Appendix I: 2023 EMPR Audit Report

ANNUAL ENVIRONMENTAL AUDIT REPORT

PMG MINING (PTY) LTD.

Portion 1 and the Remainder of the farm Bishop № 671 (543.3402 ha) in the Magisterial District of Kuruman.

(NC) 30/5/1/1/3/2/1/114 MR and (NC)

30/5/1/2/2/10208 MR-R

JUNE 2023

PMG Mining (Pty) Ltd.

(NC) 30/5/1/1/3/2/1/114 MR and (NC) 30/5/1/2/2/10208 MR-R

Portion 1 and the Remainder of the Farm Bishop 671, (543.3402 ha)

District of Kuruman

Northern Cape Province

Annual Environmental Audit Report

JUNE 2023

LIST OF ABBREVIATIONS & ACRONYMS

CARA- Conservation of Agricultural Resources Act 43 of 1983

CRD- Coarse Residue Deposit

CSI- Corporate Social Investment

DAFF- Department of Agriculture, Forestry and Fisheries

DENC- Department of Environment and Nature Conservation

DMR- Department of Mineral Resources

EAR- Environmental Audit Report

EAP- Environmental Assessment Practitioner

ECO- Environment Control Officer

EIA- Environmental Impact Assessment

EMP/ EMPr- Environmental Management Plan/ Programme

EMV- Earth Moving Vehicle

FRD- Fine Residue Deposit

HIA- Heritage Impact Assessment

IDP- Integrated Development Plan

ISO- International Standard Organisation

IWWMP- Integrated Waste and Water Management Plan

MHSA- Mine Health and Safety Act 29 of 1996

MINERAL- Iron and Manganese Ore

MPRDA- Mineral and Petroleum Resources Development Act 28 of 2002

NEMA- National Environmental Management Act 107 of 1998

NEMAQA- National Environmental Management: Air Quality Act 39 of 2004

NEMBA- National Environmental Management: Biodiversity Act

NEMWA- National Environmental Management: Waste Act

ROM- Run of Mine

WULA- Water Use Licence Application

EXECUTIVE SUMMARY

The holder of a Mining Right must ensure that the commitments contained in the approved Environmental Management Programme are complied with at all times. Part of these compliance pre-requisites is to appoint an independent person to conduct an environmental audit with quantum calculation for environmental liability on an annual basis. In so doing, this is in compliance with regulation 34 and appendix 7 of the 2014 Environmental Impact Assessment Regulations as amended as a result of one environmental system referred to in section 50(a) of the National Environmental Management Laws Amendment Act, 2014 (Act No, under National Environmental Management Act 107 of 1998. Inclusive of this assessment is an annual financial provision review which is compiled in line with regulation 12 and appendix 3 of the Financial Provision Regulations, 2015.

Wadala Mining and Consulting (Pty) Ltd have been appointed by PMG Mining (Pty) Ltd. to conduct an Environmental Audit Report and to assess the financial quantum provision for pre-mature closure required for the Bishop Manganese Mine on Portion 1 and the Remainder of the farm Bishop 671 situated in the magisterial district of Kuruman in the Northern Cape province of South Africa.

The mining activity is a direct and historical continuation of mining of the farm's manganese deposits that began in the 1920s and ended in the 1980s.

The Bishop Mine produces approximately 40 000 tons of manganese (Mn) ore per month, predominantly for the export market. The manganese ore is extracted via conventional truck and front shovel excavator methods normally associated with surface mining operations. The run of mine (ROM) ore is processed via crushing and screening at the processing plant. Ancillary mining infrastructure include components such as offices, workshops, access and haul roads, staff accommodation, a laboratory, ROM stockpiles and product stockpiles.

The area is characterised by flat to undulating topography. The manganese ores are closely associated with high-grade iron ore deposits currently mined at Sishen, Beeshoek, Bishop, Lomoteng, Gloucester and other farms in the vicinity of the PMG Bishop mine.

The objective of this report is to provide a measure of compliance to the approved Environmental Management Programme in terms of the Regulation 34 of the EIA Regulations, 2014 as amended together with Financial Provision for Environmental Liability for Mining Right for the mining activities performed by PMG Mining (Pty) Ltd. on Portion 1 and the Remaining Extent of the farm Bishop 671 (543.3402ha) situated in the Magisterial District of Kuruman. The findings of this report will act as an Environmental Audit Report of the approved Environmental Management Programme Report.

A site visit was conducted on the **14 June 2023** during which visual observations were made to evaluate the degree of compliance to the approved EMP and to identify environmental risks at the site. At the time of the site visit all mining activities on the site were active and infrastructure were in use. Water for the operation is obtained from boreholes drilled on site and water for domestic use is also obtained from the Vaal-Gamagara (Sedibeng Water) water scheme.

Equipment on site includes Front End Loaders, Excavators, Rigid Dump Trucks, Graders, and Track Dozer when in production.

The Environmental Audit Report was performed by measuring the degree of compliance between the EMP and the conditions as found during the site visit.

The purpose of this liability assessment is to establish the current status of the environment at the mine, and to assess the cost of rehabilitation to the satisfaction of the Department of Mineral Resources. The closure costing liabilities for this operation have been calculated in accordance with the DMR guidelines for closure (January 2005 guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine). The assessment excluded possible liabilities related to retrenchment, contractual obligations or to social issues.

PMG has an approved EMP (January 2008) in terms of section 39 94) (I-III) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) in respect of the mining right for iron ore and manganese ore on Portion 1 and the Remainder of the farm Bishop 671 situated

in the magisterial district of Kuruman. This environmental management programme remains in force under item 10 of Schedule II to MPRDA until such stage as the Minister of Mineral Resources calls upon PMG mine to amplify the EMP to accord with the requirements of MPRDA or when the EAR recommends a revision.

The following natural aspects as described in the approved Environmental Management Programme and management procedures were assessed.

1. Controlling the incidence of unacceptable levels of dust- and air pollution on site.
2. Conserving water and preventing the pollution of any drainage channels.
3. Preventing the pollution of the ground water resources of the area.
4. The re-establishment of self-sustaining vegetation units and controlling of invasion by exotic- and invasive plant species in rehabilitated areas
5. Measures to be implemented during the different phases of the proposed mining operation in order to manage the natural vegetation of the study area
6. Limit poaching activities and the extermination of animal species
7. Controlling the incidence of unacceptable noise levels on site
8. Limit aesthetic disturbance
9. Limit the topographical impact of the proposed mining operation
10. Managing the potential impact of the proposed mining operation on the soils of the study area
11. Minimising the reduction of land capability
12. Protecting sensitive landscapes from potential impacts
13. Waste management
14. Promoting the safety and good health of all employees, as well as the people residing in the area
15. Advancing the social and economic welfare of employees, their families and local residents
16. Positively impacting the local economy
17. Minimising the potential impact on community needs
18. Achieving objectives and specific goals set for managing cultural and historical aspects of the proposed mining operation

The following considerations need to be taken into account;

- The mining area has previously been mined by various operators.
- Many legacy issues are prevalent on the farm;
- This is a low rainfall area;
- The mining area is covered with tailings in most areas due to previous mining activities;
- There is very little topsoil left on the mining right area.

The natural aspects above were also measured against significance levels in terms of environmental impact as follows

Summary of major deviations identified during the audit.

Significance Level	Environmental Impact
0	Currently causing an Environmental Impact and needs immediate intervention
1	Observation which relates to a matter about which the Assessor is concerned but cannot be clearly stated as a non-compliance. Observation also indicate trends which may result in a future non-compliance
2	Has potential to cause an environmental effect or result in non-compliance or is noncompliant with EMP and permit requirements, policies or standards
3	In compliance and current measures must be maintained or improved

The following aspects have been summarised below in accordance with the above significance level ratings asper audit findings. These aspects have a detrimental impact on the environment. Aspects may duplicate as it has reference to more than one impact. These areas therefore require **immediate** intervention from mine management:

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
1.4) Shape the soil so that the topography is free draining. Re-shaped areas of arable land capability must not have a final	Non-compliant	Soil on backfilled areas is not shaped to blend in with the natural topography and erosion was observed on various backfilled areas. Ensure that this	0

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
slope of greater than four percent (4%).		measure is implemented and monitored throughout the life of mine.	
2.7) Soil that is contaminated by fuel or oil spills, for example, from mining vehicles, will be collected to be treated at a predetermined and dedicated location, or will be treated in-situ, using bioremediation.	Non-compliant	Spills were observed during the audit specifically at the processing plant area. These spills should be picked up and moved to the bioremediation area. The mine should also ensure that these spills are recorded in an incident register.	0
3.2) Conduct annual soil sampling and analysis of rehabilitated land areas and fertilise areas to maintain optimal growing conditions during the first three years. Thereafter sample/ analyse from re-vegetated areas every five years.	Non-compliant	No soil sampling is taking place. It is recommended that soil analysis be conducted as the self-manifestation of vegetation on rehabilitated areas are slow.	0
4.2) Apply measures for reconstitution of topography.	Non-compliant	All backfilled areas still need to be sloped to blend in with the surrounding topography.	0
4.4) Slopes should not exceed 8% if possible, so as to ensure that they maintain their land-use potential. Consider review of this measure with EMP amendment in order to stipulate acceptable sloping gradient within reason as per DMR closure guidelines.	Non-compliant	Many overburden dumps have been found at angles more than 8%. Erosion gullies are visible on slopes of some structures. Ensure that these are corrected as far as reasonably possible unless determined acceptable by specialist in terms of pristine environment on historic MRDs.	0
4.6) PMG will conduct annual monitoring of rehabilitated areas to assess performance of the rehabilitation approach employed.	Non-compliant	No evidence could be found to indicate that annual monitoring of rehabilitation, specifically with regards	0

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
- contamination (chemical or physical) of the soil surface. - the emergence of alien/ exotic vegetation.		to the monitoring of contamination and exotic vegetation, is being conducted on the mine. Ensure that all rehabilitated areas are monitored and that a report be compiled to assess the performance of the rehabilitation approach being employed.	
7.4.1) The areas of exotic vegetation must be mapped.	Non-compliant	No map indicating exotic vegetation was found on site during the time of audit. Ensure that exotic species are plotted on a map for monitoring and measurement and forms part of the eradication and monitoring plan.	0

The above table is an extract of the most important deviations found during the environmental audit and all aspects of non-compliance should be addressed even if they have a level 1 significance as if these is not addressed may migrate to a level 0 significance should mitigation measures not be implemented.

The Bishop Mine is in my opinion, an operation with some deviations from the approved EMPr. The aspects rated less than 3 in the level of significance needs to receive immediate attention and this should be achievable in a short space of time as much of it is related to rehabilitation, storm water management (with reference to erosion), pollution control (spills that needs to be cleaned up) and dust management.

It is advisable that the EMP review include all the necessary and/ or applicable aspects and that irrelevant aspects be removed from the EMP as each annual environmental audit will include EMP mitigation measures which are assessed operationally. The shortcomings identified in this report are to be considered as part of the EMP review process among other priority issues which require attention and managerial intervention.

PMG Mining (Pty) Ltd. has been assessed in terms of their **2008 approved Environmental Management Programme** and have been found **72.31%** compliant with the current relevant/ applicable aspects and mitigation measures for their 2023 Annual Environmental Audit.

Furthermore, the total cost to rehabilitate and mitigate the Bishop Mine as it stands currently (risking premature rehabilitation) is estimated to be **R36 724 832.00** using the components and costs explained above. The mine currently has a financial guarantee of R 32 766 035 in place and therefore the shortfall amounts up to **R 3 958 796.55.**

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1 INTRODUCTION

The PMG Mining (Pty) Ltd. Bishop project is situated approximately 40km from Postmasburg on the R325 to Kathu/ Kuruman and is approximately 250km from Kimberley in the Northern Cape Province of South Africa, the property under the mining right consists of the Portion 1 and the Remaining Extent of Portion 1 of the farm Bishop № 671, (543.3402 ha) District of Kuruman.

The mining method being employed is a strip-mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation.

Regional Setting

Geology:

The Postmasburg iron and manganese field is situated on the Maremane Anticline dome, which is located within the Kaapvaal Craton, although close to its western margin. The country rocks are Palaeoproterozoic metasidements of the Transvaal Supergroup. Two arcuate belts of deposits extend from Postmasburg in the south to Sishen in the north. Two major ore types are present. The ferruginous type of ore is composed mainly of braunite, partidgeite and bixbyite and occurs along the centre of the Gamagara Ridge, or Western belt. The siliceous type of ore consists of braunite, quartz and minor partidgeite and occurs in deposits along the Klipfontein Hills (or Eastern belt) and the northern and southern extremities of the Gamagara Ridge. Dolomites of the Campbellrand Group form the basement rock for these deposits and are overlain by the Manganore Iron-Formation and the Gamagara Formation. The dolomite palaeosurface is karsted, leading to collapse structures where iron and manganese formation has fallen into karst cavities to form the well-known Wolhaarkop Breccia body.

Geological and geochemical evidence suggest that the manganese ores represent weakly metamorphosed wad deposits that accumulated in karst depressions during a period of lateritic weathering and karstification in a supergene, terrestrial environment during the Late Paleoproterozoic period. The dolomites of the Campbellrand Group of the Transvaal

Supergroup are host and source for the wad accumulations. The ore at Klipfontein originated as pods and lenses of wad in chert breccia that accumulated in a karst cave system capped by the hematitized Manganore iron-formation of the Transvaal Supergroup. The cave system finally collapsed and the hematitized iron-formation slumped into the sinkhole structures. The manganese ore were affected by diagenesis and lower greenschist facies metamorphism. Evidence for renewed subaerial exposure of the ore and their host rocks can be seen in the secondary karstification and supergene weathering.

Climate:

Regional Climate:-

The climate of the Bishop area is described to be semi-arid with a mean annual precipitation of 349 mm. This tends to fall in summer and early autumn. Temperatures vary between -9º and +42ºC, with an average of 19.2ºC.

Temperature:-

The average midday temperatures for Postmasburg range from 17ºC in June to 32ºC in January. The region is the coldest during July when the mercury drops to 0ºC on average during the night.

Evaporation:-

The average annual evaporation rate in the region is 2 026mm a year, which is more than 5 times greater that the MAP (i.e. 349 mm/year).

Rainfall:-

Rainfall records extending a period of 6 month for the Data for station [0321110 7] – Postmasburg show that the mean annual precipitation (MAP) is 349 mm. The majority of rain falls in the later summer months of January, February and March, whilst the lowest rainfall records are recorded for the months of June, July and August. Rainfall tends to vary widely over the years as typical of most arid and semi-arid climates. The average annual evaporation rate in the region is 2 026 mm a year, which is more than 5 times greater than the MAP (i.e. 349 mm/year). Bishop Mine operation is located in a low rainfall area. Most of the rainfall in this semi-arid region occurs in summer and early autumn during the months of November to April.

The DWS and SAWB where consulted for Mean Annual Precipitation (MAP) and Mean Annual Evaporation (MAE). Data from both surfaces was analysed. For this region, MAP (is 368 mm and MAE is 1 365 mm. (Based on Lohatla Rainfall Station – SAWB 0321032, located 3.5 km south of the study area, with 36 years of data).

Topography:

The area is characterised by flat to undulating topography. The manganese ores are closely associated with high-grade iron ore deposits currently mined at Sishen, Beeshoek, Bishop, Lomoteng, Gloucester and other farms in the vicinity of the PMG mine.

The area surrounding the Bishop mine is described to be generally flat to undulating. Inherent to the mine area are a number of hills that partially hide the view of the mine from the main Postmasburg road. Bishop mine's average is 1 200 m above sea level.

Soils:

An examination of the soil types of the area indicates that these soils are generally fertile but not necessarily conducive to cultivation. This is a result of the low rainfall, semi-arid climate and relatively shallow soil depth. The soil types are typically sandy and gravelly, and generally less than 300 mm deep. This makes them susceptible to erosion, especially under conditions of high rainfall of short duration, i.e. in thundershower conditions.

Reconstruction of the soil profile:-

- Profile GN1 – Deep Whicher soils;
- Profile GN2 – Bassendean sands over clayey sand over sandy clay;
- Profile GN3 – Organic sands over clay;
- Profile GN4 – Guildford clays near surface;
- Profile GN5 – Deep clay basement, under sands;
- Land Capability and Land Use:
- Land in the surrounding area is predominantly uses for agricultural purposes.

Surface Water:

The mining area is located along a south-north mountain ridge. The highest topographic elevation (trigonometrical beacon) of 1417.4 mamsl occurs in the south of the mining area. The surface water run-off direction is towards the low lying areas surrounding the mining

area. No major drainage occurs in the area except the non-perennial rivers which occur in the eastern and western areas of the mining area.

The boundaries of the catchment are occupied by some rural residential related activities approximately 15-20km from boundary, small-scale farming activities in adjacent farms, SANDF training centre/ army base at Lohatla approximately 10km from the mining right area, as well as game farming areas.

Ground Water:

Karsified Aquifer: -

This aquifer, which predominantly occur in carbonaceous rocks (dolomite and subordinate limestone) stores its water in the cavities and can yield large volumes of water of deemed good quality. However, this aquifer, like many other aquifers is dependent on precipitation for recharge. This recharge varies with frequency of precipitation, rock type, plant and soil cover, riverbed infiltration and preferred infiltration path. Studies from the area indicate that with a threshold precipitation of more than 20 mm less than 1% to seldom more than 10% of precipitation can infiltrate to reach the ground water. During excessive precipitation events a larger percentage of the vast volumes of precipitation infiltrate (DWS, 2008).

