Draft Environmental Management Programme for the Proposed Surge Tanks Capacity Expansion Project at Anglo American Platinum's Rustenburg Base Metals Refiners (RBMR), North West Province

DEDECT Ref: To be confirmed

Report Prepared for

Anglo American Platinum Ltd Rustenburg Base Metals Refiners (RBMR)

AngloAmerican

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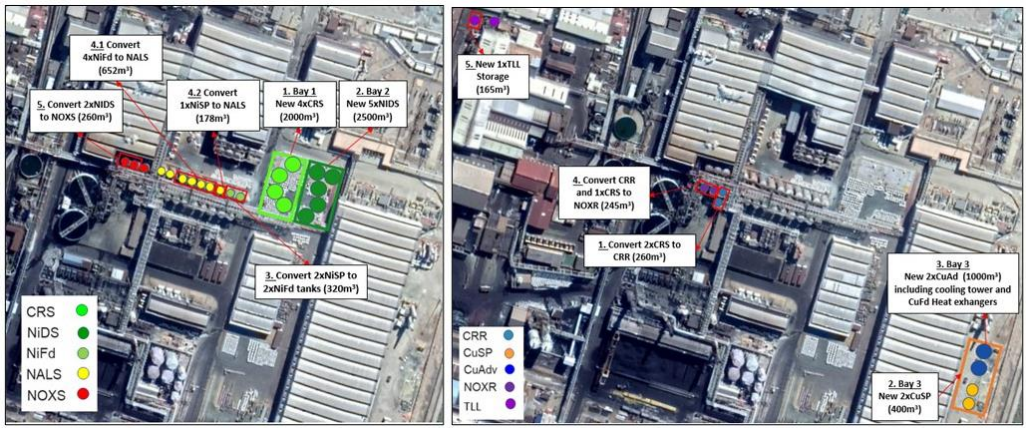

Report Prepared by

srk consulting

September 2021

Draft Environmental Management Programme for the proposed Surge Tanks Capacity Expansion Project at Anglo American's Rustenburg Base Metals Refiners, North West Province

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Disclaimer

The environmental management measures provided in this Environmental Management Programme (EMPr) are based on information supplied to SRK Consulting (South Africa) (Pty) Ltd (SRK) by Anglo American Platinum's Rustenburg Base Metals Refinery (RBMR). This report has been compiled to comply with the specific requirements of the National Environmental Management Act (No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations (2014) (as amended).

SRK has exercised all due care in reviewing the supplied information provided by RBMR during the Environmental Assessment Process and has included the requirements of commenting authorities. The appropriateness and practicality of the management measures have been considered in terms of comments received and discussed with RBMR as necessary. RBMR is fully responsible for the implementation of the EMPr.

The EMPr has been provided to RBMR for review, prior to submission, to determine whether the EMPr conditions are practical, accurate and implementable. SRK cannot be held responsible for failure of RBMR to comply with the EMPr for any reason whatsoever. The EMPr by nature is a dynamic document and the NEMA provides for continual updating of the EMPr, with approval from the Competent Authority.

SRK does not accept responsibility for any errors or omissions in the information supplied by RBMR and does not accept any consequential liability arising from commercial decisions, design changes or actions resulting from such decisions and/or changes. Management measures presented in this report relate to the project description and plans, as they existed at the time of SRK's investigations, and those reasonably foreseeable. These management measures do not necessarily apply to conditions and aspects that may arise after the date of this report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

List of Abbreviations

BA	Basic Assessment
BAR	Basic Assessment Report
CRR	Copper Removal Residue
CRS	Copper Removal Overflow Storage
CuAdv	Copper Advance Solution
DEDECT	Department of Economic Development, Environment, Conservation and Tourism
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Plan report
GIS	Geographic Information Systems
GNR	Government Regulation Notice
MSDS	Material Safety Data Sheets
NALS	Nickel Atmospheric Leach Solution
NEM: WA	National Environmental Management: Waste Act
NEMA	National Environmental Management Act
NIDS	Nickel Dissolution Solution
NOXR	Non-Oxidising Belt Filter Residue
NOXS	Non-Oxidising Leach Solution
NWA	National Water Act
OHSA	Occupational Health and Safety Act
PMR	Precious Metals Refiners
PPE	Personal Protective Equipment

RBMR	Rustenburg Base Metals Refinery
SACNASP	South African Council for Natural Scientific Professions
SANS	South African National Standard
SHE	Safety Health and Environmental
SMME	Small Medium and Micro Enterprise
SRK	SRK Consulting (Pty) Ltd
TLL	Tertiary Leach Liquor

1 Introduction

1.1 Background

Anglo American Platinum's Rustenburg Platinum Mines Limited (Rustenburg Section Retained Operations) which includes the Rustenburg Base Metals Refiners (RBMR) and the Precious Metals Refinery (PMR) have received Environmental Authorisations (EAs) and Environmental Management Programme (EMPr) approvals for their operations over the years. In March 2017 the Rustenburg Section Retained Operations applied for and received approval (Ref: NW 30/5/1/2/3/2/1/82 EM) for the consolidation of eleven (11) EMPrs pertaining to their operations which included:

- Rustenburg Base Metals Refinery EMPr [RDNW(KL) 6/2/2/24];
- Precious metals refinery EMPr [RDNW(KL) 6/2/2/782];
- Waterval Smelter EMPr [RDNW (KL) 6/2/2/378];
- Rustenburg Base Metals Refinery Amendments/Addendum [RDNW(KL) 6/2/2/24] EMPR;
- Waterval Smelter ACP EMPr Amendment/Addendum [RDNW(KL) 6/2/2/378];
- Waterval Smelter: Slag Cleaning Furnace Amendment/Addendum [RDNW(KL) 6/2/2/378] EMPr;
- Precious Metals Refinery: Capacity increase Amendment/Addendum [RDNW(KL) 6/2/2/782] EMPr;
- Rustenburg Base Metals Refinery: Steam Generation Plant EMPr Amendment/Addendum [RDNW(KL) 6/2/2/24];
- Base Metals Refinery Expansions EMPR Amendment [RDNW(KL) 6/2/2/24];
- Precious Metals Refinery: Capacity increase Project 2 EMPr Amendment/Addendum [RDNW(KL) 6/2/2/782]; and
- Waterval Smelter: Slag Cleaning Furnace 2 Amendment/Addendum [RDNW(KL) 6/2/2/378] EMPr.

The approved consolidated EMPr includes the operation of surge tanks at RBMR, which although not specifically listed in the authorisation, formed part of the RBMR activities authorised by RBMR EMPr (Ref: RDNW(KL) 6/2/2/24).

The Base Metal Refinery (BMR) assessed the current authorised surge tank capacity and found that additional capacity is required to reduce overflow spillage from the surge tanks that currently report to Dam 3B. The BMR circuit inter section surge capacity is insufficient to allow for continuous production without inventory overflow. Within normal operating periods within the past decade, tank overflow and subsequent bund wall overflow from various inventories within the RBMR has resulted in heavy metal deportment of Copper (Cu), Nickel (Ni) and Cobalt (Co)) to Dam 3A which overflows to Dam 3B. Dam 3B is transferred to the Waterval smelter complex as the BMR process equipment material of construction is unable to cope with the dam chloride levels under a dam recovery operating regime. The annualised typical metal transfer to the Waterval Smelter complex are 667-ton Ni, 127-ton Cu and 22-ton Co.

RBMR is therefore proposing to increase the inter surge capacity at the plant to allow for operation at 33ktpa Ni cathode production rate without spilling valuable metal to the dam. The expansion and operation of the proposed surge capacity tanks triggers activities listed in Government Regulation Notice (GNR) 983 (as amended by GNR327 of 7 April 2017) of the National Environmental

Management Act, 1998 (Act 107 of 1998) (NEMA) and will therefore require an Environmental Authorisation (EA) from the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT). There are existing surge capacity tanks which need to be expanded to avoid the overflow and spillage.

SRK Consulting (SA) (Pty) Ltd (SRK) has been appointed RBMR as the independent Environmental Assessment Practitioner (EAP) to conduct the EA application process for the project, which include the compilation of an Environmental Management Programme (EMPr).

The purpose of the EMPr is to ensure that social and environmental impacts, risks and liabilities identified during the Environmental Impact Assessment (EIA) process are effectively managed during all phases of the project.

The EMPr specifies the mitigation and management measures to which RBMR is committed and shows how the project will mobilise organisational capacity and resources to implement these measures. It also shows how management measures aimed at mitigation and enhancement will be scheduled.

1.2 Objectives of the Environmental Management Programme

The key objectives of the EMPr are:

- To avoid, minimise, or correct pollution and degradation of the environment;
- To avoid or minimise waste and to re-use or re-cycle waste where possible;
- To apply a risk averse and cautious approach;
- To anticipate and prevent negative impacts on the environment (physical, biological, social, economic, and cultural). Where these impacts cannot be prevented, such impacts must be minimised or remedied;
- That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied;
- Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option; and
- The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.

The National Environmental Management Act (Act No. 107 of 1998, as amended) (NEMA) stipulates that anyone who causes pollution or degradation of the environment is responsible for preventing impacts occurring, continuing or recurring and for the costs of repair of the environment. Other legislations that contain requirements, which were taken into consideration in compiling the EMPr, include but are not limited to the:

- National Water Act, 1998 (Act No, 36 of 1998, as amended (NWA);
- The National Environmental Management: Waste Act. 2008 (Act 59 of 2008) (NEM:WA); and
- Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA).

