Draft Regulation 31 Amendment Report to Correct the heights of Waste Rock Disposal Facilities

Anglo American Platinum: Rustenburg Platinum Mine Limited – Mogalakwena Mine Complex

DMRE Reference: P 30/5/1/2/3/2/1 (050) EM

June 2022

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June 2022

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VERSION CONTROL

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Position: Senior Environmental Assessment Practitioner

Date: June 2022

EXECUTIVE SUMMARY

Introduction

It is the intention of Anglo American Platinum Limited: Rustenburg Platinum Mines' (AAP-RPM) Mogalakwena Mine Complex to undertake a Regulation 31 Amendment process in order to amend the heights of the Waste Rock Disposal (WRD) Facilities as previously approved by the Department of Mineral Resources and Energy (DMRE) (Reference: LP 30/5/1/2/3/2/1 (050) EM). As part of this process, the existing 2020 approved Environmental Management Programme (EMPr) will be updated and aligned with this Regulation 31 Application.

For purposes of this application, the affected WRD (Waste Rock Disposal) facilities are:

- W01
- W07
- RS3
- East WRD (W020)
- West WRD (W02)

Neither additional infrastructure nor any increase in footprint is associated with the proposed project change and thus, no new Listed Activities in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and/or the National Environmental Management: Waste Act, Act No 59 of 2008 (NEMWA) are triggered. However, as the change in height of the WRD Facilities results in a change of scope and possibly the nature of the environmental impacts, an amendment application under Regulation 31 of the EIA Regulations, 2014 (as amended) published under NEMA is required to be undertaken.

In light of the above, AAP-RPM appointed Alta van Dyk Environmental Consultants cc (AVDE) as the independent Environmental Assessment Practitioner (EAP) to undertake the required amendment application process.

Specialist Studies

The overall footprint of the five WRD facilities will not change, and the proposed changes will have no negative impact on social, biodiversity, soils, land use, land capability, environmental, land ownership, surface and groundwater management and heritage aspects. Potential visual and air quality impacts have been assessed in relation to the increase in heights of the WRD Facilities.

Visual

The Mogalakwena Mine Complex has been operational since 1992. The initial establishment of the Mogalakwena Mine operations and its associated infrastructure has already significantly altered the visual landscape of the area.

The increase in the five main WRD facilities heights do not contribute to a significantly additional impact. A summary of the findings of the Visual Impact Assessment is provided in the Table below:

Component	Description	Rating	Specific Criteria	Visual Assessment Outcome
Visual Sensitivity of Receptors	The level of visual impact considered acceptable is	High Sensitivity	The majority of the visual receptors within the Zone of Visual Influence (ZVI) are residential areas (community clusters) and has been deemed HIGHLY sensitive visual receptors.	An increase in height of an existing facility within close proximity of a visual receptor does not contribute to an increase in sensitivity of a visual

Component	Description	Rating	Specific Criteria	Visual Assessment Outcome
	dependent on the type of receptors.	Moderate Sensitivity	People travelling in an around the area to work or home are considered to be moderately sensitive receptors	receptor already highly impacted upon by the original development of this facility within its surrounding landscape.
Affected Area and Scenic Resources	The geographical area from which the project will theoretically be visible, known as the view catchment area and is primarily dictated by topography and scenic resources	Low Impact	The affected area of the receiving landscape has already been altered and impacted upon by the extent of the Mogalakwena Mine operations and its associated infrastructure (Waste Rock Disposal Areas).	An increase in the height of an existing waste rock disposal area, where the footprint area will not be expanded, will not noticeably contribute to an additional visual impact on an already highly affected area and/or scenic resource.
Visual Exposure	Zone of Visual Influence - Visibility analysis determines visibility on the principle of "line-of-sight" (LOS)	High Visual Exposure	Dominant or clearly noticeable to visual receptors in the geographical area and covers a large area (e.g., several square kilometres).	The visual exposure of the Waste Rock Disposal Areas is high to visual receptors in the area as they are dominantly noticeable in the geographical area.
		Low Visual Exposure	Not particularly noticeable to the visual receptor in the geographical area and will not expand development footprint of original facility.	The increase in height of these existing facilities has been assessed as a low exposure as the proposed height increase will not in particular be noticeable to the visual receptors
Visual Sensitivity	The inherent visibility of the sites' landscape is usually determined by a combination of topography, landform, vegetation cover, settlement pattern and special features.	Low Visual Sensitivity	Visual Sensitivity of the area has already been severely impacted upon by the initial establishment of the five main Waste Rock Disposal Areas and the mine as a whole	The increase in Waste Rock Disposal Area heights will not affect the visual sensitivity of the landscape as this has already been significantly altered/impacted by the extent of the Mogalakwena Mine operations within close proximity to sensitive features.
Visual Absorption Capacity (VAC)	Visual Absorption Capacity (VAC) is the potential of the landscape to conceal the proposed project.	Moderate Visual Absorption Capacity	The potential of the landscape and surrounding areas to conceal the height of the five main Waste Rock Disposal Areas varies from "Moderate to Low".	The visual absorption capacity of the current landscape will accommodate the increase in height of the Waste Rock Disposal Areas and the VAC will still be deemed "Moderate to Low".

Air Quality

The increase in height of the five main Waste Rock Disposal facilities increases the travel distance of emissions from these facilities. However, it also has the potential to increase the dispersal potential for dust fall out resulting in the reduction of pollutant concentrations.

Amendment of the EMPr

No significant impacts are anticipated in terms of the increase of the WRD facilities heights. The impact assessment is translated as low with mitigation measures. Proposed amendments have been made to the 2020 approved EMPr to include the mitigation measures identified through the impact assessment and the specialist recommendations. The proposed mitigation measures are to ensure that continual environmental management and best practices are followed.

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GLOSSARY AND TERMINOLOGY

Activity - Any mining related process on the mine including the operation of washing plants, mineral processing facilities, mineral refineries and extraction plants, and the operation and the use of mineral loading and off-loading zones, transport facilities and mineral storage yards, whether situated at the mine or not, in which any substance is stockpiled, stored, accumulated or transported for use in such process or out of which process, any residue is derived, stored, stockpiled, accumulated, dumped, disposed of or transported.

Constitution – Refers to the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996).

Environment – The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group; these circumstances include biophysical, social, economic, historical, cultural and political aspects. Environment means the surroundings within which humans exist and that are made up of-

i. the land, water and atmosphere of the earth;
ii. micro-organisms, plant and animal life;
iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and
iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

In terms of the National Environmental Management Act (NEMA) (No 107 of 1998), "environment" means the surroundings within which humans exist and that are made up of:

- The land, water and atmosphere of the earth;
- Micro-organisms, plant and animal life, and
- Any part or combination of (i) of (ii) and the interrelationships among and between them; and the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Impact Assessment - An environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the environment. The EIA includes an evaluation of alternatives. As well as recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and environmental management and monitoring measures.

Environmental Management Programme - A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.

Impact - A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Mitigation - Measures designed to avoid, reduce or remedy adverse impacts.

Public Participation Process – A process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters.

The Department - Means the Department of Mineral Resources and Energy

Tributaries - A stream or river which flows directly into a larger river or stream.

Watercourse means -
(a) a river or spring;
(b) a natural channel in which water flows regularly or intermittently;
(c) a wetland, lake or dam into which, or from which, water flows; and
(d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

ABBREVIATIONS

AAP	Anglo American Platinum
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
GN	Government Notice
NEMA	National Environmental Management Act (Act 107 of 1998)
NWA	National Water Act, 1998 (Act 36 of 1998)
PP	Public Participation
PPP	Public Participation Process
ROM	Run of Mine
VIA	Visual Impact Assessment
WRD	Waste Rock Disposal

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

Mogalakwena Mine Complex is an existing, operational mine located within the Mogalakwena Local Municipality under the jurisdiction of the Waterberg District Municipality in the Limpopo Province. Mogalakwena Mine is a wholly owned subsidiary of Anglo American Platinum Limited: Rustenburg Platinum Mines (AAP-RPM). The mine holds a mining right in terms of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA). Its consolidated and amended Environmental Management Programme (EMPr), which consolidated previously approved EMPrs into a single programme, was approved by the Department of Mineral Resources and Energy (DMRE) in August 2020.

The 2020 approved consolidated EMPr therefore includes the existing operations as had been previously approved as well as the Mogalakwena expansion project.

It is the intention of AAP-RPM Mogalakwena Mine to undertake a Regulation 31 Amendment process to correct Waste Rock Disposal Facility Heights as previously approved by the Department of Mineral Resources and Energy DMRE (Reference: LP 30/5/1/2/3/2/1 (050) EM). As part of this process, the existing 2020 approved Environmental Management Programme (EMPr) will be updated and aligned with this Regulation 31 Application.

For purposes of this application, the affected WRD (Waste Rock Disposal) facilities are:

- W01
- W07
- RS3
- East WRD (W020)
- West WRD (W02)

Neither additional infrastructure nor any increase in footprint is associated with the proposed project change and thus, no new Listed Activities in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and/or the National Environmental Management: Waste Act, Act No 59 of 2008 (NEMWA) are triggered. However, as the change in height of the WRD Facilities results in a change of scope and possibly the nature of the environmental impacts, an amendment application under Regulation 31 of the EIA Regulations, 2014 (as amended) published under NEMA is required to be undertaken.

In light of the above, AAP-RPM appointed Alta van Dyk Environmental Consultants cc (AVDE) as the independent Environmental Assessment Practitioner (EAP) to undertake the required amendment application process.

1.2 Structure of this Report

This report has been compiled as per the requirements of Regulation 32 of the EIA Regulations (2014) as amended and aims to assess any potential impacts associated with the proposed change.

Table 1-1: Structure of this Report[1]

Requirement of the EIA Regulations 2014 (as amended)		Section of this Report
32(1) The applicant must within 90 days of receipt by the competent authority of the application made in terms of Regulation 31, submit to the competent authority -		
a) a report, reflecting	(i) an assessment of all impacts related to the proposed change;	Section 6
	(ii) advantages and disadvantages associated with the proposed change; and	Section 7
	(iii) measures to ensure avoidance, management and mitigation of impacts associated with such proposed change; and	Section 6 & 8 as well as Appendix E
	(iv) any changes to the EMPr; which report: (aa) had been subjected to a public participation process, which had been agreed to by the competent authority, and which was appropriate to bring the proposed change to the attention of potential and registered interested and affected parties, including organs of state, which have jurisdiction in respect of any aspect of the relevant activity, and the competent authority, and (bb) reflects the incorporation of comments received, including any comments of the competent authority; or	Appendix E This Draft report is available to Interested and Affected Parties for review and comment for a period of 30 days. After conclusion of the public review period, this report will be updated with any additional comments received and submitted to the DMRE for consideration.

1.3 Project Scope

This application relates to the following primary legislation:

- The National Environmental Management Act, 1998 (Act no. 107 of 1998) (NEMA) and the NEMA Environmental Impact Assessment (EIA) Regulations, 2014, as amended.

Regulation 31 of the EIA Regulations, 2014 (as amended) provides that "An environmental authorisation may be amended by following the process prescribed in this Part if the amendment will result in a change to the scope of a valid environmental authorisation where such change will result in an increased level or nature of impact where such level or nature of impact was not

a) Assessed and included in the initial application for environmental authorisation; or

b) Taken into consideration in the initial environmental authorisation;

and the change does not, on its own, constitute a listed or specified activity."

The impacts associated with the Mogalakwena's mining activities as well as the WRD Facilities have previously been assessed and therefore the change in the height references of the WRD Facilities would merely result in a change of scope which could potentially result in an increased extent of the existing impacts.

[1] Regulation 32 of the EIA Regulations 2014 (as amended)

There are neither new Listed Activities nor any increases in footprint associated with the application. This report will focus on the impacts associated with the changes in height of the WRD Facilities, while the impacts from the current and past mining activities will be informative of the baseline conditions of the site and the cumulative nature of some of the potential impacts associated with the proposed project changes.

1.4 Details of the Applicant

Applicant details are provided in **Table 1-2**.

Table 1-2: Applicant Details

Applicant	Anglo American Platinum (AAP) Limited - Rustenburg Platinum Mines (RPM): Mogalakwena Mine Complex (MM) Section
Contact Person	Riaan Blignaut
Postal Address:	P O Box 62179, Marshalltown, Johannesburg, 2107
Telephone:	011 373 6769
Email	Platinum.Environmental@angloamerican.com

1.5 Details of the EAP

The below table contains the information of the Environmental Assessment Practitioner (EAP).

Table 1-3 Contact Details - Environmental Practitioner

Contact Person	Company Details	Postal Address	Physical Address
Kirthi Peramaul Email: kirthi@avde.co.za	Alta van Dyk Environmental Consultants cc 2011/059764/23 Tel: +27 12 940 9457 Fax: 086 634 3967	Postnet Suite 745 Private Bag X1007 Lyttelton 0140	Stand 3698 4 Garcia Peak Midlands Estate Centurion

1.5.1 Expertise of the EAP

Kirthi Peramaul (*BSc Hons Environmental Monitoring and Modelling, Pr.Sci.Nat, Registered EAP*). Kirthi has 13 years' experience in the environmental management field and is currently registered with the South African Council of Natural Scientific Professions (SACNASP) as a Professional Natural Scientist (Registration No 400012/18: Environmental Science) and is as a Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Registration No 2020/1537). Kirthi specialises in environmental authorisations, environmental compliance monitoring, environmental management plans, water use authorisation, stakeholder engagement, risk assessments and blue and green drop auditing. She has been involved in projects related to Waste Management, Linear Infrastructure, as well as Mixed-Use developments. The Curriculum Vitae of the EAP is attached to **Appendix A.**

Suzanne van Rooy (*MPhil Environmental Management, Pr.Sci.Nat, Registered EAP*). Suzanne has been involved in the field of environmental management for the past 13 years. She holds a Master's degree in Environmental Management from the University of Stellenbosch. She is registered as a Professional Natural Scientist with the SACNASP (Registration No. 400378/11: Environmental Science) and as a Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Registration No 2019/1079). Her expertise is in the mining industry sector, focusing on Risk Assessments, Environment Authorisation processes, Water Use Licence Applications, due diligence and integrated regulatory processes.