Fracture Aquifers:-

These are rocks that behave in a brittle manner under tectonic forces and have limited intergranular properties, such as the quartzite which occurs in the western side of the mining area. The brittle failure in these formations results in fracture structure which enhances the development of secondary porosity.

Air Quality and Noise:

The Northern Cape does not fall within any of the three identified and legislated priority areas. However, the ZF Mgcawu district is intensified with manganese and iron ore mining operations which cumulatively contribute to the overall air quality within the region. Airborne particulate matter is common with the nature of mining methods in this area.

Noise is normally encountered during the operation hours at the processing plant where there is a primary feeder and the crusher. Processing plant noise and mine vehicles are

operational 24 hours a day during the week. Another noise source is the Genset/ generator room supplying the power to the plant.

Natural Vegetation:

All information under natural vegetation is taken out of the detailed report by Dr. Betsie Milne attached to the EIA /EMP as Annexure 3. The area falls within the Savanna Biome (Mucina and Rutherford 2006), and according to the vegetation map of Mucina et al. (2005) two vegetation units are present on site (Figure 8), i.e., Kuruman Mountain Bushveld and Postmasburg Thornveld. The vegetation map however does not reflect the true character of the site, because it has not been mapped at a very fine scale.

Kuruman Mountain Bushveld is distributed in the Northern Cape and North-West Provinces at altitudes between 1 100 and 1 800 m. It stretches from the Asbestos Mountains southwest and northwest of Griekwastad, along the Kuruman Hills north of Danielskuil, passing west of Kuruman and re-emerging as isolated hills. The unit is typically presented as rolling hills with gentle to moderate slopes and hill pediment areas with an open shrubveld. Here, Calobota cuspidosa is conspicuous within a well-developed grass layer. The Hills consist of banded iron formation, with jasper, chert and riebeckite-asbestos of the Asbestos Hills Subgroup of the Griqualand West Supergroup. Soils are shallow sandy soils of the Hutton form, with the most common land type being Ib, followed by Ae, Ic and Ag. The unit is classified as being least threatened with very little being transformed and with little erosion being present. It is not currently conserved within any formal conservation areas and the succulent Euphorbia planiceps is the only endemic species known from this unit.

Kuruman Thornveld is distributed in the North-West and Northern Cape Provinces, and lies at altitudes between 1 300 and 1 500 m. This unit is distributed East of Kuruman to Lykso, and south of Bendell towards Good Hope. The unit is presented as flat rocky plains and some sloping hills with very well-developed, closed shrub layer and well-developed open tree stratum consisting Vachellia erioloba. The unit mainly consists of Superficial Kalahari Group sediments, with deep red wind-blown sand, but Campbell Group dolomite and chert also occur. The dominant land types are Ae, Ai, Ag and Ah. The unit is not currently conserved within any formal conservation areas and is classified as being least threatened

with very low erosion and 2% transformation. The herb Gnaphalium englerianum is the only endemic plant species know to occur in this unit.

Postmasburg Thornveld is only found in the Northern Cape Province, restricted to areas around Postmasburg and lies at altitudes between 1 180 and 1 440 m. It is represented as flats surrounded by mountains supporting open, shrubby Thornveld characterised by a dense shrub layer, where trees and grasses are sparse. Shrubs are often low and of a karroid affinity. The unit occurs on red aeolian sand (Hutton form) of the Kalahari Group overlying the volcanics and sediments of the Griqualand West Supergroup that outcrop in places. The dominant land type is Ag. The unit is classified as being least threatened with very low erosion and very little transformation. It is not currently conserved within any formal conservation areas and no endemic plant species is known from this unit.

Olifantshoek Plains Thornveld is found in the Northern Cape at altitudes between 1 000 and 1 500 m. It is mostly restricted to the pediments of the Korannaberg, Langeberg and Asbestos Mountains. The plains are typically represented by an open tree and shrub layer, with a usually sparse grass layer. The unit occurs on red aeolian sand of the Kalahari Groups with silcrete and calcrete and some andesitic and basaltic lava of the Griqualand West Supergroup. Soils are deep and the most dominant land type is Ae, but Ah also occur. Only 1 % of the unit has been transformed and erosion is very low. It is classified as being least threatened and a very small proportion is being conserved in the Witsand Nature Reserve. The shrub Amphiglossa tecta is the only endemic plant species known from this unit.

<u>Fine-scale vegetation patterns</u>

The plant communities within the study area are delineated according to plant species correspondences, change in soil structure, topographical changes and disturbance regimes. The vegetation on site can be divided into seven distinct units and are described below. These community descriptions include unique characteristics and the dominant species found in each unit. A complete plant species list, including those species likely to occur in the area is presented in Appendix 1 of the report.

- *Tarchonanthus camphoratus – Stipagrostis uniplumis* open shrubland on red clayey soil

  This community occurs on deep red clayey soils in the north-east of the study area. Bare ground constitutes approximately 20% of the ground cover. The plant community is

presented as an open shrubland, where tall shrubs Tarchonanthus camphoratus and Senegalia mellifera are conspicuous in a grassy matrix. These two shrubs continuously alternate in their dominance across this unit. Other common tall shrubs found here include *Ziziphus mucronata, Grewia flava, Searsia ciliate, S. tridactyla, Vachellia hebeclada*, and *V. tortilis*.

The nationally protected tree ***Vachellia erioloba*** occurs at high densities in a restricted patch in the north of the unit, near the border. More sparsely scattered individuals are also present across the unit. Another nationally protected tree, ***Boscia albitrunca*** is also present in this community, but occurs at very low densities and is sparsely distributed. They also predominantly occur as very young and small shrubs.

The grass layer is very well developed and is dominated by *Stipagrostis uniplumis*, followed by *Cenchrus ciliaris, Schmidtia pappophoroides* and *Heteropogan contortus*. Other common grasses include *Aristida congesta subsp. barbicollis, Enneapogon cenchroides* and *Eragrostis lehmanniana*, while species like *Eragrostis obtusa* and *E. rotifer* occur sparsely.

Common lower shrubs include *Chrysocoma obtusata, C. ciliata, Phymaspermum parvifolium, Aptosimum marlothii, Asparagus capensis, A. laricinus, Leonotis pentadentata* and *Pegolettia retrofacta*.

Other species found here include *Geigeria filifolia, Dicoma capensis, Hertia pallens, Nidorella hottentotica, Polichia campestris, Polygala scabra, Senna italica subsp. arachoides, Asparagus cf. africanus, Ehretia alba, Pupalia lappacea var. lappacea, Solanum sp., Othonna sp., Hermannia sp*. and *Atriplex sp*.

- *Euclea crispa – Eragrostis lehmanniana* open shrubland on rocky hill slopes

  The community occur on the slopes of the hills associated with the Gamagara Formation and have not been mined in the past. Rocky soil generally constitutes approximately 10% of the ground cover on the east-facing slopes, but on the west-facing slopes the vegetation has evidently been over utilised and here, bare ground accounts for up to 40%. Similarly, the vegetation characteristics on these slopes differ somewhat, in that the grass component on the west-facing slopes is much less developed and is replaced by a higher density of *Senegalia mellifera*.

In general, *Euclea crispa* shrubs are conspicuously scattered across the hill slopes, along with other dominant shrubs like *Senegalia mellifera, Tarchonanthus camphoratus, Grewia flava* and *Searsia ciliata*. Other tall shrubs that also occur on the slopes, but at lower densities, include *Vachellia tortillis* and *Rhigozum obovatum*. Common lower shrubs include *Pegolettia retrofracta, Chrysocoma obtusata, Hermannia spinosa* and *Leonotis pentadentata.*

The nationally protected tree ***Boscia albitrunca*** occurs at high densities on the hill slopes as adult trees as well as young, small shrubs. ***Vachellia erioloba*** is also present, but they occur at very low densities and are sparsely distributed.

The grass layer is dominated by *Eragrostis lehmanniana*, but other common grasses include *E. rotifer, Enneapogon desvauxil, Cenchrus ciliaris, Aristida diffusa, Heteropogon contortus* and *Stipagrostis uniplumis, Artistida congesta subsp. congesta, Enneapogon cenchroides, Eragrostis curvula* and *Melinis repens* are also present, but at lower densities.

Other species found on the hill slopes include *Asparagus capensis, A. retrofractus, Aptosimum marlothii, Pachypodium succulentum Barleria rigida, Cadaba aphylla, Geigeria filifolia, Helichrysum cerastioides var. cerastioides Gomphocarpus tomentosum, Hermannia minutiflora, Kleinia longiflora, Pentzia incana, Hermannia sp., Sericocoma sp., Atriplex sp*. and *Salvia sp*.

- *Pogonarthia squarrosa – Eragrostis rotifer* grassy shrubland on quartzite

  This community is associated with quartzite outcrops on the hills in the north-west of the property. Here, large rocks constitute 40% of the ground cover, with the vegetation being scattered among them.

  The vegetation is presented as grassy shrubland, where *Pogonarthia squarrosa* and *Eragrostis rotifer* are the dominant graminoids. However, *Aristida diffusa* and *Eragrostis lehmanniana* are also very common. Other grasses found here include *Heteropogon contortus, Aristida congesta subsp. barbicollis, Elionurus muticus, Enneapogon cenchroides* and *Eragrostis nindensis*.

  Senegalia mellifera is scattered among the grasses and is the dominant shrub, but *Euclea crispa* and *Grewia flava* are also found. Common low shrubs include *Monechma spartioides, Pegolettia retrofracta, Chrysocoma ciliata* and *Hermannia affinis*.

Ore reserve

The manganese ore deposits on the Farm Bishop No. 671 are relatively shallow, located primarily on the hills and ridges in the centre of the property. The ore is mined by means of conventional opencast techniques (using conventional truck and shovel methods). Bench blocks may be drilled using drill rigs to produce blast holes, which are then charged with emulsion explosives when required. The rock is then loaded with excavators onto dump trucks and the ore is hauled to the crusher and ore stockpiles.

The estimated production is 1 000 000 tonnes per annum with a saleable product of 440 000 tonnes per annum at full capacity. The period of the Mining Right is expected to lapse in 2023 and have already indicated that the Mining Right will be renewed.

Mining activities make use of existing roads created by previous mining activities, but additional roads will most likely be created. A crushing and screening plant forms part of the ore processing and is as per the plant layout diagram included in the report.

Brief Description of Mining Venture

Mining

Mining operations make use of excavators to extract overburden and ore separately. Dozers and LHD's are used to haul the ore to a crushing and screening plant where it is crushed and screen sorted to size.

Strip Mining

PMG (Pty) Ltd, have a fleet of earthmoving equipment comprising bulldozers, front end loaders, rigid dump trucks, excavators, graders, drilling rigs, and other ancillary machinery. Where relevant the mining will also be facilitated by looking at renting equipment.

Beneficiation

The ROM material undergoes further concentration and upgrading of coarse materials is achieved through dense media separation methods. Impurities is removed by gravity separation techniques. Waste product is deposited on waste rock dumps and tailings on

tailings dams which is currently not in use at this stage. Final products are then stockpiled on product floors for shipment.

Mining and beneficiation will take place on a 7-day week with maintenance being performed over weekends.

PMG will operate its own plants which consist basically of a crusher, and screens to upgrade ROM ore to material suitable as smelter feed or sell as ore in terms of particle size and grade. The Mn content of the concentrates (<1mm fraction) typically increases from 21% to 25%. The coarse fraction, "lumps" of 20 to 120mm, will be processed by magnetic separation at grades varying between 32% and 34%. The fine fractions are concentrated as metallurgical, chemical and foundry grade concentrates.

Rehabilitation

The area has been extensively mined in the past, more recently by Assmang (manganese and iron ore). Large scale mining in the past has disturbed the area extensively, with open mining pits, access roads and mining infrastructure found throughout.

Associated Infrastructure

Mining activities will primarily make use of existing roads created by previous mining activities, but additional roads have been created.

Water

Water for Bishop Mine is sourced from two groundwater sources and the Vaal Gamagara line (Sedibeng Water). The Department of Water and Sanitation have authorised the use of four boreholes for processing purposes. The surrounding areas rely on groundwater for both domestic and livestock watering purpose. The surrounding static water levels are shallow (<14mbgl), implying the Bishop open cast mining operations may encounter water at a depth exceeding 14mbgl. Seven ground water and one surface water sources were located during the hydro-census exercise.

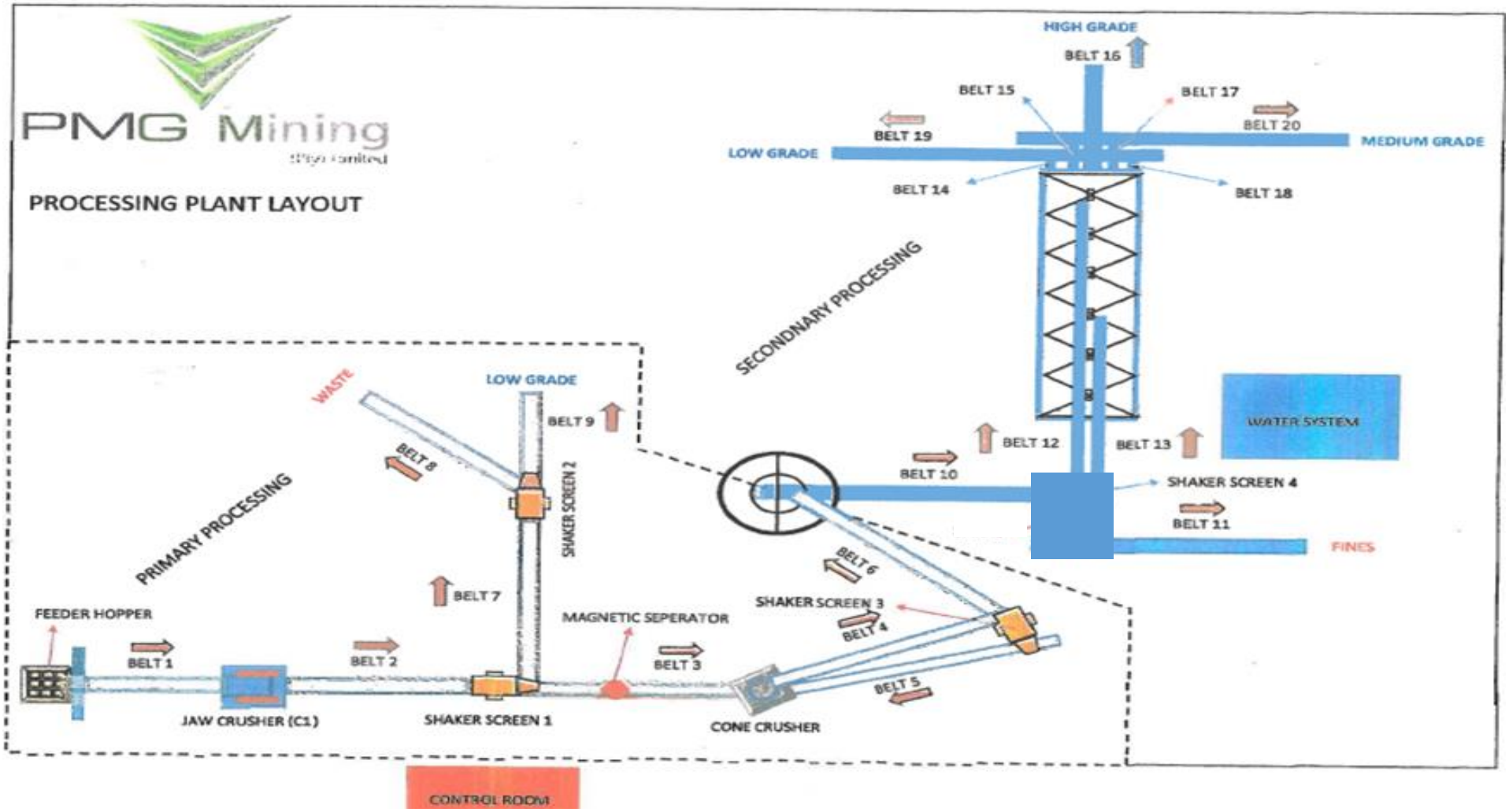

Figure 1: PMG Bishop Processing Plant Layout

Waste Management

General domestic waste is disposed at the municipal facilities in Postmasburg. The ablution facilities on site make use of septic tanks. Wash water is collected by interception channels in the wash bay floor which are connected to silt trap and oil separator system. The system in cleaned on an “as and when needed” basis by a hazardous waste management contractor. Salvage yards are used for the temporary storage of materials that are salvaged as needed by the mining operation.

Pollution control dams have been established at the mine, in terms of the Water Use Licence although the processing and treatment is a chemical free process. It must be noted that these dams are not currently in use. There are no facilities for the treatment of polluted water, other than the mine residue dam, which act as a settling dam, and clean water will be pumped back into the process water once the silt has settled out. Once again, no mine residue dam currently exists on the mine.

Access Roads

The property is accessible via good roads from different directions.

Infrastructure in the area/ region is very well developed with good road and rail networks, electricity grid and water. Experienced labour is available in the area as is an extensive network of secondary industries geared towards small and large-scale mining. ESKOM power is available on site for office and domestic use in onsite hostels. Plant operation make use of generators on site.

Activities associated with the PMG mine that is expected to make use of these roads include:

- the transportation of mining personnel to and from the site
- delivery of supplies and materials
- the transportation of the product (Manganese).