This EMPr among other things:

- Presents an action plan for the implementation of mitigation measures with the purpose of regulating the Contractor's conduct or method of working;
- Provides specific environmental guidance for all project activities;
- Incorporates measures to manage and mitigate all project activities so that negative environmental impacts are avoided or reduced;
- Identifies and allocates responsibilities for specific actions associated with the management of all project activities to mitigate negative environmental impacts; and
- Provides an outline of the activities, which require monitoring and the assessment thereof.

1.3 The Polluter-Pays Principle

This principle provides for "the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment." The Polluter Pays Principle must be rigorously applied throughout the implementation of the project.

1.4 Details and Expertise of the Environmental Assessment Practitioner (EAP)

SRK was established in 1974 and has since undertaken a large variety of environmental studies. SRK is a South African founded international organisation of professionals providing a comprehensive range of consulting services to natural resource industries and organisations. South African offices are staffed with over 350 professional consultants in nine offices, operating in a range of disciplines, mainly related to the environment, water, social and mining sectors. Back-up and peripheral expertise are available within these offices for all environmental projects.

SRK has been appointed by RBMR as the EAP. The EAPs involved in the compilation of this BAR and their contact details are provided in **Error! Reference source not found.** below:

Table 1-1: Details of the Project Team

EAP Name	Contact Number	Fax Number	Email Address
Ndomupei Masawi	012 361 9821	012 361 9912	nmasawi@srk.co.za
Manda Hinsch	012 361 9821	012 361 9912	mhinsch@srk.co.za
Vusi Masango	012 361 9821	012 361 9912	vmasango@srk.co.za
Cassia Mlangeni	012 361 9821	012 361 9912	CMlangeni@srk.co.za

The project manager, Ndomupei Masawi is a registered Professional Natural Scientist (SACNASP Reg Number 400045/14) with a master's degree in Environmental Management, Geographic Information Systems (GIS) and Remote Sensing. She has more than 14 years of Integrated Environmental Management and project management experience. Her experience includes compiling Environmental Management Programmes, undertaking Public Participation Processes, providing GIS Services and undertaking the processes and assessments to support applications for Environmental Authorisations, WULs, Waste Management Licences and Air Emission Licences, for roads, railway lines, power stations, airports, dams, housing developments, schools in South Africa, Tanzania, Botswana, Lesotho, Zimbabwe and Uganda. She has also recently completed her has

recently completed her Post Graduate Diploma in Integrated Water Resource Management. Ms Masawi is also a Registered EAP with the EAPASA (Reg:2020/401).

Manda Hinsch (SACNASP 400164/09) is an experienced and professionally certified environmental assessment practitioner with over 38 years of experience. Manda has an honour's degree in Water Utilisation from the University of Pretoria in South Africa. Manda is a Principal Environmental Consultant and Partner of SRK Consulting (South Africa), and presently heads the Pretoria Business Unit in SRK. She has worked on a wide range of water and environmental projects throughout Africa. She serves as project partner on large environmental and social impact assessments including in the mining sector.

Vusi Masango currently employed by SRK Consulting as a Junior Scientist in the Pretoria office in the Environmental Department. Vusi has completed a National Diploma in Agricultural Science at Tshwane University of Technology in 2012 and is busy with his Bachelor of Arts in Environmental Management in Unisa. Vusi also attended the following courses (Report Writing, Microsoft word level 1 and Microsoft Excel level). He has more than 7 years' experience in stakeholder engagement as well as water quality monitoring.

Cassia has more than 3 years' experience in the field of disaster management and environmental management. She is currently employed by SRK Consulting as a junior Environmental Management Scientist Cassia has worked in the public sector dealing with environmental management and disaster risk reduction mainly on community level. Her expertise includes project coordination, project administration, communication, environmental impact assessments, water use license applications, basic assessment reports, risk assessments, and public participation

1.5 Report Index in Relation to the NEMA Regulations

Appendix 4 of GNR 982 published in terms of NEMA stipulates the minimal requirements and issues that need to be addressed in the EMPr. This report strives to address all these requirements as per regulations. Table 1-2 indicates the regulations that have been addressed and the section of the EMPr where these requirements can be found.

Table 1-2: Requirements of Appendix 4 of GNR 982

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for EMPr	Section where addressed in the EMPr
Appendix 4 (a)	details of i. the EAP who prepared the EMPr; and ii. the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Section 1.4
Appendix 4 (b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2
Appendix 4 (c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers	N/A, there are no sensitive environments associated with the project
Appendix 4 (d)	a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- i. planning and design;	Section 10

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for EMPr	Section where addressed in the EMPr
	ii. pre-construction activities; iii. construction activities; iv. rehabilitation of the environment after construction and where applicable post closure; and v. where relevant, operation activities;	
Appendix 4 (e)	a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 10
Appendix 4 (f)	a description of proposed impact management actions, identifying the way the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to: i. avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; ii. comply with any prescribed environmental management standards or practices; iii. comply with any applicable provisions of the Act regarding closure, where applicable; and iv. Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	Section 10
Appendix 4 (g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f).	Section 10 Section 12
Appendix 4 (h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f).	Section 10 Section 12
Appendix 4 (i)	an indication of the persons who will be responsible for the implementation of the impact management actions	Section 10
Appendix 4 (j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 10
Appendix 4 (k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 10 Section 12
Appendix 4 (l)	a program for reporting on compliance, considering the requirements as prescribed by the Regulations;	Section 10 Section 12 Section 13
Appendix 4 (m)	an environmental awareness plan describing the manner in which- i. the applicant intends to inform his or her employees of any environmental risk which may result from their work; and ii. risks must be dealt with to avoid pollution or the degradation of the Environment.	Section 14
Appendix 4 (n)	Any specific information that may be required by the competent authority.	None

2 Project Overview

2.1 Project Location

The proposed project falls within the Bojanala Platinum District Municipality, under the jurisdiction of the Rustenburg Local Municipality in the North West Province. The proposed project is located on the farm portion as illustrated in Figure 2-1. Table 2-1 provides a description of the proposed activities located on the property.

Table 2-1: List of Affected Farms and Farm Portions Illustrating the Relevant Activities

Farm and 21 Digit Survey General Code	Portions	Owner	Proposed Activities
Waterval 303 JQ	42	Anglo American Platinum's RBMR	Expansion and operation of Surge tanks capacity expansion.
T0JQ00000000030300042			

The affected property is owned by the applicant, RMBR.

The site coordinates are provided in Table 2-2.

Table 2-2: Site Coordinates

Site Co-ordinates	Latitude (S):			Longitude (E):		
Current Tank Location	25°	41'	0.19"	27°	19'	41.34"
TLL Surge	25°	40'	56.73"	27°	19'	34.36"
Bay 1 and 2	25°	41'	0.05"	27°	19'	44.04"
Bay 3	25°	41'	4.77"	27°	19'	46.09"

The affected property is owned by the applicant, RMBR.