Her involvement in such projects varies from project management and co-ordination, to the complication and review of technical and environmental documents and reports.

1.6 Project Locality

Mogalakwena Mine is situated approximately 30 km north-west of the town of Mokopane (formerly Potgietersrus) within the Mogalakwena Local Municipality, which forms part of the greater Waterberg District Municipality of the Limpopo Province. The project is situated on Portion 0 of the Farm Zwartfontein 818 LR, Portion 0 of the Farm Overysel 875 LR, Portion 0 of the Farm Sandsloot 236 KR, and Portion 0 of the Farm Vaalkop 819 LR. The WRD Facilities are situated within the Mogalakwena Mine Mining Right and Surface Right Area. The Mogalakwena Mine lease area covers approximately 51.05 km^2 and stretches over approximately 8 km from east to west and approximately 13 km from north to south. To the east of Mogalakwena Mine lies the National N11 highway. This is the main access route to the mine as well as the key transport corridor between Mokopane and the South Africa-Botswana border. A project locality map is provided overleaf (**Figure 1-1)** and Appendix B. Details of property ownership is provided in **Table 1-4**.

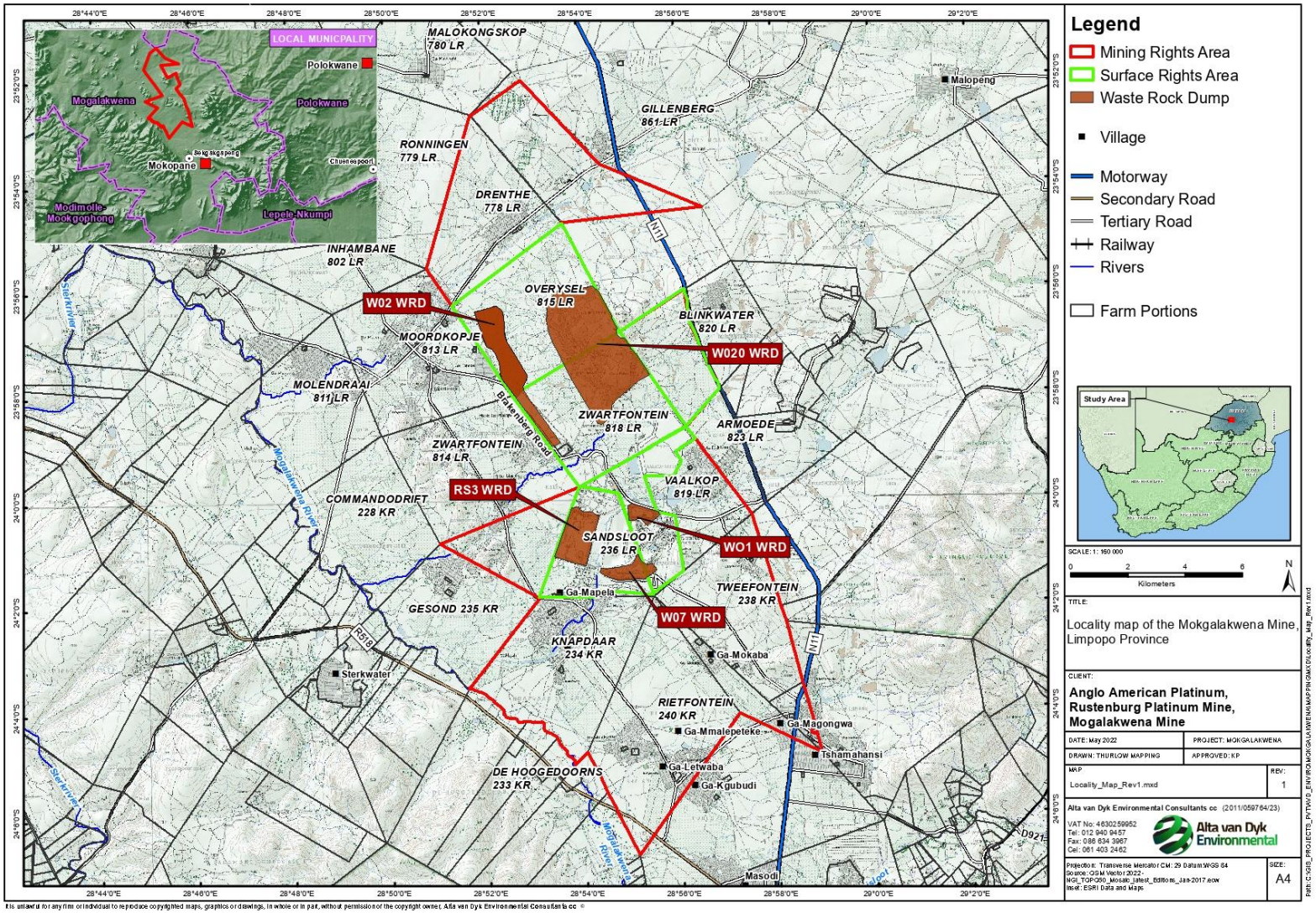

Figure 1-1: Locality Map showing the Waste Rock Disposal Facilities that form part of the EMPr Amendment process

Table 1-4: Property Details of WRD Facilities that require an Amendment

WRD Facility	Property Description	Property Owner
WRD01	Portion 0 of the Farm Zwartfontein 818 LR	Held in Trust by the National Government of the Republic of South Africa on behalf of the Mapela Traditional Authority Mogalakwena Mine holds a surface lease over the property. Mogalakwena Mine is the Mining Rights Holder.
East WRD (WRD020)	Portion 0 of the Farm Overysel 875 LR	
West WRD (WRD02)	Portion 0 of the Farm Overysel 875 LR	
WRD07	Portion 0 of the Farm Sandsloot 236 KR Portion 0 of the Farm Vaalkop 819 LR	Held in Trust by the National Government of the Republic of South Africa on behalf of the Mapela and Mokopane Traditional Authority Held in Trust by the National Government of the Republic of South Africa on behalf of the Mapela Traditional Authority Mogalakwena Mine holds a surface lease over the property. Mogalakwena Mine is the Mining Rights Holder.
RS3	Portion 0 of the Farm Sandsloot 236 KR	Held in Trust by the National Government of the Republic of South Africa on behalf of the Mapela and Mokopane Traditional Authority Mogalakwena Mine holds a surface lease over the property. Mogalakwena Mine is the Mining Rights Holder.

1.7 Mining Activities

Mogalakwena Mine has been operational since 1992. Over time, AAP-RPM has applied for and obtained permission for a number of additional activities. The Mogalakwena Mine Complex comprises the following key infrastructure:

- Five open pit mining areas;
- Five WRD facilities;
- North and South concentrators which are ore processing plants; and
- Vaalkop and Blinkwater Tailing Storage facilities.

Mogalakwena Mine exploits the Platreef which is the primary Platinum Group Metal bearing horizon developed in the Northern Limb of the Bushveld Complex. The target minerals are Platinum group metals (PGMs) and various base metals that are currently mined at Mogalakwena Mine via five open pits, namely the Sandsloot, Zwartfontein, South, Central and North Pits. Mining of the ore body is by open pit methods whereby material is extracted in vertical benches to create a large open excavation.

The ore is beneficiated by the Mogalakwena North Concentrator (MNC) and Mogalakwena South Concentrator (MSC) into concentrate, which is transported to the AAP Polokwane Smelter for smelting, to produce furnace matte. The matte then undergoes an acid converting process at the Waterval Smelter complex in Rustenburg. Mogalakwena Mine also operates three Tailings Storage Facilities (TSFs); Vaalkop (original and expansion) and Blinkwater 1 TSF. Open pit mining could ultimately be supplemented by underground mining with initial access via decline shafts in the footwall of the Sandsloot Pit. (SRK, 2019). Mogalakwena Mine 's life of mine (LoM) extends well beyond 2080 and could potentially continue for a further period of some 100 years (SRK,2019).

2 Proposed Amendments

2.1 Change in Heights of the Waste Rock Disposal Facilities

WRD facilities East (W020) and West (WRD02) were both approved to a height of 175m and 95m respectively based on the design drawings but not in the wording contained in the 2003 approved EMPr.

WRD facilities W01 and W07 were approved to a height of 60m in the 1997 approved EMPr, and WRD facility RS3 was similarly approved to a height of 60m in the 2001 approved EMPr. There were no approved design drawings that reflect the DMRE approval for the WRD facilities heights above 60m. The coordinates of each of the WRD facilities are provided in **Table 2-1**.

Table 2-1: Summary of WDR facilities

Waste Rock Disposal Facilities	Latitude[2]	Longitude
W07	24^{0}01’19.13	28^{0}54’21.96
	24^{0}01’04.43	28^{0}55’07.54
	24^{0}01’20.76	28^{0}55’29.18
	24^{0}01’31.24	28^{0}54’41.02
RS3	24^{0}00’10.99	28^{0}53’47.50
	24^{0}00’18.10	28^{0}54’20.25
	24^{0}00’58.25	28^{0}53’30.70
	24^{0}01’14.55	28^{0}54’03.71
W01	24^{0}00’21.75	28^{0}55’23.59
	24^{0}00’15.14	28^{0}55’32.36
	24^{0}00’29.14	28^{0}55’18.22
	24^{0}00’22.84	28^{0}54’57.98
W020 (East WRD) inclusive of the Eastern Bund	23^{0}56’01.05	28^{0}53’34.12
	23^{0}55’58.10	28^{0}54’15.58
	23^{0}57’37.78	28^{0}55’23.18
	23^{0}58’38.83	28^{0}54’23.49
W02 (West WRD) inclusive of the Western Bund	23^{0}58’59.17	28^{0}53’25.27
	23^{0}58’50.17	28^{0}53’34.31
	23^{0}56’26.55	28^{0}51’49.91
	23^{0}56’17.07	28^{0}52’16.57

In 2019, the approved EMPrs were consolidated and amended as part of the Mogalakwena Expansion project. As part of the consolidation and amendment process, all approved EMPrs were combined into one EMPr which also then included the activities associated with the Expansion Project. This consolidation and amendment EMPr was approved by the Department of Mineral Resources and Energy (DMRE) in August 2020.

[2] *Water Use Licence No: 07/A61G/ABCGIJ/9887 dated 4 December 2020.*

Although the approved design heights of WRD East (WRD020) and WRD West (WRD02) were 175m and 95m respectively, the approved 2003 EMPr had erroneously reflected their final heights as being 60m in text in the document. These errors were unfortunately carried over into the 2020 approved EMPr. In addition, the current heights of WRD Facilities W01, W07 and RS3 exceed the approved 60 m heights.

Mogalakwena Mine therefore wishes to correct these errors through a Regulation 31 Amendment process. The 2020 approved EMPr will be updated and aligned with this Regulation 31 Application. The proposed amendment heights are provided in **Table 2-2.**

Table 2-2: Proposed Amendments as part of the application

Waste Rock Disposal Facility	Approved Heights (m)	Current Average Undulating Height (m)*	Approved Footprint (ha)	Proposed Average Undulating Amendment Height (m)*
W01	60	82	42.28	82
W07	60	82	84.32	82
RS3	60	109	195.64	109
W020 (East)	60 (in contradiction to the Design drawings	135	1027	175
W02 (West)	60 (in contradiction to the design drawings)	92	385	95

*Average height is used due to topography differences that occur across the WRD facility

As confirmed in **Table 2-2**, the ground level footprint for each WRD facility remains unchanged. WRD facilities W01, W07, RS3, are proposed to be amended to reflect the current existing heights. WRD facilities W020 (east) and W02 (West) is proposed to be amended and aligned with the design heights. The designs for WRD facility W020 (East) and W02 (West) are provided inFigure 2-1: Design drawings of W020 (East) and W02 (West) **Figure 2-1**. The site plan as well as the designs are provided in **Appendix C.**