These transport operations will make use of passenger vehicles, light delivery vehicles, security vehicles and mini-busses/busses and very limited heavy vehicles.

Haul Roads

Haul roads will continuously be created in order to access excavations, but they will also continuously be rehabilitated.

Mining Procedures

Mine planning is discussed by the General Manager and Mine Manager on the site. The Mine design will have been done by the Mining Department, which design will then be handed down to the necessary persons involved in the mining applications. Any changes in mining areas are discussed with the Mining Department prior to implementation. The general mining procedure is as follows:

- Mining blocks will be set out as discussed with the General Manager according to the equipment at hand.
- Overburden can be ripped with the bulldozer to make stripping easier.
- The pushing off of overburden is done to such an extent that the minimal area of any open face is disturbed or covered.
- Ore will be transported to the plant using dump trucks
- Stripping will be moved with dump trucks.

The following structures are located within the boundaries of the study area:

Roads: The surrounding areas are served by a tarred road, the R31 between Barkly West, Postmasburg and Kuruman. Access to the mine is off the R325 road.

Power: ESKOM power and diesel generators currently services the farm from a regional line.

Railways: The railway line between Kimberley and Kathu runs along Barkly West. The closest station is at Kimberley.

Telkom: Telkom telephone lines serve the farm.

Airstrip: There is no airstrip on the mine.

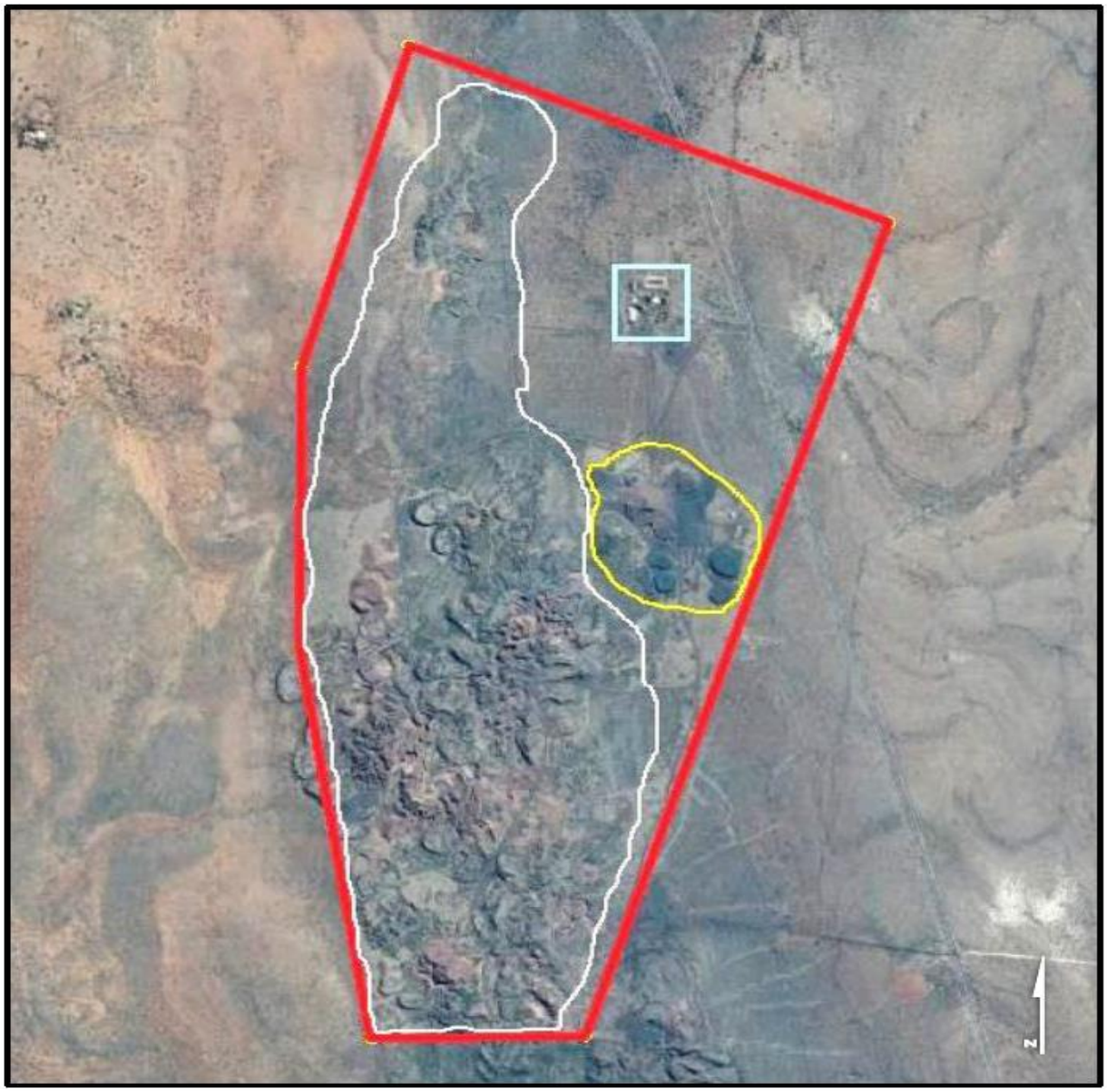

Figure 2: The locality of the core mining area on Bishop is indicated in white. The red lines indicate the border of the mining right area, while the yellow lines indicate the central processing facility. The blue square represent the office complex on site.

2 LEGAL FRAMEWORK

PMG (Pty) Ltd. is the holder of a mining right with reference number NC30/5/1/1/3/2/1/114 MR, executed on behalf of the Minister of Mineral Resources and PMG Mining Proprietary Limited before Noel Henry Kriel, a notary public, on 10 January 2008, under protocol number 829/2008, consisting of the sole and exclusive right to mine for iron and manganese ore in, on and under Portion 1 and the Remainder of the farm Bishop 671 (543.3402 ha) situated in the magisterial district of Kuruman, Northern Cape Province, together with all benefits and/ or improvements ("Mining Right").

The mining right will continue to be in force for a period of 15 years commencing on 10 January 2008 ending on 09 January 2023.

A renewal application has been lodged at the Department of Mineral Resources and Energy with reference number NC 30/5/1/2/2/10208 MR and an acknowledgement letter for the receipt of the application was received on 7 June 2022.

The Mining right area constitutes a landscape with rehabilitated areas and currently mined areas. The current Environmental Management Programme (EMP) provides for mining and the rehabilitation thereof.

Figure 3: Locality Plan of the area

3 DETAILS OF TEAM THAT PREPARED THE REHABILITATION PLAN; PROFESSIONAL REGISTRATIONS AND EXPERIENCE OF THE TEAM

COMPILATION OF ANNUAL AUDIT REPORT			
Company Name	Wadala Mining and Consulting (Pty) Ltd	**Registration no:**	2005/041175/07
Address	PO Box 110823 Hadisonpark Kimberley 8306		
Responsible Person(s)	Maryna Kok	Signature: 	
Contact Details	Tel: 082 707 1329	Email: maryna.wadala@gmail.com	
Qualifications and experience	• B.Sc. Honours in Environmental Sciences with Environmental Geology, • B.Sc. Majoring in Chemistry and Geology Miss Maryna Kok has graduated from the North West University in 2019 and also completed a post graduate degree in Environmental Geology. She is therefore a qualified scientist and is a registered Environmental Scientist at the South African Council for Natural Scientific Professions (SACNAP). She is currently employed as an environmental officer at Wadala Mining and Consulting (Pty) Ltd.		
COMPILATION OF REHABILITATION SKECTH PLAN			
Company Name	XYZ Resources Survey's	**Registration no:**	
Address	12 Cowburn Street Kuruman 8460		
Responsible Person(s)	Herman Husselmann	Signature: 	
Contact Details	082 925 8654	Email: herman.husselmann@vodamail.co.za	
Qualifications and experience	Mr Husselmann is a competent Mine Surveyor with 28 years of experience in Mine Surveying Underground as well as on Open Cast Mines. It also include Engineering Surveys, Grade Control and Mineral Estimation of Resources.		
PROJECT COORDINATORS			

Company Name	Wadala Mining and Consulting (Pty) Ltd	**Registration no:**	2005/041175/07
Address	PO Box 110823 Hadisonpark 8306		
Responsible Person(s)	Willie Oosthuizen	Signature: 	
Contact Details	Cell: 082 870 9973	Email: woosthuizen950@gmail.com	
Qualifications and experience	Mr. W.J. Oosthuizen (Director) has 24 years of government experience of which the majority was in finances at the Northern Cape Provincial Treasury. Here, he gained experience in government finances and was a Budget Analyst, and later Senior Manager for Financial Systems in the Northern Cape. He specialised in turnaround strategies for dysfunctional departments and was later appointed as the Chief Financial Officer for the Northern Cape Department of Education. He was responsible for the compilation of Annual Performance Plans, Financial Statements and Annual Reports. He also assisted mining companies with Mine Economics side of the Mining Industry and more specifically with the Financial and Technical Ability of mines and operations; as well as the compliance reporting requirements attached to rights. In 2013 he established Wadala Mining and Consulting (Pty) Ltd and became actively involved in the mining industry, both as a consultant and mining itself where he mined diamonds, aggregate and sand. Wadala also has a small yellow fleet and Willie has managed rehabilitation projects on sites where closure objectives had to be met.		

DECLARATION OF INDEPENDENCE

Wadala Mining and Consulting (Pty) Ltd. is an independent consultancy.

I, **Maryna Kok**, as an independent consultant, and on behalf of **Wadala Mining and Consulting (Pty) Ltd**., compiled this audit report and declare that it correctly reflects the findings made at the time of the audit. Furthermore,

I further declare that:

- I execute/d the audit as an independent consultant;
- Regard the information contained in this report to be true and correct.
- I do not have/ and will not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2015 and any specific environmental management Act;
- I have no interest, be it business, financial, personal, or other vested interest in the undertaking of the proposed/ proceeding activity, other than fair remuneration for work performed, in terms of the National Environmental Management Act (104 of 1998)
- I undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);

Based on information provided to me by the project proponent, and in addition to information obtained during the course of the audit, will present the results and conclusion within the associated document to the best of my professional judgement.

_____

Maryna Kok

For and behalf of Wadala Mining and Consulting (Pty) Ltd.

4 SCOPE OF THE AUDIT REPORT

4.1 Project scope

The rehabilitation audit (inspection) was performed across the entire Bishop mine and the scope of the assessment was to review rehabilitation and remediation activities on site. The audit report includes the following elements:

- **Mining rehabilitation**: those environmental rehabilitation liabilities pertaining to mining, for which Bishop Mine is legally responsible and to what extent the mine is following the approved remediation and mitigation measures contained in their approved Environmental Management Programme.
- perusal and evaluation of available documentation; (i.e. policies; procedures; work instructions; manuals and / or other materials that form a part of management systems of this project);
- observation of on-site activities;
- provision of verifiable findings on the ability of the measures as contained in the EMP to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the activity.

4.2 Terms of reference

The specific terms of reference for the assessment include the following:

- To conduct a site investigation in order to identify the extent of the environmental impacts and liabilities on site;
- To produce an Environmental Audit Report that:
  - (a) report on the level of compliance to the conditions of the environmental authorisation, including the approved EMPr and approved closure plan;
  - (b) identify and assess any new impacts and risks as a result of undertaking the activity;
  - (c) evaluate the effectiveness of the approved EMPr and approved closure plan;
  - (d) identify the shortcomings in the approved EMPr and approved closure plan;
  - (e) identify the need for any changes to the management, avoidance and mitigation measures provided for in the approved EMPr and approved closure plan.

4.3 Information used

The following information was utilised as the basis for the assessment:

- A surveyed sketch plan/ aerial survey and report compiled by an independent surveyor (Herman Husselmann Professional Surveyor from XYZ Resources) on the rehabilitation liabilities on site in order to compile a detailed bill of quantity;
- The Environmental Management Programme approved in January 2008 as well the background information from the EMP currently under review with new information as well as new information obtained from Dr Betsie Milne report 2015.
- A site inspection on the entire site of this Mining Right.
- The DMR guideline document (January 2005) for the evaluation of financial provision made by the Mining Industry in order to acceptably review the quantum determination for the rehabilitation of the site;
- Various related documentation and conversed information provided by PMG Bishop mine to understand the background and nature of the project.

4.4 Limitations and information gaps

The following gaps and limitations are relevant to this annual rehabilitation plan:

- The area has been historically actively mined by previous right holder and the site has significantly been disturbed by prior formal and informal mining activities. Digging and at the very least, prospecting has taken place to some extent over most of the farm before the current right holder. Limited soil return or other rehabilitation works have been conducted in any of these areas.
- The Environmental Management Programme was prepared in 2008. The relevance / applicability of certain activities, aspects, impacts and mitigation measures is a limitation.
- The area has been mined since the 1920's and was left with huge un-rehabilitated areas as its legacy.
- It is assumed that the process to determine the financial provision as presented in the Financial Provision Regulations of 2015 under the National Environmental Management Act and associated DMR guideline is the best option to follow in order to quantify costs set out in this rehabilitation plan.
- Information in this document is based on information supplied by PMG Bishop Mine and associated documentation relating to the mining activities and is therefore relied upon as accurate and complete and therefore third party confirmation.

- No guarantee is made by the author with respect to the completeness, accuracy or truth of any aspect of this document with reference to the instructions, information and data supplied by PMG Mining (Pty) Ltd.

5 ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT (EMPr)

A well-motivated indication of the ability of the approved EMPr and, where applicable, the approved closure plan to address aspects will be discussed as follows:

Upon completion of the activity on the site all infrastructure deemed unnecessary for the future operation will be dismantled and or demolished and redundant material will be removed from the site.

The primary objective following decommissioning is to obtain a closure certificate at the end of the life of the mine at a minimum cost and in a short period of time as possible whilst still complying with the requirements of the MPRDA and NEMA.

To realise this, the following objectives must be achieved:

- Ensure that no potential sources of soil, ground water or surface water pollution remain anywhere on the sites
- Ensure that all permanent changes in topography are sustainable and do not cause erosion or the damming up of erosion
- Ensure that all rehabilitated areas are safe, stable and self-sustaining in terms of suitable indigenous vegetation

5.1 Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis

The following environmental aspects in the approved Environmental Management Programme are described in detail and makes adequate provision for the avoidance, management and mitigation of the environmental impacts associated with this mining venture.

5.1.1. Topography

Management Guidelines:

- Implement the materials handling plan to control handling, stockpiling and placement of material, in addition the following general measures should be used as a guideline.

- Re-profile replaced hard and soft overburden material in to the mined out pit areas. Ensure that the re-profiled landform is in keeping with the character of the adjacent un-mined land surface.
- At the contact between pit and un-mined land, ensure that the slope of the ground does not exceed five percent/ 5%.

- Shape the soil so that the topography is free draining. Re-shaped areas of arable land capability must not have a final slope of greater than four percent (4%).
- Replace all newly stripped topsoil to achieve the required pre-mining land capability.
- Re-vegetate the rehabilitated areas as specified.

5.1.2. Soil Preservation of Topsoil

Management Guidelines:
General

- Soils should be stripped during the dry winter months. Soil stripping should be guided during the pre-mining soil map and a soil stripping guide.
- Soils will be stockpiled at a slop of no more than 25 percent (25%), to prevent erosion by flowing water.
- Stockpiles must not be located near water courses.
- Soil stockpiles will be seeded at the earliest opportunity after placement, to reduce the impact from water and wind erosion.
- Where possible the topsoil layers should be placed at the top of the profile to improve fertility in the upper soil layers and to retain seed stocks in the rehabilitated environment. This is particularly relevant where direct placement occurs. Direct soil placement is the preferred method of soil handling due to technical and economic reasons.
- Soil stockpiles will always be placed upslope of operational areas, to prevent contamination by PMG products and wastes.
- Soil that is contaminated by fuel or oil spills, for example, from mining vehicles, will be collected to be treated at a predetermined and dedicated location, or will be treated in situ, using bioremediation.
- Stockpiles will be restricted to less than five meters in height.
- Surface water flow should be diverted around soil stockpiles.

5.1.3. Preservation of topsoil fertility

Management and mitigation actions/measures:

- Where possible, place stripped topsoil directly onto re-profiled and shaped areas to minimise the volume of soil that needs to be stockpiled.
- Conduct annual soil sampling and analysis of rehabilitated land areas and fertilise areas to maintain optimal growing conditions during the first three years. Thereafter sample/ analyse from re-vegetated areas every five years.

5.1.4. Land Capability

Management Guidelines:

- Apply soil handling and conservation measures.
- Apply measures for reconstitution of topography.
- The edge of the pit should be sloped to prevent run-off from the site from entering the pit.
- Slopes should not exceed 8% if possible, so as to ensure that they maintain their land-use potential. (18˚)
- Implement soil protection and conditioning measures.
- PMG will conduct annual monitoring of rehabilitated areas to assess performance of the rehabilitation approach employed.
  - contamination (chemical or physical) of the soil surface.
  - the emergence of alien/ exotic vegetation.

5.1.5. Land Use Utilisation of Rehabilitation Land for Agriculture

Management Guidelines:

- Makes rehabilitated land areas of grazing potential available for controlled agricultural use as soon as possible in order to facilitate the re-integration of these areas into the regional agricultural framework.
- Make rehabilitated land areas of arable potential available for controlled cropping.
- Where it is not possible to rapidly re-integrate rehabilitated land areas into adjacent agricultural land, mow rehabilitated areas every second season after planting to defoliate the areas.
- Accurate records must be kept of the biomass harvested each season.
- Responsibility for the maintenance of rehabilitated areas and re-integration of such areas into the regional agricultural environment rests with PMG.

