Mandalay Resources – Costerfield Property
NI43-101 Technical Report

MANDALAY RESOURCES – COSTERFIELD PROPERTY NI43-101 TECHNICAL REPORT

PROJECT COMPLETION DATE: 30 March 2021

MANDALAY RESOURCES LTD

Document Control Information

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Quality Control

<table>
<tr><td rowspan="2">Principal Peer Reviewers and QPs</td><td rowspan="2">ANDREW FOWLER, AARON SPONG, SIMON WALSH</td><td>Signatures</td><td></td></tr>
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1 SUMMARY

1.1 Introduction

Mining Plus Pty Ltd (Mining Plus) has overseen the preparation of this Costerfield Property (the Property) Technical Report. The report demonstrates the viability of continued mining and processing operations at the Property, and was largely compiled by Mandalay Resources personnel. Mandalay Resources owns 100% of the Property and is a publicly listed company trading on the Toronto Stock Exchange (TSX) under the symbol MND, with the head office at 76 Richmond Street East, Suite 330, Toronto, Ontario, Canada M5C 1P1.

The Costerfield Property is located within the Costerfield mining district, approximately 10 km northeast of the town of Heathcote, Victoria, Australia. The Property's Augusta Mine has been operational since 2006 and has been the sole ore source for the Brunswick Processing Plant until December 2013 when ore production started from the Cuffley Deposit located approximately 500 m to the north of the Augusta mine workings. The drilling and mining of the Brunswick and Youle Deposits has extended the current mine life of the Costerfield Operation, with mining of the Youle Deposit commencing in 2019.

The Costerfield Property mining and processing facilities are contained within Mining Lease MIN4644 and comprise the following:

- An underground mine with production from the Brunswick and Youle Lodes,
- A conventional flotation processing plant (Brunswick Processing Plant) with a current capacity of approximately 150,000 t/year of feed,
- Mine and mill infrastructure including office buildings, workshops, core shed and equipment.

This report is dated 30 March 2021 and has an effective date of 31 December 2020, which coincides with:

- Depletion due to mining up to 31 December 2020,
- Survey of stockpiled ore that was mined and awaiting processing as of 31 December 2020.

All relevant diamond drill hole and underground face samples in the Costerfield Property, available as of 31 November 2020 for the Augusta, Cuffley, Brunswick and Youle Deposits were used to inform the Mineral Resource and Mineral Reserve Estimate.

Mandalay Resources are currently operating under an approved Work Plan in accordance with Section 39 of the MRSD Act, 1990. Various Work Plan Variations have also been approved by the Department of Jobs, Precincts and Regions (DJPR) and are registered against the licence.

The Mining Licence MIN4644 has a series of specific conditions that must be met and are the controlling conditions upon which all associated WPVs are filed with the regulatory authority. All appropriate permits and approvals have been obtained for the current and foreseeable operation.

The current value of the rehabilitation bond for both Mining Licences MIN4644 and MIN5567 is AUD$4,079,000. There are three further AUD$10,000 bonds, two held by the DJPR for EL licences EL3310 and EL5432, and one by Vic Roads for licences where pipelines cross roads. Other than the rehabilitation bonds, the Property is not subject to any other environmental liabilities.

To the best of the QP's knowledge, there is no other significant factor or risk that may affect access, title, or the right or ability to perform work on the Property.

1.2 Geology and Mineral Resource Estimate

The Costerfield Property is contained within a broad gold-antimony province mainly confined to the Siluro-Devonian Melbourne Zone. The mineralisation occurs as narrow veins or lodes, typically less than 50 cm wide and hosted within mudstone and siltstone of the Lower Silurian Costerfield Formation.

Gold mineralisation of greater than 20 g/t with an average grade of approximately 9 g/t is typically hosted within and/or alongside veined stibnite that contains approximately 4% antimony (Fromhold et al 2016).

Mineralised shoots at the Costerfield Property are structurally controlled by the intersection of the lodes with major cross-cutting, puggy, and sheared fault structures. Exploration in the Property is guided by predictions of where these fault/lode intersections might be located using data from structural/geological mapping, diamond drill hole logging and 3D computer modelling.

Exploration drilling during 2020 was predominantly focused on extending, defining and upgrading the Youle resource. It involved both infill and extensional drilling designed to delineate the high-grade Youle zone to the north, south, down-plunge, and above the orebody in areas of historical mining, adjacent to the current and planned development.

The focus of recent target generation has been near the Youle resource, in particular the northern extension and areas at depth. Throughout 2020, a total of 29,080 m of diamond drilling was completed.

The in-situ Augusta, Cuffley, Brunswick and Youle Deposits consist of a combined Measured and Indicated Mineral Resource of 1,158,000 tonnes at 10.2 g/t gold and 3.4% antimony, and an Inferred Mineral Resource of 473,000 tonnes at 5.8 g/t gold and 1.3% antimony. Stockpiles retained at the Brunswick Processing Plant represent a Measured Mineral Resource of 16,000 tonnes at 14.8 g/t gold, and 6.1% antimony.

The Mineral Resources are reported at a cut-off grade of 3.0 g/t gold equivalent (AuEq), after diluting to a minimum mining width of 1.2 m and are stated in Table 1-1.

Table 1-1: Mineral Resources at the Costerfield Property, inclusive of Mineral Reserves, as at 31 December 2020

Category	Inventory (t)	Gold Grade (g/t)	Antimony Grade (%)	Contained Gold (koz)	Contained Antimony (kt)
Measured (Underground)	344,000	14.1	5.7	156	19.6
Measured (Stockpile)	16,000	14.8	6.1	8	1.0
Indicated	798,000	8.5	2.4	218	18.8
Measured + Indicated	**1,158,000**	**10.2**	**3.4**	**381**	**39.3**
Inferred	473,000	5.8	1.3	89	6.0

Notes:

1) Mineral Resources estimated as of December 31, 2020 with depletion through to this date.
2) Mineral Resources stated according to CIM guidelines and include Mineral Reserves.
3) Tonnes are rounded to the nearest thousand; contained gold (oz) is rounded to the nearest thousand; contained antimony (t) is rounded to nearest hundred.
4) Totals may appear different from the sum of their components due to rounding.
5) A 3.0 g/t AuEq cut-off grade over a minimum mining width of 1.2 m is applied where AuEq is calculated at a gold price of $1,700/oz, and an antimony price of $8,000/t.
6) The (AuEq) is calculated using the formula: AuEq = Au g/t + 1.50 * Sb %
7) Geological modelling, sample compositing and Mineral Resource Estimation for updated models was performed by Joshua Greene, MAusIMM, a full-time employee of Mandalay Resources.
8) The Mineral Resource Estimate was independently reviewed and verified by Dr Andrew Fowler MAusIMM CP (Geo), a full time employee of Mining Plus. Dr Fowler fulfils the requirements to be a "Qualified Person" for the purposes of NI 43-101 and is the Qualified Person under NI 43-101 for the Mineral Resource.

The reasonable prospects for eventual economic extraction (RPEEE) has been satisfied by applying a minimum mining width of 1.2 m and ensuring that isolated blocks above cut-off grade, which are unlikely to ever be mined due to distance from the main body of mineralisation, were excluded from the Mineral Resource.

The width of 1.2 m is the practical minimum mining width applied at the Costerfield Property for stoping. For blocks with widths less than 1.2 m, diluted grades were estimated by adding a waste envelope with zero grade and 2.74 t/m^3 bulk density to the lode.

A 3.0 g/t AuEq cut-off grade over a minimum mining width of 1.2 m has been applied. The cut-off has been derived by Mandalay Resources based on cost, revenue, mining and recovery data from the year ending 31st December 2020, and updated commodity price forecasts and exchange rates. This supersedes the previous Mineral Resource cut-off grade of 3.5g/t AuEq used in the Mineral Resource Estimate effective 31st December 2019 (SRK, 2020).

The QP for the Mineral Resource considers that the geological and assay data used as input to the Mineral Resource Estimate have been collected, interpreted and estimated in line with best practice as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) (CIM 2018, 2019). Data verification work undertaken by the QP identified minor errors, however, these have not materially impacted the accuracy of the Mineral Resource Estimate. Some issues identified with the Certified Reference Materials (CRMs) for antimony have been counter-balanced by the umpire laboratory results, which lend support to the assays received from the primary laboratory. A retrospective reconciliation exercise showed good agreement between 2020 production tonnes and grades with the equivalent tonnes and grades reported out of the current 2021 block model.

Additionally, the QP for the Mineral Resource considers that the key risk to the operation is being able to maintain the resource base to stay ahead of ongoing mining depletion, and does not consider any other significant risks or uncertainties could reasonably be expected to affect the reliability or confidence in the exploration information or the Mineral Resource Estimate.

1.3 Mineral Processing and Metallurgical Testing

Metallurgical testwork has been undertaken on samples taken from the Augusta Deposit from 2004, the Cuffley Deposit from 2012, the Brunswick Deposit from 2016 and most recently, the Youle Deposit from 2018. Historical operating data now validates and supersedes the testwork from each of these deposits.

The Brunswick Processing Plant has been operated by Mandalay Resources since late 2009, with several years of operating data on the Cuffley/Augusta ore blend, on the Brunswick ore from Q3 2018 and Youle underground ore from late Q3 2019. As a result, the metallurgical testwork on all deposits, including the most recently tested Youle ore, has been replaced by operational data. The use of comprehensive historical operating data is considered to be a more accurate basis upon which to forecast future metallurgical behaviour when processing similar ores. It allows reliable antimony and gold recovery relationships to be developed and used to forecast future metal recoveries, as well as forecasting the plant throughput capacity.

Youle became the predominant mill plant feed from July 2020, steadily displacing the Brunswick underground ores, from the beginning of 2020. The Youle underground ore will remain the predominant feed for the forward Life of Mine (LOM) production schedule. The body of standalone Youle operating data now provides a much better understanding of the processing behaviour expected of these and similar ores. Youle also exhibits similar metallurgical behaviours to the Cuffley/Augusta ores, and therefore this historical operating data is also be used to augment and expand the Youle dataset.

Through ongoing optimisation and minor low capital cost debottlenecking projects, the plant capacity has been increased to the current 2016–2020 capacity, which can consistently exceed 13,000 t/month and regularly approaches 14,000 t/month. It has demonstrated it is capable of achieving the forecast LOM throughput of approximately 13,000 t/month.

Simple head grade versus recovery relationships have been developed for both antimony and gold using plant operating data. The gold head grade versus tailings grade recovery relationship uses monthly data to smooth daily fluctuations associated with the variable gravity gold content and recovery. The antimony recovery algorithm uses daily operational data collected between 2015 and 2020. Data for 2019 has been removed for the gold recovery algorithm due to the outlying gold recovery behaviour associated with the Brunswick ores. This is justified, since the Youle ores are now the dominant source of feed and as Brunswick no longer makes up a significant part of the blend.

The recovery relationships are well understood and are appropriate for metallurgical recovery estimation purposes. They are supported by historic recoveries at a similar feed grades on Youle ore feed and other similar ores.

Further confidence in the forecast recovery is provided by the consistent recoveries of both antimony and gold achieved over a number of years across a range of feed types and grades. The forward LOM estimates are considered to be conservative and do not incorporated all the improvements from the last two months of 2020, nor claim any benefits from the flotation circuit upgrades being undertaken in 2021. This provides potential recovery upside in the forecast LOM plan.

1.4 Mineral Reserve Estimates

A mine plan was prepared from the 2020 Mineral Resource, based only on Measured and Indicated Resource blocks, mined primarily using a long-hole stoping mining method with cemented rock fill (CRF). The minimum stoping width of 1.5 m was used, with planned and unplanned dilution at zero grade for both Au and Sb.

A gold equivalent (AuEq) grade for Mineral Reserve has been calculated using commodity prices of USD $1,500/oz Au and USD $7,000/t Sb.

The cut-off grade of 4.0 g/t AuEq was determined from the Costerfield Property 2020 production costs.

The 2020 Mineral Reserve is stated in Table 1-2.

Table 1-2: Mineral Reserves at the Costerfield Property, as at December 31, 2020

Category	Tonnes (kt)	Gold Grade (g/t)	Antimony Grade (%)	Contained Gold (koz)	Contained Antimony (kt)
Proven Underground	206	15.3	5.7	102	11.8
Proven Stockpile	16	14.8	6.1	8	1.0
Probable	394	11.5	2.3	145	9.0
Proven + Probable	**616**	**12.8**	**3.5**	**255**	**21.7**

Notes:

1. Mineral Reserve estimated as of December 31, 2020 and depleted for production through to December 31, 2020.
2. Tonnes are rounded to the nearest thousand; contained gold (oz) Rounded to the nearest thousand and contained antimony (t) rounded to nearest hundred.
3. Totals may appear different from the sum of their components due to rounding.
4. Lodes have been diluted to a minimum mining width of 1.5 m for stoping and 1.8 m for ore development.
5. A 4.0 g/t Au Equivalent (AuEq) cut-off grade has been applied.
6. Commodity prices applied are; gold price of USD $1,500/oz, antimony price of USD $7,000/t and exchange rate AUD:USD of 0.70.
7. The Au Equivalent value (AuEq) is calculated using the formula: AuEq = Au g/t + 1.03 * Sb %.
8. The Mineral Reserve is a subset, a Measured and Indicated only Schedule, of a Life of Mine Plan that includes mining of Measured, Indicated and Inferred Resources.
9. The Mineral Reserve Estimate was prepared by Dylan Goldhahn, MAusIMM under the direction of Daniel Fitzpatrick, MAusIMM, who are both full-time employees of Mandalay Resources. The Mineral Reserve estimate was independently verified by Aaron Spong MAusIMM CP (Min) who is a full-time employee of Mining Plus. Mr Spong fulfils the requirements to be a Qualified Person for the purposes of NI 43-101, and is the Qualified Person under NI 43-101 for the Mineral Reserve.

1.5 Mining Methods

The Augusta Mine is serviced by a decline haulage system developed from a portal within a box-cut. The Augusta decline dimensions are primarily 4.8 m high by 4.5 m wide at a gradient of 1:7 down. The majority of the decline development has been completed with a twin-boom jumbo; however, development of the decline from the portal to 2 Level was completed with a road-header, this section of decline has dimensions of 4.0 m high by 4.0 m wide. The Augusta decline provides primary access for personnel, equipment and materials to the underground workings.

The Brunswick Incline development was mined to breakthrough into the Brunswick Open Pit, establishing the Brunswick Portal during the second half of 2020. The Brunswick Incline has the dimensions 4.8 m high by 4.5 m wide at a gradient of 1:7 up and was mined with a twin-boom jumbo. The Brunswick Open Pit was prepared for the portal breakthrough with a pushback completed by a combination of road-header and drill and blast supported by a twin-boom jumbo. The first 20 m advance of Brunswick Portal was completed by a road-header with the dimensions 5.0 m high by 5.0 m wide at a gradient of 1:25 up. The establishment of the Brunswick Portal provides an additional means of egress from the mine and is the primary material haulage route from underground to the Brunswick Mill for ore processing and waste storage.

Mill feed is produced from three different mining methods: full-face jumbo development, long-hole CRF stoping and half upper stoping. All mined material is hauled from the underground working areas to the Brunswick ROM or waste storage facilities via the Brunswick Incline and Portal.

The Cuffley Decline extends as a branch off the Augusta Decline at 1028 mRL and continues down to approximately 895 mRL. At the 935 mRL, the Cuffley Incline extends off the Cuffley Decline and accesses mineral resources from the 945 mRL to the 1,050 mRL. This incline was used to extract N and NV lodes. Mining in the Cuffley incline is complete and it is now the location of the High Explosive (HE) Magazine. A second decline within Cuffley, known as the 4,800 decline, accesses the southern part of the Cuffley Lode which is positioned south of the East Fault. This decline commences at the 960 mRL and extends to 814 mRL. The Mineral Reserve in the 4,800 decline consists of remnant pillars from past stoping and long-hole HUS and CRF stopes.

The Mineral Reserve LOM Plan, based on the December 2020 Mineral Resource model, predominantly includes mining of the Brunswick and Youle Deposits.

1.6 Recovery Methods

All mill feed is processed at the existing Brunswick Processing Plant located at the Costerfield Property. The Brunswick Processing Plant consists of a two-stage crushing circuit, two ball mills operating in series with hydroclassification and gravity gold concentration, both in closed circuit with the mills. The flotation circuit consists of rougher, scavenger and cleaner stages for the production of an antimony-gold concentrate. This is dewatered through thickeners and a filter, bagged and loaded into containers for shipment to customers in China.

The gravity gold concentrate can be either blended with the final flotation concentrate or more typically, further concentrated via a shaking table. The final gravity concentrate is then transported to an Australian gold refinery. Final flotation tailings are sent to one of two paddock style tailings storage facilities for disposal.

Ore from a range of sources has been processed since underground mining began at Augusta in 2006. The metallurgical performance of the Augusta, Cuffley, Brunswick and more recently, the Youle ores, has been demonstrated over a long period and over the last several years, the operation has delivered a stable throughput and consistent recoveries.

The Brunswick Processing Plant flowsheet is simple, conventional, and well proven. The plant, in its current configuration, remains amenable to processing the local sulphide gold-antimony containing ores to produce gold-antimony concentrate and a separate gravity gold concentrate. The forecast LOM throughput and metallurgical recoveries are well supported.

1.7 Project Infrastructure

The Costerfield Property's surface facilities are representative of a modern gold-antimony mining operation. The Augusta mine site comprises the office and administration complex, underground workshops and surface infrastructure to support the underground operations. The Brunswick site comprises the gold-antimony processing plant and associated facilities, surface workshop, tailings storage facilities, reverse osmosis plant, and the core farm and core processing facility. They have met the requirements of the operation to date and will continue to do so.

The Splitters Creek Evaporation Facility is situated on a 30-ha parcel of land located approximately 3 km from the Augusta site. The facility has the capacity to treat 104 ML/year net (evaporation minus rainfall) and treats the bulk of the excess water. The purpose of the facility is to evaporate groundwater extracted from the Costerfield Operations and thereby maintain dewatering rates from the underground workings. Aquafer Recharge (AR) is also being used as an additional water disposal method and has been trialled successfully during 2017 through to 2020.

1.8 Market Studies and Contracts

The antimony-gold concentrate produced from the Costerfield Property is sold directly to smelters capable of recovering both the gold and antimony from the concentrates, such that Mandalay Resources receives payment based on the concentration of the antimony and gold within the concentrate.

The terms and conditions of commercial sale are not disclosed, pursuant to confidentiality requirements and agreements.

All logistics and shipping documentation services are provided by Minalysis Pty Ltd.

1.9 Environmental Studies, Permitting and Social or Community Impact

The disposal of groundwater extracted from the mine workings is a critical aspect of the Costerfield Property. The current approved Work Plan does not allow for off-site disposal of groundwater or surface water.

The Costerfield Property currently operates a series of water storage and evaporation dams and a Reverse Osmosis (RO) plant. The treated water from the RO plant is licenced to be discharged into a neighbouring waterway, to be provided to local community members or used on the site. Current evaporation, RO plant processing and re-use capacity is calculated to be approximately equivalent to the current dewatering rates, however additional complementary treatment options are being investigated to ensure adequate capacity in the future.

Waste rock that is surplus to underground backfilling requirements is stockpiled on the surface in various locations. Testing of the waste rock has confirmed that the material is non-acid generating and therefore does not pose an acid-mine drainage risk.

Mandalay Resources have two operational Tailing Storage Facilities (TSF), being the Brunswick TSF and the Bombay TSF, and has conditional approval to raise the height of the Bombay TSF an additional 2.7 m. Studies are underway to determine the most effective way to further increase tailings capacity to meet the LOM plan.

The approved Environmental Monitoring Plan for the Augusta Mine includes an air quality monitoring programme, a noise monitoring programme, and constant blast vibration monitoring. The monitoring data is provided to the regulatory authorities and Community Representatives through the quarterly Environmental Review Committee (ERC) meetings.

The current groundwater extraction licence of 700 ML/year has been approved by Goulburn-Murray Water and is up for renewal in June 2034.

The DJPR prescribes blast vibration limits for the protection of buildings and public amenities. Mandalay Resources undertakes constant blast vibration monitoring in order to assess compliance with the prescribed limits and reports this information to the ERC quarterly.

The Costerfield Property has been developed and is operated with the aim of avoiding and minimising impacts on native vegetation. Mandalay Resources has purchased approved native vegetation offset at Peels Lane in Costerfield to fulfil obligations relating to Victoria's Native Vegetation Management – A Framework for Action.

A heritage survey of the South Costerfield Shaft, Alison and New Alison surface workings was completed by LRGM Consultants in the first quarter of 2012. The survey found that no features of higher than local cultural heritage significance exist on the Property.

Mandalay Resources has developed and implemented the Costerfield Property's Community Engagement Plan, which has been approved by the DJPR. This Plan sets the framework for communication with all of the business' stakeholders in order to ensure transparent and ongoing consultative relationships are developed and maintained.

Mandalay Resources has developed a Mine Closure Plan, which provides an overview of the various aspects of closure and rehabilitation that have been included in the rehabilitation bond calculation, and reflects the rehabilitation requirements described in the approved Work Plans and Variations.

1.10 Capital and Operating Costs

All cost estimates are provided in 2020 Australian dollars (AUD) and are to a level of accuracy of ± 10%. Escalation, taxes, import duties and custom fees have been excluded from the cost estimates. The estimated total capital requirements for the Costerfield Operation are outlined in Table 1-3.

Table 1-3: Costerfield Operation – capital cost estimate

Area	Total	CY 21 (AUD$ M)	CY 22 (AUD$ M)	CY 23 (AUD$ M)
Plant	$7.3	$2.2	$2.7	$2.5
Admin	$1.2	$0.8	$0.2	$0.2
Projects	$2.5	$0.7	$1.3	$0.5
Environmental	$1.4	$0.1	$1.0	$0.2
Mining	$4.6	$4.2	$0.4	-
Total Plant and Equipment	$17.1	$8.0	$5.6	$3.4
Capital Development	$9.1	$9.1	-	-
Total Capital cost	**$26.2**	**$17.1**	**$5.7**	**$3.4**

Note: Totals may not sum due to rounding.

The operating cost estimates applied in this Technical Report are summarised in Table 1-4

Table 1-4: Costerfield Operation – Operating cost inputs

Description	Unit	AUD$	Data Source
Mining			
Jumbo Lateral Development	AUD/m	2,934	3 year average
Stoping	AUD/t	121	3 year average
Mining Admin	AUD/day	13,465	2020 average
Geology	AUD/day	6,513	2020 average
ROM Haulage	AUD/t	3	Nov-December 2020 average (since Brunswick portal breakthrough)
Processing Plant	AUD/t milled	51	3 year average
Site Services	AUD/day	7,028	2020 average
General and Administration	AUD/day	11,524	2020 average
Selling Expenses excluding Royalty	AUD/t con	163	2020 average

Royalty costs are calculated in accordance with royalty payment structures. Sb royalty is paid at a rate of 2.75% of *revenue less selling costs*. Au royalty is also paid at 2.75% of *revenue less selling costs* with 2,500 of saleable Au ounces exempt from royalty payment.

1.11 Economic Analysis

The Costerfield Property technical-economic model (TEM) has all costs in 2021 AUD with no provision for inflation or escalation. The annual cash flow projections were estimated over the project life based on capital expenditures, operating costs and revenue assumptions. The financial indicators examined included pre-tax cash flow and Net Present Value (NPV). Inferred resources have not been included in the economic evaluation.

A summary of the economic factors associated with the project are presented in Table 1-5.

Table 1-5: Project economics

Description	Units		Quantity	
Tonnes Milled	Tonnes		616,197	
Recovered Gold	Ounces		246,822	
Recovered Antimony	Tonnes		20,759	
Payable Gold	Ounces		228,358	
Payable Antimony	Tonnes		19,955	
Payable (Saleable) Metal, Au Eq	Oz Eq		321,480	
Description	**Units**	**Quantity**	**Units**	**Quantity**
Operating Cost	AUD$ M	210.4	USD$ M	147.3
Operating Cost per Payable ounce	AUD$/Oz Eq[1]	654	AUD$/Oz Eq[1]	458
Capital Cost	AUD$ M	26.2	USD$ M	18.3
Net Revenue (less selling expenses and royalties)	AUD$ M	637.7	USD$ M	446.4
After Tax Cash Flow	AUD$ M	304.5	USD$ M	213.1
Pre-tax NPV discounted at 5%	AUD$ M	283.5	USD$ M	198.5
After-tax NPV discounted at 5%	AUD$ M	215.2	USD$ M	150.6

Note: 1 Oz Eq – Gold Ounces + (Antimony Price / Gold Price) * Antimony Tonnes, Tonnes and Ounces rounded to nearest thousand, Million dollars rounded to the nearest hundred thousand.

FIGURES & TABLES

2 INTRODUCTION

Mining Plus Pty Ltd (Mining Plus) has overseen the preparation of this Costerfield Property Technical Report. The report demonstrates the viability of continued mining and processing operations at the Property, and was largely compiled by Mandalay Resources personnel.

The Costerfield Property is located within the Costerfield mining district, approximately 10 km northeast of the town of Heathcote, Victoria. The Property's Augusta Mine has been operational since 2006 and has been the sole ore source for the Brunswick Processing Plant until December 2013 when ore production started from the Cuffley Deposit located approximately 500 m to the north of the Augusta mine workings. The drilling and mining of the Brunswick and Youle Deposits has extended the current mine life of the Costerfield Operation, with mining of the Youle Deposit commencing in 2019.

The Costerfield Property mining and processing facilities are contained within Mining Lease MIN4644 and comprise the following:

- An underground mine with production from the Brunswick and Youle Lodes,
- A conventional flotation processing plant (Brunswick Processing Plant) with a current capacity of approximately 150,000 t/year of feed,
- Mine and mill infrastructure including office buildings, workshops, core shed and equipment.

Mandalay Resources is a publicly listed company trading on the Toronto Stock Exchange (TSX) under the symbol MND, with the head office at 76 Richmond Street East, Suite 330, Toronto, Ontario, Canada M5C 1P1. On 1 December 2009, Mandalay Resources completed the acquisition of AGD Mining Pty Ltd (AGD) from Cambrian Mining Limited (Cambrian), a wholly-owned subsidiary of Western Canadian Coal Corporation (WCC), resulting in AGD becoming a wholly-owned subsidiary of Mandalay Resources.

2.1 Terms of Reference

Mining Plus was commissioned by Mandalay Resources to provide Qualified Persons (QPs) to undertake personal inspections of the Property, complete detailed reviews of the work completed by Mandalay personnel, and take QP responsibility for the 2021 Technical Report and any associated public disclosure. Mining Plus QPs have independently reviewed the work completed by Mandalay Resources and take responsibility for all sections of this Technical Report, with some reliance placed on external experts to the extent permitted under the Canadian National Instrument 43-101 (NI 43-101).

The Mineral Resource and Mineral Reserve Statement reported herein was prepared in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM)

"Definition Standards" (CIM, 2014), "Mineral Exploration Best Practice Guidelines" (CIM, 2018) and "Estimation of Mineral Resource and Mineral Reserves Best Practice Guidelines" (CIM, 2019).

This Technical Report has been prepared in accordance with NI43-101 and Form 43-101 F1.

The Technical Report was assembled in Melbourne and Perth during the months of January to March 2021.

2.2 Effective Date

This report is dated 30 March 2021 and has an effective date of 31 December 2020.

This date coincides with the following:

- Depletion due to mining up to 31 December 2020,
- Survey of stockpiled ore that was mined and awaiting processing as of 31 December 2020.

All relevant diamond drill hole and underground face samples in the Costerfield Property, available as of 31st November 2020 for the Augusta, Cuffley, Brunswick and Youle Deposits were used to inform the Mineral Resource and Mineral Reserve Estimate.

2.3 Qualified Persons

Dr Andrew Fowler: Mining Plus Principal Geologist, PhD, MAusIMM CP (Geol), reviewed all aspects of the geological data collection and storage, the construction of the geological models and the estimation of the Mineral Resource. He conducted a personal inspection of the Property in December 2020. He is independent of Mandalay Resources, however has had prior involvement with the Property during 2006-2008 when he was employed by AGD Operations Pty Ltd. By virtue of his education, membership to a recognised professional association and relevant work experience is an independent QP as defined by NI 43-101. He is responsible for items 2 to 12, 14 and 23 of the Technical Report along with those sections of item 1 and 24 to 27 pertaining thereto.

Aaron Spong: Mining Plus Principal Mining Engineer, BEng, MAusIMM CP (Mining), reviewed all aspects of the estimation of the Mineral Reserve and associated information. He conducted a personal inspection of the Property in December 2020. By virtue of his education, membership to a recognised professional association and relevant work experience is an independent QP as defined by NI 43-101. He is responsible for items 1.1, 1.2, 1.14 ,1.15, 1.18-1.21, 1.23-1.25, 15, 16, 19, 20,21 and 22 of the Technical Report along with those sections of item 25 to 27 pertaining thereto.

Simon Walsh: Mining Plus Associate Principal Metallurgist, BSc (Extractive Metallurgy & Chemistry), MBA Hons, MAusIMM CP (Met), GAICD undertook a review of the mineral processing and metallurgical testing, recovery methods and infrastructure aspects of the project. He conducted a personal inspection of the Property in September 2015. By virtue of his education, membership to a recognised professional association and relevant work experience is an independent QP as defined by NI 43-101. He is responsible for items 13, 17, aspects of item 18, and those sections of items 1 and 25 to 27 pertaining thereto

QP certificates can be found at the end of this report.

Internal Mining Plus peer review has been completed by Lisa Bascombe, Principal Consultant Geologist for Mining Plus.

2.4 Acknowledgements

Mining Plus would like to acknowledge the support and collaboration provided by Mandalay Resources personnel during the completion of this project. In particular, Mining Plus would like to thank the following people:

- Chris Davis: Geological oversight and operational information,
- Joshua Greene: Mineral Resource estimation and geological modelling,
- Dylan Goldhahn: Ore Reserve, scheduling and mine design,
- Vince Cullinan: Mineral processing and metallurgical testwork,
- Marcus Reston: Drilling, sampling and QAQC system details,
- April Westcott: Geological technical report writing and compilation.

3 RELIANCE ON OTHER EXPERTS

The Qualified Person has relied upon, in respect of legal, marketing, environmental, permitting, and social or community aspects, the work of the Experts listed below.

To the extent permitted under NI 43-101, the Qualified Persons disclaim responsibility for the relevant sections of the Report.

3.1 Land and Mineral Tenure

The land and mineral tenure information detailed in this report in Section 4.2 and Section 4.7 was verified by Michael Davie Smyth of Tenement Administration Services as being in good standing.

- Expert: Michael Davie Smyth, Tenement Administration Services,
- Report, opinion or statement relied upon: Information on mineral tenure and status, title issues, royalty obligations, etc,
- Extent of reliance: full reliance following a review by the Qualified Person,
- Portion of Technical Report to which disclaimer applies: Section 4.

3.2 Marketing

Marketing information for this report, specifically Section 19, relies entirely on information by Roskill Information Services Ltd. A specific marketing study was not completed for this report.

- Expert: Roskill Information Services Ltd,
- Report, opinion or statement relied upon: Information on marketing, concentrate transport, and contractual arrangements,
- Extent of reliance: full reliance following a review by the Qualified Person,
- Portion of Technical Report to which disclaimer applies: Section 19.

3.3 Environmental Studies, Permitting and Social or Community Impact

Environmental, permitting, and social or community information for this report, specifically Section 20, relies entirely on information provided by Ross Laity, Sustainability Manager for the Costerfield Operation.

- Expert: Ross Laity, Sustainability Manager, Mandalay Resources,
- Report, opinion or statement relied upon: Information on environmental, permitting, and social or community,
- Extent of reliance: full reliance following a review by the Qualified Person,
- Portion of Technical Report to which disclaimer applies: Section 20.

4 PROPERTY, DESCRIPTION AND LOCATION

4.1 Property Location

The Costerfield Operation (the Property) is located within the Costerfield mining district of Central Victoria, approximately 10 km northeast of the town of Heathcote and 50 km east of the City of Bendigo (Figure 4-1).

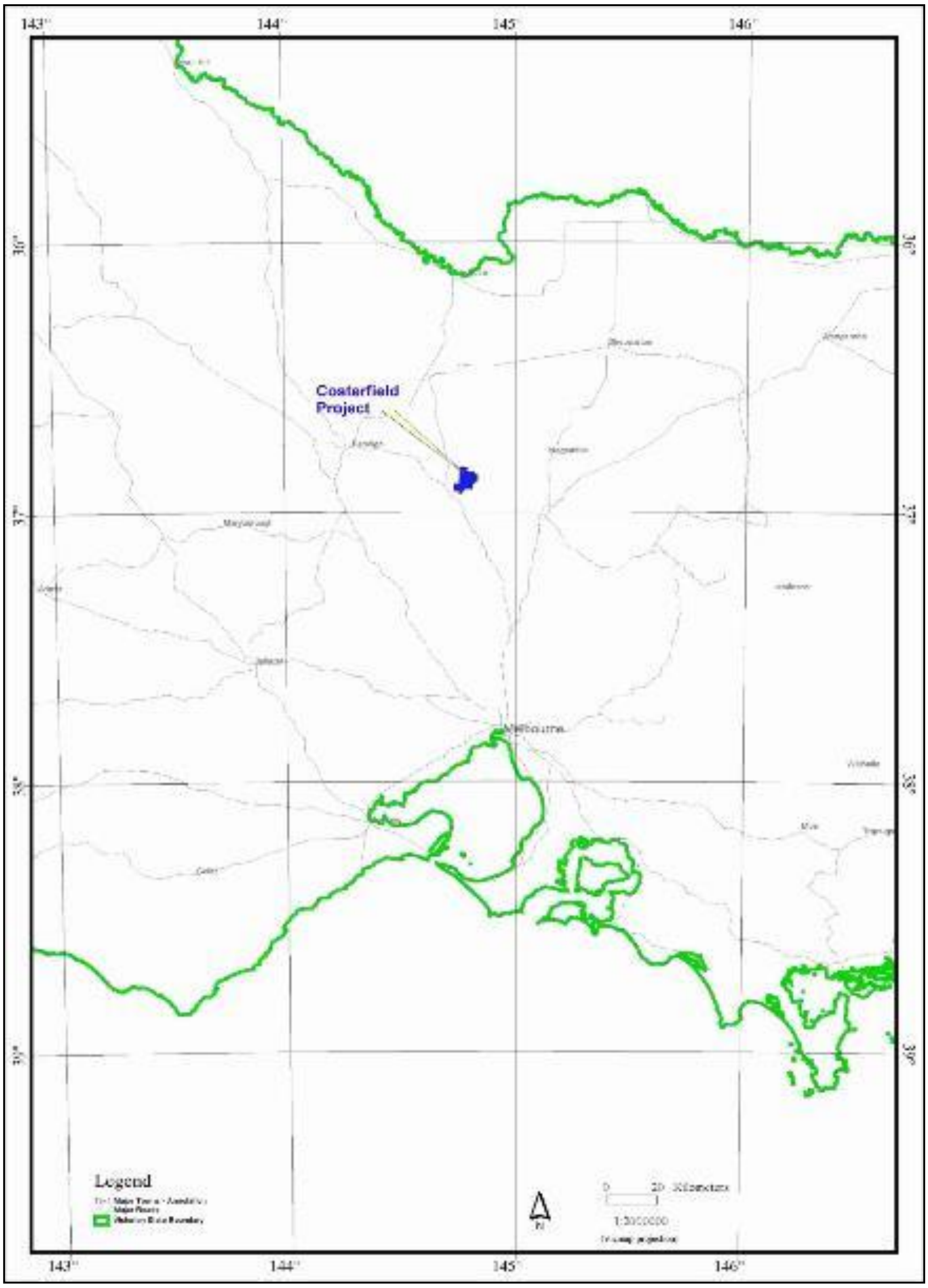

Figure 4-1: Costerfield Operation location

The Property encompasses the underground Augusta Mine including the Cuffley, Brunswick and Youle Deposits, the Brunswick Processing Plant, Splitters Creek Evaporation Facility, Brunswick and Bombay Tailings Storage Facilities (TSF) and associated infrastructure.

The Augusta Mine (Augusta) is located at latitude of 36° 52’ 27” south and longitude 144° 47’ 38” east. The Cuffley Deposit is located approximately 500 m north-northwest of the Augusta workings. The Brunswick Deposit is located approximately 1.4 km north-northwest of the Augusta workings and 680 m north-northwest of the Cuffley Deposit. The Youle Deposit is located north of the Augusta workings and Cuffley Deposits approximately 2.2 km and 1.6 km respectively. The Brunswick Processing Plant is located approximately 2 km north west of the Augusta Mine.

The deposits are primarily accessed via the decline at Augusta. In August 2020, work commenced on developing the Brunswick Portal, which is used primarily for trucking of ore to the ROM pad. The first haulage of ore took place via the Brunswick Portal in November 2020.

4.2 Land Tenure

Tenure information for the two Mining Licences (ML), two Exploration Licences (EL) two Exploration Licences under application (ELA), one expired Exploration License (EXEL) and two Retention Licence’s under application (RLA) which comprise the Property are detailed in Table 4-1.

Table 4-1: Property tenement package details

Licence	Name	Status	Company	Area	Grant Date	Expiry Date
MIN4644	Costerfield	Granted	AGD Operations P/L	1,219.3 ha	25/02/1986	30/06/2026
MIN5567	Splitters Creek	Granted	Mandalay Resources Costerfield Operations Pty Ltd	30.0 ha	20/02/2013	21/02/2023
EL5432	Peels Track	Granted	AGD Operations P/L	2.0 graticules	23/08/2012	22/08/2022
EL5519	Antimony Creek South	Granted	Mandalay Resources Costerfield Operations Pty Ltd	4.0 graticules	28/05/2015	27/05/2023
ELA6842	Costerfield West	Under Application	Mandalay Resources Costerfield Operations Pty Ltd	29.0 graticules	Submitted 2/10/2018	Pending
ELA6847	Costerfield East	Under Application	Mandalay Resources Costerfield Operations Pty Ltd	35.0 graticules	Submitted 2/10/2018	Pending
EL3310	Costerfield	Expired	AGD Operations P/L	59.0 graticules	17/09/1993	17/09/2020 Retention Licence application over the area.

Licence	Name	Status	Company	Area	Grant Date	Expiry Date
RLA7485	Costerfield	Under Application (covers expired EL3310 area)	Mandalay Resources Costerfield Operations Pty Ltd	3,174.0 ha	Submitted 15/09/2020	Pending
RLA7492	Costerfield	Under Application (covers expired EL3310 area)	Mandalay Resources Costerfield Operations Pty Ltd	23.3 ha	Submitted 15/09/2020	Pending

NB - 1 graticule is equivalent to 1 km^2

Mandalay Resources manages the Costerfield Operation and holds a 100% interest in licences MIN4644, MIN5567, EL5432, and EL5519, which comprise the Property (Figure 4-2).

On 2 November 2018 two EL applications (ELA6847 and ELA6842) were submitted to the Department of Jobs, Precincts and Regions (DJPR). These two licences are located to the east and west of the existing Costerfield Operation tenement package and cover 64 km^2, (Figure 4-2).

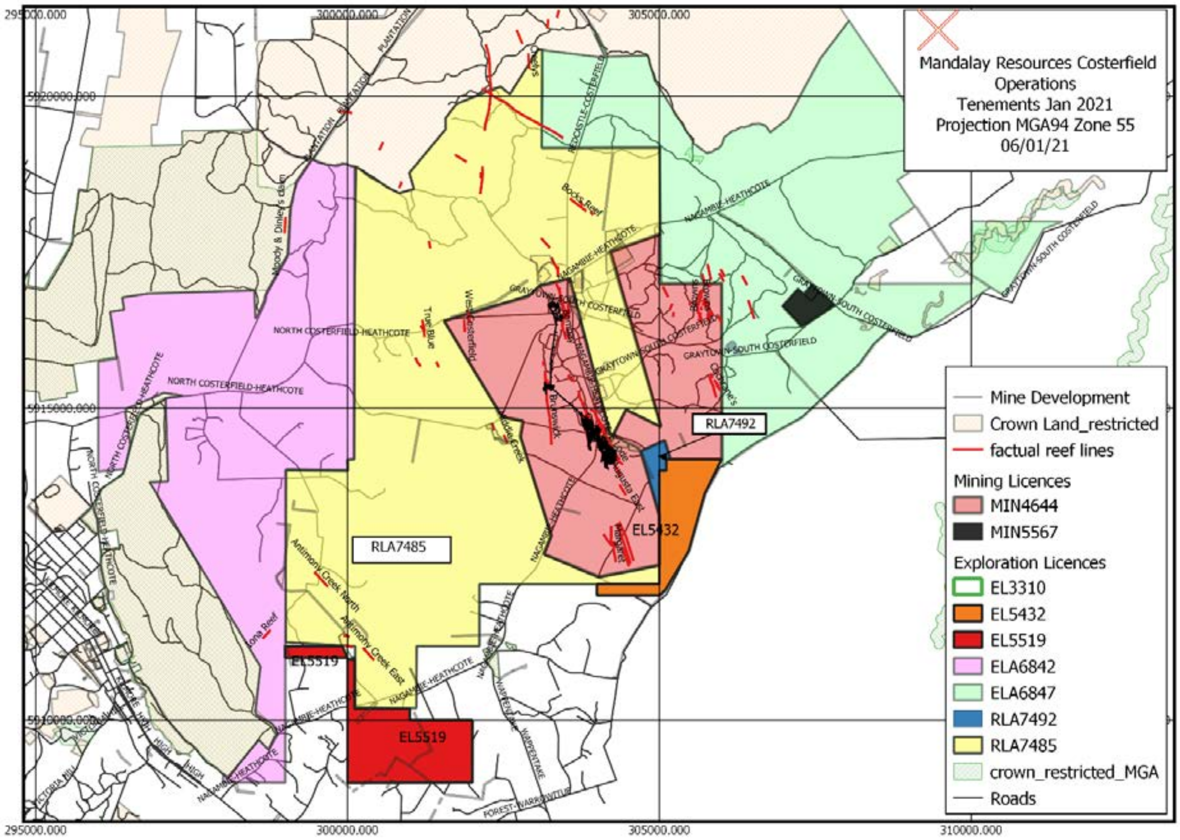

Figure 4-2: Current Mandalay Resources ML and EL tenement boundaries, displaying two EL licence applications to the east and west of the current licences and two Retention licence applications

The licence applications have undergone the Right to Negotiate process (RTN) in accordance with the Native Title Act (NTA) to allow any potential indigenous claimant/s, if they exist, to reach a Section 31 agreement with Mandalay Resources.

The native title requirements for the EL applications have now been determined and an assessment has been completed as per the Traditional Owners settlement Act 2010 (TOSA). It has now been determined that the application areas lie wholly within the Taungurung Recognition and Settlement Area.

As it stands currently, Mandalay Resources have indicated that they wish to comply with the standard conditions as outlined in the Schedule 4 of the Land Use Activity Agreement (LUAA). The DPJR has acknowledged receipt of correspondence consenting to the Schedule 4 conditions and the DPJR is currently assessing the EL applications in accordance with the Mineral Resources Sustainable Development (MRSD) Act, 1990.

On the 17 September 2020, EL3310 expired and on the 15 September 2020, Retention Licence applications (RLA7485 of 3,170.4 ha and RLA7492 of 23.3 ha) were lodged in order to retain the licence area, except for an area of National Park that will be excised on any granting of the new licence (Figure 4-2).

4.3 Underlying Agreements

The sustainable and responsible development of Mineral Resources in Victoria is regulated by the State Government of Victoria through the MRSD Act, 1990, administered by the DJPR (formally the DEDJPR), and requires that negotiation of access and/or compensation agreements with landowners affected by the work plans undertaken between the mining licence applicant and the relevant landowner prior to an ML being granted, or renewed.

In accordance with this obligation, Mandalay Resources has compensation agreements in place for land allotments owned by third party landowners that are situated within the boundaries of the ML MIN4644.

Mandalay Resources owns the land that contains the ML MIN5567 and as such no compensation agreements are required nor are in place.

4.4 Environmental Liability

In October 2018 a bond review was completed and the value of the rehabilitation policy increased by AUD$224,000 to a total of AUD$4,079,000 for both ML's MIN4644 and MIN5567. The total bond of AUD$4,079,000 has been fully funded.

There are three further AUD$10,000 bonds, two held by the DJPR for EL licences EL3310 and EL5432, and one by Vic Roads for licences where pipelines cross roads.

The rehabilitation bond for MIN5567, the lease on which the Splitters Creek Evaporation Facility has been constructed, was calculated in October 2018 and AUD$748,000 set aside.

The total bond for MIN4464, the lease where the Augusta mine site and Brunswick Processing Plant is situated, is AUD$3.331M. This bond has increased during the latest bond review due to the addition of the Brunswick vent shaft in 2018.

Rehabilitation is undertaken progressively at the Costerfield Operation, with the environmental bond only being reduced when rehabilitation of an area or site has been deemed successful by the DJPR. This rehabilitation bond is based on the assumption that all rehabilitation is undertaken by an independent third party. Therefore, various project management and equipment mobilisation costs are incorporated into the rehabilitation bond liability calculation. In practice, rehabilitation costs may be less if Mandalay Resources choose to utilise internal resources to complete the rehabilitation.

Other than the rehabilitation bond, the project is not subject to any other environmental liabilities. Table 4-2 presents the breakdown of the liability costs from the recent bond review.

Table 4-2: Total liability rehabilitation bond calculations, 2018

Area	AUD$
Total Rehabilitation Liability – Augusta Mine Site (MIN4644)	$1,419,000
Total Rehabilitation Liability – Brunswick Process Plant site (MIN4644)	$1,912,000
Total Rehabilitation Liability – Splitters Creek Evaporation Facility (MIN5567)	$748,000
Total Rehabilitation Liability – Costerfield Operations	$4,079,000

4.5 Royalties

Royalties apply to the production of antimony and gold, and are payable to the Victorian State Government through the DJPR. The royalty is applied at a rate of 2.75% on the revenue realised from the sale of antimony and gold produced, less the selling costs; however there is a royalty exemption on the first 2,500 oz of gold produced each year.

There are no royalty agreements in place with previous owners.

Additional royalties are payable to the Victorian State Government through the DJPR at a rate of AUD$0.87/t if waste rock or tailings is sold or provided to any third parties, since they are deemed to be quarry products.

4.6 Taxes

Mandalay Resources reports that, as at December 2020, no tax loss is carried forward.

Income Tax on Australian company profits is currently set at 30%.

4.7 Legislation and Permitting

Mandalay Resources are currently operating under an approved Work Plan in accordance with Section 39 of the MRSD Act, 1990. Work Plan Variations (WPVs) are required when significant changes from the Work Plan occur and it is deemed that the works will have a material impact on the environment and/or community. Various WPVs have been approved by the DJPR and are registered against the licence.

ML MIN4644 has a series of specific conditions that must be met and are the controlling conditions upon which all associated WPVs are filed with the regulatory authority.

Apart from the primary mining legislation, which consists of the MRSD Act, 1990, operations on MIN4644 are subject to the additional following legislation and regulations, for which all appropriate permits and approvals have been obtained.

Legislation:

- Environment Protection Act 1970,
- Planning and Environment Act 1987,
- Environmental Protection and Biodiversity Conservation Act 1999,
- Flora and Fauna Guarantee Act 1988,
- Catchment and Land Protection Act 1994,
- Archaeological and Aboriginal Relics Preservation Act 1972,
- Heritage Act 1995,
- Forest Act 1958,
- Dangerous Goods Act 1985,
- Drugs, Poisons and Controlled Substances Act 1981,
- Public Health and Wellbeing Act 2008,
- Water Act 1989,
- Crown Land (Reserves) Act 1978,
- Radiation Act 2005,
- Conservation, Forests and Lands Act 1987,
- Wildlife Act 1975.

Regulations:

- Dangerous Goods (Explosives) Regulations 2011,
- Dangerous Goods (Storage and Handling) Regulations 2000,
- Dangerous Goods (HCDG) Regulations 2005,
- Drugs, Poisons and Controlled Substances (Commonwealth Standard) Regulations 2011,

- Mineral Resources Development Regulations 2002.

To the best of the QP’s knowledge, there is no other significant factor or risk that may affect access, title, or the right or ability to perform work on the Property.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

Access to the Costerfield Operation is via the sealed Heathcote–Nagambie Road which is accessed off the Northern Highway to the south of Heathcote. The Northern Highway links Central and North-Central Victoria with Melbourne.

The Augusta Mine site is accessed off the Heathcote–Nagambie Road via McNicols Lane, which comprises a sealed/gravel road that continues for approximately 1.5 km to the Augusta site offices.

The Brunswick Processing Plant and Brunswick Portal are located on the western side of the Heathcote–Nagambie Road, approximately 1 km further north from the McNicols Lane turnoff. The Brunswick site offices are accessed by a gravel road that is approximately 600 m long.

5.2 Land Use

Land use surrounding the Costerfield Property is mainly small scale farming consisting of grazing on cleared land, bordered by areas of lightly timbered Box-Ironbark forest. The majority of the undulating land and alluvial flats are privately held freehold land.

The surrounding forest is largely rocky, rugged hill country administered by the DJPR as State Forest. The Puckapunyal Military Area is located on the eastern boundary of the Costerfield Property.

The Augusta Mine site is located on privately held land, while the Brunswick Processing Plant is located on Unrestricted Crown land.

The Cuffley Deposit, accessed via the Augusta Mine, is located beneath unrestricted Crown land that consists of sparse woodland, with numerous abandoned shafts and workings along the Historical Alison and New Alison mineralised zone.

The Brunswick Deposit is accessed via an incline ramp from the Cuffley mine and the Youle Deposit is accessed from the Brunswick incline.

5.3 Topography

The topography of the Costerfield Property area consists of relatively flat to undulating terrain with elevated areas to the south and west sloping down to a relatively flat plain to the north and east.

The area ranges in elevation from approximately 160 m Above Sea Level (ASL) in the east along Wappentake Creek, to 288 m ASL in the northwest. The low-lying areas are typically floodplains.

5.4 Climate

The climate of central Victoria is 'Mediterranean' in nature and consists of hot, dry summers followed by cool and wet winters. Annual rainfall in the area is approximately 500 mm to 600 mm, with the majority occurring between April and October. The annual pan evaporation is between 1,300 to 1,400 mm.

The temperature ranges from -2°C in winter (May to August) to +40°C in summer (November to February). Monthly average temperature and rainfall data from Redesdale, the nearest weather recording station to the Costerfield Property, located 39km to the northeast, is shown in Figure 5-1. The weather is amendable to year round mining operations; however, occasional significant high rainfall events may restrict surface construction activity for a small number of days.

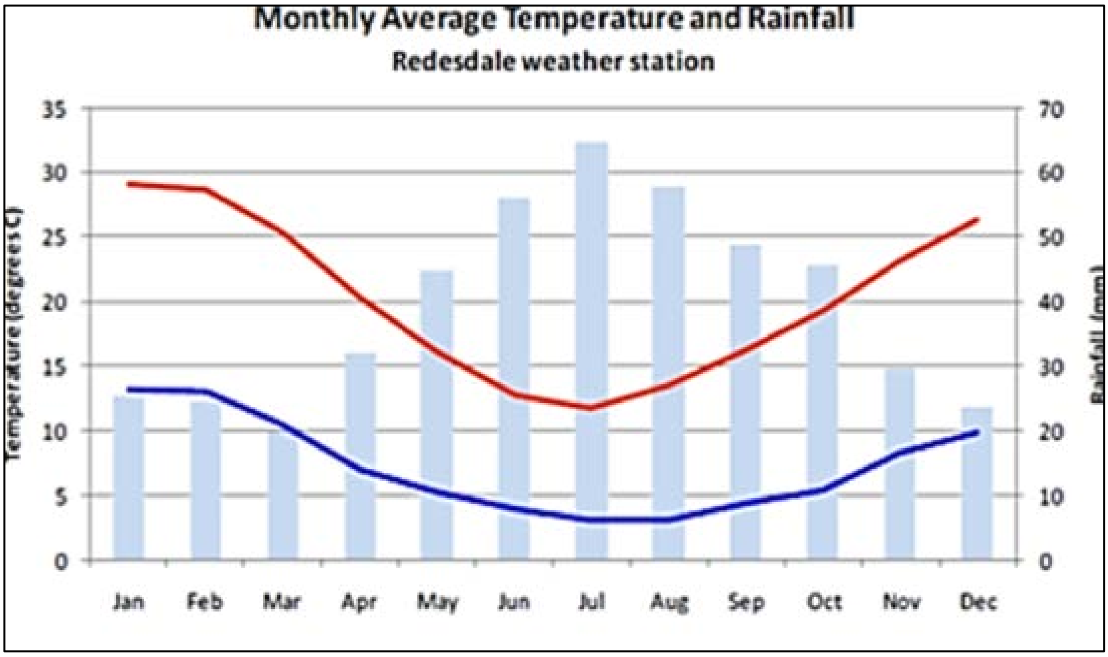

Figure 5-1: Monthly average temperature and rainfall [Source: Bureau of Meteorology]

5.5 Infrastructure and Local Resources

The nearest significant population to the Costerfield Property is Bendigo, located 50 km to the west-northwest, with a population of approximately 100,000. The Costerfield Property is a residential operation with personnel residing throughout central Victoria as well as Melbourne. Local infrastructure and services are available in Heathcote.

5.5.1 Augusta Mine

The Augusta Mine site consists of a bunded area that includes site offices, underground portal, workshop facilities, waste rock storage area, settling ponds, mine dam, change house facilities and laydown area. Augusta has operated as an underground mine since the commencement of operations in 2006. The Cuffley, Brunswick and Youle operations use the infrastructure associated with the current Augusta operations (Figure 5-2).

Figure 5-2: Augusta box-cut, portal and workshop

On 28 July 2018, the first ore was extracted from the Brunswick Deposit and was accessed via an incline ramp from the Cuffley Mine. While in December 2019 the first ore was extracted from the Youle Deposit and was accessed via capital development from the Brunswick incline.

5.5.2 Brunswick Complex

The Brunswick Complex consists of the Brunswick Processing Plant, Run-of-Mine (ROM) pad, underground portal, site offices and the Brunswick Open Pit as shown in Figure 5-3.

Figure 5-3: Aerial view of the Brunswick Complex

5.5.3 Power Supply

The Costerfield Property has a current agreement with Powercor for 3.227mVA, at a power factor of not less than 0.95, from Substation 1, the only high voltage supply point, located at the Augusta mine. The entire power requirement is supplied via this location, including the underground operations and the Brunswick Processing Plant. The site also has 750kVAR to assist with Power factor correction.

In addition, the Costerfield Property has 1mVA of diesel power generation which is automatically synchronised to connect to all the infrastructure in the event the power demand increases above the 3.277mVA which can be provided by Powercor. During periods of high demand on the Victorian electrical network, Mandalay Resources can manually activate this power source and therefore decrease the burden on the network, and assist with the states grid supply.

5.5.4 The Brunswick Processing Plant

The Brunswick Processing Plant consists of a 140,000 tonnes per annum (tpa) gravity-flotation gold-antimony processing plant, with additional workshop facilities, site offices, TSFs, core shed and core farm located nearby. The plant produces an antimony-gold concentrate that is trucked to the Port of Melbourne, 130 km to the south where it is transferred onto ships for export to foreign smelters.

Process water for the Brunswick Processing Plant is drawn from the brine stream of the Reverse Osmosis (RO) Plant and is supplemented by stored brine, while the Augusta Mine re-uses groundwater that has been dewatered from the underground workings.

Potable water is trucked in from Heathcote, while grey water is stored in tanks and sewage is captured in sewage tanks before being trucked off site by a local contractor.

5.5.5 Evaporation and Tailings Facilities

The Splitters Creek Evaporation Facility evaporates groundwater extracted from the Operations thereby maintaining the dewatering rates from the underground workings (Section 20.1.2).

Additional tailings storage was provided in 2018 with the completion of a lift to the existing Bombay TSF, enabling the currently utilised Bombay TSF to provide sufficient tailings storage capacity until Q2 2020. A lift on the Brunswick TSF is currently underway and be utilised once the Bombay TSF approaches capacity.

Recent planning approval has been granted for an additional 2.7 m lift to the Bombay TSF in order to provide further storage capacity.

6 HISTORY

Beginning with the initial discovery of the Costerfield Reef in the 1860s, until 1953, several companies have developed and mined antimony deposits within the Costerfield Property. Some underground diamond drilling is known to have occurred during the period 1934 to 1939, when Gold Exploration and Finance Company of Australia operated the Costerfield Mine, however details of these drill holes are scarce and poorly recorded.

Significant exploration of the Costerfield Property using modern exploration techniques did not occur until 1966.

6.1 Ownership and Exploration Work

This section describes the work carried out by different owners of the operation over time.

Table 6-1 details a summary of the historical drilling statistics by each company at the Costerfield Property since 1966.

Table 6-1: Historical drilling statistics for the Costerfield Property

Company	Year	Diamond Core (m)	Percussion/Auger (m)
Mid-East Minerals	1966–1971	3,676.2	
Metals Investment Holdings	1971	1,760.8	
Victoria Mines Department	1975–1981	3,213.0	
Federation Resources NL	1983–2000		2,398.3
AGD/Planet Resources JV	1987–1988		1,349.2
AGD NL	1987–1988		1,680.8
	1994–1995	1,368.5	5,536.0
	1996	195.5	2,310.0
	1997		725.0
AGD Operations *NB: From 2004 drilling descriptions have been reported in double years (ie 2004-2005) due to the fact that reporting has been in keeping with the Australian fiscal year (1 July to 30 June). Please note that from 2016, descriptions, including drilling metres for exploration will be reported in calendar year to coincide with the Canadian fiscal year (1 January to 31 December).	2001	3,361.1	
	2002	907.5	
	2003	1,522.0	
	2004	3,159.9	
	2005	4,793.4	
	2006–2007	4,763.4	
	2007–2008	2,207.2	
	2008–2009	2585.95	

Company	Year	Diamond Core (m)	Percussion/Auger (m)
Mandalay Resources	2009-2010	574.5	547.0
	2010 -2011	9890.0	732.0
	2011-2012	18,581.4	7,295.6
	2012 -2013	25,774.8	3,838.0
	2013 - 2014	20,817.0	3,906.0
	2014 - 2015	18,439.0	2,732.0
	2016	34,678.0	
	2017	26,403.0	
	2018	34,656.0	
	2019	9,556.0	
	2020	29,080.0	
	TOTAL	261,964.15	33,049.00

6.1.1 Mid-East Minerals (1968–1971)

From 1968 to 1969 the price of antimony rapidly rose from US$0.45/lb to US$1.70/lb. This encouraged Mid-East Minerals (MEM) to acquire large amounts of ground around Costerfield.

Between 1969 and 1971, MEM conducted large-scale geochemical, geophysical, and diamond drilling programmes. These were conducted across the south Costerfield area encompassing the Alison Mine and south towards Margaret's Lode, encompassing both the Cuffley Lode and the Augusta Mine areas. Diamond drilling for MEM was most successful at the Brunswick Mine. However decreasing antimony prices in 1971 caused MEM to abandon the project.

6.1.2 Metals Investment Holdings (1971)

A series of diamond drill holes were completed by Metals Investment Holdings in 1971. Most drilling occurred to the north of the Alison Mine, with the exact locations of the drill holes unknown. Two drill holes were situated to the north of the Tait's Mine (north of Augusta), of which minimal information remains.

6.1.3 Victorian Mines Department (1975–1981)

A series of diamond drill holes were completed by the Victorian Mines Department in the late 1970s. Most drilling occurred to the south of the Brunswick Mine. However, two drill holes (M31 and M32), were drilled approximately 150 m to the south of the South Costerfield Shaft in the Augusta mine area, and intersected a high-grade reef. This reef was interpreted as the East Reef, which was mined as part of the South Costerfield Mine.

6.1.4 Federation Resources NL (1983–2000)

Federation Resources NL undertook several campaigns of exploration in the Costerfield Property area but focused on the Browns-Robinsons prospects to the east of the Alison Mine. The exploration conducted identified a gold target with no evidence of antimony. This target has yet to be followed up by Mandalay Resources since it is considered to be a low priority.

Federation Resources NL conducted desktop studies on the area above the Augusta mine, noting the anomalous results of the soil geochemistry programmes conducted by The Victorian Mines Department and Mid-East Minerals, however they did not conduct any drilling at this location.

6.1.5 Australian Gold Development NL/Planet resource JV (1987–1988)

Australian Gold Development NL conducted a short Reverse Circulation (RC) drilling programme in 1987, in conjunction with their JV partner Planet Resources. This drilling consisted of a total of 21 drill holes for 1,235 m across the broader Costerfield Property area. Gold was assayed via Atomic Absorption Spectrometry (AAS), which compromised antimony grades. The drilling was completed using a tri-cone bit, which could have led to serious downhole contamination.

6.1.6 Australian Gold Development NL (1987–1997)

From 1987 to 1997, Australian Gold Development NL undertook several programmes of exploration and mining activities predominantly focused around the Brunswick Mine. A series of RC drill holes were drilled during 1997, testing for shallow oxide gold potential to the north of the Alison Mine. Several occurrences of yellow antimony sulphides were noted but these were not followed up.

6.1.7 AGD Operations Pty Ltd (2001–2009)

In 2001, AGD Operations Pty Ltd (formerly Australian Gold Development NL) and Deepgreen Minerals Corporation Ltd entered into an agreement to form a joint venture to explore the Costerfield Property tenements. The agreed starting target was the MH Zone, now known as the Augusta Mine.

6.1.7.1 2001

The AGD Operations Pty Ltd (AGD) drilling of the MH Zone commenced on 5 April 2001. In total, 27 diamond drill holes were completed for 3,301.1 m. All drill holes were drilled with an initial PQ or HQ collar to approximately 25 m depth and then completed using an NQ drill bit, the purpose of which was to maximize core recoveries. Triple-tube drilling was also employed in areas to maximize recoveries. Cobar Drilling Company Pty Ltd, based in

Rushworth, was contracted for the drilling programme. Less competent rock adjacent to the mineralisation was successfully recovered during this programme however core loss was still estimated to be up to 15% within the mineralised zones. All drill holes were downhole surveyed and orientated during drilling. Collar locations were surveyed by Cummins & Associates from Bendigo.

This drilling was confined to an area 180 m south of the South Costerfield Shaft and over approximately 400 m of the strike of the mineralisation.

It was identified that due to the prolonged mining and exploration completed in the Costerfield Property area, up to three different metric grids were in use. The drilling undertaken in 2001 at Augusta was drilled using the mine grid established in the late 1950s, which remains in use in present day mining and exploration activities.

6.1.7.2 2002

In 2002, AGD completed a further five drill holes at the MH Zone for a total 732.3 m, including 41.7 m blade drilling, 309.3 m of RC hammer drilling and 381.3 m of HQ diamond drilling. Drill hole MH034 intersected a fault zone at 55 m downhole. This is hypothesised to represent the Alison line of lode towards the south.

Towards the east of the MH Zone, AGD completed two lines of soil sampling comprising 400.5 m of aircore drilling in 88 drill holes. The known MH lodes were highly anomalous and a weak, gold-only trend was outlined 180 m east of the MH Zone. This zone was drilled by diamond drill hole MH028, which contained a large siliceous lode zone with low-grade gold values.

To the south of the MH Zone, AGD sampled two soil lines in 42 drill holes. It was later recognised that these drill holes were not drilled deep enough to sample the basement siltstones. A further line of 21 soil drill holes confirmed this theory. These drill holes picked up widespread anomalous gold geochemistry within a central strong anomaly. A total of 218 m of aircore drilling was completed.

6.1.7.3 2003

In 2003, the MH Zone was renamed the Augusta Deposit. In total, 30 diamond drill holes for 1,514 m were drilled by AGD as part of an infill and extension programme to the Augusta Deposit. The main purpose of this drilling was to prove continuity of the deposit to near surface, in preparation for open-pit mining and to extend the mineralised system both north and south. Mineralisation was shown to extend north to the South Costerfield Shaft and upwards to the surface. To the south, drilling confirmed that the lode system, although being present, was not economic.

Each drill hole was logged in detail and geological lode thickness and recovered thicknesses were recorded. Core loss was estimated to be less in this drill programme when compared to previous drilling programmes, even though the majority of drill holes were drilled in the weathered zone.

In addition to the infill and extension programme, 14 RC drill holes were drilled as part of a metallurgical test work programme. These drill holes were drilled at low angles to the lodes, specifically designed to obtain the required sample mass for the metallurgical test work.

6.1.7.4 2004/2005

Between October 2004 and April 2005, AGD completed a 26 drill hole diamond programme at the Augusta Deposit. Apart from 5 m percussion pre-collars and 4 RC geotechnical drill holes, the drill holes were all drilled by HQ triple-tube diamond drilling.

The objectives of the diamond drilling programme were:

- Improvement in mineralisation definition by increasing drill hole density,
- Extension of the mineralisation model by drilling around the deposit periphery,
- Increasing the Mineral Resource and Mineral Reserve.

6.1.7.5 2006/2007

AGDs drilling activities throughout 2006 and 2007 comprised grid drilling of the Brunswick Deposit and drilling of the periphery of the Augusta Deposit for a total of 7,562 m of diamond drilling. This comprised the following drill holes:

- 31 drill holes, totalling 4,994 m, drilled under the old Brunswick open pit for resource estimation,
- 17 drill holes, totalling 755 m, drilled into the upper northern end of W Lode,
- 20 drill holes, totalling 1,813 m, drilled north of the Augusta Mine to test E Lode's northern extent.

The Brunswick Resource definition drilling was drilled using HQ triple tube with a modified Longyear LM75 drill rig by Boart Longyear drilling. The area under the pit was drilled on a 40 m x 40 m pattern.

Due to initial difficulty with following W Lode underground, a Bobcat mounted Longyear LM30 diamond drilling rig was used to infill drill the near-surface portion of W lode. This drilling was completed using a thin-kerf LTK60 sized bit and barrel, with a total of 17 drill holes for 755 m being drilled adjacent to the Augusta box cut.

On completion of the Brunswick and W Lode drilling, both the LM75 and the LM30 rigs were used to drill north of the Augusta Mine, tracing the northern extent of E Lode towards the old

South Costerfield workings. A total of 20 drill holes for 1,813 m were drilled north of the Augusta Mine.

Development of the Augusta decline commenced during the first quarter 2006. By the end of the second quarter all the surface infrastructure had been completed together with open cut mining of E and C lodes. Decline development commenced during June 2006 with underground in production by the end of the third quarter of 2006.

6.1.7.6 2007/2008

AGDs drilling activities throughout 2007 and 2008 comprised reconnaissance drilling of the Tin Pot Gully Prospect, drilling along-strike and down-dip of the existing Augusta Deposit. A total of 3,395.6 m of diamond drilling was carried out during the year. This comprised the following:

- 13 drill holes, totalling 1,188 m, drilled under the Tin Pot Gully Prospect,
- 11 drill holes, totalling 2,207 m, drilled into the Augusta Deposit, particularly to test W and E Lodes.

Encouraging results highlighted down-dip and strike extensions in terms of vein widths and grades, as described below:

- W Lode: 8 of the 11 drill holes confirmed W Lode continuity down-dip, with true thicknesses ranging from 0.254 m to 0.814 m at 22.50 g/t to 89.26 g/t gold and 16.19% to 47.20% antimony,
- E Lode: 3 of the 8 drill holes confirmed E Lode continuity down-dip, with true thickness ranging from 0.074 m to 0.215 m at 4.24 g/t to 35.1 g/t gold and 3.25% to 32.2% antimony,
- N Lode: 6 of the 11 drill holes intercepted N Lode or a similar structure in the hanging wall of W lode, showing true thicknesses from 0.09 m to 0.293 m at 6.82 g/t to 46.9 g/t gold and 6.81% to 27% antimony.

Based on these results, AGD commissioned AMC Consultants to undertake a resource estimate for the Augusta Deposit, in January 2008.

Between February and June 2008, Silver City Drilling Company completed 11 drill holes, totalling 2,207.2 m that were drilled on the northern section of the Augusta Deposit, particularly from 4,411 mN to 4,602 mN.

The 11 surface drill holes covered an area of approximately 18,740 m^2, delineating a 120 m down-dip continuation of mineralisation below 4 Level, in the three dominant Augusta Lodes: W Lode, E Lode, and N Lode. The drill holes ranged in size from HQ to NQ and LTK46.

By June 2008, capital development reached 7 Level (1,081 mRL). Development was completed on E Lode on 5 Level and was half way through completion on 6 Level. W Lode development was completed down to 4 Level and development on 5 Level was just beginning. Handheld airleg rise mining had begun.

6.1.7.7 2008/2009

AGDs drilling activities throughout 2008 and 2009 comprised drilling along-strike and down-dip from the existing Augusta resource. A total of 2,585.95 m of diamond drilling was completed.

Drilling during 2008 and 2009 was concentrated on the definition of the W Lode resource. Five drill holes tested the depth extent of W Lode. Another 13 drill holes were designed as infill drill holes to test ore shoots and gather geotechnical data. Drill holes ranged in size from HQ to NQ and LTK46.

By June 2009, capital development had reached 9 Level (1,070 mRL). Ore drive development was constrained to levels along E and W Lodes. Stoping along W Lode was being conducted and additional mining along E Lode using 3 different mining methods, floor benching, cut and fill and long-hole stoping was underway.

6.1.8 Mandalay Resources Corporation – trading as AGD (2009 - 2013)

On 1 December 2009 AGD was acquired by Mandalay Resources Corporation, however the company continued to trade as AGD Mining Pty Ltd/AGD Operations Pty Ltd up until the 7th of September 2013 when the company changed its trading name to Mandalay Resources Corporation.

6.1.8.1 2009/2010

Drilling from July 2009 to June 2010 comprised mainly drilling along-strike and down-dip from the existing Augusta resource (MIN 4644). In total 332.5 m of diamond drilling was undertaken targeting the Augusta resource.

In addition, 547 m of bedrock geochemistry aircore drilling was completed at Augusta South within ML MIN4644.

Outside of the main field, 120.5 m of diamond drilling was completed at the True Blue Reef prospect within EL3310 and 122.8 m of diamond drilling at Hirds Reef prospect within EL4848.

Drilling during this reporting period was concentrated on the definition of the W Lode resource. Four drill holes tested the depth extent of W lode. Another 6 drill holes were designed as infill drill holes to test ore shoots and gather geotechnical data.

From July 2009 to June 2010 capital development reached 1,020 mRL, 155 m below surface. Ore drive development was carried out on E Lode and W Lode.

6.1.8.2 2010/2011

Drilling from July 2010 to June 2011 was undertaken on two projects, the Augusta Deeps drilling project and the Brownfields Exploration project. The Augusta Deeps project was undertaken with the view to extending the Augusta resource to depth, on licence MIN4644. The objective of the Brownfields Exploration project was to find additional ore sources within Mandalay Resources tenements, in order to supplement the Augusta Deposit ore. The initial emphasis of the Brownfields Project was to identify sources of ore within 1 km of the Augusta Decline. In total 9,890.7 m of diamond drilling and 732 m of auger drilling was undertaken as part of the two projects from July 2010 to June 2011.

Capital development reached 976 mRL, 200 m below surface. Ore drive development was carried out on E and W Lodes.

6.1.8.3 2011/2012

Drilling was undertaken on four projects; the Augusta Deeps drilling project, the Alison/Cuffley drilling project, the Brownfields/Target Testing drilling project and the Target Generation – Bedrock Geochemistry auger drilling project.

The Augusta Deeps project was undertaken with the view to extending the current Augusta resource to depth and along-strike, on licence MIN4644. The Alison/Cuffley Project was undertaken to outline the recently discovered Cuffley Lode and to define an initial Inferred Resource.

The objective of the Brownfields Target Exploration project was to find additional ore sources within Mandalay Resources tenements, to supplement the Augusta Deposit ore. The initial emphasis of the Brownfields Project was to identify sources of ore within 1 km of the Augusta Decline, and represented a more regional programme.

The Bedrock Geochemistry auger drilling project revealed anomalous mineralised zones under shallow alluvial/colluvial cover throughout the tenements.

In total 18,581.4 m of diamond drilling and 7,295.6 m of auger drilling was undertaken as part of the four projects from July 2011 to June 2012. On 17 June 2011 MB007 intersected the Cuffley Lode, just below a flat fault that had stopped production at 5 Level in the Alison mine in 1922. Resource drilling commenced in July 2011.

The Cuffley Lode is located 500 m north-northwest of the Augusta Deposit workings and scoping studies commenced in 2011 to access the deposit from the Augusta Decline. From July 2011 to June 2012 capital development reached 926 mRL, 252 m below surface, and ore drive development was carried out on E and W Lodes.

6.1.9 Mandalay Resources Costerfield Operations Pty Ltd (2013 - present)

On 7 February 2013 AGD Operations Pty Ltd underwent a name change to Mandalay Resources Costerfield Operations Pty Ltd.

6.1.9.1 2012/2013

Drilling was undertaken on two primary projects; Cuffley Resource Drilling and Augusta Resource Drilling. In total, 25,774.8 m of diamond drilling and 3,838 m of auger drilling were undertaken from July 2012 to June 2013.

During the same period capital development reached 878 mRL, 300 m below surface, and ore drive development was carried out on E, W and N Lodes.

6.1.9.2 2013/2014

In 2013/2014 the focus was on finalising the Cuffley and Augusta Resource Drilling. In total, 20,817 m of diamond drilling and 3,906 m of auger drilling was undertaken.

During 2014, mining took place along the Augusta and Cuffley Deposits. Development on C1 and C2 lodes within the Cuffley Deposit began in January 2014. Both deposits were accessed through the Augusta portal, with Cuffley capital infrastructure exiting the Augusta Decline at the 1030 Level.

6.1.9.3 2014/2015

Exploration in 2015 was focused on extending the Cuffley and Augusta Resource both along-strike and dow-dip at depth. The expansion of the Cuffley resource included the commencement of drilling in the Cuffley Deeps and Sub King Cobra regions. In total, 18,439 m of diamond drilling and 2,732 m of RC drilling was undertaken during 2015.

Mining took place along the Augusta and Cuffley Deposits. Development on C1 and C2 lodes within the Cuffley Deposit began in January 2014.

6.1.9.4 2016

*NB: From 2004 drilling descriptions have been reported in double years (ie 2004-2005) due to the fact that reporting has been in keeping with the Australian fiscal year (1 July to 30 June). However, from 2016, descriptions, including drilling metres for exploration have been reported in calendar years to coincide with the Canadian fiscal year (1 January to 31 December).

Exploration in 2016 was focussed predominantly on near mine and opportunistic targets close to the existing infrastructure and capital development, with the primary focus to extend the

Life of Mine (LOM). In addition, near-mine exploration was carried out on targets within 1 km of the existing portal. In total, 34,678 m of diamond drilling was undertaken.

Throughout the year, mining took place along the Augusta and Cuffley Deposits. Within the Augusta Deposit, ore was extracted through drive development and stoping along N Lode north, with a small amount of development and stoping occurring on B and E Lodes. Development and stoping continued on the Cuffley C1 and C2 lodes.

6.1.9.5 2017

Exploration in 2017 was focused predominantly on near mine and opportunistic targets close to existing infrastructure and capital development, with the primary focus to increase immediate mine life. A strong focus for the year was infill and extension drilling of the Brunswick resource whilst also increasing in-mine resources through Opportunistic Drilling Projects. A successful target testing campaign investigated the depth continuation of mineralisation underneath the Costerfield mine. In total, 26,403 m of diamond drilling was undertaken.

Throughout the year, mining took place along the Augusta and Cuffley Deposits. Within the Augusta Deposit, ore was extracted through drive development and stoping along N Lode north and NV Lode. A small amount of development and stoping occurred on B, K, and NE Lodes. Development and stoping continued on the Cuffley C1, C2 and CD Lodes.

6.1.9.6 2018

A strong focus for the 2018 exploration was on extending the Resource in order to replace the mined mineralisation, increasing the Reserve grade and extending the mine life.

Exploration in 2018 resulted in the inclusion of the high-grade Youle Lode into the Mineral Reserves. A total of 94,282oz gold and 7,000t antimony was added to the Mineral Reserves at grades of 11.2 g/t gold and 2.7% antimony.

Exploration also completed infill and extension drilling of the Brunswick and Youle Resources while also increasing in-mine resources through Opportunistic Drilling Projects. The Youle Resource drilling also informed the decision to mine the Youle Lode.

The goals achieved in 2018 included:

- Successful infill and resource drilling of the Youle Deposit,
- Commencement of capital development at the Youle Deposit,
- Regional exploration with drill testing of the Costerfield mine extension, Augusta East and Brunswick line of lode,
- Commencement of mining of the Brunswick Deposit.

In total, 34,656 m of diamond drilling was undertaken.

Throughout the year, the Augusta, Cuffley and Brunswick Deposits were mined, all of which were accessed through the Augusta portal with Cuffley's capital infrastructure exiting the Augusta Decline at 1,030 mRL.

6.1.9.7 2019

The exploration focus for 2019 was focussed on drilling of the Costerfield-Youle Deposit; which has included both infill and extensional drilling to delineate the high grade Youle zone to the north and extend mineralisation near current and planned development. The northern drilling extended the McDonald's target up to 400 m along-strike, tested for extensions to historic surface workings and tested the Youle lode to the north.

The Youle expansion program continued with deep target testing of the Costerfield line of lode following the developing understanding of gold enrichment environments. This drilling provided additional context for some previously intersected deep high-grade gold intercepts at Augusta. Throughout the year, 9,556 m of diamond drilling was undertaken.

With the commencement of mining on the Youle Lode, underground Resource definition drilling continued, together with the optimisation of production in areas to be mined in the short-term. Mine geology advancement was undertaken through Production Optimisation Drilling (POD), to provide confidence in grade, location of veining, geotechnical performance and viability ahead of mining.

In 2019, the Brunswick Deposit was being actively mined and Resource definition drilling was undertaken.

In 2019, the goals achieved included:

- Commencement of mining to the Youle Lode in September 2019,
- Initiation of northern Youle extension program, aimed at extending the Youle Resource to the north and at depth,
- Increasing the existing Indicated Resource of the Youle Lode,
- Regional target generation by conducting extensive surface mapping, drill hole database integration, soil geochemistry and evaluation of geophysical data. This work aided in the generation of a three dimensional (Leapfrog based) integrated structural and geological model of the Costerfield Property area,
- Expansion of the orebody knowledge and Resource tonnage in the near-mine environment, in particular extension and infill in the Brunswick mineralisation system.

6.1.9.8 2020

Exploration during 2020, was predominantly focused on extending, defining and upgrading the Youle Resource. This drilling involved both infill and extensional drilling to delineate the high-grade Youle zone to the north, south, down-plunge at depth and above the orebody in areas of historical mining. The main objective was to extend mineralisation near current and planned development. The focus of target generation was near the Youle Resource, in particular the northern extension and at depth.

The final three drill holes, consisting of one parent drill hole and 2 wedge drill holes, of the four drill hole deep-target line of lode testing program were completed, totalling 1,977 m. This program was initiated to develop an understanding of the gold enrichment environments at the Costerfield Property and has provided additional context for previous deep high-grade gold intercepts at Augusta.

With the commencement of mining on the Youle Lode in September 2019, underground Resource definition drilling continued at Youle, together with optimisation of production in areas to be mined in within 6 to 12 months. Mine geology advancement was undertaken through POD to provide confidence in grade, location of veining, geotechnical performance and viability ahead of mining.

A series of regional diamond drilling programs were designed and executed in Browns/Robinsons (6,123 m), True Blue (695 m) and Damper Gully (561 m). Near mine exploration activity included Kendell Upper (4,578.8 m), Youle Growth, north and south bounding (13,990 m), and Minerva Testing (1,253 m), designed to test the potential areas around the Costerfield Property that may add significant resources to the operation. Brunswick KR Panel definition drilling (315 m) was undertaken in an attempt to define mineralisation in the Kiwi to Rooster panel below the current Brunswick mine workings.

Throughout the year, 29,080 m of diamond drilling was undertaken. In 2020, the Brunswick and Youle Deposits were being actively mined and definition drilling was completed.

In 2020, the goals achieved included:

- Continued extensional drilling at depth, north and south of Youle, giving rise to a high-grade gold domain at depth, as well as another emerging high-grade plunge extension to the north at depth,
- Expansion of the existing Indicated Mineral Resource of the Youle Lode,
- Drilling above Youle to investigate instances of veining that were not extracted during the historic mining of Costerfield, suggesting the potential for further undiscovered mineralisation around the historic workings that could be accessed from the Youle infrastructure,

- A series of regional diamond testing programs (Browns, Robinsons Damper Gully and True Blue prospects) were designed and executed with the intent of testing areas around the Costerfield Property that may add growth to the life of the operation,
- Continued generation of a three-dimensional (Leapfrog-based) integrated structural and geological model of the Costerfield region,
- Expansion of the Youle orebody knowledge and resource tonnage in the near-mine environment,
- Installation of the Brunswick portal.

6.2 Historical Resource and Reserve Estimates

Mandalay Resources has reported Mineral Resources and Reserves for the Costerfield Property from 2010 to 2020 (Table 6-2 and Table 6-3).

These estimates have been superseded by the current Resource and Reserve estimates in this report.

Table 6-2: Historical Mineral Resources – Costerfield Property

Effective Date	USD$/ oz Au	USD$/ oz Sb	Cut-off Grade (AuEq g/t)	Measured Resource					Indicated Resource					Inferred Resource				
				Tonnes (kt)	Au (g/t)	Sb (%)	Au Ounces (k oz)	Sb Tonnes	Tonnes (kt)	Au (g/t)	Sb (%)	Au Ounces (k oz)	Sb Tonnes	Tonnes (kt)	Au (g/t)	Sb (%)	Au Ounces (k oz)	Sb Tonnes
1/03/2010	1,000	6,000		67.2	16.9	10.0	36.4	6,749	189.6	9.6	4.6	58.4	8,683	245.7	7.8	4.2	61.5	10,202
31/12/2011	1,100	9,850	4.6	158.4	12.9	7.8	65.5	12,291	202.4	7.3	3.7	47.7	7,502	375.0	12.7	5.6	152.9	21,183
31/12/2012	1,600	12,500	4.7	167.0	8.0	4.9	42.7	8,202	367.0	10.0	3.5	117.9	12,912	610.0	7.1	3.2	139.8	19,490
31/12/2013	1,400	12,000	3.9	191.4	8.4	4.3	51.5	8,157	606.0	9.6	4.0	186.4	24,237	570.0	7.4	3.7	135.3	21,342
31/12/2014	1,400	12,000	3.8	213	9.8	4.5	67	9,600	786	6.9	3.3	175	26,300	519.0	5.3	2.6	89.0	13,700
31/12/2015	1,400	11,000	3.8	247	12.1	4.6	96	11,000	798	7.6	3.4	194	27,000	491	4.3	2.0	68.0	9,700
31/12/2016	1,400	10,000	3.5	286	9.5	4	88	11,400	812	5.9	2.5	155	20,600	611	5.5	1.5	108.0	9000
31/12/2017	1,400	10,000	3.5	290	9.2	4.2	86	12,100	971	5.7	2.5	177	23,900	379	6.6	1.1	80.0	4,000
31/12/2018	1,400	10,000	3.5	245	8.5	4.0	67	9,800	1073	8.2	2.9	283	31,000	497	8.0	1.9	128	9,500
31/12/2019	1,500	10,000	3.5	283	9.6	4.5	87	12,700	830	9.6	2.9	256	24,000	533	6.8	1.7	117	9,000

Table 6-3: Historical Mineral Reserves – Costerfield Property

Effective Date	USD$/ oz Au	USD$/ oz Sb	Cut-off Grade (AuEq g/t)	Proven Reserves					Probable Reserves					Total Reserves				
				Tonnes (kt)	Au (g/t)	Sb (%)	Au Ounces (k oz)	Sb Tonnes	Tonnes (kt)	Au (g/t)	Sb (%)	Au Ounces (k oz)	Sb Tonnes	Tonnes (kt)	Au (g/t)	Sb (%)	Au Ounces (k oz)	Sb Tonnes
1/03/2010	1,000	6,000		20.1	16.9	9.7	10.9	1,953	45.4	11.4	5.8	16.7	2,636	65.6	13.1	7.0	27.6	4,588
31/12/2011	1,600	12,000	4.6	41.9	13.2	7.9	17.7	3,300	46.5	6.4	4.0	9.6	1,860	88.4	9.6	5.8	27.3	5,160
31/12/2012	1,600	12,500	4.7	48.1	11.0	6.5	17.0	3,128	130.0	8.1	3.2	33.9	4,161	178.2	8.9	4.1	50.9	7,289
31/12/2013	1,200	10,000	5.0	71.0	8.3	4.4	18.9	3,124	350.0	9.4	3.4	106.0	11,900	421.0	9.2	3.6	124.9	15,024
31/12/2014	1,200	10,000	5.0	98.0	10.4	4.5	32.0	4,400	333.0	7.4	3.3	80.0	11,200	431.0	8.1	3.6	112.0	15,600
31/12/2015	1,200	9,000	4.0	125	12.0	3.9	48.0	5,500	366	8.2	3.7	97.0	13,400	491	9.2	3.9	145.0	18,900
31/12/2016	1,200	8,000	4.0	184	8.1	3.5	48	6,400	434	5.7	2.6	80.0	11,100	619	6.5	2.8	128.0	17,501
31/12/2017	1,200	8,500	4.0	152	7.3	3.5	36	5,300	470	5.7	2.5	86.0	12,000	622	6.1	2.8	122.0	17,200
31/12/2018	1,200	8,500	4.0	76	8.4	4.0	20	3100	461	10.8	3.1	160.0	14,200	537	10.4	3.2	180.0	17,200
31/12/2019	1,300	7,000	4.0	114	9.5	4.8	35	5,400	360	14.6	3.4	169	12,400	474	13.4	3.8	204	17,800

6.3 Historical Production

The operation of the Augusta Mine was taken over by Mandalay Resources in December 2009. At this time, the mine had been operating since early 2006, with a short three month closure occurring in 2008 to 2009. Before Mandalay took ownership, approximately 95,000 tonnes were extracted, producing 25,000 ounces of gold and 4,200 tonnes of antimony.

