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2013/099536/07

COMPETENT PERSON'S REPORT AND MINERAL RESERVE STATEMENT FOR THE LANGPAN CHROME PROJECT

Report Prepared For:
Langpan Mining Co (Pty) Ltd

Report Date:
13th December 2021

Report Number:
2020-137-01

REPORT DATA SHEET

Report Title:

Competent Person's Report and Mineral Reserve Statement for The Langpan Chrome Project ("**CPR**") ("**Project**").

Report Number:

2020-137-01

Report Effective Date: JSE 12.10(a)

8th December 2021

Report Date

13th December 2021

Client Name:

Langpan Mining Co (Pty) Ltd. ("**Langpan**")

Bara Consulting Project Manager:

A D Pooley

Contribution Engineers and Consultants:

RPH Willis, R Way, P Roux, WDOF Schoeman, R C Croll, J F Sexton

Contributing Sub-Contracting Companies

CSA Global

Bara Consulting Report Review Consultant

A D Pooley

Version Control

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2020-137-01/05	13th December 2021	A D Pooley	A D Pooley

Certificate of Competent Person SR 9.1(i)(ii)(iii)

As the author of the CPR, I hereby state:

1. My name is Andrew David Pooley and I hold the position of managing director of Bara Consulting (Pty) Ltd., Cresta Corner, Cresta ("**Bara**").
2. I am a mining engineer and a Fellow of the Southern Africa Institute of Mining and Metallurgy.
3. I hold a B.Eng. (Hons) in Mining Engineering.
4. I have at least 20 years relevant experience.
5. I am a "Competent Person" as defined in the SAMREC Code.
6. I had overall management responsibility in compiling this CPR and a number of technical experts reported directly to me.
7. I visited the site, together with other technical experts in November 2020.
8. I had overall responsibility for the contents of this CPR.
9. I am not aware of any material fact or material change with respect to the subject matter of the CPR that is not reflected in the CPR, the omission of which would make the CPR misleading.
10. I declare that this CPR appropriately reflects the Competent Person's/author's view.
11. I am independent of Langpan.
12. I have read the SAMREC Code, and the CPR has been prepared in accordance with the guidelines of the SAMREC Code.
13. I do not have, nor do I expect to receive, a direct or indirect interest in the Project or Langpan.
14. At the effective date of the CPR, to the best of my knowledge, information and belief, the CPR contains all scientific and technical information that is required to be disclosed to make the CPR not misleading.
15. I hereby provide written approval of my contribution to this CPR to be issued into a Public Report in the form content and context in which it appears herein.

13th December 2021:

Signed:

A. D. Pooley

Certificate of Competent Person

SR 9.1(i)(ii)(iii)

As the author of the CPR, I hereby state:

1. My name is Anton Geldenhuys and I hold the position of Principal Resource Consultant at CSA Global South Africa (Pty) Ltd.
2. I am a geologist registered with the South African Council for Natural Scientific Professions (SACNASP).
3. I hold an Honours degree in geology and a Master's degree in engineering.
4. I have over 20 years relevant experience.
5. I am a "Competent Person" as defined in the SAMREC Code.
6. I am responsible for parts of the CPR relating to the geology, geological data acquisition, geological data quality and the Mineral Resource.
7. I visited the site in 2015, since which no additional data has been collected apart from a revised topographic survey.
8. I am not aware of any material fact or material change with respect to the subject matter of the CPR that is not reflected in the CPR, the omission of which would make the CPR misleading.
9. I declare that this CPR appropriately reflects the Competent Person's/author's view.
10. I am independent of Langpan.
11. I have read the SAMREC Code, and the CPR has been prepared in accordance with the guidelines of the SAMREC Code.
12. I do not have, nor do I expect to receive, a direct or indirect interest in the Project or Langpan.
13. At the effective date of the CPR, to the best of my knowledge, information and belief, the CPR contains all scientific and technical information that is required to be disclosed to make the CPR not misleading.
14. I hereby provide written approval of my contribution to this CPR to be issued into a Public Report in the form content and context in which it appears herein.

Dated at Northcliff: 7th September 2021

Signed:

A. Geldenhuys

BARA CONSULTING

Certificate of Technical Expert

SV 1.0

I, John Francis Winchester Sexton, BSc, Bom, MBL, do hereby certify that:

- I am a self-employed Independent Consultant in Mining Valuations.
- I graduated with a BSc Degree majoring in Applied Mathematics and Physics from the University of the Witwatersrand, Johannesburg in 1971. I graduated with a BCom Degree in Finance and Business Administration from the University of the Witwatersrand, Johannesburg in 1974, and with a MBL degree from the University of South Africa in 1978.
- In 1985 I completed a Financial Valuation course through the Department of Mining Engineering, University of the Witwatersrand.
- I have worked as a Mining Analyst for some forty-four years. I have worked for Rand Mines Limited, Gold Fields of South Africa Limited and AngloGold Ashanti Ltd. Since retiring in March 2007 from AngloGold Ashanti Ltd, I have also worked as an Independent Consultant to AngloGold Ashanti Ltd, Mintails Limited and several other Junior Mining Companies, and as an Associate Consultant to The MSA Group (Pty) Ltd and Bara Consulting (Pty) Ltd.
- I have read the definition of Technical Expert as set out in The South African Code for the Reporting of Mineral Asset Valuation, (the SAMVAL Code) 2016 Edition, and certify that by virtue of my education and past relevant work experience I fulfil the requirements to be a Technical Expert in accordance with the SAMVAL Code.
- I have read the SAMVAL Code and confirm that the Valuation sections in this CPR has been prepared in accordance with the SAMVAL Code.
- I am the primary author of the Valuation sections in this CPR.
- I, as a Technical Expert, am independent of and have no direct or indirect interest, as defined in Clauses 9 and 10 of the SAMVAL Code, in Mine Restoration Investments Limited.
- I have not conducted a site visit of the Project in South Africa.
- I confirm that my compensation, employment, or contractual relationship with Mine Restoration Investments Limited is not contingent on any aspect of this Valuation Report.
- I have not had any prior engagement by, or involvement with, Mine Restoration Investments Limited.
- I have not received, nor do I expect to receive, any interest directly or indirectly in Mine Restoration Investments Limited because of the Valuation sections in this CPR.
- As of the date of this Certificate, and to the best of my knowledge, the facts presented in the Valuation sections in this CPR are correct.
- As of the date of this Certificate, and to the best of my knowledge, information and belief, the analyses, and conclusions of the Valuation sections in this CPR are limited only by the reported forecasts and conditions as set out in this Valuation Report.

- As of the date of this Certificate, and to the best of my knowledge, information and belief, the Valuation sections in this CPR contain all scientific and technical information that is required to make the Valuation sections in this CPR not misleading.
- I do not have any bias with respect to the assets that are the subject of the Valuation sections in this CPR.
- I consent to the use of the Valuation sections in this CPR by Mine Restoration Investments Limited.

Dated this 13th day of December 2021

John Francis Winchester Sexton

Certificate of Competent Mineral Asset Valuator

SV 1.0

I, Robert Charles Croll (BSc., MBA, GDE), do hereby certify that:

- I am a self-employed Independent Mining Consultant.
- I graduated with a BSc Mining Engineering Degree from the University of the Witwatersrand, Johannesburg in 1973, a MBA Degree from the University of the Witwatersrand, Johannesburg in 1977, and a GDE Diploma in Mining Engineering from the University of the Witwatersrand, Johannesburg in 1991.
- I have been involved in the valuation of mining properties for over 28 years, initially as a Mining Analyst; then as Mining Economics Consultant for the Anglo-American Corporation of SA Limited, as Manager Business Development for AngloGold Limited and AngloGold Ashanti Limited, as Principal Consultant at The MSA Group (Pty) Ltd and as an Independent Mining Consultant. I was Chairman of the Working Group Committee tasked with developing The South African Code for the Reporting of Mineral Asset Valuation (the SAMVAL Code) and I currently serve on the Working Group associated the ongoing review of the SAMVAL Code.
- I am a Fellow of the Southern African Institute of Mining and Metallurgy.
- I have not conducted a site visit of the Project in South Africa.
- I have read the definition of Competent Mineral Asset Valuator as set out in The South African Code for the Reporting of Mineral Asset Valuation (the SAMVAL Code) 2016 Edition and certify that by virtue of my education and past relevant work experience I fulfil the requirements to be a Competent Valuator in accordance with the SAMVAL Code.
- I have read the SAMVAL Code and confirm that the Valuation sections in this CPR has been prepared in accordance with the SAMVAL Code.
- I am a co-author of the Valuation sections in this CPR.
- I, as a Competent Mineral Asset Valuator, as defined in Clauses 9 and 10 of the SAMVAL Code, am independent of and have no direct or indirect interest in Mine Restoration Investments Limited,
- I confirm that my compensation, employment, or contractual relationship with Mine Restoration Investments Limited is not contingent on any aspect of the Valuation sections in this CPR.
- I have not had any prior engagement by, or involvement with, Mine Restoration Investments Limited.
- I have not received, nor do I expect to receive, any interest directly or indirectly in Mine Restoration Investments Limited as a result of the Valuation sections in this CPR.
- As of the date of this Certificate, and to the best of my knowledge, the facts presented in the Valuation sections in this CPR are correct.
- As of the date of this Certificate, and to the best of my knowledge, information and belief, the analyses, and conclusions of the Valuation sections in this CPR are limited only by the reported forecasts and conditions as set out in the Valuation sections in this CPR.

- As of the date of this Certificate, and to the best of my knowledge, information and belief, the Valuation sections in this CPR contain all scientific and technical information that is required to make the Valuation sections in this CPR not misleading.
- I do not have any bias with respect to the assets that are the subject of the Valuation sections in this CPR.
- I consent to the use of the Valuation sections in this CPR by Mine Restoration Investments Limited.

Dated this 13th day of December 2021

Robert Charles Croll

Other Contributing Authors

SV 1.0

The following Experts have contributed to the CPR. Written consent to use and rely on their contributions in the CPR has been obtained by Bara.

____

RPH Willis
Principal Mining Engineer

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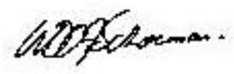
R Way
Principal Mineral Processing Engineer



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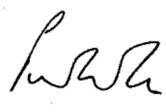
WDOF Schoeman
Principal Infrastructure Engineer



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P Roux
Principal Environmental and Social Consultant

BARA CONSULTING

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BARA CONSULTING

Glossary of Terms

Term	Description
Au	Chemical symbol for Gold
Ir	Chemical symbol for Iridium
Os	Chemical symbol for Osmium
Pd	Chemical symbol for Palladium
Pt	Chemical symbol for Platinum
Rh	Chemical symbol for Rhodium
Ru	Chemical symbol for Ruthenium
3PGE+Au	Pt, Pd, Rh and Au
4E	Pt, Pd, Rh and Au
5PGE+Au	Pt, Pd, Rh, Ru, Ir and Au
6PGE+Au	Pt, Pd, Rh, Ru, Ir, Os and Au
7E	Pt, Pd, Rh, Ru, Ir, Os and Au
aeromagnetic survey	A geophysical survey method to measure the strength of the earth magnetic field using a magnetometer aboard or towed behind an aircraft.
AIDS	Acquired immune deficiency syndrome or acquired immunodeficiency syndrome (AIDS) is a disease of the human immune system caused by the human immunodeficiency virus (HIV)
anorthosite	A rock comprised of largely feldspar minerals and minor mafic iron-magnesium minerals
Bushveld Complex	A major intrusive igneous body in the northern part of South Africa, that has undergone remarkable magmatic differentiation. It is by far the largest layered intrusion known. The Bushveld Complex is a leading source of chromium and PGMs.
Chromitite	A rock composed essentially of chromite, that typically occurs as layers or irregular masses exclusively associated with magmatic complexes. The bulk of the world's exploitable chromitite occurs almost exclusively in layered complexes.
Chromitite layers	Thick accumulations of chromite grains to form almost monomineralic bands or layers. Chromitite Layers are typically greater than 30cm thick.
chromium	The element chromium (Cr) is classified as a metal and is situated between other metals such as vanadium (V), manganese (Mn) and molybdenum (Mo) in the Periodic Chart of Elements.
Chromite	A hard, black, refractory chromium-spinel mineral consisting of varying proportions of the oxides of iron chromium, aluminium, and magnesium.
Chrome mass yield	Chrome mass yield is calculated by dividing the chrome concentrate tonnes by the total feed tonnes and expressed as a percentage
Composite	A weighted accumulation of the intersection value to a specific length or over a specific stratigraphic unit
CPI	Consumer Price Index
CPR	Competent Persons Report
Critical Zone	A stratigraphic zone within the Bushveld Complex where a wide variety of different igneous rock types occur which host the bulk of the significant PGM and chrome mineralization i.e. Merensky Reef and UG2 Chromitite Layer.

Term	Description
DMRE	Department of Mineral Resources and Energy
DTM	Digital Terrain Model
dyke	A wall-like body of igneous rock that is intruded (usually vertically) into the surrounding rock in such a way that it cuts across the stratification (layering) of this rock.
DWA	Department of Water Affairs
Eskom	South African electrical utility company
fault	A fractured surface in the earth's crust along which rocks have moved relative to each other.
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
EPCM	Engineering, Procurement and Construction Management
FOB	Free on board
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
geostatistics	A branch of statistics focusing on the understanding of spatial data
GPS	Global Positioning system
HDSA	Historically Disadvantaged South Africans
highwall	The unexcavated face of exposed overburden of an opencast mine
HIV	Human immunodeficiency virus
IAPs	Interested and Affected Parties
ICP Fusion D/OES	Analytical technique to measure the concentration of trace elements
Indicated Mineral Resource (SAMREC)	An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.
Inferred Mineral Resource (SAMREC)	An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
IRUP	Iron-Rich Ultramafic Pegmatite – a type of rock which typically intruded into the Rustenburg Layered Suite of the Bushveld Complex, generally after the main mineralized layers were formed. IRUPs can replace the normal stratigraphic sequence over extensive areas, and can have a greater or lesser effect on the mineralized layers. They occur as pipes, dykes and sheets.
JSE	Johannesburg Stock Exchange South Africa. JSE Limited, a licensed exchange under the Securities Services Act, 2004

Term	Description
LG Chromitite	Layer Lower Group Chromitite Layer
LSE	London Stock Exchange
Lower Zone	Stratigraphic unit of the Bushveld Complex
mafic pegmatites	a suite of coarse-grained rocks that form discordant bodies within the layered sequence of the Bushveld Complex.
mamsl	metres above mean sea level
Measured Mineral Resource (SAMREC)	A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.
Merensky Reef	A pyroxenitic tabular layer or band within the Bushveld Complex containing economic concentrations of PGMs. The Merensky Reef is one of the principal PGM ore bodies within the Bushveld Complex and is mined extensively.
MG	Middle Group with reference to MG Chromitite Layers
MG Chromitite	Layers Group of five chromitite layers that are known in the lower and upper Critical Zone of the Bushveld Complex
MHSA	Mine Health and Safety Act, Act 29 of 1996
Competent Persons Report (SAMREC)	A report on the technical aspects of a project or mine prepared by a Competent Person (CP). The contents are determined by the nature/status of the project/mine being reported and may include appropriate for the level of study.
Mineral Reserve (SAMREC)	A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.
Mineral Resources (SAMREC)	A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, continuity, and other geological characteristics of a Mineral Resource are known, estimated, or interpreted from specific geological evidence and knowledge, including sampling.
Mining Right	A Mining Right is the permission granted by the State through the Department of Mineral Resources which gives the Holder of the Mining Right the authority to mine minerals within a certain area. A Mining Right may not exceed a period of 30 years.
MPRDA	The Mineral and Petroleum Resources Development Act 28 of 2002 of South Africa
MRMR	mining rock mass rating system
Mt	million tonnes
MVA	megavolt – ampere – a measure of required electrical power
NiS/MS	Specialist analytical technique used to determine the concentration of PGMs
norite	A coarse-grained, basic igneous rock consisting of essential plagioclase feldspar, orthopyroxene (hypersthene or bronzite), and clinopyroxene (augite), often with accessory

Term	Description
	ilmenite.
oz	fine ounce or troy ounce (31.1035g), used as a measure for the mass of precious metals
PGM	Platinum Group Metals, being platinum, palladium, rhodium, ruthenium, iridium, osmium, and, for the purposes of this report and in accordance with industry practice, gold.
pillar	Natural underground support system using unmined parts of the ore body
potholes	A geological feature frequently occurring in the Bushveld Complex in which one layer of the Bushveld Complex transgresses its footwall and forms a basin-shaped depression.
Probable Mineral Reserve (SAMREC)	A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.
Prospecting Right	A prospecting right is a permit which allows a company or an individual to survey or investigate an area of land for the purpose of identifying an actual or probable mineral deposit.
Proved Mineral Reserve (SAMREC)	A Proved Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.
Pyroxenite	refers to a relatively uncommon dark-coloured rock consisting chiefly of pyroxene; pyroxene is a type of rock containing sodium, calcium, magnesium, iron, titanium and aluminium combined with oxygen.
QA/QC programme	A programme of testing, used particularly for assays, to assist to confirm that the data used in a Mineral Resource estimation is reliable and comparable
RMR	The rock mass rating (RMR) system is a geomechanical classification system for rocks, developed by Z. T. Bieniawski between 1972 and 1973.
RoM	Run of Mine
Royalty Act	Mineral and Petroleum Resources Royalty Act, Act 28 of 2008.
RQD	Rock quality designation which is a description using geotechnical engineering principles which that determines the quality of rock that was recovered when taking a core sample.
SAMREC Code	The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code) 2016 Edition
tailings	that portion of the ore from which most of the valuable material has been removed by concentration and which is therefore low in value and rejected.
tpa	tonnes per annum
tph	tonnes per hour
tpm	tonnes per month
TSF	Tailings Storage Facility
UCS	Uniaxial Compressive strength
UG2	Chromitite Layer Upper Group 2 Chromitite Layer of the Bushveld Complex that is well known and typically contains PGMs in a concentration that is sufficient for economic extraction.
Uniaxial Compressive	Strength Measure of the capacity of a material to withstand pushing forces
US$	United States Dollar (currency)
variogram	The variogram is the key mathematical and graphical function in geostatistics as it is used to describe or fit a model of the spatial correlation of the observed phenomenon.

Term	Description
VAT	Value added tax
WTO	World Trade Organisation
ZAR	South African Rand (currency)

1 EXECUTIVE SUMMARY

SV 1.2

In compliance with paragraph 12.10 (d) of the Johannesburg Stock Exchange's (JSE) Listing Rules, the appropriate sections in SAMREC Table 1, SAMVAL Table1 and the JSE Listing Rules are referenced as **SR**, **SV** and **JSE 12.10** respectively throughout the CPR.

1.1 Overview

JSE 12.10(h)(i) SV T1.4

Mine Restoration Investments Limited ("MRI") has been listed on the Alternative Exchange of the JSE since 2012. MRI is in the process acquiring all the issued shares of Langpan Mining Co Proprietary Limited ("LMC", "Langpan Chrome Mine" or "Langpan"), in exchange for the issue of consideration shares, resulting in the effective Reverse Listing of LMC, preceded by a deep-discounted Rights Offer. Bara Consulting (Pty) Ltd. (Bara) has been retained by Mine Restoration Investments Ltd. (MRI) to compile a Competent Persons Report (CPR) and mineral asset valuation for the Langpan Chrome Mine asset. The report has been commissioned in order to comply with the Listing Rules of the Johannesburg Stock Exchange (JSE). The CPR and mineral asset valuation have been compiled in accordance with:

JSE 12.10(e)

- The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC Code) 2016 Edition; and
- The South African Code for the Reporting of Mineral Asset Valuation (SAMVAL Code) 2016 Edition.

In addition, Section 12 of the JSE listing requirements have also been complied with.

The following executive summary summarises the CPR and is considered a true reflection of the full CPR, the effective date of the CPR is 8th December 2021.

JSE 12.10(h)(xi)

1.2 Description and Ownership

JSE 12.10(h)(ii) SR 1.1(i) SR 1.5(i)(ii) SV T1.5

The Project lies within the Limpopo Province of South Africa, approximately 25 km North of Northam, 17 km South of Thabazimbi and 6 km North of the Amandelbult Mine Town. It is accessible via gravel roads leading off the R510 and R511 (the "**Langpan Mine**"). Good infrastructure exists in the area due to the well-established platinum, chrome, and iron ore mines. The Middle Group chrome seams (the "**MG Seams**"), which are of interest, occur on the South-Western sector of the farm Langpan 371 KQ.

JSE 12.10(h)(iv)

The previous Mining Right holder in respect of the Langpan Mine is Memor Mining (Pty) Ltd. ("**Memor Mining**"). Langpan has entered into a share purchase agreement ("**SPA**") with the shareholders of Memor Mining in terms of which Langpan has acquired 100% of the issued share capital of Memor Mining, subject to a condition precedent that by 22 June 2022 (or such later date as the parties may agree) the Minister in terms of Section 11 of the Mineral and Petroleum Resources Development Act 28 of 2002 ("**MPRDA**") has consented to the change of control of Memor Mining purported to be occasioned by this transaction "**Section 11 Consent**"). The Section 11 Consent was granted on the 6th December 2021 and the SPA is now in effect.

The Mineral Resource Estimate at Langpan Mine lend themselves to opencast mining and the mine is currently an operational opencast mine mining the Lower Group chrome seams (the "**LG Seams**"). Chrome from the LG Seams is sold run of mine (RoM) on a crushed and screened basis to Stratore (Pty) Ltd. ("**Stratore**"). The material on the chrome contact is removed separately, screened, and sold as separate products. The LG Seams are not included in the Mineral Reserve statement. The MG Seams were mined historically but the surface Digital Terrain Model ("**DTM**") used in the mining model cuts out the mined-out areas of the MG Mineral Resource.

JSE 12.10(h)(iii)(v)
SR 1.2(i)
SR 2.1(i)(ii)

1.3 Geology

The Project is located on the Western Limb of the Bushveld Complex (see Figure 1.1 below a layered igneous body that intruded sedimentary and volcanic rocks of the Transvaal Supergroup approximately 2.06 billion years (Ga) ago.

The Bushveld Complex consists of a basal mafic to ultramafic suite, which is made up of the Rustenburg Layered Suite ("**RLS**") and an upper part comprising the Rooiberg felsites and granophyres, and the Bushveld Granite. The RLS is divided into five zones which, from the base upwards, are the Marginal, Lower, Critical, Main and Upper Zones.

The mafic rocks of the Bushveld Complex host the largest known resources of Platinum Group Elements ("**PGEs**"), chromium (Cr_2O_3) and vanadium (V) in the world.

The chromitite layers occur in the Lower, Middle and Upper Groups of the lower and upper Critical Zone. The LG Seams consists of seven chromitite layers hosted in feldspathic pyroxenite. The four chromitite layers of the MG Seams are stratigraphically above the LG Seams at the contact of the lower and upper Critical Zones. The two Upper Group ("UG") layers are contained in norite and anorthosite of the upper Critical Zone.

Although economic PGE mineralisation is predominantly associated with the Merensky Reef and the UG2 chromitite layer, all chromitite layers in the Critical Zone contain lower, but significant concentrations of PGE (Von Gruenewald et al, 1986). V is hosted in the magnetite layers in the Upper Zone of the RLS.

The RLS in the Western Limb of the Bushveld Complex dips to the South-East at angles between 15° and 27°, although the dips may be more variable in the vicinity of faults.

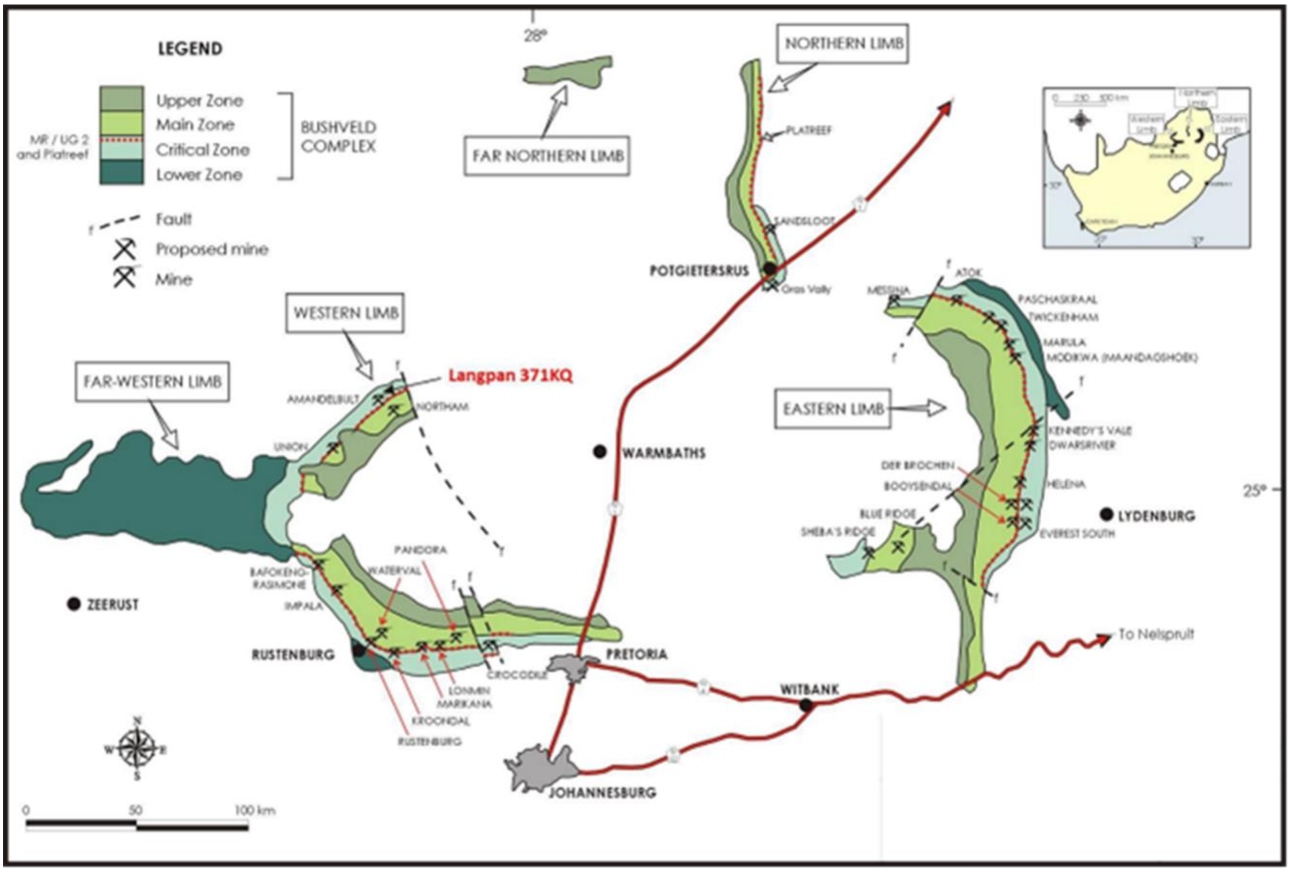

Figure 1.2 below depicts the footprint of the current mining operations which has exposed MG1, MG2, MG3 chromitite layers in Pit A and MG2, MG3 and MG4 chromitite layers in Pit B. The general strike of the layers is 40° and they dip at approximately 20° to the South-East.

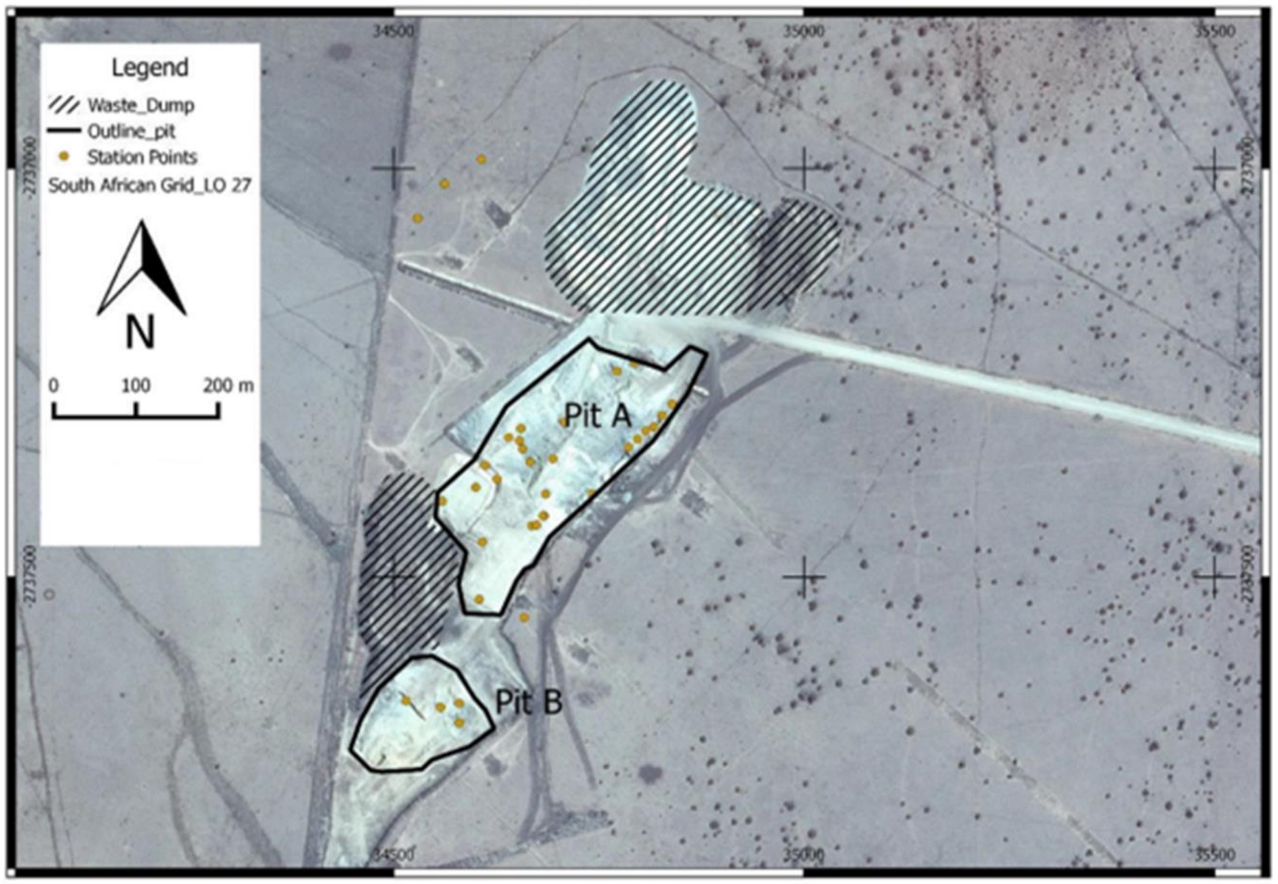

Figure 1-2 – Footprints of the current pits (Source: MSA, 2015)

The most recent exploration was conducted in 2015 and executed by The MSA Group (Pty) Ltd. ("**MSA**"). The exploration programme comprised:

- Ground magnetic survey
- Structural mapping
- Diamond core drilling and assay

Based on the results of the primary laboratory quality control programme and the results of the second laboratory check assay programme, we attach a high confidence to the assay database and its suitability for use in Mineral Resource estimation. The geological model and subsequent Mineral Resource statement were updated in 2021 by CSA Global South Africa (Pty) Ltd. ("**CSA**").

1.4 Mineral Resource and Mineral Reserve Estimate

The Mineral Resource estimation and Mineral Reserve estimation are not precise calculations and rounding off will convey the uncertainties in the calculations. JSE 12.10(h)(ix) SV T1.9

1.5 Mineral Resource Estimate

SR 1.4(iii) SV T1.9

The Langpan Mineral Resource Estimate is reported in accordance with The SAMREC Code. The Mineral Resource Estimate is demonstrated to have reasonable prospects for eventual economic extraction and is classified as indicated for all seams to a depth of 65 m below surface.

No additional geological losses have been applied to the Mineral Resource as these were accounted for in the geological modelling stage.

The Mineral Resource is reported as at 11th February 2021 to a depth of 65 m below surface is shown in Table 1.1 below.

There are currently no plans to drill any further exploration holes and there is therefore no exploration budget allocated to the project. Mining will commence based on the current geological and Mineral Resource data. JSE 12.10(h)(vi)

Table 1.1 – Langpan open pit Mineral Resource Estimate as at 11 February 2021, reported to a vertical depth of 65 m below surface														
	Depth *m*	**Category**	**Tonnes** *millions*	**Density** *t/m³*	**Cr_2O_3** *%*	**Pt** *g/t*	**Pd** *g/t*	**Rh** *g/t*	**3PGE** *g/t*	**Cr_2O_3** *kt*	**Pt** *koz*	**Pd** *koz*	**Rh** *koz*	**3PGE** *koz*
MG1	≤65	Indicated	0.29	4.07	35.5	0.85	0.21	0.18	1.24	103.5	7.97	1.99	1.7	11.66
MG2	≤65	Indicated	0.37	4.02	36.5	1.01	0.21	0.19	1.42	134.2	11.95	2.52	2.26	16.73
MG3	≤65	Indicated	0.51	3.95	30.6	1.1	0.51	0.31	1.92	154.8	17.85	8.23	5.12	31.2
MG4A	≤65	Indicated	0.6	3.98	34.1	1.13	0.22	0.32	1.67	205.2	21.79	4.23	6.2	32.23
MG4B	≤65	Indicated	0.61	4.02	33	0.49	0.17	0.18	0.85	200.2	9.62	3.39	3.45	16.47
TOTAL	**≤65**	**Indicated**	**2.37**	**4**	**33.6**	**0.91**	**0.27**	**0.25**	**1.42**	**798**	**69.18**	**20.35**	**18.74**	**108.27**

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12.10(h)(ix)

1.6 Mine Design and Scheduling

A geotechnical assessment was carried out by Latona Consulting (Pty) Ltd. ("**Latona**") for the current and future open pit workings on the MG and LG Seams at Langpan Mine.

An overall slope angle of 70 degrees is considered feasible in pits to between 30 and 45 m depth. In the upper 5 to 15 m in highly weathered ground the slope should be battered back at a flatter angle of approximately 55 degrees.

It is considered feasible, if chrome grades make it economic, to mine pits to over 70 m depth, particularly on the combined MG Seams. Overall design slope angle should be 65 degrees at these increased depths.

A life of mine ("**LoM**") plan was recently undertaken by Mark Mohring Mining Services (PTY) Ltd. ("**M3 Services**") in close collaboration with Langpan Mine. The Mineral Resources at Langpan Mine lend themselves to opencast mining and the Langpan Mine is currently an operational opencast mine mining the LG Seams. Chrome from the LG Seams is sold RoM on a crushed and screened basis to Stratore. The material on the chrome contact is removed separately, screened, and sold as separate products. There is a similar undertaking from Stratore to purchase all 3PGM at the gate, free on truck (FOT). This is currently a non-binding letter to indicate intent but will be developed to a formal off-take agreement in due course.

A design and schedule were done in 2020 on the mining of the MG Seams to the West of the Langpan Mine, but the geological model used for the planning was an old one from 2013. The geological model was updated in 2021 by CSA and the mine design and schedule was subsequently updated based on the updated geological model and forms the basis of this LOM determination. The LOM plan considers only the MG Seams.

The LOM mining plan has been determined such that LG Seams can still be sold RoM on a crushed and screened basis in the beginning of the operation and the LG Seam contact material can be upgraded for sale. This allows sufficient time for the refurbishment of a wash plant for the life of the Western opencast mine's life where the MG Seams are found. This LG chrome ore is not included in the Mineral Reserve statement.

Production in the Western pit (Pit B) was started by a previous owner and the mining plan for the MG Seams starts in Pit B. The pit design profiles, as recommended in the geotechnical report compiled by Latona and shown in Figure 1.3 below, form the basis of the pit shell design.

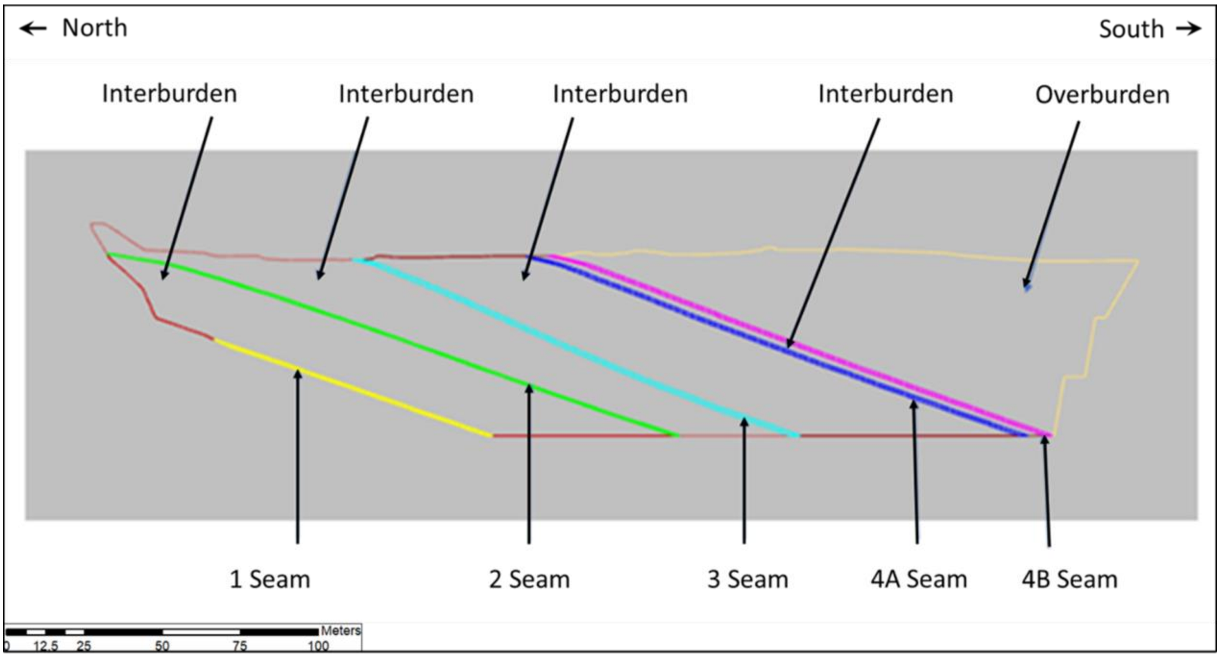

Figure 1-3 – Cross Section showing all MG Seams within the designated pit shell.

The mining equipment will consist of a fleet of excavators, articulated dump trucks, rigid dump trucks and frontend loaders. Other mining and secondary equipment will also be required such as a diesel bowser, water bowser, grader, track dozers, drill, and light duty vehicles. There will be separate teams to remove overburden and chrome.

The overburden team will consist of 2 x 984 Liebherr (120 tonne) excavators, 1 x D9T Caterpillar Track dozer and 6 x TR 100 Terex (90 tonne) rigid dump trucks and will work 3 shifts per day. The chrome team will consist of 1 x 964 Liebherr (80 tonne) excavators, 1 x D8R track dozer and 4 x B50 Bell (50 tonne) articulated dump trucks who will only work in daylight hours. These 2 production teams will be supported by 35 000 litre B50 water bowser and a Caterpillar 140 grader.

Drilling of the overburden will be done with an Atlas Copco L8 provided by the mining contractor. This rig will drill 165mm holes on a 5x5m pattern on the overburden to a maximum depth of 10m which is the maximum height of the mining benches. Explosives will be delivered on the bench by either BME or AEL and the prime blasting agent will be ANFO. It is planned to blast overburden monthly so that all the material is available for the

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next month. Some of the softer chrome seams can be extracted without blasting while blasting of the harder seams will be required.

Table 1.2 below shows the list of modifying factors, assumptions and design parameters used to design the Western LOM. The mining and geological loss factors are the same for both the current Eastern and new Western opencast mining areas.

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Table 1.2 – Mining Modifying Factors		
Opencast OC West	***VALUES***	**COMMENTS**
Geological loss (%)		
Measured	*n/a*	No Mineral Resources in this category
Indicated	*5%*	This is catered for in the geological model
Inferred	*n/a*	No Mineral Resources in this category
Mining Loss (%)		
Total Loss	*5%*	
Cut-offs / Restrictions		
Minimum chrome seam thickness	*0m*	No minimum
Mineable seams	*MG1, MG2, MG3, MG4A, MG4B*	
Barrier from farm boundary	*9m*	*Start Topsoil stripping*
Blasting Barrier from local community	*500m*	*Start Hards stripping*
Production / month		
Maximum production tonnes / month	*30 000*	*Incl. Contamination*
All seams		
Total average thickness	*1.35m*	
Min thickness	*0.43m*	
Max thickness	*4.00m*	
Contamination from waste above and below the seam	*8% total*	
Contamination density	*3.2 t/ m^3*	

The boxcut excavation was started by the previous mine owners and it is planned that the start of mining will take place from this position. The MG1, MG2, MG3, MG4A and MG4B Seams are considered for scheduling purposes in the LOM plan.

Access to the chrome seams will be through horizontal benches linking the ramp. Mining has already commenced on all the seams in the Northeast to RL912 which is at 30 m depth and towards the West to the RL922 which is at 20 m depth.

The intention is to backfill progressively as the mine progresses towards the South-West and the final highwall. Access ramps will be temporary, and the main access will be from the centre initially and then the North- East corner incorporated into the backfill.

The resulting production schedule with tonnes and qualities are shown in Tables 1.3 and 1.4 below. Further work is required to optimise the short-term planning. The production rate was variable, and stockpiling has therefore been accounted for to ensure a steady plant feed rate.

Table 1.3 – LoM Schedule OC West – Waste and Ore								
DESCRIPTION	Unit	YR01	YR02	YR03	YR04	YR05	YR06	TOTAL
Ore Tonnes	RoM Tonnes	304 503	408 403	367 050	414 429	474 524	242 776	**2 211 686**
ROM Tonnes	RoM Tonnes	298 997	400 922	360 264	406 629	465 600	238 186	**2 170 598**
Waste Tonnes	RoM Tonnes	7 050 239	8 409 600	8 409 600	7 153 106	6 189 344	3 622 850	**40 834 739**
Ore Volume	BCM	75 868	101 998	91 886	103 890	118 702	60 859	**553 201**
Waste Volume	BCM	2 199 781	2 620 688	2 619 760	2 227 221	1 926 589	1 126 401	**12 720 441**
SR		7.36	6.54	7.27	5.48	4.14	4.73	**5.86**

Table 1.4 – LoM Schedule Ore Quality								
DESCRIPTION	Unit	TOTAL	YR01	YR02	YR03	YR04	YR05	YR06
Diluted CR	%	**31.89**	32.38	31.23	30.73	30.54	32.43	32.07
Diluted FE	%	**24.59**	24.49	24.18	23.86	23.70	24.97	25.17
Diluted CR:FE	ratio	**1.30**	1.32	1.27	1.27	1.25	1.29	1.27
Diluted Si	%	**9.83**	9.03	9.53	9.94	10.02	9.95	10.64
Diluted MGO	%	**10.16**	10.05	9.87	10.05	9.93	10.14	10.58
Diluted AL	%	**13.88**	13.81	13.40	13.58	13.61	14.17	14.15
Diluted PT	g/t	**0.87**	0.88	0.85	0.93	0.83	0.77	0.89
Diluted PD	g/t	**0.25**	0.28	0.23	0.27	0.22	0.21	0.27
Diluted RH	g/t	**0.23**	0.22	0.22	0.24	0.23	0.23	0.24
Diluted 3PGE	g/t	**1.34**	1.38	1.30	1.44	1.28	1.22	1.40

1.7 Process Plant and Tailings

Figure 1.4 below is a Schematic Process Flow Diagram utilised for the testwork program.

The flowsheet of the proposed metallurgical plant is the same as the testwork flowsheet except that the tailings cycloning step has been excluded.

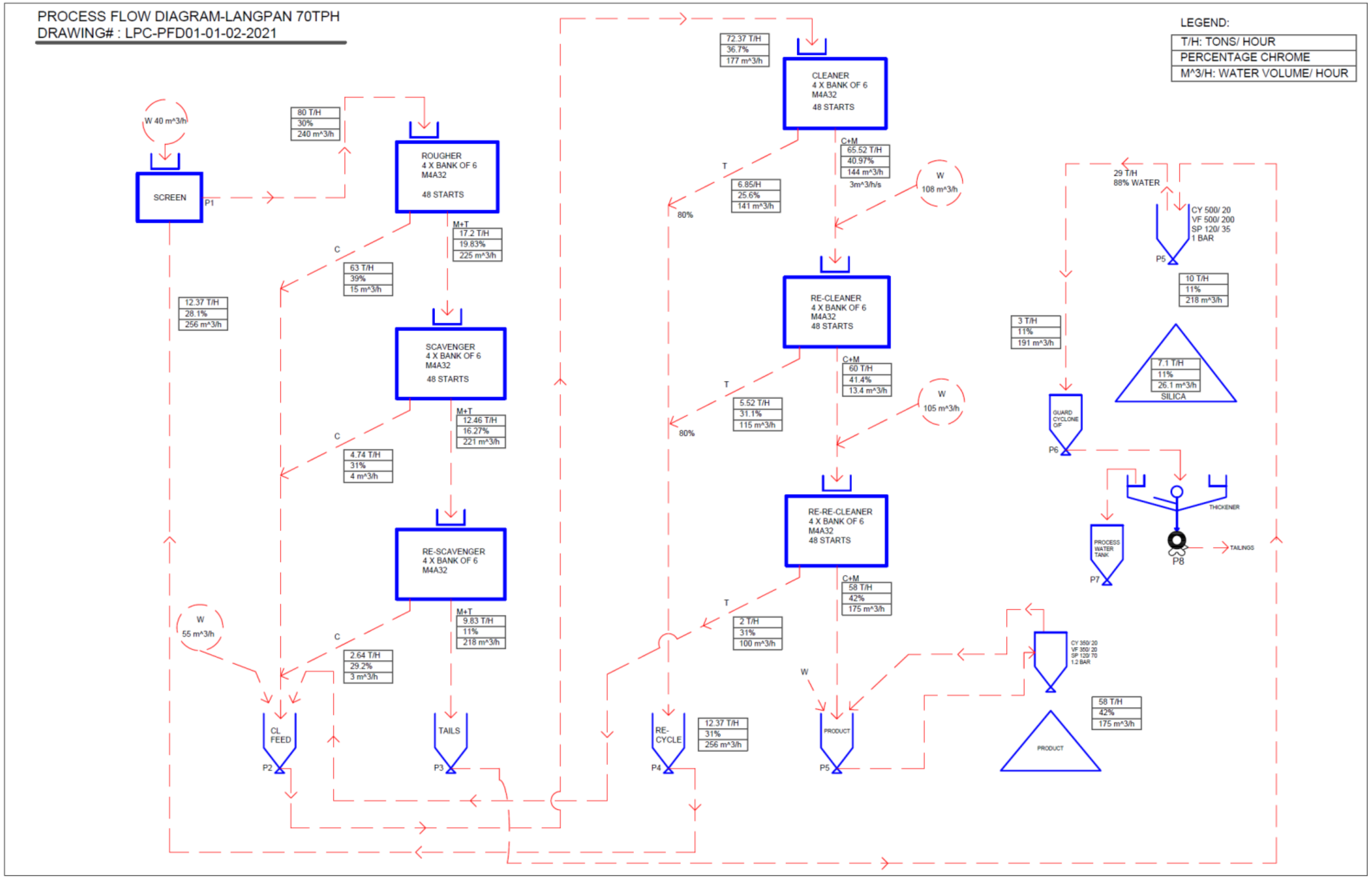


Figure 1-4 – Plant Schematic Process Flow Diagram

Previous plant performance information indicated that the plant yield achieved was +-56%. However, test work performed by METQ (Pty) Ltd. ("**METQ**") in 2020 using newly designed spirals that optimise the yield on ultrafine chrome particles achieved a yield of 64% on MG1 and 57% on MG3.

Further test work was undertaken in April 2021 by METQ on samples from the MG1, MG2, MG3, MG4A and MG4B seams to determine the predicted plant performance in terms of chrome and 3PGMs recoveries. The weighted average chrome yield across the five seams from the testwork is 65.9%.

It is accepted metallurgical practice to deduct of the order of two percentage points from the testwork recovery number to allow for inefficiencies in the full-scale plant and a further one point to allow for a scale-up factor from testwork to the full-scale plant when compared to spiral testwork. The predicted weighted average chrome yield across the five seams is therefore 63%.

The chrome spiral plant tailings (34.1% by mass of the plant feed) contain PGEs and will be sold to a flotation plant as a PGM product. No flotation testwork has been carried out on the chrome plant tailings. As an indication of the flotation plant recoveries that should be achieved, the operating results from the Sylvania flotation plant were considered. The flowsheets of the Sylvania plants are similar to the flowsheet that would be used to process the Langpan chrome plant tailings. The flotation recoveries achieved by the various Sylvania flotation plants vary between 50 and 65%. The combined recoveries of these plants vary between 52 and 54%. A letter received from Stratore indicates that they will purchase the chrome plant tailings at the mine gate based on a payment of between 70% to 85% of the contained PGEs. The CV has taken a conservative view of these payment terms and assumed payment will be based on 66% of the value of the contained PGEs. Based on the public domain information above it has been identified that lower PGE recoveries than those assumed by Stratore may be achieved on Langpan tailings. The flotation recovery achieved on the Langpan flotation tailings maybe of the order of 50% which would have a negative impact on the payment received for this material.

1.8 Infrastructure

Langpan Mine is still in development phase and the main infrastructure such as the mine offices, mine contractor offices and permanent workshop facilities need to be built. A processing plant is currently on site and is currently undergoing a R32 million upgrade with commissioning due in July 2021.

The mine has an ESKOM power supply of 800KVA at the farmhouse and an overhead line is to be built to bring the power to the infrastructure area. A solar installation will be commissioned on site for most of the power required and a diesel generator will supply the remaining power.

The Langpan Mine gets water for its operations from a neighbouring farmer and has concluded a lease to this effect. They have also obtained permission to connect to the Magalies pipeline which runs along the R510 and will install a pipeline to the infrastructure area. This water will also be used for dust suppression, as water from the pit is not expected until level 902 is reached in the pit. A clean water dam has been designed to store clean water on site.

The mine is easily accessible from major towns and cities by national roads and highways and the entrance is on the Amandelbult road running between the R510 and R511. Internal roads have been constructed from the entrance to the wash plant and office area. The haul roads from the pit to the plant will be constructed on the backfilled LG pits so that no additional vegetation is disturbed.

1.9 Environmental, Social and Governance ("ESG")

JSE 12.10(h)(viii) SR 1.5(ii)

Memor Mining has an approved Mining Right, mining activity is currently underway on site. A Section 11 Consent has been granted on 6th December 2021 to cede the entire issued share capital of the mining right held by Memor Mining to Langpan. Some of the ESG components need amending, this includes the environmental management programme ("**EMP**") which needs to reflect what Langpan is planning to do. The water use license needs to be amended to reflect the plan for in-pit waste disposal. This would need waste characterization of the material to determine what the impacts would be. The social and labour plan ("**SLP**") needs to be updated. The closure plan and guarantee also needs to be reassessed. Now that the Section 11 has been granted this work will commence.

1.10 Closure

For the first 2 years all the overburden will need to be stockpiled outside of the pit on the Eastern edge, after which space will have been created in the pit to safely backfill some of the overburden. Rehabilitation of the pit is planned to take place as soon as there is sufficient space to fill the void and will continue concurrently with mining. The excess overburden which is mined will be stockpiled along the Eastern edge of the pit and will be used to fill the final void at the end of the Langpan Mine's life. Good practice is to move surplus waste material on dumps back into the pit in the last few years of the mine's life as part of operating expenses to avoid large rehabilitation and closure costs at the end of the mine's life. Provision for rehabilitation has been made in the form of a rehabilitation guarantee and Langpan has committed to assessing the provision on a quarterly basis. This will be continually topped up to provide for final closure based on annual assessments.

All the infrastructure will also be removed at the end of the Langpan Mine's life.

1.11 Capital and Operating Costs

The mining and plant costs are supported by quotes and all other costs assumptions are deemed to be reasonable and comparable with our own benchmarked numbers. Estimated capital costs and average operating costs per RoM tonne are shown in Tables 1.5 and 1.6 below.

Table 1.5 – Estimated Capital Costs

Description	Amount (R million)
ROM & Crushing	9.05
Gravity separation	5.52
Water reticulation	5.74
Electrical & instrumentation	6.65
Infrastructure	0.66
EPCM fees	1.90
Contingency 10%	2.95
Eskom deposit & connections	3.00
Project Total	**35.45**

Table 1.6 – Average Operating Cost (Real Terms)	
Direct Operating Costs	**Average Rand per RoM tonne**
Mining Cost	559.38
Mining Margin (10% of Cost)	55.94
Processing Cost	90.00
RoM Stockpile Re-handling Cost	10.00
Security	1.94
Mine Salaries	10.23
Admin & Audit Fees	1.70
Independent survey	10.00
Total Direct Operating Costs	**739.20**
Indirect Operating Costs	
Payment to Memor Mining	0.07
Farm Rental	5.11
Plant & Business Insurance	1.70
Rehabilitation Provision	10.00
Diesel Rebate	-23.45
Total Operating Costs R/RoM tonne	**732.65**
Langpan Overhead Costs	
Salaries & Consultants	9.20
Travel Costs	1.70
Legal Fees	1.70

1.12 Financial Analysis and Valuation

A financial analysis of the Langpan business plan has been undertaken to determine if the Project is economically viable; a positive result would motivate the declaration of Mineral Reserves. In addition, MRI requested Bara Consulting (Pty) Ltd (Bara) to prepare a valuation of the Langpan Chrome Mine in accordance with the South African Code for the Reporting of Mineral Asset Valuation (The SAMVAL Code) 2016 Edition. The financial analysis undertaken is common to the mineral asset valuation as well as the motivation for the declaration of Mineral Reserves.

The SAMVAL Code requires that at least two valuation approaches be applied to assess the value of a Mineral Asset. There is no information available to allow for the application of the Market Approach nor the Cost Approach, as such, the only valuation approach deemed to be applicable to determine the value of the Langpan Chrome Mine is the Income Approach.

The general valuation methodology is as follows: all revenues and costs are inflated on an annual basis using the cumulative SA inflation factors to provide all money items in nominal terms. The annual cash flows in nominal terms are then used to determine the annual tax payments. The after-tax cash flows are then deflated using the same cumulative SA inflation factors to determine the annual real terms cash flows. These real term cash flows are then discounted at various real discount rates to determine the Net Present Value ("NPV") at various selected discount rates.

The compilation of this Valuation is based on technical and financial data supplied by MRI. The Valuation Date is 8th December 2021. The opinions expressed in this Report have been based on information provided to Bara, the Competent Valuator (CV) and the Technical Expert (TE) by MRI. The CV and TE have placed reliance on information provided by MRI personnel and the Competent Person.

The key economic criteria applied to the financial model for PGE metals are the spot prices as of the 8th December 2021. The chrome price used was as per the Stratore offtake agreement provided by MRI. The volatility in commodity prices and exchange rates experienced recently and the possibility of further uncertainty, has prompted the CV and TE to use spot prices and exchange rates as of 8th December 2021. It is common practice to use consensus forecasts of these parameters but the wide variance in forecasts obtained, coupled to the recent volatility in the prices, had led to spot prices being used for Platinum, Palladium and Rhodium as well as the inflation and exchange rates. The date of the spot prices is also the date of the valuation.

The metal prices as well as the exchange rates and inflation rates used are shown below and in Table 1.7.

- USD/ZAR exchange rate - ZAR15.98 to USD 1
- USA inflation rate - 6.22%

- SA inflation rate - 5.0%
- Discount rate (WACC) - 7.4%
- Tax rate - 28% until 31 March 2022, when it changes to 27%.
- Mining Royalty based on the Mining Royalties Act (Act 28 of 2008)

Table 1.7 – Spot Metal Price 8th December 2021

Spot Prices 8th December 2021			
Exchange Rate ZAR:US$		15.98	https://randforecast.com/dollar-to-rand
Inflation rates - US		6.22%	https://ycharts.com/indicators/us_inflation_rate
Inflation rates - ZAR		5.0%	https://tradingeconomics.com/south-africa/inflation-cpi
Metal prices Prices			
Platinum	US$/oz	959	https://www.monex.com/platinum-prices/
Palladium	US$/oz	1 859	https://www.monex.com/palladium-prices/
Rhodium	US$/oz	11 500	https://www.moneymetals.com/rhodium-price
Chrome - FoT All Chrome Products	ZAR/t	1 650	As per Stratore Agreement

Based on the above financial parameters and costs an independent financial modelling exercise was undertaken. This modelling exercise included the sale of tailings material containing 3PGM from all five seams mined, the level of detail associated with the testwork program that has been carried out on the PGMs is such that it is considered commensurate with the requirements of the SAMREC Code for a pre-feasibility study.

The CV and TE have calculated two WACC scenarios for the valuation:

- Base Case: whereby the cash flows associated with the Project include the inputs and costs associated with the funding for the Project. The funding and associated repayments cover the first 5 years of the Project.
- Intrinsic Value: based on the Intrinsic value of the Project, whereby only the cash flows associated with the Project are considered. The WACC is based on 100% equity. The funding for the recapitalization of the wash plant is considered to be equity, hence there are no associated funding costs, and

For the Base Case, the weighted average WACC is calculated by applying the percentage of the NPV of the cash flow for years 1 to 5 compared with the total NPV to the WACC of 4.72%. Similarly, the percentage of the NPV of the cash flow for years 6 to 7 compared with the total NPV is applied to the WACC of 16.85%. The sum of the two adjusted percentages is the weighted average of the WACC. The addition of the PGM revenue to the chrome only cash flow changes the pattern of the overall cash flow and is 3 months longer to accommodate the drying period for the tailings. Hence the weighted WACC is different between the chrome only and chrome plus PGM cases.

Applying the above approach, the cash flows in years 1 to 5 were discounted using a WACC of 4.72% and years 6 to 7, a WACC of 16.85%. Based on this approach, the weighted average WACC, or the effective WACC, is 7.4%. Further, it presents an effective debt-to-equity split of 55/45 respectively. Based on these outputs, effective WACC of 7.4% and debt-equity split of 55/45, the CV and TE determined the approach reasonable for a project that will be funded entirely by debt whose low pricing reflects the current low interest rate environment.

There is no adjustment to the Intrinsic Value cash flows as the WACC remains at 16.85%.

The Competent Valuator and Technical Expert consider that the Value for Langpan Chrome Mine (Scenario B) at a real weighted average WACC discount rate of 9.0% excluding the PGMs is R223 million, with a range of negative R19 million to R447 million based on ±20% chrome price fluctuation. Including the PGM revenue, at a real weighted average WACC discount rate of 7.4%, the value is R851 million with a range of R137 million to R1,213 million based on ±20% all metals price fluctuation. These values are at a PGM metal paid for of 66%: a range of metals paid for percentages between 28% and 41% gives a range of NPVs between R479 million to R608 million.

JSE 12.10(h)(xii)

The intrinsic value of Langpan has been included for comparative purposes only, i.e. 100% equity financed, with a WACC of 16.85%, is R720 million with a range of R153 million to R1,007 million based on ±20% all metals price fluctuation and PGM metal paid for of 66%.

This is based on total chrome sales and the expected sales of 3PGM from all five seams.

Table 1.8 and Table 1.9 show a summary of the results of the financial evaluation.

Table 1.8 – Langpan Net Present Values – Base Case				
		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	9.0%	-19	447	223

NPV's are Real as of 8 December 2021

PGM revenue excluded

		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	7.4%	137	1,213	851

NPV's are Real as of 8 December 2021

PGM revenue included

Table 1.9 – Langpan Net Present Values - Intrinsic Value				
		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	16.85%	30	402	224

NPV's are Real as of 8 December 2021

PGM revenue excluded

		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	16.85%	153	1,007	720

NPV's are Real as of 8 December 2021

PGM revenue included

Based on the above financial outcomes, the mine has shown a positive return and it is therefore considered that it is appropriate to declare a chrome and 3 PGM Mineral Reserve for all seams extracted at Langpan.

1.13 Mineral Reserve Statement

SR 1.4(iv)
SV T1.9

Mineral Reserves have been declared in accordance with The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code) 2016 Edition. The effective date of the Mineral Reserves is 8th December 2021.

M3 Services produced a LOM plan based on the original mine design layout from Langpan Mine and the updated geological model from CSA. Deswik mining software was used to do the scheduling. Geological "surface" grid files (top and bottom of softs, and chrome seams), as well as RAW quality grids were received from CSA who were responsible for the geological modelling of the Mineral Resource. The limit of weathering was not defined in these grids.