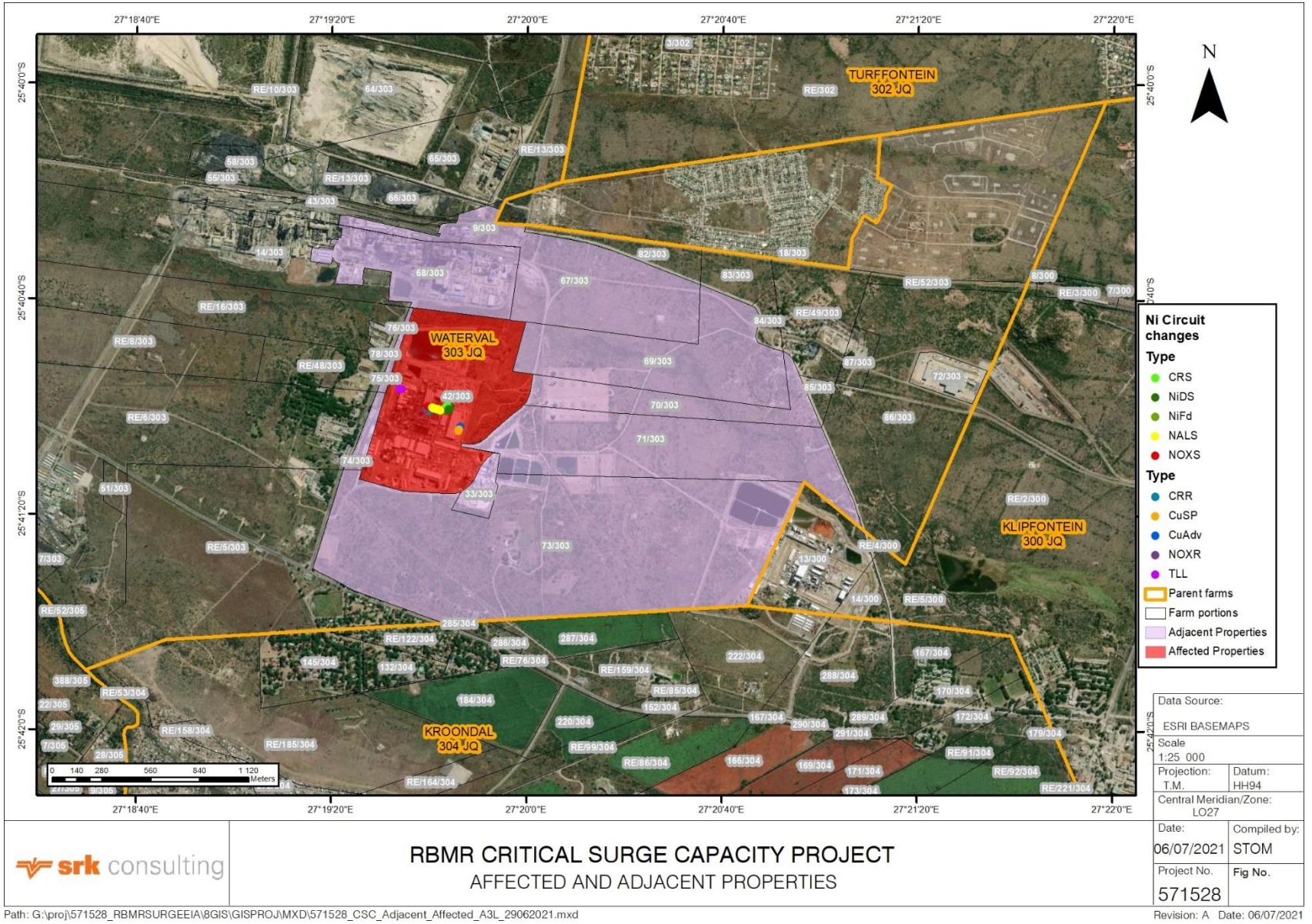

Figure 2-1: Affected Property

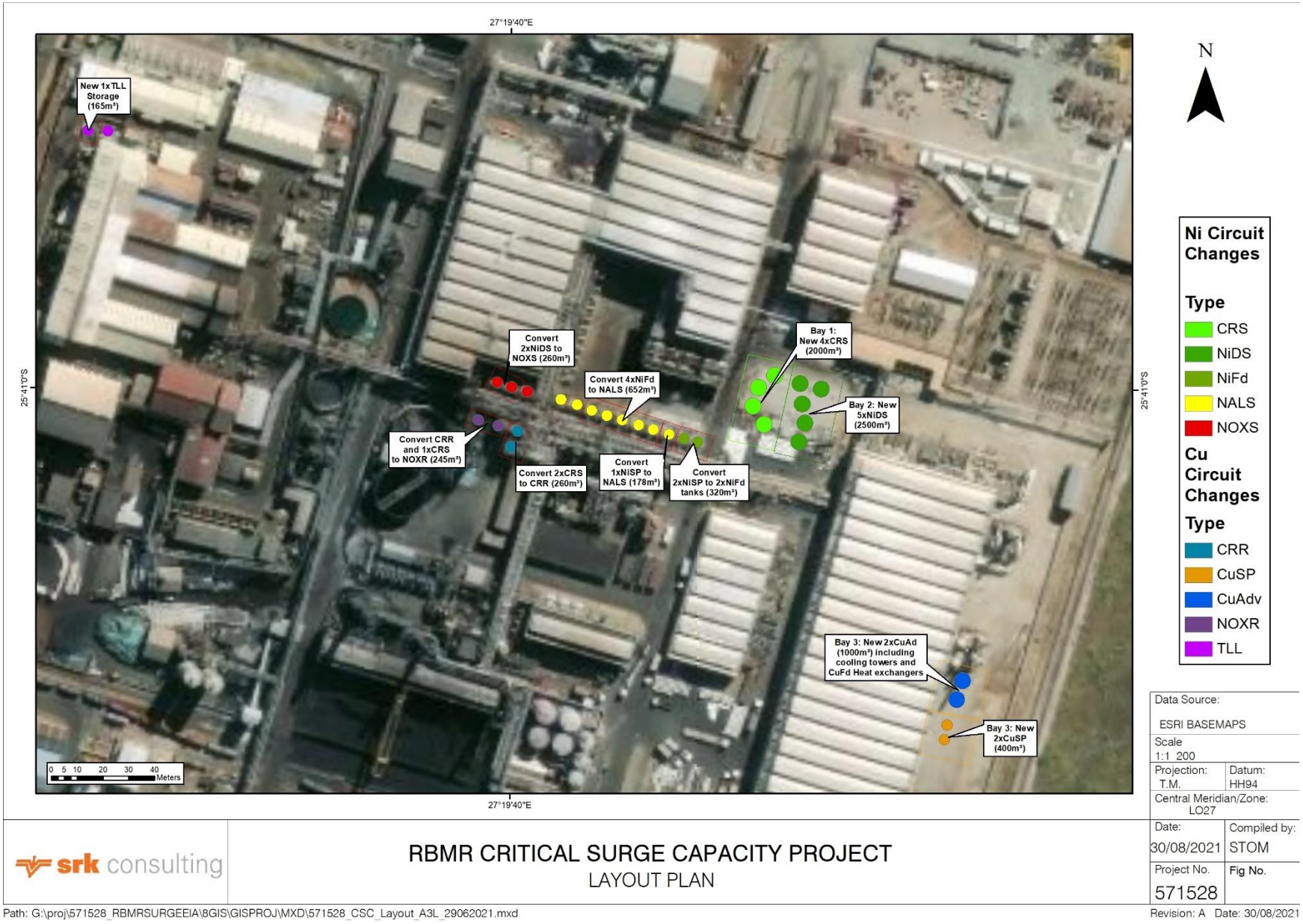

Figure 2-2: Project Layout Plan

2.2 Project Description

The project will entail:

- Expansion of Copper Removal Overflow Storage (CRS), Copper Advance Solution (CuAdv) and Selenium/Tellurium (Se/Te) feed tank inventories into other areas;
- Conversion of old CRS inventory to Copper Removal Residue/Non-Oxidising Belt Filter Residue (CRR/NOXR) inventory;
- Conversion of old Nickel Feed (NiFd) inventory to Nickel Atmospheric Leach Solution (NALS) inventory and old NALS inventory to Non-Oxidising Leach Solution/Nickel Dissolution Solution (NOXS/NiDS); and
- Expand current Copper Spent Storage (CuSP) inventory into old Copper Advance Solution (CuAdv) inventory.

The project will include civils, structural, piping and pumping, instrumentation and electrical modification/addition.

Table 2-3 provides the summary of the current and required surge capacity

Table 2-3: Summary of the Current and Required Surge Capacity

Inventory	Current (m^3)	Required (m^3)
Copper Removal Overflow Storage (CRS)	390	2 074
Copper Removal Residue (CRR)	110	153
Copper Spent Storage (CuSP)	360	1 169
Nickel Atmospheric Leach Solution (NALS)	260	1 028
Nickel Dissolution Solution (NIDS)	260	2 397
Selenium (Se) Feed Inventory	265	1 857
Copper Advance Solution (CuAdv)	348	1 886
Non-Oxidising Leach Solution (NOXS)	130	755
NOX Belt Filter Residue (NOXR)	140	230
Tertiary Leach Liquor (TLL)	40	165

2.2.1 Construction

Construction of additional tanks and/conversion of the tanks will be undertaken by Contractors that will be appointed by the RBMR. The general construction activities will include:

- Site preparation;
- Earthworks: Establishment of foundations;
- Civil works:
    - Erection of structures and infrastructure associated with the project;
    - Foundation excavations and compaction;
    - Concrete work including the mixing of concrete;
    - Steelwork including grinding and welding; and
    - Rehabilitation of disturbed areas after general site construction is completed.

All waste will be re-used, recycled or disposed as a last resort at an appropriately licensed/registered facility depending on the type of waste.

2.2.2 Employment

RMBR will appoint contractors for the construction phase of the project. The operation of surge tanks capacity project will be undertaken within the existing RBMR structures. The contractor responsible for the construction of the project will appoint a team manager and a supervisor who will ensure that:

- All works conducted have been risk assessed;
- Risk assessments are developed according to operating procedures;
- All personnel are trained on procedures;
- Employees' competence are tested and insured; and
- Rules and procedures are enforced.

2.3 Site Establishment

The construction site camps will be located outside of any sensitive environmental areas, with hazard free accessibility from the main roads for delivery and access to the construction areas. All waste products that cannot be reused and/or recycled will be removed from the construction sites to an approved and licensed disposal site. Access to the respective construction site will be possible via pre-existing access roads (D108) and the dust road adjoining D108 and the project site.

2.4 Services

2.4.1 Water for the proposed development

RBMR's process water will be used to meet any water requirements for the construction of the proposed surge tanks capacity expansion project.

2.4.2 Power

All machinery used during the construction will be diesel/petrol driven.

2.4.3 Sanitation

Existing RBMR ablution facilities will always be made available to the construction staff during the construction period.

2.4.4 Contractors Camp and Laydown Area

The contractor's camp and laydown areas shall be located outside any sensitive environmental areas.

2.4.5 Access Roads

The existing access roads will be used throughout the construction and operational phases of the project.

2.4.6 Fuel Storage

Existing RBMR fuel storage areas will be used for diesel required primarily for the earth moving equipment.

2.5 Construction Materials

Suitable excavated material will be stockpiled outside sensitive environmental areas and used as backfill where specified. Material not suitable for backfilling and all excess excavated material that is not required for backfilling will be recycled or disposed of at a licensed municipal landfill site.

2.6 Occupational Health and Safety

As a basic, all contractor employees and visitors will undergo induction training about health, safety and the environment. This training will be required prior to entering the site for the first time and will be required each time the conditions on-site change such that additional training is required.