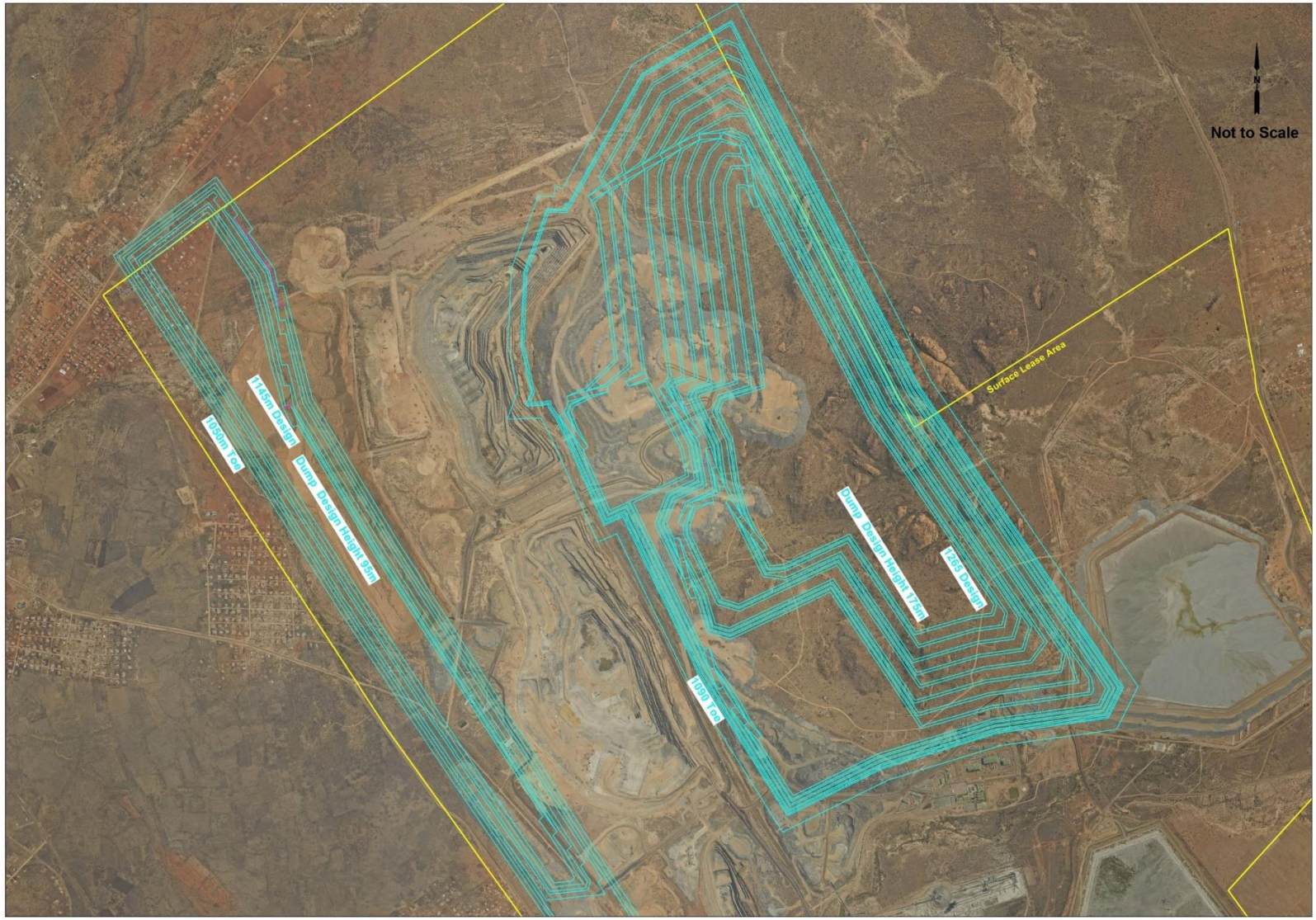

Figure 2-1: Design drawings of W020 (East) and W02 (West)

2.2 Changes in the EMPr

An impact assessment has been undertaken as part of this application. The impact assessment is provided in **Section 6**. No significant impacts have been identified in terms of the increase of the WRD facilities' heights. With mitigation, the impact assessment translated as low. The 2020 approved EMPr is proposed to be amended to include the mitigation measures identified through the impact assessment and the specialist recommendations.

3 LEGISLATIVE BACKGROUND

From an environmental and social perspective, the proposed project is required to comply with all the obligations in terms of the provisions of the NEMA and MPRDA. The respective legislation is outlined in **Table 3-1.**

Table 3-1: Legislation applicable to the Project

Applicable Legislation and Guidelines used to Compile the Report	How does this Development Comply with the Policy and Legislative Context
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) Section 24 of the Constitution provides that everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that – i. Prevent pollution and ecological degradation; ii. Promote conservation; iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.	The environmental management objectives of the project will be to protect ecologically sensitive areas and to support sustainable development and the use of natural resources, whilst promoting justifiable socio-economic development. The implementation of the mitigation and management measures to minimise and prevent negative impacts associated with the project, are contained in the AAP-RPM's 2020 approved Environmental Management Programme (EMPr).
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) Section 102 of the MPRDA states that: A reconnaissance permission, prospecting right, mining right, mining permit, retention permit, technical corporation permit, reconnaissance permit, exploration right and production right work programme; mining work programme, environmental management programme, and environmental management plan may not be amended or varied (including by extension of the area covered by it or by the addition of minerals or a share or shares or seams, mineralised bodies, or strata, which are not at the time the subject thereof) without the written consent of the Minister.	AAP-RPM Mogalakwena Mine Complex intends to amend the Environmental Authorisation and 2020 approved EMPr through a Regulation 31 Amendment Process. This Report has been compiled in accordance with the requirements of the NEMA EIA Regulations, 2014 (as amended), with the environmental management objective to protect ecologically sensitive areas. This report will be submitted to the DMRE for decision making.
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) In terms of the section 24(5) read with section 44 of the Act, Environmental Impact Assessment Regulations have been published to provide a list of activities that require authorisation before they may commence. These listed activities are contained within the following: • Government Notice No. 982 in Gazette No. 38282 on 4 December 2014, as amended on 7	The are no new Listed Activities associated with the proposed project changes. This Amendment Report has been compiled in accordance with the requirements of the NEMA EIA Regulations (2014) (as amended).

Applicable Legislation and Guidelines used to Compile the Report	How does this Development Comply with the Policy and Legislative Context
April 2017 in Gazette No. 40772 as Government Notice No. 326 – EIA Regulations • Government Notice No. 983 in Gazette No. 38282 on 4 December 2014, as amended on 7 April 2017 in Gazette No. 40772 as Government Notice No. 327 - Listing Notice 1; • Government Notice No. 984 in Gazette No. 38282 on 4 December 2014, as amended on 7 April 2017 in Gazette No. 40772 as Government Notice No. 325 – Listing Notice 2; and • Government Notice No. 985 in Gazette No. 38282 on 4 December 2014, as amended on 7 April 2017 in Gazette No. 40772 as Government Notice No. 324 – Listing Notice 3;	
National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) is the overarching legislation that protects and regulates the management of heritage resources in South Africa.	No archaeological artefacts will be unearthed as the ground level footprint remains and only a change in height is applicable to this application.
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM:AQA According to the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA) the Department of Forestry Fisheries and the Environment (DFFE), the provincial environmental departments and local authorities (district and local municipalities) are separately and jointly responsible for the implementation and enforcement of various aspects of NEM: AQA. A fundamental aspect of the approach to the air quality regulation, as reflected in the NEM: AQA is the establishment of National Ambient Air Quality Standards (NAAQS). These standards provide the goals for air quality management plans and also provide the benchmark by which the effectiveness of these management plans is measured.	The mitigation and management measures to be implemented as part of the project aim to manage and prevent potential impacts to air quality.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) The National Environmental Biodiversity Act, Act 10 of 2004 (NEMBA) provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. The Act relates to the protection of species and ecosystems that warrant national protection, among others	No new infrastructure is proposed, and thus the surface footprint of disturbance will remain unchanged.
National Water Act, 1998 (Act No. 36 of 1998) (NWA) NWA makes provision for water resource management, protection of the quality of water resources and recognising the need for the	Mogalakwena Mine water activities are authorised by two Water Use Licences (WULs) Licence No. 27059655 issued on 12 March 2007 and Licence No. 14/A61G/GICABJ/5053, issued 2 October 2017.In addition, Mogalakwena Mine submits annual

Applicable Legislation and Guidelines used to Compile the Report	How does this Development Comply with the Policy and Legislative Context
integrated management of all aspects of water resources to achieve sustainable use of water.	IWWMPs to Department of Water and Sanitation (SRK, 2019). No new infrastructure is proposed in terms of this amendment application.
National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) (NEMWA) NEMWA aims to provide regulation for waste management in order to protect health and the environment, for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. Regulation 982 to the NEMWA identifies a number of activities which require a Waste Management License (WML) prior to being undertaken.	In July 2015, the list of waste management activities that require a Waste Management License was amended to include reside stockpiles and deposits. AAP-RPM already has an approved Mining Right and EMPr approved in terms of the MRPDA and shall be deemed to have been approved and issued in terms of the NEM:WA (according to the transitional provisions of GN.R 633 – Amendments to the List of waste management activities that have or are likely to have a detrimental effect on the environment). The continued deposition of waste rock on the facility and the gradual increase in the height of the WRD Facility since their establishment is not an expansion of a waste management activity as per the list of Waste Management Activities.
Mine Health and Safety Act, 1996 (Act No. 29 of 1996) (MHSA) The Mine Health and Safety Act (Act No. 29 of 1996) (MHSA) aims to provide for protection of the health and safety of all employees and other personnel at the mines of South Africa	The WRD Facilities already exists and Mogalakwena mine will therefore need to ensure that employees, contractors, sub-contractors and visiting personnel, adhere to this Act and subsequent amendment regulations on site (SRK, 2019).

4 ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE SITE

Baseline information contained in this section of the Report was directly obtained from the approved EIA/EMP Report prepared for the existing Mogalakwena Mine. The report, which was prepared by SRK Consulting, is referenced as:

- *SRK Consulting, 2019. Final EIA/EMPr Report – Mogalakwena Mine Expansion project EMPrs Amendment. Reference 532330*

The description of the baseline environment associated with the proposed amendment is relevant to the decision-making process, as it enables an understanding of how the proposed amendment can change or impact on the existing environment.

4.1 Climate and Meteorology

The regional climate is typically hot summers and cool, dry winters. The mean minimum monthly temperature is 13.0°C and the maximum mean monthly temperature is 26.3 C. The rainy season is from October to April. Most of the rainfall results from thunderstorms, and rainfall events of short duration mostly in the afternoon and early evenings.

During the rainy season a maximum of 8 to 12 rain days per month is typically expected, whilst in the dry season a maximum of one rainy day may be expected per month. Most rain (85 %) falls in the six-month period between November and April. Only 8 % of the rainfall occurs between May and September. The rainfall is mainly in the form of thunderstorms. Hail, which is often associated with thunderstorms, does occur during the hot summer months. The average annual A-pan evaporation is 2 301 mm which indicates that evaporation exceeds the Mean Annual Precipitation (MAP) of 620 mm. The mean annual S-pan evaporation at Mogalakwena Mine is 1 755 mm as obtained the Water Resources Manuals, 2012.

Temperature data for the area was sourced from a variety of sources including three PM_{10} monitors located within the Mogalakwena Mine mining area. Based on these sources the average maximum temperature for the area ranges from 28.8 °C to 39.4°C and average minimum range from 8.2 °C to 11°C.

The average wind speed for the period from January 2016 to December 2018 is 3.46 m/s with calm conditions occurring 5.09% of the time. During the day (06:00-18:00), the average wind speed is 2.98 m/s with calm conditions occurring 8.54% of the time. The average wind speed during the early night is 3.71 m/s and increases to 4.13 m/s during the latter part of the night.

The seasonal wind roses are similar to the all hour's wind rose, except during winter where winds from the south easterly quadrant are prevalent. The frequency of winds from the east increases during autumn albeit at lower wind speeds. The highest average wind speeds of 3.87m/s occurs during spring with calm conditions occurring 3.57 % of the time. The lowest average wind speeds occur during autumn with an average wind speed of 3.07 m/s and calm conditions occur 6.78% of the time. The wind speeds during summer and winter are 3.65 and 3.27 m/s respectively.

4.2 Geology

The Mogalakwena Mine is situated in the Northern Limb of the Bushveld Igneous Complex. The Platreef orebody lies at the base of the Main Zone of the Bushveld Complex and is overlain by gabbronorites which are in turn overlain by Upper Zone ferrogabbros. It is a 100 m thick tabular body that strikes north-south, dips 45° to the west and reaches a depth of at least 2,000 m. The local geology structures is provided in **Figure 4-1**.