The production record for the Costerfield Property is detailed in Table 6-4.

Table 6-4: Historical mine production – Costerfield Property

Year	Inventory (kt)	Gold Grade (g/t)	Antimony Grade (%)	Gold Metal Ounces (k oz)	Antimony Metal (tonnes)
2010	50.7	7.4	4.2	12.0	2,140
2011	72.0	7.3	3.7	16.8	2,637
2012	96.3	8.3	4.3	25.6	4,166
2013	129.6	9.1	4.2	37.7	5,418
2014	167.1	9.1	3.8	48.8	6,345
2015	153.6	11.2	4.2	55.6	6,484
2016	158.4	9.6	3.4	49.0	5,407
2017	140.6	8.2	3.3	37.1	4,612
2018	151.6	5.7	2.4	27.6	3,572
2019	137.5	5.2	2.6	23.0	3,538
2020	164.2	12.1	4.50	64.0	7,394

7 GEOLOGICAL SETTING AND MINERALISATION

7.1 Regional Geology

The Costerfield Property gold-antimony mineralisation zone is located at the northern end of the Darraweit Guim province, in the Western portion of the Melbourne Zone. In the Heathcote area of the Melbourne Zone, the Murrindindi Supergroup within the Darraweit Guim Province encompasses a very thick sequence of Siluro-Devonian marine sediments, which consist predominantly of siltstone, mudstone, and turbidite sequences (Figure 7-1).

The western boundary of the Darraweit Guim Province is demarcated by the Cambrian Heathcote Volcanic Belt and north-trending Mt William Fault, a major structural terrain boundary which separates the Bendigo Zone from the Melbourne Zone.

The Lower Silurian Costerfield Siltstone is the oldest unit in the Heathcote area and is conformably overlain by the Wappentake Formation (sandstone/siltstone), the Dargile Formation (mudstone), the McIvor Sandstone, and the Mount Ida Formation (sandstone/mudstone).

The Melbourne Zone sedimentary sequence has been deformed into a series of large-scale domal folds, which tend to be upright, open folds with large wavelength curvilinear structures. The major north-trending sub-parallel folds in the Darraweit Guim Province include, from west to east:

- The Mount Ida Syncline,
- The Costerfield Dome/Anticline,
- The Black Cat and Graytown anticlines,
- The Rifle Range Syncline.

The folds have been truncated by significant offsets along two major north trending faults, the Moormbool and Black Cat faults. The Moormbool Fault has truncated the eastern limb of the Costerfield Anticline, resulting in an asymmetric dome structure. The Moormbool Fault is a major structural boundary separating two structural subdomains in the Melbourne Zone. West of the Moormbool Fault is the Siluro-Devonian sedimentary sequence, hosting the gold-antimony lodes. The thick, predominantly Devonian Broadford Formation sequence occurs to the east of the fault and contains minor gold-dominant mineralisation.

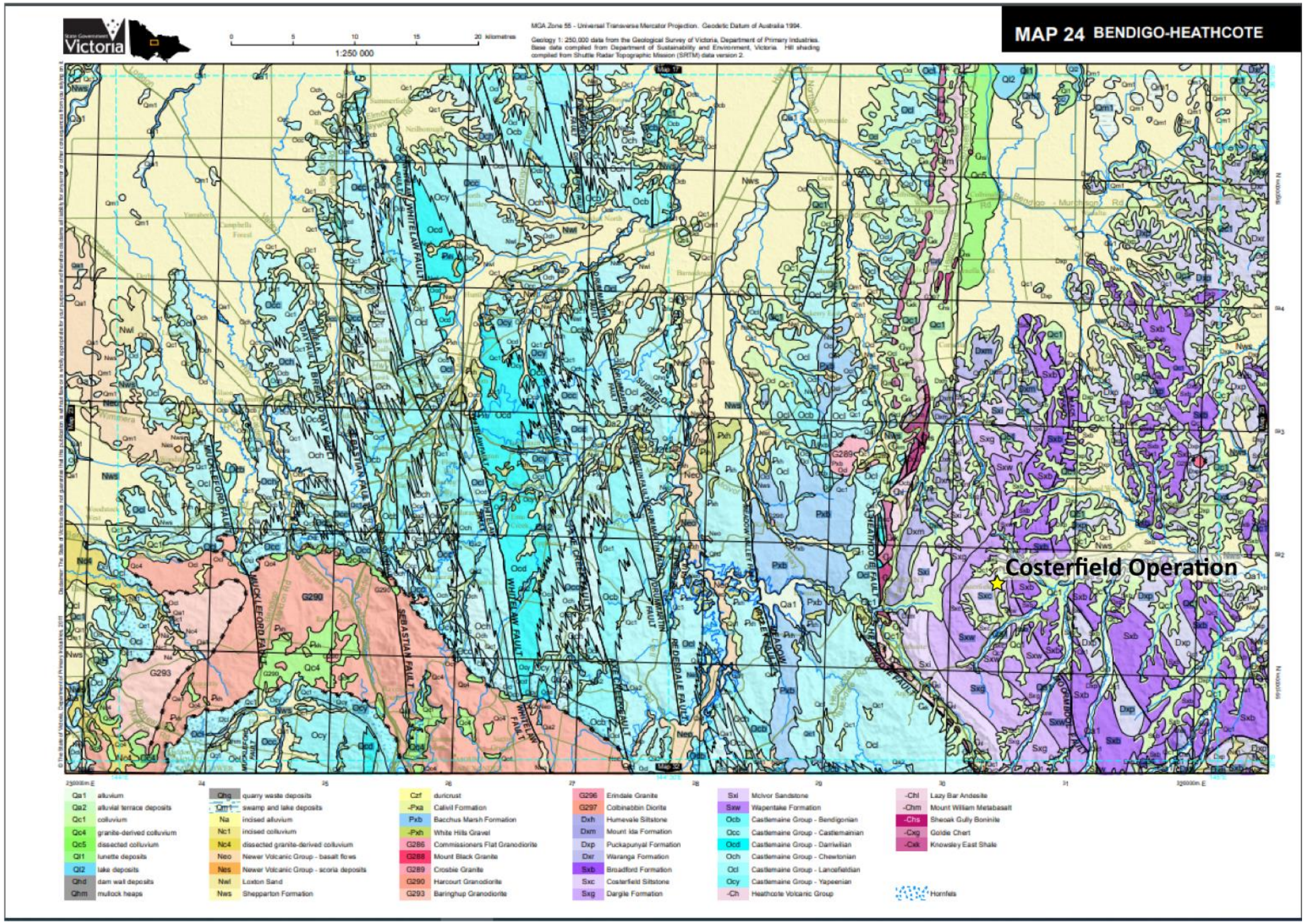

Figure 7-1: Geological map of the Bendigo - Heathcote region [Source: Geoscience Victoria, Geological Survey of Victoria, Earth Resources. 2011]

7.2 Property Geology

The Costerfield Property gold-antimony mineralisation is located in the Costerfield Dome, which contains poorly-exposed Lower Silurian Costerfield Siltstone at its core (Figure 7-2). Within the Costerfield Property, four north-northwest trending zones of mineralisation have been identified, which comprise from west to east:

- Antimony Creek Zone, approximately 6.5 km southwest of Costerfield, on the outer western flank of the Costerfield Dome,
- Western Zone, approximately 1.5 km west of Costerfield, on the western flank of the Costerfield Dome and includes the True Blue and West Costerfield Deposits,
- Costerfield Zone, near the crest of the dome, centred on the Costerfield township and hosting the major producing mines and deposits,
- Robinsons – Browns (R-B) Zone, 2 km east of Costerfield.

The Costerfield Property Siltstone-hosted quartz/sulphide lodes in the Costerfield Zone are controlled by north-northwest trending faults and fractures located predominantly on the western flank of the Costerfield Anticline. The host rocks are the Silurian Costerfield Formation siltstones and mudstones, which are estimated to be between 450 m and 550 m thick, and are the oldest exposed rocks in the local area.

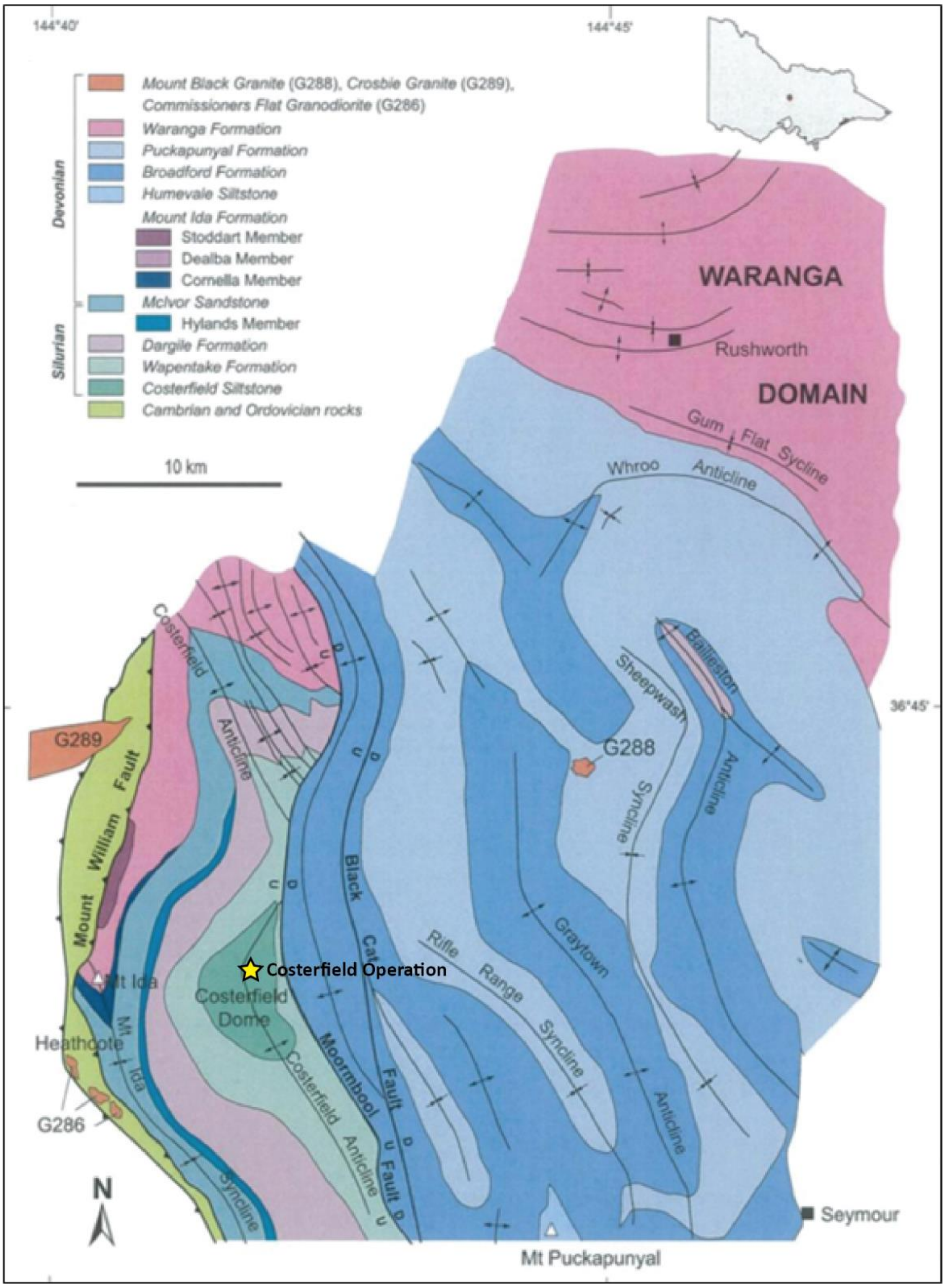

Figure 7-2: Geological map of the Heathcote – Colbinabbin - Nagambie region [Source: Vandenberg et al., 2000]

Locally, the sedimentary succession of the Costerfield Property has been deformed into a broad anticlinal dome structure with numerous cross-cutting reverse thrust faults. This domal structure is thought to have resulted from two separate tectonic events, the first producing shortening in an east-west direction (folding and thrust faulting) and the second producing north-south shortening (gentle warping and mild folding). The anticlinal hinge zone of the Costerfield Anticline has been thrust over its eastern limb by the north-south trending King Cobra Fault zone (Figure 7-3).

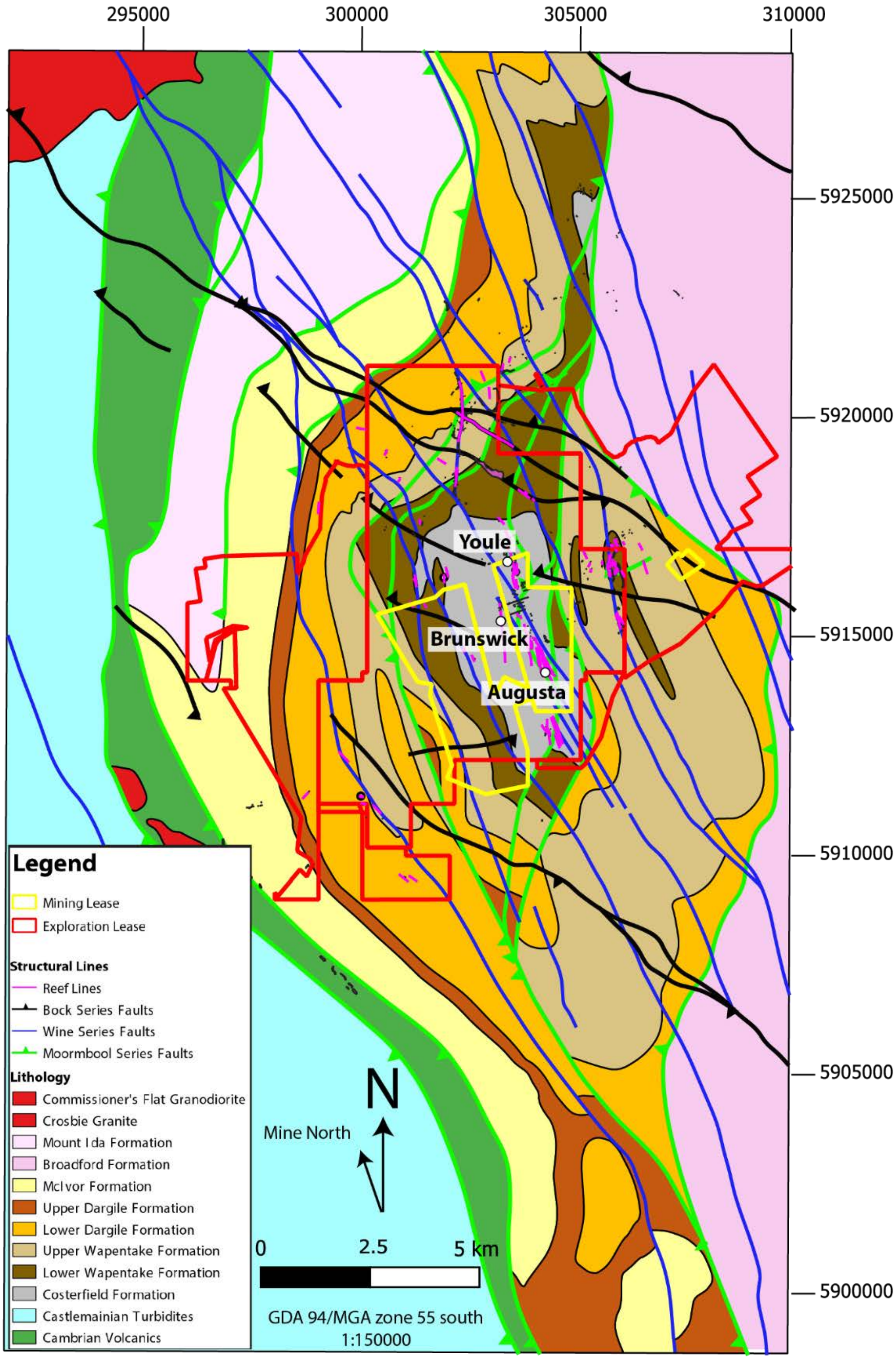

Figure 7-3: Regional geology and the Costerfield Property geology

7.3 Property Stratigraphy

Stratigraphic investigations, focused around the currently active Augusta workings within the South Costerfield area, have found many previously unrecognised stratigraphic units and structural features. Sub-surface stratigraphic mapping from drill hole data, has indicated that the local host of the mineralisation, the Costerfield Formation, is far more stratigraphically complex than previous investigations have documented.

7.3.1 The Darraweit Guim Province

The oldest outcropping strata documented in the region is the Costerfield Formation and is believed to be Lower Silurian in age (Sandford and Holloway, 2006). The Costerfield Formation, in the Costerfield area, is overlain by muddy siltstones and sandstones of the Lower Silurian aged Wappentake Formation, and Dargile Formation. Upper Silurian sedimentation is recorded in coarser silici-clastic successions of the McIvor Sandstone which is then finally overlain by the early-Devonian Mt Ida Formation. The Mt Ida Formation records the final phase of sedimentation in the greater Heathcote region.

The overall stratigraphic thickness of the Darraweit Guim Province of is unknown, however estimations of the true stratigraphic thickness are in the range of 6 km to 7 km, all of which occurred without any significant depositional hiatus (Figure 7-4).

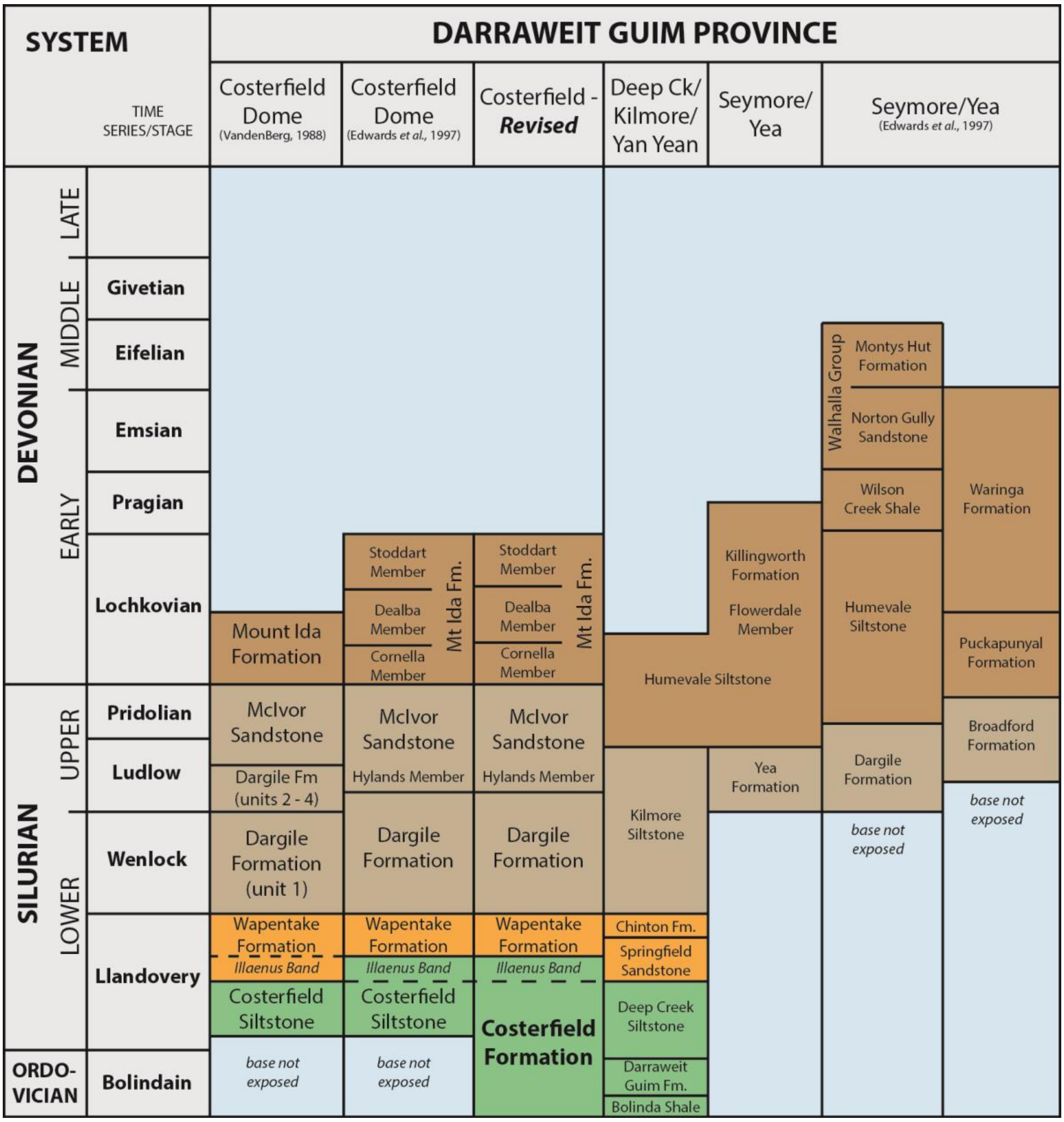

Figure 7-4: Regional stratigraphy of the Darraweit Guim Province, by locality [Modified from Edwards et al., 1997]

7.3.2 The Costerfield Formation

The Costerfield Formation (as defined by Talent, 1965) is a series of thickly bedded mudstones and siltstones featuring heavy bioturbation. The 'Formation' nomenclature of Talent (1965), has been adopted for use within this report instead of the later re-assigned name of 'Costerfield Siltstone', as re-defined by Vandenburg (1988), since the formation consists of dominantly mudstone lithologies, with siltstones and sandstones representing the lesser constituents as relatively thin interbedded occurrences. It is recommended that the 'Siltstone' nomenclature be abandoned since it has become a misleading term, inferring that the unit is composed of siltstone dominant lithologies, when this in not the case.

The Costerfield Formation is dominated by weakly bedded mudstones and silty-mudstones with some lesser siltstone and sandstone constituents. The Formation is informally divided into lower and upper portions on the basis of a significant lithological change mid-way through the succession. Estimations of the true stratigraphic thickness of the Formation are made difficult due to significant faulting in the area; however it is estimated to be in the range of 450 m to 550 m in thickness, with the lower and upper portions of the Formation being around 200 m and 300 m thick respectively.

Informal lithostratigraphic units of the Lower Costerfield Formation are named the Siliciclastic unit and Quartzite beds, while the lithostratigraphic units of the Upper Costerfield Formation are named the Lower siltstone unit, Augusta beds and the Upper siltstone unit (Figure 7-5).

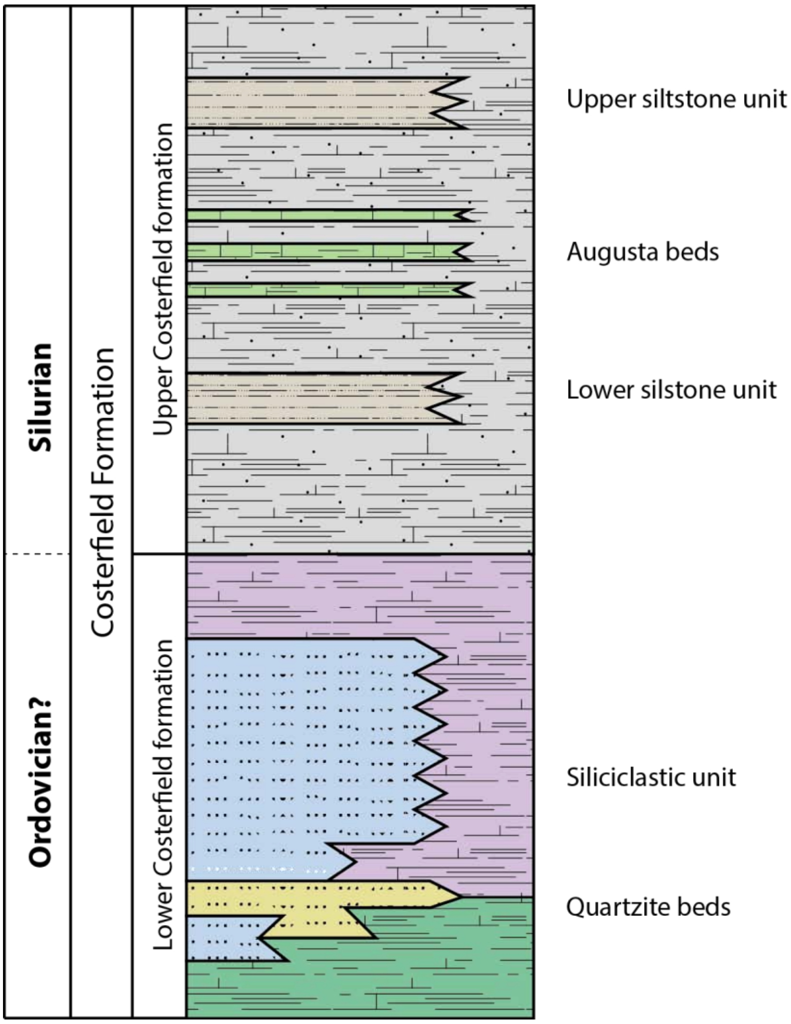

Figure 7-5: Stratigraphy of the Costerfield Formation, illustrating the relative positions of the newly defined informal stratigraphic units

7.4 Property Structural Geology

7.4.1 South Costerfield Area

Resource-definition diamond drilling for the Augusta and Cuffley Deposits has resulted in the collection of a large volume of geological data in the South Costerfield area, enabling the construction of highly refined cross-sectional interpretations. These cross-sections have revealed that the Augusta and Cuffley Deposits are bounded vertically between two large, low angle west-dipping parallel thrust faults named the Adder Fault (upper) and the King Cobra Fault (lower). The faults are typically 250 m apart in the South Costerfield area where they have been recognised.

The area between these two large structures is also heavily faulted, resulting in a defined zone of intense brittle deformation. Three significant second-order faults occur within the fault zone, the Flat, Red Belly and Tiger Faults, which are interpreted as having listric geometry, most likely mimicking the larger structure of the Adder and King Cobra Faults.

The faults are all observed to be extremely brittle structures. The large-scale Adder and King Cobra Faults are typically represented by a 1 m to 2 m zone of fault pug, associated with several metres of extremely heavily fractured and sheared lithologies in both the footwall (FW) and hangingwall (HW) blocks, which is regarded as representing regional scale thrust faults or a thrust zone. This zone has been informally named the Costerfield Thrust.

Mandalay Resources interprets the Costerfield Thrust to be the southern extent of the historically recognised Costerfield Fault. Stratigraphic interpretations suggest that the overall shortening and stratigraphic displacement across the Costerfield Thrust is in the order of approximately 1 km.

An additional series of brittle faults are observed within this thrust system, striking in a north-northeast direction, such as the East Fault. These faults have a sub-vertical dip and are generally observed as 1 m to 2 m thick zones of unconsolidated breccia with minor pug on the fault plane itself. The lateral extent of these faults is uncertain, however they appear to be localised structures as the interpretation of these structures between drilling sections is highly difficult. Offsets across these steep dipping faults appears to mostly represent strike-slip and overall vertical movement, estimated to be on the scale of less than 50 m. Lateral offset on the faults is presently unknown.

Ductile deformation of the Costerfield Formation occurs as a broad anticlinal structure with a wavelength estimated in the range of 1.5 km to 2 km. Smaller parasitic folds are observed to have a northerly striking fold-axis that dips slightly to the east, and are assumed to mimic the larger scale folding of the area. Ductile to semi-ductile veining and/or faulting is evident within the Costerfield Formation and occurs as 20 mm to 100 mm laminated quartz veins. They are typically bedding parallel, although laminated veins cross-cutting stratigraphy are not uncommon. Displacement across these faults/veins is uncertain as their bedding-parallel characteristics make the determination of displacement through stratigraphic observations difficult. The veins that cross-cut the bedding, however, do appear to record displacement in the range of 10 m to potentially hundreds of metres.

7.4.2 Brunswick Area

Resource-definition diamond drilling of the Brunswick Deposit has resulted in the collection of a large volume of geological data, particularly below the previously mined Brunswick Lode. The Brunswick Deposit is located northwest of the current Cuffley workings, proximal to the Brunswick Processing Plant. Drilling completed in 2008, confirmed that the deposit is composed of a single main thrust structure, which occurs as a strongly sheared, well-mineralised pug zone as well as a large stibnite-bearing quartz vein/lode.

Since late 2015, the conceptual structural model of the Brunswick Lode evolved from a relatively linear single plane fault, into a series of thrusted panels, progressively separated by low-angle thrust faults. The flat thrust faults have the effect of transposing each lode panel above several metres east (Figure 7-6). Flat faults bisect lode structures in many other places throughout the field, including Alison-Cuffley, Costerfield (the Kendall system), Margaret and Margaret East, and N Lode to varying degrees.

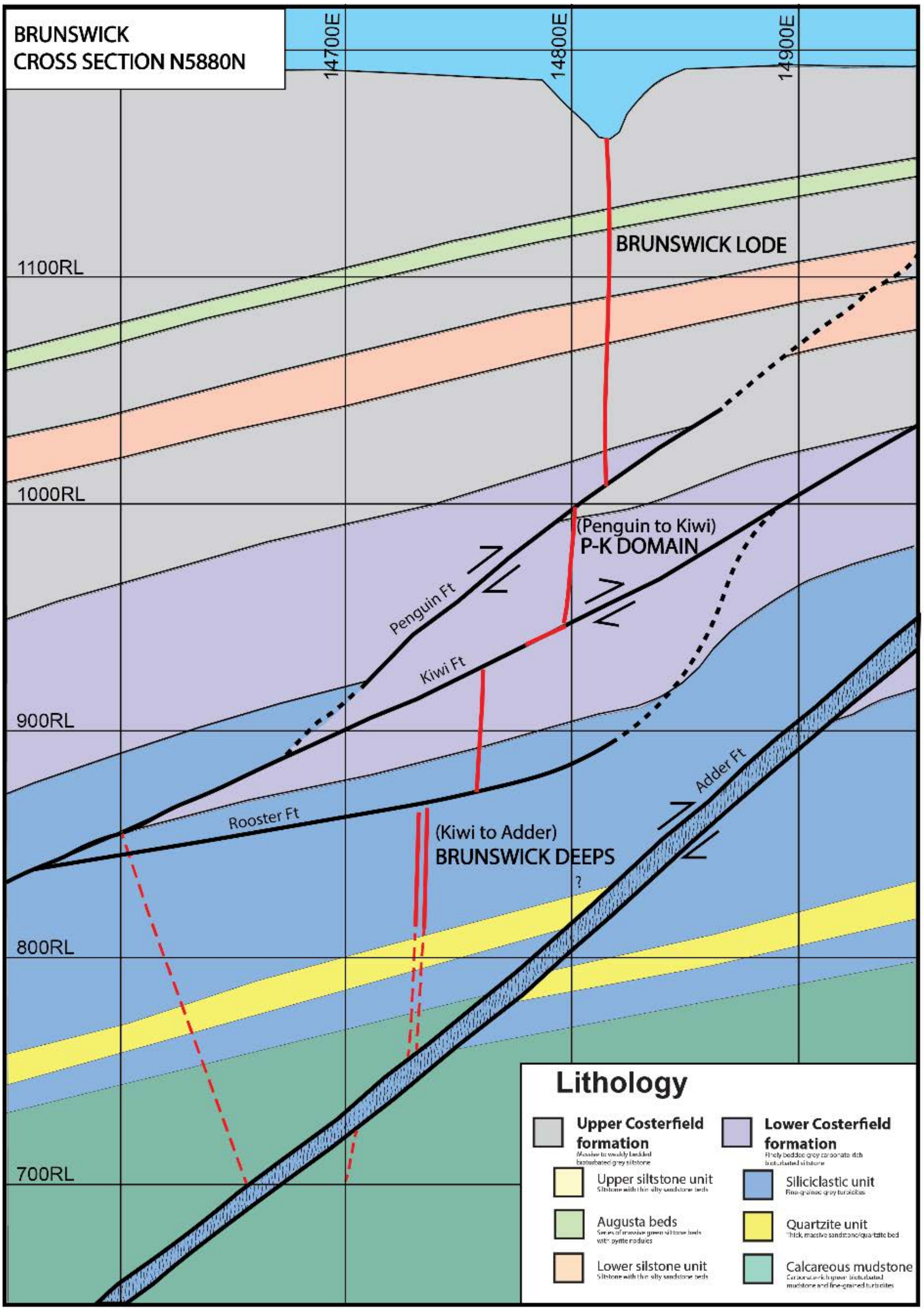

Figure 7-6: Cross-section 5,880N, through the Brunswick System

The Penguin to Kiwi (PK) panel, located between 900 mRL and 1000 mRL, is the first down-dip, major offset of the Brunswick Lode, with an apparent displacement of around 15 m to the west. The panel is separated into two portions in the north by a HW splay of the Penguin

Fault. Most drill holes in the splay-bound portion of the PK panel are low grade, although typically they are close to the bounding faults and potentially reflect fault blanks.

The Brunswick Emperor to Kiwi Panel is bounded down-dip by the FW plane of the Kiwi Fault and is interpreted to dip predominantly to the west with proximity to the fault plane.

The Brunswick Kiwi to Rooster Panel is bounded up-dip by the HW plane of the Kiwi Fault. A duplex of the Kiwi Fault is seen to the west of the Emperor to Kiwi Panel and is interpreted to be an indicator of post mineralisation movement on the Kiwi Fault. The complex relationship between the FW and HW blocks of the Kiwi Fault is now interpreted to represent both pre-syn and post Brunswick Shear mineralisation. This interpretation is key to identifying the presence of mineralisation on the different bounding fault planes. The continuity of mineralised shoots across the flat thrust faults, such as the Kiwi Fault, highlight the potential for mineralisation to continue at depth below the Kiwi Fault.

7.4.3 Costerfield – Youle Area

The Youle Lode, named after one of the original prospectors in the district, dips west and is identified as the down-dip continuation of the vertical Kendall Lode, which has been offset westward over the west dipping No.4 thrust fault (Figure 7-7). The strike of Youle extends approximately 600 m in horizontal length and has a vertical length of approximately 150 m.

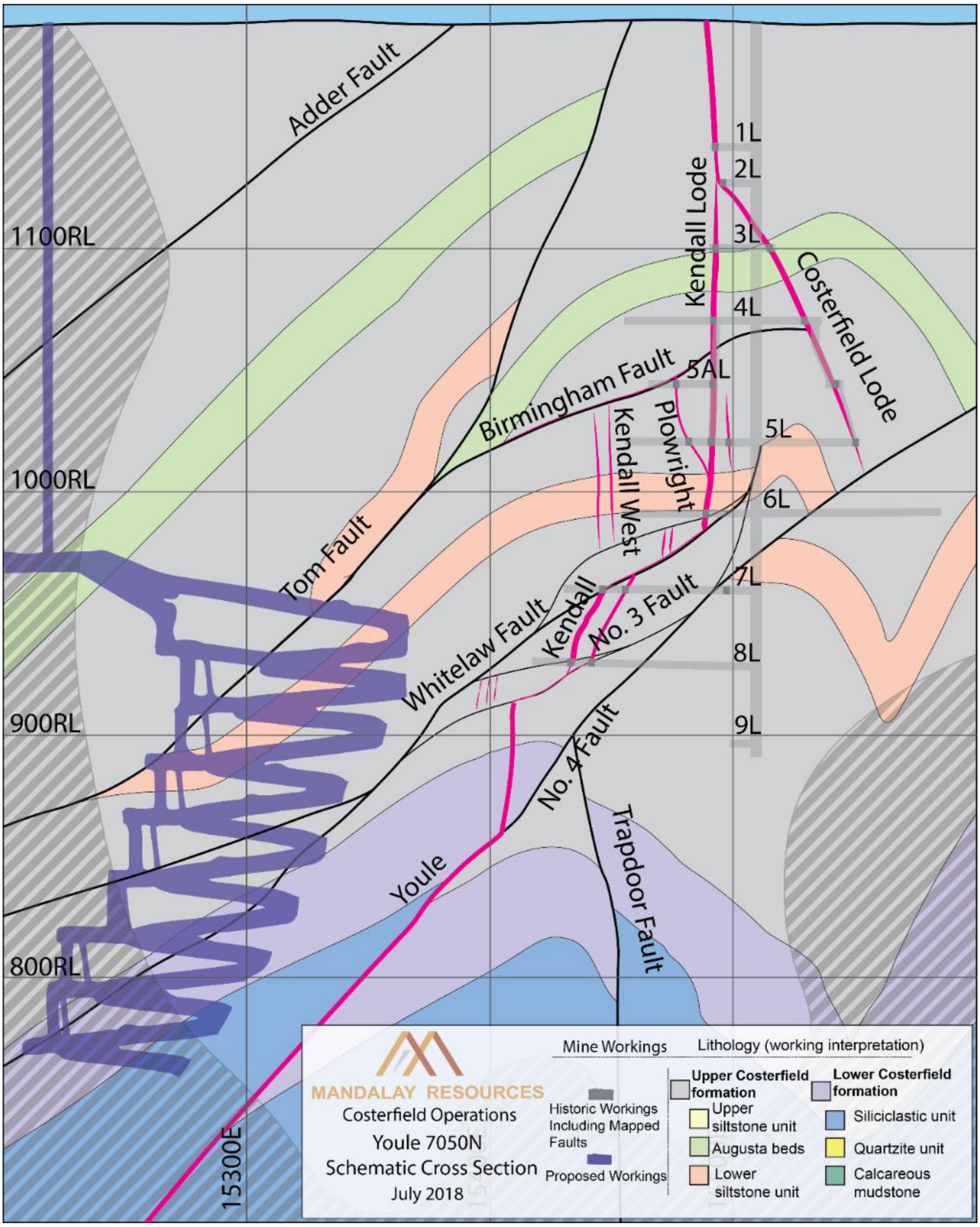

Figure 7-7: Cross-section 7,050N, through the Costerfield - Youle System

Mineralisation exists at surface and is vertically continuous in one plane until the intersection with a flat fault (Whitelaw back) where mineralisation switches planes to the west (Section 8). Historically, both the east dipping Costerfield Reef and west dipping Kendal Reefs were mined underground to a depth of approximately 270 m below surface (Figure 7-7).

Mandalay Resources has drilled the historic Costerfield Mine area in three campaigns in 2011, 2014 and 2017-2018. The Company reported significant early results from the Youle drilling program in July 2017 and in April 2018. Drilling was accelerated in late 2017 after Mandalay Resources committed to developing the Brunswick Lode as the access to Youle, utilising the Brunswick decline. In September 2019, Mandalay Resources commenced development of the Youle Lode, which lies approximately 800 m north of the Brunswick Lode.

7.5 Property Mineralisation

Significant portions of the local area are obscured by alluvium and colluvium deposits, which have been washed over the surrounding flood plains by braided streams flowing east off the uplifted Heathcote Fault Zone. Some of this alluvial material has been worked for gold but workings are small-scale and limited in extent. Most of the previously mined hard rock deposits were found either out-cropping or discovered by trenching within a few metres of the surface.

The Augusta Deposit was discovered late in the history of the field (1970) by bedrock geochemistry, buried less than 2 m to 6 m below the alluvium, which was deposited at the meandering Mountain Creek/Wapentake Creek confluence.

The mineralised structures in the Costerfield Zone, which typically dip steeply east or west (Augusta, Brunswick, Kendall), or moderately west (Youle) are likely to be related to the formation of the Costerfield Dome and the subsequent development of the Moormbool Fault. The main reef system(s) appear to be developed in proximity to the axial planar region of the Costerfield Dome or hosted in reactivated west-dipping thrust faults.

The economic mineralisation at the Costerfield Property occurs in a north-south corridor that includes the Costerfield, Brunswick and Augusta zones. The moderately west to steeply-dipping quartz-stibnite-gold lodes have thicknesses ranging from several millimetres to one metre, and extend over a strike of at least four kilometres. The lode system is centred in the core of the doubly-plunging Costerfield Anticline and is hosted by Costerfield siltstones. Individual lodes can persist for up to 800 m along-strike and 300 m down-dip.

The mineralogy of the vein contents and mineral proportions differ from vein to vein throughout the Augusta, Cuffley, Brunswick and Youle lodes. However, the texture and chronological order of each vein/mineral generation remains remarkably consistent across all lodes.

A diagrammatic illustration of the paragenesis of the Augusta and Cuffley Deposits is illustrated in Figure 7-8. The overall paragenetic sequence is ordered as follows:

- Laminated quartz,
- Fibrous carbonate (siderite and ankerite),
- Crystalline quartz (rhombic quartz),

- Stibnite,
- Opaline quartz,
- Milky quartz.

Acicular stibnite and botryoidal calcite are not generally associated with the main quartz-stibnite vein structures, and are therefore regarded as post-mineralisation mineralogical occurrences, most likely associated with meteoric events.

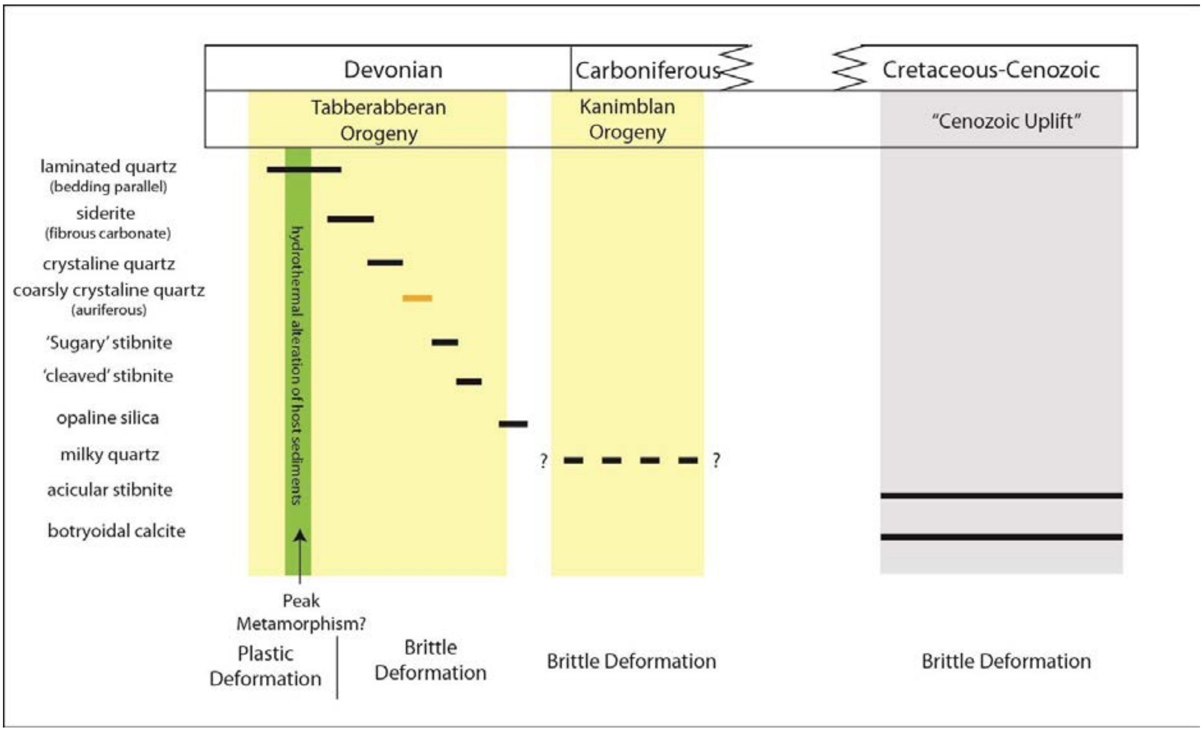

Figure 7-8: Paragenetic history and vein genesis of the Costerfield region

The Costerfield Property lodes are typically anastomosing, en-echelon style, narrow-vein systems, which dip from 25° to 70° west to 70° to 90° east. Mineralised shoots are observed to plunge to the north, when structurally controlled, and south when bedding controlled.

The mineralisation occurs as single lodes and vein stockworks associated with brittle fault zones. These bedding and cleavage parallel faults, that influence the lode structures, range from sharp breaks of less than 1 mm to dilated shears up 3 m wide that locally contain fault gouge, quartz, carbonate, and stibnite.

Cross faults, such as those seen offsetting other Costerfield Property lodes, have been identified in both open-pit and underground workings.

The mineralised lodes vary from massive stibnite with microscopic gold to quartz-stibnite, with minor visible gold, pyrite, and arsenopyrite. The stibnite is clearly seen to replace quartz, and gold can also be hosted by quartz.

A photograph of a typical mineralised Youle lode within an underground development face is displayed in Figure 7-9. The vein averaged 0.29 m @ 143 g/t Au and 22.6% Sb, with a diluted face grade of 24.1 g/t AuEq.

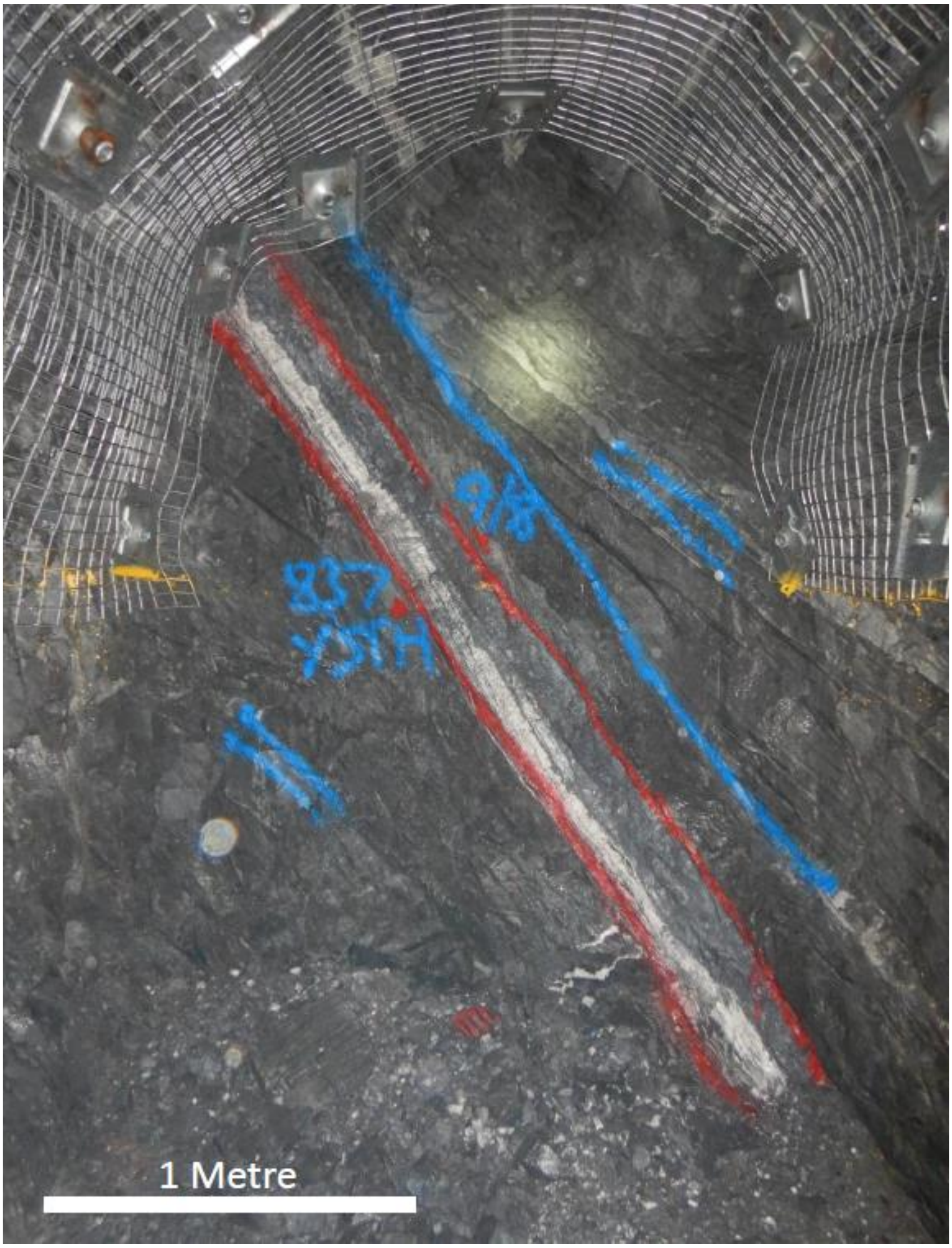

Figure 7-9: Typical Youle vein in 837 level on cross-section 6,955N

7.6 Deposit Mineralisation

Mandalay Resources has estimated Mineral Resources within the Augusta, Cuffley, Sub King Cobra, Brunswick and Youle Deposits of the Costerfield Property.

Each deposit consists of multiple lodes (Table 7-1) and are within close proximity of each other (Figure 7-10).

Table 7-1: Lodes of the Costerfield Property, by deposit

Augusta	Cuffley	Sub King Cobra	Youle	Brunswick
E Lode	CM Lode	SKC C	Youle Main Lode	Brunswick Main
B Lode	CE Lode	SKC CE	South Splay	Brunswick KR
B Splay	CD Lode	SKC LQ	Kendal Splay (North Splay)	
W Lode	CDL Lode	SKC W	Peacock Vein	
N Lode	AS Lode			
NS 48				
NW Lode				
P1 Lode				
K Lode				
C Lode				

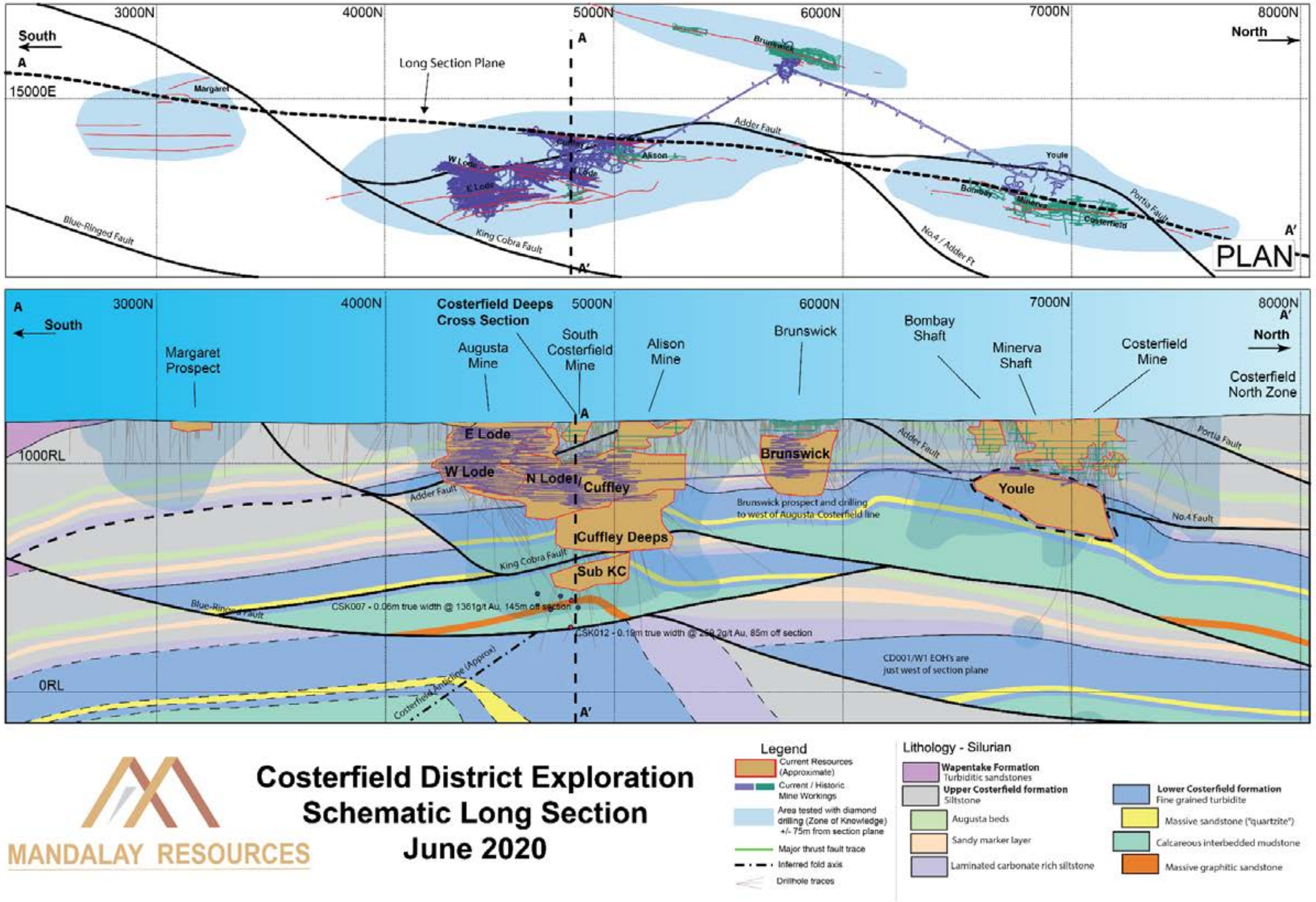

Figure 7-10: Schematic longitudinal projection and plan view of Augusta, Cuffley, Brunswick and Youle Lodes

8 DEPOSIT TYPES

The Costerfield Property is contained within a broad gold-antimony province mainly confined to the Siluro-Devonian Melbourne Zone. Although antimony often occurs in an epithermal setting in association with silver, bismuth, tellurium, and molybdenum, the quartz-stibnite-gold narrow veins of the Melbourne Zone are mesothermal-orogenic and are part of a 380 Ma to 370 Ma tectonic event. Gold in Central Victoria is believed to have been derived from the underlying Cambrian greenstones, however the origin of the antimony is less certain.

The mineralisation occurs as narrow veins or lodes, typically less than 50 cm wide and hosted within low-grade (anchizone) mudstone and siltstone of the Lower Silurian Costerfield Formation.

Gold mineralisation of greater than 20 g/t with an average grade of approximately 9 g/t is typically hosted within and/or alongside veined stibnite that contains approximately 4% antimony (Fromhold et al 2016).

Mineralised shoots at the Costerfield Property are structurally controlled by the intersection of the lodes with major cross-cutting, puggy, and sheared fault structures. Exploration in the Property is guided by predictions of where these fault/lode intersections might be located using data from structural/geological mapping, diamond drill hole logging and 3D computer modelling utilising Leapfrog Geo software.

Large flat, west and northwest-dipping reverse faults have displaced the lodes in the Costerfield Property at the northern end of the mineralisation extent. It has been recognised that such thrust faults occur throughout the field.

The Youle lode, dips west, and is identified as the down-dip continuation of the vertical Kendall lode, offset westward over the west dipping No.4 thrust fault. The strike of the Youle lode extends 600 m in length and has a vertical length of 150 m.

At the Alison Mine, production ceased in 1922 because the lodes were lost against a flat west-dipping fault, since named the Adder Fault. Drilling in 2011 successfully intersected a displaced lode below the fault, now known as the Cuffley Main Lode. Since the discovery of this lode, exploration has continued with success at depth and along-strike, and the persistent low angle west dipping faults that continue to influence gold-antimony mineralisation are ever-present.

9 EXPLORATION

The exploration work that led to the discovery of the Augusta, Cuffley, Brunswick and Costerfield (Youle) Deposits has consisted of predominantly diamond drilling of interpreted geological targets, along with geological mapping, geophysical and geochemical analysis, and trenching. Geochemical exploratory methods have proven to be applicable in detecting gold-antimony mineralisation.

9.1 Costeans/Trenching

Previous owners have undertaken trenching at the Costerfield Property, however records of these exploration activities are inconsistent and are not relied upon for quantitative purposes.

9.2 Petrophysical Analysis

In 2006, AGD submitted 22 whole-rock and mineralised samples from all known deposits around the Costerfield Property for testing by Systems Exploration (NSW) Pty Ltd. The aim of the work was to determine the petrophysical properties of the mineralisation in order to identify the most effective geophysical exploration methods that could be used at the project to detect similar styles of mineralisation. The breakdown of the 22 samples submitted is:

- 13 mineralised samples sourced from Augusta, Margaret, Antimony Creek, Costerfield, Bombay, Alison and Brunswick,
- 2 weathered mineralised samples sourced from Augusta,
- 7 unmineralised samples.

The following petrophysical measurements were completed:

- Mass properties:
- Dry bulk density,
- Apparent porosity,
- Grain density,
- Wet bulk density.
- Inductive properties:
- Magnetic susceptibility,
- Diamagnetic susceptibility,
- Electromagnetic conductivity.
- Galvanic properties:
- Galvanic resistivity,
- Chargeability.

Although measurable differences in the physical properties of the mineralised and non-mineralised material at the Costerfield Property was identified, they proved to be marginal at best, and it was deemed unlikely that the differences present would result in clear geophysical signatures.

The only field geophysical techniques recommended for trialling were ground-based magnetics, ground-based gravity, and induced polarisation (IP) profiling.

9.3 Geophysics

Several programmes of geophysical surveys were completed at the Costerfield Property.

9.3.1 Ground Geophysics

Based on the results of the petrophysical testing programme, a limited programme of ground-based magnetics, gravity, and IP profiling, with optimal measurement parameters, was carried out across the Augusta Deposit. None of the techniques were found to be effective at detecting the known mineralisation at Augusta.

9.3.2 Airborne Geophysics

A low-level detailed airborne magnetic and radiometric survey was undertaken in 2008 by AGD over their tenements, including both Augusta and Cuffley. The airborne survey was conducted on east-west lines spaced 50 m apart, with a terrain clearance of approximately 50 m. Survey details are included in a logistics report prepared by UTS (UTS, 2008).

Magnetic data was recorded at 0.1 second intervals and radiometric data was recorded at 1 second intervals. Additional processing was undertaken by Greenfields Geophysics.

The interpretation of the radiometric and magnetic data resulted in the generation of regional lineament trends across the tenements, which assisted in interpreting the local buried structures.

9.4 Geochemistry

Geochemical exploration has been undertaken extensively at the Costerfield Property.

9.4.1 Mobile Metal Ion (MMI)

Based on historic geochemical surveys over the Augusta Deposit, as described by Stock and Zaki in 1972, and informal recommendations by Dr G McArthur of McArthur Ore Deposit Assessments Pty Ltd (MODA), it was decided in 2005 to trial Mobile Metal Ion (MMI) analytical techniques on samples collected on traverses across the Augusta lodes.

Utilising two geophysical traverse lines across the Augusta Deposit, 5 m spaced samples were collected from the soil horizon and submitted to Genalysis Laboratory Services (Genalysis) for MMI analysis of gold, arsenic, mercury, molybdenum, and antimony via Inductively Coupled Plasma (ICP).

While the other elements showed no correlation to the underlying mineralisation, the gold and antimony results appeared to show a broad anomaly across the mineralisation, indicating that the technique could be useful for regional exploration.

9.4.2 Soil Geochemistry

In October 2017, a soil geochemistry programme was conducted at Brunswick South to verify historical sample lines along the southern strike of the Brunswick Lode. A mechanical hand held auger was used to take 28 samples over two traverse lines at an average depth of 720 mm. This program successfully verified the historical assay data and demonstrated a possible strike extension to the Brunswick lode.

9.4.3 Bedrock Geochemistry – Auger and Aircore Drilling

The effectiveness of bedrock geochemistry was demonstrated by MEM in 1968 to 1970, when a grid south of the South Costerfield/Tait's Shafts was sampled. What is now known as the Augusta Deposit was highlighted by the resultant anomalies.

Although MEM drilled three shallow diamond drill holes, which ranged from 22 m to 57 m, to test the anomalies and intersected stibnite stringers, they did not proceed any further. Both conventional surface soil and drilled-bedrock samples were collected to compare techniques; although the surface samples were anomalous and cheaper to collect, the drilled-bedrock samples defined the lodes more precisely.

A geochemical aircore drilling program was carried out during March 2010 to test the zone between Augusta South and the Margaret Mine, south of the operating Augusta Mine. The three east-west traverses were completed across cleared grazing paddocks, south of Tobin's Lane, Costerfield. A total of 104 aircore drill holes were drilled for a cumulative total of 547 m, with the average drill hole depth being 5.2 m. The identified antimony halo was subdued in areas where the high-grade lode was greater than 50 m below the top of bedrock, considered to infer that either a low-grade lode existed at shallow depth or a high-grade lode existed at depth.

From December 2011, Mandalay Resources engaged Starwest Pty Ltd to undertake the Augusta East Auger drilling programme. A total of 2,615 auger drill holes were drilled for 7,295.6 m between December 2011 and June 2012. The survey revealed three anomalous zones (Figure 9-1).

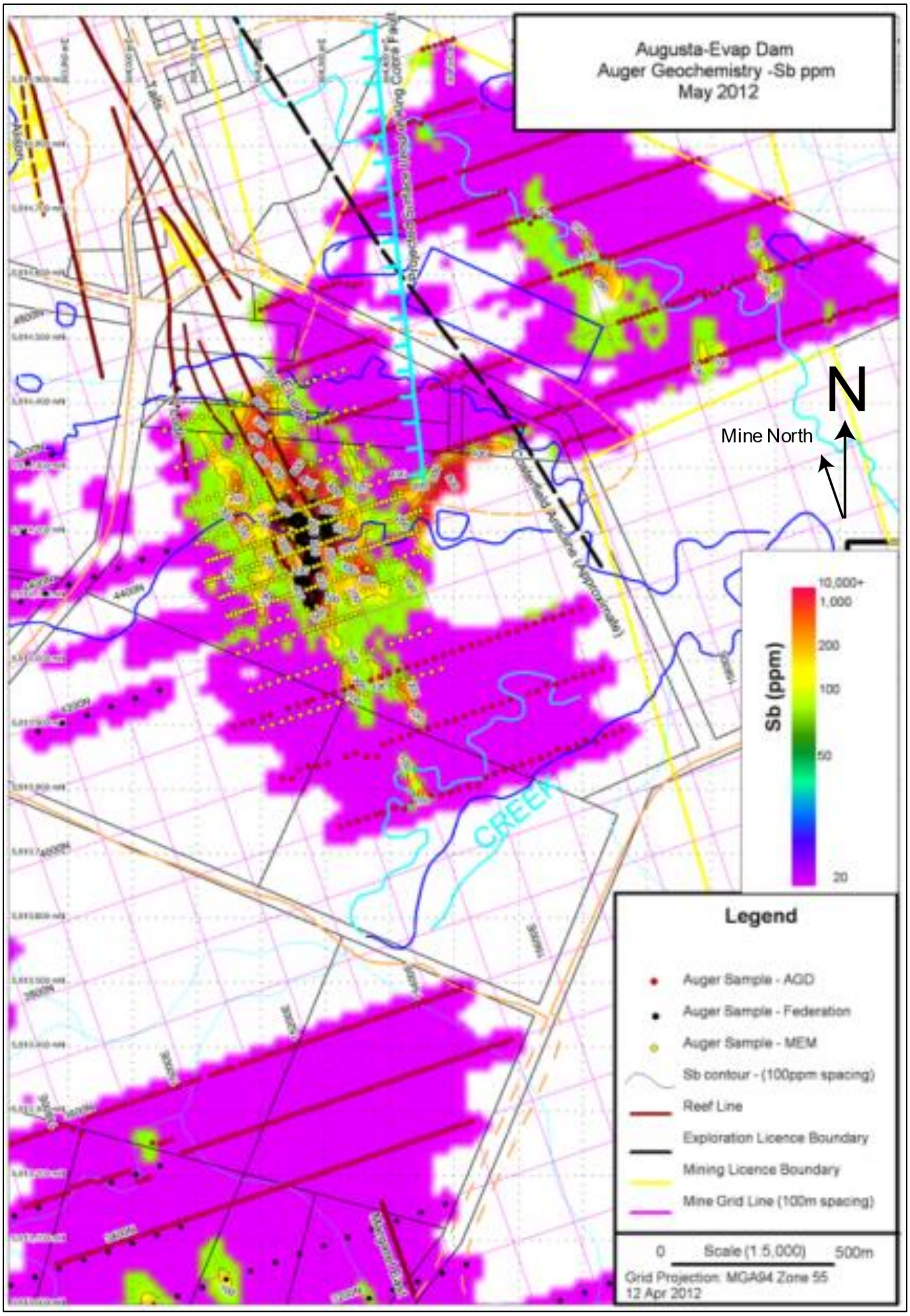

Figure 9-1: Auger drilling geochemistry results, antimony

A total of 1,375 auger drill holes were then drilled by Mandalay Resources from 15 April 2014 to June 2014 for 3,906 m. Drill holes were drilled on ELs EL3310 and EL 5432, and ML MIN4644 covering six of the prospect areas, Augusta, Cuffley, Brunswick, West Costerfield and Margaret's Reef.

9.4.3.1 Cuffley

76 drill holes were drilled on two lines over the underground Cuffley Deposit to test the relationship between bedrock geochemistry and known gold-antimony ore bodies below surface. The Cuffley orebody does not outcrop at surface due to termination of the vein system by a flat fault approximately 100 m below surface. The depth to the ore zone explained the low to moderate level of anomalism displayed in the auger drilling. The anomaly covered a broad zone that approximated the Cuffley orebody at depth.

9.4.3.2 Augusta Mine Extension

To the east, west and south of the existing Augusta mine site, 124 drill holes were drilled to explore for extensions of the known underground orebodies. The auger drilling to the east and west detected no elevated levels of either gold or antimony, and no further work was planned in these areas.

The two lines drilled to the south displayed a narrow zone of high-grade anomalism, which correlated directly to extensions of known ore bodies. Diamond drilling between this area and the mine intersected no economic mineralisation and therefore this area was downgraded to a low priority drilling target.

9.4.3.3 Brunswick

To the west and south of the Brunswick open cut, 247 drill holes were drilled to test for extension of the known ore body. No elevated anomalism was detected to the west, however a narrow high-grade intersection was returned from drilling 500 m south of the Brunswick pit suggesting an extension of the orebody.

In 2017, soil sampling was conducted over two lines of where bedrock geochemistry had been previously completed, in order to test the effectiveness of soil sampling. The results of the soil sampling indicated anomalism broadly corresponding to the anomalism in the bedrock geochemistry data. No further testing of the appropriateness of this method has been completed to date.

9.4.3.4 Margaret's Reef

Margaret's Reef auger drilling was carried out on private property 1 km south of the current Augusta mining operations with a total of 536 drill holes being completed. Previous auger drilling in this area was done on a wider sample spacing of 40 m and was not considered deep enough to provide consistent results, therefore the lines were re-drilled. Sample spacing of 10 m over the previous anomalous results gave a clearer indication of the mineralised structures at depth.

Margaret's Reef appears to be composed of several reef/vein systems as suggested from previous RC and diamond drilling. The veins strike approximately northwest which is a similar vein orientation to those seen underground at Augusta and Cuffley, and may represent a fault-displaced extension of one of these systems. The close proximity to the King Cobra Fault to the east appears to have structurally complicated the vein systems, which explains the discontinuous nature of the anomalism identified. Broad zones of high anomalism were seen to correlate to known historic workings over the reef. The highest grade result present in drill holes distal to the mining operations at the time, was received from the northern most line at Margaret's Reef, returning grades of 5.42 g/t gold and 3.25% antimony, suggesting the presence of economic mineralisation at surface.

Several high-priority diamond drill targets were planned, including a target beneath the above mentioned high-grade result, in order to provide further structural information on the mineralised vein system. However, recent diamond drilling failed to follow up on a high-grade intersection in drill hole MM001, drilled in 2001, of 1 m at 33 g/t gold and 14% antimony. Further diamond drill holes are planned to determine if an economic resource exists in this area.

9.4.3.5 West Costerfield

A total of 336 auger drill holes were drilled in 2014 at West Costerfield, designed to test areas near historic workings to the east and determine mineralisation continuity to the south of the previous auger programme, which delineated the True Blue anomaly to the west however only the northern portion of the West Costerfield reef was explored at the time.

A broad anomaly was defined over the West Costerfield reef and was identified to continue south with high gold values and moderate antimony results. The anomaly is located along the Mountain Creek drainage zone to the south, but widens and changes orientation slightly towards the north, near the small historic pits that define the West Costerfield reef. Although the antimony anomalism identified was subdued in contrast to the high gold, the interpreted gold-antimony veins below surface are considered to be similar in style to those intersected in the single diamond drill hole into True Blue.

In 2015, a follow up program of 38 RC drill holes was drilled to test the anomaly identified in the 2014 Auger drilling program. The RC drilling resulted in the identification of mineralisation that has not yet been drilled by diamond drilling.

9.5 Aerial Photogrammetry Survey

AGD commissioned Quarry Survey Solutions of Healesville, and United Photo and Graphic Services Pty Ltd of Melbourne, to organise and carry out aerial photogrammetry of the Costerfield Property tenement package, as well as the Augusta Mine Site in 2005.

A high-level photo survey was completed in November 2005 at 24,000 ft. This was followed by low-level photo survey over the Augusta Mine Site in January 2006 at 8,000 ft.

A second low-level photo survey was completed in April 2006 at a height of 4,000 ft, at the time of maximum surface excavation, prior to the commencement of backfilling of the E Lode Pit.

The various photo surveys were subsequently used to generate a digital terrain model (DTM) and a referenced ortho-photographic scan of the Costerfield central mine area. This area essentially extended from Costerfield South to the Margaret's Reefs area, thereby encompassing most of ML MIN4644.

In 2019, Mandalay Resources engaged AAM Group to carry out a detailed Light Detection and Ranging (LiDAR) aerial survey over a 175 km^2 area, covering the entire tenement package. This survey generated a highly accurate and detailed photographic model of the surface with accuracy to +/- 10 cm. The survey had a two-fold benefit both for Mandalay Resources Future Ore project and the Youle in-rush risk assessment. The LiDAR survey provided an accurate topographical surface that assisted the company to undertake flood simulations studies in order to plan for any 100-year flooding events at the Costerfield Property.

9.6 Surface Mapping and 3D Geological Modelling

The Mandalay Resources Future Ore project continued throughout 2020, with the ongoing collection of surface geological information from traverse mapping and the development of a comprehensive regional three-dimensional (3D) model using Leapfrog Geo implicit 3D software (Figure 9-2 and Figure 9-3).

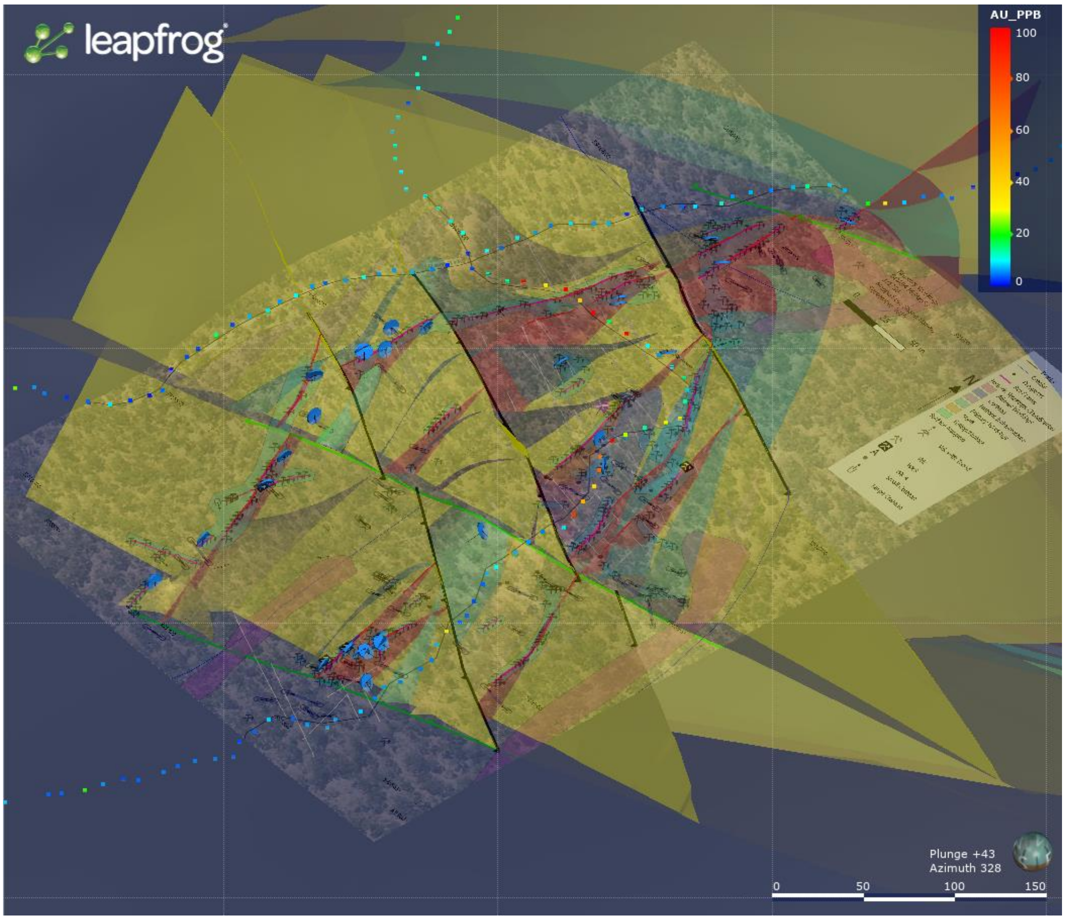

Figure 9-2: Leapfrog Geo geological model, regional geology

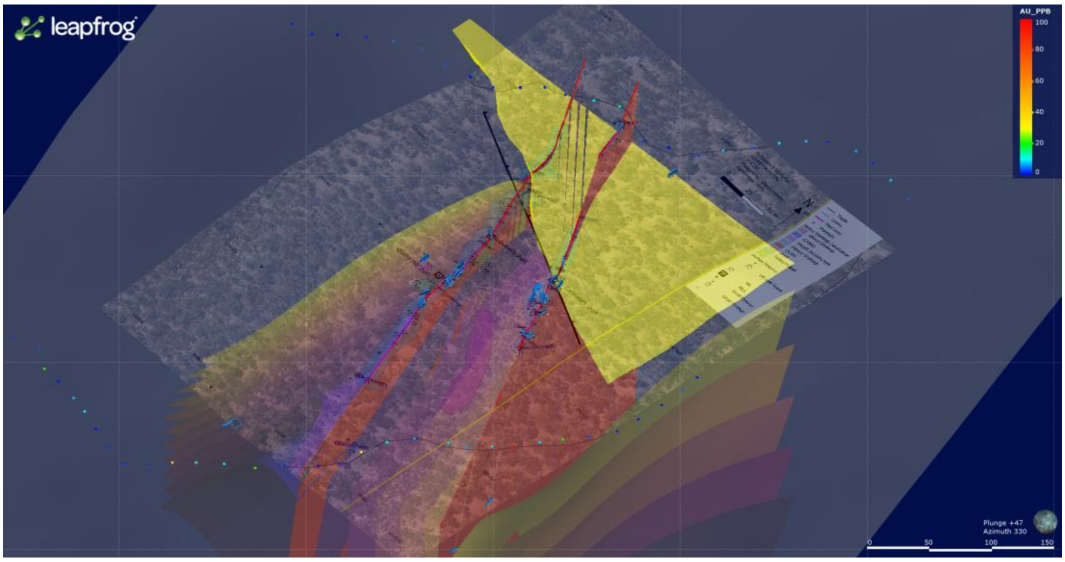

Figure 9-3: Leapfrog Geo geological model, Robinsons Prospect

Traverse mapping commenced in November 2018 and has been ongoing throughout 2019 and 2020, along with the compilation of the geological data onto comprehensive geological maps of the Costerfield Property (Figure 7-3).

10 DRILLING

Drilling at the Costerfield Property is undertaken in line with industry best practices including:

- Drilling is undertaken by reputable drilling contractors, with modern drilling equipment,
- The accurate location of Mandalay Resources drill hole collars by differential GPS or theodolite surveying methods, either by external Surveyors or Mandalay Resources Surveyors,
- Measurement of downhole surveys at 30 m intervals,
- Transporting of diamond core in stacked core trays and secured in a dedicated facility.

10.1 Mandalay Resources (2009 to Present)

On 1 December 2009, Mandalay Resources took over the Costerfield Operations from AGD and continued with exploration across tenements MIN4644, EL3310, and EL4848.

As of December 2020, Mandalay Resources held tenements MIN4644, MIN5567, EL5519 and EL5432. Tenement applications ELA6847 and ELA6842 are pending, along with Retention Licence applications RLA7485 and RLA7492.

A summary of drilling completed by Mandalay Resources from 2009 to 2020 is outlined in Table 10-1.

Table 10-1: Drill hole summary

Year	Diamond Core (m)	Percussion/Auger (m)
2009	458.9	547.0
2010	4,032.0	Nil
2011	13,515.0	Nil
2012	18,581.4	7,295.6
2013	24,329.0	3,838.0
2014	20,817.0	3,906.0
2015	18,439.0	2,732.0
2016	32,995.0	Nil
2017	27,827.0	Nil
2018	34,656.0	Nil
2019	9,556.0	Nil
2020	29,080.0	Nil
TOTAL	**234,286.3**	**18,318.0**

10.1.1 2009 to 2010

Drilling from 1 July 2009 to 30 June 2010 mainly consisted of drilling along-strike and down-dip from the existing Augusta Resource. In total, 458.9 m of diamond drilling was undertaken.

In addition, 547 m of bedrock geochemistry aircore drilling was completed within MIN4644 at Augusta South.

Augusta drilling during from 1 July 2009 to 30 June 2010 concentrated on the definition of the W Lode Resource. Four drill holes tested the depth extent of W Lode, while another six drill holes were designed as infill drill holes to test mineralised shoots and gather geotechnical data.

10.1.2 2010 to 2011

Exploration from 1 July 2010 to 30 June 2011 was undertaken on two projects, the Augusta Deeps project and the Brownfields Exploration project. The Augusta Deeps project was undertaken with the view to extending the existing Augusta Resource to depth.

Augusta drilling concentrated on the infill and extension beneath Augusta to further define the Resource below 1,000 mRL. In total, 10,622.7 m of drilling was completed beneath the Augusta mine workings and resulted in the definition of further Indicated and Inferred Mineral Resources.

10.1.3 2011 to 2012

Exploration from 1 July 2011 to 30 June 2012 was undertaken on four projects, the Augusta Deeps drilling project (W Lode and N Main Lode), the Alison/Cuffley drilling project, the Brownfields/Target Testing drilling project and the Target Generation/Bedrock Geochemistry auger drilling project.

In total 18,581.4 m of diamond drilling, and 7,295.6 m of auger drilling was undertaken over the four projects. All drilling was carried out by Starwest Pty Ltd using one LM75 diamond drill rig, two LM90 diamond rigs, one Kempe underground diamond drill rig and a modified Gemco 210B track-mounted auger rig.

10.1.3.1 Augusta Deeps

Drilling of the Augusta Deposit from 1 July 2011 to 30 December 2012 was undertaken with the view to extend the W Lode, E Lode and N Main Lode Inferred and Indicated Mineral Resource, and give confidence in the structural continuity of W Lode and N Main Lode.

A total of 78 drill holes were drilled from surface and underground, totalling 16,170.4 m of drilling.

10.1.3.2 Cuffley

The Alison/Cuffley drilling project was designed to infill drill a portion of the lode and upgrade it to the Indicated Resource category, and to extend the limits of the lode in the Inferred Resource category.

The Cuffley Lode resource drilling programme began in July 2011 with the AD series of drill holes, following the MB007 discovery. As a follow-up programme, four drill holes were drilled (AD001-ADD004). AD004 intersected the fault blank and AD003 appeared to have only intersected the Alison Lode above the Adder Fault in the vicinity of some old stopes. From drill hole AD005 onwards, the drilling strategy involved drilling at least two drill holes on each mine grid cross-section, at an approximate spacing of 80 m to 100 m. Drill holes were drilled on both west to east and east to west orientations, depending on the site logistics.

One deep drill hole, AD022, on the 5,025N cross-section, intersected the Cuffley Lode at 700 mRL, 490 m below the surface with results of 1.04 m @ 59.7 g/t Au, 0.37% Sb returned. This drill hole provided confidence in the depth continuity of the lode to Inferred Resource category.

A portion of the drilling in 2011 to 2012 was infill drilling, 100 m below the Alison Shaft 5 level, at a spacing of 40 m, in order to define the lode to Indicated Resource category where the planned access decline was expected to first intersect the lode.

10.1.4 2012 to 2013 - Cuffley Lode Drilling

From 1 July 2012 to 30 June 2013 Mandalay Resources drilled 24,329 m of diamond drilling, targeting the Cuffley Lode from surface. These drill holes focussed on infill drilling the central, high-grade portion of the Cuffley Lode in order to convert a portion of the Inferred Mineral Resources to the Indicated category.

10.1.5 2014 - Cuffley and N Lode Drilling

In 2014, the focus was on finalising the Cuffley and Augusta Resource Drilling. The goals achieved included:

- Expanding the existing Inferred Resource of the Cuffley Lode, both along-strike and at depth,
- Increasing the confidence of the central portion of the Cuffley Lode to aid mine development and stoping of the Cuffley Lode,

- Expanding the existing Inferred Resource of the Augusta Deposit, specifically targeting N Lode along-strike from the existing N Lode development,
- Infill and extension of the Cuffley resource to the north and south along with Cuffley Shallows in between the flat fault and the Adder fault.

In total, 20,817 m of diamond drilling and 3,906 m of auger drilling was undertaken. A total of 5,735 m was drilled for the purposes of target testing, 9,390 m for resource expansion and resource conversions, and 5,692 m for resource infill drilling.

All drilling activity was conducted by Starwest Pty Ltd using two Boart Longyear LM90s, one Boart Longyear LM75, one pneumatic Kempe U2 rig and a modified Gemco 210B Track-mounted Auger.

10.1.6 2015 - Cuffley, N Lode, Cuffley Deeps and Sub King Cobra Drilling

Drilling in 2015 was focused on extending the Cuffley and Augusta Resources, both along-strike and at depth. The expansion of the Cuffley resource included the commencement of drilling in the Cuffley Deeps and Sub King Cobra regions. The goals achieved included:

- Expanding the existing Inferred Resource of the Cuffley Lode along-strike and definition of a resource below the Cuffley Lode at depth,
- Commencement of drilling at depth below the Cuffley Deposit into the Cuffley Deeps and Sub King Cobra areas,
- Increased the confidence of the central portion of the Cuffley Lode to aid mine development and stoping,
- Expanding the existing Inferred Resource of the Augusta Deposit, specifically targeting N Lode along-strike from the existing N Lode development,
- Infill and extension of the Cuffley resource to the north and south along with Cuffley Shallows in between the flat fault and the Adder fault,
- Follow up RC drilling at West Costerfield to test the geochemical anomaly identified in 2014 by the Auger Bedrock drilling program.

In total, 18,439 m of diamond drilling and 2,732 m of RC drilling was undertaken. The majority of drilling was conducted by Starwest Pty Ltd using two Boart Longyear LM90s, one Boart Longyear LM75 and one pneumatic Kempe U2 rig. The RC drilling was conducted by Blacklaws Drilling utilising a Hanjin surface rig.

10.1.7 2016 - Cuffley Deeps, Cuffley South, M Lode, New Lode, Sub King Cobra, Margaret and Brunswick Drilling

Exploration from January to December 2016 was focused on extending and upgrading the Cuffley and Augusta Resources to extend the life of mine plan, replace the mined portion of the Mineral Resource and explore near-mine targets in close proximity to existing underground infrastructure.

The expansion of the Cuffley resource included the continuation of drilling in the Cuffley Deeps, Cuffley South and Sub King Cobra regions, along with the addition of new target areas. The goals achieved included:

- Expanding the existing Inferred Resource in the Cuffley Lode, and further defining the Cuffley Deeps and Sub King Cobra Resources below the Cuffley Lode at depth,
- Infill and exploration drilling of the Cuffley Deeps and Sub King Cobra areas, leading to a resource expansion in Cuffley Deeps and an Inferred Resource at the Sub King Cobra area,
- Infill drilling of Cuffley Deeps delineated further prospective zones and a new ore system, namely Mid Lode (M Lode) located between the Cuffley line of lode and N Lode,
- Further development on the Cuffley Lode informed the understanding of, and increased confidence in the Cuffley Deeps Deposit at depth and along-strike,
- Infill and extension of the Cuffley resource to the north and south along with Cuffley Shallows in between the flat fault and the Adder fault,
- Recommencement of drilling on Brunswick and further testing of the deposit to the south and at depth,
- Brownfields drilling on the Margaret Reef identified the Margaret East mineralisation.

In total 32,995 m of diamond drilling was undertaken. All drilling activity was conducted by Starwest Pty Ltd using four Boart Longyear LM90s, one Boart Longyear LM75 and one pneumatic Kempe U2 rig.

10.1.8 2017 - Brunswick, K Lode and N Lode

Exploration from January to December 2017 was focused on extending and upgrading the Brunswick Resource with the aim to covert to as much to Reserve as possible. The focus in the second half of 2017 was also on extending the Resource around Cuffley and Augusta to extend the life of mine plan, replace the mined portion of the Mineral Resource and explore near-mine targets in close proximity to existing underground infrastructure. The goals achieved included:

- Expanding and increasing the existing Indicated Resource of the Brunswick Lode, and further definition and testing of Brunswick at depth and Brunswick South,
- Expanding the geological knowledge of and resource in the near mine environment, in particular the extension and infill of the K Lode and N Lode splays, including the N Lode East in the Augusta system,
- Definition and grade increase of C Lode.

In total 26,403 m of diamond drilling was undertaken. All drilling activity was conducted by Starwest Pty Ltd using four Boart Longyear LM90s, one Boart Longyear LM75 and one pneumatic Kempe U2 rig.

10.1.9 2018 - Youle and Brunswick

Exploration from January to December 2018 was predominantly focused on extending, defining and upgrading the Youle Mineral Resource. A total of 20,847 m was devoted to resource expansion and conversion drilling, with the remaining 13,809 m invested in target generation.

Additionally, the focus for the second half of 2018 was on increasing the Resource around Brunswick and Augusta to extend the life of mine, replace the mined portion of the Mineral Resource and explore near-mine targets in close proximity to existing underground infrastructure. The goals achieved included:

- Defining the Youle Lode, a west- dipping, high-grade ore body, identified as a continuation of Kendall-style mineralisation,
- Delineating an Indicated Resource around Youle, which could be integrated into the life of mine plan,
- Further definition and testing of Brunswick at depth,
- Expanding the geological knowledge of and resources in the near mine environment, in particular extension the and infill of Cuffley North Lode (1,272 m), D Lode (240 m) and Cuffley line drilling (335 m),
- Brownfields drilling was also undertaken at Augusta East (1,479 m) looking for the southern extension of the Augusta Deposit, and Mountain Creek (1,253 m) testing to the south of the Brunswick Deposit.