The end wall shape of the shell is based on geotechnical guidelines/designs as per the August 2020 Geotechnical report from Latona.

A pit limit cut-off of 65 m depth was applied to the Western chrome resource area. No further cut-offs were necessary to be applied due to chrome qualities or thicknesses and the full chrome resource areas as per the chrome Mineral Resource Estimation was used in the LOM for the Western opencast area (Pit B).

Production scheduling was carried out in Deswik software based on targeted production of 30 000 tonnes per month.

As the Mineral Reserve is only based on an Indicated Mineral Resource, all Mineral Reserves are defined as a Probable Mineral Reserve. No Inferred Mineral Resources were included in the mine design. Table 1.10 below details the Probable Mineral Reserve estimate. This estimate is based on the Indicated Mineral Resource, the modifying factors and the mine schedule as outlined in the Report and represent the ore quantity and quality delivered to the plant. The Mineral Reserve estimates are impacted by rounding off, and this may result in minor computational discrepancies. Plant efficiencies have not been applied in estimating the Mineral Reserve. The CP was informed that there are significant historical tailings with potential economic ore, but these have not been included in any Mineral Reserve estimate. The economic analysis shows a profitable operation after applying plant efficiencies.

Table 1.10 – Langpan Open Pit Probable Mineral Reserve Estimate at 8th December 2021 (All Losses and Dilution Accounted For)									
Seam	Depth m	Width m	Tonnes millions	Density t/m3	Cr_2O_3 %	Pt g/t	Pd g/t	Rh g/t	3PGE g/t
MG1	≤65	0.65	0.20	4.07	32.65	0.79	0.20	0.17	1.16
MG2	≤65	0.63	0.33	4.02	34.46	0.97	0.19	0.18	1.34
MG3	≤65	0.89	0.48	3.95	29.17	1.05	0.49	0.30	1.84
MG4A	≤65	0.85	0.58	3.98	32.24	1.06	0.20	0.30	1.56
MG4B	≤65	0.83	0.58	4.02	31.42	0.47	0.16	0.17	0.80
Total			2.17	4.00	31.72	0.86	0.25	0.23	1.35

JSE 12.10(h)(ix)

1.14 Competent Persons Conclusions and Recommendations

The CP has concluded that there are sufficient Probable Mineral Reserves on the MG seams to maintain a profitable operation for the next six years. The are several actions that should be concluded as soon as practically possible:

- Initiate work on the update the EMP, WULA and SLP.
- Finalise and conclude the offtake agreement with Stratore in regard to the PGM revenue stream.

There is significant potential to improve the economics of the operation. These include:

- Treatment of nearby tailings.
- Mining of the LG Seams.
- Investigate the potential of mining deeper, by either increasing the stripping ratio or by underground mining. This would require additional exploration to extend the Mineral Resource and further technical studies to prove the economics.

A risk assessment was undertaken for the Langpan Project as described above. The objective of the risk assessment was to identify risks to the purpose and outcomes of the study work completed for Langpan. JSE 12.10(h)(x)

The risk assessment assumed that the proposed mine would be operated according to best practice principles and that the operations would generally follow the planning and methods as proposed in the CPR. As such, operational issues were not considered as part of this risk assessment. However, at the commencement of mine development and operations, targeted risk assessments will address operational risks. Ensuing COP`s (Codes of Practice) and SWP`s (Safe Work Procedures) will be developed and maintained before activities take place.

The general procedure to compile the risk register was as follows:

- A risk matrix and rating system was developed for the project.
- A risk register template was issued to the primary consultants who worked on the project to pre-populate the register with possible risks.
- The returnable from the various team members was combined into a consolidated document.
- A workshop was conducted where each of the identified risks were discussed, evaluated, and rated.

The outcome of the risk assessment demonstrated that the project is a low-risk project with the highest residual risks listed below:

- Impact on ore quality due to faulting in pit leading to excessive dilution: This is a common risk in mining and is mitigated by appropriate high quality and ongoing geological input into the production operation which is then accounted for in the mine planning process.
- Lower than expected PGE recovery from tailings material in downstream processing (flotation) due to process issues, weathering of ore and/or lower than expected PGE grade upgrade ratio resulting in reduced revenues received from the sale of this material: Sensitivities have been run on a range of lower flotation recoveries based on available public domain information. All sensitivities showed that sale of this material will add value with lower value added for the lower recoveries.
- Commodity price and the Rand to US Dollar exchange rate: These are factors which cannot be controlled by Langpan. Variation in these two factors may increase or decrease the value of the project.

2 INTRODUCTION

SV T1.1
SV T1.3

2.1 Terms of Reference and Scope of Work

JSE 12.10(h)(i)

Mine Restoration Investments Limited ("MRI") has been listed on the Alternative Exchange of the JSE since 2012. MRI is in the process acquiring all the issued shares of Langpan Mining Co Proprietary Limited ("LMC", "Langpan Chrome Mine" or "Langpan"), in exchange for the issue of consideration shares, resulting in the effective Reverse Listing of LMC, preceded by a deep-discounted Rights Offer. Bara Consulting (Pty) Ltd. (Bara) has been retained by Mine Restoration Investments Ltd. (MRI) to compile a Competent Persons Report (CPR) and mineral asset valuation for the Langpan Chrome Mine asset. The CPR has been commissioned to comply with the Listing Rules of the Johannesburg Stock Exchange (JSE). The CPR and mineral asset valuation have been compiled in accordance with: JSE 12.10(e)

- The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC Code) 2016 Edition; and
- The South African Code for the Reporting of Mineral Asset Valuation (SAMVAL Code) 2016 Edition.

In addition, Section 12 of the JSE listing requirements have also been complied with.

The CPR is dated 13th December 2021. The Competent Persons are not aware of any material information applicable to the Project arising between the effective date and up to the date of issue of this report which, if known to the Competent Persons or Competent Valuators, would have a material adverse effect on this CPR.

2.2 Sources of Information

SR 3.1(iii)
SV T1.19
SR 4.5(viii)

CSA Global (CSA) undertook the work related to the Mineral Resource estimate, this is discussed later in this CPR.

Langpan provided various reports and information. The more relevant amongst those are:

- 2015 MSA Resource Statement and Wireframe Design (28 September 2020) Jacques Bronkhorst
- Competent Peron's Report for the Mineral Resource reported in Accordance with the Guidelines of the SAMREC Code - MG and LG Layers (23 October 2015) Noleen Pauls, Andre Bezuidenhout, Anton Geldenhuys
- Latona Geotechnical Assessment
- Stratore Chrome Market Opinion
- Stratore 3PGM Sales Undertaking
- METQ Metallurgical Test Work
- METQ Additional Metallurgical Test Work
- Magalies Water Supply Contract
- Memor Mining Right
- Langpan Mining Works Programme (MWP)
- Rockcore Mining Quote
- Scutella Ventures APC Supply Agreement
- APC Supply Agreement - Third Addendum
- Wash Plant Design Report
- Summary of Financial Model
- Sale and Purchase Agreement (SPA)
- Sale and Contractorship Agreement
- Langpan Directors Resolution 19052021
- Memor Directors Resolution 19052021
- Letter from Langpan Directors discussing legal risk
- Legal opinion from Langpan lawyers on ABS Minerals v Memor Mining matter
- Letter from Mamokgoka Legal Advisors regarding the Section 11 process
- The CV has been provided with a Term Sheet from a respectable and well known Institution that provides financing for mining projects, and which sets out that the

Institution is prepared to provide the full quantum of funding for the project. The conditions set out in the Term Sheet have been built into the financial analysis of the project. At this stage the Term Sheet is governed by a Confidentiality Clause and, as such, the CV is not able to disclose the name of the Institution.

It is specifically noted that much of the above information is historical and related to the period when the previous owners (Memor Mining) were operating the mine. In addition, more recent work has been undertaken by third parties. All of this information has been provided to Bara and the CP by MRI for review and inclusion into this CPR as appropriate. As such, where the quality and format of information is not to the quality normally required for a CPR such as this, it has not been possible for Bara or the CP to edit or re-format this information as we do not have the information in the original native software format.

Bara, the CP and the CV have relied on the information provided by MRI from these various sources to generate this CPR and mine asset valuation.

2.3 Units and Currency

Unless otherwise specified, all units mentioned in this CPR comply with the International Metric System and the currency used is the South African Rand.

2.4 Site Inspection

SR 1.1 (iii)
SV T1.0

Mr A D Pooley (CP), Mr P Roux, Mr R Way and Mr W Schoeman, all of Bara, visited the site in November 2020.

Mr Anton Geldenhuys (CP Geology and Mineral Resources) conducted a visit to the property during the execution of the 2015 drilling, logging, and sampling phase of the exploration programme, while he was employed by The MSA Group as a Senior Resource Consultant.

2.5 Disclaimers and Reliance on Other Experts or Third Party Information

SV T1.0

This CPR was prepared in accordance with the SAMREC Code, for Langpan, by Bara. The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in Bara's services and based on:

- Information made available at the time of preparation by Langpan.
- Third party technical reports prepared by Government agencies and previous tenement holders, along with other relevant published and unpublished third party information.

o The assumptions, conditions and qualifications set forth in this CPR.

This CPR is intended to be used by Langpan, subject to the terms and conditions of its contract with Bara. Neither the whole, nor any part of this CPR, nor any reference thereto, may be included or attached to any document or used for any other purpose, without the written consent of Bara and the CPs and CV as to the form and context in which it appears.

A final draft of this CPR was provided to Langpan, along with a written request to identify any material errors or omissions, prior to lodgement.

Neither Bara, nor the CP's, CV and the key personnel nominated for the completed and reviewed work, has any interest (present or contingent) in Langpan and its subsidiaries, its directors, senior management, advisers or the mineral properties reported on in this CPR. The proposed work, and any other work done by Bara for Langpan, is strictly in return for professional fees. Payment for the work is not in any way dependent on the outcome of the work, nor on the success or otherwise of Langpan's own business dealings. There is no conflict of interest in Bara, the CP's, CV, and consultants undertaking the work as contained in this CPR.

3 PROJECT OUTLINE

JSE 12.10(h)(ii)
SR 1.1(i)

3.1 Property Description

The MG Seams, which are of interest, occur on the South-Western sector of the farm Langpan 371 KQ (Figure 3.1) which in turn is located approximately 17 km South-West of the town Thabazimbi, in the Limpopo Province, South Africa.

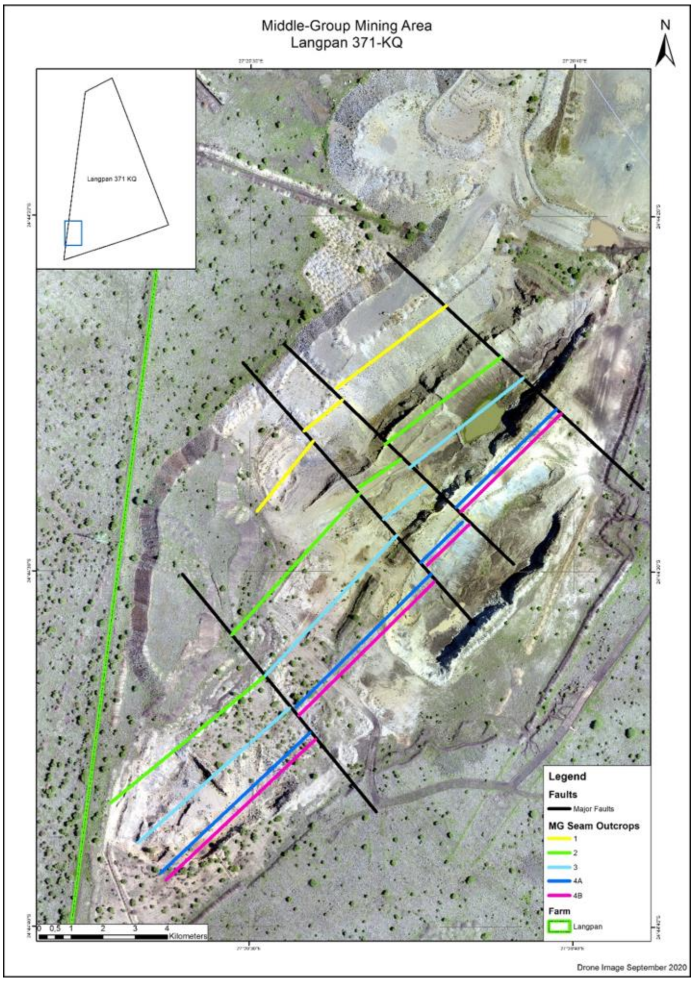


Figure 3-1 – Location of the MG Group Chromites on the farm Langpan 371 KQ

3.2 Property Location

The Project lies within the Limpopo Province of South Africa (Figure 3.2), approximately 25 km North of Northam, 17 km South of Thabazimbi and 6 km North of the Amandelbult Mine Town. It is accessible via gravel roads leading off the R510 and R511. Good infrastructure exists in the area due to the well-established platinum, chrome, and iron ore mines.

JSE 12.10(h)(iii)
SR 1.2(i)

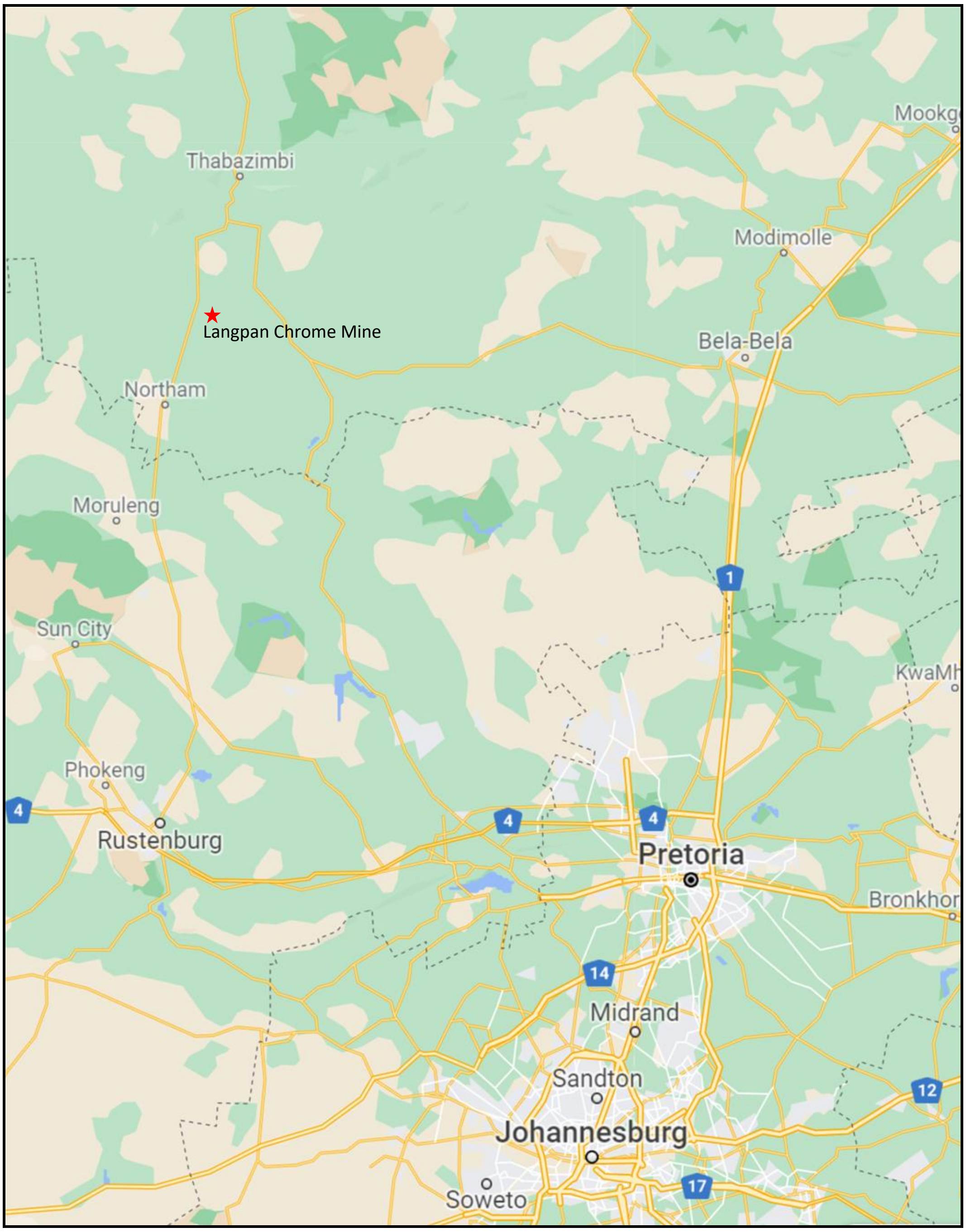


Figure 3-2 - Location of the Langpan Chrome Project (Source Google Maps)

3.3 Country Profile

SR 1.2(ii)

South Africa has one of the continent's biggest and most developed economies. Up until 1994 it was ruled by a white minority government, which enforced a separation of races with its policy called apartheid. The apartheid government eventually negotiated itself out of power after decades of international isolation, armed opposition, and mass protests.

The democratically elected leadership encouraged reconciliation and set about redressing social imbalances, but the economy has struggled.

South Africa is a middle-income emerging market with an abundant supply of natural resources; well-developed financial, legal, communications, energy, and transport sectors; and a stock exchange that is Africa's largest and among the top 20 in the world.

3.4 Legal Aspects and Permitting

JSE 12.10(h)(iv) SR 1.5(i)(ii)(iii)(iv

Neither Bara, nor the authors of this CPR, are qualified to provide extensive comment on legal facets associated with ownership and other rights pertaining to Langpan's mineral properties. The CP did not see or carry out any legal due diligence confirming the legal title of Langpan to the mineral properties. However, it is understood that there is no legal impediment for the continued mining operation or that would affect the likely viability of the Langpan Mine and/or on the estimation and classification of the Mineral Reserve as reported in this CPR.

The CP is aware of legal proceedings against Memor Mining by ASB Mineral (Pty) Ltd who are attempting to liquidate the company. The CP has been informed by the Board of Directors of Langpan that they do not believe that this legal matter has any merit or bears any risk to Langpan which could adversely affect its ability or right to exploit the Langpan Project Mineral Resource and Mineral Reserve. This view is supported by a legal opinion obtained from the Langpan legal representatives DMA Inc. (attorneys, notaries and conveyancers).

The previous Mining Right holder in respect of the Langpan Mine is Memor Mining. Langpan has entered into an SPA with the shareholders of Memor Mining in terms of which Langpan has acquired 100% of the issued share capital of Memor Mining, subject to a condition precedent that by 22nd June 2022 (or such later date as the parties may agree) the Minister in terms of Section 11 of the MPRDA has granted the Section 11 Consent. The Section 11 Consent was granted on the 6th December 2021 and the SPA will now take effect.

3.5 Royalties and Liabilities

We have been informed that Langpan has an accumulated tax loss of about R100 million and has various loan agreements in place.

Mining Royalties will be paid at the prevailing rate for chrome mines in South Africa as determined by the Mineral and Petroleum Resources Royalty (Administration) Act, 2008.

4 ACCESSIBILITY, PHYSIOGRAPHY, CLIMATE, LOCAL RESOURCES AND INFRASTRUCTURE

SR 1.1(ii)

4.1 Topography, Elevation, Fauna and Flora

The Project area is 1,050 hectares (Ha) in extent, is relatively flat and lies at an average altitude of 930 m above mean sea level. The main geomorphological features in the area are two conical hills South of the Project, and one North of the Project. The area is overlain by dark clayey soil with abundant pioneer grasses and Rosyntjiebos. The main tree types are Acacia species including Soetdoring, Swarthaak and Blouhaak, and the smaller Blinkblaar wag-n-bietjie (Figure 4.1).

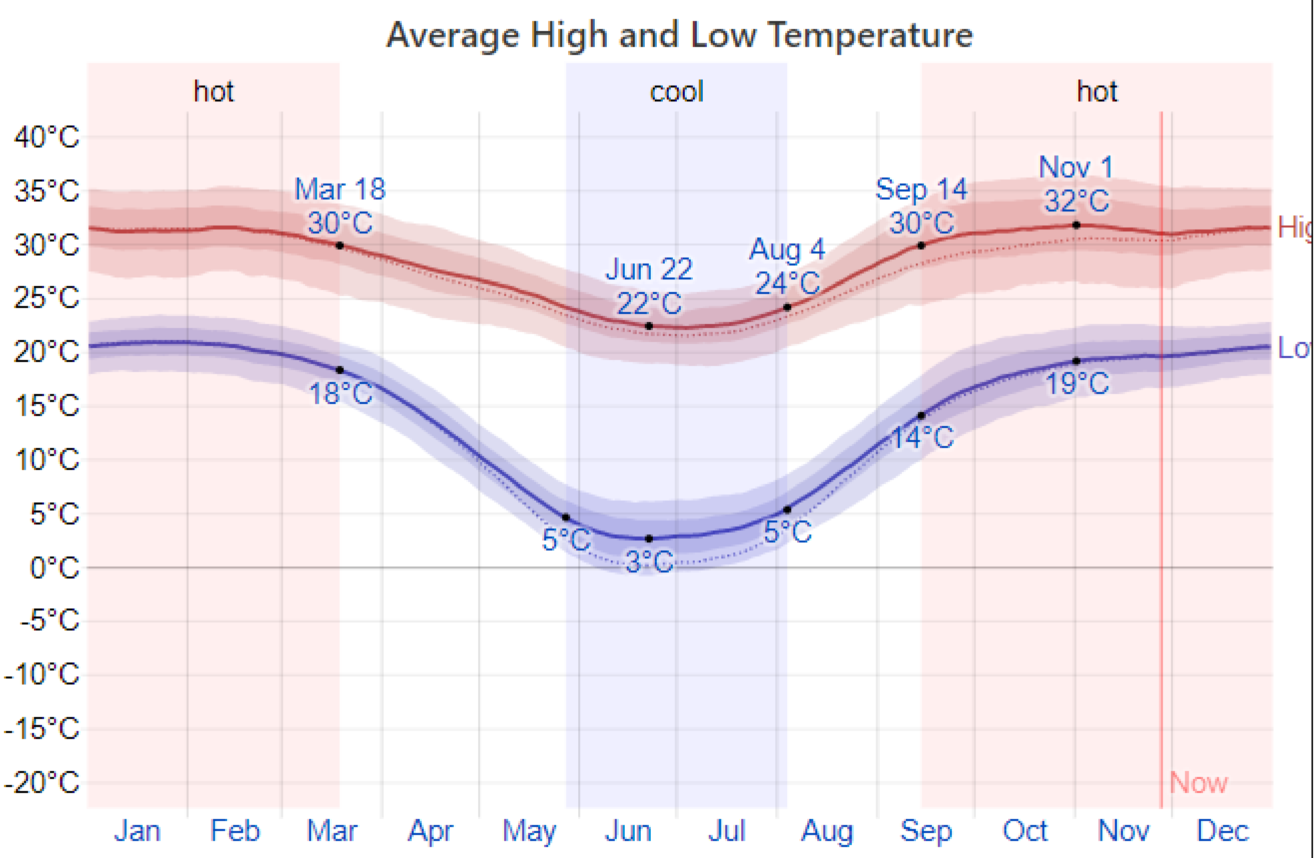
Figure 4-1 - Natural vegetation of the Project area (source: MSA, 2015)

4.2 Climate

The climate is subtropical, with warm to hot summers. Winters are mild, generally dry and frost-free (Figure 4.2). Rainfall occurs during mid-summer (October to April), with an average of 320 mm per annum (Figure 4.3). A typical summer rainfall climate prevails in the area. Summer rain occurs mainly in the form of thunderstorms with a mean annual precipitation of approximately 680mm and evaporation is about 1,800mm per year. Winds are generally light and blow predominantly from the North-West.

Winters are cool and dry. Extreme weather conditions occur in the form of frost (2 to 20 occurrences per annum) and the occasional hailstorm. The average annual temperature for the year is approximately 19°C, with average maximum temperatures ranging between 22°C and 32°C and average minimum temperatures ranging between 2°C and 18°C. The hottest months are December to February. During April and May there is a noticeable drop in temperature, which signals the commencement of winter. The coldest months are June and July.

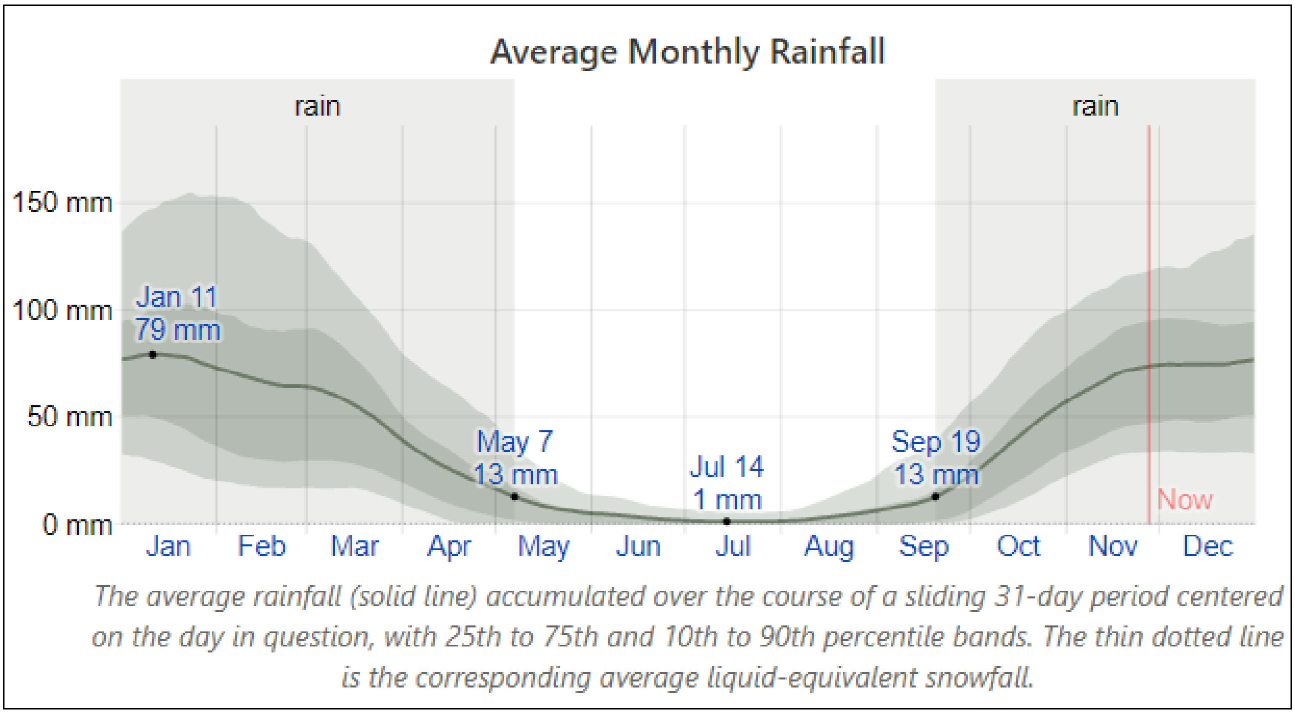
The area generally has a high S-Pan evaporation rate in the summer months from November to January. This gives rise to a high relative humidity. Evaporation is greater in summer than in winter, due to higher ambient temperatures.



The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.

Source: https://weatherspark.com/y/94210/Average-Weather-in-Thabazimbi-South-Africa-Year-Round; accessed 27/11/2020.

Figure 4.2 - Mean monthly temperatures for Thabazimbi



Source: https://weatherspark.com/y/94210/Average-Weather-in-Thabazimbi-South-Africa-Year-Round ; accessed 27/11/2020

Figure 4.3 - Precipitation for Thabazimbi

4.3 Access

The Project lies within the Limpopo Province of South Africa, approximately 25 km North of Northam, 17 km South of Thabazimbi and 6 km North of the Amandelbult Mine Town. It is accessible via gravel roads leading off the R510 and R511.

4.4 Proximity to Population Centres

See section 3.3.

4.5 General Infrastructure

Good infrastructure exists in the area as a result of the well-established platinum, chrome and iron ore mines.

5 PROJECT HISTORY

SV T1.6
SR 1.4(i)

5.1 Previous Ownership

SR 1.4(ii)

The CP has been informed that the ownership of the mining assets on and related to the Langpan farm were previously owned by two separate entities: the wash plant was owned by Memor Marketing (Pty) Ltd. ("Memor Marketing") and the Mining Right by Memor Mining.

Memor Marketing went into final liquidation on 20 February 2020. The liquidators concluded that the wash plant did not fall into the insolvent estate of Memor Marketing given certain security rights reserving title that creditors of Memor Marketing had. With the consent of the liquidators of Memor Marketing, on or about September 2020, Langpan concluded an unconditional sale of the wash plant with those creditors of Memor Marketing who had reserved title against payment of their respective debts. Langpan is currently the sole and unencumbered owner of the wash plant.

As set out above, the transfer of the Mining Right from Memor Mining, to Langpan under and in terms of the SPA is now in effect after the granting of the Section 11 Consent by the DMRE on 6th December 2021.

5.2 Previous Exploration and/or Project/Mine Development

SV T1.8

5.2.1 Historical Work (Pre-2015)

Exploration programmes on Langpan Mine have targeted the LG and MG layers in the WSB and ESB. These structural blocks are separated by a substantial normal fault striking approximately 150° with an apparent offset of approximately 1.7 km on the WSB (GeoActiv Dynamic Geological Services, 2013).

5.2.2 Western Structural Block

The WSB has been the focus of the following activities:

- Pitting programme
  MSA reported that they understood, from the GeoActiv Dynamic Geological Services reports included in the data pack at the time, that several exploration pits, targeting the LG chromitite layers, were excavated on Langpan Mine and the adjoining Hakdoorndrift 374 KQ.
- Trenching programme

Three trenches were initially excavated on the WSB. Subsequent trenching was aimed at exposing the outcrop of the LG and MG layers below the turf along the full strike of the WSB.

- o Diamond drilling programme

  An eight-hole drilling programme was completed in 2013 (Figure 5.1). Four drillholes were collared to intersect the LG6 and LG6A layers and four drillholes were collared to intersect the MG1 to MG4 layers.

- o Open pit mining

  Based on the exploration results obtained from the initial trenching exercise, Memor Mining embarked on an open pit mining operation, exploiting the MG1, MG2, and MG3 layers (Figure 4.1).

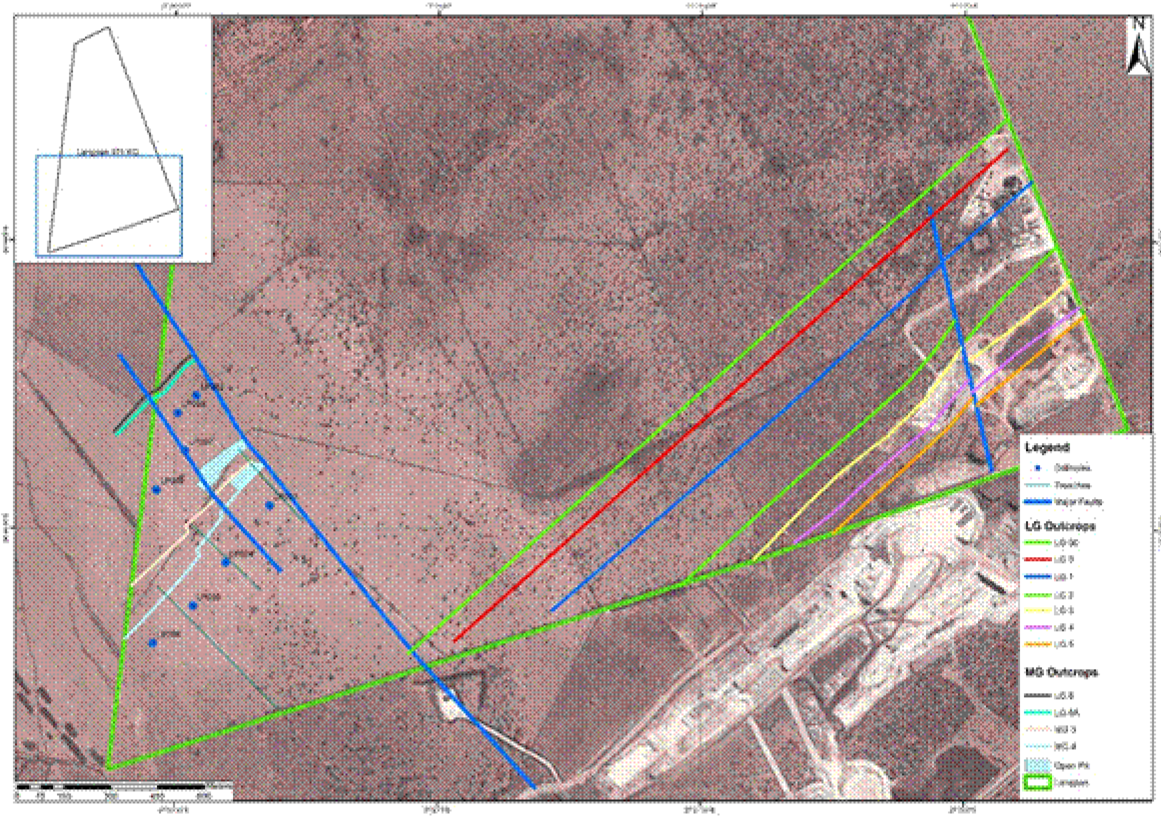


Figure 5.1 - Locality map of historical trenches and drillhole collars (Modified after MSA, 2015)

5.2.3 Eastern Structural Block

A trenching programme was planned to explore the LG layer on the ESB in 2011. After excavating Trench 1, the programme was discontinued and exploitation of the

LG6 and LG6A from a single open pit commenced. Limited mining of the LG3 layer from an open cut was also conducted.

To date, no further exploration has been conducted on the ESB to determine the qualities, quantities or content of the remaining LG Seams which were intersected in Trench 1 (Venmyn Deloitte, 2013).

SR 1.4(iii)

5.3 Previous Mineral Resource Estimates

Based on the above exploration work, a Mineral Resource was estimated and classified as Inferred as well as an Exploration Target (Table 5.1 and Table 5.2) (Venmyn Deloitte, 2013).

Table 5.1 - Historical Inferred Mineral Resource for the Langpan Project (Source: MSA, 2015 (after Venmyn Deloitte, 2013))

Seam	Seam Width (m)	Volume thousand (m^3)	In-Situ Density (t/m^3)	Tonnage (Mt)	Cr_2O_3 Grade (%)
LG6	0.83	181	4.18	0.76	40.98
LG6A	0.25	54	3.95	0.21	36.33
MG1	1.00	135	3.98	0.54	33.10
MG2	0.39	41	4.02	0.16	35.60
MG3	1.05	100	3.90	0.39	33.18
MG4A	1.58	101	4.11	0.41	33.09
MG4B	1.09	70	4.24	0.30	37.63
TOTAL				**2.77**	

Table 5.2 - Historical Exploration Target for the Project (Source: MSA, 2015 (after Venmyn Deloitte, 2013))

Seam	Seam Width (m)	Volume thousand (m^3)	In-Situ Density (t/m^3)	Tonnage Range (Mt) Upper (5 %)	Tonnage Range (Mt) Lower (5 %)	Cr_2O_3 Grade Range (%) Upper (5 %)	Cr_2O_3 Grade Range (%) Lower (5 %)
LG6	0.83	399	4.18	1.75	1.59	43.03	38.91
LG6A	0.25	67	3.95	0.28	0.25	38.15	34.51
MG1	1.00	288	4.24	1.28	1.16	39.51	35.75
MG2	0.39	178	4.11	0.77	0.69	34.74	31.44
MG3	1.05	454	3.90	1.86	1.68	34.84	31.52
MG4A	1.58	703	4.02	2.97	2.68	37.38	33.82
MG4B	1.09	487	3.98	2.03	1.84	34.76	31.45
TOTAL				**10.94**	**9.89**		

MSA reported a Mineral Resource in 2015 following an extensive exploration programme consisting of diamond drilling, a ground magnetic survey, structural and open pit mapping, and density determinations. A total open pit Mineral Resource of 2.52 million tonnes at an average grade of 32.4% Cr_2O_3 was reported as either Measured or Indicated. A total underground Mineral Resource of 4.99 million tonnes at an average grade of 35.4% Cr_2O_3 was reported as either Measured or Indicated. The underground Mineral Resources were reported at a minimum seam width of 0.7 m.

5.4 Previous Mineral Reserve Estimates

There were no previous Mineral Reserve estimates presented.

5.5 Previous Production

The Mineral Resources at Langpan Mine lend themselves to opencast mining and the mine is currently an operational opencast mine mining the LG Seams. Chrome from the LG Seams is sold RoM on a crushed and screened basis to Stratore. The material on the chrome contact is removed separately, screened, and sold as separate products. The LG Seams are not included in the Mineral Reserve statement presented here. The MG Seams were mined historically but the surface DTM used in the mining model cuts out the mined-out areas of the MG Mineral Resource.

6 GEOLOGICAL SETTING, MINERALISATION AND DEPOSIT TYPES

JSE 12.10(h)(v)
SR 2.1(i)
SR 3.1(vii)
SV T1.7

6.1 Geological Setting

The Project is located on the Western Limb of the Bushveld Complex (Figure 6.1), a layered igneous body that intruded sedimentary and volcanic rocks of the Transvaal Supergroup approximately 2.06 billion years (Ga) ago (Figure 6.2).

The Bushveld Complex consists of a basal mafic to ultramafic suite, which is made up of the RLS and an upper part comprising the Rooiberg felsites and granophyres, and the Bushveld Granite. The RLS is divided into five zones which, from the base upwards, are the Marginal, Lower, Critical, Main and Upper Zones. A graphical depiction of the dominant rock types and economic mineralisation of these zones is contained in Figure 6.3.

The mafic rocks of the Bushveld Complex host the largest known resources of PGEs, chromium (Cr_2O_3) and vanadium (V) in the world.

The chromitite layers occur in the Lower, Middle and Upper Groups of the lower and upper Critical Zone (Figure 6.3). The LG consists of seven chromitite layers hosted in feldspathic pyroxenite. The four chromitite layers of the MG are stratigraphically above the LG at the contact of the lower and upper Critical Zones. The two UG layers are contained in norite and anorthosite of the upper Critical Zone.

Although economic PGE mineralisation is predominantly associated with the Merensky Reef and the UG2 chromitite layer, all chromitite layers in the Critical Zone contain lower, but significant concentrations of PGE (Von Gruenewald et al, 1986).

V is hosted in the magnetite layers in the Upper Zone of the RLS.

The RLS in the Western Limb of the Bushveld Complex dips to the Southeast at angles between 15° and 27°, although the dips may be more variable in the vicinity of faults.

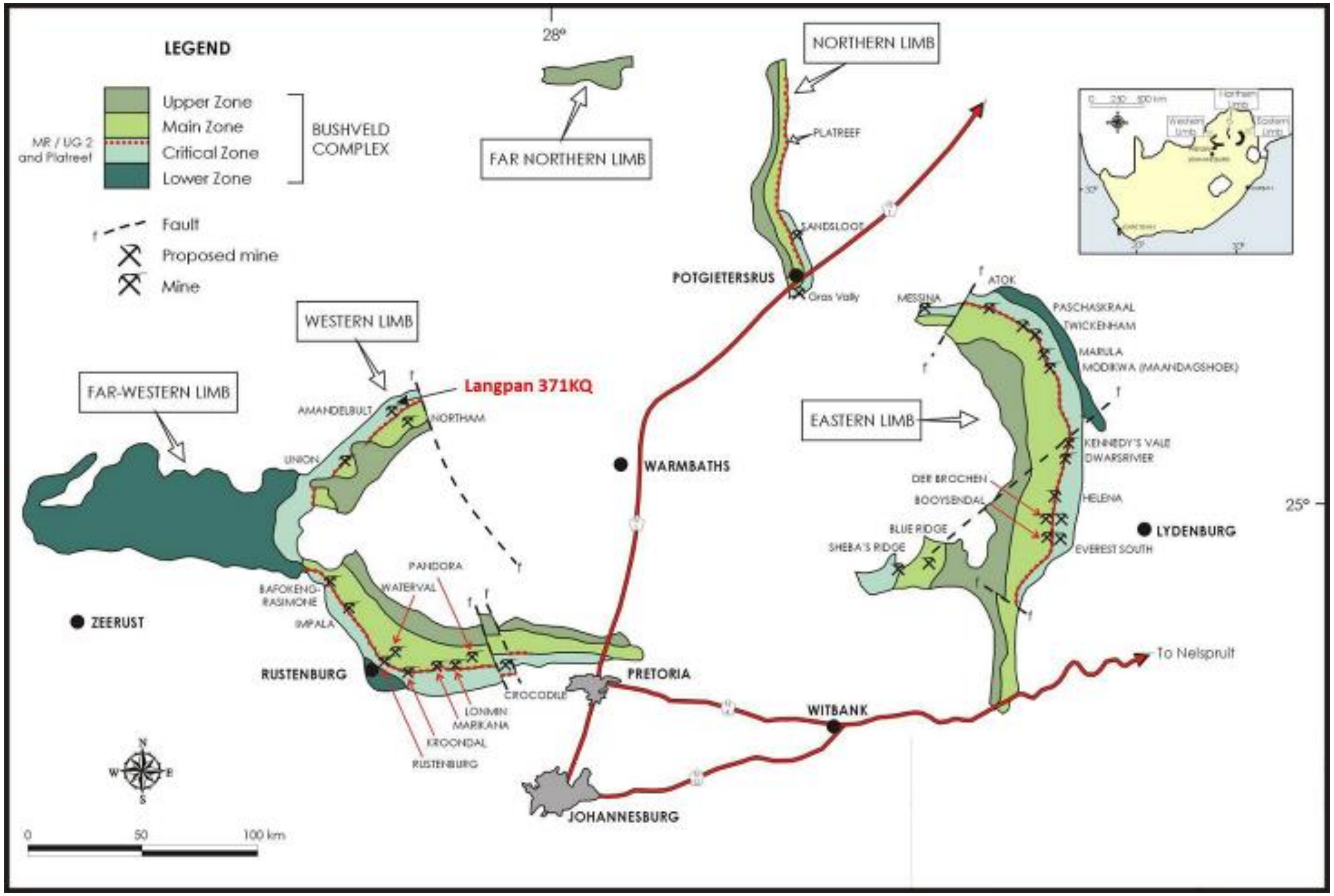


Figure 6.1 - Locality map showing the Project in the Bushveld Complex (Source: MSA, 2015)

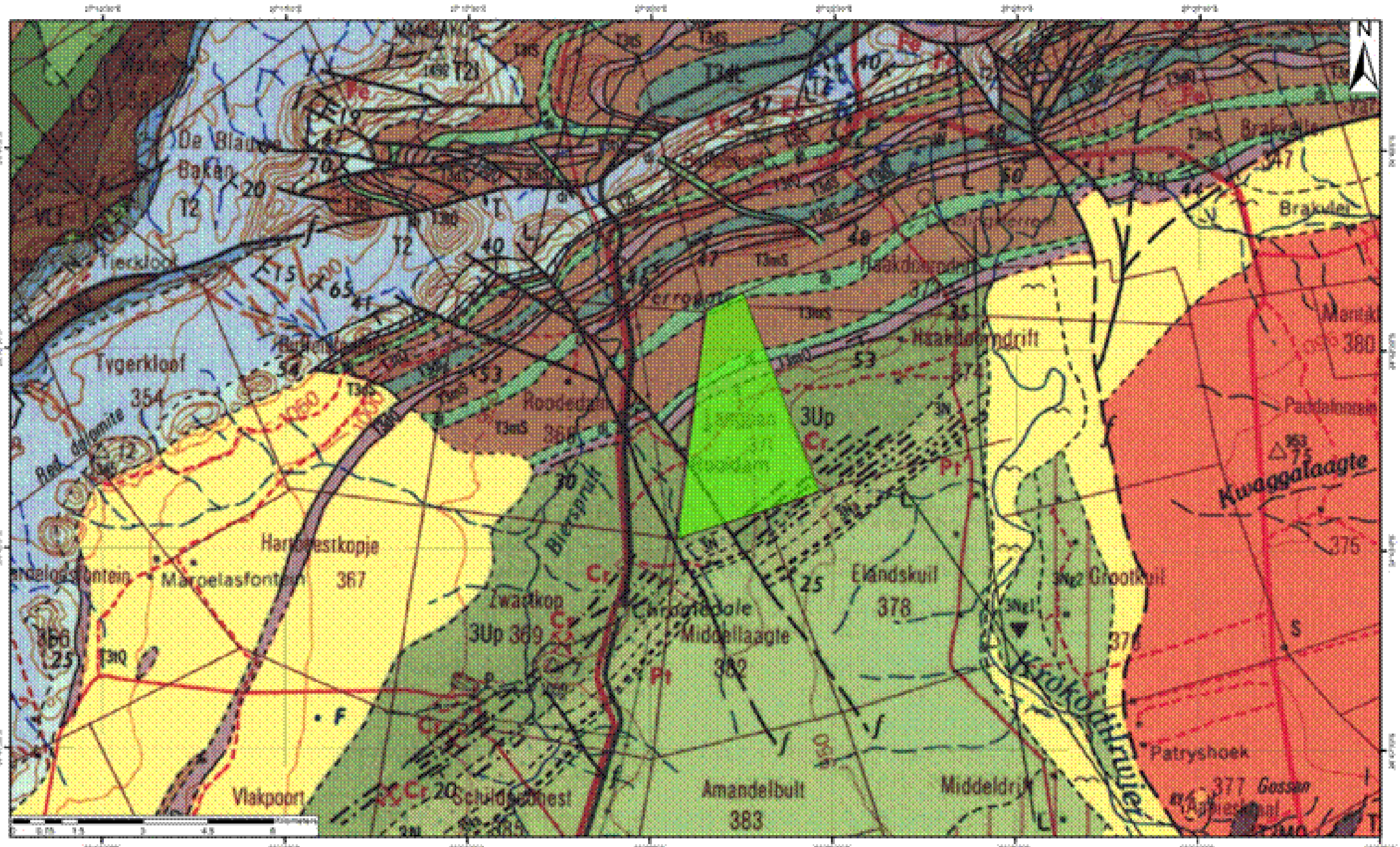


Figure 6.2 - The Langpan Project superimposed on the 1:250 000 regional geology map (Source: MSA, 2015 (South African 1:250 000 Geological Series))

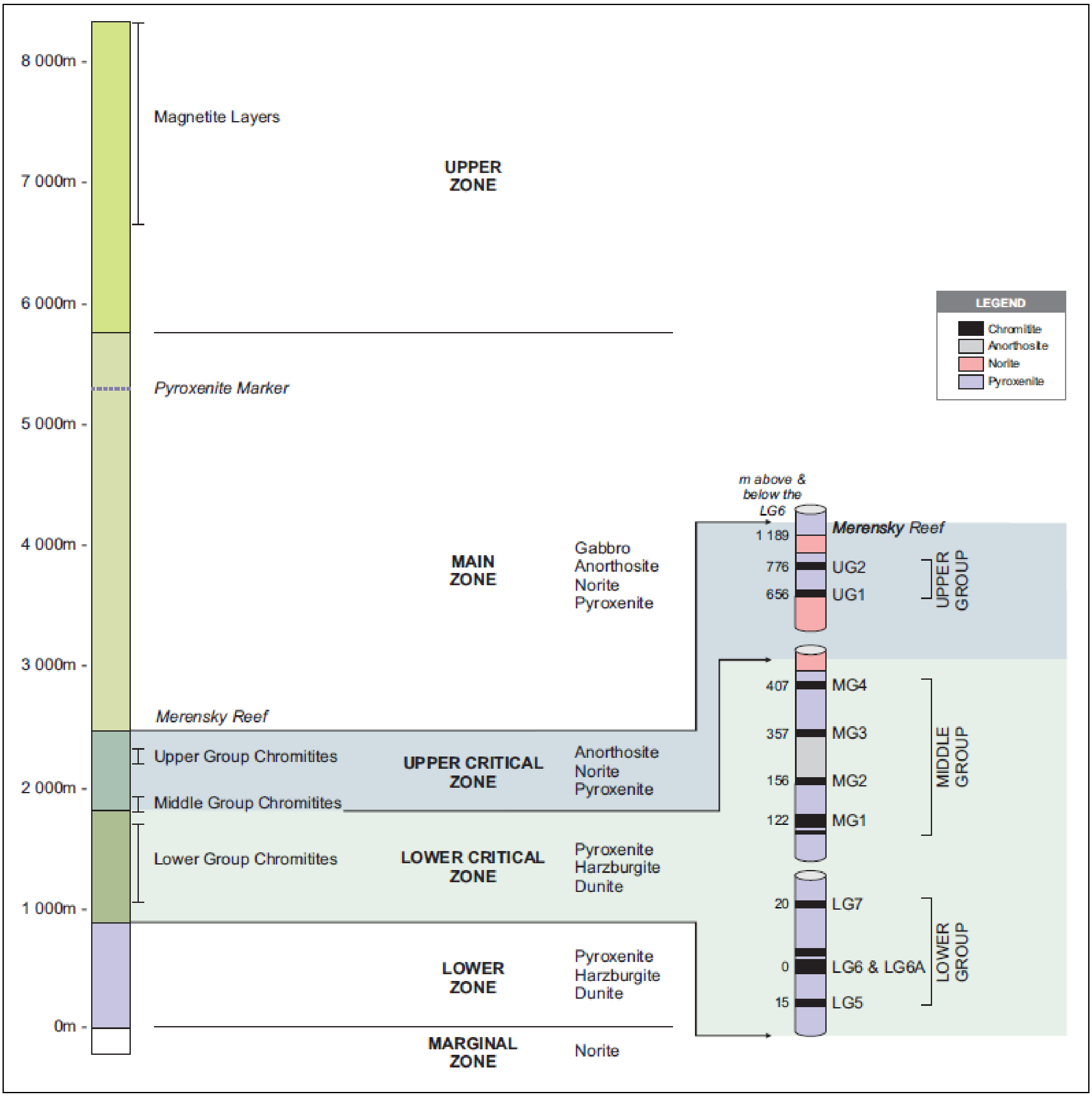


Figure 6.3 - Generalised stratigraphic column of the Rustenburg Layered Suite (Source: MSA,2015)

6.2 Project Area Geology

SR 2.1(ii)
SR 2.1(v)(vi)

The bulk of the Southern portion of the Project is underlain by the anorthosites and pyroxenites of the Critical Zone of the RLS, with the northern parts underlain by the quartzites and shales of the Transvaal Supergroup (Figure 6.2).

The Project comprises two structural blocks, namely the WSB and the ESB which are separated by a normal fault. In the WSB, both the LG and MG chromitite layers are present and hosted in a succession of pyroxenites and norites. The ESB is predominantly underlain by orthopyroxenites with a full suite of Lower Group chromitite layers. (Kruger, F.J., 2013). The fault has resulted in the total displacement of the MG chromitites present in the South-Western corner of the Project, out of the Langpan farm in the South-East.

Figure 6.4 depicts the footprint of the current mining operations which has exposed MG1, MG2, MG3 chromitite layers in Pit A and MG2, MG3 and MG4 chromitite layers in Pit B. The general strike of the layers is 40° and they dip at approximately 20° to the South-East.

Figure 6.5 illustrates the principal lithologies encountered in the Project area.

6.2.1 Lower Group Chromites

The LG6 generally comprises a single chromitite layer with thin pyroxenite partings. The total layer averages 0.79 m in true thickness with a Cr2O3 content of 40.6 % and a Cr:Fe ratio averaging 1.49.

The LG6A layer averages 0.24 m in thickness with a Cr:Fe ratio of 1:26 and is stratigraphically approximately 5 m above the LG6. The LG6A is only considered for exploitation in an open pit scenario.

6.2.2 Middle Group Layers

The MG succession on the Project comprises, from the base upwards, the MG1, MG2, MG3, MG4 and MG4A. In addition, several minor layers occur, for example the MG4 Zero, which is approximately 0.2 m thick and occurs at the base of the MG4 interval, and the MG3A, which may represent a split off the MG3. The MG succession is also characterised by occurrences of less-persistent chromitite-bearing intervals, which are not traceable for any significant distance along strike or down dip.

- The MG1 layer has an average true thickness of 0.67 m and is best developed in the North-Eastern portions of the Project area. The high Cr_2O_3 content (an average of 35.9 %) and Cr:Fe ratio of 1.26 makes it a potential target. The 3PGE+Au grade for the MG1 is 1.01 g/t.
- The MG2 is a thin layer, averaging 0.44 m and is best developed in the Eastern portion of the Project. It can be split by a barren pyroxenite parting of up to one metre in thickness. The Cr:Fe ratio is low, but it has a reasonable 3PGE+Au grade of 1.42 g/t and may be exploited in the open pit scenario as part of the overall MG succession.

- The MG3 is generally a single robust layer averaging 1.07 m in thickness. A low Cr_2O_3 grade with an average of 27.6 % and a poor Cr:Fe ratio of 1.12 tends to limit the extraction of this layer to open pit mining. 3PGE+Au grade averages 1.56 g/t. MG3 intersections with multiple thin pyroxenite partings have been intersected during drilling, accounting for the wide variability in layer thickness and chemistry.
- The MG4 is typically a single layer with an average thickness of 0.96 m, a Cr_2O_3 content of 33.4 % and 3PGE+Au grade of 1.82 g/t. The MG4 is overlain by approximately 2 m of barren pyroxenite, followed in turn by the MG4A layer with a similarly low Cr:Fe ratio as the MG4 and a 3PGE+Au grade of 0.80 g/t.

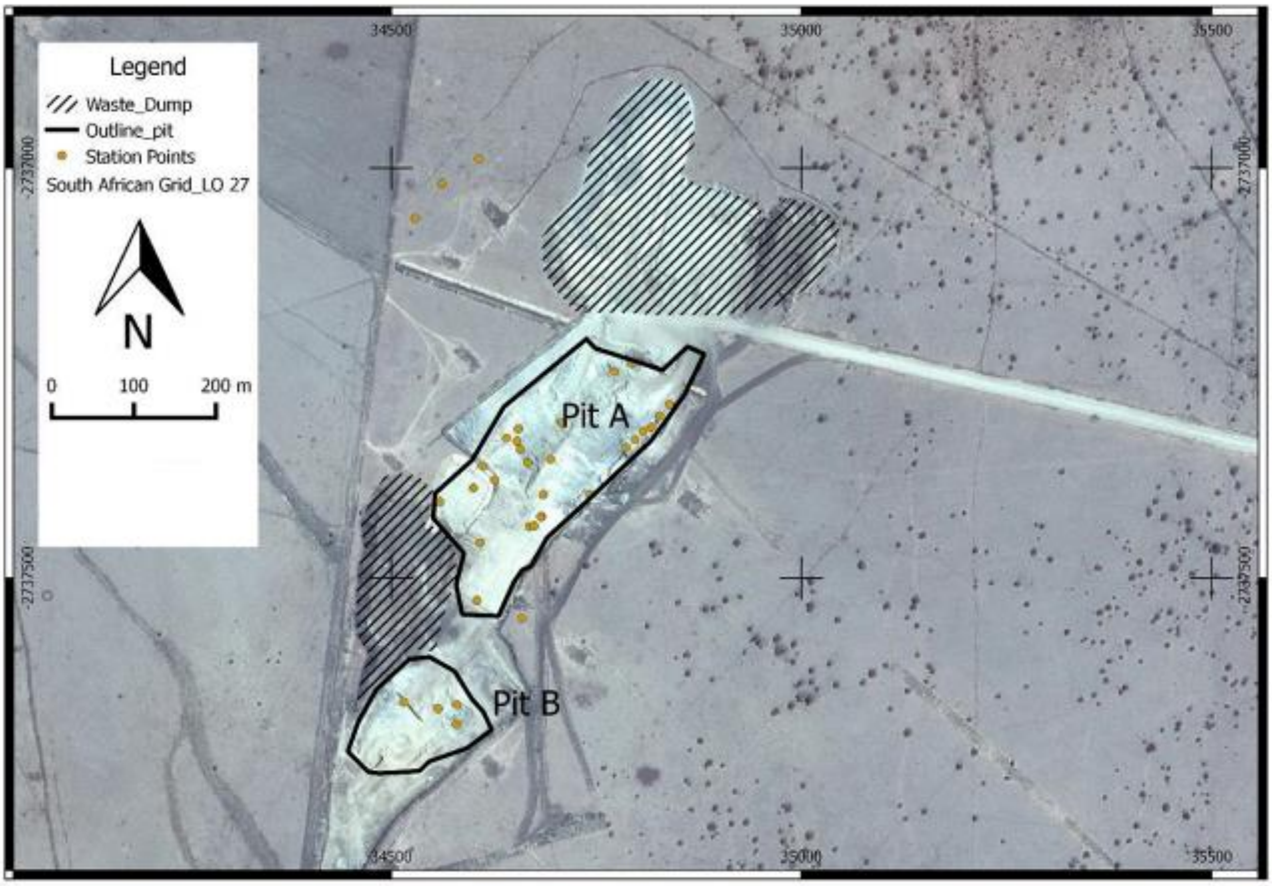


Figure 6.4 - Footprints of the current pits (Source: MSA, 2015)

6.2.3 Structure

Faulting at the Project is aligned roughly perpendicular to the strike of the chromitite layers and has produced a series of horsts and grabens. The major North-West-South-East fault to the East of the WSB (Figure 6.2), which resulted in approximately 1.7 km apparent lateral displacement of the RLS, could represent the Eastern boundary fault of a major graben system. This system is locally referred to as the Middellaagte Graben (Northam Platinum Ltd, 2008).

Immediately to the West of the Project area (Figure 6.2), a major North-West-South-East trending fault has resulted in significant apparent sinistral displacement in rocks of the RLS. This fault is likely to be the Western boundary fault of the inferred graben system as the apparent sinistral displacement would be consistent with the graben model where gently South-East dipping layers are orthogonally cross-cut by a normal fault where down-throw occurs to the North-East of the fault.

A)

B)

C)

Figure 6.5 - Principal lithologies encountered at the Project during the 2015 drilling programme. A) Equigranular orthopyroxenite (From DH LP012); B) Equigranular norite (From DH LP014); C) Contact between norite (left) and anorthosite (right) (From DH LP011) (Source: MSA,2015)

6.2.4 Intrusions

Iron rich ultramafic pegmatoids ("**IRUP**") are a common post-emplacement feature affecting the RLS of the Bushveld Complex.

Figure 5.6 illustrates a typical IRUP intersected during the 2015 drilling programme. The presence of magnetite within the IRUP is observed in Figure 6.6 C where a high amount of magnetite has formed on the boundary of a chromitite layer. The IRUP intrusions often host trace to minor amounts of sulphide minerals such as pyrite, chalcopyrite and pyrrhotite.

Fine grained mafic dolerite dykes (Figure 6.6 B) and coarse-grained felsic pegmatites are present in isolated drillholes. The pegmatites contain trace to minor amounts of sulphide (Figure 6.6 D).

Minor calcite veins of less than 2 cm thick were observed during MSA's mapping campaign and in the drill core. The calcite veins do not host Cr2O3 or PGE mineralisation and were interpreted to be localised features.

6.2.5 Alteration

Minor amounts of chlorite and calcite are present in drill core. Alteration is constrained to fractures and veins. In the case of a highly fractured or fault zone, the presence of talc and clay was also present. Magnetite was developed where IRUPs occurred.

6.2.6 Mineralisation

The entire sequence of the MG layers, together with the LG6A and LG6 from the LG sequence, are the main mineralisation targets in the WSB. The chromitite layers host semi massive chromite, varying chromium and PGE contents in each of the layers.

Figure 6.6 - Principal intrusions at Langpan 371KQ; A) Coarse grained IRUP (LP015); B) Intrusive fine grained dolerite dyke in surrounding norite; C) Contact between chromite and magnetite on the chromite layer boundary (LP015); D) Pyrite and pyrrhotite mineralisation in a coarse grained felsic pegmatite (LP013) (Source: MSA, 2015)

7 EXPLORATION DATA/INFORMATION

SR 2.1(iv)
SR 3.1(i)(ii)(vi)(vii)
SR 4.1(iv)
SV T1.8

The most recent exploration was conducted in 2015 and executed by MSA. The exploration programme comprised:

- o Ground magnetic survey
- o Structural mapping

- o Diamond core drilling and assay

7.1 Ground Magnetic Survey

7.1.1 Methodology

A ground magnetic survey was conducted on the WSB over three days during March 2015. The position and layout of the survey is illustrated in Figure 7.1. The Northern portion of the property was excluded from the survey due to high voltage overhead power lines running through the area. The Eastern portion was not surveyed as it was interpreted to be in the offset fault block.

The ground magnetic survey was oriented North-South so that the magnetic lines obliquely intersected the North-East-Southwest trending Critical Zone chromitite layers, as well as the anticipated Northwest-South East trending faults. The North-South survey orientation optimised the programme by improving the probability of simultaneously identifying roughly East-West target features.