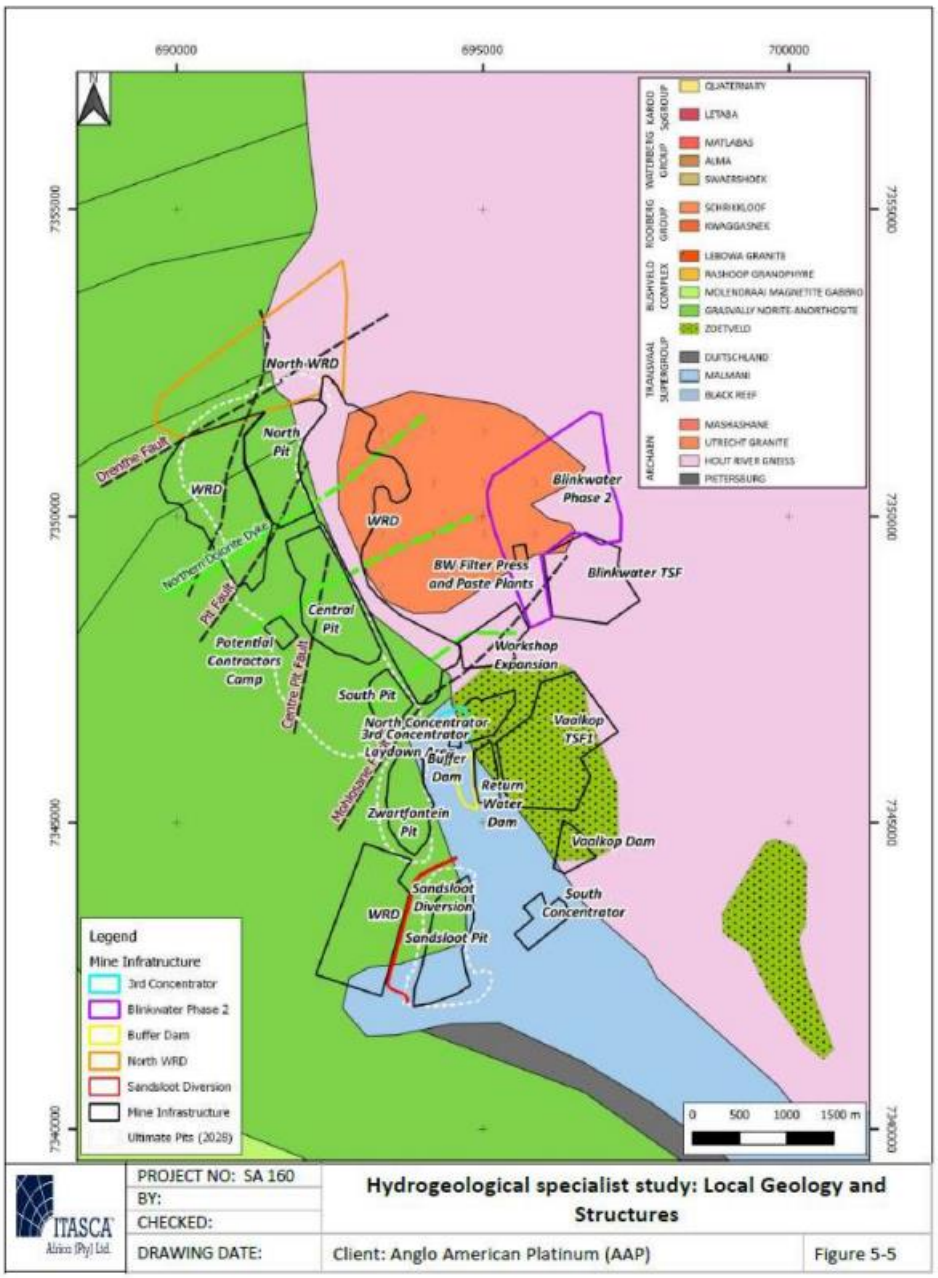

Figure 4-1: Local Geology Structures (SRK,2022)

4.3 Topography and drainage

The Limpopo Province can be split into several topographic zones. In the east is the flat to gently undulating Lowveld plain, at an altitude of 300 to 600 metres above mean sea level (mamsl), bounded in the west by the Northern Drakensberg escarpment and Soutpansberg, with steep slopes and peaks up to the 2 000 mamsl.

Topographic elevations within the project area vary from 1,750 mamsl in the east to 1,000 mamsl in the west. The natural topography has been locally altered by mining activity (tailings and return water dams, pits, rivers diversion, rocks dumps, buildings, etc.). Drainage follows topography and migrates downstream from east to west.

The mine is located in the quaternary catchment A61G of the Mogalakwena River in the Limpopo Water Management Area (WMA). The Groot Sandsloot River runs through the mining area separating the North and South Concentrators as well as the other pits (to the north of the river) from the Sandsloot Pit (to the south).

Both surface water and shallow groundwater are drained by the Mohlosane, Groot Sandsloot Rivers, and Witrivier which flow to the south-west into the Mogalakwena River which flows to the north-northwest into the Limpopo River.

Land use in the surrounding area is dominated by rural informal residential development and small-scale agricultural plots under dryland cropping. The area is also used for grazing of livestock and wood harvesting.

4.4 Soils

The soils encountered can be broadly categorised into three major groupings, with a number of dominant and sub dominant forms that characterise the area. The major soil forms are closely associated with the lithologies (geology) from which the soils are derived (in-situ formation), the topography and general geomorphology of the site, the effects of slope and attitude of the land forms and the pedogenetic processes involved affecting the soil pedogenisis and ultimately the soil forms classified and mapped.

The flat to undulating topography has resulted in the in-situ formation of soils, with some downslope transportation and accumulation of colluvial derived material in the valley bottoms and lower slope positions. The pedogenetic processes are symptomatic of the geomorphology of the site and the lithological units from which they are derived.

The climate also has an influence on the soil forming processes and outcomes, with the negative hydrological balance for the area (evaporation > rainfall) resulting in the development of evaporites within the soil profile where the accumulation of iron rich soil water (lower lying areas and valley bottoms) is able to precipitate and form nodules of ferrous oxide that become cemented over time into layers or “banks” of laterite (ouklip/hard pan ferricrete).

These processes result in the formation of layers of hard plinthite that form inhibiting layers or barriers to the vertical infiltration of water down the profile, a situation that over time results in further accumulations of relic ferric oxide. The soil water accumulates close to surface within the profile due to the low permeability’s across the hard plinthite and moves laterally along the horizon to issue at surface within the streams and waterways as springs and seep zones. These waters contribute to the “base-flow” of the rivers and are an important contributor to the wetlands and more sensitive and important ecological and biodiversity balance of the area.

4.5 Biodiversity

The general habitat in the area falls within the Savanna Biome and the vegetation unit at Mogalakwena Mine is represented by Makhado Sweet Bushveld (SVcb 20) (Mucina and Rutherford 2006). The Makhado Sweet Bushveld is found in the Limpopo Province where it is present on the plains between the Soutpansberg (to the north) and the Waterberg (to the west). The vegetation is known for the short and shrubby bushveld with a poorly developed grass layer on the slightly too moderately undulating plains. The area is known for its rich minerals and the geology consists of gneisses and migmatites (Hout River Gneiss) with some intrusions of potassium-deficient gneisses (Goudplaats Gneiss) and sand- and mudstones of the Matlabas Subgroup. In general, the soils are deep greyish sands, eutrophic plinthic catenas, red-yellow apedal freely drained soils with a high base status and clayey soils in low-lying areas. The climate associated with the vegetation unit is summer rainfall with very dry winters, a mean annual precipitation about 350-550 mm where the altitude ranges between 850-1 200 m (Mucina and Rutherford, 2006).

4.6 Noise

The following are noise sources in the vicinity of and the boundaries of Mogalakwena Mine:

- MM mining activities noise;

- Traffic noise along the feeder roads to the Mogalakwena Mine complex and abutting noise sensitive areas;
- Distant traffic noise from the abutting feeder roads;
- Traffic noise from the N11 road;
- Subsistence farming activities noise (raising livestock);
- Insects;
- Birds;
- Wind noise; and
- Anthropogenic noise (music etc)

The prevailing ambient noise levels shows the noise sources currently in the area such as domestic, traffic noise, distant mine noise and natural noise sources.

4.7 Visual

The sense of place for the communities around the mine is closely related to that of employment as it is assumed that many of the villages directly surrounding the mine have developed/expanded due to the mine's existence. However, permanent residents in the area who are not reliant on the mine for a livelihood may experience the area in a different way. Travellers using the N11 and surrounding road networks will have a transient sense of place associated with mining while travelling through the landscape.

Frequent travellers will be used to the landscape through which they travel and the location of the proposed new structures, being situated within the mine area and adjacent to existing structures, should not result in an altered sense of place.

A land cover map was developed for the area around the mine to spatially determine the predominant land use type in the area. Based on the land use map the predominant land use to the east of the mine include a modified natural environment (thicket and woodland) with urban areas (villages) developed in-between. According to the land use map the predominant land use to the west of the mine it is cultivated land associated with villages and commercial agriculture further north-west. The sense of place in an 5km radius around the mine is thus likely to be a combination between mining, agriculture and an overall modified natural landscape. The Mogalakwena Mine complex has been in existence since 1992 and the mine lease area covers approximately 51.05km^2 and stretches over approximately 8 km from east to west and approximately 13 km from north to south.

4.8 Air quality

The average monthly dust fallout rates for Non-residential and Residential Areas are below the respective standards at all monitoring points. There is no discernible trend in the Non-residential Area dataset, other than the dust fallout rates not exceeding the standard of 1 200 mg/m^2/day. Hence all Non-residential Area monitoring points are compliant with the National Dust Control Regulations Standard of 1 200 mg/m^2/day.

Dust fallout at the residential sites were below the Residential Area Standard of 600 mg/m^2/day, except at Manamela House no. 385 (835 mg/m^2/day in December 2018). For most of the monitoring period there is no discernible trend in the data, however with the addition of monitoring points from 2017 onwards there has been an increase in dust fallout rates. However, the average dust fallout rates remain below the Residential Area Standard of 600 mg/m^2/day.

4.9 Archaeological and cultural heritage

Extensive heritage specialist studies have been undertaken during previous environmental authorisation processes associated with Mogalakwena Mine. In addition to the previous studies, an extensive heritage assessment was undertaken as part of the proposed Expansion Project to identify potential archaeological and

heritage sites within the footprint area of the proposed expansion infrastructure. This study identified a total of 71 archaeological and heritage sites **(Figure 4-2**) and comprised the following:

- Eleven sites containing confirmed graves and burial grounds. See MMEP 10, MMEP 13, MMEP 17, MMEP 18, MMEP 21, MMEP 24, MMEP 27, MMEP 31, MMEP 34, MMEP 36 and MMEP 66.
- Four sites containing possible graves. See sites MMEP 2, MMEP 22, MMEP 30 and MMEP 40.
- Two sites containing relocated burial grounds which may still contain graves. See sites MMEP 7 and MMEP 69.
- Twenty-eight homesteads where the potential risk for the presence of unmarked stillborn graves exist. See sites MMEP 4, MMEP 11, MMEP 12, MMEP 14, MMEP 16, MMEP 19, MMEP 23, MMEP 26, MMEP 28, MMEP 29, MMEP 33, MMEP 35, MMEP 39, MMEP 41, MMEP 44, MMEP 45, MMEP 46, MMEP 51, MMEP 53, MMEP 54, MMEP 55, MMEP 59, MMEP 61, MMEP 62, MMEP 64, MMEP 68, MMEP 70 and MMEP 71.
- One historic farmstead which is certainly older than 60 years and quite likely older than 100 years as well. The farmstead site also comprises a historic farmstead and a confirmed burial ground. See site MMEP 43.
- Twelve Stone Age sites. See sites MMEP 1, MMEP 5, MMEP 6, MMEP 8, MMEP 9, MMEP 15, MMEP 47, MMEP 48, MMEP 49, MMEP 52, MMEP 60 and MMEP 67.
- One possible rain-making site. This site is MMEP 57.
- One Late Iron Age stonewalled site. See site MMEP 50.
- Eight sites comprising historic to recent stonewalling. See sites MMEP 20, MMEP 25, MMEP 37, MMEP 42, MMEP 56, MMEP 58, MMEP 63 and MMEP 65.
- One site comprising a single lower grinding stone. See site MMEP 32.
- One site comprising a rock boulder associated with cupules and stonewalling. See site MMEP 3.
- One site comprising a rubbing post. See MMEP 38.

Some of the heritage sites assessed is of a low heritage significance and have not been included in the heritage impact assessment. The reason for this is that sites of low significance will not require mitigation. These sites are MMEP 1, MMEP 8, MMEP 15, MMEP 20, MMEP 25, MMEP 32, MMEP 37, MMEP 52, MMEP 56, MMEP 58, MMEP 60, MMEP 63, MMEP 65 and MMEP 67.