Personal Protective Equipment (PPE) will be issued to all persons entering the construction site. PPE includes safety shoes, goggles, earplugs, gloves, hard hats, masks, etc. The PPE required will be dependent on the area that the person is working in, as well as the activity he/she is undertaking. The Contractor will conduct continuous rainfall projection monitoring to ensure the safety of the construction workers.

3 Legislative Requirements

3.1 Environmental Management Programme

The EIA application was submitted under the NEMA EIA Regulations (2014, as amended in 2017) and the EMPr is thus subject to the requirements of the 2014 EIA Regulations. This EMPr has been developed in fulfilment of these requirements for all phases of the proposed surge tanks capacity expansion project.

The implementation of an EMPr for the proposed activity is a requirement of the NEMA and will be a condition in the EA, issued by the DEDECT. As such, failure to comply with this EMPr will constitute an offence and RBMR and/or their Contractors may be liable for penalties and/or legal action. Therefore, it is important that all responsible parties understand their duties and undertake them with duty and care.

This EMPr should form an integral part of the contract documents, informing the Contractor of his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by the proposed activities associated with the project.

The Contractor(s) and subcontractors should note that obligations imposed by the EMPr are legally binding in terms of environmental statutory legislation. Furthermore, the EMPr is enforceable through additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

It is expected that the Contractor be conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

All prospective contractors must sign the declaration of acceptance of the EMPr, included at the end of this document.

It should be noted that the EMPr is a living document that will be periodically reviewed and updated if required. As part of on-going implementation, this EMPr will be publicly disclosed during the Stakeholder Engagement Process of this project. An opportunity will be offered to participating stakeholders and I&Aps to provide comments for incorporation into the EMPr.

3.2 Other Applicable Legislation

RBMR is responsible for compliance with the provisions for duty of care and remediation of damage in accordance with Section 28 of NEMA and its obligations regarding the control of emergency incidents in terms of Section 30. Accordingly, the DEDECT must immediately be notified of an incident as defined in subsection 30(1) (a) of NEMA.

Table 3-1 provides an overview of the legislation and respective sections pertaining to the proposed project.

Table 3-1: Summary of Applicable legislation (not limited to)

Legislation	Section	Description
The Constitution (Act No. 108 of 1996)	Chapter 2	Bill of Rights.
	Section 24	Environmental Rights.
NEMA	Section 2	Defines the strategic environmental management goals and objectives of the government. Applies throughout the Republic to the actions of all organs of state that may significantly affect the environment.

Legislation	Section	Description
	Section 24	Provides for the prohibition, restriction and control of activities, which are likely to have a detrimental effect on the environment.
	Section 28	The developer has a general duty to care for the environment and to institute such measures as may be needed to demonstrate such care.
Environment Conservation Act (Act No. 73 of 1989)	Section 19	Prevention of littering by employees and subcontractors during the construction and operation of the surge tanks capacity expansion.
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	Section 32	Provides provision for the control of dust.
	Section 34	Provides provision for the control of noise.
	Section 35	Provides provision for the control of offensive odors.
Occupational Health and Safety Act (Act No. 85 of 1993)	Section 8	General duties of employers to their employees.
	Section 9	General duties of employers and self-employed persons to persons other than their employees.
Hazardous Substances Act (Act No. 5 of 1973)	Act	Provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances.
NEM:WA	Act	Provides for specific waste management measures (disposal and storage) and the remediation of contaminated land.

4 Quantitative Impact Assessment Outcomes

This section provides a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated. The impacts are linked to the activities associated with the proposed surge tanks capacity expansion project. Specific emphasis was placed on any relevant environmental, social and economic impacts identified through comments received during the stakeholder engagement process, issues highlighted by relevant authorities; and professional judgement of the EAP team through appraisals of the project description, listed activities and the receiving environment.

The objectives for the impact assessment were to determine the significance of identified potential impacts associated with the proposed surge tanks capacity expansion project and to promote mitigation measures to avoid and/or reduce the impacts to an acceptable level where required.

Considering the general nature of the proposed surge tanks capacity expansion project, the assessment was conducted for the construction and operation phases of the project. A summary of the anticipated impacts is provided in Table 4-1.

It is not expected that the tanks will be decommissioned in the near future, and should decommissioning be required, the impacts associated with the process will be similar to the ones associated with the construction phase of the project. It is expected that should decommissioning be required, an EIA will be conducted in compliance with the environmental legislation applicable at that time. As such, no impact assessment was conducted for the decommissioning and closure phase of the project.

Table 4-1: Summary of potential Impacts

PHASE	ASPECT	NATURE OF POTENTIAL IMPACT/RISK	ENVIRONMENTAL IMPACT SIGNIFICANCE BEFORE MITIGATION	ENVIRONMENTAL IMPACT SIGNIFICANCE AFTER MITIGATION
CONSTRUCTION PHASE	Social-economic	*Possible boost in short term employment and local small business opportunities.*	Medium (+)	Medium (+)
		Potential impact on safety and security, the occurrence of additional trucks on the roads, uncontrolled lighting of fires on site, littering and driving irresponsibly.	Medium (-)	Very-Low (-)
		Health and safety risk because of the movement of vehicles increasing the risk of accidents	Low (-)	Insignificant (-)
		Health risk due to contagious diseases (such as the Corona virus) due to working near each other	Medium (-)	Low (-)
		Potential unlawful occupation of surrounding areas by job seekers.	Very-Low (-)	Insignificant (-)
	Groundwater	*Local spillages of oils from vehicles and machinery leading to groundwater contamination.*	Low (-)	Insignificant (-)
		Improper storage and handling of hazardous materials leading to groundwater contamination.	Low (-)	Insignificant (-)
		Potential contamination of groundwater due to accidental damage to existing tanks, and release of content.	Medium (-)	Insignificant (-)
	Surface Water Quality	*Potential deterioration in water quality because of accidental spillages of hazardous substances such as hydrocarbons from vehicles and machinery used during the construction of the surge tanks.*	Medium (-)	Insignificant (-)
		Potential contamination of water resources due to accidental damage to existing tanks, and release of content.	Medium (-)	Insignificant (-)
		Possible contaminated dirty water runoff to surrounding areas resulting in the impact on local surface water quality	Medium (-)	Insignificant (-)
		Poor stormwater management leading to runoff from stockpiled material removed causing pollution of the water resources.	Medium (-)	Insignificant (-)
		Debris from poor handling of materials and/or waste blocking watercourses may result in flow impediment and pollution	Medium (-)	Insignificant (-)
	Wetlands and Aquatic Ecosystems	*No impacts are anticipated.*		

PHASE	ASPECT	NATURE OF POTENTIAL IMPACT/RISK	ENVIRONMENTAL IMPACT SIGNIFICANCE BEFORE MITIGATION	ENVIRONMENTAL IMPACT SIGNIFICANCE AFTER MITIGATION
	Air Quality	*Possible increase in dust generation, PM_{10} and $PM_{2.5}$, because of earthworks, operation of heavy machinery, and vehicle movement.*	*Low (-)*	Insignificant (-)
		Increase in carbon emissions and ambient air pollutants (NO_2 and SO_2) because of movement of vehicles and operation of machinery/equipment.	*Low (-)*	Insignificant (-)
	Climate change	*Emissions of Green House Gases because of the use of vehicles and machinery used during the construction activities.*	Very-Low (-)	Insignificant (-)
	Heritage and Palaeontology Resources	*No impacts are anticipated.*		
	Biodiversity	*Movement of construction vehicles and machinery may result in collision with fauna, resulting in loss of fauna.*	Insignificant (-)	Insignificant (-)
		Proliferation of alien invasive species due to ineffective management and control of alien invasive plant species.	Insignificant (-)	Insignificant (-)
	Visual	*Visual intrusion because of the movement of machinery and the establishment of the required infrastructure.*	Low (-)	Insignificant (-)
		Indirect visual impact due to dust generation because of the movement of vehicles and materials, to and from the site area.	Very-Low (-)	Insignificant (-)
	Noise	*The use of vehicles and machinery during the construction phase may generate nuisance noise in the immediate vicinity*	Low (-)	Insignificant (-)
	Soils, land use and land capability	*No impacts are anticipated.*		
	Traffic	*Increase in traffic volumes because of transportation of materials from the softener plant site during and after decommissioning and closure, which may lead to an increase in traffic congestion on roads around the project area increasing the chances of road accidents.*	Medium (-)	Very-Low (-)
		The increase in vehicles results in an increased potential for road degradation of the road network in the vicinity of the project.	Medium (-)	Insignificant (-)
	Waste Management	*Poor waste management during construction could result in the contamination of surface runoff resulting in the deterioration of water quality of the watercourse.*	Medium-Low (-)	Low (-)

PHASE	ASPECT	NATURE OF POTENTIAL IMPACT/RISK	ENVIRONMENTAL IMPACT SIGNIFICANCE BEFORE MITIGATION	ENVIRONMENTAL IMPACT SIGNIFICANCE AFTER MITIGATION
		Stockpiling material from the construction activities may result in secondary pollution and contamination of the watercourses.	Medium-Low (-)	Low (-)
		Disposal of hazardous waste including hydrocarbon contaminated soils, rags etc. could result in the contamination of surface runoff resulting in the deterioration of water quality of the watercourse.	Medium-Low (-)	Low (-)
OPERATIONAL PHASE	Groundwater	*Potential overflow from the surge tanks due to failure (electrical or pump etc) leading to groundwater contamination.*	Low (-)	Very-Low (-)
	Surface Water Quality	*Potential overflow from the surge tanks due to failure (electrical or pump etc) leading to groundwater contamination.*	Low (-)	Insignificant (-)

5 Approach to Environmental Impact Management

5.1 Responsibility of the Environmental Management Programme (EMPr)

The responsibility of the EMPr implementation will ultimately reside in the Project Management Team of the proposed project. Implementation will ultimately reside in the Project Management Team of the surge tanks capacity expansion project. There will be links with other fundamental units such as Safety Health and Environmental (SHE) representatives of RBMR.