Two Geotron G5 magnetometers were used, one as a base station and one as a rover. Readings were taken along lines at 20 m intervals (Figure 7.1).

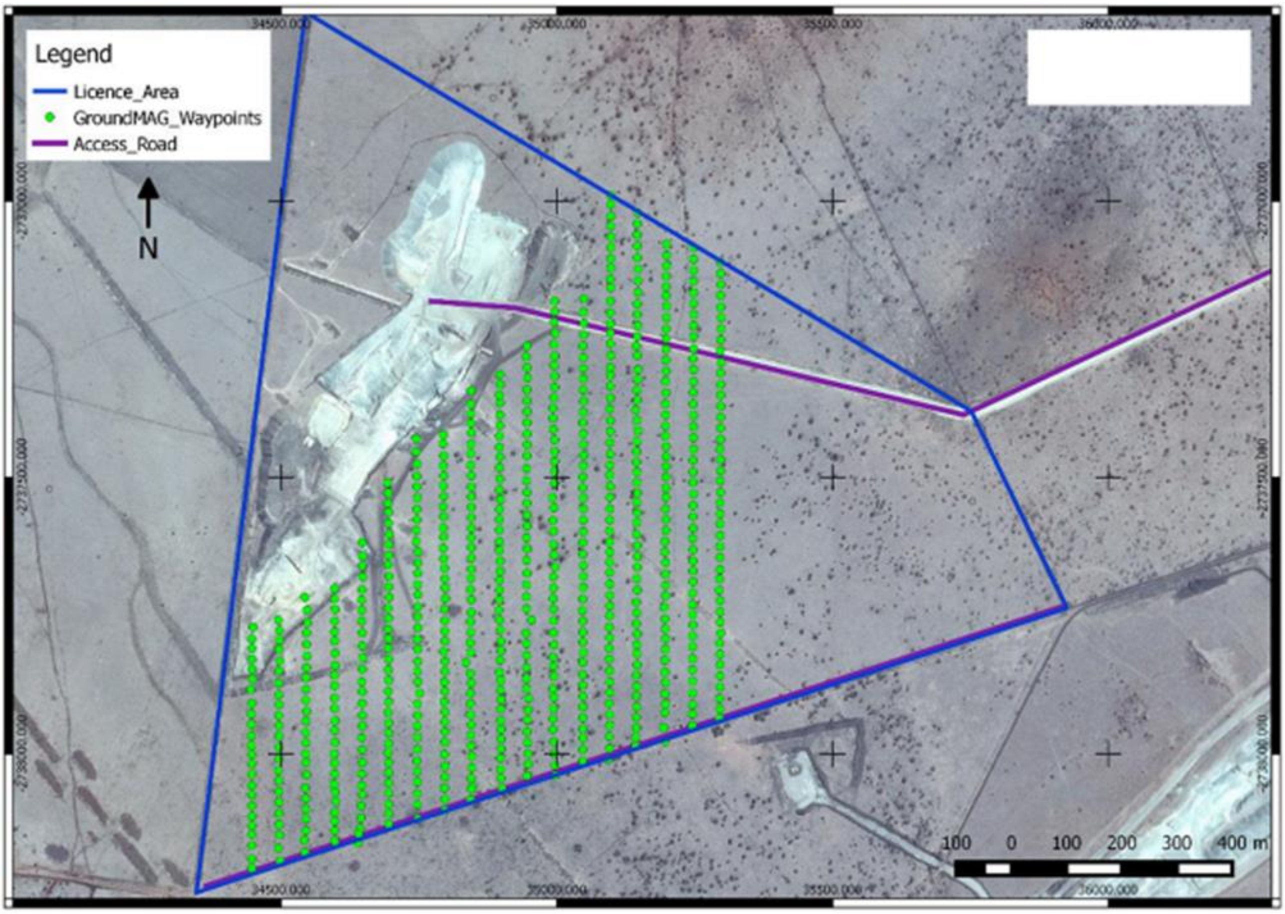


Figure 7.1 - Location and layout of the ground magnetic survey (Source: MSA, 2015)

7.1.2 Interpretation

The magnetic susceptibility of the mapped area close to the pit was low, with a minimum of 28,168 nT, increasing to a maximum of 29 513 nT in the Southern portion of the property. The magnetic variations in the pits were, with a few exceptions, relatively strong.

Two positive magnetic “bulls-eye” anomalies, with a magnitude of around 1,200 nT above the background, were seen in the West and the South-East of the surveyed area. These high magnetic susceptibilities were attributed to IRUPs which stand out as small concentric anomalies (Figure 7.2).

In addition, two strongly magnetic, parallel linear features orientated roughly North-West-South-East were identified and assumed to be large faults (Figure 7.3). Smaller “jogs” in the magnetic signature were observed along the Southern margin of the pit. Based on the orientation of these small linear features they were interpreted to be localised faults with minimal offsets (Figure 7.3).

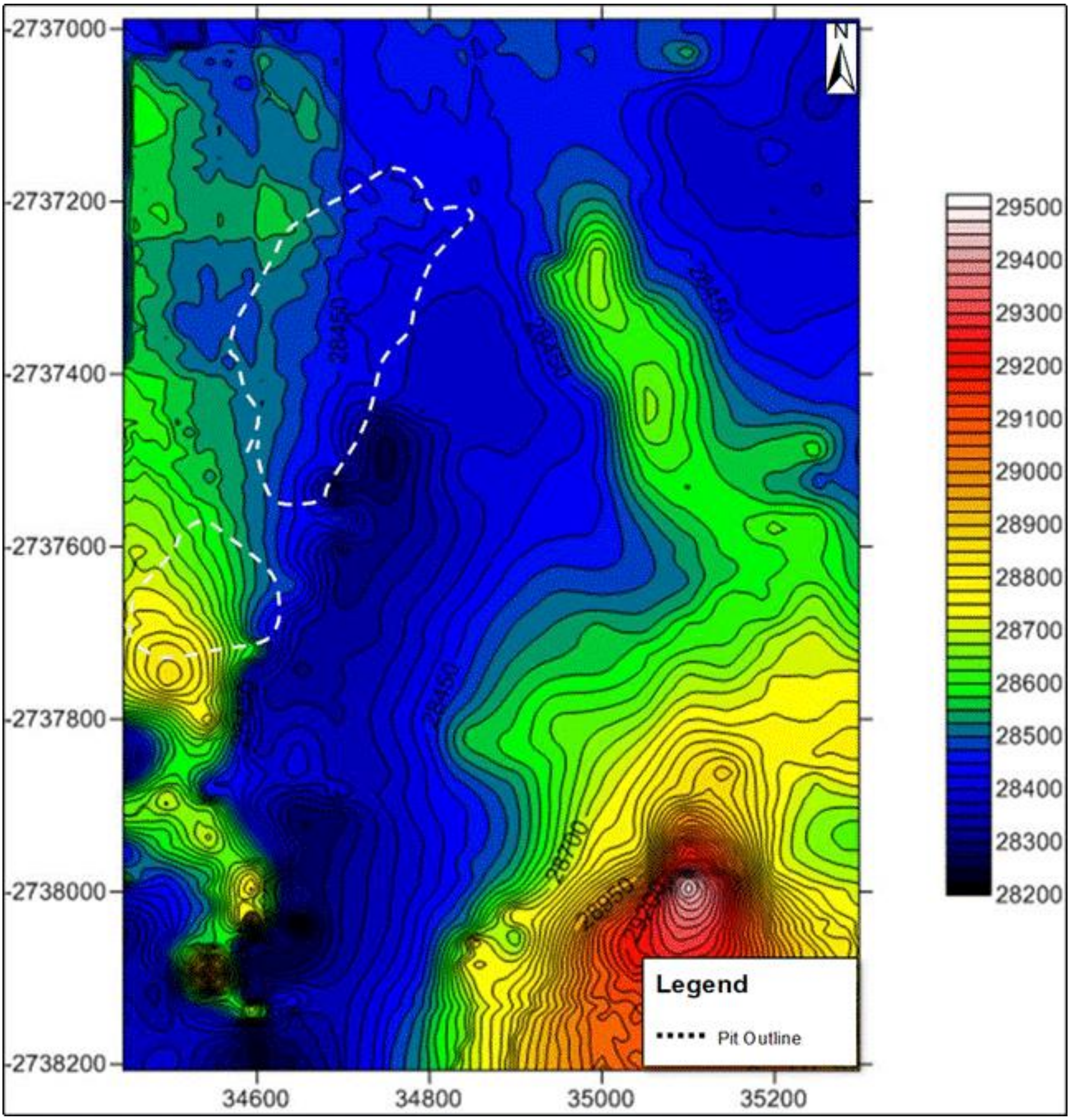


Figure 7.2 - Plot of the contoured ground magnetic survey data (Source: MSA, 2015)

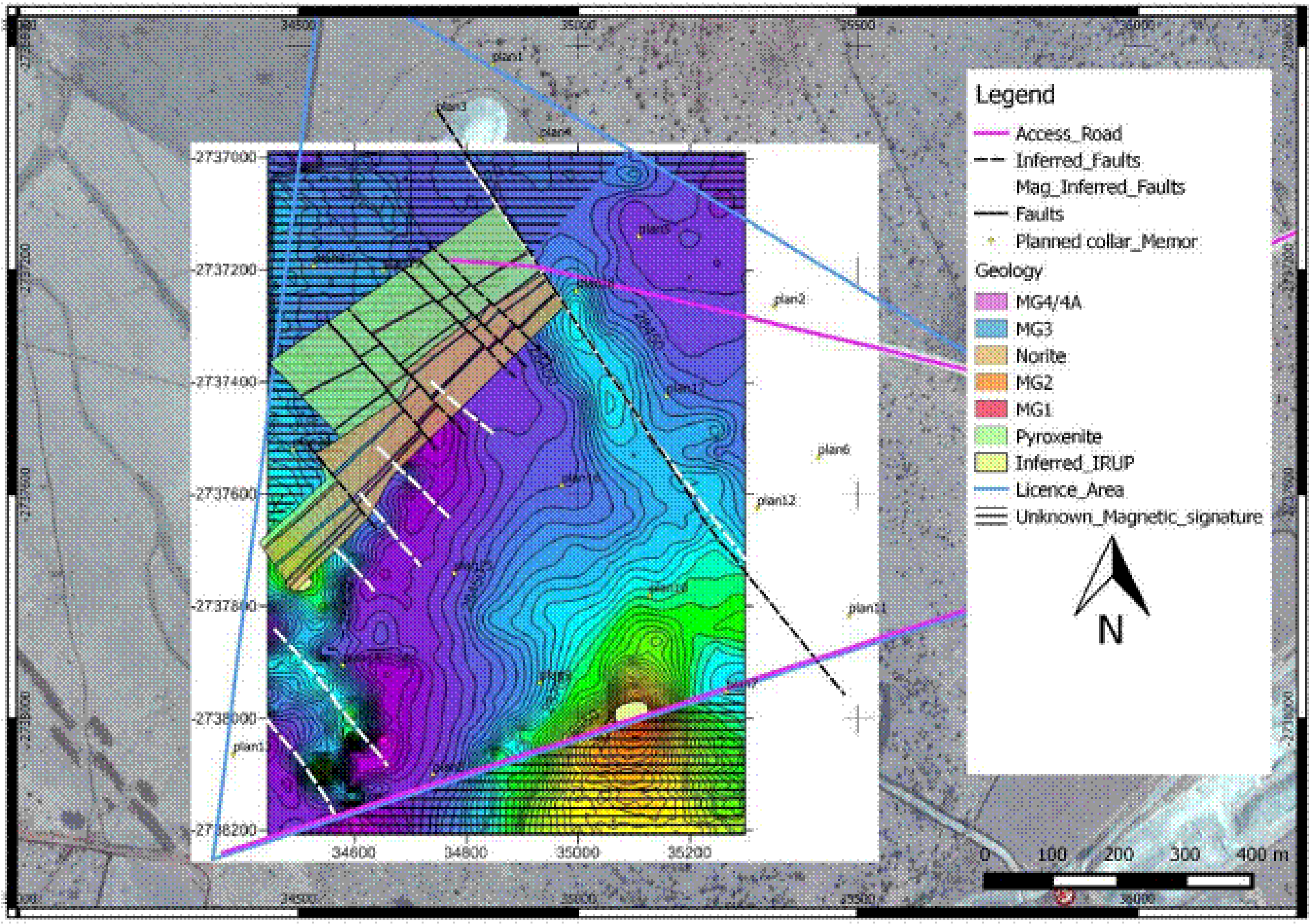


Figure 7.3 - Geological interpretation of the magnetic data overlaid on the contoured ground magnetic data (Source: MSA, 2015)

7.2 Structural Mapping

7.2.1 Methodology

The chromitite layers, along with the hanging wall and footwall lithologies, were identified and mapped in the pits. Exposed structures along the sidewalls and the floor were measured to record displacement of the various units.

Steep sidewalls without bench development made certain exposures impossible to reach. Parts of the sidewall were poorly exposed due to scree cover, thus limiting the accessible rock faces.

7.2.2 Interpretation

Three dominant structural trends were identified from pit mapping:

- o North-East-South-West structures interpreted to be the result of a D1-brittle-ductile compressive regime.
- o North-West-South-East faults resulting from a D2-brittle extensional regime.
- o East-West structures resulting from a D3-brittle extensional regime.

The D2 and D3 structures were interpreted to be related to extension during the cooling phases of the Bushveld Complex. The D2 faults are of particular interest due to the displacement of the chromitite layers and their potential negative impact on mining.

The displacement along the large fault on the Eastern edge of the existing pit (Figure 6.3) was estimated to have a lateral throw of approximately 800 m and a vertical down-throw of 300 m. This was estimated using the location of the Cronimet Mine to the South as a point of reference, the structural mapping and ground magnetic data.

Additional faulting within the pit is aligned roughly perpendicular to the strike of the chromitite layers and has produced a series of horsts and grabens.

The major North-West-South-East fault to the East of the WSB (Figure 6.2), which resulted in approximately 1.7 km of apparent lateral displacement of the RLS, could represent the Eastern boundary fault of a major graben system. This system is locally referred to as the Middellaagte Graben (Northam Platinum Ltd, 2008).

Many of the joints observed in the pit during mapping have the same orientation and geometry as the larger faults. In addition, where larger faults were observed, there is a high concentration of localised jointing which suggests that these joints were formed in a brittle regime during faulting.

7.3 Diamond Core Drilling

SR 3.2(i)

A total of 25 diamond core holes were drilled from 13 March 2015 to 28 April 2015. All the holes were drilled vertically, apart from two holes that twinned historical holes and were drilled towards 323° with a dip of -70°. Drillhole spacing was generally 100 m to 200 m (Figure 7.4).

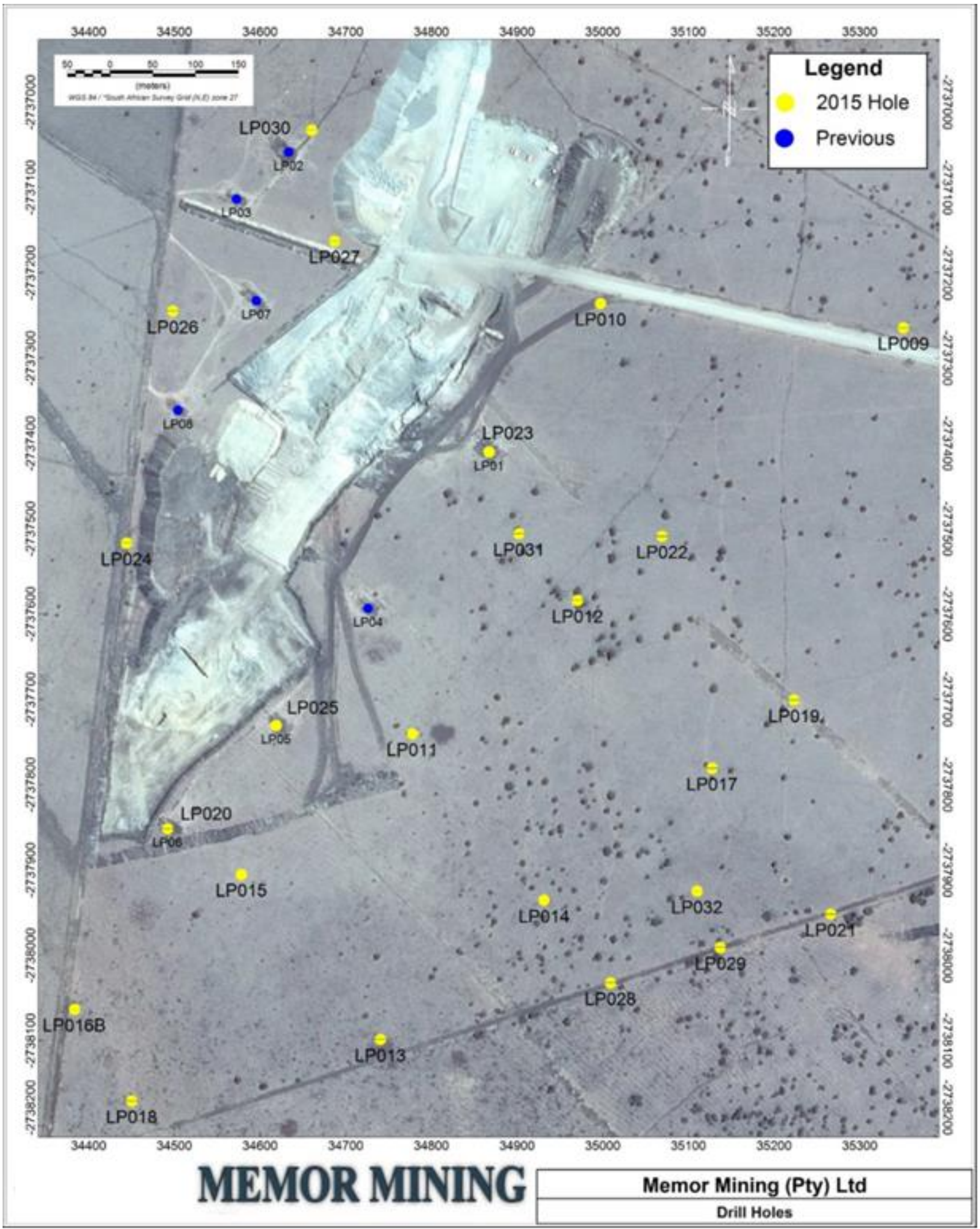


Figure 7.4 - Locality map of the drillhole collar positions (Source: MSA, 2015)

A summary of the drillhole information is provided in Table 7.1. below.

Table 7.1 - Summary of the 2015 drilling (Source: MSA, 2015)						
BHID	**Drilled Depth** (m)	**Easting** (m)	**Northing** (m)	**Elevation** (m)	**Azimuth** (°)	**Dip** (°)
LP009	52.70	2737266.31	-35350.99	941.58	0	-90
LP010	77.92	2737234.51	-34997.88	935.91	0	-90
LP011	237.54	2737738.00	-34777.19	936.37	0	-90
LP012	245.98	2737580.27	-34965.21	938.06	0	-90
LP013	252.71	2738096.89	-34739.27	938.33	0	-90
LP014	320.81	2737932.41	-34930.20	938.64	0	-90
LP015	192.26	2737902.96	-34577.78	935.59	0	-90
LP016B	164.59	2738061.73	-34381.79	937.36	0	-90
LP017	256.01	2737777.77	-35127.24	939.38	0	-90
LP018	179.02	2738169.84	-34449.35	936.20	0	-90
LP019	358.94	2737700.88	-35222.13	940.97	0	-90
LP020	22.00	2737847.34	-34496.98	935.30	0	-90
LP021	211.72	2737948.69	-35266.67	940.85	0	-90
LP022	29.12	2737507.80	-35069.52	937.57	0	-90
LP023	81.91	2737407.18	-34867.36	936.62	323	-70
LP024	107.89	2737516.47	-34443.36	934.52	0	-90
LP025	82.58	2737730.57	-34618.56	935.10	323	-70
LP026	63.03	2737245.06	-34496.70	932.27	0	-90
LP027	86.90	2737164.15	-34687.87	935.05	0	-90
LP028	21.41	2738030.69	-35009.61	939.41	0	-90
LP029	20.20	2737992.00	-35136.27	940.15	0	-90
LP030	48.24	2737032.79	-34661.08	932.99	0	-90
LP031	230.44	2737506.54	-34901.10	937.17	0	-90
LP032	376.95	2737922.97	-35113.82	939.79	0	-90
LP033	182.63	2737013.13	-37321.30	948.35	0	-90

Drilling was done by Ghubani Drilling using two Atlas Copco (CS14 and C8C) drill rigs. Holes were drilled at HQ (63.5 mm) size through the overburden. Once solid rock was intersected, the bit was changed to NQ (47.6 mm) size. A typical rig setup is illustrated in Figure 7.5. The drill sites and access roads were cleared with a tractor loader backhoe.

North and West facing photos were taken prior to drill-pad preparation and again after rehabilitation was completed (Figure 7.6). All photos were captured into the project database.

Figure 7.5 - Ghubani drill site setup (Source: MSA, 2015)

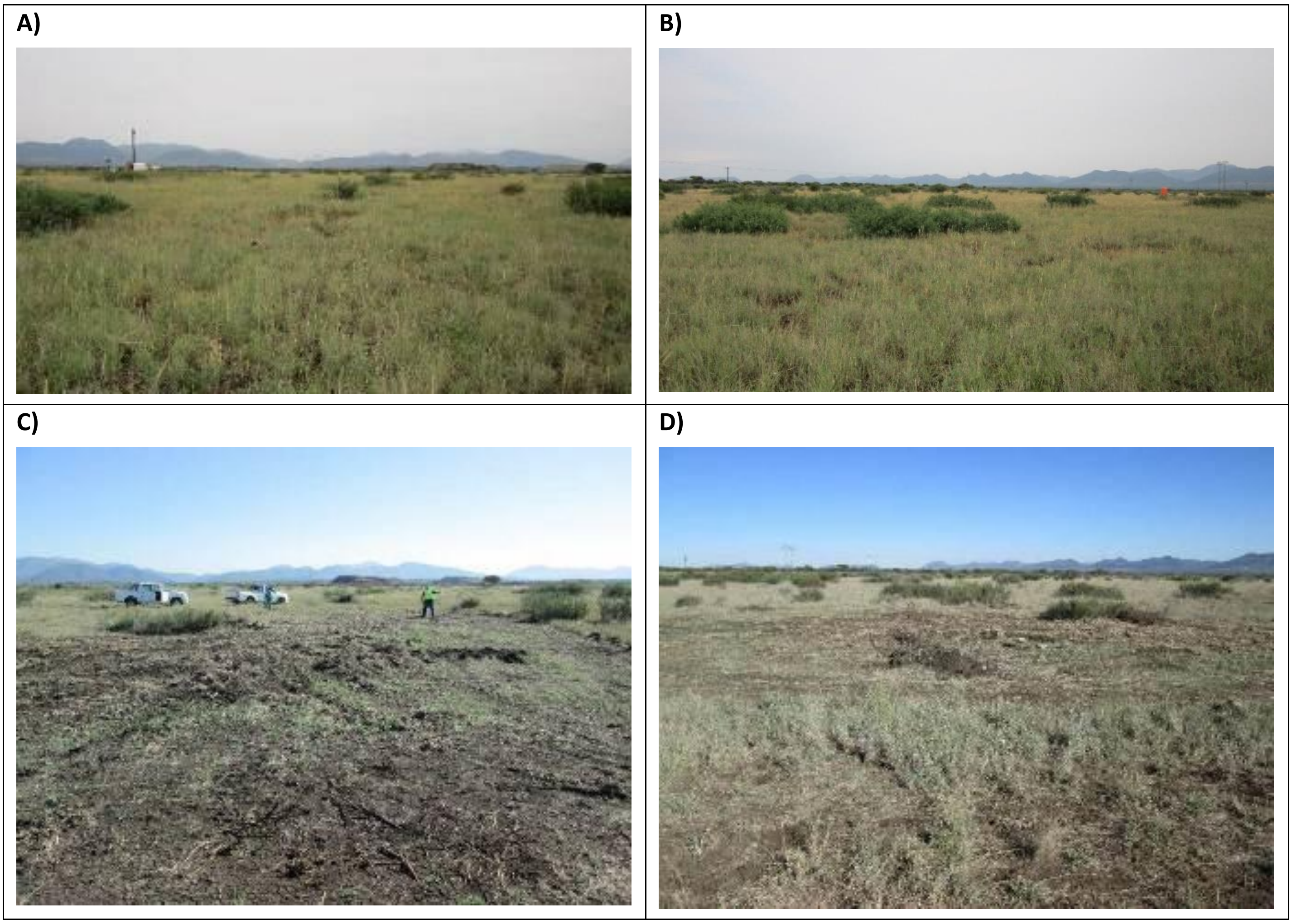


Figure 7.6 - Examples of pre and post drill photos (Source: MSA, 2015); A) LP018 predrill facing North; B) LP018 predrill facing West; C) LP018 post drill facing North; D) LP018 post drill facing West

Drillholes were capped using a cement block with the drillhole number clearly inscribed (Figure 7.7). Drill site footprints were kept to a minimum to minimise environmental disturbance in accordance with MSA standard operating procedures and the EMP for the Project.

Figure 7.7 - Post drill cemented collar with clearly marked drillhole ID (Source: MSA, 2015)

7.4 Collar Surveys SR 3.1(v)

A registered surveyed captured the collar positions using a DGPS (sub-centimetre accuracy) SR 3.2(v) into the Hartebeesthoek94 / LO27 coordinate system. The data has been transformed to UTM 35S for the Mineral Resource and Mineral Reserve estimation.

7.5 Down Hole Surveys SR 3.1(ii)(v)

No downhole surveys were conducted, as most of the holes were drilled vertically to depths SR 3.2(v) of less than 300 m.

7.6 Drill Hole Logging and Sampling SR 3.2(ii)(iii)

Preparation of the core for sampling, metre marking, and logging of the core was undertaken at the workshop next to the processing plant. As there was no electricity at the workshop, the core was transported to the MSA personnel accommodation for core splitting, sample processing and density determination.

7.6.1 Logging

Information was logged into a Microsoft Excel logsheet on handheld tablets. The data was then uploaded into the data storage system in Johannesburg. This process had the advantage of on-site validation and efficient identification and correction of errors.

Lithological units, alteration, mineralisation and structural information, core recovery and RQDs were captured. Particular emphasis was placed on the chromitite layers in order to ensure that they were correctly identified, and their thicknesses accurately recorded.

SR 3.1(ii)
SR 3.3 (i) to (vii)
SR 3.5(i)

7.6.2 Sampling

Each chromitite layer was sampled in its entirety. Where layer thickness exceeded 1 m, the core was divided into two samples. In the case of bifurcations, if the parting was greater than 0.5 m, the parting was taken as a separate sample. Generally, a 0.5 m hanging wall and foot wall sample was taken for each chromitite layer.

The chromitite layers were sampled according to the MSA standard operating procedure, summarised as follows:

- Samples were marked at the chromitite layer contacts and broken as close as possible to the marked lines.
- A cut and reference line was drawn along the core. The reference line served to ensure that the same half was consistently sampled throughout the process. Each sample was split into two equal segments along the cut line using a rotary saw.
- The 1 m marks were carried over onto the cut surface of the bottom half and the drillhole depth recorded at these marks.
- Sample interval marks were extended onto the cut surface of the bottom half core.
- The top half of each sample was removed and placed in a plastic sample bag. A unique printed sample number was inserted into the bag and a second copy was stapled inside the top edge of the bag before the bag was sealed.
- A corresponding sample number was written with white paint marker on the cut surface of the remaining half core.
- The end depth of each sample was marked on the cut surface of the remaining half core.
- Certified reference material samples were inserted into the sample steam as described in Section 4 and the samples were placed in large polyweave bags which were then sealed with cable ties, ready for dispatch.
- Sample numbers and depths were recorded and captured in the database.
- The samples were submitted to the laboratories by MSA personnel, thereby ensuring a chain of custody.

Examples of the logging and sampling process is shown in Figure 7.8. A summary of the samples submitted for assay is contained in Table 7.2.

Figure 7.8 - Core processing and sampling; A) Memor Mining workshop used as the core shed; B) Core logging using tablets; C) Core processing area; D) Cut (yellow) and reference (red) lines drawn on the core; E) Core cutting; F) Samples marked with a water resistant paint marker (Source: MSA, 2015)

Table 7.2 - Summary of the samples per drillhole (Source: MSA, 2015)			
BHID	**Routine Samples**	**Standards**	**Blanks**
LP011	39	4	3
LP012	41	4	3
LP013	39	4	4
LP014	39	4	3
LP015	47	5	4
LP016B	35	4	3
LP017	23	2	3
LP018	42	4	4
LP023	28	3	3
LP024	7	1	2
LP025	24	2	3
LP026	7	1	2
LP027	8	1	2
LP030	3	0	1
LP031	31	3	4
LP032	50	5	4
LP033	24	2	3
Total	**487**	**49**	**51**
	587		

7.7 Density Determination

SR 3.7(i)(ii)

Density was determined using a wet-dry scale and the Archimedes immersion method, with daily calibration checks carried out. The average density for each rock type is contained in Table 7.3.

Table 7.3 - Average density of rock type as determined by the Archimedes method (Source: MSA, 2015)	
Rock Type	**Density** (t/m^3)
Chromitite	4.01
Pyroxenite	3.20
Norite	2.98
Anorthosite	2.91
IRUP	3.43
Pegmatite	3.19

7.8 Data Density

Structural mapping and geophysical data collected by The MSA Group in 2015, along with the drilling data was used to inform the geological model. The drill core recoveries were good and considered representative of the mineralisation on the property. The drill holes were spaced at between 100 m and 200 m and this spacing is considered appropriate the style of mineralisation.

7.9 Assay Laboratories and Methods

SR 3.4(i) to (iii)
SR3.5(ii)

ALS Global Laboratory (Pty) Ltd. ("ALS") in Johannesburg was utilised for major element analysis (Al2O3, BaO, CaO, Cr2O3, Fe2O3, K2O, MgO, MnO, Na2O, P2O5, SO3, SiO2, and TiO2) by whole rock analysis by fusion/XRF, with Cr2O3 by borate fusion. MSA delivered the sample batches, accompanied with a sample check list and instructions for analyses to ALS. ALS is a South African National Accreditation System (**"SANAS")** accredited testing laboratory (Facility Accreditation Number T0387).

Once the analyses were completed, pulps were retrieved from ALS. PGE standards were inserted into the pulp sample stream to replace the previously designated Cr2O3 CRMs. The samples were then submitted to Set Point Laboratories (Pty) Ltd. (**"Set Point")** in Johannesburg for Pt, Pd, Rh, and Au (4E) by Pb collection - 2Ag & Pd prill with ICP-OES finish. Set Point is a SANAS accredited testing laboratory (Facility Accreditation Number T0223). Intertek Genalysis Laboratories ("**Genalysis**") in Perth undertook analyses for Pt, Pd, Rh, Ir, Ru and Au (6E) by NiS collection and ICP finish on 48 samples. The Genalysis laboratory in Perth is an accredited National Association of Testing Authorities, Australia laboratory (Facility Accreditation Number 3244). All laboratories are accredited in accordance with the recognised International Standard ISO/IEC 17025:2005.

7.10 Data management

SR 3.1(ii)

The historical and current drillhole data were stored in a Microsoft SQL database in Johannesburg. Data was imported directly from the spreadsheets populated in the field via Maxwell's LogChief software.

7.11 Quality Control and Quality Assurance (QA/QC)

SR 3.6(i)

The MSA team introduced certified standard reference samples ("CRMs") for blanks and standards, and duplicate samples into the sampling stream. The standard operating procedures for the Project for the insertion blanks, standards and duplicates is summarised as follows:

- Blank material samples were inserted at the beginning of each hole to monitor between-hole contamination, as well as within and immediately following selected mineralised intervals to monitor within-hole contamination.
- Standards were inserted into the sample stream after every 10th routine sample to monitor laboratory accuracy.
- Pulp sample duplicates were created by ALS from every 10th routine sample as designated by MSA to check for analytical error.
- 48 of the above pulp samples (10% of total of 486 samples) were submitted to Genalysis laboratory in Perth, Australia to ascertain levels of inter-laboratory precision for PGEs and Au.

CRMs used for standards (SARM8, SARM9 and SARM131) were acquired from the Council for Mineral Technology in South Africa. CRMs used as blank material (AMIS0108 and AMIS0350) and PGE standards (AMIS0151 and AMIS0209) were acquired from African Mineral Standards in South Africa.

The number of routine and QAQC samples analysed for major elements and PGEs are shown in Table 7.4. Certified mean concentrations of the CRMs are summarised in Table 7.5.

Table 7.4 - Summary of routine and QAQC samples (Source: MSA, 2015)

Number of samples	486
Number of blanks	51
Number of standards	49
Number of duplicates	49
Total QAQC samples	149

Table 7.5 - Certified mean concentrations for the CRMs (Source: MSA, 2015)

Sample Type	Name	Cr_2O_3 (%)	Pt (g/t)	Pd (g/t)	Rh (g/t)	Ir (g/t)	Ru (g/t)	Au (g/t)
Blank	AMIS0108	<0.01	<0.01	<0.01	-	-	-	<0.002
Blank	AMIS0350	0.001	<0.005	<0.005	-	-	-	<0.005
CRM	SARM8	48.97	-	-	-	-	-	-
CRM	SARM9	46.45	-	-	-	-	-	-
CRM	SARM131	41.83	-	-	-	-	-	-
CRM	AMIS151	-	4.64	3.15	1.04*	0.34	1.33*	0.012*
CRM	AMIS209	-	1.21	0.63	0.09	0.031	0.17	0.09*

Potential problems in analytical accuracy were identified as any result outside of two standard deviation limits above or below the certified mean.

7.11.1 Blank Sample Performance

A total of 51 blank samples were inserted into the sample stream to test for contamination and sample swaps. All the blank samples were analysed for major elements (including Cr2O3 and Fe2O3) and PGEs. The results are as follows:

Cr2O3 and Fe2O3 Blanks

Warning limits were set at ten times the lower detection limit (0.10%) for Cr2O3 and Fe2O3. Only one blank sample reported a result for Cr2O3 above two standard deviations of the certified mean (0.41% Cr2O3), which is attributed to a sample swap, and corrected accordingly in the database. The remaining samples reported results under two standard deviations of the certified mean and is considered to be within acceptable limits (Figure 7.9 and Figure 7.10). All blank samples reported results within two standard deviations for Fe2O3 (Figure 7.11 and Figure 7.12). The overall QC data for Cr2O3 and Fe2O3 suggests that the results for the blanks are within acceptable limits and the assay laboratories sample preparation procedures considered to be acceptable.

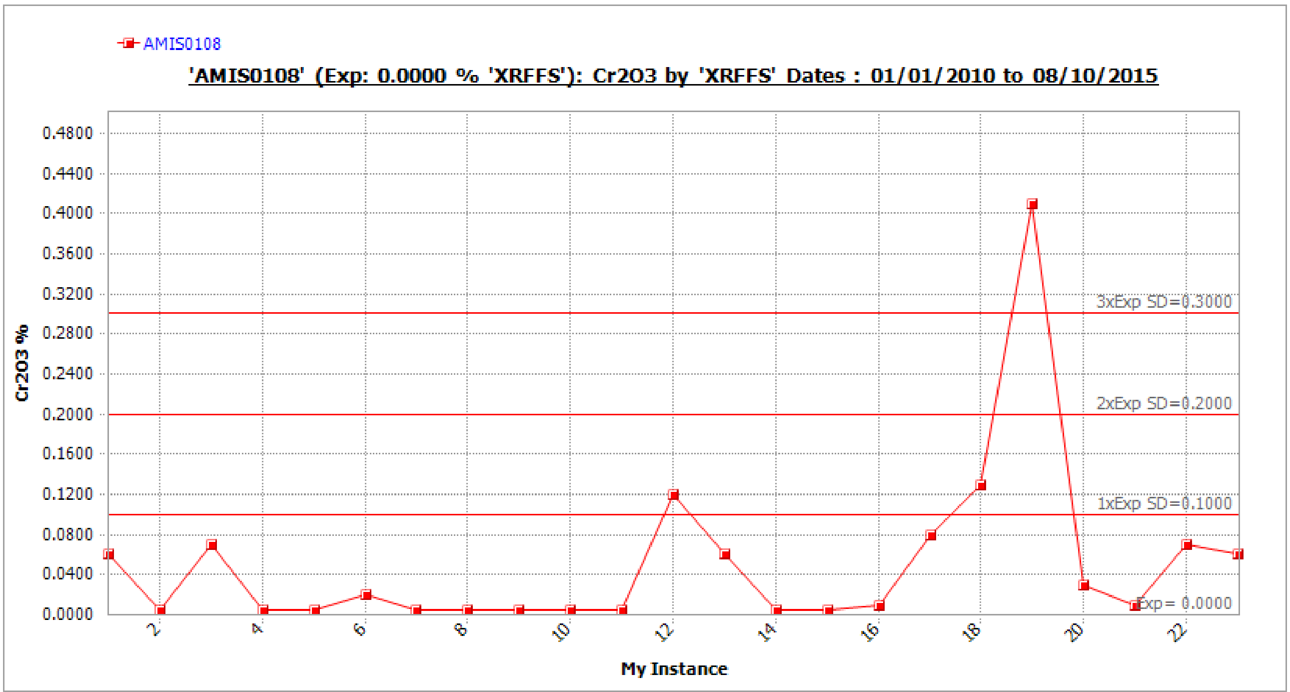


Figure 7.9 - AMIS0108 Cr_2O_3 blank plot (Source: MSA, 2015)

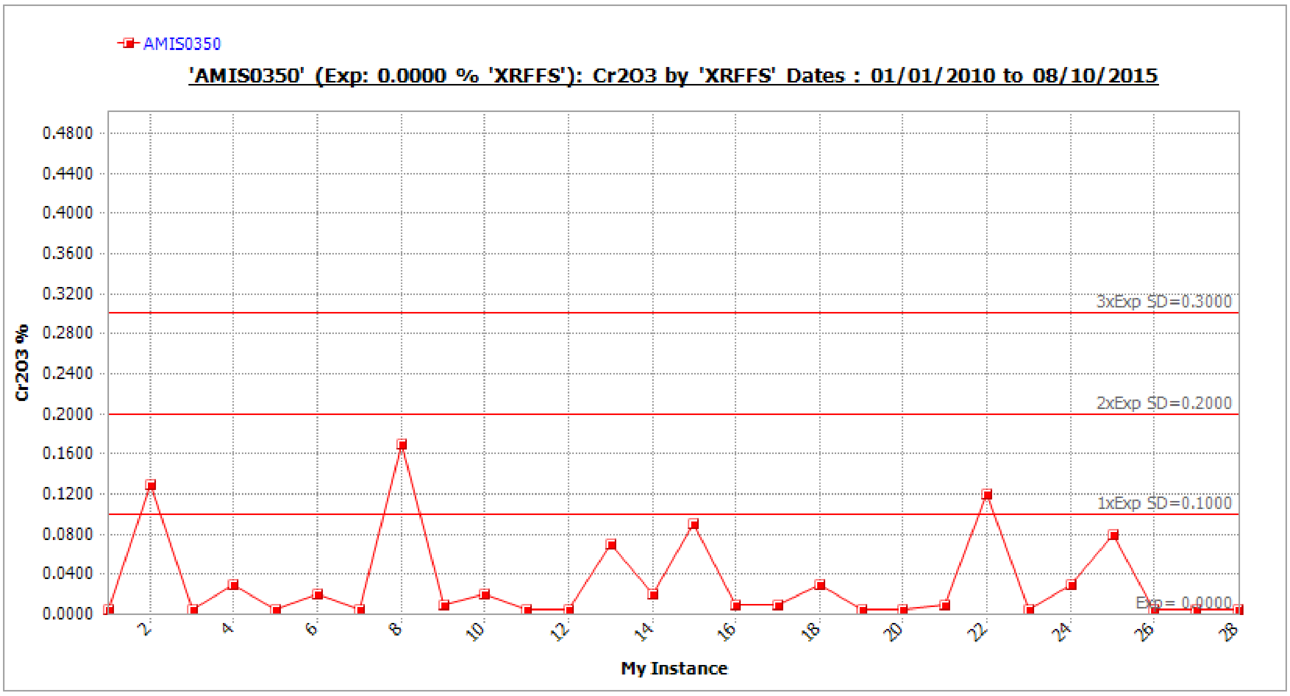


Figure 7.10 - AMIS0350 Cr_2O_3 blank plot (Source: MSA, 2015)

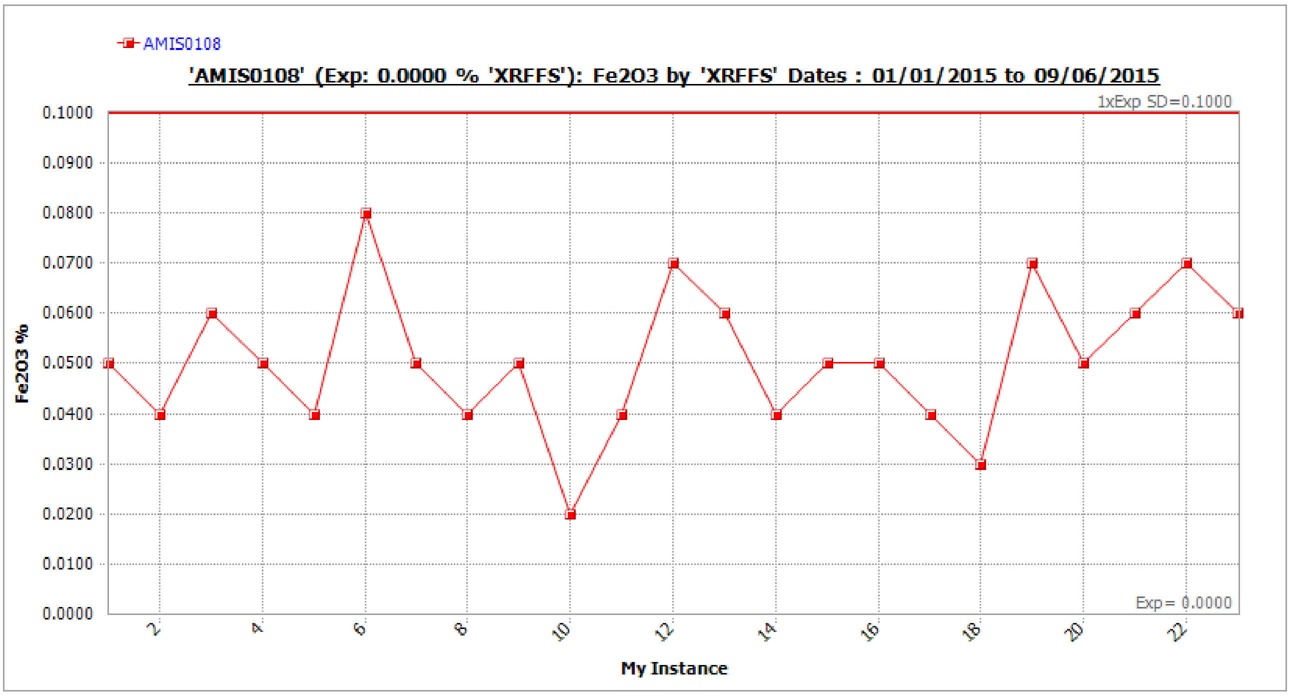


Figure 7.11 - AMIS0108 Fe_2O_3 blank plot (Source: MSA, 2015)

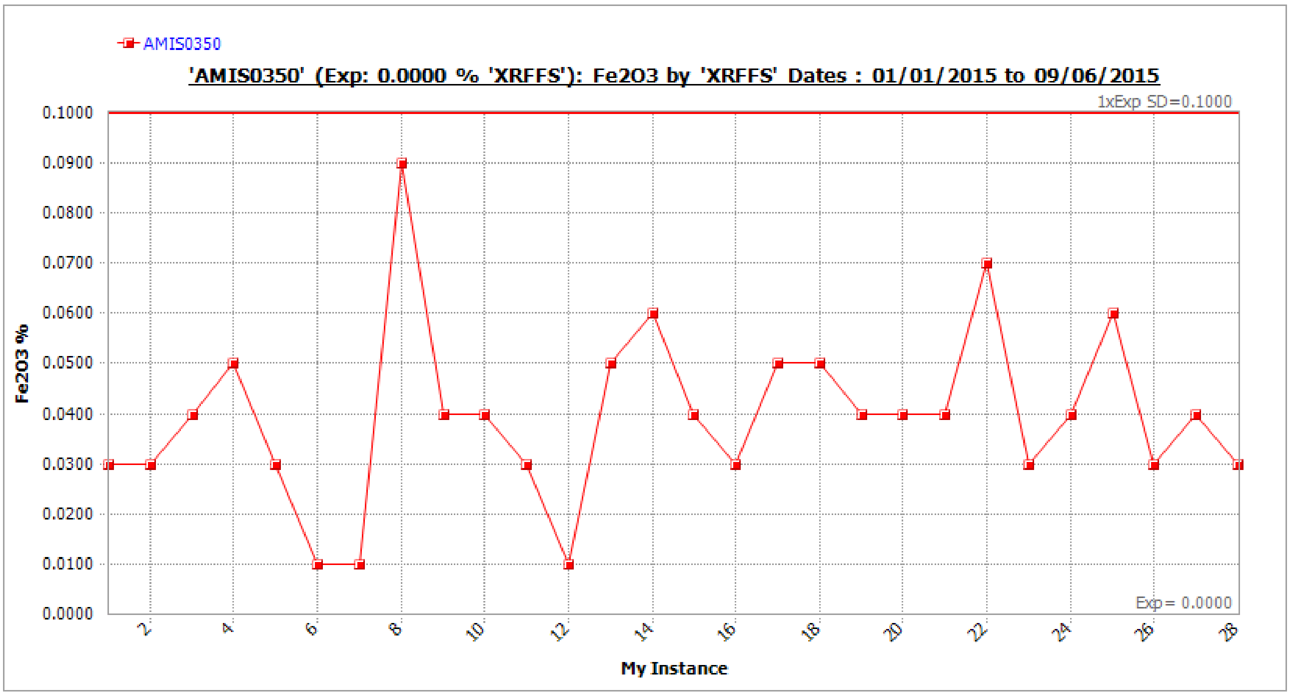


Figure 7.12 - AMIS0350 Fe_2O_3 blank plot (Source: MSA, 2015)

PGE Blanks

Warning limits for the blank PGE results were set at five times the lower detection limit (0.05 ppm) for PGEs. Blank samples used for PGE analyses reported platinum (Pt) and palladium (Pd) results within one standard deviation (Figure 7.13 to Figure 7.16). The sample handing and preparation procedures of the laboratories used for the PGE assays was therefore considered to be acceptable.

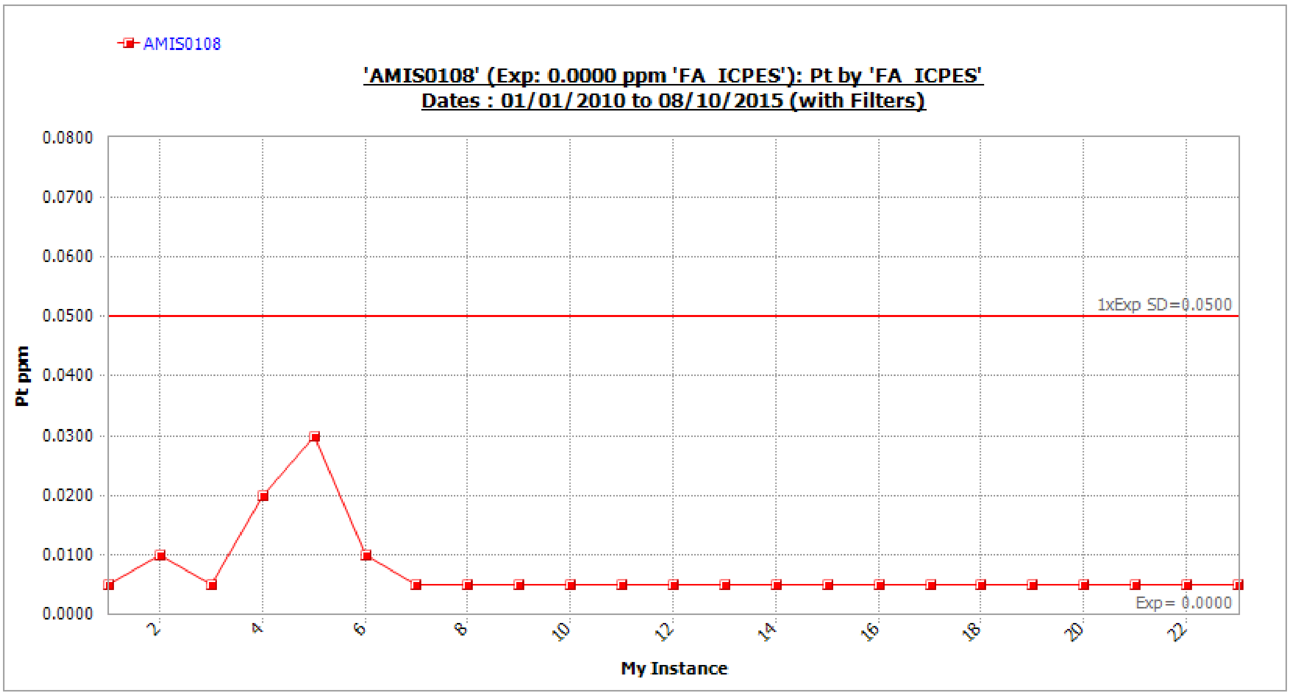


Figure 7.13 - AMIS0108 Pt blank plot (Source: MSA, 2015)

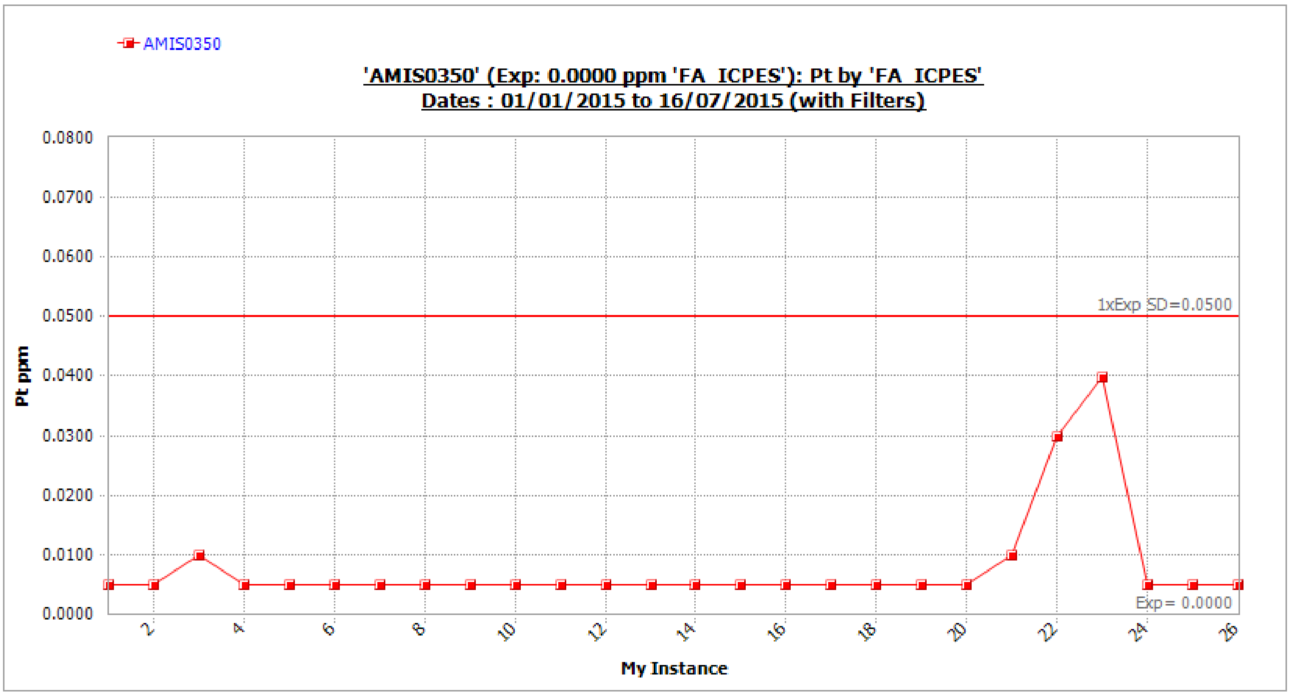


Figure 7.14 - AMIS0350 Pt blank plot (Source: MSA, 2015)

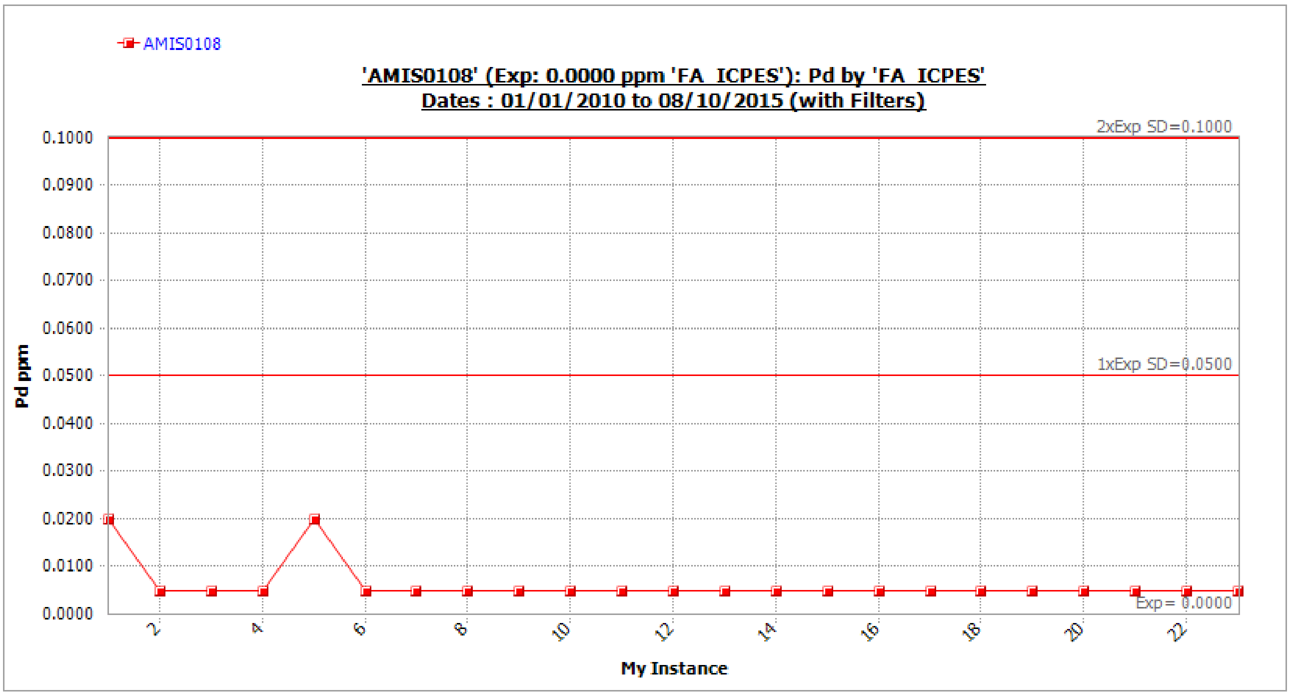


Figure 7.15 - AMIS0108 Pd blank plot (Source: MSA, 2015)

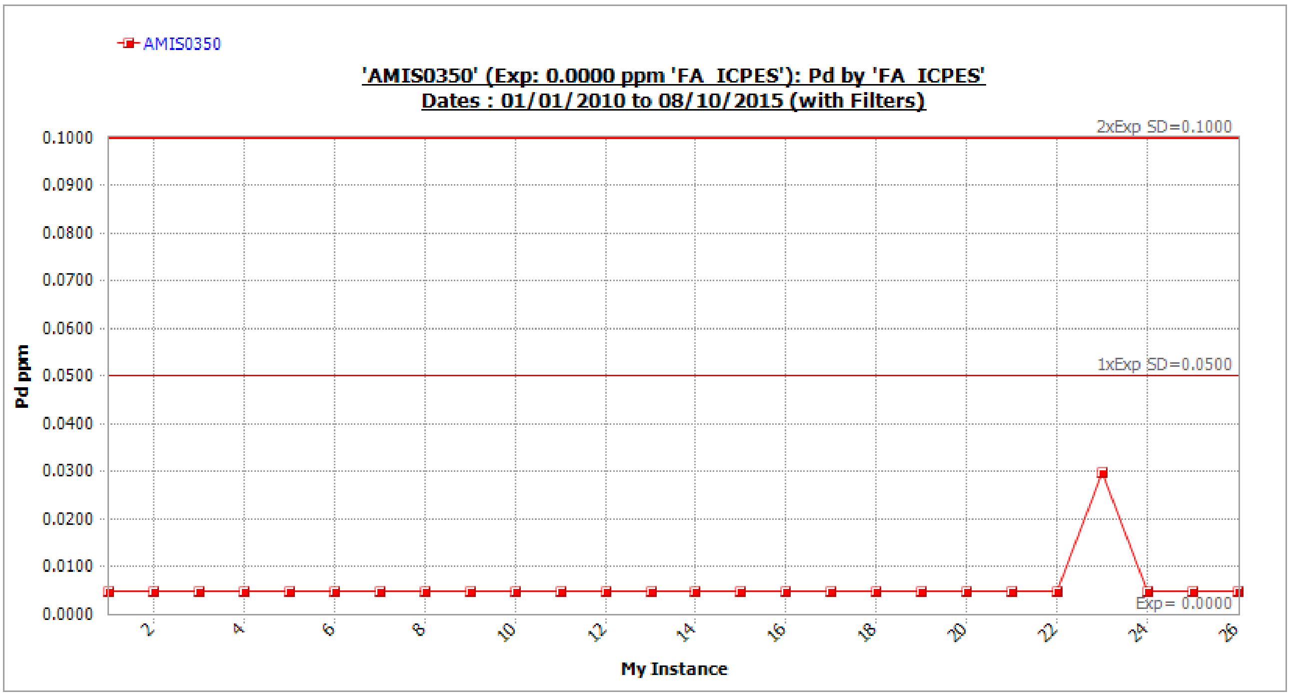


Figure 7.16 - AMIS0350 Pd blank plot (Source: MSA, 2015)

7.11.2 CRM Sample Performance

A total of 17 SARM8 samples, 11 SARM9 samples and 21 SARM131 samples were inserted into the sample stream to monitor accuracy during analyses for major elements. In addition, 29 AMIS0151 and 24 AMIS209 samples were inserted into the sample stream to monitor PGE assay accuracy.

Cr2O3 (and Fe2O3) CRMs

All samples reported Cr2O3 results within two standard deviations of the certified mean (Figure 7.17 and Figure 7.19). The results for the Fe_2O_3 are presented in Figure 7.20 to Figure 7.22. Values for four consecutive SARM8 analyses from a single batch displayed a slight downward drift with time for Cr_2O_3 (Figure 7.17) but remained within two standard deviations of the mean. The corresponding samples showed a marked increase in Fe_2O_3 values (Figure 7.20) and outside two standard deviations of the certified mean for Fe_2O_3. ALS was notified of this anomaly, but no further action was considered necessary.

The overall QC data for Cr_2O_3 and Fe_2O_3 suggest that the results for the standards are within acceptable limits.

