation camp and haul roads are being maintained throughout the current suspension period and will be utilised under a restart scenario.

Key financial outcomes of the Mine Plan are shown in Table 3 below.

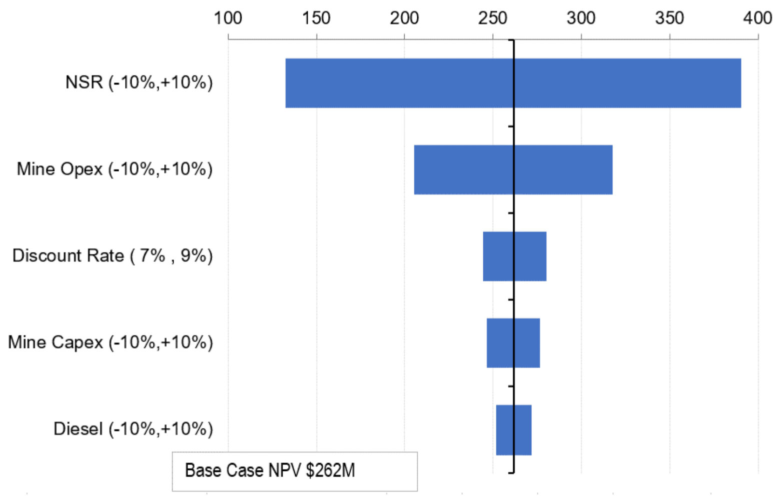
Table 3: Key Outcomes of the Mine Plan

| Site Costs | Base Case A$M | Consensus Case A$M |
|---|---|---|
| Life of Mine Capital Costs | 223 | 223 |
| Life of Mine Operating Costs[9] | 1,384 | 1,384 |
| **Total Life of Mine Site Costs** | **1,607** | **1,607** |
| **Site Unit Costs (Life of Mine Average)** | **A$/lb payable Ni** | **A$/lb Payable Ni** |
| Capital Costs | $1.12 | $1.12 |
| Operating Costs[10] | $8.29 | $8.29 |
| By Product Credits | $(2.47) | $(2.92) |
| **Site All-in Costs[11]** | **$7.54** | **$7.14** |
| **Financial Summary** | **A$M** | **A$M** |
| Gross Revenue | $2,289 | $2,480 |
| Pre-Tax Cashflow | $468 | $637 |
| Pre-tax $NPV_8$ | $262 | $343 |
| Pre-tax IRR | 67% | 61% |

[8] Consensus Economics, June 2020.
[9] Excludes royalties and freight.
[10] Excludes royalties.
[11] Includes all site mining, processing, general & administrative, freight and concentrate handling costs, capital expenditure and royalties.

A sensitivity analysis was conducted on key variables and is shown below in Figure 2.

Figure 2: Mine Plan NPV Sensitivity Tornado Graph




## Updated Ore Reserve

An updated Ore Reserve for Savannah has been completed as of 30 June 2020. This follows the completion of an updated Mineral Resource in May (refer to the Company's ASX announcement of 7 May 2020). The Ore Reserve incorporates the results from all drilling completed at Savannah including 112 infill grade control drill holes undertaken since July 2019 and mining depletion during FY20.

The updated Ore Reserve stands at **8.27Mt @ 1.23% Ni, 0.59% Cu and 0.08% Co for contained metal of 101.8kt Ni, 48.5kt Cu and 7.0kt Co**. More detail on the Ore Reserve is presented in Table 4.

Table 4: June 30, 2020 Savannah Ore Reserve Estimate

| Ore Reserve | Metal | Proved | | Probable | | Total | | Metal Tonnes |
|---|---|---|---|---|---|---|---|---|
| | | Tonnes | (%) | Tonnes | (%) | Tonnes | (%) | |
| Savannah | Nickel | 1,233,000 | 0.95 | - | - | 1,233,000 | 0.95 | 11,700 |
| | Copper | | 0.66 | | - | | 0.66 | 8,100 |
| | Cobalt | | 0.05 | | - | | 0.05 | 600 |
| Savannah North | Nickel | 1,795,000 | 1.21 | 5,246,000 | 1.28 | 7,041,000 | 1.28 | 90,100 |
| | Copper | | 0.54 | | 0.57 | | 0.57 | 40,400 |
| | Cobalt | | 0.09 | | 0.09 | | 0.09 | 6,400 |
| Total | Nickel | 3,028,000 | 1.10 | 5,246,000 | 1.28 | 8,274,000 | 1.23 | 101,800 |
| | Copper | | 0.59 | | 0.57 | | 0.59 | 48,500 |
| | Cobalt | | 0.07 | | 0.09 | | 0.08 | 7,000 |

**Calculations have been rounded to the nearest 1,000t of ore, 0.01% Metal grade and 100t of metal*

## Key Assumptions

### Cut-Off Grade

The Mineral Resource block model was updated with a block value field (Net Smelter Return (NSR) $/t) after consideration of the contained metal, payability, concentrate transport cost, and WA state government and traditional owner royalties. Cut-off grades were calculated as a dollar per ore tonne, based on the forecast operating costs in the financial model. Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve.

The cut-off grade estimates used for stope optimisation and ore development classification are presented below in Table 5.

Table 5: LOM Underground Cut-off Grade Calculation

| Preliminary Cut-off Grades | Unit | Value | | |
|---|---|---|---|---|
| **Operating Costs** | | **Total Op Costs** | **Stoping Costs** | **Transport & Processing** |
| Mining Operating Costs | | | | |
| *Lateral Operating Development* | *$ / t ore* | *30.84* | | |
| *Stoping* | *$ / t ore* | *57.52* | *57.52* | |
| *Geology* | *$ / t ore* | *2.43* | | |
| Processing | $ / t ore | 31.85 | 31.85 | 31.85 |
| General & Administration | $ / t ore | 12.83 | 12.83 | 12.83 |
| **Total Operating Cost** | **$ / t ore** | **135.46** | **102.19** | **44.67** |
| | | | | |
| **Economic Stope cut-off grade** | **$/t ore** | **135.46** | | |
| **Incremental Stope cut-off grade** | **$/t ore** | | **102.19** | |
| **Incremental Development cut-off grade** | **$/t ore** | | | **44.67** |

The fully costed stoping cut-off grade includes all costs for ore development, mining, and processing stope material. This value was used to generate focussed mining zones that determine the extents of ore development. The incremental stoping cut-off grade includes the costs of mining and processing of mineralised material, excluding the cost of development.

A minimum stope mining width of 3.0 m (true width) was designed. Additional unplanned stope dilution assumptions were applied assuming ‘skins’ of a certain thickness on each hangingwall and footwall contact based on geotechnical advice and stope width and depth below surface.

The development cut-off grade includes the costs of surface haulage and processing of ore only, on the assumption that this material must be mined and removed from underground regardless of grade, and that there are no further incremental costs of underground truck haulage from the portal to the ROM pad additional to hauling to the waste dump.

## Mining

The mining methods utilised in the LOM plan is in line with the previous operation being a top-down, long hole open stoping mining method utilising paste fill. This mechanised, non-entry method has proven to be a safe, productive mining method at Savannah.

The key design parameters used are detailed below in Table 6.

Table 6: Key Mine Design Parameters

| Design Parameter | Unit | Value |
|---|---|---|
| Decline stand off | m | 50 |
| Decline Radius (min) | m | 23 |
| Level interval (floor to floor) | m | 20 |
| Minimum stope footwall angle | Deg | 50 |
| Nominal stope length | m | 20 |
| Maximum hydraulic radius | m | 6 |
| Minimum stope width | m | 3 |

The total global average planned and unplanned stope dilution (i.e. mined material without Resource classification, including fill dilution) proportion within the Mine Plan stope shapes is 22%.

Mining recoveries of 90% were applied to stopes to allow for issues such as local orebody spatial variability and material left behind during remote loading.

A mining recovery of 100% was assumed for ore development.

## Processing and Marketing

The Savannah processing plant consists of conventional crushing, grinding, flotation, and concentrate handling, producing a bulk nickel-copper-cobalt concentrate for sale to third-party. The nominal throughput capacity of the Savannah plant is approximately 1.0Mtpa.

Prior to restarting in December 2018, the processing plant was refurbished at a cost of A$12M. A 3 metre lift was also completed on the tailings storage facility, which will provide storage for the first three years of operations. Capital requirements to restart and recommission the processing plant are not expected to be significant.

Processing recoveries at the target concentrate grade will vary with each ore type. Over the Mine Plan, recoveries average 83% Ni, 98% Cu and 92% Co, based on historical plant performance for Savannah ore and the 2017 metallurgical testwork results on Savannah North samples.

Based upon extensive flotation test work Savannah North and targeting a concentrate grade of 8% Ni recoveries are expected to be:

- Savannah North Upper Zone: Ni recovery of 81.7%, Cu recovery of 98.8% and Co recovery of 92.0%.
- Savannah North Lower Zone: Ni recovery of 83.7%, Cu recovery of 99.3% and Co recovery of 95.2%.

The Savannah mine has a long history of concentrate production, sales, recovery, and treatment costs. The assumptions used for the Ore Reserves are based on the recent actuals for these items.

No secondary credits have been modelled in the updated Mine Plan, other than from the copper and cobalt included in the NSR calculation. The concentrate produced at the Savannah mine is a “clean concentrate” and does not have any deleterious elements that attract payment penalties.

The concentrate offtake agreement with Sino Nickel Pty Ltd and Jinchuan Group Co., Ltd expires in 2023. Panoramic is confident that when the contract expires that it will be able to secure a new contract on comparable terms.

## Next Steps

Following the successful completion of the Savannah Mine Plan and Ore Reserve update, the Board of Panoramic has approved the recommencement of an underground pre-production development work program. This will primarily focus on the completion of the FAR 3 ventilation works for Savannah North, as well as some additional capital development to facilitate a more efficient restart of mining activities in the future. The cost of this work is in line with previously released estimates and will be funded from existing cash reserves. This work is expected to be completed by the end of the March quarter 2021.

At the completion of this work program, the Company expects to be able to consider a restart of Savannah in the first half of 2021.

**This ASX release was authorised on behalf of the Panoramic Board by:**

Victor Rajasooriar, Managing Director and CEO

### For further information contact:

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**Competent Person Statement**

The information in this release that relates to Mineral Resources at Savannah is based on information compiled by John Hicks. Mr Hicks is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a full-time employee and shareholder of Panoramic Resources Limited. Mr Hicks also holds performance rights to shares in relation to Panoramic Resources Limited.

The information in this release that relates to Mineral Resources at Savannah North is based on information compiled by Mark Zammit. Mr Zammit is a member of the Australasian Institute of Geoscientists and is a Principal Consultant Geologist and full-time employee of Cube Consulting based in Perth, Western Australia.

The information in this release that relates to Ore Reserves for Savannah and Savannah North is based on information compiled by or reviewed by Shane McLeay. Mr McLeay is a fellow of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a Principal Mining Engineer and full-time employee of Entech Consulting based in Perth, Western Australia.

The aforementioned have sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Messrs Hicks, Zammit and McLeay consent to the inclusion in the release of the matters based on the information in the form and context in which it appears.

**Modifying Factors**

*The Modifying Factors included in the JORC Code have been assessed as part of the Mine Plan and Ore Reserve. These including mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and government factors. The Company has recent and relevant operating experience at Savannah and has received advice from appropriate experts when assessing each Modifying Factor. Full details of the Modifying Factors have been provided in the body of this ASX release and are also included in the Entech Report.*

**Production Target**

*The Mine Plan which underpins the Production Target contained in this announcement contains 80.7% Ore Reserve and 19.3% Inferred Mineral Resource. There is only 1.2% of Inferred Resources included in the first 3 years of the Mine Plan. There is a low level of geological confidence associated with the Inferred Mineral Resource and there is no certainty that further exploration work will result in the conversion to an Ore Reserve or that the production target itself will be realised.*

**No New Information or Data**

*This announcement contains references to exploration results, and Mineral Resource and Ore Reserve estimates, all of which have been cross referenced to previous market announcements made by the Company. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.*

**Forward Looking Statements**

*This announcement may contain certain "forward-looking statements" which may not have been based solely on historical facts, but rather may be based on the Company's current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties, assumptions and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to metals price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, as well as political and operational risks in the Countries and States in which we operate or sell product to, and governmental regulation and judicial outcomes.*

*The Company has concluded it has a reasonable basis for providing any of the forward looking statements included in this announcement and believes that it has a reasonable basis to expect that the Company will be able to achieve funding to support a restart of the Savannah operation, should it choose to do so. All material assumptions on which the forecast financial information is based are set out in the Mine Plan and Ore Reserves Announcement and Appendices.*

*For a more detailed discussion of such risks and other factors, see the Company's Annual Reports, as well as the Company's other filings. The Company does not undertake any obligation to release publicly any revisions to any "forward-looking statement" to reflect events or circumstances after the date of this announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.*

## About Panoramic:

Panoramic Resources Limited (**ASX code: PAN**) is a Western Australian company which owns the Savannah Nickel Project in the East Kimberley. Panoramic successfully commissioned and operated the Project from 2004 until 2016 before the mine was placed on care and maintenance. Following the discovery of the Savannah North orebody, the mine was recommissioned in 2018 before being temporarily suspended in 2020.

Panoramic has completed an updated Mine Plan for Savannah which has outlined an attractive near-term nickel sulphide mine restart opportunity. Underground pre-production development works at Savannah will recommence in August 2020. Completion of these works is expected to leave the Project in a position to be restarted in mid-2021.

## Appendix 1 – 2012 JORC Disclosures

### *Savannah North Project - Table 1, Section 1 - Sampling Techniques and Data*

(Criteria in this section apply to all succeeding sections.)

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Sampling techniques** | • Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.<br>• Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.<br>• Aspects of the determination of mineralisation that are Material to the Public Report.<br>• In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. | • The Savannah mine (including Savannah North) is typically sampled by diamond drilling techniques. Over 1700 holes have been drilled within the mine for a total in excess of 245,000m. The majority of holes were drilled from underground drill platforms.<br>• Initial Resource definition is generally undertaken on a nominal drill hole spacing of 50m X 50m or slightly more, Prior to mining, Infill grade control drilling is generally conducted to a nominal spacing of 20m X 20m.<br>• Historically, all drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor with downhole surveys typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools". Post 2016 downhole surveys have been performed using Axis Champ North Seeking Gyro instruments. All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples include a mix of full and sawn half core samples. Sample preparation typically involves pulverising the sample to 90% passing 75 µm followed by either a 3 or total 4 acid digest and analysis by either AAS (on-site) or ICP OES (off-site).<br>• In 2019 Bureau Veritas commissioned a new on-site laboratory. Sample preparation and assaying now involves crushing and pulverising the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument. |
| **Drilling techniques** | • Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc). | • Greater than 90% of the mine drill hole database consists of LTK60 and NQ2 sized diamond holes. Exploration holes are typically NQ2 size. Historically, some RC holes were drilled about the upper part of the mine.<br>• All diamond drill holes reported in this announcement were drilled NQ2 size. |
| **Drill sample recovery** | • Method of recording and assessing core and chip sample recoveries and results assessed.<br>• Measures taken to maximise sample recovery and ensure representative nature of the samples.<br>• Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. | • Diamond core recoveries are logged and recorded in the mine drill hole database. Overall recoveries are typically >99% and there are no apparent core loss issues or significant sample recovery problems.<br>• Hole depths are verified against core blocks.<br>• Regular rod counts are performed by the drill contractor. Driller breaks are checked by fitting the core together.<br>• There is no apparent relationship between sample recovery and grade |
| **Logging** | • Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.<br>• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. | • All holes pertaining to this announcement were geologically logged in full.<br>• Geotechnical logging was carried out for recovery and RQD. The number of defects (per interval), and their roughness were recorded about ore zones.<br>• Details of structure type, alpha angle, infill, texture and healing is recorded and stored in the structure |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | • The total length and percentage of the relevant intersections logged. | table of the mine drill hole database.<br>• Diamond core logging protocols dictate lithology, colour, mineralisation, structure and other features are recorded.<br>• All diamond core metre marked and photographed wet prior to logging. |
| **Sub-sampling techniques and sample preparation** | • If core, whether cut or sawn and whether quarter, half or all core taken.<br>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.<br>• For all sample types, the nature, quality and appropriateness of the sample preparation technique.<br>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.<br>• Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.<br>• Whether sample sizes are appropriate to the grain size of the material being sampled. | • All analytical core samples pertaining to this announcement were sawn half (NQ2) core samples.<br>• Sample sizes are considered appropriate to represent the Savannah style of mineralisation.<br>• SG determinations by water immersion technique are performed on all core samples destined for assay at the on-site laboratory.<br>• All core sampling and sample preparation protocols at Savannah follow industry best practice.<br>• QC involved the addition of Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC is inserted in all sample batches.<br>• Original versus duplicate assay results typically exhibit a strong correlation due to massive sulphide rich nature of the Savannah mineralisation. |
| **Quality of assay data and laboratory tests** | • The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.<br>• For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.<br>• Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. | • All samples analyses pertaining to this announcement were performed at the Savannah Nickel Mine on-site laboratory, which is operated by Bureau Veritas. Sample preparation and assaying involves crushing and pulverising the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument.<br>• Historically, sample preparation involved pulverising to 90% passing 75um followed by 3 acid digest with an AAS finish.<br>• No other analytical tools or techniques are employed.<br>• The on-site laboratory uses internal standards, duplicates, replicates, blanks and repeats and carries out all appropriate sizing checks. External laboratory checks are occasionally performed. No analytical bias has been identified. |
| **Verification of sampling and assaying** | • The verification of significant intersections by either independent or alternative company personnel.<br>• The use of twinned holes.<br>• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.<br>• Discuss any adjustment to assay data. | • Savannah mine drilling and sampling procedures have been inspected by many stakeholders since the project began.<br>• Throughout the life of the mine, there have been several instances where holes have been twinned, confirming intersections and continuity.<br>• Holes are logged into OCRIS software using Toughbook laptop computers before the data is transferred to SQL server databases. All drill hole and assay data is routinely validated by site personnel.<br>• No adjustments are made to assay data. |
| **Location of data points** | • Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.<br>• Specification of the grid system used. | • All drill hole collars are picked-up using Leica TS15, R1000 instrument by a registered surveyor.<br>• Downhole surveys are performed using an Axis Champ North Seeking Gyro instrument.<br>• Historically downhole surveys were performed using either “Reflex EZ Shot” or “Flexit Smart Tools”.<br>• Visual checks to identify any obvious errors regarding the spatial position of drill hole collars or downhole surveys are routinely performed in a 3D graphics environment using Surpac software. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | • Quality and adequacy of topographic control. | • The mine grid is a truncated 4-digit (MGA94) grid system.<br>• Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying the following factors to the truncated local coords: E:+390000, N:+8080000.<br>• High quality topographic control has been established across the mine-site. The mine RL is the Australian Height System (AHD) + 2000m. |
| **Data spacing and distribution** | • Data spacing for reporting of Exploration Results.<br>• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.<br>• Whether sample compositing has been applied. | • Nominal drill hole spacing of 25m (easting) by 25m (RL)<br>• The mineralised domains delineated by the drill spacing show enough continuity to support the classification applied under the JORC Code (2012 Edition).<br>• No sample compositing is undertaken. |
| **Orientation of data in relation to geological structure** | • Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.<br>• If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. | • Where possible drill holes are designed to be drilled perpendicular to the mineralisation.<br>• No orientation sampling bias has been identified. |
| **Sample security** | • The measures taken to ensure sample security. | • Drill samples are collected and transported to the on-site laboratory by mine site geological staff. Samples sent off site are road freighted. |
| **Audits or reviews** | • The results of any audits or reviews of sampling techniques and data. | • No recent audits/reviews of the Savannah drill sampling protocols have been undertaken. The procedures are considered to be of the highest industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures employed at the mine. |

### *Savannah North Project – Table 1, Section 2 – Reporting of Exploration Results*

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

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Mineral tenement and land tenure status** | • Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.<br>• The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. | • The Savannah Nickel Mine (SNM) is an operating mine secured by 5 contiguous Mining Licences. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mine tenements.<br>• The SNM is an operating mine with all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Jinchuan Group in China. |
| **Exploration done by other parties** | • Acknowledgment and appraisal of exploration by other parties. | • Since commissioning the Savannah Project in 2004, SNM has conducted all exploration and drilling related activities on the site. |
| **Geology** | • Deposit type, geological setting and style of mineralisation. | • The SNM is based on mining ores associated with the palaeo-proterozoic Savannah and Savannah North layered mafic/ultramafic intrusions. The Ni-Cu-Co rich massive sulphide ores typically occur as “classic” magmatic breccias developed about the more primitive, MgO rich basal parts of the intrusions. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Drill hole Information** | • A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:<br>○ easting and northing of the drill hole collar<br>○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar<br>○ dip and azimuth of the hole<br>○ down hole length and interception depth<br>○ hole length.<br>• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case. | • All in mine drilling at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coords: E: +390000, N: +8080000. RL equals AHD + 2,000m. Additional drill hole information pertaining to this announcement includes:<br>○ All diamond drill holes were NQ2 size.<br>○ All core is orientated and photographed prior to cutting and sampling<br>○ All intersection intervals are reported as down-hole lengths and not true widths<br>○ All reported assays results were performed by the on-site laboratory. |
| **Data aggregation methods** | • In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.<br>• Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.<br>• The assumptions used for any reporting of metal equivalent values should be clearly stated. | • All analytical drill intercepts pertaining to this announcement are based on sample length by SG by grade weighted averages using a 0.5% Ni lower cut-off, a minimum reporting length of 1m and maximum 2m of consecutive internal waste.<br>• Cu and Co grades are determined for same Ni grade interval defined above using the same weighting procedures. |
| **Relationship between mineralisation widths and intercept lengths** | • These relationships are particularly important in the reporting of Exploration Results.<br>• If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.<br>• If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). | • All intersection lengths reported are down-hole lengths and not True Widths.<br>• Where reported, estimates of True Width are stated only when the geometry of the mineralisation with respect to the drill hole angle is sufficiently well established. |
| **Diagrams** | • Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views. | • A simplified plan view of drill hole positions pertaining to this announcement is deemed to be sufficient. |
| **Balanced reporting** | • Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results. | • Not Applicable. |
| **Other substantive exploration data** | • Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances. | • No other exploration data is considered material to this release. |
| **Further work** | • The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).<br>• Diagrams clearly highlighting the areas of possible extensions, including the main geological | • The infill grade control drill results and Mineral Resource Estimation update reported herein for the Savannah and Savannah North Project are part of a continuous and evolving process. Further results will be reported if and when they become |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | interpretations and future drilling areas, provided this information is not commercially sensitive. | available. |

*Savannah North Project - Table 1, Section 3 – Estimation and Reporting of Mineral Resources*

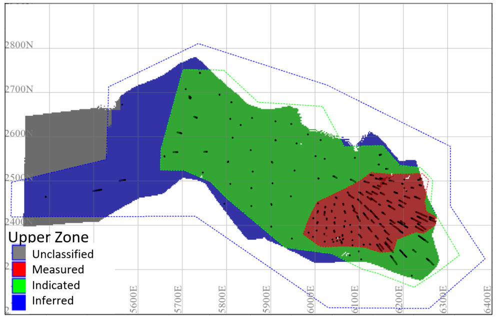
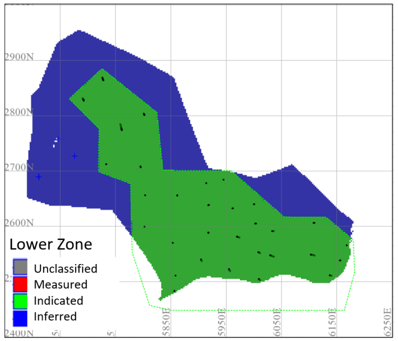
(Criteria listed in section 1, and where relevant in section 2, also apply to this section)

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Database integrity** | • Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.<br>• Data validation procedures used. | • Holes are logged into OCRIS software using Toughbook laptop computers before the data is transferred to SQL server database. Data exported from the SQL server database for use in the resource was periodically compiled and checked against the original version in the database to ensure that the data had not been corrupted during transfer and modelling work.<br>• Data validation checks are performed every time a drill hole is entered into the database using a checklist. |
| **Site visits** | • Comment on any site visits undertaken by the Competent Person and the outcome of those visits.<br>• If no site visits have been undertaken indicate why this is the case. | • Mr Mark Zammit, Principal Geologist at Cube Consulting Pty Ltd is the Competent Person for preparing the estimate and has undertaken a number of site visits to the Savannah Nickel Project with the most recent being for two days on 27th and 28th June 2015.<br>• Mr John Hicks, General Manager Exploration at Panoramic Resources is the Competent Person for data collection, is a full time employee of the Company and has undertaken numerous site visits. |
| **Geological interpretation** | • Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.<br>• Nature of the data used and of any assumptions made.<br>• The effect, if any, of alternative interpretations on Mineral Resource estimation. | • The Savannah North mineralisation dips moderately (40-45 degrees) to the north-west and comprises two main zones, the Upper Zone is developed on the basal contact of the North Olivine Gabbro, the second Lower Zone is a consistent remobilised zone of massive sulphide mineralisation, in part associated with the 500 Fault. Both zones are well defined by the drilling and the interpretation is considered sufficiently robust for resource modelling. Additional minor mineralised zones include one as an NE extending basal contact domain and three domains in the hangingwall position to the Upper Zone.<br>• No other interpretations have been considered as the current model is demonstrably robust. Recent extension and infilling drilling has confirmed the geological interpretation.<br>• Geological controls were used to create the mineralised domains. The interpretation has been |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | • The use of geology in guiding and controlling Mineral Resource estimation.<br>• The factors affecting continuity both of grade and geology. | defined by the presence of strong and continuous zones of massive sulphide mineralisation.<br>• One of the main domains is controlled by a major north-west dipping fault zone. There are some instances where intervals of internal dilution have been included with the mineralised envelope. |
| **Dimensions** | • The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource. | • The Savannah North mineralisation has been defined over a strike length of approximately 1km. The Mineral Resource reported herein relates to an area with a strike length of 1,065m from 5,350mE to 6,415mE and extends from 820m to 1,740m below surface with an average domain thickness of approximately 5 to 6 metres. |
| **Estimation and modelling techniques** | • The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.<br>• The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.<br>• The assumptions made regarding recovery of by-products.<br>• Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).<br>• In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.<br>• Any assumptions behind modelling of selective mining units.<br>• Any assumptions about correlation between variables.<br>• Description of how the geological interpretation was used to control the resource estimates. | • Ordinary Kriging of 1m downhole composites was used to estimate Ni, Cu Co and density for the all mineralised domains.<br>• The parent estimation block dimensions used in the model were 20m(Y) x 20m(X) 4(Z). A parent block size of 10m(Y) x 10m(X) 2(Z) was also used for areas defined by closer spaced drilling. The parent block size(s) was selected on the basis of being approximately 50% of the average drill hole spacing in the deposit. Block descretisation points were set to 5(Y) x 5(X) x 2(Z) points. The final 3D block dimensions used for volume definition were 2.5 m (Y) x 2.5m(X) x 2.5m(Z).<br>• Top cut analysis was undertaken for each domain using grade histograms, log-probability plots and spatial review and no extreme values were detected and therefore no top cuts were applied. A search radius ranging from 75m to 120m was used, with a minimum of 4 and a maximum of 16 1m composites. In addition, a maximum of 8 composites per drillhole was used. A second pass strategy was used with 2.5x search distance and the same minimum and maximum composites.<br>• Check estimates using Inverse Distance and Nearest Neighbour methods are comparable. These estimates supported the OK estimate and yielded similar characteristics to that of the previous |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | • Discussion of basis for using or not using grade cutting or capping.<br>• The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available. | Savannah estimates.<br>• By-product credits for Cu and Co have formed part of the previous off-take agreement.<br>• No deleterious elements have been modelled in the Mineral Resource estimate; the Savannah orebody has low MgO and negligible arsenic levels.<br>• No selective mining units were assumed in the estimate.<br>• Ni and Co show a very strong correlation. Nickel and copper are much more variable. Variography and search neighborhoods were modelled separately for the grade attributes Ni, Cu and Co based on 1m composites specific to each domain.<br>• The geological interpretation was used to derive the domains using massive sulphide content, lithology and structural boundaries. These were wireframed and used as hard boundaries to flag sample data for estimation.<br>• Statistical analysis of the grade populations indicated no extreme values and a low coefficient of variation.<br>• Validation has included comparing the raw data statistics to block estimates, volumes of wireframes to block model volumes, drill holes and block model value plots were produced for a visual checking of the grades. Good reconciliation data exists between mined and milled figures |
| **Moisture** | • Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content. | • Tonnages are estimated on a dry basis. |
| **Cut-off parameters** | • The basis of the adopted cut-off grade(s) or quality parameters applied. | • The presence of logged massive sulphide in addition to an approximate 0.5%Ni cut-off was used when defining the mineralised wireframes. |
| **Mining factors or assumptions** | • Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported | • Mining at Savannah has been ongoing since 2004. Underground, sub-level open stoping is used effectively to extract the ore. No further assumptions were made on mining factors. Mining factors are applied during Ore Reserve conversion. Similar mining assumptions have been made for the Savannah North Project. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | with an explanation of the basis of the mining assumptions made. | |
| **Metallurgical factors or assumptions** | • The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made. | • Savannah ore has been successfully treated through a 1Mtpa SAG mill and flotation circuit since commissioning in 2004. The metallurgical nature of the mineral resource in this estimate has not changed. Metallurgical factors are addressed in Ore Reserve conversion. Preliminary test work conducted on the Savannah North mineralization has indicated that it has identical metallurgical characteristics to that of the current Savannah mineralisation. |
| **Environmental factors or assumptions** | • Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made. | • Savannah operates under the conditions set out by an environmental license to operate.<br>It is understood that extraction of the Savannah North Resource will be undertaken under the same license conditions |
| **Bulk density** | • Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.<br>• The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.<br>• Discuss assumptions for bulk density estimates used in the evaluation process of the different materials. | • Bulk density is determined using the water displacement method for all samples.<br>• Voids within the mineralised zones have not been intersected in drilling to date.<br>• Density assignment for all mineralised domains was via Ordinary Kriging of 1m composites with Variography and search parameters based on the density data. Waste material was assigned a value of 2.88. |
| **Classification** | • The basis for the classification of the Mineral | • The classification adopted is based largely on drill |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | Resources into varying confidence categories.<br>• Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). | data density and an understanding of the contact, and fault related mineralisation. The Measured Mineral Resource only includes mineralisation defined within the recently drilled close spaced GC drilling within the Upper Zone and also the smaller Other 3a domain. The drilling here is typically on 20m x 20m spacing. Indicated resources include areas where the drilling spacing is greater than the close spaced 20m x 20m drilling but approximates 50m x 50m. Inferred areas are where the data density is greater than 50m x 50m spacing typically around the periphery and depth extent of the Upper and Lower Zones plus some of the minor domains.<br>• Overall, the confidence in the continuity of mineralisation and the quality of the input data is high.<br><br><br><br><br>• The estimate and classification appropriately reflects |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | • Whether the result appropriately reflects the Competent Person's view of the deposit. | the view of the Competent Person. |
| **Audits or reviews** | • The results of any audits or reviews of Mineral Resource estimates. | • The Mineral Resource estimate has been peer reviewed by the Panoramic corporate technical team. |
| **Discussion of relative accuracy/ confidence** | • Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.<br>• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.<br>• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available. | • The relative accuracy of the Mineral Resource estimate is considered robust as it has been compiled in accordance with the guidelines of the 2012 JORC Code, and knowledge gained from extensive operational history of the mine.<br>• The statement relates to global estimates of tonnes and grade.<br>• Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the accuracy of the Mineral Resource estimate. |

## 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 | JORC Code explanation | Commentary |
|---|---|---|
| *Mineral Resource estimate for conversion to Ore Reserves* | • *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.*<br>• *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.* | • The Mineral Resource used as the basis for this Ore Reserve was estimated by independent geology consultants Cube Consulting and announced to market by Panoramic Resources on 7 May 2020.<br>• These models were updated due to mining depletion, sterilization, and geological interpretations based on results from ore development, face sampling, drive mapping and pre-production drilling.<br>• Mineral Resources are reported inclusive of Ore Reserves |
| | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | • The Competent Person has visited the site on several occasions in 2019 and is familiar with the area and access routes. The Competent Person is comfortable from these site visits and reports from other experts and colleagues, and survey data for the estimation of the Ore Reserve. |
| *Study status* | • *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.*<br>• *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.* | • The current mine design, mining method, operating parameters, modifying factors, actual costs and knowledge gained from over 10 years of production are used in the Ore Reserve estimate.<br>• The work completed for this estimate utilized the assumptions from the 2017 Feasibility Study (FS) and recent updates including the change to contract mining from owner operator. All these assumptions were reviewed and updated at a Pre-Feasibility Study level or better.<br>• The update indicates that that the Ore Reserve Mine Plan is technically achievable and economically viable. |
| *Cut-off parameters* | • *The basis of the cut-off grade(s) or quality parameters applied.* | • The mine Mineral Resource block model was updated with a block value field (Net Smelter Return (NSR) $/t) after consideration of the contained metal, smelter/refining payability, concentrate transport cost, and WA state government and traditional owner royalties.<br>• Cut-off grades were calculated as a dollar per ore tonne, based on the forecast operating costs in the current financial model.<br>• Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve estimate.<br>• Cut-off NSR values were calculated to be |

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td><ul><li>Fully costed stoping – $135/t ore;</li><li>Incremental stoping – $102/t ore; and</li><li>Ore development – $45/t ore.</li></ul></td></tr>
<tr><td>Mining factors or assumptions</td><td><ul><li>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</li><li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li><li>The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.</li><li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li><li>The mining dilution factors used.</li><li>The mining recovery factors used.</li><li>Any minimum mining widths used</li><li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li><li>The infrastructure requirements of the selected mining methods.</li></ul></td><td><ul><li>Mining at Savannah North will utilise long-hole open stoping with paste fill. This mining method has been utilized successfully at the Savannah operation.</li><li>Stopes were designed on 5 m sections utilizing Datamine’s Mine Stope Optimizer (MSO) software. The stopes were optimized on the fully costed cut-off grade.</li><li>As a part of the FS, Beck Engineering Pty Ltd was engaged to undertake a geotechnical study to forecast mine-scale stability and deformation. The method of analysis was Discontinuum Finite Modelling using geological structures on a mine scale. This method has previously been used by Beck Engineering (August 2015) to accurately model rock damage and seismic activity at Savannah. This analysis coupled with historical performance formed the basis of the geotechnical assumptions for the mine design.</li><li>The primary mine design inputs are noted below. Blocks A, B and D are above the 1270 mRL (730 mbs) and Block D is below</li></ul>
<table>
<tr><th>Optimisation Parameter</th><th>Unit</th><th>Blocks A, B and D</th><th>Block C</th></tr>
<tr><td>Stope Cut-off Grade</td><td>$ NSR</td><td>135</td><td>135</td></tr>
<tr><td>Min. Mining Width (True Width)</td><td>m</td><td>3</td><td>3</td></tr>
<tr><td>Vertical Level Interval</td><td>m</td><td>20</td><td>20</td></tr>
<tr><td>Section Length</td><td>m</td><td>5</td><td>5</td></tr>
<tr><td>HW Dilution (True Width)</td><td>m</td><td>1.0</td><td>2.0</td></tr>
<tr><td>FW Dilution (true Width)</td><td>m</td><td>0.5</td><td>0.5</td></tr>
<tr><td>Min. Parallel Waste Pillar Width</td><td>m</td><td>10</td><td>10</td></tr>
<tr><td>Min. FW Dip Angle</td><td>deg</td><td>50</td><td>50</td></tr>
</table>
<ul><li>Infrastructure requirements (other than future capital development) for the selected mining method are established or currently being</li></ul></td></tr>
</table>

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | installed. |
| *Metallurgical factors or assumptions* | • *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.*<br>• *Whether the metallurgical process is well-tested technology or novel in nature.*<br>• *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.*<br>• *Any assumptions or allowances made for deleterious elements.*<br>• *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*<br>• *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?* | • The metallurgical process is a conventional sulphide flotation technique involving crushing, grinding and flotation to produce a bulk nickel, copper, and cobalt concentrate.<br>• Savannah ore has been successfully treated through the 1Mtpa SAG mill and flotation circuit first commissioned in 2004.<br>• The metallurgical nature of the Savannah North deposit is characterized by an upper zone and a lower zone, separated at 1270 mRL horizon, and which exhibit slight performance difference in average metallurgical recovery. Savannah North Upper Zone averages nickel recovery of 81.7%, copper recovery of 98.8% and cobalt recovery of 92.0% for a concentrate grade of 8% Ni.<br>• Savannah North Lower Zone averages nickel recovery of 83.7%, copper recovery of 99.3% and cobalt recovery of 95.2% for a concentrate grade of 8% Ni.<br>• Metallurgical recoveries for the Savannah deposit are calculated from plant feed grades in the Mine Plan and are based on over 10 years of historical plant performance. Average recoveries exhibited are 85% for Nickel, 95% for Copper and 88% for Cobalt.<br>• Savannah produces a clean bulk nickel, copper, and cobalt concentrate and since commissioning in 2004 there have been no deleterious material penalties. As such no allowance has been made for deleterious material.<br>• The Ore Reserve estimate has been based on appropriate mineralogy and metallurgical factors to meet the existing concentrate off-take specifications. |
| *Environmental* | • *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.* | • Savannah operates under the conditions set out by an environmental license to operate.<br>• Waste is placed on approved waste dumps or used as backfill in mined voids.<br>• The existing tailings storage facility (TSF1) has an estimated three years of capacity to the final approved height at the modelled production rates.<br>• An additional tailing storage facility (TSF2) will be required from Year 3 of Savannah North production. Coffey Mining Pty Ltd undertook an options study, and a preferred option has been selected, designed and costed for a life-of-mine tailings facility. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | • Discussions have been held with relevant regulatory bodies, and the Company expects no issues with the approvals process for TSF2. |
| *Infrastructure* | • *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.* | • The Savannah mine has substantial infrastructure in place including a paste fill plant, major electrical and pumping networks, a 1Mtpa processing plant, a fully equipped laboratory, extensive workshop, administration facilities, a 215 single person quarters village and tailings storage facility. |
| *Costs* | • *The derivation of, or assumptions made, regarding projected capital costs in the study.*<br>• *The methodology used to estimate operating costs.*<br>• *Allowances made for the content of deleterious elements.*<br>• *The source of exchange rates used in the study.*<br>• *Derivation of transportation charges.*<br>• *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.*<br>• *The allowances made for royalties payable, both Government and private.* | • Costs are based on a combination of actual costs occurred in processing, and transportation over the FY2019 and FY2020 financial years and mining costs based on contract rates established under a 3 year mining services agreement awarded in February 2020.<br>• Capital underground development costs are derived from the Mine Plan and actual costs as per above.<br>• Other capital costs are related to equipment and infrastructure costs and are based on quotes or historical actual costs.<br>• Closure costs have not been included.<br>• Metal prices and exchange rate assumptions are based on the median of a range of external market analysts medium term forecasts.<br>• Flat rate metal prices for nickel, copper, and cobalt as per the table below.<br><br>Item / Unit / Value:<br>Nickel Price / A$/t / 22,500<br>Copper Price / A$/t / 9,000<br>Cobalt Price / A$/t / 55,000<br>Exchange Rate / AUD:USD / 0.70<br><br>• Net Smelter Return (NSR) factors were sourced from the existing concentrate offtake contract.<br>• WA government and Traditional Owner royalty costs are included in the NSR calculation. |

| Item | Unit | Value |
|---|---|---|
| Nickel Price | A$/t | 22,500 |
| Copper Price | A$/t | 9,000 |
| Cobalt Price | A$/t | 55,000 |
| Exchange Rate | AUD:USD | 0.70 |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Revenue factors* | • *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*<br>• *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.* | • Revenue factors are based on metal production in concentrate from the Mine Plan, flat metal prices for nickel, copper, and cobalt (above), flat rate A$:US$ exchange rate (above) and the NSR factors in the existing concentrate offtake contract. |
| *Market assessment* | • *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*<br>• *A customer and competitor analysis along with the identification of likely market windows for the product.*<br>• *Price and volume forecasts and the basis for these forecasts.*<br>• *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.* | • The concentrate is contracted for sale to Jinchuan Group of China until 31 March 2023. The Savannah concentrate is being trucked to Wyndham Port and then shipped to Jinchuan's smelter/refinery in the Gansu province, northwest China. |
| *Economic* | • *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*<br>• *NPV ranges and sensitivity to variations in the significant assumptions and inputs.* | • Internal cash flow estimates apply an 8% real discount rate for NPV analysis and only economically viable ores are considered for mining based on a stope only cut-off grade.<br>• Sensitivity analysis of key financial and physical parameters is applied to the Mine Plan. |
| *Social* | • *The status of agreements with key stakeholders and matters leading to social licence to operate.* | • The Savannah Mine is fully permitted and has a coexistence agreement in place with Traditional Owners. |
| *Other* | • *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*<br>• *Any identified material naturally occurring risks.*<br>• *The status of material legal agreements and marketing arrangements*<br>• *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.* | • No significant unresolved material matters relating to naturally occurring risks, third party agreements or governmental/statutory approvals currently exist. |
| *Classification* | • *The basis for the classification of the Ore Reserves into varying confidence categories.*<br>• *Whether the result appropriately reflects the Competent Person's* | • The classification adopted is based on the level of confidence as set out in the 2012 JORC guidelines<br>• Proved Ore Reserves are based on Measured Mineral Resources |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *view of the deposit.*<br>• *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).* | subject to economic viability.<br>• Probable Ore Reserves are based on Indicated Mineral Resources subject to the economic viability.<br>• The estimate appropriately reflects the view of the competent person. |
| *Audits or reviews* | • *The results of any audits or reviews of Ore Reserve estimates.* | • The Ore Reserve estimate, along with the mine design and life of Mine Plan, cost and revenue modelling has been peer-reviewed by Entech internally, and by Panoramic technical and management staff. |
| *Discussion of relative accuracy/ confidence* | • *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.*<br>• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*<br>• *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.*<br>• *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | • The relative accuracy of the Ore Reserve estimate is considered robust as it is based on the knowledge gained from extensive operational history of the mine. Design and scheduling have been completed to a feasibility standard.<br>• All currently reported Ore Reserve estimations are considered representative on a global scale.<br>• Mine to mill reconciliation records throughout the life of the Savannah Mine provide confidence in the accuracy of the Ore Reserve<br>• Considerations that may result in a lower confidence in the Ore Reserves include:<br>  • There is a degree of uncertainty associated with geological estimates. The Ore Reserve classifications reflect the levels of geological confidence in the estimate;<br>  • Nickel price and exchange rate assumptions are subject to market forces and present an area of uncertainty; and<br>  • There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the FS level of detail of the study.<br>• Considerations in favour of a higher confidence in the Ore Reserves include:<br>  • The Mine Plan assumes a low complexity mechanised mining method that has been successfully previously implemented by PAN at the site for over 10 years.<br>  • Costs are based on historical data, underground contractor awarded rates, and a current offtake agreement.<br>• The Ore Reserve is based on a global estimate. Modifying factors |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | | have been applied at a local scale. |


# SAVANNAH UNDERGROUND NICKEL MINE

# LIFE OF MINE PLAN AND ORE RESERVE REPORT

# JULY 2020

## Panoramic Resources Limited

**Report Number: ENT_0592_PAN**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30th July 2020

Victor Rajasooriar
Managing Director and CEO
Panoramic Resources Limited

**RE: Savannah Life of Mine Plan and Ore Reserves Report, July 2020**

Dear Mr. Rajasooriar,

Please find attached a report summarising the mine planning and Ore Reserve estimation works completed by Entech Pty Ltd in April to July 2020 on the Savannah underground nickel mine. The mining work has been completed to a feasibility study level of detail.