The sections that follow outline the management cycle and responsibilities of the Project Management Team. Table 5-1 illustrates the range of approaches to be undertaken to manage potential project activities.

Table 5-1: Approach to Impact Management

Avoidance	Avoiding activities that could result in adverse impacts and/or resources or areas considered sensitive.
Prevention	Preventing the occurrence of negative environmental impacts and/or preventing such an occurrence having negative impacts.
Preservation	Preventing any future actions that might adversely affect an environmental resource.
Minimisation	Limiting or reducing the degree, extent, magnitude or duration of adverse impacts through scaling down, relocating, redesigning and/or realigning elements of the project.
Mitigation	Measures taken to minimise adverse impacts on the environment.
Enhancement	Magnifying and/or improving the positive effects or benefits of a project.
Rehabilitation	Repairing affected resources, such as natural habitats or water resources.
Restoration	Restoring affected resources to an earlier (possibly more stable and productive) state, typically 'background' or 'pristine' condition. These resources may include soils and biodiversity.
Compensation/offset	Compensating for lost resources, and where possible, the creation, enhancement or protection of the same type of resource at another suitable and acceptable location.

5.2 General Guidelines

According to Section 28 of the NEMA, the prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the construction phase, illegal activities, delays etc. is ultimately the responsibility of the RBMR.

Proper site management and regular monitoring of site works must take place. Detailed documentation and record keeping of all complaints and actions taken (as per the Incidents Register and Environmental Checklist) must be issued. Regular site inspections and good control over the construction process must be kept throughout the construction period.

5.3 Environmental Principles

The following environmental principles should always be considered during the pre-construction and the construction phase:

- The footprint of the construction activities must be kept as small as possible;
- As a minimum requirement, all relevant standards relating to international, national; provincial and local legislation will be adhered to; and
- Every effort will be made to implement the waste hierarchy of avoidance, reduce, reuse, and/or recycle waste material generated on site.

5.4 Incidents and Non-Conformances

According to Section 30 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA): *"Incident" means an unexpected sudden occurrence including a major emission, fire or explosion leading to serious danger to the public or potential serious pollution of or detriment to the environment, whether immediate or delayed.*

In terms of the above definition:

- The Emergency response plan/method statement should be initiated in response to an incident as classified in Table 5-2. The incident must be reported to the ECO and DEDECT as per Section 30 (3) of NEMA. An emergency incident report required in terms of Section 30(5) of NEMA must be submitted to DEDECT's Environmental Management Inspectorate for processing.
- A chemical spill is defined as a potential liquid hydrocarbon or chemical spill or other release, which can create a hazard to life or property or create environmental damage. Examples include liquid hydrocarbons, compressor or other equipment lube oil, evaporative cooler acid water, liquid odorant, or other substances that contain controlled or hazardous substances. Spills and other environmental incidents for the project have been classified according to the environment and appropriate responses as indicated in Table 5-2.

Table 5-2: Classification of Environmental Incident

Level	Definition	Response Required
Level 1	A Minor Emergency, which can be controlled, entirely by the personnel and facilities located within the immediate vicinity of the accident/incident site. These include events which cause minor property or equipment damage that are non-disruptive to operations, and do not pose a safety risk to personnel or property outside of the boundaries of the development footprint.	Record in the incidents register and managed accordingly
Level 2	A Level 2 Incident is defined as a Moderate Emergency, which is disruptive, but not extensive, and forces a portion of the employer operation to be suspended or shut down. A Level 2 Incident is a spill or hazardous product release which has the potential to cause harm to personnel, the public, or the environment and includes a chemical spill of more than 35ℓ to land; or any chemical spill to water resources.	Record in the incidents register and managed accordingly
Level 3 to 5 Incidents	A Level 3 to 5 Incident is defined as a Serious (3), Major (4) to Catastrophic (5) alert requiring the intervention of external support services and that can have serious impacts on ecology, humans and on the overall Project.	Report the incident to the ECO immediately. The ECO will submit an emergency incident report to DEDECT. The incident must also be recorded in the incidents register

In the above cases, it will be the decision of the site management and ECO as to whether work stoppage must be implemented. In most cases, work in the area where the incident occurred will be stopped until all safety clearances have been given. Unless there is a fatal accident, then the whole site will stop.

The holder of the authorisation, RBMR, must notify DEDECT, in writing and within 72 (seventy-two) hours, if any condition of the EA cannot be or is not adhered to. The notification must be accompanied

by reasons for the non-compliance. Non-compliance with a condition of the EA may result in criminal prosecution or other actions provided for in NEMA and the regulations.

In addition, any pollution incidents originating from the proposed project must be reported to the Regional Office of the Department of Water and Sanitation (DWS) within 72 (seventy-two) hours.

5.5 Penalties and Liabilities

Section 24F of NEMA deals with prohibitions relating to commencement or continuation of listed activities. It provides that:

1) Notwithstanding any other Act, no person may-

- *a) Commence an activity listed or specified in terms of Section 24(2)(a) or (b) unless the competent authority or the Minister responsible for mineral resources as the case may be, has granted an environmental authorisation for the activity; or*
- *b) Commence and continue an activity listed in terms of Section 24(2) (d) unless it is done in terms of an applicable norm or standard.*

Section 49A of the Act deals with relevant offences. It provides that:

(1) A person is guilty of an offence if that person-

- *a) Commences with an activity in contravention of Section 24F (1)*

Section 49A of the Act deals with the penalties and provides that:

A person convicted of an offence in terms of Section 49A(1)(a) is liable to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, or to both such fine and such imprisonment.

6 Organisational Structure and Responsibilities

6.1 The Department of Economic Development, Environment, Conservation and Tourism (DEDECT)

The DEDECT plays a lead role in the implementation of environmental policies, legislation and regulations. Their role is to ensure that the construction and operation of the proposed surge tanks capacity expansion project is implemented in a sustainable manner, in compliance with the relevant environmental legislation. DEDECT is responsible for approving the EMPr for the project and any revisions and amendments thereto.

6.2 RBMR Project Management Team

The Project Management Team will:

- Ensure that the Contractors are aware of the specifications, legal requirements and RBMR standards and procedures pertaining to activities taking place regarding the surge tanks capacity expansion project;
- Ensure that all commitments in the EMPr are communicated and adhered to by RBMR employees and contractors involved with the surge tanks capacity expansion project;
- Monitor the implementation of the EMPr throughout the project, by means of site inspections, audits and meetings; and
- Familiarise themselves with the EMPr for this development, the conditions set out in the EA, and all relevant environmental legislation.

6.3 Contractor (including sub-contractors)

The Contractor (including sub-contractors) will be responsible for:

- Complying with the EMPr commitments and any other legislative requirements;
- Adhering to any instructions issued by the project manager on advice of the RBMR environmental specialist;
- Submitting an environmental report at each site meeting on the environmental incidents that have occurred within the period before the site meeting;
- Appoint a Safety Officer and SHE representative who will comply to the functions set out below; and
- Arrange that all employees and those of the subcontractors receive appropriate training prior to the commencement of decommissioning and closure activities, taking cognisance of this EMPr and EA.

6.4 Safety Health and Environmental Officer

The Safety Officer will:

- Fully understand the commitments in the Basic Assessment Report (BAR), EMPr and EA;
- Familiarise him/herself and ensure compliance with the relevant legislation applicable to the project and RBMR Safety Health and Environmental Policy and procedures;
- Communicate the contents of the EMPr to the contractor and sub-contractor staff members. Training will be required to ensure all staff members are aware of the requirements of this document;

- Regularly undertake site inspections to assess compliance with the EMPr and EA and take appropriate action to rectify non-conformances;
- Authorise the removal of personnel and/or equipment should they contravene the specifications of the EMPr;
- Compile progress reports on a regular basis for submission to the Project Manager;
- Establish a communication path with the Project Manager to discuss monitoring on the site;
- Ensure corrective actions are followed up and closed out; and
- Advise management on environmental issues and recommendations for the surge tanks capacity expansion project.

6.5 Environmental Control Officer

The Environmental Control Officer (ECO) will:

- Manage and report on the project's environmental performance;
- Be responsible for undertaking internal environmental audits and arrange/coordinate external environmental audits;
- Liaise with environmental statutory bodies, should this be deemed necessary;
- Conduct environmental training and awareness to employees; and
- Advise top management on environmental issues and recommendations for the project.

7 Site Documentation and Reporting

7.1 Commissioning of Tenders

All contractors and sub-contractors tendering for any aspect of the proposed project will be made aware of the contents of this EMPr and the consequences and penalties resulting from non-conformances will be communicated to them.

All appointed contractors and subcontractors will attend an induction focusing on the main aspects of the EMPr requirements.

7.2 Environmental Method Statements

The Contractors shall compile Environmental Method Statements, which will set out the vehicles, machinery, materials, labour and methods that the contractor proposes using to carry out the project work. The contractor must sign each Method Statement along with the ECO and the RBMR Project Manager to formalise the approved Method Statement.