5.1.6. Management of un-mined land within the pro-posed PMG mining area

Management guidelines:

- The encroachment of alien and invasive species should be prevented and existing populations of invasive species should be eradicated.
- Much of the remaining land area that will not be mined will continue to be farmed. PMG to ensure that the lease agreement adequately informs the lessee of their responsibility to manage the land areas in a manner that will ensure the ongoing sustained and productive use of the land for agriculture.
- Areas of natural grassland will be burnt in agreement with the local Department of Agriculture and the local Fire Protection Association on an agreed upon basis to prevent the build-up of moribund material in these land areas. The burning of veld and fire breaks will be done in consultation with the local Fire Protection Association.
- Burning of veld areas should be carried out in agreement with neighbours and (Veld burning will be undertaken in accordance with the latest legislation. In grassland areas, burning will occur during September after the

first spring rains when the grass sward is still dormant. This will ensure a cool burn which cause least damage to the plants).

- The PMG Mine Manager will be responsible for management of all land within the mine area of control.

5.1.7. Vegetation

Management Guidelines:

- The areas that are newly-disturbed by mining will be re-grassed on completion of overburden replacement and conditioning. (This excludes the areas encompassing the water boy/void upon closure of the proposed mine). All areas will initially be grassed using a mixture of pasture grass species that are readily available commercially. All areas will initially be grassed using a mixture of pasture grass species that are readily available commercially. All re-vegetation will be under dry land conditions.
- Re-vegetation of rehabilitated areas after mining
- Preparation of rehabilitated land areas for re-vegetation.
- Sow the prepared areas with a seed mixture which will produce a grass cover at various levels and over as much of the growing season as possible.
- Include other native grasses and other plants found within the site in the rehabilitation seed mixture when such seed is available.
- The vegetation programme must take cognizance of the climatic and seasonal conditions but should generally be undertaken annually, starting in spring and early summer (i.e. September, October and November).
- Burning of old grass material
- Burn the grassland every two-three years to clear old growth and to enable the establishment of new growth, using criteria as set out in current legislation.
- Burn after the first Spring rains while grass is still dormant and to ensure a cool burn.
- Use head fires to prevent unnecessary damage to other plants.
- Control of alien and invasive vegetation
- The entire mining areas must be inspected at the start of each summer period in October.
- The areas of exotic vegetation must be mapped.
- Areas of exotic plant infestation must be controlled as follows:
- Fix the perimeter of each area.
- Starting with the areas of light infestation, actively eradicate the exotic vegetation from within the identified areas.
- Maintain an active follow-up programme in cleared areas to control re-growth and seedling establishment and thereby prevent re-infestation of the cleared areas.
- Keep the rehabilitated land areas clear of alien vegetation through regular inspection and clearing of young plants.

5.1.8. Visual/Aesthetics

Management guidelines:

- The PMG mine manager must interface with the mine planners to manage the development of the mining window in such a manner that the footprint of disturbance is minimised.
- Do not allow hunting or trapping of small mammals and birds on the site.
- Restrict access to the non-mined floodplain areas in order to allow fauna displaced from the mining area to move through these areas and access adjacent farmland.
- Ensure that environmental education of mine staff takes place at all levels to limit unnecessary damage to habitats and/or disturbance of fauna. (PMG to develop environmental module to form part of the site induction programme. All contractors and staff to attend induction.
- Rare animal species, or sensitive species that may be killed by excavation, such as aardvark, should be trapped and relocated from the site if found. Aardvark are present in the north west of the site.

5.1.9. Surface Water

Management guidelines

- Clean storm water management:
- Maintain the storm water control berms upslope of the active pit to route clean runoff around the open pit.
- Rehabilitate mined out cuts and overburden behind the mining face such that the open window in the pit equals no more than five cuts (pre-stripping, mining, overburden levelling, topsoil placement/ rehabilitation) with the exception of the main (in-pit and end wall) ramp access.
- Care must be taken that the storm water berms diverting clean runoff past the pit do not become blocked or contaminated. All storm water diversion berms/ trenches must be inspected monthly during the wet season by the ECO.
- Management of water within the mine
- The pollution control dam must be located within the pit dirty water system so that contained water will report back to a pit in the event of dam failure or over topping.
- The dam is to be equipped with a float switch to prevent water in excess of the dam's design capacity being pumped into the dam. If the dam has reached its capacity, no further pumping of water from the pits will thus take place and the pit volume will easily accommodate surge volumes.
- Pit water must not be discharged directly to any watercourse. The water should be routed to the lined pollution control dam.
- Monitoring of the rate of pit water make
- A procedure must be developed, supported by an appropriate spreadsheet, to monitor the water balance of the pollution control dam against predicted volume and rate of pit water make for low, medium and high groundwater scenarios.

- The volume of water pumped to the pollution control dam must be measured through installation of an inline flow meter before end of pipe discharge to the dam.
- The volume of water abstraction from the pollution control dam for dust suppression purposes must be monitored through installation of an inline flow meter between the abstraction point and end of pipe discharge to a dust suppression water bowser.
- Should the predicted stage curve for the pollution control dam (rate of dam filling based on the balance of inflow less outflow) be exceeded, by more than 15% by the actual stage curve for the dam, then a review of the dam capacity must be undertaken by an engineering hydrologist.
- The pollution control dam water balance must be reviewed annually by an engineering hydrologist.
- Should the actual stage curve for the dam prove to be above that predicted for the low groundwater scenario, then investigation of additional water management methods must be initiated. The implementation of the chosen water management optioned must be commenced when the volume of water held in contained storage within the dam exceeds 220 000m³.
- A summary of the monthly mine water balance is to be presented to the environmental monitoring committee.

5.1.10. Groundwater

Management guidelines:

- Monitoring of borehole water quality & volume
- Daily monitoring of discharge water quality is to be carried out at end of pipe as detailed in the Environmental Monitoring Plan.
- Monthly sample to be taken for analysis against the determinants defined in the monitoring plan. Compacted areas will be ripped to a depth of 300 mm during the decommissioning- and closure phase of the operation in order to establish a growth medium for plants.

5.1.11. Air Quality

Management guidelines:

- Control of air quality associated with operational dust
- Implement and maintain a dust suppression system haul road and service roads associated with the pits.
- Suppress road dust when dust entrainment behind vehicles is noticeable. This can reduce emissions from unpaved mine roads by up to 75%.
- Control of air quality
- Endeavour to keep the open window that follows the active mining cut as small as possible by active and concurrent levelling, shaping and topsoiling of replaced overburden.
- Monitor unrehabilitated parts of the pit (areas not yet top soiled). The ECO to brief mining contractor.

- No restriction to other non-blasting related mining activities is recommended so as to allow pit development of proceed in advance of blasting at times when restrictions to blasting may apply.
- Carry out monitoring of respirable.
- Sample dust buckets associated with the pits on a monthly basis and implement corrective action as required.
- Vegetate the walls of the topsoil stockpiles in order to limit dust emissions from soil stockpiles.
- Install a spray at the end of the product conveyor gantry to allow the product stockpile and loading area to wet down to control dust emissions from product stockpile and truck loading areas.
- Install dust fall-out buckets at the positions.
- Conduct quarterly site inspections and progress reporting on dust monitoring during operations.

5.1.12. Vibration and Noise

Management guidelines:

- Operational noise
- Equipment of the mining contractor must be maintained.
- Personnel must adhere to operational procedures that reduce noise.
- Monthly measurement of noise over a normal 24-hour production cycle should be carried out at the mine from time to time of mining, through construction and for a minimum of the first year of mining activity.
- Mitigation of blasting noise
- PMG to ensure that the area has been made safe in terms of the MHSA (500m) that all people and livestock are outside of the blast exclusion zone (500 meters) prior to blasting.
- Use electronic detonators if possible.
- PMG to develop and implement a blasting Programme that defines a window of time when in the day blasting will occur. This has provisionally been planned for 11h00- 14h00. PMG to obtain signoff from DME/ DMR for this blast management plan, specifically the implementation of special measures that may be required when blasting within 500 meters of the road.
- The ECO to communicate this programme to the public and directly affected landowners (neighbours) so that they can anticipate and/ identify blasts as being part of the mining operation. Erect signs on the R325.
- Implement whatever additional measures the DME may request PMG to implement at the mine site.
- Optimisation of blasting
- At the start of mining, the blast programme should be optimised through diligent monitoring of environmental effects resulting from the first blasts.
- Optimisation should include evaluation of;

- Optimisation of the charge size to keep air blast and ground vibration levels below predetermined acceptable values.
- Monitoring of blast, ground vibration and human response to ensure predetermined levels are in fact acceptable and are being adhered to, and to modify the blasting regime as appropriate.
- Optimisation of the stemming of blast holes.
- Structural monitoring associated with blasting;
- Monitoring of sensitive structures for signs of attributable damage.
- Management of the Blast Exclusion zone at times of blasting;
- Erect signs on the road, indicating that the area is an active mining area before commencement of any mining activity.
- Clearly indicate on roadside signs the times each day that road closure will occur so that motorists can plan accordingly.
- Ensure the 500 meter blast exclusion zone is clear of people and livestock prior to blasting, or alternately implement any additional measures as directed by the DMR in the MHSA/ OHSA.
- Announce all imminent blasts by means of a blast claxton/ siren.
- Patrol the isolated roads area to ensure that no vehicles or pedestrians or livestock remain in the area. Ensure that all access points onto the closed-off portion of the road area also blocked off and are manned and have been patrolled to ensure they are free of people or livestock. All farm gates and points at which access to this road section through existing entrances of whatever form are also marked.
- Carry out blast.
- After the blast, make sure the blast site is safe and free of misfires.

5.1.13. Archaeological & Cultural Historical Sites

Management Measures

- Maintain restriction on access to demarcated and fenced-off areas on and around possible grave sites.
- Instruct all contract mining personnel or PMG staff, persons on site or visitors that the peat wetland areas are restricted zones.

5.1.14. Visual Aspects

Management Measures

- Rehabilitation should be carried out concurrently with advance of mining.
- Overhead lighting should be directed downwards and inwards. Due care should be taken when positioning overhead lighting to ensure that lighting points away from nearby farmsteads so as to limit night time impact of lights in an otherwise largely rural landscape.

5.1.15. Socio-Economic Aspects

Management Measures

- Employment and prevention of loss of farm skills;
- The mine will not take anyone into service at the gates to the mine site itself.
- All employment will be through formal employment agencies already operating within the Postmasburg region.
- Accommodation and social services;
- Housing loan schemes form part of PMG's conditions of employment for certain skill levels.
- PMG to provide support to selected schools to increase facilities and teachers to meet the needs of employee's children and should be defined in the PMG Social and Labour Plan as well as local economic development plans.
- Health facilities to be provided for mine workers and their families. This is expected to be through a combination of facilities.
- The mine's HIV/ AIDS Programme should not only include its employees to contain the HIV prevalence rate, but should strive to provide community support through synergies with community organisations, NGO's and neighbouring enterprises that already run such training and awareness programmes.
- Safety of the public in proximity to the mine site;
- The perimeter of the mine site will be fenced and access to the site will be controlled.
- Security guards will be on site and undertake regular patrols.
- PMG will undertake educational and information programmes at neighbouring schools to advise of the risks and measures in place.
- The mine's design and operation to be done in accordance with the South African Health and Safety requirements in force in the South African mining industry to manage stability of slopes.
- Loss of employment on cessation of mining;
- Skills development programmes are to be introduced to employees (especially to unskilled workers) to equip them for the period after mine closure. (Specific programmes are to be defined in the Social and Labour Plan in terms of the MPRDA).
- Staff should, where possible, be re-allocated to other PMG mines.
- Retrenchment packages are to be provided to employees that cannot be re-allocated to other mines.
- Downturn in economic activity;
- The Postmasburg municipality (in terms of its Integrated Development Plan (IDP)) and the Chamber of Business are to be consulted to assist with the identification of alternative developments. Such a consultation process should be initiated from the start of operation so that a forum for discussion of economic issues and impacts can be developed in time to appropriately deal with impacts when they arise.
- Concerns adjoining landowners and affected parties;
- A complaints and compliments register should be established and be kept at the mine site office in which any complaint or compliment received is

documented, the party responsible for follow-up is indicated and the follow-up actions recorded.

- This register should be kept in an accessible area, probably at the mine administration office front desk. Maintenance of the register to be the responsibility of the ECO.
- The mine manager and ECO must be apprised of any issues raised, within 24 hours of entry into the register. The ECO, in consultation with the mine manager will identify who is responsible to follow up on the issues raised. Contact to be made with the stakeholder within 48 hours of receipt of the issue, and feedback to be provided to the stakeholder that raised the issue, on close out of the issue. The timeframe that will be necessary to address the issue must be communicated during initial contact with the stakeholder.

5.2 Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and

As stated in the approved EMP the applicant must for closure do the following:

Environmental objectives and specific goals for mine closure

Objectives:
The primary objective is to obtain a closure certificate at the end of the life of mine at minimum cost and in as short a time period as possible whilst still complying with the requirements of the Act.

To realise this, the following objectives must be achieved:

- Ensure that all permanent changes in topography are sustainable and do not cause erosion or the damming up of runoff;
- Ensure that all rehabilitated areas are safe, stable and self-sustaining in terms of suitable indigenous vegetation;

Infrastructure areas

- Remove all temporary infrastructure and waste from the site in line with this EMPR;
- Ensure all foundations and debris of all infrastructures are removed completely from site and disposed of in accordance with the requirements of this EMPR.
- Reshape areas where demolition and excavation has taken place to facilitate surface water runoff;
- Remove all gates and fences erected during the operational life of the mine;
- Backfill / level all storm water trenches, toe trenches and other excavations;
- Remove all non-biodegradable waste material of all descriptions inclusive of receptacles, scrap and building rubble from the mining area and dispose of at a suitable waste disposal facility;
- No waste material of any description may be burned or buried on the site;
- Remove all contaminated soil associated with the above waste and disposal sites and dispose of at a suitable waste disposal facility;
- Re-vegetate the site according to the guidelines

- Monitor the rate of re-vegetation. If this does not manifest to a percentage coverage and species composition satisfactory to the Director: Mineral Development then a suitable program must be implemented to achieve the required coverage. If necessary, an ecologist may be called in to make recommendations in this regard.

Mine residue deposits

- Landscape all remaining backfill areas to final profiles to facilitate runoff and drainage.
- Re-vegetate all backfill areas.
- Monitor the rate of re-vegetation. If this does not manifest to a percentage coverage and species composition satisfactory to the Director: Mineral Development then a suitable program must be implemented to achieve the required coverage. If necessary, an ecologist may be called in to make recommendations in this regard.

Rehabilitation of ramps, roads and voids

- Rip, plough and re-vegetate all site roads deemed unnecessary for future nature reserve operations at Bishop farm ;
- Monitor the rate of re-vegetation. If this does not manifest to a percentage coverage and species composition satisfactory to the Director: Mineral Development then a suitable program must be implemented to achieve the required coverage. If necessary, an ecologist may be called in to make recommendations in this regard.

Submission of information

- Audit information on post decommissioning activities will be maintained and made available on request.

Maintenance

- Post decommissioning maintenance will be continued until such time that closure is approved. Reports on the following activities will be kept up to date and submitted on request to the DMR.
    - Monitoring of vegetation and rehabilitation progress;
    - Monitoring of erosion in rehabilitated areas;
    - Monitoring of all backfill areas for signs of subsidence;

The ultimate aim of the environmental management plan is for rehabilitation to be self-sustaining, so that the least possible aftercare is required.

5.3 Ensure compliance with the provisions of environmental authorisation, approved EMPr and, where applicable, approved closure plan.

Information gained from monitoring the approved environmental management program:

The audit was performed while mining activities were active (operational phase) and in production on 14 June 2023.

Results of the assessment

This section will evaluate the degree of compliance outlined in the EMPr to the evidence obtained during the site visit. Sections of the EMPr relevant to the site, evaluated and degree of compliance noted.

It can be expected that the risk of long term liabilities after closure will be low. This Audit Report and financial quantum report have been compiled utilizing the guidelines for financial provision (DMR guidelines 2005) with the latest available DMR master rates available.

Compliance with the provisions of the environmental authorisation approved EMPr and where applicable the approved closure plan will be evaluated against the actual situation on the site on the day of the site visit, where-after mitigation measures are proposed.

A follow up site visit will be done to assess the progress and level of compliance to mitigation measures and where deviations still occurs, a commitment and target date will be reflected as obtained from the mine manager.