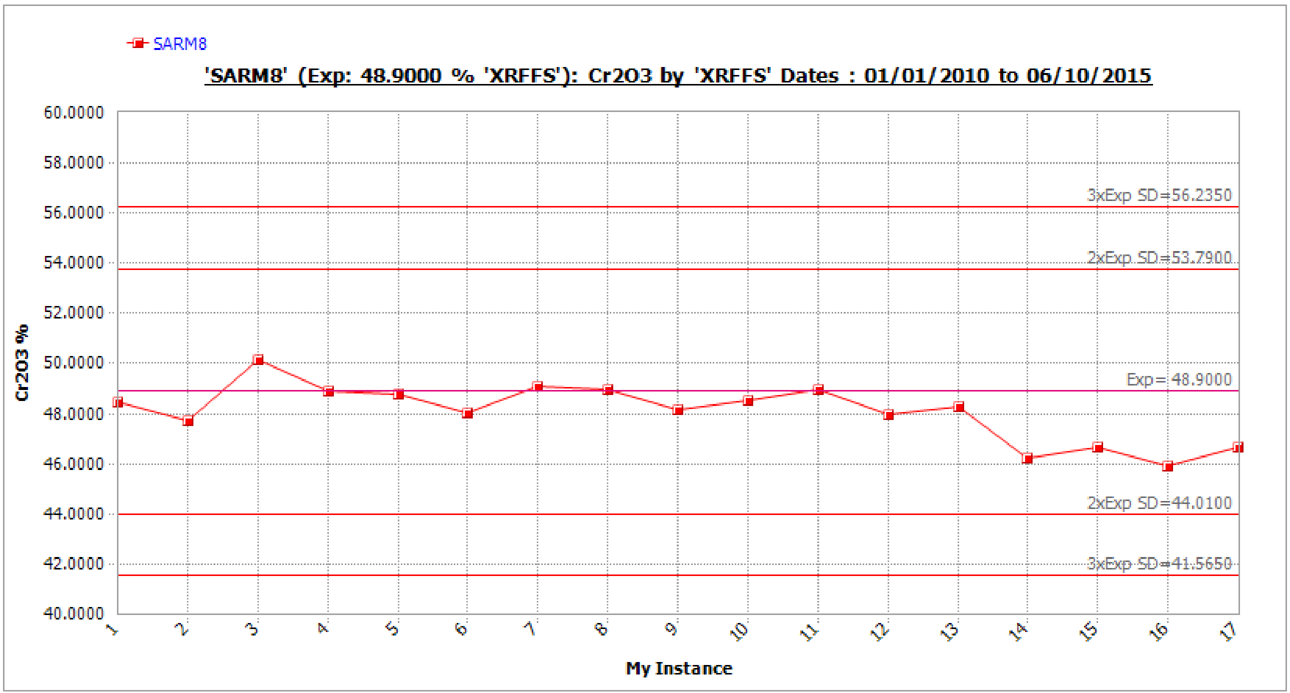


Figure 7.17 - SARM8 Cr_2O_3 analyses (Source: MSA, 2015)

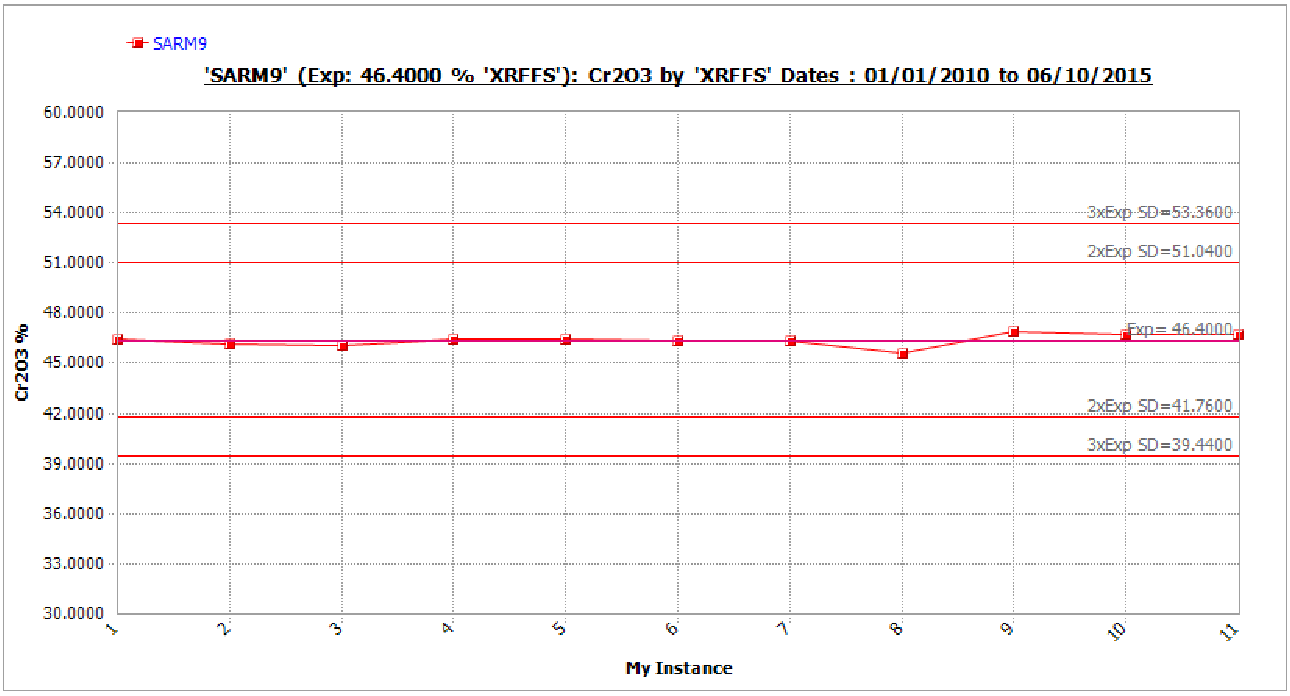


Figure 7.18 - SARM9 Cr_2O_3 analyses (Source: MSA, 2015)

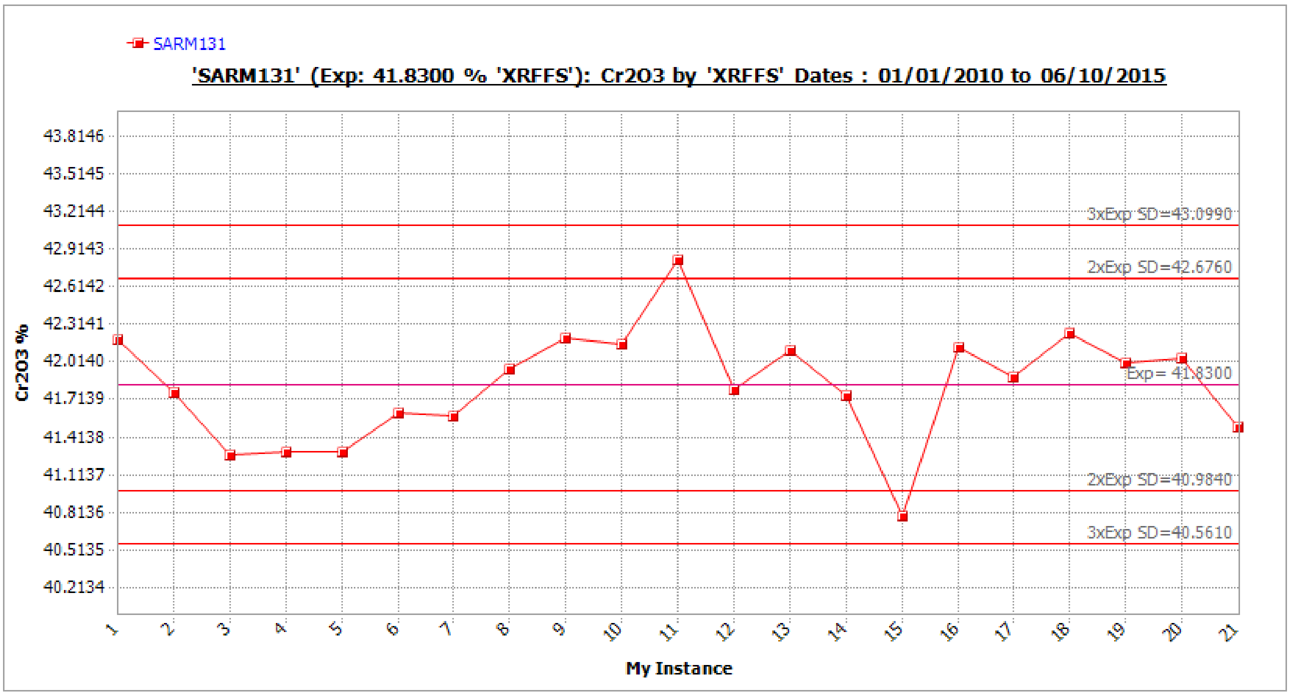


Figure 7.19 - SARM131 Cr_2O_3 analyses (Source: MSA, 2015)

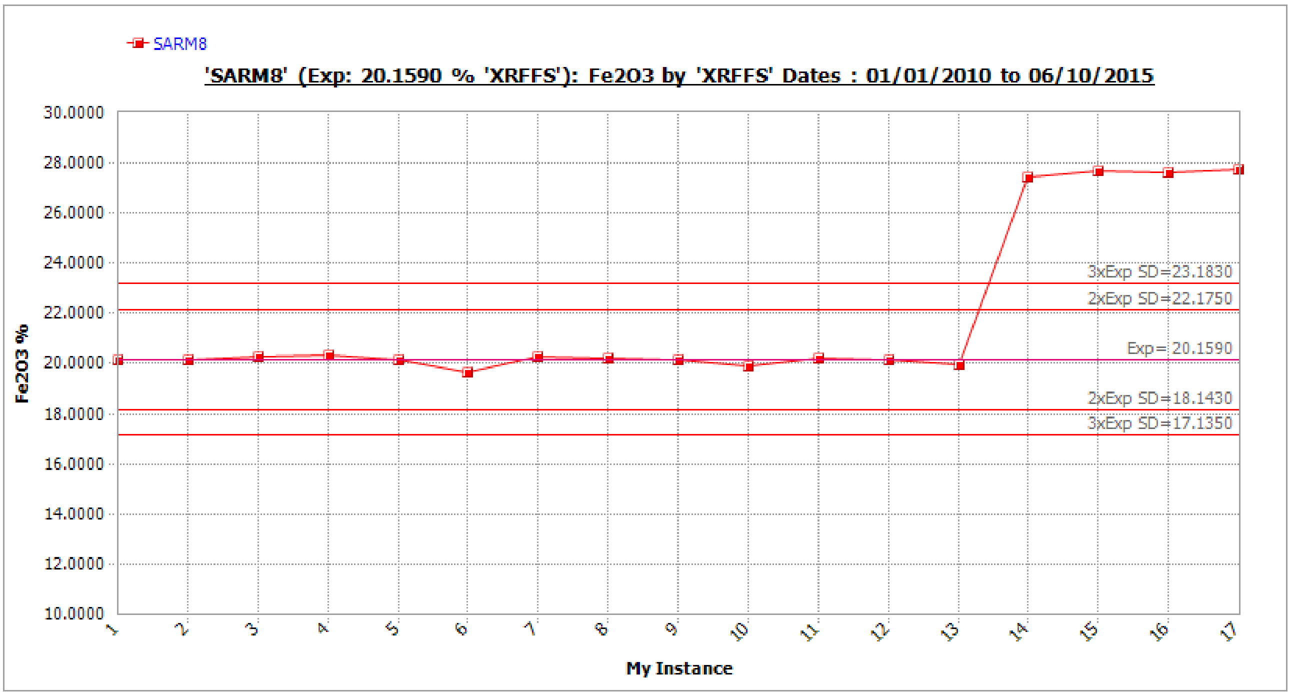


Figure 7.20 - SARM8 Fe_2O_3 analyses (Source: MSA, 2015)

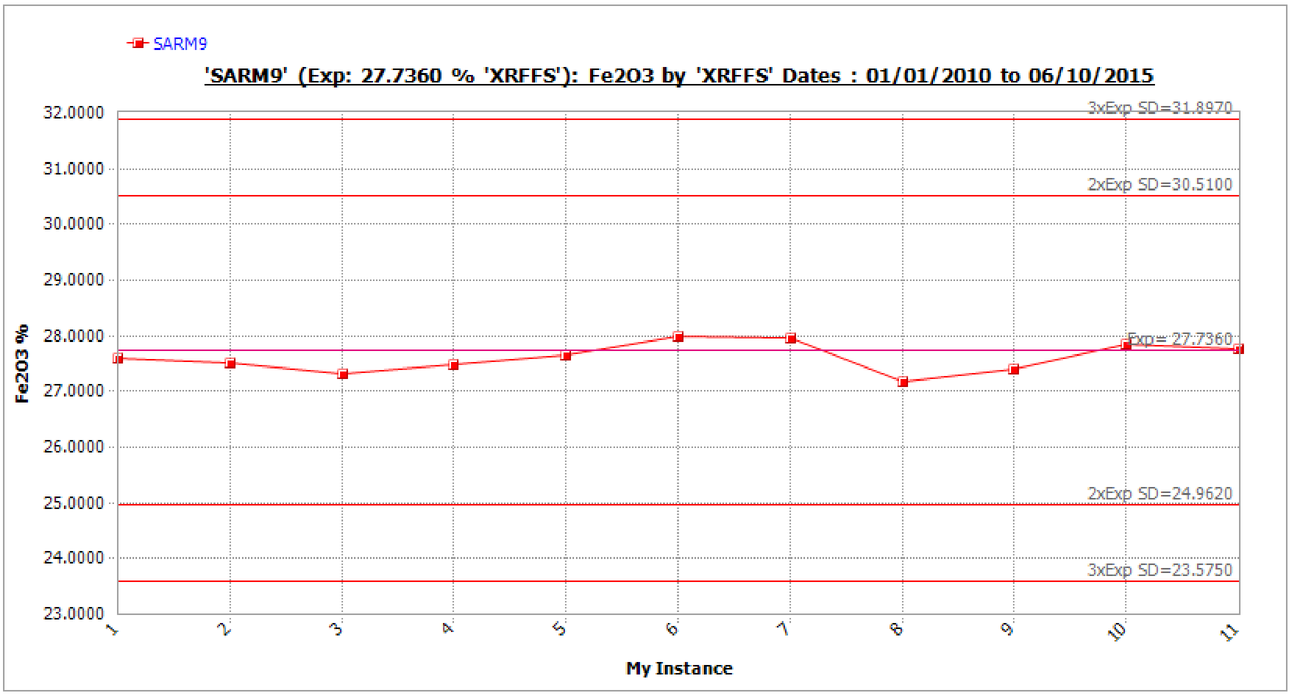


Figure 7.21 - SARM9 Fe_2O_3 analyses (Source: MSA, 2015)

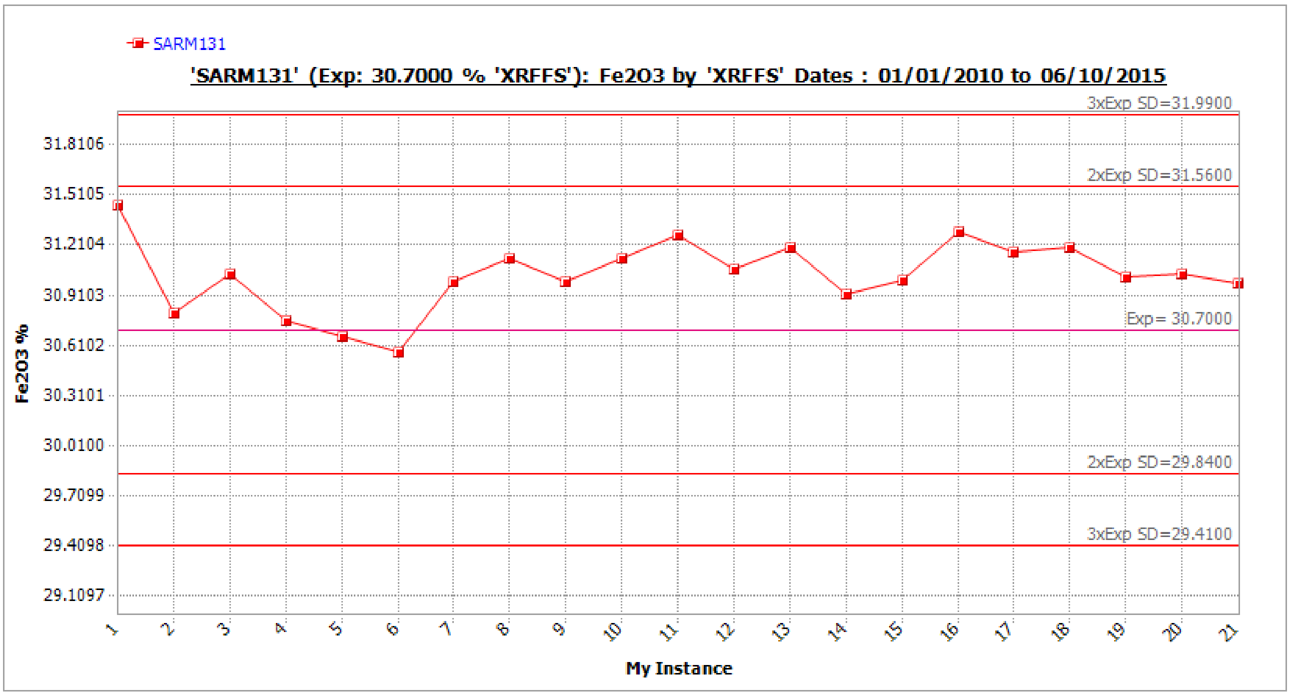


Figure 7.22 - SARM131 Fe_2O_3 analyses (Source: MSA, 2015)

PGE CRMs

Only one sample plotted outside of the two standard deviations limit of the certified mean for Pd (AMIS0209, Figure 7.26). All remaining assay results for Pt and Pd standard samples plotted within two standard deviations, indicating a high level of accuracy (Figure 7.23 to 7.26).

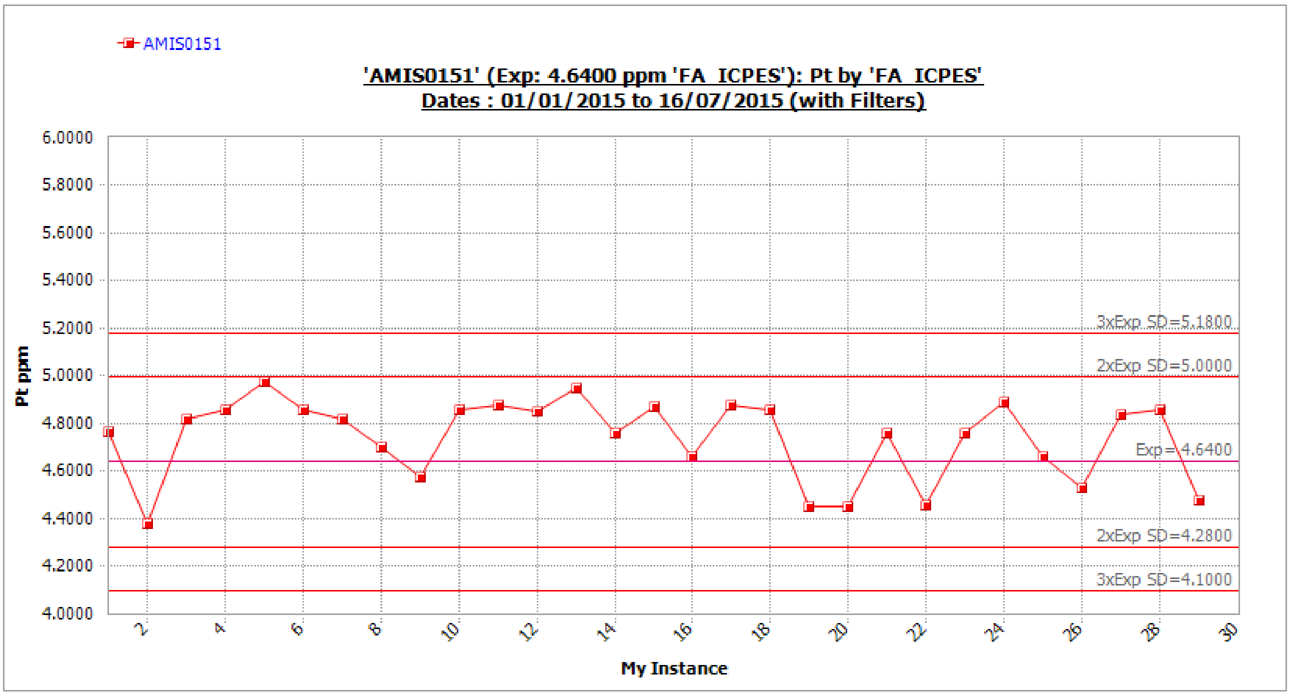


Figure 7.23 - AMIS0151 Pt analyses (Source: MSA, 2015)

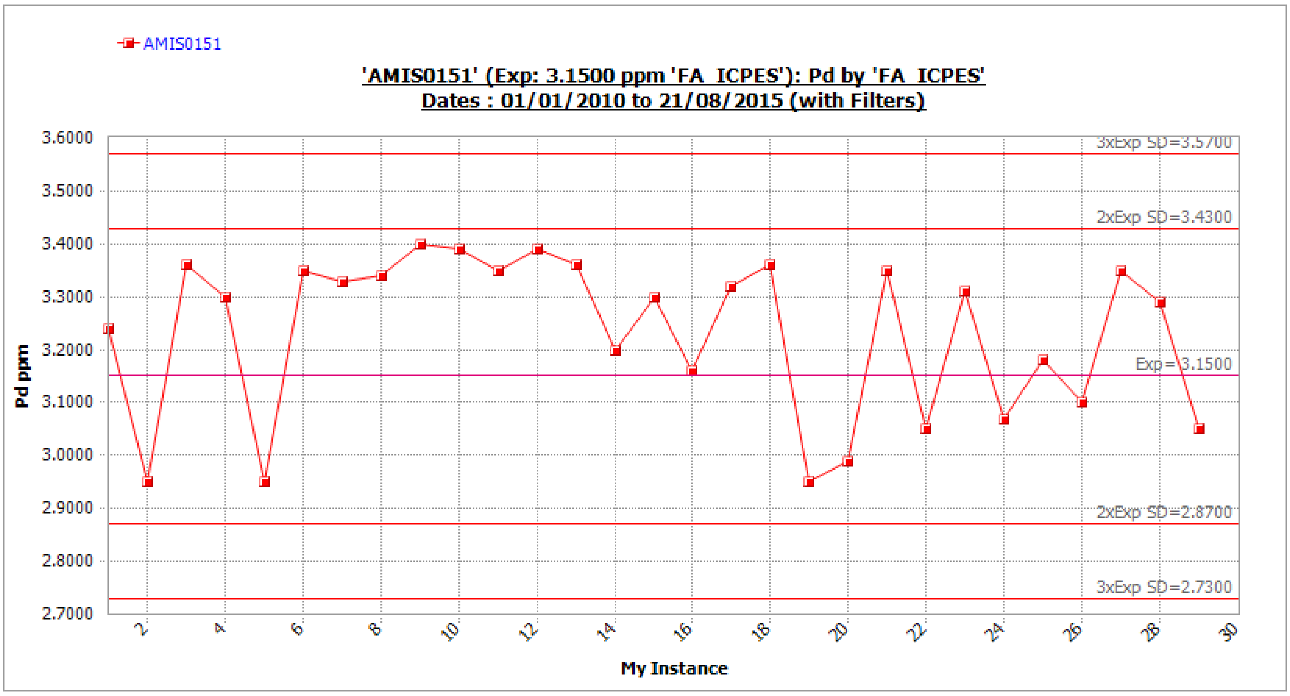


Figure 7.24 - AMIS0151 Pd analyses (Source: MSA, 2015)

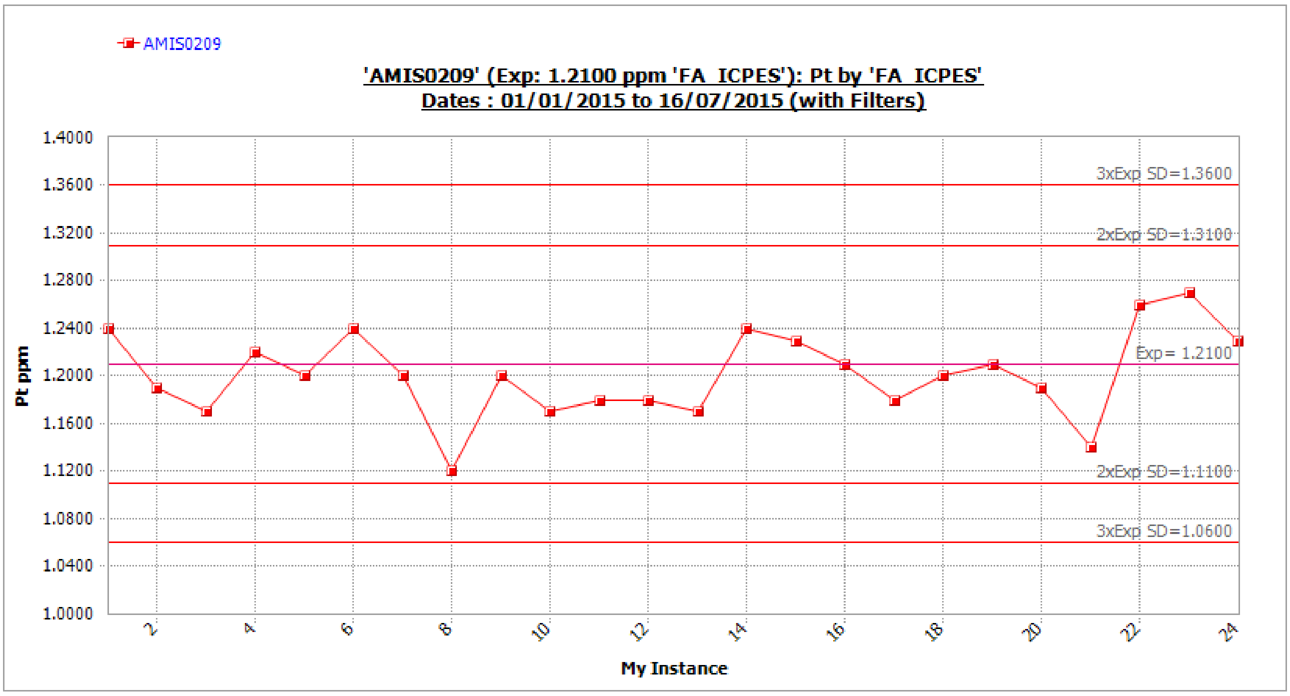


Figure 7.25 - AMIS0209 Pt analysis (Source: MSA, 2015)

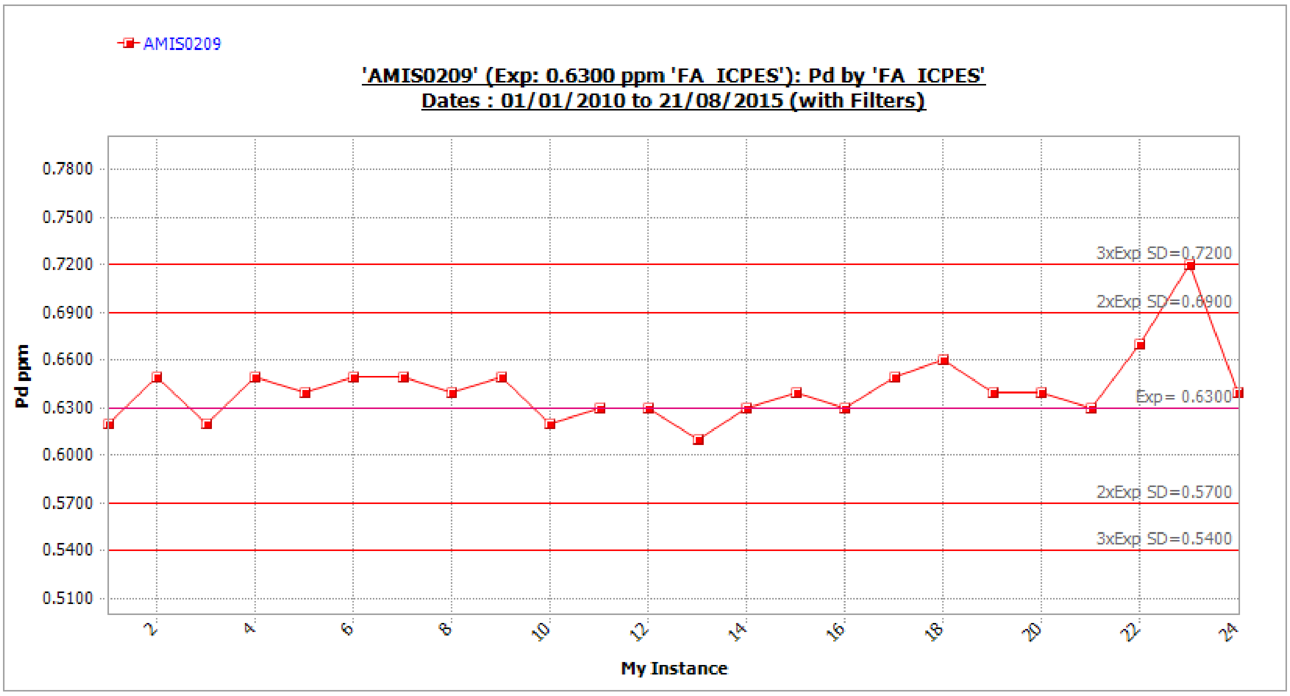


Figure 7.26 - AMIS0209 Pd analyses (Source: MSA, 2015)

7.11.3 Duplicate Samples

A total of 49 pulp duplicates were created by ALS from designated samples assigned by MSA. For Cr_2O_3 and Fe_2O_3, the difference between individual pairs was less than

10% (Figure 7.27 and Figure 7.28). The scatter plots for Pt, Pd (Figure 7.29 and 7.30) and Rh show only a few samples with more than 10% difference. Differences in PGE values more than 10% are expected for precious metals in field duplicates of relatively small volume.

Overall, the results are considered acceptable.

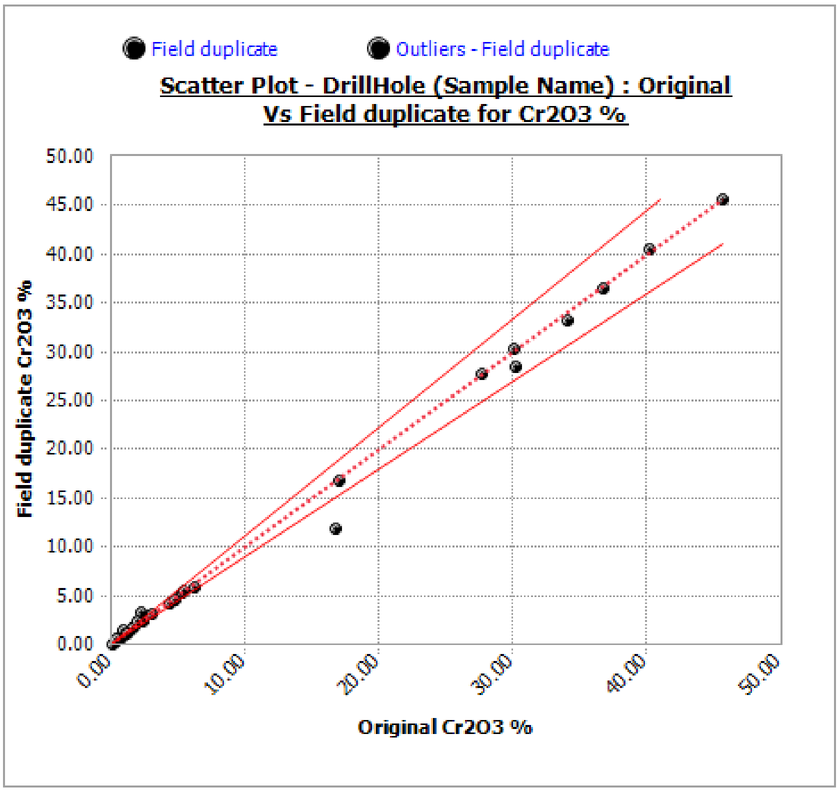


Figure 7.27 - Cr_2O_3 original vs duplicate plot (Source: MSA, 2015)

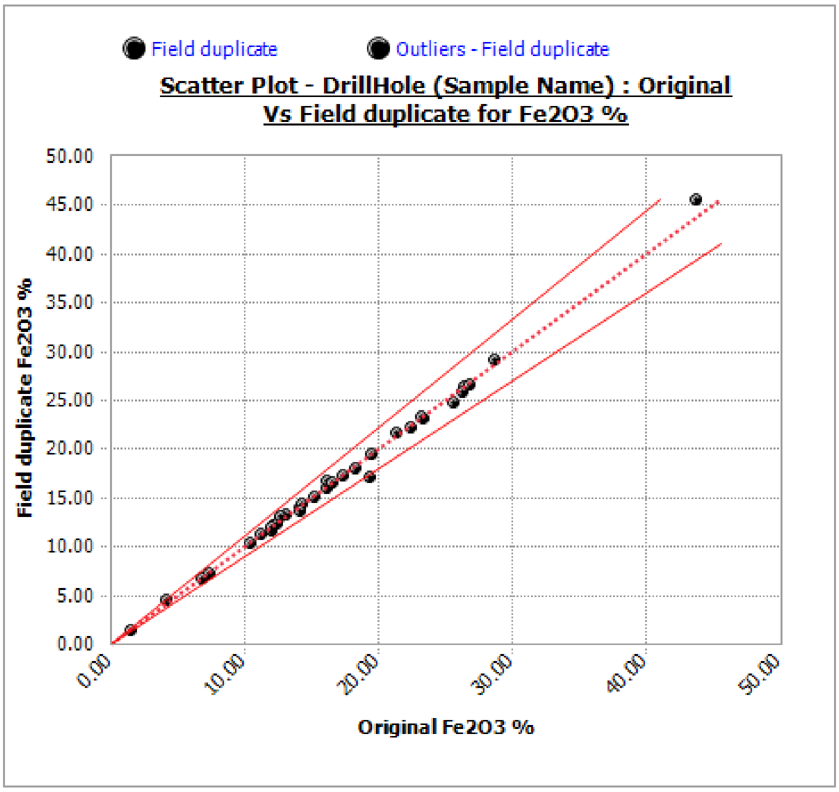


Figure 7.28 - Fe_2O_3 original vs duplicate plot (Source: MSA, 2015)

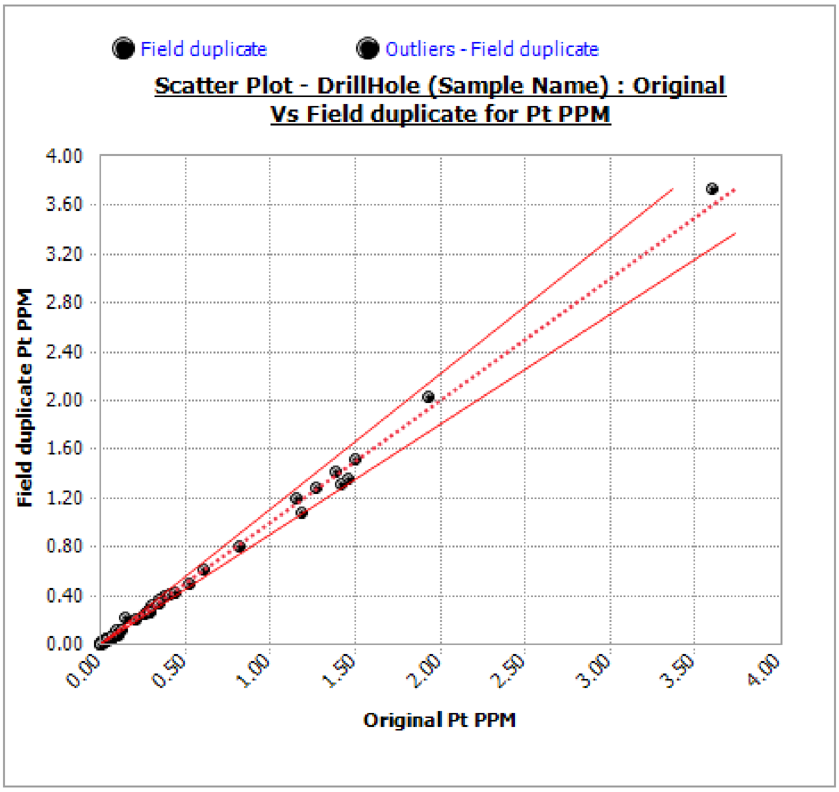


Figure 7-29 - Pt original vs duplicate plot (Source: MSA, 2015)

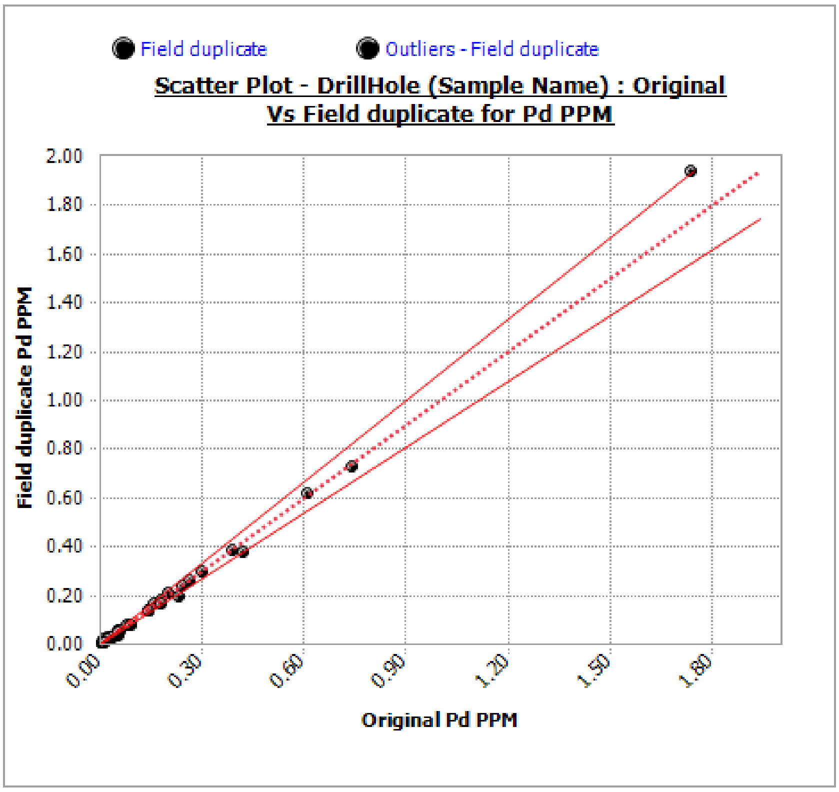


Figure 7.30 - Pd original vs duplicate plot (Source: MSA, 2015)

7.11.4 Inter-Laboratory Analysis

In accordance with standard practice, 48 (10%) of the sample pulps were randomly selected across the grade range, retrieved from Setpoint, and submitted to Intertek for analyses of Pt, Pd, Rh, Ir, Ru and Au (6E) by NiS collection and ICP finish. The comparison between Setpoint and Genalysis shows good correlation for Pt and Pd, with an absence of any bias (Figure 6.31 and Figure 6.32). Only one outlier was observed and could be interpreted as a sample swap.

7.12 Conclusion

Based on the results of the primary laboratory quality control programme and the results of the second laboratory check assay programme, the CP attaches a high confidence to the assay database and its suitability for use in Mineral Resource estimation.

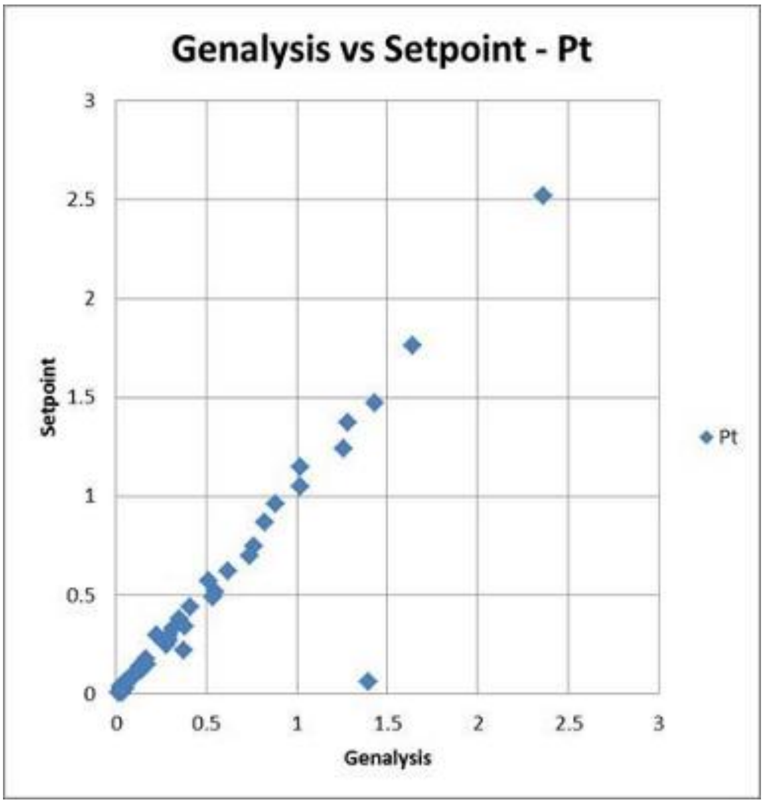


Figure 7.31 - Pt umpire scatter plot (Source: MSA, 2015)

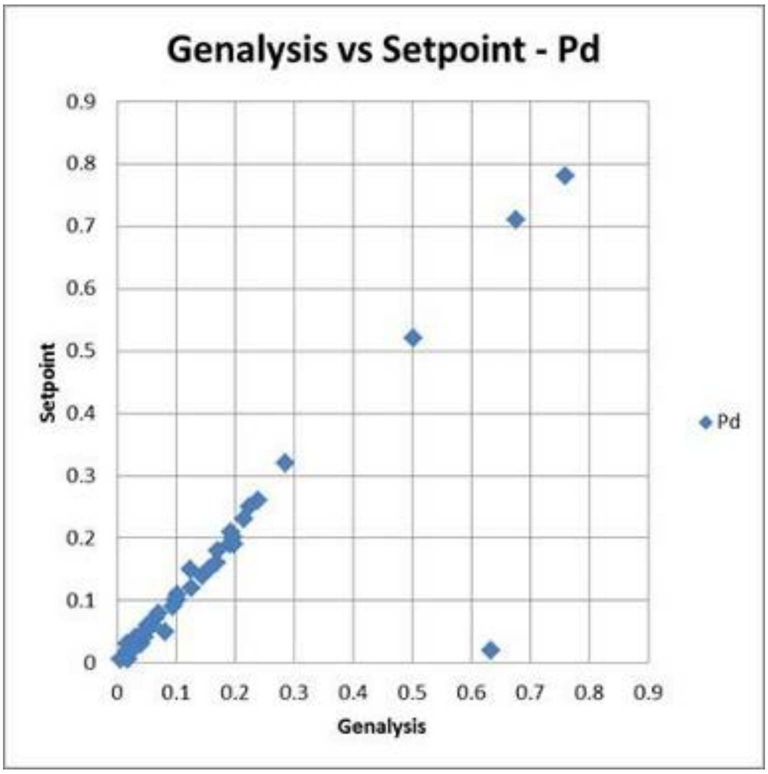


Figure 7.32 - Pd umpire scatter plot (Source: MSA, 2015)

8 MINERAL RESOURCE ESTIMATES

SR 1.4(iii)
SR 3.1(viii)
SR 4.2 (i) to (v)
SR 4.5(i)
SR 6.1(i)
SV T1.9

8.1 Estimation and Modelling Techniques

The Mineral Resource was informed by the drilling and geological data detailed in the previous chapters. A geological block model of the chrome seams and inter-seam waste was supplied by onsite geologists in Datamine format and formed the basis for the estimation. The estimation was carried out in Datamine in 3D and the outputs tabulated for Mineral Resource reporting according to SAMREC 2016 guidelines.

8.2 Mineral Resource Classification Criteria

The available drilling and geological data were reviewed and assessed for their applicability in Mineral Resource estimation. It was observed that for the 2015 Mineral Resource estimate, the intersections used for estimation were defined by geological logging, resulting in minor amounts of waste material being included in some intersections. This was due to logging and sample intervals not matching in some intersections.

For this Mineral Resource update, a decision was taken to define the intersections from the sample intervals. This resulted in a better representation of the grade in the seam and contained fewer waste intervals which in turn resulted in dilution of the grade within the seam. This caused a slight increase in the overall Cr_2O_3 grade relative to the intersections used in the 2015 Mineral Resource.

Seam thickness and grade (% Cr_2O_3) are shown in Table 8.1 and Table 8.2.

Table 8.1 – Seam Thickness (m) by drill hole intersection					
Drill Hole	**MG1**	**MG2**	**MG3**	**MG4A**	**MG4B**
LP004	0.90	0.41	1.14	1.51	1.04
LP006	0.62	0.44	1.51	0.51	0.16
LP011	0.65	0.59	0.95	0.75	0.94
LP012	0.68	0.46	0.92	0.68	0.89
LP013	0.63	0.59	1.31	1.00	1.00
LP014	0.63	0.24	0.90	0.52	0.80
LP015	0.64	0.63	0.98	0.81	1.23
LP016B	0.65	0.62	0.50	1.28	0.50
LP017	0.68	0.26	1.08	1.08	1.14
LP018	0.58	0.21	0.90	0.93	0.85
LP023	0.74	0.48	0.61	1.00	0.92
LP025	0.68	0.45	1.30	0.98	1.40
LP031	0.80	0.70	1.13	0.49	1.11
LP032	0.40	0.49	0.85	0.34	0.29
Average	**0.66**	**0.47**	**1.01**	**0.85**	**0.88**

Table 8.2 – Seam grade (% Cr_2O_3) by drill hole intersection					
Drill Hole	**MG1**	**MG2**	**MG3**	**MG4A**	**MG4B**
LP004	38.6	35.6	29.1	36.5	31.4
LP006	38.9	38.0	27.1	25.0	-
LP011	38.4	33.8	30.3	39.2	33.3
LP012	37.6	37.1	34.8	33.9	34.9
LP013	39.6	34.7	29.8	35.9	37.1
LP014	39.3	38.6	25.4	39.5	41.1
LP015	37.6	32.3	24.6	37.1	31.7
LP016B	38.6	31.8	36.2	33.2	36.1
LP017	38.1	-	35.0	31.4	31.6
LP018	35.3	14.0	32.3	36.5	35.0
LP023	35.2	43.6	33.9	33.7	36.1
LP025	27.2	39.8	32.8	33.1	30.0
LP031	39.0	36.9	35.7	34.3	35.2
LP032	37.7	36.6	38.1	34.5	31.4
Average	**37.2**	**34.8**	**31.8**	**34.6**	**34.2**

Note: Blank cells in Table 8.2 above indicate no sample was recovered for this portion of the intersection

8.3 Geological Block Model

SR 2.1(vii)
SR 5.2 (iii)

The onsite geological team interpreted and constructed wireframes of the chrome seams (MG1, MG2, MG3, MG4A and MG4B) from drilling data and the logged and sampled intersections. These wireframes were used to construct a block model in Datamine format that contained all the seams, and these were flagged accordingly in the model. The block model was limited to a vertical depth of 65 m below surface which is the expected open pit mining depth limit.

This block model was supplied to CSA as an input into the Mineral Resource estimate. The block model was reviewed relative to the intersections, and it was observed that in places the thickness of the seams in the model was overly thick relative to the intersections defined from drilling. Using the block model as supplied would have resulted in an overestimation of the tonnages.

Where excessive seam thickness was observed in the block model, the coding was updated to reflect the expected average global thickness. The recoded block model was used as an input into the grade estimation.

Four distinct faults were mapped and included in the wireframes and block model. Geological loss associated with the mapped and modelled faults is accounted for by means of gaps along faults (Figure 7.1). Mineralisation wireframes were not projected up to the fault plane as they stopped several metres short of the fault plane. This was to account for uncertainty related to the exact position of the fault plane and the potential for smaller scale faults related to the main structure.

8.4 Estimation Techniques

Sample data were composited over the full width of the seam, such that each drillhole contained one full-width composite of each seam.

Grade estimation was carried out using Datamine RM on a per seam basis. Composites coded as MG1 were used to estimate the MG1 seam coded into the block model. MG2 composites were used to estimate MG2 in the model etc.

Estimation was by means of inverse distance weighting (power of 2) for Cr_2O_3, Fe_2O_3, SiO_2, MgO, Al_2O_3, Au, Pt, Pd and Rh. A minimum of 3 composites (drillholes) were required for a block to be estimated, while a maximum of four composites were allowed. A search ellipse

was set up to locate composites for estimation within a 250 m radius. If the minimum three composites were not located, the search was expanded to 375 m for estimation.
Due to the location of the composites, estimation is mostly accomplished by means of interpolation as opposed to extrapolating.

The estimation was validated by plotting the intersections and estimated block model and applying a uniform Cr_2O_3 grade legend. The model validates well against the input composites (Figure 8.2).

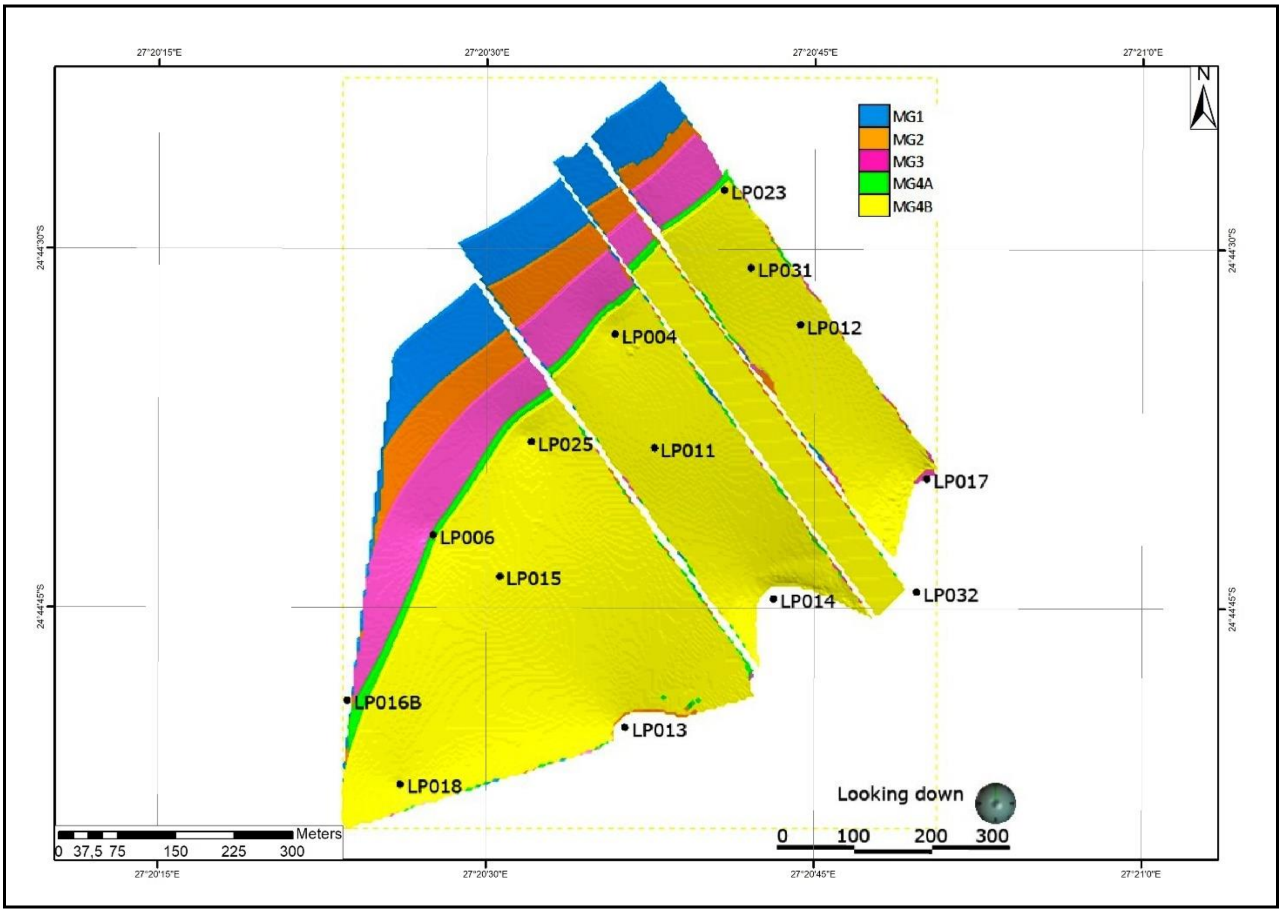


Figure 8.1 – Plan view of the modelled seams showing geological loss along faults

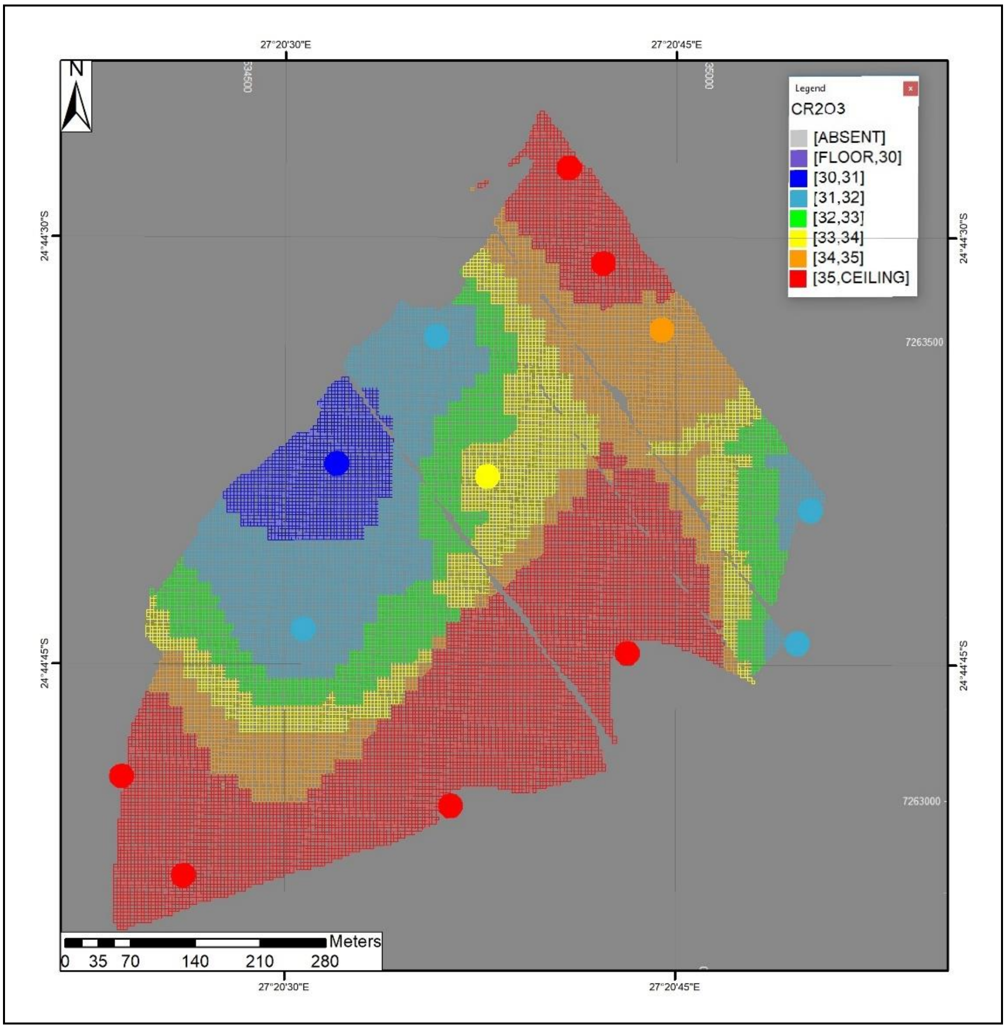


Figure 8.2 – Estimation validation for the MG4B seam showing composites vs model

Density was assigned per seam based on average density values (Table 8.3).

Table 8.3 – Seam grade (% Cr_2O_3) by drill hole intersection		
Seam	**Number of density determinations**	**Average Density (t/m^3)**
MG1	28	4.07
MG2	27	4.02
MG3	48	3.95
MG4A	31	3.98
MG4B	36	4.02

8.5 Mineral Resource Classification

SR 4.1(i)
SR 4.4(i)

The Mineral Resource was classified in accordance with SAMREC 2016 guidelines.

> *An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.*

The Langpan Mineral Resource is classified as Indicated. The classification is based on the quantity and quality of mapping, drilling, geological and sampling data, and geological and grade continuity.

This updated classification represents a downgrade for some material previously classified as Measured by MSA in 2015. The reason for this downgrade is attributed to the construction of the 3D model.

In 2015, MSA conducted a 2D estimate, such that the thickness of the seams was estimated much like a grade variable. A dip correction was then applied to each 2D block to account for the dip and to estimate tonnages.

The current requirement for a 3D model (for mine planning) has resulted in additional complications in representing local seam thickness accurately. This has resulted in a downgrade of material previously classified as Measured, to Indicated.

8.6 Reasonable Prospects for Eventual Economic Extraction

SR 4.3(i)

SAMREC 2016 defines a Mineral Resource as:

> *A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, continuity, and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.*

The Langpan Mineral Resource is deemed to have reasonable prospects for eventual economic extraction based on the following criteria:

- Open pit extraction of the Mineral Resource.
- A limited reporting depth below surface of 65 m, which is in line with other operating open pit chrome mines.
- Seam grades that are in line with saleable product specifications.

8.7 Mineral Resource Statement

JSE 12.10(h)(ix)
SR 4.5(vii)
SR 5.2(iv)(ix)
SR 6.3(vi)

The Langpan Mineral Resource is reported in accordance with The SAMREC Code, 2016 Edition. The Mineral Resource is demonstrated to have reasonable prospects for eventual economic extraction and is classified as Indicated for all seams to a depth of 65 m below surface.

No additional geological losses have been applied to the Mineral Resource as these were accounted for in the geological modelling stage.

The Mineral Resource is reported as at 11th February 2021 to a depth of 65 m below surface is shown in Table 8.4.

Table 8.5 contains additional variables estimated during the estimation process. The summary of all the estimated values can be found in more detail in Table 8.6.

The Mineral Resource estimation are not precise calculations and rounding off will convey the uncertainties in the calculations.

Mineral Resources are inclusive of Mineral Reserves.

There are currently no plans to drill any further exploration holes and there is therefore no exploration budget allocated to the project. Mining will commence based on the current geological and Mineral Resource data.