All Method Statements including, those, which, may be required as *ad hoc* or emergency maintenance method statements, must be submitted to the RBMR Project Manager for approval prior to the commencement of the activity. Any changes to the method of works must be reflected by amendments to the original approved Method Statement. Any changes in this regard must be approved by the RBMR Project Manager on the understanding that such changes are environmentally acceptable and in line with the requirements of this EMPr. The method statements for the following activities must be submitted for approval before construction activities commence:

- Solid waste management;
- Lay down areas;
- Workshop and maintenance;
- Concrete works;
- Dust control;
- Hydrocarbon and emergency spills procedures;
- Refuelling procedures;
- Sourcing, excavating, transporting and dumping of fill and spoil material; and
- Emergencies, non-compliance and communication and incident reporting.

7.3 Monitoring and Audit Reporting

All non-conformances will be recorded and reported to the responsible personnel. These non-conformances will be rated according to a developed weighting system to determine the significance of each incident. The following documentation will be required on site:

- Complaints Register;
- Environmental Incident Register;
- Disposal certificates of waste (waste manifests for hazardous waste) and sewage generated because of the proposed project;
- Non–conformance reports;
- Written corrective action instructions;

- EA; and
- EMPr.

The findings of all inspections and internal audits will be structured into instructive reporting providing information to all responsible personnel. Corrective actions must be clearly defined where required. Within the reporting function, a structured review component will be enforced. This review function will assist in prescribing necessary corrective actions.

8 The Surge Tanks Capacity Expansion Development Process

8.1 Planning and Design

Planning and design are necessary to ensure that the mitigation and impact management can be effectively implemented through the alternation and amendments of design bases to achieve a more cost-effective, practical or environmentally friendly development. Planning may involve the following:

- Identifying and defining the environmental aspects and related positive and negative impacts that may result from the development;
- Establish a procedure whereby legal and any other requirements applicable to the surge tanks capacity expansion project are identified; and
- Identifying and defining appropriate mitigation and management measures which can be incorporated into the construction and operation of the surge tanks capacity expansion project.

The envisaged impacts to arise from the surge tanks capacity expansion project have been detailed and rated in the BAR. The management measures presented in this EMPr are developed in response to these impacts and their associated ratings.

8.2 Construction Phase

The EMPr has put in mitigation and management measures to avoid or minimise impacts and optimise the benefits arising from the positive impacts during construction activities. Construction of additional tanks and/conversion of the tanks will be undertaken by Contractors that will be appointed by the RBMR. The general construction activities will include:

- Site preparation;
- Earthworks: Establishment of foundations;
- Civil works:
    - Erection of structures and infrastructure associated with the project;
    - Foundation excavations and compaction;
    - Concrete work including the mixing of concrete;
    - Steelwork including grinding and welding; and
    - Rehabilitation of disturbed areas after general site construction is completed.

Any waste produced from the process will be handled per the RBMR Waste Management Operational Procedure and be re-used, recycled or disposed of only as a last resort at an appropriately licensed/registered facility depending on the type of waste.

8.3 Operational Phase

The primary operation of the surge tanks will allow for operation at 33ktpa Ni cathode production rate without spilling valuable metal to the dam. During the operational phase, the surge tanks capacity expansion will allow for the continuous production without inventory overflow

Any waste produced from the process will be handled per the RBMR Waste Management Operational Procedure and be re-used, recycled or disposed of only as a last resort at an appropriately licensed/registered facility depending on the type of waste.

9 General Requirements

The following general requirements will apply throughout all the project phases of the project:

- The Project Management Team will ensure proper and continuous liaison between RBMR and the project contractors to make certain everyone is always informed;
- The Contractor must adhere to all conditions of contract, including the EMPr and EA;
- The Project Management Team will ensure documentation and record keeping of all complaints and actions taken;
- The Project Management Team will ensure regular site inspections and good control over waste management procedures; and
- The Contractor shall not be released from his responsibility for the site until the ECO and SHE Representative has signed off the release documentation and is satisfied with the contractor's adherence to the EMPr and EA.

The general environmental management principles to be followed are provided in Table 9-1.

Table 9-1: General Environmental Management

Element	Management Plan
Objectives	• All personnel involved in the project need to be made aware of the EMPr; • All personnel involved in the project will be made aware of the environmental consequences of their individual actions, and be in a position to minimise the environmental impact of their activities, particularly with respect to potential land, wetland, surface water and groundwater contamination, air emissions, human accidents and waste management of materials removed from the site; • Roles and responsibilities need to be clearly defined to effectively implement the environmental management procedures.
Sources	• Materials handling, storage, and processing leading to the generation of wastes or emissions and discharges to air, land or water;
Action/Controls	• RBMR is ultimately responsible for environmental management and costs associated with such management and possible environmental remediation where the case of the incident is not attributed to the contractor's responsibility; • RBMR is responsible to enforce the implementation of the EMPr by its employees; • All contractors are responsible for the implementation of the EMPr as applied to their specific activities; • RBMR workforce and any contractors, are to undergo an environmental induction covering the EMPr and roles and responsibilities with respect to environmental management; • All workers that have completed the induction should sign that they have understood and will implement the measures required.
Monitoring	• RBMR Safety and Environmental Representative and/or Environmental Control Officer (ECO) shall be responsible for adequate monitoring of project activities to ensure compliance with the EMPr.
Corrective Actions/Reporting	• All incidents that occurred on site are to be recorded in an Incident Register, which will be made available to the Authorities should they request it; • RBMR shall implement preventive and corrective actions if necessary in accordance with the requirements of the EMPr, outcomes of environmental audits, and changes to legislation as they may occur from time to time, and report on environmental incidents that may occur on site in accordance with the requirements of the EMPr and environmental legislation to RBMR management responsible for the site.

10 Specific Environmental Management Requirements

This section of the EMPr deals with key impacts associated with all the project related activities associated with the surge tanks capacity expansion, and the construction and operation of the surge tanks capacity expansion. All activities to be managed, mitigation and management measures to be implemented, and the individuals/organisations responsible for implementing these measures, are detailed in sub-sections, which follow. This information forms the core of this EMPr and should always be adhered to. The sub-sections, which follow, may be updated as necessary.

Table 10-1: Environmental Management Measures for the Surge Tanks Capacity Expansion Project

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
Project Contract and Programme					
Contingencies for minimising negative impacts anticipated to occur during the construction phase	This EMPr must form part of the kick-off procedures to be held with the Contractor.	Records in environmental file. Signed declaration forms Method Statements	Prior to the commencement of construction activities	Project Manager and RBMR SHE Representatives	Pre-construction
	The Contractor must ensure that all the personnel on site are familiar with and understand the specifications contained in the EMPr.	Signed environmental training attendance registers in the environmental file Signed declaration forms	Prior to the commencement of construction activities	Contractor RBMR SHE Representatives	Pre-construction
Construction lay down areas	Laydown areas must be selected in consultation with the ECO. Additional areas required for the storing of equipment and parking of vehicles must first be approved in writing should this be outside of the RBMR approved areas.	No complaints from surrounding landowners or I&APs Signed approval letters where required Laydown areas located in approved areas	Prior to the commencement of construction activities	Contractor RBMR SHE Representatives	Pre-construction
	Where applicable, topsoil must be stripped from laydown areas stored separately for later reuse when the area is vacated.	Separate storage of topsoil for later use	Prior to the commencement of construction activities	Contractor RBMR SHE Representatives	Pre-construction
	All storage facilities must be located within the site boundaries.	No storage facilities located outside the demarcated designated areas	Prior to the commencement of construction activities	Contractor RBMR SHE Representatives	Pre-construction
	The construction team is responsible for cleaning/clearing the site of all structures, equipment, residual litter and building materials at the end of the construction period.	No litter or waste around the laydown areas after construction has been concluded	After conclusion of construction activities	Contractor RBMR SHE Representatives	Post construction
Socio – Economic					
Increase employment opportunities	Encourage the local employment for the following, where possible: • Employment opportunities for local Small Medium and Micro Enterprise (SMME) contractors during site	Local employment of SMMEs where possible	As and when required	Contractor	Construction

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
	clearance, preparation and construction. • Secondary service provision of food, toilet hires, and equipment. • Appointment of contractors as drivers, cleaners and security personnel.				
Reduce potential dust impact	Adhere to speed limits of 40 km/h outside RBMR and 20 km/h within the operation.	No complaints received regarding dust nuisance.	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
Reduce potential impact on safety and security	Reduce speed limits to 20 km/h within the operation.	No complaints received regarding speeding No road accidents due to speeding	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	No fires are allowed on the site, unless in areas demarcated and managed for this purpose.	No incidents of informal fires	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	All workers will be made aware of fire risks.	Signed environmental training attendance registers in the environmental file	As and when required as part of the induction	Contractor ECO RBMR Environmental Officer	Construction and operation
Ensure that there are enough ablution facilities available and that the ablution facilities are operated in an environmentally responsible manner	It is expected that sufficient ablution facilities are available at the RBMR and shall be able to service the site.	One toilet per 15 people as is required by OHSA	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
Groundwater					