In total, 34,656 m of diamond drilling was undertaken. All drilling activity was conducted by Starwest Pty Ltd using five Boart Longyear LM90s, one Boart Longyear LM75 and one pneumatic Kempe U2 rig.

10.1.10 2019 Youle and Brunswick

Drilling from January to December 2019 was predominantly focused on extending, defining and upgrading the Youle Resource. This drilling involved both infill and extensional drilling, designed to delineate the high-grade Youle zone to the north and define mineralisation near current and planned development. A total of 3,863 m was devoted to resource expansion and resource conversion drilling, with the remaining 5,693 m designed for target generation. The main focus of the target generation drilling was the close proximity to the Youle Resource, in particular the northern extension of Youle and the McDonalds prospect to the north.

In May 2019, Mandalay Resources kicked off the Costerfield Property deep drilling program, targeting below the Youle orebody. One parent drill hole and wedge were drilled as part of this program totalling 2,510 m.

With the commencement of mining on the Youle Lode, underground resource definition drilling continued at Youle together with the extensional drilling of production areas to be mined in the next six to twelve months. Further confirmation of capital development was undertaken through production optimisation drilling (POD), in order to provide confidence in the grade, location of veining, geotechnical performance and viability of the mineralisation ahead of mining.

As Mandalay Resources continued with the Youle expansion program, it also commenced deep target testing of the Costerfield line of lode with the view to testing and understanding the gold enrichment environment. This drilling program provided additional context for previous deep high-grade gold intercepts at Augusta.

In 2019, the goals achieved included:

- Commencement of mining to the Youle Lode in September 2019,
- Initiation of the northern Youle extension program, aimed at extending the Youle Resource to the north and at depth,
- Expanding and increasing the existing Indicated Resource of the Youle Lode,
- Regional target generation by conducting extensive surface mapping, drill hole database integration, soil geochemistry and evaluation of geophysical data. This work aided in the generation of a three dimensional Leapfrog Geo integrated structural and geological model of the Costerfield Property region,
- Expanding the orebody knowledge and resource tonnage in the near mine environment, in particular the extension and infill of the Brunswick mineralised system.

In total 9,556.0 m of diamond drilling was undertaken. All drilling activity was conducted by Starwest Pty Ltd using five Boart Longyear LM90s, one Boart Longyear LM75, one pneumatic Kempe U2 rig and one LM30 rig.

10.1.11 2020 Youle, Brunswick, Minerva, Browns/Robinsons, True Blue, Damper Gully, Costerfield Deeps, and Minerva Testing.

Exploration drilling during 2020 was predominantly focused on extending, defining and upgrading the Youle Resource. It involved both infill and extensional drilling designed to delineate the high-grade Youle zone to the north, south, down-plunge, and above the orebody in areas of historical mining, adjacent to current and planned development.

The focus of target generation was near the Youle Resource, in particular the northern extension and at depth. Throughout 2020, 29,080 m of diamond drilling was undertaken, the goals achieved included:

- Continued extensional drilling at depth, north and south of Youle, allowing the definition of a high-grade gold domain at depth, as well as another emerging high-grade plunge extension to the north at depth,
- Expansion of the existing Indicated Mineral Resource of the Youle Lode,
- Drilling above Youle to investigate instances of veining that were not extracted during the historic mining at the Costerfield Property, suggesting the potential for further undiscovered mineralisation around the historic workings that could be accessed from the Youle infrastructure,
- A series of regional diamond testing programs (Browns, Robinsons Damper Gully and True Blue prospects) were designed and executed with the intent of testing the potential around the Costerfield Property that could add to the life of the operation,
- Continued generation of the Leapfrog Geo integrated structural and geological model of the Costerfield region,
- Expansion of the Youle orebody knowledge and resource tonnage in the near-mine environment,
- Installation of the Brunswick portal.

A four drill hole program testing the line of lode, designed to develop the understanding of the gold mineralisation system, was completed for 1,977 m and provided additional geological context for the previously intersected deep high-grade intercepts at Augusta,

With the commencement of mining on the Youle Lode in September 2019, underground resource definition drilling continued at Youle, together with extensional drilling of production areas to be mined in the next six to twelve months.

The 2020 significant drilling intercepts from Youle provided in longitudinal projection view in Figure 10-1, and in cross-sectional view in Figure 10-2 and Figure 10-2.

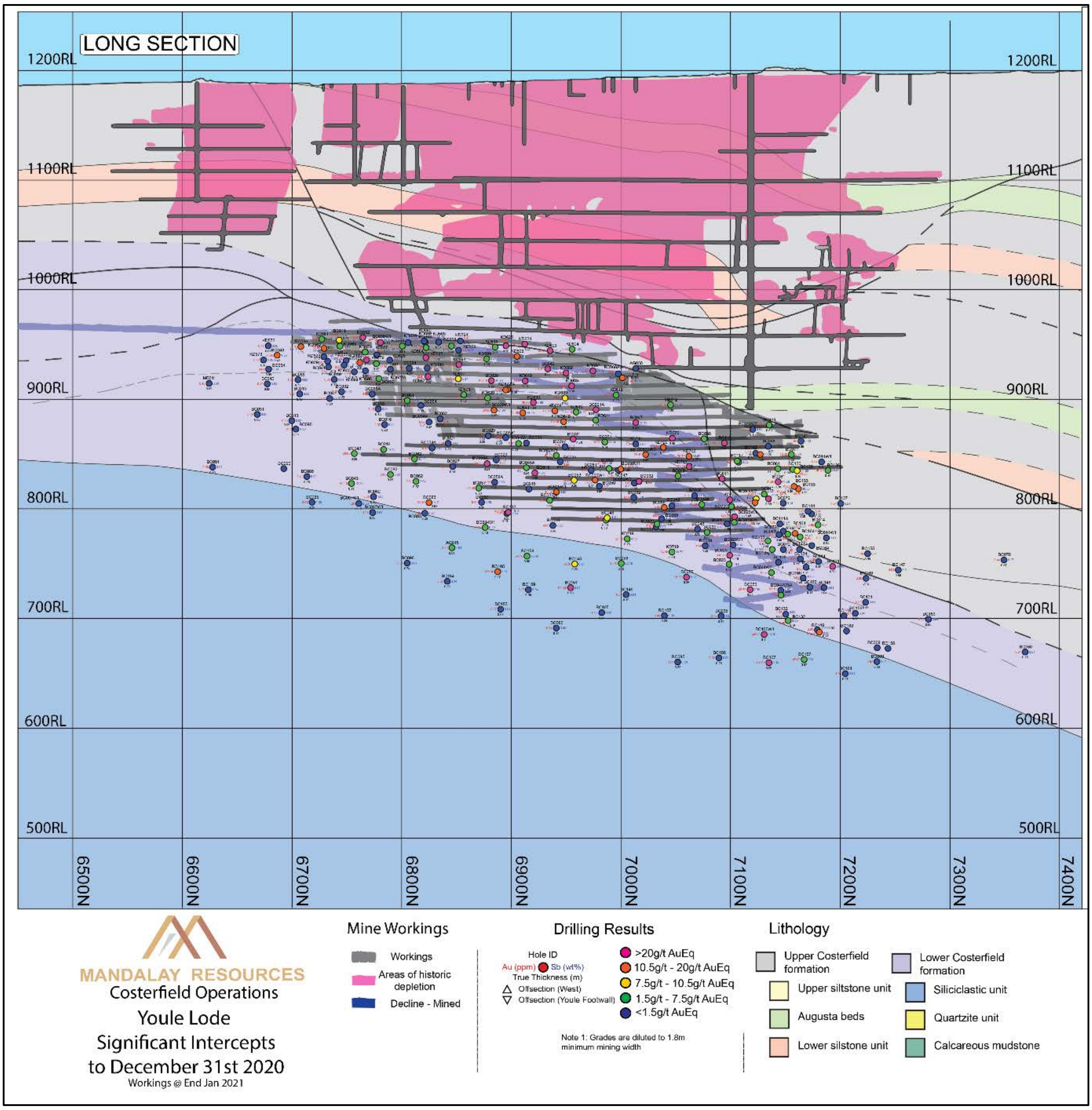

Figure 10-1: Longitudinal projection displaying significant intercepts in the Youle 2020 drilling (BC drill holes)

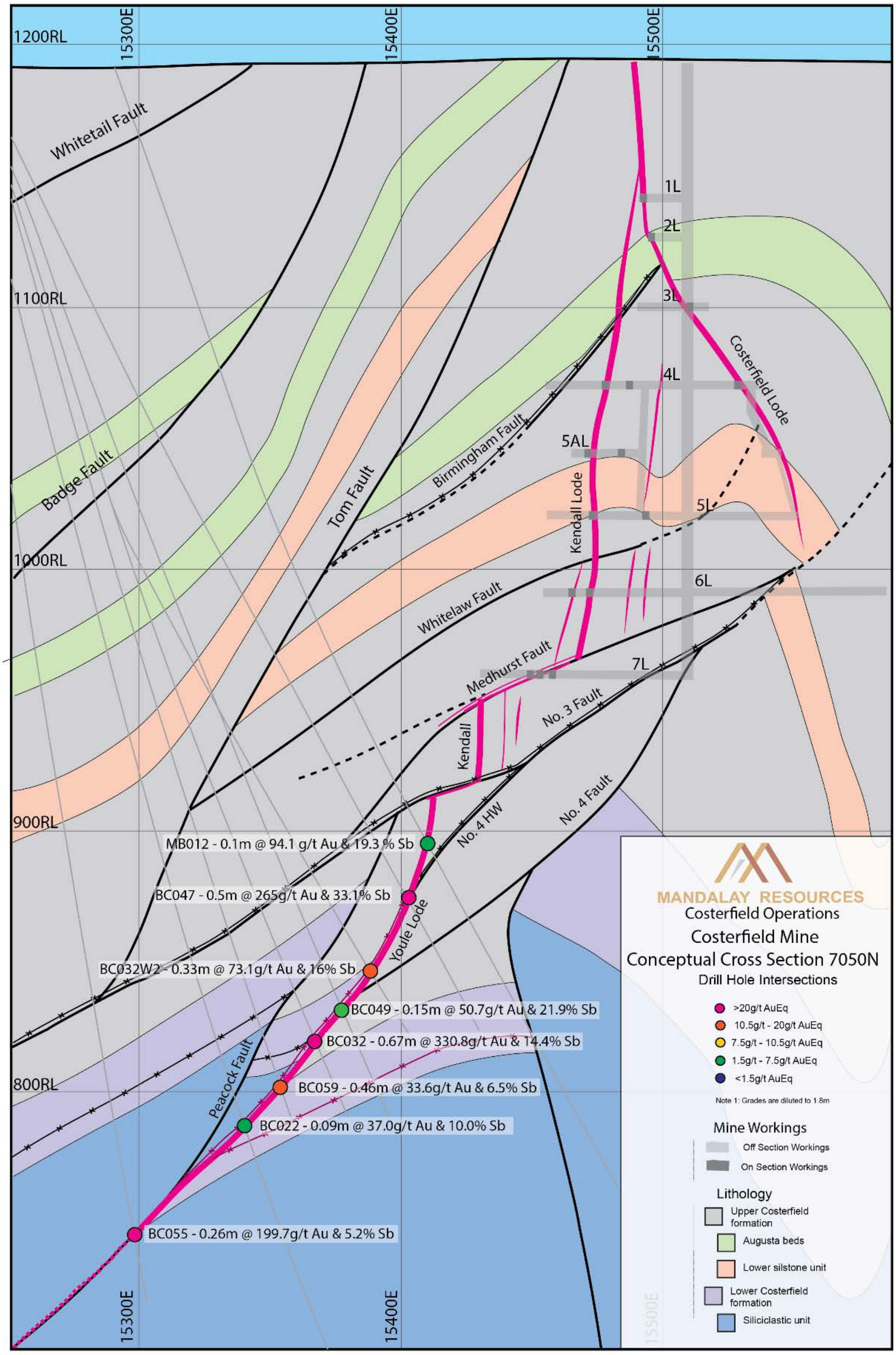

Figure 10-2: Cross-section 7,050N displaying significant intercepts in the Youle 2020 drilling (BC drill holes)

A series of regional diamond drilling programs were executed in Browns/Robinsons (6,123 m), True Blue (695 m) and Damper Gully (561 m). Near-mine drilling, designed to drill-test areas immediately adjacent to the current mining operations that could add to the life of mine plan, included Kendell Upper (4,579 m), Youle Growth, Youle North, Youle South extension drilling (13,990 m), and Minerva Testing (1,253 m).

In addition, Brunswick KR panel definition drilling (315 m) was undertaken in an attempt to define mineralisation in the Kiwi to Rooster panel below the existing Brunswick mine workings.

10.2 Drilling Methods

The Augusta Deposit has been subject to ongoing development and diamond drilling since commencement of mining operations in 2006. The current Mineral Resource estimates are completed using all historic drilling and then depleted for areas already mined.

Between 2006 and 2011, several drilling companies were contracted to provide both surface and underground drilling services at the Costerfield Property. In order to ensure consistent results and quality of drilling, Starwest Drilling Pty Ltd was made the preferred drilling services supplier in 2011 and has been operating on site since.

Prior to 2011, various sized drill holes and drilling methods were used, including HQ2, HQ3, NQ2, LTK60, LTK48 diamond core sizes, and 5”1/8’ to 5”5/8’ RC hammers. Details of these drill holes were not always recorded, however, because the majority of this drilling was in areas that have now been depleted by mining, any risk associated with this drilling is considered to be low.

Since 2011, underground diamond drilling has been completed predominantly using an LM90 drill rig, drilling HQ2 or NQ2 sized diamond drill holes. Underground Grade Control (UGGC) drilling has been has been completed by either a kempe or Diamec drill rig producing LTK48-sized diamond core, with data from these drill holes providing both structural and detailed grade information.

In 2019, a LM30 drill rig, drilling BQ™TK, was utilised underground for additional UGGC drilling. Surface drilling was undertaken using HQ2 and NQ2 sized core barrels, with HQ3 used in zones of poor ground conditions or for noise reduction reasons.

10.3 Collar Surveys

Between the late 1990s and 2001, the majority of drill holes appear to have been located using a Global Positioning Survey (GPS) survey instrument, while drill hole collar locations prior to the 1990s were usually sighted by tape and compass. Where possible, historic drill holes were surveyed in 2005 by Adrian Cummins and Associates, but this was not always possible.

Collars surveyed after 2001 have been recorded in the acQuire™ drill hole database as being surveyed, while unsurveyed/unknown drill holes have been recorded as being surveyed by either GPS or an unknown method, and have been given an accuracy of within 1 m.

In 2006, drill hole collars began being surveyed using the Costerfield Property Mine Grid, and were surveyed either by Mandalay Resources surveyors or by GWB Survey Pty Ltd. In addition, between 2006 and 2011, Adrian Cummins & Associates provided surveying of both underground and surface collar locations.

Currently, initial collar locations are sighted and pegged using a hand-held GPS, with drilling azimuths set-out by compass. Drill holes are then surveyed by Mandalay Resources surveyors on completion. In some instances, drill hole collar data is modified to account for known and quantified survey error within the mine.

10.4 Downhole Surveys

Between 2001 and 2018, all drill holes have been downhole surveyed by either electronic single-shot or film single-shot survey methods. Prior to 2001, survey information exists for the majority of drill holes, however the method of collection and records of these surveys are no longer available.

The exclusive use of an electronic, single-shot survey tool has been in place since 2011. An initial check survey is completed at 15 m to ensure that the collar set-up is accurate. Thereafter, surveys are conducted at 30 m intervals, unless ground conditions are unsuitable to conduct a survey, in which case the survey is completed when suitable ground conditions are re-encountered.

10.5 Data management

In November 2016, Mandalay Resources Exploration purchased the Geoscientific Information Management software acQuire™, due to the high rate of data collection occurring at the Costerfield Property.

The installation of acQuire™ has improved the overall efficiency of the data collection and handling systems, and the improved data integrity by minimising the likelihood of human error.

10.6 Logging Procedures

The following information only relates to drilling completed after 1 January 2010 and below the 1,000 mRL in the Augusta and Cuffley Deposits.

Augusta diamond core is geologically logged at the core preparation facility located at the Brunswick Complex. Core is initially brought to the facility by either the drill crews at the end of shift or by field technicians who work in the core preparation facility. Core is generally stored on pallets while waiting for processing.

Field technicians initially orientate all core using the orientation line provided by the drill crews through the use of an electronic core orientation device during drilling. The orientation line is transferred down along the length of the core run, where possible. If no orientation is recorded by the drill crews, the core is simply rotated to a consistent alignment of bedding or cleavage, with no orientation mark made on the core.

Depth marks are marked on the core at one-metre intervals using a tape measure, taking into account core loss and any overdrill. If core loss is encountered, a block is placed in the zone of core loss and the core loss is recorded.

Field technicians collect rock quality designation (RQD) data directly onto a digital tablet device using acQuire™ software. RQD data is collected corresponding to drill runs and includes the from-depth, to-depth, run length in metres, the recovered length in metres, the recovery as a percentage, the length of recovered core greater than or equal to 10 cm, and the number of fractures. From this data, an RQD value is calculated. This data is logged directly into acQuire™ via a Toughbook computer to the company server.

Once depth marks are placed on the core, site geologists log lithology, structural data, geotechnical data (if applicable) and mark the sampling intervals, all of which is then uploaded directly to the acQuire™ database.

All measurements of structural features, such as bedding, cleavage, faults, and shears are collected using an orientated core, wrap-around protractor for measuring beta angles and a standard protractor for measuring alpha angles. If no orientation line is available, only alpha measurements are collected. Measurements are recorded directly into the acQuire™ database via the Toughbook computer, and are also scribed onto the core using a wax pencil.

After geological logging has been completed and the core marked up, all core trays are photographed before sampling. Once sampling is completed, the trays are placed on pallets and moved to the permanent core storage area.

10.7 Drilling Pattern and Quality

10.7.1 Augusta

Drilling completed prior to 1 January 2010 informed areas of the resource that have largely been mined, therefore, the following discussion relates to drilling completed after 1 January 2010 and below the 1,000 m RL.

Drilling is generally conducted at a spacing of approximately 40 m by 30 m in the dip plane. Since most drilling at Augusta is now competed from underground, the pattern and density achieved on N Main Lode can vary greatly.

Where increased geological confidence is required, infill drill holes specifically targeting NE Lodes or E Lodes have been drilled at a nominal 40 m spacing.

Surface drilling, targeting depth extensions of the Augusta Deposit, is generally conducted on 100 m sections along-strike, with intersections spaced at 80 m to 100 m in the dip plane.

10.7.2 Cuffley

Initial drilling of the Cuffley Lode was intended to be done in a dice-five pattern on an approximate 50 m by 50 m offset grid. This pattern started with AD001 through to and including AD004, however in order to aid interpretation, the drill spacing was expanded to a 100 m grid based on mine grid northings, with 50 m to 80 m between drill holes on each section. This change of drill pattern enabled the interpretation to be completed on mine northing sections.

Infill drilling between the 820 mRL and 1,020 mRL used a dice-five pattern to maximize information in the strike direction. This infill drilling was conducted on a nominal 30 m (RL) by 40 m (Northing) grid.

10.7.3 Brunswick

Drilling post 2010 has been conducted by defining and infilling the existing Inferred Resource, based on the updated fault interpretation. Extension within the Penguin to Kiwi fault panel used an initial dice-five pattern, which was then infilled using daughter wedge drill holes.

The Kiwi to Rooster fault panel was also drilled using a dice-five pattern with an approximate spacing of 40 m.

10.7.4 Youle

Drilling was completed on an initial spacing of approximately 100 m to define the extent of the mineralisation and determine an Inferred Resource. The infill drill hole spacing accomplished was approximately 40 m to 50 m, using a combination of parent and daughter wedge drill holes. Several drill holes were twinned by daughter wedge drill holes in order to obtain metallurgical samples and duplicates of several high-grade gold zones.

A combination of west to east, and east to west drill holes were used to test both west-dipping Youle style mineralisation, and Augusta/Brunswick style vertical mineralisation, however the dominant drill hole orientation in the infill program at Youle was drilled west to east.

Youle underground drilling has been undertaken in order to provide increased geological confidence ahead of mining, and complete near mine exploration along-strike and down-dip of the Youle Lode.

10.8 Interpretation of Drilling Results

Drilling results are initially interpreted on paper cross-sections, which are then scanned and geo-referenced in the mine planning software package Surpac™. The scanned sections are then used to generate wireframes (Figure 10-3). Mappable stratigraphic units have been represented by various colours, while faults and mineralised lodes have been marked with heavy black lines.

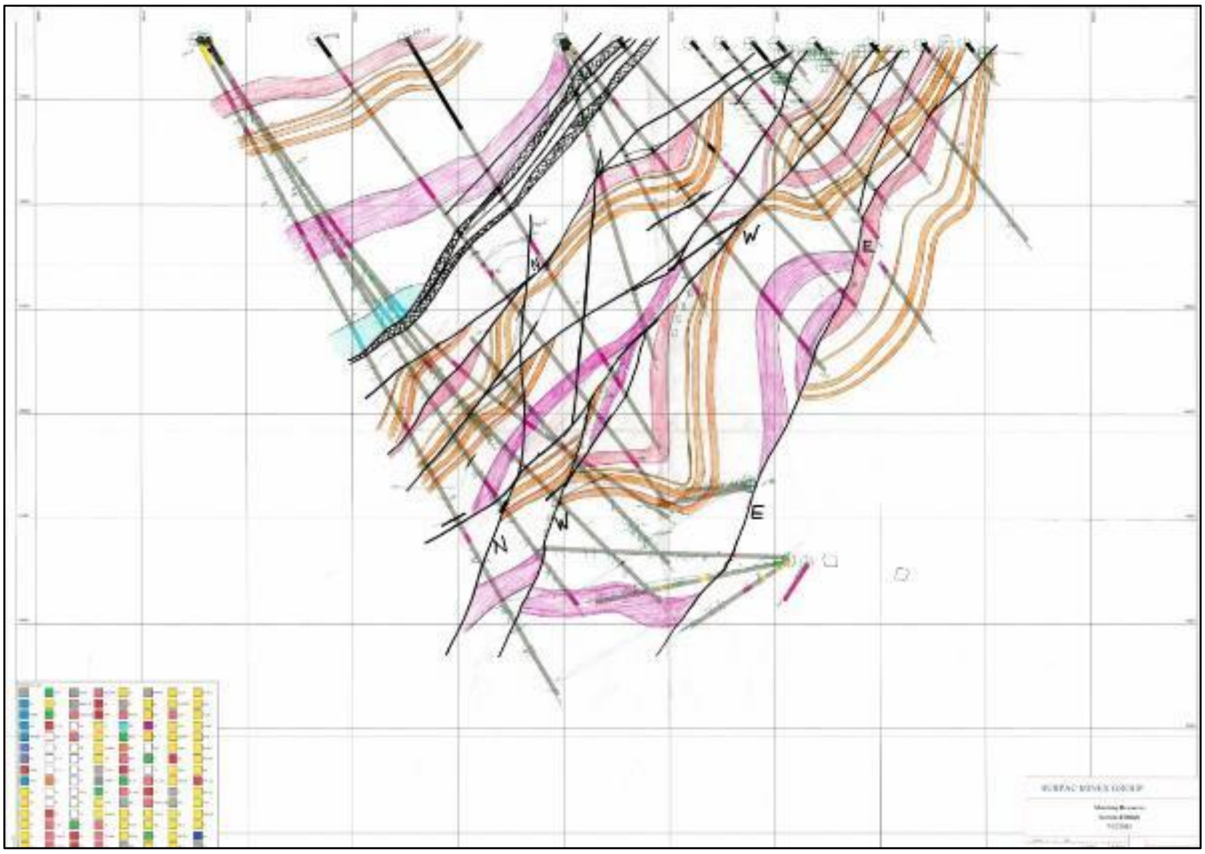

Figure 10-3: Example cross-section of the Augusta Deposit at 4,300mN, post drilling and geological interpretation

Mandalay Resources have recently implemented the use of the implicit software package Leapfrog Geo to assist in the structural, geological and geochemical interpretation of drill hole data and surface mapping in 3D space.

10.9 Factors that could Materially Impact the Accuracy of the Results

The factor that has the greatest potential to materially impact the accuracy of drilling results is the core recovery. Historically, this was an issue for all methods of drilling in the Augusta area. Mandalay Resources has employed methods of drilling and associated procedures to ensure the highest recovery of sample possible. Where sample recovery is poor, a repeat drill hole is completed by drilling a daughter wedge drill hole.

Information gained from historical drilling has been used in resource estimation, however, as much of the historically drilled area has now been depleted by mining, the risk associated with these historical holes is considered minimal.

Surveys of the collar location and downhole surveying methods applied at the Costerfield Property follow industry best practice. The location of each drill hole is surveyed within millimetre accuracy.

Sampling is of a consistent and repeatable nature, with appropriate QAQC sampling methodologies employed, and the assay method used is considered to be appropriate for the style of mineralisation.

11 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The sample preparation and analysis processes detailed in this section of the Technical Report has been in place for several years, and are considered by the QP to be adequate for use in the generation of a Mineral Resource.

11.1 Sampling Techniques

Samples were routinely collected and analysed from diamond drill core and channel samples from the ore development drive faces.

14.1.1 Diamond Core Sampling

The mineralisation style at the Costerfield Property is now well-understood and the geological controls on mineralisation well-established. Sampling intervals were based on geological characteristics and marked on the diamond drill core by Mandalay Resources geologists. Mineralisation was always clearly visible and therefore, systematic sampling of complete drill holes was not required.

The general rules that were followed in the selection of sample intervals were:

- All stibnite-bearing veins were sampled,
- Intersections of stockwork veins, laminated quartz veins or massive quartz veins were routinely sampled,
- Waste samples were collected from either side of the mineralized vein in order to determine the grade of the waste material immediately adjacent to the mineralisation. These waste samples ranged from 0.3 m to 1 m in downhole length,
- Siltstone was sampled where disseminated arsenopyrite was observed,
- Fault gouge zones were sampled at the discretion of the geologist.

Diamond core sampling intervals were standardised wherever possible, and ranged from 5 cm to 1 m in length. The average sample length for drill core samples within the 2020 Youle drilling program was approximately 0.5 m.

Where there was a definitive lithological contact that marked the boundary of a sample, the sample was cut along the contact. If by doing this, the sample was less than 5 cm in length, the boundary of the sample was taken at a perpendicular distance from the centre of the sample, which achieved the 5 cm minimum sample length requirement.

A Mandalay Resources exploration field technician undertook the sampling of the diamond drill core. To obtain consistent samples for analysis and retention, the diamond drill core was cut perpendicular to the core axis at the downhole sampling points and then cut in half lengthways with an Almonte automated diamond saw.

Drill holes that were designed for metallurgical analysis were sampled in intervals up to 2 m in length.

14.1.2 Underground Channel sampling

Ore drive face channel samples (face samples) were taken by Mandalay Resources Geologists at a frequency of between 1.8 m and 5 m along the drive, and were collected using the following method:

- The face was marked up by the sampler to show the contacts of the mineralisation, the bedding angle, and any geological structures that may offset the lode,
- Sample locations were determined so that the sample was collected perpendicular to the dip of the mineralisation, from the FW to the HW,
- The face size and sample lengths were measured,
- The face was labelled with the heading, dated and photographed,
- Each sample was collected as a channel sample using a geological hammer or pneumatic chisel, and placed into pre-numbered sample bag with a unique ID,
- Care was taken to obtain a sample considered representative by the sampling Geologist,
- Where there were two or more mineralised structures in the face, samples were also taken of the intervening waste,
- Sample lengths ranged from 5 cm to 1.5 m across the mineralisation, and typically weighed between 1 kg and 3 kg,
- The face was sketched on a face mapping/sample sheet and sampling details recorded,
- The location of the face was derived from survey pickups of the floor and backs of the ore drive and recorded on the face mapping sheet.

Wall channel samples are rarely taken at the Costerfield Property, where they are taken, they follow the same process as above.

11.2 Data Spacing and Distribution

Within the Augusta, Cuffley, Brunswick and Youle Deposits, the distance between drill hole intercepts was approximately 40 m by 40 m. This was reduced to 20 m by 20 m in areas of structural complexity.

11.3 Assaying Laboratories

Routine assaying of the diamond drill core and face samples was completed by On Site Laboratory Services (On Site) in Bendigo, which is independent of Mandalay Resources and holds a current ISO/IEC 17025 accreditation.

After Mandalay Resources dispatched the samples to On Site, the assaying laboratory's personnel undertook sample preparation and chemical analysis. Results were returned to Mandalay Resources staff, who validated and loaded the assay data into the relevant databases.

ALS Global Brisbane and Bureau Veritas Perth have been used to verify the accuracy of the On Site assays by completing umpire check analyses of selected samples (Section 11.6.1).

11.4 Sample Preparation

The following sample preparation activities were undertaken by Mandalay Resources staff for both diamond drill core and underground channel samples:

- Sample information and characteristics were measured, logged, in the case of drill core, and recorded in the acQuire™ database and a unique sample ID assigned,
- Sample material was placed into a calico bag previously marked with the unique sample ID,
- Calico bags were loaded into plastic bags such that the plastic bags weighed less than 10 kg,
- An assay submission sheet was generated and placed into the plastic bag,
- Plastic bags containing samples were sealed with a metal tie and transported to On Site in Bendigo via private courier.

The following sample preparation activities were undertaken by On Site staff:

- Samples were received and checked for labelling, missing samples etc. against the submission sheet
- If the sample batch matched the submission sheet, sample metadata was entered in the On Site's Laboratory Information Management System (LIMS). In the event that discrepancies were noted, Mandalay Resources was contacted by On Site to resolve the discrepancy prior to further work commencing. Records of all discrepancies and corrective actions taken are stored by the Mandalay database administrator,
- A job number was assigned, and worksheets and sample bags prepared,
- Samples were placed in an oven and dried overnight at 106°C,

- The whole dried sample was crushed using a Rocklabs Smart Boyd Crusher RSD Combo[1] with a jaw closed side setting of 2mm,
- If the dried sample weight was less than 3kg, the entire sample was retained for pulverisation. If the dried sample weight was greater than 3kg, the sample was spilt to 3kg using the rotary splitter that is incorporated in the Boyd crusher,
- Rejects from great than 3kg splits were retained as coarse rejects in labelled calico bags and returned to Mandalay Resources,
- The 3kg sample was then pulverized in an Essa® LM5 Pulverising Mill[2] to 90% passing 75 µm,
- The 3kg pulverised samples were then subsampled to take a 200g split for assay by a manual scooping procedure across the full width and depth of the mill bowl and loaded sequentially into labelled pulp packets,
- For every 21 primary samples, two samples are randomly selected by the Laboratory Information Management System (LIMS), and a duplicate 200g split was taken, loaded into labelled pulp packets, and submitted for analysis using the same analytical procedure as the primary sample,
- The remaining pulp was returned to its sample bag and returned to Mandalay Resources for retention following the completion of assay.

11.5 Sample Analysis

Diamond drill core and face/wall channel samples were routinely assayed by On Site for gold, antimony, arsenic, and iron.

11.5.1 Gold Analysis:

Gold grades were determined by Fire Assay (FA) with an Atomic Absorption Spectroscopy (AAS) finish.

11.5.2 Antimony Analysis:

Antimony grades were determined using an aqua regia based acid digest with an ICP-OES finish at low-detection levels, and with an AAS finish at high antimony levels (>0.6% Sb).

[1] https://www.scottautomation.com/assets/Resources/Smart-BOYD-RSD-Brochure-English.pdf
[2] https://flsmidth-prod-cdn.azureedge.net/-/media/brochures/brochures-products/sampling-preparation-and-analysis/essa-lm5-pulverising-mill.pdf

11.5.3 Arsenic, and Iron Analysis:

Arsenic and iron was prepared as above with aqua regia digestion and an ICP-OES finish.

11.6 Laboratory Reviews

Mandalay Resources personnel have conducted periodic visits to the On Site facility in Bendigo and met regularly with the laboratory managers; however, in 2020 scheduled in-person visits were suspended due to COVID19 restrictions from March to November.

Tours of the laboratory were normally completed in the presence of On Site's Laboratory Manager, Mr Rob Robinson. Notes and minutes from laboratory visits and meetings with laboratory staff are filed for record on the Mandalay Resources server.

11.6.1 Umpire Check Analyses

Mandalay Resources have conducted umpire check analysis programs, most recently in July and October 2020. This process involved obtaining pulp sample splits from On Site, and submitting a pulp-duplicate sample to three different laboratories for umpire analysis (Section 11.7.4). The process used to split the samples for analysis by umpire laboratories is consistent with Method C Standard Practice in ASTM Designation C702 C702M-11 (ASTM, 2011), with a 50g aliquot of pulverized material being extracted per sample for each umpire laboratory.

11.7 Assay Quality Assurance/Quality Control

The following sections relate to the Quality Assurance/Quality Control (QAQC) samples submitted and returned to Mandalay Resources from 1st January 2020 to 31st December 2020.

A detailed review of the QAQC from previous drilling programs informing the 2020 year-end block models can be found in the following previously issued NI 43-101 Technical Reports:

Youle Block Models (500, 503, 508):

- 2019 Youle Mining and Expansion Program (SRK, 2020),
- 2018 Youle Infill Program (SRK, 2019),
- 2017 Youle Exploration Program (SRK, 2018).

Brunswick Block Model (300):

- 2019 Brunswick Development (SRK, 2020),
- 2018 Brunswick Mining and Extension Drill Program (SRK, 2019),
- 2017 Brunswick Conversion Drill Program (SRK, 2018),

- 2016 Brunswick Recommencement Program (SRK, 2017).

QAQC results of pre-2020 block models that were not re-estimated as part of this Mineral Resource and Mineral Reserve update can be found in the previous NI 43-101 Technical reports. For the relevant report years, the reader is referred to the drilling summary (Section 10.1).

11.7.1 Certified Reference Materials (CRM)

In total, three project specific certified reference materials (CRM) produced from Costerfield Property ore and three commercial CRMs were routinely inserted into sample lots during 2020 in order to measure the assay quality and accuracy (Table 11-1).

The three project specific CRMs have been created from ore grade material collected from the Augusta and Brunswick Deposits. The homogenisation, analysis and certification of these CRMs were performed and/or coordinated by Geostats Pty Ltd. Mandalay Resources also used three commercially available CRMs sourced from Geostats Pty Ltd (Geostats) and ORE Research and Exploration Pty Ltd (OREAS):

Table 11-1: Certified Reference Materials and certified assay methods

CRM Name	Material Source	Certifying Lab	Method 1	Method 2
AGD008-02	Costerfield - Ore	Geostats	Fusion/XRF	NA
MR-C2	Costerfield - Ore	Geostats	4AD/ICP	Fusion/ICP
MR-F2	Costerfield - Ore	Geostats	4AD/ICP	Fusion/ICP
GSB-02	Commercial	Geostats	Fusion/ICP	Fusion/XRF
GSB-05	Commercial	Geostats	Fusion/ICP	Fusion/XRF
OREAS239	Commercial	OREAS	Aqua Regia/ICP	NA

At least one standard was submitted with each batch of diamond core samples, typically at a rate of 1 standard per 25 samples. CRMs were submitted at a similar rate in the underground face/wall channel sample batches, which typically included two different CRMs per batch.

A standard assay result is considered to be acceptable when it falls inside three standard deviations (SD) of the CRM certification grade. When a CRM failed, as defined by the CRM certification, all significant mineralised assay grades in the batch were re-assayed, where significant grades were defined as mineralised samples that may have a material-impact in future resource estimates. All actions or outcomes were recorded as comments in the QAQC database.

11.7.1.1 CRM Results

A review of the CRM results for the reporting period indicates the following:

- GSB-02: CRM Assay 23.64 g/t Au and 31.04% Sb
    - Au: Relatively good compliance for the period with a slight positive bias and a few outliers outside the ±2SD limits towards the end of the period. This was likely due to the small volume of sample. Double packets were used to ensure adequate volume of material for this CRM (Figure 11-1).

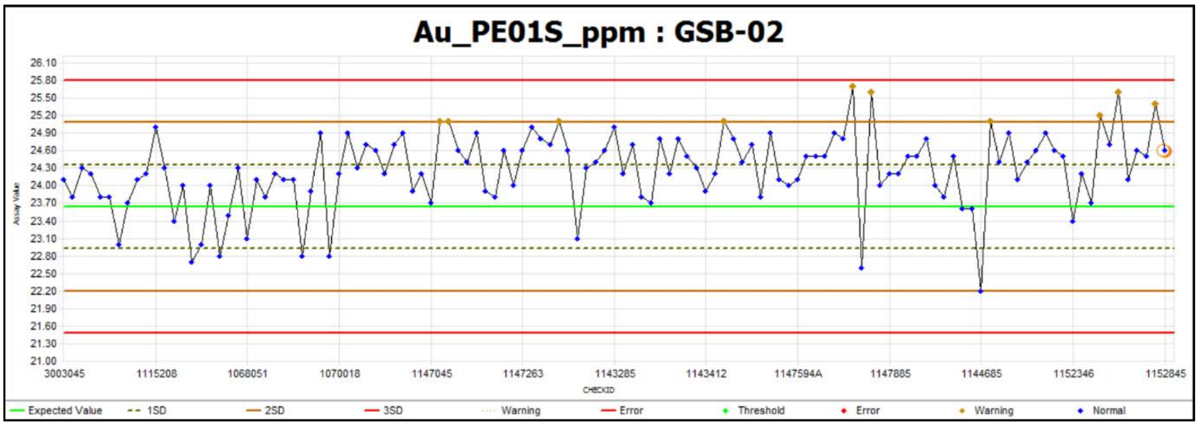

Figure 11-1: GSB-02 gold standard CRM control plot

-
    - Sb: Good compliance with one standard failing outside ±3SD (Figure 11-2).

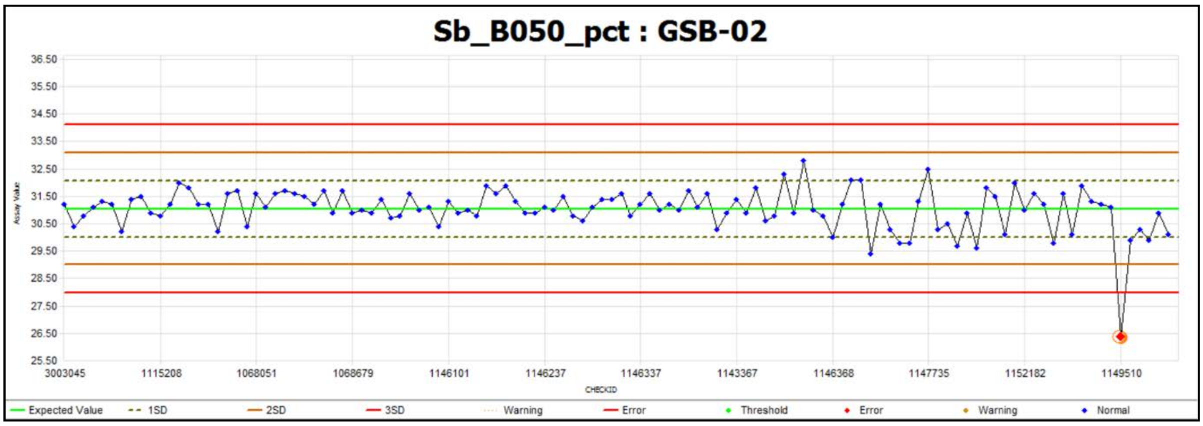

Figure 11-2: GSB-02 antimony standard CRM control plot

- GSB-05: CRM Assay 0.18% Sb (indicated 0.90 g/t Au)
    - Au: Fair compliance with a slight bias in the beginning of the period then normalising closer to the expected value for the majority of the period. This standard was discontinued in June 2020 (Figure 11-3).

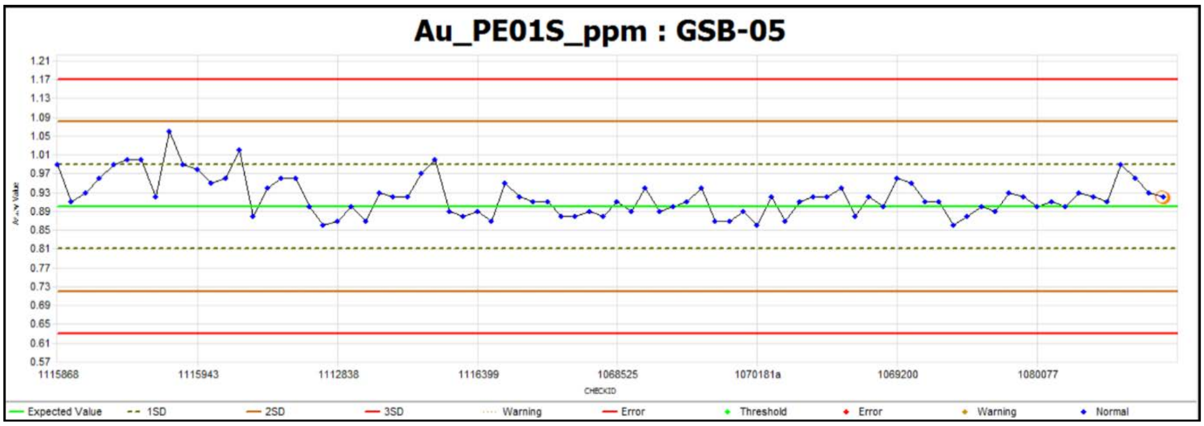

Figure 11-3: GSB-05 gold standard CRM control plot

- Sb: Shows fair/poor compliance for the period with clear negative bias. This CRM sat on the transition between ICP-MS and AAS finish at On Site, and with the AAS finish "noisy" under 0.2% Sb. This standard was discontinued in June 2020. (Figure 11-4).

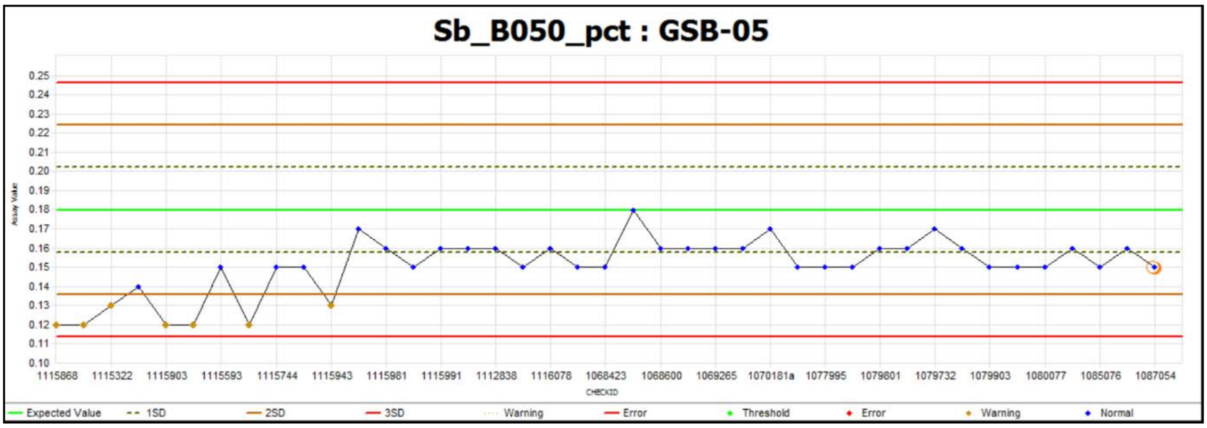

Figure 11-4: GSB-05 antimony standard CRM control plot

- MR-C2: CRM 76.73g/t Au and 46.01% Sb
    - o Au: Good compliance with minimal bias. No outliers over ±2SD. (Figure 11-5).

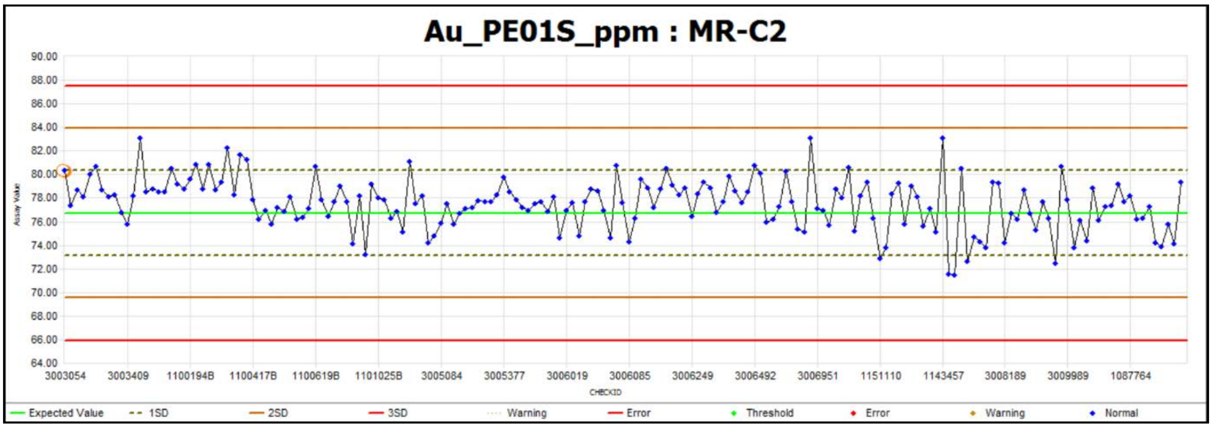

Figure 11-5: MR-C2 gold standard CRM control plot

- o Sb: Fair compliance with a consistent high bias between the +1SD and +2SD limits, which is considered to be a result of the differing methods used to certify the standard. The results show a strong degree of precision within that band. (Figure 11-6).

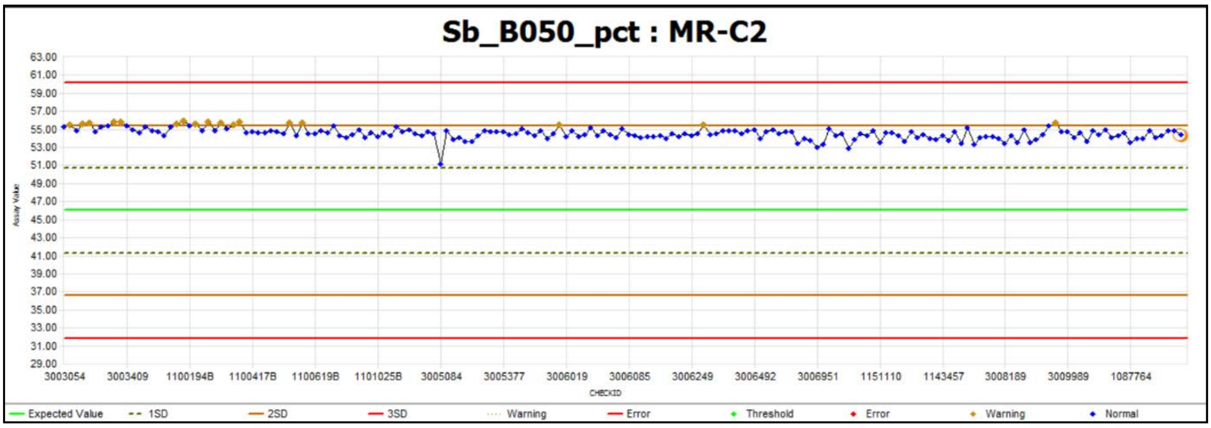

Figure 11-6: MR-C2 antimony standard CRM control plot

- MR-F2: CRM 12.18 g/t Au and 4.03% Sb
    - Au: Poor compliance in the beginning of the year with several samples falling below -3SD, however the rest of the period showed good compliance. (Figure 11-7).

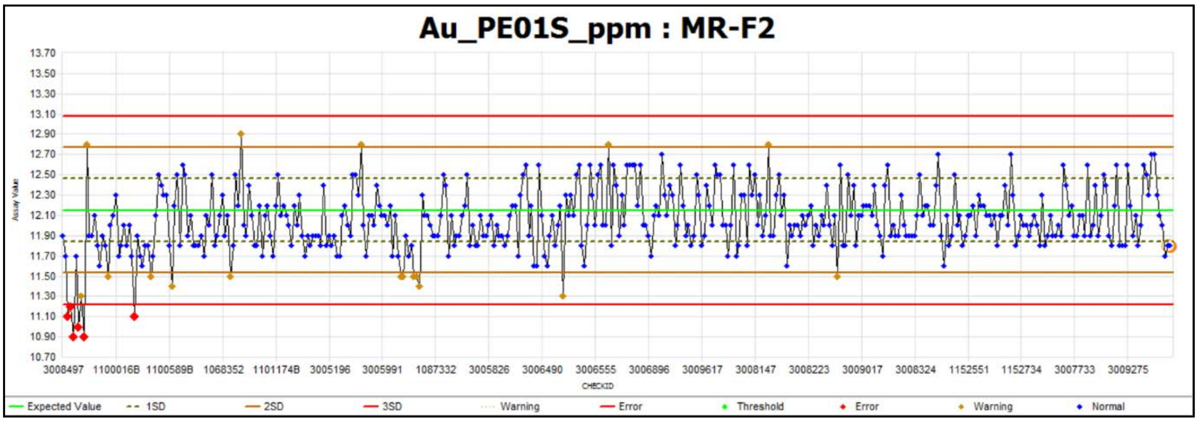

Figure 11-7: MR-F2 gold standard CRM control plot

- Sb: Poor compliance in the start of the period with a high bias and several results outside ±3SD. This bias levelled out closer to the expected value from mid period to end of period resulting in good compliance with a minor positive bias and good accuracy (Figure 11-8).

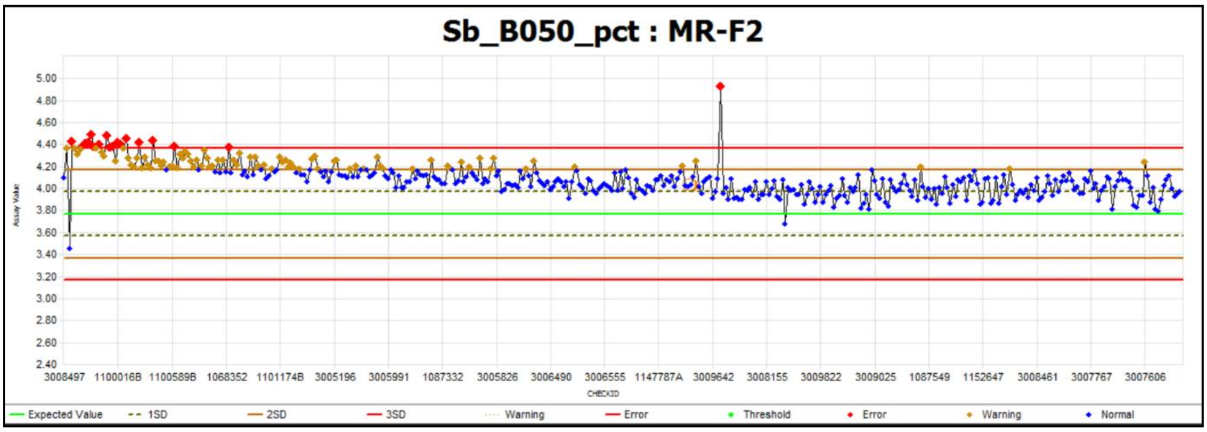

Figure 11-8: MR-F2 antimony standard CRM control plot

- OREAS239: CRM 3.41 g/t Au and 0.05% Sb
  - Au: Good compliance with consistent slight positive bias (Figure 11-9).

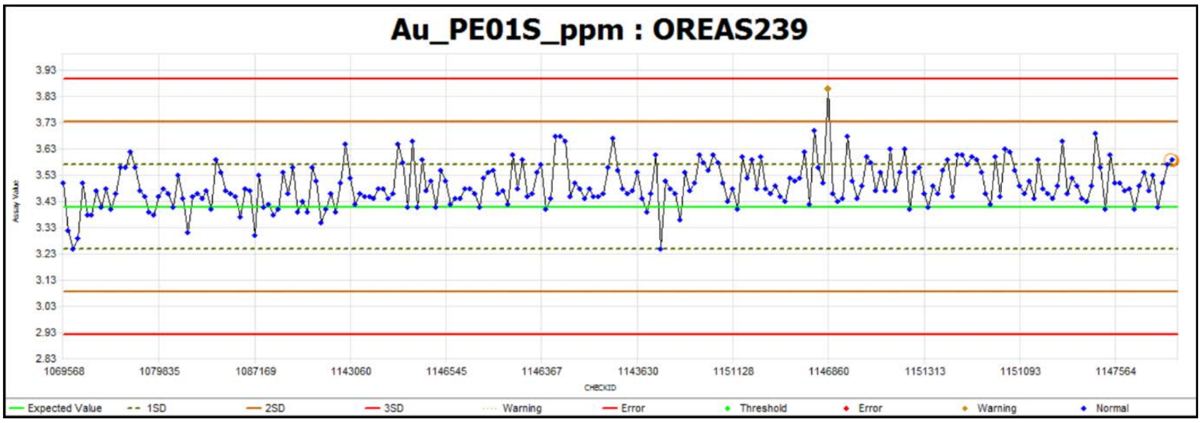

Figure 11-9: OREAS239 gold standard CRM control plot

  - Sb: Good compliance and accuracy around the certified value (Figure 11-10).

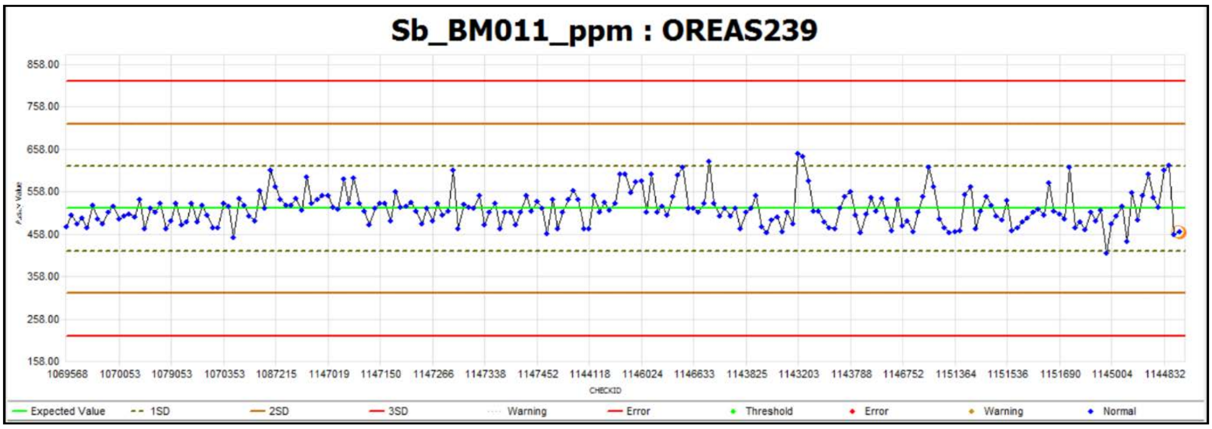

Figure 11-10: OREAS239 antimony standard CRM control plot

- AGD0-02: CRM Assay 1.75% Sb
    - Sb: This standard was used minimally during the period, resulting in insufficient data to confidently gauge compliance. From the few samples available, fair compliance with a minor positive bias was observed (Figure 11-11).

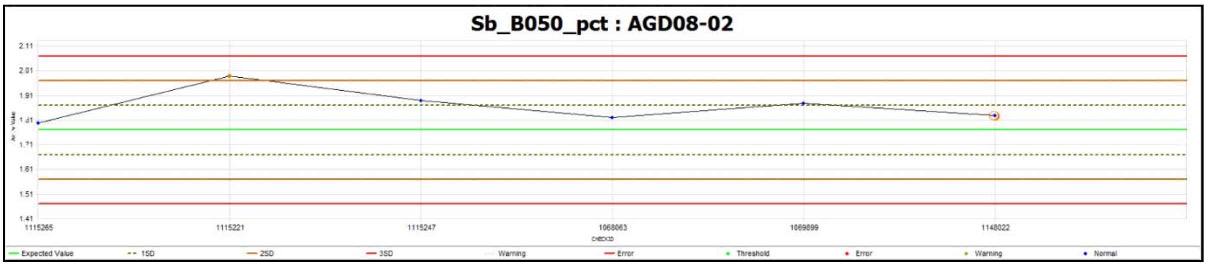

Figure 11-11: AGD08-02 antimony standard CRM control plot

11.7.1.2 CRM Results Discussion

Differences in the preparation and analysis methodology for antimony of some CRMs versus the routine analysis method of On Site exists and is a probable cause of some poor compliance of CRM results.

On Site Laboratory have considerable experience in the analysis of high antimony samples typical of the Costerfield Property and other regional operations, and it follows a proprietary assaying method that has been developed to report ore-grade level antimony values. It uses an Aqua Regia style preparation to negate analytical technique issues encountered with a 4 Acid Digest, and is finished with an ICP-OES (low-level detection limit) or an AAS finish (high-level detection limit).

Additional CRMs are being sourced for 2021 that have been certified with analytical methods that match On Site Laboratory. The QP considers that the agreement between the On Site Laboratory assays and the umpire laboratory assays (see Section 11.7.4 below) provides sufficient confidence in the On Site Laboratory results for them to be used as inputs to the Mineral Resource Estimate.

Following discussion with the QP, Mandalay Resources agrees that the current CRMs for antimony must be overhauled with urgency in order to address the biases observed in the 2020 results and increase the confidence in the Mineral Resource Estimate.

11.7.2 Blanks

Mandalay Resources submitted uncrushed samples of basalt as blank material into assay sample lots, at a rate of 1 in every 30 samples, to test for contamination during sample preparation.

Measures to control contamination at On Site include cleaning of the mill pulverisers and the crusher with a high-pressure air gun as well as each mill pulveriser being placed in venting cabinets with high-power extraction fans. Roadbase and quartz washes were also used on request for samples where significant visible gold was observed.

The failure threshold for gold is 0.10 g/t, which was chosen since it represents ten times the detection limit of 0.01 g/t for AAS. The failure threshold for antimony is 0.05%, which was chosen for being five times the detection limit of 0.01% for ICP-MS.

The blank results, as displayed in Figure 11-12 and Figure 11-13 indicate a 99% passing rate for gold blanks and a 99% for antimony blanks. There were six gold failures, with three samples of those returning grades at over 0.5 Au g/t. There were also ten antimony failures, with two of those failing at over 0.2% Sb.

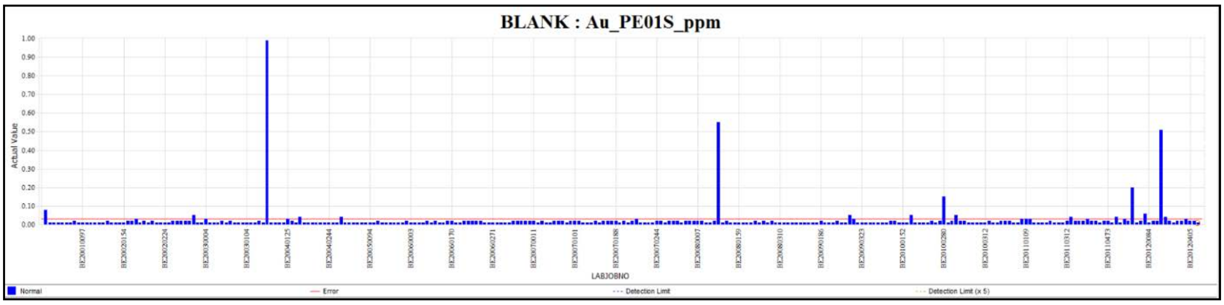

Figure 11-12: Gold blank assay control plot

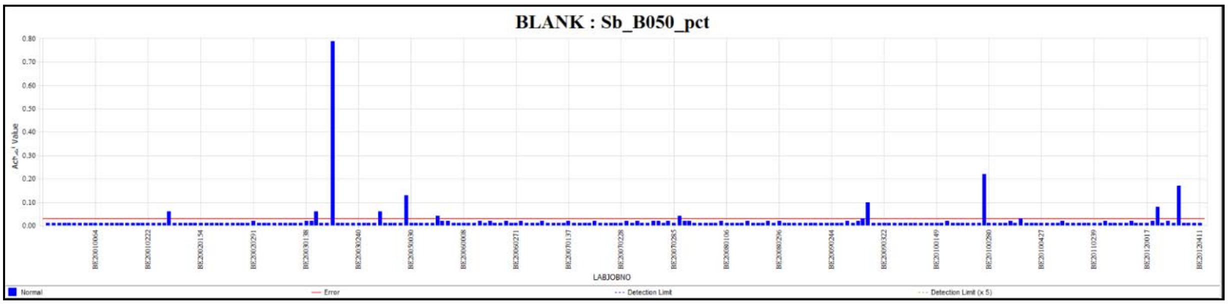

Figure 11-13: Antimony blank assay control plot

11.7.3 Pulp Duplicates

A total of 987 pulp duplicate assays have been completed by On Site for gold and antimony (Table 11-2and Table 11-3). The duplicates are assayed as separate aliquots of the same sample pulp from both exploration drill core samples and mine face/wall channel samples.

Table 11-2: Pulp duplicate gold statistics

Description	Original	Duplicate
Number of samples	987	987
Mean	59.93	59.86
Maximum	2480.00	2250.00
Minimum	0.16	0.16
Population Std Dev	114.73	111.33
Coefficient of Variation	1.19	1.86
Bias	0.11%	
Correlation Coefficient	0.99	
Percentage of samples < 10% Relative Paired Difference	**84.30**	

Table 11-3: Pulp duplicate antimony statistics

Description	Original	Duplicate
Number of samples	819	819
Mean	24.405	24.495
Maximum	61.90	61.80
Minimum	0.16	0.16
Population Std Dev	20.66	20.68
Coefficient of Variation	0.85	0.84
Bias	-0.37%	
Correlation Coefficient	1.00	
Percentage of samples < 10% Relative Paired Difference	**93.89**	

11.7.3.1 Pulp Duplicate Results

Scatter plots of the pulp duplicate results are presented in Figure 11-14 and Figure 11-15, and display no significant bias between the original and duplicate assays in either gold or antimony.

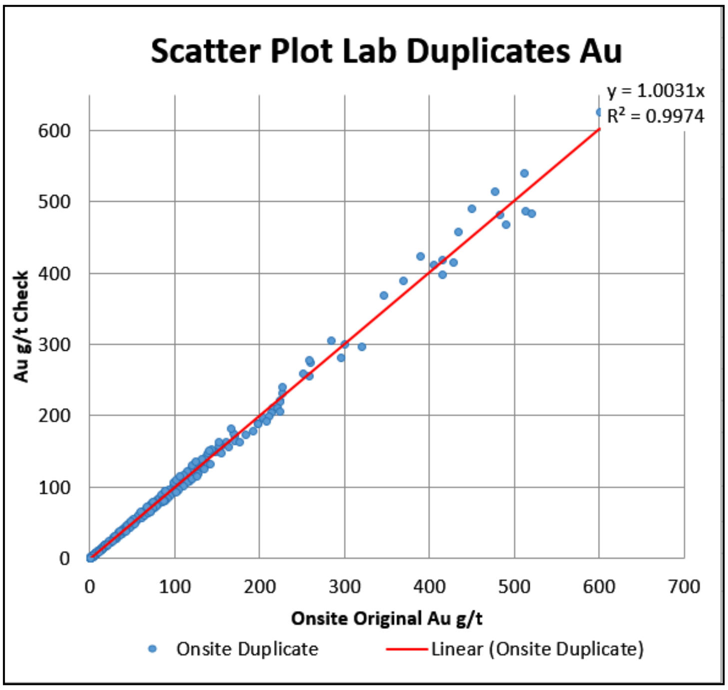

Figure 11-14: Scatter plot of On Site gold duplicates (g/t)

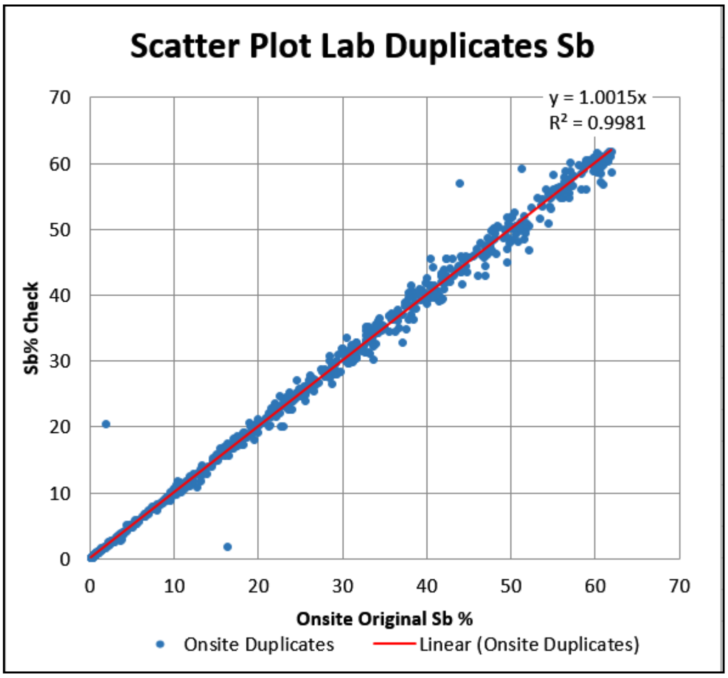

Figure 11-15: Scatter plot of On Site antimony duplicates (%)

Relative paired difference (RPD) plots are utilised in the determination of precision between paired datasets, such as original assay results and pulp duplicate results (Figure 11-16 and Figure 11-17). It is desirable to achieve 90% of pairs at less than 10% RPD in the same sample batch, or less than 20% in different batches or from different laboratories (Stoker, 2006).

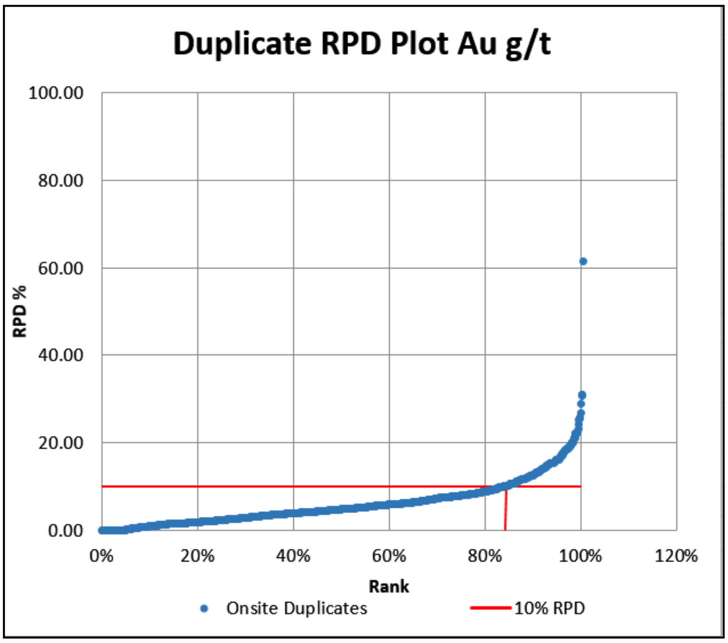

Figure 11-16: Relative paired difference plot, gold pulp duplicates (g/t)

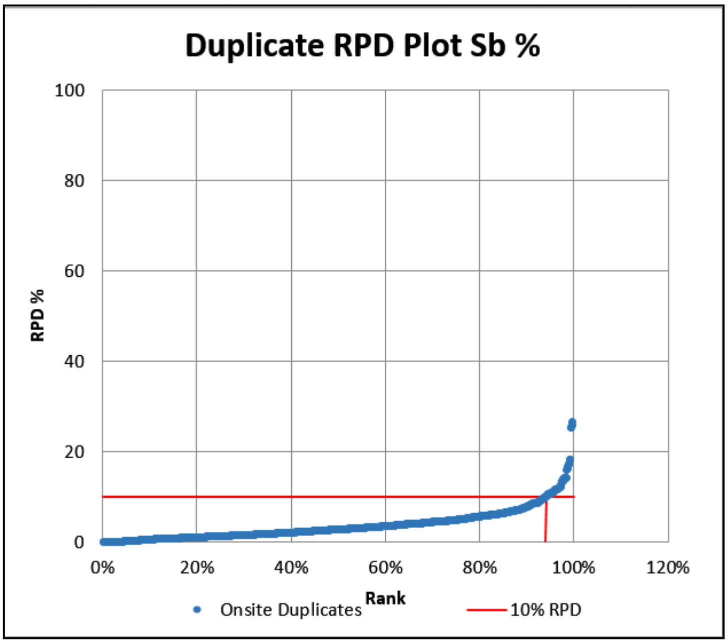

Figure 11-17: Relative paired difference plot, antimony pulp duplicates (%)

The pulp duplicate gold dataset achieved 84.30% of pairs at less than 10% RPD and 98.07% of pairs at less than 20% RPD, which demonstrates acceptable precision in the gold assays returned by On Site.

The pulp duplicate antimony dataset achieved 93.89% of pairs less than 10% RPD, which is comparable to results from 2019 of 93.79%, and is considered acceptable.

11.7.4 Umpire Check Assay Program – pulp samples

Two pulp umpire check assay programs were conducted in 2020 on pulp samples assayed by On Site. Selected pulp samples were dispatched to ALS Minerals (ALS) and Bureau Veritas (BV) for re-analysis of gold and antimony, the results of which are detailed in Table 11-4 and Table 11-6. Low level gold (< 20 g/t) and antimony (< 5 %) results were also analysed and are detailed in Table 11-5 and Table 11-7. Biases less than 5% are considered acceptable, while greater levels of bias require investigation.

Table 11-4: Summary of On Site original, On Site duplicate, ALS, and BV gold umpire check statistics

Statistic	On Site Original	On Site Duplicate	ALS Umpire	BV Umpire
Number of samples	96	96	96	96
Mean	52.59	51.59	54.54	48.21
Maximum	541.00	554.00	789.00	528.00
Minimum	0.40	0.27	0.35	0.35
Population Std Dev	90.02	83.48	98.62	73.80
Coefficient of Variation	1.71	1.62	1.81	1.53
Bias	1.89%		-3.72%	8.33%
Correlation Coefficient	0.92		0.82	0.86
Percent of samples < 20% RPD	**90.63**		**71.88**	**75.00**

Table 11-5: Summary of On Site original, On Site duplicate, ALS, and BV, low level gold (< 20 g/t) umpire check statistics

Description	On Site Original	On Site Duplicate	ALS Umpire	BV Umpire
Number of samples	51	51	51	51
Mean	5.66	5.50	6.02	5.90
Maximum	19.50	19.50	26.20	30.40
Minimum	0.40	0.27	0.35	0.35
Population Std Dev	5.97	6.03	7.20	7.12
Coefficient of Variation	1.05	1.10	1.20	1.21
Bias	2.79%		-6.37%	-4.20%
Correlation Coefficient	0.96		0.92	0.88
Percent of samples < 20% RPD	**90.20**		**68.63**	**78.43**

Table 11-6: Summary of On Site original vs On Site duplicate, ALS, BV, antimony umpire check statistics

Description	On Site Original	On Site Duplicate	ALS Umpire	BV Umpire
Number of samples	96	96	96	96
Mean	22.31	23.02	22.60	22.81
Maximum	62.80	62.10	66.30	68.8
Minimum	0.34	0.35	0.33	0.385
Population Std Dev	22.30	22.60	22.32	22.70
Coefficient of Variation	1.00	0.98	0.99	1.00
Bias	-3.19%		-1.32%	-2%
Correlation Coefficient	0.96		0.96	0.96
Percent of samples < 20% RPD	**98.96**		**91.67**	**91.67**

Table 11-7: Summary of On Site original vs On Site duplicate, ALS, BV, low level (< 5 %) antimony umpire check statistics

Description	On Site Original	On Site Duplicate	ALS Umpire	BV Umpire
Number of samples	35	35	35	35
Mean	1.99	2.03	2.03	2.02
Maximum	4.96	5.00	4.78	5
Minimum	0.34	0.35	0.33	0.36
Population Std Dev	1.25	1.25	1.26	1.25
Coefficient of Variation	0.63	0.62	0.62	0.62
Bias	-2.09%		-2.06%	-2%
Correlation Coefficient	1.00		0.98	0.98
Percent of samples < 20% RPD	**100.00**		**82.86**	**85.71**

11.7.4.1 Umpire Check Assay Program Results

The results of the 2020 umpire check assay program are detailed below:

Gold check assay results:

- Biases observed between On Site and ALS using the complete gold dataset are considered acceptable, however the bias observed between On Site and BV, at 8.33%, requires further investigation.
- The gold RPD plot (Figure 11-18) demonstrates that on average 79% of all umpire check duplicate pairs are at less than 20% RPD when compared to the original On Site assay result, which is considered satisfactory.

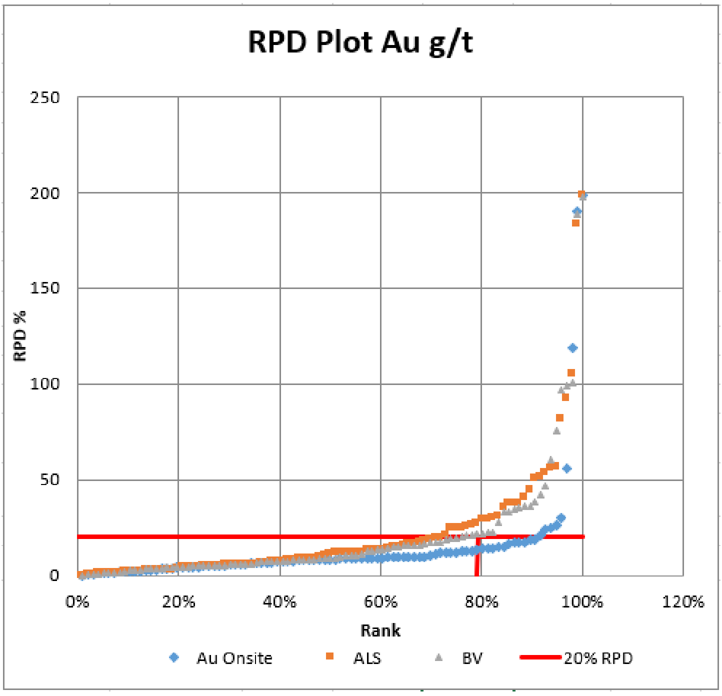

Figure 11-18: Relative paired difference plot, original vs umpire checks, gold (g/t)

- The gold scatter plot of this data (Figure 11-19) demonstrates increased range of scatter for samples greater than 60 g/t, while grade comparisons below 60 g/t display no significant difference between laboratories.

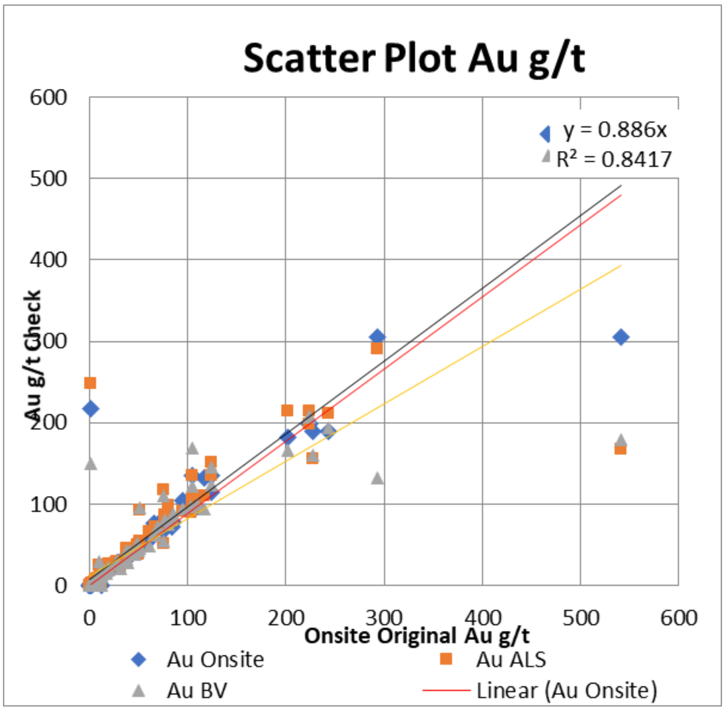

Figure 11-19: Scatter plot original vs umpire check duplicates, gold (g/t)

On Site performed at a lower RPD than ALS and BV which were more closely grouped.

Low level gold (< 20 g/t) check assay results:

- Biases observed between On Site and BV using the low-level gold dataset are considered acceptable, however the bias observed between On Site and ALS at -6.37% requires further investigation,
- Low level gold RPD plot (Figure 11-20) also demonstrates an average of 79% of all umpire check duplicate pairs are at less than 20% RPD.

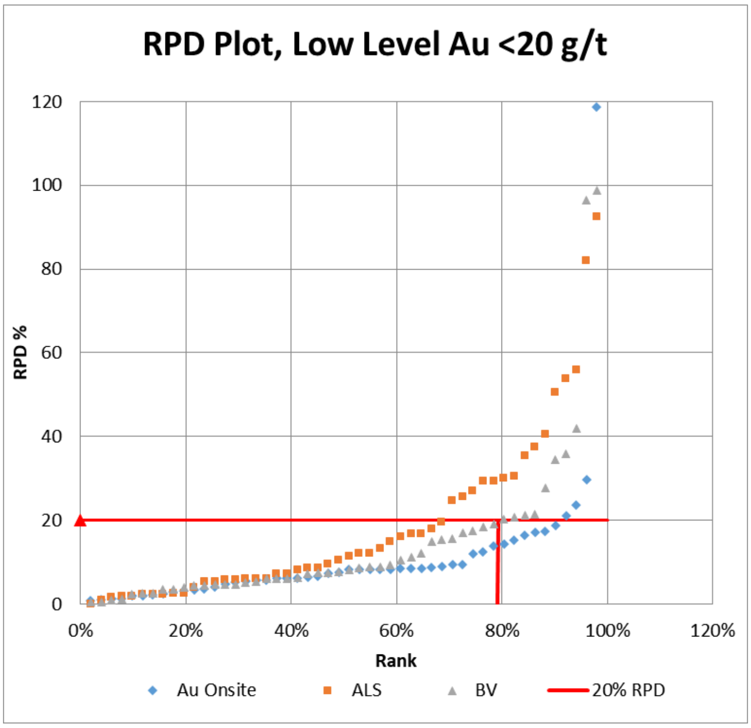

Figure 11-20: Relative paired difference plot, original vs umpire checks, low level gold (< 20 g/t)

- Low level gold scatter plot (Figure 11-21) demonstrates a generally strong correlation with outliers beginning at greater than 10 g/t.

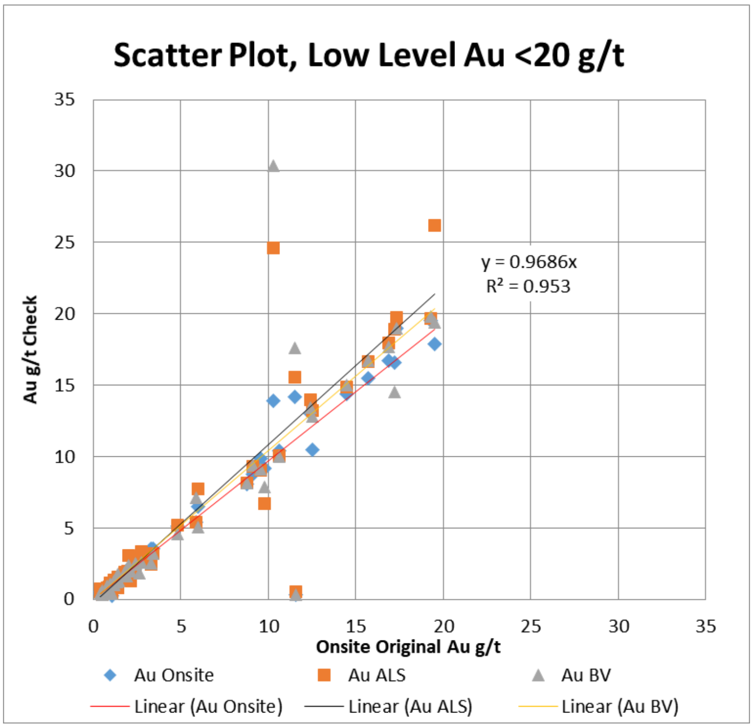

Figure 11-21: Scatter plot for On Site original vs umpire checks, low level gold (< 20 g/t)

Antimony check assay results:

- Biases observed between On Site, ALS and BV using the complete antimony dataset are considered acceptable,
- The antimony statistics from On Site have a consistently lower RPD compared to ALS and BV (Figure 11-22), however overall the batches met the desirable range at 94% of pairs at less than 20% RPD. This is considered a good result and is comparable to the 2019 result of 94%.

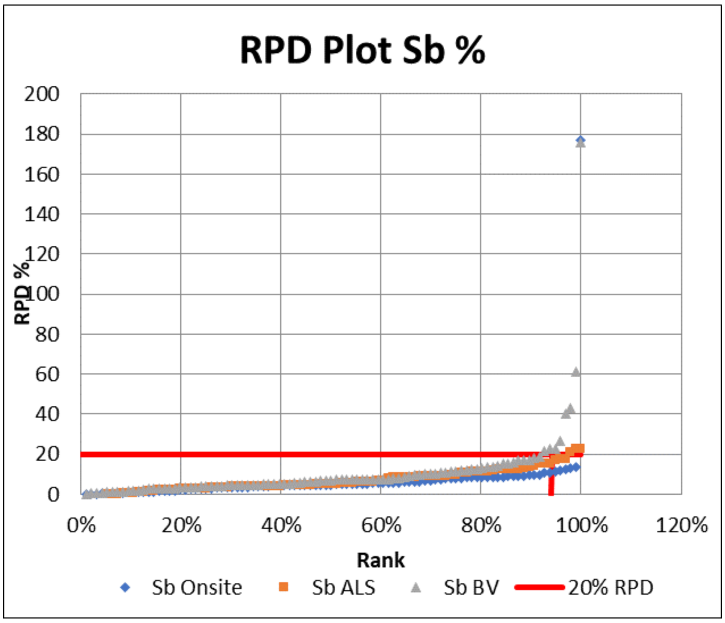

Figure 11-22: Relative pair difference plot for On Site original vs umpire checks, antimony (%)

- The antimony scatter plot (Figure 11-23) demonstrates a strong positive linear scatter at lower grade, however the degree of scatter increases above 50% Sb.

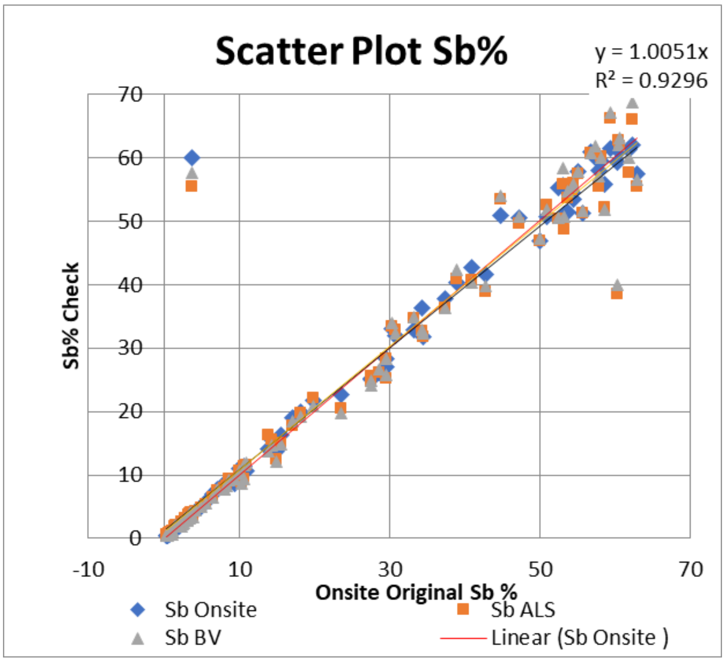

Figure 11-23: Scatter plot for On Site original vs umpire checks, antimony (%)

Low level antimony (< 5 %) check assay results:

- Biases observed between On Site, ALS and BV using the low-level antimony dataset are considered acceptable,
- The low level antimony RPD plot (Figure 11-24) also meets of desirable range at 90% of pairs at less than 20% RPD. This is supported in the scatter plot (Figure 11-25) which displays a tight linear scatter.