Signed for and on behalf of Entech Pty Ltd

**Shane McLeay**
Principal Mining Engineer

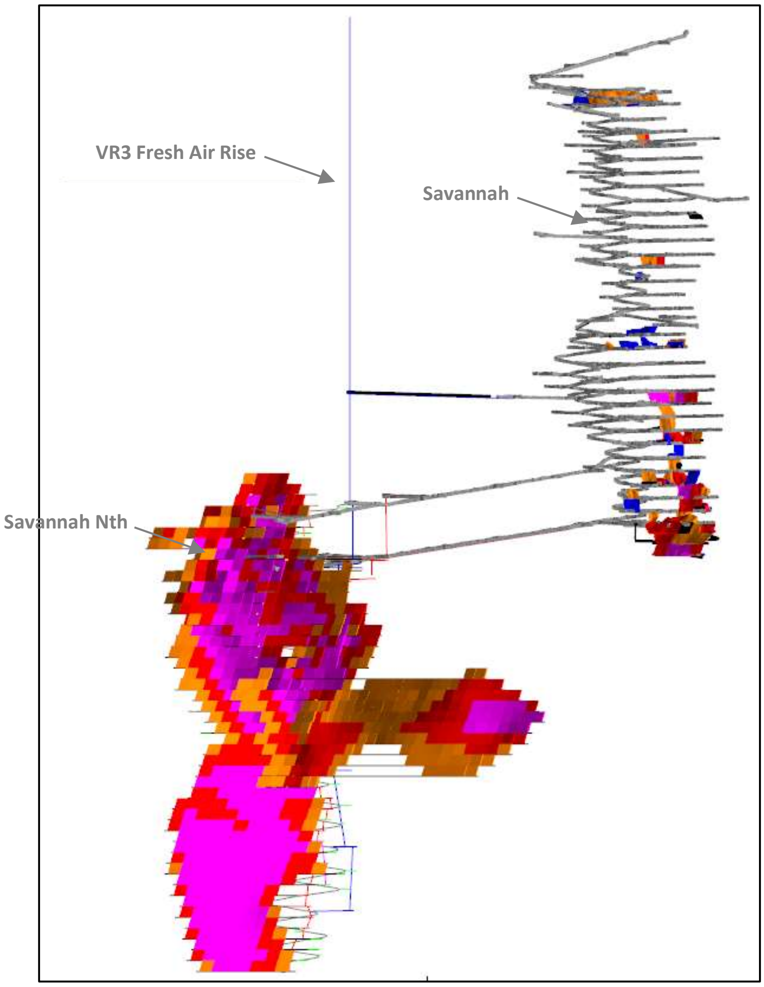
# EXECUTIVE SUMMARY

## Study Highlights

The Savannah operation was placed in to care and maintenance in April 2020 and remains this way as of 30 July 2020. This study assumes the recommencement of underground pre-production development in August 2020. [1] The pre-production underground development will focus on the completion of the VR3 fresh air raise which is critical to ramping the mine up to full production, and capital development in the Savannah Nth part of the mine.

The life of mine plan (LOM), for which is the basis of this study, primarily exploits the Savannah Nth area, supported by the declining resources from Savannah. The LOM layout and locations of the different lodes can be seen below in Figure 1. Historical development is shown in grey and old stopes are not shown. All stoping blocks shown are planned to be mined in the LOM.

**Figure 1: Savannah LOM Plan Long-Section**




[1] *The August 2020 recommencement of underground pre-production development assumption is made for the purposes of this study only, and operations may not proceed in this way,*

Key parameters of the LOM study are presented in Table 1.

**Table 1: Key Life of Mine Parameters [1,2]**

| Deposit | Metal | Measured | | Indicated | | Inferred | | Total | | Metal Tonnes |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Tonnes | (%) | Tonnes | (%) | Tonnes | (%) | Tonnes | (%) | |
| Savannah | Nickel | 1,233,000 | 0.95 | | | | | 1,233,000 | 0.95 | 11,700 |
| | Copper | | 0.66 | | | | | | 0.66 | 8,100 |
| | Cobalt | | 0.05 | | | | | | 0.05 | 600 |
| Savannah North | Nickel | 1,866,000 | 1.16 | 5,320,000 | 1.28 | 2,006,000 | 1.28 | 9,192,000 | 1.26 | 115,500 |
| | Copper | | 0.52 | | 0.57 | | 0.39 | | 0.52 | 47,900 |
| | Cobalt | | 0.08 | | 0.09 | | 0.08 | | 0.09 | 7,900 |
| Total | Nickel | 3,099,000 | 1.08 | 5,320,000 | 1.28 | 2,006,000 | 1.28 | 10,425,000 | 1.22 | 127,200 |
| | Copper | | 0.58 | | 0.57 | | 0.39 | | 0.54 | 56,000 |
| | Cobalt | | 0.07 | | 0.09 | | 0.08 | | 0.08 | 8,500 |

| Site Costs | LOMP A$M | Consensus Forecast A$M |
|---|---|---|
| Life of Mine Capital Costs | 223 | 223 |
| Life of Mine Operating Costs[3] | 1,384 | 1,384 |
| Total Life of Mine Site Costs | 1,607 | 1,607 |
| **Production Parameters** | **Value** | **Value** |
| Mine Life (yrs) | 13 | 13 |
| Peak Mining Production Rate (kt/yr) | 965 | 965 |
| Mining Cost (A$/lb Ni Payable) | $4.95 | $4.95 |
| Processing Cost (A$/lb Ni Payable) | $1.84 | $1.84 |
| Freight, General & Administration Cost (A$/lb Ni Payable) | $1.50 | $1.50 |
| By Product Credits (A$/lb Ni Payable) | ($2.47) | ($2.92) |
| Cash Cost (A$/lb Ni Payable)[4] | $5.82 | $5.37 |
| AIC (A$/lb Ni Payable)[5] | $7.54 | $7.14 |
| **Financial Summary** | **A$M** | **A$M** |
| Revenue | $2,289 | $2,480 |
| Free Cashflow | $468 | $637 |
| $NPV_8$ | $262 | $343 |

*[1] Mined Measured Material represents ore shapes that primarily derive value from Measured Resource material, with the addition of dilution. Mined Indicated Material represents ore shapes that primarily derive value from Indicated Resource material, with the addition of dilution. Mined Inferred Material represents ore shapes that primarily derive value from Inferred Resource material, with the addition of dilution.*

*[2] Calculations have been rounded to the nearest 1,000 t of ore, 2 decimal places for grade and 100t for metal calculations.*

*[3] Excludes Royalties and Freight.*

*[4] Cash Costs include Mining, Processing, G&A, Freight, Copper and Cobalt credits.*

*[5] All in Costs include Cash Costs plus Capital expenditure and Royalties.*

An Ore Reserve was calculated by utilising the LOM plan and excluding Inferred resources. The mine design and schedule were updated and remodelled.

*The Ore Reserve estimate as of 28 July 2020 is;*

**8.27 Mt @ 1.23% Ni, 0.59% Cu and 0.08% Co for contained metal of 102 kt Ni, 48.5 kt Cu and 7.0 kt Co**

A summary of key parameters of the Savannah Ore Reserve is presented in Table 2.

**Table 2: Key Reserve Parameters[1]**

| Ore Reserve | Metal | Proved | | Probable | | Total | | Metal Tonnes |
|---|---|---|---|---|---|---|---|---|
| | | Tonnes | (%) | Tonnes | (%) | Tonnes | (%) | |
| Savannah | Nickel | 1,233,000 | 0.95 | | | 1,233,000 | 0.95 | 11,700 |
| | Copper | | 0.66 | | | | 0.66 | 8,100 |
| | Cobalt | | 0.05 | | | | 0.05 | 600 |
| Savannah North | Nickel | 1,795,000 | 1.21 | 5,246,000 | 1.30 | 7,041,000 | 1.28 | 90,100 |
| | Copper | | 0.54 | | 0.58 | | 0.57 | 40,400 |
| | Cobalt | | 0.09 | | 0.09 | | 0.09 | 6,400 |
| Total | Nickel | 3,028,000 | 1.10 | 5,246,000 | 1.30 | 8,274,000 | 1.23 | 101,800 |
| | Copper | | 0.59 | | 0.58 | | 0.59 | 48,500 |
| | Cobalt | | 0.07 | | 0.09 | | 0.08 | 7,000 |

| Mine Costing | Reserve LOMP A$M | Consensus Forecast A$M |
|---|---|---|
| Reserve LOM Mine Capital Costs | 227 | 227 |
| Reserve LOM Mine Operating Costs[2] | 1,153 | 1,153 |
| Total Reserve LOM Mine Site Costs | 1,308 | 1,308 |
| **Production Parameters** | **Unit** | **Unit** |
| Mine Life (yrs) | 13 | 13 |
| Peak Mining Production Rate (kt/yr) | 918 | 918 |
| Mining Cost (A$/lb Ni Payable) | $5.27 | $5.27 |
| Processing Cost (A$/lb Ni Payable) | $1.82 | $1.82 |
| Freight, General & Administration Cost (A$/lb Ni Payable) | $1.50 | $1.50 |
| By Product Credits (A$/lb Ni Payable) | ($2.61) | ($3.05) |
| Cash Cost (A$/lb Ni Payable)[3] | $5.97 | $5.53 |
| AIC (A$/lb Ni Payable)[4] | $8.01 | $7.61 |
| **Financial Summary** | **A$M** | **A$M** |
| Revenue | $1,855 | $1,991 |
| Free Cashflow | $301 | $421 |
| $NPV_8$ | $184 | $243 |

*Update table as per the LOMP changes as well pls*

*[1] Calculations have been rounded to the nearest 1,000 t of ore, 2 decimal places for grade and 100t for metal calculations.*
*[2] Excludes Royalties and Freight.*
*[3] Cash Costs include Mining, Processing, G&A, Freight, Copper and Cobalt credits.*
*[4] All in Costs include Cash Costs plus Capital expenditure and Royalties.*

## Geology & Resources

The Savannah North Mineral Resource has been estimated by independent geological consultants Cube Consulting Pty Ltd in May 2020. A summary of the Mineral Resource at a 0.5% Ni cut-off grade (COG) is shown in Table 3.

**Table 3: Savannah Mineral Resource (0.5% Ni COG)**

| Classification | Domain | Tonnes (kt) | Ni (%) | Cu (%) | Co (%) | Ni (kt) | Cu (kt) | Co (kt) |
|---|---|---|---|---|---|---|---|---|
| **Measured** | Upper | 1,840 | 1.48 | 0.66 | 0.10 | 27.20 | 12.10 | 1.90 |
| | Other | 46 | 1.71 | 0.49 | 0.12 | 0.80 | 0.20 | 0.10 |
| | **Sub-Total** | **1,885** | **1.48** | **0.65** | **0.10** | **28.00** | **12.30** | **2.00** |
| **Indicated** | Upper | 3,050 | 1.43 | 0.57 | 0.10 | 43.60 | 17.30 | 3.10 |
| | Lower | 2,654 | 1.84 | 0.90 | 0.13 | 48.80 | 23.80 | 3.40 |
| | Other | 414 | 1.34 | 0.48 | 0.09 | 5.50 | 2.00 | 0.40 |
| | **Sub-Total** | **6,117** | **1.60** | **0.70** | **0.11** | **98.00** | **43.10** | **6.90** |
| **Inferred** | Upper | 1,544 | 1.25 | 0.42 | 0.07 | 19.30 | 6.50 | 1.10 |
| | Lower | 958 | 1.67 | 0.73 | 0.11 | 16.00 | 7.00 | 1.10 |
| | Other | 470 | 1.93 | 0.46 | 0.12 | 9.10 | 2.20 | 0.60 |
| | **Sub-Total** | **2,972** | **1.49** | **0.53** | **0.09** | **44.40** | **15.60** | **2.70** |
| **TOTAL** | | **10,974** | **1.55** | **0.65** | **0.11** | **170.40** | **71.10** | **11.6** |

The Savannah North Mineral Resource was updated due to the addition of 112 infill grade control diamond drillholes totalling 23,481m. The Savannah North orebody consists of two main zones and dips moderately (40-45 degrees) to the north-west. The Upper Zone is associated with the basal contact of the Savannah North Intrusion and the Lower Zone is remobilised mineralisation potentially associated with the 500 Fault. An additional four minor mineralised domains have also been interpreted within this resource. The orebody consists of pyrrhotite, pentlandite and chalcopyrite, varying from disseminated/matrix mineralisation to stringer and massive sulphide.

## Mining

The mining methods utilised in the LOM plan is in line with the previous operation being a top-down, long hole open stoping mining method utilising paste fill. This mechanised, non-entry method has proven to be a safe, productive mining method at Savannah. The stope extraction sequence was geotechnically modelled by Beck Engineering for the 2017 Feasibility Study and has been retained.

The key design parameters used in the Savannah Nth are detailed below in Table 4.

**Table 4: Key Mine Design Parameters**

| Design Parameter | Unit | Value |
|---|---|---|
| Decline stand off | m | 50 |
| Decline Radius (min) | m | 23 |
| Level interval (floor to floor) | m | 20 |
| Minimum stope footwall angle | Deg | 50 |
| Nominal stope length | m | 20 |
| Maximum hydraulic radius | m | 6 |
| Minimum stope width | m | 3 |

The decline is sized at the previously constructed 5.2 m W x 5.8 m H, allowing sufficient room for 60 t class underground trucks, whilst the ore drives are sized at 4.8 m W x 5.0 m H to allow for 15 t loaders.

A minimum stope mining width (MMW) of 3.0 m (true width) was designed. Additional unplanned stope dilution assumptions were applied assuming 'skins' of a certain thickness on each hangingwall and footwall contact based on geotechnical advice and stope width and depth below surface (block C is the deepest) as summarised in Table 5. The resultant unplanned dilution is approx. 10.5% and 20.5% respectively.

**Table 5: Dilution Assumptions**

| Mining Area | Footwall Dilution | Hangingwall Dilution |
|---|---|---|
| Block A, B and D | 0.5 m | 1.0 m |
| Block C | 0.5 m | 2.0 m |

Mining recoveries of 90% were applied to stopes to allow for issues such as local orebody spatial variability and material left behind during remote loading.

The Key mining parameters are presented in Table 6.

**Table 6: Key Mining Parameters**

| Parameters | Value |
|---|---|
| Schedule COG ($NSR average) | $122 |
| Schedule COG (Ni Grade equivalent) | 0.78% |
| Minimum Stope Width | 3m |
| Minimum Footwall Angle | 50 deg |
| Minimum Pillar Between stope | 7m |
| Stope Recovery | 90% |
| Stope Dilution | Block C: 0.5m FW, 2m HW |
| | Other Blocks: 0.5m FW, 1m HW |
| Development Recovery | 100% |
| Development Dilution | 0% |
| Stope Tonnes/Drill Meter | 6 t/dm |
| Production Drilling | 250 m/d |
| Development | 100 m/mth |
| Rehab Rate | 200 m/mth |
| Vertical Developments | 4 m/d |
| Paste Wall Delays | 5 days |
| Curing Time for Paste | 7 days |
| Paste Fill Rate | (450 - 800 m3/d) Flexible depends on stope thickness, Plug filling + 1-day curing |
| Bogging Rate | Flexible depends on distance to stockpile |
| Production Drilling Rate | 250 m/d |
| Stope Firing Delay | 3 days |
| Block Model | sav_nth_res_9mar2020 |

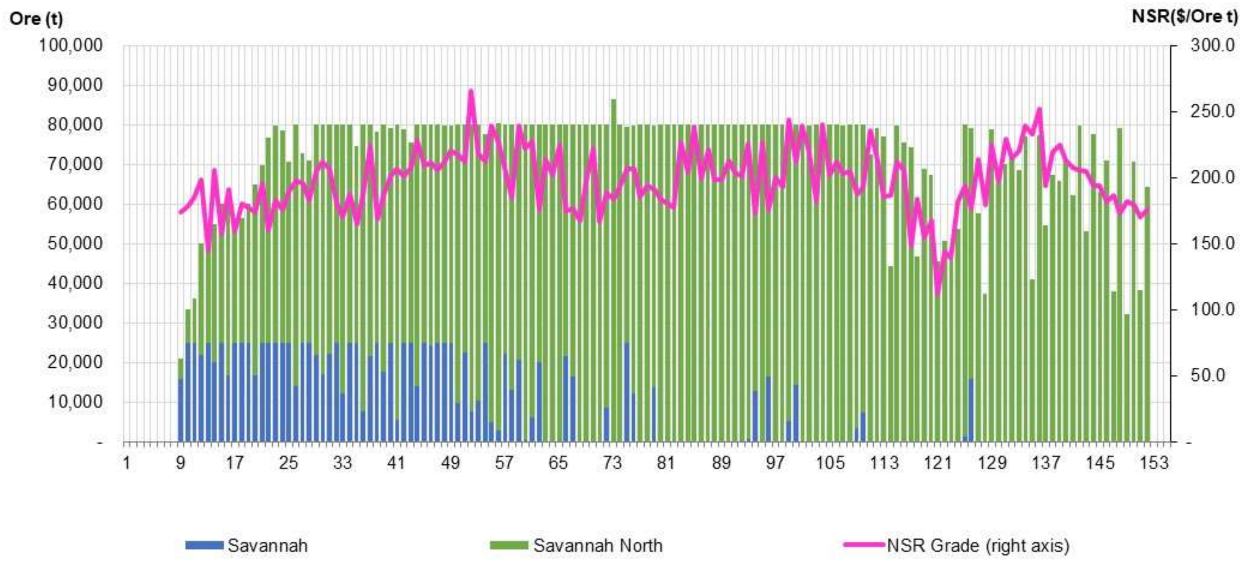
## Mine Schedule

The mining schedule aims to ramp up ore production at ~960,000 ktpa as quickly as possible, whilst minimising any potential stoping tail at the end of the mine plan. The ramp involves an 8 mth period of jumbo development only, allowing the completion of the primary ventilation circuit and capital development to be established in the Savannah Nth. This aims to decongest the production equipment from the development.

Scheduling of the Savannah material was limited to 25,000 t/mth. This rate is reduced from previous mine schedule iterations so as to lessen the reliance on Savannah which has proven to be problematic due to ground rehabilitation requirements

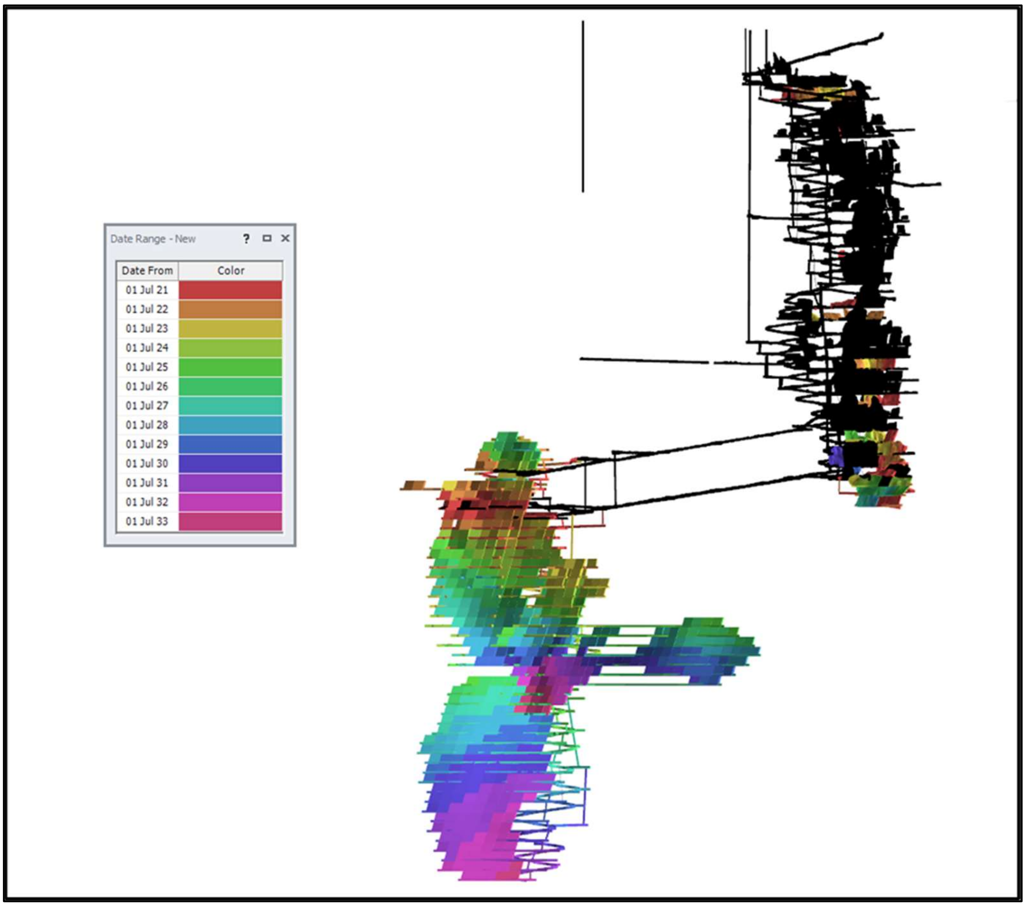
The monthly production profile is shown in Figure 3.

Figure 3: Monthly Ore Production




The mine plan coloured by year scheduled is shown in Figure 4.

Figure 4: Savannah Mine Schedule by Year (Long-Section Looking SE)



## Mining Costing

Most mining costs have been estimated based on contractor rates that were obtained from the Barminco Limited Underground Mining Services Agreement of February 2020. Additional capital item costs have been sourced from historical costs provided by Panoramic or the Entech database. Mining capital costs are summarised in Table 5, and mining operating costs are summarised in Table 6 below.

**Table 5: Savannah Mining Capital Cost Estimate**

| Item | LOMP Expenditure ($'000) | Reserve Expenditure ($'000) | Unit | LOMP Unit Cost | Reserve Unit Cost |
|---|---|---|---|---|---|
| Infrastructure/ Site Establishment | 25,963 | 25,810 | $/t ore | $2.49 | $3.12 |
| Decline Development | 23,353 | 21,436 | $/t ore | $2.24 | $2.59 |
| Capital Access | 38,868 | 36,014 | $/t ore | $3.73 | $4.35 |
| Ventilation | 15,297 | 14,946 | $/t ore | $1.47 | $1.81 |
| Escapeway | 3,965 | 3,630 | $/t ore | $0.38 | $0.44 |
| Other Lateral Development | 16,896 | 16,811 | $/t ore | $1.62 | $2.03 |
| Capital Mine Services | 19,229 | 23,912 | $/t ore | $1.84 | $2.89 |
| Capital Mine Overheads | 55,045 | 64,578 | $/t ore | $5.28 | $7.81 |
| Escalation + Adjustments | 3,366 | 3,364 | $/t ore | $0.32 | $0.41 |
| **Total Capital** | **201,980** | **210,501** | **$/t ore** | **$19.37** | **$25.44** |

**Table 6: Savannah Mining Operating Cost Estimate**

| Item | LOMP Expenditure ($'000) | Reserve Expenditure ($'000) | Unit | LOMP Unit Cost | Reserve Unit Cost |
|---|---|---|---|---|---|
| Op Access | 50,640 | 43,138 | $/t ore | $4.86 | $5.21 |
| Ore Drive | 92,081 | 63,880 | $/t ore | $8.83 | $7.72 |
| Stope | 307,702 | 243,488 | $/t ore | $29.52 | $29.43 |
| Operating Mine Services | 99,131 | 96,537 | $/t ore | $9.51 | $11.67 |
| Operating Mine Overheads | 271,435 | 255,695 | $/t ore | $26.04 | $30.90 |
| Dayworks | 10,976 | 8,867 | $/t ore | $1.05 | $1.07 |
| Grade Control | 5,001 | 4,720 | $/t ore | $0.48 | $0.57 |
| Pastefill | 47,519 | 39,683 | $/t ore | $4.56 | $4.80 |
| Escalation + Adjustments | 12,823 | 10,513 | $/t ore | $1.23 | $1.27 |
| **Total** | **897,309** | **766,520** | **$/t ore** | **$86.07** | **$92.64** |

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# TABLES

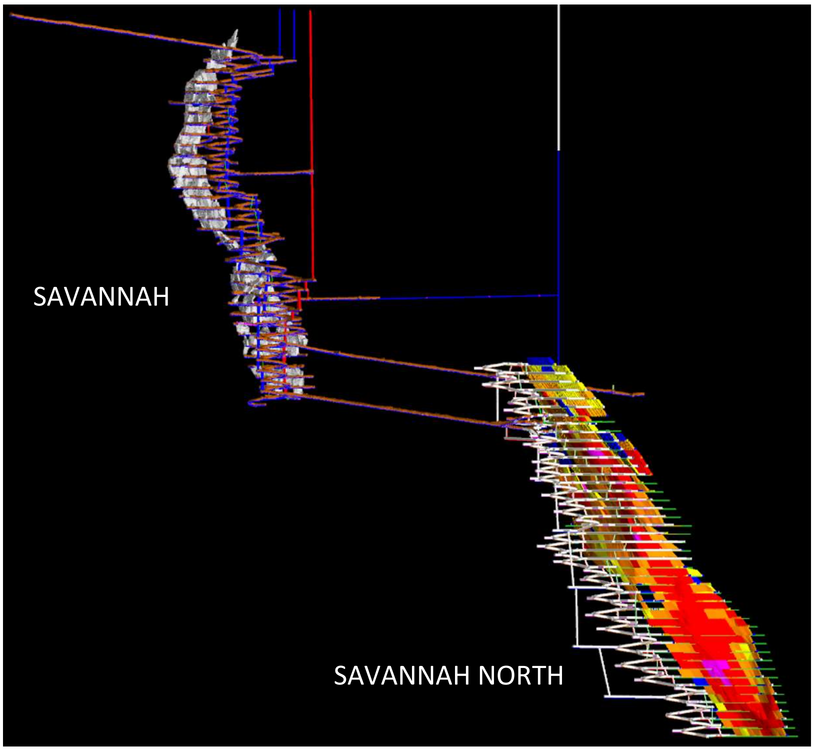
## FIGURES

# 1 INTRODUCTION

Entech were engaged to update the life-of-mine (LOM) plan and Ore Reserve Estimate based on a new Savannah Nth resource model completed by Cube Consulting in April 2020. This involved reviewing and evaluating the remaining mineralised material in the original Savannah mine, plus evaluation of the updated resource at Savannah Nth.

Figure 1 illustrated the locations of the two mining zones, Savannah and Savannah Nth.

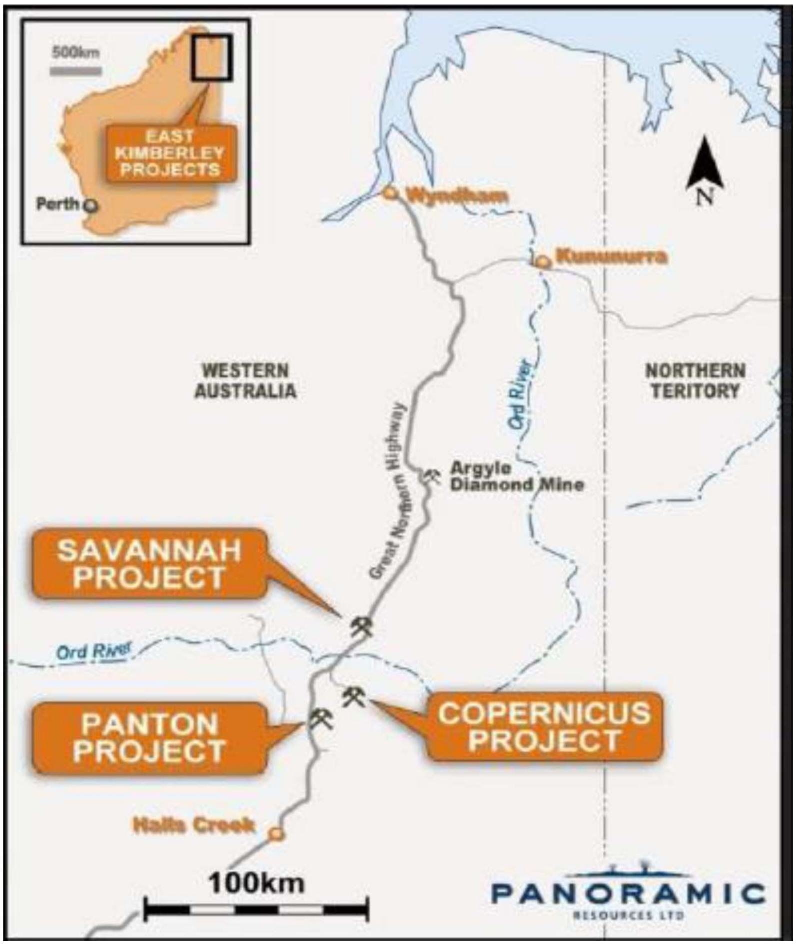
**Figure 2: Savannah and Savannah Nth Proximity**



# 2 PROJECT LOCATION

The Savannah Nickel Project is located 240 km south of Kununurra in the East Kimberley region of Western Australia (Figure 3).

**Figure 3:Savannah Project Location**




The mine is 1 km from the publicly gazetted and sealed Great Northern Highway. It is accessible from the highway over good private roads wholly contained within the tenement package.

# 3 PREVIOUS STUDIES

The Savannah nickel project operated from 2004 and was put on to care and maintenance in 2016 following a period of low nickel prices. During this period, 8.5 Mt was exploited from the Savannah lode at an average grade of 1.29% Ni, 0.65% Cu and 0.06% Co to produce 1.22 Mt of concentrate containing 94.6 kt Ni, 53 kt Cu and 5 kt Co.

The Savannah Nth orebody was discovered in 2014 and resource drilling began in 2015. Savannah North sits approximately 600 m to the north of the Savannah mine as shown in Figure 2. Following the release of the maiden Savannah Nth resource, a Feasibility Study was completed in Feb 2017. Based on the Feasibility Study, a maiden Ore Reserve for Savannah North was released, resulting in 6.65 Mt @ 1.42% Ni, 0.61% Cu and 0.10% Co for contained metal of 94.5 kt Ni, 41.9 kt Cu and 6.7 kt Co.

In Oct 2017, PAN carried out an Updated Feasibility Study (Updated FS), (Parkinson, 2017). The Updated FS supersedes the February 2017 Savannah Feasibility Study and July 2017 Savannah FS Optimisation. The Updated FS focussed on further improvements to the mine plan and schedule, additional metallurgical testwork leading to a better understanding of expected flotation performance, and updates to capital and operating costs to reflect recent movements in pricing since the earlier studies.

Key outcomes from the Updated FS were an 8.3-year mine life producing yearly 10.8 kt Ni, 6.1 kt Cu and 800 t Co. The mineral resource and mine production for the life of mine 2017 Updated FS is listed below in Table 7.

**Table 7: Previous Study Resource and Mine Production**

| Key Indicator | Mt | Ni (%) | Cu (%) | Co (%) | Ni (kt) | Cu (kt) | Co (kt) |
|---|---|---|---|---|---|---|---|
| Mineral Resource | 13.2 | 1.65 | 0.75 | 0.11 | 218.3 | 99.1 | 15.9 |
| Mine Production | 7.65 | 1.42 | 0.68 | 0.10 | 108.7 | 51.7 | 7.3 |

Mining recommenced in 2018, based on an 8-year plan that exploited both the newly discovered Savannah Nth, and the remainder of the original Savannah lode. The mine was once again put into care and maintenance in April 2020 due to a slower ramp up then planned, compounded by the impacts from Covid-19, including on commodity prices.

# 4 MINERAL RESOURCE ESTIMATE

## 4.1 INTRODUCTION

An update of the Mineral Resource Estimate (MRE) for Savannah North was generated by independent geological consultants Cube Consulting. The update was generated due to further infill grade control drilling completed in the upper parts of the deposit and the MRE was carried out with an effective cut-off date of 9th of April 2020 and reported in accordance with the guidelines outlined in the JORC Code 2012. The MRE at a 0.5% Ni cut-off grade (COG) is summarised in Table 8.

Table 8: Mineral Resource Summary Savannah North (0.5% Ni Cut-off)

| Classification | Domain | Tonnes (kt) | Ni (%) | Cu (%) | Co (%) | Ni (kt) | Cu (kt) | Co (kt) |
|---|---|---|---|---|---|---|---|---|
| Measured | Upper | 1,840 | 1.48 | 0.66 | 0.10 | 27.2 | 12.1 | 1.9 |
| | Other | 46 | 1.71 | 0.49 | 0.12 | 0.8 | 0.2 | 0.1 |
| | **Sub-Total** | **1,885** | **1.48** | **0.65** | **0.10** | **28.0** | **12.3** | **2.0** |
| Indicated | Upper | 3,050 | 1.43 | 0.57 | 0.10 | 43.6 | 17.3 | 3.1 |
| | Lower | 2,654 | 1.84 | 0.90 | 0.13 | 48.8 | 23.8 | 3.4 |
| | Other | 414 | 1.34 | 0.48 | 0.09 | 5.5 | 2.0 | 0.4 |
| | **Sub-Total** | **6,117** | **1.60** | **0.71** | **0.11** | **98.0** | **43.1** | **6.9** |
| Inferred | Upper | 1,544 | 1.25 | 0.42 | 0.07 | 19.3 | 6.5 | 1.1 |
| | Lower | 958 | 1.67 | 0.73 | 0.11 | 16.0 | 7.0 | 1.1 |
| | Other | 470 | 1.93 | 0.46 | 0.12 | 9.1 | 2.2 | 0.6 |
| | **Sub-Total** | **2,972** | **1.49** | **0.53** | **0.09** | **44.4** | **15.6** | **2.7** |
| **TOTAL** | | **10,974** | **1.55** | **0.65** | **0.11** | **170.4** | **71.1** | **11.6** |

- Note: Rounding errors may occur.

Key fields included in this Resource were:

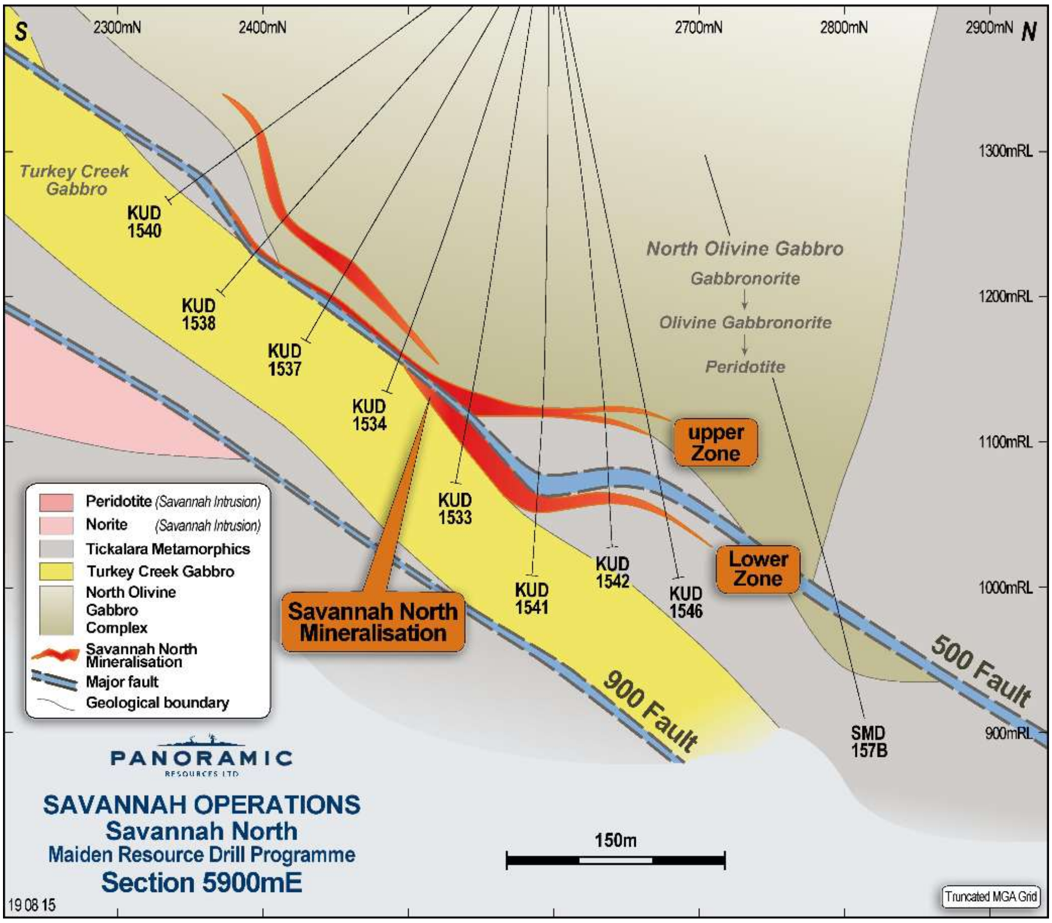
- Nickel grade % (ni_ok)
- Density (sg_ok)
- Copper grade % (cu_ok)
- Cobalt grade % (co_ok)
- Domain (domain)
- Mined (mined: 1=insitu 0=mined)
- JORC Resource category (class)

## 4.2 DEPOSIT GEOLOGY

The Savannah sulphide orebody lies within a marginal norite unit, developed at the base of the Savannah Layered Intrusive Complex (SI) which was intruded into a metamorphosed sequence of sedimentary and igneous rocks called the Tickalara Metamorphics.

The Savannah North mineralisation consists of pyrrhotite, pentlandite and chalcopyrite, ranges from disseminated/matrix to stringer and massive sulphide and dips moderately (40-45 degrees) to the north-west. Two main zones of mineralisation, the Upper Zone, has developed on the basal contact of the Savannah North Intrusion (SNI) and the second, the Lower Zone is a consistent remobilised zone of massive sulphide mineralisation, in part associated with the 500 Fault (Figure 4: Savannah North Local Geology – Cross Section at 5,900 E (Looking West)).

Figure 4:Savannah North Local Geology – Cross Section at 5,900 E (Looking West)




## 4.3 MINERALISATION DOMAINING

The framework of the Savannah North mineralisation was based on the existing August 2016 MRE model and updated to include the recent close spaced grade control drilling.

The interpretation was guided by geological controls, primarily defined by the presence of strong, continuous zones of logged massive sulphide mineralisation. Two main zones of mineralisation were defined, the Upper Zone at the basal contact of the Savannah North Intrusion and the Lower Zone. Minor domains have also been interpreted northeast of the Upper Zone, representing an extension to the basal contact mineralisation and zones in the hanging wall to the Upper Zone. There are some instances where intervals of internal dilution have been included with the mineralisation envelope for geological control.

A total of six domains have been modelled and three dimensional views of the mineralisation interpretation in plan and section are shown in Figure 5 and Figure 6.

Figure 5:Interpretation Domains - Plan

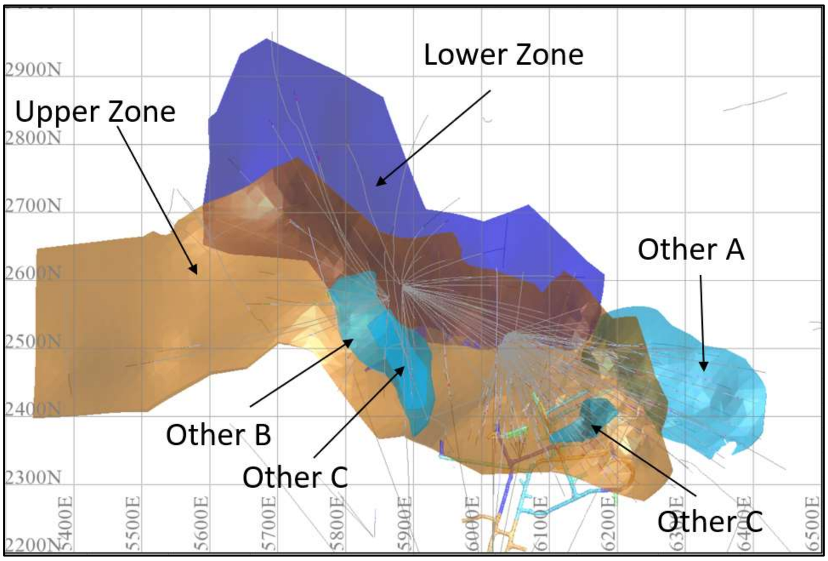
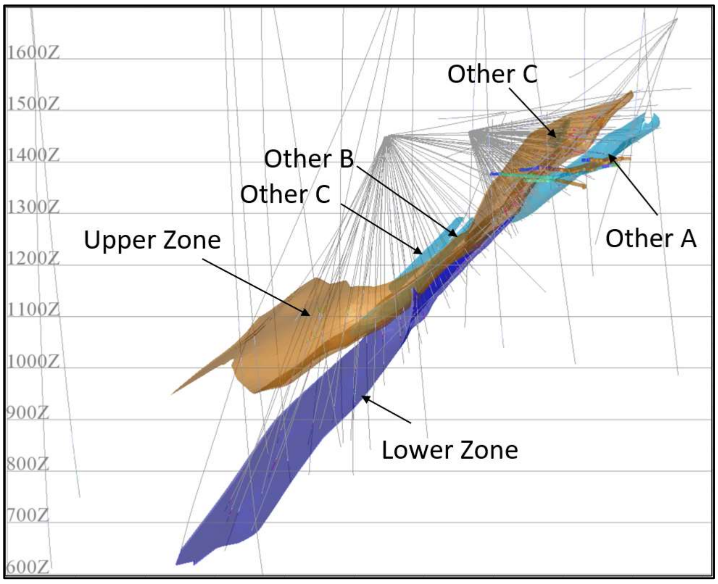



Figure 6:Interpretation Domains – Oblique view looking NE




## 4.4 BLOCK MODEL ESTIMATION

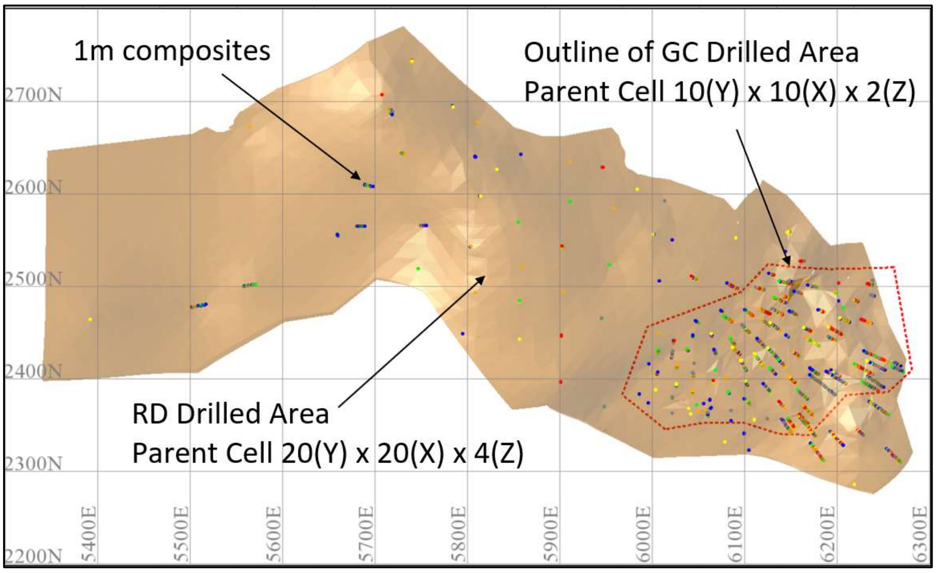
Due to the recent grade control infill drilling, it was determined that two estimation block model cell sizes would be used. The block model definition is shown in Table 9 below.