JSE 12.10(h)(vi)

Table 8.4 – Langpan open pit Mineral Resource Estimate as at 11 February 2021, reported to a vertical depth of 65 m below surface														
	Depth *m*	**Category**	**Tonnes** *millions*	**Density** *t/m³*	**Cr_2O_3** *%*	**Pt** *g/t*	**Pd** *g/t*	**Rh** *g/t*	**3PGE** *g/t*	**Cr_2O_3** *kt*	**Pt** *koz*	**Pd** *koz*	**Rh** *koz*	**3PGE** *koz*
MG1	≤65	Indicated	0.29	4.07	35.5	0.85	0.21	0.18	1.24	103.5	7.97	1.99	1.7	11.66
MG2	≤65	Indicated	0.37	4.02	36.5	1.01	0.21	0.19	1.42	134.2	11.95	2.52	2.26	16.73
MG3	≤65	Indicated	0.51	3.95	30.6	1.1	0.51	0.31	1.92	154.8	17.85	8.23	5.12	31.2
MG4A	≤65	Indicated	0.6	3.98	34.1	1.13	0.22	0.32	1.67	205.2	21.79	4.23	6.2	32.23
MG4B	≤65	Indicated	0.61	4.02	33	0.49	0.17	0.18	0.85	200.2	9.62	3.39	3.45	16.47
TOTAL	**≤65**	**Indicated**	**2.37**	**4**	**33.6**	**0.91**	**0.27**	**0.25**	**1.42**	**798**	**69.18**	**20.35**	**18.74**	**108.27**

Table 8.5 – Langpan open pit Mineral Resource Estimate as at 1 August 2015, reported to a vertical depth of 65 m below surface

Layer	Definition	Category	Tonnes	Thickness	Density	Cr_2O_3	FeO	Cr:Fe	SiO_2	MgO	Al_2O_3	Au	Pt	Pd	Rh	3PGE+Au	Cr_2O_3	FeO	Au	Pt	Pd	Rh	3PGE+Au
			millions	m	t/m^3	%	%	ratio	%	%	%	g/t	g/t	g/t	g/t	g/t	Kt	Kt	Koz	Koz	Koz	Koz	Koz
LG6	≤35 m depth	Measured																					
		Indicated	0.08	0.77	4.22	41.1	24.2	1.49	5.4	9.9	13.3	0.01	0.31	0.09	0.12	0.53	32.7	19.3	0.03	0.79	0.24	0.30	1.36
		Total	**0.08**	**0.77**	**4.22**	**41.1**	**24.2**	**1.49**	**5.4**	**9.9**	**13.3**	**0.01**	**0.31**	**0.09**	**0.12**	**0.53**	**32.7**	**19.3**	**0.03**	**0.79**	**0.24**	**0.30**	**1.36**
LG6A	≤35 m depth	Measured																					
		Indicated	0.02	0.23	4.11	33.5	23.3	1.26	13.8	12.8	11.4	0.01	0.50	0.25	0.14	0.90	7.8	5.4	0.01	0.37	0.19	0.10	0.68
		Total	**0.02**	**0.23**	**4.11**	**33.5**	**23.3**	**1.26**	**13.8**	**12.8**	**11.4**	**0.01**	**0.50**	**0.25**	**0.14**	**0.90**	**7.8**	**5.4**	**0.01**	**0.37**	**0.19**	**0.10**	**0.68**
LG Layers Sub-Total			**0.10**	**1.01**	**4.20**	**39.3**	**24.0**	**1.44**	**7.3**	**10.6**	**12.9**	**0.01**	**0.35**	**0.13**	**0.12**	**0.61**	**40.5**	**24.7**	**0.03**	**1.17**	**0.43**	**0.41**	**2.03**
MG1	≤65 m depth	Measured	0.09	0.77	3.99	35.2	24.2	1.28	9.3	12.0	14.0	0.01	0.82	0.22	0.18	1.23	31.0	21.3	0.03	2.31	0.63	0.50	3.47
		Indicated	0.25	0.79	4.00	34.6	24.4	1.25	9.4	11.8	13.5	0.01	0.81	0.22	0.18	1.22	86.1	60.6	0.08	6.51	1.73	1.43	9.75
		Total	**0.34**	**0.78**	**3.99**	**34.8**	**24.3**	**1.26**	**9.4**	**11.9**	**13.6**	**0.01**	**0.81**	**0.22**	**0.18**	**1.22**	**117.1**	**81.9**	**0.11**	**8.82**	**2.36**	**1.93**	**13.22**
MG2	≤65 m depth	Measured	0.14	0.44	4.04	34.8	24.7	1.24	9.6	11.4	14.0	0.01	1.12	0.20	0.20	1.53	50.2	35.6	0.05	5.18	0.94	0.92	7.09
		Indicated	0.07	0.43	4.05	34.9	24.8	1.24	9.8	11.4	13.8	0.01	1.12	0.20	0.20	1.53	24.6	17.5	0.02	2.53	0.46	0.45	3.46
		Total	**0.21**	**0.44**	**4.04**	**34.9**	**24.8**	**1.24**	**9.7**	**11.4**	**13.9**	**0.01**	**1.12**	**0.20**	**0.20**	**1.53**	**74.8**	**53.1**	**0.07**	**7.71**	**1.40**	**1.37**	**10.55**
MG3	≤65 m depth	Measured	0.68	1.35	3.79	27.2	21.5	1.12	18.0	12.6	14.3	0.01	1.00	0.46	0.28	1.75	185.1	145.9	0.26	21.78	10.06	6.19	38.30
		Indicated																					
		Total	**0.68**	**1.35**	**3.79**	**27.2**	**21.5**	**1.12**	**18.0**	**12.6**	**14.3**	**0.01**	**1.00**	**0.46**	**0.28**	**1.75**	**185.1**	**145.9**	**0.26**	**21.78**	**10.06**	**6.19**	**38.30**
MG4	≤65 m depth	Measured	0.64	0.97	4.02	33.7	23.6	1.26	10.1	10.2	15.8	0.01	1.20	0.20	0.30	1.72	216.2	151.5	0.24	24.72	4.19	6.26	35.41
		Indicated																					
		Total	**0.64**	**0.97**	**4.02**	**33.7**	**23.6**	**1.26**	**10.1**	**10.2**	**15.8**	**0.01**	**1.20**	**0.20**	**0.30**	**1.72**	**216.2**	**151.5**	**0.24**	**24.72**	**4.19**	**6.26**	**35.41**
MG4A	≤65 m depth	Measured	0.55	0.82	4.00	33.5	24.3	1.21	11.9	10.3	13.9	0.01	0.51	0.17	0.18	0.87	182.4	132.4	0.21	8.87	2.95	3.13	15.17
		Indicated																					
		Total	**0.55**	**0.82**	**4.00**	**33.5**	**24.3**	**1.21**	**11.9**	**10.3**	**13.9**	**0.01**	**0.51**	**0.17**	**0.18**	**0.87**	**182.4**	**132.4**	**0.21**	**8.87**	**2.95**	**3.13**	**15.17**
MG Layers Sub-Total			**2.42**	**4.36**	**3.95**	**32.1**	**23.4**	**1.21**	**12.6**	**11.2**	**14.5**	**0.01**	**0.92**	**0.27**	**0.24**	**1.45**	**775.5**	**564.8**	**0.89**	**71.91**	**20.96**	**18.89**	**112.65**
TOTAL (OPEN PIT)		Measured	2.10		3.94	31.7	23.2	1.20	13.1	11.1	14.7	0.01	0.93	0.28	0.25	1.47	664.9	486.7	0.79	62.87	18.77	17.01	99.44
		Indicated	0.42		4.05	35.8	24.4	1.29	9.0	11.4	13.4	0.01	0.75	0.19	0.17	1.12	151.2	102.8	0.14	10.21	2.61	2.29	15.24
		Total	**2.52**		**3.96**	**32.4**	**23.4**	**1.22**	**12.4**	**11.2**	**14.4**	**0.01**	**0.90**	**0.26**	**0.24**	**1.41**	**816.0**	**589.5**	**0.93**	**73.07**	**21.38**	**19.30**	**114.68**

8.8 Mineral Resource Reconciliation

SR 4.5(v)(vi)

No mining has taken place on the MG Seams since the Mineral Resource was reported in 2015, therefore no mining reconciliation data is available.

When comparing the open pit Mineral Resource from 2015 (Table 8.5) to the current Mineral Resource, it is evident that the LG6 and LG6A seams are not currently reported. The project owners decided to focus their mining efforts on the MG layers only, with the LG seams being a potential future target. In addition, all Measured material has been downgraded to Indicated Mineral Resources.

The MG Seams compare reasonably well with 2.42 Mt at 32.1% Cr_2O_3 reported in 2015, versus 2.37 Mt at 33.6% Cr_2O_3 reported in 2021.

8.9 External Audits for Mineral Resources

SR 7.1(i)

No external audit has been conducted.

9 TECHNICAL STUDIES

SR 5.1(i)

Information relating to technical studies and discussed below is either historical or has been provided by third parties. The CP has reviewed the information and considered that the level of accuracy is to at least PFS levels of accuracy and is therefore supportive of a declaration of a Mineral Reserve.

9.1 Geotechnical and Geohydrological

SR 4.3(ii)
SR 5.2(vi)(viii)

A geotechnical assessment was carried out by Latona for the current and future open pit workings on the MG and LG Seams.

The sources of data used in the compilation of this assessment are as follows:

- An extensive geological drilling programme was conducted by MSA in the western part of the mine area during 2015. In addition to geological logging, considerable useful geotechnical data was also logged including Rock Quality Designation (RQD) on all holes, jointing orientations and positions along the core, weathering, and alteration. In addition, MSA also conducted structural mapping in the existing open pits on the MG seams in the western mining area.

- Rock strength data has been compiled through point load strength testing on core from the 2015 drilling programme. This was found to have not deteriorated and tests were conducted in June 2020.

- Rock Engineering experience from 2009 to 2020 on the neighbouring Limberg Thaba mine, which lies along strike adjacent to Langpan.

- Google Earth imagery which has permitted tracing seams and major faults from Thaba mine to Langpan.

This analysis comprised:

- Geotechnical characterisation of rock units based on prior geological core logging data provided from reports by MSA, observations in the existing pits, point load rock strength testing, and experience on the neighbouring Cronimet (now Limberg) Thaba mine.
- An assessment of stable slope angles for the highwall of the open pit workings on both the LG and MG seams based on rock mass ratings.
- Recommendations for the highwall architecture to provide catchment benches, and to minimize geotechnical risks.
- Provision of broad geotechnical guidelines for open pit mining on the LG and MG seams.

Details of results can be summarized as follows.

9.1.1 Hydrological conditions

The water table in this area, based on observations at the neighbouring Thaba mine, lies at approximately 15 to 20m below surface. This may rise or fall by a few metres between summer and winter seasons. Water is contained mostly within the weathered layer, only occurring in the deeper fresh rock mass along faults or other weak geological structures.

Water movement tends to follow zones where weathering is deepest and generally moves from east to west, from higher to lower ground.

Any mining at or below 20m depth will require a sump and pumps in the pit bottom.

9.1.2 Recommended Pit Slope Angles

An overall slope angle of 70 degrees is considered feasible in pits to between 30 and 45 m depth. In the upper 5 to 15m in highly weathered ground the slope should be battered back at a flatter angle of approximately 55 degrees.

It is considered feasible, if chrome grades make it economic, to mine pits to over 70 m depth, particularly on the combined MG seams. Overall design slope angle should be 65 degrees at these increased depths.

It is recommended that drilling is done in approximately 15 to 20 m vertical lifts against the highwall, with a 3.5m step off bench left between lifts. A step off would be left on each seam. Depending on blasting practice these step-off benches are intended to provide some catchment against loose rocks.

9.1.3 Geotechnical hazards in Open Pits

One of the main joint sets runs sub-parallel to the highwall and may produce slabbing of the highwall in those area where this set is present, with wedges formed due to intersection with other joints. Blast practice may loosen joints and consideration needs to be given to presplit or other specially designed blast patterns along the final highwall to reduce joint damage.

In the weathered zone, which may extend over 20m locally below surface, some material may be friable and liable to shed loose material over time, particularly after rainstorms. In some areas large, rounded boulders may have formed due to weathering and will need careful removal during excavation.

The water table will be intersected at approximately 20m below surface and will require pumping in all pits that extend below this depth.

9.1.4 General overview of conditions

As noted above, the rock mass is pyroxenite over the LG seams, and a mix of pyroxenite and norite over the MG seams. Existing pits on both groups of seams provide an indication of rock mass conditions, although these are shallow (up to 15m depth) and have been exposed for several years in mostly well weathered ground. Despite this, the highwalls stand relatively steeply at 55 degrees or steeper in most areas.

Figure 9.1 shows pyroxenites over the LG6A in the flooded pit in the eastern mining area, and Figure 9.2 shows a mix of pyroxenite and norite immediately above the MG3 seam in the western pits.

The pyroxenites tend to be weaker, more altered and weathered, and in the eastern pits over the LG6A stand steeply with little evidence of deterioration. However, over the MG seams, there tends to be some quantity of loose, small, material that has come down over time and accumulated at the base of flatter slopes. The pyroxenites appear weathered on all exposed slopes.

The norites tend to be stronger and visibly more brittle with clear joint and parting planes that give rise to an angular blocky highwall surface. There is only a thin layer of weaker and highly weathered material over the exposed norite, possibly 5m in thickness. However, there is some tendency to form rounded boulders in part-weathered norite.

Based on observations in these pits it is concluded that the rock mass, even where weathered, is relatively competent and can stand steeply. There is little likelihood of any large-scale slope failure and no tendency to form large structural wedges that could collapse. There is however a risk of smaller joint-bound slabs coming down, especially in the norite, where jointing has caused several overhangs in the old faces. There is therefore a need for catch benches and berms and good highwall dressing, particularly if final pits are to be 30m or more in depth.

Figure 9.1 – Weathered pyroxenite highwall over the LG6 and 6A seams in the eastern mining area.

Figure 9.2 – Norite and pyroxenite (in the distance) over the MG2 and 3 seams in the western mining area.

9.1.5 Rock Strength

To provide an estimate of rock strength, point load tests were carried out at regular intervals along selected cores from the previous geological drilling. The purpose on each hole was to identify the variation in strength as a function of depth, from weathered material at surface to fresh material at depth.

Point load testing was carried out using a small portable hydraulic ram and hand-pump (Figure 9.3). In a point load test, a rock sample is loaded between two conical platens. An increasing load is applied and the force at which the sample fails is recorded.

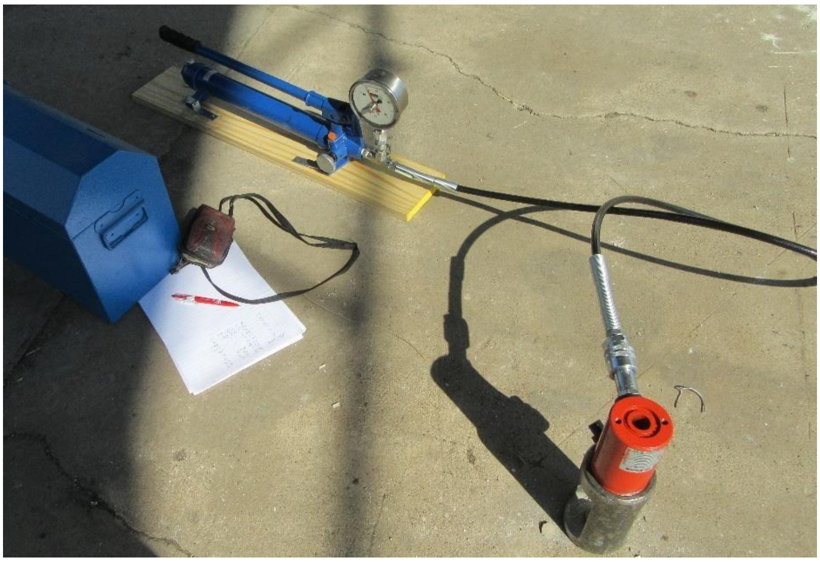


Figure 9.3 – Point load testing equipment

Loads are measured in kN, from which the point load index, I_s is calculated, based on the average diameter of the fracture area across the rock sample. In most cases, the size of core on this project was 45 mm diameter. A normalised I_s value, I_{s50}, corresponding to the strength of a 50 mm diameter sample is then calculated. The uniaxial compressive strength (UCS) of the rock in MPa can also be estimated from this. The formulae used were as follows.

$$I_s = \frac{Load.1000}{diameter^2} \qquad I_{s50} = .I_s\sqrt{diameter/50} \qquad UCS = F..I_{s50}$$

The strength conversion factor, F, often has a value of approximately 22 to 24, however it is found that this produces a very high derived UCS value in Bushveld rocks, and comparison to laboratory derived UCS values for pyroxenites and norites shows that a conversion factor of 15 is more appropriate.

A total of 63 tests were carried out. Tests were done on core taken from two boreholes, those from LP027 representing both weathered and fresh pyroxenite over the LG6A, and from borehole LP031, representing the norites and pyroxenites over the MG4A. A single sample of highly weathered norite was tested from close to surface in borehole 12. A graph showing the variation of derived UCS as a function of depth is shown in Figure 9.4, and distributions of the strengths for both norite and pyroxenite are shown in Figures 9.5 and 9.6. Typical rock samples are illustrated in Figures 9.7 and 9.8.

The graphs show differences in strength between norite and pyroxenite. Little near surface weathered data was easily obtained from the cores for norite, however observations in the western pits indicates that weathering in norite is limited and fresh strengths are mostly representative. Weathered norite has a strength of around 50 MPa, while fresh norite strengths range from 130 to 220 MPa with an average of around 180 MPa.

Pyroxenite strengths are more variable, weathers more deeply, and the available data suggests that there are bands within the pyroxenite that weather or alter and lose strength more than others, probably due to differences in mineralogy, particularly serpentinite content. At the position of borehole LP027 there are strength variations of less than 50 to over 250 MPa down to 35m, below which to 50m there is a highly weathered and altered zone where strength is between 10 and 50 MPa, below which strength increases in fresh pyroxenite. Figure 9.5 indicates two main populations of strengths, with a characteristic weathered strength of 50 MPa, and fresh strength between 120 and 220 MPa with an average of 170 MPa.

No strengths were tested on any of the chromitite seams as these cores were cut for sampling during the geological campaign. However, fresh chromitite for the LG6 seam has an average strength of 53 MPa based on laboratory testwork at Cronimet’s Thaba mine and become friable and weak where weathered (possibly to 20-25m depth), where strength may be reduced to 5 to 10 MPa, and to less than 5 MPa within 10m of surface.

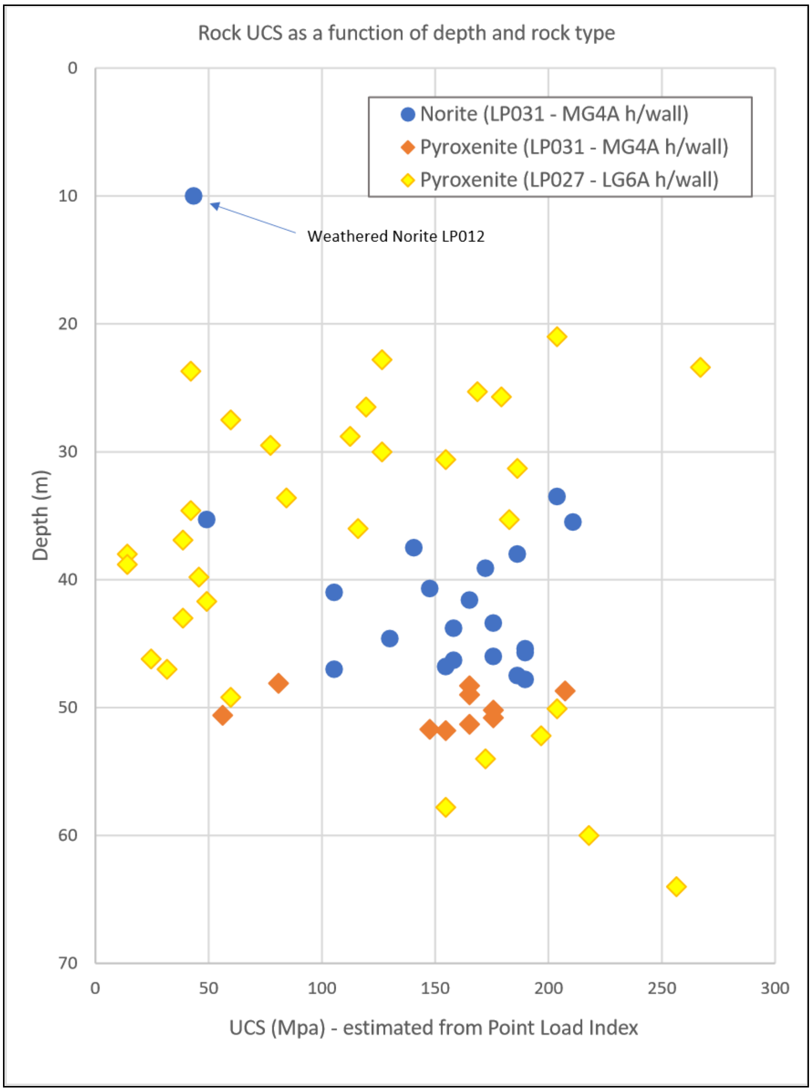


Figure 9.4 – Variations in rock material uniaxial compressive strength (UCS) values estimated from point load testing for various norite and pyroxenite as a function of depth below surface

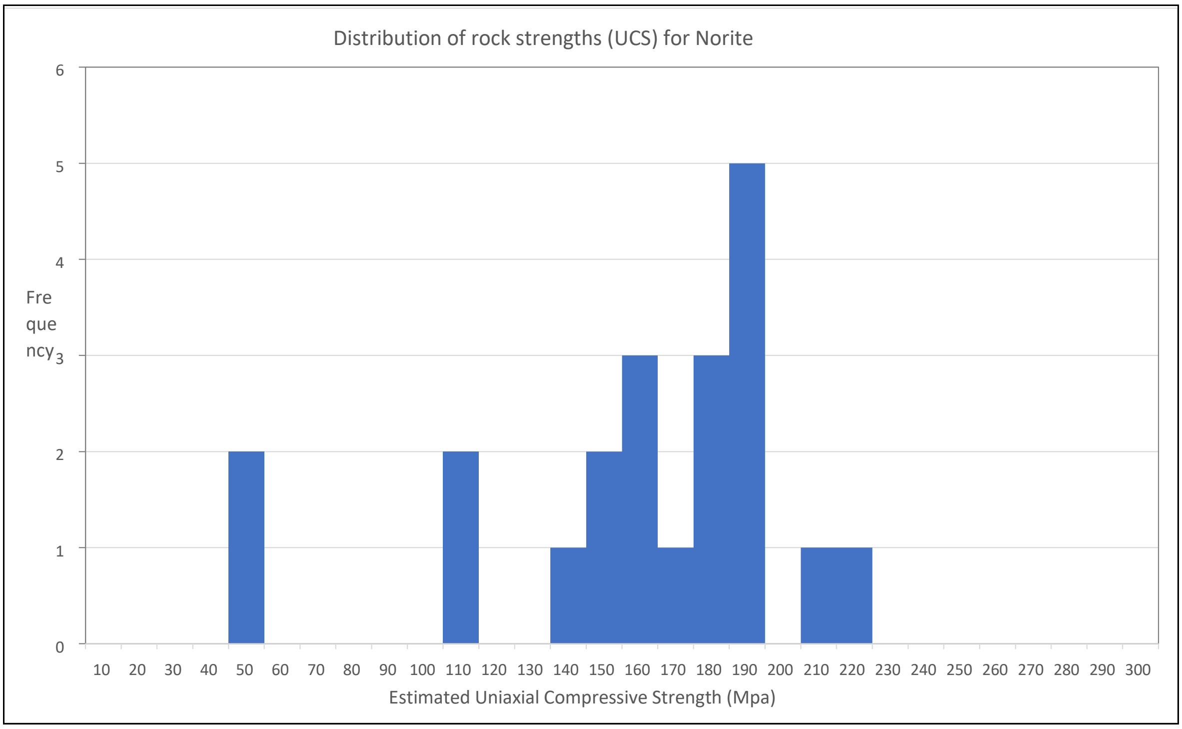


Figure 9.5 – Range in uniaxial compressive strength (UCS) values for norite

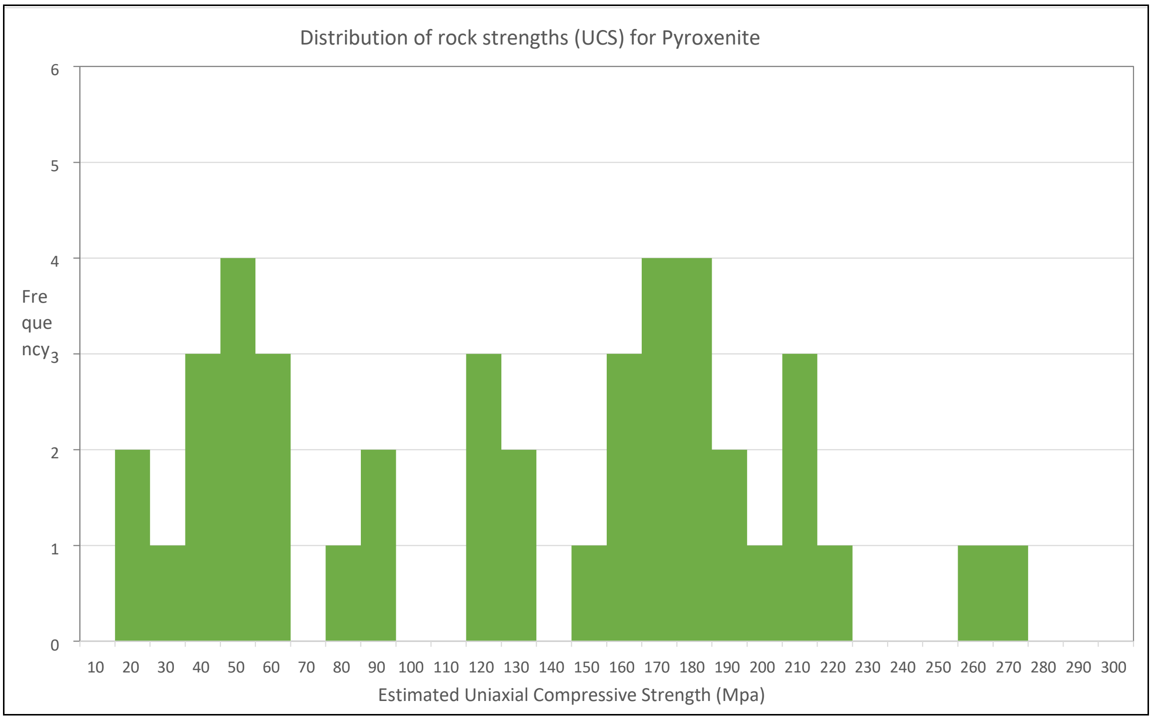


Figure 9.6 – Range in uniaxial compressive strength (UCS) values for pyroxenite

Figure 9.7 – Typical cores showing pyroxenite from the hangingwall of the LG6A

Figure 9.8 – Typical cores showing norite in the hangingwall of the MG4

9.1.6 Rock Density

The density of the various rock materials was identified during the geological investigation carried out by MSA. Density is important to know as it influences the loading on pillars left between bored holes when planning auger mining layouts.

Rock density values are summarized in Table 9.1. Of the rock types listed the ones that most influence vertical stress and loading on pillars are pyroxenite and norite, and to a less extent anorthosite. Other rock types are minor.

Table 9.1 – Densities of the various rock materials at Langpan (after MSA, 2015)	
Rock Type	**Average Density (kg/m^3)**
Chromitite	4010
Pyroxenite	3200
Norite	2980
Anorthosite	2910
IRUP	3430
Pegmatite	3390

9.1.7 Structural geology and discontinuity conditions

As fresh rock material strengths are generally good, rock mass structure (jointing and faulting) is expected to be a factor that influences hazards from rock falls in the pits, as well as reducing overall rock mass strength and hence pit wall stability.

Mapping was carried out in the existing pits by MSA and stereonets showing the mapped poles and planes are indicated in Figure 9.9. These are similar to those observed at the neighbouring Thaba mine. Joints and faults tend to follow similar orientations. Most faults are of small throw, except those trending northwest southeast which have throws of 1m up to 10m (and parallel the major 2km throw fault).

Three dominant structural trends are:

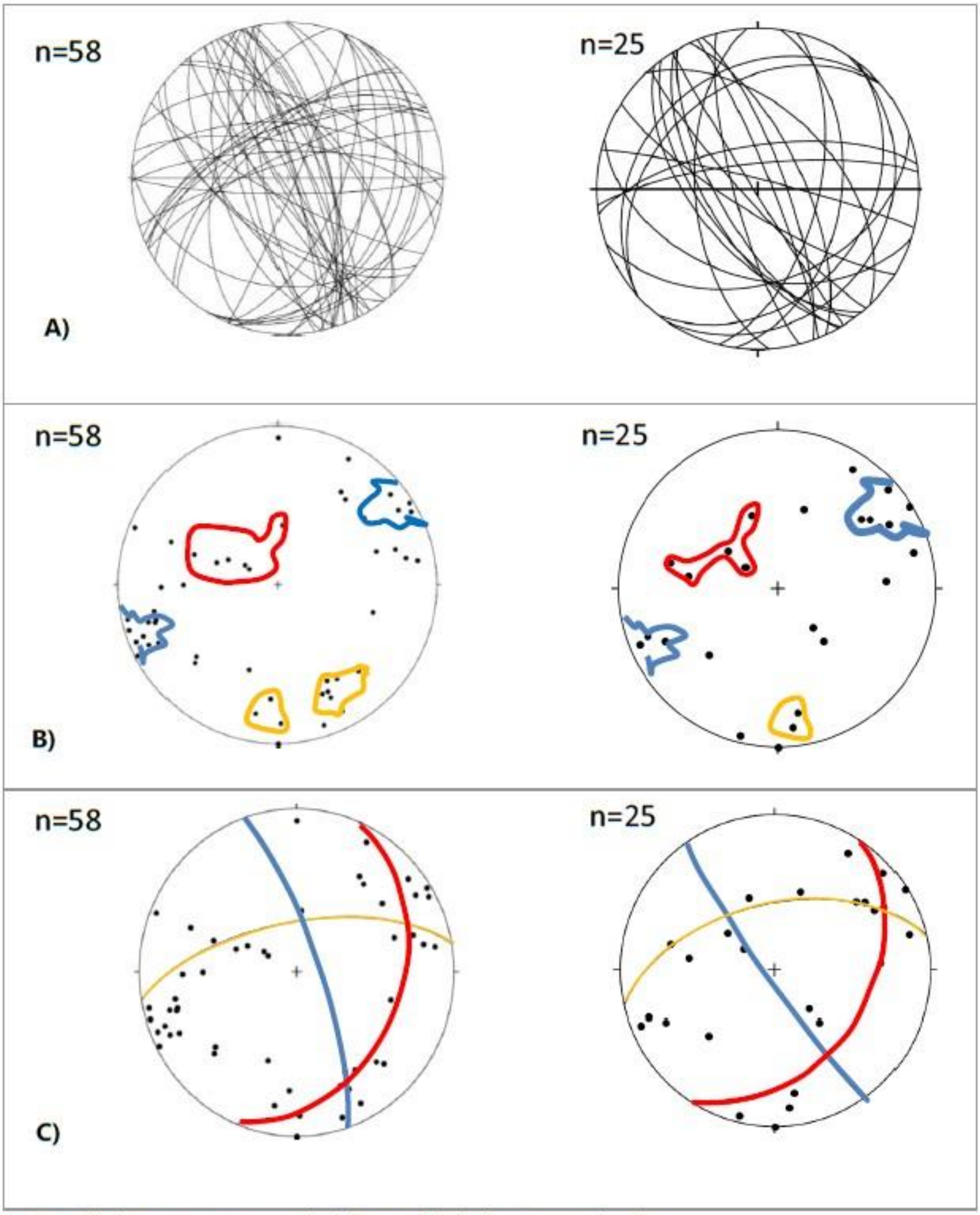
1. Northwest-southeast striking, steeply dipping planes – faults with this trend displace the seams. Joints of this set may create wedges in combination with Set 3, or random joints.
2. Northeast-southwest striking shallow dipping planes – these tend to lie almost parallel to the dip of the seams, as well as including some low angle thrusting. These are not likely to result in instability.
3. East-west striking moderately dipping planes - these run sub-parallel to the pit highwall and may result in slabbing on the highwall.

In addition, there are various minor sets, that occur locally.

Joints and faults in the main sets tend to be long, planar structures. Joint spacings tend to be relatively wide, mostly averaging 1m or more in fresh rock, with a closer spacing in weathered ground.

Most of the shallow dipping joints are infilled, mostly with thin hard material when fresh, and some soft material in the weathered regions. An example is shown in Figure 9.10. Slickensides are often present. In the norites and fresh pyroxenites, many joints show little to no infill, for example as shown in Figure 9.11.

Overall, joints can be considered as planar and having a slight undulation on the large scale, undulating on the small scale, smooth and mostly infilled with a thin slightly softening material.



A) All planar measurements for joints and faults from across the pit

B) All data reduced to poles. Contours represent a 1 % average cluster area

Figure 9.9 – Joint and fault orientations based on mapping in the western MG pits (after MSA, 2015). The stereonets show joints (left) and faults (right)

Figure 9.10 – Example of typical joint surface in pyroxenite with slickensided infill

Figure 9.11 – Example of typical joint surface in norite showing smooth, undulating surface

9.1.8 Rock mass ratings

Rock mass ratings based on both Laubscher's MRMR have been estimated for three distinct zones that may occur in the pit walls (Laubscher, 1990).

1. weathered pyroxenite and norite down to 15 to 20m depth
2. fresh norite (rockmass over the MG seams)
3. fresh pyroxenite (rockmass over the LG6 and 6A)

Laubscher's rating can be correlated with an empirical pit slope angle chart (see below). This uses subratings for the following parameters: rock strength, RQD (Rock Quality Designation), joint/fracture spacing, joint condition, and the effect of ground water. In Laubscher's rating, modifying allowances can be made for expected deterioration over time, blasting practice, and a number of other conditions – there is then an Intact Rock Mass Rating (IRMR) and a Modified (or 'Mining') Rock Mass Rating (MRMR).

Laubsher IRMR = Rock Strength + RQD + Joint Spacing+ Joint Condition

Laubsher MRMR = IRMR x modifying factors for deterioration, blasting

In Laubscher's IRMR groundwater is accounted for in the Joint Condition Rating, and here is expected to be minimal.

Rock material strengths and joint characteristics are based on the descriptions provided earlier in this report.

RQD is defined as the total length of pieces of core longer than 10cm, expressed as a percentage of total core run. The weathered zone to 20m depth generally shows RQD values of less than 10%. RQD values in fresher pyroxenite average approximately 60%, with those in fresh norite generally exceeding 80%.

The resultant rock mass ratings are derived in Table 9.2. In the case of the Laubscher MRMR rating, appropriate modification factors to apply for open pit mining include a factor for possible deterioration over time, which is set to 1 as in fresh ground minimal deterioration of exposed pit walls is expected, and a blasting factor, where it is assumed that good quality blast practices will be applied.

The values in Table 9.2 are based on estimated 'average' conditions in the various fresh and weathered units. Actual rock mass ratings done on core, or on pit faces, would be expected to vary around these values. Broadly, and for the purpose of pit slope design, it can be taken that the MRMR for fresh pyroxenite or norite is approximately 60, and that for weathered material is approximately 30 to 35.

Table 9.2 – Rock Mass Ratings for Langpan using the Laubscher MRMR system

Rock Category	**Fresh Pyroxenite**	**Fresh Norite**	**Weathered**
UCS (Mpa)	170	180	50
Rating	**18**	**18**	**6**
RQD %	60	80	10
Rating	**10**	**12**	**2**
Number of joint sets	3	3	3
Joint spacing (cm)	50-100cm	100cm	50-100cm
Rating	**11.3**	**12.5**	**11.3**
Joint Condition Rating	**21.6**	**21.6**	**12.60**
Joint condition factors			
Large scale	Slight undulation, dry	Slight undulation, dry	Slight undulation, dry
Sub-Rating	***0.8***	***0.8***	***0.8***
Small scale	smooth, undulating	smooth, undulating	smooth, undulating
Sub-Rating	***0.75***	***0.75***	***0.75***
Wall Alteration	None	None	Weakened
Sub-Rating	***1***	***1***	***0.75***
Infill	Non-softening	Non-softening	Softening
Sub-Rating	***0.9***	***0.9***	***0.7***
IRMR	**61**	**64**	**32**
Blasting adjustment	0.97	0.97	0.97
Deterioration risk adjustment	1	1	1
MRMR	**59**	**62**	**31**

9.1.9 Empirical design chart assessment based on rock mass ratings

Using Laubscher's MRMR ratings, an estimate of stable pit slope angles can be made using the empirical chart derived by Haines and Terbrugge (1991), as shown in Figure 9.12.

Initially it has been proposed that mining in the various pits would be limited to approximately 30m to 40m depth on any of the seams, however given the proximity of the seams in the MG series it is likely that deeper pits will be economically viable (at least for the MG seams) and would definitely be feasible from a geotechnical standpoint. For the purpose of this assessment, two depths are considered, 40m and 80m. Lines indicating these MRMR, and depth combinations are marked on the diagram in Figure 9.12.

Two rock mass types have been assessed, weathered material to 15-20m depth (MRMR = 31), then fresh pyroxenite or norite (MRMR = 60).

The chart in Figure 9.12 relates highwall height and MRMR to stable slope angle lines for two factors of safety, 1.2 and 1.5. A factor of safety of 1.2 is considered adequate here, as the mining sequence adopted should lead to backfilling and rehabilitation of the pits within a year of exposure.

In weathered ground, with MRMR of 30 to 35, for depth down to down to 40m, the red line and dot on the chart indicates an overall slope angle of the order of 55 degrees would be tolerable.

In fresh mostly unweathered ground with MRMR of 60, for a depth of 40m, the blue line and lower blue dot on the chart indicate an overall slope angle approaching 70 degrees would be tolerable.

In fresh ground with MRMR of 60, for a depth of 80m, the blue line and upper blue dot on the chart indicate an overall slope angle a little steeper than 65 degrees would be tolerable.

For 80m depth the chart suggests that the MRMR and slope height combination is within a region of the chart where the slope angle assessment is possibly marginal, and that other analyses might be advised. Based on experience at the neighbouring Thaba mine, possible instability might result from slabbing on the joint sets that run semi-parallel to highwall faces, however these joints occur locally in zones and no massive overall instability would be likely. Thaba mine has adopted similar mining depths and overall slope angles.

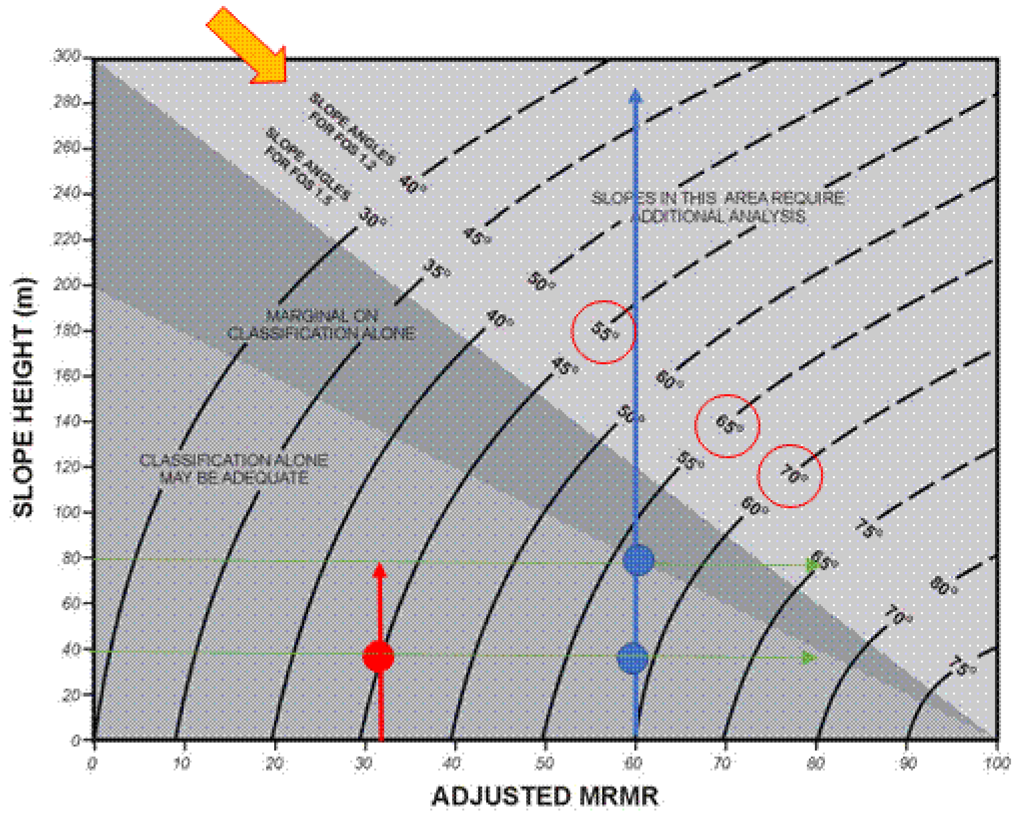


Figure 9.12 – Empirical slope stability chart based on Laubscher's MRMR (after Haines and Terbrugge, 1991). Fresh pyroxenite and norite (MRMR 60) solid blue, weathered ground (MRMR 30 to 35) red.

9.1.10 Considerations for benches and ramps

The requirement for bench heights and ramp widths is largely a function of the choice of mining equipment.

It is anticipated that blast holes with be drilled to a depth of 15m maximum on each lift. Against the highwall this then permits a bench to be left every 15m, if desired. There is also the option to leave a bench on the highwall at each seam if multiple seams will be mined in one pit.

If benches are left at approximately 15m vertical intervals, a 3.5m to 5m wide bench provides adequate width for catchment of small loose rocks from above.

Ramps are expected to be put into the pits either at the ends, or over the footwall. These are not expected to influence highwall stability, nor are they expected to prove unstable themselves in these positions.

9.1.11 Overall slope angles in weathered and fresh rock mass

Overall slope angle would vary as a function of total pit depth (based on an MRMR of 60), and based on a slope FOS of 1.2, as follows:

- Pit depth — Overall slope angle
- 70-80m — 65 degrees
- 30-40m — 70 degrees

The near-surface slope angle in the 8 to 15m surface weathered material should be 55 degrees.

9.1.12 Bench geometry

A 3.5m minimum width catch bench should be left every 15m to 20m vertically on the highwall. This is based on drilling and blasting in up to 15-20m high lifts to remove the overburden over each seam. If a deep pit is created in which all the MG seams are mined, then it is recommended that a catch bench is also left at the elevation of each seam where it intersects the highwall.

9.1.13 Proposed highwall geometries

Examples illustrating the recommended highwall geometries are shown in Figures 9.13, 9.14 and 9.15.

Figure 9.13 shows a highwall profile for LG6 and LG6A extraction to 30 to 40m pit depth. If one or two of the MG seams were extracted in a single pit, then the proposed highwall profile would be similar. Also, if the LG3 was mined as a single pit.

Figure 9.14 shows a deeper LG6 and LG6A profile, for 60m final depth. It shows the use of several benches at 15m intervals in the overburden above the seams.

Figure 9.15 shows an example for mining the MG1, 2, 3, 4 and 4A seams in a single pit to almost 80m total depth. As the highwall over the MG4A is over 30m in this instance, with only one catch bench shown, the possible height that a rock may fall is increased and hence a double width (7m) bench is shown left on the combined MG4 and 4A position as improved catchment.

Note that it is entirely possible to adopt other mining depths. The intention with these three examples is to illustrate (1) overall slope angles, (2) battering back the surface weathered material at a flatter angle, and (3) the leaving of catch benches as protection against any loose material falling down the highwall.

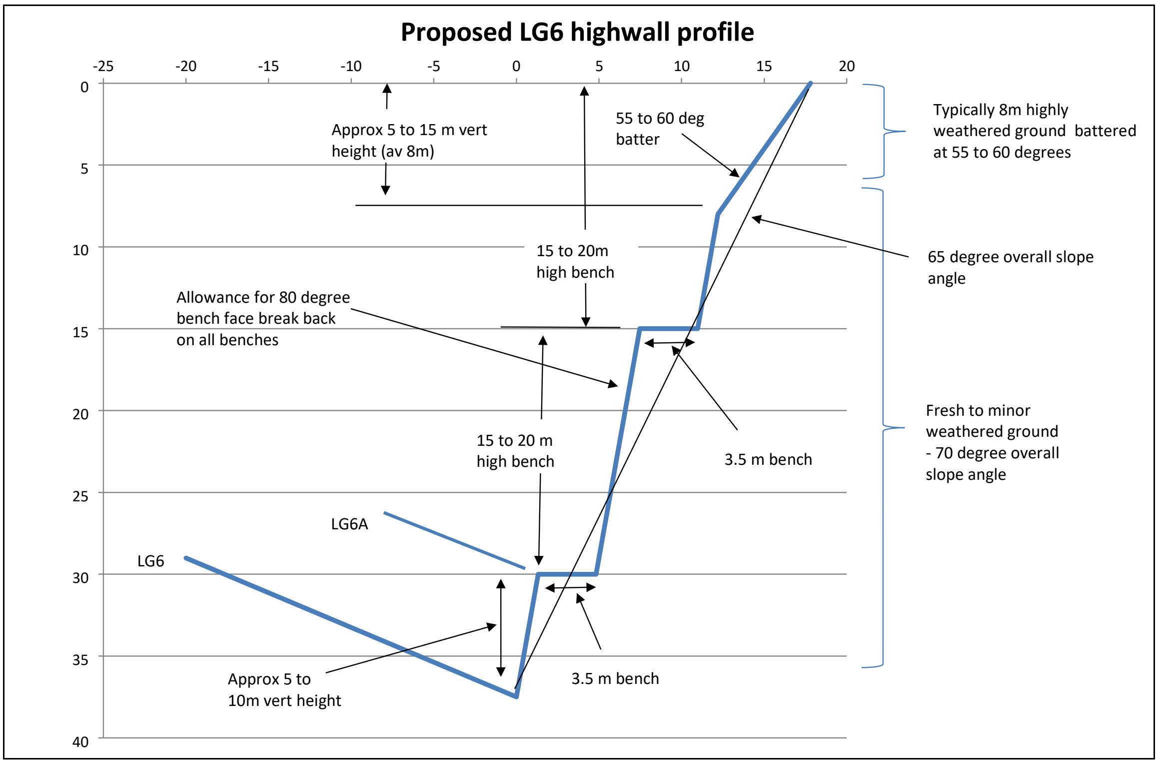


Figure 9.13 – Proposed highwall profile when mining LG6 and 6A to 30 to 40m depth. A similar design would apply to mining one or two of the MG seams or the LG3 as a limited pit.

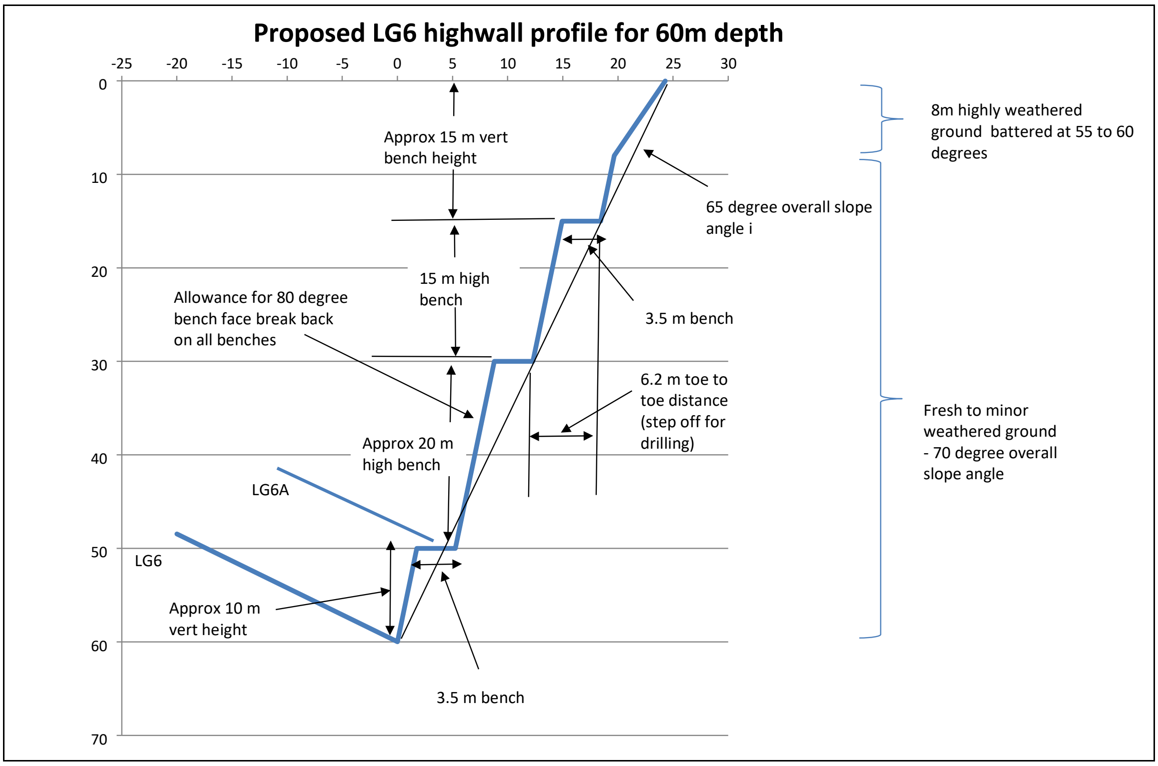


Figure 9.14 – Proposed highwall profile when mining LG6 and 6A to 60m depth.

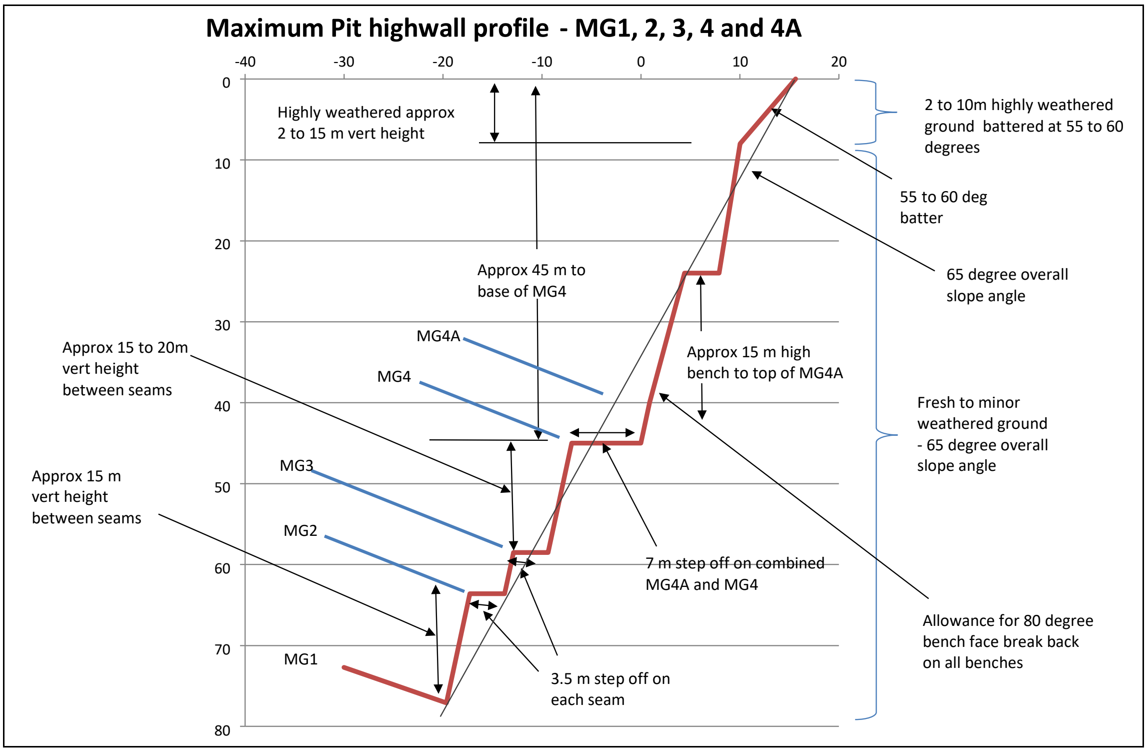


Figure 9.15 – Proposed highwall profile when mining MG1, MG2, MG3, MG4 and MG4A to 60m depth.

9.2 Mine Design and Schedule

A LOM plan was recently undertaken by M3 Services in close collaboration with Langpan. The Mineral Resources at Langpan Mine lend themselves to opencast mining and the mine is currently an operational opencast mine mining the LG Seams. The Langpan team conducted a LOM design and schedule to mine the LG Seams and later the MG Seams. Chrome from the LG Seams is sold RoM on a crushed and screened basis to Stratore. The material on the chrome contact is removed separately, screened, and sold as separate products.

SR 4.3(ii)
SR 5.2(i)(ii)(v)(viii)
SR 5.6(v)

A design and schedule were undertaken in 2020 on the mining of the MG Seams to the West of the Langpan Mine, but the geological model used for the planning was an old one from 2013. The geological model was updated in 2021 by CSA and the mine design and schedule was subsequently updated based on the updated geological model and forms the basis of this LOM determination. The LOM plan considers only the MG Seams.

The mining plan has been determined such that LG Seams can still be sold RoM on a crushed and screened basis in the beginning of the operation and the contact material can be upgraded for sale. This allows sufficient time for the refurbishment of a wash plant for the life of the Western opencast mine where the MG Seams are found.

Production in the Western pit was started by a previous owner and the mining plan for the MG Seams starts in this pit. The pit design profiles, as recommended in the geotechnical report compiled by Latona and shown in Figure 9.15 above, form the basis of the pit shell design and is the same that was used in the previous planning.

The MG Seams vary between 0.43m and 1.35m in thickness, with an average total thickness of 4m when combined. Figure 9.16 shows the MG Seams and the inter-burdens.

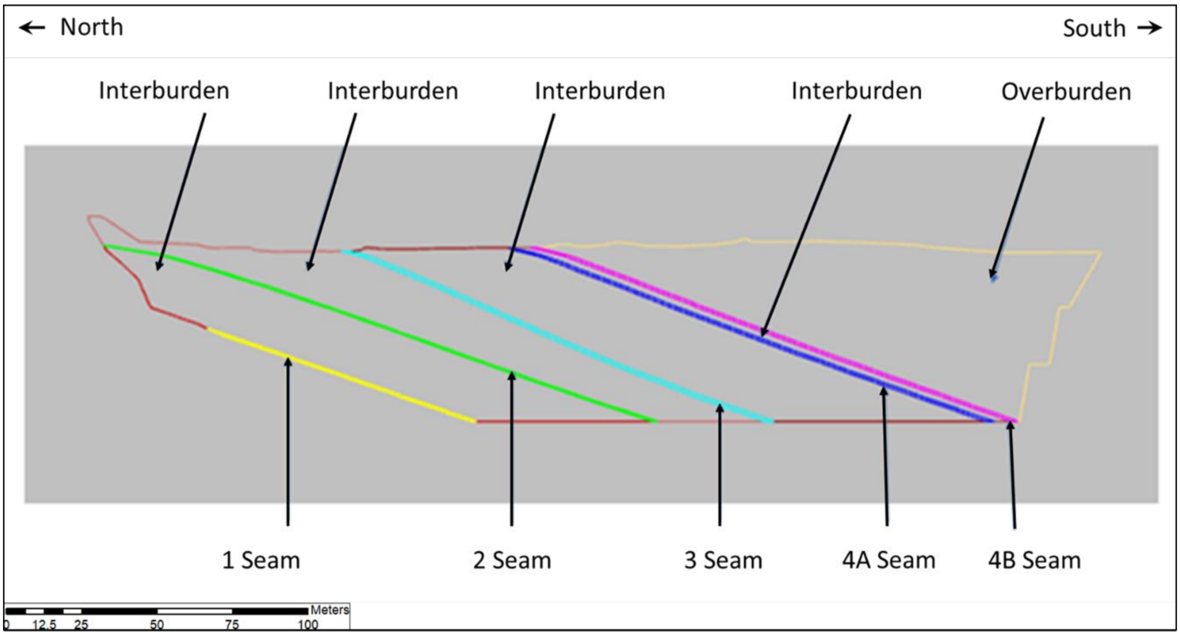


Figure 9.16 – Cross Section showing all MG Seams within the designated pit shell (Source: M3 Mining).

The mining equipment will consist of a fleet of excavators, articulated dump trucks, rigid dump trucks and frontend loaders. Other mining and secondary equipment will also be required such as a diesel bowser, water bowser, grader, track dozers, drill, and light duty vehicles. There will be separate teams to remove overburden and chrome.

The overburden team will consist of 2 x 984 Liebherr (120 tonne) excavators, 1 x D9T Caterpillar Track dozer and 6 x TR 100 Terex (90 tonne) rigid dump trucks and will work 3 shifts per day. The chrome team will consist of 1 x 964 Liebherr (80 tonne) excavators, 1 x D8R track dozer and 4 x B50 Bell (50 tonne) articulated dump trucks who will only work in daylight hours. These 2 production teams will be supported by 35 000 litre B50 water bowser and a Caterpillar 140 grader.

Drilling of the overburden will be done with an Atlas Copco L8 provided by the mining contractor. This rig will drill 165mm holes on a 5x5m pattern on the overburden, to a maximum depth of 10m which is the maximum height of the mining benches. Explosives will be delivered on the bench by either BME or AEL and the prime blasting agent will be ANFO. It is planned to blast overburden monthly, so that all the material is available for the next month. Some of the softer chrome seams can be extracted without blasting while blasting of the harder seams will be required.

9.2.1 Modifying Factors

JSE 12.10(h)(vii) SV T1.10 SR 5.1(ii)

M3 Services together with Langpan developed the modifying factors to be used in the Mineral Reserve determination.

Table 9.3 shows the list of modifying factors, assumptions and design parameters used to design the Western LOM. The mining and geological loss factors are the same for both the current Eastern and new Western opencast mining areas.

Table 9.3 - Mining Modifying Factors		
Opencast OC West	**Values**	**Comments**
Geological loss (%)		
Measured	*n/a*	No Mineral Resources in this category
Indicated	*5%*	This is catered for in the geological model
Inferred	*n/a*	No Mineral Resources in this category
Mining Loss (%)		
Total Loss	*5%*	
Cut-offs / Restrictions		
Minimum chrome seam thickness	*0m*	No minimum
Mineable seams	*MG1, MG2, MG3, MG4A, MG4B*	
Barrier from farm boundary	*9m*	*Start Topsoil stripping*
Blasting Barrier from local community	*500m*	*Start Hards stripping*
Production / month		
Maximum production / month	*30 000*	*Incl. Contamination*
All seams		
Total average thickness	*1.35m*	
Min thickness	*0.43m*	
Max thickness	*4m*	
Contamination from Waste above and below the seam	*8%*	
Contamination density	3.2 t/ m^3	

In addition to the modifying factors, the modelling considered 5 discrete Mineral Resource blocks divided by faults which cut across the pit as shown in Figure 9.17. No Mineral Resources in these fault areas were considered in the model.