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
Reduce the potential impact on groundwater because of the construction and operation of the surge tank capacity expansion	No washing of vehicles shall be allowed outside demarcated areas. Washing bays for vehicles and other equipment shall be provided with appropriate soakaways, will be clearly demarcated and will not be allowed to contaminate any surface runoff.	No vehicles washing undertaken outside designated areas	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Sufficient areas shall be provided for the maintenance of vehicles.	No vehicle maintenance conducted outside designated areas	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Refuelling of vehicles will only be allowed in designated areas.	No vehicle refuelling conducted outside designated areas	Daily	Contractor ECO RBMR Environmental Officer	Construction
	All construction equipment shall be parked in a demarcated area. Drip trays shall be used when equipment is used for some time.	No equipment and vehicles parked and stored outside designated areas Drip trays provided for all vehicles and equipment	Daily	Contractor ECO RBMR Environmental Officer	Construction
	Surface bulk storage of hazardous material must be situated in a dedicated area, which will include a bund or a drain where necessary to contain any spillages during the use, loading and off-loading of the substance.	Dedicated storage area must include a bund or drain	Daily	Contractor ECO RBMR Environmental Officer	Operation
	Bunded areas shall contain 110% of the stored volume.	Bund areas have 110% of stored volume	Daily	Contractor ECO RBMR Environmental Officer	Operation
	Bund areas must be impermeable.	Bund areas protected with impermeable surfaces	Daily	Contractor ECO	Operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
				RBMR Environmental Officer	
	Contaminated water shall be pumped into a container for appropriate removal and disposal.	Dedicated container on site for storage of contaminated water	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Regular inspections shall be carried out to ensure the integrity of the bund walls.	Records of bund wall inspection	Annually As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Regular inspections shall be carried out to ensure the integrity of surge tanks and associated infrastructure .	Records of surge tank and associated infrastructure inspection	Annually As and when required	RBMR project manager and SHE representative	Operation
	All vehicles shall be on a preventative maintenance schedule to ensure that the equipment is in a good working order to prevent the leakages of oil and diesel.	Schedule of preventative maintenance No evidence of oil, grease, hydraulic fluid and diesel spill on bare soils	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of responsibly.	No contaminated soils on site No evidence of oil, grease, hydraulic fluid and diesel spill on bare soils	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
Surface Water					
Reduce the potential impact on surface water because of the construction and operation of the surge	Ensure the clean and dirty water segregation.	No contamination of clean water by dirty water	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
tank capacity expansion	Contaminated runoff water, generated during rainstorm events, will be contained in specifically designed structures to enable sedimentation and desilting of the runoff.	No contamination of water course with sediment carrying runoff from the site	As and when required, after a rainstorm	Contractor ECO RBMR Environmental Officer	Construction and operation
	Spill kits to be made available at areas of possible spillages of hazardous substances.	Spill kits available areas where hazardous substances are stored	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Drivers and operators shall be trained to use spill kits and contain spillages to the smallest possible areas and the training records shall be made available on request.	Proof of driver training Training records on file	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Remediation of spillages must be conducted on a continual basis.	No spillages around the project area	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	The RBMR stormwater management plan is deemed sufficient to cater to the surge tank areas.	No contamination of water resources from runoff from the project site	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	No direct discharge of polluted water to the environment is permitted, unless authorised by the DWS.	No discharge to water resources unless authorised by DWS	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Vehicle and personnel movement within watercourses and wetland areas shall be strictly prohibited.	No movement of vehicles within watercourses and wetland areas	Daily	Contractor ECO	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
				RBMR Environmental Officer	
	All vehicles shall be on a preventative maintenance schedule to ensure that the equipment is in a good working order to prevent the leakages of oil and diesel.	Vehicle preventative maintenance schedule available on file Proof of preventative maintenance of vehicles	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	An inspection programme shall be implemented to ensure that all the mechanical equipment is inspected regularly to ensure the optimal functioning of the equipment.	Inspection programme on file Proof of implementation of inspection programme	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Refuelling of equipment shall occur in designated areas by trained people.	No refuelling equipment located outside designated areas	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Bunding areas shall be provided for bulk storage of diesel, fuel, and oils which shall contain 110% of the volumes stored.	Adequate bunding areas (110% of volumes stored) as per the requirements of SANS 10131:2004	As and when required	Contractor ECO RBMR Environmental Officer	Operation
	Regular inspections shall be carried out to ensure the integrity of the bund walls.	Records of bund wall inspection	Annually As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Regular inspections shall be carried out to ensure the integrity of surge tanks and associated infrastructure .	Records of surge tank and associated infrastructure inspection	Annually As and when required	RBMR project manager and SHE representative	Operation
	Contaminated soil shall be removed for treatment, re-use, recycling or disposed (last resort) off to an appropriate	No evidence of soil contamination	As and when required	Contractor ECO	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
	licensed landfill site or can be removed by a service provider that is qualified to clean the soil.	Where required, proof of disposal at an appropriate registered landfill site In the occurrence where soil contamination is to be treated in situ the Contractor is to provide the ECO with a method statement for approval.		RBMR Environmental Officer	
Air Quality					
Reduce the potential for nuisance dust, the emission of carbons and other ambient air pollutants	Mitigation measures may be implemented to reduce dust levels from the entrainment of dust. These measures will range from watering of roads, application of a chemical dust suppressant and/or paving of roads.	No complaints received regarding dust nuisance	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	A speed limit of 40 km/h shall apply to limit vehicle entrained dust from the unpaved roads.	No complaints received regarding dust nuisance	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	All construction equipment must be scheduled for preventative maintenance to ensure the functioning of the exhaust systems to reduce excessive emissions and limit air pollution.	Proof of preventative maintenance on file	As and we=hen required	Contractor ECO RBMR Environmental Officer	Construction and operation
Climate Change					
Reduce the emissions of Green House Gasses because of the use of construction vehicles and machinery	All the construction vehicles shall undergo maintenance on a regular basis to ensure the combustion engine vehicle efficiency.	Vehicle maintenance plan on file Proof of regular maintenance	Contractor RBMR SHE Representatives	Contractor ECO RBMR Environmental Officer	Construction and operation
Flora					
Reduce the potential impact on flora	All activities must be contained within the RBMR precinct to minimise disturbance outside these areas.	No clearance of vegetation outside the RBMR precinct	Daily	Contractor ECO	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
	Vehicles must be restricted to travelling on designated access roads to limit the ecological footprint of the proposed activity.	No vehicles travelling outside the existing access roads		RBMR Environmental Officer	
	Adherence to the RBMR Alien vegetation control plan/ procedure	No alien invasive plant species on site Alien invasive species management programme developed	Weekly	Contractor ECO RBMR Environmental Officer	Construction and operation
	Rehabilitation: • All disturbed habitat areas outside the RBMR precinct area must be rehabilitated as soon as possible to ensure that floral ecology is re-instated. • Reseeding with indigenous grasses should be implemented.	Rehabilitation of all disturbed areas outside the RBMR precinct affected by the propose activities	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Fires: • Only controlled fires in designated areas must be allowed during all development phases.	No informal fires on site No complaints from neighbouring properties and communities	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
Fauna					
Reduce the potential impact on Fauna	The proposed development footprint areas shall be confined to within the RBMR footprint.	No project related activities outside the RBMR footprint	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	No trapping, poaching or hunting of fauna is to take place.	No trapping, poaching or hunting of animals	Weekly	Contractor ECO RBMR Environmental Officer	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
	All informal fires in the vicinity of construction areas should be prohibited.	No informal fires on site No complaints regarding informal fires	Daily	Contractor ECO RBMR Environmental Officer	Construction
	It is recommended that a speed limit of 40km/h is implemented on all roads running through the study area during the construction phase to minimise risk to fauna from vehicles.	Implementation of speed limits Speed limit signs posted around the site	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	RBMR's alien vegetation control plan must be implemented to manage alien plant species occurring within the study area, and to prevent further faunal habitat loss.	Proof of an alien invasive plant species management plan developed as per the requirement of the National Environmental Management: Biodiversity Act 2004 (Act No 10 of 2004) Alien and Invasive Species Regulations, 2014 on file No alien invasive plant species on site	Weekly	Contractor ECO RBMR Environmental Officer	Construction and operation
Visual					
Reduce the potential visual impact because of movement of machinery, the establishment of infrastructure and dust generation	The number of construction vehicles and machinery to be used shall be kept to a minimum.	No complaints from other road users and neighbouring communities	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Where required, all lighting shall be kept to a minimum within the requirements of safety, security and efficiency.	No complaints from neighbouring communities due to light nuisance	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
Noise					
Reduce the potential generation and impact of nuisance noise	Correct Personal Protective Equipment (PPE) must always be worn by the personnel on the construction site.	All personnel must make use of appropriate PPE on site	Daily	Contractor ECO	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
		Compliance with requirements of the OHSA.		RBMR Environmental Officer	
	Establish noise abatement measures for construction vehicles and activities.	No noise complaints from neighbouring communities Proof of use of noise abatement measures where require Compliance with requirements of the OHSA.	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	All equipment should be provided with standard mufflers. Muffling units on vehicles and equipment must be kept in good working order.	No noise complaints from neighbouring communities Compliance with requirements of the OHSA.	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	All equipment must be kept in good working order, with immediate attention being paid to defective silencers, slipping fanbelts, worn bearings and other sources of noise.	No noise complaints from neighbouring communities Compliance with requirements of the OHSA.	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Equipment must be operated within specifications and capacity (e.g. no overloading of machines).	No noise complaints from neighbouring communities Compliance with requirements of the OHSA.	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Regular maintenance of equipment must be undertaken.	No noise complaints from neighbouring communities Proof of regular maintenance of equipment Compliance with requirements of the OHSA.	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Equipment shall be switched off when not in operation.	No noise complaints from neighbouring communities Proof of regular maintenance of equipment	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
		Compliance with requirements of the OHSA.			
	Appropriate directional and intensity settings must be maintained on all hooters and sirens.	No noise complaints from neighbouring communities Proof of regular maintenance of equipment Compliance with requirements of the OHSA. Proof of implementation of directional and intensity settings were required	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
Soils					
Reduce the potential impact on soils because of improper storage and handling of oils, fuels and other hazardous substances Preserve soil resources	No waste or spillage of hazardous material should be allowed in bare soiled areas.	No evidence of chemical and hydrocarbon spillages	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Contaminated soil shall be removed and disposed of to an appropriate licensed landfill site in terms of NEM: WA or can be removed by a service provider that is qualified to clean the soil.	Proof of appointment of service provider to remove and dispose of contaminated soil, including waste manifest No evidence of chemical and hydrocarbon spillage	Daily As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	No field maintenance of equipment shall be permitted.	No maintenance of equipment in the field, outside designated areas	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	Drip trays shall be used when dispensing fuel or oils from the earthmoving equipment outside designated areas.	Drip trays available when dispensing fuel and oils	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
	Drip trays shall only be emptied into a dedicated container.	Proof of availability of dedicated containers available where required	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Dedicated containers must be emptied into containers for removal by an approved contractor.	Proof of agreement with approved contractors for removal of containers dedicated for oil and fuel	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs.	No groundwater contamination because of hydrocarbon and chemical spillages	As and when required Monitor Daily	Contractor ECO RBMR Environmental Officer	Construction
	Regular inspection and maintenance of the surge tanks and associated infrastructure shall be conducted to ensure integrity of the tanks and infrastructure is maintained	Proof of inspection and maintenance	As and when required	Contractor ECO RBMR Environmental Officer	Operation
Traffic					
Reduce the potential impact on traffic because of increased vehicle numbers and the impact on road degradation	Speed limits will be reduced to 40 km/h to reduce dust and noise generation.	No complaints from adjacent landowners and other road users	Daily	Contractor ECO RBMR Environmental Officer	Construction and operation
	All the construction vehicles shall undergo maintenance on a regular basis to ensure the combustion engine vehicle efficiency.	Vehicle maintenance programme developed Proof of vehicle maintenance	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
Waste Management					
Reduce the potential environmental impact	• Waste management will be undertaken in line with the Anglo-	Proof of separation of waste (bins clearly labelled)	As and when required	Contractor	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
because of poor waste management practises	American Platinum's Zero Waste to Landfill (ZW2L) goal throughout all phases of the project where reuse and recycling of waste will be implemented as the first choice, and disposal as a last resort. • Where recycling, reuse and disposal of waste is required, the following shalll apply: *Separation of waste:* • All waste shall be separated into general waste and hazardous waste. • Hazardous waste shall not be mixed with general waste increasing the quantities of hazardous waste to be managed. • General waste can further be separated in waste that can be recycled and/or reused. • No littering shall be allowed in and around the site, enough bins shall be provided for the disposal of waste. • Where necessary dedicate a storage area on site for collection of construction waste.	MSDS available on file No litter on site Comply with the requirements RBMR Waste Management Operational Procedure		ECO RBMR Environmental Officer	
	Storage of waste: • General waste will be collected in an adequate number of litter bins located throughout the construction site. • Bins must have lids to keep rainwater out. • Bins shall be emptied regularly to prevent the bins from overflowing. • All work areas shall always be kept clean and tidy. • All waste management facilities will be maintained in good working order.	No waste storage container located within sensitive environments No waste storage containers located outside demarcated areas No overflowing waste storage containers on site	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
	• Waste shall be stored in demarcated areas according to type of waste. • Runoff from any area demarcated for waste will be contained and managed. • Flammable substances must be kept away from sources of ignition and from oxidizing agents. • No builder's rubble shall be disposed of to the riparian area. • If builder's rubble is not removed immediately it shall be stockpiled outside the 1:100-year floodline and outside the sensitive riparian areas. • Demolition waste and surplus concrete shall be disposed of responsibly. • Waste shall not be buried or burned on site.				
	Disposal of hazardous waste: • No indiscriminate dumping shall be allowed in or near the construction site. • Hazardous containers shall be disposed of at an appropriate licensed site. • Hazardous waste will be removed and managed by an approved service provider. • A safe disposal certificate will be provided by the approved service provider as proof of responsible disposal of hazardous waste. • The safe disposal certificate shall be stored and provided on request.	No waste dumped on site Proof of agreements with service providers for the collection and disposal of hazardous waste MSDS available on file	As and when required	Contractor ECO RBMR Environmental Officer	Construction and operation
	Disposal of general waste:	No waste dumped on site MSDS available on file	As and when required	Contractor ECO	Construction and operation