Significance levels for the Audit Findings

Significance Level	Environmental Impact
0	Currently causing an Environmental Impact and needs immediate intervention
1	Observation which relates to a matter about which the Assessor is concerned but cannot be clearly stated as a non-compliance. Observation also indicate trends which may result in a future non-compliance
2	Has potential to cause an environmental effect or result in non-compliance or is noncompliant with EMP and permit requirements, policies or standards
3	In compliance and current measures must be maintained or improved

Measure 1: Topography

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
1.1) Implement the materials handling plan to control handling, stockpiling and placement of material, in addition the following	Compliant	Manganese product and waste material stockpiles are present on various areas on the mine site. Standard operating procedures for the handling and dumping of material has been updated.	3

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
general measures should be used as a guideline;		It is however recommended that the placement of these stockpiles are planned in line with the mine plan to ensure that no manganese resources are being sterilised.	
1.2) Re-profile replaced hard and soft overburden material in to the mined out pit areas. Ensure that the re-profiled landform is in keeping with the character of the adjacent un-mined land surface.	Observation	Backfilling of mined out pits are taking place, however, all of the backfilled pits still need to be sloped to blend in with the topography of the surrounding area. It is important that this measure is implemented as erosion was observed on the backfilled areas.	1
1.3) At the contact between pit and un-mined land, ensure that the slope of the ground does not exceed five percent/ 5%.	N/A	This measure is unrealistic for the operation due to the historic state of the environment with previous mining activities. The topography is undulating. Ensure this measure is amended.	
1.4) Shape the soil so that the topography is free draining. Re-shaped areas of arable land capability must not have a final slope of greater than four percent (4%).	Non-compliant	Soil on backfilled areas is not shaped to blend in with the natural topography and erosion was observed on various backfilled areas. Ensure that this measure is implemented and monitored throughout the life of mine.	0
1.5) Replace all newly stripped topsoil to achieve the required pre-mining land capability.	Partially compliant	Concurrent rehabilitation is taking place on the mine. It should be noted that very little topsoil stockpiles are present on the mine as a result of the historic mining activities which took place on the mine site area and the geology of the property. The mine should ensure that the topsoil is stripped and stockpiled when new mining pits are being developed where possible. This measure is to be implemented and monitored throughout the life of mine.	2
1.6) Re-vegetate the rehabilitated areas as specified.	Observation	The current approach is to allow for the self-manifestation of vegetation after one wet and one dry cycle. The self-	1

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
		manifestation of the vegetation on backfilled areas are slow. Ensure that the backfilled areas are sloped and ripped to encourage the self-manifestation of vegetation. All backfilled areas are to be monitored.	

Measure 2: Soils Preservation of Topsoil

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
2.1) Soils should be stripped during the dry winter months. Soil stripping should be guided during the pre-mining soil map and a soil stripping guide.	Observation	No soil management measures were practiced prior to PMG mining era; therefore, no topsoil stockpiles were found on site. Newly stripped areas are to comply with this requirement; however no stripping/ mining plan was found at the time of the audit.	1
2.2) Soils will be stockpiled at a slope of no more than 25 percent (25%), to prevent erosion by flowing water.	Observation	Many stockpiles were found with erosion gullies. More attention and management are required on the profiling of stockpiles. Due to the lack of soil/ topsoil it is recommended that the mine gives attention to the slope.	1
2.3) Stockpiles must not be located near water courses.	N/A	No water courses found on the area.	
2.4) Soil stockpiles will be seeded at the earliest opportunity after placement, to reduce the impact from water and wind erosion.	N/A	No soil management measures were practiced prior to PMG mining era; therefore, no topsoil stockpiles were found on site. Newly stripped areas are to comply.	
2.5) Where possible the topsoil layers should be placed at the top of the profile to improve fertility in the upper soil layers and to retain seed stocks in the rehabilitated environment. This is particularly relevant where direct placement occurs. Direct soil placement is the	N/A	No soil management measures were practiced prior to PMG mining era; therefore, no topsoil stockpiles were found on site. Newly stripped areas are to comply with these requirements. These requirements are to be included in the stripping and	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
preferred method of soil handling due to technical and economic reasons.		stockpiling procedures/ codes of practices.	
2.6) Soil stockpiles will always be placed upslope of operational areas, to prevent contamination by PMG products and wastes.	Compliant	No soil management measures were practiced prior to PMG mining era, therefore no topsoil stockpiles were found on site. Newly stripped areas comply with these requirements and are to be included in operating procedures. Procedures are to be briefed to employees for awareness and compliance purposes.	3
2.7) Soil that is contaminated by fuel or oil spills, for example, from mining vehicles, will be collected to be treated at a predetermined and dedicated location, or will be treated in-situ, using bioremediation.	Non-compliant	Spills were observed during the audit specifically at the salvage yard (plant area), hard park and redundant vehicle area. These spills should be picked up and moved to the bioremediation area. The mine should also ensure that these spills are recorded in an incident register.	0
2.8) Stockpiles will be restricted to less than five meters in height.	N/A	No soil management measures were practiced prior to PMG mining era, therefore no topsoil stockpiles were found on site. Newly stripped areas are to comply with these requirements and are to be included in operating procedures. Procedures are to be briefed to employees for awareness and compliance purposes.	
2.9) Surface water flow should be diverted around soil stockpiles.	Observation	There are no soil stockpiles on the mine however, berms are constructed around the product and waste stockpiles to separate clean and dirty water. Storm water management on the mine site however needs to be improved as erosion was observed during the rain season. The mine is to monitor this measure.	1

Measure 3: Preservation of topsoil fertility

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
3.1) Where possible, place stripped topsoil directly onto re-profiled and shaped areas to minimise the volume of soil that needs to be stockpiled.	Partially Compliant	No soil management measures were practiced prior to PMG mining era; therefore, no topsoil stockpiles were found on site. Newly stripped and stockpiling areas comply with these requirements. It is recommended that the mine train employees on these measures to minimise volumes that is being stockpiled.	2
3.2) Conduct annual soil sampling and analysis of rehabilitated land areas and fertilise areas to maintain optimal growing conditions during the first three years. Thereafter sample/ analyse from re-vegetated areas every five years.	Non-compliant	No soil sampling is taking place. It is recommended that soil analysis be conducted as the self-manifestation of vegetation on rehabilitated areas are slow.	0

Measure 4: Land Capability

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
4.1) Apply soil handling and conservation measures.	Observation	No topsoil stockpiles are available on the mine site due to historic mining activities. The mine is to ensure that topsoil be removed and stored in the event that new pits are being constructed. It is recommended that a SOP with regards to soil handling and conservation is compiled and that employees are trained on the correct procedures to stockpile soils as well as to clean up polluted soils. A few oil spills were observed during the site visit. Ensure that these spills	1

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
		are cleaned up and recorded in an incident register. All measures to prevent soil pollution (and therefore to conserve soils) are to be implemented at all times.	
4.2) Apply measures for reconstitution of topography.	Non-compliant	All backfilled areas still need to be sloped to blend in with the surrounding topography.	0
4.3) The edge of the pit should be sloped to prevent run-off from the site from entering the pit.	Compliant	Edges of the pits and berms surrounding pits are constructed in such a way to prevent run-off from the site to enter the pit. The mine is to monitor this measure and ensure that this measure is implemented throughout the life of mine.	3
4.4) Slopes should not exceed 8% if possible, so as to ensure that they maintain their land-use potential. Consider review of this measure with EMP amendment in order to stipulate acceptable sloping gradient within reason as per DMR closure guidelines.	Non-compliant	Many overburden dumps have been found at angles in excess of 8%. Erosion gullies are visible on slopes of some structures. Ensure that these are corrected as far as reasonably possible unless determined acceptable by specialist in terms of pristine environment on historic MRDs.	0
4.5) Implement soil protection and conditioning measures.	Compliant	Very little topsoil is found on the mine site due to historic mining activities. Areas not demarcated for mining is being protected by berms and cannot be accessed by mine vehicles. The mine is to ensure that topsoil is removed and stored in the event that new pits are created. This measure should be implemented and monitored throughout the life of mine.	3
4.6) PMG will conduct annual monitoring of rehabilitated areas to assess performance of the rehabilitation approach employed.	Non-compliant	No evidence could be found to indicate that annual monitoring of rehabilitation, specifically with regards to the monitoring of contamination and exotic vegetation, is being	0

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
- contamination (chemical or physical) of the soil surface. - the emergence of alien/ exotic vegetation.		conducted on the mine. Ensure that all rehabilitated areas are monitored and that a report be compiled to assess the performance of the rehabilitation approach being employed.	

Measure 5: Land Use Utilisation of Rehabilitated Land for Agriculture

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
5.1) Makes rehabilitated land areas of grazing potential available for controlled agricultural use as soon as possible in order to facilitate the re-integration of these areas into the regional agricultural framework.	N/A	Determine whether this requirement is applicable to the final closure of the area. This is imposed on areas which are under rehabilitation and is finally signed off as mined-out areas.	
5.2) Make rehabilitated land areas of arable potential available for controlled cropping.	N/A	Determine whether this requirement is applicable to the final closure of the area. This is imposed on areas which are under rehabilitation and is finally signed off as mined-out areas.	
5.3) Where it is not possible to rapidly re-integrate rehabilitated land areas into adjacent agricultural land, mow rehabilitated areas every second season after planting to defoliate the areas.	N/A	Determine whether this requirement is applicable to the final closure of the area.	
5.4) Accurate records must be kept of the biomass harvested each season.	N/A	Determine whether this requirement is applicable to the final closure of the area.	
5.5) Responsibility for the maintenance of rehabilitated areas and re-integration of such areas into the regional agricultural environment rests with PMG.	N/A	Determine whether this requirement is applicable to the final closure of the area.	

Measure 6: Management of un-mined land within the pro-posed PMG Mining area

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
6.1) The encroachment of alien and invasive species should be prevented, and existing populations of invasive species should be eradicated.	Partially Compliant	Some prickly pears were observed near pit 9 which is currently being rehabilitated. No alien invasive species were observed on any other part of the mine. The mine is to monitor this measure and ensure it is implemented throughout the life of mine.	2
6.2) Much of the remaining land area that will not be mined will continue to be farmed. PMG to ensure that the lease agreement adequately informs the lessee of their responsibility to manage the land areas in a manner that will ensure the ongoing sustained and productive use of the land for agriculture.	Compliant	The owner of the property is the Mining Right Holder.	3
6.3) Areas of natural grassland will be burnt in agreement with the local Department of Agriculture and the local Fire Protection Association on an agreed upon basis to prevent the build-up of moribund material in these land areas. The burning of veld and fire breaks will be done in consultation with the local Fire Protection Association.	N/A	Ensure applicability of requirement with new EIA/EMP update.	
6.4) Burning of veld areas should be carried out in agreement with neighbours and (Veld burning will be undertaken in accordance with the latest legislation. In grassland areas, burning will occur during September after the first spring rains when the grass sward is still dormant. This will ensure a cool	N/A	Ensure applicability of requirement with new EIA/EMP update.	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
burn which cause least damage to the plants).			
6.5) The PMG Mine Manager will be responsible for management of all land within the mine area of control.	Compliant	Ensure that this standard is monitored, and compliance is maintained throughout life of mine.	3

Measure 7: Vegetation

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
7.1) The areas that are newly disturbed by mining will be re-grassed on completion of overburden replacement and conditioning. (This excludes the areas encompassing the water body/void upon closure of the proposed mine). All areas will initially be grassed using a mixture of pasture grass species that are readily available commercially. All re-vegetation will be under dry land conditions.	Observation	The current approach is to allow for the self-manifestation of vegetation after one wet and one dry cycle. The self-manifestation of the vegetation on backfilled areas are slow. Ensure that the backfilled areas are sloped and ripped to encourage the self-manifestation of vegetation. All backfilled areas are to be monitored. Consider seeding of areas after soil analysis has been done to determine soil fertility.	1
Re-vegetation of rehabilitated areas after mining (7.2) Preparation of rehabilitated land areas for re-vegetation.	N/A	This requirement is not yet applicable until the current principle of self-re-vegetation has been deemed inefficient by a competent person. Thereafter re-grassing may be followed.	
7.2.1) Sow the prepared areas with a seed mixture which will produce a grass cover at various levels and over as much of the growing season as possible.	N/A	This requirement is not yet applicable until the current principle of self-re-vegetation has been deemed inefficient by a competent person. Thereafter re-grassing may be followed.	
7.2.2) Include other native grasses and other plants found within the site in the rehabilitation seed	N/A	This requirement is not yet applicable until the current principle of self-re-vegetation has been deemed	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
mixture when such seed is available.		inefficient by a competent person. Thereafter re-grassing may be followed.	
7.2.3) The vegetation programme must take cognizance of the climatic and seasonal conditions but should generally be undertaken annually, starting in spring and early summer (i.e. September, October and November).	N/A	This requirement is not yet applicable until the current principle of self-re-vegetation has been deemed inefficient by a competent person. Thereafter re-grassing may be followed.	
Burning of old grass material (7.3) Burn the grassland every two-three years to clear old growth and to enable the establishment of new growth, using criteria as set out in current legislation.	N/A	Ensure applicability of requirement with new EIA/EMP update.	
7.3.1) Burn after the first Spring rains while grass is still dormant and to ensure a cool burn.	N/A	Ensure applicability of requirement with new EIA/EMP update.	
7.3.2) Use head fires to prevent unnecessary damage to other plants.	N/A	Ensure applicability of requirement with new EIA/EMP update.	
Control of alien and invasive vegetation (7.4) The entire mining areas must be inspected at the start of each summer period in October.	Partially Compliant	Prickly pears were observed at pit 9 which is currently being rehabilitated. No alien or invasive plant species were observed on any other part of the mine site. Ensure that the entire mine site is inspected to monitor and control alien and invasive vegetation on the mine site. In the case that alien or invasive plant species are found it is recommended that the mine use an environmentally friendly herbicide to eradicate it totally. This eradication is to be done in accordance with the CARA regulations and invasive species control guideline.	2
7.4.1) The areas of exotic vegetation must be mapped.	Non-compliant	No map indicating exotic vegetation was found on site during the time of	0

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
		audit. Ensure that exotic species are plotted on a map for monitoring and measurement and forms part of the eradication and monitoring plan.	
7.5) Areas of exotic plant infestation must be controlled as follows: - Fix the perimeter of each area. - Starting with the areas of light infestation, actively eradicate the exotic vegetation from within the identified areas. - Maintain an active follow-up programme in cleared areas to control re-growth and seedling establishment and thereby prevent re-infestation of the cleared areas. - Keep the rehabilitated land areas clear of alien vegetation through regular inspection and clearing of young plants.	Partially Compliant	Prickly pears were observed at pit 9 which is currently being rehabilitated. All other areas on the mine visited during the audit was clear of exotic plant species. Ensure that all EMP, Biodiversity Report, and legislative (NEMBA/ CARA etc.) requirements are taken into consideration with regard to an eradication and monitoring plan. It is recommended that the mine maintain an active follow-up programme to control re-growth and to prevent re-infestation of the cleared areas.	2

Measures 8: Animal Life

EMP Measure and Standard	Audit finding	Mitigation measure/ Recommendation	Significance Level
8.1) The PMG mine manager must interface with the mine planners to manage the development of the mining window in such a manner that the footprint of disturbance is minimised.	Observation	Ensure that the mine plan include future mining and rehabilitated areas. Continual backfilling of mined out pits are taking place, however, most of the backfilled pits still needs to be sloped and vegetated. It has been recommended that the mine plan is followed in so far possible in order to	1

EMP Measure and Standard	Audit finding	Mitigation measure/ Recommendation	Significance Level
		strategically plan for any disturbances to the natural environment and in order to determine significance of impact or avoidance thereof. Areas of significant impact must be avoided as far as reasonably practical.	
8.2) Do not allow hunting or trapping of small mammals and birds on the site.	Compliant	Ensure that all employees receive training with regards to this measure. It is recommended that the entire mine site area is monitored and inspected on a regular basis to ensure that no hunting or trapping of animals are occurring on site.	3
8.3) Restrict access to the non-mined floodplain areas in order to allow fauna displaced from the mining area to move through these areas and access adjacent farmland.	N/A	Area is not within a floodplain. Comply with SMWP/ IWWMP	
8.4) Ensure that environmental education of mine staff takes place at all levels to limit unnecessary damage to habitats and/or disturbance of fauna. (PMG to develop environmental module to form part of the site induction programme. All contractors and staff to attend induction.)	Compliant	An environmental induction module has been developed and implemented. Ensure that Environmental Education is key to the everyday operational activities at PMG. Awareness posters were found to be put up on walls and notice boards. Ensure that this standard is monitored, and compliance is maintained throughout life of mine. It is recommended that initial and refresher training be conducted ASAP as well as environmental SOP training be initiated. It is also recommended that some environmental posters be translated to mandarin seeing that some of the employees are only fluent in mandarin.	3
8.5) Rare animal species, or sensitive species that may be killed by excavation, such as aardvark,	Compliant	The biodiversity report conducted by Dr Betsie Milne in 2015 is to be consulted in terms of flora	3

EMP Measure and Standard	Audit finding	Mitigation measure/ Recommendation	Significance Level
should be trapped and relocated from the site if found. Aardvark are present in the north west of the site.		management as well as the management of fauna. Sensitive areas are to be depicted on the mine plan. The mine is cognisant of this measure, and measure will be carried out accordingly.	