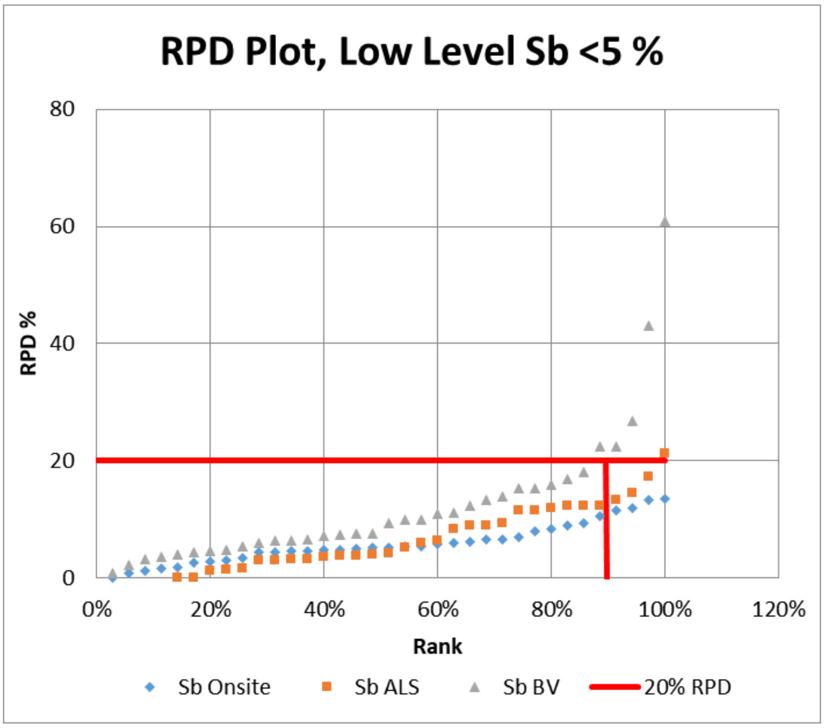

Figure 11-24: Relative pair difference plot for On Site original vs umpire checks, low level antimony (< 5%)

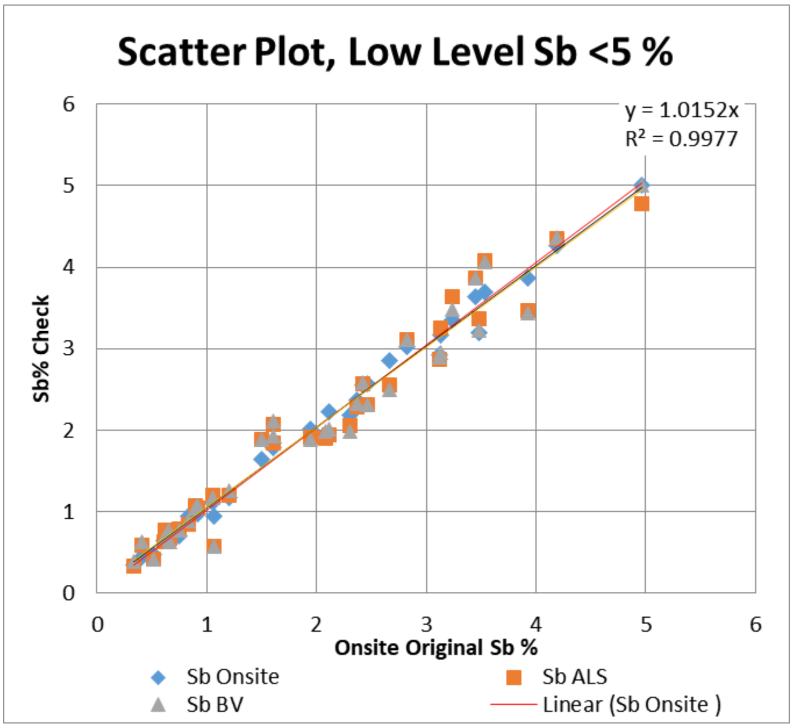

Figure 11-25: Scatter plot for On Site original vs umpire checks, low level antimony (< 5 %)

Two samples of two CRMs, MR-F2 and MR-C2, were included in each batch to the check assaying laboratories. The results indicate that all laboratories display a similar precision (Figure 11-26 to Figure 11-29). MR-F2 showed good precision and accuracy for gold, and good precision for antimony, but a consistent positive bias above the one SD. MR-C2 showed good precision and accuracy for gold with a slight positive bias but antimony showed a consistent positive bias above two SD by all three labs.

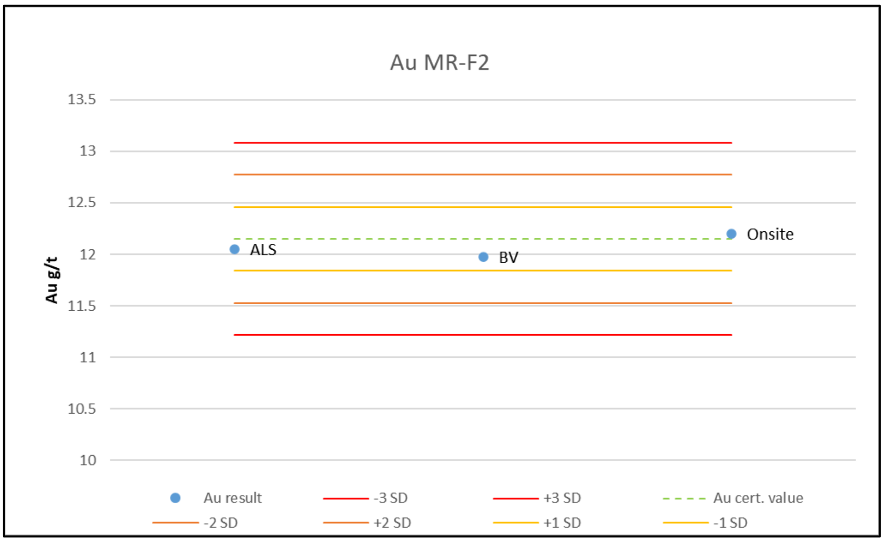

Figure 11-26: CRM MR-F2, umpire check assay batches, Au

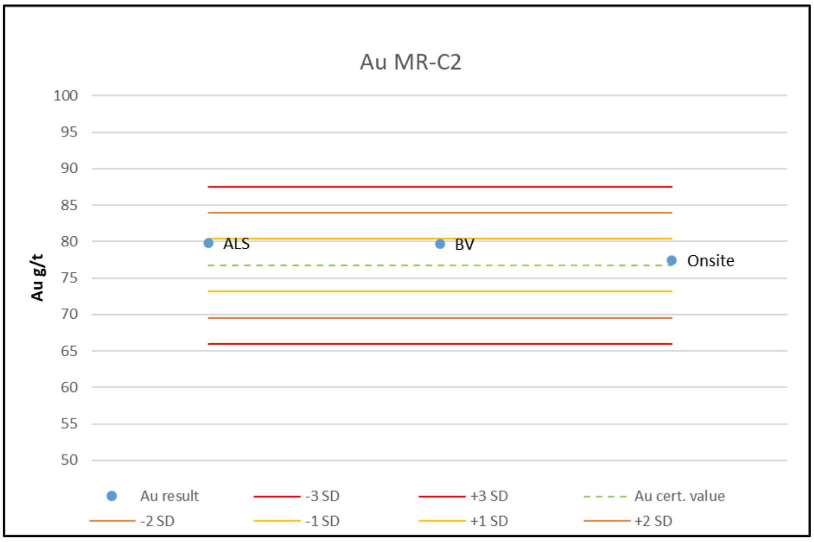

Figure 11-27: CRM MR-C2, umpire check assay batches, Au

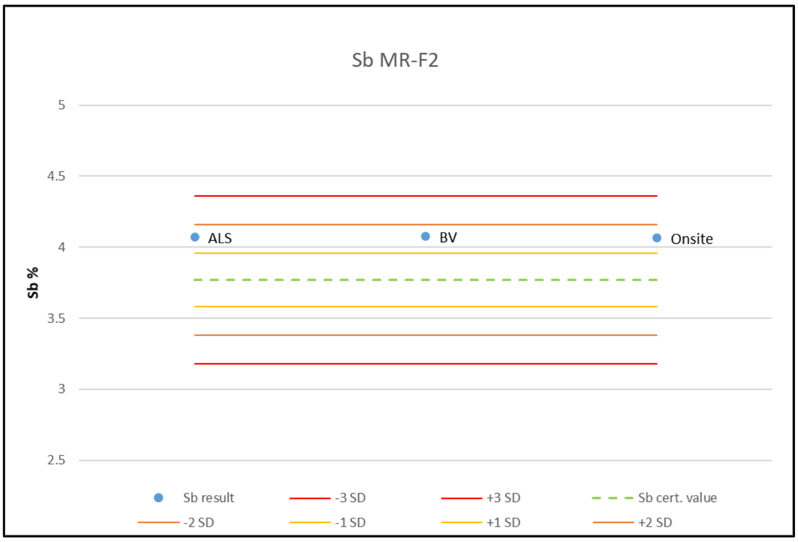

Figure 11-28: CRM MR-F2, umpire check assay batches, Sb

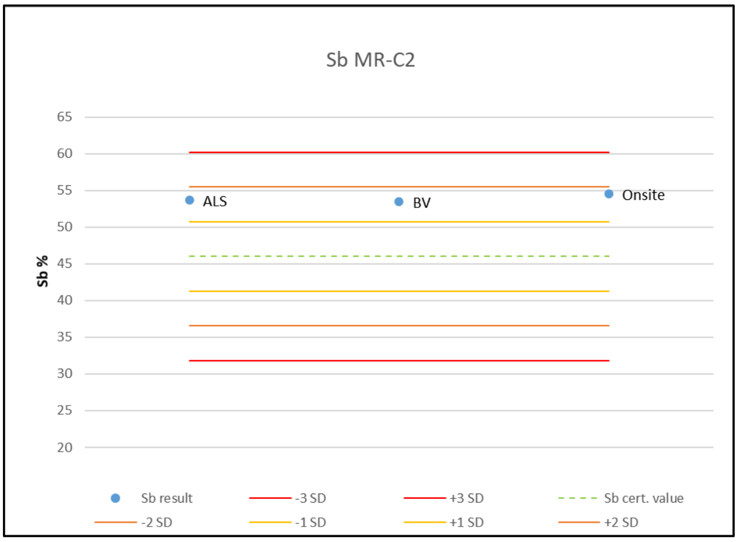

Figure 11-29: CRM MR-C2, umpire check assay batches, Sb

11.8 Sample Transport and Security

All sample bags containing the sampled material were placed in heavy duty plastic bags, along with the sample submission sheet. The plastic bags were sealed with a metal twisting wire or heavy-duty plastic cable ties. This process was applied to both underground channel samples and diamond drill core samples.

All sample bags were taken to a storage area which was under constant surveillance. Samples were delivered by a private contractor daily, directly to On Site in Bendigo, where they were accepted by the On Site laboratory personnel.

Returned sample pulps from the On Site laboratory were delivered to Mandalay Resources for storage undercover, wrapped in plastic.

11.9 Qualified Persons Opinion

The QP considers that the assay QAQC results, when taken together, demonstrate the reliability of the assays for the reporting period, and that they are suitable for use in Mineral Resource Estimation. However, the CRM results for antimony are the clear exception, as they showed strong and consistent grade biases. These results have been counterbalanced by the ALS and BV umpire laboratory assays, which showed no material bias relative to On Site for antimony. Therefore, it seems reasonable to suspect the certification for antimony for the current CRMs is unsuitable and that the CRMs should be discontinued. The QP strongly recommends a complete overhaul of the antimony CRMs as a matter of urgency and a larger program of umpire laboratory check analyses be undertaken during 2021 in order to improve confidence in the antimony results utilised in the Mineral Resource Estimate.

12 DATA VERIFICATION

In order to meet the requirements of Canadian National Instrument 43-101 (NI 43-101), Dr Andrew Fowler QP, has completed a personal inspection of the Property on the 17 and 18 December 2020. This section summarises his observations. Recommendations are outlined in Section 26.1.

Dr Fowler QP has completed the following activities at the Property:

- Checked approximately 10% of the mineralised Youle Lode database entries against the PDF certificates received directly from the assay laboratory,
- Verified several Youle drilling program drill hole collars on surface against the database entries using a GPS,
- Undertook spot checks of the database entries against the downhole surveys noted in drillers logs,
- Observed logging and drill hole sampling in the core shed and cross referenced with written procedures,
- Undertook check-logging to confirm database entries,
- Observed channel sampling underground and cross referenced with written procedures,
- Observed sample storage and looked for chain-of-custody procedures,
- Discussed the geological interpretation with key people on site,
- Reviewed some typical drill hole intersections from the Youle Lode.

Dr Fowler QP has made the following observations.

- Cross-checking of the assays between the database and original PDF certificates revealed three errors out of 200 samples checked, for an error rate of 2% (Table 12-1),
- Checking the surface collar coordinates between GPS and database entries did not reveal any inconsistencies,
- Checking the downhole survey entries between driller's logs and database entries did not reveal any inconsistencies. It was noted that the current procedure is prone to transcription errors during recording on the driller's logs and then entry into the database, with no process for digital collection or transfer of this information in place,
- Drill hole logging was undertaken with due care and consideration for the structural controls on the mineralisation, and with a view to improve the understanding of the deposit and assist with future exploration. No issues were identified,
- Drill hole sampling procedures were incomplete. Drill hole sampling technicians demonstrated a willingness to follow best practice, but required additional training. Drill hole sampling procedures did not include a wash-down step following high-grade

samples. Hardcopies of the procedures were not readily available and one procedure (Sampling) could not be located.
- Face sampling underground followed the written procedure and showed due care and consideration for contamination and sample representivity. Sample location and numbering procedures were logical, and included validation steps to ensure errors were identified and corrected quickly. No issues were identified,
- Significant drill hole intersections were observed stacked in plastic trays in an open field with no security. They have been adequately categorised, however they are exposed to a low risk of bush fire and vandalism/theft where they are currently located. Pulps returned from the laboratory were observed stacked in the open and left to disintegrate. The QP did not observe any security procedures or equipment set-up around the core shed or the sample dispatch area, nor are any chain-of-custody procedures in place with the receiving laboratory, which is located off-site.
- The QP's discussions with key people at the Property gave confidence that the geological understanding of the Property has underpinned its ongoing success. Good communication between the exploration and mining departments has ensured that experience underground has been used to guide exploration.

Table 12-1: Youle assay database cross-check results

Sample Type	No. Samples	No. Samples Checked	Errors
Face	1,843	195	2
Drill Core	45	5	1
Total	**1,888**	**200**	**3**

The QP notes that the errors in the face sample assay results were due to mismatches between the database entries and the original assay certificates. He considered that the error rate in the face samples was low and therefore did not invalidate the complete database, however, a full audit between the database and original assay certificates should be completed before the next update of the Mineral Resource Estimate. The error noted in the drill hole samples was that the original assay certificate could not be produced at the time of writing. This was considered to be a minor error, nevertheless, the full set of original assay certificates should be located and cross-referenced with the database entries before the next update of the Mineral Resource Estimate.

The QP notes also that bulk density measurements have not been collected at the Property for several years and therefore this aspect could not be observed or verified. The relationship between bulk density and stibnite content at the Property has been used in the estimation of Mineral Resources since mining began, and measurements taken in the past have reinforced this relationship. As a result, the QP considers that the bulk density relationship should still be valid, however, periodic measurements should continue to be taken to ensure that the relationship is still valid.

In the QP's opinion, the geological data used to inform the Costerfield Property block model estimates were largely collected, validated and stored in line with industry best practice as defined in the CIM Mineral Exploration Best Practice Guidelines (CIM, 2018) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (CIM, 2019), with some minor issues identified. Therefore, the QP considers that the data is suitable for use in the estimation of Mineral Resources.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

Extensive metallurgical testwork has been undertaken on samples taken from the Augusta Deposit from 2004, the Cuffley Deposit from 2012, the Brunswick Deposit from 2016 and most recently, the Youle Deposit from 2018.

Historical operating data now validates the testwork from each of these deposits, and data allows antimony and gold recovery relationships to be developed and used to forecast future metal recoveries, as well as forecasting the plant throughput capacity.

13.1 Metallurgical Testing

Mill feed blend characterisation and metallurgical tests are routinely undertaken by Mandalay Resources in order to verify the expected behaviour of new mineralisation domains, lithology types, lodes, or deposits.

The following reputable, accredited, and appropriately experienced metallurgical laboratories have been involved with various aspects of the original metallurgical evaluation and ongoing testwork:

- ALS Metallurgy – (previously Metcon Laboratories) - New South Wales,
- Amdel Mineral Services Laboratory (now Bureau Veritas Minerals) - South Australia,
- Australian Minmet Metallurgical Laboratories (AMML) – New South Wales.

The Brunswick Processing Plant has been operated by Mandalay Resources since late 2009, with several years of operating data on the Cuffley/Augusta ore blend, on the Brunswick ore from Q3 2018 and Youle underground ore from late Q3 2019. As a result, the metallurgical testwork on all deposits, including the most recently tested Youle ore, has been superseded by operational data. The use of comprehensive historical operating data is considered to be a more accurate basis upon which to forecast future metallurgical behaviour when processing similar ores. The Youle samples exhibited similar metallurgical behaviour to the Cuffley/Augusta ores during testwork and therefore initially used historic Cuffley/Augusta production data for forecasting purposes.

Ore from the Youle underground deposit was first processed in September 2019. It was initially batch processed in separate campaigns, not blended with ore from other sources, in order to confirm the expected metallurgical behaviours of the ore.

Youle became the predominant mill plant feed from July 2020, steadily displacing the Brunswick underground ores, from the beginning of 2020, and the Youle underground ore will remain the predominant feed for the forward Life of Mine (LOM) production schedule. The large volume of body of standalone Youle operating data now provides a much better understanding of the processing behaviour expected of these and similar ores. Youle also exhibits similar metallurgical behaviours to the Cuffley/Augusta ores, and therefore this historical operating data can also be used to expand the Youle dataset.

13.1.1 Metallurgical Testwork Summary

Testing of the Brunswick Main ores had indicated a decrease in gravity gold recovery, flotation antimony-gold recoveries, and flotation kinetics. The full extent of the recovery impacts of the Brunswick ores are now understood after processing this ore as part of the overall feed blend between 2018 and 2020.

The Brunswick ores had been largely depleted by the end of 2020 and only small parcels have been projected for 2021, with the remainder of the scheduled plant feed being Youle underground ores.

Metallurgical testwork was undertaken on two areas of the Youle Deposit designated as Youle high-grade, and Youle low-grade tests (Figure 13-1 and Figure 13-2). This testwork showed that the Youle ores demonstrated similar metallurgical behaviour to the Cuffley/Augusta ores, historically fed to the plant. Both antimony and gold recoveries were high, and reflected historical results. It was expected that with further optimisation of the testwork conditions, the recoveries could be increased further. Plant operating data from late 2020 confirms this, with significantly improved plant performance on a predominantly Youle feed blend.

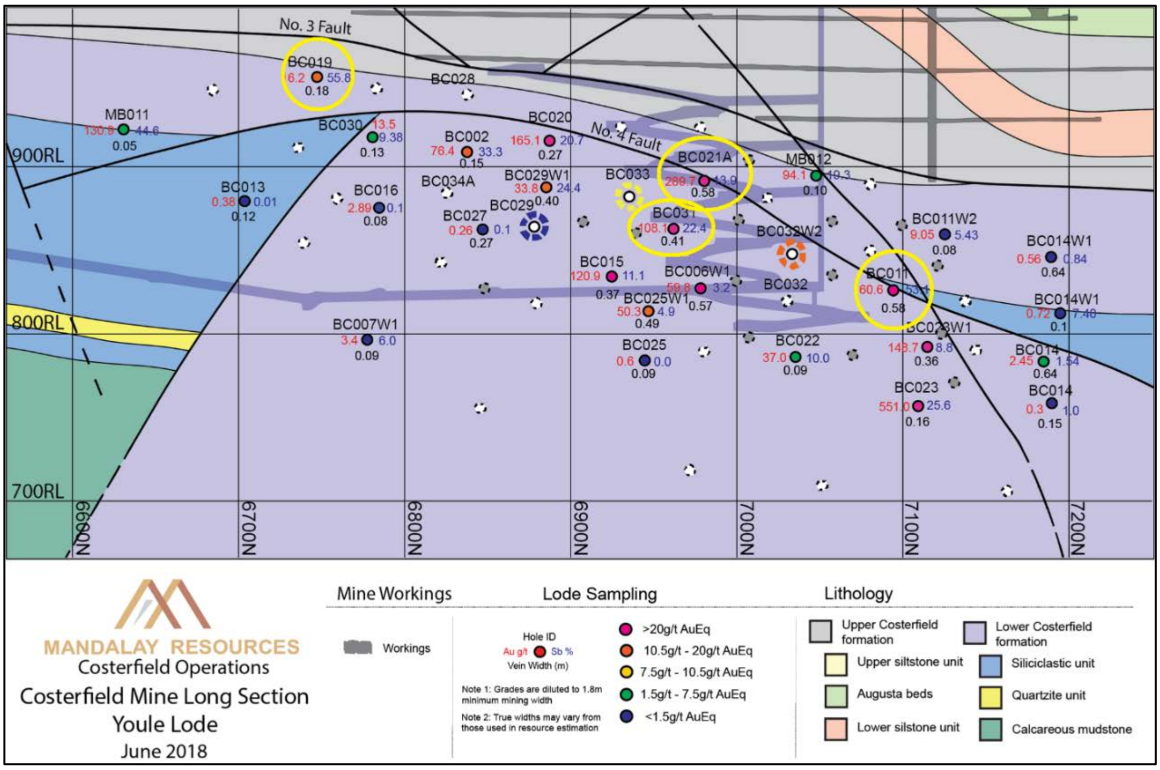

Figure 13-1: Youle high-grade testwork sample locations

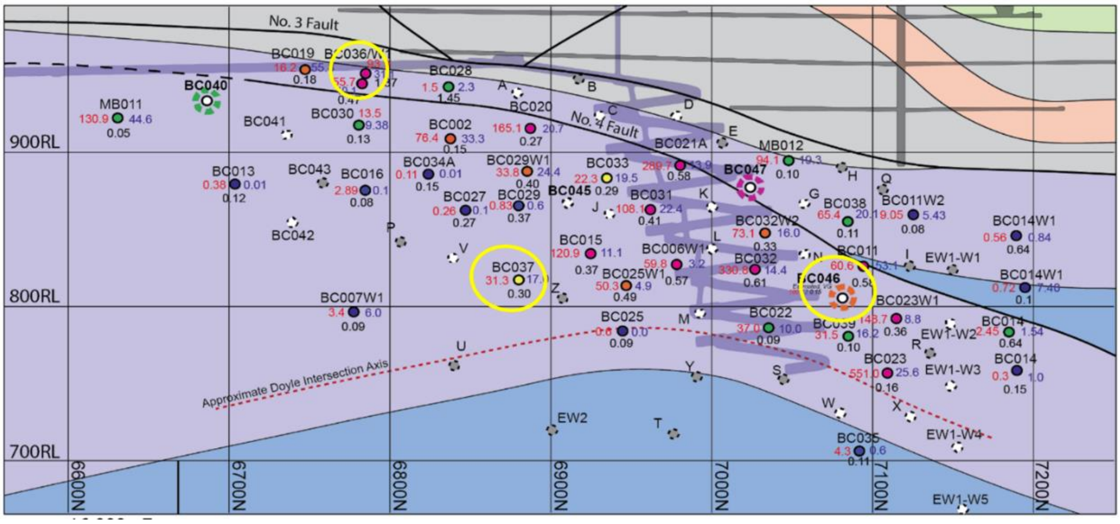

Figure 13-2: Youle low-grade testwork sample locations

The two Youle Bond Ball Mill Work Index (BBMWi) tests returned similar values, 16.1 kWh/t for the low-grade sample and 15.2 kWh/t for the high-grade sample. This is similar when compared against the ore types previously processed, Cuffley at 16.0 kWh/t and Augusta at 15.5 kWh/t. The two Brunswick samples tested were softer at 14.3 kWh/t and 12.9 kWh/t.

During actual operations, the Youle ore throughput has not been limited by grindability. A higher-than-average feed throughput was achieved in the latter part of 2020 on a predominantly Youle plant feed blend (refer to Section 13.3).

Results for the Youle metallurgical testwork are provided in Table 13-1 alongside the other deposit testing. As expected, recoveries were higher for the high-grade sample compared to the low-grade sample. Testwork antimony recoveries were higher for both samples when compared to historic plant values. Flotation testing has shown the Youle recoveries to be relatively insensitive to a grind size, between 38 µm and 75 µm, and stable across a range of reagent addition regimes. The average gold recovery for both Youle samples is marginally higher than historic production records. These benchscale test results have been moderated back to historic plant recovery levels for forecasting purposes in order to adopt a more conservative position. The gravity gold recovery has been increased slightly in the LOM recovery model to 45% (from 40%), in order to account for the higher percentage of Youle ore in the blend from 2021 onwards.

Table 13-1: Metallurgical testwork sample results versus current operational data

Variable	Historic Operation	Brunswick Main	Brunswick Penguin to Kiwi	Cuffley LG 0358-1	Cuffley High-Grade M2569	Youle Low-Grade	Youle High-Grade
BBMWi	15.5–16.0	12.9	14.3	16.0	16.0	16.1	15.2
Feed Au g/t	9.2*	8.65	11.9	9.0	17.7	4.89	13
Feed Sb (%)	3.5*	3.31	3.88	3.00	7.98	2.56	5.1
Feed As (%)	0.06*	0.50	0.13	0.12	0.07	0.02	0.03
Concentrate As (%)	0.20	3.20	0.87	0.98	0.002	0.22	0.25
Gravity Au Rec. (%)	36.8*	22.1-25.5	30.0	41	54	43	57
Recovery Au (%)	90.0*	87.1	93.7	98	95	96	97
Recovery Sb (%)	95.4*	98.3	99	99	95	99	99

* 2016-2017 operating data

Compared to the Brunswick ores, Youle ore has lower arsenic grades and therefore, elevated arsenic grades in the antimony-gold concentrate is not considered to be an issue to saleability or payability of the product. In the current off-take agreement, there are no arsenic penalties at levels below 0.5% As in the concentrate. Arsenic grades between 0.5% to 2.0% incur a penalty of US$2/t concentrate for each 0.1% above 2.0%. This increases to US$2.5/t between 2.0% arsenic and 3.0% but the concentrate remains saleable. As a gold/antimony concentrate, it is not subject to the same arsenic grade importation limits that some base metal concentrates are imposed with. With proper management, the penalty element payments can be minimised and are not a risk to the ongoing operation.

13.2 Ore Blend Effect on Throughput and Recovery Forecasts

From January 2014, Cuffley ores were processed in a blend with Augusta ores, while previous to this, only Augusta ore was processed. The Cuffley ores and remanent Augusta ores were depleted by January 2020, replaced gradually by Brunswick feed. The proportion of Brunswick ores reduced significantly from the start of 2020 and was largely depleted by August 2020 (Section 17.1.7). At this point Youle ore dominated the feed blend.

Youle became the sole mill feed source at the end of the 2020 year and continues to be into 2021 and for the forward LOM.

The historic blend ratios of Augusta, Cuffley, Brunswick and Youle ores and the proposed forward LOM blend are summarised below:

- 2014: 44% Augusta and 56% Cuffley,
- 2015: 42% Augusta and 58% Cuffley,
- 2016: 52% Augusta and 48% Cuffley,
- 2017: 64% Augusta and 36% Cuffley,
- 2018: 72% Augusta, 21% Cuffley and 7% Brunswick (Brunswick from Q3),
- 2019: 38% Augusta, 5% Cuffley, 47% Brunswick and 10% Youle,
- 2020: 14% Brunswick and 86% Youle,
- LOM 2021: Principally Youle mill feed.

Over the same period, plant throughput has been relatively consistent, and has proven to be robust to changes in the feed blend. On this basis, throughput (and recovery) data from 2016 to 2020 has been selectively used to predict mill performance, given the similar, and marginally superior, performance of the Youle samples in both testwork and actual plant performance.

It is noted that during 2019 there was a deterioration in metallurgical performance, particularly for gold recovery, which was due to the introduction of Brunswick ore as the dominant component of the mill feed blend. The moderate decline of the plant gold recovery performance from the start of 2019 through to mid-2020 is shown in Figure 17-2 in Section 17.1.7. This period is considered to represent outlying behaviour associated with Brunswick ores and has been excluded from the data used to develop the gold recovery algorithm. Instead, the previous mill data from 2016 to 2018 for a Cuffley/Augusta blend has been retained and used along with Youle operating data from the second half of 2020.

Plant operating data for the full operating period from 2015 to 2020 was applicable for determining the antimony plant feed grade versus recovery models.

13.3 Throughput

Historical throughput is considered to be the best indicator of future forecast throughput when processing similar ores. Through ongoing optimisation and minor low-capital cost debottlenecking projects, the capacity of the Brunswick Concentrator has been increased to the current capacity which can consistently exceed 13,000 t/month and regularly approaches 14,000 t/month. Annual production data from 2016 to 2020 demonstrates this rate can be consistently achieved (Figure 13-3).

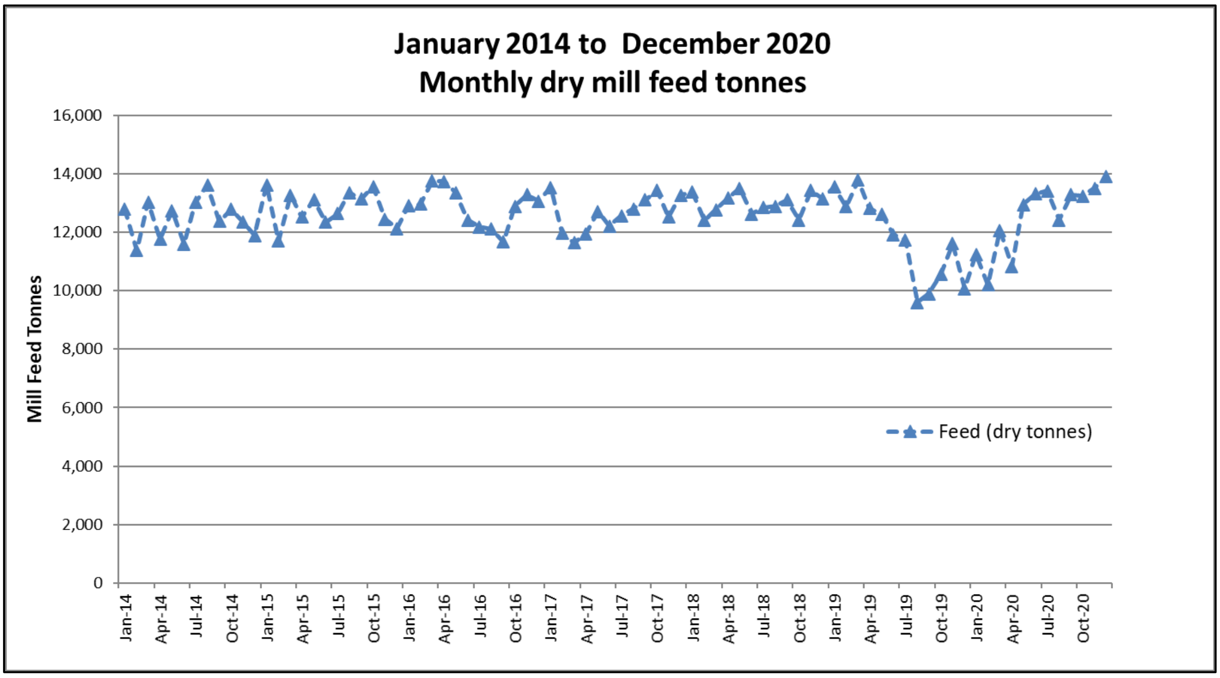

Figure 13-3: Historic Brunswick Processing Plant throughput - 2014 to 2020

The reduction in plant throughput in the latter half of 2019 was not process plant related, in that it was not due to a mill constraint. It was related to constrained underground mine production and as a result of the historical scats stockpile being depleted, which had previously provided up to 400 t/month of feed in 2018. Conversely, a marginally higher throughput was achieved for the final half of 2020, a period in which Youle ore was the predominant mill feed source.

The Costerfield Property LOM forecast plant throughput is for an average of 13,000 t/month or 151,000 t/year, with underground mining rates scheduled to exceed this in 2021. This trend continues in the forward LOM to 2023, thereby removing the feed constraint on the mill capacity. The production difference between mining and processing will be used to increase the feed stock inventory which has been depleted over the last few years.

The mill capacity still exceeds the forecast LOM production rate of 13,000 t/month. The forecast processing rates are therefore considered to be justified and are well supported by historical production. No other changes that would impact the scheduled throughput such as material changes to the ore hardness or the target grind size P_{80} of 60µm are expected. At this rate, the plant will be operating marginally below maximum capacity. This provides potential modest production upside.

There is further ore storage capacity on the existing ROM pad if required. The new portal breakthrough in late 2020 on the Brunswick side onto the former Brunswick Pit has opened up additional stockpile storage capacity. Historically, ROM stocks have been built up to allow for fluctuations in mining production, and this remains a processing option to provide further flexibility through decoupling of the mine and concentrator.

13.4 Metallurgical Recovery

There is a relationship between the plant feed head grade and the recovery for both gold and antimony, which is a common occurrence across flotation type concentrators as it is a function of having a relatively constant tail grade. Over the years, the Costerfield Property has shown these relationships to be generally robust and effective in predicting the antimony and total gold recovery.

Forecast antimony and gold recoveries used for LOM planning, budgeting and economic modelling are based on historical feed grades and metallurgical recovery relationships developed using historical production data, which is the best method of forecasting recovery when processing a similar feed blend. These algorithms are updated annually, the latest of which uses historical recoveries from the period 2015 to 2020.

A period of lower gold recovery occurred in September 2019 (Figure 13-4). This deterioration was a direct result of the Brunswick underground ore and the subsequent improvement was largely due to the introduction of Youle into the mill feed blend (Section 17.1.7, Figure 17-2) particularly from mid-2020. The Brunswick ore had a lower gold feed grade, lower gravity gold recovery and presented further challenges to the gold recovery due, to the gold mineral associations including those with arsenopyrite and slower flotation kinetics.

The 2020 end of year (EOY) reconciled plant recoveries were 96.6% and 90.6% for antimony and gold respectively, and the gold recovery was even higher at 93% in December 2020. This was a significant improvement on 2019, particularly for gold, which had lower reconciled plant recoveries of 95.4% and 78.7% for antimony and gold respectively.

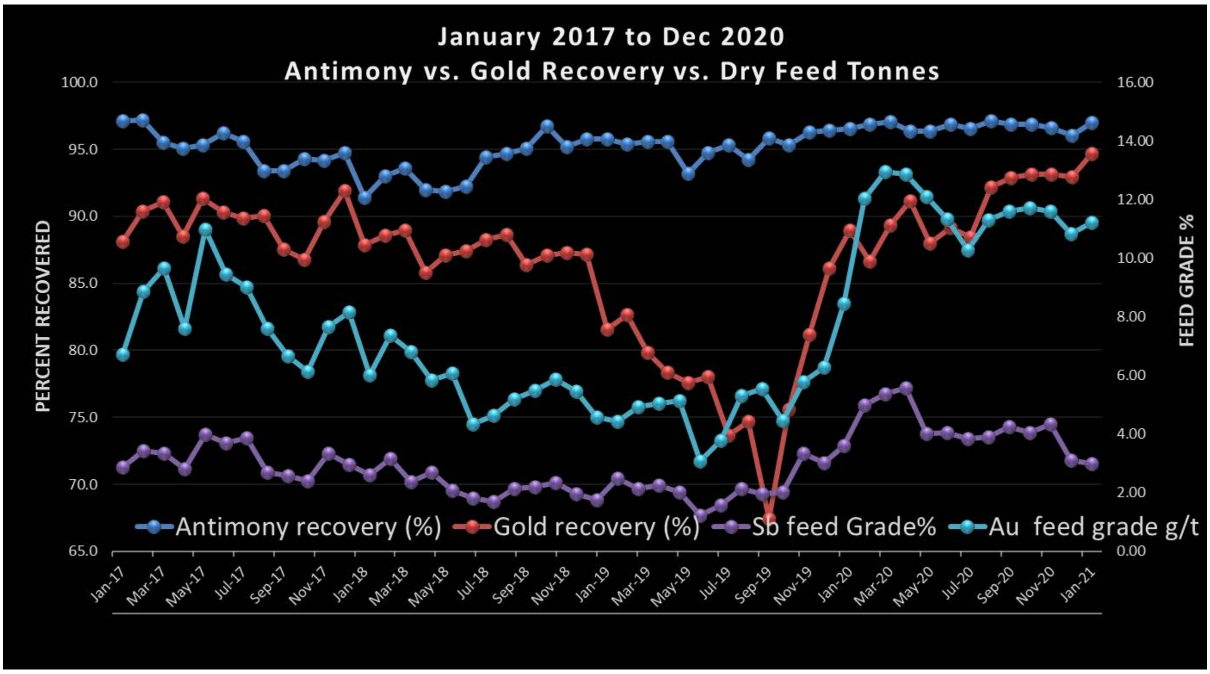

Figure 13-4: Antimony and gold grades versus recovery trends - January 2017 to 2020

13.4.1 Youle Ores

With the planned addition of the Youle ores into the LOM plan, additional confirmatory testwork was undertaken in 2018. This ensured the metallurgical behaviour of the new underground deposit reflected historical performance and confirmed the Youle ores were amenable to processing through the Brunswick concentrator.

Subsequent batch campaigns of Youle underground development ore of approximately 1,500 tonnes and 2,200 tonnes, processed in October and November 2019, confirmed the expected higher gravity recoverable gold component, improved gold flotation recoveries and hence, and total gold recovery of approximately 89%. The Youle trial campaign performance was considered more akin to the Cuffley ores.

The Youle Deposit became the dominant mill feed source from mid-2020 (Figure 17-2 in Section 17.1.7). Plant performance since, on a predominantly Youle feed, particularly through the latter part of 2020, has shown the modelled recovery predictions to be conservative, especially for gold, in the order of up to a few percent, with the higher gold gravity recovery being the main contributing factor to this.

Actual Youle operating performance has now been incorporated into the recovery algorithms used to forecast the LOM antimony and gold recoveries. The monthly gold grade versus recovery data between 2016 to 2018, and for the October 2020 year to date period, has been used to formulate the gold recovery relationship. The 2019 year was excluded as an anomaly due to the processing of Brunswick ores.

13.4.2 Antimony Recovery

The antimony recovery relationship was previously developed based on the interaction between the feed grade, flotation concentrate grade and metallurgical recovery using historic operating data. This algorithm has since been simplified to a linear antimony feed grade versus recovery relationship using daily plant operating data from 2015 to mid-2020. This period includes the marginally better antimony recovery performance during the transition from a Brunswick ore to a Youle ore dominated feed. The antimony recovery algorithm is provided below:

$$\text{Sb recovery} = (0.0104 \times \text{Sb head grade}) + 0.9171$$

This updated relationship is robust in predicting antimony recovery, but still remains marginally conservative when compared to actual plant performance. For example, in late 2020 when processing a predominantly Youle ore feed, actual antimony recovery was 97% versus a predicted recovery of 94.9% at a head grade of 3.03% Sb. The linear model is capped at 99% recovery at feed grades of 7% antimony or above to account for high-grade ore block anomalies in the ore reserve and probable mine inventory.

Recent historical and forecast antimony recoveries for the LOM were/are:

- 2016 actual Sb recovery = 95.4% at a 3.7% Sb feed grade,
- 2017 actual Sb recovery = 95.3% at a 3.3% Sb feed grade,
- 2018 actual Sb recovery = 93.8% at a 2.3% Sb feed grade,
- 2019 actual Sb recovery = 95.3% at a 3.9% Sb feed grade,
- 2020 actual Sb recovery = 96% at a 3.03% Sb feed grade,
- 2021 (modelled) Sb recovery = 95.1% Sb recovery at a 3.3% Sb feed grade.

It is noted that the average antimony concentrate grade dropped marginally to 52.4% in 2017, 52.2% in 2018 and further to 51.4% in 2019, due to falling antimony feed grade. This lower concentrate grab was targeted intentionally, in order to maintain recovery. However in 2020, the antimony in concentrate grade returned to the long-term target of 54% Sb due to the higher head grade and installation of a new StackCell® in a rougher flotation cell duty.

A marginally lower flotation concentrate grade of 51.5% Sb is incorporated in the LOM plan. This is a conservative assumption given concentrate grades have historically been above this value and with a Youle ore dominant feed blend, and is expected to be closer to the typical long term level concentrate grade of 54% Sb.

There is a high degree of confidence in this relationship and the associated antimony recovery algorithm across a range of feed grades. It is supported by historical operating data and verified by metallurgical testwork. It provides the most reliable method of estimating the antimony recovery at variable head grades assuming a constant final Sb concentrate grade of 51.5%, the value used in the forward LOM plan.

13.4.3 Gold Recovery

The gold reports to both the gravity gold concentrate and to the flotation concentrate, together compromising the overall gold recovery. Historically, the total gold recovery has been relatively independent of gravity recovery, in that the gold not recovered initially through the gravity circuit is recovered through flotation. Therefore the difference in the calculated gravity gold recovery and overall recovery is apportioned to the flotation circuit.

Using the monthly 2016 to 2018 and October 2020 year to date data, which excludes the 2019 period of processing a predominantly Brunswick feed blend, the linear gold feed grade versus tail grade relationship has been calculated and presented below:

Tailings Au grade = (0.0842 x feed Au grade) + 0.2402

This formula is used to calculate the total gold recovery for any given feed grade. The gold recovery data used to develop the algorithms for LOM recovery forecasting for 2021 is provided below:

- 2016 actual - Total gold recovery of 90.1%, gravity recovery of 35.7% at a 10.3 g/t head grade (resultant tailings grade of 1.08g/t), and flotation gold recovery of 54.3%,
- 2017 actual - Total gold recovery of 89.8%, and gravity recovery of 37.4% at an 8.2 g/t head grade (resultant tailings grade of 0.90g/t), and flotation gold recovery of 52.4%,
- 2018 actual – Total gold recovery of 87.5%, gravity recovery of 34.4% at a 5.6 g/t head grade (resultant tailings grade of 0.70g/t) and flotation gold recovery of 53.2%.
- 2020 actual to October (Youle operation) - Total gold recovery 90.6%, gravity recovery of 46.4% at an 11.60 g/t head grade (resultant tailings grade of 1.19 g/t) and flotation recovery of 44.1%.

The LOM modelled forecast gold recovery weighted averages are:

- Model (2021) - 89.9% at a 11.01 g/t head grade,
- Model (2021) - fixed gravity gold deportment of 45% (absolute) Youle ores.

The gravity gold recovery shows a level of variability, however it is typically between 40% to 50% (absolute). A nominal gravity gold recovery factor is used for forecasting purposes as the operating data variability complicates the application of a more sophisticated gravity gold recovery relationship. This gravity gold trend has continued with the predominantly Youle ore feed blend.

The gold in tails trended lower and then became more stable in the later part of 2020 as the Brunswick ore was depleted. With Youle ore comprising the primary feed source, the gravity gold recovery exceeded 50% and the gold recovery model's predictions of total plant gold recovery were understated by approximately 2%. On this basis, one that is further supported by historical testwork, a gravity gold deportment of 45% has been assumed for the forward LOM. Based on these recent operating trends, the recovery model is considered to be marginally conservative.

There is a high degree of confidence in the relationship and the associated overall gold recovery algorithm across a range of feed grades. It is supported by historical operating data and verified by metallurgical testwork. It provides the most reliable method of estimating the gold recovery at variable head grades, and is considered to likely be conservative.

13.4.4 Circuit upgrades

Two flotation circuit upgrades are scheduled for completion in 2021. Both projects are expected to result in an overall improvement in both antimony and gold recovery. The upgrades have not been factored into the recovery algorithms generated for 2021, since these are based on historic recoveries, however they will be incorporated into 2022's recovery algorithms for reserve estimation and budgeting purposes, once actual operating data is available to appropriately inform the recovery forecasts, and quantify the improvements realised through the plant upgrades.

The first upgrade is the addition of a second StackCell® (flotation cell) as another primary flotation rougher cell. This is expected to improve the overall flotation antimony and gold recoveries as well as produce a higher-grade final product. It provides increased flotation residence time and improved flotation kinetics in the roughing circuit. The installation of the first StackCell® in November 2018 has already demonstrated its value to the Costerfield Property. A second unit will provide further plant flexibility and more capability for taking cells offline for maintenance and refurbishment.

The second major project is the inclusion of CavTube® column style flotation cells on the existing flotation circuit tail slurry stream. This will provide another opportunity to recover fine, slow floating gold and antimony into a low-grade concentrate, from what would otherwise be the final tailings stream. This upgrade is expected to improve plant gold recovery further, in the order of +3%. This project is scheduled for completion in the first quarter of 2021.

While both of these products are intended to improve the overall gold and antimony recoveries, neither is included in the current recovery algorithms used for LOM ore reserve estimation since they both use historical operating data. This ensures a conservative approach to recovery forecasting. The recovery algorithms will be upgraded at the end of

2021 to reflect the performance improvements actually achieved through these upgrade projects.

14 MINERAL RESOURCE ESTIMATES

Gold and antimony grades, and lode thicknesses were estimated using the two-dimensional (2D) accumulation estimation method for all lodes. This method is discussed in Bertoli et. al., 2003, and is considered by the QP to be more suitable for modelling narrow vein systems than conventional three dimensional (3D) block grade estimation due to its ability to more accurately model thin tabular geometry. The 2D accumulation method has remained the preferred Mineral Resource Estimation methodology for the Costerfield Property lodes since 2008 (AMC, 2008), and is often called a seam-model estimation method.

The 2D accumulation method requires that gold and antimony grades are multiplied by the true thickness of the intersection in order to generate variables referred to as accumulations or accumulated grades, measured in gram/metres or percent/metres. This method assigns weights to composites of different lengths during estimation. Estimated gold and antimony block grades are then back-calculated from the estimated accumulated block grade by dividing by the estimated true vein thickness.

Only those lode models that feature new drilling, face sampling and assay data and/or revised geological interpretation have been re-estimated for the production year 2020. A summary of the changes made to the lode models within this Mineral Resource Estimate are summarised in Table 14-1.

Table 14-1: Changes made to lodes at year-end 2020

Lode	Zone Code	New data captured during 2020	New Estimation	New Resource Classification	Depleted during 2020	Reported above cut-off	Removed from Resource
E Lode	10	No	Yes	No	Yes	Yes	No
B Lode	15	No	No	No	No	Yes	No
BSP Lode	16	No	No	No	No	Yes	No
W Lode	20	No	Yes	No	No	Yes	No
C Lode	30	No	No	No	No	Yes	No
NM Lode	40	No	Yes	No	Yes	Yes	No
NW Lode	47	No	No	No	No	Yes	No
NSP 48 Lode	48	No	No	No	No	Yes	No
P1 Lode	55	No	No	No	No	Yes	No
K Lode	60	No	No	No	No	Yes	No
CM Lode	210	No	No	No	No	Yes	No
CE Lode	211	No	No	No	No	Yes	No
CD Lode	220	No	No	No	No	Yes	No
CDL Lode	225	No	No	No	No	Yes	No
AS Lode	230	No	No	No	No	Yes	No

Lode	Zone Code	New data captured during 2020	New Estimation	New Resource Classification	Depleted during 2020	Reported above cut-off	Removed from Resource
Brunswick	300	Yes	Yes	Yes	Yes	Yes	No
Brunswick KR	310	No	No	No	No	Yes	No
SKC CE	400	No	No	No	No	Yes	No
SKC LQ	405	No	No	No	No	Yes	No
SKC C	410	No	No	No	No	Yes	No
SKC W	420	No	No	No	No	Yes	No
Youle	500	Yes	Yes	Yes	Yes	Yes	No
Youle East	501	No	No	No	Yes	Yes	No
Youle Splay*	502	Yes	Yes	No	No	Yes	Yes
Kendal Splay	503	Yes	Yes	Yes	No	Yes	No
Peacock	508	Yes	Yes	Yes	No	Yes	No
Doyle	510	Yes	Yes	Yes	No	No	Yes

Details for block models not updated as part of the current estimation are detailed in the previous NI 43-101 report (SRK, 2020). Block models that were not re-estimated at 2020 year-end are referred to in this report as “pre-2020 models”.*Note: The Youle Splay (502) model now incorporated in the Youle 500 model

A review and update of E Lode, N Lode, and W Lode was completed as part of this Mineral Resource Update in order to incorporate estimation technique improvements and additional depletion. These included:

- Updated search parameters to limit the number and influence of channel samples on low-density drilling areas,
- Review of estimation boundaries,
- Updated grade capping,
- Updated cut-off grades,
- Updated depletion.

This has led to a net decrease in the resource for both E Lode, W Lode, and N Lode.

14.1 Diamond Drillhole and Underground Face Sample Statistics

Statistics for gold grades, antimony grades, and true thickness for the re-estimated Brunswick and Youle lodes are presented in Table 14-2.

Table 14-2: Face and diamond drilling sample statistics

Lode	Zone	Type	Variable	No. of Samples	Min	Max	Mean	CV
Brunswick	300	Drill Hole	Au (g/t)	159	0.005	115.8	9.0	1.6
			Sb (%)		0.001	47.4	4.0	1.9
			Vein Width (m)		0.002	2.97	0.7	0.79
		Face Sample	Au (g/t)	989	0.001	330.0	23.3	1.25
			Sb (%)		0.001	67.2	10.7	1.07
			Vein Width (m)		0.005	3.18	0.6	1.0
Youle	500	Drill Hole	Au (g/t)	177	0.001	540	47.69	1.7
			Sb (%)		0.001	56.6	11.4	1.2
			Vein Width (m)		0.036	1.7	0.4	0.9
		Face Sample	Au (g/t)	1,381	0.04	1120	88.7	1.2
			Sb (%)		0.001	66.5	31.3	0.6
			Vein Width (m)		0.008	3.7	0.4	1.2
Kendal Splay	503	Face Sample	Au (g/t)	29	5.27	324	92.8	0.8
			Sb (%)		3.92	61.3	41.3	0.4
			Vein Width (m)		0.03	1	0.3	0.9
Peacock	508	Drill Hole	Au (g/t)	32	0.001	148.7	13.0	2.2
			Sb (%)		0.001	43.9	6.0	1.7
			Vein Width (m)		0.051	0.9	0.4	0.7
		Face Sample	Au (g/t)	16	10.071	1745.1	109.1	0.8
			Sb (%)		5.85	49.7	29.9	0.4
			Vein Width (m)		0.04	0.9	0.3	0.8

The tabulated data indicates that the unweighted average gold and antimony grade are higher within the face sample data than the drill holes. This is attributed to two factors:

1. Face sample data is collected representatively within ore drives, however, these ore drives exist only in areas of the deposit that are deemed economically viable. Therefore, the average grade of these samples is higher than that of the drilling data which includes intercepts within areas that are sub-economic.
2. Drill core is sampled at an angle perpendicular to the long axis of the core rather than along the boundary of the targeted vein. The sample is taken so that the entire vein is within the sample, and therefore, there is invariably a wedge of waste rock that is included with the lode sample. During face sampling the material is only collected within the vein boundary. This difference in sampling manifests as proportional lower

average grades and higher average widths within drill data when compared to face sample data.

A comparison of face samples and drillholes was completed by restricting the face sample dataset to only include face samples within 10m of a drillhole intersection. Results showed face sampling had a positive bias at low-grades in both Au-Accumulation and Sb-Accumulation (Figure 14-1), with a decreasing bias above the resource cut-off grade (3.0g/t Au Equivalent diluted to a 1.2m resource width, corresponding to 3.6 Au Accumulation and 2.4 Sb Accumulation independently).

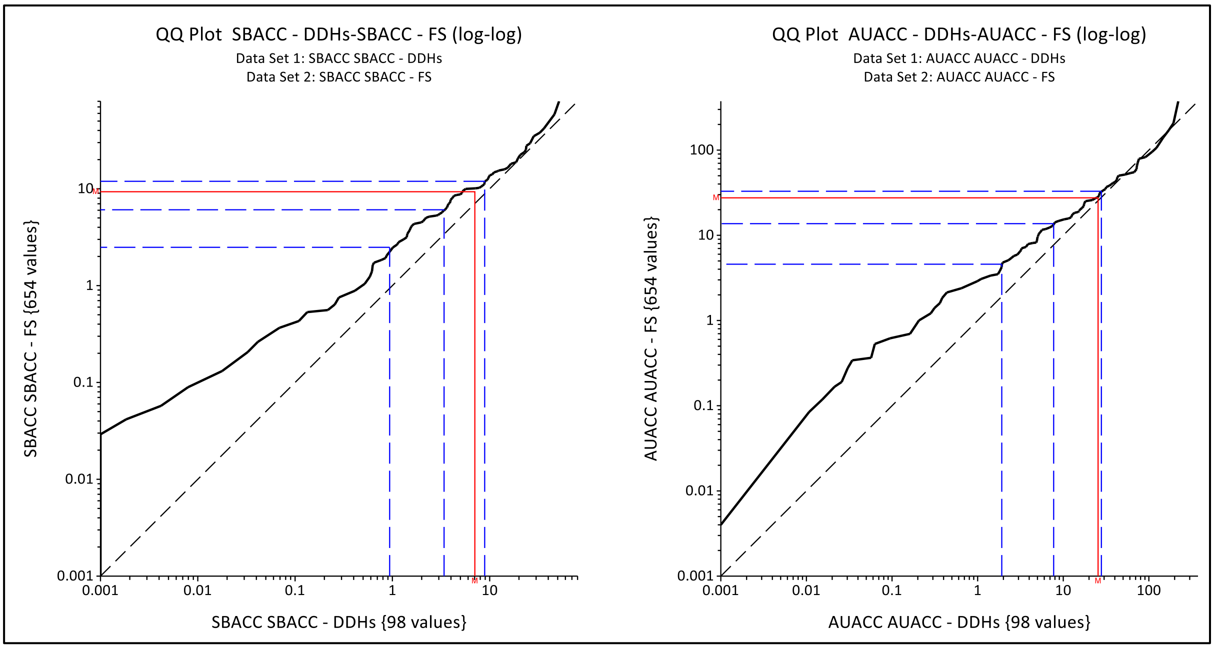

Figure 14-1: Log Q-Q plot of Sb-Accumulation and Au_Accumulation comparisons of drill hole data and face sample data

True thickness of intersections displayed the reverse bias, for the reasons outlined above, with a positive bias at low widths, changing to a negative bias at a true thickness above one metre thickness (Figure 14-2). The log probability of this face sample and drillhole subset indicates that a large degree of the discrepancy sits below the cut-off grades (Figure 14-3, Figure 14-4, and Figure 14-5).

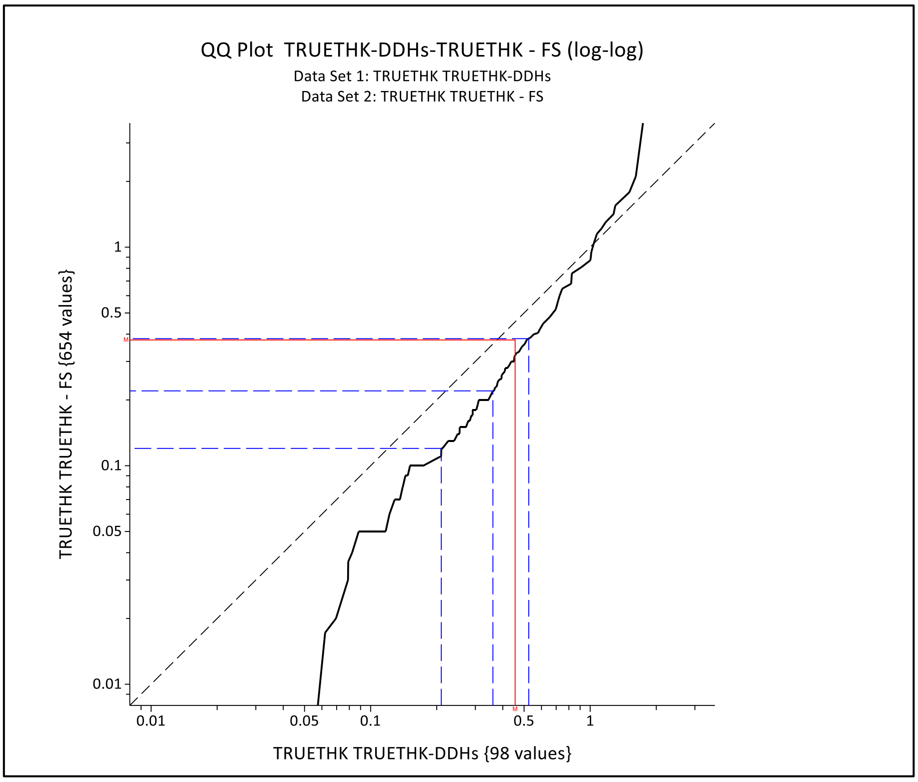

Figure 14-2: Log Q-Q plot of true-thickness comparisons of drill data and face sample data

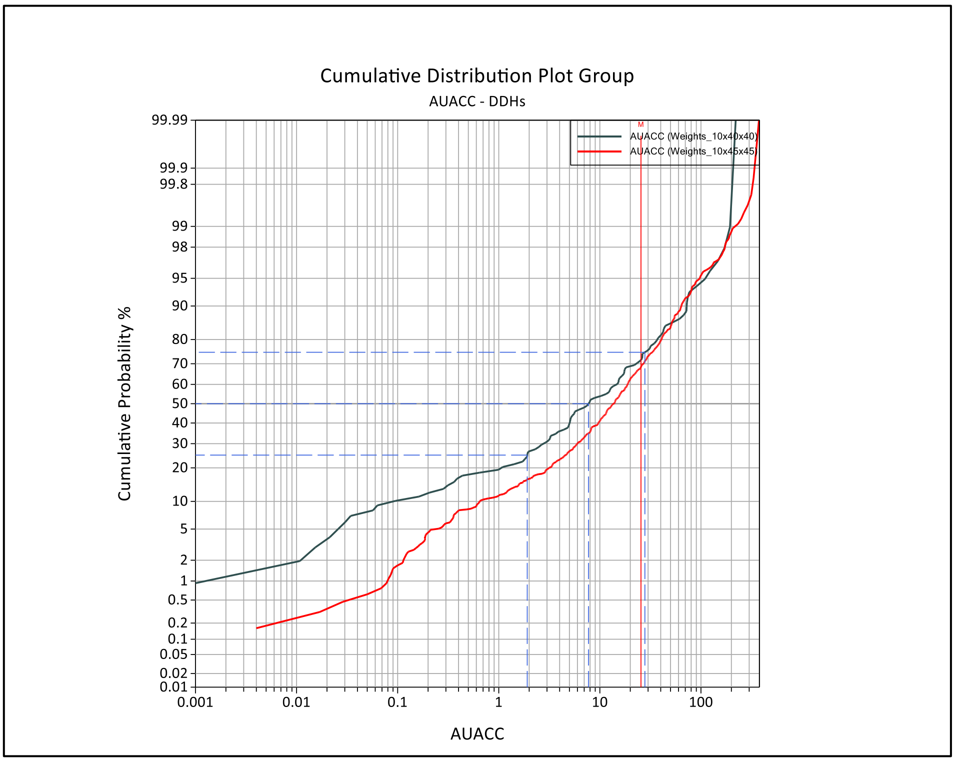

Figure 14-3: Log probability plot of Au-Accumulation, drillhole data in black and face sample data in red

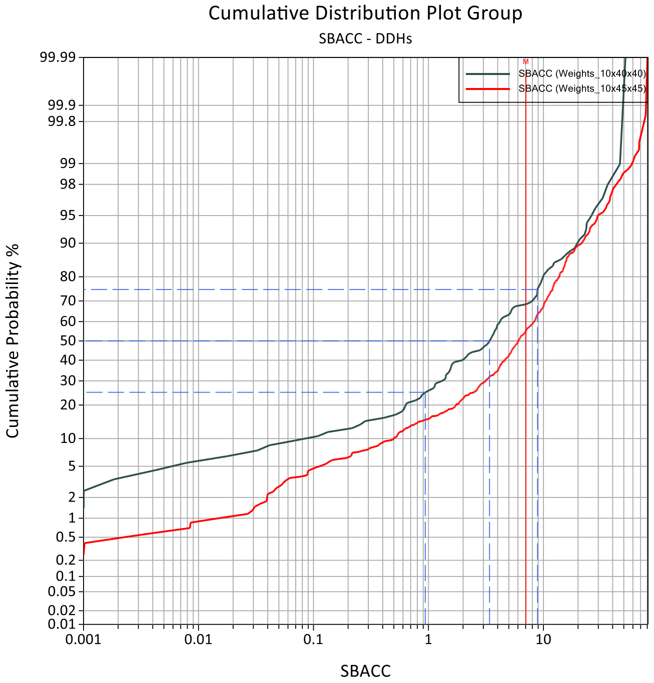

Figure 14-4: Log probability plot of Sb-Accumulation, drillhole data in black and face sample data in red

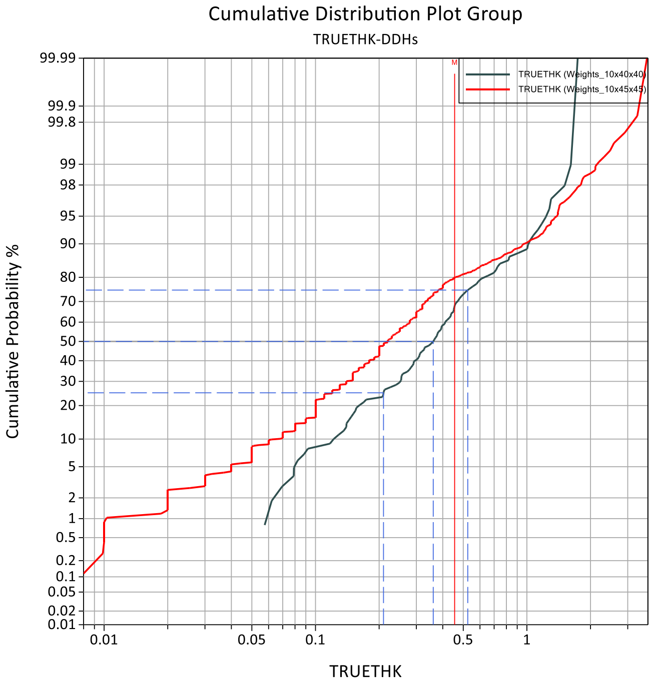

Figure 14-5: Log probability plot of true thickness, drillhole data in black and face sample data in red

The QP considers that, at grades and thicknesses of economic interest, the small positive biases seen in the grade accumulation variables and negative bias seen in thickness variable in the face samples relative to the drillhole samples are not material and support the combination of these two datasets for the purposes of Mineral Resource Estimation.

Additional work to improve the understanding of these observed biases, and the scenarios of a face sample overcall or drill hole under call, is planned for the coming year.

14.2 Geological Interpretation and Domaining

Data and observations from drill logs, core photography, underground face mapping, face photography and backs mapping were considered during the process of wireframe modelling. The identified intervals within both drill hole data and underground face sample data are incorporated into the wireframe of the lode structure. This wireframe is then used to flag the selected data with the corresponding zone code. Each lode structure has been modelled separately and assigned a unique numeric zone code. The assays have been composited over the full width of the intersections (including any intervening waste), by lode.

Sub-domaining, driven by geological interpretations of the structural context and grade-zonations, were completed for the Youle, Brunswick, and Peacock Lodes, in order to separate high-grade and low-grade populations to an acceptable degree, and to further limit data trends of grade-shoots.

A single domain coincident to the model boundary string was used for the Kendal Splay block model due to the limited size and number of samples in the block model.

Domains for the Youle Lode, including sample locations and grades for gold accumulation are displayed in Figure 14-6, and a brief description of the domains and their geological context is outlined in Table 14-3.

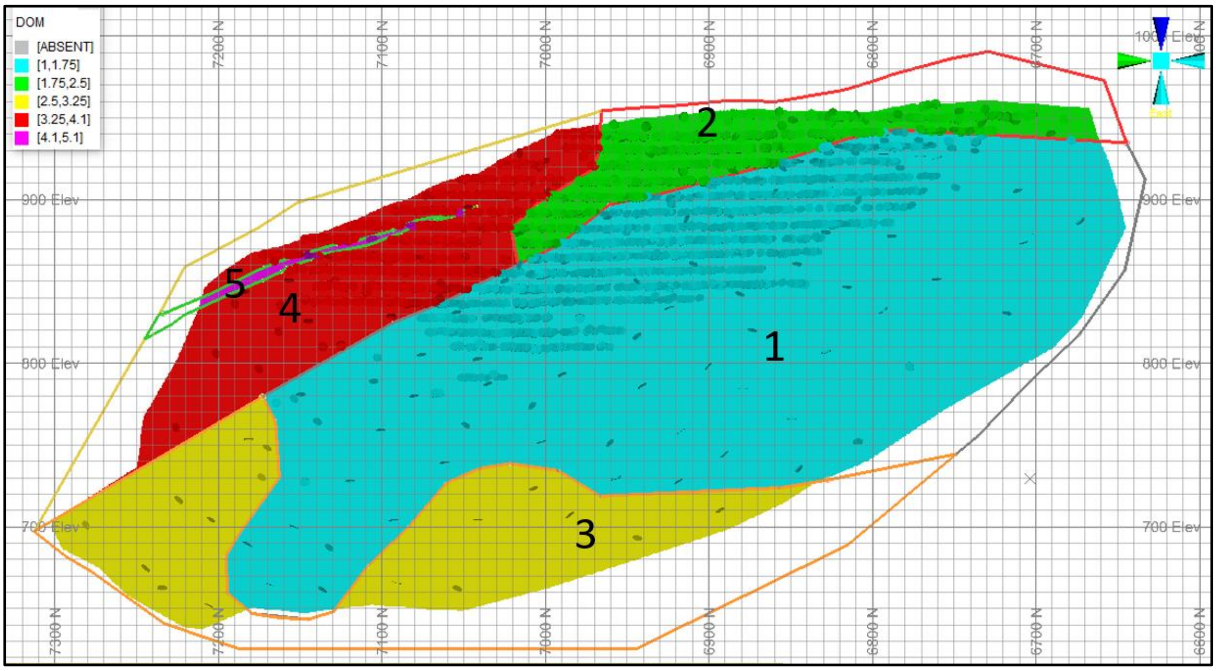

Figure 14-6: Longitudinal projection of the Youle Lode, displaying domains determined by grade and structural controls on mineralisation

Table 14-3: Youle estimation domains and geological context

Domain Description	Domain Code	Description
Youle - shallow dip	1	~50 degree dip. Reactivated and mineralised west-dip thrust
Youle – steep dip	2	High-grade upper domain, steeper dip than lower Youle
Youle - shallow – lower grade	3	Waste domain after major grade drop-off of Youle. Structure Only
Kendal Style	4	Sub-vertical Au-Sb extension veining as Youle flattens
Vulture Fault	5	Fault disruption. Thin and low-grade

14.3 Grade Capping

Grade capping was conducted as a part of the estimation process to mitigate the disproportionally large influence of extremely high grades on the estimated mean grade. Statistical analysis of each domain for all lodes included in the 2020 Mineral Resource Estimation was completed using Datamine Supervisor (formerly Snowden) software to identify statistical outliers that may cause over-estimation of grade.

Although true thickness is a physical measurement of the lode geometry rather than chemical assay, it is also subject to grade capping to ensure that instances of the effects of significant localised dilation of the lode, or blowouts, are minimised in in the same way that disproportionately high gold and antimony grades are capped.

Histograms, log probability plots, disintegration plots, and cumulative metal plots were utilised to determine the appropriate grade caps for gold accumulation, antimony accumulation and true thickness. Examples of statistical plots used in this process for are provided in Figure 14-7 to Figure 14-9 for Youle Domain 2.

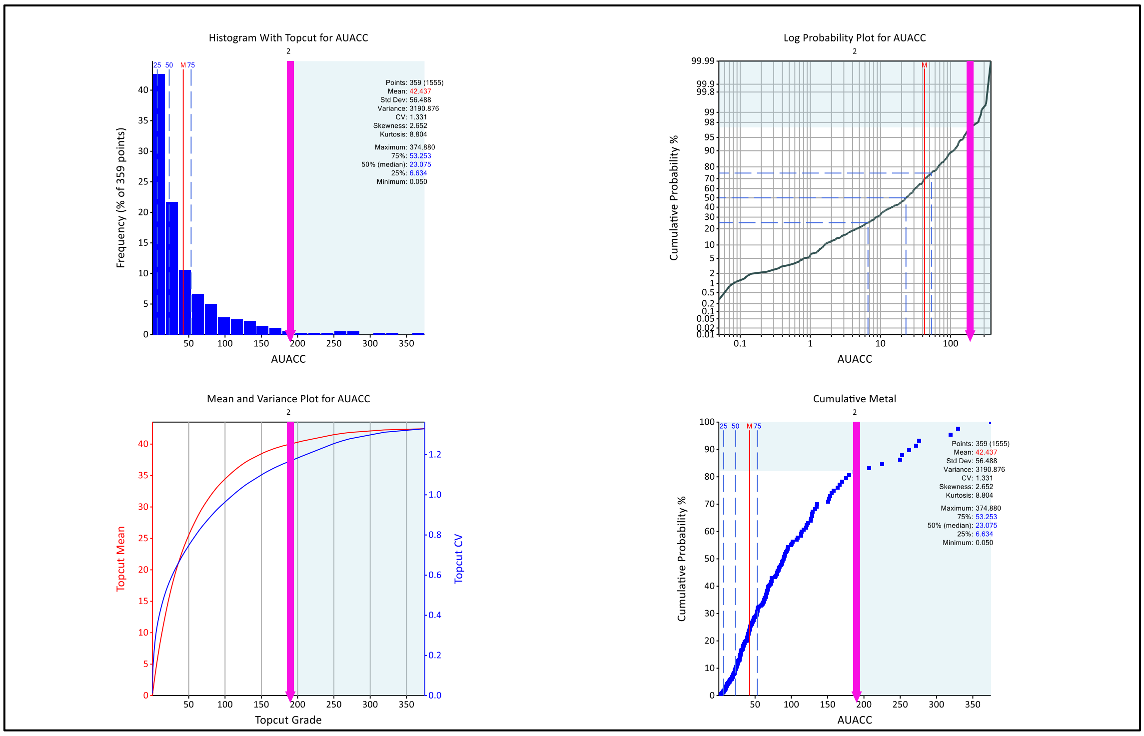

Figure 14-7: Youle Domain 2 – Grade capping statistical plots for Au-Accumulation

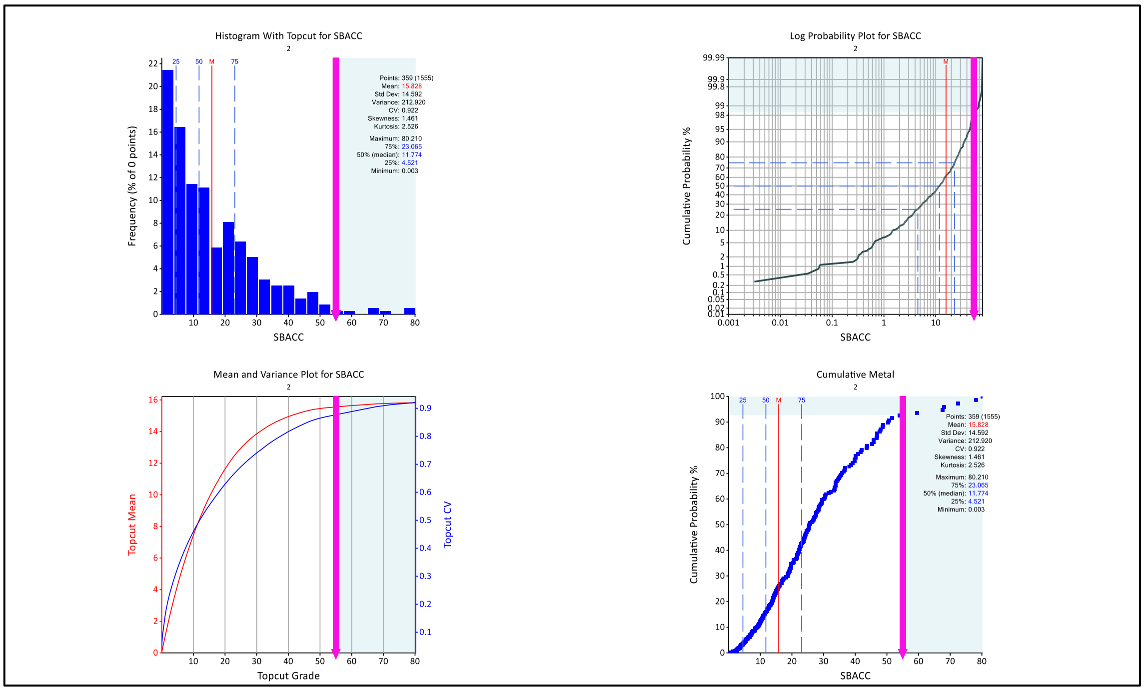

Figure 14-8: Youle Domain 2 – Grade capping statistical plots for Sb-Accumulated

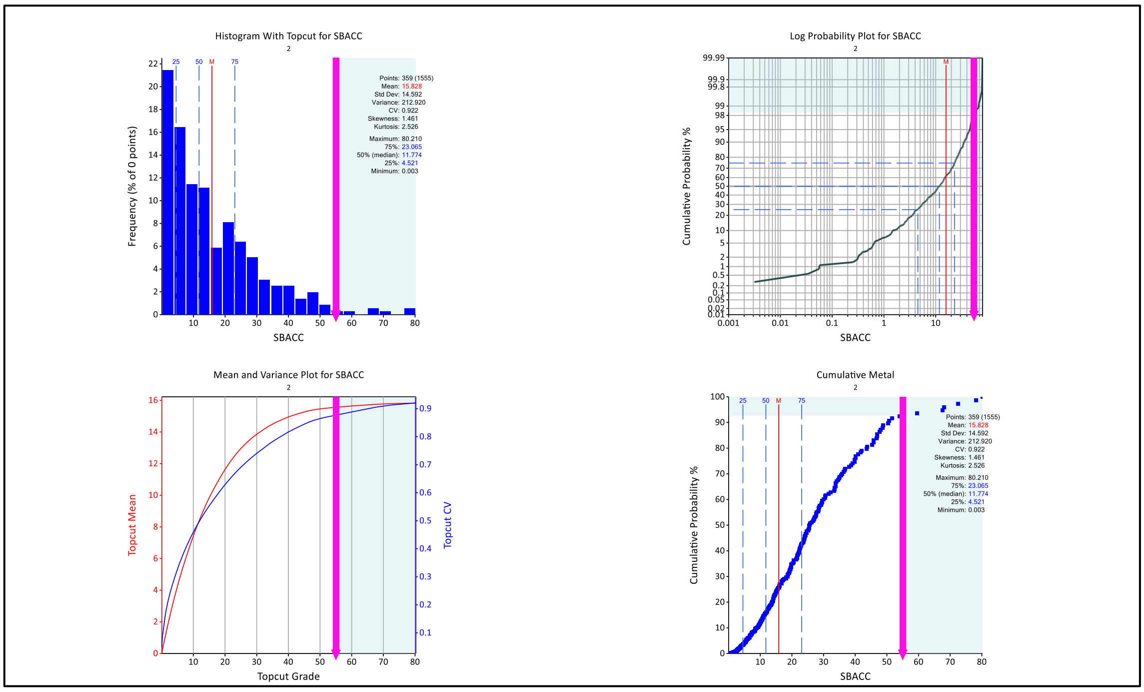

Figure 14-9: Youle Domain 2 – Grade capping statistical plots for true thickness

The uncapped and grade capped values, and the effect of grade outliers on the overall sample statistics for the Youle, Brunswick, and Peacock Lodes are provided in Table 14-4.

Table 14-4: Sample statistics for Youle, Brunswick and Peacock, before and after grade caps

Model	Variable	Domain	Number of Samples			Mean Grade			Capping Value	Standard Deviation		Coeff of Variation		Max Un-capped Grade	Capped %ile
			Un-capped	Capped	Cut	Un-capped	Capped	Diff (%)		Un-capped	Capped	Un-capped	Capped		
YOULE - 500	Gold Accumulation (AuACC)	1	831	817	14	29.24	27.84	-5%	190	45.4	37.53	1.55	1.35	425	98.3
		2	359	349	10	42.44	40.02	-6%	190	56.49	46.77	1.33	1.17	374.9	97.2
		3	16	15	1	0.07	0.06	-14%	0.3	0.15	0.09	2.05	1.69	0.55	93.8
		4	338	332	6	17.7	16.76	-5%	80	23.98	17.93	1.35	1.07	280.7	98.2
		5	10	8	2	3.53	1.28	-64%	5	8.14	1.9	2.3	1.49	25.98	80
	Sb Accumulation (SbACC)	1	831	821	10	8.1	7.81	-4%	40	9.85	8.27	1.22	1.06	89.75	98.8
		2	359	353	6	15.83	15.56	-2%	55	14.59	13.64	0.92	0.88	80.21	98.3
		3	16	13	3	0.05	0.02	-60%	0.1	0.11	0.04	2.34	1.95	0.39	81.2
		4	338	334	4	9	8.88	-1%	40	8.76	8.21	0.97	0.92	54.71	98.8
		5	10	8	2	0.52	0.29	-44%	0.6	0.75	0.22	1.45	0.75	2.48	80
	True Thickness (TT)	1	831	822	9	3.04	2	-34%	2	0.4	0.36	1.1	1.02	3.04	98.9
		2	359	353	6	0.68	0.67	-1%	2.5	0.63	0.59	0.94	0.89	3.7	98.3
		3	16	14	2	0.21	0.19	-10%	0.3	0.14	0.08	0.66	0.45	0.53	87.5
		4	339	336	3	0.25	0.24	-4%	1.2	0.25	0.24	0.99	0.95	1.75	99.1
		5	10		10	0.1		-100%	-	0.09	-	0.82	-	0.23	-
BRUNSWICK - 500	Gold ACC	1	711	701	10	10.39	9.79	-6%	75	17.73	13.89	1.71	1.42	212.8	98.6
		2	58	54	4	2.48	1.98	-20%	10	4.88	2.93	1.97	1.48	29.38	93.1
		3	379	374	5	9.99	9.85	-1%	58	13.21	12.59	1.32	1.28	80.44	98.7
	Sb ACC	1	711	703	8	5	4.92	-2%	40	8.07	7.64	1.61	1.55	52.42	98.9
		2	58	54	4	1.12	0.98	-13%	4.5	1.87	1.47	1.68	1.5	7.85	93.1
		3	379	375	4	4.88	4.78	-2%	30	6.85	6.31	1.4	1.32	52.61	98.9
	T r	1	711	699	12	0.57	0.55	-4%	2	0.52	0.47	0.91	0.84	4.21	98.3

Model	Variable	Domain	Number of Samples			Mean Grade			Capping Value	Standard Deviation		Coeff of Variation		Max Un-capped Grade	Capped %ile
			Un-capped	Capped	Cut	Un-capped	Capped	Diff (%)		Un-capped	Capped	Un-capped	Capped		
		2	58	58	0	1.94	-	-100%	-	0.42	-	0.77	-	1.94	100
		3	379		379	0.63	-	-100%	-	0.69	-	1.09	-	3.18	100
PEACOCK - 508	Gold ACC	1	26	25	1	22.21	-8	85	32.68	26.3	1.35	1.18	135.1	96.2	22.21
		2	10	8	2	3.04	-44	6	6.81	2.31	1.26	0.76	18.43	80	3.04
		3	7	7	-	-	-	-	0.04	-	1.05	-	0.11	-	-
	Sb ACC	1	26	24	2	7.63	-11	25	10.66	8.09	1.24	1.06	39.7	92.3	7.63
		2	10	6	4	1.8	-19	4.5	2.64	1.56	1.19	0.86	8.68	90	1.8
		3	7	-	-	-	-	-	0.01	-	0.96	-	0.03	-	-
	True Thickness	1	26	24	2	0.37	-5	0.9	0.31	0.27	0.8	0.73	1.16	92.3	0.37
		2	10	7	3	0.35	-17	0.6	0.23	0.22	0.7	0.62	1.22	70	0.35
		3	7	4	3	0.46	-13%	0.7	0.38	0.27	0.72	0.59	1.04	57.1	0.46
Kendal Splay - 503	Gold ACC	1	29	28	40.7	36.99	-9%	155	60.26	47.41	1.48	1.28	262.4	96.6	29
	Sb ACC	1	29	27	15.3	14.54	-5%	45	16.51	14.35	1.08	0.99	62.69	93.1	29
	True Thickness	1	29	28	0.34	0.33	-3%	1	0.34	0.3	0.98	0.91	1.33	96.6	29

14.4 Estimation Domain Boundaries

Structural controls on mineralisation have been identified through underground mapping and structural interpretation of drill core. These relationships have been used to guide estimation domain boundaries, all of which are interpreted as hard boundaries, and are shown for Youle, Brunswick, Peacock lodes in Figure 14-10 to Figure 14-12.

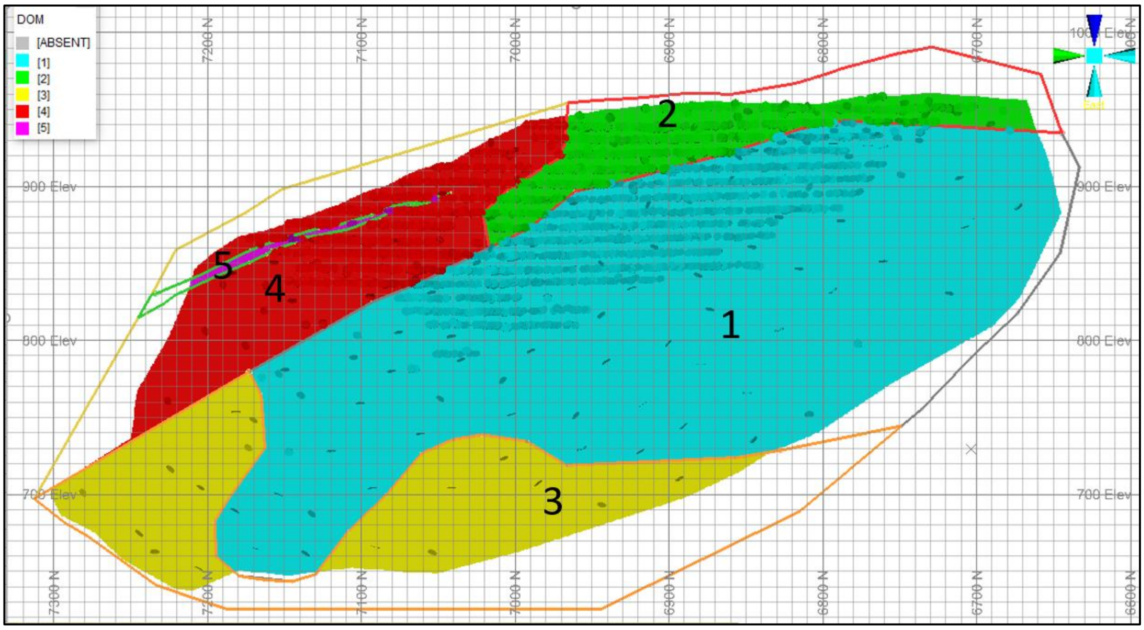

Figure 14-10: Youle estimation domain boundaries

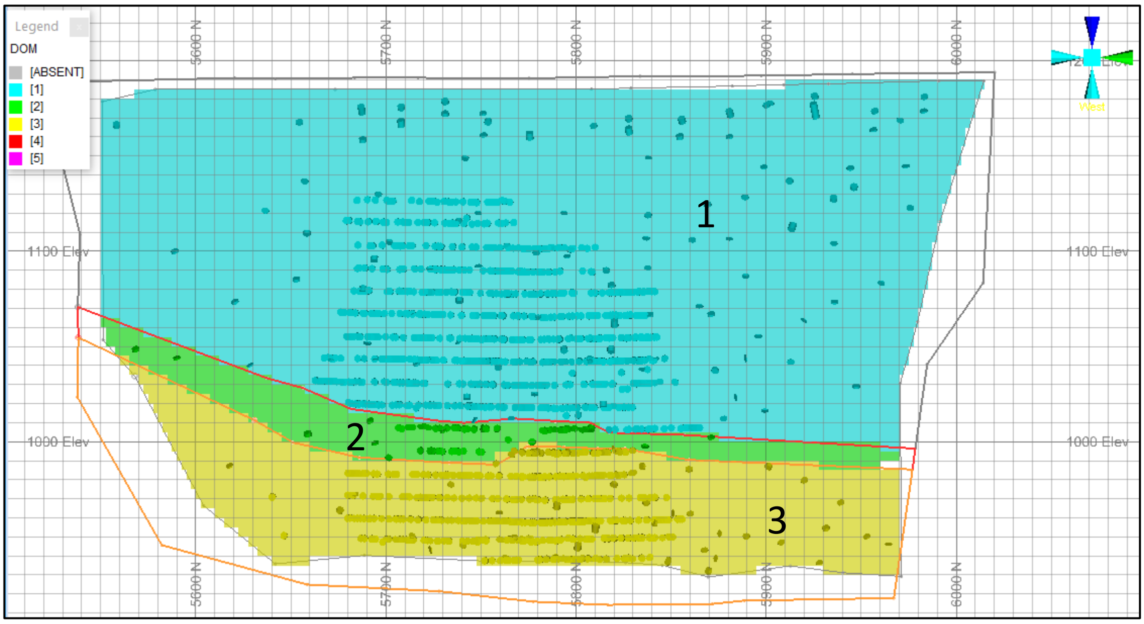

Figure 14-11: Brunswick Lode estimation domain boundaries

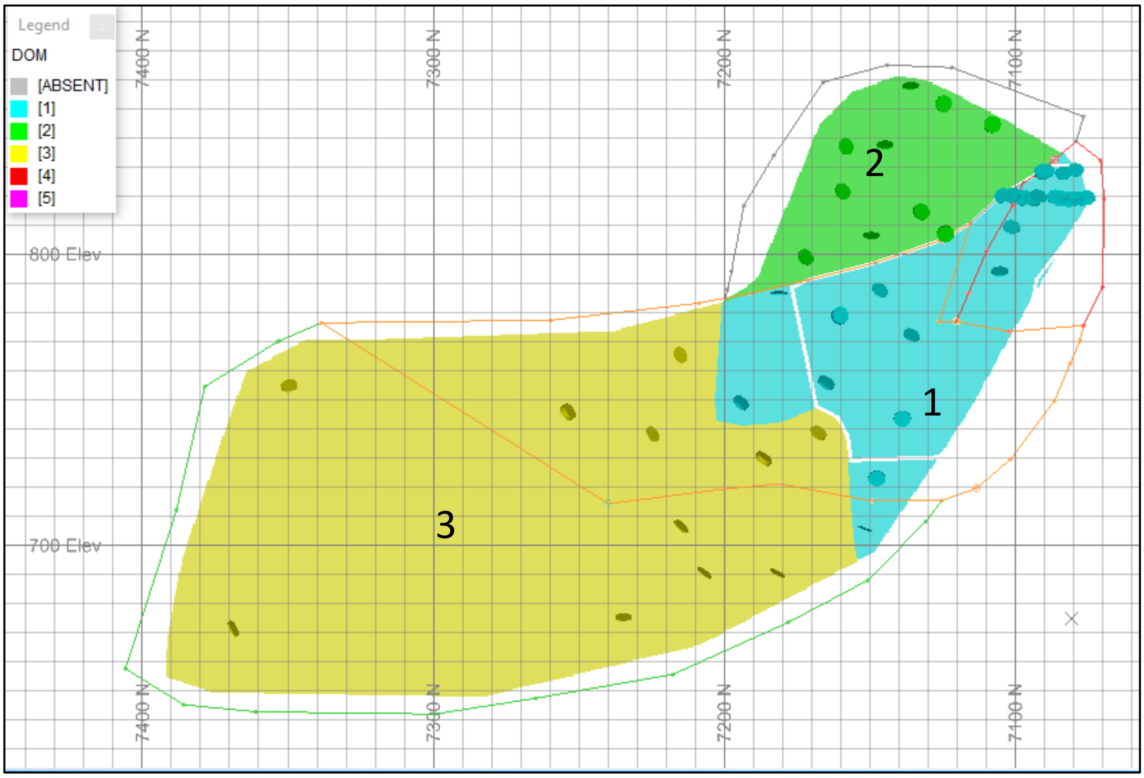

Figure 14-12: Peacock Lode estimation domain boundaries

The block model boundary string was used as a single estimation domain for Kendal Splay Lode due to its limited size and sample frequency, and as a consequence is not displayed here.