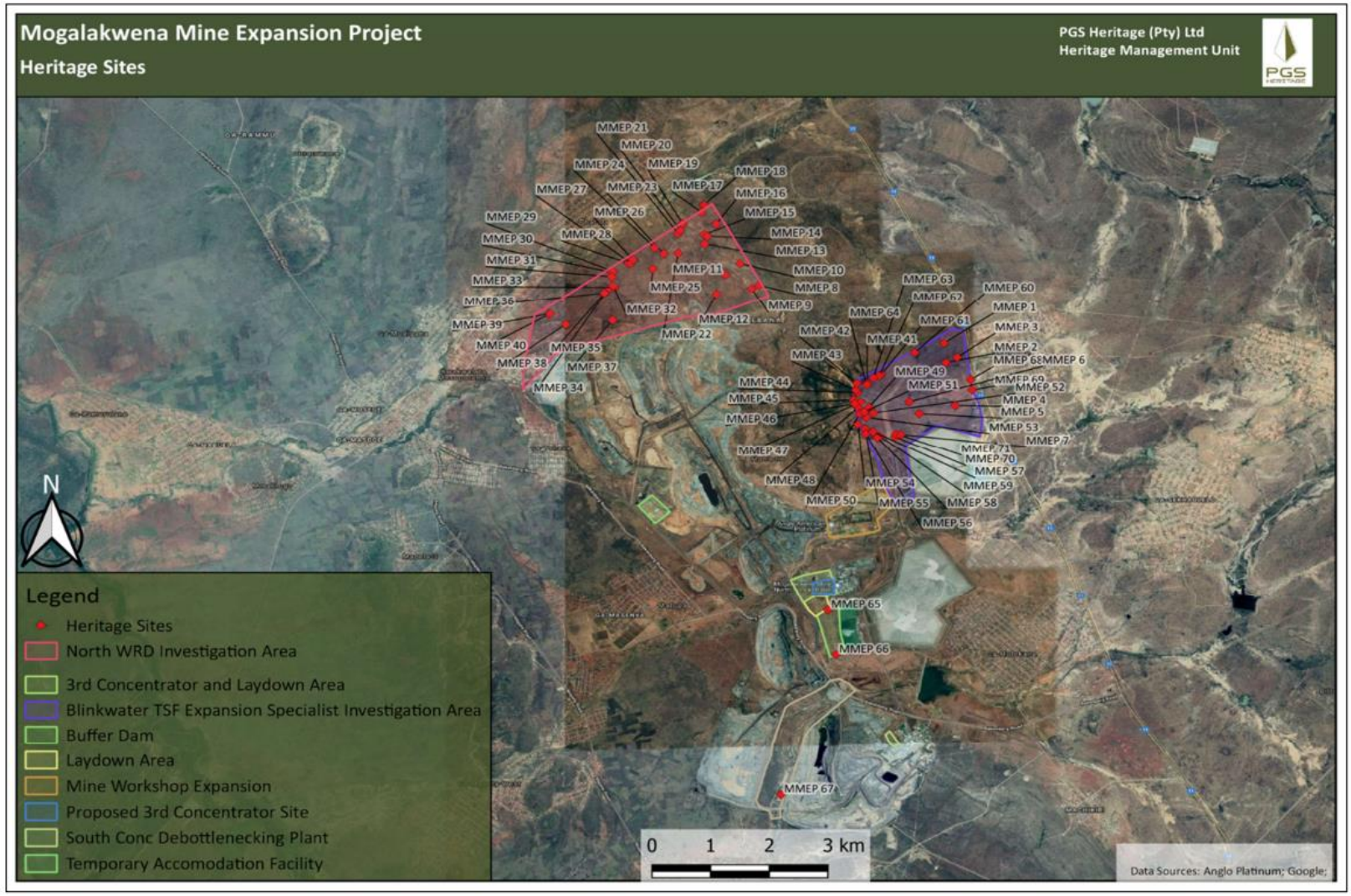

Figure 4-2: Identified Heritage Sites Associated with the Mogalakwena Project (SRK, 2019)

4.10 Groundwater

There are three aquifer systems underlying the Mogalakwena Mine area:

- There is a **localised primary aquifer** that occurs in the drainage channels of the Sandsloot, Mohlosane, and Witrivier non-perennial streams that drain the Mine area to the Mogalakwena River. Sub-surface flow throughout the year in the sandy sediments is intercepted in the shallow boreholes (<15 m depth average where measurable) that are used extensively by the local communities as their domestic water supply.
- The wetland to the east of Blinkwater 1 TSF, arises as springs fed by runoff and the shallow groundwater from the intrusive Utrecht Granite that forms the relief (hills) to the northwest and northeast of Blinkwater 1 TSF. Prior to the construction of Blinkwater 1 TSF, the springs were a source of the Mohlosane Stream. Following construction of Blinkwater 1 TSF, ponding to the north of the TSF occurs and sub-surface drains from the overflow of the wetland continue to feed the Mohlosane.
- The **weathered bedrock aquifer** extends to a depth of at least 30 -50m within the weathered bedrock units. The weathered zone is more permeable than the underlying bedrock due to weathering and the presence of fractures. Deep weathering is associated with the Sandsloot and Mohlosane Rivers and tectonic structures. The weathered bedrock aquifer is hydraulically in connection with the alluvial aquifer in the non-perennial streams which may be gaining from or losing to the groundwater depending on the water table and the season.
- Groundwater flow in the **unweathered bedrock** is controlled mainly through fractures and joints and major fault blocks which are hydraulically connected. Higher yields occur in the shear zones at the contact with the Platreef, which serves as the main storage component of the aquifer, with some contribution by seepage from the overlying weathered zone. The unweathered norites and pyroxenites have low primary porosity and hydraulic conductivity (K) values.
- The dykes may compartmentalize flow due to their low permeability.

4.11 Surface water

The Mogalakwena Mine area is situated in quaternary catchment A61G, (Limpopo River Water Management Area A6) approximately 30 km northwest of Mokopane, in the Mogalakwena Local Municipality of the Limpopo Province. There are three main rivers that may be impacted upon by the expansion project, namely the Groot Sandsloot (Pholotsi) River, Mohlosane River and Witrivier (**Figure 4-3**).

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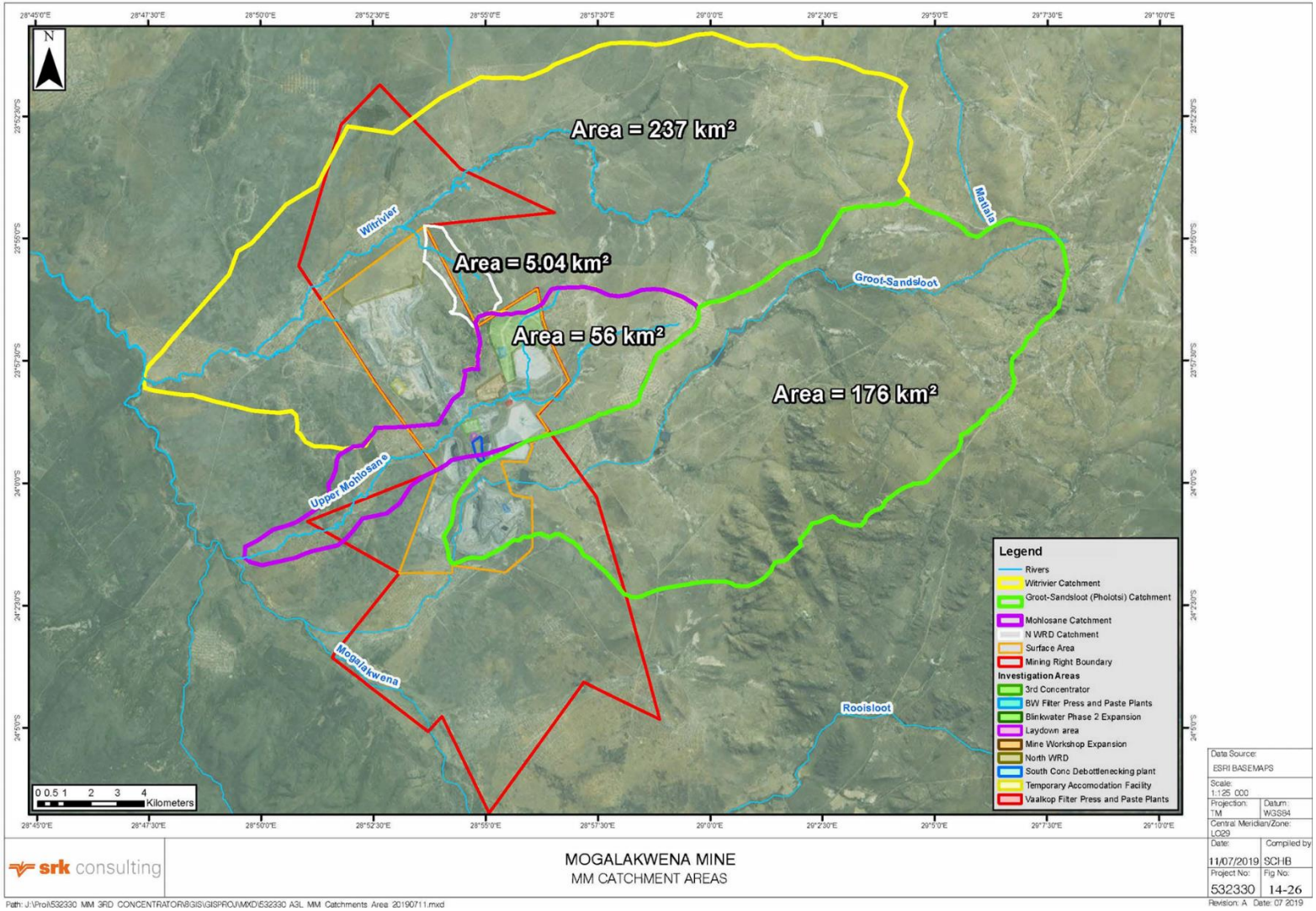


Figure 4-3: Mogalakwena Mine Complex Catchment Areas (SRK, 2019)

4.12 Socio-economic structure

The Mogalakwena Mine is situated approximately 30 km north-west of the town of Mokopane (formerly Potgietersrus) within the Mogalakwena Local Municipality (MLM), which forms part of the greater Waterberg District Municipality (WDM) of the Limpopo Province.

According to the MLM Integrated Development Plan (IDP), MLM consists of three proclaimed townships (i.e. Mokopane, Mahwelereng and Rebone) and 178 villages. The municipality has been demarcated into 32 wards and a larger portion of the municipality is predominantly rural.

The communities in the MLM are governed by Traditional Councils and Leaders, with both the Mapela- and the Mokopane Traditional Authority (TA) being recognised in terms of the Traditional Leadership and Governance Framework Act, Act 2 of 2005 (Framework Act). The Framework Act provides for the establishment of traditional councils that should support municipalities in the identification of community needs; facilitate the involvement of communities in IDP processes; participate in the development of policy and legislation at the local level, amongst others. The Framework Act further states that TAs are responsible for administering the affairs of the traditional community in accordance with customs and traditions, consistent with customary law and the Constitution of South Africa.

The MLM has 178 rural settlements (traditional villages) spread across its municipal boundary, and 70.9% of the population reside in these areas. The MLM has three additional semi-urban settlements (Ga-Pila (Sterkwater), Ga-Puka (Rooibokfontein) and Ga-Sekhoalelo (Armoede)) all proclaimed as a result of relocation due to mining expansion in the Mapela TA area. Mogalakwena Mine is predominantly located on land owned by the Mapela TA with the Mokopane TA situated immediately adjacent to the operation.

The villages in the rural areas are closely linked to subsistence farming, with many households depend on agriculture for their livelihoods. Livestock farming is the predominant enterprise within the peri-urban areas, however, there is limited land to carry the current amounts of livestock. Overgrazing is evident on communal grazing land as compared to privately owned land.

5 SPECIALIST ASSESSMENTS

This section provides Specialist Assessments that were considered as part of the Regulation 31 Amendment Process.

5.1 Visual Impact Assessment

The Visual Impact Assessment (VIA) was undertaken by Alta van Dyk Environmental Consultants cc in support of a Regulation 31 Application process in order to determine the impacts of an increase in height of the five main Waste Rock Disposal areas on the visual perception of receptors. The Visual Impact Assessment is attached to **Appendix D1**.

The concept of a VIA plays a significant role in the understanding of how a project influences the visual attributes of the landscape and how these changes influence the community within the area. The motivation of understanding and improving the concept of a VIA contributes to an overall better contextualization of visual impacts and how impacts can be mitigated or reduced to minimize negative visual impacts on a community.

Visibility analysis is a fundamental component of VIA, as it assists in determining the visual significance of a proposed project. The VIA has been compiled in support of a Regulation 31 Application process in order to determine the impact of an increase in height of the five main Waste Rock Disposal areas on the visual perception of receptors. A viewshed analysis was the visibility analysis technique used in support of the VIA which was supported through a field visit.

The Mogalakwena Mining area is located within the Mogalakwena Local Municipality and is bordered by the following communities as the sensitive visual receptors.

- Phfola
- Ga-Modipana
- Mesopotania
- Ga-Modege
- Ga-Tshaba
- Mapela
- Ga-Masenya
- Ga-Mapela West
- Ga-Mapela
- Ga-Molekana
- Ga-Sekhaolelo
- Sekuruwe

The locality of these visual receptors in relation to the Mogalakwena Mine and its associated Waste Rock Disposal Areas is depicted in Error! Reference source not found..

5.1.1 Visual Exposure

Within the Zone of Visual Influence (ZVI) - view corridors, viewpoints and receptors will experience “Visual Exposure” to the Mogalakwena mine operation and its associated infrastructure (Waste Rock Disposal Areas). Based on distance from the project to selected view corridors, viewpoints, or receptors, the ‘visual exposure’ or visual impact tends to diminish exponentially with distance.

Visibility analysis determines visibility on the principle of “line-of-sight” (LOS) – a straight line is generated between two points, and if at any point the line is obstructed by the surface, the target point is deemed “not visible”. The area determined as visible through visibility analysis is known as a “viewshed” and presents the area determined as visible within the setting from the point of which visibility was determined.

Visual exposure to the five main Waste Rock Disposal Areas is influenced by the following aspects:

- Distance from the source of visual impact;
- True visibility of the project keeping in mind visual contrast (Visual Absorption Capacity), topography and the decrease in visibility over distance;
- Duration, i.e., prolonged, temporary, intermittent exposure, etc.

The visual exposure of the Waste Rock Disposal Areas is high to visual receptors in the area as they are dominantly noticeable in the geographical area. This evaluation is however centred not around the increase in heights of the existing Waste Rock Disposal Areas, but rather the existence of these facilities within the specific landscape. The increase in height of these existing facilities has been assessed as a low exposure as the proposed height increase *will not* in particular be noticeable to the visual receptors in the geographical area.