Measure 9: Surface Water

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
Clean storm water management: 9.1) Maintain the storm water control berms upslope of the active pit to route clean runoff around the open pit.	Compliant	Storm water management surrounding the open pits is constructed in such a way that clean water is diverted away from open pits.	3
9.2) Rehabilitate mined out cuts and overburden behind the mining face such that the open window in the pit equals no more than five cuts (pre-stripping, mining, overburden levelling, topsoil placement/ rehabilitation) with the exception of the main (in-pit and end wall) ramp access.	Observation	On the day of the audit, it was observed that the mine is in the process of rehabilitating pit 4 and pit 5. It was observed that there are voids present on the Bishop Farm. It has been rated as an observation due to relevance and situation on site.	1
9.3) Care must be taken that the storm water berms diverting clean runoff past the pit do not become blocked or contaminated. All storm water diversion berms/ trenches must be inspected monthly during the wet season by the ECO.	Compliant	Storm water berms are constructed on the mine site and is being maintained. Ensure that this measure is maintained for the life of mine.	3
Management of water within the mine 9.4) The pollution control dam must be located within the pit dirty water system so that contained water will report back to a pit in the	N/A	The PCD has been constructed, but the location is not in line with the WUL requirement. There is a PCD and a Slimes Dam permitted in terms of the issued Water Use Licence. The mine must ensure that the co-ordinates in	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
event of dam failure or over topping.		WUL as it is plotting outside of the mine boundaries.	
9.5) The dam is to be equipped with a float switch to prevent water in excess of the dam's design capacity being pumped into the dam. If the dam has reached its capacity, no further pumping of water from the pits will thus take place and the pit volume will easily accommodate surge volumes.	N/A	No dewatering of pits is undertaken on the property, storm water is left to evaporate over time. Pits do not form part of a dam system for dewatering dirty water. **Note:** Authorisation is required in terms of dewatering water found underground.	
9.6) Pit water must not be discharged directly to any watercourse. The water should be routed to the lined pollution control dam.	N/A	The water table has not been reached in the pits. All excavations/ cavities/ voids to be backfilled as required in line with requirements of EMP. It is important that the mine adhere to the measures set out in the SWMP.	
Monitoring of the rate of pit water make 9.7) A procedure must be developed, supported by an appropriate spreadsheet, to monitor the water balance of the pollution control dam against predicted volume and rate of pit water make for low, medium and high groundwater scenarios.	N/A	No water ingress in the pits has been experienced as yet. Authorisation from DWA into a WULA for the water activity (21J) of dewatering will be required before any dewatering is conducted or permitted and should be done when needed.	
9.8) The volume of water pumped to the pollution control dam must be measured through installation of an inline flow meter before end of pipe discharge to the dam.	N/A	No dewatering into a PCD is undertaken at this point in time.	
9.9) The volume of water abstraction from the pollution control dam for dust suppression purposes must be monitored through installation of an inline flow meter between the abstraction point and end of pipe		Water for dust suppression is obtained from a different source and is monitored. **Note:** Water quality must be determined before water is released	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
discharge to a dust suppression water bowser.		into the environment for dust suppression.	
9.10) Should the predicted stage curve for the pollution control dam (rate of dam filling based on the balance of inflow less outflow) be exceeded, by more than 15% by the actual stage curve for the dam, then a review of the dam capacity must be undertaken by an engineering hydrologist.	N/A	PCD is not in use, however, should the circumstances change, these parameters are to be implemented and monitored.	
9.11) The pollution control dam water balance must be reviewed annually by an engineering hydrologist.	N/A	PCD is not in use, however, should the circumstances change, these parameters are to be implemented and monitored.	
9.12) Should the actual stage curve for the dam prove to be above that predicted for the low groundwater scenario, then investigation of additional water management methods must be initiated. The implementation of the chosen water management optioned must be commenced when the volume of water held in contained storage within the dam exceeds 220 000m³.	N/A	PCD is not in use, however, should the circumstances change, these parameters are to be implemented and monitored.	
9.13) A summary of the monthly mine water balance is to be presented to the environmental monitoring committee.	N/A	PCD is not in use, however, should the circumstances change, these parameters are to be implemented and monitored. **Note:** Ensure that a water balance is updated and discussed on a regular basis in order to encourage water conservation strategies.	

Measures 10: Groundwater

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
Monitoring of borehole water quality & volume 10.1) Daily monitoring of discharge water quality is to be carried out at end of pipe as detailed in the Environmental Monitoring Plan.	Observation	A daily monitoring record could not be provided at the time of the audit. Revise criteria in terms of daily water quality monitoring. Frequency to be assessed and adjusted as per Water Use Licence. It is recommended that the volume of water used per day be recorded. Ensure that this standard is monitored and maintained throughout the life of mine.	1
10.2) Monthly sample to be taken for analysis against the determinants defined in the monitoring plan.	Compliant	Monthly samples are taken and analysed. Ensure that this measure is maintained throughout the life of mine.	3

Measure 11: Air Quality

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
Control of air quality associated with operational dust 11.1) Implement and maintain a dust suppression system haul road and service roads associated with the pits.	Compliant	Dust suppression is being implemented. All mine haul roads are maintained. Ensure that this measure is maintained throughout the life of mine.	3
11.2) Suppress road dust when dust entrainment behind vehicles is noticeable. This can reduce emissions from unpaved mine roads by up to 75%.	Compliant	Dust suppression is being implemented. Ensure that this measure is maintained throughout the life of mine.	3
Control of air quality 11.3) Endeavour to keep the open window that follows the active mining cut as small as possible by active and concurrent levelling, shaping and topsoiling of replaced overburden.	Observation	Mined out open pits are continuously backfilled, however, these areas still need to be levelled and shaped. It should be mentioned that there are little to no topsoil available on the mine site due to historic mining activities.	1

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
11.4) Monitor unrehabilitated parts of the pit (areas not yet topsoiled). The ECO to brief mining contractor.	Partially compliant	It is clear that the Bishop farm have very limited topsoil available on the mining right. It is recommended that the mine monitor the unrehabilitated parts of the pit throughout the life of mine.	2
11.5) No restriction to other non-blasting related mining activities is recommended so as to allow pit development of proceed in advance of blasting at times when restrictions to blasting may apply.	N/A	Bishop does not undertake blasting as part of their mining practices at the moment.	
11.6) Carry out monitoring of respirable.	Compliant	Occupational hygienist conducts monitoring as per required schedule.	3
11.7) Sample dust buckets associated with the pits on a monthly basis and implement corrective action as required.	Compliant	Fall-out dust monitoring programme is in place and is followed by service provider, monthly. Reports are available, ensure that submission of annual and quarterly reports to the relevant regulator is done. The mine is to ensure that this measure is maintained throughout the life of mine.	3
11.8) Vegetate the walls of the topsoil stockpiles in order to limit dust emissions from soil stockpiles.	Compliant	There are very little topsoil stockpiles on the mine site due to previous mining activities. Ensure that this requirement is adhered to when any potential new areas/ virgin soils are disturbed.	3
11.9) Install a spray at the end of the product conveyor gantry to allow the product stockpile and loading area to wet down to control dust emissions from product stockpile and truck loading areas.	Observation	Sprayers are installed on the processing plant; however, these sprayers aren't effective. Dust suppression at the processing plant needs to be improved and it is recommended that a new sprayer system be considered.	1
11.10) Install dust fall-out buckets at the positions.	Compliant	Fall-out dust monitoring programme is in place and is followed by service provider. Reports are available, ensure that submission of annual and quarterly	3

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
		reports to the relevant stakeholders are done	
11.11) Conduct quarterly site inspections and progress reporting on dust monitoring during operations.	Compliant	Fall-out dust monitoring programme is in place and is followed by service provider. Ensure that internal quarterly site inspections are conducted and that a record be kept of these inspections.	3

Measure 12 – Vibration and Noise

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
Operational noise 12.1) Equipment of thinning contractor must be maintained.	Compliant	Ensure that this standard is monitored, and compliance is maintained throughout life of mine.	3
12.2) Personnel must adhere to operational procedures that reduce noise.	Compliant	Ensure that this standard is monitored, and compliance is maintained throughout life of mine.	3
12.3) Monthly measurement of noise over a normal 24-hour production cycle should be carried out at the mine from time to time of mining, through construction and for a minimum of the first year of mining activity.	Compliant	Occupational noise monitoring is conducted at regular intervals. Environmental noise monitoring must be determined.	3
Mitigation of blasting noise 12.4) PMG to ensure that the area has been made safe in terms of the MHSA (500m) that all people and livestock are outside of the blast exclusion zone (500 meters) prior to blasting.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.5) Use electronic detonators if possible.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.6) PMG to develop and implement a blasting Programme	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
that defines a window of time when in the day blasting will occur. This has provisionally been planned for 11h00- 14h00. PMG to obtain signoff from DME for this blast management plan, specifically the implementation of special measures that may be required when blasting within 500 meters of the road.		place or forms part of the current mining method.	
12.7) The ECO to communicate this programme to the public and directly affected landowners (neighbours) so that they can anticipate and/ identify blasts as being part of the mining operation. Erect signs on the R549.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.8) Implement whatever additional measures the DME may request PMG to implement at the mine site.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
Optimisation of blasting 12.9) At the start of mining, the blast programme should be optimised through diligent monitoring of environmental effects resulting from the first blasts.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.10) Optimisation should include evaluation of; Optimisation of the charge size to keep air blast and ground vibration levels below predetermined acceptable values.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.11) Monitoring of blast, ground vibration and human response to ensure predetermined levels are in fact acceptable and are being	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
adhered to, and to modify the blasting regime as appropriate.			
12.12) Optimisation of the stemming of blast holes.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
Structural monitoring associated with blasting; 12.13) Monitoring of sensitive structures for signs of attributable damage.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
Management of the Blast Exclusion zone at times of blasting; 12.14) Erect signs on the road, indicating that the area is an active mining area before commencement of any mining activity.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.15) Clearly indicate on roadside signs the times each day that road closure will occur so that motorists can plan accordingly.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.16) Ensure the 500 meter blast exclusion zone is clear of people and livestock prior to blasting, or alternately implement any additional measures as directed by the DMR in the MHSA/ OHSA.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.17) Announce all imminent blasts by means of a blast claxton/ siren.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.18) Patrol the isolated roads area to ensure that no vehicles or pedestrians or livestock remain in the area. Ensure that all access points onto the closed-off portion of the road area also blocked off and are manned and have been	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
patrolled to ensure they are free of people or livestock. All farm gates and points at which access to this road section through existing entrances of whatever form are also marked.			
12.19) Carry out blast.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	
12.20) After the blast, make sure the blast site is safe and free of misfires.	N/A	This aspect with mitigation measures is not yet applicable as no blasting takes place or forms part of the current mining method.	

Measure 13: Archaeological & Cultural Historical Sites

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
13.1) Maintain restriction on access to demarcated and fenced-off areas on and around possible grave sites.	Compliant	A Heritage Impact Assessment has been conducted on the farm. All mitigation measures are to be implemented. Informal burial grounds have been fenced-off.	3
13.2) Instruct all contract mining personnel or PMG staff, persons on site or visitors that the peat wetland areas are restricted zones.	N/A	No peat wetlands occur in this area. Amend in EMP revision.	

Measure 14: Visual Aspects

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
14.1) Rehabilitation should be carried out concurrently with advance of mining.	Observation	Concurrent backfilling of the mined out pits are being conducted on the mine site, however, all backfilled areas still needs to be sloped, shaped and re-vegetated to blend in with the	1

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
		surrounding environment. The mine is to monitor all rehabilitated areas and ensure that vegetation is established in these areas.	
14.2) Overhead lighting should be directed downwards and inwards. Due care should be taken when positioning overhead lighting to ensure that lighting points away from nearby farmsteads so as to limit night time impact of lights in an otherwise largely rural landscape.	Compliant	Illumination is to be monitored. Ensure this standard is monitored and maintained throughout the life of mine.	3

Measure 15: Socio-Economic Aspects

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
Employment and prevention of loss of farm skills; (15) The mine will not take anyone into service at the gates to the mine site itself.	Compliant	Ensure that this standard is monitored, and compliance is maintained throughout life of mine.	3
15.1) All employment will be through formal employment agencies already operating within the Postmasburg region.	Partially compliant	It could not be determined whether all recruitment practices have been conducted through agencies around Postmasburg. Ensure that recruitment policy states preferences. Amend EMP for relevance.	2
Accommodation and social services; 15.2) Housing loan schemes form part of PMG's conditions of employment for certain skill levels.	Compliant	Housing allowances are provided to employees.	3
15.3) PMG to provide support to selected schools to increase facilities and teachers to meet the needs of employee's children and should be defined in the PMG	Compliant	PMG's contribution to social development of the area is displayed in SLP projects. Ensure that stakeholder engagement is documented and progress in terms of	3

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
Social and Labour Plan as well as local economic development plans.		contribution is evident. Social and Labour Plan objectives are to be followed with regard to local development. It is evident that this requirement forms part of the SLP and has not been extensively audited. After further discussions with mine personnel, social development (Corporate Social Investment) projects are being implemented.	
15.4) Health facilities to be provided for mine workers and their families. This is expected to be through a combination of facilities.	Compliant	Various wellness programmes have been initiated. Ensure that this standard is monitored, and compliance is maintained.	3
15.5) The mine's HIV/ AIDS Programme should not only include its employees to contain the HIV prevalence rate but should strive to provide community support through synergies with community organisations, NGO's and neighbouring enterprises that already run such training and awareness programmes.	Compliant	Ensure that this standard is monitored, and compliance is maintained throughout life of mine. Wellness programmes are to be deemed efficient and effective by means of monitoring and reporting	3
Safety of the public in proximity to the mine site; 15.6) The perimeter of the mine site will be fenced and access to the site will be controlled.	Compliant	Ensure that this standard is maintained throughout life of mine.	3
15.7) Security guards will be on site and undertake regular patrols.	Compliant	Ensure that this standard is monitored, and compliance is maintained.	3
15.8) PMG will undertake educational and information programmes at neighbouring schools to advise of the risks and measures in place.	Compliant	Human Resource Department who carries the responsibility for SLP implementation have various programmes targeted at schools.	3
15.9) The mine's design and operation to be done in accordance	Compliant	Ensure that the required catchment berms, benching intervals, making	3

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
with the South African Health and Safety requirements in force in the South African mining industry to manage stability of slopes.		safe, H:V on stockpiles/ dumps etc. in terms of strip mining is adhered to at all times. MCOPs are to be assessed and reviewed in line with DMR requirements.	
Loss of employment on cessation of mining; 15.10) Skills development programmes are to be introduced to employees (especially to unskilled workers) to equip them for the period after mine closure. (Specific programmes are to be defined in the Social and Labour Plan in terms of the MPRDA).	Compliant	Training is an ongoing process due to specific legal training required as well as other task training in terms of MHSA. It seems most of the workforce, if not all will be trained in some aspect once mining has ceased due to various training programmes taking place. Ensure this requirement is maintained as part of SLP requirements too.	3
15.11) Staff should, where possible, be re-allocated to other PMG mines.	N/A	PMG to take heed of requirement.	
15.12) Retrenchment packages are to be provided to employees that cannot be re-allocated to other mines.	N/A	PMG to take heed of requirement.	
Downturn in economic activity; 15.13) The Postmasburg municipality (in terms of its Integrated Development Plan (IDP)) and the Chamber of Business are to be consulted to assist with the identification of alternative developments. Such a consultation process should be initiated from the start of operation so that a forum for discussion of economic issues and impacts can be developed in time to appropriately deal with impacts when they arise.	Compliant	PMG is in constant consultation with the local authority regarding IDP and COB.	3
Concerns adjoining landowners and affected parties;	Compliant	A complaints and compliments register are available at the main gate. The mine is to check the register on a	3

EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
15.14) A complaints and compliments register should be established and be kept at the mine site office in which any complaint or compliment received is documented, the party responsible for follow-up is indicated and the follow-up actions recorded.		regular basis and ensure that complaints are addressed. A record is to be kept with all communications with the party which filed the complaint.	
15.15) This register should be kept in an accessible area, probably at the mine administration office front desk. Maintenance of the register to be the responsibility of the ECO.	Compliant	The register is available at the main gate. The ECO is to check the register on a regular basis and is to ensure that all complaints are addressed.	3
15.16) The mine manager and ECO must be apprised of any issues raised, within 24 hours of entry into the register. The ECO, in consultation with the mine manager will identify who is responsible to follow up on the issues raised. Contact to be made with the stakeholder within 48 hours of receipt of the issue, and feedback to be provided to the stakeholder that raised the issue, on close out of the issue. The timeframe that will be necessary to address the issue must be communicated during initial contact with the stakeholder.	Compliant	This aspect is to be constantly monitored in the event there should be any complaints which require attention.	3

Total Score= 141/195
Level of compliance= 72.31%

This percentage of compliance portrays aspects and mitigation measures which are auditable/ assessable. Kindly note that aspects/ standards and mitigation measures which are not applicable at the time of audit is not assessed or included in compliance calculation.

Therefore, the Right Holder is fairly assessed.

Recommendations on how and when non-compliance and deficiencies will be rectified

The degree of compliance outlined in the section above, indicates that mining and rehabilitation activities performed during operational phase of the mine, did partially conform to most of the requirements of the EMP.

The audit report objectives required by the EMP have been met in some instances and more work is needed in some areas as described above especially on dust suppression, spill management, mine residue deposit management and sloping, vegetation management and rehabilitation monitoring. Identified transgressions might have a financial impact as fines for such (up to R10 million) can be issued in terms of the National Environmental Management Act.

Mine management are currently rectifying all the non-compliances, observations and partial compliances that were identified during the audit. Wadala Mining and Consulting (Pty) Ltd. as an independent consultant strongly advised the mine management to always adhere to the approved EMP as deviation might have serious negative impacts on the company reputation, financially an environmentally.

Environmental awareness training on employees (especially EMV operators) on the mine including training on aspects of Environmental Management is recommended. Operators must be trained on the rehabilitation plan and to always abide by the rehabilitation and closure plan.

The following areas need attention:

- Housekeeping in terms of pollution control measures were found to be up to standard in most areas.