14.5 Vein Orientation Domains

In order to use the 2D accumulation method to estimate true thickness from the drill hole intersections and convert the 2D tonnes and grade estimates to 3D tonnes and grade estimates, dip and dip-direction domains were interpreted in long section, identified visually from the wireframe of each lode structure.

The dip and dip-direction of each domain was determined by adjusting a plane of best fit to the dip and dip-direction of the domain. The details of this plane was then recorded and added to the drill data within the particular domain.

The dip and dip-direction domains have been used to create volume correction factors within the Z and Y directions using the following formula:

Strike = dip-direction + 90

Z Correction Factor = 1/ sin (dip)

Y Correction Factor = Absolute (1/ sin (strike)).

Volume Correction Factor = Z Correction Factor x Y Correction Factor.

The vein orientation domains are given for Youle in Figure 14-13 and Table 14-5, for Brunswick Lode in Figure 14-14 and Table 14-6, for Peacock Lode in Figure 14-15 and Table 14-7, and for the Kendal Splay Lode in Figure 14-16 and Table 14-8.

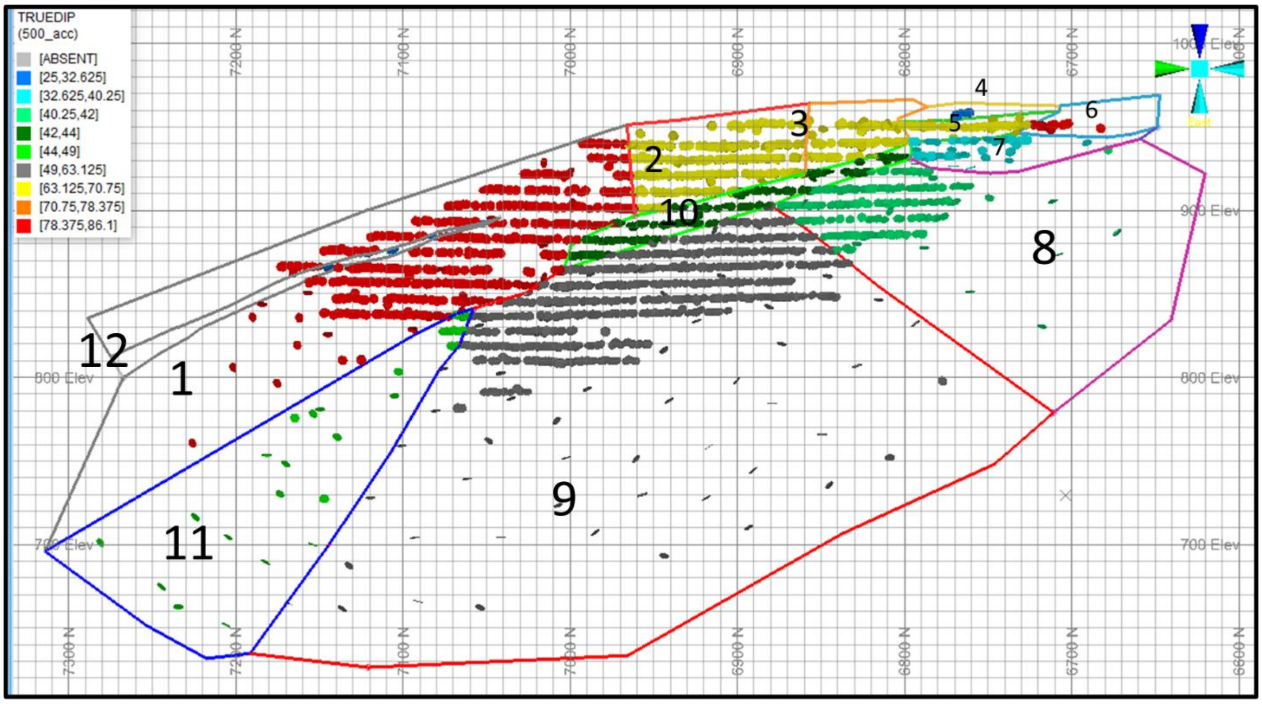

Figure 14-13: Youle Lode dip and dip-direction domains

Table 14-5: Youle Lode dip domains - dip and dip-directions

Dip Domain	Dip (degrees)	Dip-Direction (degrees)
1	86	272
2	70	280
3	65	275
4	31	278
5	65	278
6	80	288
7	35	280
8	41	294
9	50	292
10	43	293
11	47	318
12	25	312

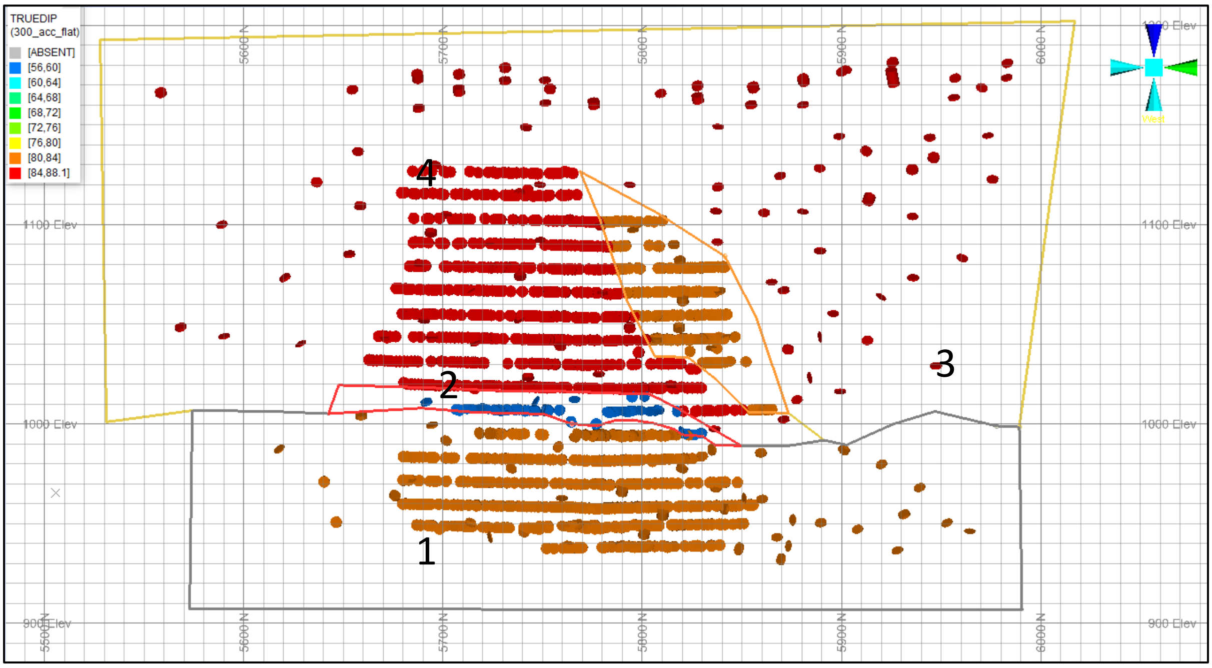

Figure 14-14: Brunswick Lode dip and dip-direction domains

Table 14-6: Brunswick Lode dip domains - dip and dip direction

Dip Domain	Dip (degrees)	Dip Direction (degrees)
1	82	280
2	56	288
3	80	100
4	88	285

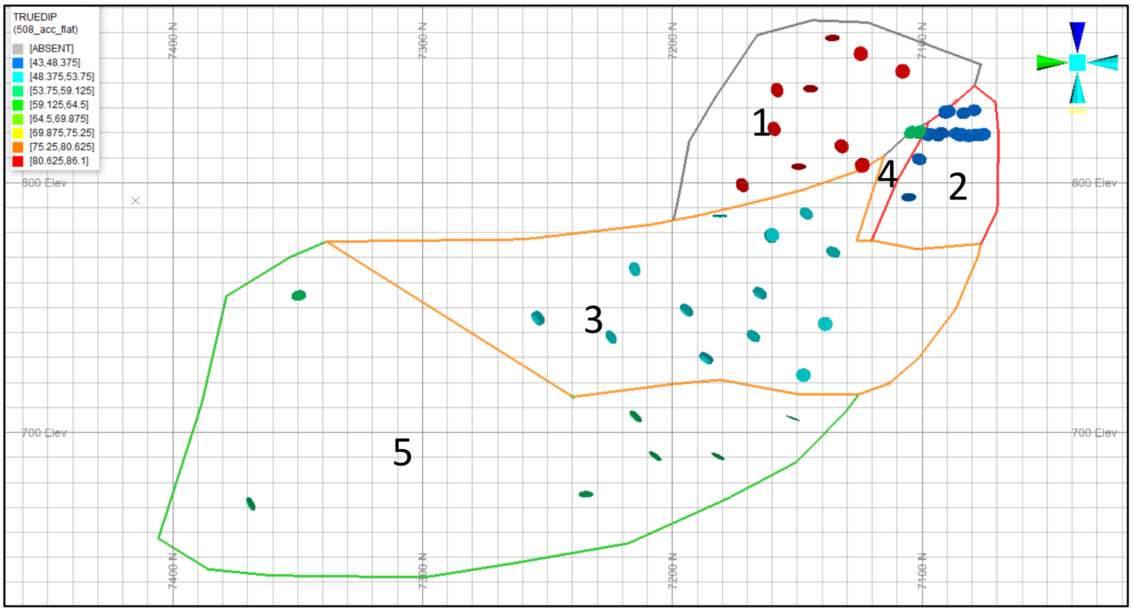

Figure 14-15: Peacock Lode dip and dip direction domains

Table 14-7: Peacock Lode dip domains - dip and dip direction

Dip Domain	Dip (degrees)	Dip Direction (degrees)
1	86	270
2	43	279
3	50	292
4	55	299
5	56	294

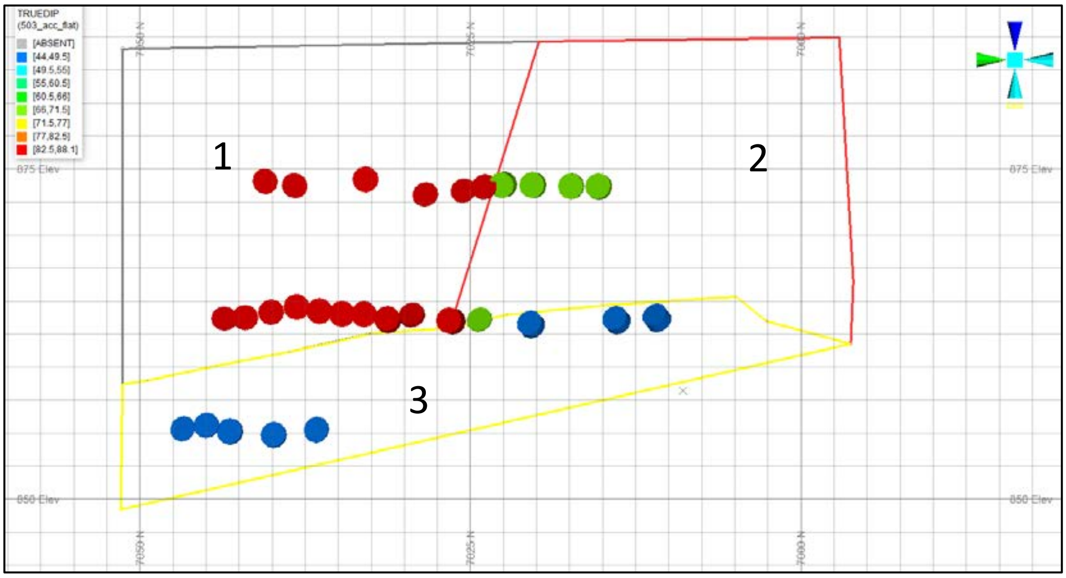

Figure 14-16: Kendal Splay Lode dip and dip direction domains

Table 14-8: Kendal Splay Lode dip domains - dip and dip direction

Dip Domain	Dip (degrees)	Dip Direction (degrees)
1	88	272
2	67	278
3	44	289

14.6 Bulk Density Determinations

Estimation of bulk density was assessed using two methods for mineralised and unmineralised material as follows.

14.6.1 Mineralised Material

The bulk density (BD) for all mineralised Costerfield Property lodes has historically been estimated using a stoichiometric formula which uses the assayed antimony grade as the principal variable, and the BD of waste rock set as a constant value as displayed below, using Equation 1.

$$Eq\ 1 - BD = ((1.3951 * \mathrm{Sb\%}) + (100 - (1.3951 * \mathrm{Sb\%})))/(((1.3951 * \mathrm{Sb\%})/4.56) + ((100 - (1.3951 * \mathrm{Sb\%}))/2.74))$$

Where:

- *Empirical formula of stibnite: Sb_2S_3,*
- *Sb%: Antimony assay as a percentage by mass,*
- *Molecular weight of Antimony (Sb): 121.757,*
- *Molecular weight of Sulphur: (S): 32.066,*
- *1.3951 is a constant calculated by 339.712/243.514 where 339.712 is the molar mass of Sb_2S_3, and 243.514 is the molar mass of antimony contained in one mole of pure stibnite,*
- *BD of pure stibnite: 4.56,*
- *BD of unmineralized waste: 2.74.*

This method of bulk density estimation for mineralisation was developed and implemented in the 2005 Mineral Resource Estimate conducted by McArthur Ore Deposit Assessments Pty Ltd ("MODA") (MODA, 2005), and has been used for BD estimation for mineralisation since that date.

A comparison of the stoichiometric estimation of bulk density, detailed above, was conducted on selected mineralised samples using a water immersion method. The samples used for the physical tests were whole pieces of diamond drill core, which were not coated in wax.

Figure 14-17 displays the measured bulk density values compared against values calculated using the stoichiometric bulk density formula given above. The bulk density determined from the immersion method shows acceptable agreement with the stoichiometric calculation.

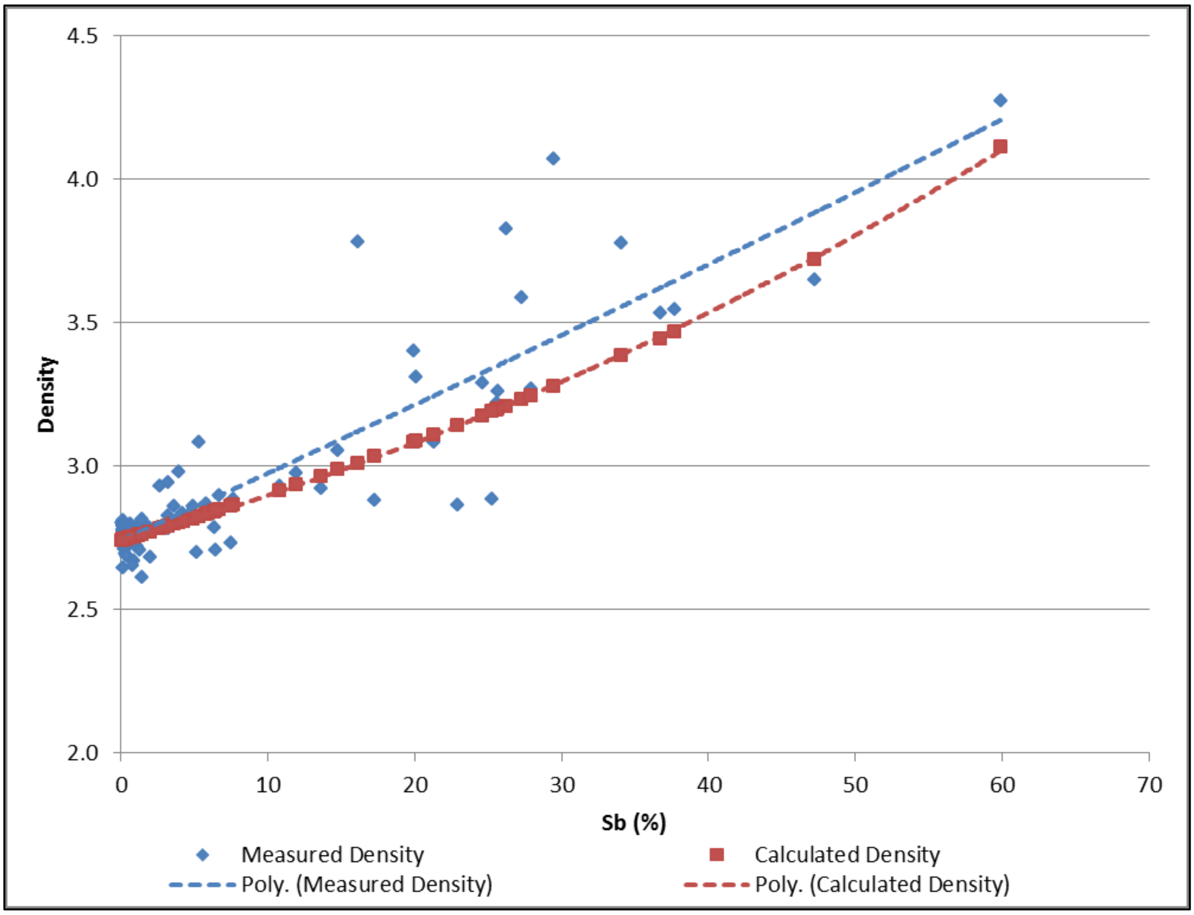

Figure 14-17: Comparison of mineralised material bulk density values by stoichiometric calculation versus values determined by the water immersion method

Within the Mineral Resource Estimate, the bulk density was assigned using the aforementioned stoichiometric formula method in line with previous estimates since 2005.

14.6.2 Unmineralised Material

The unmineralised rock bulk density of 2.74 g/cm^3 has been averaged from 1,060 samples of drill core measured using the water immersion method during 2014.

Basic statistics and the histogram for this series of samples are shown in Table 14-9 and Figure 14-18 and indicate very little variability in the waste material bulk densities.

Table 14-9: Descriptive statistics of bulk density in waste material

Statistic	Bulk Density (g/cm^3)
Mean	2.74
Median	2.77
Mode	2.80
Standard Deviation	0.11
Sample Variance	0.01
Range	1.23
Minimum	2.01
Maximum	3.24
Count	1,060

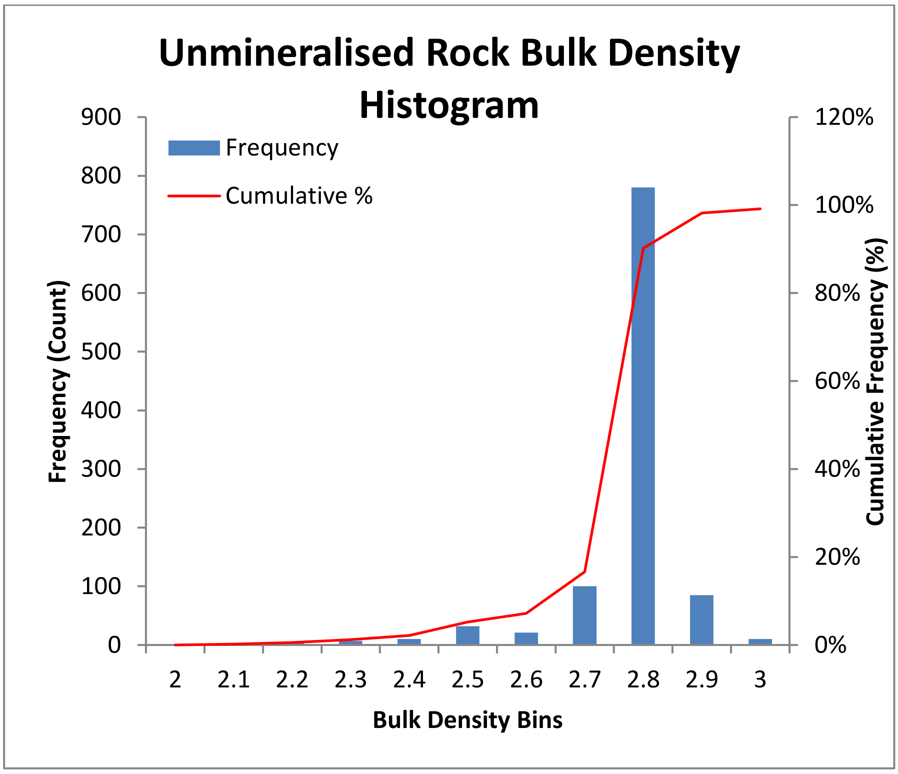

Figure 14-18: Histogram of unmineralised rock bulk density values

14.7 Variography

A variographic analysis was carried out on the combined composited face and drill hole samples for true thickness, gold accumulation and antimony accumulation. The aim was to identify principal directions of continuity of both grade and thickness, and to assist in the selection of search ranges for subsequent estimation. Variography was undertaken in 2 dimensions after projecting the data onto a constant easting.

Anisotropic normal score variograms were modelled on individual and grouped domains where required. Variograms were produced using Supervisor v8.12 software after grade capping of the grade accumulation and true thickness variables had taken place. The variogram models were back-transformed prior to importing into Datamine software for the estimate.

The nugget value was estimated using omnidirectional variograms with a short lag, between 2 m and 5 m, since this most closely represents the small-scale geological and/or sampling grade variability of the data.

Example experimental normal scores variograms for the Brunswick and Youle Deposit showing gold and antimony accumulation, and lode true thickness are displayed in Figure 14-19 to Figure 14-24. The Peacock model lacked sufficient data pairs to produce meaningful variograms.

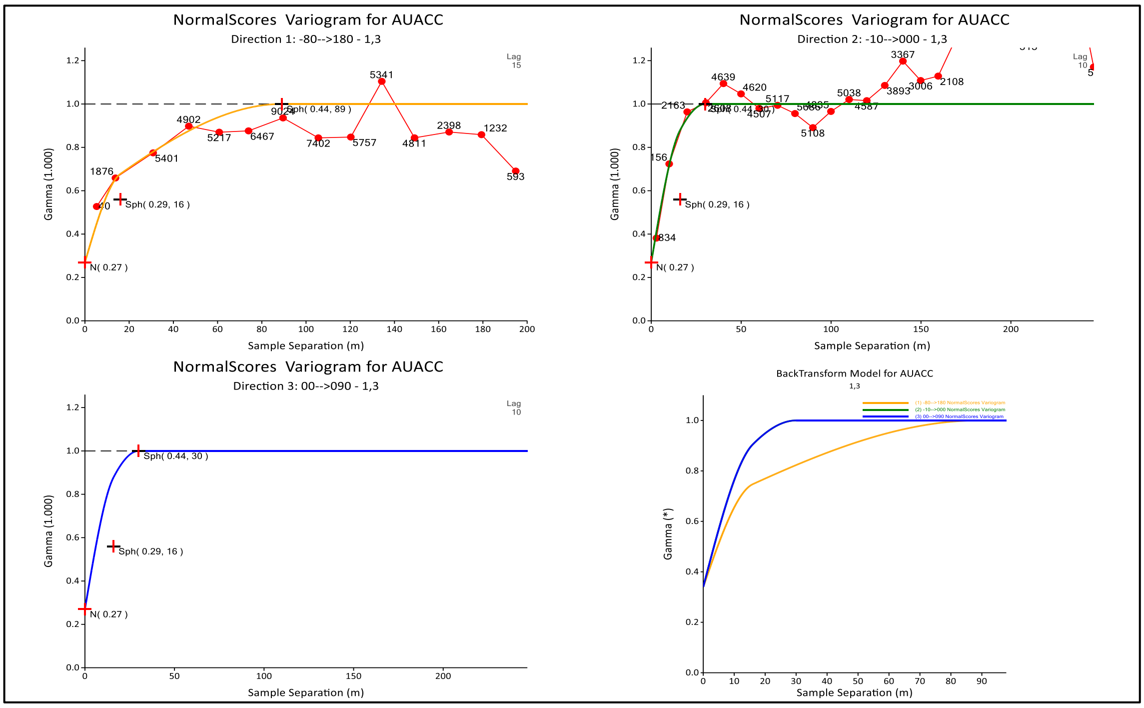

Figure 14-19: Brunswick grouped domains 1 and 3 Au-Accumulation (AUACC) variograms

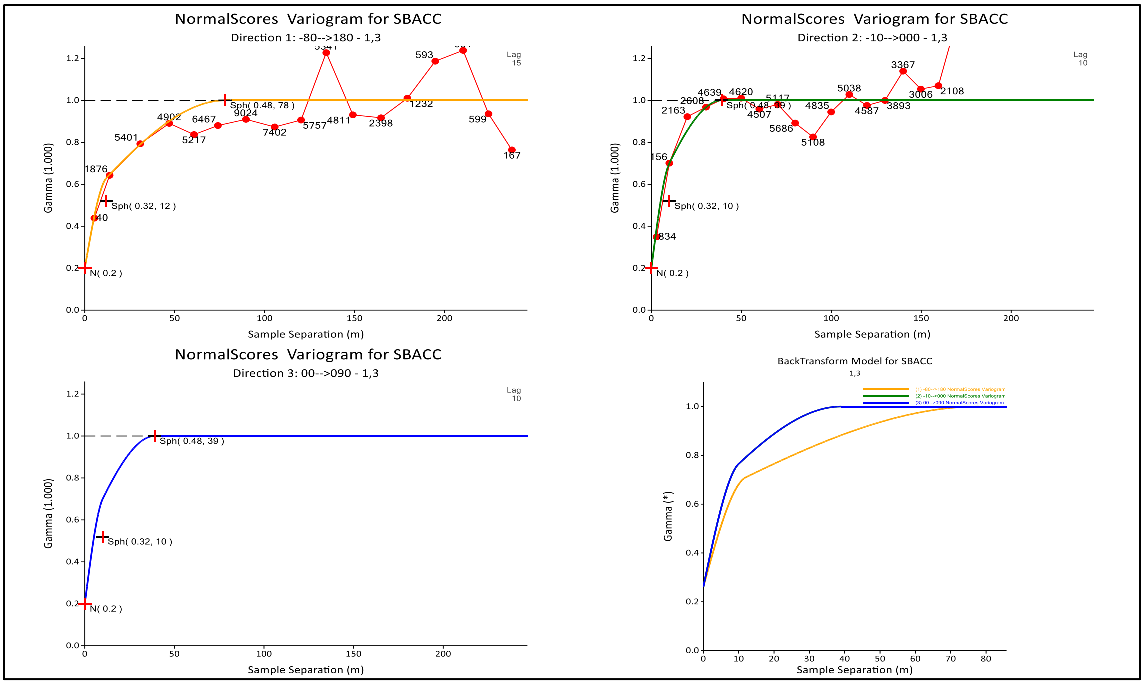

Figure 14-20: Brunswick grouped domains 1 and 3 Sb-Accumulation (SBACC) variograms

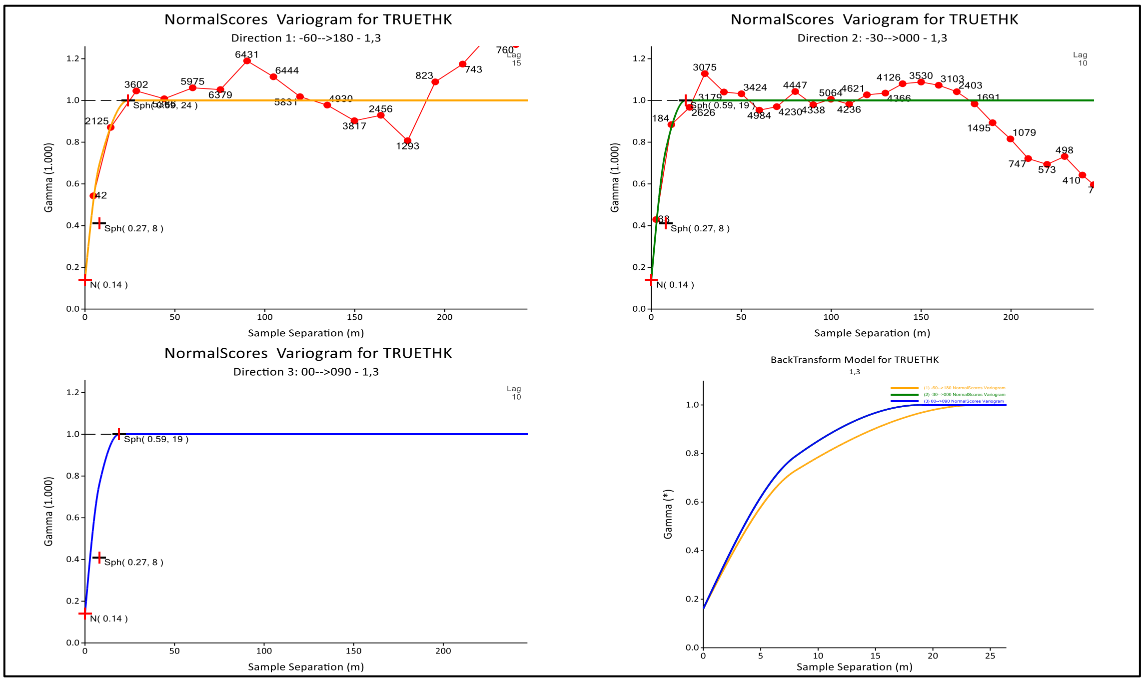

Figure 14-21: Brunswick grouped domains 1 and 3 lode thickness (TRUETHK) variogram

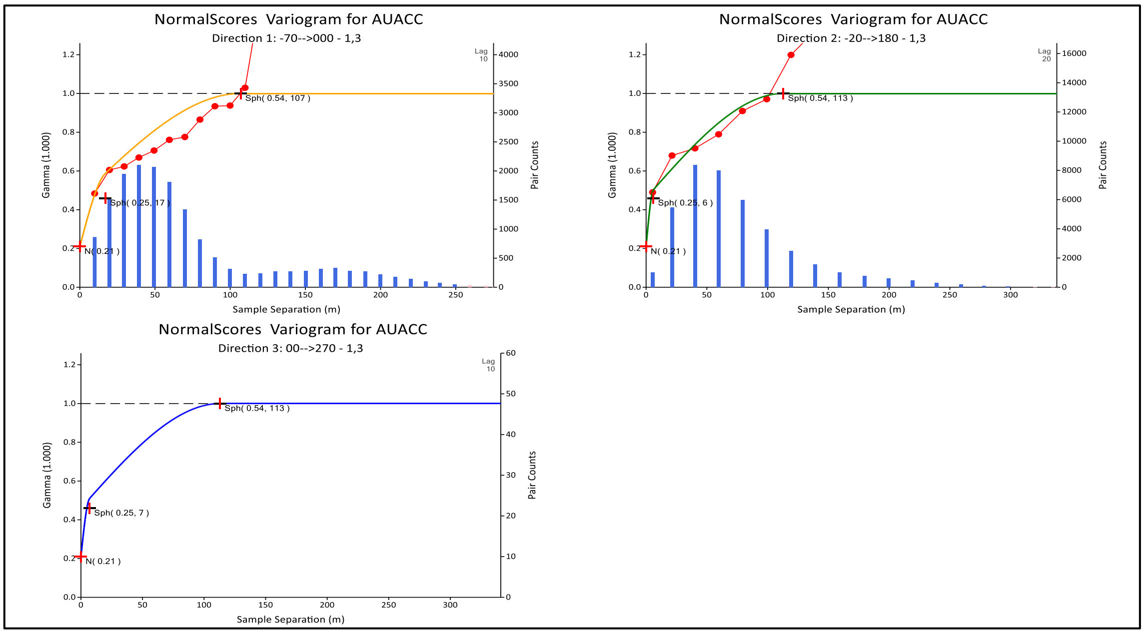

Figure 14-22: Youle grouped domains 1 and 3 Au-Accumulation (AUACC) variograms

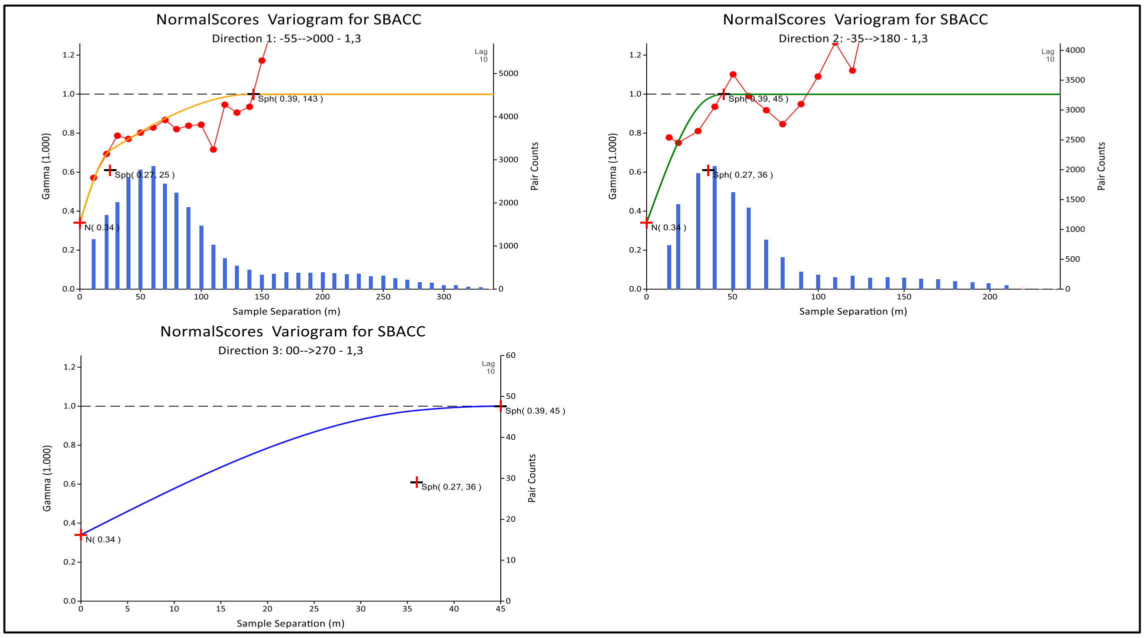

Figure 14-23: Youle grouped domains 1 and 3 Sb-Accumulation (SBACC) variograms

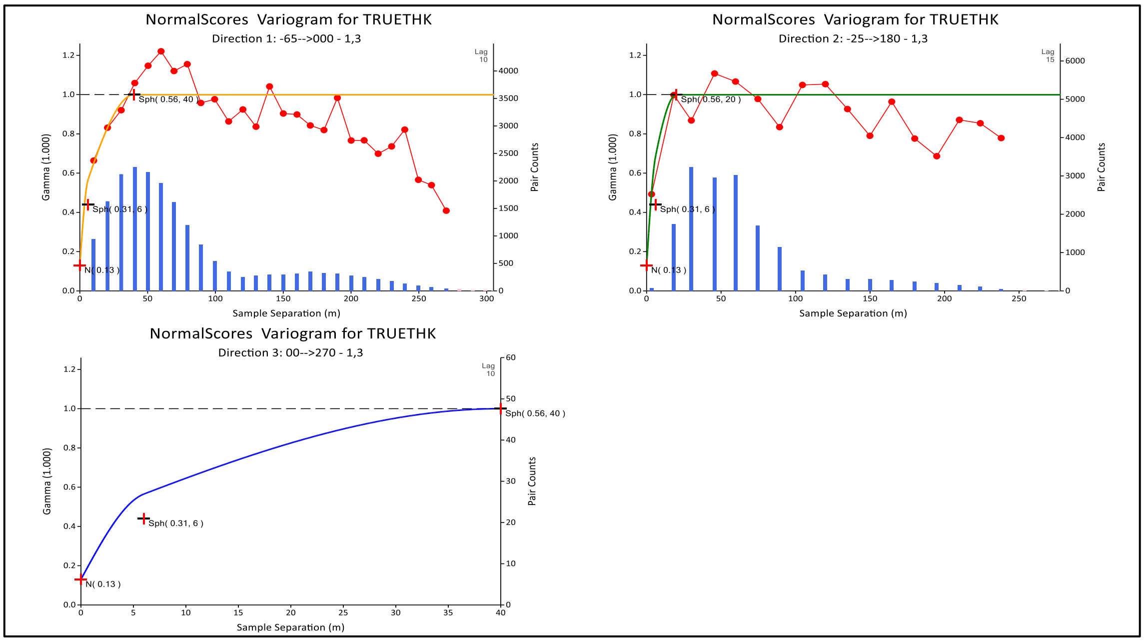

Figure 14-24: Youle grouped domains 1 and 3 lode true thickness (TRUETHK) variograms

Variograms for the Peacock lode were substituted from adjacent domains with comparable geological settings from the main Youle Deposit.

The orientation of the best grade continuity was selected based on the variographic analysis, and was verified by observations made during underground mapping. The orientations and ranges identified during the variographic analysis were used to generate 3D ellipsoid wireframes, which were validated against the composite values in longitudinal projection (Figure 14-25 and Figure 14-26).

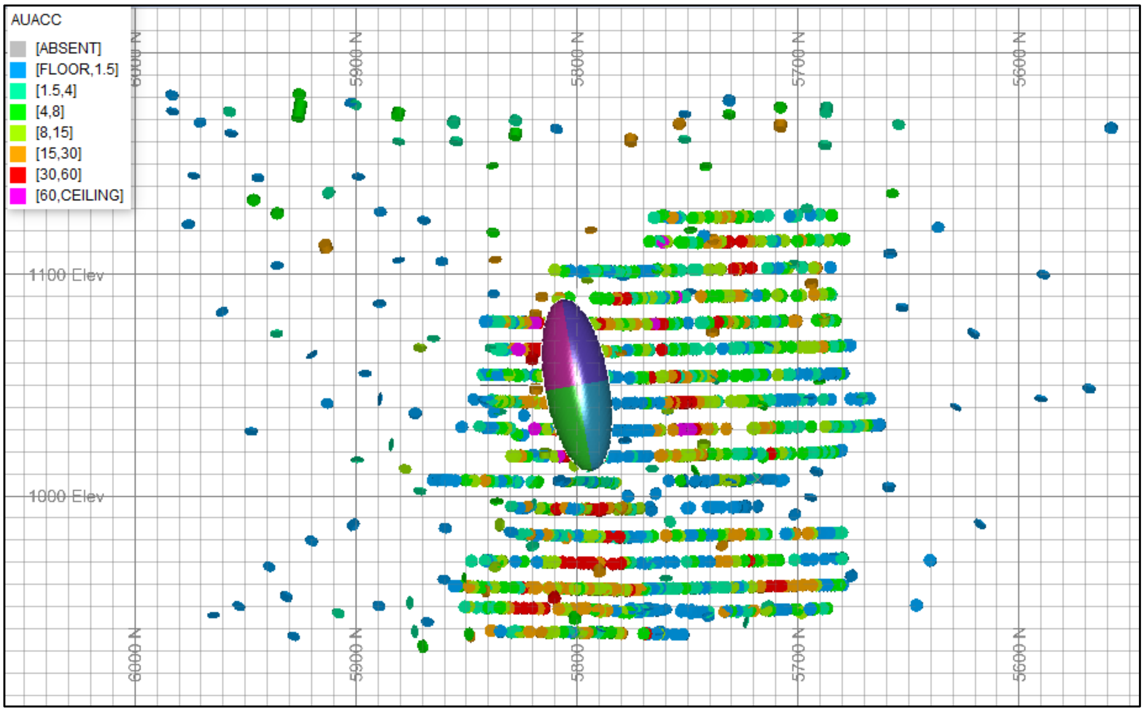

Figure 14-25: Brunswick long-section with Domain 1 search ellipse for Au-Accumulation

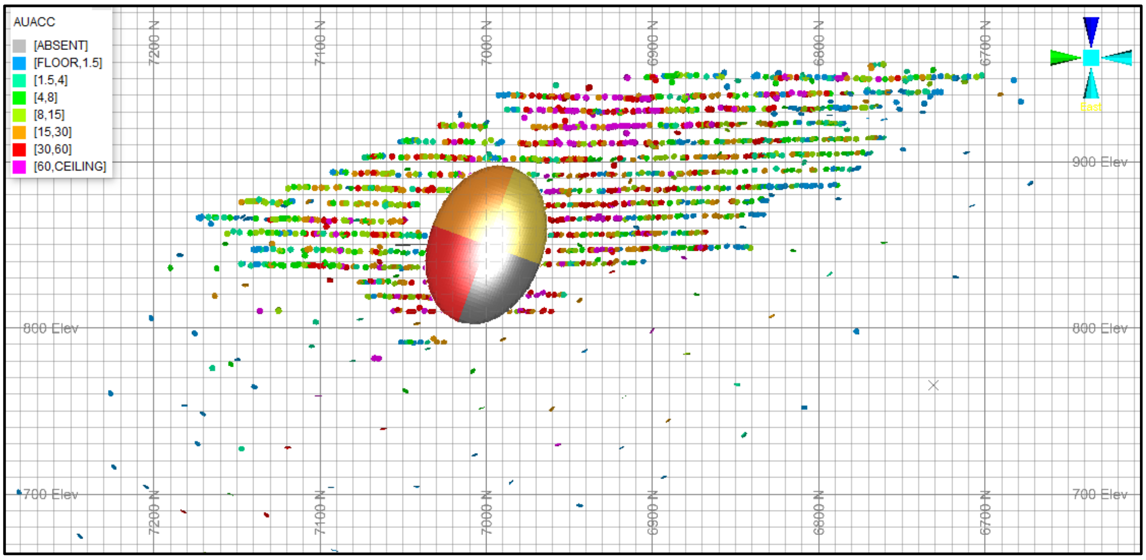

Figure 14-26: Youle long-section with Domain 1 search ellipse for Au-Accumulation

The variographic parameters determined for Youle and Brunswick during the analysis are detailed in Table 14-10 and Table 14-11.

Table 14-10: Youle variogram model parameters

Model	Domain	Element	Variogram Orientations			Datamine Rotations			Variographic parameters						
			Dir 1	Dir 2	Dir 3	Dir 1	Dir 2	Dir 3	C0	C1		A1	C2		A2
Youle	Domain 1+3	AuACC	-90	90	-70	Z	X	Z	0.28	Dir 1	0.31	17	Dir 1	0.41	107
										Dir 2		8	Dir 2		77
										Dir 3		8	Dir 3		77
	Domain 1+3	SBACC	-90	90	-55	Z	X	Z	0.46	Dir 1	0.29	25	Dir 1	0.26	143
										Dir 2		36	Dir 2		45
										Dir 3		36	Dir 3		45
	Domain 1+3	TT	-90	90	-65	Z	X	Z	0.17	Dir 1	0.36	6	Dir 1	0.48	40
										Dir 2		6	Dir 2		20
										Dir 3		6	Dir 3		40
	Domain 2	AuACC	-90	90	-30	Z	X	Z	0.48	Dir 1	0.14	30	Dir 1	0.37	48
										Dir 2		13	Dir 2		48
										Dir 3		46	Dir 3		48
	Domain 2	SBACC	-90	90	-50	Z	X	Z	0.39	Dir 1	0.35	38	Dir 1	0.26	32
										Dir 2		13	Dir 2		32
										Dir 3		45	Dir 3		32
	Domain 2	TT	-90	90	-40	Z	X	Z	0.19	Dir 1	0.49	8	Dir 1	0.32	41
										Dir 2		13	Dir 2		20
										Dir 3		13	Dir 3		20
	Domain 4+5	AuACC	-90	90	-30	Z	X	Z	0.67	Dir 1	0.18	49	Dir 1	0.16	63
										Dir 2		43	Dir 2		58
										Dir 3		49	Dir 3		63
	Domain 4+5	SBACC	-90	90	-30	Z	X	Z	0.47	Dir 1	0.43	33	Dir 1	0.10	107
										Dir 2		45	Dir 2		46
										Dir 3		33	Dir 3		107
	Domain 4+5	TT	-90	90	-55	Z	X	Z	0.68	Dir 1	0.03	11	Dir 1	0.29	55
										Dir 2		40	Dir 2		41
										Dir 3		11	Dir 3		55

Dir 1: Major, Dir 2: Semi-Major, Dir 3: Minor, C0: nugget variance, C1 & C2: sills of autocorrelated variance, A1 & A2: Range of spatial dependence

Table 14-11: Brunswick variogram model parameters

Model	Domain	Element	Variogram Orientations			Datamine Rotations			Variographic parameters						
			Dir 1	Dir 2	Dir 3	Dir 1	Dir 2	Dir 3	C0	C1		A1	C2		A2
Brunswick	Domain 1+3	AuACC	90	90	-80	Z	X	Z	0.34	Dir 1	0.32	16	Dir 1	0.35	89
										Dir 2		16	Dir 2		30
										Dir 3		16	Dir 3		30
	Domain 1+3	SBACC	90	90	-90	Z	X	Z	0.26	Dir 1	0.36	12	Dir 1	0.38	78
										Dir 2		10	Dir 2		39
										Dir 3		10	Dir 3		39
	Domain 1+3	TT	90	90	-60	Z	X	Z	0.16	Dir 1	0.32	8	Dir 1	0.52	24
										Dir 2		8	Dir 2		19
										Dir 3		8	Dir 3		19

Dir 1: Major, Dir 2: Semi-Major, Dir 3: Minor, C0: nugget variance, C1 & C2: sills of autocorrelated variance, A1 & A2: Range of spatial dependence

14.8 Search and Estimation Parameters

True thickness, gold accumulation, and antimony accumulation were estimated into the block model for each lode that was oriented north-south and was one block wide in the east-west direction. This type of block model is subsequently referred to as a two dimensional (2D) seam block model. All search ellipses used for this method were parallel with the north-south block model orientation.

The following summarises the estimation process:

- Drillhole and face samples for each lode were projected into an arbitrary north-south oriented vertical plane,
- The orientation and anisotropy of the search ellipsoid for each lode was guided by the grade and thickness continuity modelled in the variographic analysis,
- The variogram parameters for the Youle and Brunswick lodes are detailed above in Section 14.7. The Peacock Lodes lacked sufficient data pairs to produce meaningful variograms, therefore variograms for Peacock were borrowed from the adjacent Youle Lode domains that have a comparable geological setting,
- Each estimate involved three search passes:
    - The first search pass dimensions were approximately equivalent to half of the variogram model range,
    - The second was twice the first pass in all three directions,
    - The third pass was six times the first pass in all three directions.
- The estimation was undertaken using a combined dataset of face sample and drill hole data. Where grade sub-domains were present, the estimation was completed separately within each sub-domain. Hard boundaries were employed to divide high-grade and low grade domains within the 2020 estimated models. The domains were then cut to their boundaries and combined to complete the model.
- A limit to the number of face samples used in each estimate was applied to the low sample data density (Drilling) zones, corresponding to the large blocks in Table 14-14: Block model dimensions. This was accomplished by giving all face samples the same drillhole name and setting the maximum number of samples from one drillhole. This approach was also applied retrospectively to the pre-2020 N Lode, W Lode and E Lode.

The estimation parameters applied to the estimation of Youle and Brunswick are detailed in Table 14-12 and Table 14-13.

Table 14-12: Youle block model search parameters

Resource Class	Domain	Variable	First Pass						Second Pass						Third Pass					
			Search			# Samples		DH	Second Pass			# Samples		DH	Third Pass			# Samples		DH
			Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit
MEASURED	1 & 3	AuACC	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
		AUTT	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
		SbACC	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
		SBTT	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
		TT	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
	2	AuACC	40	15	10	2	8	-	80	30	20	2	10	-	240	90	60	1	10	-
		AUTT	40	15	10	2	8	-	80	30	20	2	10	-	240	90	60	1	10	-
		SbACC	40	15	10	2	8	-	80	30	20	2	10	-	240	90	60	1	10	-
		SBTT	40	15	10	2	8	-	80	30	20	2	10	-	240	90	60	1	10	-
		TT	40	15	10	2	12	-	80	30	20	2	12	-	240	90	60	1	10	-
	4	AuACC	30	25	10	4	8	-	60	50	20	2	10	-	180	150	60	1	10	-
		AUTT	30	25	10	4	8	-	60	50	20	2	10	-	180	150	60	1	10	-
		SbACC	30	25	10	4	8	-	60	50	20	2	10	-	180	150	60	1	10	-
		SBTT	30	25	10	4	8	-	60	50	20	2	10	-	180	150	60	1	10	-
		TT	30	25	10	4	6	-	60	50	20	2	12	-	180	150	60	1	12	-
	5	AuACC	30	25	10	2	8	-	60	50	20	1	10	-	180	150	60	1	10	-
		AUTT	30	25	10	2	8	-	60	50	20	1	10	-	180	150	60	1	10	-
		SbACC	30	25	10	2	8	-	60	50	20	1	10	-	180	150	60	1	10	-
		SBTT	30	25	10	2	8	-	60	50	20	1	10	-	180	150	60	1	10	-
		TT	30	25	10	2	12	-	60	50	20	1	12	-	180	150	60	1	10	-
INDICATED & INFERRED	1 & 3	AuACC	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
		AUTT	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
		SbACC	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
		SBTT	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
		TT	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
	2	AuACC	40	15	10	4	8	2	80	30	20	2	10	2	240	90	60	1	10	2
		AUTT	40	15	10	4	8	2	80	30	20	2	10	2	240	90	60	1	10	2
		SbACC	40	15	10	4	8	2	80	30	20	2	10	2	240	90	60	1	10	2
		SBTT	40	15	10	4	8	2	80	30	20	2	10	2	240	90	60	1	10	2
		TT	40	15	10	4	12	2	80	30	20	2	12	2	240	90	60	1	10	2

Resource Class	Domain	Variable	First Pass						Second Pass						Third Pass					
			Search			# Samples		DH	Second Pass			# Samples		DH	Third Pass			# Samples		DH
			Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit
	3	AuACC	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
		AUTT	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
		SbACC	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
		SBTT	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
		TT	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
	4	AuACC	30	25	10	4	8	2	60	50	20	2	10	2	180	150	60	1	10	2
		AUTT	30	25	10	4	8	2	60	50	20	2	10	2	180	150	60	1	10	2
		SbACC	30	25	10	4	8	2	60	50	20	2	10	2	180	150	60	1	10	2
		SBTT	30	25	10	4	8	2	60	50	20	2	10	2	180	150	60	1	10	2
		TT	30	25	10	4	10	2	60	50	20	2	12	2	180	150	60	1	12	2

Table 14-13: Brunswick block model search parameters

Resource Class	Domain	Variable	First Pass						Second Pass						Third Pass					
			Search			# Samples		DH	Second Pass			# Samples		DH	Third Pass			# Samples		DH
			Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit
MEASURED	1 & 3	AuACC	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
		SbACC	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
		TT	50	35	10	2	8	-	100	70	20	2	10	-	300	210	60	1	15	-
	2	AuACC	40	15	10	2	8	-	80	30	20	2	10	-	240	90	60	1	10	-
		SbACC	40	15	10	2	8	-	80	30	20	2	10	-	240	90	60	1	10	-
		TT	40	15	10	2	12	-	80	30	20	2	12	-	240	90	60	1	10	-
	4	AuACC	30	25	10	4	8	-	60	50	20	2	10	-	180	150	60	1	10	-
		SbACC	30	25	10	4	8	-	60	50	20	2	10	-	180	150	60	1	10	-
		TT	30	25	10	4	6	-	60	50	20	2	12	-	180	150	60	1	12	-
	5	AuACC	30	25	10	2	8	-	60	50	20	1	10	-	180	150	60	1	10	-
		SbACC	30	25	10	2	8	-	60	50	20	1	10	-	180	150	60	1	10	-
		TT	30	25	10	2	12	-	60	50	20	1	12	-	180	150	60	1	10	-
INDICATED & INFERRED	1	AuACC	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
		SbACC	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
		TT	50	35	10	2	8	1	100	70	20	2	10	1	300	210	60	1	15	1
	2	AuACC	40	15	10	4	8	2	80	30	20	2	10	2	240	90	60	1	10	2
		SbACC	40	15	10	4	8	2	80	30	20	2	10	2	240	90	60	1	10	2
		TT	40	15	10	4	12	2	80	30	20	2	12	2	240	90	60	1	10	2
	3	AuACC	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
		SbACC	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
		TT	50	35	10	3	8	2	100	70	20	2	10	2	300	210	60	1	15	2
	4	AuACC	30	25	10	4	8	2	60	50	20	2	10	2	180	150	60	1	10	2

Resource Class	Domain	Variable	First Pass						Second Pass						Third Pass					
			Search			# Samples		DH	Second Pass			# Samples		DH	Third Pass			# Samples		DH
			Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit	Major	Semi-Major	Minor	Min	Max	Limit
		SbACC	30	25	10	4	8	2	60	50	20	2	10	2	180	150	60	1	10	2
		TT	30	25	10	4	10	2	60	50	20	2	12	2	180	150	60	1	12	2

14.9 Block Model Definitions

Grade accumulation and true thickness were estimated using Ordinary Kriging (OK) into 2D block models, whose cell centroids were projected onto an arbitrary easting. The 2D estimates were run with all data, including face samples and diamond drill hole samples, for two different cell sizes resulting in two models with small and large block sizes respectively. The block sizes were selected based on the sample spacing of each area.

Areas of high sample density contain face sampling collected during mine development in mineralisation, and areas of low sample density are usually from drill intercepts only ranging from 20 m to 80 m spacing.

The small block estimation was overprinted onto the large block estimation in order to generate a final combined block model. Both the small and large block models were then regularised to a common sub-cell size of 0.5 mY by 0.5 mZ in order to facilitate merging and to better define the mining depletion and domain boundaries.

The block model origins and number of cells are specific to each modelled lode. The common specifications for the block models are detailed in Table 14-14.

Table 14-14: Block model dimensions

	High Sample Data Density (Face samples)		Low Sample Data Density (Drilling Only)	
	Block Dimensions (m)	Discretization	Block Dimensions (m)	Discretization
X	1	3	1	3
Y	2.5	2	10	2
Z	5	1	10	1

After the block models have been depleted and Mineral Resource categories applied, the block models were repositioned into true 3D space by projecting the western edge of each block onto the western contact of the relevant lode.

The east-west dimension (XINC) of each block was then converted to the horizontal thickness derived from the estimated true thickness to produce a 3D block model.

14.10 Block Model Validation

The grade and thickness estimates were validated by:

- Visual comparison of the sample thicknesses, accumulated grades and back-calculated grades with the estimated model grades in longitudinal projection,
- Statistical comparisons by domain of the declustered input composites with the corresponding estimated variables: Au-Accumulation, Sb-Accumulation and True Thickness,
- Local validation using Y and Z swath plots, comparing the declustered and naive composites against estimated values.

Declustering was required for all block models due to the strong clustering of the face samples along the ore-drives. The input composite declustering was completed using the polygonal declustering process in Datamine software. This process resulted in some samples receiving a zero value weight due to closely spaced data, and these were corrected to a nominal 0.001 weighting. These zero value weights were encountered in less than 1% of the composites.

Visually, the estimation shows good agreement with the plunge and continuity of the grades evident in the face samples, and the degree of smoothing is considered acceptable. The influence of the high-density face sampling on the areas of diamond drilling was appropriately limited in accordance with the search parameters.

An example of the global statistical comparison by domain for the Youle Lode is detailed in Table 14-15. A percentage difference less than 10% between the declustered samples and estimated grades are considered acceptable, with most of the Youle/Brunswick domains returning results of less than 5% relative difference. Domain 5 of the Youle Lode, did exceed the 10% threshold, however the QP considers the result immaterial for the Mineral Resource Estimate as this lode has low tonnage and a low composite count.

Table 14-15: Global validation of Youle 500 block model by domain against composites and polygonally declustered composites

			Block Model-Mean	***Composite Mean Comparisons***			***Declustered Composite***
Variable	**Domain**	**No. Comps**	**Estimated Grade**	**Composite Grade(TC)**	**Polygonal Declustered Composite Grade (TC)**	**%Diff Est. Grade to Composite**	**%Diff Est. Grade to Declustered Composite**
Au-Accumulation	Global	1,558	15.30	27.73	15.64	-45%	**-2.2%**
SBACC	Global	1,558	4.01	9.68	3.99	-59%	**0.4%**
TRUETHK	Global	1,558	0.31	0.40	0.32	-22%	**-2.8%**
Au-Accumulation	1	832	17.60	27.87	17.83	-37%	**-1.3%**
Au-Accumulation	2	359	37.30	40.02	35.56	-7%	**4.9%**
Au-Accumulation	3	16	0.04	0.06	0.04	-30%	**-7%**
Au-Accumulation	4	341	12.72	16.53	12.85	-23%	**-1.0%**
Au-Accumulation	5	10	0.88	1.28	1.72	-31%	**-49%**
Sb-Accumulation	1	832	3.37	7.80	3.21	-57%	**5.1%**
Sb-Accumulation	2	359	14.09	15.56	13.73	-9%	**2.6%**
Sb-Accumulation	3	16	0.01	0.02	0.01	-40%	**0%**
Sb-Accumulation	4	341	6.49	8.79	6.54	-26%	**-0.7%**
Sb-Accumulation	5	10	0.24	0.29	0.36	-19%	**-35%**
True Vein Thickness	1	832	0.32	0.35	0.32	-10%	**-2.5%**
True Vein Thickness	2	359	0.66	0.67	0.66	0%	**0.8%**
True Vein Thickness	3	16	0.19	0.19	0.19	2%	**1%**
True Vein Thickness	4	341	0.24	0.24	0.26	-1%	**-5.5%**
True Vein Thickness	5	10	0.13	0.10	0.09	21%	**42%**

Note: Domain 3 and 5 are both non-material low-grade domains with limited numbers of composites

Swathe plots were generated in the north-south (Y) and vertical (Z) directions for the complete lode (global) and for each domain at a nominal spacing of 20 m. The naïve composite (red lines) and declustered composite (blue lines) mean grades of the accumulation variables are compared with the estimated accumulation variables within the block models (black lines). The Youle 500 block model swathe plots are provided as examples of the validation methodology applied (Figure 14-27 to Figure 14-38).

The declustered means presented in the swathe plots are generated by Supervisor using the cell declustering method and therefore are different to the declustered means presented in Table 14-15. The QP considers that the means generated by the polygonal declustering method in Datamine are more reliable than the cell declustering means generated by Supervisor and therefore, preference is given to the table over the swathe plots where there is an apparent discrepancy.

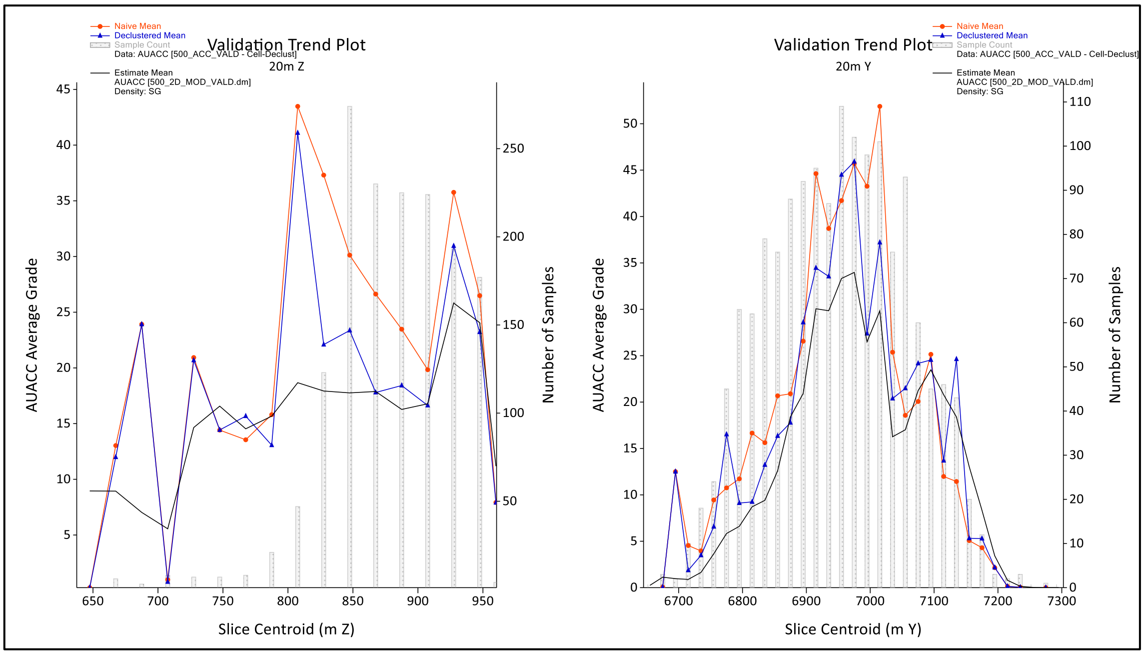

Figure 14-27: Youle global Au-Accumulation swathe plot by Northing and Elevation

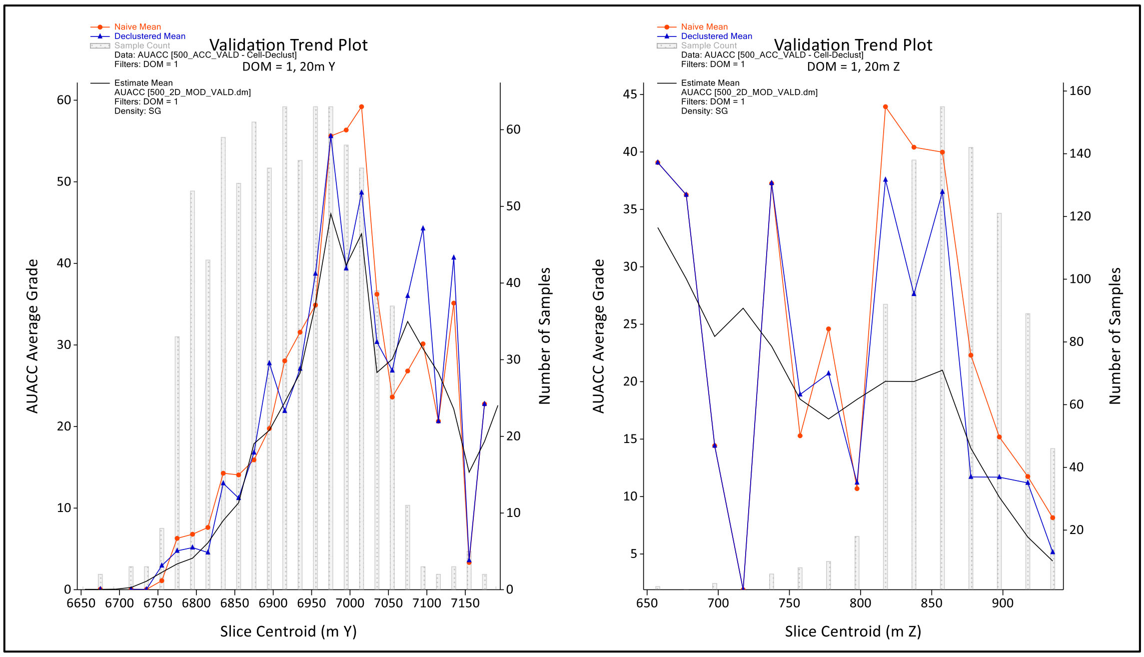

Figure 14-28: Youle Domain 1 Au-Accumulation swathe plot by Northing and Elevation

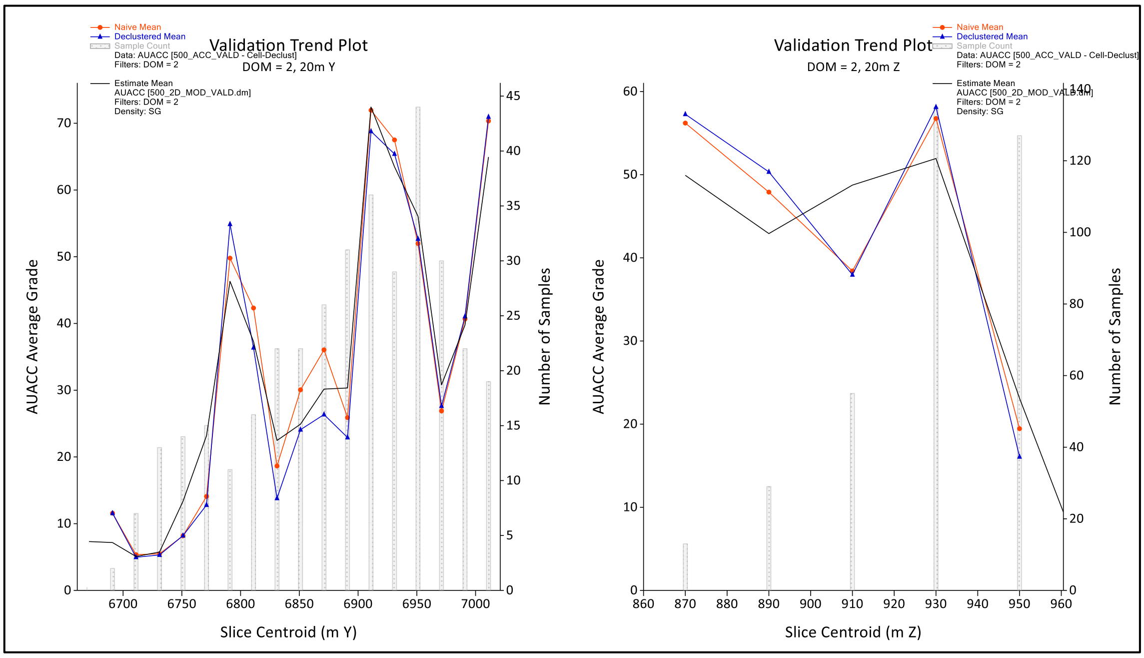

Figure 14-29: Youle Lode Domain 2 Au-Accumulation swathe plot by Northing and Elevation

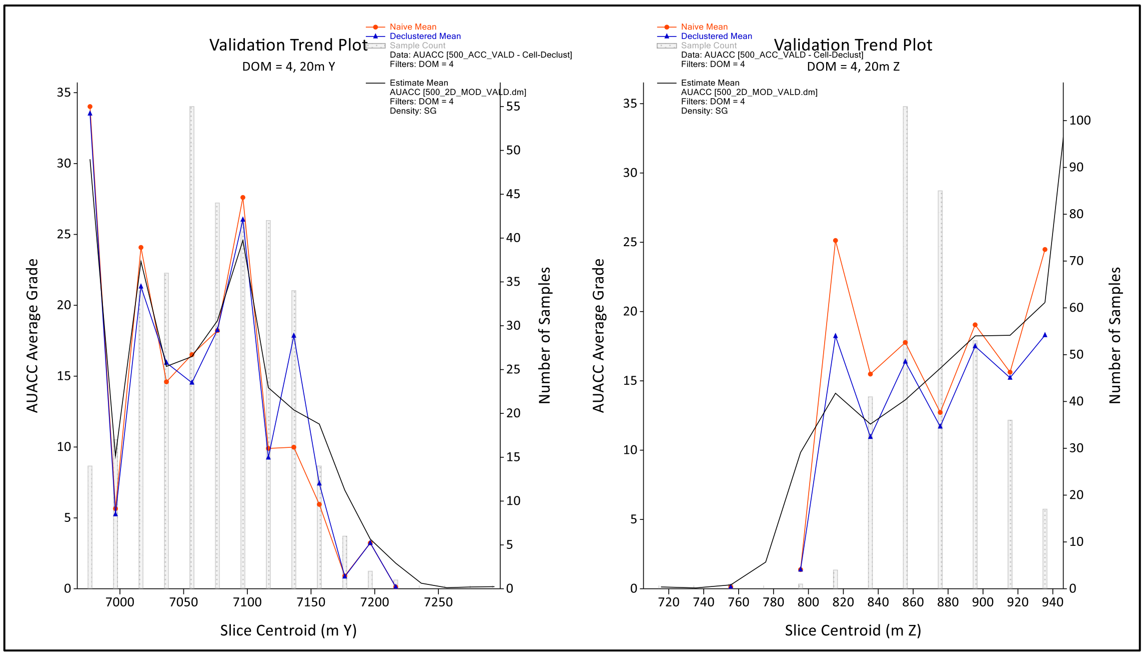

Figure 14-30: Youle Lode Domain 4 Au-Accumulation swathe plot by Northing and Elevation

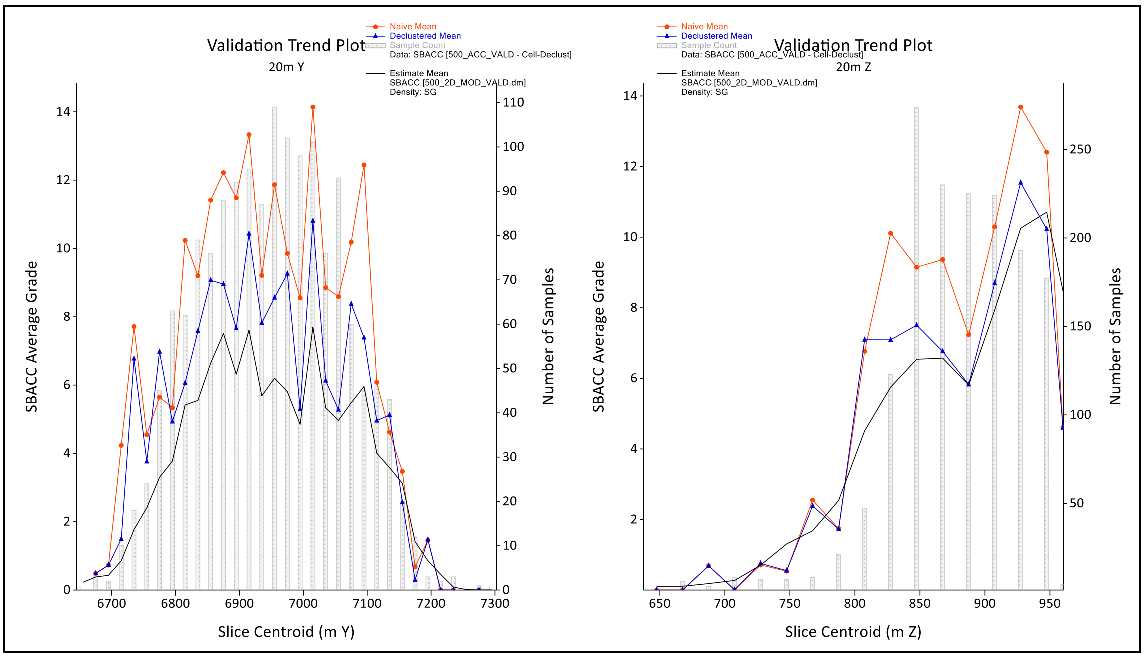

Figure 14-31: Youle Lode global Sb-Accumulation swathe plot by Northing and Elevation

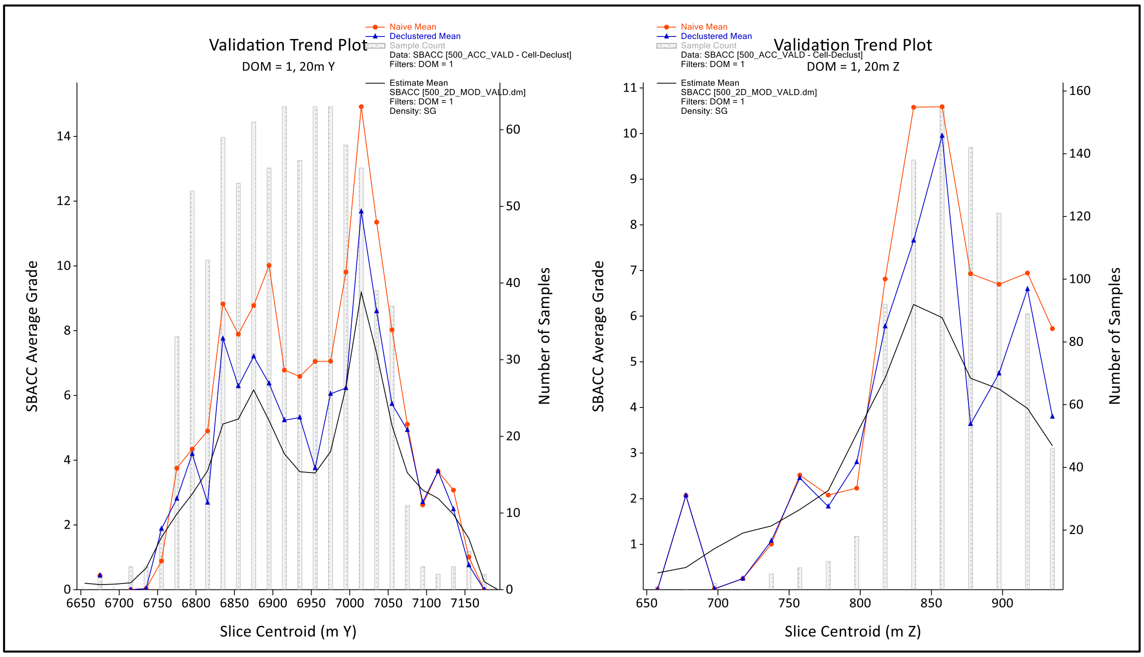

Figure 14-32: Youle Lode Domain 1 Sb-Accumulation swathe plot by Northing and Elevation

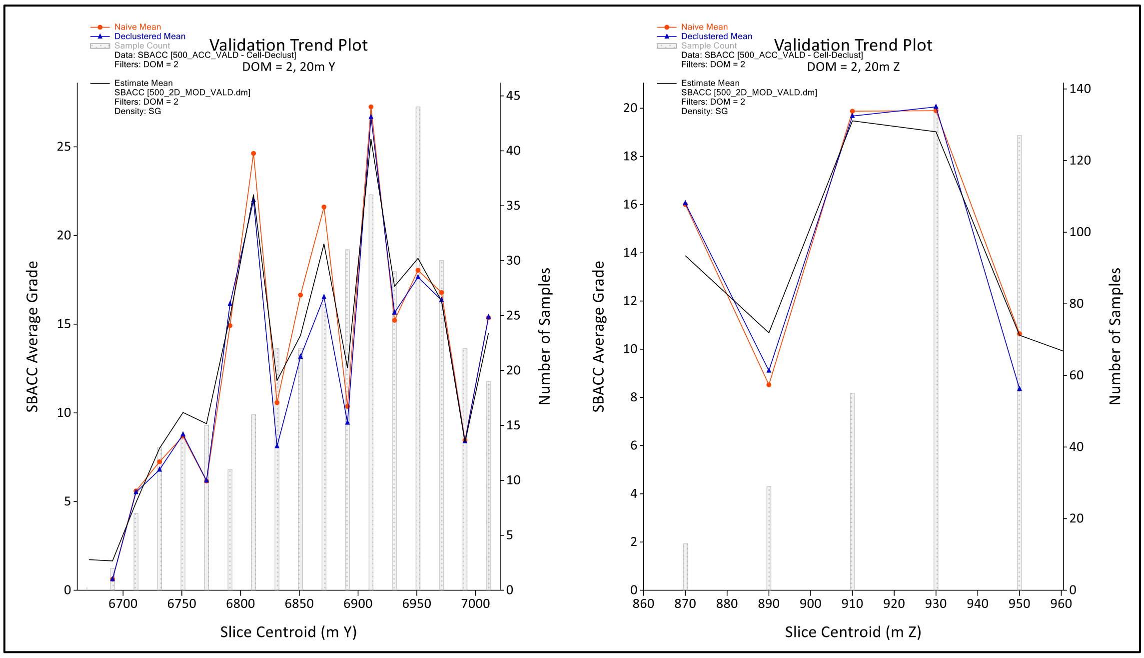

Figure 14-33: Domain 2 Sb-Accumulation swathe plot by Northing and Elevation

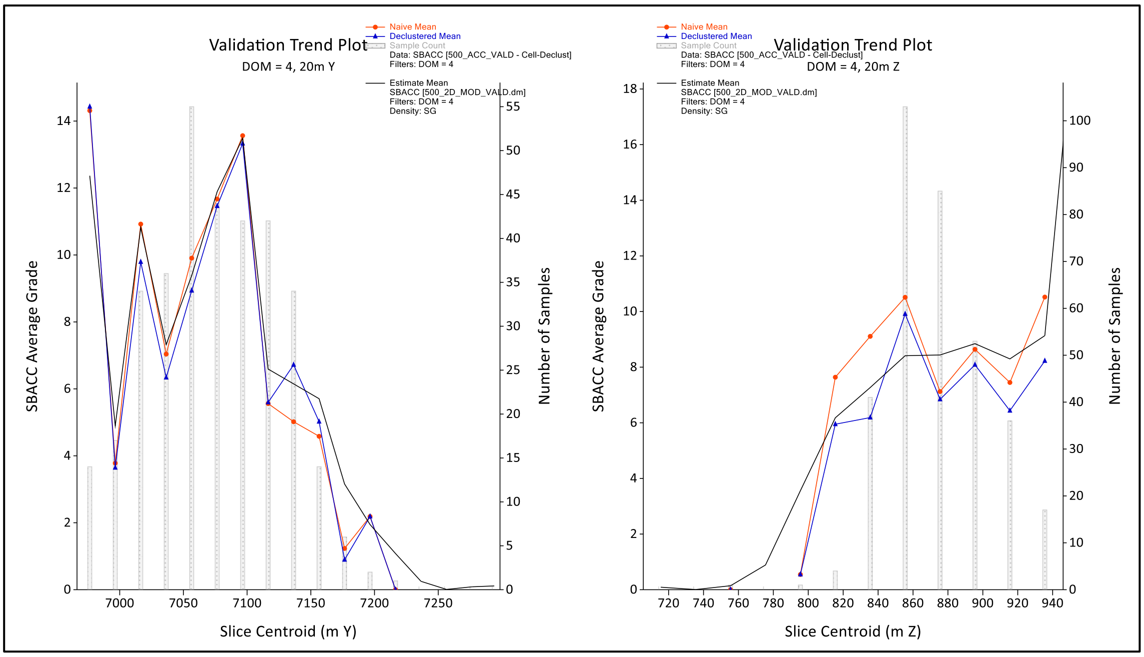

Figure 14-34: Domain 4 Sb-Accumulation swathe plot by Northing and Elevation

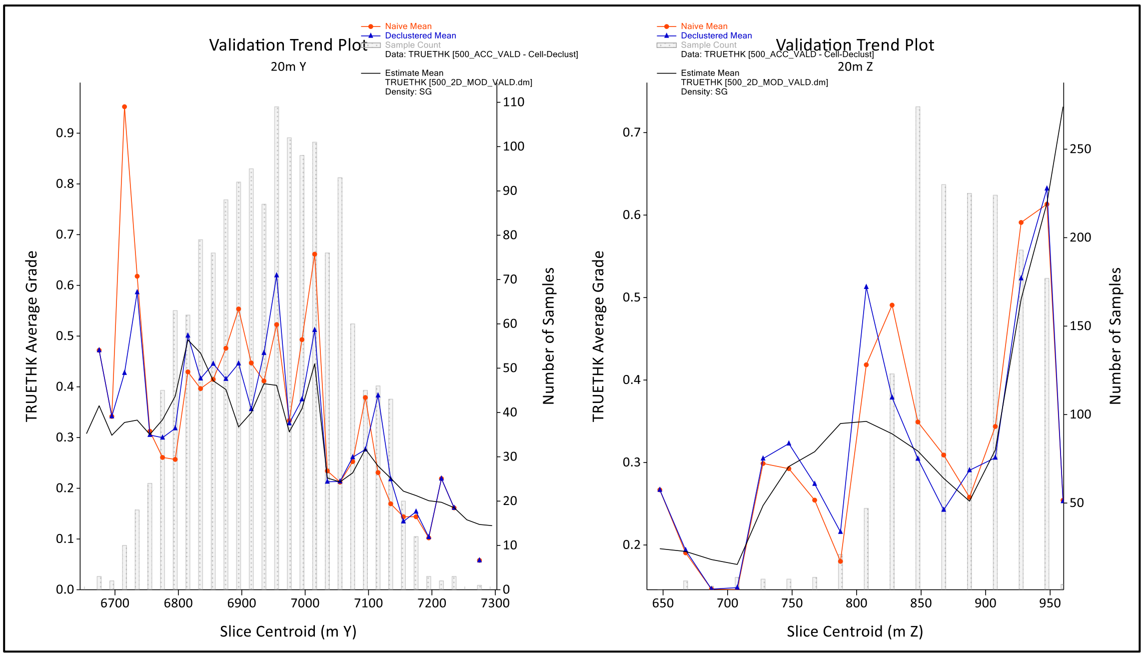

Figure 14-35: Global True Thickness swathe plot by Northing and Elevation

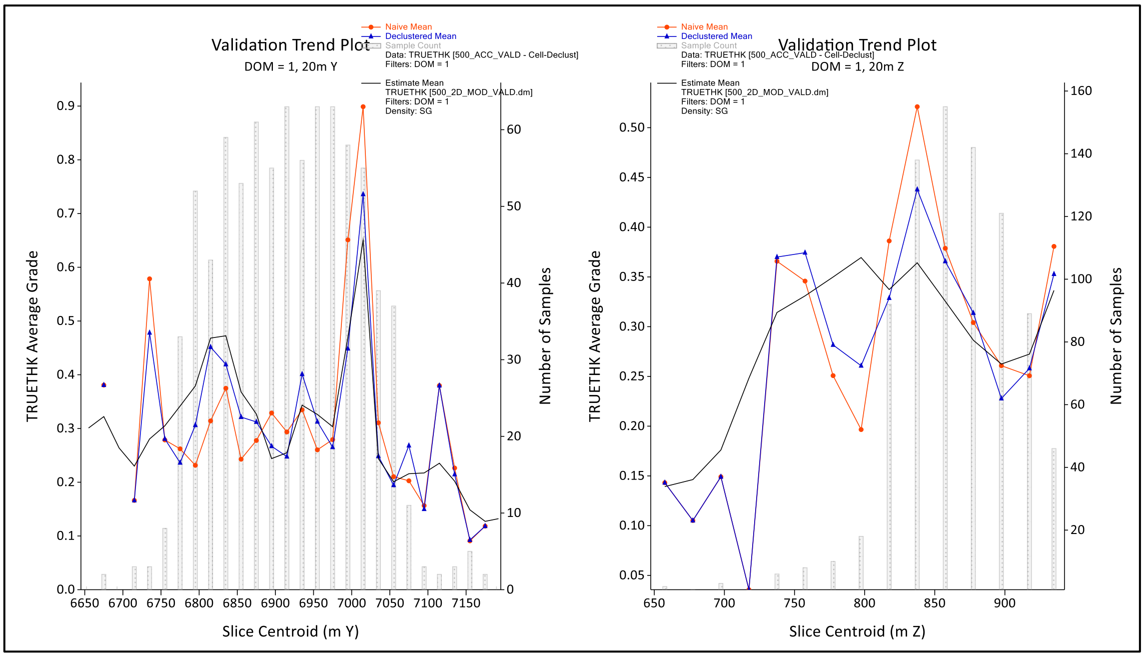

Figure 14-36: Domain 1 True Thickness swathe plot by Northing and Elevation

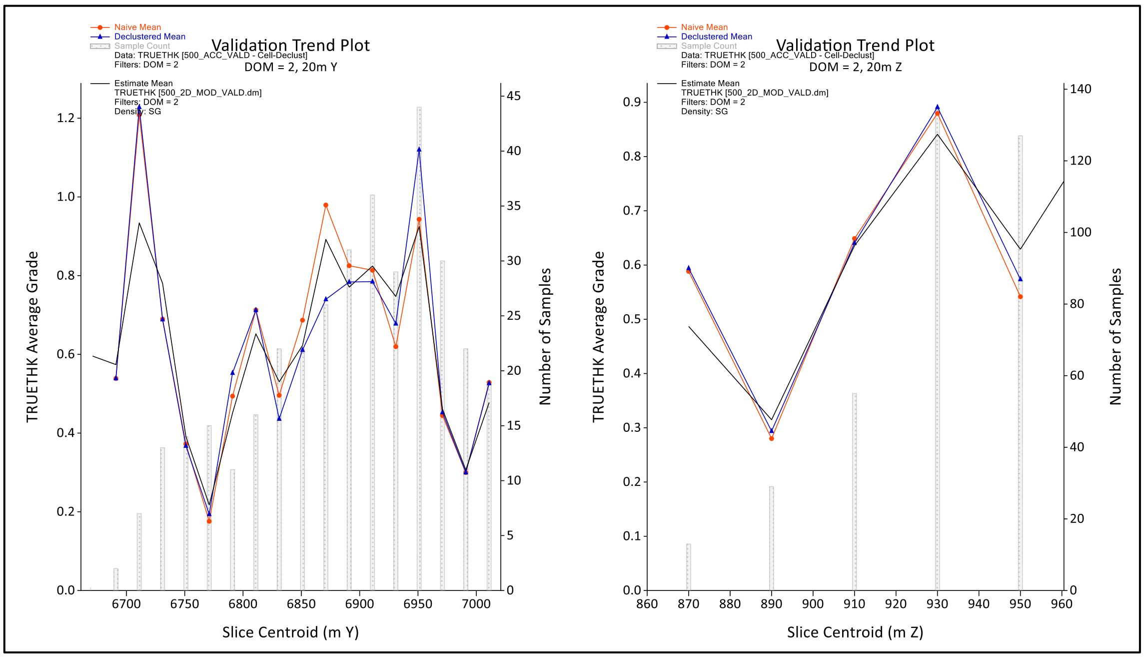

Figure 14-37: Domain 2 True Thickness swath plot by Northing and Elevation

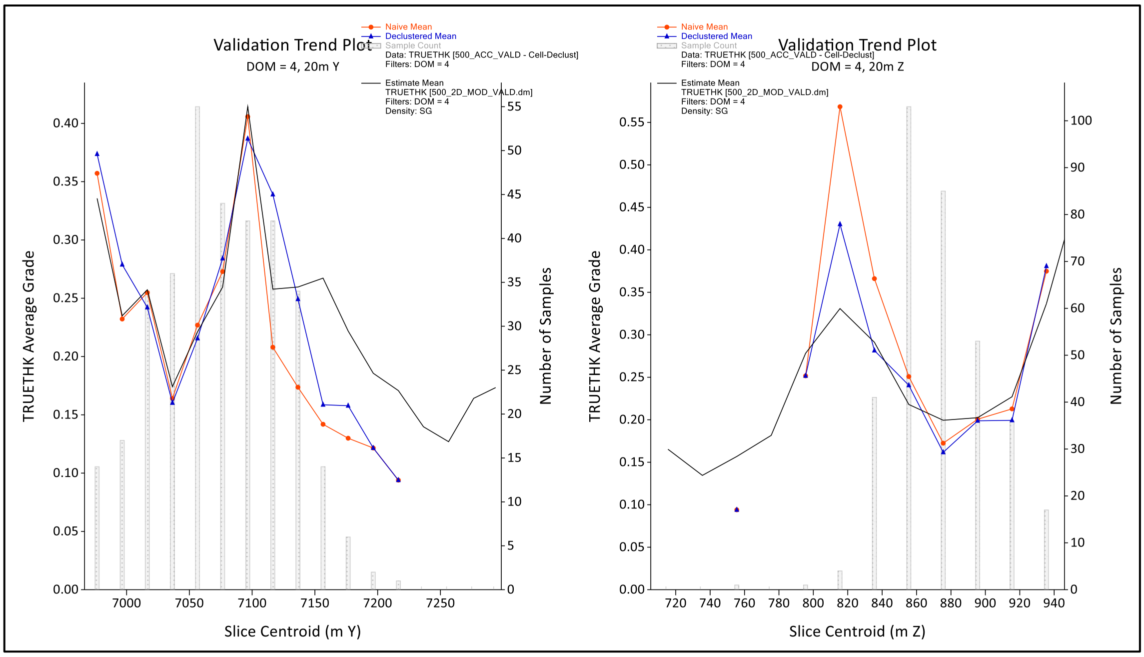

Figure 14-38: Domain 4 True Thickness swathe plot by Northing and Elevation

14.11 Mineral Resource Classification

Classification of the Mineral Resource takes into account Mandalay Resources experience in mining the deposit, the comparable reconciliation observed between previous block model resource estimates, the assay and survey QAQC results, and the confidence in the estimated grades and thicknesses.