Objective	Mitigation and management measures and principles	Measurable Targets/Monitoring Outcome	Monitoring Frequency	Responsible Person	Project Stage
	• No dumping shall take place in or near the construction site. • All general waste shall be disposed of to a licensed landfill site. • Demolition waste and builder's rubble shall be disposed of to an appropriate licensed landfill site.			RBMR Environmental Officer	

11 Checking and Corrective Action

Checking and implementing corrective action, should it be required, forms an important component of the EMPr management cycle. These ensure that:

- The required EMPr management conditions are being implemented;
- The desired outcomes are being achieved;
- Ongoing inspections of operational controls and general state of operation; and
- Internal audits to assess the compliance to the EMPr or to focus on a particular performance issue.

Many potential impacts are difficult to monitor quantitatively, such as waste management. However, an ongoing, but pragmatic, inspection regime must be developed that allows potential environmental transgressions to be identified proactively so that mitigation can be quickly and effectively implemented. The main instruments to be used to address non-compliances are the following:

- Verbal instructions – Minor transgressions from an established procedure;
- Written instructions – Normally following an audit; and
- Contract Notice – Following a breech in contract.

12 Environmental Monitoring

All programmes and plans forming part of this document will be subject to monitoring. Monitoring will have two elements, namely: routine monitoring against set standards or performance criteria, and periodic review or evaluation. This will focus on the assessment of the effectiveness of the plan or programme.

Each business unit associated with the proposed surge tanks capacity expansion project, the generation or management of wastes, and contractors working for these business units, will ensure that all equipment is well maintained and fully operational and minimises risk of leaks or spillages.

Monitoring the performance of the project activities in respect of the EMPr during construction will fall under the inspection role of the ECO to be appointed by RBMR.

It is important to note that the RBMR shall remain ultimately responsible for compliance to all the relevant performance criteria, procedures and legislation and should therefore also institute the appropriate monitoring to ensure adherence to the relevant requirements.

The compliance monitoring is to verify that the responsible parties are adhering to the procedures, management conditions, and specifications contained in this EMPr, and associated regulations and EA conditions.

The current monitoring programmes for the RMBR facility (air quality, toxicity, biomonitoring, surface and ground water quality) will be sufficient to cover the monitoring of impacts from the proposed project.

13 Environmental Auditing

The key to a successful EMPr is appropriate monitoring and review to ensure effective functioning of the EMPr and to identify and implement corrective measures in a timely manner. In the event where discrepancies are identified, the problem must be investigated and attended to. All the results obtained during environmental monitoring must be documented for audit purposes.

An audit of the environmental management actions undertaken is essential to ensure that it is effective in operation, is meeting specified goals, and performs in accordance with relevant regulations and standards. Annual internal audits should be conducted during the construction and operational phase of the facility to ensure adherence to the management measures contained in the EMPr.

It is recommended that annual external EMPr audits be conducted for the project during the construction phase and biennially during the operation phase.

14 Environmental Awareness Plan

Anglo American Platinum's Rustenburg Process Division (which includes the RBMR) Environmental Department together with the SHE representatives will ensure that relevant employees are adequately trained on the EMPr requirements as well as the EA conditions. The induction program will include a presentation on the EMPr, and the EA. Records must be kept on all employee trained on the EMPr and those who have undergone the Environmental Awareness induction and safely filed.

Personnel involved in the surge tanks capacity expansion project should be trained on the requirements of the EMPr.

The environmental awareness induction presentation must include the following:

- The importance of adhering to the EMPr and any other management plan compiled in response to this EMPr, as well as the authorised EA and their associated conditions;
- Clear understanding of the key environmental features of the surrounding environment;
- Regulatory requirements of adhering to the EMPr as well as the authorised EA and its associated conditions;
- Environmental benefits of adhering to the EMPr, the authorised EA and its associated conditions, in informing opportunities for continual improvement;
- Roles and responsibilities of individuals when carrying out their work activities;
- Consequences of deviating from set operating procedures; and
- Mitigation measures required to be implemented when carrying out their work activities when a divergence from normal operating condition occurs.

The effectiveness of the environmental awareness training will be reflected in the amount of non–conformances to the EMPr identified during internal and external audits. Should it be envisaged that re-training will be required, the SHE representative will inform RBMR Project Managers of the training requirements and what additional actions will be undertaken.

15 Declaration of Contractor's Acceptance

I, _____, (full name) representing _____, (company name) have read, understood and accept the above environmental management plan as a framework for my company's environmental performance during the above mentioned project.

Signed: _____ Date: _____

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Ndomupei Masawi

Principal Environmental Scientist

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Manda Hinsch

Partner

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.