- The diligent removal of redundant equipment is to take precedence in order to ensure that any environmental risk (pollution) is diminished. Waste should be removed by a registered waste removal contractor to an appropriate licensed landfill facility. Evidence of such is to be retained by ECO at all times.

- Monitoring scheduled and network is to be closely analyzed at all times. Ensure high risk areas is effectively managed in terms of air quality standards due to its location (proximity to sensitive receptors such as the public road). Any complaints with regard to this aspect of environmental management is to be managed and feedback provided to the complainant regarding remedial and preventive action.

- Exotic/ alien vegetation must be mapped and included in an eradication plan in accordance with CARA and NEMBA listed species and accepted measures of eradication and monitoring. The Terrestrial Fauna and Flora Assessment Report compiled by Dr Betsie Milne in 2015 is to be consulted throughout the establishment process.

- The destruction of natural habitat due to stripping activities in areas which may contain protected species must be licensed by the Department of Agriculture Forestry and Fisheries before any activity take place.

- The effective backfilling of excavated/ disturbed areas must progressively continue with emphasis on the correct levelling, **sloping (maximum/ accepted rehab slope 18˚/ 1:3)** and replacing of topsoil in order to encourage natural succession of vegetation. If there is insufficient topsoil available, subsoil (Kalahari) is to be used and seeded until the revegetation of the area is suitable after reasonable assessment is done by a competent person.

- **Effective storm water management practices are to be implemented in order to ensure that the required separation of clean and dirty water is maintained throughout the life of mine as per GN704 regulations**. Any ponding which occurs is to be avoided as far as reasonably practicable.

- The implementation and compliance of water use license conditions is of great concern and is to be followed-up by management in order to ensure that the environment affected in not doing any injustice regarding sensitive areas.

- It is recommended that a compliance audit in terms of Government Notice 704 Regulations be conducted as soon as possible as per WUL.

- Erosion control is to receive attention on sloped areas especially during stockpiling and after backfilling activities. Evidence of erosion has been observed in some areas. It is recommended that solutions to this be investigated such as terracing, growing ground cover vegetation etc. and is implemented as a matter of urgency.

- It is recommended that all employees are briefed on environmental management and environmental responsibility as part of their job and is documented. Ensure that an environmental awareness programme is rolled out as part of awareness and competency training and is well documented for all employees working for and on behalf of the Right Holder. The Environmental awareness plan as outline in the approved EMP is to be consulted as a guideline.

- Operators and other staff/ contractors must be trained on the rehabilitation plan which is to be kept in line with the approved closure objectives for the mining operation and to always abide by the rehabilitation plan. Regular internal environmental inspections must be carried out in order to monitor compliance with the Environmental Management Programme.

- The active usage of drip trays must be enforced in areas where stationary vehicles are left, such as hard parks or vehicles on break-down which are likely to cause pollution. Any spillages are to be cleaned up immediately and handled as hazardous waste.

- It is recommended that a subject matter expert be consulted in terms of final rehabilitation of signed-off on decommissioned sites at backfilled areas once the natural vegetation has re-established in order to determine whether approach adopted is sufficient with post land-use objectives (agricultural/ grazing).

- All complaints and concerns from interested and affected parties are to be managed with sufficient feedback, public participation is an ongoing aspect and remains the responsibility of the Right Holder. The mine is to maintain a complaint register at the most accessible area for I/APs.

- Emergency and Preparedness Response Plan/ Procedure is to be updated and maintained as per approved measures in the Environmental Management Programme for the various emergency situations which may occur on site.

- It is suggested that a steering committee be established for the PMG Bishop operation with valuable appointed committee members such as the Environmentalist, Mine Manager, Surveyor, Mining Overseer, Mine Planner, Plant Manager, Engineering Manager, Geologist, Safety Officer etc. These meeting are to discuss vital issues pertaining to the planning and management of the mining operations with consideration and deliberation of various aspects.

- Observations made in this assessment require attention as these findings are borderline non-compliances.

5.4 Well-motivated recommendations with regard to the need to amend the approved EMPr and, where applicable, approved closure plan;

The approved EMPr has some irrelevant aspects and mitigation measures in terms of the operation itself. The operation of Bishop Manganese mine does not currently make use of any blasting methods as part of mining methodology and the mitigation measures pertaining to such in the EMPr is therefore irrelevant at this time. The Closure plan should suffice, however as per appended resolution from PMG executive management, much infrastructure will be left behind after mine closure for agricultural prospects. Since the EMP is currently under review, it is recommended that only as foreseen in the current approved document makes provision for all closure aspects and if Bishop Mine abide by this, the closure plan should be sufficient. With the exercise of amending the EIA/EMP, it is recommended that all closure objectives for the farm be decided upon and included in review/ amendment subject to DMR approval. Rehabilitation is then to conform to these approved closure objectives.

5.5 Where applicable, an amended EMPr and amended closure plan, which has been subjected to a public participation process conducted in terms of regulation 44 of these Regulations which was appropriate to bring the proposed amendment of the EMPr and proposed amendment of the closure plan to the attention of potential interested and affected parties, including organs of state which have jurisdiction in respect of any aspect of the relevant activity and the competent authority;

The EMP is currently undergoing an EIA/ EMP review proses in order to update information and listed activities.

5.6 A description of any assumptions made and any uncertainties or gaps in knowledge;

The audit inspection was conducted when the mine was operational. All mining activities were operational and therefore no assumptions were made.

5.7 A description of any consultation process that was undertaken during the course of carrying out the environmental audit report;

Wadala Mining and Consulting (Pty) Ltd conducted an on-site Environmental audit with the Bishop Mine Environmental Control Officer. All pollution control measures were visited, and any non-conformance was explained to the staff.

6 CLOSURE COSTING

6.1 Costing methodology

The quantum of the financial provision contemplated in Regulation 54 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) was revised, using a cost estimation model in line with the DMR's "Guideline Document for the Evaluation of the Quantum of Closure-related Financial Provision Provided by a Mine". The cost estimation model considered various closure components related to Bishop Mine, such as: dismantling and demolition of infrastructure, rehabilitation of roads, rehabilitating open pits, general surface rehabilitation, etc. The closure costing also adhered to the latest amended NEMA Regulations pertaining to the financial provision for prospecting, exploration, mining, or production operations.

The revised calculations were based on a survey assessment of the environmental liability of Bishop Mine, conducted by professional Mine surveyors (Herman Husselmann Professional Mine Surveyor from XYZ Resources). The results obtained from this survey were used to calculate the outstanding rehabilitation as per the agreed rate in the DMR Guideline.

Based on the site visit and quantification of the figures the rules based assessment for the financial quantum calculations were calculated to determine the total Environmental Liability for premature closure of the mine. (Total rehabilitation and mitigation cost). This costing is based on a worst-case scenario and takes every current environmental liability into account for the time of closure. These calculations include the historic mining rehabilitation and the prospecting rehabilitation as well as other legally required responsibilities.

6.2 Procedure to determine the Quantum for Financial provision according to the "rules based" approach

6.2.1 Determine the mineral mined and the saleable by-products
6.2.2 Determine the Primary Risk Class (Class A. Class B, Class C) High, Medium and Low respectively
6.2.3 Determine the environmental Sensitivity (High, Medium, Low)
6.2.4 Identify the Closure Components
6.2.5 Identify the weighting factors
6.2.6 Identify areas of disturbance (Independent Surveyor and site inspection)
6.2.7 Calculation of the Quantum of financial provision.

6.3 Financial Provision Calculation

6.3.1 Determine the mineral mined and the saleable by-products

The mineral mined is Manganese and more than 10 000 tons per month have been produced over the past 12 months with no other by Products.

6.3.2 Determine the Primary Risk Class

The mine is an opencast manganese mine producing more than 10 000 tons per annum classifying the mine as a large mine with low risk – Risk class A

6.3.3 Determine the environmental Sensitivity

The mine is also considered to having a **medium environmental sensitivity** based on the biophysical, social and economic sensitivities applicable to Bishop Mine identified based on the criteria reflected in Table 6-1 below.

Table 6-1: Environmental sensitivity criteria.

Sensitivity	Sensitivity criteria		
	Biophysical	Social	Economic
Low	• Largely disturbed from natural state. • Limited natural fauna and flora remains. • Exotic plant species evident. • Unplanned development. • Water resources disturbed and impaired.	• The local communities are not within sighting distance of the mining operation. • Lightly inhabited area (rural).	• The area is insensitive to development. • The area is not a major source of income to the local communities.
Medium	• Mix of natural and exotic fauna and flora. • Development is a mix of disturbed and undisturbed areas, within an overall planned framework. • Water resources are well controlled.	• The local communities are in the proximity of the mining operation (within sighting distance). • Peri-urban area with density aligned with a development framework. • Area developed with an established infrastructure.	• The area has a balanced economic development where a degree of income for the local communities is derived from the area. • The economic activity could be influenced by indiscriminate development.
High	• Largely in natural state. • Vibrant fauna and flora, with species diversity and abundance matching the nature of the area. • Well planned development. • Area forms part of an overall ecological regime of conservation value. • Water resources emulate their original state.	• The local communities are in close proximity of the mining operation (on the boundary of the mine). • Densely inhabited area (urban/dense settlements). • Developed and well-established communities.	• The local communities derive the bulk of their income directly from the area. • The area is sensitive to development that could compromise the existing economic activity.

6.3.4 Identify the Closure Components

Table 6-2 below provide a description of the relevant rehabilitation components applicable Bishop Mine as prescribed in the DMR guideline. These components have been identified by a physical site visit to the mine as well as an analysis of the survey provided by the Independent registered surveyor that was appointed by the mine.

Table 6-2. Description of the relevant Bishop Mine rehabilitation components as prescribed in DMR guidelines.

Rehabilitation component	DMR guideline terms	PMG Bishop Mine context
Dismantling of processing plant and related structures (including overland conveyors and powerlines)	The common method of valuation to determine the Master Rate for processing plants is that: • All infrastructure and concrete buildings should be broken down to natural ground level and buried adjacent to the plant site, • Foundations, structures and conveyors should be broken down to natural ground level, • The areas are to be covered with 1,0m subsoil, topsoiled with 300mm of topsoil and vegetation established, or as noted in the relevant EMP, • The monitoring and maintenance of these areas has been costed under the appropriate areas, • The concrete hardstand is the area between the plant buildings, • Top soiling and vegetation for the areas are included under general surface rehabilitation, and • No credits are allowed for scrap steel and equipment that can be re-used or sold.	12 161m³ Wash plant + plant & plant building + powerlines The table uses m³ and the footprint was multiplied with 3 to get to an m³ amount to use in the table.
Demolition of reinforced concrete buildings and structures	The common method of valuation to determine the Master Rate for steel and reinforced concrete buildings and structures and for housing facilities and services is that: • All structures should be demolished to 1m below ground level, • The rubble is to be buried adjacent to the sites, provided this adheres to the National Waste Management Strategy, • Silos should be imploded and buried,	0m² Buildings will remain on surface after closure such as the farmhouse, Gen building, stores, workshop, change-house etc. and will form part

Rehabilitation component	DMR guideline terms	PMG Bishop Mine context
	• The areas should be shaped, top soiled with 300mm of topsoil and vegetated or as stated in the relevant EMP document, • Monitoring and maintenance is costed in the relevant areas, and • The concrete hardstand is the area between buildings such as workshops, offices, etc.	of the agricultural venture after mine closure as per resolution attached.
Demolition of steel buildings and structures,	The common method of valuation to determine the Master Rate for steel and reinforced concrete buildings and structures and for housing facilities and services is that: • All structures should be demolished to 1m below ground level, • The rubble is to be buried adjacent to the sites, provided this adheres to the National Waste Management Strategy, • Silos should be imploded and buried, • The areas should be shaped, top soiled with 300mm of topsoil and vegetated or as stated in the relevant EMP document, • Monitoring and maintenance is costed in the relevant areas, and • The concrete hardstand is the area between buildings such as workshops, offices, etc.	$0m^2$ Buildings will remain on surface after closure and will form part of the agricultural venture after mine closure as per resolution attached.
Rehabilitation of access roads	There is no specific rate in the guideline for gravel, tar or cement roads and only one standard rate are used.	$0m^2$ Roads will be used for agricultural venture after mine closure as per resolution attached.
Demolition of housing and/or administration facilities	No specific terms are referred to in the guideline for demolition of housing or administrative facilities.	$0m^2$ Buildings will be utilised as part of agricultural

Rehabilitation component	DMR guideline terms	PMG Bishop Mine context
		venture post closure.
Opencast rehabilitation including final voids and ramps	Some form of beneficial land use is desirable after mining. Hence, in-filling of opencast pits is advocated. However, in cases where notably less material remains on site for pit in-filling, final voids should be made safe. Costing includes sloping perimeter walls, shaping and grassing and also includes surveying and geotechnical fees.	73.66 ha This figure includes brake-test ramps and voids/ excavations (active/ non-active).
Rehabilitation of overburden and spoils	Overburden and spoils need to be shaped to create a stable landform. Costing includes shaping and grassing or vegetation of the overburden and spoils.	13.7811 ha Note: Stock areas are considered an asset and are not included here but under aftercare and maintenance due to the fact that this aspect is of economic value and in the national interest of the country. After pre-mature closure, this product will not be discarded. The area is level and flat and will require maintenance and revegetation.
Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	The Master Rate for basic, salt-producing process plant waste includes shaping and grassing/vegetation of the dumps as well as establishing an armoured cover on the reshaped surface of the dump, as described in Section 2.6.4 in the guideline.	0 ha Material removed from the dams at the wash plant.

Rehabilitation component	DMR guideline terms	PMG Bishop Mine context
General surface rehabilitation	Final surface rehabilitation of areas disturbed by mining and related activities should be aligned to the selected final land use and should ensure that the surface topography is restored, runoff risk ameliorated and structures removed in order to encourage re-vegetation. The unit cost for general rehabilitation allows for shaping and landscaping of disturbed areas.	72.1347 ha Surface rehabilitation which constitutes the hard park areas
Maintenance and aftercare	Maintenance and aftercare is planned for 2 to 3 years after mine production ceases, and covers: Annually fertilising of rehabilitated areas Monitoring of surface and subsurface water quality surface Control of wattle and all other alien plants, and General maintenance, including rehabilitation of cracks and subsidence.	31.6585 ha Includes the footprint of stock areas due to the fact that this material is regarded as an asset, has a saleable value on the international market and is of national interest. After the mine has ceased and stockpiles have been sold, the footprint area (which is a flat area) shall be fertilised and rehabilitated.

6.3.5 Identify the weighting factors

6.3.5.1 Weighting Factor 1: Nature of the terrain

The nature of the terrain where the mine is located. This factor is applicable as it is more difficult (and hence more costly) to undertake work related to mine closure in areas that are undulating or rugged. Weighting Factor 1 is applied to each of the closure components.

Weighting Factor 1:	Flat	Undulating	Rugged
Nature of the terrain/ accessibility	1.00	1.10	1.20

Weighting factor 1 that will apply to this calculation is undulating and is 1.10 for the PMG Bishop Mining area as most of the mining is done on the rugged slopes of the highest “outcroppings” and “hills” on the Mining area.

6.3.5.2 Weighting Factor 2: Proximity to urban area

The proximity of the mine to an urban centre. This factor is applicable as there will be increased costs to transport machinery, goods and personnel to more remote mine sites. Weighting Factor 2 is applied to the Preliminary and General items only.

Weighting Factor 2:	Urban	Peri-urban	Remote
Proximity to urban area where goods and services are to be supplied	1.00	1.05	1.10

Weighting factor 2 for Bishop mine that will be used in this calculation is 1.05 for a Peri-urban area (less than 150km from a developed urban area).

6.3.6 Calculation of the Quantum for financial provision (Total rehabilitation and mitigation coasting)

The table (table 6-3) reflected below as well as the rates reflected in the table has been agreed upon by Environmental Assessment Practitioners (EAP’s) in order to standardise assessments in certain sectors although the variables are identified and reflected based on site specific conditions.

The total cost to rehabilitate and mitigate the Bishop Mine as it stands currently (risking premature rehabilitation) is estimated to be **R36 724 832.00** using the components and costs explained above.