Mandalay Resources ongoing mining experience continues to improve the geological confidence and understanding of the controls on the mineralisation, which guides decisions made during the construction of the geological model and the block models.

The classification criteria includes the following:

- The Measured Resources are located within, and are defined by, the developed areas of the mine. This criterion ensures the block model estimate is supported by close-spaced underground face sampling, at approximately 2 to 5 m spacing, and mapping,
- The Indicated Resources are located where the drill hole spacing in longitudinal projection is on a nominal 40 mN by 40 mRL grid, and where there is high geological confidence in the geological interpretation and the block model,
    - o The Slope of Regression (SoR) is used to assess the quality of the estimate and natural breaks are referenced to inform confidence boundaries, with a confidence of greater than 0.5 SoR applied for the Indicated category.
    - o The search pass has been limited to pass 1, which means that all zones in the Indicated category are limited to approximately half the range of variogram for each domain.

- The Inferred Resource has irregular or widely-spaced drill hole intercepts that display geological continuity but limited or patchy grade continuity,
  - The SoR is typically below 0.5 and the blocks have been estimated in search pass of 2 or 3.

The classification criteria are consistent with the previous Mineral Resource Estimate reported in March 2020 (SRK, 2020), with additional focus on the quality of the estimation.

14.12 Mineral Resources

The Mineral Resources are stated here for the Augusta, Cuffley, Brunswick and Youle Deposits with an effective date of 31 December 2020. This date coincides with the following:

- Depletion due to mining up to 31 December 2020,
- Survey of stockpiled ore that was mined and awaiting processing as of 31 December 2020.

All relevant diamond drill hole and underground face samples in the Costerfield Property, available as of 31st November 2020 for the Augusta, Cuffley, Brunswick and Youle Deposits were used to inform the Mineral Resource Estimate.

The in-situ Augusta, Cuffley, Brunswick and Youle Deposits consist of a combined Measured and Indicated Mineral Resource of 1,158,000 tonnes at 10.2 g/t gold and 3.4% antimony, and an Inferred Mineral Resource of 473,000 tonnes at 5.8 g/t gold and 1.3% antimony.

Stockpiles retained at the Brunswick Processing Plant represent a Measured Mineral Resource of 16,000 tonnes at 14.8 g/t gold, and 6.1% antimony. Stockpile tonnage balances were calculated using drone acquired survey pickups, bulk density factors, and grades from production movements. For the Mineral Resource Estimate, only surface stockpiles with accurate surveyed volumes were included.

The Mineral Resources are reported at a cut-off grade of 3.0 g/t gold equivalent (AuEq), after diluting to a minimum mining width of 1.2 m.

The gold equivalence formula used is calculated using recoveries achieved at the Costerfield Property Brunswick Processing Plant during 2020, and is as follows:

$$\mathrm{AuEq} = \mathrm{Au\ (g/t)} + 1.50 \times \mathrm{Sb\ (\%)}$$

Commodity prices used in the equivalence formula are USD$1,700/ounce gold and USD$8,000/tonne for antimony.

The 2020 Mineral Resource is detailed in Table 14-16.

Table 14-16: Mineral Resources at the Costerfield Property, inclusive of Mineral Reserves, as at 31 December 2020

Category	Inventory (t)	Gold Grade (g/t)	Antimony Grade (%)	Contained Gold (koz)	Contained Antimony (kt)
Measured (Underground)	344,000	14.1	5.7	156	19.6
Measured (Stockpile)	16,000	14.8	6.1	8	1.0
Indicated	798,000	8.5	2.4	218	18.8
Measured + Indicated	**1,158,000**	**10.2**	**3.4**	**381**	**39.3**
Inferred	473,000	5.8	1.3	89	6.0

Notes:

1) Mineral Resources estimated as of December 31, 2020 with depletion through to this date.
2) Mineral Resources stated according to CIM guidelines and include Mineral Reserves.
3) Tonnes are rounded to the nearest thousand; contained gold (oz) is rounded to the nearest thousand; contained antimony (t) is rounded to nearest hundred.
4) Totals may appear different from the sum of their components due to rounding.
5) A 3.0 g/t AuEq cut-off grade over a minimum mining width of 1.2 m is applied where AuEq is calculated at a gold price of $1,700/oz, and an antimony price of $8,000/t.
6) The (AuEq) is calculated using the formula: AuEq = Au g/t + 1.50 * Sb %
7) Geological modelling, sample compositing and Mineral Resource Estimation for updated models was performed by Joshua Greene, MAusIMM, a full-time employee of Mandalay Resources.
8) The Mineral Resource Estimate was independently reviewed and verified by Dr Andrew Fowler MAusIMM CP (Geo), a full time employee of Mining Plus. Dr Fowler fulfils the requirements to be a "Qualified Person" for the purposes of NI 43-101 and is the Qualified Person under NI 43-101 for the Mineral Resource.

Longitudinal projections of the Brunswick and Youle Lode block models are displayed in Figure 14-39 to Figure 14-42 where drillhole intersections are displayed as black dots. Figure 14-39 displays diluted AuEq while Figure 14-40 displays Mineral Resource categories for the Brunswick Lode. Figure 14-41 displays diluted AuEq while Figure 14-42 displays Mineral Resource categories for the Youle Lode.

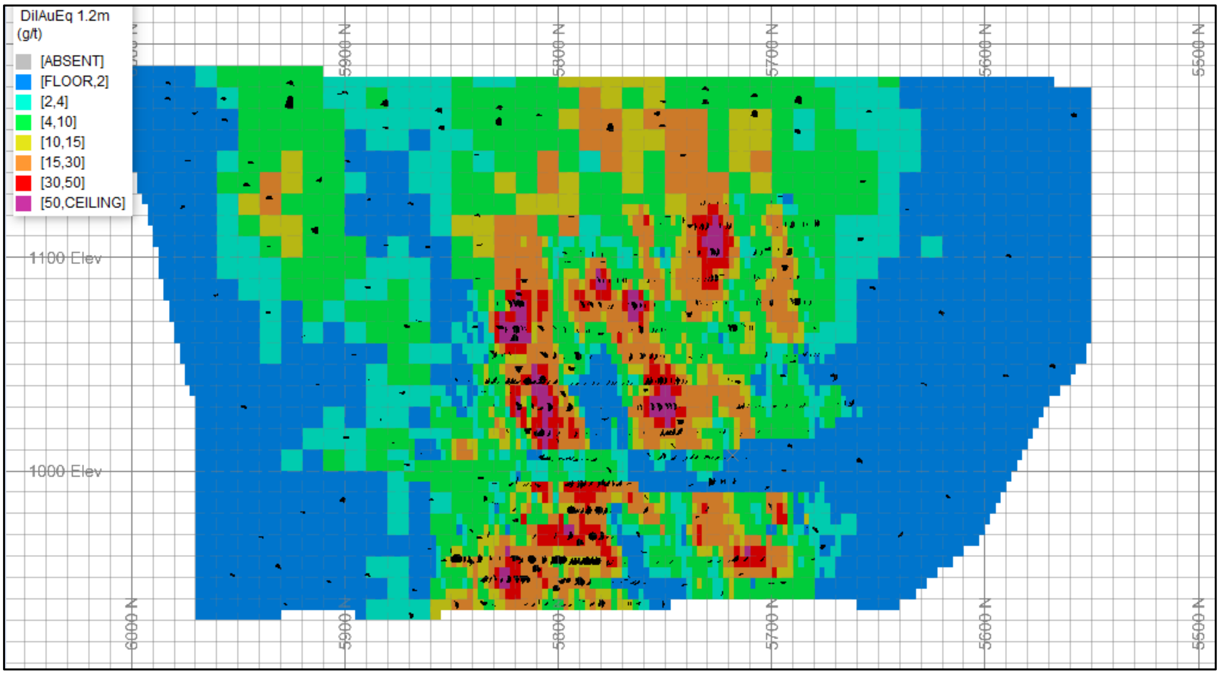

Figure 14-39: Brunswick 300 Block Model showing model grade in gold equivalent g/t diluted to resource width of 1.2 meters

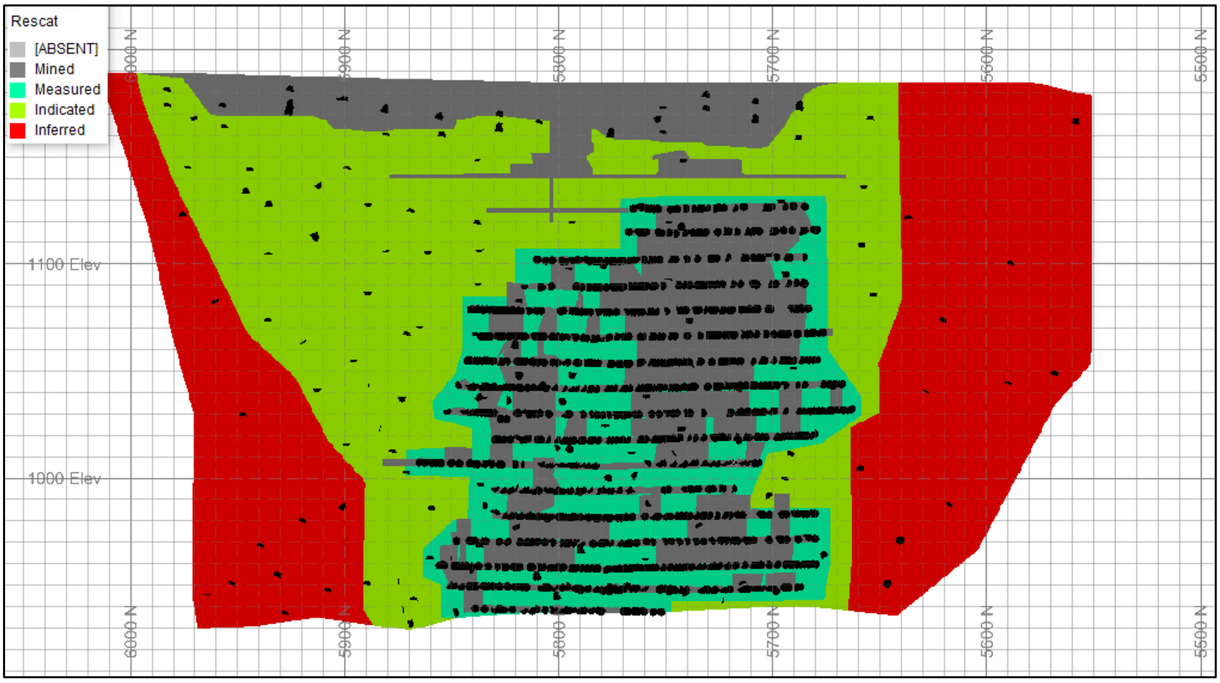

Figure 14-40: Brunswick 300 Block Model with Resource Category Boundaries

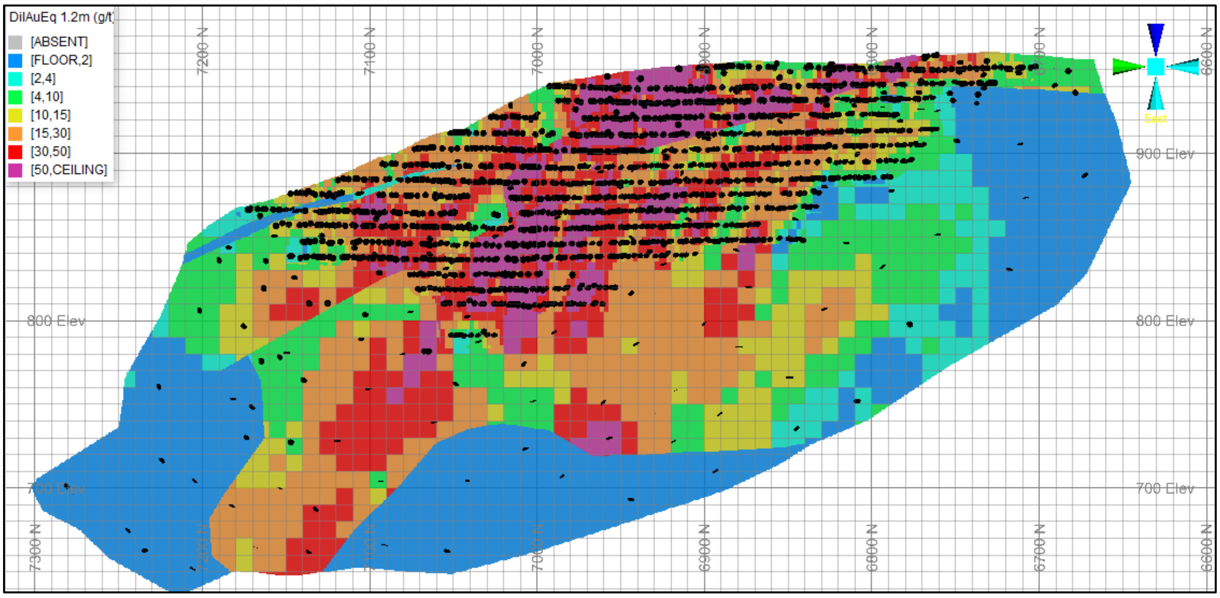

Figure 14-41: Youle 500 Block Model showing model grade in gold equivalent g/t diluted to resource width of 1.2 meters

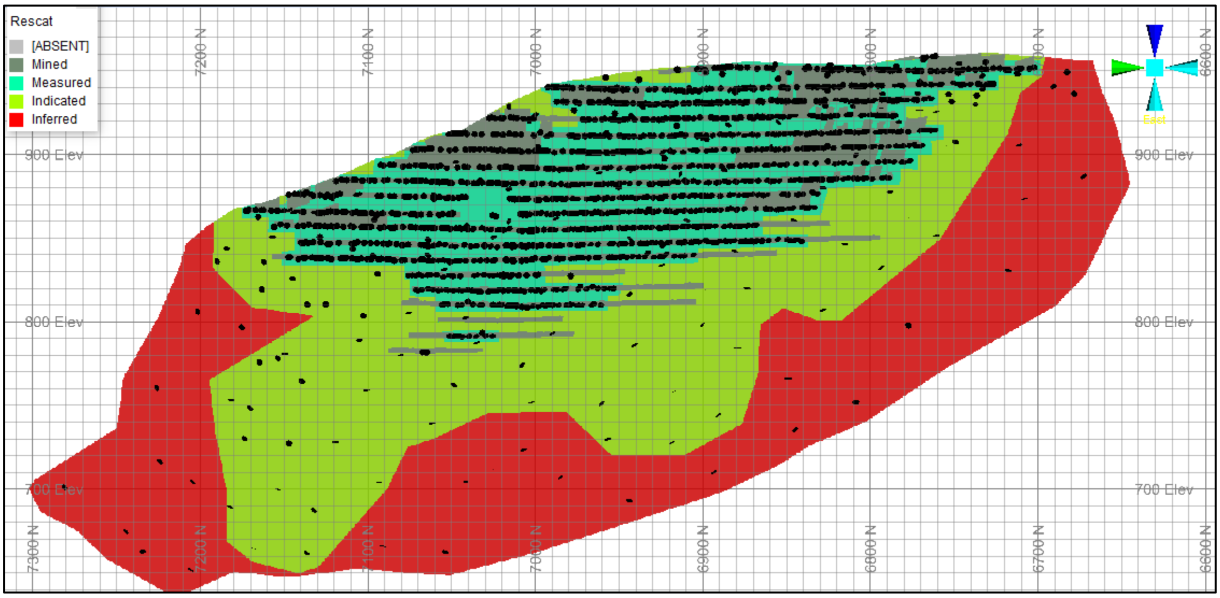

Figure 14-42: Youle 500 Block Model with Resource Category Boundaries

Details of the in-situ Augusta, Cuffley and Brunswick Mineral Resources, by area and lode are outlined in Table 14-17.

Table 14-17: Summary of in-situ Augusta, Cuffley, Brunswick and Youle Mineral Resources, inclusive of Mineral Reserves

Deposit	Lode Name	Resource Category	Tonnes	Au (g/t)	Sb (%)	Au (oz)	Sb (t)
Augusta Deposit	E Lode	Measured	50,000	9.6	6.0	15,300	3,000
		Indicated	67,000	3.9	2.3	8,400	1,600
		Inferred	20,000	2.8	1.3	1,700	300
	B Lode	Measured	8,000	5.7	2.3	1,500	200
		Indicated	30,000	5.2	1.8	5,000	500
	B Splay	Measured	3,000	3.3	2.6	300	100
		Indicated	3,000	6.8	1.6	700	0
		Inferred	16,000	3.7	1.1	1,900	200
	W Lode	Measured	28,000	9.8	5.5	8,700	1,500
		Indicated	36,000	5.3	2.4	6,100	800
		Inferred	35,000	3.2	1.4	3,600	500
	C Lode	Indicated	62,000	5.1	2.5	10,100	1,600
	N Lode	Measured	51,000	10.1	4.5	16,400	2,300
		Indicated	64,000	4.3	1.9	8,900	1,200
		Inferred	49,000	3.8	1.4	5,900	700
	NW Lode	Measured	1,000	6.3	3.8	100	0
		Indicated	3,000	4.7	3.3	400	100
	NS 48	Measured	1,000	3.8	2.9	200	0
		Indicated	4,000	4.9	2.9	700	100
	P1 Lode	Measured	11,000	9.7	2.7	3,500	300
		Indicated	9,000	9.6	2.4	2,700	200
	K Lode	Measured	9,000	5.1	2.5	1,600	200
		Indicated	64,000	3.2	1.9	6,500	1,200
		Inferred	25,000	3.9	2.1	3,100	500
Cuffley Deposit	CM Lode	Measured	40,000	9.6	3.5	12,500	1,400
		Indicated	47,000	6.6	2.8	10,000	1,300
		Inferred	4,000	7.4	2.3	900	100
	CE Lode	Measured	10,000	13.3	5.0	4,200	500
		Indicated	14,000	6.7	2.2	2,900	300
	CD Lode	Measured	9,000	12.1	4.7	3,700	400
		Indicated	56,000	5.6	1.7	10,000	900
		Inferred	13,000	3.9	0.8	1,600	100
	CDL Lode	Inferred	30,000	6.9	0.1	6,600	0
	AS Lode	Measured	1,000	19.4	1.6	700	0
		Indicated	30,000	5.6	1.6	5,500	500
		Inferred	6,000	6.3	1.5	1,100	100
Brunswick Deposit	Main Lode	Measured	33,000	7.7	3.8	8,100	1,200
		Indicated	64,000	4.2	1.9	8,700	1,200
	KR Lode	Indicated	16,000	8.8	4.2	4,600	700
		Inferred	29,000	3.7	2.0	3,400	600
Sub King Cobra	SKC CE	Inferred	17,000	2.3	1.0	1,300	200
	SKC LQ	Inferred	9,000	9.3	0.3	2,800	0
	SKC C	Inferred	78,000	6.0	1.2	15,000	900
	SKC W	Inferred	68,000	9.9	0.0	21,600	0

Deposit	Lode Name	Resource Category	Tonnes	Au (g/t)	Sb (%)	Au (oz)	Sb (t)
Youle Deposit	Main Lode	Measured	85,000	27.6	9.3	75,700	7,900
		Indicated	204,000	17.6	2.6	115,400	5,300
		Inferred	57,000	8.9	2.0	16,300	1,100
	South Splay	Measured	1,000	3.8	3.8	100	0
		Indicated	2,000	3.3	2.3	200	0
	Kendal Splay	Measured	2,000	37.7	14.3	2,100	200
	Peacock Vein	Measured	1,000	28.8	8.3	800	100
		Indicated	24,000	14.6	4.4	11,200	1,000
		Inferred	18,000	3.3	4.1	1,900	800
Measured and Indicated (in-situ only)			**1,142,000**	**10.2**	**3.4**	**373,400**	**38,300**
Inferred			**473,000**	**5.8**	**1.3**	**88,900**	**6,000**

14.13 Comparison to 2019 Mineral Resource

A high-level comparison between the 2019 and 2020 Mineral Resource Estimates has been undertaken (Figure 14-43). In order to demonstrate areas of variance between the two reporting periods, the gold and antimony grades have been converted into AuEq values determined using the equation:

$$AuEq\ (oz) = Au\ (oz) + (Sb\ (t) \times (Sb\ price/t\ /\ Au\ price/oz)$$

Where Sb price = USD$8,000/t and Au price = USD$1,700/oz

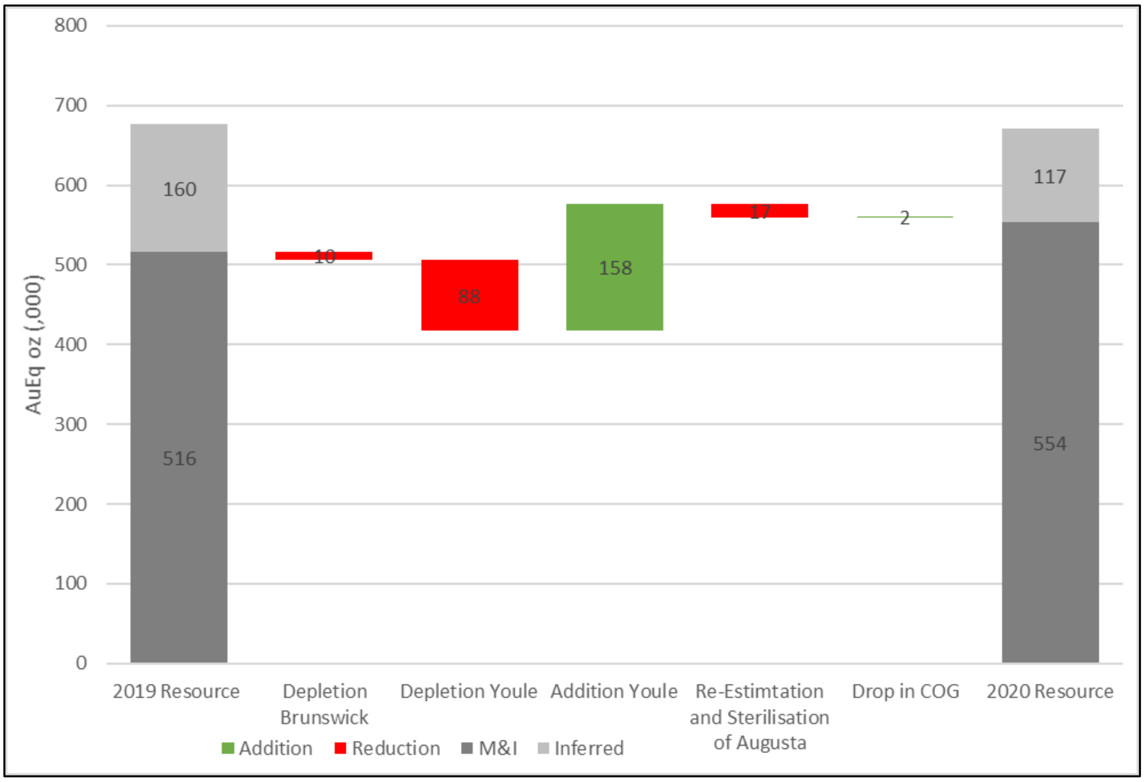

Figure 14-43: Comparison between 2019 and 2020 Mineral Resource Estimates

Key areas of variance between the two Mineral Resources are:

- The Youle and Brunswick block models were depleted by 88 koz and 10 koz AuEq respectively,
- The Youle block model increased by 158koz AuEq, as a result of the 2020 exploration program,
- The commencement of mining at Youle coupled with increased exploration and resource definition drilling density led to an overall increase in confidence in the Mineral Resource classification, resulting in an increase of combined Measured + Indicated classes, and a reduction in Inferred classification,
- Revised interpretation and sterilisation of pre-2020 models ("Augusta Deposit", including E, W, and N Lodes) has led to a reduction of 17koz AuEq for the combined lodes, decreasing the contained AuEq ounces for the overall Augusta Deposit in the Measured + Indicated Resource classifications,
- Reducing the cut-off grade from 3.5g/t AuEq (2019) to 3.0g/t in 2020 has added 2koz AuEq to the combined Measured + Indicated Mineral Resource categories.

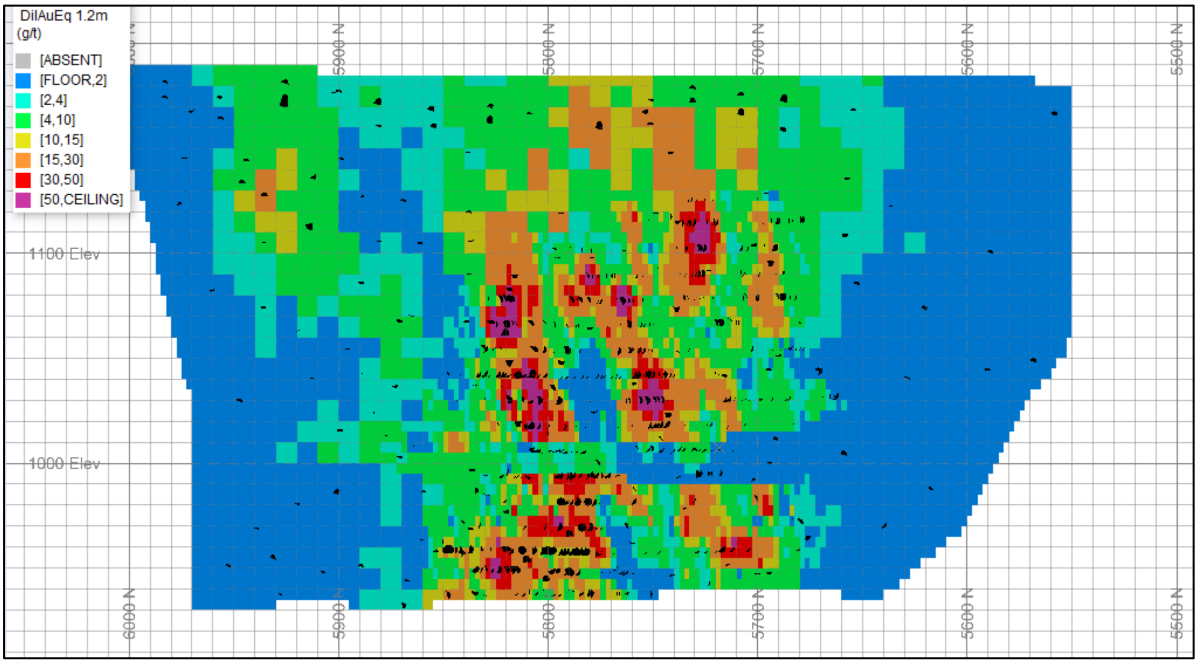

Figure 14-44: Brunswick 300 Block Model showing model grade in gold equivalent g/t diluted to resource width of 1.2 meters

14.14 Reasonable Prospects of Eventual Economic Extraction

The reasonable prospects for eventual economic extraction (RPEEE) has been satisfied by applying a minimum mining width of 1.2 m and ensuring that isolated blocks above cut-off grade, which are unlikely to ever be mined due to distance from the main body of mineralisation, were excluded from the Mineral Resource.

The width of 1.2 m is the practical minimum mining width applied at the Costerfield Property for stoping. For blocks with widths less than 1.2 m, diluted grades were estimated by adding a waste envelope with zero grade and 2.74 t/m^3 bulk density to the lode.

A 3.0 g/t AuEq cut-off grade over a minimum mining width of 1.2 m has been applied. The cut-off has been derived by Mandalay Resources based on cost, revenue, mining and recovery data from the year ending 31st December 2020, and updated commodity price forecasts and exchange rates. This supersedes the previous Mineral Resource cut-off grade of 3.5g/t AuEq used in the Mineral Resource Estimate effective 31st December 2019 (SRK, 2020).

Pillars and remnant material that is above 3.0 g/t AuEq has been included in the Measured Resource. From 2017 onwards, extraction of these areas has been an ongoing success due to the use of remote loaders and recovered Au (oz) and Sb (t) reconcile well with the Resource block model. Due to this success, these areas are now considered viable under RPEEE.

14.15 Reconciliation

2020 production consisted of stopes and development in ore from the Brunswick Lode, the Youle Lode, and minor remnants from E and N lodes of the Augusta system. The greatest proportion of ore mined during 2020 was produced from the Youle Lode (86%) with the balance of 13% being sourced from the Brunswick Lode and with the Augusta remnants contributing less than 1%.

ROM ore is currently stockpiled according to grade bins rather than by named mining area or mining level, therefore reconciliation by individual named deposit is not possible. The reconciliation presented below is therefore combined for the Brunswick and Youle lodes, and remnants of the Augusta lodes.

Mine production has been defined using the conservation of mass equation below, for both tonnes and metal content.

Mine Production = Milled Production + Change (Δ) in Stockpile Inventory

End of month stockpile tonnage balances are estimated using drone acquired survey pickups and bulk density factors. The bulk density of the stockpiles is based on the results of a series of measurements collected in September 2013 where 15 truckloads of ore were hauled by rigid bodied road truck and weighed at a weighbridge located at the old service station, later demolished in 2016, at 55-57 High Street, Heathcote Vic 3523. Ore was subsequently hauled and dumped at a pre-surveyed pad at the Augusta process plant. The final stockpile was surveyed using a Trimble Total Station, and the difference between the two surfaces used to determine stockpile volume.

Moisture, and wet and dry bulk density were calculated from the moisture content, combined dry mass, and surveyed volume of the stockpile. A fixed moisture content of 3.21% is used for all stockpile calculations. This is derived from, and validated against, the daily moisture content for ROM material reported daily by the Brunswick Processing Plant. Bulk density of stockpiled material is estimated by this methodology as 1.93 (dry), and 1.99 (wet).

Wet and calculated dry weights of each load measured are detailed in Table 14-18.

Table 14-18: Trucked payload wet and calculated dry weights

Load No	Truck	Wet Weight (Weighed) (t)	Dry Weight (Calculated) (t)	Moisture (t)
1	XCU	15.1	14.6	0.5
2	NNP	15.0	14.5	0.5
3	NNP	15.2	14.8	0.5
4	XCU	14.4	13.9	0.5
5	NNP	15.7	15.2	0.5
6	XCU	14.5	14.1	0.5
7	NNP	13.7	13.3	0.4
8	XCU	13.6	13.2	0.4
9	NNP	14.2	13.8	0.5
10	XCU	14.0	13.5	0.4
11	NNP	13.4	13.0	0.4
12	XCU	13.9	13.4	0.4
13	NNP	14.0	13.5	0.4
14	XCU	14.9	14.4	0.5
15	NNP	13.8	13.3	0.4
	TOTAL	**215.4**	**208.5**	**6.9**

Underground stockpile tonnages are estimated from visual inspections. Stockpile grades are populated from production movements using a combination of assay and block model estimated data.

Stockpile inventories increased 13,765t from 5,646t at the beginning of the year to 19,412t. Closing grades of the stockpiles were 14.32 Au g/t and 6.08 Sb % for a contained metal content of 8,937 Gold ounces and 1,180 Antimony tonnes.

The current 2021 block model estimate was reconciled against the 2020 production according to the following process:

- A string was digitised in longitudinal projection for each of the relevant lodes to outline areas that were mined each month during 2020,
- The mined material was then coded into the 2021 2D diluted block models for each lode so that tonnes, grades and contained metal could be reported by month,

- These values were reconciled against tonnes, grades, and produced metals reported by the Brunswick Processing Plant.

Tonnage and grades reported by the Brunswick Process Plant were 164,200 tonnes grading at 12.13 g/t Au and 4.5 % Sb for 64,029 ounces of contained gold and 7,396 tonnes of antimony. The Brunswick Processing Plant production data is considered authoritative for tonnages since it is measured and validated using belt weightometer and Loadrite scales on-board the loader that feeds the process plant. Run of Mine tonnages are provided for guidance only since they are calculated using visual estimates of mining dimensions and grade. A discrepancy of 4,255 tonnes is noted between ROM and Plant Feed tonnes, which is considered to be due to error introduced by the simple estimation method.

The 2021 resource models selected inside the 2020 depletion wireframes report 162,854 tonnes at 9.90 Au g/t and 3.85 Sb % for an estimated contained 67,164 ounces of gold and 8,130 tonnes of antimony (Table 14-19).

Table 14-19: ROM tonnes and Brunswick Processing Plant production - year ended 31st December 2020

Production Year 2020	Run of Mine*	Plant Feed**	Produced Metal	
Month	Dry Tonnes	Dry Tonnes	Au (oz)	Sb (t)
Jan	12,534	10,481	5,893	726
Feb	12,804	12,657	4,859	679
Mar	13,362	13,236	5,461	738
Apr	11,581	10,611	3,874	432
May	10,918	10,497	4,038	451
Jun	14,459	15,947	5,569	669
Jul	13,436	13,436	5,854	636
Aug	15,474	16,675	6,315	769
Sep	12,692	12,116	4,602	560
Oct	12,702	12,942	4,448	529
Nov	15,177	19,986	7,450	727
Dec	14,806	15,616	5,666	478
Total	**159,945**	**164,200**	**64,029**	**7,394**

Notes:

**Run of Mine tonnes are calculated using visual estimates of mining dimensions, grade, and bulk density of ore and waste as set out in Chapter 14.6 of this document.*

***Feed tonnes at the mill are weighed and validated by belt weightometer and Loadrite scales onboard the loader that feeds the process plant*

In order to achieve a direct tonnage comparison against processed ore, the estimated resource tonnes were diluted to 2.3 m, which represents a weighted average of observed mining widths for development and stoping for 2020, for which the parameters are summarised in Table 14-20. This average mining width was previously set to be 3.0 m in 2019, where production exclusively came from the Brunswick Deposit.

Table 14-20. Parameters used for average mining width estimation

Mining Method	Mining Width Estimation Method	Production Tonnes	Width (m)
Development	Average observed width for development weighted by height x advance	103,376	2.5
Stoping	Average observed width weighted by 2D stope area height x strike	60,823	2.0
Average for 2020		164,200	2.3

Figure 14-45 displays a comparison between the combined and diluted 2021 resource block model tonnes and 2020 produced tonnes, while Figure 14-46 and Figure 14-47 display the comparison between the actual and predicted ounces of gold and tonnes of antimony. Figure 14-48 and Figure 14-49 display the comparison between actual and predicted gold and antimony grade respectively. The data used in figure are presented in Table 14-21,Table 14-22, and Table 14-23 with the monthly variance between the 2021 Mineral Resource and Production.

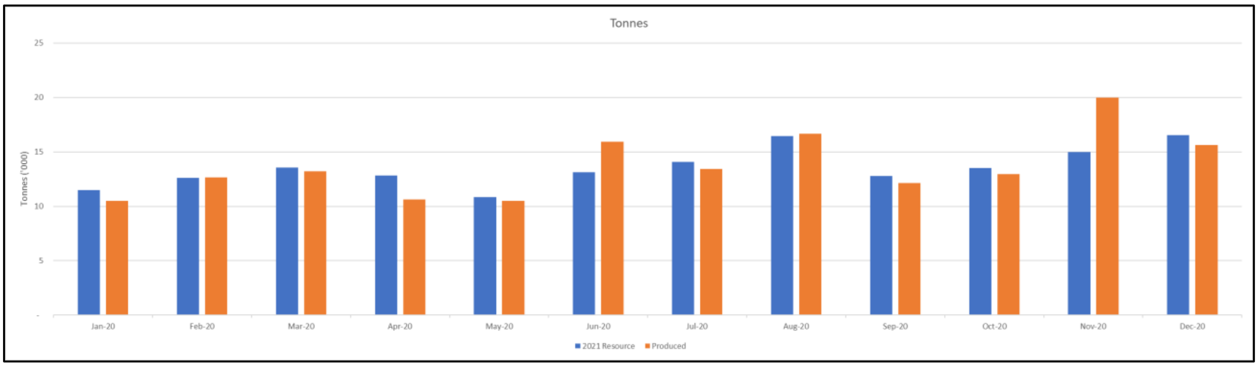

Figure 14-45: Reconciliation of 2021 Mineral Resource versus 2020 mine production – tonnes

Table 14-21: Tonnage Reconciliation of 2021 Mineral Resource versus 2020 mine production

Production Year 2020	Tonnes Reconciliation (t)		
Month	**2021 Mineral Resource, Dry Tonnes**	**Produced, Dry Tonnes**	**Tonnage Variance (%)**
Jan	12,534	10,481	11.8%
Feb	12,804	12,657	1.7%
Mar	13,362	13,236	4.5%
Apr	11,581	10,611	23.6%
May	10,918	10,497	5.3%
Jun	14,459	15,947	-15.8%
Jul	13,436	13,436	7.1%
Aug	15,474	16,675	0.8%
Sep	12,692	12,116	7.8%
Oct	12,702	12,942	6.7%
Nov	15,177	19,986	-23.3%
Dec	14,806	15,616	8.1%
Total	**159,945**	**164,200**	**1.3%**

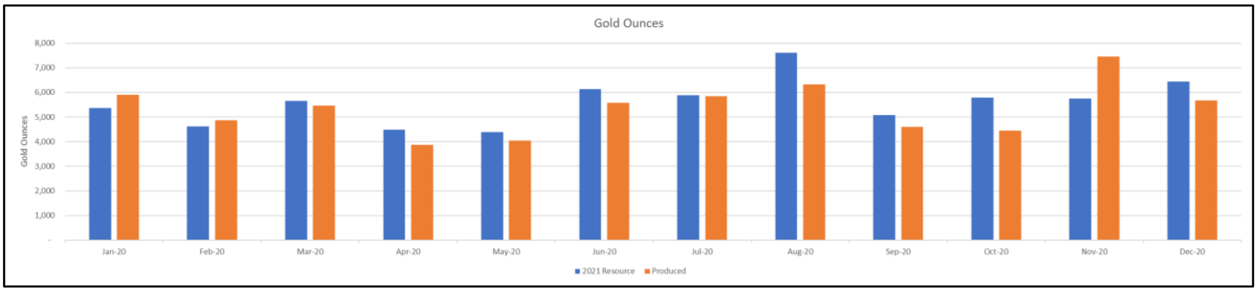

Figure 14-46: Reconciliation of 2021 Mineral Resource versus 2020 mine production – gold ounces

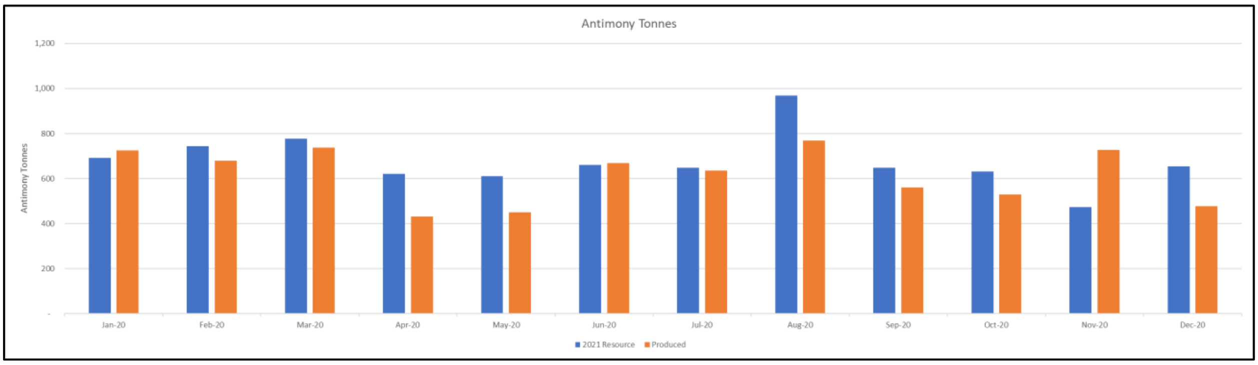

Figure 14-47: Reconciliation of 2021 Mineral Resource versus 2020 mine production - antimony tonnes

Table 14-22: Metal Reconciliation of 2021 Mineral Resource versus 2020 mine production

Production Year 2020	Metal Reconciliation					
Month	2021 Resource Au (oz)	Produced Au (oz)	Au Variance (%)	2021 Resource Sb (t)	Produced Sb (t)	Sb Variance (%)
Jan	5362	5893	-9.0%	691	726	-4.8%
Feb	4614	4859	-5.0%	743	679	9.5%
Mar	5657	5461	3.6%	777	738	5.3%
Apr	4476	3874	15.5%	620	432	43.5%
May	4396	4038	8.9%	611	451	35.5%
Jun	6123	5569	9.9%	661	669	-1.1%
Jul	5878	5854	0.4%	649	636	2.0%
Aug	7601	6315	20.4%	969	769	26.0%
Sep	5086	4602	10.5%	648	560	15.6%
Oct	5796	4448	30.3%	632	529	19.5%
Nov	5740	7450	-22.9%	474	727	-34.8%
Dec	6437	5666	13.6%	655	478	37.0%
Total	**67,164**	**64,029**	**4.9%**	8,130	**7,394**	**10.0%**

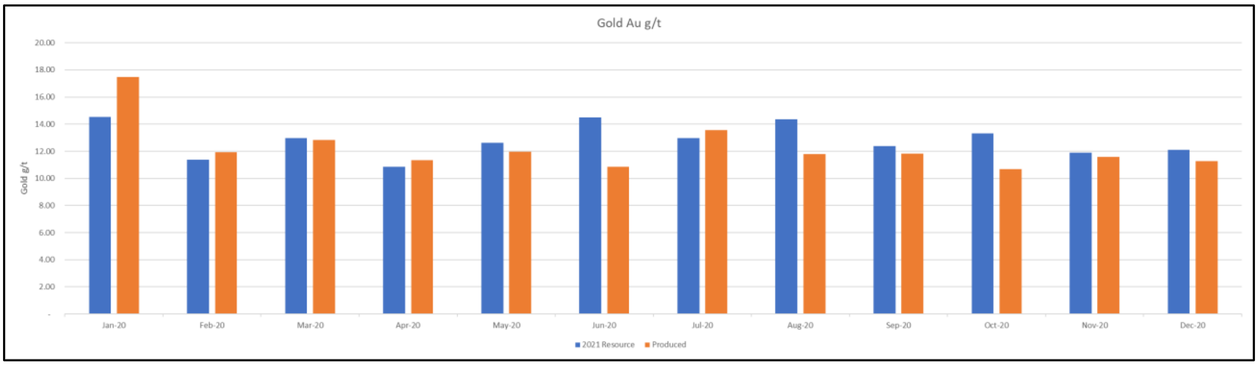

Figure 14-48: Reconciliation of 2021 Mineral Resource versus 2020 mine production - gold grade

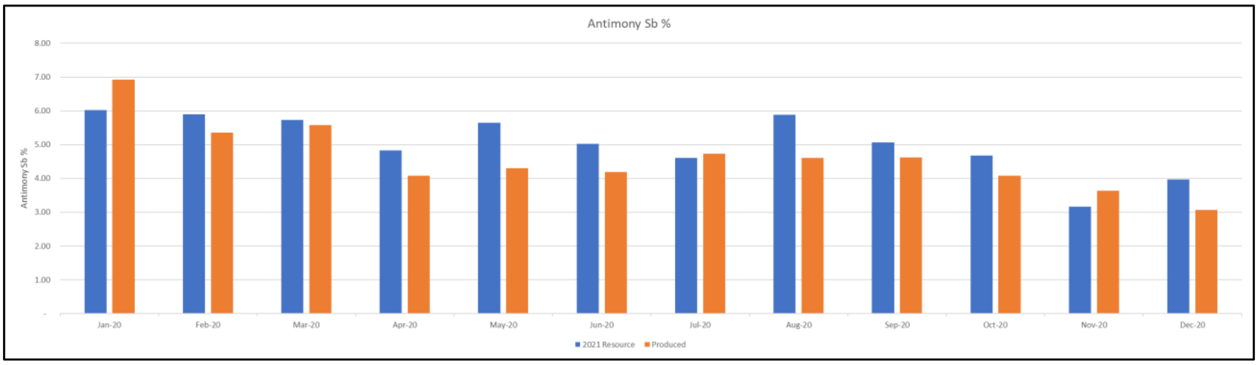

Figure 14-49: Reconciliation of 2021 Mineral Resource versus 2020 mine production - antimony grade (%)

Table 14-23: Grade Reconciliation of 2021 Mineral Resource versus 2020 mine production

Production Year 2020	Grade Reconciliation					
Month	2021 Resource Au (g/t)	Produced Au (g/t)	Au Variance (%)	2021 Resource Sb (%)	Produced Sb (%)	Sb Variance (%)
Jan	14.2	17.5	-18.6%	5.9	6.9	-14.9%
Feb	11.2	11.9	-6.6%	5.8	5.4	7.7%
Mar	12.7	12.8	-0.9%	5.6	5.6	0.7%
Apr	10.6	11.4	-6.5%	4.7	4.1	16.1%
May	12.4	12.0	3.4%	5.5	4.3	28.7%
Jun	14.2	10.9	30.6%	4.9	4.2	17.4%
Jul	12.7	13.6	-6.3%	4.5	4.7	-4.8%
Aug	14.1	11.8	19.4%	5.8	4.6	25.0%
Sep	12.1	11.8	2.5%	5.0	4.6	7.2%
Oct	13.1	10.7	22.1%	4.6	4.1	12.0%
Nov	11.7	11.6	0.5%	3.1	3.6	-15.0%
Dec	11.9	11.3	5.1%	3.9	3.1	26.7%
Total	**12.6**	**12.1**	**3.6%**	**4.9**	**4.5**	**8.6%**

The progressive increase in stockpile tonnage (Figure 14-50), coupled with the lack of tracking information regarding the source of ore being reclaimed from the stockpile, reduces the accuracy of individual monthly reconciliations.

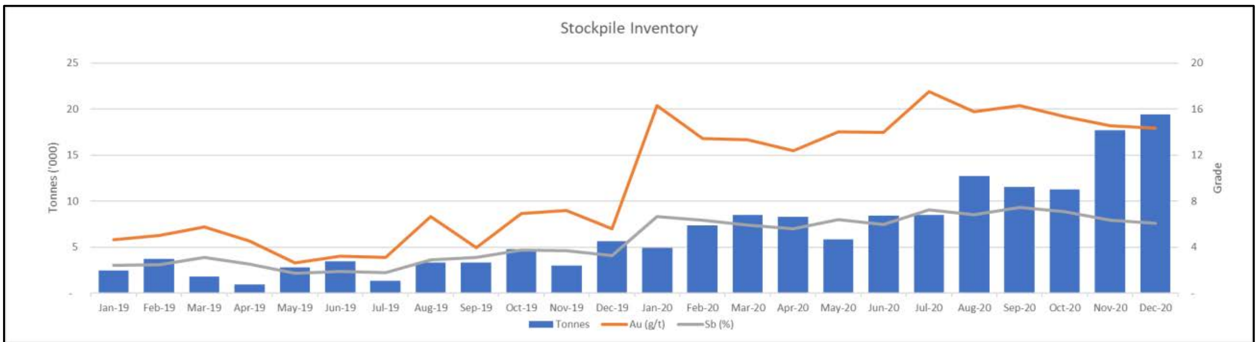

Figure 14-50: Costerfield Property stockpile inventory – 2019 to 2020

Discrepancies noted between the plant feed and ROM tonnages are considered to be a result of the calculation of ROM tonnages using visual estimates. The Costerfield technical services team is currently reviewing the use of appropriate weighing systems to measure loads of ROM ore hauled to the ROM stockpile to supersede the estimation methods based on visual estimations of mining dimensions. Additionally, the team is in the process of revising the stockpile management procedures, with the intention of implementing more robust ore tracking from mine to stockpile and subsequent reclamation for processing. It is expected that such improvements in materials handling and tracking will facilitate more accurate reconciliations.

The 2021 resource block model estimated tonnes reconcile within 1% of the produced tonnes over the 2020 year. Discrepancies noted in the production months of June and November are due to supplementary stockpiled ore being processed in addition to the tonnage of material mined for the month (Table 14-21).

The final produced gold and antimony metal shows an overcall when compared to the 2021 Mineral Resource model of 4.90% for gold, and 9.95% for Antimony (Table 14-22). This discrepancy is consistent with previous years (SRK, 2019), and considered to be acceptable given the variability inherent in lode thickness and grade in narrow vein deposits.

A possible cause for elevated level of discrepancy of antimony relative to gold, is the use of the stoichiometric estimation method for the bulk density of the ore based on antimony grade. This stoichiometric calculation of bulk density assumes a binary mix of pure stibnite and waste rock with a bulk density of 2.74 t/m^3. The presence of any other mineral phases in the lode is not accommodated by this methodology, and is a possible source of error.

The presence of quartz within the Youle Lode has been noted by Mandalay Resources geologists, and the associated effect on bulk density is also noted given that quartz has a density of 2.65 t/m^3.

The Costerfield technical services team intends to investigate possible sources of error in the bulk density calculation by re-commencing the systematic measurement of both lode and waste bulk density.

Other possible causes for the noted overcalls, which will be investigated by Mandalay Resources during 2021 include:

- Refining top-cuts, which may need to be lowered to reduce the impact of very high-grades and lode thicknesses,
- The inclusion of splay veins in the Mineral Resource block model which were not able to be mined for reasons of practicality,
- Modelling lode thickness as a variable,
- Sampling variability associated with combining diamond drilling samples with less diluted face samples.

14.16 Other Material Factors

Mining Plus is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors that could materially influence the Mineral Resources other than the modifying factors already described in other sections of report.

15 MINERAL RESERVE ESTIMATES

A mine plan was prepared from the 2020 Mineral Resource, based only on Measured and Indicated Resource blocks, mined primarily using a long-hole stoping mining method with cemented rock fill (CRF). The minimum stoping width of 1.5 m was used, with planned and unplanned dilution at zero grade for both Au and Sb.

A gold equivalent (AuEq) grade for Mineral Reserve has been calculated using commodity prices of USD $1,500/oz Au and USD $7,000/t Sb. AuEq is calculated using the formula:

AuEq= Au + (Sb x 1.03), where Sb is in % and Au is in grams/tonne

The cut-off grade of 4.0 g/t AuEq was determined from the Costerfield Property 2020 production costs.

The financial viability of Proven and Probable Mineral Reserve was demonstrated at metal prices of USD $1,500/oz Au and USD $7,000/t Sb.

The 2020 Mineral Reserve is detailed in Table 15-1.

Table 15-1: Mineral Reserve at the Costerfield Property, as at December 31, 2020

Category	Tonnes (kt)	Gold Grade (g/t)	Antimony Grade (%)	Contained Gold (koz)	Contained Antimony (kt)
Proven Underground	206	15.3	5.7	102	11.8
Proven Stockpile	16	14.8	6.1	8	1.0
Probable	394	11.5	2.3	145	9.0
Proven + Probable	**616**	**12.8**	**3.5**	**255**	**21.7**

Notes:

1. Mineral Reserve estimated as of December 31, 2020 and depleted for production through to December 31, 2020.
2. Tonnes are rounded to the nearest thousand; contained gold (oz) Rounded to the nearest thousand and contained antimony (t) rounded to nearest hundred.
3. Totals may appear different from the sum of their components due to rounding.
4. Lodes have been diluted to a minimum mining width of 1.5 m for stoping and 1.8 m for ore development.
5. A 4.0 g/t Au Equivalent (AuEq) cut-off grade has been applied.
6. Commodity prices applied are; gold price of USD $1,500/oz, antimony price of USD $7,000/t and exchange rate AUD:USD of 0.70.
7. The Au Equivalent value (AuEq) is calculated using the formula: AuEq = Au g/t + 1.03 * Sb %.
8. The Mineral Reserve is a subset, a Measured and Indicated only Schedule, of a Life of Mine Plan that includes mining of Measured, Indicated and Inferred Resources.
9. The Mineral Reserve Estimate was prepared by Dylan Goldhahn, MAusIMM under the direction of Daniel Fitzpatrick, MAusIMM, who are both full-time employees of Mandalay Resources. The Mineral Reserve estimate was independently verified by Aaron Spong MAusIMM CP (Min) who is a full-time employee of Mining Plus. Mr Spong fulfils the requirements to be a Qualified Person for the purposes of NI 43-101, and is the Qualified Person under NI 43-101 for the Mineral Reserve.

The net increase of 51,000 oz of gold in the Proven and Probable Reserve for 2020, relative to 2019, consists of the addition of 107,000 oz of gold added by Resource conversion at Youle as well as mining re-evaluation. A total of 56,000 oz of gold has been depleted from the 2019 Reserve through mining production in 2020.

The 3,900 tonnes of antimony in the Proven and Probable Reserve for 2020 consists of 10,300 tonnes of antimony added by Resource conversion, and additional resources to Youle as well as mining re-evaluation. A total of 6,400 tonnes of antimony has been depleted from the 2019 Reserve through mining production in 2020.

15.1 Modifying Factors

The modifying factors of mining dilution and recovery have been taken into account when generating the Mineral Reserve.

15.1.1 Mining Dilution

Jumbo development, long-hole stoping with CRF, long-hole half-upper stoping with no backfill (HUS) and remnant pillar slash stopes are the current mining methods utilised at the Costerfield Property for the extraction of underground Mineral Reserve.

Due to the narrow width of mineralisation at the Augusta, Cuffley, Brunswick and Youle Lodes, the Mineral Reserve includes a portion of planned mining dilution, since the Mineral Reserve is reported to conform to a minimum 1.5 m mining width. Where the lode width is greater than 1.2 m, the minimum mining width is the lode width plus a total of 0.3 m planned dilution from the HW and FW. Unplanned dilution includes waste rock from outside the planned drive profile or stope limits which is loaded and hauled to the mill. Unplanned dilution is generally the sum of overbreak caused by excessive explosive energy and/or geotechnical failures due to unfavourable ground conditions.

Surveys of the mined development drives and stopes to date are consistent with the recovery and dilution factors applied to the generation of the Mineral Reserve (Table 15-2).

Table 15-2: Costerfield Property mine recovery and dilution assumptions

Mining Method	Planned Width (m)	Unplanned Dilution (%)	Tonnage Recovery Factor (%)
Ore Development	1.8 to 2.8	5 to 20	100
Long-hole CRF	1.5 to 2.0	10 to 33	95
Long-hole Half Upper Stopes	1.5 to 2.0	10 to 33	93
Remnant Pillar Slash Stopes	1.5 to 1.6	10 to 33	70

The long-hole overbreak and dilution factors are consistent with operational results since there is adequate reconciliation between forecast tonnes and actual tonnes. These factors are based on stope inspections as well as stope scans that produce a 3D model of the open void which is then interrogated using mine planning software to generate the final void volume. Development dilution is based on the end of month survey reports which compare actual drive volume against the designed volume.

Both planned and unplanned dilution has been considered for establishing the production schedule. Planned dilution includes waste rock that will be mined and is not segregated from the design. Sources of planned dilution include:

- Waste rock that is drilled and blasted within the drive profile and the overall grade of the blasted material is economically justified,
- Waste rock within the confines of the stope limits, including FW and/ or HW material that has been drilled and blasted to maximise mining recovery and/or maintain favourable wall geometry for stability.

Operating practices attempt to mine the stope as close to the lode width as possible, in order to limit the amount of planned and unplanned dilution reporting to the stope drawpoint. All planned and unplanned mining dilution is assumed to have a grade of zero.

15.1.2 Mining Recovery

The tonnage recovery factors (Table 15-2) represent the recovered portion of the planned mining areas for the different mining methods and include in-situ ore plus dilution material.

In stoping areas, visual inspections are carried out to estimate the stope void volume and determine if any ore is left in the stopes, which is recorded on the stope inspection sheets. Stope volumetric scans are also conducted to confirm the qualitative data captured during the stope inspections. This data is used in combination to estimate the recovery factors applied to the Mineral Reserve.

The remnant pillar slash stoping method is applied on a minor portion of the Mineral Reserve. This mining method has a reduced mining recovery in comparison to other long-hole stoping methods, having a recovery factor of 70% estimated. This value considers the factors of limited remote loader access when extracting ore from the remnant drive/draw point and unfavourable ground conditions around draw points that may potentially limit the recovery of material.

15.2 Cut-off Grade

The cut-off grade determined for Mineral Reserve is based on the current operating costs, operational data and the Mineral Reserve economic parameters.

Parameters input into the cut-off grade calculation are:

- Gold price of USD $1,500/oz,
- Antimony Price of USD $7,000/t,
- AUD:USD exchange rate of 0.70,
- Process recoveries are the weighted average recoveries of the 2021 LOM Budget,
- Product payables are the weighted average payables of the 2021 LOM Budget,
- The production schedule is sourced from the Mineral Reserve LOM plan,
- Unit costs for mining are based on 2020 operating cost data,
- Variable mining cost per tonne is the weighted average of development and stoping from 2020 operating cost data,
- Mining costs are in AUD and commodity prices are in USD,
- The cut-off grade determination does not include sustaining or planned capital costs.

The resulting operating and incremental cut-off grades determined for the Mineral Reserve is summarised in Table 15-3, along with the values utilised in the determination of each cut-off grade.

Table 15-3: Mineral Reserve cut-off grade variables and cut-off grades

	Operating COG	Incremental COG
Mining Cost (AUD$/t)	185.95	80.26
Processing Cost (AUD$/t)	54.76	33.29
G&A Cost (AUD$/t)	83.91	21.38
Gold Price (USD$/oz)	1,500.00	1,500.00
AUD:USD conversion value	0.70	0.70
Au Payable & Recovery	84.63%	84.63%
Cut-off grade (g/t AuEq)	5.6	2.3

Based on the cut-off grade determination of operating and incremental categories, an average cut-off grade of 4.0 g/t AuEq was selected for Mineral Reserve design and reporting.

15.3 Mine Design and Planning Process

The mine design work is completed using Deswik.CAD™ and Deswik.ASD™. The Mineral Reserve Life of Mine (LOM) scheduling is completed through Deswik.AdvUGM™ and Deswik.IS™.

The Mineral Reserve is calculated from mine designs applied to 2020 Mineral Resource block models, which have been depleted for the production through to 31 December 2020.

The mine design methodology considers the Mineral Reserve cut-off grade, mining feasibility and economic assessment of individual mining blocks, and comprises the following general methodology:

- Determination of the mining method applied to individual areas, based on access options, geological grade distribution, geometry of the lode, historic mining shapes and geotechnical constraints,
- Design of ore development and stope mining shapes in order to capture the geological block model using manual design (Deswik.CAD) and optimization packages (Deswik.ASD),
- Assessment and validation of the output mining shapes and apply adjustments as required,
- Determination of the mining dilution and recovery factors to apply to design shapes,
- Interrogation of the mining shapes against 3D geological block models in Deswik.IS to calculate and assign ore tonnes and grade,
- Mining shapes of Measured and Indicated material above the cut-off grade are identified for further design and assessment,
- Assessment and design of the waste development required to access ore development and stope blocks,
- Economic assessment of individual ore development and stope blocks on a level-by-level basis, based on variable mining costs applicable to the mining method and is inclusive of waste access, haulage, processing, selling, royalty, and administrative costs,
- Economically viable areas are included in the Mineral Reserve LOM schedule. Uneconomic areas are removed or may be re-designed and included in the plan if re-assessment proves to be profitable,
- Dependency rules, mining rates and schedule constraints are applied to the design shapes to link the mining activities in a logical manner within the Deswik.IS scheduling project,
- The resulting Reserve LOM schedule is exported for further economic validation through the financial model.

16 MINING METHODS

The Augusta Mine is serviced by a decline haulage system developed from a portal within a box-cut. The Augusta decline dimensions are primarily 4.8 m high by 4.5 m wide at a gradient of 1:7 down. The majority of the decline development has been completed with a twin-boom jumbo; however, development of the decline from the portal to 2 Level was completed with a road-header, this section of decline has dimensions of 4.0 m high by 4.0 m wide. The Augusta decline provides primary access for personnel, equipment and materials to the underground workings.

The Brunswick Incline development was mined to breakthrough into the Brunswick Open Pit, establishing the Brunswick Portal during the second half of 2020. The Brunswick Incline has the dimensions 4.8 m high by 4.5m wide at a gradient of 1:7 up and was mined with a twin-boom jumbo. The Brunswick Open Pit was prepared for the portal breakthrough with a pushback completed by a combination of road-header and drill and blast supported by a twin-boom jumbo. The first 20 m advance of Brunswick Portal was completed by a road-header with the dimensions 5.0 m high by 5.0 m wide at a gradient of 1:25 up. The establishment of the Brunswick Portal provides an additional means of egress from the mine and is the primary material haulage route from underground to the Brunswick Mill for ore processing and waste storage.

Mill feed is produced from three different mining methods: full-face jumbo development, long-hole CRF stoping and half upper stoping. All mined material is hauled from the underground working areas to the Brunswick ROM or waste storage facilities via the Brunswick Incline and Portal.

The Cuffley Decline extends as a branch off the Augusta Decline at 1028 mRL and continues down to approximately 895 mRL. At the 935 mRL, the Cuffley Incline extends off the Cuffley Decline and accesses mineral resources from the 945 mRL to the 1,050 mRL. This incline was used to extract N and NV lodes. Mining in the Cuffley incline is complete and it is now the location of the High Explosive (HE) Magazine. A second decline within Cuffley, known as the 4800 decline, accesses the southern part of the Cuffley Lode which is positioned south of the East Fault. This decline commences at the 960 mRL and extends to 814 mRL. The Mineral Reserve in the 4800 decline consists of remnant pillars from past stoping and long-hole HUS and CRF stopes.

The Mineral Reserve LOM Plan, based on the December 2020 Mineral Resource model, predominantly includes mining of the Brunswick and Youle Deposits. The Brunswick access, 5.5 m high by 4.5 m wide development, starts from the 925 mRL on the Cuffley Decline and accesses the Brunswick Deposit at 955 mRL. The Brunswick Incline continues from 955 mRL up to the Brunswick Portal. The Youle access, 5.5 m high by 5.5 m wide, extends from the

Brunswick Incline at 961 mRL and accesses the Youle Deposit at 957 mRL. From this level, the Youle Decline, 4.8 m high and 4.5 m wide, continues down to 722 mRL and is planned to extend down to 647 mRL.

A schematic of the Augusta, Cuffley, Brunswick and Youle underground workings is presented in Figure 16-1 and the designed Reserve stope shapes are presented in Figure 16-2 to Figure 16-4.

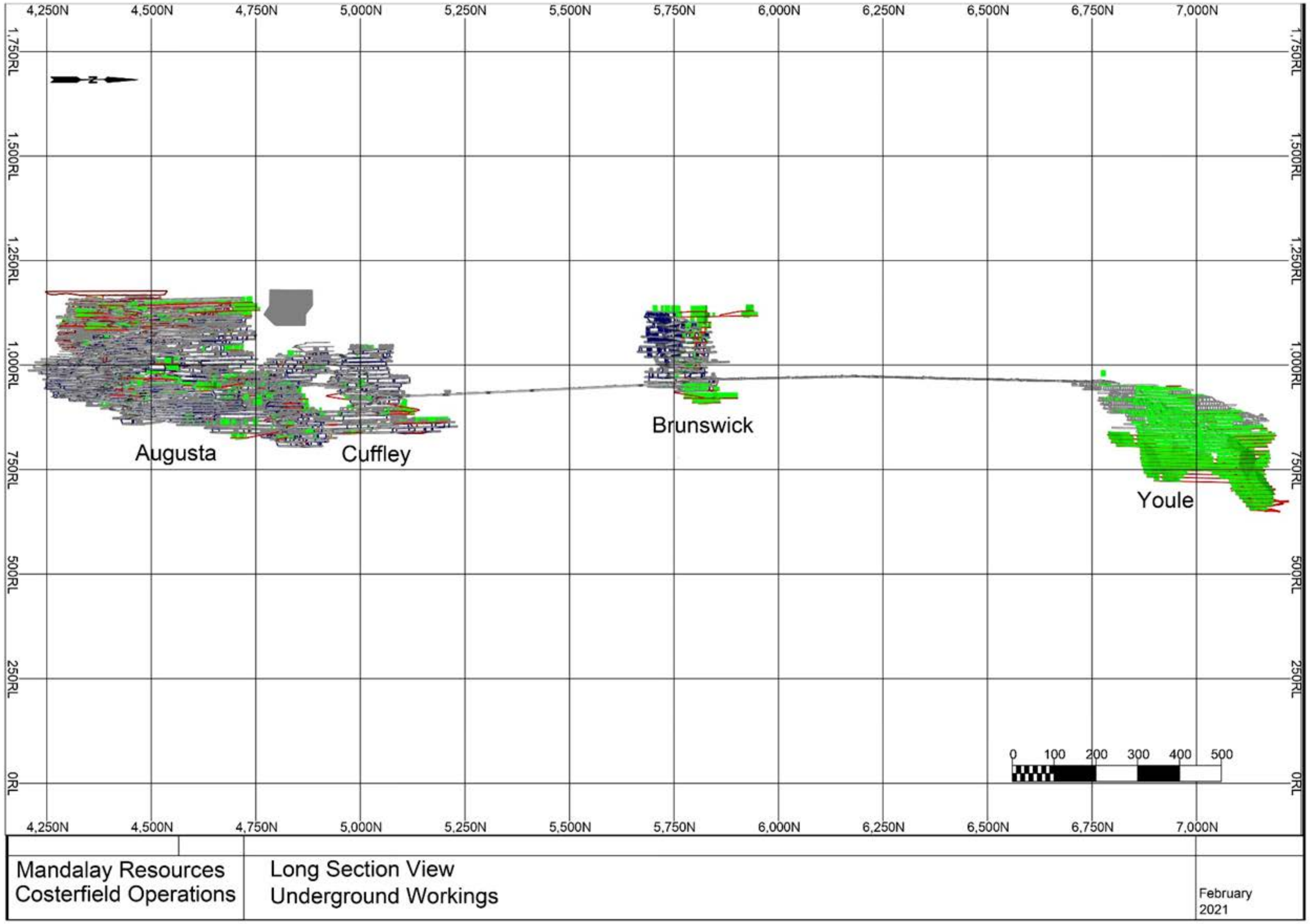

Figure 16-1: Long-section of the as-built and Mineral Reserve designs - Augusta, Cuffley, Brunswick and Youle (Red – planned development, green– planned production, grey – depleted workings)

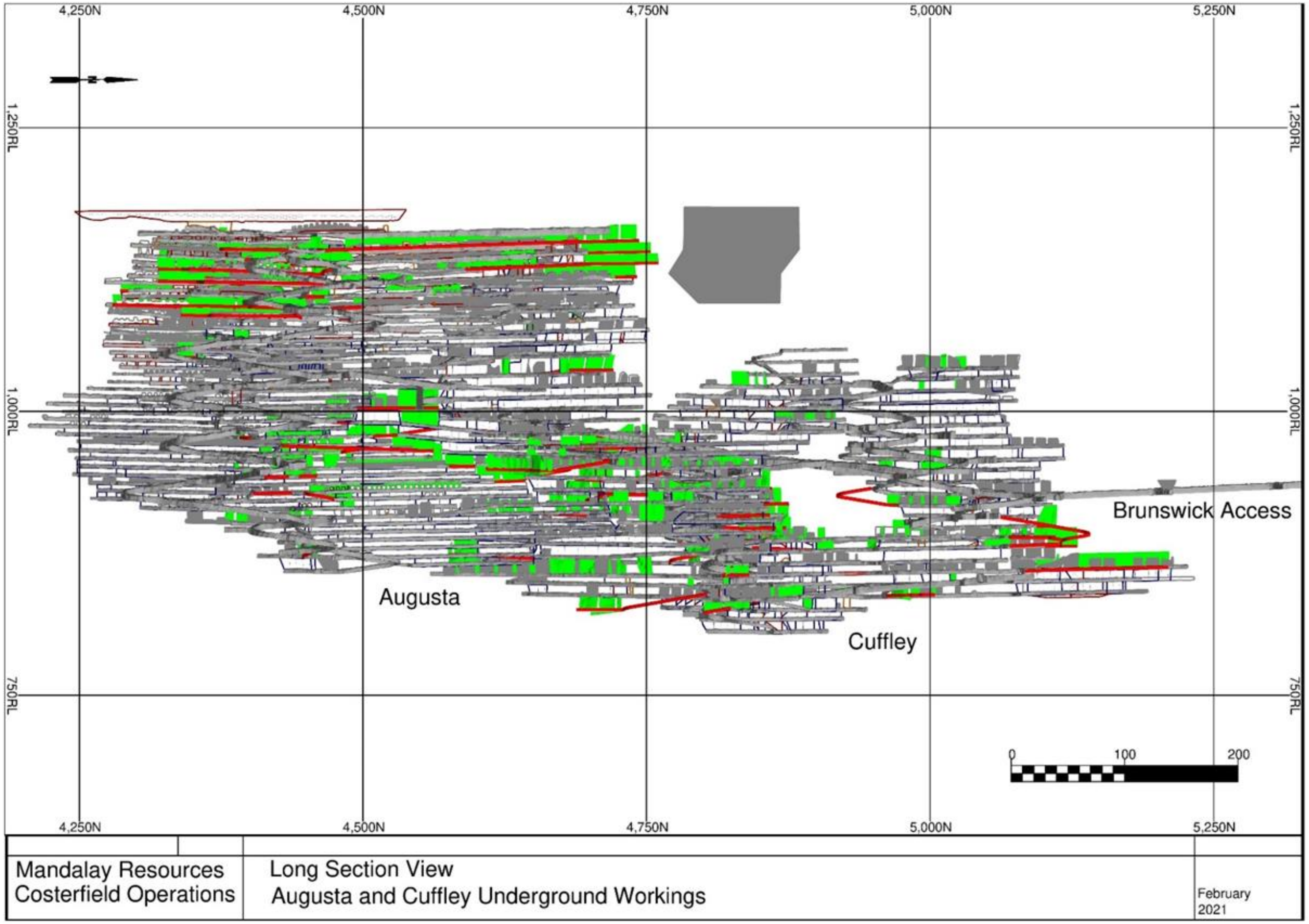

Figure 16-2: Long-section of Cuffley & Augusta Mineral Reserve mine design (Red – planned development, green – production, grey – depleted)

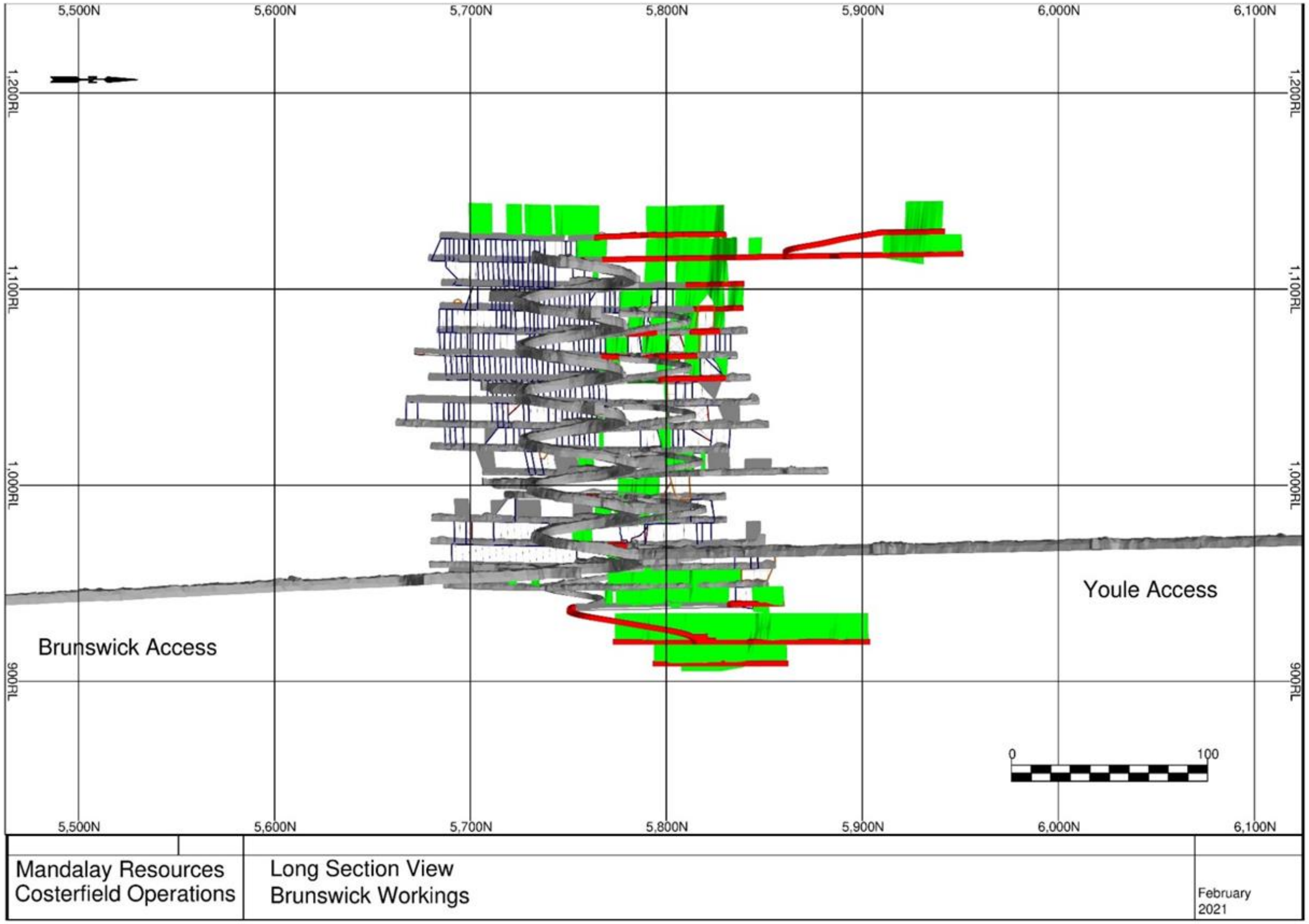

Figure 16-3: Long-section of Brunswick Mineral Reserve mine design (Red - planned operating development and green – planned stoping, grey – as built)

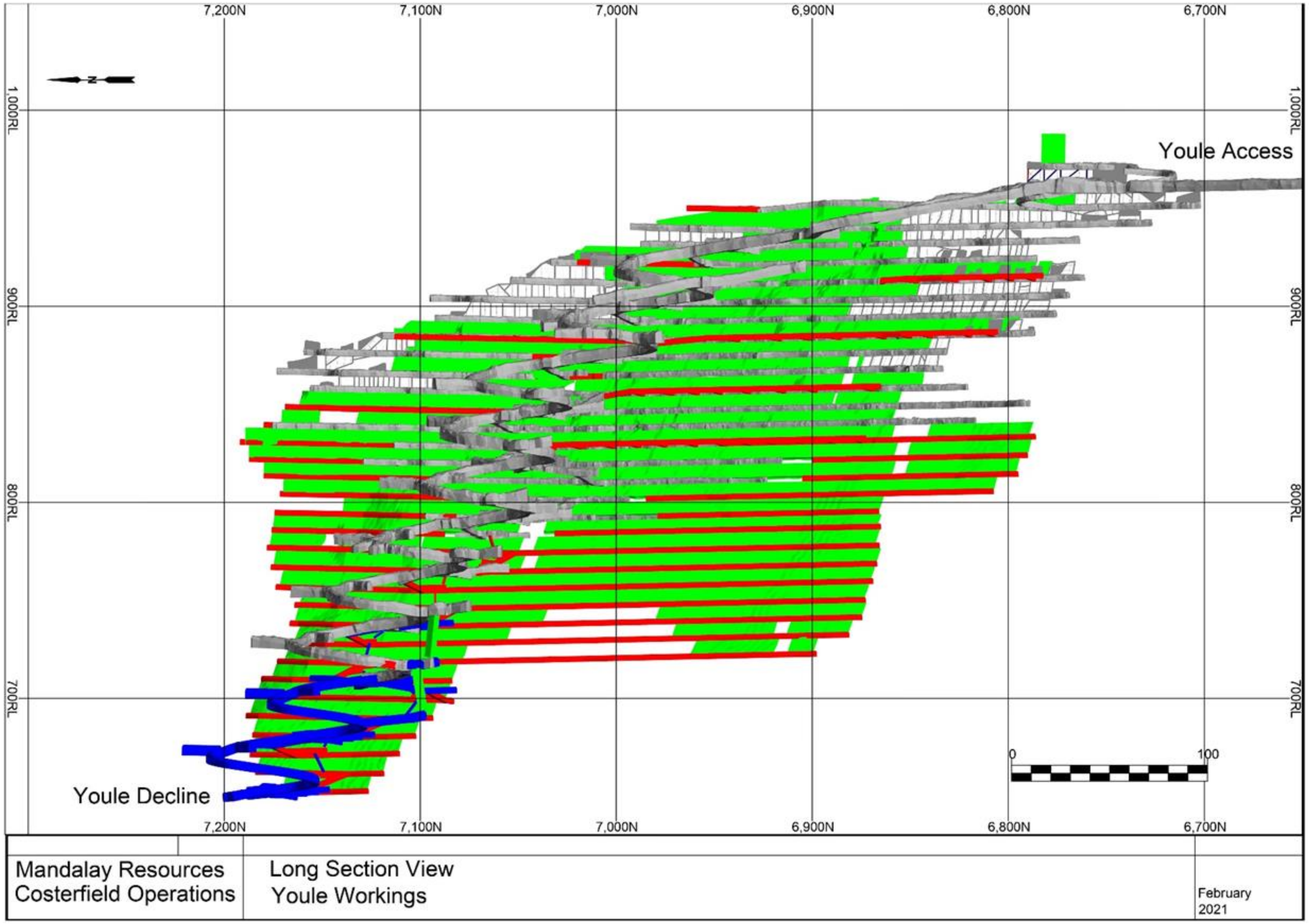

Figure 16-4: Long-section of proposed Youle mine esign (Blue – planned capital development, red-planned operating development, green – planned stoping and grey – as built)

16.1 Geotechnical

16.1.1 Rock Properties

16.1.1.1 Lithology and Structures

Active underground mine workings are hosted within weakly metamorphosed siltstones of the lower Silurian-aged Costerfield Formation. Underground operations target the north-northwest striking, sub-vertical dipping mineralised structures which are typically less than 500 mm in true width.

Targeted mineralised structures within the Cuffley and Augusta orebodies are bounded up-dip and down-dip by the Adder and King Cobra thrust faults respectively. The King Cobra fault is observed as separate HW and FW structures filled with strongly deformed siltstone and quartz horsetails. The zone of deformation within the King Cobra fault can be up to 10 m wide, and the offset across the King Cobra fault is unknown. The Adder fault is also filled with quartz and rubble and varies in width from less than 0.3 m to greater than 2 m.

The Brunswick lode sits above the HW of the Adder fault. It is offset by shallow west dipping faults by over 20 m. The Kiwi fault is one of the shallow dipping structures, which is characterised by strong shearing and lode offset in the vicinity of the Brunswick lode and shows minor shearing, in the order of less than 0.5 m, distal to the lode.

Significant second order structures include the northeast striking, northwest dipping faults that offset lode mineralisation (East Fault, Brown Fault, Kiwi and Penguin) as shown in cross-section (Figure 16-5). There are other significant second order structures that can contain strongly associated shearing when intercepting the lodes (Flat, Krait, Red Belly, Bushmaster Tiger, Emperor and Cassowary). A 3D structural model of all intersected mine scale faults is maintained and is a key driver of pre-emptive ground control strategies.

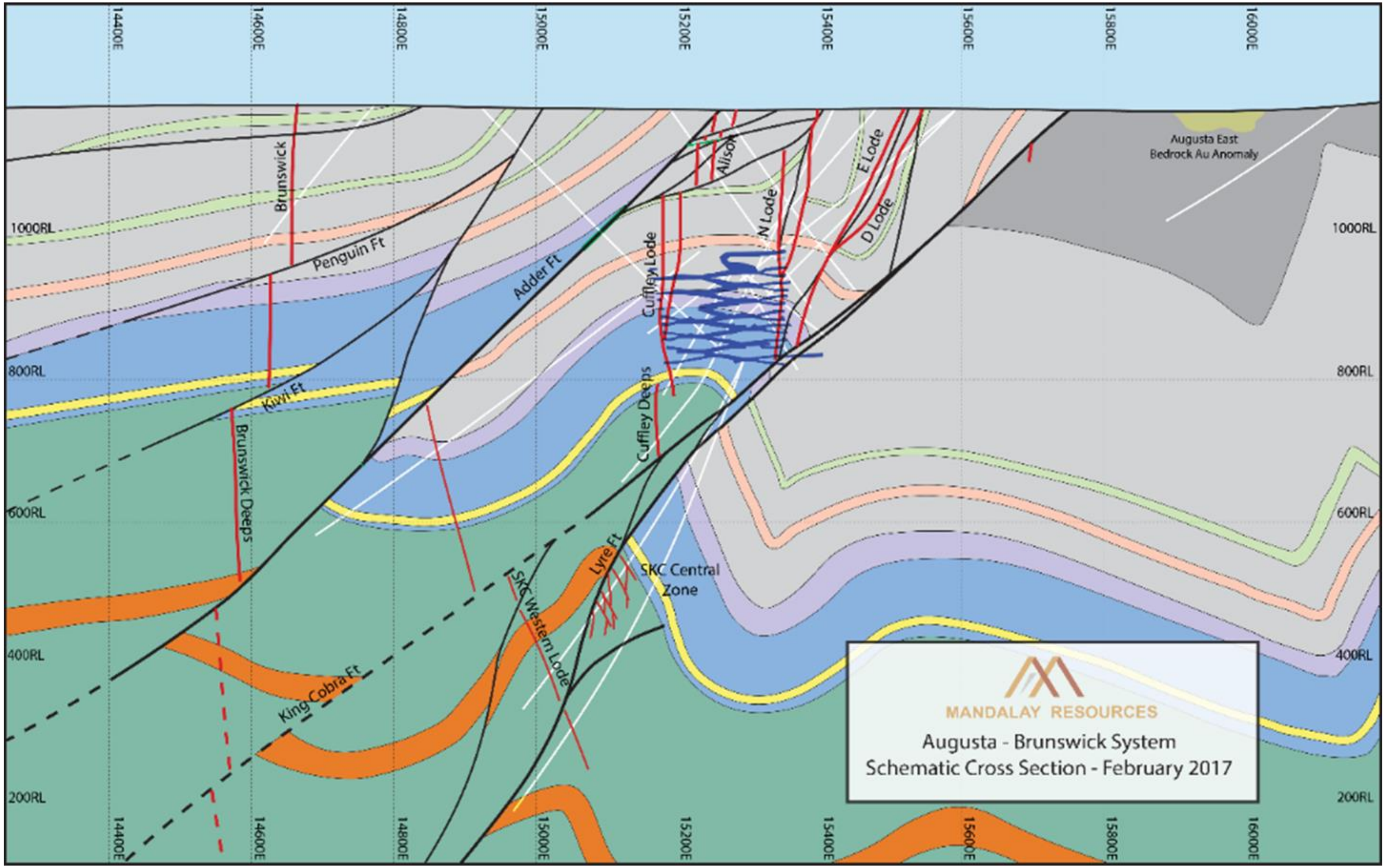

Figure 16-5: Cross-section of the Augusta, Cuffley and Brunswick systems

The Youle lode sits below the No.3 fault and at the point of intersection with the No.4 fault, starts running along the No.4 as shown in cross-section Figure 16-6. The No.4 fault is characterised as a laminated quartz structure with a large lithology offset

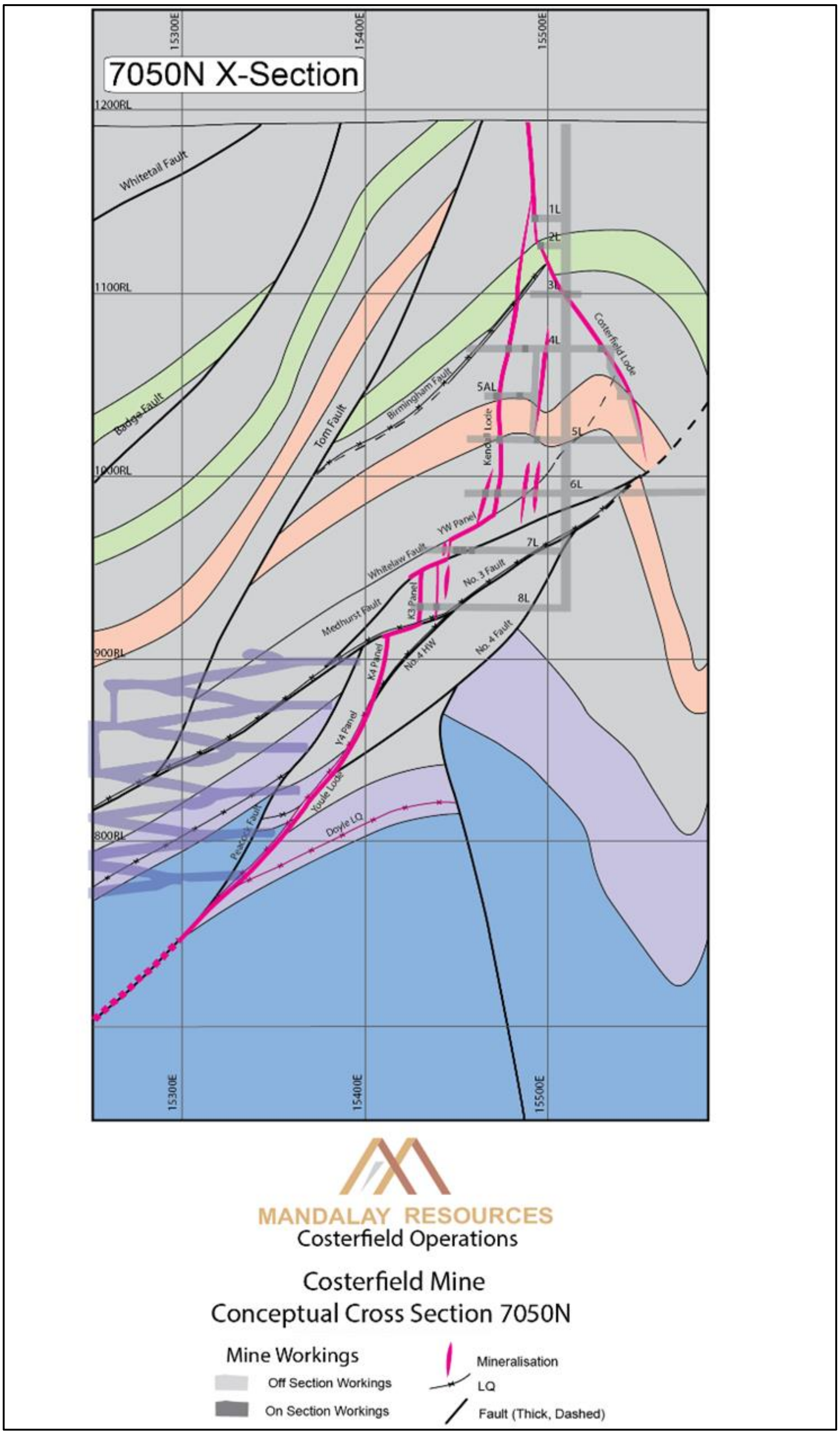

Figure 16-6: Schematic cross-section of the Youle systems

Significant second order structures include the low angle west dipping Doyle Fault and the Youle lode sub-parallel Peacock Fault which generally contain strongly associated shearing when in close proximity, within 10 m, of the lode.