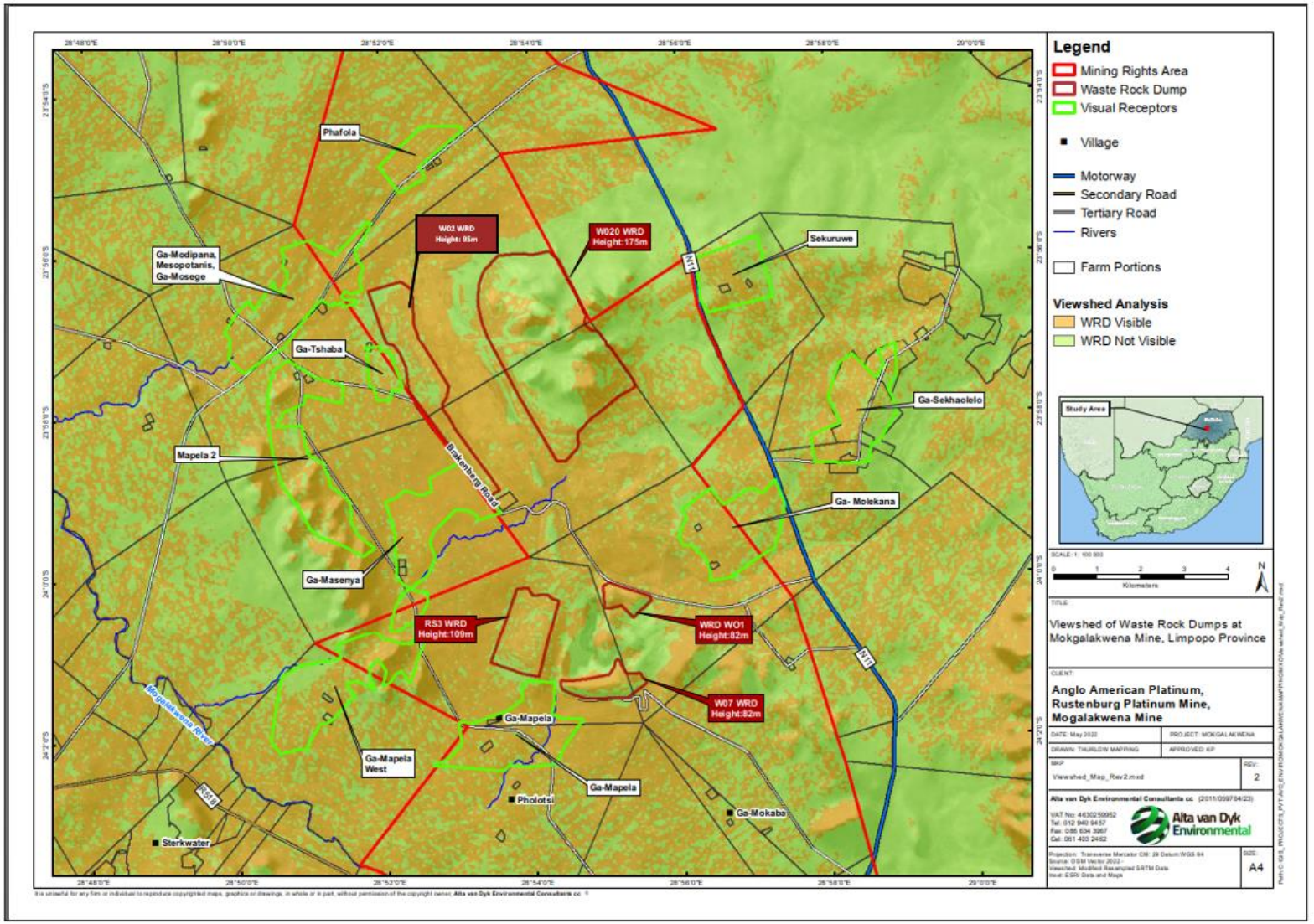


Figure 5-1: View Catchment Area

5.1.2 Viewshed

Due to the extent of the Mogalakwena Mine operations and its associated infrastructure (Waste Rock Disposal Areas) and the close proximity of the community clusters in relation to these operations, the Waste Rock Disposal Areas will be highly visible to all receptors within its vicinity. The main zone of visual influence is approximately 5km after which an increase in the distance from these facilities will start to diminish the visibility.

A Line-of-Sight analysis was undertaken from eight (8) viewsheds. The "Line-of-Sight" (LoS) analysis analysed (as part of the on-site assessment) four of the five Waste Rock Disposal Areas at the proposed increased heights (WRD 01 (82m), WRD 07 (82m), WRD RS3 (109m), WRD 02 (west)(97m) and the WRD 020 (east) at a height of 135m.

A summary of the findings of the LoS analysis is provided in **Table 5-1**.

Table 5-1: Summary of Line of Sight Analysis

Line-of-Sight	Analysis
Line-of-Sight 1	This LoS analysis was undertaken from an on-site perspective. The LoS direction is towards the south and south-east and considers the WRD 01, WRD 07 and the WRD RS3 Waste Rock Disposal Areas. The Waste Rock Disposal Facilities at the time of the site assessment were at the proposed increased heights. On site staff have been deemed as moderately sensitive visual receptors. The initial establishment of these Waste Rock Disposal Areas would have resulted in the loss of views of the surrounding landscape which includes community clusters, agricultural land, and informal roads. The current height on these Waste Rock Disposal Areas does not significantly alter the initial loss of these views
Line-of-Sight 2	This LoS analysis was undertaken from a gravel road located on a ridge to the east of the WRD 07 Waste Rock Disposal Area. The LoS direction is towards the north-west and west and considers the WRD 01 and WRD RS3 Waste Rock Disposal Areas. The Waste Rock Disposal Facilities at the time of the site assessment were at the proposed increased heights. From the ridge, which is not located in close proximity to any of the highly sensitive visual receptors identified, the WRD 01 and WRD RS3 Waste Rock Disposal Areas are visible. From **Figure 5-2** it can be observed that even though these facilities are highly visible, the Waste Rock Disposal Facilities fade into the backdrop of the undulated topography of the geographical area. The initial establishment of these Waste Rock Disposal Areas would have resulted in the altered view of the surrounding landscape which includes community clusters, agricultural land, and informal roads. The current height on these Waste Rock Disposal Areas does not significantly alter the initial loss of these views.
Line-of-Sight 3	This LoS analysis was undertaken from the Mapela Road located to the west of the west of WRD 07 and to the south-west of WRD RS3 Waste Rock Disposal Areas. The LoS direction is towards the north-east and considers the WRD RS3 Waste Rock Disposal Area. The Waste Rock Disposal Facility at the time of the site assessment were at the proposed increased height. Travellers travelling on the Mapela road have been deemed as moderately sensitive visual receptors while the community clusters (Ga-Mapela and Mapela) are deemed as highly sensitive visual receptors. From **Figure 5-3** it can be observed that this facility actively obstructs visibility to the landscape and the mining activities located beyond.

Line-of-Sight	Analysis
	The initial establishment of this Waste Rock Disposal Area would have resulted in the obstructed view of the surrounding landscape which includes the mining activity and the undulated topography of the landscape beyond. The current height on these Waste Rock Disposal Areas does not significantly alter the initial loss of these views.
Line-of-Sight 4	This LoS analysis was undertaken from the edge of the Ga-Mapela West community on a gravel road located to the west of the WRD RS3 Waste Rock Disposal Area. The LoS direction is towards the east and considers the WRD RS3 Waste Rock Disposal Area. This Waste Rock Disposal Facility at the time of the site assessment was at the proposed increased height. This assessment is taken in close proximity to the Ga-Mapela West community which has been identified as a highly sensitive visual receptor. From **Figure 5-4** it can be observed that this facility is highly visible to the sensitive receptor and traveller on the Mapela road. The initial establishment of this Waste Rock Disposal Area would have resulted in the obstructed view from a community perspective onto the surrounding landscape which includes mining, agricultural land, and undulated topography of the geographical area. The current height on these Waste Rock Disposal Areas does not significantly alter the initial loss of these views
Line-of-Sight 5	This LoS analysis was undertaken from the Mapela road located to the west of the WRD West Waste Rock Disposal Area. The LoS direction is towards the east and considers the WRD 02 and WRD West Waste Rock Disposal Areas. The Waste Rock Disposal Facilities at the time of the site assessment were at the proposed increased heights. This assessment is taken in close proximity to the Ga-Tshaba and Mapela communities which have been identified as highly sensitive visual receptors with the Ga-Tshaba community having the higher visual impact due to its closer proximity to the foot of the WRD 02 Waste Rock Disposal Area. From **Figure 5-5** it can be observed that this facility is highly visible to the sensitive receptors and traveller on the Mapela and Bakenberg roads. The initial establishment of these Waste Rock Disposal Areas would have resulted in the obstructed view from a community perspective onto the surrounding landscape which includes mining, agricultural land, Mohlotho Mountains and undulated topography of the geographical area. With the Ga-Tshaba community this obstructed view is magnified due to the lack of distance between the community and the facility and a persons perceived visual field.
Line-of-Sight 6	This LoS analysis was undertaken from an informal gravel road located within the Kwakwalata Mesopotamia community to the north-west of the WRD 02 Waste Rock Disposal Area. The LoS direction is towards the south-east and considers the WRD 02 Waste Rock Disposal Area. The Waste Rock Disposal Facility at the time of the site assessment was at the proposed increased height. This assessment is taken in close proximity to the Kwakwalata Mesopotamia and the Ga-Modipana communities which have been identified as highly sensitive visual receptors with the development edge of the Kwakwalata Mesopotamia community having the higher visual impact due to its closer proximity to the foot of the WRD 02 Waste Rock Disposal Area. From **Figure 5-6** it can be observed that this facility is highly visible to the sensitive receptors and traveller on the informal gravel road. The initial establishment of these Waste Rock Disposal Areas would have resulted in the obstructed view from a community perspective onto the surrounding landscape which includes mining and undulated topography of the geographical area. With the development edge of the Kwakwalata Mesopotamia community this obstructed view is

Line-of-Sight	Analysis
	magnified due to the lack of distance between the community and the facility and a persons perceived visual field. It was also noted during the site observation that overburden dumps are located just beyond and adjacent to the WRD 02 Waste Rock Disposal Area and also contribute to the obstructed view from a community perspective.
Line-of-Sight 7	This LoS analysis was undertaken from an informal gravel road located within the Phafola community to the north-west of the WRD 020 Waste Rock Disposal Area. The LoS direction is towards the south-east and considers the WRD 020 Waste Rock Disposal Area. The Waste Rock Disposal Facility at the time of the site assessment was at a height of 135m. The proposed increased height will result in a final height of 175m (increase of 40m). This assessment is taken in close proximity to the Phafola community which has been identified as highly sensitive visual receptors. From **Figure 5-7** it can be observed that this facility is highly visible to the sensitive receptors and traveller on the gravel road. The initial establishment of these Waste Rock Disposal Areas would have resulted in the obstructed view from a community perspective onto the surrounding landscape which includes mining, the Mohlotho Mountains and undulated topography of the geographical area. From **Figure 5-7**, the Mohlotho Mountains is visible and located adjacent to the WRD 020 Waste Rock Disposal Area. However, this view will change pending the LoS and the Waste Rock Disposal Area will obstruct the view from certain community viewpoints. Due to the community's location from the WRD 020 (± 2,2 km), the anticipated increase of 40m (30% of current height) will not drastically alter the current perceived view as the current Waste Rock Disposal Area has already significantly alter the initial loss of these views.
Line-of-Sight 8	This LoS analysis was undertaken from the N11 to the north-east of the WRD 020 Waste Rock Disposal Area. The LoS direction is towards the south-west and considers the WRD 020 Waste Rock Disposal Area. The Waste Rock Disposal Area at the time of the site assessment was at a height of 135m. The proposed increased height will result in a final height of 175m (increase of 40m). Travellers travelling on the N11 have been deemed as moderately sensitive visual receptors. No community clusters are located to the north-east of the WRD 020. From **Figure 5-8** it can be observed that this facility is highly visible to the traveller on the N11 road. The initial establishment of this Waste Rock Disposal Areas would have resulted in the loss of views of the surrounding landscape which includes community clusters, agricultural land, and informal roads. The Mohlotho Mountains and undulated topography of the geographical area can still be seen from this view. The Waste Rock Disposal Area fade into the backdrop of the undulated topography of the geographical area. Due to the N11's location from the WRD 020 (± 3,9 km), the anticipated increase of 40m (30% of current height) will not drastically alter the current perceived view as the current Waste Rock Disposal Area has already significantly altered the initial loss of these views.

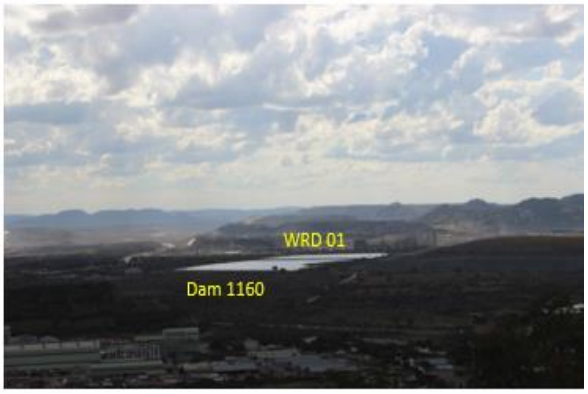


Figure 5-2: Picture Showing LoS Analysis 2

Figure 5-3: Picture Showing LoS Analysis 3 (WRD RS3) (AvDE Consultants, 2022)

Figure 5-4: Picture Showing LoS Analysis 4 (WRD RS3) (AvDE Consultants, 2022)

Figure 5-5: Picture Showing LoS Analysis 5 (WRD East (W020)) (AvDE Consultants, 2022)

Figure 5-6: Picture Showing LoS Analysis 6 (WRD East (W02)) (AvDE Consultants, 2022)

Figure 5-7: Picture Showing LoS Analysis 7 (WRD East (W020)) (AvDE Consultants, 2022)

Figure 5-8: Picture Showing LoS Analysis 8 (WRD East (W020)) (AvDE Consultants, 2022)

5.1.3 Visual Sensitivity

The visual sensitivity of the surrounding landscape has been deemed as low. This is due to the fact that the Waste Rock Disposal Areas are existing infrastructure that was already approved and established since the mine's commencement in 1993. The increase in Waste Rock Disposal Area heights will not affect the visual sensitivity of the landscape as this has already been significantly altered/impacted by the extent of the Mogalakwena Mine operations within close proximity to sensitive features.