The mine currently has a financial guarantee of **R 32 766 035** in place and therefore the shortfall amounts up to **R 3 958 796.55.**

Table 6-3. Calculation of the total rehabilitation costs for Bishop mine

PMG Mining (Pty) LtdNC30/5/1/1/3/2/1/114MR		**Location:**	**Portion 1 and the Remainder of the Farm Bishop No.671**			
NC30/5/1/1/3/2/1/114MR						
W.J. Oosthuizen , R.H. Oosthuizen and Mr. Herman Husselman - XYZ Resources				**Date:**	**Monday, 10 July 2023**	
Description	**Unit**	**A**	**B**	**C**	**D**	**E=A*B*C*D**
		Quantity	**Master Rate**	**Multiplication factor**	**Weighting factor 1**	**Amount (Rands)**
Dismantling of processing plant and related structures (including overland conveyors and pow erlines)	m3	12 161	19,53	1	1,10	261 180,59
Demolition of steel buildings and structures	m2	-	272,03	1	1,10	-
Demolition of reinforced concrete buildings and structures	m2	-	400,84	1	1,10	-
Rehabilitation of access roads	m2	-	2,23	1	1,10	-
Demolition and rehabilitation of electrified railw ay lines	m	-	472,47	1	1,10	-
Demolition and rehabilitation of non-electrified railw ay lines	m	-	257,72	1	1,10	-
Demolition of housing and/or administration facilities	m2	-	544,06	1	1,10	-
Opencast rehabilitation including final voids and ramps	ha	73,66	276 897,84	0,52	1,10	11 666 032,37
Sealing of shafts adits and inclines	m3	-	146,04	1	1,10	-
Rehabilitation of overburden and spoils	ha	13,7811	190 134,62	1	1,10	2 882 292,68
Rehabilitation of processing w aste deposits and evaporation ponds (non-polluting potential)	ha	-	236 809,23	1	1,10	-
Rehabilitation of processing w aste deposits and evaporation ponds (polluting potential)	ha	-	687 806,24	1	1,10	-
Rehabilitation of subsided areas	ha	-	159 209,07	1	1,10	-
General surface rehabilitation	ha	72,1347	150 618,69	1	1,10	11 951 308,98
River diversions	ha	-	150 618,69	1	1,10	-
Fencing	m	-	171,80	1	1,10	-
Water management	ha	-	57 269,46	1	1,10	-
2 to 3 years of maintenance and aftercare	ha	31,6585	20 044,31	1	1,10	698 030,20
Specialist study	Sum	-	-		1,10	-
Specialist study	Sum	-			1,10	-
				Sub Total 1		27 458 844,81
Preliminary and General			1 647 530,69	**weighting factor 2** 1,05		1 729 907,22
Contingencies					2 745 884,48	2 745 884,48
				Subtotal 2		31 934 636,52
				VAT (15%)		4 790 195,48
				Grand Total		**36 724 832,00**

6.3.7 Overall cost assumptions

It is assumed that the process to determine the financial provision as presented in the MPRDA and associated DMR guideline is the best option to follow in order to quantify costs set out in this rehabilitation plan.

6.3.8 Limitations and assumptions

Reliability is placed on the surveyed figures provided by the registered surveyor and although the survey figures are compared to aspects and components on site reliance is placed on the measurements signed off by the surveyor.

The assessment on site and observations made on site on the day of the site visit was used to prepare the report. Additional information on the details of the Mining Right and background information was provided by the mine and assumed to be accurate and current. Reasonable assurance can therefore be given for the accuracy of information based on our interpretation of the information provided to us.

The remediation of latent or residual environmental impacts which may become known in the future, including the pumping and treatment of polluted or extraneous water, should be reflected in an environmental risk assessment report and could not be determined or costed as the mine will have to do a comprehensive Risk Assessment Report for the operations.

6.3.9 Monitoring and maintenance costs

Monitoring of any rehabilitation is absolutely necessary to ensure that all natural physical, chemical and biological processes for which closure conditions were specified are monitored until they reach a steady state. No monitoring or maintenance costs are likely to be incurred during the period of annual rehabilitation on the Bishop Mine Mining right area.

Monitoring costs likely to be incurred after the period of the final rehabilitation, decommissioning and mine closure plan include monitoring of slope stability and the associated erosion and safety risks. These are expected to be undertaken by a specialist consultant at approximately **R50 000.00** once-off, per annum after final closure. If rehabilitation is effective, no maintenance costs are likely to be incurred after mine closure.

7 CONCLUSION

The Bishop Mine is in my opinion an operation with some deviations from the approved EMPr. The aspects rated less than 3 in the level of significance needs to receive immediate attention and this should be achievable in a short space of time as much of it is related to rehabilitation, storm water management, pollution control and dust management.

It is advisable that the EMP review include all the necessary and/ or applicable aspects and that irrelevant aspects be removed from the EMP as each annual environmental audit will include EMP mitigation measures which are assessed operationally. The shortcomings identified in this report are to be considered as part of the EMP review process among other priority issues which require attention and managerial intervention.

Additional measures such as Best Practice Environmental Option, published Best Practice Guidelines and compliance with environmental legislation is to be maintained throughout life of mine.

PMG Mining (Pty) Ltd. has been assessed in terms of their 2008 approved Environmental Management Programme and have been found **72.31%** compliant with the current relevant/ applicable aspects and mitigation measures for their 2023 Annual Environmental Audit.

The total cost to rehabilitate and mitigate the Bishop Mine as it stands currently (risking premature rehabilitation) is estimated to be **R36 724 832.00** using the components and costs explained above. The mine currently has a financial guarantee of **R 32 766 035** in place and therefore the shortfall amounts up to **R 3 958 796.55.**

8 PHOTO REPORT

Photo 1: Main gate area.

Photo 2: Mine Office

Photo 3: Workshop Area

Photo 4: Gas Cylinder storage.

Photo 5: Generator at Workshop.

Photo 6: Washbay

Photo 7: Interwaste Bins

Photo 8: Bioremediation area.

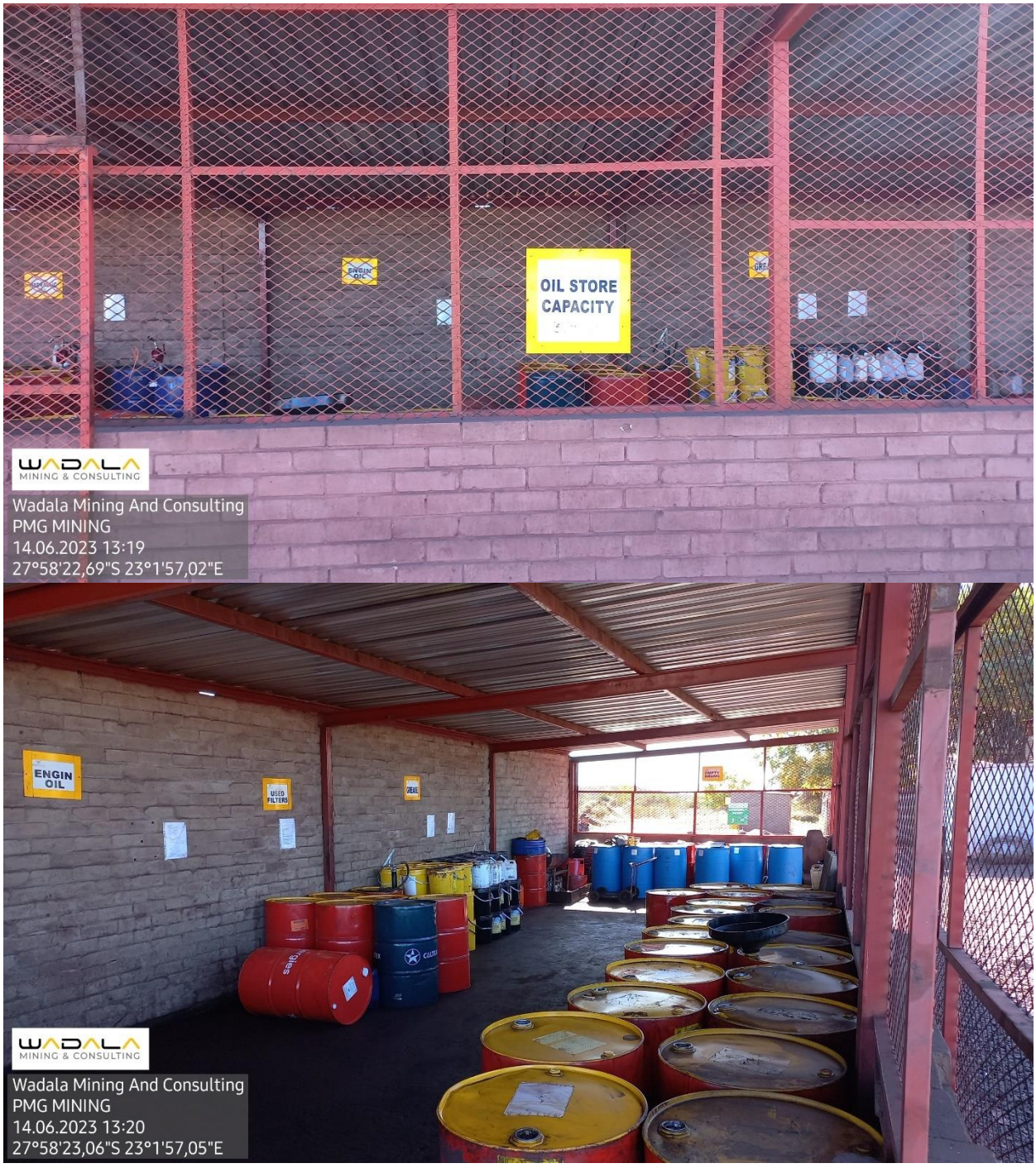

Photo 9: Oil storage area.

Photo 10: Salvage yard/ Laydown Area at Workshop.

Photo 11: Hard Park and Redundant vehicles.

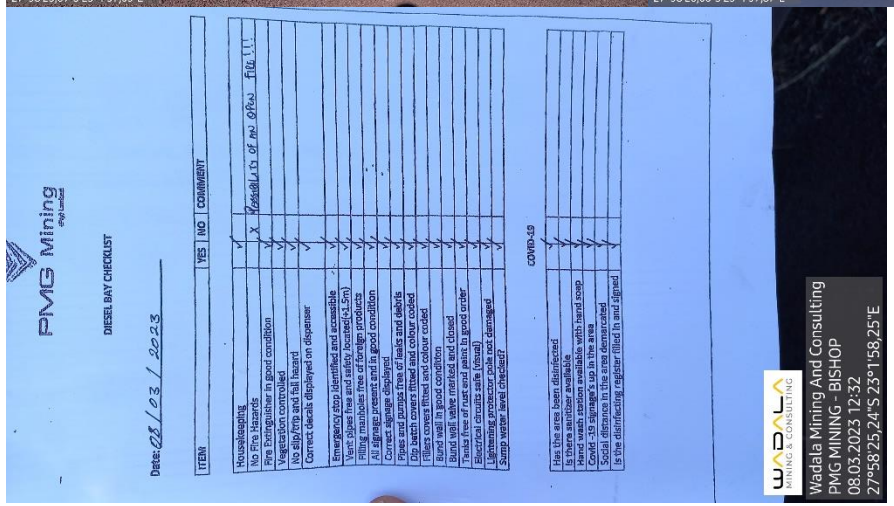

Photo 12: Fuel Storage

Photo 13: Ablution and Laboratory.

Photo 14a: Salvage yard/ Laydown area at Processing Plant

Photo 14b: Salvage yard/ Laydown area at Processing Plant

Photo 15: Fuel and Oil storage as well as generator at the Processing Plant.

Photo 16: Processing Plant

Photo 17: Waste cages

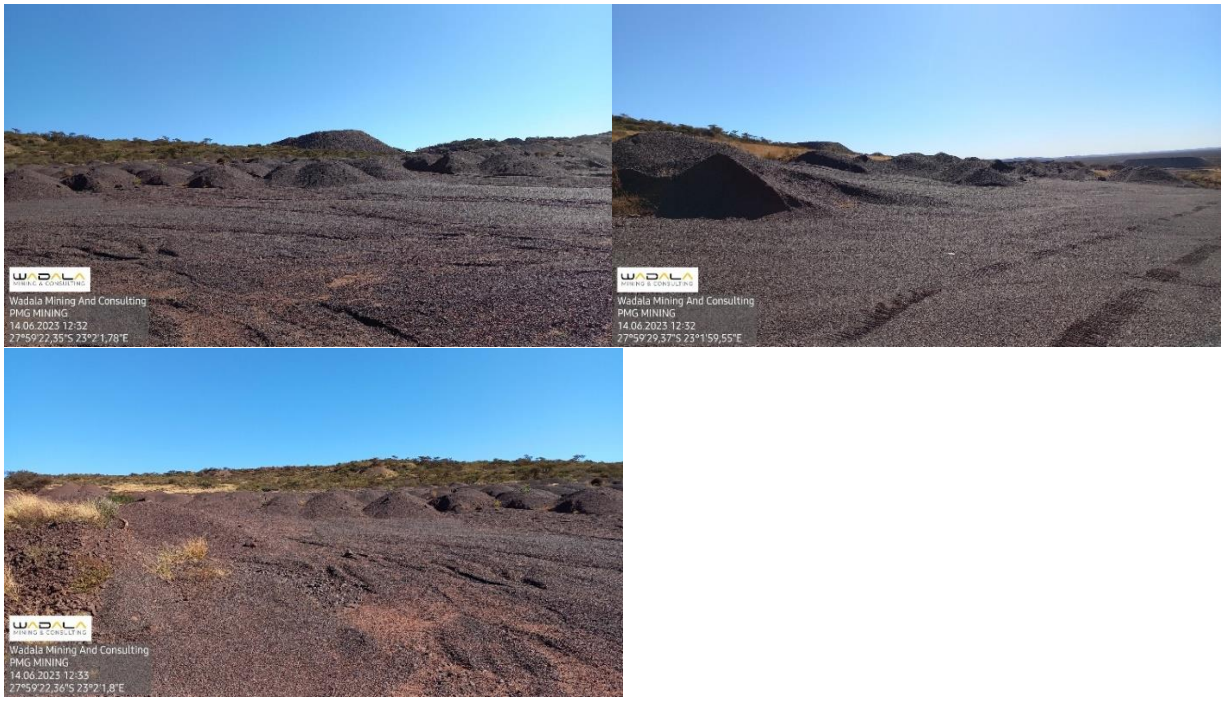

Photo 18: Mine Site (Rehabilitation at pit 9)

Photo 19: Graveyard

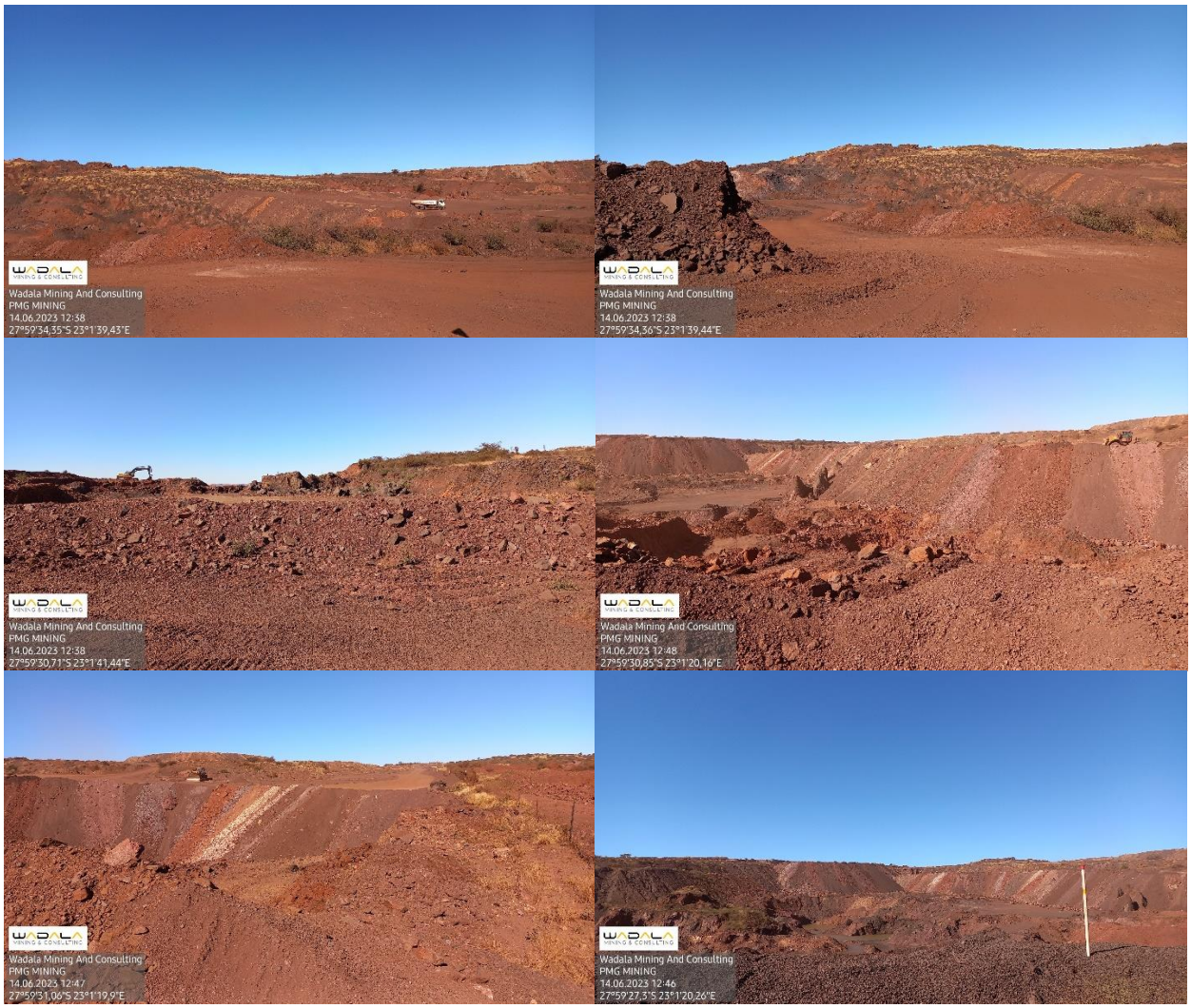

Photo 20: Mine Site

Photo 21: Redundant Vehicle on Mine site

Photo 22: Workers lunch area

ANNEXURE 1: SURVEY SKETCH PLAN

ANNEXURE 2: SURVEY MESUREMENTS

ANNEXURE 3: QUANTUM MOVEMENT

ANNEXURE 4: SURVYOR CV