Table 9: Block Model definition Summary

| Block Model File ID | sav_nth_res_9mar2020.mdl | | |
|---|---|---|---|
| Type | Local Northing (m) | Local Easting (m) | RL (m) |
| Origin | 2,200 | 5,000 | 300 |
| Maximum | 3,000 | 6,500 | 1,600 |
| Extent | 800 | 1,500 | 1,300 |
| Parent Block Size | 20 | 20 | 4 |
| Sub-Cell Minimum | 2.5 | 2.5 | 0.5 |
| Rotation | None | | |

The model was estimated using Ordinary Kriging (OK) of 1 m downhole composites to estimate nickel, copper, cobalt, and density for each of the mineralised domain. Interpolation was carried out within the modelled domains on the 20 mN x 20 mE x 4 mRL parent cells for all domains except part of the Upper Zone defined by the close spaced GC drilling which was estimated into 10 mN x 10 mE x 2 mRL parent cell (Figure 7).

Figure 7:Block Model Parent Cell zones showing different estimation zones




The MRE was depleted for mining including development and stopes.

## 4.5 CLASSIFICATION AND REPORTING

The MRE has been classified nominally according to drillhole spacing. The Measured Mineral Resource is typically on a 20m x 20m spacing and only includes mineralisation defined within the recently drilled close spaced GC drilling within the Upper Zone and the smaller 3a domain. Indicated resources include areas where the drilling spacing is greater than 20 m x 20 m drilling and approximates a 50 m x 50 m grid. Inferred areas are where the data density is greater than 50 m x 50 m spacing, typically around the periphery and depth extent of the Upper and Lower Zones plus some of the minor domains (Figure 8 and Figure 9).

**Figure 8: Savannah North Classification with Drillhole Intersections (Plan View)**

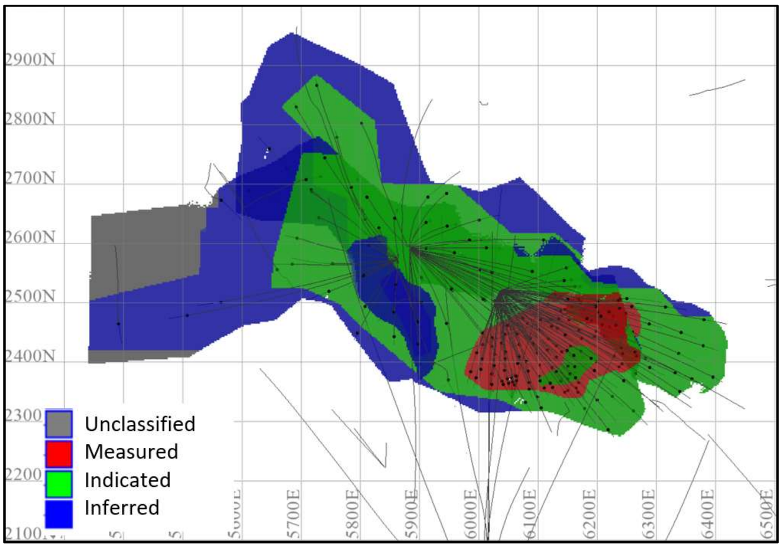
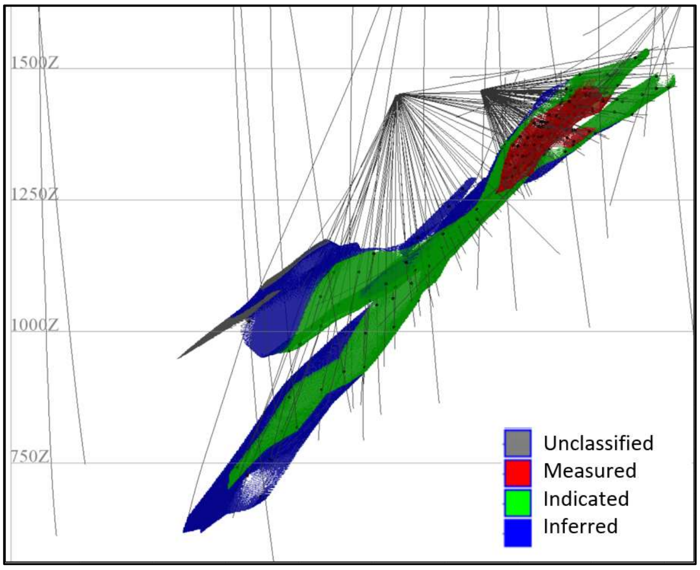



**Figure 9: Savannah North Classification with Drillhole Intersections (Section view looking NE)**




The estimated model has been reported above a nickel lower grade cut-off of 0.5% Ni.

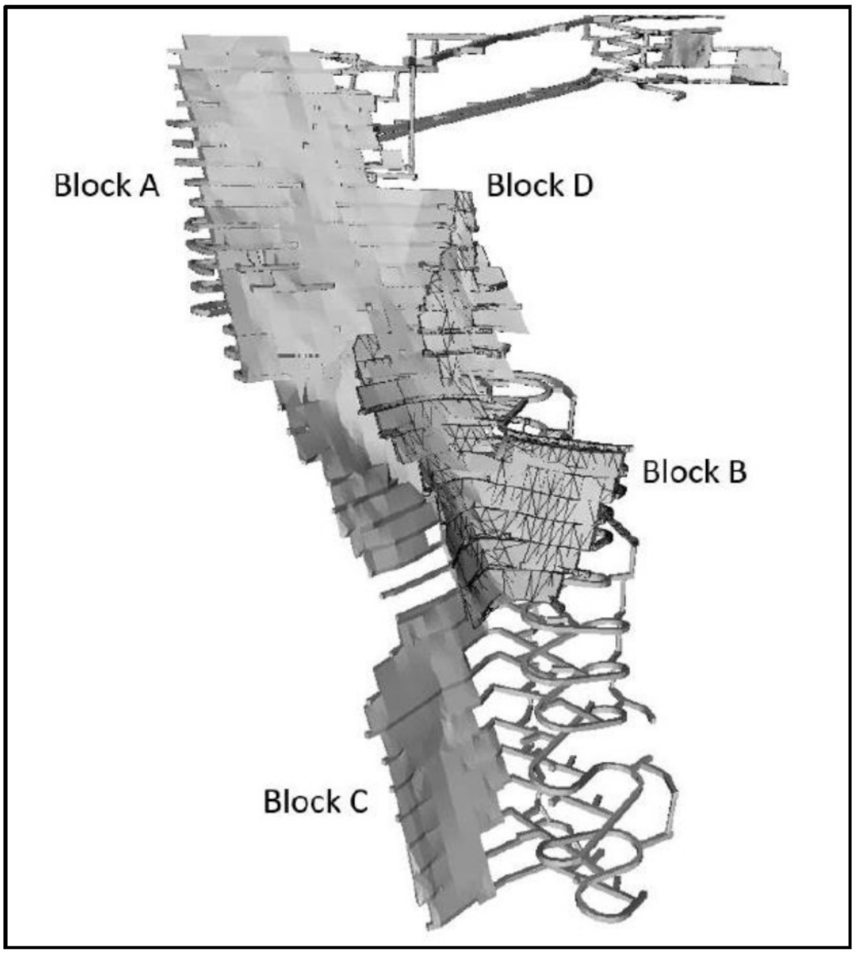
# 5 GEOTECHNICAL PARAMETERS

Geotechnical guidance for this design update was taken from the Geotechnical study completed by Beck Engineering Pty Ltd (Beck) in 2016. This guidance was the same as used in the 2017 Feasibility Studies, including the Updated FS (Parkinson, 2017).

The Beck Geotechnical study forecasted the mine scale stability and deformation for Savannah North. The method of analysis used was Discontinuum Finite Element modelling using geological structures on a mine scale. This method has previously been used by Beck Engineering (August 2015) to model rock damage and seismic activity at Savannah.

In general, Block A, Block B and Block D (lodes above the 1270 mRL and shown in Figure 10) have generally good mining conditions. Some localised areas of significant rock mass damage are forecast. These areas tend to occur at fault intersections or where there is unfavourable hangingwall geometry (a convex shape). In Block A there is an increase in the persistence of damage across both the footwall and hangingwall from about 1300 m below surface. This increase is considered to be a function of the stress field nearing the rock mass strength.

**Figure 10: Blocks A to D at Savannah Nth**



A comparison of the different stoping sequences in Block A shows no definitive geotechnical differences. Both sequences have been developed around maintaining an inclined, continuous mining front and avoiding retreating to pillars. From a geotechnical perspective, both sequences are considered fit for purpose.

Block C (below the 1270 mRL) has more challenging mining conditions. These conditions are largely due to the magnitude of stress forecast with the depth of mining and the current understanding of the rock mass strength for Block C. The assumptions that there is a linear increase in the stress gradient should be tested prior to development commencing in Block C.

Dilution allowances were modelled in Datamine MSO software. The inputs for each of the blocks and resultant unplanned dilution numbers are detailed in Table 10.

**Table 10: Stope Dilution Inputs**

| Item | Unit | Blocks A, B and D | Block C |
|---|---|---|---|
| FW Dilution | m | 0.5 | 0.5 |
| HW Dilution | m | 1.0 | 2.0 |
| Av Dilution (Result) | % | 10.5 | 20.5 |

# 6 MINE DESIGN

## 6.1 MINING METHODS

During the Updated FS (Parkinson, 2017), two mining methods were considered for Savannah Nth being mechanised cut and fill, and longhole stoping with paste fill. Both "top-down" and "bottom-up" extraction sequences were also considered for each method.

Long hole stoping with paste (top down) was chosen due to its lower extraction cost and suitability for any potential depth stress related issues. As a mechanised non-entry method, long hole stoping also provides safety and productivity benefits. This method was again utilised for this study.

The parameters used for the stope design are detailed below in Table 11.

**Table 11: Stope Input Parameters**

| Optimisation Parameter | Unit | Blocks A, B, C and D |
|---|---|---|
| Level interval (floor to floor) | m | 20 |
| Minimum footwall angle | Deg | 50 |
| Nominal stope length | m | 20 |
| Maximum hydraulic radius | m | 6 |
| Minimum stope width | m | 3 |

## 6.2 MINING FACTORS

### 6.2.1 MINING WIDTH & MINING DILUTION

An undiluted stope minimum mining width (MMW) of 3.0 m (true width) was applied to the Savannah Nth mining area. This is achievable based on the sub-level interval of 20 m floor to floor as from knowledge gained in the mining of the Savannah orebody.

Unplanned dilution was applied to stoping based on the geotechnical criteria described in Section 5 of this report. The stope shapes created include both planned and unplanned dilution.

A summary of stope dilution assumed in the mine plan is presented in Table 12. The total global average planned and unplanned stope dilution (i.e. mined material without Resource classification, including fill dilution) proportion within the mine plan stope shapes is 22%.

**Table 12: MINE Stope Dilution Summary**

| Source | Tonnes |
|---|---|
| Dilution | 2,143 kt |
| Contained Resource in Stopes | 7,283 kt |
| **Total Stope Dilution %** | **22%** |

No unplanned dilution (i.e. overbreak) was assumed for ore development as any actual dilution will be accounted for in the stope shape.

### 6.2.2 MINING RECOVERY

Mining recoveries of 90% were applied to stopes to allow for issues such as local orebody spatial variability and material left behind during remote loading.

As the mining sequence is based on 100% extraction, there has been no allowance for rib pillars, however one sill pillar is located at the 1040 mRL.

The total loss of ore tonnes and metal due to exclusion mining recovery and sill pillars is presented in Table 13. This represents a total global ore loss of 11% of stope ore and Ni metal.

**Table 13: MINE Ore Loss Calculations**

| Ore Loss | t ('000) | Ni Grade (%) | Ni Metal (kt) |
|---|---|---|---|
| Sill Pillars | 80 | 1.3 | 1.0 |
| Mining Recovery | 1,040 | 1.2 | 12.7 |
| **Total Ore Loss** | **1,120** | **1.2** | **13.7** |

A mining recovery of 100% was assumed for ore development.

### 6.2.3 REVENUE FACTORS

Mineral resource block values were calculated utilising metal prices as shown below in Table 14 and payability factors from the current offtake agreement.

**Table 14: NSR Calculation Input Values**

| NSR | Unit | Value |
|---|---|---|
| **Revenue Factors** | | |
| Nickel Price | A$/t | 22,500 |
| Copper Price | A$/t | 9,000 |
| Cobalt Price | A$/t | 55,000 |
| Transport (Concentrate) | A$/t | 82.82 |
| Royalty – Stage Govt and Traditional Owner | % | 3.75 |

Metal unit values (A$/ % metal) were subsequently calculated for nickel, copper, and cobalt, with the resultant values shown below in Table 15.

**Table 15: NSR Unit Values**

| NSR | Unit | Value |
|---|---|---|
| NSR – Unit Values | $/ % Ni | 157.19 |
| | $/ % Cu | 44.62 |
| | $/ % Co | 198.32 |

Further detail on payability is noted in Section 14.3.3.

The mineral resource block model was stamped with an NSR value, providing a tool for optimisation against the mining cost (cut-off grade).

## 6.3 CUT-OFF GRADE

The COG for the initial Savannah Nth design was determined based on the following inputs:

- Mining and General & Administration (G&A) costs from the 2020 budget based on historical costs and the new Barminco contractor mining rates
- Revenue assumptions provided by PAN based on the most recent offtake agreement, transport costs and metal prices as outlined in Table 16
- Processing recovery assumptions as per PAN's empirical formula which is based on historical data
- Processing and surface haulage costs from PAN based on historical data and current agreements

The COG estimates used for stope optimisation and ore development classification are presented below in Table 16.

**Table 16: Preliminary LOM Underground Cut-off Grade Calculation**

| Preliminary Cut-off Grades | Unit | Value | | |
|---|---|---|---|---|
| **Operating Costs** | | **Total Op Costs** | **Stoping Costs** | **Transport & Processing** |
| Mining Operating Costs | | | | |
| *Lateral Operating Development* | *$ / t ore* | *30.84* | | |
| *Stoping* | *$ / t ore* | *57.52* | *57.52* | |
| *Geology* | *$ / t ore* | *2.43* | | |
| Processing | $ / t ore | 31.85 | 31.85 | 31.85 |
| General & Administration | $ / t ore | 12.83 | 12.83 | 12.83 |
| **Total Operating Cost** | **$ / t ore** | **135.46** | **102.19** | **44.67** |
| | | | | |
| **Economic Stope cut-off grade** | **$/t ore** | **135.46** | | |
| **Incremental Stope cut-off grade** | **$/t ore** | | **102.19** | |
| **Incremental Development cut-off grade** | **$/t ore** | | | **44.67** |

The fully costed stoping cut-off grade includes all costs for ore development, mining, and processing stope material. This value was used to generate focussed mining zones that determine the extents of ore development. The incremental stoping cut-off grade includes the costs of mining and processing of mineralised material, excluding the cost of development.

The development cut-off grade includes the costs of surface haulage and processing of ore only, on the assumption that this material must be mined and removed from underground regardless of grade, and that there are no further incremental costs of underground truck haulage from the portal to the ROM pad additional to hauling to the waste dump.

It should be noted that the costs summarised in Table 16 used for the initial design COG calculation differ from the final mining costs detailed in Section 13, which were based on the new mine plan. A reconciled COG calculation based on cost and revenue inputs from the final financial models is presented in Table 17.

**Table 17: Final LOM Underground Cut-off Grade Calculation**

| Calculated Cut-off Grades | Unit | Value | | |
|---|---|---|---|---|
| **Operating Costs** | | **Total Op Costs** | **Stoping Costs** | **Transport & Processing** |
| Mining Operating Costs | | | | |
| *Lateral Operating Development* | *$ / t ore* | *24.13* | | |
| *Stoping* | *$ / t ore* | *61.94* | *61. 94* | |
| *Geology* | *$ / t ore* | *0.48* | | |
| Processing | $ / t ore | 31.85 | 31.85 | 31.85 |
| General & Administration | $ / t ore | 12.83 | 12.83 | 12.83 |
| **Total Operating Cost** | **$ / t ore** | **131.23** | **106.62** | **44.67** |
| | | | | |
| **Economic Stope cut-off grade** | **$/t ore** | **131.23** | | |
| **Incremental Stope cut-off grade** | **$/t ore** | | **106.62** | |
| **Incremental Development cut-off grade** | **$/t ore** | | | **44.67** |

**Table 18: FS Plan Reconciled COG Calculation**

These reconciled COG numbers are in line with the preliminary COG grade numbers.

## 6.4 STOPE DESIGN

### 6.4.1 STOPE OPTIMISATION

Stope optimisations were run on the Mineral Resource model using Datamine Software's Mineable Shape Optimiser® (MSO®) software. All Mineral Resource categories (Indicated and Inferred) were included during the optimisation process.

The parameters used to generate the MSO stope shapes are summarised below in Table 19.

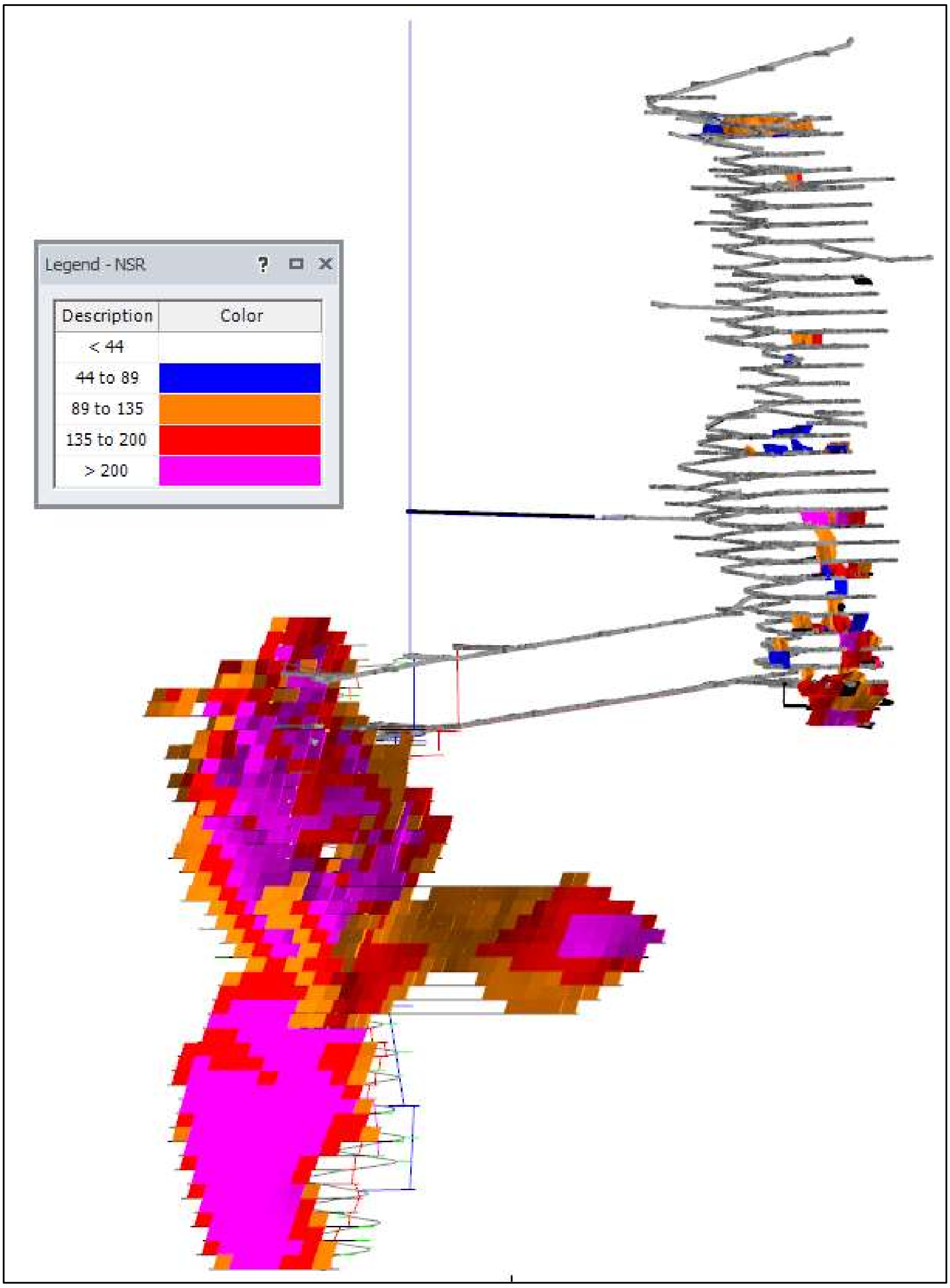
**Table 19: MSO Parameters**

| Optimisation Parameter | Unit | Value |
|---|---|---|
| Stope Cut-off Grade | $/t NSR | 135 |
| Min. Mining Width (True Width) | m | 3.0 |
| Vertical Level Interval | m | 20 |
| Section Length | m | 5.0 |
| HW Dilution (True Width) | m | 1-2 m |
| FW Dilution (True Width) | m | 0.5 m |
| Min. Parallel Waste Pillar Width | m | 7 |
| Min. FW Dip Angle | ° | 50 |

The design parameters were based on consideration of the orebody spatial characteristics described in Section 4. The 20 m sub-level interval has been selected to allow for appropriate drill and blast control while avoiding excessive hangingwall exposure, particularly in the areas that approach a shallow 50° hangingwall dip angle.

The results of the raw stope optimisation process coloured by NSR block value are shown below in Figure 11.

**Figure 11: Raw Optimisation Shapes (Long-Section Looking SE)**




### 6.4.2 STOPE WIDTHS

A histogram of the distribution of average widths for 20 m sections generated by the MSO process and included in the mine plan is presented in Figure 12 , and a summary of the proportions of sections falling within each width bin  is provided in Table 20.

**Figure 12: MSO Shape Width Distribution**

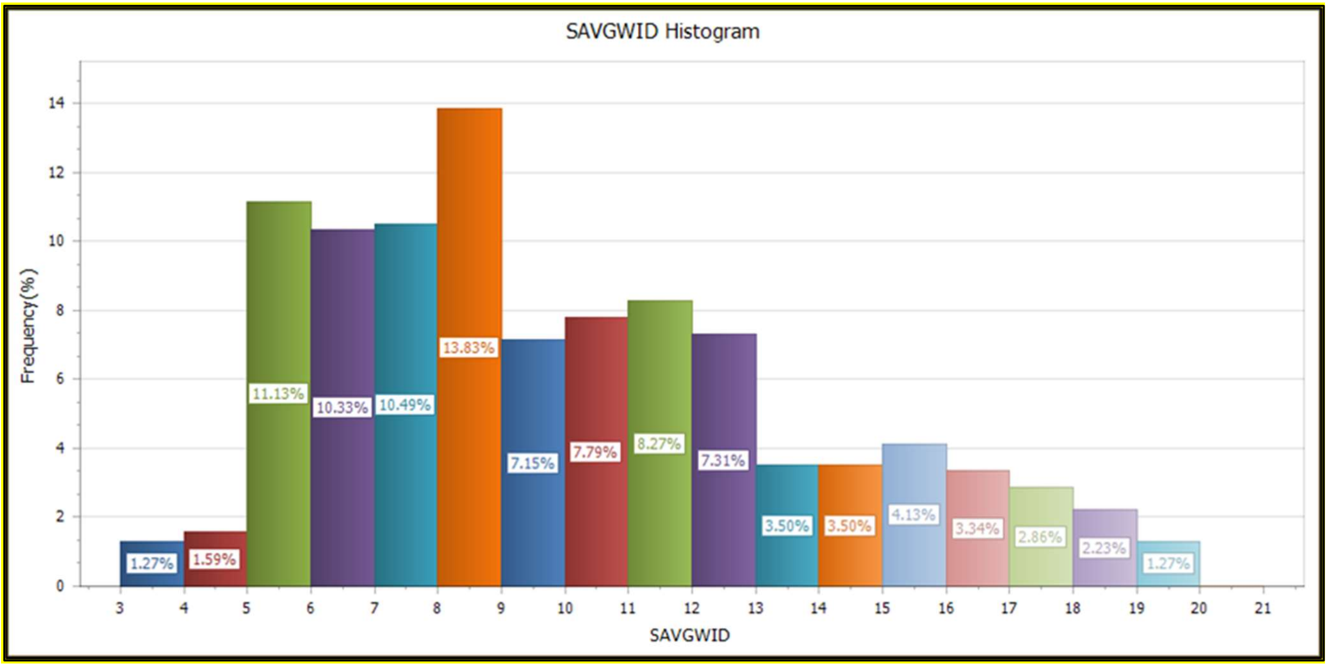



**Table 20: Included MSO Shape Width Proportions**

| Stope Width | Proportion of Included MSO Shapes |
|---|---|
| < 5 m | 3% |
| 5 – 7 m | 21% |
| 7 – 9 m | 24% |
| 9 – 11 m | 15% |
| 11 – 13 m | 16% |
| 13 – 15 m | 7% |
| > 15 m | 14% |

### 6.4.3 STOPE DESIGN

The optimisation results were reviewed for mineability. Levels were analysed to determine profitability based on the inputs used to generate the COG, and sub-economic levels were excluded from the mine plan. These areas generally required additional development to access stoping material that was unable to justify the cost of the development.

Based on the COG calculations detailed in Section 6.3, an incremental stoping COG of $109 /t NSR was applied to determine the final stoping envelope. A fully costed stope COG of $135 /t NSR was applied to determine stoping envelope extents along strike (i.e. stopes which pay for strike drive development).

The final stope design is shown in Figure 13 and Figure 14 coloured by NSR block value.

**Figure 13: MINE Stope Design (Cross-Section Looking SE)**

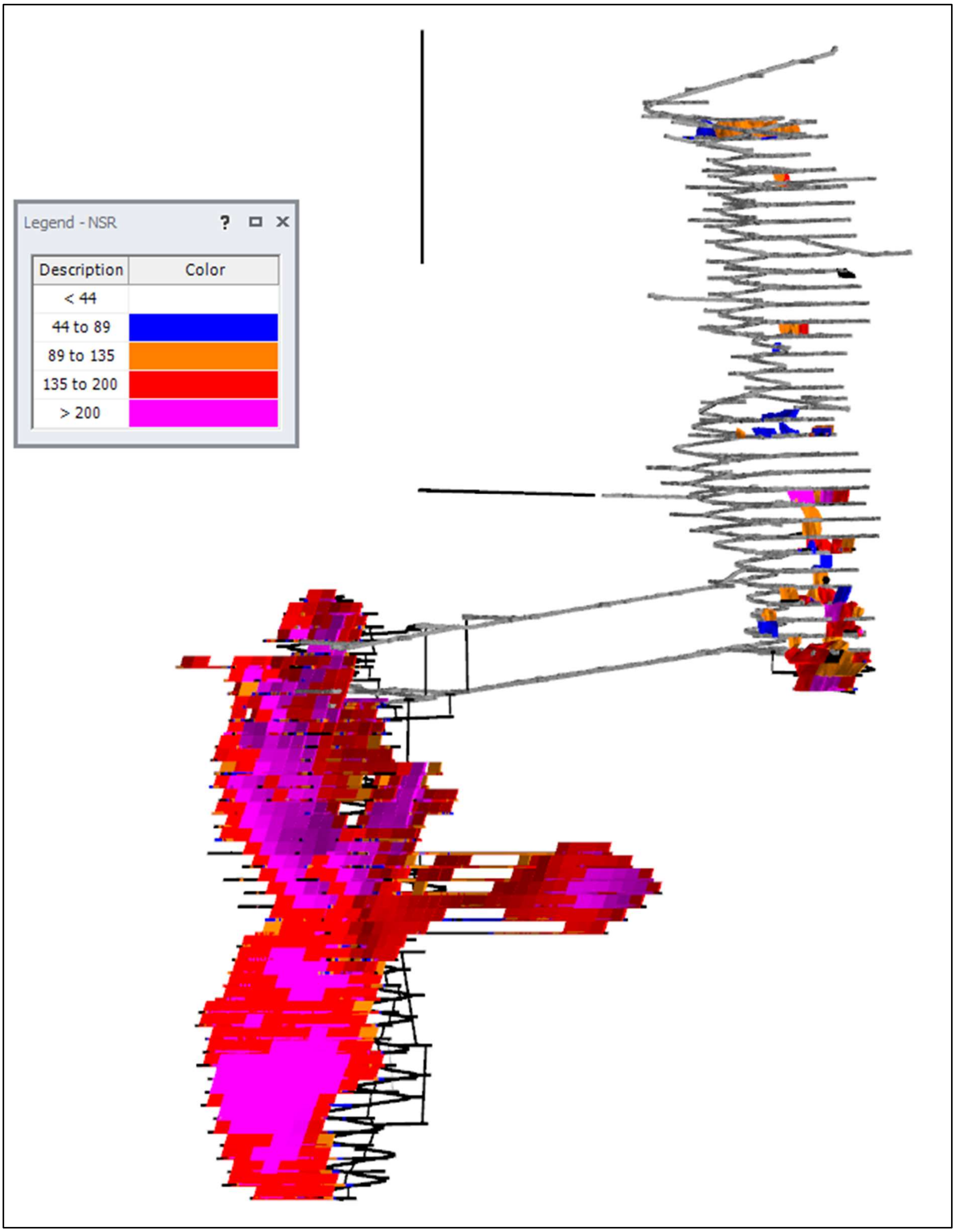
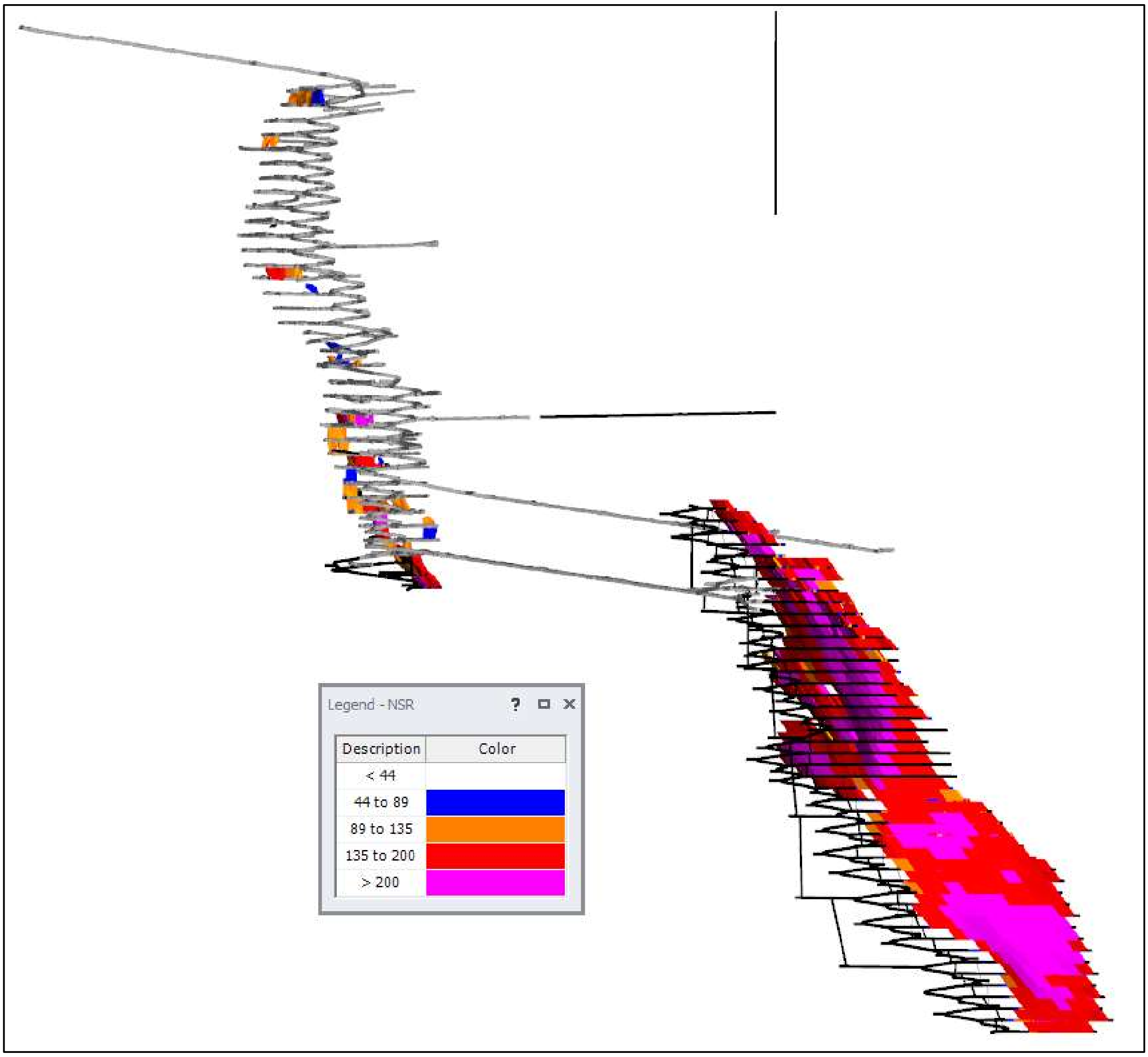


Figure 14: MINE Stope Design (Cross-Section Looking W)




### 6.4.4 STOPE DRILL AND BLAST

Drill and blast assumptions have been based on historical performance at Savannah. Long hole size is 89 mm diameter and drill metres are based on 6 t / drill m including slotting.

Stopes are assumed to be charged with ANFO and Nonel detonators.

### 6.4.5 PASTE FILLING

Paste filling has been used at Savannah since 2007. The existing fill system will be utilised for paste filling of the Savannah North stopes. A new paste fill hole is planned for the Savannah Nth, to be drilled from the surface via 1570DD. Dump valves shall be installed at intervals of 200 vertical metres to protect the paste line in case of paste blockages. Additionally, a backup hole is planned to be drilled to mitigate the risk of downtime due to unexpected blockages.

Where opportunities arise, waste rock will be backfilled into stopes either via a dedicated truck fill pass or by loader. When back filling with a loader, truck tipping bays will be mined and loaders will be used to transfer the waste into the stope with an appropriate stop-log. The study assumes that all stopes are paste filled.

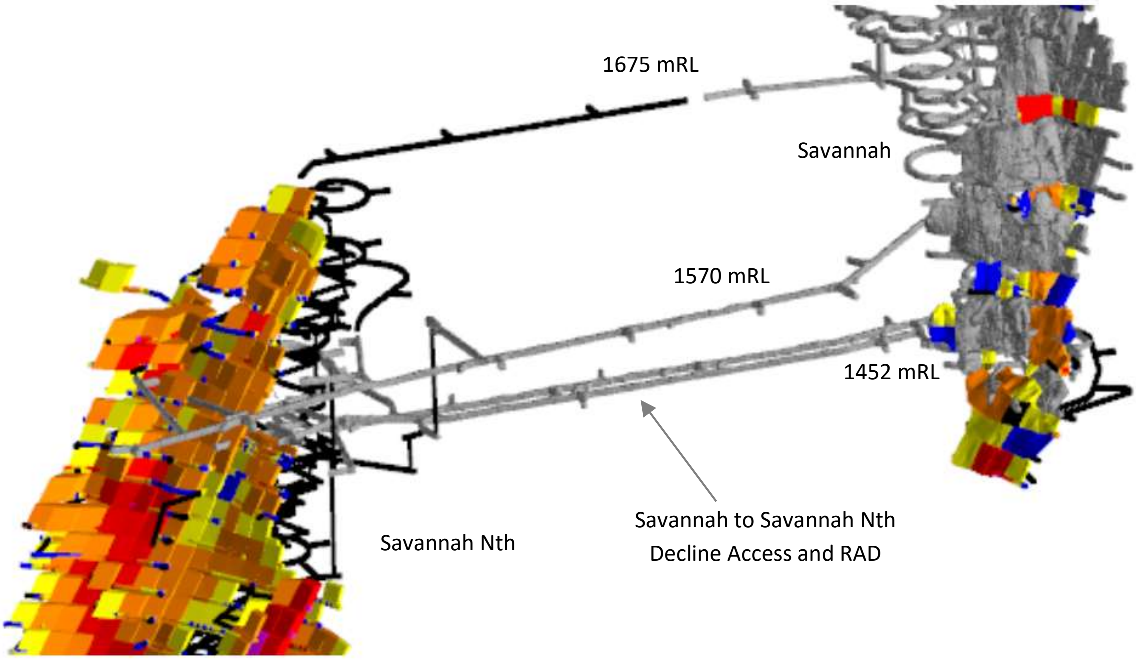
A cement strength of 2.7% was assumed for all paste placed.

## 6.5 DEVELOPMENT DESIGN

### 6.5.1 UNDERGROUND MINE ACCESS

The Savannah mine is accessed through a conventional ramp (decline) of 1:7 gradient and dimensions of 5.2 mW x 5.8 mH. Primary access to Savannah Nth from the Savannah decline is via a splinter decline from the 1452 mRL, consisting of two ramps, one for vehicle access and a second for a return air drive (RAD). The 1570 mRL drill drive also forms part of the access to the Savannah Nth. These development access drives can be seen below in Figure 15.

**Figure 15: Savannah to Savannah Nth Decline and RAD**

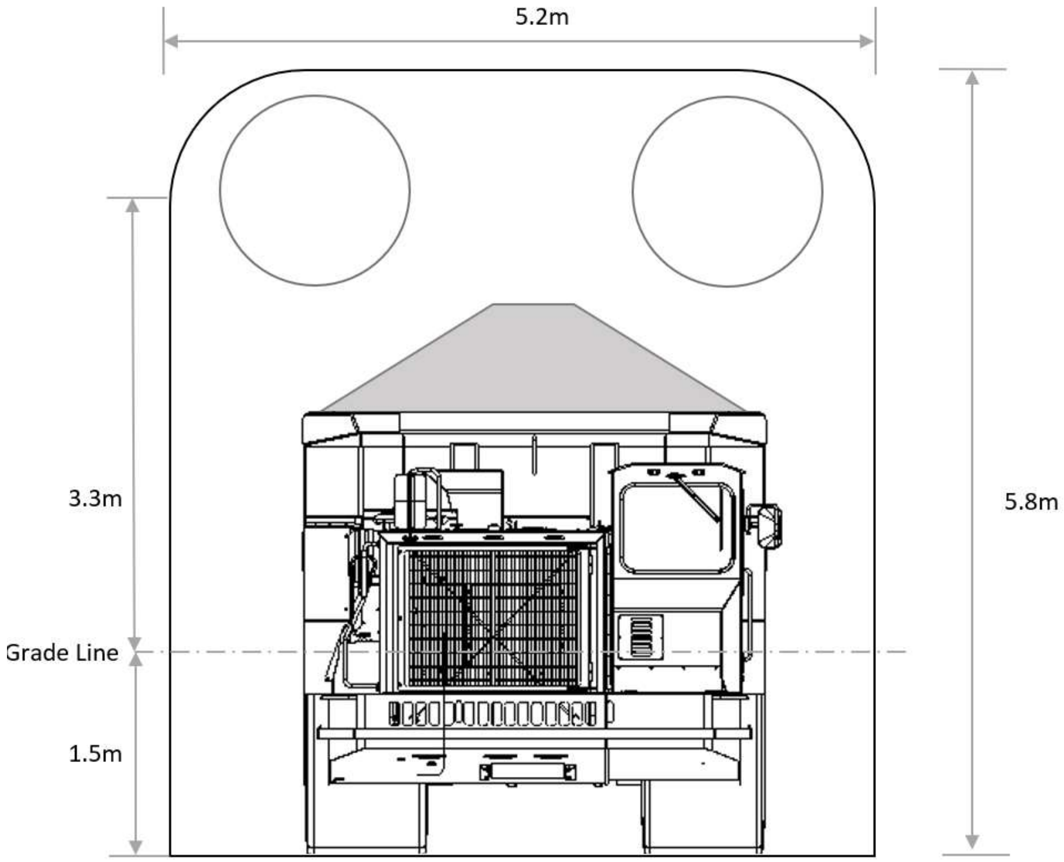



### 6.5.2 DECLINE DESIGN

The decline has been designed at a 50 m stand-off from the stoping voids based on geotechnical analysis. The decline is a spiral design with a minimum centreline radius of 23 m, allowing for the use of modern underground trucks.