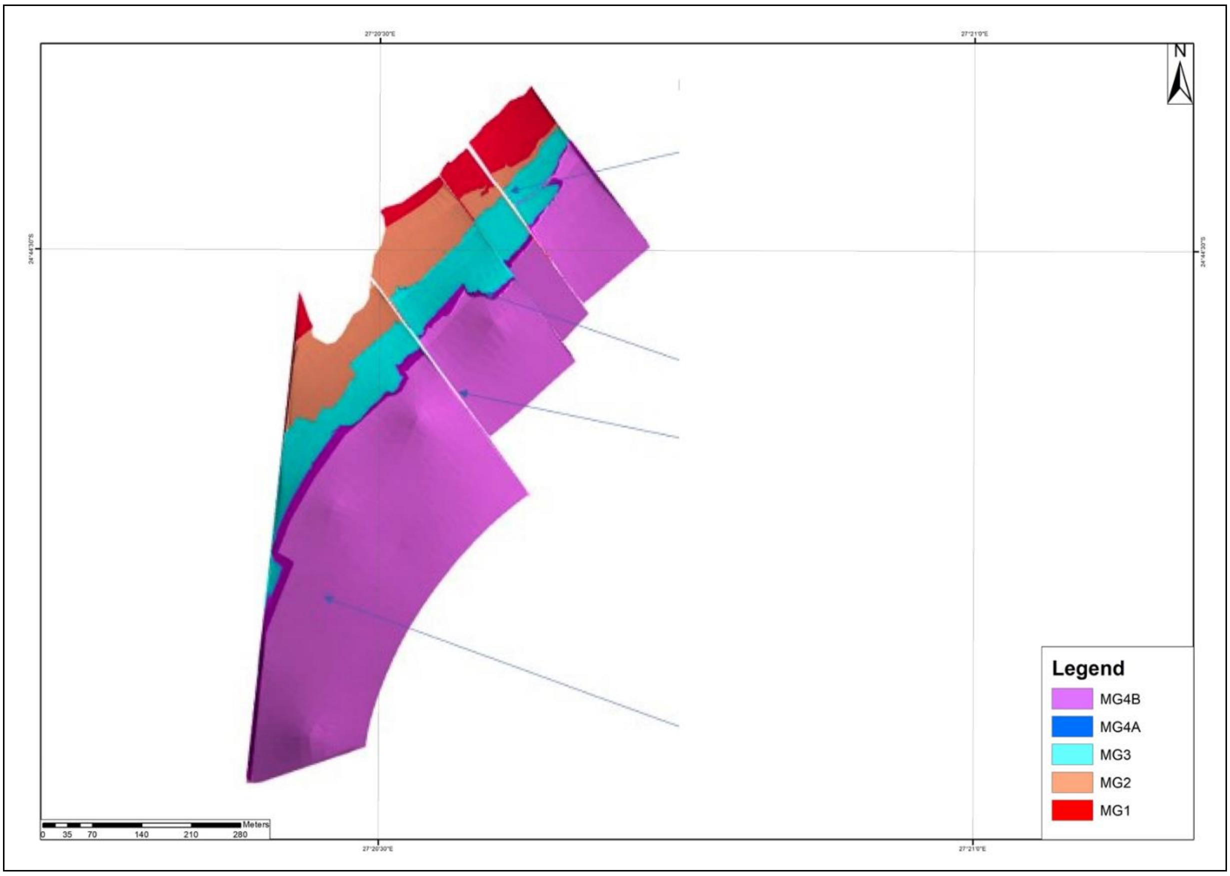


Figure 9.17 – Blocks modelled in the Mineral Resource

General cross sections through the blocks are shown in Figures 9.18 to 9.21:

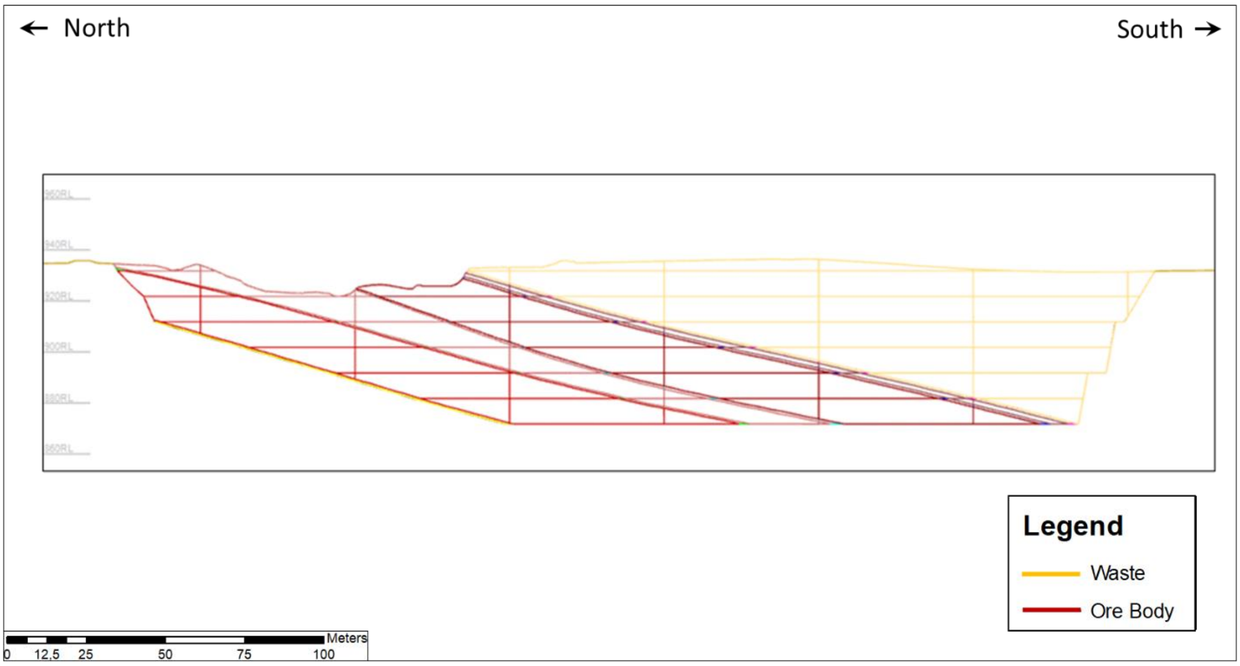


Figure 9.18 – Section blocks 1 and 2 (Source: M3 Mining)

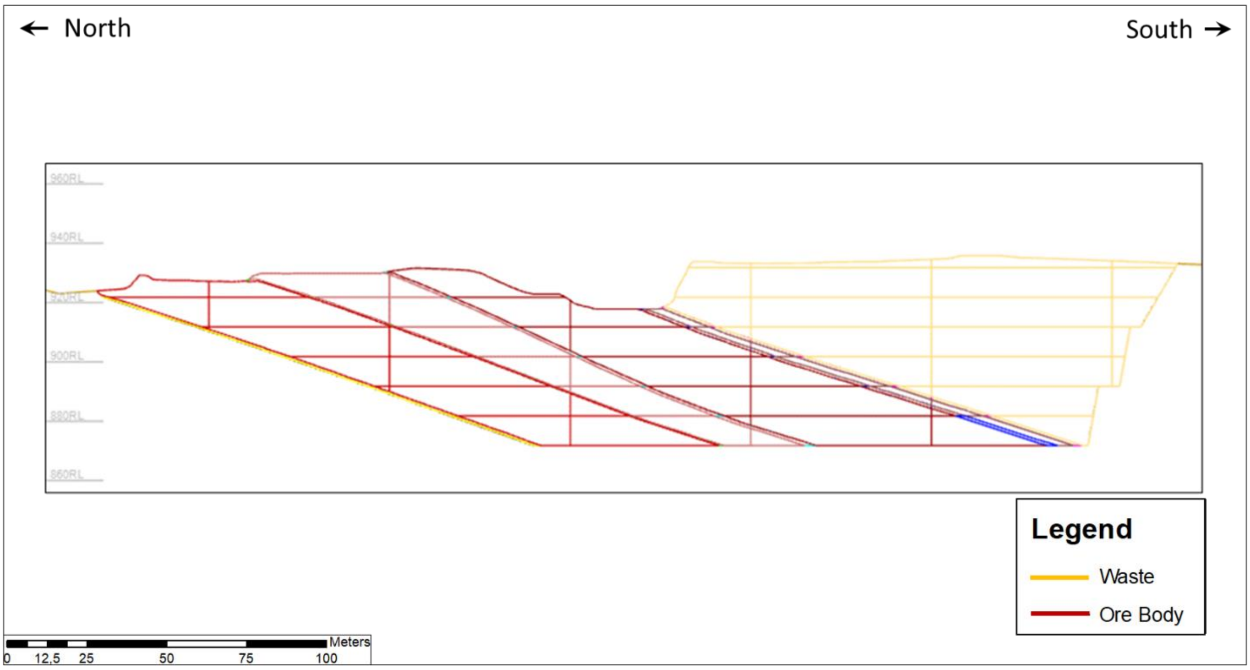


Figure 9.19 – Section block 3 (Source: M3 Mining)

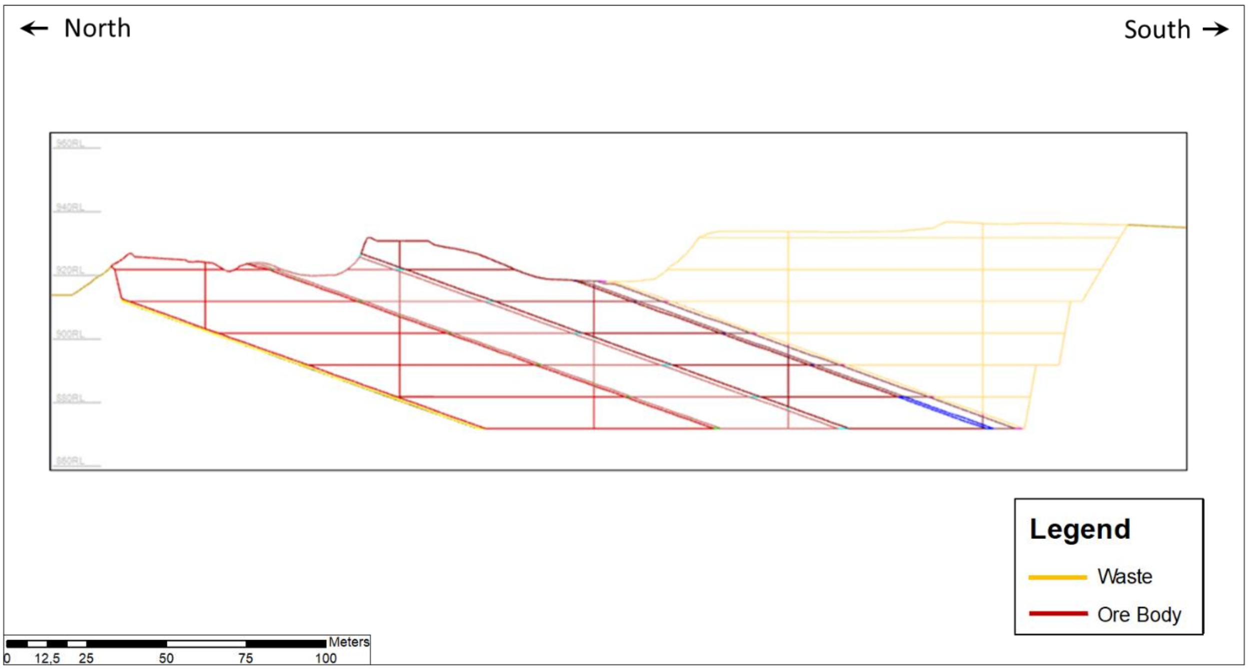


Figure 9.20 – Section block 4 (Source: M3 Mining)

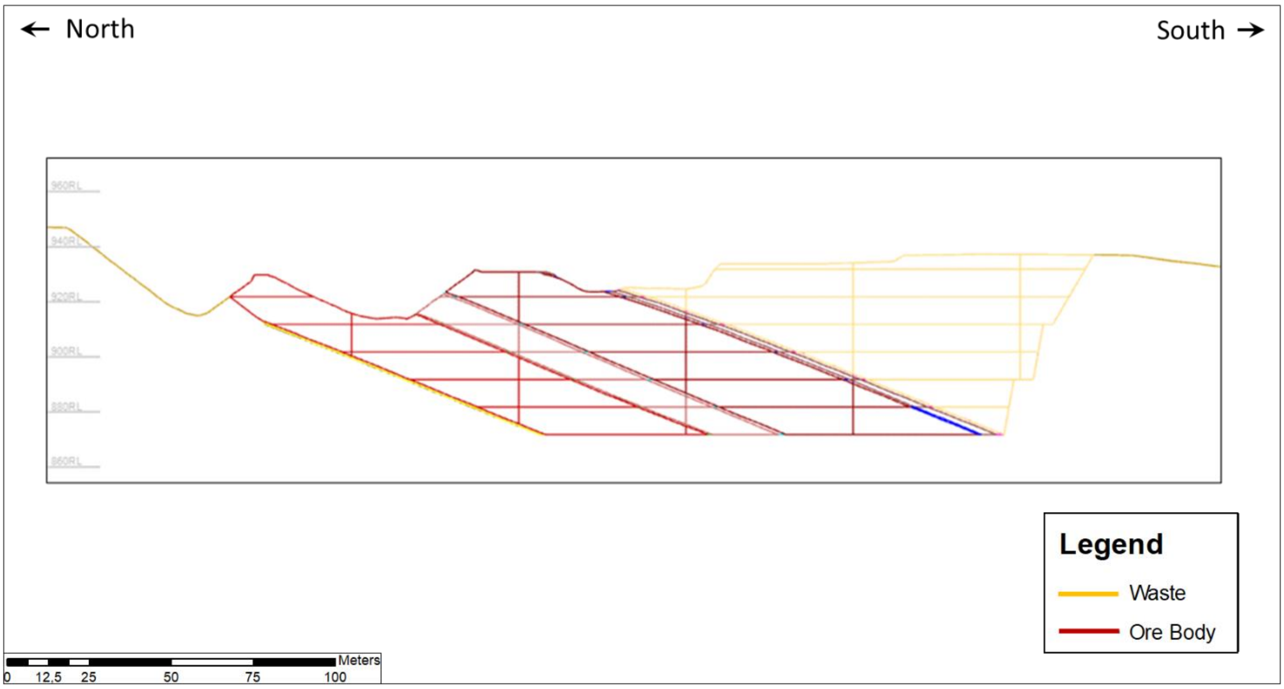


Figure 9.21 – Section block 5 (Source: M3 Mining)

9.2.2 LoM Plan and Schedule

The boxcut excavation was started by the previous mine owners and it is planned that the start of mining will take place from this position.

The MG1, MG2, MG3, MG4A and MG4B Seams are considered for scheduling purposes in the LOM plan.

The opencast mine is laid out in 100 m length blocks and 60 m wide strips, running in an East-West direction. The benches are 10 m in depth. Access ramps will be developed along the Western edge of the pit at an apparent dip of 8 degrees and used for the life of mine to extract all the seams in the pit. The width of the ramps will be 15 m excluding safety berms to accommodate the TR 100 rigid dump trucks.

Access to the chrome seams will be through horizontal benches linking the ramp. Mining has already commenced on all the seams in the Northeast to RL912 which is 30 m depth and towards the West to the RL922 which is 20 m depth (Figure 9.22)

The intention is to backfill progressively as the mine progresses towards the South-West and the final highwall. Access ramps will be temporary, and the main access will be from the centre initially and then the North-East corner incorporated into the backfill. The backfill may also contain a minor amount of dry inert silica originating from the tailings.

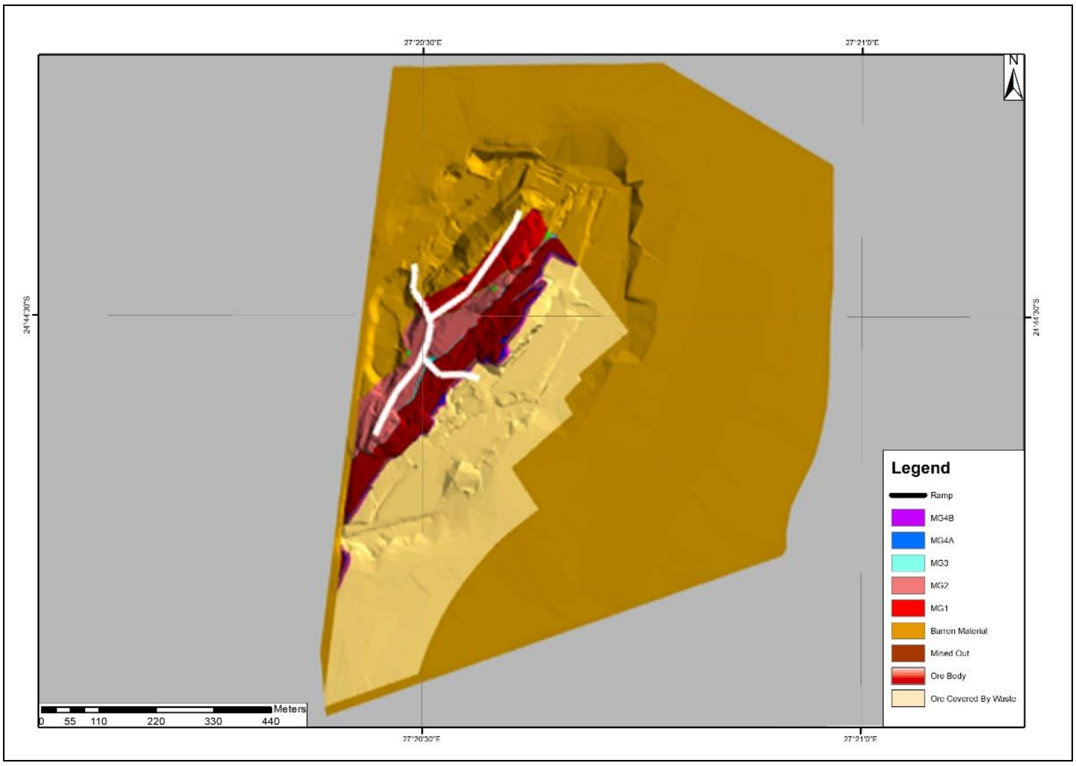


Figure 9.22 – Initial Ramps (Source: M3 Mining)

The following Images (Figure 9.23 to Figure 9.29) show the layout of the West Pit progress plots of the Western opencast's LOM.

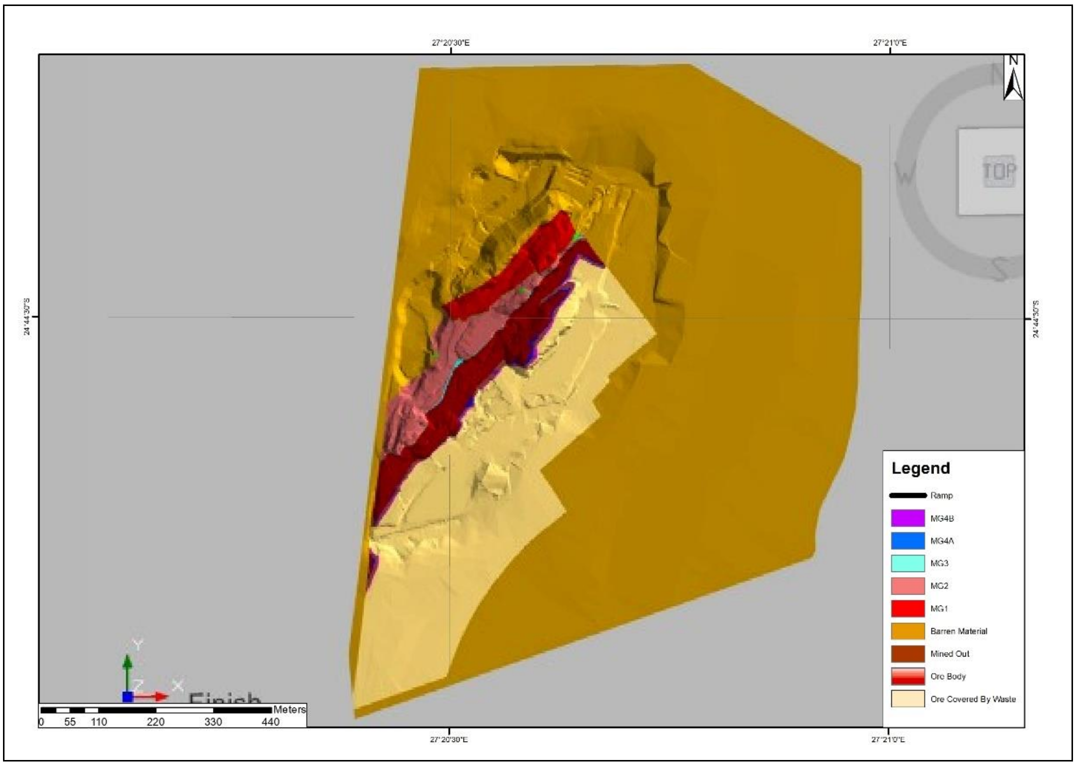


Figure 9.23 – Pit Start (Source: M3 Mining)

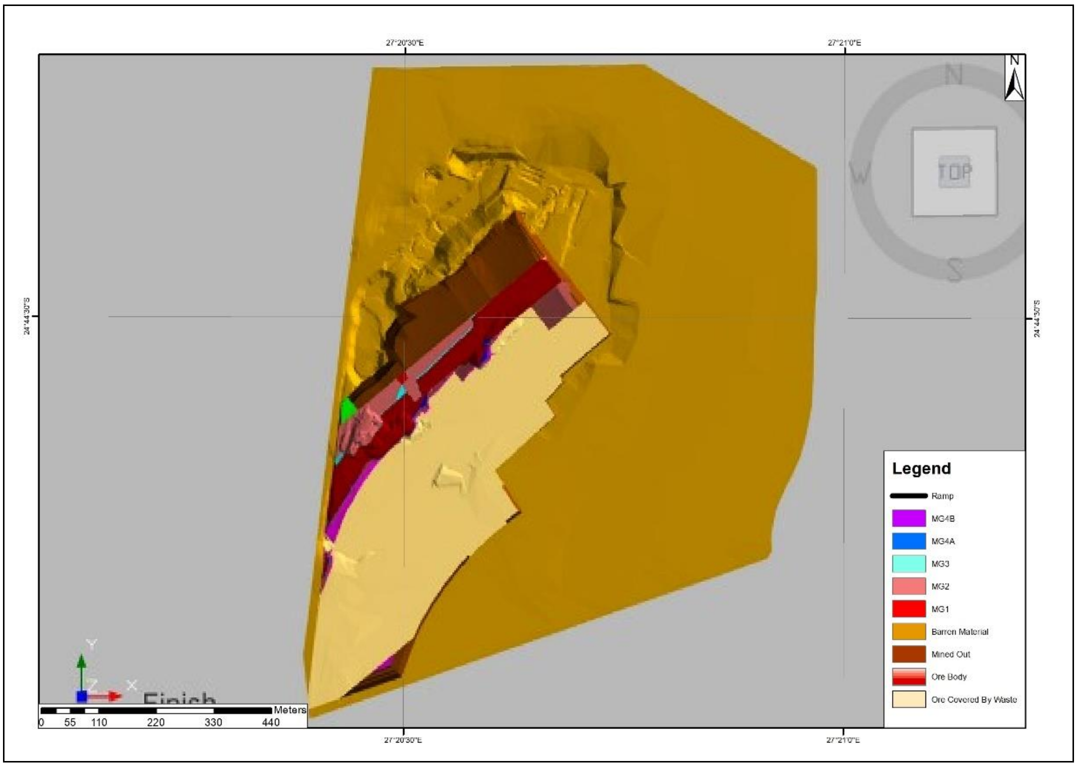


Figure 9.24 – Year 1 Progress (Source: M3 Mining)

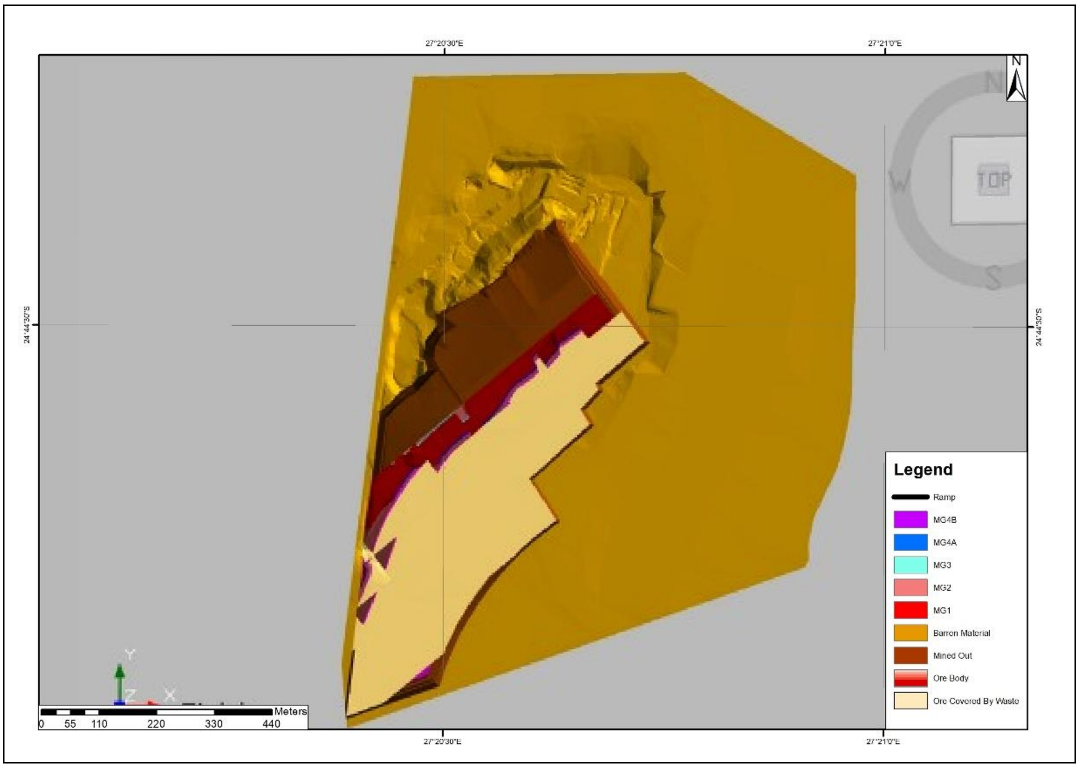


Figure 9.25 – Year 2 Progress (Source: M3 Mining)

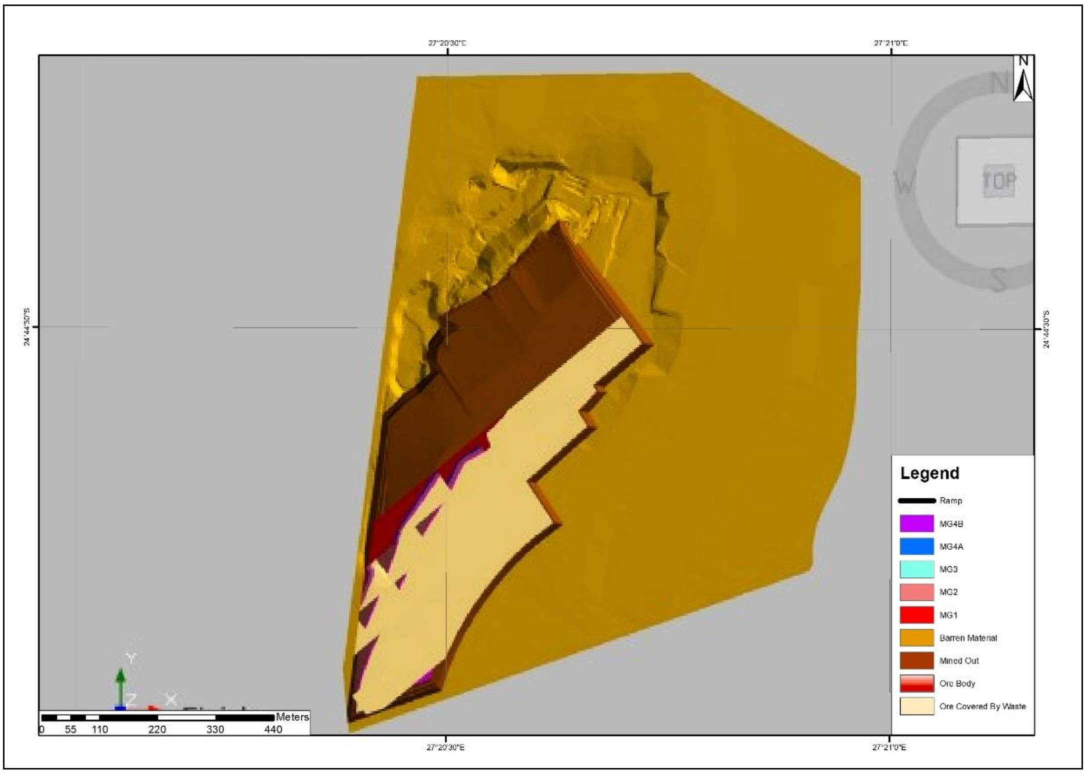


Figure 9.26 – Year 3 Progress (Source: M3 Mining)

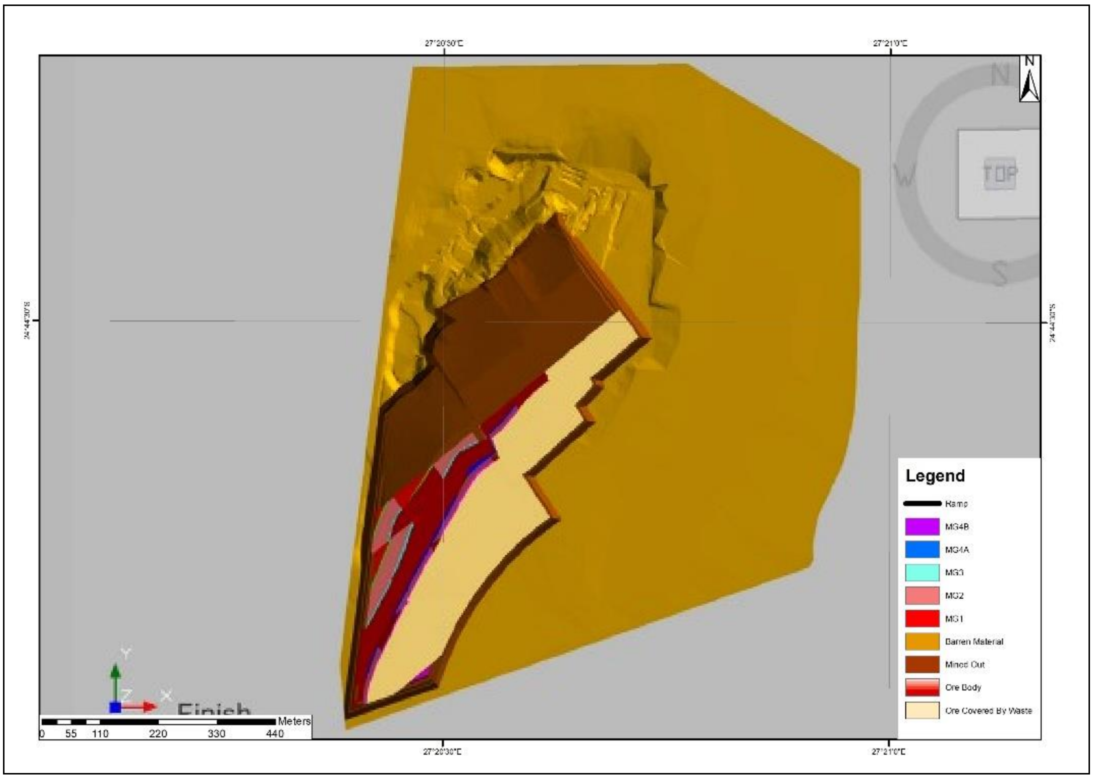


Figure 9.27 – Year 4 Progress (Source: M3 Mining)

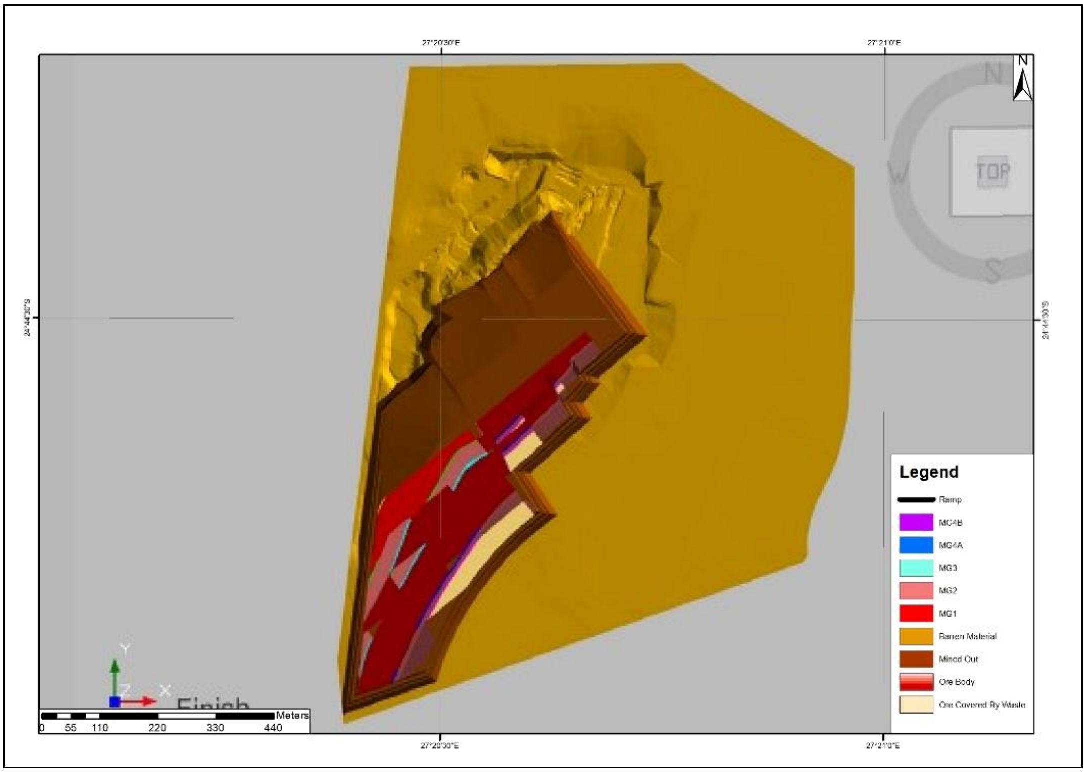


Figure 9.28 – Year 5 Progress (Source: M3 Mining)

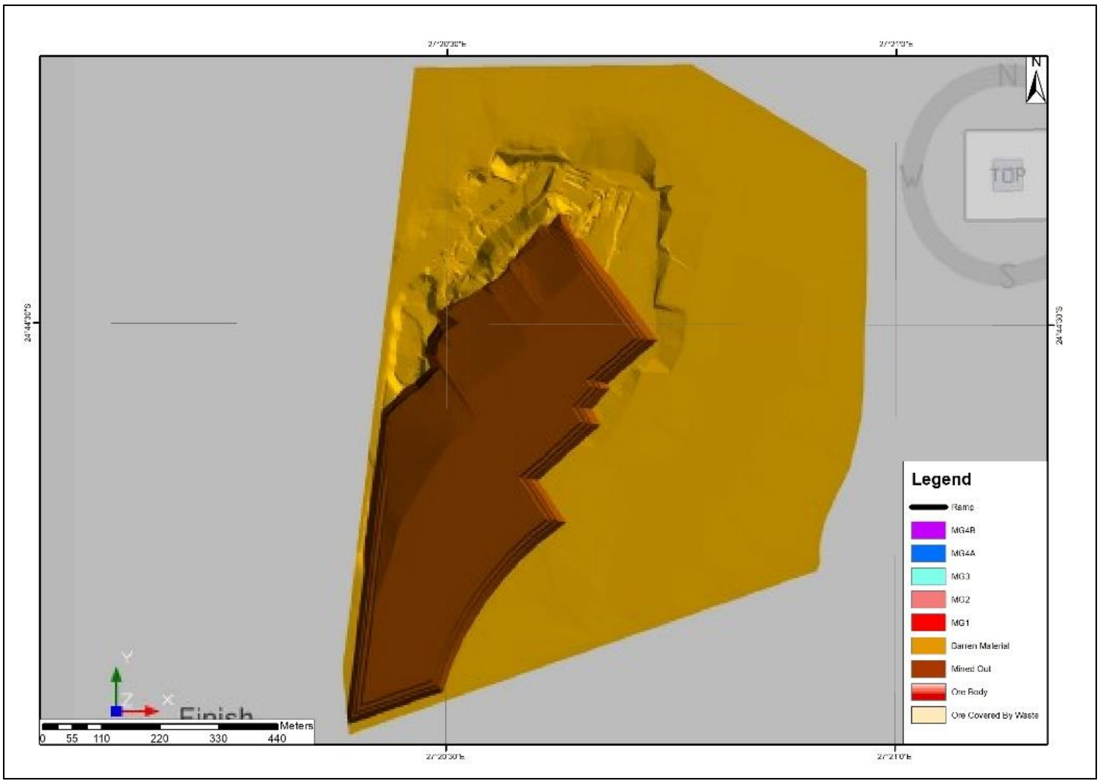


Figure 9.29 – Year 6 Progress (Depleted) (Source: M3 Mining)

The relevant production schedule with tonnes and qualities follows in the tables and figures below. This is not an optimised schedule and further work is required to optimise the short-term planning. There is a run-of-mine ore stockpile allowed for ahead of the crushers. The purpose of this stockpile is to allow for a quantum of ore blending ahead of the plant, and to enable smoothing out of fluctuations in the plant feed rate.

Table 9.4 - LOM schedule OC West – Waste and Ore								
Description	Unit	YR01	YR02	YR03	YR04	YR05	YR06	Total
Ore Tonnes	RoM Tonnes	304 503	408 403	367 050	414 429	474 524	242 776	**2 211 686**
ROM Tonnes	RoM Tonnes	298 997	400 922	360 264	406 629	465 600	238 186	**2 170 598**
Waste Tonnes	RoM Tonnes	7 050 239	8 409 600	8 409 600	7 153 106	6 189 344	3 622 850	**40 834 739**
Ore Volume	BCM	75 868	101 998	91 886	103 890	118 702	60 859	**553 201**
Waste Volume	BCM	2 199 781	2 620 688	2 619 760	2 227 221	1 926 589	1 126 401	**12 720 441**
SR		7.36	6.54	7.27	5.48	4.14	4.73	**5.86**

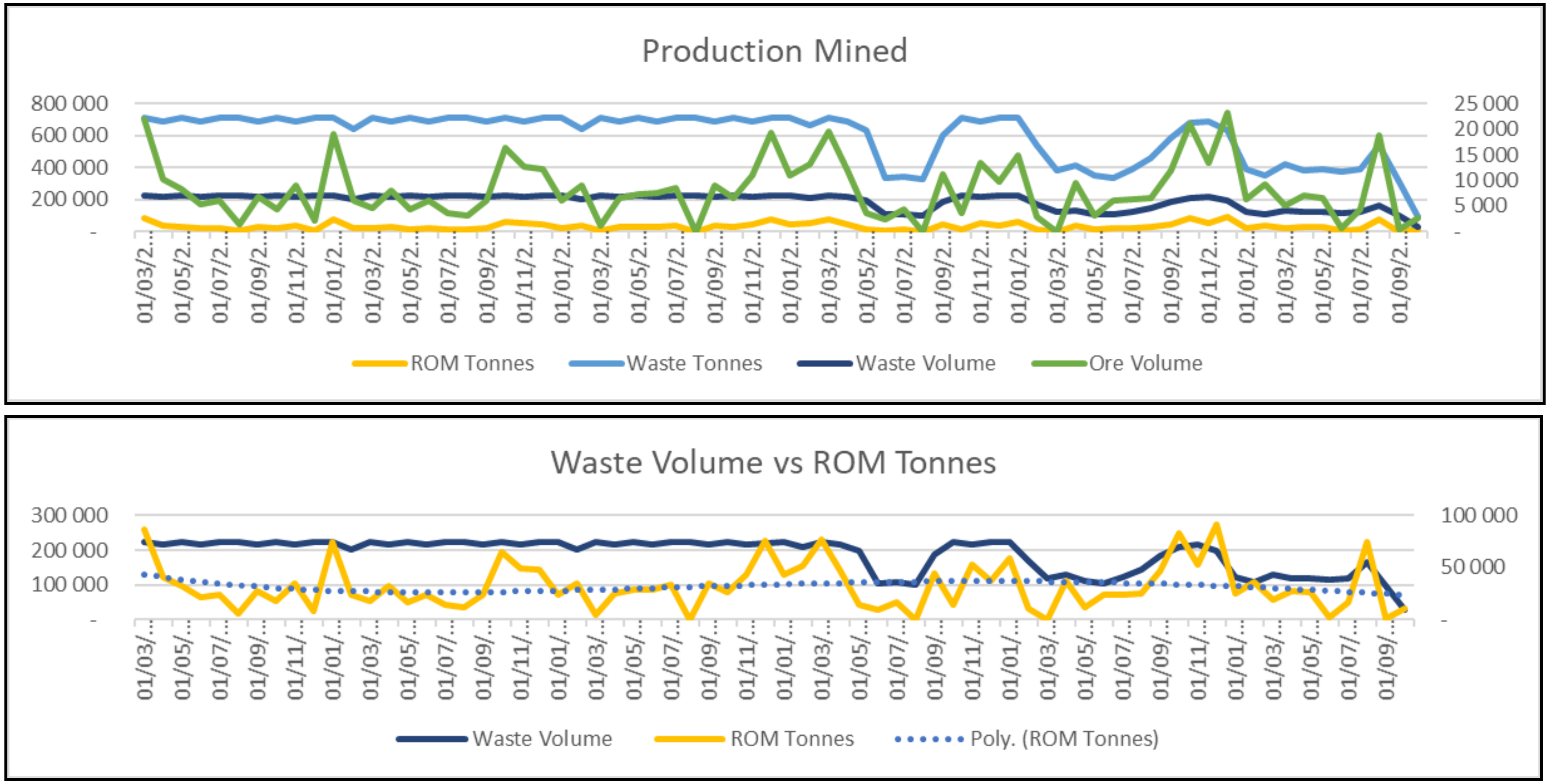


Figure 9.30 – Production Graphs

Table 9.5 – LOM schedule Ore Quality								
DESCRIPTION	Unit	TOTAL	YR01	YR02	YR03	YR04	YR05	YR06
Diluted CR	%	**31.89**	32.38	31.23	30.73	30.54	32.43	32.07
Diluted FE	%	**24.59**	24.49	24.18	23.86	23.70	24.97	25.17
Diluted CR:FE	ratio	**1.30**	1.32	1.27	1.27	1.25	1.29	1.27
Diluted Si	%	**9.83**	9.03	9.53	9.94	10.02	9.95	10.64
Diluted MGO	%	**10.16**	10.05	9.87	10.05	9.93	10.14	10.58
Diluted AL	%	**13.88**	13.81	13.40	13.58	13.61	14.17	14.15
Diluted PT	g/t	**0.87**	0.88	0.85	0.93	0.83	0.77	0.89
Diluted PD	g/t	**0.25**	0.28	0.23	0.27	0.22	0.21	0.27
Diluted RH	g/t	**0.23**	0.22	0.22	0.24	0.23	0.23	0.24
Diluted 3PGE	g/t	**1.34**	1.38	1.30	1.44	1.28	1.22	1.40

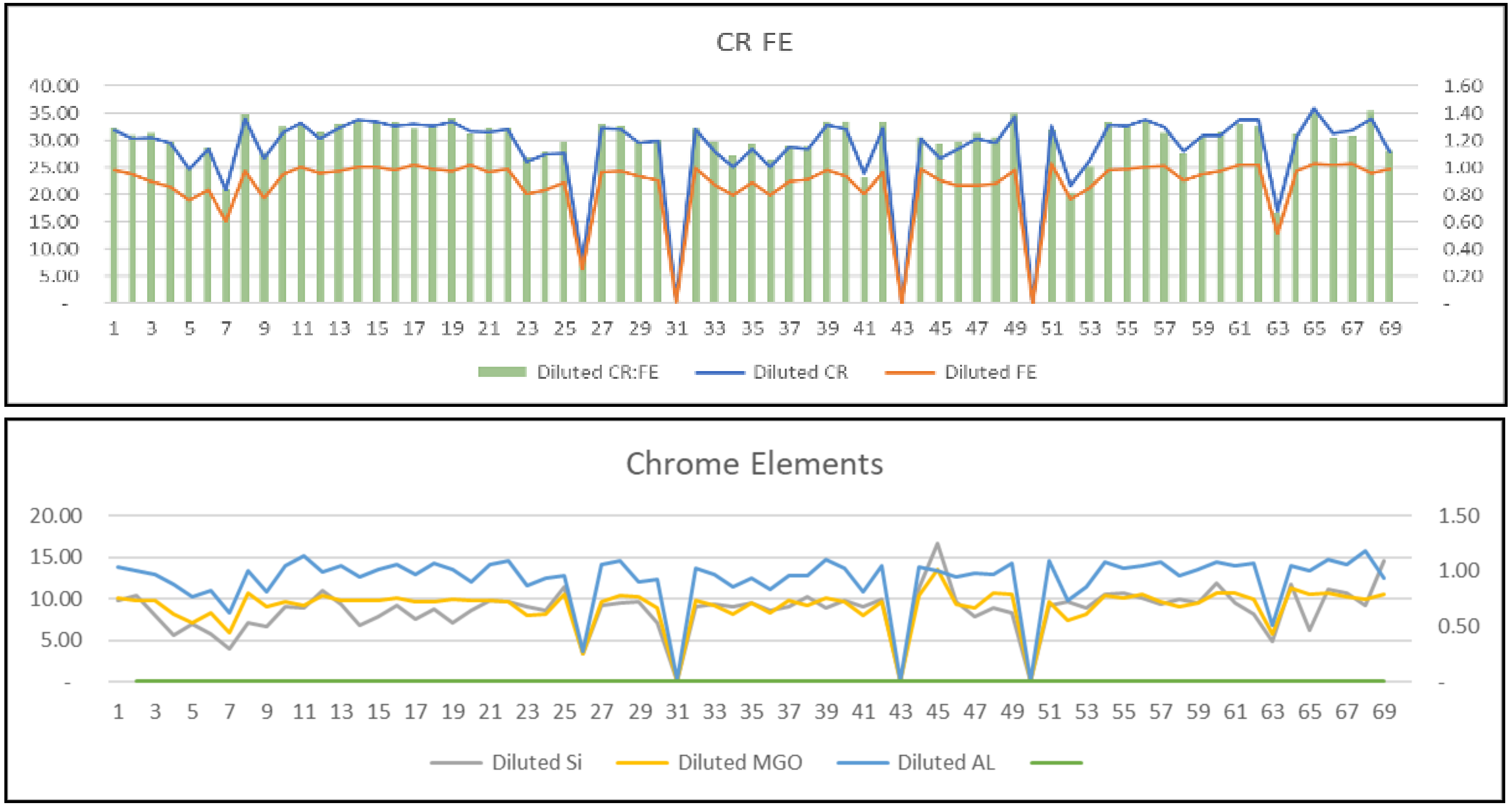


Figure 9.31 – Ore Quality Graphs

9.3 Metallurgical (Processing and Recovery)

SR 4.3(ii)
SR 5.2(viii)
SR 5.3(i)(iv)

9.3.1 Metallurgical Test Work Summary

Samples were taken from the MG1, MG2, MG3, MG4A and MG4B seams. The samples were taken in the current existing open pit. A 20-ton (Sumitomo sh210) excavator was used to clear waste rock from the exposed seams and collect a representative sample over the complete mining width of each seam. No weathered material was included in the samples. The samples were collected in clean, clearly marked, 210 litre steel drums and moved to the secure designated storage area outside the pit, where it was loaded onto the transportation vehicle. The location plan showing where the samples were taken is shown in Figure 9.32 below. Each sample had a mass of approximately 200 kg. The test work was undertaken by MetQ, in Rossyln, Pretoria.

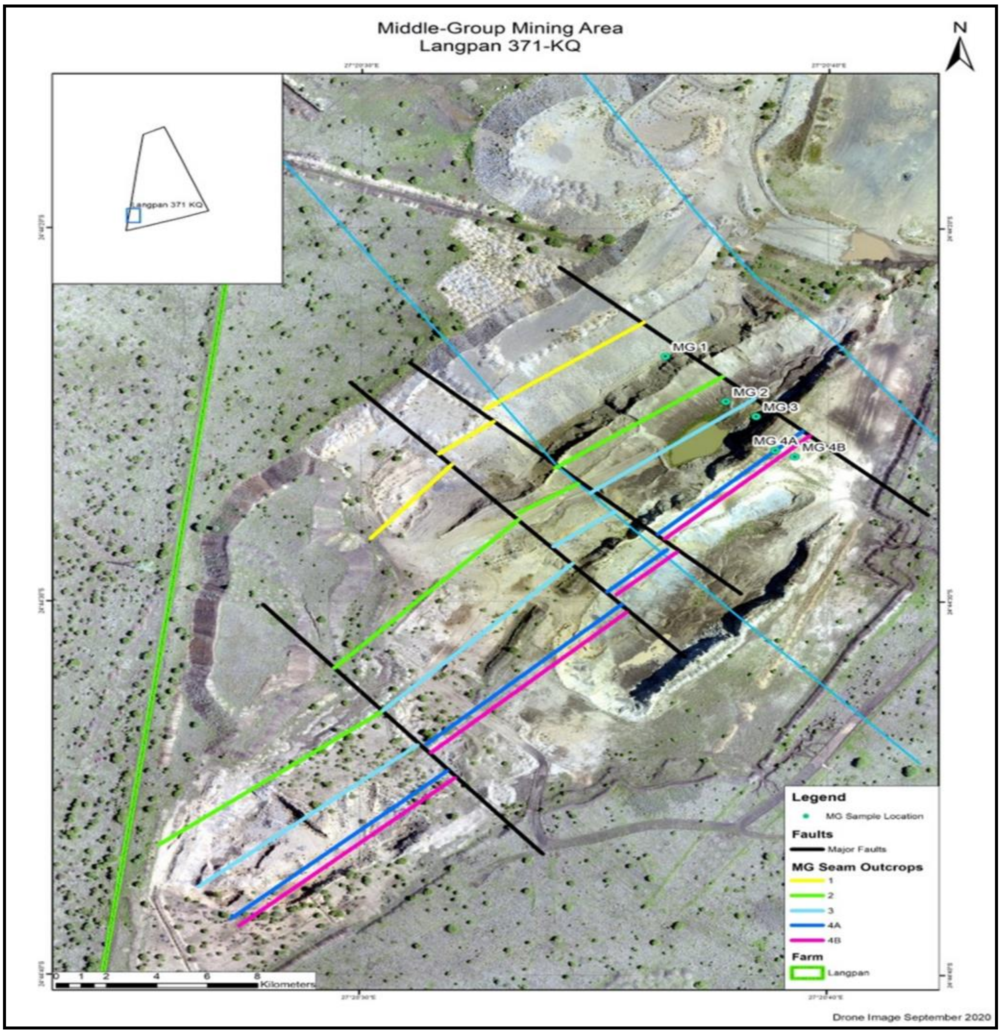


Figure 9.32 – Location Plan showing positions where metallurgical testwork samples were taken

Each sample was inspected visually prior to preparation for gravity test work. Natural fines from each sample were screened out and labelled accordingly. A jaw crusher was used to reduce the sample to 2mm. -1mm fines were screened and added to the previous fines sample. The jaw crusher product was then fed to a cone crusher which was used to reduce the sample to -1mm. Samples of the five reefs were weighed, and images were taken of material under a stereoscopic microscope to obtain an estimation of the chrome liberation. The spiral circuit test rig comprises of a large gravity feed distributor onto which slurry is pumped and a controlled volume of slurry feeds the spiral concentrator via an orifice of predetermined diameter. A five-stage spiral circuit comprising of a rougher, scavenger, re-scavenger, cleaner and re-cleaner was simulated on the test rig. The spiral (M4A32) used in the test rig is the same as those installed on the plant, in order to obtain comparative data.

The slurry was made up in a sump pump and corrected for density and tonnage prior to sampling the spiral. Sampling was conducted by simultaneously diverting the outlet pipes into sample containers. All the samples taken were timed to establish mass flow balances. The spirals were fitted with mouth organ product boxes. The samples were weighed wet in the slurry form, filtered, and dried and weighed to calculate a mass balance around the spiral. Chemical analyses of the products were conducted by an accredited laboratory.

The spiral test results were introduced into a spiral simulator to establish the overall circuit performance. The results show that the circuit was able to produce a metallurgical grade concentrate containing a minimum of 42% Cr_2O_3..

The testwork carried out between April and July 2021 is considered to be semi-pilot plant testwork. From the testwork results received, any deleterious elements in the chrome product are within contractual limits.
The samples obtained for the testwork were samples which were typical of the material in the respective chrome reefs. Chrome ore within the respective reefs does not exhibit significant mineralogical variation. The various reefs do exhibit minor variations in mineralogy between the respective reefs.

The testwork results are presented in the following Section.

9.3.2 Description of Testwork

SR 5.3(i)(ii)(iv)

During April 2021, Langpan Mining Company requested MetQ to perform spiral testwork on samples of MG1 and MG3 chrome reefs from the Langpan Mine (phase 1 testwork).

Subsequently, additional testwork was carried out on samples of the MG1, MG2, MG3, MG4A and MG4B reefs (phase 2 testwork).

Phase 1 Testwork

Langpan provided bulk run-of-mine samples of MG1 and MG3 reefs to MetQ. Each sample comprised approximately 200 kg of the respective reef.

MetQ crushed the samples using a jaw crusher, cone crusher and a screen to the liberation size required for spiral testwork. As the crushing proceeded, MetQ determined the liberation size of the chromite using a microscope. It was determined that the MG1 sample needed to be crushed to – 850 microns and the MG3 sample to – 500 microns to achieve liberation.

The spiral testwork consisted of simulating a rougher, scavenger, re-scavenger, cleaner and re-cleaner circuit. The spiral tests were carried out using a single spiral at a time, i.e., the rougher spiral first, followed by a scavenger test, then a re-scavenger test. This was followed by the cleaner, re-cleaner and the in the case of the MG3, a re-re-cleaner test.

The individual sub-samples were carried forward from one test to the next as shown in the spiral testwork flowsheet (Figure 9), so as to simulate the proposed plant flowsheet.

Phase 2 Testwork

Run-of-mine samples of MG1, MG2, MG3, MG4A and MG4B reefs were provided to MetQ. The testwork followed the same procedure as described for the Phase 1 testwork.

9.3.3 Spiral Testwork Results

SR 5.3(i)(iv)

The results of the Phase 2 tests performed on the MG1, MG2, MG3, MG4A and MG4B seams are shown in Figures 9.33, 9.34, 9.35, 9.36 and 9.37 respectively.

The results are summarised in Table 9.6. This table shows the Mineral Reserve grade, the head grade of the sample, the chrome yield, the chrome plant tailings mass pull, and the chrome plant tailings 3PGE +Au grade, for each reef.

It should also be noted that references to PGEs in this section refer to the 3PGE+Au analysis.

Table 9.6 – Results of Spiral Testwork

Reef	Mineral Reserve Tonnes	Mineral Reserve Grade % Cr_2O_3	Mineral Reserve Grade 3PGE gpt	Sample Head Grade % Cr_2O_3	Chrome Yield %	Sample Head Grade 3PGE+Au gpt	Chrome Plant Tailings % Mass	Chrome Plant tailings 3PGE+Au Grade
MG1	0.20	32.65	1.16	30.6	58.8	0.74	42.2	0.56
MG2	0.33	34.46	1.34	36.5	69.6	2.22	30.4	4.52
MG3	0.48	29.17	1.84	30.0	60.8	1.66	39.2	2.10
MG4A	0.58	32.24	1.56	29.8	66.5	1.98	33.5	1.88
MG4B	0.58	31.42	0.80	34.5	70.0	0.82	30.0	1.40
Total	2.17							
Tonnage Weighted Average		31.72	1.35	32.2	65.9	1.52	34.1	2.04

The average chrome yield, weighted by the Mineral Reserve tonnage for that reef, is 65.9%. It is accepted metallurgical practice to deduct of the order of two percentage points from the testwork recovery number to allow for inefficiencies in the full-scale plant and a further one point to allow for a scale-up factor from testwork to the full-scale plant. The predicted average chrome yield across the five seams is therefore 63%.

The average weighted chrome grade of the Mineral Reserve is 31.72% Cr_2O_3. This is similar to the average grade of the samples used for testwork. As a result, it would be expected that chrome yields would be similar than those achieved in the testwork. The weighted average chrome concentrate grade achieved in the testwork was 40.56%. Cr_2O_3. Generally higher concentrate grades are achievable in an operating plant than in testwork programs.

The 3PGE+Au contents of the sample heads are 13% higher than the 3PGE contents of the Mineral Reserve data. This is partially explained by the head samples for testwork being 3PGE+Au assays while the Mineral Reserve figures are 3PGE assays. It would be expected that the 3PGE+Au assays of the tailings samples would be higher than those of the head samples. In the testwork for 2 of the seams the opposite has occurred – this can only be due to experimental error. It is considered that the results achieved are within the levels of confidence of a PFS, that is +-25%.

While the run-of-mine samples used for the testwork were not fully representative of the individual seams in terms of the metallurgical definition of a "representative sample", the samples were sufficiently typical of the reefs so that the testwork carried out would be of sufficient accuracy for a pre-feasibility study.

Testwork Conclusions

A summary of the average chrome yields achieved for the various reefs and the percentage mass is shown in Table 9.6.

The weighted average chrome yield across the five reefs is predicted to be 63%. The mass and metals balances for the testwork performed are shown in Figures 9.33 to 9.37.