16.1.1.2 Rock Strength

The Costerfield Formation siltstone has had a total of 58 Unconfined Compressive Strength (UCS) tests carried out since 2009. Test results indicate that intact rock strength increases with depth due to sustained weathering in the upper strata. At levels lower than 100 m below surface, intact rock strength exceeds 80 MPa.

16.1.1.3 Rock Stress

In-situ stress measurements have been undertaken at the Costerfield Property in proximity to the Youle lode, utilising the Deformation Rate Analysis (DRA) technique on core samples at 520 m and 903 m below the surface.

At 520 m below the surface, the maximum principal stress is orientated at 300°/43° (trend/plunge) with a magnitude of 25MPa, the intermediate principal stress is oriented at 184°/25° with a magnitude of 12.6MPa and the minimum principal stress is oriented at 074°/36° with a magnitude of 8.3MPa.

At 903 m the maximum principal stress is oriented at 346°/5.2° and a magnitude of 30MPa, the intermediate principal stress is oriented at 091°/71° with a magnitude of 19.6MPa and the minimum principal stress is oriented at 018°/15° with a magnitude of 15MPa. Further in-situ stress measurements are planned for early 2021.

In-situ stress in levels below 895 mRL in Cuffley and 936 mRL in Brunswick has caused minor convergence, or squeezing ground, in isolated areas around major fault zones. The magnitude of this squeezing is small enough to be contained by dynamic support.

16.1.1.4 Rock Mass Alteration

Rock mass in the vicinity of mineralised structures is heavily fractured with multiple joint orientations, often with a portion of clay fill and smooth planar joint surfaces. In waste rock, away from mineralised lodes and discrete structures, the rock mass improves with lower fracture frequency and rough tightly healed joint surfaces present.

16.1.1.5 Hydrogeology

The regional hydrogeology is comprised of two main aquifers, the Shallow Alluvial Aquifer (SAA) and the Regional Basement Aquifer (RBA).

- The SAA is comprised of silts, sands and gravels, and is a perched groundwater system occurring across the site and within the confines of the creek and valley floors. There is clear evidence that this aquifer is perched, is laterally discontinuous and is less common in the area,
- The RBA is comprised of Silurian metasediments and forms the basement aquifer, where groundwater mainly occurs within and is transmitted through fracture systems beneath the upper weathered profile, at depths of greater than 20 m below the natural surface.

Dewatering of underground workings, in Augusta, Cuffley and Brunswick, is achieved via controlled drainage to an underground pump station in the 4800 decline that pumps to the Cuffley pump station. Dewatering of Youle is achieved by pumping straight to the Cuffley pump station. From the Cuffley pump station, water is fed to an Actiflo™ water treatment unit located at the Brunswick site, before being distributed to the mine dam, and Splitters Creek Evaporation Facility. Recently water inflow has been approximately 1.5 ML per day.

16.1.2 Mine Design Parameters

16.1.2.1 Mining Methods

The dominant mining method is longitudinal long-hole stoping filled uisng CRF, with stope panels generally consisting of three to four operating levels mined bottom-up over CRF with a longitudinal retreat to a quasi-central access. Several other mining methods are applied to access and optimise the extraction of ore at the Costerfield Property:

- Capital development with twin-boom jumbo,
- Operating development with single boom jumbo. (Note: recently the usage of the airleg hand-held drill were limited to specialised projects thus are no longer used for operating development),
- Blind up-hole longitudinal long-hole open stoping (‘half uppers’),
- Floor benching of level ore development,
- Downhole vertical crater retreat (VCR),
- Avoca stoping with CRF (‘reverse fill’),
- Avoca stoping with rockfill (‘reverse fill’),
- Overhand cut and fill (Flat backing ore level development),
- Air leg rise mining.

Mining methods are selected to suit ore drive/lode geometry and maximise ore recovery while minimising unplanned dilution.

16.1.2.2 Development Geometry

Standard development profiles adopted at the Costerfield Property include:

- 1.8m wide x 3.0m high ore drives,
- 2.0m wide x 3.0m high access drives,
- 3.5m wide x 4.0m high access drives,
- 3.5m wide x 4.2m high access drives,
- 4.5 m wide x 4.8m high decline/incline,
- 5.5 m wide x 5.5m high decline/incline,
- 5.0 m wide x 4.8m high level access,
- 5.0 m wide x 6.5m high truck tips,
- 4.5 m wide x 4.8m high ore stockpiles,
- 6.5 m wide x 4.8 m high vent rise access drives.

Non-standard development profiles may be mined for major infrastructure, such as pump stations, explosives magazines, fan chambers etc., or for variations to the applied mining methods, such as flat-backing, and floor benching etc. Development spans and associated ground support are designed using empirical data to ensure the stability of mined spans.

16.1.2.3 Stope Geometry

In response to observed ground conditions and production drill capability, inter-level spacing at the Costerfield Property is variable. Stope strike length varies based on the applied mining method, observed ground conditions and machinery capability. Stope geometry parameters include:

- Stope height: Up to 17 m,
- Stope strike length: 2.7 m – 13 m,
- Stope design width: 1.5 m,
- Stope dip: 45-90^0.

Non-standard stope geometry may be mined to maximise ore extraction under unique circumstances, such as remnant mining, flat dipping ore bodies and geological complexity. The empirical stope performance chart is consulted to ensure that designed stope spans will allow safe efficient extraction of target mineralisation.

16.1.2.4 Pillars and Offsets

In mine design and planning, the following pillars and offsets are observed to ensure the stability of mined excavations:

- Decline development is designed and mined with a 30 m offset to target mineralised structures; to date stope production blasting has not influenced decline stability having applied the 30 m offset. This distance has been maintained as a minimum for the Brunswick and Youle lode,
- The minimum inter-level pillar width to height ratio is 1:2, for example for 1.8 m wide ore drives, the minimum inter-level spacing is 3.6 m,
- Minimum horizontal clearance between sub-parallel ore drives is 2 m,
- The minimum pillar strike between unfilled blind up-hole longitudinal open stopes or half-upper stopes is 3 m.

16.1.2.5 Backfill

CRF is the most commonly used backfill at the Costerfield Property. CRF is exposed vertically in the longitudinal retreat of CRF filled long-hole open stopes, and horizontally in the mining of sill pillars at the toe of blind up-hole longitudinal open stopes (half uppers). Loose rockfill is used where vertical and horizontal exposures to filled voids are not required, such as in level close out stopes and adjacent to waste pillars.

Previously Cement Aggregate Fill (CAF) was primarily used in areas where re-access is required through or adjacent to the filled stope however as the Youle lode has required the mining of shallow dipping stopes, with dips less than 50^0, the usage of CAF has become more prominent in the Youle.

16.1.3 Ground Support

16.1.3.1 Development Ground Support

Ground support elements installed in standard development profiles include:

- 3.0 m 25 mm dia. galvanised resin bolts,
- 2.4 m 25 mm dia. galvanised resin bolts,
- 2.4 m 20 mm dia. galvanised resin bolts,
- 2.1 m 20 mm dia. galvanised resin bolts,
- 2.4 m 47 mm dia. galvanised friction bolts,
- 1.5 m 33 mm dia. galvanised friction bolts,
- 1.8 m 33 mm dia. galvanised friction bolts,
- 2.4 m x 3.6 m 5.6 mm dia. gauge galvanised mesh,
- 2.4 m x 4.2 m 5.6 mm dia. gauge galvanised mesh,
- 2.4 m x 3.0 m 4.0 mm dia. gauge galvanised mesh,
- 2.4 m x 1.5 m 4.0 mm dia. gauge galvanised mesh

When spans exceed 5.5 m in development intersections or in response to deteriorating ground conditions and discreet structures, cement grouted single strand, non-galvanised, bulbed, 4.5 m – 6.0 m cable bolts are installed and tensioned to ensure the stability of development profiles.

Additional ground support may be installed to support non-standard development profiles or in response to poor ground conditions. Fibrecrete, resin injection, spiling, sets and straps have been installed in the past to support poor ground, development/stoping interactions and faults/shear zones. In addition, 2.4 m and 1.8 m yield lock bolts are installed in areas where squeezing ground is expected.

16.1.3.2 Stoping Ground Support

Additional support for designed stopes is installed on an as required basis in response to compromised stope geometry, poor rock mass, interactions with faults/shears or interactions with other stopes and development. Single strand, non-galvanised, bulbed, 4.5 m – 6 m cable bolts are generally installed as secondary support for stopes.

Other forms of ground support including resin bolts, friction bolts, mesh, fibrecrete, resin injection and straps may also be installed to provide secondary support for designed stopes.

16.2 Mine Design

16.2.1 Method Selection

Long-hole CRF stoping has been selected as the preferred mining method for the Mineral Reserve on Brunswick and Youle lodes. This is based on the ore body geometry and current production fleet, as well as the experience gained through the application of this method.

Long-hole CRF stoping method allows for a 'bottom-up' mining sequence with the benefits of minimizing the number of crown/sill pillars required to be left in place. The location of the crown and sill pillars is determined by the grade distribution of the ore body and the local mine stability requirements. Recovery of the pillars is planned to be undertaken with the use of half-upper production stoping and remnant pillar extraction.

16.2.2 Method Description

Mining within the Augusta Mine has targeted several individual lodes, including W, NM, E, K and Cuffley Lodes, which vary in width from 0.1 m to 1.5 m and dip between 45° to 85°. This lode geometry is favourable for long-hole CRF and half-upper stoping when using mechanised mining techniques. However, in the past ore was also extracted using air-leg CRF and half upper stoping methods.

The current Mineral Reserve in the Augusta Mine is planned to be extracted using various mechanised methods depending on the ore location, access requirements, and the proximity to previously mined areas. The majority of Augusta Mineral Reserve is planned to be extracted using long-hole half upper stoping due to limited development access for fill drives. Areas that have access for both an extraction and fill drive utilize long-hole CRF stoping method.

Remnant pillar slashing is the planned method for areas where half-upper stoping has previously been undertaken. This method involves developing a waste access parallel to the original production drive, with draw points breaking through to the ore zone. Production slash-holes are drilled into the remnant rib pillars to be fired and the ore extracted with remote loading operations. Areas of remnant ore are individually assessed and those deemed both economically viable and safe to extract remotely have been included in the Mineral Reserve.

Throughout the Cuffley lodes, a sub-level spacing of 10 m floor to floor, or 7 m backs to the floor, and has been established to ensure stable spans, acceptable drilling accuracies and blast-hole lengths. A sub-level spacing of 15 m has been developed for two select areas. This involved drilling up from the lower level to 8 m and drilling and firing the remainder from the upper level using down-holes. Whilst this has been a success it has not been implemented elsewhere in the mine.

The Brunswick orebody has applied a sub-level spacing of 12 m floor to floor, or 9 m backs to the floor. This has been established due to improved drill accuracy, steep lode geometry and the wider orebody, with the average diluted stope width of 2.0 m vs 1.5 m in Cuffley and Augusta. Brunswick has primarily been mined with long-hole CRF stoping due to it being accessed and developed from the bottom-up. The Brunswick Mineral Reserve consists of the remaining level closeout stopes, ore development and CRF/HUS stoping on northern extents, and remnant extraction of pillars left in place for localised ground stability.

The Youle orebody has been mined with a sub-level spacing of 9 m floor to floor, or 6 m backs to the floor vertically and 6 m to 13 m backs to the floor along the dip of the ore body. This sub-level spacing has been implemented in order to minimise dilution and improve recovery in the flatter dipping Youle ore. It also allows for stable vertical spacing between levels and optimal stope height for drilling accuracy. The ore body dip varies greatly in Youle between 38° to 85°, which is dependent on the influence of major structures interacting with the Youle lode. In areas where the dip of the ore is below 40°, extraction drives are widened to steepen the footwall of the stope to ensure full recovery. Stope HWs designed less than 45° require backfill with CAF rather than CRF to ensure fill confinement and stability of the HW.

The production cycle for long-hole CRF/CAF stoping, as illustrated by Figure 16-7, comprises the following:

- Develop access to the orebody,
- Establish bottom sill drive and upper fill drive,
- Drill production blast-holes in a minimum 2 hole per ring pattern, depending on the ore width. The nominal stope design width is 1.5 m,
- Fire the blast of 2.7 m to 13 m strike and extract ore with a manual and/or tele-remote loader,
- Place rock bund at the brow of the empty stope and place mesh tubes in the stope. Mesh tubes are tightly rolled steel mesh placed in the leading edge of stope prior to filling and eliminates the need for boring reamer holes in next stoping panel,
- Place CRF into the stope,
- Remove rock bund at the brow of the stope,
- Commence extraction of adjacent stope once the CRF has cured for 24 hours.

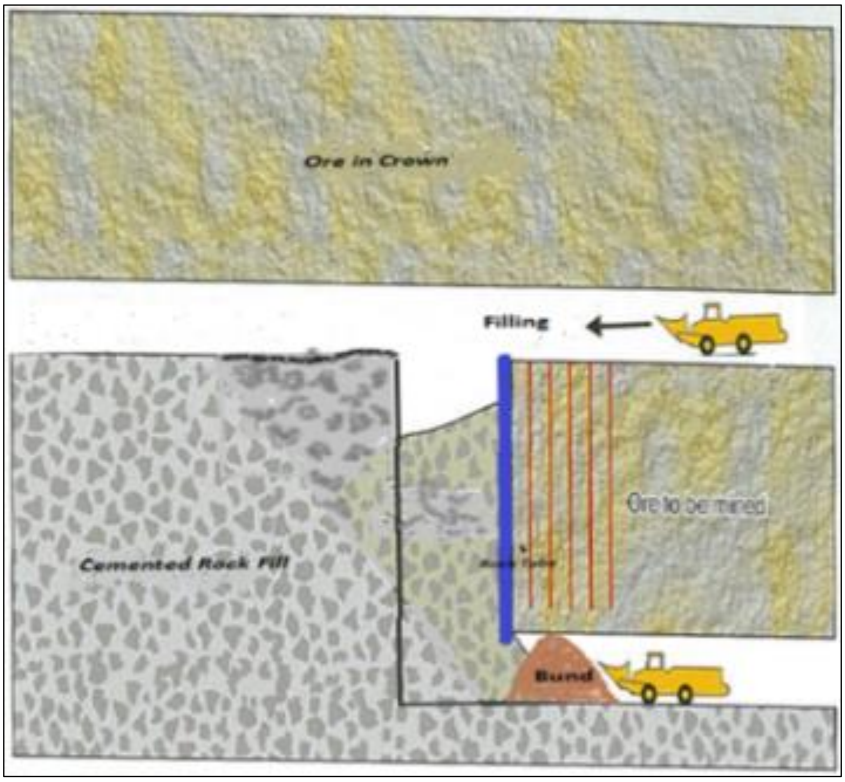

Figure 16-7: Long-hole CRF stoping method (Source: Potvin, Thomas, Fourie, 2005)

The half upper stope method is similar to CRF stope method however, it is implemented where there is no access to a fill drive. Due to the geometry of half upper stopes, tele-remote loaders are utilized for ore mucking. The mining cycle comprises the following:

- Drill up to 13 m length blind production long-holes for a strike length of 3 to 13 m,
- Fire stope and extract ore (use tele-remote loader once brow exposed),
- Leave a 3 m strike rib pillar where required by ground conditions,
- Commence the next stope.

16.2.3 Materials Handling

Since the completion of the Brunswick Portal, all underground ore is trucked to the surface via the Brunswick Incline. Once on the surface, the ore is transferred to the Brunswick ROM pad where it is stockpiled, screened, blended and crushed prior to being fed into the Brunswick Processing Plant.

Waste material from development headings is trucked internally underground and used for backfill or trucked to the surface and stockpiled at the Bombay Waste Rock Storage Facility. Small portions of suitable waste material is screened on the surface and trucked underground to be utilised as road base and CAF fill.

16.3 Mine Design Guidelines

The mining schedule follows a bottom-up stoping sequence, mining from the northern and southern extents retreating toward the central access. This sequence enables a consistent production profile to be maintained because it allows for dual development headings on each level.

Brunswick is mined using a bottom-up sequence with primarily CRF stopes that do not include any crown pillars.

The current and planned sequence for Youle orebody utilises crown pillars at various intervals to allow for a consistent production profile and optimized recovery of ore.

16.3.1 Level Development

Production drive development is mined to ensure the ore is positioned in the face for maximum recovery and feasible long-hole production drilling. Production development is mostly directed under geology control and sometimes survey control where stand-off/pillars need to be maintained. Production drives are excavated and supported by a combination of single boom jumbo for excavation and support, and handheld mining methods (for support).

16.3.2 Vertical Development

Vertical development at the Costerfield Property exists in the way of primary ventilation shafts, return/fresh ventilation rises and escapeway ladders. Throughout Cuffley, ventilation rises of 3.5 m x 3.5 m have been excavated between levels to extend the existing primary exhaust system both above and below the Cuffley fan chamber and exhaust shaft. The Brunswick Mine utilised a 3.5 m diameter shaft to supply fresh air to the workings and act as a second means of egress. Since the Brunswick Portal breakthrough, the Brunswick shaft has been decommissioned and the portal is now the fresh air intake. The Youle ventilation shaft has a diameter of 4.0 m, exhausting air from Youle workings and a providing secondary means of egress. The Youle primary exhaust system is extended with 4.0 m x 4.0 m ventilation rises between the levels as development progresses below the ventilation shaft and fan chamber. Ladder rising with a diameter 0.8 m to 1.2 m has been developed for the installation of escape ways providing a second means of egress between working levels.

16.3.3 Stoping

The strike length of stopes is determined using a case-by-case assessment of the overall mining sequence, ore orientation, geological considerations and geotechnical stability. All blasted material is assumed to have a swell factor of 30% and non-mineralised material is allocated a default relative density of 2.74 t/m^3. The relative density of mineralised material is estimated within the geological resource block model.

16.3.4 Mine Design Inventory

The planned mining inventory for each lode is summarised in Table 16-1.

Table 16-1 Reserves inventory by lode

Lode	Ore Tonnes	Au g/t	Sb %
YOULE	369,856	15.4	3.3
YOULE 501	871	2.5	2.3
YOULE 503	2,459	26.9	10.0
YOULE 508	22,782	13.6	3.7
BRKR	13,042	7.5	3.6
BRUNSWICK	39,722	5.4	2.9
AS	602	3.0	2.4
BOB	4,298	5.5	3.0
BOBSPL	2,370	5.9	1.9
C	10,831	4.4	2.8
CD	2,800	9.9	3.4
CE	2,903	13.5	1.7
CM	37,093	9.4	3.4
E	33,392	8.2	5.1

Lode	Ore Tonnes	Au g/t	Sb %
K	2,650	8.0	3.6
NM	33,721	9.5	4.2
NSP48	954	6.4	4.1
NW	1,388	5.3	3.6
P1	8,776	8.9	2.0
W	9,404	9.8	6.1
TOTAL	**599,913**	**12.8**	**3.5**

16.4 Ventilation

The current Costerfield Property mine ventilation circuit is comprised of fresh air being sourced from four surface intakes, these being:

- The Augusta portal, and the Augusta ladder ways, where fresh air enters the ladder ways via a 20 m shaft from the surface,
- The Augusta Fresh Air Rise (FAR),
- The Brunswick Portal and a small amount of airflow entering the mine through the Brunswick FAR, regulated to 98%, which services the 1056 Fresh Air Base (FAB). This airflow is pulled into the mine via two separate underground primary chambers that exhaust air out of the mine via the Cuffley return airway (RAW) at a flow rate of $54m^3/s$ and the Youle RAW, at $103m^3/s$.

16.4.1 Primary Ventilation Circuit – Augusta/Cuffley

At Augusta/Cuffley fresh air travels to the bottom of the old Augusta workings via internal rises and enters the Augusta side of the mine at the 900 mRL, at which point it flows back up the Augusta decline where it enters the Cuffley decline and joins the primary flow entering the mine from the Augusta portal. This airflow travelling down the Cuffley decline, splits at the 4800 decline and the Cuffley incline, with the remaining airflow continuing towards the Brunswick access. At the Brunswick access, the airflow splits and travels towards the Youle via the Brunswick straight ($24m^3/s$), with the remaining airflow ($34m^3/s$) reporting to the Cuffley 915 RAW, where it will exhaust via the Cuffley RAW.

The Cuffley incline is also where the current HE magazine is located. Primary airflow in the 4800 decline and Cuffley incline reports to the Cuffley RAW where it exhausts to surface.

The primary ventilation circuit for Augusta is presented in Figure 16-8 below. Fresh air intakes through the Augusta FAR and ladder ways (in blue), with primary flow continuing to the Cuffley decline.

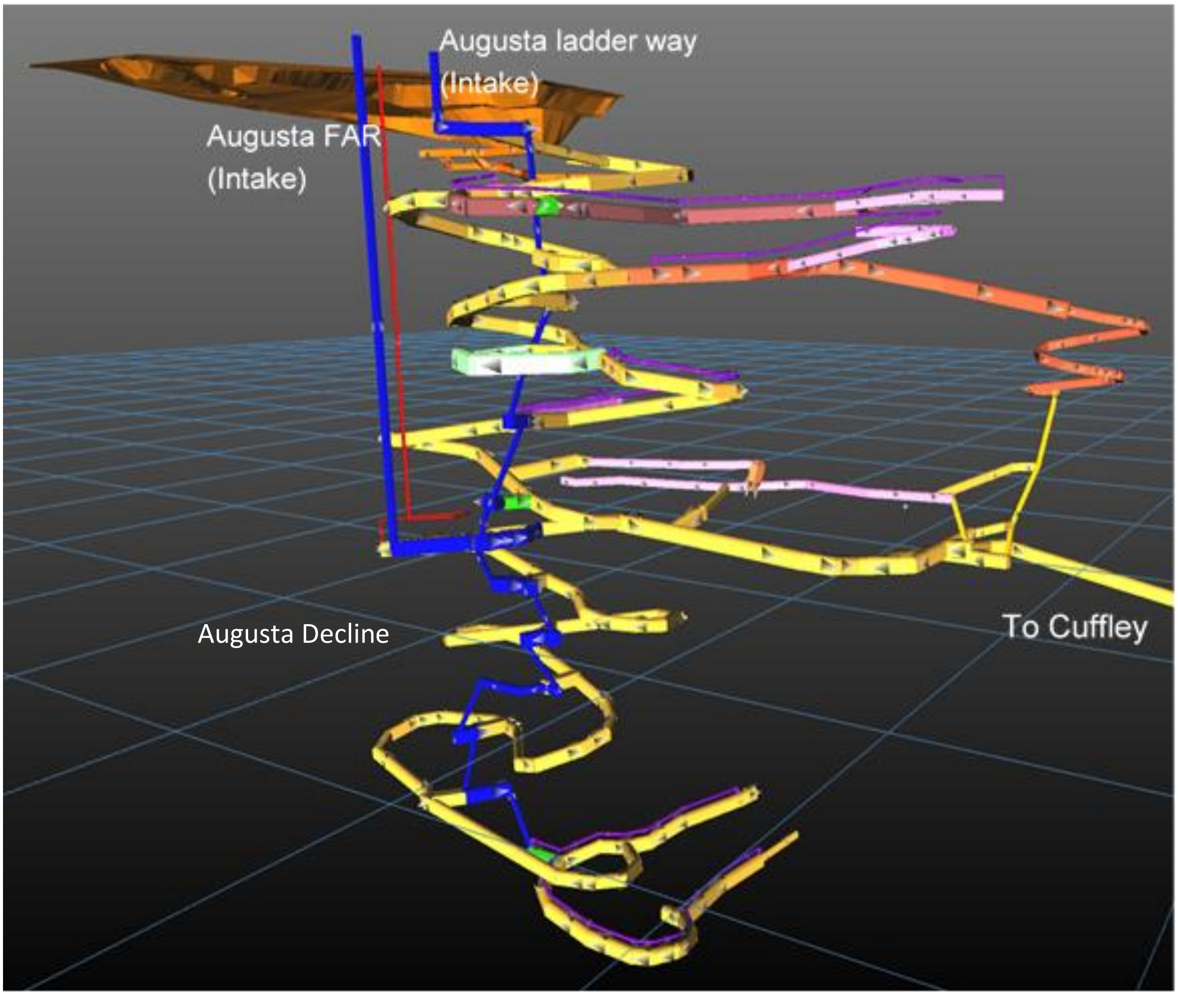

Figure 16-8: Augusta primary ventilation circuit

The primary ventilation circuit for Cuffley is presented in Figure 16-9 below. Fresh air is drawn through the Cuffley decline from Augusta and return air (in red) is exhausted through the Cuffley RAR by either the 4800 decline or 915 RAW.

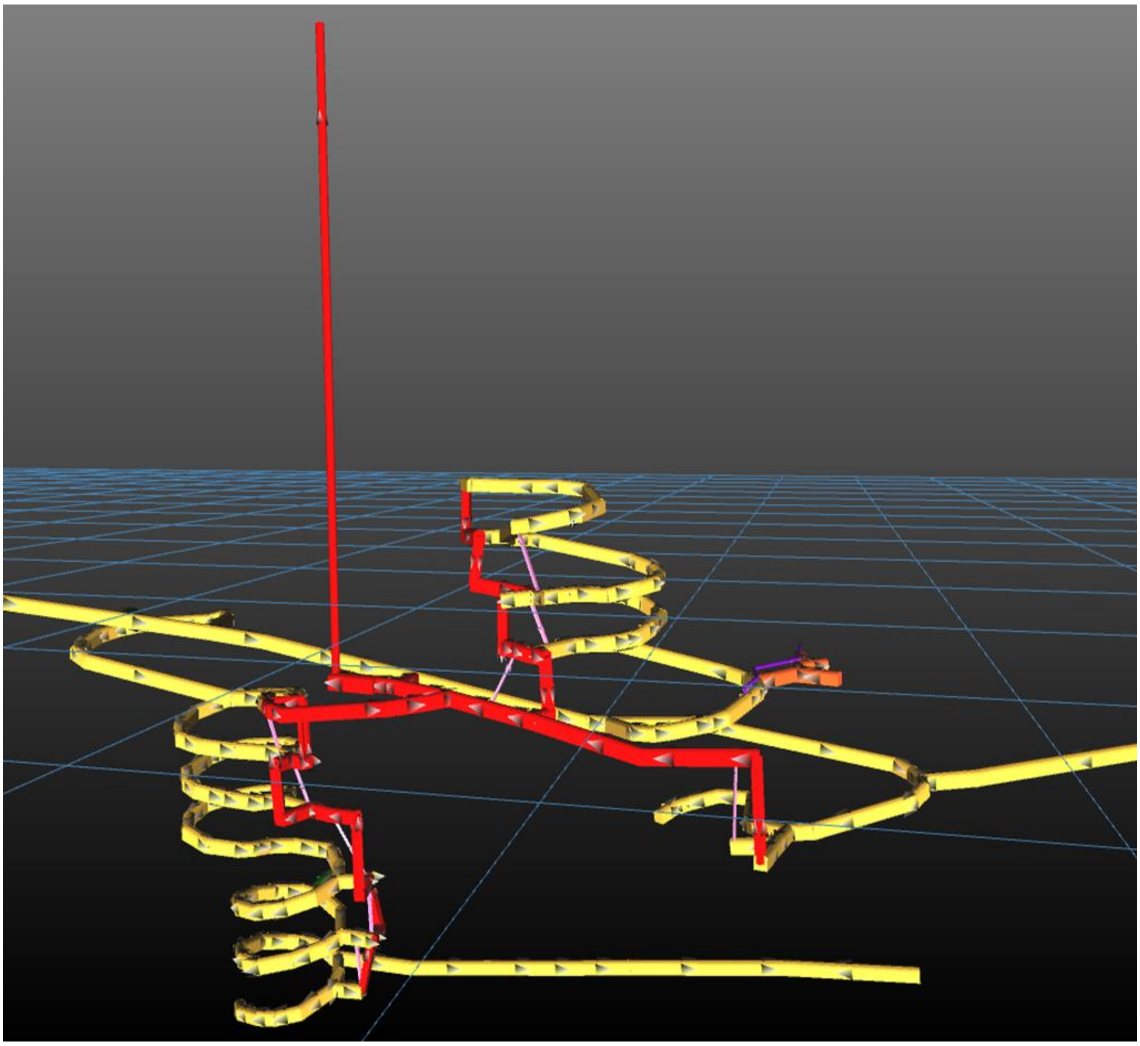

Figure 16-9: Cuffley primary ventilation circuit

16.4.2 Primary Ventilation Circuit – Brunswick/Youle

The Brunswick workings are supplied primary airflow from the Brunswick portal (80m³/s), while the Youle workings are currently supplied fresh air from the Brunswick portal (80m³/s) and primary airflow from the Augusta/Cuffley side of the mine (24m³/s). The Youle working levels are supplied airflow via the use of secondary ventilation fans.

The primary ventilation circuit for Brunswick is presented in Figure 16-10 below. Fresh air is drawn through the Brunswick Portal and Brunswick FAR which joins the primary flow from Cuffley at the bottom of the Brunswick Incline and continues to Youle.

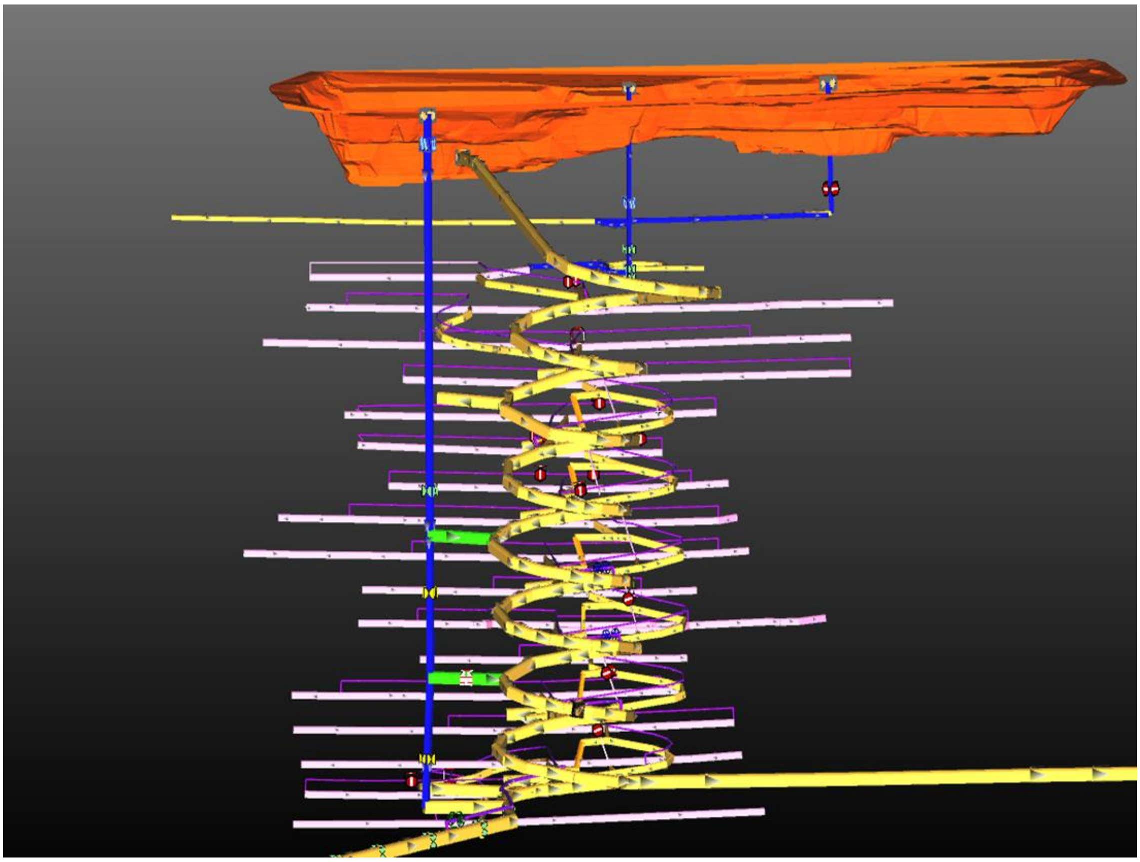

Figure 16-10: Brunswick primary ventilation circuit

The Youle primary ventilation circuit is presented in Figure 16-11 below. Fresh air is drawn through the Youle Access and down the Youle Decline to the 747 RAW. From the 747 RAW, air is exhausted through the Youle RAW system to the Youle RAR shown in red.

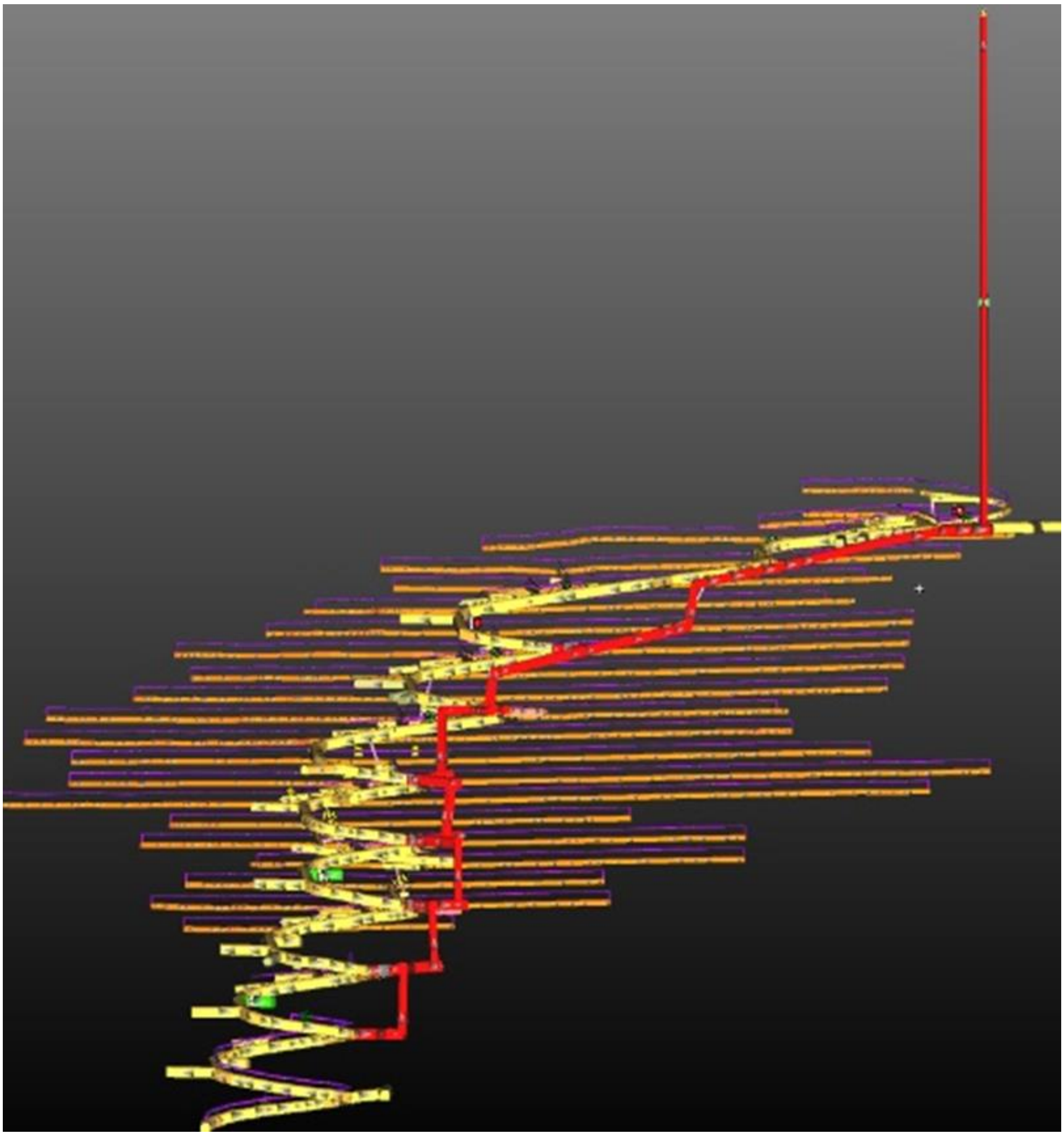

Figure 16-11: Youle primary ventilation circuit

16.4.3 Primary Ventilation Rises and Fans

The specifications of the existing Augusta, Cuffley and Youle ventilation rises are as follows:

- Augusta Ladder Rise (surface to 900 mRL), 2.4 m diameter,
- Augusta FAR (1020 mRL to the surface), 3.0 m diameter,
- Cuffley RAR (950 mRL to the surface), 3.0 m diameter,
- Cuffley RAR (above the 955mRL – From the 1010 level), 3.5 m x 3.5 m diameter,
- Cuffley RAR (below the 955mRL – From the 814 level), 3.5 m x 3.5 m diameter,
- Brunswick FAW (1056 mRL to the surface) – 3.5 m diameter – Regulated Shaft,
- Youle RAW (Current) 957 mRL – 4.0m diameter.

Three single stage 110 kW axial fans have been built into a bulkhead at the 950 mRL Cuffley RAW, however only one fan is currently operational. This was designed as to lower resistance along the Brunswick straight, whilst still providing adequate airflow to the 4800 decline and the Cuffley incline where the HE magazine is located, ensuring that the HE magazine ventilation reports directly to the Cuffley RAW. There are no current working levels in the 4800 decline.

The Cuffley primary ventilation fan has been designed with a final duty of 54m^3/s. One of the primary 110kW fans in the Cuffley ventilation chamber will be re-located to the Youle primary chamber to increase airflow in the Youle as mining gets deeper.

The existing Cuffley primary fan is a Clemcorp CC1400 MK4 single stage 110 kW axial fan installed in a bulkhead on the 950 mRL. The operating parameters of this fan are:

- Lower operating fan total pressure of 258 Pa for 54 m^3/s,
- Higher operating fan static pressure of 2,600 Pa at 30 m^3/s.

The Youle primary fans comprises of two Clemcorp CC1400 MK4 single-stage fans, located at the 957mRL Youle RAW. These two fans are installed in parallel in a fit for purpose bulkhead, capable of running four primary fans. The operating parameters of two fans in parallel are:

- Lower operating fan total pressure of 799 Pa for 103m^3/s,
- Higher operating fan total pressure of 2,600 Pa for 65m^3/s.

A summary of the primary ventilation fan statistics are detailed in Table 16-2 below.

Table 16-2: Primary ventilation fan details

Fan Location	Fan Type	Quantity	Installation Type	Operating Pressure (Pa)	Total Airflow (m^3/s)	Fan Shaft Power (kW)
950 Cuffley RAW	Clemcorp CC1400 MK4 110kW	1	Parallel	258	58	55
957 Youle RAW	Clemcorp CC1400 MK4 110kW	2	Parallel	799	105	120

16.4.3.1 February 2021 Ventilation Survey

The latest ventilation survey, conducted in February 2021, measured total primary airflow at 16m^3/s within the Costerfield Property underground mine. This survey was conducted with a total of 3 primary fans operating:

- One in Cuffley at a fan total pressure of 258 Pa,
- Two primary fans in Youle, which recorded a fan total pressure of 799 Pa.

All airflow velocities measured throughout the mine are currently measuring under 6m/s. There were also no temperature readings recorded above 27° wet bulb, showing that the primary circuit has no areas of concerns due to heat.

Figure 16-11 below details the airflow measurements from the ventilation survey conducted in February 2021. This demonstrates how the primary circuit is split between the different areas of the mine throughout Augusta, Cuffley, Brunswick and Youle with a balance between the intakes and exhausts.

				Temp		Measured Velocity				Vent Bag		Air Flow	
Date	Survey Station	Location	Area (sq.m)	Dry	Wet	V 1 (m/s)	V 2 (m/s)	V 3 (m/s)	V Average (m/s)	No & size	x sectional area	Q (cu.m/s)	
3/02/2021	VS1	Below Portal	14.38	16.7	11.4	3.77	3.87	4.03	3.89			56	
3/02/2021	VS2	1 Lvl XC	13.67			0.1	0.09		0.10			1	
3/02/2021	VS14	Below 5 Level FAR	17.10	16.0	11.7	3.47	3.4	3.64	3.50			60	
3/02/2021	VS37	Decline below 1040 RAR	25.56	17.0	13.3	2.01	2.02		2.02			52	
3/02/2021	VS38	Decline above 1020 XC	23.70	19.8	16.6	0.81	0.84		0.83			20	
3/02/2021	VS40	1020 RAR (SUB STN)	19.67	19.6	16.1	0.28	0.28		0.28			6	
3/02/2021	VS52	1 Level FAR	7.05			1.52	1.48	1.67	1.56			11	
3/02/2021	VS54	Below 1020 MAG	19.46	18.1	16.0	0.48	0.52	0.48	0.49			10	
3/02/2021	VS55	Cuffley Dec above 4800	23.90	19.7	14.9	3.27	3.35		3.31			79	
3/02/2021	VS56	Cuffley Dec below 4800	25.00	18.3	14.6	3.25	3.04	3.26	3.18			80	
3/02/2021	VS63	1030 Decline Straight	23.29	17.2	13.6	3.15	3.12		3.14			73	
3/02/2021	VS64	915 Cuffley Decline	19.80	19.3	15.3	1.88	1.86		1.87			37	
3/02/2021	VS66	Cuffley Incline Below 975 RAW	22.30	20.8	16.8	0.53	0.52		0.53			12	
3/02/2021	VS72	4800 Decline Below 884 RAW	25.50	22.7	20.7	0.33	0.33		0.33			8	
3/02/2021	VS79	5L Xcut	19.70	18.6	15.0	0.76	0.75	0.76	0.76			15	
3/02/2021	VS80	925 Cuffley Decline	21.20	18.5	15.4	2.81	2.84		2.83			60	
3/02/2021	VS81	Brunswick SP#1	24.47	21.3	16.3	1.04	1.04		1.04			25	
3/02/2021	VS86	Cuffley Dec below 1005 O/P	19.80	19.6	15.3	4	3.97		3.99			79	
3/02/2021	VS96	Youle SP5	25.40	19.3	16.2	4.02	4.06		4.04			103	
3/02/2021	VS97	837 Youle	24.80						#DIV/0!				
3/02/2021	VS98	Brunswick Portal	25.30	14.5	10.4	3.11	3.24		3.18			80	
												163	Intakes
												161	Returns

Figure 16-12: Primary ventilation records, February 2021 survey

16.4.4 Secondary Ventilation Auxilliary Fans

The Costerfield Property is currently adopting a secondary ventilation strategy utilising single and twin stage Clemcorp and Zitron fans no larger than 1200 mm diameter. Secondary fan selection is determined by:

- The dimensions of the excavation,
- The rate of extraction,
- Diesel equipment requirement,
- The length of ventilation ducting,
- The primary airflow available,
- Maintaining a minimum air velocity of 0.5m/s where diesel equipment operates.

The secondary ventilation ducting used at the Costerfield Property consists of ventilation bag with diameters of:

- 1,400 mm,
- 1,220 mm,
- 1,075 mm,
- 605 mm twin duct,
- 570 mm twin duct.

Generally, 55 kW single or twin stage fans are utilised to ventilate level access and ore drives. Twin stage fans are used when ore drives are scheduled to extend further than typical development. Capital decline development is ventilated by a 75 kW twin stage fan and 1,400 mm diameter ducting.

A standard secondary ventilation installation for an operating level in Youle is shown in Figure 16-13. The installation includes a fan placed in primary flow above a working level access which ventilates three ore drive levels and six ore drive headings. Ventilation chokers are utilised in all levels for when additional flow may be required in other areas on the same secondary system. The return air from the ore drives joins the primary flow on the decline and continues to the Youle RAW.

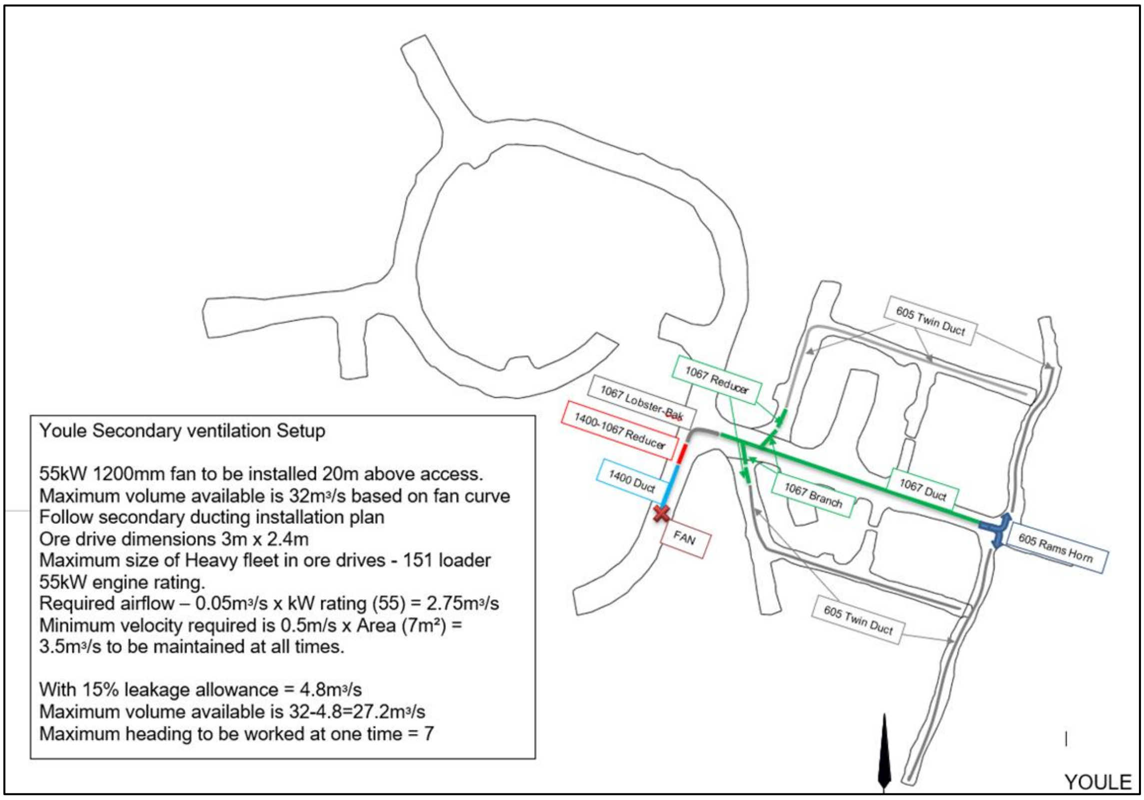

Figure 16-13: Standard secondary ventilation installation for Youle level access

16.5 Mine Services

16.5.1 Compressed Air

Compressed air is generated for the underground workings by the surface compressed air plant, which is comprised of three 593 cfm compressors for an overall plant capacity is 840L/s (1779 cfm).

Compressed air is delivered underground via a 4” HDPE ‘poly’ pipe run through the mine development, with each level supplied from the decline via 2” HDPE piping. Air receivers have been placed at the Brunswick 1,006 mRL and Stock Pile 5 Youle to increase the system efficiency. Compressed air is used to power pneumatic equipment and/or activities including:

- Airleg drills,
- Pneumatic ammonium nitrate-fuel oil (ANFO) loaders,
- Blast-hole cleaning/prepping for development rounds,
- Diaphragm air pumps,
- Pneumatic long-hole drills,
- Long-hole cleaning/prepping.

16.5.2 Raw Mine Water

Raw mine water is sourced from the Augusta Mine Dam located on the Augusta site, and water is delivered to the underground workings through two separate supply lines. The Augusta and Cuffley areas of the mine are suppled from header tanks at the Augusta portal via 4" HDPE pipe run through mine development. Youle and Brunswick are supplied via a service-hole connected to a header tank on surface at the Brunswick site. Pressure reducer valves are installed in the water supply lines at 60 m vertical intervals to manage the water pressure underground.

The Augusta Mine Dam is fed directly from the rising main that extends from the Cuffley 945 Pump Station.

16.5.3 Dewatering

Dewatering of the underground workings is managed through a series of collection sumps that report to various pump stations throughout the mine. From the intermediate pump stations and sumps, ground water reports to the bottom of the 4800 decline Settlement Sump via gravity for silt management. From the 4800 decline the water is pumped to the underground Cuffley 945 Pump Station where it is discharged via the Rising Main to the surface storage dams.

16.6 Backfill

The practice of placing CRF in stope voids has been undertaken in Cuffley, Augusta, Brunswick and Youle to improve local ground stability, reduce unplanned dilution and improve mining recoveries. CAF fill is also selectively utilized as an alternative to CRF in Youle for improved confinement and stability in flat dipping stopes. The use of paste fill was also considered as a possible alternative but it was found that the tailings from the Brunswick Processing Plant were unsuitable for backfill purposes due to the high moisture, clay content and cost considerations.

The CRF uses waste rock sourced from development with the addition of a cement slurry mix that results in a final product composing of 4% cement. CAF uses waste rock that is screened to a smaller diameter aggregate, with the addition of a cement slurry to form a final product composing of 8% cement.

Cemented fill is mixed in batches of varying sizes using a Caterpillar 1700G loader. The hydrated cement mix is batched on the surface using a cement silo on contract by Mawson Concrete.

The cement slurry is delivered underground to mixing bays via a cement agitator truck. Once mixed, the cemented fill is trammed to the fill point of the open stope using a Toro 151 or equivalent loader. A bund is placed at an appropriate distance from the top of the stope to minimise potential for loader to overbalance or drive into the stope void. Care is taken during placement of the fill that the mesh tube is not displaced which is secured by chains during the filling process. Emergency dump and wash-out areas are located underground should a load of batched cement need to be disposed of before curing occurs in the agitator bowl.

The quality of the cemented fill is ensured by the use of a PLC control at the cement batching plant and standardised bucket filling of the waste rock. Records are kept of batch quantities for all batches.

The nominal curing time before firing the adjacent stope is 24 hours. After 12 hours, the rock bund placed at the brow of the stope can be removed in preparation for drilling and/or charging the adjacent stope panel.

The cemented fill methods have proved effective in minimising dilution during subsequent panel extraction as well as providing better ground stability and has eliminated the requirement for rib pillars.

16.7 Mineral Reserve Schedule Assumptions

The reserve schedule was completed using the assumed mining rates shown in Table 16-3. Total development and production rates are constrained by the combination of development headings or stoping fronts available at the one time and the resources available.

Table 16-3: Schedule assumptions

Description	Value
Operating Dev m advance/cut	1.8
Max. Operating Dev m/mth/heading	40
Max. Total Operating Dev m/mth	500
Capital Dev m advance/cut	3.7
Max. Capital Dev m/mth/heading	190
Max. stope tonnes/mth/heading	1,000
Max. Total stope tonnes/ mth	10,000

16.7.1 Equipment Requirements

The existing development, production and auxiliary underground equipment fleet will continue to be used, where applicable, with additional equipment purchased to meet the planned replacement schedule or meet increased production demands.

The existing mobile equipment fleet is summarised in Table 16-4.

Table 16-4: Underground mobile equipment fleet

Equipment Type	Equipment Model	Existing Fleet
Single-Boom Jumbo	Resemin Muki FF	3
Production Drill	Resemin Muki LHBP 2R	2
LHD - Loader	CAT R1700G	2
LHD - Loader	Toro 151-D	3
LHD - Loader	Sandvik LH203	3
Haulage Truck	Atlas Copco MT436	1
Haulage Truck	Atlas Copco MT42	1
Cement Agi	Jacon Transmixer 5003	1
Telehandler	Dieci 33.11	2
Service Tractor	Carraro TN5800	5
Light Vehicle	Toyota Land Cruiser	14
Light Vehicle	Kubota 4x4 Utility	7
Total		**44**

16.7.2 Personnel

An existing core group of management, environmental, technical services (Engineering, Survey, Geology), administration, maintenance, supervisory, and production personnel continue to operate at the Costerfield Property. As a residential operation, all employees commute daily from their place of residence.

All capital development is completed by a contractor using their own equipment, which includes a twin-boom jumbo, three trucks and two loaders.

16.7.2.1 Shift Schedule

The Costerfield Property functions a continuous mining operation, 24 hours a day, 365 days per year. Operators and maintenance personnel work 11-hour shifts, seven days on, seven days off, alternating between dayshift and nightshift.

Augusta support staff work a standard Australian working week of five days on, two days off, eight-hours per workday.

All on-costs for annual/ sick leave and training have been estimated in the direct and indirect operating costs respectively.

16.7.2.2 Personnel Levels

All equipment has been assigned with one operator per crew per machine. It is assumed that cross-training will occur for all operators, ensuring that each shift panel is adequately multi-skilled to cover for any unplanned sickness, annual leave and general absenteeism.

The current personnel numbers for the total workforce is 211 employees.

16.8 Schedule Summary

A summary of the key physicals in the Mineral Reserve schedule is presented in Table 16-5.

Table 16-5: Summary of schedule physicals

Description	Units	Quantity
Capital Development	m	1,325
Operating Development (Waste)	m	11,988
Operating Development (Ore)	m	5,102
Development Ore Tonnes	tonnes	104,121
Development Ore Grade Au	g/t	9.1
Development Ore Grade Sb	%	1.6
Stoping Ore Tonnes	tonnes	495,793
Stoping Ore Grade Au	g/t	13.6
Stoping Ore Grade Sb	%	3.8
Total Ore Tonnes	tonnes	599,913
Total Ore Grade Au	g/t	12.8
Contained Au	ounces	246,822
Total Ore Grade Sb	%	3.5
Contained Sb	tonnes	20,759
Opening Stocks		
ROM Ore Tonnes	tonnes	16,284
ROM Ore Grade Au	g/t	14.8
ROM Ore Grade Sb	%	6.1

17 RECOVERY METHODS

17.1 Brunswick Processing Plant

The Brunswick Processing Plant treats an antimony and gold rich sulphide ore through a conventional comminution and flotation style concentrator. It has been operating since 2007, and by Mandalay Resources since late 2009. Since then, several plant upgrades have resulted in production capacity increases to the current rate of approximately 12,000 t/month over the 2015 to 2020 calendar years. The concentrator operates 24 hours per day, 7 days per week, while crushing operates under noise restriction guidelines during extended dayshift hours.

The surface crushing and screening facility processes underground feed down to a particle size range suitable for milling through a two-stage, closed circuit ball milling circuit. Centrifugal style gravity concentrators are used on the combined primary milling product and secondary mill discharge to recover a gold-rich gravity concentrate. This is upgraded further over a shaking table and sold as a separate gold concentrate product which is transported to local refineries.

Secondary milled products are classified according to size and processed through a simple flotation circuit comprised of StackCell® roughers, additional rougher tank cells followed by the original flotation train rougher, scavenger and single stage cleaning. The concentrate is dewatered through thickeners and filtration to produce a final antimony-gold concentrate product which is bagged, packed into shipping containers and shipped to customers overseas. The flotation tailings are thickened before being pumped to one of two tailings storage facilities (TSFs), one located to the east and one to the north of the Brunswick Processing Plant.

The Brunswick Processing Plant flowsheet is simple, conventional, well proven over 14 years of operation and is suited to processing the Costerfield Property ores remaining in the LOM plan. A summary processing flowsheet is provided in Figure 17-1. Plant upgrades scheduled for 2021 include a second Stack Cell® primary rougher which will be installed in series with the existing StackCell®, and additional flotation cells on the final tailings to recover a separate, lower grade antimony-gold concentrate.

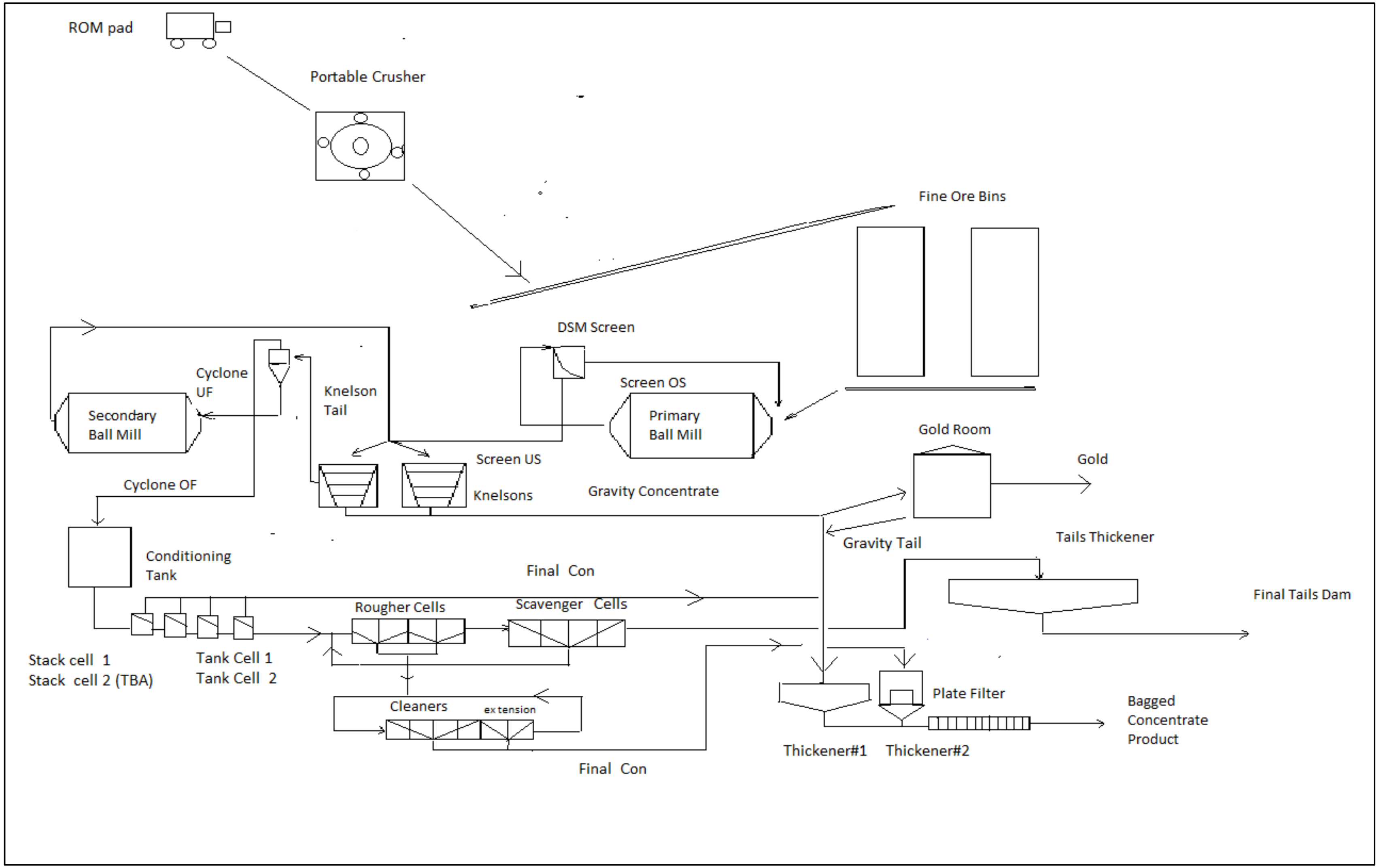

Figure 17-1: Brunswick Processing Plant summary flowsheet

17.1.1 Crushing and Screening Circuit

The crushing and screening plant consists of a primary crushing circuit operating in closed circuit with a 12 mm vibrating screen. It uses a duty and a standby diesel-powered Finlay I-130RS mobile impact crusher. Having two crushing units provides additional capacity and crushing circuit redundancy. Crushed ore is conveyed to two 120 tonne fine ore bins operating in parallel. The crushing and milling circuit has demonstrated it has a capacity of 14,000 dry metric tonnes (DMT) per month.

17.1.2 Milling Circuit

Crushed ore is reclaimed from the fine ore bins, which both discharge onto the primary mill feed conveyor, and fed to the milling circuit. The milling circuit comprises two ball mills in series, both operating in a closed circuit. The primary mill operates in closed circuit with a Dutch State Mines (DSM) static screen, with the screen oversize returning to the primary mill for further grinding and the screen undersize being fed to a centrifugal style gravity concentrator. The gravity concentrator recovers a small mass of high-grade gold concentrate that is sent to the gold room for further gravity upgrading using a shaking table, and then directly to a local gold refinery as a separate saleable product. The gravity gold production varies, however recoveries from the Youle ore feed is typically around 40% to 50% of the gold in the feed.

The gravity tailing is pumped to classifying hydrocyclones (cyclones), the overflow of which becomes the flotation plant feed. The underflow is returned to the secondary ball mill for further grinding.

The milling circuit has a target grind size P_{80} of 60µm. The secondary ball mill discharge is combined with the DSM screen undersize which is also fed to the centrifugal gravity concentrator.

17.1.3 Flotation Circuit

The flotation circuit is designed to recover antimony-gold rich sulphide concentrate. The flotation circuit is fed from the secondary ball mill cyclone overflow. The cyclone overflow is fed to a conditioning tank where lead nitrate, an activator, and potassium amyl xanthate (PAX), a collector, are added. The conditioning tank feeds a 48" flotation StackCell® currently operating in series with two site fabricated rougher tank style flotation cells, again operating in series. The StackCell® and rougher tank cell concentrates are combined with the final cleaner concentrate as the final product. A second flotation Stack Cell®, supplied by Eriez Flotation (ERIEZ), was delivered to site in late 2020 and will be installed in series with the existing unit.

The rougher tank cell tailings flow to the original flotation circuit. This consists of eight Denver square DR100 cells for the remaining rougher and scavenging duties, followed by six Denver square DR15 cells used for cleaning duties. The concentrate from the Denver rougher flotation cells is pumped to the cleaner flotation cells while the tailing becomes feed for the scavenger flotation cells. The concentrate from the scavenger flotation cells is recycled to the feed of the Denver rougher flotation cells while the scavenger tailing is pumped to the tailings thickener. The concentrate from the cleaner flotation cells is pumped to the concentrate thickeners while the cleaner tailing is also recycled to the rougher flotation cells.

In addition to the additional StackCell®, a plant upgrade, scheduled for the first quarter of 2021, will incorporate the installation of rougher and cleaner CavTube® column flotation cells supplied by ERIEZ. These will be installed on the final tailings slurry stream as an additional stage of tails scavenging. This will produce a separate low-grade antimony-gold concentrate. The first stage of this new circuit, the rougher column tail, will become the final tail stream.

The flotation circuit effectively recovers the antimony and any gold not collected in the gravity gold circuit. There was a notable and expected improvement in total gold and gravity gold recovery with the Youle underground mine coming on line progressively during 2020 as the major mill feed source (Section 17.1.7, Figure 17-2).

17.1.4 Concentrate Thickening and Filtration

The final concentrate, the combined StackCell® and tank rougher cell products, and the cleaner flotation product, is pumped to the two concentrate thickeners. The thickened underflow is pumped directly to a plate and frame pressure filter for final dewatering. The moist concentrate filter cake is discharged directly into concentrate bags. The filtrate is recycled to the concentrate thickener while the concentrate thickener overflow is recycled back to the plant as process water to maximise water re-use and minimise concentrate losses. An additional smaller concentrate thickener was installed in late 2019 to increase the dewatering capacity of the flotation plant concentrate.

17.1.5 Tailings Circuit

The flotation circuit tailings are settled in a thickener. The tailings thickener overflow is recycled back to the plant as process water and the thickened underflow solids are pumped to a TSF where it is discharged via a conventional spigot system. Any additional water from the tailings is decanted and pumped back to the plant also for use as recycled process water.

17.1.6 Throughput

The Brunswick Processing Plant capacity is up to 14,000 DMT/month, typically averaging closer to 13,000 DMT/month. Since operations commenced, the plant has demonstrated ongoing production creep, from around 5,000 DMT/month achieved in January 2012 to its current capacity.

Annual plant throughput has been matched to mining in recent years as underground mine production has at times limited the available mill feed. Average plant throughput budgeted for 2021 is 13,100 DMT/month. The forecast production rates are well supported by consistent historical production over several years and ongoing plant upgrades and debottlenecking projects. Average throughput was 12,822 DMT/month, 12,867 DMT/month, 12,647 DMT/month, 12,979 DMT/month, 11,900 DMT/month and 12,536 DMT/month between 2015 and 2020 respectively. The moderate fall in 2019 was largely due to restrictions in plant feed supply.

Increases are forecast to the underground mining production rate, with mine production projected to exceed the plant's capacity in the coming year of 2021. The Costerfield Property LOM Financial Model for the 2020 reserves forecast a steady throughput into 2021, predominantly from the Youle underground lodes. There is potential further plant throughput upside if underground mining production becomes available.

Further discussion of historical production and forecast LOM plant throughput on the current ore feed blend is provided in Section 13.

17.1.7 Metallurgical Recovery

Simple head grade versus recovery relationships have been developed for both antimony and gold using plant operating data. The gold head grade versus tailings grade recovery relationship uses monthly data to smooth daily fluctuations associated with the gravity gold content. The antimony recovery algorithm uses daily operational data collected between 2015 and 2020, inclusive. Data for 2019 has been removed for the gold recovery algorithm due to the outlying gold recovery behaviour associated with the Brunswick ores. Brunswick no longer makes up a significant part of the blend, since the Youle ores are the dominant source of feed (Figure 17-2).

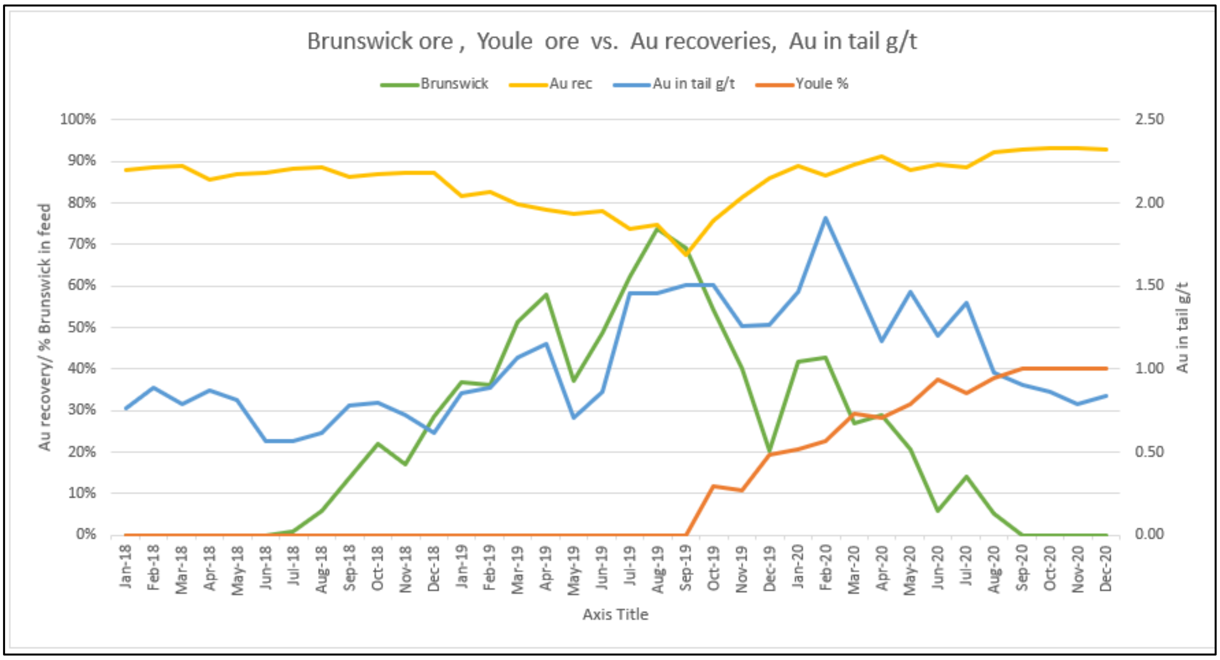

Figure 17-2: Plant gold recovery improvement with changing feed source from Brunswick to Youle, 2018 to 2020

Forecast antimony and gold recoveries used for LOM planning, budgeting and economic modelling are based on these recovery relationships, which is the best method of forecasting recovery when processing a similar feed blend. These algorithms, which are updated annually, forecast average LOM recoveries of 95% and 90% for antimony and gold respectively. These are not dissimilar to the 2020 EOY reconciled plant recoveries of 96.6% and 90.6%.

A further consideration in predicting plant gold recovery in 2021 and onwards, is the ongoing plant upgrades scheduled for completion in early 2021. An increase to the primary rougher circuit residence time and an upgrade to the flotation circuit through the installation of new CavTube® column style flotation cells on the tailings is expected to potentially increase recoveries by up to a few percent over forecast levels. The improvements from these upgrades have not yet been incorporated into modelling in order to take a more conservative approach to ore reserve estimation.

The recovery relationships are well understood and are appropriate for metallurgical recovery estimation purposes. They are supported by historic recoveries at a similar feed grades and based on grade/recovery relationships on Youle ore feed and other similar ores.

Further confidence in the forecast recovery is provided by the consistent recoveries of both antimony and gold achieved over a number of years across a range of feed grades. The forward LOM estimates are considered to be conservative and do not incorporated all the improvements from the last two months of 2020, nor claim any benefits from the flotation circuit upgrades being undertaken in 2021. Further details are provided in Section 13.

17.1.8 Concentrate Grade

The antimony concentrate grade for 2020 returned to typical longer term historic levels of 54% Sb, after decreasing in 2019 to 51.3% Sb. The improved antimony head grade of the Youle ores and the inclusion of the new StackCell® into the primary rougher flotation circuit duty benefited the final antimony concentrate grade, as the StackCell® accounted for 20% by mass of the total concentrate produced at higher than average antimony product grades.

The antimony-gold concentrate grade has been consistently achieved throughout the historical operation. There is a high degree of confidence in the ongoing ability of the operation to maintain the concentrate antimony grade above the minimum 50% Sb in the future LOM plan in order to maximise the payability of the contained metal. This is a conservative assumption given concentrate grades have historically been above 51.5% Sb and with a Youle ore dominant feed blend, is expected to be closer to 54% Sb. Supporting historical plant throughput and recovery data is provided in Section 13.

17.2 Services

17.2.1 Water

The water services at the Brunswick Processing Plant consist of the raw water, process water and excess water disposal systems. The process water supply consists of concentrate thickener overflow, tailing thickener overflow and TSF decant return water.

Most of the raw make-up water is provided by dewatering of the underground operations at approximately 1.5 ML/day to 2 ML/day. The plant operates with a positive water balance with excess water requiring disposal. Mandalay Resources constructed a 2 ML/day permeate reverse osmosis (RO) plant at the Brunswick Processing Plant in 2014, which remains in operation as per regulatory approvals. A pre-treatment plant to feed the RO plant was also installed in 2017. This has enhanced the robustness of the RO plant operation, limiting downtime and reducing consumables consumption.

The Splitters Creek Evaporation Facility has the capacity to treat 104 ML/year net (evaporation minus rainfall) and treats the bulk of the excess water. Aquafer Recharge (AR) is being used as an additional water disposal method and has been trialled successfully during 2017 through to 2020.

The TSF and process water is stored in and distributed from a dedicated tank system. As the site has a positive water balance due to underground dewatering, adequate process water supplies are available to meet the LOM requirements.

17.2.2 Air

The Brunswick Processing Plant requires both low pressure (LP) and high pressure (HP) air supplies. Currently, three separate LP blowers supply the rougher, scavenger and cleaner cells, with the existing tank cells running off HP air.

The HP air supply was upgraded to a variable speed compressor in 2017 in order to increase the capacity and availability of high-pressure air and reduce the shock load on the power supply on start-up of the fixed speed compressor units. The pressure filter also runs off HP air.

The processing facility has adequate air to meet the LOM requirements and no current upgrades are required or planned.

17.2.3 Power

Due to the need for additional electrical power for the development of the Brunswick and Youle underground orebodies, upgrades to the power supply and reticulation circuits were completed in 2019. This involved consolidating three separate incoming sources of electrical supply into a single supply source, and distributing electrical power from that single point. This has allowed for greater efficiencies from minimising losses from each supply point and also allows additional local site back-up generation to occur at a single point. This has simplified starting and stopping of supplementary site diesel fired power depending on the demand. The mill and RO plant will continue to be powered from this single point. There is also provision for additional power demand for the mill up to 2 kVA.

Further improvements to electrical switchboard controls have been ongoing in order to remove local power boards and relocate them to a central location. This consolidation work is to continue in 2021 in parallel with the inclusion of extra plant mechanical equipment such as the new StackCell® and CavTube® column flotation cells.

17.3 Plant Upgrades

Two major Brunswick Processing Plant capital projects were completed in 2019 and 2020. These comprised the installation of additional rougher flotation cells and a second concentrate thickener. Further flotation circuit upgrades are scheduled for 2021. Additional details of recent plant upgrades in each processing circuit are provided below.

17.3.1 Crushing and Screening Circuit

A mobile crusher trial in 2012 significantly improved the capacity of the Brunswick Processing Plant. A larger portable crushing unit has since become a permanent part of the process flowsheet configuration. Another mobile crusher was purchased in 2015 to allow for a duty and standby arrangement for additional capacity and redundancy. This enables an average throughput of over 13,500 DMT/month and peak capacity of over 14,000 DMT/month to be reliably maintained.

In late 2021, a mobile, twin deck screening plant will be delivered to site which will allow for pre-screening of the ore. The undersize fines will become a direct plant feed and will bypass the crusher. This will both reduce wear through the crusher and benefit throughput during wetter months when crushed feed can become limited due to reduced crusher throughput. Pre-screening will also remove adventitious mining drill parts and ground support from the feed which will protect the crushers and conveyors from related damage.

17.3.2 Milling Circuit

The milling circuit remains unchanged. The finer crushed ore feed size allows the target throughput to be achieved. No further upgrade work is planned at this time.

17.3.3 Flotation Circuit

An additional flotation cell was commissioned in November 2018. The 48” diameter StackCell® unit, supplied by ERIEZ, was installed in front of the existing rougher tank cells, and is fed directly from the flotation conditioning tank. The new cell increases the overall residence time and promotes flotation kinetics through its hydrodynamic design. By doing so, recoveries from the slower floating sulphide minerals are improved. The StackCell® has a nominal capacity comparable to that of the existing, larger $8m^3$ – $9m^3$ tank Cells #1 and #2. It also offers the further advantage of a pinch level valve in closed loop PID control through a pressure transducer. This enables the control of level set points to improve process control. Since commencing operation, the StackCell® has recovered approximately 19% of the antimony and gold from the float feed at better than the average antimony grade and slightly lower gold grade in the final concentrate product.

In addition to the Youle Deposit becoming the main component of the feed, the StackCell® installation has been a significant contributing factor in the improved antimony and gold recovery and overall plant performance for the 2020 production year.

A second StackCell® has been purchased and was delivered to site in late 2020. It is expected to come online in early 2021 as a second primary rougher flotation cell. The additional flotation capacity provides the flexibility to take downstream flotation banks offline for maintenance when required without the previous impact on recoveries. A refurbishment of the final Denver rougher and first scavenger cell, along with the transition box was completed over the April to August 2020 period.

A further plant upgrade scheduled for first quarter of 2021 will install additional rougher and cleaner CavTube® column flotation cells on the flotation tail. This new flotation circuit on the tailings stream will produce a separate low-grade antimony-gold concentrate. The rougher column tail from this additional circuit will then become the final plant tail. The new columns are sized for the full tailings slurry capacity.

The columns will be supplied by ERIEZ and are scheduled for delivery to site by late February 2021. The column low-grade antimony-gold grade concentrate will be stored separately to the main sulphide flotation concentrate product. The mass pull of this new product stream will be small. In order to take a conservative approach, the recovery benefits from this upgrade have not yet been factored into the recovery algorithms used for the ore reserve estimation.

17.3.4 Concentrate Thickening and Filtration

In anticipation of higher antimony feed grades from the Youle Deposit, an additional 2.4 m^3 capacity concentrate thickener with rake and lift was purchased second-hand. It has been installed in the plant along with its own Verderflex product pump. An additional froth pump has been installed to allow separate loading of the new thickener.

The additional concentrate thickener operates in parallel with the current 4 m diameter concentrate thickener. The splitting of concentrate produced from the front StackCell®, tank cells and the Denver cleaner cells provides an appropriate mass split between each thickener. Both thickeners feed the pressure plate and frame filter press in parallel. Loading and pressing time for the filter press is not a bottleneck for production, whereas settling capacity in the concentrate thickener can be a bottleneck at higher metal production rates and needs to be carefully managed.

The new lower grade concentrate produced by the CavTube® column style flotation circuit treating the tailings will be dewatered on a campaign basis through the existing filter press.

17.3.5 Tailings Circuit

The tailings thickener has sufficient capacity to meet the current throughput, and allows for the changes associated with the CavTube® flotation column upgrade project. The average tails thickener underflow solids density continues to be maintained at approximately 50% (+/- 10%).

The capacity provided by the 2018 lift of the Bombay TSF was exhausted in August 2020. The Brunswick TSF returned to service as the replacement storage facility after the completion of a hybrid wall lift and will be used as the primary storage facility for 2021 and most of 2022. Studies are underway to determine the most effective way to further increase tailings capacity through future TSF lifts to meet the LOM plan. Further details are provided in Section 18.

17.3.6 Reagent Mixing and Storage

No upgrade work is required for the reagent mixing and storage area.

18 PROJECT INFRASTRUCTURE

The infrastructure associated with the Costerfield Property is comprised of surface, underground, tailings storage, power and water supply, waste rock storage, diesel storage, explosives storage, maintenance and housing facilities.

18.1 Surface Infrastructure

The Costerfield Property's surface infrastructure facilities are typical of a conventional flotation style concentrator and underground mining operation of this size.

18.1.1 The Augusta Mine Site

The Augusta Mine site comprises the following infrastructure (Figure 18-1):

- Office and administration complex, including change house,
- Store and laydown facilities,
- Heavy underground equipment workshop,
- Evaporation and storage dams,
- Temporary surface waste rock stockpile area,
- Augusta Mine box-cut and portal including cement silo,
- Ventilation exhaust raise,
- Ventilation intake raises,
- Mine water recirculation dam and silt settlement channel,
- Exploration drilling contractor offices and workshop,
- Capital development contractor workshop.

Figure 18-1: Augusta Mine Site

18.1.2 The Brunswick Mine Site

The Brunswick site comprises the following (Figure 18-2):

- Gold-antimony processing plant and associated facilities,
- Central administration complex,
- Process plant workshop,
- Tailings storage facilities,
- ROM stockpiles,
- Waste rock stockpiles,
- RO Plant capable of producing 2 ML of treated water per day,
- Previously mined Brunswick Open Pit,
- Brunswick mine portal,
- Brunswick Primary Ventilation Raise,
- Youle Primary Ventilation Raise,
- Exploration Geology offices, core farm and core processing facility.

Figure 18-2: Brunswick Site Area

18.1.3 The Splitters Creek Evaporation Facility

The Splitters Creek Evaporation Facility is situated on a 30 ha parcel of land which is located approximately 3km from the Augusta site. The facility exists on the Mining Lease MIN 5567. The facility evaporates a combination of groundwater extracted from the Costerfield Property mines and brine which is a bi-product of RO filtration, thereby enabling underground dewatering rates to be maintained. The site comprises the following:

- 150 ML storage dam,
- 40 ML evaporation terraces,
- Recirculation pumping system which directs water from the storage dam to the evaporation terraces,
- Splitters Creek rising main, which feeds water from the Augusta Mine Dam to the evaporation terraces,
- Leakage detection system on the Splitters Creek rising main.

In 2020 permits were amended and approved to allow brine to be discharged to the Splitters Creek Evaporation Facility.

18.1.4 The Margarets Aquifer Recharge Borefield

The Margarets Aquifer Recharge Borefield is located approximately 1km south of the Augusta operations. Aquifer recharge infrastructure at Margarets includes 2 injection bores and is licensed to dispose of 730 ML of mine wastewater via injection into the Margaret's Aquifer over an operational period of 24 months.

18.2 Underground Infrastructure

The underground infrastructure at the Costerfield Property is typical of an underground mining operation.

18.2.1 Secondary Means of Egress

The secondary means of egress consists of a ladderway system that connects all underground workings to surface in parallel with the main development declines. The ladderway system comprises:

- The Augusta ladderways from Surface to the 900 mRL, within the Augusta underground workings,
- The Cuffley ladderways extend from the Cuffley Incline, Cuffley Decline and 4,800 decline to the 945 mRL. From the 945 mRL level, extraction is performed via the Cuffley Primary Ventilation Shaft in an Emergency Gig,

- The Brunswick ladderways, which are installed between every second operating level, cross-cut allowing a secondary means of egress parallel to the main decline travelway to the 1,056 FAB, where the Emergency Gig can be landed for final extraction to surface,
- The Youle ladderways are typically mined between operating levels of the Youle development, with the exception of the 947, 957 and 967 Levels. These ladderways allow a secondary means of access to the bottom of the Youle Primary Ventilation Shaft (PVS). The 947, 957 and 967 levels have secondary access to the bottom of the Youle PVS via the mind Youle decline. The Emergency Gig can also be operated in the Youle PVS to allow extraction of personnel from this point if required,
- The Emergency Gig attaches to a standard crane hook and hoists personnel in an emergency, up and down the Cuffley PVS using a 200t mobile crane as the hoist. The Emergency Gig is capable of evacuating 5 persons or 600kg at a time.

18.2.2 Refuge Chambers and Fresh Air Bases

Six underground refuge chambers and two permanent Fresh Air Bases (FAB) are strategically placed within the mine to mitigate hazards posed by irrespirable atmospheres and entrapment.

The capacity of the refuge chamber required is dictated by the number of personnel planned to be working in the immediate vicinity serviced by the refuge chamber. The position of the refuge chamber facilities enables all personnel to be within 750 m of a refuge chamber, as recommended in the Western Australian 'Refuge Chambers in Underground Metalliferous Mines' Guideline (Department of Consumer and Employer Protection, 2008). It is not intended for refuge chambers to substitute a secondary means of egress, but to provide refuge during fire or containment when ladderways may be inoperative or inaccessible.

The refuge chambers and FABs are located in:

- The Augusta workings has a fresh air base at the 1,040 Level (off the Augusta decline),
- The 4,800 decline currently has a 4-man refuge chamber located at the 909 level, which is a travelling chamber that may be positioned in areas not serviced by fixed refuge chambers if the need arises.
- The Brunswick workings has a 10-man refuge chamber located at stockpile 4 in the Brunswick access, a 16-man refuge chamber in the 1,006 level (RL) and a FAB at the 1,056 Vent Access,
- The Youle workings has a 20-man refuge chamber located at stockpile 10, a 16-man refuge chamber located at the 807 Refuge Chamber Cuddy and a 20-man refuge chamber at the 747 Refuge Chamber Cuddy.

18.2.3 Compressed Air

The existing compressed air plant comprises three 593 cfm compressors. The overall plant capacity is 840 L/s or 1779 cfm. Compressed air is delivered underground via a 4-inch HDPE poly pipe, then each level is supplied from the decline via 2-inch HDPE piping.

Air receivers have been placed at the Brunswick 1,006 mRL and stockpile 5 Youle to increase the system efficiency.