A schematic cross-section profile of the 5.2 mW x 5.8 mH decline with a 60 t truck is shown in Figure 16. This profile conforms with the regulatory requirements on travel way clearance.

Figure 16: 5.2 mW x 5.8 mH Truck Access Profile with 60 t Truck



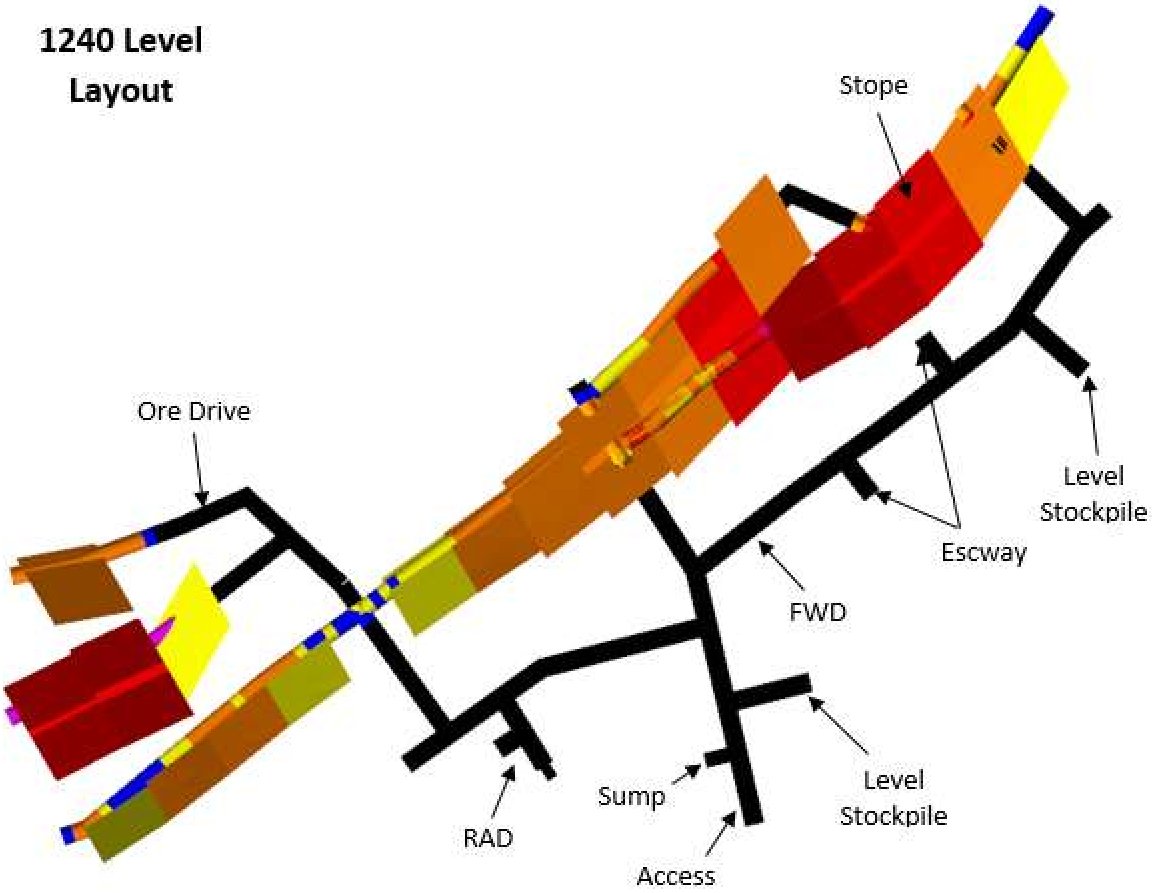

### 6.5.3 LEVEL CAPITAL DEVELOPMENT

Accesses were designed to be driven from the decline to cross-cut towards the ore at 5.5 mW x 5.5 mH in areas requiring truck access (i.e. to stockpiles).

Stockpiles were designed on each level at 5.0 mW x 5.0 mH and 20 m in length, for stockpiling of ore prior to loading onto trucks at decline intersections with levels.

A typical level layout is shown below in Figure 17

Figure 17: Typical Level Layout (Plan View -1240 Level)




### 6.5.4 VERTICAL CAPITAL DEVELOPMENT

A new 900 m long fresh air rise (VR3) is part way through construction and is the priority for completion at the recommencement of operations. Due to ground stability issues around the lower 150 m of VR3, reaming has been problematic and has resulted in a plan to re-access the rise above this area, allowing the reamer to be reattached. This new access drive has 450 m remaining and is the highest priority heading.

The lower section of VR3 has been completed at 4.0 m diameter, however the upper section will be completed at 3.8 m. This will ensure that there is enough clearance for the new reamer to traverse the completed section of the 4.0 m diameter hole.

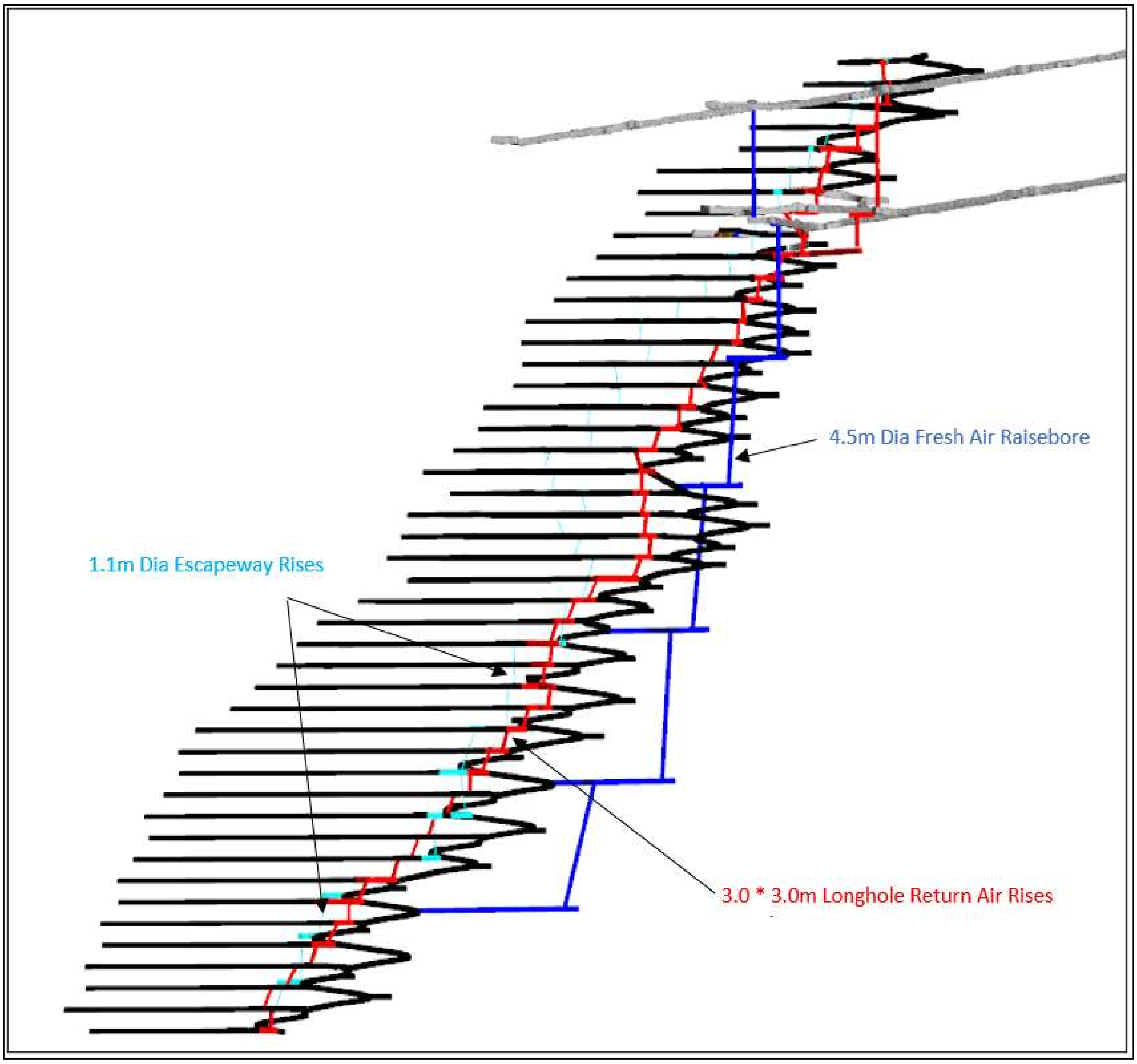
All vertical ventilation development in the Savannah Nth is designed to be completed at 3.0 x 3.0 m exhaust raises between levels and 4.5 m diameter fresh air raises alongside the decline.

The ventilation system is discussed in further detail in Section 10.

Escape ladders are assumed to be installed in dedicated 1.1 m diameter raises.

A diagram of the vertical capital development is provided in Figure 18

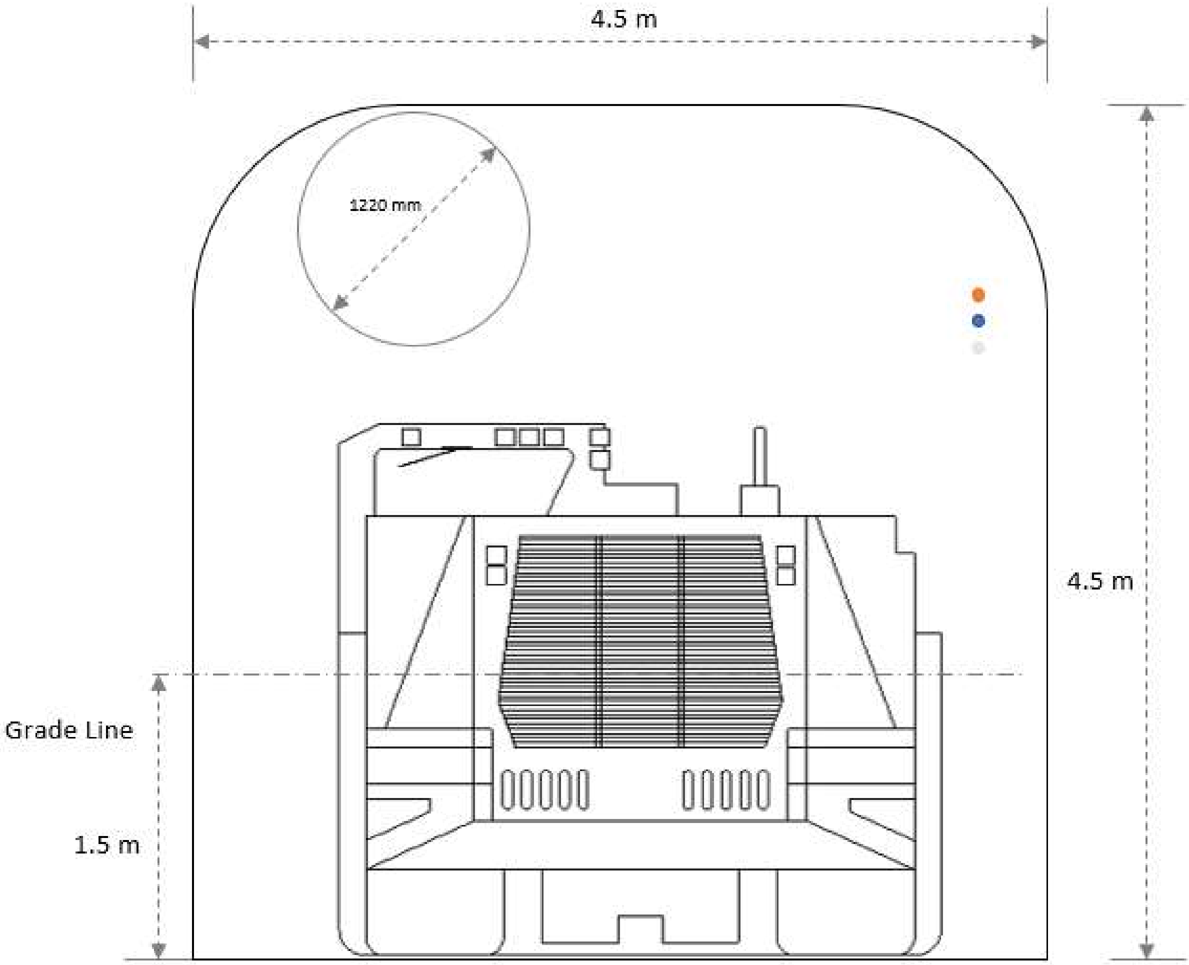
**Figure 18: Capital Vertical Development Layout (Long-Section Looking W)**



### 6.5.5 OPERATING DEVELOPMENT

Operating waste accesses (beyond truck travelways) were designed using a profile of 4.5 mW x 4.5 mH. A schematic of this ore drive profile with an indicative 7 $m^3$ loader (CAT R2900) is shown in Figure 19.

Figure 19: 4.5 mW x 4.5 mH Ore Drive Profile with CAT 2900 Loader




These dimensions are sufficient for the selected equipment fleet of 7 $m^3$ sized loaders (as per equipment manufacturer recommendations) and allow enough room for effective ground support installation, drilling and mining activities to occur without excessive damage to services and ground support. Ore drives were designed to follow the orebody along strike.

### 6.5.6 DEVELOPMENT PROFILES & GROUND SUPPORT

Development profiles and design ground support usage rates applied in the LOM plan are summarised in Figure 21.

The ground support usage is based on the site ground support standards, with bolting & meshing assuming a 10% additional allowance for intersections, rehabilitation etc.

**Table 21: Development Profiles and Mesh & Bolt Usage**

| Development | 3.0 m Split Sets units/m adv. | 2.4 m Split Sets units/m adv. | MDX Bolt units/m adv. | Spiral Friction units/m adv. | Paste Bolt units/m adv. | 0.9 m Stubby units/m adv. | 0.9 m Chubby units/m adv. | Gal Mesh ($m^2$/m) | Seismic Gal Mesh ($m^2$/m) | Black Mesh ($m^2$/m) | Fibrecrete ($m^3$/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capital | | | | | | | | | | | |
| 5.2mW x 5.8mH (Decline) | | 11.8 | | 0.0 | 0.0 | 3.4 | 2.1 | 13.9 | | 2.8 | 2.8 |
| 5.2mW x 5.8mH (Decline Stockpile) | 3.6 | 5.7 | | 0.0 | 0.0 | 3.4 | 2.1 | 13.9 | | 2.8 | 2.8 |
| 5.2mW x 5.8mH (Incline) | | 11.8 | | 0.0 | 0.0 | 3.4 | 2.1 | 13.9 | | 2.8 | 2.8 |
| 5.2mW x 5.5mW (Level Access) | | 10.2 | | 0.0 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| 4.0mH x 4.5mH (Level Sump) | | 10.2 | | 0.0 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| 5.2mW x 5.8mH (Level Stockpile) | 3.6 | 5.7 | | 0.0 | 0.0 | 3.4 | 1.6 | 13.9 | | 2.8 | 2.8 |
| 5.2mW x 5.5mH (Footwall Drive) | | 0.0 | | 8.6 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| 5.2mW x5.8mH (Substation) | | 11.8 | | 0.0 | 0.0 | 2.9 | 1.6 | 13.9 | | 2.8 | 2.8 |
| 5.2mH x 5.8mH (Pump Station) | | 11.8 | | 0.0 | 0.0 | 2.9 | 1.6 | 13.9 | | 2.8 | 2.8 |
| 5.2mH x 5.5mH (Escapeway Drive) | | 0.0 | | 8.6 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| 5.2mW x 5.5mH (Fresh Air Drive) | | 10.2 | | 0.0 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| 5.2mW x 5.5mH (Return Air Drive) | | 10.2 | | 0.0 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| 5.2mH x 5.5mH (Refuge Chamber) | | 10.2 | | 0.0 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| 4.8mH x 4.8mH (Exploration Drive) | | 10.2 | | 0.0 | 0.0 | 2.9 | 1.6 | 11.6 | | 2.8 | 2.8 |
| Operating | | | | | | | | | | | |
| 4.8mW x 5.0mH (Crosscut) | | 0.0 | 3.9 | 6.0 | 0.0 | 1.6 | 1.6 | 0.0 | 11.6 | 2.8 | 2.8 |
| 4.8mW x 5.0mH (Ore Drive) INITIAL LEVELS | | 0.0 | 3.9 | 6.0 | 0.0 | 1.6 | 1.6 | 0.0 | 11.6 | 2.8 | 2.8 |
| 4.8mW x 5.0mH (Ore Drive) SUBSEQUENT LEVELS | | 2.9 | 8.6 | 0.0 | 0.0 | | 1.6 | 0.0 | 11.6 | 2.8 | 2.8 |
| 5.2mH x 5.5mH (Orepass Drive) | | 0.0 | 0.0 | 8.6 | 0.0 | 2.9 | 1.6 | 11.6 | 0.0 | 2.8 | 2.8 |
| 4.8mH x 5.0mH (Flatback Drive) | | 2.9 | 8.6 | 0.0 | 0.0 | | 1.6 | 0.0 | 11.6 | 2.8 | 2.8 |
| 4.8mH x 5.0mH (Development Through Paste) | | 0.0 | 0.0 | 0.0 | 7.9 | 2.9 | 1.6 | 11.6 | 0.0 | 2.8 | 2.8 |
| Rehab - Bolt & Mesh | | 0.0 | 0.0 | 8.6 | 0.0 | 2.9 | 1.6 | 11.6 | 0.0 | 0.0 | 0.0 |
| Rehab - Fibrecrete, Bolt & Mesh | | 2.9 | 8.6 | 0.0 | 0.0 | | 1.6 | 0.0 | 11.6 | 0.0 | 0.0 |

Table 22 summarises cable bolt usage assumptions for wide spans generated at development intersections.

**Table 22: Development Intersection and Stope brow Cable Bolt Usage**

| Activity | Unit | 6m Cable Bolts |
|---|---|---|
| Development Intersection | bolts/intersection | 11 |
| Stope Brow Cable | bolts/stope | 4 |

## 6.6 FINAL MINE DESIGN

The final LOM plan is shown in Figure 20 to Figure 22.

**Figure 20: LOM Plan (Plan View)**

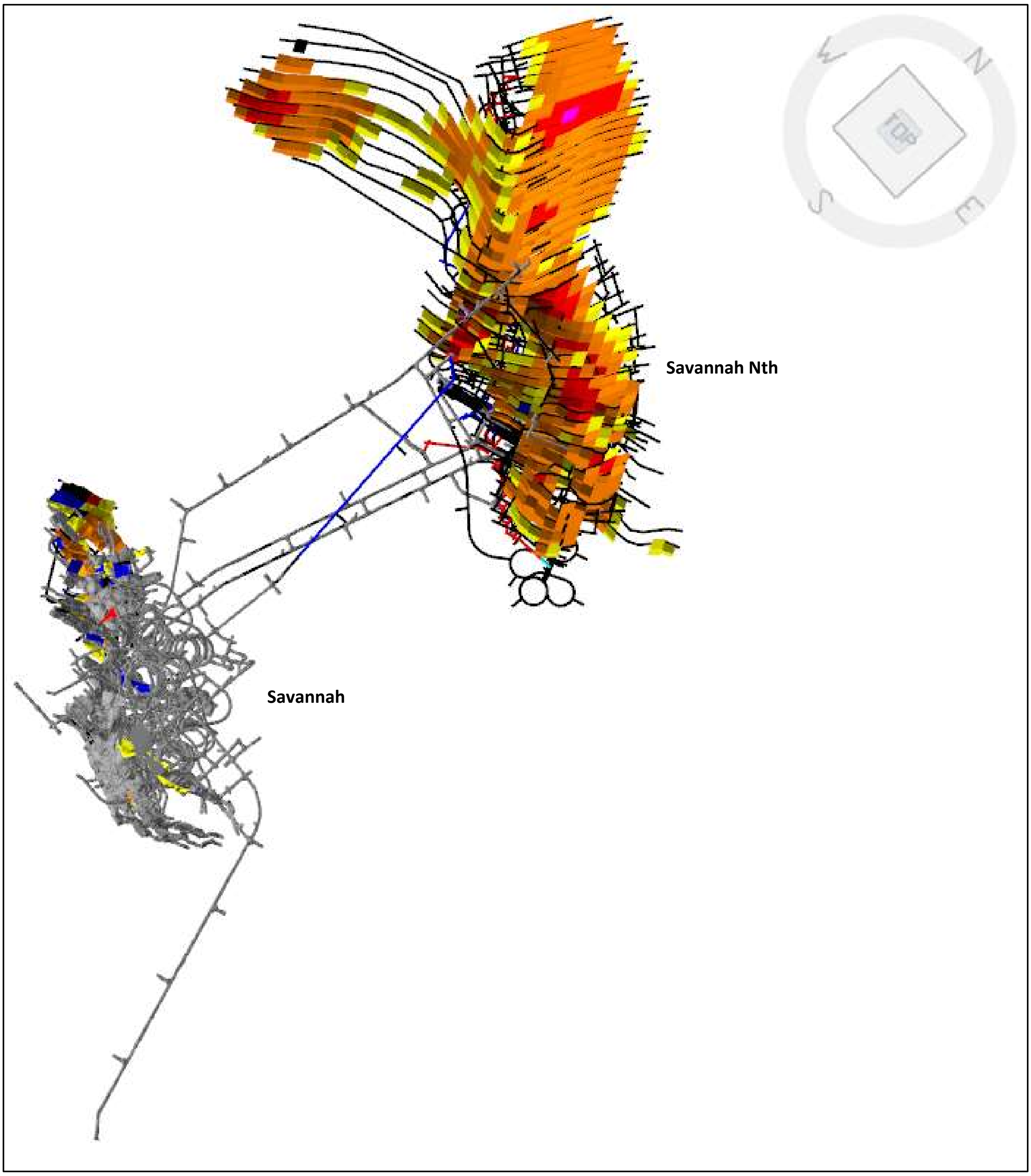


**Figure 21: LOM Plan (Cross Section Looking NE)**

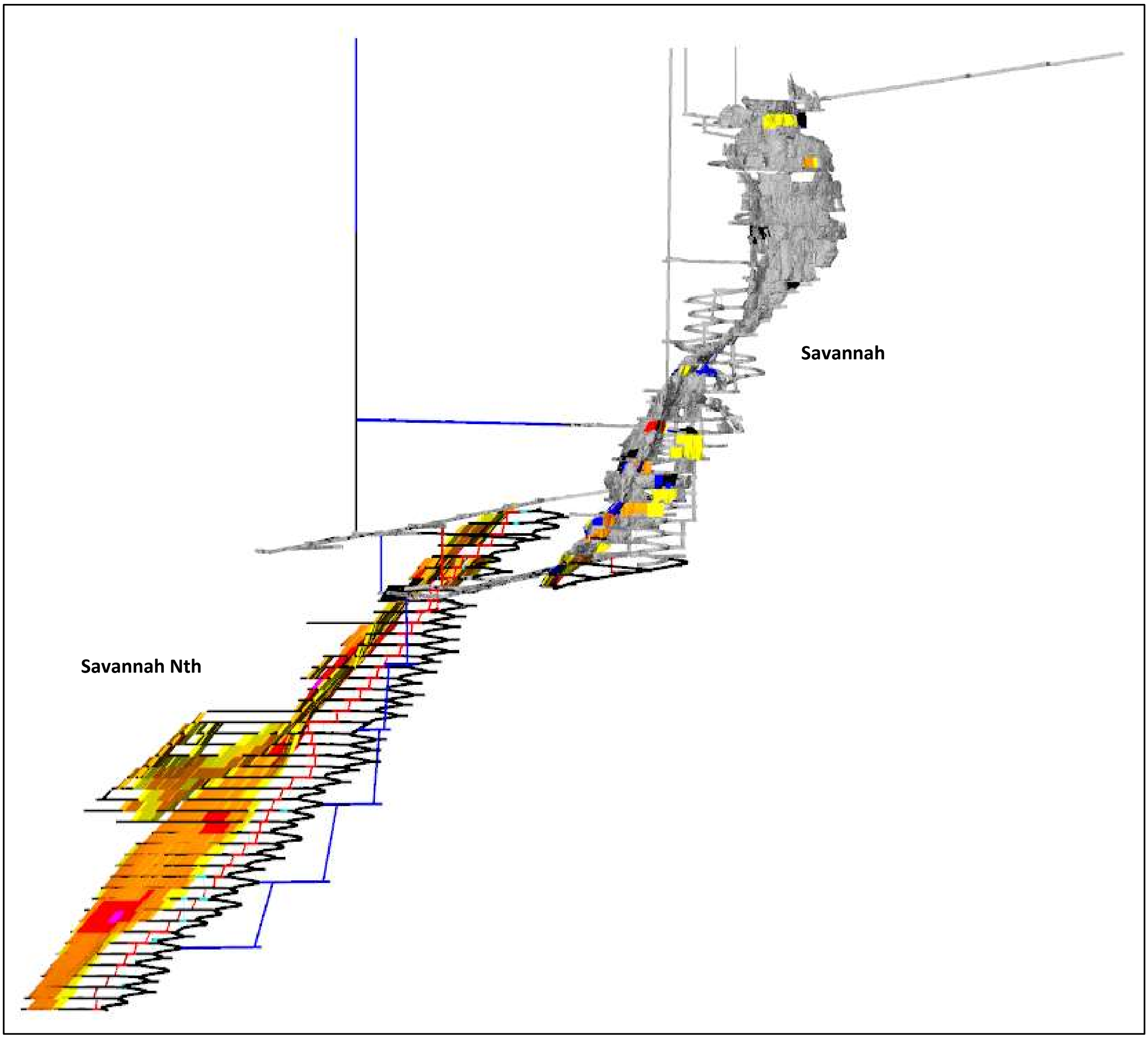
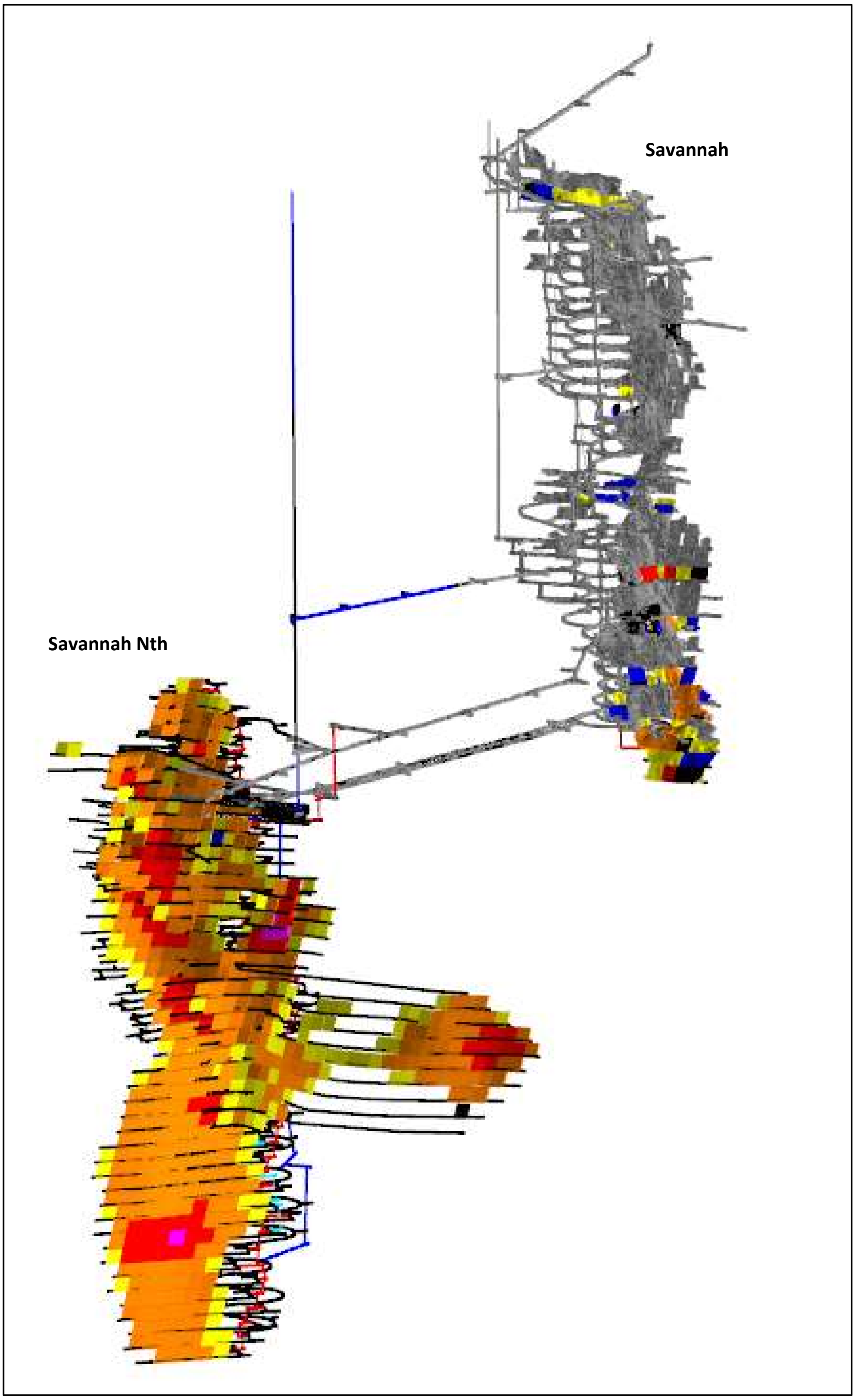


**Figure 22: LOM Plan (Looking SE)**



# 7 UNDERGROUND SCHEDULING

## 7.1 SCHEDULING OVERVIEW

The LOM plan was scheduled using Deswik Scheduler mine scheduling software.

Productivity assumptions used to generate the mine schedule were either:

- Carried over from the 2019 Feasibility Study Update with minor changes to stope bogging Rate.
- Confirmed with current PAN staff based on recent performance
- Sourced from the Entech database, based on similar equipment types and mining methods within the Western Australian hard rock mining industry, and assuming the engagement of an experienced and competent underground contractor.
- Determined from first principles.

General scheduling comments include:

- The mine was assumed to operate on two 12-hour shifts, 365 days/yr.
- All Equipment productivities and availability considered in resource rates.
- Ore production of ~80 Kt/month was targeted based on discussions with PAN.
- Loader tramming distances were based on distances from the design centroid of the excavation to the XY co-ordinates of the level stockpiles.
- Escapeways and return air systems servicing a level need to be complete before stopping on that level commences.
- Stope filling rate varies between 500 to 800 m3/d depends on the volume of plug and stope size.
- A "Grade Control Drilling Activity" assigned to the first stope in each level to allocate enough time for Grade control drilling
- Ore development grades were evaluated assuming 3.0 m cut lengths.
- During the bottom-up mining sequence, an entire stopping block needs to be completed before ore developments commence on the level above.
- From August 2020 to April 2021 , Development was scheduled to do just decline and other necessary capital development (Including 1675 Vent access) and then the focus will be on opening 1380 level as first production level and mining bottom up and top down from this Level.
- Part of 1040 Level to leave as sill pillar to maintain the ore production level around 80kt in almost first 10 years.

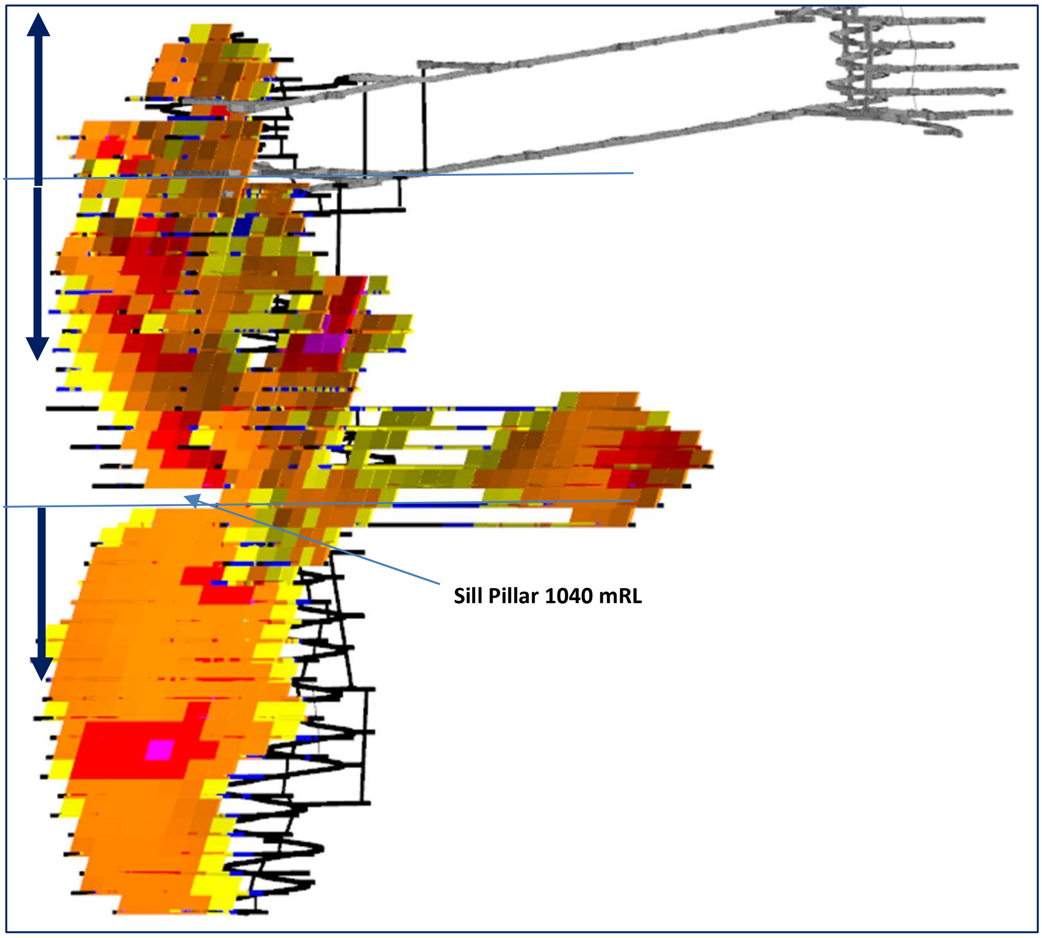
## 7.2 STOPING SEQUENCE

Stoping generally is planned to be carried out in a top-down manner except for the upper part of Savannah Nth which is mined bottom-up. Level extraction sequence avoids reducing pillars on level, thus is either centre-out or north to south along the level.

A sill pillar has been included in the LOM plan on the 1040 mRL to enable a second mining front. This sill reduces the production tail, enabling peak production to be maintained for longer, thus shortening the mine life. The peak production rate of 80 kt per month is maintained for almost 10 years.

The sill pillar was strategically located in a lower grade area of the mine and has been deemed unrecoverable. Material remaining in the sill pillar equates to 79 kt @ $175 NSR and can been seen in Figure 23.

Figure 23: LOM Production Sequence (Long Section Looking SE)



## 7.3 PRODUCTIVITY ASSUMPTIONS

### 7.3.1 JUMBO PRODUCTIVITY

The development productivities are based on using modern electric-over-hydraulic twin boom jumbo drills (e.g. Sandvik DD421-60 or equivalent). These drills will drill 45 mm blastholes for development advance and will be used for the installation of ground support.

A commencement ramp-up of 8 months was applied to the schedule to allow for capital development to advance ahead of the production front, allowing a buffer between development and production activities. During the ramp up period, the primary activity in the mine will be a single jumbo drill which will initially concentrate on the 1675 L access to the VR3 raise bore recovery position, before switching priority to capital development in the Savannah north. The single jumbo has been assumed at total advance rate of 250 m/mth during this period.

From month 9, a second jumbo added to the development fleet and bring up the total development rate to maximum 600 m/mth, with approx. 150 m being in Savannah, and 450 m in the Savannah North. The Savannah development is primarily ground support rehabilitation which has been account for in the schedule as the same as development metres thus is deemed conservative.

From month 20, the Savannah metres begin to drop and total development reduces to 500 m/mth, before dropping off to 250 – 300 m/mth from month 36.

Maximum development advance rates in individual headings were set to 3.4 m/d for decline and all lateral development. These advance rates are assumed to include all activities and delays related to the development cycle, including drill rig up, drill rig down, face drilling, charging and firing, re-entry, bogging, ground support installation, services installation, shift change and meetings, meal breaks, breakdowns, maintenance, face mark-up and geology/survey control delays.

Maximum jumbo unit productivities were set as **270 m/mth**.

### 7.3.2 VERTICAL DEVELOPMENT PRODUCTIVITY

A vertical development rate of **4 m/day** has been applied to longhole rise development. This includes rig up and rig down, drilling, reaming, charging and firing, re-entry, bogging, shift change and meetings, meal breaks, breakdowns, maintenance, and survey control delays.

A development rate of **3 m/day** has been applied to raiseboring. This includes rig up and rig down, pilot hole drilling, hole reaming, bogging and ladderway installation (where relevant).

### 7.3.3 PRODUCTION DRILLING PRODUCTIVITY

The production drilling requirements have been estimated by applying a calculated drill yield of 6 tonnes per drill metre (t/dm) which is consistent to historical performance at the mine. A drilling rate of **250 drill m/d** has been applied to the schedules, based on the capabilities of modern electric-over-hydraulic longhole drill rigs (e.g. Sandvik DL421-7 rig or similar). These drilling rates are assumed to include all activities and delays related to production drilling, including drill rig up, drill rig down, slot drilling, production drilling, shift change and meetings, meal breaks, breakdowns, maintenance, services installation, and geology/survey control delays.

### 7.3.4 STOPING/FILLING PRODUCTIVITY

Instantaneous stoping loading rates have been determined for varying tram distances from first principles and benchmarked against actual site performance. These figures are based on the use of 7 $m^3$ loaders (Caterpillar R2900 or similar), with modern auto-tracking remote capabilities. For the purposes of scheduling and costing, 60% of stope material has been assumed to be remote loaded, with 40% being loaded using conventional techniques. All development will be loaded conventionally. Table 7-1 outlines the scheduled productivity used for stope loading utilised in the mine schedule.

**Table 23: Stope Bogging Productivity Estimates**

| Stope Distance to Stockpile | Average Productivity Rate (t/d) |
|---|---|
| < 100 m | 1,250 |
| 100 - 150 m | 1103 |
| 150 - 200 m | 907 |
| 200 - 250 m | 770 |
| 250 - 300 m | 669 |
| 300 - 350 m | 591 |
| 350 - 400 m | 530 |
| 400 - 450 m | 480 |
| 450 - 500 m | 439 |
| > 500 m | 404 |
| **Mine Plan Steady Production Period Average** | **909** |

These stope loading rates include all activities and delays associated with stoping, including hole preparation, charging, firing, re-entry, remote equipment set-up and testing, truck loading, shift change and meetings, meal breaks, breakdowns, maintenance, services installation, and geology/survey/engineering inspection delays.

### 7.3.5 HAULAGE PRODUCTIVITY

Trucking fleet requirements are calculated on the number of tonne kilometres (tkm) required per scheduling period. No constraints were applied to the numbers of truck units available in the schedule (i.e. truck fleet numbers are determined by the scheduling constraints applied for precursor material generating activities).

All ore and waste material from the mine is planned to be hauled to surface using conventional 60 t underground haulage trucks, being placed on the surface ROM pad (for ore) or surface waste dump (for waste).

A truck productivity of **120,000 tkm/mth** per truck has been applied to determine trucking fleet requirements. These figures are based on a 60 t class truck (IE Sandvik TH663). This productivity is assumed to allow for all delays associated with haulage including loading, hauling and dumping, shift change and meetings, meal breaks, breakdowns, maintenance and truck interactions.

The haul distance allowance from the portal to the ROM is 1275 m, and from the portal to the waste dump an allowance of 1407 m is assumed. There will likely be opportunities to deposit waste underground as co-disposal with paste fill or other stoping voids as loose waste; however the schedule assumes that all waste material will be trucked to the surface waste dump.

## 7.4 LOM SCHEDULE

The LOM schedule is presented in Table 24. A graphical summary of the ore production profile is presented in Figure 24.