5.1.4 Visual Absorption Capacity

The Mogalakwena Mine operations and its associated five main Waste Rock Disposal Areas is located in a geographical area which consists of undulated topography (hills), which screen the visual perspective onto these facilities depending on the LoS and distance from the operation itself. Due to the height of the Waste Rock Disposal Areas, vegetation will not completely screen the visibility of these features for the highly sensitive visual receptors. However, during the site assessment, it is clear that the Waste Rock Disposal Areas, screen the extent of the Mogalakwena Mine operations as well as the associated infrastructure such as overburden dumps, pits and other Waste Rock Disposal Areas. The closer the observer is in distance to the Waste Rock Disposal Areas the greater the visual influence and the screening of the extent of the mine.

The potential of the landscape and surrounding areas to conceal the height of the five main Waste Rock Disposal Areas varies from "Moderate to Low". Although these disposal areas create an elevated landform resulting in these areas being visually exposed to the surrounding area, the VAC partially screens these facilities through the geographical topography.

The rehabilitation of these facilities and the subsequent development of vegetation cover and scattered tree species over the long-term period will provide additional absorption of these facilities into the landscape.

The visual absorption capacity of the current landscape accommodates the increase in height of the Waste Rock Disposal Areas and the VAC is deemed “Moderate to Low”. This was confirmed by the site assessment for the five main Waste Rock Disposal Areas. **Figure 5-9** below support the visual absorption capacity of the surrounding landscape on the increased heights of the Waste Rock Disposal Areas.

Figure 5-9: Visual Absorption Capacity - Photographic Representation

5.1.5 Visual Intrusion

The visual intrusion of the Waste Rock Disposal Areas is high to visual receptors in the area as they are dominantly noticeable change in the geographical area as the initial establishment of the Waste Rock Disposal Areas are not a compatible infrastructure to the landform and ultimately contributed to a loss in sense of place. This evaluation is however centred not around the increase in heights of the existing Waste Rock Disposal Areas, but rather the existence of these facilities within the specific landscape.

5.1.6 Summary of the Visual Impact Assessment

The initial establishment of the Mogalakwena Mine operations and its associated infrastructure has already altered the visual landscape of the area. The highly sensitive receptors that surround the mining operation have already been visually impacted upon and the sense of place drastically altered due to the initial establishment of infrastructure that is not congruent to that of the visual backdrop.

The increase in the five main Waste Rock Disposal Areas do not contribute to a significantly additional impact as this increase in height is barely noticeable to the visual perception of the visual receptors.

5.2 Air Quality Assessment

An Air Quality Impact Assessment was not commissioned as part of the Regulation 31 Amendment application. This is because during 2019, SRK Consulting undertook a baseline Air Quality Impact Assessment as part of the Mogalakwena Platinum Mine Expansion Project Consolidated EMPr which included the five main Waste Rock Disposal Facilities. This impact assessment, the findings of which remain valid, indicated that the ambient air quality is in compliance with the National Dust Control Regulations in the Non-residential and Residential Areas. The Air Quality Impact Assessment is attached to **Appendix D2**.

With respect to dust emissions generated during the operational phase, the impact of dust emissions was determined to be low with management measures in place. It should be noted that the key reason for the impact rating is the impact at the boundary of the mine, which the dispersion model predicts to be below the dust fallout, PM_{10} and $PM_{2.5}$ standards. Notwithstanding the reduction in modelled dust levels due to the implementation of mitigation measures, the cumulative dust level due to both the current operations and proposed operations is expected to increase but should remain below the respective standards. This ambient impact assessment included the assessment of the five main WRD Facilities as part of the existing infrastructure utilised as a baseline for the expansion activities.

The AERMOD model was set up considering the varied topography elevations in the area (988 – 1,500 meters above mean sea level (mamsl) which takes into consideration the potential of sensitive receptors, such as towns/villages, to be above the source base.

The impact of fugitive dust on air quality depends largely on the extent of the drift potential of the particles. The drift potential of particles depends in turn on the initial height of the emission, the terminal settling velocity of the particle (which in turn is a function of the particle diameter) and the degree of atmospheric turbulence. Larger dust particles tend to settle out near the source, creating a local nuisance problem, whereas finer particles are more likely to be dispersed over greater distances since their settling rate is retarded by atmospheric turbulence.

Based on the baseline information presented in the Air Quality Impact Assessment, it is evident that the five main WRD facilities are not seen as continuous emitting source. Only the initial layer of dust will be eroded as the size of waste rock deposited will be large and only areas where fresh disposition occurs will be eroded by wind. The waste rock has a finite erodibility as all erodible dust from this source would be removed after initial emission or wind erosion events. The increase in waste rock dump height does not play an active part in dust generation but rather the activity of active deposition itself.

The impact of emissions from the WRDs has been qualitatively assessed. The increase in height of the five main Waste Rock Disposal facilities increases the travel distance of emissions from these facilities. However, the increase in height holds the potential to also increase the dispersal potential for dust fall out resulting in the reduction of pollutant concentrations. The impacts on air quality have been considered and assessed in **Section 6.**

6 IMPACTS ASSOCIATED WITH THE PROPOSED CHANGE

The impact assessment relates to the application for the amendment of the heights of the WRD facilities as reflected in the Environmental Authorisation (Reference: LP 30/5/1/2/3/2/1 (050) EM) and approved consolidated 2020 EMPr. The impacts of the overall mining activities at the Mogalakwena Mine has already been assessed in the respective EMPrs and in the 2020 approved consolidated EMPr. No new infrastructure is proposed, and the surface footprint of disturbance will remain unchanged.

This section of the Report presents a summary of the impact assessment methodology used and the outcome of the impact assessment undertaken for the change in the Waste Rock Disposal Facility heights.

6.1 Impact Assessment Methodology

Table 6-1: Scale utilised for the evaluation of the Environmental Risk Ratings

Evaluation Component	Rating	Scale	Description / criteria
MAGNITUDE of negative impact (at the indicated spatial scale)	**10**	**Very high**	Bio-physical and/or social functions and/or processes might be *severely* altered.
	8	**High**	Bio-physical and/or social functions and/or processes might be *considerably* altered.
	6	**Medium**	Bio-physical and/or social functions and/or processes might be *notably* altered.
	4	**Low**	Bio-physical and/or social functions and/or processes might be *slightly* altered.
	2	**Very low**	Bio-physical and/or social functions and/or processes might be *negligibly* altered.
	0	**Zero**	Bio-physical and/or social functions and/or processes will remain *unaltered.*
MAGNITUDE of POSITIVE IMPACT (at the indicated spatial scale)	**10**	**Very high**	Positive: Bio-physical and/or social functions and/or processes might be *substantially* enhanced.
	8	**High**	**Positive**: Bio-physical and/or social functions and/or processes might be *considerably* enhanced.
	6	**Medium**	**Positive**: Bio-physical and/or social functions and/or processes might be *notably* enhanced.
	4	**Low**	**Positive**: Bio-physical and/or social functions and/or processes might be *slightly* enhanced.
	2	**Very low**	**Positive**: Bio-physical and/or social functions and/or processes might be *negligibly* enhanced.
	0	**Zero**	**Positive**: Bio-physical and/or social functions and/or processes will remain *unaltered.*
DURATION	**5**	**Permanent**	**Impact in perpetuity. –**
	4	**Long term**	Impact ceases after operational phase/life of the activity > 60 years.
	3	**Medium term**	Impact might occur during the operational phase/life of the activity – 60 years.
	2	**Short term**	Impact might occur during the construction phase - < 3 years.
	1	**Immediate**	**Instant impact.**
EXTENT (or spatial scale/influence of impact)	**5**	**International**	**Beyond the National boundaries.**
	4	**National**	Beyond provincial boundaries, but within National boundaries.
	3	**Regional**	Beyond 5 km of the mine area and within the provincial boundaries.
	2	**Local**	Within a 5 km radius of the mine area.
	1	**Site-specific**	**On site or within 100 meters of the site boundaries.**
	0	**None**	**Zero extent.**
IRREPLACEABLE loss of resources	**5**	**Definite**	**Definite** loss of irreplaceable resources.
	4	**High potential**	**High** potential for loss of irreplaceable resources.
	3	**Moderate potential**	**Moderate** potential for loss of irreplaceable resources.
	2	**Low potential**	**Low** potential for loss of irreplaceable resources.
	1	**Very low potential**	**Very low** potential for loss of irreplaceable resources.
	0	**None**	**Zero potential.**
REVERSIBILITY of impact	**5**	**Irreversible**	Impact **cannot** be reversed.
	4	**Low irreversibility**	**Low** potential that impact might be reversed.
	3	**Moderate reversibility**	**Moderate** potential that impact might be reversed.
	2	**High reversibility**	**High** potential that impact might be reversed.
	1	**Reversible**	Impact **will be** reversible.
	0	**No impact**	No impact.
PROBABILITY (of occurrence)	**5**	**Definite**	>95% chance of the potential impact occurring.
	4	**High probability**	75% - 95% chance of the potential impact occurring.
	3	**Medium probability**	25% - 75% chance of the potential impact occurring
	2	**Low probability**	5% - 25% chance of the potential impact occurring.
	1	**Improbable**	<5% chance of the potential impact occurring.
	0	**No probability**	**Zero probability.**

Evaluation Component	Rating scale and description / criteria
CUMULATIVE impacts	**High**: The activity is one of several similar past, present or future activities in the same geographical area, and might contribute to a very significant combined impact on the natural, cultural, and/or socio-economic resources of local, regional or national concern. ***Medium:*** The activity is one of a few similar past, present or future activities in the same geographical area, and might have a combined impact of moderate significance on the natural, cultural, and/or socio-economic resources of local, regional or national concern. ***Low:*** The activity is localised and might have a negligible cumulative impact. ***None:*** No cumulative impact on the environment.

Once the Environmental Risk Ratings have been evaluated for each potential environmental impact, the Significance Score of each potential environmental impact is calculated by using the following formula:

- **SS (Significance Score) = (magnitude + duration + extent + irreplaceable + reversibility) x probability.**

The maximum Significance Score value is 150.

The Significance Score is then used to rate the Environmental Significance of each potential environmental impact as per **Table 6-2** below. The Environmental Significance rating process is completed for all identified potential environmental impacts both before and after implementation of the recommended mitigation measures.

Table 6-2: Scale used for the evaluation of the Environmental Significance Ratings

Significance Score	Environmental Significance	Description / criteria
125 – 150	**Very high (VH)**	An impact of very high significance will mean that the project cannot proceed, and that impacts are irreversible, regardless of available mitigation options.
100 – 124	**High (H)**	An impact of high significance which could influence a decision about whether or not to proceed with the proposed project, regardless of available mitigation options.
75 – 99	**Medium-high (MH)**	If left unmanaged, an impact of medium-high significance could influence a decision about whether or not to proceed with a proposed project. Mitigation options should be relooked at.
40 – 74	**Medium (M)**	If left unmanaged, an impact of moderate significance could influence a decision about whether or not to proceed with a proposed project.
<40	**Low (L)**	An impact of low is likely to contribute to positive decisions about whether or not to proceed with the project. It will have little real effect and is unlikely to have an influence on project design or alternative motivation.
+	**Positive impact (+)**	A positive impact is likely to result in a positive consequence/effect and is likely to contribute to positive decisions about whether or not to proceed with the project.

6.2 Cumulative Impacts

This Visual Impact Assessment considered the height increase on the five main Waste Rock Disposal Facilities which are already well-established structures within the Mogalakwena Mine operations and receiving landscape. The receiving landscape has already been severely impacted upon by the initial establishment of the fine main Waste Rock Disposal Facilities and a such the cumulative impact of a height increase on these existing facilities is “Low”.

In terms of the impact of air quality, the WRD facilities are existing and the impact to air quality already exists and is managed by Mogalakwena Mine Complex through route monitoring. the cumulative impact of a height increase on these existing facilities will be “Low”.