Compressed air is used to power pneumatic equipment and/or activities including:

- Airleg drills,
- Pneumatic ANFO loaders,
- Blast-hole cleaning/prepping for development rounds,
- Diaphragm air pumps,
- Pneumatic long-hole drills,
- Long-hole cleaning/prepping.

18.2.4 Ventilation System

The primary ventilation infrastructure currently consists of five fresh air intakes and two primary exhaust shafts.

The Fresh air intakes consist of the:

- **Augusta Portal** which has 56 m^3/s of airflow entering the portal,
- **Augusta Fresh Air Intake** (FAI) which is a series of air leg rises from the surface to the 1,020 Level (RL) in the Augusta workings, comprising 12 m^3/s airflow,
- **The Augusta Fresh Air Rise** (FAR) is a 150 m vertical raisebore shaft from surface to the 1,020 Level in the Augusta workings. The Augusta FAR is 3 m diameter and approximately 11 m^3/s of fresh air enters the mine through this shaft,
- **Brunswick Fresh Air Rise (FAR)** is a 230 m, 3.5 m diameter, vertical raise bore shaft from the surface to the 956m RL in the Brunswick workings. The shaft is currently backfilled with waste rock up to the 1,056m RL. Approximately 3m^3/s enters the mine through the Brunswick FAR, which is currently regulated to 98% closed. The air flow through the Brunswick FAR supplies adequate air flow to the 1,056 FAB which serves as a refuge point in the event of an emergency,
- **Brunswick Portal** is a 5 mW by 5 mH arched profile drive which reduces to 4.5 mW by 4.8 mH after approximately the first 20 m of development. Brunswick Portal allows 80m^3/s of fresh air to enter the mine under the current configuration.

Return Air Rises (RAR) include:

- **Cuffley RAR** is a 230 m long, 3 m diameter vertical raise bore shaft from surface to the 950 Return Air Way (RAW). The Cuffley primary fan chamber is positioned at the bottom of this shaft, which is capable of running three single-stage Clemcorp CC1400 Mk4 fans driven by 110kW motors. The three fans are installed in a fan bulkhead in parallel. Currently, the primary ventilation is configured such that only one of the three primary fans at the Cuffley primary fan chamber is required to operate. The Cuffley RAR exhausts 54 m^3/s from the mine workings,
- **Youle RAR** is a 232 m long, 4 m diameter, vertical raise bore shaft from surface to the 957 RAW. The Youle primary fan chamber is positioned at the bottom of this shaft, which is capable of housing four single stage Clemcorp CC1400 Mk4 fans driven by 110kW motors. The four fans are installed in a fan bulkhead in parallel. Currently, the primary ventilation is configured such that only two of the four primary fans at the Youle primary fan chamber are required to operate. The Youle RAR exhausts 103 m^3/s.

The primary ventilation flow is distributed through the mine using secondary fans positioned in areas of primary air flow that force ventilate the development and stoping levels as required.

18.2.5 Dewatering System

The process of dewatering in advance of the mining levels is achieved by leaving diamond drill holes drilled from underground open to drain. Due to the fractured nature of the aquifer, the groundwater inflows are not predictable. Total mine inflow for the active workings is approximately 1.5 ML per day.

In order to manage silt, all inflowing ground water is pumped, or gravity fed to the 4,800 decline pump station silt settlement sump. Clarified water is then transferred from the 4,800 pump station, comprised of two duty and one standby WT084 Wear Tuff Mono Pumps, to the 945 pump station and rising main infrastructure, which are comprised of four WT088 Wear Tuff Mono Pumps, where it is discharged to surface storage and transfer dams.

The Cuffley, 4800 decline and Augusta workings are all designed as gravity fed systems that feed the 4800 decline silt settlement sump.

Brunswick has a series of sumps connected by gravity fed drain-holes that feed into the decline sump at the 956 mRL, a 20 kW pump then transfers water to the 4,800 decline silt settlement sump.

Youle has a series of sumps connected by gravity fed drain-holes that feed into two linked pump stations, each comprised of one duty and one standby WT084 Wear Tuff Mono Pump, at the 897 mRL and 777 mRL pump stations.

The rising main extends to the mine dam, from where water is distributed to the Actiflo™ and RO water treatment facility or to the Splitters Creek Evaporation Facility.

18.2.6 Infrastructure

An underground crib room is positioned at the 957 mRL Youle and the underground magazine is positioned at the 955 mRL Cuffley Incline.

In addition to fixed plant, Mandalay Resources owns, operates and maintains a full underground mining equipment fleet including production drills, loaders, trucks, jumbos and ancillary equipment required to undertake ore development and production operations.

18.3 Tailings Storage

Since operations began in the 1970s, two tailings dams have been constructed and operated, the Bombay TSF and the Brunswick TSF which is currently operational. Both TSFs were constructed based on a conventional paddock style design with earthen embankments.

Tailings are currently deposited in the Brunswick TSF, which currently has capacity to allow tailings to be deposited until Q3 2022. Tailings storage beyond Q3 2022 will be facilitated by the following:

- An additional lift is permitted and planned to take place on the Bombay TSF facility, which is planned to commence in Q1 2022. The Bombay lift will provide tailings storage through to Q4 2023,
- A subsequent Upstream or Centreline lift on the Brunswick TSF will be permitted and constructed to allow tailings storage to continue for a further 18 months to mid-2025,
- Tailings storage beyond Q2 2025 will require permitting and construction of an additional TSF cell.

18.4 Power Supply

The Costerfield Property's electrical power is supplied by grid power and supplemented on site, by on-demand diesel fired generator sets, comprised of High Voltage (HV) 22 kV, 11 kV and low voltage (LV) 415 V systems.

The HV infrastructure is supplied via a 22 kV feeder from Powercor, the grid network provider in the area. The system then steps down this power on site to 11kV using transformers, which is dispersed to six HV substations via a network of HV cable. At the six 11 kV transformers, power is stepped down further to 1 kV and 415 V.

The 11 kV system extends from the underground operations back to the surface to supply the Brunswick Processing Plant where it is stepped down to 415 V from 11 kV.

The majority of site electrical power demand is provided by 3 MVA of network power with the remainder provided through synchronised diesel fired generation on site if needed. The systems power quality is also supported by an 11 kV Power Factor Correction Unit (PFCU) (Figure 18-3).

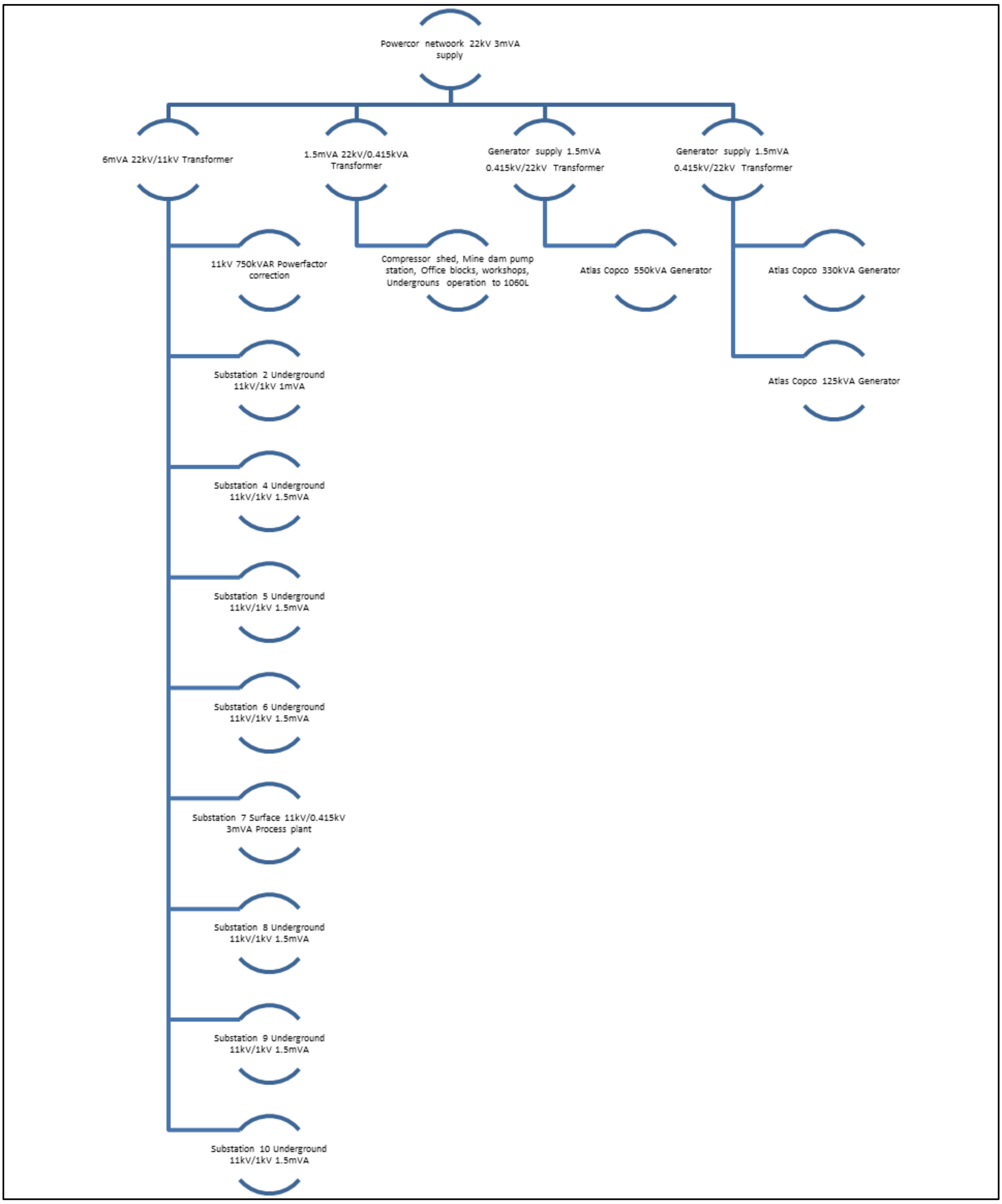

Figure 18-3: Costerfield Property's power reticulation diagram

The main power system equipment on site consists of:

- Overhead powerlines,
- High Voltage Substations,
- High Voltage RMU's (Ring main units),
- High Voltage transformers,
- High Voltage PFCU,
- Three Synchronised Generators, one Island mode Generator,
- Site electrical power reticulation.

The operations uses between 3 MVA to 5 MVA of demand at any given time. The Costerfield Property's generator system, once commissioned, will enable peak lopping of any load over the 3 MVA of network capacity with the synchronised generators working only when needed. This will enable islanded generators to be removed from site and generation from diesel to only be used when needed, and will be synchronised with the grid. The system, once running, will also enable the site to have up to 3 MVA of backup power isolated from the network if required.

Eventually the autonomous system will identify a grid loss and will shed all non-essential load, and will then support the operation in island mode. Once the network is available again, the system will synchronise and allow for full operating again. The PFCU correction at 11 kV ensures the entire sites inefficiency is corrected at the supply source.

18.5 Water Supply

Water for the underground and surface operations is sourced from the Augusta Mine Dam which is fed directly from the rising main that extends from the Cuffley 945 Pump Station to surface. The Brunswick Processing Facility sources raw water from a number of sources including recycled process water from the Brunswick and Bombay TSFs.

Potable water is trucked to site by a private contractor and is placed in surface holding tanks for use in the change house and office amenities. Potable water for drinking is provided in 15 litre containers.

For details on water disposal, refer to Section 20.1.2

18.6 Water Management

Groundwater is currently pumped from the underground workings to the Mine Dam at a rate of approximately 1.5 ML per day. Mine water is then pumped from the Mine Dam to either the Splitters Creek Evaporation Facility, or a series of water treatment and disposal facilities located at the Brunswick site.

The Augusta Evaporation Facility is comprised of three dams with a total storage capacity of 137 ML. Total site storage capacity, including smaller catchment and operational dams at Splitters Creek, Brunswick and Augusta, is approximately 335 ML.

The water services at the Brunswick Processing Plant consists of the raw water, process water and excess water disposal systems. The process water supply consists of concentrate thickener overflow, tailings thickener overflow and Brunswick TSF decant return water. Whilst the process plant utilises water from a closed circuit, make-up process water is required to supplement water evaporated at the Brunswick TSF.

Total evaporation and water disposal capacity, including discharge of RO treated water and Splitters Creek Evaporation Facility is currently estimated at 555 ML per year, assuming thelong term average Heathcote climatic conditions. Aquifer Recharge trials have been successful and the Costerfield Property has established the Margarets Aquifer Recharge bore field, approximately 1 km South of the Augusta operations.

18.7 Waste Rock Storage

Waste from underground capital and operating waste development is hauled to surface at the Brunswick site via the Brunswick portal. Surface haulage trucks shift waste from intermediate stockpiles predominantly to the Bombay Waste Stockpile, where it is stored for future use in CRF, capital projects such as TSF construction and lifts, and for rehabilitation purposes.

A small percentage of waste material hauled to surface is screened or crushed, to be used for road base both underground and on surface, and CAF. Further detail is provided in Section 20.1.3.

18.8 Surface Ore and Waste Haulage

The completion of the Brunswick Portal Project in 2020 allowed a significant reduction in the requirement to haul ore and waste in road registered trucks along the Heathcote-Nagambie Road. Underground trucks now haul directly to the Brunswick Pit where a surface haulage contractor manages the load, haul, dump operations for both ore and waste rock to their respective final stockpiles.

18.9 Diesel Storage

A self-bunded diesel storage tank of 68,000L capacity exists at the Augusta Mine site, which caters for all underground and surface diesel needs for Augusta.

The Brunswick site is catered by a self-bunded diesel storage tank of 65,000L capacity.

18.10 Explosives Storage

All storage, import, transport and use of explosives is conducted in accordance with the WorkSafe Dangerous Goods (Explosives) Regulations 2011.

Mandalay Resources utilises its own licenced personnel and equipment to handle, store, transport, and use explosives at the Costerfield Property. The designated explosives supplier produces all the explosives products off site. The ANFO is supplied in 20kg bags, while the emulsion is supplied as a packaged product. ANFO is primarily used for development and production purposes, with emulsion used when wet conditions are encountered.

The current Underground Magazine is located at the 955 mRL and is operated under the control of the designated black ticket holder on behalf of Mandalay Resources, who is the licensee. The current Augusta Magazine licence allowances are detailed in Table 18-1.

Table 18-1: Current August licence maximum quantities, by type of explosives

Class Code	Type of Explosive	Maximum Quantity
1.1D	Blasting Explosives	40,000 kg
1.1D	Detonating Cord	10,000 m
1.1B	Detonators	21,000 items

18.11 Maintenance Facilities

Maintenance facilities at the Costerfield Property comprise:

- A surface mine maintenance workshop facility located adjacent to the box-cut at Augusta. This workshop is capable of servicing all mobile UG equipment both electrically and mechanically. The surface mine maintenance workshop also includes a bay for an on-site boiler maker, facilities for an auto-electrician and mobile fleet parts stores are also incorporated into this facility,
- A mine Electrical Workshop allowing electrical maintenance of all electrical assets, both fixed, mobile, LV and HV,
- The Brunswick Processing Plant is equipped with under-cover maintenance facilities capable of servicing fixed and mobile processing plant, including the Finlay primary crushers. This facility also allows for fabrication works where necessary.

18.12 Housing and Land

Mandalay Resources owns 15 land allotments surrounding the Augusta, Brunswick and Splitters Creek Evaporation Facility sites. Of these properties, seven have residential dwellings on them, with the remaining eight consisting of vacant land. The residential dwellings are used as temporary housing for company employees.

The land allotment located on Peels Lane and Costerfield South, acts as an offset area for the Mandalay Resources mining and processing activities. It has been identified that the Peels Lane Offset has the potential to generate a total of 4.35 habitat hectares and associated large trees (Biosis Research, 2005).

The Peels Lane Offset was purchased as part of the Work Plan for MIN4644 and acted as an offset for the vegetation loss due to the construction of the Augusta Mine Site. The offset site has also been used to meet the offset requirements for the Brunswick TSF.

19 MARKET STUDIES AND CONTRACTS

The following market studies and contracts have been undertaken and/or are in place.

19.1 Concentrate Transport

The concentrate is discharged directly into 1.5 tonne capacity bulk bags ready for transportation by road train to the Port of Melbourne, for shipping to overseas markets. The average payload of each road train is approximately 42 tonnes, and sea shipments are normally scheduled at least once per month on a Cartage, Insurance, Freight (CIF) basis to the destination port.

A third-party haulage company collects the concentrate from the Brunswick site, transports, stores and loads the concentrate at the port.

All logistics and shipping documentation services are provided by Minalysis Pty Ltd.

19.2 Contracts

The antimony-gold concentrate produced from the Costerfield Property is sold directly to smelters capable of recovering both the gold and antimony from the concentrates, such that Mandalay Resources receives payment based on the concentration of the antimony and gold within the concentrate.

The terms and conditions of commercial sale are not disclosed, pursuant to confidentiality requirements and agreements.

19.3 Markets

The antimony price is determined through the Metals Bulletin as outlined in the contractual agreement with the customer, in US dollars. The payable factor is dependent on the quality and form of antimony product sold.

19.3.1 Global Outlook

The comments in this section are based on review of market reports by Roskill and the United States Geological Survey, and public comments by major consumers such as Campine.

Globally, world antimony mine production in 2016 was estimated to have been between 140,000 tonnes and 150,000 tonnes of contained antimony. China is the world's largest producer of antimony, accounting for approximately 75% to 80% of world mine production[3,4].

Primary antimony mines, with no precious metal credits, are increasingly becoming uneconomic, including those in China, such that global antimony mine output is now shrinking. The recovery of the antimony price in 2017 has incentivized producers to undertake studies into restarting historical mine production and greenfield exploration globally, however no major new antimony production is expected in the next one to three year time period.

Antimony is primarily used as a flame retardant and in the production of lead acid batteries, with these markets together accounting for nearly 90% of antimony consumption worldwide (Figure 19-1).

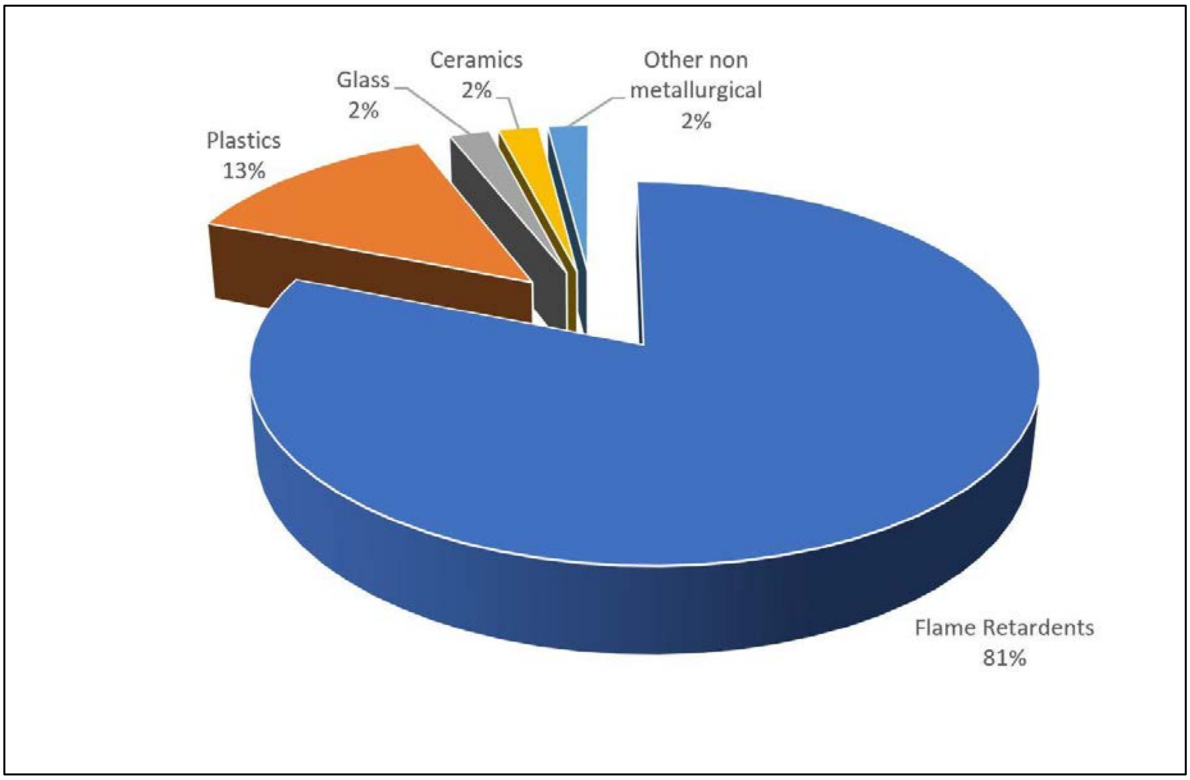

Figure 19-1: Estimate of global antimony demand by end-use segment [Source: Roskill[5], USGS and industry reports]

[3] Antimony: U.S. Geological Survey, Mineral Commodity Summaries, January 2016, http://minerals.usgs.gov/minerals/pubs/commodity/antimony/mcs-2016-antim.pdf.
[4] China's 2016 Nonferrous Industrial Output Production Summary, China Ministry of Industry and Information Technology (MIIT), 4 February 2017, www.miit.gov.cn/n1146290/n1146402/n1146455/c5479645/content.html
[5] https://roskill.com/product/antimony-world-market-for-antimony-to-2025-12th-edition/

Antimony consumption began to recover in 2016 following years of weak global economic growth and substitution of antimony in flame retardant formulations in response to price peaks in the previous cycle. Prices sharply recovered in 2016 and early 2017 (Figure 19-2) and remained stable during 2019 in response to both a positive demand environment and shrinking availability of primary feedstocks.

Figure 19-2: Antimony metal prices 2009 to 2019

According to the Australian Government's Office of the Chief Economist[6], consumption of antimony is forecast to grow slowly, at below 1% a year over the next 10 years, and a change in the composition of consumption will support growth in mining.

The market for metallurgical antimony is expected to contract over the outlook period as the intensity of use in batteries continues to decline. In the longer term, lead acid batteries themselves may give way to lithium-based and other battery technologies. Increasing battery recycling activity, particularly in China, is forecast to fully meet metallurgical demand for antimonial lead in the mid2020s.

Steady growth in non-metallurgical uses of antimony is likely to offset the metallurgical decline over the outlook period to 2028, led by increasing consumption in flame retardants and plastics.

[6] Department of Industry, Innovation and Science. Outlook for Selected Critical Minerals, October 2019. https://www.industry.gov.au/sites/default/files/2019-10/outlook-for-select-critical-minerals-in-australia-2019-report.pdf

The US National Toxicology Program has recently confirmed that antimony trioxide is 'reasonably anticipated to be a human carcinogen'. It is likely that subsequent policy decisions will limit its application in some uses, such as in flame retardants, to minimize the risks of human exposure. Even with regulatory limits on some uses of antimony trioxide flame retardants, the expected growth in flame retardant demand overall is likely to support continued growth in antimony use.

Over the outlook period, non-metallurgical uses are expected to support growth in antimony mining, averaging around 1.5% a year.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Environment and Social Aspects

20.1.1 Mine Ventilation

Ventilation shafts have been installed in the Cuffley, Brunswick and Youle mines to maintain suitable air quality and volumes within the expanded underground mine.

The Cuffley ventilation shaft is located on freehold land owned by Mandalay Resources and acts as the primary exhaust for the Cuffley area.

The Brunswick ventilation shaft is located on crown land nearby the Brunswick Processing Plant and acts as the primary intake for the Costerfield Property.

The Youle ventilation shaft is located on freehold land owned by Mandalay Resources and is an exhaust shaft.

20.1.2 Water Disposal

The disposal of groundwater extracted from the mine workings is a critical aspect of the Costerfield Property. The current approved Work Plan does not allow for off-site disposal of groundwater or surface water.

The climate in Central Victoria enables water to be removed through evaporation. Average pan evaporation is 1,400 mm per year according to the nearest Bureau of Meteorology monitoring station at Tatura, 65 km north-west of Costerfield. Mean rainfall in the area is 576 mm per year, recorded at the Bureau of Meteorology monitoring station at Heathcote, with the highest annual rainfall recorded in 1973 as 1,048 mm. The average rainfall in the Heathcote area between 2013 and 2019 is detailed in Table 20-1.

Table 20-1: Rainfall 2013 to 2019

Year	Rainfall (mm)	Above/Below Average
2013	554	Below
2014	510	Below
2015	299	Below
2016	687	Above
2017	504	Below
2018	379	Below
2019	350	Below

The Costerfield Property currently operates a series of water storage and evaporation dams, including the following major storages facilities:

- Splitters Creek Evaporation facility, comprised of 20 terraces and a HDPE lined storage dam,
- Three HDPE lined evaporation and storage dams at the Augusta site.

An RO plant was installed at the Brunswick processing plant in order to treat dewatered groundwater in 2014. In 2017, an actiflow unit was also installed as a pre-treatment to the RO plant, which is used to decrease the antimony and dissolved solid levels prior to RO treatment.

The treated water is licenced to be discharged into a neighbouring waterway, to be provided to local community members for stock watering or gardening, or can be used for dust suppression purposes on roads around the site. The creek discharge is licenced by the EPA, and permits up to 360 ML/year of RO treated permeate to be discharged into the Mountain Creek South diversion, which feeds into the Wappentake creek at a maximum rate of 2.0 ML/day.

The waste product from the RO plant, known as brine, contains concentrated levels of salt, antimony and other elements removed from the groundwater. The RO plant brine is stored in the plastic lined evaporation dams at Augusta, reused in the Brunswick Processing Plant or evaporated in the tailing storage facilities.

The Splitters Creek Evaporation Facility, completed in 2015, has the capacity to treat 104 ML/year net (evaporation minus rainfall). The purpose of the facility is to evaporate groundwater extracted from the Costerfield Property and thereby allow continued dewatering from the underground workings. The facility consists of a series of shallow evaporation terraces that follow the natural topographic contours. Groundwater is pumped from the Augusta mine site and discharged to the terraces. The water cascades down the slope via the terrace spillways to the Storage Dam at the lowest point. A water pump reticulates water from the Storage Dam back up to the terraces, in order to enable the evaporation terraces to be filled from the Storage Dam as evaporation rates allow.

Current evaporation, RO plant processing and re-use capacity is calculated to be approximately equivalent to the current dewatering rates, however additional complementary treatment options are being investigated to ensure adequate capacity in the future.

20.1.3 Waste Rock

Waste rock that is surplus to underground backfilling requirements is stockpiled on the surface in various locations. Testing of the waste rock has confirmed that the material is non-acid generating and therefore does not pose an acid-mine drainage risk.

Waste rock is currently stockpiled next to the Augusta Mine box-cut, with the maximum height and shape of the stockpile prescribed in the approved Work Plan. The approved Work Plan requires that this stockpile will be removed on closure in order to return the land to the prior use as grazing pasture. The waste rock will ultimately be used to fill the box-cut and cap the TSFs.

Waste rock has also been transported to both the Bombay and Brunswick TSF to increase the height of the TSF's and was used for construction of the Splitters Creek Evaporation Facility.

A portion of waste rock is screened and utilised in backfilling of the underground stopes, however, sufficient waste rock will need to be retained in order to fulfil rehabilitation and TSF expansion requirements.

20.1.4 Tailings Disposal

The tailings thickener has sufficient capacity to handle the current throughput. The average tailings thickener underflow solids density continues to be maintained at around 50% (+/-10%).

Mandalay Resources have two operational TSF's, being the Brunswick TSF and the Bombay TSF, and has conditional approval to raise the height of the Bombay TSF an additional 2.7 m has been gained, since the capacity provided by the 2018 lift of the Bombay TSF was exhausted in August 2020.

The Brunswick TSF returned to service as the replacement storage facility after the completion of a hybrid wall lift and will be used as the primary storage facility for 2021.

Studies are underway to determine the most effective way to further increase tailings capacity to meet the LOM plan (Section 18).

20.1.5 Air Quality

The approved Environmental Monitoring Plan for the Augusta Mine includes an air quality monitoring programme, comprised of dust deposition gauges located at various places surrounding the Costerfield Property, and five dust deposition gauges at the Splitters Creek Evaporation Facility.

The monitoring data is provided to the regulatory authorities and Community Representatives through the quarterly Environmental Review Committee (ERC) meetings.

Control measures currently in place to manage dust emissions from the operations include:

- Road watering programme with treated groundwater,
- Proactive monitoring of dust with portable Dust Trak monitors,
- Moisture control of mill feed during processing,
- Sealing of sections of haul roads,
- Maintaining moisture on TSFs and waste rock stockpiles.

Ventilation shafts emission detection reports are carried out bi-annually and indicate that the ventilation shafts are not a significant source of dust emissions. These results are communicated quarterly at the ERC meetings.

20.1.6 Groundwater

Dewatering rates from the mine increased in 2018 to 561 ML as result of increased dewatering activities in the Brunswick area and dewatering drill holes installed from Brunswick to commence dewatering of the Youle area.

The current groundwater extraction licence of 700 ML/year has been approved by Goulburn-Murray Water and is up for renewal in June 2034.

A conceptual hydrogeological model has been developed for the Costerfield Property based on current groundwater monitoring data and indicates that the Augusta and Cuffley Deposits are located in the regional groundwater aquifer. The model shows a cone of depression in the bedrock aquifer trending in a north to south orientation, parallel to the deposits, and indicates some dewatering has already occurred along the line of the Cuffley Lode (Figure 20-1).

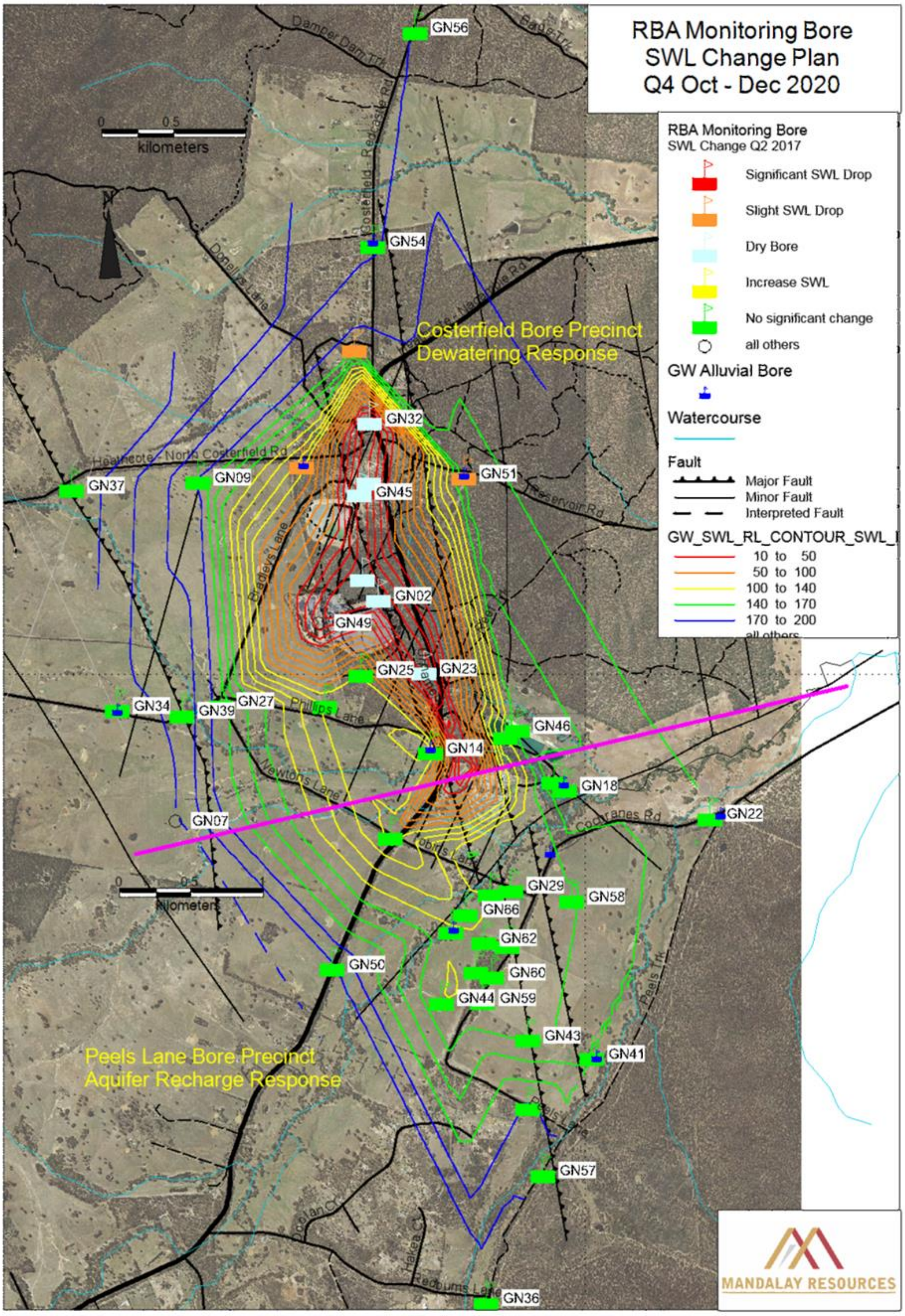

Figure 20-1: Groundwater elevation contour map of the areas surrounding the Augusta Mine, as at December 2020

The regional groundwater aquifer is confined to semi-confined, and is comprised of Silurian siltstones and mudstones, with groundwater flow occurring within fractures and fissures in the rock. This is overlain by a perched alluvial aquifer comprised of recent gravels, sands and silt, which is connected to the surface water system.

Based on the monitoring data and the conceptual hydrogeological model, it appears that the current dewatering activities at Augusta do not affect the alluvial aquifer. Therefore, there is no impact to local landowners or the surface water system.

20.1.7 Noise

The approved Environmental Monitoring Plan for the Costerfield Property includes a noise monitoring programme which comprises routine attended and unattended noise monitoring at six locations, and reactive monitoring at sensitive receptors in the event of complaints or enquiries. Monitoring is carried out in accordance with Environmental Protection Agency (EPA) Victoria's SEPP N1 policy.

Noise from the Costerfield Property is a sensitive issue for nearby neighbours, and Mandalay Resources operates a 24-hour, 7 days a week complaints line in order to deal with noise complaints or any other issues from members of the public. The Mandalay Resources Complaints Procedure includes processes to record complaints, identify and implement immediate and longer term actions. All complaints are discussed at the quarterly Environmental Review Committee meetings.

The current Costerfield Property is not expected to significantly change the nature of noise emissions from the site. Construction of new waste rock storage, TSF or evaporation facilities may require some additional noise monitoring which will be identified as part of the WPV approval process.

During construction, an additional 10 dBA of noise is permitted to be generated. Existing resources and procedures are adequate to accommodate any required modifications to the noise monitoring programme.

20.1.8 Blasting and Vibration

The DJPR prescribes blast vibration limits for the protection of buildings and public amenities. Mandalay Resources undertakes constant blast vibration monitoring in order to assess compliance with the prescribed limits and reports this information to the ERC quarterly.

20.1.9 Native Vegetation

The Costerfield Property has been developed and is operated with the aim of avoiding and minimising impacts on native vegetation. Where native vegetation has been impacted, Mandalay Resources has obligations to secure native vegetation offsets.

Mandalay Resources has purchased approved native vegetation offset at Peels Lane in Costerfield to fulfil obligations relating to Victoria's Native Vegetation Management – A Framework for Action, associated with the original clearing of native vegetation at the

Augusta Mine site and the Bombay TSF. The Peels Lane offset site has been assessed as containing 4.35 habitat hectares of various Ecological Vegetation Classes (EVCs) and associated large trees, in accordance with the framework guidelines.

Expansion of the Costerfield Operation through construction of the Splitters Creek Evaporation Facility, Brunswick TSF and Bombay TSF has had a minimal impact on the native vegetation and the Peel Lane site has sufficient offset credits to meet the site's foreseeable future needs.

20.1.10 Visual Amenity

The key aspect of the Costerfield Operation that may affect visual amenity was the construction of the Splitters Creek Evaporation Facility.

Community consultation took place as part of the planning for the facilities, and mitigation measures were implemented where appropriate. Screening vegetation was planted, in consultation with the relevant land manager and nearby neighbours.

20.1.11 Heritage

A heritage survey of the South Costerfield Shaft, Alison and New Alison surface workings was completed by LRGM Consultants in the first quarter of 2012. The purpose of this survey was to identify and record cultural heritage features in the areas of interest that exist within the current ML (MIN4644). The Taungurung Clans Aboriginal Corporation is the Registered Aboriginal Party designated as the traditional owners of the land on which Mining Licence MIN4644 is located.

The survey identified that no features of higher than local cultural heritage significance were identified, with the following features of local cultural heritage significance being noted:

- South Costerfield (Tait's) Mine Shaft,
- Old Alison Mine Shaft,
- New Alison Mine Shaft.

The expansion of the mining operations did not result in any disturbance of historic mine workings or other heritage features.

20.1.12 Community

The Costerfield Operation is one of the largest employers in the region and is a significant contributor to the local economy. Mandalay Resources preferentially employs appropriately skilled personnel from the local community and sources goods and services from local suppliers wherever possible.

Mandalay Resources has developed and implemented the Costerfield Property's Community Engagement Plan, which has been approved by the DJPR in accordance with the requirements of the MRSD Act 1990. This Plan sets the framework for communication with all of the business' stakeholders in order to ensure transparent and ongoing consultative relationships are developed and maintained.

The Community Engagement Plan includes processes to manage community inquiries and complaints to ensure timely and effective responses to issues affecting members of the community. The current Community Engagement Plan is considered an appropriate framework to address the needs of stakeholders through the planning and implementation of the proposed mine expansion.

In early 2016, Mandalay Resources initiated regular community reference meetings under the auspices of the ERC. This forum, the Community Reference Sub-Committee, gives community members the opportunity to find out about current and future issues at the mine, to provide their input and ask questions.

20.1.13 Mine Closure and Revegetation

The MRSD Act 1990 requires proponents to identify rehabilitation requirements as part of the Work Plan approvals process, and ensures that rehabilitation bonds are lodged in the form of a bank guarantee to cover the full cost of rehabilitation up front, prior to commencing work. Rehabilitation bonds are also reviewed on a regular basis to ensure that unit cost assumptions and the scope of work is kept up to date. WPVs also trigger a review of the rehabilitation bond if the work to be carried out affects final rehabilitation.

Mandalay Resources has developed a Mine Closure Plan, which provides an overview of the various aspects of closure and rehabilitation that have been included in the rehabilitation bond calculation, and reflects the rehabilitation requirements described in the approved Work Plans and Variations.

The Mine Closure Plan describes how the Augusta site, including the box-cut, waste rock storage, office area and evaporation dams, will be rehabilitated back to the former land use as grazing pasture. The mine decline will be blocked and the portal backfilled with waste rock, with the box-cut being levelled back to its original surface contours. Topsoil and subsoil have been stored on site to facilitate the final revegetation.

The rehabilitation plan for the Brunswick Complex includes removal of all plant and infrastructure, returning the disturbed area back to native forest, and to create a safe and stable landform that can be used for passive recreation. The TSFs will be dried out, capped with waste rock and topsoil, and planted with native vegetation. The plan includes provisions for monitoring the TSFs post closure.

The rehabilitation plan for the Splitters Creek Evaporation Facility includes evaporation of the remaining stored groundwater and removing the clay lining from the terraces, which is placed back into the HDPE line storage dam. The liner in the storage dam will be folded back over the clay and capped with waste rock, clay and topsoil, and planted with grasses. Topsoil and subsoil has been stored on site to enable this final vegetation.

20.2 Regulatory Approvals

20.2.1 Work Plan Variation (WPV)

Future changes to mining activities, such as potential changes to waste rock storage facilities, will require a risk based WPV to be approved. The DJPR facilitates this approval process and will engage with relevant referral authorities, as required. The DJPR may prescribe certain conditions on the approval, which may include amendments to the environmental monitoring programme. The Work Plan approval process involves a thorough consultation process with regulatory authorities, and any conditions or proposed amendments requested to the WPV are generally negotiated to the satisfaction of both parties.

All onsite and offsite risks must be assessed in the new Work Plan review process and adequate controls and monitoring programs implemented to mitigate any negative impacts.

20.2.2 Other Permitting

In addition to the approval of a WPV, any future expansion of the current Costerfield Operation will require a number of other potential consents, approvals and permits (Table 20-2).

Table 20-2: Permit requirements

Stakeholder	Instrument
Private Landholders	Consent/compensation agreement with owner of the land on which the mine is located.
City of Greater Bendigo	Planning Permit required for new groundwater evaporation facility and modification to existing TSFs.
DEWLP	Compliance with Native Vegetation Management Framework for removal of native vegetation associated with the power supply, evaporation facility and expansion of TSF footprints.
EPA	EPA consent to discharge reverse osmosis treated water to a local waterway.

21 CAPITAL AND OPERATING COSTS

The capital and operating cost estimates for the Costerfield Operation, described in the following section have been derived from a variety of sources, including:

- Historic production from the Costerfield Property, predominantly the past 12 to 36 months completed by Mandalay Resources,
- Manufacturers and suppliers,
- First principle calculations, based on historic production values,
- Costs including allowances for power, consumables, labour and maintenance.

All cost estimates are provided in 2020 Australian dollars (AUD) and are to a level of accuracy of ± 10%. Escalation, taxes, import duties and custom fees have been excluded from the cost estimates.

21.1 Capital Costs

The estimated total capital requirements for the Costerfield Operation are outlined in Table 21-1.

A detailed breakdown of the individual capital items included in the Economic Model was sourced from the 2021 budget document.

Table 21-1: Costerfield Operation – capital cost estimate

Area	Total	CY 21 (AUD$ M)	CY 22 (AUD$ M)	CY 23 (AUD$ M)
Plant	$7.3	$2.2	$2.7	$2.5
Admin	$1.2	$0.8	$0.2	$0.2
Projects	$2.5	$0.7	$1.3	$0.5
Environmental	$1.4	$0.1	$1.0	$0.2
Mining	$4.6	$4.2	$0.4	-
Total Plant and Equipment	$17.1	$8.0	$5.6	$3.4
Capital Development	$9.1	$9.1	-	-
Total Capital cost	**$26.2**	**$17.1**	**$5.7**	**$3.4**

Note: Totals may not sum due to rounding.

21.1.1 Processing Plant

Mandalay Resources has identified and estimated the capital costs associated with the maintenance of the Brunswick Processing Plant and other mill site related initiatives including:

- Bombay TSF embankment raise design and pre works,
- Installation of additional flotation cells to maximise metal recovery,
- Purchase of ROM Screening Plant to minimise crusher maintenance and mill downtime,
- Refurbishment of existing plant and key components,
- Purchase of critical spares,
- Miscellaneous upgrades to surface facilities.

The main processing plant infrastructure cost items are the additional flotation cells and ROM Screening Plant as well as the design and pre works for the raise on Bombay TSF. All associated costs are based on tendered rates.

21.1.2 Administration

Administration related capital costs include a fibre-optic to site internet upgrade (AUD$600,000) and software updates (AUD$90,000).

21.1.3 Environmental

Environmental capital costs include tailings management strategy permitting and other tailings storage investment.

21.1.4 Mining

Mining related capital costs consist of sustaining capital to ensure the current production rate is maintained, and project capital that further improves the efficiency of the mining process. It also includes additional expenditure on safety initiatives including tele-remote loaders and heavy vehicle dash-cams.

Sustaining capital includes pumping infrastructure to allow the dewatering and mining of the Youle orebody. This also includes replacement of light vehicles and Integrated Tool Carriers (ITs) capable of facilitating services maintenance and extension in operating development.

The cost estimates have been based on recent quotations or agreements from appropriate suppliers.

21.1.5 Capital Development

Decline development quantities have been based on the mine designs prepared for the project. The lateral development quantities are based on each production level in the mine being accessed by the decline system with allowance for stockpiles, level access, sumps, refuge chamber cuddies, vent accesses, truck tips and CRF mixing bays.

The unit cost for lateral development is based on a combination of the agreed development rates with the mining contractor undertaking the capital development and historical costs for consumables, services and explosives. The Contractor development rates include an allowance for the haulage of waste rock to the surface.

21.1.6 Closure

Closure costs are estimated using a calculation tool to estimate rehabilitation bonds. Bond amounts are reviewed when major changes are made to the operation for example construction of a tailings storage facility. Closure costs are expected to be refunded by the current rehabilitation bonds held by the regulatory authorities; hence no additional closure costs have been included.

21.2 Operating Costs

The operating cost estimates applied in this Technical Report are summarised in Table 21-2 and described further in the following sections.

Table 21-2: Operating cost inputs

Description	Unit	AUD$	Data Source
Mining			
Jumbo Lateral Development	AUD/m	2,934	3 year average
Stoping	AUD/t	121	3 year average
Mining Admin	AUD/day	13,465	2020 average
Geology	AUD/day	6,513	2020 average
ROM Haulage	AUD/t	3	Nov-December 2020 average (since Brunswick portal breakthrough)
Processing Plant	AUD/t milled	51	3 year average
Site Services	AUD/day	7,028	2020 average
General and Administration	AUD/day	11,524	2020 average
Selling Expenses excluding Royalty	AUD/t con	163	2020 average

Royalty costs are calculated in accordance with royalty payment structures. Sb royalty is paid at a rate of 2.75% of *revenue less selling costs*. Au royalty is also paid at 2.75% of *revenue less selling costs* with 2,500 of saleable Au ounces exempt from royalty payment.

21.2.1 Lateral Development

The estimated unit cost for lateral development has been developed from historical 3-year average costs for labour, equipment, consumables, services, as well as achieved productivities. An allowance for the haulage to surface has also been included.

The lateral development (operating) for Augusta, Cuffley, Brunswick and Youle will continue to be undertaken on an owner-operator basis.

The required lateral development is summarised in Table 21-3.

Table 21-3: Summary of lateral development requirements

Description	Metres
Capital Development	1,325
Operating Development (Waste)	10,279
Operating Development (Ore)	6,811

The direct operating costs related to lateral development include:

- Direct labour, includes superannuation, workers compensation, payroll tax and partial allowances for leave accrual,
- Drilling consumables, such as drill steel, bits, hammers, etc.,
- Explosives,
- Ground support supplies,
- Direct mobile plant operating costs for fuel and lubricants, tyres and spare parts,
- Services materials including poly pipe, ventilation bag and electrical cables,
- Reallocation of costs associated with maintenance, ventilation, power supply, compressed air supply, dewatering, water supply and underground communications,
- Miscellaneous materials required to support development activities.

21.2.2 Production Stoping

The direct costs for production stoping have been developed from historical 3-year average costs for direct labour, consumable materials, equipment operating and maintenance as well as achieved productivities associated with the following:

- Installation of secondary ground support,
- Drilling, loading, and blasting long-holes by Mandalay Resources employees,
- Production from the stope with an underground loader (remote or manual) and tramming to a stockpile or truck loading area,
- Loading haul trucks from stockpile (if required),

- Backfill preparation and CRF placement,
- Reallocation of costs associated with maintenance, ventilation, power supply, compressed air supply, dewatering, water supply and underground communications.

21.2.3 Mining Administration

Mining administration includes costs associated with mining management, supervision and technical services, such as Mining Engineering, Survey, Geotechnical Engineering and Mine Geology. These costs have been estimated from actual Mandalay Resources 2020 mining administration costs.

21.2.4 Geology

Geology includes costs associated with resource estimation, resource definition drilling, sampling, assaying, and laboratory expenses as well as associated management and labour. These costs have been estimated from actual Mandalay Resources 2020 geology costs.

21.2.5 ROM Haulage

The cost of trucking from the Brunswick Pit Mine ROM to the Brunswick Processing Plant ROM pad has been calculated based on the average of the November 2020 and December 2020 total costs of this short distance surface haulage. Costs calculated include indirect costs and profit.

The average cost of the trucking has been calculated at AUD$3/t delivered to the Brunswick Processing Plant ROM pad.

21.3 Processing Plant

The Brunswick Processing Plant costs include:

- Tailings disposal,
- ROM management,
- Ball mill crushing and grinding,
- General operating and maintenance,
- Reagent mixing, thickening, and flotation,
- Gold room expenses,
- All flocculants and reagent chemicals,
- Plant maintenance and reallocated electrical costs associated with Plant operation.

The processing costs have been estimated from historical 3-year average processing costs.

21.4 Site Services

Site service costs refer to indirect costs related to Health and Safety, Environment and Community Relations, as well as costs related to the water treatment plant, water disposal and the reverse osmosis plant. Compensation expenses are also included in this cost item.

These costs have been estimated from actual Mandalay Resources 2020 site services costs.

21.5 General and Administration

The general and administration costs refer to site-wide operational costs rather than costs directly associated with operational departments. This cost includes General Site Management, including all staff costs, Human Resources, Finance and Administration.

These costs have been sourced from Mandalay Resources actual 2020 general and administration costs.

21.6 Selling Expenses

Mandalay Resources utilises a third party company to arrange the sale and transport of concentrate from the Brunswick Processing Plant to the smelter in China. The Mandalay Resources portion of the selling expenses is calculated from historical costs and comprises road transport from the Brunswick Processing Plant to the Port of Melbourne, shipping from Melbourne to China, shipment documentation, freight administration and assay exchange/returns.

22 ECONOMIC ANALYSIS

The Costerfield Property technical-economic model (TEM) was developed by Mandalay Resources based on the production schedule including only Measured and Indicated Resources and assumptions described in the earlier sections. All costs are in 2021 AUD with no provision for inflation or escalation. The annual cash flow projections were estimated over the project life based on capital expenditures, operating costs and revenue assumptions. The financial indicators examined included pre-tax cash flow and Net Present Value (NPV).

22.1 Principal Assumptions

The key project criteria and assumptions used in preparation of the cash flow analysis have been listed in Table 22-1.

Table 22-1: Project criteria

Description	Units	Quantity
Proposed Mill Feed	Tonnes (kt)	616,197
	Gold grade (g/t)	12.85
	Antimony grade (%)	3.53
Project Life	months	58
Average Production Rate	t/mth	10,444
Maximum Mining Rate	t/mth	13,435
Metallurgical Recovery*	Gold (Total) (%)	85.5 – 90.3
	Antimony (%)	91.73 – 91.77
	Gravity gold (% of total)	40 – 48
Concentrate Grade**	Gold (g/t)	Variable
	Antimony (%)	51.5
Concentrate Selling Expenses	AUD$/dmt	163
Exchange Rate	AUD:USD	0.70
Commodity Prices	Gold USD$/oz	1,500
	Antimony USD$/t	7,000

* Recoveries for Gold and Antimony are variable in the TEM, with dependence on mill feed grades. Gravity gold recovery is expressed as a percentage of total recovered gold, it is variable in the financial model due to known areas of the mine (ore sources) having different metallurgical properties. From January 2021 to March 2025 gravity gold recovery is 48%, from April 2025 to October 2025 gravity gold recovery is 40%.

**Concentrate gold grade is variable with dependence on total metallurgical recovery and gravity gold percentage.

22.1.1 Metal Sale Prices

Sale prices of metals are based on analysis of metal price prediction and the review of current and historical prices. A sensitivity analysis demonstrates the expected financial returns at a range of gold and antimony prices. Further information regarding the selected metal sale prices is provided in Section 19.

22.1.2 Concentrate and Gold Sales

The TEM assumes that concentrate shipments and gold sales are made at the end of each month. The payables of the shipments and gold sales, as well as associated selling expenses, are assumed to occur at these same time periods within the economic model.

The payable metal terms adopted in the economic model are consistent with the current sales contract terms for the gold and antimony concentrate grades and quality as at December 31 2020.

22.1.3 Exchange Rate

The economic model has assumed an exchange rate of AUD:USD 0.70 for the entire project life.

22.1.4 Taxes

The Australian Government taxes on Mandalay Resources Costerfield Property includes:

- A Goods and Services Tax (GST) at a rate of 10%, as levied by the federal government on purchases by individuals and corporations on non-exempt goods and services. Businesses can claim back GST on most business inputs. It is assumed that all of the product sales will be to overseas customers, therefore no GST is applicable,
- Company tax, payable at a rate of 30%, which is calculated on the profits generated by the operation.

As at the end of December 2020, Mandalay Resources Costerfield Property had zero carried forward tax losses.

22.1.5 Royalties/Agreements

Under the Mineral Resources Development (Mining) Amendment Regulation 2010 of the Victorian State Government, royalties apply to the sale of antimony and gold. This royalty is applied at 2.75% of the revenue realised from the sale of antimony and gold sold, less the selling costs. The Victorian Government amended the above stated legislation to include gold effective from the 1st of January 2020. This amendment excludes the first 2,500 gold ounces from the royalty calculation. All financials and forecasting has been altered to be aligned with Government Regulations. There are compensation agreements in place with land holder owners and neighbouring residents which are affected by the Costerfield Property. It has been assumed that the current agreements will remain in place for the remaining project life and that no new agreements will be required as the Augusta and Brunswick site footprint will remain largely unchanged. Both the royalties and agreements have been factored in the financial model as an indirect cost and calculated monthly.

22.1.6 Reclamation

Possible salvage value on plant and equipment, or profits from the sale of assets has not been included in the TEM. It has been assumed that cash flow and existing rehabilitation bonds will be used to pay for mine closure as well as any additional reclamation required.

22.1.7 Project Financing

No assumptions have been made about the project financing in the TEM.

22.2 Economic Summary

A summary of the economic factors associated with the project are presented in Table 22-2.

Table 22-2: Project economics

Description	Units		Quantity	
Tonnes Milled	Tonnes		616,197	
Recovered Gold	Ounces		246,822	
Recovered Antimony	Tonnes		20,759	
Payable Gold	Ounces		228,358	
Payable Antimony	Tonnes		19,955	
Payable (Saleable) Metal, Au Eq	Oz Eq		321,480	
Description	**Units**	**Quantity**	**Units**	**Quantity**
Operating Cost	AUD$ M	210.4	USD$ M	147.3
Operating Cost per Payable ounce	AUD$/Oz Eq[1]	654	AUD$/Oz Eq[1]	458
Capital Cost	AUD$ M	26.2	USD$ M	18.3
Net Revenue (less selling expenses and royalties)	AUD$ M	637.7	USD$ M	446.4
After Tax Cash Flow	AUD$ M	304.5	USD$ M	213.1
Pre-tax NPV discounted at 5%	AUD$ M	283.5	USD$ M	198.5
After-tax NPV discounted at 5%	AUD$ M	215.2	USD$ M	150.6

Note: 1 Oz Eq – Gold Ounces + (Antimony Price / Gold Price) * Antimony Tonnes, Tonnes and Ounces rounded to nearest thousand, Million dollars rounded to the nearest hundred thousand.

22.2.1 Cash Flow Forecast

The estimated cash flow forecast has been provided in Table 22-3: Estimated pre-tax cash flow summary.

Table 22-3: Estimated pre-tax cash flow summary

				2021				2022				2023				2024				2025			
			Total	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2025 Q1	2025 Q2	2025 Q3	2025 Q4
PHYSICALS																							
Development																							
	Capital Development	m	**1,325**	735	425	103	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operating Development	m	**17,090**	1,268	1,259	996	991	1,049	1,051	1,050	1,050	1,050	1,050	1,050	1,050	1,051	1,049	1,051	876	100	50	0	0
	Vertical Development	m	**147**	39	40	36	6	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Underground Ore																							
	Total Tonnes	t	**599,913**	38,289	38,197	36,518	37,943	37,347	34,922	32,838	32,931	33,797	32,942	30,834	30,352	33,062	31,467	33,483	32,666	29,699	12,390	10,037	199
	Mined Grade Au	g/t Au	**12.80**	11.57	12.64	14.26	15.11	11.37	12.26	16.18	13.74	13.30	16.13	13.69	13.53	10.94	10.29	8.15	13.07	12.94	11.74	9.09	3.96
	Mined Au	ounces	**246,822**	14,241	15,520	16,739	18,428	13,650	13,764	17,077	14,546	14,454	17,081	13,575	13,203	11,634	10,412	8,778	13,731	12,356	4,675	2,934	25
	Mined Grade Sb	% Sb	**3.46**	4.44	3.68	3.36	3.98	3.34	3.34	3.94	2.46	1.80	1.95	3.46	4.53	3.52	4.53	3.81	3.38	2.97	3.45	4.30	2.13
	Mined Sb	Sb tonnes	**20,759**	1,698	1,404	1,226	1,511	1,248	1,166	1,293	810	609	642	1,066	1,374	1,163	1,424	1,275	1,105	882	427	431	4
METALLURGY																							
Mill Feed		t	**616,197**	41,400	41,400	41,400	41,400	38,979	34,922	32,838	32,931	33,797	32,942	30,834	30,352	33,062	31,467	33,483	32,666	29,699	12,390	10,037	199
Feed Grade Au		g/t	12.85	11.81	12.80	14.32	15.08	11.51	12.26	16.18	13.74	13.30	16.13	13.69	13.53	10.94	10.29	8.15	13.07	12.94	11.74	9.09	3.96
Feed Grade Sb		%	3.53	4.56	3.86	3.68	4.16	3.46	3.34	3.94	2.46	1.80	1.95	3.46	4.53	3.52	4.53	3.81	3.38	2.97	3.45	4.30	2.13
Metallurgical Recovery Au		%	**89.71%**	89.55%	89.70%	89.90%	89.99%	89.49%	89.62%	90.10%	89.83%	89.77%	90.09%	89.83%	89.80%	89.39%	89.25%	88.63%	89.74%	89.72%	89.53%	88.94%	85.51%
Metallurgical Recovery Sb		%	**91.75%**	91.76%	91.75%	91.75%	91.75%	91.75%	91.74%	91.75%	91.74%	91.73%	91.73%	91.75%	91.76%	91.75%	91.76%	91.75%	91.75%	91.74%	91.75%	91.75%	91.73%
Payable Gold		ounces	**228,358**	14,074	15,285	17,131	18,059	12,909	12,335	15,386	13,067	12,976	15,389	12,193	11,857	10,399	9,292	7,781	12,323	11,087	4,185	2,609	22
Payable Gravity Gold		ounces	**109,066**	6,756	7,337	8,223	8,668	6,196	5,921	7,385	6,272	6,228	7,387	5,853	5,691	4,991	4,460	3,735	5,915	5,322	1,674	1,044	9
Payable Gold in Concentrate		ounces	**119,291**	7,319	7,948	8,908	9,391	6,713	6,414	8,001	6,795	6,747	8,002	6,341	6,166	5,407	4,832	4,046	6,408	5,765	2,511	1,565	13
Payable Antimony		tonnes	**19,955**	1,732	1,467	1,397	1,579	1,236	1,070	1,186	743	559	589	978	1,260	1,067	1,307	1,170	1,014	809	392	396	4
Payable Gold Equivalent		AuEq ounces	**321,480**	22,156	22,133	23,651	25,429	18,675	17,327	20,921	16,537	15,583	18,137	16,758	17,739	15,376	15,391	13,241	17,053	14,862	6,015	4,456	40
REVENUE																							
Payable Au (gravity)		%	**100.0%**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Payable Au (concentrate)		%	**83.5%**	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%
Payable Sb		%	**62.5%**	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%
Price Au		$/oz	**1,500**	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Price Sb		$/t	**7,000**	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Exchange Rate		AUD:USD	**0.70**	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
CAPITAL COSTS																							
	Plant	AUD M	**7.3**	0.6	1.3	0.1	0.2	1.2	0.6	0.5	0.4	0.3	1.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Admin	AUD M	**1.2**	0.0	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Projects	AUD M	**2.5**	0.1	0.2	0.1	0.3	0.2	0.2	0.9	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Environment	AUD M	**1.4**	0.0	0.0	0.0	0.1	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	OH & S	AUD M	**0.1**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Geology	AUD M	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Exploration	AUD M	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mining	AUD M	**4.6**	1.6	1.0	1.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total PPE	AUD M	**17.1**	2.3	3.0	1.8	0.9	2.5	0.9	1.5	0.7	0.6	2.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Capital Development	AUD M	**8.7**	4.8	2.8	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Vertical Development	AUD M	**0.4**	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Capital Cost	AUD M	**26.2**	7.3	6.0	2.6	1.3	2.5	0.9	1.5	0.7	0.6	2.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

				2021				2022				2023				2024				2025			
			Total	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2025 Q1	2025 Q2	2025 Q3	2025 Q4
OPERATING COSTS																							
	Mining	AUD M	**147.0**	8.1	7.9	7.6	8.0	7.9	8.7	8.7	8.7	8.6	8.7	8.7	8.7	8.7	8.6	8.7	8.2	5.6	3.4	3.1	0.6
	Processing	AUD M	**30.6**	2.0	2.0	1.9	1.9	1.9	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.7	1.6	1.7	1.7	1.5	0.6	0.5	0.0
	Site Services	AUD M	**12.4**	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.2
	G&A	AUD M	**20.3**	1.0	1.0	1.1	1.1	1.0	1.0	1.1	1.1	1.0	1.0	1.1	1.1	1.0	1.0	1.1	1.1	1.0	1.0	1.1	0.4
	Total Operating cost	AUD M	**210.4**	11.7	11.5	11.2	11.7	11.5	12.1	12.1	12.1	12.0	12.0	12.0	11.9	12.0	11.9	12.1	11.5	8.8	5.8	5.3	1.2
	Total Operating cost per payable ounce	AUD	**654**	527	522	472	458	616	701	576	729	772	663	713	671	783	776	912	677	592	959	1,189	30,963
CAPITAL COST + OPERATING COST		AUD M	**236.6**	19.0	17.5	13.7	13.0	14.0	13.0	13.6	12.7	12.6	14.0	12.4	12.3	12.0	11.9	12.1	11.5	8.8	5.8	5.3	1.2
		AUD /oz Au Eq	**736**	856	791	581	511	751	753	648	771	809	773	739	696	783	776	912	677	592	959	1,189	30,963
Gross Revenue		AUD M	**571.8**	38.4	39.1	42.3	45.2	33.0	30.9	37.6	30.2	28.9	33.8	30.0	31.1	27.0	26.4	22.6	30.5	26.8	10.5	7.5	
Selling expenses		AUD M	**6.3**	0.5	0.5	0.4	0.5	0.4	0.3	0.4	0.2	0.2	0.2	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.1	0.1	
Royalty		AUD M	**14.8**	1.0	1.1	1.0	1.2	0.9	0.8	0.9	0.8	0.8	0.9	0.7	0.8	0.7	0.7	0.5	0.8	0.7	0.3	0.1	
Net Revenue		AUD M	**550.7**	36.8	37.6	40.8	43.5	31.7	29.7	36.3	29.2	27.9	32.7	29.0	29.9	26.0	25.2	21.7	29.3	25.8	10.1	7.3	0.0
PRE-TAX CASHFLOW																							
Quarterly		AUD M	**314.1**	17.8	20.1	27.1	30.5	17.7	16.6	22.7	16.4	15.3	18.7	16.6	17.5	13.9	13.3	9.6	17.8	17.0	4.4	2.0	-1.2
Cumulative		AUD M		17.8	37.9	65.1	95.6	113.3	129.9	152.6	169.1	184.4	203.1	219.7	237.3	251.2	264.5	274.1	291.9	308.9	313.3	315.3	314.1
NPV																							
Discount rate		% p.a	**5.0%**																				
PV quarterly cashflow		AUD M		17.6	19.6	26.1	29.1	16.6	15.4	20.8	14.9	13.7	16.5	14.5	15.1	11.9	11.2	8.0	14.6	13.8	3.5	1.6	-1.0
NPV		AUD M	**283.5**																				

22.2.2 NPV

The estimated after-tax NPV discounted at 5% interest has been calculated at AUD$215.2 M.

22.2.3 Sensitivity

The pre-tax NPV sensitivities have been determined to +/-20% for gold price, antimony price, AUD:USD exchange rate, metallurgical gold recovery, metallurgical antimony recovery, mill feed gold grade, mill feed antimony grade, capital costs and operating costs have been completed and are presented in Table 22-4 and Figure 22-1.

Table 22-4: Project NPV sensitivities

	-20% (AUD M)	-10% (AUD M)	Base (AUD M)	+10% (AUD M)	+20% (AUD M)
Gold Price	259.7	271.6	283.5	295.4	307.3
Antimony Price	276.2	279.9	283.5	287.2	290.8
Mill Feed Tonnes	194.1	238.9	283.5	327.7	371.8
Exchange Rate	408.9	339.2	283.5	237	199.9
Metallurgy Gold Recovery	205.2	244.4	283.5	322.7	361.8
Metallurgy Antimony Recovery	262.8	273.2	283.5	293.9	304.2
Mill Feed Gold Grade	205.2	244.4	283.5	322.7	361.8
Mill Feed Antimony Grade	262.8	273.2	283.5	293.9	304.2
Capital Cost	288.5	286	283.5	281	278.5
Operating Cost	321	302.3	283.5	264.8	246

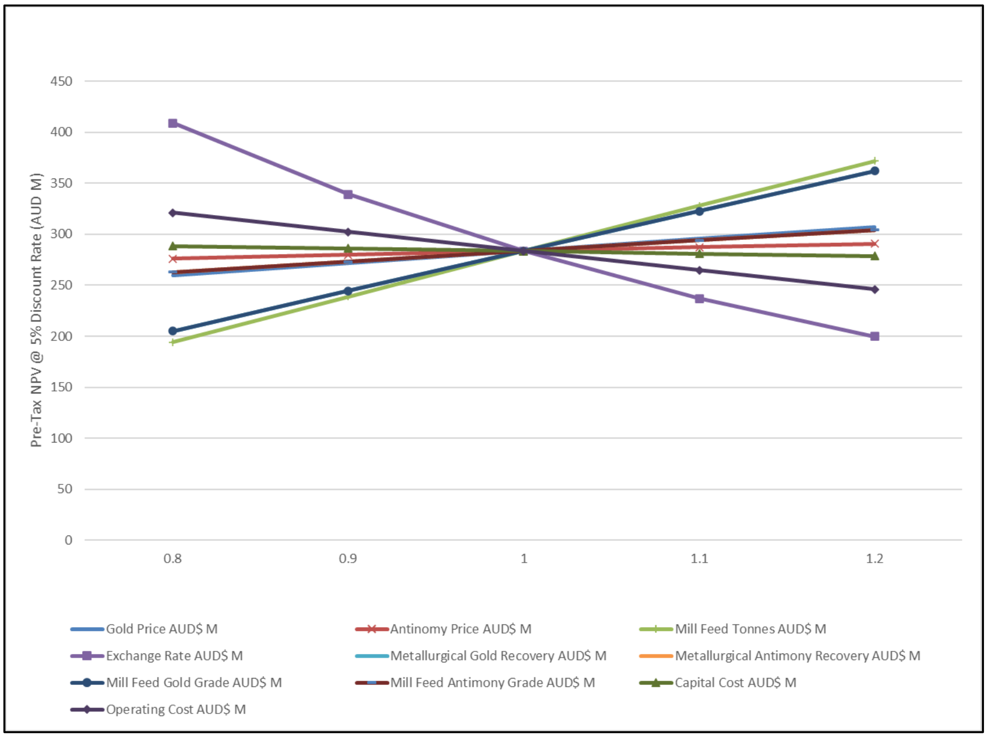

Figure 22-1: Sensitivity analysis

Cashflow is seen to be most sensitive to mill feed tonnes, exchange rate, metallurgical gold recovery and mill feed gold grade.

23 ADJACENT PROPERTIES

Mandalay Resources manages the Costerfield Operation and holds a 100% interest in licences MIN4644, MIN5567, EL5432, and EL5519, which comprise the Property. There are no advanced projects in the immediate vicinity of the Property, and there are no other Augusta-style antimony-gold operations in production within the Costerfield district.

Exploration on adjacent tenements (EL5546, EL006504, EL006280, EL5490, EL006001, EL6951, EL7352, EL007348, EL007382, EL007498, EL007499 and EL007481), are shown in Figure 23-1. The ownership and status of each of the surrounding ELs are detailed in Table 23-1.

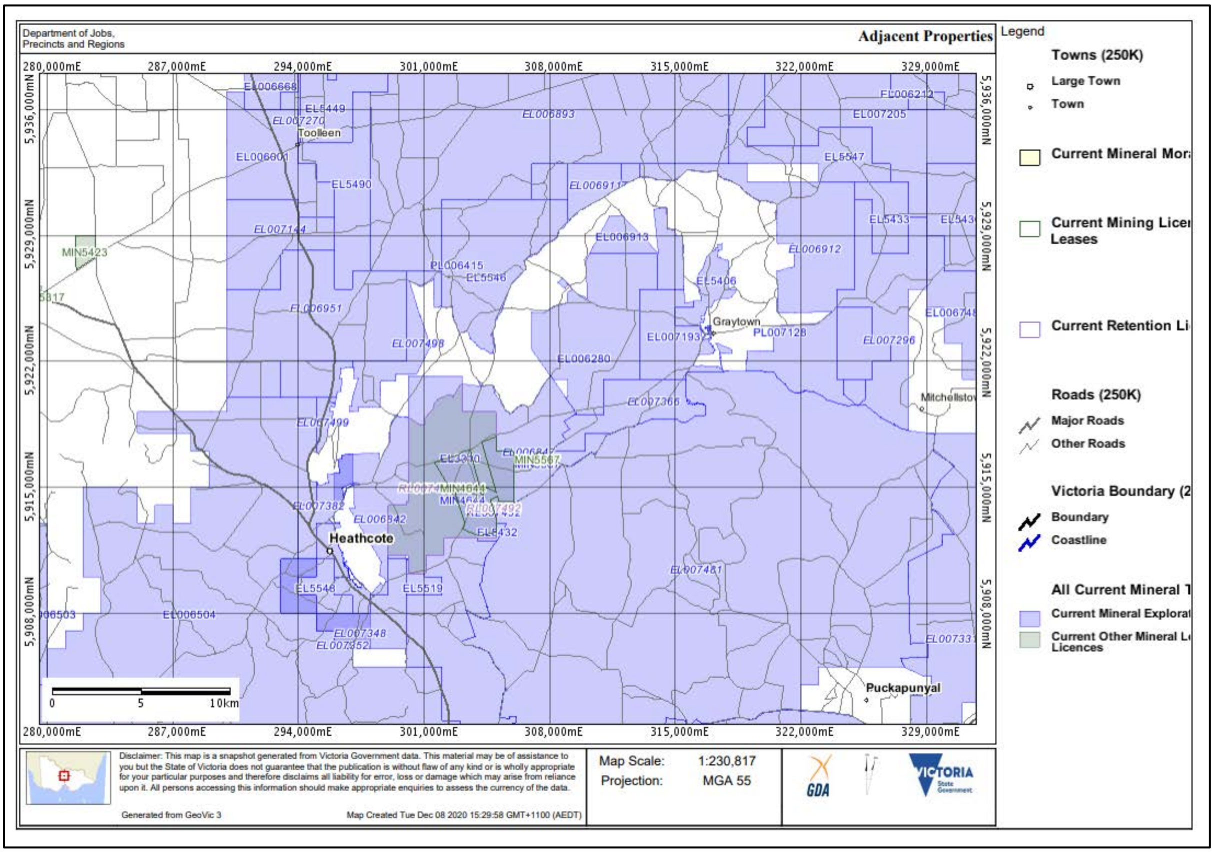

Figure 23-1: Augusta Mine adjacent properties

Table 23-1: Ownership details – Augusta Mine adjacent properties

Title	Owner	Status	First Granted	Expiry
EL5490	Golden Camel Mining Pty Ltd	Current	23/08/2013	5/12/2023
EL006504	Kirkland Lake Gold	Current	19/03/2018	19/03/2023
EL007352	Fosterville Gold Mine Pty Ltd	Under Application		
EL007348	Syndicate Minerals Pty Ltd	Under Application		
EL007382	Syndicate Minerals Pty Ltd	Under Application		
EL007498	Nagambie Resources Ltd	Under Application		
EL007499	Nagambie Resources Ltd	Under Application		
EL007481	Torrens Gold Exploration Ltd	Under Application		
EL5546	Nagambie Mining	Current	8/05/2017	7/05/2022
EL006001	Providence Gold & Minerals Pty Ltd	Current	01/10/2015	30/09/2020
EL006280	Mercator Gold Australia Pty Ltd	Current	11/07/2017	10/07/2022
EL5546	Nagambie Resources Ltd	Current	8/05/2017	7/05/2022
EL6951	Petrartherm Ltd	Current	15/03/2019	

24 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data or information material to the Costerfield Property that has not been documented in the other sections of this Technical Report.

25 INTERPRETATION AND CONCLUSIONS

The QPs summarise here the results and interpretations of the information and analysis being reported on.

25.1 Geology and the Mineral Resource

The Costerfield Property is contained within a broad gold-antimony province mainly confined to the Siluro-Devonian Melbourne Zone. The mineralisation occurs as narrow veins or lodes, typically less than 50 cm wide and hosted within mudstone and siltstone of the Lower Silurian Costerfield Formation.

Gold mineralisation of greater than 20 g/t with an average grade of approximately 9 g/t is typically hosted within and/or alongside veined stibnite that contains approximately 4% antimony (Fromhold et al 2016).

Mineralised shoots at the Costerfield Property are structurally controlled by the intersection of the lodes with major cross-cutting, puggy, and sheared fault structures. Exploration in the Property is guided by predictions of where these fault/lode intersections might be located using data from structural/geological mapping, diamond drill hole logging and 3D computer modelling.

Exploration drilling during 2020 was predominantly focused on extending, defining and upgrading the Youle resource. It involved both infill and extensional drilling designed to delineate the high-grade Youle zone to the north, south, down-plunge, and above the orebody in areas of historical mining, adjacent to the current and planned development.

The focus of recent target generation has been near the Youle resource, in particular the northern extension and areas at depth. Throughout 2020, a total of 29,080 m of diamond drilling was completed.

The Mineral Resources are stated here for the Augusta, Cuffley, Brunswick and Youle Deposits with an effective date of 31 December 2020. This date coincides with the following:

- Depletion due to mining up to 31 December 2020,
- Survey of stockpiled ore that was mined and awaiting processing as of 31 December 2020.

All relevant diamond drill hole and underground face samples in the Costerfield Property, available as of 31st November 2020 for the Augusta, Cuffley, Brunswick and Youle Deposits were used to inform the Mineral Resource Estimate.

The in-situ Augusta, Cuffley, Brunswick and Youle Deposits consist of a combined Measured and Indicated Mineral Resource of 1,158,000 tonnes at 10.2 g/t gold and 3.4% antimony, and an Inferred Mineral Resource of 473,000 tonnes at 5.8 g/t gold and 1.3% antimony.

Stockpiles retained at the Brunswick Processing Plant represent a Measured Mineral Resource of 16,000 tonnes at 14.8 g/t gold, and 6.1% antimony.

The Mineral Resources are reported at a cut-off grade of 3.0 g/t gold equivalent (AuEq), after diluting to a minimum mining width of 1.2 m.

The gold equivalence formula used is calculated using recoveries achieved at the Costerfield Property Brunswick Processing Plant during 2020, and is as follows:

$$\mathrm{AuEq} = \mathrm{Au}\ (\mathrm{g/t}) + 1.50 \times \mathrm{Sb}\ (\%)$$

Commodity prices used in the equivalence formula are USD$1,700/ounce gold and USD$8,000/tonne for antimony.

The reasonable prospects for eventual economic extraction (RPEEE) has been satisfied by applying a minimum mining width of 1.2 m and ensuring that isolated blocks above cut-off grade, which are unlikely to ever be mined due to distance from the main body of mineralisation, were excluded from the Mineral Resource.

The width of 1.2 m is the practical minimum mining width applied at the Costerfield Property for stoping. For blocks with widths less than 1.2 m, diluted grades were estimated by adding a waste envelope with zero grade and 2.74 t/m^3 bulk density to the lode.

A 3.0 g/t AuEq cut-off grade over a minimum mining width of 1.2 m has been applied. The cut-off has been derived by Mandalay Resources based on cost, revenue, mining and recovery data from the year ending 31st December 2020, and updated commodity price forecasts and exchange rates. This supersedes the previous Mineral Resource cut-off grade of 3.5g/t AuEq used in the Mineral Resource Estimate effective 31st December 2019 (SRK, 2020).

The QP for the Mineral Resource considers that the geological and assay data used as input to the Mineral Resource Estimate have been collected, interpreted and estimated in line with best practice as defined by the CIM (CIM 2018, 2019). Data verification work undertaken by the QP identified minor errors, however, these have not materially impacted the accuracy of the Mineral Resource Estimate. Some issues identified with the CRMs for antimony have been counter-balanced by the umpire laboratory results, which lend support to the assays received from the primary laboratory. A retrospective reconciliation exercise showed good agreement between 2020 production tonnes and grades with the equivalent tonnes and grades reported out of the current 2021 block model.

Additionally, the QP for the Mineral Resource considers that the key risk to the operation is being able to maintain the resource base to stay ahead of ongoing mining depletion, and does not consider any other significant risks or uncertainties could reasonably be expected to affect the reliability or confidence in the exploration information or Mineral Resource Estimate.

25.2 Mining, Ore Reserve and the Mining Schedule

Mining Plus makes the following observations regarding the mining operations:

- Inferred resources have not been included in the economic evaluation,
- There has been a history of conversion of Inferred to Indicated Resources resulting in additional Resources from outside the Mineral Reserve being included into the life of mine plans that have the potential to improve the project economics. This has not occurred in the 2020 Mineral Reserve estimate with Measured and Indicated material only included in the LOM schedule,
- Mandalay Resources has demonstrated an ability to improve the mining method and productivity based on continuing to increase and improve the geological information and thus mine designs and planning.

25.3 Mineral Processing & Metallurgical Testwork

Mining Plus makes the following observations regarding the processing aspects of the operation:

- The revised antimony feed grade versus metallurgical recovery algorithm used for the 2021 Ore Reserve Estimation is more simplistic than that previously used but is more robust and Mining Plus supports its use,
- The updated historical processing dataset used for the antimony and gold recovery algorithms, with increased emphasis on the Youle underground deposit performance, which becomes the dominant component of the plant feed blend, and reduced emphasis on the Brunswick underground ores, which is now largely depleted, is well considered and appropriate for the purposes of the Ore Reserve Estimation,
- The forecast throughput and associated processing costs reflects the historical capacity of the plant and are appropriate for use as metallurgical modifying factors for the Ore Reserve Estimate,
- There is potential for a modest increase in metallurgical recovery with the introduction of the Youle ores and the scheduled completion of a number of recovery enhancement projects in the 2021 calendar year. These have not been fully incorporated into the 2021 recovery assumptions and provides recovery upside.

26 RECOMMENDATIONS

26.1 Geology

The Costerfield Property is an advanced property and Mandalay Resources has a history of successful exploration and mining on the Property. The QP for the Mineral Resource Estimate has observed that the degree of technical competency evident in the work performed by Mandalay Resources geologists is high, particularly in the structural analysis of the local geology. Therefore, there is no requirement for additional work programmes over and above the existing operational plans.

As part of the QP's site visit in December 2020, a set of recommendations were made, of which the majority have either been implemented or corrective actions are now in progress.

The following recommendations are still outstanding, however, and should be implemented to improve the confidence in the input data prior to the next update of the Mineral Resource Estimate:

- Drillhole downhole surveys should be collected and stored in a digital format (Multishot downhole survey instrument) and uploaded to the database in that format to avoid potential transcription errors.
- A set of written procedures should be compiled for drillhole collar and downhole survey, measurements, validation, data entry and storage.
- Logging procedures should be improved by including a check-logging step of selected core trays by the supervising geologist to ensure consistency amongst the logging geologists.
- Ensure all procedures are up-to-date and available in hardcopy in the logging and core-cutting shed.
- Completely overhaul the antimony CRMs as a matter of urgency and expand the program of umpire laboratory check analyses during 2021 in order to improve confidence in the antimony results utilised in the Mineral Resource Estimate.

26.2 Mining

Mining Plus makes the following recommendations regarding the mining operations:

- Mining Plus recommends that Mandalay Resources continually reviews the activity cost centres to optimise the cut-off grades to enhance the value generation of the project the review.
- Investigate the practicalities of an analysis of the mine economics through a Net Smelter Return (NSR) value, this will allow for greater flexibility the mine design and identify higher value material to process.
- Investigate the bottlenecks at the operation to identify opportunities to increase the profitability of the mine.

26.3 Mineral Processing & Metallurgical Testwork

Mining Plus recommends that Mandalay Resources continues to update the gold and antimony metallurgical recovery algorithms annually, based on actual production data, then reapply these relationships to the Ore Reserve estimate and LOM production schedule updates. This is particularly relevant in the 2021 calendar year, since the feed blend will be dominated by the Youle underground ore for the full 12 months, and in order to incorporate the benefits in recovery realised following the two planned upgrade projects; the addition of a StackCell® primary rougher flotation cell, and the installation of additional CavTube® flotation cells on the final tailings.

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CERTIFICATE OF AUTHOR

I, Andrew Fowler, Ph.D., MAusIMM, CP(Geo), do hereby certify that:

1. I am currently employed as a Principal Geologist with Mining Plus, Lv 17, 127 Creek Street, Brisbane, Queensland, Australia;

2. This certificate applies to the Technical Report titled "Mandalay Resources – Costerfield Property, NI43-101 Technical Report" (the "Technical Report") prepared for Mandalay Resources ("the Issuer"), which has an effective date of 31 December 2020 – the date of the most recent technical information;

3. I am a graduate of the University of Melbourne (Ph.D., 2004). I am a Chartered Professional in the discipline of Geology and a registered member of the Australasian Institute of Mining and Metallurgy. I have practiced my profession continuously since November 2004. My relevant experience includes two years as Exploration Geologist with a junior greenfields explorer, Mithril Resources, two years as Project Geologist/Head Geologist with the Costerfield gold-antimony mine operated by AGD Operations, eight years as a Senior Geologist with AMC Consultants Pty Ltd, one year as Manager of Mineral Resources at MMG Las Bambas, and three years as Principal Geologist at Mining Plus. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101;

4. I completed a personal inspection of the Property from the 17 to 18 December 2020;

5. I am responsible for Items 2 to 12, Items 14 and 23, and sections pertaining thereto in Item 1 and Items 24 to 27;

6. I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of the NI 43-101;

7. I have had prior involvement with the property that is the subject of the Technical Report in my role as Project Geologist/Head Geologist from 2006 to 2008 at the Costerfield gold-antimony mine, which was then operated by AGD Operations;

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1;

9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;

Effective Date: 31 December 2020
Signing Date: 30 March 2021

(Signed) Andrew Fowler, Ph.D., MAusIMM, CP(Geo)

CERTIFICATE of QUALIFIED PERSON

I, Aaron Spong MAusIMM CP(Mining), am employed as a Principal Mining Consultant and Manager – Underground Mining with Mining Plus Pty Ltd, 459 Collins Street, Melbourne, Victoria 3000, Australia.

This certificate applies to the Technical Report titled "“Mandalay Resources – Costerfield Property NI43-101 Technical Report” (the “Technical Report”) which has an effective date of 30th of March 2021 – the date of the most recent technical information.

I am a member and Chartered Professional (Mining) in good standing with the Australasian Institute of Mining and Metallurgy (Membership No: 307001).

I graduated from University of Ballarat in 2001 with a Bachelor Degree in Engineering (Mining).

I have practiced professionally since graduation in 2001. In that time, I have been directly involved in the construction of infrastructure at the Telfer Gold mine and the Leinster Nickel mine. I have also been directly in involved in the operation of the Agnew Gold mine for 5 years. I have been employed Mining Plus Pty Ltd for the last 10 years and have contributed to relevant studies in gold, copper and nickel.

I have read the definition of a “qualified person” as set out in National Instrument 43-101 (NI 43101) and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a “qualified person for the purpose of NI 43-101.

I have visited the Costerfield Project site

I am responsible for Sections 1.1, 1.2,1.14,1.15,1.18-1.21, 1.23-1.25, 15, 16, 19, 20,21 and 22 of the Technical Report along with those sections of S1 – Summary, S25 - Interpretation and Conclusions and S26 – Recommendations and S27 References, pertaining thereto.

I am independent of the Issuer and related companies in accordance with Clause 1.5 of NI 43-101

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Signed, dated and sealed (if applicable):

Signature of Qualified Person

Aaron Spong, BEng (Mine Engineering), MAusIMM (CP Min)

Mining Plus

Lv 17, 127 Creek Street
Brisbane,
Queensland,
Australia

CERTIFICATE OF QUALIFIED PERSON

I, Simon Walsh, BSc (Extractive Metallurgy and Chemistry), MAusIMM (CP Metallurgy), MBA, GAICD, do hereby certify that:

1. I am currently employed as a Principal Metallurgist and Director with Simulus Engineers with a business address of 82 John St, Welshpool, Western Australia, 6106, and have been engaged by Mining Plus, Level 17, 127 Creek Street, Brisbane, Queensland, Australia, 4000;

2. This certificate applies to the Technical Report titled "Mandalay Resources – Costerfield Property, NI43-101 Technical Report" (the "Technical Report") prepared for Mandalay Resources ("the Issuer"), which has an effective date of 31 December 2020 – the date of the most recent technical information;

3. I am a graduate of Murdoch University and Curtin University, Western Australia. I am a Chartered Professional member in good standing of the Australasian Institute of Mining & Metallurgy (MAusIMM CP(Met), member number 226023). My relevant experience is over 25 years in mineral processing, process engineering and extractive metallurgy. Of particular relevance for the study in support of the practical experience, I have spent the past 15 years in consulting roles at Simulus Engineers in a similar capacity. Furthermore, I have undertaken the annual technical review of this site since 2015 and am familiar with the operation. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101;

4. My most recent personal inspection of the Property was on 1 September 2015;

5. I am responsible for Sections 13, 17 and aspects of 18 of the Technical Report;

6. I am independent of the Issuer, Mandalay Resources Corporation, and its related companies applying all of the tests in Section 1.5 of the NI 43-101;

7. I have no prior involvement with the property that is the subject of the Technical Report other than that stated;

8. I have read the NI 43-101 instrument, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1;

9. At the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;

Effective Date: 31 December 2020
Signing Date: 30 March 2021

(Signed) Simon Walsh, BSc (Extractive Metallurgy & Chemistry), MAusIMM CP(Met)