**Table 24: Mine Plan Physicals Schedule**

| Name | Row total | FY20/21 | FY21/22 | FY22/23 | FY23/24 | FY24/25 | FY25/26 | FY26/27 | FY27/28 | FY28/29 | FY29/30 | FY30/31 | FY31/32 | FY32/33 | FY33/34 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Waste Tonnes (t)** | 2,222,688 | 87,466 | 263,485 | 376,614 | 309,741 | 293,017 | 289,951 | 129,371 | 86,161 | 92,646 | 74,924 | 91,999 | 78,505 | 48,809 | 0 |
| Waste Development (t) | 2,123,016 | 76,559 | 245,250 | 350,227 | 301,602 | 286,035 | 280,866 | 128,065 | 85,258 | 84,823 | 74,002 | 85,296 | 77,118 | 47,915 | 0 |
| Waste Vertical (t) | 76,791 | 10,906 | 18,235 | 3,505 | 8,139 | 6,983 | 9,085 | 1,306 | 903 | 7,823 | 922 | 6,703 | 1,387 | 894 | 0 |
| Grade Control Drilling (m) | 27,361 | 0 | 899 | 595 | 2,591 | 2,439 | 1,155 | 3,185 | 4,349 | 5,874 | 2,351 | 1,706 | 1,092 | 1,123 | 0 |
| Backfilling (m3) | 2,591,306 | 3,794 | 87,782 | 187,810 | 216,309 | 236,145 | 236,970 | 233,957 | 225,152 | 225,956 | 237,620 | 227,787 | 214,449 | 218,110 | 39,466 |
| **Total Development (m)** | 46,046 | 963 | 4,567 | 7,024 | 6,050 | 5,588 | 5,492 | 3,889 | 3,852 | 2,869 | 1,624 | 1,682 | 1,385 | 1,063 | 0 |
| Development Savannah (m) | 3,140 | 484 | 1,011 | 1,328 | 225 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Development Savannah Nth (m) | 42,906 | 480 | 3,556 | 5,696 | 5,825 | 5,494 | 5,492 | 3,889 | 3,852 | 2,869 | 1,624 | 1,682 | 1,385 | 1,063 | 0 |
| Capital/Rehab Development (m) | 21,701 | 898 | 2,270 | 3,746 | 3,187 | 3,153 | 2,992 | 831 | 695 | 914 | 785 | 944 | 800 | 488 | 0 |
| Operating Development (m) | 24,346 | 65 | 2,296 | 3,278 | 2,864 | 2,435 | 2,500 | 3,058 | 3,157 | 1,956 | 839 | 738 | 585 | 574 | 0 |
| **Final Recovered Ore (t)** | 10,424,889 | 0 | 421,169 | 860,222 | 951,750 | 953,911 | 957,882 | 965,289 | 959,074 | 959,363 | 947,421 | 734,680 | 782,002 | 759,264 | 172,862 |
| NSR | 201 | 0 | 172 | 182 | 189 | 216 | 213 | 192 | 208 | 212 | 206 | 191 | 216 | 199 | 176 |
| Ni | 1.24 | 0.00 | 1.04 | 1.12 | 1.18 | 1.34 | 1.33 | 1.18 | 1.24 | 1.29 | 1.30 | 1.20 | 1.32 | 1.22 | 1.08 |
| Final Recovered Stope Ore (t) | 9,150,505 | 0 | 339,949 | 694,333 | 803,727 | 826,096 | 834,312 | 817,266 | 762,922 | 827,177 | 894,265 | 693,416 | 755,902 | 728,279 | 172,862 |
| NSR | 200 | 0 | 171 | 178 | 184 | 216 | 217 | 195 | 213 | 211 | 199 | 188 | 216 | 199 | 176 |
| Ni | 1.23 | 0.00 | 1.04 | 1.09 | 1.15 | 1.35 | 1.35 | 1.19 | 1.25 | 1.28 | 1.26 | 1.18 | 1.32 | 1.22 | 1.08 |
| Final Recovered Development Ore (t) | 1,274,384 | 0 | 81,221 | 165,889 | 148,023 | 127,814 | 123,570 | 148,023 | 196,153 | 132,187 | 53,156 | 41,264 | 26,100 | 30,985 | 0 |
| NSR | 206 | 0 | 175 | 201 | 215 | 217 | 189 | 179 | 191 | 219 | 324 | 245 | 215 | 197 | 0 |
| Ni | 1.28 | 0.00 | 1.07 | 1.26 | 1.34 | 1.28 | 1.16 | 1.13 | 1.22 | 1.37 | 1.97 | 1.49 | 1.34 | 1.22 | 0.00 |
| **SAVANNAH Nth** | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Recovered Ore (t) | 9,192,119 | 0 | 221,672 | 582,581 | 723,225 | 716,113 | 843,092 | 881,427 | 945,267 | 909,971 | 936,843 | 733,501 | 766,302 | 759,264 | 172,862 |
| NSR | 206 | 0 | 194 | 199 | 191 | 231 | 222 | 195 | 209 | 212 | 207 | 191 | 218 | 199 | 176 |
| Ni | 1.28 | 0.00 | 1.21 | 1.24 | 1.20 | 1.44 | 1.39 | 1.22 | 1.25 | 1.30 | 1.31 | 1.20 | 1.33 | 1.22 | 1.08 |
| Final Recovered Stope Ore (t) | 7,966,446 | 0 | 150,717 | 442,776 | 585,507 | 590,355 | 719,522 | 733,404 | 749,114 | 777,784 | 883,687 | 692,237 | 740,202 | 728,279 | 172,862 |
| NSR | 206 | 0 | 202 | 198 | 185 | 233 | 228 | 198 | 214 | 211 | 200 | 188 | 218 | 199 | 176 |
| Ni | 1.28 | 0.00 | 1.27 | 1.23 | 1.17 | 1.48 | 1.43 | 1.24 | 1.26 | 1.29 | 1.27 | 1.18 | 1.33 | 1.22 | 1.08 |
| Final Recovered Development Ore (t) | 1,225,673 | 0 | 70,955 | 139,805 | 137,717 | 125,758 | 123,570 | 148,023 | 196,153 | 132,187 | 53,156 | 41,264 | 26,100 | 30,985 | 0 |
| NSR | 207 | 0 | 175 | 204 | 216 | 218 | 189 | 179 | 191 | 219 | 324 | 245 | 215 | 197 | 0 |
| Ni | 1.28 | 0.00 | 1.08 | 1.28 | 1.35 | 1.28 | 1.16 | 1.13 | 1.22 | 1.37 | 1.97 | 1.49 | 1.34 | 1.22 | 0.00 |
| **SAVANNAH** | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Recovered Ore (t) | 1,232,770 | 0 | 199,497 | 277,641 | 228,526 | 237,797 | 114,790 | 83,863 | 13,807 | 49,393 | 10,578 | 1,179 | 15,700 | 0 | 0 |
| NSR | 161 | 0 | 148 | 147 | 182 | 172 | 147 | 165 | 151 | 203 | 137 | 127 | 96 | 0 | 0 |
| Ni | 0.95 | 0.00 | 0.86 | 0.88 | 1.10 | 1.05 | 0.87 | 0.83 | 0.82 | 1.12 | 0.85 | 0.75 | 0.55 | 0.00 | 0.00 |
| Final Recovered Stope Ore (t) | 1,184,059 | 0 | 189,232 | 251,557 | 218,219 | 235,741 | 114,790 | 83,863 | 13,807 | 49,393 | 10,578 | 1,179 | 15,700 | 0 | 0 |
| NSR | 160 | 0 | 146 | 143 | 182 | 172 | 147 | 165 | 151 | 203 | 137 | 127 | 96 | 0 | 0 |
| Ni | 0.94 | 0.00 | 0.85 | 0.86 | 1.10 | 1.05 | 0.87 | 0.83 | 0.82 | 1.12 | 0.85 | 0.75 | 0.55 | 0.00 | 0.00 |
| Final Recovered Development Ore (t) | 48,711 | 0 | 10,265 | 26,084 | 10,306 | 2,056 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NSR | 185 | 0 | 177 | 184 | 197 | 182 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ni | 1.11 | 0.00 | 1.04 | 1.12 | 1.19 | 1.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **TKM** | 124,271,981 | 609,812 | 5,117,594 | 9,520,729 | 10,266,848 | 10,926,161 | 11,790,921 | 10,553,215 | 10,774,144 | 11,364,357 | 11,426,997 | 9,429,567 | 10,395,412 | 9,998,129 | 2,098,094 |
| TKM Dev | 33,947,134 | 522,253 | 2,606,229 | 4,264,183 | 4,047,187 | 4,038,921 | 4,211,142 | 2,990,809 | 3,128,747 | 2,517,448 | 1,583,852 | 1,617,113 | 1,354,623 | 1,064,627 | 0 |
| TKM Stope | 89,612,686 | 0 | 2,384,026 | 5,228,408 | 6,149,873 | 6,820,717 | 7,485,254 | 7,547,726 | 7,634,923 | 8,757,578 | 9,831,797 | 7,730,043 | 9,022,713 | 8,921,536 | 2,098,094 |
| TKM Ver | 712,160 | 87,560 | 127,339 | 28,138 | 69,788 | 66,523 | 94,525 | 14,680 | 10,474 | 89,331 | 11,349 | 82,411 | 18,076 | 11,966 | 0 |
| TKM Waste | 21,570,073 | 609,812 | 2,055,113 | 3,008,726 | 2,752,512 | 2,861,238 | 3,044,116 | 1,424,307 | 969,598 | 1,084,098 | 922,762 | 1,162,351 | 1,023,372 | 652,068 | 0 |
| TKM Ore | 102,701,908 | 0 | 3,062,480 | 6,512,004 | 7,514,336 | 8,064,923 | 8,746,805 | 9,128,908 | 9,804,546 | 10,280,259 | 10,504,235 | 8,267,216 | 9,372,040 | 9,346,061 | 2,098,094 |

**Figure 24: LOM Plan Production Profile**

The split of mined Ni metal by Mineral Resource JORC category (RESCAT) (Indicated (IND) and Inferred (INF)) is summarised graphically in Figure 25 . Table 25 shows the LOMP split between resource classifications.

Figure 25: Mined Ni Metal Production by RESCAT

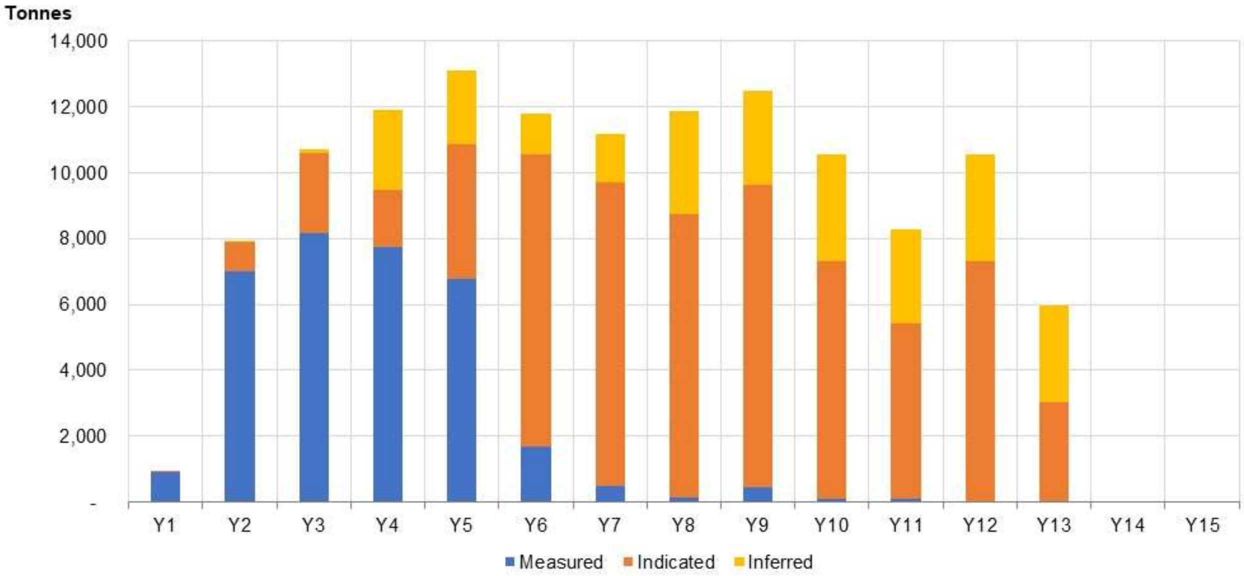
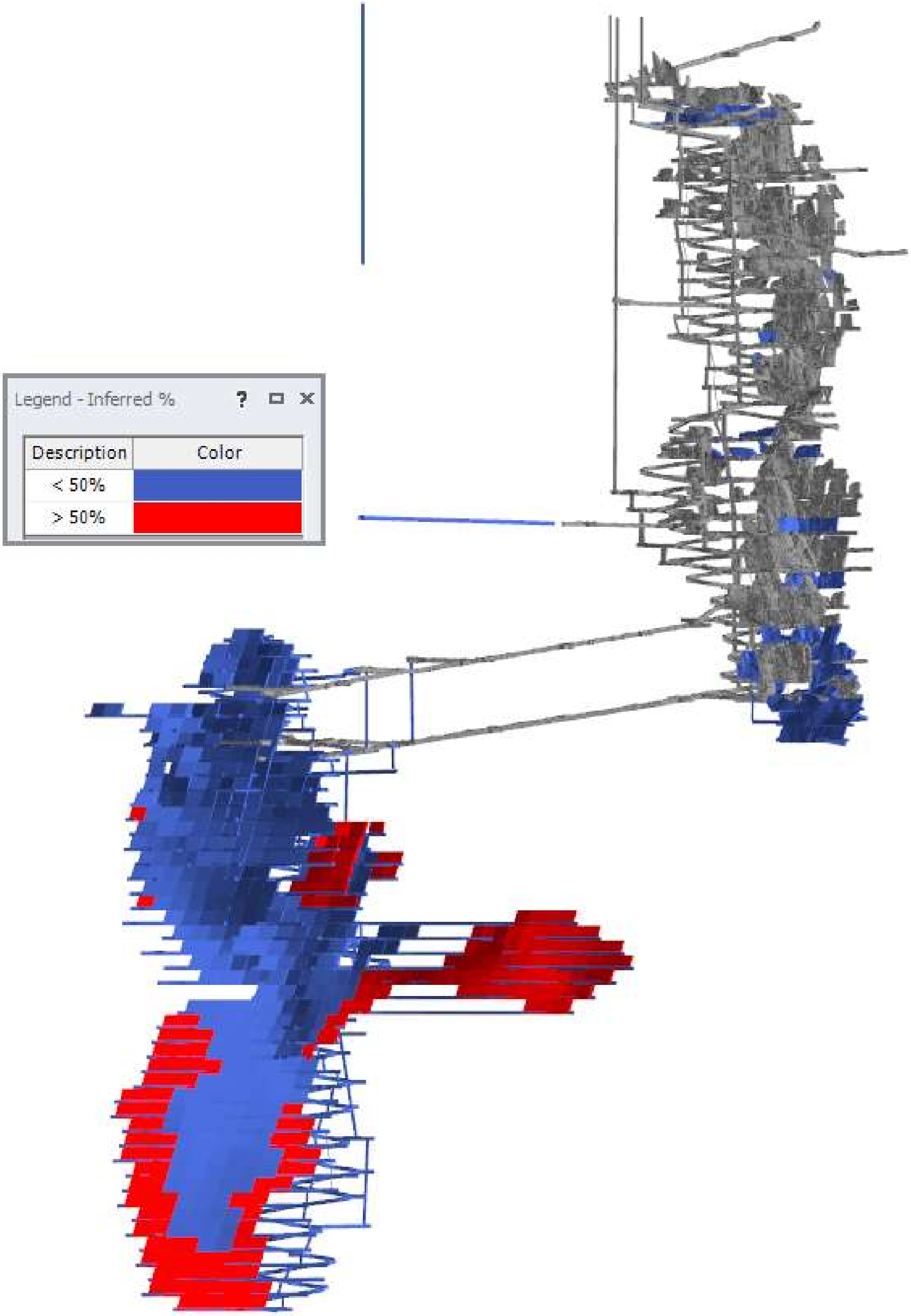



Table 25: Mined Material by Resource Classification

| Mineral Resource | Percentage (%) |
|---|---|
| Measured | 29.7 |
| Indicated | 51.0 |
| Inferred | 19.3 |

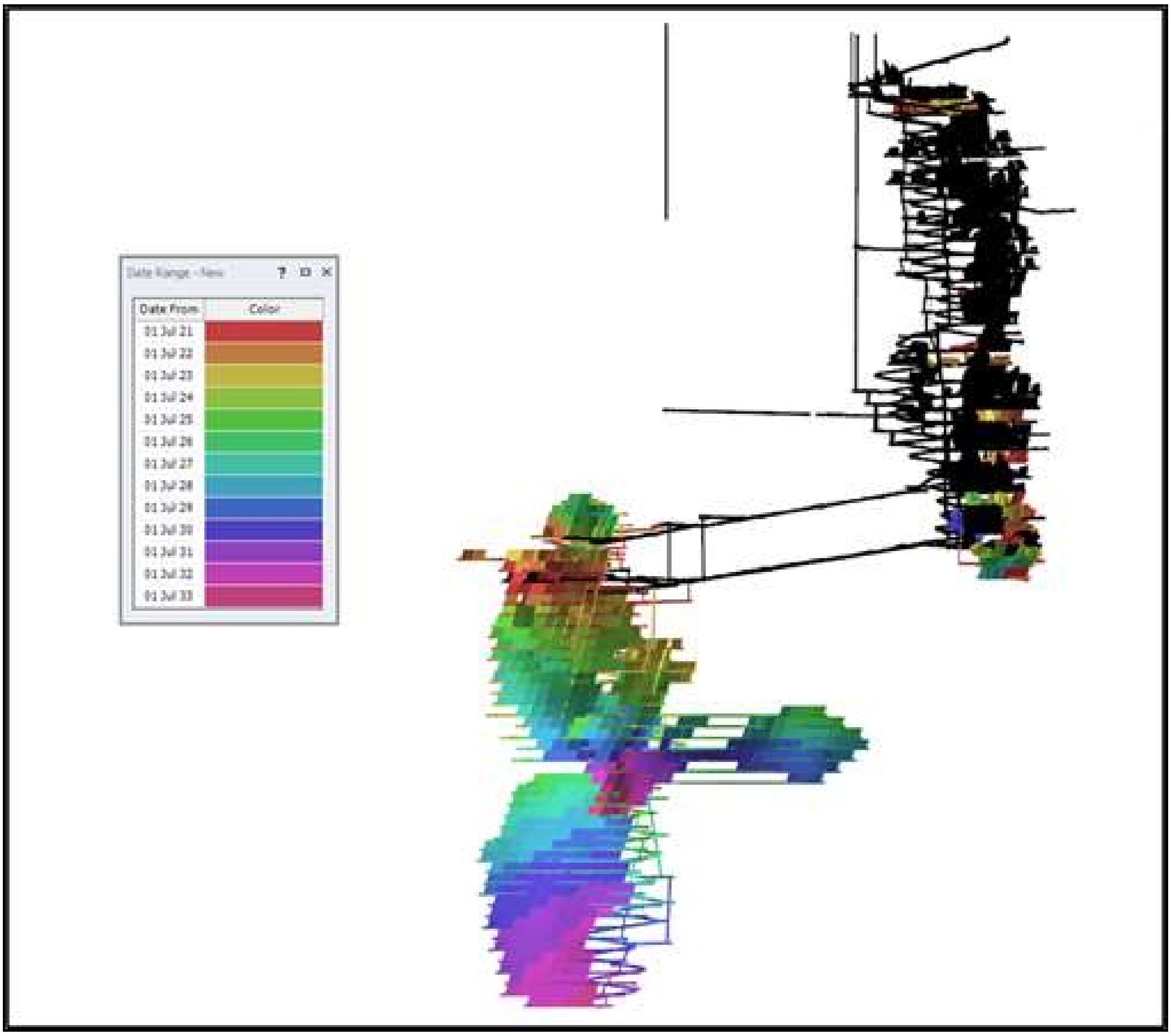
A graphical depiction of the mine plan extracting Indicated or Inferred material is shown in Figure 26. This figure shows inferred stopes are in the extremities of the mine plan.

**Figure 26: Inferred Material percentage (Long-Section Looking SE)**



A graphical depiction of the mine plan by financial year (FY) is shown in Figure 27.

**Figure 27: Mine Plan by FY (Long-Section Looking SE)**



# 8 MINING FLEET

The initial mining fleet assumptions were assumed based on the mine schedule and Entech database productivity estimates. The maximum estimated mobile fleet used in the FS ventilation calculations are presented in Table 26. Contractors subsequently provided fleet estimates in the tender process.

**Table 26: FS Mobile Mining Fleet Estimate**

| Equipment List | Max. Qty. |
|---|---|
| Twin Boom Development Jumbo | 3 |
| Loader | 3 |
| Truck | 9 |
| Production Drill Large | 2 |
| Charge Up | 2 |
| Grader | 1 |
| Water Cart | 1 |
| Underground IT | 3 |
| Workshop IT | 1 |
| Agitator | 1 |
| Fibrecrete Sprayer | 1 |
| Light Vehicles | 6 |

Mine productivity requirements and resourcing over the LOMP schedule are presented graphically in Figure 28 to Figure 31. Both the FS fleet estimate used for ventilation calculations and the selected contractor fleet estimates are shown in the graphs.

**Figure 28: Jumbo Drill Resourcing**

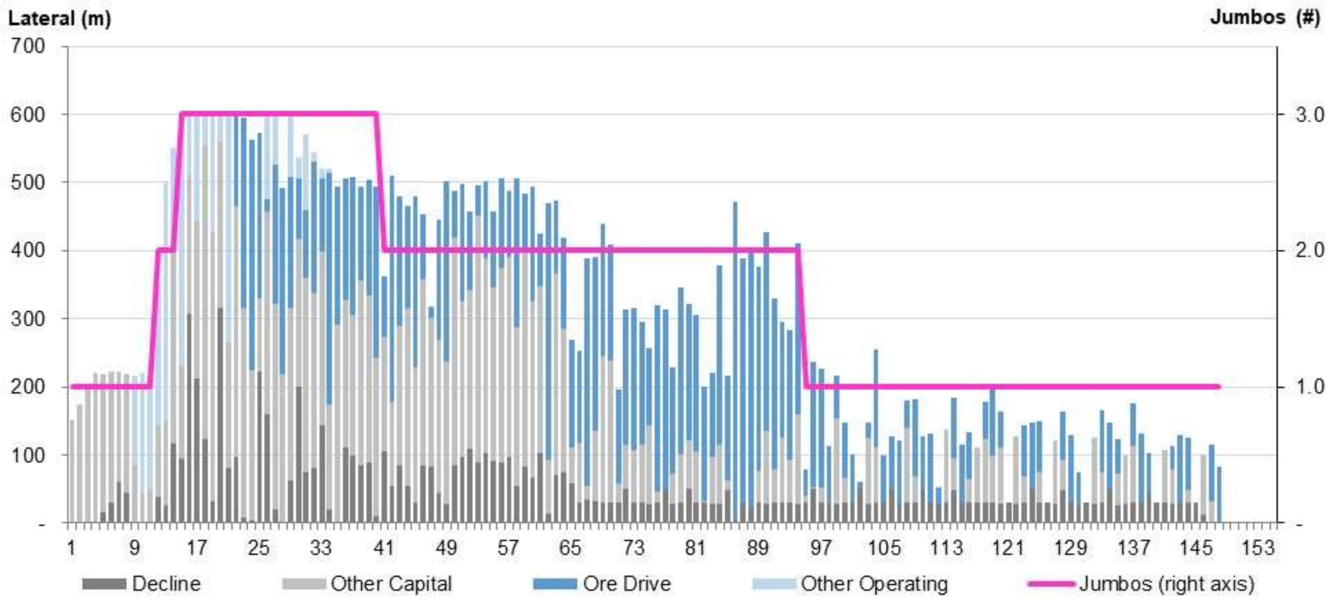


Figure 29: Production Drill Resourcing

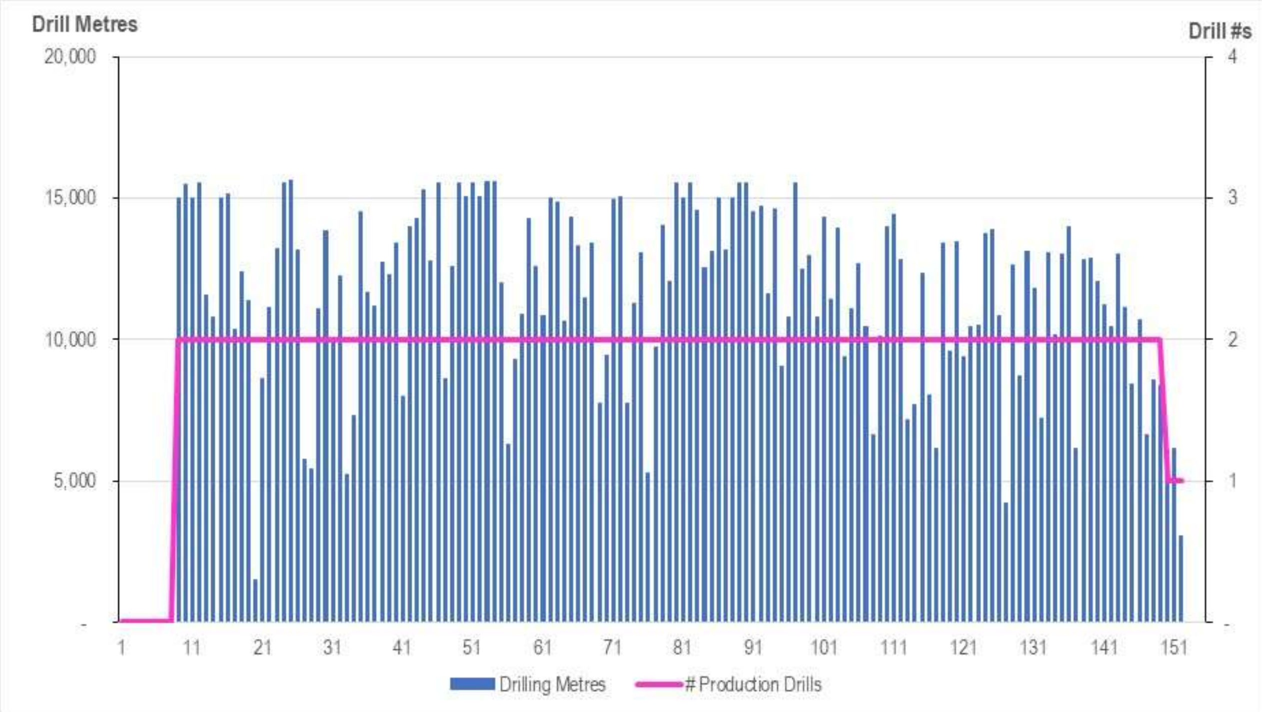



Figure 30: Loader Resourcing

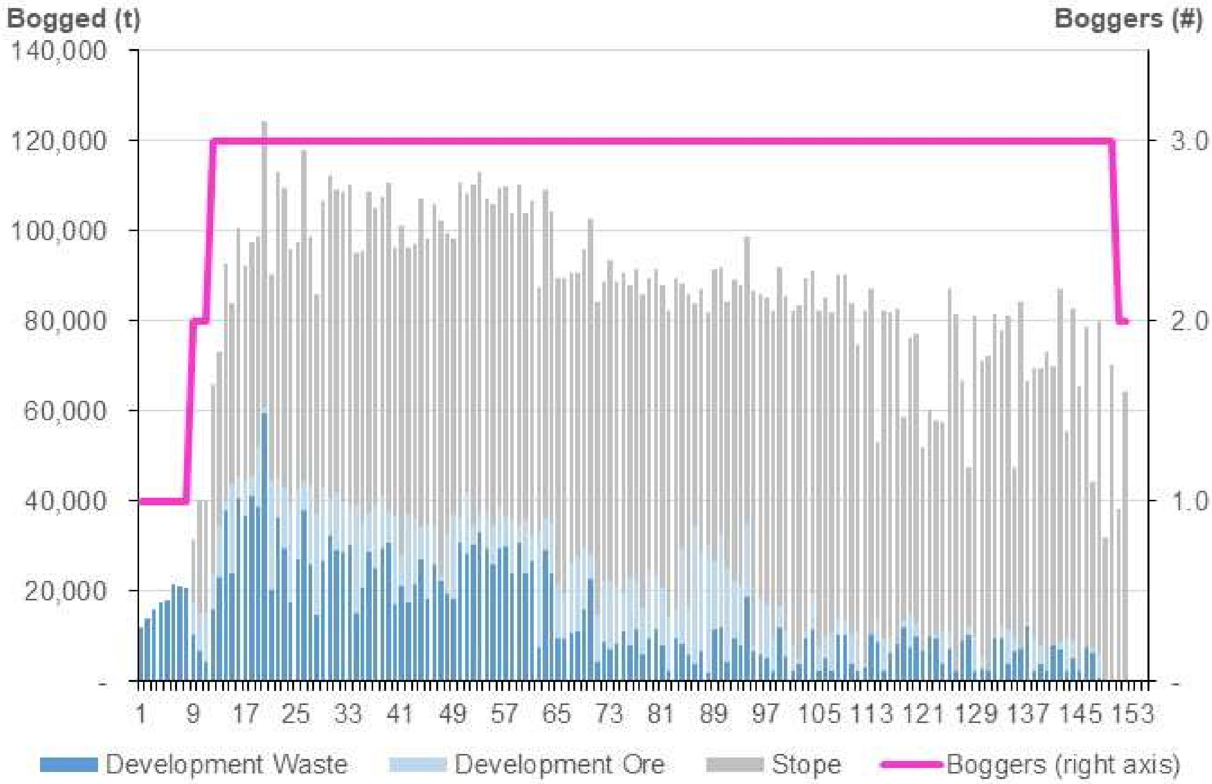
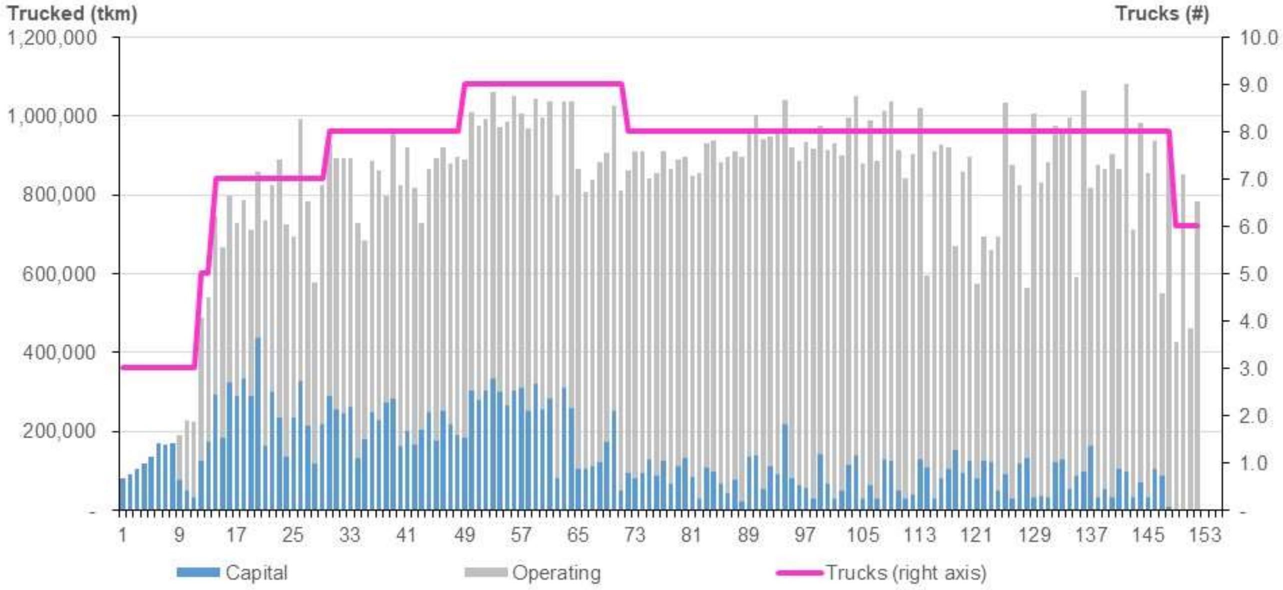


Figure 31: Truck Resourcing



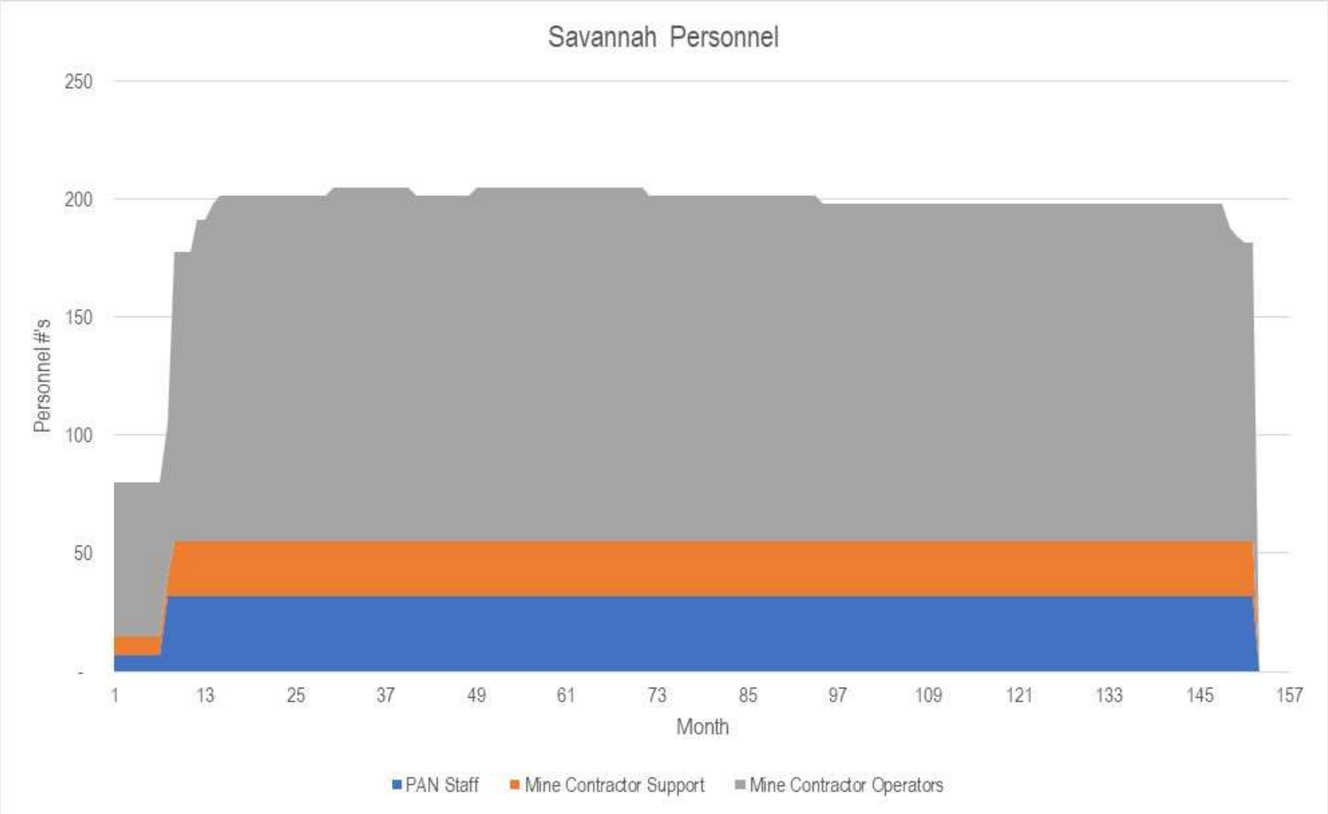
# 9 MANNING

It has been assumed that underground mining contractors would supply all personnel required to drill, blast, install ground support, install infrastructure and services, load, haul, maintain roads and surfaces, maintain equipment, and manage the contractor's activities. PAN will provide site management and technical support. The majority of personnel will be employed on a fly in-fly out (FIFO) roster from Perth and be based at the on-site accommodation camp.

Costs for both contractor and PAN technical staff flights and accommodation will be covered by PAN and have been modelled accordingly.

Staffing levels increase when the first ore is delivered in 9 Months after the operation begins. Contractor staffing levels and proposed rosters have been determined based on the contract tender. The estimated mining department manning requirements for the operation are shown in Figure 32.

**Figure 32: Savannah Personnel Quantities**




The estimated peak contractor and PAN manning requirement is 206.

The contractor and PAN manning requirements at this peak are provided in Table 27 and Table 28.

**Table 27: Underground Mining Contractor Workforce**

| Position | Department | Peak Manning Point Quantity |
|---|---|---|
| Project Manager | Staff | 2 |
| Mine Foreman | Staff | 2 |
| Mining Engineer | Staff | 2 |
| Maintenance Supervisor | Staff | 2 |
| Electrical Supervisor | Staff | 2 |
| Underground Supervisors | Staff | 6 |
| Maintenance Planner | Staff | 2 |
| Safety and Training Co-ordinator | Staff | 1 |
| Trainer | Staff | 2 |
| Site Clerk | Staff | 2 |
| Jumbo Operator Rehab | Mining | 1 |
| Paste Fill Crew | Mining | 4 |
| Service Crew | Mining | 11 |
| Jumbo Operator - Twin Boom | Mining | 7 |
| Loader Operator | Mining | 9 |
| Truck Operator | Mining | 32 |
| Production Driller | Mining | 7 |
| Charge Up | Mining | 8 |
| Agitator Operator | Mining | 4 |
| Nozzleman | Mining | 4 |
| Grader Operator | Mining | 2 |
| Nipper | Mining | 8 |
| Storeman | Maintenance | 8 |
| Mechanical Tradesperson | Maintenance | 38 |
| Electrical Tradesperson | Maintenance | 4 |
| Resource Drilling | Maintenance | 4 |
| **Total Max. Contractor Workforce** | | **174** |

**Table 28: Underground Mining Owner Workforce**

| Position | Department | Max. Qty. |
|---|---|---|
| Dev - UG Manager | UG Technical | 1 |
| Dev - UG Supervisor / Foreman | UG Technical | 1 |
| Dev - Surveyors | UG Technical | 2 |
| Dev - Graduate Engineer | UG Technical | - |
| Dev - Geologist | UG Technical | 2 |
| U/G Maintenance Superintendent | UG Technical | 1 |
| U/G Maintenance Planner | UG Technical | 1 |
| U/G Maintenance Leading Hand | UG Technical | 2 |
| U/G Fitter (HD, Truck & Drill) | UG Technical | 2 |
| Truck Fitter | UG Technical | 2 |
| LV Fitter | UG Technical | 2 |
| LV and Fitter Apprentice / Trades Assistant | UG Technical | 2 |
| Alternate Underground Manager | UG Technical | 2 |
| Mining Superintendent | UG Technical | 2 |
| Senior Engineer / Alt Mine Mgr | UG Technical | 2 |
| Planning, Production & Geotech Engineers | UG Technical | 2 |
| Paste And Vent Engineer | UG Technical | 2 |
| Graduate Mining Engineer | UG Technical | 2 |
| **Total Max. PAN** | | **32** |

# 10 VENTILATION

This section is based on Entech's ventilation analysis the Savannah and Savannah North ventilation system (Kok, 2020).

## 10.1 AIRFLOW REQUIREMENTS

The assumed airflow requirements for the Savannah mine are based on the proposed maximum diesel equipment fleet summarised below in Table 10-1. These airflows are based on conformance to the controlling regulations in the jurisdiction, in particular the Western Australian Mines Safety & Inspection Regulations 1995 (MSIR).

**Table 29: Expected Ventilation Requirements Peak Underground Fleet**

| Mobile Equipment | Make | Model | Engine Rating (kW) | Airflow Requirment @ 0.05 $m^3/s/kW$ | Maximum quantity scheduled | Airflow Requirement ($m^3/s$) | Remarks |
|---|---|---|---|---|---|---|---|
| Jumbo 1 | Sandvik | DD421-60C | 110 | 5.5 | 1 | 5.5 | From Barminco contract (SKM_C45820022017470) |
| Jumbo 2 | Sandvik | DD421-60C | 110 | 5.5 | 1 | 5.5 | From Barminco contract (SKM_C45820022017470) |
| Jumbo 3 (Rehab) | Sandvik | DD2710 | 74 | 3.7 | 1 | 3.7 | From Barminco contract (SKM_C45820022017470), Entech assumed make and model. |
| Longhole 1 | Sandvik | DL431-8C | 110 | 5.5 | 1 | 5.5 | From Barminco contract (SKM_C45820022017470) |
| Longhole 2 | Atlas Copco | Simba L6 | 115 | 5.8 | 1 | 5.8 | From Barminco contract (SKM_C45820022017470) |
| Loader 1 | Sandvik | LH621 | 352 | 17.6 | 1 | 17.6 | From Barminco contract (SKM_C45820022017470) |
| Loader 2 | Sandvik | LH517 | 275 | 13.8 | 1 | 13.8 | From Barminco contract (SKM_C45820022017470) |
| Loader 3 | Sandvik | LH517 | 275 | 13.8 | 1 | 13.8 | From Barminco contract (SKM_C45820022017470) |
| Loader 4 (Rehab) | Sandvik | LH517 | 275 | 13.8 | 1 | 13.8 | From Barminco contract (SKM_C45820022017470) |
| Truck 1 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 2 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 3 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 4 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 5 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 6 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 7 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 8 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Truck 9 | Sandvik | TH663 | 567 | 28.4 | 1 | 28.4 | From Barminco contract (SKM_C45820022017470) |
| Charge-up 1 | Normet | MC605D | 110 | 5.5 | 1 | 5.5 | From Barminco contract (SKM_C45820022017470) |
| Charge-up 2 | Normet | MC605D | 110 | 5.5 | 1 | 5.5 | From Barminco contract (SKM_C45820022017470) |
| Shotcrte Sprayer | Normet | SF050D | 96 | 4.8 | 1 | 4.8 | From Barminco contract (SKM_C45820022017470) |
| Agitator Truck | Mack | Metroliner | 360 | 18.0 | 1 | 18.0 | From Barminco contract (SKM_C45820022017470) |
| Grader | Caterpillar | 14H | 179 | 9.0 | 1 | 9.0 | From Barminco contract (SKM_C45820022017470) |
| Integrated Tool Carrier 1 | Volvo | L120 | 148 | 7.4 | 1 | 7.4 | From Barminco contract (SKM_C45820022017470) |
| Integrated Tool Carrier 2 | Volvo | L120 | 148 | 7.4 | 1 | 7.4 | From Barminco contract (SKM_C45820022017470) |
| Integrated Tool Carrier 3 | Volvo | L120 | 148 | 7.4 | 1 | 7.4 | From Barminco contract (SKM_C45820022017470) |
| Integrated Tool Carrier 4 | Volvo | L50 | 90 | 4.5 | 1 | 4.5 | From Barminco contract (SKM_C45820022017470) |
| Water Cart | Mack | Metroliner | 360 | 18.0 | 1 | 18.0 | From Barminco contract (SKM_C45820022017470) |
| Service Truck | Hino | Hino 300 | 153 | 7.7 | 1 | 7.7 | From Barminco contract (SKM_C45820022017470), Entech assumed range and kW rating |
| Stores Truck | Hino | Hino 300 | 153 | 7.7 | 1 | 7.7 | From Barminco contract (SKM_C45820022017470), Entech assumed range and kW rating |
| Light Vehicles | Toyota | Landcruiser dual cabs and traybacks | 151 | 7.6 | 6 | 45.3 | From Barminco contract (SKM_C45820022017470), quantity from "Savannah Progress Claim Mar2020_Revision1_Approved". |
| | | | Total ($m^3/s$) | | | 488 | |

Underground infrastructure such as the underground fuel bay and magazine is ventilated with used air off the main decline and has therefore been excluded from the airflow calculations.

All leakage paths of the air are between the decline and the return airway system. This subsequently forms part of the primary exhaust system. With diesel equipment mostly distributed through the mine and with leakage made up by used air, Entech excluded leakage from the calculations as well. It is however important to minimise leakage throughout the mine to ensure sufficient ventilating air is available at the bottom of the mine to ventilate the diesel and other work activities effectively.