SPIRAL TEST MASS BALANCE - METQ - LANGPAN
MG1 04-21-2021 Second Run

										PGM	SiO2			
FEED			27,52							0,74	20,79			
ROUGHER M4A32												Fresh tph	70,00	full tph
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			Rougher feed	116%	81,48
												SEC Yield	Overall Yield	
CONS	10,00	2588,60	0,93	38,71	38,71	83,73	83,73	63,53	63,53	0,30	7,82	64%	74%	51,76
MIDDS	10,00	862,80	0,31	14,99	32,78	10,81	94,53	21,17	84,70	0,34		21%	25%	17,25
TAILS	10,00	623,30	0,22	10,50	29,37	5,47	100,00	15,30	100,00	1,06		15%	18%	12,46
FEED		4074,70	1,47	29,37		100,00		100,00						
SCAVENGER M4A32														
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	682,70	0,25	30,04	30,04	40,63	40,63	16,29	16,29	0,32	19,24	16%	7%	4,84
MIDDS	10,00	1805,90	0,65	9,40	15,06	33,63	74,26	43,09	59,38	0,44		43%	18%	12,80
TAILS	10,00	1702,50	0,61	7,63	12,04	25,74	100,00	40,62	100,00	0,94		41%	17%	12,07
FEED		4191,10	1,51	12,04		100,00		100,00						
RE-SCAVENGER M1042												SELECTED		
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	244,30	0,09	26,99	26,99	35,54	35,54	11,38	11,38	0,46	21,58	11%	4%	2,83
MIDDS	10,00	1164,80	0,42	6,43	9,99	40,37	75,90	54,25	65,63	0,28		54%	19%	13,50
TAILS	10,00	737,80	0,27	6,06	8,64	24,10	100,00	34,37	100,00	1,16		34%	12%	8,55
FEED		2146,90	0,77	8,64		100,00		100,00						
CLEANER M4A32														
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	572,50	0,21	41,27	41,27	14,24	14,24	12,85	12,85		2,80	13%	11%	7,64
MIDDS	10,00	3410,60	1,23	38,81	39,16	79,78	94,02	76,56	89,41		4,52	77%	65%	45,50
TAILS	10,00	471,60	0,17	21,02	37,24	5,98	100,00	10,59	100,00		29,49	11%	9%	6,29
FEED		4454,70	1,60	37,24		100,00		100,00						
RE-CLEANER M4A32														
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	552,70	0,20	42,40	42,40	15,15	15,15	14,42	14,42		2,10	14%	11%	7,66
MIDDS	10,00	2906,80	1,05	41,27	41,45	77,53	92,68	75,82	90,24		3,66	76%	58%	40,29
TAILS	10,00	374,30	0,13	30,26	40,36	7,32	100,00	9,76	100,00		18,44	10%	7%	5,19
FEED		3833,80	1,38	40,36		100,00		100,00						
												69%		
feed	27,52													
conc	41,45													
tail	6,29													
yield	60%													
recovery	91%													
CYCLONE FEED			**5.57 % Cr2O3**							**0,56**	48,86			
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
U/F	3,00	1854,50	2,23	6,92	6,92	97,53	97,53	94,98	94,98	0,38	47,26	95%	30%	20,94
					6,92	0,00	97,53	0,00	94,98			0%	0%	0,00
O/F	3,00	98,10	0,12	3,31	6,74	2,47	100,00	5,02	100,00	1,14	48,83	5%	2%	1,11
FEED		1952,60	2,34	6,74		100,00		100,00						

Figure 9.33 – MG1 Mass Balance

										PGM	SiO2	PLANT FLOW SIMULATED		
SPIRAL TEST MASS BALANCE - METQ														
LANGPAN - MG2 -500 micron - 2021-06-07														
FEED	**MG2**			36,54						2,22	9,70			
ROUGHER M4A32												Fresh tph	70,00	full tph
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			Rougher feed	112%	78,63
												SEC Yield	Overall Yield	
CONS	10,00	3400,00	1,22	42,77	42,77	82,03	82,03	74,22	74,22	0,42	2,82	74%	83%	58,35
MIDDS	10,00	637,10	0,23	30,05	40,76	10,80	92,83	13,91	88,13	0,84		14%	16%	10,93
TAILS	10,00	544,00	0,20	23,38	38,70	7,17	100,00	11,87	100,00	3,30		12%	13%	9,34
FEED		4581,10	1,65	38,70		100,00		100,00						
			Supposed to be	36,54	Feed									
SCAVENGER M4A32														
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	1045,50	0,38	40,47	40,47	29,51	29,51	19,20	19,20	1,28	4,95	19%	6%	3,89
MIDDS	10,00	1500,00	0,54	30,09	34,35	31,48	61,00	27,55	46,75	2,14		28%	8%	5,58
TAILS	10,00	2900,00	1,04	19,28	26,33	39,00	100,00	53,25	100,00	5,96		53%	15%	10,80
FEED		5445,50	1,96	26,33		100,00		100,00						
			Supposed to be	26,98	Rougher Midds + Tails									
RE-SCAVENGER M1042														
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	409,00	0,15	37,37	37,37	13,09	13,09	6,61	6,61	1,84	8,82	7%	2%	1,08
MIDDS	10,00	817,90	0,29	16,36	23,36	11,46	24,56	13,21	19,82	1,72		13%	3%	2,16
TAILS	10,00	4963,80	1,79	17,74	18,85	75,44	100,00	80,18	100,00	7,94		80%	19%	13,13
FEED		6190,70	2,23	18,85		100,00		100,00						
			Supposed to be	22,97	Scavenger Midds + Tails									
CLEANER M4A32														
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	823,80	0,30	42,94	42,94	19,96	19,96	19,57	19,57		2,34	20%	18%	12,40
MIDDS	10,00	3100,00	1,12	43,06	43,03	75,32	95,28	73,66	93,23		2,10	74%	67%	46,65
TAILS	10,00	284,90	0,10	29,35	42,11	4,72	100,00	6,77	100,00		16,99	7%	6%	4,29
FEED		4208,70	1,52	42,11		100,00		100,00						
			Supposed to be	42,77	Rougher Cons									
RE-CLEANER M4A32														
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
CONS	10,00	781,90	0,28	40,38	40,38	18,96	18,96	19,68	19,68	0,28	1,53	20%	17%	11,62
MIDDS	10,00	2900,00	1,04	42,90	42,36	74,73	93,69	72,98	92,65	0,32	1,86	73%	62%	43,09
TAILS	10,00	292,00	0,11	35,97	41,89	6,31	100,00	7,35	100,00		9,99	7%	6%	4,34
FEED		3973,90	1,43	41,89		100,00		100,00						
			Supposed to be	43,03	Cleaner Cons + Midds							Yield	78%	
												Re-Cleaner Cons + Midds		
CYCLONE FEED			**15,31 % Cr2O3**							**4,52**	33,62			
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS			SEC Yield	Overall Yield	
U/F	3,00	1800,00	2,16	17,15	17,15	93,91	93,91	89,39	89,39	3,56	31,59	89%	20%	13,67
					17,15	0,00	93,91	0,00	89,39			0%	0%	0,00
O/F	3,00	213,60	0,26	9,37	16,32	6,09	100,00	10,61	100,00	7,46	40,08	11%	2%	1,62
FEED		2013,60	2,42	16,32		100,00		100,00						
			Supposed to be	15,31	Cyclone Feed									

Theoretical Yield and Recovery			
Feed	36,54		Feed
Conc	42,36		Re-Cleaner Cons + Midds
Tail	17,54		Re-Scavenger Midds + Tails
Yield	77%		
Recovery	89%		

Figure 9.34 – MG2 Mass Balance

SPIRAL TEST MASS BALANCE - METQ
LANGPAN - MG3 -500 micron - 2021-04-28

PLANT FLOW SIMULATED

										PGM	SiO2			
FEED	**MG3**			24,82						1,66	19,16			

ROUGHER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE T/H	TE Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2			
												Fresh tph	70,00	full tph
												Rougher feed	111%	77,95
												SEC Yield	Overall Yield	
CONS	10,00	2384,00	0,86	39,47	39,47	78,99	78,99	57,97	57,97	0,58	4,10	58%	65%	45,19
MIDDS	10,00	640,00	0,23	17,17	34,75	9,22	88,21	15,56	73,54	0,86		16%	17%	12,13
TAILS	10,00	1088,30	0,39	12,90	28,97	11,79	100,00	26,46	100,00	2,96		26%	29%	20,63
FEED		4112,30	1,48	28,97		100,00		100,00						
			Supposed to be	24,82	Feed									

SCAVENGER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE T/H	TE Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	629,50	0,23	34,86	34,86	40,31	40,31	20,04	20,04	0,66	9,32	20%	9%	6,57
MIDDS	10,00	842,70	0,30	14,65	23,29	22,68	63,00	26,83	46,87	1,45		27%	13%	8,79
TAILS	10,00	1668,80	0,60	12,07	17,33	37,00	100,00	53,13	100,00	3,18		53%	25%	17,41
FEED		3141,00	1,13	17,33		100,00		100,00						
			Supposed to be	14,48	Rougher Midds + Tails									

RE-SCAVENGER M1042

	SAMPLE TIME s	DRY MASS g	FEED RATE T/H	TE Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	457,40	0,16	37,93	37,93	28,88	28,88	13,67	13,67	0,42	5,81	14%	5%	3,58
MIDDS	10,00	861,50	0,31	22,94	28,14	32,90	61,78	25,74	39,40	1,70		26%	10%	6,74
TAILS	10,00	2028,30	0,73	11,32	17,95	38,22	100,00	60,60	100,00	3,22		61%	23%	15,87
FEED		3347,20	1,20	17,95		100,00		100,00						
			Supposed to be	12,94	Scavenger Midds + Tails									

CLEANER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE T/H	TE Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	781,50	0,28	41,80	41,80	19,05	19,05	17,71	17,71		1,40	18%	14%	9,80
MIDDS	10,00	3234,20	1,16	40,29	40,58	76,00	95,06	73,28	90,98		3,22	73%	58%	40,55
TAILS	10,00	398,00	0,14	21,30	38,84	4,94	100,00	9,02	100,00		21,46	9%	7%	4,99
FEED		4413,70	1,59	38,84		100,00		100,00						
			Supposed to be	39,47	Rougher Cons									

RE-CLEANER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE T/H	TE Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	751,50	0,27	41,97	41,97	21,90	21,90	21,13	21,13	0,68	1,13	21%	15%	10,64
MIDDS	10,00	2595,10	0,93	41,17	41,35	74,18	96,08	72,98	94,11	0,80	1,98	73%	52%	36,74
TAILS	10,00	209,40	0,08	26,96	40,50	3,92	100,00	5,89	100,00		17,18	6%	4%	2,96
FEED		3556,00	1,28	40,50		100,00		100,00						
			Supposed to be	40,58	Cleaner Cons + Midds									

Yield	68%
Re-Cleaner Cons + Midds	

Theoretical Yield and Recovery

Feed	24,82		Feed
Conc	41,35		Re-Cleaner Cons + Midds
Tail	14,78		Re-Scavenger Midds + Tails
Yield	38%		
Recovery	63%		

CYCLONE FEED **14,26 % Cr2O3**

	SAMPLE TIME s	DRY MASS g	FEED RATE T/H	TE Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
										0,92	23,14			
U/F	3,00	4026,90	4,83	16,35	16,35	98,57	98,57	96,01	96,01	2,10	26,22	96%	31%	21,71
					16,35	0,00	98,57	0,00	96,01			0%	0%	0,00
O/F	3,00	167,40	0,20	5,72	15,93	1,43	100,00	3,99	100,00	4,08	35,59	4%	1%	0,90
FEED		4194,30	5,03	15,93		100,00		100,00						
			Supposed to be	14,26	Cyclone Feed									

Figure 9.35 – MG3 Mass Balance

SPIRAL TEST MASS BALANCE - METQ
LANGPAN - MG4A -500 micron - 2021-06-02

PLANT FLOW SIMULATED

		PGM	SiO2
FEED MG4A	29,77	1,98	17,03

Fresh tph	70,00	full tph
Rougher feed	118%	82,45

ROUGHER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr2O3	Cr2O3 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	1600,00	0,58	36,84	36,84	65,30	65,30	49,38	49,38	0,58	9,05	49%	58%	40,71
MIDDS	10,00	717,00	0,26	23,26	32,64	18,48	83,77	22,13	71,50	0,86		22%	26%	18,24
TAILS	10,00	923,50	0,33	15,86	27,86	16,23	100,00	28,50	100,00	1,62		28%	34%	23,50
FEED		3240,50	1,17	27,86		100,00		100,00						
			Supposed to be	29,77	Feed									

SCAVENGER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr2O3	Cr2O3 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	2500,00	0,90	35,96	35,96	69,79	69,79	56,52	56,52	0,38		57%	34%	23,59
MIDDS	10,00	1500,00	0,54	22,34	30,85	26,01	95,80	33,91	90,43	0,46		34%	20%	14,15
TAILS	10,00	423,50	0,15	12,78	29,12	4,20	100,00	9,57	100,00	2,12		10%	6%	4,00
FEED		4423,50	1,59	29,12		100,00		100,00						
			Supposed to be	19,09	Rougher Midds + Tails									

RE-SCAVENGER M1042

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr2O3	Cr2O3 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	423,50	0,15	30,45	30,45	26,27	26,27	16,20	16,20	0,46	15,78	16%	4%	2,94
MIDDS	10,00	1600,00	0,58	18,46	20,97	60,16	86,43	61,22	77,42	0,54		61%	16%	11,11
TAILS	10,00	590,20	0,21	11,29	18,78	13,57	100,00	22,58	100,00	1,22		23%	6%	4,10
FEED		2613,70	0,94	18,78		100,00		100,00						
			Supposed to be	20,24	Scavenger Midds + Tails									

CLEANER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr2O3	Cr2O3 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	750,70	0,27	40,92	40,92	20,64	20,64	18,38	18,38		2,86	18%	18%	12,36
MIDDS	10,00	2900,00	1,04	37,50	38,20	73,08	93,73	71,02	89,40		7,78	71%	68%	47,75
TAILS	10,00	432,80	0,16	21,57	36,44	6,27	100,00	10,60	100,00		25,22	11%	10%	7,13
FEED		4083,50	1,47	36,44		100,00		100,00						
			Supposed to be	36,84	Rougher Cons									

RE-CLEANER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr2O3	Cr2O3 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	681,40	0,25	42,48	42,48	22,04	22,04	18,93	18,93	0,56	2,09	19%	16%	11,38
MIDDS	10,00	2600,00	0,94	36,11	37,43	71,49	93,53	72,22	91,15	0,52	6,85	72%	62%	43,41
TAILS	10,00	318,70	0,11	26,67	36,48	6,47	100,00	8,85	100,00		19,68	9%	8%	5,32
FEED		3600,10	1,30	36,48		100,00		100,00						
			Supposed to be	38,20	Cleaner Cons + Midds									

Yield	78%
Re-Cleaner Cons + Midds	

Theoretical Yield and Recovery

Feed	29,77		Feed
Conc	37,43		Re-Cleaner Cons + Midds
Tail	16,53		Re-Scavenger Midds + Tails
Yield	63%		
Recovery	80%		

CYCLONE FEED **15,82 % Cr2O3** — PGM 1,74; SiO2 31,85

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr2O3	Cr2O3 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
U/F	3,00	3200,00	3,84	17,30	17,30	98,29	98,29	96,86	96,86	1,88	28,97	97%	21%	14,73
					17,30	0,00	98,29	0,00	96,86			0%	0%	0,00
O/F	3,00	103,80	0,12	9,30	17,05	1,71	100,00	3,14	100,00	5,88	36,19	3%	1%	0,48
FEED		3303,80	3,96	17,05		100,00		100,00						
			Supposed to be	15,82	Cyclone Feed									

Figure 9.36 – MG4A Mass Balance

SPIRAL TEST MASS BALANCE - METQ
LANGPAN - MG4B - 2021-07-14

PLANT FLOW SIMULATED

					PGM	SiO2
FEED	**MG4B**		34,59		0,82	11,94

ROUGHER M4A32

												Fresh tph	70,00	full tph
												Rougher feed	119%	83,02
	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	3272,80	1,18	40,01	40,01	86,11	86,11	77,00	77,00	0,22	4,37	77%	91%	63,93
MIDDS	10,00	585,30	0,21	24,82	37,71	9,55	95,67	13,77	90,77	0,64		14%	16%	11,43
TAILS	10,00	392,20	0,14	16,80	35,78	4,33	100,00	9,23	100,00	0,98		9%	11%	7,66
FEED		4250,30	1,53	35,78		100,00		100,00						
			Supposed to be	34,59	Feed									

SCAVENGER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	1348,00	0,49	36,90	36,90	37,62	37,62	26,68	26,68	0,44	8,58	27%	7%	5,09
MIDDS	10,00	2251,10	0,81	27,20	30,83	46,31	83,93	44,56	71,24	0,57		45%	12%	8,51
TAILS	10,00	1452,90	0,52	14,62	26,17	16,07	100,00	28,76	100,00	1,06		29%	8%	5,49
FEED		5052,00	1,82	26,17		100,00		100,00						
			Supposed to be	21,60	Rougher Midds + Tails									

RE-SCAVENGER M1042

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	316,70	0,11	34,17	34,17	24,34	24,34	15,09	15,09	0,26	12,05	15%	3%	2,11
MIDDS	10,00	1356,30	0,49	21,25	23,70	64,83	89,17	64,63	79,72	0,72		65%	13%	9,05
TAILS	10,00	425,70	0,15	11,31	21,18	10,83	100,00	20,28	100,00	2,50		20%	4%	2,84
FEED		2098,70	0,76	21,18		100,00		100,00						
			Supposed to be	22,27	Scavenger Midds + Tails									

CLEANER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	729,10	0,26	42,06	42,06	22,33	22,33	21,28	21,28		2,31	21%	22%	15,13
MIDDS	10,00	2416,80	0,87	41,23	41,42	72,55	94,88	70,53	91,80		3,38	71%	72%	50,17
TAILS	10,00	280,90	0,10	25,02	40,08	5,12	100,00	8,20	100,00		22,48	8%	8%	5,83
FEED		3426,80	1,23	40,08		100,00		100,00						
			Supposed to be	40,01	Rougher Cons									

RE-CLEANER M4A32

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
CONS	10,00	658,70	0,24	42,50	42,50	17,40	17,40	16,75	16,75	< 0,14	2,48	17%	16%	10,94
MIDDS	10,00	2840,30	1,02	41,52	41,70	73,32	90,72	72,24	88,99	0,18	3,17	72%	67%	47,17
TAILS	10,00	432,90	0,16	34,47	40,91	9,28	100,00	11,01	100,00		11,56	11%	10%	7,19
FEED		3931,90	1,42	40,91		100,00		100,00						
			Supposed to be	41,42	Cleaner Cons + Midds									

Yield	83%
Re-Cleaner Cons + Midds	

Theoretical Yield and Recovery

Feed	34,59		Feed
Conc	41,70		Re-Cleaner Cons + Midds
Tail	18,88		Re-Scavenger Midds + Tails
Yield	69%		
Recovery	83%		

CYCLONE FEED — **17,43 % Cr2O3** — PGM **1,40** — SiO2 31,36

	SAMPLE TIME s	DRY MASS g	FEED RATE TE T/H	Cr2O3 %	CUM % Cr203	Cr203 % REC	CUM % REC	MASS % REC	CUM % MASS	PGM	SiO2	SEC Yield	Overall Yield	
U/F	3,00	2146,70	2,58	20,68	20,68	95,34	95,34	91,06	91,06	0,92	27,68	91%	15%	10,82
					20,68	0,00	95,34	0,00	91,06			0%	0%	0,00
O/F	3,00	210,80	0,25	10,29	19,75	4,66	100,00	8,94	100,00	1,70	37,25	9%	2%	1,06
FEED		2357,50	2,83	19,75		100,00		100,00						
			Supposed to be	17,43	Cyclone Feed									

Figure 9.37 – MG4B Mass Balance

9.3.4 Process Flow Diagram and Process and Plant Description

SR 5.3(iii)(vi)
SR 5.6(viii)

Figure 9.38 is a Schematic Process Flow Diagram utilised for the testwork program. The flowsheet of the proposed metallurgical plant is the same as the testwork flowsheet except that the tailings cycloning step has been excluded.

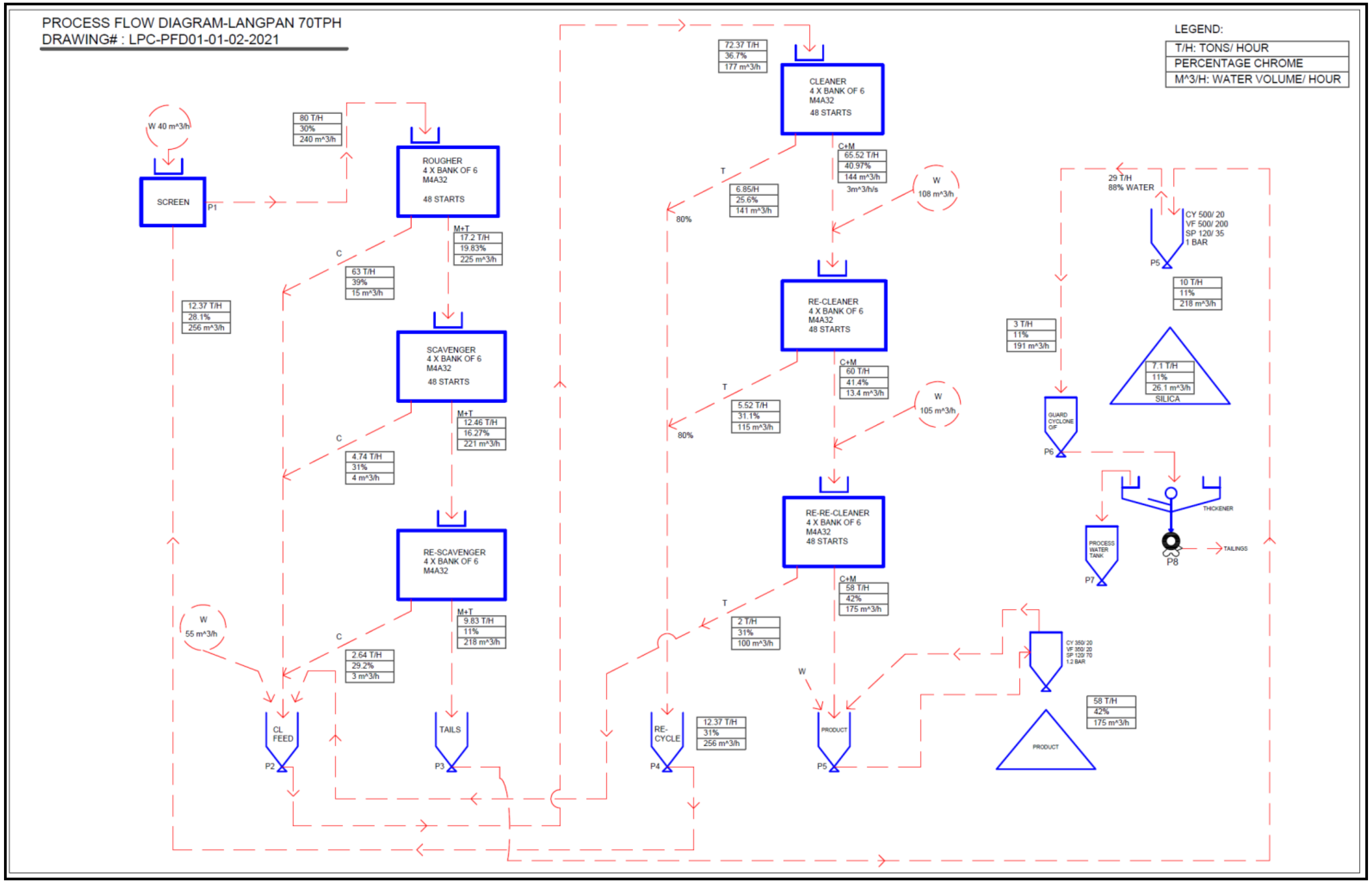


Figure 9.38 – Plant Schematic Process Flow Diagram

A process plant exists and is being upgraded. The design of the Gravity Recovery Circuit (GRC) is based on tried and tested technology and comprises the use of spiral concentrators (spirals), which are generally standard throughout the South African chrome industry. Minor design improvements will be incorporated using lessons learned from the test work. Wherever possible, existing equipment will be retained to reduce capital expenditure. The old spirals will be refurbished, and new spirals will be added to the circuit to improve recovery and yield. The existing spiral structure will be retained with a few structural modifications. Existing sumps, pumps and pipelines will be incorporated. All steel modifications will be approved by a professional engineer. Instrumentation will be minimal. The design accommodates a throughput of 30ktpm or 70 tph, with a potential 20% variation. The volume pumped to the spirals will remain constant, but the pulp density will be allowed to fluctuate.

Slurry from the wet screen will be pumped to a 48-way distributor via the spiral feed tank, where process water will be added through a density control circuit to control the pulp relative density at an average of 1.3 kg/ℓ.

The GRC feed and tailings lines will be equipped with a densitometer and flow meter for mass integration capability to control the feed.

The concentrate from the rougher spirals will be controlled to a density of 1.6 kg/ℓ, gravitated directly to the cleaner spiral feed tank ahead of the cleaner spiral banks. The middlings and tailing streams from the rougher spiral bank will gravitate into scavenger spiral distributor and then to the scavenger bank.

The GRC will consist of twenty-four banks of 6 spirals. Distributors will be arranged in a pattern to ensure an optimum even feed distribution between the spirals. The rougher, scavenger and re-scavenger spirals will be vertically stacked above one another, making use of gravity feed to each section below. All the spirals will have adjustable cutters that will allow for the production concentrate, middlings and a tailings stream on all stages.

There will be an isolation valve on each discharge of the twelve-way pressure distributor so that a single nest may be taken off-line at a time without affecting the rest of the Chrome Recovery Plant. This will include the process water take-off of the ring main manifold for each specific bank to facilitate maintenance, or if the average volumetric flow rate is too low.

The rougher spirals comprise four banks of six spirals with four turns each. All spirals will be twin feed.

The scavenger and re-scavenger spirals will be similar to the rougher spirals. Concentrate from scavenger and re-scavenger will report to cleaner feed tank, whilst middlings and tails will be the feed to next stage of the gravity separation stage. The four banks of six cleaner spirals with three turns will be fed at a pulp density of 1.6 kg/ℓ.

The re-cleaner and re-re-cleaner spirals will be of the three turn, double start type. They will be fed at a pulp density of 1.5 kg/ℓ. At each stage, the concentrate and middlings will be processed for further cleaning, whilst the tailings will be split off into a central discard pipe reporting to re-cycle sump.

Dilution water will be added to the feed of each spiral stage via a ring type manifold and each spiral will have its own manual control valve.

Concentrate and middlings from the re-re-cleaner spiral bank will gravitate to the product sump. The tailings stream will gravitate to the cleaner feed tank.

It is intended to modify the existing plant to the above flow sheet description.

The process plant uses well known and existing technologies. The process is not novel in any way. The process equipment used is also well-tried technology.

9.3.5 Chrome Plant Tailings Disposal

The middlings and tailings from the re-scavenger stage will gravitate to the tailings sump. The tailings will be pumped to a guard cyclone, the overflow of which will be pumped to the thickener.

Thickener underflow will be pumped directly to the existing TSF. A densitometer and flow meter will be installed on this line with mass integration capabilities to allow for proper control of this stream. The thickener underflow stream will be delivered to the TSF at a density of 1.45 kg/ℓ. The thickener overflow will be pumped to the spiral plant process water tank.

The tailings stream pumped to the TSF contains economic quantities of PGM's and will be reclaimed and sold once dry. It is estimated that tailings paddock cycle times will be of the order of 3 months. One paddock will be filled and allowed to dry over a period of 3 months, during which time the next paddock will be being filled. Once the first paddock has dried out, the tailings will be reclaimed and transported to the PGM flotation plant. Therefore, the TSF is temporary and will not exist at the end of the mine's life.

The tailings, when dry, will be reclaimed with a loader and tipped into a truck. Once in the truck, grab samples will be taken with a shovel and the samples placed in clearly marked bags prior to despatch to the assay laboratory. It may be possible to auger sample the tailings, depending upon how wet the tailings are. A clause in the agreement with Stratore will include mechanisms for providing a sample to Stratore and for umpire sampling. The mass of tailings in each truck will be determine by passing the truck over a weighbridge.

An order of magnitude study was carried out to determine the relative economics of Stratore purchasing the entire tailings stream and purchasing a PGM containing upgraded cycloned product. The study showed that the preferred option was to sell the entire tailings stream to Stratore, who would facilitate upgrading the tailings stream in a flotation plant prior to on-selling to a PGM smelter.

9.3.6 Chrome Concentrate Stockpiling Facility

From the product sump, the concentrates will be pumped to one of two overhead de-watering cyclones from where the underflow will drop directly onto a concrete stockpile area. The overflow of the de-watering cyclone will be returned to product sump.

Drainage from the metallurgical grade stockpiles will gravitate to the lowest point, centrally between the two stockpiles, with a retaining wall to cater for two days stockpile run off and will be pumped via a sump and spillage pump to the spiral process water tank.

9.3.7 Overall Mass Balance

Detailed process flow and mass balances have been produced.

The overall mass balance for the five reefs, MG1, MG2, MG3, MG4A and MG4B, was calculated from the mass balances for each of these reefs, as presented in Figures 9.33, 9.34, 9.35, 9.36 and 9.37 in the Spiral Testwork Section 9.3.3.

The % mass, chrome assays and chrome recoveries for the individual seam tests were weighted according to the Mineral Reserve tonnages for each seam, as presented in Table 9.6 of the Spiral Testwork Section.

The tonnage weighted average mass balance is shown in Table 9.7 below. The results from each stage of the spiral testwork on each seam were weighted according to the Mineral Reserve tonnages for each seam. It should be noted that the figures in the “% mass” column are the % masses from each stage test. As a result, only the % masses for the initial rougher test add to 100%.

Calculation of the various metallurgical factors was carried out as follows:

- Chrome yield was determined from the calculated tonnages of the flows from the testwork spreadsheets
- Tailings tonnage is 100% minus the chrome yield
- Tailings chrome grade was calculated from the tailings grades and masses of the middlings and tailings from the re-scavenger tests.

It should be noted that the % mass of the tailings stream, as determined from testwork tonnage calculations, is lower than the tailings tonnage when calculated from 100% minus the chrome yield. This is a result of the fact that in the testwork, the samples used for the stage spiral tests did not include all of the re-circulations which occur in a spiral testwork program.

Table 9.7 – Tonnage Weighted Mass Balance from the Testwork across the five Seams				
	% Mass	% Cr2O3	% Chrome Yield	gpt 3PGE+Au
Rougher				
Feed	100,0	32,2		1,52
Concentrate	63,7	35,85	78,13	
Middlings	17,1	20,59	12,17	
Tailings	19,4	16,11	9,70	
Scavenger				
Concentrate	12,5	36,11	45,86	
Middlings	12,3	21,92	32,23	
Tailings	11,5	13,63	21,91	
Re-Scavenger				
Concentrate	3,2	33,83	25,18	
Middlings	10,4	18,77	46,15	
Tailings	10,4	11,80	28,67	
Cleaner				
Concentrate	14,9	41,76	20,05	
Middlings	57,9	40,08	74,54	
Tailings	7,2	20,11	5,41	
Re-Cleaner				
Concentrate	65,9	40,56	93,29	
Tailings	6,3	32,29	6,71	
Plant Tailings				
Tailings	34.1			2,04

A summary of the results in the weighted average mass balance as shown in Table 9.8.

Table 9.8 – Summary of Tonnage Weighted Average Mass Balance		
	Units	**Value**
Chrome feed grade of samples used for testwork	% Cr_2O_3	32.2
Chrome grade of Mineral Reserve	% Cr_2O_3	31.72
PGMs feed grade of samples used for testwork	gpt PGMs	1.52
Mass yield of chrome concentrate	% mass	65.9
Grade of chrome concentrate	% Cr_2O_3	40.56
Chrome tailings	% mass	34.1
PGM grade of chrome tailings	gpt PGMs	2.04
Ore to tailings PGE upgrade factor	-	1.342

The % mass of the chrome plant tailings is 34.1% and the ore to tailings PGE upgrade factor is 1.342.

On the full-scale plant, it is expected that the chrome grade of the final concentrate will be higher than that achieved in the testwork due to the higher chrome grade of the Mineral Reserve as compared to the average head grade of the samples used for the testwork. It is also generally accepted metallurgical practice that the chrome concentrate grade achieved on a full-scale plant will be higher than that achieved in testwork.

A comparison of the PGM grades of the Mineral Reserve for the five reefs to the head grades of the samples taken for testwork of the five reefs are shown in Table 9.9 below.

Table 9.9 – Comparison of PGM Mineral Reserve and Sample Head Grades			
Reef	**Mineral Reserve Tonnes (Mt)**	**Mineral Reserve Grade 3PGM gpt**	**Sample Head Grade 3PGM+Au gpt**
MG1	0.20	1.16	0.74
MG2	0.33	1.34	2.22
MG3	0.48	1.84	1.66
MG4A	0.58	1.56	1.98
MG4B	0.58	0.80	0.82
Total	**2.17**		
Weighted Average		**1.35**	**1.52**

It should be noted that the Mineral Reserve head grade in the table above is quoted as 3PGEs, whereas the samples head grades were analysed as 3PGEs plus gold.

There is a 13% variation between the tonnage weighted averages of the Mineral Reserve grade and the grades of the samples obtained for the testwork. Taking into account that the samples taken for testwork were not drill core samples but mechanically taken samples, this difference is considered to be acceptable. This 13% variation is within the levels of accuracy required for a pre-feasibility study, which is generally +- 25%.

As stated above, the samples obtained for the testwork were samples which were typical of the material in the respective chrome reefs. Chrome ore within the respective reefs does not exhibit material mineralogical variation. The various reefs do exhibit minor variations in mineralogy between the respective reefs.

9.3.8 Plant Yield

Previous plant performance information indicated that the plant yield achieved was +-56%.

The average chrome yield, weighted by the Mineral Reserve tonnage for that reef, is 65.9%. It is accepted metallurgical practice to deduct of the order of two percentage points from the testwork recovery number to allow for scale-up in the full-scale plant when compared to spiral testwork.

The average weighted chrome grade of the Mineral Reserve is 31.72% Cr_2O_3. This is similar to the average grade of the samples used for testwork. As a result, it would be expected that chrome yields would be similar than those achieved in the testwork. The weighted average chrome concentrate grade achieved in the testwork was 40.56% Cr_2O_3. Generally higher concentrate grades are achievable in an operating plant than in testwork programs.

It is accepted metallurgical practice to deduct of the order of two percentage points from the testwork recovery number to allow for inefficiencies in the full-scale plant and for a scale-up factor from testwork to the full-scale plant. when compared to spiral testwork. The predicted average chrome yield across the five seams is therefore 63%.

9.3.9 Dispatch Facility

Access for external road transportation to the area is through an existing security check point and all vehicles entering and leaving the area will be weighed.

9.3.10 Compliance of Mineral Reserve Estimate

Metallurgical testwork for chrome recovery has been performed on samples of all five of the seams to be mined and processed, i.e. MG1, MG2, MG3, MG4A and MG4B. The testwork performed is considered to be at a pre-feasibility level of study. This statement is supported by the fact that chrome and PGM processing technologies, as proposed for the Langpan mine, are well known and proven processes. For a pre-feasibility study, it is not required to perform testwork on representative samples of the deposit when the technologies of extraction are well known and when the mineralogy of the ores are relatively consistent. Testwork on typical grab or mechanically taken samples are acceptable.

The chrome seams of the Western Limb of the Bushveld Complex are relatively consistent across the complex and results achieved on a specific mine will likely be similar to those achieved on neighbouring mines. The major factor affecting the similarity of the respective results will be the complexity of the processing plants.

The samples obtained for the testwork were samples which were typical of the material in the respective chrome seams. Chrome ore within the respective reefs does not exhibit material mineralogical variation. The various reefs do exhibit minor variations in mineralogy between the respective reefs. Representative samples, as required for a feasibility study, are obtained by drilling the deposit and selecting samples across the mining width over the life of mine. Typical samples (typical of the mineralogy and grade of the reef) are the accepted standard for a pre-feasibility study. Typical samples are obtained by selecting samples from exposed reef. A comparison of the tonnage weighted average PGE grades of the Mineral Reserve for the five seams, the head grades of the samples taken for testwork of the five seams are shown in Table 9.9. There is a 13% variation between the tonnage weighted averages of the Mineral Reserve grade and the grades of the samples obtained for the testwork. There are significant differences between the individual Mineral Reserve grades and the head grades, but there does seem to be some levelling of these differences in the tonnage weighted averages of the respective grades.

Taking into account that the samples taken for testwork were not drill core samples but mechanically taken samples, this difference between the average grades is considered to be acceptable. This 13% variation is within the levels of accuracy required for a pre-feasibility study, which is generally +- 25%. The fact that five samples were taken of the different reefs, mitigates against the differences between the grades of the individual reefs.

As the head grade increases, in metallurgical processes generally, the recovery (which is linked to the head grade), also increases. Obviously, the more tests that are carried out will result in an increase in the confidence level of the results.

No flotation testwork has been carried out on the chrome plant tailings. As an indication of the flotation plant recoveries that should be achieved, the operating results from the Sylvania flotation plant were considered. The flowsheets of the Sylvania plants are similar to the flowsheet that would be used to process the Langpan chrome plant tailings.

The tailings 3PGE grade, upgrade ratio of 1.34 discussed above is based on the testwork carried out. The testwork gave a tailings mass pull of 24% with tailings PGE grade increasing by a ratio of 1.34. The 24% tailings mass pull is considered to be on the low side as intermediate products in the spiral testwork could not be recirculated for practical reasons. Recycling these intermediate products would certainly result in a significantly higher tailings mass pull. Doing so would require a testwork program simulating a complete spiral plant, consisting of roughers, cleaners, re-cleaners, scavenger and re-scavengers. This would require obtaining samples of the of tens of tons to feed a multiple spiral plant.

The testwork indicated that at a tailings mass pull of 24%, the tailings PGE grade would increase by a ratio of 1.34. It is considered that if the tailings mass pull was increased by recirculating the intermediate products to +-34% then the increase in grade of the PGE containing tailings material would be similar to the 1.34 ratio discussed above. While it would appear that the 1.34 upgrade ratio is decoupled from the tailings mass pull of 34%, it is believed that recirculating the intermediate products from the spirals would result in the tailings mass pull increasing to +-34% and would confirm the 1.34 upgrade ratio. There is risk that the upgrade ratio may be lower, but is it considered that there is a minimal chance that the ratio would be lower than 1.2. A ratio of 1.2 would be within the accuracy of a PFS at +-25%. This issue has been addressed in the risk register.

9.3.11 PGM Product and Revenue Sensitivities

It is proposed that the chrome plant tailings which contain PGEs will be sold to a purchaser at the mine gate. This product will be upgraded by the purchaser prior to being sold on to a PGM smelter. The process typically used for upgrading is flotation.

Flotation testwork has not been carried out on any material from the Langpan deposit.

However, publicly available information on two PGM flotation operations, treating chrome plant tailings, Tharisa Mining and Sylvania Dump Operations, was obtained.

At Tharisa, the process plant flowsheet comprises crushing and primary milling of the open pit ore, followed by the chrome recovery plant (spirals), secondary milling, flotation for PGM recovery and a secondary chrome recovery plant. Tharisa achieved chrome yield of 26.9% on a low head grade of 17.9% Cr_2O_3. and a PGM recovery (FY 2021) of 77% on a PGM head grade of 1.49 gpt. This relatively high PGM recovery is a result of the complexity of the Tharisa plant, which includes secondary milling of the chrome plant tailings ahead of flotation.

Sylvania operate a number of flotation plants at various locations. The plant feed is a blend of current arisings from the chrome recovery plants (not operated by

Sylvania) and accumulated chrome plant tailings. Sylvania do not regrind the chrome tailings ahead of flotation. The PGM recoveries from their various operation vary between 50 and 65%, with average overall recoveries of 52% (FY 2021). Sylvania have plans to improve PGM recoveries by installing a secondary milling and secondary flotation circuits at their various operations (commonly referred to in PGM processing as an MF2 circuit). The addition of an MF2 circuit results in increased capital expenditure and operating costs, off-set against increased recoveries.

Langpan have letter of intent from Stratore to purchase the PGM containing tailings at a price of 70% to 85% of the contained metal at the prevailing commodity prices. A more conservative 66% has been used in the valuation model. As can be seen from the above discussion, there is risk that the recovery from the tailings may be lower than the proposed payment terms putting this letter of intent in question. A range of sensitivities on payment terms for the PGM tailings has therefore been run in the valuation model.

The high end of this range of sensitivities is based on payment as per the 66% used in the valuation model. More conservative downside sensitivities have been based on the following factors:

- The range of flotation recoveries discussed above (low, medium, and high flotation recoveries were selected being 40%, 50% and 60%).
- Payment for 75% of the PGM metal recovered in the flotation process
- A revenue deduction was calculated to allow for the transport and flotation plant operating costs that will be incurred in the downstream processing of the tailings in a flotation plant selected by Stratore. At this stage, it is likely that the plant used for the treatment of the tailings will be the Lanxess plant, located approximately 80 km from Langpan. A transport cost of R1-50 per tonne per kilometer of dry material has been quoted on another project in this area. Allowing for a moisture content in the tailings as shipped of 25%, the cost per dry ton of tailings will be R2-00 per tonne. The transport cost will therefore be R160 per tonne for the 80 km trip. Using information from the CV's database, a typical flotation plant operating cost (without milling) will be R80 per tonne. The total operating cost will then be R240 per tonne. The PGM basket prices used to show sensitivities to the PGM prices have been based on spot prices on 9th December 2021 (R 42 475.83 / oz). Using this PGM basket price, the contained value per tonne of tailings will be R 2 786 /t. The operating cost will

then be equivalent to 8.6% of the contained value of the tailings. These figures have been used as a deduction from the flotation recovery to determine the payable value of the tailings.

- Each of the sensitivities was calculated as a product of these three values. Using the PGE prices discussed above, the payable percentages for 40%, 50% and 60% flotation recovery resulted in payable percentages of 27.4%, 34.3% and 41.1% respectively.

These sensitivities have all returned a positive result for the sale of the PGM containing tailings.

9.3.12 Effect of Weathering

Weathering of the Chrome seams can have an impact on the metallurgical recoveries in the processing operation, specifically in the flotation of the PGMs.

The metallurgical testwork samples were taken from the existing open pit face, not from near surface exposures of the seams. Based on the acceptable chrome yields achieved, it is unlikely that significantly weathered ore will be delivered to the processing plant. The ore to be mined in the initial phases of mining would be taken from the areas where the testwork samples were taken, it is expected that in the plant, similar chrome yields would be achieved.

In the case of the PGM recoveries, weathered ore would have an effect on flotation recoveries. To take account of this, sensitivities have been proposed to the financial model reducing the flotation recoveries to 40%, 50% and 60%. These sensitivities should account for a quantum of weathering, as the ore to the plant will be blended by mining different seams at any given time.

9.3.13 Benchmarking

In the chrome industry, the specification for metallurgical grade chromite concentrate is a minimum of 42% Cr_2O_3. The testwork has shown that this concentrate grade is achievable. Generally higher chrome concentrate grades are achieved in operating plants at similar recoveries, as a result of the recirculation of intermediate products (which does not take place in testwork) and the benefits of continuous plant operation.

South African major chrome mining companies generally do not publish information relating to plant recoveries. In the experience of the author of this section of the CPR, plant yields are generally within the range of 60 – 70%. The 63% number proposed in this CPR is therefore of the same order when compared to other South African chrome mining companies. This is partially explained by the known fact that plant yields are generally higher than those achieved in testwork.

Publicly available information on two PGM flotation operations, treating chrome plant tailings, Tharisa Mining and Sylvania Dump Operations, was obtained. This information is included in Section 9.3.11 above.

9.4 Project Infrastructure

SR 4.3(iii)
SR 5.4(i)(ii)

9.4.1 Mine Infrastructure

Langpan Mine is still in development phase and the main infrastructure such as the mine offices, mine contractor offices and permanent workshop facilities will be provided by the mining contractor. A processing plant is currently on site and is undergoing a R32.45m upgrade currently with commissioning due in July 2022.

The chrome ore is planned to be hauled out of the opencast pit and tipped onto a run of mine pad where it is stockpiled in 1000t piles which are assayed and approved before being trucked to the run of mine stockpile area from where it is fed into the beneficiation plant. The trucks delivering the ore, cross over a weighbridge before tipping onto the stockpile to determine the exact feed to plant. The infrastructure is shown in Figure 9.39.

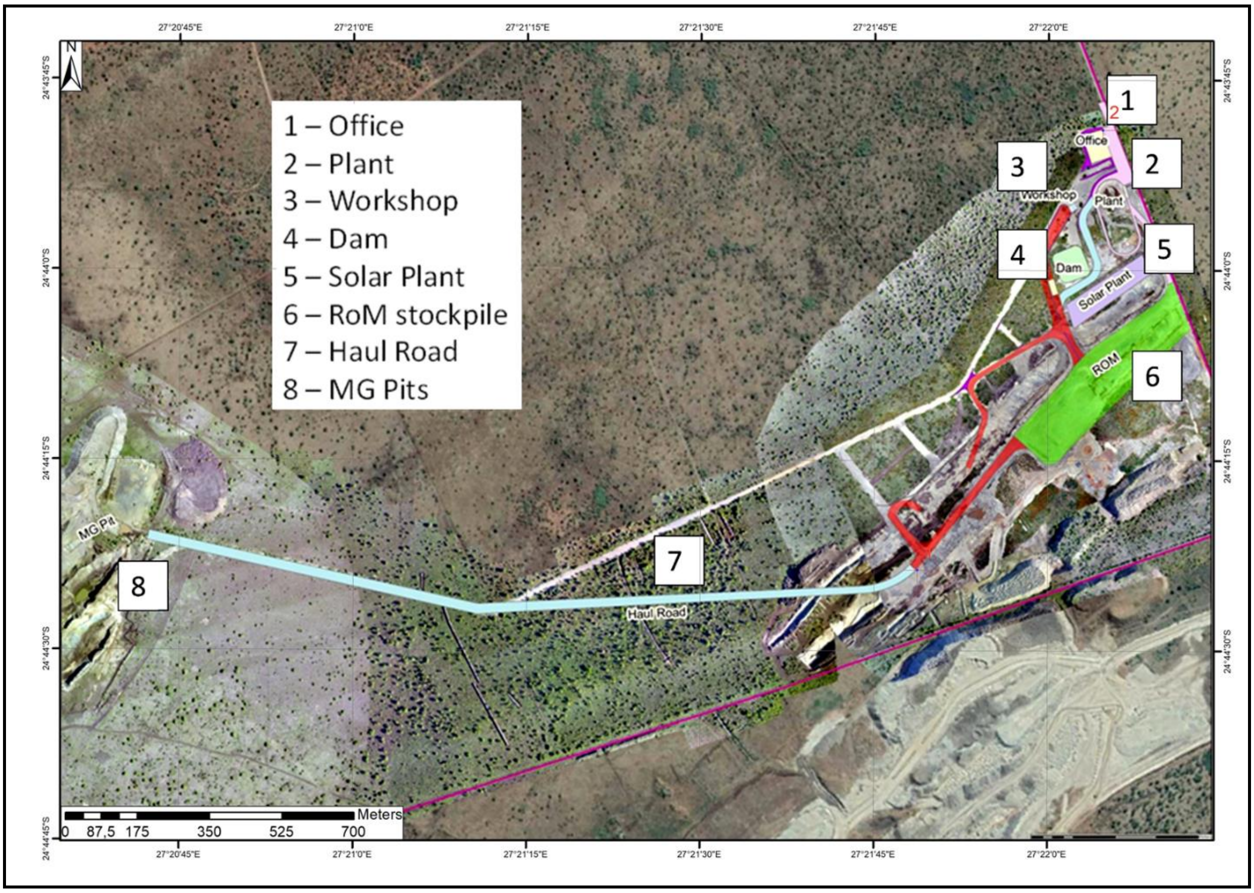


Figure 9.39 – Future mine infrastructure

9.4.2 Services

Power Supply

It was originally envisaged that the mine would rely on the integration of an Eskom Rural 22kV overhead line supply, two existing Doosan 500kW diesel generators and an 800kW hybrid photovoltaic (PV) inverter coupled system. However, it has now been decided that the PV system will not be installed initially. If it proves economical, it may be considered as an option in the future such as if ESKOM future charges become excessive. A capital allowance for ESKOM deposits and connections has been allowed for.

The mine has an ESKOM power supply of 800KVA at the farmhouse and an overhead line is to be built to bring the power to the infrastructure area. A solar installation will be commissioned on site for most of the power required and a diesel generator will supply the remaining power.

Water Supply

The mine gets water for its operations from a neighbouring farmer and has concluded a lease to this effect. The pipeline from the farmer's dam to the plant area is shown in Figure 9.40.

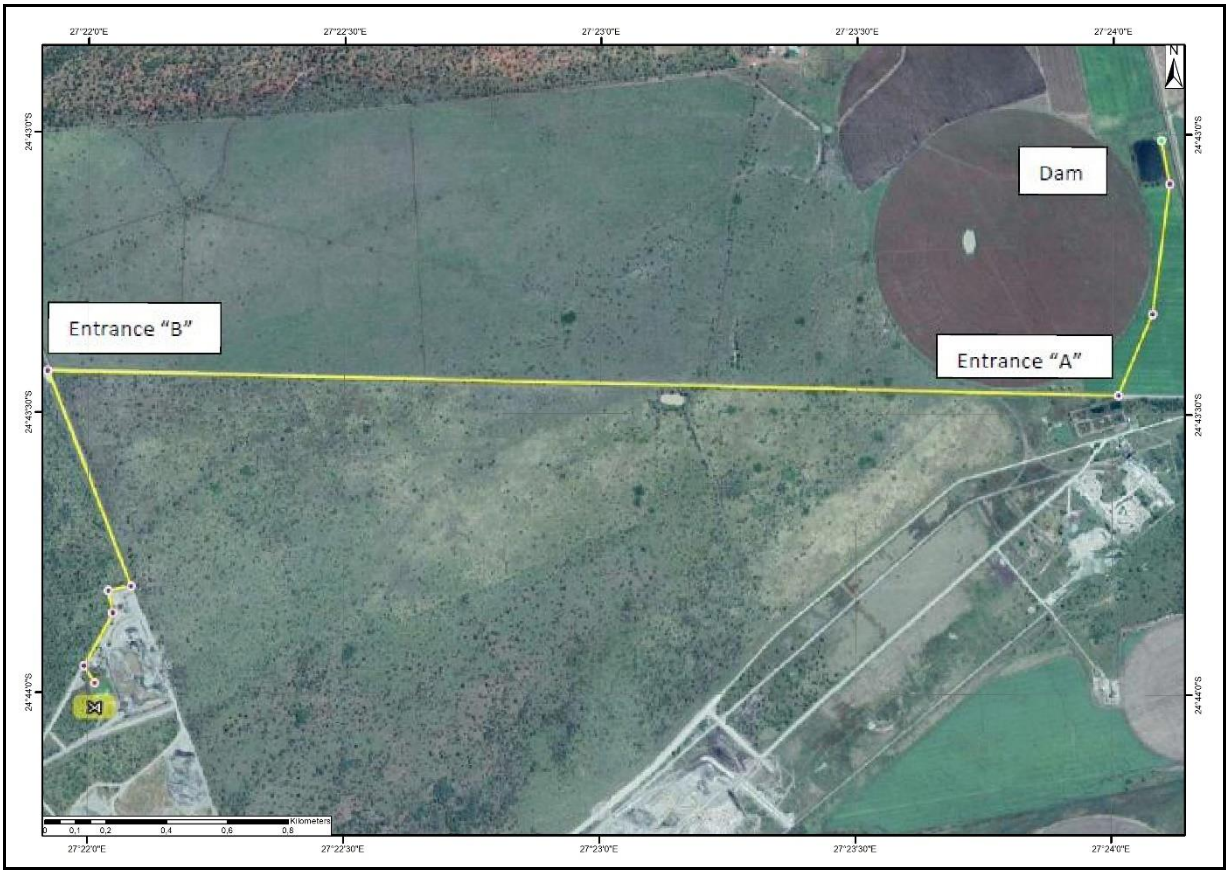


Figure 9.40 – Pipeline Route from farmers dam to the plant area (yellow line)

Langpan has also obtained permission to connect to the Magalies pipeline which runs along the R510 and will install a pipeline to the infrastructure area. This water will also be used for dust suppression, as water from the pit is not expected until level 902 is reached in the pit.

Access Roads

The mine is easily accessible from major towns and cities by national roads and highways and the entrance is on the Amandelbult road running between the R510 and R511. Internal roads have been constructed from the entrance to the wash plant and office area. The haul roads from the pit to the plant will be constructed on the backfilled LG pits so that no more vegetation is disturbed. Figure 9.41 shows the major access roads.

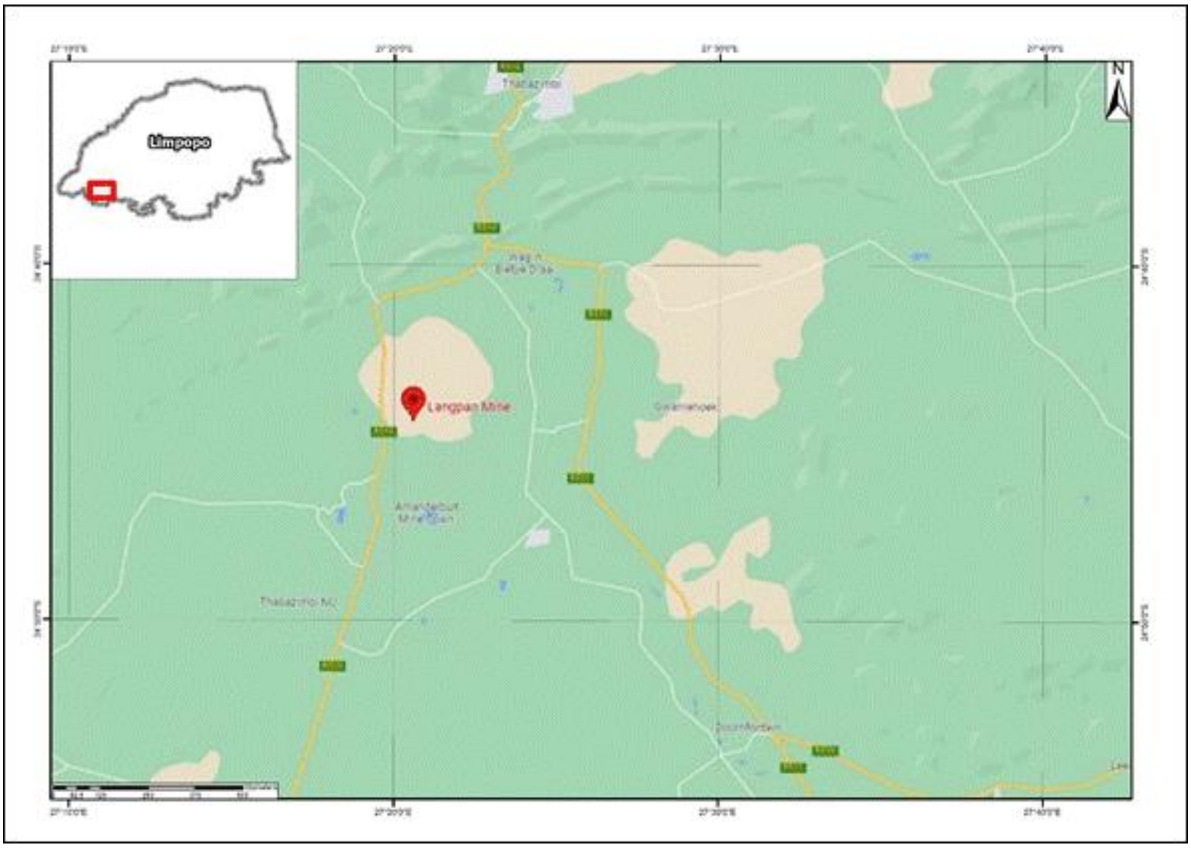


Figure 9.41 – Access roads to Langpan Mine (Source – Google Maps)

9.4.3 Mine Logistics

All necessary mine logistics have been considered being that this is an operating mine. SR 5.4(iii)

9.5 Market Studies and Contracts

Langpan has a sales contract in place with Scutella Ventures (Scutella Ventures APC Supply Agreement and Third Addendum to Supply Agreement) for a base price of USD155/RoM tonne.

SR 4.3(vi)
SR 5.6(i)(ii)

9.6 Environmental Studies

Memor Mining have completed an Environmental Impact Assessment (EIA) and Environmental Management Program (EMP) for the Langpan Chrome Mine, this has been submitted and approved by the DMRE and supports the mining license for the property that was awarded by the DMRE in 2018.

JSE 12.10(h)(viii)
SR 1.5(ii)
SR 4.3(v)
SR 5.5(i)(iii)

Although the signed and stamped EMP documents were not available for review (these have been requested from the DMRE but not yet received) the following documentation was reviewed in regard to the environmental aspects of the mine:

- An unsigned, undated EIA / EMP compiled by Prescali Environmental Consulting
- An incomplete EMP document starting on pg23. Signed in 2004 by the DMRE.
- Waste Rock classification – short report
- Geohydrology report – date 2013
- Proof of payment for Water Use License application: 5th April 2019
- Jpeg screenshot of Application Communication on the DWA website: No date
- Jpeg screenshot of the DWA website showing the new application approved. No date.

The CP is not aware of any negative or adverse impacts that have been identified by the environmental studies undertaken that would pose a threat to the proposed mining operation. In addition, the CP is not aware of any non-compliance with the EMP that may have occurred during the previous mining operations. Environmental studies would need to be amended and resubmitted to the DMRE for approval based on the updated mining plan on award of the Section 11 (see Legal and Permitting section below).

9.7 Legal and Permitting

SR 1.5(iii)(v)
SR 4.3(iv)(v)
SR 5.5(ii)

Memor Mining obtained an approved Mining Right (MR) (MR No: LP 30/5/2/2/1/10075MR duly signed on the 18th of September 2018, this MR is valid until 17 September 2033. The Mining Right includes for Chrome Ore and Platinum Group metals. The MR is for the farm portion Langpan 371 KQ and covers an area of 241.6 hectares. A signed and stamped copy of this Mining Right has been viewed.

In terms of the MR conditions the rights holder must undertake mining operations in accordance with:

- The Mining Work Programme (MWP)
- The EMP (discussed above); and
- The SLP (discussed below)

Memor Mining have historically conducted mining operations in accordance with the conditions of the Mining Right and the CP is not aware of any deviation from the provisions of the MR that have occurred or any communication or direction from the DMRE in this regard.

A Section 11 Consent for the change in ownership of the mine from Memor Mining to Langpan Mining Co. has been received from the DMRE on the 6th December 2021.

Langpan Mining Co. plans to restart operations under the auspices of the above approvals, although there are differences between the existing MWP and the current mining plan. The MWP has been viewed and compared to the mining plan proposed by Langpan Mining Co. and the CP considered that the differences are minor. Now that the Section 11 Consent has been awarded, it will be necessary to initiate work on the amendments to the MWP, EMP and SLP to conform with the new mining plan. It is not expected that there will be any issues in obtaining approval for the amendments to the above documents.

A Water Use License has been applied for and approved, however the approval letter and supporting documentation has not been made available for review.

9.8 Taxation

This is covered in the Valuation Section 9.13.

9.9 Social or Community Impact

SR 5.5(iv)(v)

Memor Mining have completed a Social and labour Plan (SLP) for the Langpan Chrome Mine. This has been submitted and approved by the DMRE and supports the mining license for the property that was awarded by the DMRE in 2018.

Although the signed and stamped SLP documents were not available for review (these have been requested from the DMRE but not yet received) the following documentation was reviewed in regard to the social aspects of the mine:

- SLP dated and signed 5 June 2014.

The CP is not aware of any negative or adverse impacts that have been identified by the social studies undertaken that would pose a threat to the proposed mining operation. In addition, the CP is not aware of any non-compliance that may have occurred during the previous mining operations. The SLP will need to be amended and resubmitted to the DMRE for approval based on the updated mining plan now that the Section 11 has been awarded (see Legal and Permitting section above).

9.10 Mine Closure

SR 1.7(i)
SR 5.6(ix)

A Financial Guarantee (Number 0469/34989218) for the rehabilitation of land disturbed by mining has been provided by Nedbank, which is incumbent on Memor Mining. The guarantee is duly authorized and held by Nedbank Limited Reg No 1951/000009/06 to the amount of R2 847 278. The closure plan associated with this guarantee has not been made available for review. The mining operations are to continue under the provisions of this guarantee.

In addition to the above guarantee, the current mine plan allows for the rehabilitation fund to be topped up at a rate of R10 per chrome ore tonne mined. This has been included in the costing of the mine plan and is included in the valuation discussed in this CPR. The provision for mine closure and rehabilitation will be continually topped up to provide for final closure based on annual assessments.

For the first 2 years of the new mining plan, all the overburden will need to be stockpiled outside of the pit on the eastern edge, after which space will have been created in the pit to safely backfill some of the overburden. Rehabilitation of the pit is planned to take place as soon as there is sufficient space to fill the void and will continue concurrently with mining (roll over rehabilitation). The excess overburden which is mined will be stockpiled along the Eastern edge of the pit and will be used to fill the final void at the end of the mine's life. Good practice is to move surplus waste material on dumps back into the pit in the last few years of the mine's life as part of operating expenses to avoid excessive rehabilitation and closure costs at the end of the mine's life.

All the infrastructure will also be removed at the end of the mine's life by the mining contractor.

9.11 Risk Assessment

JSE 12.10(h)(x)
SR 4.3(viii)
SR 5.7(i)

A risk assessment was undertaken for the Langpan Project as described in the preceding sections. The objective of the risk assessment was to identify risks to the purpose and outcomes of the study work completed for Langpan.

The risk assessment assumed that the proposed mine would be operated according to best practice principles and that the operations would generally follow the planning and methods as proposed in the CPR. As such, operational issues were not considered as part of this risk assessment. However, at the commencement of mine development and operations, targeted risk assessments will address operational risks. Ensuing COP`s (Codes of Practice) and SWP`s (Safe Work Procedures) will be developed and maintained before activities take place. The general procedure to compile the risk register was as follows:

- A risk matrix and rating system was developed for the project.

- A risk register template was issued to the primary consultants who worked on the project to pre-populate the register with possible risks.
- The returnable from the various team members was combined into a consolidated document.
- A workshop was conducted where each of the identified risks were discussed, evaluated, and rated.

A basic quantitative risk analysis was conducted. For each of the risks identified, the likelihood and consequence of the identified risk event were estimated.

The consequence and likelihood were evaluated according to the 5 level scales shown in Table 9.10 below.

Table 9-10 Consequence and Likelihood Ratings	
Consequence Rating	
Value	**Description**
5	Catastrophic
4	Major
3	Moderate
2	Minor
1	Negligible
Likelihood Rating	
Value	**Description**
A	Almost Certain
B	Likely
C	Possible
D	Unlikely
E	Rare

Likelihood and consequence estimates were then combined to determine the Risk Value for each risk event and indicated in Table 9.11 below. Where a risk item has a residual risk rating of above 15, it is imperative that these are continually monitored during operations.

Table 9-11 Risk Value

			Likelihood				
			Low → High				
			E	D	C	B	A
Consequence	Low → High	5	15	19	22	24	25
		4	10	14	18	21	23
		3	6	9	13	17	20
		2	3	5	8	12	16
		1	1	2	4	7	11

Table 9.12 below shows a summary of the risk register generated as part of this work, the following lists the top risks that were identified:

The outcome of the risk assessment demonstrated that the project is a low-risk project with the highest residual risks listed below:

- Impact on ore quality due to faulting in pit leading to excessive dilution. This is a common risk in mining and is mitigated by appropriate high quality and ongoing geological input into the production operation which is then accounted for in the mine planning process.
- Lower than expected PGE recovery from tailings material in downstream processing (flotation) due to process issues, weathering of ore and/or lower than expected PGE grade upgrade ratio resulting in reduced revenues received from the sale of this material. Sensitivities have been run on a range of lower flotation recoveries based on available public domain information, all sensitivities showed that sale of this material will add value with lower value added for the lower recoveries.
- Commodity price and the Rand to US Dollar exchange rate. These are factors which cannot be controlled by Langpan. Variation in these two factors may increase or decrease the value of the project.