6.3 Environmental Impact Assessment (EIA)

Table 6-3 : Impact Assessment and Mitigation Measures (Operational Phase)

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION								Cumulative	Status	RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION							
		Magnitude	Duration	Extent	Irreplaceability	Reversibility	Probability	TOTAL	Significance				Magnitude	Duration	Extent	Irreplaceability	Reversibility	Probability	TOTAL	Significance
Air Quality Impact																				
Potential nuisance impacts associated with dust fall out	Tipping and hauling of waste rock to the Waste Rock Disposal Facility. Extending the height of a Waste Rock Disposal Facility will extend the range of the impact but potentially reduce pollutant concentrations	2	4	1	3	3	3	39	L	Low	Negative	1) Continue to implement the routine air quality monitoring program and assess air quality results routinely to determine whether there are any significant increases in emissions and impacts at sensitive receptors. 2) Moisture control will be necessary on large bare areas during dry season pre- construction and construction, in order to reduce the frequency and amount of dust suspended in the ambient air 3) Comply to the mine-set speed limits within the various proposed infrastructure areas to minimise the creation of fugitive dust within the project boundary. 4) Continued implementation of the mitigation measures as provided in the EMPr as well as the operations Air Quality Management Plan	2	4	1	2	2	2	22	L
Potential health impacts due to an increase in PM_{10} concentrations	Dust generation potentially resulting in nuisance and health effects on nearby receptors due to materials handling, vehicle entrainment of dust on the haul roads and windblown dust from the Waste Rock Disposal Facility. Extending the height of a Waste Rock Disposal Facility. will extend the range of the impact but potentially reduce pollutant concentrations	2	4	1	3	3	3	39	L	Low	Negative		4	4	1	2	3	2	28	L
Visual Impact																				
Visual Impact on Visual Receptor	The visual impact of the increase in height on the five main Waste Rock Disposal Areas taking into consideration VAC, Visual Sensitivity, Visual Receptors and Visual Exposure.	2	4	1	1	2	2	20	L	Low	Negative	Waste Rock Deposition Strategy allowing for: 1) Proper benching as to promote easier rehabilitation and vegetation cover to ease visual intrusion and promote visual absorption capacity. 2) Deposition Strategy that takes into consideration end-of Life of Mine and end land-use management. 3) Benching that allows for proper stormwater management on side slopes of the Waste Rock Disposal Facilities that promotes rehabilitation and vegetation cover and reduce risk of erosion and gully formation. 4) The implementation of air quality mitigation measures as to reduce fugitive dust generation and possible additional visual intrusion thereof.	2	4	1	1	2	2	20	L
Biodiversity (Fauna, Flora and Wetlands)																				
The areas applicable to the deposition of waste rock is already disturbed footprint areas on mine and no additional vegetation clearance will be undertaken. Therefore, there will be no additional impact on the biodiversity (fauna, flora, wetland areas).																				
Soils, Land Use and Land Capability																				
The areas applicable to the deposition of waste rock is already disturbed footprint areas on mine and no additional soils/areas will be disturbed with the change in height of the waste rock disposal facilities.																				
Land Management/ownership																				
The areas applicable to the deposition of waste rock is already approved disturbed footprint areas on the mine located on the mine lease area. No additional lease areas are required with the increase the height.																				
Surface water																				

The waste rock disposal facilities are existing approved disposal areas. Stormwater management infrastructure is already in place to contain any contaminated run-off from these areas. There are plans in place to expand the Stormwater management infrastructure. No additional infrastructure will be required due to the change in height of these facilities. The footprint areas remain unchanged. The rainfall and run-off from these facilities will remain unchanged.
Hydrogeology
The waste rock dumps are existing approved waste rock disposal areas. The rainfall ingress and general salt loading from these waste rock disposal areas remain unchanged since the footprint remains unchanged. The pit forms a sink and no additional impacts on the groundwater are envisaged as a result of the change in height.
Heritage
The increase in the height of the Waste Rock Disposal Facility will not result in the increase of the ground level footprint. The ground-level footprint of the Waste Disposal Facilities has been fully authorised in previous EMPrs which have in consolidated in the 2020 EMPr. As a result, no impact on heritage resources located on the ground surface are expected as a result of the increased heights of the WRDs.
Noise
As previously mentioned, the application height for Waste Disposal Facilities (RS3, W01 and W07) remains the same as the current height. Waste Disposal Facilities heights (WRD West (W02) and WRD East (W020)) will increase in terms of the application height. Noise generating activities resulting from the Waste Disposal Facilities include tipping and hauling of the waste rock to the Waste Disposal Facility. As (WRD West (W02) and WRD East (W020)) are currently fully operational, noise impacts already exist and are managed through the current approved EMPr. The increase in height will not result in additional noise impacts.
Social
The areas applicable to the deposition of waste rock are already disturbed footprint areas on the mine. The footprint areas have all been approved in previous authorisations,

Table 6-4: Impact Assessment and Mitigation Measures (Closure Phase)

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION								Cumulative	Status	RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION							
		Magnitude	Duration	Extent	Irreplaceability	Reversibility	Probability	TOTAL	Significance				Magnitude	Duration	Extent	Irreplaceability	Reversibility	Probability	TOTAL	Significance
Air Quality Impact																				
Potential nuisance impacts associated with dust fall out	Dust generation potentially resulting in nuisance and health effects on nearby receptors due to materials handling, vehicle entrainment of dust on the haul roads and windblown dust from open and bare areas.	2	4	2	3	3	3	42	M	Low	Negative	1) Demolish all infrastructure and rehabilitate on the footprint exposed by demolition activities 2) Revegetate all open and bare areas to reduce windblown dust 3) Effective and expedient rehabilitation of dust and other emissions sources 4) Continue to implement the routine air quality monitoring program and assess air quality results routinely	2	4	1	2	2	2	22	L
Visual Impact																				
Visual Impact on Visual Receptor	The visual impact of the final five main Waste Rock Disposal Facilities to remain with closure while taking into consideration VAC, Visual Sensitivity, Visual Receptors and Visual Exposure	10	5	2	1	2	5	100	H	Low	Negative	Waste Rock Deposition Strategy allowing for: 1) Proper benching as to promote easier rehabilitation and vegetation cover to ease visual intrusion and promote visual absorption capacity. 2) Deposition Strategy that takes into consideration end-of Life of Mine and end land-use management. 3) Benching that allows for proper stormwater management on side slopes of the Waste Rock Disposal Facilities that promotes rehabilitation and vegetation cover and reduce risk of erosion and gully formation. 4) The implementation of air quality mitigation measures as to reduce fugitive dust generation and possible additional visual intrusion thereof.	10	5	2	1	2	5	100	H
Biodiversity (Fauna, Flora and Wetlands)																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				
Soils, Land Use and Land Capability																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				
Land Management/ownership																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				
Surface water																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				
Hydrogeology																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				
Heritage																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				
Noise																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				
Social																				
No additional impact associated with closure, as the ground-level footprint of the WRD Facilities remain. The impacts associated with closure has already been assessed and approved as part of 2020 Approved EMPr.																				

7 ADVANTAGES AND DISADVANTAGES OF THE PROPOSED CHANGE

7.1 Advantages of the Proposed Change

The increase in the WRD heights, as reflected in this application, will enable the mine to lawfully continue operations as per the current Life of Asset Mine Plan.

7.2 Disadvantages of the Proposed Change

Considering the findings of the specialist assessments and the impact assessment undertaken, there are no disadvantages associated with the amendment:

- The impact of the WRD facilities has already taken place since their initial establishment and has resulted in the obstructed view from a community perspective of the surrounding landscape which includes mining, agricultural land, and undulated topography of the geographical area. The change in heights of the five WRD facilities is barely noticeable to the visual perception of the visual receptors.
- As the overall footprint of the five WRD facilities will not change and will not have a discernible impact, the proposed changes will have no negative impact on social, biodiversity, soils, land use, land capability, environmental, land ownership, surface and groundwater management and heritage aspects and mitigation measures as prescribed in the EMPr will be implemented.
- The impact assessment undertaken as part of the Regulation 31 amendment process translated to low, as the facilities are existing and a change in height will not have a significant impact on the visual and air quality aspects.

8 MEASURES TO ENSURE AVOIDANCE, MANAGEMENT AND MITIGATION OF IMPACTS ASSOCITED WITH THE PROPOSED CHANGE

Management and mitigation measures are presented in **Table 6-3** and **Table 6-4** and in the amended EMPr which is included in **Appendix E.**

9 PUBLIC PARTICIPATION PROCESS

The objectives of the Public Participation Process include the following:

- To provide opportunities for the public and stakeholders to gain a better understanding of the proposed project and its possible impacts;
- Provide an opportunity as to draw knowledge and experience from the stakeholders as to improve planning and decision-making;
- To build relationships with the public and stakeholders that lead to mutual support and confidence;
- Obtain comments and provided responses to public and stakeholders.

A Public Participation Process will be undertaken in support of this application, inclusive of site notices, newspaper advertisement, Background Information Document, and the placement of draft documents in the public domain for review and comment.

A summary of the process to be followed is listed below and will be documented for submission with the Final Regulation 31 Amendment Report (**Table 9-1**).

Table 9-1: Public Participation Process

Site Notices	• Site notices will be placed at clearly visible areas along the main road, and mine access points. Site notices will be in both in English and Sepedi. Proof of placement will be included in the Stakeholder Engagement Report as an Annexure to the Final Regulation 31 Amendment Report. • The site notices provide information on the project, locality, and details on how to register as an Interested and Affected Party and the availability of the Draft report.
Newspaper Advertisement	• A newspaper advertisement will be placed in the Bosveld newspaper. The advertisement will appear in both English and Sepedi. • The newspaper advertisement contains a brief introduction to the project, the locality of documents in the public domain, details of public participation process and a request to register as an Interested and Affected Party.
Background Information Document	• A Background Information Document (BID) will be provided to Interested and Affected Parties and Stakeholders. • The BID includes an introduction to the project, information on the proposed activities, details of the process to be followed, details of the public participation process and an invitation to register as an Interested and Affected Party. • The BID will be provided to the Traditional Council (Mapela and Mokopane); Registered Interested and Affected Parties and individuals/organisations on the existing Stakeholder Database.
Focus Group meeting	• The following focus group meetings have been scheduled: o Meeting with the Mapela Traditional Council o Meeting with the Mokopane Traditional Council
Placement of Draft Documents	• The Draft Regulation 31 Amendment Report will be placed in the public domain for 30 calendar days. • The draft documentation will be placed at the following locations: o Mapela Traditional Council Office o Mokopane Traditional Council Office o Mogalakwena Mine Social Performance Office o Offices of Alta van Dyk Environmental Consultants, 4 Garcia Peak, Midlands Estate, Centurion, Gauteng; o Website: www.altavandykenvironmental.co.za

10 Conclusion

10.1 Reasoned Opinion of the EAP

Based on the findings of the specialist studies and the impact assessment, it is the recommendation of the EAP that the proposed Regulation 31 to the Environmental Authorisation **(P 30/5/1/2/3/2/1 (050) EM)** and EMPr should be granted.

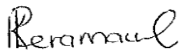
The following reasons form the basis of this recommendation:

- The are no new negative impacts related to the Regulation 31 Amendment that have not been assessed as part of previous EIA's or through the consolidated 2020 EMPr.
- As the overall footprint of the five WRD facilities will not change and will not have a discernible impact, the proposed changes have no negative impact on social, biodiversity, soils, land use, land capability, environmental, land ownership, surface and groundwater management and heritage aspects and mitigation measures as prescribed in the EMPr will continue to be implemented.
- The Visual Impact Assessment revealed that highly sensitive receptors that surround the mining operation have already been visually impacted upon and the sense of place drastically altered due to the initial establishment of infrastructure that is not congruent to that of the visual backdrop.
- The increase in the five main Waste Rock Disposal facilities does not contribute to a significantly additional impact as this increase in height only will be barely noticeable to the visual perception of the visual receptors. However, in terms of closure, the five WRD facilities will remain but will be rehabilitated. The impacts associated with the closure phase is not directly related to the increase in heights as the WRD facilities are already in existence and the potential impacts are evident even without a height increase.
- The increase in height of the five main Waste Rock Disposal facilities increases the travel distance of emissions from these facilities. However, the increase in height holds the potential to also increase the dispersal potential for dust fall out resulting in the reduction of pollutant concentrations. In addition, the increase in waste rock dump height does not play an active part in dust generation but rather the activity of active deposition itself.
- The Impact Assessment has been undertaken to take into account the required height changes and no significant negative impacts are expected from this perspective.
- The consideration of the application by the DMRE will allow Mogalakwena Mine to lawfully continue with its operations as per as per the current Life of Asset Mine Plan. Alternative waste rock deposition areas would lead to additional surface disturbance (i.e., soils, biodiversity, heritage), sterilisation of land, potential impacts on the surface rights and possible knock-on effects causing adjacent community livelihoods i.e., resettlement, impact on subsistence farming and cattle grazing.
- The EMPr has been amended to include mitigation measures as identified through the impact assessment.

10.2 EAP Undertaking

I, **Kirthi Peramaul**, as the Environmental Assessment Practitioner managing this application provide the following affirmation in relation to -

- the correctness of the information provided in the reports;
- the inclusion of comments and inputs from stakeholders and I&APs;
- the inclusion of inputs and recommendations from the specialist reports where relevant; and
- any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;



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Senior Environmental Assessment Practitioner

Date: 06 June 2022

11 REFERENCES

Alta van Dyk Environmental Consultants, 2022. Anglo American Platinum Limited-Rustenburg Platinum Mine, Mogalakwena Mine Complex, Visual Impact Assessment

SRK Consulting, 2019. Anglo American Platinum Limited - Mogalakwena Mine Final EIA/EMPr Report – Mogalakwena Mine Expansion project EMPrs Amendment. (Report No 532330)

SRK Consulting, 2019. Air Quality Impact Assessment for the Proposed Mogalakwena Mine Expansion project. (Report 532330/Air Quality Specialist Study)

Appendix A: EAP CV

Appendix B: Locality Map

Appendix C: Design & Site Plan

Appendix D: Specialist Studies

D1: Visual Impact Assessment

D2: Air Quality Impact Assessment

Appendix E: Amended Environmental Management Programme