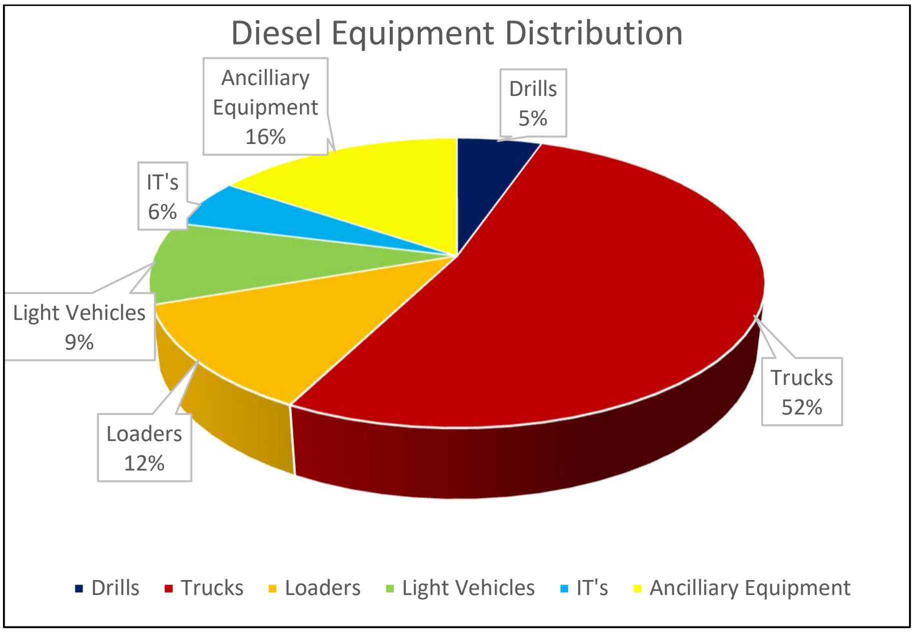
Table 30 summarises the airflow analysis for Savannah and Savannah North Mine:

Table 30: Ventilation Summary

| | |
|---|---|
| Total (m³/s) | 488 |
| Average Density in Savannah North (kg/m³) | 1.24 |
| Required Massflow at average depth (kg/s) | 605 |
| Surface Fan Inlet Density (kg/m³) | 1.09 |
| Required Surface Fan Quantity at average depth (m³/s) | 555 |
| Density at full depth (kg/m³) | 1.29 |
| Required Massflow at full depth (kg/s) | 630 |
| Required Surface Fan Quantity at full depth (m³/s) | 578 |

Figure 33 illustrates the overall make-up of the ventilation requirements for the mine and it is evident that the trucks, loaders and ancillary equipment requires a large portion of the ventilating air:

Figure 33: Airflow Distribution



## 10.2 FIRST PRINCIPLE HEAT LOAD BALANCE

A first principle heat load study was conducted based on the latest diesel fleet and mine design of Savannah North Mine. Table 31 provides detail of the parameters used in the calculations as well as Ventsim Design™:

**Table 31: Ventsim Design Input Parameters**

| | Criteria | Input Value | Remarks |
|---|---|---|---|
| 1 | Geothermal Gradient | 1.5 °C/100 m | Values were adopted from previous studies conducted by BBE, Ozvent and Entech between 2015 and 2019. |
| 2 | Rock Density | 3,230 kg/m³ | |
| 3 | Rock Thermal Conductivity | 3.63 W/m°C | |
| 4 | Rock Thermal Diffusivity | 1.277 x $10^{-6}$ m²/s | |
| 5 | Rock Specific Heat | 880 J/kg°C | |
| 6 | Surface Barometric Pressure | 97.0 kPa | |
| 7 | Surface Rock Temperature | 30 °C | |
| 8 | Surface wet bulb temperature | 24.4 °C | |
| 9 | Surface dry bulb temperature | 31.4 °C | |
| 10 | Diesel Load Factor | 0.35 | Used to obtain similar heat load from diesel equipment as calculated. |

Using various utilisation factors for the different diesel equipment, the heat load from the diesel equipment was calculated using the formula:

$$Diesel\ Heat\ (kW) = (Rated\ Diesel\ Power\ (kW) / Engine\ Efficiency\ (\%))\ x\ Availability\ (\%)\ x\ Utilisation\ (\%)\ x\ Load\ (\%)$$

A load factor of 0.8 and diversity factor of 0.85 was applied to secondary fans to determine heat.

An average Savannah North Mine depth below the surface of ~1,400 m was used for the strata and Auto-compression heat calculations.

Table 32 summarises the heat loads:

**Table 32: Heat Load Summary**

| Criteria | Load (kW) | Remarks |
|---|---|---|
| Total Heat from Diesel (kW) | 7,504 | |
| Total Heat from Auto Compression (kW) | 8,625 | |
| Heat from Strata (kW) | 3,745 | Calculated only |
| Heat from Fans (kW) | 1,513 | |
| Total heat from ground water (kW) | 821 | 10 l/s allowed for in the calculations. |
| Total Heat from Sub Stations (kW) | 225 | 3 x 1.5 MVA sub stations |
| **Total Heat Load (kW)** | **22,433** | |

Figure 34 illustrates the estimated heat load distribution of all the general heat sources. Figure 35 illustrates the heat load distribution of the diesel equipment:

**Figure 34: Overall Heat Load Distribution**

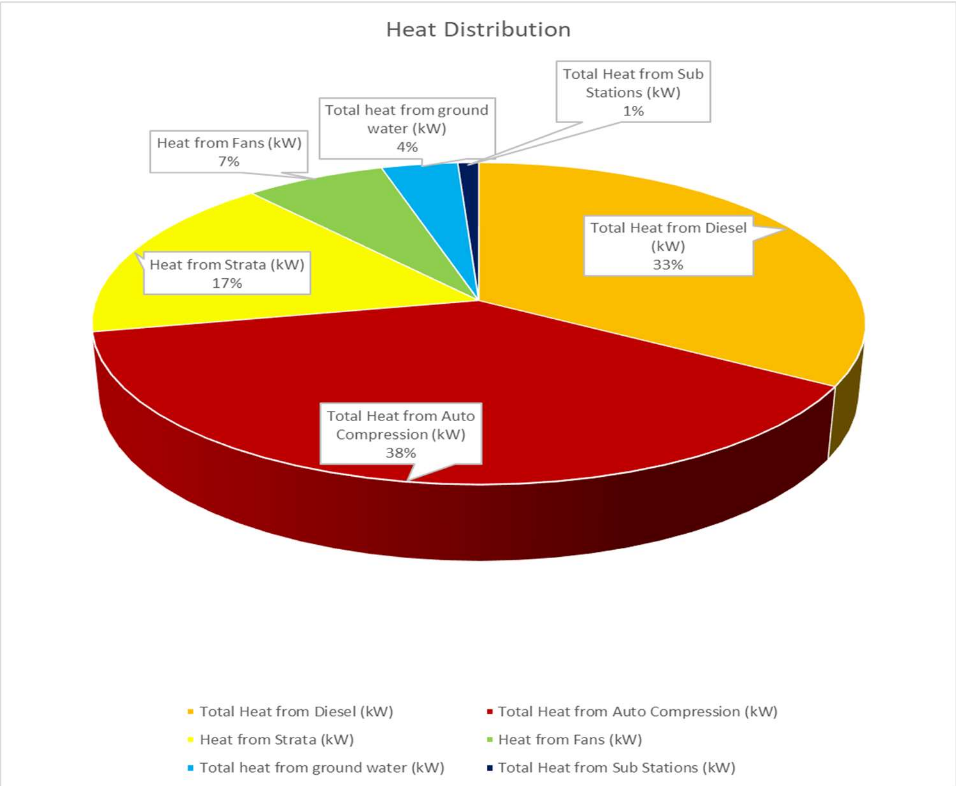
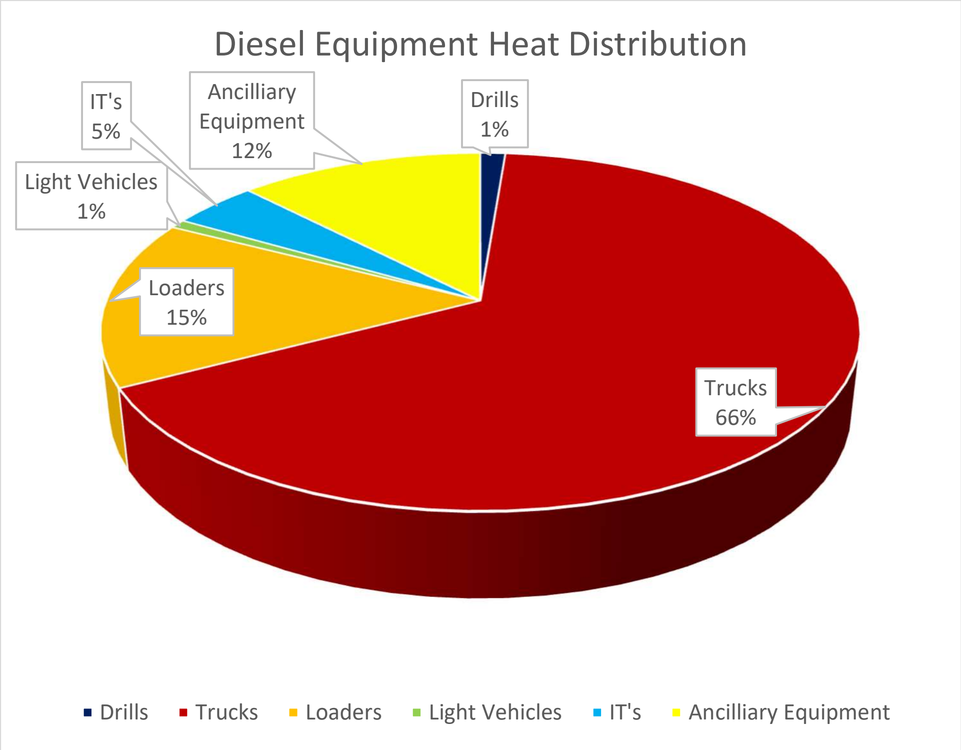



Figure 34 shows that Diesel equipment and heat from Auto-compression makes up ~73% of the total heat loads of the mine.

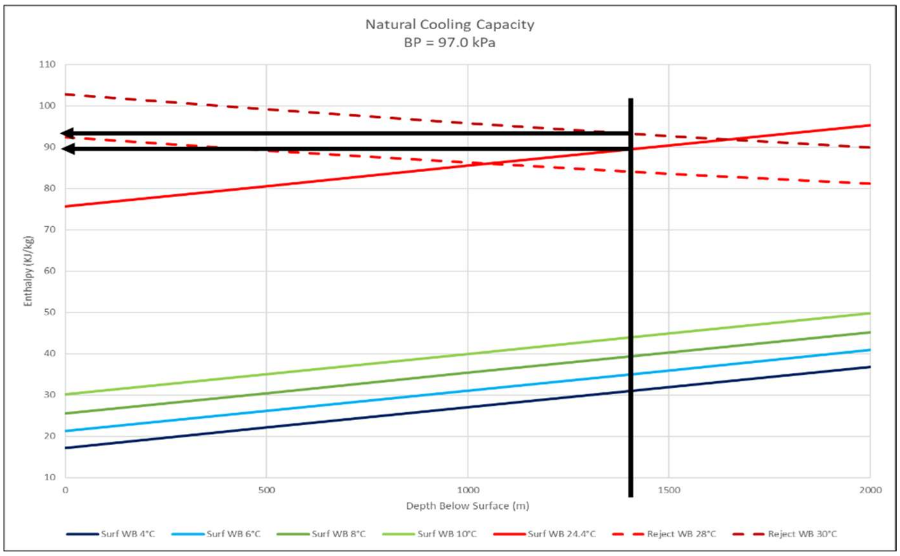
**Figure 35: Diesel Equipment Heat Load Break-down**




From Figure 35 it is evident that heat from trucks and loaders makes up ~79% of the diesel heat and it is therefore important to consider how the diesel equipment is utilised to lower the heat load produced by the diesel equipment.

A reject Wet-Bulb temperature of 30 °C was used to determine the natural cooling capacity of the mine and the subsequent artificial cooling requirements. Figure 36 illustrates the cooling capacity versus depth at the surface conditions of Savannah Mine:

**Figure 36: Natural Cooling Capacity**



Due to the depth of the mine and the surface climate conditions, the natural cooling capacity of the air based on a reject wet-bulb temperature of 30 °C, is 3.90 kJ/kg.

Table 33 summarises the heat balance for the life of mine:

**Table 33: Heat Balance Summary**

| **Total Heat Load (kW)** | **22,433** |
|---|---|
| Natural Cooling Factor at depth (kJ/kg) | 3.90 |
| **Natural Cooling Capacity (kW)** | **2,449** |
| **Current Artificial Cooling (kW)** | **6,000** |
| **Total Cooling (kW)** | **8,449** |
| **Heat Balance (kW)** | **13,984** |
| **Heat Balance (MW)** | **14.0** |

Entech recommended a total of 15 MWr cooling in May 2019 (Refer to "Entech_02052019_PRL_Savannah_Ventilation_Review_FINAL_ISSUED") issued in May 2019.

This was based on a detailed analysis of the production schedule over the life mine. The updated mobile equipment fleet with the latest mine design of Savannah North Mine resulted in an increase of the artificial cooling requirement to support peak worst-case conditions. Entech recommends that an updated detailed heat load and cooling optimisation study is undertaken for Savannah mine.

## 10.3 PRIMARY VENTILATION STRATEGY

Chasm Consulting's Ventsim Design ™ software was used to generate a primary ventilation model for the Savannah mine plan, based on the mine design and the air requirements outlined in Table 29. Intake air into the mine will enter the mine via the main decline, FAR1 and FAR3. Air will be exhaust via the RAR1 and RAR2 (former FAR2 intake shaft) shafts.

Table 34 summarises the intake and exhaust airway capacities:

**Table 34: Airway Capacity Summary**

| | Cross-sectional area (m²) | Ideal Air Speed (m/s) | Maximum Air Speed (m/s) | Ideal Air Quantity (m³/s) | Maximum Air Quantity (m³/s) |
|---|---|---|---|---|---|
| Intake | | | | | |
| Decline | 30.9 | 5 | 6 | 155 | 185 |
| FAR1 | 8.0 | 6 | 10 | 48 | 80 |
| Planned FAR3 (1 x 3.8 m diameter) | 11.3 | 15 | 25 | 170 | 283 |
| **Total Intake Capacity** | **50.2** | | | **388** | **548** |
| Required Intake at average Depth | | | | | 528 |
| Required Intake at full Depth | | | | | 550 |
| Exhaust | | | | | |
| RAR1 | 19.6 | 12 | 22 | 235 | 431 |
| RAR2 (Former FAR2) | 12.6 | 12 | 22 | 151 | 277 |
| Totals | 32.2 | | | 386 | 708 |
| Maximum Required Exhaust | | | | | 578 |

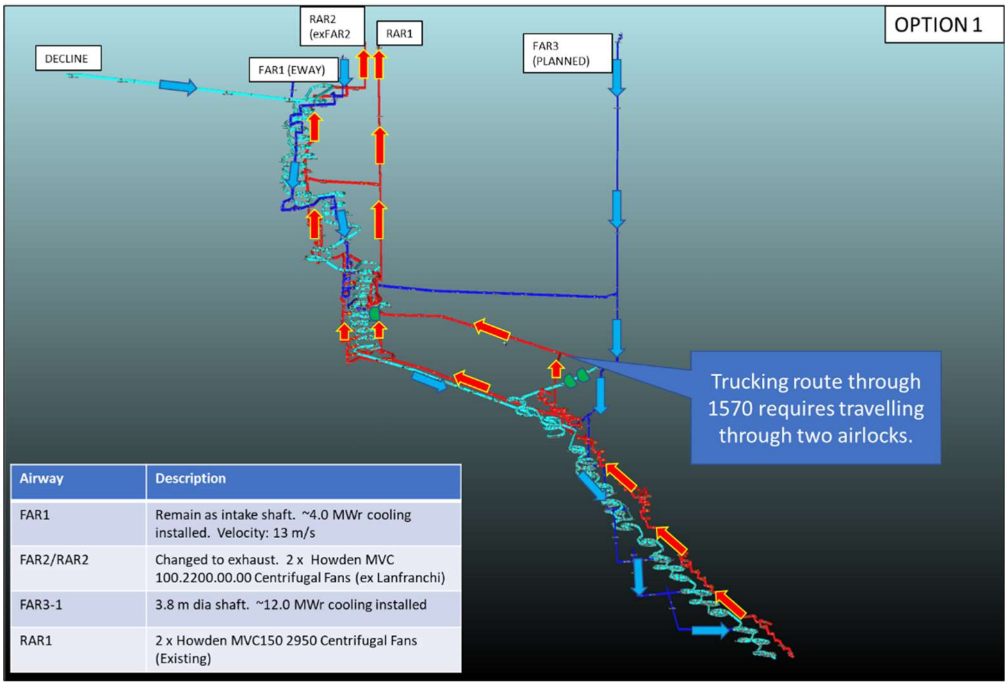
From Table 34 it is evident that the planned ventilation system will support the airflow requirements, however there is no spare capacity within the intake airways for any further ventilation increases and an additional intake airway will be required should further airflow increases be required over the life of mine.

The exhaust capacity will support the life of mine ventilation requirements with some spare capacity within the exhaust system.

Entech analysed seven different options for the life of mine ventilation design:

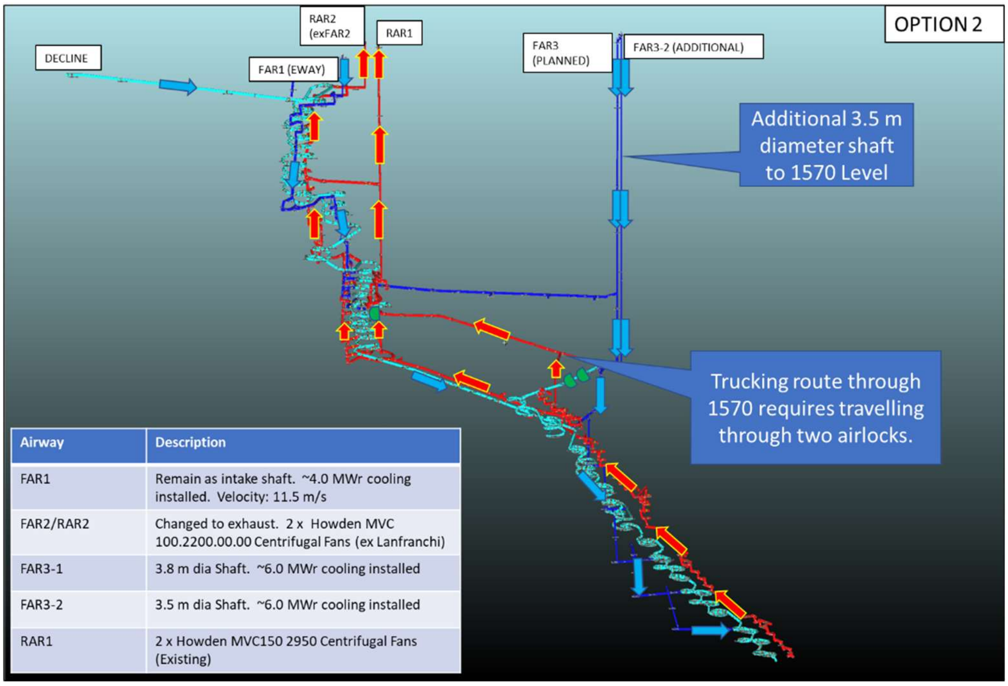
Figure 37 to Figure 43 illustrate each of the seven different options:

**Figure 37: Life of Mine Ventilation Option 1**



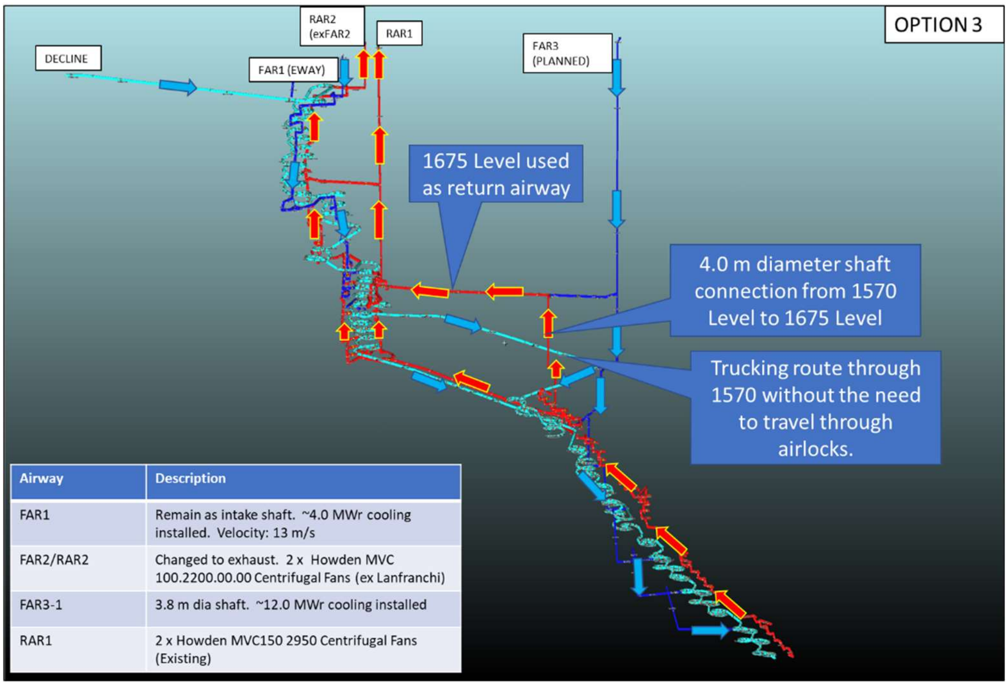

| Airway | Description |
|---|---|
| FAR1 | Remain as intake shaft. ~4.0 MWr cooling installed. Velocity: 13 m/s |
| FAR2/RAR2 | Changed to exhaust. 2 x Howden MVC 100.2200.00.00 Centrifugal Fans (ex Lanfranchi) |
| FAR3-1 | 3.8 m dia shaft. ~12.0 MWr cooling installed |
| RAR1 | 2 x Howden MVC150 2950 Centrifugal Fans (Existing) |

**Figure 38: Life of Mine Ventilation Option 2**



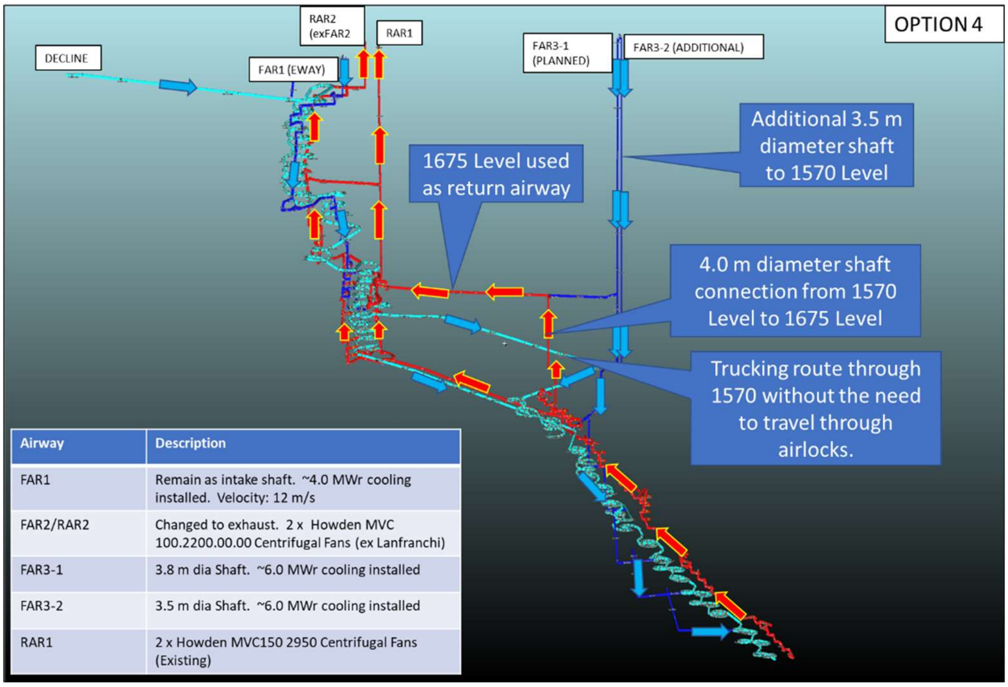

| Airway | Description |
|---|---|
| FAR1 | Remain as intake shaft. ~4.0 MWr cooling installed. Velocity: 11.5 m/s |
| FAR2/RAR2 | Changed to exhaust. 2 x Howden MVC 100.2200.00.00 Centrifugal Fans (ex Lanfranchi) |
| FAR3-1 | 3.8 m dia Shaft. ~6.0 MWr cooling installed |
| FAR3-2 | 3.5 m dia Shaft. ~6.0 MWr cooling installed |
| RAR1 | 2 x Howden MVC150 2950 Centrifugal Fans (Existing) |

**Figure 39: Life of Mine Ventilation Option 3**




| Airway | Description |
|---|---|
| FAR1 | Remain as intake shaft. ~4.0 MWr cooling installed. Velocity: 13 m/s |
| FAR2/RAR2 | Changed to exhaust. 2 x Howden MVC 100.2200.00.00 Centrifugal Fans (ex Lanfranchi) |
| FAR3-1 | 3.8 m dia shaft. ~12.0 MWr cooling installed |
| RAR1 | 2 x Howden MVC150 2950 Centrifugal Fans (Existing) |

**Figure 40: Life of Mine Ventilation Option 4**




| Airway | Description |
|---|---|
| FAR1 | Remain as intake shaft. ~4.0 MWr cooling installed. Velocity: 12 m/s |
| FAR2/RAR2 | Changed to exhaust. 2 x Howden MVC 100.2200.00.00 Centrifugal Fans (ex Lanfranchi) |
| FAR3-1 | 3.8 m dia Shaft. ~6.0 MWr cooling installed |
| FAR3-2 | 3.5 m dia Shaft. ~6.0 MWr cooling installed |
| RAR1 | 2 x Howden MVC150 2950 Centrifugal Fans (Existing) |

**Figure 41: Life of Mine Ventilation Option 5**

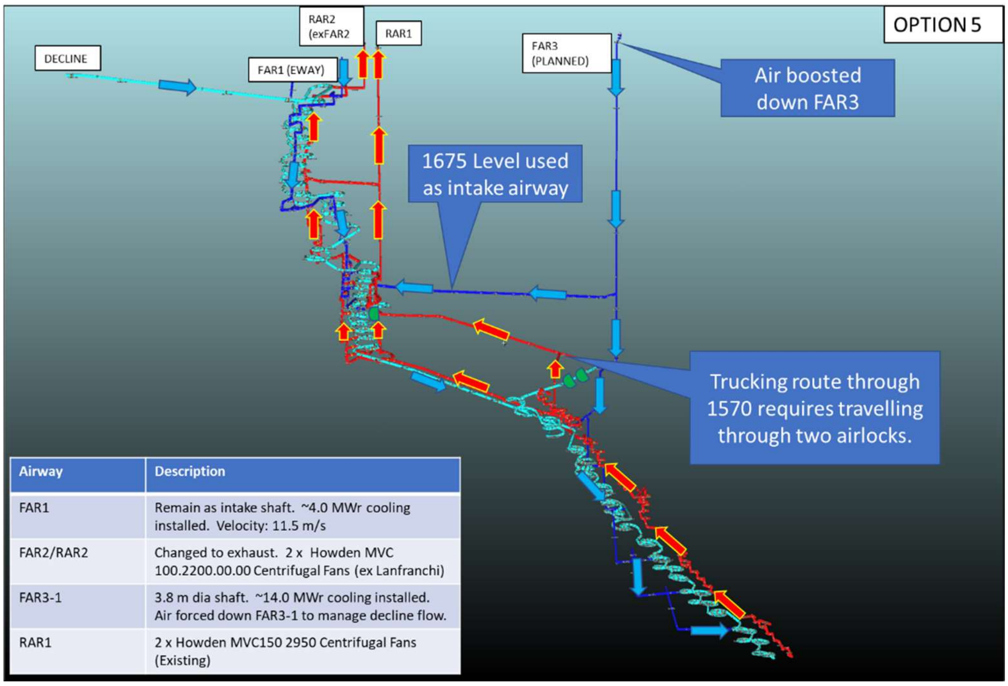



**Figure 42: Life of Mine Ventilation Option 6**

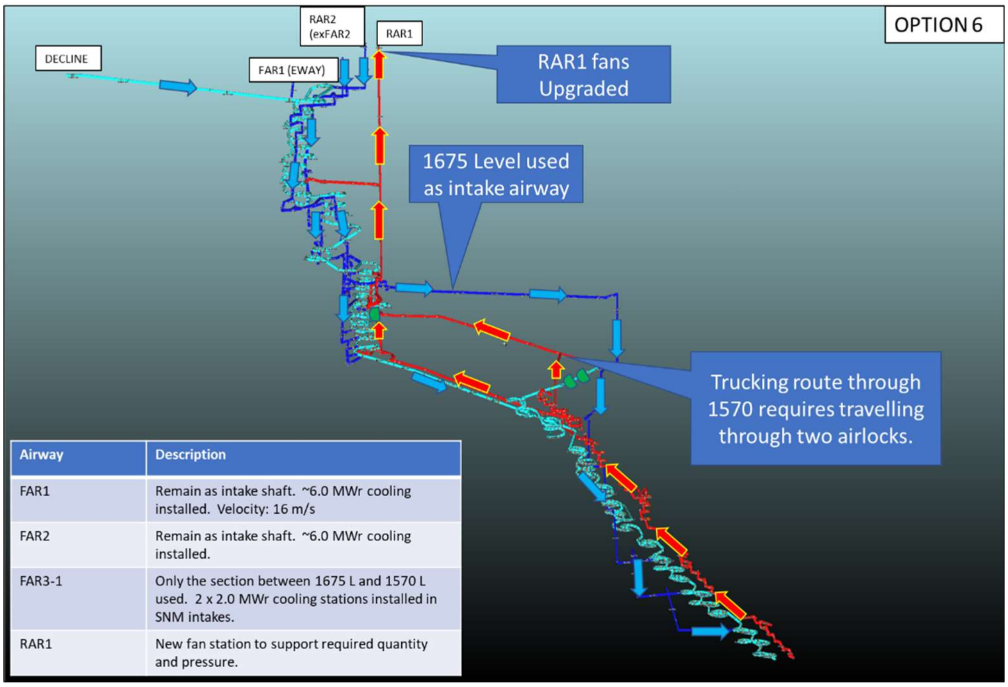
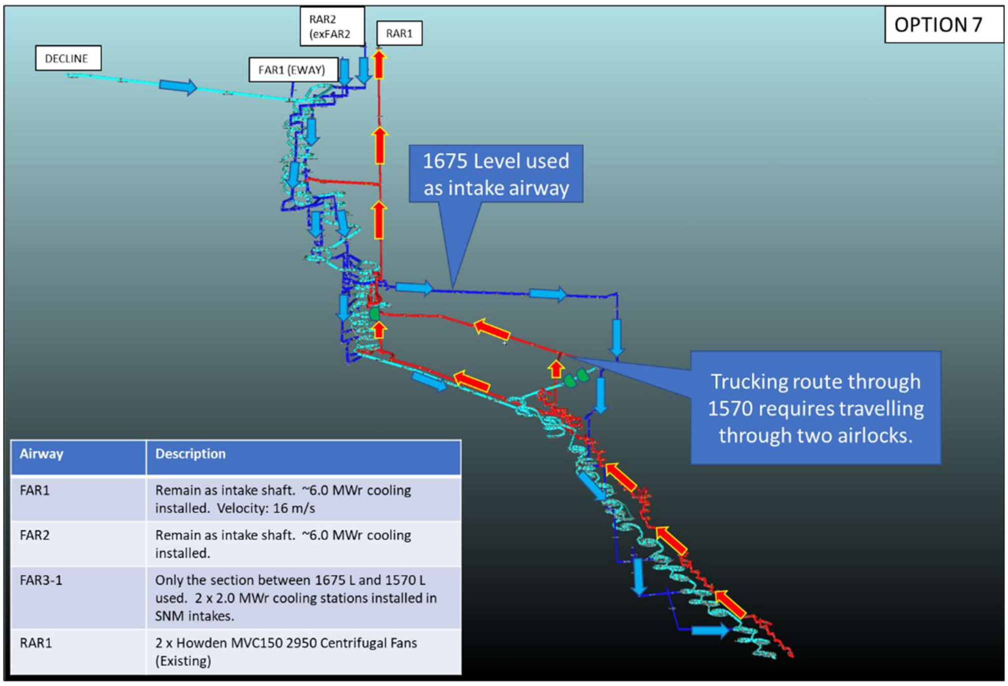


**Figure 43: Life of Mine Ventilation Option 7**




The seven different options as illustrated were assessed in terms of suitability, power and cost. Table 35 provide details of the comparative assessment carried out on the seven options:

### Table 35: Ventilation Option Comparison

| | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Option 7 |
|---|---|---|---|---|---|---|---|
| Required Massflow at Average Depth (kg/s) | 602 | 602 | 602 | 602 | 602 | 602 | 602 |
| Required Massflow at Full Depth (kg/s) | 626 | 626 | 626 | 626 | 626 | 626 | 626 |
| Required Fan Quantity at Average Depth ($m^3/s$) | 552 | 552 | 552 | 552 | 552 | 552 | 552 |
| Required Fan Quantity at Full Depth ($m^3/s$) | 574 | 574 | 574 | 574 | 574 | 574 | 574 |
| Achieved Massflow (kg/s) | 628 | 629 | 626 | 628 | 638 | 625 | 417 |
| Achieved Fan Quantity ($m^3/s$) | 576 | 577 | 574 | 576 | 585 | 590 | 391 |
| Primary Fan Input Power (kW) | 2957 | 2583 | 2915 | 2613 | 3290 | 4488 | 1216 |
| Power per/volume Ratio ($kW/m^3/s$) | 5.13 | 4.48 | 5.08 | 4.54 | 5.62 | 7.61 | 3.11 |
| Bottom Reject Wetbulb (Deg C) | 30.7 | 30.5 | 30.5 | 29.6 | 30.9 | 30.1 | 30.1 |
| Simulated Total Input Power (kW) | 7528 | 7153 | 7468 | 7184 | 8434 | 9051 | 6520 |
| Cooling (MWr) | 16 | 16 | 16 | 16 | 18 | 16 | 14 |
| Trucks Supported | 9 | 9 | 9 | 9 | 9 | 9 | 5 |
| Loaders Supported | 4 | 4 | 4 | 4 | 4 | 4 | 3 |
| Full Diesel Fleet Supported? (1-yes, 0-no) | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Decline Air Speed (m/s) | 6.3 | 5.6 | 6.3 | 6.0 | 5.5 | 6.8 | 3.4 |
| FAR1 Escape-way air speed (m/s) | 12.9 | 11.5 | 12.8 | 12.2 | 11.4 | 15.9 | 15.8 |
| Annual FAN OPEX @ $0.25/kWh | $ 6,475,830 | $ 5,656,770 | $ 6,383,850 | $ 5,722,470 | $ 7,205,100 | $ 9,828,720 | $ 2,663,040 |
| FAN OPEX LOM @ 8% interest over 7 years | $ 33,715,761 | $ 29,451,407 | $ 33,236,877 | $ 29,793,468 | $ 37,512,633 | $ 51,172,248 | $ 13,864,851 |
| FAR3-2 cost @ $4,500/m | $ - | $ 4,095,000 | $ - | $ 4,095,000 | $ - | $ - | $ - |
| 1570 to 1675 shaft @ $5,000/m | $ - | $ - | $ 950,000 | $ 950,000 | $ - | $ - | $ - |
| New RAR1 fan | $ - | $ - | $ - | $ - | $ - | $ 7,000,000 | $ - |
| FAR3-1 Booster | $ - | $ - | $ - | $ - | $ 1,000,000 | $ - | $ - |
| Total CAPEX ($AUD) | $ - | $ 4,095,000 | $ 950,000 | $ 5,045,000 | $ 1,000,000 | $ 7,000,000 | $ - |
| TOC LOM ($AUD) over 7 years | $ 33,715,761 | $ 33,546,407 | $ 34,186,877 | $ 34,838,468 | $ 38,512,633 | $ 58,172,248 | $ 13,864,851 |
| **Weighted Rating** | **720** | **103680** | **3072** | **29167** | **8363** | **1** | **0** |

| Rating Key |
|---|
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |

Weighted Rating calculated by product of individual ratings divided by 9

The capital cost of the cooling plants and the operating cost of underground secondary fans were excluded from this analysis.

The analysis detailed in Table 35 shows that although Option 2 is the best option in terms of the weighted rating and total owing cost, Option 4 provides the ability to truck through the 1570 Level as well without the requirement to travel through two sets of airlocks. The additional intake shaft will also provide dilution of the used air and introduces cooling to the top of the Savannah North Mine.

The additional FAR3 intake shaft helps keep the decline velocities below 6.0 m/s and maintains a reasonable air velocity inside the FAR1 escape-way ladder.

Options 6 and 7 will result in excessive air velocities in the FAR1 escape-way ladder which in turn may require the primary fans to be adjusted for personnel to safely use the escape-way ladder to surface.

The primary fan power draw will change over time as the mine advances deeper. Entech used the Option 4 modelling to obtain the expected power draw of the primary ventilation system at different mine depths. The secondary fan and cooling plant power draw are also summarised in Table 36. The secondary fan power draw was based on an 80% load and 85% utilisation factor. The cooling plant power draw was based on a coefficient of performance (COP) of 4.

**Table 36: Ventilation Power Draw Estimates**

| | Mine at 1055 m below surface | Mine at 1280 m below surface | Mine at 1540 m below surface | Mine at 1760 m below surface |
|---|---|---|---|---|
| Primary Fan Quantity ($m^3/s$) | 634 | 619 | 610 | 597 |
| Mine Resistance ($N.s^2/m^8$) | 0.0078 | 0.0085 | 0.0089 | 0.0085 |
| Average Collar Total Pressure (Pa) | 3,140 | 3,260 | 3,310 | 3,030 |
| Simulated Primary Fan Input Power (kW) | 2,638 | 2,649 | 2,642 | 2,574 |
| Secondary Fan Input Power (kW) | 1,513 | 1,513 | 1,513 | 1,513 |
| Cooling Plant (MWr) | 4.0 | 6.0 | 12.0 | 18.0 |
| Cooling Plant Input Power @ 4.0 COP (kW) | 1,000 | 1,500 | 3,000 | 4,500 |
| **Expected Input Power (kW)** | **5,151** | **5,662** | **7,155** | **8,587** |

## 10.4 SECONDARY VENTILATION STRATEGY

Secondary ventilation will be achieved using single stage 55 kW, single stage 90 kW and twin 110 kW fans located in fresh air on the decline, force ventilating faces through flexible ventilation ducting. The primary exhaust will be situated either in the level entrance or inside a level. Typical layouts are illustrated in Figure 44 and Figure 45.

**Figure 44: Secondary Ventilation Layout 1**

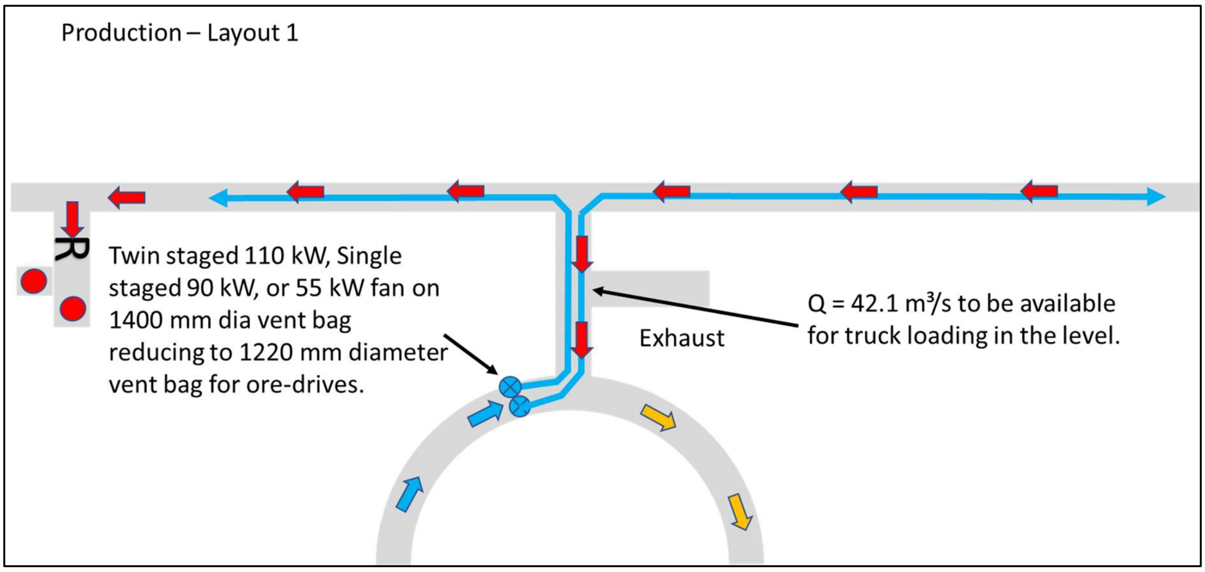
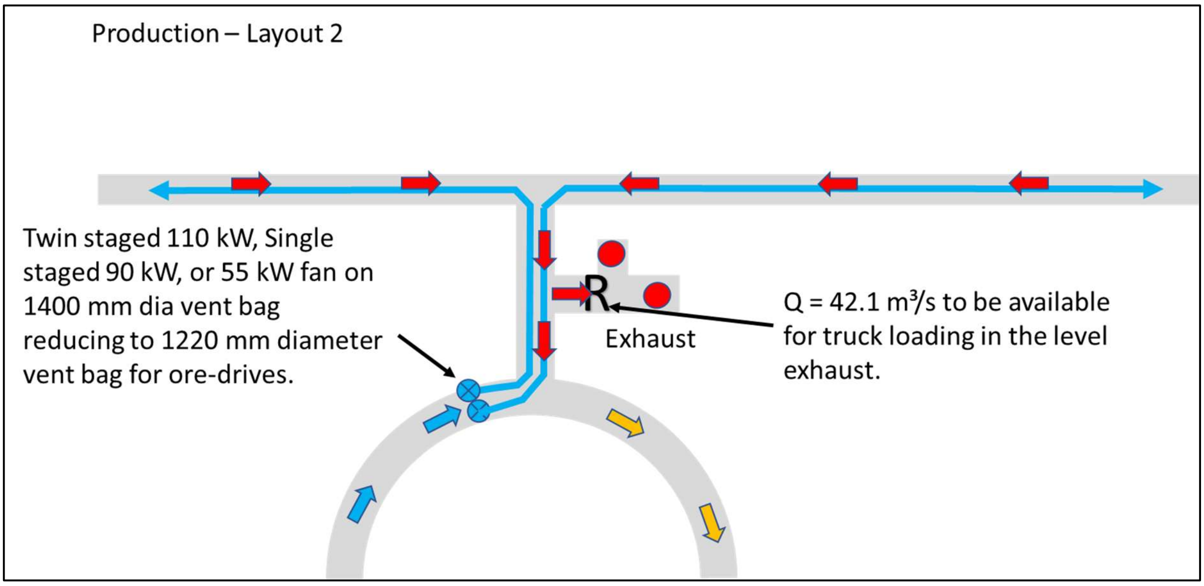


**Figure 45: Secondary Ventilation Layout 2**




The maximum secondary ventilation requirements estimate for power cost estimation are two twin staged 110 kW fans, eighteen single staged 90 kW fans and three single staged 55 kW fans. A fan load factor of 80% and a diversity factor of 85% was applied for power draw and heat load estimations. Entech recommends that analysis be undertaken on fitting of VSD on secondary fans for a 'ventilation-on-demand' system. Coupled with equipment sensors and personnel training, these systems have the potential for significant power savings by ensuring that secondary fans are only providing enough ventilation as required by activities occurring within a level.