Table 9.12 – Risk Assessment

Criterion	Risk	Likelihood	Consequence	Inherent Risk	Inherent Risk	Mitigation / Control	Likelihood	Consequence	Inherent Risk	Residual Risk	Action Item
Geology and Mineral Resources											
Mineral Resource Confidence	Mineral Resource declared varies on commencement of mning activities impacting mine operation due to structural geology impact	C	4	18	High	Determination of Mineral Resources according to the SAMREC Code. Appropriate drilling and sampling have been undertaken	E	2	3	Low	Ongoing drilling and sampling ahead of mining to add more data and more confidence in update of Mineral Resource
Geotechnical											
Jointing and faulting in Pit	One joint set runs parallel with highwall and could lead to slabbing of the highwall leading to risks associated with fall of ground as well as additional dilution	A	3	20	High	Undertake proper slope design including catch benches and berms to stop falling and rolling rocks. Ongoing good mining practice and controls	D	2	5	Low	Continual slope monitoring program
Weathered zone	Weathered zone extends to approximately 20m below surface. This material is friable and could lead to slopes shedding material particularly in rain events. Boulders exposed by this could cause a hazard and need to be carefully removed.	A	3	20	High	Undertake proper slope design including catch benches and berms to stop falling and rolling rocks. Ongoing good mining practice and controls	D	2	5	Low	Continual slope monitoring program
Water in pits	The water table will be intersected at 20m below surface, water in the pits may impact slope stability and mining operations	A	3	20	High	Appropriate pit de-watering systems, roadway maintenance and good mining practice, slope design to account for groundwater	D	2	5	Low	Development and implementation of appropriate SOPs and COPs
Mining											
Faulting in pit	Impact on ore quality due to excessive dilution caused by faulting and other geological structure in pit also impact on production rate	B	3	17	High	In pit mapping of structure, account for structure in mining plan	B	2	12	Medium	Ongoing geological input into mining operation
Multi-seam Mining	Potential to increase dilution due to mining of multiple seams in pit	B	3	17	High	Implemantation of appropriate mining controls and use of an experienced mining contractor, inpit grade control supervision. Accounting for dilution in mine planning. Plant configured to address additional dilution if it occurs.	C	2	8	Medium	Ongoing implementation of mining controls
Dust generation	Generation of dust associated with mining activities such as blasting,drilling and hauling	B	3	17	High	Ensure dust suppression such as watering of road, best blasting practices are accounted for ,PPE is provided for	D	2	5	Low	Employer to adhere to MHSA
Noise generation	Generation of noise assocated with mining equipmrnt such as trucks, drills, blasting	B	3	17	High	Ensure PPE is provided for, focus on compliance with PPE usage	D	1	2	Low	Employer to adhere to MHSA
Flooding of pits	Flooding of pits due to groundwater and/or rain events impacting mining operations	B	4	21	High	Ensure appropriate de-watering design for pits	E	4	10	Medium	Pit evacuation procedure to be developed
Equipment related accident	Accident caused by TMMs	C	4	18	High	TMM to conform to MHSA, develop and implement COPs and SOPs, maintence of equipment. Proper operational supervision	E	4	10	Medium	Employer to adhere to MHSA, TMMs to be serviced accordingly, SOPs and COPs in place
Bulk Utilities											
Bulk water supply	Security of water supply to the mine	C	3	13	Medium	Application to Magalies Water for a water supply has been submitted. Also potential to use groundwater from pits. Dams provided for at site for water storage and recycling of water	D	2	5	Low	
Bulk electricity supply	Security of bulk electricity supply	C	3	13	Medium	Operation planned to run on diesel, consideration being given to solar option. Eskom has also been approached and capacity is available.	E	3	6	Low	
Mine Infrastructure											
Security	Security issues related to the site	C	3	13	Medium	Security service deployed to site, site is fenced. Site is also ringfenced by other existing mining operations on all sides and is diffcult to access	E	2	3	Low	
Processing											
Plant throughput	Low due to insufficient tonnage from the mine or erratic production volumes being delivered	B	2	12	Medium	ROM stockpile of a suitable size	D	2	5	Low	
Plant throughput	Low due to low plant operating time	A	2	16	Medium	ROM stockpile of a suitable size, regular plant maintenance	D	2	5	Low	
Chrome and/or PGM yield	Low due to poor plant operation	B	2	12	Medium	Regular maintenance, appropriate quality of plant operator and ongoing sampling	D	2	5	Low	
Plant throughput	Low due to power or water outages	B	2	12	Medium	ROM stockpile, alternative power and water sources	D	2	5	Low	
PGM Recovery from Tailings	Lower than expected recoveries of PGM in downstream processing operations due to weathering of ore and/or flotation process issues and/or lower than estimate PGE upgrade ratio, resulting in lower than planned revenues being received for PGM tailings sales	B	4	21	High	Sensitivities on downstream recovery undertaken, PGM sales shown to add value in all cases	C	3	13	Medium	
Chrome Recovery Estimates	Chrome metallurgical recoveries different from those estimated based on limited metallurgical testwork undertaken	B	2	12	Medium	Metallurgical characteristics of the reefs being mined are exteremly well understood after being mined and processed for decades in this area.	C	2	8	Medium	
Environmental, Social and Permitting											
Environmental impact	Negative impacts without mitigatin	C	3	13	Medium	Updated EMP with adequate management and ongoing rehabilitation	D	2	5	Low	Ongoing monitoring programs and EMP audits
Social impact	Negative impacts without mitigation	C	3	13	Medium	Updated soocial and labour plan with management	D	3	9	Medium	Ongoing community interaction and SLP audits
MWP/EMP/SLP Updates	On award of the Section 11 transfer, the MWP, EMP and SLP will be required to be updated. There is a risk that these updates mayl not be approved	E	5	15	Medium	The MWP, EMP and SLP already exist for the current mining right, the new mining plan has reletively minor differences to the current approved mining plan. If the Section 11 transfer is awarded it is considered highly unlikely that the ammended MWP, EMP and SLP would be rejected	E	1	1	Low	
Water Use License	Water Use License may not be awarded	E	5	15	Medium	A WULA has been submitted, the status of this WULA on the DWAF portal indicates it has been approved.	E	1	1	Low	
Logistics											
Site road access	Condition of site access road could cause delays in tranport of chrome product	D	3	9	Medium	Good quality road already exists, ongoing maintenance is in process	E	1	1	Low	
Financial											
Commodity Prices	PGM prices, especially Rhodium have shown substantial volatility in the past 3 years. Rhodium rose from US$5800/oz in Jan 2019, to US$32,000/oz in May 2021 and is now trading at US$14,300/oz (14 Oct 2021). Langpan's value lies mainly in PGM sales, and volatile metal prices would impact the NPV.	B	4	21	High	Downside sensitivities on commodity prices of 20% indicate that the project is still viable at the intrinsic value.	C	4	18	High	Langpan cannot control commodity prices - market driven.
Exchange Rate Risk	Variation of the Rand Dollar exchange rate could impact on the NPV	B	4	21	High	Downside sensitivities on exchange rate of 20% indicate that the project is still viable at the intrinsic value.	C	4	18	High	Langpan cannot control exchange rate
PGM Off-take Agreement	Off take agreement for PGM. Currently a letter of intent has been provided by Stratore regarding the purchase of the chrome tailings containing PGM's. The risk here is the concluding of a final agreement on terms which are less attractive than currently stated in the letter of intent. This agreement should be concluded as soon as possible.	C	3	13	Medium	Enter into negotiations with Stratore to get a better discount and commission structure. Also maybe possible to enter into negotiations with other offtakers	D	3	9	Medium	Signed contract .
Operating Costs	Increase in operating costs would negatively impact the NPV, particularly in respect of diesel costs	C	2	8	Medium	Downside sensitivities on operating costs of 20% indicate that the project is still viable at the intrinsic value. Plant and mining operating costs are supported by quotes and all other costs assumptions are deemed to be reasonable and comparable with benchmarked numbers. Solar option for power supply to be explored	E	3	6	Low	Costs subject to contract agreements and market forces.
Legal											
Legal Dispute	Dispute between ASB Minerals and Memor Mining where ASB has insigated liquidation proceedings against Memor	B	5	24	High	Legal opinion stating that there is no risk to Langpan in regard to this legal matter	D	2	5	Low	Continued monitoring of the matter and regular confirmation that it continues to have no bearing on Langpan

9.12 Capital and Operating Costs

SR 4.3(ix)
SR 5.6(iii)(vi)

The mining contractor owns all the mining capital equipment and operates on a cost-plus basis. The mining costs are well understood by the mining contractor who has many years of experience in operating chrome mines in the area. We have reviewed a quote received from the mining contractor, RockCore Mining, and found it reasonable when compared to other benchmarked costs. It includes variable elements such as cost per RoM ton and cost per m^3 of overburden, and fixed costs such as a monthly fee for P&G's. A 10% mark-up by the contractor is included.

The plant capital cost and operating cost assumptions are supported by The Wash Plant Design Report. Details of the operating and capital cost are included in the valuation sections 9.14.8 and 9.14.10.

9.13 Financial Analysis and Valuation

JSE
12.10 (f)
12.10(h)(xii)
SV T1.11
SR 4.3(vii)(ix)
SR 5.6(ii)(iii)(iv)

Market studies are not relevant, and the CV is not aware of any historical valuations for MRI that have been completed in the last two years.

9.13.1 Valuation Methodologies

SV T1.12

There are several recognized methods used in valuing mineral assets. The most appropriate application of these various methods depends on several factors, including the level of maturity of the mineral asset, and the quantity and type of information available in relation to the asset

The following three valuation approaches are accepted by international mineral asset valuation codes including the SAMVAL code:

- Income Approach: Used to value development and production properties. It relies on the value in use principle and requires a net present value derived from a discounted cash flow (DCF) analysis of future cash flows over the useful life of the mine. The DCF is based on the forecast production schedule as well as all the forecast operating and capital expenditure costs associated with developing, mining, and processing a Mineral Reserve. It includes factors such as recoveries, stay-in-business costs, taxation and royalties, and provisions for contingencies.
- Market Approach.
  Used to value development and exploration properties. The Market Approach relies on the 'willing buyer, willing seller' principle and requires that the monetary value obtainable from the sale of the Mineral Asset is determined as

if in an arm's-length transaction. There are two main methodologies that can be considered:

- Comparable Transaction Value Method.
  - ✓ The comparable transaction value method is based upon other, preferably recent, arm's length transactions of a similar nature, which determines a monetary value per unit of Mineral Resource (ZAR/t or US$/t); or
  - ✓ the Market Value Method: The identification of comparable listed companies that could be used as a possible proxy for the valuation of the property or company.

The various valuation approaches for different types of mineral properties used by SAMVAL are shown in Table 9.13 below.

Table 9.13 - SAMVAL: Valuation Approaches for Different Types of Mineral Assets

Valuation Approach	Early-Stage Exploration	Advanced Stage Exploration	Development Properties	Production properties	Dormant Properties		Defunct Properties
					Economically Viable	Economically not Viable	
Income	Not generally used	Less widely used	Widely used	Widely used	Widely used	Not generally used	Not generally used
Market	Widely used	Widely used	Less widely used	Quite widely used	Quite widely used	Widely used	Widely used
Cost	Widely used	Widely used	Not generally used	Not generally used	Not generally used	Less widely used	Quite widely used

9.13.2 Selection of applicable Valuation Approach

In terms of the SAMVAL Code, the Competent Valuator shall apply at least two valuation approaches to assess the value of a Mineral Asset.

A search of public domain websites did not reveal any transactions comparable with Langpan. In addition, there is no information available to allow for the application of the Cost Approach. As such, the only valuation approach deemed to be applicable to determine the value of the Langpan Chrome Mine is the Income Approach.

The SAMVAL Code, in the *Section Basis of Valuation*, Value Types, states that: "In mining, the intrinsic value refers to the fundamental value based on the technical inputs, and a cash flow projection that creates a net present value (NPV)." The intrinsic value is not necessarily a market value. In Langpan's case the intrinsic value would be the NPV value at a WACC where equity is 100%. The intrinsic value can be adjusted by balance sheet items or other market related items to derive a market value. However, such balance sheet items are not available, and hence the Market Valuation approach cannot be used as an alternative valuation method.

9.13.3 Valuation Methodology Applied to Langpan

The general valuation methodology is as follows: all revenues and costs are inflated on an annual basis using the cumulative SA inflation factors to provide all money items in nominal terms. The annual cash flows in nominal terms are then used to determine the annual tax payments. The after-tax cash flows are then deflated using the same cumulative SA inflation factors to determine the annual real terms cash flows. These real term cash flows are then discounted at various real discount rates to determine the Net Present Value ("NPV") at various selected discount rates.

9.13.4 Economic Parameters

The volatility in commodity prices and exchange rates experienced recently, as a result of the COVID 19 pandemic, and the possibility of further uncertainty, has prompted the CV and TE to use spot prices for the PGE metals and exchange rates as of 8th December 2021. It is common practice to use consensus forecasts of these parameters but the wide variance in forecasts obtained had led to spot prices being used for Platinum, Palladium and Rhodium as well as for the inflation and exchange rate forecasts. The date of the spot prices is also the date of the valuation.

Spot inflation rates for SA and the USA, and the ZAR:US$ exchange rates were derived from certain websites viz:

- Randforecast.com.
- Ycharts.com.
- Tradingeconomics.com.

Spot metal prices have been sourced from

- Monex.com.

- Moneymetals.com.

9.13.5 Metal Prices SV T1.15

MRI provided the CV and CP with a Forward-Looking Statement carried out by Stratore on their behalf, and which sets out the price of chrome (based on 42% Cr_2O_3) as R1,650/t FoT i.e., Free on Truck at the mine gate. The CV has reviewed this Forward-Looking Statement in conjunction with its own research as indicated above and is of the opinion that the price, as proposed by Stratore, is reasonable and suitable for use in the Valuation.

In addition, MRI has an agreement with Scutella, *The Scutella Off-Take Agreement*, which sets the price based on a delivered product CIF a main port in China (US$/t). This Agreement was recently re-negotiated with Scutella and a chrome price of R1,650/t has been agreed on for all chrome products. See details in Section 9.14.7 below.

The spot metal prices and rates used in the Bara model are detailed in Table 9.14.

Table 9.14 – Spot Metal Price Forecasts and Rates

Spot Prices 8th December 2021			
Exchange Rate ZAR:US$		15.98	https://randforecast.com/dollar-to-rand
Inflation rates - US		6.22%	https://ycharts.com/indicators/us_inflation_rate
Inflation rates - ZAR		5.0%	https://tradingeconomics.com/south-africa/inflation-cpi
Metal prices Prices			
Platinum	US$/oz	959	https://www.monex.com/platinum-prices/
Palladium	US$/oz	1 859	https://www.monex.com/palladium-prices/
Rhodium	US$/oz	11 500	https://www.moneymetals.com/rhodium-price
Chrome - FoT All Chrome Products	ZAR/t	1 650	As per Stratore Agreement

9.13.6 Fiscal Factors SR 1.6(i)

Corporate Tax SR 5.6(vii)

The current corporate tax rate is 28%; however, it was announced in the February 2021 National Budget that this rate would be reduced to 27% with effect for tax years commencing on or after 1st April 2022. As such a corporate tax rate of 27% has been applied for the valuations in this CPR.

Mineral Royalty

The Mineral Royalties Act (Act No 28 of 2008) was promulgated on 1 March 2010 which imposes a state royalty on mining companies based on net revenue at a rate proportional to profitability before Capex. All companies extracting minerals in South Africa are obligated to pay royalties at a rate between 0.5% and 7% based on gross sales, less their allowable deductions, depending on the refined condition of the Mineral Resources. The Act distinguishes between a 'refined Mineral Resource' and an 'unrefined Mineral Resource'; an unrefined Mineral Resource being defined as a Mineral Resource which is solely listed in Schedule 2 of the Royalty Act or listed in Schedule 1 and Schedule 2 that has not been refined to or beyond the condition specified in Schedule 1 (99.0%) for that Mineral Resource. The chrome concentrates and PGMs produced at Langpan are Schedule 1 and Schedule 2 Mineral Resources and the royalty rate is based on the formula:

Unrefined mineral formula (%) = 0.5 + [*EBIT/Gross sales* x 9] x 100

and is capped at a maximum of 7%.

9.13.7 Langpan Valuation Model

A valuation model was received from Langpan by the CV. This model was interrogated for content and general input factors, and where appropriate has been adjusted for the review and analysis as provided for in this CPR.

9.14 CV Valuation Model

SR 4.3(ix)
SR 5.6(iii)(iv)
SR 5.8(i)

The Competent Valuator (CV) and Technical Expert (TE) responsible for the valuation analysis in this CPR have constructed their own financial model incorporating the changes/amendments outlined below:

9.14.1 Currency terms

The model is in ZAR (Rand) terms with all US dollar denominated prices and costs converted to Rands at a spot exchange rate as of 8th December 2021 of ZAR:US$ =15.98, and South African forecast inflation rates applied.

9.14.2 Weighted Average Cost of Capital (WACC)

MRI has given the CV sight of a signed Term Sheet from a reputable financing institution that is prepared to provide the full quantum of funding required for the

Project. The CVs and TE are that the terms built into the model are in line with the terms as per the signed Term Sheet.

The loan term is for 5 years and carries a pre-tax cost of debt of 6.77%. The CV and TE have taken the view that for purposes of determining the WACC, debt will be 100% for the first 5 years and then revert to 100% equity for the remainder of the life of mine. There are thus two discount rates applied to the cash flows over different periods. Note that a 5% risk premium above global market risk is included in the determination of the WACC for 100% Debt.

The calculation of the two WACCs is shown below in Table 9.17.

The derivation of the WACC is based on the above as well as the Risk premiums as set out in Section 9.14.3 below.

9.14.3 WACC – CV Assessment of Risk

The risks associated with the determination of an appropriate discount rate are as follows:

Labour Uncertainty

The labour situation in South Africa is fluid at present. Labour unions are seeking annual wage increases in excess of inflation, and if these requests are not granted then there is the possibility of labour unrest taking place.

A risk premium of 1% has been included to cater for this risk.

Commodity Price

A risk premium of 3% has been included to cater for the volatility risk.

Exchange Rate Risk

A risk premium of 1% has been included to cater for this risk.

The CV and TE have calculated two WACC scenarios for the valuation:

- Base Case: whereby the cash flows associated with the Project include the inputs and costs associated with the funding for the Project. The funding and associated repayments cover the first 5 years of the Project.

- Intrinsic Value: as part of the Valuation Analysis and for comparative purposes based on the Intrinsic value of the Project, whereby the cash flows associated with the Project only are considered. The WACC is based on 100% equity. The funding for the recapitalization of the wash plant is considered to be equity, hence there are no associated funding costs and

These are shown in Table 9.15 below.

Table 9.15 – Weighted Average Cost of Capital (WACC) Calculations

BASE CASE		Notes
Assumptions		
Company average tax rate	27.00%	
Inflation rate	4.99%	
Debt as % of capital	100%	
Equity as % of capital	0%	
Cost of debt		
Pre-tax cost of debt	6.77%	1
Less: tax shield	-1.83%	
After-tax cost of debt	4.94%	
Cost of equity		
Risk-free rate	7.31%	2
Beta-weighted market risk premium		
Beta	1.66	3
Global Equity market risk premium	6.25%	4
Risk premium above global market:	5.00%	
Labour uncertainty	1.00%	
Commodity price risk	3.00%	5
Exchange rate risk	1.00%	
Cost of equity	**22.69%**	
Weighted Average Cost of Capital Post Tax		
Debt - 100%	4.94%	
Equity - 0% incl risk premium	5.00%	
WACC (Nominal) after tax	**9.94%**	
WACC (Real) after tax	**4.72%**	

INTRINSIC VALUE		Notes
Assumptions		
Company average tax rate	27.00%	
Inflation rate	4.99%	
Debt as % of capital	0%	
Equity as % of capital	100%	
Cost of debt		
Pre-tax cost of debt	6.77%	1
Less: tax shield	-1.83%	
After-tax cost of debt	4.94%	
Cost of equity		
Risk-free rate	7.31%	2
Beta-weighted market risk premium		
Beta	1.66	3
Global Equity market risk premium	6.25%	4
Risk premium above global market:	5.00%	
Labour uncertainty	1.00%	
Commodity price risk	3.00%	5
Exchange rate risk	1.00%	
Cost of equity	**22.69%**	
Weighted Average Cost of Capital Post Tax		
Debt - 0%	0.00%	
Equity - 100% incl risk premium	22.69%	
WACC (Nominal) after tax	**22.69%**	
WACC (Real) after tax	**16.85%**	

Notes

1	IDC term sheet weighted average rate
2	Investing.com South Africa 10-Year Bond Yield
3	Average beta of a fully diversified portfolio of shares is 1.66
4	KPMG 30 June 2021 Equity Market Risk Premium – Research Summary
5	Bara assessment of risk factors

9.14.4 Rehabilitation and Closure Guarantee

SR 5.6(ix)

The current liabilities are associated with mining operations as undertaken by Memor. A rehabilitation guarantee as required by the Minerals and Petroleum Resources Development Act (MPRDA) is duly authorized and held by Nedbank Limited Reg No 1951/000009/06 to the amount of R2 847 278. The new mining operation will update the closure guarantee based on the revised Mine Works Program and Environmental Management Plan.

9.14.5 Ongoing Rehabilitation and Closure

SR 1.7(i)

A provision of R10 per Run of Mine tonne for rehabilitation and closure costs has been made. Over the LoM, this amounts to R21.7 million in real terms.

Rehabilitation of the pit is planned to take place as soon as there is sufficient space to fill the void and will continue concurrently with mining. The excess overburden which is mined will be stockpiled along the Eastern edge of the pit and will be used to fill the final void at the end of the Langpan Mine's life. Surplus waste material stockpiled on dumps will be moved back into the pit in the last few years of the mine's life as part of operating expenses to avoid large rehabilitation and closure costs at the end of the mine's life. Provision for rehabilitation has been made in the form of a rehabilitation guarantee and Langpan has committed to assessing the provision on a quarterly basis. This will be continually topped up to provide for final closure based on annual assessments.

9.14.6 Wash Plant

The financial model received from Langpan did not consider the processing limitation of the wash plant of 30,000 tonnes per month of ROM ore. The model assumed all ROM tonnage was processed.

The production schedule has fluctuations in the monthly ROM production. This suggests that further work is required to optimise the short-term planning. Figure 9.42 below shows the erratic RoM production.

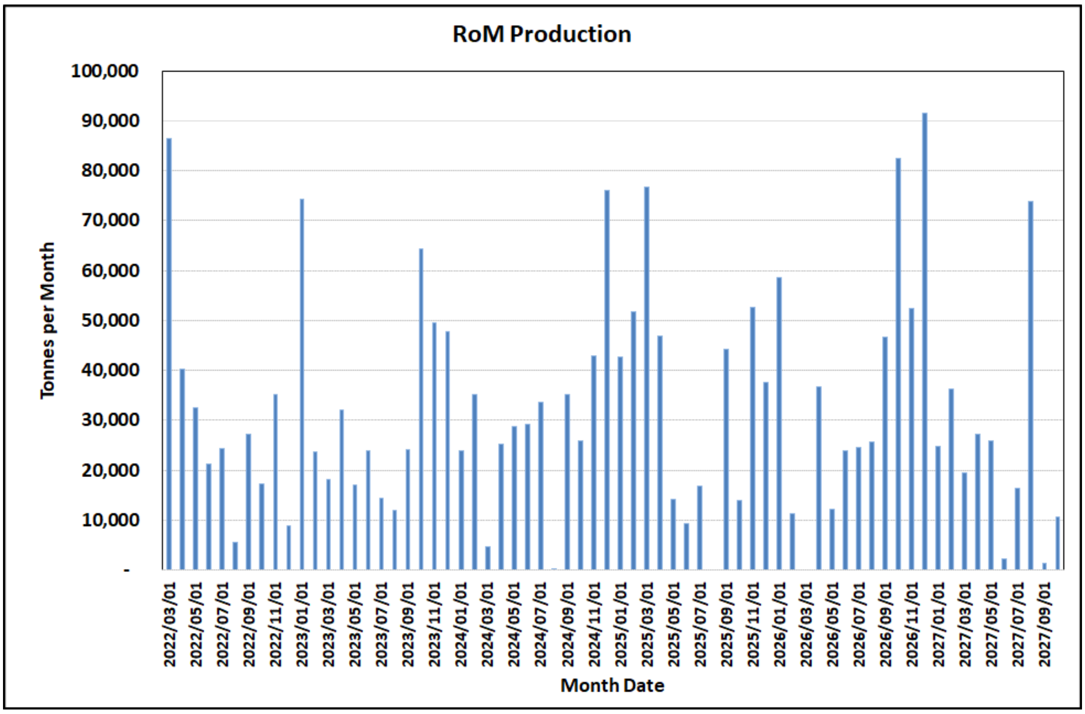


Figure 9.42 – RoM Production

The chrome ore is planned to be hauled out of the opencast pit and tipped onto a run of mine (ROM) pad where it is stockpiled in 1,000t piles. These stockpiles will be assayed and approved before being trucked to the run of mine stockpile area from where the chrome ore is fed into the beneficiation plant. The trucks delivering the ore cross over a weighbridge before tipping onto the stockpile to determine the exact feed to plant.

The financial model has assumed that ROM ore tonnes will be stockpiled to feed the plant constantly at 30ktpm, as indicated in the mine design section of this CPR. The financial model assumes that the ROM stockpiles would have to accommodate up to 225 000 tons which is caused by the ROM fluctuations and the bottleneck created by the 30ktpm throughput limit of the wash plant.

The inclusion of the ROM stockpile has resulted in an extension of processing by six months after mining operations have ceased. The base yield of the chrome concentrate to the wash plant is the weighted average of input tonnage yield and the yield of the carried forward tonnage. The CV has been advised to include a cost of R10/tonne for the stockpile re-handling.

The diluted PGMs content in the mine schedule supplied to Bara is used as the basis for calculating the quantity of PGMs in the 30ktpm throughput, using a weighted average of the diluted PGMs.

9.14.7 Material Contracts

Rockcore Mining

Rockcore mining is the proposed mining contractor for Langpan. Rockcore submitted a quote in March 2021 in which it is stated that the quote should only be considered appropriate for CPR purposes, and that because of current circumstances, the parties have yet to agree on a final price for mining.

Scutella Ventures Limited

The general terms of this agreement are:
Langpan has entered into a 5-year exclusive offtake agreement with Scutella which is an independent company and not a related party to MRI nor any of MRI's Directors.

Langpan is contracted to deliver to Scutella 552,000 tons of 42%-44% chrome concentrate throughout the 5-year offtake period. The first delivery to Scutella was due to take place in January 2020 ("the Offtake Agreement"). The contracted tonnages throughout the offtake period are 72ktpm, 120ktpm, 120ktpm, 120ktpm, and 120ktpm through the years 1 to 5 respectively.

The delivered tonnage should not exceed 10,000 tonnes of concentrate during any month of the contract terms. However, if there is a shortfall in any month, a greater amount as may be required to be delivered in a following month or months, to ensure that the sum of all shortfalls delivered in prior months are eradicated. This has been built into the Bara Financial Model as there are months where the delivered tonnage is less than 5kt and some months where no chrome concentrate is produced at all.

Scutella will only accept a delivery with a minimum parcel size of 5,000 tonnes of concentrate per delivery unless otherwise agreed in writing between the parties.

It is noted that the "Offtake Agreement" has not taken place as the wash plant has still to be refurbished.

Wash Plant

The original mine plan as provided by MRI to Bara was based on the refurbishment of the Wash Plant being completed by March 2021. This refurbishment has yet to be completed, and as such the CV has revised the commencement of production to March 2022.

Price Structure

The price structure that Scutella has in place is as follows:

The offtake pricing, throughout the five-year offtake period, is at a Base Price of $155/tonne CIF (China) plus 50% of the difference between the Base Price and the then prevailing world index price (with reference to Ferroalloy.net) for the relevant contracted tonnages ("Total Base Price"). The ten-year historical 44% chrome concentrate CIF (China) pricing approximates $194/tonne. Table 9.16 shows an example of the price structure.

Table 9.16 – Example of price structure

ITEM	US$/tonne
World Index Price:	194
Less: Base Price	155
Equals: Trade Profit	39
Langpan Mining (50% of Trade Profit)	19.5
Plus: Base Price	155
Equals: Offtake price	174.50

The total tonnage which Scutella purchases through the off-take agreement is 552,000 tonnes, leaving a balance of 732,773 tonnes.

Subsequent to the above, MRI has advised that MRI has re-negotiated the Scutella APC supply agreement. The revised Supply Agreement provides greater flexibility around the pricing of CIF/FoT as well as an option to work on spot pricing. MRI has requested that a long-term chrome price of R1,650/t be used for all chrome products. The CV and TE have reviewed the above and are satisfied that the long-term chrome price of R1650/t is suitable for use in the Valuation.

These changes have been incorporated into the Valuation.

Stratore (Pty) Ltd

Stratore (Pty) Ltd ("Stratore") has proposed an undertaking with Langpan for the PGMs, which once the wash plant is commissioned, will produce a chrome tailings material. Their proposal is to enter a long term (defined as life of mine) exclusive marketing agreement with Langpan.

The fine tailings from the plant will be stored in a TSF. The tailings in the TSF contains economic quantities of PGM's and will be reclaimed and sold once dry. To accommodate the drying process, it has been assumed in the financial model that Stratore will commence the purchase of the PGM fines three months after the tailings are produced, to allow for drying out.

Stratore has provided a written undertaking to purchase all this material from Langpan. The purchase of the tailings would be at the mine gate on a Free on Truck (FoT) discounted basis equivalent to between 70% and 85% of the contained metal in the chrome tailings, based on the prevailing 3PGM basket price at the time of purchase.

In addition, Stratore has a commission structure of between 2% - 4% depending on the discount applied: the net sales price would be the discounted basket price less the proposed commission structure. The CV and TE have used a discounted value of 66% of the contained metal in chrome tailings in the valuation model.

As discussed in section 9.3.11 of this document, there is a risk that the payment terms based on 66% of contained metal will not be realised due to potential for variation in the flotation recoveries during downstream processing of the tailings. It is therefore considered appropriate to run sensitivities based on varying recoveries to confirm the viability of the PGM tailings sales. A range of sensitivities on payment terms for the PGM tailings has therefore been run in the valuation model, the range of sensitivities evaluated for the payment terms are 66%, 41.1%, 34.3% and 27.4% of contained metal, the derivation of this range of sensitivities has been discussed in section 9.3.11.

9.14.8 Average Operating Costs

Rockcore, the mining contractor, owns all the mining capital equipment and operates on a cost-plus basis. The CP has reviewed a quote received from the mining contractor and found that the costs were reasonable.

The Langpan model assumed that all cash profits from the operations are retained in the company, and that interest at 5%pa is paid on positive cash balances. The interest was used to reduce total indirect costs.

This is an unrealistic assumption as there would probably be dividends paid to shareholders and any cash balances existing at end of life of mine would be distributed to shareholders. Retaining cash balances adds value to the Project but is not relevant to the intrinsic value of the underlying assets.

For this reason, interest on cash balances is not considered in the Bara model.

The average operating costs per RoM tonne, on a real terms basis, are shown in Table 9.17.

Table 9.17 – Average Operating Cost (Real Terms)	
Direct Operating Costs	**Average Rand per RoM tonne**
Mining Cost	559.38
Mining Margin (10% of Cost)	55.94
Processing Cost	90.00
RoM Stockpile Re-handling Cost	10.00
Security	1.94
Mine Salaries	10.23
Admin & Audit Fees	1.70
Independent survey	10.00
Total Direct Operating Costs	**739.20**
Indirect Operating Costs	
Payment to Memor Mining	0.07
Farm Rental	5.11
Plant & Business Insurance	1.70
Rehabilitation Provision	10.00
Diesel Rebate	-23.45
Total Operating Costs R/RoM tonne	**732.65**
Langpan Overhead Costs	
Salaries & Consultants	9.20
Travel Costs	1.70
Legal Fees	1.70

9.14.9 Capital Expenditure

SR 5.6(vi)

Capital costs amount to R35.45 million, which consists of R3.0 million for Eskom deposit and connection fees, and R32.4 million for refurbishing the wash plant. The CV financial model assumes that refurbishment will commence in September 2021 and continue for 6 months, with mining starting in March 2022.

SIB capital expenditure has not been included in the financial model. Expert opinions obtained by the CV and TE, in conjunction with the CP, indicated that any repairs or costs involved in maintaining the wash plant form part of operating costs. A breakdown of the capital expenditure is shown in Table 9.18.

Table 9.18 – Estimated Capital Expenditure (Real Terms)

Description	Amount (R million)
ROM & crushing	9.05
Gravity separation	5.52
Water reticulation	5.74
Electrical & instrumentation	6.65
Infrastructure	0.66
EPCM fees	1.90
Contingency 10%	2.95
Eskom deposit & connections	3.00
Project Total	**35.45**

Note: Rounding errors may occur.

9.14.10 Capital Expenditure Funding

SR 5.6(vi)

The capital expenditure required to refurbish the wash plant of R35.45 million is funded through a loan. This loan covers R45 million for capital expenditure and R14 million for working capital. The CV has been provided with a Term Sheet from a respectable and well-known Institution that provides financing for mining projects, and which sets out that the Institution is prepared to provide the full quantum of funding for the Project. The conditions set out in the Term Sheet have been built into the financial analysis of the Project. At this stage the Term Sheet is governed by a Confidentiality Clause and, as such, The CV is not able to disclose the name of the Institution.

9.14.11 Risk Assessment

SV T1.15

The CPR risk assessment is discussed in Section 9.11 of this CPR, and the risks associated with the valuation and financial portions of the work undertaken are included in this risk assessment.

9.14.12 PGM Tailings

SV T1.14

The PGM tailings contain small quantities of gold. The Mining Right is defined specifically in relation to Chrome Ore and Platinum Group metals (as defined by Department of Mineral Resources Mining Right, Definitions, dated 8 September 2018). The CV has been informed that, as the Langpan Mining Right does not include the gold, Langpan will consult with the DMRE to establish if this omission can be rectified.

9.14.13 Abridged Cash Flow Model

SR 5.8(ii)

The abridged cash flow model is shown in Table 9.19 below.

Table 9.19 – Cash Flow Summary

Langpan Chrome: Cash Flow Summary			FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
			2022/03/01	2023/03/01	2024/03/01	2025/03/01	2026/03/01	2027/03/01	2028/03/01	2028/03/01
TOTAL MINING										
Ore Tonnes	t	**2 211 686**	-	404 250	368 823	403 092	389 351	465 720	180 450	-
Rom Tonnes	t	**2 170 598**	-	396 902	362 075	395 609	382 022	456 954	177 037	-
Ore Volume	t	**553 201**	-	100 946	92 043	100 917	97 495	116 591	45 208	-
Waste Tonnes	t	**40 834 739**	-	8 409 599	8 409 600	8 432 640	7 027 221	5 670 498	2 885 181	-
Waste Volume	t	**12 720 441**	-	2 623 773	2 620 376	2 626 534	2 188 039	1 764 939	896 781	-
Strip Ratio		5.86		6.61	7.24	6.64	5.73	3.86	5.07	
TOTAL CHROME PRODUCTION										
Saleable Chrome Concentrate	t	**1 367 477**	-	170 100	206 911	226 800	226 800	226 800	226 800	83 266
Off-take Agreements Nominal										
Scutella	t	**552 000**	-	72 000	120 000	120 000	120 000	120 000	-	-
Other Offtake	t	**815 477**	-	154 168	87 543	106 800	106 800	106 800	226 800	26 566
Total Off-take	t	**1 367 477**	**-**	**226 168**	**207 543**	**226 800**	**226 800**	**226 800**	**226 800**	**26 566**
Scutella Revenue Nominal										
Revenue	US$ '000s	**67 580**	-	5 580	9 300	15 500	18 600	18 600	-	-
Revenue Scutella Off-take Agreement	**(R 000)**	**1 042 794**	-	122 614	213 506	224 163	235 371	247 140	-	-
OTHER REVENUE Nominal										
Revenue	**(R 000)**	**1 594 855**	-	260 581	155 836	199 505	209 480	219 954	490 449	59 050
TOTAL REVENUE Concentrate Sales Nomina	R'000s	**2 637 649**	-	383 194	369 342	423 668	444 852	467 094	490 449	59 050
Mining Cost NOMINAL										
Overburden removal R/m^3	(R 000)	**549 663**	-	102 369	107 348	112 986	98 899	83 833	44 228	-
Diesel usage l/m^3 waste	(R 000)	**302 749**	-	56 384	59 126	62 232	54 472	46 174	24 360	-
Ore mining R/t	(R 000)	**190 439**	-	30 900	29 773	34 230	34 478	43 575	17 483	-
Diesel usage l/t ore	(R 000)	**104 892**	-	17 020	16 399	18 853	18 990	24 001	9 630	-
Drilling cost R/m^3	(R 000)	**86 789**	-	16 163	16 950	17 840	15 616	13 237	6 983	-
Blasting cost R/m^3	(R 000)	**123 530**	-	23 006	24 125	25 392	22 226	18 840	9 940	-
Preliminary and General	(R 000)	**27 471**	-	4 313	4 529	4 755	4 993	5 242	3 640	-
Total Mining Cost	**(R 000)**	1 385 533	-	250 155	258 249	276 288	249 674	234 903	116 265	-
Mining Margin	(R 000)	**138 553**	-	25 015	25 825	27 629	24 967	23 490	11 626	-
Processing Cost	(R 000)	**225 520**	-	36 592	35 258	40 535	40 829	51 602	20 704	-
RoM Stockpile Re-handle cost	(R 000)	**25 374**	-	3 686	3 553	4 076	4 279	4 493	4 718	568
Security	(R 000)	**4 931**	-	702	738	774	813	854	896	154
Mine Salaries	(R 000)	**25 954**	-	3 697	3 882	4 076	4 279	4 493	4 718	809
Admin & Audit Fees	(R 000)	**4 326**	-	616	647	679	713	749	786	135
Independent survey	(R 000)	**25 058**	-	4 066	3 918	4 504	4 537	5 734	2 300	-
Total Operational Cost	(R 000)	**1 835 250**	-	324 530	332 068	358 561	330 093	326 318	162 014	1 666
CIF Costs - Scutella Off-take Agreement	(R 000)	**-**	-	-	-	-	-	-	-	-
Payment to Memor Mining (Pty) Ltd R1.00/tonne ore mined	(R 000)	**162**	-	162	-	-	-	-	-	-
Farm Rental	(R 000)	**12 977**	-	1 848	1 941	2 038	2 140	2 247	2 359	404
Plant & Business Insurance	(R 000)	**4 326**	-	616	647	679	713	749	786	135
Rehabilitation Provision	(R 000)	**25 058**	-	4 066	3 918	4 504	4 537	5 734	2 300	-
Diesel Rebate	(R 000)	**(50 891)**	-	(9 306)	(8 489)	(9 275)	(8 957)	(10 714)	(4 151)	-
Total Indirect Costs	(R 000)	**(8 368)**	-	(2 613)	(1 984)	(2 054)	(1 567)	(1 984)	1 295	539
TOTAL OPERATING COSTS Nominal	(R 000)	**1 826 881**	-	321 917	330 084	356 506	328 526	324 334	163 310	2 205
Total Operating Cost NOMINAL	(R/ton sales))	840.63		811.07	911.65	901.16	859.97	709.77	922.46	
Total Operating Cost Real	(R/ton sales))	731.78								
CAPITAL EXPENDITURE Nominal										
Total Capex Real	**(R 000)**	**41 420**	20 584	20 836	-	-	-	-	-	-
CASH FLOW Nominal										
Total Revenue - Concentrate Sales	(R 000)	**2 637 649**	-	286 445	363 365	418 532	439 459	461 431	484 503	183 914
MG1 & MG3 PGM Tails - Income Before Tax		**1 478 576**	-	106 390	209 710	221 519	240 196	256 885	268 436	175 439
Total Revenue - Concentrate Sales + PGMs		**4 116 225**	-	392 835	573 075	640 051	679 655	718 316	752 939	359 353
less RSA Royalty	(R 000)	172 264	-	14 879	22 616	28 660	29 395	31 129	32 711	12 874
Net Revenue	(R 000)	**3 943 961**	-	377 956	550 459	611 391	650 260	687 187	720 228	346 479
Operating Cost	(R 000)	1 826 881	-	238 973	325 887	335 364	343 519	326 084	251 217	5 837
Overhead Costs										
Salaries & Consultants	(R 000)	**23 359**	-	2 480	3 451	3 624	3 805	3 995	4 195	1 809
Travel Costs	(R 000)	**4 326**	-	459	639	671	705	740	777	335
Legal Fees	(R 000)	**4 326**	-	459	639	671	705	740	777	335
EBITDA	(R 000)	**2 085 070**	-	135 584	219 843	271 061	301 527	355 628	463 263	338 164
Interest Paid on Debt	(R 000)	**9 986**	918	3 267	2 588	1 861	1 083	269	-	-
Taxation	(R 000)	**549 326**	-	24 339	58 707	72 735	81 175	95 986	125 081	91 304
Income after tax	(R 000)	**1 525 757**	(918)	107 977	158 548	196 465	219 270	259 373	338 182	246 859
Debt Received	(R 000)	**55 000**	55 000	-	-	-	-	-	-	-
Debt Repaid	(R 000)	**55 000**	2 332	9 730	10 409	11 136	11 914	9 479	-	-
Capital Expenditure	(R 000)	**41 420**	20 584	20 836	-	-	-	-	-	-
+ Decreases /- Increases in Trade Working Capital	(R 000)	**-**	-	(2 830)	(1 051)	816	(79)	(157)	(1 786)	5 086
Cash Flow	**(R 000)**	**1 484 337**	**31 167**	**74 581**	**147 088**	**186 145**	**207 277**	**249 737**	**336 396**	**251 946**
Annual Cash Flow REAL	(R 000)	**1 233 918**	31 264	72 392	138 445	166 268	176 100	202 739	259 118	187 593
Cumulative REAL	(R 000)		31 264	103 655	242 100	408 368	584 468	787 207	1 046 325	1 233 918

9.14.14 Results – Net Present Values (NPV)

SR 5.8(iii)

Two sets of NPVs are shown for both the Base Case and the Intrinsic Value; one without the PGM revenue and one including these revenues. The NPV's are based on 100% debt for the first 5 years and 100% equity for the remainder of the LOM. A metal price payment by Stratore is set to 66%.

The NPVs are shown in Table 9.20 and Table 9.21 are as of 8th December 2021 in the same money terms.

Table 9.20 – Langpan Net Present Values – Base Case

		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	9.0%	-19	447	223

NPV's are Real as of 8 December 2021

PGM revenue excluded

		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	7.4%	137	1,213	851

NPV's are Real as of 8 December 2021

PGM revenue included

Table 9.21 – Langpan Net Present Values – Intrinsic Value

		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	16.85%	30	402	224

NPV's are Real as of 8 December 2021

PGM revenue excluded

		Lower Value	Upper Value	Preferred value
	Disc Rate	R million	R million	R million
WACC	16.85%	153	1,007	720

NPV's are Real as of 8 December 2021

PGM revenue included

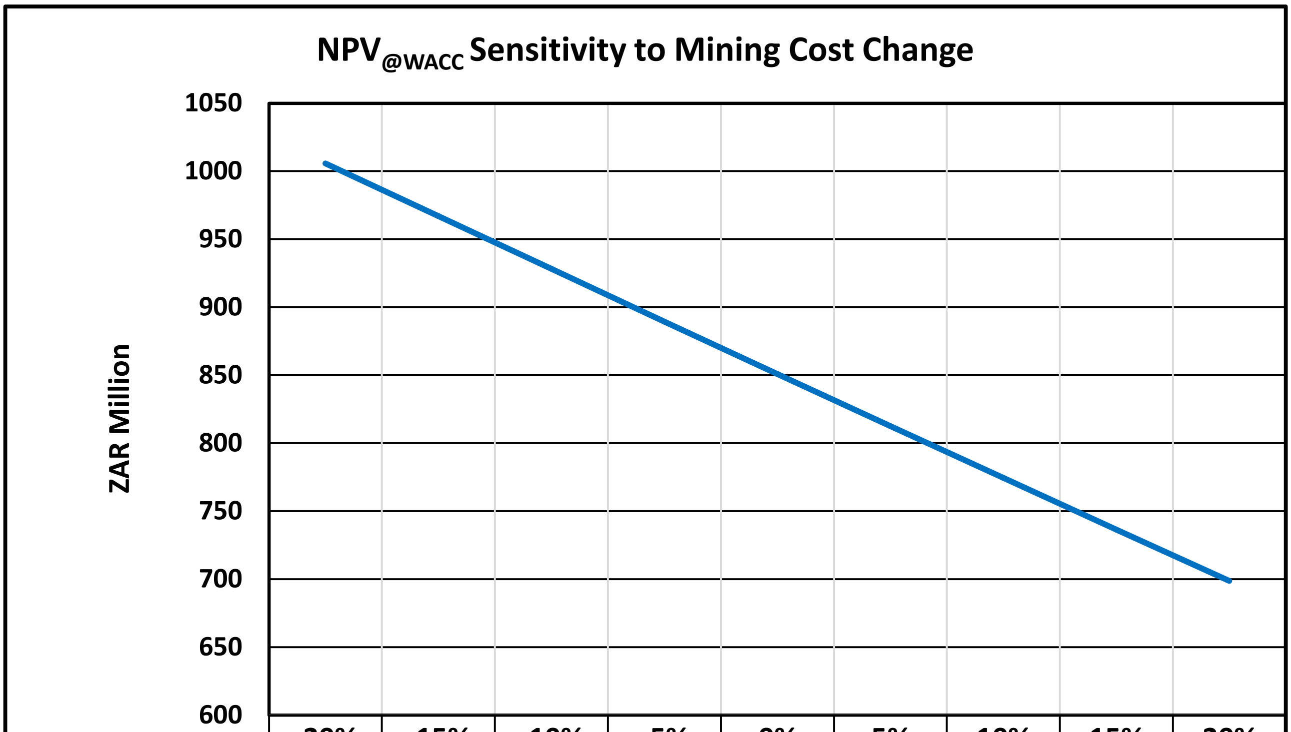
The inclusion of the PGM revenue enhances the NPVs substantially as the only additional costs are royalty and tax.

Refer to the Executive Summary, Section 1.12 for an explanation of the calculation of the discount rate (weighted WACC).

9.14.15 Mining Cost Sensitivity

SR 5.8(i)

A sensitivity analysis has been done on the effect of the Rockcore mining contractor costs on the NPVs, the outcomes are shown in Figure 9.43 below.



	-20%	-15%	-10%	-5%	0%	5%	10%	15%	20%
ZAR Million	1006	967	928	890	851	813	774	736	699

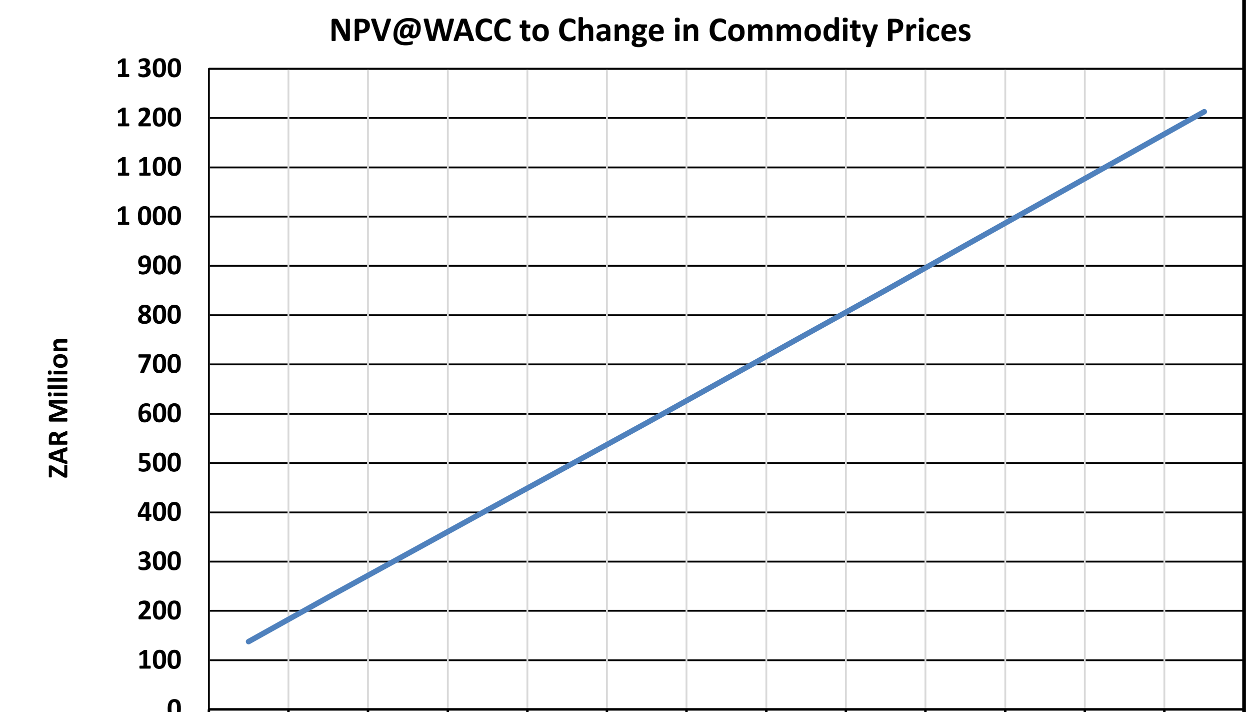
Figure 9.43 - NPV Sensitivity to Mining Costs

At a 20% increase in mining costs, the Project is still viable.

9.14.16 Sensitivity of Valuation to Changes in Metal Prices

SR 5.8(i)

As noted above, metal prices have shown substantial volatility over the past few months, being lower. A sensitivity analysis has been done on the metal prices and is shown in Figure 9.44.



	-40%	-35%	-30%	-25%	-20%	-15%	-10%	-5%	0%	5%	10%	15%	20%
ZAR Million	137	228	316	405	493	582	671	761	851	941	1032	1122	1213

Figure 9.44 - NPV Sensitivity to changes in Metal Prices

At a 40% decrease in the commodity prices, the Project is still viable.

9.14.17 Sensitivity of Valuation to Changes in Stratore Terms

The sensitivity of the Stratore proposed discount on the NPV at the WACC, is shown in Figure 9.45 below. The range includes the 66% originally used as the base case.

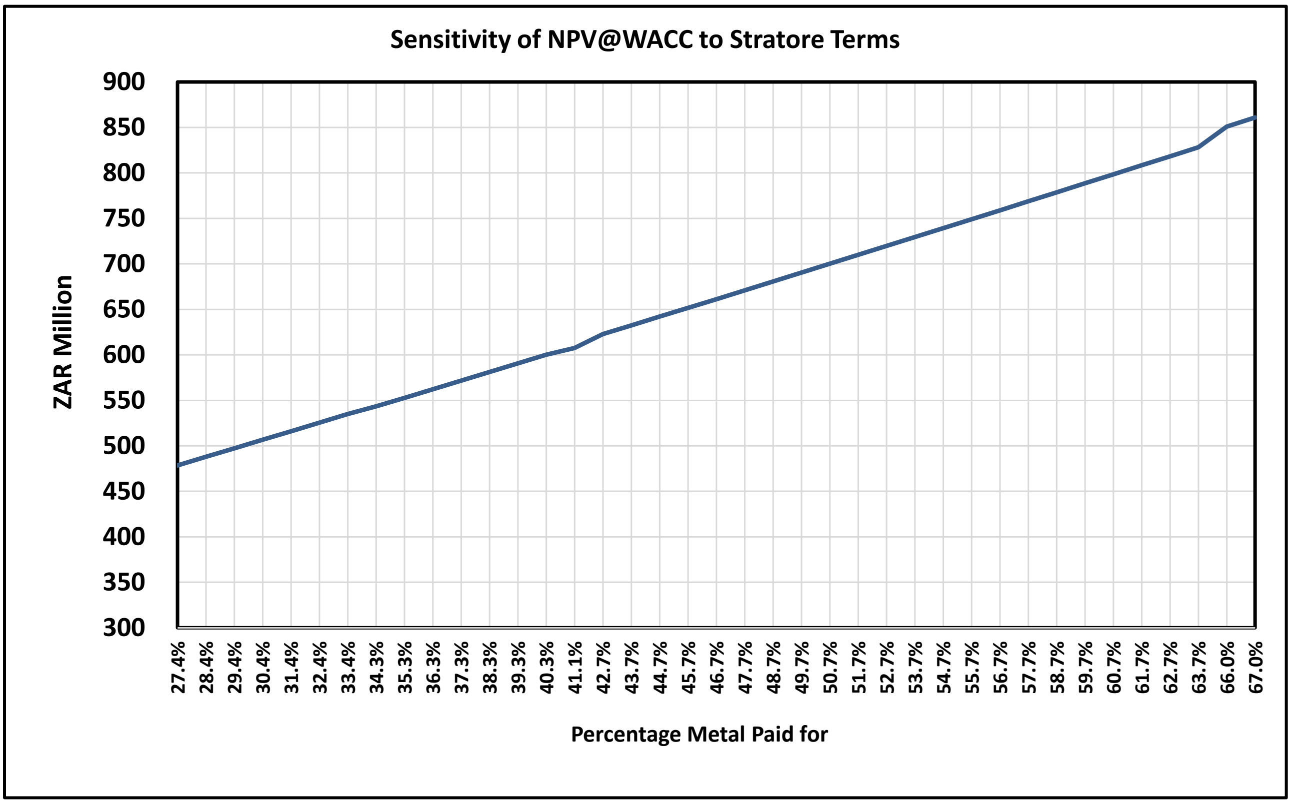


Figure 9.45 - NPV Sensitivity to Stratore Discount

9.14.18 Valuation Summary

SV T1.15

The Competent Valuator and Technical Expert consider that the Base Case Value for Langpan Chrome Mine at a real weighted WACC discount rate of 9.0% excluding the PGMs is R223 million, with a range of negative R19 million to R447 million based on ±20% chrome price fluctuation. Including the PGM revenue at a real weighted WACC discount rate of 7.4%, the value is R851 million with a range of R137 million to R1,213 million based on -40% to +20% all metals price fluctuation. These values are at a PGM metal paid for of 66%: a range of metals paid for percentages between 27.4% and 41.1% gives a range of NPVs between R479 million to R608 million.

Refer to the Executive Summary, Section 1.12 for an explanation of the calculation of the weighted WACC.

The intrinsic value of Langpan, i.e. 100% equity financed, with a WACC of 16.85%, is R720 million with a range of R153 million to R1,007 million based on -40% to +20%

all metals price fluctuation and PGM metal paid for of 66%. Table 9.22 below sets out the range of NPVs.

Table 9.22 – Summary of Values (Real Terms)		
BASE CASE	Chrome production only Real after tax WACC = 9.0%	R223 million
	Chrome price fluctuation of ±20%	From -R19 million to R447 million
BASE CASE + PGM VALUES	Chrome and PGM production Real after tax WACC = 7.4% PGM Metal paid for =66%	R851 million
	All metals price sensitivity of -40% to +20%	From R137 million to R1,213 million
	PGM metal paid for range: 27.4%, 34.3% and 41.1%	From R479 million, R543 million and R608 million
INTRINSIC VALUE	Equity of 100% over LOM Real after tax WACC = 16.85% Chrome only	R224 million
	Chrome price fluctuation of ±20%	From -R30 million to R402 million
INTRINSIC VALUE + PGM VALUES	Equity of 100% over LOM Real after tax WACC = 16.85% PGM Metal paid for = 66%	R720 million
	All metals price sensitivity of -40% to +20%	From R153 million to R1,007 million
	PGM metal paid for range: 27.4%, 34.3% and 41.1%	From R426 million, R477 million and R528 million

SV T1.15

9.14.19 CPR Date and Valuation Date

The Date of this Valuation Report is 13th December 2021, and the Valuation Date of this Valuation Report is 8th December 2021.

SR 1.4(iv)
SR 6.1(ii)
SR 6.3(iii)
SV T1.9

10 MINERAL RESERVE ESTIMATE

SV T1.13

10.1 Estimation and Modelling Techniques

M3 Services produced a LOM plan based on the original mine design layout from Langpan Mine and the updated geological model from CSA. Deswik mining software was used to do the scheduling. Geological "surface" grid files (top and bottom of softs, and chrome seams), as well as RoM quality grids were received from CSA who was responsible for the geological modelling of the Mineral Resource. The limit of weathering was not defined in these grids.

The end wall shape of the shell is based on geotechnical guidelines/designs as per the August 2020 Geotechnical report from Latona (who were appointed by the mine).

A pit limit cut-off of 65 m depth was applied to the western chrome resource area. No further cut-offs were necessary to be applied due to chrome qualities or thicknesses and the full Chrome Resource areas as per the Chrome Mineral Resource estimation were used in the LOM for the Western opencast area.

Production scheduling was carried out in Deswik software based on targeted production of 30 000 tonnes per month. The production rate did vary, and so stockpiling has been accounted for to smooth the plant feed rate to 30 000 tonnes per month.

More detail regarding the modifying factors applied, scheduling and LOM is available in Section 9.2.

10.2 Mineral Reserve Classification Criteria

SR 6.2(i)
SR 6.3(v)

Mineral Reserves will be declared in accordance with The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (**The SAMREC Code**) 2016 Edition. SAMREC defines a Mineral Reserve as follows:

A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying factors. Such studies demonstrate that, at the time of reporting, extraction could be reasonably justified. The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

Mineral Reserves are sub-divided in order of decreasing confidence into Proved Mineral Reserves and Probable Mineral Reserves. Mineral Reserves are classified as proved and probable Mineral Reserves based on the level of geologic and economic certainty to which they have been established, as follows:

- A Proved Mineral Reserve is the economically mineable part of a Measured Mineral Resource.
- A Probable Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource.

The Mineral Reserve is declared as a run of mine tonnage and grade delivered to the plant stockpile.

10.3 Mineral Reserve Statement

JSE 12.10(h)(ix) SR 6.3(i)(ii)

As the Mineral Reserve is only based on an Indicated Resource, all Mineral Reserves are defined as a Probable Mineral Reserve. No inferred Mineral Resources were included in the mine design. Table 10.1 details the Probable Mineral Reserve estimate, SAMREC Table 1 is attached as Appendix 1. This estimate is based on the indicated Mineral Resource, the modifying factors and the mine schedule as outlined in this CPR and is the ore delivered to the plant. Plant efficiencies have not been applied.

The CP has been informed that there is a significant historical tailings dump with potential economic ore, but this has not been included in any Mineral Reserve estimate. The economic analysis shows a profitable operation after plant efficiencies.

The effective date of the Mineral Reserves is 8th December 2021.

Table 10.1 – Langpan Open Pit Probable Mineral Reserve Estimate at 8th December 2021 (All Losses and Dilution)

Seam	Depth m	Width m	Tonnes millions	Density t/m3	Cr_2O_3 %	Pt g/t	Pd g/t	Rh g/t	3PGE g/t
MG1	≤65	0.65	0.20	4.07	32.65	0.79	0.20	0.17	1.16
MG2	≤65	0.63	0.33	4.02	34.46	0.97	0.19	0.18	1.34
MG3	≤65	0.89	0.48	3.95	29.17	1.05	0.49	0.30	1.84
MG4A	≤65	0.85	0.58	3.98	32.24	1.06	0.20	0.30	1.56
MG4B	≤65	0.83	0.58	4.02	31.42	0.47	0.16	0.17	0.80
Total			2.17	4.00	31.72	0.86	0.25	0.23	1.35

SR 6.1(iii)

10.4 Mineral Reserve Reconciliation

SR 6.3(iv)

As no previous Mineral Reserves have been declared, it is not possible to carry out any reconciliation.

11 OTHER RELEVANT DATA AND INFORMATION

SR 1.3(i)

11.1 Adjacent Properties

There are several operating chrome mines in the area around the Langpan Mine mining the LG and MG chromite seams. These include:

- Cronimet mines on the southern boundary of Langpan.
- Samancor mines on the eastern boundary of Langpan on the Haakdorndrift Farm.
- Rooidam on the western boundary behind the MG pit. Rooidam is currently not being mined but has significant MG's and LG's.

12 INTERPRETATION AND CONCLUSIONS

The CP has concluded that there are sufficient Probable Mineral Reserve on the MG seams to maintain a profitable operation for the next six years.

There is significant potential to improve the economics of the operation. These include:

- Treatment of nearby tailings.
- Mining of the LG Seams.
- Investigate the potential of mining deeper, by either increasing the stripping ratio or by underground mining. This would require additional exploration to extend the Mineral Resource and further technical studies to prove the economics.

13 RECOMMENDATIONS

13.1 Current Work Programmes

Langpan is currently operating and mining the LG Seams and there is therefore a significant amount of production activity on site already. In addition, preparation work related to the mining of the MG Seams as described in this CPR has also been initiated. The following work is currently planned or in progress:

- The dams are currently being built to specification for the process plant with completion expected soon.

- The two 650 generator sets have been taken off site for refurbishment/overhaul. The generators are ready for collection but will only be returned to site when the front-end civils are complete.
- Approximately 1km of bush has been cleared from the gate to the plant. This is for new pipeline that will start being laid post dam completion. The remaining +-2kms to the farmers dam does not require any bush clearing and thus will simply form part of the pipe laying process.
- The existing plant has been largely stripped, sandblasted, and re-painted in preparation for refurbishment.
- Civil work in the plant areas has been initiated.
- Two additional 55KT silos for additional water storage have been procured and are currently on site but not erected.

13.2 Future Work

Apart from the work associated with the construction and refurbishment of plant and infrastructure, there are several actions that should be completed as soon as practically possible as follows:

- Initiate work on the update the EMP, WULA and SLP so they reflect the revised plan for Langpan.
- Finalise and conclude the offtake agreement with Stratore in regard to the PGM revenue stream.

14 REFERENCES

SV T1.9
SV T1.10

This CPR is based on various work, documents, and input by other parties. This work has been reviewed and referenced in the CPR as considered appropriate by the CP and CV. The information and documents on which the CP has relied are listed below.

- 2015 MSA Resource Statement and Wireframe Design (28 September 2020) Jacques Bronkhorst
- Competent Peron's Report for the Mineral Resource reported in Accordance with the Guidelines of the SAMREC Code - MG and LG Layers (23 October 2015) Noleen Pauls, Andre Bezuidenhout, Anton Geldenhuys
- Latona Geotechnical Assessment
- Stratore Chrome Market Opinion
- Stratore 3PGM Sales Undertaking
- METQ Metallurgical Test Work
- METQ Additional Metallurgical Test Work

- Magalies Water Supply Contract
- Memor Mining Right
- Langpan Mining Works Programme (MWP)
- Rockcore Mining Quote
- Scutella Ventures APC Supply Agreement
- APC Supply Agreement - Third Addendum
- Wash Plant Design Report
- Summary of Financial Model
- Sale and Purchase Agreement (SPA)
- Sale and Contractorship Agreement
- Langpan Directors Resolution 19052021
- Memor Directors Resolution 19052021
- Letter from Langpan Directors discussing legal risk
- Legal opinion from Langpan lawyers on ABS Minerals v Memor Mining matter
- Letter from Mamokgoka Legal Advisors regarding the Section 11 process
- Bara and the CV have been provided with a Term Sheet from a respectable and well-known Institution that provides financing for mining projects, and which sets out that the Institution is prepared to provide the full quantum of funding for the project. The conditions set out in the Term Sheet have been built into the financial analysis of the project. At this stage the Term Sheet is governed by a Confidentiality Clause and, as such, the CV is not able to disclose the name of the Institution.

In addition to the CPR, several check lists have been completed as required by Section 12 of the JSE Listing Rules as follows:

- Appendix 1 SAMVAL Table 1
- Appendix 2 SAMREC Table 1
- Appendix 3 JSE Checklist