# 11 MINE SERVICES

## 11.1 SURFACE INFRASTRUCTURE

All buildings, workshops and associated facilities required for the works are existing and in good order. The contractor is required to maintain these facilities and the costs are included in the schedule of rates.

All mine waste rock will be dumped on the existing waste dump located on the surface close to the underground mine boxcut.

All site roads are established, and the contractor will maintain all site surface roads during operations, with the cost included in the tender rates. Surface infrastructure layout is shown below in Figure 46.

**Figure 46: Site Layout**

## 11.2 WASTE ROCK MANAGEMENT

All waste rock is assumed to be trucked to the surface for deposition on the waste dump. Where opportunities arise, waste rock will be backfilled into stopes either via a dedicated truck fill pass or by loader. When back filling with a loader, truck tipping bays will be mined and loaders will be used to transfer the waste into the stope with an appropriate stop-log.

For scheduling and costing purposes, 100% of the waste is assumed to go to the surface and any waste deposited underground is deemed an operational opportunity. Over the LOM, 2.2M t of waste is schedule to be trucked to the surface, representing 18% of the total material trucked.

## 11.3 MINE DEWATERING

Historically the Savannah mine is considered to be a fairly "dry" mine with historic water inflow of up to 10 l/s, with the majority of inflow being above the 2070 level. Mine water used for drilling, dust suppression and paste fill operations.

The dewatering system consists of two distinct systems being:

1. Normal Dewatering – Capacity 20 l/sec

   A conventional dewatering system consisting of a series of sump pumps (Flygt) and helical rotor pumps (WT103 and WT104) that move water from the bottom of the mine, discharging to either:
   - WSF3 on the surface
   - In the pit for re-use
   - TSF1 for process water circuit.

   This system will continue to be extended down the mine as it deepens, with a new pump station installed every 200 m vertical consisting of two helical rotor pumps (WT104), each capable of 20 l/sec each. Although they can operate together (40 l/sec), they generally operate in duty and standby mode for contingency purposes.

2. Flood System – Capacity 80 l/sec

   During significant rain events, four helical rotor pumps (WT104) located at 2215mRL, dewater the pit during into WSF1 (Figure 47)

**Figure 47: 2115 mRL Flood Pumps – Model WT104**

## 11.4 COMMUNICATIONS

Underground mine communications are provided by leaky feeder type radio systems and fibre. Four main channels of leaky feeder radio network provide from the surface, along the decline down to the bottom of the mine. The fibre network is based around a 12 pair optical cable and provide data to and from numerous systems including paste reticulation sensors, seismic system sensors and remote loading hardware. These systems will be extended as the mine develops deeper in the Savannah Nth.

## 11.5 SERVICES

Compressed air is reticulated throughout the mine and is provided through two compressors located on the surface and a third located underground at the 1640 L. The underground compressor will be relocated further underground as the mine deepens.

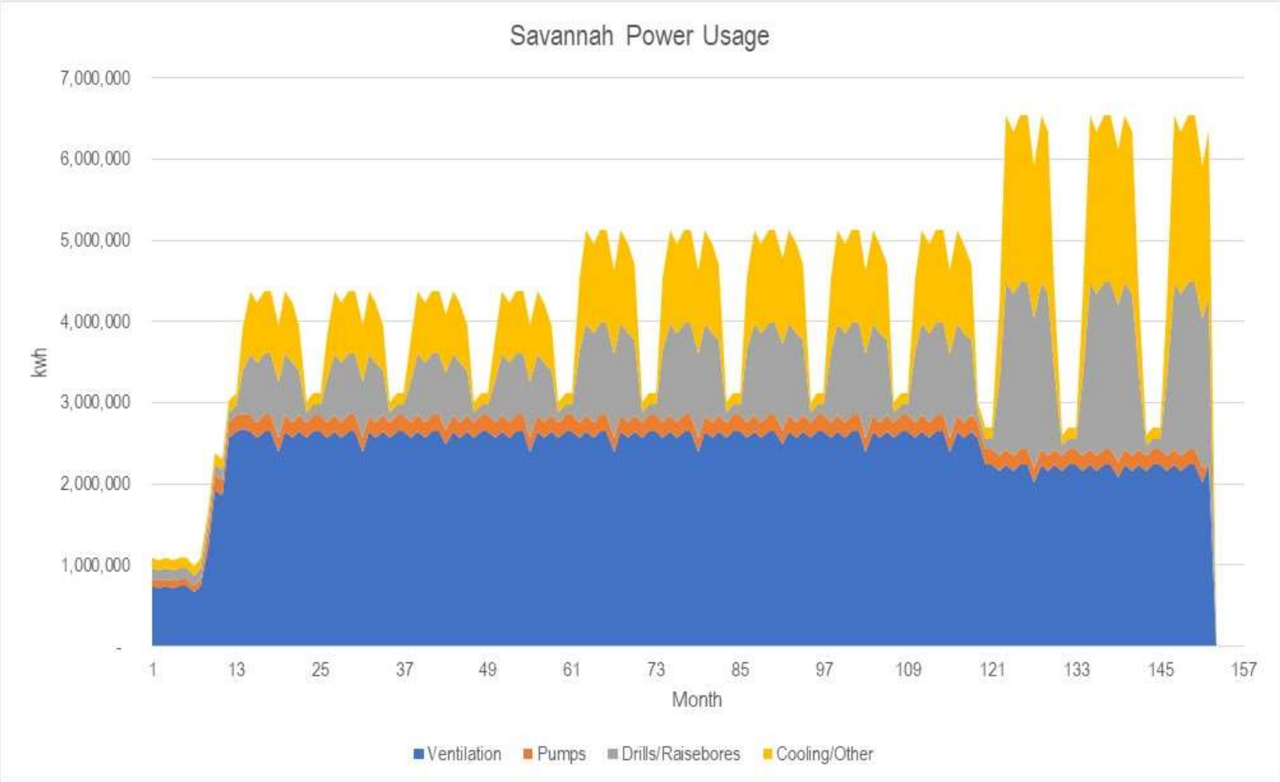
Service water is reticulated through the decline will be via 110 mm HDPE line hung in the backs of development, with 64 mm HDPE branches into working levels. A second water feed from the surface was installed in 2015 to increase the volume of water available to the lower part of the mine. These water mains join again at the 1716 mRL.

## 11.6 POWER

Site power is produced on the surface utilising a diesel power station owned and operated by Contract Power Management Australia Pty Ltd. Power is reticulated underground at 11,000 V to five substations that step the power down to the mine operating voltage of 1000 V. This system will continue to be extended as the mine develops.

The average expected power draw for the underground mine is 4,779 kW. A diagram summarising forecast power usage over the Savannah mine life is shown in Figure 48.

**Figure 48: Forecast Savannah Power Usage**



# 12 SAFETY

## 12.1 SECONDARY EGRESS AND REFUGE CHAMBERS

Refuge chambers are located and installed throughout the mine as it develops so that travelling distance from any active working areas to a chamber is not more than 750m.

Three portable four-man chambers are used to mitigate entrapment risk and are moved to any required area to provide safe refuge in the event of fire. Fresh air bases are to be established in between the permanent refuge chambers in the escape way.

The existing Savannah escape way route will be extended to Savannah North by using the Safescape module ladder way installed in a 1.1m diameter raise bored hole between all production levels. The Savannah escape way route consists of the Wilshaw style of steel module ladders in the upper levels and Safescape module ladder in the lower levels of the mine.

# 13 MINING COST ESTIMATION

## 13.1 BASIS OF ESTIMATE

Mining costs have been estimated based on the contractor rates outlined in the Barminco Limited Underground Mining Services Agreement from February 2020. The cost model file referenced in this section is "PAN Cost model_200710_Pillar_Schedule_LOMP_200725_Final" & "PAN Cost model_200710 Reserve Schedule_200725_Final". Rates have been escalated by 2% to allow for expected inflation from the time of the original submission in 2019.

Diesel usage estimates have been based on PAN historical values if available or the Entech database.

Capital and infrastructure costs for items not being provided by the contractor have been determined based on quotes where possible.

Business services costs have been estimated based on historical PAN operations and quotes from suppliers.

The mining cost estimate is presented in Australian dollars unless otherwise stated.

No allowances have been included within the cost estimates stated in this report for the following items:

- Taxes;[1]
- Escalation or inflation;[2]
- Contingencies;
- Cost changes due to currency fluctuation;
- Head office/corporate costs;
- Closure costs;[3]
- Exploration;
- Permits or cost of permits;
- Financial charges of any description; or
- Interest.

[1] *The Group has available tax losses of approximately $170 million at 31 December 2019 which could be used to reduce taxable incomes generated from the Savannah Project.*

[2] *Costs are presented in real terms and are therefore not subject to escalation or inflation other than as set out in the report.*

[3] *Closure costs in relation to the Savannah Project are estimated at present value of $22 million as at 30 June 2020.*

## 13.2 MINING CAPITAL COST

Mining capital costing was determined based on the following:

- The contractor rates include supply, installation, and maintenance of the following infrastructure:
    - Dewatering systems- Face and sump pumps only;
    - Ventilation fans- Additional secondary fans only;
- The following capital items required for the LOM mine plan were assumed to be supplied/paid for by PAN;
    - Supply and fit-out of **any additional** facilities, including workshop, offices, ablutions/change room, storage, vehicle washdown, surface magazine, muster room and crib room; and
    - Equipment and buildings for first aid provision and underground emergency response capabilities.
    - Surface Paste Fill plant and underground paste lines.
    - All equipment, software and light vehicles required for provision of mine management and technical services; and
    - Establishment of boxcut and site roads, earthworks and clearing for surface infrastructure.
    - Diesel gensets for power supply;
    - HV and low voltage power reticulation cabling and equipment;
    - Refuge chambers;
    - All required infrastructure for provision of mine services, including air compressors and header tanks.
- Lump sum contractor mobilisation and establishment costs were estimated based on the underground mining service agreement rates;
- Variable capital development costs (including ventilation walls, ground support and escape ladder installation) were based on the underground mining service agreement rates; and
- Other lump sump one-off costs were gathered from PAN's Capital expenditure schedule. No allowance has been made for closure costs, which are estimated at approximately $22.0M.

A summary of the Savannah mining capital costs is presented in Table 37

**Table 37: Savannah Mining Capital Costs**

| Item | LOMP Expenditure ($'000) | Reserve Expenditure ($'000) | Unit | LOMP Unit Cost | Reserve Unit Cost |
|---|---|---|---|---|---|
| Infrastructure/ Site Establishment | 25,963 | 25,810 | $/t ore | $2.49 | $3.12 |
| Decline Development | 23,353 | 21,436 | $/t ore | $2.24 | $2.59 |
| Capital Access | 38,868 | 36,014 | $/t ore | $3.73 | $4.35 |
| Ventilation | 15,297 | 14,946 | $/t ore | $1.47 | $1.81 |
| Escapeway | 3,965 | 3,630 | $/t ore | $0.38 | $0.44 |
| Other Lateral Development | 16,896 | 16,811 | $/t ore | $1.62 | $2.03 |
| Capital Mine Services | 19,229 | 23,912 | $/t ore | $1.84 | $2.89 |
| Capital Mine Overheads | 55,045 | 64,578 | $/t ore | $5.28 | $7.81 |
| Escalation + Adjustments | 3,366 | 3,364 | $/t ore | $0.32 | $0.41 |
| **Total Capital** | **201,980** | **210,501** | **$/t ore** | **$19.37** | **$25.44** |

### Site Establishment and Infrastructure

Details of the site establishment and life of mine infrastructure costs are presented in Table 38.

**Table 38: Underground Site Establishment & Infrastructure**

| Mining Capital | LOMP ($'000) | Reserve ($'000) |
|---|---|---|
| Offices & Other | 837 | 837 |
| Surface Infrastructure | 4,710 | 4,710 |
| Paste Fill Systems | 1,955 | 1,955 |
| Communications and Safety | 354 | 354 |
| Underground Electrical | 2,625 | 2,625 |
| Pumping | 1,730 | 1,730 |
| Miscellaneous - Underground Works | 1,407 | 1,289 |
| Ventilation | 11,760 | 11,725 |
| Mining Workshop | 585 | 585 |
| **Total** | **25,963** | **25,810** |

These costs have been sourced from Panoramic based upon the latest capital expenditure schedule for the site. Certain one-off costs not driven by the scheduled physicals have been placed in the infrastructure bucket.

### Lateral and Vertical Development

Decline Development, Capital Access Development, Ventilation, Escapeway and Other Lateral Development comprise nearly forty percent of the capital expenditure and total $98.4M for the LOMP. These costs were derived from the Mine services agreement rates.

**Mine Services**

Capital mine services total $19.3M for the LOMP. This expense represents the power/diesel cost of running fans, cooling systems, pumps, ancillary mining fleet and other electrical infrastructure associated with the underground mine.

Power costs are allocated as a capital/operating associated expense based on the distribution of mining variable costs.

**Mine Overheads**

Mine Overheads costs are inclusive of:

- Salaries (inclusive of on-costs) of non-operational personnel associated with the underground mining (ie management, technical and administrative personnel)
- Fixed Contractor Personnel and Equipment rates
- Messing and accommodation costs for all operational & non-operational employees and contractors associated with the underground mining,
- Flights for fly-in-fly-out personnel, and
- General expenses.

Capital mine overheads total $55.0M for the LOMP. These costs have been capitalised based on the capital and operating cost split from the mining physicals.

**Price Escalation + Adjustments**

Contractor rates have been escalated by 2% to allow for the timing difference from submission of the rates to mining execution. An additional rate escalation of 10% of the mining variable costs has been modelled for the first 9 months to reflect limited site activity during this period.

## 13.3 MINING OPERATING COST

Mining operating costing for the Savannah LOM mine plan was determined based on the following:

- Variable operating costs (including operating development and ground support, stoping, filling and material movement) were sourced from the contractor rates. These rates included allowances for supply of power, all consumables (excluding diesel), all personnel and equipment required for the works (except for specific items below);
- PAN staff salaries were based on current budgeted salaries and recent market salary data. Barminco contractor personnel are the fixed costs from the contractor rates;
- All PAN and Barminco staff were assumed to be employed on a FIFO basis from Perth. FIFO and accommodation cost estimates were provided by PAN based on historical budget costs;
- PAN diesel light vehicle running costs were assumed based on historical operations;
- Diesel for mobile equipment and power generation was assumed to be supplied at PAN's cost. Diesel usage for contractor equipment (including gensets) and power usage was estimated in the Entech cost model. The diesel cost assumed was $0.90/L (post rebate);
- Geology and grade control costs were based on PAN provided budgeted costs.
- General expenses including clothing, PPE, consultants and other consumables have also been modelled based on the PAN budget.
- A 10% increase in contractor variable costs have been modelled for the first 9 months to reflect the expected increase in re-tender costs.

**A summary of the Savannah LOM mining operating costs is presented in Table 39.**Error! Reference source not found. **Table 39: Mining Operating Cost Summary**

| Item | LOMP Expenditure ($'000) | Reserve Expenditure ($'000) | Unit | LOMP Unit Cost | Reserve Unit Cost |
|---|---|---|---|---|---|
| Op Access | 50,640 | 43,138 | $/t ore | $4.86 | $5.21 |
| Ore Drive | 92,081 | 63,880 | $/t ore | $8.83 | $7.72 |
| Stope | 307,702 | 243,488 | $/t ore | $29.52 | $29.43 |
| Operating Mine Services | 99,131 | 96,537 | $/t ore | $9.51 | $11.67 |
| Operating Mine Overheads | 271,435 | 255,695 | $/t ore | $26.04 | $30.90 |
| Dayworks | 10,976 | 8,867 | $/t ore | $1.05 | $1.07 |
| Grade Control | 5,001 | 4,720 | $/t ore | $0.48 | $0.57 |
| Pastefill | 47,519 | 39,683 | $/t ore | $4.56 | $4.80 |
| Escalation + Adjustments | 12,823 | 10,513 | $/t ore | $1.23 | $1.27 |
| **Total** | **897,309** | **766,520** | **$/t ore** | **$86.07** | **$92.64** |

**Lateral Development**

Lateral Development operating costs consists of Operating access and Ore drive development and total $142.7M for the LOMP.

**Stope**

The stope category considers the following activities:

- Establish longhole rise slot
- Drill charge and blast 89mm blastholes
- Remove broken rock from stope and truck to surface

The total costs for stoping were $307.7M for the LOMP or $29.52/t ore.

**Operating Mine Services**

Operating Mine Services total $99.1M over the for the LOMP schedule.

**Operating Mine Overheads**

Operating Mine overheads total $271.4M for the LOMP. General expenses included in mine overhead costs are summarised in Table 40 below.

**Table 40: Underground General Expenses**

| General Expenses | Unit | Value |
|---|---|---|
| Mining Training - External and Internal | $/mth | $4,116 |
| Consumables - Mining Safety | $/mth | $25,695 |
| Clothing and PPE | $/mth | $19,447 |
| Consultants | $/mth | $8,000 |
| Contract Labour | $/mth | $2,750 |
| Consumables - Tech services | $/mth | $2,500 |
| Mining - Communications | A$/lateral m | $7.05 |
| **Total LOM General Expenses Cost** | **$,000** | **$9,578** |
| **Total LOM General Expenses Cost** | **$/t ore** | **$0.92** |

**Dayworks**

Dayworks are considered as a 2.0% factor of the total lateral, vertical and stoping costs.

**Grade Control**

Grade control operating costs have been modelled at 500 grade control metres per level in Savannah North after consultation with Panoramic. Sludge Drill metres derived from the mine plan have also been considered in this value. Grade control costs total $5.0M.

**Paste fill**

Paste fill costs were generated from the schedule physicals and total $47.5M.

**Price Escalation + Adjustments**

Operating costs associated with Price escalation plus ramping up adjustments total $12.8M.

# 14 ORE RESERVE ESTIMATE

This section of the report summarises any additional information required to satisfy the reporting requirements of the JORC Code for a publicly announced Ore Reserve that is not covered in the previous sections.

## 14.1 MINING

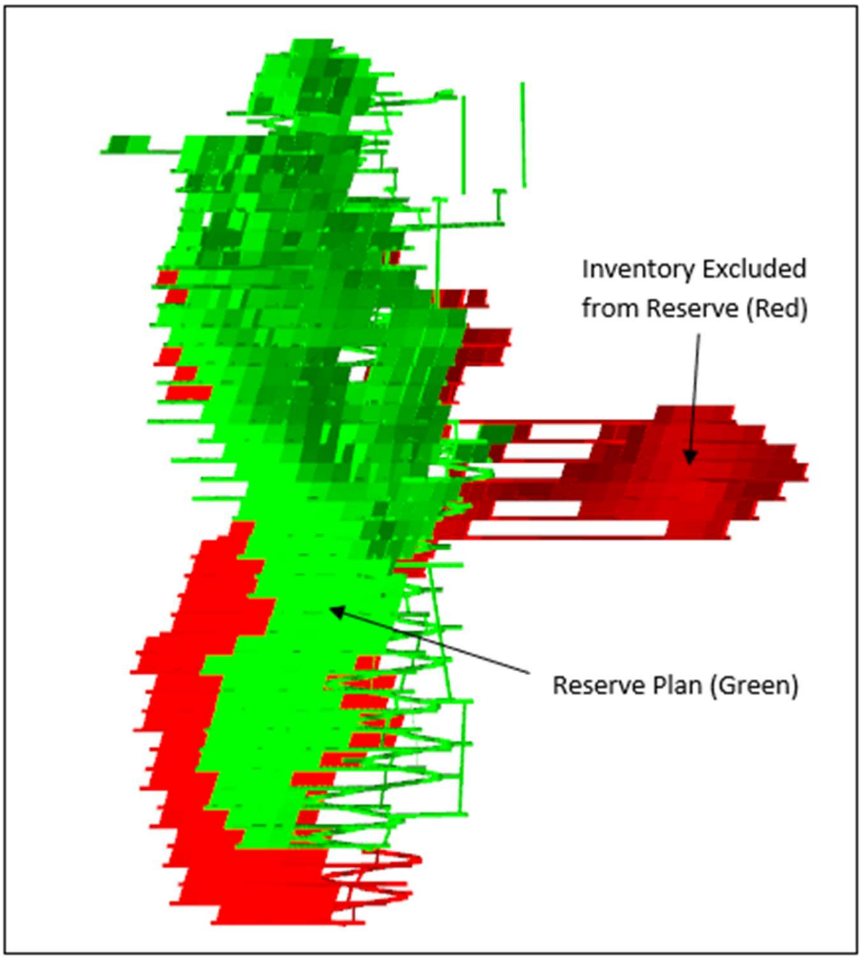
The Savannah Nth Ore Reserve is based on that portion of the mine plan that is economic when all Inferred metal is excluded, assuming the costs and revenue factors detailed in this report.

The Ore Reserve mine plan and economic analysis was generated as follows:

- Inferred material was set to waste grade;
- All stopes subsequently falling below COG were removed from the mine plan;
- Levels were then evaluated to ensure that they still paid for access development. Any levels rendered sub-economic by setting Inferred material to waste grade were removed from the schedule; and
- The remaining design was re-scheduled and input into the detailed financial model to ensure all areas provided a positive economic return.

A diagram showing the Ore Reserve mine plan compared to the LOM plan (i.e. inclusive of Inferred material) is shown in Figure 49.

**Figure 49: LOM vs Reserve Material Design Shapes (Long-Section Looking SE)**



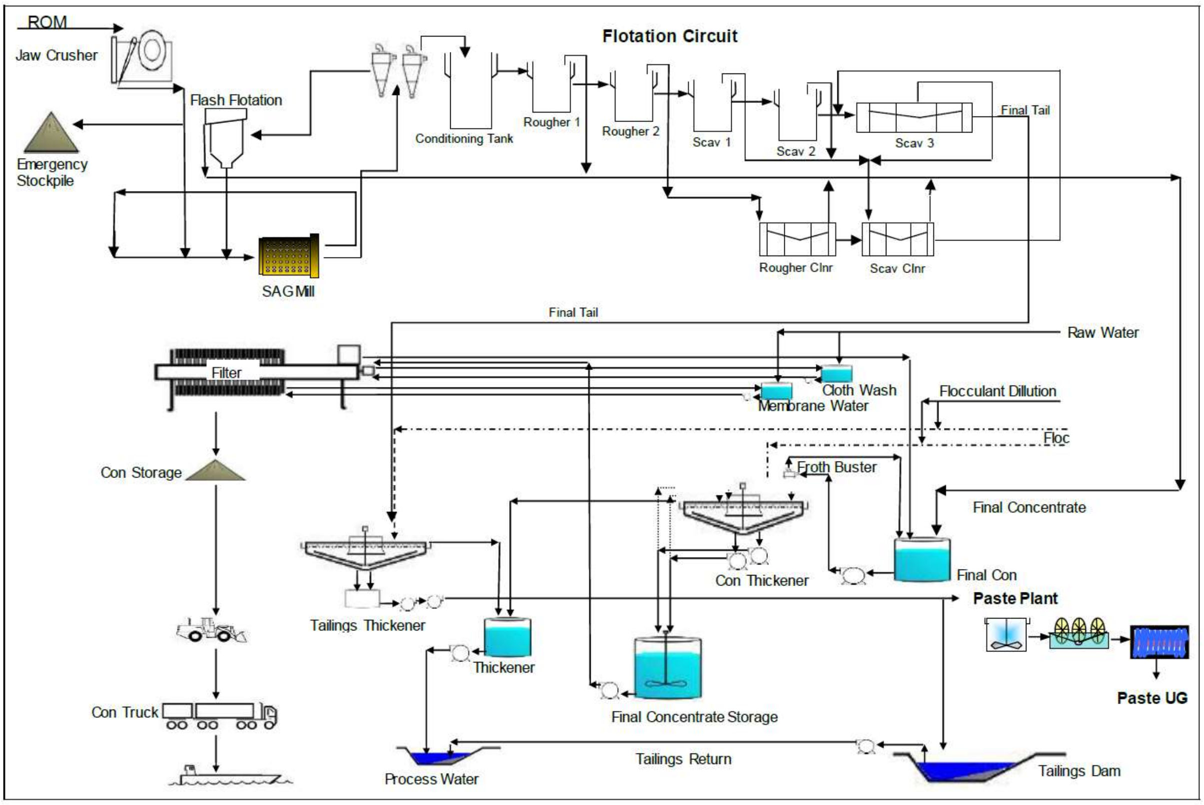

All other aspects of the Ore Reserve mine plan are unchanged from the inventory case as detailed previously in this report.

## 14.2 PROCESSING

### 14.2.1 PROCESSING PLANT

The Savannah processing plant consists of conventional crushing, grinding, flotation, and concentrate handling, producing a bulk nickel-copper-cobalt concentrate for sale to third-party. The nominal throughput capacity of the Savannah plant is approximately 1.0Mtpa. The plant processing flowsheet is shown below in Figure 50.

Figure 50: Processing Flowsheet




The Savannah plant operated continuously from August 2004 to May 2016, with continuous improvements in recoveries and throughput achieved from changes in operating practices and minor circuit modifications.

Prior to restarting in in December 2018, the processing plant was refurbished at a cost of $12M, with work encompassing refurbishment of the ROM bin, apron feeders, conveyors; a SAG mill reline; all pumps; flotation cells including replacement of cleaner cells; refurbishment of thickeners and the concentrate filter; enclosing the courier on stream analyser and replacing key components; installing fusion furnaces and installing an XRF in the laboratory. At the paste plant the paste disc filters were refurbished and paste mixer was replaced. All PLC's were upgraded and instrumentation and wiring was replaced. A 3 m lift was also completed on the tailings storage facility which will provide 3 years storage.

Subsequent to the restart further works were completed including the replacement of the Jaw crusher and SAG mill motor. A full set of filters plates is onsite ready for installation. The Wyndham concentrate storage shed roof was also replaced.

Ore processed; concentrated and paste produced during the restart (Dec 2018 to April 2020) in shown in Table 41.

**Table 41: Processed Physicals during Restart**

| Parameter | Tonnes (kt) | m3 (000's) | Ni (%) | Cu (%) | Co (%) |
|---|---|---|---|---|---|
| Feed | 665 | | 1.08% | 0.59% | 0.05% |
| Tailings | 585 | | 0.23% | 0.06% | 0.01% |
| Recovery | | | 80.7% | 91.3% | 84.9% |
| Concentrate | 80 | | 7.24% | 4.17% | 0.37% |
| Paste | 226 | 149 | | | |

The plant was again put on care and maintenance in April 2020 and remains in good condition ready for a restart of processing.

### 14.2.2 METALLURGY AND RECOVERY

Processing recoveries at the target concentrate grade will vary with each ore type. Over the mine life, recoveries average 83% Ni, 98% Cu and 92% Co, based on historical plant performance for Savannah ore and the 2017 metallurgical testwork results on Savannah Nth samples.

The Savannah Nth concentrate is low in impurities and has attractive Fe:MgO and Ni:Fe ratios, making it an ideal blending feed for nickel concentrate smelters. Typical concentrate specifications, based on analysis of concentrates from the 2017 metallurgical testwork program, are shown in Table 42

**Table 42: Savannah North typical concentrate specifications**

| Element | Typical |
|---|---|
| Nickel (Ni) | 8% |
| Copper (Cu) | 4.5% |
| Cobalt (Co) | 0.6% |
| Magnesium Oxide (MgO) | <1% |
| Iron (Fe) | 46% |
| Sulphur (S) | 35% |
| Arsenic (As) | <5ppm |
| Lead (Pb) | <100ppm |
| Selenium (Se) | <100ppm |
| Fluorine (F) | <100ppm |
| Chlorine (Cl) | <50ppm |

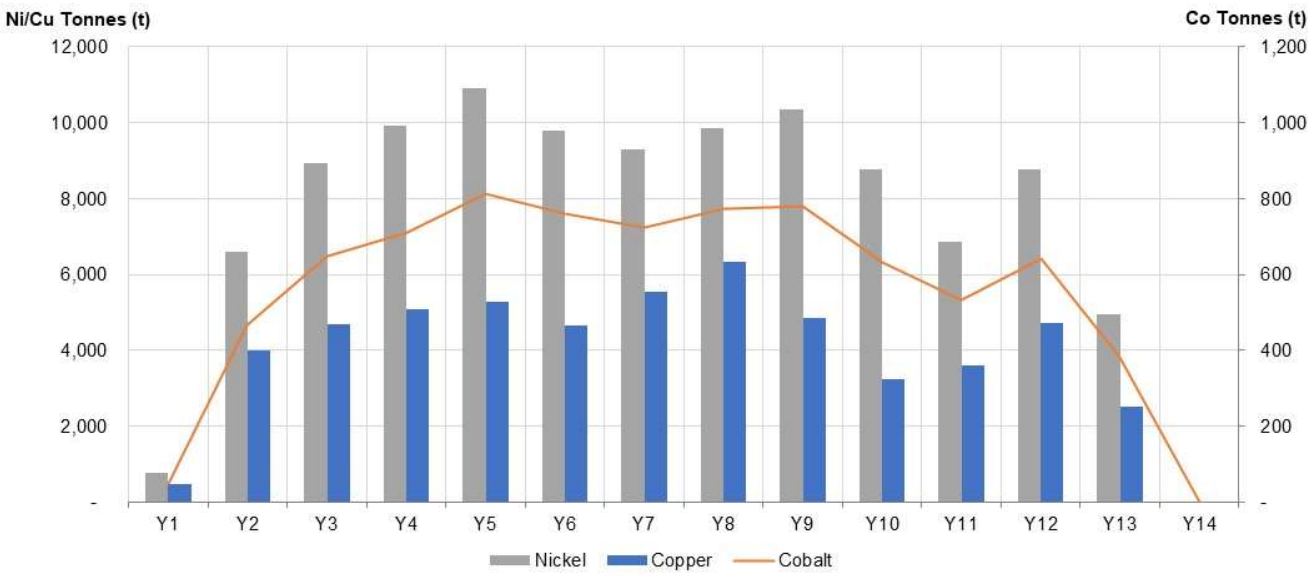
Savannah North ore, whilst mineralogically similar to Savannah ore, has a higher pyrrhotite:pentlandite ratio than Savannah. Nickel in solid solution with pyrrhotite in the Savannah North Upper Zone (SNUZ) and Savannah North Lower Zone (SNLZ) composites accounts for 16-17% of the overall nickel content, compared to 12% in the Savannah ore.

Based upon extensive flotation test work Savannah North and targeting a concentrate grade of 8% Ni recoveries are expected to be:

- Savannah North Upper Zone : A nickel recovery of 81.7%, copper recovery of 98.8% and cobalt recovery of 92.0%.
- Savannah North Lower Zone : A nickel recovery of 83.7%, copper recovery of 99.3% and cobalt recovery of 95.2%.

Yearly breakdown of the metal produced is shown in Figure 51.

**Figure 51 : Processed recovered metal (Financial Year)**



### 14.2.3 PROCESSING COSTS

Processing operational costs were determined based on the 2020 budget as detailed in Table 43. These costs are uninflated.

**Table 43: Processing Costs**

| Cost | Unit | Commodity |
|---|---|---|
| Processing - Common Services | $/t ore processed | $9.55 |
| Processing - Primary Crushing | $/t ore processed | $1.54 |
| Processing - Grinding | $/t ore processed | $8.03 |
| Processing - Flotation | $/t ore processed | $5.15 |
| Processing - Concentrate Handling | $/t ore processed | $0.65 |
| Processing - Tailings Disposal | $/t ore processed | $0.56 |
| Processing - Raw Water | $/t ore processed | $0.25 |
| Processing - Mobile Equipment | $/t ore processed | $1.31 |
| Processing - Laboratory | $/t ore processed | $0.90 |
| Processing - Paste Plant | $/t ore processed | $1.39 |
| Admin - Village & Flights | $/t ore processed | $2.51 |
| **Total Operating Cost** | **$/t ore processed** | **$31.85** |

## 14.3 ECONOMIC ANALYSIS

### 14.3.1 COMMODITY PRICE & EXCHANGE RATE

Commodity prices and exchange rates assumed for the Ore Reserve estimate were advised by PAN in collaboration with Entech and based on comparisons with PAN's peers. The Competent Person considers that these assumptions are reasonable given recent price history and consensus forecasts.

These commodity price and exchange rate assumptions used to determine the Ore Reserve plan economic viability are summarised in Table 44. These assumptions are used as base case scenario.

**Table 44: Base Case Commodity Price and Exchange Rate Assumptions**

| Item | AU$/t | US$/t | AUD:USD |
|---|---|---|---|
| Nickel | 22,500 | 15,750 | 0.7 |
| Copper | 9,000 | 6,300 | 0.7 |
| Cobalt | 55,000 | 38,500 | 0.7 |

A further scenario was modelled based on a consensus market forecast[1] with the commodity price and exchange rates used shown in Table 45 below.

**Table 45: Consensus Forecast Commodity Price and Exchange Rate Assumptions**

| Item | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026+ |
|---|---|---|---|---|---|---|---|
| Nickel (US$/t) | 12,606 | 13,903 | 14,741 | 15,012 | 15,628 | 16,077 | 17,595 |
| Copper (US$/t) | 5,335 | 5,787 | 6,154 | 6,258 | 6,469 | 6,765 | 7,351 |
| Cobalt (US$/t) | 36,206 | 38,512 | 42,668 | 43,539 | 46,794 | 48,950 | 53,457 |
| AUD:USD | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |

### 14.3.2 ROYALTIES

Royalties were advised by PAN as summarised in Table 46.

**Table 46: Royalty Assumptions**

| Concentrate | WA Govt.[2] | Traditional Owner[3] |
|---|---|---|
| Nickel | 2.5% | 1.25% |
| Copper | 2.5% | 1.25% |
| Cobalt | 2.5% | 1.25% |

The State Government royalty is based on the realised value of the sold product, i.e. on the theoretical revenue that would be generated by the sold metal prior to payability being applied. The Traditional Owner royalty is based on the net smelter return.

### 14.3.3 PAYABILITY

The Savannah mine has a long history of concentrate production, sales, recovery, and treatment costs. The assumptions used for the Ore Reserves are based on the recent actuals for these items.

Table 47 below outlines these assumptions, payabilities based on the recent offtake agreement was also used:

---

[1] *Consensus Economics, June 2020.*

[2] *Calculated on metal value in concentrate.*

[3] *Calculated on metal value in concentrate minus transportation and State Govt Royalty Costs*

**Table 47: Payability Assumptions**

| Item | Unit | Value |
|---|---|---|
| Concentrate Moisture Content | % | 7.5 |
| Concentrate Grade Ni | % | 7.5 |
| Concentrate Grade Cu | % | 4.0 |
| Concentrate Grade Co | % | 0.4 |
| Concentrate Transport Cost[1] | A$ / $t_{wet}$ | $82.82 |

Based on the above assumptions and commodity price forecast, the Net Smelter Return (NSR) unit values are as shown in Table 48.

**Table 48: NSR Unit Values**

| Item | Unit | Value |
|---|---|---|
| Nickel | A$ / % grade | 157.19 |
| Copper | A$ / % grade | 44.62 |
| Cobalt | A$ / % grade | 198.32 |

The NSR value algorithm utilised to assign value to both the Savannah and Savannah North resource block is:

$$NSR = t \times \frac{Ni\% \times 157.19 \times Ni_{rec}\%}{100} \times \frac{Cu\% \times 44.62 \times Cu_{rec}\%}{100} \times \frac{Co\% \times 198.32 \times Co_{rec}\%}{100}$$

The recovery algorithms have been developed from metallurgical testwork are detailed in Table 49.

**Table 49: Recovery rates**

| Item | Savannah Blocks | Sav Nth Blocks A,B and D | Sav Nth Blocks Block C |
|---|---|---|---|
| $Ni_{rec}$ | 84.6% | 81.7% | 83.7% |
| $Cu_{rec}$ | 94.8% | 98.8% | 99.3% |
| $Co_{rec}$ | 88.1% | 92.0% | 95.2% |

[1] *Includes Road Haulage to Wyndham, ocean freight and associated costs to China*

### 14.3.4 SECONDARY CREDITS

No secondary credits have been modelled in the Ore Reserve mine plan and LOMP aside from the copper and cobalt included in the NSR calculation.

### 14.3.5 DELETERIOUS ELEMENTS & PENALTIES

The concentrate produced at the Savannah mine is a “clean concentrate” and does not have any deleterious elements that attract payment penalties.

### 14.3.6 DISCOUNT RATES AND INFLATION

A real discount rate of 8% has been applied to determine each net present value (NPV).

A one off 2% escalation has been attributed to the underground contractor’s charges. This has been modelled through the rise and fall mechanism which forms part of the Barminco mining contract.

No other inflation has been applied in the Ore Reserve mine plan and LOMP financial evaluation with costs reflected in real terms.

### 14.3.7 UNIT COSTS

Unit costs for the Ore Reserve financial evaluation are summarised in Table 50.

**Table 50: Ore Reserve Financial Evaluation Unit Costs**

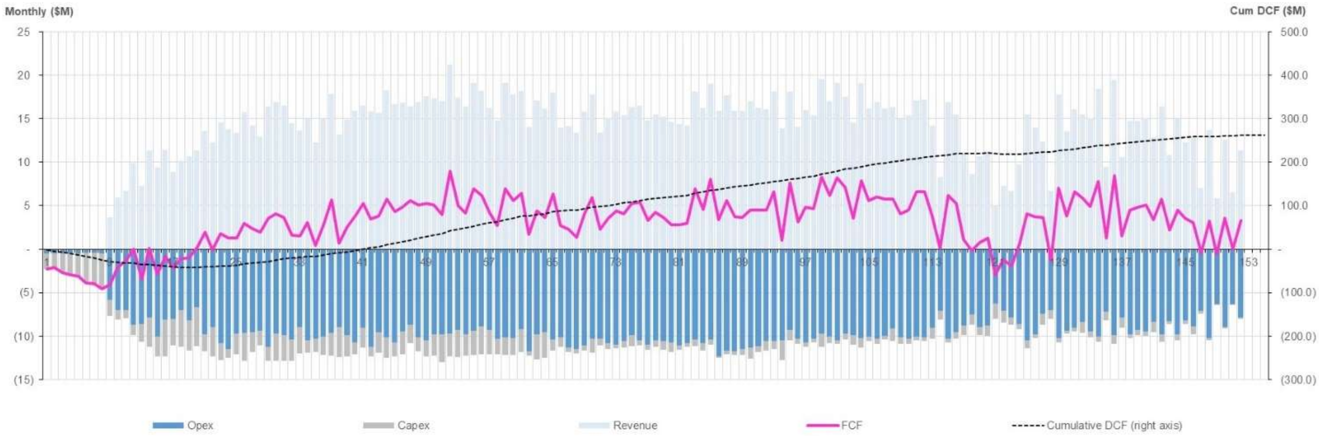
| Item | Unit | Cost |
|---|---|---|
| Mining | $/t ore | $92.64 |
| Processing | $/t ore | $31.85 |
| G&A | $/t ore | $12.83 |
| Freight | $/t ore | $13.34 |
| ***Cash Cost (C1)*** | **$/t ore** | **$150.65** |
| Capital | $/t ore | $27.47 |
| Royalties | $/t ore | $10.69 |
| **Total All In Costs** | **$/t ore** | **188.82** |

### 14.3.8 CASHFLOW

The LOMP generates $468M in surplus cash over the mine life for an $NPV_8$ of $262M (on an unfunded project basis). IRR of 67%, AIC of $7.54/lb of Nickel payable and a maximum negative cash balance of $45M [1].

The pre-tax cashflow for the Savannah Mine LOMP is presented graphically in Figure 52.

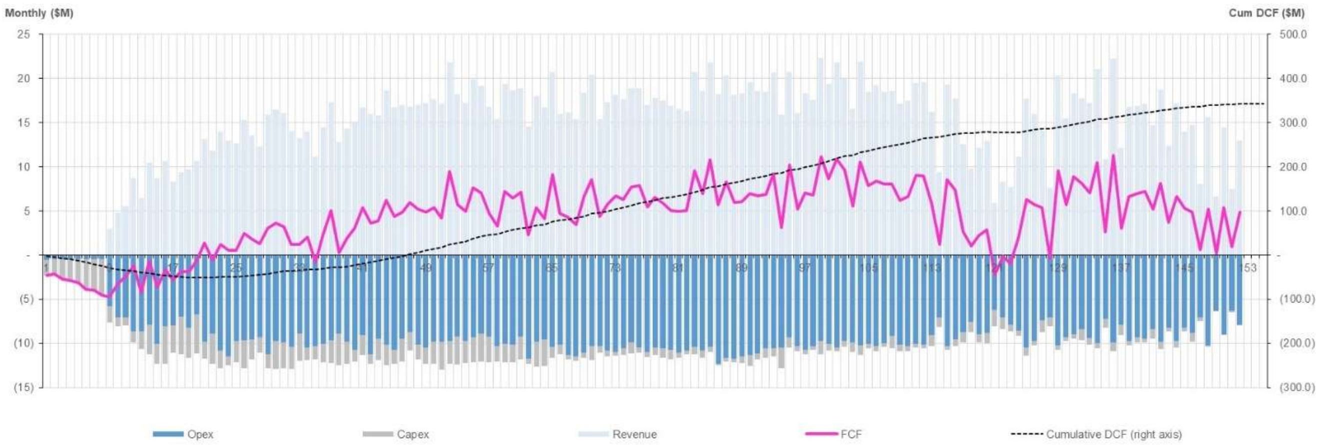
**Figure 52: Life of Mine Plan Cashflow**




A further LOMP scenario based on the consensus forecast economic assumptions outlined in Table 45 was also completed. This mine plan generates $636M of surplus cash over the mine life for an $NPV_8$ of $342m (on an unfunded project basis). IRR of 61%, AIC of $7.14/lb of Nickel payable and a maximum negative cash balance of $55M[1].

The pre-tax cashflow for the consensus forecast plan is presented graphically in Figure 53.

**Figure 53: Consensus Forecast LOMP Cashflow**

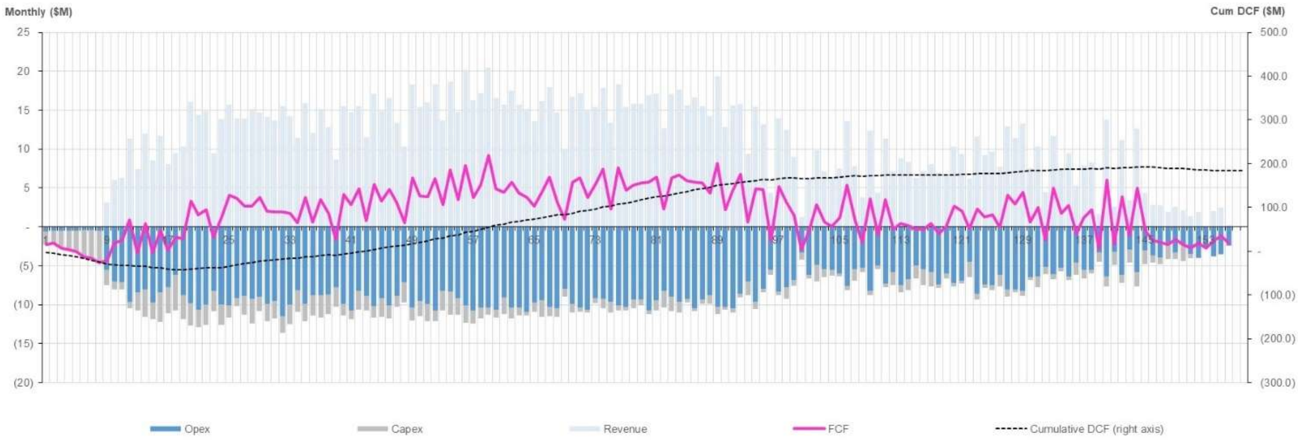



[1] *The maximum negative cash balance does not take into PAN's existing cash on hand and liquidity of approximately $37 million, of which a significant proportion is planned to be expended on Infrastructure and site establishment mining capital.*

The Ore Reserve mine plan generates $300M in surplus cash over the mine life for an NPV$_8$ of $184m (on an unfunded project basis). IRR of 64%, AIC of $8.01/lb of Nickel payable and a maximum negative cash balance of $45M[1].

The pre-tax cashflow for the Savannah Mine Ore Reserve Plan is presented graphically in Figure 54.

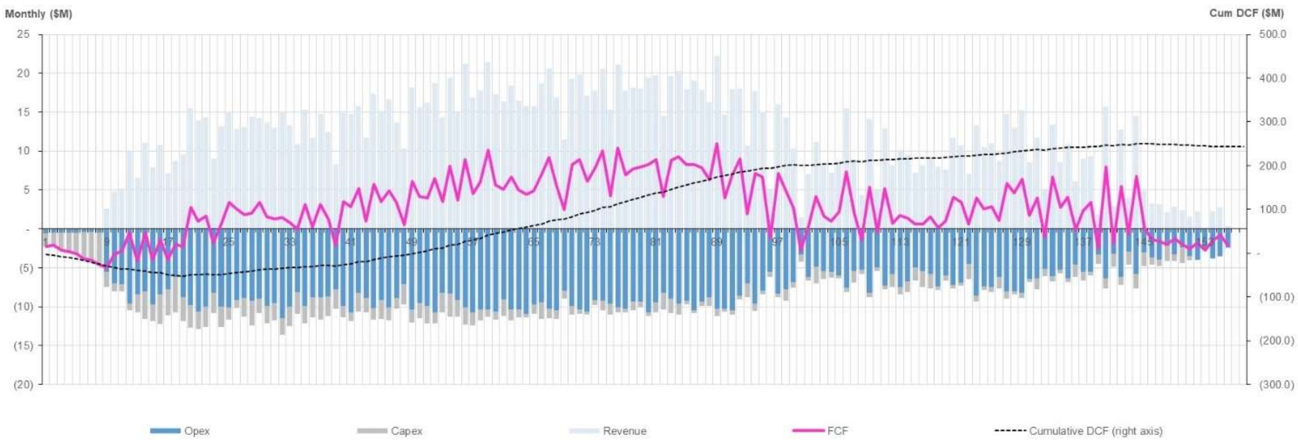
**Figure 54: Ore Reserve Plan Cashflow**




A further Ore Reserve scenario based on the consensus forecast outlined in Table 45 was also completed. This mine plan generates $421M in surplus cash over the mine life for an NPV$_8$ of $243m (on an unfunded project basis). IRR of 58%, AIC of $7.61/lb of Nickel payable and a maximum negative cash balance of $55M[1].

The pre-tax cashflow for the consensus forecast Ore Reserve Plan is presented graphically in Figure 55.

**Figure 55: Consensus Forecast Reserve Plan Cashflow**




[1] *The maximum negative cash balance does not take into PAN's existing cash on hand and liquidity of approximately $37 million, of which a significant proportion is planned to be expended on Infrastructure and site establishment mining capital.*

### 14.3.9 SENSITIVITY ANALYSIS

A sensitivity analysis was conducted on the following variables:

- NSR price;
- Mine Opex;
- Discount Rate;
- Mine Capex; and
- Diesel Price

This is graphically presented in Figure 56 and Figure 57.

Figure 56: LOMP NPV Sensitivity Tornado Graph

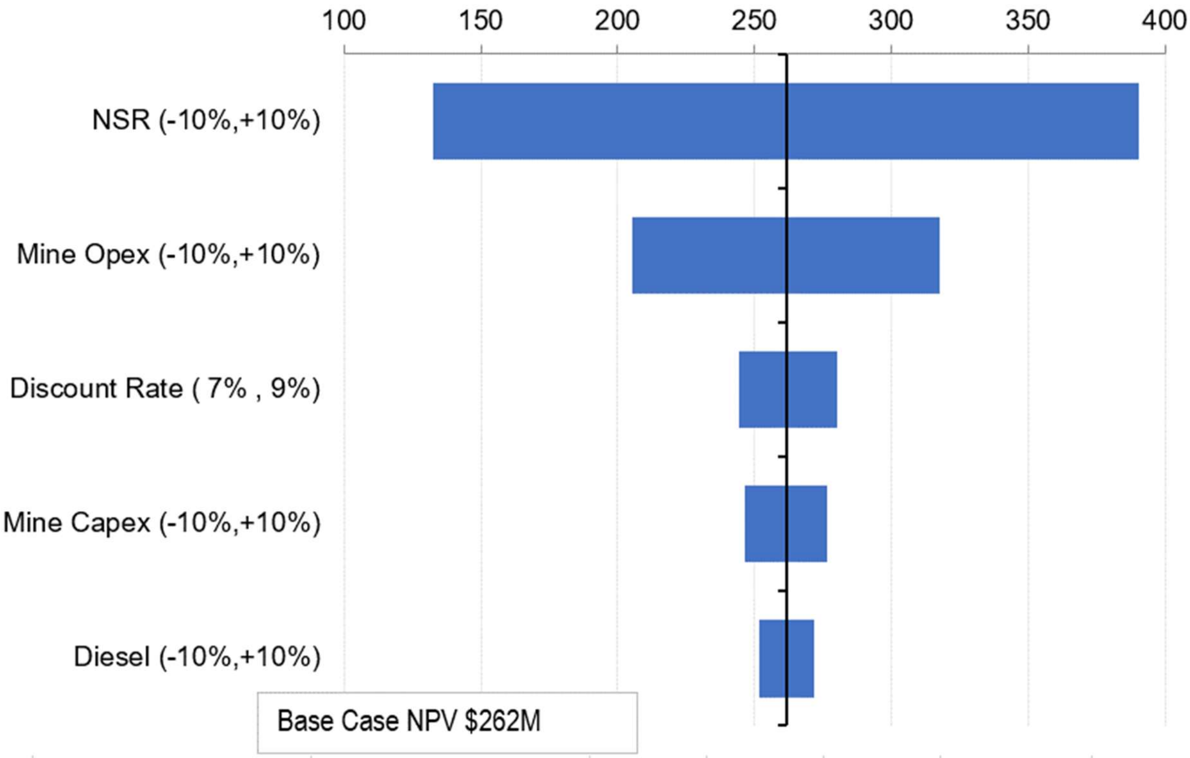
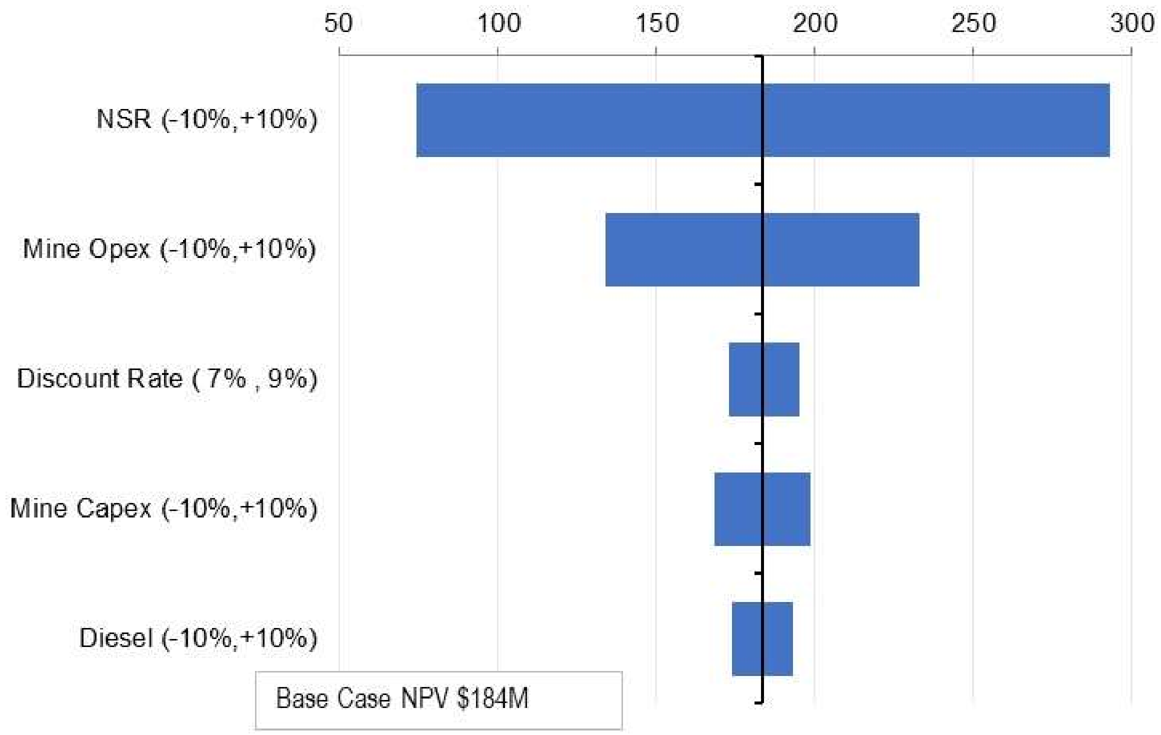


Figure 57: Reserve LOMP NPV Sensitivity Tornado Graph




## 14.4 MARKET ASSESSSMENT

This section has been sourced from the 2017 Savannah Updated Feasibility Study and the May 2020 Investor Update.

The current offtake agreement with Sino/Jinchuan expires in 2023. The current agreement is in respect to both Savannah and Savannah North ore.

Demand and a strong price outlook are expected to be driven by electric vehicles (EV). The move to electric vehicles is continuing to gain momentum with vehicle manufacturers globally announcing significant new production forecasts, driven largely by consumer demand and government legislation surrounding emissions and the reduction of internal combustion engines. Figure 58 and Figure 59 illustrate the relationship between predicted demand in the EV market and nickel.

**Figure 58: Anticipated Growth in Electronic Vehicles[1]**

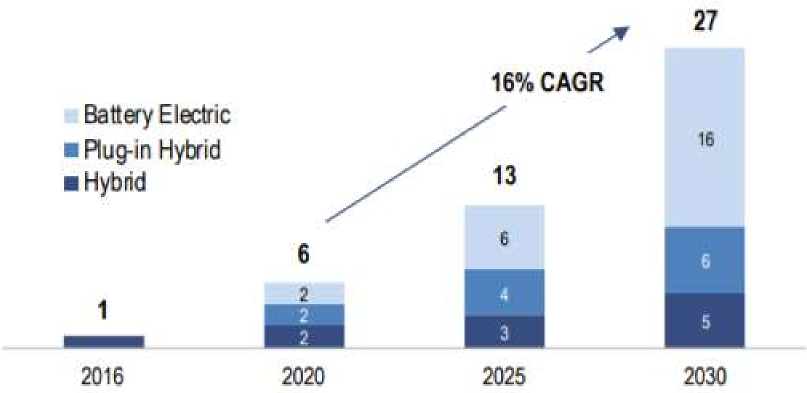



**Figure 59: Demand for Class 1 Nickel (ktpa[2])**

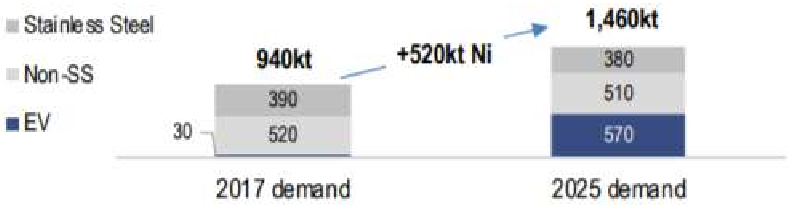
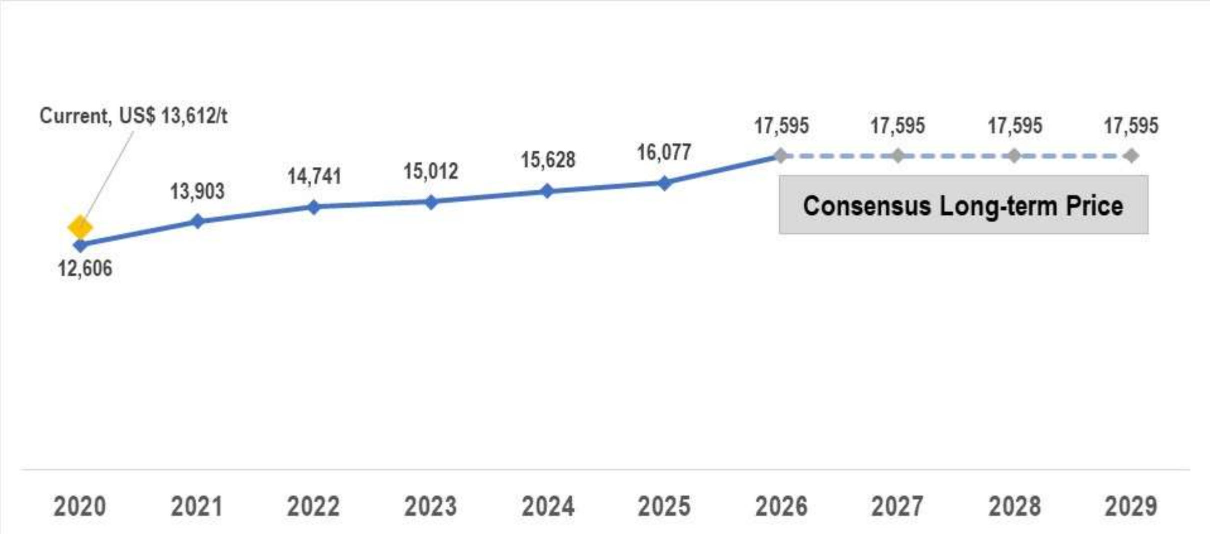



Figure 60 shows the commodity price forecast. Following Corona -virus concerns, the nickel price has retreated to around US$13,612/t in late July 2020, which remains below the longer term consensus nickel price forecasts and the nickel price assumption in the study (US$15,750/t Ni). However, the Competent Person considers that the assumed commodity price is reasonable for use in estimation of the 2020 Ore Reserve.

[1] *Lithium and Cobalt – a Tale of Two Commodities (McKinsey & Company, 2018). Note base case is shown, aggressive case anticipates even greater growth rates.*

[2] *The future of nickel: a class act (McKinsey & Company, 2017). Class 1 Nickel defined as a product with 99.8% Ni content or above.*

Figure 60: Consensus Forecast (US$/t)



## 14.5 ENVIRONMENTAL, SOCIAL AND APPROVALS

The Savannah minesite is fully permitted and will not require any additional approvals for the mine restart other than the standard notifications required under the Mines Safety and Inspection Act 1994 (WA).

The site groundwater licence issued by the Department of Water and the Licence to Operate issued by the Department of Environment Regulation remain current. The site has maintained its understanding of the water balance which has been supported by 15 years of operational history.

A 3m lift was completed on the tailings storage facility in December 2018 which provides 3 years of capacity to RL 378m. A mining proposal has been approved for a further 4m lift which will provide LOM capacity. A Works approval will need to be submitted and approved prior to any construction activity.

The Project is located within the Native Title claim areas of the Purnululu and Malarngowem People. The common law of Australia recognises a form of Native Title which reflects the entitlement of indigenous people, in accordance with their laws or customs, to enjoy their traditional lands.

Panoramic values the relationship which has been established with the Traditional Owners of the Land on which the Project is located.

The Project has previously operated, and plans to continue to operate under the existing The Kimberley Nickel Co-Existence Agreement to manage the relationship between the Project, Panoramic Resources and the registered Native Title parties. The Kimberley Nickel Co-Existence Agreement outlines the processes for acknowledgement and engagement with traditional owners and has given rise to employment and business opportunities, heritage and cultural awareness training and other support and services in health, education, sports and arts for local communities. This agreement remains in place and applies to the recommencement of operations and life of mine production.

The Project and the Kimberly Land Council Aboriginal Corporation also have a Work Program Clearance Agreement which outlines the process for Aboriginal Heritage assessments prior to exploration or mining activities. There are two areas in the Project area which require assessing and the Company plans to undertake this assessment in accordance with the existing agreement. Based on previous assessments in the areas, it is considered that these approvals will be sought and available as required.

The Project has also maintained strong social and heritage relationships with the various pastoralists and other local business and community groups over the last twelve years.

## 14.6 STATEMENT OF ORE RESERVE

**The Ore Reserve for the Savannah Underground Nickel Mine at 28 July 2020 is 8,274 kt of ore grading at 1.2% Ni for 102kt of Ni metal.**

This Ore Reserve is summarised in Table 51.

**Table 51: Savannah Ore Reserve July 2020**

| Ore Reserve | Metal | Proved | | Probable | | Total | | Metal Tonnes |
|---|---|---|---|---|---|---|---|---|
| | | Tonnes | (%) | Tonnes | (%) | Tonnes | (%) | |
| Savannah | Nickel | 1,233,000 | 0.95 | | | 1,233,000 | 0.95 | 11,700 |
| | Copper | | 0.66 | | | | 0.66 | 8,100 |
| | Cobalt | | 0.05 | | | | 0.05 | 600 |
| Savannah North | Nickel | 1,795,000 | 1.21 | 5,246,000 | 1.30 | 7,041,000 | 1.28 | 90,100 |
| | Copper | | 0.54 | | 0.58 | | 0.57 | 40,400 |
| | Cobalt | | 0.09 | | 0.09 | | 0.09 | 6,400 |
| Total | Nickel | 3,028,000 | 1.10 | 5,246,000 | 1.30 | 8,274,000 | 1.23 | 101,800 |
| | Copper | | 0.59 | | 0.58 | | 0.59 | 48,500 |
| | Cobalt | | 0.07 | | 0.09 | | 0.08 | 7,000 |

** Calculations have been rounded to the nearest 1,000 t of ore, 2 decimal places for grade and 100t for metal calculations.*

The Mineral Resource used as the basis for the Ore Reserve estimate was announced to market in May 2020. Indicated Resources have been converted to Probable Ore Reserves based on mine design physicals and an economic evaluation. No Measured material was contained in the Resource. Any Inferred material contained within the (reserve) mine plan has been treated as host rock waste. The Ore Reserves have been defined at delivery to the ROM pad at the Savannah processing facility.

The Ore Reserve estimate is based on financials and modifying factors determined as part of a LOM plan. This statement relates to a global estimate.

Material uncertainties relating to this Ore Reserve estimate are discussed below:

- There is a degree of uncertainty associated with geological estimates. The Reserve classifications reflect the levels of geological confidence in the estimates;
- Commodity price (including the Nickel price) and exchange rate assumptions are subject to market forces and present an area of uncertainty; and
- There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the DFS level of detail of the study.

Factors in favour of confidence in the Ore Reserve estimate include:

- The mine plan assumes a low complexity mechanised mining method that has been successfully previously implemented by PAN at Savannah;
- Costs are based on detailed tendered rates and historical site performance;

- Metallurgical testing indicates that the ore will be able to be successfully processed;
- The project is fully permitted and only requires DMR notification for recommencement.

The required documentation for public reporting of the Ore Reserve is attached as Appendix A.

# 15 REFERENCES


1. Parkinson, 2017. *Savannah Updated Feasibility Study*. Panoramic Resources; Perth, WA.

2. Duplancic, 2016. *Analysis of Mine Scale Stability and Deformation Savannah North Nickel Mine*. Beck Engineering, Chatswood West, NSW.

3. Zammit, 2020. *Mineral Resource Estimate, Savannah North, Savannah Nickel Project*. Cube Consulting, West Perth, WA

# 16 DIGITAL FILES SUMMARY

The key digital files relating to the LOM plan outlined in this document are summarised in Table 15-1.

Table 52: Digital Files Summary

| File | Description | Source |
|---|---|---|
| **Mine Design** | | |
| LOMP Design & Schedule - MI&I | LOMP Design | Entech |
| Reserve Design & Schedule - MI | Reserve Design | Entech |
| | | |
| **Scheduling** | | |
| LOMP Design & Schedule - MI&I | LOMP Schedule | Entech |
| Reserve Design & Schedule - MI | Reserve Schedule | Entech |
| | | |
| **Cost Modelling** | | |
| PAN_Cost_model_200710 Reserve Schedule_200725_Final | Reserve Cost Model | Entech |
| PAN_Cost_model_200710 Reserve Schedule_200725_Analyst_Consensus_Final | Consensus Forecast Reserve Cost Model | Entech |
| PAN_Cost_model_200710_Pillar_Schedule_LOMP_200728_Analyst_Consensus_Final | Consensus Forecast LOMP Cost Model | Entech |
| PAN_Cost_model_200710_Pillar_Schedule_LOMP_200725_Final | LOMP Cost Model | Entech |
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# Appendix A JORC Sign-off and Table 1 Section 4

# Savannah Project Ore Reserve Estimate –July 28, 2020

The updated Ore Reserve estimate for the Savannah Nickel mine as of July 28, 2020 is:

**8.27 Mt @ 1.23% Ni, 0.59% Cu and 0.08% Co for contained metal of 102 kt Ni, 48.5 kt Cu and 7.0 kt Co**

The final Ore Reserves summary is presented in Table .

**Table 1: July 2020 Savannah Ore Reserve Estimate**

| Ore Reserve | Metal | Proved | | Probable | | Total | | Metal Tonnes |
|---|---|---|---|---|---|---|---|---|
| | | Tonnes | (%) | Tonnes | (%) | Tonnes | (%) | |
| Savannah | Nickel | 1,233,000 | 0.95 | | | 1,233,000 | 0.95 | 11,700 |
| | Copper | | 0.66 | | | | 0.66 | 8,100 |
| | Cobalt | | 0.05 | | | | 0.05 | 600 |
| Savannah North | Nickel | 1,795,000 | 1.21 | 5,246,000 | 1.30 | 7,041,000 | 1.28 | 90,100 |
| | Copper | | 0.54 | | 0.58 | | 0.57 | 40,400 |
| | Cobalt | | 0.09 | | 0.09 | | 0.09 | 6,400 |
| Total | Nickel | 3,028,000 | 1.10 | 5,246,000 | 1.30 | 8,274,000 | 1.23 | 101,800 |
| | Copper | | 0.59 | | 0.58 | | 0.59 | 48,500 |
| | Cobalt | | 0.07 | | 0.09 | | 0.08 | 7,000 |

**Calculations have been rounded to the nearest 1,000t of ore, 0.01% Metal grade and 100 t of metal*

The Ore Reserve represents an update to the previous Ore Reserve "Savannah Project Ore Reserve Estimate, June 30, 2019" announced to market on September 30, 2019. A comparison of this Ore Reserve estimate to the 2019 estimate is presented in Table 1. Detailed in Table 2 is the mining depletion since the previous Ore Reserve statement.

**Table 2: Mining Depletion since the 2019 Ore Reserve**

| Ore Reserve | Metal | Mined | | Metal Tonnes |
|---|---|---|---|---|
| | | Tonnes | (%) | |
| Savannah | Nickel | 339,000 | 1.08 | 3,700 |
| | Copper | | 0.63 | 2,100 |
| | Cobalt | | 0.05 | 200 |
| Savannah North | Nickel | 34,000 | 0.82 | 300 |
| | Copper | | 0.38 | 100 |
| | Cobalt | | 0.05 | 0 |
| Total | Nickel | 373,000 | 1.06 | 4,000 |
| | Copper | | 0.61 | 2,200 |
| | Cobalt | | 0.05 | 200 |

**Calculations have been rounded to the nearest 1,000t of ore, 0.01% Metal grade and 100 t of metal*

## Table 1: Comparison with Previous Ore Reserve

| Ore Reserve | Metal | Proved | | Probable | | Total | | Metal Tonnes |
|---|---|---|---|---|---|---|---|---|
| | | Tonnes | (%) | Tonnes | (%) | Tonnes | (%) | |
| **July 2020 Ore Reserve Estimate** | | | | | | | | |
| Savannah | Nickel | 1,233,000 | 0.95 | | | 1,233,000 | 0.95 | 11,700 |
| | Copper | | 0.66 | | | | 0.66 | 8,100 |
| | Cobalt | | 0.05 | | | | 0.05 | 600 |
| Savannah North | Nickel | 1,795,000 | 1.21 | 5,246,000 | 1.30 | 7,041,000 | 1.28 | 90,100 |
| | Copper | | 0.54 | | 0.58 | | 0.57 | 40,400 |
| | Cobalt | | 0.09 | | 0.09 | | 0.09 | 6,400 |
| Total | Nickel | 3,028,000 | 1.10 | 5,246,000 | 1.30 | 8,274,000 | 1.23 | 101,800 |
| | Copper | | 0.59 | | 0.58 | | 0.59 | 48,500 |
| | Cobalt | | 0.07 | | 0.09 | | 0.08 | 7,000 |
| **July 28, 2019 Ore Reserve Estimate** | | | | | | | | |
| Savannah | Nickel | 1,371,000 | 1.16 | | - | 1,371,000 | 1.16 | 15,900 |
| | Copper | | 0.75 | | - | | 0.75 | 10,300 |
| | Cobalt | | 0.06 | | - | | 0.06 | 800 |
| Savannah North | Nickel | | - | 6,650,000 | 1.42 | 6,650,000 | 1.42 | 94,500 |
| | Copper | | - | | 0.61 | | 0.61 | 40,900 |
| | Cobalt | | - | | 0.10 | | 0.10 | 6,700 |
| Total | Nickel | | | | | 8,021,000 | 1.38 | 110,400 |
| | Copper | | | | | | 0.64 | 51,200 |
| | Cobalt | | | | | | 0.09 | 7,500 |
| **Variance** | | | | | | | | |
| Savannah | Nickel | -138,000 | - | | | -138,000 | - | -4,200 |
| | Copper | | - | | | | - | -2,200 |
| | Cobalt | | - | | | | - | -200 |
| Savannah North | Nickel | 1,795,000 | - | -1,404,000 | - | 391,000 | - | -4,400 |
| | Copper | | - | | - | | - | -500 |
| | Cobalt | | - | | - | | - | -300 |
| Total | Nickel | 1,657,000 | | -1,404,000 | | 253,000 | - | -8,600 |
| | Copper | | | | | | - | -2,700 |
| | Cobalt | | | | | | - | -500 |

**Calculations have been rounded to the nearest 1,000t of ore, 0.01% Ni grade and 100 t of metal*

The Mineral Resource used as the basis for the Ore Reserve estimate was announced to market on 11th May 2020. Measured and Indicated Mineral Resources have been converted to Proved and Probable Ore Reserves respectively, subject to mine design physicals and an economic evaluation. Any Inferred Mineral Resource material contained within the mine plan has been treated as waste.

The Ore Reserve estimate is based on financials and modifying factors determined as part of a Life on Mine study undertaken on the project. This statement relates to a global estimate.

**COMPETENT PERSON'S CONSENT FORM**

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and clause 9 of the 2012 JORC Code (Written Consent Statement)

**Report Description**

Savannah Nickel Mine, Ore Reserve Estimate, July 2020

Panoramic Resources Limited

Savannah Nickel Mine

28 July 2020

**Statement**

I, Shane McLeay confirm that:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 JORC Edition)
- I am a Competent Person as defined by the JORC Code 2012 Edition, having five years' experience which is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Overseas Professional Organisation' ("ROPO" included in a list promulgated by ASX from time to time).
- I have reviewed the Report to which this consent statement applies.
- I am an employee working for Entech Pty Ltd and have been engaged by Panoramic Resources Limited to prepare the documentation for the Savannah Nickel Mine on which the Report is based, for the period 28 July 2020.

I have disclosed to the company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Ore Reserves.

**CONSENT**

I consent to the release of the Report and this consent statement by the directors of:

Entech Pty Ltd

| Signature of Competent Person | Date: 28 July 2020 |
|---|---|
| Professional Membership: | FAusIMM |
| Membership Number: | 222752 |

| Signature of Witness | Print Witness Name and Residence (eg Town) |
|---|---|
| | Daniel Donald |
| | Perth, Australia |

Additional Deposits covered by the Report for which the Competent Person signing this form is accepting responsibility:

NA..........................................................................................................................................................................
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Additional Reports related to the deposit for which the Competent Person signing this form is accepting responsibility:

NA..........................................................................................................................................................................
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Signature of Competent Person

Date

Professional Membership:

Membership Number:

Signature of Witness

Print Witness Name and Residence (eg Town)

**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 | JORC Code explanation | Commentary |
|---|---|---|
| *Mineral Resource estimate for conversion to Ore Reserves* | • *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.*<br>• *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.* | • The Mineral Resource used as the basis for this Ore Reserve was estimated by independent geology consultants Cube Consulting and announced to market by Panoramic Resources on 7 May 2020.<br>• These models were updated due to mining depletion, sterilization, and geological interpretations based on results from ore development, face sampling, drive mapping and pre-production drilling.<br>• Mineral Resources are reported inclusive of Ore Reserves |
| | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | • The Competent Person has visited the site on several occasions in 2019 and is familiar with the area and access routes. The Competent Person is comfortable from these site visits and reports from other experts and colleagues, and survey data for the estimation of the Ore Reserve. |
| *Study status* | • *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.*<br>• *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.* | • The current mine design, mining method, operating parameters, modifying factors, actual costs and knowledge gained from over 10 years of production are used in the Ore Reserve estimate.<br>• The work completed for this estimate utilized the assumptions from the 2017 Feasibility Study (FS) and recent updates including the change to contract mining from owner operator. All these assumptions were reviewed and updated at a Pre-Feasibility Study level or better.<br>• The update indicates that that the Ore Reserve mine plan is technically achievable and economically viable. |
| *Cut-off parameters* | • *The basis of the cut-off grade(s) or quality parameters applied.* | • The mine Mineral Resource block model was updated with a block value field (Net Smelter Return (NSR) $/t) after consideration of the contained metal, smelter/refining payability, concentrate transport cost, and WA state government and traditional owner royalties.<br>• Cut-off grades were calculated as a dollar per ore tonne, based on the forecast operating costs in the current financial model.<br>• Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve estimate.<br>• Cut-off NSR values were calculated to be<br>  o Fully costed stoping – $135/t ore;<br>  o Incremental stoping – $102/t ore; and<br>  o Ore development – $45/t ore. |

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Mining factors or assumptions</td><td><ul>
<li>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</li>
<li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li>
<li>The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.</li>
<li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li>
<li>The mining dilution factors used.</li>
<li>The mining recovery factors used.</li>
<li>Any minimum mining widths used</li>
<li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li>
<li>The infrastructure requirements of the selected mining methods.</li>
</ul></td><td><ul>
<li>Mining at Savannah North will utilise long-hole open stoping with paste fill. This mining method has been utilized successfully at the Savannah operation.</li>
<li>Stopes were designed on 5 m sections utilizing Datamine's Mine Stope Optimizer (MSO) software. The stopes were optimized on the fully costed cut-off grade.</li>
<li>As a part of the FS, Beck Engineering Pty Ltd was engaged to undertake a geotechnical study to forecast mine-scale stability and deformation. The method of analysis was Discontinuum Finite Modelling using geological structures on a mine scale. This method has previously been used by Beck Engineering (August 2015) to accurately model rock damage and seismic activity at Savannah. This analysis coupled with historical performance formed the basis of the geotechnical assumptions for the mine design.</li>
<li>The primary mine design inputs are noted below. Blocks A, B and D are above the 1270 mRL (730 mbs) and Block D is below</li>
</ul>
<table>
<tr><th>Optimisation Parameter</th><th>Unit</th><th>Blocks A, B and D</th><th>Block C</th></tr>
<tr><td>Stope Cut-off Grade</td><td>$ NSR</td><td>135</td><td>135</td></tr>
<tr><td>Min. Mining Width (True Width)</td><td>m</td><td>3</td><td>3</td></tr>
<tr><td>Vertical Level Interval</td><td>m</td><td>20</td><td>20</td></tr>
<tr><td>Section Length</td><td>m</td><td>5</td><td>5</td></tr>
<tr><td>HW Dilution (True Width)</td><td>m</td><td>1.0</td><td>2.0</td></tr>
<tr><td>FW Dilution (true Width)</td><td>m</td><td>0.5</td><td>0.5</td></tr>
<tr><td>Min. Parallel Waste Pillar Width</td><td>m</td><td>10</td><td>10</td></tr>
<tr><td>Min. FW Dip Angle</td><td>deg</td><td>50</td><td>50</td></tr>
</table>
<ul>
<li>Infrastructure requirements (other than future capital development) for the selected mining method are established or currently being installed.</li>
</ul></td></tr>
<tr><td>Metallurgical factors or assumptions</td><td><ul>
<li>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li>
<li></li>
<li>Whether the metallurgical process is well-tested technology or novel in nature.</li>
<li>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li>
</ul></td><td><ul>
<li>The metallurgical process is a conventional sulphide flotation technique involving crushing, grinding and flotation to produce a bulk nickel, copper, and cobalt concentrate.</li>
<li>Savannah ore has been successfully treated through the 1Mtpa SAG mill and flotation circuit first commissioned in 2004.</li>
<li>The metallurgical nature of the Savannah North deposit is characterized by an upper zone and a lower zone, separated at 1270 mRL horizon, and which exhibit slight performance difference in average metallurgical recovery.</li>
</ul></td></tr>
</table>

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | • *Any assumptions or allowances made for deleterious elements.*<br>• *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*<br>• *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?* | Savannah North Upper Zone averages nickel recovery of 81.7%, copper recovery of 98.8% and cobalt recovery of 92.0% for a concentrate grade of 8% Ni.<br>• Savannah North Lower Zone averages nickel recovery of 83.7%, copper recovery of 99.3% and cobalt recovery of 95.2% for a concentrate grade of 8% Ni.<br>• Metallurgical recoveries for the Savannah deposit are calculated from plant feed grades in the LOM plan and are based on over 10 years of historical plant performance. Average recoveries exhibited are 85% for Nickel, 95% for Copper and 88% for Cobalt.<br>• Savannah produces a clean bulk nickel, copper, and cobalt concentrate and since commissioning in 2004 there have been no deleterious material penalties. As such no allowance has been made for deleterious material.<br>• The Ore Reserve estimate has been based on appropriate mineralogy and metallurgical factors to meet the existing concentrate off-take specifications. |
| *Environmental* | • *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.* | • Savannah operates under the conditions set out by an environmental license to operate.<br>• Waste is placed on approved waste dumps or used as backfill in mined voids.<br>• The existing tailings storage facility (TSF1) has an estimated three years of capacity to the final approved height at the modelled production rates.<br>• An additional tailing storage facility (TSF2) will be required from Year 3 of Savannah North production. Coffey Mining Pty Ltd undertook an options study, and a preferred option has been selected, designed and costed for a life-of-mine tailings facility.<br>• Discussions have been held with relevant regulatory bodies, and the Company expects no issues with the approvals process for TSF2. |
| *Infrastructure* | • *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.* | • The Savannah mine has substantial infrastructure in place including a paste fill plant, major electrical and pumping networks, a 1Mtpa processing plant, a fully equipped laboratory, extensive workshop, administration facilities, a 215 single person quarters village and tailings storage facility. |
| *Costs* | • *The derivation of, or assumptions made, regarding projected capital costs in the study.*<br>• *The methodology used to estimate operating costs.* | • Costs are based on a combination of actual costs occurred in processing, and transportation over the FY2019 and FY2020 financial years and mining costs based on contract rates established under a 3 year mining services agreement awarded in February 2020..<br>• Capital underground development costs are derived from the LOM plan and |

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>
<ul>
<li>Allowances made for the content of deleterious elements.</li>
<li>The source of exchange rates used in the study.</li>
<li>Derivation of transportation charges.</li>
<li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li>
<li>The allowances made for royalties payable, both Government and private.</li>
</ul>
</td><td>
actual costs as per above.
<ul>
<li>Other capital costs are related to equipment and infrastructure costs and are based on quotes or historical actual costs.</li>
<li>Closure costs have not been included.</li>
<li>Metal prices and exchange rate assumptions are based on the median of a range of external market analysts medium term forecasts.</li>
<li>Flat rate metal prices for nickel, copper, and cobalt as per the table below.</li>
</ul>
<table>
<tr><th>Item</th><th>Unit</th><th>Value</th></tr>
<tr><td>Nickel Price</td><td>A$/t</td><td>22,500</td></tr>
<tr><td>Copper Price</td><td>A$/t</td><td>9,000</td></tr>
<tr><td>Cobalt Price</td><td>A$/t</td><td>55,000</td></tr>
<tr><td>Exchange Rate</td><td>USD:AUD</td><td>0.70</td></tr>
</table>
<ul>
<li>Net Smelter Return (NSR) factors were sourced from the existing concentrate offtake contract.</li>
<li>WA government and Traditional Owner royalty costs are included in the NSR calculation.</li>
</ul>
</td></tr>
<tr><td>Revenue factors</td><td>
<ul>
<li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li>
<li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li>
</ul>
</td><td>
<ul>
<li>Revenue factors are based on metal production in concentrate from the LOM plan, flat metal prices for nickel, copper, and cobalt (above), flat rate A$:US$ exchange rate (above) and the NSR factors in the existing concentrate offtake contract.</li>
</ul>
</td></tr>
<tr><td>Market assessment</td><td>
<ul>
<li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li>
<li>A customer and competitor analysis along with the identification of likely market windows for the product.</li>
<li>Price and volume forecasts and the basis for these forecasts.</li>
<li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li>
</ul>
</td><td>
<ul>
<li>The concentrate is contracted for sale to Jinchuan Group of China until 31 March 2023. The Savannah concentrate is being trucked to Wyndham Port and then shipped to Jinchuan's smelter/refinery in the Gansu province, northwest China.</li>
</ul>
</td></tr>
<tr><td>Economic</td><td>
<ul>
<li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li>
<li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li>
</ul>
</td><td>
<ul>
<li>Internal cash flow estimates apply an 8% real discount rate for NPV analysis and only economically viable ores are considered for mining based on a stope only cut-off grade.</li>
<li>Sensitivity analysis of key financial and physical parameters is applied to the</li>
</ul>
</td></tr>
</table>

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | LOM plan. |
| *Social* | • *The status of agreements with key stakeholders and matters leading to social licence to operate.* | • The Savannah Mine is fully permitted and has a coexistence agreement in place with Traditional Owners. |
| *Other* | • *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*<br>• *Any identified material naturally occurring risks.*<br>• *The status of material legal agreements and marketing arrangements*<br>• *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.* | • No significant unresolved material matters relating to naturally occurring risks, third party agreements or governmental/statutory approvals currently exist. |
| *Classification* | • *The basis for the classification of the Ore Reserves into varying confidence categories.*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.*<br>• *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).* | • The classification adopted is based on the level of confidence as set out in the 2012 JORC guidelines<br>• Proved Ore Reserves are based on Measured Mineral Resources subject to economic viability.<br>• Probable Ore Reserves are based on Indicated Mineral Resources subject to the economic viability.<br>• The estimate appropriately reflects the view of the competent person. |
| *Audits or reviews* | • *The results of any audits or reviews of Ore Reserve estimates.* | • The Ore Reserve estimate, along with the mine design and life of mine plan, cost and revenue modelling has been peer-reviewed by Entech internally, and by Panoramic technical and management staff. |
| *Discussion of relative accuracy/ confidence* | • *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.*<br>• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include* | • The relative accuracy of the Ore Reserve estimate is considered robust as it is based on the knowledge gained from extensive operational history of the mine. Design and scheduling have been completed to a feasibility standard.<br>• All currently reported Ore Reserve estimations are considered representative on a global scale.<br>• Mine to mill reconciliation records throughout the life of the Savannah Mine provide confidence in the accuracy of the Ore Reserve<br>• Considerations that may result in a lower confidence in the Ore Reserves include:<br>  • There is a degree of uncertainty associated with geological estimates. |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | *assumptions made and the procedures used.*<br>• *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.*<br>• *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | The Ore Reserve classifications reflect the levels of geological confidence in the estimate;<br>• Nickel price and exchange rate assumptions are subject to market forces and present an area of uncertainty; and<br>• There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the FS level of detail of the study.<br>• Considerations in favour of a higher confidence in the Ore Reserves include:<br>• The mine plan assumes a low complexity mechanised mining method that has been successfully previously implemented by PAN at the site for over 10 years.<br>• Costs are based on historical data, underground contractor awarded rates, and a current offtake agreement.<br>• The Ore Reserve is based on a global estimate. Modifying factors have been applied at a local scale. |